NWS EHB 6-537
AF TO 31P1-4-108-459-2
NAVY EM400-A4-MMO-010
REVISION NO. 1

TECHNICAL MANUAL

MAINTENANCE INSTRUCTIONS
OPEN PRINCIPAL USER PROCESSOR (OPUP)
MEDIUM/LARGE

DOPPLER METEOROLOGICAL RADAR
WSR-88D

OFFICE OF PRIMARY RESPONSIBILITY:
NATIONAL WEATHER SERVICE RADAR OPERATIONS CENTER

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Page No.	*Change No.	Page No.	*Change No.	Page No.	*Change No.
Cover Page	0	2-54 Blank	0	6-83	0
Title Page	0	2-55 - 2-116	0	6-84 Blank	0
A	0	3-1 - 3-213	0	6-85	0
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xxxii Blank	0	4-1 - 4-13	0	6-87	0
1-1 - 1-5	0	4-14 Blank	0	6-88 Blank	0
1-6 Blank	0	5-1 - 5-113	0	6-89	0
2-1 - 2-19	0	5-114 Blank	0	6-90 Blank	0
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2-24 Blank	0	6-69	0	6-95 - 6-219	0
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2-48 Blank	0	6-75	0	7-11 - 7-28	0
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2-52 Blank	0	6-81	0		
2-53	0	6-82 Blank	0		

*Zero on this column indicates an original page.

TABLE OF CONTENTS

Paragraph	Title	Page
LIST OF ILLUSTRATIONS		xviii
LIST OF TABLES		xxiv
FOREWORD		xxvi
SAFETY SUMMARY		xxviii
CHAPTER 1	**GENERAL INFORMATION**	**1-1**
SECTION 1.1.	INTRODUCTION	1-1
1.1.1	General	1-1
1.1.2	Chapter Organization	1-2
1.1.2.1	OPUP Program Development Organization	1-2
1.1.2.2	WSR-88D Data Distribution Overview	1-2
SECTION 1.2.	SCOPE	1-4
1.2.1	Purpose	1-4
SECTION 1.3.	HARDWARE MAINTENANCE OVERVIEW	1-5
1.3.1	Hardware Maintenance Overview	1-5
1.3.1.1	Maintenance Responsibility	1-5
1.3.1.2	Hardware/Software Repair/Recovery Overview	1-5
1.3.1.2.1	Software Fault Recovery	1-5
1.3.1.2.2	Hardware Fault Recovery	1-5
CHAPTER 2	**HARDWARE GROUP**	**2-1**
SECTION 2.1.	INTRODUCTION	2-1
2.1.1	General	2-1
2.1.2	Chapter Organization	2-1
SECTION 2.2.	EQUIPMENT	2-2
2.2.1	Introduction	2-2
2.2.2	Theory of Operation	2-4
2.2.2.1	Functionality	2-4
2.2.2.2	Narrowband Communications	2-4
2.2.2.3	OPUP Communication Circuits	2-5
2.2.2.3.1	Isolated Communications	2-5
2.2.2.3.2	Non-Isolated Communications	2-5
2.2.2.3.3	Large OPUP Communication Circuit Description and Layout	2-5
2.2.2.3.4	Medium OPUP Communication Circuit Description and Layout	2-7
2.2.2.4	OPUP Group Equipment	2-9

Paragraph	Title	Page
2.2.2.5	Leading Particulars	2-9
2.2.3	Hardware Equipment Description	2-12
2.2.3.1	OPUP Communication/Processor Cabinets	2-12
2.2.3.1.1	Modem Nest UD80A1/A2	2-12
2.2.3.1.2	Communication Router UD80A3	2-13
2.2.3.1.2.1	Internal Dial Module UD80A3A1A1	2-14
2.2.3.1.3	Communication Switch UD80A18	2-14
2.2.3.1.4	Monitor UD80A7	2-14
2.2.3.1.5	Keyboard/Video/Monitor (KVM) Switch UD80A8	2-14
2.2.3.1.6	Keyboard UD80A9/Mouse UD80A10	2-14
2.2.3.1.7	Server UD80A11/12	2-15
2.2.3.1.8	Archive IV Device UD80A4	2-16
2.2.3.1.9	UPS UD80A5/A6/A13/A14	2-16
2.2.3.1.10	Adapter Panel UD80A15/A16/A17	2-17
2.2.3.1.11	Telco Patch Panel UD80A19/A20/A21	2-17
2.2.3.1.12	Printer UD80A22	2-17
2.2.3.1.13	Printer Setup/Connectivity Overview	2-18
2.2.3.2	OPUP Display Workstation UD85	2-18
2.2.3.3	Configuration Drawings	2-19
2.2.3.4	Large OPUP Interconnection Diagram (ICD) Discussion	2-25
2.2.3.4.1	AC Power Supply	2-25
2.2.3.4.2	Processes	2-26
2.2.3.4.3	Communications	2-28
2.2.3.4.4	Display Workstation UD85 Cable Connectivity	2-36
2.2.3.5	Medium OPUP Interconnection Diagram (ICD) Discussion	2-41
2.2.3.5.1	AC Power Supply	2-41
2.2.3.5.2	Processes	2-42
2.2.3.5.3	Communications	2-42
2.2.3.5.4	Display Workstation UD85 Cable Connectivity	2-45
SECTION 2.3.	CONTROLS AND INDICATORS	2-55
2.3.1	General	2-55
2.3.2	Large/Medium Equipment Group UD80	2-55
2.3.2.1	OPUP LRU Equipment Location	2-55
2.3.2.2	Other LRU Equipment	2-56
2.3.2.3	Modem Rack UD80A1 and UD80A2	2-57
2.3.2.3.1	Modem Rack Abnormal Indicators	2-59
2.3.2.4	Dedicated Modems UD80A1A1-A21 and UD80A2A1-A11	2-59
2.3.2.4.1	Dedicated Modems UD80A1A1-A21 and UD80A2A1-A11	2-62
2.3.2.5	Communication Router UD80A3 (Large OPUP)	2-62
2.3.2.5.1	Communication Router Abnormal Indicators	2-69
2.3.2.6	Communication Router UD80A3 (Medium OPUP)	2-69
2.3.2.6.1	Communication Router Abnormal Indicators	2-73

Paragraph	Title	Page
2.3.2.7	Archive IV Device UD80A4	2-74
2.3.2.7.1	Archive IV Device UD80A4 Abnormal Indicators	2-77
2.3.2.8	UPS UD80A5/A6/A13/A14	2-77
2.3.2.8.1	UPS Abnormal Indicators	2-83
2.3.2.9	Monitor UD80A7	2-84
2.3.2.9.1	Monitor Abnormal Indicators	2-86
2.3.2.10	KVM Switch UD80A8	2-86
2.3.2.10.1	KVM Switch Abnormal Indicators	2-89
2.3.2.11	Keyboard UD80A9 and Mouse UD80A10 Set	2-89
2.3.2.11.1	Keyboard/Mouse Abnormal Indicators	2-91
2.3.2.12	Servers UD80A11/A12	2-91
2.3.2.12.1	Server Abnormal Indicators	2-97
2.3.2.13	Dedicated/Dial Adapter Panels UD80A15/A16/A17	2-97
2.3.2.13.1	Dedicated/Dial Adapter Panels Abnormal Indicators	2-97
2.3.2.14	Communication Switch UD80A18	2-97
2.3.2.14.1	Communication Switch Abnormal Indicators	2-100
2.3.2.15	Dedicated Patch Panels UD80A19/A20/A21	2-100
2.3.2.15.1	Dedicated/Dial Patch Panel Abnormal Indicators	2-101
2.3.2.16	Printer UD80A22	2-102
2.3.2.16.1	Printer Abnormal Indicators	2-104
2.3.3	Display Workstation UD85	2-104
2.3.3.1	Display Workstation Monitor UD85A1	2-104
2.3.3.1.1	Monitor Abnormal Indicators	2-107
2.3.3.2	Display Workstation CPU/Processor UD85A2	2-107
2.3.3.2.1	Display Workstation CPU/Processor Abnormal Indicators	2-109
2.3.3.3	Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set	2-109
2.3.3.3.1	Display Workstation Keyboard/Mouse Abnormal Indicators	2-112
SECTION 2.4.	REFERENCE DATA	2-113
2.4.1	General	2-113
2.4.2	Glossary of Terms	2-113
2.4.3	Equipment Supplied	2-113
2.4.3.1	Commercial-Off-The-Shelf (COTS) Equipment	2-113
2.4.3.2	Legacy Equipment	2-113
2.4.4	Documentation and Tools	2-113
2.4.4.1	Applicable Reference Material	2-114
2.4.4.2	Standard Tools/Test Equipment	2-115

Paragraph	Title	Page
CHAPTER 3	**SOFTWARE DESCRIPTION**	**3-1**
SECTION 3.1.	INTRODUCTION	3-1
3.1.1	General	3-1
3.1.2	Chapter Organization	3-2
SECTION 3.2.	KEYBOARD AND MOUSE FUNCTIONS	3-3
3.2.1	Keyboard and Mouse Layout Features	3-3
3.2.1.1	Keyboard Functionality	3-3
3.2.1.2	Alphanumeric Key Layout	3-3
3.2.1.3	Numeric Keypad	3-5
3.2.1.4	Miscellaneous Keys	3-5
3.2.1.4.1	Caps Lock Key	3-5
3.2.1.4.2	Power Key	3-6
3.2.1.5	Mouse Functionality	3-6
3.2.1.5.1	Left Mouse Button	3-6
3.2.1.5.2	Middle Mouse Button	3-6
3.2.1.5.3	Right Mouse Button	3-6
SECTION 3.3.	OPUP SOFTWARE DESCRIPTION	3-7
3.3.1	Introduction	3-7
3.3.2	Common Desktop Environment	3-7
3.3.2.1	Common CDE and Operational Applications Front Panel GUI Functions	3-8
3.3.2.1.1	Windows	3-8
3.3.2.1.2	Workspaces	3-9
3.3.2.1.3	Controls	3-9
3.3.2.1.4	Menus	3-9
3.3.2.1.5	CDE and Operational Applications Front Panel Icon Overview	3-9
3.3.3	OPUP Software	3-12
3.3.3.1	OPUP Manager GUI Functionality/Operational Concepts	3-13
3.3.3.2	Login Procedures (All)	3-21
3.3.3.2.1	Screen Saver/Terminal Lockout Activation and Recovery	3-21
3.3.3.2.2	CDE Front Panel Login Procedures	3-22
3.3.3.2.3	Operational Applications Login Procedures	3-23
3.3.3.3	OPUP Manager Main Menu and Sub-Menu GUI Features	3-23
3.3.3.3.1	Terminal Window Access	3-24
3.3.3.3.2	Common Command Buttons	3-25
3.3.3.3.2.1	Save	3-25
3.3.3.3.2.2	Reset Form	3-25
3.3.3.3.2.3	Next	3-25

Paragraph	Title	Page
3.3.3.3.2.4	Return to Last Screen	3-25
3.3.3.3.2.5	Return to Main Menu	3-25
3.3.3.4	OPUP Software Menu	3-25
3.3.3.4.1	Start OPUP	3-26
3.3.3.4.2	Stop OPUP	3-26
3.3.3.4.3	Restart OPUP	3-26
3.3.3.4.4	OPUP Process Status	3-26
3.3.3.4.5	Edit OPUP Adaptation Data	3-27
3.3.3.4.6	OPUP Communication Configuration	3-28
3.3.3.4.7	OPUP Software Version	3-31
3.3.3.4.8	Available Products in Database (Oldest/Newest)	3-32
3.3.3.4.9	Purge All RPG Products	3-33
3.3.3.4.10	Purge Particular RPG Products	3-34
3.3.3.5	OPUP Users Menu	3-36
3.3.3.5.1	User Name and Password Composition	3-36
3.3.3.5.2	Add New User	3-37
3.3.3.5.3	Delete User	3-38
3.3.3.5.4	Change User Password	3-38
3.3.3.5.4.1	User Menu Limitation	3-39
3.3.3.5.5	View OPUP Users	3-39
3.3.3.6	OPUP Security Logs Menu	3-40
3.3.3.6.1	Start/Stop Logging of Failed-Logins	3-42
3.3.3.6.2	View Failed-Login Attempts	3-42
3.3.3.6.3	View Access Log	3-43
3.3.3.6.4	View Last Logins	3-44
3.3.3.6.5	View SU Logs	3-45
3.3.3.7	OPUP Workstation Menu	3-47
3.3.3.7.1	Add New Workstation	3-47
3.3.3.7.2	Delete Workstation	3-49
3.3.3.7.3	View OPUP Workstations	3-50
3.3.3.7.4	OPUP Workstation Menu Limitations	3-51
3.3.3.8	OPUP Archive Menu	3-51
3.3.3.8.1	OPUP Archive Menu Function Limitations	3-53
3.3.3.8.2	Check Products Archive	3-53
3.3.3.8.3	Create Products Archive	3-54
3.3.3.8.4	Restore Products Archive	3-55
3.3.3.8.5	Erase Products Archive	3-55
3.3.3.8.6	Check Savelog Archive	3-57
3.3.3.8.7	Create Savelog Archive	3-58
3.3.3.8.8	Erase Savelog Archive	3-59
3.3.3.8.9	Check Content of CD-ROM	3-61
3.3.3.8.10	Erase CD-R/W	3-63
3.3.3.9	OPUP Server Control Menu	3-64

Paragraph	Title	Page

3.3.3.9.1 Display Disk Usage 3-64
3.3.3.9.2 Backup/Restore Tools 3-65
3.3.3.9.3 Printer Tools 3-67
3.3.3.9.3.1 Add New Printer 3-68
3.3.3.9.3.2 Delete Printer 3-69
3.3.3.9.3.3 Printer Status 3-70
3.3.3.9.3.4 Printer Jobs 3-70
3.3.3.9.3.5 Delete Print Jobs 3-70
3.3.3.9.3.6 Change Default Printer 3-70
3.3.3.9.4 CISCO Control Menu 3-70
3.3.3.9.4.1 Change CISCO Password 3-71
3.3.3.9.4.2 Restart CISCO 3-72
3.3.3.9.5 FTP Server Menu 3-73
3.3.3.9.5.1 Add FTP Server 3-73
3.3.3.9.5.2 Delete FTP Server 3-75
3.3.3.9.5.3 View FTP Server 3-75
3.3.3.9.6 Oracle Tools 3-76
3.3.3.9.6.1 Recreate Oracle Database 3-76
3.3.3.9.6.2 Change Application Security Passwords 3-77
3.3.3.9.7 Default Route Configuration 3-78
3.3.3.9.7.1 Add/Remove Default Route 3-79
3.3.3.9.7.2 View Default Route 3-80
3.3.3.9.8 Validation Test Suite (VTS) Tools 3-81
3.3.3.9.8.1 SunVTS Diagnostic Window Description 3-82
3.3.3.9.9 Restart/Shutdown Server 3-83
3.3.3.10 Operational Applications Front Panel GUIs 3-84
3.3.3.10.1 Product Display Graphic Users Interface (PDGUI) 3-85
3.3.3.10.1.1 Toolbox Window 3-85
3.3.3.10.1.2 Alert Registration Window 3-85
3.3.3.10.2 Status & Control GUI 3-86
3.3.3.10.2.1 Product Requests GUI 3-87
3.3.3.10.2.2 Alert Requests GUI 3-88
3.3.3.10.2.3 OPUP Control Window 3-89
3.3.3.10.2.4 Background Map Description 3-89
3.3.3.10.2.5 Map Edit GUI 3-89
3.3.3.10.2.6 Adaptation GUI 3-90
3.3.3.10.2.7 Autodial GUI 3-91
3.3.3.10.2.8 Archive GUI 3-92
3.3.3.10.2.9 Restore GUI 3-92
3.3.3.10.3 Archive Product Display GUI 3-93
3.3.3.10.4 Archive Status Log Terminal GUI 3-93

Paragraph	Title	Page
SECTION 3.4.	OPUP SOFTWARE BACKGROUND PROCESS DESCRIPTION	3-94
3.4.1	Introduction	3-94
3.4.2	OPUP Server OS Infrastructure	3-94
3.4.2.1	Linear Buffers (LBs)	3-94
3.4.2.2	Background Processes Status Information	3-95
3.4.2.2.1	Large OPUP Configuration Process Status Display	3-95
3.4.2.2.2	Medium OPUP Configuration Process Status Display	3-97
3.4.2.2.3	Display Workstation Process Status Display	3-98
3.4.2.2.4	Background Status Process Breakdown	3-98
3.4.2.2.5	Message Control Unit (MCU)/Dial MCU (DMCU)	3-98
3.4.2.2.6	Purge Database/Purge Distribution Products	3-99
3.4.2.2.7	Alert Server	3-99
3.4.2.2.8	Terminator Server	3-99
3.4.2.2.9	Product Server	3-99
3.4.2.2.10	FTP Server	3-100
3.4.2.2.11	NITF Server	3-100
3.4.2.2.12	NEXRAD Server	3-100
3.4.2.2.13	PNG Server	3-100
3.4.2.2.14	OTR Server	3-100
3.4.2.2.15	Communications Manager (cm_tcp)	3-100
3.4.2.2.16	Remote System Services Daemon	3-100
3.4.2.2.17	OPUP Operational Application GUI Processes	3-100
SECTION 3.5.	OPUP SOFTWARE INSTALLATION PROCEDURES	3-102
3.5.1	Introduction	3-102
3.5.2	Basic Software Installation Theory	3-102
3.5.2.1	Software Installation Assumptions	3-103
3.5.3	Software Installation Requirements	3-103
3.5.3.1	Hard Drive Utilization	3-103
3.5.3.1.1	Hard Drive Slice Allocation	3-104
3.5.3.2	Required Software	3-106
3.5.3.3	Required Software Input Parameters and Input Cable	3-106
3.5.4	OPUP Software Installation Procedure	3-109
3.5.4.1	Software Installation Prerequisites/Preconditions	3-109
3.5.4.2	Software Load Procedure	3-110
3.5.4.3	Software Installation Recovery Procedures	3-183
3.5.4.3.1	Recovery Determination	3-183
SECTION 3.6.	OPUP SOFTWARE DEVELOPMENT BACKGROUND	3-187
3.6.1	Introduction	3-187
3.6.2	Open System Architecture	3-187

Paragraph	Title	Page
3.6.3	OPUP Development Standards	3-187
3.6.3.1	OPUP Product Display GUIs/Active X Windows	3-188
3.6.4	OPUP UNIX OS	3-188
3.6.4.1	UNIX Boot Sequence	3-188
3.6.4.1.1	Boot PROM	3-189
3.6.4.1.1.1	NVRAM	3-189
3.6.4.1.1.2	Power-On-Self-Test (POST)	3-190
3.6.4.1.2	Boot Programs (PROM (OPENBoot) User Commands)	3-190
3.6.4.1.2.1	OPENBoot Device Tree File System	3-192
3.6.4.1.3	Kernel Initialization	3-193
3.6.4.1.3.1	UNIX Shell	3-193
3.6.4.1.3.2	UNIX File System	3-194
3.6.4.1.3.3	File Naming Conventions	3-194
3.6.4.1.3.4	Absolute and Relative Paths	3-194
3.6.4.1.4	The Final Init Phase	3-195
3.6.4.1.4.1	Boot Initialization Display Sequence	3-195
3.6.4.1.5	Solaris OS INIT Levels	3-198
3.6.5	System Administrative Tools	3-199
3.6.5.1	Operating System User Modes	3-199
3.6.5.1.1	Common Desktop Environment Logins	3-199
3.6.5.1.2	Remote Login	3-199
3.6.5.2	Operating System Prompts	3-200
3.6.5.3	Control Keys	3-200
3.6.5.4	Help Utilities	3-200
3.6.5.4.1	Sun Solaris OS Help and AnswerBook2	3-200
3.6.5.4.2	Command Line Help Utility MAN Pages	3-200
3.6.5.5	The vi Editor	3-201
3.6.5.5.1	Operational Modes of vi	3-201
3.6.5.5.2	Using the vi Editor to Create or Modify a File	3-201
3.6.5.5.3	vi Editor Command Table	3-202
3.6.6	Common UNIX Commands	3-203
CHAPTER 4	**OPUP SYSTEM SECURITY**	**4-1**
SECTION 4.1.	INTRODUCTION	4-1
4.1.1	General	4-1
4.1.2	Chapter Organization	4-1
SECTION 4.2.	SYSTEM SECURITY	4-2
4.2.1	Overview	4-2
4.2.2	Definition of Terms and Services	4-2
4.2.2.1	Accountability and Audit	4-2

Paragraph	Title	Page
4.2.2.2	Discretionary Access Control (DAC)	4-2
4.2.2.3	Trusted Facility Operations (TFO)	4-2
4.2.2.4	Identification and Authentication (I&A)	4-2
4.2.2.5	Files, Directories, and Permissions	4-3
SECTION 4.3.	THREATS AND VULNERABILITIES	4-4
4.3.1	Overview	4-4
4.3.2	Countermeasures	4-4
4.3.3	Assumptions	4-4
4.3.4	Separation of Administrative Roles	4-4
4.3.4.1	User Requirements	4-4
4.3.4.2	OPUP System Administrator Requirements	4-5
SECTION 4.4.	SYSTEM SECURITY POLICY	4-6
4.4.1	Overview	4-6
4.4.2	Protection Mechanisms Available to Users	4-6
4.4.2.1	System Access	4-6
4.4.2.2	User Name and Password Security	4-6
4.4.2.2.1	Password Composition	4-7
4.4.2.2.2	Password Aging and Management	4-7
4.4.2.2.3	Username Uniqueness	4-8
4.4.2.2.4	User Name Composition	4-8
4.4.2.3	Warning Banner (Consent to Monitoring)	4-9
4.4.2.4	Incident Response	4-9
4.4.2.5	Monitor Display Security Features	4-9
4.4.3	Protection Mechanisms Available to OPUP System Administrators	4-10
4.4.3.1	Identification and Authentication Functions	4-10
4.4.3.2	Audit	4-10
4.4.3.3	Routine Operations	4-10
4.4.3.3.1	Accounts	4-10
4.4.3.3.2	Security Relevant Files and Directories	4-10
4.4.3.3.3	Default User Permissions	4-11
4.4.3.3.4	Backup and System Recovery	4-11
4.4.3.3.5	System Shutdown	4-11
4.4.4	Configuration Management Policy	4-12
4.4.5	Software Security Patches	4-12
4.4.6	Incident Handling	4-12
4.4.6.1	Incident Definition	4-12
4.4.6.2	Response	4-12
4.4.7	Physical Resource Protection	4-12
4.4.7.1	UPS Protection	4-13
4.4.8	Maintenance Remote Access	4-13

Paragraph	Title	Page
CHAPTER 5	**OPUP SYSTEM ADMINISTRATION**	**5-1**
SECTION 5.1.	INTRODUCTION	5-1
5.1.1	General	5-1
5.1.2	Chapter Organization	5-1
SECTION 5.2.	OPUP SYSTEM ADMINISTRATION	5-2
5.2.1	Introduction	5-2
5.2.2	OPUP Hardware Power On/Off Procedures	5-2
5.2.2.1	Large/Medium OPUP Power On Procedure	5-2
5.2.2.1.1	Display Workstation UD85 Power On Procedure	5-4
5.2.2.2	Power Off Procedure	5-5
5.2.3	Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation)	5-6
5.2.3.1	OPUP Manager GUI Login Procedure	5-6
5.2.3.2	Operational Applications Front Panel Login Procedure	5-7
5.2.3.3	Screen Saver/Terminal Lockout Activation and Recovery	5-7
5.2.3.4	System Time Check Procedure	5-8
5.2.4	OPUP Software Menu Functions	5-10
5.2.4.1	Start OPUP Software	5-11
5.2.4.2	Stop OPUP Software	5-12
5.2.4.3	Restart OPUP Software	5-13
5.2.4.4	View OPUP Software Process Status	5-14
5.2.4.5	Edit OPUP Adaptation Data (Dial Communications)	5-15
5.2.4.6	Display OPUP Communications Configuration (Dedicated Communications)	5-18
5.2.4.6.1	Change Existing Dedicated RPG Adaptation Data	5-21
5.2.4.6.2	Add Dedicated RPG Adaptation Configuration Data	5-26
5.2.4.7	OPUP Software Version	5-29
5.2.4.8	Available Products in Database (Oldest/Newest)	5-29
5.2.4.9	Purge All/Particular RPG Products Procedure	5-29
5.2.4.9.1	Purge All RPG Products	5-30
5.2.4.9.2	Purge Particular RPG Products	5-30
5.2.5	OPUP Users Menu Functions	5-31
5.2.5.1	Add New User	5-32
5.2.5.2	Delete OPUP User	5-35
5.2.5.3	Change User Password	5-36
5.2.5.4	View OPUP Users	5-38
5.2.5.5	Lost Passwords	5-38
5.2.5.5.1	User Name Password Recovery	5-39
5.2.5.5.2	OPUPMGR Password Recovery	5-39
5.2.5.5.3	Root Password Recovery	5-40

Paragraph	Title	Page
5.2.6	OPUP Security Log Functions	5-40
5.2.6.1	Start or Stop Logging of Failed-Logins	5-41
5.2.6.2	Security Logs Menu View Functions	5-42
5.2.7	OPUP Workstation Menu	5-42
5.2.7.1	Workstation Limitations	5-43
5.2.7.1.1	Determining Display Workstation UD85 or Display Server UD80A12 Input Information	5-44
5.2.7.2	Add New Workstation	5-44
5.2.7.3	Delete Workstation	5-47
5.2.7.4	View OPUP Workstations	5-49
5.2.8	OPUP Archive Menu	5-50
5.2.8.1	Archive IV Limitations	5-51
5.2.8.2	Check Products Archive	5-52
5.2.8.3	Create Products Archive	5-53
5.2.8.4	Restore Products Archive	5-56
5.2.8.5	Erase Products Archive	5-60
5.2.8.6	Check Savelog Archive	5-62
5.2.8.7	Create Savelog Archive	5-63
5.2.8.8	Erase Savelog Archive	5-66
5.2.8.9	Check Content of CD-ROM	5-68
5.2.8.10	Erase CD-R/W	5-69
5.2.9	OPUP Server Control	5-70
5.2.9.1	Display Disk Usage	5-70
5.2.9.2	Backup/Restore Tools Menu	5-71
5.2.9.2.1	Backup OPUP Configuration and Adaptation Data	5-72
5.2.9.2.2	Restore OPUP User Configuration Data	5-75
5.2.9.2.3	Restore OPUP Communications Configuration from CD-ROM	5-76
5.2.9.2.4	Rebuild OPUP Communications Configuration from Server	5-78
5.2.9.2.5	Restore OPUP Adaptation Data	5-80
5.2.9.3	Printer Tools	5-85
5.2.9.3.1	OPUP Printer Limitations	5-86
5.2.9.3.2	Add New Printer	5-86
5.2.9.3.3	Delete Printer	5-87
5.2.9.3.4	Printer Status	5-88
5.2.9.3.5	Print Jobs	5-89
5.2.9.3.6	Delete Print Jobs	5-90
5.2.9.3.7	Change Default Printer	5-91
5.2.9.4	CISCO Control Menu	5-92
5.2.9.4.1	Change CISCO Password	5-93
5.2.9.4.2	Restart Communication Router UD80A3	5-94
5.2.9.5	Oracle Tools Menu	5-95
5.2.9.5.1	Recreate Oracle Database	5-96
5.2.9.5.2	Change Application Security Passwords	5-97

Paragraph	Title	Page
5.2.9.6	Default Route Configuration Menu	5-100
5.2.9.6.1	Add Default Route	5-101
5.2.9.6.2	Remove Default Route	5-102
5.2.9.6.3	View Default Route	5-103
5.2.9.7	Validation Test Suite (VTS)	5-104
5.2.9.7.1	Start VTS Tool	5-104
5.2.9.7.2	Perform a VTS Diagnostic Function	5-106
5.2.9.8	Restart Server	5-109
5.2.9.8.1	OPUP Restart Server Procedures	5-109
5.2.9.9	Shutdown Server	5-111
5.2.9.9.1	OPUP Shutdown Server Procedures	5-112
CHAPTER 6	**MAINTENANCE**	**6-1**
SECTION 6.1.	INTRODUCTION	6-1
6.1.1	General	6-1
6.1.1.1	Maintenance Concept	6-1
6.1.1.2	On-Line Status and Performance Monitoring	6-2
6.1.1.3	Recovery Procedures	6-2
6.1.2	Preventive Maintenance Procedures	6-2
6.1.3	Primary Fault Isolation and Operational Checks	6-3
6.1.4	Secondary Fault Isolation	6-3
6.1.5	Corrective Maintenance	6-3
6.1.6	Alignments and Adjustments	6-4
6.1.7	Component Location and Identification	6-4
6.1.7.1	Use of Commercial Manuals	6-4
6.1.7.2	Maintenance Tools and Consumables	6-4
6.1.8	System Startup and Shutdown Procedures	6-4
6.1.9	Diagnostic Test Program Procedures	6-5
SECTION 6.2.	PREVENTIVE MAINTENANCE	6-6
6.2.1	Large/Medium OPUP UD80 and Display Workstation UD85 Preventive Maintenance	6-6
SECTION 6.3.	PRIMARY FAULT ISOLATION	6-7
6.3.1	Introduction	6-7
6.3.2	Fault Isolation Flowchart	6-7
6.3.2.1	Operational Check	6-7
6.3.2.2	Quick Reference Sheet	6-7
6.3.2.3	System Fault Isolation	6-7
6.3.2.4	Flowchart Layout	6-7

Paragraph	Title	Page
6.3.3	Primary Fault Isolation Flowchart Notes	6-8
6.3.3.1	Flowchart Note Index	6-8
6.3.3.2	Flowchart Notes	6-10
SECTION 6.4.	SECONDARY FAULT ISOLATION	6-95
6.4.1	Introduction	6-95
6.4.2	Secondary Fault Isolation One (OPUP1)	6-95
6.4.2.1	Normal Operations	6-96
6.4.2.2	Abnormal Operations	6-97
6.4.3	Secondary Fault Isolation Two (OPUP2)	6-97
6.4.3.1	Normal Operations	6-97
6.4.3.2	Abnormal Operations	6-97
SECTION 6.5.	REMOVE AND REPLACE PROCEDURES	6-100
6.5.1	Introduction	6-100
6.5.1.1	DIP Switches/Jumpers	6-100
6.5.2	LRU Replacement Index	6-100
6.5.3	Other LRU Replacement Guidelines	6-102
6.5.3.1	Safety	6-102
6.5.3.2	Software Shutdown Procedures	6-102
6.5.3.3	Power Turn-Off Procedures	6-102
6.5.3.4	Labeling	6-102
6.5.3.5	Inspection	6-102
6.5.3.6	Related Procedures	6-103
6.5.3.7	Handling of Electrostatic Sensitive Devices (ESD)	6-103
6.5.3.7.1	Internal Component Removal/Installation	6-103
6.5.3.8	ESD DIP Switch Setting	6-103
6.5.4	Modem Rack UD80A1 or UD80A2 Replacement Procedure	6-104
6.5.4.1	Equipment and Tools Required	6-104
6.5.4.2	Initial Conditions/Preliminary Setup	6-104
6.5.4.3	Replacement Procedure	6-106
6.5.5	Dedicated Modem UD80A1A1-A21 or UD80A2A1-A11 Replacement Procedure	6-110
6.5.5.1	Equipment and Tools Required	6-110
6.5.5.2	Initial Conditions/Preliminary Setup	6-110
6.5.5.3	Replacement Procedure	6-110
6.5.6	Modem Rack Fan Module UD80A1B1/A2B1 and Power Supply UD80A1PS1/PS2 and UD80A2PS1/PS2 Replacement Procedure	6-113
6.5.6.1	Equipment and Tools Required	6-113
6.5.6.2	Initial Conditions/Preliminary Setup	6-113
6.5.6.3	Replacement Procedure	6-114
6.5.7	Communication Router UD80A3 Replacement Procedure	6-116

Paragraph	Title	Page
6.5.7.1	Equipment and Tools Required	6-117
6.5.7.2	Initial Conditions/Preliminary Setup	6-117
6.5.7.3	Replacement Procedure	6-117
6.5.8	Communication Router Power Supply UD80A3PS1/PS2 Replacement Procedure (Large OPUP only)	6-121
6.5.8.1	Equipment and Tools Required	6-122
6.5.8.2	Initial Conditions/Preliminary Setup	6-122
6.5.8.3	Replacement Procedure	6-122
6.5.9	Archive IV Device UD80A4 Replacement Procedure	6-123
6.5.9.1	Equipment and Tools Required	6-123
6.5.9.2	Initial Conditions/Preliminary Setup	6-123
6.5.9.3	Replacement Procedure	6-125
6.5.10	UPS UD80A5/A6/A13/A14 Replacement Procedure	6-126
6.5.10.1	Equipment and Tools Required	6-126
6.5.10.2	Initial Conditions/Preliminary Setup	6-127
6.5.10.3	Replacement Procedure	6-127
6.5.10.3.1	Large OPUP UPS UD80A5 Replacement Procedure	6-128
6.5.10.3.2	Large OPUP UPS UD80A6 Replacement Procedure	6-130
6.5.10.3.3	Large OPUP UPS UD80A13 Replacement Procedure	6-133
6.5.10.3.4	Large OPUP UPS UD80A14 Replacement Procedure	6-135
6.5.10.3.5	Medium OPUP UPS UD80A6 Replacement Procedure	6-137
6.5.10.3.6	Medium OPUP UPS UD80A14 Replacement Procedure	6-140
6.5.11	UPS Battery UD80A5/A6/A13/A14BT1 Replacement Procedure	6-142
6.5.11.1	Equipment and Tools Required	6-142
6.5.11.2	Initial Conditions/Preliminary Setup	6-142
6.5.11.3	Replacement Procedure	6-143
6.5.12	Monitor UD80A7 Replacement Procedure	6-143
6.5.12.1	Equipment and Tools Required	6-143
6.5.12.2	Initial Conditions/Preliminary Setup	6-143
6.5.12.3	Replacement Procedure	6-144
6.5.13	KVM Switch UD80A8 Replacement Procedure	6-145
6.5.13.1	Equipment and Tools Required	6-146
6.5.13.2	Initial Conditions/Preliminary Setup	6-146
6.5.13.3	Replacement Procedure	6-146
6.5.14	KVM Switch AC/DC Adapter UD80A8PS1 Replacement Procedure	6-148
6.5.14.1	Equipment and Tools Required	6-148
6.5.14.2	Initial Conditions/Preliminary Setup	6-148
6.5.14.3	Replacement Procedure	6-148
6.5.15	Keyboard UD80A9 Replacement Procedure	6-149
6.5.15.1	Equipment and Tools Required	6-149
6.5.15.2	Initial Conditions/Preliminary Setup	6-149

Paragraph	Title	Page
6.5.15.3	Replacement Procedure	6-149
6.5.16	Mouse UD80A10 Replacement Procedure	6-150
6.5.16.1	Equipment and Tools Required	6-150
6.5.16.2	Initial Conditions/Preliminary Setup	6-150
6.5.16.3	Replacement Procedure	6-151
6.5.17	Server UD80A11/UD80A12 Replacement Procedure	6-151
6.5.17.1	Equipment and Tools Required	6-151
6.5.17.2	Initial Conditions/Preliminary Setup	6-152
6.5.17.3	Replacement Procedure	6-153
6.5.18	Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2 Replacement Procedure	6-157
6.5.18.1	Equipment and Tools Required	6-157
6.5.18.2	Initial Conditions/Preliminary Setup	6-157
6.5.18.3	Replacement Procedure	6-158
6.5.19	Server Power Supply UD80A11PS1/PS2 and UD80A12PS1/PS2 Replacement Procedure	6-159
6.5.19.1	Equipment and Tools Required	6-159
6.5.19.2	Initial Conditions/Preliminary Setup	6-159
6.5.19.3	Replacement Procedure	6-160
6.5.20	Adapter Panel UD80A15/16/17 Replacement Procedure	6-160
6.5.20.1	Equipment and Tools Required	6-160
6.5.20.2	Initial Conditions/Preliminary Setup	6-161
6.5.20.3	Replacement Procedure	6-161
6.5.21	Communication Switch UD80A18 Replacement Procedure	6-161
6.5.21.1	Equipment and Tools Required	6-161
6.5.21.2	Initial Conditions/Preliminary Setup	6-161
6.5.21.3	Replacement Procedure	6-162
6.5.22	Patch Panel UD80A19/A20/A21 Replacement Procedure	6-164
6.5.22.1	Equipment and Tools Required	6-164
6.5.22.2	Initial Conditions/Preliminary Setup	6-164
6.5.22.3	Replacement Procedure	6-164
6.5.23	Printer UD80A22 Replacement Procedure.	6-165
6.5.23.1	Equipment and Tools Required	6-165
6.5.23.2	Initial Conditions/Preliminary Setup	6-165
6.5.23.3	Replacement Procedure.	6-165
6.5.24	Display Workstation Monitor UD85A1 Replacement Procedure	6-168
6.5.24.1	Equipment and Tools Required	6-168
6.5.24.2	Initial Conditions/Preliminary Setup	6-168
6.5.24.3	Replacement Procedure	6-169
6.5.25	Display Workstation CPU/Processor UD85A2 Replacement Procedure	6-169
6.5.25.1	Equipment and Tools Required	6-169
6.5.25.2	Initial Conditions/Preliminary Setup	6-169

Paragraph	Title	Page
6.5.25.3	Replacement Procedure	6-170
6.5.26	Display Workstation Keyboard UD85A3 and Mouse UD85A4 Replacement Procedure	6-170
6.5.26.1	Equipment and Tools Required	6-170
6.5.26.2	Initial Conditions/Preliminary Setup	6-171
6.5.26.3	Replacement Procedure	6-171
SECTION 6.6.	SETUP PROCEDURES	6-172
6.6.1	Introduction	6-172
6.6.2	Dedicated Modem Setup Procedure UD80A1A1-A21 and UD80A2A1-A11	6-173
6.6.2.1	Equipment and Tools Required	6-173
6.6.2.2	Initial Conditions/Preliminary Setup	6-173
6.6.2.3	Procedure	6-174
6.6.2.4	Menu Listing	6-181
6.6.3	Communication Router UD80A3 Setup Procedure	6-183
6.6.3.1	Equipment and Tools Required	6-183
6.6.3.2	Initial Conditions/Preliminary Setup	6-183
6.6.3.3	Configuration Procedure	6-186
6.6.4	Server UD80A11 and UD80A12 Setup Procedure	6-196
6.6.4.1	Equipment and Tools Required	6-196
6.6.4.2	Initial Conditions/Preliminary Setup	6-196
6.6.4.3	Server Configuration Procedure	6-198
6.6.5	Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2 Setup Procedure	6-198
6.6.5.1	Equipment and Tools Required	6-198
6.6.5.2	Initial Conditions/Preliminary Setup	6-199
6.6.5.3	Internal Hard Drive Configuration Procedure	6-200
6.6.6	Communication Switch UD80A18 Setup Procedure	6-201
6.6.6.1	Equipment and Tools Required	6-201
6.6.6.2	Initial Conditions/Preliminary Setup	6-201
6.6.6.3	Communication Switch Initial Configuration Procedure	6-203
6.6.7	Printer UD80A22 Setup Procedure	6-209
6.6.7.1	Equipment and Tools Required	6-209
6.6.7.2	Initial Conditions/Preliminary Setup	6-209
6.6.7.3	Procedure (Phaser 8200)	6-210
6.6.7.4	Procedure (Phaser 8400)	6-213
6.6.8	Display Workstation CPU/Processor UD85A2 Setup Procedure	6-216
6.6.8.1	Equipment and Tools Required	6-216
6.6.8.2	Initial Conditions/Preliminary Setup	6-216
6.6.8.3	Setup Procedure (For CPU/Processor Replacement)	6-217

Paragraph	Title	Page
CHAPTER 7	**ILLUSTRATED PARTS BREAKDOWN**	**7-1**
SECTION 7.1.	INTRODUCTION	7-1
7.1.1	General	7-1
7.1.2	Chapter Organization	7-1
SECTION 7.2.	LARGE AND MEDIUM OPUP ILLUSTRATED	7-2
7.2.1	Overview	7-2
7.2.2	Arrangement	7-2
7.2.3	Definition of Terms and Services	7-2
7.2.3.1	Large and Medium OPUP Configuration Description	7-2
7.2.3.2	Drawing Break Down	7-2
7.2.3.3	Cable Assemblies/Maintenance Parts List Tables	7-2
7.2.3.3.1	Cable Assemblies Table	7-3
7.2.3.3.1.1	Index Number	7-3
7.2.3.3.1.2	Reference Designators (REF DES)	7-3
7.2.3.3.1.3	From/To	7-3
7.2.3.3.1.4	Usable On Code	7-3
7.2.3.3.2	Maintenance Part List (MPL)	7-3
7.2.3.3.2.1	Figure and Index Number (Figure and Index No.)	7-3
7.2.3.3.2.2	Reference Designators (REF DES)	7-3
7.2.3.3.2.3	Part Number	7-3
7.2.3.3.2.4	Indent	7-4
7.2.3.3.2.5	Description	7-4
7.2.3.3.2.6	CAGE Code	7-4
7.2.3.3.2.7	Quantity Per Assembly (QTY PER ASSY)	7-4
7.2.3.3.2.8	Source Maintenance and Recovery (SMR) Code	7-4
7.2.3.3.2.9	Usable On Code	7-4
7.2.4	Consolidated Logistics System URL	7-4
7.2.5	OPUP Equipment Group Illustrations	7-5
SECTION 7.3.	NUMERICAL INDEX	7-26
SECTION 7.4.	REFERENCE DESIGNATION INDEX	7-27

INDEX ..... Index 1
GLOSSARY ..... Glossary 1

LIST OF ILLUSTRATIONS

Figure	Title	Page
Figure 2-1.	Large OPUP Circuit Flow Diagram	2-7
Figure 2-2.	Medium OPUP Circuit Flow Diagram	2-8
Figure 2-3.	USB Cable Connector	2-15
Figure 2-4.	Large OPUP Communications/Processor Group UD80	2-21
Figure 2-5.	Medium OPUP Communications/Processor Group UD80	2-23
Figure 2-6.	Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2)	2-37
Figure 2-7.	Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2)	2-47
Figure 2-8.	OPUP Display Workstation Equipment Group UD85	2-51
Figure 2-9.	OPUP Display Workstation UD85 Interconnection Diagram (ICD)	2-53
Figure 2-10.	Modem Rack Assembly UD80A1/A2 (Front View)	2-57
Figure 2-11.	Modem Rack Assembly UD80A1/A2 (Rear View)	2-58
Figure 2-12.	Dedicated Modems 80A1A1-A21 and 80A2A1-A11	2-60
Figure 2-13.	Large OPUP Communication Router UD80A3 (Front View)	2-63
Figure 2-14.	Large OPUP Communication Router UD80A3 (Rear View)	2-64
Figure 2-15.	Medium OPUP Communication Router UD80A3	2-70
Figure 2-16.	Archive IV Device UD80A4	2-75
Figure 2-17.	UPS UD80A5/A6/A13/A14	2-78
Figure 2-18.	Monitor UD80A7	2-85
Figure 2-19.	KVM Switch UD80A8	2-87
Figure 2-20.	Keyboard UD80A9 and Mouse UD80A10	2-90
Figure 2-21.	Server UD80A11/A12 (Front View)	2-92
Figure 2-22.	Server UD80A11/A12 (Rear View)	2-92
Figure 2-23.	Communication Switch UD80A18	2-98
Figure 2-24.	Dedicated Patch Panel UD80A19/A20/A21	2-101
Figure 2-25.	Printer UD80A22	2-102
Figure 2-26.	Display Workstation Monitor UD85A1	2-105
Figure 2-27.	Display Workstation CPU/Processor UD85A2	2-107
Figure 2-28.	Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set	2-110
Figure 3-1.	CDE Front Panel	3-8
Figure 3-2.	Operational Applications Front Panel	3-8
Figure 3-3.	Netscape Web Page Background GUI	3-14
Figure 3-4.	New Site Certificate Window (Sheet 1)	3-15
Figure 3-4.	New Site Certificate Window (Sheet 2)	3-16
Figure 3-4.	New Site Certificate Window (Sheet 3)	3-17
Figure 3-4.	New Site Certificate Window (Sheet 4)	3-18
Figure 3-4.	New Site Certificate Window (Sheet 5)	3-19
Figure 3-5.	Netscape: Password Window	3-20
Figure 3-6.	OPUP Manager Main Menu	3-24
Figure 3-7.	OPUP Software Menu	3-26
Figure 3-8.	Edit RPG Information for Dial Radars for *RPG of Interest* Window	3-27

Figure	Title	Page
Figure 3-9.	OPUP Manager Edit RPG Information For *RPG of Interest* Window	3-28
Figure 3-10.	OPUP Communications Configuration Window	3-30
Figure 3-11.	OPUP Change Ded Communications Configuration Window	3-31
Figure 3-12.	OPUP Software Release Window	3-32
Figure 3-13.	Available Products in Database (Oldest/Newest) Window	3-33
Figure 3-14.	Purge RPG Product Database Window	3-34
Figure 3-15.	Available Products in Database Window	3-34
Figure 3-16.	Please Select RPG to Purge from Available Products in Database Window	3-35
Figure 3-17.	OPUP Users Menu	3-36
Figure 3-18.	OPUP User Cannot Be Created Window	3-38
Figure 3-19.	OPUP Manager Change User Password Window	3-39
Figure 3-20.	OPUP Users Window	3-40
Figure 3-21.	OPUP Security Logs Menu	3-41
Figure 3-22.	OPUP Server Failed-Login Log Window	3-43
Figure 3-23.	OPUP Server Access Log Window	3-44
Figure 3-24.	OPUP Server Last Successful Logins Window	3-45
Figure 3-25.	OPUP Server SU Command Log Window	3-46
Figure 3-26.	OPUP Workstation Menu	3-47
Figure 3-27.	OPUP Manager Add New Workstation Window	3-48
Figure 3-28.	Workstations Have Been Added Window	3-49
Figure 3-29.	OPUP Workstations (Delete) Window	3-49
Figure 3-30.	Workstation Deleted Window	3-50
Figure 3-31.	OPUP Workstations (View) Window	3-50
Figure 3-32.	OPUP Archive Menu	3-52
Figure 3-33.	The Existing Archives on Server Window	3-54
Figure 3-34.	Please Select Archive Case to Create to CDROM Window	3-55
Figure 3-35.	OPUP Manager Erase Archive Window	3-56
Figure 3-36.	Please Select Archive Case to Erase from Server Window	3-57
Figure 3-37.	The Existing SaveLog Archives on Server Window	3-58
Figure 3-38.	Please Select (SaveLog) Archive Case to Create to CDROM Window	3-59
Figure 3-39.	OPUP Manager Erase SaveLog Archive Window	3-60
Figure 3-40.	Please Select (SaveLog) Archive Case to Erase from Server Window	3-61
Figure 3-41.	Contents of CDROM Window	3-62
Figure 3-42.	OPUP Manager Erase CDRW Window	3-63
Figure 3-43.	OPUP Server Control Menu	3-64
Figure 3-44.	Disk Usage Window	3-65
Figure 3-45.	OPUP Manager Backup/Restore Main Menu	3-66
Figure 3-46.	OPUP Printer Menu	3-68
Figure 3-47.	OPUP Manager Add New Printer Window	3-69

Figure	Title	Page
Figure 3-48.	CISCO Control Menu	3-71
Figure 3-49.	OPUP Manager Change CISCO Password Window	3-72
Figure 3-50.	OPUP Manager Re-Start CISCO Window	3-72
Figure 3-51.	OPUP FTP Server Menu	3-73
Figure 3-52.	OPUP Manager Setup FTP Server Window	3-74
Figure 3-53.	OPUP Manager Delete FTP Server Window	3-75
Figure 3-54.	OPUP FTP Servers Window	3-76
Figure 3-55.	OPUP Manager Oracle Tools Menu	3-76
Figure 3-56.	OPUP Manager Recreate Oracle Tables Window	3-77
Figure 3-57.	OPUP Manager Application Security Passwords Window	3-78
Figure 3-58.	OPUP Manager Default Route Menu	3-79
Figure 3-59.	OPUP Manager Add Default Route Window	3-80
Figure 3-60.	Default Route Deleted Window	3-80
Figure 3-61.	SunVTS Diagnostic Window	3-81
Figure 3-62.	Large OPUP Process Status Window (Top Half)	3-96
Figure 3-63.	Large OPUP Display Server Process Status Window (Bottom Half)	3-96
Figure 3-64.	Medium OPUP Process Status Window	3-97
Figure 3-65.	Medium OPUP Server Operational Applications Process Status Window	3-97
Figure 3-66.	Basic Elements of the Boot PROM/NVRAM	3-189
Figure 3-67.	UNIX Device Tree Example	3-193
Figure 5-1.	OPUP Manager Shutdown Server Window	5-5
Figure 5-2.	OPUP Software Menu	5-11
Figure 5-3.	Edit RPG Information for Dial Radars for *RPG of Interest* Window	5-16
Figure 5-4.	OPUP Manager Edit RPG Information Window	5-17
Figure 5-5.	OPUP Communications Configuration Window	5-20
Figure 5-6.	Configure OPUP Ded Comms Warning Window	5-21
Figure 5-7.	OPUP Change Ded Communications Configuration Window	5-22
Figure 5-8.	OPUP Save New Comm Configuration Window	5-23
Figure 5-9.	OPUP Manager Comms Configuration Stop OPUP Window	5-24
Figure 5-10.	OPUP Manager Comms Configuration Start OPUP Window	5-25
Figure 5-11.	Cisco Router Failed Message Window	5-26
Figure 5-12.	OPUP Add New Ded Communications Configuration Window	5-27
Figure 5-13.	OPUP Users Menu	5-32
Figure 5-14.	Add New User Confirmation Window	5-34
Figure 5-15.	Delete User Window	5-36
Figure 5-16.	OPUP Manager Change User Password Window	5-36
Figure 5-17.	OPUP Security Logs Menu	5-41
Figure 5-18.	OPUP Workstation Menu	5-43
Figure 5-19.	OPUP Manager Add New Workstation Window	5-45
Figure 5-20.	Workstations Have Been Added Window	5-46

Figure	Title	Page
Figure 5-21.	OPUP Workstations (Delete) Window	5-48
Figure 5-22.	Workstation Deleted Window	5-48
Figure 5-23.	OPUP Workstations (View) Window	5-49
Figure 5-24.	OPUP Archive Menu	5-51
Figure 5-25.	Archive Backup Warning Window	5-52
Figure 5-26.	The Existing Archives on Server Window	5-53
Figure 5-27.	Please Select Archive Case to Create to CDROM Window	5-54
Figure 5-28.	The Archive For *Filename* Has Been Created to CDROM Window	5-55
Figure 5-29.	The Content of the inserted CDROM is as follows: Window	5-56
Figure 5-30.	The content of the inserted CDROM is as follows: Window	5-57
Figure 5-31.	Archive Data File Restored Window	5-58
Figure 5-32.	Archive Case File Overwrite Message Window	5-59
Figure 5-33.	OPUP Manager Erase Archive Window	5-60
Figure 5-34.	Please Select Archive Case to Erase from Server Window	5-60
Figure 5-35.	Erase Archive Confirmation Window	5-61
Figure 5-36.	The Existing SaveLog Archives on Server Window	5-63
Figure 5-37.	Please Select (SaveLog) Archive Case to Create to CDROM Window	5-64
Figure 5-38.	The Archive for Filename Have Been Created to CDROM Window	5-65
Figure 5-39.	OPUP Manager Erase SaveLog Archive Window	5-66
Figure 5-40.	Please Select (SaveLog) Archive Case to Erase from Server Window	5-67
Figure 5-41.	Erase Savelog Archive Confirmation Window	5-67
Figure 5-42.	OPUP Server Control Menu	5-70
Figure 5-43.	OPUP Manager Backup/Restore Main Menu	5-72
Figure 5-44.	OPUP Manager Backup OPUP Warning Window	5-73
Figure 5-45.	OPUP Manager Backup OPUP Software Backup Complete Window	5-73
Figure 5-46.	OPUP Manager Backup OPUP Software Backup Failed Window	5-74
Figure 5-47.	OPUP Manager Restore OPUP Window	5-75
Figure 5-48.	OPUP User Information Restored Window	5-76
Figure 5-49.	OPUP Manager Restore OPUP Communications Configuration Window	5-77
Figure 5-50.	Comms Configuration Restored from CDROM Window	5-78
Figure 5-51.	OPUP Manager Rebuild OPUP Communications Configuration Window	5-79
Figure 5-52.	Comms Configuration Restored from Server Window	5-80
Figure 5-53.	OPUP Manager Restore OPUP Adaptation Data Only Window	5-81
Figure 5-54.	Please Select Adaptation Data to Restore Window	5-82
Figure 5-55.	Selected Adaptation Data Restored from CDROM Window	5-84
Figure 5-56.	OPUP Printer Menu	5-85

Figure	Title	Page
Figure 5-57.	OPUP Manager Add New Printer Window	5-86
Figure 5-58.	OPUP Manager Delete Printer Window	5-87
Figure 5-59.	OPUP Printer Status Window	5-88
Figure 5-60.	OPUP Printer Pending Jobs Window	5-89
Figure 5-61.	Delete Print Jobs Selection Window	5-90
Figure 5-62.	Please Select New Default Printer from Available Printers Window	5-91
Figure 5-63.	CISCO Control Menu	5-93
Figure 5-64.	OPUP Manager Change CISCO Password Window	5-93
Figure 5-65.	OPUP Manager Re-Start Cisco Window	5-95
Figure 5-66.	OPUP Manager Oracle Tools Menu	5-95
Figure 5-67.	OPUP Manager Recreate Oracle Tables Window	5-96
Figure 5-68.	OPUP Manager Recreate Oracle Tables Confirmation Window	5-97
Figure 5-69.	OPUP Manager Change Application Security Passwords Window	5-98
Figure 5-70.	OPUP Manager Application Security Passwords Window	5-98
Figure 5-71.	PUP Information Entered Window	5-100
Figure 5-72.	OPUP Manager Default Route Menu	5-100
Figure 5-73.	OPUP Manager Add Default Route Window	5-101
Figure 5-74.	New Default Route Added for IP-Address: Window	5-102
Figure 5-75.	OPUP Manager Add Default Route (Unreachable) Window	5-102
Figure 5-76.	OPUP Manager Delete Default Route Window	5-103
Figure 5-77.	Default Route Deleted Window	5-103
Figure 5-78.	OPUP Server Default Route Window	5-104
Figure 5-79.	OPUP Start VTS Tool Window	5-105
Figure 5-80.	SunVTS Diagnostic GUI	5-105
Figure 5-81.	VTS Diagnostic Example	5-107
Figure 5-82.	Log Files Window	5-108
Figure 5-83.	OPUP Manager Restart Server Window	5-109
Figure 5-84.	Server Restarting Now Window	5-110
Figure 5-85.	OPUP Manager Shutdown Server Window	5-112
Figure 5-86.	Server Shutting Down Window	5-112
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 14)	6-67
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Quick Reference Chart) (Sheet 2 of 14)	6-69
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Monitor/KVM/Switch Problem) (Sheet 3 of 14)	6-71
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Keyboard/ Server/Monitor/KVM Switch Problem) (Sheet 4 of 14)	6-73
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Server/ Mouse/KVM Switch Problem) (Sheet 5 of 14)	6-75

Figure	Title	Page
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (UPS Problem) (Sheet 6 of 14)	6-77
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Server Problem) (Sheet 7 of 14)	6-79
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part I) (Sheet 8 of 14)	6-81
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part II) (Sheet 9 of 14)	6-83
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (One or Some Dedicated Communications Failed Problem) (Sheet 10 of 14)	6-85
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (One Dedicated RPG Circuit or Archive IV Device Failed Problem) (Sheet 11 of 14)	6-87
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Product Display or Product Request Problem) (Sheet 12 of 14)	6-89
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Display Workstation or KVM Switch Problem) (Sheet 13 of 14)	6-91
Figure 6-1.	Large and Medium OPUP Fault Isolation Flowchart (Printer) (Sheet 14 of 14)	6-93
Figure 6-2.	OPUP Server Front Panel	6-95
Figure 6-3.	Server Front Panel (Doors Missing)	6-96
Figure 6-4.	Dedicated Modem Rack Door/Hinge Detail	6-105
Figure 6-5.	Modem Rack Assembly UD80A1/A2 (Rear View)	6-107
Figure 6-6.	Dedicated Modem Removal/Replacement	6-109
Figure 6-7.	Dedicated Modem Dip Switch Setting	6-112
Figure 6-8.	Power Supply and Fan Module Removal	6-115
Figure 6-9.	Printer UD80A22 Wax Chalk Inserts	6-167
Figure 7-1.	Large OPUP Communications/Processor Group UD80 (Sheet 1 of 2)	7-7
Figure 7-1.	Medium OPUP Communications/Processor Group (Sheet 2 of 2)	7-9
Figure 7-2.	OPUP Display Workstation, UD85	7-25

LIST OF TABLES

Table	Title	Page
Table 2-1.	OPUP Narrowband Communication Interfaces	2-4
Table 2-2.	Major OPUP Group Reference Designations	2-9
Table 2-3.	OPUP Group Physical Dimensions	2-9
Table 2-4.	OPUP Group Power Requirements	2-10
Table 2-5.	OPUP Group Capability and Characteristics	2-10
Table 2-6.	OPUP Server Internal Components	2-15
Table 2-7.	LRU Location by Configuration	2-55
Table 2-8.	Modem Rack Assembly UD80A1/A2 Controls and Indicators	2-59
Table 2-9.	Dedicated Modem Controls and Indicators	2-61
Table 2-10.	Large OPUP Communication Router Controls and Indicators	2-65
Table 2-11.	Medium OPUP Communication Router Controls and Indicators	2-71
Table 2-12.	Archive IV Device Controls and Indicators	2-76
Table 2-13.	UPS Controls and Indicators	2-79
Table 2-14.	Monitor UD80A7 Controls and Indicators	2-86
Table 2-15.	KVM Switch UD80A8 Controls and Indicators	2-88
Table 2-16.	Keyboard UD80A9 and Mouse UD80A10 Set	2-90
Table 2-17.	Server UD80A11/A12 Controls and Indicators	2-93
Table 2-18.	Communication Switch UD80A18 Controls and Indicators	2-99
Table 2-19.	Patch Panel UD80A19/A20/A21 Controls and Indicators	2-101
Table 2-20.	Printer UD80A22 Controls and Indicators	2-102
Table 2-21.	Display Workstation Monitor Controls and Indicators	2-106
Table 2-22.	Display Workstation CPU /Processor Controls and Indicators	2-108
Table 2-23.	Display Workstation Keyboard UD85A3 and Mouse UD85A4 Controls and Indicators	2-111
Table 2-24.	OPUP Group Reference Publications	2-114
Table 2-25.	OPUP Group Recommended Tools/Supplies	2-115
Table 2-26.	OPUP Group Test Equipment	2-116
Table 3-1.	Keyboard Features	3-4
Table 3-2.	CDE and Operational Applications Front Panel Icons	3-9
Table 3-3.	Data Server Primary Hard Drive UD80A11A1 Slice Allocations	3-104
Table 3-4.	Data Server Secondary Hard Drive UD80A11A2 Slice Allocations	3-104
Table 3-5.	Display Server Primary Hard Drive UD80A12A1 Slice Allocations	3-105
Table 3-6.	Display Server Secondary Hard Drive UD80A12A2 Slice Allocations	3-105
Table 3-7.	Software Installation Disk Contents	3-106
Table 3-8.	Software Installation Input Parameters	3-107
Table 3-9.	Large OPUP Software Load Procedure	3-111
Table 3-10.	Medium OPUP Software Load Procedure	3-149
Table 3-11.	Software Installation Recovery Procedures	3-184
Table 3-12.	Boot PROM (OPENBoot) Commands	3-191
Table 3-13.	UNIX File System Organization	3-194
Table 3-14.	INIT Level Definitions	3-198
Table 3-15.	vi Editor Commands	3-202

Table	Title	Page
Table 3-16.	Common UNIX Commands	3-203
Table 6-1.	Flowchart Note Index	6-8
Table 6-2.	OPUP LRU Replacement Procedure Index	6-101
Table 6-3.	OPUP LRU Setup Procedure Index	6-172
Table 6-4.	Modem Button Definitions	6-173
Table 7-1.	Large/Medium OPUP Cable Assemblies (Not Shown)	7-11
Table 7-2.	Large/Medium OPUP Maintenance Parts List	7-17
Table 7-3.	Display Workstation Cable Assemblies (Not Shown)	7-24
Table 7-4.	Display Workstation Maintenance Parts List	7-24

FOREWORD

This manual provides the information and procedures that enable a user to exercise all capabilities and functions required to maintain and replace OPUP hardware and software. The title and a brief description of the manual chapters are provided below. It consists of seven chapters, an index, and a glossary.

Chapter 1, General Information - Describes the purpose of this manual and provides an introduction to WSR-88D information, operating concepts, and general purpose reference information.

Chapter 2, Hardware Group - Provides detailed description of OPUP hardware, Controls and Indicators, and reference data.

Chapter 3, Software Description - Provides a brief description of the OPUP software suite, Sun Microsystems keyboard/mouse set, OPUP Operating System and Applications Software, software installation/recovery procedures, and a description of UNIX terminology that Administrators may encounter in their duties as OPUP System Administrators.

Chapter 4, System Security - Describes OPUP system security procedures. This chapter ensures that each OPUP operating environment does not violate any security integrity posture required by DoD regulations.

Chapter 5, System Administration - Provides an overview of the software menu items found within the `OPUP Manager Main Menu`. This chapter provides a detailed outlined of the procedures used to control various OPUP functions through the use of administration tools and security software.

Chapter 6, Maintenance - Provides the specific guidelines to be used in determining fault isolation, LRU removal/replacement, and setup of each assembly/sub-assembly found within the OPUP Hardware Group.

Chapter 7, Illustrated Parts Breakdown (IPB) - Provides an Illustrated Parts Breakdown (IPB) list which describes the items necessary to support on-site Line Replaceable Unit (LRU) repair.

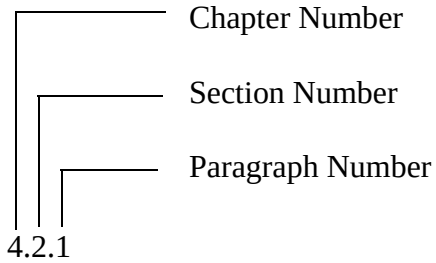
Index

Glossary

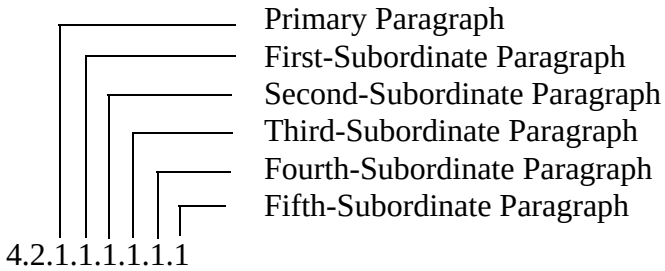
This manual is one of a family of technical manuals which provide various levels of description, operation, maintenance, and logistics information on the WSR-88D. Refer to TO 31-1-141, Basic Electronic Technology and Testing Practices, for any basic electronic technology or testing practice that is not fully described in these documents. The WSR-88D technical manual family is defined and discussed in Chapter 1 of NWS EHB 6-500, System Manual.

The format of this technical manual is as follows:

- Since sections represent the major content divisions of the chapter, they are formatted as standalone elements that are physically separate.
- Sections are numbered as subdivisions of the chapter or appendix. The section numbering system consists of two digits separated by a decimal. The first digit indicates the chapter, the second digit indicates the section. Thus, Section 3.2 represents the second section of Chapter 3.
- Paragraph numbering is by section rather than by chapter. The basic numbering system consists of three digits, where the first two digits identify the chapter and section.



- A decimal paragraph number system is used to identify paragraph subordination.



- Pages, tables, and figures are numbered by chapter. The number consists of two digits separated by a hyphen. The first digit identifies the chapter. The second digit identifies the table or figure.

SAFETY SUMMARY

1. GENERAL SAFETY INSTRUCTIONS.

This manual describes physical and chemical processes which may cause injury or death to personnel, or damage to equipment if not properly followed. This safety summary includes general safety precautions and instructions that must be understood and applied during operation and maintenance to ensure personnel safety and protection of equipment. Prior to performing any task, the WARNINGs, CAUTIONs, and NOTEs included in that task shall be reviewed and understood.

2. WARNINGS, CAUTIONS, AND NOTES.

WARNINGs and CAUTIONs are used in this manual to highlight operating or maintenance procedures, practices, conditions, or statements which are considered essential to protection of personnel (WARNING) or equipment (CAUTION). WARNINGs and CAUTIONs immediately precede the step or procedure to which they apply. WARNINGs and CAUTIONs consist of four parts: heading (WARNING or CAUTION), a statement of the hazard, minimum precautions, and possible result if disregarded. NOTEs are used in this manual to highlight operating or maintenance procedures, practices, conditions, or statements which are not essential to protection of personnel or equipment. NOTEs may precede or follow the step or procedure, depending upon the information to be highlighted. The headings used and their definitions are as follows.

WARNING

Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in injury to, or death of, personnel or long term health hazards.

CAUTION

Highlights an essential operating or maintenance procedure, practice, condition, statement, etc., which if not strictly observed, could result in damage to, or destruction of, equipment or loss of mission effectiveness.

NOTE

Highlights an essential operating or maintenance procedure, condition, or statement.

3. GENERAL SAFETY PRECAUTIONS.

The following safety precautions shall be observed while performing procedures in this manual.

- ELECTRICAL

  Dangerous voltages are present at system connectors. Ensure power is OFF prior to connecting or disconnecting cables.

- ELECTRONIC

  Do not wear metal frame glasses, rings, watches, or other metal jewelry while working on electronic equipment.

- ELECTRICAL SHOCK HAZARDS

  Prime power voltages and high voltages within cabinets can cause **DEATH** or severe injury. These voltages are contained in the generator area, the Radar Data Acquisition (RDA) area, and Antenna area. Warning signs and labels are located on the guards and barriers to alert personnel of the potential hazard. DO NOT DISREGARD THESE WARNINGS. Ensure that safety interlocks, barriers and guards are not bypassed.

- KEEP AWAY FROM LIVE CIRCUITS

  Maintenance personnel must at all times observe all safety regulations. Do not replace components or make adjustments inside the equipment with the high voltage supply turned on. Under certain conditions, dangerous potentials may exist when the power control is in the off position due to charges retained by capacitors. To avoid casualties, always remove power, discharge and ground circuit before touching it.

- DO NOT SERVICE OR ADJUST ALONE

  Under no circumstances should any person reach into or enter an enclosure for the purpose of servicing or adjusting the equipment except in the presence of someone who is capable of rendering aid.

- RESUSCITATION

  Personnel working with or near high voltage should be familiar with modern methods of CPR. Such information may be obtained from the Red Cross or Heart Association. This knowledge may save a life.

- DO NOT WEAR JEWELRY

  Personnel performing maintenance on equipment are not to wear metal frame glasses, watches, rings, necklaces, bracelets, or other jewelry at any time. Electrical arcing can occur when metallic objects are in the proximity of voltage potentials. Jewelry can become entangled or otherwise restrict movement causing severe personal injury.

- CLEANING SOLVENTS (GENERAL)

  Wear protective clothing, safety goggles, and gloves when using toxic cleaning solvents. Repeated and prolonged contact may cause skin and eye irritation. Flush skin and eyes with water. Remove clothing saturated with cleaning solvent.

- CLEANING SOLVENTS (INHALATION)

  Use cleaning solvents only in a well-ventilated area. Avoid inhalation of cleaning solvents. Asphyxiation or **DEATH** may occur from prolonged exposure to fumes.

- FLAMMABLE AND/OR TOXIC MATERIALS

  Some cleaning materials specified herein are flammable and/or toxic. Keep away from open flame or other ignition sources. Provide adequate ventilation and avoid skin/eye exposure.

- 0365 ELECTRON AEROSOL, CLEANING COMPOUND

  Follow all safety precautions listed in the Material Safety Data Sheets for 0365 Electron Aerosol, Cleaning Compound. 0365 Electron Aerosol is flammable and releases flammable vapors. Do not use near an open flame or other sources of ignition. The use of 0365 Electron Aerosol in a closed area poses a health hazard. 0365 Electron Aerosol is toxic to skin and eyes. Use skin and eye protection. Failure to comply with all safety precautions listed in the Material Safety Data Sheets for 0365 Electron Aerosol Wipe Solvent may cause serious injury or **DEATH**. Dispose of contaminated 0365 Electron Aerosol in accordance with applicable federal, state, and local regulations.

- PERFORM WORK EFFICIENTLY

  When working in areas designated as hazardous, perform work using the proper safety procedures. Be thoroughly familiar with the procedures required for the task before entering the area.

- SECURE ALL MATERIAL WHEN NOT IN USE

  Secure all tools, chassis, and covers before operating equipment.

- DO NOT USE METAL TOOLS NEAR EXPOSED PARTS

  Do not use brushes, brooms, or other tools that have exposed metal parts within four feet of any electrical equipment having exposed current-carrying parts.

- COMPRESSED AIR

  Cleaning with compressed air can create airborne particles that may enter eyes or penetrate skin. Pressure shall not exceed 30 psig. Wear goggles. Do not direct compressed air against skin.

- REMOVAL OF TOOLS

  Remove all tools and dropped hardware such as locknuts, washers, screws, etc., from equipment prior to restoring power to any WSR-88D equipment.

4. SPECIFIC SAFETY PRECAUTIONS.

- GROUNDING

  Equipment grounds must remain connected at all times while operating the WSR-88D equipment. The equipment is grounded through multiple paths and with grounds connected, the standing current on the safety ground poses no safety hazard. However, operation of the equipment with a ground disconnected may pose a potential hazard. For example, if a voltage were to short to an ungrounded chassis, personnel touching the chassis could provide a ground path for the voltage and this could result in injury or **DEATH**. Ensure that the grounds have been reconnected and that all cabinet to cabinet voltages are less than 1 volt after performing any maintenance procedure that disconnects grounds. A ground and power survey conducted by the Air Force 1839th Engineering and Installation Group and Lincoln Labs concludes that for current at the equipment "the ground currents consist of frequencies greater than 60 Hz" and that "the currents found on the ground system pose no threat to the safety of personnel working on or about the site."

- MAJOR EQUIPMENT DAMAGE

  Mismating electrical connectors on the RDA, RPG, or PUP can cause major equipment damage. Therefore, ensure that the connector keys/color coding is followed when reconnecting connectors during maintenance.

CHAPTER 1
GENERAL INFORMATION

Section 1.1. INTRODUCTION

1.1.1 General.

The Large/Medium Open Principal User Processor (OPUP) Equipment Group UD80 is a baseline computer system developed for use by the Department of Defense (DoD) to display and manipulate WSR-88D (Weather Surveillance Radar - 1988 Doppler) products and message data. The Large and Medium OPUP system enables weather forecast sites to display WSR-88D products and message data in a multi-user and multi-radar environment. The OPUP has been developed to utilize specific hardware which will provide a scaled down, cost-effective, operating display system environment. The communication suite used with the Large/Medium OPUP consists of equipment that is configured in either an “isolated” or “non-isolated” networked based system. An isolated network system employs similar attributes associated with network connectivity in order to ingest and transmit data within the OPUP communication suite. Isolated systems contain routers and LAN switches that provide critical connectivity for systems which request data, isolated systems do not transmit data to outside sources such as a site LAN Network and/or Internet/ Intra-Net server systems. Non-isolated systems, in contrast, incorporate the same equipment as an isolated systems, however, non-isolated systems will transmit data to a communication switch or server that is connected to outside sources.

The Large and Medium OPUP configuration will also employ the use of attached display workstations. These workstations are designated as the Display Workstation UD85, which will be used by OPUP Operators to display the applications located within the Operational Applications Front Panel. The Operational Applications Front Panel contains applications which provide OPUP Operators the ability to display and manipulate WSR-88D product and message data. Each workstation is attached to the Large/Medium OPUP system via CAT5 RJ45 type cable to the OPUP’s Communication Switch UD80A18. A separate CAT5 cable is required for each workstation. In addition, the OPUP will also be able to utilize a printer device. The approved printer device is the printer designated as UD80A22. This printer can be used with both isolated and non-isolated system OPUP systems and requires a separate IP-address. Non-isolated OPUP systems, if employed, may either use the Printer Device UD80A22 or use a Post Script compatible printer located within each site’s LAN Network. If these printers are used, the associated printer device’s IP-address must be provided.

The Large/Medium OPUP hardware and software architecture is based upon a server/client operating system relationship which displays data on multiple workstations using a server operating system software suite. The Large OPUP configuration uses two servers UD80A11/12 to provide either database and display processes. The Medium OPUP configuration uses one server UD80A11 to provide both services. This means that the Large OPUP hardware group has been developed to provide WSR-88D product and message data display to a larger number of users (OPUP Operators) than the Medium OPUP configuration. The Large OPUP can provide data to

up to 10 display workstations versus the Medium OPUP configuration which can provide data to up to 3 workstations.

The overall control of the OPUP operating system is maintained by a server OS. The server OS operates processes in the background while all other external processes are operated in the foreground (i.e., operator application GUIs). All administrative functions are controlled by an HyperText Markup Language (HTML) based manager GUI called the `OPUP Manager Main Menu`. The `OPUP Manager Main Menu` provides each site the ability to perform OPUP specific administrative functions such as server OS start/stop/restart (includes Operational Applications), view processes, control OPUP operators (users), monitor system security, maintain adaptable parameters, and manage peripherals, to name a few. All WSR-88D product and message data display and manipulation functions will be processed using the OPUP Operational Application GUI Suite called the Operational Applications Front Panel. The Operational Applications Front Panel is comprised of up to four base application GUI displays called the Product Display Graphic Users Interface (PDGUI), Status and Control GUI, Archive PDGUI, and Archive Status Log. Operational Applications will normally be accessed by OPUP operators and the `OPUP Manager Main Menu` will normally be accessed by personnel given OPUP System Administrative/Maintenance duties.

1.1.2 Chapter Organization.

Chapter 1 is organized into the following three sections:

- Section 1.1 INTRODUCTION - Provides a general overview of the Large/Medium Open Principal User Processor (OPUP) Equipment Group UD80.
- Section 1.2 SCOPE - Provides scope, purpose, and organization of this manual.
- Section 1.3 HARDWARE MAINTENANCE OVERVIEW - Provides an introduction to the Large/Medium Open Principal User Processor (OPUP) Group maintenance concept.

1.1.2.1 OPUP Program Development Organization. The WSR-88D radar program is designed, managed, and operated by three agencies of the Federal Government. These three agencies are the Department of Commerce (DOC), the Department of Transportation (DOT), and the Department of Defense (DoD). These agencies are represented by the National Weather Service (NWS), the Federal Aviation Administration (FAA), and Air Force Weather (AFW). AFW provides WSR-88D program level representation for the Navy and Marine Corps.

The WSR-88D system is comprised of three major hardware groups. These are the Radar Data Acquisition (RDA), the Radar Product Generator (RPG), and the product display workstation group called the Open Principal User Processor. The OPUP was developed solely by the DoD for DoD sites. Further information concerning the relationship between the RDA/RPG and OPUP is covered in FMH-11, Part A.

1.1.2.2 WSR-88D Data Distribution Overview. Each principal user agency has a common requirement for weather radar data that is produced on a continuous basis. This means that each

member of the tri-agency will ensure that any RDA/RPG system will provide radar weather data to more than one principal user agency on a 24 hours a day, 7 days a week basis. In addition, specific predefined scanning modes and data sets which have been approved by each agency, will be produced.

The principal users define the modes of operation of the WSR-88D system. These operational modes are a function of the weather conditions, seasons, and location of the radar. During operations, the antenna is controlled by automatic scanning programs. Different volume coverage patterns, which are matched to the operational mode, are available to optimize the product generation for the particular type of weather situation. The use of different volume coverage patterns and meteorological algorithm grouping is governed by strict interagency protocol whenever two or more agencies are using the weather information generated by the site (in the case of the DoD, interagency agreements are established for each site). For any operational mode, radar scanning is continuous in time, to support the various needs of the users. Any exceptions to continuos scanning requires the concurrence of all principal users.

Each principal user is informed of the scanning mode through the use of the systems status monitoring program and product header data. Currently, there are two defined operational modes used to acquire the meteorological data necessary to display weather on the radar and develop the results into WSR-88D products. These are the Clear Air and Precipitation Modes. The Clear Air Mode can only be manually selected. The Precipitation Mode can be manually or automatically selected at any time whenever the system detects precipitation (based on pre-determined values and area coverage of precipitation-like returns from the radar.) Specific internal product distribution and display characteristics associated with the OPUP server OS and Operational Applications Front Panel is described in detail in Chapter 3, Software Description.

Section 1.2. SCOPE

1.2.1 Purpose.

The purpose of this manual is to provide the user with the following:

1. A description of the Large and Medium Open Principal User Processor (OPUP) Equipment Group UD80 configuration, controls and indicators, and applicable reference information.

2. A description of the OPUP Display Workstation Equipment Group UD85 configuration, controls and indicators, and applicable reference information.

3. An extensive overview of the OPUP software, installation theory and procedures, and recovery instructions.

4. OPUP maintenance concepts, to include:

   - System security procedures.
   - Procedures required to perform specific system administrative tasks.
   - Hardware fault isolation and restore procedures.
   - Logistic information associated with OPUP Illustrated Parts Breakdown (IPB).

Section 1.3. HARDWARE MAINTENANCE OVERVIEW

1.3.1 Hardware Maintenance Overview.

The Large/Medium Open Principal User Processor (OPUP) and Display Workstation Group hardware has been developed to function with little or no separate hardware maintenance requirements. The majority of the equipment assemblies and sub-assemblies are made up of Commercial-Off-The-Shelf (COTS) computer and peripheral equipment. To reduce the amount of down time that may be associated with this type of equipment, numerous built in test and/or on-line statuses have been made available that provide monitoring capability to assist with the determination for the requirement of equipment replacement and/or adjustment.

1.3.1.1 Maintenance Responsibility. Each site will be responsible to provide the overall administration of the OPUP server OS and Operational Applications Front Panel GUI Suite. In addition, each site will be required to perform software installation/re-installation procedures and to troubleshoot, isolate hardware, and isolate software faults to the Line Replaceable Unit (LRU) level. The central point of contact for all maintenance will normally be associated with the individual(s) assigned administrative duties. However, specific hardware/software logistical responsibilities are site dependant.

1.3.1.2 Hardware/Software Repair/Recovery Overview. Each site is encouraged to follow the troubleshooting, fault isolation guidance, and associated flowcharts provided in this manual. The troubleshooting guidance provided can rapidly assist in determining the required level of repair, removal, and/or replacement procedure to be used. Applicable troubleshooting, hardware LRU removal/replacement, and configuration setup procedure(s) are covered in full in Chapter 6, Maintenance. This chapter provides several sets of fault isolation guidance and associated flowcharts that can be used to quickly isolate specific faults and provide repair of each associated hardware item to the LRU level.

1.3.1.2.1 Software Fault Recovery. If a software fault has occurred, each site is encouraged to attempt to recover the software fault when operations allow by using the appropriate available controls (normally via the `OPUP Manager Main Menu`). However, if any software fault cannot be cleared and hardware is not a causal factor, sites should either call the WSR-88D Hotline for further information/assistance or if the situation warrants, immediately perform a full OPUP Server OS installation procedure. Software load procedures are provided in full in Chapter 3, Software Description.

1.3.1.2.2 Hardware Fault Recovery. If a hardware fault has occurred, each site is encouraged to immediately consult the troubleshooting guidance provided in Chapter 6, Maintenance. All faults attributed to an LRU should be removed/replaced as soon as possible using the logistical information provided in Chapter 7, Illustrated Parts Breakdown (IPB) list and applicable field level equipment replacement procedures.

CHAPTER 2
HARDWARE GROUP

Section 2.1. INTRODUCTION

2.1.1 General.

The information provided in this chapter presents a description of the equipment used within the Large and Medium OPUP Equipment Group, designated UD80. This group includes a general system layout and overview of how each equipment item is connected in accordance with the designed system configuration.

2.1.2 Chapter Organization.

Chapter 2 is organized into the following three sections:

- Section 2.1 INTRODUCTION - Provides a brief description of each section in Chapter 2.
- Section 2.2 EQUIPMENT - Provides a detailed OPUP hardware description and equipment theory of operation.
- Section 2.3 CONTROLS AND INDICATORS - Provides a schematic description of each LRU equipment item (to include applicable tables, figures, and indexes) that assist in the location and identification of all applicable Large and Medium OPUP equipment controls and indicators.
- Section 2.4 REFERENCE DATA - Provides a brief overview of any applicable references.

Section 2.2. EQUIPMENT

2.2.1 Introduction.

NOTES

The OPUP Server OS encompasses an administrative OPUP Manager GUI and a subset of operational GUIs located within the Operational Applications Front Panel. All administrative functions will normally be accessed through the Display Monitor UD80A7 and accompanying Keyboard UD80A9 and Mouse UD80A10 set. All Operational Applications Front Panel functions are accessed using attached workstations (Display Workstation UD85). Each workstation will be physically connected (via CAT5 Type RJ45 cable) to the Large/Medium OPUP configuration Communication Switch UD80A18.

For clarity purposes, the Large OPUP configuration uses a server to process the majority of all applications and ingest WSR-88D product and message data (includes product storage) called the Data Server UD80A11. A second server is used to process display functions for the Display Workstation UD85 called the Display Server UD80A12. The Medium OPUP configuration uses one server system to provide both data and display processing. The OPUP operating software will be called the **OPUP Server OS** throughout the rest of this manual.

The Large and Medium OPUP Equipment Group UD80 primarily consists of the equipment that is required to ingest and process WSR-88D products and message data for display on dedicated display workstation(s) (Display Workstation UD85). The Large OPUP configuration consists of two Modem Nests UD80A1/A2, a Communication Router UD80A3, an Archive IV Device UD80A4, two Server(s) UD80A11/A12 (Data and Display Servers), a Communication Switch UD80A18, a Display Monitor UD80A7, a KVM Switch UD80A8, a Keyboard UD80A9 and Mouse UD80A10 set, four UPS UD80A5/A6/A13/A14, and one Adapter/Patch Panel set UD80A15/A16/A17/A19/A20/A21. The Medium OPUP configuration is comprised of the same equipment found in the Large OPUP configuration with the exception of only one Modem Nest UD80A1, one Server UD80A11, two UPS UD80A6/A14, a Cisco Series 3641 Communication Router UD80A3, and an Adapter/Panel set UD80A15/A17 that provides medium communication capability.

Both the Large and Medium OPUP configurations make use of the Sun Microsystems Sun Fire 280R series server. The Large OPUP utilizes two servers in order to support the increased operational requirements for systems that may have up to 32 dedicated communication circuits and up to 10 display workstations. The Medium OPUP only requires the use of one server for data and display processing. The Medium OPUP configuration will provide up to 16 dedicated communication circuits and up to three display workstations.

Each Display Workstation UD85 will consist of a Sun Microsystems Ultra-10 CPU, Monitor, and Keyboard/Mouse set. Each Display Workstation requires a separate CAT5 RJ-45 Type cable that must be connected to the Communication Switch UD80A18 via the I/O Panel in order to access and display products and message data. When a workstation is to be added to the OPUP, it must initially be configured by adding an ethernet-address within the `OPUP Manager Main Menu`, `Workstation Menu`. When it has been verified that this data has been entered correctly, a "JumpStart" command/procedure will be required at the Display Workstation. When the "JumpStart" command is entered, each workstation will take approximately 75 minutes to complete the configuration process and display the CDE Login screen.

Each OPUP configuration utilizes an overall operating system that provides server operations. To facilitate OPUP server operations, an administration management GUI called the `OPUP Manager Main Menu` is provided. The `OPUP Manager Main Menu` acts as an administrative interface between the server and client processes that are provided by the OPUP Server OS. The OPUP server system then provides server functionality and the attached Display Workstation UD85 provides the display entry point for each client. The `OPUP Manager Main Menu` has been developed to allow each site the ability to perform administrative server functions utilizing an easy to use format that is accessed through Monitor UD80A7 (located within the UD80 cabinet). The interface used to provide the administration GUI is the Netscape Hyper-Text Markup Language (HTML) web-based GUI. Each client (via the Display Workstation UD85) will be able to display and manipulate WSR-88D product and message data using a sub-set of client software called the Operational Applications Front Panel. The Operational Applications Front Panel also provides a sub-set of applications (discussed in detail, Chapter 3, Software Description). The `OPUP Manager Main Menu` and the Operational Applications Front Panel are accessed using normal login routines.

Both the Large and Medium OPUP configurations can further be broken down into two types of hardware configurations which are dependant upon the application of communication connectivity at each site. The first type is an "isolated" based configuration. Isolated based configurations employ the Communication Router UD80A3 and Communication Switch UD80A18 to provide critical connectivity for systems that require data from the OPUP Server OS, but will not transmit this data to an outside source. An outside source would be a site's LAN Network or Intra-LAN Network switch. The second type is a "non-isolated" based configuration. A non-isolated communication configuration employes the same communication equipment as an isolated system, however, this system is connected to a site's LAN Network or Intra-LAN Network switch. The majority of Large and Medium OPUP systems will be configured to utilize "isolated" based communications. Non-isolated systems will only be used under special circumstances.

Overall, there are four OPUP hardware configurations. These are the Large and Medium OPUP configurations, designated as the UD80 Hardware Equipment Group; the Small OPUP configuration, designated as the UD86 Hardware Equipment Group; and Display Workstation which is designated by the UD85 Hardware Equipment Group. This manual will only discuss the Large and Medium OPUP Equipment Group UD80 and the Display Workstation Equipment Group UD85. The Small OPUP Equipment Group UD86 is presented in NWS EHB 6-538 and should be referenced when addressing this system.

2.2.2 Theory of Operation.

The following paragraphs provide a discussion of the operations and functionality associated with the OPUP Large/Medium Equipment Group UD80.

2.2.2.1 Functionality. The OPUP system receives WSR-88D product and message data via dedicated or dial narrowband circuits from an RPG of interest. Once product and message data are received, they are processed internally and then manipulated/displayed using the Operational Applications Front Panel.

NOTE

> Operational Applications Front Panel functionality is discussed in detail in NWS EHB 6-536, Operations Instructions. The design and layout of the `OPUP Manager Main Menu` is discussed in detail in Chapter 3, Software Description and its use is discussed in detail in Chapter 5, OPUP System Administration.

The functional areas of the Large/Medium OPUP Equipment Group UD80 consist of the administrative display monitor, keyboard, and mouse located at the UD80 equipment rack and the display workstation(s) (and associated keyboard/mouse set). The Display Workstation UD85 will normally be accessed by OPUP operators. OPUP operators will not normally be allowed access to the `OPUP Manager Main Menu`. The `OPUP Manager Main Menu` will normally be accessed via the administrative display monitor by personnel given the duties to perform administrative functions. OPUP administrative duties will entail the use of the `OPUP Manager Main Menu` as the primary administrative access point, however, Host or Console Terminals are available for the input of command line scripts, fault isolation/troubleshooting, and access to Operational Applications functions, if necessary and/or desired.

2.2.2.2 Narrowband Communications. Narrowband communications are associated with specific data circuit links which are used to provide both dedicated and dial WSR-88D products and message data between the OPUP Server OS and an RPG(s) of interest. Table 2-1 provides an illustration of the different types of OPUP narrowband links.

Table 2-1. OPUP Narrowband Communication Interfaces

External Connection	Associated User	Non-Associated User
Line Class	1	2
Line Type	Dedicated	Dial-in
Timing	Async	Async

Table 2-1. OPUP Narrowband Communication Interfaces - Continued

External Connection	Associated User	Non-Associated User
Duplex Type	Full	Full
Data Rate (BPS)	4800/14400	4800/14400
Data Link	CCITT, V.32	Modular Analog
Physical	RS-232	RS-232
Line	4-Wire Leased	Twisted Pair to RS232-MT (25-60 pin)

2.2.2.3 OPUP Communication Circuits. Each Large and Medium OPUP configuration will employ similar data circuits to ingest dedicated and dial WSR-88D product and message data from a RPG of interest. Two types of communication architectures will be used to determine where specific WSR-88D products and message data will be transmitted and displayed. These are isolated and non-isolated communication based OPUP systems.

2.2.2.3.1 Isolated Communications. An isolated based OPUP configuration utilizes a communication router, communication switch, and modem nest(s) to provide dedicated and dial connectivity between the OPUP and a RPG of interest. Isolated systems are not connected to outside LAN Network(s) or Intra-LAN Network switch(es). Each Large/Medium OPUP configuration will employ an isolated communication architecture.

NOTE

Sites must not arbitrarily connect OPUP communication equipment to the LAN Network or Intra-LAN Network without proper authorization. Connecting any OPUP communication equipment to a LAN Network Switch requires special security requirements/authorization.

2.2.2.3.2 Non-Isolated Communications. A non-isolated based OPUP configuration employs the same communication equipment used in isolated systems. However, one additional communication circuit (designated by each site) will be required in order to provide connectivity from the OPUP's Communication Switch UD80A18 to the site's LAN Network or Intra-LAN Network DMZ switch. Non-isolated OPUP systems will not be used at this time.

2.2.2.3.3 Large OPUP Communication Circuit Description and Layout. Figure 2-1, Large OPUP Circuit Flow Diagram, illustrates the circuit connectivity architecture associated with a isolated based OPUP configuration.

Referring to Figure 2-1, all incoming dedicated circuits are routed to a designated communication circuit demarc box (not shown in Figure 2-1). The Large OPUP may be configured to connect up to 32 dedicated and eight dial circuits. From the perspective demarc box, each circuit is routed to the I/O Panel, J2, J3, and J4 (dedicated) and J1 (dial) of the Large OPUP UD80 cabinet. Each

dedicated circuit is routed from the I/O Panel to the appropriate Patch Panel UD80A19/A20/A21 and Adapter Panel UD80A15 or UD80A16 (not shown in Figure 2-1) and then routed to the appropriate dedicated Modem Nest UD80A1 or UD80A2. All incoming dial circuits are routed from the I/O Panel to Adapter Panel UD80A17 (not shown in Figure 2-1) then are routed to the Communication Router Dial Module UD80A3A1A1. Although the communication router is configured with eight dial modules, each Large OPUP may be configured to access from one to eight dial circuit lines.

Once received by either the modem nest(s) or dial module, data is routed to the Communication Switch UD80A18 by the Communication Router UD80A3. From the communication switch, data is first routed to the Data Server UD80A11 for processing and then routed back to the communication switch to be further routed to the Display Server UD80A12 for display processing. In addition, the communication switch will also act as a communication node for the attached Display Workstation(s) UD85, Communication Router UD80A3, and Printer UD80A22.

An administrative Monitor UD80A7 is provided for display of the `OPUP Manager Main Menu`. The monitor is connected to a KVM Switch UD80A8 which can be used to display data from either the Data Server UD80A11 or Display Server UD80A12. One Archive IV Device UD80A4 is also provided in order to archive/store WSR-88D products and message data.

If a non-isolated configuration is installed (not shown in Figure 2-1), one extra circuit and/or CAT5 cable will be required in order to connect the Large OPUP Communication Switch UD80A18 to the site’s LAN Network or Intra-LAN Network DMZ Switch.

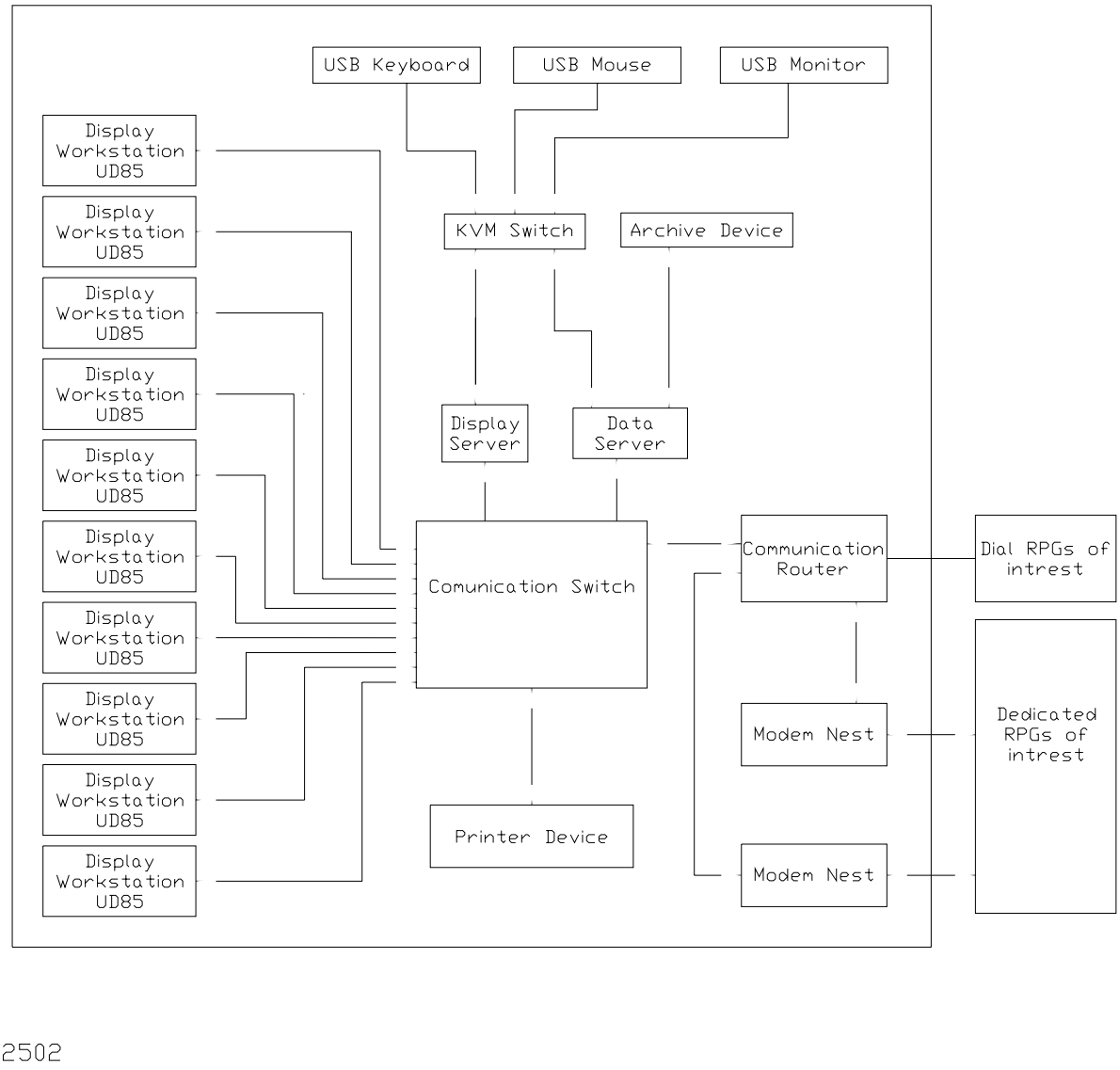


Figure 2-1. Large OPUP Circuit Flow Diagram

2.2.2.3.4 Medium OPUP Communication Circuit Description and Layout. Referring to Figure 2-2, all incoming dedicated circuits are routed to a designated communication circuit demarc box (not shown in Figure 2-2). The Medium OPUP may be configured to connect up to eight dedicated and eight dial circuits. From the perspective demarc box, each circuit is routed to the I/O Panel, J2 (dedicated) and J1 (dial) of the Medium OPUP UD80 cabinet. Each dedicated circuit is routed from the I/O Panel to the Patch Panel UD80A19 and Adapter Panel UD80A15 (not shown in Figure 2-2) and then routed to the dedicated Modem Nest UD80A1. All incoming dial circuits are routed from the I/O Panel to Adapter Panel UD80A17 (not shown in Figure 2-2) then to the Communication Router Dial Module UD80A3A1A1. Although the communication router is con-

figured with eight dial modules, each Medium OPUP may be configured to access from one to eight dial circuit lines.

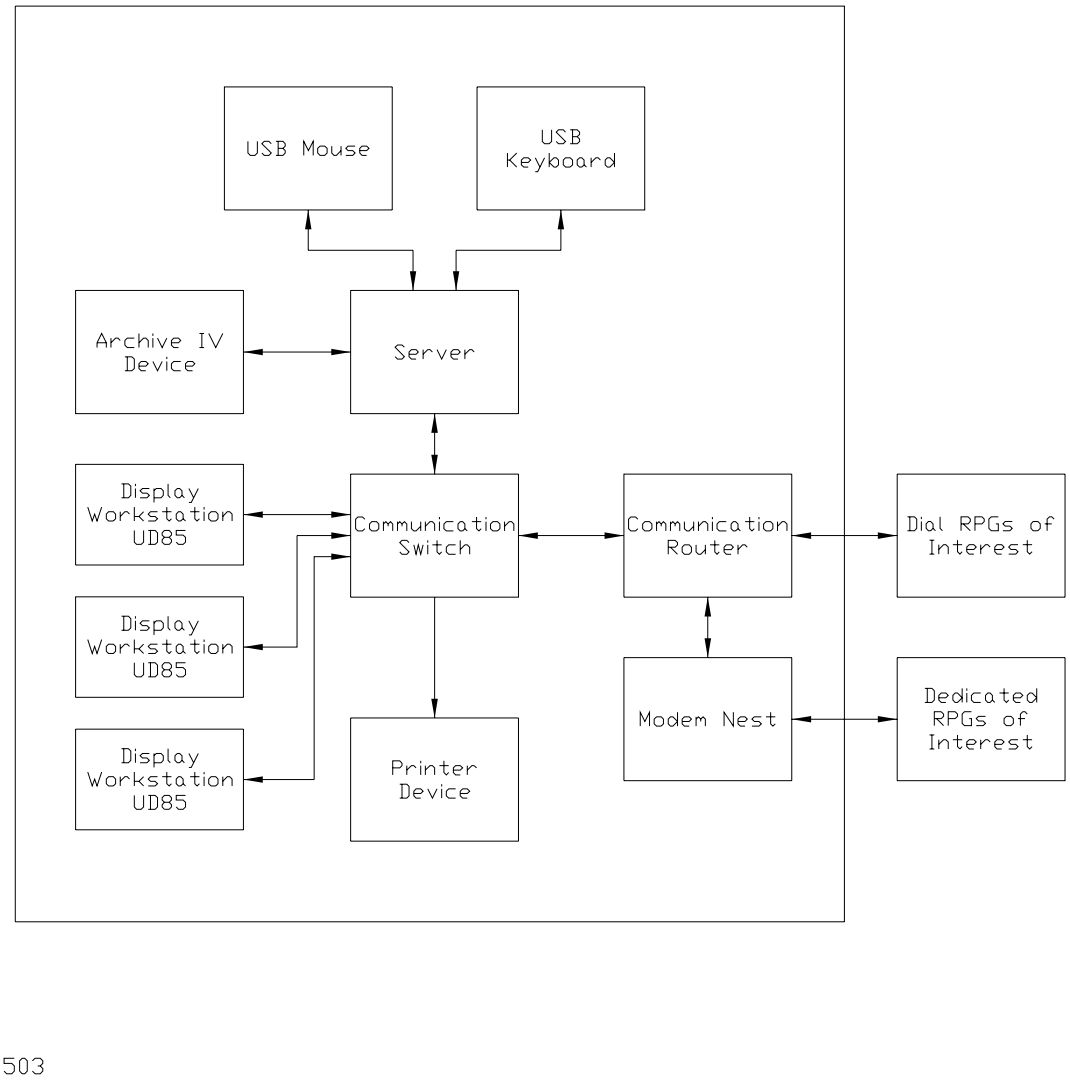


Figure 2-2. Medium OPUP Circuit Flow Diagram

Once received by either the modem nest or dial module, data is routed to the Communication Switch UD80A18 by the Communication Router UD80A3. From the communication switch, data is then routed to the Server UD80A11 for data and display processing. In addition, the communication switch will also act as a communication node for the attached Display Workstation(s) UD85, Communication Router UD80A3, and Printer UD80A22.

An administrative Monitor UD80A7 is provided for display of the `OPUP Manager Main Menu` and one Archive IV Device UD80A4 is also provided in order to archive/store WSR-88D products and message data.

If a non-isolated configuration is installed (not shown in Figure 2-2), one extra circuit (CAT5 cable) will be required in order to connect the Medium OPUP Communication Switch UD80A18 to the site's LAN Network or Intra-LAN Network DMZ Switch.

2.2.2.4 OPUP Group Equipment. Table 2-2 lists each OPUP equipment group by reference designation.

Table 2-2. Major OPUP Group Reference Designations

Reference Designation	Nomenclature/Common Name	Remarks
UD80	OPUP Large Server/Cabinet	Includes a two-bay cabinet designated as Communication and Processor cabinet.
UD80	OPUP Medium Server/Cabinet	Includes a two-bay cabinet designated as Communication and Processor cabinet.
UD85	OPUP Display Workstation	Includes a monitor, keyboard/mouse, and CPU/processor (tower format).
UD86	OPUP Small Server	Includes server (CPU/processor), display, communication, and peripheral equipment in a desktop format.

2.2.2.5 Leading Particulars. The following tables list the leading particulars associated with equipment used by Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85:

- OPUP Group Physical Dimensions - Table 2-3
- OPUP Group Power Requirements - Table 2-4
- OPUP Capability and Characteristics - Table 2-5

Table 2-3. OPUP Group Physical Dimensions

Equipment Nomenclature	Height (Inches)	Width (Inches)	Depth (Inches)	Weight (Pounds)
Large/Medium OPUP Cabinet UD80	77	47	30	800

Table 2-3. OPUP Group Physical Dimensions - Continued

Equipment Nomenclature	Height (Inches)	Width (Inches)	Depth (Inches)	Weight (Pounds)
Display Workstation CPU UD85A1	18	5	18	16
Display Workstation Monitor UD85A2	20	20	21	68
Display Workstation Keyboard/Mouse UD85A3/ A4	1	13	8	<1

Table 2-4. OPUP Group Power Requirements

Equipment Nomenclature	Voltage (Vac)	Hertz	Phase	Power (Watts)
Large or Medium OPUP Cabinet UD80	120	60	1	1163
Modem Nest UD80A1 (Both), UD80A2 (Large)	120	60	1	327.6
Cisco 3661 Communication Router UD80A3 (Large)	120	60	1	130.2
Cisco 3640 Communication Router UD80A3 (Medium)	120	60	1	128.3
Communication Switch UD80A18 (Both)	120	60	1	109.2
UPS UD80A6/A14 (Both), UD80A5/A13 (Large)	120	60	1	1400
Display Monitor UD80A7 (Both)	120	60	1	700
Server UD80A11 (Both), UD80A12 (Large)	120	60	1	473.2
Archive IV Device UD80A4 (Both)	120	60	1	7
Keyboard/Video/Mouse (KVM) Switch UD80A8 (Large)	110	60	1	.5
Display Workstation CPU UD85A1	120	60	1	79
Display Workstation Monitor UD85A2	120	60	1	103.05

Table 2-5. OPUP Group Capability and Characteristics

Parameter/Feature	Capability/Characteristic
Server UD80A11 (Both)/ UD80A12 (Large)	Data processor Sun 280R Sun Fire Server system with 2 - 440 MHz CPU’s, 32-bit architecture, 1 GB SDRAM each.

Table 2-5. OPUP Group Capability and Characteristics - Continued

Parameter/Feature	Capability/Characteristic
Communication Router UD80A3 (Large)	Cisco 3661 - 6 slot router that routes information between modems, adapter panels, and servers. Uses 32 MB SDRAM, 16 MB Flash RAM, 225 MHz RISC Architecture, and one internal 8 line dial Modem module (NM-8AM). Uses 4 NM-8A/S Async/Sync Mod/Demod Serial Modules.
Communication Router UD80A3 (Medium)	Cisco 3640 - 4 slot router that routes information between modems, adapter panels, and servers. Uses 32 MB SDRAM, 16 MB Flash RAM, 100 MHz RISC Architecture and one internal 8 line dial Modem module (NM-8AM). Uses 1 NM-8A/S Async/Sync Mod/Demod Serial Module.
Communication Switch UD80A18 (Both)	Cisco 2900 Series 10/100, 24 port self-sensing smart switch. Has 4 MB Flash RAM, 8 MB packet buffer DRAM
UPS UD80A6/A14 (Both), UD80A5/A13 (Large)	APC - 6 three conductor outlets (NEMA 5-15R), 2 sealed GEL batteries (depleted lead acid based), provides 480 Joule surge protection each. 2U rack positioning format.
Monitor UD80A7 (Both)	Sun - 17 inch, .28 dot pitch, 1024X768 60 MHz refresh rate, 17.0 diagonal dimension color monitor set.
Dedicated Modems UD80A1A1-A8 (Both) A1A9-A21/ UD80A2A1-A11 (Large)	3263 Codex 4 wire dedicated, 14,400 baud transmission rate, rack mounted Modem.
Internal Hard Drive UD80A11 A1/A2 (Both)/UD80A12A1/A2 (Large)	Fujitsu (Sun Part X6724A), 36.2 GB, 3.5 inch FC-AL format, 10,000 RPM.
Power Supply UD80A11PS1/PS2 (Both)/UD80A12PS1/PS2 (Large)	Tyco Electronics (CS926A), Series 1:4, Input 100-240V~6.25A 50/60Hz for max 560W. Internal, auto failover, and hot swappable. EN60950 Series compliant.
Archive IV Device UD80A4	Plextor CD-R/W v1.2 SCSI. 650-700 MB CD-RW and/or 700 MB CD-R SCSI-II format. Uses built-in power supply and selectable SCSI ID.
Printer UD80A22	High performance, USB/parallel interface, 64 MB RAM, TCP/IP/Ethernet ready, wax transfer technology, laser color printer.

Table 2-5. OPUP Group Capability and Characteristics - Continued

Parameter/Feature	Capability/Characteristic
Display Workstation CPU UD85A2	Sun Ultra-10 CPU, one 440 MHz CPU's, 32-bit architecture, 512 MB DRAM, one internal 18 GB hard drive.
Display Workstation Monitor UD85A1	Samsung 1280X1024, 75 MHz refresh rate, 19.1 diagonal dimension color monitor set.
Operating System (Base Server OS)	32-bit Open System Architecture. Provides multi-tasking/ multi-user/multi-environment software display system.
Application Software (Incorporated within the Server OS)	Displays WSR-88D product and message data.

2.2.3 Hardware Equipment Description.

This section provides a detailed description of each equipment assembly item associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85. To assist with the description of each equipment item provided in the following paragraphs, refer to Figure 2-4, Large OPUP Communications/Processor Group UD80, Figure 2-5, Medium OPUP Communications/Processor Group UD80, and Figure 2-8, OPUP Display Workstation Equipment Group UD85. These figures provide a depiction of each LRU. The following paragraphs discuss each LRU equipment item associated with each Large/Medium OPUP configuration.

2.2.3.1 OPUP Communication/Processor Cabinets. Each Large/Medium OPUP configuration utilizes a two-bay cabinet set which house all of the communications and processing equipment associated with the OPUP Equipment Group UD80. The left side of the cabinet houses all of the communication equipment required to process all incoming/outgoing communications. The right side of the cabinet houses all of the equipment necessary to process incoming WSR-88D products and message data and prepare them for display. The following paragraphs discuss the equipment located within each cabinet.

2.2.3.1.1 Modem Nest UD80A1/A2. The Large OPUP configuration utilizes two Modulus21 Modem Nests UD80A1/A2 for dedicated communications. The Medium OPUP configuration uses only one Modem Nest UD80A1. The Modem Nest enclosure provides inter-connectivity and power for each rack mounted dedicated modem. Each dedicated modem consists of a Motorola CODEX 3263 which provides the OPUP the ability to ingest TCP/IP dedicated circuit data. This data is in-turn routed to the Communication Router UD80A3.

The modem nest requires two types of associated communication cables. The first cable consists of an RJ-45 CAT5 type cable which connects the appropriate Adapter Panel (UD80A15/A16 for Large or UD80A15 for the Medium OPUP configuration) input jack to the corresponding jack located at the rear panel of the Modem Nest. The second cable consists of an RS-232MT 25 pin (DTE) to 60 pin type cable that connects the output of the Modem Nest to one of the four serial

modules for a Large OPUP or the single serial module for a Medium OPUP at the rear of the communication router.

NOTES

Each site will be given a specific Interconnection Diagram (ICD) which outlines the connection of each internal cable associated with each OPUP configuration. Refer to the site specific ICD for the exact internal cable connections associated with your site.

All dial communications are handled by the Communication Router UD80A3A1A1 internal NM-8AM Dial Module. Refer to paragraph 2.2.3.1.2, Communication Router UD80A3, for further information.

The CODEX 3263 modem has built-in test capability and user selectable Liquid Crystal Display (LCD) menus. Indicators on the front panel of the modem includes receive data (RD), transmit data (TD), carrier detect (CD), data terminal ready (TR), remote control/network control (RC/NC), ring indicator/off-hook (RI/OH), modem A-modem B selected (A/B) where applicable, and alarm or test in progress (ALM). These indicators can assist each maintainer with troubleshooting communication circuits and are covered in detail in Chapter 6, Maintenance.

2.2.3.1.2 Communication Router UD80A3. All dedicated and dial communications associated with either the Large or Medium OPUP Equipment Group UD80 requires the use of a communication router to accept and transfer incoming and outgoing WSR-88D product and message data to/from an RPG(s) of interest. The communication router is comprised of a Cisco 3600 Series Router. This router provides the capability to ingest TCP/IP protocol transmission data between the dedicated internal modem and OPUP Server OS. Each dedicated and dial port are configured to transfer data at 14,400 bits per second (14.4Kbps). All communication router setting configurations are set during each initial software installation. The communication router does not require any re-configuration procedures unless there has been an equipment repair/replacement or configuration change.

The Large OPUP configuration uses the Cisco 3661 Communication Router and the Medium OPUP configuration uses the Cisco 3640 Communication Router. The Large OPUP is configured with four dedicated serial modules (32 dedicated ports) and one dial module (8 dial ports). The Medium OPUP is configured with one dedicated serial module (8 dedicated ports) and one dial module (8 dial ports).

An RS-232 MT 25-to-60 pin cable (RS-422 compliant) connects the dedicated ports to the corresponding connector located at the rear of the Modem Nest UD80A1/A2 Large OPUP configuration and UD80A1 of the Medium OPUP configuration. An RJ-11 CAT5 type cable is required in order to provide connectivity between the input/output jack of the Dial Adapter Panel UD80A17 (Both Large/Medium OPUP configuration) and the corresponding input/output jack beginning at port 7 at the rear of the communication router.

2.2.3.1.2.1 Internal Dial Module UD80A3A1A1. The communication router includes one internal 8-port micro communication dial module to provide all dial circuit connectivity. This module is located at the rear of the communication router, lower right slot for Large OPUP router or lower left slot for Medium OPUP router, and has eight RJ-11 connector ports labeled starting from the rear left, 7 through 0. Each Large and Medium OPUP configuration is setup initially to access dial port 7 first. If additional dial lines are installed, the OPUP OS will access dial port 7 first, then 6 second, and etc.

2.2.3.1.3 Communication Switch UD80A18. The Cisco 2900 series Communication Switch UD80A18 provides connectivity routing for the following:

- Communication Router UD80A3
- Display Workstation(s) UD85
- Printer UD80A22
- Data Server UD80A11 and Display Server UD80A12 for the Large OPUP
- Server UD80A11 for the Medium OPUP configuration

The communication switch has the capability to provide up to 24 switchable 10/100 BaseT RJ-45 type jacks with an integrated power supply, 4 MB of internal memory, auto-sensing capability to switch between 10 or 100 MB of input/output data packet transmission, and can auto-negotiate either half and full-duplex operations.

2.2.3.1.4 Monitor UD80A7. The OPUP Large/Medium Equipment Group UD80 provides a 17-inch monitor within the equipment rack that houses both communication and process equipment to display the CDE Front Panel, `OPUP Manager Main Menu`, and to open Host/Console or Terminal windows in order to troubleshoot software or provide fault isolation maintenance.

2.2.3.1.5 Keyboard/Video/Monitor (KVM) Switch UD80A8. The keyboard/video/monitor (KVM) switch is used with the Large OPUP configuration only. The KVM provides the capability to switch between and display data on the Monitor UD80A7 from either the Data Server UD80A11 or Display Server UD80A12. The KVM requires video input cables from both servers and one input cable from the Keyboard UD80A9 and Mouse UD80A10. The KVM provides the capability to connect up to four separate monitors/servers that can be accessed by one keyboard/mouse set. However, only two servers are connected in the Large OPUP configuration.

2.2.3.1.6 Keyboard UD80A9/Mouse UD80A10. The Large and Medium OPUP Equipment Group is supplied with a Sun Microsystems version Universal Serial Bus (USB) type keyboard and mouse which is used in conjunction with the Monitor UD80A7. The keyboard consists of a type “6”, 101 AT “any key” keyboard. The mouse is configured as a three button position type mouse pointer. The input cables for both the keyboard and mouse are connected to the USB ports located at the rear of the KVM Switch. Figure 2-3 depicts an example of a USB type connector.

Figure 2-3. USB Cable Connector

2.2.3.1.7 Server UD80A11/12. The servers provide the central data and display processing capability necessary to ingest and prepare WSR-88D products and message data for display. To perform these functions, each server employs a primary and secondary hard drive. The Large OPUP utilizes two separate Servers UD80A11/12 in order to efficiently process data and meet the display capability demanded by up to 10 Display Workstations UD85. The Medium OPUP only requires the use of one Server UD80A11 to perform both data and display processing.

Each server has two multi-processor CPUs for greater processing power. Since these systems are constructed as servers, they can easily handle in-depth and highly computational intensive processing requirements demanded by the OPUP product and message data/display applications. Table 2-6 illustrates the number and type of internal components used by each server.

Table 2-6. OPUP Server Internal Components

# of Components	Part Description
2	Version 9 compliant 900 MHz 8 MB Cache 64-bit UltraSparcIII CPU
4	ECC 512 SDRAM packaged in DIMM format for a total of 2 GB
1	Fiber Channel Arbitrated Loop Channel Adapter
1	PGX64 Color Frame Buffer PCI Video Adapter
2	Internal/removable/swappable 36 GB 10000 RPM Hard Drives
2	Internal/removable/swappable Power Supplies 560 Watts (Universal)
1	Internal CD-ROM Player

Each server contains two internal hard drives. These hard drives are used in a primary and secondary drive basis. The Large OPUP configuration uses the primary and secondary hard drives in the Data Server UD80A11 to perform processes required by the OPUP Server OS (primary hard drive) and to store WSR-88D product and message data (secondary hard drive). The Display Server UD80A12 also contains a primary and secondary hard drive, however, only the primary hard drive is utilized. The Display Server UD80A12 primarily processes the connectivity and dis-

play of product and message data to all attached Display Workstations UD85. However, due to the OPUP Server OS architecture, the display server's secondary hard drive must remain in the secondary hard drive position at all times.

The Medium OPUP configuration only requires the use of a single Server UD80A11 to process and display WSR-88D product and message data. This server is configured in the same manner as used with the Large OPUP configuration Data Server UD80A11. Only one server is required due to the limited number of attached display workstations.

Each server has two power supplies. Each power supply is used in a primary and secondary fail-over (backup) basis. Each supplies and includes internal fault detection if any number of power glitches and/or failures should occur. If the primary power supply detects a fault/failure, the secondary power supply will automatically engage. The primary power supply displays an alert to notify the OPUP System Administrator that fault isolation and recovery is required. These power supplies are hot swappable as long as one is currently engaged and operational. However, the server must be powered down to the Off position before both are removed and/or replaced.

The only server components that will be allowed to be field removed/replaced are the internal hard drives and power supplies. All other server equipment is designated as depot level repair only.

2.2.3.1.8 Archive IV Device UD80A4. A recording device is required in order to backup and store Archive Level IV WSR-88D product and message data designated by operators for data archival. The recording device used for this purpose will be a 40X record, 12X re-write, and 40X read (40/12/40) external CD-R/W recorder/player. This unit can utilize either CD Recordable (CD-R) write once or CD Recordable/Write (CD-R/W) many times type disks. The recording device can write to CD-R disk media up to 40X speed and high-speed CD-R/W disk media up to 12X speed and read data at a speed of 40X.

Data located on CD-R/W disks may be erased as many times as desired. However, individual CD-R/W disk performance in terms of data storage and playback decreases with each erase procedure. It is recommended that data be erased no more than 10 times per disk in order to ensure data storage reliability. Data located on CD-R disks cannot be erased. In addition, data can only be written to these disks once. Once data is written to either a CD-R or CD-R/W disk using the archive device, additional data cannot be appended to them.

2.2.3.1.9 UPS UD80A5/A6/A13/A14. Each component in the UD80 OPUP cabinet is protected by an APC Smart UPS 1500 Rack Mounted (RM) 2U (SU1500RM2U) uninterruptible power supply series. The Large OPUP utilizes two UPS per cabinet. The Communications cabinet has two UPSs, UD80A5 and UD80A6, located near the bottom of the cabinet. The Processing cabinet has two UPSs, UD80A13 and UD80A14, located near the bottom of the cabinet. The Medium OPUP has one UPS, UD80A6, at the bottom of the Communications cabinet and one UPS, UD80A14, located at the bottom of the Processing cabinet.

The OPUP uses the UPS to provide 24 power outlets on the Large OPUP and 12 power outlets on the Medium OPUP configuration. Each UPS provides 1500 VA or 1020 Watts of power and will

run 8.1 minutes at the full capacity (using internal back-up batteries) when a loss of power is detected.

NOTE

> The OPUP cabinet layout was designed using a space balanced approach. All equipment in the cabinets that is connected to each UPS was intended to be balanced between all UPS units. Care must be taken to ensure that each piece of OPUP equipment and associated external peripherals continue to be connected in accordance with this design. Overloading an UPS will cause the unit to fail and/or shorten its life span. Refer to the system Interconnection Diagram (ICD) for more information about the layout and connectivity of equipment in the OPUP cabinet.

An UPS is necessary to provide adequate protection against brownouts, blackouts, sags, and surges in input power to the OPUP. The UPS filters out dirty facility power, small utility line fluctuations, and isolates the OPUP from large power disturbances that can cause software failures, resets, and corruptions. For monitoring purposes, each UPS in the Processor cabinet is connected via a serial cable at the rear of the unit, to the rear of an OPUP Server's serial port B. The UPS monitoring is accomplished with software called PowerChute which is provided by APC and incorporated into the OPUP Server OS which runs in the background while the OPUP Server OS is operating. The PowerChute OS does not have a GUI for display on the OPUP Server. When a loss of power is detected, the software switches the UPS to battery backup power and runs its rated capacity until 30 seconds are left. The software then sends a signal to the OPUP Server OS to perform a graceful software shutdown sequence and power down the system.

Each UPS uses two connected GEL batteries for internal backup that are located behind the front cover. Spade connectors are used to connect the leads to the batteries. Removal and replacement of the battery is covered in paragraph 6.5.11.

2.2.3.1.10 Adapter Panel UD80A15/A16/A17. The OPUP Equipment Group UD80 requires the use of a adapter panel to provide a method to separate each dedicated/dial circuit that is connected to the I/O panel by Telco cable and convert them to either a RJ-45 (Dedicated) or RJ-11 (Dial) CAT5 cable. The Large OPUP configuration uses two Adapter Panels UD80A15/A16 for dedicated communications and one for dial communications UD80A17. The Medium OPUP configuration uses one Adapter Panel UD80A15 for dedicated communications and one for dial communications UD80A17.

2.2.3.1.11 Telco Patch Panel UD80A19/A20/A21. The OPUP Equipment Group UD80 requires the use of a Telco patch panel in order to provide a method to perform troubleshooting maintenance on each crossover Telco circuit from the I/O panel to the patch panel. The Large OPUP configuration uses three Telco Patch Panels UD80A19/A20/A21 for dedicated communications. The Medium OPUP configuration uses one Patch Panel UD80A19 for dedicated communications.

2.2.3.1.12 Printer UD80A22. The OPUP Equipment Group UD80 provides the capability to connect and configure a Post Script (PS) capable color printer in order to provide color printouts

of WSR-88D products, messages, and security log data. The default printer designated for use with the Large and Medium OPUP UD80 Equipment Group is the Xerox Tektronix Phaser network interface Post Script wax transfer color printer. The printer is a high performance printer which can print color images up to 10 pages per minute (ppm) in full fast color or 16 ppm in plain black and white. The printer has the following specifications:

- Employs four solid color wax transfer ink sticks
- Produces up to 1200 dpi resolution in “Photo Mode”
- 64 MB RAM
- 300 MHz processor chip
- Bi-Directional Parallel, USB modes
- 1200 sheet capacity paper tray
- Special paper not required
- Can use Xerox transparencies

The printer does not use toner technology. Instead, wax transfer color chalk inserts are used to transfer each image to paper. Each wax transfer color chalk (one for black, magenta, cyan, and yellow) are inserted through the top of the unit into specially shape-coded slots. Each color chalk is considered be a consumable item. Part numbers associated with each color chalk are provided in Chapter 7, Illustrated Parts Breakdown (IPB). Setup, configuration, and maintenance guidance is covered in detail in Chapter 6, Maintenance.

2.2.3.1.13 Printer Setup/Connectivity Overview. Each printer device for use with the OPUP Server OS is setup and connected via the `OPUP Manager Main Menu`, `OPUP Printer Menu`. The `OPUP Printer Menu` provides a setup interface and utilities that are required in order to add or remove any printer device to/from the OPUP Server. Operators will be able to print WSR-88D product and message data via the OPUP Product Display Graphic User’s Interface (PDGUI). OPUP Security Log information may be printed using the `OPUP Manager Main Menu, Security Logs Menu`. When a product, message, or log is selected for printing, the data is sent (spooled) to a designated directory within the OPUP Server OS print directory. The data is then sent to the printer. The printer is physically connected to the OPUP server using a CAT5 cable between the printer’s network ethernet port and a port of the Communication Switch UD80A18. Discussion of the menu items found within the `OPUP Printer Menu` begins with paragraph 3.3.3.9.3.

2.2.3.2 OPUP Display Workstation UD85. Referring to Figure 2-8, the display workstation is used by OPUP operators to display and manipulate WSR-88D products and message data. Each display workstation will consist of a Sun Microsystems Ultra-10 CPU, Monitor, and Keyboard/Mouse set. Each display workstation requires a separate CAT5 RJ-45 Type cable that must be connected to the Communication Switch UD80A18 via the I/O Panel in order to access and dis-

play products and message data. When a display workstation is to be added to the OPUP, it must initially be configured by adding an ethernet-address within the `OPUP Manager Main Menu`, `Workstation Menu`. When it has been verified that this data has been entered correctly, a "JumpStart" command/procedure will be required at the display workstation. When the "JumpStart" command is entered, each workstation will take approximately 75 minutes to complete the configuration process and display the CDE Login screen.

The Display Workstation Monitor UD85A1 and Keyboard/Mouse set UD85A2/A3 employs similar characteristics of common monitors/keyboard/mouse sets that are used in most work environments.

2.2.3.3 Configuration Drawings. Figure 2-4, Large OPUP Communications/Processor Group UD80, and Figure 2-5, Medium OPUP Communications/Processor Group UD80 are provided to illustrate the location of each OPUP LRU in either the Communication or Processing cabinet. Figure 2-8, OPUP Display Workstation Equipment Group UD85, is provided to illustrate each OPUP Display Workstation LRU item. Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2), Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2), Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2), and Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2) are provided in order to illustrate how each LRU is connected in association with each configuration. In addition, a basic Display Workstation UD85 Interconnection Diagram (ICD) is provided in Figure 2-9, OPUP Display Workstation UD85 Interconnection Diagram (ICD).

NOTE

Each ICD provided in this manual are examples only. Consult the actual ICD delivered with each system. The Large/Medium OPUP and Display Workstation Configuration ICD discussions provided in the following paragraphs should be used as an overall guide.

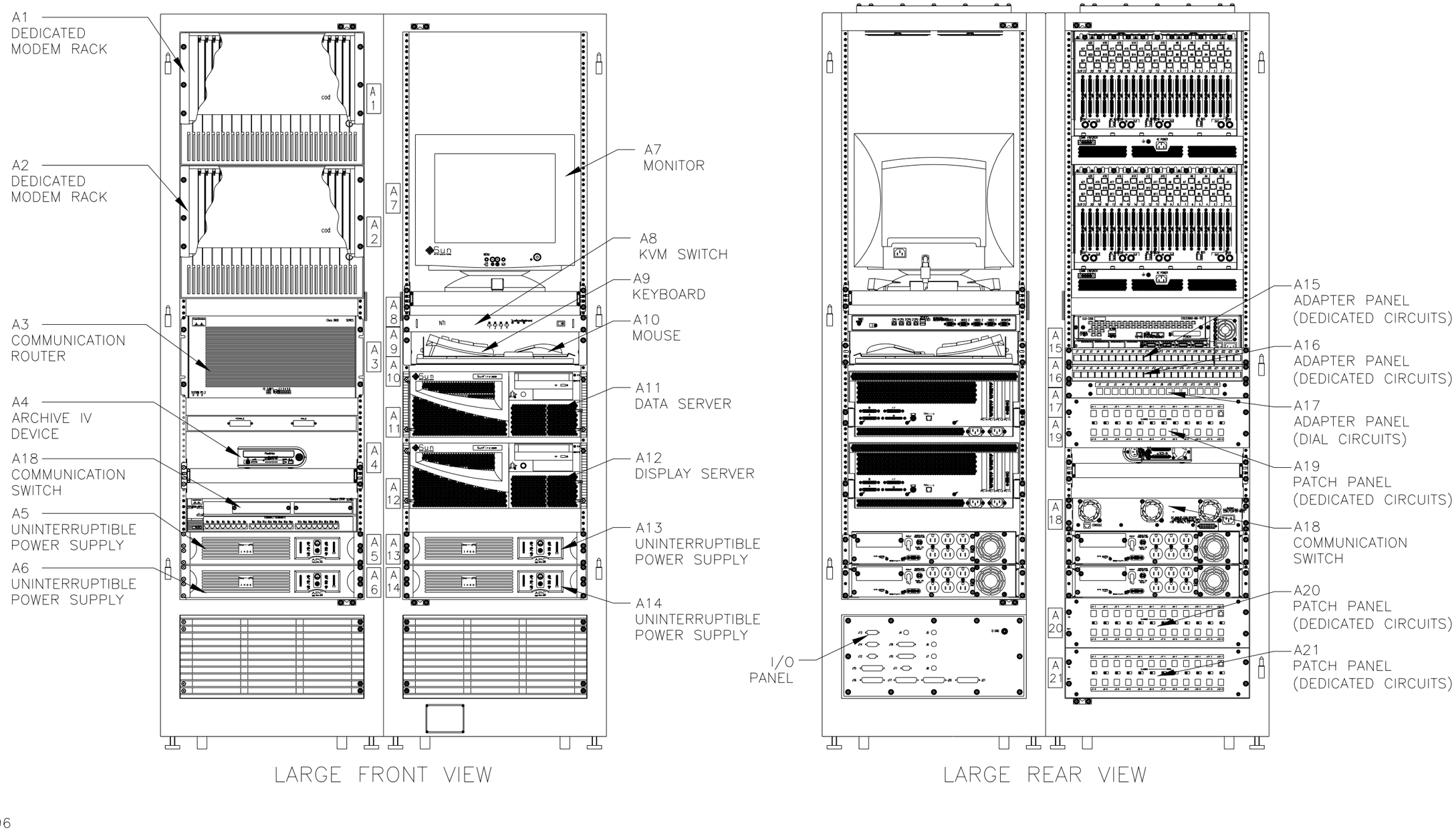


Figure 2-4. Large OPUP Communications/Processor Group UD80

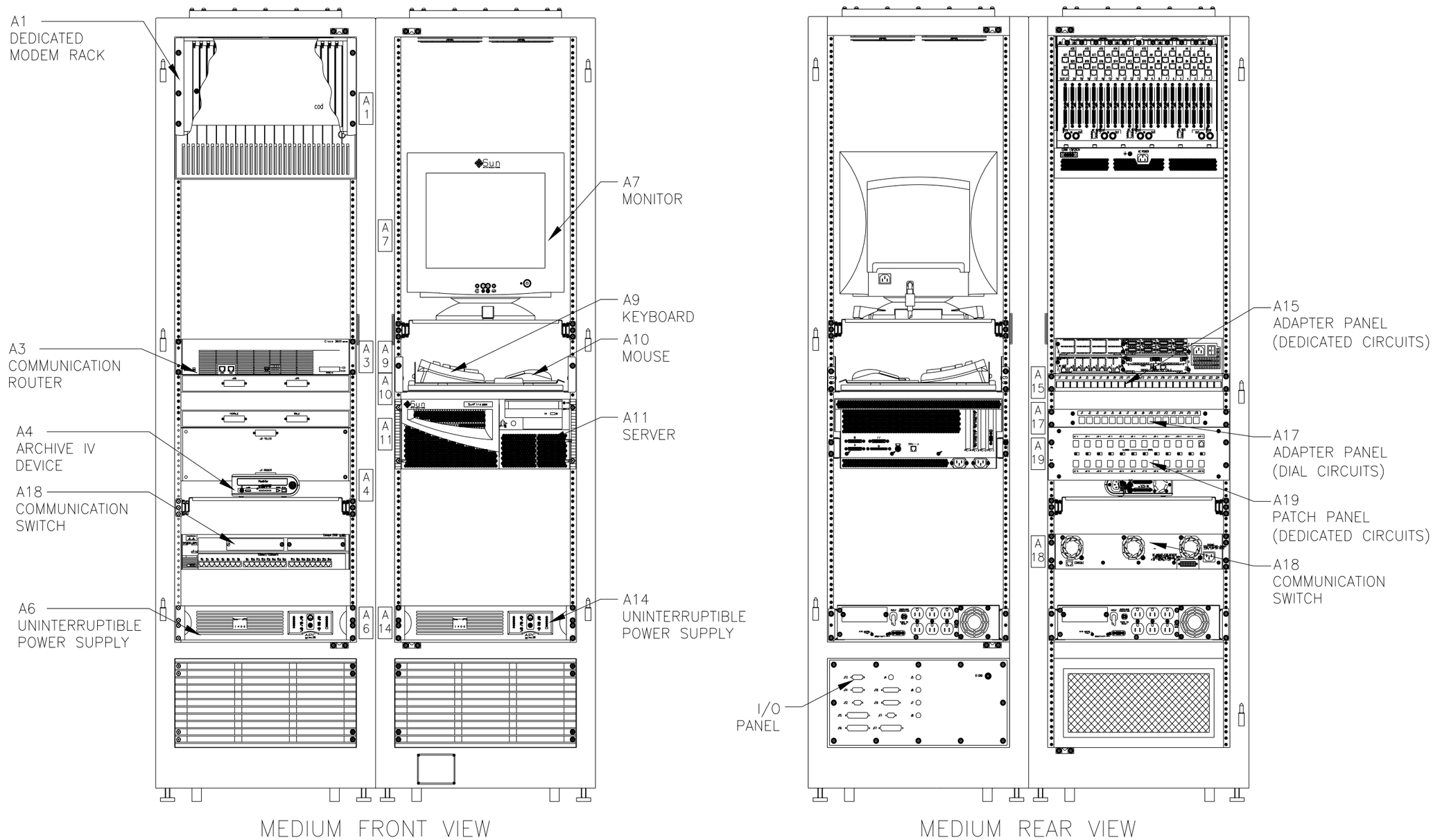


Figure 2-5. Medium OPUP Communications/Processor Group UD80

2.2.3.4 Large OPUP Interconnection Diagram (ICD) Discussion. The following paragraphs describe each major power and communication circuit distribution path illustrated within Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) and Large OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2). The following information is provided as a general overview of each internal Large OPUP configuration cable. (Refer to the appropriate paragraph of Section 2.3, Controls and Indicators, for the exact location of each control and indicator described below.)

2.2.3.4.1 AC Power Supply. All AC power is supplied via site utility electrical power. Each site must have a minimum of one single phase, 120 Volt, 60 Hz circuit standard UL plug outlet per UPS assembly (up to four). The Large OPUP Equipment Group UD80 hardware should be connected to the site's utility power outlet via UPS (UD80A5/A6/A13/A14) assemblies that are supplied within the Communication and Processor Cabinets UD80.

Each OPUP hardware item is connected to an UPS unit using a balanced equipment load approach. This means that all OPUP hardware is distributed across a specific UPS assembly to ensure that none of the UPS assemblies are overloaded. Some OPUP hardware LRU items are distributed across two UPSs; these are the Data Server UD80A11, Display Server UD80A12, and the Communication Router UD80A3. Each of these systems employ redundant power supplies.

NOTE

> In the event that a redundant power supply fails, the unit effected may remain in the power On position until a new power supply is obtained. In the event of an UPS failure, the associated power supply may be moved to another UPS assembly until the UPS is replaced. In the event that both distributed UPS assemblies fail simultaneously, both power supplies may be moved to the remaining two UPS' as long as there are available receptacles and the electrical load does not cause a battery overload warning alarm (either as a signal and/or LED indicator on the front panel.)

The UPS will provide AC line conditioning and backup power using designated AC cables connected in the following configuration:

- Cable 80W50: Used with the Modem Rack UD80A1. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Modem Rack UD80A1.

- Cable 80W51: Used with the Modem Rack UD80A2. P1 is connected to an AC outlet of UPS UD80A5. P2 is connected to the AC input of the Modem Rack UD80A2.

- Cable 80W52: Used with the Communication Router UD80A3. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Communication Router Power Supply UD80A3PS1.

- Cable 80W53: Used with the Communication Router UD80A3. P1 is connected to an AC outlet of UPS UD80A5. P2 is connected to the AC input of the Communication Router Power Supply UD80A3PS2.

- Cable 80W54: Used with the Communication Switch UD80A18. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Communication Switch.

- Cable 80W55: Used with the Data Server UD80A11. P1 is connected to an AC outlet of UPS UD80A5. P2 is connected to AC-1 plug of the Data Server UD80A11.

- Cable 80W57: Used with the Display Server UD80A12. P1 is connected to an AC outlet of UPS UD80A14. P2 is connected to AC-0 plug of the Display Server UD80A12.

- Cable 80W58: Used with the Display Server UD80A12. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to AC-1 plug of the Display Server UD80A12.

- Cable 80W59: Used with the Monitor UD80A7. P1 is connected to an AC outlet of UPS UD80A14. P2 is connected to AC plug of the Monitor.

- Cable 80W60: Used with the Archive IV Device UD80A4. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to AC plug of the Archive IV Device.

- Cable 80W61: Used with the KVM Switch UD80A8. P1 is connected to an AC outlet of UPS UD80A13. P2 is connected to the AC input of the Transformer of the KVM Switch. P3 is connected to 5VDC input of the KVM Switch.

- Cable 80W63: Used with the Data Server UD80A11. P1 is connected to an AC outlet of UPS UD80A13. P2 is connected to the AC-0 input of the Data Server UD80A11.

2.2.3.4.2 Processes. Each OPUP peripheral requires specific input/output cables in order to transmit data associated with WSR-88D product and messages. Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) will assist with the following cable connectivity discussion:

- Cable 80W200: Used to connect the Communication Switch UD80A18 to the Data Server UD80A11. P1 is connected to port 1X of the Communication Switch UD80A18. P2 is connected to the TCP/IP <...> port of the Data Server UD80A11.

- Cable 80W201: Used to connect the Communication Switch UD80A18 to the Display Server UD80A12. P1 is connected to port 3X of the Communication Switch UD80A18. P2 is connected to the TCP/IP <...> port of the Display Server UD80A12.

- Cable 80W202: Used to connect Communication Router UD80A3 to the Communication Switch UD80A18. P2 is connected to the Communication Router UD80A3A1 10/100 ETHERNET 0/0 port. P1 is connected to port 2X of the Communication Switch UD80A18.

- Cable 80W204: Used to connect the Communication Switch UD80A18 to the I/O Panel. P1 is connected to port 4X of the Communication Switch UD80A18. P1 is connected to the I/O

Panel CP1 jack. This connection is for Display Workstation UD85 Position #1.

- Cable 80W205: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 5X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP2 jack. This connection is for Display Workstation UD85 Position #2.

- Cable 80W206: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 6X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP3 jack. This connection is for Display Workstation UD85 Position #3.

- Cable 80W207: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 7X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP4 jack. This connection is for Display Workstation UD85 Position #4.

- Cable 80W208: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 8X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP5 jack. This connection is for Display Workstation UD85 Position #5.

- Cable 80W209: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 9X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP6 jack. This connection is for Display Workstation UD85 Position #6.

- Cable 80W210: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 10X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP7 jack. This connection is for Display Workstation UD85 Position #7.

- Cable 80W211: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 11X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP8 jack. This connection is for Display Workstation UD85 Position #8.

- Cable 80W212: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 12X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP9 jack. This connection is for Display Workstation UD85 Position #9.

- Cable 80W213: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 13X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP10 jack. This connection is for Display Workstation UD85 Position #10.

- Cable 80W214: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 14X of the Communication Switch UD80A18 port. P1 is connected to the I/O Panel CP11 jack. This connection is for the Printer UD80A22.

- Cable 80W216: Used to connect the Communication Router UD80A3 to the I/O Panel. P2 is connected to the 1 Fast Ethernet 2 WIC (1FE2W) Module UD80A3A1A6 FAST ETH0 port. P1 is connected to the I/O Panel CP12 jack.

- Cable 80W220: Used to connect the KVM Switch UD80A8 to the Display Server UD80A12. This cable is a dual mode video type cable. P1 is connected to the PCI1 port of

the Display Server UD80A12. P2 is connected to the KVM Switch UD80A8 Video 2 input port. P3 is connected to the USB (Lower Right) port of the Display Server UD80A12. P4 is connected to the KVM Switch UD80A8 CPU 2 port.

- Cable 80W221: Used to connect the KVM Switch UD80A8 to the Data Server UD80A11. This cable is a dual mode video type cable. P1 is connected to the PCI1 port of the Data Server UD80A11. P2 is connected to the KVM Switch UD80A8 Video 1 input port. P3 is connected to the USB (Lower Right) port of the Data Server UD80A11. P4 is connected to the KVM Switch UD80A8 CPU 1 port.

- Cable 80W222: Used to connect the Data Server UD80A11 to the Archive IV Device UD80A4. This is a SCSI II type cable. P1 is connected to the SCSI port of the Data Server UD80A11. P2 is connected to the SCSI-IN port of the Archive IV Device UD80A4.

- Cable 80W223: Used to connect the UPS UD80A14 to the Display Server UD80A12. This is a 9-pin Serial input cable used with APC “Power Chute” software. P1 is connected to the Display Server UD80A12 Serial B port via CP14. P2 is connected to the UPS UD80A14 9-pin Serial Port.

- Cable 80W224: Used to connect the UPS UD80A13 to the Data Server UD80A11. This is a 9-pin Serial input cable used with APC “Power Chute” software. P1 is connected to the Data Server UD80A11 Serial B port via CP13. P2 is connected to the UPS UD80A13 9-pin Serial port.

- Cable 80W300: Used to connect Communication Router UD80A3 to the Data Server UD80A11. P1 is connected to the port of the Communication Router UD80A3A1. P2 is connected to CP15, Null Modem Adapter which is connected to the Serial port A of the Data Server UD80A11.

2.2.3.4.3 Communications. Each OPUP peripheral requires specific input/output cables in order to transmit communication data. Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2) will assist with the following cable connectivity discussion:

- Cable 80W21: Used to connect Patch Panel UD80A19 to Adapter Panel UD80A15. This is a Telco type cable. P1 is connected to J25 of the Adapter Panel UD80A15. P2 is connected to the J1 Telco connector of the Patch Panel UD80A19.

- Cable 80W22: Used to connect Patch Panel UD80A20 to Adapter Panel UD80A15. This is a Telco type cable. P1 is connected to J26 of the Adapter Panel UD80A15. P2 is connected to the J1 Telco connector of the Patch Panel UD80A20.

- Cable 80W23: Used to connect Patch Panel UD80A21 to Adapter Panel UD80A16. This is a Telco type cable. P1 is connected to J25 of the Adapter Panel UD80A16. P2 is connected to the J1 Telco connector of the Patch Panel UD80A21.

- Cable 80W30: Used to connect Patch Panel UD80A19 to the I/O Panel. This is a Telco type cable. P1 is connected to J2 of the Patch Panel UD80A19. P2 is connected to the J2 Telco connector of the Telco I/O panel.

- Cable 80W31: Used to connect Patch Panel UD80A20 to the I/O Panel. This is a Telco type cable. P1 is connected to J2 of the Patch Panel UD80A20. P2 is connected to the J3 Telco connector of the Telco I/O panel.

- Cable 80W32: Used to connect Patch Panel UD80A21 to the I/O Panel. This is a Telco type cable. P1 is connected to J2 of the Patch Panel UD80A21. P2 is connected to the J4 Telco connector of the Telco I/O panel.

- Cable 80W33: Used to connect Adapter Panel UD80A17 to the I/O Panel. This is a Telco type cable. P1 is connected to the MALE connector of the Adapter Panel UD80A17. P2 is connected to the J1 Telco connector of the Telco I/O panel.

- Cable 80W101: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B1 of the Modem Rack Backplane. P2 is connected to J1 of the Adapter Panel UD80A15.

- Cable 80W102: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B2 of the Modem Rack Backplane. P2 is connected to J2 of the Adapter Panel UD80A15.

- Cable 80W103: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B3 of the Modem Rack Backplane. P2 is connected to J3 of the Adapter Panel UD80A15.

- Cable 80W104: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B4 of the Modem Rack Backplane. P2 is connected to J4 of the Adapter Panel UD80A15.

- Cable 80W105: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B5 of the Modem Rack Backplane. P2 is connected to J5 of the Adapter Panel UD80A15.

- Cable 80W106: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B6 of the Modem Rack Backplane. P2 is connected to J6 of the Adapter Panel UD80A15.

- Cable 80W107: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B7 of the Modem Rack Backplane. P2 is connected to J7 of the Adapter Panel UD80A15.

- Cable 80W108: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B8 of the Modem Rack Backplane. P2 is connected to J8 of the Adapter Panel UD80A15.

- Cable 80W109: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B9 of the Modem Rack Backplane. P2 is connected to J9 of the Adapter Panel UD80A15.

- Cable 80W110: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B10 of the Modem Rack Backplane. P2 is connected to J10 of the Adapter Panel UD80A15.

- Cable 80W111: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B11 of the Modem Rack Backplane. P2 is connected to J11 of the Adapter Panel UD80A15.

- Cable 80W112: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B12 of the Modem Rack Backplane. P2 is connected to J12 of the Adapter Panel UD80A15.

- Cable 80W113: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B13 of the Modem Rack Backplane. P2 is connected to J13 of the Adapter Panel UD80A15.

- Cable 80W114: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B14 of the Modem Rack Backplane. P2 is connected to J14 of the Adapter Panel UD80A15.

- Cable 80W115: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B15 of the Modem Rack Backplane. P2 is connected to J15 of the Adapter Panel UD80A15.

- Cable 80W116: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B16 of the Modem Rack Backplane. P2 is connected to J16 of the Adapter Panel UD80A15.

- Cable 80W117: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B17 of the Modem Rack Backplane. P2 is connected to J17 of the Adapter Panel UD80A15.

- Cable 80W118: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B18 of the Modem Rack Backplane. P2 is connected to J18 of the Adapter Panel UD80A15.

- Cable 80W119: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B19 of the Modem Rack Backplane. P2 is connected to J19 of the Adapter Panel UD80A15.

- Cable 80W120: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B20 of the Modem Rack Backplane. P2 is connected to J20 of the Adapter Panel UD80A15.

- Cable 80W121: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B21 of the Modem Rack Backplane. P2 is connected to J21 of the Adapter Panel UD80A15.

- Cable 80W122: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B1 of the Modem Rack Backplane. P2 is connected to J1 of the Adapter Panel UD80A16.

- Cable 80W123: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B2 of the Modem Rack Backplane. P2 is connected to J2 of the Adapter Panel UD80A16.

- Cable 80W124: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B3 of the Modem Rack Backplane. P2 is connected to J3 of the Adapter Panel UD80A16.

- Cable 80W125: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B4 of the Modem Rack Backplane. P2 is connected to J4 of the Adapter Panel UD80A16.

- Cable 80W126: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B5 of the Modem Rack Backplane. P2 is connected to J5 of the Adapter Panel UD80A16.

- Cable 80W127: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B6 of the Modem Rack Backplane. P2 is connected to J6 of the Adapter Panel UD80A16.

- Cable 80W128: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B7 of the Modem Rack Backplane. P2 is connected to J7 of the Adapter Panel UD80A16.

- Cable 80W129: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B8 of the Modem Rack Backplane. P2 is connected to J8 of the Adapter Panel UD80A16.

- Cable 80W130: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B9 of the Modem Rack Backplane. P2 is connected to J9 of the Adapter Panel UD80A16.

- Cable 80W131: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B10 of the Modem Rack Backplane. P2 is connected to J10 of the Adapter Panel UD80A16.

- Cable 80W132: Used to connect Modem Rack Backplane UD80A2 to Adapter Panel UD80A16. P1 is connected to B11 of the Modem Rack Backplane. P2 is connected to J11 of the Adapter Panel UD80A16.

- Cable 80W150: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 0 of the Dial Module (NM-8AM). P2 is connected to J1 of the Adapter Panel UD80A17.

- Cable 80W151: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 1 of the Dial Module (NM-8AM). P2 is connected to J2 of the Adapter Panel UD80A17.

- Cable 80W152: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 2 of the Dial Module (NM-8AM). P2 is connected to J3 of the Adapter Panel UD80A17.

- Cable 80W153: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 3 of the Dial Module (NM-8AM). P2 is connected to J4 of the Adapter Panel UD80A17.

- Cable 80W154: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 4 of the Dial Module (NM-8AM). P2 is connected to J5 of the Adapter Panel UD80A17.

- Cable 80W155: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 5 of the Dial Module (NM-8AM). P2 is connected to J6 of the Adapter Panel UD80A17.

- Cable 80W156: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 6 of the Dial Module (NM-8AM). P2 is connected to J7 of the Adapter Panel UD80A17.

- Cable 80W157: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 7 of the Dial Module (NM-8AM). P2 is connected to J8 of the Adapter Panel UD80A17.

- Cable 80W250: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 0 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A1 of the Modem Rack UD80A1.

- Cable 80W251: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 1 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A2 of the Modem Rack UD80A1.

- Cable 80W252: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 2 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A3 of the Modem Rack UD80A1.

- Cable 80W253: Used to connect Dedicated circuit data between the Communication Router

UD80A3 and the Modem Rack UD80A1. P1 is connected to port 3 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A4 of the Modem Rack UD80A1.

- Cable 80W254: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 4 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A5 of the Modem Rack UD80A1.

- Cable 80W255: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 5 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A6 of the Modem Rack UD80A1.

- Cable 80W256: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 6 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A7 of the Modem Rack UD80A1.

- Cable 80W257: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 7 of the Communication Router Serial Module (M2/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A8 of the Modem Rack UD80A1.

- Cable 80W258: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 0 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A9 of the Modem Rack UD80A1.

- Cable 80W259: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 1 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A10 of the Modem Rack UD80A1.

- Cable 80W260: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 2 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A11 of the Modem Rack UD80A1.

- Cable 80W261: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 3 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A12 of the Modem Rack UD80A1.

- Cable 80W262: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 4 of the Communication

Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A13 of the Modem Rack UD80A1.

- Cable 80W263: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 5 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A14 of the Modem Rack UD80A1.

- Cable 80W264: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 6 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A15 of the Modem Rack UD80A1.

- Cable 80W265: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 7 of the Communication Router Serial Module (M3/8AS) UD80A3A1A3. P2 is connected to the DTE connector port A16 of the Modem Rack UD80A1.

- Cable 80W266: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 0 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A17 of the Modem Rack UD80A1.

- Cable 80W267: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 1 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A18 of the Modem Rack UD80A1.

- Cable 80W268: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 2 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A19 of the Modem Rack UD80A1.

- Cable 80W269: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 3 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A20 of the Modem Rack UD80A1.

- Cable 80W270: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 4 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A21 of the Modem Rack UD80A1.

- Cable 80W271: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 5 of the Communication

Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A1 of the Modem Rack UD80A2.

- Cable 80W272: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 6 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A2 of the Modem Rack UD80A2.

- Cable 80W273: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 7 of the Communication Router Serial Module (M4/8AS) UD80A3A1A4. P2 is connected to the DTE connector port A3 of the Modem Rack UD80A2.

- Cable 80W274: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 0 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A4 of the Modem Rack UD80A2.

- Cable 80W275: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 1 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A5 of the Modem Rack UD80A2.

- Cable 80W276: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 2 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A6 of the Modem Rack UD80A2.

- Cable 80W277: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 3 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A7 of the Modem Rack UD80A2.

- Cable 80W278: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 4 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A8 of the Modem Rack UD80A2.

- Cable 80W279: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 5 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A9 of the Modem Rack UD80A2.

- Cable 80W280: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 6 of the Communication

Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A10 of the Modem Rack UD80A2.

- Cable 80W281: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A2. P1 is connected to port 7 of the Communication Router Serial Module (M5/8AS) UD80A3A1A5. P2 is connected to the DTE connector port A11 of the Modem Rack UD80A2.

2.2.3.4.4 Display Workstation UD85 Cable Connectivity. Each display workstation will utilize up to 4 cables. Refer to Figure 2-9, OPUP Display Workstation UD85 Interconnection Diagram (ICD), for a depiction of the cables associated with the Display Workstation UD85. (Figure 2-6, Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) provides an illustration of how each workstation will be connected via CAT5 type cable to the Communication Switch UD80A18.)

- Cable W381 through W390: Used to connect each Display Workstation CPU/Processor UD85A2 to the Communication Switch UD80A18 via the I/O Panel. P2 is connected to the Ethernet port <...> of the Display Workstation CPU/Processor UD85A2. P1 is connected to CP1 through CP10 of the I/O Panel, respectively.

- Cable 85W2: Used to provide AC power to each Display Workstation Monitor UD85A1. P1 is connected to the Display Monitor AC input. P2 is connected to an available AC source.

- Cable 85W3: Used to provide AC power to each Display Workstation CPU/Processor UD85A2. P1 is connected to the Display Workstation CPU/Processor AC input. P2 is connected to an available AC source.

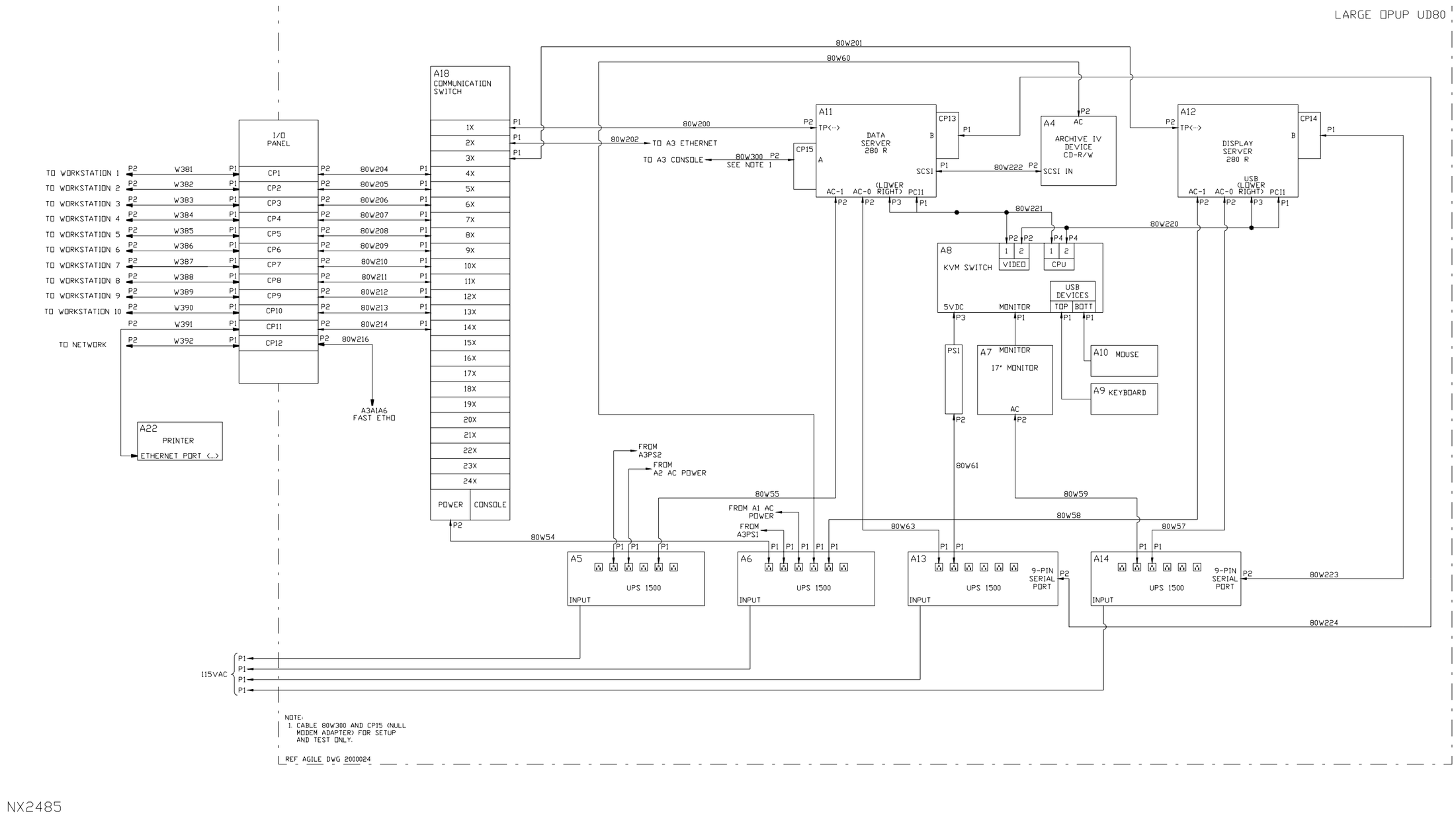


Figure 2-6. Large OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2)

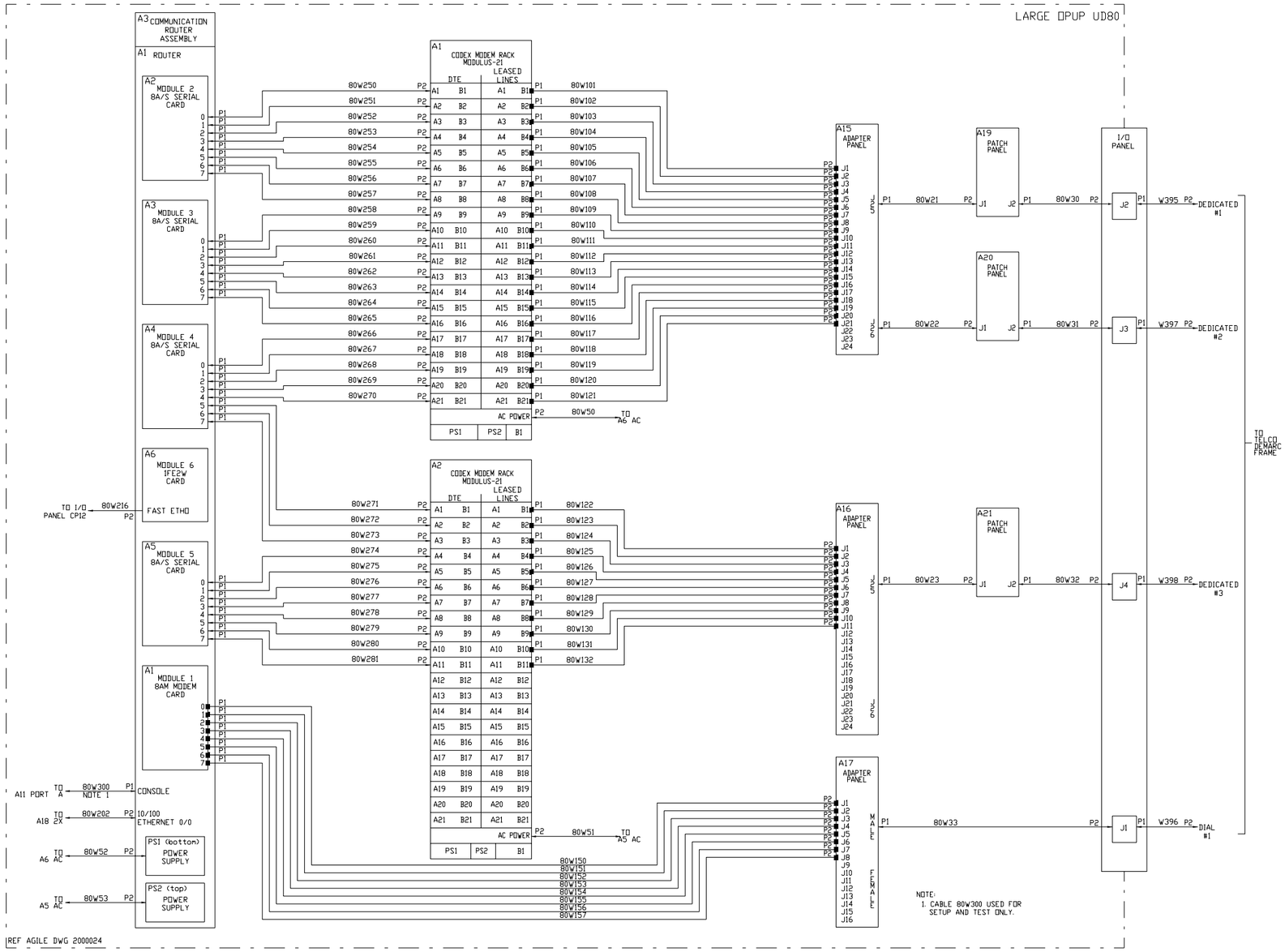


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Figure 2-6. Large OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2)

2.2.3.5 Medium OPUP Interconnection Diagram (ICD) Discussion. The following paragraphs describe each major power and communication circuit distribution path illustrated within Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) and Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2). The following information is provided as a general overview of each internal Medium OPUP configuration cable. (Refer to the appropriate paragraph of Section 2.3, Controls and Indicators, for the exact location of each control and indicator described below.)

2.2.3.5.1 AC Power Supply. All AC power is supplied via site utility electrical power. Each site must have a minimum of one single phase, 120 Volt, 60 Hz circuit standard UL plug outlet per UPS assembly (up to two). The Medium OPUP Equipment Group UD80 hardware should be connected to the site's utility power outlet via each UPS (UD80A6/A14) assemblies that are supplied within the Communication and Processor Cabinets UD80.

Each OPUP hardware item is connected to an UPS unit using a balanced equipment load approach. This means that all OPUP hardware is distributed across a specific UPS assembly to ensure that none of the UPS assemblies are overloaded. The redundant power supplies of Server UD80A11 are distributed across two UPS.

NOTE

> In the event that a redundant power supply fails, the server may remain in the power On position until a new power supply is obtained. In the event of an UPS failure, the associated power supply may be moved to the other UPS assembly until the UPS is replaced.

The UPS will provide AC line conditioning and backup power using designated AC cables connected in the following configuration:

- Cable 80W50: Used with the Modem Rack UD80A1. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Modem Rack UD80A1.
- Cable 80W52: Used with the Communication Router UD80A3. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Communication Router UD80A3.
- Cable 80W54: Used with the Communication Switch UD80A18. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to the AC input of the Communication Switch.
- Cable 80W56: Used with the Server UD80A11. P1 is connected to an AC outlet of UPS UD80A14. P2 is connected to AC-0 plug of the Server UD80A11.
- Cable 80W59: Used with the Monitor UD80A7. P1 is connected to an AC outlet of UPS UD80A14. P2 is connected to AC plug of the Monitor.

- Cable 80W60: Used with the Archive IV Device UD80A4. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to AC plug of the Archive IV Device.

- Cable 80W62: Used with the Server UD80A11. P1 is connected to an AC outlet of UPS UD80A6. P2 is connected to AC-1 plug of the Server UD80A11.

2.2.3.5.2 Processes. Each OPUP peripheral requires specific input/output cables in order to transmit data associated with WSR-88D product and messages. Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) will assist with the following cable connectivity discussion:

- Cable 80W200: Used to connect the Communication Switch UD80A18 to the Server UD80A11. P1 is connected to port 1X of the Communication Switch UD80A18. P2 is connected to the TCP/IP <...> port of the Server UD80A11.

- Cable 80W222: Used to connect the Server UD80A11 to the Archive IV Device UD80A4. This is a SCSI II type cable. P1 is connected to the SCSI port of the Server UD80A11. P2 is connected to the SCSI-IN port of the Archive IV Device UD80A4.

- Cable 80W225: Used to connect the UPS UD80A14 to the Server UD80A11. This is a 9-pin Serial input cable used with APC “Power Chute” software. P1 is connected to the Server UD80A11 Serial B port via CP13. P2 is connected to the UPS UD80A14 9-pin Serial port.

- Cable 80W300: Used to connect Communication Router UD80A3 to the Server UD80A11. P1 is connected to the CONSOLE port of the Communication Router UD80A3A1. P2 is connected to CP15 Null Modem Adapter, which is connected to the Serial A port of the Server UD80A11.

2.2.3.5.3 Communications. Each OPUP peripheral requires specific input/output cables in order to transmit communication data. Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2) will assist with the following cable connectivity discussion:

- Cable 80W21: Used to connect Patch Panel UD80A19 to Adapter Panel UD80A15. This is a Telco type cable. P1 is connected to J25 of the Adapter Panel UD80A15. P2 is connected to the J1 Telco connector of the Patch Panel UD80A19.

- Cable 80W30: Used to connect Patch Panel UD80A19 to I/O Panel. This is a Telco type cable. P1 is connected to J2 of the Patch Panel UD80A19. P2 is connected to the J12 Telco connector of the Telco I/O panel.

- Cable 80W33: Used to connect Adapter Panel UD80A17 to the I/O Panel. This is a Telco type cable. P1 is connected to the MALE connector of the Adapter Panel UD80A17. P2 is connected to the J1 Telco connector of the Telco I/O panel.

- Cable 80W101: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B1 of the Modem Rack Backplane. P2 is connected to J1 of the Adapter Panel UD80A15.

- Cable 80W102: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B2 of the Modem Rack Backplane. P2 is connected to J2 of the Adapter Panel UD80A15.

- Cable 80W103: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B3 of the Modem Rack Backplane. P2 is connected to J3 of the Adapter Panel UD80A15.

- Cable 80W104: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B4 of the Modem Rack Backplane. P2 is connected to J4 of the Adapter Panel UD80A15.

- Cable 80W105: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B5 of the Modem Rack Backplane. P2 is connected to J5 of the Adapter Panel UD80A15.

- Cable 80W106: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B6 of the Modem Rack Backplane. P2 is connected to J6 of the Adapter Panel UD80A15.

- Cable 80W107: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B7 of the Modem Rack Backplane. P2 is connected to J7 of the Adapter Panel UD80A15.

- Cable 80W108: Used to connect Modem Rack Backplane UD80A1 to Adapter Panel UD80A15. P1 is connected to B8 of the Modem Rack Backplane. P2 is connected to J8 of the Adapter Panel UD80A15.

- Cable 80W150: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 0 of the Dial Module (NM-8AM). P2 is connected to J1 of the Adapter Panel UD80A17.

- Cable 80W151: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 1 of the Dial Module (NM-8AM). P2 is connected to J2 of the Adapter Panel UD80A17.

- Cable 80W152: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 2 of the Dial Module (NM-8AM). P2 is connected to J3 of the Adapter Panel UD80A17.

- Cable 80W153: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 3 of the Dial Module (NM-8AM). P2 is connected to J4 of the Adapter Panel UD80A17.

- Cable 80W154: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 4 of the Dial Module (NM-8AM). P2 is connected to J5 of the Adapter Panel UD80A17.

- Cable 80W155: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 5 of the Dial Module (NM-8AM). P2 is connected to J6 of the Adapter Panel UD80A17.

- Cable 80W156: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 6 of the Dial Module (NM-8AM). P2 is connected to J7 of the Adapter Panel UD80A17.

- Cable 80W157: Used to connect Communication Router Dial Module UD80A3A1A1 to Adapter Panel UD80A17. P1 is connected to port 7 of the Dial Module (NM-8AM). P2 is connected to J8 of the Adapter Panel UD80A17.

- Cable 80W203: Used to connect Communication Router UD80A3 to the Communication Switch UD80A18. P1 is connected to the Communication Switch UD80A18 port 2X. P2 is connected to the FAST ETH0 port of the Communication Router Fast Ethernet Module (2FE2W) UD80A3A1A0.

- Cable 80W204: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 4X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP1 jack. This connection is for Display Workstation UD85 Position #1.

- Cable 80W205: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 5X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP2 jack. This connection is for Display Workstation UD85 Position #2.

- Cable 80W206: Used to connect the Communication Switch UD80A18 to the I/O Panel. P2 is connected to port 6X of the Communication Switch UD80A18. P1 is connected to the I/O Panel CP3 jack. This connection is for Display Workstation UD85 Position #3.

- Cables 80W207 through 80W214: Used to connect the Communication Switch UD80A18 ports 7X through 14X to I/O Panel CP4 through CP10. These cables are not used in the Medium OPUP configuration.

- Cable 80W215: Used to connect the Communication Router UD80A3 to the I/O Panel. P2 is connected to the FAST ETH1 port of the Communication Router Fast Ethernet Module (2FE2W) UD80A3A1A0. P1 is connected to the I/O Panel CP12 jack.

- Cable 80W250: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 0 of the Communication

Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A1 of the Modem Rack UD80A1.

- Cable 80W251: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 1 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A2 of the Modem Rack UD80A1.

- Cable 80W252: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 2 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A3 of the Modem Rack UD80A1.

- Cable 80W253: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 3 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A4 of the Modem Rack UD80A1.

- Cable 80W254: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 4 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A5 of the Modem Rack UD80A1.

- Cable 80W255: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 5 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A6 of the Modem Rack UD80A1.

- Cable 80W256: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 6 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A7 of the Modem Rack UD80A1.

- Cable 80W257: Used to connect Dedicated circuit data between the Communication Router UD80A3 and the Modem Rack UD80A1. P1 is connected to port 7 of the Communication Router Serial Module (M3/8AS) UD80A3A1A2. P2 is connected to the DTE connector port A8 of the Modem Rack UD80A1.

2.2.3.5.4 Display Workstation UD85 Cable Connectivity. Each display workstation will utilize up to 4 cables. Refer to Figure 2-9, OPUP Display Workstation UD85 Interconnection Diagram (ICD) for a depiction of the cables associated with the Display Workstation UD85. (Figure 2-7, Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 1 of 2) provides an illustration of how each workstation will be connected via CAT5 type cable to the Communication Switch UD80A18.)

- Cable W381 through W383: Used to connect each Display Workstation CPU/Processor UD85A2 to the Communication Switch UD80A18 via the I/O Panel. P2 is connected to the

Ethernet port <...> of the Display Workstation CPU/Processor UD85A2. P1 is connected to CP1 through CP3 of the I/O Panel, respectively.

- Cable 85W2: Used to provide AC power to each Display Workstation Monitor UD85A1. P1 is connected to the Display Monitor AC input. P2 is connected to an available AC source.

- Cable 85W3: Used to provide AC power to each Display Workstation CPU/Processor UD85A2. P1 is connected to the Display Workstation CPU/Processor AC input. P2 is connected to an available AC source.

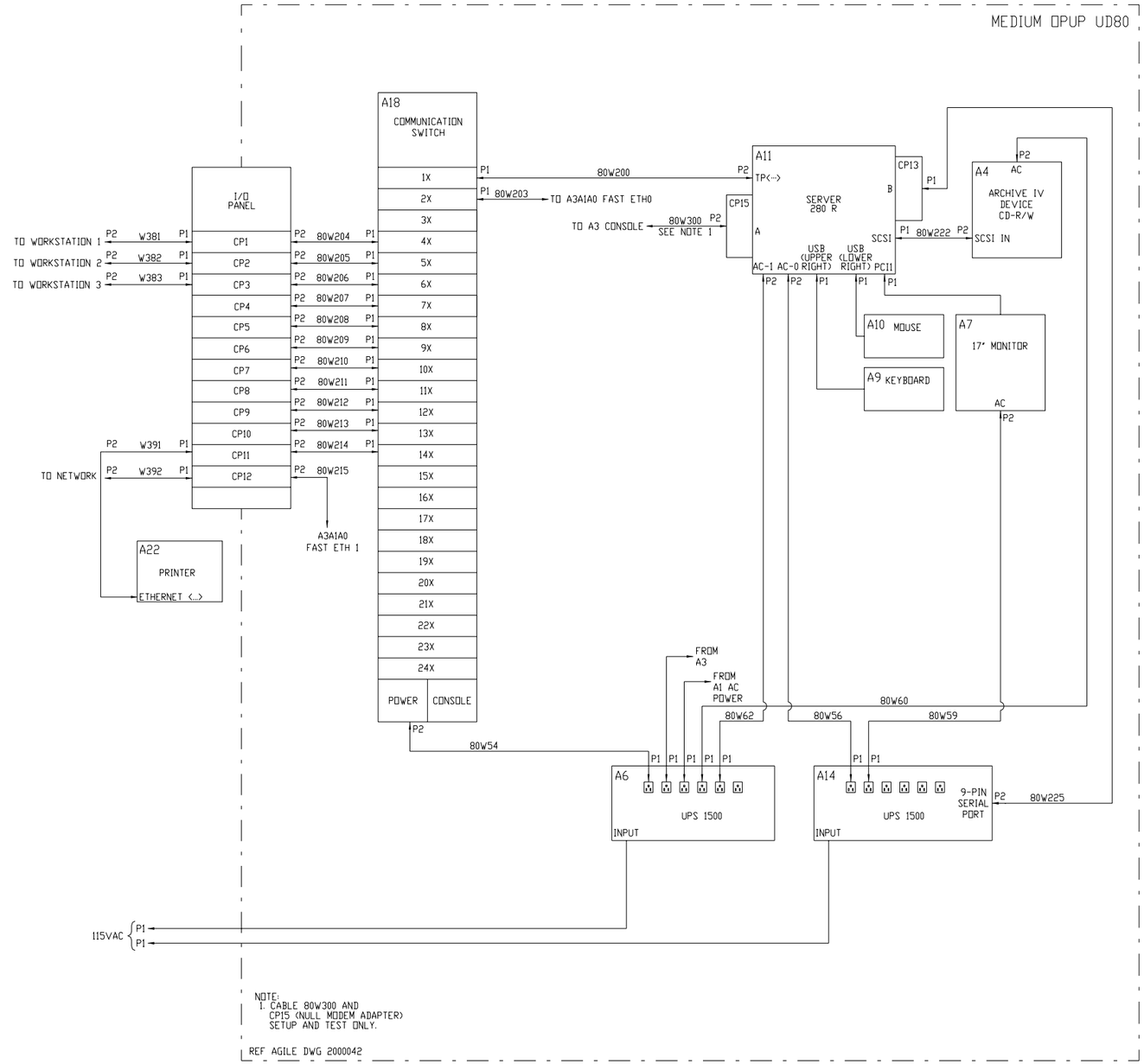

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Figure 2-7. Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2)

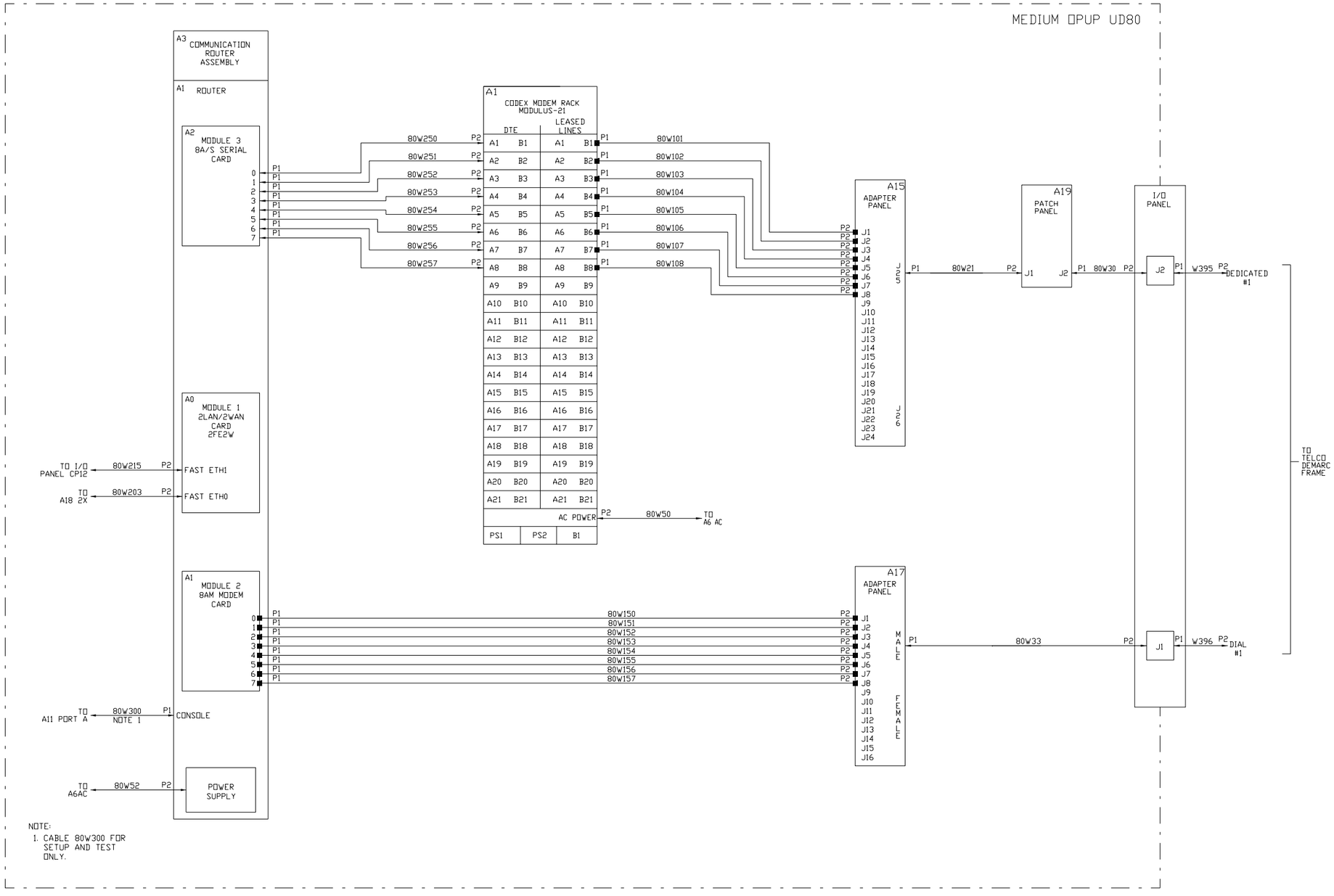

Figure 2-7. Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2)

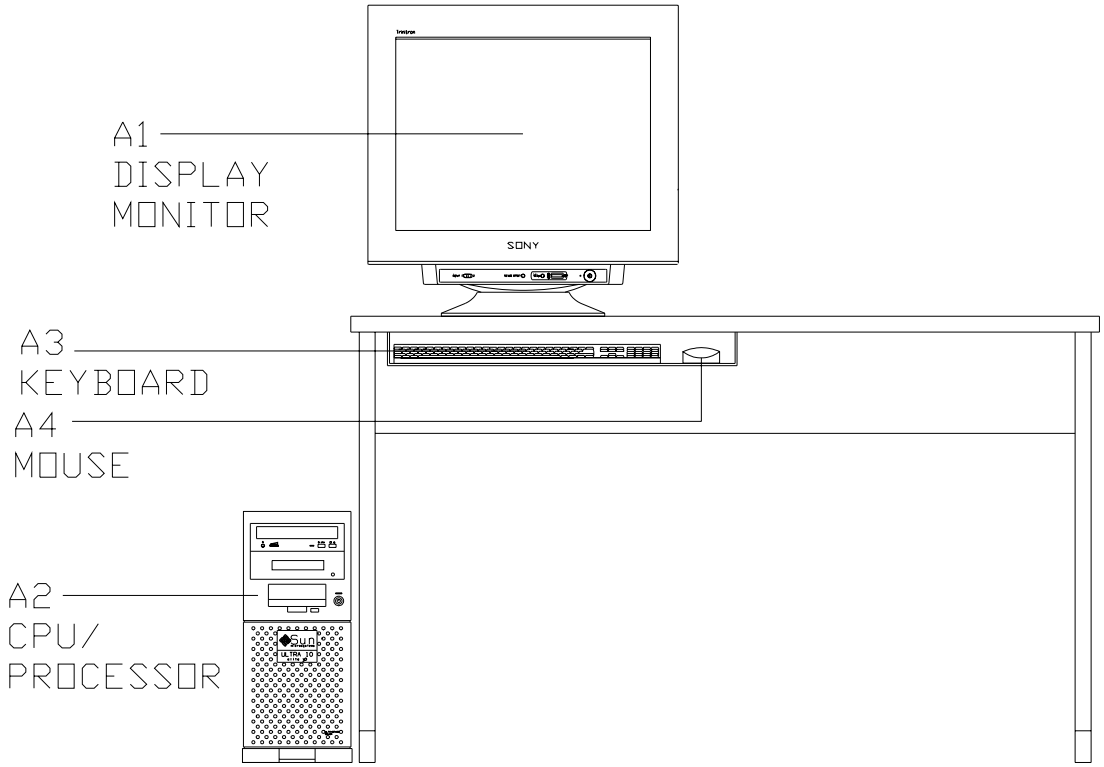

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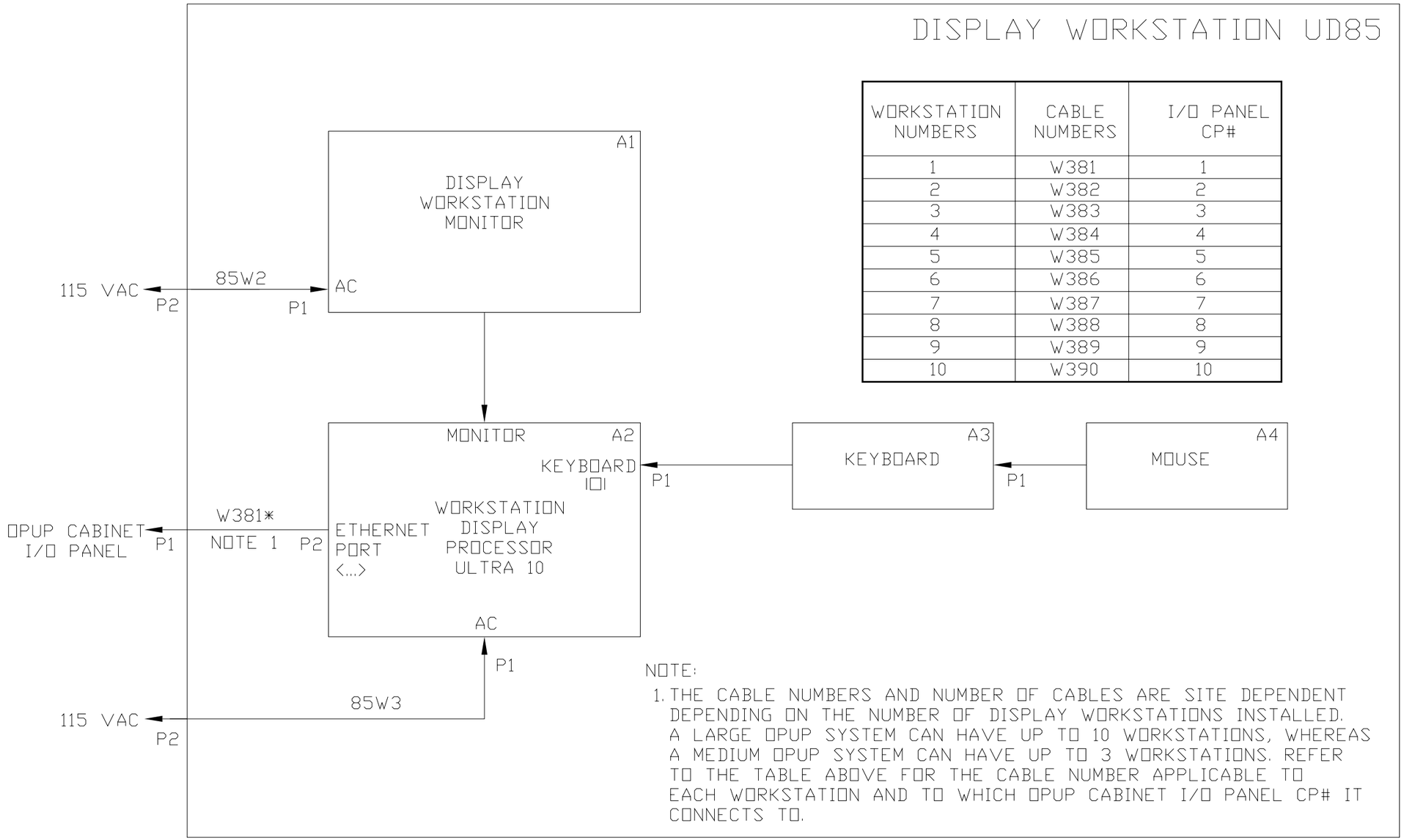
Figure 2-8. OPUP Display Workstation Equipment Group UD85



WORKSTATION NUMBERS	CABLE NUMBERS	I/O PANEL CP#
1	W381	1
2	W382	2
3	W383	3
4	W384	4
5	W385	5
6	W386	6
7	W387	7
8	W388	8
9	W389	9
10	W390	10

Figure 2-9. OPUP Display Workstation UD85 Interconnection Diagram (ICD)

Section 2.3. CONTROLS AND INDICATORS

2.3.1 General.

This section will assist each site with the identification of the specific controls and indicators associated with Large and Medium OPUP Equipment Group UD80. The following paragraphs in this section will reference the applicable table and/or associated figure that illustrates each indicator and control feature(s). If a control and/or indicator is not available, it will be stated as “N/A”. Each table will provide the following specific information:

- Figure and Index Number - refers to a certain control/indicator in that figure.
- Name - refers to the actual name and type outlined by standard system documentation for that indicator/control.
- Function - describes the function or purpose of the control/indicator.
- Operating Position/State - describes the operational impact and normal operating position/ state while the system is energized.

2.3.2 Large/Medium Equipment Group UD80.

The following paragraphs provide a list of each equipment item placed within the UD80 Cabinet by Line Replacement Unit identification.

2.3.2.1 OPUP LRU Equipment Location. The following table lists each OPUP LRU item by reference designation number, which cabinet it uses, and nomenclature.

Table 2-7. LRU Location by Configuration

LRU	Communication Cabinet	Processing Cabinet	Nomenclature/ Used By
UD80A1	X		Modem Rack (B)
UD80A2	X		Modem Rack (L)
UD80A3	X		Communication Router 3661 (L) or 3640 (M)
UD80A4	X		Archive IV Device (B)
UD80A5	X		UPS (L)
UD80A6	X		UPS (B)

L = Large
M = Medium
B = Both Large/Medium
* Outside of OPUP Cabinets and location is site dependent.

Table 2-7. LRU Location by Configuration - Continued

LRU	Communication Cabinet	Processing Cabinet	Nomenclature/ Used By
UD80A7		X	Display Monitor (B)
UD80A8		X	KVM Switch (L)
UD80A9		X	Keyboard (B)
UD80A10		X	Mouse (B)
UD80A11		X	Data Server (B)
UD80A12		X	Display Server (L)
UD80A13		X	UPS (L)
UD80A14		X	UPS (B)
UD80A15	X		Adapter Panel (Dedicated Communications) (B)
UD80A16	X		Adapter Panel (Dedicated Communications) (L)
UD80A17	X		Adapter Panel (Dial Communications) (B)
UD80A18	X		Communication Switch (B)
UD80A19	X		Telco Patch Panels (Dedicated Communications) (B)
UD80A20	X		Telco Patch Panels (Dedicated Communications) (L)
UD80A21	X		Telco Patch Panels (Dedicated Communications) (L)
UD80A22		*	*Color Printer (B)

L = Large
M = Medium
B = Both Large/Medium
* Outside of OPUP Cabinets and location is site dependent.

2.3.2.2 Other LRU Equipment. The OPUP Equipment Group UD80 utilizes one external LRU equipment item that is not located within the OPUP UD80 Cabinet structure. This is the Printer UD80A22. The Printer is discussed in paragraph 2.2.3.1.12. The printer will be connected to the Communication Switch UD80A18 via the I/O Panel using RJ-45 CAT5 type cable. The discussion of the display workstation begins with paragraph 2.3.3, Display Workstation UD85.

2.3.2.3 Modem Rack UD80A1 and UD80A2. See Figure 2-10, Figure 2-11, and Table 2-8, for the location and description of the controls and indicators associated with the Modem Rack UD80A1/A2.

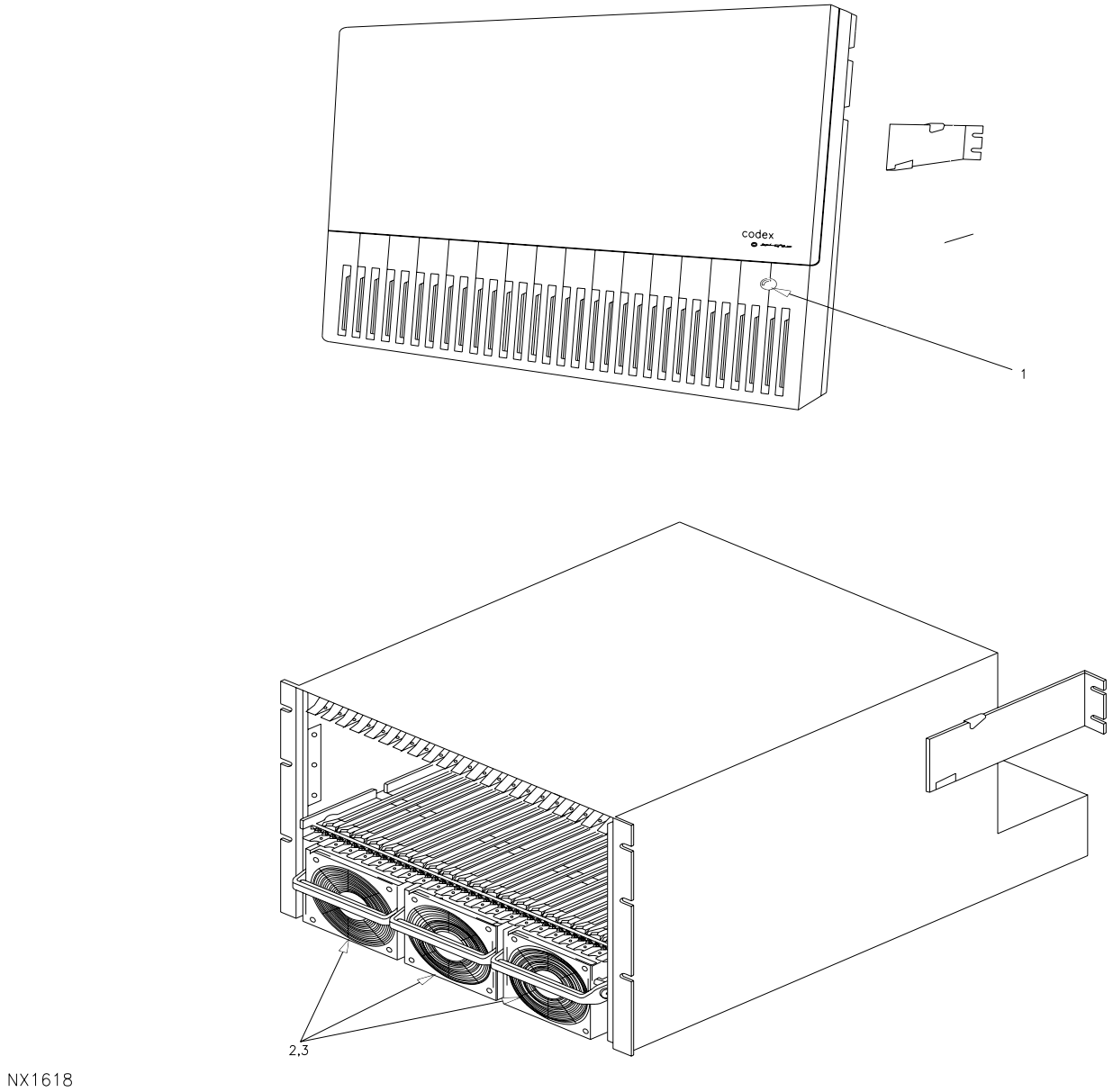


Figure 2-10. Modem Rack Assembly UD80A1/A2 (Front View)

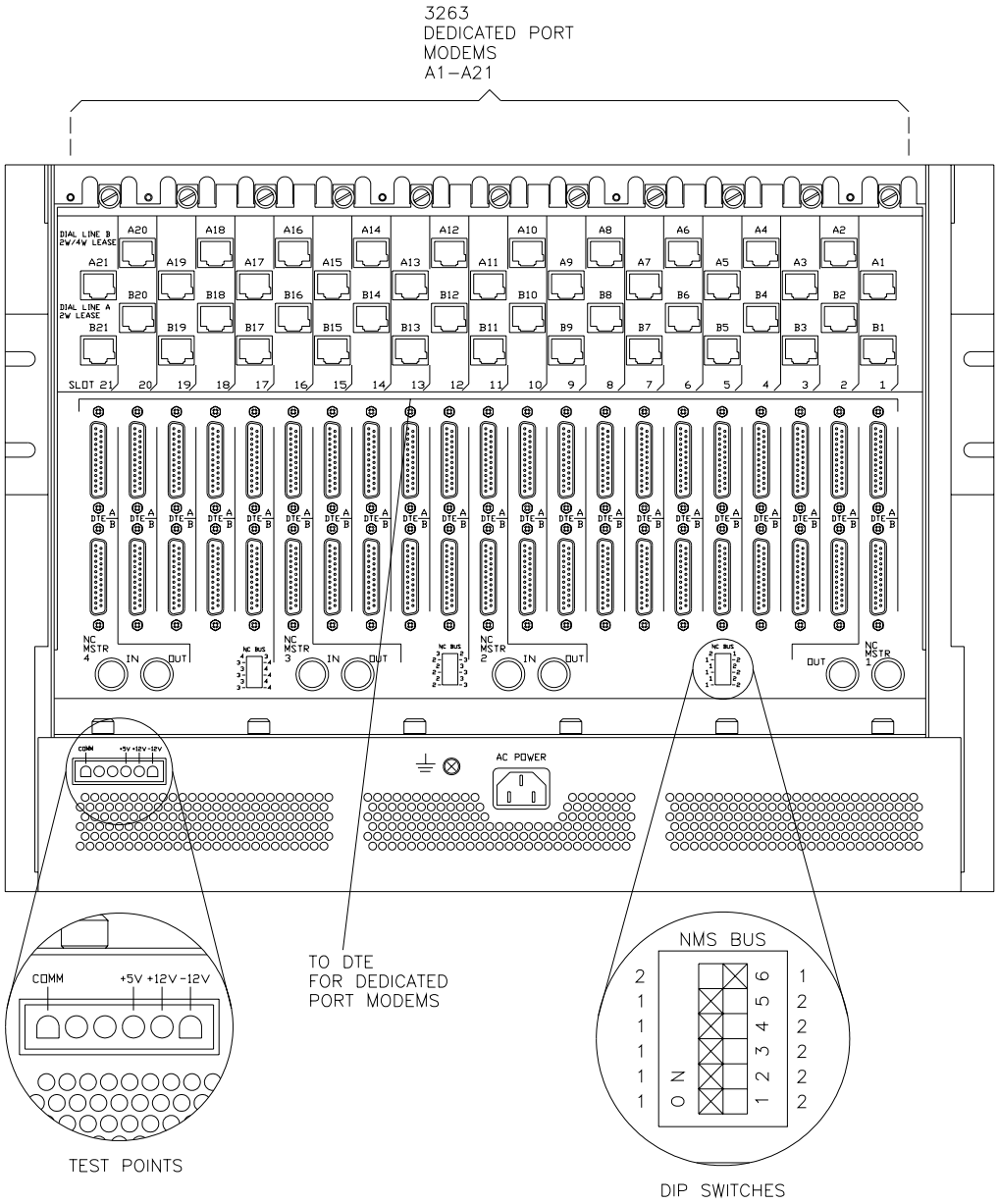


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Figure 2-11. Modem Rack Assembly UD80A1/A2 (Rear View)

Table 2-8. Modem Rack Assembly UD80A1/A2 Controls and Indicators

Figure 2-10 and 2-11 Index #	Name	Function	Operating Position/ State
1	Front Door Lock	Locks door; prevents unwanted tampering	N/A
2	Power Supply Module (Right side behind fan)		
	a. Upper (Green LED)	Indicates the fan is functioning properly.	On
	b. Lower (Green LED)	Indicates the power supply is functioning properly.	On
3	Fan Module (Right side behind fan)	Indicates the fan is functioning properly.	On

2.3.2.3.1 Modem Rack Abnormal Indicators. The following controls and indicators are provided by the Modem Rack to display abnormal indicators:

- **Power Supply Module LED (Upper):** If in the Off state, the associated power supply UD80A1PS1/PS2 and/or UD80A2PS1/PS2 is bad. (The associated fan module(s) will not be operational).
- **Power Supply Module LED (Lower):** If in the Off state, fan module UD80A1B1 or UD80A2B1 is bad. (Associated power supplies may be operational.)

2.3.2.4 Dedicated Modems UD80A1A1-A21 and UD80A2A1-A11. See Figure 2-12 and Table 2-9 for the location and description of the controls and indicators associated with the Dedicated Modems UD80A1A1-A21 and UD80A2A1-A11.

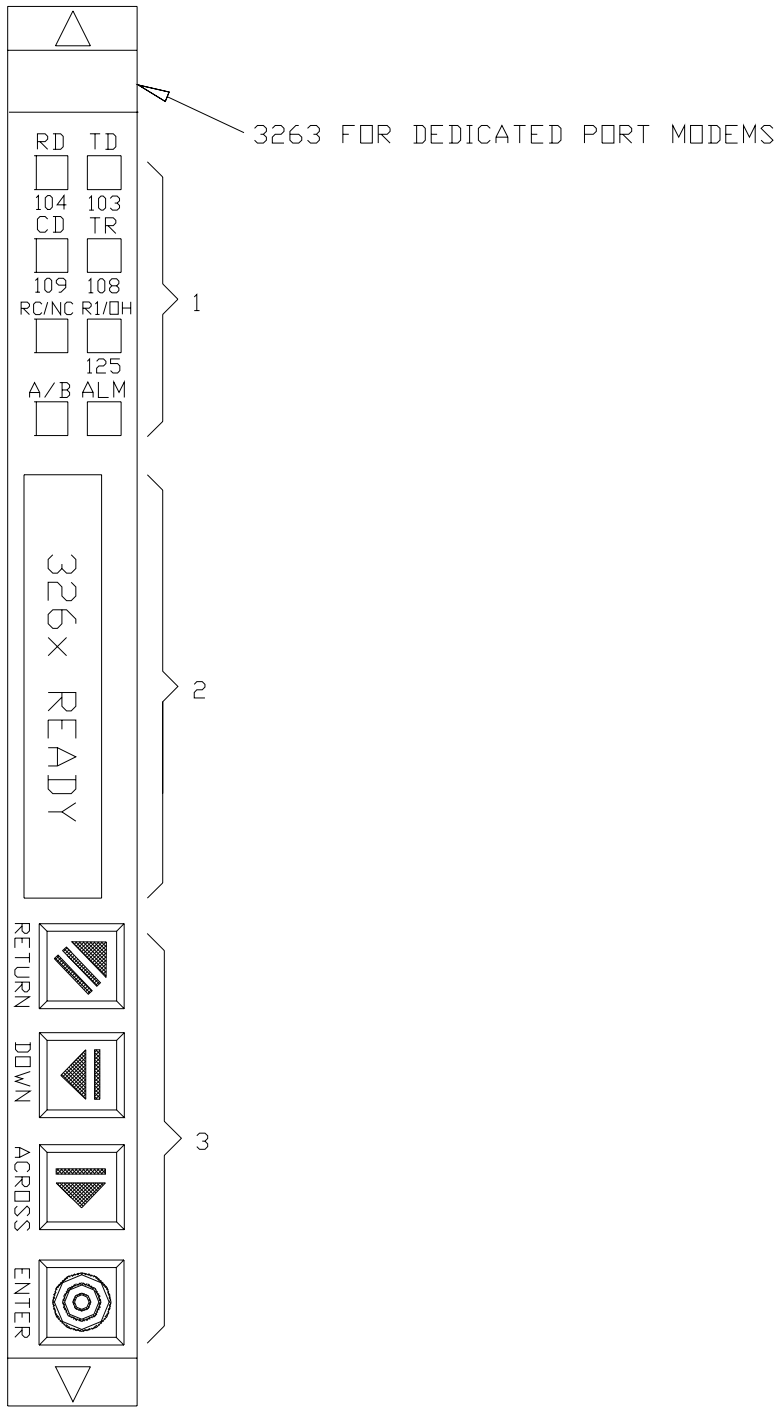

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Figure 2-12. Dedicated Modems 80A1A1-A21 and 80A2A1-A11

Table 2-9. Dedicated Modem Controls and Indicators

Figure 2-12 Index #	Name	Function	Operating Position/ State
1	RD LED	Receive Data - Flashes when the Modem passes received data to the OPUP.	Flashing
	TD LED	Transmit Data - Flashes when the Modem accepts data to be transmitted from the OPUP.	Flashing
	CD LED	Carrier Detect - On when the OPUP is receiving a CD signal (as defined by the current modulation mode) from a connected Modem or when the DCD is set High from the front panel, for test purposes.	On
	TR LED	Data Terminal Ready- On when a DTR signal is detected from a connected Modem.	On
	RC/NC LED	Remote Control/Network Control - Flashes when the Modem is under remote configuration (via front panel or AT ACU). ON under narrowband configuration.	Off
	RI/OH LED	Ring Indicator/Off-Hook - Not used on OPUP. Used on dial Modems only. On as an incoming call rings, or when the Modem is off-hook and connected to a dial circuit.	Off
	A/B LED	Modem A/Modem B - Not used on OPUP. Used only on dial Modems that contain two separate Modems. One Modem is referred to as A, and the other B. The LED is On when dial Modem A is selected, and Off when dial Modem B is selected.	On
	ALM LED	Alarm - On when a failure or an alarm condition is met in the Modem or when a test is in progress.	Off

Table 2-9. Dedicated Modem Controls and Indicators - Continued

Figure 2-12 Index #	Name	Function	Operating Position/ State
2	LCD	Displays the Modem status. `Data 14.4 T/D?` when connected normally. (`V32b 14.4 T/D?` for some Modem models.) Used to display the navigation through the Modem menus for the purpose of examining/setting Modem configuration options. Also used to display key troubleshooting information such as Receive Level and Signal Quality.	Data 14.4 T/D? or V32b 14.4 T/D?
3	Return Button	When pressed within a branch of the menu, it returns to the top of the branch or branch title (`TERMINAL OPT'S`). When pressed at a branch title, it returns to the home position (`Data 14.4 T/D?`) or (`V32b 14.4 T/D?`).	N/A
	Down Button	Moves down through branch titles from the home position and selects individual options in a branch.	N/A
	Across Button	Moves across the top of branches in the menu tree. It also moves the cursor across data entry menus one digit (character) at a time (`S-Reg` menus).	N/A
	Enter Button	Makes the item on the display the current setting (if an = sign was displayed, it was already the current setting), or it initiates an action as in Reinit Memory.	N/A

2.3.2.4.1 Dedicated Modems UD80A1A1-A21 and UD80A2A1-A11. The following controls and indicators are provided by the Dedicated Modem to display abnormal operations:

- **TD LED**: Does not illuminate when command generation sequence from local modem to remote sequence not successful.

- **LCD Front Panel Display**: Will display numerous error codes. Main POST sequence will display "3263 Ready" if POST procedure is successful, otherwise there should be an error code, if not.

2.3.2.5 Communication Router UD80A3 (Large OPUP). See Figure 2-13, Figure 2-14, and

Table 2-10 for the location and description of the controls and indicators associated with the Large OPUP Communication Router UD80A3.

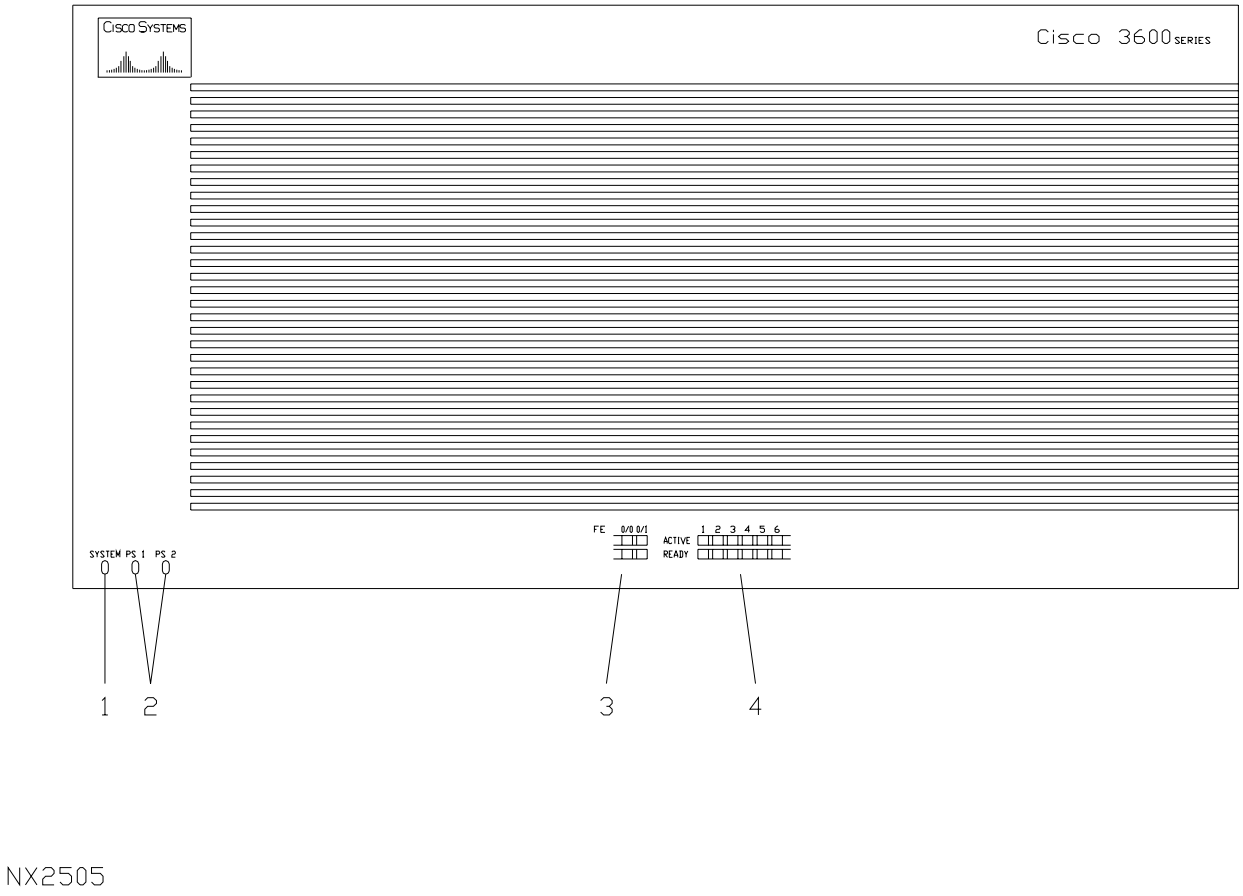

Figure 2-13. Large OPUP Communication Router UD80A3 (Front View)

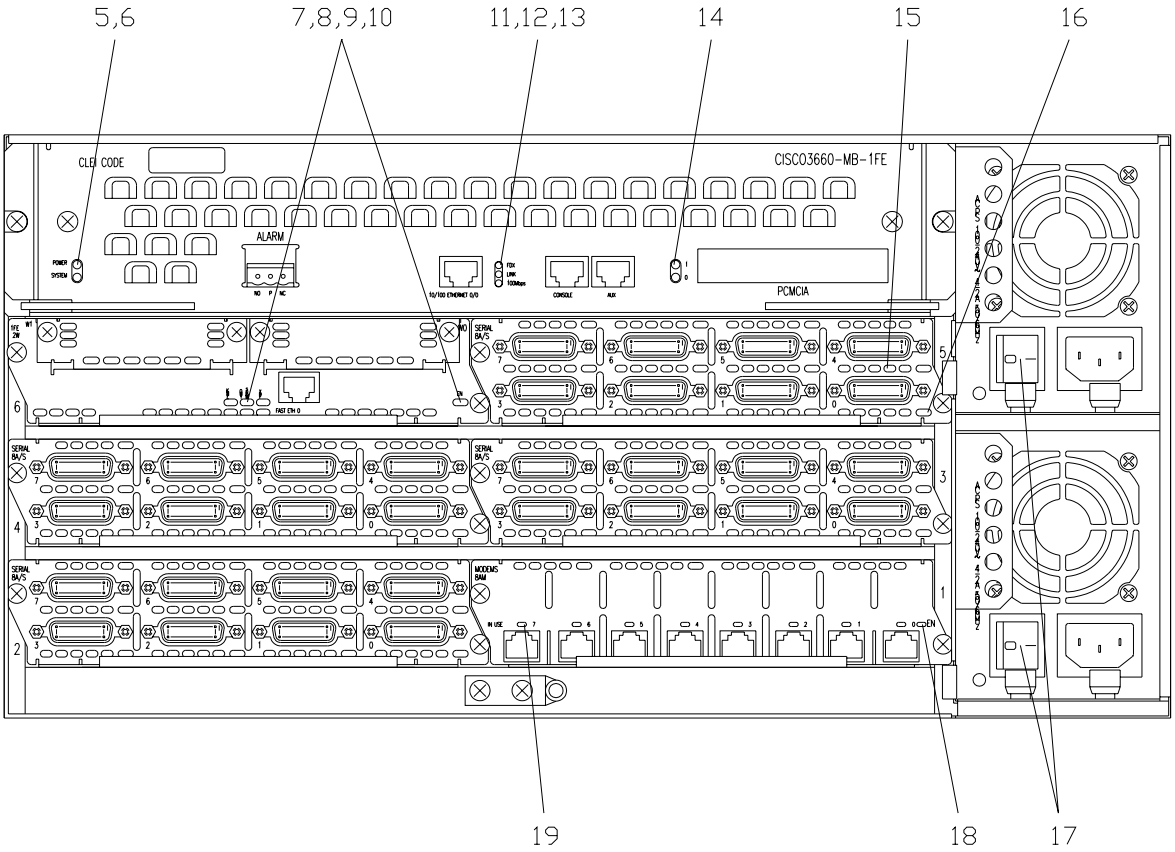

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Figure 2-14. Large OPUP Communication Router UD80A3 (Rear View)

Table 2-10. Large OPUP Communication Router Controls and Indicators

Figure 2-13 and 2-14 Index #	Name	Function	Operating Position/ State
1	SYSTEM LED	Indicates if the router is receiving power and functioning properly. Off - the router is not receiving power. On (Amber) - the router is receiving power but is not functioning properly. Alternating (Amber and Green) - the router is receiving power and is performing a self-test. On (Green) - the router is receiving power and functioning properly.	On (Green)
2	PS1/PS2 LEDS	Indicates if the power supplies are receiving power and are functioning properly. On (Green) - the power supply is receiving AC power and function properly. On (Amber) - the power supply is not receiving AC power or has malfunctioned.	On (Green)
3	FE 0/0 0/1 LEDS	Indicates status of the Fast Ethernet ports. FE 0/0 Bottom LED - On (Green) - on steady indicates module is connected and ready for use. Top LED - On (Green) - flashing when active. FE 0/1 Bottom LED - On (Green) - on steady indicates module is connected and ready for use. Top LED - OFF - FE 0/1 not used.	 FE 0/0 On steady Flashing FE 0/1 On steady Off

Table 2-10. Large OPUP Communication Router Controls and Indicators - Continued

Figure 2-13 and 2-14 Index #	Name	Function	Operating Position/ State
4	ACTIVE LEDs 1 through 6	On or Flashing - Indicates activity on the corresponding module or slot number. Off - No activity is detected on the corresponding module or slot number.	1 through 6 On or Flashing
	READY LEDs 1 through 6	On - The module in the corresponding slot number is ready for operation. Off - The corresponding slot number is empty, or the module in that slot is not functional.	1 through 6 On
5	POWER LED	Indicates router has power applied from at least one of the two power supplies.	On (Green)
6	SYSTEM LED	Off - router not receiving power. On (Steady) - Indicates the router is receiving power and functioning properly. On (Flashing) - router is performing a self-test or rebooting after power is applied.	On (Green)
7	1FE2W (1 Fast Ethernet, 2 WAN) Module LEDs		
	LINK LED	On - The link is present, and the port is waiting to receive or transmit data. Flashing - The link is present, and the port is either receiving or transmitting data properly. Off - The link is not present.	On or Flashing

Table 2-10. Large OPUP Communication Router Controls and Indicators - Continued

Figure 2-13 and 2-14 Index #	Name	Function	Operating Position/ State
8	100 Mbps	On - Indicates that the speed of the interface is 100 Mega bits per second. Off - Indicates that the speed of the interface is not 100 Mega bits per second.	On
9	FDX LED	On - Indicates that the interface is in full-duplex mode. Off - Indicates that the interface is not in full-duplex mode.	On
10	EN LED	On Module has passed its self-test and is available Off - Module has a malfunction.	On
	10/100 ETHERNET 0/0 Port LEDs		
11	FDX LED	On - Indicates that the interface is in full-duplex mode. Off - Indicates that the interface is not in full-duplex mode.	On or Flashing
12	LINK LED	On - The link is present, and the port is waiting to receive or transmit data. Flashing - The link is present, and the port is either receiving or transmitting data properly. Off - The link is not present.	On
13	100 Mbps LED	On - Indicates that the speed of the interface is 100 Mega bits per second. Off - Indicates that the speed of the interface is not 100 Mega bits per second.	On

Table 2-10. Large OPUP Communication Router Controls and Indicators - Continued

Figure 2-13 and 2-14 Index #	Name	Function	Operating Position/ State
14	PCMCIA 1/0 LEDs	Not used.	Off
15	SERIAL 8A/S Module LEDs	The 8 port Asynchronous/Synchronous Serial Module has the following LED's at the rear of the Router. These LEDs are directly below the corresponding connector for each of the individual 8 ports. The LEDs provide an indication of the activity on each specific port:	
		CN/LP: Connected/Loopback: On (Green) - connected On (Amber) - loopback	On (Green)
		RXC: Receive Clock: On - clock signal is received. Off - clock signal is not received. Flashing - The clock signal is received, and there is activity on the port.	Various
		RXD: Receive Data: On - data is received. Off - data is not received. Flashing - Data is received repeatedly.	Various
		TXC: Transmit Clock: On - clock signal is transmitted. Off - clock signal is not transmitted. Flashing - clock signal is transmitted, and there is activity on the port.	Various
		TXD: Transmit Data: On - data is transmitted. Off - data is not transmitted. Flashing - data is transmitted repeatedly.	Various
16		EN: Enable On - module has passed its self-test and is available. Off - module has a malfunction.	On (Green)

Table 2-10. Large OPUP Communication Router Controls and Indicators - Continued

Figure 2-13 and 2-14 Index #	Name	Function	Operating Position/ State
17	Power Switches	Used to apply power to each Router Power Supply.	On (1)
18	MODEMS 8AM Dial Module LEDs	EN: Enable On - module has passed its self-test and is available. Off - module has a malfunction.	On
19		IN USE: Lights when remote carrier is detected for that dial modem.	On, if in Dial Mode-

2.3.2.5.1 Communication Router Abnormal Indicators. The following controls and indicators are provided by the Communication Router to display abnormal operations:

- System LED: If off or Amber, unit is not receiving power or not functioning properly.
- PS1/PS2 LED: If off or amber, power supply is not receiving power or functioning properly.
- **Activity LED**: If off, not activity detected or no network connectivity detected.
- **EN (Enable) LEDs**: If off, module enable feature turned off or module faulty.
- **LINK LED**: If off, the link is not established, either through faulty equipment at either end or any cable in between.

2.3.2.6 Communication Router UD80A3 (Medium OPUP). See Figure 2-15 and Table 2-11 for the location and description of the controls and indicators associated with the Medium OPUP Communication Router UD80A3.

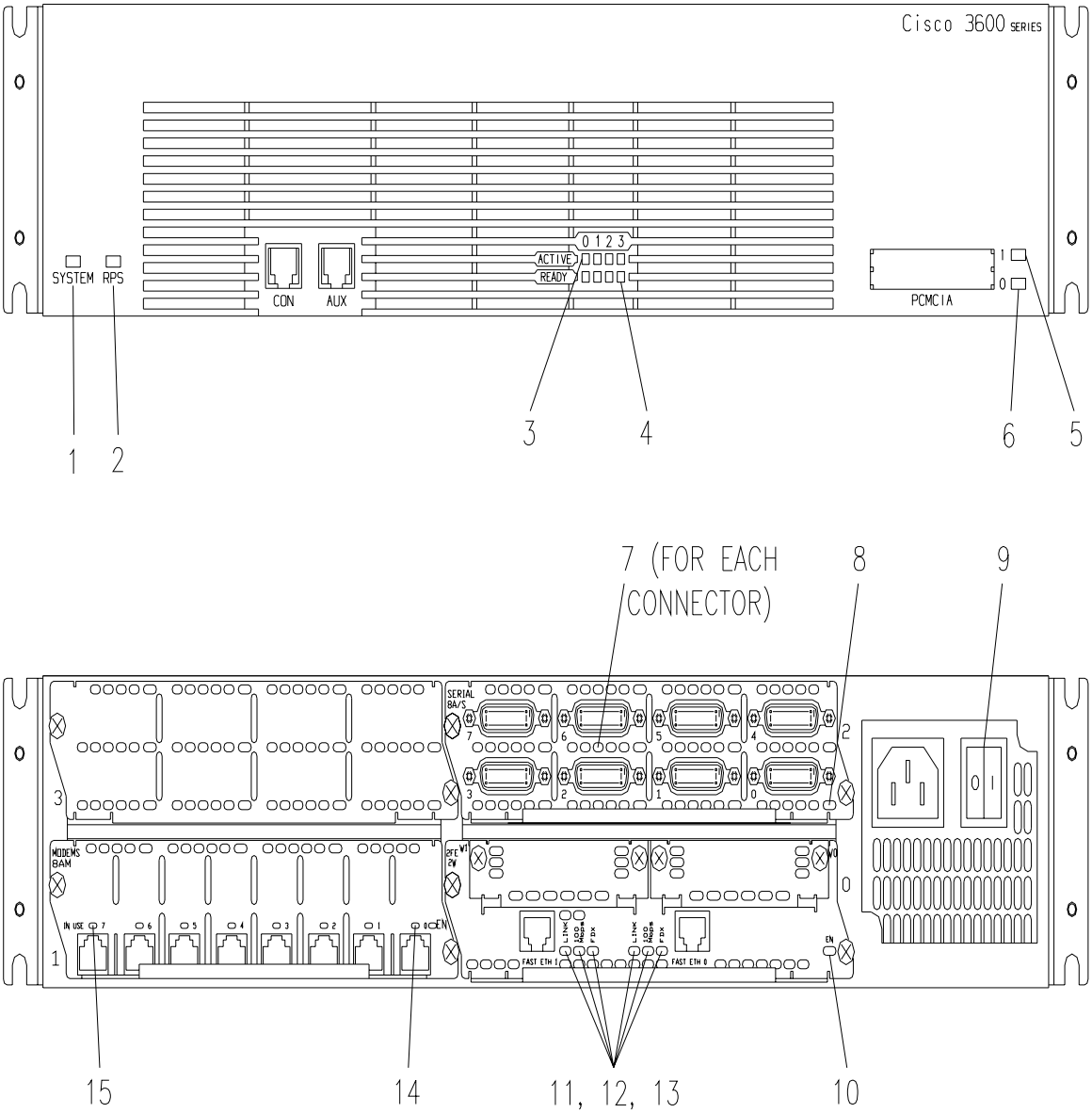

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Figure 2-15. Medium OPUP Communication Router UD80A3

Table 2-11. Medium OPUP Communication Router Controls and Indicators

Figure 2-15 Index #	Name	Function	Operating Position/ State
1	SYSTEM LED	Indicates if the router is receiving power and functioning properly. OFF - the router is not receiving power. ON (Amber) - the router is receiving power but is not functioning properly. Alternating (Amber and Green) - the router is receiving power and is performing a self-test. ON (Green) - the router is receiving power and functioning properly.	On (Green)
2	RPS LED	The Redundant Power System LED is not used.	Off
3	ACTIVE LEDs 0, 1, 2, and 3	On or Flashing - Indicates activity on the corresponding module or slot number. Off - No activity is detected on the corresponding module or slot number. Slot number 3 is not used.	0, 1, and 2 On or Flashing 3 Off
4	READY LEDs 0, 1, 2, and 3	On - The module in the corresponding slot number is ready for operation. Off - The corresponding slot number is empty, or the module in that slot is not functional. Slot 3 is not used.	0, 1, and 2 On 3 Off
5/6	PCMCIA 1/0 LED	Not used.	Off

Table 2-11. Medium OPUP Communication Router Controls and Indicators - Continued

Figure 2-15 Index #	Name	Function	Operating Position/ State
7	SERIAL 8A/S Module LEDs	The 8 port Asynchronous/Synchronous Serial Module has the following LED's at the rear of the Router. These LEDs are directly below the corresponding connector for each of the individual 8 ports. The LEDs provide an indication of the activity on each specific port:	
		CN/LP: Connected/Loopback: On (Green) - connected On (Amber) - loopback	On (Green)
		RXC: Receive Clock: On - clock signal is received. Off - clock signal is not received. Flashing - clock signal is received, and there is activity on the port.	Various
		RXD: Receive Data: On - data is received. Off - data is not received. Flashing - data is received repeatedly.	Various
		TXC: Transmit Clock: On - clock signal is transmitted. Off - clock signal is not transmitted. Flashing - clock signal is transmitted, and there is activity on the port.	Various
		TXD: Transmit Data: On - data is transmitted. Off - data is not transmitted. Flashing - data is transmitted repeatedly.	Various
8		EN: Enable On - module has passed its self-test and is available. Off - module has a malfunction.	On (Green)
9	Power Switch	Used to power the Router On (1) or Off (0).	On (1)

Table 2-11. Medium OPUP Communication Router Controls and Indicators - Continued

Figure 2-15 Index #	Name	Function	Operating Position/ State
10	EN LED	On - Indicates that the module has passed self-test and is enabled. Off - Indicates that the module has not passed self-test and is not enabled.	On
11	LINK LED	On - The link is present, and the port is waiting to receive or transmit data. Flashing - The link is present, and the port is either receiving or transmitting data properly. Off - The link is not present.	On or Flashing
12	100 Mbps LED	On - Indicates that the speed of the interface is 100 Mega bits per second. Off - Indicates that the speed of the interface is not 100 Mega bits per second.	On
13	FDX LED	On - Indicates that the interface is in full-duplex mode. Off - Indicates that the interface is not in full-duplex mode.	On
14	MODEMS 8AM Dial Module LEDs	EN: Enable On - module has passed its self-test and is available. Off - module has a malfunction.	On
15		IN USE: Lights when remote carrier is detected for that dial modem.	On, if in Dial Mode

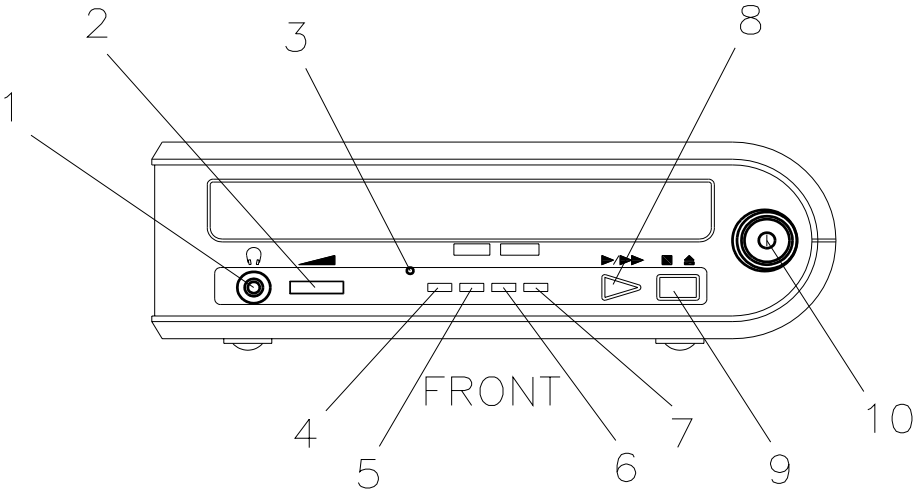
2.3.2.6.1 Communication Router Abnormal Indicators. The following controls and indicators are provided by the Communication Router to display abnormal operations:

- **SYSTEM LED**: If off or Amber, router is not receiving power or not functioning properly.
- **RPS LED**: If RPS is on, an RPS mode is enabled. This feature should be in the off position.

If blinking, RPS has been corrupted or has failed.

- **ACTIVITY LED**: If off, not activity detected or no network connectivity detected.
- **EN (Enable) LEDs**: If off, module enable feature turned off or module faulty.
- **LINK LED**: If off, the link is not established, either through faulty equipment at either end or any cable in between.

2.3.2.7 Archive IV Device UD80A4. See Figure 2-16 and Table 2-12 for the location and description of the controls and indicators associated with the Archive IV Device UD80A4.



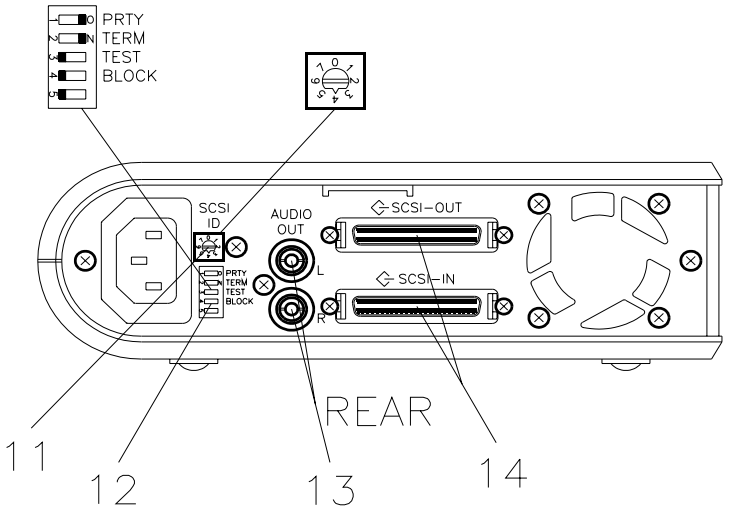


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Figure 2-16. Archive IV Device UD80A4

Table 2-12. Archive IV Device Controls and Indicators

Figure 2-16 Index #	Name	Function	Operating Position/ State
1	Head Phone Jack Connec-tor	Provides input for audio headphones.	N/A
2	Volume Control Wheel	Used to adjust the audio volume	N/A
3	Emergency eject (inset) release tab	Used to eject disk when electronic eject or mechanical eject button does not operate	N/A
4	DISC LED	Steady or flashing indicates the drive is accessing the CD-ROM	Green when a disk is in the drive and power is on.
5	READ ON LED	Steady or flashing indicates the drive is accessing the CD-ROM	Green when power is on and disk is being accessed.
6	WRITE L LED	Used to indicate low speed CD-ROM usage	Orange when recording CD-R disk at 1X,4X, or 8X or low speed CD-R/W disks at 2X/4X - R/W speed.
7	WRITE H LED	Used to indicate high speed CD-ROM usage	Orange when recording CD-R disks at 12X. Both Write L and H LEDs will be illumi-nated Orange when high speed CD-R/W disks at 4X, 8X, and 12X speed.
8	CD Audio Play-Skip Forward Button	Used for audio disks only	N/A
9	Stop-Eject Button	Used to electronically/mechanically eject disk from tray	Push once to stop play. Push twice to eject disk from tray.

Table 2-12. Archive IV Device Controls and Indicators - Continued

Figure 2-16 Index #	Name	Function	Operating Position/ State
10	Power Switch	Turns the drive On/Off (1/0)	On (1)
11	SCSI ID Dial Switch	Used to pre-designate SCSI ID channel numbers	Variable. (Factory set for default setting.)
12	Dip Selections/ Switch	Used to select parity, SCSI termination, and/or block size	Factory set positions. 1: On, 2: On, 3 through 5 Off.
13	Audio Output/ Connectors (2)	Provides external output for audio capability (Left/Right)	N/A
14	SCSI OUT/ IN Connectors	SCSI IN connects unit to SCSI Interface. SCSI OUT connects system to another recording unit	SCSI IN connected/ SCSI OUT not connected.

2.3.2.7.1 Archive IV Device UD80A4 Abnormal Indicators. The following controls and indicators are provided by the Archive IV Device to display abnormal operations:

- **DISK and WRITE L/H LEDs**: Simultaneous DISC, Write L and H LED illumination indicates data write and/or device driver corruption.
- **DISK Eject**: If a disk that was placed within the archive device media tray will not eject, either the software that controls the archive device is in a wait state or the disk media tray is jammed.

2.3.2.8 UPS UD80A5/A6/A13/A14. See Figure 2-17 and Table 2-13 for the location and description of the controls and indicators associated with the UPS UD80A5/A6/A13/A14.

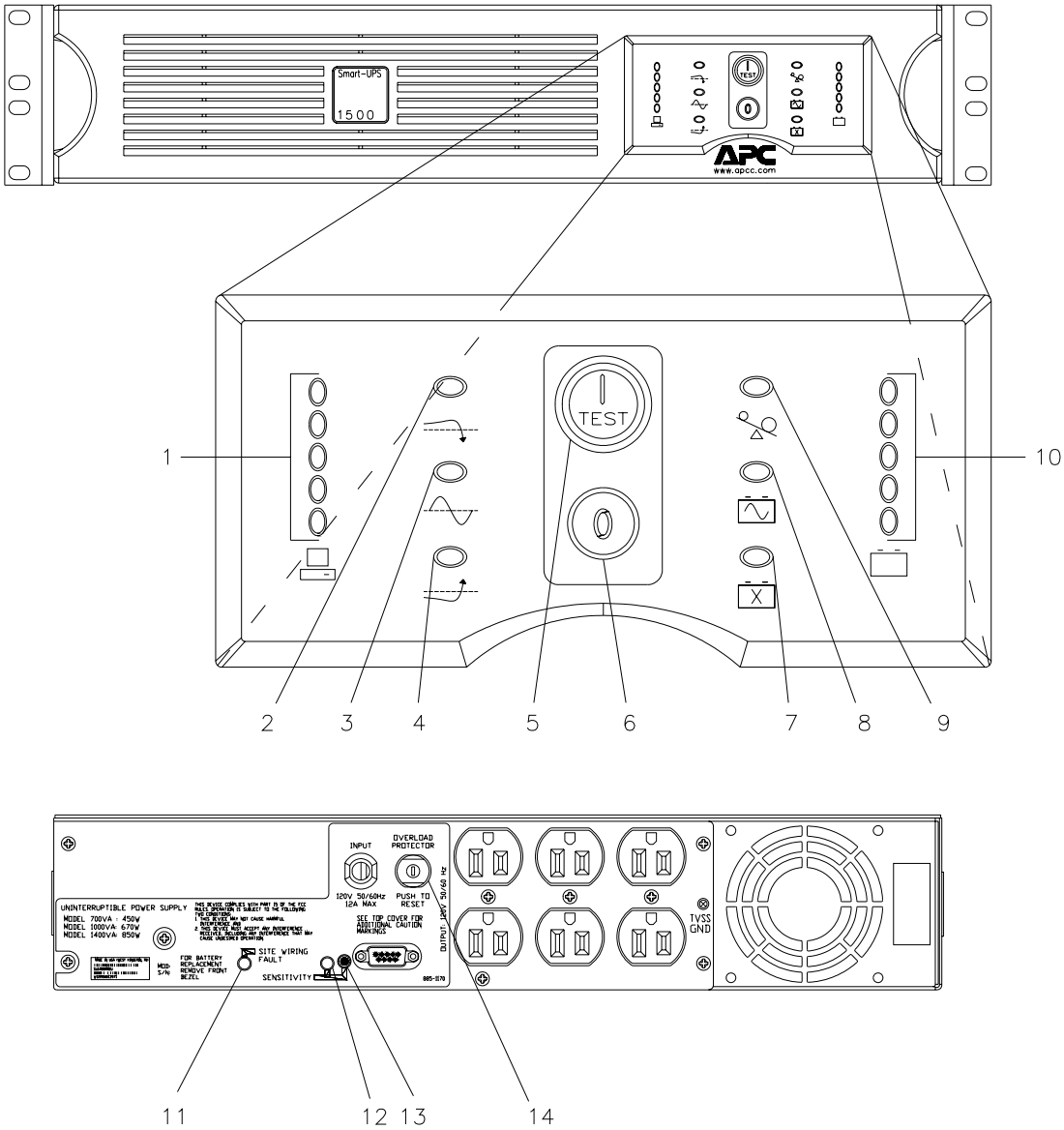

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Figure 2-17. UPS UD80A5/A6/A13/A14

Table 2-13. UPS Controls and Indicators

Figure 2-17 Index #	Name	Function	Normal Position/ State
1	Load Bar LEDs LED 5 = 85% LED 4 = 67% LED 3 = 50% LED 2 = 30% LED 1 = 17%	This 5 LED graph represents the amount of UPS power currently being used by the load as a percentage of total UPS output power capacity. For example, the values to the left (not shown on the UPS) indicate that if the bottom 3 LEDs are ON, the load is using between 50% and 67% of the UPS's output power capacity. If all 5 LEDs are On, the UPS is very close to being overloaded.	Variable
2	High Voltage Compensation LED	On - The UPS is compensating for high utility voltage. Off - The UPS is not compensating for high utility voltage.	Off
3	On Utility Power LED	On - The UPS is supplying utility power to the load. Off - The UPS is not supplying utility power to the load.	On
4	Low Voltage Compensation LED	On - The UPS is compensating for low utility voltage. Off - The UPS is not compensating for low utility voltage.	Off
5	Power On/Test Button	Used to power On the UPS. Can also be used to start UPS self-test. If the UPS power is already On, start an UPS self-test by pressing and holding the button in for approximately 3 seconds, or until the Power LED (Item 3) starts blinking. (See Item 10 for details.) Can also be used with the back panel Low Battery Warning Interval Button (Sensitivity Configuration Button) to change the low battery warning interval. (See Items 12 and 13 for details.)	N/A

Table 2-13. UPS Controls and Indicators - Continued

Figure 2-17 Index #	Name	Function	Normal Position/ State
6	Power Off Button	Used to power Off the UPS.	N/A
7	Replace Battery LED	On - Indicates the presence of a bad battery. This is normally the result of a failed self-test. Accompanied by an audible alarm of short beeps for 1 minute. The audible alarm repeats itself every 5 hours. Flashing - The UPS battery is disconnected. Off - The UPS battery has passed the self-test and is functioning normally. The audible alarm will also stop once the battery passes self-test.	Off
8	On Battery Power LED	On - Utility power has failed, and power to the load is being supplied by the UPS battery. Accompanied by an audible alarm of 4 beeps every 30 seconds. This LED is also On during the UPS self-test. Off - Power to the load is not being supplied by the UPS battery.	Off
9	Overload LED	On - Indicates that the attached load requires more power than the output power capacity of the UPS. Accompanied by a sustained audible alarm tone. The alarm continues to sound until the overload is removed. The UPS continues to supply utility power as long as the breaker (Item 14) doesn't trip, but it won't supply battery power in an overload condition if utility power fails. Disconnect nonessential equipment from the UPS to eliminate the overload. If an overload condition is initiated while the UPS is already on battery power, the UPS will turn Off its power output to protect itself from possible damage. Off - Indicates that the attached load does not require more power than the output power capacity of the UPS.	Off

Table 2-13. UPS Controls and Indicators - Continued

Figure 2-17 Index #	Name	Function	Normal Position/ State
10	Battery Charge Bar LEDs LED 5 = 96% LED 4 = 72% LED 3 = 48% LED 2 = 24% LED 1 = 0% Utility Voltage Bar LEDs LED 5 = 133V LED 4 = 124V LED 3 = 114V LED 2 = 105V LED 1 = 96V	Represents the present charge of the UPS battery as a percentage of it's full charge capacity. For example, the values to the left (not shown on the UPS) indicate that when the bottom 4 LEDs are On, the battery is charged between 72 and 96%. When all 5 LEDs are On, the battery is fully charged. The LED's turn Off from top to bottom as the capacity of the battery diminishes. These LEDs also show the input utility voltage during UPS self-test. With the UPS plugged in, press and hold the Power **ON/Test** button (Item 5) for approximately 3 seconds, or until the Power LED (Item 3) starts blinking to start the self-test and see the voltage display. The values to the left (not shown on the UPS) represent the input utility voltage. For example, if the bottom 3 LEDs are On, the voltage is between 114-124V. The On Utility Power LED (Item 3) turns Off and the On Battery Power LED (Item 8) turns On for the duration of the self-test. After approximately 5-10 seconds, the self-test concludes and the front panel LEDs return to normal if the self-test passed. The Battery Charge LEDs may briefly reflect a slight decrease in battery charge. If the self-test fails, the UPS returns to normal operation and turns On the Replace Battery LED (Item 7). The load isn't effected by a failed UPS self-test.	Variable
11	Site Wiring Fault LED	On - Indicates that UPS is plugged into AC power outlet that is wired improperly. Off - Indicates that UPS is plugged into AC power outlet that is wired correctly.	Off

Table 2-13. UPS Controls and Indicators - Continued

Figure 2-17 Index #	Name	Function	Normal Position/ State
12	Sensitivity LED	Normally indicates the voltage sensitivity setting of the UPS. On - (bright green) - Normal sensitivity. On - (dim green) - Reduced sensitivity. Off - Low sensitivity.	On (Normal - bright green)
	Low Battery Warning Interval	Can also indicate the low battery warning interval. Press and hold the Power On/Test button (Item 5) for less than 3 seconds to see the current low battery warning interval setting. Holding in the Power On/Test button for 3 seconds or longer will start an UPS self-test. (See the Item 13 function for details.) On - (bright green) - 2 minutes. On - (dim green) - 5 minutes. Off - 7 minutes.	On (2 minutes - bright green)

Table 2-13. UPS Controls and Indicators - Continued

Figure 2-17 Index #	Name	Function	Normal Position/ State
13	Sensitivity Configuration Button	Normally used to change the voltage sensitivity setting of the UPS. This determines at what point the UPS transfers to battery power when utility power distortions are detected. The low sensitivity setting provides the least amount of protection to the load because a larger utility power distortion is required before the UPS transfers to battery power. The normal sensitivity setting provides the most protection to the load because a Large and Medium utility power distortion will cause the UPS to transfer to battery power.	N/A
	Low Battery Warning Interval Button	Can be used with the Power On/Test button (Item 5) to change the low battery warning interval. Press this button while the Power On/Test button is pressed and held in to change the low battery warning interval. Then release both buttons. If the Power On/Test button is held in for 3 seconds, the UPS self-test will start. The low battery warning interval can still be changed while the UPS self-test is running.	
14	Overload Protector (Reset Button) (Circuit Breaker)	Popped Out - Indicates that the output power capacity of the UPS has been exceeded and the UPS has turned Off its power output to protect itself from possible damage. This condition is usually preceded by the Overload LED (Item 9) turning On which is accompanied by a sustained audible alarm tone until this breaker pops out or trips. Disconnect nonessential equipment from the UPS to eliminate the overload, push this button back in, and turn the UPS back On. Pressed In - Indicates that the output power capacity of the UPS has not been exceeded.	Pressed In

2.3.2.8.1 UPS Abnormal Indicators. The following controls and indicators are provided by the UPS to display abnormal operations:

- **Load Bar Graph LEDs**: If the UPS is On and no LEDs are shown, the UPS is faulty or all

loads are disconnected and/or off.

- **Replace Battery LED:** If On, UPS failed battery test (accompanied by 1 minute of audible short beeps, repeated every 5 hours.)
- **On Battery LED**: If On, UPS supplying power to loads via backup batteries (accompanied an audible tone of 4 beeps every 30 seconds.)
- **Overload LED**: If On, power loads connected to UPS exceeds rated capacity.
- **Site Wiring Fault LED**: If On, external wiring fault detected.
- **Sensitivity LED**: If On and dim green, setting is reduced. If Off, setting is low.
- **Overload Protector Circuit Breaker Button**: If popped out, circuit has been tripped due to either overload and/or circuit fault detected.

2.3.2.9 Monitor UD80A7. See Figure 2-18 and Table 2-14 for the location and description of the controls and indicators associated with the Monitor UD80A7.

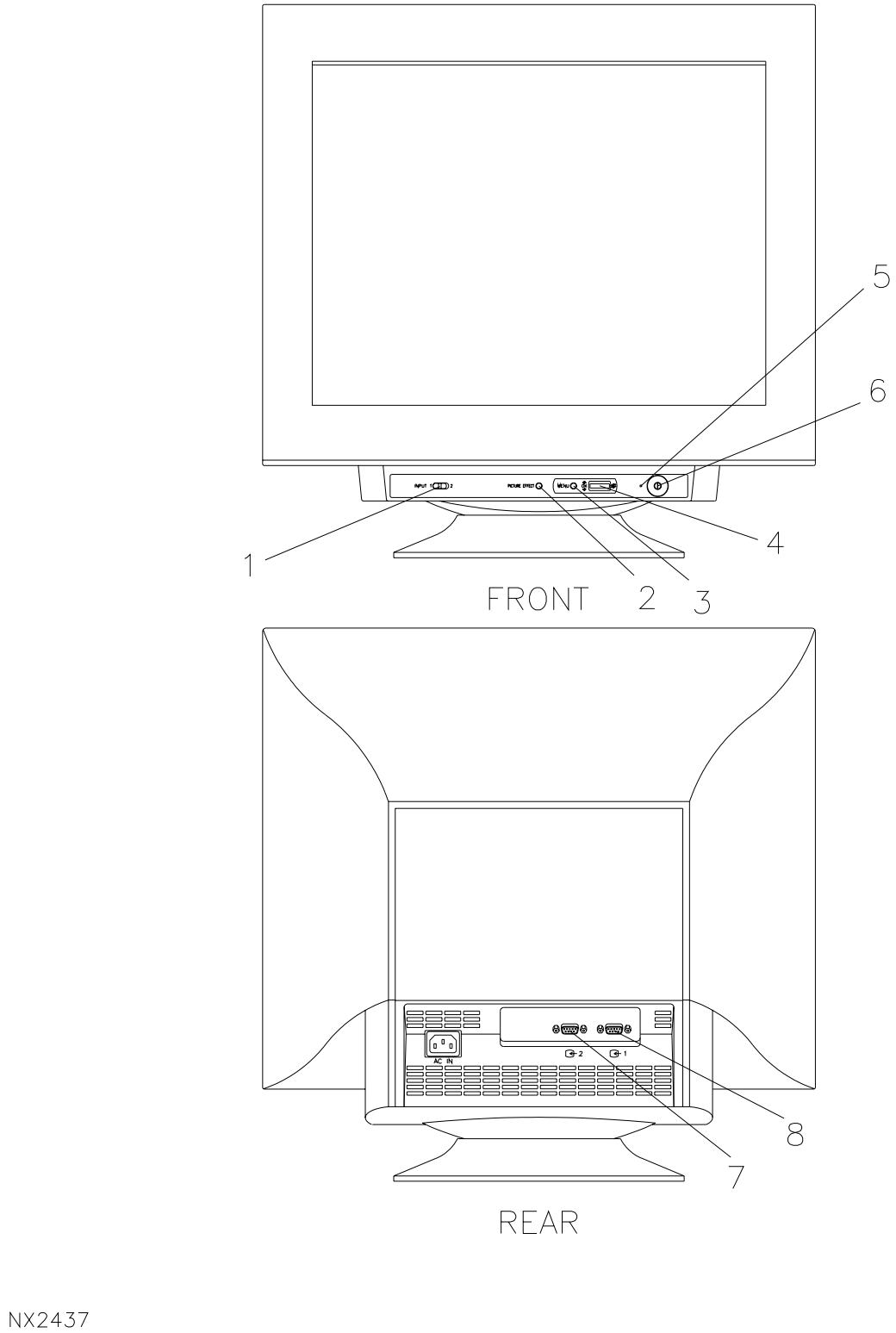

Figure 2-18. Monitor UD80A7

Table 2-14. Monitor UD80A7 Controls and Indicators

Figure 2-18 Index #	Name	Function	Operating Position/ State
1	Input Switch	Allows video input 1 or 2	Position 1
2	Picture Effect Button	Changes pre-set video effect	Default mode
3	Menu Button	Allows access to On Screen Display (OSD) Menu	Off
4	Control Button	Toggles between OSD Menu and screens	Center
5	Indicator LED	Displays power indication	On (steady green)
6	Power Switch	Engages/Disengages power	None
7	Input 2 Port	Accepts monitor input	N/A
8	Input 1 Port	Accepts monitor input	Cable Connected

2.3.2.9.1 Monitor Abnormal Indicators. The following controls and indicators are provided by the monitor to display abnormal operations:

- **Power LED**: The power LED will indicate a steady orange if there is either a disruption in the video signal or the Server is disrupted (Application Software induced power suspension or OS fault.)

- **Abnormal image display**: Abnormal image displays can result from faulty signal generation, selection of a video input port with no cable connected, no signal generated from the source, or over-adjustment of the On Screen Display (OSD).

2.3.2.10 KVM Switch UD80A8. See Figure 2-19 and Table 2-15 for the location and description of the controls and indicators associated with the KVM Switch UD80A8.

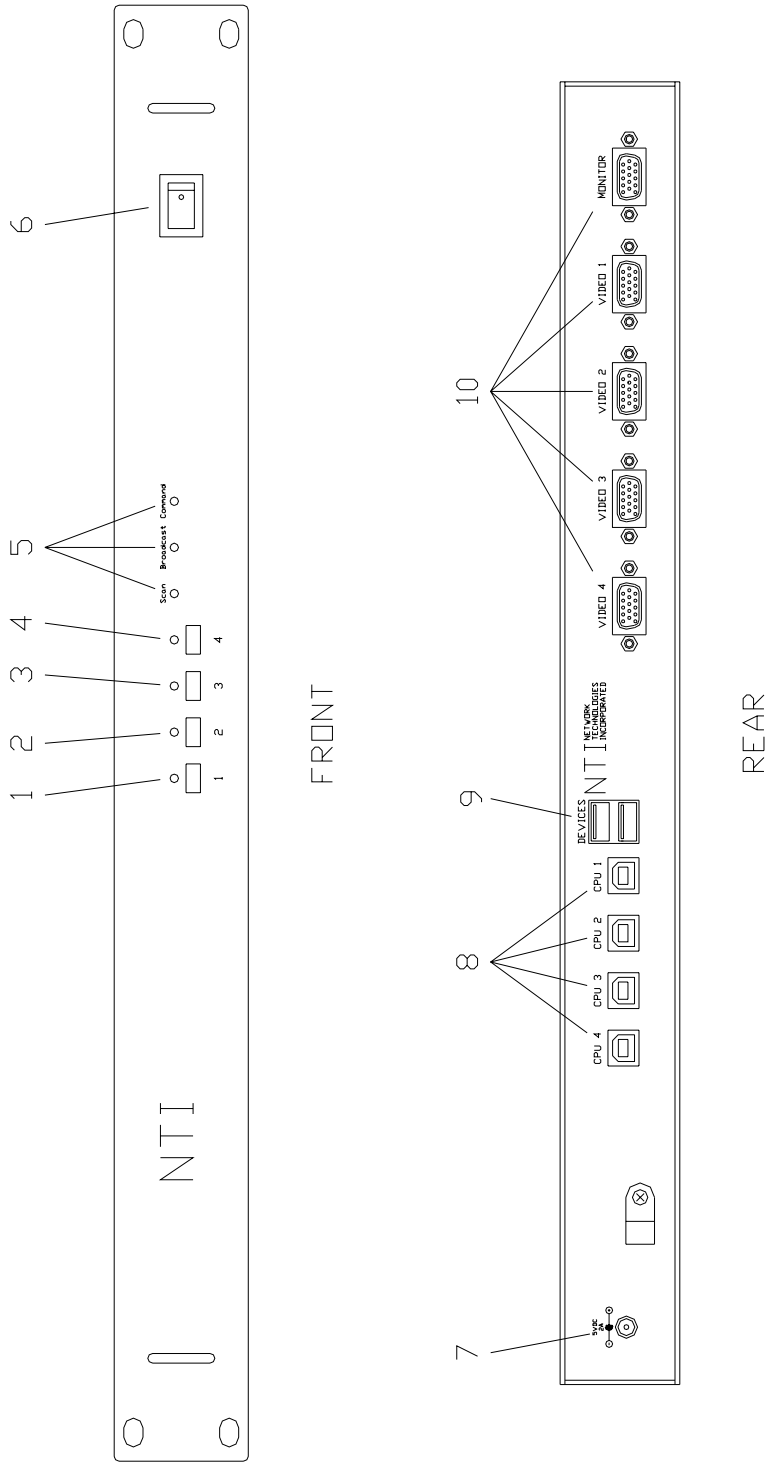

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Figure 2-19. KVM Switch UD80A8

Table 2-15. KVM Switch UD80A8 Controls and Indicators

Figure 2-19 Index #	Name	Function	Operating Position/ State
1	Input Switch and Accompa-nying LED indicator	Indicates circuit connection between KVM Switch/server/monitor/keyboard/mouse set for Data Server UD80A11.	On (Green), when depressed
2	Input Switch and Accompa-nying LED indicator	Indicates circuit connection between KVM Switch/server/monitor/keyboard/mouse set for Display Server UD80A12.	On (Green), when depressed
3	Input Switch and Accompa-nying LED indicator	Indicates circuit connection between KVM Switch/server/monitor/keyboard/mouse set. Not used.	Off
4	Input Switch and Accompa-nying LED indicator	Indicates circuit connection between KVM Switch/server/monitor/keyboard/mouse set. Not used.	Off
5	Scan LED	- Used to provide internal monitor/keyboard/ mouse signal handling characteristics. Not used.	Off
	Broadcast LED	- Used to control broadcast signaling associ-ated with each connected monitor/keyboard/ mouse set. Not used.	Off
	Command LED	- Used with internal server configuration soft-ware. Not used.	Off
6	Power Rocker Switch	Used to engage KVM unit power.	On (1)
7	5VDC power input jack	Connects 5 Vdc input power from power transformer plug	Connected

Table 2-15. KVM Switch UD80A8 Controls and Indicators - Continued

Figure 2-19 Index #	Name	Function	Operating Position/ State
8	CPU Firewire Connector	Provides video input control for each Server UD80A11/A12 video input/output control signal	CPU1 - Connected CPU2 - Connected CPU3 - Not connected CPU4 - Not connected
9	Peripheral USB Connectors	Provides Keyboard UD80A9 and Mouse UD80A10 connectivity	Devices: Top - Connected Bottom - Not connected
10	Video In	Provides video input from OPUP Server UD80A11/A12 and video output to Monitor UD80A7.	Video 1: Connected Video 2: Connected Video 3: Not connected Video 4: Not connected Monitor: Connected

2.3.2.10.1 KVM Switch Abnormal Indicators. The following controls and indicators are provided by the KVM Switch to display abnormal operations:

- **Power LED**: If off, power has been disrupted or faulty power supply.

2.3.2.11 Keyboard UD80A9 and Mouse UD80A10 Set. See Figure 2-20 and Table 2-16 for the location and description of the controls and indicators associated with the Keyboard and Mouse UD80A9 and UD80A10.

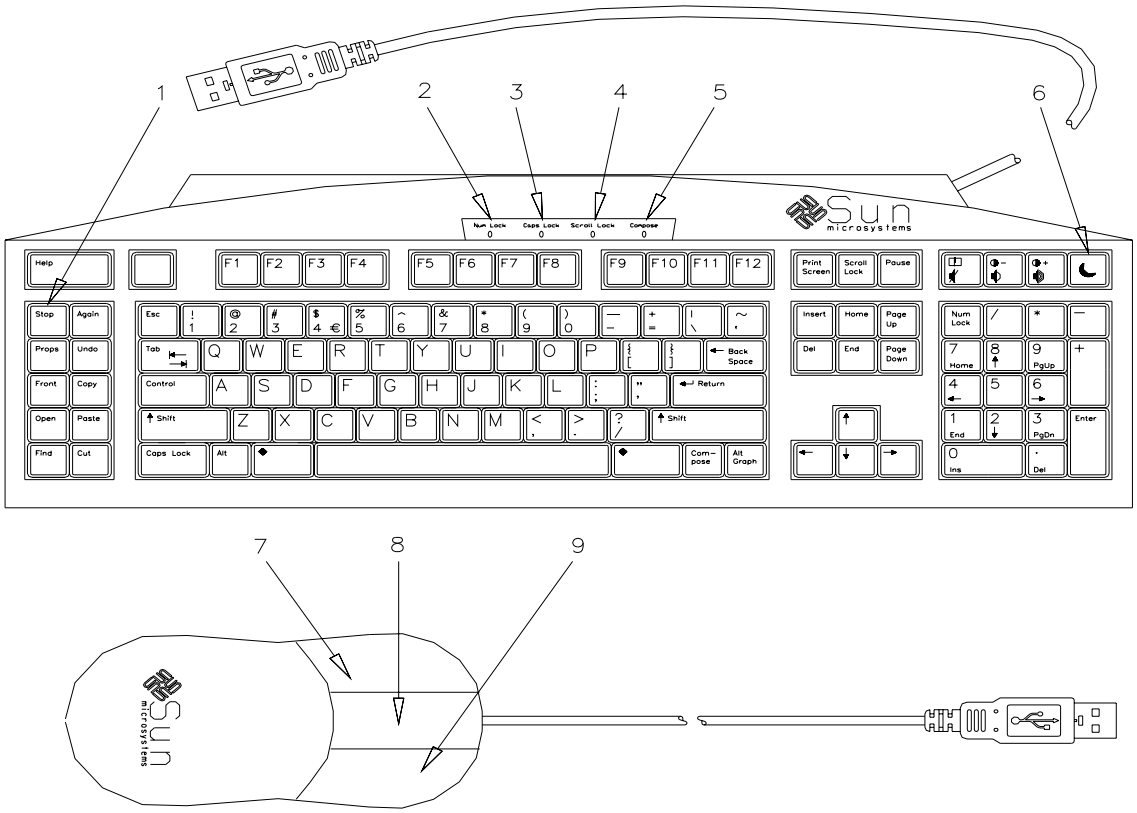

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Figure 2-20. Keyboard UD80A9 and Mouse UD80A10

Table 2-16. Keyboard UD80A9 and Mouse UD80A10 Set Controls and Indicators

Figure 2-20 Index #	Name	Function	Operating Position/ State
1	Stop Key	Used simultaneously with other keys to perform a specific function	N/A
2	Num Lock LED	Enables numeric keypad	On
3	Caps Lock LED	Enables uppercase lock selection	Off
* Not Used			

Table 2-16. Keyboard UD80A9 and Mouse UD80A10 Set Controls and Indicators - Continued

Figure 2-20 Index #	Name	Function	Operating Position/ State
4	Scroll Lock LED	None with OPUP	*
5	Compose LED	None with OPUP	*
6	Power Key	None with OPUP	*
7	Left Mouse Button	Text marking, item selection, and cursor placement	N/A
8	Middle Mouse Button	Paste and pre-determined GUI responses to specific application manipulation	N/A
9	Right Mouse Button	Menu selection within specific GUIs and/or CDE Login screens depending upon mouse placement	N/A
* Not Used			

2.3.2.11.1 Keyboard/Mouse Abnormal Indicators. The following controls and indicators are provided by the keyboard/mouse set to display abnormal operations:

- **Num, Caps, Scroll Locks, and Compose LEDs**: These keys will simultaneously display a blinking green LED during the OPUP OS POST procedure. These keys will display a steady green LED simultaneously during keyboard POST portion of the OS boot system test if a fault has been detected.

2.3.2.12 Servers UD80A11/A12. See Figure 2-21, Figure 2-22, and Table 2-17 for the location and description of the controls and indicators associated with the Server UD80A11/A12.

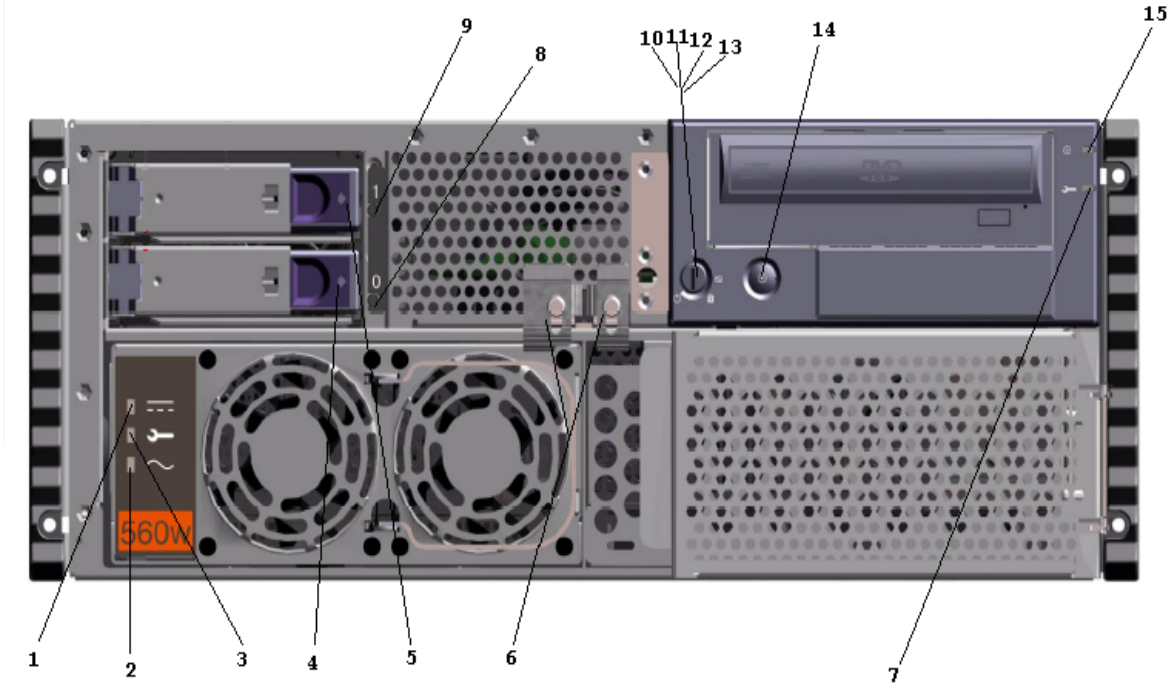


Figure 2-21. Server UD80A11/A12 (Front View)

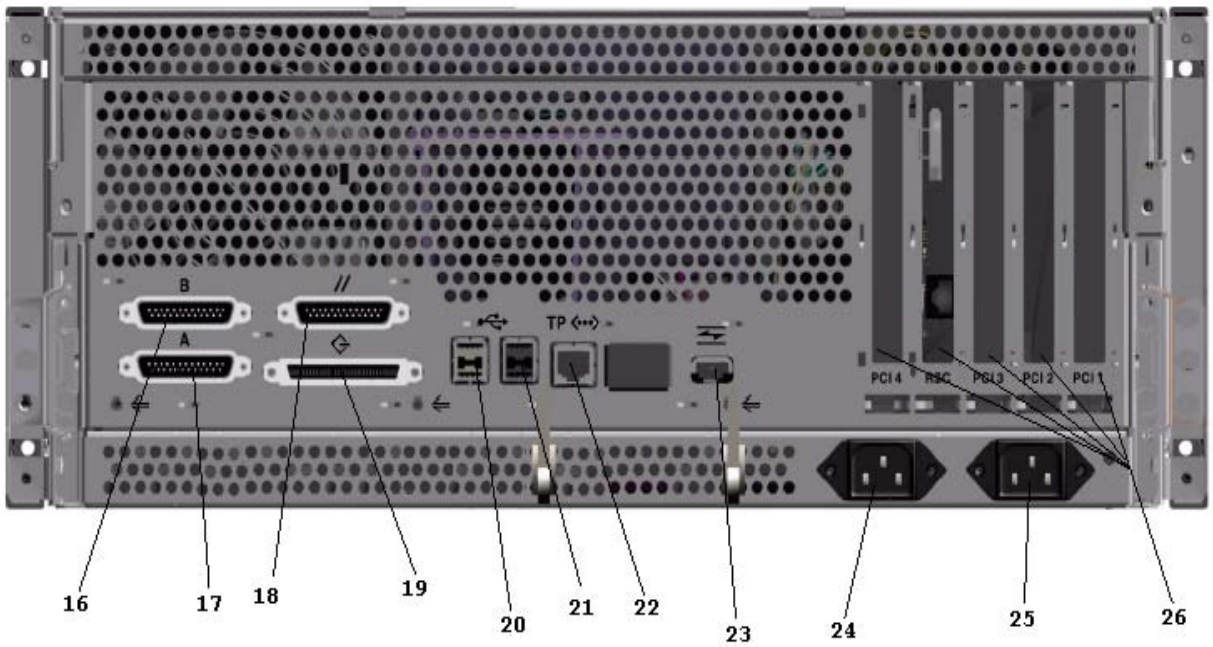


Figure 2-22. Server UD80A11/A12 (Rear View)

Table 2-17. Server UD80A11/A12 Controls and Indicators

Figure 2-21 and 2-22 Index #	Name	Function	Operating Position/ State
1	DC Status LED	Displays Power Supply AC to DC Power Status	On (Green)
2	AC Status LED	Displays Power Supply AC Power Status	On (Green)
3	Fault Status LED	Displays Power Supply Fault Status	Off
4	Primary Hard Drive Release Lever	Used to release hard drive from Server chassis.	Closed/Locked
5	Secondary Hard Drive Release Lever	Used to release hard drive from Server chassis.	Closed/Locked
6	Power Supply Retainers	Secures Primary/Secondary Power Supply within the Server chassis	Locked
7	Fault Status LED	Displays Server Internal Fault Status	Off
8	Primary Hard Drive Status LED	Displays Primary Hard Drive Operational Status	On (Green)
9	Secondary Hard Drive Status LED	Displays Secondary Hard Drive Operational Status	On (Green)

* Not used and/or disabled

Table 2-17. Server UD80A11/A12 Controls and Indicators - Continued

Figure 2-21 and 2-22 Index #	Name	Function	Operating Position/ State
10	Keyswitch, On Position	Used in association with the Power Button to engage power	Up (On) position
11	Keyswitch, Diagnostics Position	Used in association with internal Server Open-Boot Diagnostic (ODB) software	Not used
12	Keyswitch, Lock Position	Used to lock keyswitch. Will not allow Server to be powered Off (0) if engaged.	Not used
13	Keyswitch, Off Position	Used to disengage Server chassis power.	Not used
14	Power Button	Used in association with keyswitch to engage power	N/A
15	Server Power LED	Displays Server Power/Operational Status	On (Green)

* Not used and/or disabled

Table 2-17. Server UD80A11/A12 Controls and Indicators - Continued

Figure 2-21 and 2-22 Index #	Name	Function	Operating Position/ State
16	Serial Connector Port	Labeled as B. Provides local connectivity with external serial configured peripherals (i.e., UPS or Communication Router TIP cable)	N/A
17	Serial Connector Port	Labeled as A. Provides local connectivity with external serial configured peripherals (i.e., UPS or Communication Router TIP cable)	N/A
18	Parallel Connector Port	Local connectivity with external parallel configured peripherals	*
19	Ultra-SCSI Connector	Local connectivity with external SCSI configured peripherals	
20	Universal Serial Bus (USB) Ports 1 and 2	Two ports. Both used for Keyboard/Mouse USB connectivity	Connected (Auto-negotiation with input device when connected)

* Not used and/or disabled

Table 2-17. Server UD80A11/A12 Controls and Indicators - Continued

Figure 2-21 and 2-22 Index #	Name	Function	Operating Position/ State
21	Universal Serial Bus (USB) Ports 3 and 4	Two ports. Both used for Keyboard/Mouse USB connectivity	Connected (Auto-negotiation with input device when connected)
22	Twisted-Pair Ethernet Port	Labeled as **TP <...>**. Provides Communication connectivity	Connected (Auto-negotiation with communication router and/or LAN Switch when connected).
23	Fiber Channel Port	Provides external Fiber Channel BUS Connectivity	*
24	AC Power Input 1	Provides AC Power Connection to Server Secondary Power Supply	N/A
25	AC Power Input 0	Provides AC Power Connection to Server Primary Power Supply	N/A

* Not used and/or disabled

Table 2-17. Server UD80A11/A12 Controls and Indicators - Continued

Figure 2-21 and 2-22 Index #	Name	Function	Operating Position/ State
26	PCI/RSC Ports	Provides internal Peripheral Component Interconnect (PCI) and Remote System Control capability	Peripheral Card Slot Status: PCI 1 - Used for Video Card Adapter PCI 2 - Not Used PCI 3 - Not Used RSC - Used for RSC Adapter PCI 4 - Not Used
* Not used and/or disabled			

2.3.2.12.1 Server Abnormal Indicators. The following controls and indicators are provided by the Server to display abnormal operations:

- **Server Power LED**: If off, power has been disrupted or faulty power supply.
- **Primary/Secondary Power Supply LED**: If off, power has been disrupted or faulty power supply.
- **Primary/Secondary Hard Drive LED**: If off, power has been disrupted or faulty hard drive. If amber or steady green, disrupted and/or faulty internal data processing and/or faulty internal hard drive parts.

2.3.2.13 Dedicated/Dial Adapter Panels UD80A15/A16/A17. The Dedicated and Dial Adapter Panels UD80A15/A16/A17 are used to complete the communication circuit transmission from the Patch Panel UD80A19/A20/A21 to each corresponding Modem Rack UD80A1/A2 modem slot. There are two Dedicated Communication Adapter Panels and one Dial Communication Adapter Panel for the Large OPUP configuration and one of each for the Medium OPUP configuration.

2.3.2.13.1 Dedicated/Dial Adapter Panels Abnormal Indicators. The Dedicated and Dial Adapter Panels do not have available controls or indicators which will indicate a unit fault and/or failure. Abnormal indicators will be limited to CAT5 cable troubleshooting/fault isolation guidance.

2.3.2.14 Communication Switch UD80A18. See Figure 2-23 and Table 2-18 for the location and

description of the controls and indicators associated with the Communication Switch UD80A18.

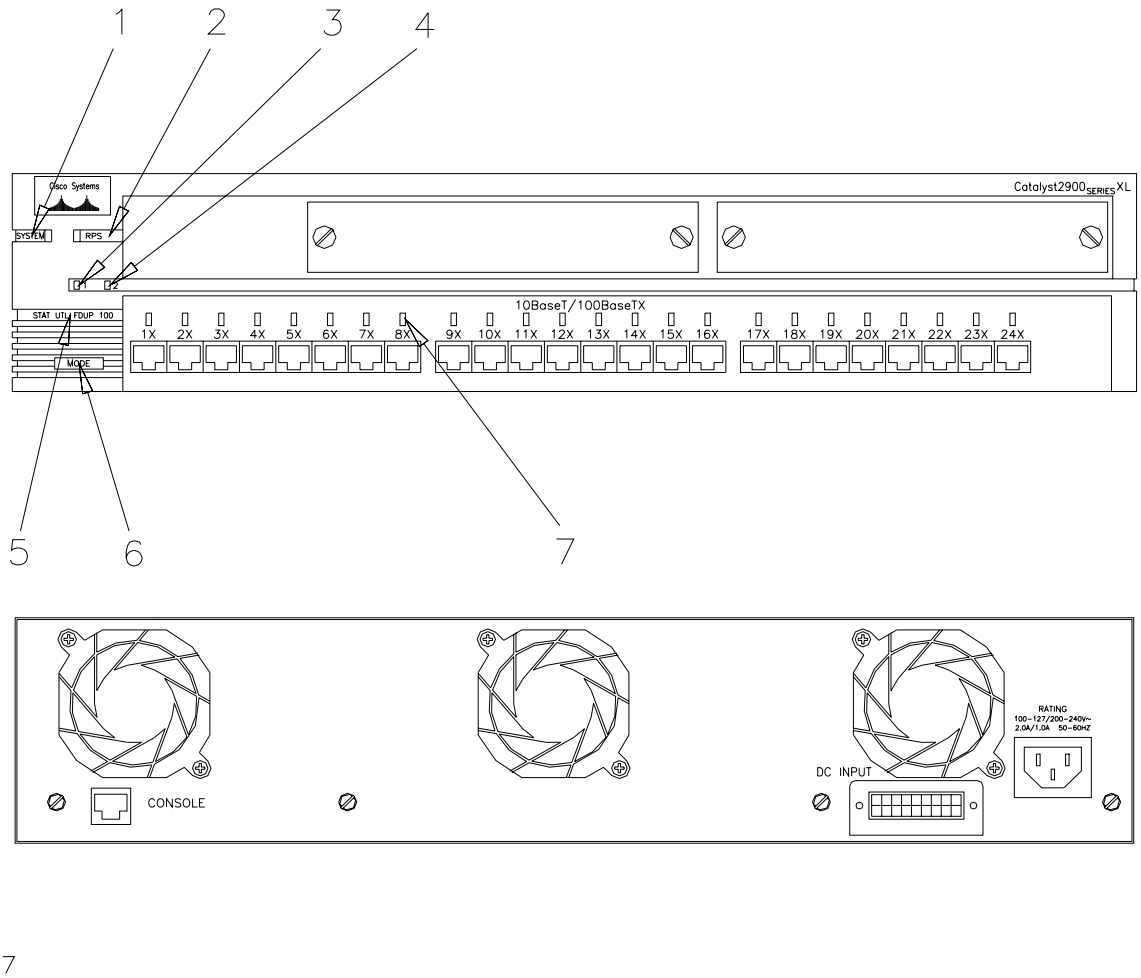


Figure 2-23. Communication Switch UD80A18

Table 2-18. Communication Switch UD80A18 Controls and Indicators

Figure 2-23 Index #	Name	Function	Operating Position/ State
1	SYSTEM LED	Indicates if the unit is receiving power and functioning properly. Off - the unit is not receiving power. On (Amber) - the unit is receiving power but is not functioning properly. On (Green) - the unit is receiving power and functioning properly.	On (Green)
2	RPS LED	The Redundant Power System LED is not used.	Off
3 and 4	Expansion Slot Status LEDs	Not used. No expansion cards are installed.	Off
5	Port Mode LEDs STAT, UTL, FDUP, 100	Indicates which mode is currently selected by the MODE Button (Item 6). The possible modes are: STAT, UTL, FDUP, and 100.	STAT
6	MODE Button	Used to select the port mode. The current mode is indicated by the Port Mode LEDs (Item 5). The possible modes are: STAT, UTL, FDUP, and 100.	N/A

Table 2-18. Communication Switch UD80A18 Controls and Indicators - Continued

Figure 2-23 Index #	Name	Function	Operating Position/ State
7	Port Status LEDs (24 Total)	Each individual LED indicates the status of it's corresponding port. The possibilities are: Off - The link is not present. Flashing (Amber) - Link fault. Flashing (Green) - The link is present, and the port is either receiving or transmitting data properly. On (Amber) - The port is not forwarding data. After a port is configured, this LED may stay amber for up to 30 seconds before changing to green. On (Green) - The link is present, and the port is waiting to receive or transmit data.	On (Green) or Flashing (Green) if the port is used Off if the port is not used.

2.3.2.14.1 Communication Switch Abnormal Indicators. The following controls and indicators are provided by the Communication Switch to display abnormal operations:

- **System LED**: If off or Amber, unit is not receiving power or not functioning properly.
- **Port LED**: If off or Amber, link is not present or there is a link fault.

2.3.2.15 Dedicated Patch Panels UD80A19/A20/A21. See Figure 2-24 and Table 2-19 for the location and description of the controls and indicators associated with the Dedicated Patch Panel UD80A19/A20/A21.

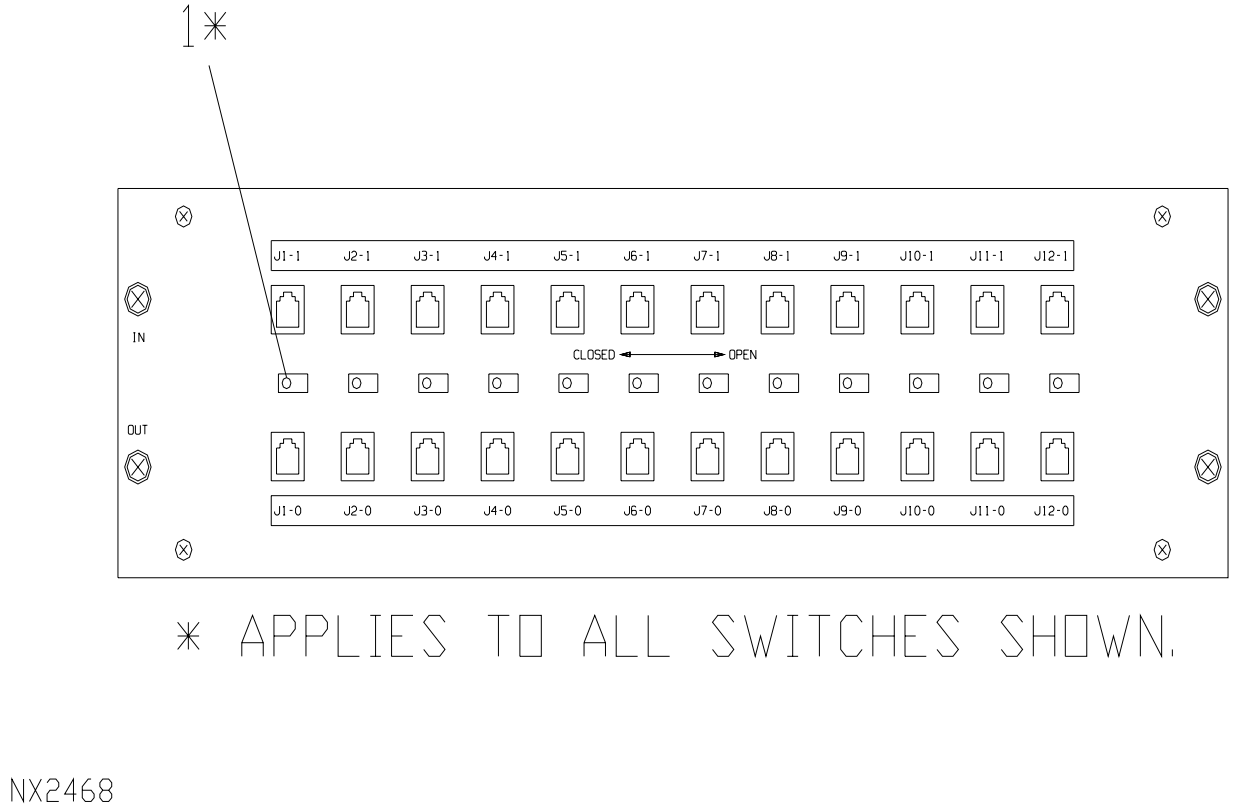


Figure 2-24. Dedicated Patch Panel UD80A19/A20/A21

Table 2-19. Patch Panel UD80A19/A20/A21 Controls and Indicators

Figure 2-24 Index #	Name	Function	Operating Position/ State
1	Toggle Switch	Used to complete communication circuit transmission. (* There are up to 12 toggle switches per panel).	Left/Closed

2.3.2.15.1 Dedicated/Dial Patch Panel Abnormal Indicators. The Dedicated Patch Panel(s) UD80A19/A20/A21 do not have available controls or indicators which will indicate a unit fault or failure. Abnormal indicators will be limited to CAT5 cable troubleshooting/fault isolation guidance and the proper use of the individual communication toggle switch.

2.3.2.16 Printer UD80A22. See Figure 2-25 and Table 2-20 for the location and description of the controls and indicators associated with the Printer UD80A22.

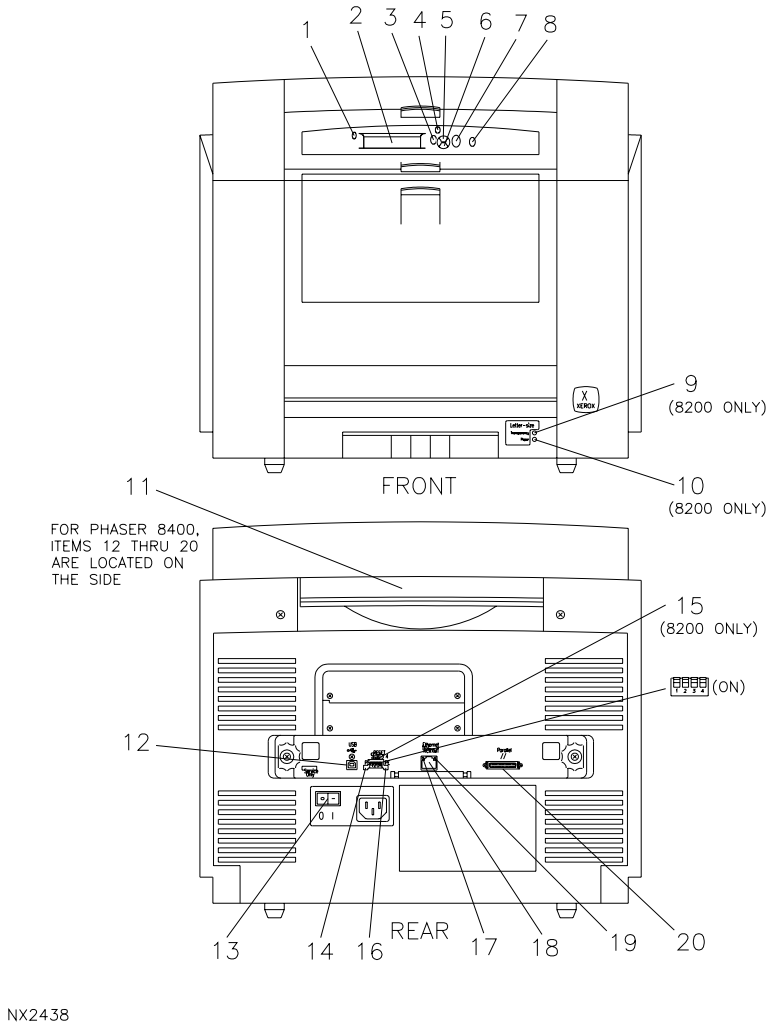


Figure 2-25. Printer UD80A22

Table 2-20. Printer UD80A22 Controls and Indicators

Figure 2-25 Index #	Name	Function	Operating Position/ State
1	Power, Print, and Menu Status LED	Indicates status of system power, print ready, and menu selection	On or blinking (bright green)
2	Menu LCD Display	Displays numerous user interactive menu selections	8 selectable menu headings

Table 2-20. Printer UD80A22 Controls and Indicators - Continued

Figure 2-25 Index #	Name	Function	Operating Position/ State
3	Back Button	Used in association with menu LCD and/or print status	N/A
4	Cancel Button	Used in association with menu LCD and/or print status	N/A
5	Scroll Up Button	Used in association with menu LCD and/or print status	N/A
6	Scroll Down Button	Used in association with menu LCD and/or print status	N/A
7	OK Button	Used to accept input from LCD Menu	N/A
8	Information (**i**) Button	Used to display additional information on a message, error code, and/or menu depicted within the LCD menu display	N/A
9	Transparency LED	Indicates transparency status (8200 ONLY)	Off
10	Paper LED	Indicates paper availability status (8200 ONLY)	Off
11	Wax Transfer Chalk Access Latch	When opened, suspends printer functions to allow access to wax chalk slots.	Closed
12	USB Connector	Provides USB connectivity	N/A
13	Power Switch	Turns power On/Off (1/0) to printer	On (1)
14	PS LED	-	Blinking green
15	DIP Switch	Factory pre-set 4-position DIP (8200 ONLY)	All in UP position
16	PE LED	-	Blinking green
17	ETHERNET TCP/IP RCV LED	Print connectivity status	Blinking green
18	Ethernet Port	Provides Ethernet TCP/IP connectivity	N/A

Table 2-20. Printer UD80A22 Controls and Indicators - Continued

Figure 2-25 Index #	Name	Function	Operating Position/ State
19	ETHERNET TCP/IP XMT LED	Indicates status of transmitted messages from printer	Blinking green
20	Parallel Connector	Provides SCSI connectivity	N/A

2.3.2.16.1 Printer Abnormal Indicators. The following controls and indicators are provided by the printer to display abnormal operations:

- **Power, Print, and Menu Status/LED**: Steady orange or blank indicates error code detected and/or power disruption/loss.
- **Transparency LED**: If on, transparencies are being used. If steady orange, transparency malfunction (will be accompanied by a displayed error code and/or message within LCD menu display.)
- **Paper LED**: If steady orange paper low or out (will be accompanied by a displayed error code and/or message within the LCD menu display.)
- **PS/PE LEDs**: If continuous green or orange, transmission fault or data collision has been detected.
- **Transmit/Receive LEDs**: If continuous green or orange, transmission fault or data collision has been detected.

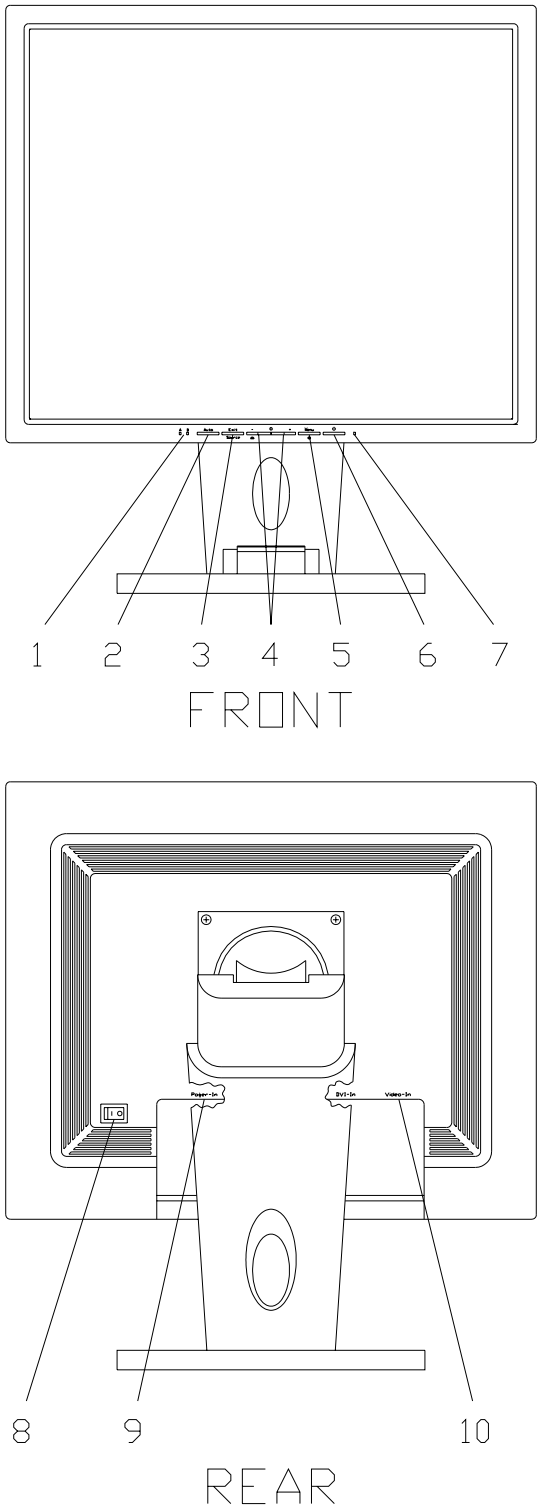
2.3.3 Display Workstation UD85.

The following assembly display workstation controls and indicators will be discussed:

- Display Monitor UD85A1
- CPU/Processor UD85A2
- Keyboard UD85A3 *
- Mouse UD85A4 *

* Keyboard and Mouse are a set.

2.3.3.1 Display Workstation Monitor UD85A1. See Figure 2-26 and Table 2-21 for the location and description of the controls and indicators associated with the Display Workstation Monitor UD85A1.



NX2783

Figure 2-26. Display Workstation Monitor UD85A1

Table 2-21. Display Workstation Monitor Controls and Indicators

Figure 2-26 Index #	Name	Function	Operating Position/ State
1	Analog (A) Digital (B) Indicator	Indicates whether analog or digital video is supplied to monitor.	A
2	Auto Button	Performs auto adjustment of the screen display.	None
3	Exit/Source Button	Exits the active menu of the On Screen Display (OSD) Menu function. When OSD menu is not displayed, it selects either signal A or B.	None
4	Adjust Buttons	These buttons highlight and adjust items in the OSD menu functions.	None
5	Menu/Select Button	Opens the OSD menu. Also used to select between two adjustment items on the same menu. Available Menus Brightness, Contrast, Image Lock, Position (H/V), Reset (Geometry/Color), Color Temperature, Color Control, Language, Halftone, Menu Position, Menu Display Time, Source Select	None
6	Power Button	Turns the monitor on or off.	None
7	Power Indicator	Glows green during normal operation. Blinks green once after any adjustments were made in the OSD menu.	On (steady green)
8	Power S/W Switch	Main monitor power switch.	On (1 selected)
9	Power-In	Accepts AC power in to connector jack.	Power cord connected
10	Video-In	Accepts video in from processor.	Video cable connected

2.3.3.1.1 Monitor Abnormal Indicators. The following controls and indicators are provided by the monitor to display abnormal operations:

- **Abnormal image display**: Abnormal image displays can result from faulty signal generation, selection of a video input port with no cable connected, no signal generated from the source, or over-adjustment of the On Screen Display (OSD).

2.3.3.2 Display Workstation CPU/Processor UD85A2. See Figure 2-27 and Table 2-22 for the location and description of the controls and indicators associated with the Display Workstation CPU/Processor UD85A2.

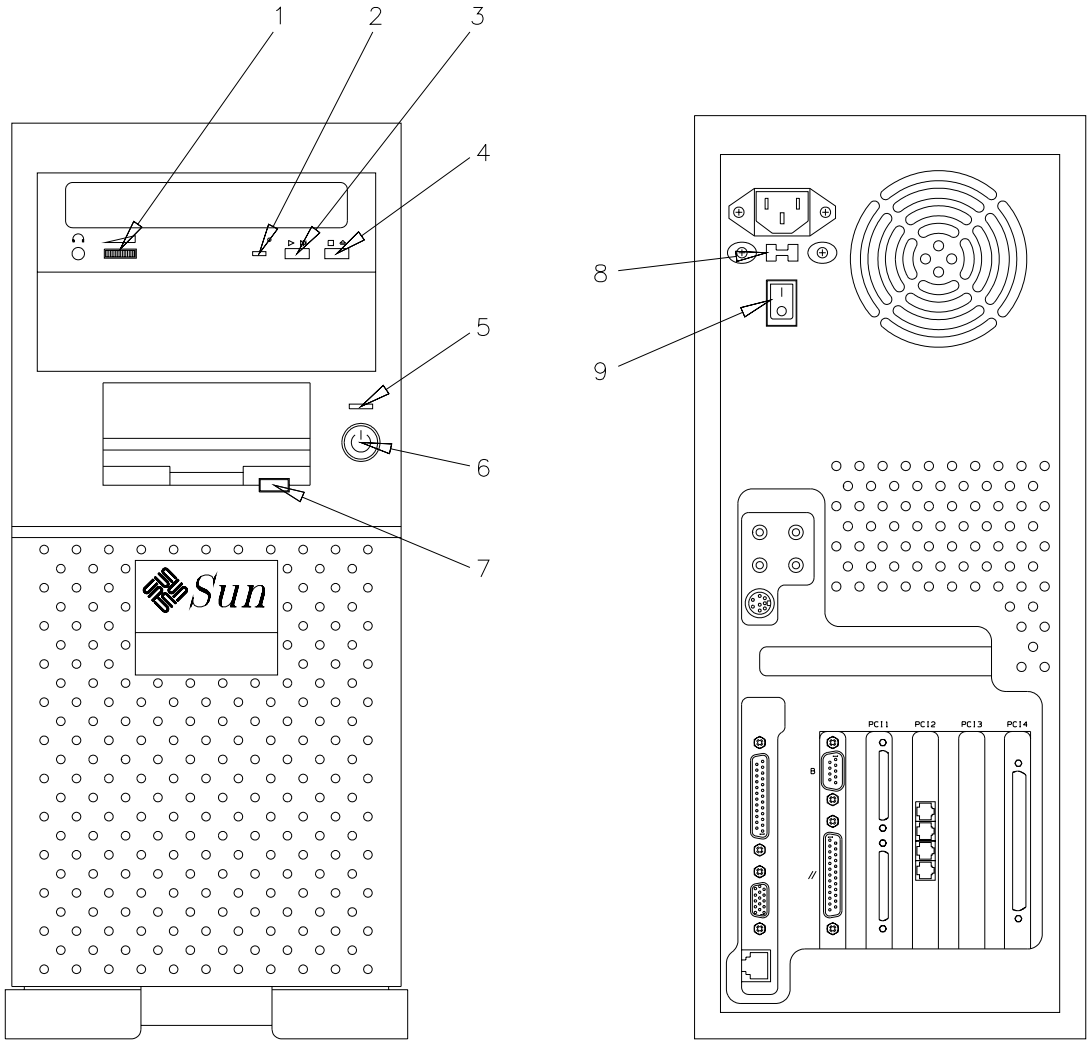


Figure 2-27. Display Workstation CPU/Processor UD85A2

Table 2-22. Display Workstation CPU /Processor Controls and Indicators

Figure 2-27 Index #	Name	Function	Operating Position/ State
1	Volume Control for CD-ROM	Controls the volume for the CD-ROM (if head phones are used.)	N/A
2	Access Light for CD-ROM	Blinking - the CD-ROM is being accessed.	Variable
3	Play/Skip - Track Button	Starts the playing of the CD-ROM or causes the CD-ROM to skip to the next track if already playing.	N/A
4	Stop/Eject Button	Stops the CD-ROM play function. If the CD-ROM is already stopped, ejects the CD-ROM Disk	N/A
5	Power LED	On - power is being supplied to the CPU/Processor	On
6	Power Button	Power button functions: - Engages power to the CPU/Processor - If power is already engaged, places the CPU/Processor on stand-by if pressed once. - If power is already engaged, places the Display Workstation CPU/Processor in the Off position, if pressed and held.	N/A
7	Floppy Drive Eject Button	Ejects disk when pressed	N/A
8	Voltage Line Selector Switch	Selects either 115V or 230V input voltage	115V selected
9	Power Rocker Switch	Power Rocker switch functions: - On (1) Position: Applies power to the CPU/ Processor power supply - Off (0) Position: Removes power from the CPU/Processor power supply.	On (1)

2.3.3.2.1 Display Workstation CPU/Processor Abnormal Indicators. The following controls and indicators are provided by the Display Workstation CPU/Processor to display abnormal operations:

- **Power LED**: The power LED will indicate a steady orange if there is either a disruption in the video signal or the CPU/Processor has been disrupted (Application Software induced power suspension or OS fault.)

- **Abnormal image display**: Abnormal image displays can result from faulty signal generation from the internal video card.

- **No Keyboard/Mouse response**: Bad keyboard/mouse set, loose or faulty keyboard/mouse input cable, and/or Application Software induced power suspension or OS fault.

2.3.3.3 Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set. See Figure 2-28 and Table 2-23 for the location and description of the controls and indicators associated with the Keyboard UD85A3 and Mouse UD85A4.

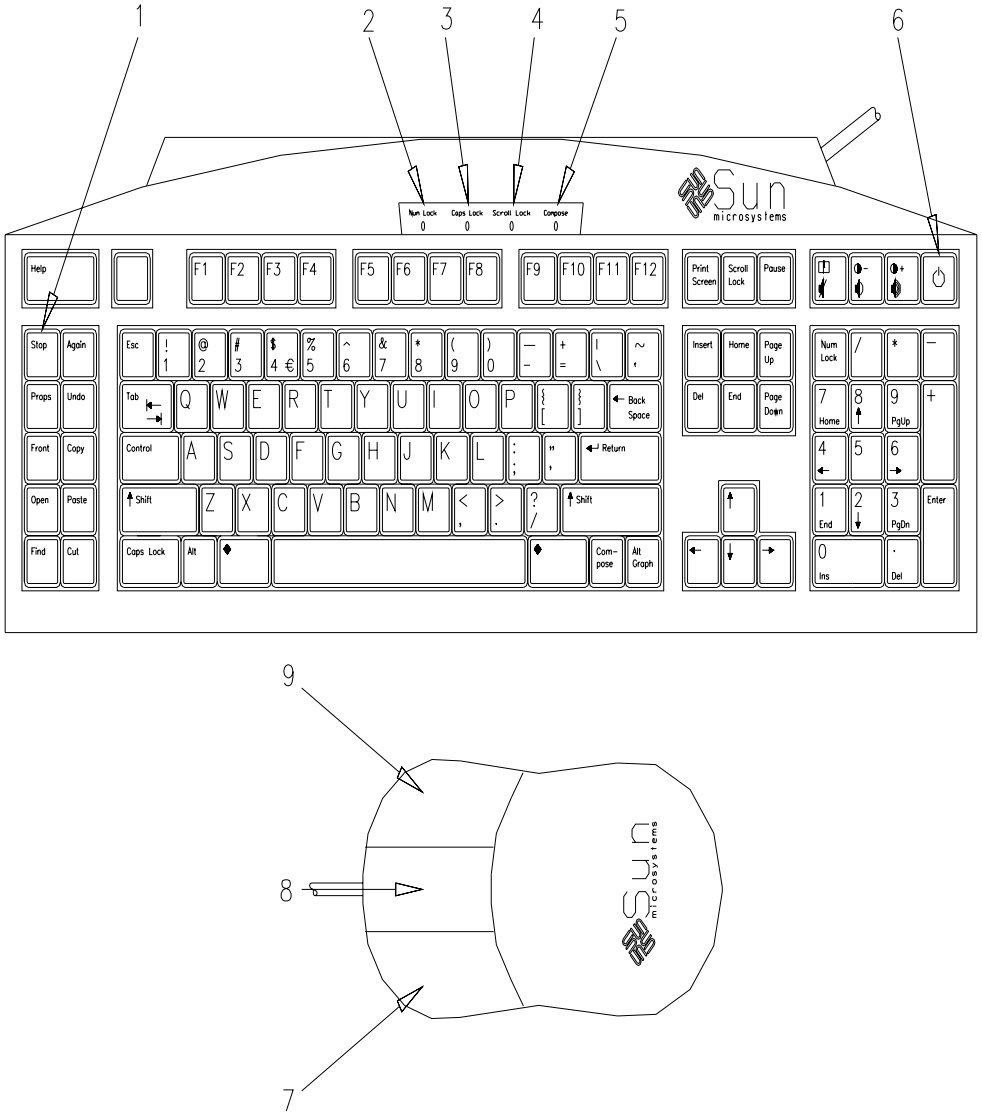


Figure 2-28. Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set

Table 2-23. Display Workstation Keyboard UD85A3 and Mouse UD85A4 Controls and Indicators

Figure 2-28 Index #	Name	Function	Operating Position/ State
1	Stop Key	Special key used simultaneously with other keys	N/A
2	Num Lock LED	On - numeric keypad is enabled	Auto Off
3	Caps Lock LED	On - letters have been lock to print in upper case	Auto Off
4	Scroll Lock LED	Not used	N/A
5	Compose Lock LED	Not used	N/A
6	Power Key	Not used	N/A
7	Left Mouse Button	Most common uses: - Mark text - Item selection - Placing cursor in edit fields	N/A
8	Middle Mouse Button	Most common uses: - Paste text - Back to last selected function (X-Windows/ HTML functions)	N/A
9	Right Mouse Button	Most common uses: - Menu selection pop-up (depends on mouse cursor placement).	N/A

2.3.3.3.1 Display Workstation Keyboard/Mouse Abnormal Indicators. The following controls and indicators are provided by the Display Workstation Keyboard/Mouse to display abnormal operations:

- **Caps/Scroll Lock and Compose LED**: These will blink twice during initial CPU/Processor POST if fault keyboard/internal OS process detected.

- **No Keyboard/Mouse response**: Bad keyboard/mouse set, loose or faulty keyboard/mouse input cable, and/or Application Software induced power suspension or OS fault.

Section 2.4. REFERENCE DATA

2.4.1 General.

This section covers all applicable OPUP Group reference documentation and data listings. General OPUP Group data is presented in Table 2-24.

2.4.2 Glossary of Terms.

Refer to the Glossary of Terms contained in the System Manual NWS EHB 6-500 for all terms not provided by this manual.

2.4.3 Equipment Supplied.

The equipment that composes the Large and Medium OPUP Equipment Group UD80 is considered to be either Commercial-Off-The Shelf (COTS), Legacy, or consumable equipment. A breakdown of each LRU item associated with the Large and Medium OPUP Configuration is provided in Chapter 7, Illustrated Parts Breakdown (IPB). The following sections outline the specific identification and guidelines that are not covered elsewhere within this manual.

2.4.3.1 Commercial-Off-The-Shelf (COTS) Equipment. COTS equipment associated with either the Large and Medium OPUP Equipment Group UD80 can either be considered LRU or consumable for repair purposes. Whenever possible, warranties will apply to their fullest extent with the exception of planned consumable module upgrades or replacements (i.e., toner replacement). The determination of LRU versus consumable is further outlined in the IPB.

2.4.3.2 Legacy Equipment. Legacy equipment designated for LRU maintenance are the UD80 Cabinet structure, UD80A1/A2 Modem Rack, UD80A15/A16/A17 Adapter Panel, and UD80A19/A20/A21 Dedicated Patch Panel. Replacement and/or repair is conducted either through normal supply channels or Radar Operations Center (ROC) equipment replacement availability (which is on a case-by-case basis).

2.4.4 Documentation and Tools.

The documentation and standard tools listed in the following paragraphs are provided to assist each site in determining specific documentation used as reference material for this manual. This section also contains a recommend list of tools required to perform all applicable planned maintenance of the Large/Medium OPUP Equipment Group UD80.

2.4.4.1 Applicable Reference Material. The Large/Medium OPUP equipment group reference is listed in Table 2-24.

Table 2-24. OPUP Group Reference Publications

Title	Manufacturer	Document Number
326X Series Modem Reference and Applications Guide	Motorola	09738, Rev B
Cisco 3600/2600 Series Routers Software Configuration Guide	Cisco	DOC-2600SW-ICG Part Number: 78-5173-04
Cisco 3600/2600 Series Network Module Routers Hardware Installation Guide	Cisco	DOC-785047 Part Number: 78-5047-07
Cisco Catalyst 2900 Series XL Desktop Switching Software Configuration Guide	Cisco	DOC-786511 Part Number: 78-6511-02, REV 12.0(5)XP
Cisco Catalyst 2900 Series XL Installation Guide	Cisco	DOC-786461 Part Number: 78-6461-02
Sun Enterprise 280R Server Service Manual	Sun Microsystems	806-1080-10, January 2001, REV B
Sun Enterprise 280R Server Service Manual	Sun Microsystems	806-1081-11, January 2001, REV B
Sun Enterprise 280R Server Setup and Rackmounting Guide	Sun Microsystems	806-1087-11, December 1999, REV A
Sun Enterprise 280R Server Product Notes	Sun Microsystems	806-4808-10, January 2001, REV A
Sun 17 inch Monitor	Sun Microsystems	875-1856-01, Generic, REV 0.5
Sun Keyboard and Mouse Manual	Sun Microsystems	805-7171-10, February 1999, REV A
Sun Workstation Ergonomics	Sun Microsystems	805-7161-10, February 1999, REV A
APC Smart UPS 700/1000/1400 2U/3U Rack Mounted Uninterruptable Power Supply User's Manual	APC	990-7097A, February 2000, Rev 2
Plextor CD-R/RW Owner's Manual	Plextor	SW Ver 1.3, December 2001, Third Addition

2.4.4.2 Standard Tools/Test Equipment. The following references, Table 2-25, OPUP Group Recommended Tools/Supplies, and Table 2-26, OPUP Group Test Equipment, are provided as background information. The items listed are widely available through commercial means and may be required when performing remove, replace, and troubleshooting procedures as outline in this manual.

Table 2-25. OPUP Group Recommended Tools/Supplies

Nomenclature	Description	Manufacturing/Part Number
Cleaner, Vacuum	Standard Shop Style	HVU/NWN7910-00-267-1215 or equivalent
IC Extractor/Insertion Tool Kit	Memory Module Replacement Tool	Jameco 104707
IC Pin Straightener	-	Jameco 99362
Driver, Torque Indicating Tool	Memory Module Torque Tool	Sun Microsystems F340-6091-03
Nut Driver Set, Hex	3/16, 1/4, 3/8, 5/16, 3/8, 5/16, 11/32, 3/8, 7/16, 1/2	-
Pliers, Miniature Cutters	-	-
Screwdriver Set, Alignment Non-Metallic	-	-
Screwdriver Set, Electronic Thin Blade	1/8 x 3”	-
Screwdriver Set, Off-Set Reversible Ratchet	1/4 and 3/8”. Flat-tip #1 and #2 Phillips-tip	-
Wrench Set, Adjustable	4 and 8” inch	-
Lint free cloth	Generic, no lint	Order local means
Compressed Air	Generic, 12 oz.	Order local means
Brush, soft bristle	Wood handle, 2 inch	Order local means
Cleaner, Glass	Generic	Order local means
Wipes, Alcohol	Presoaked alcohol (90% iso-propyl)	Order local means

Table 2-26. OPUP Group Test Equipment

Nomenclature	Manufacturing/Part Number
Box, RS-232 Breakout	Data Tracker MISCO/TR 1054
Data Tracker (SERD 19)	MISCO/TR 1054
DIP Clip, 16 Pin (SERD 21)	923700
Multimeter, Handheld (SERD 12 and 65)	Fluke 87 or Jensen JTM-95 or Equivalent
LAN Kit, Crimper, Stripper, Tester, Misc. Plug Set	CTK-8568A DTK1298
Telephone, Generic RJ-45 Connector	-
Transmission Line Test Set (SERD 15)	AM-48

CHAPTER 3
SOFTWARE DESCRIPTION

Section 3.1. INTRODUCTION

3.1.1 General.

This chapter provides a description of the overall OPUP Server OS suite, applicable installation instructions, and Host Terminal command line entries that may be required in order to provide system administration, maintenance, and display of products on the Large and Medium OPUP system. The Large and Medium OPUP software suite is comprised of an OPUP Server OS, a sub-set of management software called the `OPUP Manager Main Menu`, and the Operational Applications Front Panel. The Operational Applications Front Panel contains a sub-set of applications called the Electronic Performance Support System (EPSS), Product Display Graphic Users Interface (PDGUI), Status and Control GUI, Archive Product Display GUI, and Archive Status Log GUI. The Operational Applications Front Panel is normally accessed by operations personnel. The Manager GUI, `OPUP Manager Main Menu`, will normally be accessed by personnel given OPUP administrative duties.

This chapter will primarily concentrate on an overview of the OPUP Server Operating System (OS) used within the Large and Medium OPUP Equipment Group UD80. Specific software installation and configuration guidelines will be presented which address both the initial and re-installation of the OPUP Server OS. This chapter will discuss the use of UNIX within the overall OPUP Server OS, access to and use of the Sun Solaris “Host/Console” terminals, and the common use of applicable UNIX command line scripts.

NOTES

The discussion of and use of OPUP applications and associated GUIs in this chapter is not meant to replace the specific guidelines outlined in Chapter 5, System Administration, and operational functions provided in NWS EHB 6-536, Operations Instructions. Refer to Chapter 5 for all OPUP administrative duties and NWS EHB 6-536 for specific WSR-88D product and message operational guidelines.

Command entries and mouse selections are shown in this section in **bold** type. Variable names are normally shown with a unique font (e.g., *`variable_name`*). Within a specified command string that must be entered, the variable placeholders are not bold type; however, all portions of the command that are entered exactly as shown are in bold type. The variable placeholder within the command string must be replaced with a name, address, etc. unique to each system and the user is told how to formulate the entry, or directed to where to find this information. Unless stated otherwise, each command line shown must be “entered” to be processed. Also, directory names/paths shown outside of a command example

are *italicized* for clarity purposes. This section will discuss some graphical manipulations using a mouse. The word **click** indicates a standard **left mouse click**. When a **right**, **middle** or **double** click is required, it is specifically indicated.

3.1.2 Chapter Organization.

Chapter 3 is organized into the following seven sections:

- Section 3.1 INTRODUCTION - Provides a brief description of each section in this chapter.
- Section 3.2 KEYBOARD AND MOUSE FUNTIONS - Provides a detailed description of the Sun Microsystems keyboard layout.
- Section 3.3 OPUP SOFTWARE DESCRIPTION OPUP - Provides a general overview of the OPUP Server OS, System Administration Manager GUI, Sun Microsystems Common Desktop Environment (CDE). A brief overview of the Operational Applications used by operators will be prevented, as well.
- Section 3.4 OPUP SOFTWARE BACKGROUND PROCESS DESCRIPTION - Provides an in-depth discussion of the background processes and UNIX functions incorporated within the OPUP Server OS.
- Section 3.5 OPUP SOFTWARE INSTALLATION PROCEDURES - Addresses the information and steps required to perform an initial installation or re-installation of the Large and Medium OPUP Equipment Group UD80 Server OS.
- Section 3.6 OPUP SOFTWARE DEVELOPMENT BACKGROUND - Provides a brief overview of the use of UNIX Solaris software, command line scripts, and associated utilities in association with the OPUP Server OS.

Section 3.2. KEYBOARD AND MOUSE FUNCTIONS

3.2.1 Keyboard and Mouse Layout Features.

NOTES

The keyboard and mouse functionality described in the following paragraphs may be applied to both the OPUP Equipment Group UD80 and UD85, unless otherwise stated.

The keyboard and mouse associated with the OPUP Server is depicted in paragraph 2.3.2.11, Keyboard UD80A9 and Mouse UD80A10 Set. This set is configured as a USB type keyboard and mouse. The keyboard and mouse associated with this set function separately from each other.

The keyboard and mouse set associated with the Display Workstation is depicted in paragraph 2.3.3.3, Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set. This set is configured as a PS2 type keyboard and mouse set. The mouse associated with this set must be connected to the keyboard in order for display workstation functions to work properly.

The OPUP Manager GUI and Operational Applications have been developed to assist each user with the performance of WSR-88D administrative duties and operational functions through the use of the common keyboard and three-position mouse set. Specific keyboard and mouse functions have been incorporated throughout the Large/Medium OPUP Server OS through the use of the Common Desktop Environment (CDE) display, OPUP Manager GUI, and Operational Applications (i.e., EPSS, PDGUI, Status & Control GUI, Archive PDGUI, and Status Log GUI). The following paragraphs concentrate on the layout and use of specific keyboard and mouse functionality.

3.2.1.1 Keyboard Functionality. The alphanumeric keyboard has a number of different key functions that can be used to enter and/or manipulate data on the OPUP Server OS and Operational Applications Suite. Several keys described in the next few paragraphs have the auto-repeat feature. When a character is depressed for at least one second, the terminal will generate a stream of that character at a rate of 15 characters per second until the key is released.

3.2.1.2 Alphanumeric Key Layout. The alphanumeric keys have a specific relationship with the mouse buttons depending upon where the cursor is located within each display GUI. For example, when the cursor is positioned within an unprotected field in a GUI, pressing an alphanumeric key will cause the corresponding character to replace any character currently at that location. The cursor will then automatically reposition itself at the next unprotected character on the display. To move the cursor to the next sub field, either press the **<Tab>** key or move the mouse/cursor to the new desired sub field. The keyboard contains two **<Shift>** keys, each key operates the same. The number keys each contain two symbols. The lower symbol is the number displayed by simply pressing the key. The upper symbol is displayed by pressing **<Shift>** and the number key

simultaneously. To facilitate entering a string of uppercase characters, use the **<Caps Lock>** key. Table 3-1 describes the rest of the keyboard layout and functions.

Table 3-1. Keyboard Features

Key	Function	Remarks
<Space Bar>	Moves the cursor one space at a time to the right producing a blank character which replaces whatever was at the cursor location. If the mouse/cursor is placed over an inactive area, this key activates the window/unprotected area.	For skipping over data in a non-destructive manner, use the mouse or cursor control keys.
<Back Space>	Moves the cursor one space at a time to the left producing a blank character which replaces whatever was at the cursor location.	Can be used to delete any entry currently displayed in each space.
Cursor Control	Moves of the cursor without altering the window contents. These keys consist of four **<Arrow>** keys, **<Tab>**, **<Home>**, **<End>**, **<Page Up>**, and **<Page Down>**.	The **<Home>** key does not have auto repeat functionality.
Four **<Arrow>** keys	Facilitates the cursor movement throughout the various unprotected display areas. The **<Arrow>** keys allow for 90 degree cursor movement each either up, down, left, or right.	The arrangement of the unprotected areas may prevent vertical moves.
<Tab>	Moves the cursor forward to the next unprotected area until there are no more unprotected areas. When pressed simultaneously with a **<Shift>** key, moves the cursor backward to the previous unprotected area. Also, if the cursor is in the first unprotected area, it will wrap around to the last unprotected area.	When using columns, the cursor moves from one column to another then moves down a line. It does not move to the next unprotected area.
<Home>	Moves the cursor to the left most position of the first unprotected window area.	This does not function on every GUI window.
<End>	Moves the cursor to the right most position of the unprotected window area.	This does not function on every GUI window.
<Page Down> **<Page Up>**	Used to display multiple pages of information. One complete page at a time is scrolled forward (down) or backward (up).	Will not function when only one page of information is available.

Table 3-1. Keyboard Features - Continued

Key	Function	Remarks
<Return> or **<Enter>**	Causes the command currently displayed to be processed. Upon pressing this key, all data will be interpreted by the CPU and acted upon.	Prior to pressing this key, the command and/ or data can be edited/ formatted by using other keys in any unprotected window area.
<Insert>	When off, allows data entry by overwriting the existing data. When on, each keystroke is inserted non-destructively into the existing data.	Acts as a toggle on or off.
<Delete>	Deletes the character to the right of the cursor or a series of characters that has been highlighted with the mouse within any unprotected field.	Has the auto repeat feature.
<Shift>	Each keyboard has two of these. Used in conjunction with other keys to perform a function.	Do nothing by themselves.

3.2.1.3 Numeric Keypad. The numeric keypad is located in the lower right portion of the keyboard and consists of a full set of number keys along with the **<Enter>**, **<Num Lock>**, **<Ins>**, **<Del>**, **<End>**, **<Home>**, **<Pg Up>**, **<Pg Dn>**, four **<Arrow>** keys as well as **< * >** (multiply), **< / >** (divide), **< + >** (add), **< - >** (subtract), and **< . >** (decimal) keys. The numeric keypad is provided to allow users to enter numeric data and programming information more efficiently. The number keys on this keypad work the same way the unshifted number keys do at the top of the alphanumeric keyboard. The multiply, divide, add and subtract keys work by pressing them. The **<Num Lock>** key must be pressed in order to use the numeric keypad, and has an associated light indicator located at the top center of the keyboard. When the light is on, the **<Num Lock>** key is engaged. All of the keys on the numeric keypad have the auto repeat feature.

3.2.1.4 Miscellaneous Keys. The keyboard set provides other keys and functionality that may or may not be required. Keys located on the Keyboard UD80A3 or UD85A3 not mentioned in the previous sections will not be required for use during the normal operation of the OPUP system. In some cases, however, it will be advised that certain keys not be used, do to their impact on OPUP Server OS functions. The following paragraphs outline the limitations of these keys.

3.2.1.4.1 Caps Lock Key. This key is used to perform continuous uppercase typing and has the auto repeat feature. This key acts as a on/off toggle and has an associated light indicator located near the top center of the keyboard. When the light is on, the **<Caps Lock>** key is engaged. This function is normally left in the Off position.

CAUTION

Do not press the **<Power>** key while the OPUP Server OS or Display Workstation is running. This key, if used, may cause the system to pause, hang up, and become unstable and/or corrupted. Normally, performing a Server or Display Workstation Reboot procedure will allow the system to recover from pressing this key.

3.2.1.4.2 Power Key. This key is in the extreme upper right-hand corner of both the Server keyboard UD80A3 (depicted as a "half-moon") and Display Workstation keyboard UD85 (depicted as a broken circle with a line through the top). The **<Power>** key acts as a power switch on some Sun Microsystem computers which is used to power on/off the system when it is pressed. This key requires both full software and hardware support. Although, the **<Power>** key has some functionality when used with the OPUP Server OS, the full functionality of the **<Power>** key feature has NOT been fully incorporated into the Large/Medium OPUP Equipment Group UD80 Server OS and Display Workstation UD85 functionality and does not work properly, if used.

3.2.1.5 Mouse Functionality. The main cursor control/command selection device for the OPUP is the three button mouse which tracks and responds like a standard PC-type mouse, with the exception of the third (middle) button. The following paragraphs describe the functionality of each mouse button.

3.2.1.5.1 Left Mouse Button. This is the command selection button. With the cursor over an icon/selection, clicking the left button once executes that selection. The word click indicates a standard left click. When a **right**, **middle**, or **double-click** is required, it is specifically indicated.

3.2.1.5.2 Middle Mouse Button. The seldom used middle button may be used as a command selection button just like the left button in some applications.

3.2.1.5.3 Right Mouse Button. This button is used to display application specific menus like the pop-up menu of window property attributes used to change the OPUP PDGUI. The user can then change background map depiction information, overlays, looping, etc.

Section 3.3. OPUP SOFTWARE DESCRIPTION

3.3.1 Introduction.

NOTE

> The design of the OPUP Server OS was developed to provide comprehensive administrative control over the majority of OPUP functions and controls. The Operational Applications GUI Suite (EPSS, PDGUI, Status & Control GUI, Archive PDGUI, and Archive Status Log GUI) were developed to provide OPUP Operators the capability to access only the applications and processes required to perform operational display and analysis of WSR-88D products and message data. The OPUP Server OS will NOT allow operators to manipulate and display the full functionality of the CDE Front Panel (except to temporarily delete icons or rename the workspace buttons). If an icon or application becomes unresponsive or missing within the OPUP Operational Applications Front Panel, simply perform a CDE logout and login procedure. The OPUP Server OS will automatically recover the display features, attributes, and/or application GUI icon(s).

The OPUP Server Operating Software (OS) incorporates Sun Microsystems' Solaris version of the UNIX operating system within the overall software suite. One advantage of using a UNIX based OS is its multi-task and multi-processing capability. The multi-task process capability allows the OPUP Server OS to perform a wide variety of tasks simultaneously. The OPUP Server OS and Operational Applications GUI Suite incorporates Sun Microsystems Solaris Common Desktop Environment (CDE) format found on most UNIX based systems and uses the CDE Front Panel as its base Human Control Interface (HCI) or GUI. Also, both the OPUP Server OS and Operational Applications utilize the CDE login functionality, X window GUI interface, and various icons found with the standard Sun Solaris CDE Front Panel. Although full CDE Front Panel utilities are incorporated in the OPUP Server OS, only OPUP System Administrators will be given full CDE Front Panel functionality. Specifically, this means that OPUP System Administrators accessing the CDE Front Panel to display the Manager GUI (`OPUP Manager Main Menu`) will be able to access and use either the Host or Console terminal windows (and all other Sun Microsystems Solaris utilities, if desired). Terminal windows allow for specific administrative duties and/or recovery procedures that require command line entry to execute. The Operational Applications Front Panel, in contrast, have some CDE Front Panel functionality. However, the Operational Applications Front Panel only provides access to the functions required to display and manipulate WSR-88D products and message data by OPUP operators. The following paragraphs will primarily concentrate on the features and functions associated with OPUP System Administration, however, functions provided by the Operational Applications Front Panel will briefly be discussed, as well.

3.3.2 Common Desktop Environment.

The Common Desktop Environment (CDE) is provided as part of the overall design of the OPUP Server OS. The CDE Front Panel incorporates the various Solaris and UNIX functionality in a

easy to use format. The application of CDE functionality is further broken down into two parts. The first part involves the CDE Front Panel, Figure 3-1, for use as an access point of entry for OPUP System Administrative functions. The CDE Front Panel contains basic UNIX interface functionality such as, windows, workspaces, controls, and menus.

Each time the OPUP hardware is powered on, the CDE login process is automatically started upon initial boot up sequence of the OPUP Server OS. When OPUP System Administrators login through the CDE Login screen, the CDE Front Panel will be displayed. Once displayed, a second login procedure will be required in order to display the OPUP Manager GUI, `OPUP Manager Main Menu`. The second login prompt is selected by clicking on the OPUP Manager GUI (Netscape "World") icon located near the bottom left of the CDE Front Panel. Once selected, a Netscape HTML web page interface will appear. Clicking anywhere within the grey area of the interface will automatically display a `Netscape: Password` window. The OPUP Manager GUI operates separate from the CDE Front Panel. This means that OPUP System Administrators will be required to click on this icon in order to display a password prompt window.

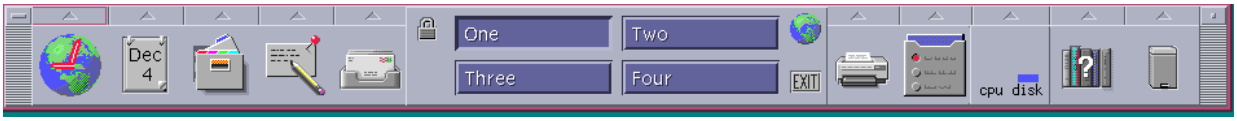


Figure 3-1. CDE Front Panel

The second part involves the use of the Operational Applications Front Panel, Figure 3-2. The Operational Applications Front Panel is used by operators to display the individual icons associated with each WSR-88D Operational Application (PDGUI, Status & Control, Archive PDGUI, and Status Log GUIs).

Figure 3-2. Operational Applications Front Panel

Specific login procedures are covered in full in paragraph 3.3.3.2.

3.3.2.1 <u>Common CDE and Operational Applications Front Panel GUI Functions</u>. The following paragraphs provide a breakdown of the common features found within the CDE Front Panel and Operational Applications GUI Functions.

3.3.2.1.1 <u>Windows</u>. Windows contain software applications and are framed with controls that allow the user to move, re-size, or place them in other workspaces.

3.3.2.1.2 Workspaces. A workspace is a display area where a user can place and interact with terminal and application supplied windows. The OPUP provides four separate workspaces that are accessible on the CDE and Operational Applications Front Panels.

3.3.2.1.3 Controls. Controls enable the user to manipulate windows in several ways. A list of all controls can be seen by clicking on the button in the upper left-hand corner of a window. Not all of these controls are available in every OPUP window, and some of them are imbedded within the window frame and are accessible with the mouse. Window controls appearing greyed-out are not currently available and only become so under certain conditions. The complete list of controls includes Restore, Move, Size, Minimize, Maximize, Lower, Occupy Workspace..., Occupy All Workspaces, Unoccupy Workspace, and Close. Changes made to windows with these controls are temporary and only last until the window is closed. Any time a window is opened, it uses default control settings that are programmed into the software.

3.3.2.1.4 Menus. Menus provide access to commands that an operator can use to manage windows and invoke and control applications.

3.3.2.1.5 CDE and Operational Applications Front Panel Icon Overview. A general overview of the icons found on both the CDE and Operational Applications Front Panels are provided in Table 3-2. Normal administrative duties and interaction with the OPUP Manager GUI begins with first performing a CDE Login procedure (discussed in paragraph 3.3.3.2. Once logged in, the `OPUP Manager Main Menu` is accessed by clicking on the OPUP Manager GUI icon located near the left of the CDE Front Panel, Figure 3-1. (A second UserID/Password procedure is also required.)

Operator interaction with Operational Applications begins with first logging in through the CDE Login Screen as an operator. Each operator must use a valid UserID/Password in order to access the Operational Applications Front Panel. Valid UserID/Passwords are entered on the OPUP server using the `OPUP Users Menu` within the `OPUP Manager Main Menu`. Once the operator performs a CDE Login procedure, the Operational Applications Front Panel, Figure 3-2, will be displayed. (Refer to NWS EHB 6-536, Operations Instructions, for further information concerning in-depth Operational Application functions.)

Table 3-2. CDE and Operational Applications Front Panel Icons

Icon	Where Used	Purpose
 OPUP Manager GUI	CDE Front Panel	Provides access to the OPUP Manager GUI, `OPUP Manager Main Menu` using Netscape's HTML web page format functionality and UserID/Password login. (This icon also incorporates a time display tool tip). **NOTE** This icon does not provide access to the internet.

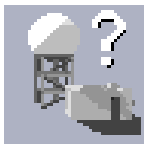
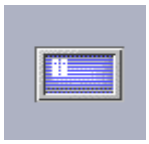
Table 3-2. CDE and Operational Applications Front Panel Icons - Continued

Icon	Where Used	Purpose
4-Panel Work-space Switch	CDE and Operational Applications Front Panel	Allows the user to switch between four CDE workspaces by default. (Can be renamed on the CDE Front Panel, Figure 3-1, only!)
Exit	CDE and Operational Applications Front Panel	Provides the user the ability to exit the CDE Front Panel or Operational Applications Front Panel and log the display out to the CDE Login screen. The **EXIT** icon can be used at anytime and will not affect any currently running software processes.
cpu/disk	CDE and Operational Applications Front Panel	Primarily used as an indicator of system performance. However, it is used throughout NWS EHBs 6-536 and 6-537 as a location indicator for access to the Terminal/ Console X-Windows.
This Host	CDE Front Panel	Available by clicking on the **Up Arrow** above the **cpu disk** icon. Used to open a new UNIX Terminal window. Described in paragraph 3.3.3.3.1.
Console	CDE Front Panel	Available by clicking on the **Up Arrow** above the **cpu disk** icon. Used to open a new UNIX Console window. Described in paragraph 3.3.3.3.1.
Up/Down Arrows	CDE Front Panel	The **Up/Down Arrow** alternately occupy the same space on the CDE Front Panel which is directly above each icon on the OPUP Server. Once an **Up Arrow** is clicked on it becomes a **Down Arrow** and once a **Down Arrow** is clicked on it becomes an **Up Arrow**. These arrows alternately open (Up) and close (Down) sub-menus associated with the icons directly below them.
Product Display	Operational Applications Front Panel	Used to start the Product Display GUI.

Table 3-2. CDE and Operational Applications Front Panel Icons - Continued

Icon	Where Used	Purpose
Status & Control	Operational Applications Front Panel	Used to start the Status & Control GUI.
Archive Product Display	Operational Applications Front Panel	Used to start the Archive Product Display GUI.
Archive Status Log	Operational Applications Front Panel	Used to start the Archive Status Log GUI.
Clock	CDE and Operational Applications Front Panel	Displays the current time reported by the OPUP Server OS.
PadLock	CDE and Operational Applications Front Panel	Locks the display screen when clicked. The OPUP OS/AS displays a `Solaris Common Desktop Environment` password entry window containing the User Name that what used to login to CDE. To unlock the display screen, the user must then re-enter the exact same password that was used to login to CDE. **NOTE** Do not lock the display screen if some other user is currently logged in.

Table 3-2. CDE and Operational Applications Front Panel Icons - Continued

Icon	Where Used	Purpose
 EPSS Display	Operational Applications Front Panel	Electronic Performance Support System (EPSS). Assists each operator with keyword identification and explanation of Operational Applications functions.
Desk Power Management	Operational Applications Front Panel	Launches a GUI that enables the user to configure the power management features of a workstation.
 Desktop Style Screen Manager	Operational Applications Front Panel	Launches a GUI that enables the user to modify their screen saver and screen lock configuration.

3.3.3 OPUP Software.

NOTE

The actual procedure(s) used to perform specific OPUP Server OS administrative functions are addressed in Chapter 5, OPUP System Administration. The procedures used to access and manipulate Operational Applications Front Panel are addressed in Chapters 2 and 3 of NWS EHB 6-536, Operations Instructions. This manual will provide an extensive overview of each administrative function, however, only a brief discussion of each Operational Application Front Panel GUI and their use(s) will be provided.

The Large and Medium OPUP Equipment Group UD80 Server OS incorporates various functionality associated with Sun Microsystems Solaris UNIX based Server/Client Operating System (OS). The overall server/client relationship employed by the OPUP Server OS specifically allows for a separate display of the OPUP Manager GUI (`OPUP Manager Main Menu`) on the mon-

itor located within the OPUP cabinet for administrative purposes and to display and manipulate WSR-88D products and message data at the Display Workstation(s) UD85 (using the Operational Applications Front Panel). The following paragraphs will briefly discuss each of the features provided by the OPUP Manager GUI and Operational Applications Front Panel GUI Suite.

3.3.3.1 OPUP Manager GUI Functionality/Operational Concepts. The OPUP Manager GUI utilizes web page functionality via Apache Web Server and Netscape Communicator. Use of web page functionality allows each user to move through the OPUP Manager GUI in a highly efficient manner. The OPUP Manager GUI's functionality includes the use of common Netscape Communicator functions such as the address access window, forward, backward, and refresh buttons, etc. Since the OPUP is not connected to the World Wide Web (WWW), the Netscape Communicator will not be able to access information on the WWW.

Logging into the OPUP Manager GUI involves both OS and Web Server login functions. These login functions are specific to Solaris CDE and Apache Web Server. The OS login process is accomplished using the Solaris CDE Login screen. This screen automatically provides separate User ID and Password edit fields. The Web Server login process consists of a Netscape:Password window, that is built into the Netscape Communicator application. The Web Server login function acts as a second layer of security, to ensure that only OPUP System Administrators have access to the OPUP Manager GUI (`OPUP Manager Main Menu`).

To access the `OPUP Manager Main Menu`, OPUP System Administrators will be required to initially login through the CDE Login screen. Once the CDE Login screen function is performed successfully, the CDE Front Panel will be displayed. Upon displaying the CDE Front Panel, the Netscape Communicator application will be automatically started as shown in Figure 3-3. The first time Netscape is started, the user will be presented with `New Site Certificate` windows as shown in Figure 3-4, Sheets 1 through 5. Click on the **Next** button on the first two windows. On the third window, select **Accept this certificate forever (until it expires)**, as shown in Figure 3-4, Sheet 3 and proceed by clicking on the **Next** button. On the final window, click on the **Finish** button. Each time Netscape is started, the user will presented with the Netscape:Password window as shown in Figure 3-5. If the Netscape Communicator application does not automatically start, the OPUP System Administrator will then be required to click on the OPUP Manager GUI icon ("World") located on the left of the CDE Front Panel. (Refer to Figure 3-1 for a depiction of the CDE Front Panel and location of the OPUP Manager GUI icon). Once the OPUP System Administrator has logged in through the `Netscape:Password` window, the `OPUP Manager Main Menu` will automatically be displayed.

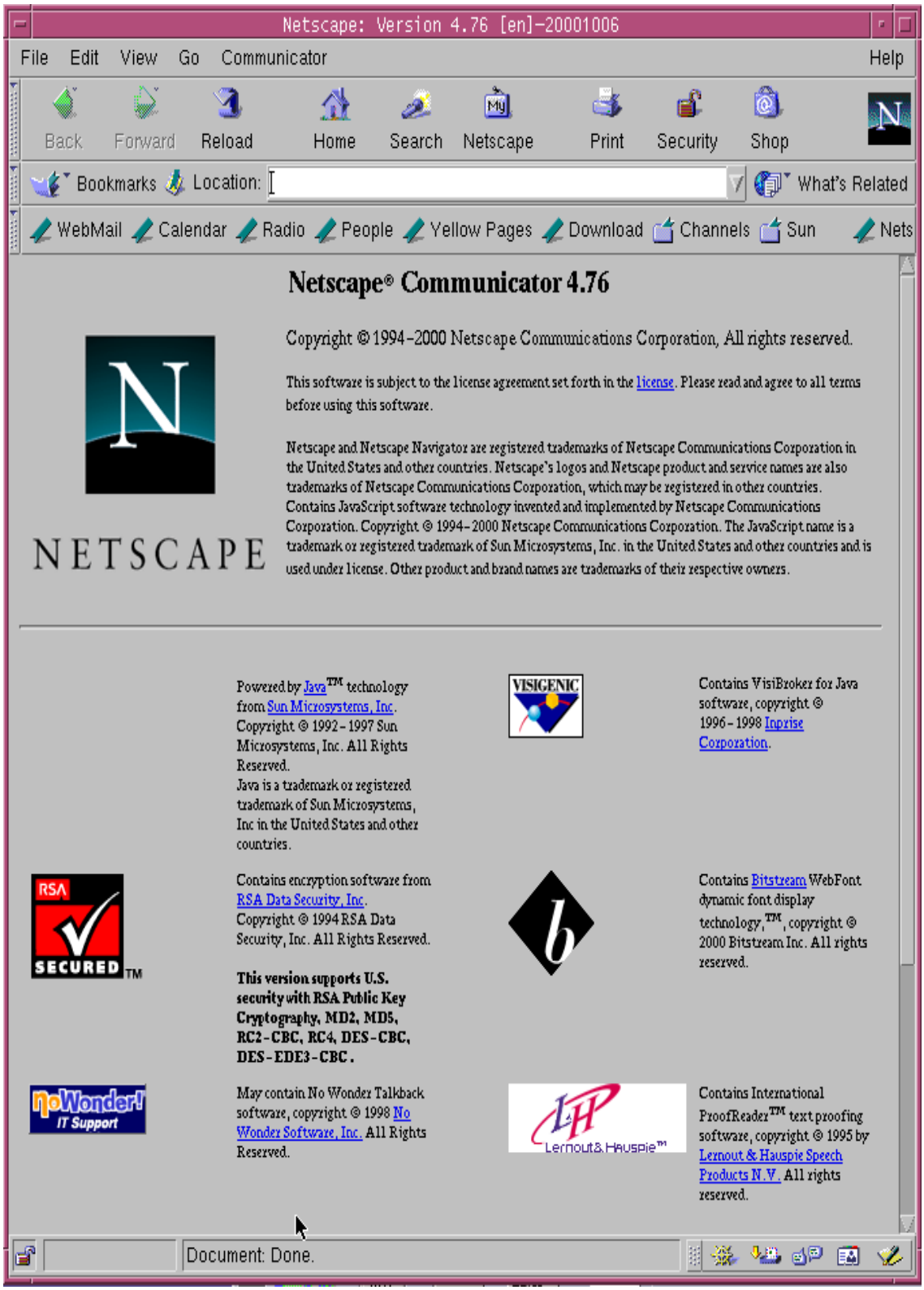


Figure 3-3. Netscape Web Page Background GUI

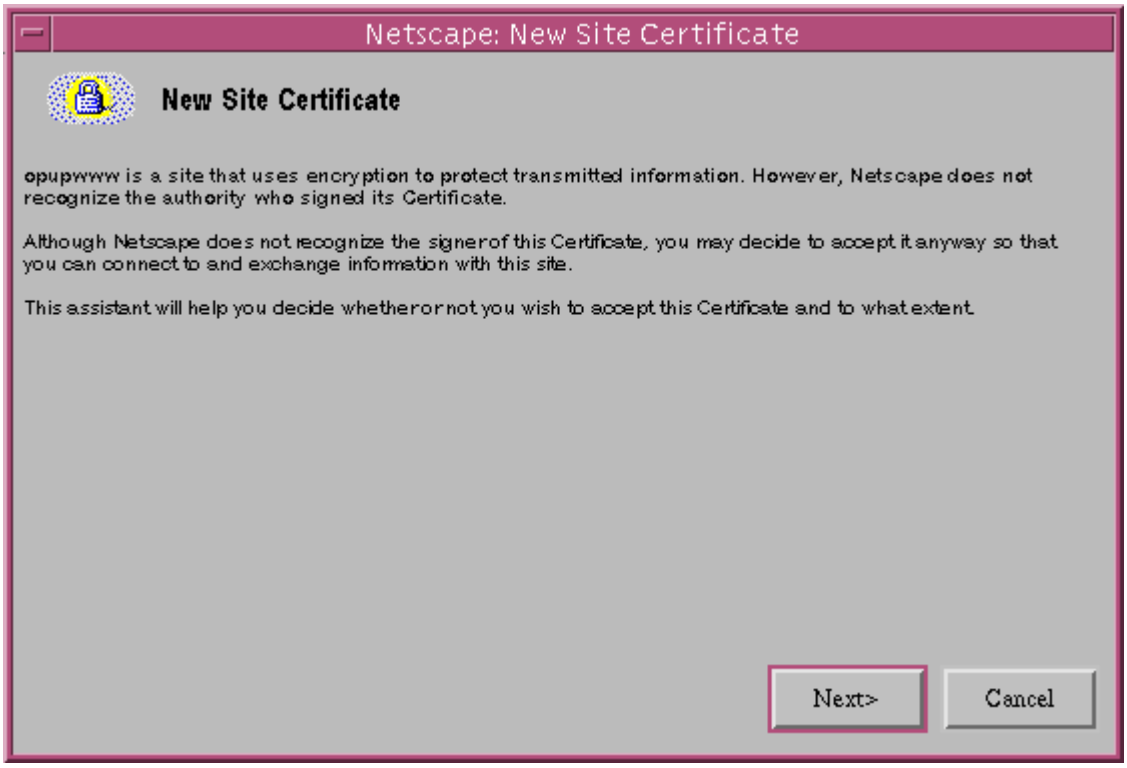


Figure 3-4. New Site Certificate Window (Sheet 1)

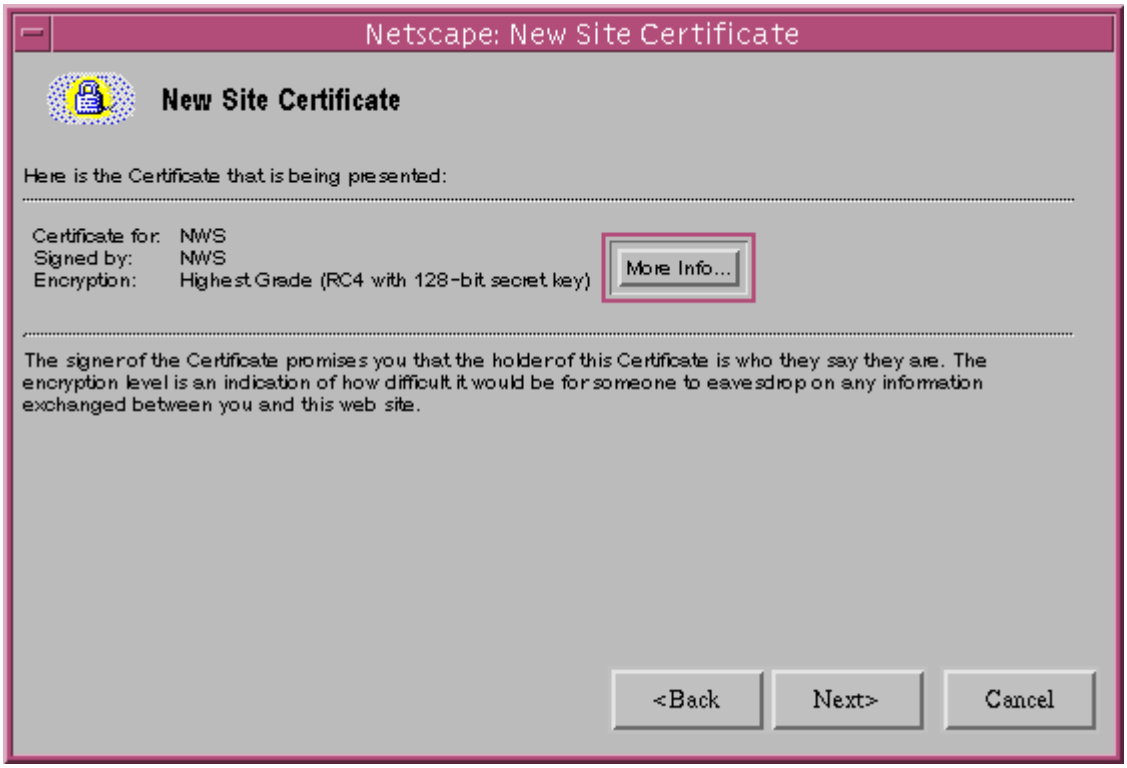


Figure 3-4. New Site Certificate Window (Sheet 2)

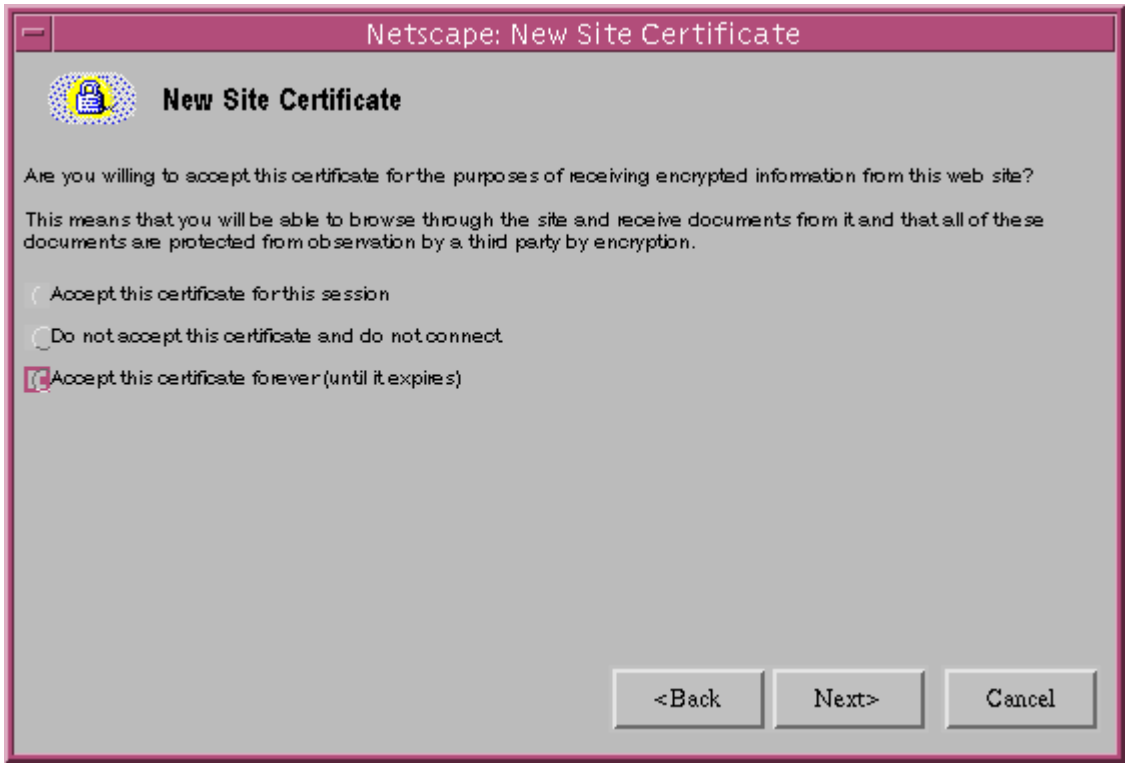


Figure 3-4. New Site Certificate Window (Sheet 3)

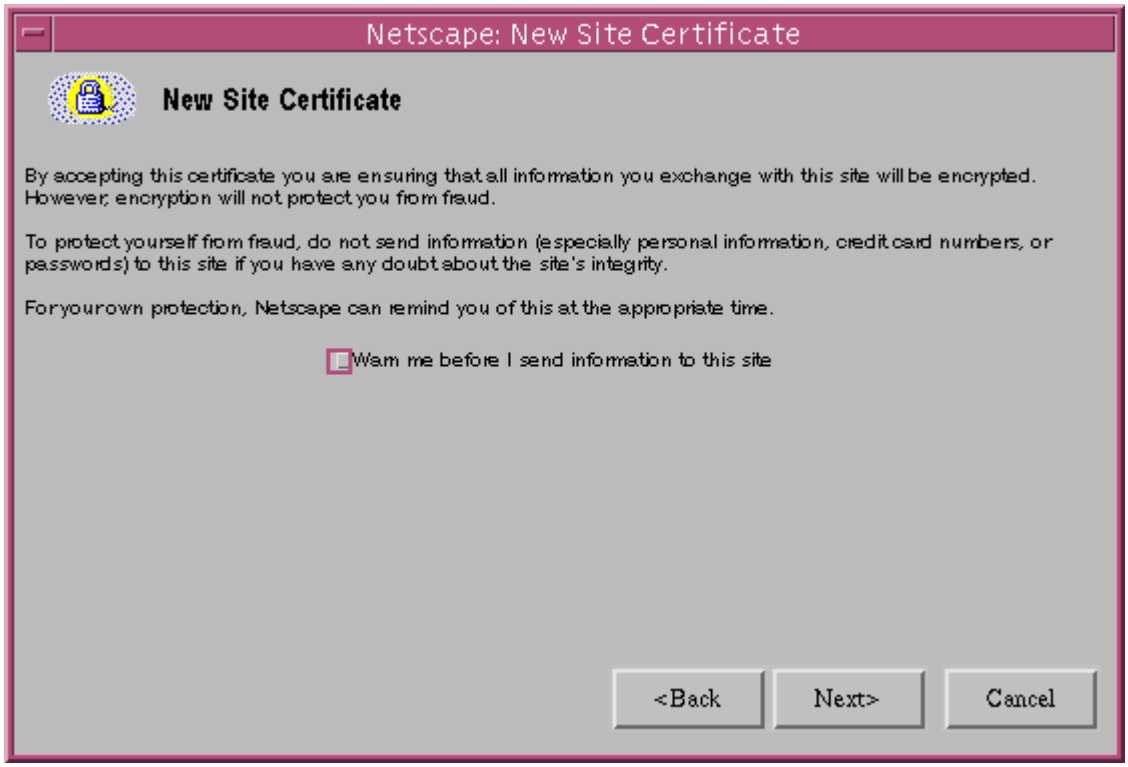


Figure 3-4. New Site Certificate Window (Sheet 4)

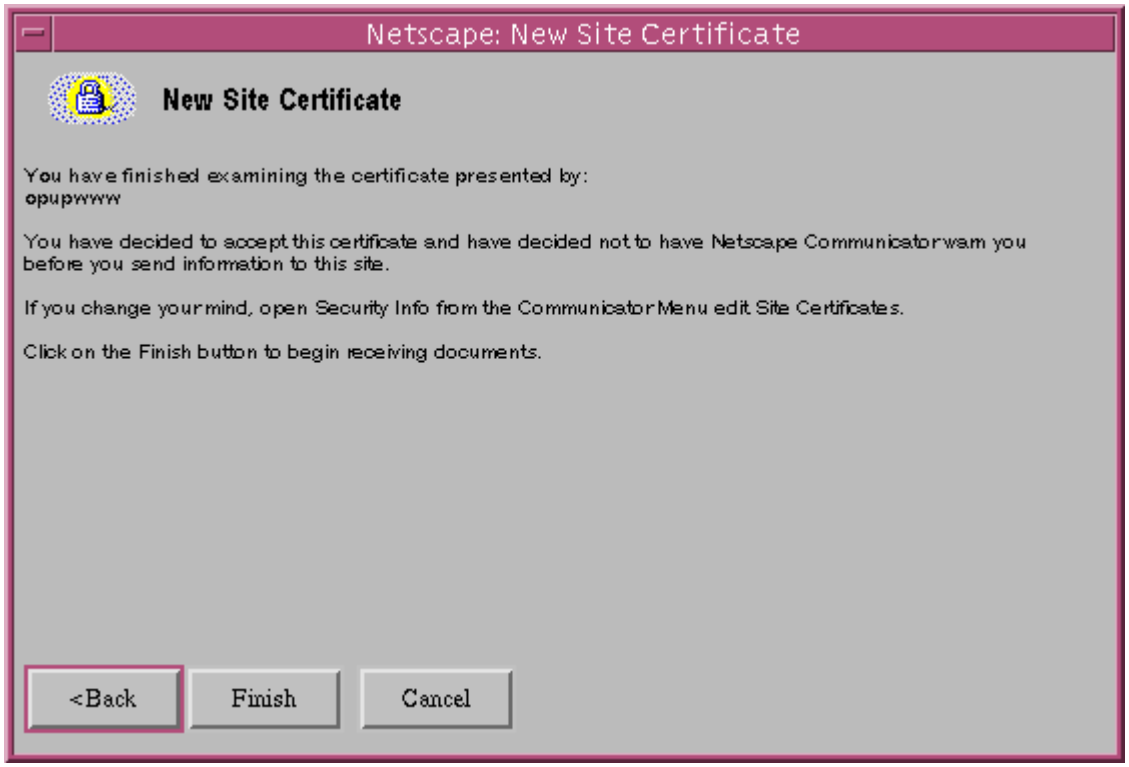


Figure 3-4. New Site Certificate Window (Sheet 5)

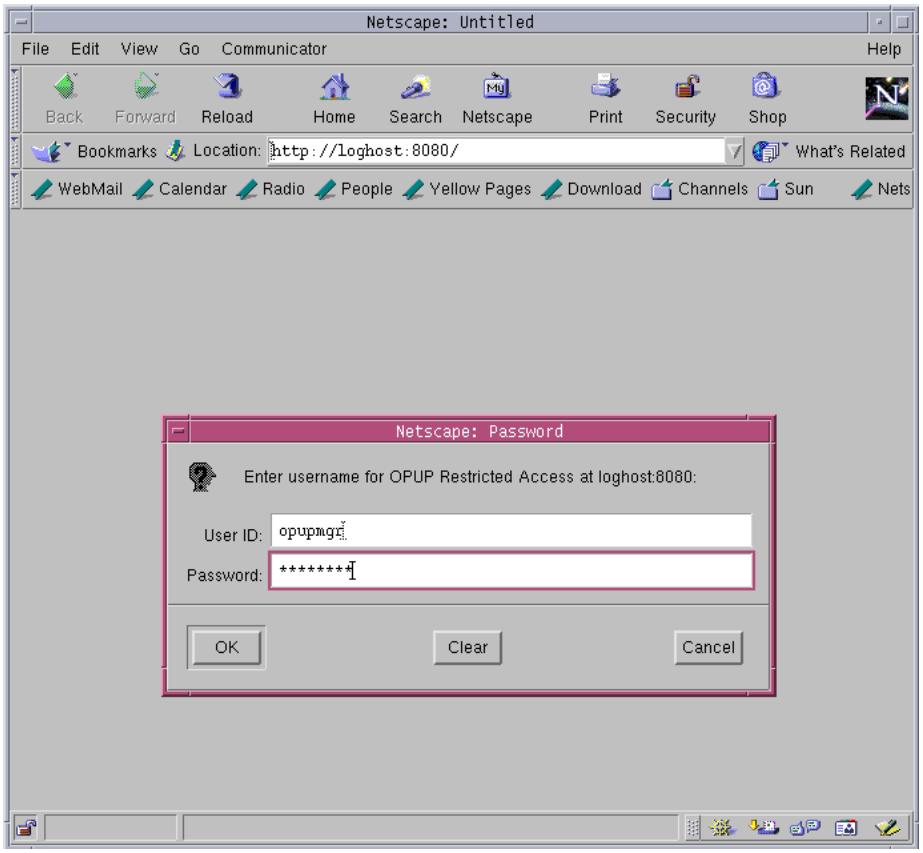


Figure 3-5. Netscape: Password Window

The login process used to log into the Operational Applications Front Panel only involves logging in one time through the CDE Login screen. User IDs and Passwords must first be granted by the OPUP System Administrator via the `OPUP Manager Main Menu`, `OPUP Users Menu`.

The OPUP Server OS provides a screen and terminal lockout security feature that applies to both the CDE Front Panel and the Operational Applications Front Panel displays. The screen and terminal lockout function provides the ability to temporarily remove the current image from the monitor display (both UD80A7 and UD85A1) or lock out access to the associated terminal until the User ID and Password have been re-entered in order to gain access to the last displayed image. The screen and terminal lockout features are set at the Operational Applications Front Panel using the **Desktop Style Screen Manager** icon (far right icon).

The screen and terminal lockout function can be activated in three possible modes. The recovery function is dependent on the mode of activation.

The first mode of activation is a function of inactivity time since last user interaction with the system. If the user does not interact with the system for longer than 15 minutes but less than 30 minutes (these times can be changed using the `Style Manager` window), the screen saver/terminal

lockout function will initiate a screen saver mode and temporarily remove the current screen display. The recovery method is to move the mouse or press any key on the keyboard and the screen presentation will reappear.

The second mode of activation is also a function of inactivity time since last user interaction with the system. If the user does not interact with the system for greater than 30 minutes (again, the time can be changed), the screen saver/terminal lockout function will initiate a screen saver mode and lockout the terminal. The recovery method is to move the mouse or press any key on the keyboard to display a `Solaris Password` window. Once the password has been entered by the user or OPUP System Administrator, the screen presentation will reappear.

The third mode of activation can be initiated by the user or OPUP System Administrator to manually activate the terminal lockout function. The user or OPUP System Administrator can click on the **padlock** icon located on the CDE Front Panel or the Operational Applications Front Panel to immediately initiate the terminal lockout feature. The recovery method is to move the mouse or press any key on the keyboard to display a `Solaris Password` window. Once the password has been entered by the user or OPUP System Administrator, the screen presentation will reappear.

3.3.3.2 Login Procedures (All). The following paragraphs provide the procedures required in order to activate the screen saver, login to the OPUP Manager GUI and/or Operational Applications Suite.

3.3.3.2.1 Screen Saver/Terminal Lockout Activation and Recovery. Prerequisite: Notify the current user (OPUP operator and/or OPUP System Administrator, if required) that the terminal is to be reactivated. The current User ID password may be required in order to successfully accomplish the tasks outlined in this paragraph.

1. To manually activate the terminal lockout feature, at the Monitor UD80A7 or Display Workstation Monitor UD85A1, click on the **padlock** icon located on the CDE Front Panel or the Operational Applications Front Panel.

NOTE

> The screen lockout function will only temporarily remove the current image after a minimum amount of interaction from the user. The Terminal Lockout function will initiate a `Solaris Password` window when the time threshold for this function has been met. The OPUP Server OS Desktop Style Screen Manager function will initiate a Screen Lockout function first, then a Terminal Lockout function second. The user can manually activate the Terminal Lockout function by clicking on the **padlock** icon located on the CDE Front Panel or Operational Applications Front Panel.

2. To recover from the screen saver/terminal lockout feature, move the mouse or press any key on the keyboard. If an image is immediately displayed, stop here. If a `Solaris Password` window is displayed, go to the next step.

3. At the `Solaris Password` window that displays the message, `Display locked by user` *`user_name`*`. Enter password to unlock.` Enter the password of the user or the opupmgr and press the **<Return>** key. The last displayed image will appear.

3.3.3.2.2 CDE Front Panel Login Procedures. Prerequisite: The `OPUP Manager Main Menu` is not currently displayed. (Disregard these steps if the `OPUP Manager Main Menu` is already displayed.)

1. Locate the Monitor UD80A7, Keyboard UD80A9, and Mouse UD80A10. (If the Screen or Terminal Lockout feature is currently engaged, refer to paragraph 3.3.3.2.1 for screen activation procedures.) The CDE Login screen should be displayed on the Monitor UD80A7. When finished, go to the next step.

2. At the CDE Login screen, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**. A `Please enter your password` edit box will be displayed.

3. At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password* **<Return>**. The CDE Login process will then perform a login sequence. When the CDE login sequence is finished, a Netscape HTML web page background, along with a `Netscape: Password` GUI will be displayed.

NOTE

If the Netscape HTML web page interface does not display, locate and click on the OPUP Manager GUI (Netscape "World") icon positioned near the left of the CDE Front Panel. Refer to Figure 3-1 and Table 3-2 for further information concerning the location and depiction of the OPUP Manager GUI (Netscape "World") icon. If the Netscape HTML web page interface is displayed and the `Netscape: Password` window does not display, click anywhere within the gray background of the Netscape HTML web page. The `Netscape: Password` window will then be displayed.

4. At the `Netscape: Password` window, click within the `User ID:` edit field and enter: **opupmgr<Return>**. The cursor will then be displayed in the `Password:` edit field.

5. In the `Password:` edit field, enter: *opupmgr_password***<Return>**. The `OPUP Manager Main Menu` will be displayed.

3.3.3.2.3 Operational Applications Login Procedures. Prerequisite: The OPUP Operational Applications Front Panel is not currently displayed at the workstation. (Disregard these steps if the OPUP Operational Applications Front Panel is currently being displayed).

NOTE

The following instructions apply to any Display Workstation UD85.

1. Locate the Display Workstation UD85 and associated Keyboard UD85A3 and Mouse UD85A4. (If the Screen or Terminal Lockout feature is currently engaged, refer to paragraph 3.3.3.2.1 for screen activation procedures.) The CDE Login screen should be displayed on the Monitor UD85A1. When finished, go to the next step.

2. At the CDE Login screen, in the `Please enter your user name` edit box, enter: *User ID***<Return>**. A `Please enter your password` edit box will be displayed.

3. At the CDE Login screen, in the `Please enter your password` edit box, enter: *user_password***<Return>**. The Operational Applications Front Panel will be displayed.

3.3.3.3 OPUP Manager Main Menu and Sub-Menu GUI Features. The `OPUP Manager Main Menu`, as shown in Figure 3-6, is the primary graphic user interface used to access all OPUP Server OS administrative functions. This menu is broken down into six separate sections or areas of functionality. These areas are the OPUP Software, Users, Security Logs, Workstations, Archive, and Server Control functions. The `OPUP Manager Main Menu` has been organized to provide each user the ability to rapidly pin-point functional areas in support of administrative duties.

Each sub-menu of the `OPUP Manager Main Menu` will normally be manipulated/accessed by the use of the Mouse UD80A10. However, basic attributes of the **<Tab>**, **<Return>**, **<Up>**, **<Down>**, **<Left>**, and **<Right>** keys on the Keyboard UD80A9 may be used as well. In addition, referring to Figure 3-6, clicking on any button located on the Netscape HTML web page will forward the user to either another menu, edit, or warning GUI/window. If an Edit field is provided within a GUI or window, a selection list and/or menu will be provided. If a list or menu is not provided, then manual entries may be required from the keyboard. Warning GUIs/windows will for the most part, contain a **Yes** or **No** selection choice. A **No** selection cancels the edits or commands and a **Yes** selection executes the command or accepts the edits and returns the user to the `OPUP Manager Main Menu`, if applicable. Other HTML functionality includes the **Forward** and **Back** arrow buttons located near the top left of the Netscape web page browser which allow the user to move seamlessly forwards/backwards within the OPUP Manager sub-menus. However, these buttons are limited to the function of the web page itself. For example, the **Forward** button will only be activated if the **Back** button has been used first to return to the previous page or if a new web page is opened over the initial selection.

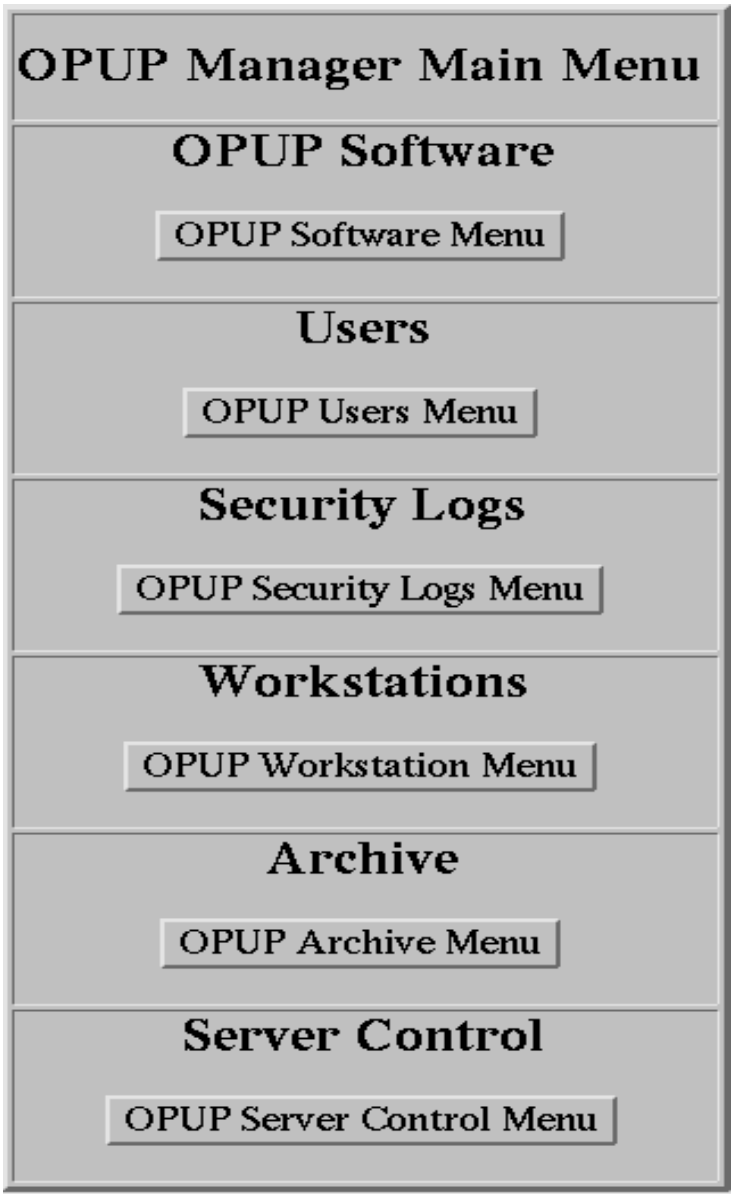


Figure 3-6. OPUP Manager Main Menu

3.3.3.3.1 Terminal Window Access. The CDE Front Panel provides a method to access either the directory and/or root level control of the OPUP Server OS through the use of a Terminal window. The Terminal window is accessed and displayed by clicking on the **Up Arrow** just above the **cpu disk** icon located on the CDE Front Panel. Once selected, a `Hosts` pop-up menu will be displayed. Either the **This Host** or a **Console** window may be used. (Refer to Figure 3-1 for exact location of the **cpu disk** icon.)

NOTE

Operators will not be given access to either the This Host or Console Terminal windows. Although the Console Terminal window can be used, all required command line entries, fault isolation guidance, and troubleshooting procedures will reference the use of a Host Terminal. The Host Terminal window provides specific feedback information for which the Console Terminal window does not.

3.3.3.3.2 Common Command Buttons. Some common command/action buttons are available on multiple GUI windows and are activated by clicking on the appropriately named button. These buttons include **Save**, **Reset Form**, **Next**, **Return to Last Screen**, and **Return to Main Menu**.

3.3.3.3.2.1 Save. The **Save** button is used to write (save) the currently displayed editable data/values/parameters to the appropriate configuration file for implementation by the OPUP application and/or background software tasks.

3.3.3.3.2.2 Reset Form. The **Reset Form** button is used to erase the current entries in the GUI edit fields. This cancels entries and starts the editing process over without exiting the GUI.

3.3.3.3.2.3 Next. The **Next** button is used to move forward to the next window of a process.

3.3.3.3.2.4 Return to Last Screen. The **Return to Last Screen** button is used to close the current window and redisplay the previous window.

3.3.3.3.2.5 Return to Main Menu. The **Return to Main Menu** button is used to close the current window and redisplay the `OPUP Manager Main Menu`. If any edits are pending, they will be cancelled. To save changes first, click on **Save** before clicking on **Return to Main Menu**.

3.3.3.4 OPUP Software Menu. The OPUP Software Menu function provides the ability to start/stop/restart the OPUP Server OS, monitor background processes, edit adaptation data, view and edit communication configurations, display the current software version, available products in the OPUP database, and purge product data. At the `OPUP Manager Main Menu`, clicking the **OPUP Software Menu** button will open the `OPUP Software Menu` window as shown in Figure 3-7.

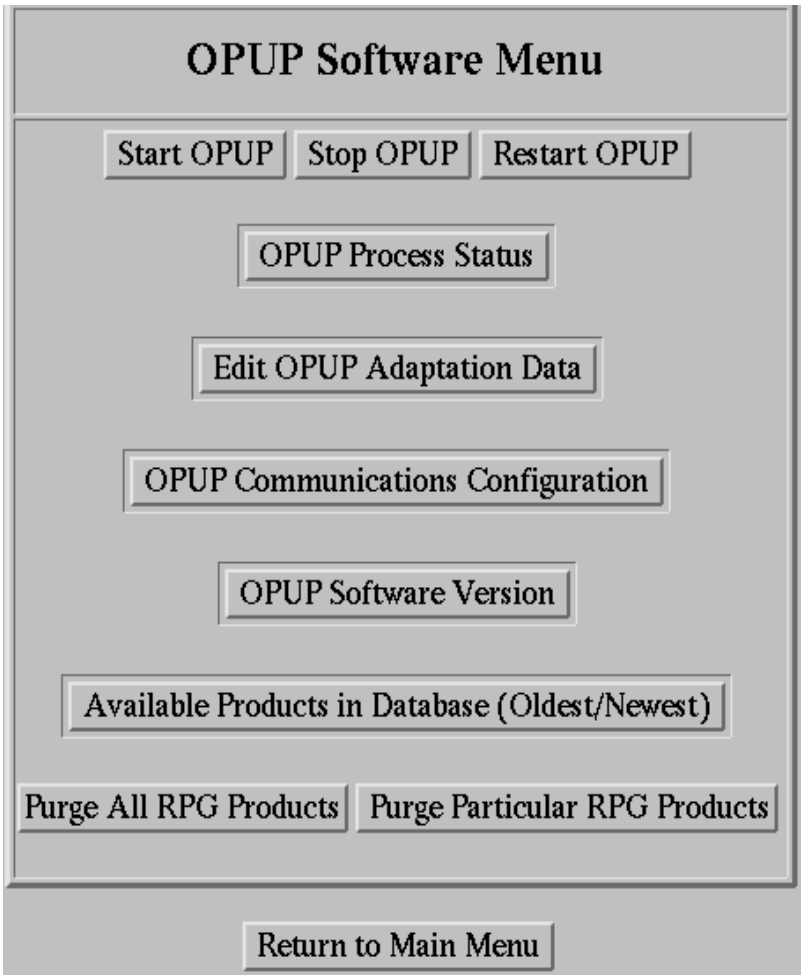


Figure 3-7. OPUP Software Menu

3.3.3.4.1 Start OPUP. The **Start OPUP** button is used to launch a script that loads into memory and starts all applicable background processes.

3.3.3.4.2 Stop OPUP. The **Stop OPUP** button is used to launch a script that stops and removes all applicable background processes from memory.

3.3.3.4.3 Restart OPUP. The **Restart OPUP** button is used to launch a script that stops and removes all applicable background processes from memory, reloads them back into memory, and then restarts all applicable background processes. This simplifies the job of restarting any applicable background processes in efforts to correct operational faults caused by either hardware or software problems.

3.3.3.4.4 OPUP Process Status. The **OPUP Process Status** button is used to open the `OPUP Process Status` window. This window provides a display of most current state of each software task/process relevant to OPUP processes. This window is mainly used to ensure

that each task is within normal operating parameters. If not, this window provides useful trouble-shooting information. Discussion of each process displayed within this window is covered in full in Section 3.4, OPUP Software Background Process Description.

3.3.3.4.5 Edit OPUP Adaptation Data. The Edit OPUP Adaptation Data function provides the ability to edit dial adaptation data. At the `OPUP Software Menu`, when the Edit OPUP Adaptation Data button is selected, an `Edit RPG Information from list for Dial Radars for` *RPG of Interest* window will be displayed as shown in Figure 3-8. This window provides a list of each dial radar from which each site can access and receive data. Dial access *radars of interest* are edited/updated by selecting the *radar of interest* and clicking on the Edit button located near the bottom center of the window.

NOTE

The procedures used to update/edit dial communication adaptation information can only be used to change or add additional **Dial** access for an *RPG(s) of interest*. This means that Dial access information for a given RPG(s) **cannot** be arbitrarily changed without prior coordination between the respective DOC and the DoD agencies. This coordination is accomplished by gaining authorization from either/or the AFW and Navy/MC communication circuit coordinator (as appropriate) and/or the WSR-88D Hotline NBComms Database Manager. The WSR-88D Hotline will notify each individual site by WSR-88D Hotline NBComm Facsimile when routine changes are to be made.

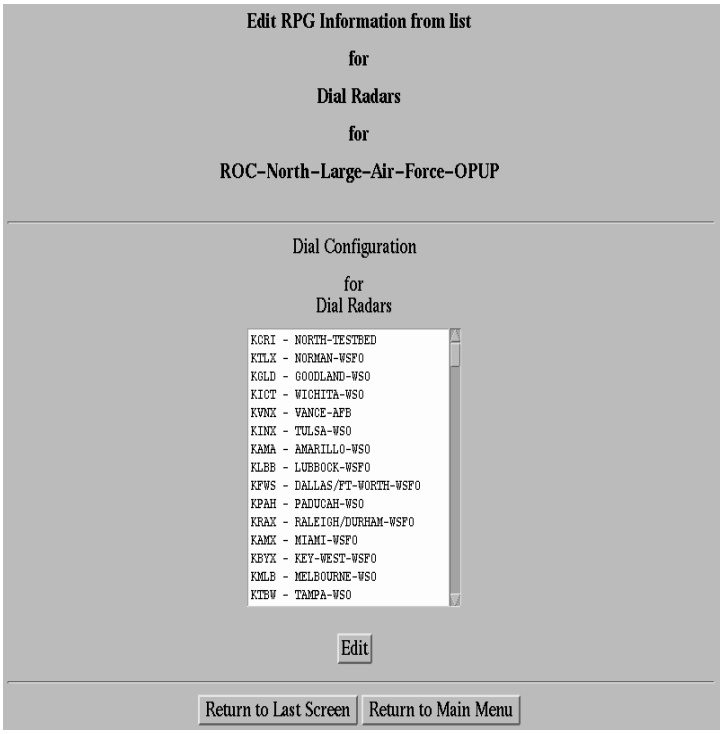


Figure 3-8. Edit RPG Information for Dial Radars for *RPG of Interest* Window

Once an *RPG of interest* is selected (highlighted) and the **Edit** button is clicked, an `OPUP Manager Edit RPG Information For` *RPG of Interest* window will be displayed as shown in Figure 3-9. This window provides the editable fields required to update the information necessary in order to establish a dial circuit connection to the dial access radar of interest. The parameters required to configure or reconfigure each site's OPUP dial in access to an RPG of interest are, the RPG dial-in line number and User and Port Passwords. Chapter 5, OPUP System Administration, provides the steps necessary to edit the fields depicted in Figure 3-9.

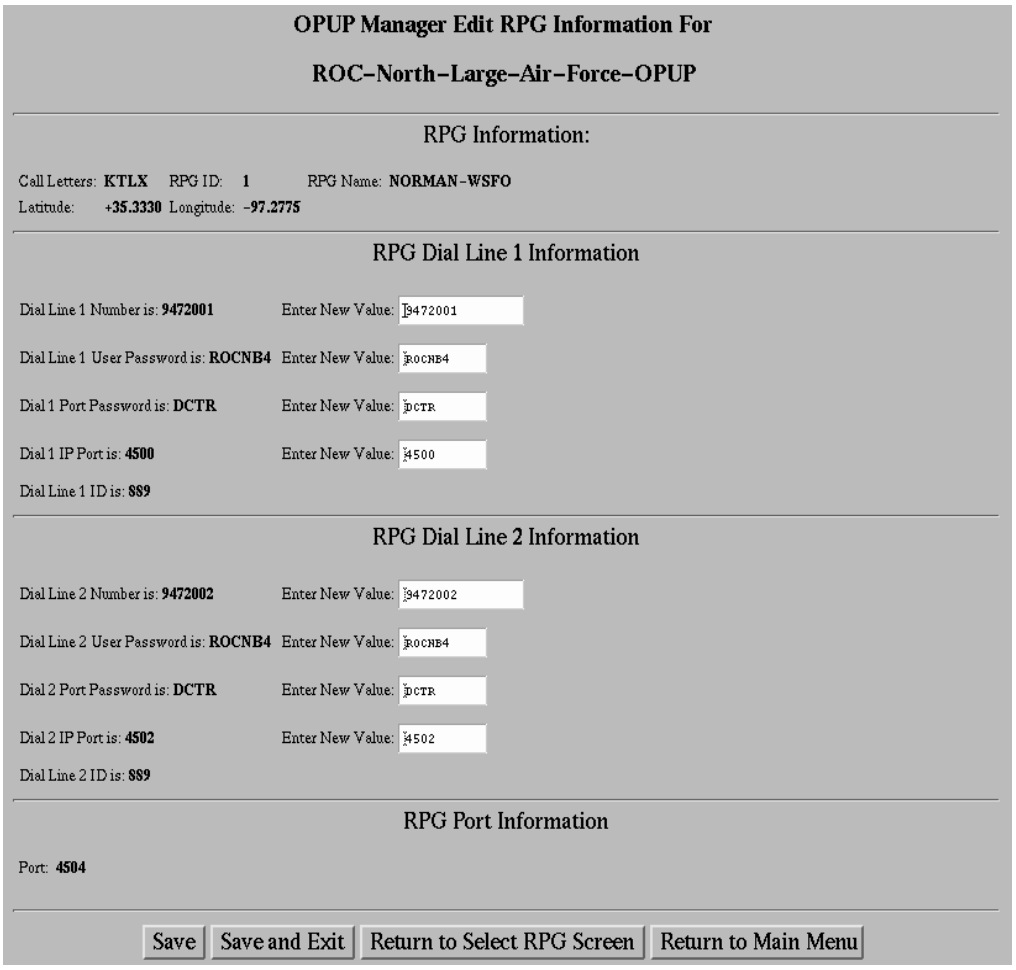


Figure 3-9. OPUP Manager Edit RPG Information For *RPG of Interest* Window

3.3.3.4.6 <u>OPUP Communication Configuration</u>. The OPUP Communication Configuration function provides the ability to edit or change dedicated RPG connectivity configuration data at each site. At the `OPUP Software Menu`, when the **OPUP Communications Configuration** button is clicked, an `OPUP Communications Configuration` window will be displayed as shown in Figure 3-10.

The following information is provided within this window:

- Link: The position that the Radar Name is assigned within the OPUP database.
- Radar Name: The four letter ICAO designation for each dedicated radar (not used for dial communications).
- Radar Desc: The actual location of the radar site and its designation, if applicable.
- CM No.: The Intelligent Communications Processor (ICP) board location for each dedicated/dial radar (dial not shown) as it pertains to the Communications Server hardware slot number. Each line is set by ROC Configuration Management (CM) Branch guidelines.
- PUP Id: Identification of the current OPUP site for RPG/OPUP software identification purposes.

OPUP Communications Configuration

Link	Radar Name	Radar Desc	CM No.	PUP Id
0	KCRI	NORTH-TESTBED	3	889
1	KTLX	NORMAN-WSFO	3	889
2	KGLD	GOODLAND-WSO	3	889
3	KICT	WICHITA-WSO	3	889
4	KVNX	VANCE-AFB	3	889
5	KINX	TULSA-WSO	3	889
6	KAMA	AMARILLO-WSO	3	889
7	KLBB	LUBBOCK-WSFO	3	889
8	KFWS	DALLAS/FT-WORTH-WSFO	4	889
9	KPAH	PADUCAH-WSO	4	889
10	KRAX	RALEIGH/DURHAM-WSFO	4	889
11	KAMX	MIAMI-WSFO	4	889
12	KBYX	KEY-WEST-WSFO	4	889
13	KMLB	MELBOURNE-WSO	4	889
14	KTBW	TAMPA-WSO	4	889
15	KFDR	ALTUS-AFB	4	889
16	KCLX	CHARLESTON,-SC-WSO	5	889
17	KDDC	DODGE-CITY-WSO	5	889
18	KFFC	ATLANTA-WSFO	5	889
19	KHTX	NORTHEAST-ALABAMA	5	889
20	KCYS	CHEYENNE-WSFO	5	889
21	KSRX	WESTERN-ARKANSAS	5	889
22	KBMX	BIRMINGHAM-WSFO	5	889
23	KLTX	WILMINGTON-WSO	5	889
24	KMHX	MOREHEAD-CITY-WSO	6	889

Change Comms Configuration | Return to Main Menu | Return to Last Screen

Figure 3-10. OPUP Communications Configuration Window

NOTE

Each site must be careful to only add, delete, or update dedicated RPG information that is coordinated by the NBComms Database Manager located at the WSR-88D Hotline. Additional dedicated RPGs cannot be arbitrarily added to the Large/Medium OPUPs due to the strict coordination and resource costs required in order to provide a complete dedicated

RPG connection. Changing or adding dedicated RPG information not coordinated through proper channels will cause the OPUP system to become unstable or behave erratically.

Once the **Change Comms Configuration** button is selected, a pop-up window will prompt the user to select **Yes** to change site dedicated communication configuration or to select **No** to return to the `OPUP Manager Main Menu`. If the **Yes** button is selected, an `OPUP Change Ded Communications Configuration` window will be displayed as shown in Figure 3-11. This window provides the ability to either reconfigure or add a dedicated radar. Chapter 5, OPUP System Administration, provides the detailed procedures required to update this information.

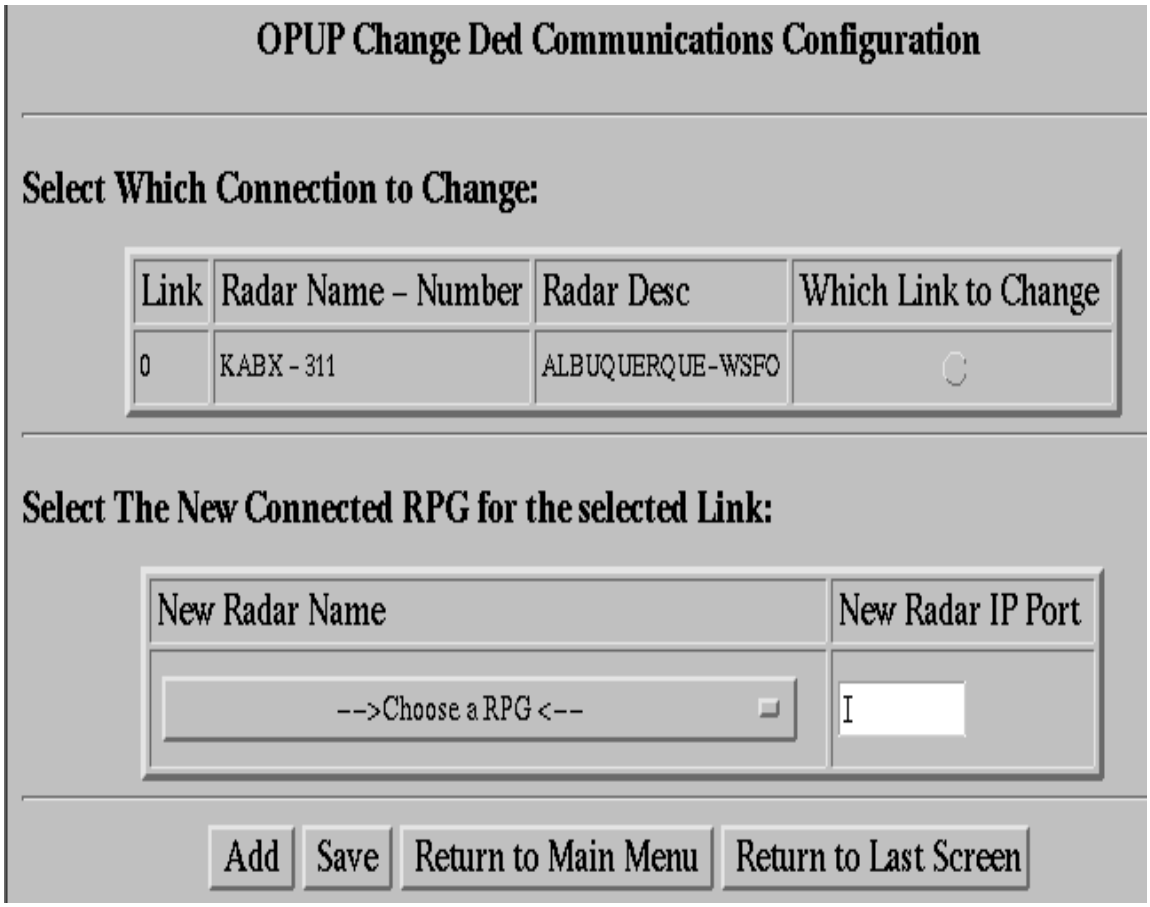


Figure 3-11. OPUP Change Ded Communications Configuration Window

3.3.3.4.7 <u>OPUP Software Version</u>. The OPUP Software Version function provides the ability to view specific information related to the current set of software installed on the OPUP Server UD80A11. At the `OPUP Software Menu`, when the **OPUP Software Version** button is clicked, an `OPUP Software Release` window will be displayed as shown in Figure 3-12. The OPUP Software Version function provides a useful method in determining and controlling

the latest software release installed at each site. The following information is provided within the `OPUP Software Release` window.

- Release Number: Overall software control version number.
- Applications Thread: Operational Applications control version number.
- OS Version: OPUP Operating Software control version number.
- Tools Version: OPUP Manager GUI control version number.
- Updated on: Date of the current software release number.

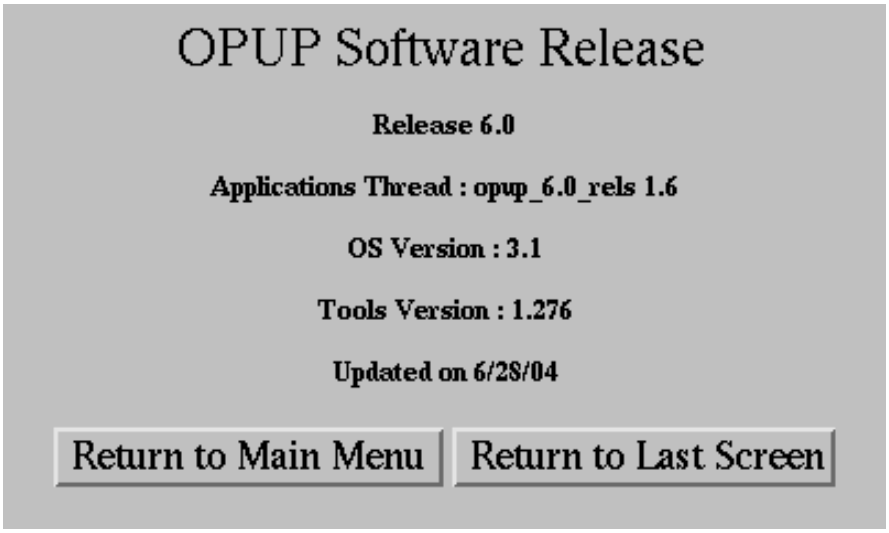


Figure 3-12. OPUP Software Release Window

3.3.3.4.8 Available Products in Database (Oldest/Newest). The Available Products in Database (Oldest/Newest) function provides the ability to display the latest available WSR-88D products and message data associated with each *RPG(s) of interest* found within the OPUP Server OS database. At the `OPUP Software Menu,` when the **Available Products in Database (Oldest/Newest)** button is clicked, an `Available Products in Database (Oldest/Newest)` window will be displayed as shown in Figure 3-13. The data in this window is listed by `RPG ID`, `Oldest Product`, and `Newest Product`. The RPG ID lists each *RPG of interest* by four letter identifier. The Oldest and Newest Product information is listed by date time group.

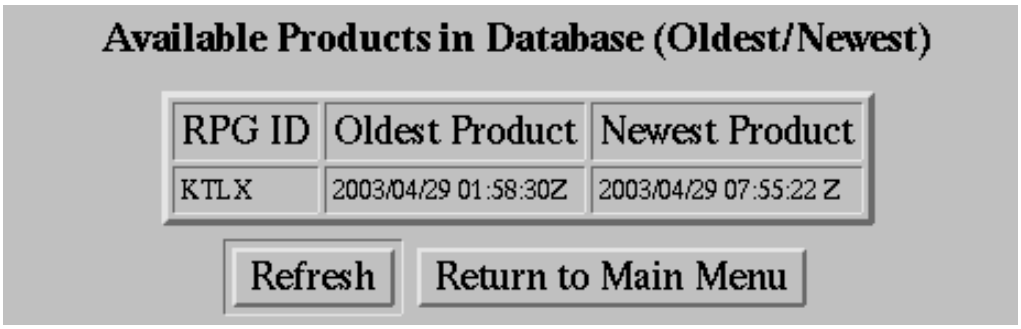


Figure 3-13. Available Products in Database (Oldest/Newest) Window

3.3.3.4.9 Purge All RPG Products. The Purge All RPG Products function is used to purge all WSR-88D product and message data associated with all *RPGs of interest* found within the OPUP Server OS database. At the `OPUP Software Menu,` when the **Purge All RPG Products** button is clicked, a `Purge RPG Product Database` window will be displayed as shown in Figure 3-14. When the **Yes** button is clicked, the Purge All function selects all RPG product and message data and removes them from the OPUP Server OS product database. (The Purge All function will perform a clean removal of all WSR-88 product and message data located in the OPUP Server OS product database.) When the **No** button is clicked, the Purge All RPG Products function immediately cancels the Purge All RPG Products procedure.

NOTE

Care must be taken when selecting the Purge All RPG Products button. Once the **Yes** button within the `Purge RPG Product Database` window is clicked, all products and message data located within the OPUP Server OS database directory will be permanently removed. These products **cannot** be recovered.

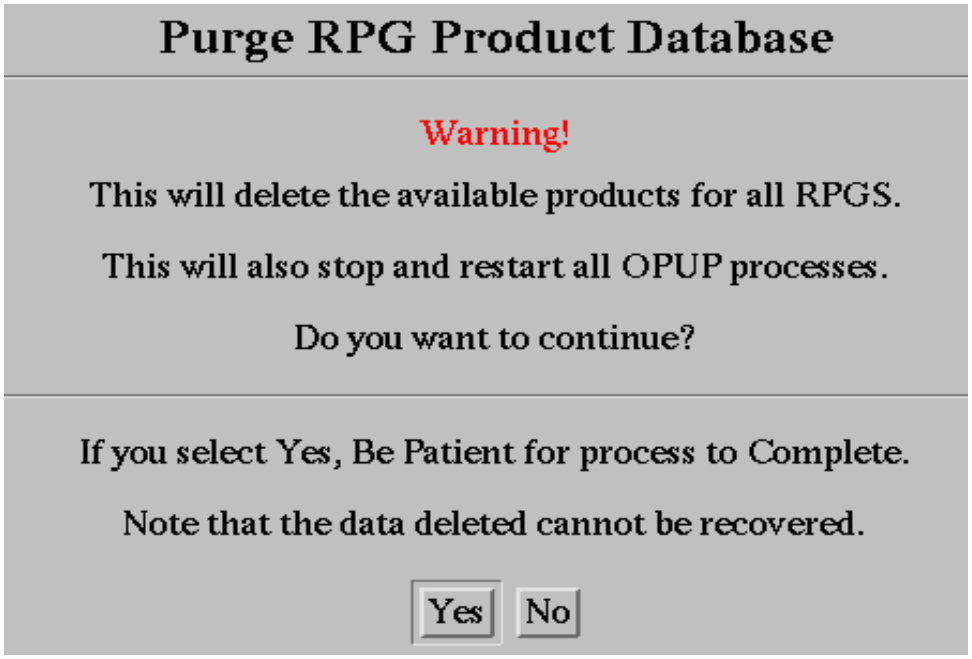


Figure 3-14. Purge RPG Product Database Window

When the Purge All RPG Products function is completed, an `Available Products in Database` window will be displayed as shown in Figure 3-15

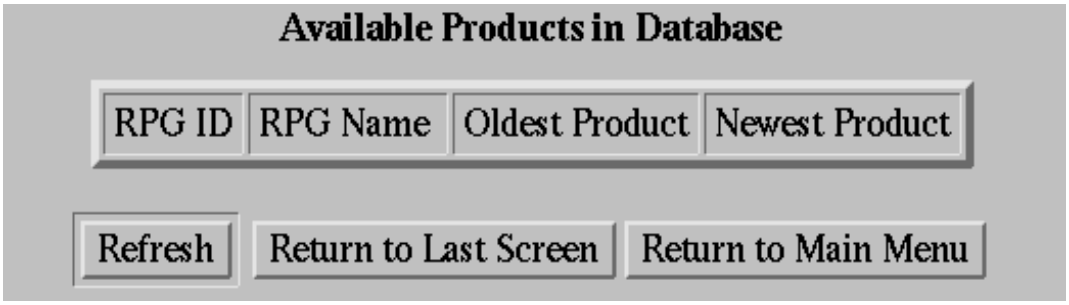


Figure 3-15. Available Products in Database Window

3.3.3.4.10 Purge Particular RPG Products. The Purge Particular RPG Products function provides each site the ability to select specific *RPG of interest* product and message data and remove them from the OPUP Server OS product database. At the `OPUP Software Menu,` when the **Purge Particular RPG Products** button is selected, a `Please Select RPG to Purge from Available Products in Database` window will be displayed as shown in Figure 3-16.

Figure 3-16. Please Select RPG to Purge from Available Products in Database Window

The `Please Select RPG to Purge from Available Products in Database` window contains the following information:

- RPG ID: Displays the RPG identifier assigned to the particular RPG listed by the ROC Configuration Management Branch.
- RPG Name: Provides the four letter ICAO designation for each dedicated radar (not used for dial communications.)
- Oldest/Newest Product: Displays the oldest to the newest date of each data set stored within the OPUP Server OS database for the RPG of interest.
- Select RPG to Purge: Provides a radio button for each RPG listed. The associated data can only be purged if the corresponding radial button is selected.

Each WSR-88D products and message data are selected to be purged from the OPUP Server OS database by clicking the associated radio button for an *RPG of interest* within the `Select RPG to Purge` column of the `Please Select RPG to Purge from Available Products in Database` window. When the **Next** button is clicked, the Purge Particular RPG Products function will display a `Purge RPG Product Database` window similar to Figure 3-14.

NOTE

> Care must be taken when selecting the Purge Particular RPG Products button. Once the **Yes** button within the `Purge Particular RPG Product from Database` window is clicked, all products and message data located within the OPUP Server OS database directory for the selected RPG of interest will be permanently removed. These products **cannot** be recovered.

When the **Yes** button is clicked, the Purge Particular RPG Products function will remove the selected *RPG of interest* product set from the OPUP Server OS product database. (The Purge Par-

ticular RPG Products function will perform a clean removal of the selected data set.) If the **No** button is clicked, the Purge Particular Products function immediately cancels the Purge Particular Products procedure.

When the Purge Particular RPG Products function is completed, an `Available Products in Database` window will be displayed as shown in Figure 3-15.

3.3.3.5 OPUP Users Menu. The OPUP User Menu function provides the ability to add, delete, change passwords, and view all users (operators, etc.) granted access to the Operational Applications Front Panel. Only users that have been assigned by the OPUP System Administrator can access the Operational Applications Front Panel. At the `OPUP Manager Main Menu,` when the **OPUP Users Menu** button is clicked, an `OPUP Users Menu` will be displayed as shown in Figure 3-17.

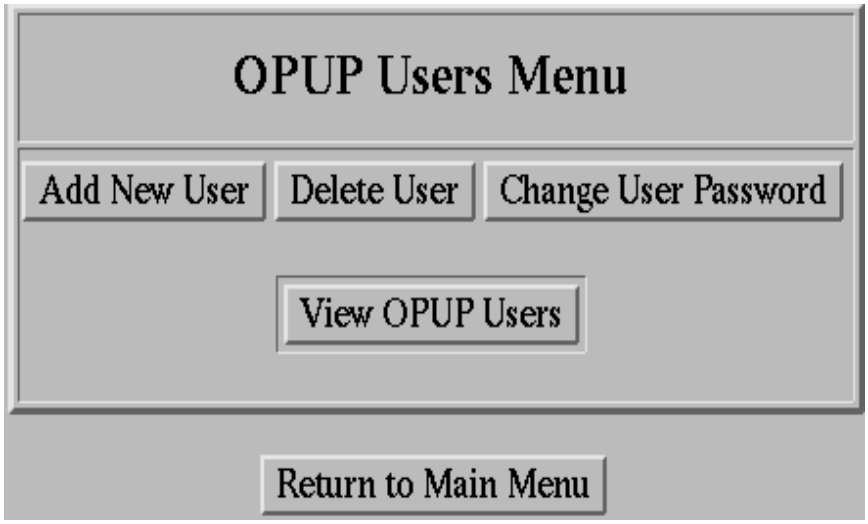


Figure 3-17. OPUP Users Menu

3.3.3.5.1 User Name and Password Composition. The use of user names and passwords are required in order to access both the CDE and Operational Applications Front Panel. The composition of passwords and user names are discussed in paragraph 4.4.2.2.1 and paragraph 4.4.2.2.4. The information presented in these paragraphs is provided as a general overview for issuing both user names and passwords. Consult the above mentioned paragraphs for a complete discussion of the security policy for issuing and removing passwords and user names. Each user name, once removed/deleted from the OPUP Server OS must not be reassigned to another person for up to one year.

NOTE

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their pass-

word exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Each user name must meet the following minimum composition requirements:

- Be at least three characters in length.
- Contain at least two alpha characters (A through Z or a through z)
- Contain at least one number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, or =).

Each password must meet the following minimum composition requirements:

- Be at least a minimum of eight characters in length.
- Contain at least one UPPERCASE character (A through Z).
- Contain at least one lowercase character (a through z).
- Contain at least one number (0 through 9).
- Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All "special" entries must be within the first eight characters.

3.3.3.5.2 Add New User. The Add New User function is used to grant access to the Operational Applications Front Panel. At the `OPUP Users Menu,` when the **Add New User** button is clicked, an `OPUP Manager Add New User` window will be displayed. This window provides three edit fields titled, `User Name:`, `Password:`, and `Reenter password:`. The User Name field requires a unique user name (User ID). The Password field requires a unique combination of characters, numbers, and special characters that will be used in association with a User ID. Refer to paragraph 3.3.3.5.1 for minimum user name and password composition requirements. The Reenter password field is used to ensure that the password assigned to the User ID is correct.

NOTE

The Add New User function cannot be used to change Switch User (su)/ root level access. Terminal/Console window access and CDE environmental change privileges are not granted to operators. OPUP operators can only access the Operational Applications Front Panel GUI displays.

When the **Save** button is clicked within the `OPUP Manager Add New User` window, an `OPUP User` *`User_Name`* `- Successfully Created` window will be displayed. If the information placed within the `Password:` and `Reenter password:` fields do not exactly match, an `OPUP User cannot be created` window will then be displayed as shown in

Figure 3-18. If this window is displayed, click on the **Return to Last Screen** button and reenter the information in the `Password:` and `Reenter password:` fields. Ensure that these fields match each other exactly.

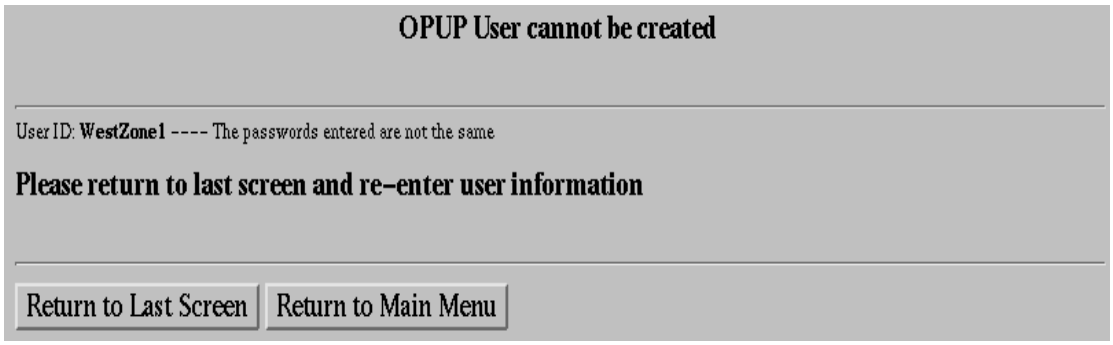


Figure 3-18. OPUP User Cannot Be Created Window

3.3.3.5.3 Delete User. The Delete User function is used to remove User IDs from the OPUP Server OS database. At the `OPUP Users Menu`, when the **Delete User** button is clicked, an `OPUP Manager Delete User` window will be displayed. This window only contains a `User Name:` edit field. To remove a User ID, enter the desired User ID within the `User Name:` field and click on the **Delete** button. The OPUP Manager Delete User function will then remove the User ID from the OPUP Server OS database. When the OPUP Manager Delete User function is finished, an `OPUP User` *User_Name* `has been deleted` window will be displayed.

3.3.3.5.4 Change User Password. The Change User Password function is used to change the password associated with a specific User Name (User ID) that is located within the OPUP Server OS database. At the `OPUP Users Menu,` when the **Change User Password** button is clicked, an `OPUP Manager Change User Password` window will be displayed as shown in Figure 3-19. This window contains, within the `User Information:` area, three edit fields: `User Name:, Password:,` and `Reenter password:`. To change a password, the User Name (User ID) of interest and a new password must be placed in the respective edit fields. The old password is not required because the OPUP Manager Change User Password function only assigns a new password for each User Name when this function is used.

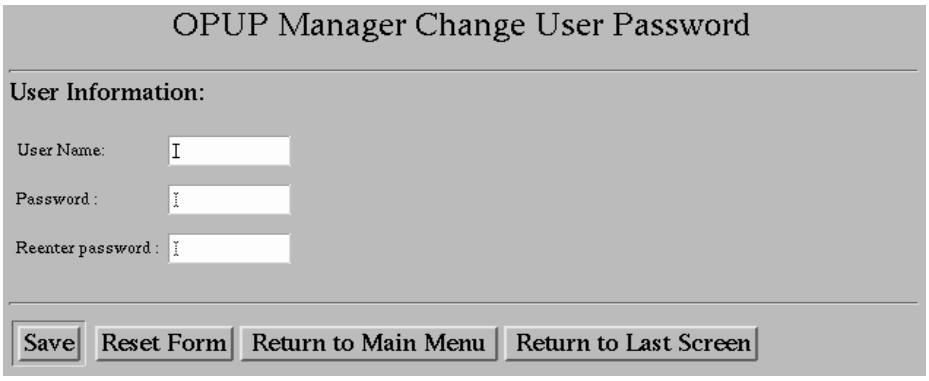


Figure 3-19. OPUP Manager Change User Password Window

3.3.3.5.4.1 User Menu Limitation. The OPUP Server OS has no function or utility that will allow passwords to be recovered if they are lost. For security purposes each password is encrypted at the root access level. To facilitate not having to remember the old User Name (User ID) password, the OPUP Manager Change User Password function will allow any User Name (User ID) password to be changed by simply entering a new password as described in paragraph 3.3.3.5.4. The OPUP Manager Change User Password function will ensure that no user attributes will be lost, if only the password is to be changed.

There may be situations in which the User Name (User ID) must be deleted from the OPUP Server OS database in order to reset or refresh user display attributes associated with Operational Applications Front Panel functions. The OPUP Manager, Delete User function will allow the OPUP System Administrator to remove a User Name (User ID) and reenter it in order to reset all corrupted attributes associated with it. However, all user configured display attributes associated with the Operational Applications Front Panel will be lost for that User Name (User ID).

If a User Name was deleted by accident, the User Name can be restored using the restore procedures described in paragraph 3.3.3.9.2.

3.3.3.5.5 View OPUP Users. The View OPUP Users function is used to display all user names assigned within the OPUP Server OS database. At the `OPUP Users Menu`, when the **View OPUP Users** button is clicked, an `OPUP Users` window will displayed as shown in Figure 3-20.

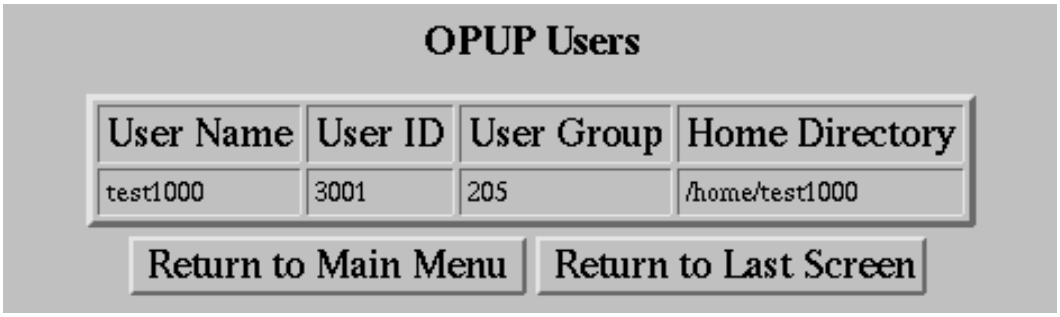


Figure 3-20. OPUP Users Window

The OPUP Users function provides the ability to quickly open and view all OPUP User Names (User IDs) that are present within the OPUP Server OS Users database. The `OPUP Users` window provides the following information:

- User Name: An assigned User Name (User ID) granted by the OPUP System Administrator.
- User ID: The assigned UNIX Administrative User ID for use with the UNIX Admintool function.
- User Group: The assigned User Group number used by the UNIX Admintool GUI.
- Home Directory: The directory where the User Name (User ID) is stored within the OPUP Server OS database.

3.3.3.6 OPUP Security Logs Menu. The OPUP Security Logs Menu function provides the ability to observe, detect, record, and manage user access to the OPUP Server OS. At the `OPUP Manager Main Menu`, when the **OPUP Security Logs Menu** button is clicked, an `OPUP Security Logs Menu` is displayed as shown in Figure 3-21. This menu enables each site to start and stop log functions, view failed login attempts, view access logs, view failed logins, and view access activity to root level directories (SU access activity). This menu also provides the ability to print access and log records for security record purposes. The OPUP Security Logs Menu function also provides an internal audit mechanism which assists with the enforcement of DoD security directives in terms of monitoring system security and the ability to provide access log records. These measures are vital to ensure that the OPUP Server OS communications and network security have not been circumvented and/or compromised in any way. If unauthorized activity has been detected, the OPUP System Administrator can provide a record of the activity to higher authorities.

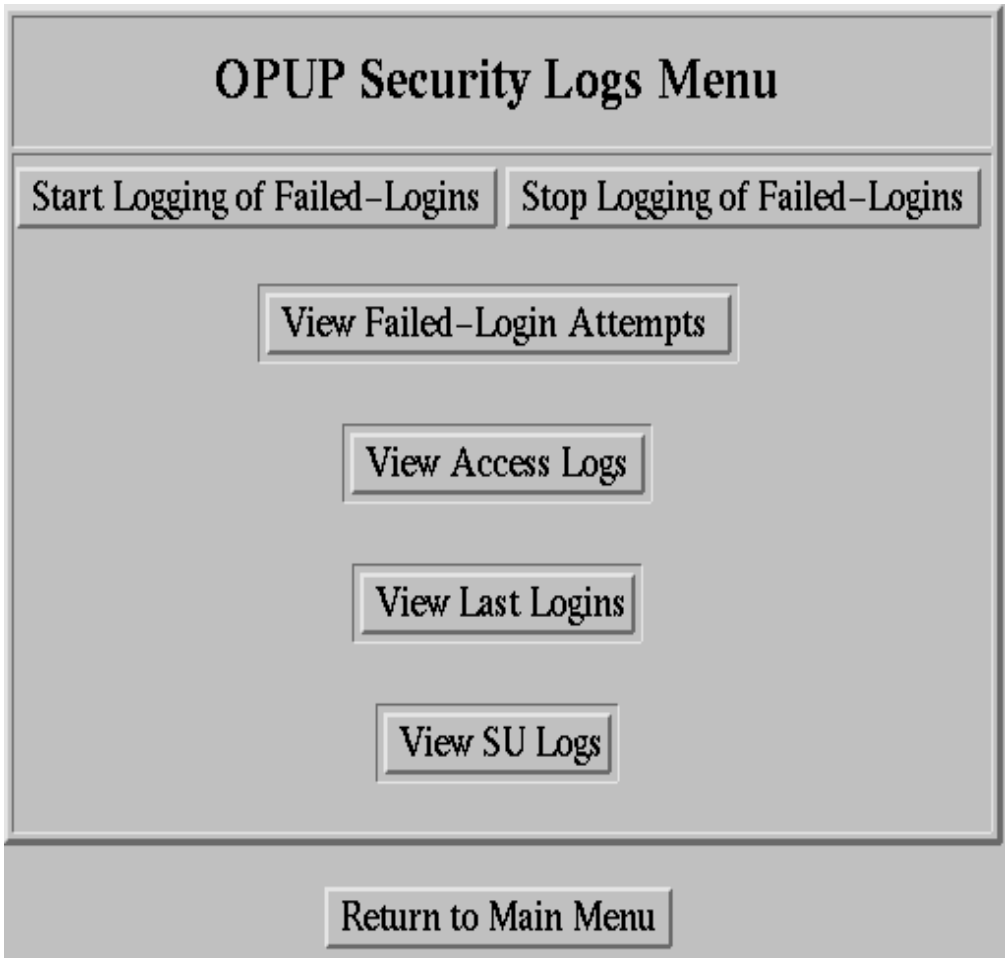


Figure 3-21. OPUP Security Logs Menu

Each view log function provided by the `OPUP Security Logs Menu` may contain the following information:

- Username: All of the logs (except the View SU Logs) will record the Username of the login attempt. It is normally the first item to be recorded.
- TTY Device: This information is only recorded on the OPUP Server Failed-Login Log and displays the port path that the Username attempted to login from.
- Device: This information is recorded on all other logs and displays the name of the device (Console/Terminal/Remote Terminal [Telnet/FTP]), port, and port Identifier of the Username that logged in.
- IP Address: This is the IP-address of the Username that logged in unless the OPUP Server login terminal was used. However, the IP-address will be recorded anytime the OPUP System Administrator performs a remote login procedure (Telnet/FTP).

- Status: Used on the View SU Logs only, the information provided in this log depicts when a user has switch to root level access. This log will allow each site to determine whether the attempt to change to root was successful, unsuccessful, and which device made the attempt (i.e., host or console terminal).

- Login/Logout Time: Used on the `OPUP Server Last Successful Logins` window only, displays the date and time that the Username logged in and logged out.

3.3.3.6.1 Start/Stop Logging of Failed-Logins. The Start or Stop Logging of Failed-Logins function is used to start or stop the logging of failed logins by users attempting to gain access to the OPUP Server OS. At the `OPUP Security Logs Menu,` when the **Start Logging of Failed-Logins** button is clicked, an `OPUP Manager Start Failed-Login Logs` warning window will be displayed. Clicking on the **Yes** button will display an `OPUP Manager Start Failed-Login Logs Logging of Failed-Login attempts have been started` window. All security log functions will then be started. This window will remain displayed until the **Return to OPUP Security Logs Menu** button is clicked. When this button is clicked, the `OPUP Security Logs Menu` will be displayed. If the **No** button is clicked, the `OPUP Security Logs Menu` will immediately be displayed.

NOTE

> The OPUP Security Log function will not start until the **Start Logging of Failed-Logins** button is clicked. In the event that the OPUP Server OS is rebooted and/or shutdown, the Start Logging of Failed-Logins function must be started manually. Failed logins will not be recorded unless the procedure to Start Logging of Failed-Logins is completed.

When the **Stop Logging of Failed-Logins** button is clicked, an `OPUP Manager Stop Failed-Login Logs` warning window will be displayed. Clicking the **Yes** button will display an `OPUP Manager Stop Failed-Login Logs Logging of Failed-Login attempts have been stopped` window. All security log functions will then be stopped. This window will remain displayed until the **Return to OPUP Security Logs Menu** button is clicked. When this button is clicked, the `OPUP Security Logs Menu` will be displayed. If the **No** button is clicked, the `OPUP Security Logs Menu` will be displayed.

3.3.3.6.2 View Failed-Login Attempts. The View Failed-Login Attempts function provides the ability to list all failed login attempts made while attempting to log into the OPUP Server OS. The information displayed in this window includes all failed attempts to log into the OPUP Server OS and any attempt(s) to use Telnet or File Transfer Protocol (FTP) functions. At the `OPUP Security Logs Menu`, when the **View Failed-Login Attempts** button is clicked, an `OPUP Server Failed-Login Log` window will be displayed as shown in Figure 3-22. The window also provides a Print Log function. When the **Print Log** button is clicked, all of the information listed within the `OPUP Server Failed-Login Log` window will be sent to the OPUP Printer UD80A22.

Figure 3-22. OPUP Server Failed-Login Log Window

3.3.3.6.3 View Access Log. The View Access Logs function enables the OPUP System Administrator to view all User Names (User IDs) currently logged into the OPUP Server OS. All users logging into the OPUP Server OS whether at the CDE or Operational Applications Front Panel login screen will be recorded by the View Access Logs function. At the `OPUP Security Logs Menu`, when the **View Access Logs** button is clicked, an `OPUP Server Access Log` window will be displayed as shown in Figure 3-23. The window also provides a Print Log function. When the **Print Log** button is clicked, all of the information listed within the `OPUP Server Access Log` window will be sent to the OPUP Printer UD80A22.

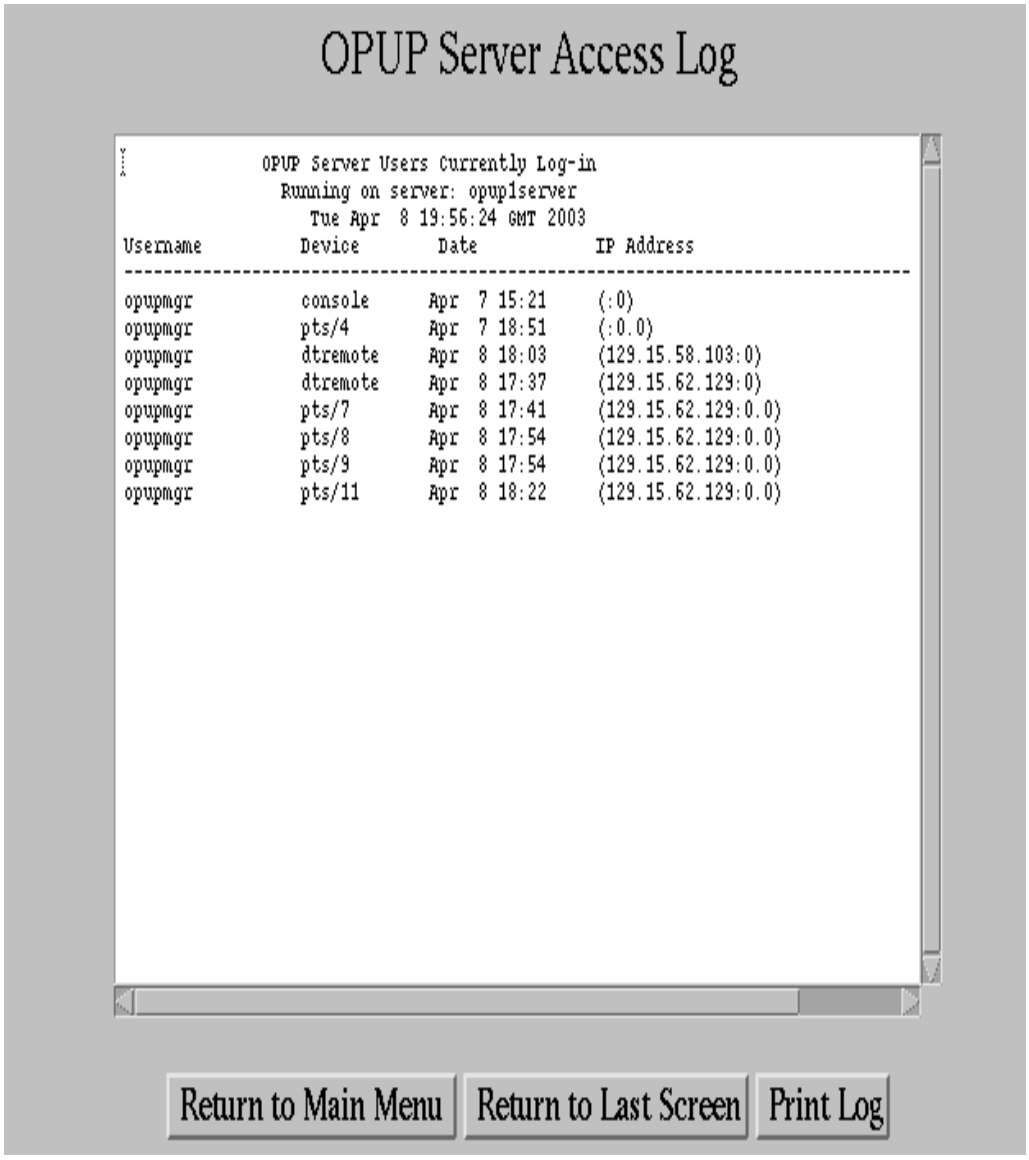


Figure 3-23. OPUP Server Access Log Window

3.3.3.6.4 View Last Logins. The View Last Logins function enables the OPUP System Administrator to view all User Names (User IDs) that have successfully gained access to the OPUP Server OS. In addition, the last login attempts made by associated OPUP Server OS functions are recorded, as well. This includes the use of Switch User (SU), Telnet, and FTP functionality. At the `OPUP Security Logs Menu`, when the **View Last Logins** button is clicked, an `OPUP Server Last Successful Logins` window will be displayed as shown in Figure 3-24. The window also provides a Print Log function. When the **Print Log** button is clicked, all of the information listed within the `OPUP Server Last Successful Logins` window will be sent to the OPUP Printer UD80A22.

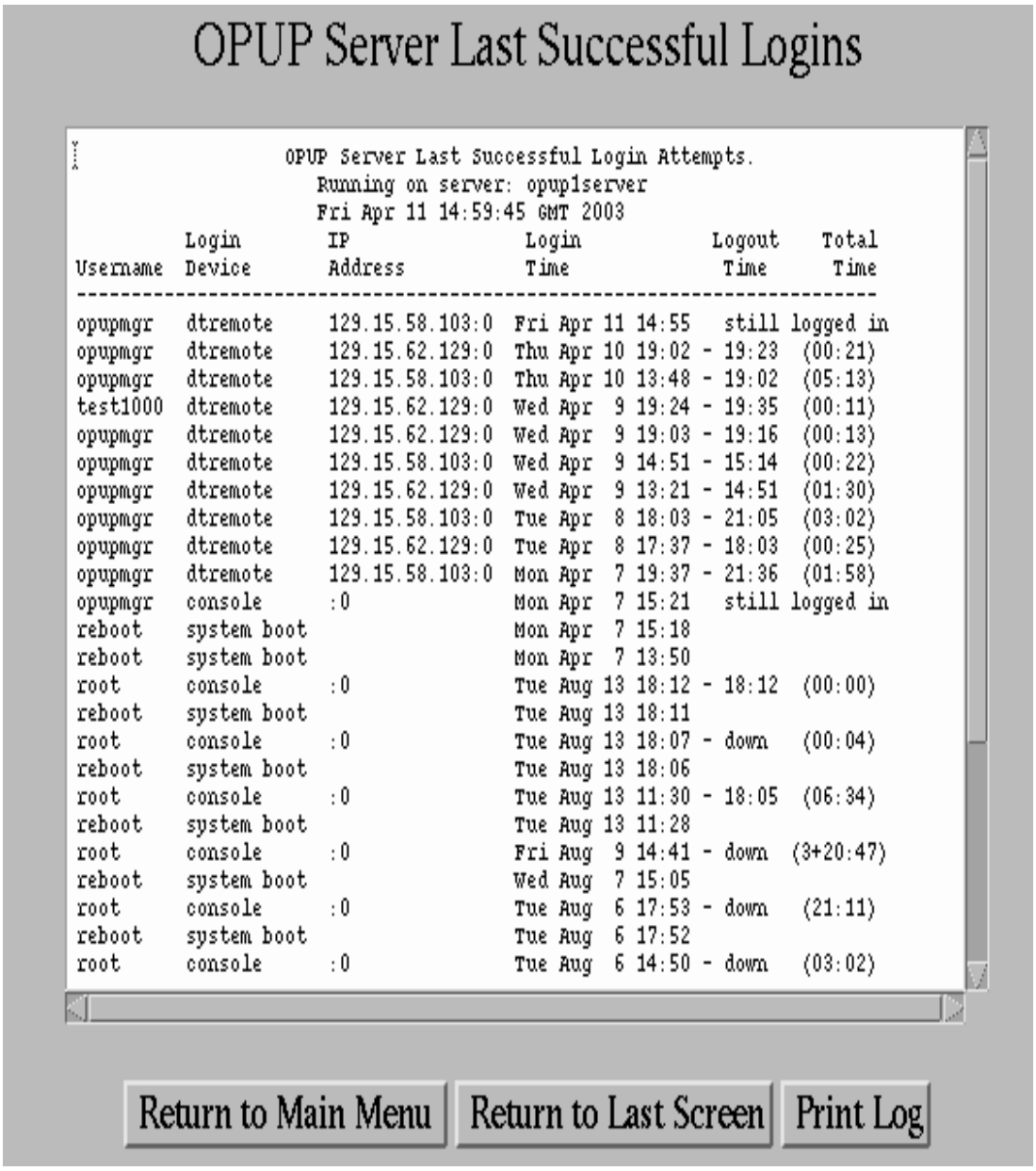


Figure 3-24. OPUP Server Last Successful Logins Window

3.3.3.6.5 View SU Logs. The View SU Logs function provides the ability to view all root level directory and file access activity attempted within the OPUP Server OS. At the `OPUP Security Logs Menu`, when the **View SU Logs** button is clicked, an `OPUP Server SU Command Log` window will be displayed as shown in Figure 3-25. The window also provides a Print Log function. When the **Print Log** button is clicked, all of the information listed within the `OPUP Server SU Command Log` window will be sent to the OPUP Printer UD80A22.

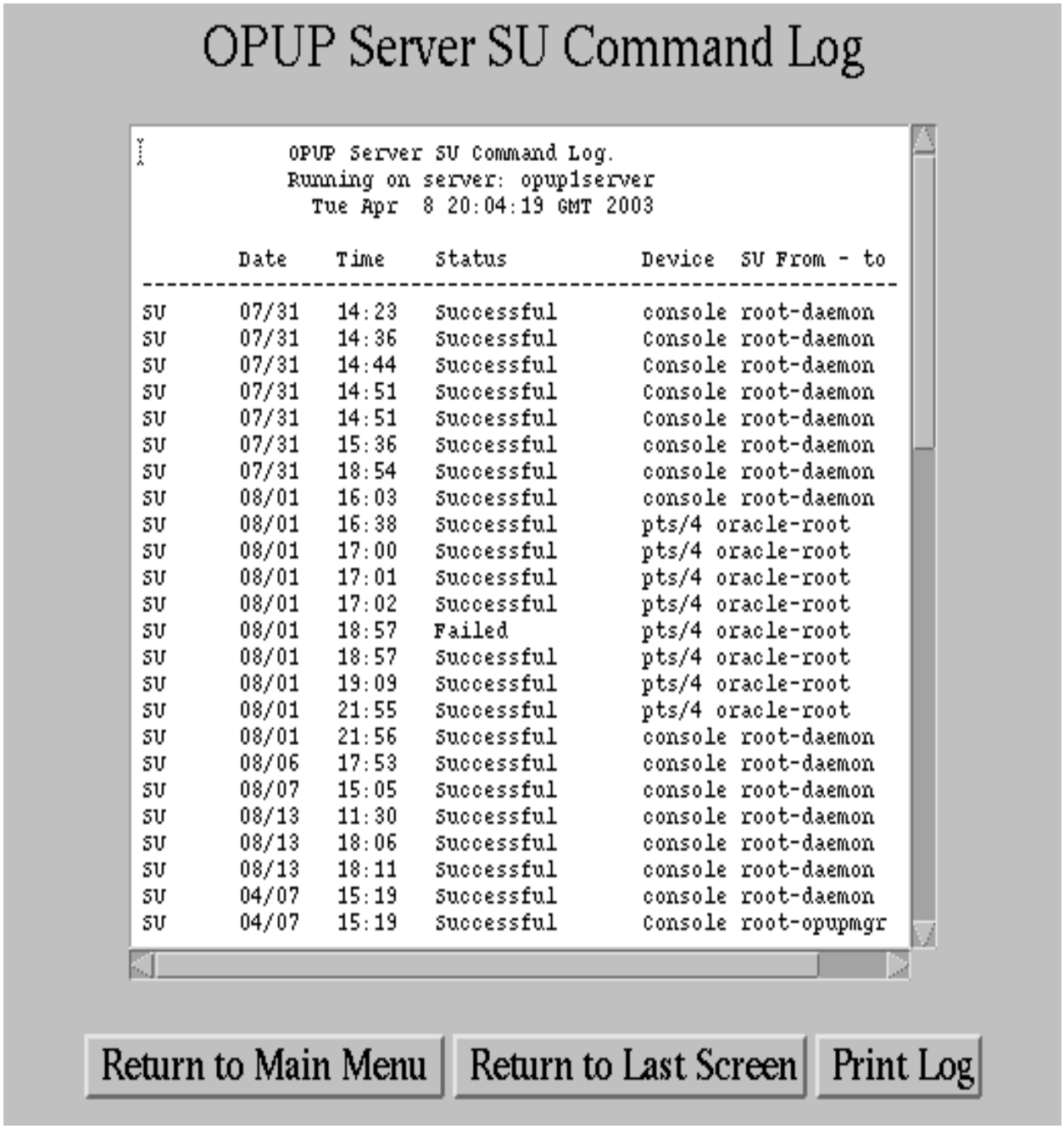


Figure 3-25. OPUP Server SU Command Log Window

3.3.3.7 OPUP Workstation Menu. The OPUP Workstation Menu function provides the ability to add, remove, or view display workstations that are physically attached to the Communication Switch UD80A18 via the I/O Panel. (Minimum display workstation requirements are discuss in detail in Section 2.3.3, Display Workstation UD85.) At the `OPUP Manager Main Menu`, when the **OPUP Workstation Menu** button is clicked, an `OPUP Workstation Menu` will be displayed as shown in Figure 3-26.

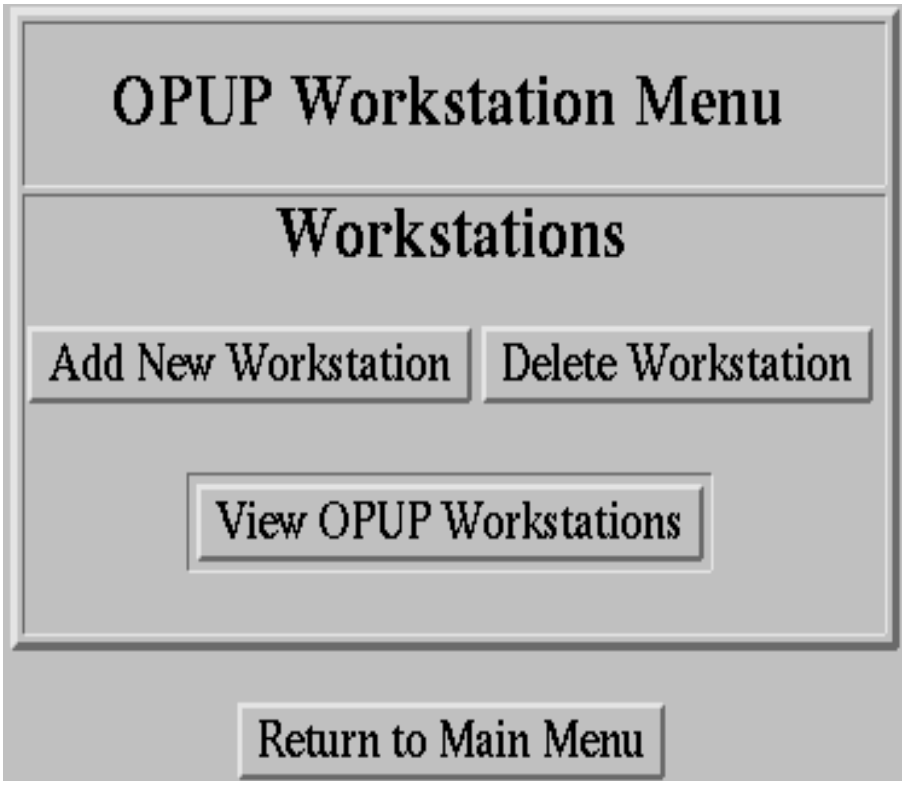


Figure 3-26. OPUP Workstation Menu

3.3.3.7.1 Add New Workstation. The Add New Workstation function is used to enter specific information that allows the OPUP Server OS to recognize any workstation that is physically connected to the Communication Switch UD80A18. At the `OPUP Workstation Menu`, when the **Add New Workstation** button is clicked, an `OPUP Manager Add New Workstation` window will be displayed as shown in Figure 3-27.

The `OPUP Manager Add New Workstation` window provides one edit field titled `Ethernet Address:`, and one select box titled `Select to add Display Server:`. The following information is provided on each area.

- Ethernet Address: Used to input the unique Display Workstation MAC Address (Ethernet-address) supplied with each workstation from the factory.
- Select to add Display Server: Check this box to add the ethernet-address for the Display Server UD80A12 instead of a workstation.

Figure 3-27. OPUP Manager Add New Workstation Window

When all of the information required to add a workstation has been entered within the `OPUP Manager Add New Workstation` window, click on the **Save** button. The Add New Workstation function will then add the display server or workstation to the Hosts database. The `OPUP Manager Add New Workstation` window also provides a **Reset Form** button (used to clear all edit fields located on the form), a **Return to Main Menu** button (used to return to the `OPUP Manager Main Menu`), and a **Return to Last Screen** button (used to go back to the `OPUP Workstation Menu`).

When the Add New Workstation function is complete, a `Netscape: Workstation Information Complete` window with the message `The following workstations have been added:` will be displayed as shown in Figure 3-28. This window also has buttons to return to the `OPUP Manager Main Menu` or the `OPUP Manager Add New Workstation` window, if desired.

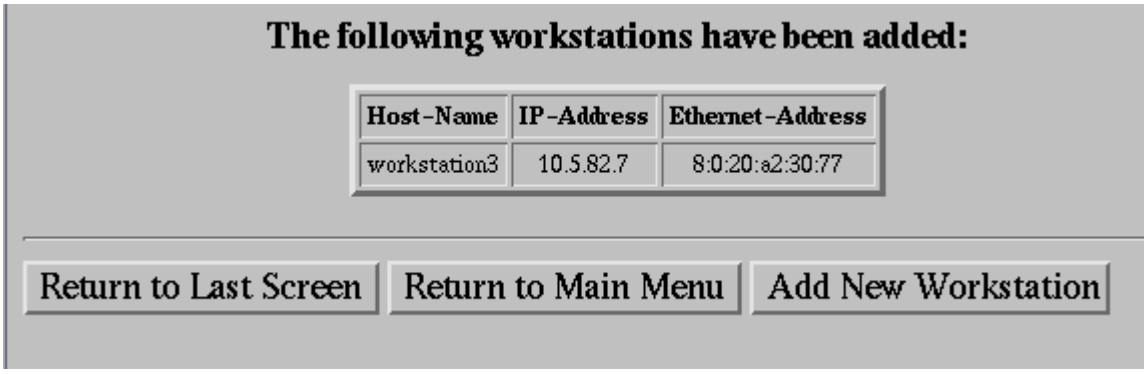


Figure 3-28. Workstations Have Been Added Window

The OPUP Server OS will then be ready to accept the display server or workstation. When it has been verified the workstation has been added to the OPUP Server OS, the Sun Solaris JumpStart command, **boot net – install**, must be entered at the `ok` prompt of the display server or workstation. The JumpStart command will invoke a series of installation scripts that will perform a complete reformat of the workstation hard drive and load the required software. This process will take approximately one hour to complete.

3.3.3.7.2 Delete Workstation. The Delete Workstation function is used to remove any workstation that has been previously added to the Hosts database. At the `OPUP Workstation Menu`, when the **Delete Workstation** button is clicked, an `OPUP Workstations` (Delete) window will be displayed as shown in Figure 3-29.

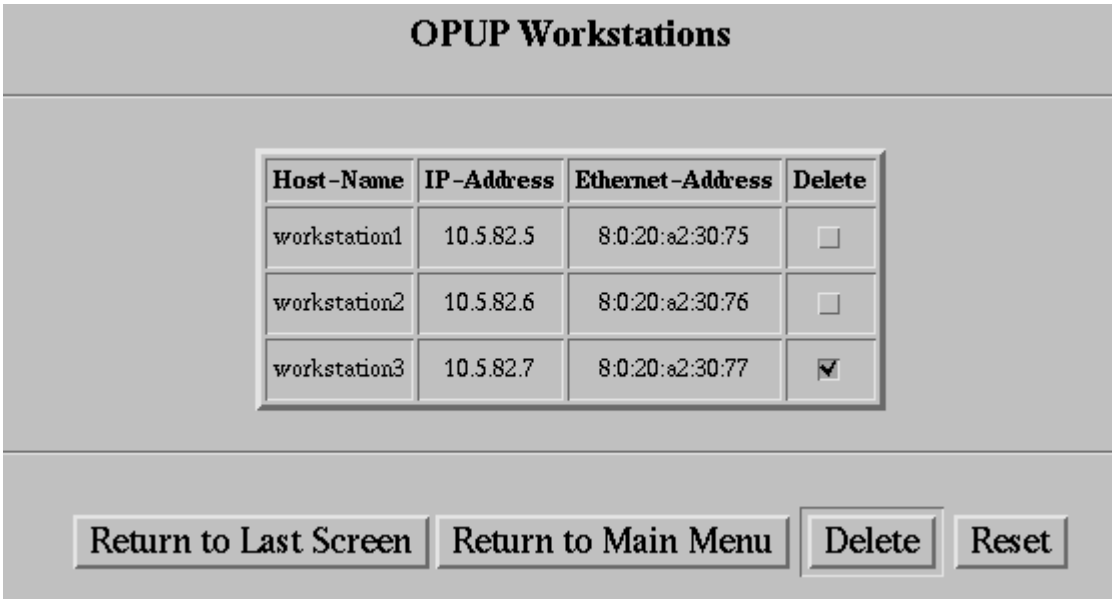


Figure 3-29. OPUP Workstations (Delete) Window

All that is required to delete a workstation from the Hosts database is to click on the `Delete` box for the workstation(s) to be deleted, and then click on the **Delete** button. When the Delete Workstation function is complete, a `Netscape: Workstations Deleted` window with the Host-Name of the workstation deleted will be displayed as shown in Figure 3-30. The `Netscape: Workstations Deleted` window also has a button to return to the `OPUP Manager Main Menu` and a button to delete additional workstations, if desired.

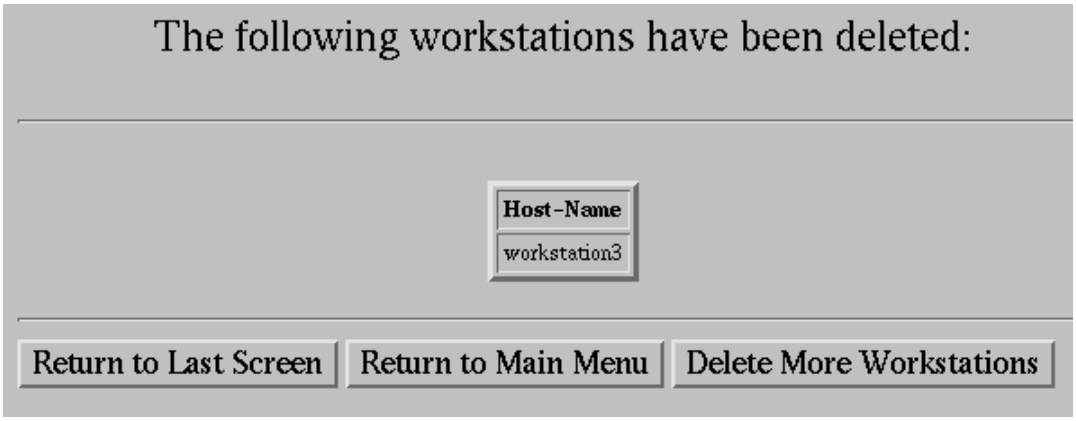


Figure 3-30. Workstation Deleted Window

3.3.3.7.3 <u>View OPUP Workstations</u>. The View OPUP Workstation function is used to view all workstations that have been added to the Hosts database. At the `OPUP Workstation Menu`, when the **View OPUP Workstations** button is clicked, an `OPUP Workstations` window will be displayed as shown in Figure 3-31.

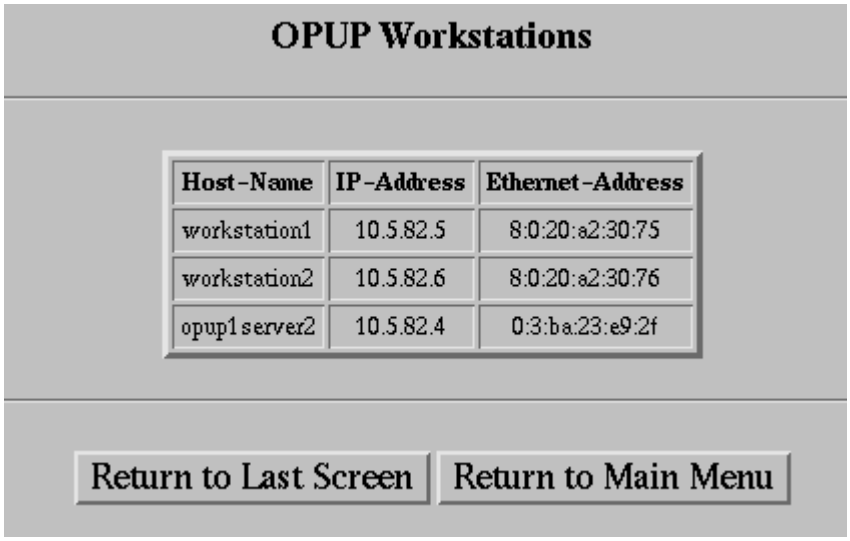


Figure 3-31. OPUP Workstations (View) Window

3.3.3.7.4 OPUP Workstation Menu Limitations. The OPUP Workstation Menu function is designed to work exclusively with the Display Workstation UD85 or Display Server UD80A12. Minimum Display Workstation requirements are outlined in Chapter 2, Hardware, Section 2.3.3, Display Workstation UD85. These minimum requirements ensure that only approved Display Workstation UD85 hardware (Sun Microsystems Ultra-10 CPU) is used. Each workstation must be able to accept and invoke specific Sun Solaris JumpStart installation scripts in order to be uniquely configured to display and manipulate WSR-88D products and message data.

NOTE

When the Sun Solaris JumpStart command "boot net - install" is invoked, the JumpStart script(s) that perform a workstation installation and configuration will perform a complete re-format of the Display Workstation UD85 hard drive and configure it to accept WSR-88D product and message display commands from the OPUP Server OS. If in an emergency, a substitute Sun Ultra-10 CPU is attempted, any information located on the hard drive will be permanently erased.

The unique information that is required before a workstation can be added to the OPUP Hosts database is outlined in paragraph 3.3.3.7.1. The Display Workstation CPU/processor ethernet-address must exactly match the information that is to the Ethernet card from the factory.

NOTE

Do not attempt to change the ethernet-address code that was assigned to the Display Workstation CPU/processor from the factory.

Each Large OPUP configuration may have up to 10 attached display workstations and each Medium OPUP configuration may have up to 3 attached display workstations. The maximum number of workstation limitation is entirely due to the performance characteristics of each OPUP configuration. Adding additional display workstations beyond the capabilities of each configuration may have negative performance consequences. Each workstation will require a separate CAT5 RJ-45 type cable that must be connected between the display workstation's Ethernet MAC Address card and a specific port located on the Communication Switch UD80A18 via the I/O Panel. Refer to Figure 2-6, Sheet 1 (for Large OPUP) or Figure 2-7, Sheet 1 (for Medium OPUP) for specific cable routing and cable numbers.

3.3.3.8 OPUP Archive Menu. The OPUP Archive Menu function provides the ability to backup and restore selected WSR-88D products, message data, and savelogs from/to a CD-ROM disk. At the `OPUP Manager Main Menu`, when the **OPUP Archive Menu** button is clicked, an `OPUP Archive Menu` will be displayed as shown in Figure 3-32.

Figure 3-32. OPUP Archive Menu

The OPUP Archive Menu function includes the ability to check, create, restore, and erase environmental data placed within the OPUP Server OS Archive database directory. The `OPUP Archive Menu` also provides the ability to erase the contents of a CD-R/W disk, if desired. (Information cannot be erased from CD-R type disks.) The Check Content of CD-ROM function is used to read any CD-ROM disk (CD-R/W or CD-R) placed within the Archive IV Device UD80A4 media tray

3.3.3.8.1 OPUP Archive Menu Function Limitations. The archival of WSR-88D products, message data, and savelogs begins with the operator selecting a specific set of data associated with an *RPG of interest* at the Operational Applications Front Panel. The operator assigns a unique descriptive file name for each data set and stores the file within the Archive database directory by clicking on the **Create Products Archive** button within the `OPUP Archive Menu`. All operator interaction with selecting and storing archive data will be performed using the Archive menu located within the Status & Control GUI of the Operational Applications Front Panel.

Once the archive data is stored, the OPUP System Administrator will be able to display each associated filename(s) at the `OPUP Manager Main Menu` ▶ `OPUP Archive Menu` ▶ `Check Products Archive` window.

The Operational Applications Front Panel ▶ Status & Control GUI ▶ Archive menu function is designed to allow operators to select and create archive data sets which can only hold up to 700 Mbytes each. This limitation is based upon the size of each CD-ROM disk which are capable of holding up to 700 Mbytes of data. Conversely, the number of data files that may be designated for archive storage within the Archive database directory is limited to the size of the secondary hard drive (which is 20 GB). This means that numerous data files may be created and designated for archival within the Archive database directory. Because each archive file may only contain up to 700 Mbytes, only **one** file will be allowed to be written to each CD-ROM. If there is more than one file listed within the Archive database directory, a separate CD-ROM will be required for each file.

NOTE

> There are 650 Mbyte CD-R/W disks available which will work in the Archive IV Device UD80A4. If a file that is greater than 650 Mbytes is encountered by the Create Products Archive function, a warning message will be displayed. If a warning message is displayed, simply remove the 650 Mbyte disk and replace it with a 700 Mbyte disk.

Two types of CD-ROM disks may be used. If a CD-R type disk is used, it is recommended that only high speed CD-R type disks (12X or higher) are selected. CD-R disks are inexpensive, have increased recording efficiency, and provide a permanent archive record (once data is written on them, the data cannot be erased.) If a CD-R/W type disk is used, it is recommended that only high speed CD-R/W disks (4x or higher) are selected. Low Speed CD-R/W disks perform poorly and often report multiple errors during use.

3.3.3.8.2 Check Products Archive. The Check Products Archive function is used to view the archive files on the server hard drive in the Archive database directory. At the `OPUP Archive Menu`, when the **Check Products Archive** button is clicked, `The Existing Archives on Server is as follows:` window will be displayed as shown in Figure 3-33. All archive files created by operators will be displayed within this window.

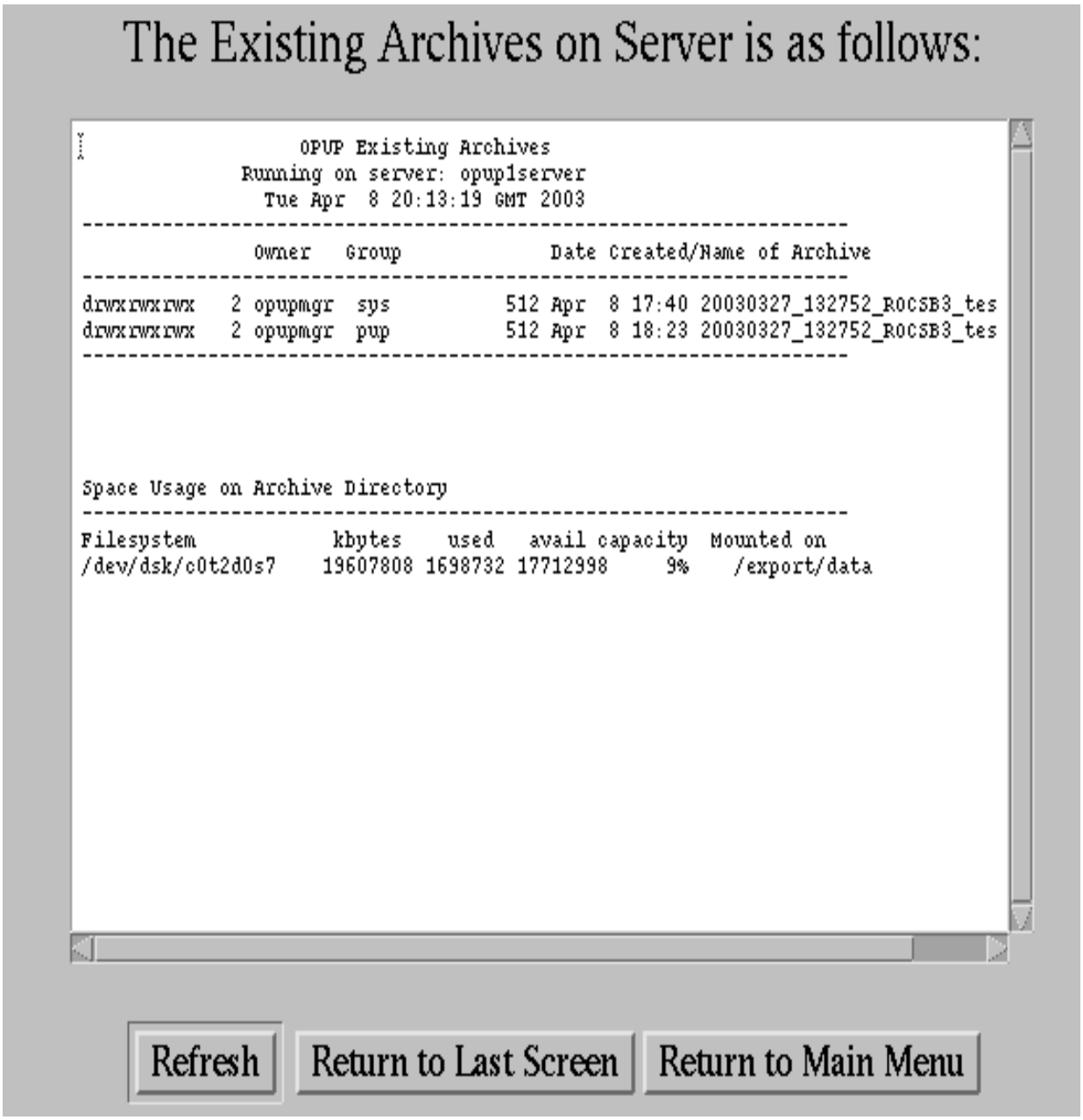


Figure 3-33. The Existing Archives on Server Window

3.3.3.8.3 Create Products Archive. The Create Products Archive function is used to select and write specific archive data files located within the Archive database directory to a CD-ROM disk. At the `OPUP Archive Menu`, when the **Create Products Archive** button is selected, a `Please select archive case to create to CDROM` window will be displayed as shown in Figure 3-34. All archive files created by operators will be displayed within this window.

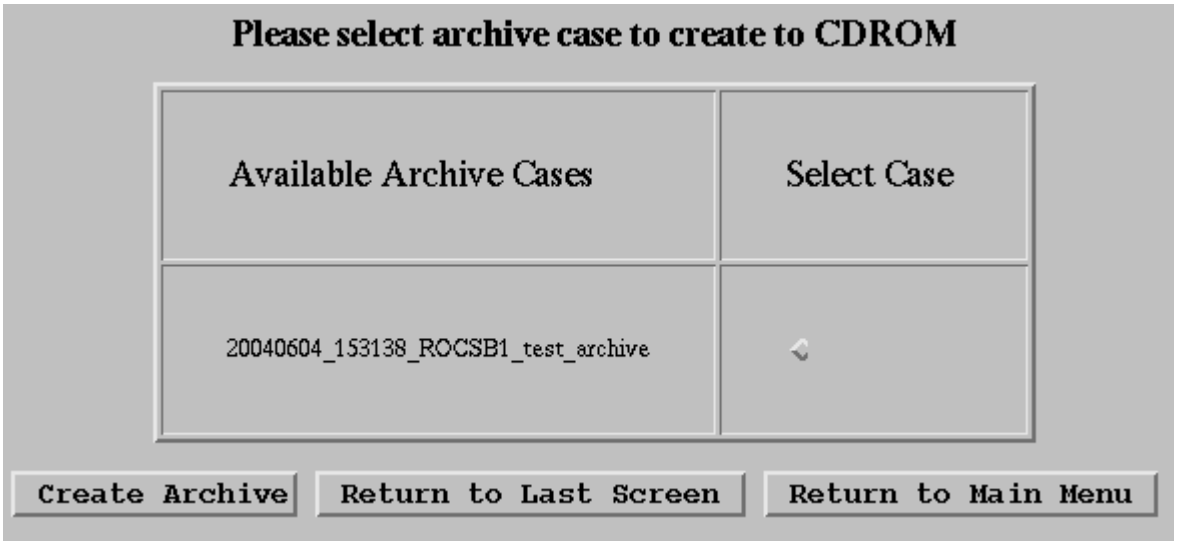


Figure 3-34. Please Select Archive Case to Create to CDROM Window

NOTE

OPUP System Administrators may need to routinely, or upon request, select and archive designated archive file(s) located in the Archive database directory and save them to a CD-ROM disk(s). The decision to archive data is site dependant.

Each archive data file located within the Archive database directory is selected for archival by selecting the file within the `Select Case` column of the `Please select archive case to create to CDROM` window as shown in Figure 3-34. Once the file is selected (highlighted), click on the **Create Archive** button and the Create Products Archive function will transfer and record the selected file to the CD-ROM disk located within the Archive IV Device UD80A4 media tray.

3.3.3.8.4 Restore Products Archive. The Restore Products Archive function is used to view, select, and restore WSR-88D product and message data from a CD-ROM disk to the Archive database directory. At the `OPUP Archive Menu`, when the **Restore Products Archive** button is clicked, the Restore Products Archive function accesses the CD-ROM located within the archive device media tray and displays each file name within `The content of the inserted CDROM is as follows:` window. Each archive file is then placed within the Archive database directory by clicking on the **Restore Archive** button located near the bottom left of the window.

3.3.3.8.5 Erase Products Archive. The Erase Products Archive function allows each site to select one or all archived product and message data files previously placed in the Archive database directory. At the `OPUP Archive Menu`, when the **Erase Products Archive** button is

clicked, an `OPUP Manager Erase Archive` window will be displayed as shown in Figure 3-35.

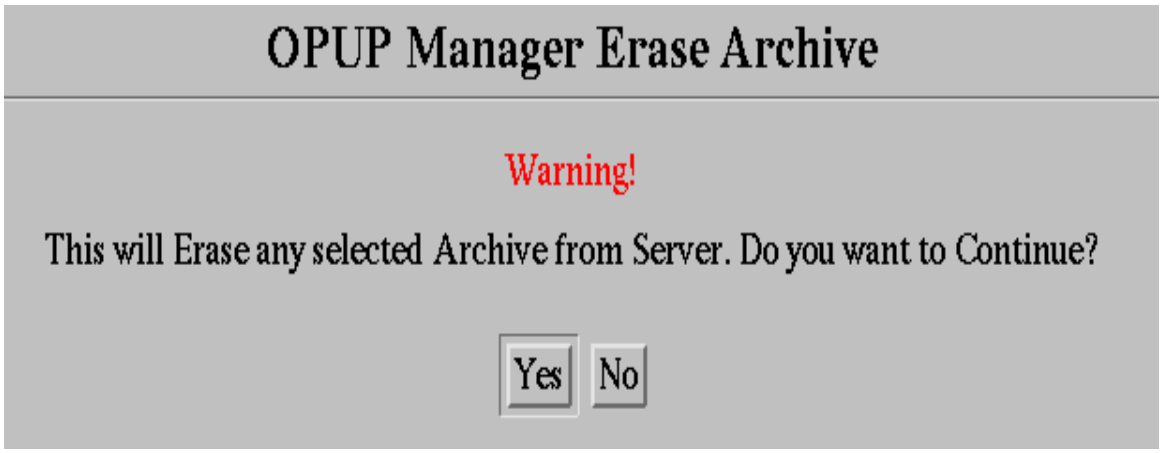


Figure 3-35. OPUP Manager Erase Archive Window

NOTE

> Any archive file selected within the `Available Archive Cases` column will be permanently erased from the Archive database directory when the **Erase Archive** button is clicked. Once this data is erased, there will be no way to restore the data unless the file was saved to a CD-ROM disk.

The `OPUP Manager Erase Archive` window also displays the following message: `Warning! This will Erase any selected Archive from Server. Do you want to Continue?` This message is used as a reminder that the data selected will be removed from the Archive database directory. When the **Yes** button is selected, a `Please select archive case to erase from server` window will be displayed as shown in Figure 3-36. Each archive file is then erased by selecting the radio button of the archive *file of interest* within the `Select Case` column and clicking on the **Erase Archive** button near the bottom left of the window. The designated Available Archive Cases file will then be permanently erased from the Archive database directory.

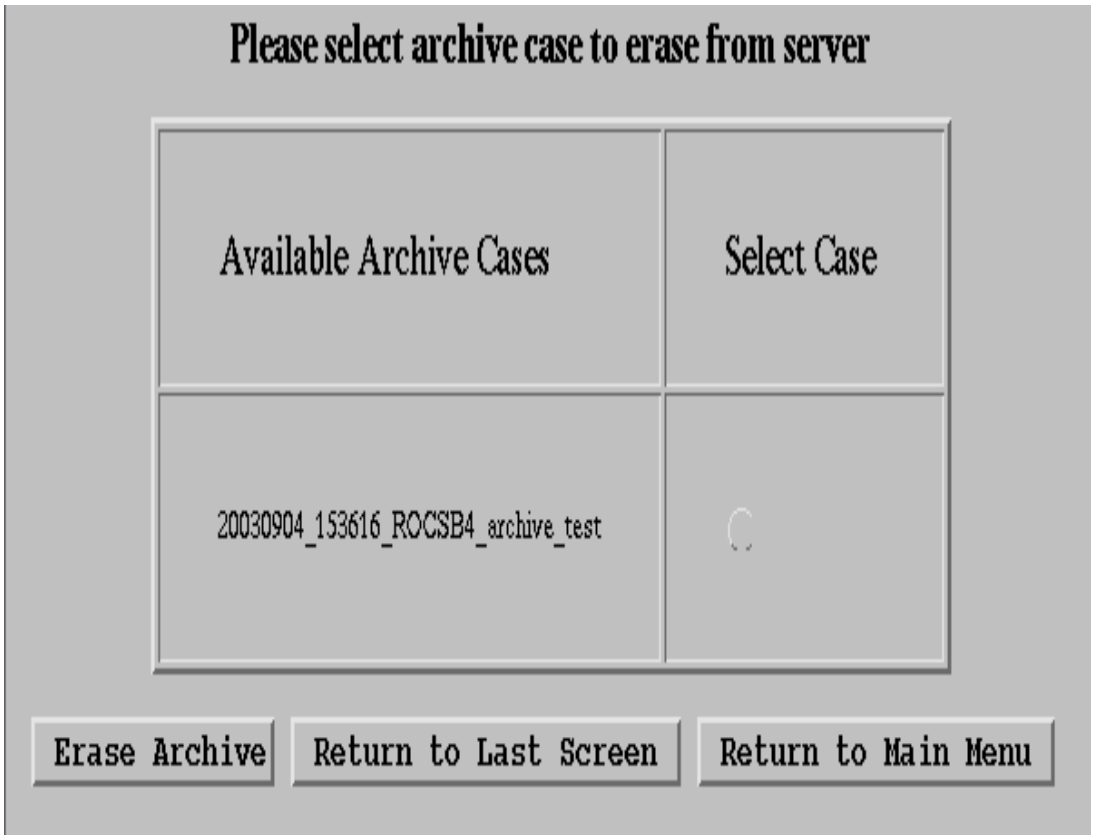


Figure 3-36. Please Select Archive Case to Erase from Server Window

3.3.3.8.6 Check Savelog Archive. The Check Savelog Archive function is used to view the savelog files placed on the server hard drive in the Savelog database directory. At the `OPUP Archive Menu`, when the **Check SaveLog Archive** button is clicked, The `Existing SaveLog Archives on Server is as follows:` window will be displayed as shown in Figure 3-37. All savelog archive files created by operators will be displayed within this window.

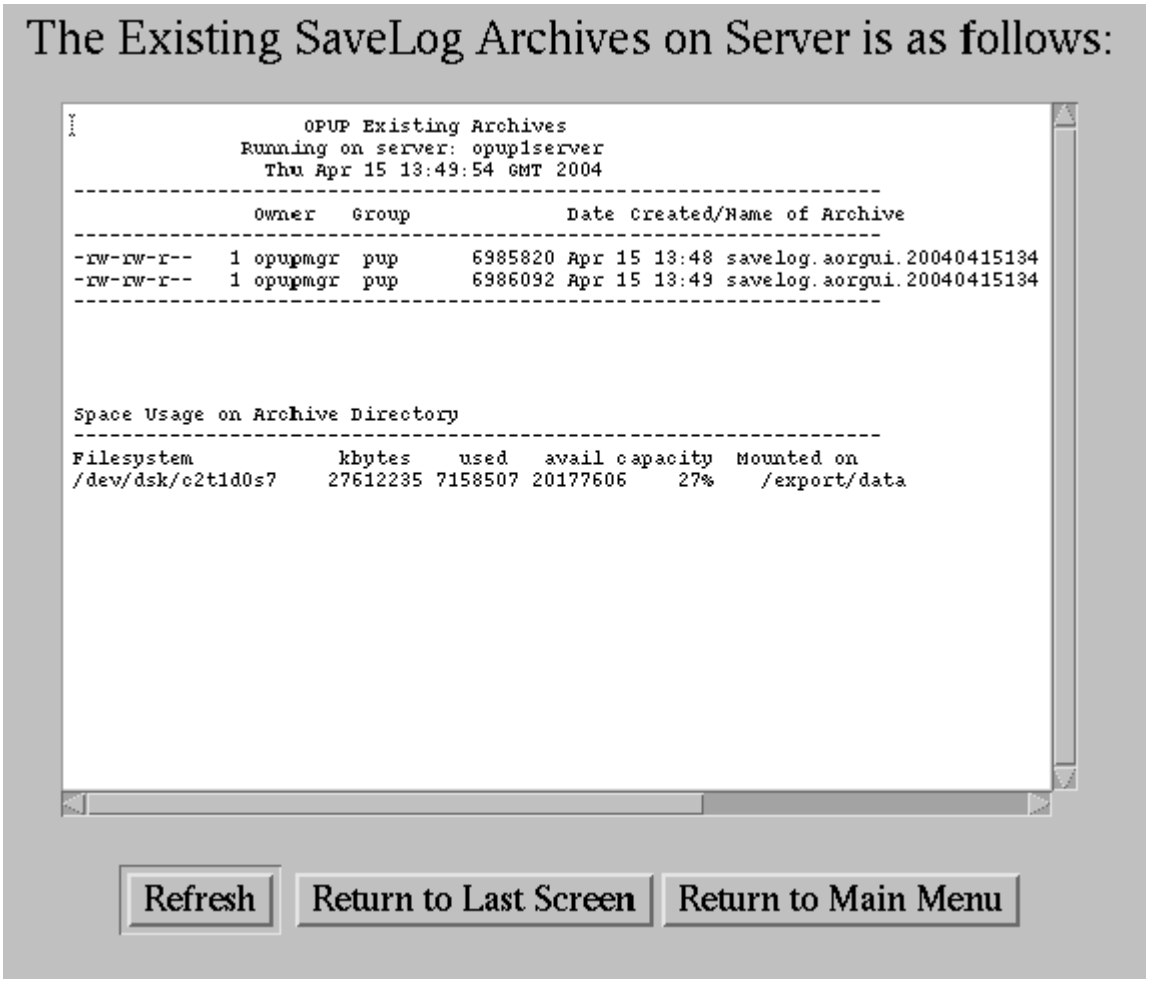


Figure 3-37. The Existing SaveLog Archives on Server Window

3.3.3.8.7 Create Savelog Archive. The Create Savelog Archive function is used to select and write specific savelog archive files located within the Savelog database directory to a CD-ROM disk. At the `OPUP Archive Menu`, when the **Create Savelog Archive** button is clicked, a `Please select archive case to create to CDROM window` will be displayed as shown in Figure 3-38. All savelog archive files created by operators will be displayed within this window.

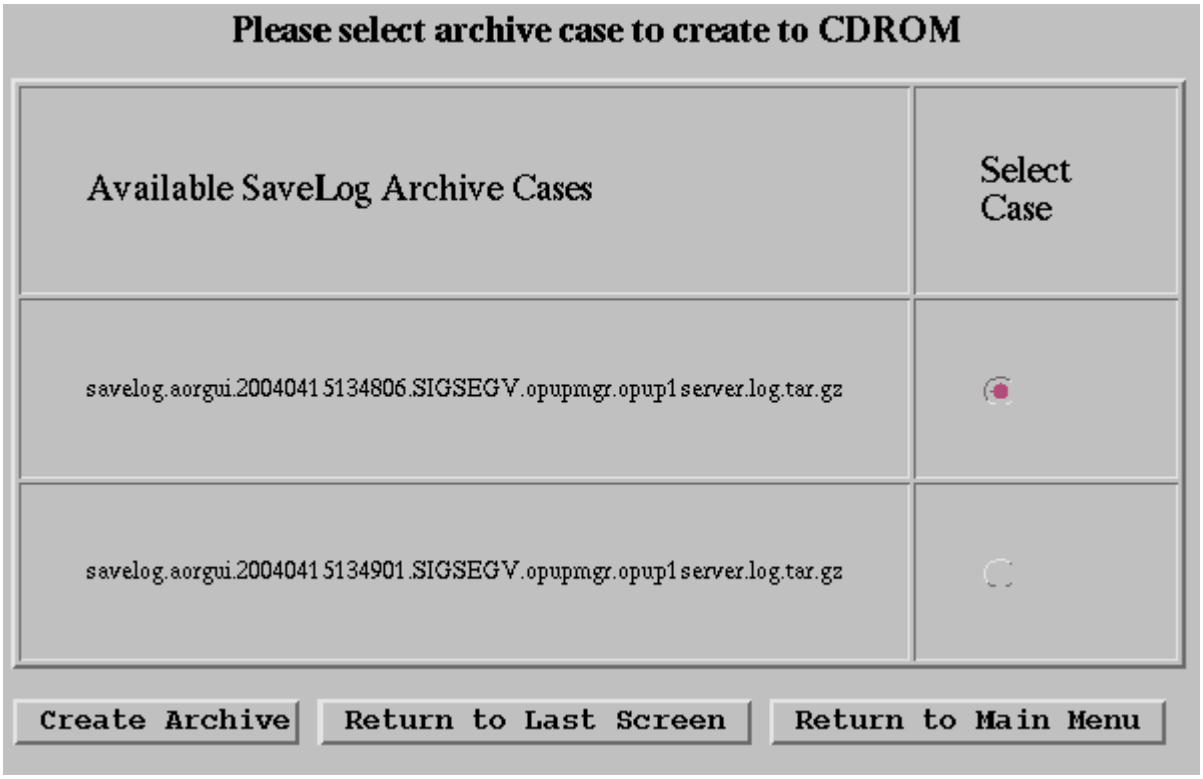


Figure 3-38. Please Select (SaveLog) Archive Case to Create to CDROM Window

NOTES

OPUP System Administrators may need to routinely, or upon request, select and archive designated savelog archive file(s) located in the Savelog database directory and save them to a CD-ROM disk(s). The decision to archive data is site dependant.

Each savelog archive file located within the Savelog database directory is selected for archival by selecting the file within the `Select Case` column of the `Please select archive case to create to CDROM` window as shown in Figure 3-38. Once the file is selected (highlighted), click on the **Create Archive** button and the Create Savelog Archive function will transfer and record the selected file to the CD-ROM disk located within the Archive IV Device UD80A4 media tray.

3.3.3.8.8 Erase Savelog Archive. The Erase Savelog Archive function allows each site to select one or all archived savelog files previously placed in the Savelog database directory. At the `OPUP Archive Menu`, when the **Erase SaveLog Archive** button is clicked, an `OPUP Manager Erase SaveLog Archive` window will be displayed as shown in Figure 3-39.

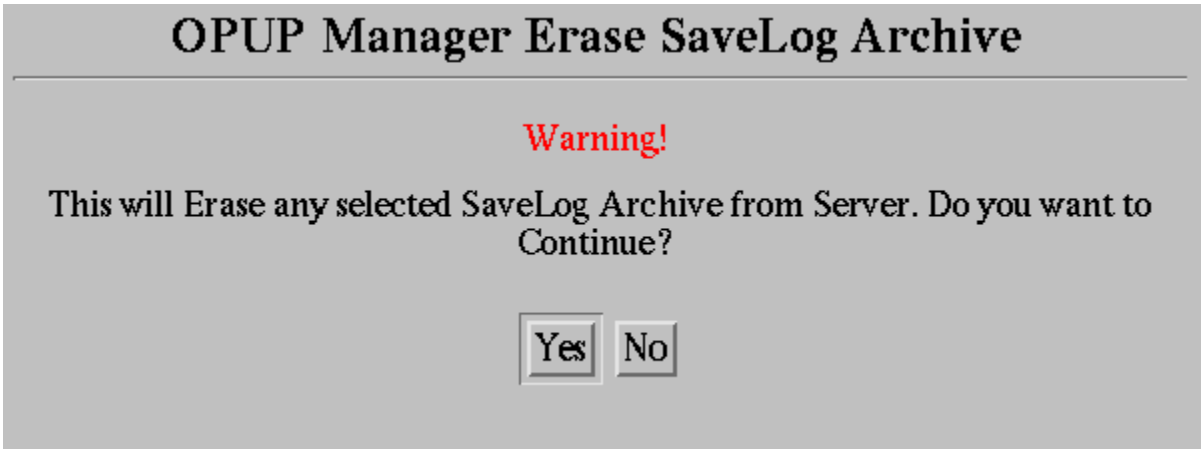


Figure 3-39. OPUP Manager Erase SaveLog Archive Window

The `OPUP Manager Erase SaveLog Archive` window also displays the following message: `Warning! This will Erase any selected SaveLog Archive from Server. Do you want to Continue?` This message is used as a reminder that the data selected will be removed from the Savelog database directory. When the **Yes** button is selected, a `Please select archive case to erase from server` window will be displayed as shown in Figure 3-40. Each archive file is then erased by selecting the radio button of the SaveLog Archive *file of interest* within the `Select Case` column and clicking on the **Erase Archive** button near the bottom left of the window. The designated Available SaveLog Archive Cases file will then be permanently erased from the Savelog directory.

NOTE

Any SaveLog Archive file selected within the `Available SaveLog Archive Cases` column will be permanently erased from the Savelog database directory when the **Erase Archive** button is clicked. Once this data is erased, there will be no way to restore the data unless the file was saved to a CD-ROM disk.

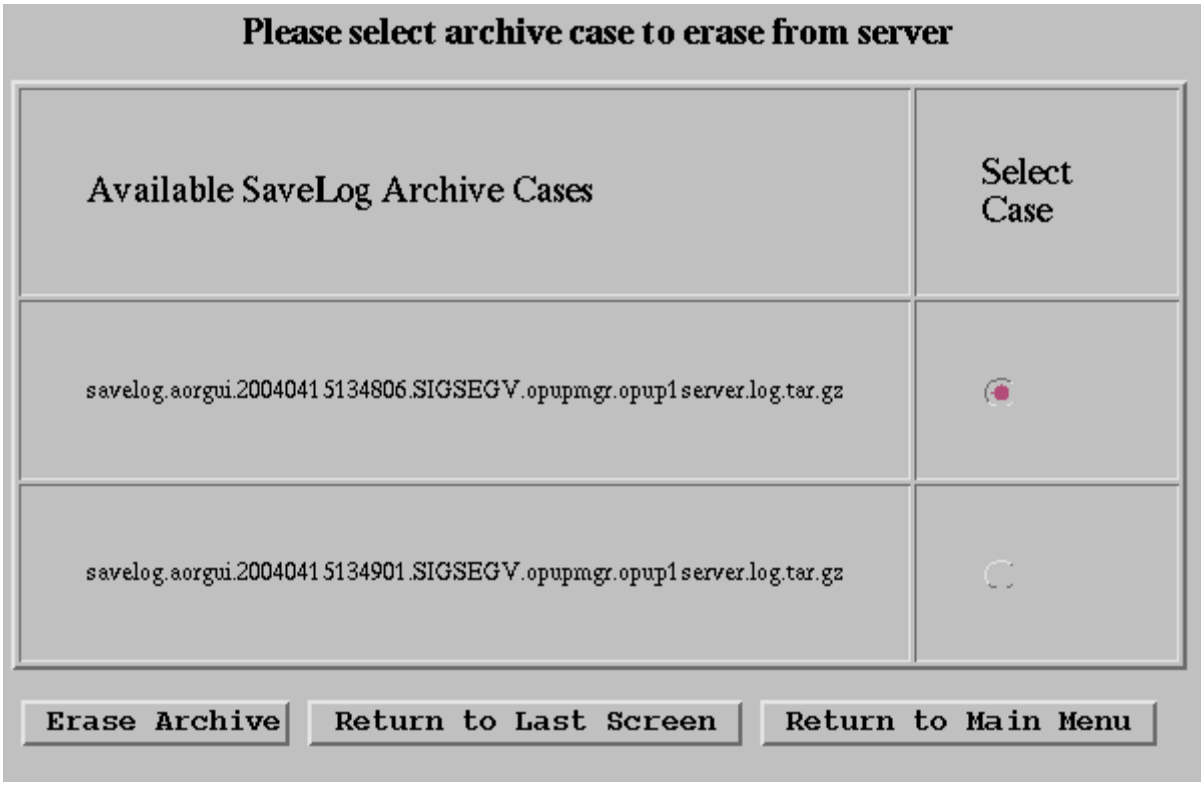


Figure 3-40. Please Select (SaveLog) Archive Case to Erase from Server Window

3.3.3.8.9 Check Content of CD-ROM. The Check Content of CD-ROM function provides the ability to access and display the contents of a CD-ROM disk located within the Archive IV Device UD80A4 media tray. At the `OPUP Archive Menu`, when the **Check Content of CDROM** button is clicked, `The Content of the inserted CDROM is as follows:` window will be displayed as shown in Figure 3-41.

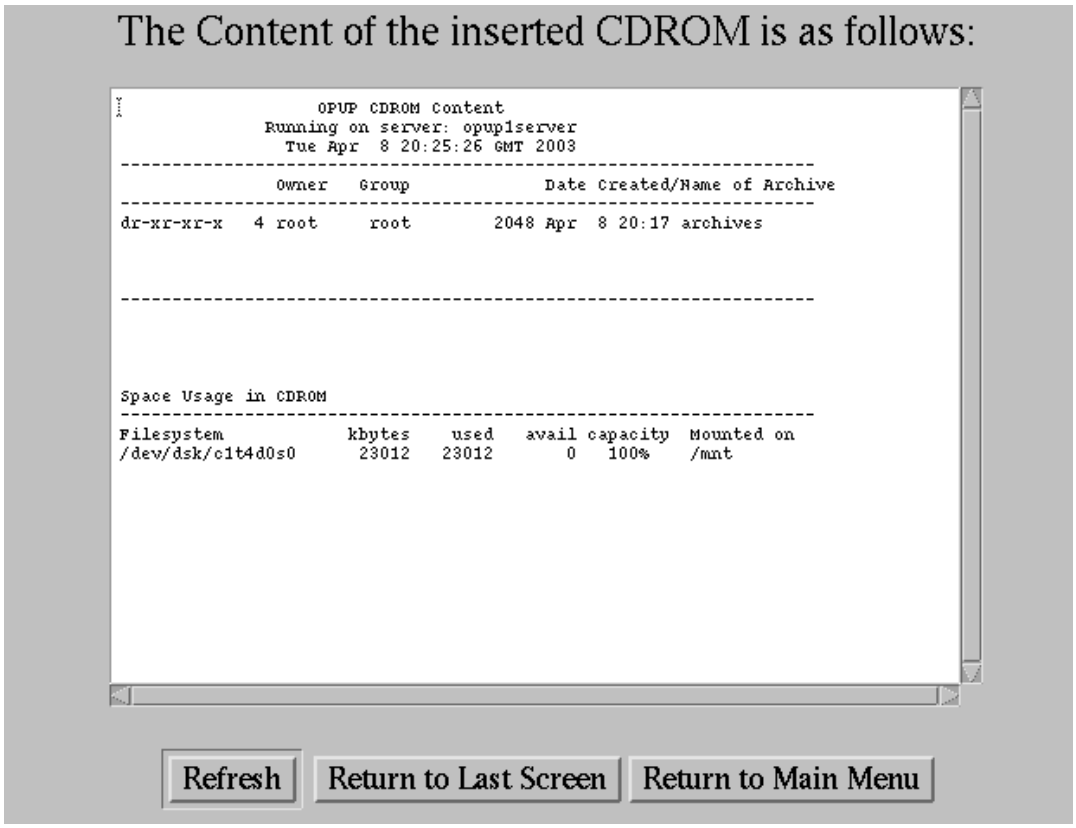


Figure 3-41. Contents of CDROM Window

The information provided in `The Content of the inserted CDROM is as follows:` window is provided below:

- Filesystem: The archive data file pathname.
- kbytes: The total amount of disk space in kbytes the archive file is allowed to use.
- used: The amount of disk space that the archive file is currently using.
- avail: The amount of disk space that is still available for the archive file to use.
- capacity: The percentage of allowable disk space the archive file is currently using.
- Mounted on: The directory name that the archive data is currently mounted on.

`The Content of the inserted CDROM is as follows:` window does not automatically refresh the window when new data is available for display. The **Refresh** button, located near the bottom left of the window is provided for this purpose. When the **Refresh** button is clicked, `The Content of the inserted CDROM is as follows:` window will access the disk located in the archive device media tray and redisplay the new data.

3.3.3.8.10 Erase CD-R/W. The Erase CD-R/W function is provided to access and erase all data contained on a CD-R/W disk that is located in the Archive IV Device UD80A4 media tray. At the `OPUP Archive Menu`, when the **Erase CDRW** button is selected, an `OPUP Manager Erase CDRW` window will be displayed as shown in Figure 3-42. When the **Yes** button is clicked, the Erase CD-R/W function will immediately access the CD-ROM disk located in the archive device media tray and erase all data found. When the Erase CD-R/W function is finished erasing the data, it will then prepare the CD-R/W disk for further data storage. If the **No** button is selected, the Erase CD-R/W function will redisplay the `OPUP Archive Menu`. This window also provides a **Check Content of CDROM** button. When the **Check Content of CDROM** button is clicked, `The Content of the inserted CDROM is as follows:` window will be displayed similar to what is shown in Figure 3-41.

NOTE

The **Check Content of CDROM** button is provided in order to view the contents of each disk placed within the Archive IV Device UD80A4 media tray before any data is erased from the disk. It is recommended the Check Content of CD-ROM function be used to view the contents of each disk before attempting to erase data. Once the **Yes** button is clicked within the `OPUP Manager Erase CDRW` window as shown in Figure 3-42, the Erase function cannot be canceled. All data will be permanently erased.

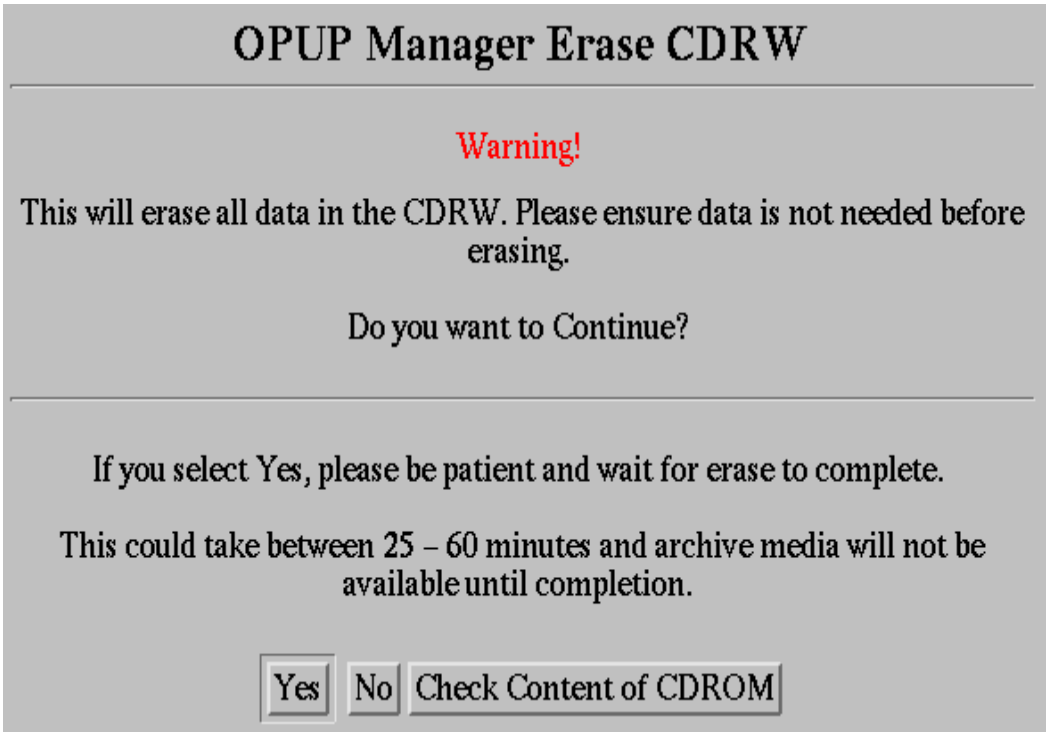


Figure 3-42. OPUP Manager Erase CDRW Window

3.3.3.9 OPUP Server Control Menu. The OPUP Server Control function provides the ability to display disk usage, backup/restore configuration data, configure printer devices, manage the Communication Router UD80A3, set FTP server IP-addresses, edit Oracle database tables, define a default IP-address route, start and view a diagnostic GUI (VTS), restart and shutdown the OPUP Server. At the `OPUP OPUP Manager Main Menu`, clicking on the **OPUP Server Control Menu** button will display the `OPUP Server Control Menu` as shown in Figure 3-43.

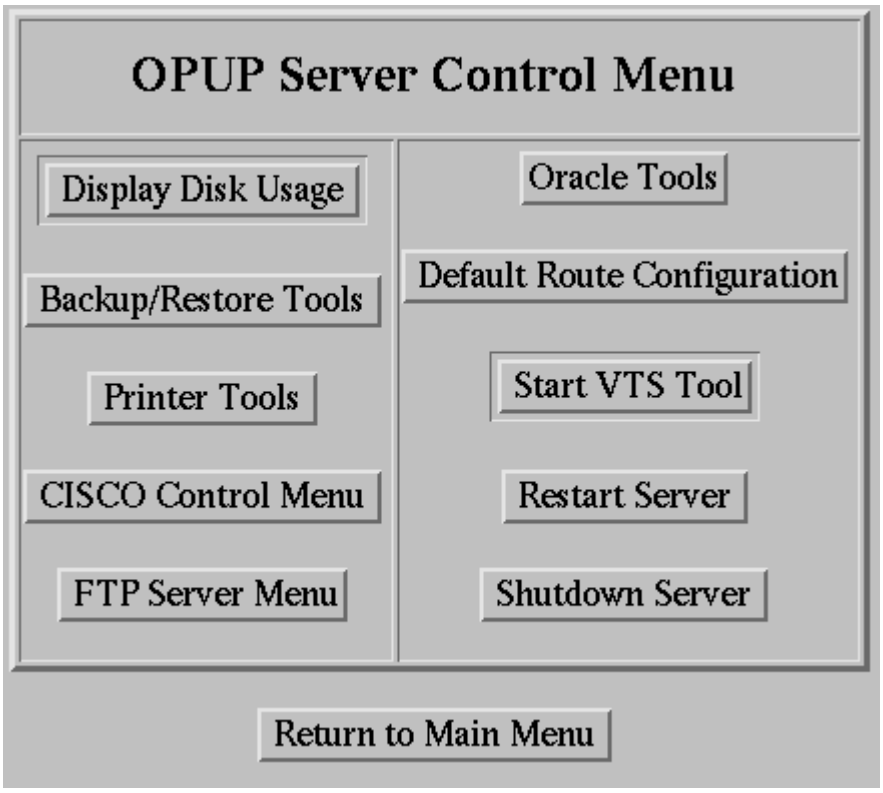


Figure 3-43. OPUP Server Control Menu

3.3.3.9.1 Display Disk Usage. The Display Disk Usage function provides the ability to view the amount of space that is currently being taken up on the primary hard drive. At the `OPUP Server Control Menu`, when the **Display Disk Usage** button is clicked, an `OPUP Disk Usage` window will be displayed as shown in Figure 3-44. The information provided in this window is based upon the percentage of space used by each OPUP Server OS directory slice. The following information is provided in the `OPUP Disk Usage` window:

- Filesystem: The absolute file pathname.
- kbytes: The total amount of disk space in kbytes that file is allowed to use.
- used: The amount of disk space that file is currently using.
- avail: The amount of disk space that is still available for that file to use.

- capacity: The percentage of allowable disk space that file is currently using.
- Mounted on: The directory name that the file is currently mounted on.

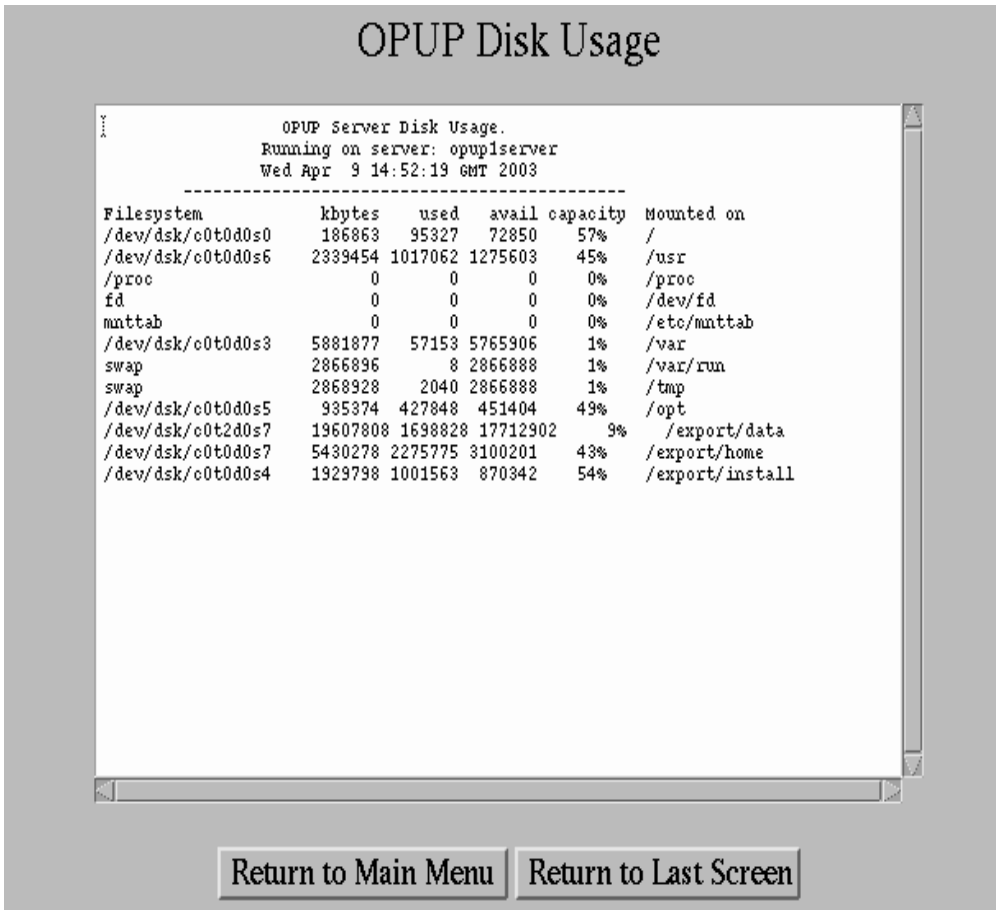


Figure 3-44. Disk Usage Window

3.3.3.9.2 Backup/Restore Tools. The Backup/Restore Tools function provides each site the ability to select and save current OPUP Server OS configuration and adaptation data to a CD-ROM disk located within the Archive IV Device UD80A4 media tray. At the `OPUP Server Control Menu`, when the **Backup/Restore Tools** button is clicked, an `OPUP Manager Backup/Restore Main Menu` will be displayed as shown in Figure 3-45.

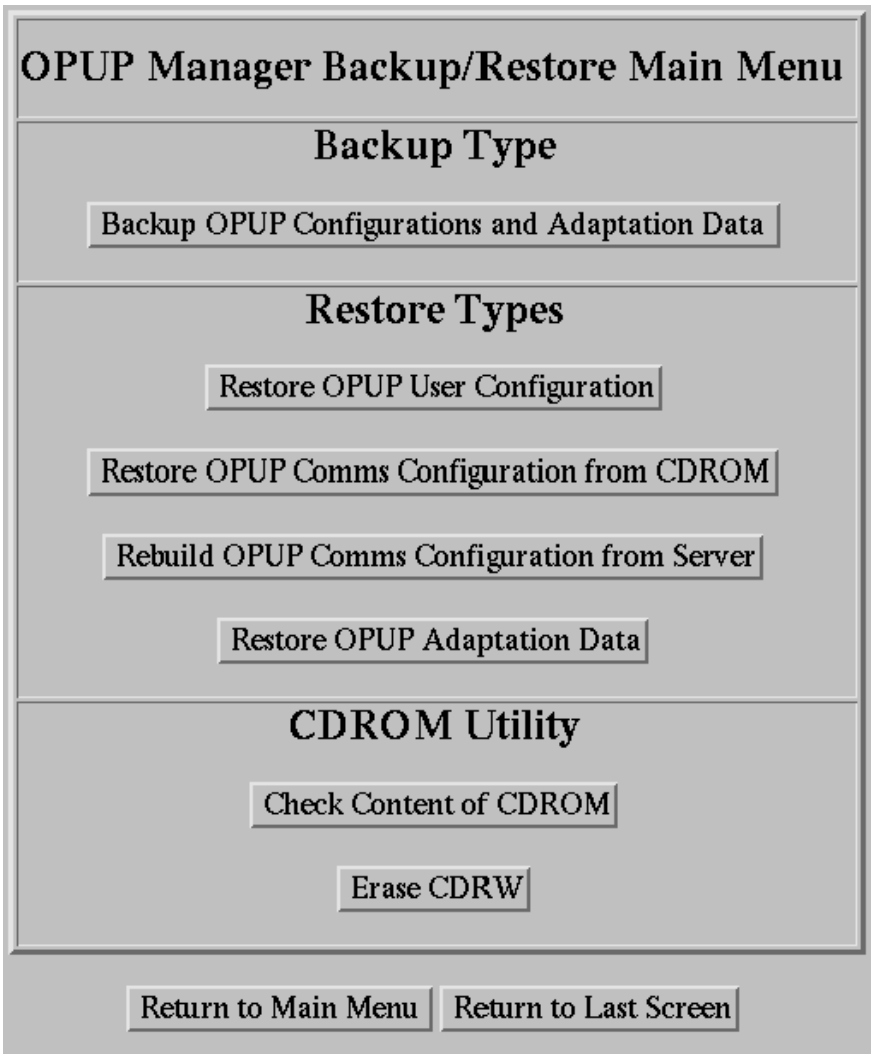


Figure 3-45. OPUP Manager Backup/Restore Main Menu

The `OPUP Manager Backup/Restore Main Menu` is divided into three sub-menus. The Backup Type section provides one method to backup OPUP Server OS configuration and adaptation data. When the **Backup OPUP Configurations and Adaptation Data** button is clicked, the Backup function creates a temporary backup file, scans the OPUP Server OS database for the specific files associated with both configuration and adaptation data, and lists this data in the backup file. When the Backup function has collected all of the files required, all data listed within the temporary Backup file will be written to the CD-ROM disk within the Archive IV Device UD80A4 media tray using a Tape Archive (TAR) command.

The Restore Types section provides four methods to restore OPUP Server OS configuration and/or adaptation data. When the **Restore OPUP User Configuration** button is clicked, the Restore function will scan the CD-ROM located within the Archive IV Device UD80A4 and

replace all of the information associated with OPUP users data into the corresponding files within the OPUP Server OS database directories.

When the **Restore OPUP Comms Configuration from CDROM** button is clicked, the Restore function will scan the CD-ROM located within the Archive IV Device UD80A4 and replace all of the information associated with communication configuration data into the corresponding files within the OPUP Server OS database directories.

When the **Rebuild OPUP Comms Configuration from Server** button is clicked, the Restore function will replace all of the information associated with communication configuration data by recreating the default settings for all configuration files for the OPUP. This tool is particularly useful in case the OPUP server becomes corrupted and it becomes necessary to get back to the default settings.

When the **Restore OPUP Adaptation Data** button is clicked, only the information associated with adaptation data will be replaced within the OPUP Server OS database directory.

Examples of user configuration data include: system wide passwords, root key data, user names, and user passwords, and workstation data. Examples of comms configuration data include: the associated RPGs, dial information, software configuration, and router configuration files. Examples of adaptation data include: overlays, maps, display FTP data, product distribution lists, user color schemes, alerts, autodial, product requests, and PDGUI window adaptation data. Backing up or restoring the configuration or adaptation data depends upon the specific requirement for the data.

The CDROM Utility section provides the processes similar to the functions described in Figure 3.3.3.8.9, Check Content of CD-ROM, and Figure 3.3.3.8.10, Erase CD-R/W, respectively.

3.3.3.9.3 Printer Tools. The Printer Tools function provides the ability to configure the OPUP Printer UD80A22 for use with the OPUP Operational Application GUIs. At the `OPUP Server Control Menu`, when the **Printer Tools** button is clicked, an `OPUP Printer Menu` will be displayed as shown in Figure 3-46.

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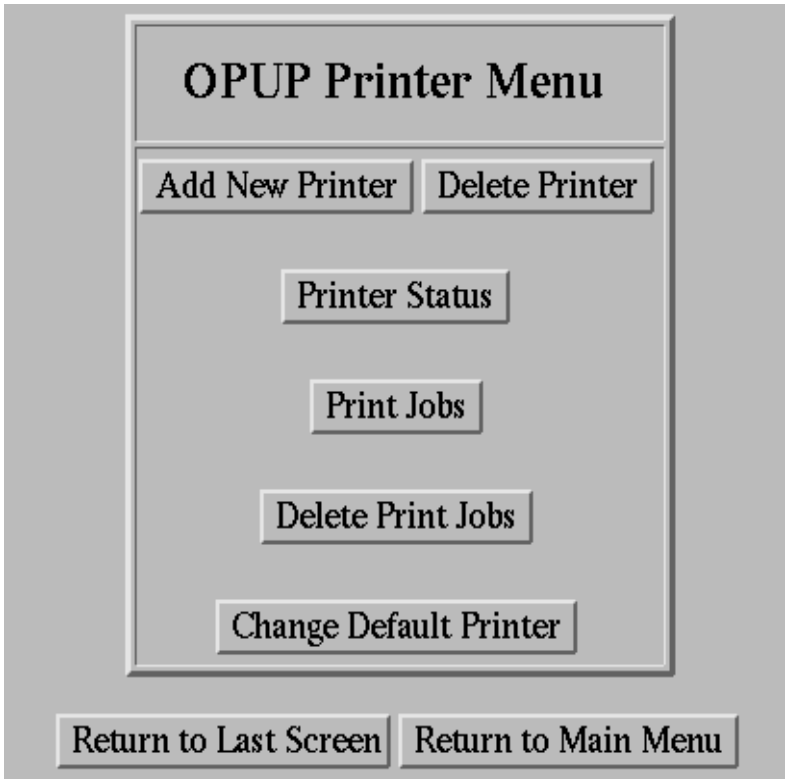


Figure 3-46. OPUP Printer Menu

The OPUP Printer Menu function provides the ability to add/delete a printer device, view a printer status and print jobs sent to the printer device, delete print jobs, and change the default printer. The Large and Medium OPUP Equipment Group UD80 will primarily use the Printer UD80A22. Specific printer connectivity issues are discussed in detail in paragraph 2.2.3.1.12. The Large and Medium OPUP may utilize a different local printer, if authorized, as long as the printer device meets PostScript (PS) and Network (Ethernet) capability standards.

The capability to select and print WSR-88D product and message data is built into both the Product Display Graphic Users Interface (PDGUI) and Archive PDGUI functions. Once a product or message is selected to be printed, the associated data is sent (spooled) to the printer device via the OPUP Server Print Spool directory. To utilize any printer, the associated drivers must first be configured within the `OPUP Printer Menu`.

3.3.3.9.3.1 Add New Printer. The Add New Printer function provides each site the ability to add a new printer device to the OPUP Server OS. At the `OPUP Printer Menu`, when the **Add New Printer** button is clicked, an `OPUP Manager Add New Printer` window will be displayed as shown in Figure 3-47.

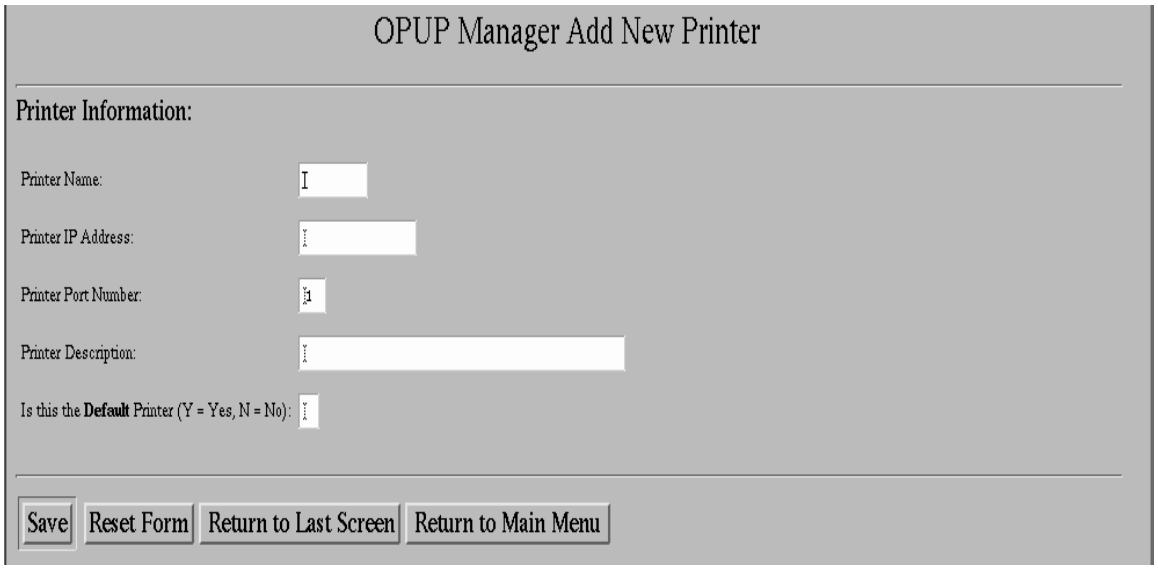


Figure 3-47. OPUP Manager Add New Printer Window

The `OPUP Manager Add New Printer` window displays or provides an edit field for the following information:

- Printer Name: Assigned device name, can be the actual brand name of the device or a unique name supplied by each site.
- Printer IP Address: IP-address of the printer device. This IP-address is site dependant.
- Printer Port Number: Corresponds to an available serial port associated with the OPUP Server. This number is normally defaulted to port 1.
- Printer Description: Plain language description of the attached printer device.
- Is this the **Default** Printer (Y=Yes, N=No): This function designates the new printer device as the default if `Y` (yes) is entered.

The OPUP System Administrator must first enter the appropriate information in the edit fields for the Printer Name (brand name), Printer IP-Address, Printer Port Number, Printer Description, and Printer **Default** Status. Clicking on the **Save** button near the lower left corner of the window completes the new printer add function.

3.3.3.9.3.2 Delete Printer. The Delete Printer function allows for the removal of a specific printer that was previously added to the OPUP Server OS. At the `OPUP Printer Menu`, when the **Delete Printer** button is clicked, an `OPUP Manager Delete Printer` window will be displayed. This window only displays the `Printer Name`: editable field. The only information required in this field is the name of the printer. When the **Delete** button is clicked within the

`OPUP Manager Delete Printer` window, the Delete Printer function will remove all associated printer driver information from the OPUP Server OS.

3.3.3.9.3.3 Printer Status. The Printer Status function is provided in order to view and determine the current status of the default printer configured within the OPUP Server OS. At the `OPUP Printer Menu`, when the **Printer Status** button is clicked, an `OPUP Printer Status Current Default Printer is:` window will be displayed. The information provided in this window will be associated with a plain language status of the default printer. Clicking on the **Refresh** button will update the window with any new printer status information that may have changed since the window was initially opened.

3.3.3.9.3.4 Printer Jobs. The Print Jobs function is provided in order to display a plain language list of any pending print jobs that have been sent to the OPUP Server OS Printer Spool directory. At the `OPUP Printer Menu`, when the **Print Jobs** button is clicked, an `OPUP Printer Pending Jobs` window will be displayed. (If there are no print jobs pending, the window will be empty.) Clicking on the **Refresh** button will update the list with any new pending print jobs that may have been requested since the window was initially opened.

3.3.3.9.3.5 Delete Print Jobs. The Delete Print Jobs function is provided to display a plain language list of all available pending print jobs sent to the OPUP Server OS Printer Spool directory. At the `OPUP Printer Menu`, when the **Delete Print Jobs** button is clicked, a `Select Job to Delete from Available Jobs` window will be displayed. Print jobs that are to be deleted can be selected from the `Available Printer Jobs` column within the window. If there are no print jobs pending, then the `Available Printer Jobs` column will be empty. To cancel/delete print jobs no longer required, simply click on the radial button in the `Select Job to Delete` column corresponding to the desired print job. Once the desired print job has been selected, click on the **Delete Job** button. The print job will then be deleted from the OPUP Server OS Printer Spool directory. Clicking on the **Refresh** button will update the `Available Printer Jobs` column with any new pending print jobs that may have been requested since the window was initially opened. The Refresh function will also indicate or confirm that each job has been successfully deleted.

3.3.3.9.3.6 Change Default Printer. The Change Default Printer function provides the ability to select and change the default printer device. At the `OPUP Printer Menu`, when the **Change Default Printer** button is selected, a `Please Select New Default Printer from Available Printers Current Default Printer is:` window will be displayed. This window will display both the default printer device along with all of the added/configured printer devices available to the OPUP Server OS. Only one default printer may be selected at any time. To change the default printer configuration, click on the radial button in the `Select Default Printer` column corresponding to the new desired default printer. Once the desired printer has been selected, click on the **Set as Default** button. The selected default printer device will be configured as the default printer device.

3.3.3.9.4 CISCO Control Menu. The CISCO Control function provides the ability to restart the Communication Router UD80A3 and manage all associated communication router (CISCO)

passwords. At the `OPUP Server Control Menu`, when the **CISCO Control Menu** button is clicked, a `CISCO Control Menu` will be displayed as shown in Figure 3-48. This menu provides the interface required to either change the passwords associated with the communication router or perform a communication router Interactive Operating System (IOS) software restart function. In the event of a successive software build upgrade or a communication router password compromise, each site will be tasked with changing the associated IOS passwords.

Figure 3-48. CISCO Control Menu

3.3.3.9.4.1 Change CISCO Password. The Change CISCO Passwords function allows each site to reconfigure the current CISCO communication router and enable passwords. These passwords provide two levels of internal communication router IOS access security. At the `CISCO Control Menu`, when the **Change CISCO Passwords** button is clicked, an `OPUP Manager Change CISCO Password` window will be displayed as shown in Figure 3-49. Each site will be required to input the current router and current enable passwords before the communication router will accept any communication router configuration inputs. CISCO passwords are normally constructed and recorded while installing OPUP software.

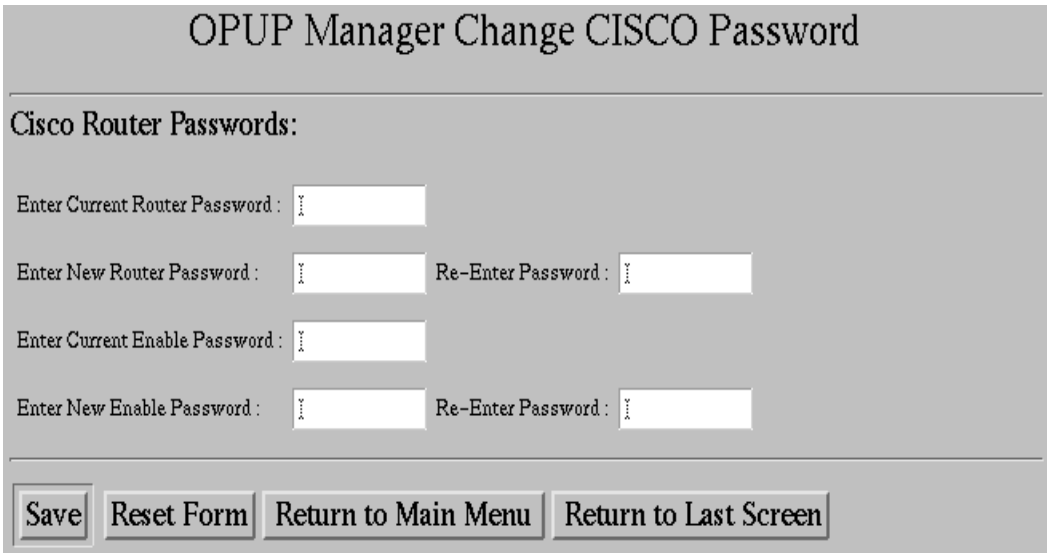


Figure 3-49. OPUP Manager Change CISCO Password Window

3.3.3.9.4.2 Restart CISCO. The Restart CISCO function provides each site the ability to perform a manual restart function associated with the communication router internal IOS in the event that the communication router does not respond to either software inputs from the OPUP Server UD80A11 during normal operations or during an OPUP Server OS/hardware upgrade. At the `CISCO Control Menu`, when the **Restart CISCO** button is clicked, an `OPUP Manager Re-Start CISCO` window will be displayed as shown in Figure 3-50. Clicking the **Yes** button will initiate an OPUP Manager Re-Start CISCO function. If the **No** button is clicked, the `CISCO Control Menu` will be redisplayed.

Figure 3-50. OPUP Manager Re-Start CISCO Window

3.3.3.9.5 FTP Server Menu. The FTP Server function provides the ability to add, delete, or view the configuration of an FTP Server for NITF, NEXRAD, and PNG product distribution to the designated FTP Server. At the `OPUP Server Control Menu`, when the **FTP Server Menu** button is clicked, an `OPUP FTP Server Menu` will be displayed as shown in Figure 3-51. The FTP Server tool sets up the product distribution destination IP-address, Username, destination path directory, login password, FTP IP-address, OPUP Cisco Router FTP IP-address, the outside Firewall IP-address, and OPUP Display Server NAT IP-address.

Only the Large OPUP is currently allowed to use this tool to setup an FTP Server for product distribution from the OPUP through a firewall to an FTP Server inside the firewall.

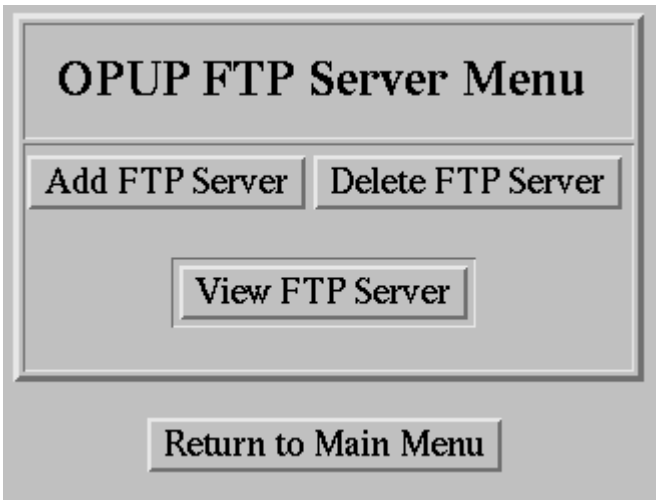


Figure 3-51. OPUP FTP Server Menu

3.3.3.9.5.1 Add FTP Server. The Add FTP Server function provides the ability to add an FTP Server configuration to the OPUP for product distribution to the designated FTP Server. At the `OPUP FTP Server Menu`, when the **Add FTP Server** button is clicked, an `OPUP Manager Setup FTP Server` window will be displayed as shown in Figure 3-52. This window displays or provides an edit field for the following information:

- FTP Server Type: Enter the type of FTP Server to be added (1 for NITF, 2 for NEXRAD, 3 for PNG, or 4 for all types).
- Username: The username on the FTP Server used to log on to the Server.
- Path: The path directory on the FTP Server where the product is placed. The specified Username above must have write permission to this directory.
- Enter Password: Password for the Username entered above.
- Re-Enter Password: Re-enter Password for the Username entered above.

- FTP IP Address: This is the IP-address of the FTP Server.
- OPUP Cisco Router FTP IP Address: IP-address required to configure the second ethernet interface on the OPUP Cisco Router. This IP-address must be accessible to or on same subnet as the outside of the firewall.
- Firewall IP Address: IP-address of the outside of the firewall.
- OPUP Display Server NAT IP Address: IP-address required to NAT the Display Server. This IP-address must be accessible to or on same subnet as the outside of the firewall.

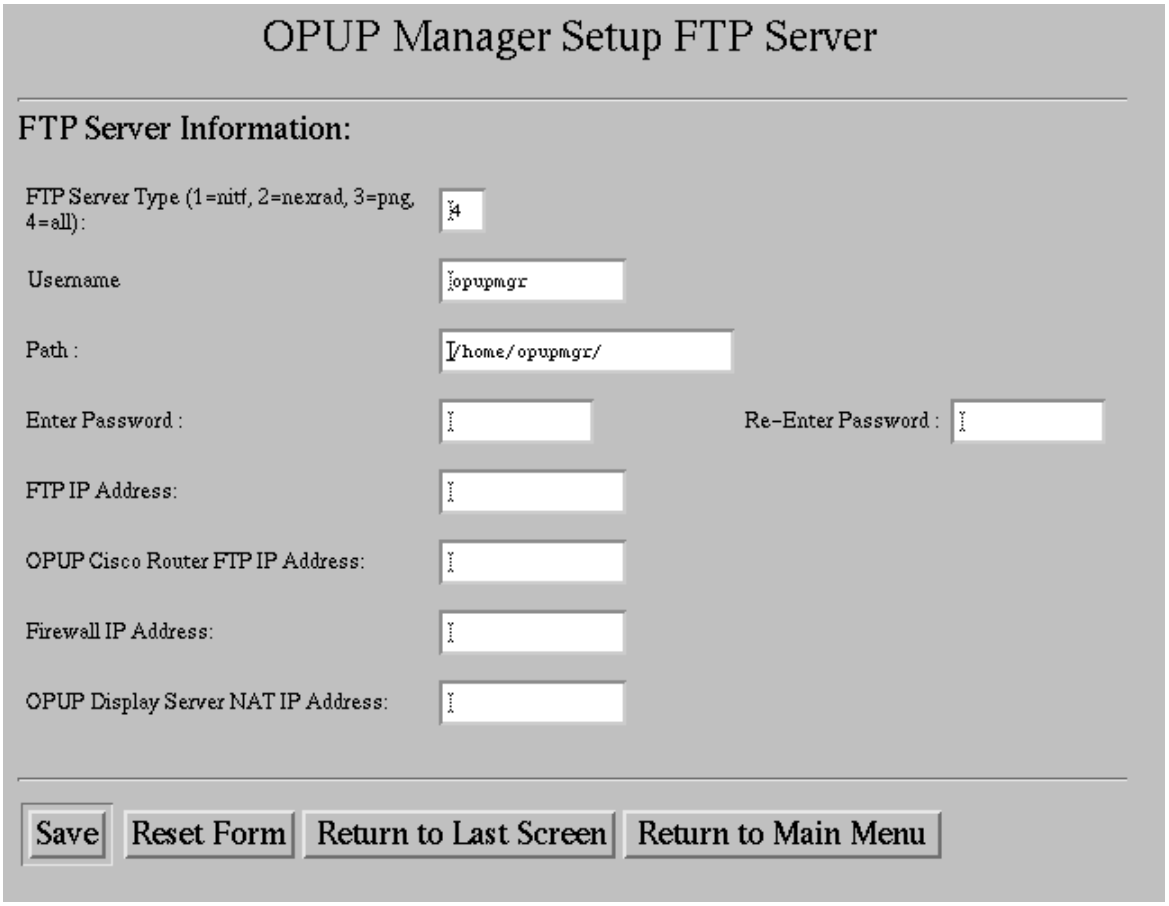


Figure 3-52. OPUP Manager Setup FTP Server Window

The OPUP System Administrator must enter the appropriate information in the edit fields. Clicking on the **Save** button near the lower left corner of the window completes the new FTP Server add function.

NOTE

Only the Large OPUP can currently add an FTP Server for product distribution.

3.3.3.9.5.2 Delete FTP Server. The Delete FTP Server function provides the ability to remove an FTP Server configuration from the OPUP. At the `OPUP FTP Server Menu`, when the **Delete FTP Server** button is clicked, an `OPUP Manager Delete FTP Server` window will be displayed as shown in Figure 3-53. This window displays or provides an edit field for the following information:

- FTP Server Type: Enter the type of FTP Server to be deleted (1 for NITF, 2 for NEXRAD, 3 for PNG, or 4 for all types).

Clicking on the **Delete** button near the lower left corner of the window completes the delete FTP Server function.

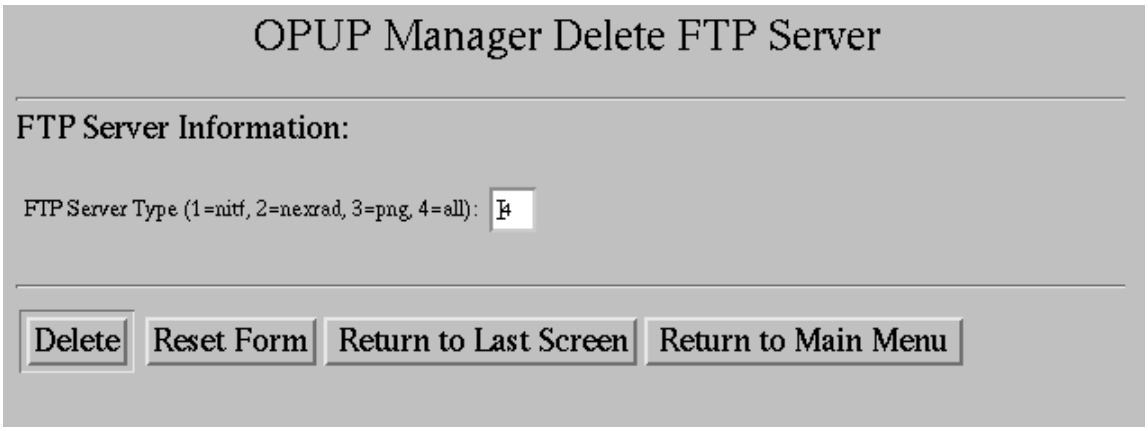


Figure 3-53. OPUP Manager Delete FTP Server Window

3.3.3.9.5.3 View FTP Server. The View FTP Server function allows each site to view the current FTP Server IP-address setup for the NITF, NEXRAD, and PNG product distribution within the OPUP Server OS FTP Server database directory. At the `OPUP FTP Server Menu`, when the **View FTP Server** button is clicked, an `OPUP FTP Servers` window will be displayed as shown in Figure 3-54. The current assigned FTP Server IP-address will be displayed.

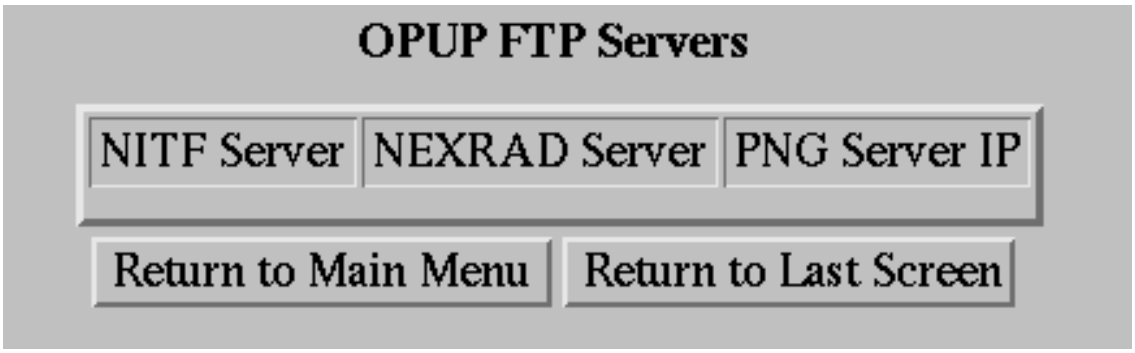


Figure 3-54. OPUP FTP Servers Window

3.3.3.9.6 Oracle Tools. The Oracle Tools function provides each site the ability to recreate the Oracle Database Tables which are used to control/process incoming data, act as an access point in controlling applications configuration privileges, and change Operational Applications security level passwords. At the `OPUP Server Control Menu`, when the **Oracle Tools** button is clicked, an `OPUP Manager Oracle Tools Menu` will be displayed as shown in Figure 3-55.

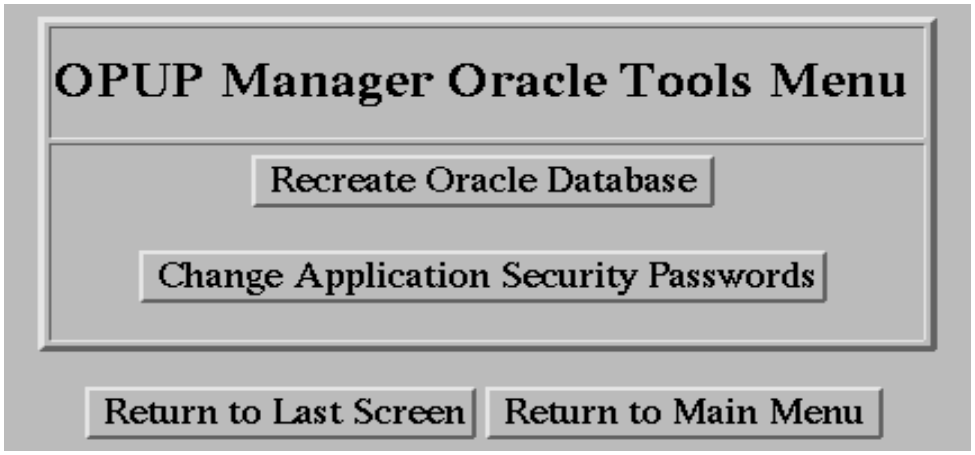


Figure 3-55. OPUP Manager Oracle Tools Menu

3.3.3.9.6.1 Recreate Oracle Database. The Recreate Oracle Database function provides the ability to delete the current information found within the Oracle Database Table and reconfigure it to accept new input data. Specific Oracle Database Table scripts are used within the OPUP Server OS in order to monitor and control specific database table handling functionality for WSR-88D products and message data, alerts, and linear buffers (LBs). (Linear buffers provide the control and destination of OPUP Products and Alerts, as well as, the monitoring/status of circuit connectivity.) If any function provided by the Oracle Database Tables should become corrupted, each site will then be able to delete the corrupted data held in the OPUP Server OS Oracle Database

Table and recreate each applicable directory contained within. At the `OPUP Manager Oracle Tools Menu`, when the **Recreate Oracle Database** button is clicked, an `OPUP Manager Recreate Oracle Tables` window will be displayed as shown in Figure 3-56.

Figure 3-56. OPUP Manager Recreate Oracle Tables Window

If the **Yes** button is clicked, all data within the OPUP Server OS Oracle Table database will be deleted. When the Recreate Oracle Tables function is finished deleting the data, it will then prepare the Oracle Database Table to accept new data. When finished, an `OPUP Manager Recreate Oracle Tables` window will be displayed with the following message: `OPUP Oracle Tables has been recreated.`

If the **No** button is clicked within the `OPUP Manager Recreate Oracle Tables Warning` window, Figure 3-56, the `OPUP Manager Oracle Tools Menu` will be redisplayed.

The `OPUP Manager Recreate Oracle Tables` window will remain displayed until the **Return to Last Screen** button is clicked.

3.3.3.9.6.2 Change Application Security Passwords. The Change Application Security Passwords function is used to change each password associated with each OPUP Operational Applications Front Panel GUIs. At the `OPUP Manager Oracle Tools Menu`, when the **Change Application Security Passwords** button is clicked, an `OPUP Manager Change Application Security Passwords` window will be displayed. If the **Yes** button is clicked, an `OPUP Manager Application Security Passwords` window will be displayed as shown in Figure 3-57. If the **No** button is clicked, the `OPUP Manager Oracle Tools Menu` will be redisplayed.

The `OPUP Manager Application Security Passwords` window provides an access point of control for changing each Operational Application Security Level Passwords (i.e., Secu-

rity Level Passwords 1, 2, and 3). The Security Level Passwords are associated with permission change level of access located within the Operational Application GUIs, PDGUI, AT, Archive PDGUI, and Archive Log. (Refer to NWS EHB 6-536, Operations Instructions, for further information concerning the application of each level of security access associated with Operational Applications Front Panel GUIs.)

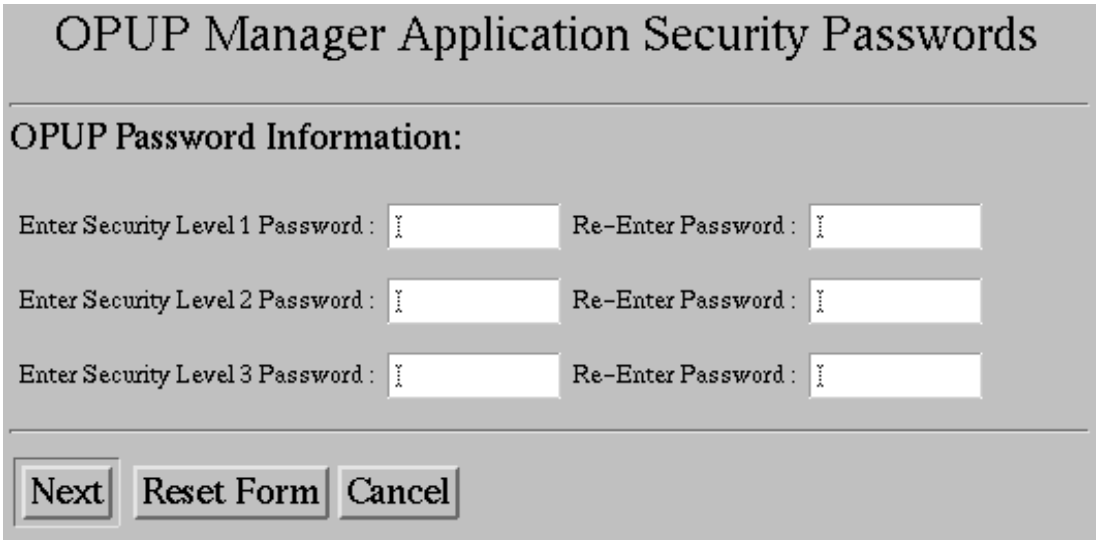


Figure 3-57. OPUP Manager Application Security Passwords Window

3.3.3.9.7 Default Route Configuration. The Default Route function provides the ability to add, remove, or view a default IP-address configuration route to or from the OPUP Server OS. At the `OPUP Server Control Menu`, when the **Default Route Configuration** button is clicked, an `OPUP Manager Default Route Menu` will be displayed as shown in Figure 3-58. A default IP-address route is used as an alternative method to connect to and access the OPUP Server from a remote LAN Switch and/or communication router located within a different IP-address sub-net.

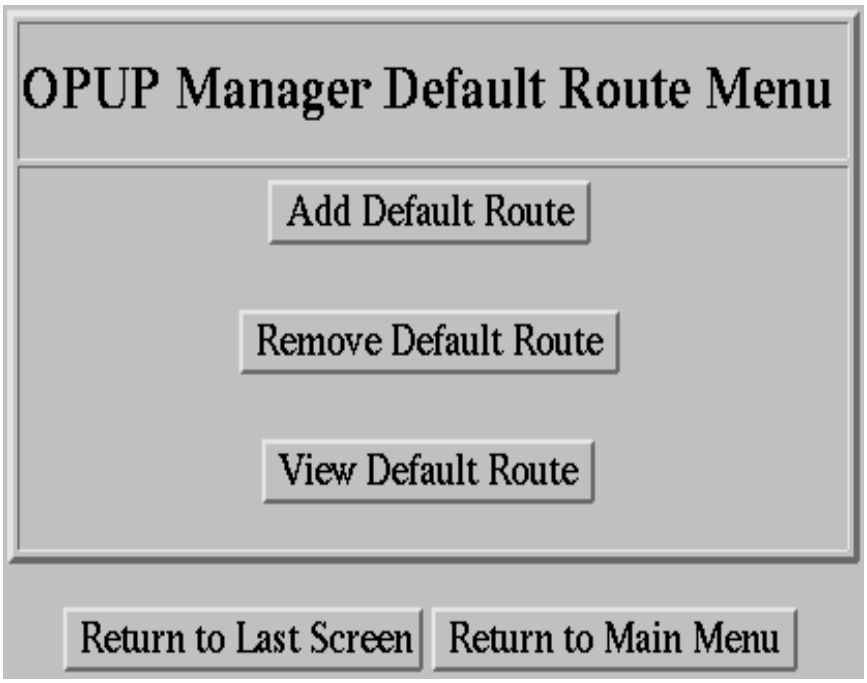


Figure 3-58. OPUP Manager Default Route Menu

3.3.3.9.7.1 Add/Remove Default Route. The Add and Remove Default Route functions provides the ability to add or remove a default route IP-address. At the `OPUP Manager Default Route Menu`, when the **Add Default Route** button is clicked, an `OPUP Manager Add Default Route` window will be displayed as shown in Figure 3-59. To add a default route IP-address, a valid IP-address associated with the perspective default route must be placed in the `Route IP Address:` edit field. When finished, the **Save** button located near the bottom left of the `OPUP Manager Add Default Route` window must be clicked in order to save the IP-address in the OPUP Server OS Default Route database directory.

NOTE

Only one default route IP-address may be used at a time.

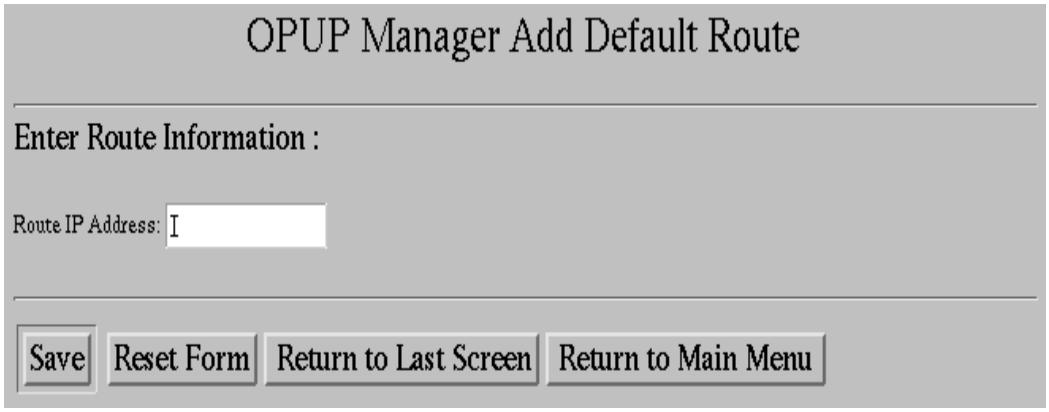


Figure 3-59. OPUP Manager Add Default Route Window

At the `OPUP Manager Default Route Menu`, when the **Remove Default Route** button is clicked, an `OPUP Manager Delete Default Route` window will be displayed. Clicking the **Yes** button will delete the current default route IP-address from the OPUP Server OS Default Route IP-Address database directory. When the Remove Default Route function is finished, a `Default Route Deleted` window will be displayed as shown in Figure 3-60. Clicking the **No** button will redisplay the `OPUP Manager Default Route Menu`.

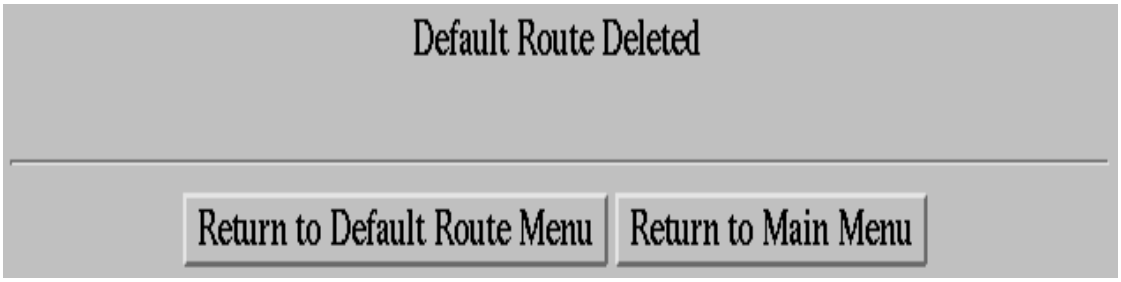


Figure 3-60. Default Route Deleted Window

3.3.3.9.7.2 <u>View Default Route</u>. The View Default Route function allows each site to view the current default route IP-address assigned within the OPUP Server OS Default Route database directory. At the `OPUP Manager Default Route Menu`, when the **View Default Route** button is clicked, an `OPUP Server Default Route` window will be displayed. The current assigned default route IP-address will be displayed within this window.

NOTE

The OPUP VTS Tools function interrogates and performs diagnostic tasks that involve many internal process functions which can significantly slow down other internal processes normally accessed by the OPUP Server OS.

Each site should only use the VTS Diagnostic Tool functions when required to investigate either system performance or to mitigate faults.

3.3.3.9.8 Validation Test Suite (VTS) Tools. The Sun Microsystems Validation Test Suite (VTS) Tools GUI embodies a set of system applications and functions which allow each site to perform various hardware diagnostic tests on the Data Server UD80A11 and/or the Display Server UD80A12 (depending upon which OPUP configuration is being tested). Each diagnostic test used within the VTS may assist with the determination of OPUP Server hardware performance and/or help to mitigate system faults. Starting the VTS tool menu is accomplished by clicking on the **Start VTS Tool** button at the `OPUP Server Control Menu`, which will display a temporary information window titled `OPUP Start VTS Tool`. After a few seconds, the `OPUP Start VTS Tool` window will disappear and the `SunVTS Diagnostic Tools` window will be displayed as shown in Figure 3-61.

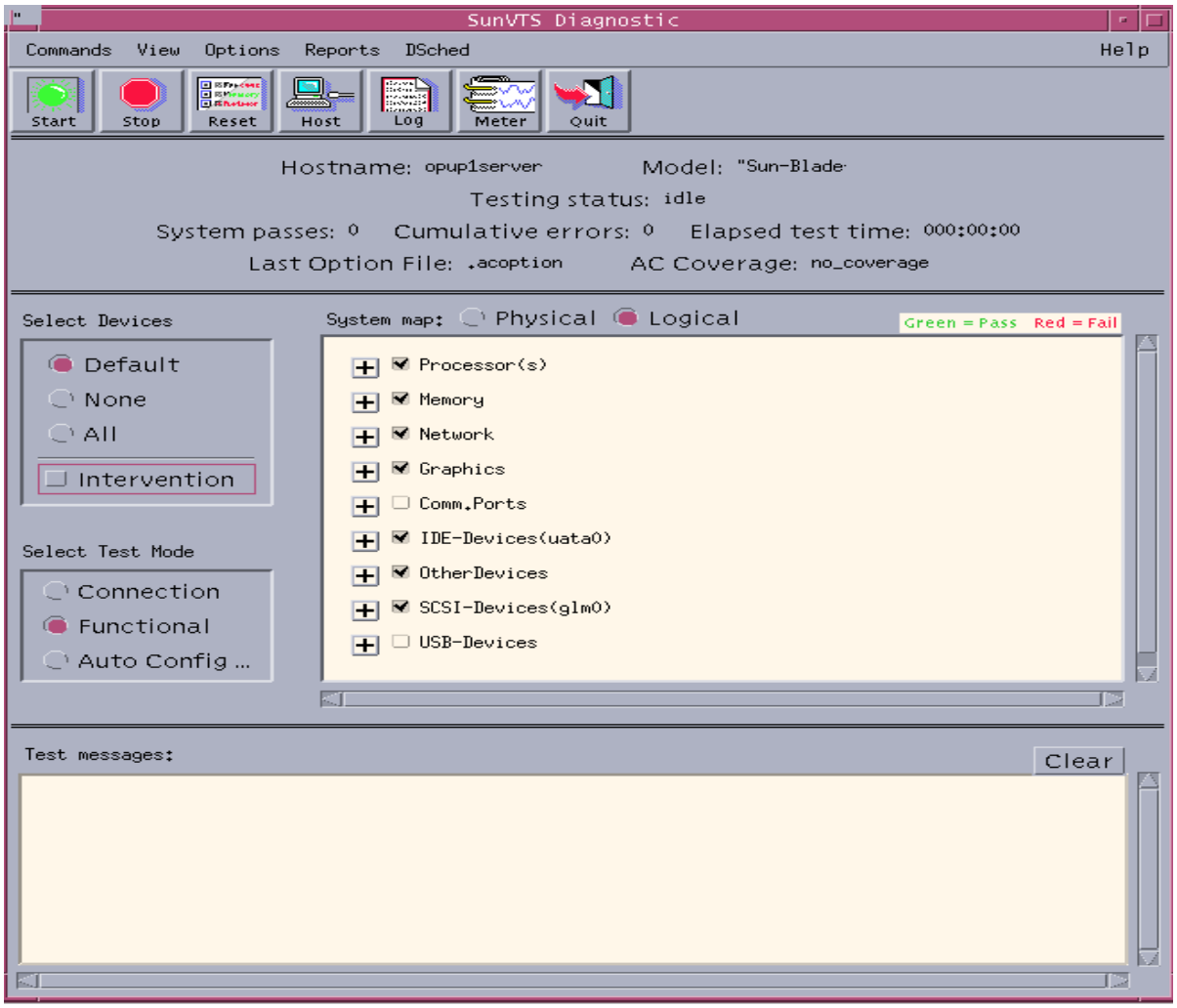


Figure 3-61. SunVTS Diagnostic Window

The `SunVTS Diagnostic` window is the default display when the VTS is initially started during each session. The `SunVTS Diagnostic` window will display either logically or physically connected components internal to the Server UD80A11/A12. Logical components are devices and associated software drivers that report internally to the OPUP Server OS using the SUN Operational Diagnostic Bus (ODB). (The "CPU/Processor" will be displayed vice Server.) Physical components are hardware peripherals and physical internal components that are actually connected to an internal communication hardware bridge or bus. The VTS diagnostic functionality can provide either a logical or physical diagnostic analysis (basic or intricate) of the inter-connected devices (graphic card, SCSI/IDE connectors, memory, floppy and CD-ROM drives, etc.), as well as, internal sub-assembly monitoring and performance data.

3.3.3.9.8.1 SunVTS Diagnostic Window Description. The following information is a breakdown of the buttons, menus, sections, and tests available within the VTS GUI:

- **Quick Access Buttons**: Includes **Start**, **Stop**, **Reset**, **Host**, **Log**, **Meter**, and **Quit**. The following amplifying information applies:

  - **Start**/**Stop**/**Restart**: Used to start/stop and restart the VTS functions.
  - **Host**: Provides a method to perform remote VTS hardware diagnostics.
  - **Meter**: Provides a graphic representation of the current diagnostic test(s) being conducted on OPUP hardware.
  - **Quit**: Used to exit the VTS window.

- **Status Panel**: Displays Hostname, Model description of hardware where the VTS software is currently installed, Testing Status, number of system tests, cumulative errors found, and elapsed time of test. (Last Option File and AC Coverage: N/A.) The following amplifying information applies:

  - Testing Status:
    - Idle - No current test.
    - Testing - Test in session.
    - Suspend - Test Paused.
    - Replay - Displaying a previously recorded test.
    - Stopping - Test stopped.

- **Select Devices Panel**: Used to select equipment to test. The following amplifying information applies:

  - Default: When VTS is initially started it selects a default list of internal devices for testing.
  - None: Deselects all equipment.
  - All: Selects all equipment.
  - Intervention: Used to prepare specific devices (CD-ROM, DVD players, floppy drives, card readers, SCSI peripherals) for testing. These devices usually have prepared disks, cards, or tapes inserted to exercise the intended drive. Normally not selected unless the associated peripheral is suspect.

- **Select Test Mode Panel**: Used to select level of diagnostic test. The following amplifying information applies:

  - Connection: Tests internal communication/connectivity of the selected device(s). If the `System map:` **Logical** radial button is selected, all internal software drivers will be tested. If the **Physical** radial button is selected, all software drivers and peripheral connectors will be tested. The Connected test mode is non-intrusive.
  - Functional: Same internal test functionality as Connection. However, Functional tests are more intrusive. Performs Peripheral Firmware POST tests, assumes all other applications are not running.
  - Auto Config...: Used in conjunction with Deterministic Scheduler.

NOTE

The Function type test in VTS will only divide resources to conduct this type of test if other applications are running. It will not corrupt or cause the OPUP Server OS to stop operating. It will only cause it to slow down significantly while system resources are re-distributed to run the Functional Test.

- **System map**: Used to select which devices, either Physical or Logical, to be displayed in the `System map` area. Each device has a map directory correlation box and a selection check box. A plus sign next to the device indicates that the device map is collapsed. A minus sign indicates that the device directory is currently being shown. A check in the check box indicates that the device is selected. The `System map` display area also has two test status indicators. If a test passes the VTS diagnostic test, the directory will be displayed in green. If the test fails, the device, directory, and device driver and/or associated connector will be displayed in red.

- **Test Message Display Area**: Any or all response messages associated with the actual operational status of the test is displayed in this area. All test messages, however, are displayed within the VTS Test Message Logs. Test message logs are accessed via the **Log** icon located near the top middle of the `SunVTS Diagnostic` window.

3.3.3.9.9 Restart/Shutdown Server. The Restart and Shutdown Server functions provide the ability to either restart or shutdown the OPUP Server OS. These functions have a higher operational impact on all OPUP Server OS processes than the Start, Stop, and Restart functions. (Refer to paragraph 3.3.3.4.1 through paragraph 3.3.3.4.3 for a discussion on start/stop/restart functions.)

CAUTION

The Shutdown Server function should **always** be used when powering the Server UD80A11/A12 hardware down to the Off (0) position. However, in the event of an emergency, the shutdown server function may be bypassed by pressing the power button found near the center left of the OPUP server front panel until the power is removed. Be advised that bypassing the Shutdown Server function can have dire consequences which could affect the OPUP Server OS. These consequences will depend upon which OPUP Server OS processes are running when they are interrupted by pressing power button. Use of the OPUP server power button is considered to be an abnormal power off procedure. Contact the WSR-88D Hotline immediately if the OPUP Server OS will not boot up after an abnormal server shutdown procedure.

At the `OPUP Server Control Menu`, when the **Restart Server** button is clicked, an `OPUP Manager Restart Server` window will be displayed. If the **Yes** button is clicked, an `OPUP Manager Restart Server(s)` window will be displayed. The Restart Server function will then terminate all OPUP Server OS operations, remove each OS process from memory, and perform a Power On Self Test (POST) and Sun Microsystems Object Diagnostic Boot (ODB) procedure. When the ODB process is complete, the CDE Login Screen will be displayed. If the **No** button is clicked the `OPUP Server Control Menu` will be redisplayed.

At the `OPUP Server Control Menu`, when the **Shutdown Server** button is clicked, an `OPUP Manager Shutdown Server` window will be displayed. If the **Yes** button is clicked, an `OPUP Manager Shutdown Server(s)` warning window will be displayed. The Shutdown Server function will then terminate all OPUP Server OS operations and power the OPUP Server hardware down to the power Off (0) position. The Servers UD80A11/A12 will remain in the off position until the power button is pressed, again. If the **No** button is clicked, the `OPUP Server Control Menu` will be redisplayed.

3.3.3.10 Operational Applications Front Panel GUIs. The Graphic User Interfaces (GUIs) provided by the OPUP Operational Applications Front Panel are the Product Display, Status & Control, Archive Product Display, and Archive Status Log GUIs. In general, these GUIs provide the functionality to display and manipulate WSR-88D product and message data, determine circuit connectivity status(s), perform one-time request (OTR) dial request for products, send RPS Lists, and Alert Requests, etc. In addition to the functionality provided by these programs, there are several adaptation and configuration functions/processes which allow users and maintainers to configure specific GUI process behavior and/or to change display attributes which enhance the use of these GUI applications for use by OPUP operators.

The OPUP Operational Applications Front Panel is normally accessed and manipulated by OPUP operations personnel. However, maintenance personnel may be required to access and manipu-

late specific OPUP applications in order to perform troubleshooting and fault isolation procedures as the need arises. In addition to the GUIs provided within the front panel, an OPUP Electronic Performance Support System (EPSS) GUI is provided in order to assist each operator with various help information concerning the use of each front panel GUI functionality.

The following paragraphs provide a brief discussion of the use and application of the various functions associated with the Operational Applications Front Panel GUIs. Refer to NWS EHB 6-536, Operations Instructions, for further information concerning the use and application of each Operational Applications Front Panel GUI process not covered in this manual.

3.3.3.10.1 Product Display Graphic Users Interface (PDGUI). The Product Display Graphic Users Interface (PDGUI) is used to display all WSR-88D products and message data received by the OPUP. The PDGUI includes a sub-set of 12 windows which independently incorporate buttons, toggles, menus, and adaptable parameters to control the display of WSR-88D products and message data within each window. When the **Product Display** icon is clicked, a `Product Display` window with a sub-set of 12 windows will be displayed. In addition to the `Product Display` window, a `ToolBox`, `Alert Registration`, and `Alert Database Empty!` window will be displayed.

Upon exiting the `Product Display` GUI, the OPUP records the current display configuration in a User Profile. The User Profile maintains:

- Placement and size of each display window.
- Displayed window contents (product type, origin radar and elevation (if applicable).
- The Auto Update flag for each window, maps and overlays displayed with each product.
- Active color pallet selected by that user (if it still exists, if not the colors will revert to the default color scheme).

The next time that login user launches a Product Display GUI instance, the User Profile is read and the `Product Display` window is presented in the same configuration as it was prior to the exit.

3.3.3.10.1.1 Toolbox Window. The Toolbox function provides configuration tools and status indicators. The `Toolbox` window is automatically opened (launched) when the Product Display GUI is started. The `Toolbox` window hosts the server processor clock, window configuration control, alert registration, link cursor and background map version control, printer selection, auto dial, and a background map version status button. An **Exit** (double red arrow) icon function is provided to allow the user to close the `Product Display` window.

3.3.3.10.1.2 Alert Registration Window. The Alert Registration function is used to register for specific alert criteria and receive notification when a specific weather event has occurred. The `Alert Registration` window is also automatically opened (launched) when the Product Display GUI is started. If the `Alert Registration` window is not displayed automatically,

it can be accessed by clicking on the **Specify Interested Alerts** icon located within the `Toolbox` window.

The `Alert Registration` window will display all of the available alerts for a particular *RPG of interest* located within the OPUP Server OS Alert Registration Table database. The Alert Registration Table provides the host RPGID (RPG), Alert Area number (Area), Group, Category, threshold value including units (Threshold), and the Alert Paired Product (PairProd) status for each available alert. The Alert Registration function is used in tandem between the OPUP Server OS and a dedicated *RPG(s) of interest*. All alert criteria, thresholds, and areas that are to be monitored are setup within the Alert Request GUI of the Operational Applications Front Panel, Status & Control GUI.

Each operator can register for alerts by using the `Alert Registration` window. To register for an alert, the *RPG(s) of interest* and the specific alert criteria threshold(s) are selected within the `Alert Registration` window and then the **Register Selected** button must be clicked. Once the alert function is activated and a specific weather event occurs within the area of responsibility of the *RPG of interest*, the *RPG of interest* will send a notice to the OPUP and an `Alert Banner` window will be displayed for the User Name (User ID) of the user that registered for that alert. (A WSR-88D product may also be sent, if configured to do so, if the alert criteria has been met.) Alert Banners provide specific information concerning the alert such as the date/time (volume scan time) of occurrence, RPGID, alert area, group, category, and exceeding value. When the Alert Banner is displayed, it must be acknowledged before any other process can be performed. When the `Alert Banner` window is acknowledged, the Alert function will close and post an alert acknowledgement flag to the Alert Flag database directory. The `Alert Registration` window provides the functionality to allow the user to set or clear all alerts for each or all associated RPG(s) and display which alert threshold has been set per *RPG of interest*.

3.3.3.10.2 <u>Status & Control GUI</u>. The Status & Control GUI is used to support WSR-88D operations by providing a single application interface for system status monitoring, communications, alerts, and product acquisition control for the OPUP Server OS. When the **Status & Control** icon is clicked, a `Status and Control - OPUP X.X` GUI (where XX is the current version of software) will be displayed. This GUI is divided into three areas: the launch bar; the tab display area, and the status area. The launch bar contains buttons which launch other OPUP applications. These areas are Product and Alert Requests, OPUP Control, Map Edit, Adaptation, Autodial, Archive, and Restore. These functions are described in the next few paragraphs.

The `Status and Control - OPUP X.X` GUI contains six control tabs. These are called the Network Map, System Status, RPG Status, GSM Summary, Free Text, and Alerts tabs. Each tab contains information that applies to recent system status(s) for these functional areas. The following list describes the functionality provided by each of the control tabs.

- Network Map: This displays a contiguous map of the United States, or in the event of an overseas site, a map of an overseas OPUP configuration. The Network Map displays the connectivity status of each dedicated RPG, connectivity status of each dial attempt, and the ability to connect and/or disconnect communications to associated RPGs.

- System Status: This displays all of the operational OPUP status messages output by the OPUP Server OS. When the **System Status** tab is clicked, a window that display specific OPUP Server OS functional status will be displayed. The status information displayed in this window will consist of the *process of interest's* associated date time group, severity, *application of interest*, user identification, and any message assigned to the status by the OPUP Server OS. This window also provides pin-point filter capability that can filter messages through the use of the Filter tool. Clicking on the **Status Message Filter** icon in the upper right hand corner of the window opens a `Status Message Filter` window. This allows the selection of the date, process name/ID, message, and severity criteria to aid in the search of information that will assist in mitigating solutions to software problems or provide general information on the occurrence of a specific event or process.

- RPG Status: This displays a graphic that represents the last known Associated RPG status encountered by the OPUP Server OS. This window displays static information and cannot be manipulated.

- GSM Summary: This displays tabular information concerning the last known associated RPG communication connectivity status encountered by the OPUP Server OS. This window displays static information and cannot be manipulated.

- Free Text: This displays all incoming free text messages promulgated from any of the associated RPG sites. This window specifically displays the Date, Associated RPG, and contents of each free text message received by the OPUP.

- Alerts: This displays all of the operational OPUP systems alert messages input received by all of the associated RPGs and output by the OPUP Server OS. Once selected, the Alerts tab window displays RPG, acknowledgement, active, group, category, area, date, threshold values, location, cell identification information encountered by the OPUP OS. In addition, the Alerts tab window provides pin-point Alert filter tool by clicking on the **Alert Filter** icon in the upper right hand corner. The `Alert Filter` window provides the ability to filter the date, alert area, categories, acknowledgement, and active status of all alerts received by the OPUP based on the associated RPG of interest.

In addition to the control tabs, the `Status & Control` window also contains several configuration functional control menus that allow the user to provide the functionality outlined below.

NOTE

A security level password will be required to save edited and/or send modified information to associated RPGs in the following paragraphs.

3.3.3.10.2.1 Product Requests GUI. The Product Request GUI is provided in order for operators to access and display Routine Product Set (RPS) list definitions and to perform a One-Time Request (OTR) dial procedure for products from either an associated or non-associated *RPG of interest*. When the **Product Request** button is clicked, a `Product Request - OPUP X.X` GUI (where X.X is the current version of software) will be displayed. This GUI provides the operator the ability to designate a default RPS list (Clear-Air or Storm Mode) or designate a

canned RPS list that the user constructs that will request a specific product set from one or more dedicated *RPGs of interest*.

An RPS list is a list of product types and associated parameters, except date and time, which tell the associated Radar Product Generator (RPG) which specific products to generate and send routinely over the dedicated RPG-to-OPUP communications line. An RPS list may contain up to 50 separate product definitions. The OPUP will support up to 50 independent RPS list definitions. Each RPS list must have a unique name, although there is no such restriction on its contents. The RPS list name can be any letter or letter/number combination. To ensure a particular default RPS list is defined for Weather Modes A and B, an RPS list must be named storm and clear, respectively.

The Product Request GUI function also provides the ability to send a one-time request (OTR) of each product to either a dedicated RPG, an RPG located within the site's area of responsibility, or an RPG outside the AOR (called All Dialup RPGs.) OTRs can be sent individually or as one request to one or more RPGs at a time. Any request for a product or set of products outside of the RPS list is termed an OTR. All product requests to non-associated RPGs, as well as all product requests to the associated RPG over the dial-up line, are also one-time product requests. In addition, OTRs can be made to the associated RPG over the dedicated line. The purpose of an OTR over the dedicated RPG circuit is to supplement the routine product set routinely received from that RPG.

3.3.3.10.2.2 Alert Requests GUI. The purpose of the alerting function is to assist in the metwatch process by drawing attention to a particular radar when the selected radar-identified alert criteria are met or exceeded. The WSR-88D alerting function is designed to automatically search data fields and algorithm output data to identify operator-selected, radar-identified phenomena. The WSR-88D alerting function identifies phenomena selected as an alert category threshold within the area designated by any associated user (OPUP, AWIPS, etc.). When it detects that an alert category threshold has been met or exceeded within a specified area, the alerting function notifies the affected associated user(s) and, if specified, will generate and automatically distribute an alert-paired product. When the **Alert Request** button is clicked, an `Alert Request - OPUP X.X` GUI (where X.X is the current version of software) will be displayed.

The Alert Request function provides the ability for each operator to define two alert areas with up to 10 alert categories for each area per associated RPG. Alert thresholds and associated criteria are defined in the `Edit Category` area of the `Alert Request - OPUP X.X` GUI and placed in the `Alert Categories` area for selection. Once selected, each definition will be to the *RPG(s) of interest*. Alert threshold areas are defined in the `Edit Alert Area Boxes`. Once defined, each area box is sent to the RPG of interest along with any alert criteria/threshold data placed in the `Alert Categories` area. Once sent, this information is placed within the Associated RPG database and a software flag is set to send a message back to the OPUP OS Alert database when the associated alert threshold criteria is met. When sent to the OPUP Server OS for display, a warning banner will be sent (along with a specific product, if configured to do so by the operator).

3.3.3.10.2.3 OPUP Control Window. The OPUP Control function provides the ability to change passwords or restart the OPUP Server OS from the Operational Applications Front Panel without having to login to the `OPUP Manager Main Menu`. When the **OPUP Control** button is clicked, an `OPUP Control` window is displayed. The three functions provided within this window are located in the `Tasks` area. Before the functions listed within the Tasks area can be accessed, the appropriate security level password will be required.

3.3.3.10.2.4 Background Map Description. Background display maps are used by the operator to provide a reference overlay for WSR-88D products, display specific resolution data, and to meet the varied OPUP users warning and forecast location reference requirements. Background maps are broken down into two map versions and three types. These are either the low and high detail versions which can be viewed as default, custom, or edited type maps.

The low detail version contains a limited number of specific locations or only a few large-scale reference locations to constrain the clutter present on the screen (e.g., major cities, interstate highways, etc.) As the zoom level increases, the relative area coverage of the screen decreases, allowing more map data to be displayed without cluttering the screen display. The high detail maps are only displayed when the displayed product radius is less than 32.4 nm. As the product is zoomed the OPUP automatically displays the high detail map version when the zoom level results in the displayed product radius is less than 32.4 nm.

The default map set consists of the original maps maintained by the ROC Configuration Management (CM) Branch. These maps are not modifiable by the OPUP Server OS. These maps are protected so that baseline maps are always available in the event an inadvertent modification is made to an edited map. The OPUP Server OS provides the ability to create up to 5 custom maps. These maps can be created from scratch (starting with a blank screen) or may use any other map as a template. Once created and named, the custom maps are available for display in the Product Display GUI and are treated as any other background map. Background maps may be modified by adding (or deleting) various shapes, line segments, symbols, and/or identifying text. When modifications are made to a background map, they are always saved as the Edited type of the map. The previous modified version of the map is lost and the original version remains unchanged.

3.3.3.10.2.5 Map Edit GUI. The Map Edit GUI provides for the modification of predefined background maps as well as the creation of up to five locally built custom maps. When the **Map Edit** button is clicked, the `Map Edit - OPUP X.X` GUI (where X.X is the current version of software) will be displayed. This GUI is divided into three major sections. The area on the left side of the GUI contains the map edit tools, the center portion of the GUI hosts the Map Editor Work Area and the right side the GUI is used to select the particular map to edit and provides for the display of additional maps to be used as reference while in the editing process. To edit/create a background map the user must first gain permission by accessing the appropriate security level and then select the *RPG background map of interest*. Then, select the **New Custom Map** icon near the top left of the window. Once selected, the Map Editor opens a `New Custom Map` pop-up window and the user must enter a new filename. When the **Save Map** icon is clicked, the Map Edit function will save the file in the Map Editor database and the background map of interest is placed in the Edit Mode in the `Map Editor Work Area Display` area. The Map

Editor uses standard editing tools which provide similar drawing, text, and save features used in most graphic editing programs.

The saved edited background map will be available for use within the PDGUI when the operator designates the map by checking/unchecking the **Use edited maps** box in the PDGUI `Toolbox` window. To use the desired background map with the actual product display, the user must ensure that the check box associated with the map of interest is highlighted in the Maps properties area. To use the original default background map file, the user must uncheck the **Use edited maps** box in the PDGUI `Toolbox` window.

3.3.3.10.2.6 Adaptation GUI. The Adaptation GUI provides the functionality necessary to allow each operator to customize the display and behavior of the data and products displayed within the Operational Applications Front Panel GUIs. Many of the processes controlled by the Adaptation GUI are used to support the operational and communication requirements of individual operators and offices. All display and product data behavior modified by the Adaptation GUI functionality is specifically designed to be part of the Archive Menu backup functions provided within the `OPUP Archive Menu` of the `OPUP Manager Main Menu`. Backing up this data facilitates a rapid recovery of these files following a software upgrade or major hardware failure which may force a reload of OPUP software. When the **Adaptation** button is clicked, an `Adaptation - OPUP X.X` GUI (where X.X is the current version of software) will be displayed. The following information is a list of data items that are controlled by the Adaptation GUI functionality:

- Display: This tab opens a window that allows the user to modify the display attributes used to define the input parameters used to display the Storm Cell Identification and Tracking (SCIT), Hail Detection Algorithm (HDA), and Tornadic Vortex Signature (TVS) products in the PDGUI. This window can also be used to select the number of storms cells to display, the threshold display of Probability of Hail (POH) and Probability of Severe Hail (POSH), and whether or not to display Elevated TVSs.

- Maps: This tab opens a window that allows the user to modify the display attributes used to associate any of the products in the OPUP database with specific maps. The user can choose to have a Base Reflectivity, .54 nm resolution, 16 data level product automatically include a county map each time this product is selected in the PDGUI.

- Overlays: This tab opens a window that allows the user to modify overlay attributes used to define which overlay products will automatically be associated with any of the products in the OPUP OS database. For example, the user can chose to have a Storm Track Information (STI) overlay automatically display when a Base Reflectivity, .54 nm resolution, 16 data level product is selected in the PDGUI.

- Colors: This tab opens a window that allows the user to modify display colors of any product in the OPUP database. The OPUP OS is initially installed with default product colors assigned, but the user can open the default product color list, assign new colors to products/overlays, and save them as a new filename. The new colors can then be assigned using the color assignment icon in the PDGUI `Toolbox` pop-up window. If desired, the user can revert back to the original colors or define another color scheme.

- FTP Dist: This tab opens a window that allows the OPUP System Administrator to manage the flow of WSR-88D product data to designated FTP IP-Addresses. The data flow managed in this window includes National Image Transfer Format (NITF), NEXRAD, and Portable Network GIF (PNG) or graphics sent in raw format from the RPG. This data is used for after processing purposes such as inclusion in data display applications of all sorts (web pages, display web sites, end display systems). This window controls flow of information to specific IP-addresses designated in the different editable fields of this window. Information required in the FTP Dist window includes IP-addresses, Username/passwords, and the directory path that the data will be deposited in.

- NITF Dist: This tab opens a window that allows the OPUP System Administrator to select all or a specific number/type of NITF formatted WSR-88D products in the OPUP database for transmission to a NITF FTP IP-address in the FTP Dist window. All or specific products are selected from the All Products list and placed into the Products to Distribute area. To ensure that these products are selected for distribution, the OPUP System Administrator must access the correct security level, click on the **Save Changes** icon, and place a check in the `Enable NITF Distribution` check box.

- NEXRAD Dist: This tab opens a window that allows the OPUP System Administrator to select all or a specific number/type of NEXRAD formatted WSR-88D products in the OPUP database for transmission to the NEXRAD FTP IP-address in the FTP Dist window. All or specific products are selected from the All Products list and placed into the Products to Distribute area. To ensure that these products are selected for distribution, the OPUP System Administrator must access the correct security level, click on the **Save Changes** icon, and place a check in the `Enable NEXRAD Distribution` check box.

- PNG Dist: This tab opens a window that allows the OPUP System Administrator to select all or a specific number/type of PNG formatted WSR-88D products in the OPUP database for transmission to the PNG FTP IP-address in the FTP Dist window. All or specific products are selected from the All Products list and placed into the Products to Distribute area. To ensure that these products are selected for distribution, the OPUP System Administrator must access the correct security level, click on the **Save Changes** icon, and place a check in the `Enable PNG Distribution` check box.

3.3.3.10.2.7 Autodial GUI. The Autodial GUI function is used to automate the process of obtaining products from non-associated RPGs. The OPUP Auto-Dial feature is designed to repeatedly dial-out and request a predefined product set from one or more non-associated RPG(s). When activated, the OPUP Autodial feature will automatically dial into the specified RPG, request the predefined product set, disconnect, wait for the user-specified time period, then re-initiate the dial-request sequence. This dial - request - disconnect - wait sequence will repeat until canceled by operator command. When the **Autodial** button is clicked, the `Autodial - OPUP X.X` GUI (where X.X is the current version of software) is displayed.

The OPUP Autodial function will store up to 20 product sets of 10 products each for dial request processing. Level 1 password access is required to save, modify, rename, and delete an autodial product set. Level 1 access is also required to initiate an autodial instance. Any operator (no spe-

cial access) may stop an autodial instance and may view a saved or active autodial request list. To initiate an automated dial sequence, select the desired product list, identify the target RPG and specify the desired wait interval, between 5 and 300 minutes. These selections define an autodial instance. The OPUP software will support up to 25 simultaneous, active autodial instances.

3.3.3.10.2.8 Archive GUI. The Archive GUI function is used to record product and status messages on a durable, exportable media for permanent, local retention. This permanent record supports the requirement to collect and retain data pertaining to any rare or catastrophic event that may affect a covered asset. These data can be read back into the OPUP for investigative support or further analysis. Additionally, event and/or phenomena-based data sets made be recorded to support local training objectives.

NOTE

> The functions provided by the Archive GUI should not be confused with the `OPUP Manager Main Menu`, `OPUP Archive Menu`. The Archive GUI functions located within the Operational Applications Front Panel are used to select specific files for archival by operators. The `OPUP Archive Menu` located within the `OPUP Manager Main Menu` provide the functions necessary to place this data on a CD-ROM or restore the data to the OPUP Server OS Archive database.

When the **Archive** GUI button is clicked, the `Archive - OPUP X.X GUI` (where X.X is the current version of software) is displayed. The functions provided within the Archive GUI consists of four inter-related, yet independent processes. Two of these processes, Archive data set definition (Archive) and Archive data base creation (Restore), are operator GUI operations; while the other two, copy Archive data sets to and from CD-ROM, are administrative GUI operations (found within the `OPUP Archive Menu` of the `OPUP Manager Main Menu`).

The Archive GUI supports the specification of a data set based on source RPG(s), date/time span, and product type(s). Once the desired data set is defined, the Archive function copies the data from the operational data base to a reserved Archive directory structure on the OPUP server hard drive. The Archive directory structure serves two purposes. First, the data stored in this directory structure is available for restoration into the Archive database which enables the data to be accessed for display via the Archive Product Display and Status Log GUIs. Second, the Archive directory structure maintains all the data and housekeeping information required to create an Archive CD-ROM.

3.3.3.10.2.9 Restore GUI. The Restore GUI function provides the ability to select and restore specific archive files for display within the OPUP Archive PDGUI. These archive files will normally be located within the OPUP Server OS Archive database. Archive files may be restored from a CD-ROM or from files left within the Archive database.

When the **Restore** GUI is clicked, the `Restore - OPUP X.X` GUI (where X.X is the current version of software) is displayed. The Restore Archive function populates the Archive database with the product and status data contained in the Archive data set. Once populated into the

database, these data are available for display via the Archive display GUIs. The operational Product Display and Status and Control GUIs only access the operational data base, while the Archive Product Display and Archive Status Log GUIs only have access to the Archive database. This precludes old data being displayed along with current information on the operational or Archive OPUP display GUIs.

NOTE

The Archive database is separate from the operational product database and is not automatically purged.

3.3.3.10.3 Archive Product Display GUI. The Archive Product Display GUI (Archive PDGUI) is used to display and manipulate archived WSR-88D products/messages that were previously recorded on Archive IV media. When the **Archive Product Display** icon is clicked, the `Archive - Product Display - OPUP X.X` GUI (where X.X is the current version of software) is displayed. The Archive PDGUI function is similar to the main PDGUI display. However, the data that is accessed and displayed within this GUI is strictly archived data recalled from the OPUP Archive product database. Users can recall any archived data that is currently within the OPUP Server OS Archive database. This data is primarily used to support weather forecast interpretation/training.

3.3.3.10.4 Archive Status Log Terminal GUI. The Archive Status Log function is used to display archived status information similar to the system status display information that can be accessed within the Status & Control GUI. When the **Archive Status Log** icon is clicked, the `Archive Status Log Terminal - OPUP X.X` GUI (where X.X is the current version of software) is displayed. The information provided within this GUI provides a record display of all associated information that was available during the time a specific event was originally recorded. This information will also include all available archive alert status messages.

Section 3.4. OPUP SOFTWARE BACKGROUND PROCESS DESCRIPTION

3.4.1 Introduction.

The OPUP Server Operating System (OS) software is designed to receive and display WSR-88D product data. It is also designed to send and receive system status messages which report response information internally to the OPUP Server OS, Associated RPG, and externally to both the OPUP Manager GUI and Operational Application GUI Suite. Operators display and manipulate WSR-88D products and message data via the applicable Operational Applications Front Panel GUI. All normal feedback and associated reports concerning product and message data will be presented within the applicable system and software statuses, and message data via the OPUP Manager GUI and the many status displays provided by the Operational Applications Status & Control GUI.

In the past, the Legacy PUP used a closed software architecture method that only provided for product and data reception for local display. The PUP sent and received status messaging information both internally and externally between two systems. These systems were connected via one dedicated phone line (and/or dial lines, when used). The new Open Systems architecture greatly enhances and simplifies all product display and message reporting among several systems using a server/client configuration in which these systems are connected by a Communication Switch UD80A18. Since OPUP Server OS communications are spread throughout a “network” type system, the OPUP can distribute both product and message data internally and externally to either one or many clients. These clients can be attached systems (physical hardware connected to designated OPUP workstations) and/or systems that access the OPUP Server OS via a Communication Switch (to workstations that have many other services other than one dedicated mission to display OPUP product and message data).

NOTE

> Each OPUP configuration was developed to act as an isolated display system. WSR-88D product and message data can only be displayed on physically attached workstations at this time.

3.4.2 OPUP Server OS Infrastructure.

The OPUP Server OS infrastructure is utilized through all OPUP hardware configurations to facilitate various software programs and scripts (Open Architecture Software Modules). These programs and scripts monitor (listen), access a file(s), store data (provide a database), execute a program(s) (i.e., open a program and execute a script), and to send a response(s) (send results to a distribution node). These processes are controlled by utilizing Linear Buffers and Background Processes.

3.4.2.1 Linear Buffers (LBs). Linear buffers are used to distribute product data, message information, and other system information. Linear buffers provide programmers the ability to develop Internet/WEB like formatted software scripts and applications that help to store and distribute

messages in an open format that can be conveniently accessed by programs and monitoring hardware devices system wide.

A LB is used in software programming to allocate an area of storage space, a file, or a segment of shared memory and assign it with an easy to identify file descriptor (i.e, a well known name). Messages are stored in and retrieved from LBs via a linear buffer program function call. Most linear buffers have the letters LB within each script or file they are associated with. These functions, in addition to reading/writing messages, maintain control information in the LB for message management/background processes, and provide access control and data integrity protection. The processes governed by LBs are critical in supporting reliable applications in an unreliable networked workstation environment. The LB provides the following specific support in OPUP Architecture programming:

- Multiple simultaneous read and write capability by multiple programs/scripts.
- Highly reliable message passing capability.
- Automatic message storage space management.
- Transparent access across many hosts in a networked environment.
- Highly efficient message storage and retrieval tool.
- Distributed message infrastructures that send/receive large amounts of data.

3.4.2.2 Background Processes Status Information. The OPUP Server OS utilizes many processes that run in the background (transparent to the user). Background processes can be duplicated many times and assigned individual Process Identification numbers (PIDs), as required. All background processes are monitored by the `OPUP Manager Main Menu`, `OPUP Software Menu`, `OPUP Process Status` window. The `OPUP Process Status` window is divided into two parts. The top half of the display, `OPUP Applications and Tasks`, is illustrated in Figure 3-62.

3.4.2.2.1 Large OPUP Configuration Process Status Display. The process status display used with the Large OPUP configuration includes both the Data Server UD80A11 processes (shown in the top half of the screen) and the Display Server UD80A12 processes (shown in the bottom half of the screen). The Data Server UD80A11 OS background processes are shown in Figure 3-62. Figure 3-63 illustrates the background process associated with the Large OPUP Display Server UD80A12. The information displayed in both of these windows provide each site the means to monitor and troubleshoot specific OPUP Server OS operating and communications background processes. In addition to the Data and Display Server background processes, a Workstation Processes button is provided in order to view the status of the Display Workstation UD85 background processes. Each of these windows display process identifying information and the names of each background process.

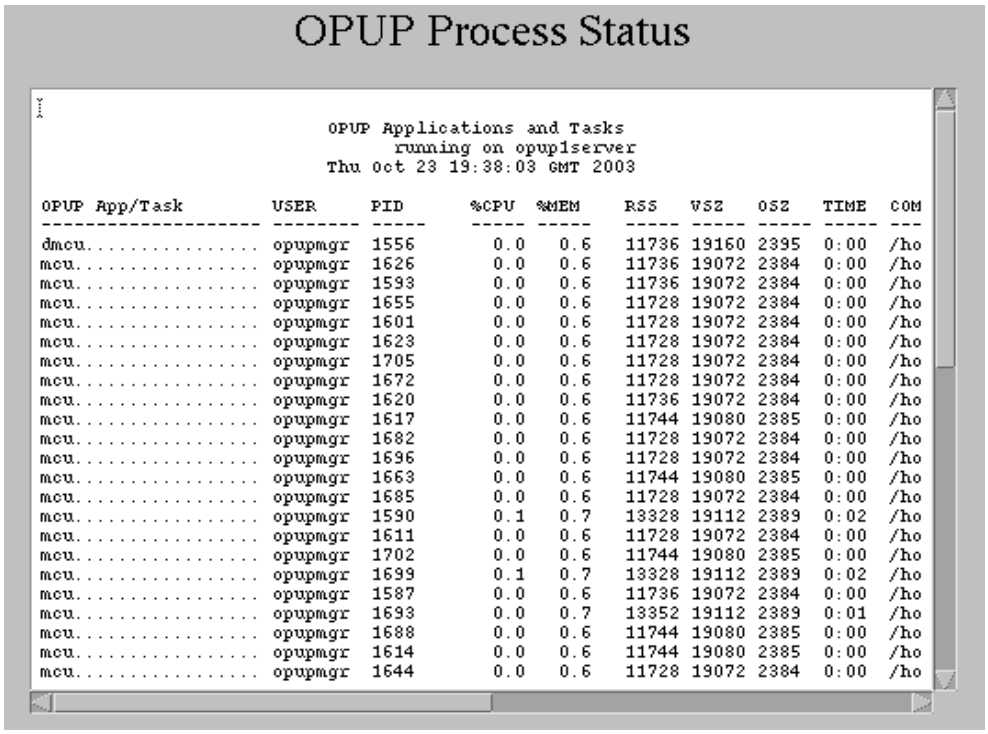


Figure 3-62. Large OPUP Process Status Window (Top Half)

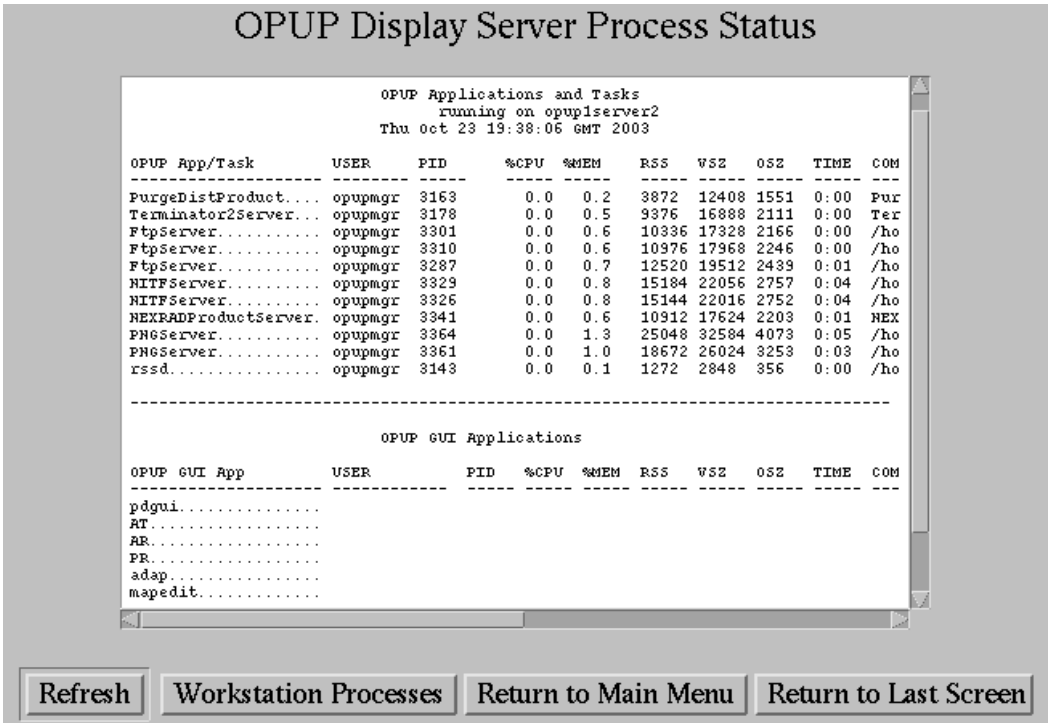


Figure 3-63. Large OPUP Display Server Process Status Window (Bottom Half)

3.4.2.2.2 Medium OPUP Configuration Process Status Display. The process status display used with the Medium OPUP configuration combines each of the OPUP Server OS, Operational Application, and Display Workstation background process into two areas within the display. Figure 3-64 illustrates each of the OPUP Server OS background process status information.

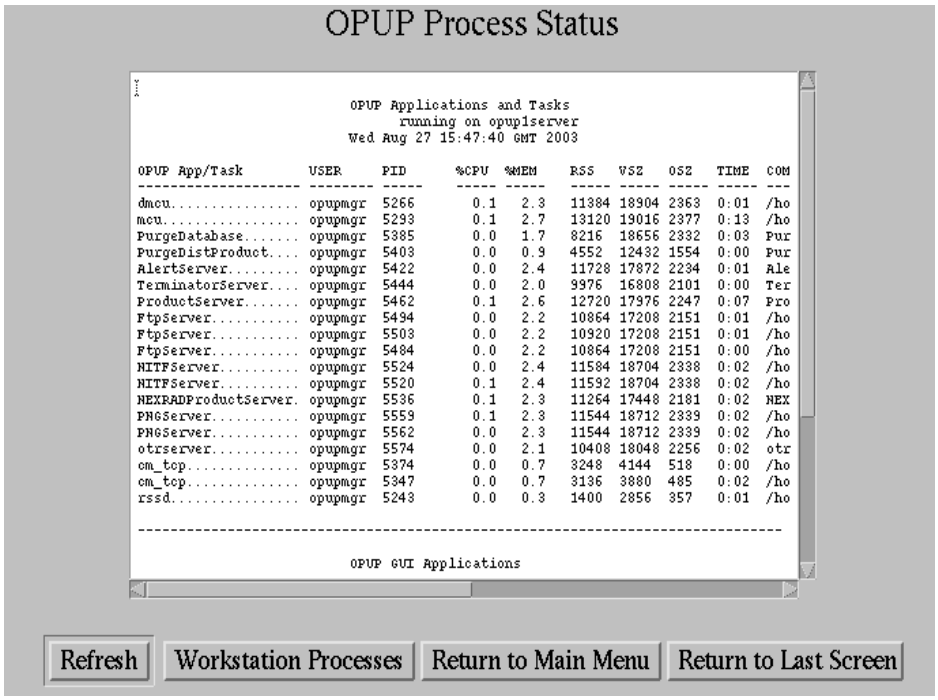


Figure 3-64. Medium OPUP Process Status Window

Figure 3-65, illustrates each of the Operational Application background process status information.

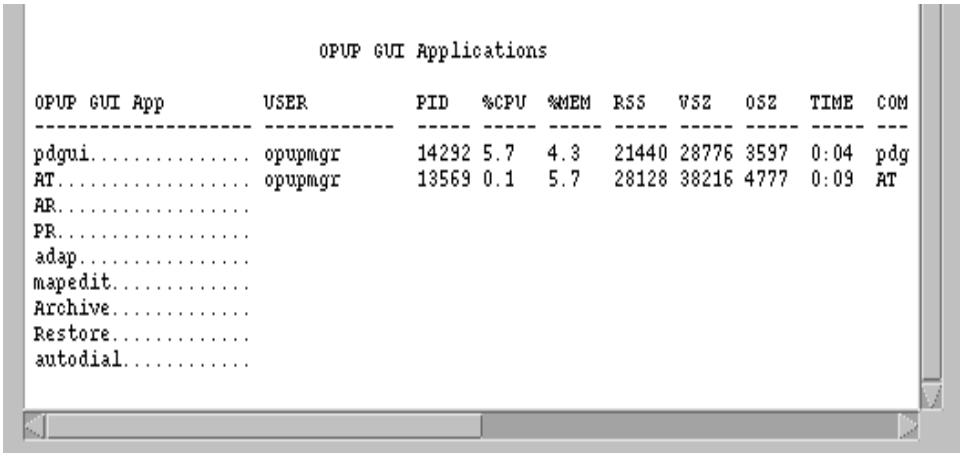


Figure 3-65. Medium OPUP Server Operational Applications Process Status Window

3.4.2.2.3 Display Workstation Process Status Display. Each Display Workstation UD85 background process is monitored by the OPUP Server OS background process function. In order to view the background process status for each Display Workstation, start at the `OPUP Manager Main Menu` and click on the **OPUP Software Menu**, **OPUP Process Status**, and **Workstation Processes** buttons. A `Workstation Process Status` window will be displayed that is similar to the process status window displayed in Figure 3-64. When the Workstation Process Status function is selected, the function will access each physically attached workstation and record this information within the `Workstation Process Status` window.

3.4.2.2.4 Background Status Process Breakdown. The following background process discussion is provided:

- OPUP App/Task: The name of the process(es) used by the OPUP Server OS.
- OPUP GUI App: The name of the process(es) accessed by operators.
- USER: The name of the user directory that has process control.
- PID: The Process Identification number automatically assigned by the OS to the individual process.
- %CPU: The percentage of CPU time that the individual process is currently utilizing.
- %MEM: The percentage of Memory that the individual process is currently utilizing.
- RSS: The PID number automatically assigned by the OS to the Remote System Services sub-background process.
- VSZ: The total process size in kilobytes of virtual memory.
- OSZ: The total process size in pages of virtual memory.
- TIME: The amount of CPU time (Clock Cycle Minutes/Seconds) that the individual process took to perform its function(s).
- COMMAND: The absolute pathname of the executable file used to perform the individual process.

The following paragraphs provide an overview of each process displayed in the applicable `OPUP Process Status` window.

3.4.2.2.5 Message Control Unit (MCU)/Dial MCU (DMCU). All WSR-88D data is pre-formatted to be in a TCP/IP data packet format for transfer to/from a dedicated or dial RPG of interest. The Message Control Unit (MCU) and Dial Message Control Unit (DMCU) processes provide the functionality required to ingest products from each RPG. These processes also provide the capability to send system status messages as well. A separate instance of an MCU is required for each dedicated connection to an RPG. Each instance of an MCU operates independently of

another and may be started or terminated without affecting any other MCU. The DMCU only requires one instance of a DMCU per dial line. Since each site only has one dial line provided for each OPUP system, normally only one DMCU will be displayed.

The MCU will send the current/last RPG message upon initial connection with an RPG. The MCU retrieves the appropriate RPS list for the specified connection based upon the information contained in the MCU database. If the radar operational mode has changed, the MCU will send the default RPS list for the current operational mode. The message code of each RPG message is determined by the MCU and is dealt with accordingly. Messages received from each RPG include the general RPG status, alert adaptation parameters, request response(s), and OPUP status request messages. Received messages are written to the appropriate LB in the OPUP Server OS as determined by the configuration file assigned to that background process. An event is posted with the receipt of each message, as needed. Products received from an RPG are stored in an LB. When products are received, an event notification is broadcast across the system with a message containing a product description header.

The MCU also responds to events from other OPUP applications (or users that are requesting to send a message to an RPG). These events include user requests to send an RPS list, a one-time product request, or an alert request.

3.4.2.2.6 Purge Database/Purge Distribution Products. The Purge function monitors data being stored in the OPUP Server OS database and purges any data/messages more than 6 hours old. This ensures that the database does not fill to 100% capacity. If the database were allowed to be filled to 100% capacity, communication/product storage load shedding will be the result within the OPUP Server OS.

The Purge Database function ensures that all incoming WSR-88D products and message data stored within the OPUP Server OS database directory are purged within 6 hours after they are received. The Purge Distribution Products function ensures that all products designated for transfer to a distribution site, stored within the OPUP OS Distribution directory does not fill to 100% capacity. When the Purge Distribution Products function detects a specific threshold capacity, the purge functions removes the required files so that the directory does not fill to 100%.

3.4.2.2.7 Alert Server. This function monitors all network event traffic and stores any event messages that contain alert information. It then updates the OPUP alert database (alertdb) with the alert description information.

3.4.2.2.8 Terminator Server. This monitors all network event traffic designated to transferred to a designated IP-address by the OPUP OS for product distribution. It stores each designated product and messages that contain product information. It then updates the OPUP Terminator database (terminatordb) with the product description information.

3.4.2.2.9 Product Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (productdb) with the product description information.

3.4.2.2.10 FTP Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (FTPserver) with the product description information.

3.4.2.2.11 NITF Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (NITFserver) with the product description information.

3.4.2.2.12 NEXRAD Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (NEXRADserver) with the product description information.

3.4.2.2.13 PNG Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (pngserver) with the product description information.

3.4.2.2.14 OTR Server. This monitors all network event traffic and stores any event messages that contain product information. It then updates the OPUP product database (productdb) with the product description information.

3.4.2.2.15 Communications Manager (cm_tcp). The Communications Manager routes messages throughout the OPUP communications equipment. The cm_tcp process monitors and routes data communications packets between the OPUP Communications Server, Smart Switch, and OPUP Server OS communications process modules.

3.4.2.2.16 Remote System Services Daemon. The RSSD provides system wide access to communication services that may reside internally on the OPUP Server OS and remotely on other Workstations that are physically connected to the OPUP server system. There will be one RSSD per physically connected system. If there are no physically connected systems (e.g., all users are accessing the OPUP Server OS via LAN Switch) then there will only be one RSSD displayed.

3.4.2.2.17 OPUP Operational Application GUI Processes. The following list is a breakdown of GUI functions depicted in Figure 3-63 and Figure 3-65.

- Product Display Graphic Users Interface (pdgui): Displays all processes associated with the display of WSR-88D Products and Message data.
- Applications Terminal (AT): Displays all processes associated with the functions of the Status&Control GUI.
- Alert Request (AR): Displays all processes associated with the Alert Request GUI and associated functions.
- Product Request (PR): Displays all processes associated with the Product Request GUI and associated functions.

- Adaptation (adap): Displays all processes associated with the Adaptation GUI and associated functions.
- Map Editor (mapedit): Displays all processes associated with the Map Editor GUI and associated functions.
- Archive (Archive): Displays all processes associated with the Archive GUI and associated functions.
- Restore (Restore): Displays all process associated with the Restore GUI and associated functions.
- Autodial (autodial): Displays all process associated with the Autodial GUI and associated functions.

Section 3.5. OPUP SOFTWARE INSTALLATION PROCEDURES

3.5.1 Introduction.

This section outlines the information and procedures required to perform an initial installation or re-installation of the Large and Medium OPUP Operating Software (OS) and associated Operational Applications GUI Suite.

3.5.2 Basic Software Installation Theory.

The software installation process will involve the use of a series of installation scripts contained on four CD-ROMS. These disks are required in order to either initially install or re-install the OPUP Server OS and Operational Applications Front Panel GUI Suite. The software installation process used to install the OPUP Server OS has been developed to utilize specific procedures and configuration input to successfully complete each installation process. A successful software installation process is indicated by each Large and Medium OPUP system when they successfully connect to and display WSR-88D product and message data on the Display Workstation UD85.

NOTES

The software installation instructions provided in Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) contain the steps and information necessary to successfully install and configure each Large and Medium OPUP system. The configuration input data required in Step 2 is site dependant. This information will need to be addressed before beginning with Step 3 of the software installation procedures. Each site must ensure that all assumptions, equipment, and configuration input data is present in order for a successful installation to occur.

There are three CD-ROM drives supplied with the Large OPUP Equipment Group UD80, and the Medium OPUP is supplied with two CD-ROM drives. These drives are the Archive IV Device UD80A4 and the internal CD-ROM player provided with the OPUP Server(s) UD80A11/A12. The software installation process requires the use of the internal CD-ROM player of the OPUP Server UD80A11. The archive device cannot be used for software installations.

The software installation process begins by placing the first installation disk within the internal CD-ROM media tray of the OPUP Server UD80A11 and ensuring that the `ok` prompt is displayed on the Display Monitor UD80A7. Once the software initiation command is entered, each CD-ROM disk will prompt for the next successive disk until the load process is complete. The software load process will take approximately 3 to 4 hours to install (installation times may vary depending upon system performance).

3.5.2.1 Software Installation Assumptions.

- The software installation will be a full software load process.
- The individual performing the software installation is either the OPUP System Administrator, system maintainer, or one who has sufficient experience in performing software installations.
- All of the hardware provided with the Large/Medium OPUP Equipment Group UD80 configuration is present, operational, and that all required software and configuration input data is present.

If any of these assumptions are not correct, call the WSR-88D Hotline for further assistance BEFORE beginning the software installation process.

3.5.3 Software Installation Requirements.

The OPUP Software installation routine has been developed to prompt the installer to select the correct hardware configuration at the beginning of the installation process. Each set of CD-ROM disks issued by the ROC Configuration Management (CM) Branch contains software that can be loaded on any OPUP configuration with the understanding that sites will need to ensure that the correct configuration input data and site are selected. If any data or configuration input data is entered incorrectly, the installation process allows the installer to deselect the incorrect configuration and begin the installation process over again.

NOTES

It is extremely important that each site only select the correct information and configuration input data associated with the specific hardware/configuration installed at their site. If an incorrect software load configuration is chosen, both the OPUP hardware/software group will not function properly.

It is also important to perform the software installation procedure beginning with CD-ROM disk 1 and then follow the prompts until CD-ROM disk 4 is completely finished. Any action other than what is outlined by the OPUP software installation procedure will result in having to perform the complete software installation procedure over again from the beginning.

3.5.3.1 Hard Drive Utilization. The Server systems utilized in both the Large and Medium OPUP configurations (UD80A11 and UD80A12) are configured with two internal hard drives. The Large OPUP configuration uses two servers in order distribute processing capability between data and display processing requirements. The primary hard drive in the Data Server UD80A11 is used as the primary software load target for both the OPUP Server OS and Operational Applica-

tions Front Panel GUI Suite. The secondary hard drive is used to store WSR-88D product and message data for display and/or retrieval. The primary hard drive located on the Display Server UD80A12 is used primarily to control basic display processing capability. The secondary hard drive is not primarily used, however, a drive is required by the firmware to remain in this slot during normal operations.

The Medium OPUP configuration will only use one server to process both data and display capability. In this case, the primary hard drive is used as the primary software load target for both the OPUP Server OS and Operational Applications Front Panel GUI Suite. The secondary hard drive is used to store WSR-88D product and message data for display and/or retrieval.

3.5.3.1.1 Hard Drive Slice Allocation. When the software installation/re-installation process is initiated, each hard drive is automatically re-formatted and configured in an OPUP defined UNIX file system software slice configuration. During each software installation/re-installation procedure, new filesystems are created and setup to allow the primary hard drive to load and operate the OPUP Server OS and the secondary hard drive to receive, display, and retrieve data. Table 3-3 through Table 3-6 illustrate each slice allocation.

Table 3-3. Data Server Primary Hard Drive UD80A11A1 Slice Allocations

Slice	Tag	Minimum Size (bytes)	Percentage Size
0	/	85899345	1%
1	/var	1288490188	15%
2	backup	8589934592	100%
3	swap	1030792151	12%
4	install	858993459	10%
5	/opt	171798691	2%
6	/usr	858993459	10%
7	home	4294967296	50%

Table 3-4. Data Server Secondary Hard Drive UD80A11A2 Slice Allocations

Slice	Tag	Minimum Size (bytes)	Percentage Size
0	Unassigned	0	0%
1	Unassigned	0	0%
2	backup	17179869184	100%
3	Unassigned	0	0%

Table 3-4. Data Server Secondary Hard Drive UD80A11A2 Slice Allocations - Continued

Slice	Tag	Minimum Size (bytes)	Percentage Size
4	Unassigned	0	0%
5	Unassigned	0	0%
6	Unassigned	0	0%
7	data	17179869184	100%

Table 3-5. Display Server Primary Hard Drive UD80A12A1 Slice Allocations

Slice	Tag	Minimum Size (bytes)	Percentage Size
0	Unassigned	0	0%
1	Unassigned	0	0%
2	backup	17179869184	100%
3	Unassigned	0	0%
4	Unassigned	0	0%
5	Unassigned	0	0%
6	Unassigned	0	0%
7	data	17179869184	100%

Table 3-6. Display Server Secondary Hard Drive UD80A12A2 Slice Allocations

Slice	Tag	Minimum Size (bytes)	Percentage Size
0	Unassigned	0	0%
1	Unassigned	0	0%
2	backup	17179869184	100%
3	Unassigned	0	0%
4	Unassigned	0	0%
5	Unassigned	0	0%
6	Unassigned	0	0%
7	data	17179869184	100%

3.5.3.2 Required Software. Each site will be required to have the latest set of software installation media issued by the ROC Configuration Management (CM) Branch. The following is a list of the software required, where X.X is the current version of software:

- Disk 1 of 4: OPUP LOAD MEDIA Build X.X Disk 1.
- Disk 2 of 4: OPUP LOAD MEDIA Build X.X Disk 2.
- Disk 3 of 4: OPUP LOAD MEDIA Build X.X Disk 3.
- Disk 4 of 4: OPUP LOAD MEDIA Build X.X Disk 4.

The contents of each disk is listed in Table 3-7, Software Installation Disk Contents. This table illustrates information and programs that are loaded or configured during the software installation process.

Table 3-7. Software Installation Disk Contents

Disk Number	Contents	Remarks
1 of 4	Solaris OS, Netscape, NIS+, Apache, Jumpstart, Kernel, MSMail, PWRChute, Oracle, and many other image files.	Base image files from Solaris and third party software are copied to the hard drives as follows: Primary hard drive (0): - */root*, slice 0 - */var*, slice 1 - */var*, *var/run*, */tmp*, slice 3 - */opt*, slice 5 - */usr*, */proc*, */dev/fd*, slice 6 - */export/home*, slice 7 Secondary hard drive (1): - */export/data*, slice 7
2 of 4	OPUP Install Scripts	Uses Solaris to setup hardware for OS/AS installation and puts all install scripts in */export/install* on drive 0, slice 4.
3 of 4	OPUP Server OS and Operational Application (AS) Front Panel GUI Suite files	Sets up and installs OS/AS and places all third party software in */export/home*, on drive 0, slice 7.
4 of 4	All OPUP background maps (169)	Install script places map files in */export/data/map* on drive 1, slice 7.

3.5.3.3 Required Software Input Parameters and Input Cable. Each software installation requires specific input parameters that are unique to the UD80 and UD85 software installation configuration process. The software load process will prompt for the information outlined in Table 3-8. However, not all parameters are required for all configurations.

The software installation process requires the use of one configuration cable and null modem adapter to allow the configuration scripts and routines to configure the Communication Router UD80A3 and Communication Switch UD80A18. The following cable is required before the software installation process can begin:

- Cisco Router Configuration Cable: Cisco part number 72-3663-01.

NOTE

The cable listed above is required for **initial software installation only** on each OPUP configuration. Once the software is installed the first time, the cable will not be required for any successive re-installations, unless the configuration data on either the communication switch or communication router is suspected to be corrupted.

Table 3-8. Software Installation Input Parameters

Input Parameter	Remarks
Root Password	Plain language password format. (i.e., Sh1roc!x). Used in association with UNIX root level access.
opupmgr Password	Plain language password format. (i.e., Sh1roc!x). Used in association with administrative level access only.
Display Server Ethernet-address	Six sets of one or two digits separated by colons (i.e., 0:8:20:we:1f:29). Address is associated with the factory supplied Ethernet-address of the Display Server UD80A12.
Display Workstation Ethernet-address	Six sets of one or two digits separated by colons (i.e., 0:8:20:we:1f:29). Address is associated with the factory supplied Ethernet-address of the Display Workstation UD85. Up to 10 Display Workstation Ethernet-addresses may be required for the Large OPUP configuration and up to three for the Medium OPUP configuration.
Operations Permission Security Level Passwords	Plain language password format. (i.e., Sh1roc!x). Requires three passwords. Used in association with specific Operational Application Front Panel GUI adaptation data change permission level access. Applies to security levels 1, 2, and 3.
Number of Dial Phone Lines	Telco phone numbers. Pre-determined during initial hardware installation.
Dial Line Point of Contact	Plain language. Either full name of weather office or individual responsible for reception of NITF, NEXRAD, and PNG data.
Dial Line Phone Number	Point of contact phone number.

Table 3-8. Software Installation Input Parameters - Continued

Input Parameter	Remarks
Current Router Password	Plain language password format. (i.e., Sh1roc!x). This password is associated with the Communication Router UD80A3. This password may be the default used initially or the password entered during the last software installation procedure.
New Router Password	Used to change the password associated with the communication router setup.
Current Enable Password	Plain language password format. (i.e., Sh1roc!x). This password is associated with the Communication Router UD80A3. This password may be the default used initially or the password entered during the last software installation procedure.
New Enable Password	Used to change the communication router root level password.
User Name	Plain language format. One test user name is required in order to complete the software load installation procedure.
User Password	Plain language password format. (i.e., Sh1roc!x). One test user password is required in order to complete the software load installation procedure.

The parameters listed in Table 3-8 will be provided during the initial OPUP hardware and software group installation at each site. The parameters outlined in this table are provided in accordance with established automated data processing equipment implementation and operational guidelines which are determined at each installation site. Successive software installations/re-installations will require that sites ensure this information is complete and up-to-date. Additional information concerning OPUP software input parameters apply:

- Each user name must meet the following minimum composition requirements:

  - Be at least a minimum of <u>three</u> characters in length.

  - Contain at least <u>two</u> alpha characters (A through Z or a through z).

  - Contain at least <u>one</u> number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, or =).

  Each character's case is important when defining the user name. Future access to this account will require the exact case for each letter as entered in the `User Name:` field.

- Passwords: Each password must meet the following minimum composition requirements:

  - Be at least a minimum of eight characters in length.
  - Contain at least one UPPERCASE character (A through Z).
  - Contain at least one lowercase character (a through z).
  - Contain at least one number (0 through 9).
  - Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All special characters must be within the first eight characters.

NOTE

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

- Passwords must not be the same as the user name or constructed from words straight out of the dictionary (spelled forwards, backwards, or split with a number or special character) or be constructed using a user's personal identity, history, or environment. Generic passwords must also be prohibited (e.g., a system having "welcome" as the password for all newly created user names). When passwords expire, users must not reuse the current password or use any of the last nine passwords assigned to that user name.

- Operations Permission Security Level Passwords: See "Passwords" remarks listed above. These passwords provide specific levels of control for the utilization of OPUP adaptable parameters associated with the Application Software GUI Suite.

- The NITF, NEXRAD, and PNG point of contact can either be a full name or weather office title. If this parameter is not used, type in "N/A" in the edit field. If the phone number is also not used, type in 123-4567 for the phone number.

- It will be assumed that each Display Workstation UD85 has been setup properly in accordance with Chapter 6, Maintenance before any software installation procedure begins.

3.5.4 OPUP Software Installation Procedure.

The following paragraphs provide the information and steps required to install OPUP Server OS software.

3.5.4.1 Software Installation Prerequisites/Preconditions. The following prerequisite/preconditions must be met in order to ensure a successful software installation on the Large OPUP Data and Display Servers UD80A11/A12 or the Medium Server UD80A11:

- It is important that the adaptable parameter and configuration information is captured prior to loading the software. RELEASE NOTES are provided with the latest software build to provide work-arounds to overcome any known problems. Please take a few minutes to review the RELEASE NOTES provided with the latest software build prior to starting the software load procedure.

- Ensure that all software input information described in Table 3-8 is obtained **before** beginning with the Software Load Procedure. A software input parameter fill-in/checklist is provided in Step 2 of Table 3-9, Large OPUP Software Load Procedure and Table 3-10, Medium OPUP Software Load Procedure for this purpose. Fill in the data outlined on these sheets and keep this information for future use. Safeguard all IP-addresses and passwords used to complete each software load procedure.

- All equipment referenced in Table 3-9 or Table 3-10 is listed by both the nomenclature (i.e., Server) and unit identifier (i.e., UD80A12). Specific unit identification information for each equipment item can be found in both Chapter 2, Hardware, and Chapter 7, Illustrated Parts Breakdown (IPB). Chapter 2 provides all controls and indicators for each equipment item that individual software installers may need to refer to before a step can be completed. Chapter 7 provides parts information that can be used to correctly identify specific hardware in case the need arises.

- Refer to Table 3-11, Software Installation Recovery Procedures, item number 6, for any Communication Router UD80A3 configuration failures that may be encountered during each software installation.

- The software installation process ends with checking and/or updating (if required) the OPUP system time. Enter all time inputs in GMT (UTC) format. Ensure an accurate time source is available during these steps (recommended source: WWV at 303-499-7111).

- In the following procedures, when **<Return>** is printed in command lines, it means to press the **<Return>** or **<Enter>** key whichever is appropriate.

- Use the **<Delete>** key to correct typographical errors.

3.5.4.2 Software Load Procedure. The procedures required to perform a full software load on the Data Server UD80A11 (Large) or the Server UD80A11 (Medium) are outlined in Table 3-9 (Large) or Table 3-10 (Medium).

Table 3-9. Large OPUP Software Load Procedure

Step	Action/Response	Comments
1.	Obtain the following items: • OPUP LOAD MEDIA CD-ROMs (4) provided in the kit and the software input configuration parameters outlined in paragraph 3.5.3.3 and Table 3-8 and record them Step 2. • Cisco Configuration Cable (part number 72-3663-01) and Null Modem adapter	Ensure all information is accurate and up-to-date before continuing to the next step.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
2.	Fill in the software input parameters listed below: root password:_____ opupmgr password:_____ Security Level 1 Password:_____ Security Level 2 Password:_____ Security Level 3 Password:_____ Number of Dial Lines:_____ Point of Contact Name:_____ Point of Contact Phone Number:_____ Current Router Password:_____ New Router Password:_____ Current Enable Password:_____ New Enable Password:_____ User Name:_____ User Password:_____ - The following information will be displayed and is to be recorded here during the software installation: System Type:_____ Site Name:_____ Network:_____ OPUP Dataserver IP-Address:_____ Cisco Router IP-Address:_____ Cisco Switch IP-Address:_____	It is important that the "Current Router Password" and "Current Enable Password" are known prior to continuing with the software load. If these Passwords are not known, contact the WSR-88D Hotline for instructions on determining these Passwords. The remainder of these Passwords (e.g., root, opupmgr, and security levels) are set during the load, even if they are unknown prior to the load.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
2. Cont.	Display Server Hostname: **opup1server2** OPUP Display Server IP-Address:___:____:____:____:____:____ OPUP Display Server Ethernet-Address: ___:____:____:____:____:____ Workstation Number: / Workstation Hostname: / IP-Address / Ethernet-Address 1: **Workstation1** _____ ___:____:____:____:____:____ 2: **Workstation2** _____ ___:____:____:____:____:____ 3: **Workstation3** _____ ___:____:____:____:____:____ 4: **Workstation4** _____ ___:____:____:____:____:____ 5: **Workstation5** _____ ___:____:____:____:____:____ 6: **Workstation6** _____ ___:____:____:____:____:____ 7: **Workstation7** _____ ___:____:____:____:____:____ 8: **Workstation8** _____ ___:____:____:____:____:____ 9: **Workstation9** _____ ___:____:____:____:____:____ 10: **Workstation10** _____ ___:____:____:____:____:____ OPUP Base to Install:_____ Select Base Installation:_____	

NOTE

There is no merge forward of any Site Adaptation Data during the software load process. Therefore each site must print (if a printer is on your system) or manually copy all modified adaptable parameters before the software is loaded as the existing parameters will ALL BE ERASED during the load.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
3.	Review the following windows in the `Status and Control` GUI and save your site's appropriate data: • `Product Request` window (`Canned Request Sets`) • `Alert Request` window (`Alert Areas & Alert Categories`) • `Map Edit` window (`Map Edits`) • `Adaptation` window (`Display` tab) • `Autodial` window (`Saved Sets`)	
4.	Review the following windows in the `OPUP Manager` GUI and save your site's appropriate data: • `OPUP Users Menu` (`View OPUP Users` for Users Names) • `OPUP Archive Menu` (`Create Products Archive` - Save site-created cases to CD-ROM)	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
5.	At each OPUP Display Workstation(s) UD85, perform the following: • If the screen saver is password protected, enter the 'root' password to override the screen saver lock. • If the Operational Applications Front Panel is displayed, perform the following or proceed: •• Press the **EXIT** button on the Operational Applications Front Panel (or CDE Front Panel if the Workstation is new). •• When the `Logout Confirmation` window is displayed, click on the **OK** button. The CDE Login screen will be displayed. • If the CDE Login screen is displayed: •• Press and hold the CPU/Processor UD85A2 power button on the front panel for 5 seconds. •• Wait for the CPU/processor to shutdown and the monitor screen to go blank/black before proceeding.	Each workstation will take approximately 1 minute to perform a power off sequence. When finished, each display workstation will be in the power off position.

NOTES

Prior to continuing to the next two steps, locate on the keyboard the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process. If the system proceeds through the initial boot process before it is stopped, the software load process must be restarted from Step 5.

If a prompt other than the `ok` prompt is displayed, press the **<Return>** key until the `ok` prompt is displayed.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
6.	At each OPUP Display Workstation(s) UD85, turn **ON** the CPU/processor by performing the following: • Press and release the CPU/Processor UD85A2 power button located on the front panel. • Move to next step immediately.	The power LED located just above the power button of each workstation CPU/processor will illuminate.
7.	When the spinning pinwheel appears on the monitor, simultaneously press the **<Stop>** and **<A>** keys. This stops the display workstation boot sequence. An `ok` prompt is displayed.	
8.	At each OPUP Display Workstation(s) Monitor UD85A1, perform the following: • Locate the Ethernet-Address near the top center of the display (this address is located in the banner information, just above the `ok` prompt.) • When located, record the Ethernet-Address in the space(s) provided in Step 2. • Repeat for each display workstation. • Leave each display workstation at the ok prompt.	
9.	At the OPUP UD80 cabinet, locate the KVM Switch UD80A8 and press button **1**. The LED associated with button **1** will now be **ON** (illuminated).	The KVM switch LED buttons are located near the center front panel of the KVM switch. Button **1** is associated with the OPUP Dataserver UD80A11 and button **2** is associated with the OPUP Display Server UD80A12.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
10.	At the Data Server UD80A11 located in the upper server position, manually place the server to the **OFF** position by turning the security keyswitch on the front of the data server clockwise until it stops. The green LED will turn OFF at the top right corner on the front of the data server. Wait 15 seconds and then turn the security keyswitch counterclockwise until it stops.	If the security keyswitch stops and the LED remains green, power is still on to the server. The server front panel door to the left of the security keyswitch may not be shut properly. Open the server front panel door and close it again. The security keyswitch should fully rotate clockwise to the OFF position and the green LED light will turn off.
11.	At the Display Server UD80A12 located in the lower server position, manually place the server to the **OFF** position by turning the security keyswitch on the front of the display server clockwise until it stops. The green LED will turn OFF at the top right corner on the front of the display server. Wait 15 seconds and then turn the security keyswitch counterclockwise until it stops.	Both servers should be powered OFF.
NOTES Prior to continuing to the next several steps, locate on the keyboard the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process on each server. If the system proceeds through the initial boot process before it is stopped, the software load process must be restarted from Step 10. If a prompt other than the `{0}ok` prompt is displayed, press the **<Return>** key until the `{0}ok` prompt is displayed.		
12.	At the Data Server UD80A11, turn **ON** the server by firmly pressing the power button to the right of the security keyswitch (upper server position). A green LED comes ON at the top right corner on the front of the data server.	As the data server starts to boot up, the monitor will remain blank for approximately 2 to 3 minutes. Wait for the monitor to display boot information.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
13.	When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. This stops the data server boot sequence. An `{0}ok` prompt is displayed.	
	NOTE If the boot process is not stopped on the data server, wait 5 minutes, then repeat Step 10 and then Step 12 and Step 13.	
14.	At the KVM Switch UD80A8, press button **2**. The KVM Switch button LEDs, will now indicate that button **2** LED is illuminated.	Button **2** is associated with the display server.
15.	At the Display Server UD80A12 (lower server position), turn **ON** the server by firmly pressing the power button to the right of the security keyswitch. A green LED comes ON at the top right corner on the front of the display server.	The display server starts to boot up, the monitor remains blank for approximately 2 to 3 minutes. Wait for the monitor to display boot information.
16.	When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. This stops the display server boot sequence. An `{0}ok` prompt is displayed.	
	NOTE If the boot process is not stopped on the display server, wait 5 minutes, then repeat Step 11 and then Step 15 and Step 16.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
17.	At the Monitor UD80A7, perform the following: • Locate the Ethernet-Address near the top center of the display (this address is located in the banner information, just above the `{0}ok` prompt.) • When located, record the Ethernet-Address in the space provided in Step 2.	Leave the display server at the `{0}ok` prompt at this time.
18.	At the KVM Switch UD80A8, press button **1**. The KVM switch button **1** LED is illuminated.	Button **1** is associated with the dataserver.
19.	At the Data Server UD80A11, perform the following: • Open the CD-ROM drive door. • Place Disk 1, labeled Disk 1, OPUP LOAD MEDIA Build 6.0, into the tray. • Close the CD-ROM drive door.	
20.	At the `{0}ok` prompt, enter: **boot cdrom<Return>** The boot process of the data server begins. This takes approximately 3 to 4 minutes.	If an `{0}ok` prompt reappears, press **<Return>**, then repeat Step 20.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

21.	When the following message appears:
	`OPUP Server Installation:`
	
	`Choose OPUP Site to Load:`
	
	`1 Air_Force`
	`2 Navy`
	`3 Testbed`
	`4 Overseas`
	`5 Other`
	
	`Enter Numeric Selection from Above, q to Quit or ? for Help: [?,??,q]:`
	
	Enter:
	*applicable # from above***<Return>**	

22.	When the following message appears: `Please enter the OPUP site system ID (type ‘help' for list):` Enter: **help<Return>** Locate your six-letter OPUP Site System ID and record it here: _____ Once located: If `-more-` is displayed at the bottom of the Site System ID list, press **q** to exit out of the help mode and proceed to the next step. When the above message is redisplayed, proceed to next step.	The six-letter OPUP Site System ID will be entered when the procedures ask for the SITEID entry.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
23.	At the following message prompt: `Please enter the OPUP site system ID (type ‘help' for list):` Enter: *SITEID***<Return>**	Enter the site ID recorded in Step 22. Ensure the OPUP Site System ID is entered in UPPERCASE. If the site ID is entered incorrectly, you will be prompted to repeat this step.

NOTES

The following information displayed in Step 24 is an example of what a site may see during the OPUP software installation process. The actual system type, site name, and IP-address information for each site will be different.

The third IP-address octet (i.e. 10.5.**74**.1) is site specific. Each workstation IP-address will begin with the next successive IP-address after the Display Server IP-address (i.e. if the Display Server IP-address is 10.5.**74**.4, the first Display Workstation IP-address will use 10.5.**74**.5, the second display workstation will use 10.5.**74**.6, etc.).

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

24.	When a message similar to the following appears:
	
	`System Type is:  Testbed`
	`Site Name  is:  ROCNBY`
	`Network is: 10.5.74.0`
	`----------`
	`OPUP Dataserver IP address is:`
	`10.5.74.1`
	`Cisco Router IP address is:`
	`10.5.74.2`
	`Cisco Switch IP address is:`
	`10.5.74.3`
	`OPUP Display Server IP address is:`
	`10.5.74.4`
	`Workstation 1 IP address is:`
	`10.5.74.5`
	`Workstation 2 IP address is:`
	`10.5.74.6`
	`Workstation 3 IP address is:`
	`10.5.74.7`
	`.....`
	`.....`
	`Workstation 10 IP address is:`
	`10.5.74.14`
	
	Record the System Type, Site Name, and each IP-address displayed on the screen in the spaces provided in Step 2.
		There may be up to ten display workstations for a Large OPUP configuration. The IP-addresses will be applicable to your system.

25.	When the following message appears:
	
	`Please Enter Password for root:`
	`Enter Password:`
	
	Enter:
	*root_password***<Return>**
		Entries will not be shown. Use assigned Password from Step 2.

26.	When the following message appears: `Re-Enter Password:` Enter: *root_password***<Return>**	Password must be verified by entering the same Password twice. If the Password entries do not match or are not valid, the request for a Password will be made again.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

27.	When the following message appears:
	
	`Please Enter Password for opupmgr:`
	`Enter Password:`
	
	Enter:
	*opupmgr_password***<Return>**
		Entries will not be shown. Use assigned Password from Step 2.

28.	When the following message appears: `Re-Enter Password:` Enter: *opupmgr_password***<Return>**	Password must be verified by entering the same Password twice. If the Password entries do not match or are not valid, the request for a Password will be made again.
	NOTE It is critical that all input information displayed in step Step 24 is recorded and accurate. Examine the inputs and ensure all entries are correct before proceeding to the next step.	
29.	When the following message appears: `Do you want to continue installation with selection? Yes or No [y,n,?,q]` If the inputs are correct, enter: **y<Return>** Continue to the next step. If any information is incorrect, enter: **n<Return>** The software load process will go back to Step 21.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

30.	The software installation process will display the following information as the load progresses:
	
	`Starting Installation.`
	
	`Beginning Installation Phase 1....`
	
	`Formatting Main SCSI Drive...`
	`Formatting Secondary SCSI Drive...`
	`Creating /export Filesystem...`
	`Creating /(root) Filesystem...`
	`Extracting /(root) Files...`
	`Creating /var Filesystem...`
	`Extracting /var Files....`
	`Creating /opt Filesystem...`
	`Creating /usr Filesystem...`
	`Extracting /usr Files...`
	`Creating /export/data Filesystem...`
	`Configuring the /devices directory`
	`Configuring the /dev directory`
	`Configuring the /dev directory (compatibility devices)`
	
	The software load process will take approximately 15 to 25 minutes.
		The system installs the software from Disk 1, OPUP LOAD MEDIA Build 6.0.
		
		The dots (...) following these messages only act as progress indicators as the installation continues.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

31.	When the following message appears:
	
	`Installation Phase 1 complete.`
	
	`Press Return to reboot and start Phase 2.`
	
	Press the **<Return>** key.
	
	The software load process will take approximately 3 to 4 minutes.
		Initially the screen will go blank for about 30 seconds.
		
		The software load process will take approximately 3 to 4 minutes before the information in the next step is displayed.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
	NOTE If the incorrect CD-ROM disk is inserted, the load process will display the message `Incorrect Disk`. The software load process will then eject the CD-ROM and again prompt for the correct CD-ROM.	

32.	When the following message appears:
	
	`Beginning Installation Phase 2...`
	
	`Please Insert OPUP LOAD MEDIA Disk 2, and press Return.`
	• The CD-ROM drive door will open automatically.
	• Remove Disk 1 and place it in its protective sleeve.
	• Place Disk 2 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following message will be displayed:
	
	`Extracting /export/install Files.....`
	
	This takes approximately 15 to 25 minutes.
		The system installs the software from Disk 2, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

33.	When the following message appears:
	`Please Insert OPUP LOAD MEDIA Disk 3, and press Return.`
	• The CD-ROM drive door will open automatically.
	• Remove Disk 2 and place it in its protective sleeve.
	• Place Disk 3 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following messages will be displayed:
	`Extracting /opt Files..`
	`Extracting /export/home Files...`
	`Copying Cisco IOS Files...`
	This takes approximately 5 to 10 minutes.
		The system installs the software from Disk 3, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

34.	When the following message appears:
	`Please Insert OPUP LOAD MEDIA Disk 4, and press Return.`
	• The CD-ROM drive door will open automatically.
	• Remove Disk 3 and place it in its protective sleeve.
	• Place Disk 4 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following message will be displayed:
	`Extracting Map Files.....`
	This takes approximately 3 to 5 minutes.
		The system installs the software from Disk 4, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

35.	When the following message appears:
	
	`OPUP LOAD MEDIA Disk 4 Finished Loading.`
	
	`Please Remove OPUP LOAD MEDIA Disk 4, and press Return.`
	• The CD-ROM drive door will open automatically.
	• Remove Disk 4 and place it in its protective sleeve.
	• Close the CD-ROM drive door.
	• Place the disks in a safe location for future use.
	• Press the **<Return>** key.
	
	The following message appears:
	
	`Configure Third Party Software...`
	
	Additional messages will be displayed for the next 5 to 10 minutes.
	
	The software load process continues.
		Once the system is finished loading Disk 4, various amounts of information will scroll through the display monitor.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

36.	When the following message appears:
	
	`Please use the right cable to connect the Cisco LAN Switch console port to Serial Port A on the OPUP Server.`
	
	`Press Return when ready to proceed or enter 'skip' to skip the Cisco configuration.`
	
	Enter:
	skip<Return>
	
	This process can take up to 5 minutes to complete.
	
	The OPUP will automatically reboot. Wait for the CDE Login screen to be displayed.
		The **skip** command will by-pass the Communication Switch UD80A18 configuration and install the remaining software items.
		
		If continually prompted to enter the "skip" before the command can be entered, continue with this step.

37.	At the CDE Login screen, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
38.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>** The system will advance past the login point to the CDE Front Panel.	The opupmgr Password must be exactly the same Password that was assigned in Step 2.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
39.	When the `Netscape: New Site Certificate` window appears: • Click on the **Next>** button • Click on the **Next>** button • Click to select the Radio button **Accept this certificate forever (until it expires)** • Click on the **Next>** button • Click on the **Next>** button • Click on the **Finish** button. The `Netscape: New Site Certificate` window closes.	This step allows the user to setup and accept the Netscape security parameters for OPUP use.
40.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>** The cursor will move to the `Password:` box.	
41.	In the `Password:` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be exactly the same Password that was assigned in Step 2.
42.	When the `Netscape: Secure Document` window appears, • Click on the **Show this Alert Next Time** checkbox to uncheck it. • Click on the **OK** button.	
43.	When the `Netscape: OPUP Manager Start OPUP` window appears: Click on the **Next** button.	
NOTE Refer to the software input parameters recorded in Step 2 for the steps that follow.		

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
44.	In the `OPUP Password Information:` block, click in the first password field, enter: *Security_Level_1_Password***<Tab>** Using the **<Tab>** key, move through the rest of the fields. Enter all appropriate passwords and password confirmations, as required, for all three security levels.	Each security level must have a unique Password.
45.	At the `OPUP Size and Dial Line Information:` block, in the `Enter OPUP Size Configuration (1 for Large, 2 for Medium, 3 for Small):` edit box, enter: **1<Tab>**	This step selects a Large OPUP configuration.
46.	At the `Enter # of Available Dial Lines (1 to 8)` edit box, enter: *Appropriate number of dial lines***<Tab>**	The Large OPUP configuration can use up to 8 dial lines. Ensure this is correct for this configuration.
47.	At the `OPUP Product Distribution Information:` block, in the `Enter OPUP Distribution Contact Name:` edit box, perform the following: • Delete the current entry. • Enter: *site_specific_contact_name***<Tab>** • In the `Enter OPUP Distribution Contact Phone Number:` edit box, enter: *phone_number***<Tab>**	This is the point of contact information. Enter the Name of the Office (i.e. Tinker Base Weather) and the telephone number with area code. DO NOT use dashes. DO NOT leave these fields blank!

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
48.	At the `Cisco Router Passwords:` block, in the `Enter Current Router Password:` edit box, enter: *Current_Router_Password*, then • Click in the `Enter New Router Password:` edit box, enter: *New_Router_Password***<Tab>** • In the `Re-Enter Password:` edit box, enter: *New_Router_Password***<Tab>** • In the `Enter Current Enable Password:` edit box, enter: *Current_Enable_Password***<Tab>** • In the `Enter New Enable Password:` edit box, enter: *New_Enable_Password***<Tab>** • In the `Re-Enter Password:` edit box, enter: *New_Enable_Password* • Click on the **Next** button.	If the Current Router Password or the Current Enable Password is entered incorrectly, the router configuration will fail in later steps.

49.	If the following message appears at the `Netscape: PUP Information Entered` window:
	`PUP Information - has been Created`
	Click on the **Next** button and continue to next step.
	Otherwise, if the following message appears:
	`PUP Information not Correct`
	• Determine which information is incorrect.
	• Click on the **Return to Last Screen** button.
	• Make the necessary corrections.
	• Restart this step.
		If the information in Step 48 is correct, the configuration process will go to the next step. If not, Step 48 will need to be repeated after all input information has been verified to be correct.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
50.	At the `Netscape: OPUP Select Base Information` window, click on the appropriate button. Record the base in the space provided in Step 2.	
51.	At the `Netscape: Select Base Installation` window, in the `Select Base` block, highlight the applicable Base name by clicking on it. (If necessary, use the scroll bar to locate the Base name.) When the selected Base is highlighted, click on the **Next** button. Record the Base in the space provided in Step 2.	The configuration process will go to the next step.
52.	At the `Netscape: OPUP Manager Create New RPG Information` window, verify your Base is correctly displayed in the middle of the window. If the Base is correct, click on the **Yes** button. The configuration process will go to the next step. If the Base is incorrect, click on the **Return to Last Screen** button to return to the `Netscape: Select Base Installation` window and select the correct Base.	
53.	At the `Netscape: Add RPG Information from list` window, perform the following: Click on the **Next** button.	Each site's dial and dedicated RPGs will be configured. If more dial sites are needed after installation, contact WSR-88D Hotline.
54.	At the `Netscape: RPG Information Entered` window, click on the **Next** button. The configuration process will go to the next step.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
55.	Perform the following steps to connect the Cisco Configuration Cable, part number 72-3663-01, to the Communication Router UD80A3: • Connect the RJ45 end of Cisco configuration cable to the CONSOLE port at the rear of the communication router. • Connect the other end of the Cisco configuration cable to a Null Modem adapter. • Connect the Null Modem adapter to the Serial Port A connector on the rear of the Dataserver UD80A11.	
56.	At the `Netscape: OPUP Manager Configure OPUP` window, click on the **Configure OPUP** button and then click on the **Yes** button to confirm. This takes approximately 5 to 15 minutes. When finished, a `Netscape: OPUP Manager Configure OPUP` window will be displayed with an `OPUP has been Configured` message.	
	NOTE If the following message appears: `OPUP has been Configured But.....Final Cisco Router Configuration Failed. Before OPUP could be operational you must manually configure Router. Please follow the instructions, to manually con-figure Cisco Router.` Proceed to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, Table 3-11, Software Installation Recovery Procedures, and consult the Communication Router recovery procedure outlined in item number 6. Return to Step 57 when finished.	
57.	At the rear of the Communication Router UD80A3, unplug the RJ45 end of the Cisco configuration cable from the CONSOLE port.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
58.	At the rear of the Data Server UD80A11, disconnect the other end of the Cisco configuration cable and Null Modem Adapter from Port A. Store this cable and null modem for future software installations and troubleshooting.	
59.	At the `Netscape: OPUP Manager Configure OPUP` window: • Click on the **Return to Last Screen** button. • Click on the **OPUP Manager Main Menu** button. The `OPUP Manager Main Menu` will be displayed	
60.	At the `OPUP Manager Main Menu`, click on the **OPUP Workstation Menu** button. A `Netscape: OPUP Workstation Menu` window appears.	
61.	Click on the **Add New Workstation** button. A `Netscape: OPUP Manager Add New Workstation` window appears	
62.	At the `Ethernet Address:` area, click in the text edit box, and Enter: *Display_Server_Ethernet-Address* • Click the box to select the **Select to add Display Server** option. • Click on the **Save** button.	Refer to Step 2 for the recorded Display Server Ethernet-Address.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
63.	When the `Netscape: Workstation Information Complete` window appears and displays the message: `The following workstations have been added:` Verify the Ethernet-Address is correct.	
64.	Click on the **Add New Workstation** button.	
65.	When the `Netscape: Workstation Information Complete` window appears and displays the message: `The following workstations have been added:` Verify the Ethernet-Address is correct.	
66.	At the `Ethernet Address:` area, click in the text edit box, and Enter: *Workstation1_Ethernet-Address* Click on the **Save** button.	Refer to Step 2 for the recorded Workstation 1 Ethernet-Address.
67.	Repeat Step 64 through Step 66 for all additional workstations. When all workstations have been added, continue to the next step.	
68.	When the `Netscape: Workstation Information Complete` window appears and displays the message: `The following workstations have been added:` Click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` appears	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
69.	At the `OPUP Manager Main Menu` window, Click the **File** selection near the top left corner of the window. When the pull down menu opens, click the **Exit** selection at the bottom of the menu.	It is important to close this window prior to continuing to the next step in order to refresh the data supplied to this window.
70.	When the following message appears at the `Netscape: Question` window: `Close all windows and exit Netscape?` Click on the **OK** button. The `OPUP Manager Main Menu` closes.	
71.	Click on the **EXIT** button on the CDE Front Panel and then click on the **OK** button in the `Logout Confirmation` window.	This step exits the desktop session and displays the CDE Login screen.
72.	At the KVM Switch UD80A8, press button **2**. The LED associated with button **2** will now be on (illuminated). At the `{0}ok` prompt, enter: **boot net - install<Return>** If an `{0}ok` prompt reappears, press **<Return>**, then repeat Step 72. This installation will take approximately 60 to 75 minutes. When finished, the' CDE Login screen will be displayed. While the display server is being installed, continue with the next step.	This step ensures that the Display Server UD80A12 is selected and the proper command is used to initiate a display server software installation routine.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
73.	At each OPUP Display Workstation(s) UD85, at the `ok` prompt, enter: **boot net - install<Return>** If an `ok` prompt reappears, press **<Return>**, then repeat Step 73. Ensure the above command is performed at all display workstations. This installation will take approximately 60 to 75 minutes per display workstation. When finished, the display workstation CDE Login screen will be displayed. Do not continue with procedure until all display workstations display the CDE Login screen.	This step ensures that each display workstation is selected and uses a command to invoke Jumpstart software package which initiates an automatic software installation routine.
74.	When the OPUP display server CDE Login screen appears on the monitor, go to the next step.	Wait until the OPUP display server displays the CDE Login screen before proceeding to the next step.
75.	At the KVM Switch UD80A8, press button **1**. If the screen saver feature has been engaged, move the mouse or press the **<Shift>** key to deactivate the screen saver. If the screen saver feature has not been engaged, go to the next step.	The button 1 LED will now be on (illuminated). The Data Server UD80A11 (upper server position) will display data on the monitor screen.
76.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
77.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be the same Password assigned in Step 2. The system will advance past the login point to the CDE Front Panel.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
78.	Click on the **Netscape World** on the far left side of the CDE Front Panel to start Netscape. A `Netscape:` window opens. This takes approximately 20 to 30 seconds.	
79.	Click anywhere on the **gray background** area of the `Netscape:` window to get the `Netscape: Password` window to display. `Netscape: Password` window opens.	
80.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	
81.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
82.	At the `OPUP Manager Main Menu`, perform the following: • Click on the **OPUP Software Menu** button. • Click on the **Start OPUP** button within the `OPUP Software Menu`. • Click on the **Yes** button at the confirmation window.	This will start the OPUP software.
83.	At the `Netscape: OPUP Manager Start OPUP` window: Click on the **Return to OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
84.	• Click on the **OPUP Process Status** button. An `OPUP Process Status` window will appear. Wait 1 to 2 minutes for the OPUP Processes to start. • Click on the **Refresh** button, as needed, until all `OPUP App/Task` processes have started. When all the `OPUP App/Task` processes are started, go to the next step.	The top section titled `OPUP Process Status` and displays the data server processes. The bottom section is titled `OPUP Display Server Process Status` and displays the display server processes. Every process listed in the `OPUP App/Task` portion will have a PID (Process Identification) number assigned once the OPUP is completely started. The `OPUP GUI App` portion will not display active application processes.
85.	Click on the **Workstation Processes** button. An `OPUP Workstation Process Status` window will appear. Verify each workstation has both processes started in the `OPUP App/Task` area, then go to the next step.	Each workstation has a separate section displaying its tasks list. The `OPUP GUI App` portion will not display active application processes.
86.	Click on the **Return To Main Menu** button. The `OPUP Manager Main Menu` will be displayed.	
87.	At the `OPUP Manager Main Menu` window, click on the **OPUP Users Menu** button. An `OPUP Users Menu` will be displayed.	The menu will go to the next step. This menu will be used to enter a unique User Name and Password.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
	NOTE Case is important for both User Name and Passwords when they are defined. Future access to both will require the exact case for each letter as entered here. Each User Name must meet the following minimum composition requirements: • Be at least a minimum of three characters in length. • Contain at least two alpha characters (A through Z or a through z). • Contain at least one number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, #, or =).	
88.	• Click on the **Add New User** button. • Click in the `User Name:` edit box to activate the field for text entry. • Enter any combination of letters and numbers to define a unique User Name that meets the requirements stated in the note above. • Record the User Name in the space provided in Step 2.	A unique User Name should now be entered, verified, and recorded in the space provided in Step 2.
	NOTE Each Password must meet the following minimum composition requirements: • Be at least a minimum of eight characters in length. • Contain at least one UPPERCASE character (A through Z). • Contain at least one lowercase character (a through z). • Contain at least one number (0 through 9). • Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All “special” entries must be within the first 8 characters.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
89.	• Click on the `Password:` edit window to activate the window field for text entry and enter the Password for the user. • Enter a Password that meets the requirements in the note above. • Click in the `Reenter password:` edit window to activate the window field for text entry and then reenter the Password exactly as entered above. • Record the Password exactly as entered in this step in the space provided in Step 2.	This step ensures that the Password is not mistyped/misspelled. It should also be recorded in the space provided in Step 2 of these instructions. If the Password doesn't meet the security requirements, follow the on-screen instructions.
90.	Click on the **Save** button. When the `Netscape: Display User Info Entered` window and `OPUP User` *`user_name`* `- Successfully Created` message is displayed, click on the **Return To Main Menu** button. The `OPUP Manager Main Menu` is displayed.	The User Name is displayed as part of the window title.
91.	At the CDE Front Panel, move the mouse cursor over the **Netscape World** icon. The current day, date, and time in GMT should be displayed.	
92.	While leaving the mouse cursor over the **Netscape World** icon, inspect the day, date, and time. If the time is off by more than 1 minute, go to the next step. Otherwise, go to Step 100.	If the day, date, and time information will not display, go to the next step.
93.	Within the CDE Front Panel, click on the **up arrow** located just above the **cpu disk** icon. A `Hosts` pop-up menu will be displayed.	
94.	Click on the **This Host** icon. A `Terminal` window opens with an `/export/home/opupmgr>` prompt.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
95.	At the `/export/home/opupmgr>` prompt, enter: **date<Return>** The current day of the week, month, day, time (hh:mm:ss), GMT, year should be displayed. If the time is off by more than 1 minute, go to the next step. Otherwise, go to Step 100.	
96.	Obtain an accurate time source (e.g., WWV 303-499-7111). At the `/export/home/opupmgr>` prompt, enter: **sudo date** *mmddHHMM[cc][yy][.ss]* (Do Not press the **<Return>** key). Use GMT time.	Everything after the minutes entry (“MM”) is optional. However, the most accurate method to update the time is to, at a minimum, enter the HHMM.ss parameters. The following information applies: mm= Month dd= Day HH= GMT Hour MM=Minute Optional entries (normally not entered): cc= Century minus 1 yy= Year ss= Seconds
97.	Using the chosen time source, press **<Return>** at the exact time the above entered time occurs.	
98.	At the `/export/home/opupmgr>` prompt, enter: **date<Return>**	Verify the OPUP system time was updated.
99.	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>** The `Terminal` window closes.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
100.	Go to one of the Display Workstations UD85. Ensure that the CDE Login screen is displayed before going to the next step.	Each display workstation is connected to the Large OPUP via CAT5 cable. Each workstation was added during Step 63 through Step 66.
	NOTE If the font used to display the Security Warning portion of the CDE Login screen is too large making the screen unreadable, perform Step 101 through Step 111. These steps may be required at all workstations. If the CDE Login screen is correct, skip to Step 112.	
101.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
102.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be the same Password assigned in Step 2.
103.	Click on the **Netscape World** icon on the far left side of the CDE Front Panel to start Netscape. A Netscape window opens. This takes approximately 20 to 30 seconds.	
104.	Click anywhere on the **gray background** area of the Netscape window to get the `Netscape: Password` window to display. `Netscape: Password` window opens.	
105.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
106.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
107.	Within the CDE Front Panel, click on the **up** arrow located just above the **cpu disk** icon. A `Hosts` pop-up menu will then be displayed.	
108.	Click on the **This Host** icon. A `Terminal` window opens with an `/export/home/opupmgr>` prompt.	
109.	At the `/export/home/opupmgr>` prompt. enter: **/usr/sbin/afbconfig -res 1280x1024x76<Return>**	
110.	At the `abconfig: Use 1280x1024x76 anyway?` prompt, enter: **y<Return>**	
111.	Click on the **EXIT** button located near the bottom center of the CDE Front Panel and then click the **OK** button. The CDE Login screen should now be displayed.	This procedure exists the user and displays the CDE Login screen.
112.	At a display workstation CDE Login screen, in the `Please enter your user name` edit box, enter: *User_Name***<Return>**	Use the User Name created in Step 88. The login screen will go to the next step.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
113.	At a display workstation CDE Login screen, in the `Please enter your password` edit box, enter: *User_Password***<Return>**	The User ID Password must be exactly the same Password that was entered in Step 89. The system will advance past the login point to the OPUP Operational Applications Front Panel GUI Suite. A choice of icons will be displayed at the Front Panel.
114.	Click on the **Status & Control** icon located near the left corner of the Operational Applications Front Panel. This will take approximately 15 to 20 seconds for the map to appear.	A `Status and Control-OPUP 6.0` window will be displayed showing a map appropriate for your region.
115.	At the `Status and Control-OPUP 6.0` window, verify a green dot is present on the map for your location. If multiple RPGs are shown, ensure at least one RPG location is communicating with the OPUP as indicated by a green dot for that location.	If a green dot is not present, a communication failure exists between the RPG and the OPUP.
116.	Restore the site's adaptable parameters (printed/ copied from steps Step 3 and Step 4) into the appropriate windows.	
117.	If green dots are present, close the `Status and Control-OPUP 6.0` window by clicking on the **double red arrows** in the upper right corner.	
118.	At the Operational Applications Front Panel, click on the **Product Display** icon located near the left side of the Front Panel. This will take approximately 15 to 20 seconds. Two windows will open, the `Product Display GUI` and the `Toolbar`. Two pop-up windows will also open.	The Product Display GUI will have 12 individual display windows that can be selected in the next step.

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
119.	In the `Alert Registration` window, click on the **Register Selected** button. For the `Alert Database Empty!` windows, click on the **OK** button to acknowledge and close.	This closes the unnecessary display pop-up windows at this time.
120.	Choose any one of the 12 GUI windows displayed and then click on the **Open Product Selection Dialog** bar (green button located near the top left of the chosen GUI window). A `Product Selection` pop-up window will be displayed.	
121.	• Click on the **Category** button. • Click on a product listed within the Drop Down Product List box. • Click on a desired product parameter (elevation and resolution) and RPGID then click on the **Apply** button. A product should be displayed within the chosen PDGUI window.	The procedures within this step allows the user to select and display a specific product within the chosen display GUI window.
NOTE If a product is not displayed after completing Step 121, repeat Step 121 and select a different product. If the associated RPG is not connected, the product may not display at this time.		
122.	Click on the **EXIT** button located near the bottom center of the CDE Front Panel and then click the **OK** button. The CDE Login screen should now be displayed.	This procedure exits the user and displays the CDE Login screen.
123.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
124.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be the same Password assigned in Step 2.
125.	Click on the **Netscape World** icon on the far left side of the CDE Front Panel to start Netscape. A Netscape window opens. This takes approximately 20 to 30 seconds.	
126.	Click anywhere on the **gray background** area of the Netscape window to get the `Netscape: Password` window to display. `Netscape: Password` window opens.	
127.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	
128.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
129.	If a printer is installed, refer to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, paragraph 6.6.7 to add and configure the printer.	
130.	To add additional users, refer to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, paragraph 5.2.5.	

Table 3-9. Large OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
131.	At the `OPUP Manager Main Menu`, perform the following: • Click on the **OPUP Server Control Menu** button. • Click on the **Restart Server** button within the `OPUP Server Control Menu`. • Click on the **Yes** button at the confirmation window. The OPUP server will reboot and return to the CDE Login screen. This process will take 1 to 5 minutes for each workstation.	These procedures restart the OPUP server hardware and software.
132.	When the CDE Login screen appears, in the `Please enter your user name` edit box, login as a normal user.	
133.	Store any copies of the software input parameters in Step 2 that may have been made in a safe location.	Entries in Step 2 contain password information that must be kept from being compromised.
	NOTE If the Large OPUP is not functioning and/or the software load procedure was not successful, immediately contact the WSR-88D Hotline at 1-800-643-3363 for further assistance.	
134.	Proceed to paragraph 6.6.6 to configure the Communications Switch UD80A18.	

Table 3-10. Medium OPUP Software Load Procedure

Step	Action/Response	Comments
1.	Obtain the following items: • OPUP LOAD MEDIA CD-ROMs (4) provided in the kit and the software input configuration parameters outlined in paragraph 3.5.3.3 and Table 3-8 and record them in Step 2. • Cisco Configuration Cable (part number 72-3663-01) and Null Modem adapter	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
2.	Fill in the software input parameters data listed below: root password:_____ opupmgr password:_____ Security Level 1 Password:_____ Security Level 2 Password:_____ Security Level 3 Password:_____ Number of Dial Lines:_____ Point of Contact Name:_____ Point of Contact Phone Number:_____ Current Router Password:_____ New Router Password:_____ Current Enable Password:_____ New Enable Password:_____ User Name:_____ User Password:_____ - The following information will be displayed and is to be recorded here during the software installation: System Type:_____ Site Name:_____ Network:_____ OPUP Dataserver IP-Address:_____ Cisco Router IP-Address:_____ Cisco Switch IP-Address:_____	It is important that the "Current Router Password" and "Current Enable Password" are known prior to continuing with the software load. If these Passwords are not known, contact the WSR-88D Hotline for instructions on determining these Passwords. The remainder of these Passwords (e.g., root, opupmgr, and security levels) are set during the load, even if they are unknown prior to the load.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
2. Cont.	OPUP Display Server IP-Address:___:____:____:____:____:____ NOTE The software shows all 10 Workstation IP-Addresses. Medium OPUP systems will only have up to three display workstations. It is not necessary to record the IP-Addresses for display workstations not installed. Workstation Number: / Workstation Hostname: / IP-Address / Ethernet-Address 1. **Workstation1** _____ ___:____:____:____:____:____ 2. **Workstation2** _____ ___:____:____:____:____:____ 3. **Workstation3** _____ ___:____:____:____:____:____ OPUP Base to Install:_____ Select Base Installation:_____	

NOTE

There is no merge forward of any Site Adaptation Data during the software load process. Therefore each site must print (if a printer is on your system) or manually copy all modified adaptable parameters before the software is loaded as the existing parameters will ALL BE ERASED during the load.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
3.	Review the following windows in the `Status and Control` GUI and save your site's appropriate data: • `Product Request` window (`Canned Request Sets`) • `Alert Request` window (`Alert Areas & Alert Categories`) • `Map Edit` window (`Map Edits`) • `Adaptation` window (`Display tab`) • `Autodial` window (`Saved Sets`)	
4.	Review the following windows in the `OPUP Manager` GUI and save your site's appropriate data: • `OPUP Users Menu` (`View OPUP Users` for Users Names) • `OPUP Archive Menu` (`Create Products Archive` - Save site-created cases to CD-ROM)	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
5.	At each OPUP Display Workstation(s) UD85, perform the following: • If the screen saver is password protected, enter the 'root' password to override the screen saver lock. • If the Operational Applications Front Panel is displayed, perform the following or proceed: •• Press the **Exit** button on the Operational Applications Front Panel (or the CDE Front Panel). •• When the `Logout Confirmation` window is displayed, press the **OK** button. The CDE Login screen will then be displayed. • If the CDE Login screen is displayed: •• Press and hold the CPU/Processor UD85A2 power button on the front panel for 5 seconds. •• Wait for the CPU/processor to shutdown and monitor screen to be blank before proceeding.	Each workstation will take approximately 1 minute to perform a power off sequence. When finished, each display workstation will be in the power off position.
	NOTES Prior to continuing to the next two steps, locate on the keyboard the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process. If the system proceeds through the initial boot process before it is stopped, the software load process must be restarted from Step 5. If a prompt other than the `ok` prompt is displayed, press the **<Return>** key until the `ok` prompt is displayed.	
6.	At each OPUP Display Workstation(s) UD85, turn **ON** the CPU/processor by performing the following: • Press and release the CPU/Processor UD85A2 power button on the front panel. • Move to the next step immediately.	The power LED located just above the power button of each workstation CPU/processor will illuminate.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
7.	When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. This stops the display workstation boot sequence. An `ok` prompt is displayed.	
8.	At each OPUP Display Workstation(s) Monitor UD85A1, perform the following: • Locate the Ethernet-Address near the top center of the display (this address is located in the banner information, just above the ok prompt.) • When located, record the Ethernet-Address in the space(s) provided in Step 2. • Repeat for each display workstation. • Leave each display workstation at the `ok` prompt.	
9.	At the OPUP cabinet, manually place the Server UD80A11 to the **OFF** position by turning the security keyswitch on the front of the server clockwise until it stops. The green LED will turn **OFF** at the top right corner on the front of the server. Wait 15 seconds and then turn the security keyswitch back counterclockwise until it stops.	If the security keyswitch stops and the LED remains green, power is still on to the server. The server front panel door to the left of the security keyswitch may not be shut properly. Open the server front panel door and close it again. The security keyswitch should fully rotate clockwise to the OFF position and the green LED light will turn off.

NOTES

Prior to continuing to the next several steps, locate on the keyboard the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process on the server. If the system proceeds through the initial boot process before it is stopped, the software load process must be restarted from Step 9.

If a prompt other than the `{0}ok` prompt is displayed, press the **<Return>** key until the `{0}ok` prompt is displayed.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
10.	At the Server UD80A11, turn **ON** the server by firmly pressing the power button to the right of the security keyswitch. A green LED comes **ON** at the top right corner on the front of the server.	As the server starts to boot up, the monitor will remain blank for approximately 2 to 3 minutes. Wait for the monitor to display boot information.
11.	When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. This stops the server boot sequence. An `{0}ok` prompt is displayed.	
12.	At the Server UD80A11, perform the following: • Open the CD-ROM drive door. • Place Disk 1, labeled Disk 1, OPUP LOAD MEDIA Build 6.0, into the tray. • Close the CD-ROM drive door.	
13.	At the `{0}ok` prompt, enter: **boot cdrom<Return>** The boot process of the server begins. This takes approximately 4 to 5 minutes.	If an `{0}ok` prompt reappears, press **<Return>**, then repeat Step 13.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

14.	When the following message appears:
	
	`OPUP Server Installation:`
	
	`Choose OPUP Site to Load:`
	
	`1 Air_Force`
	`2 Navy`
	`3 Testbed`
	`4 Overseas`
	`5 Other`
	
	`Enter Numeric Selection from Above, q to Quit, or ? for Help: [?,??,q]:`
	
	Enter:
	*applicable # from above***<Return>**	

15.	When the following message appears: `Please enter the OPUP site system ID (type ‘help' for list):` Enter: **help<Return>** Locate your six-letter OPUP Site System ID and record it here: _____ Once located: If `-more-` is displayed at the bottom of Site System ID list, press **q** to exit out of help mode and proceed to the next step. When the above message is redisplayed, proceed to the next step.	The six-letter OPUP Site System ID will be entered when the procedures ask for the SITEID entry.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
16.	At the following message prompt: `Please enter the OPUP site system ID (type ‘help' for list):` Enter: *SITEID***<Return>**	Enter the site ID recorded in step Step 15. Ensure the OPUP site system ID is entered in UPPERCASE. If the site ID is entered incorrectly, you will be prompted to repeat this step.

NOTES

The following information displayed in Step 17 is an example of what a site may see during the OPUP software installation process. The actual system type, site name, and IP-address information for each site will be different.

The third IP-address octet (i.e. 10.5.**74**.1) is site specific. Each workstation IP-address will begin with the next successive IP-address after the OPUP Display Server IP-address (i.e. if the OPUP Display Server IP-address is 10.5.**74**.4, the first Display Workstation IP-address will use 10.5.**74**.5, the second display workstation will use 10.5.**74**.6, etc.).

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

17.	When a message similar to the following appears:
	
	`System Type is:  Testbed`
	`Site Name  is:  ROCNBY`
	`Network is: 10.5.74.0`
	`----------`
	`OPUP Dataserver IP address is:`
	`10.5.74.1`
	`Cisco Router IP address is:`
	`10.5.74.2`
	`Cisco Switch IP address is:`
	`10.5.74.3`
	`OPUP Display Server IP address is:`
	`10.5.74.4`
	`Workstation 1 IP address is:`
	`10.5.74.5`
	`Workstation 2 IP address is:`
	`10.5.74.6`
	`Workstation 3 IP address is:`
	`10.5.74.7`
	`.....`
	`.....`
	`Workstation 10 IP address is:`
	`10.5.74.14`
	
	Record the System Type, Site Name, and each Workstation IP-address displayed on the screen in the spaces provided in Step 2.
		There may be up to three display workstations for a Medium OPUP configuration. The IP-addresses will be applicable to your system.

18.	When the following message appears:
	
	`Please Enter Password for root:`
	`Enter Password:`
	
	Enter:
	*root_password***<Return>**
		Entries will not be shown. Use assigned Password from Step 2.

19.	When the following message appears: `Re-Enter Password:` Enter: *root_password***<Return>**	Password must be verified by entering the same Password twice. If the Password entries do not match or are not valid, the request for a Password will be made again.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

20.	When the following message appears:
	
	`Please Enter Password for opupmgr:`
	`Enter Password:`
	
	Enter:
	*opupmgr_password***<Return>**
		Entries will not be shown. Use assigned Password from Step 2.

21.	When the following message appears: `Re-Enter Password:` Enter: *opupmgr_password***<Return>**	Password must be verified by entering the same Password twice. If the Password entries do not match or are not valid, the request for a Password will be made again
	NOTE It is critical that all input information displayed in Step 17 is recorded and accurate. Examine the inputs and ensure all entries are correct before proceeding to the next step.	
22.	When the following message appears: `Do you want to continue installation with selection? Yes or No [y,n,?,q]` If the inputs are correct enter: **y<Return>** Continue to the next step. If any information is incorrect, enter: **n<Return>** The software load process will go back to Step 14.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

23.	The software installation process will display the following information as the load progresses:
	
	`Starting Installation.`
	
	`Beginning Installation Phase 1....`
	
	`Formatting Main SCSI Drive...`
	`Formatting Secondary SCSI Drive...`
	`Creating /export Filesystem...`
	`Creating /(root) Filesystem...`
	`Extracting /(root) Files...`
	`Creating /var Filesystem...`
	`Extracting /var Files....`
	`Creating /opt Filesystem...`
	`Creating /usr Filesystem...`
	`Extracting /usr Files...`
	`Creating /export/data Filesystem...`
	`Configuring the /devices directory`
	`Configuring the /dev directory`
	`Configuring the /dev directory (compatibility devices)`
	
	The software load process will take approximately 15 to 25 minutes.
		The system installs the software from Disk 1, OPUP LOAD MEDIA Build 6.0.
		
		The dots (...) following these messages only act as progress indicators as the installation continues.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

24.	When the following message appears:
	
	`Installation Phase 1 complete.`
	
	`Press Return to reboot and start Phase 2.`
	
	Press **<Return>**
	
	The software load process will take approximately 3 to 4 minutes.
		Initially the screen will go blank for about 30 seconds.
		
		The software load process will take approximately 3 to 4 minutes before the information in the next step is displayed.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
	NOTE If the incorrect CD-ROM disk is inserted, the load process will display the message `Incorrect Disk`. The software load process will then eject the CD-ROM and again prompt for the correct CD-ROM.	

25.	When the following message appears:
	
	`Beginning Installation Phase 2...`
	
	`Please Insert OPUP LOAD MEDIA Disk 2, and press Return.`
	
	• The CD-ROM drive door will open automatically.
	• Remove Disk 1 and place it in its protective sleeve.
	• Place Disk 2 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following message will be displayed:
	
	`Extracting /export/install Files.....`
	
	This takes approximately 15 to 25 minutes.
		The system installs the software from Disk 2, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

26.	When the following message appears:
	
	`Please Insert OPUP LOAD MEDIA Disk 3, and press Return.`
	
	• The CD-ROM drive door will open automatically.
	• Remove Disk 2 and place it in its protective sleeve.
	• Place Disk 3 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following messages will be displayed:
	
	`Extracting /opt Files..`
	`Extracting /export/home Files...`
	`Copying Cisco IOS Files...`
	
	This takes approximately 5 to 10 minutes.
		The system installs the software from Disk 3, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

27.	When the following message appears:
	
	`Please Insert OPUP LOAD MEDIA Disk 4, and press Return.`
	
	• The CD-ROM drive door will open automatically.
	• Remove Disk 3 and place it in its protective sleeve.
	• Place Disk 4 into the tray.
	• Close the CD-ROM drive door.
	• Press the **<Return>** key.
	The following message will be displayed:
	
	`Extracting Map Files...`
	
	This takes approximately 3 to 5 minutes.
		The system installs the software from Disk 4, OPUP LOAD MEDIA Build 6.0.
		
		Any messages indicating a failure or error may indicate a defective disk. Call the WSR-88D Hotline for assistance.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

28.	When the following message appears:
	
	`OPUP LOAD MEDIA Disk 4 Finished Loading.`
	
	`Please Remove OPUP LOAD MEDIA Disk 4, and press Return.`
	
	• The CD-ROM drive door will open automatically.
	• Remove Disk 4 and place it in its protective sleeve.
	• Close the CD-ROM drive door.
	• Place the disks in a safe location for future use.
	• Press the **<Return>** key.
	
	The following message appears:
	
	`Configure Third Party Software...`
	
	Additional messages will be displayed for the next 5 to 10 minutes.
	
	The software load process continues.
		Once the system is finished loading Disk 4, various amounts of information will scroll through the display monitor.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

29.	When the following message is displayed:
	
	`Please use the right cable to connect the Cisco LAN Switch console port to Serial Port A on the OPUP Server.`
	
	`Press Return when ready to proceed or enter 'skip' to skip the Cisco configuration.`
	
	Enter:
	skip<Return>
	
	This process can take up to 5 minutes to complete.
	
	The OPUP will automatically reboot. Wait for the CDE Login screen to be displayed.
		The **skip** command will by-pass the Communication Switch UD80A18 configuration and install remaining software items.
		
		If continually prompted to enter the "skip" before the command can be entered, continue with this step.

30.	At the CDE Login screen, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
31.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>** The system will advance past the login point to the CDE Front Panel when this step is complete.	The opupmgr Password must be exactly the same Password that was assigned in Step 2.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
32.	When the `Netscape: New Site Certificate` window appears: • Click on the **Next>** button • Click on the **Next>** button • Click to select the Radio button **Accept this certificate forever (until it expires)** • Click on the **Next>** button • Click on the **Next>** button • Click on the **Finish** button. The `Netscape: New Site Certificate` window closes.	This step allows the user to setup and accept the Netscape security parameters for OPUP use.
33.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>** The cursor will move to the `Password:` box.	
34.	In the `Password:` edit window, enter: *opupmgr_password***<Return>**	The opupmgr Password must be exactly the same Password that was assigned in Step 2.
35.	When the `Netscape: Secure Document` window appears, • Click on the **Show this Alert Next Time** check box to uncheck it. • Click on the **OK** button.	
36.	When the `Netscape: OPUP Manager Start OPUP` window appears: Click on the **Next** button.	
	NOTE Refer to the software input parameters recorded in Step 2 for the steps that follow.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
37.	In the `OPUP Password Information:` block, click in the first password field, enter: *Security_Level_1_Password***<Tab>** Using the **<Tab>** key, move through the rest of the fields. Enter all appropriate passwords and password confirmations, as required, for all three security levels.	Each security level must have a unique Password.
38.	At the `OPUP Size` and `Dial Line Information:` block, in the `Enter OPUP Size Configuration (1 for Large, 2 for Medium, 3 for Small):` edit box, enter: **2<Tab>**	This step selects a Medium OPUP configuration.
39.	At the `Enter # of Available Dial Lines (1 to 8):` edit box, enter: *Appropriate number of dial lines***<Tab>**	The Medium OPUP configuration can use up to 8 dial lines. Ensure this is correct for this configuration.
40.	At the `OPUP Product Distribution Information:` block, in the `Enter OPUP Distribution Contact Name:` edit box, perform the following: • Delete the current entry. • Enter: *site_specific_contact_name***<Tab>** • In the `Enter OPUP Distribution Contact Phone Number:` edit box, enter: *phone_number***<Tab>**	This is the point of contact information. Enter the Name of the Office (i.e. Tinker Base Weather) and the telephone number with area code. DO NOT use dashes. DO NOT leave these fields blank!

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
41.	At the `Cisco Router Passwords:` block, in the `Enter Current Router Password:` edit box, enter: *Current_Router_Password*, then • Click in the `Enter New Router Password:` edit box and enter: *New_Router_Password***<Tab>** • In the `Re-Enter Password:` edit box, enter: *New_Router_Password***<Tab>** • In the `Enter Current Enable Password:` edit box, enter: *Current_Enable_Password***<Tab>** • In the `Enter New Enable Password:` edit box, enter: *New_Enable_Password***<Tab>** • In the `Re-Enter Password:` edit box, enter: *New_Enable_Password* • Click on the **Next** button.	If either the Current Router Password or the Current Enable Password is entered incorrectly, the router configuration will fail in later steps.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments

42.	If the following message appears at the `Netscape: PUP Information Entered` window:
	
	`PUP Information - has been Created`
	
	Click on the **Next** button and continue to the next step.
	
	Otherwise, if the following message appears:
	
	`PUP Information not Correct`
	
	• Determine which information is incorrect.
	• Click on the **Return to Last Screen** button.
	• Make the necessary corrections.
	• Restart this step.
		If the information in Step 43 is correct the configuration process will go to the next step. If not, Step 43 will need to be repeated after all input information has been verified to be correct.

43.	At the `Netscape: OPUP Select Base Information` window, click on the appropriate button. Record the Base in the space provided in Step 2.	
44.	At the `Netscape: Select Base Installation` window, in the Select Base block, highlight the applicable Base name by clicking on it. (If necessary, use the scroll bar to locate the Base name.) When the selected Base is highlighted, click on the **Next** button. Record the Base in the space provided in Step 2.	The configuration process will go to the next step.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
45.	At the `Netscape: OPUP Manager Create New RPG Information` window, verify your Base is correctly displayed in the middle of the window. If the Base is correct, click on the **Yes** button. The configuration process will go to the next step. If the Base is incorrect, click on the **Return to Last Screen** button to return to the `Netscape: Select Base Installation` window and select the correct Base.	
46.	At the `Netscape: Add RPG Information from list` window, click on the **Next** button.	Each site's dial and dedicated RPGs will be configured. If more dial sites are needed after installation, contact WSR-88D Hotline.
47.	At the `Netscape: RPG Information Entered` window, click on the **Next** button. The configuration process will go to the next step.	
48.	Perform the following steps to connect the Cisco Configuration Cable, part number 72-3663-01, to the Communication Router UD80A3: • Connect the RJ45 end of Cisco configuration cable to the CON port at the front of the communication router. • Connect the other end of the Cisco configuration cable to a Null Modem adapter. • Connect the Null Modem adapter to the Serial Port A connector on the rear of the Server UD80A11.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
49.	At the `Netscape: OPUP Manager Configure OPUP` window, click on the **Configure OPUP** button and then click on the **Yes** button to confirm. This take approximately 5 to 15 minutes. When finished, a `Netscape: OPUP Manager Configure OPUP` window will be displayed with an `OPUP has been Configured` message.	
	NOTE If the following message appears: `OPUP has been Configured But.....Final Cisco Router Configuration Failed. Before OPUP could be operational you must manually configure Router. Please follow the instructions, to manually configure Cisco Router.` Proceed to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, Table 3-11, Software Installation Recovery Procedures, and consult the Communication Router recovery procedure outlined in item number 6. Return to Step 50 when finished.	
50.	At the front of the Communication Router UD80A3, unplug the Cisco configuration cable from the CON port.	
51.	At the rear of the Server UD80A11, disconnect the other end of the Cisco configuration cable and Null Modem adapter from Port A. Store this cable and Null Modem adapter for future software installations and troubleshooting.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
52.	At the `Netscape: OPUP Manager Configure OPUP` window: • Click on the **Return to Last Screen** button. • Click on the **OPUP Manager Main Menu** button. The `OPUP Manager Main Menu` will be displayed	
53.	At the `OPUP Manager Main Menu`, click on the **OPUP Workstation Menu** button. A `Netscape: OPUP Workstation Menu` window appears.	
54.	Click on the **Add New Workstation** button. A `Netscape: OPUP Manager Add New Workstation` window appears.	
55.	At the `Ethernet Address:` area, click in the text edit box, and enter: *Workstation1_Ethernet-Address* Click on the **Save** button.	Refer to Step 2 for the recorded Workstation1 Ethernet-Address.
56.	When the `Netscape: Workstation Information Complete` window appears and displays the message: `The following workstations have been added:` Verify the Ethernet-Address is correct.	Workstation 1 has been added.
57.	Repeat Step 54 through Step 56 for all additional workstations. When the last workstation has been entered, continue to the next step.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
58.	At the `OPUP Manager Main Menu` window, Click the **File** selection near the top left corner of the window. When the pull down menu opens, click the **Exit** selection at the bottom of the menu.	It is important to close this window prior to continuing to the next step in order to refresh the data supplied to this window.
59.	When the following message appears at the `Netscape: Question` window: `Close all windows and exit Netscape?` Click on the **OK** button. The `OPUP Manager Main Menu` closes.	
60.	Click on the **EXIT** button on the CDE Front Panel and then click on the **OK** button in the `Logout Confirmation` window.	This step exits the desktop session and displays the CDE Login screen.
61.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
62.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>** The system will advance past the login point to the CDE Front Panel.	The opupmgr Password must be the same Password assigned in Step 2.
63.	Click on the **Netscape World** icon on the far left side of the CDE Front Panel to start Netscape. A `Netscape:` window opens. This takes approximately 20 to 30 seconds.	
64.	Click anywhere on the **gray background** area of the `Netscape:` window to get the `Netscape: Password` window to display.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
65.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	
66.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
67.	At each OPUP Display Workstation(s) UD85, at the `ok` prompt: enter: **boot net - install<Return>** If an `{0}ok` prompt reappears, press **<Return>**, then repeat Step 67. Ensure the above command is performed at all display workstations. This installation will take 60 to 75 minutes per display workstation. When finished, the display workstation CDE Login screen will be displayed. Do not continue until all display workstations display the CDE Login screen.	This step ensures that each display workstation is selected and uses a command to invoke Jumpstart software package which initiates an automatic software installation routine.
68.	At the OPUP cabinet, if the screen saver feature has been engaged, move the mouse or press the **<Shift>** key to deactivate the screen saver. If the screen saver is password protected, enter the 'root' password to override the screen saver lock.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
69.	At the `OPUP Manager Main Menu`, perform the following • Click on the **OPUP Software Menu** button. • Click on the **Start OPUP** button within the `OPUP Software Menu`. • Click on the **Yes** button at the confirmation window. The OPUP process will take 1 to 2 minutes to start. However, continue with the next step.	This will start the OPUP software.
70.	At the `Netscape: OPUP Manager Start OPUP` window: Click on the **Return to OPUP Software Menu** button.	
71.	• Click on the **OPUP Process Status** button. An `OPUP Process Status` window will appear. • Click on the **Refresh** button, as needed, until all `OPUP App/Task` processes have started. When all the `OPUP App/Task` processes are started, go to the next step.	Every process listed in the `OPUP App/Task` portion will have a PID (Process Identification) number assigned once the OPUP is completely started. The `OPUP GUI App` portion will not display active application processes.
72.	Click on the **Workstation Processes** button. An `OPUP Workstation Process Status` window will appear. Verify each Workstation has both processes started in the `OPUP App/Task` area, then go to the next step.	Each workstation has a separate section displaying its tasks list. The `OPUP GUI App` portions will not display active application processes.
73.	Click on the **Return To Main Menu** button. The `OPUP Manager Main Menu` will be displayed.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
74.	At the `OPUP Manager Main Menu` window, click on the **OPUP Users Menu** button. An `OPUP Users Menu` will be displayed.	The menu will go to the next step. This menu will be used to enter a unique User Name and Password.
	NOTE Case is important for both User Name and Passwords when they are defined. Future access to both will require the exact case for each letter as entered here. Each User Name must meet the following minimum composition requirements: • Be at least a minimum of <u>three</u> characters in length. • Contain at least <u>two</u> alpha characters (A through Z or a through z). • Contain at least <u>one</u> number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, #, or =).	
75.	• Click on the **Add New User** button. • Click in the `User Name:` edit box to activate the field for text entry. • Enter any combination of letters and numbers to define a unique User Name that meets the requirements stated in the note above. • Record the User Name in the space provided in Step 2.	A unique User Name should now be entered, verified, and recorded in the space provided in Step 2.
	NOTE Each Password must meet the following minimum composition requirements: • Be at least a minimum of <u>eight</u> characters in length. • Contain at least <u>one</u> UPPERCASE character (A through Z). • Contain at least <u>one</u> lowercase character (a through z). • Contain at least <u>one</u> number (0 through 9). • Contain at least <u>one</u> special character (!, @, %, (, -, +, {, [, #, =, &, *). All “special” entries must be within the first 8 characters.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
76.	• Click on the `Password:` edit window to activate the window field for text entry and enter the password for the user. • Enter a Password that meets the requirements in the note above. • Click in the `Reenter password:` edit window to activate the window field for text entry and then reenter the Password exactly as entered above. • Record the Password exactly as entered in this step in the space provided in Step 2.	This step ensures that the Password is not mistyped/misspelled. It should also be recorded in the space provided in Step 2 of these instructions. If the Password doesn't meet the security requirements, follow the on-screen instructions.
77.	Click on the **Save** button. When the `Netscape: Display User Info Entered` window and `OPUP User` *`user_name`* `- Successfully Created` message is displayed, click on the **Return To Main Menu** button. The `OPUP Manager Main Menu` is displayed.	The User Name is displayed as part of the window title.
78.	At the CDE Front Panel, move the mouse cursor over the **Netscape World** icon. The current day, date, and time in GMT should be displayed.	
79.	While leaving the mouse cursor over the **Netscape World** icon, inspect the day, date, and time. If the time is off by more than 1 minute, go to the next step. Otherwise, go to Step 87.	If the day, date, and time information will not display, go to the next step.
80.	Within the CDE Front Panel, click on the **up arrow** located just above the **cpu disk** icon. A `Hosts` pop-up menu will then be displayed.	
81.	Click on the **This Host** icon. A `Terminal` window opens with an `/export/home/opupmgr>` prompt.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
82.	At the `/export/home/opupmgr>` prompt, enter: **date<Return>** The current day of the week, month, day, time (hh:mm:ss), GMT, year should be displayed. If the time is off more than 1 minute, go to the next step. Otherwise, go to Step 87.	
83.	Obtain an accurate time source (e.g., WWV 303-499-7111). At the `/export/home/opupmgr>` prompt, enter: **sudo date** *mmddHHMM[cc][yy][.ss]* (Do Not press the **<Return>** key). Use GMT time.	Everything after the minutes entry (“MM”) is optional. However, the most accurate method to update the time is to, at a minimum, enter the HHMM.ss parameters. The following information applies: mm= Month dd= Day HH= GMT Hour MM=Minute Optional entries (normally not entered): cc= Century minus 1 yy= Year ss= Seconds
84.	Using the chosen time source, press **<Return>** at the exact time the above entered time occurs.	
85.	At the `/export/home/opupmgr>` prompt, enter: **date<Return>**	Verify the OPUP system time was updated.
86.	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>** The `Terminal` window closes. The CDE Front Panel will be displayed.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
87.	Go to one of the Display Workstations UD85. Ensure that the CDE Login screen is displayed before going to the next step.	Each display workstation is connected to the Medium OPUP via CAT5 cable. Each workstation was added during Step 54 through Step 56.
	NOTE If the font used to display the Security Warning portion of the CDE Login screen is too large making the screen unreadable, perform Step 88 through Step 98. These steps may be required at all workstations. If the CDE Login screen is correct, skip to Step 99.	
88.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	
89.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be the same Password assigned in Step 2.
90.	Click on the **Netscape World** icon on the far left side of the CDE Front Panel to start Netscape. A `Netscape:` window opens. This takes approximately 20 to 30 seconds.	
91.	Click anywhere on the **gray background** area of the `Netscape:` window to get the `Netscape: Password:` window to display. `Netscape: Password` window opens.	
92.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
93.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
94.	Within the CDE Front Panel, click on the **up** arrow located just above the **cpu disk** icon. A `Hosts` pop-up menu will then be displayed.	
95.	Click on the **This Host** icon. A `Terminal` window opens with an `/export/home/opupmgr>` prompt.	
96.	At the `/export/home/opupmgr>` prompt, enter: **/usr/sbin/afbconfig -res 1280x1024x76<Return>**	
97.	At the `abconfig: Use 1280x1024x76 anyway?` prompt, enter: **y<Return>**	
98.	Click on the **EXIT** button located near the bottom center of the CDE Front Panel and then click the **OK** button. The CDE Login screen should now be displayed.	This procedure exits the user and displays the CDE Login screen.
99.	At a display workstation CDE Login screen, in the `Please enter your user name` in the edit box, enter: *User_Name***<Return>**	Use the User Name created in Step 75. The login screen will go to the next step.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
100.	At the display workstation CDE Login screen, in the `Password` edit box, enter: *User_Password***<Return>**	The User ID Password must be exactly the same Password that was entered in Step 76. The system will advance past the login point to the OPUP Operational Applications Front Panel GUI Suite. A choice of icons will be displayed at the Front Panel.
101.	Click on the **Status & Control** icon located near the lower left corner of the Operational Applications Front Panel. This will take approximately 15 to 20 seconds for the map to appear.	A `Status and Control-OPUP 6.0` window will be displayed showing a map appropriate for your region.
102.	At the `Status and Control-OPUP 6.0` window, verify a green dot is present on the map for your location. If multiple RPGs are shown, ensure at least one RPG location is communicating with the OPUP as indicated by a green dot for that location.	If a green dot is not present, a communication failure exists between the RPG and the OPUP.
103.	Restore the site's adaptable parameters (printed/ copied from Step 3 and Step 4) into the appropriate windows.	
104.	If green dots are present, close the `Status and Control-OPUP 6.0` window by clicking on the **double red arrows** in the upper right corner.	
105.	At the Operational Applications Front Panel, click on the **Product Display** icon located near the lower left corner of the Front Panel. This will take approximately 15 to 20 seconds to load. Two windows will open, the `Product Display GUI` and the `Toolbar`. Two pop-up windows will also open.	The Product Display GUI will have 12 individual display windows that can be selected in the next step.

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
106.	In the `Alert Registration` window, click on the **Register Selected** button. For any `Alert Database Empty!` windows that may appear, click on the **OK** button to acknowledge and close.	These steps close all unnecessary pop-up windows at this time.
107.	Choose any one of the 12 GUI windows displayed and then click on the **Open Product Selection Dialog** bar (green button located near the top center of the chosen GUI window). A `Product Selection` pop-up window will now be displayed.	
108.	• Click on the **Category** button. • Click on a product listed within the Drop Down Product List box. • Click on a desired product parameter (elevation and resolution) and RPGID, then click on the **Apply** button. A product should be displayed within the chosen PDGUI window.	The procedures within this step allows the user to select and display a specific product within the chosen display GUI window.
NOTE If a product is not displayed after completing Step 108, repeat Step 108 and select a different product. If the associated RPG is not connected, the product may not display at this time.		
109.	Click on the **EXIT** button located near the bottom center of the CDE Front Panel and then click the **OK** button. The CDE Login screen should now be displayed.	This procedure exits the user and displays the CDE Login screen.
110.	When the CDE Login screen appears, in the `Please enter your user name` edit box, enter: **opupmgr<Return>**	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
111.	At the CDE Login screen, in the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**	The opupmgr Password must be the same Password assigned in Step 2.
112.	Click on the **Netscape World** icon on the far left side of the CDE Front Panel to start Netscape. A `Netscape:` window opens. This takes approximately 20 to 30 seconds.	
113.	Click anywhere on the **gray background** area of the `Netscape:` window to get the `Netscape: Password:` window to display. `Netscape: Password` window opens.	
114.	In the `Netscape: Password` window, in the `User ID:` edit box, enter: **opupmgr<Return>**	
115.	In the `Password:` edit box, enter: *opupmgr_password***<Return>** The `OPUP Manager Main Menu` will be displayed.	The opupmgr Password must be the same Password assigned in Step 2.
116.	If a printer is installed, refer to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, paragraph 6.6.7 to add and configure the printer.	
117.	To add additional users refer to NWS EHB 6-537, AF TO 31P1-4-108-459-2, Navy EM400-A4-MMO-010, paragraph 5.2.5.	

Table 3-10. Medium OPUP Software Load Procedure - Continued

Step	Action/Response	Comments
118.	At the `OPUP Manager Main Menu`, perform the following: • Click on the **OPUP Server Control Menu** button. • Click on the **Restart Server** button within the `OPUP Server Control Menu`. • Click on the **Yes** button at the confirmation window. The OPUP server will reboot and return to the CDE Login screen. This process will take 1 to 5 minutes for each workstation.	These procedures restart the OPUP server hardware and software.
119.	When the CDE Login screen appears, in the `Please enter your user name` edit box, login as a normal user.	
120.	Store any copies of the software input parameters in Step 2 that may have been made in a safe location.	Entries in Step 2 contain password information that must be kept from being compromised.
	NOTE If the Medium OPUP is not functioning and/or the software load procedure was not successful, immediately contact the WSR-88D Hotline at 1-800-643-3363 for further assistance.	
121.	Proceed to paragraph 6.6.6 to configure the Communications Switch UD80A18.	

3.5.4.3 Software Installation Recovery Procedures. The information provided in the following paragraphs outline the procedures that may be used when a software load failure or error occurs.

3.5.4.3.1 Recovery Determination. An immediate assessment will be required in order to determine the level of recovery needed in order to complete each software load procedure. Table 3-11 is provided to assist with the most common recovery processes. The steps provided by either the Large or Medium OPUP software load procedures have been developed to allow some of the steps to be repeated in the event an input error or CD-ROM disk read error occurs. For the most part, each software installation process can continue to the last step in each procedure, despite any errors that are displayed on the monitor. However, it will be necessary to begin the software process over from the beginning.

The following table is provided as a guide for all other software recovery determinations.

Table 3-11. Software Installation Recovery Procedures

Item	Problem/Error	Recovery Method
1.	The software installation process freezes and will not go past a certain point in the installation process, or input errors require that the installation process begin again from Step 1 in Table 3-9 or Table 3-10. (Refer to Figure 2-21, Index 10 for identification of the OPUP Server UD80A11 Power Keyswitch.)	Method # 1: Note all error messages displayed on the monitor. If any error message displays a `Continue y,n?` option, enter **<N>** at the prompts and then start the software load procedure over again from Step 1 of either Table 3-9 or Table 3-10. If there are no options, go to Method # 2. Method # 2: Locate the OPUP server power keyswitch and place the server in the power **Off** position. When the server is completely powered Off, place the server in the **On** position. When data reappears on the display monitor, immediately press the **<Stop>** key and **<A>** key simultaneously. When the `{0} ok` prompt is displayed, begin the software load procedure again at Step 20 of Table 3-9 (Large) or Step 13 of Table 3-10 (Medium).

Table 3-11. Software Installation Recovery Procedures - Continued

Item	Problem/Error	Recovery Method

2.	The system displays one of the following messages:
	
	`Error Reading Target Source Address "XXXXX" attempting to retry....`
	
	`Error! Destination Target Corruption! Attempting to retry....`
	
	(Refer to Figure 2-21, Index 10 for identification of the OPUP Server UD80A11 and UD80A12 Power Keyswitch.)
		These errors can occur due to missing installation files and/or scripts, corrupted CD-ROM disk or a faulty CD-ROM player. These can also occur if the CD-ROM player drive system and/or installation disks are dirty.
		
		If any error message displays a `Continue y,n?` option, enter **<N>** at the prompts and then start the software installation procedure over again.
		
		If an `{0} ok` prompt is currently being displayed, return to Step 20 of Table 3-9 (Large) or Step 13 of Table 3-10 (Medium), and begin the software installation procedure again.
		
		If an `{0} ok` prompt will not display, locate the OPUP server power keyswitch and place the server in the power **Off** position. When the server is completely powered Off, place the Server in the **On** position. When data reappears on the display monitor, immediately press the **<Stop>** key and **<A>** key simultaneously. When the `{0} ok` prompt is displayed, begin again at Step 20 of Table 3-9 or Step 13 of Table 3-10.
		
		If the error occurs again, or an `{0} ok` prompt will not display, consult the applicable troubleshooting guidelines provided in Chapter 6, Maintenance.

Table 3-11. Software Installation Recovery Procedures - Continued

Item	Problem/Error	Recovery Method
3.	For sites that have Display Workstations UD85 physically connected to a Large/Medium OPUP. Workstation(s) do not respond to the **boot net - install <Return>** command in Table 3-9, Step 67 (Large) or Table 3-10, Step 69 (Medium) of the software installation procedure.	Ensure that each workstation is properly connected to the OPUP Communication Switch UD80A18 in accordance with Figure 2-6, Sheet 1 (Large OPUP) or Figure 2-7, Sheet 1 (Medium OPUP). Ensure that each workstation ethernet-address has been entered correctly in accordance with Table 3-9 Step 66, or Table 3-10, Step 55 of the software installation procedure. If that information is incorrect, then perform the following steps: - Perform the Add New Workstation procedure per paragraph 5.2.7.2 of this manual. - Take each workstation down to the `ok` prompt by performing paragraph 5.2.7.1.1, Steps 1 through 3. - At the `ok` prompt, enter: **boot net - install<Return>** If that information is correct and all workstations are connected properly, then perform the following steps: - Take each workstation down to the `ok` prompt by performing paragraph 5.2.7.1.1, Steps 1 through 3. - At the `ok` prompt, enter: **boot net - install<Return>**

Table 3-11. Software Installation Recovery Procedures - Continued

Item	Problem/Error	Recovery Method
4.	The CD-ROM player drive does not respond to the following command: **boot cdrom<Return>**	Method # 1: Note any/all error messages. If the error message gives a `Continue y,n?` option, enter **<N>** and start the software installation procedure over again from the first input prompt. If there is no option, go to Method # 2. Method # 2: Locate the OPUP server power keyswitch and place the server in the power **Off** position. When the server is completely powered Off, place the server in the **On** position. When data reappears on the display monitor, immediately press the **<Stop>** key and **<A>** key simultaneously. When the `{0} ok` prompt is displayed begin again at Step 20 of Table 3-9 or Step 13 of Table 3-10. If the error occurs again, or an `{0} ok` prompt will not display, consult the applicable troubleshooting guidelines provided in Chapter 6, Maintenance.
5.	Missing installation disks and/ or required cables.	Contact the WSR-88D Hotline, 1-800-643-3363 for immediate software CD-ROM disk(s) replacement.
6.	Isolated based configuration Communication Router UD80A3 displays a failed or not configured message.	Go to paragraph 6.6.3 to perform a Communication Router UD80A3 setup procedure.
7.	UPS UD80A5/A6/A13/A14 do not respond to system POST during OPUP Server OS boot/ re-boot sequences or UPS does not perform backup functions correctly.	Method # 1: Conduct UPS loss of power test. If the system is performing properly, stop here. If not, consult Chapter 6, Maintenance. Method # 2: Ensure that the UPS UD80A5/A6/ A13/A14 serial input/output cable (80W4) is securely connected to port A on the rear of the Server UD80A11.

Table 3-11. Software Installation Recovery Procedures - Continued

Item	Problem/Error	Recovery Method
NOTE Ensure the software load procedure has been completed before attempting any Display Workstation UD85 Recovery Procedure(s).		
8.	The Display Workstation UD85 displays an error message or "Looking for connection?" more than 3 times after the "boot net - install" command has been entered.	Method # 1: Go to paragraph 5.2.7.4 and perform the procedures to View Workstations. Ensure that the ethernet-address has been entered correctly for the display workstation in question. (It is possible that data was entered incorrectly during Step 66 of the Table 3-9 or Step 55 of Table 3-10.) Method # 2: Inspect all cables. Ensure that the Communication Switch UD80A18 has power applied and that the corresponding CAT5 RJ-45 Type cable is securely connected in both the Display Workstation Ethernet port and the corresponding Communication Switch UD80A18 port. Method # 3: Ensure that the display workstation Ethernet card is blinking green and that the corresponding Communication Switch UD80A18 port is green. If any other errors occur, the `ok` prompt will not display, or the corresponding Communication Switch UD80A18 port is amber, consult the applicable troubleshooting guidelines provided in Chapter 6, Maintenance.

Section 3.6. OPUP SOFTWARE DEVELOPMENT BACKGROUND

3.6.1 Introduction.

The Sun Microsystems Solaris Operating System (OS) is incorporated within the OPUP OS. The Solaris OS was chosen for its open architecture software environment application, as well as, its adherence to a 64-bit Portable Operating System Interface for Computer Environments (POSIX). POSIX is an IEEE Public Standard 1003.1-1998 compliant platform. This section provides a brief overview of the Solaris OS and accompanying Computer Desktop Environment (CDE), OPUP OS (which includes Operational Application Suite, and any applicable UNIX commands and scripts that may be used within the `OPUP Manager Main Menu` and/or host terminal windows).

3.6.2 Open System Architecture.

An open system architecture computer and programming environment is defined as a process which implements widely adopted public specifications for interfaces, services, and supporting formats that enable properly engineered applications software to be ported across a wide range of systems with minimal changes. Open architecture design attempts integrate other applications on a local and remote scale. They also strive to interact with users in a style of protocols, interfaces, and services in order to enable users and applications to receive transparent access to data, resources, and other services across wide network application.

The upgrade and transition of the OPUP Server OS and Operational Application Suite to an open architecture has involved the development of suitable operating software that utilizes a myriad of standard applications. For example, the conversion of the Legacy PUP OS to an open architecture, which has led to a server/client environment. This environment encapsulates general purpose Workstations using front-end loaded server/client access to the OPUP OS and Operational Application Suite. This type of access allows other systems on various local and remote LAN switches, communications nodes, and associated equipment to run either the OPUP OS and/or Operational Application GUIs.

3.6.3 OPUP Development Standards.

The OPUP development program adheres to POSIX IEEE Public standard 1003.1-1998 standards. These standards provide developers the ability contribute application development and programming codes from prior application development and re-use it for future development teams. These standards also ensure that all applications developed using POSIX will be portable to other applications, reduce software development maintenance, and meet testing requirements.

In addition to the POSIX standard, the OPUP base OS incorporates the SUN Solaris OS 5.8 release and all applicable software patches, as well as, the Common Desktop Environment (CDE). The Solaris OS will run on all Sun Microsystems compatibly platforms (which include all systems employed by the OPUP program). Solaris conforms to all active “X” - Open Systems Environment standards. Sun Solaris also complies with common criteria requirements for certification at the C2 level.

The primary programming development code used in the OPUP OS and AS Suite is the C programming language (FIPS 160 C, ANSI/ISO 9899:1992). C is a high-level programming language that provides a base code designed for use in all levels of software development. Fortran (FIPS 69-1, ISO 1539:1980, ANSI X3.9-1978) is also used by the OPUP product display system. This programming code is used as a high-level language used primarily in scientific applications/ algorithms.

3.6.3.1 OPUP Product Display GUIs/Active X Windows. All OPUP administration and maintenance will interact with the OPUP OS through the OPUP Manager GUI (`OPUP Manager Main Menu`). The `OPUP Manager Main Menu` can be accessed through CDE login routines via the same display monitor used by operators. Each OPUP GUI has been built upon Active X window functionality to provide the necessary functionality to easily access and manipulate all Operational Applications. Each GUI has been developed using the standard user's interlace development tool kit called Motif. The Motif window development standard ensures that all window formats adhere to the same standards as they are developed in the Open Systems Environment

3.6.4 OPUP UNIX OS.

NOTE

> The OPUP OS and Operational Application Suite were developed to allow for minimal understanding of UNIX and any programming language. This section is only intended to provide a brief introduction to some of the UNIX concepts concerning programming, files systems, command, and scripts that may be used to assist with OPUP administrative duties and maintenance.

When the OPUP server power button is initially pressed, the OPUP Server OS automatically performs a boot sequence. A software boot sequence will also be initiated if the system detects a reboot or re-initialization signal/command, either automatically by an applications design or manually by a user. The boot sequence is performed in four phases. These are the Boot PROM (Programmable Read Only Memory), Boot Programs, Kernel Initialization, and INIT phase. The boot sequence checks/initializes all hardware, mounts necessary file systems, starts support services (printing, network functions, internal logging, etc.) and brings the system to a normal operating level. When the boot process is finished, the Government authorization monitoring banner and CDE Login screen will be displayed.

3.6.4.1 UNIX Boot Sequence. The OPUP server utilizes firmware associated with the Sun Microsystems to initiate and perform a boot sequence. The boot sequence uses the Boot PROM and NVRAM (Non Volatile Random Access Memory) functionality before any binary machine instructions/commands are sent to the OPUP server. This function in turn will begin to execute the various programs directed by NVRAM. Figure 3-1 is provided to assist with the description of Sun Microsystems UNIX boot sequence.

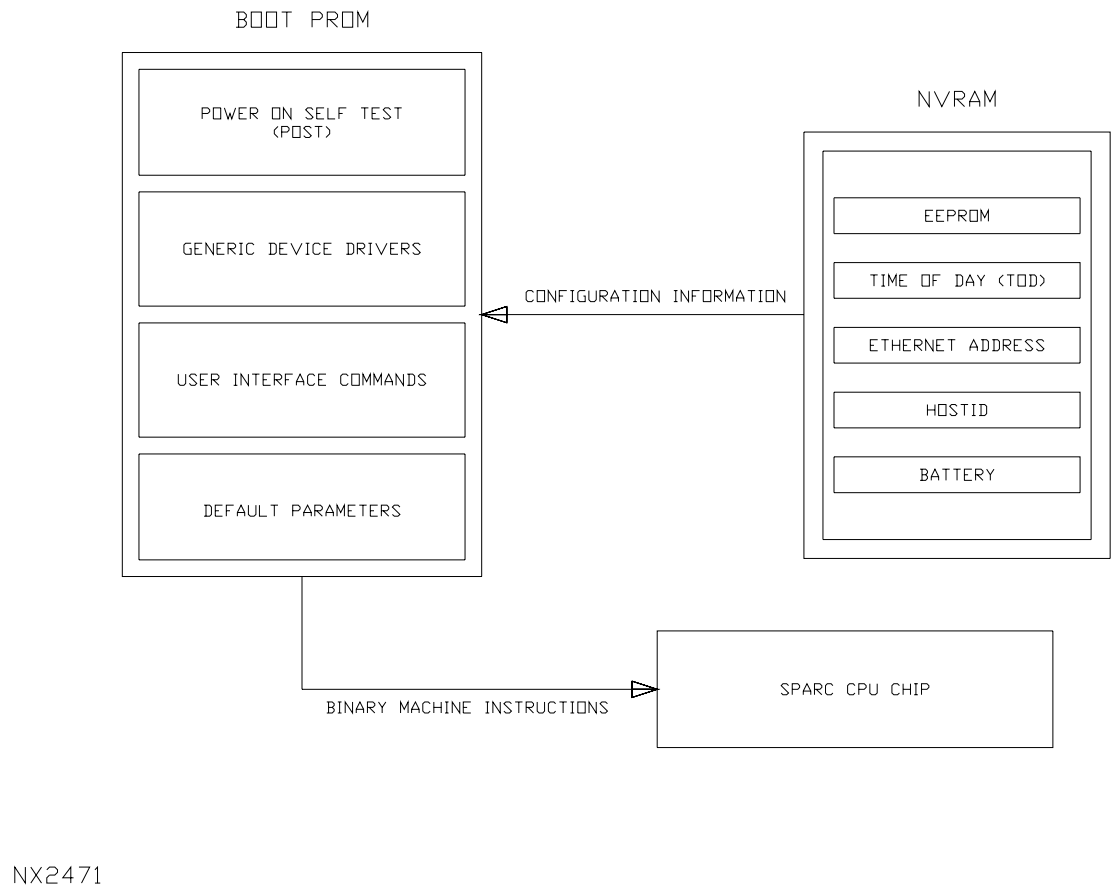


Figure 3-1. Basic Elements of the Boot PROM/NVRAM

3.6.4.1.1 Boot PROM. The Boot PROM is an 8-bit chip on each systems motherboard that tests system hardware and boots the OS. This chip contains firmware that provides a standard set of commands that force the hardware to perform certain operations before UNIX software is loaded.

3.6.4.1.1.1 NVRAM. Another important part of the boot sequence is the use of an 8-bit chip called the NVRAM. This memory chip is located on the motherboard and is unpluggable, or replaceable. NVRAM stores the Ethernet Address, host ID, and the time-of-day clock. A lithium battery provides backup for the NVRAM/TOD clock.). The NVRAM contains the Electronic Erasable PROM (EEPROM) for storage of user-configurable parameters from the Boot PROM's default parameter settings. NVRAM gives programmers/OPUP System Administrators the flexibility to force each system to behave in a specific manner. All user-interface commands (at the Sun Solaris base UNIX OS level) and device aliases are stored in the NVRAM, as well.

NOTE

The NVRAM chip has a yellow sticker placed on top of it that is labeled with a bar code containing the software package/license based on the origi-

nal host ID and Ethernet Address shipped with each system. For the most part, this will be transparent to the OPUP System Administrator. This is due to the base Sun Solaris 5.8 OS being incorporated in the OPUP software development process. If this chip fails or the information contained within the chip becomes corrupted, either the NVRAM chip default parameters will need to be restored or the chip will need to be replaced. If this is in fact the case, Chapter 6, Maintenance, will outline the procedure for OPUP server replacement, restoral, and configuration.

3.6.4.1.1.2 Power-On-Self-Test (POST). When the system is first powered on, a low-level self-test is initiated. The POST code is stored in the Boot PROM and is designed to test the systems hardware basic functions. At the completion of a successful POST sequence, the Boot PROM takes control of the boot process and initiates the following hardware and system processes:

- Initialize the system
- Probes memory and the CPU
- Probes bus devices, interprets each driver, and builds a device tree
- Installs the console (user interfaces/default parameters)

The overall goal of the POST is to test, initialize, determine what system hardware is installed, boot the OS, provide debugging facilities, and enable third party devices (if attached/installed).

3.6.4.1.2 Boot Programs (PROM (OPENBoot) User Commands). Each Sun Microsystems system has the ability to access Boot PROM functions via the OPENBoot interface at the conclusion of the POST sequence. However, maintainers can only access these features after the POST sequence is interrupted and before the CDE Login screen is displayed. To interrupt the POST sequence, press the **<Stop>** key (near top left of the keyboard) simultaneously with the **<A>** key during the power on sequence. The system will display an `ok` prompt. This indicates that the OpenBoot Monitor Console is being displayed and that Solaris is NOT running. The OpenBoot Monitor Console provides a user interface for entering OPENBoot commands. These commands can be used to probe the SCSI bus (used to detect attached/installed devices), set default parameters, display the system banner, and various other Boot PROM commands used to assist in troubleshooting hardware. Table 3-12 lists some commands that OPUP System Administrators may need to be familiar with in case these diagnostics are required.

NOTE

Use of the **<Stop>** and **<A>** keys simultaneously or issuing a halt command will place the OS in the OPEN Boot diagnostic command prompt level which may cause the OPUP Server OS to behave erratically if a probe command is used immediately afterwards. Be sure to enter a reset-all command before entering any probe commands. If a probe command causes the system to hang, power the system off using the power on/off switch

located near the front right of the Data Server UD80A11. The system should default to the auto boot sequence when powered back on.

Table 3-12. Boot PROM (OPENBoot) Commands

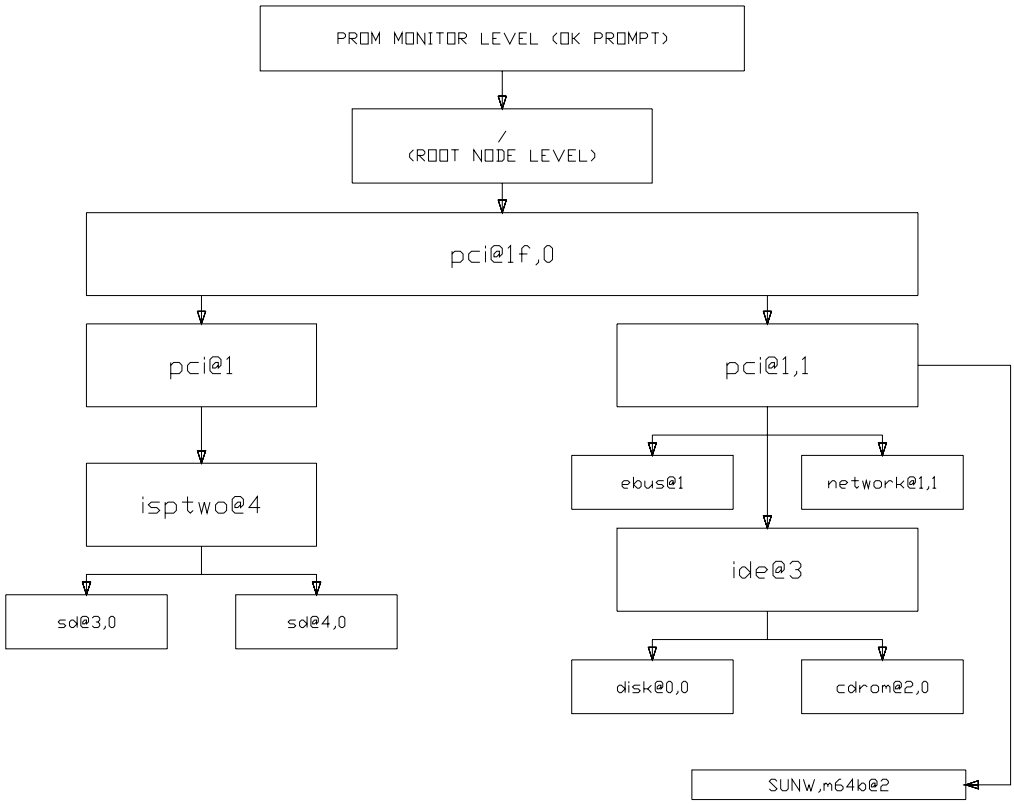
Command	Function	Remarks
banner	Displays the Sun Solaris banner information during the system's initial power on. **NOTE** This banner is different from the Government consent to monitor banner displayed in the CDE Login screen.	Contains several lines of useful system information (i.e., model name, memory installed, host ID, Ethernet Address, and Boot PROM version number).
boot	Used to start the OS from the `ok` prompt.	Has several switches that can be used: -s (single user mode) -r (performs re-configuration boot) -v (verbose mode, displays all messages during boot sequence).
help	Used to obtain help on the main categories contained in the OPENBoot firmware.	Enter **help** *keyword***<Return>** to use (**help diag<Return>**). Entering **help<Return>** displays a list of help commands that can be used.
printenv	Used to list all NVRAM commands stored in memory.	Displays only, changes nothing.
setenv	Used to invoke and change NVRAM configuration data.	Used with the reset command to invoke and set the changes.
reset	Used to halt, clear all buffers, initialize registers, and reboot the system.	Auto boot (default) must be set to true. Redisplays the `ok` prompt if set to false.
set-defaults	Used to reset all parameters used in the OPENBoot firmware to their default values.	Mainly used for diagnostic purposes.
probe-ide	Invokes a system-wide probe for all IDE hardware connected/attached to the IDE portion of the SCSI bus.	Mainly used for diagnostic purposes.

Table 3-12. Boot PROM (OPENBoot) Commands - Continued

Command	Function	Remarks
probe-scsi	Invokes a system-wide probe for all SCSI hardware connected/attached to the SCSI bus.	Mainly used for diagnostic purposes.
probe-scsi-all	Probes all SCSI, PCI, IDE, and devices connected or attached to the SCSI bus	Mainly used for diagnostic purposes.
halt	Writes all data in memory to the hard drive and then stops the CPU from processing.	Must have root privileges to use.

3.6.4.1.2.1 OPENBoot Device Tree File System. Sun Microsystems uses the UNIX device tree example, Figure 3-2, to configure and organize devices that are connected/attached to the system's SCSI bus. The OPENBoot PROM firmware builds this device tree from information gathered during the POST sequence. The device tree is then loaded into memory which can be used by the kernel during the boot sequence to identify all configured devices. This portion of the UNIX device tree feature can only be used at the `ok` prompt. Nodes with other devices attached represent an actual bus and the associated controllers. A full device path begins with a forward slash (/), representing the root (node) of the tree. A node name is formatted as *name@address:arguments*. To view a device, enter the list command **ls<Return>**, print working directory command **pwd<Return>**, then the change directory command **cd<Return>** to change to the directory of the device of interest. Once in the directory, enter **ls<Return>** again. Several devices and associated SCSI bus locations or paths will be listed in the device directory. As an example, **/pci@1f,Ø/pci@1/isptwo@4/sd@3,Ø** can be broken down as follows:

- Beginning of the root (node) **pci** device path: the **@** symbols indicates that two Bus Devices and one Controller address start here.
- **sd@3**: Device type. (In this case, sd@3 means: SCSI disk (sd) and target address 3.
- **Ø**: (located on the very end of the path right after the sd@3) means the target address.



NX2472

Figure 3-2. UNIX Device Tree Example

3.6.4.1.3 Kernel Initialization. The UNIX Kernel is the core of the Solaris OS. It is an executable file that is loaded into memory after the Boot PROM, POST, and Boot Programs are loaded. The kernel manages devices, memory, addresses, controls the transmission of information (between systems program utility and hardware), and manages swap space, daemons, file systems, and various other functions (as configured by specific programming unique to the system).

3.6.4.1.3.1 UNIX Shell. The UNIX Kernal also sets up the Solaris OS to accept an interpreter or translator between the user and the kernel known as a shell. A shell accepts commands issued by the user, interprets these commands, and executes the appropriate program(s). UNIX and the Sun OS commonly use the following tree shells. (There are many others that can be used with UNIX):

- Bourne: The default shell for Solaris. It was developed for AT&T and is denoted by a $ prompt, # for superuser. This shell has no aliasing or history capability.

- Korn: A superset of the Bourne shell, it has many of the same features, plus aliasing and history, and is denoted by a $ prompt. This shell is the industry standard.

- C: Based on the C programming language. This shell contains all of the features of the other shells and is denoted by a % prompt.

3.6.4.1.3.2 UNIX File System. Solaris uses a standard UNIX file system hierarchy of directories, subdirectories, and files that are grouped together for specific purposes. The file system is integrated with the kernel to provide an organizational structure to store data and quickly access executable programs. Solaris uses two types of files, the plain ASCII (American Standard Code for Information Interchange), and executable (i.e., applications, databases, and spreadsheets). Common file systems and their uses are found in Table 3-13.

Table 3-13. UNIX File System Organization

File System	Contains
/	Top most directory, called root.
/usr	Executable commands, system administration utilities, library routines.
/opt	Sun unbundled software applications.
/dev	Logical device names for physical devices. Used to access I/O devices like disk slices and disk drives, to tapes, keyboards, monitors, etc.
/etc	System Administration Files (e.g., passwd and hosts).
/export/home	Default home directory for users. Home directories may also be in */home*.
/kernel	Contains kernel files for the local platform architecture.
/var	Miscellaneous files. Also used to store System Administration Files/Logs.

3.6.4.1.3.3 File Naming Conventions. UNIX filenames can be up to 255 characters long. They can be any combination of upper or lower case letters, numbers, . (periods/dots), - (dashes), or _ (underscores). Be aware that UNIX, unlike MS-DOS, is case sensitive. Special characters/symbols can be used in filenames, however, some symbols should not be used (*, <, >, \, /, ?, or |) because they have special meaning (i.e., executable files) or they can be used as wild cards for retrieving files.

3.6.4.1.3.4 Absolute and Relative Paths. When referring to a subdirectory or file, it can be done with an absolute path name starting at the root (/) directory, or a path name relative to the current directory. For example, assume that the current directory is */export/home* and the desired subdirectory is under */export/home*. To change to the desired subdirectory using an absolute pathname, enter **cd/export/home** *directory_name***<Return>**. To change to the desired subdirectory using the relative pathname, enter **cd** *directory_name***<Return>**.

3.6.4.1.4 The Final Init Phase. The boot sequence final stage is governed by the */etc/init* directory and is called the init phase. This starts the run control (rc) scripts which govern other processes. These scripts execute programs that run configuration files for other processes, including specific init scripts. Once the rc scripts are finished, the CDE Login screen is displayed.

3.6.4.1.4.1 Boot Initialization Display Sequence. Each OPUP system has been pre-configured to conduct an initial boot sequence. The OPUP System Administrator will not be allowed to re-configure this sequence. The following information is an example of the information that is displayed during a normal Large or Medium OPUP boot sequence:

```
Sun Fire 280R (1 X UltraSPARC-III 1053 MHz), Keyboard Found!

OpenBoot 3.23, 1024 MB memory installed, Serial #12894376.

Ethernet address 8:0:20:c4:c0:a8, Host ID: 80c4c0a8.

Rebooting with command: boot

Boot device: disk  File and args:

SunOS Release 5.8 Version Generic_106541-08 64-bit [UNIX(R) Sys-
tem V Release X.X]

Copyright (c) 1983-2001, Sun Microsystems, Inc.

configuring network interfaces: hme0.

Hostname: opup1server

The system is coming up.  Please wait.

checking ufs filesystems

/dev/rdsk/c0t0d0s5: is stable.

/dev/rdsk/c0t0d0s4: is stable.

/dev/rdsk/c0t1d0s7: is stable.

/dev/rdsk/c0t0d0s7: is stable.

starting ppp: ipdptp0.
```

```
NIS domainname is OPUP2.osf.noaa.gov.

machine is a router.

starting rpc services: rpcbind keyserv nis_cachemgr rpc.nisd
done.

Setting netmask of hme0 to 255.255.255.0

Setting netmask of ipdptp0 to 255.255.255.0

Setting default IP 4 interface for multicast: add net 22X.X.0.0:
gateway osf opup1server

syslog service starting.

Print services started.

Feb 5 22:09:52 osf opup1server unix: TSI: gfxp0 is GFX8P @
1152x900

bdconfig: no serial device configured.  Run bdconfig interac-
tively (no args).

Feb 5 22:09:55 osf opup1server upsd[282]: Unable to communicate
with UPS

PowerChute Plus for Unix, v4.2.3: Copyright 1998, American Power
Conversion

/usr/local/apache/bin/apachectl start: httpd started

starting audit daemon

Configured 229 kernel events.

The system is ready.
```

```
        **WARNING**WARNING**WARNING**WARNING**WARNING**
```

“This is a Department of Defense (DoD) computer system. This computer system, including all related equipment, networks, and network devices (specifically including Internet access), are provided only for authorized U.S. Government use. DoD computer

systems may be monitored for all lawful purposes, including to ensure that their use is authorized, for management of the system, to facilitate protection against unauthorized access, and to verify security procedures, survivability and operational security. Monitoring includes active attacks by authorized DoD entities to test or verify the security of this system. During monitoring, information may be examined, recorded, copied and used for authorized purposes. All information, including personal information, placed on or sent over this system may be monitored.
Use of this DoD computer system, authorized or unauthorized, constitutes consent to monitoring of this system. Unauthorized users may be subject to criminal prosecution. Evidence of unauthorized use collected during monitoring may be used for administrative, criminal, or other adverse action. Use of this system constitutes consent to monitoring for these purposes."

WARNINGWARNING**WARNING**WARNING**WARNING**

---

opup1server console login:

****

* Starting Desktop Login on display:0...

*

* Wait for the Desktop Login screen before logging in.

*

****

3.6.4.1.5 Solaris OS INIT Levels. Table 3-14 lists the INIT run levels used by the Solaris OS.

Table 3-14. INIT Level Definitions

Run Level	Definition
0	Firmware (PROM Monitor) boot level.
1	Administrative state-level. Same as Single-User mode. No users can login, but all file systems are mounted and are accessible by the OPUP System Administrator.
2	Multi-User level, no resources shared, no network support.
3	Multi-User level, all resources shared, network support provided, OPUP default.
4	No longer used.
5	Shuts down the OS to the `ok` prompt and then powers off the system.
6	Shuts down the OS to the `ok` prompt and then boots it back up to run level 3.
S (or s)	Administrative state-level. Same as Run Level 1 and Single-User mode. No users can login, and the terminal used to execute this command becomes the console. All file systems are mounted, but all multi-user modes are disabled.

The OPUP default is run level 3 when first powered on or rebooted. This configuration is found in the */etc/inittab* file which is read during the boot sequence final stages, the initial phase. The */etc/inittab* file provides the following functions:

- Initializes the STREAMS modules.
- Configures the socket transport providers.
- Initializes the file systems.
- Defines the default run level.
- Describes the power fail/shutdown procedures.
- Defines the run level modes (all of them).
- Defines the procedures used to transit to firmware, power-off, and reboot.
- Initializes the Active Access Controller(s).
- Initializes the console.

3.6.5 System Administrative Tools.

The Sun Solaris OS contains all of the administrative tools used in the UNIX OS and applicable interactive operating shells. The `OPUP Manager Main Menu` was developed to allow each OPUP System Administrator the ability to manage each administrative function(s) that may be encountered using a Netscape HTML formatted GUI menu structure. This means that administrative functions should not routinely involve access to the CDE Front Panel Terminal/Console window(s) in order to enter and execute a command line script. However, there will be some situations where this may be required (i.e., communication router configuration procedure.) However, the following paragraphs are provided in case there is a need to use command line entries in order to assist in entering configuration data or to diagnose and troubleshoot programming, file, and/or communication problems as they arise.

3.6.5.1 Operating System User Modes. The Sun Solaris OS normally uses three different OS user modes. They are Command Line Login, CDE Login, and Remote Login (rlogin). However, Command Line Login it is not permitted in the OPUP Server OS and will not be discussed in this manual.

3.6.5.1.1 Common Desktop Environment Logins. The CDE Login screen is the primary login process used by the OPUP. The OPUP System Administrator must also use this type of login to access the `OPUP Manager Main Menu`. To login to the CDE, start at the CDE Login screen and enter a valid *`User Name`* in the `Please enter your user name` box, then click on the **OK** button or press **<Return>**. A CDE password entry window will appear with the `User Name` that was just entered displayed at the top. Enter the appropriate, case sensitive *password* in the `Please enter your password` box, and click on the **OK** button or press **<Return>** (the actual password is not displayed for security reasons). The user is then logged in to the CDE. From there, the OPUP System Administrator has full access to the CDE Front Panel and selection of all graphical user applications including the `OPUP Manager Main Menu`, and the Terminal/Console windows (which provide access to the OPUP command line).

3.6.5.1.2 Remote Login. In many cases, access can be gained to any given UNIX system remotely (assuming the user has a valid user account on that system). From a remote UNIX system or possibly a Laptop computer, a remote session may be initiated by using the rlogin (remote login) command. This procedure is also commonly called a telnet session. When a remote login is successful, the remote user can interact with the OPUP at the OS level. Remote logins are system dependant and vary upon network structuring from site to site. To achieve remote access to the OPUP, the following assumptions must be true:

- The OPUP server has a Network Interface Card, an assigned IP-address, and is connected to a LAN switch or has Internet access.
- The remote system also has a NIC, IP-address, and connectivity to a LAN/Internet system.
- The two systems have a stable TCP/IP path between them. That is, both systems are either connected to the same LAN (and thus addressed within the same subnet), have Internet

access, or have a networking infrastructure in place (routers, bridges, etc.) which allows TCP/IP communications between systems that are addressed on different subnets.

- The user is authorized remote access.

NOTE

The above paragraph discusses a remote login interface provided internally by UNIX, Solaris, and/or the OPUP Server OS. If some type of remote, third party X-Windows emulator (e.g., Exceed, WRQ) is used, then access to the CDE and Workstation AS GUIs may be available just as though the user were sitting at the normal direct (locally) connected monitor.

3.6.5.2 Operating System Prompts. In addition to the default prompts employed by Solaris and the OPUP OS, unique prompts can be developed at the command line after opening a Terminal/ Console window. For example, the OPUP System Administrator can substitute the $ prompt (Bourne/Korn Shell) or # prompt (C Shell) with a User Name, command line counter, and or present working directory. In order to do this, a unique definition would have to be placed into the user's *.kshrc* (Bourne/Korn Shell) or *.cshrc* (C Shell) file. Further discussion on how to perform these functions requires advanced knowledge of UNIX which is beyond the scope of this manual.

3.6.5.3 Control Keys. There are only two control keys which have global significance when using command line programs. These are the **<Ctrl>D** and **<Ctrl>C** keys. **<Ctrl>D** is used to signal the conclusion of text entries within a program and to stop any script log capture programs. **<Ctrl>C** is used to abort any program running in the foreground.

3.6.5.4 Help Utilities. Help and the Sun Solaris OS AnswerBook2 are the two graphical-based help utilities provided by Solaris. There is also command line support, called the man (manual) pages which reside at the UNIX level.

3.6.5.4.1 Sun Solaris OS Help and AnswerBook2. The help utility is started by clicking on the **?** icon on the CDE Front Panel. After the Help Viewer window is opened, the OPUP System Administrator can use the global search features for various Solaris and UNIX functions.

AnswerBook2 is a Netscape browser-based utility which provides an all-encompassing help program. This utility includes all information concerning the aspects of the Sun Solaris operating platform (which includes UNIX). AnswerBook2 is started by clicking on the **up arrow** above the **?** icon on the CDE Front Panel and then clicking on the **AnswerBook2** icon.

3.6.5.4.2 Command Line Help Utility MAN Pages. The man pages, provide help/assistance at the command line with the use of UNIX commands and their syntax structure. Syntax error messages are also displayed if any syntax and associated switches are missing when a command is issued. The following example illustrates the use of the man command syntax:

man help<Return>

Command availability, name, synopsis, description, options, attributes, warnings, and notes are returned for almost all UNIX commands used in the Sun Solaris and OPUP OS. When viewing man pages, press the **<Space Bar>** key to continue to the next page and/or press the **<q>** key to quit and return to the command line prompt.

3.6.5.5 The vi Editor. The Visual Interactive (vi) display editor is used to create and/or modify text files. It is the only full screen editor that can modify critical system files. There are many versions of vi in existence, however, OPUP only provides a basic editor version. It uses the monitor for display, but there is no mouse driver support. Users can only access and exit vi from the keyboard. All edits are done in a memory buffer and then either written to disk or discarded.

It is possible that the OPUP System Administrator could be called upon to use vi to inspect and provide diagnostic information based upon the contents of certain critical OPUP operating files.

3.6.5.5.1 Operational Modes of vi. The most commonly used operational modes of vi on the OPUP are the command, insert, append, and last-line modes. When a file is initially opened with vi it is automatically placed in the command mode. In this mode, the user can use positioning and editing commands to perform functions on the file. Users can also perform advanced editing by pressing the **<:>** (colon) key, which places the cursor at the bottom line of the display. From the command mode, pressing the **<i>** key causes vi to change to the insert mode. The insert mode non-destructively inserts text at the cursor position. From the command mode, pressing the **<a>** key causes vi to change to the append mode. The append mode moves the cursor one position to the right and then non-destructively appends text from that position. From the insert or append modes, pressing the **<Esc>** (escape) key causes vi to change back to the command mode.

3.6.5.5.2 Using the vi Editor to Create or Modify a File. The vi editor will automatically create or locate and open the filename listed directly after the vi command and place it in its own window on the monitor. To create or modify a file using the vi editor, perform the following:

NOTE

> From any operational mode, pressing the **<Esc>** key always causes vi to change back to the command mode. This is very useful if the user looses track of what mode vi is in while editing a file, especially critical executable files. If the escape key is pressed while still in command mode, a beep will sound to let the user know that the system is already in command mode. So, if the user is unsure of what mode vi is presently in, is a good practice to press the **<Esc>** key twice and listen for the beep to ensure that vi is in the command mode.

- Enter **vi** *filename***<Return>** to edit or create a file.
- Once the file is opened, press the **<i>** key to insert text, or the **<a>** key to append text.

- Press the **<Esc>** key to change to the command mode.
- Enter: **wq<Return>** (write/quit) to save the file and exit the vi program.

3.6.5.5.3 vi Editor Command Table. Table 3-15 contains a list of the most helpful and commonly used vi commands while creating and/or modifying system files.

Table 3-15. vi Editor Commands

Command	Function
vi *filename***<Return>**	If the *filename* already exists, that file is opened and it's first page is displayed. If not, a new file is created with that name and a blank window is opened for the user to begin entering text.
vi<Return>	Creates a new file to be named later.
vi -r *filename***<Return>**	Used to recover a existing crashed file.
a	Append text after the cursor.
A	Append text at the end of the current line.
i	Insert text before the cursor.
I	Insert text at the end of the current line.
o	Open a new line below the current line.
O	Open a new line above the current line.
h or **left arrow**	Move the cursor to the left one space.
j or **down arrow**	Move the cursor down one line.
k or **up arrow**	Move the cursor up one line.
l or **right arrow**	Move the cursor to the right one space.
Space Bar	Move the cursor and everything to the right of it right one space.
0 (zero) or **^**	Move the cursor to the beginning of the current line.
Return	Move the cursor down to the beginning of the next line.
x	Delete the character at the cursor position.
X	Delete the character to left of the cursor.
D	Delete the rest of the line to the right of the cursor.
:w	Save the file.
:w *filename*	Save the file as a new filename.

Table 3-15. vi Editor Commands - Continued

Command	Function
:wq	Save the file and quit vi.
ZZ	Save the file and quit vi.
:q	Quit vi without saving the file.
:wq!	Save the file and quit vi. The **!** character will override read only permission, if necessary.
:set nu	Show the line numbers with the file.
:set nonu	Hide the line numbers.
:set showmode	Display the current mode of operation.
:set noshowmode	Hide the current mode of operation.
:set	Display all vi variables that are set.
:set all	Display all possible variables and their meanings.

3.6.6 Common UNIX Commands. Table 3-16 lists some of the more commonly used UNIX commands and their functions that OPUP System Administrators may need to use on occasion. Consult other documentation concerning any expanded description of UNIX commands.

Table 3-16. Common UNIX Commands

Command	Function	Remarks or Example
which	Provides absolute path name of an available command.	**which tar<Return>** (The result would be */usr/sbin/tar.*)
man	Displays manual page information on a selected subject.	**man help<Return>** (The result would be a man page of info about the help command.)
h or **history**	The h alias can be used to display a history of (n) number of commands defined in the history environment variable.	**history 1Ø<Return>** (The result would be a list of the last 10 commands entered.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
!	Used to recall and execute a prior command.	**!p<Return>** (The result would be to repeat the last command that began with the letter p.) This can be used to repeat a command from a history list. So, **!78<Return>** would repeat the command on line 78 of the history list.
cd	Used to change to another directory/subdirectory.	**cd /export/home/dan1<Return>** (The result would be to change to the absolute path directory of */export/home/dan1*. **cd .<Return>** would change to the parent directory. **cd /<Return>** would change to the root directory. **cd<Return>** would change to the user's home directory.)
pwd	Used to display the user's present working directory.	**pwd<Return>** (The result would be the directory name that the user is currently in.)
find	Used to search for files meeting specific criteria,	**find . -name "dan1.?" -print<Return>** (The result would be a list of all file/s and the path/s from the root directory downward named *dan1* with the wildcard extension character *?* displayed on the monitor. See the man page for the numerous ways the find command can be used.)
grep	Means global regular expression print. Used to search for files or a pattern and displays all lines that contain that file or pattern.	**grep -i 'T' dan1<Return>** (The result would be to display each line that contained the letter T in the *dan1* file regardless of the case.) Some other switches that can be used are as follows: **-n** = display the line number **-h** = display several files that have the desired alphanumeric expression **-v** = display all of the lines that do NOT match the desired pattern **-l** = display all of the filenames that match the desired expression **-c** = count the number of lines and display the result on the monitor

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
ls	Used to list the current directory contents.	**ls<Return>** (The result would be a list of all files in the current directory.) The following switches can be used to gain more information: **-a** = also display all hidden files **-l** = display the files in a long list format **-t** = display the files sorted by time stamp **-r** = display the files in reverse order
cat	Used to display the contents of a file.	**cat dan1<Return>** (The result would be to display the entire contents of *dan1* on the monitor.)
more	Used to display the contents of a file one page at a time.	**more dan1<Return>** (The result would be to list display the first page of the *dan1* file on the monitor, if the file is longer than one page. The **<Return>** key forwards the file one line at a time, and the **<Space Bar>** key forwards the file one page at a time.) This can be used with other commands to alter the display method. So, **ls -l | more<Return>** would display a long list of files in the current directory one page at a time.
diff or **sdiff**	diff is used to compare the contents of two files. A **<** precedes the lines of *file1* and a **>** precedes the lines of *file2*. sdiff is used to compare two files side by side. A < precedes the lines that are different in *file1* and a > precedes the lines that are different in *file2*.	**diff dan1 dan2<Return>** (The result would be to display the difference between the *dan1* file and the *dan2* file.) **sdiff dan1 dan2<Return>** (The result would be to display the *dan1* and *dan2* files side by side showing the difference between the two files.)
mkdir	Used to make a new directory.	**mkdir dan1<Return>** (The result would be to make a new directory named *dan1* at the user's current location.) Can be used with absolute path names to make a directory at a specific location. (i.e., **mkdir /etc/temp/dan1<Return>**.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
touch	Used to create a new file if it does not already exist. If the file does already exists, then it updates the date/time stamp of that file.	**touch dan1<Return>** (The result would be to create the new file named *dan1* at the user's current location.) If a file named *dan1* already exists at that location then the date/time stamp of the existing *dan1* file would be updated.
cp	Used to copy the contents of one file to another file.	**cp dan1 /export/home/dan2<Return>** (The result would be to copy the contents of the *dan1* file and place them into the *dan2* file located at the */export/home* directory.) **NOTE** The cp command will completely overwrite the contents of a previously existing file without warning. So, after the command was issued in the example above, if a file named *dan2* already existed in the */export/home* directory, the previous contents of the *dan2* file would be completely gone and it would now only contain whatever was in the *dan1* file. Using the **-i** switch, as described below in the mv command will inform the user before the command is executed.
mv	Used to move the contents of one file to another file. If the target file does not already exist, it will be created which is essentially like renaming the source file.	**mv -i dan1 dan2.log<Return>** (The result would be to move the contents of the *dan1* file to the *dan2.log* file, and inform the user of the move before executing the task.) **NOTE** The mv command, just like the cp command mentioned above will completely overwrite the contents of a previously existing file without warning if the **-i** switch is not used. Attempt to use the **-i** switch at all times.
alias	Used to display command shortcuts built-in to the system.	**alias<Return>** (The result would be a list of all pre-defined aliases.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
who	Used to display the name, line found in /dev, login time, and PID for each current user.	**who<Return>** (The result would be to display information about all of the current users.)
uname	Used to display the name of the current operating system.	**uname<Return>** (The result would be SunOS.) Can also be used with the following switches: **-a** = displays basic system information **-i** = displays the name of the system hardware **-n** = displays the nodename **-r** = displays the OS release level
df	Used to display the amount of disk space occupied by the mounted or unmounted file systems.	**df<Return>** (The result would be to display all files, slices, number of blocks, and amount of files contained in those blocks.) Can also be used with the following switches: **-k** = shows total amount of space used, and space available on the disk in kbytes **-b** = shows total number of kbytes available
du	Used to display the amount of disk space used by the current directory including all subdirectories.	**du<Return>** (The result would be to display all of the files in the current directory and the total amount of space used in kbytes.) Can also be used with the following switches: **-k** = displays the amount of space in kybtes **-s** = displays only the total disk space used **file** = displays the absolute path name of the file or directory whose size is to be displayed
mount	Used to display a list of currently mounted file systems, their mount points, and the time they were mounted.	**mount<Return>** (The result would be a list of mounted file systems, their mount points, and the time they were mounted.)
mountall	Used to mount all of the file systems specified in the file system table located in the */etc/vfstab* system table.	**mountall<Return>** (The result would be to mount all of the file systems that are located in the */etc/vsftab* table.)
chmod	Used to change read, write, and execute permissions of a file. Permissions can only be changed by the owner of the file or the OPUP System Administrator.	**chmod 555 dan1<Return>** (The result would give read and execute permissions to *dan1*. **chmod +rx dan1<Return>** (The result would be the same as above, however it is done in symbolic rather than absolute mode.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
chown	Used to change the owner of a file. Must be the current owner or OPUP System Administrator.	**chown ob1 /dan1<Return>** (The result change the ownership of */dan1* to *ob1*.)
lp and **lpstat**	lp is used to a request a print and lpstat is used to display the status of requested print jobs. **NOTE** **cancel** *filename* **<Return>** kills a request still in the que.	**lb -o nobanner dan1<Return>** (The result would be to print the *dan1* file without a banner page.) The following can also be used: **width** = page width to use **cpi** = character/pitch per inch used for output **lpstat<Return>** (The result would be to display the status of all print requests.)
eject	Used to unmount and eject media that does not have a manual eject button.	**eject floppy<Return>** (The result would be to unmount the floppy disk and eject the floppy diskette from the drive.) However, if the floppy drive has a manual eject button, it would wait for the eject button to be pushed.
tar	Used to create a tape archive file. Can create a single file containing a subset of files or to display a list of archived directories/subdirectories, and files.	**tar -tvf /dev/rmt/dan1.tar<Return>** (The result would be to access the tape drive and display a list of all of the files contained on the tape.)
ufsdump	Used to backup designated files individually for each file system. These files can then be restored exactly as they were recorded or one file at a time.	**ufsdump 0ucf /dev/rmt/Ø/<Return>** (The result would be to perform a level 0 data dump of the root (/) directory and write it to the tape drive located at */dev/rmt*.) The following switches can be also used: **Ø-9** = Dump level used (the lower the number the more complete the dump) **c** = sets the default for tape cartridge used **u** = update the dump record **f dump_file** = use a designated file vice the *dev/rmt/0* default designation **files to dump** = names certain files to dump
ufsrestore	Used to restore files from backup media created with the ufsdump command.	**ufsrestore rvf /dev/rmt/Ø<Return>** (The result would be to display files and recursively restore them from the *dev/rmt/0* device to a mounted device (normally the root directory.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
telnet	Used to remotely login to another system.	**telnet 123.45.67.255 <Return>** (The result would be a connection to the noted IP-address and an open remote terminal display.)
rlogin	Used to establish a remote login session from a local system to a remote system. A user must have an account on the remote system.	**rlogin -l dhoff OPUP4<Return>** (The result would be to login to the remote OPUP4 system as the user *dhoff*.)
ping	Used to send an ICMP Echo Request packet(s) to a host. If the packet returns, then the connection is good.	**ping OPUP4<Return>** (The result would be to send a data packet out to the OPUP4 system. If the data returns, the system displays the message `OPUP4 is alive`.) The following switches can also be used: **-s** = send out one packet per second and show a line of information for each returned packet. **packetsize** = size of packet to send, in bytes.
passwd	Used to change a user or root password. Must have root privileges.	**passwd dhoff<Return>** (The result would be for the system to display the `Enter login (NIS+) password:` prompt. First enter the *old password***<Return>**. Then, at the `New password:` prompt, enter the desired *new password***<Return>**. Then at the `Re-enter new password:` prompt, enter the exact same *new password***<Return>** again to confirm a successful password change.)
su	Used to switch from one user to another without logging out.	**su dhoff<Return>** (The result would be for the system to switch from the current user to the user *dhoff*. The user must know the password for *dhoff* to successfully complete the switch.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
boot	Used to start the system from the from the `ok` prompt.	**boot<Return>** (The result would be for the system to load the OS into memory, and perform a level 0 init of the software. The following switches can also be used: **-s** = boot up to single user mode **-r** = re-configuration boot, forces the system to probe for any new devices and load the appropriate drivers as well as create new necessary files in the */devices* and */dev* directories **-v** = verbose, all boot messages displayed **net** = boot from network based executable **net - install** = invoke Sun Solaris Jumpstart software from the network executable assigned for this purpose **cdrom** = boot from the CD-ROM device
reboot	Used alone with no options, performs a level 6 init of the system. Behaves differently when used with specific options.	**reboot -- -r<Return>** (The result would be to ignore any previous boot options, take the system all the way down to the `ok` prompt, and then force the system to probe for any new devices and load the appropriate drivers as well as create new necessary files in the */devices* and */dev* directories, and then boot it back up to run level 3.) **reboot<Return>** (The result would be to take the system all the way down to the `ok` prompt and boot it back up to run level 3.)
halt	Used to stop the processor. Normally only used by the root user.	**halt<Return>** (The result would be to instruct the processor to stop all processes. The system can then possibly be shut down. **This should only be used as a last resort.**)
sync	Used to immediately write all data stored in memory to disk.	**sync<Return>** (The result would be to cause the system to write all data stored in memory to the appropriate files on the disk.)

Table 3-16. Common UNIX Commands - Continued

Command	Function	Remarks or Example
rm	Used to permanently remove files and directories. **NOTE** The rm command will delete a file or directory permanently. Recommend using the **-i** switch at all times to mitigate any potential disasters that may occur.	**rm dan1<Return>** (The result would be to quickly, silently, and permanently remove the *dan1* file). **rm -i dan1<Return>** (The result would be to provide a confirmation prompt before deleting the *dan1* file. The following switches can also be used: **-i** = provide an inquiry statement **-r** = recursive (highly dangerous)

CHAPTER 4
OPUP SYSTEM SECURITY

Section 4.1. INTRODUCTION

4.1.1 General.

Security features include physical (gates, locks, guards, etc.), administrative (personnel screening), and technical (hardware, software, and firmware) attributes sufficient to protect the data stored, processed, or transmitted within the system.

4.1.2 Chapter Organization.

Chapter 4 is organized into the following four sections:

- Section 4.1 INTRODUCTION - Provides a brief description of each section in Chapter 4.
- Section 4.2 SYSTEM SECURITY - Provides a brief description of OPUP system security and defines several security terms.
- Section 4.3 THREATS AND VULNERABILITIES - Provides insight into identifying threats and managing system security.
- Section 4.4 SYSTEM SECURITY POLICY - Defines policy for implementing and maintaining system security.

Section 4.2. SYSTEM SECURITY

4.2.1 Overview.

The security features for the OPUP Server OS are specific to UNIX as implemented by Sun Solaris. The OPUP System Administrator requires an administrative knowledge of UNIX. Security implementation is based on a preventive approach emphasizing site security, discretionary access control mechanisms, the need-to-know, accountability of users for their actions, auditing, resource isolation, and configuration management. Properly implemented and monitored, this becomes the first line of defense against intrusion into and system misuse. The system security configuration, as designed, uses a combination of automated features and requires the OPUP System Administrator to enforce and maintain both system features and manual instructions.

4.2.2 Definition of Terms and Services.

The following sections define terms and services used in providing system security.

4.2.2.1 Accountability and Audit. Accountability is the state of the system that enables violators or attempted violators of system security to be identified and held accountable for their actions. Review of system records and activities (audit) test the adequacy of the system controls to ensure compliance with established policy and operational procedures.

4.2.2.2 Discretionary Access Control (DAC). Discretionary Access Control (DAC) is a way to restrict access to objects based on the identity of subjects or groups to which they belong. The user determines who (owner, group, or world) is allowed to read, write, or execute a given file or directory. Authorized users will only have access to system files granted by DAC mechanisms. Improperly controlled file access can allow unauthorized users access to information that they do not have the need-to-know which can potentially compromise system security. DAC should not be confused with classification or category designations that are assigned to system information and data.

4.2.2.3 Trusted Facility Operations (TFO). Trusted Facility Operations (TFO) refers to the procedures and functions that enforce system security within a Trusted Facility. The ultimate objective of TFO is to support system security during daily operations. It is the responsibility of designated personnel (i.e., OPUP System Administrators) to enforce TFO security procedures. However, anyone who enters a Trusted Facility is responsible to ensure that security measures are enforced for all systems located within the facility. This responsibility extends to systems that are either physically accessed or accessed by other means (FTP, Telnet, etc.) Everyone, particularly all system users, must be made aware of what constitutes normal operations and what may be misuse of system resources or suspicious/abnormal operations.

4.2.2.4 Identification and Authentication (I&A). Identification and authentication ensures that only authorized users gain access to system resources and are held individually accountable for their actions. Users identify themselves with a unique user name, which requires authentication by presenting a valid password before permission is given to access system resources or data.

4.2.2.5 Files, Directories, and Permissions. The OPUP System Administrator monitors workstations and servers to verify and maintain system security. Users must not attempt to load unauthorized software without permission or change file permissions unless it is within the scope of their job, required for the mission, and they have received proper authorization.

Section 4.3. THREATS AND VULNERABILITIES

4.3.1 Overview.

Threats to the OPUP may be in two forms, natural and intended. Natural threats include fire, power failure, environmental failure, etc. Standard safety checks and recovery procedures are established to react to natural threats. Intended threats are human-perpetrated, may occur at any time, and are significantly more difficult to detect. It is important to report suspected or detected misuse, in-progress attacks, or other abnormal system activity to the OPUP System Administrator or security staff immediately to prevent further compromise or damage to the system. Users must be aware that the failure of a single site to ensure security puts all sites at risk.

4.3.2 Countermeasures.

Local procedures are in place for dealing with natural threats. To counter intended threats, the OPUP has safeguards such as identification and authentication, discretionary access control, accountability, redundancy, auditing, and physical security rules. All sites shall develop countermeasures to follow when misuse or system attacks are suspected/detected. When a suspected or actual security incident occurs that compromises the OPUP security, it must be reported to the ROC immediately. Misuse of an OPUP is illegal and protected by federal and local laws.

4.3.3 Assumptions.

The fundamental OPUP System Administrator or security staff responsibilities are:

- Understand the system security policy, the certified security configuration requirements, and the security architecture for the OPUP System.
- Maintain system security configuration and security services.
- Monitor system activities using audit and security services.
- Identify, investigate, and report abnormal system activities.
- Establish and manage user and group accounts.

4.3.4 Separation of Administrative Roles.

Only those personnel specifically responsible for system administration and security functions have access to OPUP System Administrator accounts. Given the limitations of the OPUP site manning, the same individual may perform both the system administration and the security functions.

4.3.4.1 User Requirements. Users are the OPUP operators, OPUP System Administrators, and maintainers who establish the system requirements and support the WSR-88D mission. Users must be familiar with the OPUP security policy, the sensitivity and criticality of the data provided

by the OPUP system, the need for keeping login information private, and to whom they report suspected system anomalies. All users shall comply with OPUP security policies and report security problems.

4.3.4.2 OPUP System Administrator Requirements. The OPUP System Administrator has the primary responsibility of ensuring that the site complies with the security policy, and maintains the system security posture. The security policy shall be applied at all sites regardless of size, staffing, or other qualifiers.

Section 4.4. SYSTEM SECURITY POLICY

4.4.1 Overview.

This section outlines the OPUP system security policy. It gives the OPUP System Administrator policy guidance in maintaining system security, system operational controls, life cycle security responsibilities, and documentation. Compliance with the OPUP security policy and higher level security policies is required in order to ensure the system integrity.

4.4.2 Protection Mechanisms Available to Users.

All personnel allowed access to the system or allowed possession of its data must have the need-to-know for the information. Users must be aware that they are responsible for their actions on the OPUP system. Users should notify the OPUP System Administrator of any security related issues, misuse, or system compromises.

4.4.2.1 System Access. Using the Operational Applications Front Panel login functions cause the OPUP Server OS to create an active session that is tailored to the user identified during the login process. The initial session reflects a default set of account, group, and profile attributes that are assigned by the OPUP System Administrator. These attributes determine what the user may access while connected to the system. The following user account attributes will be assigned to each user:

- User Identification
- User Number
- Password
- Default Profile
- Group Membership

NOTE

> During login, a valid user name and password must be entered at the user name and password prompts. After entering the user name and pressing the **<Return>** key, the user should wait until the password prompt appears. If the password is entered too quickly after the user name, some of the password characters may be echoed onto the terminal compromising the user's password security.

4.4.2.2 User Name and Password Security. OPUP operators can only gain access to the Operational Applications Front Panel GUIs after they are assigned a unique user name and password by the OPUP System Administrator. (Refer to paragraph 5.2.5.1 for further information.) The

OPUP System Administrator will be responsible to ensure that the following general user name and password security requirements are enforced:

- Users are responsible for protecting their passwords against loss or disclosure and will be held liable for any improper password use.
- Users must protect their password at a minimum as For Official Use Only (FOUO).

4.4.2.2.1 Password Composition. Each password must meet the following minimum composition requirements:

- Be at least a minimum of eight characters in length.
- Contain at least one UPPERCASE character (A through Z).
- Contain at least one lowercase character (a through z).
- Contain at least one number (0 through 9).
- Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All “special” entries must be within the first characters.

NOTE

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Passwords must not be the same as the user name or constructed from words straight out of the dictionary (spelled forwards, backwards, or split with a number or special character) or be constructed using a user’s personal identity, history, or environment. Generic passwords must also be prohibited (e.g., a system having “welcome” as the password for all newly created user names). When passwords expire, users must not reuse the current password or use any of the last nine passwords assigned to that user name.

4.4.2.2.2 Password Aging and Management. Each password must, at a minimum, be changed every 90 days. The Sun Microsystems Solaris OS Password function within the OPUP Server OS will monitor and prompt each user name to change the associated password every 90 days after the initial password was assigned.

NOTE

The OPUP System Administrator will be responsible to ensure that each password is constructed as discussed in paragraph 4.4.2.2.1. Password

aging applies to both the root and opupmgr passwords. It is advised that the OPUP System Administrator closely monitor the dates when these passwords are to expire. When the Sun Microsystems password change prompt is displayed for both the root and opupmgr passwords, OPUP System Administrators should immediately reassign new passwords at the `OPUP Manager Main Menu, Users Menu, Change User Password` function. This will ensure that the passwords assigned to these user names are properly synchronized between the OPUP Manager GUI and the Sun Microsystems Solaris OS password database.

4.4.2.2.3 Username Uniqueness. Each operator must be assigned a unique user name in order to issue a password and provide individual accountability while using the OPUP Operational Applications Front Panel GUIs. User names may be constructed using at least three characters and any combination of upper/lowercase letters and containing at least one number or special character as desired. Each user name, once removed/deleted from the OPUP Server OS must not be reassigned to another person for up to one year. In the case of high operational personnel turnover situations, OPUP System Administrators may substitute reusable generic user names (i.e., $OPup1). If generic user names are used, a log sheet must be implemented in order to track and delete both the generic user name and password when they are no longer required.

4.4.2.2.4 User Name Composition. The use of user names and passwords are required in order to access both the CDE and Operational Applications Front Panel. The composition of passwords are discussed in paragraph 4.4.2.2.1. The information presented in this paragraph is provided as a general overview for issuing user names. Consult the above mentioned paragraphs for a complete discussion of the security policy for issuing and removing user names and passwords. Each user name, once removed/deleted from the OPUP Server OS must not be reassigned to another person for up to one year.

NOTE

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Each user name must meet the following minimum composition requirements:

- Be at least a minimum of three characters in length.
- Contain at least two alpha characters (A through Z or a through z).
- Contain at least one number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, #, or =).

4.4.2.3 Warning Banner (Consent to Monitoring). System access warning banners are used to notify each user that, by accessing a federal computer system, their actions are subject to review and that they expressly consent to authorized monitoring. The system displays the Consent to Monitoring warning banner each time the system boots up and at each login session. Users logging into the OPUP system should take the time to read and understand the information displayed on the Consent to Monitoring warning banner. The banner describes the secure nature of the environment, proper behavior while operating in this environment, and the security guidelines defining its operation. The OPUP requires a user's physical action (pressing the **<Return>** key after the banner is displayed - to continue) acknowledging and accepting the consent to authorize monitoring of all actions attributable to the user. Inappropriate behavior will result in administrative, criminal, or other adverse action against the user.

4.4.2.4 Incident Response. OPUP system misuse is illegal and protected under federal and local statutes. The users are responsible for abiding by applicable policies, guidelines, and directives to ensure they understand what constitutes system misuse. The primary reason for preventing misuse is to ensure that the system configuration complies with security configuration requirements defined in this document. The OPUP System Administrator or security staff can provide specific guidance on security issues that are of concern to the users.

4.4.2.5 Monitor Display Security Features. The OPUP Monitor UD80A7 or Display Workstation Monitor UD85A1 used with the OPUP Equipment Group UD80 employ up to three types of display security features. These are the Screen Lock (**padlock**) icon, Screen Time-out, and Terminal time-out functions.

The Screen Lock (**padlock**) icon function is located near the center of both the CDE and Operational Applications Front Panel. This function is used to lock the display and prevent unauthorized usage when a user must leave the area unattended for a short period of time while an OPUP application is still active or processing. Clicking on the **padlock** icon causes the OPUP to display a window containing the user name that is currently logged in along with a password entry prompt. The user is not logged out of the application, but must reenter the exact same password that was used to login to unlock the display.

The Screen and Terminal Time-out functions are used to either remove the image temporarily or lock the current display out to a `Password:` login window when a specific time threshold has been met. Both the Screen and Terminal Time-out functions are set using the Desktop Style Screen Manager function on the Operational Applications Front Panel. If the Screen Time-out function is engaged, the user is only required to move the mouse or press any key on the keyboard to redisplay the current image on the monitor. If the Terminal Time-out function is engaged, the user is not logged out of the application, however the user must reenter the exact same password that was used to login in order to unlock the display.

NOTE

> Be sure that the user password is known before the Screen Lock (**padlock**) icon or the Terminal Time-out function engages. If these functions are engaged and the password is not known or will not unlock the screen,

the OPUP System Administrator will be required to unlock the display and reissue a lost password as discussed in paragraph 5.2.5.5.

4.4.3 Protection Mechanisms Available to OPUP System Administrators.

The OPUP System Administrator should refer to the overview guidelines contained in Chapter 3 for detailed information of what each security display looks like on the OPUP system. The OPUP System Administrator account shall not be used to accomplish daily mission work. Each user with OPUP System Administrator duties must have a uniquely identifiable normal user account so that any OPUP System Administrator work can be traced back to that individual. The root account is reserved for system maintenance, and certain system security-relevant functions. The root privilege must be controlled tightly and given only to the OPUP System Administrator who requires the privilege to accomplish their duties and responsibilities. Standard procedure should be to login as a normal user and then switch to the root account (**su<Return>**).

4.4.3.1 Identification and Authentication Functions. All OPUP users, including the OPUP System Administrator, must enter a valid user name and password in the login dialog box to gain access to the system resources. The OPUP system employs an interactive, local login (the user account database is stored on the operating site's OPUP Server). When the user enters a unique user name and password in the login dialog box, the information is verified against the user account database.

4.4.3.2 Audit. User account auditing is enabled and controlled by the OPUP System Administrator. The OPUP System Administrator may use the `OPUP Manager Main Menu`, `OPUP Security Logs Menu,` paragraph 3.3.3.6, to start, stop, or restart the security log functions, view failed login attempts, and administrative activity information. The OPUP Manager GUI provides system wide security access monitoring, login verification, and access activity records. Detailed descriptions for each `OPUP Manager Main Menu` window is contained in Chapter 3, Section 3.3, OPUP Software Description.

4.4.3.3 Routine Operations. The following sections outline OPUP routine security operations.

4.4.3.3.1 Accounts. User accounts are established by the OPUP System Administrator for each user. The OPUP System Administrator may use the `OPUP Users Menu` to add, delete, change passwords, and view assigned users. See paragraph 3.3.3.5 for further information concerning the OPUP Users Menu function. Terminal/console control access and environmental changes in privileges are to be performed only by the OPUP System Administrator.

4.4.3.3.2 Security Relevant Files and Directories. Several directory hierarchies are considered critical to the OPUP system and security administration. These hierarchies must be monitored and maintained to ensure that the general user community can neither accidentally or maliciously cause damage to the system operation by manipulating the key configuration files within them. The following directories are included:

- The */*(root) directory is the home directory for the root user and the parent for all hierarchies in the file system.
- The */etc* directory is the primary administrative and security directory on the file system.
- Audit Logs and Online Archives must be protected from unauthorized access or manipulation.

4.4.3.3.3 Default User Permissions. Each OPUP System Administrator must ensure that user permissions set on home directories conform to the least privilege concept. That is, permissions on objects or files created may restrict access exclusively to the owner/creator of that object or file. Sharing objects or files within the user's home directory requires that permissions on the directory allow another user access to the specific objects.

There are three types of permissions associated with a user's files and directories as follows:

- r - read the file or directory.
- w - write to the file or directory.
- x - execute the file or search the directory.

These permissions can be set for the following three types of users:

- o - the file(s) owner.
- g - the members of the group to which the owner belongs.
- w - all other users.

NOTE

Users assigning read permission for files to another individual allow that individual the ability to copy the files. This in turn **allows** that individual to modify and allow all other users access.

4.4.3.3.4 Backup and System Recovery. The OPUP System Administrator may backup/restore both the OPUP configuration data and products. See paragraph 3.3.3.9.2 for further information. Backup media should be stored in a secure container.

4.4.3.3.5 System Shutdown. The OPUP System Administrator may power the system down to the off position by using the **Shutdown Server** button located on the `OPUP Server Control Menu` as described in paragraph 3.3.3.9.9. Using the `OPUP Server Control Menu` will provide for a quick but orderly (safe) shutdown process which terminates the OPUP Server OS and powers the Servers UD80A11 and UD80A12, and the Display Workstations UD85 down to the off position.

4.4.4 Configuration Management Policy.

The OPUP operates within a controlled software and hardware environment, meaning that only authorized software and hardware may be installed and operated within the OPUP environment. Installing or executing non-authorized software or hardware poses an extreme risk to the OPUP operations and integrity. It is the OPUP System Administrator and security staff responsibilities to maintain the most recent versions of software and site specific adaptation data.

4.4.5 Software Security Patches.

The ROC will be responsible for subscribing to Air Force Computer Emergency Response Team (AFCERT) advisory distribution lists and implementing relevant system patches as appropriate. The OPUP System Administrator will NOT install patches on the OPUP system.

4.4.6 Incident Handling.

All sites shall develop procedures to follow when misuse or system attacks are suspected or detected. When a suspected or actual security incident occurs that compromises the OPUP security, it must be reported to the ROC immediately. Misuse of an OPUP is illegal and protected by federal and local laws.

4.4.6.1 Incident Definition. An incident may be an event of unauthorized entry, or attempted entry, to the system or network. This can include browsing; viruses; disruption or denial of service; altered or destroyed input, processing, storage, or output of information.

4.4.6.2 Response. The OPUP System Administrator or security staff should immediately:

- Identify the account under which misuse or an attack has been perpetrated.
- Identify the damage done or component/information compromised.
- Document the occurrence and save the evidence defining the misuse or attack.
- Follow local procedures for reporting system misuse.
- If the incident involves vulnerabilities with the system or network, report the incident to the ROC immediately.

4.4.7 Physical Resource Protection.

Physical resource protection refers to the procedures and functions that enforce system security procedures and practices. Physical resource protection is the responsibility of all personnel who enter the facility, physically or logically. Therefore, everyone, particularly system users, should be aware of what constitutes normal operations and what constitutes misuse of system resources or suspicious or abnormal operating conditions.

4.4.7.1 UPS Protection. A UPS will be used for all designated hardware per an ICD associated with the Large/Medium OPUP Equipment Group UD80 authorized by the ROC Configuration Branch (CM). The equipment depicted by this ICD must be on an UPS in order to allow for uninterrupted operations for a limited time period after a power failure. Mission critical power shall have a conditioning/surge protection device connected to its power sources.

4.4.8 Maintenance Remote Access.

Maintenance and diagnostic privileges are supported through dial-in modem communications and permit access only to those services and data required by the remote users to perform their functions. Security requirements (e.g., I&A, DAC, etc.) of the system also apply to systems allowed remote access. Dial-in hardware and software will disconnect sessions after fifteen (15) minutes of inactivity. The OPUP System Administrator should control and regulate the amount of users permitted to access the system through dial-in access. Local and remote modem telephone numbers and IP addresses must be protected from publication and should be treated as sensitive information. Personally owned computers shall not be used for maintenance or be allowed to perform diagnostic procedures on the system in a remote fashion.

CHAPTER 5
OPUP SYSTEM ADMINISTRATION

Section 5.1. INTRODUCTION

5.1.1 General.

This chapter provides the procedures that may be required to support minimum system administration duties associated with the OPUP Server Operating Software (OS) and associated Operational Applications. These procedures at a minimum include, system-wide power on/off functions, starting, stopping, and restarting OPUP software. Other administrative procedures include: changing/updating OPUP adaptation data, adding/removing account assignments, password and security management, archive procedures, adding a printer, etc.

The procedures presented in this chapter may also be used in conjunction with the fault isolation guidance provided in Chapter 6, Maintenance. Abnormal procedures will be presented as applicable. However, specific description of each administrative GUI is found in Chapter 3, Software Description, and all troubleshooting and fault isolation guidance must immediately be referred to the appropriate section/paragraph located in Chapter 6.

NOTE

> Everyday OPUP administrative functions are to be performed on the Data Server UD80A11. There will be no administrative functions performed on the Display Server UD80A12. The Large OPUP configuration Display Server UD80A12 will be limited to special maintenance and display functions.

5.1.2 Chapter Organization.

This chapter is organized into two sections as follows:

- Section 5.1 INTRODUCTION - Provides a brief description of the information found in Chapter 5.
- Section 5.2 OPUP SYSTEM ADMINISTRATION - Provides step-by-step OPUP administrative procedures which include, system-wide power on/off procedures, starting, stopping, and restarting OPUP software. Other administrative procedures include, changing/updating OPUP adaptation data, adding/removing account assignments, password and security management, archive procedures, adding a printer, etc.

Section 5.2. OPUP SYSTEM ADMINISTRATION

5.2.1 Introduction.

NOTES

> OPUP operators will be identified as **operators** and personnel given OPUP system administration/maintenance duties will be identified as **OPUP System Administrators** from herein throughout this chapter.
>
> The Operational Application Suite (EPSS, PDGUI, Status & Control, Archive PDGUI, and Status Log GUIs) are those applications that are accessed by operators using the Display Workstation UD85. The OPUP Manager GUI is accessed at the administrative Monitor UD80A7 which is located within the OPUP Processor Cabinet UD80.

The OPUP Software Group incorporates an OPUP Manager GUI called the `OPUP Manager Main Menu`. This menu designed in Netscape HTML format, has been developed to provide each site the ability to perform administrative functions associated with normal OPUP administrative duties. These duties at a minimum include: stop/start/restart of the OPUP Server OS, add/remove users, archive/back-up configurations, add peripherals, monitor system security and personnel access to files/functions, etc. All administrative functions and procedures will be performed using the `OPUP Manager Main Menu`. The specific guidelines used to mitigate trouble faults must be referred to Chapter 6, Maintenance.

The following paragraphs provide the information and procedures necessary to accomplish minimum required OPUP Server OS administrative tasks.

5.2.2 OPUP Hardware Power On/Off Procedures.

Prerequisites: An understanding of the OPUP hardware layout, controls, and indicators provided in Chapter 2, Hardware Description, and the functional use of the `OPUP Manager Main Menu`, outlined in Section 3.3, of Chapter 3, Software Description.

The following paragraphs outline the procedures used to energize/de-energize the assembly and sub-assemblies associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85.

NOTE

> The Large/Medium OPUP configurations and the Display Workstation UD85 may be powered on/off independently of each other.

5.2.2.1 Large/Medium OPUP Power On Procedure. The following procedure assumes that all OPUP equipment is currently in the powered Off state and that each equipment item is going to be energized in sequence.

NOTE

The exact location of the power button, toggle, switch, and rocker switch associated with each equipment item can be found in Chapter 2, OPUP Hardware, Section 2.3, Control and Indicators. Specific power/communication cable connections can be found in paragraph 2.2.3.4 and Figure 2-6 for Large OPUP or paragraph 2.2.3.5 and Figure 2-7 for Medium OPUP.

1. Locate and place the following equipment in the power On (1) state, using the following order (wait for each individual equipment item to fully energize before going on to the next one):

   UPS UD80A5/A6/A13/A14 (A5/A13 Large OPUP configuration only)

   Modem Rack UD80A1/A2 (A2 Large OPUP configuration only)

   Communication Router UD80A3

   Archive IV Device UD80A4

   Communication Switch UD80A18

   Monitor UD80A7

   KVM Switch UD80A8 (Large OPUP configuration only)

2. The following Server UD80A11 and UD80A12 power On procedures apply:

   a. Large OPUP configuration:

      1. At the KVM Switch UD80A8, press LED button number one (1). No data will be displayed at this time.

      2. At the Data Server UD80A11 front panel (Server unit in the upper position), locate the security keyswitch (Figure 2-21and Table 2-17, index 10) and turn the keyswitch all the way in the counterclockwise position.

      3. At the Data Server UD80A11 front panel, depress the power button until a beep signal is sounded. The Server will then initiate an internal Power-On-Self-Test (POST) procedure (which should take approximately 30 seconds to complete). While the POST procedure is running, information will be displayed on the Monitor UD80A7. When the POST and software start-up sequence is finished, a CDE Login screen will be displayed.

      4. At the KVM Switch UD80A8, press LED button number two (2). No data will be displayed at this time.

5. At the Display Server UD80A12 front panel (server unit in the lower position), locate the security keyswitch (Figure 2-21 and Table 2-17, index 10) and turn the keyswitch all the way in the counterclockwise position.

6. At the Display Server UD80A12 front panel, depress the power button until a beep signal is sounded. The server will then initiate an internal Power-On-Self-Test (POST) procedure (which should take approximately 30 seconds to complete). While the POST procedure is running, information will be displayed on the Monitor UD80A7. When the POST and software start-up sequence is finished, a CDE Login screen will be displayed.

7. At the KVM Switch UD80A8, press LED number one (1). The Monitor UD80A7 will then display data from the Data Server UD80A11.

8. Perform all applicable login procedures. Go to paragraph 5.2.3, Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation), and place the Large OPUP configuration in the normal operating state.

b. Medium OPUP configuration:

1. At the Server UD80A11 front panel, locate the security keyswitch (Figure 2-21 and Table 2-17, index 10) and turn the keyswitch all the way in the counterclockwise position.

2. At the Server UD80A11 front panel, depress the power button until a beep signal is sounded. The server will then initiate an internal Power-On-Self-Test (POST) procedure (which should take approximately 30 seconds to complete). While the POST procedure is running, information will be displayed on the Monitor UD80A7. When the POST and software start-up sequence is finished, a CDE Login screen will be displayed.

3. Perform all applicable login procedures. Go to paragraph 5.2.3, Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation), and place the Medium OPUP configuration in the normal operating state.

5.2.2.1.1 Display Workstation UD85 Power On Procedure. The following procedure assumes that all Display Workstation UD85 equipment is currently in the powered Off state and that each equipment item is going to be energized in sequence.

NOTE

The exact location of the power button, toggle, switch, and rocker switch associated with each equipment item can be found in Chapter 2, OPUP Hardware, Section 2.3, Control and Indicators. Specific power and communication cable connections can be found in paragraphs 2.2.3.4.4 and 2.2.3.5.4 and Figure 2-8 and Figure 2-9.

1. Locate and place the Display Workstation Monitor UD85A1 in the power On (1) state.

2. At the Display Workstation CPU/Processor UD85A2, firmly press the power On button located near the center right of the CPU/processor front panel. The display workstation CPU/processor will then initiate an internal Power-On-Self-Test (POST) procedure (which should take approximately one to two minutes to complete). While the POST procedure is running, information will be displayed on the Display Monitor UD85A1. When the POST and software start-up sequence is finished, a CDE Login screen will be displayed.

3. Perform all applicable login procedures. Go to paragraph 5.2.3, Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation), and place the display workstation(s) in the normal operating state.

5.2.2.2 Power Off Procedure. Prerequisite: The `OPUP Manager Main Menu` located at the administrative Monitor UD80A7 is currently displayed. The Operational Applications Front Panel is currently being displayed on the Display Workstation Monitor UD85A1. (Refer to paragraph 5.2.3.3 for screen activation procedures, if the Screen or Lock Timeout function has been activated.) The following steps apply to both the Large and Medium OPUP configurations.

1. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` window will be displayed.

2. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. This will display the window illustrated in Figure 5-1.

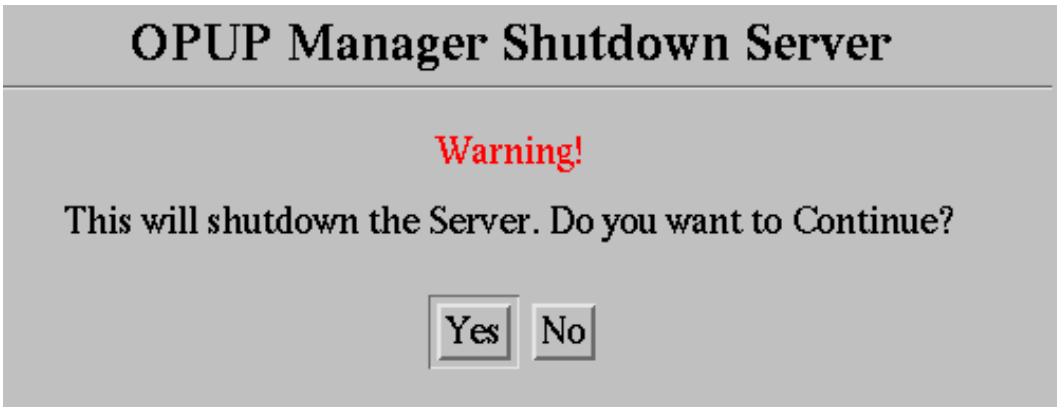


Figure 5-1. OPUP Manager Shutdown Server Window

NOTE

If you do not wish to shutdown the OPUP Server OS, click on the **No** button. Selecting the **No** button will cancel the shutdown server process and re-display the `OPUP Server Control Menu`.

3. At the `OPUP Manager Shutdown Server` window, click on the **Yes** button. The OPUP Server OS will then perform a full server software shutdown sequence of all OPUP Server OS operations in an orderly and safe manner. The OPUP Server OS shuts down the Display Workstation UD85 first, then the Display Server UD80A12 (Large OPUP configurations), followed by the Data Server UD80A11 last. When the OPUP Server OS is finished with its portion of the software shutdown sequence, the OPUP Server OS will send a signal to the OPUP server's internal firmware and perform a complete hardware shutdown procedure which will place the OPUP server in the Off state.

5.2.3 Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation).

The following paragraphs provide the procedures required to login and display the OPUP Manager GUI CDE Front Panel, Operational Application Front Panel, and/or re-activate (if necessary) the terminal and/or display lockout features.

5.2.3.1 OPUP Manager GUI Login Procedure. Prerequisites: All equipment associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 have been placed in the powered On (1) state. The OPUP Manager GUI is currently not being displayed. (Disregard these steps if the OPUP Manager GUI is already displayed).

1. Locate the administrative Monitor UD80A7, Keyboard UD80A9, and Mouse UD80A10. (Refer to paragraph 5.2.3.3 for screen activation procedures, if the terminal/display lock-out function has been activated.)

2. At the CDE Login screen, in the `Please enter your user name` edit box, enter:

   opupmgr<Return>

3. At the CDE Login screen, in the `Please enter your password` edit box, enter:

   opupmgr_password **<Return>**

The CDE login function will then initiate a login sequence. When the CDE login function is finished, a Netscape HTML web page interface GUI will automatically be displayed. If the Netscape HTML web page interface GUI does not automatically display, click on the OPUP Manager GUI (Netscape "**World**") icon located at the left of the CDE Front Panel. (Refer to Figure 3-1 and Table 3-2 for further information concerning the location and description of the OPUP Manager GUI.)

4. At the Netscape HTML web page window, click **anywhere on the gray background**. A `Netscape: Password` login window will be displayed.

5. In the `Netscape: Password` window, in the `UserID:` edit box, enter:

   opupmgr<Return>

6. In the `Netscape: Password` window, in the `Password:` edit box, enter:

   *opupmgr_password***<Return>**

The Netscape login function will display the `OPUP Manager Main Menu`.

5.2.3.2 Operational Applications Front Panel Login Procedure. Prerequisites: The OPUP Operational Applications GUI Suite is currently not being displayed. (Disregard these steps if the OPUP Operational Applications Front Panel is currently being displayed).

1. Locate the Display Workstation Monitor UD85A1, Keyboard UD85A3, and Mouse UD85A4. (Refer to paragraph 5.2.3.3 for screen activation procedures, if the terminal/display lock-out feature has been activated.)

2. At the CDE Login screen, in the `Please enter your user name` edit box, enter:

   *user_name***<Return>**

3. At the CDE Login screen, in the `Please enter your password` edit box, enter:

   *user_password***<Return>**

The CDE Login function will display the OPUP Operational Applications Front Panel.

NOTE

> If the user name entered in Step 2 has logged into the Operational Applications Front Panel before, the Operational Applications display attribute functionality will attempt to re-display the user name's display attributes/ settings used during the last login session.

5.2.3.3 Screen Saver/Terminal Lockout Activation and Recovery. Prerequisite: Notify the current user (either the operator and/or OPUP System Administrator), if required, that this procedure is to be performed. The current UserID/Password may be required in order to successfully accomplish this procedure.

NOTE

> The Screen Lockout function will only temporarily remove the current image after a minimum amount of interaction from the user. The Terminal Lockout function will initiate a `Solaris Password` window when the time threshold for this function has been met. The OPUP Server OS Desktop Style Screen Manager function will initiate a Screen Lockout function first, then a terminal lockout function second. The user can manually activate the Terminal Lockout function by clicking on the **padlock** icon located on the CDE Front Panel or Operational Applications Front Panel.

1. (For Large OPUP configuration only.) At the KVM Switch UD80A8, press either LED button number one (1) to view information from the Data Server UD80A11 or LED button number two (2) to view information from the Display Server UD80A12.

2. To manually activate the Terminal Lockout feature, at the Monitor UD80A7 or Display Workstation Monitor UD85A1, click on the **padlock** icon located on the CDE Front Panel or the Operational Applications Front Panel.

3. To recover from the Screen Saver/terminal Lockout feature, move the mouse or press any key on the keyboard. If an image is immediately displayed, stop here. If a `Solaris Password` window is displayed, go to the next step.

4. At the `Solaris Password` window that displays the message, `Display locked by user` *`user_name`*`. Enter password to unlock.` Enter the password of the user or the root_password and press the **<Return>** key. The last displayed image will appear.

5.2.3.4 System Time Check Procedure. The following prerequisites apply:

For the Large OPUP configuration: Ensure that the KVM Switch UD80A8 LED button number one (1) is pressed and illuminated. This procedure will begin with the Data Server UD80A11 (Step a) first and then check the system time on the Display Server UD80A12 second (Step b).

For both the Large and Medium OPUP configurations: CDE Front Panel must be displayed on the Monitor UD80A7. The `OPUP Manager Main Menu` should be minimized to provide easier access to the CDE Front Panel. (If necessary, refer to paragraph 5.2.3.1 for the procedure to log into the OPUP Manager GUI and then minimize the display).

NOTE

These procedures do not apply to the Display Workstation UD85.

a. For both the Large and Medium Server UD80A11:

1. At the CDE Front Panel, click on the **Up arrow** located just above the **cpu disk** icon. A `Hosts` pop-up window will then be displayed.

2. At the `Hosts` pop-up window, click on the **This Host** icon. A Terminal window will be displayed with an `/export/home/opupmgr>` prompt.

3. At the `/export/home/opupmgr>` prompt, enter: **date<Return>**

   Feedback: The current date which displays the day, month, date, time (hh:mm:ss), GMT, year will be displayed (i.e., Tue Jul 22 14:33:21 GMT 2003). When the date function is finished, an `/export/home/opupmgr>` prompt will be displayed.

4. At the `/export/home/opupmgr>` prompt, verify that the time displayed is correct by using an accurate time source.

NOTE

A good source to consult for an accurate time display can be obtained at WWV 303-499-7111. If the day and year are correct and/or the time is within one minute of the correct time, stop here. This procedure is complete. Otherwise, go to the next step.

5. At the `/export/home/opupmgr>` prompt, using an accurate time source, enter:

   sudo date *mmddHHMM*[*cc*][*yy*][*.ss*] for a time parameter that will occur in the near future (Do Not press the **<Return>** key, yet).

NOTE

In the above step, if the desired date is Tuesday, 22 July 2003, 14:55:00 GMT, the minimum date parameter that must be entered is **date 07221455.00**. The date function will update the day, month, hour, and minutes. All selections/entries made after the **minutes** parameter ("MM") are optional. The following date parameter breakdown applies:

mm= Month

dd= Day

HH= GMT Hour

MM=Minute

Optional entries (normally not entered):

cc= Century minus 1

yy= Year

ss= Seconds

6. Using the chosen time source, press the **<Return>** key exactly at the same moment for the time parameters that were entered in Step 5.

   Feedback: The date update function will display an output of the information entered in Step 5, followed by a `/export/home/opupmgr>` prompt.

7. At the `/export/home/opupmgr>` prompt, enter: **date<Return>**

   Feedback: The data parameter should display the correct time.

8. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

   Feedback: The Terminal window will close.

9. Maximize the `OPUP Manager Main Menu` to return the display to the normal operating position.

b. For the Large OPUP Display Server UD80A12:

1. At the KVM Switch UD80A8 press LED button number two (2). The Display Server UD80A12 CDE Front Panel should be displayed on the Monitor UD80A7.

2. Minimize the `OPUP Manager Main Menu`, if currently displayed.

3. Perform Steps a.1 through a.9 provided in the previous step. When finished, go to the next step.

4. Maximize the `OPUP Manager Main Menu` to return the Display Server UD80A12 display to the normal operating position.

5. At the KVM Switch UD80A8 press LED button number one (1). The Data Server UD80A11 CDE Front Panel should be displayed on the Monitor UD80A7.

5.2.4 OPUP Software Menu Functions.

The following paragraphs outline the steps and procedures required to Start/Stop/Restart the OPUP Server OS, Edit OPUP Adaptation Data (Update Dial Communications), and OPUP Communications Configuration (Update Dedicated Communications). The procedures to view the OPUP Software Version and determine Available Products in Database (Oldest/Newest) are covered sufficiently in Chapter 3, beginning with paragraph 3.3.3.4.

Prerequisite: The `OPUP Software Menu` must be displayed as shown in Figure 5-2.

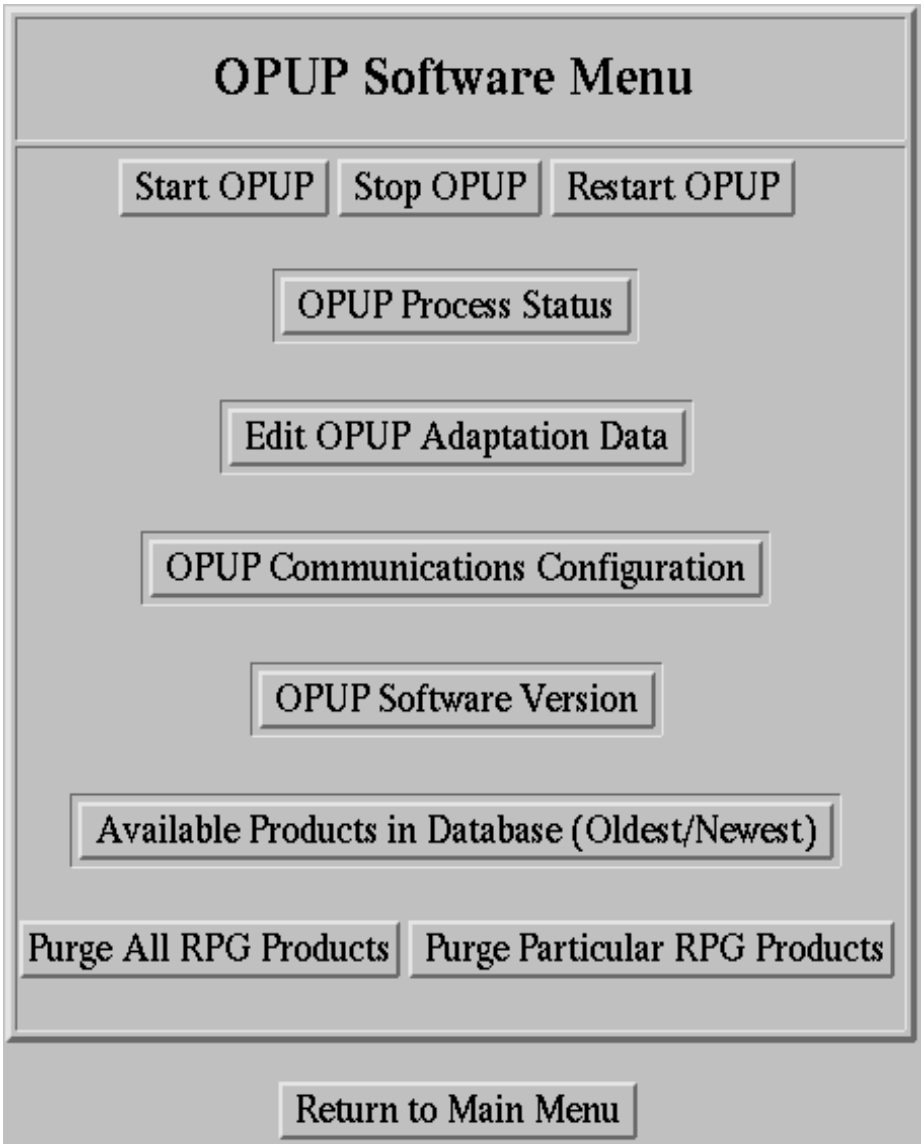


Figure 5-2. OPUP Software Menu

5.2.4.1 Start OPUP Software. Prerequisite: The `OPUP Software Menu` is displayed and the OPUP OS processes have not been previously started. (Disregard this procedure if all of the OPUP Server OS processes are running and operating properly.)

1. At the `OPUP Software Menu`, click on the **Start OPUP** button. An `OPUP Manager Start OPUP` window will be displayed. This window will also display the message: `Warning! This will start the OPUP Software. Do you want to Continue?`

NOTES

If you ***do not*** wish to start the OPUP background processes, click on the **No** button. The **No** selection will cancel the OPUP startup script and return to the `OPUP Software Menu` window.

Once the OPUP Manager Start OPUP function begins to load and start the OPUP Server software, the OPUP Manager Start OPUP function will display the message `Please wait 1 to 2 minutes for the Server Processes to start`.

2. At the `OPUP Manager Start OPUP` window, click on the **Yes** button.

3. At the `OPUP Manager Start OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

4. At the `OPUP Software Menu`, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

To check the state/status of the OPUP processes, refer to paragraph 5.2.4.4.

5.2.4.2 Stop OPUP Software. Prerequisite: The `OPUP Software Menu` is currently being displayed and the OPUP Server OS processes have been previously started. (Disregard this procedure if the OPUP Server OS processes have already been placed in the stop position.)

1. At the `OPUP Software Menu`, click on the **Stop OPUP** button. An `OPUP Manager Stop OPUP` window will be displayed. This window will also display the message: `Warning! This will stop the OPUP Software. Do you want to Continue?`

NOTE

If you ***do not*** wish to stop the OPUP background processes, click on the **No** button. The **No** selection will cancel the OPUP Manager Stop script and return to the `OPUP Software Menu`. Also, if the **No** button is not clicked within 1 to 2 minutes, the OPUP Manager Stop OPUP function will automatically stop all OPUP Server OS background processes and display the message: `All OPUP Server Software has been Stopped`.

2. At the `OPUP Manager Stop OPUP` window, click on the **Yes** button. The OPUP Manager Stop OPUP function will stop all associated background processes and remove them from memory. When the OPUP Manager Stop OPUP function is finished, the OPUP Man-

ager Stop OPUP function will display the message: `All OPUP Server Software has been Stopped`.

3. At the `OPUP Manager Stop OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

4. At the `OPUP Software Menu`, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`

NOTE

To check the state/status of OPUP processes, refer to paragraph 5.2.4.4.

5.2.4.3 Restart OPUP Software. Prerequisite: The `OPUP Software Menu` is displayed and the OPUP Server OS processes have been previously started. (Disregard this procedure if all of the OPUP Server OS processes are currently running and operating properly.)

1. At the `OPUP Software Menu`, click on the **Restart OPUP** button. An `OPUP Manager Restart OPUP` window will be displayed. This window will also display the message: `Warning! This will restart the OPUP Software. Do you want to Continue?`

NOTE

If you ***do not*** wish to restart the OPUP background processes, click on the **No** button. The **No** selection will cancel the OPUP restart script and return to the `OPUP Software Menu` window.

2. At the `OPUP Manager Restart OPUP` window, click on the **Yes** button. This window will display the message: `All OPUP Server Software has been Restarted. Please wait 1 to 2 minutes for Server Processes to start.`

   The OPUP Restart script will first kill the active OPUP processes and then reload and restart them in the correct order. Once the OPUP restart process is complete, the following message will be displayed: `All OPUP Server Software has been ReStarted`. (You may review the status entries for errors, if you wish.)

3. At the `OPUP Manager Restart OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

4. At the `OPUP Software Menu`, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`

NOTE

To check the state/status of the OPUP processes, refer to paragraph 5.2.4.4.

5.2.4.4 View OPUP Software Process Status. Prerequisite: Review the information presented in Chapter 3, OPUP Software Description, Section 3.4, OS Background Process Description, for further information concerning the data displayed within the `OPUP Software Process Status` window. The `OPUP Software Menu` must be displayed.

1. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. The applicable `OPUP Process Status` window will then be displayed.

NOTES

The OPUP Process Status function does not automatically re-display information to this screen once it is initially displayed. If the OPUP Process Status function is being used in conjunction with software start, stop, and restart functions, users will need to use the **Refresh** button near the bottom left of each display to re-display updated process status information. Also, users can either exit the `OPUP Process Status` window and then re-enter it or click on the Netscape HTML web page Reload (Refresh) button to obtain updated information.

The `OPUP Process Status` window will only display the processes associated with specific OPUP Server OS background, Operational Applications, and/or Workstation Display UD85 functions (mcu, dmcu, cm_tcp, etc.) which have been specifically configured in order to be displayed in this window. The OPUP Server OS will attempt to indicate which processes listed are currently running or not (which may have failed or become unresponsive) by listing each process with a series of dots listed to the right of it, followed by a blank space. The `OPUP Process Status` window is not intended to indicate the actual status of received/sent messages generated by another operator(s) or pre-defined processes (i.e., RPS lists, OTR's, etc.) Refer to the **System Status** tab located within the Status and Control GUI for system messages and associated code feedback indicators. In addition, if any of the processes listed above should fail, attempt to restart the OPUP software. If a restart procedure does not recover any or all of the OPUP Server OS processes listed within the `OPUP Process Status` window, attempt to stop and then start the OPUP Server OS to attempt to recover the processes. If the processes do not start up in a reasonable amount of time, consult the appropriate troubleshooting procedure provided in Chapter 6, Maintenance.

2. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu` or the **Return to Last Screen** button to return to the `OPUP Software Menu`.

5.2.4.5 Edit OPUP Adaptation Data (Dial Communications). Prerequisites: This procedure assumes that any changes made to the site's dial configuration has been coordinated with the WSR-88D Hotline NBComms Database Manager. The `OPUP Software Menu` must be displayed.

NOTES

The procedure outlined to update/change dial communication adaptation information allows each OPUP site to edit existing or add additional Dial access RPGs. Dial access information **cannot** be arbitrarily changed without prior coordination between the respective DOC and the DoD agencies. This is accomplished by gaining authorization from either/or the AFW/ Navy communication circuit coordinator (as appropriate) and/or the WSR-88D Hotline NBComms Database Manager. The WSR-88D Hotline will notify each individual site by WSR-88D Hotline NBComm Facsimile when routine changes are to be made.

For this procedure, an "RPG of interest" is the RPG that is chosen to be edited or added to the site's dial access RPG list.

1. Ensure the latest NBComms dial communication information is currently available. Contact the WSR-88D Hotline and obtain latest dial phones numbers and port information, if necessary.

2. At the `OPUP Software Menu`, click on the **Edit OPUP Adaptation Data** button. An `Edit RPG Information from list for Dial Radars` for *`RPG of interest`* window will be displayed as shown in Figure 5-3.

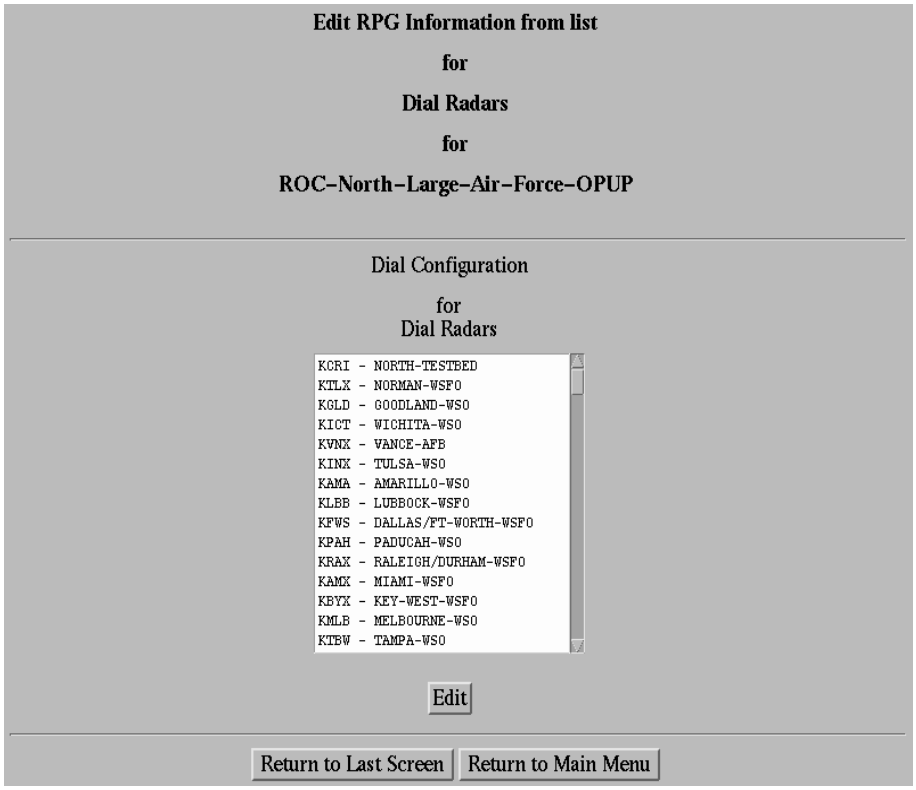


Figure 5-3. Edit RPG Information for Dial Radars for *RPG of Interest* Window

3. At the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window, move the mouse cursor over the *RPG of interest* located within the `Dial Configuration for Dial Radars` edit box and click on the *RPG of interest* to highlight it. The *RPG of interest* should now be selected.

4. At the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window, click on the **Edit** button. An `OPUP Manager Edit RPG Information For` *`RPG of interest`* window will display as shown in Figure 5-4.

NOTE

The `OPUP Manager Edit RPG Information For` *`RPG of interest`* window, Figure 5-4, allows the OPUP System Administrator to edit dial configuration information for a radar(s) located within the site's area of responsibility (AOR) or a radar(s) outside their AOR. This window automatically displays prior values that were entered during the last Dial RPG of interest update. Each text edit window may be updated independently of each other.

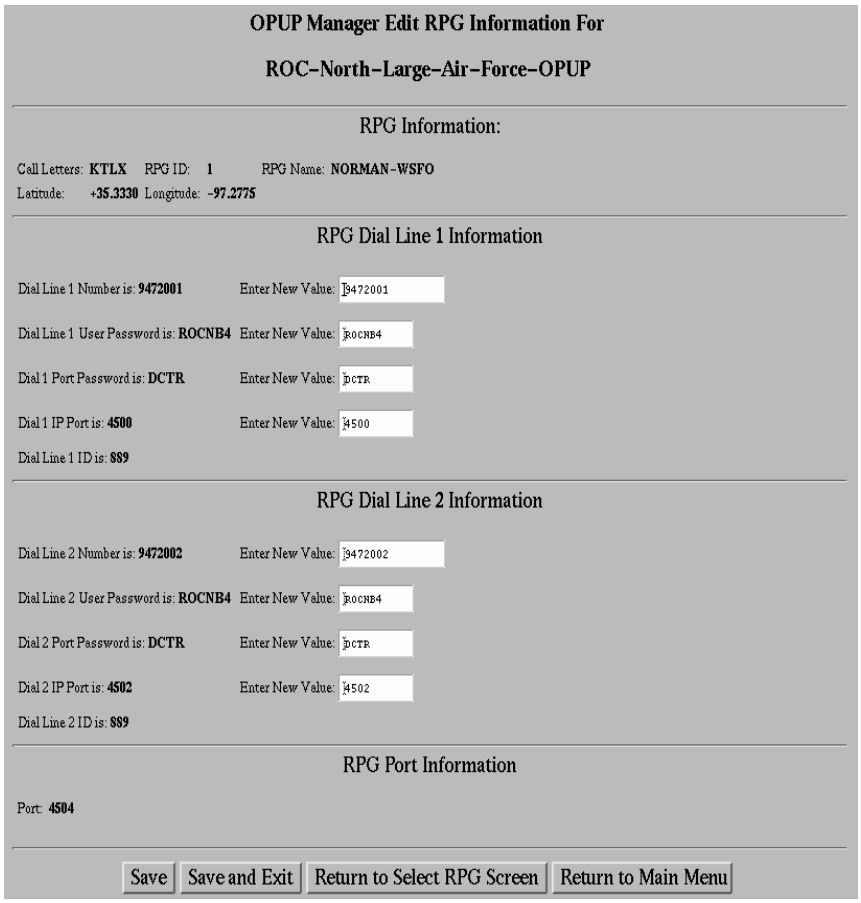


Figure 5-4. OPUP Manager Edit RPG Information Window

5. At the `OPUP Manager Edit RPG Information For` *`RPG of interest`* window, Figure 5-4, click within the first edit box (located near the top center of the window) to activate the field for text entry. When finished, use the **<Tab>** key to move to the next seven edit fields. Be sure to update all fields with the latest information.

6. At the `OPUP Manager Edit RPG Information For` *`RPG of interest`* window, Figure 5-4, click on the **Save** button. This will save the information updated within each edit field. Once the information has been saved, the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window will display as shown in Figure 5-3.

7. At the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window, move the mouse cursor over the RPG of interest that was selected in Step 3, and click to highlight the Dial RPG of interest. The RPG of interest should now be selected.

8. At the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window, Figure 5-3, click on the **Edit** button. An `OPUP Manager Edit RPG Information For` *`RPG of interest`* window will display as shown in Figure 5-4. When this window is displayed, verify that all of the information entered in Step 5 is correct.

NOTE

The `OPUP Manager Edit RPG Information For` *`RPG of interest`* window also contains a **Return to RPG Select Screen** button. This function allows the user to return to the `Edit RPG Information from list for Dial Radars for` *`RPG of interest`* window, Figure 5-3, in order to provide additional Dial RPG of interest updates, if desired.

9. At the `OPUP Manager Edit RPG Information For` *`RPG of interest`* window, click on the **Save and Exit** button. The `OPUP Manager Edit RPG Information` window will once again save the information displayed. Once the information has been saved, the window exits and displays an `OPUP Manager Edit Adapt Configuration Restart OPUP` window. This window will also display the message: `Please Wait 1 to 2 minutes for the Server Processes to start`.

10. At the `OPUP Manager Edit Adapt Configuration Restart OPUP` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.4.6 Display OPUP Communications Configuration (Dedicated Communications). Prerequisites: This procedure assumes that any changes made to the site's dedicated RPG configuration has been coordinated with the WSR-88D Hotline NBComms Database Manager. The `OPUP Software Menu` must be displayed

NOTES

For this procedure an "RPG of interest" is the RPG that is chosen to be edited or added to the site's dedicated access RPG list

The information provided in this procedure allow each site to change the existing dedicated RPG(s) adaptation data or add a new specific **dedicated** RPG(s) of interest. Dedicated RPG access information **cannot** be arbitrarily changed without prior coordination between the respective DOC and the DoD agencies. This is accomplished by obtaining authorization from either/or the AFW/Navy communication circuit coordinator (as appropriate) and/or the WSR-88D Hotline NBComms Database Manager. The WSR-88D Hotline will notify each site by WSR-88D Hotline NBComm Facsimile when routine changes are to be made.

The OPUP Communication Configuration function **cannot** delete an RPG of interest once it has been added to the OPUP Communication Configuration database. Sites that are only configured for one dedicated RPG must take care to not add another dedicated RPG unless a second external dedicated modem has been installed at their site. **If a Dedicated RPG is arbritarily or accidentally added, immediately contact the WSR-88D Hotline for recovery procedures!**

1. Ensure the latest NBComms Dedicated RPG communication information is currently available. Contact the WSR-88D Hotline and obtain latest dedicated circuit and port numbers, if necessary.

2. At the `OPUP Software Menu`, click on the **OPUP Communications Configuration** button. An `OPUP Communications Configuration` window will display as shown in Figure 5-5.

OPUP Communications Configuration

Link	Radar Name	Radar Desc	CM No.	PUP Id
0	KCRI	NORTH-TESTBED	3	889
1	KTLX	NORMAN-WSFO	3	889
2	KGLD	GOODLAND-WSO	3	889
3	KICT	WICHITA-WSO	3	889
4	KVNX	VANCE-AFB	3	889
5	KINX	TULSA-WSO	3	889
6	KAMA	AMARILLO-WSO	3	889
7	KLBB	LUBBOCK-WSFO	3	889
8	KFWS	DALLAS/FT-WORTH-WSFO	4	889
9	KPAH	PADUCAH-WSO	4	889
10	KRAX	RALEIGH/DURHAM-WSFO	4	889
11	KAMX	MIAMI-WSFO	4	889
12	KBYX	KEY-WEST-WSFO	4	889
13	KMLB	MELBOURNE-WSO	4	889
14	KTBW	TAMPA-WSO	4	889
15	KFDR	ALTUS-AFB	4	889
16	KCLX	CHARLESTON,-SC-WSO	5	889
17	KDDC	DODGE-CITY-WSO	5	889
18	KFFC	ATLANTA-WSFO	5	889
19	KHTX	NORTHEAST-ALABAMA	5	889
20	KCYS	CHEYENNE-WSFO	5	889
21	KSRX	WESTERN-ARKANSAS	5	889
22	KBMX	BIRMINGHAM-WSFO	5	889
23	KLTX	WILMINGTON-WSO	5	889
24	KMHX	MOREHEAD-CITY-WSO	6	889

Change Comms Configuration | Return to Main Menu | Return to Last Screen

Figure 5-5. OPUP Communications Configuration Window

NOTE

The `OPUP Communications Configuration` window shown in Figure 5-5, allows each site to view and edit (if required), any or all of the dedicated *RPG(s) of interest* located within the OPUP Server OS communication database.

3. To change adaptation data for a Dedicated *RPG of interest*, go to paragraph 5.2.4.6.1. To add a Dedicated *RPG of interest*, go to paragraph 5.2.4.6.2. To return to the `OPUP Software Menu`, click on the **Return to Last Screen** button. Otherwise, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.4.6.1 Change Existing Dedicated RPG Adaptation Data. Prerequisites: The `OPUP Communications Configuration` window must be displayed. (The procedure provided in paragraph 5.2.4.6 has been performed and the `OPUP Communications Configuration` window as shown in Figure 5-5 is currently displayed.)

1. At the `OPUP Communication Configuration` window, click on the **Change Comms Configuration** button. A `Configure OPUP Ded Comms` window will be displayed as shown in Figure 5-6. This window will also display the message: `Warning! This will Create a New OPUP Ded Comms Configuration. Do you want to Continue?`

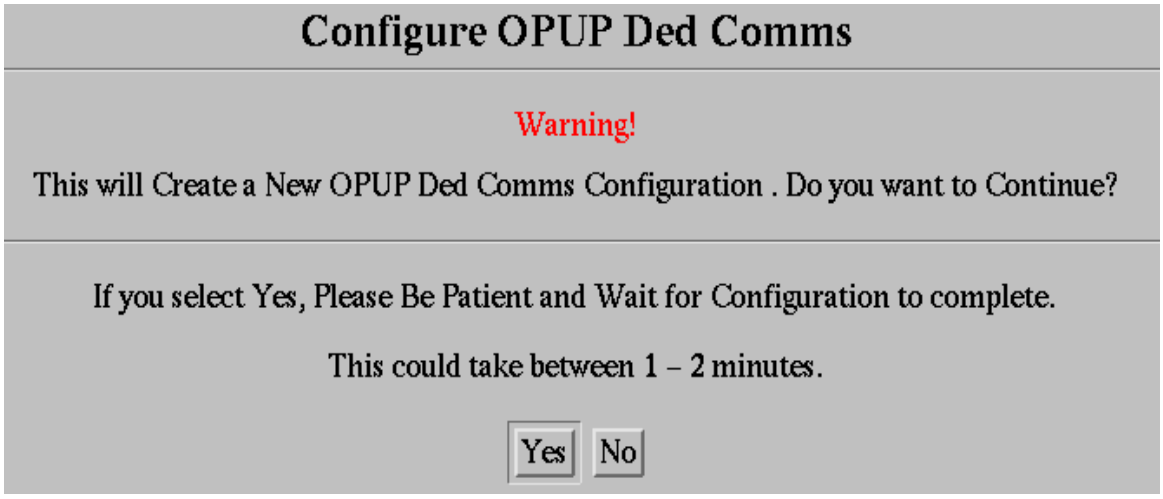


Figure 5-6. Configure OPUP Ded Comms Warning Window

NOTE

The `Configure OPUP Ded Comms` warning window is used to ensure that an actual change to dedicated communications are to be made. If the **Yes** button is selected, the Configure OPUP Dedicated Communications function will go to the next screen. If the **No** button is selected, the Configure OPUP Dedicated Communications function will automatically display the `OPUP Manager Main Menu`.

2. At the `Configure OPUP Ded Comms` window, click on the **Yes** button. An `OPUP Change Ded Communications Configuration` window will be displayed as shown in Figure 5-7.

NOTE

Except for specifically identified sites, each Large and Medium OPUP configuration is initially configured for up to the specified amount listed in the NBComms Database. Each site must be careful to only change or add Dedicated RPG information which has been coordinated with the NBComms Database Manager located at the WSR-88D Hotline. Additional dedicated RPGs **cannot** arbitrarily added to the Large or Medium OPUP due to the strict coordination and resource costs required in order to provide a complete dedicated RPG connection. Changing or adding dedicated RPG information not coordinated through proper channels can cause the OPUP Server OS communication database to become unstable or behave erratically.

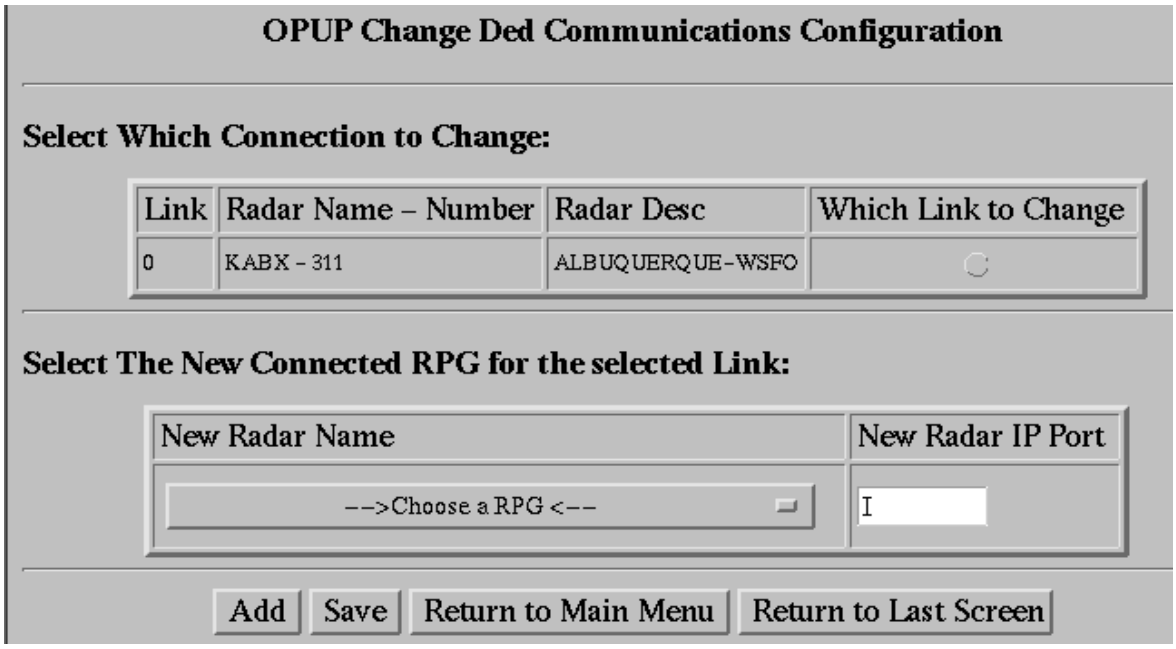


Figure 5-7. OPUP Change Ded Communications Configuration Window

3. At the `OPUP Change Ded Communications Configuration` window, within the `Select Which Connection to Change:` box, click on the **Which Link to Change** radio button. The dedicated RPG of interest radio button will be highlighted within the `Which Link to Change` column.

NOTE

Ensure only the Dedicated RPG of interest to be changed is selected.

4. At the `OPUP Change Ded Communications Configuration` window, within the `Select The New Connected RPG for the selected Link:, New Radar Name` selection box, click on the `-->`**Choose a RPG**`<--` pull-down selection bar. A `-->Choose a RPG<--` vertical pop-up window will be displayed.

5. At the `-->Choose a RPG<--` pop-up window, move the mouse cursor over an RPG of interest and click. The new *RPG of interest's* RPGID will be displayed within the title area of the `New Radar Name` selection bar.

6. At the `OPUP Change Ded Communications Configuration` window, within the `Select The New Connected RPG for the selected Link:, New Radar Name` selection bar, click within the `New Radar IP Port` edit field and enter: *New_Radar_IP _Port address*.

NOTE

Be sure that the **Add** button is **not** selected at this time! The OPUP Change Ded Communication Configuration function **cannot** delete an *RPG of interest* once it has been added to the OPUP Communication Configuration database. **If a Dedicated RPG is arbitrarily or accidentally added, immediately contact the WSR-88D Hotline for recovery procedures!**

7. At the `OPUP Change Ded Communications Configuration` window, click on the **Save** button. An `OPUP Save New Comm Configuration` window will be displayed as shown in Figure 5-8.

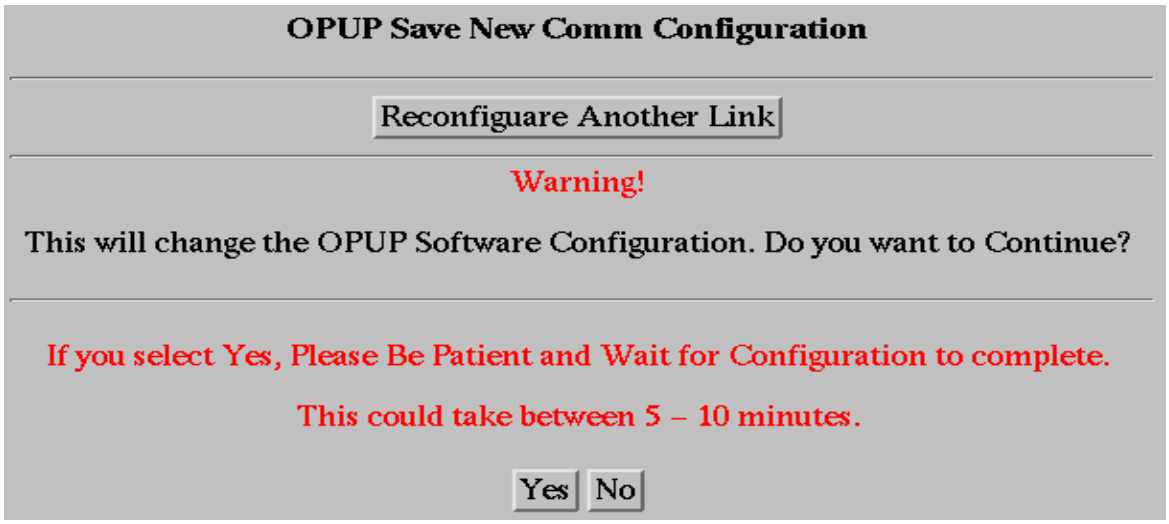


Figure 5-8. OPUP Save New Comm Configuration Window

NOTE

If you do not wish to update any information BEFORE the **Yes** button is selected, click on the **No** button. The OPUP Save New Comm Configuration function will immediately return the user to the `OPUP Manager Main Menu`.

8. At the `OPUP Save New Comm Configuration` window, click on the **Yes** button. The Save New Comm Configuration function will perform a dedicated RPG reconfiguration function which will designate the selected *RPG of interest* as the new dedicated RPG and then stop all OPUP Server OS processes as shown in Figure 5-9.

NOTE

The `OPUP Save New Comm Configuration` window gives the opportunity to reconfigure another link at this point. To configure another dedicated RPG or the current RPG of interest, click on the **Reconfigure Another Link** button. The edit process will return to the window displayed in Figure 5-7 and the process can begin again at Step 1 of this paragraph.

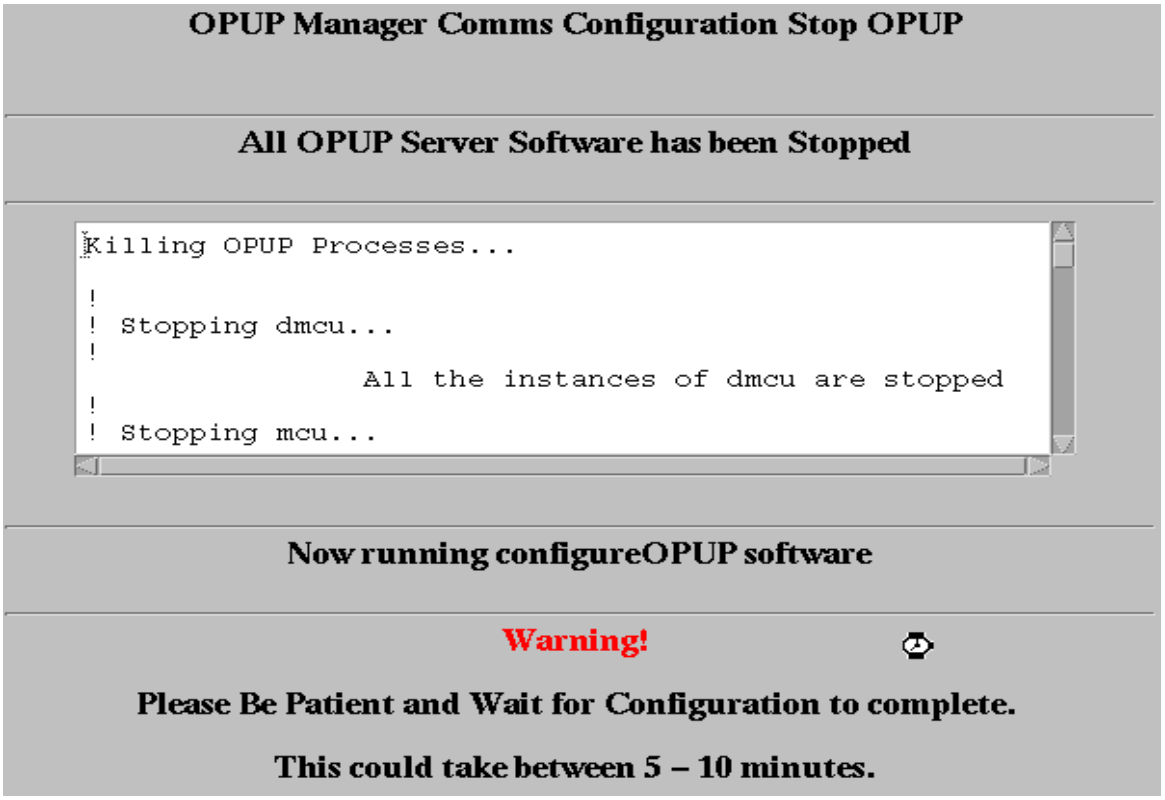


Figure 5-9. OPUP Manager Comms Configuration Stop OPUP Window

Once these processes are finished, the Save New Comm Configuration function will start all OPUP Server OS processes as shown in Figure 5-10. All of these functions will take approximately 5 to 10 minutes to perform. When the Save New Comm Configuration function is finished, the `OPUP Manager Comms Configuration Start OPUP` window, Figure 5-10, will remain displayed.

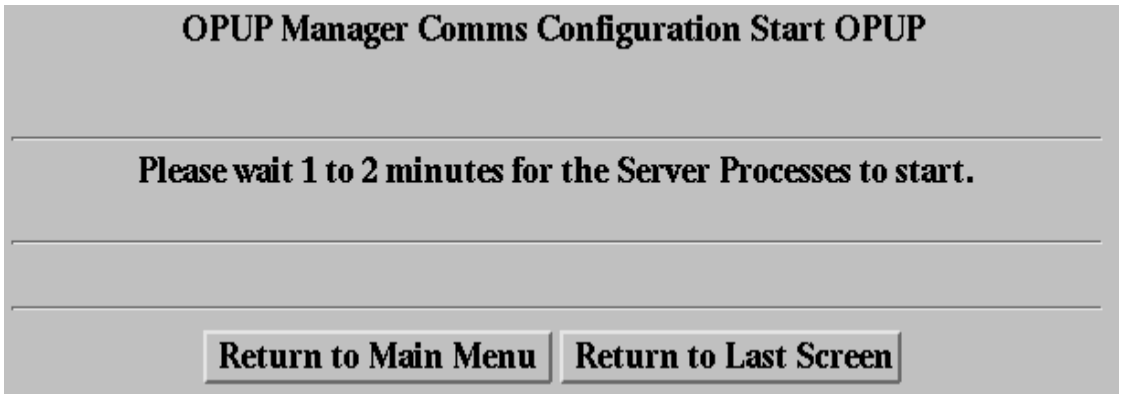


Figure 5-10. OPUP Manager Comms Configuration Start OPUP Window

9. At the `OPUP Manager Comms Configuration Start OPUP` window, click on the **Return to Last Screen** button to return to the `Change Ded Communications Configuration` window or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

If the **Return to Last Screen** or **Return to Main Menu** button has been clicked and an `OPUP has been Configured But` warning window is displayed, as shown in Figure 5-11, the Save Change Ded Communications Configuration procedure performed in Steps 1 through 5 have not been successful. Return to Step 1 of this procedure and attempt to save the Dedicated RPG of interest adaptation data, again. If the `OPUP has been Configured But` warning message is displayed again, reconfigure the Communication Router UD80A3 per paragraph 6.6.3. The setup procedure will restore the communication router with the intended RPG of interest configured.

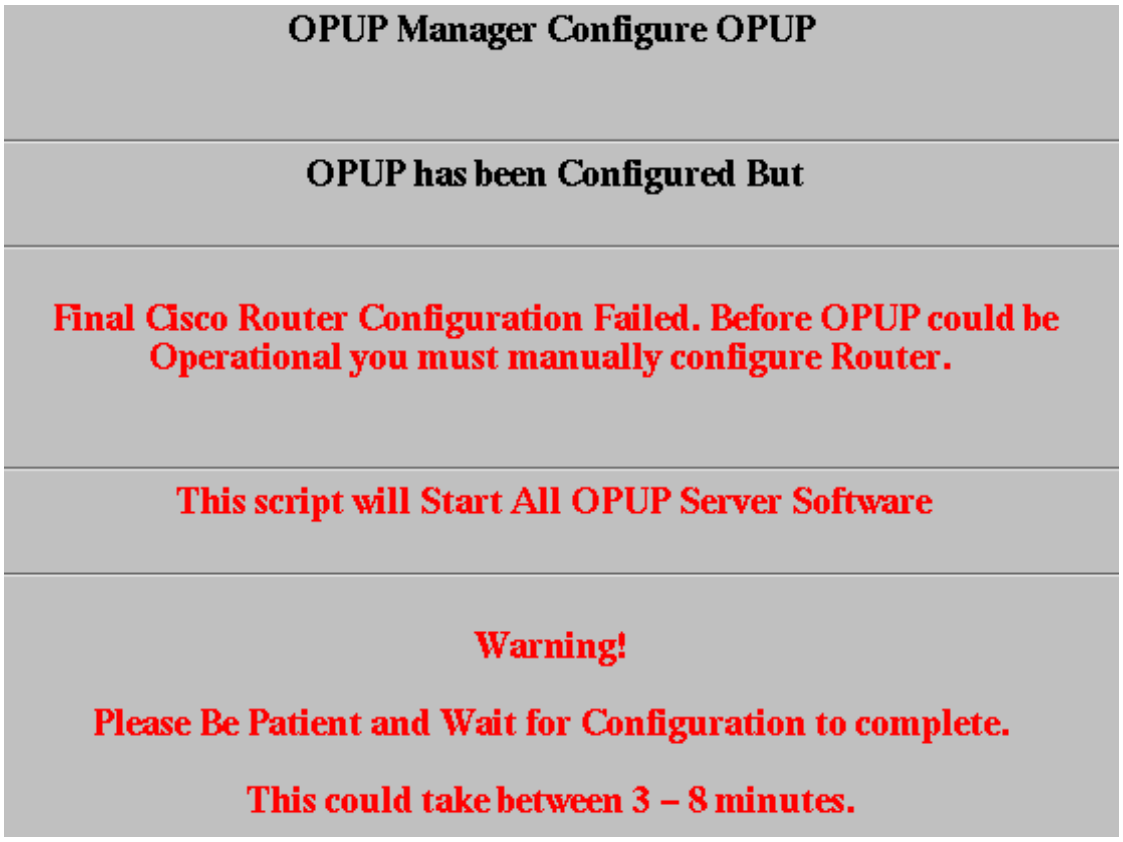


Figure 5-11. Cisco Router Failed Message Window

5.2.4.6.2 Add Dedicated RPG Adaptation Configuration Data. Prerequisites: The `OPUP Communications Configuration` window must be displayed. (The procedure provided in paragraph 5.2.4.6 has been performed and the `OPUP Communications Configuration` window is displayed as shown in Figure 5-5.)

NOTE

The OPUP Server OS currently **cannot** delete a RPG once it has been added to the OPUP Communication Configuration database. Sites that are only configured for one dedicated RPG must take care to not add another dedicated RPG unless a second external dedicated modem has been installed at their site. **If a dedicated RPG is added by accident, immediately contact the WSR-88D Hotline for recovery procedures!**

1. At the `OPUP Communication Configuration` window, click on the **Change Comms Configuration** button. A `Configure OPUP Ded Comms` window will be displayed as shown in Figure 5-6. This window also displays the message: `Warning! This will Create a New OPUP Ded Comms Configuration. Do you want to Continue?`

2. Click on the **Yes** button. An `OPUP Change Ded Communications Configuration` window will be displayed as shown in Figure 5-7. This window confirms that a change of a Dedicated RPG Communication connection is to be made.

3. At the `OPUP Change Ded Communications Configuration` window, click on the **Add** button. An `OPUP Add New Ded Communications Configuration` window will be displayed as shown in Figure 5-12.

4. At the `OPUP Add New Ded Communications Configuration` window, within the `New Radar Name` selection box, click on the --->**Choose a RPG**<---- pull-down selection bar. A `-->Choose a RPG<--` vertical pop-up window will then be displayed.

5. Click on a RPG of interest. The `New Radar Name` selection bar will now have the *RPG of interest* RPGID displayed within the title area of the bar as displayed in Figure 5-12.

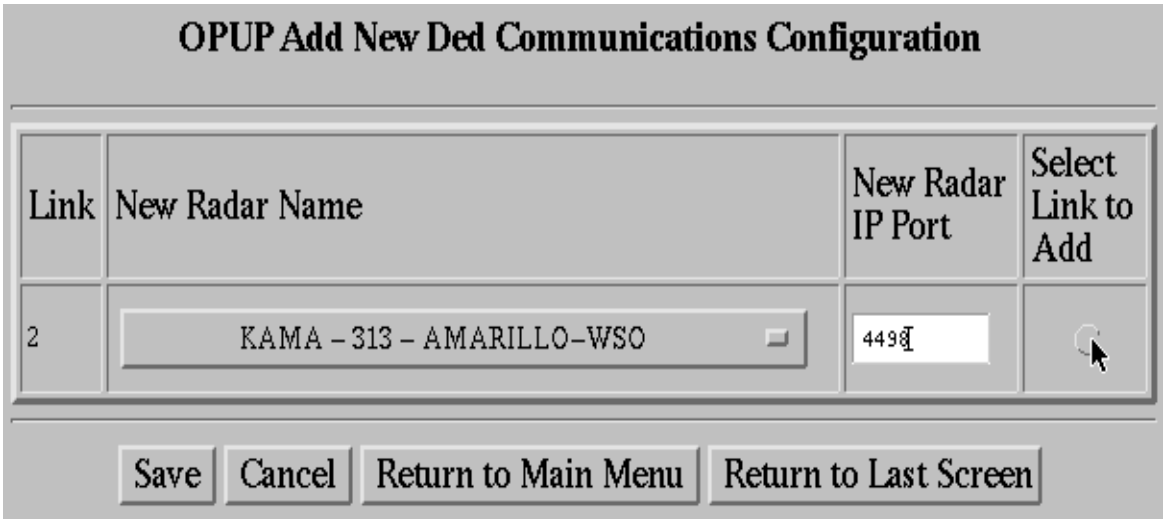


Figure 5-12. OPUP Add New Ded Communications Configuration Window

6. At the `OPUP Add New Ded Communications Configuration` window, click on the edit field of the `New Radar IP Port` and enter the *New_Radar_IP_Port address*.

7. At the `OPUP Add New Ded Communications Configuration` window, click on the **Select Link to Add** radio button.

8. At the `OPUP Add New Ded Communications Configuration` window, click on the **Save** button. An `OPUP Save New Comm Configuration` window will be displayed as shown in Figure 5-8.

NOTE

If you do not wish to update any information BEFORE the **Yes** button is selected, immediately click on the **No** button. The OPUP Save New Comm Configuration function will immediately return the user to the `OPUP Manager Main Menu`.

9. At the `OPUP Save New Comm Configuration` window, click on the **Yes** button. The Save New Comm Configuration function will perform an add dedicated RPG reconfiguration process to designate the selected RPG of interest as a new dedicated RPG, stop all OPUP Server OS processes as shown in Figure 5-9, and then start all OPUP Server OS processes as shown in Figure 5-10. This will take approximately 5 to 10 minutes to perform these functions. When the Save New Comm Configuration function is finished, the `OPUP Manager Comms Configuration Start OPUP` window, Figure 5-10, will remain displayed.

NOTE

The `OPUP Save New Comm Configuration` window gives the opportunity to reconfigure another link at this point. To configure another dedicated RPG or the current *RPG of interest*, click on the **Reconfigure Another Link** button. The edit process will return to the window displayed in Figure 5-7. The Add OPUP Communication Configuration process can then begin again at Step 1 of this procedure.

10. At the `OPUP Manager Comms Configuration Start OPUP` window, click on the **Return to Last Screen** button to return to the `Change Ded Communications Configuration` window or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

If the **Return to Last Screen** or **Return to Main Menu** button has been clicked and an `OPUP has been Configured But` warning window is displayed, as shown in Figure 5-11, the Save Change Ded Communications Configuration procedure performed in Steps 1 through 5 have not been successful. Return to Step 1 of this procedure and attempt to save the Dedicated RPG of interest adaptation data, again. If the `OPUP has been Configured But` warning message is displayed again, reconfigure the Communication Router UD80A3 per paragraph 6.6.3. The setup procedure will restore the communication router with the intended RPG of interest configured.

5.2.4.7 OPUP Software Version. Prerequisite: The `OPUP Software Menu` must be displayed as shown in Figure 5-2. For additional information, refer to paragraph 3.3.3.4.7 and Figure 3-12.

1. At the `OPUP Software Menu`, click on the **OPUP Software Version** button. An `OPUP Software Release` window will be displayed.

NOTE

The `OPUP Software Release` window displays the latest OPUP Software Release information. This information, at a minimum, will assist each site in determining the latest OS release, version, and the date the OS was last updated.

2. At the `OPUP Software Release` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.4.8 Available Products in Database (Oldest/Newest). Prerequisite: The `OPUP Software Menu` must be displayed as shown in Figure 5-2. For additional information, refer to paragraph 3.3.3.4.8 and Figure 3-13.

1. At the `OPUP Software Menu`, click on the **Available Products in Database (Oldest/Newest)** button. An `Available Products in Database (Oldest/Newest)` window will be displayed.

NOTE

The `Available Products in Database (Oldest/Newest)` window displays the availability of WSR-88D products and message data received from each dedicated or dial RPG of interest.

2. At the `Available Products in Database (Oldest/Newest)` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.4.9 Purge All/Particular RPG Products Procedure. The Purge All or Purge Particular RPG Products function provides each site the ability to select WSR-88D products and message data from one *RPG of interest* or several *RPGs of interest*. Only an RPG or RPGs that have WSR-88D product and message data associated with them will be displayed during the use of either of these functions. Once an *RPG of interest* is selected and the **Yes** button is clicked, the products and message data associated with the selected *RPG of interest* will be removed from the OPUP Server OS database directory. The procedures provided in paragraph 5.2.4.9.1 and paragraph 5.2.4.9.2 outline the steps to either select and remove products and message data from all RPGs or one specific RPG's found within the OPUP Server OS database.

NOTE

The Purge All/Purge Particular RPG Product functions permanently delete products and message data from the OPUP OS database directory. Unless there is no desire to backup and restore the selected data, you must ensure that all products that are designed to be archived for later display and analysis are archived before beginning with Step 1 of either procedure. There will be no way to restore any products that are deleted before they are archived.

5.2.4.9.1 Purge All RPG Products. Prerequisite: The `OPUP Software Menu` must be displayed as shown in Figure 5-2. For additional information, refer to paragraph 3.3.3.4.9, Figure 3-14, and Figure 3-15.

1. At the `OPUP Software Menu`, click on the **Purge All RPG Products** button. A `Purge RPG Product Database Warning` window will be displayed.

2. At the `Purge RPG Product Database Warning` window, click on the **Yes** button. The Purge All RPG Products function will then proceed to delete all products from the OPUP Server OS database. When finished, the program will display an `Available Products in Database` window.

NOTE

The `Available Products in Database` window does not automatically re-display information on this screen once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display the status of available products in the OPUP Server OS database. Also, if products are listed in the `Available Products in Database` window after the Refresh button is selected, and purging products from the OPUP Server OS database is desired once again, click on the **Return to Last Screen** button and perform Step 2.

3. At the `Available Products in Database` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.4.9.2 Purge Particular RPG Products. Prerequisite: The `OPUP Software Menu` must be displayed as shown in Figure 5-2. For additional information, refer to paragraph 3.3.3.4.10 and Figure 3-16.

1. At the `OPUP Software Menu`, click on the **Purge Particular RPG Products** button. A `Please Select RPG to Purge From Available Products in Database` window will be displayed.

2. At the `Please Select RPG to Purge From Available Products in Database` window, within the `Select RPG to Purge` area, click on the *RPG of interest* **radio button** for which products are to be purged.

3. At the `Please Select RPG to Purge From Available Products in Database` window, click on the **Next** button. A `Purge RPG Product Database` window will be displayed.

4. At the `Purge RPG Product Database` window, click on the **Yes** button. The Purge Particular RPG Products function will then proceed to delete the products from the selected *RPG of interest*. When finished, the program will display an `Available Products in Database` window.

NOTE

The `Available Products in Database` window does not automatically re-display information on this screen once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display the status of available products in the OPUP Server OS database. Also, if products are listed in the `Available Products in Database` window after the **Refresh** button is selected, and purging products from the OPUP Server OS database is desired once again, click on the **Return to Last Screen** button and perform Step 2.

5. At the `Available Products in Database` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.5 OPUP Users Menu Functions.

The OPUP Users Menu functionality provides each site the ability to add, delete, view OPUP users, or change user passwords.

1. At the `OPUP Manager Main Menu`, click on the **OPUP Users Menu** button. An `OPUP Users Menu` will be displayed as shown in Figure 5-13.

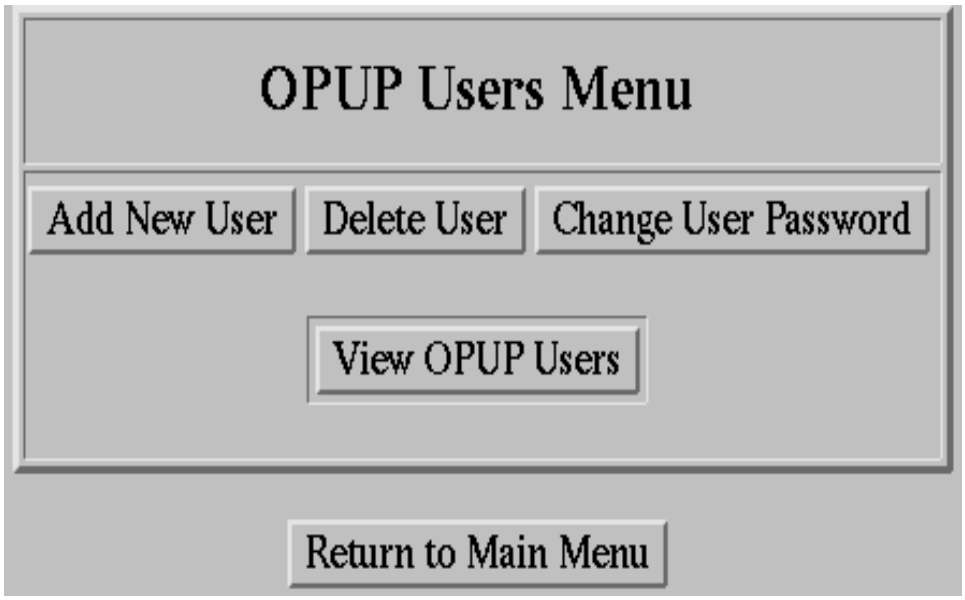


Figure 5-13. OPUP Users Menu

5.2.5.1 Add New User. Prerequisite: The `OPUP Users Menu` must be displayed as shown in Figure 5-13.

1. At the `OPUP Users Menu`, click on the **Add New User** button. An `OPUP Manager Add New User` window will be displayed.

2. At the `OPUP Manager Add New User` window, within the `User Information:` area, click on the `User Name:` edit field to activate the field for text entry.

NOTES

Each operator must be assigned a unique user name in order to issue a password and provide individual accountability while using the OPUP Operational Applications Front Panel GUIs. Each user name, once removed/deleted from the OPUP Server OS must not be reassigned to another person for up to one year. In the case of high operational personnel turnover situations, OPUP System Administrators may substitute reusable generic user names (i.e., $OPup1). If generic user names are used, a log sheet must be implemented in order to track and delete both the generic user name and password when they are no longer required.

Each user name must meet the following minimum composition requirements:

- Be at least a minimum of three characters in length.
- Contain at least two alpha characters (A through Z or a through z).
- Contain at least one number (0 through 9) or one of the following special characters (!, @, %, -, +, _, {, [, or =).

Each character's case is important when defining the user name. Future access to this account will require the exact case for each letter as entered in the `User Name:` field.

3. At the `User Name:` edit field, enter: *User_Name***<Return>**

4. At the `OPUP Manager Add New User` window, within the `User Information:` area, click on the `Password:` edit field to activate the field for text entry.

NOTES

Each password must meet the following minimum composition requirements:

- Be at least a minimum of eight characters in length.
- Contain at least one UPPERCASE character (A through Z).
- Contain at least one lowercase character (a through z).
- Contain at least one number (0 through 9).
- Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All "special" entries must be within the first 8 characters.

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Passwords must not be the same as the user name or constructed from words straight out of the dictionary (spelled forwards, backwards, or split with a number or special character) or be constructed using a user's personal identity, history, or environment. Generic passwords must also be prohibited (e.g., a system having "welcome" as the password for all newly

created user names). When passwords expire, users must not reuse the current password or use any of the last nine passwords assigned to that user name.

Each character's case is important when defining a password. Future access to each user name's password will require the exact character case used to define a password entered in this step.

5. At the `Password:` edit field, enter: *user_password***<Return>**. (This is the password that is associated with the user name entered in Step 3.)

6. At the `OPUP Add User Name` window, within the `User Information:` area, click on the `Reenter password:` edit field and reenter the password entered in Step 5.

NOTES

You may edit any field at any time if you notice an error. Also, reentering the password in the `Reenter password:` edit field ensures that the password entered in Step 5 was not mistyped/misspelled.

The OPUP Manager Add New User function provides the ability to start the Add New User process from the beginning, exit and display the `OPUP Manager Main Menu`, or return to the `OPUP Users Menu`. To start at the beginning of this procedure, click on the **Reset Form** button to clear each edit field, and then begin with Step 2 of this procedure. To exit, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`. To go back to the `OPUP Users Menu`, click on the **Return to Last Screen** button.

7. At the `OPUP Manager Add New User` window, click on the **Save** button. The OPUP Manager Add New User function will add the User Name entered in Step 3 to the OPUP User Name database. When finished, an `OPUP User` *`user_name`* `- Successfully Created` window will be displayed as shown in Figure 5-14.

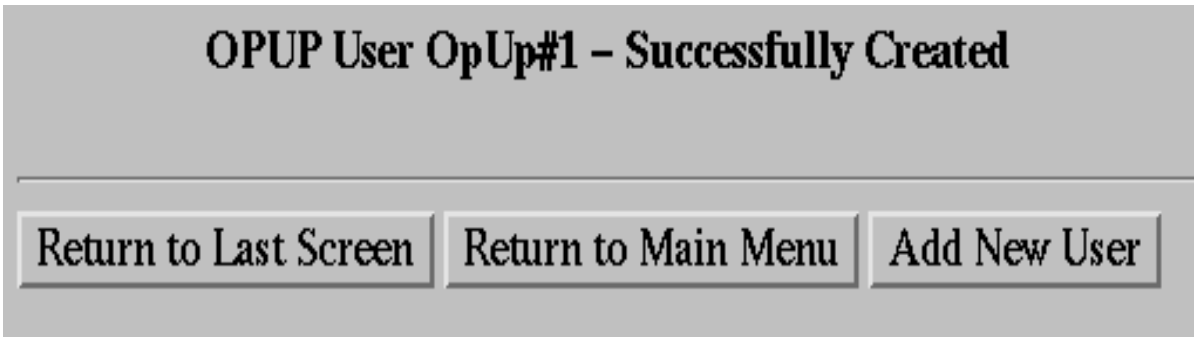


Figure 5-14. Add New User Confirmation Window

NOTES

The User Name will be displayed as part of the confirmation message displayed within the window. In the example shown in Figure 5-14, the OPUP System Administrator has entered **OpUp#1** as the new account name. This window confirms that the User Name OpUp#1 has been saved in the OPUP User Name database.

Also, this window provides the ability to add another user name by clicking on the **Add New User** button. When this button is clicked, the `OPUP Manager Add New User` window will be displayed. To add another User Name, perform Steps 2 through 7 again.

8. At the `OPUP User user_name - Successfully Created` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.5.2 Delete OPUP User. Prerequisites: A User Name previously added to the OPUP User Name database must be available to be deleted. (Refer to paragraph 5.2.5.4 to view OPUP User Names located within the OPUP User Name database.) The `OPUP Users Menu` must be displayed as shown in Figure 5-13.

1. At the `OPUP Users Menu`, click on the **Delete User** button. An `OPUP Manager Delete User` window will be displayed.

2. At the `OPUP Manager Delete User` window, within the `User Information:` area, click on the `User Name:` edit field to activate the field for text entry.

3. At the `OPUP Manager Delete User` window, within the `User Information:` area, enter the User Name to be deleted. The User Name must be entered exactly as displayed within the `View OPUP Users` window.

4. At the `OPUP Manager Delete User` window, click on the **Delete** button. The OPUP Manager Delete User function will delete the User Name entered in Step 3 from the OPUP User Name database. When the OPUP Manager Delete User function is finished, an `OPUP User` *`user_name`* `has been deleted` window will be displayed as shown in Figure 5-15.

NOTE

The User Name will be displayed as part of the confirmation message displayed within the window. In the example shown in Figure 5-15, the OPUP System Administrator entered **OpUp#1** as the User Name to be deleted in Step 3. This window confirms that the User Name OpUp#1 has been deleted from the OPUP User Name database.

Figure 5-15. Delete User Window

5. At the `OPUP User` *`user_name`* `has been deleted` window, click on the **Return to Last Screen** button to return to the `OPUP Users Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.5.3 Change User Password. Prerequisites: A User Name must have been previously added to the OPUP User Name database. (Refer to paragraph 5.2.5.4 to view OPUP Users located within the OPUP User Name database.) The `OPUP Users Menu` must be displayed as shown in Figure 5-13.

NOTE

The Change User Password function is used to change a password associated with a specific User Name and not the User Name itself. The only way to change a User Name is to delete the User Name (paragraph 5.2.5.2) and enter a new User Name (paragraph 5.2.5.1).

1. At the `OPUP Users Menu`, click on the **Change User Password** button. An `OPUP Manager Change User Password` window will be displayed as shown in Figure 5-16.

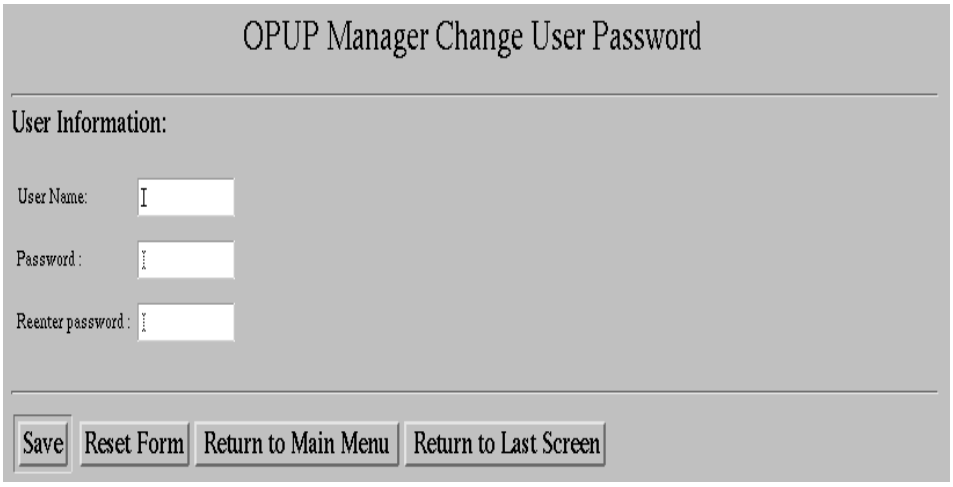


Figure 5-16. OPUP Manager Change User Password Window

2. At the `OPUP Manager Change User Password` window, within the `User Information:` area, click on the `User Name:` edit field and enter the User Name for which the associated password is to be changed.

NOTE

The OPUP Manager Change User Password function is case sensitive. In order for the Change Password function to be successful, be sure to type in the User Name exactly as initially entered in the User Names database located within the OPUP Server OS.

3. At the `OPUP Manager Change User Password` window, within the `User Information:` area, click on the `Password:` edit window and enter any combination of letters and numbers to define a new unique password for the User Name entered in Step 2.

NOTES

Each password must meet the following minimum composition requirements:

- Be at least a minimum of <u>eight</u> characters in length.
- Contain at least <u>one</u> UPPERCASE character (A through Z).
- Contain at least <u>one</u> lowercase character (a through z).
- Contain at least <u>one</u> number (0 through 9).
- Contain at least <u>one</u> special character (!, @, %, (, -, +, {, [, #, =, &, *). All “special” entries <u>must</u> be within the first 8 characters.

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Passwords must not be the same as the user name or constructed from words straight out of the dictionary (spelled forwards, backwards, or split with a number or special character) or be constructed using a user’s personal identity, history, or environment. Generic passwords must also be prohibited (e.g., a system having “welcome” as the password for all newly created user names). When passwords expire, users must not reuse the current password or use any of the last nine passwords assigned to that user name.

4. At the `OPUP Manager Change User Password` window, within the `User Information:` area, click on the `Reenter password:` edit window and reenter the password exactly as entered in Step 3. This step ensures that the password was not mistyped/misspelled.

NOTE

You may edit any field at any time if you notice an error. Additionally, you may restart this procedure from the beginning by selecting the **Reset Form** button to erase all entries on the window and going to Step 2.

5. At the `OPUP Manager Change User Password` window, click on the **Save** button. An `OPUP User` *`user_name`* `- Password has been changed` window will be displayed.

NOTE

The User Name will be displayed as part of the confirmation message displayed within the window. This window confirms that the password for the User Name entered in Step 2, has been changed.

6. At the `OPUP User user_name - Password has been changed` window, click on the **Return to Last Screen** button to return to the `OPUP Manager Change User Password` window or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.5.4 View OPUP Users. Prerequisite: The `OPUP Users Menu` must be displayed as shown in Figure 5-13.

1. At the `OPUP Users Menu`, click on the **View OPUP Users** button. An `OPUP Users` window will be displayed.

NOTE

The `OPUP Users` window displays a list of all defined OPUP User Names that have been previously added/entered into the OPUP User Name database.

2. At the `OPUP Users` window, click on the **Return to Last Screen** button to return to the `OPUP Users Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.5.5 Lost Passwords. Specific User Names and passwords are used throughout the various applications provided by the OPUP Manager GUI and Operational Applications Front Panel GUIs. The following paragraphs discuss the methods that will be required in order to recover

from lost or timed out passwords. Each lost password recovery procedure assumes that the OPUP Server OS root password is known.

NOTE

Refer to Chapter 4, Section 4.4, System Security Policy, for further information concerning the issuance of User Passwords. If a User Name is removed from the OPUP Server OS database, all display attributes associated with that User Name will be lost.

5.2.5.5.1 User Name Password Recovery. Prerequisites: The OPUP Server OS root password must be known, the OPUP Manager GUI is **not** currently being displayed, and the Lock Timeout function or the Lockout icon (padlock) function has been engaged at the OPUP Operational Applications Front Panel. (If the `OPUP Manager Main Menu` is displayed, passwords associated with a specific User Name can quickly be changed by referring to paragraph 5.2.5.3.)

1. At the `Display locked by user` *`User Name`*`. Enter password to unlock.` window, within the `Password:` edit field, enter the *root_password* for the OPUP Server OS and press the **<Return>** key.

   Feedback: The Operational Applications Front Panel will be displayed.

2. At the Operational Applications Front Panel, click on the **EXIT** icon located near the center of the Front Panel.

   Feedback: A `Logout Confirmation` window will be displayed.

3. At the `Logout Confirmation` window, click on the **OK** button.

   Feedback: The CDE Login screen will then be displayed.

4. At the CDE Login screen, login as **opupmgr**. (Refer to paragraph 5.2.3.1, if required.)

5. Change the User Password per the procedure outlined in paragraph 5.2.5.3.

6. When finished, return the OPUP server to the normal operating state.

5.2.5.5.2 OPUPMGR Password Recovery. Prerequisites: The OPUP Server OS root password must be known.

NOTE

The User Name opupmgr, used in association with the OPUP Manager GUI, may be changed using the procedure provided in paragraph 5.2.5.3, if the `OPUP Manager Main Menu` **was displayed** before the Lock Timeout function or the Lockout icon (padlock) function was engaged. If only

the CDE Front Panel was displayed before the Lock Timeout function or the Lockout icon (padlock) function was engaged, there will be no way to recover the opupmgr password. The OPUP Server OS will have to be reinstalled using the procedure provided in paragraph 3.5.4.2.

1. At the `Display locked by user opupmgr. Enter password to unlock.` window, within the `Password:` edit field, enter the *root_password* for the OPUP Server OS and press the **<Return>** key.

   Feedback: The `OPUP Manager Main Menu` will be displayed.

2. Go to paragraph 5.2.5.3 and assign a new password for **opupmgr**.

3. When finished, return the OPUP server to the normal operating state.

5.2.5.5.3 Root Password Recovery. There is no way to recover the OPUP Server OS root password. The OPUP Server OS will have to be reinstalled using the procedure in paragraph 3.5.4.2.

5.2.6 OPUP Security Log Functions.

The OPUP Security Logs Menu function provides each OPUP site the ability to detect, record, and manage user and administrative access to the OPUP Server OS.

1. At the `OPUP Manager Main Menu`, click on the **OPUP Security Logs Menu** button. An `OPUP Security Logs Menu` will be displayed as shown in Figure 5-17.

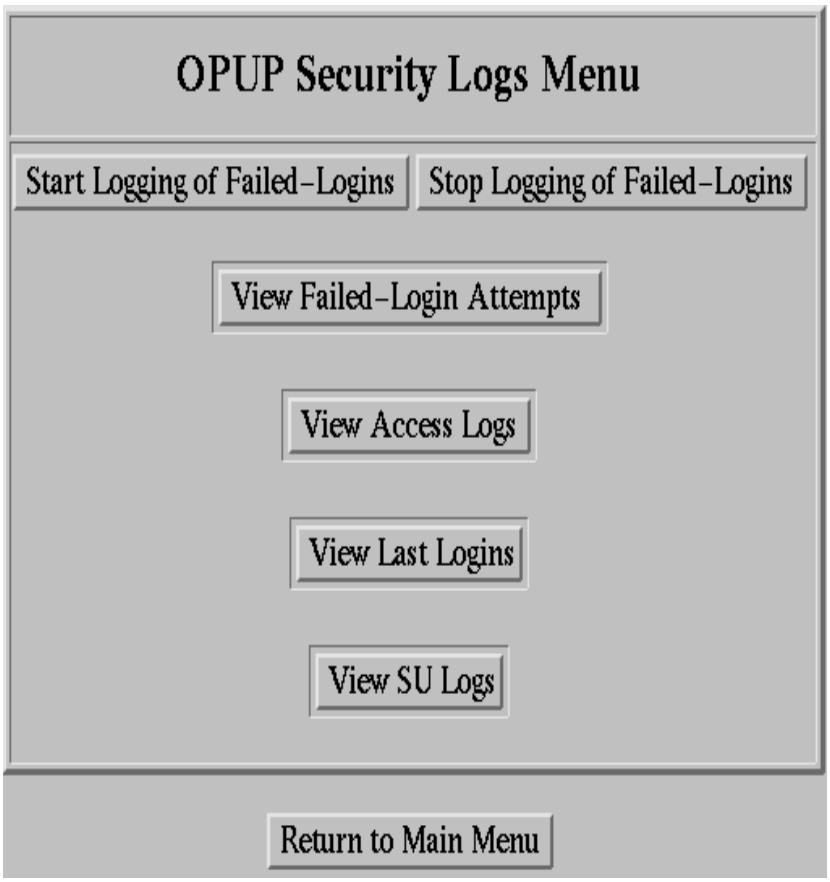


Figure 5-17. OPUP Security Logs Menu

NOTE

This section does not replace the OPUP system security guidance set forth in Chapter 4, OPUP System Security.

5.2.6.1 Start or Stop Logging of Failed-Logins. Prerequisite: The `OPUP Security Logs Menu` must be displayed as shown in Figure 5-17. The following procedure can be applied to either the Start or Stop Logging of Failed-Logins functions.

1. At the `OPUP Security Logs Menu`, click on the **Start** or **Stop Logging of Failed-Logins** button, as applicable. An `OPUP Manager Start (`*or* `Stop` *if Stop was selected*`) Failed-Login Logs` window will be displayed. This window also will display the following message: `Warning! This will Start (`*or* `Stop` *if Stop was selected*`) the Logging of Failed-login Attempts. Do you want to Continue?`

2. At the `OPUP Manager Start(`or `Stop` *if Stop was selected*`)Failed-Logins Logs` window, click on the **Yes** button. An `OPUP Manager Start (`or `Stop` *if Stop was selected*`) Failed-Login Logs` window will be displayed. This window will also display the following message: `Logging of Failed-Login attempts have been started(`or `stopped` *if Stop was selected*`)`.

3. At the `OPUP Manager Start (`or `Stop` *if Stop was selected*`) Failed-Login Logs` window, click on the **Return to OPUP Security Logs Menu** button. The `OPUP Security Logs Menu` will be displayed.

5.2.6.2 Security Logs Menu View Functions. Prerequisite: The `OPUP Security Logs Menu` must be displayed as shown in Figure 5-17. This procedure can be applied to all OPUP Security Logs Menu View Log functions.

1. At the desired `OPUP Security Logs Menu View`, click on the **View** button of interest (i.e., View Failed-Login Attempts, View Access Logs, View Last Logins, or View SU Logs).

2. The **View** function will display a window of the desired log.

3. At the `View` *`window of interest`*, click on either the **Return to Last Screen** button to return to the `OPUP Security Logs Menu` or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

Each `View` *`window of interest`* has a Print Log function. Click on the **Print Log** button. The information displayed within the `View` *`window of interest`* will be sent to the Printer UD80A22.

5.2.7 OPUP Workstation Menu.

The OPUP Workstation Menu function provides the ability to add, remove, or view display workstations.

1. At the `OPUP Manager Main Menu`, click on the **OPUP Workstation Menu** button. An `OPUP Workstation Menu` window will be displayed as shown in Figure 5-18.

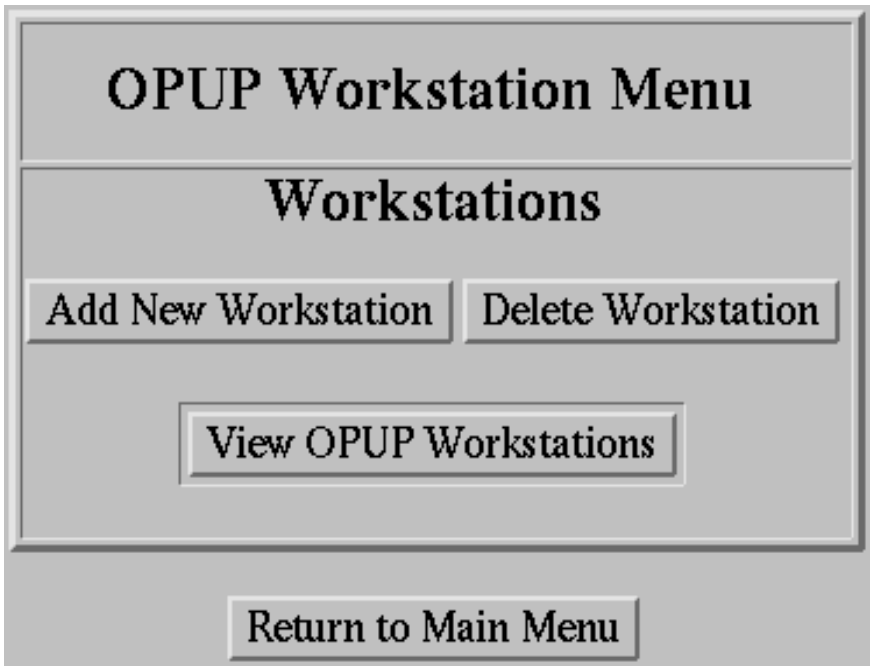


Figure 5-18. OPUP Workstation Menu

5.2.7.1 Workstation Limitations. The Large OPUP configuration may have up to 10 physically connected Display Workstations UD85. Also, in the Large OPUP configuration, the Display Server UD80A12 is considered a workstation and added as such if it is replaced after the initial software load. The Medium OPUP configuration may have up to three physically connected Display Workstations.

NOTE

> Any connectivity other than what is described in Chapter 2, OPUP Hardware, may cause the Large or Medium OPUP configuration to become unstable and/or significantly reduce the operational capability of each system.

Each display workstation is normally added during OPUP software installations as outlined in the Chapter 3, OPUP Software Description, beginning with paragraph 3.5.4.2, Software Load Procedure. However, the OPUP Workstation Menu function provides the ability to add or remove each workstation as desired. The removal and/or addition of any workstation can be performed independently from each other regardless of the current operational state of the OPUP Server OS. The only exception is that the OPUP server and display workstation in question must be running at the time the workstation is being added to the OPUP system. A workstation may be removed (deleted) at any time.

Care must be taken to ensure that the ethernet-address placed in the edit field during the addition of a workstation is correct. If the ethernet-address is entered incorrectly, the display workstation in question will not respond properly and the Workstation Add function will not configure the workstation. Refer to paragraph 5.2.7.2 for specific details to add a new display workstation to the OPUP system.

5.2.7.1.1 Determining Display Workstation UD85 or Display Server UD80A12 Input Information. An ethernet-address is all that is required in order to add a workstation or the Display Server UD80A12 to the OPUP. The following procedures are provided to assist with obtaining and/or retrieving an ethernet-address associated with a display workstation or the Display Server UD80A12.

1. At the Display Workstation Keyboard UD85A3 in question, locate the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process.

2. Place the power rocker switch of the Display Workstation CPU/Processor UD85A2 in question in the On (1) position. (If the display workstation is currently powered On, place the display workstation CPU/processor in the power Off (0) state by pressing and holding the power button located near the top right of the CPU/processor front panel for five seconds. When the display workstation CPU/processor is powered Off, press the power button on the front panel again. The workstation will then begin the power On sequence.) For the Display Server UD80A12, turn the security keyswitch clockwise until it stops. Wait 15 seconds then turn the keyswitch back counterclockwise until it stops. Press the power button to turn On the display server.

NOTES

If the system proceeds through the initial boot process, the display workstation CPU/processor must be powered down again. When finished, repeat Step 2.

If a prompt other than the `ok` prompt is displayed, press the **<Return>** key until the `ok` prompt is displayed.

3. When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. An `ok` prompt will then be displayed.

4. At the Display Workstation Monitor UD85A1 or Display Server UD80A12, locate the ethernet-address near the top center of the display (this address is located in the banner information, just above the `ok` prompt.) When located, record the ethernet-address.

5.2.7.2 Add New Workstation. Prerequisite: The `OPUP Workstation Menu` must be displayed as shown in Figure 5-18.

1. Obtain the Display Workstation UD85 or Display Server UD80A12 ethernet-address per paragraph 5.2.7.1.1.

2. At the `OPUP Workstation Menu`, click on the **Add New Workstation** button. An `OPUP Manager Add New Workstation` window will be displayed as shown in Figure 5-19.

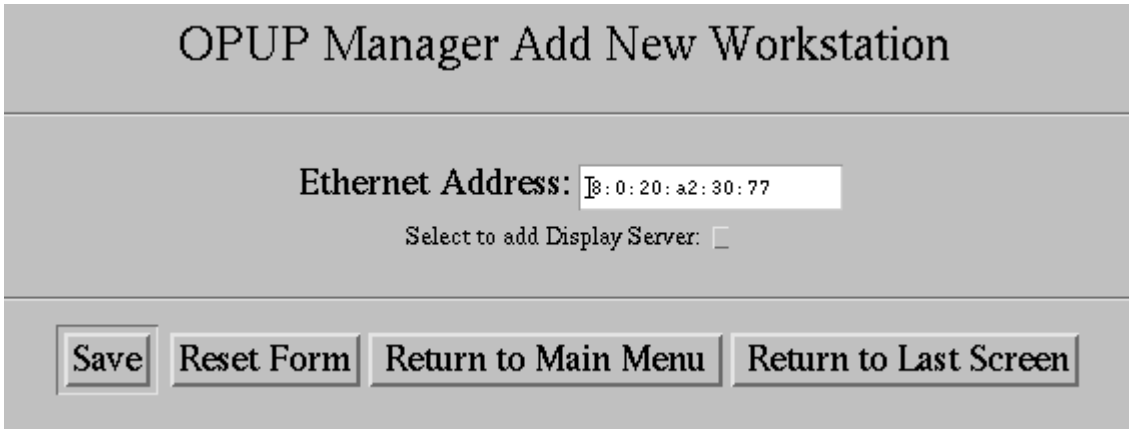


Figure 5-19. OPUP Manager Add New Workstation Window

3. At the `OPUP Manager Add New Workstation` window, click within the `Ethernet Address:` edit field, and enter the workstation ethernet-address. Ensure numbers or letter/numbers are separated by colons.

   If you are adding a Display Server UD80A12, at the `OPUP Manager Add New Workstation` window, click within the `Ethernet Address:` edit field, and enter the Display Server UD80A12 ethernet-address. Ensure the numbers or letter/numbers are separated by colons. Then, click on the `Select to add Display Server` check box.

4. At the `OPUP Manager Add New Workstation` window, click on the **Save** button. The Add New Workstation function will then add the new workstation or display server to the Hosts database. When the Add New Workstation function is finished, a confirmation window will be displayed as shown in Figure 5-20.

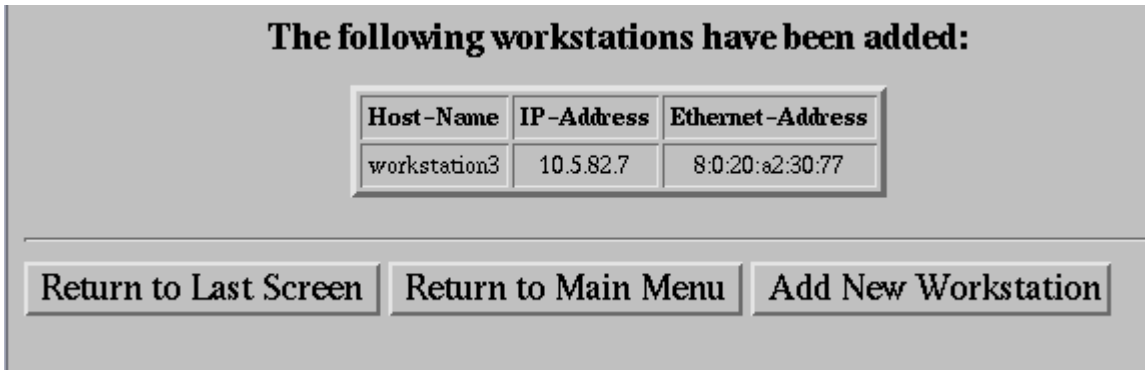


Figure 5-20. Workstations Have Been Added Window

5. At the `Netscape: Workstation Information Complete (The following workstations have been added:)` window, click on the **Return to Last Screen** button to return to the `OPUP Workstation Menu` or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu.`

NOTE

The `Netscape: Workstation Information Complete` window, Figure 5-20, also provides an **Add New Workstation** button. This button when clicked will also return the user to the `OPUP Manager Add New Workstation` window, if desired.

6. At the new Display Workstation CPU/Processor UD85A2 `ok` prompt, enter:

boot net - install <Return>

NOTE

The boot net - install command starts a "Jumpstart" software package which initiates an automatic software installation routine. This installation will take approximately 75 minutes to complete. When the procedure is complete, the CDC Login screen will be displayed on the new display workstation monitor. Do not continue until the CDE Login screen has appeared on the new display workstation monitor screen.

7. At the OPUP Cabinet, at the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

8. At the `OPUP Software Menu`, click on the **Stop OPUP** button. An `OPUP Manager Stop OPUP` warning window will be displayed.

9. At the `OPUP Manager Stop OPUP` warning window, click on the **Yes** button. The OPUP software will begin a stop sequence and display a window with the message: `All OPUP Server Software has been Stopped.`

10. At the `OPUP Manager Stop OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Main Menu` will be displayed.

11. At the `OPUP Software Menu`, click on the **Start OPUP** button. An `OPUP Manager Start OPUP` warning window will be displayed.

12. At the `OPUP Manager Start OPUP` warning window, click on the **Yes** button. The OPUP software will begin a start sequence and display a window with the message: `Please wait 1 to 2 minutes for the Server Processes to start.`

13. At the `OPUP Manager Start OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Main Menu` will be displayed.

14. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. This window can be used to check on the status of OPUP start server processes, if desired.

15. At the `OPUP Process Status` window, click on the **Refresh** button to update the `OPUP Process Status` window. Once all the tasks listed in the column `OPUP App/Task` have information out to the right, the software will have been restarted

16. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.7.3 Delete Workstation. Prerequisite: The `OPUP Workstation Menu` must be displayed as shown in Figure 5-18.

1. At the `OPUP Workstation Menu`, click on the **Delete Workstation** button. An `OPUP Workstations` window will be displayed as shown in Figure 5-21.

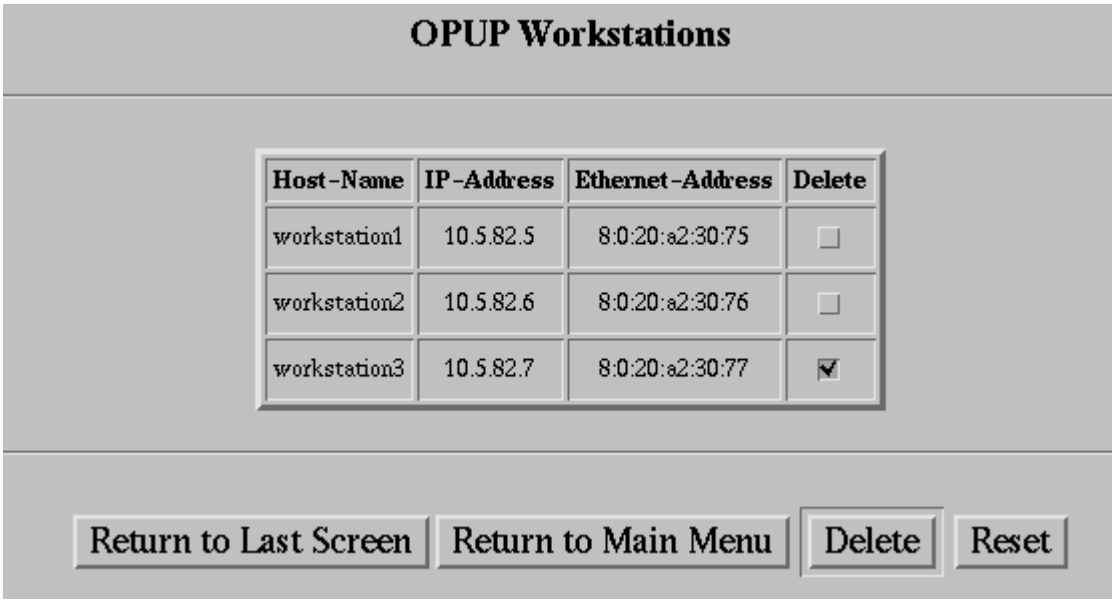


Figure 5-21. OPUP Workstations (Delete) Window

2. At the `OPUP Workstations` (Delete) window, select the check box in the `Delete` column for workstations(s) to be deleted.

3. At the `OPUP Workstations` (Delete) window, click on the **Delete** button. The Delete Workstation function will then remove the display workstation from the Hosts database. When the Delete Workstation function is complete, a `Netscape: Workstations Deleted` window with the message `The following workstations have been deleted:` will be displayed as shown in Figure 5-22.

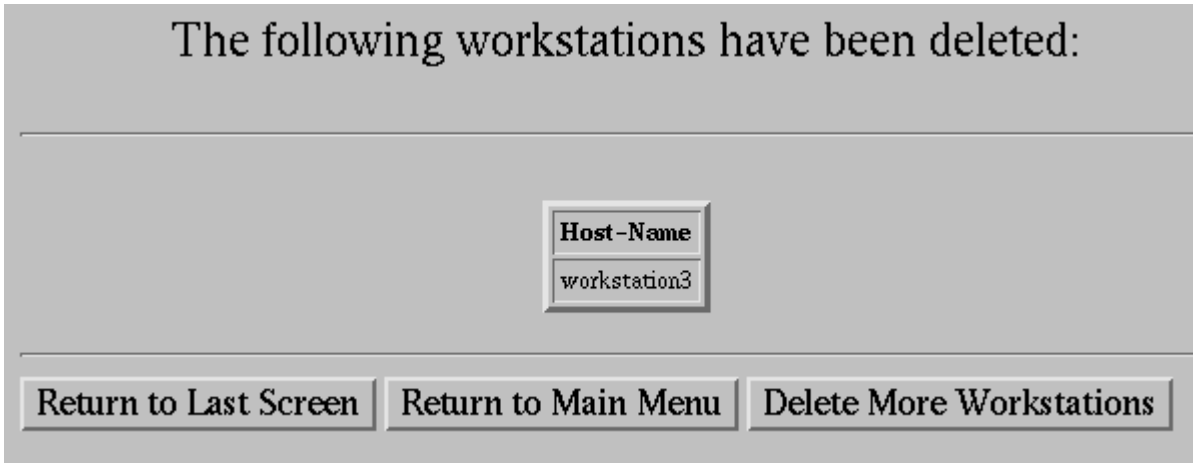


Figure 5-22. Workstation Deleted Window

4. At the `Netscape: Workstations Deleted (The following workstations have been deleted:)` window, click on the **Return to Last Screen** button to return to the `OPUP Workstation Menu` or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

The `Netscape: Workstations Deleted` window also provides a **Delete More Workstations** button. This button when clicked, will return the user to the `OPUP Workstations` (Delete) window, if desired.

5.2.7.4 View OPUP Workstations. Prerequisite: The `OPUP Workstation Menu` must be displayed as shown in Figure 5-18.

1. At the `OPUP Workstation Menu`, click on the **View OPUP Workstations** button. An `OPUP Workstations` window will be displayed as shown in Figure 5-23.

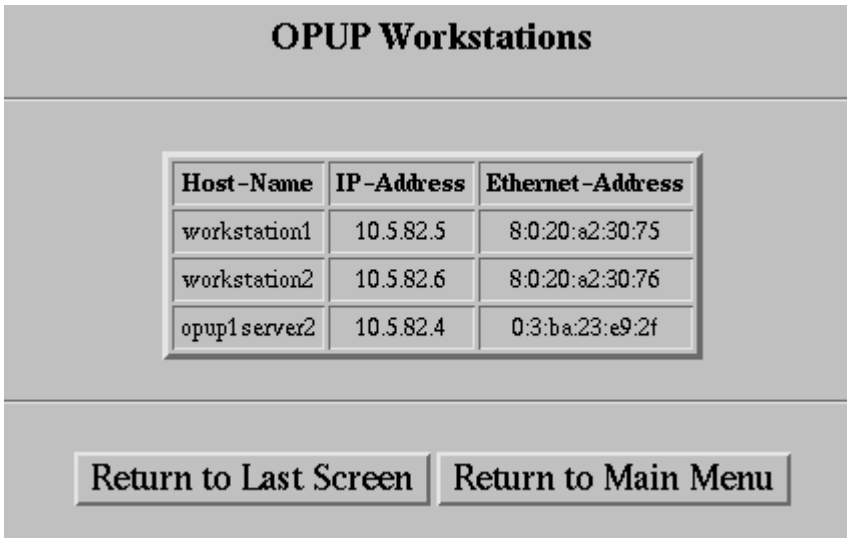


Figure 5-23. OPUP Workstations (View) Window

NOTE

The `OPUP Workstations` window displays a list of all display workstations and display server that have been previously added/entered into the Hosts database.

2. At the `OPUP Workstations` window, click on the **Return to Last Screen** button to return to the `OPUP Workstation Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.8 OPUP Archive Menu.

The OPUP Archive Menu function provides each site to have the ability to identify and store specific WSR-88D products and message data on CD-ROM disks (CD-R or CD-RW). OPUP Archive functions include: checking, creating, restoring, and erasing WSR-88D products and message data placed in a specific archive data directory by operators. In addition, Archive functionality provides a method to check the contents each CD-R or CD-R/W disk and to erase any data written to CD-R/W disks.

The selection of WSR-88D products and message data for archival begins with the operator. The Operational Applications Front Panel, Status & Control GUI, contains an **Archive** menu tab that has associated functionality that provides the interface necessary to operators to select specific or all products and message data contained within the OPUP OS database for archival. Once data is selected, it is placed into a designated archive directory using a filename selected by the operator. OPUP System Administrators will then be tasked (determined locally at each site) to backup these files via the `OPUP Archive Menu` to either a CD-R or CD-R/W disk. The `OPUP Archive Menu` allows each site to view, select, archive, restore, or erase each archived WSR-88D products and message file as desired. In addition, each site will then have the capability to check all data stored on an archive media (CD-R or CD-R/W) disk by using the Check Products/SaveLogs Archive function located within the `OPUP Archive Menu`.

1. At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button. An `OPUP Archive Menu` window will be displayed as shown in Figure 5-24.

Figure 5-24. OPUP Archive Menu

5.2.8.1 Archive IV Limitations. WSR-88D products, message data, and savelogs, when designated for archival, are either permanently or temporarily stored on the OPUP Server UD80A11 secondary hard drive (which has up to 20 GB of disk space). Operators may create as many archive data files as desired and designate them for archival as the secondary hard drive will allow. In addition to each archive file being stored on the secondary hard drive, archive files may be stored on CD-R or CD-R/W CD-ROM disks. Each disk has a storage limit of 650 to 700 MB. Because of this storage limit, the Operational Applications Front Panel, Status & Control GUI, Archive Menu function will only allow 700 MB or less of archive data to be written per archive file; however, there are some disks (CD-R/Ws) that will only allow up to 650 MB of data to be written to them. If these disks are used, each site must ensure that 650 MB or less of archive data is written per archive file.

The Archive function will only allow one data file to be written to each CD-R or CD-R/W disk at a time. This means that if there are several data files (regardless of maximum size), only one file can be written to each disk. CD-R/W disks may be re-used if prior data has been erased from the disk before it is used again. This also means that archive files cannot be appended to any CD-ROM disk that currently has data on it.

NOTE

If an attempt is made to append additional data to a CD-ROM that has data already written on it, the OPUP Manager Backup OPUP function will display the message: `Warning! CDROM not writable. CDROM probably contains data. Please insert a new CDROM and try again.` as shown in Figure 5-25.

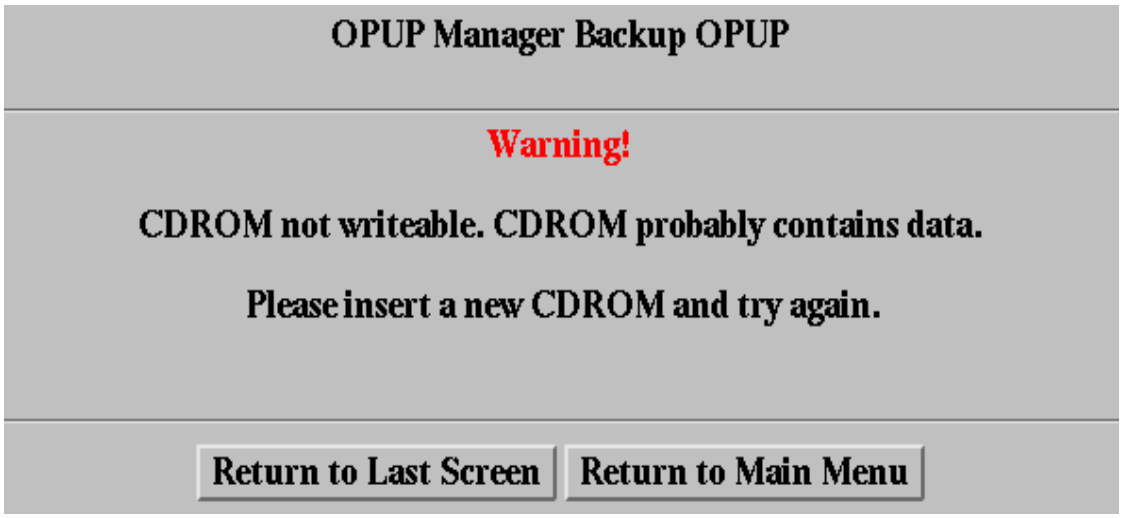


Figure 5-25. Archive Backup Warning Window

5.2.8.2 Check Products Archive: Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24.

1. At the `OPUP Archive Menu`, click on the **Check Products Archive** button. A `The Existing Archives on Server is as follows:` window will be displayed as shown in Figure 5-26.

NOTES

`The Existing Archives on Server is as follows:` window will display all existing archive data files located within the Archive database directory. Each archive data file will be stored in the `Owner/Group/Date Created/Name of Archive` area of the display. If this area is blank, no archive data file has been designated for archival by an operator.

Also, this window does not automatically re-display information once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

Figure 5-26. The Existing Archives on Server Window

2. At `The Existing Archives on Server is as follows:` window, click on either the **Return to Last Screen** button to return to the `OPUP Archive Menu` or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.8.3 Create Products Archive. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24. A **blank** CD-ROM disk must be placed within the Archive IV Device UD80A4 media tray.

1. At the `OPUP Archive Menu`, click on the **Create Products Archive** button. A `Please select archive case to create to CDROM` window will be displayed as shown in Figure 5-27. The Create Products Archive function will search the Archive database directory and display all available archived data previously designated for archival.

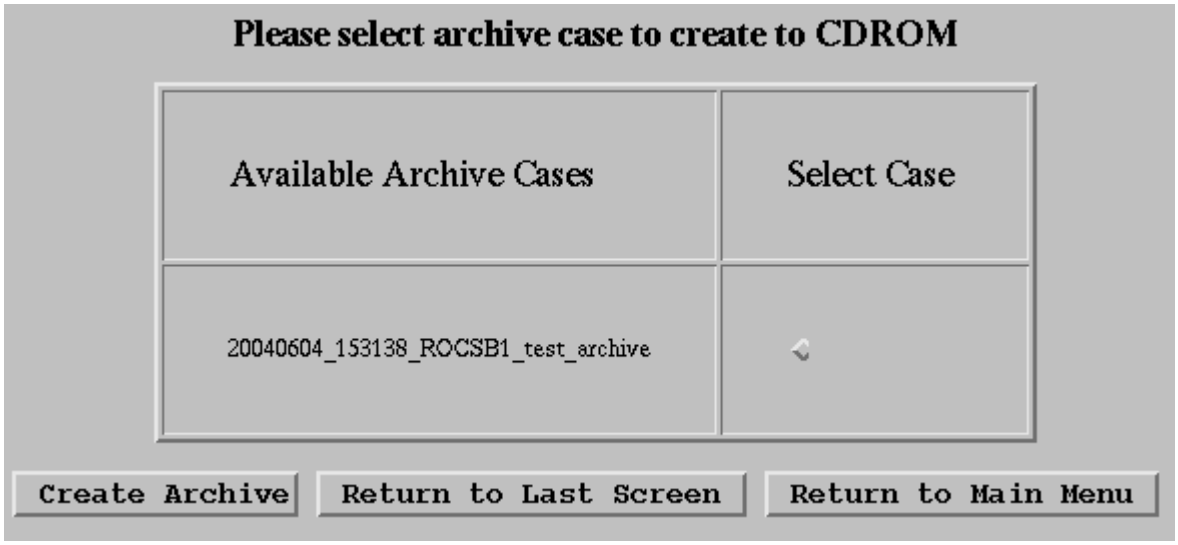


Figure 5-27. Please Select Archive Case to Create to CDROM Window

2. At the `Please select archive case to create to CDROM` window, within the `Select Case` column, click on the **radio** button associated with the archive file of interest located in the `Available Archive Cases` column. The archive data file of interest radio button will be highlighted.

3. At the `Please select archive case to create to CDROM` window, click on the **Create Archive** button. The Create Products Archive function will then prepare and transfer the selected archive data file to the CD-ROM located within the archive device media tray. When the Create Products Archive function is finished, `The Archive for` *`filename`* `has been created to CDROM` window will be displayed as shown in Figure 5-28.

NOTE

A warning window will be displayed if a CD-ROM that cannot be written to is in the archive device. Replace the CD-ROM with a blank disk.

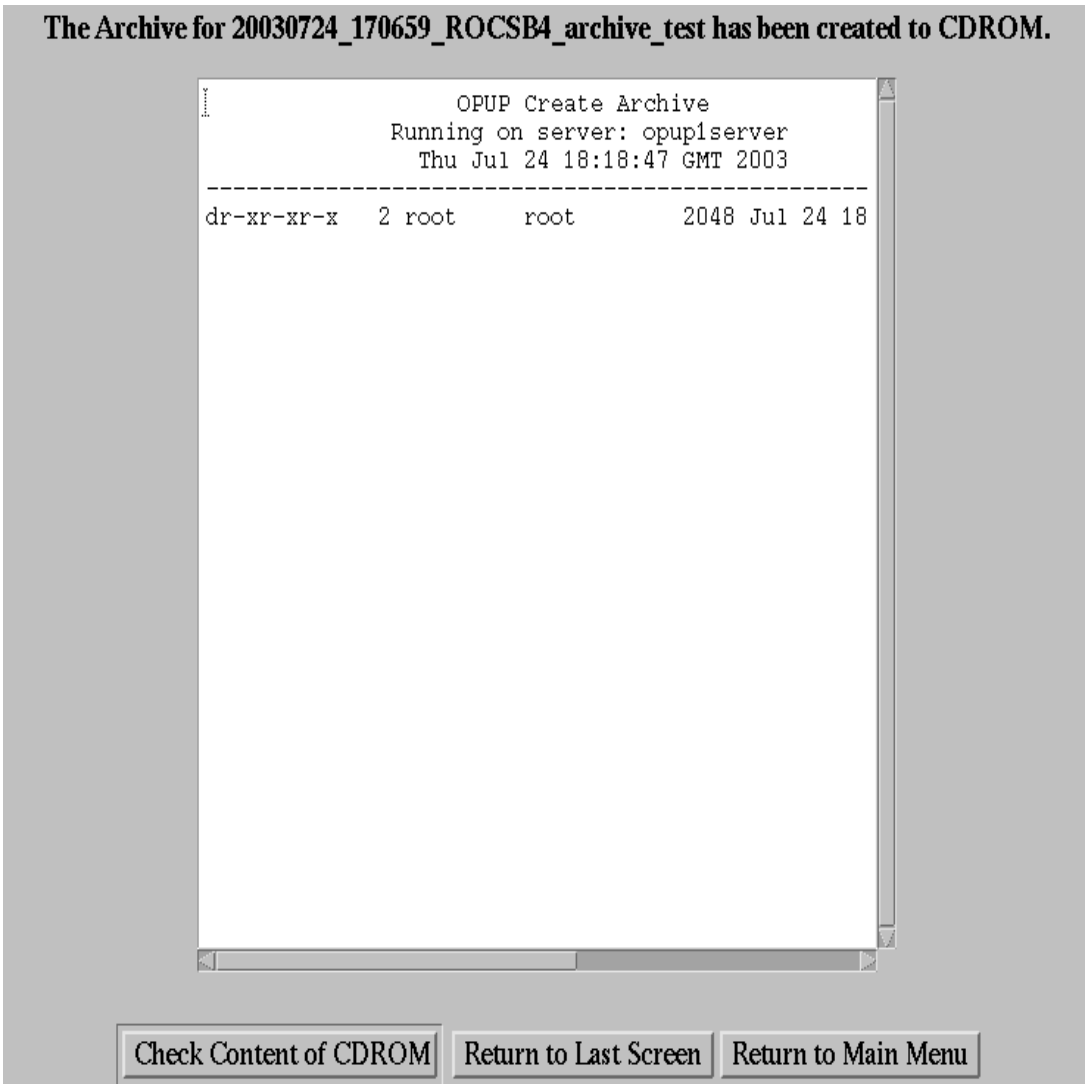


Figure 5-28. The Archive For *Filename* Has Been Created to CDROM Window

4. At `The Archive for filename has been created to CDROM` window, click on the **Check Content of CDROM** button. `The Content of the inserted CDROM is as follows:` window will be displayed as shown in Figure 5-29.

NOTE

`The Content of the inserted CDROM is as follows:` window will display the archive data file located on the CD-ROM in the Owner/Group/Date Created/Name of Archive area within the window. If this area is blank, the archive data file did not transfer to the CD-ROM. Also, this window does not automatically re-display information once it is

initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

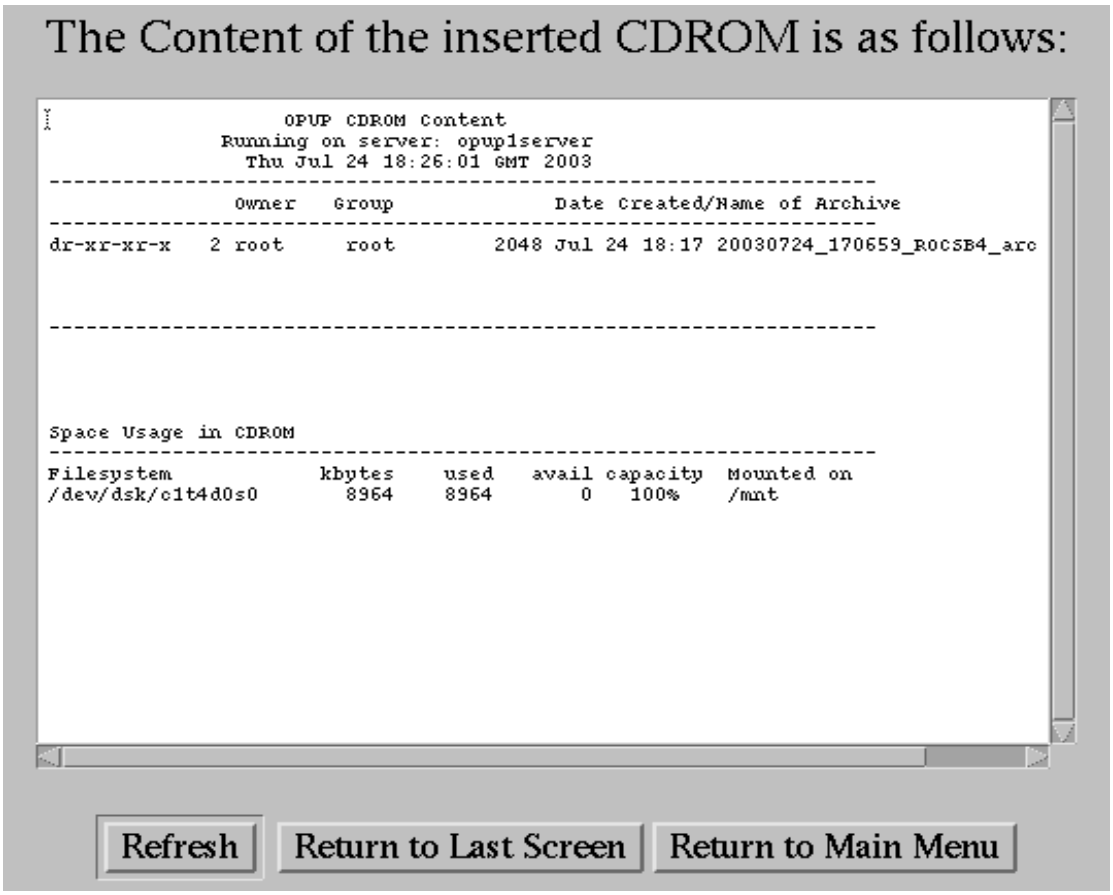


Figure 5-29. The Content of the inserted CDROM is as follows: Window

5. At `The Content of the inserted CDROM is as follows:` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6. At the Archive IV Device UD80A4, push the eject button to open the media tray door. Remove the CD-ROM and push the eject button again to close the media tray door.

5.2.8.4 Restore Products Archive. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24. A CD-ROM disk with data on it must be placed within the Archive IV Device UD80A4 media tray.

1. At the `OPUP Archive Menu`, click on the **Restore Products Archive** button. `The content of the inserted CDROM is as follows:` window will be displayed as shown in Figure 5-30.

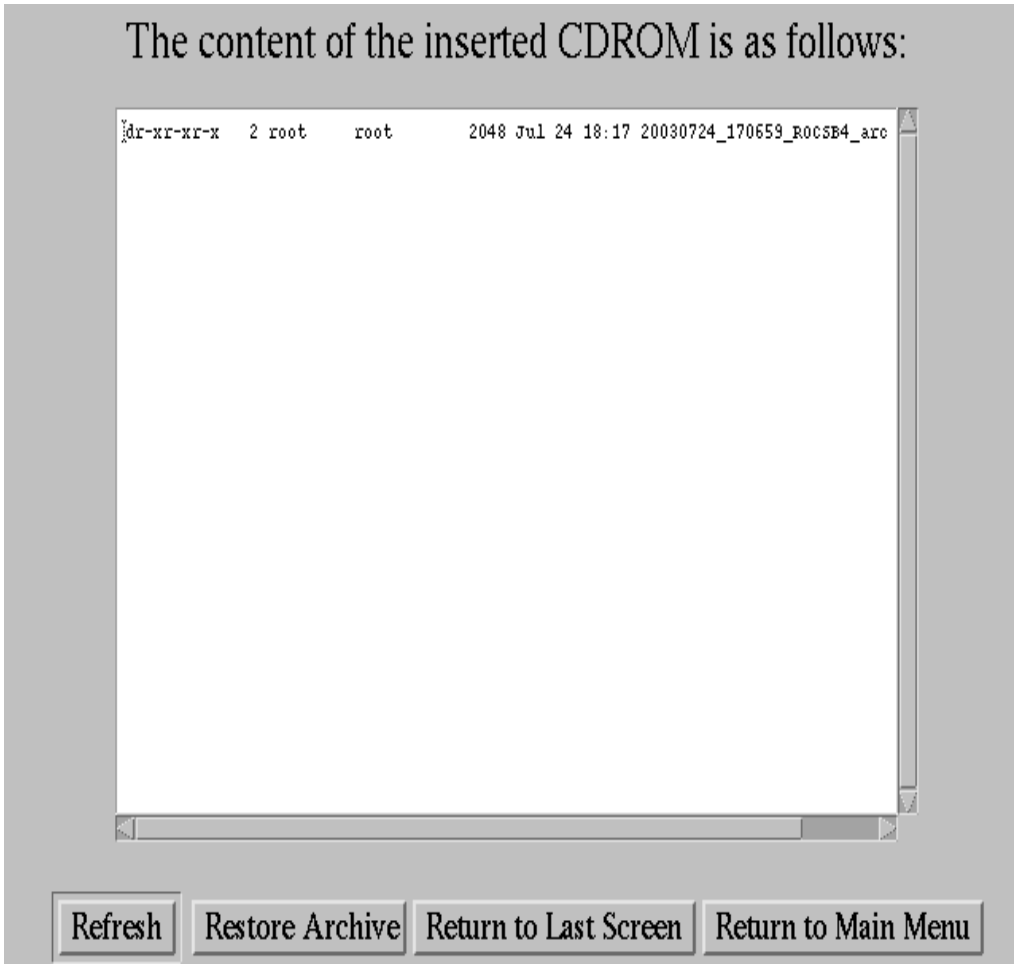


Figure 5-30. The content of the inserted CDROM is as follows: Window

NOTE

If `The content of the inserted CDROM is as follows:` window is blank, the CD-ROM does not have data on it. Also, this window does not automatically re-display information once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

2. At `The content of the inserted CDROM is as follows:` window, inspect the *archive file of interest* displayed within the window. If the desired file is displayed, click on the **Restore Archive** button. When the Restore Products Archive function is finished, `The Archive` *`file_name`* `has been restored from CDROM` window will be displayed as shown in Figure 5-31.

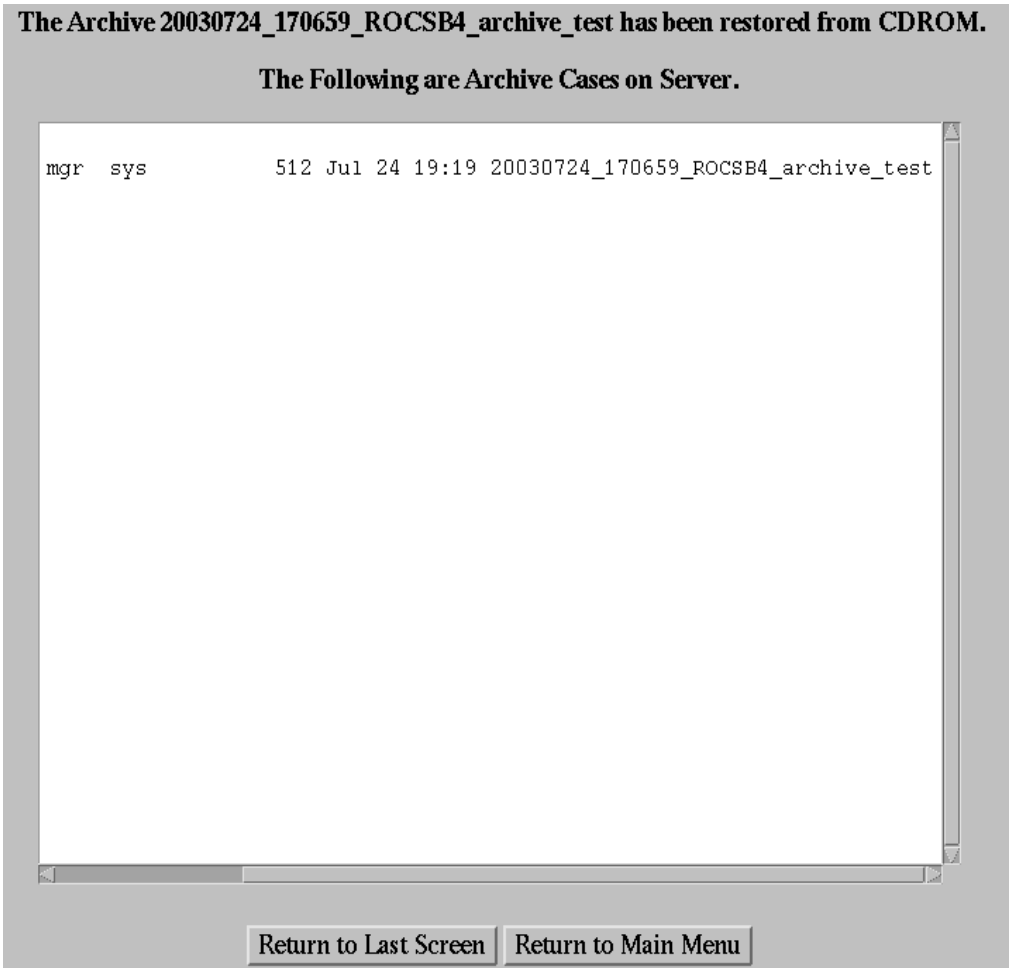


Figure 5-31. Archive Data File Restored Window

3. At `The Archive` *`file_name`* `has been restored from CDROM` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

4. At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button. The `OPUP Archive Menu` will be displayed.

5. At the `OPUP Archive Menu`, click on the **Check Products Archive** button. `The Existing Archives on Server is as follows:` window will be displayed as shown in Figure 5-26.

NOTE

`The Existing Archives on Server is as follows:` window will display all existing archive data files located within the Archive

database directory. Each archive data file will be stored in the `Owner/Group/Date Created/Name of Archive` area of the display. If this area is blank, no archive data file(s) have been designated for archival by an operator. This area may also be blank if attempts to transfer the archive data file from a CD-ROM to the OPUP Server OS Archive database directory was unsuccessful.

6. At `The Archive` *`file_name`* `has been restored from CDROM` window, Figure 5-31, if the *archive file of interest* is displayed within the window, go to the next step. If the file is not displayed within the window, it has not been restored. Return to Step 1 and perform Steps 1 through 5, again.

7. At `The Archive` *`file_name`* `has been restored from CDROM` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

NOTE

If an archive data file of interest located on a CD-ROM has the same file name as an archive data file in the Archive database, the Restore Products Archive function will display the following message as shown in Figure 5-32: `The Archive for` *`file_name`* `already exist on Server.` If the archive data file in the Archive database is to be overwritten, click on the **Replace** button. The Restore Products Archive Replace function will then overwrite the current file in the Archive database. If the archive file located within the Archive database directory is not to be overwritten, click on either the **Return to Last Screen** button to go back to the last screen or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

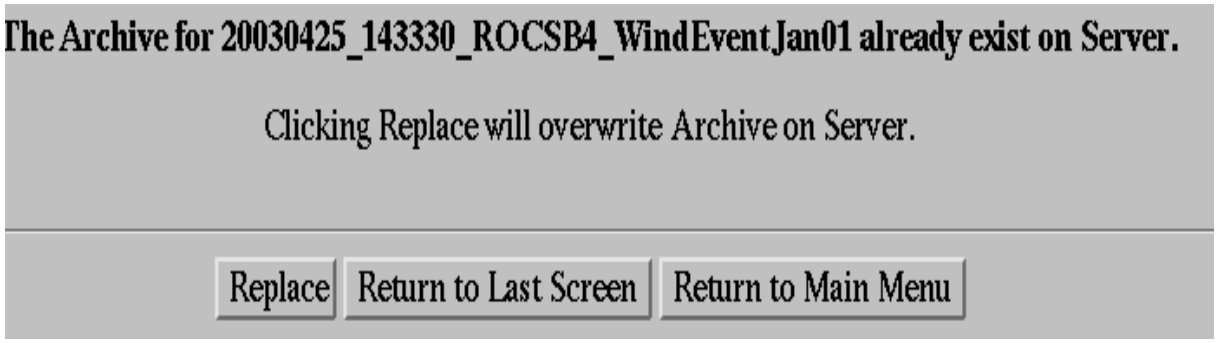


Figure 5-32. Archive Case File Overwrite Message Window

5.2.8.5 Erase Products Archive. The `OPUP Archive Menu` must be displayed as shown in Figure 5-24.

1. At the `OPUP Archive Menu`, click on the **Erase Products Archive** button. An `OPUP Manager Erase Archive` window will be displayed as shown in Figure 5-33. This window will also display the following message: `Warning! This will Erase any selected Archive from Server. Do you want to Continue?`

Figure 5-33. OPUP Manager Erase Archive Window

2. If an *archive data file of interest* is to be erased from the Archive database directory, click on the **Yes** button. A `Please select archive case to erase from server` window will be displayed as shown in Figure 5-34. Otherwise, click on the **No** button to exit and return to the `OPUP Archive Menu`.

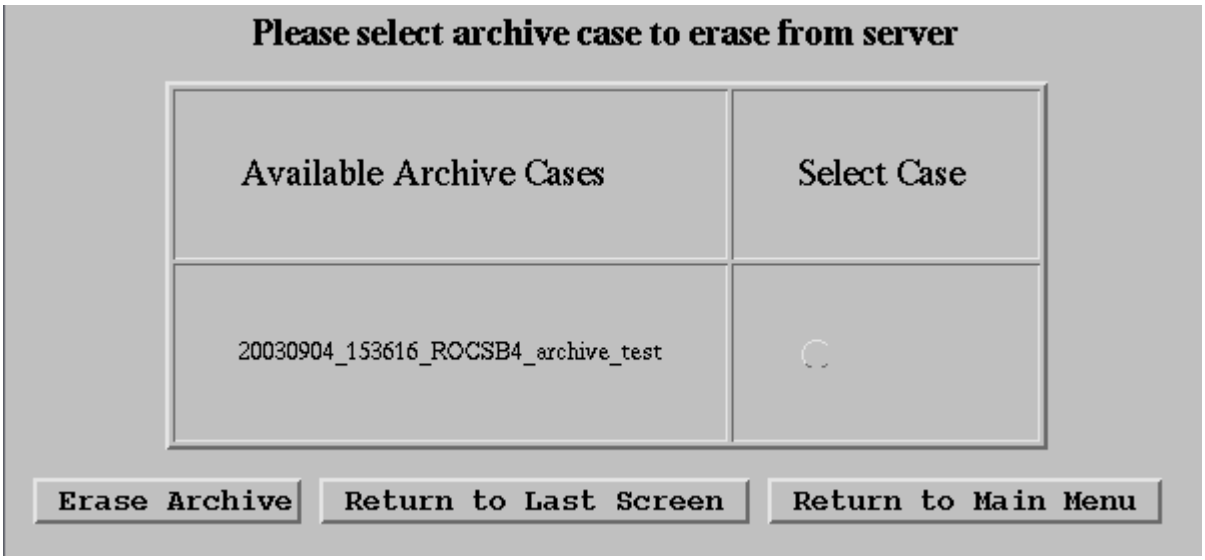


Figure 5-34. Please Select Archive Case to Erase from Server Window

3. At the `Please select archive case to erase from server` window, within the `Select Case` column, click on the **radio** button of the *archive data file of interest* in the `Available Archive Cases` column. The *archive data file of interest* radio button will be highlighted.

4. At the `Please select archive case to erase from server` window, click on the **Erase Archive** button. The Erase Products Archive function will erase the selected *archive data file of interest* from the Archive database directory and display `The Archive for` *`file_name`* `has been Erased from Server` window as shown in Figure 5-35.

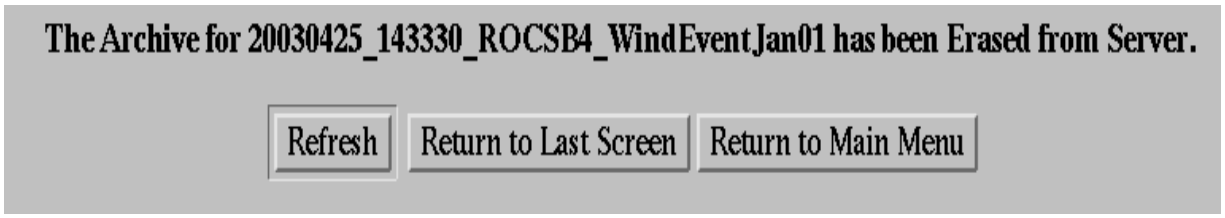


Figure 5-35. Erase Archive Confirmation Window

5. At `The Archive for` *`file_name`* `has been Erased from Server` window, click on the **Return to Last Screen** button to return to the `Please select archive case to erase from server` window if other archive files are to be erased or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button. The `OPUP Archive Menu` will be displayed.

7. At the `OPUP Archive Menu`, click on the **Check Products Archive** button. `The Existing Archives on Server is as follows:` window will be displayed as shown in Figure 5-26.

NOTE

`The Existing Archives on Server is as follows:` window will display all existing archive data files located within the Archive database directory. Each archive data file will be stored in the `Owner/Group/Date Created/Name of Archive` area of the display. If this area is blank, no archive data file(s) have been designated for archival by an operator. This area may also be blank if attempts to transfer the archive data file from a CD-ROM to the Archive database directory was unsuccessful.

8. If the *archive file of interest* is not displayed within the `The Existing Archives on Server is as follows:` window, Figure 5-26, the file has been erased. Go to the next step. If the *archive file of interest* is displayed within the window, return to Step 1 and perform Steps 1 through 7, again.

9. At `The Existing Archives on Server is as follows:` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.8.6 Check Savelog Archive. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24.

1. At the `OPUP Archive Menu`, click on the **Check SaveLog Archive** button. `The Existing SaveLog Archives on Server is as follows:` window will be displayed as shown in Figure 5-36.

NOTES

The `Existing SaveLog Archives on Server is as follows:` window will display all existing savelog data files located within the Savelog database directory. Each savelog data file will be stored in the Owner/Group/Date Created/Name of Archive area of the display. If this area is blank, no savelog archive data file has been designated for archival by an operator.

Also, this window does not automatically re-display information once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

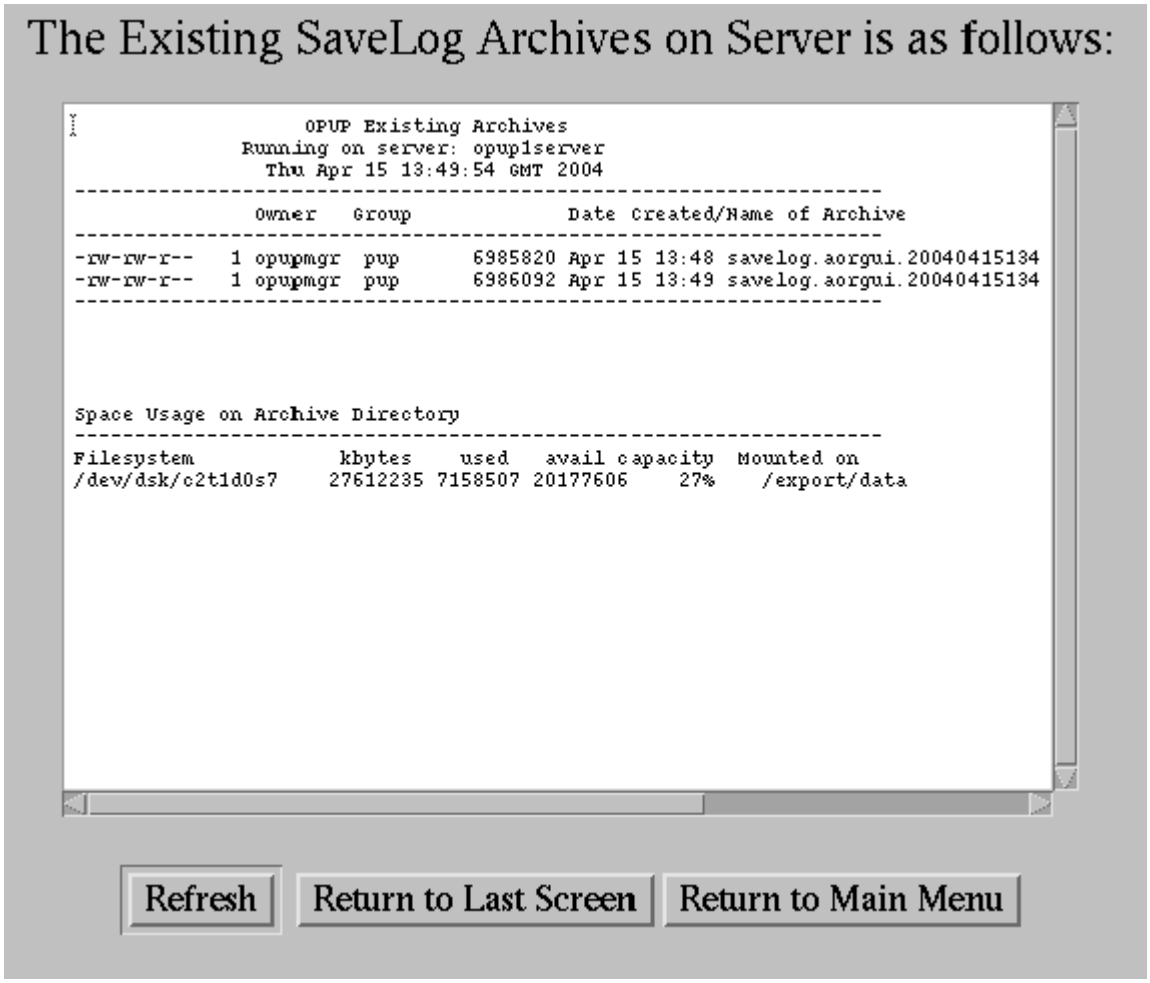


Figure 5-36. The Existing SaveLog Archives on Server Window

2. At `The Existing SaveLog Archives on Server is as follows:` window, click on either the **Return to Last Screen** button to return to the `OPUP Archive Menu` or the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.8.7 Create Savelog Archive. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24. A blank CD-ROM disk must be placed within the Archive IV Device UD80A4 media tray.

1. At the `OPUP Archive Menu`, click on the **Create SaveLog Archive** button. A `Please select archive case to create to CDROM` window will be displayed as shown in Figure 5-37. The Create Savelog Archive function will search the Savelog directory and display all available archived savelogs previously designated for archival.

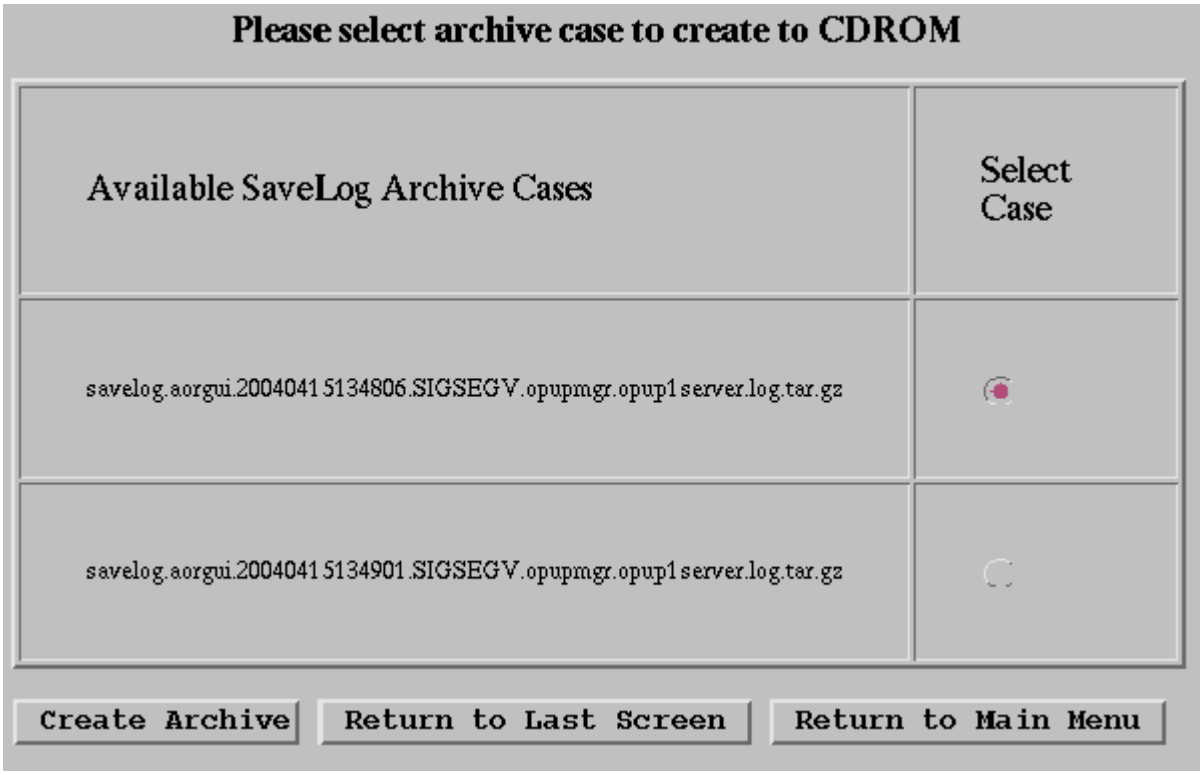


Figure 5-37. Please Select (SaveLog) Archive Case to Create to CDROM Window

2. At the `Please select archive case to create to CDROM` window, within the `Select Case` column, click on the **radio** button associated with the savelog file of interest located in the `Available SaveLog Archive Cases` column. The savelog file of interest radio button will be highlighted.

3. At the `Please select archive case to create to CDROM` window, click on the **Create Archive** button. The Create Savelog Archive function will then prepare and transfer the selected savelog archive file to the CD-ROM located within the archive device media tray. When the Create Savelog Archive function is finished, `The archive for` *`filename`* `have been created to CDROM` window will be displayed as shown in Figure 5-38.

NOTE

A warning window will be displayed if a CD-ROM that cannot be written to is in the archive device. Replace the CD-ROM with a blank disk.

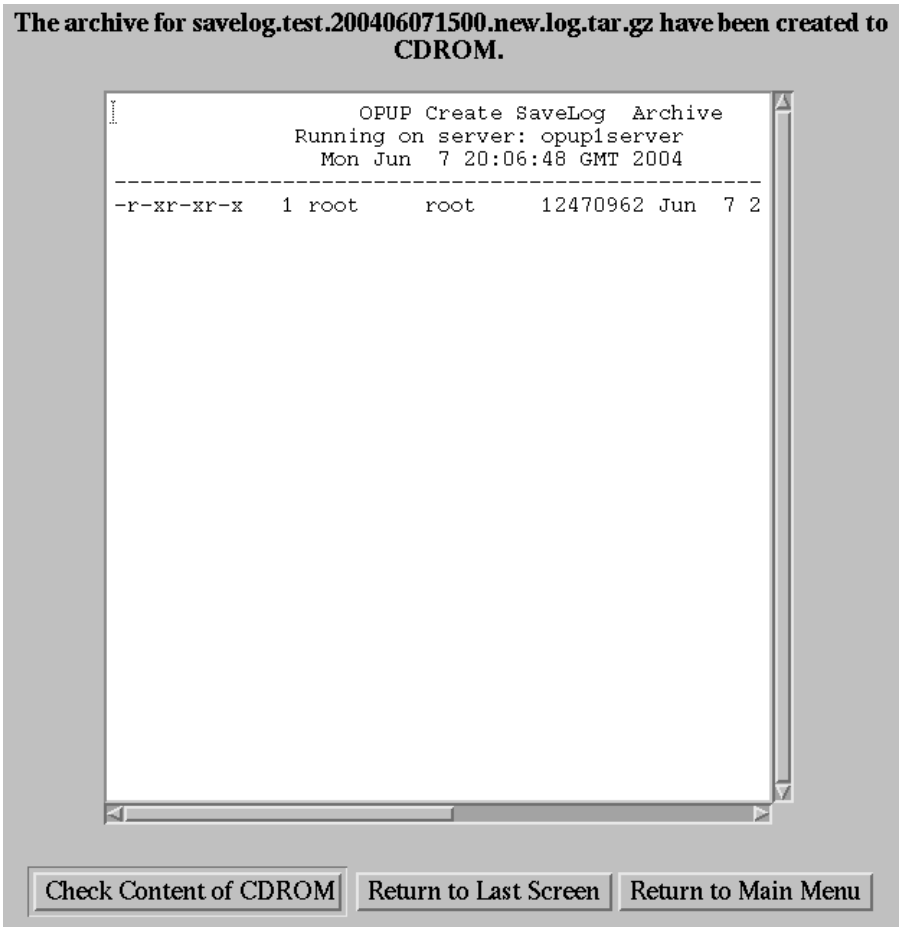


Figure 5-38. The Archive for *Filename* Have Been Created to CDROM Window

4. At `The archive for filename have been created to CDROM` window, click on the **Check Content of CDROM** button. `The Content of the inserted CDROM is as follows:` window will be displayed similar to the one shown in Figure 5-30.

NOTE

`The Content of the inserted CDROM is as follows:` window will display the savelog archive file located on the CD-ROM in the Owner/Group/Date Created/Name of Archive area within the window. If this area is blank, the savelog archive file did not transfer to the CD-ROM. Also, `The Content of the inserted CDROM is as follows:` window does not automatically re-display information once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

5. At `The Content of the inserted CDROM is as follows:` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6. At the Archive IV Device UD80A4, push the eject button to open the media tray door. When the door opens, remove the CD-ROM and then push the eject button again to close the media tray door.

5.2.8.8 Erase Savelog Archive. The `OPUP Archive Menu` must be displayed as shown in Figure 5-24.

1. At the `OPUP Archive Menu`, click on the **Erase SaveLog Archive** button. An `OPUP Manager Erase SaveLog Archive` window will be displayed as shown in Figure 5-39. This window will also display the following message: `Warning! This will Erase any selected SaveLog Archive from Server. Do you want to Continue?`

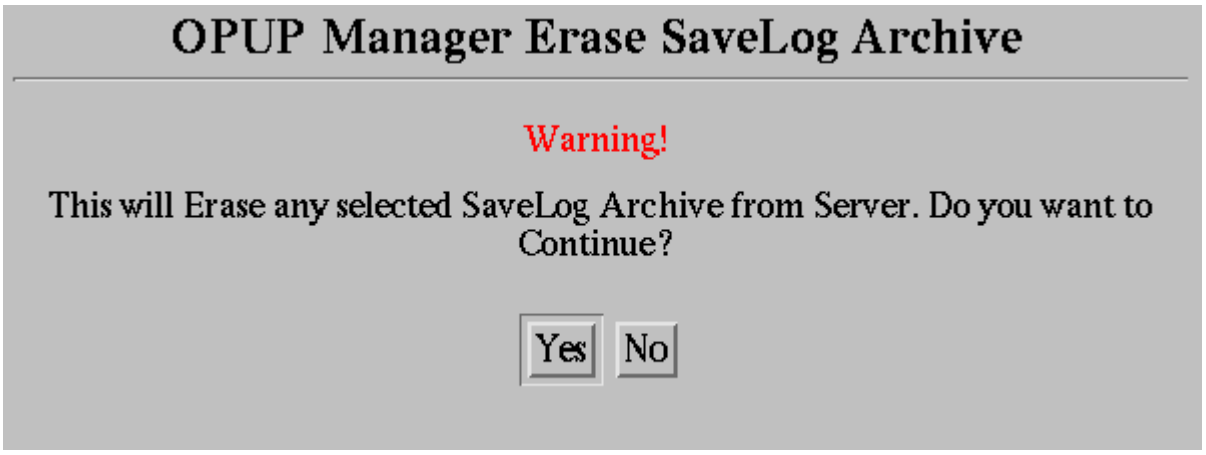


Figure 5-39. OPUP Manager Erase SaveLog Archive Window

2. If an *archive data file of interest* is to be erased from the Savelog directory, click on the **Yes** button. A `Please select archive case to erase from server` window will be displayed as shown in Figure 5-40. Otherwise, click on the **No** button to exit and return to the `OPUP Archive Menu`.

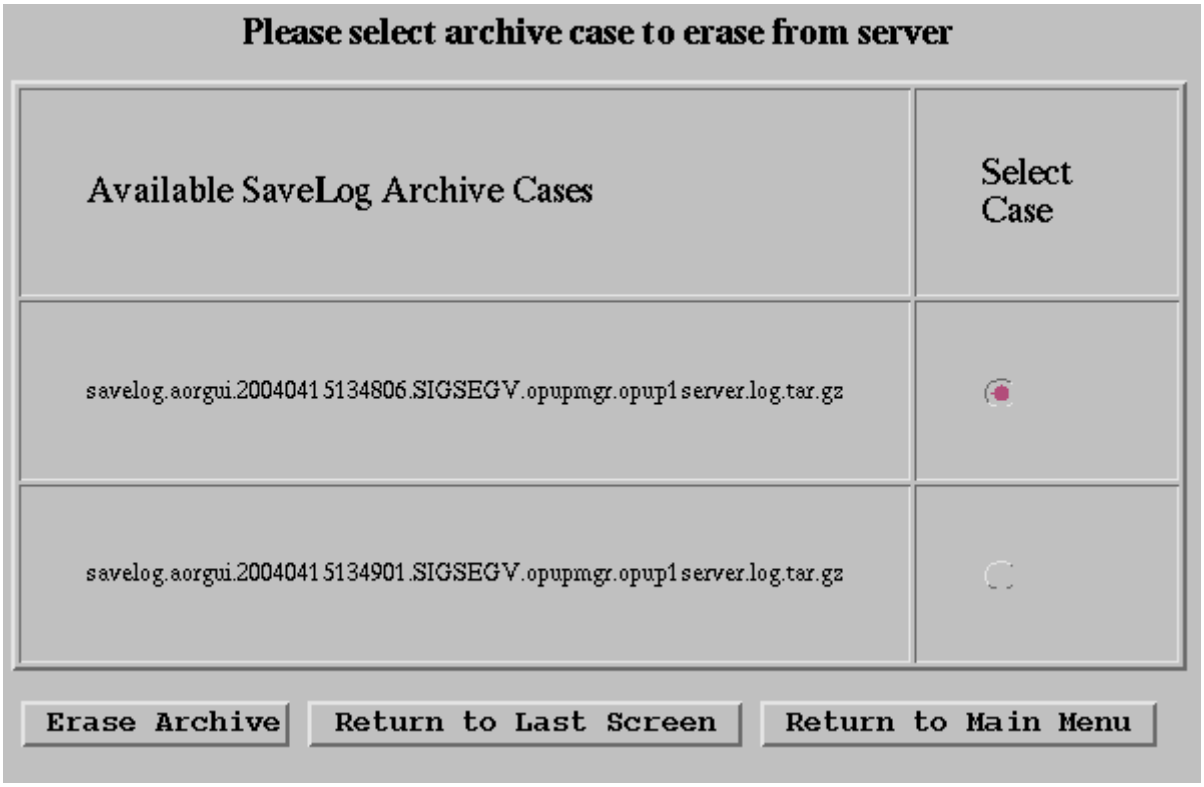


Figure 5-40. Please Select (SaveLog) Archive Case to Erase from Server Window

3. At the `Please select archive case to erase from server` window, within the `Select Case` column, click on the **radio** button of the *savelog file of interest* in the `Available SaveLog Archive Cases` column. The *savelog file of interest* radio button will be highlighted.

4. At the `Please select archive case to erase from server` window, click on the **Erase Archive** button. The Erase Savelog Archive function will erase the selected *savelog file of interest* from the Savelog directory and display `The archive for` *`file_name`* `have been erased from server` window as shown in Figure 5-41.

Figure 5-41. Erase Savelog Archive Confirmation Window

5. At `The archive for file_name have been erased from server` window, click on the **Return to Last Screen** button to return to the `Please select archive case to erase from server` window or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button. The `OPUP Archive Menu` will be displayed.

7. At the `OPUP Archive Menu`, click the **Check SaveLog Archive** button. `The Existing SaveLog Archives on Server is as follows:` window will be displayed as shown in Figure 5-36.

NOTE

> `The Existing SaveLog Archives on Server is as follows:` window will display all existing savelog files located within the Savelog directory. Each savelog file will be stored in the `Owner/Group/Date Created/Name of Archive` area of the display. If this area is blank, no savelog file(s) have been designated for archival by an operator.

8. If the *savelog file of interest* is not displayed within the `The Existing SaveLog Archives on Server is as follows:` window, Figure 5-36, the file has been erased. Go to the next step. If the *savelog file of interest* is displayed within the window, return to Step 1 and perform steps 1 through 7, again.

9. At `The Existing Savelog Archives on Server is as follows:` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.8.9 Check Content of CD-ROM. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24. A CD-ROM disk must be placed within the Archive IV Device UD80A4 media tray.

1. At the `OPUP Archive Menu`, click on the **Check Content of CDROM** button. `The Content of the inserted CDROM is as follows:` window will be displayed as shown in Figure 5-29.

NOTES

> `The Content of the inserted CDROM is as follows:` window will display the *archive data file of interest* located on the CD-ROM in the `Owner/Group/Date Created/Name of Archive` area of the display. If the CD-ROM contains no data, the Check Content of CD-ROM function will display an `OPUP Manager Backup OPUP`

window with the following message as shown in Figure 5-25: `Warning! CDROM not writeable. CDROM probably contains data. Please insert a new CDROM and try again.`

`The Content of the inserted CDROM is as follows:` window does not automatically re-display information once it is initially displayed. Users will need to use the **Refresh** button near the bottom left of the window to re-display updates to this window.

2. At `The Content of the inserted CDROM is as follows:` window, click on the **Return to Last Screen** button to return to the `OPUP Archive Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.8.10 Erase CD-R/W. Prerequisite: The `OPUP Archive Menu` must be displayed as shown in Figure 5-24. A CD-R/W disk that contains data must be placed within the Archive IV Device UD80A4 media tray.

NOTE

The Erase CD-R/W function will check to ensure that a compatible CD-ROM (CD-R/W) has been placed within the archive device media tray. If the drive is empty or a CD-R disk has been placed within the device media tray, a warning window will be displayed. If the warning window is encountered, replace the disk with a compatible CD-R/W disk or select the **No** button to cancel the Erase CD-R/W function.

Performing the Erase CD-R/W function is permanent! There is no way to recover any erased data once the **Yes** button is selected.

1. At the `OPUP Archive Menu`, click on the **Erase CDRW** button. An `OPUP Manager Erase CDRW` window will be displayed.

NOTE

A **Check Content of CDROM** button is provided with the `OPUP Manager Erase CDRW` window. Sites are encouraged to check the CD-ROM one last time **before the Yes button is selected**. This will help to ensure that the data located on the disk is actually to be erased. There will be no way for the data to be recovered once the data is erased.

2. At the `OPUP Manager Erase CDRW` window, click on the **Yes** button. The OPUP Manager Erase CD-R/W function will then access the CD-ROM disk and erase all of the contents. When finished, the Erase CD-R/W function will return to the `OPUP Archive Menu`.

3. At the `OPUP Archive Menu`, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.9 OPUP Server Control.

The OPUP Server Control Menu function provides each site the ability to monitor the overall hard drive disk usage (storage/percentage of use), backup/restore product/user configuration data, implement window/terminal lockout functions, add/delete/designate default printers, reboot the communication router, reset/re-issue Cisco/Oracle/Application Security Level passwords, implement a Default Route IP-Address, perform system diagnostics (VTS Tools), and restart or shutdown the OPUP Server OS.

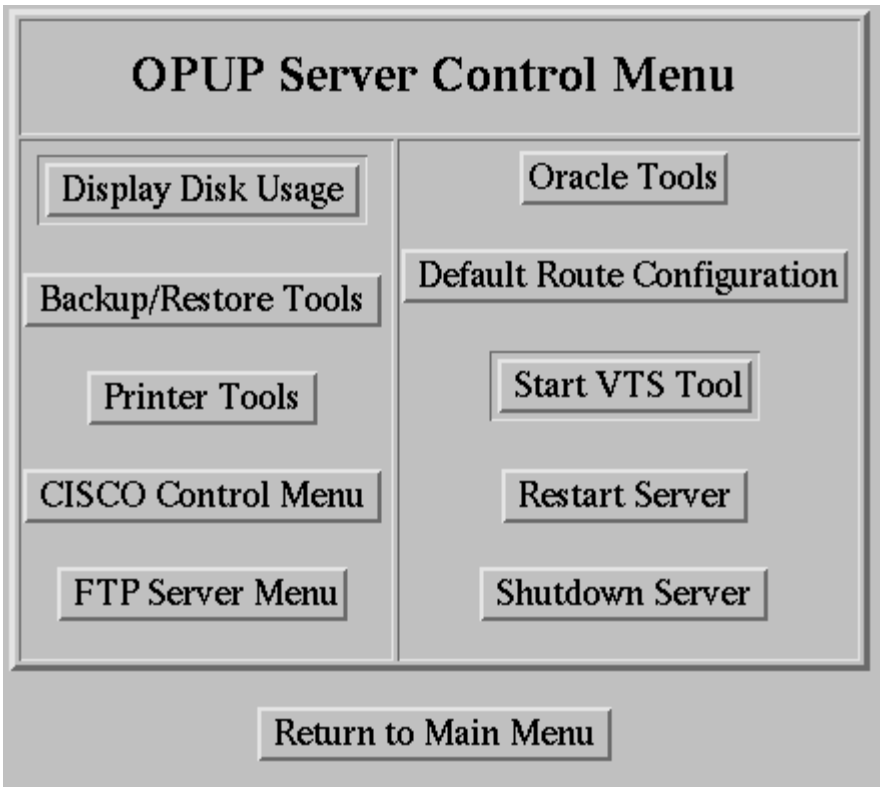


Figure 5-42. OPUP Server Control Menu

1. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button. An `OPUP Server Control Menu` window will be displayed as shown in Figure 5-42.

5.2.9.1 Display Disk Usage. Prerequisites: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Display Disk Usage** button. An `OPUP Disk Usage` window will be displayed.

NOTE

The `OPUP Disk Usage` window displays the current Server UD80A11/A12 file and slice assignments used by the hard drives. The OPUP Disk Usage function provides the ability for each site to make a quick assessment concerning file maintenance.

2. At the `OPUP Disk Usage` window, click on the **Return to Last Screen** button to return to the `OPUP Server Control Menu` or click on the **Return to Main Menu** button to return to the `OPUP Main Manager Menu`.

5.2.9.2 Backup/Restore Tools Menu. Prerequisites: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Backup/Restore Tools** button. An `OPUP Manager Backup/Restore Main Menu` will be displayed as shown in Figure 5-43.

NOTES

The `OPUP Manager Backup/Restore Main Menu` provides the ability to perform a full backup and/or restoral of each site's OPUP configuration and adaptation data. This menu includes the ability to backup/restore OPUP adaptation data separately. The `OPUP Manager Backup/Restore Tools Main Menu` includes the Check Content of CD-ROM and Erase CD-R/W functions in order to assist with the management of each CD-ROM disk, if needed.

The procedures provided in the following paragraphs will only cover Backup and Restore of OPUP configuration and adaptation data. The procedures to perform separate adaptation data backup/restore functions will be similar.

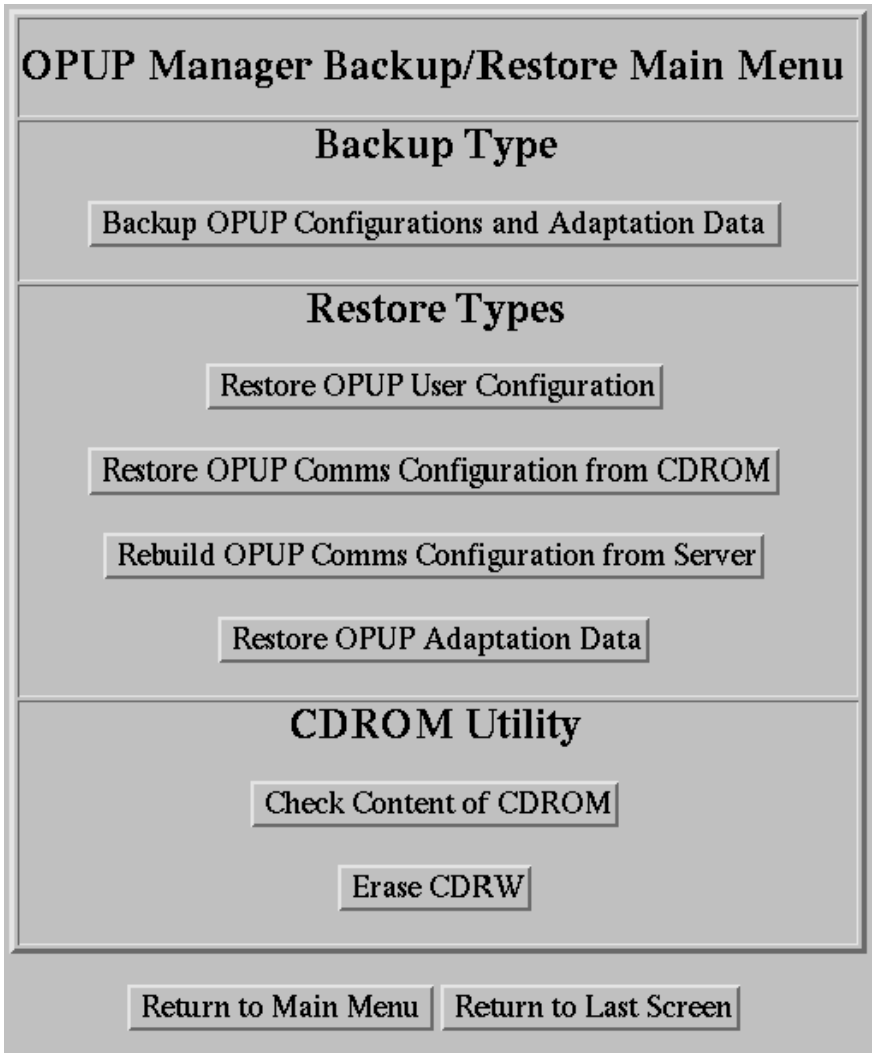


Figure 5-43. OPUP Manager Backup/Restore Main Menu

5.2.9.2.1 Backup OPUP Configuration and Adaptation Data. Prerequisites: A blank CD-R or CD-R/W CD-ROM disk must be placed on the Archive IV Device UD80A4 media tray.

1. The OPUP Server OS processes must be stopped per paragraph 5.2.4.2.

2. At the `OPUP Manager Main Menu`, click on the following menu buttons: **OPUP Server Control Menu ▶ Backup/Restore Tools** to display the `OPUP Manager Backup/Restore Main Menu` as shown in Figure 5-43.

3. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Backup OPUP Configurations and Adaptation Data** button. An `OPUP Manager Backup OPUP` warning window will be displayed as shown in Figure 5-44.

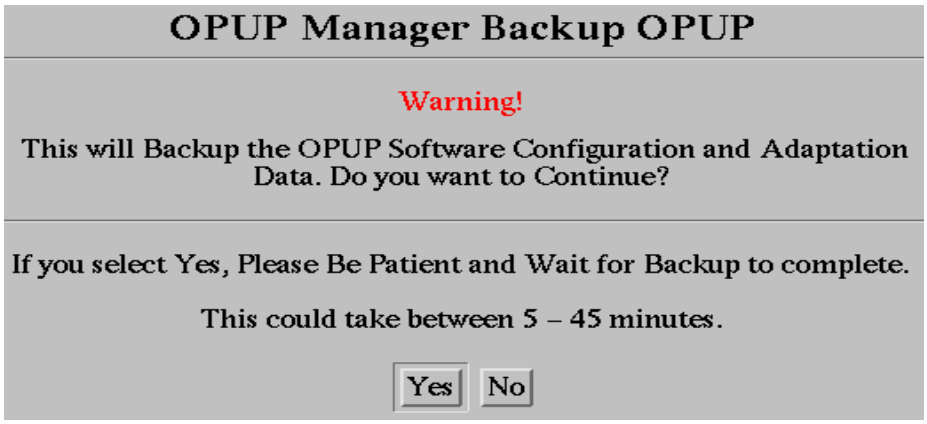


Figure 5-44. OPUP Manager Backup OPUP Warning Window

4. At the `OPUP Manager Backup OPUP` warning window, click on the **`Yes`** button. When the OPUP Manager Backup OPUP function is finished, an `OPUP Manager Backup OPUP`, `OPUP Software backup is complete` window will be displayed as shown in Figure 5-45.

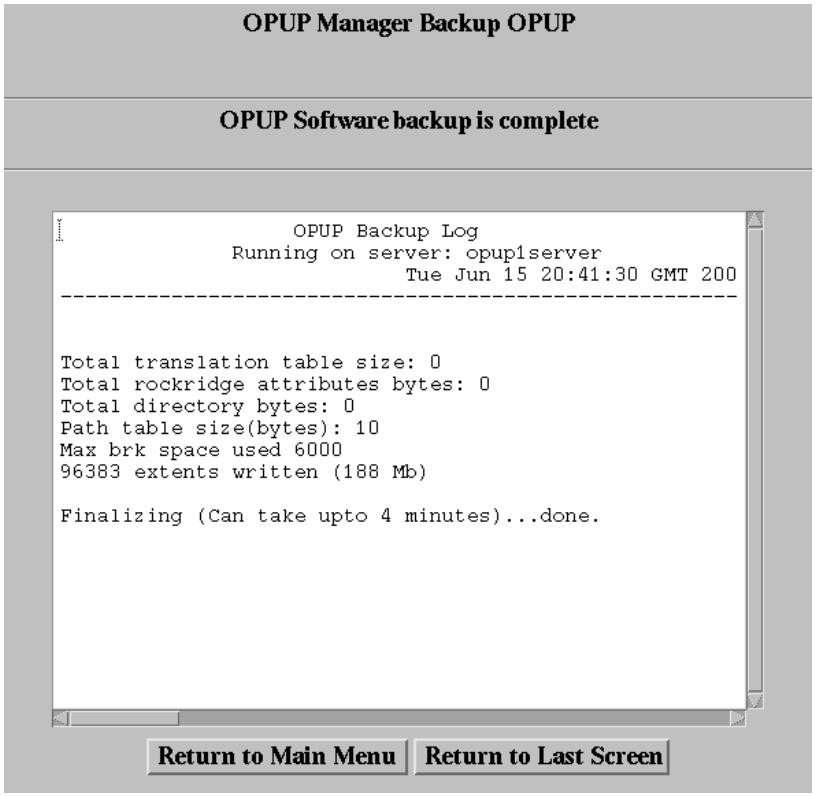


Figure 5-45. OPUP Manager Backup OPUP Software Backup Complete Window

5. At the `OPUP Manager Backup OPUP, OPUP Software backup is complete` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

7. At the `OPUP Server Control Menu`, click on the **Backup/Restore Tools** button. The `OPUP Manager Backup/Restore Main Menu` will be displayed.

NOTE

Ensure that a blank CD-ROM (CD-R or CD-R/W) disk is used each time the Backup OPUP Configuration and Adaptation Data function is used. The OPUP Manager Backup OPUP function cannot append data to CD-ROM disks that contains data. If the OPUP Manager Backup OPUP function detects data on the disk it will display the following message as shown in Figure 5-46: `Warning! OPUP Software Backup Failed. CDROM not writeable. CDROM probably contain data. Please insert a new CDROM and try again.` If this message is displayed, remove the current CD-ROM disk and replace it with a blank disk.

8. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Check Content of CDROM** button. `The Content of the inserted CDROM is as follows:` window will be displayed as shown in Figure 5-29.

9. At `The Content of the inserted CDROM is as follows:` window, ensure that a **Backup.tar** file is present. Ensure this file has the latest date and time associated with it. If the Backup.tar file is present and has the latest date/time associated with it, go to the next step. If this file is not present and/or the date/time was not updated, return to Step 2 and perform Steps 2 through 8, again.

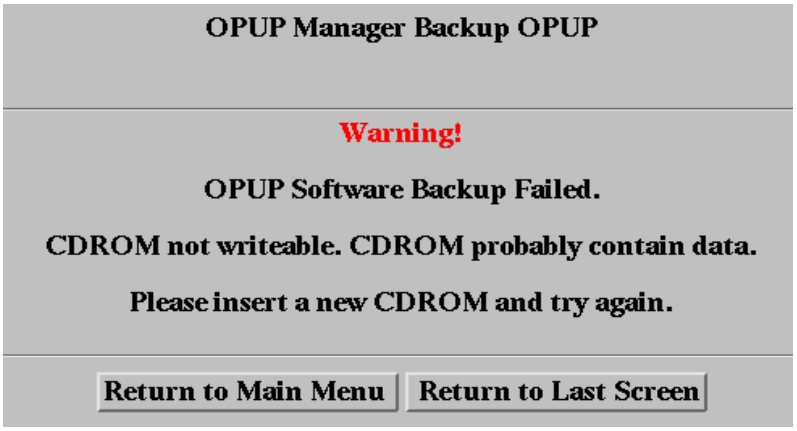


Figure 5-46. OPUP Manager Backup OPUP Software Backup Failed Window

10. Click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

11. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

12. At the `OPUP Software Menu`, start the OPUP software by performing the procedures outlined in paragraph 5.2.4.1 and paragraph 5.2.4.4, if necessary. When finished, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.2.2 Restore OPUP User Configuration Data. Prerequisites: A CD-ROM disk that contains Backup/Restore user configuration data must be placed in the Archive IV Device UD80A4 media tray.

1. The OPUP server process must be stopped per paragraph 5.2.4.2.

2. At the `OPUP Manager Main Menu`, click on the following menu buttons: **OPUP Server Control Menu▶Backup/Restore Tools** to display the `OPUP Manager Backup/Restore Main Menu` as shown in Figure 5-43.

3. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Restore OPUP User Configuration** button. An `OPUP Manager Restore OPUP` window will be displayed as shown in Figure 5-47.

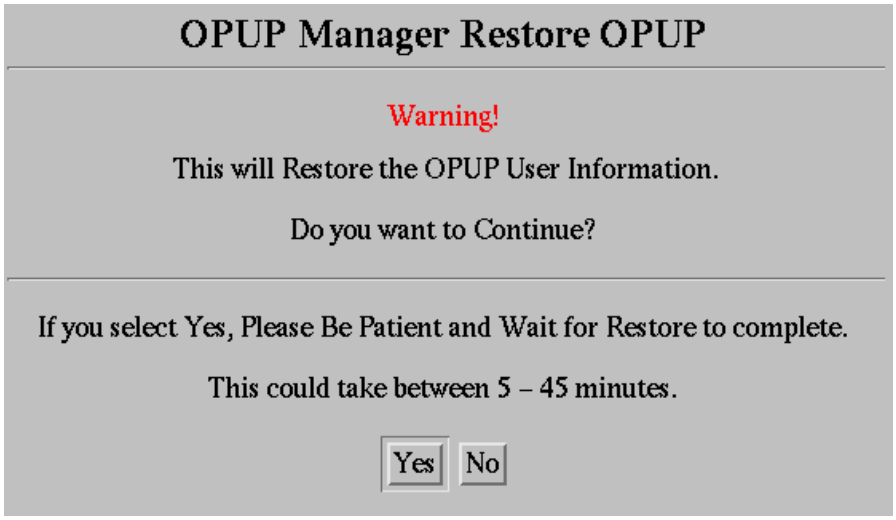


Figure 5-47. OPUP Manager Restore OPUP Window

4. At the `OPUP Manager Restore OPUP` window, click on the **Yes** button. When the OPUP Manager Restore OPUP function is finished, an `OPUP Manager Restore OPUP` window will be displayed as shown in Figure 5-48.

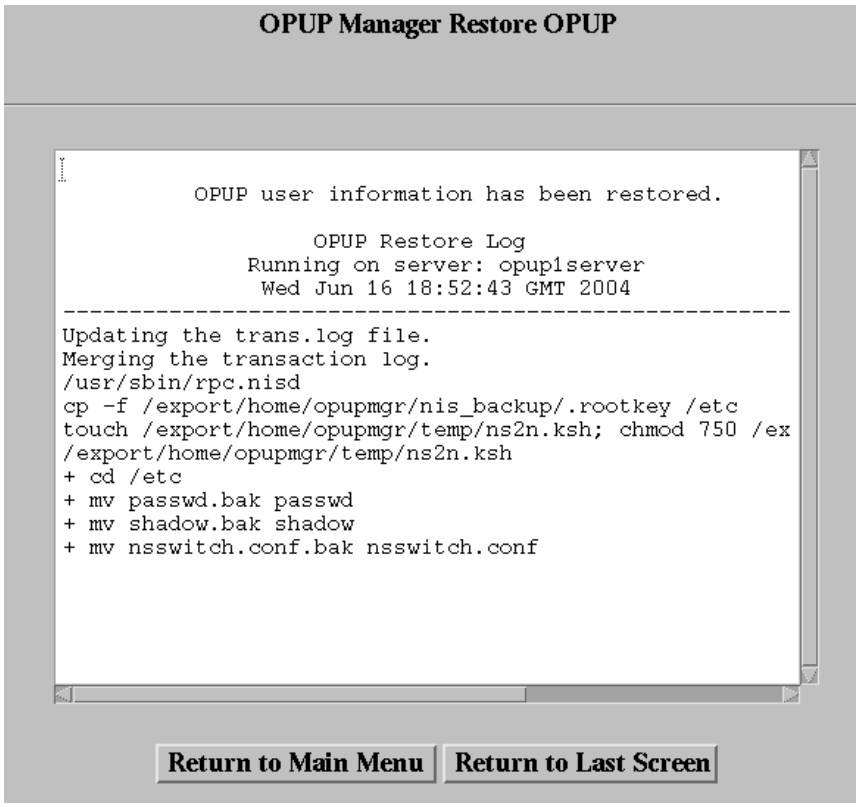


Figure 5-48. OPUP User Information Restored Window

5. At the `Netscape: OPUP Manager Restore OPUP` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

7. Restart the server per the procedure in paragraph 5.2.9.8.1. The server must be restarted for the restored user data to work properly.

5.2.9.2.3 Restore OPUP Communications Configuration from CD-ROM. Prerequisites: A CD-ROM disk that contains Backup/Restore data must be placed in the Archive IV Device UD80A4 media tray.

1. The OPUP server process must be stopped per paragraph 5.2.4.2.

2. At the `OPUP Manager Main Menu`, click on the following menu buttons: **OPUP Server Control Menu▶Backup/Restore Tools** to display the `OPUP Manager Backup/Restore Main Menu` as shown in Figure 5-43.

3. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Restore OPUP Comms Configuration from CDROM** button. An `OPUP Manager Restore OPUP Comms Configuration` window will be displayed as shown in Figure 5-49.

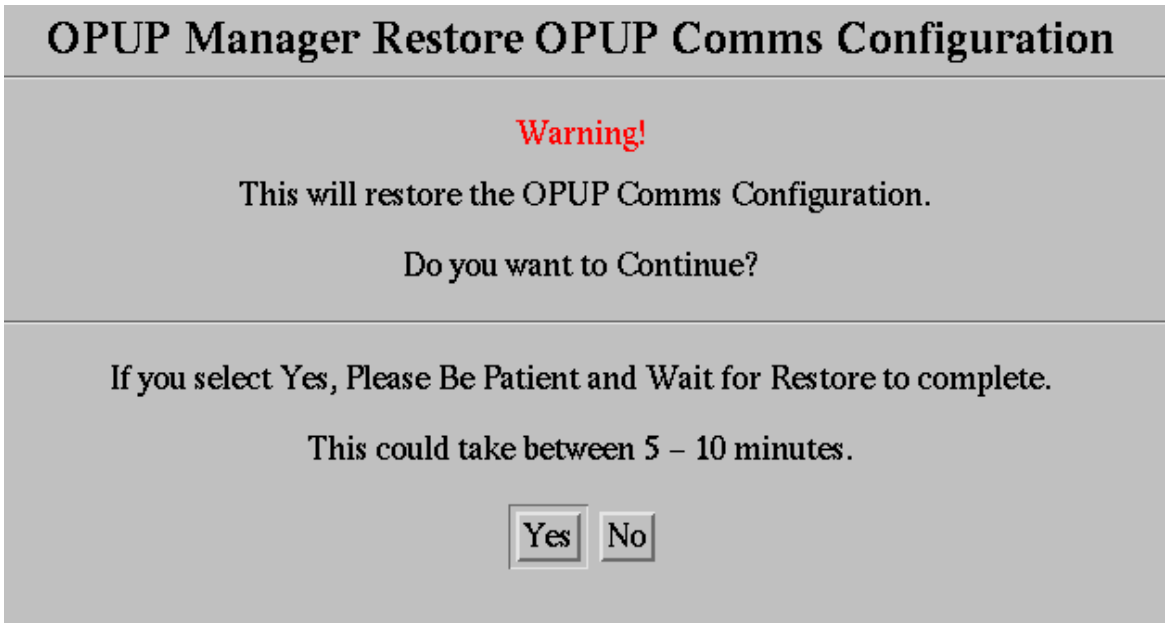


Figure 5-49. OPUP Manager Restore OPUP Communications Configuration Window

4. At the `OPUP Manager Restore OPUP Comms Configuration` window, click on the **Yes** button. When the OPUP Manager Restore OPUP Communications Configuration function is finished, a `Netscape: Restore Comms Configuration` window with the message `The selected Comms Configuration have been restored from CDROM` will be displayed as shown in Figure 5-50.

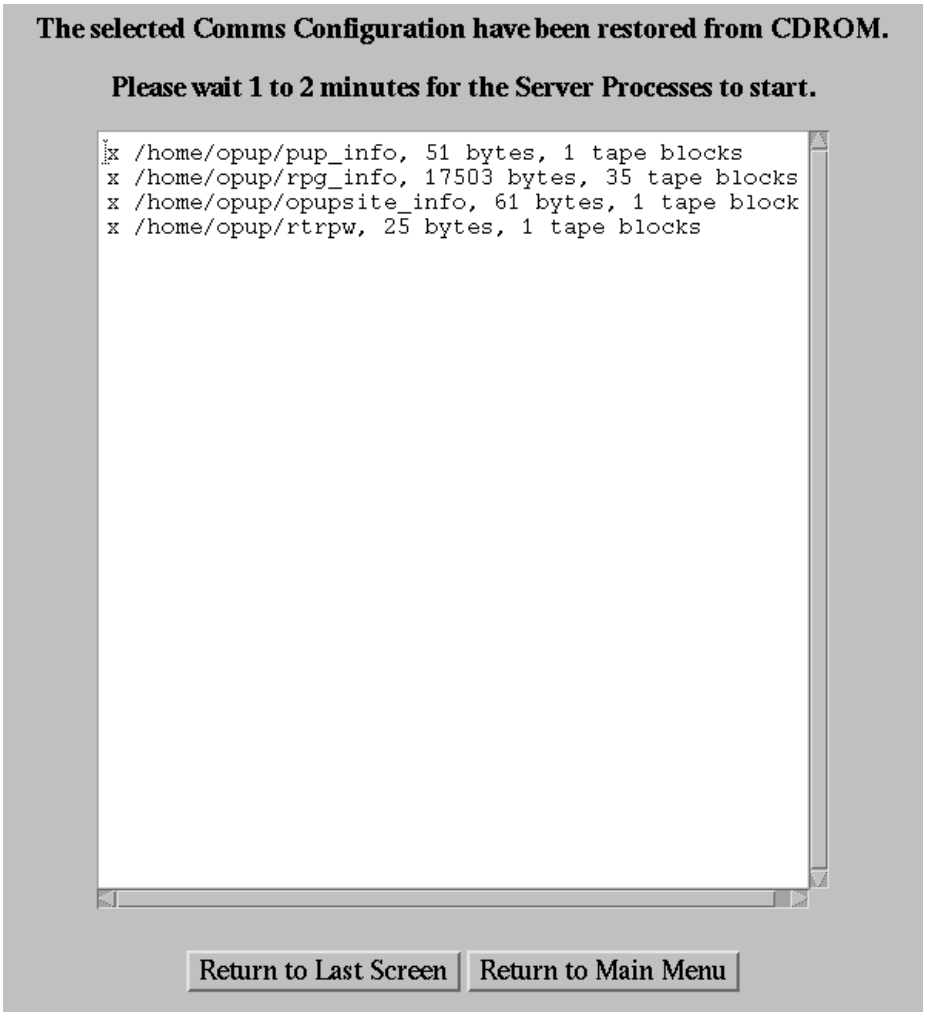


Figure 5-50. Comms Configuration Restored from CDROM Window

5. At the `Netscape: Restore Comms Configuration` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

7. Ensure that all OPUP processes have been started and are operating normally. Perform the procedures outlined in paragraph 5.2.4.1 and paragraph 5.2.4.4, if necessary. When finished, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.2.4 Rebuild OPUP Communications Configuration from Server.

1. The OPUP server process must be stopped per paragraph 5.2.4.2.

2. At the `OPUP Manager Main Menu`, click on the following menu buttons: **OPUP Server Control Menu▶Backup/Restore Tools** to display the `OPUP Manager Backup/Restore Main Menu` as shown in Figure 5-43.

3. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Rebuild OPUP Comms Configuration from Server** button. An `OPUP Manager Rebuild OPUP Comms Configuration` window will be displayed as shown in Figure 5-51.

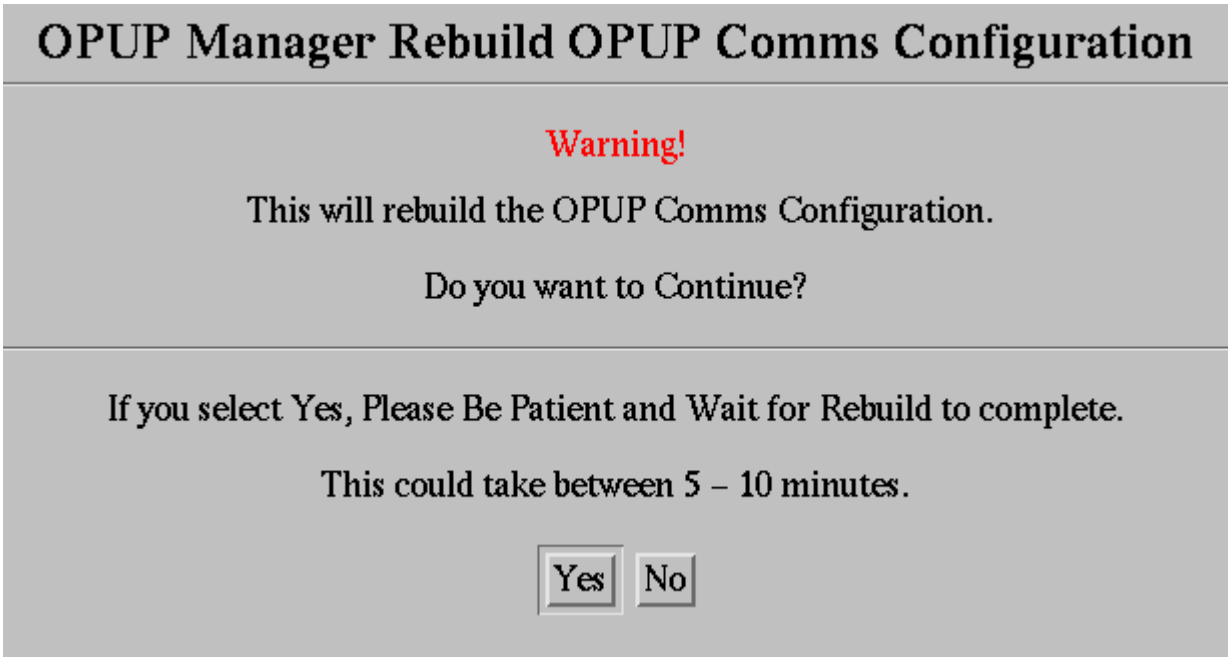


Figure 5-51. OPUP Manager Rebuild OPUP Communications Configuration Window

4. At the `OPUP Manager Rebuild OPUP Comms Configuration` window, click on the **Yes** button. When the OPUP Manager Rebuild OPUP Communications Configuration function is finished, a `Netscape: Restore Comms Configuration` window with the message `The selected Comms Configuration have been restored from Server` will be displayed as shown in Figure 5-52.

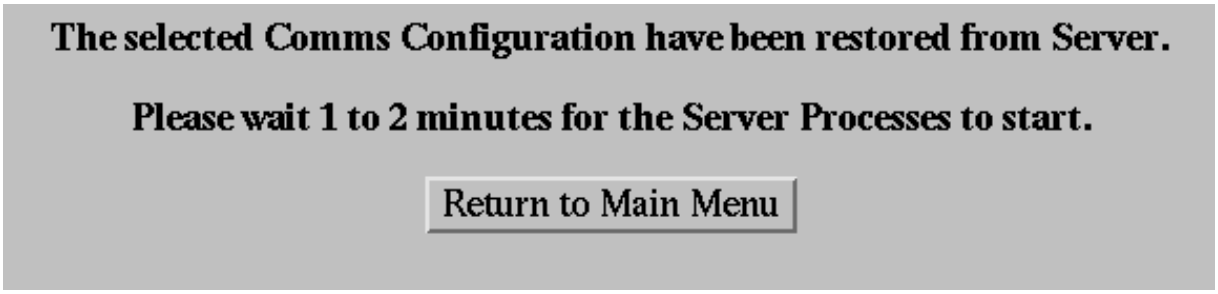


Figure 5-52. Comms Configuration Restored from Server Window

5. At the `Netscape: Restore Comms Configuration` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

6. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

7. Ensure that all OPUP processes have been started and are operating normally. Perform the procedures outlined in paragraph 5.2.4.1 and paragraph 5.2.4.4, if necessary. When finished, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.2.5 Restore OPUP Adaptation Data.

1. The OPUP server process must be stopped per paragraph 5.2.4.2

2. At the `OPUP Manager Main Menu`, click on the following menu buttons: **OPUP Server Control Menu▶Backup/Restore Tools** to display the `OPUP Manager Backup/Restore Main Menu` as shown in Figure 5-43.

3. At the `OPUP Manager Backup/Restore Main Menu`, click on the **Restore OPUP Adaptation Data** button. An `OPUP Manager Restore OPUP Adaptation Data Only` window will be displayed as shown in Figure 5-53.

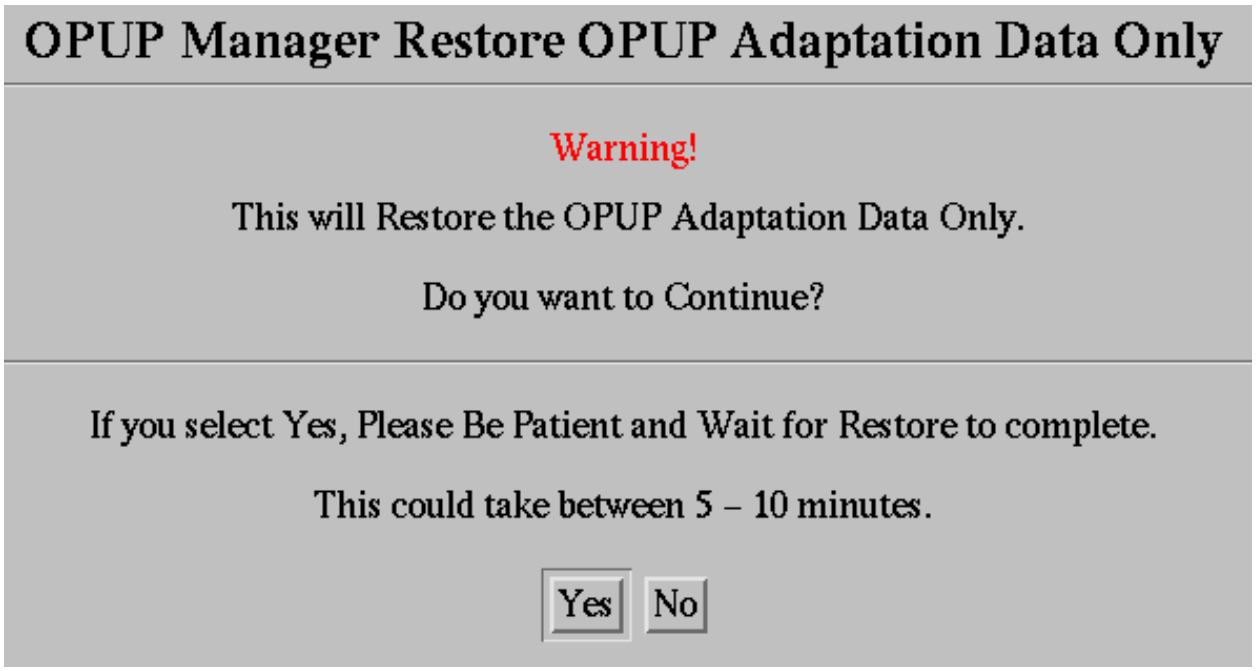


Figure 5-53. OPUP Manager Restore OPUP Adaptation Data Only Window

4. At the `OPUP Manager Restore OPUP Adaptation Data Only` window, click on the **Yes** button. The OPUP Manager Restore Adaptation Data function will display a `Netscape: Available Adaptation Data on CDROM, Please select adaptation to restore` window as shown in Figure 5-54. This window lists the adaptation data on the CD-ROM that is available for restoration.

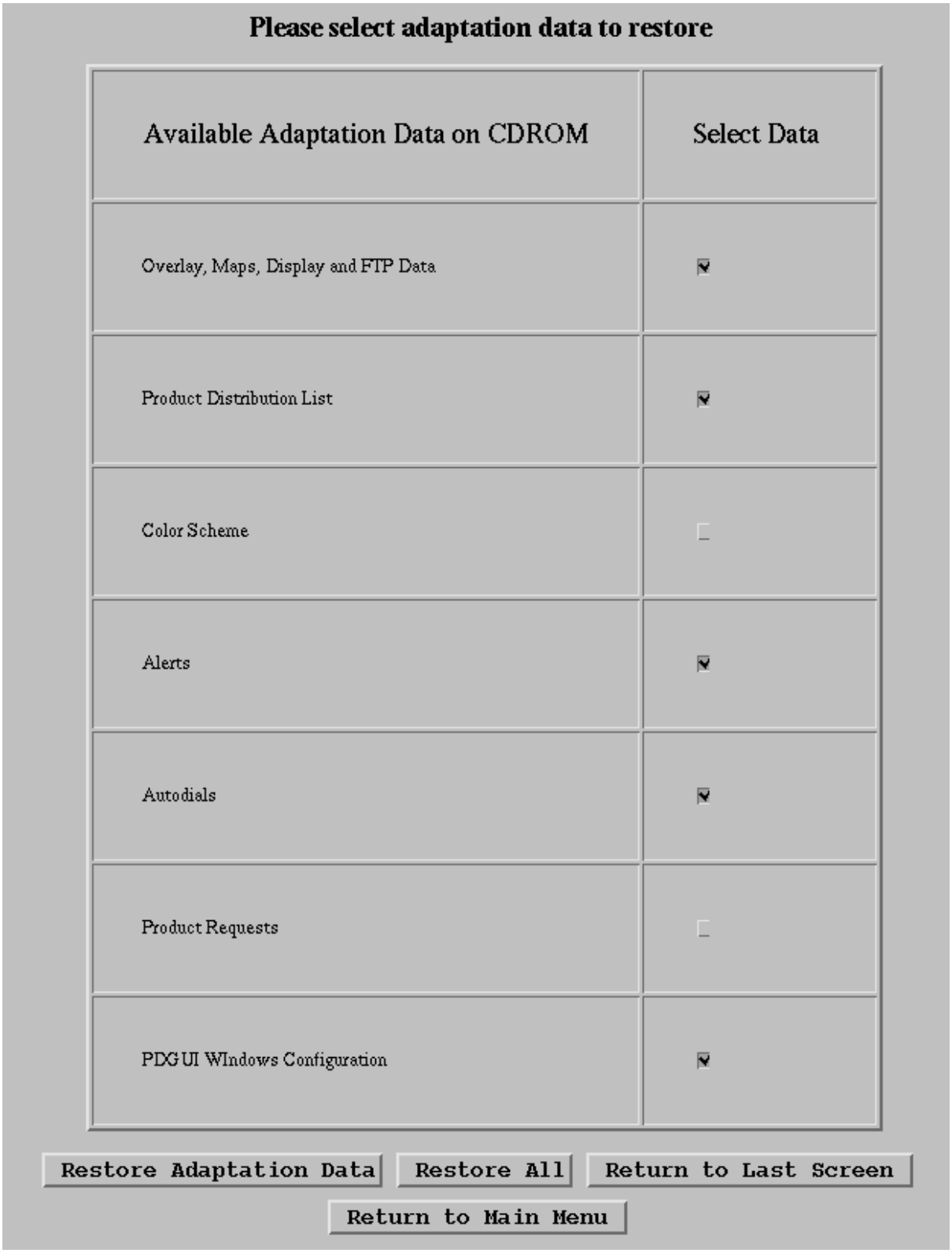


Figure 5-54. Please Select Adaptation Data to Restore Window

5. At the `Please select adaptation data to restore` window, the restore function provides for the option to restore all available data or to select particular adaptation data to restore. Perform the following applicable step as desired.

   a. If **all** available adaptation data is to be restored, click on the **Restore All** button.

   b. If **selected** adaptation data is to be restored, in the `Select Data` column, click on the box or boxes that corresponds to the data listed under the `Available Adaptation Data on CDROM` column that is to be restored. Once selected, a check mark will be placed in the selected box. Then, click on the **Restore Adaptation Data** button.

   Once the data has been restored from the CD-ROM, a `Netscape: Restore Adaptation Data`, with the message `The selected adaptation data have been restored from CDROM` will be displayed as shown in Figure 5-55, indicating the data has been restored.

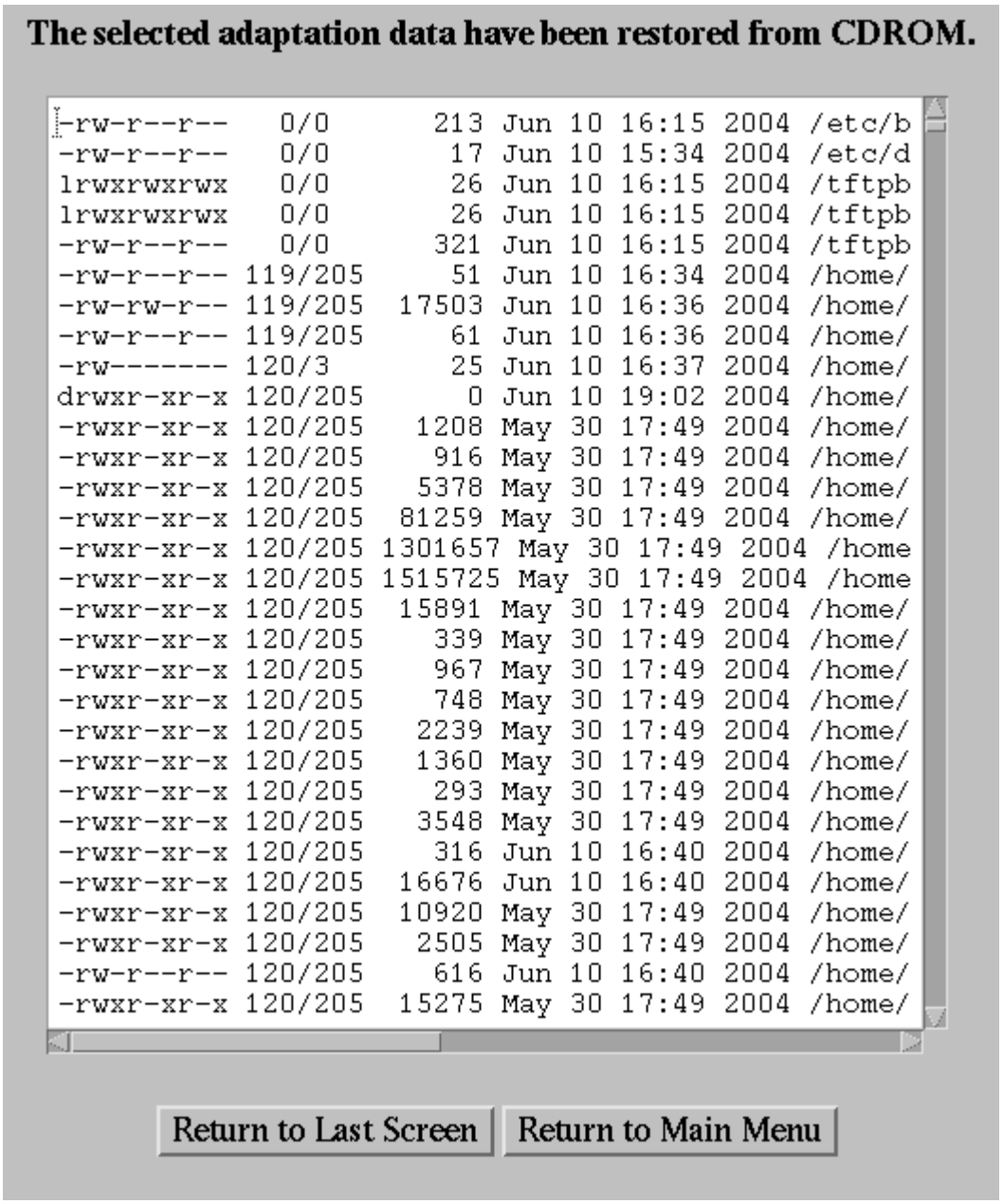


Figure 5-55. Selected Adaptation Data Restored from CDROM Window

6. At the `Netscape: Restore Adaptation Data` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

7. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

8. Restart the server per the procedure in paragraph 5.2.9.8.1. The server must be restarted for the restored data to work properly.

5.2.9.3 Printer Tools. Prerequisites: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Printer Tools** button. An `OPUP Printer Menu` will be displayed as shown in Figure 5-56.

NOTE

Each site will have the ability to add, delete, determine status of a printer device, view/delete print jobs, and change the default printer device for printers assigned to the OPUP Server OS via the `OPUP Printer Menu`. The steps provided in this procedure may be applied to any printer device that is network/Post Script (PS) compatible. The Printer Tools procedure(s) only address the Printer UD80A22.

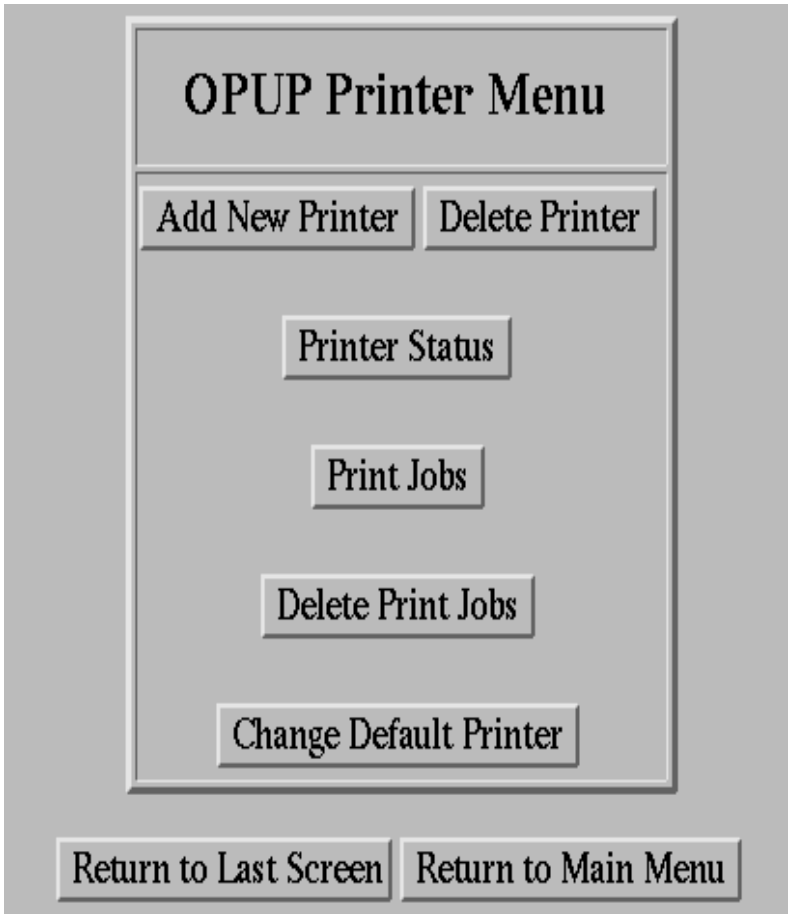


Figure 5-56. OPUP Printer Menu

5.2.9.3.1 OPUP Printer Limitations. The Printer Tools function has been developed to make use of the majority of printers that are network and Post Script (PS) compatible. In order for any PS compatible printer to be connected to the OPUP server, it must have a Ethernet Network Interface card installed and a dedicated IP-Address assigned to the printer. Each printer must have color PS capability in order to perform the PS functions required to properly printout color copies of WSR-88D product and message data.

5.2.9.3.2 Add New Printer. The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Add New Printer** button. An `OPUP Manager Add New Printer` window will be displayed as shown in Figure 5-57.

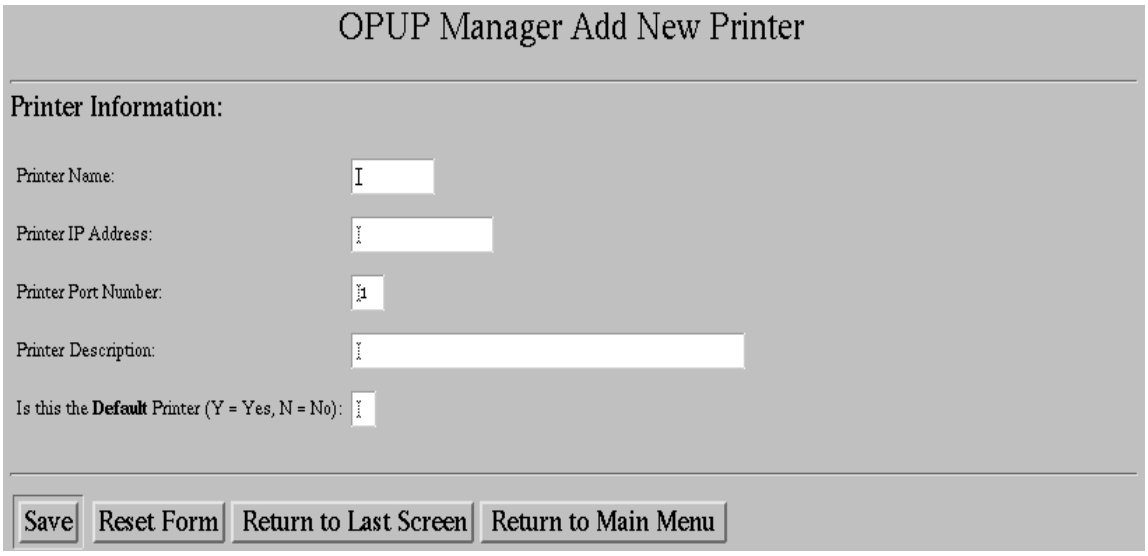


Figure 5-57. OPUP Manager Add New Printer Window

The following information is a breakdown of the data required within the `OPUP Manager Add New Printer` window:

- **Printer Name:** Any eight character length plain language name
- **Printer IP-Address:** A separate IP-Address that can be used for the OPUP Printer only.
- **Printer Port Number:** This number is used by the OPUP Server OS to identify the parallel port address for which data will pass through to the OPUP Printer Device. This number is normally defaulted to 1. If other devices are connected to the OPUP parallel port, the next available port number will be used.
- **Printer Description:** Any 45 character length plain language that identifies the printer use (i.e., OPUP Printer Device). This parameter is optional.

- **Is this the Default Printer (Y=Yes, N=No):** Placing a Y in this edit field will cause the current Printer Device to be the default printer device to be used when printing WSR-88D product and message data. A **Y** will normally be placed in this field.

2. At the `OPUP Manager Add New Printer` window, within the `Printer Information:` area, click on the `Printer Name:` edit field and enter an 8 character length printer name.

NOTE

When finished with the `Printer Name:` edit field, use the **<Tab>** key to go through the rest of the edit fields and enter the required data.

3. At the `OPUP Manager Add New Printer` window, click on the **Save** button. An `OPUP Printer` *`printer_name`* `- has been created` window will be displayed.

NOTE

The `OPUP Printer` *`printer_name`* `- has been created` window provides the ability to add another printer device by clicking on the **Add NEW Printer** button. When this button is clicked an `OPUP Manager Add New Printer` window will be displayed as shown in Figure 5-57.

4. At the `OPUP Printer` *`printer_name`* `- has been created` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.3.3 Delete Printer. Prerequisite: The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Delete Printer** button. An `OPUP Manager Delete Printer` window will be displayed as shown in Figure 5-58.

Figure 5-58. OPUP Manager Delete Printer Window

2. At the `OPUP Manager Delete Printer` window, within the `Printer Information:` area, click within the `Printer Name:` edit field and enter the name of the printer device that is to be deleted from the OPUP Server OS Printer database.

3. At the `OPUP Manager Delete Printer` window, click on the **Delete** button. When the OPUP Manager Delete Printer function is finished, an `OPUP Printer` *`printer_name`* `- has been Deleted` window will be displayed.

NOTE

The `OPUP Printer` *`printer_name`* `- has been Deleted` window contains a **Delete Another Printer** button. The Delete Another Printer function provides each site the ability to select another printer to be deleted from the OPUP Server OS printer database. When this button is clicked, an `OPUP Manager Delete Printer` window will be displayed as shown in Figure 5-58. If used, follow the procedures provided in Steps 2 and 3.

4. At the `OPUP Printer` *`printer_name`* `- has been Deleted` window, click on the **Return to Last Screen** button to return to the `OPUP Printer Menu` or the **Return to Main Menu** button to return to `OPUP Manager Main Menu`.

5.2.9.3.4 Printer Status. Prerequisite: The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Printer Status** button. An `OPUP Printer Status` window will be displayed as shown in Figure 5-59.

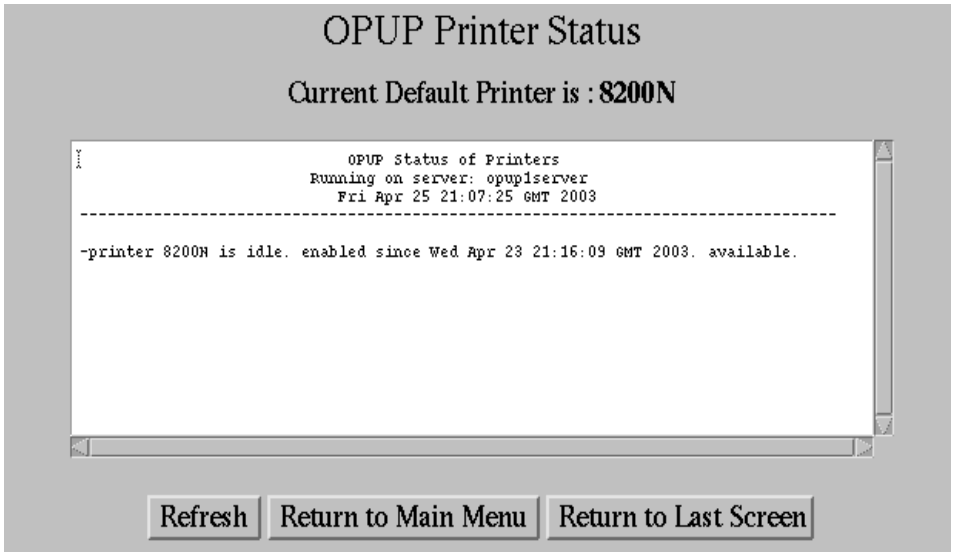


Figure 5-59. OPUP Printer Status Window

NOTE

The `OPUP Printer Status` window is a static display. The information provided by the OPUP Printer Status function is the most current printer information located within the OPUP Server OS printer database at the time the **Printer Status** button was clicked. In order to re-display the most current data in this window, click on the **Refresh** button located near the bottom left of the window.

2. At the `OPUP Printer Status` window, click on the **Return to Last Screen** button to return to the `OPUP Printer Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.3.5 Print Jobs. Prerequisite: The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Print Jobs** button. An `OPUP Printer Pending Jobs` window will be displayed as shown in Figure 5-60.

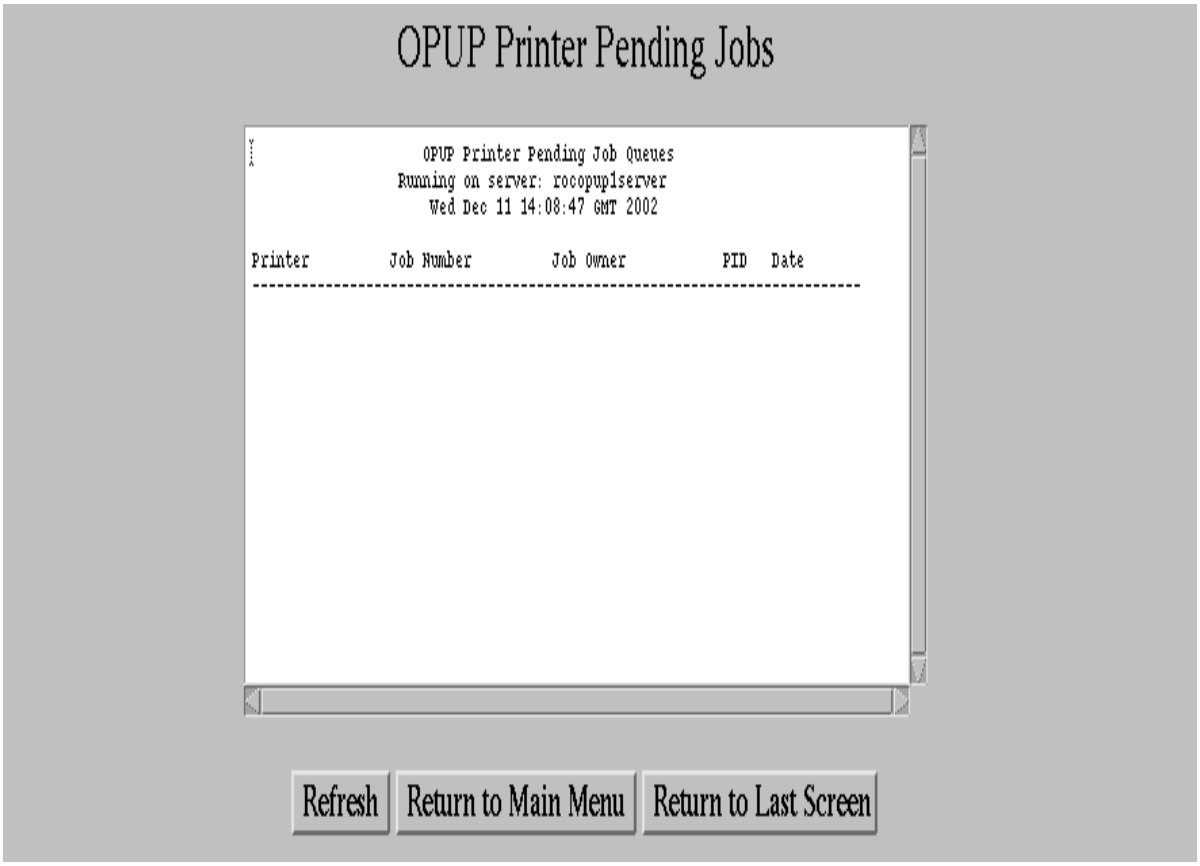


Figure 5-60. OPUP Printer Pending Jobs Window

NOTE

The `OPUP Printer Pending Jobs` window is a static display. The information provided by the OPUP Printer Pending Jobs function is the most current printer jobs information located within the OPUP Server OS printer database at the time the **Print Jobs** button was clicked. In order to re-display the most current data in this window, click on the **Refresh** button located near the bottom left of the window.

2. At the `OPUP Printer Pending Jobs` window, click on the **Return to Last Screen** button to return to the `OPUP Printer Menu` or click on the **Return to Main Menu** to return to the `OPUP Manager Main Menu`.

5.2.9.3.6 Delete Print Jobs. Prerequisite: The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Delete Print Jobs** button. A `Please Select Job to Delete from Available Jobs` window will be displayed as shown in Figure 5-61.

Figure 5-61. Delete Print Jobs Selection Window

NOTE

The `Please Select Job to Delete from Available Jobs` window is a static display of the most current print jobs information located within the OPUP Server OS printer database at the time the **Delete Print Jobs** button was clicked. In order to re-display the most current data in this window, click on the **Refresh** button located near the bottom left of the window.

2. At The `Please Select Job to Delete from Available Jobs` window, within the `Select Job to Delete` column, click on the **radio** button associated with the print job of interest to select it.

3. At The `Please Select Job to Delete from Available Jobs` window, click on the **Delete Job** button. An `OPUP Print Job Deleted` confirmation window will be displayed.

4. At the `OPUP Print Job Deleted` confirmation window, click on the **Yes** button. The OPUP Print Job Deleted function will then remove the selected print job from the OPUP Server OS print database. When finished, the OPUP Print Job Delete function will display the `OPUP Printer Menu`.

5. At the `OPUP Printer Menu`, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.3.7 Change Default Printer. Prerequisite: The `OPUP Printer Menu` must be displayed as shown in Figure 5-56.

1. At the `OPUP Printer Menu`, click on the **Change Default Printer** button. A `Please Select New Default Printer from Available Printers` window will be displayed as shown in Figure 5-62.

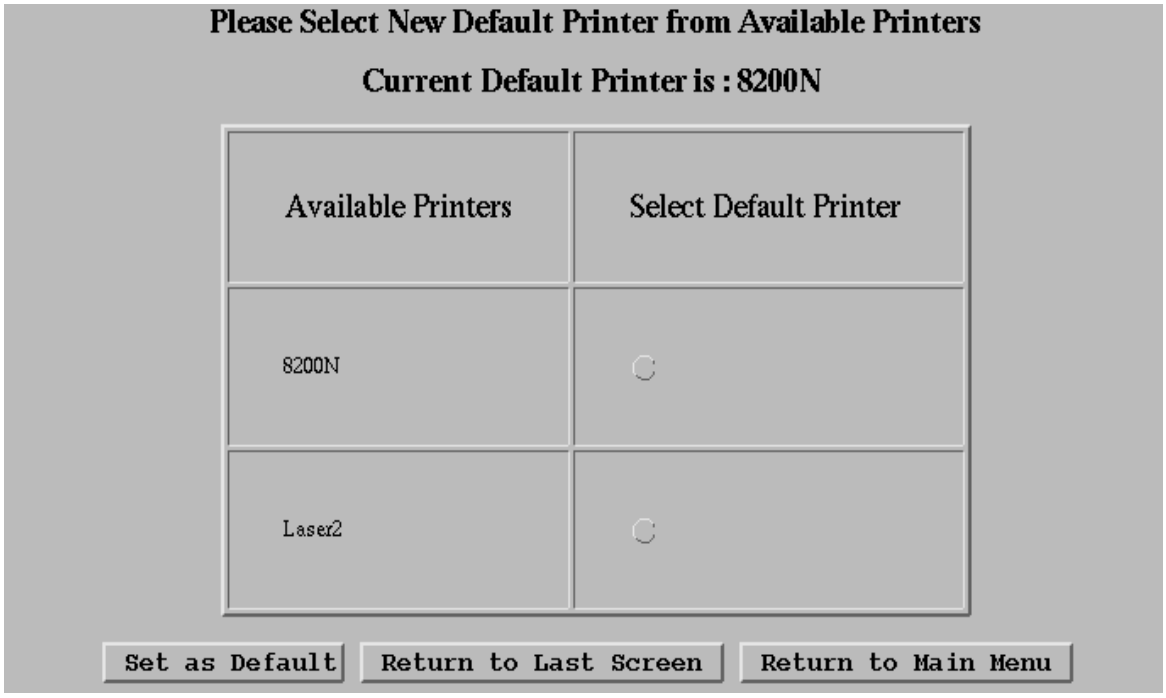


Figure 5-62. Please Select New Default Printer from Available Printers Window

NOTE

The `Please Select New Default Printer from Available Printers` window will display the current default printer within the `Current Default Printer is: default_printer` area.

2. At the `Please Select New Default Printer from Available Printers` window, within the `Select Default Printer` column, click on the **radio** button of the desired default printer. The *default printer of interest* radio button will be highlighted.

3. At the `Please Select New Default Printer from Available Printers` window, click on the **Set as Default** button. A `Default Printer has been changed to printer_name` window will be displayed.

4. At the `Default Printer has been changed to printer_name` window, click on the **Return to Last Screen** button to return to the `Please Select New Default Printer from Available Printers` window or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.4 CISCO Control Menu. Prerequisites: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **CISCO Control Menu** button. A `CISCO Control Menu` will be displayed as shown in Figure 5-63.

NOTE

The `CISCO Control Menu` provides each site the ability to either change specific communication router passwords or restart CISCO Interactive Operating System (IOS) software in the event that the communication router IOS stops responding to OPUP Server OS program commands and/or the IOS becomes corrupted.

Figure 5-63. CISCO Control Menu

5.2.9.4.1 Change CISCO Password. Prerequisite: The `CISCO Control Menu` window must be displayed as shown in Figure 5-63.

1. At the `CISCO Control Menu`, click on the **Change CISCO Passwords** button. An `OPUP Manager Change CISCO Password` window will be displayed as shown in Figure 5-64.

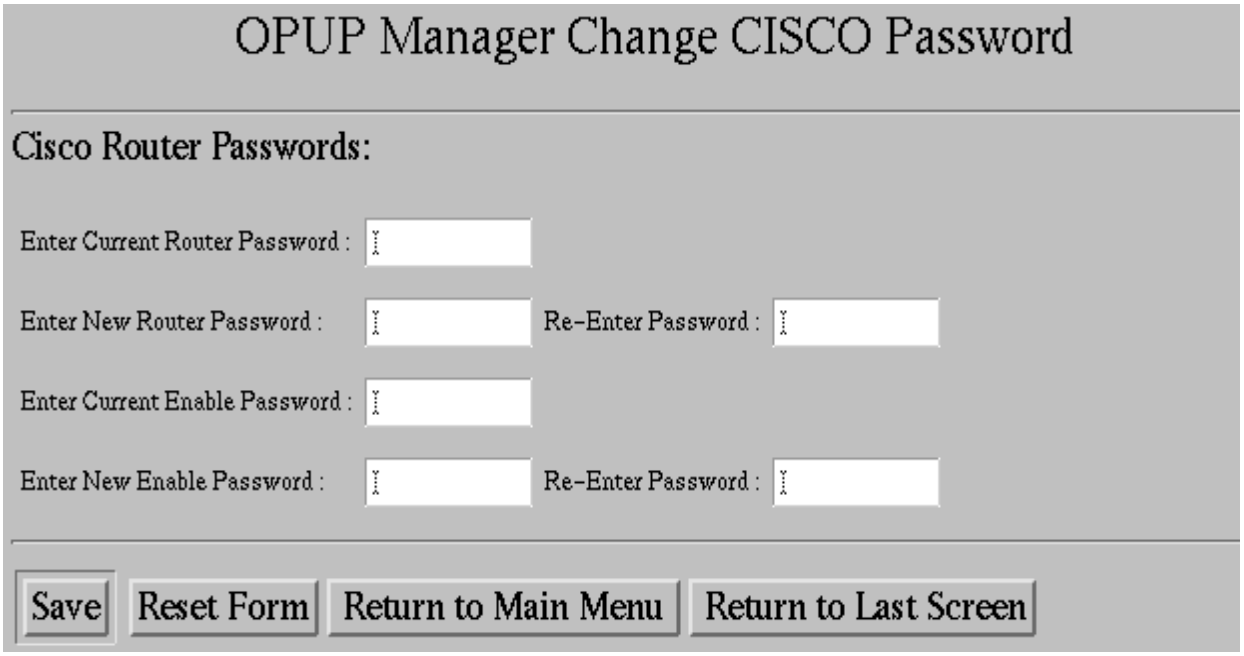


Figure 5-64. OPUP Manager Change CISCO Password Window

NOTE

The following step requires the current router and enable passwords associated with the Cisco Communication Router UD80A3. Obtain these passwords before continuing to the next step.

2. At the `OPUP Manager Change CISCO Password` window, click within the `Enter Current Router Password:` edit field and enter the *current router password*. When finished, press the **<Tab>** key.

NOTE

Use the **<Tab>** key to move through each edit field. Place the appropriate information in each field.

3. At the `OPUP Manager Change CISCO Password` window, click on the **Save** button. A `CISCO Passwords - have been changed` window will be displayed.

NOTE

The `Re-Enter Password:` edit field is provided in order to ensure that the information placed in the `Enter New Router Password:` and/or `Enter New Enable Password:` edit fields are correct. If any information in the `Re-Enter Password:` field(s) do not exactly match the information in the corresponding edit field(s), a `Password Information Not Correct` window will be displayed. If this window is displayed, click on the **Return to Last Screen** button to return to the `OPUP Manager Change CISCO Password` window and begin again at Step 2.

4. At the `CISCO Passwords - have been changed` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.4.2 Restart Communication Router UD80A3. Prerequisite: The `CISCO Control Menu` must be displayed as shown in Figure 5-63.

1. At the `CISCO Control Menu`, click on the **Restart CISCO** button. An `OPUP Manager Re-Start CISCO` window will be displayed as shown in Figure 5-65.

Figure 5-65. OPUP Manager Re-Start Cisco Window

2. At the `OPUP Manager Re-Start CISCO` window, click on the **Yes** button. The OPUP Manager Re-Start CISCO function will display the message: `CISCO is Re-Starting Please wait for 1-2 minutes for the CISCO to re-start`.

3. At the `OPUP Manager Re-Start CISCO` window, click on the **Return to Last Screen** button to return to the `CISCO Control Menu`.

4. At the `CISCO Control Menu`, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.5 Oracle Tools Menu. Prerequisites: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Oracle Tools** button. An `OPUP Manager Oracle Tools Menu` will be displayed as shown in Figure 5-66.

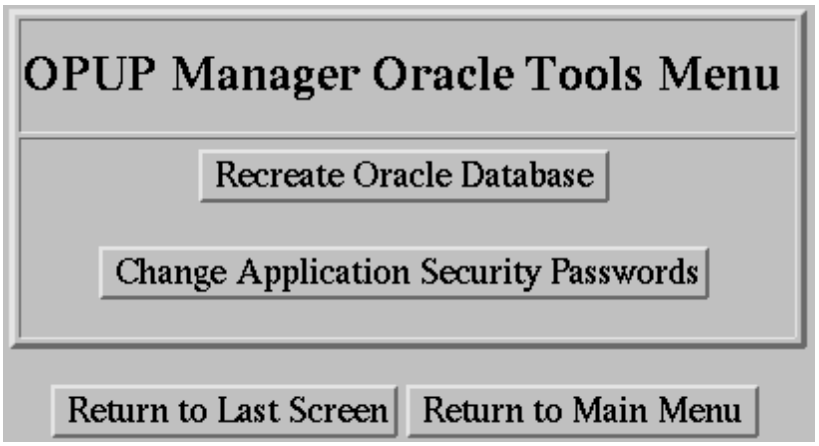


Figure 5-66. OPUP Manager Oracle Tools Menu

NOTE

The OPUP Manager Oracle Tools Menu function provides each site the ability to recreate the Oracle Database control table or change/edit the Security Level Passwords used throughout each Operational Application Software Suite. The following paragraphs outline the procedures required to re-create the Oracle Database tables and/or change security level passwords associated with the Operational Application GUI Suite.

5.2.9.5.1 Recreate Oracle Database. Prerequisite: The `OPUP Manager Oracle Tools Menu` must be displayed as shown in Figure 5-66.

1. At the `OPUP Manager Oracle Tools Menu`, click on the **Recreate Oracle Database** button. An `OPUP Manager Recreate Oracle Tables` warning window will be displayed as shown in Figure 5-67.

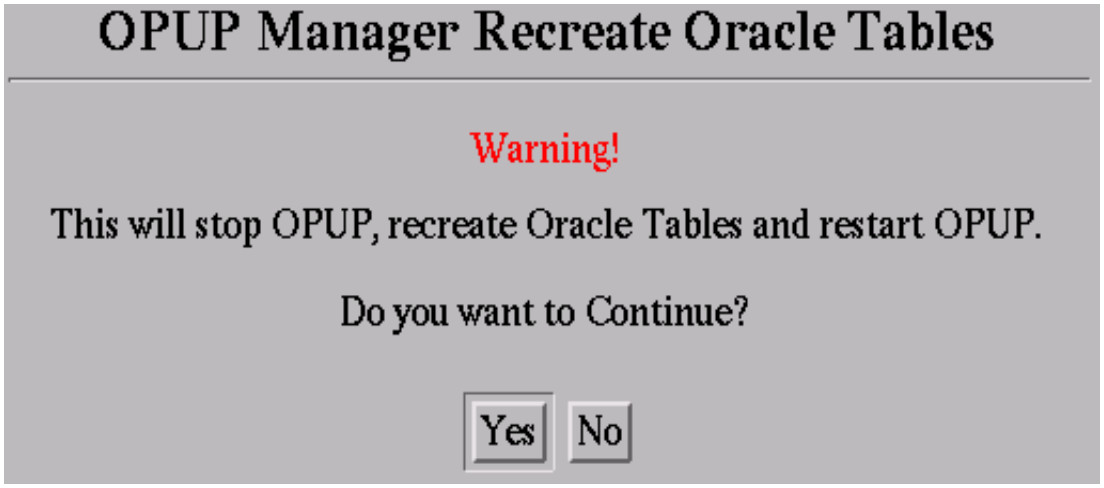


Figure 5-67. OPUP Manager Recreate Oracle Tables Window

2. At the `OPUP Manager Recreate Oracle Tables` window, click on the **Yes** button. The OPUP Manager Recreate Oracle Table function will access the appropriate tables, delete all information found, and re-establish a new Oracle database table. When this function is complete, an `OPUP Manager Recreate Oracle Tables` confirmation window will be displayed as shown in Figure 5-68. This window will also display the following message: `OPUP Oracle Tables have been recreated. Please wait 1 to 2 minutes for the Server Processes to start.`

Figure 5-68. OPUP Manager Recreate Oracle Tables Confirmation Window

3. At the `OPUP Manager Recreate Oracle Tables` confirmation window, click on the **Return to Last Screen** button to return to the `OPUP Manager Oracle Tools Menu`.

4. At the `OPUP Manager Oracle Tools Menu`, click on the **Return to Main Menu** button to return to `OPUP Manager Main Menu`.

5.2.9.5.2 Change Application Security Passwords. Prerequisite: The `OPUP Manager Oracle Tools Menu` must be displayed as shown in Figure 5-66.

1. At the `OPUP Manager Oracle Tools Menu`, click on the **Change Application Security Passwords** button. An `OPUP Manager Change Application Security Passwords` window will be displayed as shown in Figure 5-69. This window will also display the following message: `Warning! This will change Application Security Passwords. Do you want to Continue?`

NOTE

The Change Application Security Passwords function requires the current passwords assigned to Security Levels 1 through 3 which are used to access specific adaptation information contained in the various windows and GUIs associated with the Operational Applications Front Panel. Be sure to obtain these passwords before continuing on to Step 2.

Figure 5-69. OPUP Manager Change Application Security Passwords Window

2. At the `OPUP Manager Change Application Security Passwords` window, click on the **Yes** button. An `OPUP Manager Application Security Passwords` window will be displayed as shown in Figure 5-70.

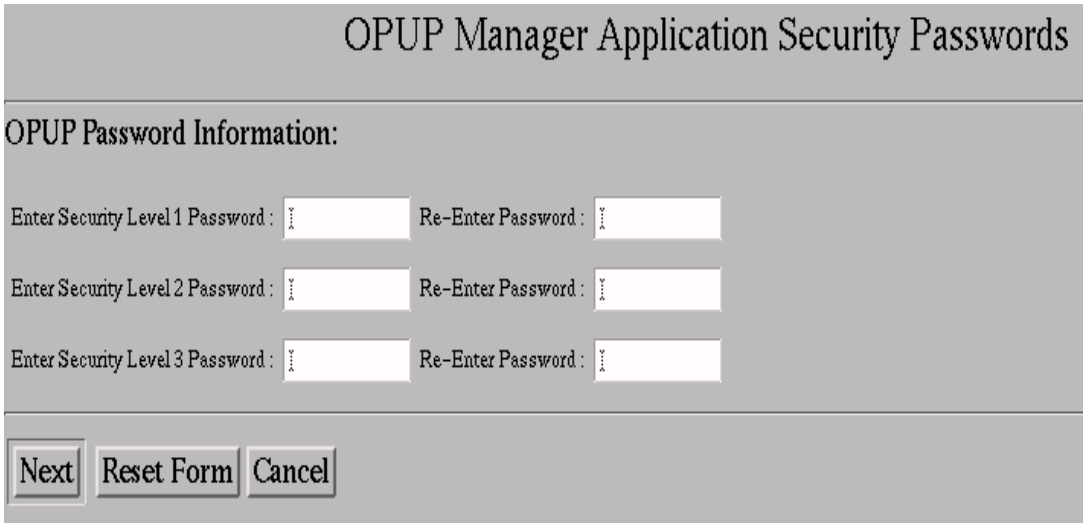


Figure 5-70. OPUP Manager Application Security Passwords Window

NOTE

The `OPUP Manager Application Security Passwords` window has two additional buttons along with the **Next** button. Use the **Reset Form** button to clear all edit fields located within this window anytime to begin the edit field input process over. Use the **Cancel** button to

immediately stop the OPUP Manager Application Security Password change function and display the `OPUP Manager Main Menu`.

3. At the `OPUP Manager Application Security Passwords` window, within the `OPUP Password Information:` area, click within the `Enter Security Level 1 Password:` edit field and enter the *Security Level 1 Password*. Use the **<Tab>** key to go to the `Re-Enter Password:` edit field.

NOTE

Each password must meet the following minimum composition requirements:

- Be at least a minimum of eight characters in length.
- Contain at least one UPPERCASE character (A through Z).
- Contain at least one lowercase character (a through z).
- Contain at least one number (0 through 9).
- Contain at least one special character (!, @, %, (, -, +, {, [, #, =, &, *). All "special" entries must be within the first 8 characters.

Do not use the ^, ~, /, or . special characters because they are used in association with specific OPUP Server OS processes and applications. Also, UNIX passwords are case-sensitive, users must always enter their password exactly the same way they created it. If a user forgets their password, the OPUP System Administrator must then assign a new password for the user.

Passwords must not be the same as the user name or constructed from words straight out of the dictionary (spelled forwards, backwards, or split with a number or special character) or be constructed using a user's personal identity, history, or environment. Generic passwords must also be prohibited (e.g., a system having "welcome" as the password for all newly created user names). When passwords expire, users must not reuse the current password or use any of the last nine passwords assigned to that user name.

4. At the `OPUP Manager Application Security Passwords` window, within the `OPUP Password Information:` area, at the `Re-Enter Password:` edit field, re-enter the *Security Level 1 Password*. Use the **<Tab>** key to move through the rest of the edit fields and enter/re-enter the *Security Level 2* and *Security Level 3 Passwords*.

5. At the `OPUP Manager Application Security Passwords` window, click on the **Next** button. A `PUP Information Entered` window will be displayed as shown in Figure 5-71.

Figure 5-71. PUP Information Entered Window

6. At the `PUP Information Entered` window, click on the **Return to Oracle Tools Menu** button to return to the `OPUP Oracle Tools Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.6 Default Route Configuration Menu. Prerequisite: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Default Route Configuration** button. An `OPUP Manager Default Route Menu` will be displayed as shown in Figure 5-72.

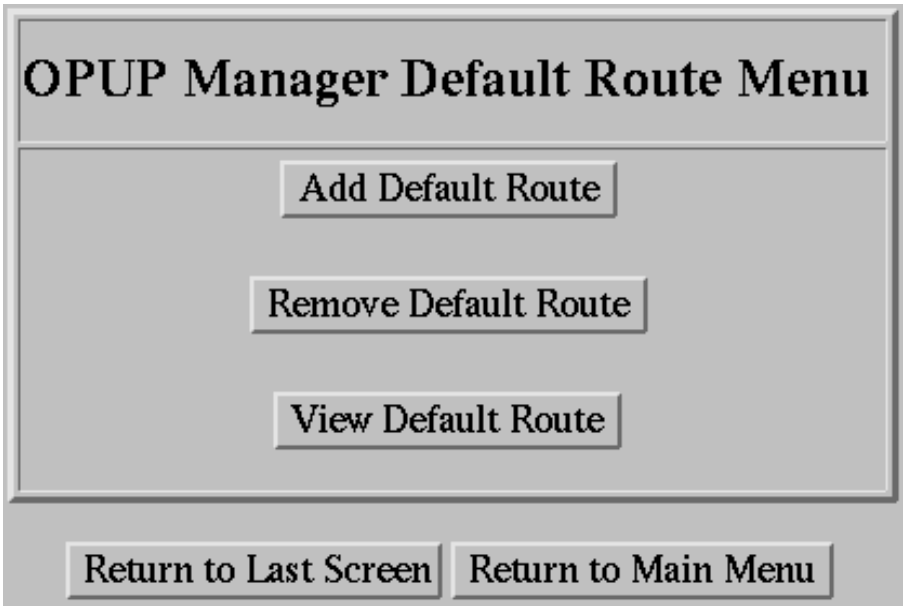


Figure 5-72. OPUP Manager Default Route Menu

NOTE

The `OPUP Manager Default Route Menu` provides the functions necessary to add, remove, or view the current Default Route IP-address that is set within the OPUP Server OS communication database. A Default Route IP-address is used to provide an alternative method to connect and access OPUP server communications from a remote terminal located within a different IP-address sub-net not associated with the OPUP server IP subnet.

5.2.9.6.1 Add Default Route. Prerequisite: The `OPUP Manager Default Route Menu` must be displayed as shown in Figure 5-72.

1. At the `OPUP Manager Default Route Menu`, click on the **Add Default Route** button. An `OPUP Manager Add Default Route` window will be displayed as shown in Figure 5-73.

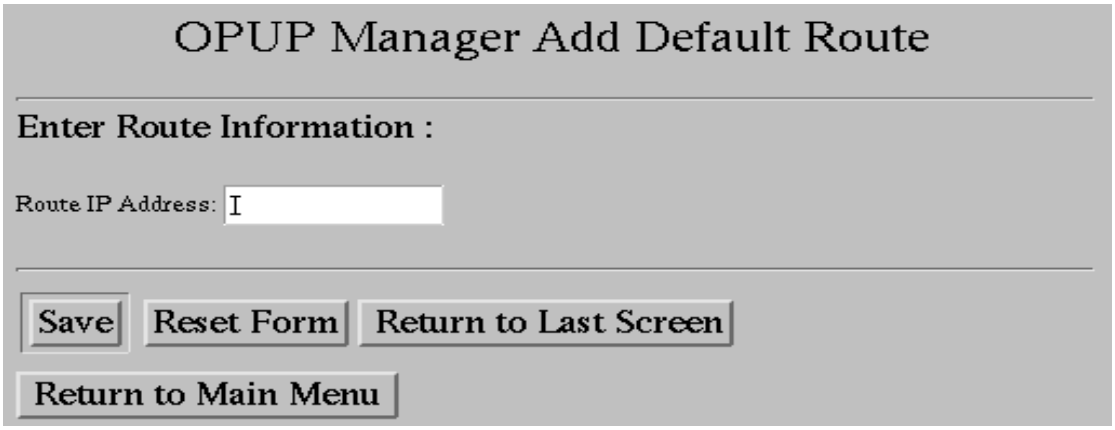


Figure 5-73. OPUP Manager Add Default Route Window

2. At the `OPUP Manager Add Default Route` window, within the `Enter Route Information:` area, click within the `Route IP Address:` edit field and enter the default route IP-address.

NOTE

If the data entered within the `Route IP Address:` edit field has an error, click on the **Reset Form** button to clear the edit field and re-enter the information before clicking on the **Save** button.

3. At the `OPUP Manager Add Default Route` window, click on the **Save** button. A `New Default Route Added for IP Address:` *`ip_address`* window will be displayed as shown in Figure 5-74.

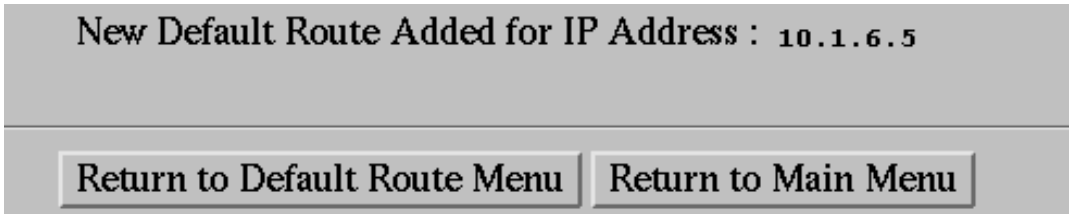


Figure 5-74. New Default Route Added for IP-Address: Window

4. At the `New Default Route Added for IP Address: ip_address` window, click on the **Return to Default Route Menu** button to return to the `OPUP Manager Default Route Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

NOTE

If the OPUP Manager Default Route function detects either a duplicate IP-address and/or the Switch UD80A18 connection to a site's Intra-LAN cannot be detected by the OPUP Server OS, the Default Route function will display the following message as shown in Figure 5-75: `Could not add default route due to unreachable network or bad network IP address. Please check Route IP Address and try again.` If this message is displayed, wait 1 minute and then click on the **Return to Last Screen** button to return to the `OPUP Manager Add Default Route Menu` and repeat Steps 1 through 3 of this procedure.

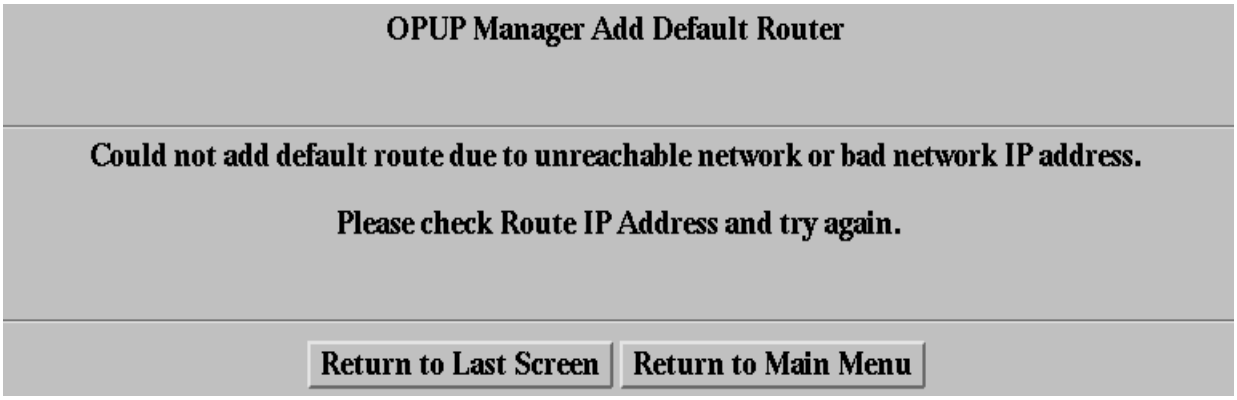


Figure 5-75. OPUP Manager Add Default Route (Unreachable) Window

5.2.9.6.2 Remove Default Route. Prerequisite: The `OPUP Manager Default Route Menu` must be displayed as shown in Figure 5-72.

1. At the `OPUP Manager Default Route Menu`, click on the **Remove Default Route** button. An `OPUP Manager Delete Default Route` window will be displayed as shown in Figure 5-76.

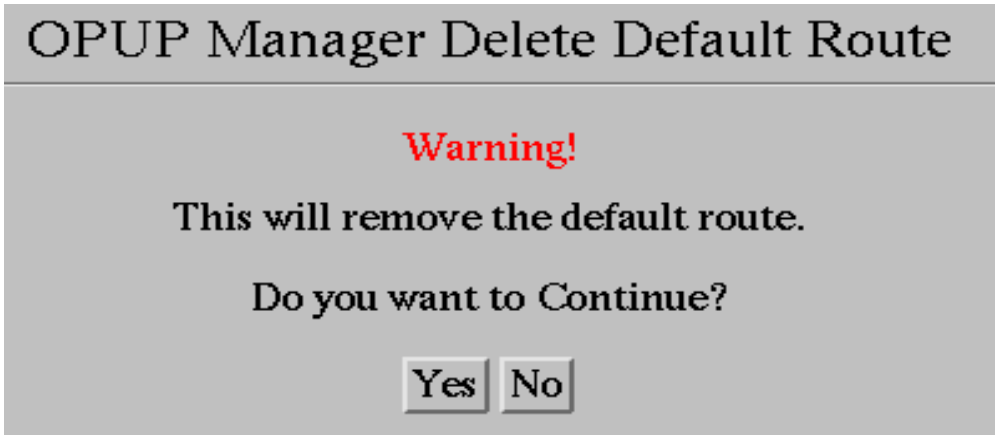


Figure 5-76. OPUP Manager Delete Default Route Window

2. At the `OPUP Manager Delete Default Route` window, click on the **Yes** button. A `Default Route Deleted` window will be displayed as shown in Figure 5-77.

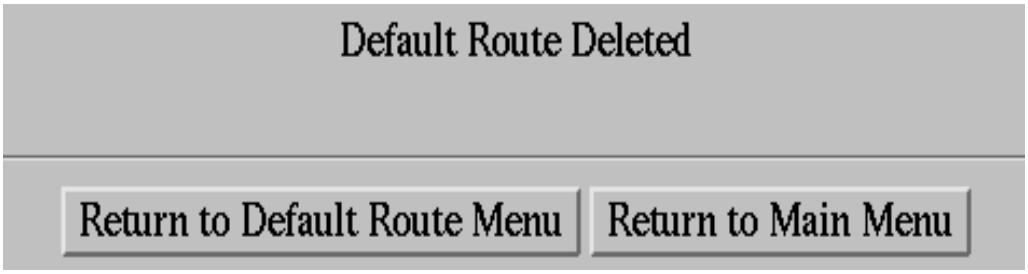


Figure 5-77. Default Route Deleted Window

3. At the `Default Route Deleted` window, click on the **Return to Default Route Menu** button to return to the `OPUP Manager Default Route Menu` or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.6.3 View Default Route. Prerequisite: The `OPUP Manager Default Route Menu` must be displayed as shown in Figure 5-72.

1. At the `OPUP Manager Default Route Menu`, click on the **View Default Route** button. An `OPUP Server Default Route` window will be displayed as shown in Figure 5-78.

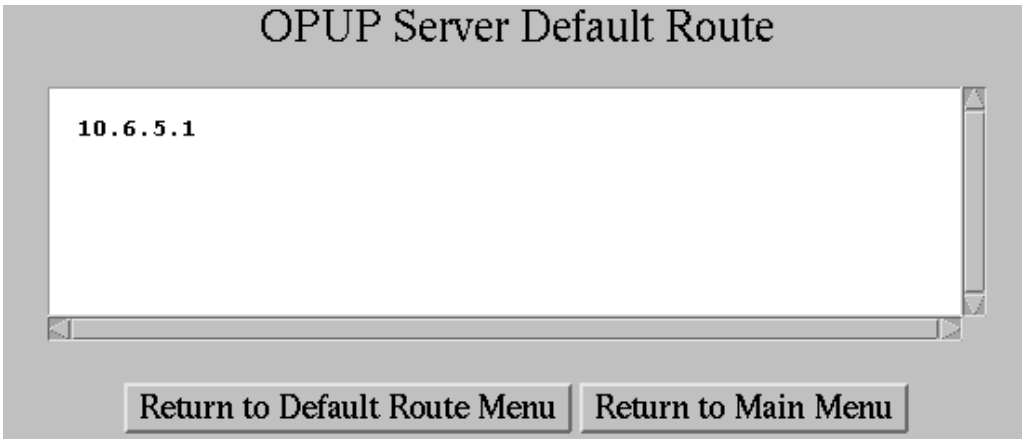


Figure 5-78. OPUP Server Default Route Window

2. To go back to the `OPUP Manager Default Route Menu`, click on the **Return to Default Route Menu** button or click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

5.2.9.7 Validation Test Suite (VTS). The OPUP Manager GUI (via the `OPUP Server Control Menu`) provides a method to monitor system hardware performance via an interactive program called the Validation Test Suite (VTS) developed by Sun Microsystems. The VTS program embodies a set of system applications and functions which provide a GUI that allows a user to detect the status of the OPUP Server OS and perform basic hardware diagnostic tests. These tests can assist with the determination of system hardware performance and/or help to mitigate system faults.

NOTES

The OPUP VTS Tools function interrogates all applicable internal OPUP Server components and performs specific diagnostic tasks that involve many internal evaluative processes. These processes can significantly slow down the Server OS. Each site should only use the VTS Tool function when required to investigate either system performance or to mitigate faults.

The following procedures outline how to start and display the VTS Graphics User Interface. These procedures will also include one example of using VTS to determine operational status of an internal hardware item associated with the Server UD80A11. These steps can then be used to interrogate other internally connected hardware items, if selected.

5.2.9.7.1 Start VTS Tool. Prerequisite: The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Start VTS Tool** button. An `OPUP Start VTS Tool` window will be temporarily displayed as shown in Figure 5-79.

Figure 5-79. OPUP Start VTS Tool Window

NOTE

The `OPUP Start VTS Tool` window displays for only a few seconds. When this window disappears, a SunVTS Diagnostic GUI will be displayed as shown in Figure 5-80.

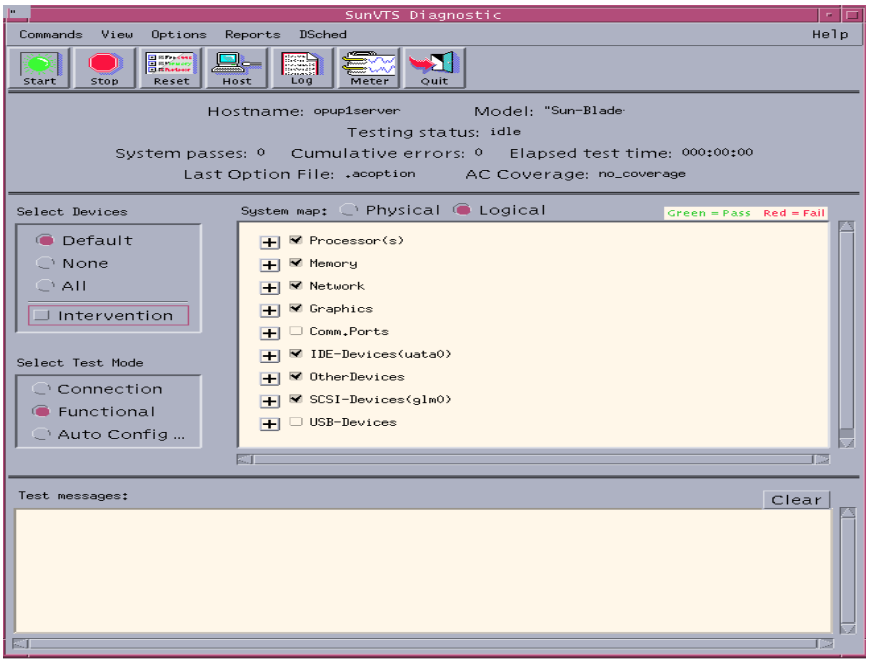


Figure 5-80. SunVTS Diagnostic GUI

NOTES

Once the **Start** button is click within the SunVTS Diagnostic GUI, the VTS program will initially perform a system-wide check of the most cur-

rent operational state of internal Servers UD80A11/A12 hardware. This information will then be reported internally to the VTS program database. No diagnostic information based upon this database will be made available until the user selects specific processes and/or hardware for VTS evaluation.

To cancel the OPUP Start VTS Tool function before the SunVTS Diagnostic GUI is displayed, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu` or click on the **Return to Last Screen** button within 5 seconds after the Start VTS Tool button is selected at the `OPUP Server Control Menu`.

2. At the SunVTS Diagnostic GUI, click on the **Stop** button located near the top left of the GUI. The SunVTS Diagnostic function will stop all OPUP hardware diagnostic functions.

3. At the SunVTS Diagnostic GUI, click on the **Quit** button. The `OPUP Start VTS Tool` window will then be displayed.

4. At the `OPUP Server Control Menu`, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

5.2.9.7.2 Perform a VTS Diagnostic Function. Prerequisites: The SunVTS Diagnostic GUI must be displayed as shown in Figure 5-80. (Refer to paragraph 5.2.9.7.1 for Start VTS Tool procedures.)

NOTE

This procedure incorporates one example which demonstrates how to configure the SunVTS Diagnostic GUI to perform a hardware diagnostic procedure on one internal hardware item within the Servers UD80A11/A12. (More than one hardware item may be evaluated by clicking the **ALL** selection within the `Select Devices` selection area. For demonstration purposes, only one item will be selected at this. More than one may be selected in future diagnostic evaluations, if desired.)

1. At the `Select Devices` selection area, click on the **None** radio button. All hardware items listed in the Select Devices area will be deselected.

2. At the `Select Test Mode` selection area, click on the **Functional** radio button. The **Functional** radio button will be highlighted.

3. At the `System map:` selection area, click on the **Logical** radio button.

4. At the `System map:` selection area, click within the **checkbox of the Processor(s)** only. (Do not check any other boxes at this time.) The `Processor(s)` check box along with an asterisk (*) will be displayed as shown in Figure 5-81.

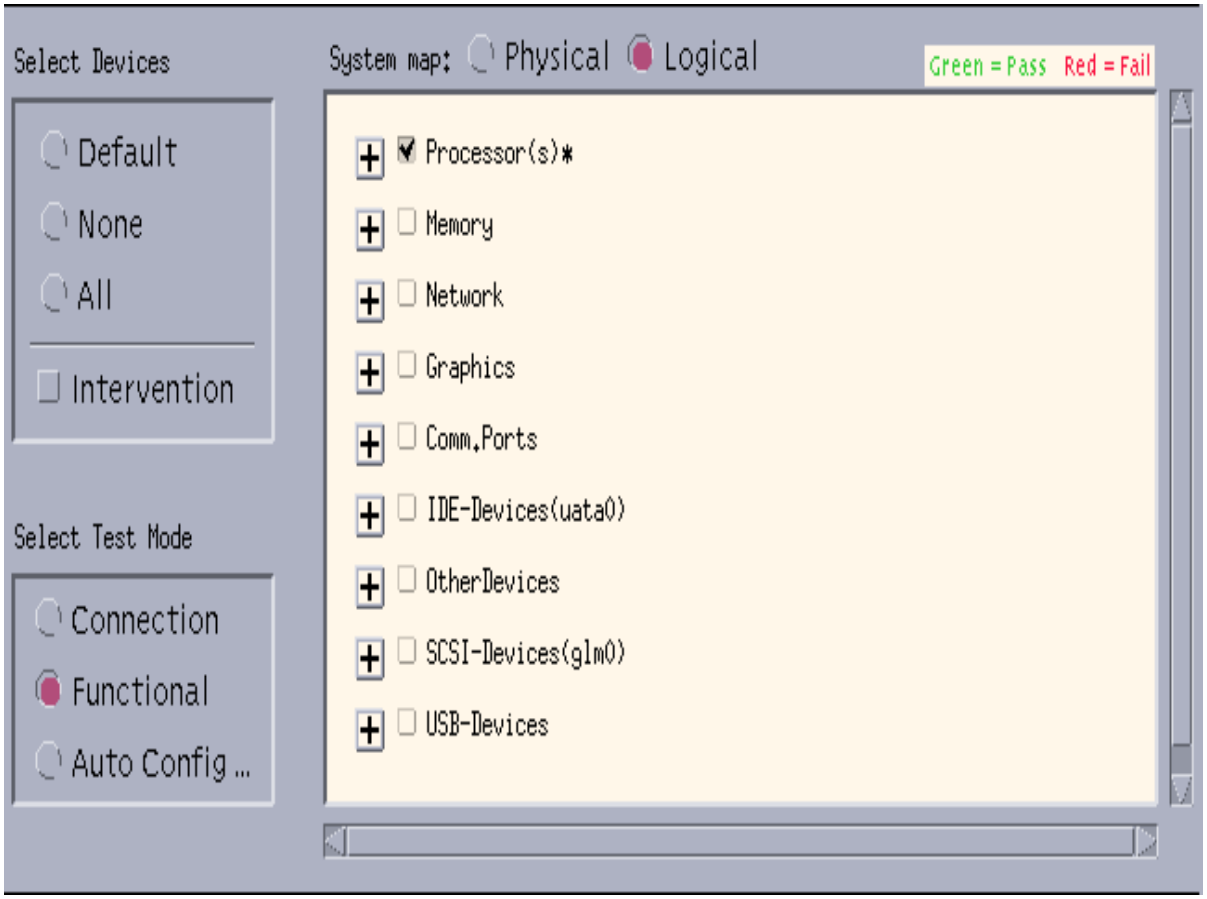


Figure 5-81. VTS Diagnostic Example

5. At the SunVTS Diagnostic GUI, click on the **Start** button located near the top left of the GUI. The SunVTS Diagnostic function will then interrogate the hardware item selected in Step 4. Wait for one minute before going to the next step.

6. At the SunVTS Diagnostic GUI, click on the **Stop** button located near the top left of the GUI. The SunVTS Diagnostic function will then stop processing any diagnostic functions.

7. At the SunVTS Diagnostic GUI, click on the **Log** button located near the top center of the GUI. A `Log Files` window will be displayed as shown in Figure 5-82.

8. At the `Log Files` window, click on the `Log File:` pull down menu button, and click on the **Information** selection. A `Log Files` window will be displayed as shown in Figure 5-82.

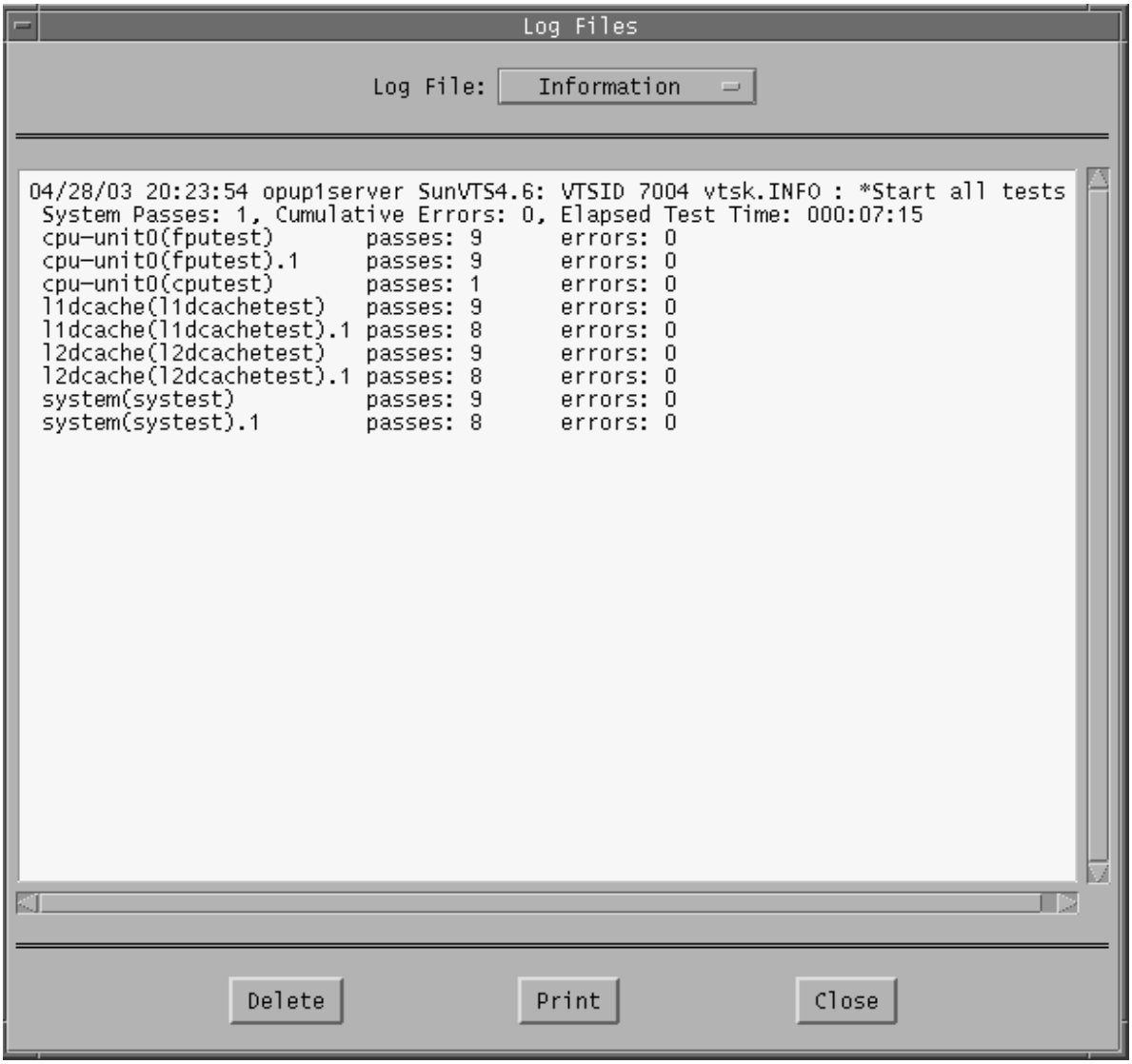


Figure 5-82. Log Files Window

NOTE

The `Log Files` window provides feedback information generated by the SunVTS Diagnostic program. This information may be used as an indicator of system performance and/or to display specific fault/error detection information. If necessary, all errors found should be noted for use while performing troubleshooting procedures in Chapter 6, Maintenance.

9. At the `Log Files` window, click on the **Close** button. The SunVTS Diagnostic GUI will be displayed as shown in Figure 5-80.

10. At the SunVTS Diagnostic GUI, click on the **Quit** button located near the top center of the GUI. The `OPUP Server Control Menu` will then be displayed.

11. At the `OPUP Server Control Menu`, click on the **Return to Main Menu** button to return to `OPUP Manager Main Menu`.

5.2.9.8 Restart Server. The Restart Server function is provided to allow the OPUP Server OS to perform a complete reboot of all OPUP server processes. When selected, the Restart Server function performs a higher level of software re-initialization that is more intrusive than the OPUP Server OS Stop/Start, or Restart functions. When initiated, the Restart Server function will stop all OPUP OS processes, remove each process from memory, perform a Sun Microsystems Open Diagnostic Boot (ODB) process Initiation Level 5 command (which bring the system to the `ok` prompt), a full firmware/Power-On-Self-Test (POST) procedure, and then display the CDE Login screen. It will also restart all display workstations.

All processes that were previously in operation before the Restart Server function was initiated will be returned to their last known state of operation. The last known operational state is routinely recorded by the OPUP Server OS before the system is interrupted, brought down, and then restarted.

5.2.9.8.1 OPUP Restart Server Procedures. The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Restart Server** button. An `OPUP Manager Restart Server` window will be displayed as shown in Figure 5-83.

Figure 5-83. OPUP Manager Restart Server Window

2. At the `OPUP Manager Restart Server` window, click on the **Yes** button. After approximately 1 to 2 minutes, an `OPUP Manager Restart Server(s)` window with the message `The server is restarting now` will be displayed as shown in Figure 5-84.

Figure 5-84. Server Restarting Now Window

NOTE

The Restart Server function will stop all OPUP Server OS functions and remove all processes from memory. The Restart Server function will bring the OPUP system down to the `ok` prompt and reboot the system. After approximately 2 to 3 minutes, the CDE Login screen will be displayed.

3. At the CDE Login screen, within the `Please enter your user name` edit box, enter: **opupmgr<Return>**

   Feedback: A `Please enter your password` edit box will be displayed.

4. At the CDE Login screen, within the `Please enter your password` edit box, enter: *opupmgr_password***<Return>**

   Feedback: The CDE Front Panel will initially be displayed. After a few seconds, the Netscape HTML web page interface will then display.

NOTE

If the Netscape HTML web page interface will not automatically display, click on the **Netscape World** icon located at the left of the CDE Front Panel. When the Netscape HTML web page interface appears, click **anywhere within the gray area** to initiate the `Netscape: Password` window.

5. At the `Netscape: Password` window, click within the `User ID:` edit box and enter: **opupmgr<Return>**

6. At the `Netscape: Password` window, click within the `Password:` edit box and enter: *opupmgr_password***<Return>**. The `OPUP Manager Main Menu` will be displayed.

7. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

8. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will then be displayed.

NOTES

The OPUP Process Status function does not automatically re-display information to this screen once it is initially displayed. If the OPUP Process Status function is being used in conjunction with software start, stop, and restart functions, users will need to use the **Refresh** button at the bottom left of the display in the `OPUP Process Status` window in order to re-display updated process status information.

The `OPUP Process Status` window will only display the processes associated with specific OPUP Server OS background functions (mcu, dmcu, cm_tcp, etc.) which have been specifically setup to display in this window. The OPUP Server OS will attempt to indicate which processes listed are currently running or not (which may have failed or become unresponsive) by listing each process with a series of dots listed to the right of it, followed by a blank space. The `OPUP Process Status` window is not intended to indicate the actual status of received/sent messages generated by another operator(s) or pre-defined processes (i.e., RPS lists, OTR's, etc.) Refer to the **System Status** tab located within the Status and Control GUI for system messages and associated code feedback indicators. In addition, if any of the processes listed above should fail, attempt to restart the OPUP software. If a restart procedure does not recover any or all of the OPUP Server OS processes listed within the `OPUP Process Status` window, attempt to stop and then start the OPUP Server OS to attempt to recover the processes. If the processes do not start up in a reasonable amount of time, consult the appropriate troubleshooting procedure provided in Chapter 6, Maintenance.

9. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu` or the **Return to Last Screen** button to return to the `OPUP Software Menu`.

5.2.9.9 Shutdown Server. The Shutdown Server function is provided to perform a full server software shutdown sequence of all OPUP Server OS operations in an orderly and safe manner. The OPUP Server OS shuts down the Display Workstations UD85 first, then the Display Server UD80A12 (Large OPUP configurations), followed by the Data Server UD80A11 last. When the OPUP Server OS is finished with its portion of the software shutdown sequence, the OPUP Server OS will send a signal to the OPUP server's internal firmware and perform a complete hardware shutdown procedure which will place the OPUP server in the Off state.

5.2.9.9.1 OPUP Shutdown Server Procedures. The `OPUP Server Control Menu` must be displayed as shown in Figure 5-42.

1. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. An `OPUP Manager Shutdown Server` window will be displayed as shown in Figure 5-85.

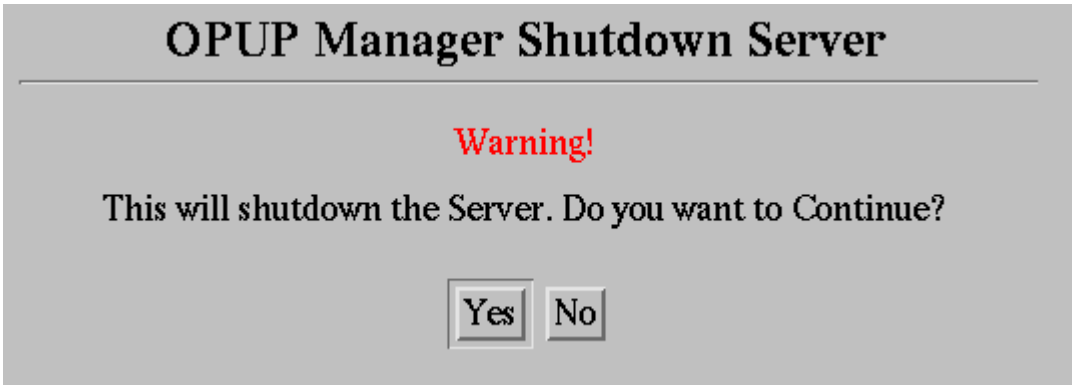


Figure 5-85. OPUP Manager Shutdown Server Window

2. At the `OPUP Manager Shutdown Server` window, click on the **Yes** button. After approximately 3 to 4 minutes, an `OPUP Manager Shutdown Server(s)` window with the message `The Server is shutting down` will be displayed as shown in Figure 5-86.

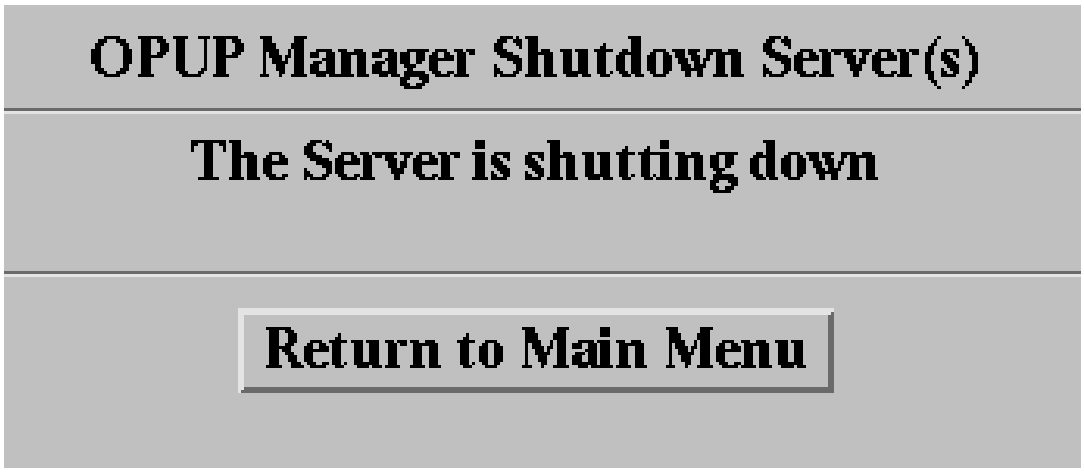


Figure 5-86. Server Shutting Down Window

NOTE

The Shutdown Server function will stop all OPUP Server OS functions, remove all processes from memory, and shutdown the display workstations in sequence, then shutdown the display server (Large OPUP configurations) followed by the data server to the Off state.

3. To power on the Large/Medium OPUP, refer to paragraph 5.2.2.1.

CHAPTER 6
MAINTENANCE

Section 6.1. INTRODUCTION

6.1.1 General.

This Chapter provides the information and guidance necessary to support maintenance actions associated with the on-site repair and replacement of equipment associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85. This support will consist of rapid identification and location of each hardware item, associated maintenance repair/ replacement procedure(s), and troubleshooting procedure(s).

- Section 6.1 INTRODUCTION - Provides chapter organization, introduces the Large and Medium OPUP UD80 and Display Workstation UD85 Maintenance Concept, and reference to applicable Preventive Maintenance Instructions (PMI), as well as, an overall discussion of the repair, replacement, and fault isolation guidance used to support OPUP Hardware.

- Section 6.2 PREVENTIVE MAINTENANCE - Provides OPUP Hardware Preventive Maintenance Instruction guidelines.

- Section 6.3 PRIMARY FAULT ISOLATION - Provides the guidelines necessary for the mitigation of primary equipment faults.

- Section 6.4 SECONDARY FAULT ISOLATION - Provides the guidelines necessary for the mitigation of secondary equipment faults.

- Section 6.5 REMOVE AND REPLACE PROCEDURES - Provides the steps required to remove, replace, and setup the equipment associated with the OPUP hardware group.

- Section 6.6 SETUP PROCEDURES - Provides the steps required to perform software setup and/or parameter re-configuration(s) that are necessary to provide complete power up and placement of the associated OPUP equipment to a full operational state.

6.1.1.1 Maintenance Concept. The Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 have been developed to function with little or no separate hardware maintenance requirements. The majority of OPUP systems and sub-systems consist of Commercial-Off-The-Shelf (COTS) computer and peripheral equipment. To reduce the amount of down time that may be associated with this type of equipment, numerous built-in-test and/or on-line statuses have been made available which can act as monitor and system fault indicators to assist with the determination of the need for equipment replacement and/or adjustment. The following general maintenance concept guidelines apply:

- General Maintenance: The general maintenance approach will be to simply monitor system performance. This will be accomplished by using either available controls and indicators, as well as, specific on-line status utility programs or functions built into applicable display

GUIs. If the indicative operational status of a specific equipment item is suspect or becomes susceptible to an internal equipment or software fault, sites will be responsible for the level repair action outlined by the applicable SMR repair code provided in , Illustrated Parts Breakdown (IPB).

- On-Site Maintenance: On-site maintenance will consist primarily of removal and replacement of failed LRU's. An LRU is defined as a self-contained unit/module assembly to which a fault can be isolated so that system fault isolation, removal, and replacement can all take place within the LRU maintainability requirements.

- On-Equipment Maintenance: The Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 maintenance concept is basically restricted to removal and replacement of LRUs. However, if directed by higher authority (i.e., Depot Level) only qualified personnel should be assigned in the case of procedures that necessitate the removal, replacement, and setup of specific sub-component/assemblies such as hard drives, power supplies, and any other associated OPUP equipment modules. Please note that, however, these procedures are outside the scope of this manual and will not be discussed or provided. There are no restrictions concerning simple repairs such as cables and connectors, etc.

6.1.1.2 On-Line Status and Performance Monitoring. The Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 provide the capability for monitoring equipment operational status and system performance through the use of controls and indicators. Chapter 2, Hardware Group, Section 2.3, Controls and Indicators, specifically outlines each control and indicator for the hardware found within the Large/Medium and Display Workstation OPUP Equipment Groups. This section also discusses basic abnormal indicators as well. Operational status indicators are built into specific features of many OPUP Operational Application GUIs. Personnel can readily monitor each equipment assembly or sub-assembly control and indicator as the need arises to determine operational equipment status. Also, specific program functionality of the OPUP Server OS and Operational Application software suite allow for direct observation (i.e., Status and Control "Network Map" GUI or `OPUP Manager Main Menu` VTS program) which can be used to determine current program operational status.

6.1.1.3 Recovery Procedures. Error messages and alarms are generally presented to the operator when a fault occurs. When a fault is associated with a temporary condition such as a keyboard lockup or communication link disruption, the operator should analyze the message(s) and/or indicator(s) and perform a quick-check and/or recovery procedure(s) provided by the primary fault isolation flow charts presented in Section 6.3, Primary Fault Isolation and Section 6.4 Secondary Fault Isolation (as applicable). Each site should attempt to restore each fault and place the system to a full operational position. When a fault is more serious, the message/error condition will serve as the starting point for the fault isolation chart provided in this chapter.

6.1.2 Preventive Maintenance Procedures.

The Large/Medium OPUP Equipment Group UD80 and Display Workstation UD85 preventive maintenance procedures are provided to support the continuing operational availability of the sys-

tem by minimizing the effects of ambient environmental conditions and detecting and correcting for the effects of continued operational use wear and tear. Preventive maintenance tasks are scheduled for performance on a periodic basis and consist primarily of routine inspections, cleaning, servicing, and operational checks. The Large/Medium OPUP Equipment Group UD80 automated performance monitoring function minimizes the need for periodic system and parameter checks. Most Large/Medium OPUP components require a minimal level of preventive maintenance.

6.1.3 Primary Fault Isolation and Operational Checks.

Upon detection of an abnormal condition, the maintenance technician should verify the existence of a problem by observing system performance and/or performing an operational check provided by the first two sheets of the primary isolation flowchart, Section 6.3, Primary Fault Isolation. Once the existence of a problem is confirmed, the rest of the fault isolation flowcharts can lead to the most likely repair/replacement solution. The fault isolation flowchart uses both on-line and off-line diagnostic techniques to isolate the faulty LRU. On-line diagnostics use the system status changes and specific system alarms. Off-line diagnostic programs are specified from the fault isolation flowcharts as required.

6.1.4 Secondary Fault Isolation.

In a few cases, secondary fault isolation is required to isolate the fault to a lower LRU ambiguity group. Section 6.4 provides instructions and flowcharts for secondary fault isolation.

6.1.5 Corrective Maintenance.

Corrective maintenance procedures consist of LRU or piece part replacement and any associated adjustments and alignments. Section 6.5, Remove and Replace Procedures, contains removal and replacement procedures for each specific OPUP hardware item which require specific steps to be performed in order to successfully replace each associated assemblies/sub-assemblies. Section 6.6, Setup Procedures, contains specific setup/re-configuration procedures that outline exact software and/or adaptable parameter restoral guidelines for each associated OPUP equipment item (i.e., server, communication router, modem, etc.) These guidelines must be strictly adhered to in order to safely shutdown, startup, and/or to recover specific OPUP hardware back to a known operational state. These guidelines may include program termination, stop/start/restart, and/or re-installation of adaptable parameters or operating software. If replacement of an assembly/sub-assembly fails to correct the problem(s), an interconnection or wiring problem may be indicated. Sites are encouraged to consult the specific OPUP site Interconnection Diagram (ICD) (provided in Chapter 2, Hardware, beginning with paragraph 2.2.3.2, Configuration Drawings) to assist with mitigation of faulty interconnecting cables and/or power distribution. When a fault occurs in a sub-assembly, all reasonable attempts should be made to isolate/identify the fault. However, when a reasonable amount of time has passed, each assembly/sub-assembly should be replaced in accordance with Section 6.5, Remove and Replace Procedures and the logistical information contained in Chapter 7, Illustrated Parts Breakdown (IPB).

6.1.6 Alignments and Adjustments.

Some assemblies will require adjustment or alignment following their replacement. Section 6.6, Setup Procedures, contains an index which identifies these sub-assemblies. Reference to any related adjustment/alignment procedures is also provided in the specific component replacement instructions in Section 6.5, Remove and Replace Procedures.

6.1.7 Component Location and Identification.

Chapter 7, Illustrated Parts Breakdown (IPB), provides an indexed illustration which may be used for identification and location of all site-replaceable assembly/sub-assemblies. The IPB also contains complete parts ordering data, and a reference designation index. Supplemental pictorial data is provided in this chapter or related commercial manuals as required to support specific maintenance procedures. All related commercial manuals associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 is listed at the end of Chapter 2. The following sections provide specific information concerning use of commercial manuals, need for specific maintenance tools, and required consumables.

6.1.7.1 Use of Commercial Manuals. The commercial manuals listed in Chapter 2 are provided as supplemental reference material in this manual for selected equipment and peripheral devices. These manuals contain useful reference and descriptive information, but should not be used in place of information contained in this chapter.

6.1.7.2 Maintenance Tools and Consumables. The tools and consumable items required for each maintenance procedure are specified near the beginning of each procedure. A complete listing of all required tools and consumables are listed in Chapter 2.

6.1.8 System Startup and Shutdown Procedures.

WARNING

Ensure primary power supplied by the UPS unit is removed prior to replacing any LRU item or performing internal or external cleaning activities. Failure to comply with this warning can result in damage to equipment and/or serious injury or death to personnel.

Chapter 5 contains the startup and shutdown procedures which should be used for initial power-up, complete site shutdown, and OPUP Server OS system startup after a complete shutdown has been performed. The individual sections of this maintenance chapter provide specific instructions for partial or limited shutdown which is required for each preventive or corrective maintenance action.

6.1.9 Diagnostic Test Program Procedures.

This chapter will contain all diagnostic test routines and applicable built-in self diagnostic programs that will be used in connection with each Large/Medium OPUP Equipment Group UD80 LRU fault isolation procedure. This chapter will also contain the procedure(s) for loading, initializing and running any specific diagnostic routine outlined within the fault isolation guideline. These procedures are not intended to be performed on a impromptu basis unless otherwise directed. Correct results from the use of these programs can only be obtained when the test programs are executed in accordance with the instructions provided in Section 6.3, Primary Fault Isolation. This is because the flowchart and associated note sheets establish the correct conditions for invoking the test and interpreting the results in an orderly sequence to ensure meaningful results.

Section 6.2. PREVENTIVE MAINTENANCE

6.2.1 Large/Medium OPUP UD80 and Display Workstation UD85 Preventive Maintenance.

The requirements for accomplishing scheduled preventive maintenance tasks on the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85 are contained within the Inspection, Lubrication, and Maintenance Requirements Manual, NWS EHB 6-503 and Preventive Maintenance Inspection Work Cards, NWS EHB 6-503-1. Since all preventive maintenance instructions are contained in these documents, this information will not be presented in this manual. Consult either NWS EHB 6-503 or NWS EHB 6-503-1 for all guidance concerning Large/Medium OPUP Preventive Maintenance information.

Section 6.3. PRIMARY FAULT ISOLATION

6.3.1 Introduction.

This section contains the instructions and procedures necessary to perform primary fault isolation associated with the equipment contained in the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85. This includes a fault isolation flowchart with associated flowchart notes to aid in the fault isolation process.

6.3.2 Fault Isolation Flowchart.

The main resource in fault isolation guidance for the Large/Medium OPUP Equipment Group UD80 and Display Workstation UD85 are the Primary Isolation Fault flowchart beginning with Figure 6-1, Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 13). This flowchart makes use of all applicable controls, indicators, and program induced status messages to detect and isolate faults on-line as well as off-line to a single LRU. The flowchart is broken down into three parts. These are: Operational Checks, Quick Reference, and System Fault Isolation. The next three paragraphs provide information concerning flowchart use with the Large and Medium OPUP and Display Workstation System.

6.3.2.1 Operational Check. Operational Checks are presented in the first flowchart sheet. An operational check is designed to completely check and exercise each OPUP assembly/sub-assembly while it remains powered and on-line. These tests will often be the entry point for fault isolation. The operability test is indicated as a thick line, called the “no-fault” line. Any time the direction requires abandoning the heavy “no-fault” line as indicated by a narrow line, fault isolation is being undertaken. If the “no-fault” line is never departed and the operation check is completed, the OPUP system/sub-assembly is fully functional and no further fault isolation will be necessary.

6.3.2.2 Quick Reference Sheet. There may be many instances where a fault may give such an obvious symptom that an operability test is unnecessary. Figure 6-1, Sheet 2, contains a list of the most obvious OPUP faults and can quickly direct personnel to the appropriate area to begin fault isolation. The purpose of the Quick Reference Sheet is to reduce repair time to a minimum. An area where it is also very useful is when cross-referencing between functional areas is required. An example of the need to cross reference may be when troubleshooting narrowband communication faults. Not all starting points can be determined using the Quick Reference Sheet. If an isolation fault starting point cannot immediately be determined, return to Figure 6-1, Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 14), and begin the troubleshooting process from there.

6.3.2.3 System Fault Isolation. The System Fault Isolation flowcharts, Figure 6-1, Sheets 3 through 14, provide system level fault isolation guidance. These flowcharts are designed to ensure that personnel perform fault isolation in the correct functional area.

6.3.2.4 Flowchart Layout. Each flowchart sheet used to isolate and mitigate system faults will entail the following:

- Comments: Various comments may be included on each flowchart sheet. These comments appear in lighter (narrower) type and are included to aid the technician during the fault isolation process. Due to the complexity of the flowchart and the need to cross-reference information contained on each sheet, comments assist each technician with troubleshooting guidance that been established in prior sheet. In addition, each technician may be able to determine what the next step may be in the fault isolation process.

- Flowchart Notes: Included with each flowchart are cross-referenced information associated with flowchart notes. These notes give specific instructions in performing diagnostic procedures and/or provide definitions that assist technicians with the understanding of a required process or step. Some of the procedures encountered are included elsewhere in the manual; if this is the case, the flowchart note will simply reference the technician to another part of the manual.

- Symbol Convention: All circled letters on the flowcharts indicate a reference to another part of the flowchart. All circled numbers are references to the appropriate flowchart note that must be performed before proceeding to the next step. Examples are illustrated below:

  •• Ⓐ : Reference to another part of flowcharts.

  •• ③ : Reference to notesheets.

Each flowchart is arranged so that all actions that must be performed are in boxes and all questions are in diamondsensure that personnel perform fault isolation in the correct functional area.

6.3.3 Primary Fault Isolation Flowchart Notes.

The following paragraphs provide the flowchart notes associated with the fault isolation guidance beginning with Figure 6-1, Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 14). Each fault isolation flowchart may have repeated notes or no flowchart notes associated with them.

6.3.3.1 Flowchart Note Index. A list of each isolation flowchart note referenced in Figure 6-1 is provided in Table 6-1.

Table 6-1. Flowchart Note Index

Note Number	Description
1	Display OPUP Manager Main Menu
2	Check System Time
3	Open an Operational Applications Window at the OPUP Monitor
4	Archive IV Device UD80A4 Check
5	Display a Product on the OPUP Monitor

Table 6-1. Flowchart Note Index - Continued

Note Number	Description
6	One Time Dial-out Request For Any Product
7	Remote Communication Ping Check
8	KVM Switch Check
9	Bypass the KVM Switch
10	Test the OPUP Monitor on Another System
11	Reboot the Server
12	Reload the OPUP Software (Full Load)
13	Restore the Software to the Large OPUP Display Server UD80A12
14	Check the Modem Rack Power Supplies
15	Check the READY LEDs on the Communication Router
16	Check the LINK LEDs on the Communication Switch
17	Stop and Start OPUP Operational Applications Software
18	Shutdown the Server(s)
19	Power On and Boot Up the Server(s)
20	Disconnect/Re-Connect the Dedicated RPG
21	Reseat a Dedicated Modem to Initiate a Self-Test
22	Dedicated Modem Remote Digital Loopback Pattern Test
23	Dedicated Modem Local Analog Loopback Pattern Test
24	Check the Surge Suppressors
25	Check the OPUP System Status Messages
26	Exercise Printer UD80A22
27	Print Printer Configuration Pages
28	Check Printer IP-Address in Server Software
29	RPG Status Check
30	Communication Router UD80A3 Recovery Procedure
31	Reseat UD80A22 (Phaser 8200 Only) Printer Main Board

6.3.3.2 Flowchart Notes.

NOTES

Command entries and mouse selections in this manual are in **bold** type. Variable names are normally shown with a unique font (*variable_name*). Within a specified command string entry, a variable placeholder is not in bold type; however, all portions of the command that are entered exactly as shown are in **bold**. A variable placeholder in a command string must be replaced by a site specific name, address, etc. The user is told how to formulate the entry, or directed where to find this information. The Keyboard may have either an **<Enter>** or a **<Return>** key. Unless stated otherwise, each command line must be "entered" to be processed. Also, directory names/paths shown outside of a command example are *italicized* for clarity purposes. For mouse selections, the word "click" indicates a standard, single click of the left mouse button. When a right, middle, or double-click is required, it is specifically indicated. The symbol ▶ is used to indicate subsequent left clicks through sub-menu selections.

① DISPLAY OPUP MANAGER MAIN MENU

If the *opupmgr* is already logged in, but the `OPUP Manager Main Menu` is not displayed, click on the appropriate button(s) to attempt to return to the `OPUP Manager Main Menu`. If the *opupmgr* is not currently logged in, perform the steps below.

Step	Operator Action	System Response/Comments
1	If a CDE Login screen is already displayed, skip to Step 3. If an Operational Application GUI is currently displayed (PDGUI, Status and Control, etc.), click on the **EXIT** icon near the center of the Operational Applications Front Panel.	A `Logout Confirmation` window will be displayed.
2	Click on the **OK** button in the `Logout Confirmation` window.	A CDE Login screen will be displayed.
3	At the CDE Login screen, `Please enter your user name` prompt, enter: **opupmgr<Return>**	A CDE Password Entry window will be displayed.
4	At the CDE Login screen, `Please enter your password` prompt, enter: *opupmgr_password* **<Return>**	The CDE Front Panel will be displayed. A `Netscape: Password` window may display momentarily.

Step	Operator Action	System Response/Comments
5	If the `Netscape: Password` prompt is displayed, go to Step 8. If not, start the Netscape login password screen by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window should be displayed, or `Netscape Question` pop-up window(s) appear.
6	If any `Netscape:Question` pop-up window(s) appear, click on the **OK** button(s), to continue.	A Netscape login window displays. A `Netscape: Password` window may display momentarily.
7	If the `Netscape: Password` window is not displayed, click **anywhere within the a background area** of the Netscape login window.	A `Netscape: Password` window should be displayed.
8	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
	At the `Password:` prompt, enter the same site specific *opupmgr_password***<Return>** that was used in Step 4.	The `OPUP Manager Main Menu` should be displayed.

② CHECK SYSTEM TIME

Prior to beginning this procedure on a Large OPUP, the KVM Switch LED button 1 should be pressed to display the Data Server UD80A11 (top Server) information. Once the system time is set on the Large OPUP's Data Server UD80A11, the Display Server UD80A12 system time will automatically be synced to match it.

Step	Operator Action	System Response/Comments
1	Observe the OPUP system time as it is currently set by positioning the mouse cursor over the **Netscape World** icon on the CDE Front Panel, but do not click any of the mouse buttons. The OPUP system time should be set to GMT (Greenwich Mean Time) as opposed to local time.	A one line display of the OPUP system time will appear just below the Netscape World icon.
2	Compare the OPUP system time, as it is currently set, to an accurate time source. If the OPUP system time displayed is more than 1 minute off from the accurate time, then proceed to the next step. Otherwise, this procedure is complete.	An accurate GMT time source is available at 303-499-7111.

Step	Operator Action	System Response/Comments
3	At the CDE Front Panel, click on the **up arrow** located just above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
4	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.
5	At the `/export/home/opupmgr>` prompt, enter: **date<Return>**	The current day of week, month, day, time (hh:mm:ss), GMT, year should be displayed, followed by an `/export/home/opupmgr>` prompt.
6	Verify that the time reported is correct using an accurate time source.	If the day and year are incorrect and/or the time is more than 1 minute off, go to the next step. Otherwise, this procedure is complete.
7	Obtain the accurate GMT time at 303-499-7111. At the `/export/home/opupmgr>` prompt, enter: **sudo date *mmddHHMM*[*cc*][*yy*][*.SS*]** DO NOT press the **<Return>** key yet.	Everything after the minutes entry (MM) is an optional entry. The variables are defined as follows: mm = Month dd = Day HH = GMT Hour MM = Minute Optional entries (normally not entered): cc = Century minus 1 yy = Last 2 digits of the year SS = Seconds If no century or year are entered, then the currently set values are applied. If no seconds are entered, then the value of 0 is applied.
8	Using the chosen time source, press **<Return>** at the precise moment that the time entered above occurs.	Sets the OPUP system time to the time entered above.

Step	Operator Action	System Response/Comments
9	At the `/export/home/opupmgr>` prompt, enter: **date<Return>**	Displays the new OPUP system time. Ensure that the correct date and time are displayed.
10	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	This closes the Terminal window and the CDE Front Panel should be displayed.

③ OPEN AN OPERATIONAL APPLICATIONS STATUS AND CONTROL WINDOW AT THE OPUP MONITOR

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opupmgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter: **AT<Return>**	The `Operational Applications Status and Control` window should be displayed.

④ ARCHIVE IV DEVICE UD80A4 CHECK

This note addresses the OPUP Server's ability to access and operate the Archive IV Device UD80A4. The steps provided in this flowchart note require the use of an archived WSR-88D product and message file saved in the OPUP Server OS Archive Database directory via the Operational Application, Archive Menu.

NOTES

Step 26 of this procedure directs the user to delete a test file (archive_test) used to exercise the archive device. It is possible that important archive data files are listed in the directory along with the test file. Be sure that the associated radio button of the archive file(s) that need to be saved are not selected for those files. Once an archive file is deleted from the OPUP Server OS Archive Database directory, it **cannot** be retrieved.

This note is divided into four parts. The first part involves identifying, selecting, and saving data to be archived to the OPUP Archive Directory on the servers internal hard drive as an operator. The second part involves copying the selected data from the Archive Directory to a CD-ROM using the archive device via the OPUP Manager GUI. The third part involves erasing the data from the Archive Directory that was copied to the CD-ROM and then restoring the data from the CD-ROM back to the Archive Directory. The fourth part involves reading the data in the Operational Application Archive PDGUI as an operator.

Prerequisite: The Operational Applications Front Panel should be displayed. (Refer to Note 3, Open Status and Control GUI, if required). Ensure a blank CD-R or CD-R/W CD-ROM disk is available for this procedure.

Step	Operator Action	System Response/Comments
	Part I - Saving Data for Archive	
1	At the Operational Applications Front Panel, click on the **Status & Control** icon.	A `Status and Control - OPUP X.X` window (where X.X is the most current version of software) will be displayed.
2	At the Status and Control GUI, click on the **Archive** selection located near the top right of the GUI.	An `Archive` window should now be displayed.

Step	Operator Action	System Response/Comments
3	At the `Archive` window, `Step 1: Select Archive RPG and Products, then Calculate Space Needed` area, perform the following steps:	
	a. Ensure `Dedicated` is selected in the pull-down selection menu directly above the RPG list title bar.	If `Dedicated` is not displayed within the RPG Type Label, click the button and select **Dedicated** as the RPG Type.
	b. At the RPG list, click on a 4-letter *RPG ID of interest*.	Only one RPG is required for this procedure. The RPG ID of interest should now be highlighted.
	c. At the `Select/Deselect All products` area, click on the **Select All Products** button.	All products associated with the RPG ID of interest chosen in Step 3.b will be highlighted.
	d. At the `Space Needed:` area, click on the **Space Needed calculation** button.	The Space Needed: Calculation function will calculate the space needed to store the product(s) selected in Step c. This may take up to 1 minute to complete. Once completed, this function will provide a feed back message (i.e., `xx.xx Megs Needed`) that states how much storage space is needed to store the associated data. No more than 700 Mbytes of data can be selected.

Step	Operator Action	System Response/Comments
4	At the `Archive` window, `Step 2: Save Archive by Name` area, perform the following steps:	
	a. Click within the `Archive Name:` edit field to activate the field and enter: **archive_test**	The Archive function will then create an archive file named, "archive_test" and display the results within the `Step 2: Save Archive by Name` area. When finished, an `Archive Complete` message will be displayed.
	b. Click on the **Create Archive** button located under the `Create Archive:` label. c. At the `Archive Complete` notice window, click the **OK** button.	The archive test file is stored in the servers archive database directory.
	NOTE Step 4 does not copy the archive product data set from the OPUP Server Archive directory to the CD-ROM disk. Copying data to a CD-ROM located in the archive device media tray can only be accomplished via the `OPUP Manager Main Menu`, `OPUP Archive Menu`.	
5	Click the **double red arrows** icon located near the bottom right of the Archive Menu window to exit the Archive Menu.	The `Archive` window will close.
6	Log out of the Operational Applications Front Panel as follows: a. Click on the **EXIT** icon located near the bottom center of the CDE Front Panel. b. In the `Logout Confirmation` pop-up window, click on the **OK** button to get to the CDE Login screen.	The CDE Login screen will be displayed.

Part II - Writing the Saved Archive File from the OPUP Archive Directory to the Archive IV Device UD80A4.

7	At the CDE Login screen, at the `Please enter your user name` prompt, enter: **opupmgr<Return>**	The CDE Password entry window is displayed.

Step	Operator Action	System Response/Comments
8	At the CDE Login screen, at the `Please enter your password` prompt, enter: *opupmgr_password***<Return>**	
9	If the `Netscape: Password` window is displayed, go to Step 12. If not, start the Netscape login password window by locating and clicking on the **Netscape World** Icon located near the bottom left of the CDE Front Panel.	A `Netscape: Password` window will be displayed.
10	If a `Netscape "Continue? Yes/No"` prompt is displayed, click on the **Yes** button, to continue.	No response.
11	If the `Netscape: Password` window is not displayed, click **anywhere within the gray area** of the Netscape display window.	A `Netscape: Password` window will be displayed.
12	At the Netscape `User ID:` and `Password` prompts, enter **opupmgr** in the `User ID:` field and then the site specific *opupmgr_password* in the `Password:` field. When finished, press the **<Return>** key.	The `OPUP Manager Main Menu` will be displayed.
13	At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button.	The `OPUP Archive Menu` will be displayed.
14	At the `OPUP Archive Menu`, click on the **Check Products Archive** button.	A `Netscape: Check Archive` window will be displayed. This menu will also display the following message: `The Existing Archives on Server is as follows:`
15	At the `Netscape: Check Archive` window, check to ensure that the archive_test file created in Step 4 is present. The horizontal scroll bar may have to be used in order to display text to the right.	If the file created in Step 4 is not listed in the `Netscape: Check Archive` window, stop here and begin with Step 1 of this note, again.
16	When finished, click on the **Return To Last Screen** button.	The `OPUP Archive Menu` will be displayed.

Step	Operator Action	System Response/Comments
17	At the Archive IV Device UD80A4, perform the following steps: a. Press the **open/close** button. When the door opens, place the CD-ROM disk onto the tray. b. Press the **open/close** button to close the door.	A blank CD-ROM should now be in the archive device. (A CD-R or CD-R/W disk may be used for this procedure.)
18	At the `OPUP Archive Menu`, click on the **Create Products Archive** button.	A `Netscape: Create Archive` window will be displayed. This window will also display the following message: `Please select archive case to create to CDROM.`
19	At the `Netscape: Create Archive` window, click the radio button in the `Select Case` column associated with the **archive_test** file.	The radio button of the **archive_test** file will be highlighted.
20	Click on the **Create Archive** button.	The cursor will change to a "watch icon" to indicate that the Create Products Archive function has been started. Also, the WRITE L/H LEDs on the archive device will be illuminated. When the Create Products Archive function is completed, a `Netscape: Create Archive` window will be displayed.
21	At the `Netscape: Create Archive` window, click on the **Check Content of CDROM** button located near the bottom left of the window.	The file selected in Step 19 should now be displayed within the `Netscape: Check Content of CDROM` window. If there is no file present, perform Steps 18 through 20, again.
22	Click on the **Return to Main Menu** button.	The `OPUP Manager Main Menu` will be displayed.
23	At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button.	The `OPUP Archive Menu` will be displayed.

Part III - Erase The Original archive_test file from the OPUP Archive Directory

Step	Operator Action	System Response/Comments
24	At the `OPUP Archive Menu`, click on the **Erase Products Archive** button.	A `Netscape: OPUP Manager Erase Archive` window will be displayed.
25	At the `Netscape: OPUP Manager Erase Archive` window, click on the **Yes** button to acknowledge the warning message and continue the erase process.	A `Netscape: Available Archives on OPUP Server` window will be displayed. This window will also display the following message: `Please select archive case to erase from server.`
26	At the `Netscape: Available Archives on OPUP Server` window, click the radio button in the `Select Case` column associated with the **archive_test** file.	The radio button of the **archive_test** file will be highlighted.

NOTE

Be sure that only the **archive_test** file is selected. Do not select any other file that may be listed.

27	Click on the **Erase Archive** button.	The cursor will change to a "watch icon" to indicate that the Erase Products Archive function has been started. When the Erase Products Archive function is completed, a `Netscape: Erase Archive` window will be displayed. This window will also display the following message: `The archive for` *`yeardate_time`*`_Server_archive_test have been erased from server.`
28	Click on the **Return to Main Menu** button.	The `OPUP Manager Main Menu` will be displayed.
29	At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button.	The `OPUP Archive Menu` will be displayed.

Step	Operator Action	System Response/Comments
30	At the `OPUP Archive Menu`, click on the **Check Products Archive** button.	A `Netscape: Check Archive` window will be displayed.
31	At the `Netscape: Check Archive` window, check to ensure that the **archive_test** file has been erased.	If the archive_test file has not been erase, perform Steps 24 through 30 again.
32	When finished, click on the **Return to Last Screen** button.	The `OPUP Archive Menu` will be displayed.
33	At the `OPUP Archive Menu`, click on the **Restore Products Archive** button.	A `Netscape: Restore Archive` window will be displayed. This window will also display the following message: `The content of the inserted CDROM is as follows`:
34	At the `Netscape: Restore Archive` window, click on the **Restore Archive** button.	The cursor will change to a "watch icon" to indicate that the Restore Products Archive function has been started. When the Restore Products Archive function is completed, a `Netscape: Restore Archive` window will be displayed. This window will also display the following message: `The archive for` *`yeardate_time`*`_Server_archive_test have been restored from CDROM. The following are archive cases on server.`
35	Click on the **Return to Main Menu** button.	The `OPUP Manager Main Menu` will be displayed.
36	At the `OPUP Manager Main Menu`, click on the **OPUP Archive Menu** button.	The `OPUP Archive Menu` will be displayed.
37	At the `OPUP Archive Menu`, click on the **Check Products Archive** button.	A `Netscape: Check Archive` window will be displayed.

Step	Operator Action	System Response/Comments
38	At the `Netscape: Check Archive` window, check to ensure that the archive_test file has been restored.	If the archive_test file has not been restored, perform Steps 33 through 37 again.
39	Click on the **Return to Main Menu** button.	The `OPUP Manager Main Menu` will be displayed.
40	Log out of the OPUP Manager GUI as follows: a. Click on the **EXIT** icon located near the bottom center of the CDE Front Panel. b. In the `Logout Confirmation` pop-up window, click on the **OK** button to get to the CDE Login screen.	The CDE Login screen will be displayed.

Part IV - Read the restored archive_test data file using Archive PDGUI.

Step	Operator Action	System Response/Comments
41	At the CDE Login screen, `Please enter your user name` prompt, enter an *Operations_User_ID* and press the **<Return>** key.	The CDE Password entry window is displayed.
42	At the CDE Login screen, `Please enter your password` prompt, enter a *`User_ID_password`***<Return>**	The Operational Applications Front Panel will be displayed.
43	At the Operational Applications Front Panel display, locate and click on **Status & Control** icon.	The `Status and Control - OPUP X.X` window (where X.X is the current version of software) will be displayed.
44	At the Status and Control GUI, click on the **Restore** menu selection.	A `Restore` window will be displayed.
45	At the `Restore` window, locate the `Existing Archive` column and click on the **archive_test** file.	The archive_test file will be highlighted
46	Click on the **Restore Archive** ("Meshed Gears") icon.	When the Restore Archive function is finished, a `Success` pop-up window will be displayed.
47	Click the **OK** button located within the `Success` pop-up window.	

Step	Operator Action	System Response/Comments
48	Click on the **double red arrows** icon located near the bottom right of the `Restore` window	The `Restore` window will be closed.
49	Click on the **double red arrows** icon located near the upper right of the `Status and Control - OPUP X.X` window.	The `Status and Control - OPUP X.X` window will be closed.

NOTE

The following steps are provided to ensure that the archive_test file has been in fact restored and that all products can be displayed. This will require that the Archive PDGUI be opened and displayed. Only one type of PDGUI display can be displayed per logged in UserID/Password. Close the PDGUI display **before** attempting to open the Archive PDGUI.

50	Click on the **Archive Product Display** icon located near the right of the Operational Applications Front Panel.	The Archive Product Display GUI will be displayed.
51	At the Archive Product Display GUI, using any one of the twelve display windows, click on the **Open Product Selection Dialog** button (located near the top left of the window).	A `Product Selection` window will be displayed.
52	At the `Product Selection` window, click on the **Apply** button.	The first product associated with the default product attributes will then be displayed within the window. This verifies if the archive device functions are working.
53	At the Archive Product Display GUI, click on the **double red arrows** in the Toolbox window.	The Archive Product Display GUI will be closed.
54	Return the OPUP to the normal operating position.	

⑤ DISPLAY A PRODUCT ON THE OPUP MONITOR

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter: **pdgui<Return>**	The `Product Display GUI` (PDGUI) displays.
4	If any pop-up windows related to Alerts appear, simply work around them or move them out of the way if necessary. For the purpose of this procedure, it doesn't even matter if they remain opened or closed.	
5	Click on a green **Open Product Selection Dialog** button near the top of any of the 12 PDGUI display windows.	A `Product Selection` pop-up window displays.
6	Click on the **Apply** button in the bottom left hand corner of the `Product Selection` pop-up window.	A current product should display within the selected window.
7	Click on the red double arrow **Exit PDGui** button near the bottom right hand corner of the small Toolbox window just to the right of the `PDGUI` window.	The closes the PDGUI window and returns to the `/export/home/opupmgr>` prompt in the Terminal window.
8	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	The Terminal window closes.

⑥ ONE TIME DIAL-OUT REQUEST FOR ANY PRODUCT

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.

Step	Operator Action	System Response/Comments
3	At the `/export/home/opupmgr>` prompt, enter: **pdgui<Return>**	The `Product Display GUI` (PDGUI) displays.
4	If any pop-up windows related to Alerts appear, simply work around them or move them out of the way if necessary. For the purpose of this procedure, it doesn't even matter if they remain opened or closed.	
5	Click on a green **Open Product Selection Dialog** button near the top of any of the 12 PDGUI display windows.	A `Product Selection` pop-up window displays.
6	Click on the **RPG Type** button near the upper left hand corner of the `Product Selection` pop-up window.	A pull down menu displays with the options of: `Dedicated`, `AOR`, and `All` (`Others`).
7	Click on the **AOR** selection.	`AOR` displays in the button next to RPG Type.
8	Click on the **RPG** button near the upper right hand corner of the `Product Selection` pop-up window.	A pull down menu displays all of the RPG ID's that the OPUP is authorized to dial-in to and request a product from.
9	Click on the desired **RPG ID** to dial-in to.	The `selected RPG ID` displays in the button next to RPG.
10	Click on the **Category** button near the center of the `Product Selection` pop-up window.	A pull down menu displays all WSR-88D products that the OPUP can request from an RPG.
11	Click on the **Base Reflectivity** selection at the top of the menu.	`Base Reflectivity` is displayed in the button next to Category.
12	Click on the **OTR** button near the bottom center of the `Product Selection` pop-up window.	The `PDOTRDialog` pop-up window displays.
13	Click on the **Send/Clear** button at the bottom center of the `PDOTRDialog` pop-up window.	This sends the dial-out request to the selected RPG and clears the display window that the request was made from.
14	After the product is received from the RPG, it will de displayed in the same display window that was used to make the request.	It takes a few minutes for a product to be received from an RPG.

Step	Operator Action	System Response/Comments
15	Click on the red double arrow **Exit PDGui** button near the bottom right hand corner of the small Toolbox window just to the right of the PDGUI window.	The closes the PDGUI window and returns to the `/export/home/opupmgr>` prompt in the Terminal window.
16	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	The Terminal window closes.

⑦ REMOTE COMMUNICATION PING CHECK

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter: **su<Return>**	A `Password:` prompt displays.
4	At the `Password:` prompt, enter: *root_password***<Return>**	A # prompt displays.
5	At the # prompt, enter: **ping** *local IP address***<Return>**. The local IP address should be the IP-address of an workstation used to display WSR-88D products. The address should be in the format of 10.5.75.6.	The OPUP should respond with the message `local IP address is alive`. If the OPUP responds any other way, then the procedure did not work.
6	At the # prompt, enter: **exit<Return>**	This exits the root account which changes the # prompt back to an `/export/home/opupmgr>` prompt.
7	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	The Terminal window closes.

⑧ KVM SWITCH CHECK

Step	Operator Action	System Response/Comments
1	If a CDE Login screen is already displayed, skip to Step 3. If an OPUP Operational Applications window is currently displayed, click on the **EXIT** icon near the center of the OPUP Operational Front Panel.	A `Logout Confirmation` window displays.
2	Click on **OK** in the `Logout Confirmation` window.	A CDE Login screen displays.
3	The name of the server that the KVM Switch is currently switched to is near the top, center of the CDE Login screen.	Take note of the server name.
4	On the front of the KVM Switch, either the 1 LED or the 2 LED will be ON green. Press the select button whose LED is not ON to switch to the other Server. The screen saver may be on for the newly selected server. If so, move the mouse to activate the display.	The LED that was ON should go OFF, and the one that was OFF should come ON. The monitor display should change from one server to the other.
5	To ensure that the KVM equipment set is switched to the other server, compare the server names at the top, center of the CDE Login screen. If necessary, perform Steps 1 and 2 on the newly selected server to display the CDE Login screen.	A CDE Login screen displays. The server name displayed here should be different from the server name noted in Step 3.
6	Exercise the mouse and the keyboard with the newly selected server to ensure that they are working.	If the two LEDs toggled, the two server names are different, and the mouse and keyboard work with both servers, then the KVM Switch is working correctly.
7	To return to normal operations, login with the desired User Name and Password on the currently selected server, if desired.	Only the *opupmgr* has permission to login to the Data Server. No operator accounts are allowed to login there. Both the *opupmgr* and all operators may login to the Display Server.
8	On the front of the KVM Switch, press the select button whose LED is not ON to switch back to the other server.	The LED that was ON should go OFF, and the one that was OFF should come ON. The monitor display should change from one server to the other.

Step	Operator Action	System Response/Comments
9	Login with the desired User Name and Password on the newly selected server, if desired.	Only the *opupmgr* has permission to login to the Data Server. No operator accounts are allowed to login. Both the *opupmgr* and all operators may login to the Display Server.

9 BYPASS THE KVM SWITCH

Step	Operator Action
1	On the front of the KVM Switch UD80A8, set the power switch to the OFF position.
2	Trace the cables coming from the keyboard/video monitor/mouse to the jacks that they plug into on the back of the KVM Switch. The monitor cable will be plugged into the jack labeled MONITOR on the far right hand side, and the keyboard/mouse cables will be plugged into the jacks labeled USB DEVICES near the center of the KVM Switch.
3	Make a note of the jacks that they are plugged into so that they can be returned to the same locations later, then unplug the monitor, keyboard, and mouse cables.
4	Determine which server the keyboard/video monitor/mouse need to be connected to.
5	Unplug the cable from the back of the desired server that is connected to the P1 jack on the Video card in PCI slot 1. The smaller cable coming off of that same connector that plugs into a USB jack does not need to be unplugged from the back of the server.
6	Plug the monitor cable that was unplugged from the KVM Switch MONITOR jack into the P1 jack on the Video card in PCI slot 1 at the back of the desired server.
7	Plug the keyboard and mouse cables that were unplugged from the KVM Switch USB DEVICES jacks into the any available USB jacks on the back of the desired server.
8	The KVM Switch is now bypassed and the keyboard/video monitor/mouse should work directly with the server that they are connected to.
9	To put the KVM Switch back in the loop and return to normal operations, reverse this procedure and plug all cable connectors back into their original jacks, then power ON the KVM Switch.

⑩ TEST THE OPUP MONITOR ON ANOTHER SYSTEM

Step	Operator Action
1	At the front of the OPUP Monitor UD80A7, push the power button to power OFF the OPUP monitor. Both the green and amber LEDs near the power button should go OFF.
2	At the back of the OPUP Cabinet, unplug the monitor cable that is plugged into the MONITOR jack on the far right hand side of the KVM Switch (for a Large OPUP) or the Server (for a Medium OPUP). This cable is built-in to the monitor and must be used on the other system.
3	Unplug the power cord on the bottom left hand side of the monitor. This does not need to be moved unless there is no other power cord available at the other system.
4	Move the monitor to another location where it can be connected to another system and tested for proper functionality. If necessary, bring the power cord with the monitor.
5	Connect the OPUP monitor to another system. Use any locally supplied adaptor or pig-tale that may be necessary to properly connect it to the other system.
6	Plug in a power cord to the back of the OPUP monitor and ensure that the power cord is plugged into a good power source.
7	At the front of the OPUP monitor, push the power button to power ON the OPUP moni-tor. The green LED near the power button should come ON.
8	If the OPUP monitor displays anything, and the display is not abnormal in any way (out of focus, discolored, too dark, too bright, skewed, warped) then the OPUP monitor is working normally. If the display is abnormal in some way, it may be correctable with the adjustments behind the front pop out panel. If the monitor doesn’t display anything, or has an abnormal display that can’t be corrected with the adjustments behind the front pop out panel, then the monitor is bad and needs to be replaced per paragraph 6.5.12.
9	Reverse this procedure to move the OPUP monitor back to the OPUP Cabinet and return to normal operations.

⑪ REBOOT THE SERVER(S)

For a Large OPUP, this note assumes the *opupmgr* is logged in to both the Data Server UD80A11 and the Display Server UD80A12, the KVM Switch is set to display the Data Server (1 LED ON), and the `OPUP Manager Main Menu` is displayed. For a Medium OPUP, this note assumes the *opupmgr* is logged in and that the `OPUP Manager Main Menu` is displayed. Ensure these conditions are true prior to starting.

Step	Operator Action	System Response/Comments
1	From the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.	The `OPUP Server Control Menu` displays.
2	Click on the **Restart Server** button in the `OPUP Server Control Menu`.	The `OPUP Manager Restart Server(s)` pop-up window opens.
3	Click on the **Yes** button in the `OPUP Manager Restart Server(s)` window to confirm the selection to restart the OPUP Servers and continue the process.	The `OPUP Manager Restart Server(s)` window briefly displays the message `The Server(s) is restarting now` before Server(s) shutdown and restart.
4	When the CDE Login screen appears on the Data Server UD80A11, proceed to the next step.	Wait until the Data Server displays the CDE Login screen before proceeding.
5	At the CDE Login screen, at the `Please enter your user name` prompt, enter: **opupmgr<Return>**	A `CDE Password Entry` window displays.
6	At the CDE Login screen, at the `Please enter your password` prompt, enter: *opupmgr_password* **<Return>**	The CDE Front Panel displays. A `Netscape: Password` window may display momentarily.
7	If the `Netscape: Password` window displays, skip to Step 10. If not, start Netscape by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window displays, or `Netscape:Question` pop-up window(s) appear.
8	If any `Netscape: Question` pop-up window(s) appear, simply click on the **OK** button(s), to continue.	A Netscape home window displays. A `Netscape: Password` window may display momentarily.

Step	Operator Action	System Response/Comments
9	If the `Netscape: Password` window is not displayed, click **anywhere on the grey background area** of the Netscape home window.	A `Netscape: Password` window displays.
10	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
11	At the `Password:` prompt, enter: *opupmgr_password***<Return>**	The `OPUP Manager Main Menu` should be displayed.
12	At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button.	The `OPUP Software Menu` displays.
13	At the `OPUP Software Menu`, click on the **OPUP Process Status** button.	The `OPUP Process Status` window displays.
14	If the OPUP applications software is completely up and running normally, all of the `OPUP App/Task` names listed in the left hand column of the window(s) will have data listed out to the right of them.	If not, then the OPUP AS is not running properly. For a Large OPUP, each Server has it's own window with the `OPUP Process Status` window.

⑫ RELOAD THE OPUP SOFTWARE (FULL LOAD)

To perform a full software load on a Large OPUP, refer to the procedure found in paragraph 3.5.4 and Table 3-9.

To perform a full software load on a Medium OPUP, refer to the procedure found in paragraph 3.5.4 and Table 3-10.

⑬ RESTORE SOFTWARE TO THE LARGE OPUP DISPLAY SERVER UD80A12

This note can only be performed on a Large OPUP. It assumes the Data Server UD80A11 is functioning normally, and the software on the Display Server UD80A12 needs to be restored/reloaded. The procedure begins with the *opupmgr* logged in to the Data Server and the Display Server, the KVM Switch is selected to display the Data Server (1 LED On), and the `OPUP Manager Main Menu` is displayed. Ensure these conditions are true prior to starting. Once the Display Server software is restored, the entire OPUP is rebooted from the OPUP Manager GUI on the Data Server.

Step	Operator Action	System Response/Comments
1	On the front of the KVM Switch UD80A8, press the **2** button to switch to the Display Server. The screen saver may be on for the newly selected Display Server. If so, move the mouse to activate the display. Unlock the screen saver with the appropriate password if necessary.	The 2 LED that was OFF should come ON. The monitor display should change from one server to the other.
2	If the `ok` prompt is already displayed, skip to Step 8.	
3	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
4	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.
5	At the `/export/home/opupmgr>` prompt, enter: **su<Return>**	A `Password:` prompt displays.
6	At the `Password:` prompt, enter the site specific *root_password***<Return>**	A # prompt displays.
7	At the # prompt, enter: **init Ø<Return>**	The OPUP Display Server should perform an orderly shutdown all the way down to the `ok` prompt.
8	At the `ok` prompt enter: **boot net - install<Return>**	This command invokes the JumpStart software package to initiate an automatic software installation routine. The installation takes about 35 minutes and is finished when the CDE Login screen displays.

Step	Operator Action	System Response/Comments
9	When the CDE Login screen appears on the Display Server UD80A12, proceed to the next step.	Wait until the Display Server displays the CDE Login screen before proceeding.
10	On the front of the KVM Switch UD80A8, press the **1** button to switch to the Data Server. The screen saver may be on for the newly selected Data Server. If so, move the mouse to activate the display. Unlock the screen saver with the appropriate password if necessary.	The 1 LED that was OFF should come ON. The monitor display should change from one server to the other.
11	At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.	The `OPUP Server Control Menu` displays.
12	At the `OPUP Server Control Menu`, click on the **Restart Server** button.	The `OPUP Manager Restart Server(s)` warning window opens.
13	Click on the **Yes** button in the `OPUP Manager Restart Server(s)` warning window to confirm the selection to restart the OPUP Servers and continue the process.	The `OPUP Manager Restart Server(s)` window displays the message `The Server(s) is restarting now` briefly before the screen goes blank as the servers shutdown and restart.
14	When the CDE Login screen appears on the Data Server UD80A11, proceed to the next step.	Wait until the Data Server displays the CDE Login screen before proceeding.
15	At the `Please enter your user name` prompt, enter: **opupmgr<Return>**	A `CDE Password Entry` window displays.
16	At the `Please enter your password` prompt, enter: *opupmgr_password* **<Return>**	The CDE Front Panel displays. A `Netscape: Password` window may display momentarily.
17	If the `Netscape: Password` window displays, skip to Step 20. If not, start Netscape by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window displays, or `Netscape:Question` pop-up window(s) appear.

Step	Operator Action	System Response/Comments
18	If any `Netscape:Question` pop-up window(s) appear, click on the **OK** button(s), to continue.	A Netscape home window displays. A `Netscape: Password` window may display momentarily.
19	If the `Netscape: Password` window is not displayed, click **anywhere on the grey background area** of the Netscape home window.	A `Netscape: Password` window displays.
20	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
21	At the `Password:` prompt, enter: *opupmgr_password***<Return>**	The `OPUP Manager Main Menu` should be displayed.
22	At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button.	The `OPUP Software Menu` displays.
23	At the `OPUP Software Menu`, click on the **OPUP Process Status** button.	The `OPUP Process Status` window displays.
24	If the OPUP applications software is completely up and running normally, all of the `OPUP App/Task` names listed in the left hand column of the window(s) will have data listed out to the right of them.	If not, then the OPUP applications software is not running properly. For a Large OPUP, each server has its own window with the `OPUP Process Status` window.

⑭ CHECK THE MODEM RACK POWER SUPPLIES

Step	Operator Action	System Response/Comments
1	Open the front left door of the OPUP cabinet and observe all of the Modem Rack Power Supplies and Fan Modules.	Each Modem Rack should have a Power Supply in the far left position (PS1) and in the center position (PS2), and a Fan Module in the far right position (B1).
2	The Power Supplies should have 2 green LED's ON behind the fan blades on the right side, and the Fan Modules should have 1 green LED ON in the same place, and all of the fans should be blowing air out the front.	A Modem Rack will work properly with only one good Power Supply, but a bad Power Supply should be replaced immediately.

Step	Operator Action	System Response/Comments
3	If any of the Power Supplies or Fan Modules are not functioning properly, replace the faulty module.	A Modem Rack will work properly with a bad Fan Module, but, it should be replaced immediately to prevent overheating that could lead to the failure of a Power Supply or Modem.

⑮ CHECK THE READY LEDS ON THE COMMUNICATION ROUTER

The READY LEDs on the front of the Communication Router UD80A3 should be lit as follows:

For a Medium OPUP:

- 0, 1, and 2 should be ON (green).
- 3 should be OFF.

For a Large OPUP

- 1 through 6 should be ON (green).

⑯ CHECK THE LINK LEDS ON THE COMMUNICATION SWITCH

The LINK LEDs on the front of the Communication Switch UD80A18 should be lit as follows:

For a Medium OPUP:

- 1X and 2X should be ON (green), either solid or flashing.
- 4X through 6X should be on (green) either solid or flashing if a full compliment of Display Workstations (3) are installed.
- All others should be OFF.

For a Large OPUP:

- 1X, 2X, and 3X should be ON (green), either solid or flashing.
- 4X through 13X should be ON (green), either solid or flashing if a full compliment of Display Workstations (10) are installed.
- All others should be OFF.

⑰ STOP AND START OPUP OPERATIONAL APPLICATIONS SOFTWARE

Step	Operator Action	System Response/Comments
1	At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button.	The `OPUP Software Menu` will be displayed.
2	At the `OPUP Software Menu`, click on the **Stop OPUP** button.	The `OPUP Manager Stop OPUP` warning pop-up window opens.
3	Click on the **Yes** button in the `OPUP Manager Stop OPUP` window to confirm the selection to stop the OPUP software and continue the process.	The OPUP applications software will completely stop momentarily.
4	When the message `All OPUP Server Software has been Stopped` is displayed, then the OPUP applications software has stopped completely.	
5	Click on the **Return to OPUP Software Menu** button in the `OPUP Manager Stop OPUP` window.	The `OPUP Software Menu` displays.
6	Click on the **Start OPUP** button in the `OPUP Software Menu`.	The `OPUP Manager Start OPUP` warning pop-up window opens.
7	Click on the **Yes** button in the `OPUP Manager Start OPUP` window to confirm the selection to start the OPUP software and continue the process.	The message `Please wait 1 to 2 minutes for the Server Processes to start` is displayed indicating that the OPUP applications software will be fully started momentarily.
8	Click on the **Return to OPUP Software Menu** button in the `OPUP Manager Start OPUP` window.	The `OPUP Software Menu` displays.
9	Click on the **OPUP Process Status** button in the `OPUP Software Menu`.	The `OPUP Process Status` window displays.
10	If the OPUP applications software is completely up and running normally, all of the `OPUP App/Task` names listed in the left hand column of the window(s) will have data listed out to the right of them.	If not, then the OPUP applications software is not running properly. For a Large OPUP, each server has its own window with the `OPUP Process Status` window.

⑱ SHUTDOWN THE SERVER(S)

For a Large OPUP, this note assumes the *opupmgr* is logged in to both the Data Server UD80A11 and the Display Server UD80A12, the KVM Switch is set to display the Data Server (1 LED On), and the `OPUP Manager Main Menu` is displayed. For a Medium OPUP, this note assumes the *opupmgr* is logged in and that the `OPUP Manager Main Menu` is displayed. Ensure these conditions are true prior to starting.

Step	Action	System Response/Comments
1	At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.	The `OPUP Server Control Menu` displays.
2	At the `OPUP Server Control Menu`, click on the **Shutdown Server** button.	The `OPUP Manager Shutdown Server(s)` warning pop-up window opens.
3	Click on the **Yes** button in the `OPUP Manager Shutdown Server(s)` window to confirm the selection to shutdown the OPUP servers and continue the process.	The `OPUP Manager Shutdown Server(s)` window briefly displays the message `The Server(s) is shutting down` before the server(s) shutdown. All OPUP OS processes are then stopped and removed from memory. The server(s) then power Off.

⑲ POWER ON AND BOOT UP THE SERVER(S)

This note actually contains two separate procedures, one for the Large OPUP and one for the Medium OPUP. The Large OPUP procedure is listed first, in its entirety followed by the Medium OPUP procedure in its entirety.

Step	Operator Action	System Response/Comments
	NOTE For Medium OPUP Server power-on and bootup steps, proceed to Step 25.	
1	**For a Large OPUP:** On the front of the KVM Switch UD80A8, ensure the 1 LED is On by pressing the **1** button.	The 1 LED is On on the KVM Switch.

Step	Operator Action	System Response/Comments
2	At the Data Server UD80A11, press the **power** button to the right of the Security Keyswitch.	The power LED on the front of the Data Server in the upper right corner will turn On. The Data Server starts to boot up; the monitor remains blank for about 2 or 3 minutes.
3	Watch the full boot sequence on the Data Server for errors until the CDE Login screen is displayed.	The CDE Login screen displays.
4	On the front of the KVM Switch, press the **2** button.	The 2 LED comes On; the KVM equipment set is switched to the Display Server.
5	At the Display Server UD80A12, press the **power** button to the right of the Security Keyswitch.	The power LED on the Display Server will turn On as it starts to boot up; the monitor stays blank for 2 or 3 minutes.
6	Monitor the full boot sequence on the Display Server for errors until the CDE Login screen is displayed.	The CDE Login screen displays.
7	At the CDE Login screen, at the `Please enter your user name` prompt, enter: **opupmgr<Return>**	A `CDE Password Entry` window displays.
8	At the CDE Login screen, at the `Please enter your password` prompt, enter the site specific *opupmgr_password* **<Return>**	The CDE Front Panel displays. A `Netscape: Password` window may display momentarily.
9	If the `Netscape: Password` window displays, skip to Step 12. If not, start Netscape by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window displays, or `Netscape:Question` pop-up window(s) appear.
10	If any `Netscape:Question` pop-up window(s) appear, click on the **OK** button(s), to continue.	A Netscape home window displays. A `Netscape: Password` window may display momentarily.
11	If the `Netscape: Password` window is not displayed, click **anywhere on the gray background area** of the Netscape home window.	A `Netscape: Password` window displays.

Step	Operator Action	System Response/Comments
12	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
13	At the `Password:` prompt, enter: *opupmgr_password***<Return>**	The `OPUP Manager Main Menu` should be displayed.
14	On the front of the KVM Switch, press the **1** button.	The 1 LED comes On; the KVM equipment set is switched to the Data Server.
15	At the CDE Login screen, at the `Please enter your user name` prompt, enter: **opupmgr<Return>**	A `CDE Password Entry` window displays.
16	At the CDE Login screen, at the `Please enter your password` prompt, enter: *opupmgr_password* **<Return>**	The CDE Front Panel displays. A `Netscape: Password` window may display momentarily.
17	If the `Netscape: Password` window displays, skip to Step 20. If not, start Netscape by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window displays, or `Netscape:Question` pop-up window(s) appear.
18	If any `Netscape:Question` pop-up window(s) appear, click on the **OK** button(s), to continue.	A Netscape home window displays. A `Netscape: Password` window may display momentarily.
19	If the `Netscape: Password` window is not displayed, click **anywhere on the gray background area** of the Netscape home window.	A `Netscape: Password` window displays.
20	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
21	At the `Password:` prompt, enter: *opupmgr_password***<Return>**	The `OPUP Manager Main Menu` should be displayed.
22	At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button.	The `OPUP Software Menu` displays.
23	At the `OPUP Software Menu`, click on the **OPUP Process Status** button.	The `OPUP Process Status` window displays.

Step	Operator Action	System Response/Comments
24	If the OPUP applications software is completely up and running normally, all of the `OPUP App/Task` names listed in the left hand column of the window(s) will have data listed out to the right of them.	If not, then the OPUP AS is not running properly. For a Large OPUP, each server has its own window within the `OPUP Process Status` window.
25	**For a Medium OPUP:** At the Server UD80A11, press the **power** button to the right of the Security Keyswitch.	The power LED on the front of the Server in the upper right corner will turn On. The server starts to boot up; the monitor stays blank for 2 or 3 minutes.
26	Monitor the full boot sequence on the server for errors until the CDE Login screen is displayed.	The CDE Login screen displays.
27	At the CDE Login screen, at the `Please enter your user name` prompt, enter: **opupmgr<Return>**	A `CDE Password Entry` window displays.
28	At the CDE Login screen, at the `Please enter your password` prompt, enter: *opupmgr_password* **<Return>**	The CDE Front Panel displays. A `Netscape: Password` window may display momentarily.
29	If the `Netscape: Password` window displays, skip to Step 32. If not, start Netscape by clicking on the **Netscape World** icon on the CDE Front Panel.	A Netscape home window displays, or `Netscape:Question` pop-up window(s) appear.
30	If any `Netscape:Question` pop-up window(s) appear, click on the **OK** button(s), to continue.	A Netscape home window displays. A `Netscape: Password` window may display momentarily.
31	If the `Netscape: Password` window is not displayed, click **anywhere on the grey background area** of the Netscape home window.	A `Netscape: Password` window displays.
32	At the `User ID:` prompt, enter: **opupmgr<Return>**	The cursor moves down to the `Password:` prompt.
33	At the `Password:` prompt, enter: *opupmgr_password***<Return>**	The `OPUP Manager Main Menu` should be displayed.

Step	Operator Action	System Response/Comments
34	At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button.	The `OPUP Software Menu` displays.
35	At the `OPUP Software Menu`, click on the **OPUP Process Status** button.	The `OPUP Process Status` window displays.
36	If the OPUP AS is completely up and running OK, all of the `OPUP App/Task` names in the left hand column(s) will have data listed out to the right of them.	If not, then the OPUP AS is not running properly.

⑳ DISCONNECT/RE-CONNECT THE DEDICATED RPG

This procedure assumes that the *opupmgr* is logged in at the OPUP Monitor and that an OPUP Manager GUI window is currently displayed.

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opupmgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter: **AT<Return>**	The Operational Applications `Status and Control` window should be displayed.
4	If necessary, click on the **Network Map** tab near the upper left corner of the `Status and Control` window to display the `Network Map`.	The `Network Map` window displays.
5	Click on the **Padlock** (Security) icon which is displayed in black in the locked position.	The `Change Security Level` pop-up window displays.
6	In the `Change Security Level` pop-up window, click on the **-- no special access --** button next to the `User Name:` prompt.	A pull down menu displays with the options of: `--no special access--`, `level 1`, `level 2`, and `level 3`.
7	Within the pull down menu, click on **level 1**.	`level 1` displays in the button next to `User Name:`.
8	In the `Change Security Level` pop-up window, click in the `Password:` edit box to activate it for text entry.	The `Password:` box becomes active. It becomes outlined, and the prompt starts flashing.

Step	Operator Action	System Response/Comments
9	At the `Password:` prompt, enter the site specific *level 1_password***<Return>**	The `Change Security Level` window disappears, and the Padlock icon is now displayed in green in the unlocked position.
10	On the Network Map of the `Status and Control` window, click on the **desired RPG** to select it.	A yellow circle will appear around the RPG location.
11	Right click on the **desired RPG**.	The *RPG ID* displays along with a pull down menu containing the options of: `Connect` and `Disconnect` commands.
12	Click on the **Disconnect** command.	The *RPG ID* and pull down menu disappears, and the RPG location on the `Network Map` display changes to grey indicating that it has been manually disconnected.
13	Click on the same **desired RPG** again on the `Network Map` display to select it.	A yellow circle will appear around the RPG location.
14	Right click on the same **desired RPG** again.	The *RPG ID* displays along with a pull down menu containing the options of: `Connect` and `Disconnect` commands.
15	Click on the **Connect** command.	The *RPG ID* and pull down menu disappears, and the RPG location on the `Network Map` display changes to either green or red. Green indicates that everything is functioning normally between the OPUP and that RPG. Red indicates that there is some sort of problem between the OPUP and the RPG.
16	Click on the **Padlock** (Security) icon which is displayed in green in the unlocked position.	The `Change Security Level` pop-up window displays.
17	In the `Change Security Level` pop-up window, ensure that `-- no special access --` is displayed in the button next to the `User Name:` prompt.	

Step	Operator Action	System Response/Comments
18	Click on the **OK** button at the bottom of the `Change Security Level` pop-up window.	The `Change Security Level` pop-up window disappears, and the **Padlock** (Security) icon is now displayed in black in the locked position.
19	Click on the red double arrow **Exit AT** button near the upper right hand corner of the `Status and Control` window frame.	The `Status and Control` window closes.
20	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	The Terminal window closes.

㉑ RESEAT A DEDICATED MODEM TO INITIATE A SELF-TEST

Step	Operator Action	System Response/Comments
1	Open the front left door of the OPUP cabinet and locate the desired dedicated modem that is supposed to be connected to the RPG of concern.	A Large OPUP has dedicated modems in all 21 slots of the top Modem Rack UD80A1 and in the first 11 slots on the bottom Modem Rack UD80A2. A Medium OPUP just has dedicated modems in the first 8 slots of Modem Rack UD80A1.
2	Save the current settings on the dedicated modem prior to performing the self-test by performing steps through below.	
3	On the front panel of the desired dedicated modem, press the **RETURN** button twice.	This ensures the dedicated modem is at the “Home” position within the Menu directory (`DATA 14.4 T/D?` or `V32b 14.4 T/D?` on the front panel).
4	Press the **ACROSS** button until `Save Changes = 1` is displayed.	
5	Press the **ENTER** button and wait until the display reads `Save Completed!`	Saves the current settings on the dedicated modem.

Step	Operator Action	System Response/Comments
6	Press the **RETURN** button twice.	Returns modem to the "Home" position.
7	Reseat the desired dedicated modem by partially pulling it out from it's slot in the modem rack far enough (about 2 inches) that it no longer touches the backplane connector and is fully disconnected from it's power source.	All LED's and the LCD on the front panel will go OFF. Do not fully remove the dedicated modem from the slot in the modem rack unless proper ESD handling procedures are followed.
8	Firmly push the dedicated modem back into the slot in the modem rack. Once the dedicated modem is seated correctly, the self-test runs automatically, and the result is displayed in the LCD on the front panel.	The LCD reads `SELF TEST` initially, then `3263 FAST READY`, when the self-test passed. If the self-test fails, the the LCD will read `SELFTEST` followed by an error message.

㉒ DEDICATED MODEM REMOTE DIGITAL LOOPBACK PATTERN TEST

This note addresses the dedicated modem's ability to perform a Remote Digital Loopback Pattern (RDL Pat) Test. This test uses an internal pattern generator to provide test data that is designed to examine the transmit and receive circuitry of the local OPUP dedicated modem, the remote RPG dedicated modem, and the interconnecting telephone line.

The test pattern is first transmitted by the local OPUP dedicated modem over the telephone line to the remote RPG dedicated modem and then looped back over the telephone line back to the local OPUP dedicated modem. Data bit errors and block errors are counted throughout the duration of the test and the total error count is displayed on the modem's LCD window at the completion of the test.

Step	Operator Action	System Response/Comments
1	Open the front left door of the OPUP cabinet and locate the desired dedicated modem that is supposed to be connected to the RPG of concern.	A Large OPUP has dedicated modems in all 21 slots of the top Modem Rack UD80A1 and in the first 11 slots on the bottom Modem Rack UD80A2. A Medium OPUP just has dedicated modems in the first 8 slots of Modem Rack UD80A1.
2	On the front panel of the desired dedicated modem, press the **RETURN** button twice.	This ensures the dedicated modem is at the "Home" position within the Menu tree (`DATA 14.4 T/D?` or `V32b 14.4 T/D?` on the front panel).
3	Press the **ACROSS** button until `Save Changes = 1` is displayed.	
4	Press the **ENTER** button and wait until the display reads `Save Completed!`	This procedure saves the current settings within the modem.
5	Press the **RETURN** button twice.	Returns modem to the "Home" position.
6	Press the **DOWN** button once.	`TEST OPT'S` displays.
7	Press the **ACROSS** button once.	`Test = End Test` displays.
8	Press the **DOWN** button 6 times.	`Test : RDL Pat` displays.

Step	Operator Action	System Response/Comments
9	Press the **ENTER** button.	`Test = RDL Pat` displays. If the test is able to run, the amber ALM LED comes ON. If the test is not able to run, the message `Test Denied` displays indicating the two modems are not connected. This is most likely a problem with the phone line, but connections from the either the OPUP or RPG demarc panels to the modems could cause the same symptom.
10	Allow the test to run at least 5 minutes, then go to the next step.	
11	Press the **DOWN** button twice.	`Test : End Test` displays.
12	Press the **ENTER** button.	This stops the test from running, the amber ALM LED goes OFF, and displays the message `Bit = X  Blk = X`. X equals the number of Bit or Block errors that occurred during the test. Ideal results would be for both of them to be 0.
13	Press the **RETURN** button 3 times.	Returns the modem to the "Home" position (`DATA 14.4 T/D?` or `V32b 14.4 T/D?`).

㉓ DEDICATED MODEM LOCAL ANALOG LOOPBACK PATTERN TEST

This note addresses the dedicated modem's ability to perform a Local Analog Loopback Pattern (LAL Pat) Test. This test uses an internal pattern generator to provide test data that is designed to examine the transmit and receive circuitry of the local OPUP dedicated modem.

The test pattern is internally looped back from the OPUP dedicated modem's transmitter directly back to it's receiver. Data bit errors and block errors are counted throughout the duration of the test and the total error count is displayed on the modem's LCD window at the completion of the test.

Step	Operator Action	System Response/Comments
1	Open the front left door of the OPUP cabinet and locate the desired dedicated modem that is supposed to be connected to the RPG of concern.	A Large OPUP has dedicated modems in all 21 slots of the top Modem Rack UD80A1 and in the first 11 slots on the bottom Modem Rack UD80A2. A Medium OPUP just has dedicated modems in the first 8 slots of Modem Rack UD80A1.
2	On the front panel of the desired dedicated modem, press the **RETURN** button twice.	This ensures the dedicated modem is at the "Home" position within the Menu tree (`DATA 14.4 T/D?` or `V32b 14.4 T/D?` on the front panel).
3	Press the **ACROSS** button until `Save Changes = 1` is displayed.	
4	Press the **ENTER** button and wait until the display reads `Save Completed!`	This procedure saves the current settings within the modem.
5	Press the **RETURN** button twice.	Returns to the "Home" position.
6	Press the **DOWN** button once.	`TEST OPT'S` will be displayed.
7	Press the **ACROSS** button once.	`Test = End Test` displays.
8	Press the **DOWN** button 5 times.	`Test : LAL Pat` displays.
9	Press the **ENTER** button.	`Test = LAL Pat` displays. The amber ALM LED comes ON.
10	Allow the test to run uninterrupted for about 5 minutes, then proceed to the next step.	
11	Press the **DOWN** button 3 times.	`Test : End Test` displays.
12	Press the **ENTER** button once.	This stops the test from running, the amber ALM LED goes OFF, and displays the message `Bit = X Blk = X`. X equals the number of Bit or Block errors that occurred during the test. Ideal results would be for both of them to be 0.

Step	Operator Action	System Response/Comments
13	Press the **RETURN** button 3 times.	Returns the modem to the "Home" position (`DATA 14.4 T/D?` or `V32b 14.4 T/D?`).

㉔ CHECK THE SURGE SUPPRESSORS

Step	Operator Action	System Response/Comments
1	At the Telco demarc panel, locate the two surge suppressors on the dedicated line of concern.	Surge suppressors are designed to protect two wires each. Each OPUP dedicated line to an RPG is a four wire circuit. So, there should be two surge suppressors for each dedicated line.
2	Remove each surge suppressor by gripping the module on both ends and then pulling directly away from the demarc panel.	Each surge suppressor has 5 connectors on it. One for ground, and one for each of the four wires in the circuit.
3	Check to see if the surge suppressor is good by using an Ohm meter to measure the resistance between pins 1 and 2 as well as pins 3 and 4. Pins 1 and 3 are stacked vertically on the outside edge opposite of the single ground connector. Pins 2 and 4 are stacked vertically in the center. Pins 1 and 2 are horizontally side by side. Pins 3 and 4 are horizontally side by side.	The resistance should be about 5 Ohms. Failure is indicated by a resistance measurement of anything significantly different than 5 Ohms.

㉕ CHECK THE OPUP SYSTEM STATUS MESSAGES

Step	Operator Action	System Response/Comments
1	At the CDE Front Panel, click on the **up arrow** above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opupmgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter: **AT<Return>**	The Operational Applications `Status and Control` window should be displayed.

Step	Operator Action	System Response/Comments
4	If necessary, click on the **System Status** tab near the upper left corner of the `Status and Control` window to display the `OPUP System Status` window.	The `System Status` window displays.
5	A Status Message Filter tool is available to quickly find specific messages.	For assistance with using the Status Message Filter tool, see the NWS EHB 6-536, Operations Instructions Manual.
6	Click on the red double arrow **Exit AT** button near the upper right hand corner of the `Status and Control` window frame.	The `Status and Control` window closes.
7	At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**	The Terminal window closes.

㉖ EXCERCISE PRINTER UD80A22

This note addresses the OPUP's ability to access and operate the Printer UD80A22. These steps do not apply to any other printer that may be connected to the OPUP Operating system.

Prerequisite: Ensure that the Product Display GUI located within the Operational Applications Front Panel is displayed. Ensure that the Printer UD80A22 is powered on, connected to the Communication Switch UD80A18, and has been added as a default printer device in accordance with the procedure outlined in paragraph 5.2.9.3.

Step	Operator Action	System Response/Comments
1	At the Product Display GUI, using the mouse, right click within any one of the product windows.	A Product Display Manipulation Menu will be displayed.
2	At the Product Display Manipulation Menu, left click on the **Print** selection.	The product located within the display window will be sent to the printer.

㉗ PRINT PRINTER CONFIGURATION PAGES

This flowchart note addresses the Printer's UD80A22 ability to access and print for display the configuration information associated with the printer. The steps provided in this flowchart note have the operator print the configuration pages provided via the printer menu structure found within the printer's front panel. The printer configuration data is printed to determine if the printer will perform a local print procedure. In addition, the IP-address can also be verified to be accurate. The printer IP-address must match the IP-address used to initially setup and configure the printer at the Data Server UD80A11, using `OPUP Manager Main Menu`▶`OPUP Server Control Menu`▶`Printer Tools`▶`Add New Printer`. Refer to note 28 to obtain printer IP-address loaded in the OPUP Server OS.

Prerequisites: The Printer UD80A22 must have AC power supplied, powered to the on state, and have an external network Ethernet cable connected between the printer and the OPUP Cabinet I/O Panel CP11 (cable W391) and an internal cabinet cable from the I/O Panel, CP11, and the Communication Switch UD80A18, port 14X (cable 80W214).

Step	Operator Action	System Response/Comments
1	At the Printer UD80A22 front panel, press the **OK** button (refer to Figure 2-25, Index 7 for location). When the printer is finished warming up go to the next step.	This will cause the printer to start the printer warm-up sequence and display the following message: `WARMING UP, PLEASE WAIT. XX% COMPLETE`.

NOTE

There are two Phaser models of printers fielded, the 8200 and 8400. The menu screens are different. The text in parenthesis refers to the 8400 model.

2	At the printer front panel, ensure that the `Menus` (`Information`) selection is displayed and highlighted. Use the **Up arrow** button if necessary.	
3	At the printer front panel, press the **OK** button.	The `Menus` (`Information`) screen will be displayed.
4	At the printer front panel, press the **Down arrow** twice to highlight the `Network Setup Menu` (`Information Pages`) selection.	
5	At the printer front panel, press the **OK** button.	The `Network Setup Menu` (`Information Pages`) screen will be displayed.

Step	Operator Action	System Response/Comments
6	At the printer front panel, press the **Down arrow** twice to highlight the `Print Configuration Pages` (`Configuration Page`) selection.	
7	At the printer front panel, press the **OK** button.	Two configuration pages will be printed.

(28) CHECK PRINTER IP-ADDRESS IN SERVER SOFTWARE.

This flowchart note addresses the Data Server's UD80A11 ability to display the configuration information associated with the printer's IP-address. The steps provided in this flowchart note have the operator check the OPUP Server OS for the Printer UD80A22 IP-address located within a specific OPUP Server OS directory.

Prerequisite: The OPUP Manager CDE Front Panel must be displayed. Refer to flowchart Note 1 if the CDE Front Panel is not displayed.

Step	Operator Action	System Response/Comments
1	At the OPUP Manager CDE Front Panel, click on the **Up arrow** located above the **cpu disk** icon.	A `Hosts` pop-up window will be displayed.
2	At the `Hosts` window, click on the **This Host** icon.	A Terminal window opens with an `/export/home/opup-mgr>` prompt.
3	At the `/export/home/opupmgr>` prompt, enter the following: **more temp/printerinfofile<Return>**	The contents of the Printer UD80A22 Info File will be displayed.

(29) RPG STATUS CHECK.

The steps provided in this flowchart note have the OPUP operator check the status of the RPG connection displayed within the `Status and Control - OPUP X.X`, (where X.X is the current version of software), `Network Map`. The status of RPG to OPUP connectivity will be indicated by a green dot located at the RPG of interest within the Network Map window. This flowchart note will also check the RPG Status window for overall system connectivity.

Prerequisites: The Operational Applications Front Panel ▶ `Status and Control - OPUP X.X` window must be displayed. (Refer to flowchart Note 3, Open Status and Control GUI, if needed.)

Step	Operator Action	System Response/Comments
1	At the Operational Applications Front Panel display, locate and click on **Status & Control** icon.	The `Status and Control - OPUP X.X` window will be displayed.
2	At the `Status and Control - OPUP X.X` window, ensure that the `Network Map` window is displayed. If the `Network Map` window is not displayed, click on the **Network Map** tab.	The `Network Map` window is displayed.
3	At the `Network Map` window, click on the **RPG Status** dot of the *RPG of interest*.	A yellow circle will be displayed around the dot of the *RPG of interest.*
4	At the `Status and Control - OPUP X.X` window, click on the **RPG Status** tab.	An `RPG Status` window will be displayed.
5	Verify status of RPG and link between RPG and OPUP.	

(30) COMMUNICATION ROUTER UD80A3 RECOVERY PROCEDURE.

This procedure is to recover the Communication Router UD80A3 if the internal IOS has been erased or become corrupted. If the Communication Router setup procedure detailed in paragraph 6.6.3 fails to work, as indicated by a rommon prompt being displayed after the initial tip session is performed, use this procedure to restore the IOS.

This procedure takes one technician and approximately 1 hour to complete.

Equipment and Tools Required.

1. Cisco configuration cable (P/N 72-3663-01)

2. Null Modem Adapter

Recovery and Setup Procedure.

1. Obtain the following OPUP configuration input parameters:

NOTE

The information listed below was originally assigned during the previous software load installation procedure. Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP), Step 2 for the current password and IP-address information. A copy of Step 2 should have been stored in a safe location due to recorded password information.

a. OPUP Data Server IP-Address.

b. Cisco Router IP-Address.

c. Root Password.

d. Current Router Password.

2. Connect the Cisco configuration cable (P/N 72-3663-01) as follows:

   a. Connect the 25-pin end of the cable to the Null Modem adapter.

   b. At the rear of the (Data) Server UD80A11, connect the cable/Null Modem adapter combination to serial port **A** (bottom port located at far left edge of the chassis).

   c. Connect the RJ45 end of the cable to the applicable Communication Router UD80A3 as follows:

      1. **For Large OPUP configuration:** At the rear of the router, plug the cable into the CONSOLE port.

      2. **For Medium OPUP configuration:** At the front of the router, plug the cable into the CON port.

3. **Large OPUP configuration only:** At the KVM Switch UD80A8, press LED button **1**. Data Server UD80A11 information will be displayed on the Monitor UD80A7.

4. If the CDE Login screen is displayed, login as **opupmgr** to display the `OPUP Manager Main Menu`. If opupmgr is currently logged in and the `OPUP Manager Main Menu` screen is displayed, proceed to next step.

5. At the CDE Front Panel, open two Host Terminal windows as follows: (Do not use the Console window option).

   a. Click on the **Up arrow** located above the **cpu disk** icon. A `Hosts` pop-up window will be displayed.

b. At the `Hosts` pop-up window, click on the **This Host** icon. A Terminal window will be displayed with an `/export/home/opupmgr>` prompt.

c. Repeat steps a. and b. to open a second Terminal window.

d. Align the windows on top of each other or side-by-side. Future steps will require switching from one window to the other. The `OPUP Manager Main Menu` should still be displayed behind the two Terminal windows.

6. At the first Terminal window, click within the window and perform the following:

a. At the /`export/home/opupmgr>` prompt, enter:

sudo tip -96ØØ /dev/cua/a<Return>

Feedback: `connected`

7. At the rear of the applicable Communication Router UD80A3, turn power to the Off (0) position as follows:

a. **For Large OPUP configuration**: At the right side of the router, set both power supply switches to the Off (0) position.

b. **For Medium OPUP configuration**: At the right side of the router, set the power switch to the Off (0) position.

NOTES

Prior to performing the next step, locate the **~** (tilde) key and the **#** key. The keystroke command of **~#** (**<Shift>~**, then **#**) must be entered once the following applicable message is displayed, approximately 3 seconds after power is turned back on:

For Large OPUP: `C3660 processor with 32768 Kbytes of main memory` or **For Medium OPUP**: `C3600 processor with 32768 Kbytes` of main memory

If the Terminal window should become unresponsive or the communication router # prompt should not respond to commands from the keyboard,

press **~.** (**<Shift>~**, release, then **.**) and then press the **<Ctrl>** and **C** key to get to a # prompt. If the Terminal window still does not respond, close the Terminal and begin again from Step 6.

8. At the rear of the communication router, place the power switch(es) to the On (1) position. For the Large OPUP router, set both power supply switches to On (1) at the same time. Proceed to front of cabinet immediately.

9. Wait for the `rommon 1>` prompt to appear in the Terminal window.

10. If the Terminal window displays the message: `Reset the router in order to use this command`, enter: **~.** (**<Shift>~**, release, then **.**) to exit the tip session. Repeat Steps 6 through 9. Otherwise, proceed to next step.

11. At the second Terminal window, click within the window and perform the following:

    a. At the `export/home/opupmgr>` prompt, enter the following applicable string command:

    1. For Large OPUP configuration, enter:

    sudo chmod o+r /tftpboot/c366Ø.bin<Return>

    2. For Medium OPUP configuration, enter:

    sudo chmod o+r /tftpboot/c364Ø.bin<Return>

    Feedback: `/export/home/opupmgr>` prompt appears.

NOTE

In the following step, the `rommon 1>` prompt will be the initial prompt displayed in the terminal window. As each of the following entries are entered, the `rommon` *`n>`* prompt will increment by one every time the **<Return>** key is pressed. If an error is made during these procedures and the correct entry is made, then the `rommon` *`n>`* prompts will not match the steps in this procedure.

12. At the first Terminal window, click within the window and perform the following:

    a. At the `rommon 1>` prompt, enter: **confreg<Return>**

    Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

    b. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **y<Return>**

    Feedback: `enable “diagnostic mode”? y/n [n]:` prompt.

c. At the `enable “diagnostic mode”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “use net in IP bcast address”? y/n [n]:` prompt.

d. At the `enable “use net in IP bcast address”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `disable “load rom after netboot fails”? y/n [n]:` prompt.

e. At the `disable “load rom after netboot fails”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “use all zero broadcast”? y/n [n]:` prompt.

f. At the `enable “use all zero broadcast”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “break/abort has effect”? y/n [n]:` prompt.

g. At the `enable “break/abort has effect”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “ignore system config info”? y/n [n]:` prompt.

h. At the `enable “ignore system config info”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `change console baud rate? y/n [n]:` prompt.

i. At the `change console baud rate? y/n [n]:` prompt, enter: **y<Return>**

Feedback:
```
enter rate:0=9600, 1=4800, 2=1200, 3=2400
           4=19200, 5=38400,6=57600, 7=115200 [0]
```

j. At the `enter rate [0]:` prompt, enter: **7<Return>**

Feedback: `change the boot characteristics? y/n [n]:` prompt.

k. At the `change the boot characteristics? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

l. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `You must reset or power cycle for new config to take effect rommon 2>`

m. At the rear of the applicable Communication Router UD80A3, turn power to the Off (0) position as follows:

1. **For Large OPUP configuration**: At the right side of the router, set both power supply switches to the Off (0) position.

2. **For Medium OPUP configuration**: At the right side of the router, set the power switch to the Off (0) position.

n. At the `rommon 2>` prompt, enter: **~.** (**<Shift>~**, release, and then **.**)

Feedback: `[EOT]` will appear, then an `/export/home/opupmgr>` prompt

o. At the `/export/home/opupmgr>` prompt, enter:

sudo tip -115200 /dev/cua/a<Return>

Feedback: `connected`

p. At the rear of the communication router, place the power switch(es) to the On (1) position. For the Large OPUP router, set both power supply switches to On (1) at the same time. Proceed to front of cabinet immediately.

q. Wait for the `rommon 1>` prompt to appear in the Terminal window.

r. At the `rommon 1>` prompt, enter: **xmodem -c flash<Return>**

Feedback: `Do not start the sending program yet...`

`Invoke this application only for disaster recovery.`
`Do you wish to continue? y/n [n]:` prompt.

s. At the `Do you wish to continue? y/n [n]:` prompt, enter: **y<Return>**

Feedback: `Ready to receive file...` prompt.

t. At the `Ready to receive file...` prompt, enter: **~C** (while pressing **<Shift>** key, press **~C**)

Feedback: `~CLocal command?` prompt.

u. At the `~CLocal command?` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

   /usr/local/bin/sx /tftpboot/c366Ø.bin<Return>

2. For Medium OPUP configuration, enter:

   /usr/local/bin/sx /tftpboot/c364Ø.bin<Return>

   The system will download the new IOS file and perform a reboot. This process takes approximately 15 - 30 minutes.

   Feedback: `Would you like to enter the initial configuration dialog? [yes/no]:` prompt

   Proceed to next step.

13. Cycle power to the communication router and break into the tip session by performing the following steps:

a. At the rear of the applicable Communication Router UD80A3, turn power to the Off (0) position as follows:

1. **For Large OPUP configuration**: At the right side of the router, set both power supply switches to the Off (0) position.

2. **For Medium OPUP configuration**: At the right side of the router, set the power switch to the Off (0) position.

NOTES

Prior to performing the next step, locate the **~** (tilde) key and the **#** key. The keystroke command of **~#** (while pressing **<Shift>** key, press **~#**) must be entered once the following applicable message is displayed, approximately 3 seconds after power is turned back on:

For Large OPUP: `C3660 processor with 32768 Kbytes of main memory` or **For Medium OPUP**: `C3600 processor with 32768 Kbytes` of main memory

If the Terminal window should become unresponsive or the communication router # prompt should not respond to commands from the keyboard,

press **~.** (**<Shift>~**, release, then **.**) and then press the **<Ctrl>** and **C** key to get to a # prompt. If the Terminal window still does not respond, close the Terminal and begin again from Step 6.

b. At the rear of the communication router, place the power switch(es) to the On (1) position. For the Large OPUP router, set both power supply switches to On (1) at the same time. Proceed to front of cabinet immediately.

c. When the following applicable message is displayed in the Terminal window:

For Large OPUP: `C3660 processor with 32768 Kbytes of main memory`

For Medium OPUP: `C3600 processor with 32768 Kbytes of main memory`

`Main memory is configured to 64 bit mode with parity disabled`

immediately enter: **~#** (**<Shift>~#**)

Feedback: `monitor: command "boot" aborted due to user interrupt` rommon 1>

14. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

sudo chmod o-r /tftpboot/c366Ø.bin<Return>

2. For Medium OPUP configuration, enter:

sudo chmod o-r /tftpboot/c364Ø.bin<Return>

Feedback: `/export/home/opupmgr>` prompt appears.

15. At the first Terminal window, click within the window and perform the following:

a. At the `rommon 1>` prompt, enter: **confreg Øx2142<Return>**

Feedback: `You must reset or power cycle for new config to take effect rommon 2>` prompt appears. The router will be "reset" later.

b. At the `rommon 2>` prompt and enter: **confreg<Return>**

Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

c. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **y<Return>**

Feedback: `enable “diagnostic mode”? y/n [n]:` prompt.

d. At the `enable “diagnostic mode”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “use net in IP bcast address”? y/n [n]:` prompt.

e. At the `enable “use net in IP bcast address”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `disable “load rom after netboot fails”? y/n [n]:` prompt.

f. At the `disable “load rom after netboot fails”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “use all zero broadcast”? y/n [n]:` prompt.

g. At the `enable “use all zero broadcast”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “break/abort has effect”? y/n [n]:` prompt.

h. At the `enable “break/abort has effect”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `disable “ignore system config info”? y/n [n]:` prompt.

i. At the `disable “ignore system config info”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `change console baud rate? y/n [n]:` prompt.

j. At the `change console baud rate? y/n [n]:` prompt, enter: **y<Return>**

Feedback:
```
enter rate: 0=9600, 1=4800, 2=1200, 3=2400
            4=19200, 5=38400,6=57600, 7=115200 [0]
```

At the `enter rate [0]:` prompt, enter: **Ø<Return>**

Feedback: `change the boot characteristics? y/n [n]:` prompt.

k. At the `change the boot characteristics? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

l. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `rommon 3>` prompt.

m. At the `rommon 3>` prompt, enter: **reset<Return>**

n. Below the `rommon 3>` prompt, enter **~.** (**<Shift>~**, release, and then **.**)

Feedback: `[EOT]` will appear, then an `/export/home/opupmgr` prompt

o. At the `/export/home/opupmgr` prompt, enter:

sudo tip -9600 /dev/cua/a<Return>

Feedback: `connected`

p. Below the `connected` prompt, enter: **<Return>**

Feedback: `Would you like to enter the initial configuration dialog? [yes/no]:` prompt.

q. At the above prompt, enter: **n<Return>**

Feedback: `Press RETURN to get started!` prompt.

r. At the `Press RETURN to get started!` prompt, press the **<Return>** key.

Feedback: `Router>` prompt.

s. At the `Router>` prompt, enter: **enable<Return>**

Feedback: `Router#` prompt.

t. At the `Router#` prompt, enter: **conf t<Return>**

Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`

`Router(config)#` prompt.

u. At the `Router(config)#` prompt, enter: **no logg mon<Return>**

v. At the `Router(config)#` prompt, enter: **no logg con<Return>**

w. At the `Router(config)#` prompt, enter: **int fØ/Ø<Return>**

Feedback: `Router(config-if)#` prompt.

x. At the `Router(config-if)#` prompt, enter the site dependent Router IP-address in the following string:

ip address 1Ø.5.= = =.2 255.255.255.Ø<Return>

Where = = = is the 2 or 3 digit, site specific third octet number of the Router IP-address. (Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.)

y. At the `Router(config-if)#` prompt, enter:

no shutdown<Return>

z. At the `Router(config-if)#` prompt, enter: **exit<Return>**

Feedback: `Router(config)#` prompt.

aa. At the `Router(config)#` prompt, enter: **exit<Return>**

Feedback: `Router#` prompt.

16. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

sudo chmod o+r /tftpboot/puprtrl<Return>

2. For Medium OPUP configuration, enter:

sudo chmod o+r /tftpboot/puprtrm<Return>

Feedback: `/export/home/opupmgr` prompt appears.

17. At the first Terminal window, click within the window and perform the following:

    a. At the `Router#` prompt, enter the following: **copy tftp start<Return>**

    Feedback: `Address or name of remote host []?` prompt.

    b. At the `Address or name of remote host []?` prompt, enter:

    1Ø.5.= = =.1<Return>

    Where = = = is the 2 or 3 digit, site specific third octet number of the (Data) Server IP-address. (Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.)

    Feedback: `Source filename []?` prompt.

    c. At the `Source filename []?` prompt, enter the following applicable command:

    1. For Large OPUP configuration, enter: **puprtrl<Return>**

    2. For Medium OPUP configuration, enter: **puprtrm<Return>**

    Feedback: `Destination filename [startup-config]?` prompt.

    d. At the `Destination filename [startup-config]?` prompt, press the **<Return>** key. The following messages will be displayed:

    Feedback:

    `Accessing tftp://10.5.= = =.1/puprtrl (`or `puprtrm` for Medium OPUP)

    `Loading puprtrl` (or `puprtrm` if a Medium OPUP) `from 10.5.= = =.1 (via FastEthernet0/0): !!!!!)`

    [`OK` - *XXXXX/XXXXX* bytes]

    `[OK]`

    XXXXX bytes copied in *X.Xxx* secs (x bytes/sec)

    `Router#`

18. At the second Terminal window, click within the window and perform the following:

    a. At the `/export/home/opupmgr` prompt, enter the applicable string command as follows:

        1. For Large OPUP configuration, enter:

            sudo chmod o-r /tftpboot/puprtrl<Return>

        2. For Medium OPUP configuration, enter:

            sudo chmod o-r /tftpboot/puprtrm<Return>

            Feedback: `/export/home/opupmgr` prompt.

19. At the first Terminal window, click within the window and perform the following:

    a. At the `Router#` prompt, enter: **conf t<Return>**

        Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`

        `Router(config)#` prompt.

    b. At the `Router(config)#` prompt, enter:

        config-register Øx21Ø2<Return>

    c. At the `Router(config)#` prompt, enter: **exit<Return>**

        Feedback: `Router#` prompt.

    d. At the `Router#` prompt, enter: **reload<Return>**

        Feedback: `System configuration has been modified. Save? [yes/no]:` prompt.

    e. At the `System configuration has been modified. Save? [yes/no]:` prompt, enter: **n<Return>**

        Feedback: `Proceed with reload? [confirm]` prompt.

    f. At the `Proceed with reload? [confirm]` prompt, press **<Return>**

Feedback: Starts communication router reload process. The router will reboot. This will take approximately 90 seconds. Once completed, the DoD Computer System warning screen should be displayed.

g. When the DoD security warning message appears, press **<Return>**

Feedback: `User Access Verification`

`Password:` prompt.

h. At the `Password:` prompt, enter: *Current Router Password***<Return>**

Feedback: `puprtr>` prompt.

i. At the `puprtr>` prompt, enter: **~.** (**<Shift>~**, release, and then **.**)

Feedback: `[EOT]` will appear; then an `/export/home/opupmgr` prompt.

j. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: First Terminal window closes.

20. At the second Terminal, perform the following:

a. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: Second Terminal window closes.

21. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.

Feedback: `OPUP Server Control Menu` displays.

22. At the `OPUP Server Control Menu`, click on the **Restart Server** button. An `OPUP Manager Restart Server` pop-up warning message will appear. Then click on the **Yes** button. The Server will reboot and the CDE Login screen will be displayed. This will take approximately 5 minutes. Return the Server to the normal operating position.

23. Disconnect the Cisco configuration cable from the router and server serial A port.

(31) RESEAT UD80A22 (PHASER 8200 ONLY) PRINTER MAIN BOARD.

This flowchart note addresses the Printer's UD80A22 ability to power-up. The steps provided in this flowchart note have the operator reset the main board in the rear of the printer to reset the system.

Prerequisite: The Printer UD80A22 must have AC power supplied, powered to the on position.

Step	Operator Action	System Response/Comments
1	At the UD80A22, turn off power at the rear of the printer. Unplug the AC power connector.	Printer will power off.
2	Disconnect the network cable.	
	****ESD** CAUTION **ESD**** The OPUP internal components are electrostatic sensitive devices which require special handling. Refer to paragraph 6.5.3.7.	
3	Turn the plastic knobs on the back of the printer counter-clockwise to free the main board.	
4	Extend the plastic handle and pull it to remove the main board.	This removes the main board.
5	Guide the main board into the guides on the printer and slide it in. Firmly press on the indentations on the main board back panel to reseat the board	This reseats the main board.
6	Turn the plastic knobs clockwise to keep the main board firmly seated.	
7	Reconnect all communications cables.	
8	Reconnect the AC power plug and turn printer on.	Printer should perform Power-On-Self-Test and print test pages.

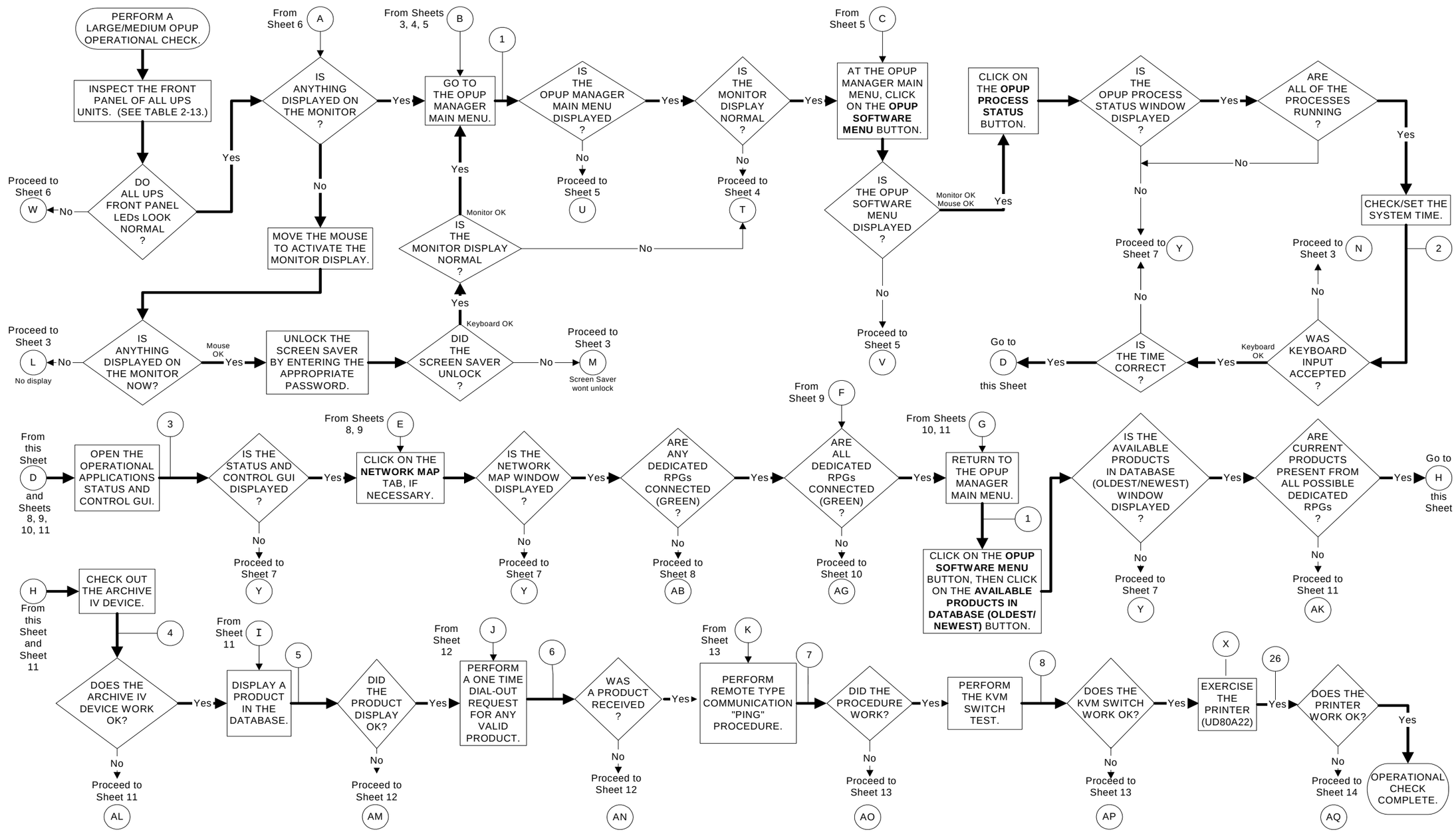


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 14)

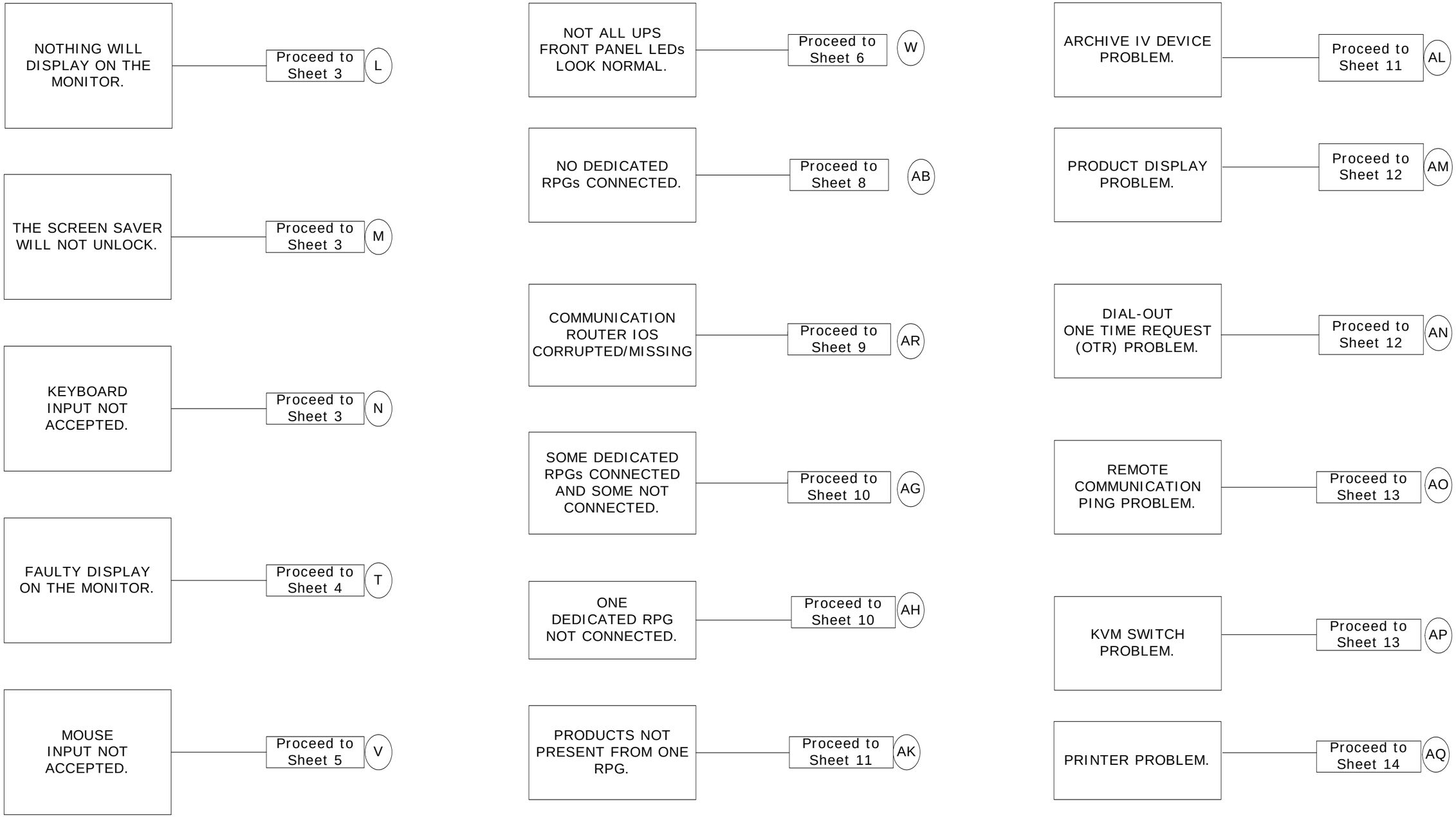


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Quick Reference Chart) (Sheet 2 of 14)

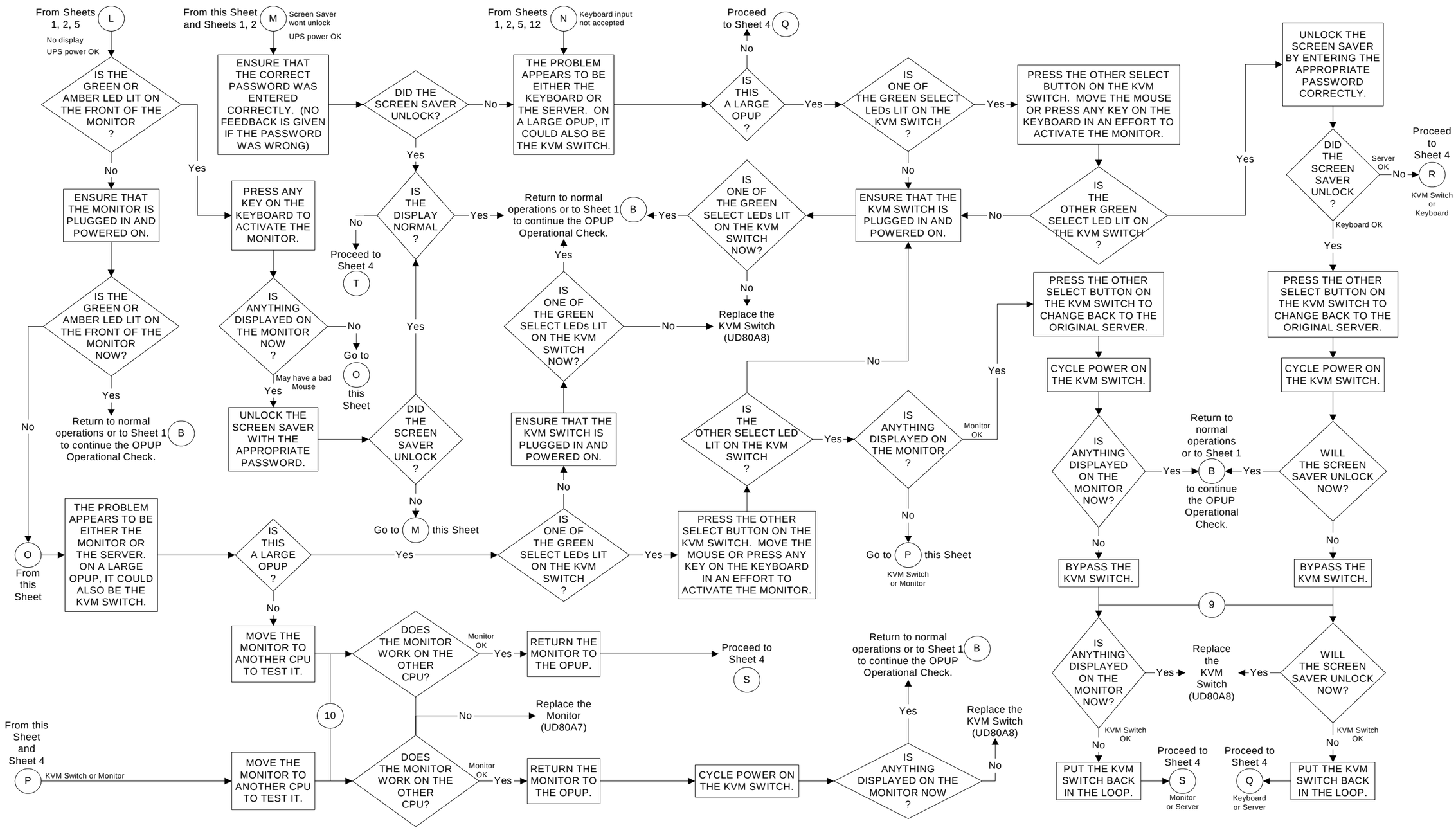


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Monitor/KVM/Switch Problem) (Sheet 3 of 14)

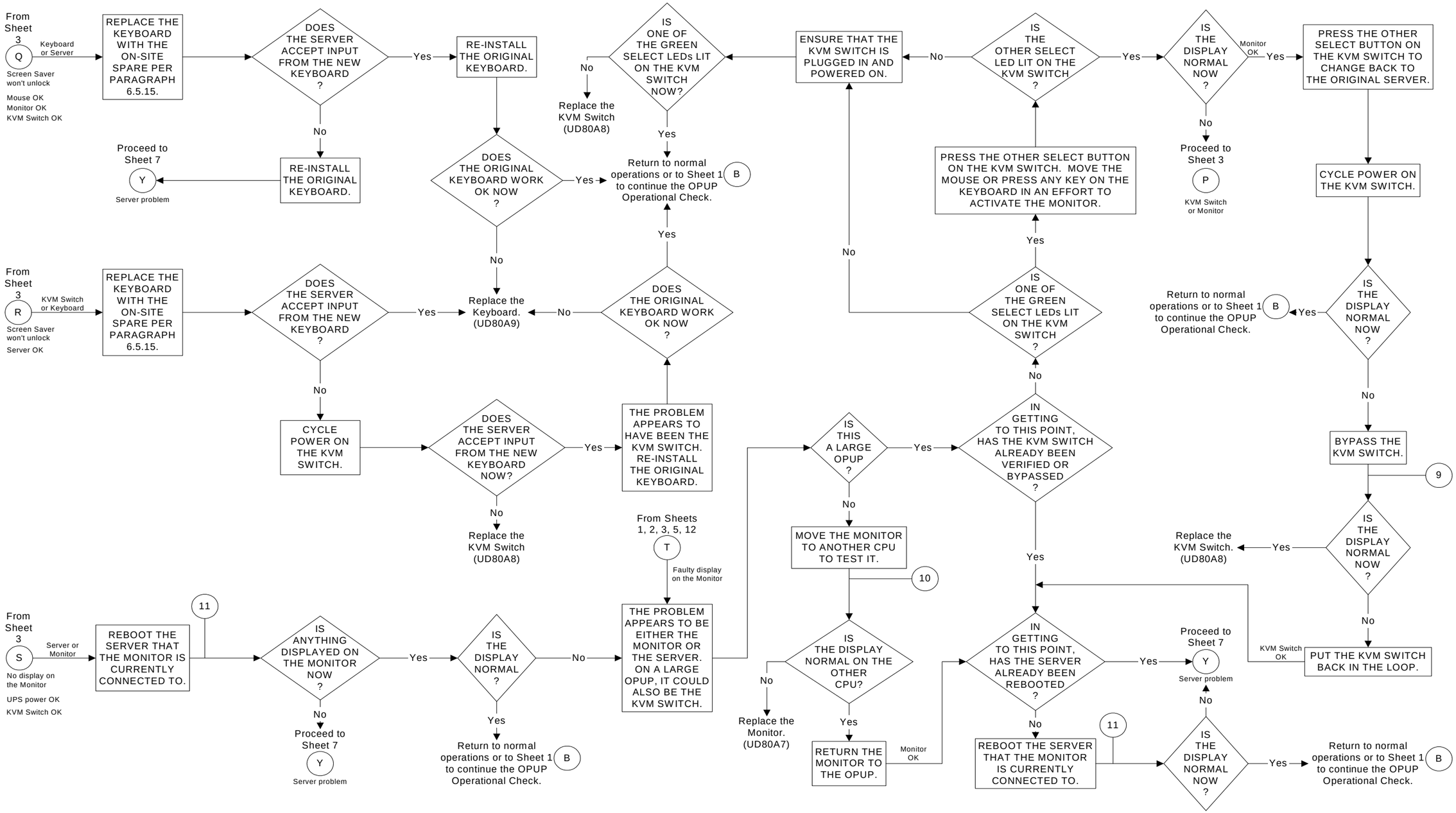


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Keyboard/Server/Monitor/KVM Switch Problem) (Sheet 4 of 14)

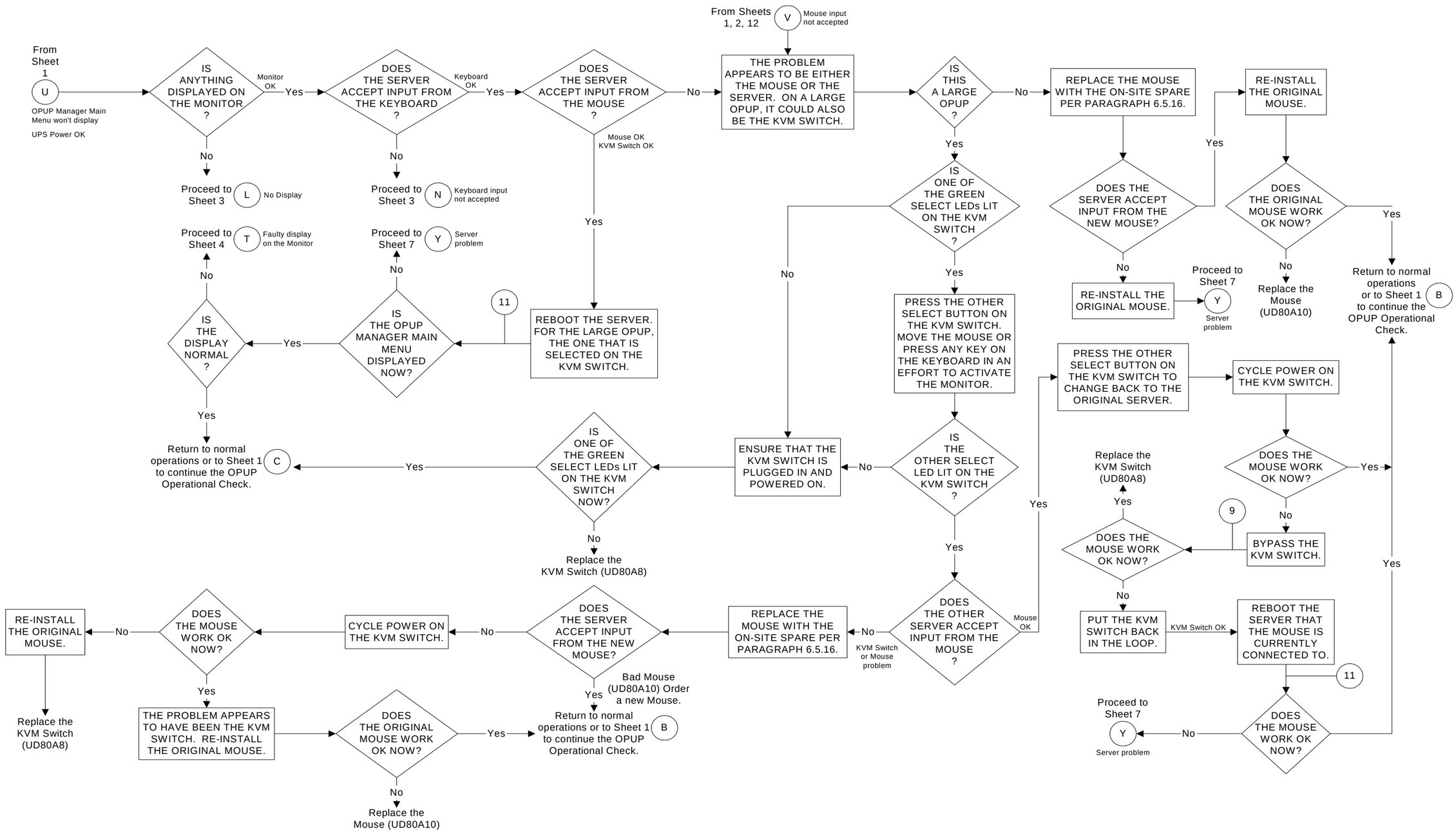


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Server/Mouse/KVM Switch Problem) (Sheet 5 of 14)

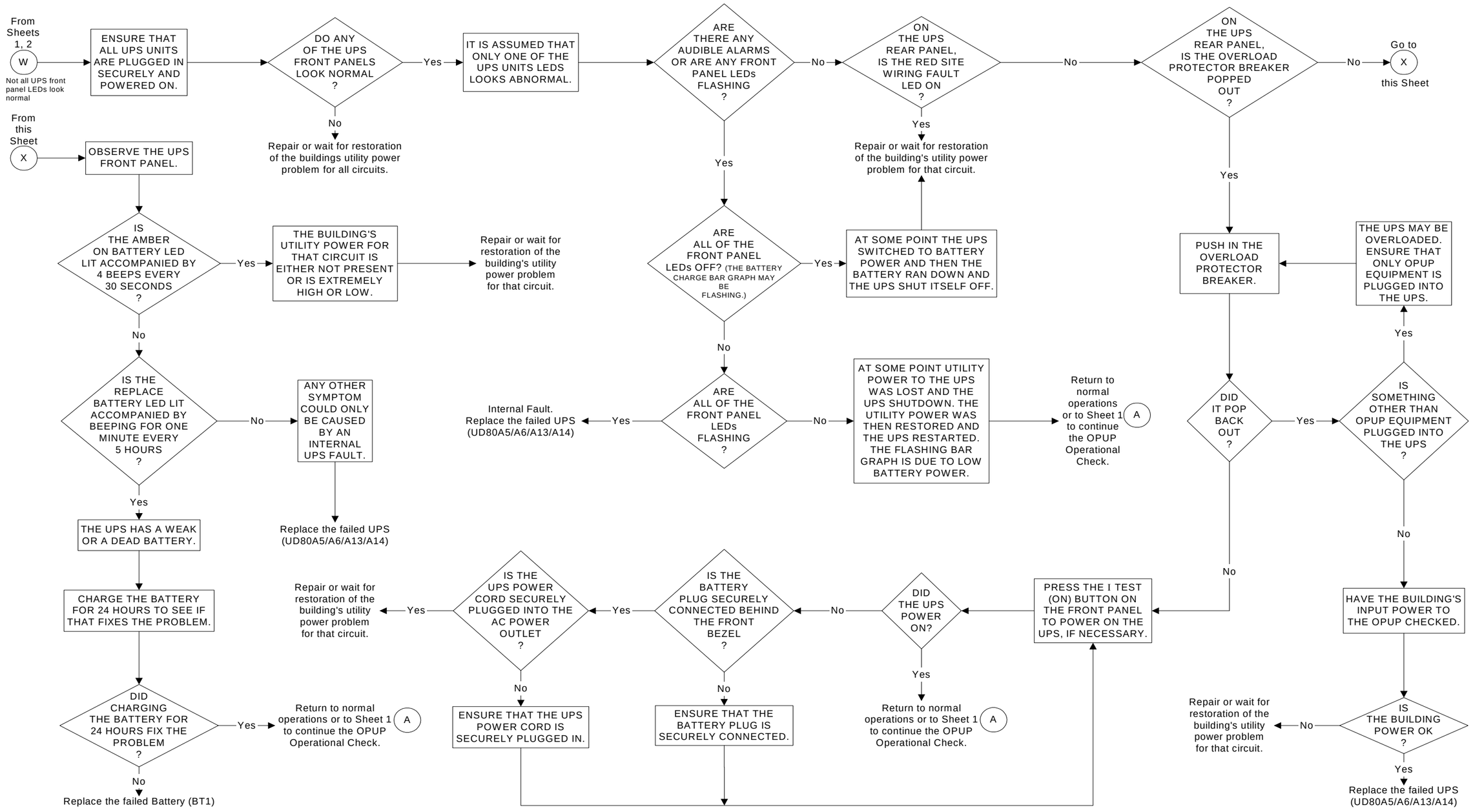


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (UPS Problem) (Sheet 6 of 14)

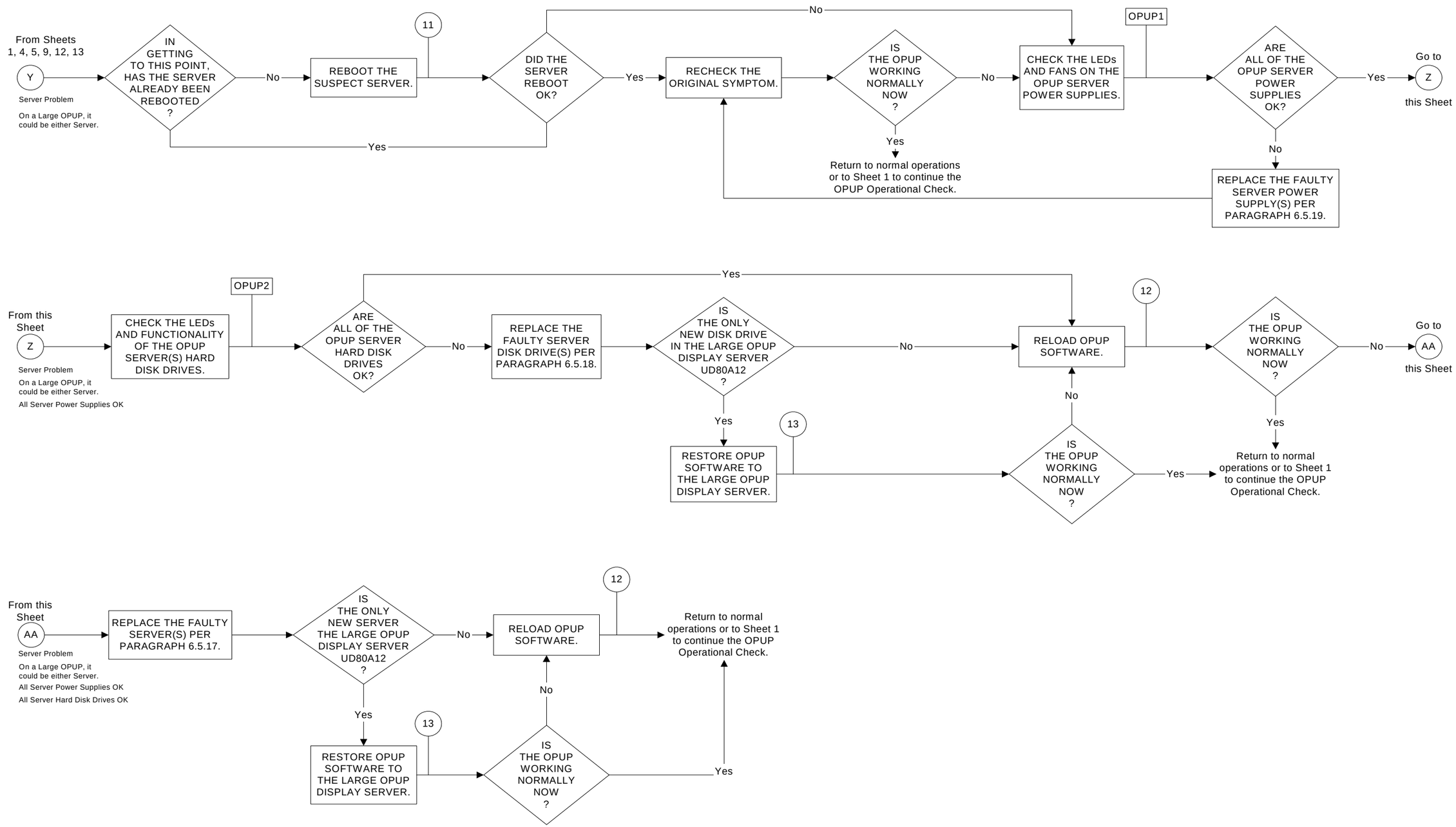


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Server Problem) (Sheet 7 of 14)

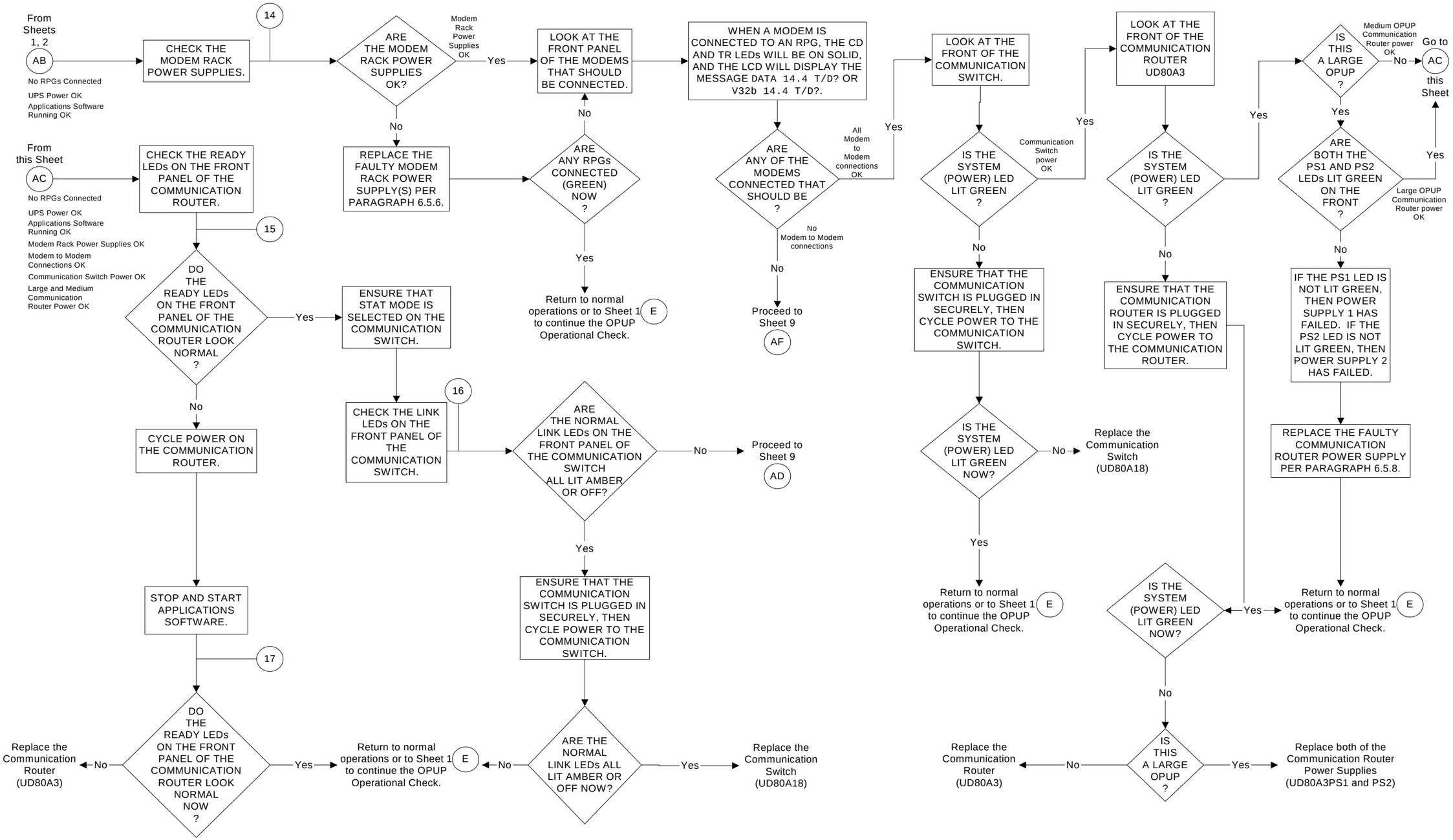


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part I) (Sheet 8 of 14)

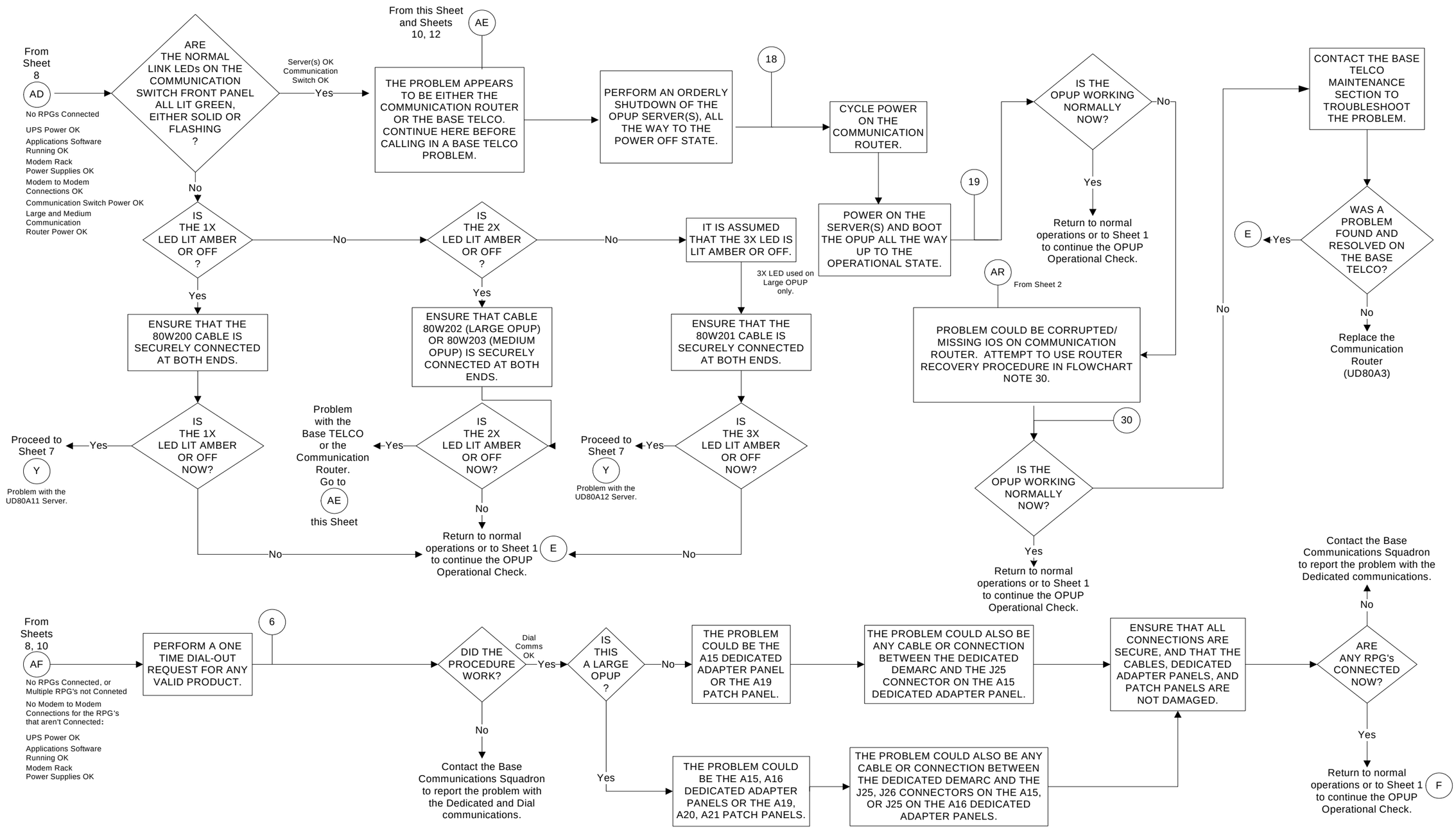


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part II) (Sheet 9 of 14)

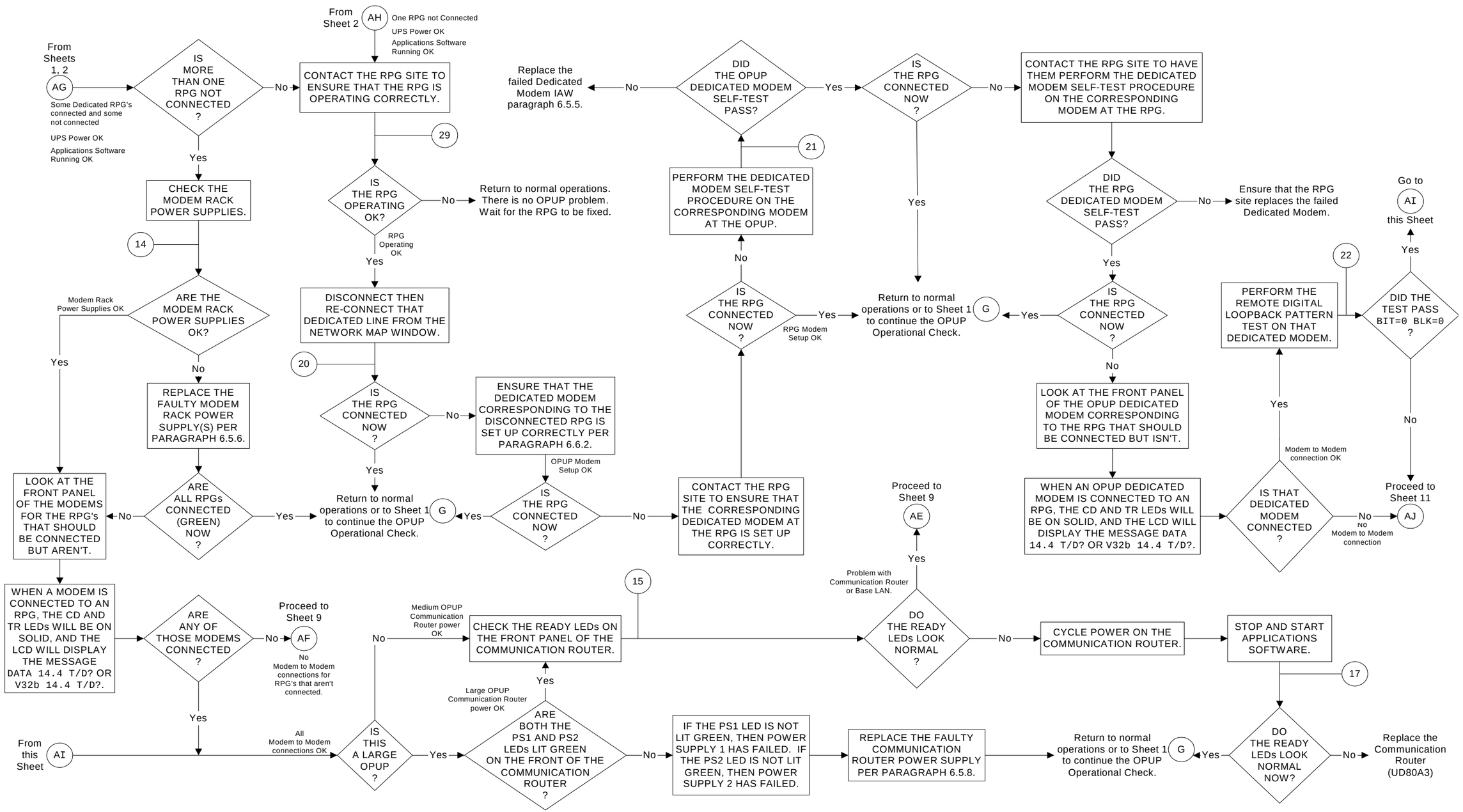


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (One or Some Dedicated Communications Failed Problem) (Sheet 10 of 14)

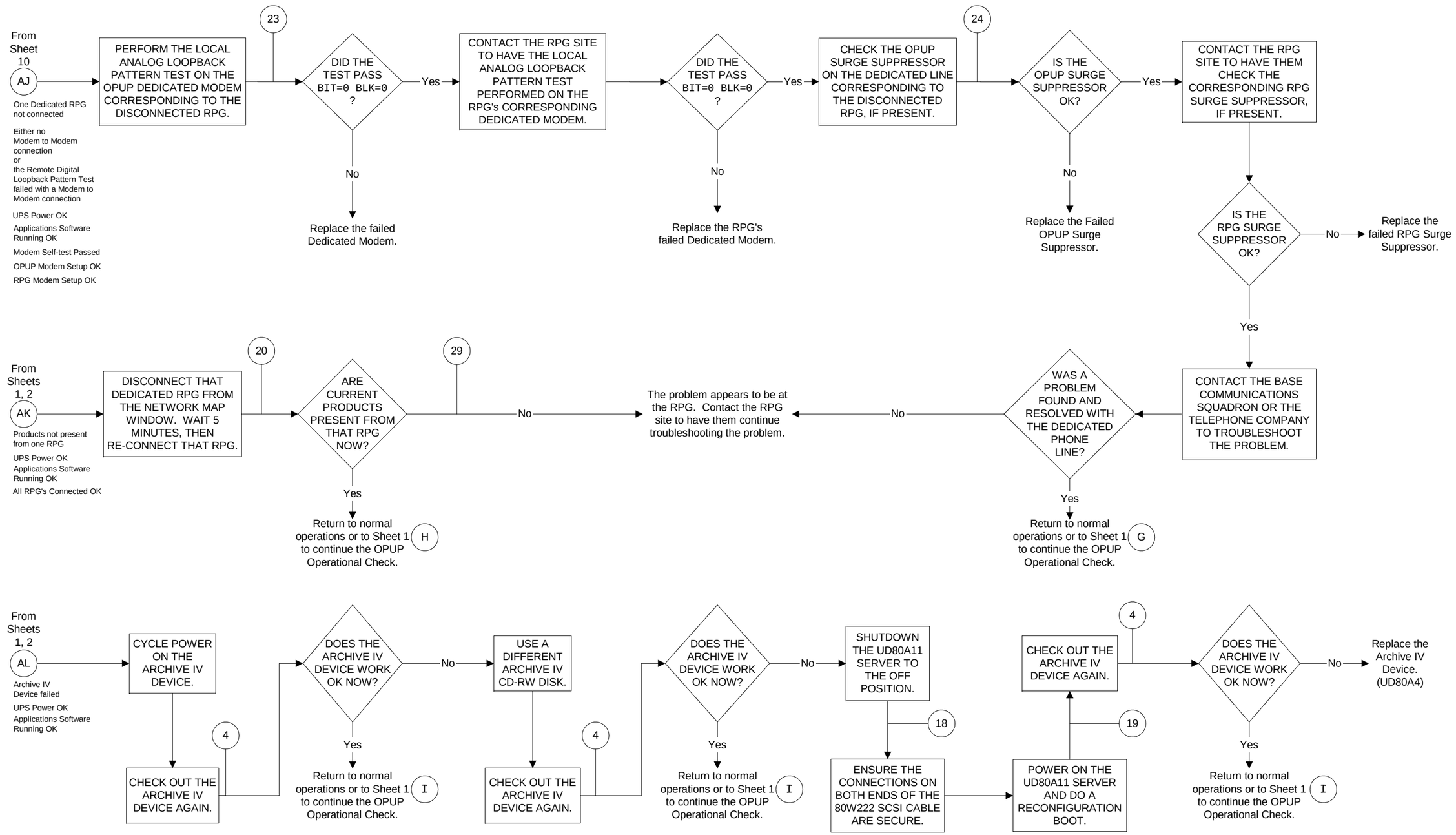


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (One Dedicated RPG Circuit or Archive IV Device Failed Problem) (Sheet 11 of 14)

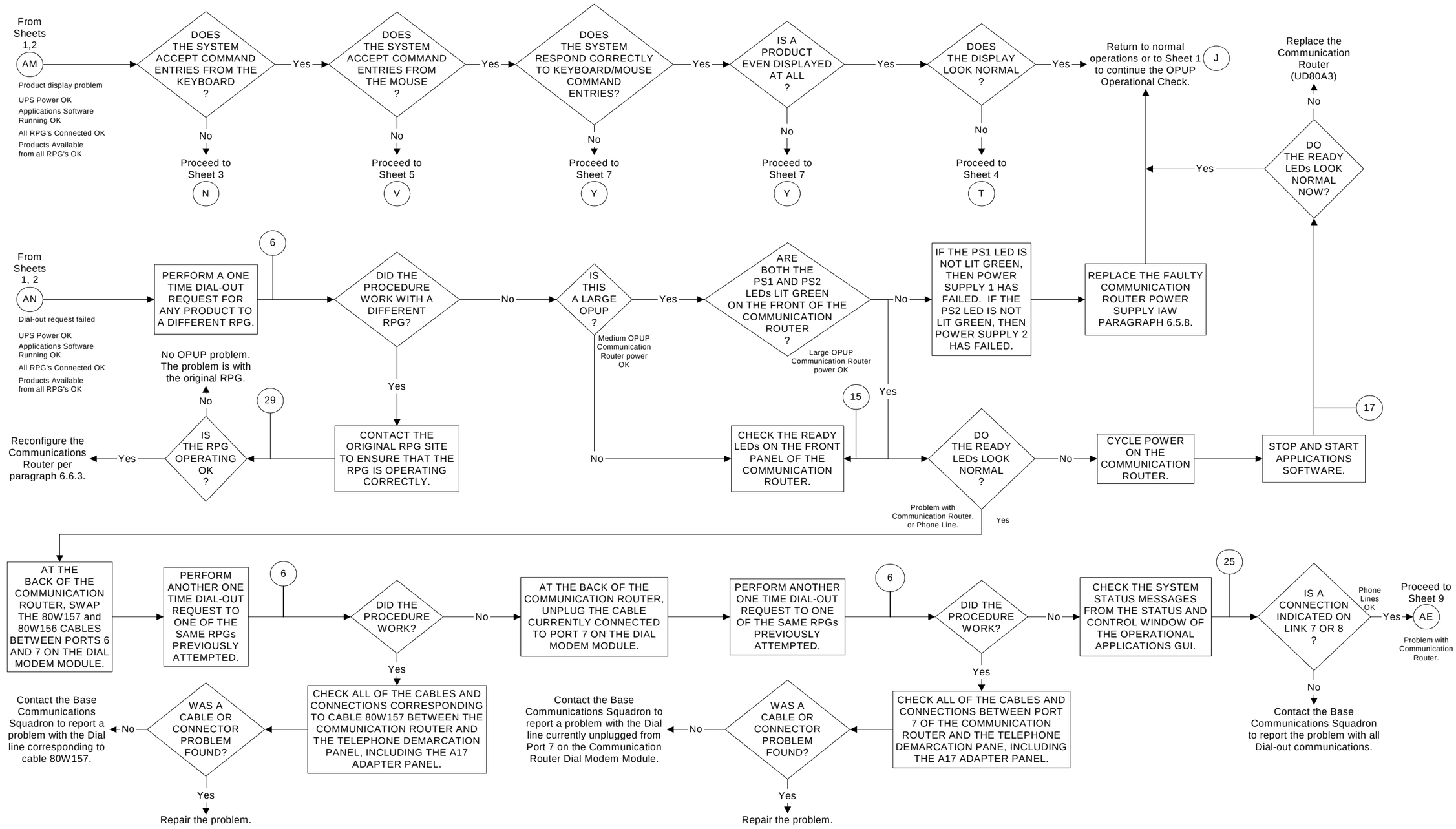


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Product Display or Product Request Problem) (Sheet 12 of 14)

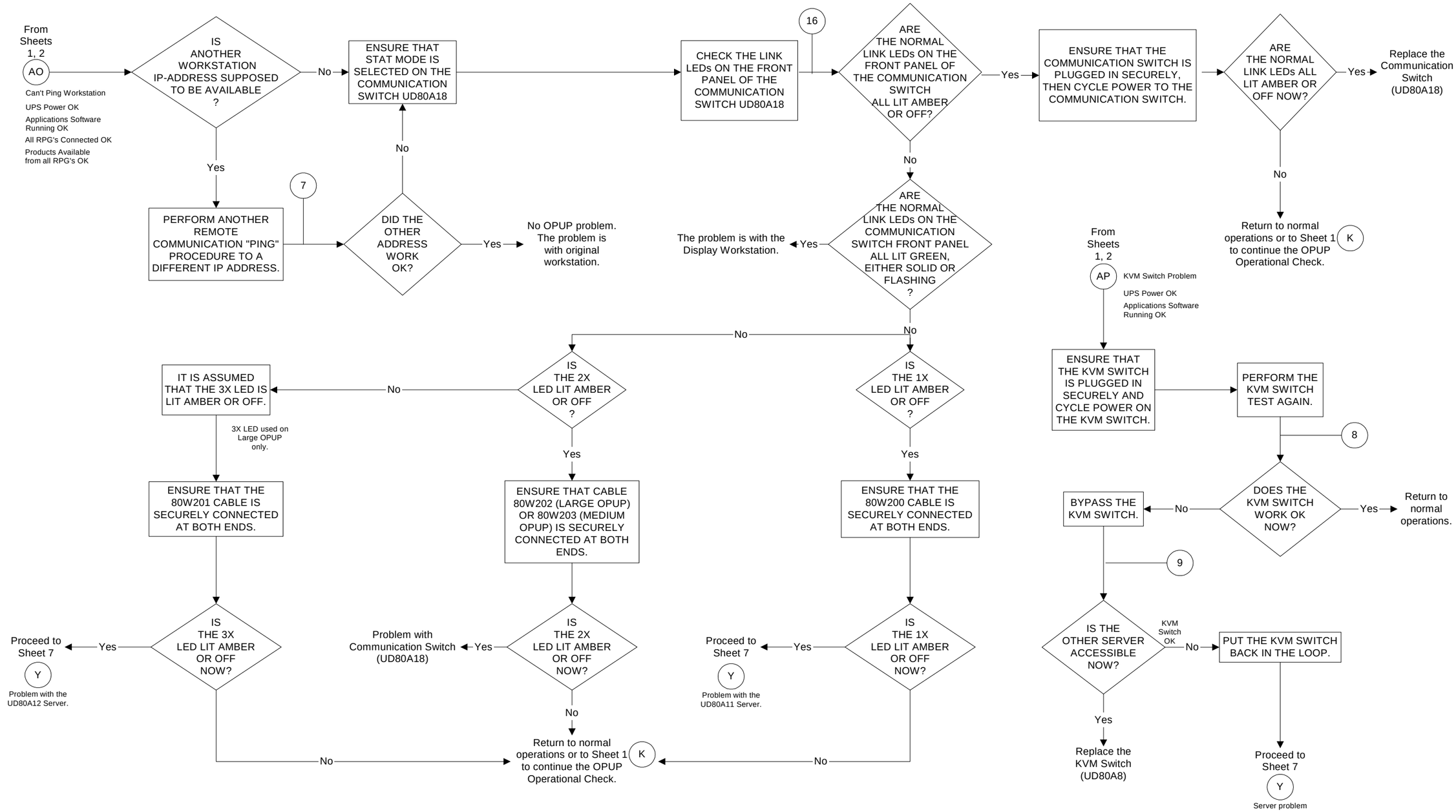


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Display Workstation or KVM Switch Problem) (Sheet 13 of 14)

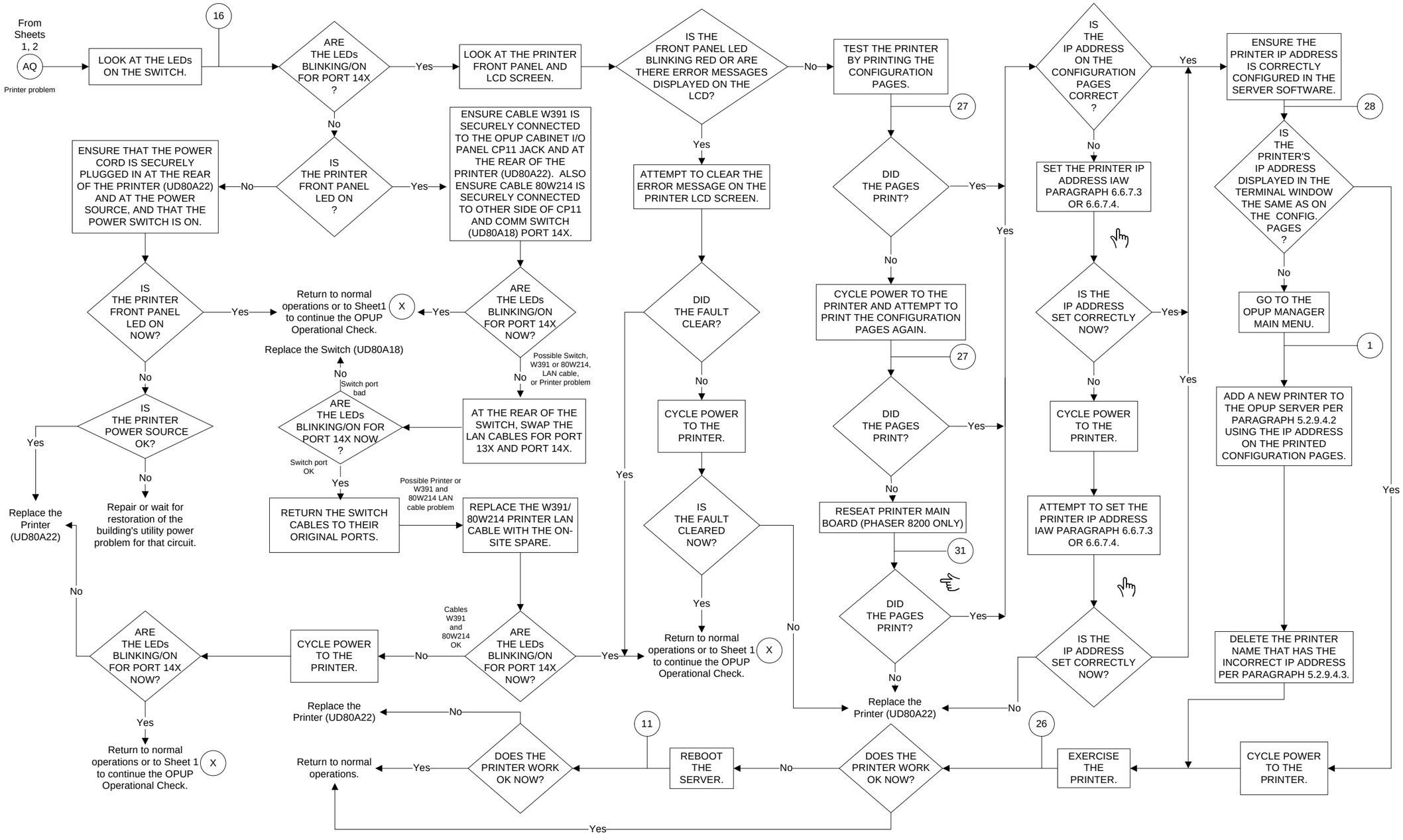


Figure 6-1. Large and Medium OPUP Fault Isolation Flowchart (Printer) (Sheet 14 of 14)

Section 6.4. SECONDARY FAULT ISOLATION

6.4.1 Introduction.

This section contains the instructions and procedures necessary to perform secondary fault isolation associated with the equipment contained in the Large and Medium OPUP Equipment Group UD80. The Display Workstation UD85 does not require Secondary Fault Isolation Guidance. Secondary fault isolation procedures are included with specific areas of the isolation flowcharts used with primary fault isolation procedures. When a primary isolation fault leads to a group of multiple LRUs, a secondary fault isolation procedure is used to isolate the fault to a single LRU. The LRU equipment items that may require secondary fault isolation guidance are the OPUP Equipment Group UD80 Server(s) UD80A11/UD80A12 internal power supplies and internal hard drives. The following reference designations apply:

- Primary and Secondary Power Supplies UD80A11PS1/PS2 and UD80A12PS1/PS2.
- Primary and Secondary Hard Drives UD80A11A1/A2 and UD80A12A1/A2.

6.4.2 Secondary Fault Isolation One (OPUP1).

Secondary fault isolation guidance for each internal OPUP server power supply will be assigned as OPUP1 on the associated/applicable primary flowchart (See Figure 6-1, Sheet 7). Each OPUP server has two internal “hot-swappable” power supplies which are designed to provide internal power to the server chassis and work independently of each other. As long as one is operating normally, the other may be removed. This means the server only utilizes one at a time, leaving the other to act as a “fail-over” or backup power supply. Both will be in the normal power On position while the OPUP server is operating. Figure 6-2, illustrates both the server’s front bezel and keyswitch that are used to provide access to the internal power supplies.

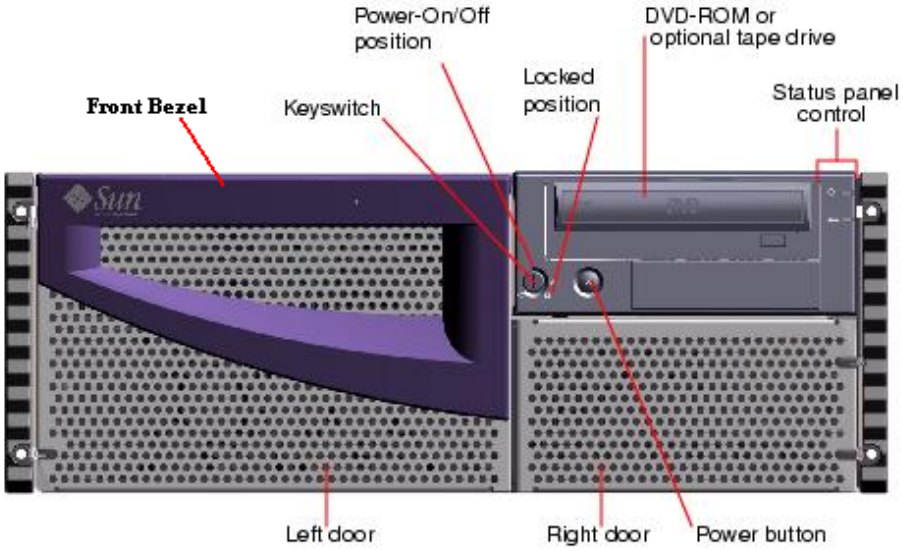


Figure 6-2. OPUP Server Front Panel

If access is required, ensure that the server keyswitch is in the open (pointer is in the “Up” position), grasp the front bezel, and pull the front bezel towards you. The primary internal power supply PS1 will immediately be visible. To view the secondary power supply PS2, grasp the cage door located immediately below the internal DVD/CD-ROM player unit and pull it towards you. The secondary power supply PS2 will then be visible.

6.4.2.1 Normal Operations. Figure 6-3 is provided to illustrate the location of each internal power supply. As depicted in Figure 6-3, each power supply has two fans in front and three LEDs on the front left side. If each power supply is functioning normally, each internal fan will be spinning and drawing air into the power supply chassis. In addition, the three power supply LEDs will appear as follows:

- DC Power LED (ON solid green)
- Wrench LED (OFF)
- AC (Wave) LED (ON solid green)

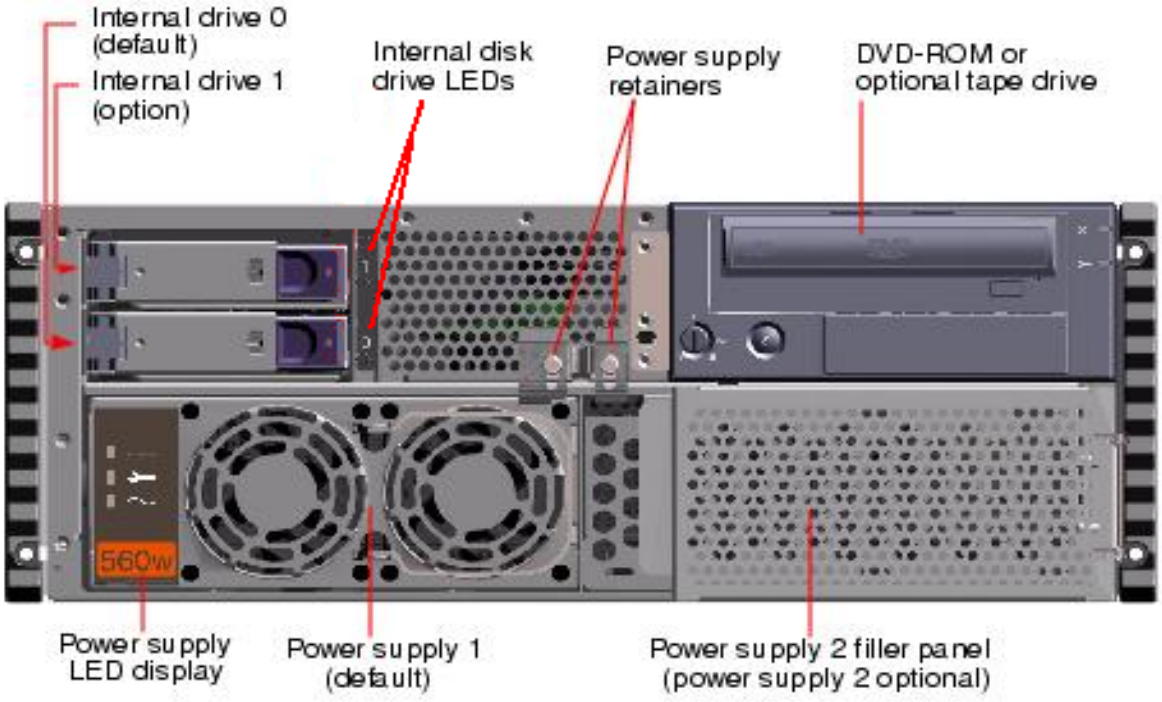


Figure 6-3. Server Front Panel (Doors Missing)

6.4.2.2 Abnormal Operations. Abnormal operations will be indicated by any internal power supply fan failure and/or the following LED indicators:

- DC Power LED (OFF)
- Wrench LED (ON AMBER)
- AC (Wave) LED (OFF)

If any power supply fan(s) are not operating (not spinning), or if any LED does not appear as described in paragraph 6.4.2.1 the power supply should be replaced. The other power supply will continue to power the server until the failed power supply is replaced.

6.4.3 Secondary Fault Isolation Two (OPUP2).

Secondary fault isolation guidance for the internal OPUP server hard drives will be assigned as OPUP2 on the associated/applicable primary flowchart (See Figure 6-1, Sheet 7). Each OPUP server has two internal hard drives, designated at the primary and secondary hard drive. The primary hard drive UD80A11A1 is used as the primary OPUP Server OS processing drive and the secondary hard drive UD80A11A2 is used to store WSR-88D product and message data. Each internal hard drive functions independent of each other. Referring to Figure 6-3, each primary and secondary hard drive is located near the top left of each OPUP server. The primary hard drive is located in the bottom position and the secondary hard drive is located in the top position. The OPUP server must be shutdown before any of these drives are removed.

Figure 6-2 illustrates both the server's front bezel and keyswitch that are used to provide access to the internal hard drives. If access is required, ensure that the Server keyswitch is in the open (pointer is in the "Up" position), grasp the front bezel, and pull the front bezel towards you. Both of the internal hard drives A1/A2 will be visible.

All drives must be operational for the OPUP server to function correctly. Each hard drive has two status LEDs. One LED is near the rear of each drive (associated with the SCSI connector) and other LED is at the front of each drive (associated with data read/write operations).

6.4.3.1 Normal Operations. Figure 6-3 is provided to illustrate the location of each internal hard drive. Normal hard drive operations are indicated by all associated LEDs flashing green in any OFF and/or ON sequence (steady green LED(s) may be indicated for a short duration during normal operations).

6.4.3.2 Abnormal Operations. Abnormal operations are indicated by any associated LED(s) indicators being in the continuos OFF position for a long duration or in the ON position in a solid green fashion. Each internal hard drive is critical to the functionality of the OPUP Server OS operations. Some internal indicators could be present which may lead to the determination of imminent hard drive failure, such as repeated file corruption(s), access error messages displayed on the monitor screen, and/or constant hard drive access (accompanied by repeated clicking sounds) by the OPUP Server OS, etc. These errors may be solved by re-installing the OPUP

Server OS. However, if repeated software installations are required, replacing the primary hard drive may fix these errors if no software application or internal OPUP Server OS problem has been found. However, if it is determined that any hard drive has failed, the hard drive must be replaced. The following steps provide the guidance necessary to determine whether the hard drive is to be replaced if external indicators are not obvious:

Step	Procedure
1	Locate and observe the LEDs on each hard drive. The following applies if any associated LED(s) remain OFF for a long period of time: • If any LED located at the rear of the drive (as viewed through the metal vent screen at the front of the Server) is Off, either the SCSI cable is disconnected, powered Off/faulty, or the drive connectors are faulty. • If any LED at the front of the drive is OFF, the drive is bad.
2	An LED that is displaying a solid green indicator is either waiting for input/output or the drive is unable to continue operations. If an LED is a solid green for a long duration, attempt to clear the process and/or fault that may be causing it. The following procedures apply: • Perform a **Restart Server** procedure from the `OPUP Manager Main Menu`, `OPUP Server Control Menu`. When the OPUP Server is finished rebooting, observe the hard drive again. • If the associated LED(s) are flashing Off and On green, then the drive is functioning normally. • If an LED returns to a solid green/remains in a solid green illumination after the reboot procedure, either the drive continues to wait for input, is stuck in a wait state (due to either a faulty software process), or some internal part is bad. The drive should be replaced.

3	To isolate the fault to either a bad hard drive or an internal software process:
	
	• Shut the system down to the `ok` prompt.
	
	• At the `ok` prompt, enter **probe-scsi-all<Return>**
	
	The following feedback should be displayed:
	
	`LiD HA LLIN ----Port WWN---- -------Disk Description------`
	`0 0 0 21000004cf96cb17 SEAGATEST336605FSUN36G 0438`
	`1 1 1 21000004cf96c221 SEAGATEST336605FSUN36G 0438`

The feedback from Step 3 is interpreted as follows:

- The line beginning with 0 indicates that hard drive 0 (bottom position) is functioning normally.
- The line beginning with 1 indicates that hard drive 1 (top position) is functioning normally.

If either of these lines is missing, the corresponding hard drive should be replaced.

Section 6.5. REMOVE AND REPLACE PROCEDURES

6.5.1 Introduction.

This section provides the instructions necessary to remove and replace an assembly or sub-assembly associated with the Line Replaceable Unit (LRU) found within the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85. Each procedure provided with these instructions are organized by reference designation number types. The information provided in Table 6-2, OPUP LRU Replacement Procedure Index, provides a quick method to identify the paragraph that corresponds to the equipment item that is to be removed and replaced. In addition to Table 6-2, Figure 2-4 through Figure 2-7 can be used as required to quickly locate each assembly item and associated cables while performing each remove and replace procedure.

NOTE

> It is imperative that the procedures provided for each LRU remove/replace procedure are followed. Damage to the LRU equipment cabinet rack supports or the equipment cabinet may occur.

Visual inspection and reference to equipment layout/interconnection drawings used to determine access requirements, cable connections, and fastening hardware should suffice for most of the OPUP assemblies. There are three types of assemblies for which special procedures are required. These include certain electro-mechanical assemblies, printed circuit cards, and peripheral communications devices. Each of these types is defined in the following paragraphs. For exact parts location identification and part number ordering data, refer to Chapter 7, Illustrated Parts Breakdown (IPB). All setup and configuration instructions are provided in Section 6.6.

6.5.1.1 DIP Switches/Jumpers. The only equipment item that may require adjustment of integrated jumpers or miniature built-in switches before they are installed will be the KVM Switch UD80A8, Modem Rack UD80A1 and UD80A2, Dedicated Modems UD80A1A1-A21/ UD80A2A1-A11, and the Archive IV Device UD80A4. The DIP switches associated with these LRUs are either in the form of a rotary, rocker, or DIP type switch. The reason for this requirement is that many of these devices are standard commercial-off-the-shelf assemblies which can function in several different modes or configurations. They must be configured for their specific application at the time of installation. This section provides tables for determining the proper switch/jumper setting for each unique device application and includes card layout figure(s) for positive identification of each DIP switch.

NOTE

> All straps not defined in this section must be left in the original configuration as received from the factory/spares depot.

6.5.2 LRU Replacement Index. The following index is provided to outline each available remove and replace procedure associated with all of the equipment associated with the Large and Medium OPUP Equipment Group UD80 and Display Workstation UD85.

NOTE

The Large and Medium OPUP Equipment Group UD80 designation contains equipment that are identical for a specific application (i.e., OPUP Server UD80A11 and UD80A12). The remove and replace procedure will not be written for duplicate equipment unless safety and damage to equipment requires specific guidelines to be written.

Table 6-2. OPUP LRU Replacement Procedure Index

Reference Designation	Description/Name	Paragraph Number
UD80A1/A2	Modem Rack UD80A1 and UD80A2	6.5.4
UD80A1A1-A21 and UD80A2A1-A11	Dedicated Modem	6.5.5
UD80A1B1 and PS1/PS2 UD80A2B1and PS1/PS2	Modem Rack Fan Module UD80A1A22/A2A22 and Power Supply UD80A1PS1/PS2 and UD80A2PS1/PS2	6.5.6
UD80A3	Communication Router UD80A3	6.5.7
UD80A3PS1/PS2	Communication Router Power Supply UD80A3PS1/PS2 (Large OPUP only)	6.5.8
UD80A4	Archive IV Device UD80A4	6.5.9
UD80A5/A6/A13/A14	UPS UD80A5/A6/A13/A14	6.5.10
UD80A5BT1/A6BT1/ A13BT1/A14BT1	UPS Battery UD80A5/A6/A13/A14BT1	6.5.11
UD80A7	Monitor UD80A7	6.5.12
UD80A8	KVM Switch UD80A8	6.5.13
UD80A8PS1	KVM Switch AC/DC Adapter UD80A8PS1	6.5.14
UD80A9	Keyboard UD80A9	6.5.15
UD80A10	Mouse UD80A10	6.5.16
UD80A11/UD80A12	Server UD80A11/UD80A12	6.5.17
UD80A11A1/A2 and UD80A12A1/A2	Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2	6.5.18
UD80A11PS1/PS2 and UD80A12PS1/PS2	Server Power Supply UD80A11PS1/PS2 and UD80A12PS1/PS2	6.5.19
UD80A15-A17	Adapter Panel UD80A15/16/17	6.5.20
UD80A18	Communication Switch UD80A18	6.5.21

Table 6-2. OPUP LRU Replacement Procedure Index - Continued

Reference Designation	Description/Name	Paragraph Number
UD80A19-A21	Patch Panel UD80A19/A20/A21	6.5.22
UD80A22	Printer Device UD80A22	6.5.23
UD85A1	Display Workstation Monitor UD85A1	6.5.24
UD85A2	Display Workstation CPU/Processor UD85A2	6.5.25
UD85A3/A4	Display Workstation Keyboard UD85A3 and Mouse UD85A4	6.5.26

6.5.3 Other LRU Replacement Guidelines.

The following paragraphs cover additional LRU equipment replacement guidelines. These guidelines should be considered before any Large or Medium OPUP Equipment Group UD80 LRU item is removed or replaced.

6.5.3.1 Safety. Always read the text and procedures and note the safety warnings or cautions provided. Do not attempt to bypass or circumvent instructions and features provided for the safety of personnel or the protection of the equipment.

6.5.3.2 Software Shutdown Procedures. A software shutdown is applicable when it is necessary to stop the application software prior to performing a removal and replacement procedure. When a software shutdown is necessary, it is included in the initial conditions/preliminary setup paragraph of the removal and replacement procedure. If no software shutdown or Server power off procedure is necessary prior to replacing a specific LRU, then that LRU is considered to be hot-swappable.

6.5.3.3 Power Turn-Off Procedures. To protect and prolong the life of the equipment, most LRUs must be powered OFF before connecting/disconnecting, or removing/installing components. Always follow the initial conditions/preliminary setup paragraph included in the removal and replacement procedure for each piece of equipment. If no software shutdown or Server power off procedure is necessary prior to replacing a specific LRU, then that LRU is considered to be hot-swappable.

6.5.3.4 Labeling. When a cable is to be removed and replaced, note the old cable's label information. When a new cable is ordered, it will require that the appropriate label be attached using the label kit supplied with each new cable. More than one label kit may accompany each new cable, ensure that the correct label information is applied by comparing both the appropriate ICD and the old cable before attaching the label information.

6.5.3.5 Inspection. When a new or replacement part is to be installed, first verify that it is the correct part by checking part numbers against the parts list found in Chapter 7, IPB. The IPB pro-

vides specific information that can be compared to the drawing in that chapter. Once each part is identified, inspect it for physical damage. Attempting to install an incorrect part (or the correct part into the wrong location), can cause equipment damage.

6.5.3.6 Related Procedures. The replacement of certain components require a setup procedure or initialization to be done. When necessary, the associated setup procedure is referenced near the end of the replacement procedure.

6.5.3.7 Handling of Electrostatic Sensitive Devices (ESD). All OPUP internal LRU components are ESD and must be handled using the special ESD handling procedures below. An ESD Component Handling Kit (non-conductive mat and wrist strap) and a suitable non-conductive bag are required to provide proper component protection.

****ESD** CAUTION **ESD****

> It is required that all paragraphs, steps, figures, illustrations, and diagrams that contain the ** ESD ** caution label adhere to these ESD handling procedures. Failure to comply fully with these procedures could result in permanent damage to the equipment.

6.5.3.7.1 Internal Component Removal/Installation.

1. If necessary, power OFF the equipment.

2. Put the ESD wrist strap on the bare wrist and connect the clip lead to the chassis frame or proper ground.

3. Have a non-conductive bag ready.

4. Remove the part from the system and place it into the non-conductive bag.

5. Remove the new part from its non-conductive package and install it into the system.

6. Disconnect the ESD wrist strap and return the system to normal operation.

6.5.3.8 ESD DIP Switch Setting. The replacement of certain parts requires the setting of rotary, rocker, or DIP switches to be done. When necessary, the associated setup procedure is included in the replacement procedure.

1. Place an ESD non-conductive mat on a work surface and connect the clip lead to the chassis frame or proper ground.

2. Put the ESD wrist strap on the bare wrist and connect the clip lead to the chassis frame.

3. Remove the new part from its non-conductive package and place it onto the non-conductive mat.

4. Set the DIP switches for the correct setting.

5. Install the part into the system.

6. Remove the ESD wrist strap.

7. Disconnect the wrist strap and non-conductive mat clip leads from ground.

6.5.4 Modem Rack UD80A1 or UD80A2 Replacement Procedure.

This procedure applies to both the Large and Medium OPUP configurations. The Large OPUP has two Modem Racks UD80A1/A2 and the Medium OPUP has one Modem Rack UD80A1. Both racks are identical and may be removed and replaced in accordance with the steps provided in the following paragraphs. This procedure requires two technicians and takes 1 hour to complete.

NOTE

A discussion of the ICD associated with both the Large and Medium OPUP configuration is provided in paragraph 2.2.3.4 (Large OPUP) or paragraph 2.2.3.5 (Medium OPUP). The information provided in the ICD discussion may only be used as a guide. Refer to the ICD delivered with each system for information associated with each cable described in this procedure.

6.5.4.1 Equipment and Tools Required.

1. ESD Component Handling Kit

2. Screwdriver set, Phillips-tip

3. Screwdriver set, flat-tip

6.5.4.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Modem Rack UD80A1/A2. Refer to Figure 2-10, Figure 2-11, and Table 2-8 for the location and description of each control and indicator associated with the Modem Rack UD80A1/A2.

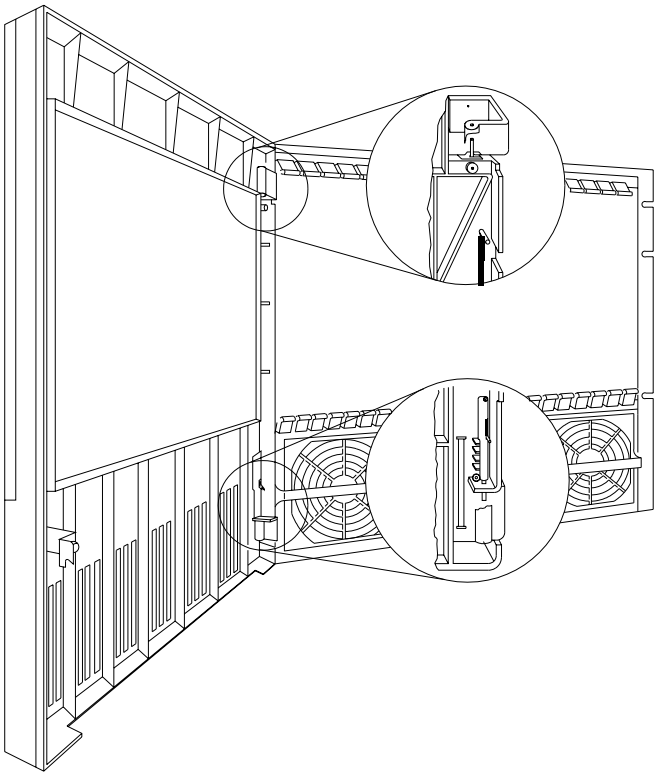
1. At the OPUP Cabinets, open the right rear and left front cabinet doors and locate the defective Modem Rack UD80A1 or UD80A2.

2. If necessary, unlock the modem rack door and swing it open for full access to each modem.

3. Using Figure 6-4 as a reference, remove the modem rack door as follows:

a. Using the two spring-loaded hinge pins located near the right inside side of the modem rack door that hold the door in place, squeeze the pins toward each other until they are free from the hinges.

b. Remove the door from the modem rack enclosure and set it aside.



NX1648

Figure 6-4. Dedicated Modem Rack Door/Hinge Detail

4. Each dedicated modem's setting and configuration data must be saved before the associated modem rack can be powered down. Perform the following modem setting and configuration save procedure on each dedicated modem within the modem rack:

a. On the modem's front panel, press the **RETURN** button twice. This ensures the modem LCD display is at the "Home" position within the Modem's LCD Menu List. The LCD front panel will display `DATA 14.4 T/D?` or `V32b 14.4 T/D?`

b. Press the **ACROSS** button until `Save Changes = 1` is displayed.

c. Press the **ENTER** button and wait until the display reads `Save Completed!` This saves the current settings on the dedicated modem.

d. Press the **RETURN** button twice to return to the "Home" position.

e. Repeat Steps a through d on each dedicated modem in the modem rack.

6.5.4.3 Replacement Procedure.

1. Remove the AC power from the applicable modem rack as follows:

   a. For Modem Rack UD80A1: At the rear of the modem rack, unplug AC power cord 80W50 from the AC POWER jack.

   b. For Modem Rack UD80A2: At the rear of the modem rack, unplug AC power cord 80W51 from the AC POWER jack.

2. Inspect each label associated with the cables connected to the modem rack backplane. Ensure each cable is properly labeled so that they can be removed from the defective modem rack backplane and then re-connected correctly onto the new modem rack backplane.

3. Disconnect all of the telephone cables connected to the B port jacks on the modem rack backplane. Use a small flat-tip screwdriver and insert it in the notch on the B port jack and carefully pry the telephone cable connector tab upwards while gently pulling on the telephone cable.

4. Disconnect all of the serial cables connected to the DTE A jacks on the modem rack backplane. Loosen the two connector screws on each connector plug and pull the connector from the jack. If necessary, use a small flat-tip screwdriver to loosen the connector screws.

CAUTION

The modem rack is a two person lift. The modem rack enclosure is mounted within the UD80 Cabinet by the mounting screws located at the front of the cabinet. There are no mounting rails associated with the modem rack. Before performing the next step, ensure a second technician is available to assist with supporting the rear of the modem rack while the other technician removes the screws that attach the modem rack to the cabinet.

5. With the assistance of a second technician supporting the weight of the modem rack from the rear, remove the six modem rack mounting screws from the front of the cabinet.

6. With the help of the second technician supporting the rear of the modem rack, remove the modem rack by sliding it straight out the front of the cabinet. When the modem rack is removed, set it aside nearby.

NOTE

Be sure to retain the defective modem rack until all of the associated power supplies, fan modules, and dedicated modems are removed. These items will be placed in the new modem rack.

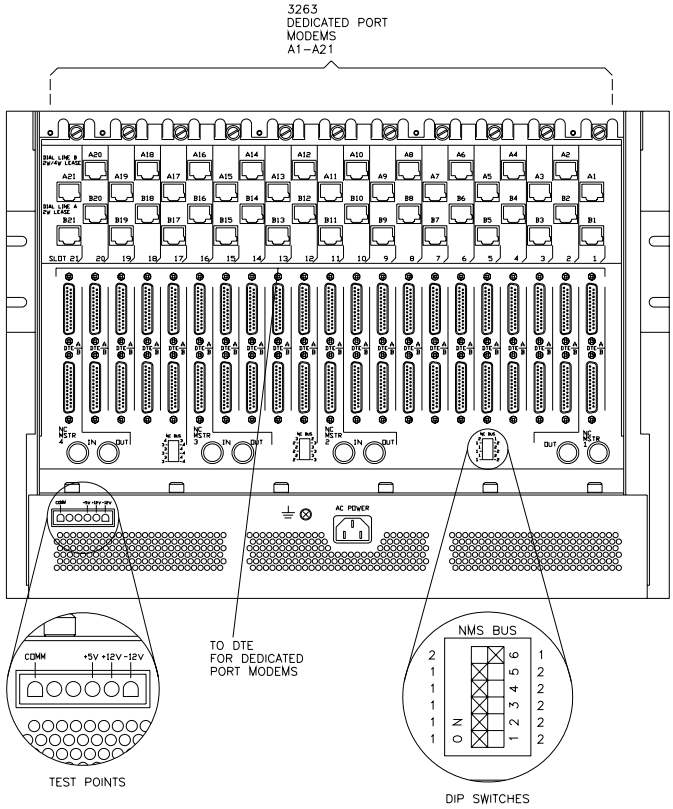


Figure 6-5. Modem Rack Assembly UD80A1/A2 (Rear View)

7. Using Figure 6-5 as a guide, ensure the DIP switches on the replacement modem rack backplane are set identically to the way the switches were set on the old modem rack backplane.

8. With the help of the second technician, lift the new modem rack and slide it into position in the OPUP cabinet.

9. With the help of the second technician to support the weight of the modem rack from the rear, secure the modem rack to the OPUP cabinet by installing the modem rack mounting screws.

****ESD** CAUTION **ESD****

All OPUP printed circuit cards are electrostatic sensitive devices which require special handling. Refer to paragraph 6.5.3.7, Handling of Electrostatic Sensitive Devices (ESD).

10. Place the ESD wrist strap on a bare wrist and connect the clip lead to the chassis frame or proper ground.

11. While referring to Figure 6-6, remove each dedicated modem, one at a time, from the defective modem rack and install them into the same slot in the new modem rack.

    a. With the thumbs placed on the top and bottom modem card ejector tabs, push the top ejector tab upwards and the bottom ejector tabs downwards to disengage the modem card from the modem rack backplane as shown in Figure 6-6. Carefully slide the modem card out of the rack.

NOTE

It is extremely important that each dedicated modem is installed into the same slot in the new modem rack which correspond with the exact slot of the defective modem rack. Placing each modem into the exact same slot will ensure that the circuits associated with each modem(s) transmit data to the correct WSR-88D product and message Linear Buffer (LB) and product and message data directory. Failure to populate the correct modem slot will result in having WSR-88D data transmitted to the he wrong data directory.

    b. Set the modem card in the card guide to the left of each modem ejector tabs, and carefully push the card into the modem rack until the ejector tabs lock the card into place as shown in Figure 6-6.

12. When finished replacing each dedicated modem, remove the ESD wrist strap from the wrist and remove the corresponding clip lead from the chassis frame or ground.

13. If applicable, remove any empty modem slot cover plate(s) from the defective modem rack and place them in the empty modem slot(s) of the new modem rack. The modem slot cover plate ensures the proper air flow within the modem rack is maintained and reduces the amount of dust that may enter.

14. Go to paragraph 6.5.6, Modem Rack Fan Module UD80A1B1/A2B1 and Power Supply UD80A1PS1/PS2 and UD80A2PS1/PS2 Replacement Procedure. Remove each modem rack power supply and fan module from the defective modem rack and install them into the same slot in the new modem rack.

15. Reconnect all of the communication cables in accordance with the cable labels and referring to the site ICD for the modem rack backplane.

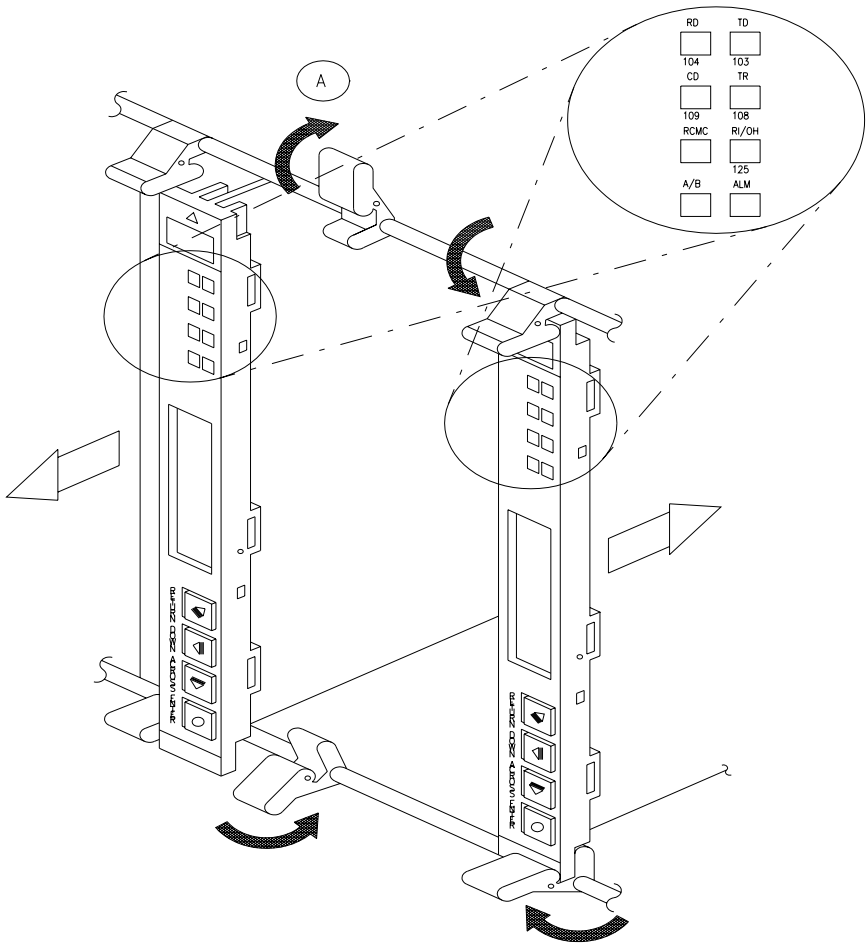


Figure 6-6. Dedicated Modem Removal/Replacement

16. At the rear of the applicable modem rack, reconnect the AC power cord to the AC POWER jack as follows:

a. For Modem Rack UD80A1; reconnect AC power cord 80W50.

b. For Modem Rack UD80A2; reconnect AC power cord 80W51.

17. Replace the modem rack door by squeezing the two spring-loaded hinge pins toward each other, lining up the pins with the hinges, and then releasing the pins to extend into the hinges.

18. Close the modem rack door and the OPUP cabinet doors.

19. At the front of each modem, verify the LCD windows shows `Data 14.4 T/D?` or `V32b 14.4 T/D?` Also, at the Operation Application, Status and Control, Network Map, there should be a green dot for each dedicated RPG site.

6.5.5 Dedicated Modem UD80A1A1-A21 or UD80A2A1-A11 Replacement Procedure.

The following procedure can be used to remove and replace any dedicated modem within Modem Rack UD80A1 and/or UD80A2. This procedure requires one technician and takes 15 minutes. Each modem may be removed and replaced while modem rack is energized.

6.5.5.1 Equipment and Tools Required.

1. ESD Component Handling Kit

2. Screwdriver set, flat-tip

6.5.5.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Dedicated Modems UD80A1A1-A21 or UD80A2A1-A11. Refer to Figure 2-12 and Table 2-9 for the location and description of each control and indicator associated with the dedicated modem UD80A11-A21/UD80A2A1-A11.

1. At the front of the OPUP Cabinets, open the left door and locate Dedicated Modem Rack UD80A1 or UD80A2.

2. If necessary, unlock the modem rack door and swing it open for full access to the modems.

6.5.5.3 Replacement Procedure.

****ESD** CAUTION **ESD****

All OPUP printed circuit cards are electrostatic sensitive devices which require special handling. Refer to paragraph 6.5.3.7, Handling of Electrostatic Sensitive Devices (ESD).

1. Place the ESD wrist strap on a bare wrist and connect the clip lead to the chassis frame or proper ground.

2. While referring to Figure 6-6, remove the defective dedicated modem from the modem rack.

   a. With the thumbs placed on the top and bottom modem card ejector tabs, push the top ejector tab upwards and the bottom ejector tabs downwards to disengage the modem card from the modem rack backplane as shown in Figure 6-6. Carefully slide the modem card out of the rack.

3. Referring to Figure 6-7, set each DIP switch on the new dedicated modem as follows:

   - Set switches 1 and 2 to the ON position.
   - Set switches 3, 4, 5, 6, 7, and 8 to the OFF position.

4. Set the modem card in the card guide to the left of each modem ejector tabs, and carefully push the card into the modem rack until the ejector tabs lock the card into place as shown in Figure 6-6.

5. Remove the ESD wrist strap and remove the clip lead from chassis frame.

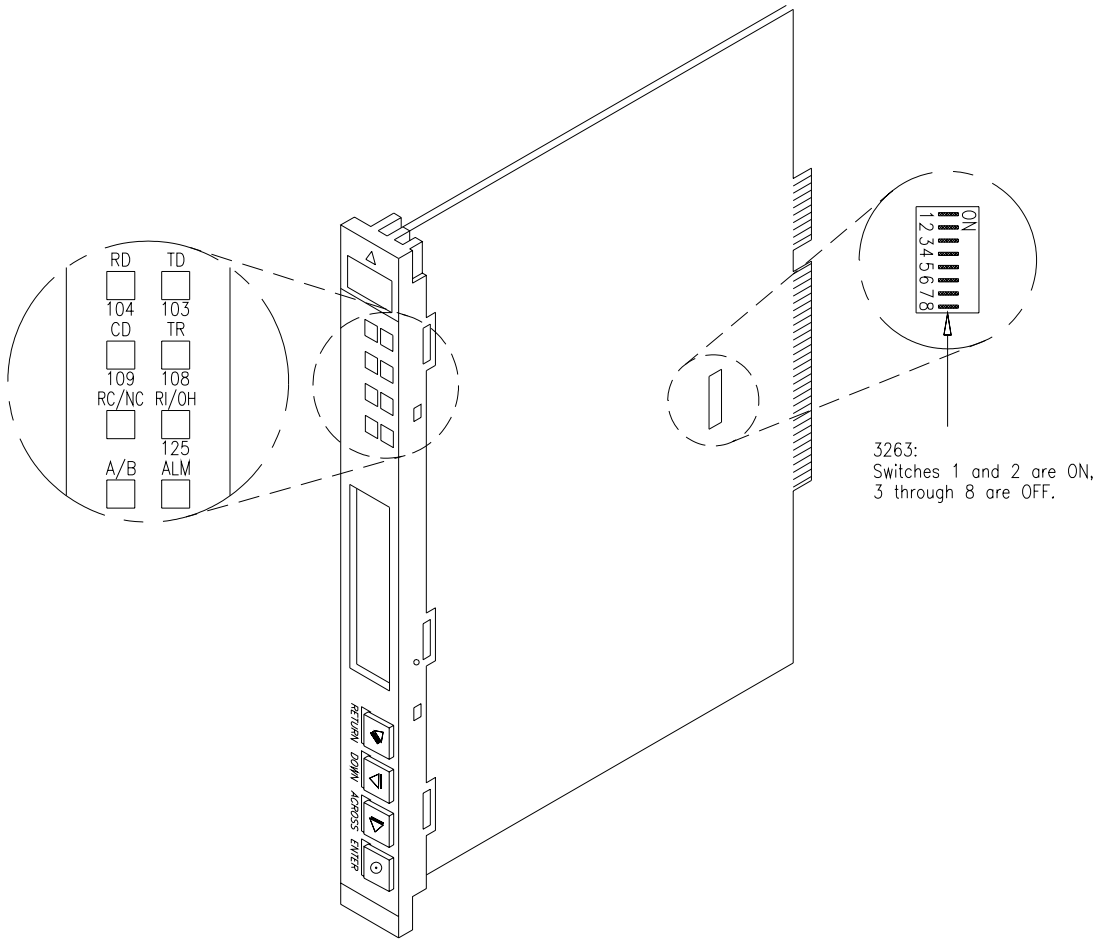
6. Go to paragraph 6.6.2 and perform a dedicated modem setup procedure. When finished, go to the next step.

7. To verify the new modem is communicating with the dedicated RPG site for which the modem was replaced, perform the following steps:

   a. At any Display Workstation Monitor UD85A1, click on the **Status & Control** icon at the bottom of the Operational Applications Front Panel. A `Status and Control - OPUP X.X` (where X.X is the current version of software) `Network Map` window will be displayed. Each connected RPG site will be displayed as a green dot.

   b. Ensure a green dot is displayed for the RPG site for which the modem was replaced.

8. Close the modem rack door and the OPUP cabinet door.



NX2483

Figure 6-7. Dedicated Modem Dip Switch Setting

6.5.6 Modem Rack Fan Module UD80A1B1/A2B1 and Power Supply UD80A1PS1/PS2 and UD80A2PS1/PS2 Replacement Procedure.

Each Modem Rack UD80A1 or UD80A2 requires the use of two Power Supplies UD80A1PS1/PS2 or UD80A2PS1/PS2 and one Fan Module UD80A1B1 or UD80A2B1. Each power supply and fan module is located at the front of the modem rack. The power supplies and fan module are shaped identically. However, with power applied to each module, they can be distinguished apart as follows:

a. Power Supply: Has two LEDs located just behind the right side of the fan blades.

b. Fan Module: Has one LED located just behind the right side of the fan blades.

NOTES

Each modem rack has two separate power supply modules which are identical and can operate normally with just one functional power supply. The second power supply is provided as a backup which automatically takes over if the first power supply should fail. The fan module provides the necessary cooling for the modem rack. If the fan module should fail, the modem rack will still operate normally until it overheats.

This procedure assumes that the modem rack is still up and operating normally with only one defective power supply/fan module.

This procedure requires one technician and takes 15 minutes.

6.5.6.1 Equipment and Tools Required.

1. Screwdriver, flat-tip

6.5.6.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Modem Rack UD80A1/A2. Refer to Figure 2-10 and Table 2-8 for the location and description of each control and indicator associated with the Modem Rack Power Supply UD80A1PS1/PS2 or UD80A2PS1/PS2 and Fan Module UD80A1B1 or UD80A2B1.

1. At the front of the OPUP Cabinets, open the left door and locate the defective power supply or fan module in either Modem Rack UD80A1 (Large/Medium OPUP configuration) or UD80A2 (Large OPUP configuration only).

2. If necessary, unlock the modem rack door and swing it open.

3. Each dedicated modem setting and configuration data must be saved before the associated modem rack can be powered down. Perform the following modem setting and configuration save procedure on each dedicated modem within the modem rack:

a. On the modem's front panel, press the **RETURN** button twice. This ensures the modem LCD display is at the "Home" position within the Modem's LCD Menu List. When completed, the LCD front panel will display `DATA 14.4 T/D?` or `V32b 14.4 T/D?`

b. Press the **ACROSS** button until `Save Changes = 1` is displayed.

c. Press the **ENTER** button and wait until the display reads `Save Completed!` This saves the current settings on the dedicated modem.

d. Press the **RETURN** button twice to return to the "Home" position.

6.5.6.3 Replacement Procedure.

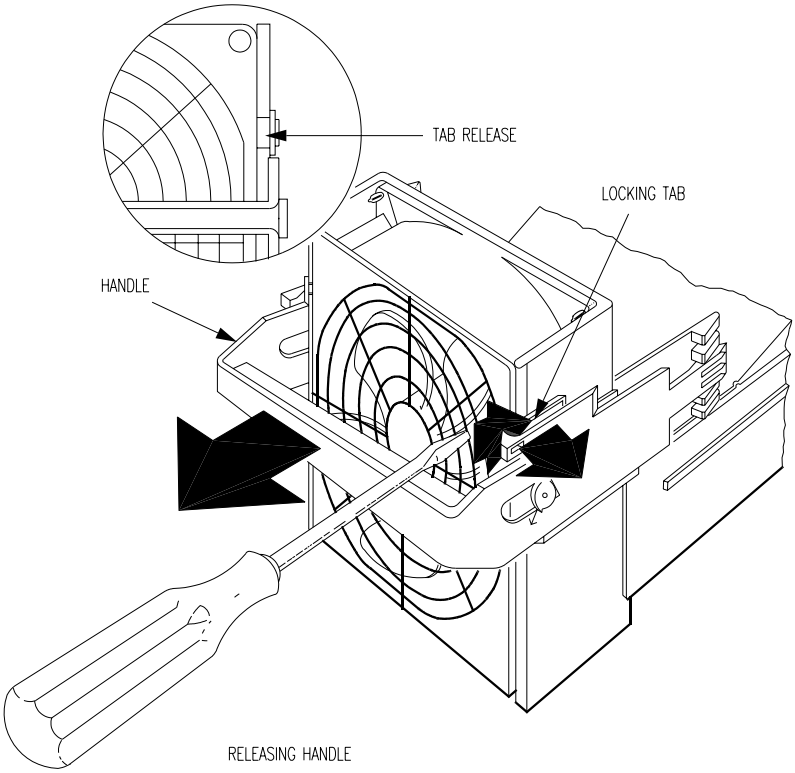
1. Remove the AC power cord from the rear of the applicable modem rack, as follows:

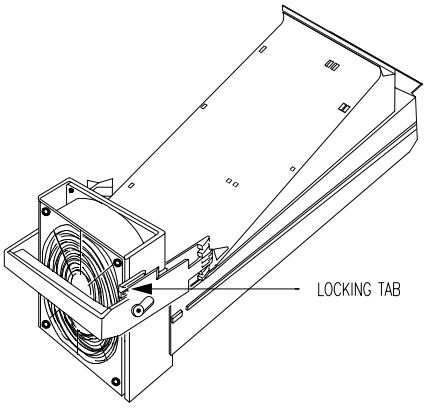
   e. For Modem Rack UD80A1, unplug AC power cord 80W50 from the AC POWER jack.

   f. For Modem Rack UD80A2 (Large OPUP systems only), unplug AC power cord 80W51 from the AC POWER jack.

2. Remove the defective power supply or fan module using the following procedure:

   a. Insert the flat-tip of the screwdriver into the locking tabs just above the handle on each side of the module as shown in Figure 6-8.





NX1649

Figure 6-8. Power Supply and Fan Module Removal

b. Gently push each tab out with the screwdriver while gently pulling on the handle of the module until the tab clears it's locking position. The tabs will then release the pull out handle. Ensure the handle is fully extend before going to the next step.

c. Using the extended handle, pull the module straight out in order to remove it from the modem rack enclosure. Set the failed module aside.

3. Perform the following power supply preparation procedure:

   - Power Supply: Prior to installing the new module, ensure the 115V/230V switch, SW1, on the bottom left side is set in the 115V position.
   - Fan Module: No voltage setting is required.

4. Place the rear end of the module into the sliding guides of the modem rack and gently push it into the modem rack assembly until it clicks into position.

5. At the front of the module, gently push the extended handle into the module face until it clicks. The handle will then be in a locked position.

6. At the front of the module, test to ensure that the handle is locked by gently pulling on the handle to see if it can be re-extended. If the handle can be extended or if the module can be removed, perform Steps 4 through 6 again.

7. At the rear of the applicable modem rack, reconnect the following AC power cord to the AC POWER jack as follows:

   a. For Modem Rack UD80A1, reconnect AC power cord 80W50.

   b. For Modem Rack UD80A2, reconnect AC power cord 80W51.

8. Verify the following condition on the new power supply or fan module:

   - Power Supply: both LEDs are lit behind fan blades on right side and the fan is working.
   - Fan Module: the single LED is lit behind fan blades on right side and the fan is working.

9. Close the modem rack door and the OPUP cabinet doors.

6.5.7 Communication Router UD80A3 Replacement Procedure.

The Large OPUP Configuration utilizes a Cisco 3660 Communication Router and the Medium OPUP Configuration utilizes a Cisco 3640 Communication Router. Both are designated with the reference designation number UD80A3 for identification purposes. The size and shape of each router is different. However, the remove and replace procedure provided in the following paragraphs apply to both types of routers. This procedure requires two technicians and takes 1 hour.

6.5.7.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

2. Screwdriver set, flat-tip

6.5.7.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Communication Router UD80A3. For the location and description of each Large OPUP Communication Router UD80A3 control and indicator, refer to Figure 2-13, Figure 2-14, and Table 2-10. For the Medium OPUP Communication Router UD80A3 controls and indicators, refer to Figure 2-15 and Table 2-11.

1. (Large OPUP configuration only) At the KVM Switch UD80A8, press LED number "1" button. Data associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7. If the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3.

2. At the Monitor UD80A7, ensure the `OPUP Manager Main Menu`, `OPUP Software Menu` is displayed. If the `OPUP Software Menu` is not displayed, use the procedures beginning with paragraph 5.2.4 to open the `OPUP Software Menu`.

3. At the `OPUP Software Menu`, click on the **Stop OPUP** button. An `OPUP Manager Stop OPUP` window will be displayed. This window will also display the message: `Warning! This will stop the OPUP Software. Do you want to Continue?`

4. At the `OPUP Manager Stop OPUP` window, click on the **Yes** button. The OPUP Manager Stop OPUP function will stop all associated background processes. When the OPUP Manager Stop OPUP function is finished, it will display the message: `All OPUP Server Software has been Stopped`.

5. Close the `OPUP Manager Stop OPUP` window by clicking in the upper let-hand corner, then click on **Close**. The `OPUP Software Menu` will be displayed.

6. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify there is no information displayed out to the right of each `OPUP App/Task` listed.

6.5.7.3 Replacement Procedure.

1. Remove AC power and the AC power cords from the defective Communication Router UD80A3 as follows:

   a. For the Large OPUP communication router, perform the following steps at the rear of the router:

1. Set the power rocker switch on PS1 (bottom power supply) to the Off (0) position.

1. Set the power rocker switch on PS2 (top power supply) to the Off (0) position.

1. Unplug the AC power cord 80W52 from PS1.

1. Unplug the AC power cord 80W53 from PS2.

b. For the Medium OPUP communication router, perform the following steps at the rear of the router:

1. Set the power rocker switch to the Off (0) position.

1. Unplug the AC power cord 80W52.

NOTE

Refer to Figure 2-6 (Large OPUP) or Figure 2-7 (Medium OPUP) for information associated with each cable described in this procedure.

2. Inspect each label associated with the rest of the cables connected to the rear of the communication router. Ensure each are properly labeled so that they can be removed from the defective communication router and then re-connected onto the new router.

3. At the rear of the applicable Communication Router UD80A3, disconnect the following communication cables:

a. For the Large OPUP communication router, disconnect:

1. Cable 80W300 from the CONSOLE port, if connected. (This is a test cable.)

1. Cable 80W202 from the 10/100 ETHERNET 0/0 port.

1. Cable 80W216 from the 1FE2W module FAST ETH 0 port.

1. Serial cables 80W250 through 80W281 from the four SERIAL 8A/S modules.

1. Dial cables 80W150 through 80W157 from the MODEMS 8AM module, ports 0 through 7, respectively.

b. For the Medium OPUP communication router, disconnect:

1. Cable 80W300 from the CONSOLE port, if connected. (This is a test cable).

1. Cable 80W203 from the 2FE2W module FAST ETH 0 port.

1. Cable 80W215 from the 2FE2W module FAST ETH 1 port.

1. Serial cables 80W250 through 80W257 from the SERIAL 8A/S module.

1. Dial cables 80W150 through 80W157 from the MODEMS 8AM module, ports 0 through 7, respectively.

CAUTION

The Large OPUP communication router is a two person lift. The communication router is mounted within the cabinet by the mounting screws located at the front of the cabinet. There are no mounting rails associated with the communication router. Before performing the next step, ensure a second technician is available to assist with supporting the rear of the communication router while the other technician removes the screws that attach the router to the cabinet.

4. With the help of the second technician to support the weight of the communication router from the rear, remove the four communication router mounting screws from the front of the cabinet.

5. With the help of the second technician, remove the defective communication router from the cabinet by sliding it straight out the front. Set the communication router aside.

6. Remove the two mounting brackets from the defective communication router and re-install them on the new communication router.

7. With the help of the second technician, slide the new communication router into position in the cabinet.

8. With the help of the second technician to support the weight of the communication router from the rear, install and tighten four mounting screws on the front side of the cabinet.

9. At the rear of the applicable Communication Router UD80A3, connect the following communication cables:

   a. For the Large OPUP communication router, connect:

      1. Dial cables 80W150 through 80W157 to the MODEMS 8AM module, ports 0 through 7, respectively.

      1. Serial cables 80W250 through 80W281 to the four SERIAL 8A/S modules. Finger-tighten the connector screws.

1. Cable 80W216 to the 1FE2W module FAST ETH 0 port.

1. Cable 80W202 to the 10/100 ETHERNET 0/0 port.

1. Cable 80W300 to the CONSOLE port, if it was previously connected.

b. For the Medium OPUP communication router, connect:

1. Dial cables 80W150 through 80W157 to the MODEMS 8AM module, ports 0 through 7, respectively.

1. Serial cables 80W250 through 80W257 to the SERIAL 8A/S module. Finger-tighten the connector screws.

1. Cable 80W215 to the 2FE2W module FAST ETH 1 port.

1. Cable 80W203 to the 2FE2W module FAST ETH 0 port.

1. Cable 80W300 to the CONSOLE port, if it was previously connected.

10. At the rear of the applicable Communication Router UD80A3, connect the following AC power cord(s) and apply power as follows:

a. For the Large OPUP communication router:

1. Plug AC power cord 80W52 into PS1 (bottom power supply).

1. Plug AC power cord 80W53 into PS2 (top power supply).

1. Set the power rocker switch on PS1 to the On (1) position.

1. Set the power rocker switch on PS2 to the On (1) position.

1. At the front of the router, ensure the PS1 and PS2 LEDs are lit.

b. For the Medium OPUP communication router:

1. Plug AC power cord 80W52 into the AC power receptacle.

1. Set the power rocker switch to the On (1) position.

1. At the front of the router, ensure the SYSTEM LED is lit.

11. Perform the setup procedure for the applicable communication router outlined in paragraph 6.6.3. When the OPUP server has fully rebooted and displays the CDE Login screen, go to the next step.

12. At the Monitor UD80A7 CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1 to display the `OPUP Manager Main Menu`.

13. At the `OPUP Manager Main Menu`, start the OPUP software as follows:

    a. Click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

    b. At the `OPUP Software Menu`, click on the **Start OPUP** button. An `OPUP Manager Start OPUP` warning window will be displayed. This warning window will also display a `Warning! This will start the OPUP Software. Do you want to Continue?` message.

    c. At the warning window, click on the **Yes** button. Once the OPUP Manager Start OPUP function begins to load and start the OPUP server software, it will display the message `Please wait 1 to 2 minutes for the Server Processes to start.`

    d. At the `OPUP Manager Start OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

    e. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. After a few seconds, the `OPUP Process Status` window will be displayed. Click on the **Refresh** button to update the window, if necessary.

    f. If all applicable background processes have started and are running, (each `OPUP App/Task` name(s) listed in the left hand column of the window has data listed out to the right of them), go to the next step. If not, consult the associated Primary Fault Isolation procedure associated with the Communication Router UD80A3.

    g. At the `OPUP Process Status` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

    h. Logout of the `OPUP Manager Main Menu` by clicking on the **EXIT** icon on the CDE Front Panel. At the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

14. Close the OPUP cabinet doors.

6.5.8 <u>Communication Router Power Supply UD80A3PS1/PS2 Replacement Procedure (Large OPUP only)</u>.

This procedure only applies to the Large OPUP Communication Router UD80A3PS1/PS2 Power Supplies.

NOTE

This procedure will assume that the Communication Router UD80A3 is operational and performing normally with one good power supply. Power Supply UD80A3PS1 is located at the bottom right of the Communication Router and Power Supply UD80A3PS2 is located at the top right.

This procedure requires one technician and takes 15 minutes.

6.5.8.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

6.5.8.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 for the location of the Large OPUP Communication Router UD80A3. Refer to Figure 2-13, Figure 2-14, and Table 2-10 for the location and description of each control and indicator associated with the Communication Router UD80A3.

1. At the OPUP Cabinets, open the front left and rear right doors in order to gain access to the Communication Router UD80A3.

6.5.8.3 Replacement Procedure.

1. Remove AC power from the rear of the defective Communication Router Power Supply UD80A3PS1 or PS2 as follows:

   a. For PS1 (bottom power supply), perform the following:

      1. Set the power rocker switch to the Off (0) position.

      1. Unplug the AC power cord 80W52 from the power supply.

   b. For PS2 (top power supply), perform the following:

      1. Set the power rocker switch to the Off (0) position.

      1. Unplug the AC power cord 80W53 from the power supply.

2. Loosen the two captive screws that secure the power supply to the communication router chassis.

CAUTION

If replacing the bottom power (PS1), move the AC power cord for the top power supply (PS2) out of the way so it is not accidently unplugged when pulling PS1 out.

3. Use the bracket on the left side of the power supply and pull straight out to remove the defective power supply and set it aside.

4. Inspect the new power supply. Ensure the power rocker switch is in the Off (0) position before installing the power supply.

5. Install the new power supply into position and push it forward until it is seated securely.

6. Finger-tighten the captive screws that secure the power supply to the communication router chassis.

7. Connect the applicable AC power cord to the new power supply as follows:

   a. For the UD80A3PS1 (bottom power supply): Plug AC power cord 80W52 into the power supply.

   b. For the UD80A3PS2 (top power supply): Plug AC power cord 80W53 into the power supply.

8. At the rear of the new power supply, place the power switch in the ON (1) position. Verify that the green power LED on the back of the power supply is lit.

9. At the front left of the communication router, verify SYSTEM, PS1 and PS2 LEDs are lit green.

10. Close the OPUP cabinet doors.

6.5.9 Archive IV Device UD80A4 Replacement Procedure.

This procedure requires one technician and takes 30 minutes.

6.5.9.1 Equipment and Tools Required.

1. Screwdriver set, Jewelers

6.5.9.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Archive IV Device UD80A4. Refer to Figure 2-16

and Table 2-12 for the location and description of each control and indicator associated with the Archive IV Device UD80A4.

1. At the OPUP Cabinets, open the right rear and left front cabinet doors and locate the Archive IV Device UD80A4.

2. At the Archive IV Device UD80A4, remove any installed CD-ROM disk as follows:

   a. Press the **Eject** button. The archive device media tray will open.

   b. If a CD-ROM disk is within the tray, remove it.

   c. Press the **Eject** button again. The archive device media tray will close.

NOTE

If the Archive IV Device UD80A4 is associated with a Medium OPUP configuration, skip to Step 4.

3. This step applies to the Large OPUP configuration only:

   a. At the KVM Switch UD80A8, press LED number “1” button. Data associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7.

   b. If the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3; otherwise, continue to the next step.

NOTE

This procedure requires that the Data Server UD80A11 (both Large and Medium OPUP configurations) be powered Off in order for the OPUP Server OS to perform a Power-On-Self-Test (POST) and to interrogate all attached external peripheral devices through the use of the On-Board Diagnostic Bus (ODB) routines. Once the OPUP Server OS detects an external peripheral (i.e., Archive IV Device) it will configure and assign its device driver within the OPUP Server OS Device Driver database. This procedure cannot be performed by restarting the server, therefore, the server must be powered down and then re-energized.

4. At the Monitor UD80A7 CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1 to display the `OPUP Manager Main Menu`. For Medium OPUP configurations, if the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3, if necessary.

5. At the `OPUP Manager Main Menu`, shutdown the (Data) Server UD80A11 as follows:

a. Click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

NOTE

When the **Shutdown Server** button is clicked, the (Data) Server UD80A11 will perform a complete shutdown procedure, followed by the Display Server UD80A12 (for Large OPUP configurations), followed by the shutdown of each Display Workstation UD85.

b. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. An `OPUP Manager Shutdown Server` warning window will be displayed.

c. At the warning window, click on the **Yes** button. The OPUP Server OS will perform a full server software shutdown sequence of all OS operations in an orderly and safe manner and then perform a complete hardware shutdown procedure.

d. After the OPUP servers shutdown, proceed to the replacement procedure.

6.5.9.3 Replacement Procedure.

1. At the Archive IV Device UD80A4, press the power button to tun power Off.

2. At the rear of the archive device, unplug the AC power cord 80W60.

3. At the rear of the archive device, remove the SCSI data cable 80W222 from the SCSI IN port. Squeeze the connector tabs and pull cable.

4. Remove the defective archive device and set it aside.

5. At the rear of the new archive device, using a miniature flat-tip screwdriver, perform the following:

   a. Set the SCSI ID Dial Switch (rotary switch that has up to 8 positions), to the number four (4) position.

   b. Set the PRTY TERM TEST BLOCK DIP switches 1 and 2 to the On position by sliding them all the way to the right.

   c. Set the PRTY TERM TEST BLOCK DIP switches 3, 4, and 5 to the Off position by sliding them all the way to the left.

6. Set the new archive device on the cabinet tray.

7. At the rear of the archive device, connect the SCSI data cable 80W222 to the SCSI IN port (bottom connector).

8. At the rear of the archive device, connect the AC power cord 80W60 to the AC jack.

9. At the front of the archive device, press the power button. The archive device power On LED will be lit.

10. If necessary, replace any CD-ROM disk removed earlier, in the archive device media tray.

11. (Large OPUP Configuration only). At the KVM Switch UD80A8, press LED button “1”. No data will be displayed at this time.

12. At the Data Server UD80A11 front panel (server in upper position at Large OPUP configurations), perform the following:

    a. Locate the security keyswitch and ensure it is in the counterclockwise position.

    b. Press the power button until a beep signal is sounded. The OPUP server will then initiate an internal Power-On-Self-Test (POST) procedure (which should take approximately 30 seconds to complete). While the POST procedure is running, information will be displayed on the Monitor UD80A7. When the POST and software start-up sequence is finished, a CDE Login screen will be displayed.

    c. Perform all applicable login procedures. Go to paragraph 5.2.3, Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation) and place the OPUP in the normal operating state.

6.5.10 UPS UD80A5/A6/A13/A14 Replacement Procedure.

The Large OPUP configuration has to four separate UPS (UD80A5/A6/A13/A14) units in order to meet the demands of the equipment within the Large OPUP Equipment Group UD80. The Medium OPUP configuration requires two UPS assembly units (UD80A6/A14). This procedure may be applied to both configurations. Each UPS assembly unit is identical.

The OPUP hardware LRU items with redundant power supplies are distributed across two UPS units. In the Large OPUP configuration, these are the Data Server UD80A11, Display Server UD80A12, and the Communication Router UD80A3. In the Medium OPUP configuration, it is only the Server UD80A11.

NOTE

In the event of an UPS failure, the associated equipment items may be moved to another UPS assembly until the UPS is replaced.

This procedure requires two technicians and takes 1 hour.

6.5.10.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

2. Screwdriver set, flat-tip

6.5.10.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of each UPS UD80A5/A6/A13/A14. Refer to Figure 2-17 and Table 2-13 for the location and description of each control and indicator associated with the UPS UD80A5/A6/A13/A14.

1. At the OPUP Cabinets, open both the front and rear doors in order to gain access to the defective UPS unit.

2. (Large OPUP configuration only.) At the KVM Switch UD80A8, press LED number "1" button. Information associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7.

3. If the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3; otherwise, continue to the next step.

4. At the Monitor UD80A7 CDE Login screen, login as opupmgr per paragraph 5.2.3.1 to display the `OPUP Manager Main Menu.`

5. At the `OPUP Manager Main Menu`, shutdown the (Data) Server UD80A11 as follows:

   a. Click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

   NOTE

   When the **Shutdown Server** button is clicked, the (Data) Server UD80A11 will perform a complete shutdown procedure, followed by the Display Server UD80A12 (for Large OPUP configurations), followed by the shutdown of each Display Workstation UD85.

   b. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. An `OPUP Manager Shutdown Server` warning window will be displayed.

   c. At the warning window, click on the **Yes** button. The OPUP Server OS will perform a full server software shutdown sequence of all OS operations in an orderly and safe manner and then perform a complete hardware shutdown procedure.

   d. After the OPUP servers shutdown, proceed to the replacement procedure.

6.5.10.3 Replacement Procedure.

The following paragraphs provide the appropriate UPS remove and replacement procedure, depending on whether the UPS is in a Large or Medium OPUP system, and which UPS is defective. The actual replacement procedure is identical for each of the systems, except for the components that are plugged into the particular UPS unit.

- 6.5.10.3.1 Large OPUP UPS UD80A5
- 6.5.10.3.2 Large OPUP UPS UD80A6
- 6.5.10.3.3 Large OPUP UPS UD80A13
- 6.5.10.3.4 Large OPUP UPS UD80A14
- 6.5.10.3.5 Medium OPUP UPS UD80A6
- 6.5.10.3.6 Medium OPUP UPS UD80A14

NOTE

The following paragraphs are written as if an UPS failed and the new UPS is on-hand to replace it immediately. In all likelihood, one of the UPS units has failed and the replacement UPS is not on-hand, and the site technicians have already unplugged the OPUP components and moved those AC plugs to the other UPS(s) to restore the system while waiting for a replacement UPS. In the case of the Large OPUP system, the other three UPSs can assume the load of a failed UPS. In the case of the Medium OPUP system, one of the Server UD80A11 power supplies will have to be left turned off or plugged into an alternate, non-UPS, power source until the replacement is received.

6.5.10.3.1 <u>Large OPUP UPS UD80A5 Replacement Procedure</u>.

1. The Large OPUP UPS UD80A5 provides power to the following components:

   a. Communication Router UD80A3PS2

   b. Dedicated Modem Rack UD80A2

   c. Data Server UD80A11PS2

2. At the rear of the Communication Router UD80A3, set the power rocker switch on Power Supply PS2 (top power supply unit) to the Off (0) position. At the front of the router, the PS2 LED should be lit amber.

3. Verify the power to the Data Server UD80A11 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. Ensure each modem in Modem Rack UD80A2 has its settings saved before power to the modem rack is powered Off. Perform paragraph 6.5.4.2, Step 4.

5. If the UPS is still operational, at the front panel of the UPS UD80A5, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

6. At the rear of the UPS UD80A5, unplug all AC power cords. The following list is what power cords should be plugged into the UPS:

   a. 80W53 (Communication Router Power Supply #2 UD80A3PS2)

   b. 80W51 (Dedicated Modem Rack UD80A2)

   c. 80W55 (Data Server Power Supply #2 UD80A11PS2)

7. At the rear of the UPS UD80A5, locate the UPS power cord and unplug it from the wall utility power receptacle.

8. At the front of the UPS UD80A5, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

9. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

10. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

11. Secure the UPS in the cabinet with the two screws removed in Step 8.

12. Plug the UPS power cord in the utility power receptacle.

13. At the rear of the UPS, plug the AC power cords listed in Step 6 into the AC receptacles.

14. At the front panel of the UPS, press the **1 Test** power button to turn power On. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

15. At the rear of the Communication Router UD80A3, set the power rocker switch on Power Supply PS2 (top power supply unit) to the On (1) position. On the front of the router, the PS2 LED should be lit green.

16. At the front of the Dedicated Modem Rack UD80A2, ensure the two green LEDs are lit on the power supply/fan modules and one green LED is lit on the fan module and the modem LCD screens are displaying text.

17. At the front of the Data Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

18. At the front of the Display Server UD80A12, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

19. At the KVM Switch UD80A8, ensure the "1" LED is lit. If not, press the "1" LED button so the keyboard and mouse will work with the Data Server UD80A11.

20. Wait for the servers to boot up and display the CDE Login screen.

21. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

22. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

23. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

24. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

25. At the CDE Front Panel, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

26. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

27. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.10.3.2 <u>Large OPUP UPS UD80A6 Replacement Procedure</u>.

1. The Large OPUP UPS UD80A6 provides power to the following components:

   a. Communication Router UD80A3PS1

   b. Dedicated Modem Rack UD80A1

   c. Archive IV Device UD80A4

   d. Display Server UD80A12PS2

   e. Communication Switch UD80A18

2. At the rear of the Communication Router UD80A3, set the power rocker switch on Power Supply PS1 (bottom power supply unit) to the Off (0) position. At the front of the router, the PS1 LED should be lit amber.

3. Verify the power to the Display Server UD80A12 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. At the front of the Archive IV Device UD80A7, press the power button to turn power Off. The power ON LED will extinguish.

5. Ensure each modem in Modem Rack UD80A2 has its settings saved before power to the modem rack is powered Off. Perform paragraph 6.5.4.2, Step 4.

6. If the UPS is still operational, at the front panel of the UPS UD80A6, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

7. At the rear of the UPS UD80A6, unplug all AC power cords. The following list is what power cords should be plugged into the UPS:

   a. 80W52 (Communication Router Power Supply #1 UD80A3PS1)

   b. 80W50 (Dedicated Modem Rack UD80A1)

   c. 80W58 (Display Server Power Supply #2 UD80A12PS2)

   d. 80W60 (Archive IV Device UD80A4)

   e. 80W54 (Communication Switch UD80A18)

8. At the rear of the UPS UD80A6, locate the UPS power cord and unplug it from the wall utility power receptacle.

9. At the front of the UPS UD80A6, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

10. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

11. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

12. Secure the UPS in the cabinet with the two screws removed in Step 9.

13. Plug the UPS power cord in the utility power receptacle.

14. At the rear of the UPS, plug the AC power cords listed in Step 7 into the AC receptacles.

15. At the front panel of the UPS, press the **1 Test** power button to turn power on. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

16. At the rear of the Communication Router UD80A3, set the power rocker switch on Power Supply PS1 (bottom power supply unit) to the On (1) position. On the front of the router, the PS1 LED should be lit green.

17. At the front of the Dedicated Modem Rack UD80A1, ensure the two green LEDs are lit on the power supply/fan modules and one green LED is lit on the fan module and the modem LCD screens are displaying text.

18. At the front of the Archive IV Device UD80A4, press the power button to turn power On. The power ON LED will be lit.

19. At the front of the Communication Switch UD80A18 (front panel is recessed to the back of the cabinet as viewed from the front), ensure the SYSTEM LED (and several others) is/are lit. Refer to Table 2-18 for a description of the LEDs that should be lit/blinking.

20. At the front of the Data Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

21. At the front of the Display Server UD80A12, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

22. At the KVM Switch UD80A8, ensure the "1" LED is lit. If not, press the "1" LED button so the keyboard and mouse will work the Data Server UD80A11.

23. Wait for the servers to boot up and display the CDE Login screen.

24. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

25. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

26. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

27. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

28. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

29. At the OPUP Monitor UD80A7, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

30. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.10.3.3 <u>Large OPUP UPS UD80A13 Replacement Procedure</u>.

1. The Large OPUP UPS UD80A13 provides power to the following components:

   a. Data Server UD80A11PS1

   b. KVM Switch UD80A8PS1

2. At the front of the KVM Switch UD80A8, set the power rocker switch to the Off position. The LED (either 1 or 2) will extinguish. Also, the monitor will go blank.

3. Verify the power to the Data Server UD80A11 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. If the UPS is still operational, at the front panel of the UPS UD80A13, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

5. At the rear of the UPS UD80A13, unplug the two AC power cords and one serial cable. The following list is what should be plugged into the UPS:

   a. 80W63 (Data Server Power Supply #1 UD80A11PS1)

   b. 80W61 (KVM Switch DC Power Supply UD80A8PS1)

   c. 80W224 (9-pin Serial cable)

6. At the rear of the UPS UD80A13, locate the UPS power cord and unplug it from the wall utility power receptacle.

7. At the front of the UPS UD80A13, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

8. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

9. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

10. Secure the UPS in the cabinet with the two screws removed in Step 7.

11. Plug the UPS power cord in the utility power receptacle.

12. At the rear of the UPS, plug the AC power cords and serial cable listed in Step 5 into the AC receptacles and 9-pin Serial port, respectively.

13. At the front panel of the UPS, press the **1 Test** power button to turn power on. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

14. At the front of the KVM Switch UD80A8, set the power rocker switch on to the On position. The "1" LED should be lit.

15. At the front of the Data Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

16. At the front of the Display Server UD80A12, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

17. Wait for the servers to boot up and display the CDE Login screen.

18. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

19. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

20. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

21. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

22. At the CDE Front Panel, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

23. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

24. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.10.3.4 <u>Large OPUP UPS UD80A14 Replacement Procedure</u>.

1. The Large OPUP UPS UD80A14 provides power to the following components:

   a. Monitor UD80A7

   b. Display Server UD80A12PS1

2. At the front of the Monitor UD80A7, press the power button to turn the power Off. The front panel LED will extinguish.

3. Verify the power to the Data Server UD80A12 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. If the UPS is still operational, at the front panel of the UPS UD80A14, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

5. At the rear of the UPS UD80A14, unplug the two AC power cords and one serial cable. The following list is what should be plugged into the UPS:

   a. 80W57 (Display Server Power Supply #1 UD80A12PS1)

   b. 80W59 (Monitor UD80A7)

   c. 80W223 (9-pin Serial cable)

6. At the rear of the UPS UD80A14, locate the UPS power cord and unplug it from the wall utility power receptacle.

7. At the front of the UPS UD80A14, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

8. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

9. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

10. Secure the UPS in the cabinet with the two screws removed in Step 7.

11. Plug the UPS power cord in the utility power receptacle.

12. At the rear of the UPS, plug the AC power cords and serial cable listed in Step 5 into the AC receptacles and 9-pin Serial port, respectively.

13. At the front panel of the UPS, press the **1 Test** power button to turn power on. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

14. At the front of the Monitor UD80A7, press the power button to turn the power On. The green power LED should be lit.

15. At the front of the Data Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

16. At the front of the Display Server UD80A12, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

17. Wait for the servers to boot up and display the CDE Login screen.

18. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

19. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

20. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

21. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

22. At the CDE Front Panel, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

23. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

24. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.10.3.5 <u>Medium OPUP UPS UD80A6 Replacement Procedure</u>.

1. The Medium OPUP UPS UD80A6 provides power to the following components:

a. Communication Router UD80A3

b. Dedicated Modem Rack UD80A1

c. Archive IV Device UD80A4

d. Server UD80A11PS2

e. Communication Switch UD80A18

2. At the rear of the Communication Router UD80A3, set the power rocker switch to the Off (0) position. At the front of the router, the SYSTEM LED should be extinguished.

3. Verify the power to the Server UD80A11 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. At the front of the Archive IV Device UD80A4, press the power button to turn power Off. The power ON LED will extinguish.

5. Ensure each modem in Modem Rack UD80A2 has its settings saved before power to the modem rack is powered Off. Perform paragraph 6.5.4.2, Step 4.

6. If the UPS is still operational, at the front panel of the UPS UD80A6, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

7. At the rear of the UPS UD80A6, unplug all AC power cords. The following list is what power cords should be plugged into the UPS:

   a. 80W52 (Communication Router UD80A3)

   b. 80W50 (Dedicated Modem Rack UD80A1)

   c. 80W62 (Server Power Supply #2 UD80A11PS2)

   d. 80W60 (Archive IV Device UD80A4)

   e. 80W54 (Communication Switch UD80A18)

8. At the rear of the UPS UD80A6, locate the UPS power cord and unplug it from the wall utility power receptacle.

9. At the front of the UPS UD80A6, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

10. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

11. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

12. Secure the UPS in the cabinet with the two screws removed in Step 9.

13. Plug the UPS power cord in the utility power receptacle.

14. At the rear of the UPS, plug the AC power cords listed in Step 7 into the AC receptacles.

15. At the front panel of the UPS, press the **1 Test** power button to turn power on. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

16. At the rear of the Communication Router UD80A3, set the power rocker switch on to the On (1) position. At the front of the router, the SYSTEM LED should be lit.

17. At the front of the Dedicated Modem Rack UD80A1, ensure the two green LEDs are lit on the power supply/fan modules and one green LED is lit on the fan module and the modem LCD screens are displaying text.

18. At the front of the Archive IV Device UD80A4, press the power button to turn power On. The power ON LED should be lit.

19. At the front of the Communication Switch UD80A18 (front panel is recessed to the back of the cabinet as viewed from the front), ensure the SYSTEM LED (and several others) is/are lit. Refer to Table 2-18 for a description of the LEDs that should be lit/blinking.

20. At the front of the Data Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

21. Wait for the server to boot up and display the CDE Login screen.

22. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

23. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

24. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

25. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

26. At the CDE Front Panel, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

27. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

28. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.10.3.6 <u>Medium OPUP UPS UD80A14 Replacement Procedure</u>.

1. The Medium OPUP UPS UD80A14 provides power to the following components:

   a. Monitor UD80A7

   b. Server UD80A11PS1

2. At the front of the Monitor UD80A7, press the power button to turn the power Off. The front panel LED will extinguish.

3. Verify the power to the Server UD80A11 has been shutdown (previously done by the Shutdown Server command in paragraph 6.5.10.2). Only the **Ù** AC LEDs on the front panel behind the mesh doors should be lit.

4. If the UPS is still operational, at the front panel of the UPS UD80A14, press the **0** power button to turn power off. If the UPS has been turned off, go to the next step.

5. At the rear of the UPS UD80A14, unplug the two AC power cords and one serial cable. The following list is what should be plugged into the UPS:

a. 80W56 (Server Power Supply #1 UD80A11PS1)

b. 80W59 (Monitor UD80A7)

c. 80W225 (9-pin Serial cable)

6. At the rear of the UPS UD80A14, locate the UPS power cord and unplug it from the wall utility power receptacle.

7. At the front of the UPS UD80A14, remove the two UPS mounting screws.

WARNING

The UPS is a two person lift. Before performing the next step, ensure a second technician is available to assist in the removal of the defective UPS and to install the new UPS in the OPUP cabinet.

8. With the help of a second technician at the rear of the cabinet, push the UPS forward approximately 4" so the front panel brackets clear the front of the cabinet. Then remove the defective UPS from the cabinet by pulling it along the mounting slide rails. Set the defective UPS aside. The mounting slide rails remain in the cabinet.

9. With the help of a second technician, set the new UPS on the mounting slide rails and push it into the OPUP cabinet. Feed the UPS power cord to the back of the cabinet.

10. Secure the UPS in the cabinet with the two screws removed in Step 7.

11. Plug the UPS power cord in the utility power receptacle.

12. At the rear of the UPS, plug the AC power cords and serial cable listed in Step 5 into the AC receptacles and 9-pin Serial port, respectively.

13. At the front panel of the UPS, press the **1 Test** power button to turn power on. The **Ù** AC LED on the front panel will blink until the UPS is completely powered up.

14. At the front of the Monitor UD80A7, press the power button to turn the power On. The green power LED should be lit.

15. At the front of the Server UD80A11, to the right of the keyswitch, press the power button. The fans will start up and the green LED in the top right corner will be lit.

16. Wait for the server to boot up and display the CDE Login screen.

17. At the CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1. The `OPUP Manager Main Menu` will be displayed.

18. At the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

19. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. Verify all the background processes have been started, as indicated by text displayed out to the right of each item listed in `OPUP APP/Task` column. Use the **Refresh** button to update the window.

20. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to display the `OPUP Manager Main Menu`.

21. At the CDE Front Panel, close the `OPUP Manager Main Menu` by clicking on the **EXIT** icon. In the `Logout Confirmation` window, click on the **OK** button. The CDE Login screen will be displayed.

22. At the front of each Display Workstation CPU/Processor UD85A2, press the power button. Once the CDE Login screen is displayed, login as an operator.

23. With all components powered up, refer to Table 2-13 to verify all appropriate UPS front panel LEDs are lit.

6.5.11 UPS Battery UD80A5/A6/A13/A14BT1 Replacement Procedure.

This procedure applies to both the Large and Medium OPUP configuration. Each UPS contains a tray with four battery packs. The entire tray with all four battery packs is replaced as a single unit. This procedure requires one technician and takes 15 minutes.

6.5.11.1 Equipment and Tools Required

1. Screwdriver set, Phillips-tip

6.5.11.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of each UPS UD80A5/A6/A13/A14. Refer to Figure 2-17 and Table 2-13 for the location and description of each control and indicator associated with the UPS UD80A5/A6/A13/A14.

NOTE

The UPS internal battery pack may be removed and replaced while the UPS is operational. It will be imperative, however, that the procedure outlined in the following paragraphs be accomplished as soon as possible when started. If a significant power outage or lag in utility power should occur, the associated equipment connected to the UPS in question may reset or associated databases become corrupted.

1. At the OPUP Cabinets, open both the front and rear doors in order to gain access to the defective UPS unit.

6.5.11.3 Replacement Procedure.

1. Remove the front panel of the UPS by pulling straight out on both sides of the panel.

2. Unplug the yellow battery connector by pulling on the white cord that is attached to it.

3. Remove the four screws that secure the battery tray to the UPS.

CAUTION

The battery tray is not mounted on rails. The technician must support the weight of the battery tray (approximately 15 pounds) as it is pulled out.

4. Pull the battery tray out until it hits the metal lip/stop.

5. Lift the defective battery tray up and over the lip/stop to completely remove it from the UPS. Set the old battery tray aside.

6. Place the new battery tray in the opening. Raise the back of the tray up slightly to position the stop tab on the inside of the opening. Level the tray and push it in completely.

7. Plug in the yellow battery connector to the UPS. Press firmly until its clicks in securely.

8. Install the four mounting screws that secure the battery tray to the UPS.

9. Wrap the white pull cord around the red and black wires so it will not get in the way while installing the front cover.

10. Replace the front cover of the UPS.

6.5.12 Monitor UD80A7 Replacement Procedure.

This procedure requires two technicians and takes 15 minutes.

6.5.12.1 Equipment and Tools Required.

None.

6.5.12.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Monitor UD80A7. Refer to Figure 2-18 and Table 2-14 for the location and description of each control and indicator associated with the Monitor UD80A7.

1. At the OPUP Cabinets, open both the right front and left rear doors in order to gain access to the defective Monitor UD80A7.

2. (Large OPUP configuration only.) At the KVM Switch UD80A8, press LED number “1” button. Information associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7.

6.5.12.3 Replacement Procedure

1. At the front of the Monitor UD80A7, press the power button to turn the monitor power Off.

2. At the rear of the Monitor UD80A7, unplug the AC power cord 80W59.

3. At the Large OPUP configuration only: At the rear of the KVM Switch UD80A8, disconnect the monitor video cable connected to the MONITOR jack.

4. At the Medium OPUP configuration only: At the rear of the Server UD80A11, disconnect the monitor video cable connected to the PCI1 card jack.

5. At the front of the OPUP Processor Cabinet, grasp the front of the shelf support used for the Monitor UD80A7 and pull it straight out until it stops.

CAUTION

The monitor is a two person lift. It is fully supported by the shelf in the OPUP cabinet. Before performing the next step, ensure that the second technician is available to assist with the removal/replacement of the monitor.

6. With the help of the second technician, lift the defective monitor off the shelf and set it aside.

7. With the help of the second technician, place the new monitor on the shelf.

8. On both sides of the extended shelf, press the two buttons on the slide rails to release the shelf locking mechanism. Gently push the shelf all the way into the cabinet.

9. At the rear of the cabinet, connect the monitor video cable and power cord for the applicable configuration as follows:

   a. For the Large OPUP configuration:

      1. At the rear of the KVM Switch UD80A8, connect the monitor video cable to the MONITOR jack. Finger-tighten the connector screws.

2. At the rear of the Monitor UD80A7, plug AC power cord 80W59 into the AC power jack.

b. For the Medium OPUP configuration:

1. At the rear of the Server UD80A11, connect the monitor video cable to the PCI1 card connector jack. Finger-tighten the connector screws.

2. At the rear of the Monitor UD80A7, plug AC power cord 80W59 into the AC power jack.

10. At the front of the Monitor UD80A7, press the power button. The LED will be lit, indicating power has been applied.

11. For the Large OPUP configuration: The KVM Switch is set to display data from the Data Server UD80A11. For both the Large and Medium OPUP configurations: Data should now be displayed on the Monitor UD80A7.

12. At the front of the Monitor UD80A7, use the controls to setup the monitor, if necessary, as follows:

NOTE

In the following steps, if one of the front panel **Menu** buttons is not pressed within 5 seconds, the Menu screen will close.

a. Press the **Menu** button. A Menu screen will be displayed.

b. Use the **-** or **+** button to select the function at the top of the Menu screen that requires adjustment.

c. Press the **Menu** button to access the function. A number will be displayed in the middle of the screen.

d. Use the **-** or **+** button to make the necessary adjustment.

e. Press the **EXIT** button to return to the Menu screen. To select another function, use the **-** or **+** button. If no other adjustment is required, press the **EXIT** button again to close the Menu screen.

13. Place the OPUP configuration in the normal operating state.

6.5.13 <u>KVM Switch UD80A8 Replacement Procedure</u>.

This procedure only applies to the Large OPUP configuration, requires one technician, and takes 15 minutes.

6.5.13.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

2. Screwdriver set, flat-tip

6.5.13.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 for the location of the KVM Switch UD80A8. Refer to Figure 2-19 and Table 2-15 for the location and description of each control and indicator associated with the KVM Switch UD80A8.

NOTE

This procedure will assume that the KVM Switch UD80A8 has failed and will not display data. The KVM Switch may be removed while the OPUP is operational.

1. At the OPUP Cabinets, open the right front and left rear doors in order to gain access to the defective KVM Switch UD80A8.

6.5.13.3 Replacement Procedure.

1. At the front of the KVM Switch, set the power switch to Off. The LED for button "1" or "2" will extinguish.

NOTES

Ensure the cables that are connected to the VIDEO 1 and VIDEO 2 jacks on the rear of the KVM Switch are properly labeled so they can be disconnected and then re-connected correctly onto the new KVM Switch. The monitor, keyboard, mouse, and DC power cables are not labeled.

The 80W220, 80W221, and monitor cable connectors have thumb screws that are finger-tightened/loosened.

2. At the rear of the KVM Switch, disconnect the following cables:

   a. DC power cord from the 5VDC jack.

   b. Monitor video cable from the MONITOR jack.

   c. Keyboard and mouse cables from the DEVICES USB ports.

   d. For cable 80W221 (for Data Server UD80A11):

1. Disconnect the P2 connector from the VIDEO 1 jack.

2. Unplug the short, pig-tail P4 end from the CPU 1 jack.

e. For cable 80W220 (for Display Sever UD80A12):

1. Disconnect the P2 connector from the VIDEO 2 jack.

2. Unplug the short, pig-tail P4 end from the CPU 2 jack.

NOTE

The KVM Switch is not mounted on rails. It is fully supported by mounting screws at the front of the OPUP cabinet. Before performing the next step, support the weight of the KVM Switch from underneath.

3. At the front of the KVM Switch, remove the mounting screws that secure the switch to the cabinet.

4. Remove the defective KVM Switch from the cabinet by sliding it straight out the front and set it aside.

5. Place the new KVM Switch into the cabinet and secure it to the cabinet with the mounting screws removed in Step 3.

6. At the front of the new KVM Switch, ensure the power rocker switch is in the Off position.

7. At the rear of the KVM Switch, connect the following cables:

a. For cable 80W220 (for Display Sever UD80A12):

1. Plug the short, pig-tail P4 end into the CPU 2 jack.

2. Connect the P2 connector to the VIDEO 2 jack. Finger-tighten the connector screws.

b. For cable 80W221 (for Data Server UD80A11):

1. Plug the short, pig-tail P4 end into the CPU 1 jack.

2. Connect the P2 connector to the VIDEO 1 jack. Finger-tighten the connector screws.

c. Monitor video cable to the MONITOR jack. Finger-tighten the connector screws.

d. Mouse cable (smaller diameter than the keyboard cable) to the bottom DEVICES USB port. Ensure the USB symbol on the connector is facing up.

e. Keyboard cable to the top DEVICES USB port. Ensure the USB symbol on the connector is facing up.

f. DC power cord to the 5VDC jack.

8. At the front of the KVM Switch, set the power rocker switch to the On position. All of the LEDs will light momentarily, then the LED above the "1" button will remain lit.

9. At the Monitor UD80A7, ensure the information associated with the Data Server UD80A11 is displayed.

10. Use the keyboard and mouse to verify they are functioning. This can be accomplished by clicking on the **padlock** icon on the CDE Front Panel. Move the mouse to display the `Solaris Password:` screen and then enter the *opupmgr_password* to unlock the screen.

11. Place the Large OPUP configuration in the normal operating state.

6.5.14 KVM Switch AC/DC Adapter UD80A8PS1 Replacement Procedure.

This procedure requires one technician and takes 5 minutes.

6.5.14.1 Equipment and Tools Required.

None.

6.5.14.2 Initial Conditions/Preliminary Setup.

NOTE

The KVM Switch UD80A8PS1 AC/DC Adapter may be removed while the OPUP is operational.

1. At the OPUP Cabinets, open the right front and left rear door to gain access to the defective KVM AC/DC power adapter.

6.5.14.3 Replacement Procedure.

1. At the front panel of the KVM Switch UD80A8, place the power rocker switch in the Off (0) position.

2. At the rear of the KVM Switch, remove the DC power cord from the 5VDC jack.

3. At the rear of the KVM Switch, locate the AC-to-DC power adapter and unplug the AC power cord 80W61 (P2) end from the KVM Switch AC/DC Adapter UD80A8PS1 AC input jack.

4. Remove the defective KVM Switch UD80A8PS1 AC/DC Adapter and set it aside.

5. Place the new KVM Switch UD80A8PS1 AC/DC Adapter in place at the rear of the KVM Switch.

6. At the rear of the KVM Switch, plug the AC power cord 80W61 (P2) end into the KVM Switch AC/DC Adapter AC input jack.

7. At the rear of the KVM Switch, connect the DC power cord end to the 5VDC jack.

8. At the front of the KVM Switch, set the power rocker switch in the On position. All of the LEDs will light momentarily, then the LED above the "1" button will remain lit.

9. Place the Large OPUP configuration in the normal operating state.

6.5.15 Keyboard UD80A9 Replacement Procedure.

This procedure applies to both the Large and Medium OPUP. The difference between the Large and Medium OPUP for this procedure is where the keyboard cable connects. For a Large OPUP, the cable connects into the KVM Switch UD80A8 so that it can be shared between both servers. For the Medium OPUP, the keyboard connects into the back of the server.

This procedure requires one technician and takes 5 minutes. The keyboard is hot-swappable.

6.5.15.1 Equipment and Tools Required.

None.

6.5.15.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Keyboard UD80A9. Refer to Figure 2-20 and Table 2-16 for the location and description of each control and indicator associated with the Keyboard UD80A9.

1. At the OPUP Cabinets, open the left rear and right front cabinet doors and locate the Keyboard UD80A9.

2. If necessary, from the front of the cabinet, pull the sliding shelf that holds the keyboard out all the way until it stops, rotate the shelf clockwise until it stops, then push it back in a little until it stops.

6.5.15.3 Replacement Procedure.

1. Disconnect the keyboard cable from the applicable OPUP configuration as follows:

NOTE

The keyboard cable is a larger diameter cable than the mouse cable.

a. For the Large OPUP: At the rear of the KVM Switch UD80A8, disconnect the keyboard cable from the top DEVICES USB port.

b. For the Medium OPUP: At the rear of the Server UD80A11, disconnect the keyboard cable from the upper right USB port.

2. Lift the defective keyboard off the shelf and set it aside.

3. Place the new keyboard on the shelf.

4. Connect the keyboard cable to the applicable OPUP configuration as follows:

a. For the Large OPUP: At the rear of the KVM Switch UD80A8, connect the keyboard cable to the top DEVICES USB port. Ensure the USB symbol on the connector is facing up.

b. For the Medium OPUP: At the rear of the Server UD80A11, connect the keyboard cable to the upper right USB port. Ensure the USB symbol on the connector is facing up.

5. Verify the new keyboard is functioning. This can be accomplished by clicking on the **padlock** icon on the CDE Front Panel. Move the mouse to display the `Solaris Password:` screen and then enter the *opupmgr_password* to unlock the screen.

6. If desired, push the sliding shelf that holds the keyboard back into the cabinet.

6.5.16 Mouse UD80A10 Replacement Procedure.

This procedure applies to both the Large and Medium OPUP. The difference between the Large and Medium OPUP for this procedure is where the mouse cable connects. For a Large OPUP, the cable connects into the KVM Switch UD80A8 so that it can be shared between both servers. For the Medium OPUP, the mouse connects to the back of the server.

This procedure requires one technician and takes 5 minutes. The mouse is hot-swappable.

6.5.16.1 Equipment and Tools Required.

None.

6.5.16.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Mouse UD80A10. Refer to Figure 2-20 and Table 2-16 for the location and description of each control and indicator associated with the Mouse UD80A10.

1. At the OPUP Cabinets, open the left rear and right front cabinet doors and locate the Mouse UD80A10.

2. If necessary, from the front of the cabinet, pull the sliding shelf that holds the mouse out all the way until it stops, rotate the shelf clockwise until it stops, then push it back in a little until it stops.

6.5.16.3 Replacement Procedure.

1. Disconnect the mouse cable from the applicable OPUP configuration as follows:

NOTE

The mouse cable is a smaller diameter cable than the keyboard cable, if they are not marked or have been moved to another USB port.

   a. For the Large OPUP: At the rear of the KVM Switch UD80A8, disconnect the mouse cable from the bottom DEVICES USB port.

   b. For the Medium OPUP: At the rear of the Server UD80A11, disconnect the mouse cable from the lower right USB port.

2. Lift the defective mouse off the shelf and set it aside.

3. Place the new mouse on the shelf.

4. Connect the mouse cable to the applicable OPUP configuration as follows:

   a. For the Large OPUP: At the rear of the KVM Switch UD80A8, connect the mouse cable to the bottom DEVICES USB port. Ensure the USB symbol on the connector is facing up.

   b. For the Medium OPUP: At the rear of the Server UD80A11, connect the mouse cable to the lower right USB port. Ensure the USB symbol on the connector is facing up.

5. Verify the new mouse is functioning. This can be accomplished by clicking on the **pad-lock** icon on the CDE Front Panel. Move the mouse and the `Solaris Password:` screen should be displayed. Enter the *opupmgr_password* to unlock the screen.

6.5.17 Server UD80A11/UD80A12 Replacement Procedure.

This procedure requires two technicians and will take 4 hours.

6.5.17.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

2. Screwdriver set, flat-tip

6.5.17.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP), for the location of the Servers UD80A11 and UD80A12. Refer to Figure 2-21 and Table 2-17 for the location and description of each control and indicator associated with the Servers UD80A11 and UD80A12.

1. At the OPUP Cabinets, open both the right front and left rear doors in order to gain access to the defective Server UD80A11 or UD80A12.

2. (Large OPUP configuration only.) At the KVM Switch UD80A8, press LED button number "1". Information associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7.

NOTE

If Steps 3 through 5 cannot be preformed, skip to Step 6.

3. If the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3; otherwise, continue to the next step.

4. At the Monitor UD80A7 CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1 to display the `OPUP Manager Main Menu`.

5. At the `OPUP Manager Main Menu`, shutdown the (Data) Server UD80A11 as follows:

   a. Click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

   NOTE

   When the **Shutdown Server** button is clicked, the (Data) Server UD80A11 initiate a shutdown of each Display Workstation UD85, followed by the Display Server UD80A12 (Large OPUP configurations), then the (Data) Server UD80A11 will shutdown.

   b. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. An `OPUP Manager Shutdown Server` window will be displayed.

   c. At the warning window, click on the **Yes** button. The OPUP Server OS will perform a full server software shutdown sequence of all OS operations in an orderly and safe manner and then perform a complete hardware shutdown procedure.

   d. After the OPUP servers and display workstations shutdown, proceed to Step 7.

6. If any of the procedures outlined in Steps 3 through 5 were not successful (couldn't get to `OPUP Manager Main Menu` to perform a shutdown via software commands), perform the following steps to shutdown the server(s) manually.

   a. At the front of the (Data) Server UD80A11, turn the security keyswitch clockwise until it stops. The server will immediately shutdown. Only the ~ AC LED will be lit on each server power supply (visible through the mesh front panel doors).

   b. At the front of the Display Server UD80A12 (Large OPUP configuration only), turn the security keyswitch clockwise until it stops. The server will immediately shutdown. Only the ~ AC LED will be lit on each server power supply (visible through the mesh front panel doors).

   c. At each Display Workstation, press and hold the CPU/Processor UD85A2 power button for 1 to 2 seconds. Each Display Workstation will perform a shutdown sequence. This may take from 30 seconds to 1 minute to perform.

7. At the front of the OPUP Cabinet, rotate the Keyboard UD80A9 and Mouse UD80A10 support tray, rotate it and push it all the way back into the cabinet until it stops, if necessary. The keyboard/mouse support tray will then be in a secure position.

6.5.17.3 Replacement Procedure.

CAUTION

Ensure the server(s) have been shutdown before proceeding.

NOTE

Inspect each cable label. Each cable should be properly labeled to ensure they may be removed and replaced easily during the following procedure.

1. Remove the cables from the applicable server as described below. Refer to the following sub-paragraphs for the server to be replaced:

   - For the Large OPUP Data Server UD80A11, refer to Step a.
   - For the Large OPUP Display Server UD80A12, refer to Step b.
   - For the Medium OPUP Server UD80A11, refer to Step c.

   a. At the rear of the Large OPUP Data Server UD80A11, disconnect the following cables:

      1. AC power cord 80W55 from the AC-1 power jack.

      2. AC power cord 80W63 from the AC-0 power jack.

3. Network cable 80W200 from the TP <...> port.

4. Mouse/keyboard cable 80W221, P3 pigtail end, from lower right USB port.

5. Video cable 80W221, P1 end, from the PCI-1 card connector at far right edge.

6. SCSI cable 80W222 from the SCSI port.

7. Serial cable 80W224 and CP13 (25 pin-to-9 pin adapter) from B port.

8. Cisco configuration cable (P/N 72-3663-01) and Null Modem Adapter (CP15) from A port, if connected. This is a test/configuration cable that may or may not be connected.

b. At the rear of the Large OPUP Display Server UD80A12, disconnect the following cables:

1. AC power cord 80W58 from the AC-1 power jack.

2. AC power cord 80W57 from the AC-0 power jack.

3. Network cable 80W201 from the TP <...> port.

4. Mouse/keyboard cable 80W220, P3 pigtail end, from lower right USB port.

5. Video cable 80W220, P1 end, from the PCI-1 card connector at far right edge.

6. Serial cable 80W223 and CP14 (25 pin-to-9 pin adapter) from B port.

c. At the rear of the Medium OPUP Server UD80A11, disconnect the following cables:

1. AC power cord 80W62 from the AC-1 power jack.

2. AC power cord 80W56 from the AC-0 power jack.

3. Network cable 80W200 from the TP <...> port.

4. SCSI cable 80W222 from the SCSI port.

5. Keyboard cable from the upper right USB port.

6. Mouse cable from the lower right USB port.

7. Monitor video cable from the PCI-1 card connector at far right edge.

8. Serial cable 80W225 and CP13 (25 pin-to-9 pin adapter) from B port.

9. Cisco configuration cable (P/N 72-3663-01) and Null Modem Adapter (CP15), if connected. This is a test/configuration cable that may or may not be connected.

2. At the front of the server, loosen the four server captive screws that secure the sever to the cabinet.

3. Slide the server all the way out of the cabinet until the rails click into the locked position.

WARNING

The server is a two person lift. Before performing the next three steps, ensure a second technician is available to assist with the removal and replacement of the server.

4. With the help of the second technician to support the weight of the server, while slightly pulling on the server, press the slide rail tab on each side of the server to release the slide rail locks.

5. With the help of the second technician, pull the server straight out from the rails and set it aside.

6. With the help of the second technician, set the new server on the rails and push it in until it locks into position.

7. Release the slide rail locks on each side of the server and push the server all the way into the cabinet.

8. At the front of the server, tighten the captive screws that secures the server to the cabinet.

9. At the front of the server, ensure the keyswitch is fully counterclockwise.

10. Connect the cables to the applicable server as described below. Refer to the following sub-paragraphs for the server that was replaced:

- For the Large OPUP Data Server UD80A11, refer to Step a.
- For the Large OPUP Display Server UD80A12, refer to Step b.
- For the Medium OPUP Server UD80A11, refer to Step c.

a. At the rear of the Large OPUP Data Server UD80A11, connect the following cables:

1. Serial cable 80W224 and CP13 (25 pin-to-9 pin adapter) to B port.

2. SCSI cable 80W222 to the SCSI port.

3. Video cable 80W221, P1 end, to the PCI-1 card connector at far right edge.

4. Mouse/keyboard cable 80W221, P3 pigtail end, to lower right USB port.

5. Network cable 80W200 to the TP <...> port.

6. AC power cord 80W63 to the AC-0 power jack.

7. AC power cord 80W55 to the AC-1 power jack.

8. If the Cisco configuration cable (P/N 72-3663-01) and Null Modem Adapter (CP15) were connected to A port, reconnect them.

b. At the rear of the Large OPUP Display Server UD80A12, connect the following cables:

1. Serial cable 80W223 and CP14 (25 pin-to-9 pin adapter) to B port.

2. Video cable 80W220, P1 end, to the PCI-1 card connector at far right edge.

3. Mouse/keyboard cable 80W220, P3 pigtail end, to lower right USB port.

4. Network cable 80W201 to the TP <...> port.

5. AC power cord 80W57 to the AC-0 power jack.

6. AC power cord 80W58 to the AC-1 power jack.

c. At the rear of the Medium OPUP Server UD80A11, connect the following cables:

1. Serial cable 80W225 and CP13 (25 pin-to-9 pin adapter) to the B port.

2. Monitor video cable to the PCI-1 card connector at far right edge.

3. Mouse cable to the lower right USB port.

4. Keyboard cable to the upper right USB port.

5. SCSI cable 80W222 to the SCSI port.

6. Network cable 80W200 to the TP <...> port.

7. AC power cord 80W56 to the AC-0 power jack.

8. AC power cord 80W62 to the AC-1 power jack.

9. If the Cisco configuration cable (P/N 72-3663-01) and Null Modem Adapter (CP15) were connected to A port, reconnect them.

11. Perform the server setup procedure per paragraph 6.6.4.

6.5.18 Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2 Replacement Procedure.

Once the software load installation procedure is successfully completed on the Large OPUP configuration, the internal hard drives on the Data Server UD80A11A1/A2 are configured for the Data Server only and the internal hard drives on the Display Server UD80A12A1/A2 are configured for the Display Server only. In the event that any internal hard drive fails, the defective hard drive must be replaced and software must be reinstalled. This procedure requires one technician and takes 4 hours.

6.5.18.1 Equipment and Tools Required.

1. ESD Component Handling Kit

6.5.18.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-21 for the location of the internal hard drives. Also refer to Table 2-17 for the controls and indicators associated with the server or hard drives.

1. At the OPUP Cabinets, open the right front door in order to gain access to the defective Internal Hard Drive UD80A11A1/A2 and/or UD80A12A1/A2.

2. (Large OPUP configuration only.) At the KVM Switch UD80A8, press LED button number "1". Information associated with the Data Server UD80A11 will be displayed on the Monitor UD80A7.

NOTE

If Steps 3 through 5 cannot be preformed, skip to Step 6.

3. If the Screen Lockout feature has been activated, unlock the screen in accordance with the procedure outlined in paragraph 5.2.3.3; otherwise, continue to the next step.

4. At the Monitor UD80A7 CDE Login screen, login as **opupmgr** per paragraph 5.2.3.1 to display the `OPUP Manager Main Menu`.

5. At the `OPUP Manager Main Menu`, shutdown the (Data) Server UD80A11 as follows:

   a. Click on the **OPUP Server Control Menu** button. The `OPUP Server Control Menu` will be displayed.

NOTE

When the **Shutdown Server** button is clicked, the (Data) Server UD80A11 will initiate a shutdown of each Display Workstation UD85, followed by the Display Server UD80A12 (for Large OPUP configurations), then the (Data) Server UD80A11 will shutdown.

b. At the `OPUP Server Control Menu`, click on the **Shutdown Server** button. An `OPUP Manager Shutdown Server` window will be displayed.

c. At the warning window, click on the **Yes** button. The OPUP Server OS will perform a full server software shutdown sequence of all OS operations in an orderly and safe manner and then perform a complete hardware shutdown procedure.

d. After the OPUP servers and display workstations shutdown, proceed to Step 7.

6. If any of the procedures outlined in Steps 3 through 5 were not successful (couldn't get to `OPUP Manager Main Menu` to perform a shutdown via software commands), perform the following steps to shutdown the server(s) manually.

a. At the front of the (Data) Server UD80A11, turn the security keyswitch clockwise until it stops. The server will immediately shutdown. Only the ~ AC LED will be lit on each server power supply (visible through the mesh front panel doors).

b. At the front of the Display Server UD80A12 (Large OPUP configuration only), turn the security keyswitch clockwise until it stops. The server will immediately shutdown. Only the ~ AC LED will be lit on each server power supply (visible through the mesh front panel doors).

c. At each Display Workstation, press and hold the CPU/Processor UD85A2 power button for 1 to 2 seconds. Each Display Workstation will perform a shutdown sequence. This may take from 30 seconds to 1 minute to perform.

7. At the front of the OPUP Cabinet, rotate the Keyboard UD80A9 and Mouse UD80A10 support tray, rotate it and push it all the way back into the cabinet until it stops, if necessary. The keyboard/mouse support tray will then be in a secure position.

6.5.18.3 Replacement Procedure.

1. Open the left front door of the server to gain access to the defective internal hard drive by firmly pulling on the plastic handle attached to the left front door.

****ESD** CAUTION **ESD****

The OPUP internal hard drives are electrostatic sensitive devices which require special handling. Refer to paragraph 6.5.3.7.

2. Put the ESD wrist strap on the bare wrist and connect the clip lead to the chassis frame or proper ground.

3. To remove the defective internal hard drive, slide the release lever all the way to the right as indicated by the arrow on the front of the release lever. The right hand side of the hard drive handle, which is located just to the left of the release lever, will pop out slightly.

4. Pull out on the right hand side of the hard drive handle to fully extend the handle. This will disengage the hard drive from the backplane connector.

5. Using the hard drive handle, pull the hard drive all the way out of the server and set it aside.

6. Set the new hard drive into the slot of the server.

7. Push the new hard drive into the server until it stops. The hard drive handle will still be fully extended and the hard drive will barely be in contact with the backplane.

8. Push in firmly on the right hand side of the hard drive handle to engage the hard drive into the backplane connector and lock the handle down.

9. Remove the ESD wrist strap and remove the clip lead from chassis frame.

10. At the front of the server, ensure that the security keyswitch is turned fully counterclockwise until it stops.

11. Close the left front door on the server.

12. Pull the sliding shelf that holds the keyboard/mouse out all the way until it stops, rotate the shelf clockwise until it stops, then push it back in a little until it stops.

13. Perform the OPUP server internal hard drive setup procedure outlined in paragraph 6.6.5.

6.5.19 Server Power Supply UD80A11PS1/PS2 and UD80A12PS1/PS2 Replacement Procedure.

This procedure assumes the server is operating normally with one power supply. From the front of the server, PS1 is on the left and PS2 is on the right.

This procedure requires one technician and takes 15 minutes. The server power supplies are hot-swappable.

6.5.19.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

6.5.19.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-21 for the location of the power supplies. Also, refer to Table 2-17 for the controls and indicators associated with the power supplies.

1. At the OPUP Cabinets, open the left rear and right front doors and locate the defective Server Power Supply UD80A11PS1/PS2 (Large/Medium OPUP) or UD80A12PS1/PS2 (Large OPUP only).

6.5.19.3 Replacement Procedure.

1. At the rear of the applicable Server UD80A11/A12, unplug the AC power cord from the (AC-0/AC-1) jack that corresponds to the defective power supply as follows:

   Large: UD80A11 Server - PS1 (right) uses 80W63 and plugs into the AC-0 jack.
   UD80A11 Server - PS2 (left) uses 80W55 and plugs into the AC-1 jack.
   UD80A12 Server - PS1 (right) uses 80W57 and plugs into the AC-0 jack.
   UD80A12 Server - PS2 (left) uses 80W58 and plugs into the AC-1 jack.
   Medium: UD80A11 Server - PS1 (right) uses 80W56 and plugs into the AC-0 jack.
   UD80A11 Server - PS2 (left) uses 80W62 and plugs into the AC-1 jack.

2. At the front of the server, open the two front panels on the server by firmly pulling out on the plastic handle attached to the left front panel. Swinging the left panel open, allows the smaller right front panel of the server to be opened.

3. Loosen the retaining screw/bracket that secures the power supply to the server. Loosen the screw enough to slide the bracket up and out of the way. The bracket must be held up and out of the way.

4. Swing out the handle in the center of the power supply and pull the handle straight out to remove the defective power supply.

5. While holding the power supply retaining bracket up and out of the way, set the new power supply into the power supply slot and push it in until it is seated securely. Swing the handle to the right, out of the way.

6. Release the retaining bracket and tighten the retaining bracket screw that secures the power supply to the server.

7. At the rear of the server, plug the AC power cord into the new power supply.

8. At the front of the server, verify the DC LED and the AC LED (∼) are lit green and the middle (wrench) LED is not lit.

9. Close the front panels on the server and the OPUP cabinet doors.

6.5.20 Adapter Panel UD80A15/16/17 Replacement Procedure.

This procedure requires one technician and takes 30 minutes.

6.5.20.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

6.5.20.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Adapter Panels UD80A15/16/17.

1. Open the right rear OPUP cabinet door and locate the defective Dedicated or Dial Adapter Panel UD80A15/A16/A17.

2. The Dedicated and Dial Adapter Panels are hot-swappable.

6.5.20.3 Replacement Procedure.

1. Ensure all cables connected to the front and back of the defective dedicated/dial adapter panel are properly labeled so they can be disconnected from the old adapter panel and then reconnected correctly onto the new adapter panel.

2. Disconnect all cables from the front and back of the adapter panel. The cables on the back of the units (80W21/W22/W23/W33) are held in place by a velcro strap.

3. Remove the adapter panel mounting screws from the back of the cabinet and then set the defective adapter panel aside.

4. Mount the new adapter panel into position in the cabinet and install and tighten the mounting screws.

5. Connect all of the cables to the front and back of the adapter panel exactly as they were connected on the old adapter panel. Secure the cable(s) in the back with the velcro strap.

6. Close the right rear OPUP cabinet door.

6.5.21 Communication Switch UD80A18 Replacement Procedure.

The Communication Switch UD80A18 may be removed and replaced without stopping and starting the OPUP Server OS. This procedure requires one technician and takes 1 hour.

6.5.21.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

2. Flashlight

6.5.21.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Communication Switch UD80A18. Refer to Figure 2-23 and Table 2-18 for the location and description of each control and indicator associated with the Communication Switch UD80A18.

1. At the OPUP Cabinets, open both the left front and right rear doors in order to gain access to the defective Communication Switch UD80A18.

2. (Large OPUP configuration only:) At the KVM Switch UD80A8, press LED button number "**1**". Information associated with the Data Server UD80A11 will then be displayed on the Monitor UD80A7.

6.5.21.3 Replacement Procedure.

NOTE

Inspect each cable label. Each cable should be properly labeled to ensure they may be removed and replaced easily during the following procedure.

1. For the Large OPUP configuration: (Medium OPUP sites, proceed to Step 2.)

   a. At the rear of the Communication Switch UD80A18, unplug AC power cord 80W54 from the AC power jack.

NOTE

The front of the Communication Switch UD80A18 is recessed in the cabinet above the UPS unit (UD80A5) and may require a flashlight to see the cables.

   b. At the front of the Communication Switch UD80A18, unplug cable 80W200 from port 1X.

   c. At the front of the Communication Switch UD80A18, unplug cable 80W202 from port 2X.

   d. At the front of the Communication Switch UD80A18, unplug cable 80W201 from port 3X.

   e. At the front of the Communication Switch UD80A18, unplug all cables, 80W204 through 80W213, that are connected to ports 4X through 13X. The number of cables corresponds to the number of Display Workstations installed.

   f. At the front of the Communication Switch UD80A18, unplug cable 80W214 from port 14X.

2. For the Medium OPUP configuration:

   a. At the rear of the Communication Switch UD80A18, unplug AC power cord 80W54 from the AC power jack.

NOTE

The front of the Communication Switch UD80A18 is recessed in the cabinet above the UPS unit (UD80A6) and may require a flashlight to see the cables.

b. At the front of the Communication Switch UD80A18, unplug cable 80W200 from port 1X.

c. At the front of the Communication Switch UD80A18, unplug cable 80W203 from port 2X.

d. At the front of the Communication Switch UD80A18, unplug all cables, 80W204 through 80W206, that are connected to ports 4X through 6X. The number of cables corresponds to the number of Display Workstations installed.

e. At the front of the Communication Switch UD80A18, unplug cable 80W214 from port 14X.

NOTE

The communication switch is not mounted on rails. It is fully supported by the mounting screws at the back of the cabinet. Before performing the next step, be sure to support the weight of the communication switch from underneath.

3. Remove the communication switch mounting screws from the back of the cabinet.

4. Remove the defective communication switch from the cabinet by sliding it straight out the back and set it aside.

5. Remove the two mounting brackets from the defective communication switch and reinstall them on the new communication switch.

6. Mount the new communication switch into position and install and tighten the mounting screws.

7. For the Large OPUP configuration: (Medium OPUP sites, proceed to Step 8.)

   a. At the front of the Communication Switch UD80A18, plug cable 80W200 into port 1X.

   b. At the front of the Communication Switch UD80A18, plug cable 80W202 into port 2X.

   c. At the front of the Communication Switch UD80A18, plug cable 80W201 into port 3X.

d. At the front of the Communication Switch UD80A18, plug in all of the cables that were disconnected from ports 4X through 13X, cables 80W204 through 80W213, respectively.

e. At the front of the Communication Switch UD80A18, plug cable 80W214 into port 14X.

f. At the rear of the Communication Switch UD80A18, plug AC power cord 80W54 into the AC power jack.

8. For the Medium OPUP configuration:

a. At the front of the Communication Switch UD80A18, plug cable 80W200 into port 1X.

b. At the front of the Communication Switch UD80A18, plug cable 80W203 into port 2X.

c. At the front of the Communication Switch UD80A18, plug in all of the cables that were disconnected from ports 4X through 6X, cables 80W204 through 80W206, respectively.

d. At the front of the Communication Switch UD80A18, plug cable 80W214 into port 14X.

e. At the rear of the Communication Switch UD80A18, plug AC power cord 80W54 into the AC power jack.

9. Perform the Communication Switch Setup Procedure in paragraph 6.6.6.

6.5.22 Patch Panel UD80A19/A20/A21 Replacement Procedure.

This procedure requires one technician and takes 30 minutes.

6.5.22.1 Equipment and Tools Required.

1. Screwdriver set, Phillips-tip

6.5.22.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Patch Panels UD80A19/20/21.

1. At the OPUP Cabinets, open the left rear door in order to gain access to the defective Patch Panel UD80A19/A20/A21.

6.5.22.3 Replacement Procedure.

1. Ensure the cables connected to the back of the defective patch panel are properly labeled so they can be disconnected from the old patch panel and then re-connected correctly onto the new patch panel.

2. Disconnect the cables from the rear of the applicable Patch Panel UD80A19/A20/A21 as follows:

a. For Patch Panel UD80A19, disconnect cables 80W21 and 80W30.

b. For Patch Panel UD80A20, disconnect cables 80W22 and 80W31.

c. For Patch Panel UD80A21, disconnect cables 80W23 and 80W32.

3. Remove the patch panel mounting screws from the back of the cabinet and set the defective patch panel aside.

4. Mount the new patch panel into position in the cabinet and install and tighten the mounting screws.

5. Connect the cables to the back of the patch panel exactly as they were connected on the old patch panel. Secure the cables in the back with the velcro strap.

6. On the front of the patch panel, ensure the NORMAL ↔ OPEN switch is set to NORMAL for each jack.

7. Close the OPUP cabinet door.

6.5.23 Printer UD80A22 Replacement Procedure.

This procedure requires two technicians and takes 45 minutes.

6.5.23.1 Equipment and Tools Required.

1. Scissors.

6.5.23.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-25 and Table 2-20 for the location and description of each control and indicator associated with the Printer UD80A22.

1. Locate the Printer UD80A22.

6.5.23.3 Replacement Procedure.

1. At the rear of the printer, place the power rocker switch in the Off (0) position to turn the power Off.

2. Locate and remove the printer AC power cord from its AC power source and from the rear panel of the printer.

3. Remove the AC power cord from the printer; set the power cord aside.

4. Disconnect the Ethernet cable W391 from the Ethernet port <...> at the back of the printer.

5. Inspect the front of the printer. Ensure all paper guides and/or paper trays are fully inserted and/or closed.

CAUTION

The weight of the printer is approximately 79 pounds. Two technicians are required to lift the printer during removal and replacement.

6. With the help of a second technician, remove the defective printer and set it aside.

NOTE

Save all packing material in case moving or subsequent shipment is necessary.

7. Perform the following initial printer set-up procedure:

   a. Open the shipping container box of the new printer, (the instructions are on the box), by removing the 4 plastic guards near the bottom. Lift the entire top of the box off of the printer's support pallet.

   b. Unpack the printer accessories and take inventory. The materials that accompany each new printer normally consists of one set of documentation, one AC power cord, one initial set of wax color chalks, and one media sampler.

   c. Remove the plastic cover protection bag from the printer and then pull down the bottom portion of the plastic bag to expose the rest of the printer.

CAUTION

The weight of the printer is approximately 79 pounds. Two technicians are required to lift the printer during removal and replacement.

   d. With the help of a second technician, lift the printer from its shipping box and place it in the location of the old printer.

8. Remove any adhesive tape that may be on the new printer.

9. Install each wax chalk insert by performing the following steps: (See Figure 6-9 for further reference):

   a. Remove each color wax chalk from it's packaging. Ensure there is no debris on any of the color chalk inserts.

   b. At the top center of the printer, locate the color wax chalk access door.

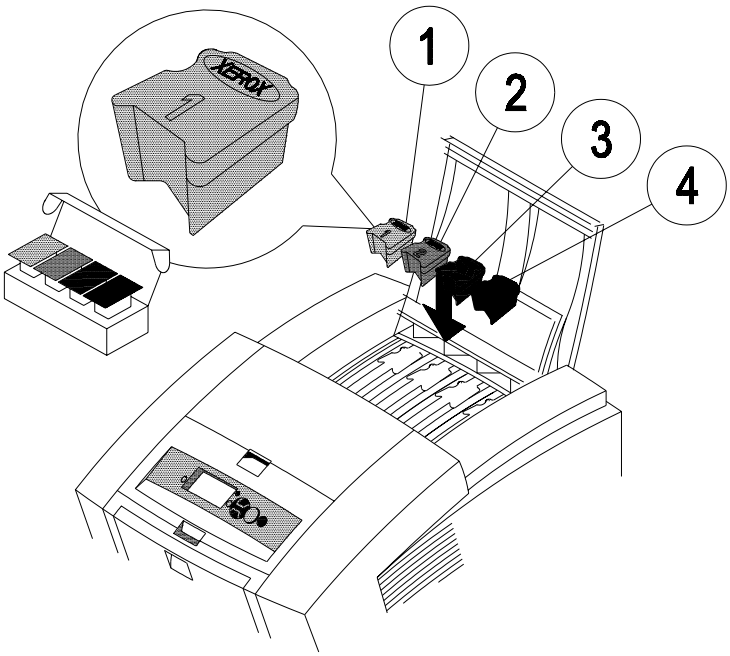


Figure 6-9. Printer UD80A22 Wax Chalk Inserts

c. At the color wax chalk access door, locate the access door tab. Using the tab, gently lift the door straight upwards. A chalk press lever and four chalk access ports will then be exposed.

d. Install each wax chalk into the appropriate shaped slot. Each slot is also color coded and labeled to assist with the correct chalk insertion.

e. When finished, close the color wax chalk access door.

10. Add paper to the paper tray as follows:

a. Locate the paper tray, near the bottom front of the printer, and pull the paper tray outwards.

b. Remove any packing material from inside the tray, if applicable.

c. Fan the paper. Place the paper within the paper tray (tray capacity is 500 sheets).

d. At the right side of the paper tray, ensure that the Paper/Transparency switch is in the paper position by pushing the switch forward (towards the front of the tray) until it stops.

e. Return the paper tray to the paper tray slot.

11. Connect the Ethernet cable to the Ethernet port <...> at the back of the printer.

12. Plug the AC power cord to the back of the printer.

CAUTION

To protect the printer from a power surge, make sure the printer power switch is in the Off position before plugging in the cord to the AC power source.

13. At the rear of the printer, ensure the power switch is in the Off (0) position.

14. Plug the other end of the AC power cord into the AC power source.

15. Wait for approximately 10 seconds, then place the printer power rocker switch in the On (1) position to turn on the power.

16. The printer will perform a Power On Self Test (POST) which can take up to 10 minutes to perform. When the POST is finished, the printer will print a test page.

17. When the printer displays a `ready` message within the LCD readout window and the power indicator is a steady green, perform the setup procedure outlined in paragraph 6.6.7.

6.5.24 Display Workstation Monitor UD85A1 Replacement Procedure.

One technician is required and this procedure will take approximately 20 minutes.

6.5.24.1 Equipment and Tools Required.

1. Screwdriver, flat-tip (small blade)

6.5.24.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-8 for the location of the Display Workstation Monitor UD85A1. Refer to Figure 2-26 and Table 2-21 for the location and description of the controls and indicators associated with the Display Workstation Monitor UD85A1.

1. At the Display Workstation UD85 in question, log the current display out to the CDE Login screen, if possible. Refer to paragraph 5.2.3.2, Operational Applications Front Panel Login Procedure for information concerning Display Workstation logout/login procedures.

2. At the front of the Display Workstation CPU/Processor UD85A2, push and hold the power button for 1 to 2 seconds and then release. The Display Workstation CPU/Processor UD85A2 will perform a power down to Off sequence. When the CPU/processor has shutdown, the Display Workstation Monitor UD85A1 will be blank.

6.5.24.3 Replacement Procedure.

1. At the rear of the Display Workstation Monitor UD85A1, perform the following steps:

   a. Turn the monitor power off by setting the Power S/W to the Off (0) position.

   b. Unplug the AC power cord from the monitor AC Power-In jack.

   c. Disconnect the video cable from the Video-In jack. A small blade flat-tip screwdriver may be required to loosen the connector screws.

2. Lift the defective Display Workstation Monitor UD85A1 from its location and set it aside.

3. Place the new monitor into position.

4. At the rear of the Display Workstation Monitor UD85A1, perform the following steps:

   a. Ensure the new monitor Power S/W is set to the Off (0) position.

   b. Plug the AC power cord into the Power-In jack.

   c. Connect the video cable to the Video-In jack. Finger tighten the connector screws.

   d. Turn the monitor power on by pressing the Power S/W to the On (1) position.

5. At the front of the Display Workstation CPU/Processor UD85A2, push and hold the power button for 1 to 2 seconds and then release. The Display Workstation CPU/Processor UD85A2 will perform a power On sequence. When the CPU/processor is finished booting up, the Display Workstation Monitor UD85A1 will display the CDE Login screen.

6.5.25 Display Workstation CPU/Processor UD85A2 Replacement Procedure.

One technician is required and this procedure will take approximately 1.5 hours.

6.5.25.1 Equipment and Tools Required.

None

6.5.25.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-8 for the location of the Display Workstation CPU/Processor UD85A2. Refer to Figure 2-27 and Table 2-22 for the location and description of the controls and indicators associated with the Display Workstation CPU/Processor UD85A2.

1. If the Display Workstation UD85 in question is still operational, log the current display out to the CDE Login screen. Refer to paragraph 5.2.3.2, Operational Applications Front Panel

Login Procedure for information concerning Display Workstation logout/login procedures. If the Display Workstation UD85 in question is not operational, go to the next step.

2. At the front panel of the Display Workstation CPU/Processor UD85A2, push and hold the power button for 1 to 2 seconds and then release. The Display Workstation CPU/Processor UD85A2 will perform a power down to Off sequence. When the CPU/processor has shut-down, the Display Workstation Monitor UD85A1 will be blank.

6.5.25.3 Replacement Procedure.

1. At the rear of the Display Workstation CPU/Processor UD85A2, perform the following steps:

   a. Unplug the AC power cord.

   b. Disconnect the video cable and adapter combination from the video port (▭).

   c. Disconnect the keyboard/mouse cable.

   d. Disconnect the Ethernet CAT5 type cable from the Ethernet port <...>.

2. Remove the defective CPU/processor and set it aside.

3. Set the new CPU/processor in place.

4. At the rear of the new CPU/processor perform the following steps:

   a. Ensure the power switch to set to the Off (0) position.

   b. Plug the AC power cord into the power jack.

   c. Connect the video cable/adapter combination to the video port connector (▭).

   d. Connect the Ethernet CAT5 type cable to the Ethernet port <...>.

   e. Connect the keyboard/mouse cable to the orange (▭) port.

5. Perform the Display Workstation CPU/Processor Setup procedure in paragraph 6.6.8.

6.5.26 Display Workstation Keyboard UD85A3 and Mouse UD85A4 Replacement Procedure.

This procedure requires one technician and takes 10 minutes. The keyboard is hot swappable.

6.5.26.1 Equipment and Tools Required.

None

6.5.26.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-8 for the location of the Display Workstation Keyboard UD85A3/Mouse UD85A4. Refer to Figure 2-28 and Table 2-23 for the location and description of the controls and indicators associated with the keyboard and mouse.

6.5.26.3 Replacement Procedure.

NOTE

The mouse is plugged into the bottom of the keyboard.

1. For the Mouse UD85A4 replacement, perform the following steps. For Keyboard UD85A3 replacement, skip to Step 2.

   a. At the bottom of the keyboard, unplug the mouse cable from the jack in the keyboard.

   b. Set the defective mouse aside.

   c. Plug the new mouse cable into the jack in the bottom of the keyboard.

   d. Verify the mouse works by moving the mouse around ensuring the cursor moves. Also, click on the **EXIT** button on the CDE Front Panel. When the `Logout Confirmation` window appears, click on the **CANCEL** button.

2. For the Keyboard UD85A3 replacement, perform the following steps.

   a. At the bottom of the defective keyboard, unplug the mouse cable from the jack in the keyboard.

   b. At the rear of the Display Workstation CPU/Processor UD85A2, unplug the keyboard cable from the jack (orange colored symbol). Set the defective keyboard aside.

   c. Set the new keyboard in place.

   d. At the rear of the Display Workstation CPU/Processor UD85A2, plug the keyboard cable into the orange colored symbol jack.

   e. Plug the mouse cable into the jack in the bottom of the keyboard.

Verify the keyboard works. This can be accomplished by logging out of the CDE Front Panel and logging back in. Click on the **EXIT** button on the CDE Front Panel. When the `Logout Confirmation` window appears, click on the **OK** button. At the CDE Login screen, use the new keyboard to login again.

Section 6.6. SETUP PROCEDURES

6.6.1 Introduction.

This section contains the procedures to be used to enable the proper setup/alignment of a Large/ Medium OPUP and Display Workstation LRU following the replacement of a faulty unit. Table 6-3 lists the LRUs for which a setup procedure is required and identifies the paragraph number for the required procedure. Each procedure identifies the personnel, time, and materials necessary to perform the procedure. Additionally, some procedures provide reference information such as the complete menus for software initialized devices. If no procedure is listed, then the LRU has been preset prior to being issued, has no site alignment, or has no site adjustment requirements. On completion of the procedure, repeat the initiating performance check and then return to normal operation.

Table 6-3. OPUP LRU Setup Procedure Index

Unit Designation	Description/Name	Paragraph Number
UD80A1A1-A21 and A2A1-A11	Dedicated Modem Setup Procedure	6.6.2
UD80A3	Communication Router UD80A3 Setup Procedure	6.6.3
UD80A11/A12	Server UD80A11 and UD80A12 Setup Procedure	6.6.4
UD80A11A1/A2 and A12A1/A2	Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2 Setup Procedure	6.6.5
UD80A18	Communication Switch UD80A18 Setup Procedure	6.6.6
UD80A22	Printer UD80A22 Setup Procedure	6.6.7
UD85A2	Display Workstation CPU/Processor UD85A2 Setup Procedure	6.6.8

NOTES

This section discusses some graphical manipulations using a mouse. The word “click” indicates a standard left mouse click. The symbol ▶ is used to indicate subsequent left clicks through submenu selections. When a right click or double-click is required, it is specifically indicated. The keyboard may have either an **Enter** or **Return** key. Unless told otherwise, each shown command line in the examples must be “entered” to be processed.

Mandatory commands, computer feedback and prompts, and variable commands are each presented in a distinctive font.

Mandatory commands entered by the user are in a bold type font and must be typed exactly as shown. `Computer feedback and prompts`, are a distinctive type key font, which signifies the name of an information block or prompt. Either way, the system is awaiting feedback from the user.

Variable commands represent a command variable that is distinctive for each site/terminal. These commands must be entered by the user and are site specific. An italic font defines these command variables. This variable placeholder is replaced with a name, address, etc. unique to each system and the user is told how to formulate, or directed to where to find, this information.

6.6.2 Dedicated Modem Setup Procedure UD80A1A1-A21 and UD80A2A1-A11.

This procedure requires one technician and takes 0.5 hours.

6.6.2.1 Equipment and Tools Required.

None.

6.6.2.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the dedicated modems. Refer to Figure 2-12 and Table 2-9 for the location and description of each control and indicator associated with the UD80A1/A2 Dedicated Modems.

1. Ensure that all DIP switches are set per Figure 6-7.

2. The following information applies to the button functions located on each modem faceplate:

Table 6-4. Modem Button Definitions

Button	Definition
◥	**RETURN** - when pressed within a branch of the menu, it returns to the top of the branch or branch title (e.g., `TERMINAL OPT'S`). When pressed at a branch title, it returns to the home position (e.g., `DATA 14.4 T/D?` or `V32b 14.4 T/D?`).
◀|	**DOWN** - moves down from branch title to branch title from the home position and selects individual options within a branch.
▼	**ACROSS** - moves across the top of branches in the Modem menu tree. It also moves the cursor across data entry menus one digit (character) at a time (`S-Reg` menus).

Table 6-4. Modem Button Definitions - Continued

Button	Definition
⊛	**ENTER** - makes the item on the display the current setting (if the display showed an = sign, it was already the current setting), or it initiates an action (as in Reinit Memory).

NOTE

Due to differences in modem models, some default settings may vary between sites. Each site should carefully note the desired modem settings and follow the procedure until those settings are achieved. (Example 1: Some modems default to a DTE Rate of 14.4 and others to 33.6. If a modem defaults to 33.6, and 14.4 is desired, follow the button sequence until the display reading is 14.4. Example 2: While following procedures for the S-Reg reading, the modem may begin with S-Reg = 130 or it may default to some other value. If the desired reading is S-Reg = 180, perform the button sequence until this reading is achieved.)

A complete modem menu is provided in the setup procedures that follow. If no entry for a particular option is given, then that option is either not required by the OPUP or adjustment of that option is not required. Upon completing the procedure, repeat the initiating performance check, then return each modem to normal operation. This procedure can and should be used to validate or return modems to the proper configuration following repair, replacement, or loss of configuration.

The configuration procedures use settings for TCP/IP. The procedure used in prior modems involved settings for the X.25 transmission protocol. Be careful to only use the TCP/IP procedure when configuring or re-configuring OPUP modems.

6.6.2.3 Procedure. The following procedures apply:

1.	Press the	◥	**<RETURN>** button twice (ensures starting at the home position).
2.	Press the	▼	**<ACROSS>** button until the display reads `Reinit Memory?`
3.	Press the	⊛	**<ENTER>** button once. The display reads `Reinit All Mem?`
4.	Press the	⊛	**<ENTER>** button. The display reads `3263 Fast Init`

5.	Press the	◥	**<RETURN>** button. The display reads `Disconnect T/D?`
6.	Press the	▼	**<ACROSS>** button until the display reads `Power Up In = Old`
7.	Press the	◀|	**<DOWN>** button. The display reads `Power Up In : 1`
8.	Press the	⊙	**<ENTER>** button. The display reads `Power Up In = 1`
9.	Press the	◥	**<RETURN>** button. The display reads `Disconnect T/D?`
10.	Press the	◀|	**<DOWN>** button until the display reads `MODULATION OPT'S`
11.	Press the	▼	**<ACROSS>** button. The display reads `Line = Dial`
12.	Press the	◀|	**<DOWN>** button until the display reads `Line : 4W Lease`
13.	Press the	⊙	**<ENTER>** button. The display reads `Line = 4W Lease`
14.	Press the	▼	**<ACROSS>** button. The display reads `Mod = V.34 Auto`
15.	Press the	◀|	**<DOWN>** button until the display reads `Mod:  V32bis Auto`
16.	Press the	⊙	**<ENTER>** button. The display reads `Mod = V32bis Auto`
17.	Press the	▼	**<ACROSS>** button until the display reads `Min Rate = 300`
18.	Press the	◀|	**<DOWN>** button until the display reads `Min Rate : 4800`
19.	Press the	⊙	**<ENTER>** button. The display reads `Min Rate = 4800`

20.	Press the	▼	**<ACROSS>** button until the display reads `PSTN = On`
21.	Press the	◀|	**<DOWN>** button. The display reads `PSTN : Off`
22.	Press the	⊙	**<ENTER>** button. The display reads `PSTN = Off`
23.	Press the	◥	**<RETURN>** button. The display reads `MODULATION OPT'S`
24.	Press the	◀|	**<DOWN>** button until the display reads `EC/DC OPT'S`
25.	Press the	▼	**<ACROSS>** button until the display reads `Modem Flow = On`
26.	Press the	◀|	**<DOWN>** button. The display reads `Modem Flow : Off`
27.	Press the	⊙	**<ENTER>** button. The display reads `Modem Flow = Off`
28.	Press the	◥	**<RETURN>** button. The display reads `EC/DC OPT'S`
29.	Press the	◀|	**<DOWN>** button. The display reads `ACU OPT'S`
30.	Press the	▼	**<ACROSS>** button. The display reads `ACU Select = AT`
31.	Press the	◀|	**<DOWN>** button until the display reads `ACU Select : None`
32.	Press the	⊙	**<ENTER>** button. The display reads `ACU Select = None`
33.	Press the	◥	**<RETURN>** button. The display reads `ACU OPT'S`
34.	Press the	◀|	**<DOWN>** button. The display reads `TERMINAL OPT'S`

35.	Press the	▼	**<ACROSS>** button. The display reads `DTE Rate = Auto`
36.	Press the	◀|	**<DOWN>** button until the display reads `DTE Rate : 38.4`
37.	Press the	⊛	**<ENTER>** button, the display reads `DTE Rate = 38.4`
38.	Press the	▼	**<ACROSS>** button. The display reads `Flow = XON/XOFF`
39.	Press the	◀|	**<DOWN>** button until the display reads `Flow : RTS/CTS`
40.	Press the	⊛	**<ENTER>** button. The display reads `Flow = RTS/CTS`
41.	Press the	▼	**<ACROSS>** button until the display reads `DTR = High`
42.	Press the	◀|	**<DOWN>** button until the display reads `DTR : 108.1`
43.	Press the	⊛|	**<ENTER>** button. The display reads `DTR = 108.1`
44.	Press the	▼	**<ACROSS>** button. The display reads `RTS = High`
45.	Press the	◀|	**<DOWN>** button. The display reads `RTS : Normal`
46.	Press the	⊛	**<ENTER>** button. The display reads `RTS = Normal`
47.	Press the	▼	**<ACROSS>** button. The display reads `CTS = AsynSync`
48.	Press the	◀|	**<DOWN>** button until the display reads `CTS : Normal`
49.	Press the	|⊛	**<ENTER>** button. The display reads `CTS = Normal`

50.	Press the	▼	**<ACROSS>** button until the display reads `DCD = High`
51.	Press the	◀|	**<DOWN>** button. The display reads `DCD : Normal`
52.	Press the	◎	**<ENTER>** button. The display reads `DCD = Normal`
53.	Press the	▼	**<ACROSS>** button until the display reads `DSR = High`
54.	Press the	◀|	**<DOWN>** button. The display reads `DSR : Normal`
55.	Press the	◎	**<ENTER>** button. The display reads `DSR = Normal`
56.	Press the	◥	**<RETURN>** button. The display reads `TERMINAL OPT'S`
57.	Press the	◀|	**<DOWN>** button. The display reads `TELCO OPT'S`
58.	Press the	▼	**<ACROSS>** button until the display reads `LL Tx Level = 0`

NOTE

This item should be set to 0 dBm when the modem being set is connected to a leased line provided by the local telephone company, if so, skip to Step 61. Otherwise, continue with the note.

For zero-loss circuits, direct wire applications, and any dedicated modems without circuits connected to them, the transmit level should be set initially to -15 dBm. Use the **<DOWN>** ◀| button and the **<ENTER>** ◎ button to work towards 0 dBm in order to obtain a level that yields a received power level of -16 dBm +/- 1 dBm into 600 Ohms at the remote RPG modem. This power level may be checked with the AM-48 test set. If the test set is not available, utilize the following (less accurate) procedure performed at the remote RPG modem by personnel at the remote RPG site.

a.	Press the	◥	**<RETURN>** button twice (ensures starting at the home position).
b.	Press the	▼	**<ACROSS>** button until the display reads `PhaseJitter = ____ dg`
c.	Press the	◀|	**<DOWN>** button until the display reads `Rx Level = ____ dBm`
d.	Press the	◎	**<ENTER>** button. The display still reads `Rx Level = ____ dBm`

NOTE

This sets RX Level as the top item of this menu. If, during the procedure, the modem returns to the home position (e.g., `DATA 14.4 T/D?` or `V32b 14.4 T/D?`) pressing the **<ACROSS>** ▼ button twice will move the display to `Rx Level`. This may be consulted to determine if the received signal is strong enough. This value should be between -16 dBm and -13 dBm (this takes into account cumulative errors of measurement and display). The possible range of values that may be set in the `LL Tx Level = 0` menu is 0 to -15 dBm, in 1 dBm increments. If needed, alter the transmit level at the OPUP site as follows, or skip to Step 61.

59.	Press the	◀|	**<DOWN>** button until the display reads `LL Tx Level : X` (Where X equals the desired transmit level.)
60.	Press the	◎	**<ENTER>** button until the display reads `LL Tx Level = X` Have the RPG technician repeat Steps 58.a through 58.c at the remote RPG end to ensure the RX level is between -16 dBm to -13 dBm. If the RPG modem RX Level is within range, the OPUP modem TX level is correctly set. Proceed to Step 61. If the RPG modem RX Level is not within range, repeat Steps 59 and 60 at the OPUP modem and Steps 58.a through 58.c at the RPG modem until it is within range.

NOTE

To ensure the modems at both ends are correctly setup, the RX level at the OPUP modem should also be checked to ensure the RPG modem TX level is correctly set. The following steps basically reverse Steps 58 through 60 that established the correct OPUP TX level to the RPG. The OPUP modem RX level will be checked to see if the RPG modem TX level is set to provide an OPUP modem RX level that is within the -16 dBm to -13 dBm range. If it is not, the RPG technician should adjust the RPG modem TX level until the OPUP RX level is within range.

61.	Press the		**<RETURN>** button twice (to return to the home position).
62.	Press the		**<ACROSS>** button until the display reads `Phasejitter = _____dg`
63.	Press the		**<DOWN>** button until the display reads `RX Level = _____dBm` If the OPUP modem RX Level is within the -16 dBm to -13 dBm range, the RPG modem TX level is correctly set. Proceed to Step 64. If the OPUP modem RX Level is not within range, have the RPG technician repeat steps similar to Steps 59 and 60 at the RPG modem to reset the TX power level. Repeat Steps 61 through 63 at the OPUP modem until it is within range.
64.	Press the		**<ENTER>** button. The display still reads `RX Level = _____dBm`
65.	Press the		**<RETURN>** button twice (to return to the home position).
66.	Press the		**<ACROSS>** button until the display reads `Save Changes = 1`
67.	Press the		**<ENTER>** button and wait until the display reads `Save Completed!`
68.	Press the		**<RETURN>** button twice (to return to the home position).

6.6.2.4 Menu Listing. The following is a list of each setting under each branch title. A more experienced technician may find this list easier and more efficient to use than the procedure above. This list may be used as a quick reference for verifying modem settings in the future.

NOTE

Items marked with an asterisk (*) may not appear on all individual modems because of variations in firmware revision levels.

TEST OPTIONS

Test = End Test (unless test is running)
Accept RDL = On
LAL Busy Out = Off

MODULATION OPTIONS

Line = 4W Lease
Mod = V32bis Auto
Auto Type = CCITT
Low Speed = Bell
Max Rate = 14.4
Min Rate = 4800
Fast Call = Off
Adaptive Rate = On
Mode = Answer
Clock = Internal
Retrain = High BER
Longspace = Off
PSTN = Off
Guard Tone = Off

RESTORAL OPTIONS

Rest = Off
L to D = Low/Fast
D to L = Manual
HoldDialine = Off
Ans Rest = LL Fail

EC/DC OPTIONS

Mode = Auto Rel
Buffers = Regular*
EC = V.42
DC = Enabled
Data Form = NRZ*
Break = Destruct
Modem Flow = Off
Delay = Off
EC ID = Default

ACU OPTIONS

ACU Select = None
AT Form = Async
V25Form = Bitsync
NoACU Form = Async
Default Dial = Off
Answer = Using S0
Async Echo = On
Char Length = 10
V25 Char = ASCII
Sync Idle = Char
V25Resp = V25bis
Parity = V.25 bis
AT Msg = Before CD
RsltCode = Enable
RsltForm = Verbose
Con Msg = DTE Rate*
Rel Msg = Off*
LPDA2 Addr = FF
LPDA2 ID = 326x
LPDA2 Det = Enab
Call Progress = 4

TERMINAL OPTIONS

DTE Rate = 115.2
Flow = RTS/CTS
TpDlyMin = Rx Clk*
Speed Conver = On
DTR = 108.1
RTS = Normal
CTS = Normal
RtsCts Delay = 0
DCD = Normal
RemRTS/DCD = Codex
DCD Loss Dis = 3S
DSR = Normal
Overspeed = 1%
DTR Delay = S25
DTE Ct 140 = Off
DTE Ct 141 = Off
DTE Pin 25 = Test *
Ext Select = Off
Ext Cntr l= Pin 14
Inactivity = S30

TELCO OPTIONS

Telco = RJ11C
LL Tx Level = 0 to -15 (see text)
Line Compen = Off*
Speaker = Dialing
Volume = Medium
Netwrk Comp = Off*

DIALING OPTIONS

Pause Delay = 3
Dial Wait = 2
Dial = Tone
Call Timeout = 60
Blind Dial = S6
Pulse Cycle = 40%
Tone Length = 72

FP SECURITY OPTIONS

Enter Password?
Password = Disable
Set Protection?
Change Password?

ACCESS SECURITY OPTIONS

PW Verify = Dis
Callback = Off
Rmt Num Rqrd = Off
Enter Group PW?
Group PW = Disable
Tone = None
Sim Ring = Disable
DialRstrct = Off

NETWORK CONTROL OPTIONS

OverrideMode = Off
NC Address = 00
NC PortRate = 75
Pass Thru = Opt 1
NC Line Disc = Off*

REMOTE CONFIGURATION OPTIONS

Init Rmt Cnfg?
Rmt Acc = Enable

SET REMOTE LEASED LINE ADDRESS

New Address = 000
Rmt Ser# = 000000
RmtNest Modem = No
`Enter' To Set

SEARCH REMOTE LEASED LINE ADDRESS

Rmt Ser# = 000000
RmtNest Modem = No
`Enter' To Srch

* - Item may not appear on all Modems due to differences in firmware revision level.

6.6.3 Communication Router UD80A3 Setup Procedure.

This procedure takes one technician and approximately .75 hours to complete.

This setup procedure is for configuring a functioning communication router with the proper IOS. If the router fails to configure, the IOS may be corrupted/erased and the recovery procedure in Flowchart Note 30 must be used.

6.6.3.1 Equipment and Tools Required.

1. Cisco configuration cable (P/N 72-3663-01)

2. Null Modem Adapter

6.6.3.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Communication Router UD80A3. Refer to Figure 2-13 and Figure 2-14 (for Large OPUP) or Figure 2-15 (for Medium OPUP) and Table 2-10 or Table 2-11 for the location and description of the controls and indicators associated with the Communication Router UD80A3.

1. Obtain the following OPUP configuration input parameters:

NOTE

The information listed below was originally assigned during the previous software load installation procedure. Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP), Step 2 for the current password and IP-address information. A copy of Step 2 should have been stored in a safe location due to recorded password information.

a. OPUP Data Server IP-Address.

b. Cisco Router IP-Address.

c. Root Password.

d. Current Router Password.

2. Connect the Cisco configuration cable (P/N 72-3663-01) as follows:

a. Connect the 25-pin end of the cable to the Null Modem adapter.

b. At the rear of the (Data) Server UD80A11, connect the cable/Null Modem adapter combination to serial port **A** (bottom port located at far left edge of the chassis).

c. Connect the RJ45 end of the cable to the applicable Communication Router UD80A3 as follows:

1. **For Large OPUP configuration:** At the rear of the router, plug the cable into the CONSOLE port.

2. **For Medium OPUP configuration:** At the front of the router, plug the cable into the CON port.

3. **Large OPUP configuration only:** At the KVM Switch UD80A8, press LED button **1**. Data Server UD80A11 information will be displayed on the Monitor UD80A7.

4. If the CDE Login screen is displayed, login as **opupmgr** to display the `OPUP Manager Main Menu`. (Refer to paragraph 3.3.3.2.2 for login procedures). If opupmgr is currently logged in and the `OPUP Manager Main Menu` screen is displayed, proceed to next step.

5. At the CDE Front Panel, open two Host Terminal windows as follows: (Do not use the Console window option).

   a. Click on the **Up arrow** located above the **cpu disk** icon. A `Hosts` pop-up window will be displayed.

   b. At the `Hosts` pop-up window, click on the **This Host** icon. A Terminal window will be displayed with an `/export/home/opupmgr>` prompt.

   c. Repeat steps a. and b. to open a second Terminal window.

   d. Align the windows on top of each other or side-by-side. Future steps will require switching from one window to the other. The `OPUP Manager Main Menu` should still be displayed behind the two Terminal windows.

6. At the first Terminal window, click within the window and perform the following:

   a. At the /`export/home/opupmgr>` prompt, enter:

   sudo tip -96ØØ /dev/cua/a<Return>

   Feedback: `connected`

7. At the rear of the applicable Communication Router UD80A3, turn power to the Off (0) position as follows:

   a. **For Large OPUP configuration**: At the right side of the router, set both power supply switches to the Off (0) position.

b. **For Medium OPUP configuration**: At the right side of the router, set the power switch to the Off (0) position.

NOTES

Prior to performing the next step, locate the **~** (tilde) key and the **#** key. The keystroke command of **~#** (while pressing the **<Shift>** key, press **~#**) must be entered once the following applicable message is displayed, approximately 3 seconds after power is turned back on:

For Large OPUP: `C3660 processor with 32768 Kbytes of main memory` or

For Medium OPUP: `C3600 processor with 32768 Kbytes of main memory`

If the Terminal window should become unresponsive or the communication router # prompt should not respond to commands from the keyboard, press **~.** (**<Shift>~**, release, and then **.**) and then press the **<Ctrl>** and **C** key to get to a # prompt. If the Terminal window still does not respond, close the Terminal and begin again from Step 6.

8. At the rear of the communication router, place the power switch(es) to the On (1) position. For the Large OPUP router, set both power supply switches to On (1) at the same time. Proceed to front of cabinet immediately.

9. When the following applicable message is displayed in the Terminal window:

   For Large OPUP: `C3660 processor with 32768 Kbytes of main memory`

   For Medium OPUP: `C3600 processor with 32768 Kbytes of main memory`

   `Main memory is configured to 64 bit mode with parity disabled`

   immediately enter: **~#** (**<Shift>~#**)

   Feedback: `monitor: command “boot” aborted due to user interrupt rommon 1>`

   If the `rommon 1>` prompt appears, proceed to the next paragraph, 6.6.3.3. Otherwise go to the next step.

10. If the Terminal window displays the message: `Reset the router in order to use this command`, enter: **~.** (**<Shift>~**, release, then **.**) to exit the tip session. Repeat Steps 6 through 9.

6.6.3.3 Configuration Procedure.

1. At the second Terminal window, click within the window and perform the following:

   a. At the `export/home/opupmgr>` prompt, enter the following applicable string command:

      1. For Large OPUP configuration, enter:

         sudo chmod o+r /tftpboot/c366Ø.bin<Return>

      2. For Medium OPUP configuration, enter:

         sudo chmod o+r /tftpboot/c364Ø.bin<Return>

         Feedback: `/export/home/opupmgr>` prompt appears.

NOTE

In the following step, the `rommon 1>` prompt will be the initial prompt displayed in the terminal window. As each of the following entries are entered, the `rommon` *`n>`* prompt will increment by one every time the **<Return>** key is pressed. If an error is made during these procedures and the correct entry is made, then the `rommon` *`n>`* prompts will not match the steps in this procedure.

2. At the first Terminal window, click within the window and perform the following:

   a. At the `rommon 1>` prompt, enter: **confreg<Return>**

      Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

   b. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **y<Return>**

      Feedback: `enable "diagnostic mode"? y/n [n]:` prompt.

   c. At the `enable "diagnostic mode"? y/n [n]:` prompt, enter: **n<Return>**

      Feedback: `enable "use net in IP bcast address"? y/n [n]:` prompt.

   d. At the `enable "use net in IP bcast address"? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `disable “load rom after netboot fails”? y/n [n]:` prompt.

e. At the `disable “load rom after netboot fails”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “use all zero broadcast”? y/n [n]:` prompt.

f. At the `enable “use all zero broadcast”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “break/abort has effect”? y/n [n]:` prompt.

g. At the `enable “break/abort has effect”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable “ignore system config info”? y/n [n]:` prompt.

h. At the `enable “ignore system config info”? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `change console baud rate? y/n [n]:` prompt.

i. At the `change console baud rate? y/n [n]:` prompt, enter: **y<Return>**

Feedback:
```
enter rate: 0=9600,   1=4800, 2=1200,  3=2400
            4=19200,  5=38400,6=57600, 7=115200 [0]
```

j. At the `enter rate [0]:` prompt, enter: **7<Return>**

Feedback: `change the boot characteristics? y/n [n]:` prompt.

k. At the `change the boot characteristics? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

l. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `You must reset or power cycle for new config to take effect`

```
rommon 2>
```

m. At the rear of the applicable Communication Router UD80A3, turn power to the Off (0) position as follows:

1. **For Large OPUP configuration**: At the right side of the router, set both power supply switches to the Off (0) position.

2. **For Medium OPUP configuration**: At the right side of the router, set the power switch to the Off (0) position.

n. At the `rommon 2>` prompt, enter: **~.** (**<Shift>~**, release, and then **.**)

Feedback: `[EOT]`will appear, then an `/export/home/opupmgr>` prompt

o. At the `/export/home/opupmgr>` prompt, enter:

sudo tip -115200 /dev/cua/a<Return>

Feedback: `connected`

p. At the rear of the communication router, place the power switch(es) to the On (1) position. For the Large OPUP router, set both power supply switches to On (1) at the same time. Proceed to front of cabinet immediately.

q. When the following applicable message is displayed in the Terminal window:

For Large OPUP: `C3660 processor with 32768 Kbytes of main memory`

For Medium OPUP: `C3600 processor with 32768 Kbytes of main memory`

`Main memory is configured to 64 bit mode with parity disabled`

immediately enter: **~#** (while pressing **<Shift>** key, press **~#**)

Feedback: `monitor: command “boot” aborted due to user interrupt`

`rommon 1>`

r. At the `rommon 1>` prompt, enter: **xmodem -rx flash<Return>**

Feedback: `Do not start the sending program yet...`

`Invoke this application only for disaster recovery.`

`Do you wish to continue? y/n [n]:` prompt.

s. At the `Do you wish to continue? y/n [n]:` prompt, enter: **y<Return>**

Feedback: `Ready to receive file...` prompt.

t. At the `Ready to receive file...` prompt, enter: **~C** (while pressing the **<Shift>** key, press **~C**)

Feedback: `~CLocal command?` prompt.

u. At the `~CLocal command?` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

sx /tftpboot/c366Ø.bin<Return>

2. For Medium OPUP configuration, enter:

sx /tftpboot/c364Ø.bin<Return>

Feedback: `Sending /tftpboot/c36X0.bin, 389`*XX* `blocks: Give your local XMODEM receive command now.`

Then approximately 10 seconds later, the following message is displayed:

`Xmodem sectors/kbytes sent: xxx/xxxk` (where xxx are counting upwards as the file is downloaded to the router)

If a `Transfer incomplete` message appears, enter **~C** to return to the `~Clocal command?` prompt and re-enter the command string. Verify your entries before pressing the **<Return>** key.

v. When the file download process is complete, go to the next step. This should take approximately 15 minutes to complete. If successful, the following feedback will be displayed.

Feedback: `Download Complete!`

`Program load complete, entry point: 0x8…., size:0x4c274c`

`rommon 2>` prompt.

3. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr>` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

   sudo chmod o-r /tftpboot/c366Ø.bin<Return>

2. For Medium OPUP configuration, enter:

   sudo chmod o-r /tftpboot/c364Ø.bin<Return>

   Feedback: `/export/home/opupmgr>` prompt appears.

4. At the first Terminal window, click within the window and perform the following:

a. At the `rommon 2>` prompt, enter: **confreg Øx2142<Return>**

Feedback: `You must reset or power cycle for new config to take effect`

`rommon 3>` prompt appears. The router will be "reset" later.

b. At the `rommon 3>` prompt and enter: **confreg<Return>**

Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

c. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **y<Return>**

Feedback: `enable "diagnostic mode"? y/n [n]:` prompt.

d. At the `enable "diagnostic mode"? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `enable "use net in IP bcast address"? y/n [n]:` prompt.

e. At the `enable "use net in IP bcast address"? y/n [n]:` prompt, enter: **n<Return>**

Feedback: `disable "load rom after netboot fails"? y/n [n]:` prompt.

f. At the `disable "load rom after netboot fails"? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `enable "use all zero broadcast"? y/n [n]:` prompt.

g. At the `enable "use all zero broadcast"? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `enable "break/abort has effect"? y/n [n]:` prompt.

h. At the `enable "break/abort has effect"? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `disable "ignore system config info"? y/n [n]:` prompt.

i. At the `disable "ignore system config info"? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `change console baud rate? y/n [n]:` prompt.

j. At the `change console baud rate? y/n [n]:` prompt, enter: **y<Return>**

   Feedback:
```
enter rate: 0=9600,   1=4800, 2=1200,  3=2400
            4=19200,  5=38400,6=57600, 7=115200 [0]
```

   At the `enter rate [0]:` prompt, enter: **Ø<Return>**

   Feedback: `change the boot characteristics? y/n [n]:` prompt.

k. At the `change the boot characteristics? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `do you wish to change the configuration? y/n [n]:` prompt.

l. At the `do you wish to change the configuration? y/n [n]:` prompt, enter: **n<Return>**

   Feedback: `rommon 4>` prompt.

m. At the `rommon 4>` prompt, enter: **reset<Return>**

n. Below the `rommon 4>` prompt, enter **~.** (**<Shift>~**, release, then **.**)

   Feedback: `[EOT]` will appear, then an `/export/home/opupmgr>` prompt

o. At the `/export/home/opupmgr>` prompt, enter:

sudo tip -9600 /dev/cua/a<Return>

Feedback: `connected`

p. Below the `connected` prompt, enter: **<Return>**

Feedback: `Would you like to enter the initial configuration dialog? [yes/no]:` prompt.

q. At the above prompt, enter: **n<Return>**

Feedback: `Press RETURN to get started!` prompt.

r. At the `Press RETURN to get started!` prompt, press the **<Return>** key.

Feedback: `Router>` prompt.

s. At the `Router>` prompt, enter: **enable<Return>**

Feedback: `Router#` prompt.

t. At the `Router#` prompt, enter: **conf t<Return>**

Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`

`Router(config)#` prompt.

u. At the `Router(config)#` prompt, enter: **no logg mon<Return>**

v. At the `Router(config)#` prompt, enter: **no logg con<Return>**

w. At the `Router(config)#` prompt, enter: **int fØ/Ø<Return>**

Feedback: `Router(config-if)#` prompt.

x. At the `Router(config-if)#` prompt, enter the site dependent Router IP-address in the following string:

ip address 1Ø.5.= = =.2 255.255.255.Ø<Return>

Where = = = is the 2 or 3 digit, site specific third octet number of the Router IP-address. (Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.)

y. At the `Router(config-if)#` prompt, enter: **no shutdown<Return>**

z. At the `Router(config-if)#` prompt, enter: **exit<Return>**

Feedback: `Router(config)#` prompt.

aa. At the `Router(config)#` prompt, enter: **exit<Return>**

Feedback: `Router#` prompt.

5. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr>` prompt, enter the following applicable string command:

1. For Large OPUP configuration, enter:

sudo chmod o+r /tftpboot/puprtrl<Return>

2. For Medium OPUP configuration, enter:

sudo chmod o+r /tftpboot/puprtrm<Return>

Feedback: `/export/home/opupmgr>` prompt appears.

6. At the first Terminal window, click within the window and perform the following:

a. At the `Router#` prompt, enter the following: **copy tftp start<Return>**

Feedback: `Address or name of remote host []?` prompt.

b. At the `Address or name of remote host []?` prompt, enter:

1Ø.5.= = =.1<Return>

Where = = = is the 2 or 3 digit, site specific third octet number of the (Data) Server IP-address. (Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.)

Feedback: `Source filename []?` prompt.

c. At the `Source filename []?` prompt, enter the following applicable command:

1. For Large OPUP configuration, enter: **puprtrl<Return>**

2. For Medium OPUP configuration, enter: **puprtrm<Return>**

   Feedback: `Destination filename [startup-config]?` prompt.

d. At the `Destination filename [startup-config]?` prompt, press the **<Return>** key. The following messages will be displayed:

Feedback:

`Accessing tftp://10.5.= = =.1/puprtrl (`or `puprtrm` for Medium OPUP)

`Loading puprtrl` (or `puprtrm` if a Medium OPUP) `from 10.5.= = =.1 (via FastEthernet0/0): !!!!!)`

`[OK - 23159/46080 bytes]`

`[OK]`

`23159` `bytes copied in` *`X.Xxx`* `secs (x bytes/sec)`

`Router#`

7. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr>` prompt, enter the applicable string command as follows:

1. For Large OPUP configuration, enter:

   sudo chmod o-r /tftpboot/puprtrl<Return>

2. For Medium OPUP configuration, enter:

   sudo chmod o-r /tftpboot/puprtrm<Return>

   Feedback: `/export/home/opupmgr>` prompt.

8. At the first Terminal window, click within the window and perform the following:

   a. At the `Router#` prompt, enter: **conf t<Return>**

      Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`

      `Router(config)#` prompt.

   b. At the `Router(config)#` prompt, enter: **config-register Øx21Ø2<Return>**

   c. At the `Router(config)#` prompt, enter: **exit<Return>**

      Feedback: `Router#` prompt**.**

   d. At the `Router#` prompt, enter: **reload<Return>**

      Feedback: `System configuration has been modified. Save? [yes/no]:` prompt**.**

   e. At the `System configuration has been modified. Save? [yes/no]:` prompt, enter: **n<Return>**

      Feedback: `Proceed with reload? [confirm]` prompt.

   f. At the `Proceed with reload? [confirm]` prompt, press **<Return>**

      Feedback: Starts communication router reload process. The router will reboot. This will take approximately 90 seconds. Once completed, the DoD Computer System warning screen should be displayed.

   g. When the DoD security warning message appears, press **<Return>**

      Feedback: `User Access Verification`

      `Password:` prompt.

   h. At the `Password:` prompt, enter: *Current Router Password***<Return>**

      Feedback: `puprtr>` prompt.

   i. At the `puprtr>` prompt, enter: **~.** (**<Shift>~**, release, then **.**)

      Feedback: `[EOT]` will appear; then an `/export/home/opupmgr>` prompt.

j. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: First Terminal window closes.

9. At the second Terminal, perform the following:

a. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: Second Terminal window closes.

10. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.

Feedback: `OPUP Server Control Menu` displays.

11. At the `OPUP Server Control Menu`, click on the **Restart Server** button. An `OPUP Manager Restart Server` pop-up warning message will appear. Then click on the **Yes** button. The Server will reboot and the CDE Login screen will be displayed. Return the Server to the normal operating position.

12. Disconnect the Cisco configuration cable from the router and server serial A port.

6.6.4 Server UD80A11 and UD80A12 Setup Procedure.

This procedure requires one technician and will take approximately 4 hours to complete.

6.6.4.1 Equipment and Tools Required.

1. Cisco configuration cable (P/N 72-3663-01)

2. Null Modem Adapter

6.6.4.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-4 (for Large OPUP) or Figure 2-5 (for Medium OPUP) for the location of the Server UD80A11/A12. Refer to Figure 2-21 and Figure 2-22 and Table 2-17 for the location and description of the controls and indicators associated with the Servers UD80A11/A12.

1. Obtain all software load installation CD-ROMs described in paragraph 3.5.3.3 Required Software.

2. All back-up configuration data CD-ROM Disks, if available.

3. The following OPUP configuration input parameters will be required:

NOTE

The information listed below was originally assigned during the previous software load installation procedure. Refer to the copy of Step 2 from Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) that should contain all the recorded information required below. Attempt to obtain this information before re-loading software on the (Data) Server UD80A11 and Display Server UD80A12. However, because a full re-installation of OPUP Software is required in order to fully configure the Communication Router UD80A3, if the previous input parameters are not currently available, each item listed below may be reassigned using new input parameter information.

a. root_password.

b. opupmgr_password.

c. Display Server Ethernet-Address. (Large OPUP only)

d. Workstation Ethernet-Address

e. Security Level 1 Password.

f. Security Level 2 Password.

g. Security Level 3 Password.

h. Number of Dial Lines.

i. Current Router Password.

j. New Router Password.

k. Current Enable Password.

l. New Enable Password.

m. User Name

n. User Password

4. Connect the Cisco configuration cable (P/N 72-36630-1) as follows:

a. Connect the 25-pin end of the cable to the Null Modem adapter.

b. At the rear of the (Data) Server UD80A11, connect the cable/Null Modem adapter combination to serial port **A** (bottom port located at far left edge of the chassis).

c. Connect the RJ45 end of the cable to the applicable Communication Router UD80A3 as follows:

1. **For Large OPUP configuration**: At the rear of the router, plug the cable into the CONSOLE port.

2. **For Medium OPUP configuration**: At the front of the router, plug the cable into the CON port.

6.6.4.3 Server Configuration Procedure.

1. Reinstall the OPUP Software using the appropriate software load installation instructions (either Table 3-9, Large OPUP Software Load Procedure or Table 3-10, Medium OPUP Software Load Procedure.)

2. When the software load procedure is successful, remove the Cisco configuration cable and Null Modem adapter:

a. At the rear of the (Data) Server UD80A11, disconnect the cable/Null Modem adapter combination from serial port **A**.

b. Disconnect the cable from the applicable Communication Router UD80A3 as follows:

1. For Large OPUP: At the rear of the router, unplug the cable from the CONSOLE port.

2. For Medium OPUP: At the front of the router, unplug the cable from the CON port.

c. Store the Cisco configuration cable for future use.

3. Using any available back-up configuration data CD-ROM disks, restore all site configuration and adaptation data per paragraph 5.2.9.2, Backup/Restore Tools Menu.

4. Place the Large or Medium OPUP configuration in the normal operating state.

6.6.5 Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2 Setup Procedure.

This procedure requires one technician and will take approximately 4 hours to complete.

6.6.5.1 Equipment and Tools Required.

1. Cisco configuration cable (P/N 72-3663-01)

2. Null Modem Adapter

6.6.5.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-21 and Table 2-17 for the location of the internal hard drives and the description of each control and indicator associated with those hard drives.

1. Obtain all software load installation CD-ROMs described in paragraph 3.5.3.3, Required Software.

2. All back-up configuration data CD-ROM Disks, if available.

3. The following OPUP configuration input parameters will be required:

NOTE

The information listed below was originally assigned during the previous software load installation procedure. Refer to the copy of Step 2 from Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) that should contain all the recorded information required below. Attempt to obtain this information before re-loading software on the (Data) Server UD80A11 and Display Server UD80A12. However, because a full re-installation of OPUP Software is required in order to fully configure the Communication Router UD80A3, if the previous input parameters are not currently available, each item listed below may be reassigned using new input parameter information.

a. root_password.

b. opupmgr_password.

c. Display Server Ethernet-Address. (Large OPUP only)

d. Workstation Ethernet-Address

e. Security Level 1 Password.

f. Security Level 2 Password.

g. Security Level 3 Password.

h. Number of Dial Lines.

i. Current Router Password.

j. New Router Password.

k. Current Enable Password.

l. New Enable Password.

m. User Name

n. User Password

4. Connect the Cisco configuration cable (P/N 72-36630-1) as follows:

   a. Connect the 25-pin end of the cable to the Null Modem adapter.

   b. At the rear of the (Data) Server UD80A11, connect the cable/Null Modem adapter combination to serial port **A** (bottom port located at far left edge of the chassis).

   c. Connect the RJ45 end of the cable to the applicable Communication Router UD80A3 as follows:

      1. **For Large OPUP configuration**: At the rear of the router, plug the cable into the CONSOLE port.

      2. **For Medium OPUP configuration**: At the front of the router, plug the cable into the CON port.

6.6.5.3 Internal Hard Drive Configuration Procedure.

1. Reinstall the OPUP Software using the appropriate software load installation instructions (either Table 3-9, Large OPUP Software Load Procedure or Table 3-10, Medium OPUP Software Load Procedure.)

2. When the software load procedure is successful, remove the Cisco configuration cable:

   a. At the rear panel of the (Data) Server UD80A11, remove the cable and Null Modem Adapter combination from the serial port **A**.

   b. Disconnect the cable from the applicable Communication Router UD80A3 as follows:

      1. For Large OPUP: At the rear of the router, unplug the cable from the CONSOLE port.

      2. For Medium OPUP: At the front of the router, unplug the cable from the CON port.

   c. Store the Cisco configuration cable for future use.

3. Using any available back-up configuration data CD-ROM disks, restore all site configuration and adaptation data per paragraph 5.2.9.2, Backup/Restore Tools Menu.

4. Place the Large or Medium OPUP configuration in the normal operating state.

6.6.6 Communication Switch UD80A18 Setup Procedure.

This procedure requires one technician and takes .75 hours.

6.6.6.1 Equipment and Tools Required.

1. Cisco Configuration cable P/N 72-3663-01

2. Null Modem Adapter

6.6.6.2 Initial Conditions/Preliminary Setup.

1. The Communication Switch UD80A18 is installed in the OPUP Cabinet UD80.

2. Attach the 25-pin connector end of the Cisco configuration cable to the Null Modem Adapter.

3. At the rear of the (Data) Server UD80A11 (upper server position in a Large OPUP configuration), connect the Null Modem Adapter to Serial port **A** (bottom 25-pin connector on far left edge of the server).

4. At the rear of the Communication Switch UD80A18, plug the RJ45 end of the cable into the CONSOLE port.

5. (For Large OPUP Configuration only): At the KVM Switch UD80A8, press the "**1**" LED button. This ensures the Data Server UD80A11 is connected to the Monitor UD80A7.

6. At the (Data) Server UD80A11 CDE Login screen, login as **opupmgr**, if not already done.

7. At the CDE Front Panel, open two Host Terminal windows as follows:

   a. Click on **Up arrow** located above the **cpu disk** icon. A `Hosts` pop-up window will be displayed.

   b. At the `Hosts` pop-up window, click on the **This Host** icon. A Terminal window will be displayed with an `/export/home/opupmgr>` prompt.

   c. Repeat Steps a and b to open a second Terminal window.

8. At the first Terminal window `/export/home/opupmgr>` prompt, enter:

   sudo tip -96ØØ /dev/cua/a<Return>

   Feedback: `connected`

9. Below the `connected` feedback line, enter: **<Return>** to finish establishing the connection. A `Switch>` or `opupcisco>` prompt should appear.

10. Cycle power to the Communication Switch UD80A18 by unplugging the AC power cord from the rear of the communication switch momentarily, and plugging it back in.

NOTE

After power is cycled, and the communication switch software boots up, one of two final prompts will be displayed on the Monitor UD80A7. The final prompt displayed depends on whether the communication switch has been previously configured or not.

11. If the final displayed prompt is as follows:

    a. `Continue with configuration dialog? [yes/no]:`, proceed to paragraph 6.6.6.3 to start an initial configuration procedure.

NOTE

In the following step, once the message `Press RETURN to get started` is displayed and **<Return>** is not pressed in a timely manner, approximately eight more lines of text may be displayed, with the last line beginning with `Compiled ....` and ending with `by ....` This is normal.

    b. `Press RETURN to get started.`, then the flash:config.text file must be deleted to get the communication switch to an initial configuration state. Perform the following steps before proceeding to paragraph 6.6.6.3:

    1. At the `Press RETURN to get started.` prompt, enter: **<Return>**

       Feedback: `opupcisco>` prompt appears.

    2. At the `opupcisco>` prompt, enter: **enable<Return>**

       Feedback: `Password:` prompt appears.

    3. At the `Password:` prompt, enter: **opup4cisco<Return>**

       Feedback: `opupcisco#` prompt appears.

    4. At the `opupcisco#` prompt, enter: **delete flash:config.text<Return>**

       Feedback: `Delete filename [config.text]?` prompt appears.

5. At the `Delete filename [config.text]?` prompt, enter: **<Return>**

   Feedback: `Delete flash:config.text? [confirm]` prompt appears.

6. At the `Delete flash:config.text? [confirm]` prompt, enter. **<Return>**

   Feedback: `opupcisco#` prompt appears.

7. At the `opupcisco#` prompt, enter: **reload<Return>**

   Feedback: `Proceed with reload? [confirm]` prompt appears.

8. At the `Proceed with reload? [confirm]` prompt, enter: **<Return>**

   This recycles power to the communication switch and reboots the software. Wait for the following prompt before continuing (approximately 1 minute): `Continue with configuration dialog? [yes/no]:` Proceed to paragraph 6.6.6.3 to configure the communication switch.

6.6.6.3 Communication Switch Initial Configuration Procedure.

1. At the `Continue with configuration dialog? [yes/no]:` prompt, enter: **n<Return>**

   Feedback: `Press RETURN to get started.` prompt appears.

2. At the `Press RETURN to get started.` prompt, enter: **<Return>**

   Feedback: `Switch>` prompt appears.

   a. At the `Switch>` prompt, enter: **enable<Return>**

      Feedback: `Switch#` prompt appears.

   b. At the `Switch#` prompt, enter: **conf t<Return>**

      Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`, followed by a `Switch(config)#` prompt.

   c. At the `Switch(config)#` prompt, enter: **int vlan1<Return>**

      Feedback: `Switch(config-if)#` prompt appears.

d. At the `Switch(config–if)#` prompt, enter the site dependent IP address string as follows:

ip address 1Ø.5.= = =.3 255.255.255.Ø<Return>

Where = = = is the two or three digit site–specific third octet number of the Switch IP-address. Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.

e. At the `Switch(config-if)#` prompt, enter: **exit<Return>**

Feedback: `Switch(config)#` prompt appears.

f. At the `Switch(config)#` prompt, enter: **exit<Return>**

Feedback: `Switch#` and `Configured from console by console` prompts appear.

g. At the `Configured from console by console` prompt, enter: **<Return>**

Feedback: `Switch#` prompt appears.

h. At the `Switch#` prompt, enter: **write mem<Return>**

Feedback: `Building configuration ...` followed by `[OK]`

i. At the `Switch#` prompt, enter: **reload<Return>**

Feedback: `Proceed with reload? [confirm]`

j. At the `Proceed with reload?[confirm]` prompt, enter: **<Return>**

This recycles power to the communication switch and reboots the software. Wait for the following prompt before continuing (approximately 1 minute).

Feedback: `Press RETURN to get started!` prompt appears.

NOTE

In the following step, once the message `Press RETURN to get started!` is displayed and **<Return>** is not pressed in a timely manner, approximately eight more lines of text may be displayed, with the last line beginning with `Compiled ....`and ending with `by ....` This is normal.

k. At the `Press RETURN to get started!` prompt, enter: **<Return>**

Feedback: `Switch>` prompt appears.

l. At the `Switch>` prompt, enter: **enable<Return>**

Feedback: `Switch#` prompt appears.

m. At the `Switch#` prompt, enter: **format flash:<Return>**

Feedback: `Format operation may take a while. Continue?[confirm]`

n. At the `[confirm]` prompt, enter: **<Return>**

Feedback: `Format operation will destroy all data in "flash". Continue? [confirm]`

o. At the `[confirm]` prompt, enter: **<Return>**

No immediate feedback will be noted. Data will be destroyed (approximately 45 seconds).

Feedback: `Format of flash: complete`

`Switch#` prompt will appear.

3. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr>` prompt, enter:

sudo chmod o+r /tftpboot/c29ØØXL.bin<Return>

Feedback: `/export/home/opupmgr>` prompt appears.

4. In the first Terminal window, click within the window and perform the following:

a. At the `Switch#` prompt, enter:

copy tftp://1Ø.5.= = =.1/c29ØØXL.bin flash:<Return>

Where = = = is the two or three digit site–specific third octet number of the Server IP-address. Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP-addresses were recorded during the last software installation.

Feedback: `Source IP address or hostname [10.5.===.1]?`

b. At the `Source IP address or hostname [10.5.===1]?` prompt, enter: **<Return>**

Feedback: `Source filename [c2900XL.bin]?`

c. At the `Source filename [c2900XL.bin]?` prompt, enter: **<Return>**

Feedback: `Destination filename [c2900XL.bin]?`

d. At the `Destination filename [c2900XL.bin]?` prompt, enter: **<Return>**

e. Wait while the c2900XL.bin file is loaded (approximately 1 minute).

Feedback: `Switch#` prompt will return.

f. At the `Switch#` prompt, enter: **reload<Return>**

Feedback: `Proceed with reload? [confirm]`

g. At the `Proceed with reload? [confirm]` prompt, enter: **<Return>**

This recycles power to the communication switch and reboots the software. Wait for the following prompt before continuing (approximately 1 minute).

Feedback: `Continue with configuration dialog? [yes/no]:`

In the following step, once the message `Continue with configuration dialog? [yes/no]:` is displayed and **<Return>** is not pressed in a timely manner, approximately seven more lines of text may be displayed, with the last line beginning with `Compiled . . .` and ending with `by . . ..` This is normal.

h. At the `Continue with configuration dialog? [yes/no]:` prompt, enter: **y<Return>**

Feedback: `Enter IP address:` prompt appears.

i. At the `Enter IP address:` prompt, enter: **1Ø.5.= = =.3<Return>**

Where = = = is the two or three digit site–specific third octet number of the Switch IP-address. Refer to Table 3-9 (for Large OPUP) or Table 3-10 (for Medium OPUP) Step 2, where the IP addresses were recorded during the last software installation.

Feedback: `Enter IP netmask:` prompt appears.

j. At the `Enter IP netmask:` prompt, enter: **255.255.255.Ø<Return>**

Feedback: `Would you like to enter a default gateway address? [yes]:`

k. At the above prompt, enter: **n<Return>**

Feedback: `Enter host name [Switch]:` prompt appears.

l. At the `Enter host name [Switch]:` prompt, enter: **opupcisco<Return>**

Feedback: `The enable secret is a one-way cryptographic secret used instead of the enable password when it exists.`

`Enter enable secret:` prompt appears.

NOTE

In the following step, after **opup4cisco** is entered, and **before** pressing the **<Return>** key, **verify** the entry is correct. If the entry is not correct and entered and the error was not noticed, then future uses of the correct password will not allow the communication switch to be configured.

m. At the `Enter enable secret:` prompt, enter: **opup4cisco<Return>**

Feedback: `Use this configuration? [yes/no]:`

n. At the `Use this configuration? [yes/no]:` prompt, enter: **y<Return>**

Feedback: `Press RETURN to get started.`

o. At the `Press RETURN to get started.` prompt, enter: **<Return>**

Feedback: `opupcisco>` prompt appears.

p. At the `opupcisco>` prompt, enter: **enable<Return>**

Feedback: `Password:` prompt appears.

q. At the `Password:` prompt, enter: **opup4cisco<Return>**

Feedback: `opupcisco#` prompt appears.

5. At the second Terminal window, click within the window and perform the following:

a. At the `/export/home/opupmgr>` prompt, enter:

sudo chmod o-r /tftpboot/c29ØØXL.bin<Return>

Feedback: `/export/home/opupmgr>` prompt appears.

b. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: Terminal window closes and the cursor moves to the other terminal window.

6. At the first Terminal window, click within the window and perform the following:

a. At the `opupcisco#` prompt, enter: **conf t<Return>**

Feedback: `Enter configuration commands, one per line. End with CNTL/Z.`, followed by a `opupcisco(config)#` prompt.

b. At the `opupcisco(config)#` prompt, enter: **no snmp-server<Return>**

c. At the `opupcisco(config)# prompt`, enter: **no ip http server<Return>**

d. At the `opupcisco(config)# prompt`, enter: **line vty Ø 15<Return>**

Feedback: `opupcisco(config-line)#` prompt appears.

e. At the `opupcisco(config-line)#` prompt, enter: **no transport input <Return>**

f. At the `opupcisco(config-line)#` prompt, enter: **exit<Return>**

Feedback: `opupcisco(config)#` prompt appears.

g. At the `opupcisco(config)#` prompt, enter: **exit<Return>**

Feedback: `opupcisco#` followed by a `Configured from console by console` prompt.

h. At the `Configured from console by console` prompt, enter: **<Return>**

Feedback: `opupcisco#` prompt appears.

i. At the `opupcisco#` prompt, enter: **write mem<Return>**

Feedback: `Building configuration ...` followed by `[EOT]`

j. At the `opupcisco#` prompt, enter: **exit<Return>**

k. At the `Press RETURN to get started.` prompt, enter: **~.** (**<Shift>~**, release, then **.**)

Feedback: `[EOT]` followed by `/export/home/opupmgr>` prompt appears.

l. At the `/export/home/opupmgr>` prompt, enter: **exit<Return>**

Feedback: The Terminal window closes.

7. At the rear of the Communication Switch UD80A18, unplug the Cisco configuration cable from the CONSOLE port.

8. At the rear of the (Data) Server UD80A11 (top server if Large OPUP), disconnect the Null Modem Adapter (with Cisco configuration cable) from Serial A port.

9. This completes the Communication Switch UD80A18 setup procedure.

6.6.7 Printer UD80A22 Setup Procedure.

This procedure requires one technician, will take approximately .5 hours to complete, and is normally used after a total replacement of the Printer UD80A22. This procedure does not apply to any other printer that may be connected to either the Large or Medium OPUP configuration.

6.6.7.1 Equipment and Tools Required.

1. Copy of local processor Hosts File.

6.6.7.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-25 and Table 2-20 for the location and description of controls and indicators associated with the Printer UD80A22.

1. At the printer, print out a Menu Map to provide a guide to the front panel menus structure. Keep a copy by the printer for easy reference. If a Menu Map has already been printed, proceed to Step 2. To do this:

   a. On the printer's front LCD display, press the **OK** button. If the printer is in stand-by mode, a `WARMING UP, PLEASE WAIT. %xx COMPLETED` message will appear. Wait for the printer to complete its warm up sequence. If the message, `READY TO PRINT` is displayed, go to the next step.

   b. Ensure the `Menus` (**Phaser 8200 ONLY**), or `Information` (**Phaser 8400 ONLY**) selection is highlighted and press the **OK** button.

   c. Ensure the `Print Menu Map` (**Phaser 8200 ONLY**), or `Menu Map` (**Phaser 8400 ONLY**) selection is highlighted and press the **OK** button. A Menu Map will be printed.

d. When finished, press the printer **Return** button (curved arrow) to return to the printer's Main Menu screen.

2. The following information is required when adding the printer to the `OPUP Manager Main Menu`:

   - Printer Name.
   - Printer IP-Address.
   - Printer Description.

3. The Server IP-Address is required to set the TCP/IP Gateway address in the printer. The Server IP-Address should be in the format of **10.5.= = =.1**, where = = = is the third octet of your site specific IP-address scheme. This information should have been recorded in Table 3-9 or Table 3-10 Step 2 or during last software build upgrade.

4. Ensure that the above information is obtained before beginning with the printer setup procedures.

6.6.7.3 Procedure (Phaser 8200).

NOTE

This procedure is for the Phaser 8200 only. For Phaser 8400 setup, refer to paragraph 6.6.7.4.

1. At the Main Menu selection screen, ensure `Menus` is highlighted. Press the **OK** button. A `Menus` selection screen will be displayed.

2. At the `Menus` selection screen, press the **Down arrow** button to highlight the `Network Setup Menu` selection.

3. Press the **OK** button. The `Network Setup Menu` selection screen will be displayed.

4. Press the **Down arrow** button to highlight the `TCP/IP Address: 0.0.0.0` selection. (If the printer's IP-address has been previously loaded, it will display that address instead of the four zeros.)

NOTE

The following steps involve the display and configuration of the TCP/IP addresses associated with the Printer UD80A22. An IP-address contains 4 sets of three numbers, each separated by a period (i.e., 10.5.6.20).

5. Press the **OK** button. The `TCP/IP Address` window will be displayed with the first set of three numbers highlighted.

6. Use the **Up/Down arrow** buttons to set the first three numbers to **10**, then press the **OK** button. This will set the first set and moves the highlight cursor to the second set of the three numbers.

7. Use the **Up/Down arrow** buttons to set the second set of three numbers to **5**, then press the **OK** button. This sets the second set and moves the highlight cursor to the third set.

8. Use the **Up/Down arrow** buttons to set the third set of three numbers of the site specific TCP/IP address, then press the **OK** button. This sets the third set and moves the highlight cursor to the fourth/last set.

9. Use the **Up/Down arrow** buttons to set the fourth set of three numbers to **150**, then press the **OK** button. This sets the fourth set and temporarily displays a `Testing for duplicate IP address ...` message. When finished, the `Network Setup Menu` will be displayed.

10. At the `Network Setup Menu`, ensure that the highlighted `TCP/IP Address: IP_address` displays the correct IP address entered in Steps 6 through 9.

11. At the `Network Setup Menu`, press the **Down arrow** button to highlight `TCP/IP Network Mask: 255.0.0.0` (if previously loaded, the address will be different), then press the **OK** button.

12. Using the **Up/Down arrow** and **OK** buttons (as performed in Steps 6 through 9 to set the TCP/IP-address), set the TCP/IP Network Mask address to **255.255.255.0**. Press the **OK** button to display the `Network Setup Menu`. Ensure the TCP/IP Network Mask address is correct before proceeding.

13. At the `Network Setup Menu`, press the **Down arrow** button to highlight `TCP/IP Gateway: 0.0.0.0` (if previously loaded, the address will be different), then press the **OK** button. The cursor highlights the first three digits of the displayed IP-address.

14. Using the **Up/Down arrow** and **OK** buttons (as performed in Steps 6 through 9 to set the TCP/IP-address), set the TCP/IP Gateway IP-address to the *Data Server IP-address* (**10.5.= = =.1**, where = = = is the third octet of your site specific IP-address scheme). Press the **OK** button to display the `Network Setup Menu`. Ensure the TCP/IP Gateway IP-address is correct before proceeding.

15. Press the **Return** button (curved arrow). The following message will be displayed: `Changes take effect only after reset`. The message `Reset Printer Now` will then be highlighted.

16. With `Reset Printer Now` highlighted, press the **OK** button. The printer will go through a Power-On-Self-Test (POST) and perform a reboot procedure. The process is complete when the printer prints out a `Phaser 8200N Color Printer Startup` page.

17. At the OPUP Server UD80A11, login as **opupmgr** and proceed to the `OPUP Manager Main Menu`.

18. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.

19. At the `OPUP Server Control Menu`, click on the **Printer Tools** button.

20. At the `OPUP Printer Menu`, click on the **Add New Printer** button.

21. At the `OPUP Manager Add New Printer` window, click within the `Printer Name:` edit field and using the **<Tab>** key, enter the following data in the edit fields:

    a. `Printer Name:`, enter: **Phaser82ØØN<Tab>**

    b. `Printer IP Address:`, enter: *IP-address of the printer***<Tab><Tab>**
    This is the same TCP IP-address set in Steps 6 through 9.

NOTE

The `Printer Port Number:` edit field will have a **1** as the default port number. If any other number is displayed, enter a **1** in the edit field and press the **<Tab>** key.

    c. `Printer Description:`, enter: *Any identification as desired***<Tab>**

NOTE

The `Printer Description` field may be left blank. It is used only for external printer identification purposes only.

    d. `Is this the` **`Default`** `Printer (Y=Yes, N=No):`, enter: **y<Return>**

22. At the bottom of the `OPUP Manager Add New Printer` window, click on the **Save** button. An `OPUP Printer Phaser8200N - has been created` message will then be displayed.

23. At the `Netscape: Display Printer Info Entered` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6.6.7.4 Procedure (Phaser 8400).

1. At the Main Menu selection screen, ensure `Information` is highlighted.

2. At the Main Menu selection screen, press the **Down arrow** button to highlight the `Printer Setup` selection.

3. Press the **OK** button. The `Printer Setup` screen will be displayed.

4. Press the **Down arrow** button to highlight the `Connection Setup` selection.

5. Press the **OK** button. The `Connection Setup` screen will be displayed. Press the **Down arrow** to highlight the `Network Setup` selection.

6. Press the **OK** button. The `Network Setup` screen will be displayed.

7. Ensure the `TCP/IP Setup` is highlighted, and press the **OK** button. The `TCP/IP Setup` screen will be displayed.

8. Press the **Down arrow** button to highlight the `DHCP/BOOTP` selection.

9. Press the **OK** button to toggle `DHCP/BOOTP` to `Off`.

10. Press the **Down arrow** button to highlight the `TCP/IP Address: 0.0.0.0` selection. (If the printer's IP-address has been previously loaded, it will display that address instead of the four zeros.)

NOTE

The following steps involve the display and configuration of the TCP/IP addresses associated with the Printer UD80A22. An IP-address contains 4 sets of three numbers, each separated by a period (i.e. 10.5.6.150).

11. Press the **OK** button. The `TCP/IP Address` screen will be displayed with the first set of three numbers highlighted.

12. Use the **Up/Down arrow** buttons to set the first three numbers to **10**, then press the **OK** button. This will set the first set and moves the highlight cursor to the second set of three numbers.

13. Use the **Up/Down arrow** buttons to set the second set of three numbers to **5**, then press the **OK** button. This sets the second set and moves the highlight cursor to the third set.

14. Use the **Up/Down arrow** buttons to set the third set of three numbers to the site specific TCP/IP address, then press the **OK** button. This sets the third set and moves the highlight cursor to the fourth/last set.

15. Use the **Up/Down arrow** buttons to set the fourth set of three numbers to **150**, then press the **OK** button. This sets the fourth set and temporarily displays a `Testing for duplicate IP address ...` message. When finished, the `TCP/IP Setup` screen will be displayed.

16. At the `TCP/IP Setup` screen, ensure that the highlighted `TCP/IP Address:` *`IP_address`* displays the correct IP address entered in Steps 12 through 15.

17. At the `TCP/IP Setup` screen, press the **Down arrow** button to highlight `TCP/IP Network Mask: 255.255.0.0` (if previously loaded, the address will be different), then press the **OK** button.

18. Using the **Up/Down arrow** and **OK** buttons (as performed in Steps 12 through 15 to set the TCP/IP-address), set the TCP/IP Network Mask address to **255.255.255.0**. Press the **OK** button to display the `TCP/IP Setup`. Ensure the TCP/IP Network Mask address is correct before proceeding.

19. At the `TCP/IP Setup` screen, press the **Down arrow** button to highlight `TCP/IP Gateway: 0.0.0.0` (if previously loaded, the address will be different), then press the **OK** button. The cursor highlights the first three digits of the displayed IP-address.

20. Using the **Up/Down arrow** and **OK** buttons (as performed in Steps 12 through 15 to set the TCP/IP-address), set the TCP/IP Gateway IP-address to the *Data Server IP-address* (**10.5.= = =.1**, where = = = is the third octet of your site specific IP-address scheme). Press the **OK** button to display the `TCP/IP Setup` screen. Ensure the TCP/IP Gateway IP address is correct before proceeding.

21. Press the **Return** button. A `Setting IP parameters, please wait` message will appear then, the `Network Setup` screen will be displayed.

22. At the `Network Setup` screen, press the **Down arrow** button to highlight `Exit`.

23. Press the **OK** button. The Main Menu will be displayed.

24. Press the **Down arrow** button to highlight `Shut Down` selection.

25. Press the **OK** button. The `Shut Down` screen will be displayed.

26. Press the **Down arrow** button to highlight `Restart Printer` selection.

27. Press the **OK** button. The `Restart Printer` screen will be displayed with `Restart the Printer NOW?` highlighted.

28. Press the **OK** button. The printer will restart and perform a Power-On-Self Test.

29. At the OPUP Server UD86A2, login as **opupmgr** and proceed to the `OPUP Manager Main Menu`.

30. At the `OPUP Manager Main Menu`, click on the **OPUP Server Control Menu** button.

31. At the `OPUP Server Control Menu`, click on the **Printer Tools** button.

32. At the `OPUP Printer Menu`, click on the **Add New Printer** button.

33. At the `OPUP Manager Add New Printer` window, click within the `Printer Name:` edit field and using the **<Tab>** key, enter the following data in the edit fields:

    a. `Printer Name:`, enter: **Phaser8400<Tab>**

    b. `Printer IP Address:`, enter: *IP-address of the printer***<Tab><Tab>**
    This is the same TCP IP-address set in Steps 12 through 15.

    NOTE

    The `Printer Port Number:` edit field will have a **1** as the default port number. If any other number is displayed, enter a **1** in the edit field and press the **<Tab>** key.

    c. `Printer Description:`, enter: *Any identification as desired***<Tab>**

    NOTE

    The `Printer Description` field may be left blank. It is used only for external printer identification purposes only.

    d. `Is this the` **`Default`** `Printer (Y=Yes, N=No):`, enter: **y<Return>**

34. At the bottom of the `OPUP Manager Add New Printer` window, click on the **Save** button. An `OPUP Printer Phaser8400 - has been created` message will then be displayed.

35. At the `Netscape: Display Printer Info Entered` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6.6.8 Display Workstation CPU/Processor UD85A2 Setup Procedure.

This procedure provides the methods to add a new Display Workstation as the result of replacing a defective CPU/processor for an existing Display Workstation or to add a new Display Workstation as the result of increasing the number of workstations.

This procedure requires one technician and takes 1.5 hours.

NOTES

Only one Display Workstation may be added at a time. Each Display Workstation must be placed at the `ok` prompt and then the Sun Solaris "Jumpstart" **boot net - install** command entered successively on each new Display Workstation.

The Large OPUP configuration may only have up to 10 Display Workstations and the Medium OPUP configuration may only have up to three Display Workstations at anytime.

6.6.8.1 Equipment and Tools Required.

None

6.6.8.2 Initial Conditions/Preliminary Setup. Refer to Figure 2-27 and Table 2-22 for the location and description of the controls and indicators associated with the CPU/Processor UD85A2.

1. Ensure the Display Workstation CPU/Processor UD85A2 is in the power-off state. If it is not powered-off, press the power button on the front panel for 5 seconds. Allow the CPU/process to power-off before proceeding.

2. At the UD80 Cabinet, on the Monitor UD80A7, ensure that the `OPUP Manager Main Menu` is displayed. (Perform all login procedures and or screen activation procedures, if required.)

NOTES

Prior to continuing to the next two steps, locate on the keyboard, the **<Stop>** key (far upper left side of keyboard) and the **<A>** key. These keys will be utilized to interrupt the boot process.

If the system proceeds through the initial boot process before it is stopped, press and hold the power button for 1 to 2 seconds. The Display Workstation CPU will then perform a power-off sequence. When the Display Workstation Monitor UD85A1 goes blank, repeat Step 3 again.

If a prompt other than the `ok` prompt is displayed, press the **<Return>** key until the `ok` prompt is displayed.

3. At the new Display Workstation CPU/Processor UD85A2 in question, turn power On by performing the following:

   a. Push and release the power button on the front panel. The power LED located just above the power button will illuminate. The workstation will take approximately 1 to 2 minutes to perform a power-on sequence.

   b. When the spinning pinwheel appears on the monitor display, simultaneously press the **<Stop>** and **<A>** keys. This stops the display workstation boot sequence and displays an `ok` prompt.

   c. Locate the Ethernet-address near the top center of the display (this address is located in the banner information, just above the `ok` prompt.) When located, record the Ethernet-address of the new CPU/processor. Leave the screen as is for now.

6.6.8.3 Setup Procedure (For CPU/Processor Replacement).

NOTES

If adding a new workstation as a result of an increase in the number of Display Workstations from originally installed, proceed to Step 2.

Each CPU/processor has an Ethernet-address that was assigned when it was manufactured and is imbedded in the NVRAM chip and is displayed on the monitor during boot-up. This information must be obtained and then deleted for the defective CPU/processor that is being replaced. The following step will obtain the required information.

1. Delete the defective Display Workstation from the Display Server database as follows.

   a. At the `OPUP Manager Main Menu`, click on the **OPUP Workstation Menu** button. An `OPUP Workstation Menu` window will be displayed.

   b. At the `OPUP Workstation Menu`, click on the **Delete Workstation** button. An `OPUP Workstations` window will be displayed.

   c. At the `OPUP Workstations` window, click on the box within the `Delete` column for the Display Workstation CPU/processor that was replaced. A checkmark will be placed in the box.

   d. At the bottom of the `OPUP Workstations` window, click on the **Delete** button. A `Netscape: Workstations Deleted` window, with the message `The following workstations have been deleted:` will be displayed. It will also show

the `Host-Name` of workstation # deleted. This action deleted the stored information for the defective CPU/processor.

e. At the `Netscape: Workstations Deleted` window, click on the **Return to Main Menu** button. The `OPUP Manager Main Menu` will be displayed.

2. At the `OPUP Manager Main Menu`, click on the **OPUP Workstation Menu** button. The `OPUP Workstation Menu` will be displayed.

3. At the `OPUP Workstation Menu`, click on the **Add New Workstation** button. The `OPUP Manager Add New Workstation` window will be displayed.

4. At the `OPUP Manager Add New Workstation` window, perform the following to add the new CPU/processor information into the database.

   a. Click within the `Ethernet Address:` edit field and enter the Ethernet-address recorded in paragraph 6.6.8.2, Step 3.c.

   b. Review the entry and verify it is correct. Ensure colons are used to separate the number and number/letter combinations of the Ethernet-address.

   c. At the bottom of the window, click on the **Save** button. A `Netscape: Workstation Information Complete` window with the message `The following workstations have been added:` will be displayed verifying the workstation was added to the workstation database.

5. At the `Netscape: Workstation Information Complete` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

6. At the new Display Workstation CPU/Processor UD85A2 `ok` prompt, enter:

   boot net - install <Return>

NOTE

The boot net - install command starts a "Jumpstart" software package which initiates an automatic software installation routine. This installation will take approximately 75 minutes to complete. When the procedure is complete, the CDE Login screen will be displayed on the new Display Workstation monitor. **Do not continue until the CDE Login screen has appeared on the new Display Workstation monitor screen.**

7. At the OPUP Cabinet, at the `OPUP Manager Main Menu`, click on the **OPUP Software Menu** button. The `OPUP Software Menu` will be displayed.

8. At the `OPUP Software Menu`, click on the **Stop OPUP** button. An `OPUP Manager Stop OPUP` warning window will be displayed.

9. At the `OPUP Manager Stop OPUP` warning window, click on the **Yes** button. The OPUP software will begin a stop sequence and display a window with the message: `All OPUP Server Software has been Stopped.` This may take approximately 5 minutes.

10. At the `OPUP Manager Stop OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Main Menu` will be displayed.

11. At the `OPUP Software Menu`, click on the **Start OPUP** button. An `OPUP Manager Start OPUP` warning window will be displayed.

12. At the `OPUP Manager Start OPUP` warning window, click on the **Yes** button. The OPUP software will begin a start sequence and display a window with the message: `Please wait 1 to 2 minutes for the server Processes to start.` This may take approximately 30 seconds.

13. At the `OPUP Manager Start OPUP` window, click on the **Return to OPUP Software Menu** button. The `OPUP Software Main Menu` will be displayed.

14. At the `OPUP Software Menu`, click on the **OPUP Process Status** button. An `OPUP Process Status` window will be displayed. This window can be used to check on the status of OPUP start server processes, if desired.

15. At the `OPUP Process Status` window, click on the **Refresh** button to update the `OPUP Process Status` window. Once all the tasks listed in the column `OPUP App/Task` have information out to the right, the software will have been restarted

16. At the `OPUP Process Status` window, click on the **Return to Main Menu** button to return to the `OPUP Manager Main Menu`.

17. Place the Large or Medium OPUP in the normal operating state.

CHAPTER 7
ILLUSTRATED PARTS BREAKDOWN

Section 7.1. INTRODUCTION

7.1.1 General.

This chapter provides an Illustrated Parts Breakdown (IPB) list and scale drawings associated with the Large and Medium OPUP Equipment Group UD80. The IPB lists, describes, and illustrates the items necessary to support on-site field-level maintenance of the Doppler Meteorological Radar WSR-88D Open Principal Users Processor (OPUP). The information contained in this manual is to be used for parts requisitioning, storing, issuing, identification, and for illustrating connection and disconnecting cable relationships, assigning repair level responsibility, and disposition of specific OPUP hardware.

7.1.2 Chapter Organization.

Chapter 7 is organized into two sections as follows:

- Section 7.1 INTRODUCTION - Provides a brief description of the information found in Chapter 7.

- Section 7.2 LARGE AND MEDIUM OPUP ILLUSTRATED PARTS BREAKDOWN (IPB) LIST - Contains an explanation on how to use the information found in this section. In addition, this section provides the Cable Assemblies Table, Maintenance Parts List (MPL), and applicable illustrated Lowest Replaceable Unit (LRU) scale drawings associated with the Large and Medium OPUP Equipment Group UD80.

- Section 7.3 NUMERICAL INDEX - The Numerical Index contains an alphanumeric listing of all part numbers contained in the MPL. All part numbers are referenced to the figure and index number(s) in which they appear. Figure and index numbers are given for the first occurrence only of Government standard parts.

- Section 7.4 REFERENCE DESIGNATION INDEX - The Reference Designation Index contains an alphanumeric listing of reference designations assigned to electrical and electronic components listed in the MPL.

Section 7.2. LARGE AND MEDIUM OPUP ILLUSTRATED PARTS BREAKDOWN (IPB) LIST

7.2.1 Overview.

This section illustrates the items necessary to support Line Replaceable Unit (LRU) hardware identification and procurement requirements using a Cable Assemblies Table and Maintenance Parts List (MPL). It is assumed that no depot level illustrations or piece part level replacement information will be provided in this document. This chapter presents information that should be taken into consideration when making decisions regarding logistical parts identification, assembly, and replacement procedures. OPUP System Administrators and maintainers should not assume that this IBP is intended to provide any breakdown of OPUP hardware configuration items at the Depot repair level.

7.2.2 Arrangement.

The information presented in this section will be divided into two parts. The first part contains a Cable Assemblies Table that can be used by each Large and Medium OPUP site to ensure that the correctly identified specific cable is connected in accordance with the designed configuration management of each assembly and sub-assembly. The second part provides a complete listing of each applicable part associated with the Large and Medium OPUP Equipment Group UD80. This list is called the Maintenance Parts List (MPL). The MPL provides the information necessary to correctly identify, procure, and replace failed or suspect Large and Medium OPUP parts. The MPL will also contain associated LRU level illustrations that are to be used to identify, disassemble, re-assemble, specific parts and cables associated with the Large and Medium OPUP configuration that sites are authorized to replace.

7.2.3 Definition of Terms and Services.

This section provides detailed break down of the information provided in both the Cable Assemblies and MPL tables.

7.2.3.1 Large and Medium OPUP Configuration Description. The overall description and associated parts breakdown is provided by the Large and Medium OPUP Equipment Group UD80.

7.2.3.2 Drawing Break Down. Typically, each OPUP configuration will have approximately 3 LRU expanded scale drawings. Each drawing will either be associated with each major assembly or be designated as a sub-assembly. Reference “find” numbers will be used on each drawing as appropriate.

7.2.3.3 Cable Assemblies/Maintenance Parts List Tables. A Cable Assemblies and Maintenance Parts List (MPL) table will be provided for each OPUP configuration scale assembly and/or sub-assembly. The CAL and MPL will be broken down into two lists each. The first reference list for each reference will encompass all of the reference parts associated with the OPUP Hardware Group as a whole. A second list(s) will directly follow each assembly scale drawings. The following paragraphs describe the information contained in each reference list.

7.2.3.3.1 Cable Assemblies Table. The following paragraphs provide a breakdown of the information provided in Table 7-1.

7.2.3.3.1.1 Index Number. The Index Number (Index No.) column lists the numbers that key all significant parts of the cables that are associated with the MPL to the related scale drawings.

7.2.3.3.1.2 Reference Designators (REF DES). This column lists the reference designations shown on assembly drawings, schematics, and wiring diagrams pertaining to the system. An asterisk (*) in this column indicates a special feature of the part with explanations presented at the bottom of the page. The note "Replace as a Set" indicates that the parts noted must be replaced as a set. "Not Shown" indicates that the part is not shown on the illustration. (Where possible, callouts on illustrations for parts in this category will be indicated in the general area location or with an item that it is associated with.)

7.2.3.3.1.3 From/To. The "From" and "To" columns indicate where the associated cable and/or wire attachment begins (from) and where it is attached (to). The P1 code associated with each cable will address where the cable attachment begins and the P2 code will address where the cable is attached to.

7.2.3.3.1.4 Usable On Code. This column contains the codes required to indicate the configuration of the end item to the which the assemblies and parts apply.

7.2.3.3.2 Maintenance Part List (MPL). The following paragraphs provide a breakdown of the information provided in Table 7-2.

7.2.3.3.2.1 Figure and Index Number (Figure and Index No.). The Figure and Index Number (Index No.) column lists the numbers that key all significant parts that are associated with the MPL to the related scale drawings.

7.2.3.3.2.2 Reference Designators (REF DES). This column lists the reference designations shown on assembly drawings, schematics, and wiring diagrams pertaining to the system. An asterisk (*) in this column indicates a special feature of the part with explanations presented at the bottom of the page. The note "Replace as a Set" indicates that the parts noted must be replaced as a set. "Not Shown" indicates that the part is not shown on the illustration. (Where possible, callouts on illustrations for parts in this category will be indicated in the general area location or with an item that it is associated with.)

7.2.3.3.2.3 Part Number. Part numbers used in this column are selected according to the following order of preferences:

- Government Standards
- Industry Standards

- Original Manufacturers number
- Commercial Manufacturers number
- Prime Manufacturers number

As applicable, alternate vendor part numbers are shown in the description column. The dash number is site dependant and reference should be made to site System Allocation Document (SAD) for complete part number.

7.2.3.3.2.4 Indent. The indentation number indicates the relationship of a part to the next higher assembly. For example: a part shown with an indenture of 3 indicates that it is a part of the immediately proceeding next higher assembly shown with an indenture of 2, excluding attaching parts.

7.2.3.3.2.5 Description. The description column contains the nomenclature appearing in the title block of the drawing to which the part was manufactured. The following applies:

- For NHA See Fig ... : Indicates the next higher assembly.
- For Breakdown See Fig ... : Indicates the location of the breakdown for the assembly in the MPL.

Alternative vendor part numbers are listed and identified following the description of the parts to which they apply. (A five digit CAGE code precedes its respective part number or drawing number.

7.2.3.3.2.6 CAGE Code. The appropriate CAGE Code (Commercial and Government entity) code, published in current issues of Cataloging Handbook (H4/H8), is listed in this column directly opposite each part, model, and type number listed in the part number column.

7.2.3.3.2.7 Quantity Per Assembly (QTY PER ASSY). The Quantity Per Assembly information shown in this column represents the units required for one next higher assembly or sub-assembly.

7.2.3.3.2.8 Source Maintenance and Recovery (SMR) Code. This column contains the five-digit Joint Military Service Uniform SMR code assigned by the Government. The SMR code is provided on page 7-6.

7.2.3.3.2.9 Usable On Code. This column contains codes to indicate the configuration of the end item to which the listed assemblies and parts apply. The meaning of usable on codes are located at the end of each figure. When a part applies to all configurations, the column is blank.

7.2.4 Consolidated Logistics System URL.

Each MPL will have a consolidated logistic system URL listed near the top center of each page. While the URL is only text in the hard copy, it is a hot link in the electronic copy of this document. This feature was included to assist with an expedite means of procuring Large and Medium OPUP Equipment Group UD86 parts and/or information. The hardcopy and the CD-ROM version

of this manual will be made available at each OPUP site. A technician who is using the CD-ROM version can click on the URL located near the top center of each page (if access to the internet is currently being provided) will launch the screen to the NLSC, Consolidated Logistics System website.

The following steps apply:

1. Enter the site address: **www.casc.noaa.gov**

2. Select **NLSC**

3. Select **Consolidated Logistics System**

4. Select **Milstrip NEXRAD/ASOS Products**

5. If the NSN is known, type in the **NSN** information in the editable field provided and then select **Submit Query**. If the NSN is not known, click on the Search by ASN and enter the ASN (using the **R400-** prefix), and then select **Submit Query**

6. Use the **Show Image** selection to view the associated image

7. Log off when finished

NOTE

There may not be information for some parts. NLSC may be in the process of entering this data.

If the hard copy of this document is being used, the URL can be reached by accessing the internet and entering the designated internet address location provided in the Step 1. Once the CASC home page is displayed, select the indicated sequence of choices shown in Steps 2 through 4 in order to arrive at the URL address specified in the IPB (Step 5).

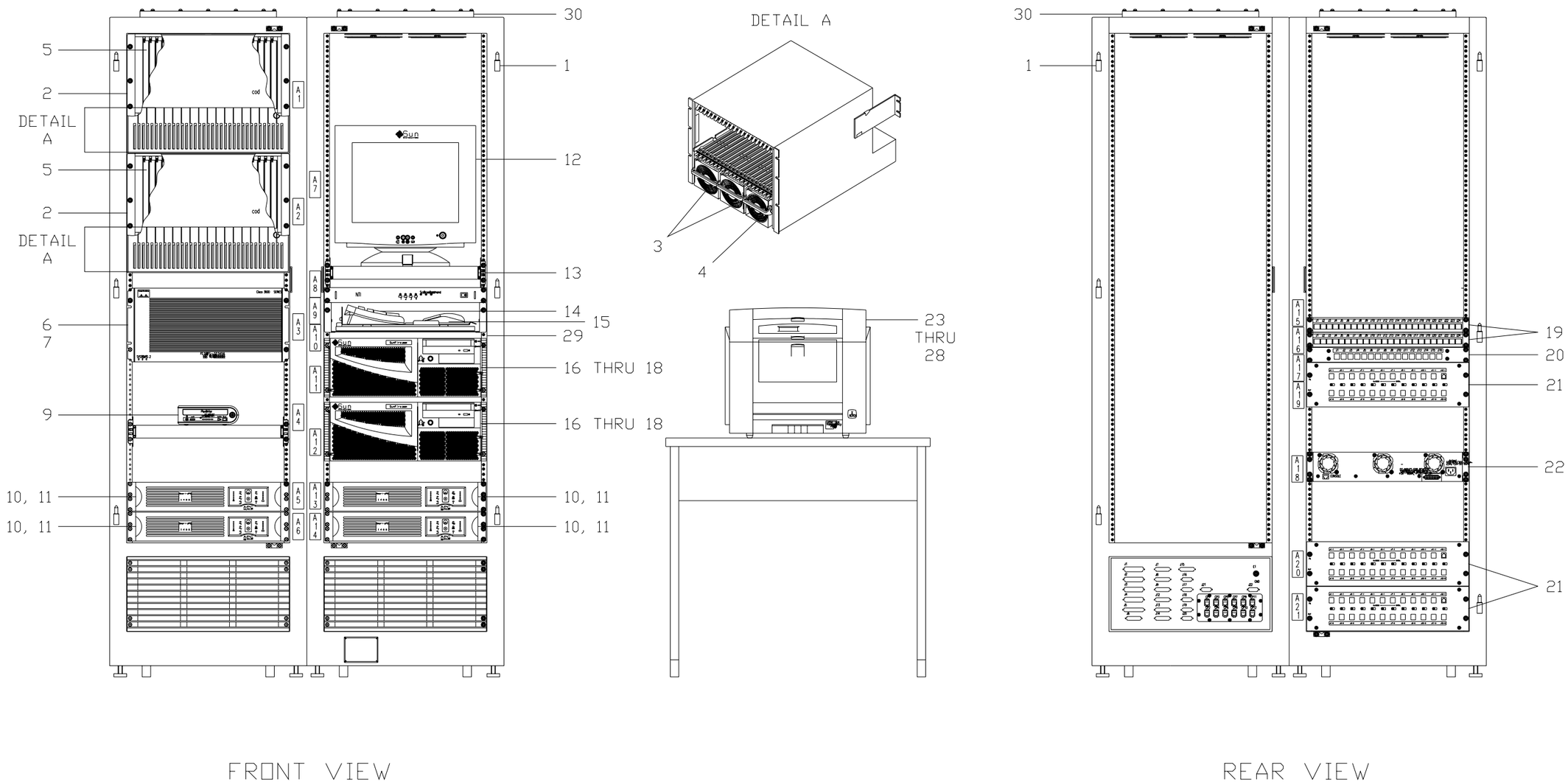
7.2.5 OPUP Equipment Group Illustrations. Scale illustrations associated with the Large and Medium OPUP Equipment Group UD80 are provided by Figure 7-1. One scale illustration associated with the OPUP Display Workstation UD85 is provided in Figure 7-1, Display Workstation UD85. All configurations provided under the UD80 and UD85 Equipment Group designations are controlled by the ROC Configuration Management (CM) Branch.

SMR Code (Example)

MAINTENANCE									
SOURCE				USE		REPAIR		RECOVERABILITY	
1st Position		2nd Position		3rd Position		4th Position		5th Position	
P	Procurable	A	Stocked	O	Remove/Replace by Organizational level	Z	No Repair	Z	Nonreparable Condemn by 3rd Position Level
		B	Insurance						
		C	Deteriorative						
		D	Depot						
		E	Support Equipment, Stocked			B	Recondition		
		F	Support Equipment, Nonstocked					O	Reparable Condemn by Organizational (or Field or Depot)
		G	Life of System Support						
K	Component of a Repair Kit	F	Intermediate Kit	F	Remove/Replace by Intermediate Level (Note 1)	O	Repair by Organizational	F	Reparable Condemn by Intermediate (or Depot)
		D	Depot Kit						
		B	In Both Kits			F	Repair by Intermediate		
M	Manufacture	O	Organization						
		F	Intermediate						
		D	Depot	D	Remove/Replace by Depot Level	D	Limited Repair by O or F Level	D	Reparable Condemn by Depot Only (Note 2)
A	Assemble	O	Organizational						
		F	Intermediate						
		D	Depot				Overhaul by Depot		
X	Nonprocured	A	Requisition NHA			L	Repair by Depot	A	Special Handling
		B	Reclamation or Requisition by Part Number						
		C	Mfg Drawings						

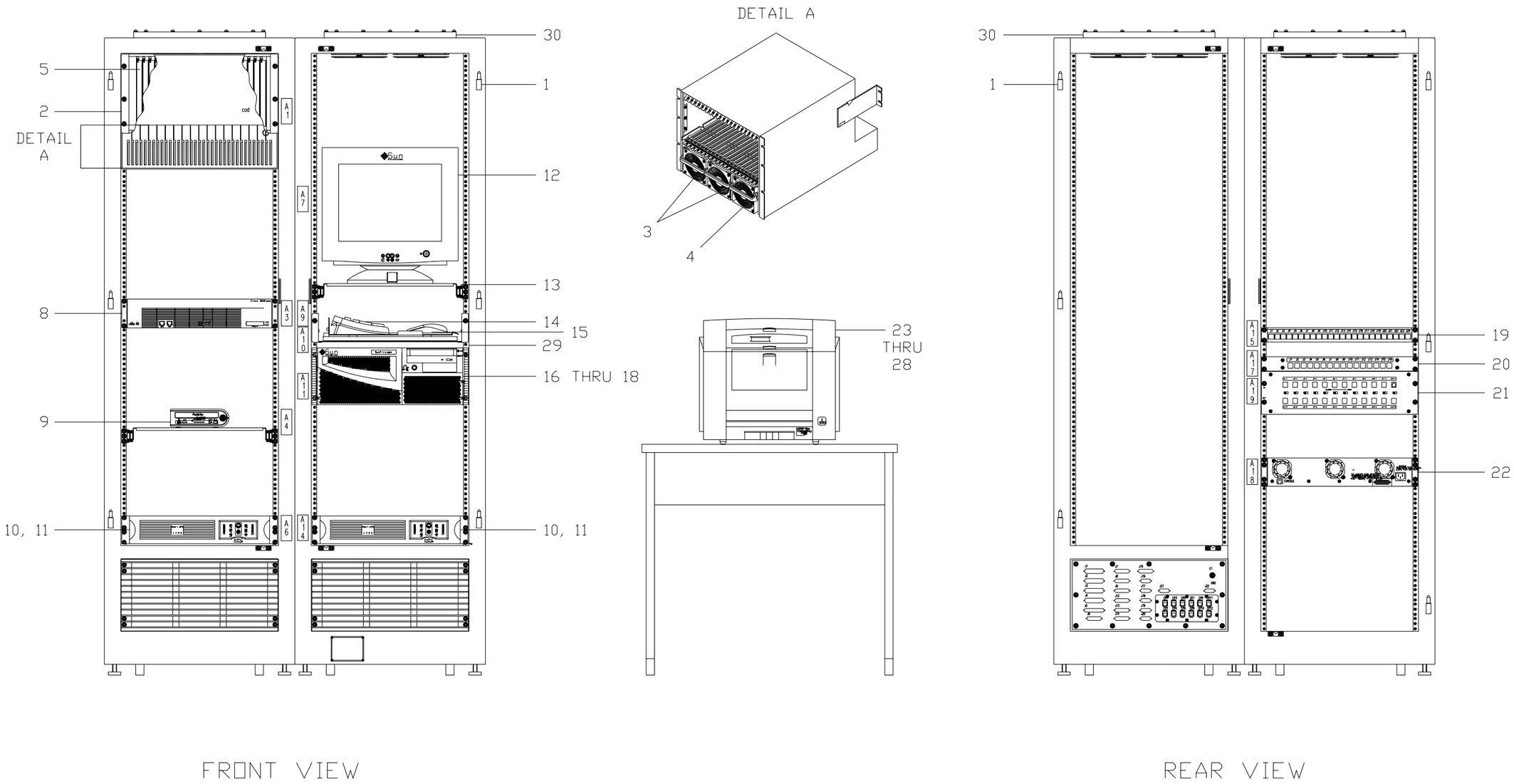
NOTE. Recoverability Code "L" is no longer valid. When this code is encountered in existing TOs, apply this definition: Reparable item, Condemn and Dispose of at Depot Level only.

1. Organizational level maintenance activities operating under the two–level maintenance concept may perform limited intermediate level maintenance when the proper test equipment, trained personnel, and current technical data are available.
2. Items with a recoverability code of "D" can be condemned at field level if the item is damaged or worn totally beyond repair, directed condemned, nonlisted in USAF Federal Supply Catalog, coded "DSP" or normal source of supply is local purchase or local manufacture.



NX2508

Figure 7-1. Large OPUP Communications/Processor Group UD80 (Sheet 1 of 2)



NX2507

Figure 7-1. Medium OPUP Communications/Processor Group (Sheet 2 of 2)

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown)

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/32	80W21	P1(A15J25)	P2(A19J1)	
7-1/33	80W22	P1(A15J26)	P2(A20J1)	A
7-1/34	80W23	P1(A16J25)	P2(A21J1)	A
7-1/35	80W30	P1(A19J2)	P2(J2)	
7-1/36	80W31	P1(A20J2)	P2(J3)	A
7-1/37	80W32	P1(A21J2)	P2(J4)	A
7-1/38	80W33	P1(A17MALE)	P2(J1)	
7-1/39	80W50	P1(A6 AC OUT)	P2(A1 AC PWR)	
7-1/39	80W52	P1(A6 AC OUT)	P2(A3A1PS1)	
7-1/39	80W54	P1(A6 AC OUT)	P2(A18 AC PWR)	
7-1/39	80W59	P1(A14J2)	P2(A7AC PWR)	
7-1/39	80W60	P1(A6 AC OUT)	P2(A4 AC PWR)	
7-1/40	80W51	P1(A5 AC OUT)	P2(A2 AC PWR)	A
7-1/40	80W53	P1(A5 AC OUT)	P2(A3A1PS2)	A
7-1/40	80W55	P1(A5 AC OUT)	P2(A11AC1)	A
7-1/40	80W57	P1(A14 AC OUT)	P2(A12AC0)	A
7-1/40	80W58	P1(A6 AC OUT)	P2(A12AC1)	A
7-1/40	80W63	P1(A13 AC OUT)	P2(A11AC0)	A
7-1/41	80W56	P1(A14 AC OUT)	P2(A7 A11AC0)	B
7-1/41	80W62	P1(A6 AC OUT)	P2(A11AC1)	A
7-1/42	80W61	P1(A13 AC OUT)	P2(PS1)	B
7-1/43	80W101	P1(A1B1)	P2(A15J1)	
7-1/43	80W102	P1(A1B2)	P2(A15J2)	

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown) - Continued

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/43	80W103	P1(A1B3)	P2(A15J3)	
7-1/43	80W104	P1(A1B4)	P2(A15J4)	
7-1/43	80W105	P1(A1B5)	P2(A15J5)	
7-1/43	80W106	P1(A1B6)	P2(A15J6)	
7-1/43	80W107	P1(A1B7)	P2(A15J7)	
7-1/43	80W108	P1(A1B8)	P2(A15J8)	
7-1/44	80W109	P1(A1B9)	P2(A15J9)	A
7-1/44	80W110	P1(A1B10)	P2(A15J10)	A
7-1/44	80W111	P1(A1B11)	P2(A15J11)	A
7-1/44	80W112	P1(A1B12)	P2(A15J12)	A
7-1/44	80W113	P1(A1B13)	P2(A15J13)	A
7-1/44	80W114	P1(A1B14)	P2(A15J14)	A
7-1/44	80W115	P1(A1B15)	P2(A15J15)	A
7-1/44	80W116	P1(A1B16)	P2(A15J16)	A
7-1/44	80W117	P1(A1B17)	P2(A15J17)	A
7-1/44	80W118	P1(A1B18)	P2(A15J18)	A
7-1/44	80W119	P1(A1B19)	P2(A15J19)	A
7-1/44	80W120	P1(A1B20)	P2(A15J20)	A
7-1/44	80W121	P1(A1B21)	P2(A15J21)	A
7-1/44	80W122	P1(A2B1)	P2(A16J1)	A
7-1/44	80W123	P1(A2B2)	P2(A16J2)	A
7-1/44	80W124	P1(A2B3)	P2(A16J3)	A
7-1/44	80W125	P1(A2B4)	P2(A16J4)	A
7-1/44	80W126	P1(A2B5)	P2(A16J5)	A

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown) - Continued

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/44	80W127	P1(A2B6)	P2(A16J6)	A
7-1/44	80W128	P1(A2B7)	P2(A16J7)	A
7-1/44	80W129	P1(A2B8)	P2(A16J8)	A
7-1/44	80W130	P1(A2B9)	P2(A16J9)	A
7-1/44	80W131	P1(A2B10)	P2(A16J10)	A
7-1/44	80W132	P1(A2B11)	P2(A16J11)	A
7-1/45	80W150	P1(A3A1A1PORT0)	P2(A17J1)	
7-1/45	80W151	P1(A3A1A1PORT1)	P2(A17J2)	
7-1/45	80W152	P1(A3A1A1PORT2)	P2(A17J3)	
7-1/45	80W153	P1(A3A1A1PORT3)	P2(A17J4)	
7-1/45	80W154	P1(A3A1A1PORT4)	P2(A17J5)	
7-1/45	80W155	P1(A3A1A1PORT5)	P2(A17J6)	
7-1/45	80W156	P1(A3A1A1PORT6)	P2(A17J7)	
7-1/45	80W157	P1(A3A1A1PORT7)	P2(A17J8)	
7-1/46	80W200	P1(A18-1X)	P2(A11TP<...>)	
7-1/47	80W201	P1(A18-3X)	P2(A12TP<...>)	A
7-1/47	80W202	P1(A18-2X)	P2(A3A1ETHERNET0/0)	A
7-1/48	80W203	P1(A18-2X)	P2(A3A1A0FASTETH0)	B
7-1/49	80W204	P1(A18-4X)	P2(CP1)	
7-1/49	80W205	P1(A18-5X)	P2(CP2)	
7-1/49	80W206	P1(A18-6X)	P2(CP3)	
7-1/49	80W207	P1(A18-7X)	P2(CP4)	
7-1/49	80W208	P1(A18-8X)	P2(CP5)	
7-1/49	80W209	P1(A18-9X)	P2(CP6)	

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown) - Continued

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/49	80W210	P1(A18-10X)	P2(CP7)	
7-1/49	80W211	P1(A18-11X)	P2(CP8)	
7-1/49	80W212	P1(A18-12X)	P2(CP9)	
7-1/49	80W213	P1(A18-13X)	P2(CP10)	
7-1/49	80W214	P1(A18-14X)	P2(CP11)	
7-1/50	80W215	P1(A3A1A0FASTETH1)	P2(CP12)	B
7-1/51	80W216	P1(A3A1A6FASTETH0)	P2(CP12)	A
7-1/52	80W220	P1(A12PCI1) P3(A12USBPORT)	P2(A8VIDEO2) P4(A8CPU2)	A
7-1/52	80W221	P1(A11PCI1) P3(A11USBPORT)	P2(A8VIDEO1) P4(A8CPU1)	A
7-1/53	80W222	P1(A11SCSI)	P2(A4SCSI IN)	
7-1/54	80W223	P1(A14SERIAL PORT)	P2(CP14)	A
7-1/54	80W224	P1(A13SERIAL PORT)	P2(CP13)	A
7-1/55	80W225	P1(A14SERIAL PORT)	P2(CP13)	B
7-1/56	80W250	P1(A3A1A2PORT0)	P2(A1 DTE A1)	
7-1/56	80W251	P1(A3A1A2PORT1)	P2(A1 DTE A2)	
7-1/56	80W252	P1(A3A1A2PORT2)	P2(A1 DTE A3)	
7-1/56	80W253	P1(A3A1A2PORT3)	P2(A1 DTE A4)	
7-1/56	80W254	P1(A3A1A2PORT4)	P2(A1 DTE A5)	
7-1/56	80W255	P1(A3A1A2PORT5)	P2(A1 DTE A6)	
7-1/56	80W256	P1(A3A1A2PORT6)	P2(A1 DTE A7)	
7-1/56	80W257	P1(A3A1A2PORT7)	P2(A1 DTE A8)	
7-1/56	80W258	P1(A3A1A3PORT0)	P2(A1 DTE A9)	A

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown) - Continued

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/57	80W259	P1(A3A1A3PORT1)	P2(A1 DTE A10)	A
7-1/57	80W260	P1(A3A1A3PORT2)	P2(A1 DTE A11)	A
7-1/57	80W261	P1(A3A1A3PORT3)	P2(A1 DTE A12)	A
7-1/57	80W262	P1(A3A1A3PORT4)	P2(A1 DTE A13)	A
7-1/57	80W263	P1(A3A1A3PORT5)	P2(A1 DTE A14)	A
7-1/57	80W264	P1(A3A1A3PORT6)	P2(A1 DTE A15)	A
7-1/57	80W265	P1(A3A1A3PORT7)	P2(A1 DTE A16)	A
7-1/57	80W266	P1(A3A1A4PORT0)	P2(A1 DTE A17)	A
7-1/57	80W267	P1(A3A1A4PORT1)	P2(A1 DTE A18)	A
7-1/57	80W268	P1(A3A1A4PORT2)	P2(A1 DTE A19)	A
7-1/57	80W269	P1(A3A1A4PORT3)	P2(A1 DTE A20)	A
7-1/57	80W270	P1(A3A1A4PORT4)	P2(A1 DTE A21)	A
7-1/57	80W271	P1(A3A1A4PORT5)	P2(A2 DTE A1)	A
7-1/57	80W272	P1(A3A1A4PORT6)	P2(A2 DTE A2)	A
7-1/57	80W273	P1(A3A1A4PORT7)	P2(A2 DTE A3)	A
7-1/57	80W274	P1(A3A1A5PORT0)	P2(A2 DTE A4)	A
7-1/57	80W275	P1(A3A1A5PORT1)	P2(A2 DTE A5)	A
7-1/57	80W276	P1(A3A1A5PORT2)	P2(A2 DTE A6)	A
7-1/57	80W277	P1(A3A1A5PORT3)	P2(A2 DTE A7)	A
7-1/57	80W278	P1(A3A1A5PORT4)	P2(A2 DTE A8)	A
7-1/57	80W279	P1(A3A1A5PORT5)	P2(A2 DTE A9)	A
7-1/57	80W280	P1(A3A1A5PORT6)	P2(A2 DTE A10)	A
7-1/57	80W281	P1(A3A1A5PORT7)	P2(A2 DTE A11)	A
7-1/58	80W300	P1(A3A1CONSOLE)	P2(CP15)	

Table 7-1. Large/Medium OPUP Cable Assemblies (Not Shown) - Continued

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-1/59	W395	P1(J2)	P2(DED1)	
7-1/60	W396	P1(J1)	P2(DIAL)	
7-1/61	W397	P1(J3)	P2(DED2)	A
7-1/62	W398	P1(J4)	P2(DED3)	A
7-1/63	W381	P1(CP1)	P2(WORKSTATION 1)	
7-1/63	W382	P1(CP2)	P2(WORKSTATION 2)	
7-1/63	W383	P1(CP3)	P2(WORKSTATION 3)	
7-1/64	W384	P1(CP4)	P2(WORKSTATION 4)	A
7-1/64	W385	P1(CP5)	P2(WORKSTATION 5)	A
7-1/64	W386	P1(CP6)	P2(WORKSTATION 6)	A
7-1/64	W387	P1(CP7)	P2(WORKSTATION 7)	A
7-1/64	W388	P1(CP8)	P2(WORKSTATION 8)	A
7-1/64	W389	P1(CP9)	P2(WORKSTATION 9)	A
7-1/64	W390	P1(CP10)	P2(WORKSTATION 10)	A
7-1/65	W391	P1(CP11)	P2(80A22 <...>	
7-1/66	W392	P1(CP12)	P2(AIR FORCE COMMS)	

USABLE ON CODES

A - LARGE OPUP
B - MEDIUM OPUP

Table 7-2. Large/Medium OPUP Maintenance Parts List

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1	80	2300012-301	1	OPUP, LARGE	56232	1	XC	
	80	2300012-306	1	OPUP, MEDIUM	56232	1	XC	
7-1/1	80MP1	26-40755	1	CABINET, ELECT EQMT, OPUP (56232) (spec dwg 1213452-201)	19178	1	XC	
7-1/2	80A1	80400/21202	2	21 SLOT BACKPLANE AND RACK ENCLOSURE (56232) (spec dwg 1219738-201)	25420	1	PAODD	
	80A2	80400/21202	2	21 SLOT BACKPLANE AND RACK ENCLOSURE (56232) (spec dwg 1219738-201)	25420	1	PAODD	A
				(ATTACHING PARTS)				
		MS51958-63 MS35338-138 MS15795-808	2 2 2	SCREW WASHER WASHER	96906 96906 96906	10 10 10	PAOZZ PAOZZ PAOZZ	

7-1/3	80A1PS1 80A1PS2	80406	3	POWER SUPPLY MODULE (56232) (spec dwg 1219738-203) (0BF49) (ALT PN 80406)	25420	2	PAODD	
	80A2PS1 80A2PS2	80406	3	POWER SUPPLY MODULE (56232) (spec dwg 1219738-203) (0BF49) (ALT PN 80406)	25420	2	PAODD	A
7-1/4	80A1B1	80405	3	FAN MODULE (56232) (spec dwg 1219738-206) (0BF49) (ALT PN 80405)	25240	1	PAOZZ	
	80A2B1	80405	3	FAN MODULE (56232) (spec dwg 1219738-206) (0BF49) (ALT PN 80405)	25240	1	PAOZZ	A

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/5	80A1A1 THRU 80A1A8	40373	3	MODEM, DEDICATED, 14K (56232) (spec dwg 1219739-207)	25420	8	PAOLD	
	80A1A9 THRU 80A1A21	40373	3	MODEM, DEDICATED, 14K (56232) (spec dwg 1219739-207)	25420	13	PAOLD	A
	80A2A1 THRU 80A2A11	40373	3	MODEM, DEDICATED, 14K (56232) (spec dwg 1219739-207)	25420	11	PAOLD	A
7-1/6	80A3	2300036-301	2	ROUTER ASSY, CISCO 3600 SERIES (3661)	0WY55	1	PAODD	A
7-1/7	80A3A1PS1 * 80A3A1PS2 *	PWR-3660-AC	3	POWER SUPPLY, CISCO 3661 (0WY55) (spec dwg 2210049-202)	0GX96	2	PAOLD	A
7-1/8	80A3-1	2300035-301	2	ROUTER ASSY, CISCO 3600 SERIES (3640)	0WY55	1	PAOLD	B
7-1/9	80A4	2200121-201	2	CD-RW, EXTERNAL, SCSI	0WY55	1	PAOLD	
7-1/10	80A5 80A13	2210005-201	2	POWER SUPPLY, UNIN-TERRUPTIBLE	0WY55	2	PAODD	A
	80A6 80A14	2210005-201	2	POWER SUPPLY, UNIN-TERRUPTIBLE	0WY55	2	PAODD	
7-1/11	80A5BT1 * 80A13BT1 *	2210005-204	3	BATTERY MODULE, 12-VOLT	0WY55	2	PCOZZ	A
	80A6BT1 * 80A14BT1 *	2210005-204	3	BATTERY MODULE, 12-VOLT	0WY55	2	PCOZZ	
7-1/12	80A7	2210035-201	2	MONITOR, COLOR, 17-INCH	0WY55	1	PAOLD	
7-1/13	80A8	2210046-201	2	SWITCH, KVM, 8-PORT (W/O PWR SUPPLY)	0WY55	1	PAOLD	A
7-1/14	80A9	320-1273	2	KEYBOARD, USB (0WY55) (spec dwg 2210054-204)	7X430	1	PAOZZ	

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/15	80A10	370-3632	2	MOUSE, 3-BUTTON, USB (0WY55) (spec dwg 2210054-203)	74X30	1	PAOZZ	
7-1/16	80A11	2210054-201	2	SERVER, RACK-MOUNTED, 280R	0WY55	1	PAODD	
	80A12	2210054-201	2	SERVER, RACK-MOUNTED, 280R	0WY55	1	PAODD	A
7-1/17	80A11A1 * 80A11A2 *	390-0070	3	DISK DRIVE (0WY55) (spec dwg 2210054-204) (7X430) (ALT PN 390-0035) (7X430) (390-0137)	7X430	2	PAOLD	
	80A12A1 * 80A12A2 *	390-0070	3	DISK DRIVE (0WY55) (spec dwg 2210054-204) (7X430) (ALT PN 390-0035) (7X430) (390-0137)	7X430	2	PAOLD	A
7-1/18	80A11PS1 * 80A11PS2 *	300-1457	3	POWER SUPPLY, 560W (0WY55) (spec dwg 2210054-208)	7X430	2	PAOLD	
	80A12PS1 * 80A12PS2 *	300-1457	3	POWER SUPPLY, 560W (0WY55) (spec dwg 2210054-208)	7X430	2	PAOLD	A
7-1/19	80A15	RJ45S-24-4	2	ADAPTER PANEL, DEDICATED COMMS (56232) (spec dwg 1219734-201) (0YW95) (ALT PN 1219734)	65752	1	PAOZZ	
	80A16	RJ45S-24-4	2	ADAPTER PANEL, DEDICATED COMMS (56232) (spec dwg 1219734-201) (0YW95) (ALT PN 1219734)	65752	1	PAOZZ	A

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/20	80A17	RJ45S-16-2TP	2	ADAPTER PANEL, DIAL COMMS (56232) (spec dwg 1213827-201) (0YW95) (ALT PN 1213827) (65752) (ALT PN 1213827)	65752	1	PAOZZ	
7-1/21	80A19	MF-RJ11-12-4	2	PATCH PANEL, COMMS (56232) (spec dwg 1213826-201) (0YW95) (MF-RJ11-12-4)	65752	1	PAOZZ	
	80A20 80A21	MF-RJ11-12-4	2	PATCH PANEL, COMMS (56232) (spec dwg 1213826-201) (0YW95) (MF-RJ11-12-4)	65752	1	PAOZZ	A
7-1/22	80A18	2210050-201	2	SWITCH, 24 PORT, (CISCO SMART)	0WY55	1	PAOLD	
7-1/23	80A22	2210055-201	2	PRINTER, COLOR	0WY55	1	PAODD	
7-1/24	80A22C01 *	016-2040-00	3	PRINTER, COL-ORSTIX, BLACK (0WY55) (spec dwg 2210055-202)	02DH1	1	PAOZZ	
7-1/25	80A22C02 *	016-2045-00	3	PRINTER, COL-ORSTIX, CYAN (0WY55) (spec dwg 2210055-204)	02DH1	1	PAOZZ	
7-1/26	80A22C03 *	016-2046-00	3	PRINTER, COL-ORSTIX, MAGENTA (0WY55) (spec dwg 2210055-203)	02DH1	1	PAOZZ	
7-1/27	80A22C04 *	016-2047-00	3	PRINTER, COL-ORSTIX, YELLOW (0WY55) (spec dwg 2210055-205)	02DH1	1	PAOZZ	
7-1/28	80A22MP1 *	436-0409-00	3	PRINTER, PAPER TRAY (0WY55) (spec dwg 2210055-206)	02DH1	1	PAOZZ	

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/29	80MP14	T3KD1930	2	DRAWER, KB TRAY, SWVL, SLIDING (spec dwg 2200089-201) (01DQ3) (ALT PN LLKD1930)	81824	1	PAOZZ	
7-1/30	80MP38	60-02075	2	FILTER, EMI (56232) (spec dwg 1213832-201)	07700	2	PAOZZ	
7-1/31	80CP13 * 80CP14 *	5270	2	ADAPTER, SERIAL (0WY55) (spec dwg 2200093-201)	0XXC9	2	PAOZZ	
7-1/32	80W21 *	2320018-305	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/33	80W22 *	2320018-306	2	CABLE ASSEMBLY	0WY55	2	PAOZZ	A
7-1/34	80W23 *	2320018-307	2	CABLE ASSEMBLY	0WY55	2	PAOZZ	A
7-1/35	80W30 *	2320096-301	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/36	80W31 *	2320096-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	A
7-1/37	80W32 *	2320096-303	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	A
7-1/38	80W33 *	2320096-304	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/39	80W50 * 80W52 * 80W54 * 80W59 * 80W60 *	2320089-301	2	CABLE ASSEMBLY, AC POWER	0WY55	5	PAOZZ	
7-1/40	80W51 * 80W53 * 80W55 * 80W57 * 80W58 * 80W63 *	2320089-301	2	CABLE ASSEMBLY, AC POWER	0WY55	6	PAOZZ	A
7-1/41	80W56 * 80W62 *	2320089-301	2	CABLE ASSEMBLY, AC POWER	0WY55	2	PAOZZ	B
7-1/42	80W61 *	2320089-304	2	CABLE ASSEMBLY, AC POWER	0WY55	1	PAOZZ	
7-1/43	80W101 * THRU 80W108 *	2320094-301	2	CABLE ASSEMBLY, MODEM	0WY55	8	PAOZZ	

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/44	80W109 * THRU 80W132 *	2320094-301	2	CABLE ASSEMBLY, MODEM	0WY55	24	PAOZZ	A
7-1/45	80W150 * THRU 80W157 *	2320090-301	2	CABLE ASSEMBLY, MODULAR	0WY55	8	PAOZZ	
7-1/46	80W200 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	1	PAOZZ	
7-1/47	80W201 * 80W202 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	2	PAOZZ	A
7-1/48	80W203 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	1	PAOZZ	B
7-1/49	80W204 * THRU 80W214 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	11	PAOZZ	
7-1/50	80W215 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	1	PAOZZ	B
7-1/51	80W216 *	2320090-301	2	CABLE ASSEMBLY, RJ-45	0WY55	1	PAOZZ	A
7-1/52	80W220 * 80W221 *	2320093-301	2	CABLE ASSEMBLY, KVM	0WY55	1	PAOZZ	A
7-1/53	80W222 *	2320092-301	2	CABLE ASSEMBLY, SCSI	0WY55	1	PAOZZ	
7-1/54	80W223 * 80W224 *	2320024-301	2	CABLE ASSEMBLY, SMART UPS	0WY55	1	PAOZZ	A
7-1/55	80W225 *	2320024-301	2	CABLE ASSEMBLY, SMART UPS	0WY55	1	PAOZZ	B
7-1/56	80W250 * THRU 80W257 *	2320095-301	2	CABLE ASSEMBLY, DTE	0WY55	8	PAOZZ	
7-1/57	80W258 * THRU 80W281 *	2320095-301	2	CABLE ASSEMBLY, DTE	0WY55	24	PAOZZ	A
7-1/58	80W300 *	2320090-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/59	W395 *	2320017-301	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	

Table 7-2. Large/Medium OPUP Maintenance Parts List - Continued

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-1/60	W396 *	2320017-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/61	W397 *	2320017-303	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	A
7-1/62	W398 *	2320017-304	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	A
7-1/63	W381 * THRU W383 *	2320022-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/64	W384 * THRU W390 *	2320022-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	A
7-1/65	W391 *	2320022-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	
7-1/66	W392 *	2320022-302	2	CABLE ASSEMBLY	0WY55	1	PAOZZ	

USABLE ON

A - LARGE OPUP
B - MEDIUM OPUP
***NOT SHOWN**

Table 7-3. Display Workstation Cable Assemblies (Not Shown)

FIGURE AND INDEX NO.	REF DES	FROM	TO	USABLE ON CODE
7-2/5	85W2	P1(A1 AC POWER)	P2(AC OUTLET)	
7-2/5	85W3	P1(A2 AC POWER)	P2(AC OUTLET)	

Table 7-4. Display Workstation Maintenance Parts List

FIGURE AND INDEX NO.	REF DES.	PART NUMBER	INDENT	DESCRIPTION	CAGE CODE	QTY PER ASSY	CODES	
							SMR	USABLE ON
7-2	85	2300014	1	DISPLAY WORKSTATION	0WY55	1	XC	
7-2/1	85A1	2200183-201	2	MONITOR, FLATSCREEN	0WY55	1	PAOLD	
7-2/2	85A2	**		CPU, ULTRA-10	OWY55	1	PAODD	
7-2/3	85A3	**	2	KEYBOARD, USB (7X430) (320-1273)	0WY55	1	PAOZZ	
7-2/4	85A4	**	2	MOUSE, 3-BUTTON, USB (7X430) (370-3632)	0WY55	1	PAOZZ	
7-2/5	85W2 * 85W3 *	2320089-301	2	CABLE ASSEMBLY, AC POWER	0WY55	1	PAOZZ	

***NOT SHOWN** ****TO BE DETERMINED**

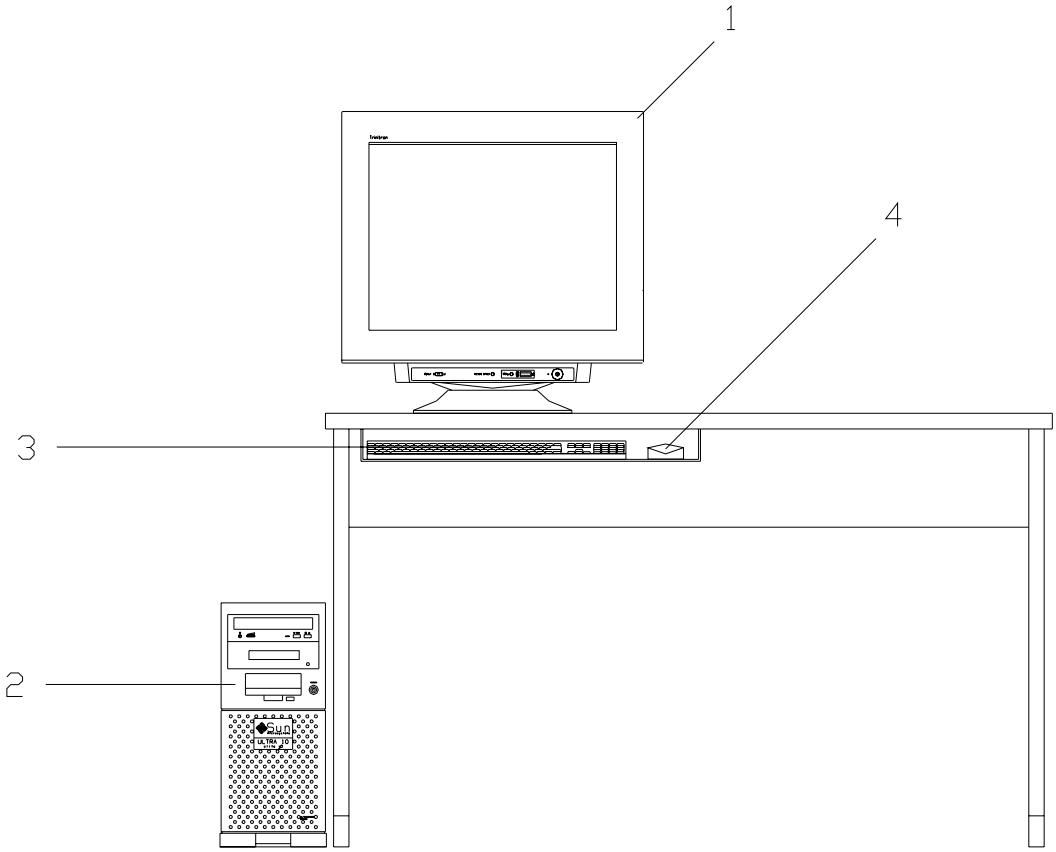


Figure 7-2. OPUP Display Workstation, UD85

Section 7.3. NUMERICAL INDEX

PART NUMBER	FIGURE AND INDEX NUMBER
016-2040-00	7-1/24
016-2045-00	7-1/25
016-2046-00	7-1/26
016-2047-00	7-1/27
1213452-201	7-1/1
1213826-201	7-1/21
1213827-201	7-1/20
1213832-201	7-1/30
1219734-201	7-1/19
1219738-201	7-1/2
1219738-203	7-1/3
1219738-206	7-1/4
1219739-207	7-1/5
2200089-201	7-1/29
2200093-201	7-1/31
2200121-201	7-1/9
2200183-201	7-2/1
2210005-201	7-1/10
2210005-204	7-1/11
2210035-201	7-1/12
2210046-201	7-1/13
2210049-202	7-1/7
2210050-201	7-1/22
2210054-201	7-1/16
2210054-202	7-2/3
2210054-203	7-1/15 7-2/4
2210054-204	7-1/14 7-1/17
2210054-208	7-1/18
2210055-201	7-1/23
2210055-202	7-1/24
2210055-203	7-1/26
2210055-204	7-1/25
2210055-205	7-1/27
2210055-206	7-1/28
2300012-301	7-1
2300012-306	7-1
2300014	7-2
2300035-301	7-1/8
2300036-301	7-1/6
2320017-301	7-1/59
2320017-302	7-1/60
2320017-303	7-1/61
2320017-304	7-1/62
2320018-305	7-1/32
2320018-306	7-1/33
2320018-307	7-1/34
2320022-302	7-1/63 7-1/64 7-1/65 7-1/66
2320024-301	7-1/54 7-1/55
2320089-301	7-1/39 7-1/40 7-1/41 7-2/5
2320089-304	7-1/42
2320090-301	7-1/45 7-1/46 7-1/47 7-1/48 7-1/49 7-1/50 7-1/51
2320090-302	7-1/58
2320092-301	7-1/53
2320093-301	7-1/52
2320094-301	7-1/43 7-1/44
2320095-301	7-1/56 7-1/57
2320096-301	7-1/35
2320096-302	7-1/36
2320096-303	7-1/37
2320096-304	7-1/38
26-40755	7-1/1
300-1457	7-1/18
320-1273	7-1/14
370-3632	7-1/15
390-0070	7-1/17
40373	7-1/5
436-0409-00	7-1/28
5270	7-1/31
60-02075	7-1/30
80400/21202	7-1/2
80405	7-1/4
80406	7-1/3
MF-RJ11-12-4	7-1/21
MS15795-808	7-1/2
MS35338-138	7-1/2
MS51958-63	7-1/2
PWR-3660-AC	7-1/7
RJ45S-16-2TP	7-1/20
RJ45S-24-4	7-1/19
T3KD1930	7-1/29

Section 7.4. REFERENCE DESIGNATION INDEX

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
		80A1A21	7-1/5	80A4	7-1/9
		80A1A3	7-1/5	80A5	7-1/10
80	7-1	80A1A4	7-1/5	80A5BT1	7-1/11
80A1	7-1/2	80A1A5	7-1/5	80A6	7-1/10
80A10	7-1/15	80A1A6	7-1/5	80A6BT1	7-1/11
80A11	7-1/16	80A1A7	7-1/5	80A7	7-1/12
80A11A1	7-1/17	80A1A9	7-1/5	80A8	7-1/13
80A11A2	7-1/17	80A1B1	7-1/4	80A8A8	7-1/5
80A11PS1	7-1/18	80A1PS1	7-1/3	80A9	7-1/14
80A11PS2	7-1/18	80A1PS2	7-1/3	80CP13	7-1/31
80A12	7-1/16	80A2	7-1/2	80CP14	7-1/31
80A12A1	7-1/17	80A20	7-1/21	80MP1	7-1/1
80A12A2	7-1/17	80A21	7-1/21	80MP14	7-1/29
80A12PS1	7-1/18	80A22	7-1/23	80MP38	7-1/30
80A12PS2	7-1/18	80A22C01	7-1/24	80W101	7-1/43
80A13	7-1/10	80A22C02	7-1/25	80W102	7-1/43
80A13BT1	7-1/11	80A22C03	7-1/26	80W103	7-1/43
80A14	7-1/10	80A22C04	7-1/27	80W104	7-1/43
80A14BT1	7-1/11	80A22MP1	7-1/28	80W105	7-1/43
80A15	7-1/19	80A2A1	7-1/5	80W106	7-1/43
80A16	7-1/19	80A2A10	7-1/5	80W107	7-1/43
80A17	7-1/20	80A2A11	7-1/5	80W108	7-1/43
80A18	7-1/22	80A2A2	7-1/5	80W109	7-1/44
80A19	7-1/21	80A2A3	7-1/5	80W110	7-1/44
80A1A1	7-1/5	80A2A4	7-1/5	80W111	7-1/44
80A1A10	7-1/5	80A2A5	7-1/5	80W112	7-1/44
80A1A11	7-1/5	80A2A6	7-1/5	80W113	7-1/44
80A1A12	7-1/5	80A2A7	7-1/5	80W114	7-1/44
80A1A13	7-1/5	80A2A8	7-1/5	80W115	7-1/44
80A1A14	7-1/5	80A2A9	7-1/5	80W116	7-1/44
80A1A15	7-1/5	80A2B1	7-1/4	80W117	7-1/44
80A1A16	7-1/5	80A2PS1	7-1/3	80W118	7-1/44
80A1A17	7-1/5	80A2PS2	7-1/3	80W119	7-1/44
80A1A18	7-1/5	80A3	7-1/6	80W120	7-1/44
80A1A19	7-1/5	80A3-1	7-1/8	80W121	7-1/44
80A1A2	7-1/5	80A3A1PS1	7-1/7	80W122	7-1/44
80A1A20	7-1/5	80A3A1PS2	7-1/7	80W123	7-1/44

REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER	REFERENCE DESIGNATION	FIGURE AND INDEX NUMBER
80W124	7-1/44	80W254	7-1/56	80W54	7-1/39
80W125	7-1/44	80W255	7-1/56	80W55	7-1/40
80W126	7-1/44	80W256	7-1/56	80W56	7-1/41
80W127	7-1/44	80W257	7-1/56	80W57	7-1/40
80W128	7-1/44	80W258	7-1/57	80W58	7-1/40
80W129	7-1/44	80W259	7-1/57	80W59	7-1/39
80W130	7-1/44	80W260	7-1/57	80W60	7-1/39
80W131	7-1/44	80W261	7-1/57	80W61	7-1/42
80W132	7-1/44	80W262	7-1/57	80W62	7-1/41
80W150	7-1/45	80W263	7-1/57	80W63	7-1/40
80W151	7-1/45	80W264	7-1/57	85	7-2
80W152	7-1/45	80W265	7-1/57	85A1	7-2/1
80W153	7-1/45	80W266	7-1/57	85A2	7-2/2
80W154	7-1/45	80W267	7-1/57	85A3	7-2/3
80W155	7-1/45	80W268	7-1/57	85A4	7-2/4
80W156	7-1/45	80W269	7-1/57	85W2 *	7-2/5
80W157	7-1/45	80W270	7-1/57	85W3 *	7-2/5
80W200	7-1/46	80W271	7-1/57	W381	7-1/63
80W202	7-1/47	80W272	7-1/57	W382	7-1/63
80W203	7-1/48	80W273	7-1/57	W383	7-1/63
80W204	7-1/49	80W274	7-1/57	W384	7-1/64
80W21	7-1/32	80W275	7-1/57	W385	7-1/64
80W214	7-1/49	80W276	7-1/57	W386	7-1/64
80W215	7-1/50	80W277	7-1/57	W387	7-1/64
80W216	7-1/51	80W278	7-1/57	W388	7-1/64
80W22	7-1/33	80W279	7-1/57	W390	7-1/64
80W220	7-1/52	80W280	7-1/57	W391	7-1/65
80W221	7-1/52	80W281	7-1/57	W392	7-1/66
80W222	7-1/53	80W30	7-1/35	W395	7-1/59
80W223	7-1/54	80W300	7-1/58	W396	7-1/60
80W224	7-1/54	80W31	7-1/36	W397	7-1/61
80W225	7-1/55	80W32	7-1/37	W398	7-1/62
80W23	7-1/34	80W33	7-1/38		
80W250	7-1/56	80W50	7-1/39		
80W251	7-1/56	80W51	7-1/40		
80W252	7-1/56	80W52	7-1/39		
80W253	7-1/56	80W53	7-1/40		

INDEX

Subject **Paragraph Figure, Table Number**

A

Abnormal Operations....6.4.2.2
6.4.3.2
Accountability and Audit....4.2.2.1
Adapter Panel UD80A15/A16/A17....2.2.3.1.10
Adapter Panel UD80A15/16/17 Replacement Procedure....6.5.20
Add New User....5.2.5.1
Add New User Confirmation Window....Figure 5-14
Add New Workstation....5.2.7.2
Administrator Requirements....4.3.4.2
Alignments and Adjustments....6.1.6
Alphanumeric Key Layout....3.2.1.2
Applicable Reference Material....2.4.4.1
Archive Backup Warning Window....Figure 5-25
Archive Case File Overwrite Message Window....Figure 5-32
Archive Data File Restored Window....Figure 5-31
Archive IV Device Controls and Indicators....Table 2-12
Archive IV Device UD80A4....2.2.3.1.8
2.3.2.7
Figure 2-16
Archive IV Device UD80A4 Abnormal Indicators....2.3.2.7.1
Archive IV Device UD80A4 Replacement Procedure....6.5.9
Archive IV Limitations....5.2.8.1
Assumptions....4.3.3
Audit....4.4.3.2
Available Products in Database Window....Figure 3-15
Available Products in Database (Oldest/Newest) Window....Figure 3-13

B

Background Processes Status Information....3.4.2.2
Backup/Restore Tools Menu....5.2.9.2
Basic Elements of the Boot PROM/NVRAM....Table 3-66
Basic Software Installation Theory....3.5.2
Boot PROM (OPENBoot) Commands....Table 3-12

Subject **Paragraph Figure, Table Number**

C

Caps Lock Key....3.2.1.4.1
CDE and Operational Applications Front Panel Icon Overview....3.3.2.1.5
CDE and Operational Applications Front Panel Icons.... Table 3-2
CDE Front Panel....Figure 3-1
CDE Front Panel Login Procedures....3.3.3.2.2
Change User Password....5.2.5.3
Check Archive Prerequisite....5.2.8.2
Check Content of CD-ROM....5.2.8.9
CISCO Control Menu....Figure 3-48
5.2.9.4
Figure 5-63
Cisco Router Failed Message Window....Figure 5-11
Commercial-Off-The-Shelf (COTS) Equipment....2.4.3.1
Common CDE and Operational Applications Front Panel GUI Functions....3.3.2.1
Common Desktop Environment....3.3.2
Common UNIX Commands.... Table 3-16
Comms Configuration Restored from CDROM Window....Figure 5-50
Comms Configuration Restored from Server Window....Figure 5-52
Communication Router Abnormal Indicators....2.3.2.5.1
2.3.2.6.1
Communication Router Power Supply UD80A3PS1/PS2
Replacement Procedure (Large OPUP only)....6.5.8
Communication Router UD80A3....2.2.3.1.2
Communication Router UD80A3 Replacement Procedure....6.5.7
Communication Router UD80A3 Setup Procedure....6.6.3
Communication Router UD80A3 (Large OPUP)....2.3.2.5
Communication Router UD80A3 (Medium OPUP)....2.3.2.6
Communication Switch Abnormal Indicators....2.3.2.14.1
Communication Switch UD80A18....2.2.3.1.3
2.3.2.14
Figure 2-23
Communication Switch UD80A18 Controls and Indicators.... Table 2-18
Communication Switch UD80A18 Replacement Procedure....6.5.21
Communication Switch UD80A18 Setup Procedure....6.6.6
Component Location and Identification....6.1.7
Configuration Drawings....2.2.3.3
Configuration Management Policy....4.4.4

Subject **Paragraph Figure, Table Number**

C
-CONTINUED-

Configure OPUP Ded Comms Warning Window ..... Figure 5-6
Contents of CDROM Display Window ..... Figure 3-41
Control Keys 3.6.5.3
Controls 3.3.2.1.3
Corrective Maintenance 6.1.5
Countermeasures 4.3.2
Create Archive 5.2.8.3

D

Data Server Primary Hard Drive UD80A11A1 Slice Allocations ..... Table 3-3
Data Server Secondary Hard Drive UD80A11A2 Slice Allocations ..... Table 3-4
Dedicated Modem Controls and Indicators ..... Table 2-9
Dedicated Modem Dip Switch Setting ..... Figure 6-7
Dedicated Modem Rack Door/Hinge Detail ..... Figure 6-4
Dedicated Modem Removal/Replacement ..... Figure 6-6
Dedicated Modem Setup Procedure 6.6.2
Dedicated Modem UD80A1A1-A21 or UD80A2A1-A11
Replacement Procedure 6.5.5
Dedicated Modems 80A1A1-A21 and 80A2A1-A11 ..... 2.3.2.4
Figure 2-12
Dedicated Patch Panel UD80A19/A20/A21 ..... Figure 2-24
Dedicated Patch Panels UD80A19/A20/A21 ..... 2.3.2.15
Dedicated/Dial Adapter Panels Abnormal Indicators 2.3.2.13.1
Dedicated/Dial Adapter Panels UD80A15/A16/A17 ..... 2.3.2.13
Dedicated/Dial Patch Panel Abnormal Indicators 2.3.2.15.1
Default Route Configuration Menu 5.2.9.6
Default Route Deleted Window ..... Figure 3-60
Figure 5-77
Delete OPUP User 5.2.5.2
Delete Print Jobs Selection Window ..... Figure 5-61
Delete User Window ..... Figure 5-15
Delete Workstation 5.2.7.3
Diagnostic Test Program Procedures 6.1.9
DIP Switches/Jumpers 6.5.1.1

Subject	Paragraph Figure, Table Number
Discretionary Access Control (DAC)	4.2.2.2
Disk Usage Window	Figure 3-44
Display Disk Usage	5.2.9.1
Display OPUP Communications Configuration (Dedicated Communications)	5.2.4.6
Display Server Primary Hard Drive UD80A12A1 Slice Allocations	Table 3-5
Display Server Secondary Hard Drive UD80A12A2 Slice Allocations	Table 3-6
Display Workstation Cable Assemblies (Not Shown)	Table 7-3
Display Workstation CPU /Processor Controls and Indicators	Table 2-22
Display Workstation CPU/Processor Abnormal Indicators	2.3.3.2.1
Display Workstation CPU/Processor UD85A2	2.3.3.2 Figure 2-27
Display Workstation CPU/Processor UD85A2 Replacement Procedure	6.5.25
Display Workstation CPU/Processor UD85A2 Setup Procedure	6.6.8
Display Workstation Keyboard UD85A3 and Mouse UD85A4 Controls and Indicators	Table 2-23
Display Workstation Keyboard UD85A3 and Mouse UD85A4 Set	2.3.3.3 Figure 2-28
Display Workstation Keyboard UD85A3 Replacement Procedure	6.5.26
Display Workstation Keyboard/Mouse Abnormal Indicators	2.3.3.3.1
Display Workstation Maintenance Parts List	Table 7-4
Display Workstation Monitor Controls and Indicators	Table 2-21
Display Workstation Monitor UD85A1	2.3.3.1 Figure 2-26
Display Workstation Monitor UD85A1 Replacement Procedure	6.5.24
Display Workstation UD85	2.3.3
Display Workstation UD85 Cable Connectivity	2.2.3.4.4 2.2.3.5.4

E

Edit OPUP Adaptation Data (Dial Communications)	5.2.4.5
Edit RPG Information for Dial Radars for RPG of Interest Window	Figure 3-8 Figure 5-3
Equipment Supplied	2.4.3
Erase Archive	5.2.8.5
Erase Archive Confirmation Window	Figure 5-35
Erase CD-RW	5.2.8.10

Subject **Paragraph Figure, Table Number**

E
-CONTINUED-

Erase Savelog Archive Confirmation Window ..... Figure 5-41
ESD DIP Switch Setting 6.5.3.8

F

Fault Isolation Flowchart 6.3.2
Files, Directories, and Permissions 4.2.2.5
Flowchart Layout 6.3.2.4
Flowchart Note Index 6.3.3.1
Table 6-1
Flowchart Notes 6.3.3.2

G

General 1.1.1
Group Reference Publications ..... Table 2-24

H

Hard Drive Utilization 3.5.3.1
Hardware Equipment Description 2.2.3
Hardware Fault Recovery 1.3.1.2.2
Hardware Maintenance Overview 1.3.1
Hardware/Software Repair/Recovery Overview 1.3.1.2
Help Utilities 3.6.5.4

I

Identification and Authentication Functions 4.4.3.1
Identification and Authentication (I&A) 4.2.2.4
Incident Definition 4.4.6.1
Incident Handling 4.4.6
Incident Response 4.4.2.4

Subject **Paragraph Figure, Table Number**

I
-CONTINUED-

INIT Level Definitions ..... Table 3-14
Initial Conditions/Preliminary Setup 6.5.4.2
Inspection 6.5.3.5
Internal Dial Module Cisco NM-8AM UD80A3A1A1 ..... 2.2.3.1.2.1
Isolated Communications 2.2.2.3.1

K

Keyboard and Mouse Layout Features 3.2.1
Keyboard Features ..... Table 3-1
Keyboard Functionality 3.2.1.1
Keyboard UD80A9 and Mouse UD80A10 ..... Figure 2-20
Keyboard UD80A9 and Mouse UD80A10 Set 2.3.2.11
Keyboard UD80A9 and Mouse UD80A10 Set Controls and Indicators ..... Table 2-16
Keyboard UD80A9 Replacement Procedure 6.5.15
Keyboard UD80A9/Mouse UD80A10 ..... 2.2.3.1.6
Keyboard/Mouse Abnormal Indicators 2.3.2.11.1
Keyboard/Video/Monitor (KVM) Switch UD80A8 ..... 2.2.3.1.5
KVM Switch Abnormal Indicators 2.3.2.10.1
KVM Switch AC/DC Adapter UD80A8PS1 Replacement Procedure 6.5.14
KVM Switch UD80A8 ..... 2.3.2.10
Figure 2-19
KVM Switch UD80A8 Controls and Indicators ..... Table 2-15
KVM Switch UD80A8 Replacement Procedure 6.5.13

L

Labeling 6.5.3.4
Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part II) (Sheet 9 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (All Dedicated Communications Failed Problem Part I) (Sheet 8 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Display Workstation or KVM Switch Problem) (Sheet 13 of 14) ..... Figure 6-1

Subject **Paragraph Figure, Table Number**

L
-CONTINUED-

Large and Medium OPUP Fault Isolation Flowchart (Keyboard/Server/ Monitor/KVM Switch Problem) (Sheet 4 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Monitor/KVM/ Switch Problem) (Sheet 3 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (One Dedicated RPG Circuit or Archive IV Device Failed Problem) (Sheet 11 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (One or Some Dedicated Communications Failed Problem) (Sheet 10 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Operational Check) (Sheet 1 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Printer) (Sheet 14 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Product Display or Product Request Problem) (Sheet 12 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Quick Reference Chart) (Sheet 2 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Server Problem) (Sheet 7 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (Server/Mouse/ KVM Switch Problem) (Sheet 5 of 14) ..... Figure 6-1
Large and Medium OPUP Fault Isolation Flowchart (UPS Problem) (Sheet 6 of 14) ..... Figure 6-1
Large OPUP Circuit Flow Diagram ..... Figure 2-1
Large OPUP Communication Circuit Description and Layout 2.2.2.3.3
Large OPUP Communication Router Controls and Indicators ..... Table 2-10
Large OPUP Communication Router UD80A3 (Front View) ..... Figure 2-13
Large OPUP Communication Router UD80A3 (Rear View) ..... Figure 2-14
Large OPUP Communications/Processor Group UD80 ..... Figure 2-4
Large OPUP Communications/Processor Group UD80 (Sheet 1 of 2) ..... Figure 7-1
Large OPUP Configuration Process Status Display 3.4.2.2.1
Large OPUP Interconnection Diagram (ICD) Discussion 2.2.3.4
Large OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2) ..... Figure 2-6
Large OPUP Interconnection Diagram (ICD) (Processes)(Sheet 1 of 2) ..... Figure 2-6
Large OPUP Software Load Procedure ..... Table 3-9

Subject **Paragraph Figure, Table Number**

L
-CONTINUED-

Large/Medium Equipment Group UD80 ..... 2.3.2
Large/Medium OPUP Cable Assemblies (Not Shown) ..... Table 7-1
Large/Medium OPUP Maintenance Parts List ..... Table 7-2
Large/Medium OPUP Power On Procedure 5.2.2.1
Large/Medium OPUP UD80 and Display Workstation UD85 Preventive Maintenance 6.2.1
Left Mouse Button 3.2.1.5.1
Legacy Equipment 2.4.3.2
Linear Buffers (LBs) 3.4.2.1
Log Files Window ..... Figure 5-82
Login Procedures (All) 3.3.3.2
Login Procedures (CDE Front Panel, Operational Applications, and Screen Activation) 5.2.3
Lost Passwords 5.2.5.5
LRU Location by Configuration ..... Table 2-7
LRU Replacement Index 6.5.2

M

Maintenance Concept 6.1.1.1
Maintenance Remote Access 4.4.8
Maintenance Responsibility 1.3.1.1
Maintenance Tools and Consumables 6.1.7.2
Major OPUP Group Reference Designations ..... Table 2-2
Medium OPUP Circuit Flow Diagram ..... Figure 2-2
Medium OPUP Communication Circuit Description and Layout 2.2.2.3.4
Medium OPUP Communication Router Controls and Indicators ..... Table 2-11
Medium OPUP Communication Router UD80A3 ..... Figure 2-15
Medium OPUP Communications/Processor Group UD80 ..... Figure 2-5
Medium OPUP Communications/Processor Group (Sheet 2 of 2) ..... Figure 7-1
Medium OPUP Interconnection Diagram (ICD) Discussion 2.2.3.5
Medium OPUP Interconnection Diagram (ICD) (Communications) (Sheet 2 of 2) ..... Figure 2-7
Medium OPUP Interconnection Diagram (ICD) (Processes) (Sheet 1 of 2) ..... Figure 2-7
Medium OPUP Process Status Window ..... Figure 3-64

Subject **Paragraph Figure, Table Number**

M
-CONTINUED-

Medium OPUP Server Operational Applications Process Status Window ..... Figure 3-65
Medium OPUP Software Load Procedure ..... Table 3-10
Menus 3.3.2.1.4
Middle Mouse Button 3.2.1.5.2
Miscellaneous Keys 3.2.1.4
Modem Button Definitions ..... Table 6-4
Modem Nest UD80A1/A2 ..... 2.2.3.1.1
Modem Rack Abnormal Indicators 2.3.2.3.1
Modem Rack Assembly UD80A1/A2 Controls and Indicators ..... Table 2-8
Modem Rack Assembly UD80A1/A2 (Front View) ..... Figure 2-10
Modem Rack Assembly UD80A1/A2 (Rear View) ..... Figure 2-11
Figure 6-5
Modem Rack Fan Module UD80A1A22/A2A22 and Power Supply
UD80A1PS1/PS2 and UD80A2PS1/PS2 Replacement Procedure 6.5.6
Modem Rack UD80A1 and UD80A2 ..... 2.3.2.3
Modem Rack UD80A1 or UD80A2 Replacement Procedure 6.5.4
Monitor Abnormal Indicators 2.3.2.9.1
2.3.3.1.1
Monitor Display Security Features 4.4.2.5
Monitor UD80A7 ..... 2.2.3.1.4
2.3.2.9
Figure 2-18
Monitor UD80A7 Controls and Indicators ..... Table 2-14
Monitor UD80A7 Replacement Procedure 6.5.12
Mouse Functionality 3.2.1.5
Mouse UD80A10 Replacement Procedure 6.5.16

N

Narrowband Communications 2.2.2.2
Netscape Password Window ..... Figure 3-5
Netscape Web Page Background GUI ..... Figure 3-3
New Default Route Added for IP-Address Window ..... Figure 5-74
New Site Certificate Window (Sheet 1) ..... Figure 3-4
New Site Certificate Window (Sheet 2) ..... Figure 3-4

Subject **Paragraph Figure, Table Number**

N
-CONTINUED-

New Site Certificate Window (Sheet 3) ..... Figure 3-4
New Site Certificate Window (Sheet 4) ..... Figure 3-4
New Site Certificate Window (Sheet 5) ..... Figure 3-4
Non-Isolated Communications 2.2.2.3.2
Normal Operations 6.4.2.1
6.4.3.1
Numeric Keypad 3.2.1.3

O

On-Line Status and Performance Monitoring 6.1.1.2
Open System Architecture 3.6.2
Operating System Prompts 3.6.5.2
Operating System User Modes 3.6.5.1
Operational Applications Front Panel ..... Figure 3-2
Operational Applications Front Panel GUIs 3.3.3.10
Operational Applications Front Panel Login Procedure 5.2.3.2
Operational Applications Login Procedures 3.3.3.2.3
Operational Check 6.3.2.1
OPUP Add New Ded Communications Configuration Window ..... Figure 5-12
OPUP Archive Menu ..... Figure 3-32
5.2.8
Figure 5-24
OPUP Change Ded Communications Configuration Window ..... Figure 3-11
Figure 5-7
OPUP Communication Circuits 2.2.2.3
OPUP Communications Configuration Window ..... Figure 3-10
Figure 5-5
OPUP Communication/Processor Cabinets 2.2.3.1
OPUP Development Standards 3.6.3
OPUP Display Workstation Equipment Group UD85 ..... Figure 2-8
OPUP Display Workstation UD85 ..... 2.2.3.2
OPUP Display Workstation UD85 Interconnection Diagram (ICD)
(Example) ..... Figure 2-9
OPUP Equipment 2.2.2.4

Subject **Paragraph Figure, Table Number**

O
-CONTINUED-

OPUP Equipment Group Illustrations 7.2.5
OPUP FTP Server Menu ..... Figure 3-51
OPUP FTP Servers Window ..... Figure 3-54
OPUP Group Capability and Characteristics ..... Table 2-5
OPUP Group Physical Dimensions ..... Table 2-3
OPUP Group Power Requirements ..... Table 2-4
OPUP Group Recommended Tools/Supplies ..... Table 2-25
OPUP Group Test Equipment ..... Table 2-26
OPUP Hardware Power On/Off Procedures 5.2.2
OPUP LRU Equipment Location 2.3.2.1
OPUP LRU Replacement Procedure Index ..... Table 6-2
OPUP LRU Setup Procedure Index ..... Table 6-3
OPUP Manager Add Default Route Window ..... Figure 3-59
Figure 5-73
OPUP Manager Add Default Route (Unreachable) Window ..... Figure 5-75
OPUP Manager Add New Printer Window ..... Figure 3-47
Figure 5-57
OPUP Manager Add New Workstation Window ..... Figure 3-27
Figure 5-19
OPUP Manager Application Security Passwords Window ..... Figure 3-57
Figure 5-70
OPUP Manager Backup OPUP Software Backup Complete Window ..... Figure 5-45
OPUP Manager Backup OPUP Software Backup Failed Window ..... Figure 5-46
OPUP Manager Backup OPUP Warning Window ..... Figure 5-44
OPUP Manager Backup/Restore Main Menu ..... Figure 3-45
Figure 5-43
OPUP Manager Change Application Security Passwords Window ..... Figure 5-69
OPUP Manager Change CISCO Password Window ..... Figure 3-49
Figure 5-64
OPUP Manager Change User Password Window ..... Figure 3-19
Figure 5-16
OPUP Manager Comms Configuration Start OPUP Window ..... Figure 5-10
OPUP Manager Comms Configuration Stop OPUP Window ..... Figure 5-9
OPUP Manager Default Route Menu ..... Figure 3-58
Figure 5-72

Subject **Paragraph Figure, Table Number**

O
-CONTINUED-

OPUP Manager Delete Default Route Window ..... Figure 5-76
OPUP Manager Delete FTP Server Window ..... Figure 3-53
OPUP Manager Delete Printer Window ..... Figure 5-58
OPUP Manager Delete Workstation Window ..... Figure 3-29
OPUP Manager Edit RPG Information For RPG of Interest Window ..... Figure 3-9
OPUP Manager Edit RPG Information Window ..... Figure 5-4
OPUP Manager Erase Archive Window ..... Figure 3-35
Figure 5-33
OPUP Manager Erase CDRW Window ..... Figure 3-42
OPUP Manager Erase SaveLog Archive Window ..... Figure 3-39
OPUP Manager Erase SaveLog Archive Window ..... Figure 5-39
OPUP Manager GUI Functionality/Operational Concepts 3.3.3.1
OPUP Manager GUI Login Procedure 5.2.3.1
OPUP Manager Main Menu ..... Figure 3-6
OPUP Manager Main Menu and Sub-Menu GUI Features 3.3.3.3
OPUP Manager Oracle Tools Menu ..... Figure 3-55
Figure 5-66
OPUP Manager Rebuild OPUP Communications Configuration Window ..... Figure 5-51
OPUP Manager Recreate Oracle Tables Confirmation Window ..... Figure 5-68
OPUP Manager Recreate Oracle Tables Window ..... Figure 3-56
Figure 5-67
OPUP Manager Re-Start CISCO Window ..... Figure 3-50
OPUP Manager Re-Start Cisco Window ..... Figure 5-65
OPUP Manager Restart Server Window ..... Figure 5-83
OPUP Manager Restore OPUP Adaptation Data Only Window ..... Figure 5-53
OPUP Manager Restore OPUP Communications Configuration Window ..... Figure 5-49
OPUP Manager Restore OPUP Window ..... Figure 5-47
OPUP Manager Setup FTP Server Window ..... Figure 3-52
OPUP Manager Shutdown Server Window ..... Figure 5-1
Figure 5-85
OPUP Manager Workstations (Delete) Window ..... Figure 5-21
OPUP Narrowband Communication Interfaces ..... Table 2-1
OPUP Operational Application Process Status Window (Bottom Half) ..... Figure 3-63
OPUP OS Process Status Window (Top Half) ..... Figure 3-62

Subject **Paragraph Figure, Table Number**

O
-CONTINUED-

OPUP Printer Menu ..... Figure 3-46
Figure 5-56
OPUP Printer Pending Jobs Window ..... Figure 5-60
OPUP Printer Status Window ..... Figure 5-59
OPUP Product Display GUIs/Active X Windows 3.6.3.1
OPUP Program Development Organization 1.1.2.1
OPUP Save New Comm Configuration Window ..... Figure 5-8
OPUP Security Log Functions 5.2.6
OPUP Security Logs Menu ..... Figure 3-21
Figure 5-17
OPUP Server Access Log Window ..... Figure 3-23
OPUP Server Control 5.2.9
OPUP Server Control Menu ..... Figure 3-43
Figure 5-42
OPUP Server Default Route Window ..... Figure 5-78
OPUP Server Failed-Login Log Window ..... Figure 3-22
OPUP Server Front Panel ..... Figure 6-2
OPUP Server Internal Components ..... Table 2-6
OPUP Server Last Successful Logins Window ..... Figure 3-24
OPUP Server OS Infrastructure 3.4.2
OPUP Server SU Command Log Window ..... Figure 3-25
OPUP Software 3.3.3
OPUP Software Installation Procedure 3.5.4
OPUP Software Menu ..... Figure 3-7
Figure 5-2
OPUP Software Menu Functions 5.2.4
OPUP Software Release Window ..... Figure 3-12
OPUP Software Version 5.2.4.7
OPUP Start VTS Tool Window ..... Figure 5-79
OPUP System Administration ..... Section 5.2.
OPUP UNIX OS 3.6.4
OPUP User Cannot Be Created Window ..... Figure 3-18
OPUP User Information Restored Window ..... Figure 5-48
OPUP Users Menu ..... Figure 3-17
Figure 5-13

Subject **Paragraph Figure, Table Number**

O
-CONTINUED-

OPUP Users Menu Functions 5.2.5
OPUP Users Window ..... Figure 3-20
OPUP Workstation Menu ..... Figure 3-26
5.2.7
Figure 5-18
OPUP Workstations (View) Window ..... Figure 3-31
Figure 5-23
Oracle Tools Menu 5.2.9.5
Other LRU Equipment 2.3.2.2
Other LRU Replacement Guidelines 6.5.3

P

Patch Panel UD80A19/A20/A21 Controls and Indicators ..... Table 2-19
Patch Panel UD80A19/A20/A21 Replacement Procedure 6.5.22
Physical Resource Protection 4.4.7
Please Select Adaptation Data to Restore Window ..... Figure 5-54
Please Select Archive Case to Create To CD-ROM Window ..... Figure 5-27
Please Select Archive Case to Create to CDROM Window ..... Figure 3-34
Please Select Archive Case to Erase from Server Window ..... Figure 3-36
Figure 5-34
Please Select New Default Printer from Available Printers Window ..... Figure 5-62
Please Select RPG to Purge from Available Products In
Database Window ..... Figure 3-16
Please Select (SaveLog) Archive Case to Create to CDROM Window ..... Figure 3-38
Please Select (SaveLog) Archive Case to Create to CDROM Window ..... Figure 5-37
Please Select (SaveLog) Archive Case to Erase from Server Window ..... Figure 5-40
Please Select (SaveLog) Archive Case to Erase from Server Window ..... Figure 3-40
Power Key 3.2.1.4.2
Power Supply and Fan Module Removal ..... Figure 6-8
Power Turn-Off Procedures 6.5.3.3
Preventive Maintenance Procedures 6.1.2
Primary Fault Isolation and Operational Checks 6.1.3
Primary Fault Isolation Flowchart Notes 6.3.3
Printer Device UD80A22 Setup Procedure 6.6.7

Subject **Paragraph Figure, Table Number**

O
-CONTINUED-

Printer Setup/Connectivity Overview 2.2.3.1.13
Printer Tools 5.2.9.3
Printer UD80A22 ..... 2.2.3.1.12
2.3.2.16
Figure 2-25
Printer UD80A22 Controls and Indicators ..... Table 2-20
Printer UD80A22 Replacement Procedure 6.5.23
Printer UD86A12 Wax Chalk Inserts ..... Figure 6-9
Protection Mechanisms Available to Administrators 4.4.3
Protection Mechanisms Available to Users 4.4.2
PUP Information Entered Window ..... Figure 5-71
Purge All/Particular RPG Products Procedure 5.2.4.9
Purge RPG Product Database Window ..... Figure 3-14

Q

Quick Reference Sheet 6.3.2.2

R

Recovery Procedures 6.1.1.3
Related Procedures 6.5.3.6
Replacement Procedure 6.5.4.3
Required Software 3.5.3.2
Required Software Input Parameters and Input Cable 3.5.3.3
Response 4.4.6.2
Restart OPUP Software 5.2.4.3
Restart Server 5.2.9.8
Restore Archive 5.2.8.4
Right Mouse Button 3.2.1.5.3
Routine Operations 4.4.3.3

Subject **Paragraph Figure, Table Number**

S

Safety 6.5.3.1
Screen Saver/Terminal Lockout Activation and Recovery 3.3.3.2.1
Secondary Fault Isolation 6.1.4
Secondary Fault Isolation One (OPUP1).....6.4.2
Secondary Fault Isolation Two (OPUP2) 6.4.3
Security Logs Menu View Functions 5.2.6.2
Selected Adaptation Data Restored from CDROM Window .....Figure 5-55
Separation of Administrative Roles.....4.3.4
Server Abnormal Indicators.....2.3.2.12.1
Server Front Panel (Doors Missing) .....Figure 6-3
Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2
Replacement Procedure 6.5.18
Server Internal Hard Drive UD80A11A1/A2 and UD80A12A1/A2
Setup Procedure.....6.6.5
Server Power Supply UD80A11PS1/PS2 and UD80A12PS1/PS2
Replacement Procedure 6.5.19
Server Restarting Now Window .....Figure 5-84
Server Shutting Down Window .....Figure 5-86
Server UD80A11 and UD80A12 Setup Procedure.....6.6.4
Server UD80A11/A12 Controls and Indicators..... Table 2-17
Server UD80A11/A12 (Front View) .....Figure 2-21
Server UD80A11/A12 (Rear View).....Figure 2-22
Server UD80A11/UD80A12 Replacement Procedure.....6.5.17
Server UD80A11/12 .....2.2.3.1.7
Servers UD80A11/A12.....2.3.2.12
Software Fault Recovery 1.3.1.2.1
Software Installation Assumptions 3.5.2.1
Software Installation Disk Contents ..... Table 3-7
Software Installation Input Parameters..... Table 3-8
Software Installation Pre-requisites/Pre-conditions.....3.5.4.1
Software Installation Recovery Procedures ..... Table 3-11
Software Installation Requirements.....3.5.3
Software Load Procedure.....3.5.4.2
Software Security Patches 4.4.5
Software Shutdown Procedures.....6.5.3.2
Standard Tools/Test Equipment.....2.4.4.1
Start OPUP Software 5.2.4.1

Subject **Paragraph Figure, Table Number**

S
-CONTINUED-

Start or Stop Logging of Failed-Logins 5.2.6.1
Stop OPUP Software 5.2.4.2
SunVTS Diagnostic GUI ..... Figure 5-80
SunVTS Diagnostic Window ..... Figure 3-61
System Access 4.4.2.1
System Administrative Tools 3.6.5
System Fault Isolation 6.3.2.3
System Startup and Shutdown Procedures 6.1.8
System Time Check Procedure 5.2.3.4

T

Telco Patch Panel UD80A19/A20/A21 ..... 2.2.3.1.11
The Archive For Filename Has Been Created to CDROM Window ..... Figure 5-28
The Archive for Filename Have Been Created to CDROM Window ..... Figure 5-38
The Archive For Filename Have Been Created To CDROM Window ..... Figure 5-38
The Content of the inserted CDROM is as follows Window ..... Figure 5-29
The content of the inserted CDROM is as follows Window ..... Figure 5-30
The Existing Archives on Server Window ..... Figure 3-33
Figure 5-26
The Existing SaveLog Archives on Server Window ..... Figure 3-37
Figure 5-36
The vi Editor 3.6.5.5
Theory of Operation 2.2.2
Trusted Facility Operations (TFO) 4.2.2.3

U

UNIX Boot Sequence 3.6.4.1
UNIX Device Tree Example ..... Figure 3-67
UNIX File System Organization ..... Table 3-13
UPS Abnormal Indicators 2.3.2.8.1
UPS Battery UD80A5/A6/A13/A14BT1 Replacement Procedure 6.5.11
UPS Controls and Indicators ..... Table 2-13

Subject **Paragraph Figure, Table Number**

U
-CONTINUED-

UPS Protection....4.4.7.1
UPS UD80A5/A6/A13/A14 ....2.2.3.1.9
2.3.2.8
Figure 2-17
UPS UD80A5/A6/A13/A14 Replacement Procedure 6.5.10
USB Cable Connector....Figure 2-3
Use of Commercial Manuals 6.1.7.1
User Name and Password Security....4.4.2.2
User Requirements....4.3.4.1

V

Validation Test Suite (VTS) 5.2.9.7
vi Editor Commands ....Table 3-15
View OPUP Software Process Status 5.2.4.4
View OPUP Users 5.2.5.4
View OPUP Workstations 5.2.7.4
VTS Diagnostic Example ....Figure 5-81

W

Warning Banner (Consent to Monitoring)....4.4.2.3
Windows 3.3.2.1.1
Workspaces....3.3.2.1.2
Workstation Deleted Window ....Figure 3-30
Figure 5-22
Workstation Limitations 5.2.7.1
Workstations Have Been Added Window....Figure 3-28
Figure 5-20
WSR-88D Data Distribution Overview....1.1.2.2

GLOSSARY

Acronym or Non-Standard Term	Definition
A	
A/B	Modem-A/Modem-B
AC	Alternating Current
AFW	Air Force Weather
AFWA	Air Force Weather Agency
ALM	Alarm
AOR	Area of Responsibility
AS	Application Software
B	
BNCC	Base Network Control Center
bps	Bits Per Second
C	
CD	Compact Disk, Carrier Detect
CDE	Common Desktop Environment
CD-R	Compact Disk - Recordable
CR-ROM	Compact Disk - Read Only Memory
CD-R/W	Compact Disk - Recordable/Writable

Acronym or Non-Standard Term	Definition

C
-CONTINUED-

CM	Configuration Management
CM	Combined Moment
COTS	Commercial-off-the-Shelf
CPCI	Computer Program Configuration Item
CPU	Central Processing Unit
CTS	Clear to Send

D

DAC	Discretionary Access Control
DC	Direct Current
DCD	Data Carrier Detect
DED	Dedicated
DIMM	Dual In-Line Memory
DIP	Dual In-Line Package
DMCU	Dial Message Control Unit
DOC	Department of Commerce
DoD	Department of Defense

Acronym or Non-Standard Term	Definition
D -CONTINUED-	
DOT	Department of Transportation
DSR	Data Set Ready
E	
EEPROM	Electronic Erasable Programmable Read Only Memory
EHB	Engineering Handbook
EOT	End of Task
EPSS	Electronic Performance Support System
ESD	Electrostatic Discharge
F	
FAA	Federal Aviation Administration
FDX	Full Duplex
FOUO	For Official Use Only
G	
GB	Gigabyte

Acronym or Non-Standard Term	Definition
G -CONTINUED-	
GHz	Gigahertz
GMT	Greenwich Mean Time (Same as UTC)
GUI	Graphical User Interfaces
H	
HTML	Hypertext Markup Language
Hz	Hertz
I	
I&A	Identification and Authorization
ICD	Interconnection Diagram
IEEE	Institute of Electrical and Electronic Engineers
INIT	Initialization
IP	Internet Protocol
IPB	Illustrated Parts Breakdown
K	
KB	Kilobyte

Acronym or Non-Standard Term	Definition
L	
LAN	Local Area Network
LB	Linear Buffer
LCD	Liquid Crystal Display
LED	Light Emitting Diode
LRU	Line Replaceable Unit
M	
MB	Megabyte
Mbps	Megabits Per Second
MC	Marine Corps
MCU	Message Control Unit
MHz	Megahertz
MODEM	MOdulator/DEModulator
N	
NB	Narrowband
NEXRAD	Next Generation Weather Radar
NITF	National Image Transfer Format
NVRAM	Non-Volatile Random Access Memory

Acronym or Non-Standard Term	Definition

N
-CONTINUED-

NWS	National Weather Service

O

OPUP	Open System Principal User Processor
OS	Operating System
OSD	On Screen Display
OTR	One Time Request

P

PDGUI	Product Display Graphical User Interface
PID	Process Identification
POSIX	Portable Operating System Interface for Computer Environments
POST	Power-On-Self-Test
PROM	Programmable Read Only Memory
PS	Post Script
PUP	Principal User Processor
PWR	Power

Acronym or Non-Standard Term	Definition
	R
RAM	Random Access Memory
RC/NC	Remote Control/Network Control
RD	Receiver Data
RDA	Radar Data Acquisition
RI/OH	Ring Indicator/Off Hook
ROC	Radar Operations Center
ROM	Read Only Memory
RPG	Radar Product Generator
RSSD	Remote System Services Daemon
RTS	Request to Send
	S
SCSI	Small Computer System Interface
SMR	Source, Maintenance, and Recoverability
SU	Switch User
	T
TCP/IP	Transmission Control Protocol/Internet Protocol

Acronym or Non-Standard Term	Definition

T
-CONTINUED-

TCTO	Technical Compliance Technical Order
TD	Transmitter Data
TELCO	Telephone Company
TFO	Trusted Facility Operations
TO	Technical Order
TR	Terminal Ready

U

UD	Unit Designator
UNIX	Workstation Operating System
UPS	Uninterruptible Power Supply
USB	Universal Serial Bus
UTC	Coordinated Universal Time (Same as GMT)

V

Vac	Volts Alternating Current
Vdc	Volts Direct Current
vi	Visual Interactive

Acronym or Non-Standard Term	Definition

V
-CONTINUED-

VTS	Validation Test Suite

W

WAN	Wide Area Network