

Lucent Technologies
Bell Labs Innovations



***WaveStar*[™] DACS 4/4/1 System**
Release 1.1 to Release 2.0
System Upgrade (In-Service)
Modification Implementation
Procedure

365-367-307
Issue 2
September 2000



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Acknowledgments

This document was developed by the Lucent Technologies Customer Technical Support (CTS) organization at the Merrimack Valley Works in North Andover, Massachusetts USA.

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Title: **WaveStar™ DACS 4/4/1 System, Rel 1.1 to Rel 2.0 System Upgrade (In-Service) Modification Implementation Procedure**

Identification No.: 365-367-307 Issue No.: 2.0 Date: September 2000

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About This Document

Purpose

This Modification Implementation Procedure provides instructions for upgrading the *WaveStar™* DACS 4/4/1 System from Release 1.1 to Release 2.0. This manual contains instructions for system preconditioning, hardware retrofit, new software installation, new hardware verification, and system testing troubleshooting information.

Intended Audiences

This procedure shall be implemented by Lucent Technologies installation personnel or the customer's craftpersons.

This document is primarily for end users responsible for maintaining and installing the *WaveStar™* DACS 4/4/1, including, but not limited to:

- Lucent Technologies Installation Personnel
- Lucent Technologies Field Support Engineers
- Customer Field Technicians
- Customer Station Engineers

Dash Number to Product Association

This information is not required in this procedure.

Reason for Reissue

This information is not required in this procedure.

Conventions Used

This information is not required in this procedure.

Safety Instructions

Admonishments

This document may contain admonishments in the form of **DANGERS**, **WARNINGS**, **CAUTIONS**, and **NOTES**. These admonishments, listed in order of priority, have the following definitions:

 **DANGER:**
*Indicates the presence of a hazard that **will** cause death or severe personal injury if the hazard is not avoided.*

 **WARNING:**
*Indicates the presence of a hazard that **can** cause death or severe personal injury if the hazard is not avoided.*

 **CAUTION:**
*Indicates the presence of a hazard that **will** or **can** cause minor personal injury or property damage if the hazard is not avoided. Caution is also used for property-damage-only accidents. This includes equipment damage, loss of software, or service interruption.*

 **NOTE:**
Indicates extra information regarding the current topic.

Lightwave Safety

The *WaveStar*[™] DACS 4/4/1 and associated optical test sets use semiconductor laser transmitters only for external port interfaces (internal optics are provided by LED transmitters). The lasers emit lightwaves, at or near infrared wavelengths, into lightguide cables. This light is at the red end of the visible spectrum. Direct exposure at close distances should be avoided.



WARNING:

Never view any unterminated optical connector with optical instruments other than indirect image-converting devices such as the FIND-R-SCOPE, since viewing optics tends to collimate the energy from an optical connector and, hence, increases the potential risk for injury.

Electrostatic Discharge (ESD) Considerations

To reduce the possibility of ESD damage, subracks are equipped with grounding jacks to enable personnel to ground themselves using wrist straps, while handling circuit packs or working on subracks. The jacks for connection of wrist straps are located on each the sides of each rack (under stile strips). These jacks are properly labeled with the “ESD” symbol. Where grounding jacks are not provided, an alligator clip adapter can be used to enable a proper connection to the bay frame ground. The wrist straps should be checked periodically with a wrist strap tester to ensure that they are working properly.



CAUTION:

Industry experience has shown that all integrated circuit packs can be damaged by static electricity that builds up on work surfaces and personnel. The static charges are produced by various charging effects of movement and contact with other objects. Dry air allows greater static charges to accumulate. Higher potentials are measured in areas with low relative humidity, but potentials high enough to cause damage can occur anywhere.

Basic Safety Precautions

When performing procedures on telecommunication equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury to persons, including the following:

- Read and understand all instructions.
- Follow all warnings and instructions marked on the product.
- Slots and openings in this product and the back or bottom are provided for ventilation. To protect it from overheating, these openings must not be blocked or covered.
- Never push objects of any kind into this product through slots as they may touch dangerous voltage points or short out parts that could result in a risk of fire or electrical shock.
- Never spill liquid of any kind on the product.
- Never install telecommunication wiring during a lightning storm.
- Never install telecommunication connections in wet locations unless the connection is specifically designed for wet locations.
- Never touch uninsulated telecommunication wires or terminals unless the telecommunications line has been disconnected at the network interface.
- Grounding/bonding circuit continuity is vital for safe operation of this equipment. Installation must include an independent frame ground conductor to building ground. Never operate with grounding/bonding conductor disconnected.
- For continued protection against risk of fire, replace fuses only with equivalent fuses of same type and rating.
- Installation and maintenance procedures must be followed and performed by trained personnel only.
- This product has two input power feeders. Disconnecting one power feeder will not de-energize the product. To reduce the risk of injury, disconnect two power supply cables when removing power from the rack.

Related Documentation

Practices

The following Lucent Technologies practices provide reference information about the *WaveStar™* DACS 4/4/1 System.

- Number: 365-367-300
Title: *WaveStar™* DACS 4/4/1 *Applications, Planning and Ordering Guide*
Audience: System planners, engineers, and sales teams.
Content: Features, applications, general description, system configurations, system planning, and ordering information.
- Number: 365-367-303
Title: *WaveStar™* DACS 4/4/1 *Quick Reference Card*
Audience: System installers, maintenance and support personnel.
Content: System descriptions, hardware information, user information.
- Number: 365-367-304
Title: *WaveStar™* DACS 4/4/1 *Installation Assembly Manual*
Audience: System installers, maintenance and support personnel.
Content: System installation instructions for hardware assembly and construction of the equipment to customer order.
- Number: 365-367-305
Title: *WaveStar™* DACS 4/4/1 *Installation Testing Manual*
Audience: System installers, maintenance and support personnel.
Content: System verification instructions for hardware testing and system configuration procedures.
- Number: 365-367-312
Title: *WaveStar™* DACS 4/4/1 *Provisioning Guide*
Audience: System operations, maintenance and support personnel.
Content: System provisioning information and instructions.
- Number: 365-367-313
Title: *WaveStar™* DACS 4/4/1 *Administration and Maintenance Guide*
Audience: System operations, maintenance and support personnel.
Content: General descriptions, system configurations, service procedures, support procedures, maintenance procedures and technical specification information.

Drawings

The following Lucent Technologies drawings provide reference information about the *WaveStar™* DACS 4/4/1 System.

- SD96764-01 - System Schematic Drawing

How to Order Documentation

To order additional copies of this document please contact your Lucent Technologies Local Field Support Organization (LFS) or directly to the Lucent Technologies Customer Information Center (CIC).

The ordering number for this document is **365-367-307**.

To order by Mail, write to:

Lucent Technologies Inc.
Customer Information Center
Attention: Order Entry Section
2855 N. Franklin Road
P.O. Box 19901
Indianapolis, Indiana 46219
U.S.A.

Place telephone orders Monday through Friday, To order by telephone, call:

From inside the U.S.A.: 1-888-LUCENT-8 (or 888-582-3688)

From outside the U.S.A.: 1-317-322-6416

or Fax: 1-317-322-6699

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Customer Technical Support Organization
*WaveStar*TM DACS 4/4/1 Technical Support Manager
1600 Osgood Street
North Andover, MA 01845

General Description

Scope

This Modification Implementation Procedure describes the steps necessary to upgrade an **in-service** WaveStar™ DACS 4/4/1 System from Release 1.1 to Release 2.0 while maintaining service. This is a coordinated upgrade requiring new hardware retrofitting, and core software upgrade to be performed at key intervals in the upgrade process.

This manual contains instructions for system preconditioning, obsolete hardware removal, new hardware installation, new software installation, new hardware verification, and system testing troubleshooting information.

This document references procedures from **both** of the WaveStar™ DACS 4/4/1 Installation Manuals listed below:

- WaveStar™ DACS 4/4/1 Rel 1.1 Installation Assembly Manual (365-367-304).
- WaveStar™ DACS 4/4/1 Installation Testing Manual (365-367-305).

Change Details

Reason for Change

The purpose of this change procedure is to provide instructions for upgrading a *WaveStar*[™] DACS 4/4/1 system from Rel 1.1 to Rel 2.0.

Coordination

This information is not required in this change procedure.

Change Classification

This is an optional change and to be performed only if customer purchases upgrade from Rel 1.1 to Rel 2.0.

When to Apply This Change

This change shall be applied at a desired time when the customer can accept a temporary suspension of system control while the MC complex retrofitting process occurs without affecting service.

Type of Change

Installer Change (IC) / Installer Change Rotational (ICR)

✓	Installer Change (IC)
	Installer Change Rotational (ICR)

Software, Hardware, Firmware

This change affects both Software and Hardware

SOFTWARE	HARDWARE
✓	✓

Equipment Affected

System Affected

SYSTEM	WaveStar™ DACS 4/4/1	Release 1.1
--------	----------------------	-------------

Unit Affected

RACK	2.2m Core Complex	848306452
	2.6m Core Complex	848306460
	2.2m Core Complex (Nortel)	848306478

Product Affected

OLD	LAN Hub Unit (Bay Networks)	408091775
	LAN Hub NMM Module	408091809
	LAN Hub Front Mounting Brackets	848335634
	LAN Hub Ground Cable Assembly	848340642
	6ft - D8SA LAN Data Cable	107748071
	MPU Card (SMMXRCPULUCNT2-K)	408091619
	Power Distribution Panel -Front MC Rack	848288023-D
	#6-20 Sheet Metal Screws (x8)	901366237
	M6 x 16 Hex Washerhead Self- tapping Screws (x4)	901331421
NEW	Rel 1.1 to 2.0 Upgrade Kit ^a	848486742

a. See Table 3 for contents of kit.

Software Release Information

This procedure requires the WaveStar™ DACS 4/4/1 Release 2.0 Core Software Upgrade Set.

Installation Requirements

Training

The following table defines the installation requirements that the installer must possess in order for this procedure to be implemented on the *WaveStar*TM DACS 4/4/1 system. If you have any questions regarding these requirements, contact your local Lucent Technologies Customer Technical Support Representative.

Knowledge and Experience

It is recommended that the installer complete as many of the following conditions below:

- Successfully completes the *WaveStar*TM DACS 4/4/1 Installation and Assembly course.
- Successfully completes the *WaveStar*TM DACS 4/4/1 Installation and Test course.
- Successfully completes the *WaveStar*TM DACS 4/4/1 Operation and Maintenance course.
- Familiar with installation/testing of Lucent Technologies SDH Transmission Equipment

Installer Information

Number of Installers: Two installers are required to execute these procedures.

Technical Support

Contacts

If any problems are encountered, or if any of the steps specified in this procedure cannot be completed as indicated, contact the next level of support.

Table 1. Technical Support Contacts

Customer Location	Lucent Technologies Support Contact
Peoples Republic of China, - Northern Provinces	Lucent Technologies China Beijing China (86) 10-500-4455
Peoples Republic of China, - Southern Provinces	Lucent Technologies China Guangzhou, China (86) 20-331-1600
Indonesia	Lucent Technologies Indonesia Jawabarat, Indonesia (62) 21-898-0840
Japan	Lucent Technologies Japan Tokyo, Japan (81) 35-561-3000
Saudi Arabia	Lucent Technologies Saudi Arabia Riyadh, Saudi Arabia (96) 61-241-1055
USA and Canada ^a	Lucent Technologies CTAM (1) 800-225-4672
Europe, Middle East, and Africa (all countries not listed above)	Lucent Technologies - NSI Hilversum, The Netherlands (31) 35-87-1555
Asia and Pacific Rim (all countries not listed above)	Lucent Technologies Singapore Singapore (65) 390-5450
Central America (all countries not listed above)	Lucent Technologies de Guatemala Guatemala City, Guatemala (502) 233-4211
South America (all countries not listed above)	Lucent Technologies de Argentina Argentina (54) 149-7231

a. During normal working hours of **7:30 a.m. to 4:15 p.m. Monday-Friday**, your call is answered by a *WaveStar*TM DACS 4/4/1 engineer. Outside normal working hours (and occasionally during them), your call is transferred to CTAM (Lucent Support answering service) who will request the product assistance information then contact an engineer who will return your call as quickly as possible.

Risk Assessments

Service Risk Assessment

Rating:

LOW This procedure has a **LOW** service risk rating, since there is **NO** potential service loss if this procedure is not implemented immediately. This procedure can be implemented at any time as desired by the Customer.

Additional Service Risks:

None

Implementation Risk Assessment

Rating:

HIGH This procedure has a **HIGH** implementation risk rating, since there is a potential for a service interruption to the end customer, if any procedural deviations or procedure specific equipment failures occur during the procedure. However, the potential service interruption exceeds a momentary hit or burst of errors to the end customer. This procedure should be performed at low traffic periods as determined by the Customer, such that the effect on service on the system would be minimal in the event of a failure during implementation of the procedure.

Additional Implementation Risks:

None

Time Estimates

Procedural Time

The time to implement this procedure is estimated to be 8 hrs. per system.

The following chart provides time estimates for each phase in this procedure, and the actual time may vary slightly due to experience.

Pre-Conditioning	15 min
Upgrade Procedure - Matrix Setup: - Hardware Upgrade: - Software Upgrade: - Matrix Restoral: - MC Diagnostic Test:	8 hours .5 hours 4 hours ^a 1 hours .5 hours 2 hours
Conclusion	15 min

a. Time dependant on customer power cabling arrangement to power panels in MC rack.

Out-Of-Service Time

The following chart provides system out-of-service time or reduced system control time estimates.

System Out-of-Service	none
Controller Out-of-Service	5 hours^a

a. Time dependant on customer power cabling arrangement to power panels in MC rack.

Soak Time

The following chart provides any system soak time that is required after completion of the procedure.

Soak Time	n/a
------------------	------------

Items Required to Implement Procedure

The list of required equipment and tools for this procedure is shown below: The items with **L** in the **Note** column shall be provided by Lucent Technologies and the items denoted with a **C** shall be provided by the customer.

Code	Qty	Note	Description
108399593	1	L	ITE-7110 <i>WaveStar</i> TM DACS 4/4/1 Installation Test Accessory Kit ^a
-	1	C	XC-CIT Workstation Computer ^b
848577433	1	C	<i>WaveStar</i> TM DACS 4/4/1 Release 2.0.2 Core Software Upgrade From R1.1to Rel 2.0 Software Set ^c
848486742	1	C	Rel 1.1 to Rel 2.0 System HW Upgrade Kit ^d
108763921	1	C	Installation Documentation Kit - Installation Assembly Manual (365-367-304) - Installation Testing Manual (365-367-305)
108763947	1	C	Documentation Upgrade Kit - Rel 1.1 to Rel 2.0 System Upgrade MIP (365-367-307)

a. The contents of this kit can be found in the Release 2.0 Installation Testing Manual (365-367-305)

b. Compaq Model AP400 or equivalent running the XC-CIT Application Software.

c. The contents of this core software upgrade kit are to be found in Table 2.

d. The contents of this system upgrade kit are to be found in Table 3.

NOTES:

C = The item shall be supplied by the customer.

L = The item is part of typical local installation.

The Installation Test Equipment (ITE) item listed in above table can be acquired from the Lucent Technologies Installation Material Distribution and Repair Center (IMDARC).

Address:

Lucent Technologies - IMDARC
1111 Woodsmill Road
Town and Country, MO 63017

(314) 891-3024

Table 2. Contents of Core Software Upgrade Set (848577433)

Description	QTY	COMCODE
Rel 2.0.2 OS Software MO Disk	2	Note ^a
Rel 2.0.2 NEF Software MO Disk	2	
Rel 2.0.2 XC-CIT Software CDROM	2	
Blank MO Disk (for DB Backup)	2	407997071
Blank Labels	2	847140324
Rel 2.0.2 Software Release Discription (SRD)	1	108763871

a. Individual MO disks can not be ordered separately.

Table 3. Contents of Rel 1.1 to Rel 2.0 System HW Upgrade Kit (848486742)

Description	QTY	COMCODE
Power Distribution Panel -Front MC Rack (w/Pre-wired Power Cables)	1	848288023-E
MPU Unit (SMMXRCPULUCNT5-K)	1	408420313
VMA-1 (LAN HUB Unit)	2	108371535
LHU Interconnect Cable (2-Port)	1	848326567
D8SA LAN Data Cable (1 ft)	1	108566407
MC Rack, Front Fuse Panel Label	2	848545513
MC Rack, Rear Fuse Panel Label	2	848288155
MS Rack, Front Fuse Panel Label	2	848288189
MS Rack, Rear Fuse Panel Label	2	848288171
MCLAN Cable Label Kit	1	408346831
Rack Labels	2	-

Precautions and Recommendations

Precautions

- Read each step completely before performing the action specified, and perform the steps in the provided sequence.
- ESD wrist straps must be worn during the entire procedure, when touching the *WaveStar*TM DACS 4/4/1 System equipment or handling related system components.
- ESD straps must be tested before starting the procedure.
- All jewelry (rings, watches, etc.) should be removed before starting this procedure.
- Be careful when working near all power cables, shorting these cables could cause a loss of service.

Recommendations

- Procedural stopping points (break points) should only be taken at the end of any procedure. Do not stop in the middle of any procedure.
- Autonomous log-out occurs when the XC-CIT Inactivity Timer is exceeded. You will be required to log back into the system.
- Wait for the appropriate response before continuing to the next step.
- Do not proceed with testing if a command does not successfully complete; contact your next level of support.
- Approximate command execution times are given in each step. If no time is given, the command completes in under one minute.
- If any problems or service loss occur, contact your next level of support immediately. If the solution is known, have one person continue correcting the problem while the other person calls the next level of support.

Pre-Conditioning

Pre-Conditioning Procedure

Description

The steps in this section shall be performed so that the equipment, the personnel, and the ancillary systems, such as, alarm centers, are ready for the change.

Procedure

Use the boxes to check off the steps as they are completed.

- Step 1:* Contact your next level of support, in order to verify that this procedure is the latest version.



CAUTION:

*Do **not** continue if the procedure to be used is **not** the latest version.*

- Step 2:* Verify the presence of all the items listed in the **Required Items** paragraph in the “*General Description*” section of this document.



NOTE:

Verify all the equipment is available and not damaged. If all the material and documents are not available or any equipment is missing or damaged, do not continue, contact your next level of support.

-
- Step 3:* Test all ESD wrist straps before beginning the procedure. Use an approved ESD wrist strap tester or an ohmmeter. Follow the directions for the wrist strap tester when using this method or if using an ohmmeter, approximately 1 Meg ohm must be measured from the banana plug to the webbing of the wrist strap.

 - Step 4:* Verify that an outside phone line is present, functional (i.e. phone attached and working), and near to the *WaveStar™* DACS 4/4/1 System location. This communication line will be used to contact the next level of support in the event of problems during the implementation procedure.

 - Step 5:* Get authorization from the customer to begin the hardware verification phase of the installation process on the *WaveStar™* DACS 4/4/1 System.



CAUTION:

Do ***not*** proceed until receiving authorization from customer to continue with testing procedure.

-
- Step 6:* This completes the “*Pre-Conditioning*” section of this procedure, proceed to next section “*Implementation Procedure*”.
-

Upgrade Procedure

Description

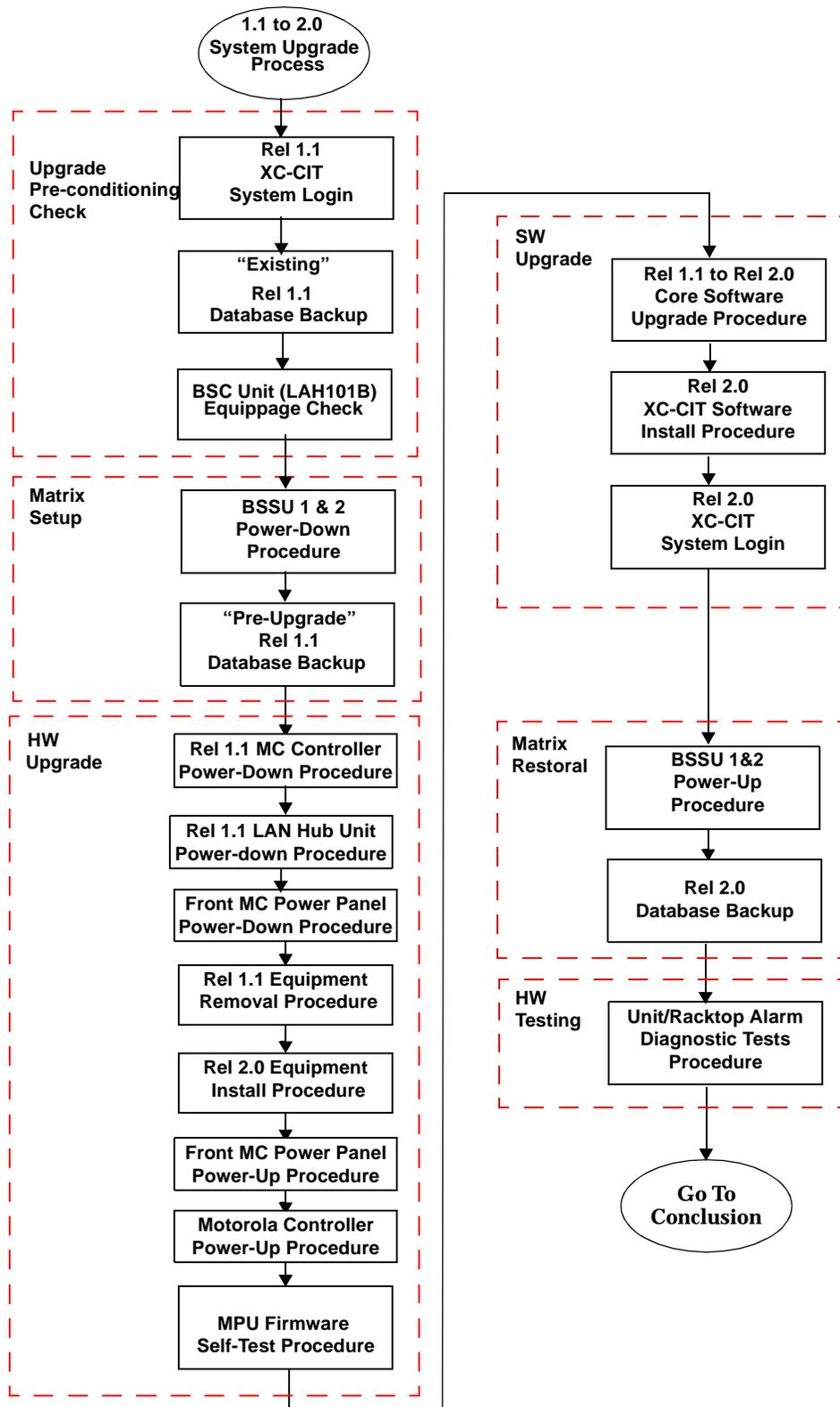
This section will describe the required process for upgrading an **in-service** WaveStar™ DACS 4/4/1 System from Release 1.1 to Release 2.0 while maintaining service. This process must be followed in-order to successfully remove the existing system hub unit and related cabling, install the new internal controller LAN Hub modules and associated cabling, load the new Rel 2.0 Core Software onto the system, and test the new controller equipment.

- ✍ **NOTE:**
All GTP procedure references in this section for Release 1.1 are to the GTP procedures found in Volume 2 of the Release 1.1 WaveStar™ DACS 4/4/1 Installation Testing Manual (365-367-205).

- ✍ **NOTE:**
All GTP procedure references in this section for Release 2.0 are to the GTP procedures found in Volume 2 of the Release 2.0 WaveStar™ DACS 4/4/1 Installation Testing Manual (365-367-305).

- ✍ **NOTE:**
All Appendix procedure references in this section are to appendices in this MIP document.

Process Flow Chart



Procedure

Use the boxes to check off the steps as they are completed.

-
- Step 1:** Obtain the following Installation Manuals which will be used throughout this upgrade procedure. Do not start upgrade without obtaining these manuals.
- 365-367-205 Release 1.1 Installation Testing Manual (Volume 2)
 - 365-367-305 Release 2.0 Installation Testing Manual (Volume 2)

-
- Step 2:** Perform the following **Upgrade Pre-conditioning Procedures**, in order to get the system ready for the upgrade.

 **NOTE:**

All GTP procedure references in this step for **Rel 1.1** are to the GTP procedures found in Volume 2 of the Release 1.1 *WaveStar™* DACS 4/4/1 Installation Testing Manual (365-367-205).

- Workstation Computer Setup (Rel 1.1) - {GTP 2 of Rel 1.1 Manual}
 - System Login Procedure (Rel 1.1) - {GTP 11 of Rel 1.1 Manual}
 - Database Backup Procedure (Rel 1.1) - {GTP 12 of Rel 1.1 Manual}
- Use **existing** customer supplied Rel 1.1 MO disk.

 **CAUTION:**

Do **not** proceed with this procedure until a database backup of the Rel 1.1 system configuration has been created.

-
- Step 3:** Check BSC Unit Code in the MS Subrack is LAH101B, LAH101C, or LAH107.

If older version, perform the BSC Unit Replacement Procedure in order to exchange the units to the new required version.

- BSC Unit Replacement Procedure (Rel 1.1) - {Refer to Appendix A}

Step 4: Perform the following **Matrix Setup Procedures**, in order to configure the system for the Hardware Upgrade.

- Equipment Alarm Check (Rel 1.1) - {GTP 21 of Rel 1.1 Manual}
 - Verify **no** equipment alarms (MC/MS) or **service-affecting** signal alarms (print all non-service affecting signal alarms).



CAUTION:

Do **not** proceed with this procedure if any service-affecting signal alarms exist, or any equipment alarms present on the MC/MS. Customer approval required to proceed with procedure if non-service-affecting signal alarms exist on system.

- BSSU 1 & 2 Power-Down Procedure - {Refer to Appendix B}



NOTE:

Upgrade requires removal of the front Power and Alarm Distribution Panel on the MC Rack Assmby, so BSSU Matrix Units supplied by that panel must be powered down.

- Database Backup Procedure (1.1) - {GTP 12 of Rel 1.1 Manual}
 - Use **first** blank MO disk supplied with upgrade equipment, and label disk "**Pre-Upgrade 1.1**".



CAUTION:

Do **not** proceed with this procedure until a database backup of the Pre-Upgrade Rel 1.1 system configuration has been successfully created. This backup will be used for the database upgrade to Rel 2.0 later in the procedure. Need to have backup with BSSU's in protection.

Step 5: Perform the following **HW Upgrade Procedures**, in order to upgrade the system from Rel 1.1 hardware to Rel 2.0 hardware.

- Motorola Controller Power-Down Procedure - {Refer to Appendix C}
- LAN Hub Unit Power-Down Procedure - {Refer to Appendix D}
- Front MC Power Panel Power-Down Procedure - {Refer to Appendix E}



CAUTION:

Power to the front MC Power Panel must be able to be powered off independantly from the rear panel.

- Rel 1.1 Equipment Removal Procedure - {Refer to Appendix F}
- Rel 2.0 Equipment Install Procedure - {Refer to Appendix G}
- Front MC Power Panel Power-up Procedure - {Refer to Appendix H}
- Motorola Controller Power-up Procedure - {Refer to Appendix I}
- MPU Firmware Self-Tests Upgrade - {Refer to Appendix J}

Step 6: Perform the following **Software Upgrade Procedures**, in order to upgrade the System Core Software from Rel 1.1 to Rel 2.0, and install the 4/4/1 Broadband/Wideband System Configuration onto the hard disk of the Motorola Controller Subrack.

- Core Software Upgrade (1.1 to 2.0) - {Refer to Appendix K}
- Setting the EXLAN IP Address - {GTP 10 of Rel 2.0 Manual}
- XC-CIT Software Installation - {GTP 3 of Rel 2.0 Manual}
- System Login Procedure - {GTP 11 of Rel 2.0 Manual}
- Equipment Alarm Check - {GTP 21 of Rel 2.0 Manual}

— The system may report **INVcDPLL** alarms for all equipped DTU and STU units, and **INVcFPGA** alarms for all equipped BSC units, this is expected due to upgrade in unit firmware. Follow the appropriate alarm clearing procedures in *Administration and Maintenance Manual (365-367-313)* in order to clear these alarms, and download the new unit firmware into the affected units while in the standby state.



CAUTION:

Be careful **not** to initialize alarmed units while in the Active state, or a service interruption will occur!

Step 7: Perform the following **Matrix Restoral Procedures**, in order to return the system matrix back to original condition (BSSU Units 9 & 10 in protection).

- BSSU 1 & 2 Power-Up Procedure - {Refer to Appendix L}
- Equipment Alarm Check - {GTP 21 of Rel 2.0 Manual}

— Verify **no** equipment alarms (MC/MS) or **service-affecting** signal alarms (print non-service affecting signal alarms, compare with start of upgrade).

- Database Backup Procedure - {GTP 12 of Rel 2.0 Manual}

— Use **second** blank MO disk supplied with upgrade equipment, and label disk "Rel 2.0 Database Backup & Date".



CAUTION:

Do **not** proceed with this procedure until a database backup of the Post- Upgrade Rel 2.0 System Configuration has been successfully created.

-
- Step 8:* Perform the following **Diagnostic Test Procedures** on the Motorola Controller Subrack.

Required Tests:

- MC Unit Diagnostic Tests - {GTP 28 of Rel 2.0 Manual}
- Racktop Alarm Diagnostic Tests - {GTP 38 of Rel 2.0 Manual}

-
- Step 9:* If this *Upgrade Procedure* has been successfully completed, then proceed to the chapter "*Conclusion*".
-

Backout Procedure

Backout Procedure

Description

There is **no** backout procedure for the System Upgrade from Rel 1.1 to Rel 2.0, since it involves retrofitting a new front MC power panel which is not compatible with Rel 1.1. If the system needs to be returned back to pre-upgrade state (i.e. Rel 1.1), please contact next level of technical support.

Conclusion

Completion Procedure

Description

This section will ensure that all system preparations that were previously made are returned back to their original states, and any external hardware that was previously removed are replaced onto the system. This procedure will also verify that the system is left with no additional alarms and a new system database will be created for emergency restoration.

Procedure

Use the boxes to check off the steps as they are completed.

- Step 1:** Verify that the XC-CIT Workstation is currently logged into the *WaveStar™* DACS 4/4/1 and the GUI Window is visible on the screen.

If **not**, connect and login to the system.

- Step 2:** From the **Alarm Panel Window**, verify there are **no** alarms.

If there are **no** alarms present on the system as indicated in output response below, then proceed directly to next step.



Otherwise, if there **are** alarms currently on the system, press the Current Alarms button in the **Alarm Panel Window** in order to obtain a list of all the alarms. Print the list of alarms, then try to troubleshoot all alarms. Do **not** leave the system with any unexplained alarms.

- Step 3:** Create a database backup of the final system configuration onto a backup MO disk from the MC Subrack in the *WaveStar™* DACS 4/4/1 System.
- Database Backup Procedure - {Refer to GTP 9 of Volume 2 of *Installation Testing Manual 365-367-305*}



CAUTION:

Do **not** proceed with this procedure until a database backup of the new system configuration has been successfully created. This backup will be used for future emergency restoration in case of system failure during the procedure.

- Step 4:** Reinstall all subrack EMI shields and close the rack doors on all the remaining common equipment.
- Step 5:** Copy and fill-out the completion form in the back of the Attachment Section, and retain for records.
- Step 6:** This completes the "*Completion Procedure*".

STOP- This completes the Procedure.

Appendices

List of Appendices

- Appendix A - BSC Unit Replacement Procedure
- Appendix B - BSSU 1 & 2 Power-Down Procedure
- Appendix C - Motorola Controller Power-Down Procedure
- Appendix D - LAN Hub Unit Power-Down Procedure
- Appendix E - Front MC Power Panel Power-Down Procedure
- Appendix F - Rel 1.1 Equipment Removal Procedure
- Appendix G - Rel 2.0 Equipment Install Procedure
- Appendix H - Front MC Power Panel Power-Up Procedure
- Appendix I - Motorola Controller Power-Up Procedure
- Appendix J - MPU Firmware Self-Tests Procedure
- Appendix K - Core Software Upgrade (1.1 to 2.0)
- Appendix L - BSSU 1 & 2 Power-Up Procedure

Appendix A - BSC Unit Replacement Procedure

Description

The following procedure will provide the steps to replace the existing BSC unit in a particular Sync Subrack with another new BSC Unit and instruct the running of internal diagnostics on the BSC unit.

Required Equipment:

- 1 → XC-CIT Workstation running GUI Application
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → Ethernet LAN Adapter

Assumptions:

1. The Workstation Ethernet Network Port is connected to the EXLAN Ethernet LAN port in the MC Subrack.
2. User is currently logged into the *WaveStar*TM DACS 4/4/1 from the XC-CIT Workstation.
3. BSC Unit must be in the standby state and locked from providing service, in order to replace the unit and execute the Unit diagnostic test.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

-
- Step 1:* Verify that the XC-CIT Workstation is currently logged into the *WaveStar™* DACS 4/4/1 and the GUI Window is visible on the screen.

 **NOTE:**
If **not**, connect and login to the system.
(See *GTP 11 - System Login Procedure*)

-
- Step 2:* Select a specific BSC unit in the MS Subrack to be replaced.

 **NOTE:**
The existing BSC Unit must be placed into the “standby” state via MS Control manual protection switching before replacing the unit.

 **NOTE:**
It is recommended that if replacing **both** BSC units, start with replacing the **working** BSC Unit (BSC-1) first, so that after replacing the protection BSC unit (BSC-2) last, the working Sync Subrack will remain as the **active** shelf.

- **Step 3:** In order to replace the selected BSC unit, the MS Control (via SRC unit) of the corresponding Sync Shelf must be first switched into the **standby** state. (i.e. when replacing BSC-1, SRC-1 must be standby, SRC-2 made active).

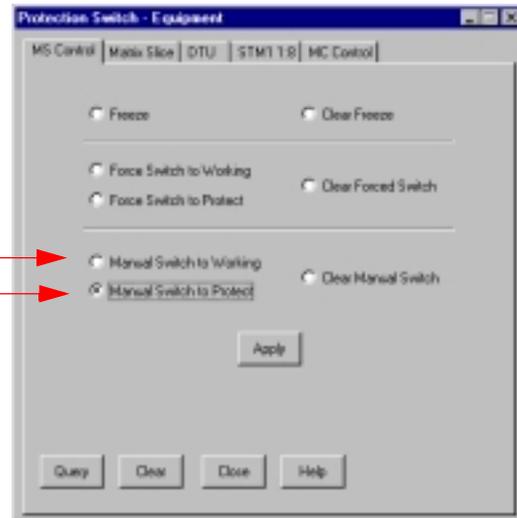
- **Step 3-a:** Open the **Protection Switch-Equipment Window** in order to use for switching states of units.



- **Step 3-b:** From the **Protection Switch-Equipment Window**, select the **MS Control tab** and then select the appropriate **Manual Switch** command below, based on which BSC unit is to be replaced:

Select if replacing protect BSC-2

Select if replacing working BSC-1

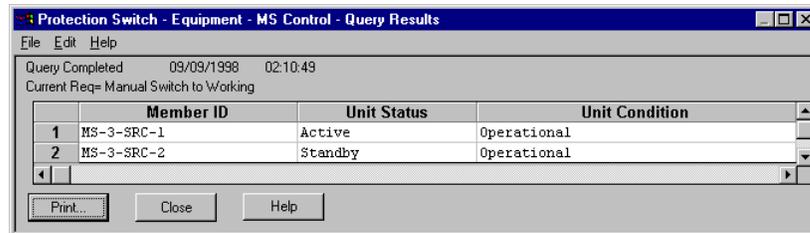


- **Step 3-c:** Execute the **Manual Switch** command, by pressing **Apply** button.

- ❑ **Step 3-d:** Keep pressing the button and *wait* until the **Unit Status** and **Unit Condition** is reported for both SRC units in the MS Subrack. Verify that the information reported for the SRC unit in the **same** shelf corresponding to the selected **BSC unit** to be replaced is:

Unit Status = Standby Unit Condition = Operational

Sample Output: Shows SRC-2 as in the standby state, so the top shelf of the MS Subrack is active, and BSC-2 unit can be replaced.



	Member ID	Unit Status	Unit Condition
1	MS-3-SRC-1	Active	Operational
2	MS-3-SRC-2	Standby	Operational

- ❑ **Step 3-e:** Close the **Protection Switch-Equipment- MS Control -Query Results Window** by pressing the button.
- ❑ **Step 3-f:** Close the **Protection Switch-Equipment Window** by pressing the button.

-
- ❑ **Step 4:** Verify that the selected BSC Unit to be replaced is in the standby state, by visually checking that the green LED labeled “ACTIVE” on the BSC unit faceplate is **off**.



CAUTION:

If the unit is not in the standby state before it is removed from the subrack slot, a momentary service interruption may occur!

-
- ❑ **Step 5:** Replace the existing BSC Unit, by removing the unit currently in the subrack slot, and installing the new unit into the same slot.

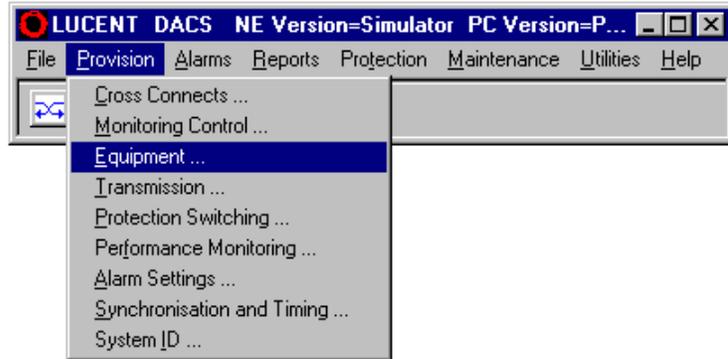


NOTE:

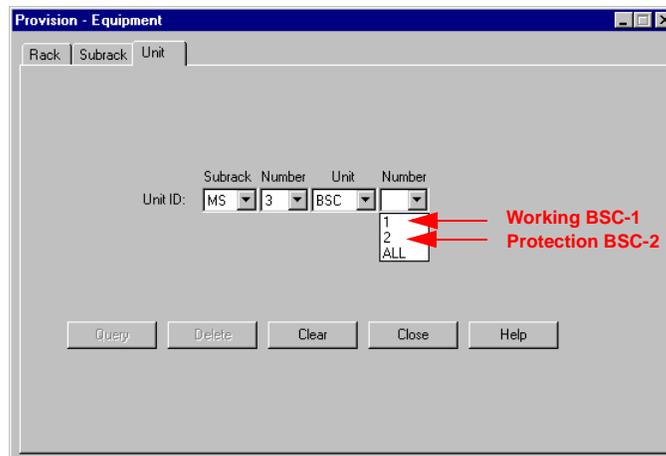
The unit's red LED labeled “ALARM” will turn on, until the unit is successfully booted.

❑ **Step 6:** Query the **Unit Status** of the newly installed BSC Unit.

❑ **Step 6-a:** Open the **Provision-Equipment Window** in order to use for checking equipage state of units.



❑ **Step 6-b:** In the **Provision-Equipment-Unit Window**, select the **Unit Tab** and enter the appropriate unit identification of the newly installed BSC Unit in the **Unit ID Box**.



❑ **Step 6-c:** Press the **Query** button, and verify that the **Unit Status** for the newly installed BSC Unit is reported as:

Unit Status = Unit Provisioned and Initialized



NOTE:

If the unit is not in the proper equipage state, diagnostic testing can not be performed on the unit.

❑ **Step 6-d:** Close the **Provision-Equipment-Unit-Query Results Window** by pressing the **Close** button.

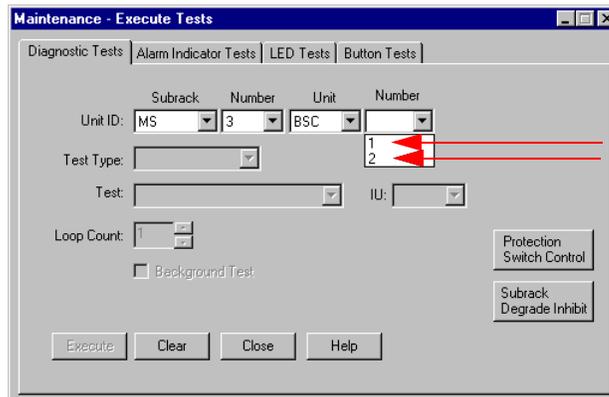
❑ **Step 6-e:** Close the **Provision-Equipment-Unit Window** by pressing the **Close** button.

□ **Step 7:** Execute the unit diagnostic test for the newly installed BSC Unit.

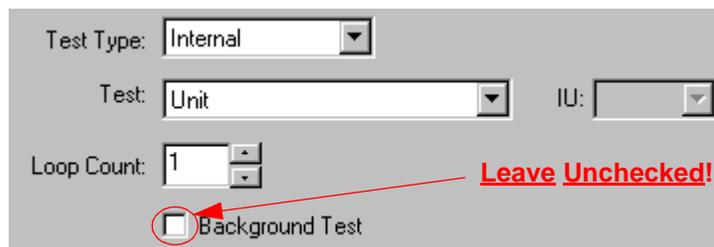
□ **Step 7-a:** Obtain the **Maintenance-Execute Tests Window** in order to use for implementing diagnostic testing of units.



□ **Step 7-b:** In the **Maintenance-Execute Tests Window**, select the **Diagnostic Tests tab** and enter the appropriate unit identification of the newly installed BSC Unit in the **Unit ID Box**



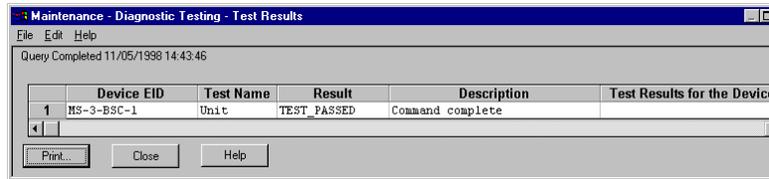
□ **Step 7-c:** In the **Maintenance-Execute Tests Window**, enter the remaining information as shown below (Do not select as Background Test):



□ **Step 7-d:** Execute the selected diagnostic test by pressing the **Execute** button, and verify the **Confirmation Window** appears.

□ **Step 7-e:** Continue the diagnostic test by pressing the **Yes** button.

- Step 7-f:** Verify that the **Result** of the diagnostic test for the newly installed BSC unit is reported as “**TEST_PASSED**”. (shown for BSC-1).



Device EID	Test Name	Result	Description	Test Results for the Device
1	MS-3-BSC-1	Unit	TEST_PASSED	Command complete



NOTE:

If the test results reports as either “**TEST_FAILED**” or “**TEST_ERRORED**”, check the test results data field in output response for troubleshooting information, then return to **Step 7** and repeat test.

- Step 7-g:** *Optional* - If a printout of the test results is desired, press the button. (Requires printer connected to XC-CIT Workstation)
- Step 7-h:** Close the **Maintenance-Diagnostic Testing-Test Results Window** by pressing the button.
- Step 7-i:** Close the **Maintenance-Diagnostic Testing Window** by pressing the button.

- ❑ **Step 8:** Perform the **clear** manual switch command, in order to clear the previous protection state of the corresponding BSC unit.



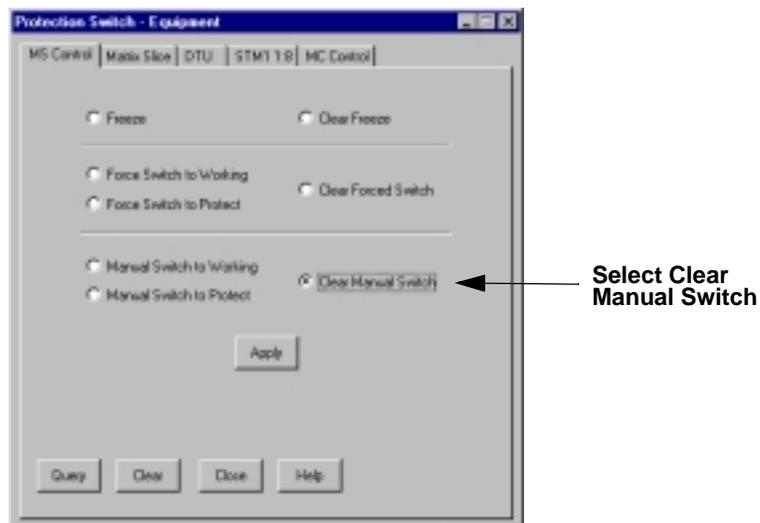
CAUTION:

This step must be performed, in order to unlock the freeze and allow protection switching to occur again in the MS Subrack.

- ❑ **Step 8-a:** Open the **Protection Switch-Equipment Window** in order to use for switching states of units.



- ❑ **Step 8-b:** From the **Protection Switch-Equipment Window**, select the **MS Control tab** and then select the **Clear Manual Switch** command below, in order to clear the protection switch state as a result of the manual switch:



- ❑ **Step 8-c:** Execute the **Clear Manual Switch** command, by pressing the **Apply** button.
- ❑ **Step 8-d:** Close the **Protection Switch-Equipment Window** by pressing the **Close** button.

-
- Step 9:* Perform **one** of the procedural options below:
- If another BSC unit in the other Sync Shelf of the MS Subrack needs to be replaced, return to **Step 2** and repeat for the other BSC unit.
 - If the BSC units in both Sync Shelves of the MS Subrack have been successfully replaced and tested, proceed to next step.

Step 10: Check-off the appropriate box corresponding to this procedure on the appropriate *verification checklist*.

Step 11: This completes the "*BSC Unit Replacement Procedure*".

STOP- Return to Calling Procedure

Appendix B - BSSU 1 & 2 Power-Down Procedure

Description

The following procedure will explain the steps to power-down BSSU 1 and BSSU 2 in the MC Rack Assembly. This is required in order to remove the front Power and Alarm Distribution Panel in the MC Rack Assembly before the System Upgrade.

This procedure will check the status of all BSSU units for proper state, and switch Matrix Units BSSU 1 and BSSU 2 to the protection Matrix Units BSSU 9 and BSSU 10, respectively. These protection matrix units will be “locked-on” to the active state, in order to prevent them from switching back to the working units during the upgrade procedure. The Matrix Units BSSU 1 and BSSU 2 will then be powered down by removing the appropriate fuses from the front Power and Alarm Distribution Panel on the MC Rack Assembly.

Required Equipment:

- 1 → XC-CIT Workstation running GUI Application
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → Ethernet LAN Adapter
- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

1. MC Rack is installed on the left-side of the Core Complex when facing the front of the system.
2. Matrix Position 1 and Matrix Position 2 of the MC Rack Assembly, correspond to matrix units BSSU-1 and BSSU-2, respectively. If the matrix positions correspond to BSSU-6 and BSSU-7, this procedure is not written for these positions (Contact CTS).
3. Fuse Positions A2, A3, B2, B3 or the Front MC Power Panel correspond to matrix units BSSU-1 and BSSU-2, respectively.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

Step 1: Verify the position of the MC Rack in the Complex Complex Assembly (left-side or right-side), and perform the appropriate procedural options below:

- If the MC Rack is on the **left-side** of the Core Complex, continue with upgrade by proceeding to **Step 2**.
- If the MC Rack is on the **right-side** of the Core Complex, then do **not** proceed with this procedure and contact CTS Support.

When on the **right-side**, the matrix units corresponding to the front MC Power Panel become BSSU-6 and BSSU-7 for which this procedure is not written.

Step 2: Verify that the XC-CIT Workstation is currently logged into the *WaveStar™* DACS 4/4/1 and the GUI Window is visible on the screen.

If **not**, connect and login to the system.
(See *GTP 11 - System Login Procedure*)

□ **Step 3:** Perform the following steps in order to query the **Unit Status** and **Unit Condition** of **all** ten of the **BSSU Units** in the system matrix, and verify all units are in the correct state prior to starting upgrade.

□ **Step 3-a:** Open the **Protection Switch-Equipment Window** in order to use for querying states of matrix units.



□ **Step 3-b:** From the **Protection Switch-Equipment Window**, select the **Matrix Slice** tab.



□ **Step 3-c:** Query the status for **all** ten of the **BSSU units** in the matrix by pressing the **Query** button.

Member ID	Unit Status	Unit Condition
1 NS-3-BSSU-1	Active	Operational
2 NS-3-BSSU-2	Active	Operational
3 NS-3-BSSU-3	Active	Operational
4 NS-3-BSSU-4	Active	Operational
5 NS-3-BSSU-5	Active	Operational
6 NS-3-BSSU-6	Active	Operational
7 NS-3-BSSU-7	Active	Operational
8 NS-3-BSSU-8	Active	Operational
9 NS-3-BSSU-9	Standby	Operational
10 NS-3-BSSU-10	Standby	Operational

□ **Step 3-d:** Verify that all eight working matrix units (**BSSU 1** thru **BSSU 8**) are “Active” and “Operational”.

- ❑ **Step 3-e:** Verify that both protection matrix units (**BSSU 9** and **BSSU 10**) are “*Standby*” and “*Operational*”.
- ❑ **Step 3-f:** Close the **Protection Switch-Equipment- Matrix Slice-Query Results Window** by pressing the button.

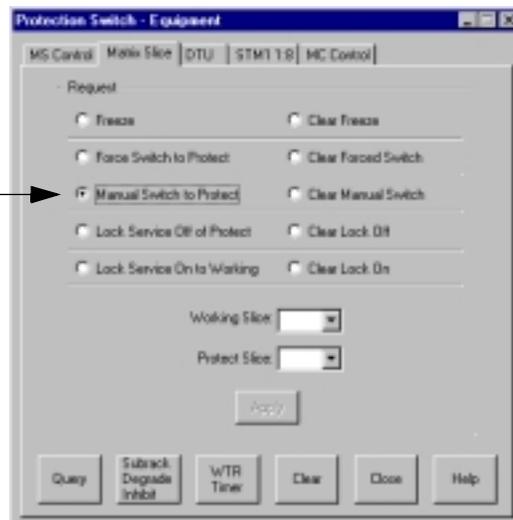


CAUTION:

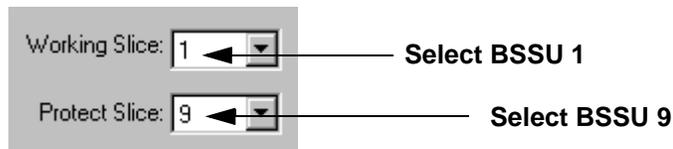
Do **not** proceed with this procedure, unless BSSU 1 and BSSU 2 are “Active” and “Operational”, and BSSU 9 and BSSU 10 are “Standby” and “Operational”, otherwise, a service interruption will occur fwhen continuing.

- ❑ **Step 4:** Perform the following protection switch commands, in order to switch matrix unit **BSSU 1** to protection matrix unit **BSSU 9**, and matrix unit **BSSU 2** to protection matrix unit **BSSU 10**.
- ❑ **Step 4-a:** In the **Protection-Equipment-Matrix Slice Window**, select the **Manual Switch to Protection** command below:

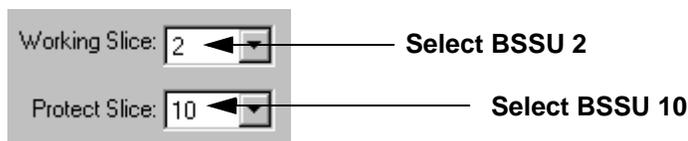
Select this command



- ❑ **Step 4-b:** Select the following working and protection matrix units.



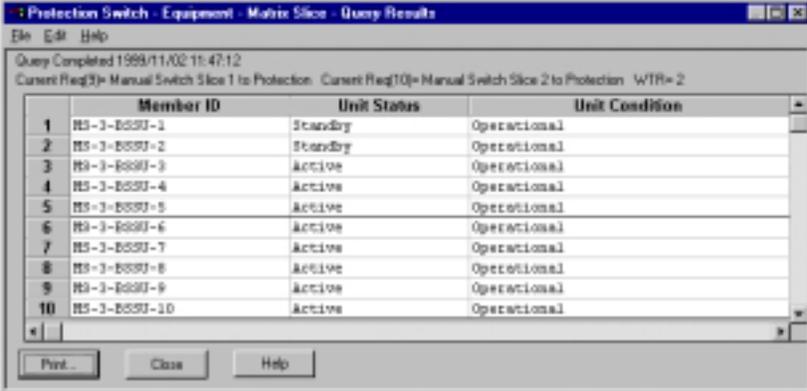
- ❑ **Step 4-c:** Press the button to execute the **Protection Switch** command.
- ❑ **Step 4-d:** Select the following working and protection matrix units.



- ❑ **Step 4-e:** Press the button to execute the **Protection Switch** command.

- Step 5:** Perform the following steps in order to query the **Unit Status** and **Unit Condition** of all ten of the **BSSU Units** in the system matrix, and verify the both manual protection switches successfully completed.

- Step 5-a:** Query the status for all ten of the **BSSU units** in the matrix by pressing the button.



Query Completed 1999/11/02 11:47:12
Current Reg(3) Manual Switch Slice 1 to Protection Current Reg(10) Manual Switch Slice 2 to Protection WTR= 2

	Member ID	Unit Status	Unit Condition
1	MS-3-BSSU-1	Standby	Operational
2	MS-3-BSSU-2	Standby	Operational
3	MS-3-BSSU-3	Active	Operational
4	MS-3-BSSU-4	Active	Operational
5	MS-3-BSSU-5	Active	Operational
6	MS-3-BSSU-6	Active	Operational
7	MS-3-BSSU-7	Active	Operational
8	MS-3-BSSU-8	Active	Operational
9	MS-3-BSSU-9	Active	Operational
10	MS-3-BSSU-10	Active	Operational

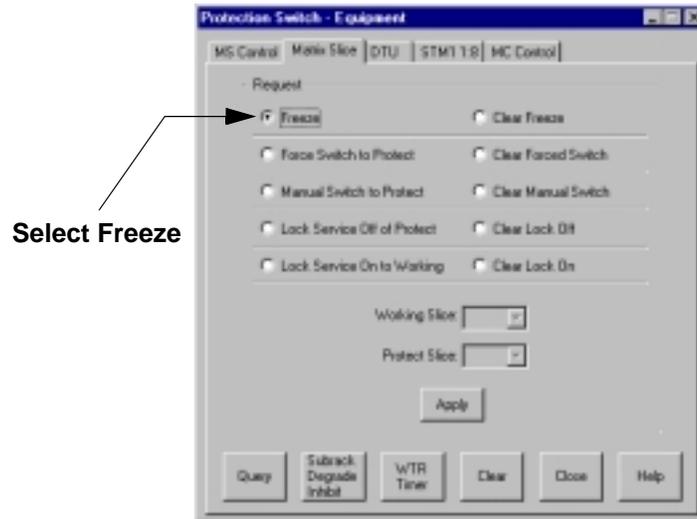
Print... Close Help

- Step 5-b:** Verify that working matrix units **BSSU 1** and **BSSU 2** are now *“Standby”* and *“Operational”*.
 - Step 5-c:** Verify that protection matrix units **BSSU 9** and **BSSU 10** are now *“Active”* and *“Operational”*.
 - Step 5-d:** Close the **Protection Switch-Equipment- Matrix Slice-Query Results Window** by pressing the button.

CAUTION:
Do **not** proceed with this procedure, unless BSSU 1 and BSSU 2 are *“Standby”* and *“Operational”*, and BSSU 9 and BSSU 10 are *“Active”* and *“Operational”*, otherwise, a service interruption will occur when continuing.

- ❑ **Step 6:** Perform the **Freeze Protection Switch** command, in order to **lock** the current protection state of the matrix, and prevent matrix units **BSSU 1** and **BSSU 2** from inadvertently returning to the *Active* state.

- ❑ **Step 6-a:** In the **Protection-Equipment-Matrix Slice Window**, select the **Freeze** command below:



- ❑ **Step 6-b:** Press the **Apply** button to execute the **Protection Switch** command.

- ❑ **Step 6-a:** Press the **Query** button and verify the following **Current Request**:

Current Req[9]= Freeze Slice 1 on Protection Current Req[10]= Freeze Slice 2 on Protection WTR= 2

- ❑ **Step 6-b:** Close the **Protection Switch-Equipment- Matrix Slice-Query Results Window** by pressing the **Close** button.

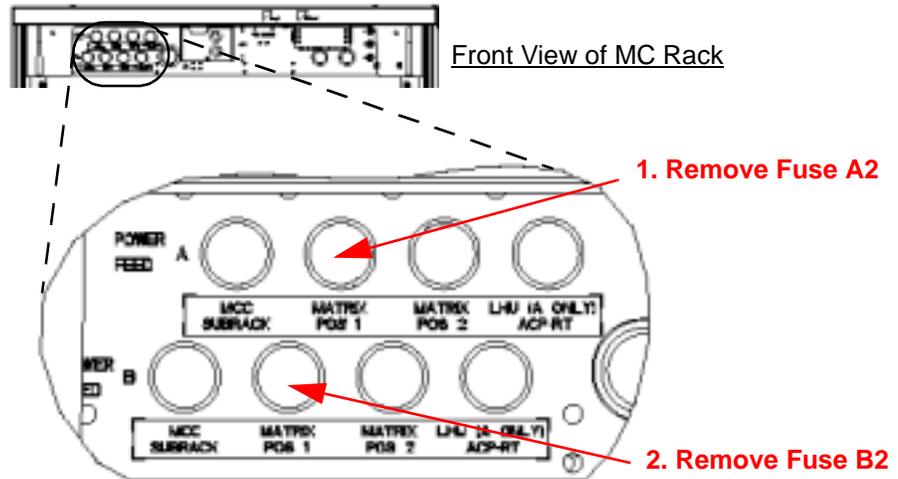
- ❑ **Step 6-c:** Close the **Protection Switch-Equipment Window** by pressing the **Close** button.

- **Step 7:** At the front MC Power Panel, power-down **BSSU 1** by removing the appropriate fuse from fuseholder positions **A2** and **B2**.



NOTE:

A deferred alarm is generated due to powering down the BSSU unit.

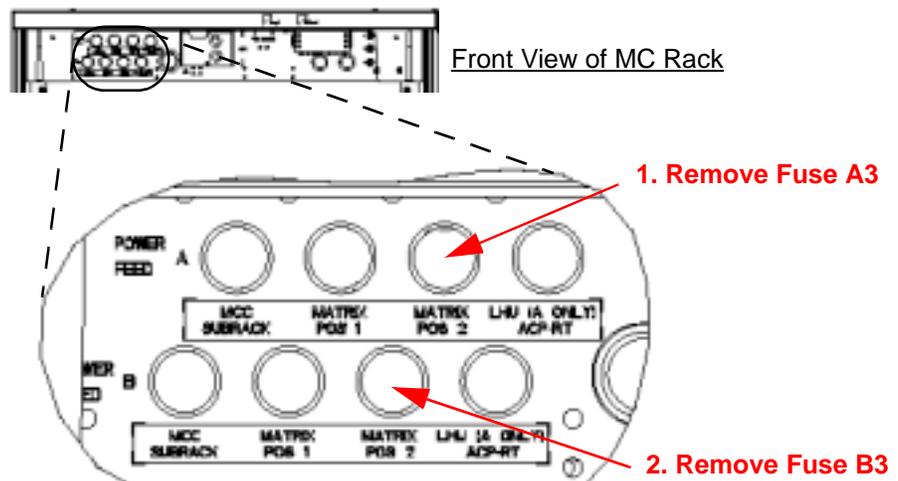


- **Step 8:** At the front MC Power Panel, power-down **BSSU 2** by removing the appropriate fuse from fuseholder positions **A3** and **B3**.



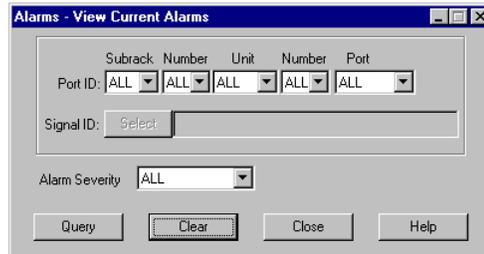
NOTE:

A deferred alarm is generated due to powering down the BSSU unit.

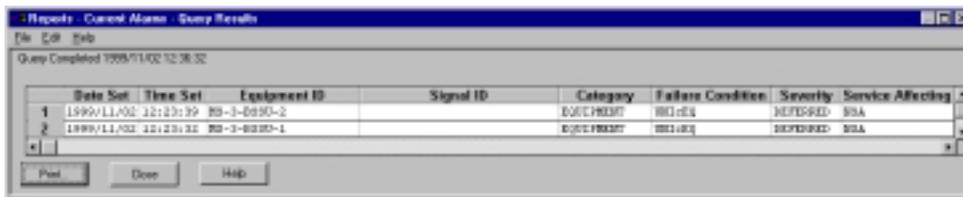


- Step 9:** From the **View Current Alarms Window**, query the alarm status for the entire system, and verify that matrix units **BSSU 1** and **BSSU 2** are now in the **UNicEQ** alarm state.

- Step 9-a:** Open the **Alarms-View Current Alarms Window** by pressing the **Current Alarms** button.



- Step 9-b:** In the **View Current Alarms Window**, leave the default settings (for all alarms in the system) and press the **Query** button to execute the alarm query.
 - Step 9-c:** Press the **Query** button to execute the alarm query.
 - Step 9-d:** Verify **UNicEQ** alarms for matrix units **BSSU 1** and **BSSU 2**.



- Step 9-e:** Close the **Reports-Current Alarms-Query Results Window** by pressing the **Close** button.
 - Step 9-f:** Close the **Reports-Current Alarms Window** by pressing the **Close** button.

-
- Step 10:** Check-off the appropriate box corresponding to this procedure.

-
- Step 11:** This completes the "**BSSU 1 & 2 Power-Down Procedure**".
-

STOP- Return to Calling Procedure

Appendix C - Motorola Controller Power-down Procedure

Description

The following procedure will provide the steps to power-down the Rel 1.1 Main Controller Subrack.

Required Equipment:

- 1 → XC-CIT Workstation running GUI Application
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → Ethernet LAN Adapter
- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

1. The Workstation Ethernet Network Port is connected to the EXLAN Ethernet LAN port in the MC Subrack.
2. The Workstation Serial Port is connected to the WS1 port on the System User Panel.
3. User is currently logged into the *WaveStar*TM DACS 4/4/1 from the XC-CIT Workstation.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

Step 1: Verify that the serial port of the Workstation Computer is connected to the system workstation port labeled **WS1** on the System User Panel (SUP).

Use:

- 25ft 10 Base T Data Cable (ITE-7016)
- CIT Adapter (9 pin-female) (ITE-6999)

Step 2: Verify that the Workstation Computer is currently running the Hyperterminal Application (VT100 terminal emulation) and connected to the *WaveStar*TM DACS 4/4/1 Console.

Step 3: Verify that the Workstation is currently logged into the *WaveStar*TM DACS 4/4/1 and the XC-CIT GUI Window is visible on the screen.



NOTE:

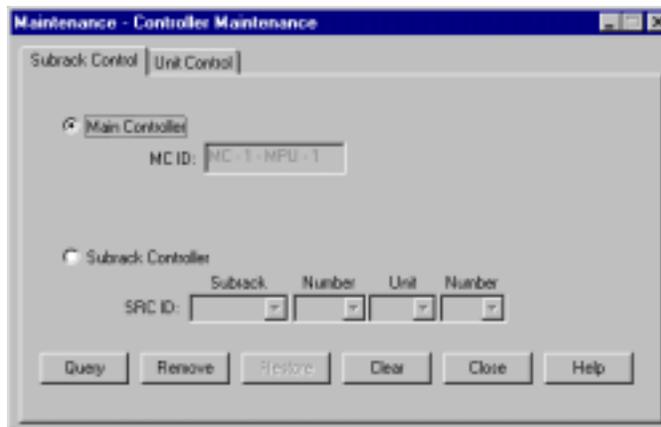
If **not**, connect and login to the system.
(See *GTP 11 - System Login Procedure*)

- ❑ **Step 4:** Remove the Main Controller to the Out-Of-Service State (OOS), in order to power-down the Main Controller Subrack.

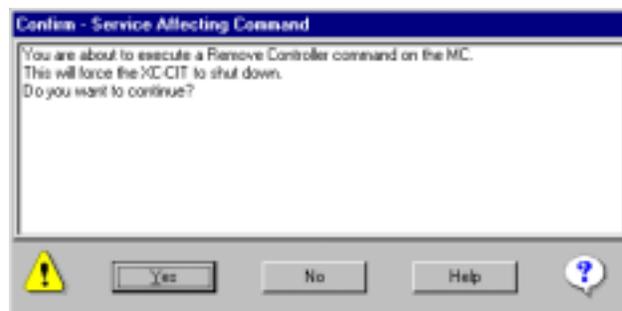
- ❑ **Step 4-a:** On the main title bar, highlight the **Maintenance Menu** selection, and select the **Controller Maintenance ...** menu item.



- ❑ **Step 4-b:** In the **Maintenance-Controller Maintenance Window**, obtain the **Subrack Control Tab**, and select the Main Controller radio button.



- ❑ **Step 4-c:** Execute the removal command by pressing the **Remove** button, and verify the following **Confirmation Window** appears.



- ❑ **Step 4-d:** Continue the removal process for the Main Controller by pressing the **Yes** button.
 - ❑ **Step 4-e:** After approximately 1-3 minutes, verify that the XC-CIT GUI automatically exits, due to the loss of the TCP/IP connection to the system because the MC is rebooting.

- **Step 5:** From the *WaveStar*TM DACS 4/4/1 Console connection, verify that the MPU Unit will *automatically* begin to reboot and *automatically* stop at the PPC1-Bug> prompt as shown below:

Output Response:

```
user name:grandma: Mom pid 29 exited with value 115
grarnedcmoav: Reerb:o orteiangson: Apps called reboot(0x20088)
(131208) the system!

**** LynxOS is down ****

-----ATTENTION-----
PPC1 Debugger/Diagnostics INTERNAL Release - XR712-129LUC FAT
-----

COLD Start

Local Memory Found =10000000 (&268435456)

MPU Clock Speed =367Mhz

BUS Clock Speed =67Mhz

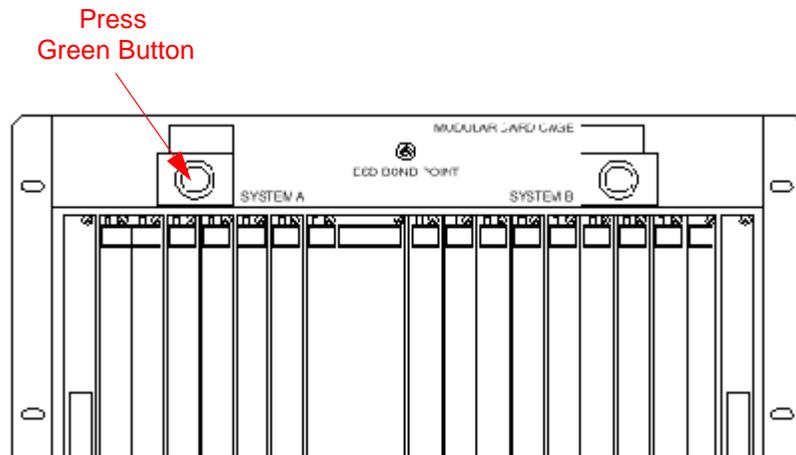
WARNING: Keyboard Not Connected

Reset Vector Location : ROM Bank A
Mezzanine Configuration: Single-MPU
Current 60X-Bus Master : MPU0
Idle MPU(s)           : NONE

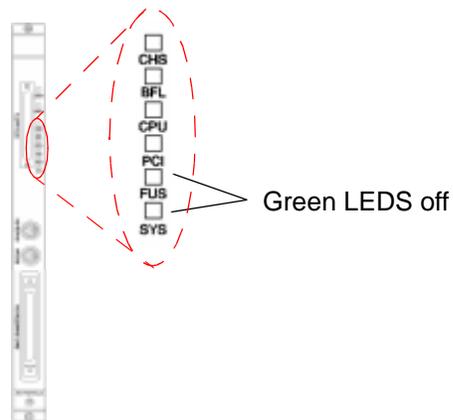
System Memory: 256MB, ECC Enabled (ECC-Memory Detected)
L2Cache:           1024KB, 147Mhz

PPC1-Bug>
```

- *Step 6:* Turn **off** the Motorola Controller Subrack by pushing in the green button on the front of the subrack. (Switch should remain pushed-out).

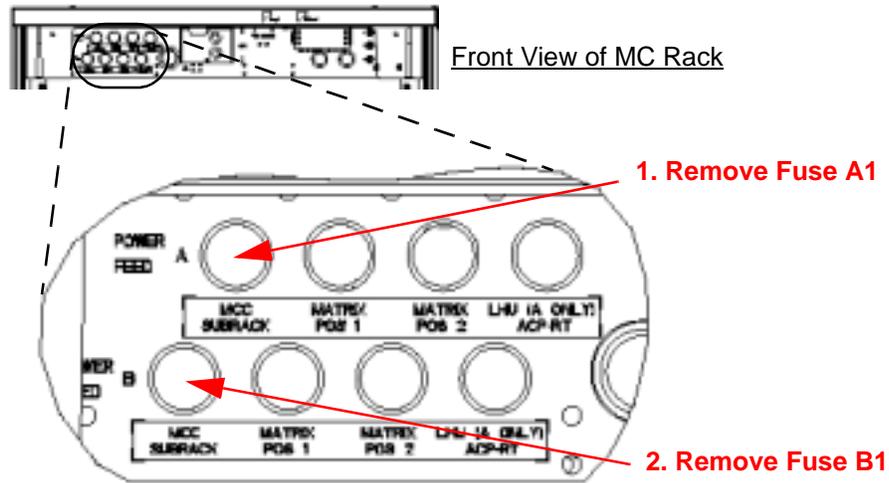


- *Step 7:* In the front of the Motorola Controller Subrack, verify that the Motorola Controller Subrack is **off**, by verifying that the **FUS** and **SYS** green leds on the MPU Unit are **off**.



MPU VME Card

- Step 8:** At the front MC Power Panel, power-down **MC Subrack** by **removing** the appropriate fuse from fuseholder positions **A1** and **B1**.



- Step 9:** Check-off the appropriate box corresponding to this procedure.
- Step 10:** This completes the "*Motorola Controller Power-down Procedure*".
-

STOP- Return to Calling Procedure

Appendix D - LAN Hub Unit Power-Down Procedure

Description

The following procedure will provide the steps to power-down the Rel 1.1 Bay Networks LAN Hub Unit in the Matrix Control Rack.

Required Equipment:

- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

Assumptions

1. LAN Hub unit is currently powered-on.
2. Fuse corresponding to the LAN Hub unit is currently installed in the front MC Power Distribution Panel.

Precautions

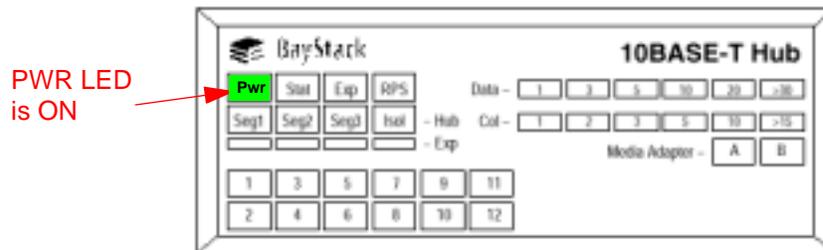
- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

- Step 1:** Verify that the Bay Networks LAN Hub Unit is currently powered-on, by verifying that the green **Power (PWR) LED** on the front LED display is on.

 **NOTE:**
If the PWR LED is "off", then the LAN Hub is not receiving DC power and already off. .

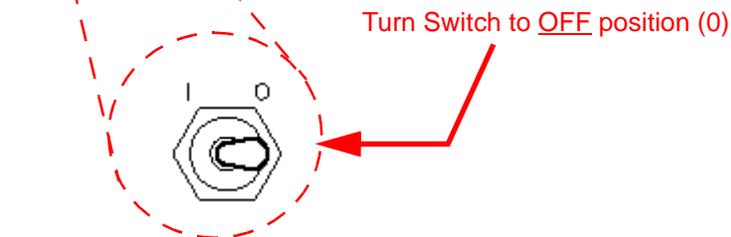


- Step 2:** In the rear of the Bay Networks LAN Hub unit, turn the power switch to the off position (0).

 **NOTE:**
See indicated position of power switch on rear of LAN Hub.



Rear View of LAN Hub

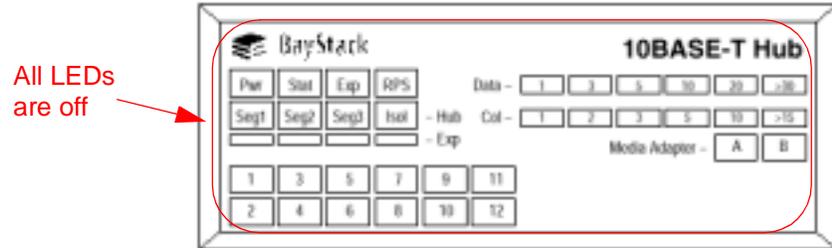


- Step 3:** Verify that the Bay Networks LAN Hub Unit is currently powered-off, by verifying that **all** the LEDs on the front LED display are **off**.

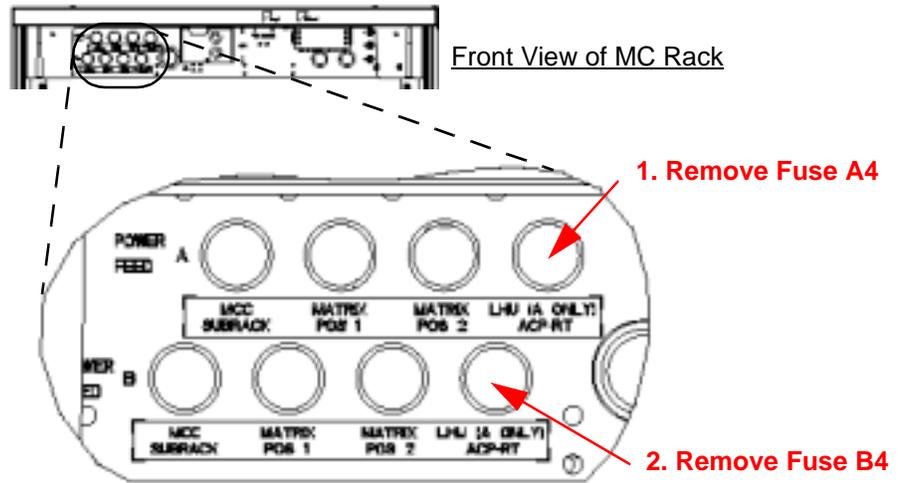


NOTE:

If the PWR LED is “off”, then the LAN Hub is not receiving DC power and already off. .



- Step 4:** At the **front** MC Power Distribution Panel, power-down the **LAN Hub Unit (LHU-1)** and the **Alarm Control Panel (ACP)** by **removing** the appropriate fuse from fuseholder positions **A4** and **B4**



- Step 5:** Check-off the appropriate box corresponding to this procedure.
- Step 6:** This completes the “*Rel 1.1 LAN Hub Unit Power-Down Procedure*”.
-

STOP- Return to Calling Procedure

Appendix E - Front MC Power Panel Power-Down Procedure

Description

The following procedure will explain the steps to power-down and remove the station power cabling to the front Power Distribution Panel in the MC Rack Assembly. However, the station power cabling can be installed in a few different conditions (independently fused or jumpered). Ideally, the front and rear Power Distribution Panels in the MC Rack Assembly should be independently fused at the Customer Power Distribution Bay, which would allow turning off just the front Power Panel easy. Alternatively, if each power feeder (A & B) for the front and rear Power Distribution Panels are jumper together, then connected to the independent fuses (for A & B) at the Customer Power Distribution Panel, the procedure to turn just the front Power Panel off becomes a little more complicated. The station power cabling for both feeders, must first go to the rear Power Panel, then jumpered to the front panel, so that while powering down of the front Power Panel will still leave the rear Power Panel under power (to maintain matrix units for service).

Required Equipment:

- 1 → 3/16" Hex Tip Driver (R-6020)
- 1 → 10mm Nut Driver (R-5954)
- 1 → Screwdriver Set (R-5955)
- 1 → VOM Meter (ITE-6379A or equiv.)

Assumptions:

1. Station Power Cabling to front and rear Power Distribution Panels in the MC Rack **must not** be connected (jumpered) to Power Distribution Panels in any other Complex Racks (MS or Port).

Precautions

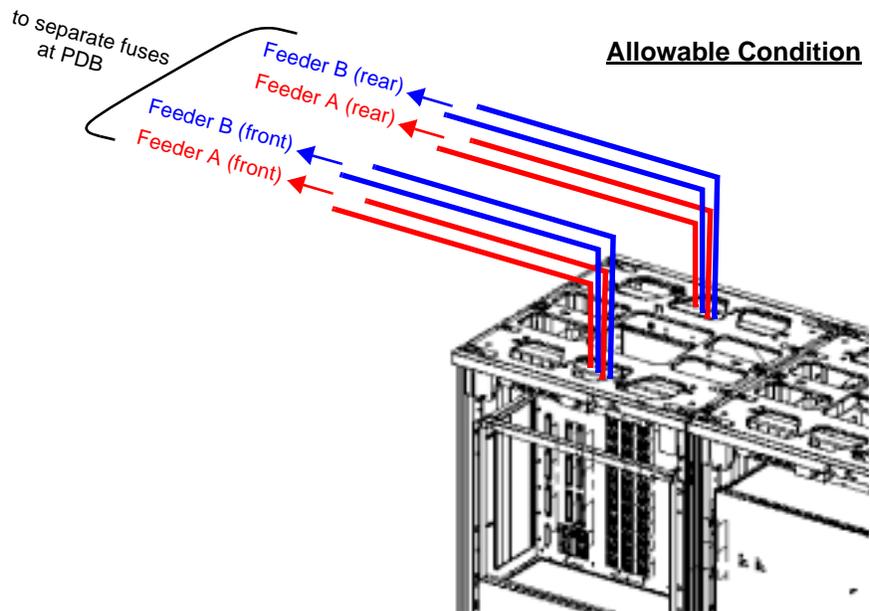
- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

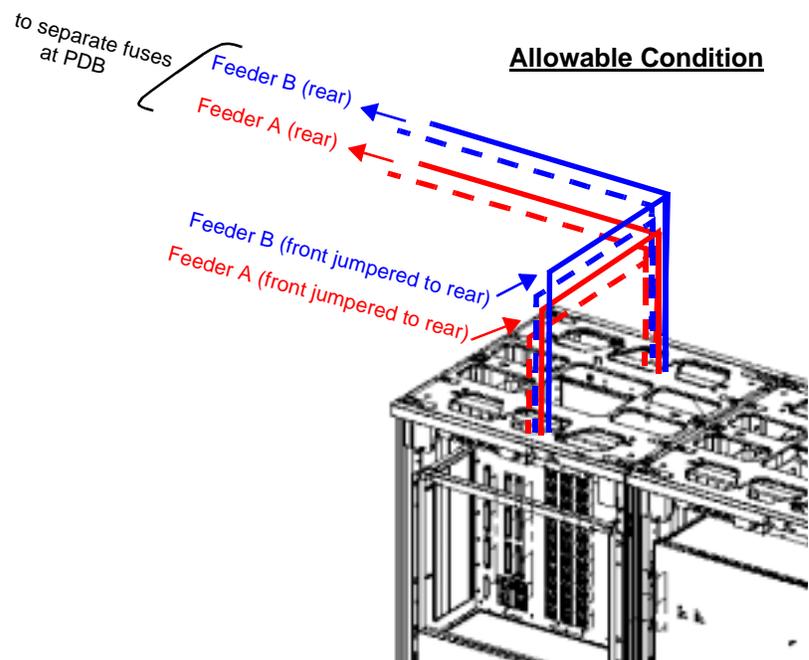
Use the boxes to check off the steps as they are completed.

- Step 1:** Using the following diagrams, determine which station power cabling condition exists and installed to the MC Rack Assembly in the Core Complex.

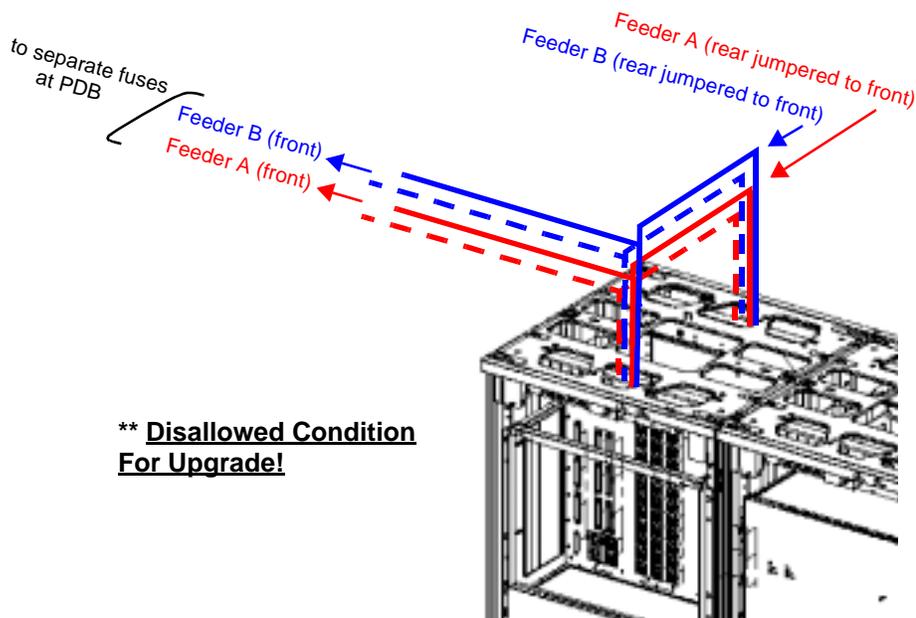
Condition #1 (A&B, front & rear - independently fused):



Condition #2 (A & B - independently fused, front jumpered to rear):



Condition #3 (A & B - independently fused, rear jumpered to front):



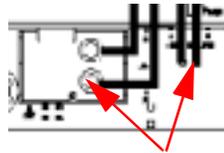
- Step 2:** Perform **one** of the procedural options below, based on the current station power cabling condition that exists in the MC Complex Rack:
- If **Condition #1** exists (most desirable), then each individually fused feeder (A & B) for the **front** MC Power Panel **can** be turned off at the station's PDB, without affecting power to the **rear** MC Power Panel. Proceed to **Step 3**.
 - If either **Condition #2** or **Condition #3** exists, then you **can not** separately control power to the **front** MC Power Panel without affecting power to the **rear** MC Power Panel. In this case, the power feeders will be turned off (one at a time) and the jumper power cable connections disconnected to isolate the **front** MC Power Panel from the **rear** MC Power Panel. If necessary, the incoming station power cables may need to be relocated to connect to the **rear** MC Power Panel, so that it can remain under power. Proceed to **Step 13**.

⚠ CAUTION:
*Be extremely careful, because turning power off to **both** feeders of the **rear** MC Power Panel will cause a service interruption!*

Condition #1 - Independent Front/Rear Power Panels:

-
- Step 3:** At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder B** (remove fuse or disengage circuit breaker) for **only** the **front** MC Power Panel.
-

- Step 4:** At the **front** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder B

Voltage Range Requirement:
0 Volts D.C.

-
- Step 5:** Verify that power has only turned **off** for **Power Feeder B** in the **front** MC Power Panel.

If power to any other power panels has turned **off**, then immediately stop procedure, turn the power feeder back on, and return to **Step 1** to re-investigate station power cabling condition.

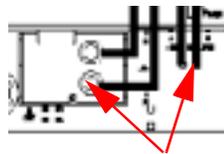


CAUTION:

Do **not** continue if power to any other power panel has turned off, or a service interruption will occur in the next step.

-
- Step 6:** At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder A** (remove fuse or disengage circuit breaker) for **only** the **front** MC Power Panel.
-

- Step 7:** At the **front** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



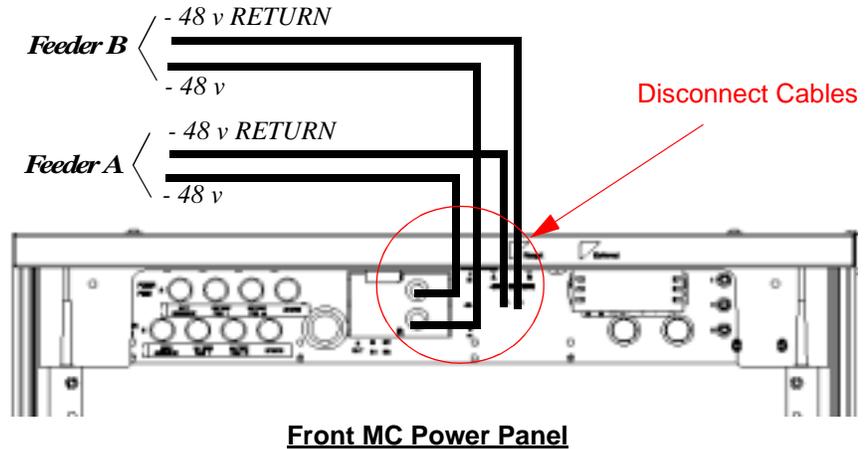
Test Points for Feeder A

Voltage Range Requirement:
0 Volts D.C.

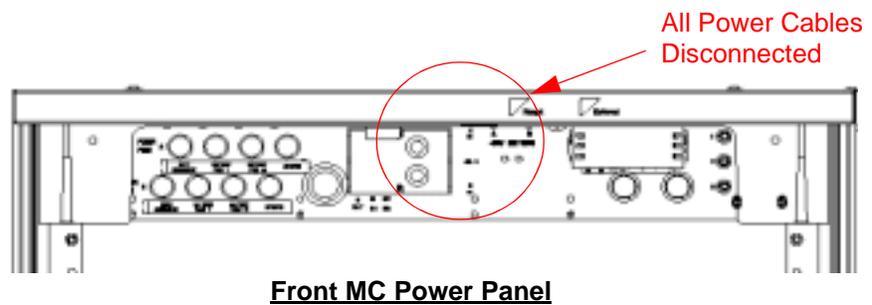
-
- Step 8:** Verify that power is only turned **off** for **Power Feeder A** in the **front** MC Power Panel.

If power to any other power panels has turned **off**, then immediately stop procedure, turn the power feeder back on, and return to **Step 1** to re-investigate station power cabling condition.

- Step 9:* At this point, the **front** MC Power Panel is totally **off**, **disconnect** all the station power feeder cables for **Feeder A** and **Feeder B**.



- Step 10:* At this point, **all** station power feeder cables (Feeder A and Feeder B) should be disconnected on the **front** MC Power Panel.



- Step 11:* Check-off the appropriate box corresponding to this procedure.

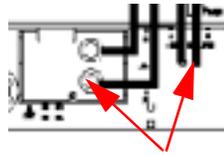
- Step 12:* This completes the "Front MC Power Panel Power-Down Procedure".
-

STOP- Return to Calling Procedure

Condition #2 or #3 - Jumpered Front/Rear Power Panels:

-
- Step 13:** At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder B** (remove fuse or disengage circuit breaker) corresponding to the **front** and **rear** MC Power Panels.

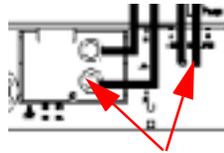
-
- Step 14:** At the **front** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder B

Voltage Range Requirement:
0 Volts D.C.

-
- Step 15:** At the **rear** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder B

Voltage Range Requirement:
0 Volts D.C.

-
- Step 16:** Verify that power is **only** turned **off** for **Power Feeder B** for the **front** and **rear** MC Power Panels.

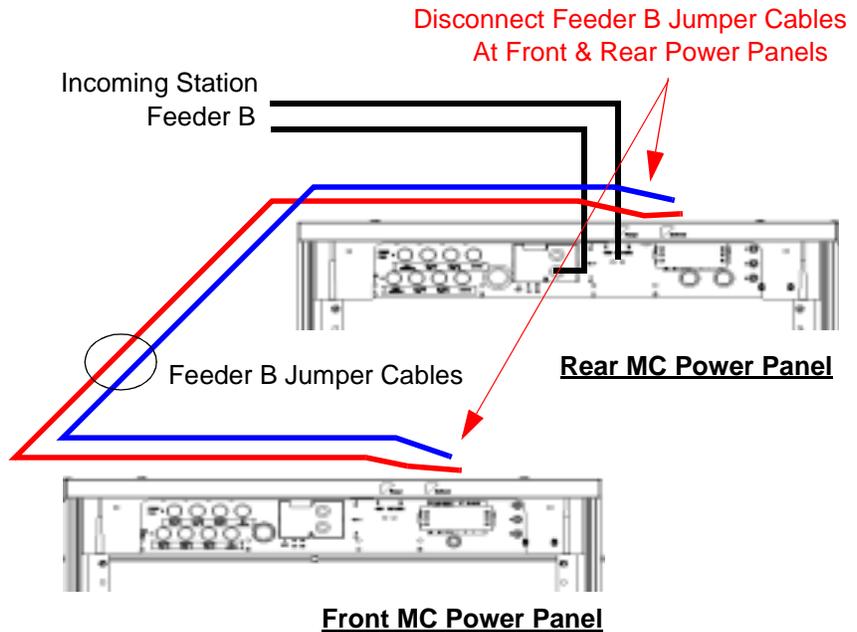
If power to any other power panels has turned **off**, then immediately stop procedure, turn the power feeder back on, and return to **Step 1** to re-investigate station power cabling condition.



CAUTION:

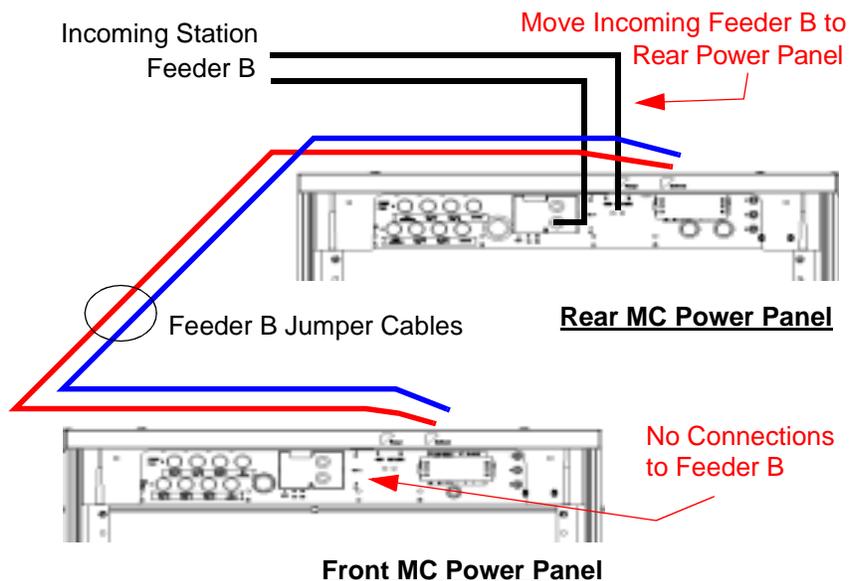
Do **not** continue if power to any other power panel has turned off, or a service interruption will occur if continued on with procedure.

- ☐ *Step 17:* Disconnect the jumper power cables for **Feeder B** at the power block of both the **front** and **rear** MC Power Panels.



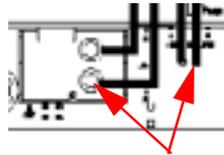
- ☐ *Step 18:* Perform **one** of the procedural options below, based on which panel (front or rear) the incoming power feeder cabling is connected:

- If the incoming station power cable for **Feeder B** is first connected to the **rear** MC Power Panel, then leave the incoming cables (-48v & return) connected to **only** the **rear** MC Power Panel.
- If the incoming station power cable for **Feeder B** is first connected to the **front** MC Power Panel, then disconnect incoming power cables (-48v & return) for **Feeder B**, and move to **Feeder B** connection on the **rear** Power Panel.



- Step 19:** At the Station's Power Distribution Bay (PDB), turn **on** **Power Feeder B** (install fuse or engage circuit breaker) corresponding to **only** the **rear** MC Power Panel.

- Step 20:** At the **rear** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:



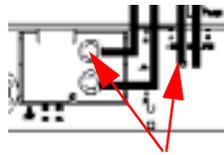
Test Points for Feeder B

Voltage Range Requirement:
-40.5 Volts D.C. to -57 Volts D.C.

- Step 21:** At this point, **Power Feeder B** is only **on** for the **rear** MC Power Panel, and **off** for the **front** MC Power Panel.

- Step 22:** At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder A** (remove fuse or disengage circuit breaker) corresponding to the **front** and **rear** MC Power Panels.

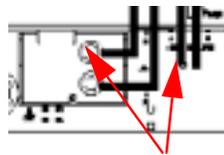
- Step 23:** At the **front** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder A

Voltage Range Requirement:
0 Volts D.C.

- Step 24:** At the **rear** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder A

Voltage Range Requirement:
0 Volts D.C.

- Step 25:** Verify that power is **only** turned **off** for **Power Feeder A** in the **front** and **rear** MC Power Panels.

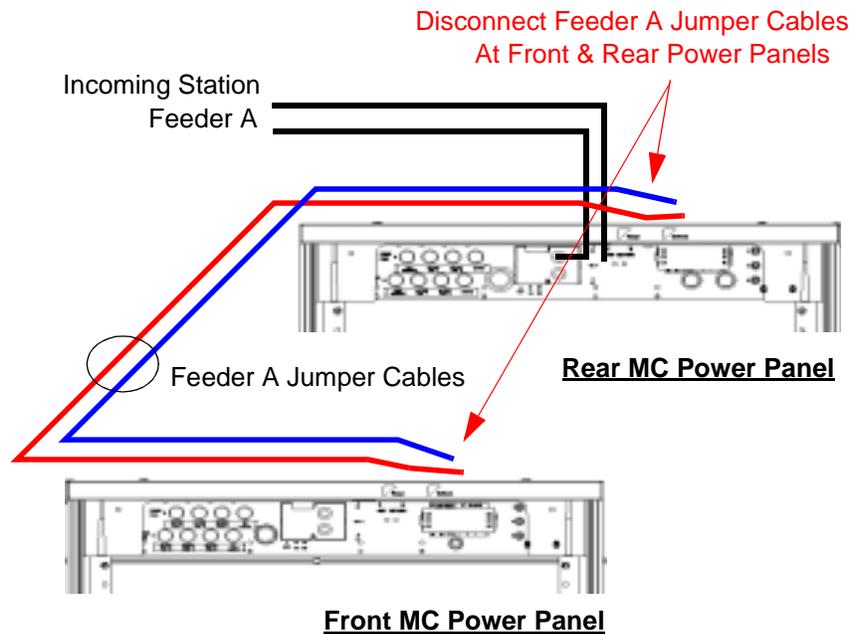
If power to any other power panels has turned **off**, then immediately stop procedure, turn the power feeder back on, and return to **Step 1** to re-investigate station power cabling condition.



CAUTION:

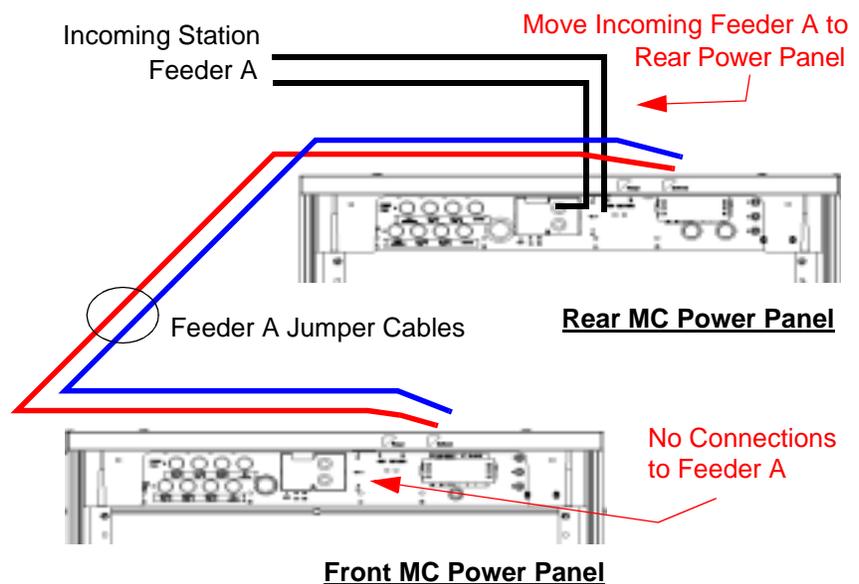
Do **not** continue if power to any other power panel has turned off, or a service interruption will occur if continued on with procedure.

- ☐ *Step 26:* Disconnect the jumper power cables for **Feeder A** at the power block of both the **front** and **rear** MC Power Panels.



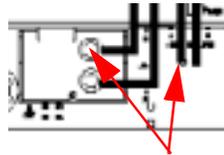
- ☐ *Step 27:* Perform **one** of the procedural options below, based on which panel (front or rear) the incoming power feeder cabling is connected:

- If the incoming station power cable for **Feeder A** is first connected to the **rear** MC Power Panel, then leave the incoming cables (-48v & return) connected to **only** the **rear** MC Power Panel.
- If the incoming station power cable for **Feeder A** is first connected to the **front** MC Power Panel, then disconnect incoming power cables (-48v & return) for **Feeder A**, and move to **Feeder A** connection on the **rear** MC Power Panel.



- Step 28:* At the Station's Power Distribution Bay (PDB), turn **on** **Power Feeder A** (install fuse or engage circuit breaker) corresponding to **only** the **rear** MC Power Panel.

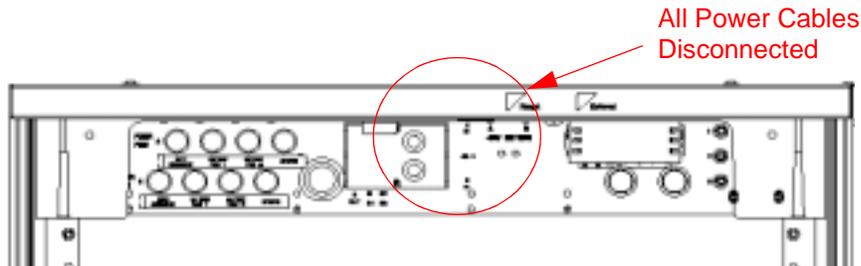
- Step 29:* At the **rear** MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:



Test Points for Feeder A

Voltage Range Requirement:
-40.5 Volts D.C. to -57 Volts D.C.

- Step 30:* At this point, **all** station power feeder cables (Feeder A and Feeder B) should be disconnected on the **front** MC Power Panel.



Front MC Power and Alarm Distribution Panel

- Step 31:* Check-off the appropriate box corresponding to this procedure.

- Step 32:* This completes the "*Front MC Power Panel Power-Down Procedure*".
-

STOP- Return to Calling Procedure

Appendix F - Rel 1.1 Equipment Removal Procedure

Description

The following procedure will provide instructions for removing the front MC Power Distribution Panel, MPU UNit, Bay Networks LAN Hub Unit in the MC Rack Assembly, and all associated cabling.

Required Equipment:

- 1 → 3/16" Hex Tip Driver (R-6020)
- 1 → 10mm Nut Driver (R-5954)
- 1 → Screwdriver Set (R-5955)

Assumptions:

1. BSSU 1 and BSSU 2 matrix units are currently powered-down.
2. MC Subrack is currently powered-down.
3. Bay Networks LAN Hub is currently powered-down.

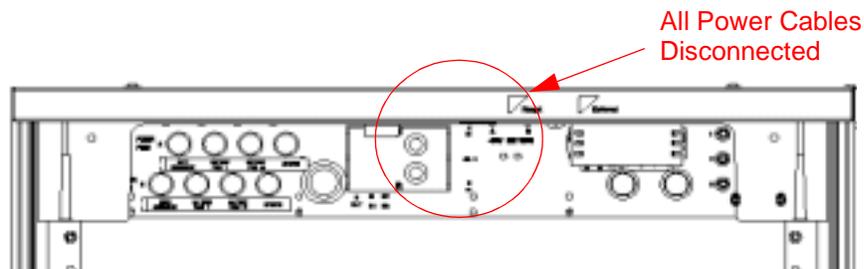
Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

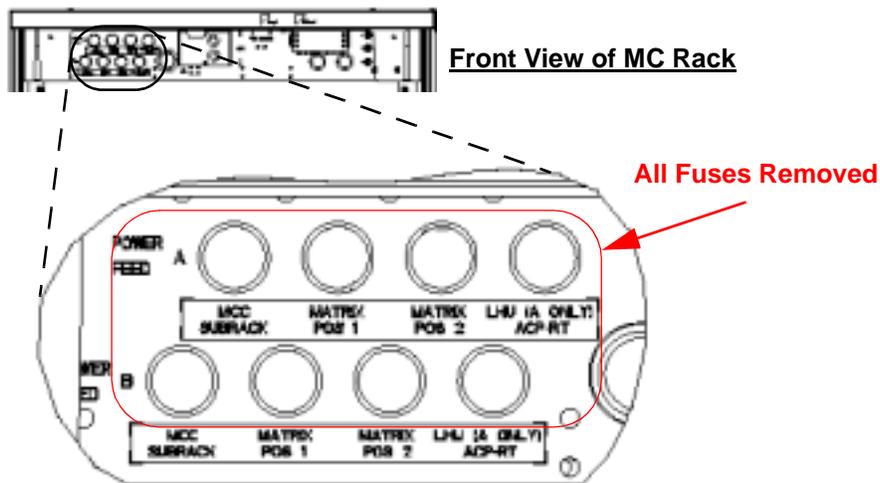
Use the boxes to check off the steps as they are completed.

- Step 1:** At the **front** MC Power Panel, verify that **all** station power cables are disconnected for **Feeder A** and **Feeder B**.



Front MC Power and Alarm Distribution Panel

- Step 2:** At the **front** MC Power Panel, verify that all **eight** fuses are removed from the fuseholder positions.



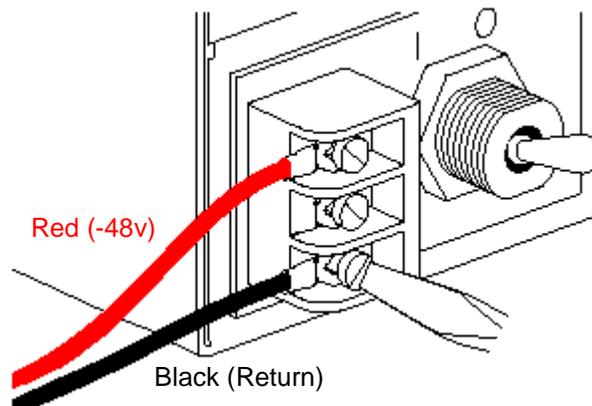
Bay Networks LAN Hub Removal:

- Step 3:* Disconnect the two power wires (-48v/red & Return/black) from the appropriate terminals of the power block on the **rear** of the LAN Hub Unit.

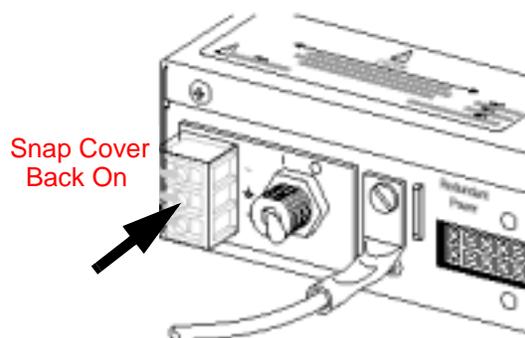
- Step 3-a:* Pry off the terminal safety cover with a flat-tip screwdriver.



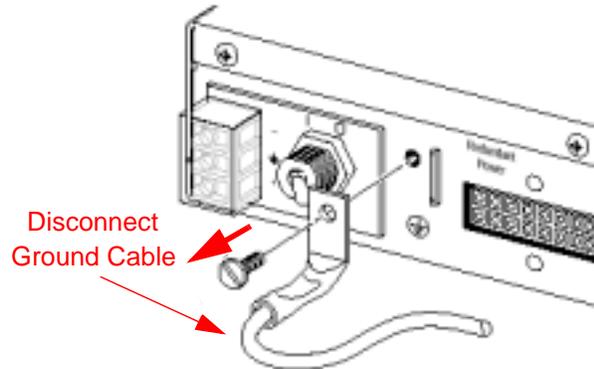
- Step 3-b:* Disconnect the two power wires to the DC Power Terminal Strip.



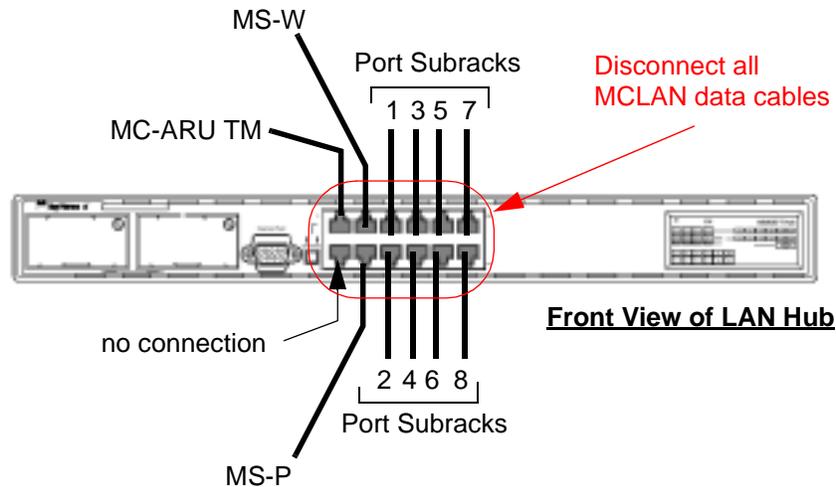
- Step 3-c:* Snap the Terminal Safety Cover back on.



- **Step 4:** At the **rear** of the Bay Networks LAN Hub Unit, disconnect the **LAN Hub Ground Cable (848340642)** at the ground lug using a phillips screwdriver.

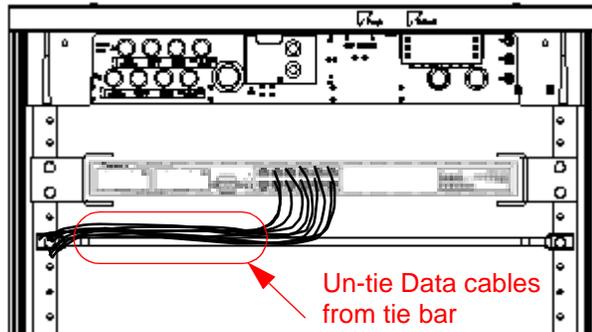


- **Step 5:** In the **front** of the Bay Networks LAN Hub Unit, verify that each of the equipped MCLAN data cables is properly labeled, then disconnect all the cables from the appropriate LAN connector interface on the LAN Hub Unit.



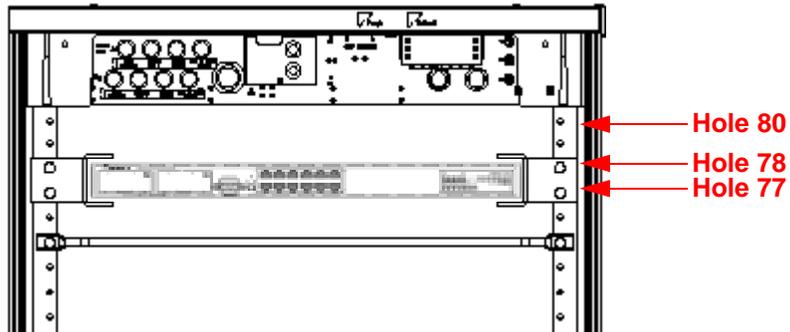
- **Step 6:** In the **front** of the MC Rack Assembly, **untie** all the existing MCLAN data cables from the cable tie bar, and route the data cables to the **rear** of the Motorola Controller Subrack and leave hanging temporarily in place.

Front View of MC Rack



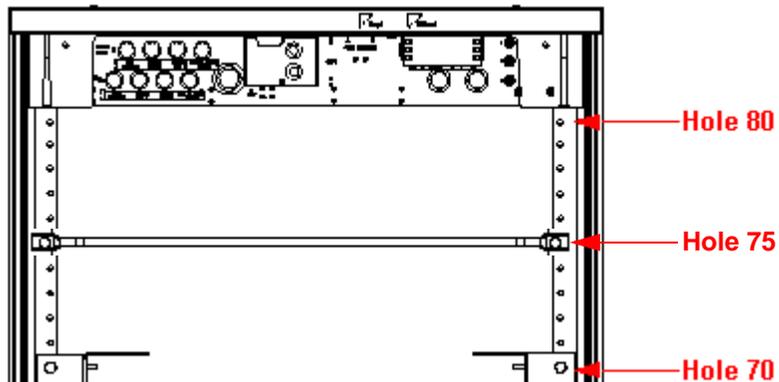
- **Step 7:** Using a 10mm nut driver, **remove** the LAN Hub Unit (408091775) from the **front** of the MC Rack Assembly (see figure for correct location).

Front View of MC Rack



- **Step 8:** Using a 10mm nut driver, **remove** the Cable Tie Bar (848253266) from the **front** of the MC Rack Assembly (see figure for correct location).

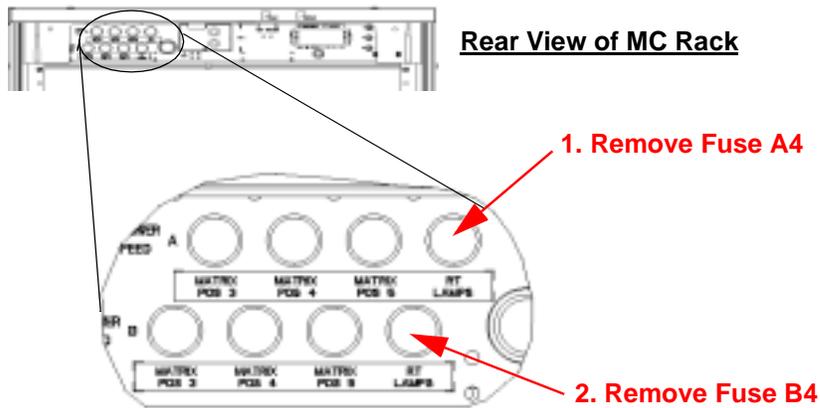
Front View of MC Rack



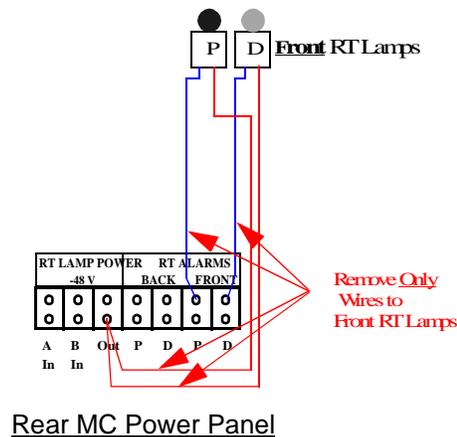
RackTop Alarm Wire Removal:

- **Step 9:** At the **rear** MC Power Panel, remove power to the Racktop Alarms Indicators by removing the fuses from only fuseholder positions **A4** and **B4**.

⚠ CAUTION:
 Be careful **not** to remove any fuses from any other fuseholder position or service will be affected.

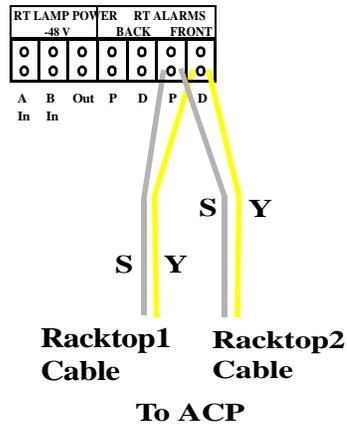


- **Step 10:** At the alarm terminal strip on the **rear** MC Power Panel, disconnect the two **blue** wires (from top terminal P) and two **red** wires (from top terminal D) corresponding to the **front Prompt** and **Deferred** Racktop Alarm Indicator bulbs. Re-route the wires out from each of the MC Power Panels and leave hanging in-place.



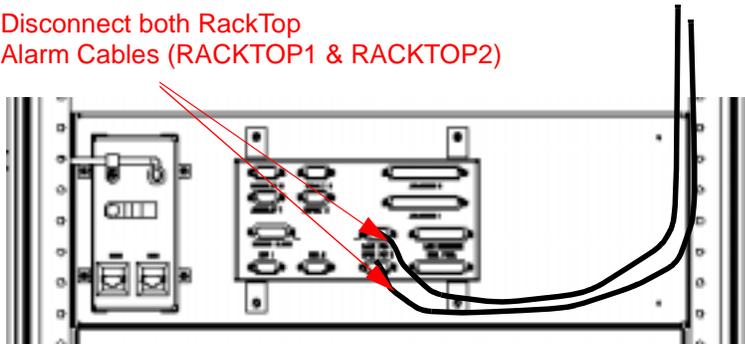
- **Step 11:** At the alarm terminal strip on the rear MC Power Panel, disconnect the two **slate** wires (from bottom terminal P) and two **yellow** wires (from bottom terminal D) corresponding to the two Racktop Alarm Cables (848305645) labeled "**Racktop1**" and "**Racktop2**". Re-route the wires out from the rear MC Power Panels and leave hanging in-place

Alarm Terminal Strip of Rear MC Power Panel



- **Step 12:** At Alarm Connector Panel (ACP) at the rear of User Panel, disconnect both of the **Racktop Alarm Cables** (Racktop-1 & Racktop-2) from the appropriate racktop connector interfaces, and gently route both cables out the front of the MC Rack assembly.

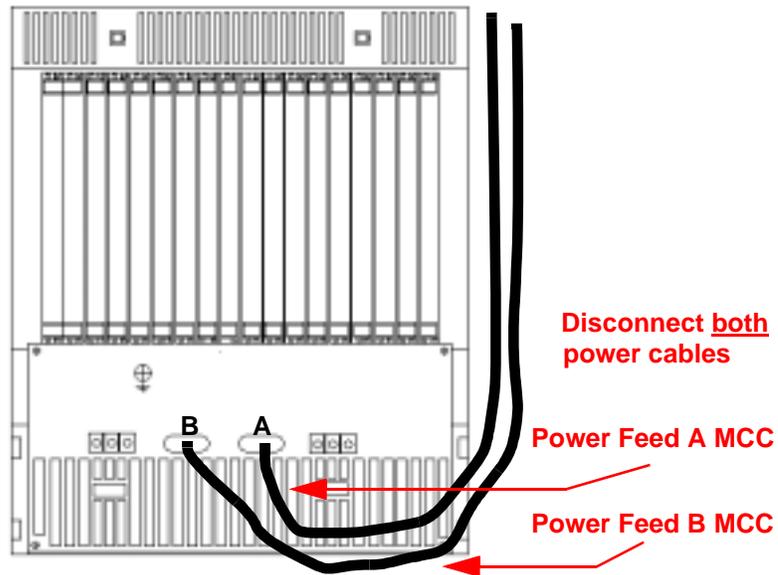
Disconnect both RackTop Alarm Cables (RACKTOP1 & RACKTOP2)



Rear of System User Panel

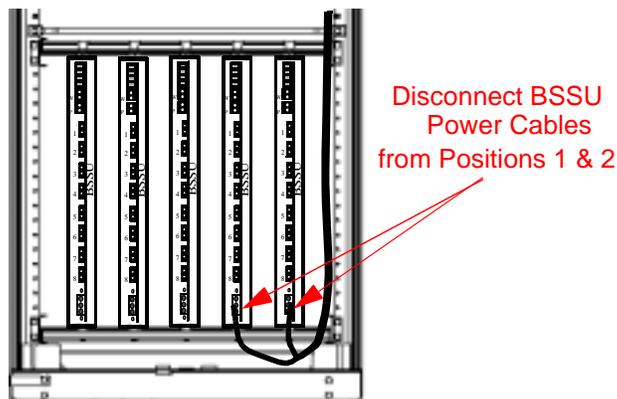
Front MC Power Panel Removal:

- *Step 13:* On the **rear** of the Motorola Controller Subrack, disconnect the power cables that are labeled “**Feeder A MCC**” and “**Feeder B MCC**”, and gently remove the cables out the top-front of the MC Rack Assembly.



Rear View of Motorola Controller

- *Step 14:* On the **rear** of matrix units **BSSU 1** and **BSSU 2** in the MC Rack Assembly, disconnect the power cables that are labeled “**Matrix Position 1**” and “**Matrix Position 2**”, and gently remove the cables out the top-front of the MC Rack Assembly.

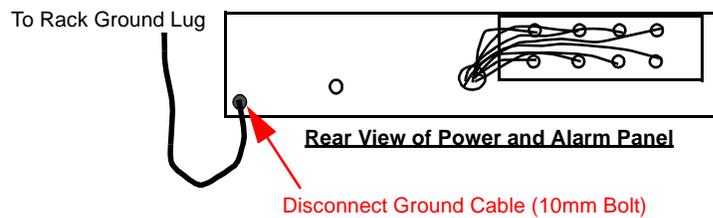


□ **Step 15:** On the **right-side** of the MC Rack Assembly (as viewed from rear), locate the *unconnected* power cable labeled “**Fan PWR & Ground**” that is attached to the **front** MC Power Panel (848288023-D), and gently remove the cable out the top-front of the MC Rack Assembly.

□ **Step 16:** At the **top** rack grounding lug of the MC Rack Assembly, disconnect and remove the following ground cables using a 10mm nut driver:

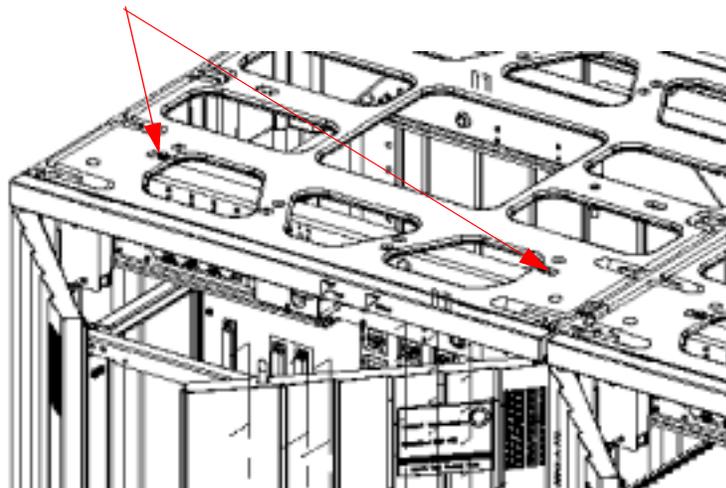
- Remove the **ground wire (g/y)** that is attached to the **Fan Power & Ground Cable** that is attached to the **front** MC Power Panel.
- Remove the **LAN Hub Ground Cable (848340642)**

□ **Step 17:** On the **rear** of the **front** MC Power Panel, disconnect the **ground cable (g/y)** that is attached to the back left of the panel. Leave ground cable hanging in-place and save mounting bolt for mounting of new power panel.



□ **Step 18:** Using 10mm nut driver, unscrew two mounting bolts (up from bottom of panel) and remove the **front** MC Power Panel.

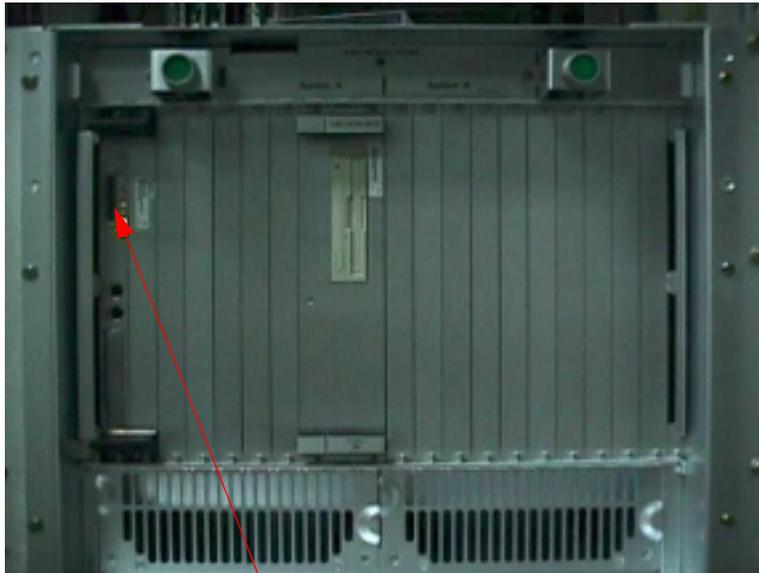
Location of Mounting Bolts (screw up from bottom of panel)



Existing MPU Unit Removal:

-
- Step 19:* Unscrew top and bottom mounting screws, and carefully remove the existing MPU Unit (408091619 or SMMXRCPULUCNT2-K) from its VME bus card slot in the Motorola Controller.

 **NOTE:**
Place the unit on a clean and adequately protected working surface (preferably an ESD mat), component side up, with the front panel away from you.



Remove MPU Unit.

-
- Step 20:* Check-off the appropriate box corresponding to this procedure.
 - Step 21:* This completes the "Rel 1.1 MC Equipment Removal Procedure".
-

STOP- Return to Calling Procedure

Appendix G - Rel 2.0 MC Equipment Install Procedure

Description

The following procedure will provide the instructions to install the new MPU Unit (w/512M Ram Module), two new internal lan hub modules (VMA1), new front Power and Alarm Distribution Panel for the MC Rack Assembly, plus all associated cabling.

Required Equipment:

- 1 → 3/16" Hex Tip Driver (R-6020)
- 1 → 10mm Nut Driver (R-5954)
- 1 → Screwdriver Set (R-5955)

Assumptions:

1. No front Power and Alarm Panel installed.
2. No MPU unit installed in working MC controller (leftside).
3. No Bay Networks LAN Hub unit installed.
4. BSSU 1 and BSSU 2 matrix units currently powered-down.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

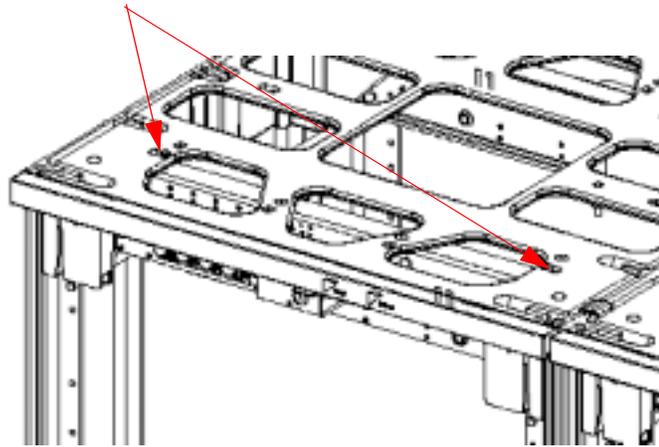
Use the boxes to check off the steps as they are completed.

Power and Alarm Distribution Panel Installation:

-
- Step 1:** Obtain the **Rel 1.1 to Rel 2.0 System Upgrade Kit (848486742)**, and locate the new **front** MC Power Panel (848288023-E).

 - Step 2:** Using the two supplied 10mm bolts/nuts, **mount** the new **front** MC Power Panel (848288023-E) to the top of MC Rack Assembly.

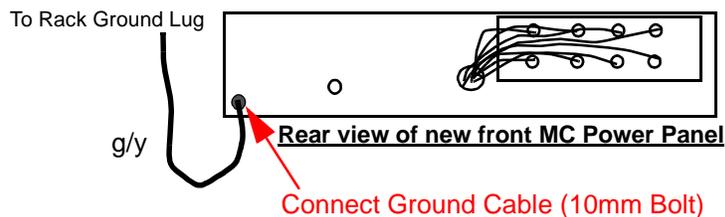
Location of Mounting Bolts (screw up from bottom of panel)



CAUTION:

Do not install station power cables to front MC Power Panel at this time, it will be done later in upgrade procedure.

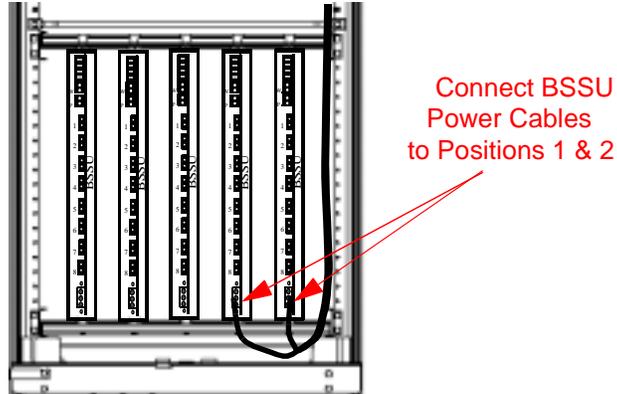
-
- Step 3:** At the **rear** of the new MC Power Panel (848288023-E), **connect** the existing **ground cable** (which is hanging in-place) to the back left corner of the panel.



-
- Step 4:** Uncoil all the attached cables on the new **front** MC Power Panel (848288023-E), and route the bundle of cables around the top cable tie bar (mounting hole 80) on the left-side of the MC Rack assembly (as viewed from the front).

- Step 5: **Locate** the two power cables labeled “**BSSU 1**” and “**BSSU 2**” that are attached to the new **front** MC Power Panel (848288023-E), and **route** the cables down the **left-side** of the MC Rack Assembly (as viewed from the front) to the **bottom-rear** of the BSSU Enclosure in the MC Rack Assembly.

- Step 6: At the **rear** of the MC Rack Assembly, **connect** the two power cables labeled “**BSSU 1**” and “**BSSU 2**” to the appropriate power connector interface of the matrix units **BSSU-1** and **BSSU-2** respectively.

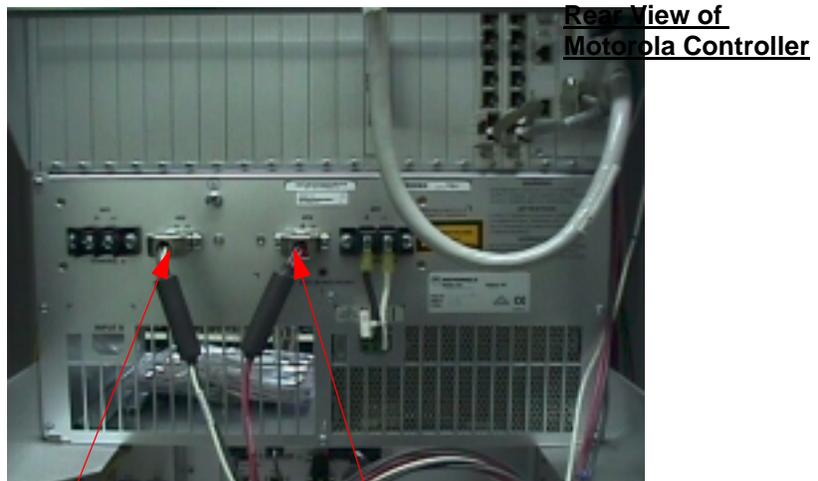


Rear View of MC Rack Assembly

- Step 7: **Locate** the two power cables labeled “**Power Feed A MCC**” (red & black wires) and “**Power Feed B MCC**” (white & black wires) that are attached to the new **front** MC Power Panel (848288023-E), and **route** the cables down the **left-side** of the MC Rack Assembly (as viewed from the front) to the middle of the rack (leave temporarily on top of upper baffle assembly).

- Step 8: From the **rear** of the MC Rack Assembly, install the two power cables labeled “**Power Feed A MCC**” (r & blk wires) and “**Power Feed B MCC**” (w & blk wires) to the appropriate power connector interfaces at the **rear** of the Motorola Controller Subrack.

Install MC Power Cables



“Power Feed B MCC”

“Power Feed A MCC”

- ☐ **Step 9:** **Locate** the power cable labeled “**Fan PWR & Ground**” that is attached to the new **front** MC Power Panel (848288023-E), and **route** the cable down the **left-side** of the MC Rack Assembly (as viewed from the front). Tie off this power cable to the side of the rack, since it is currently **not** used in the system, and should be left for potential future use.

Also, check the in-line fuseholder on the cable, and make sure that **no** fuse is currently installed. (if fuse is installed, remove and tape to outside of connector housing).

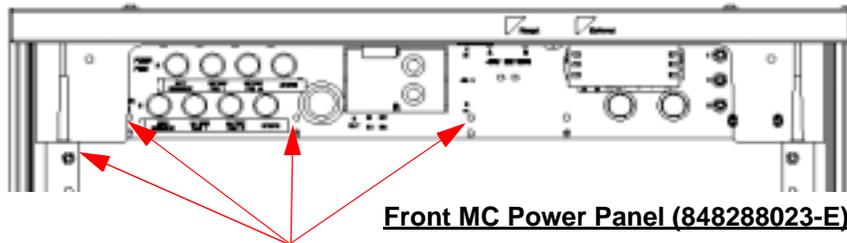


CAUTION:

If fuse is left installed in the in-line fuse holder, potential shorting could occur on the un-installed power connector, which could cause a service interruption due to system loss of power.

- ☐ **Step 10:** **Locate** the un-connected end of the **ground wire (g/y)** that is attached to the **Fan Power & Ground Cable**, and install to the **top** Rack Grounding Lug of the MC Rack Assembly.

- ☐ **Step 11:** Using locally supplied cable ties, tie-off the power cables to the bottom of the new **front** MC Power Panel (848288023-E) towards the front left-side of the rack, and to the top-left front-to-back cable tie bar.



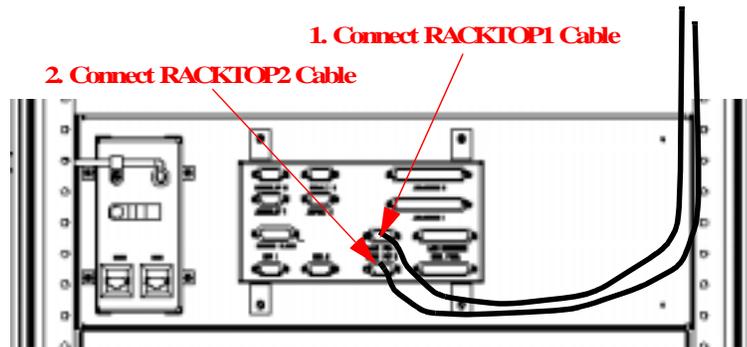
Front MC Power Panel (848288023-E)

Use holes in panel for cable ties to dress power cables here!

RackTop Alarm Wire Installation:

- **Step 12:** **Locate** the two Racktop Alarm Cables (848305645) labeled “**Racktop1**” and “**Racktop2**” that are attached to the new **front** MC Power Panel (848288023-E), and **route** the cables down the rear **right-side** of the MC Rack Assembly (as viewed from the rear) to the middle of the rack (leave temporarily on top of upper baffle assembly).

- **Step 13:** From the **front** MC Power Panel, route and install the **two Racktop Alarm Cables** (Racktop-1 & Racktop-2) to the appropriate racktop connector interface on the Alarm Connector Panel (ACP) at the **rear** of User Panel.

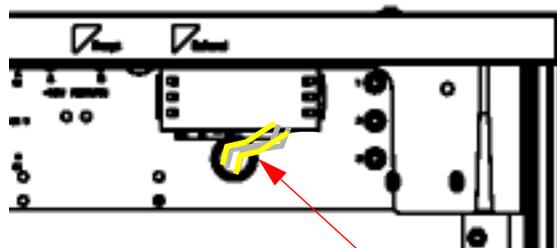


Rear of System User Panel

- **Step 14:** The two Racktop Alarm Cables (848305645) labeled “**Racktop1**” and “**Racktop2**” **each** contain **two** unconnected wires (slate and yellow), which correspond to the Prompt and Deferred Racktop Alarms.

Route all four of these wires (2 slate & 2 yellow) over to the **rear** MC Power Panel, thru the indicated hole in the panel, and up to the terminal strip.

Rear MC Power Panel

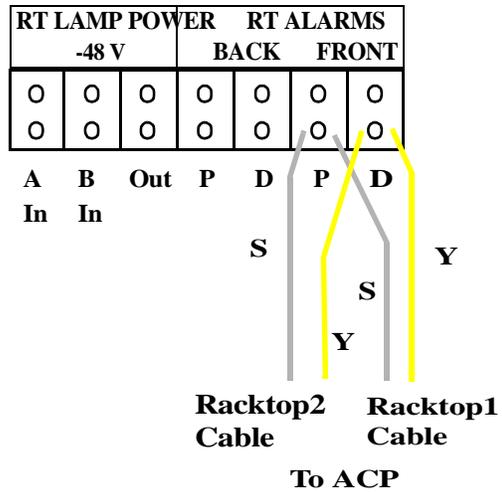


Slate & Yellow Alarm Wires

☐ **Step 15:** At the terminal strip on the **rear** MC Power Panel, **install** the four unconnected wires (2 slate & 2 yellow) for the two Racktop Alarm Cables (848305645) labeled “**Racktop1**” and “**Racktop2**” to the appropriate terminal.

- Install two slate wires (Prompt) to Terminal P of rear power panel.
- Install two yellow wires (Deferred) to Terminal D of rear power panel.

Terminal Strip of Rear MC Power Panel



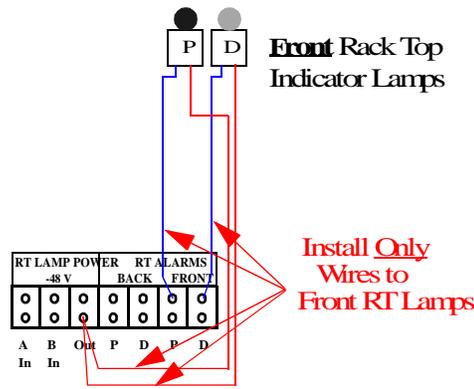
- **Step 16:** **Locate** the four wires (2-red, 2-blue) for the **front** MC Racktop Alarm Indicator Lamps (Prompt/Deferred) at the top of the rack assembly, and **route** them to the terminal strip on the **rear** MC Power Panel.



CAUTION:

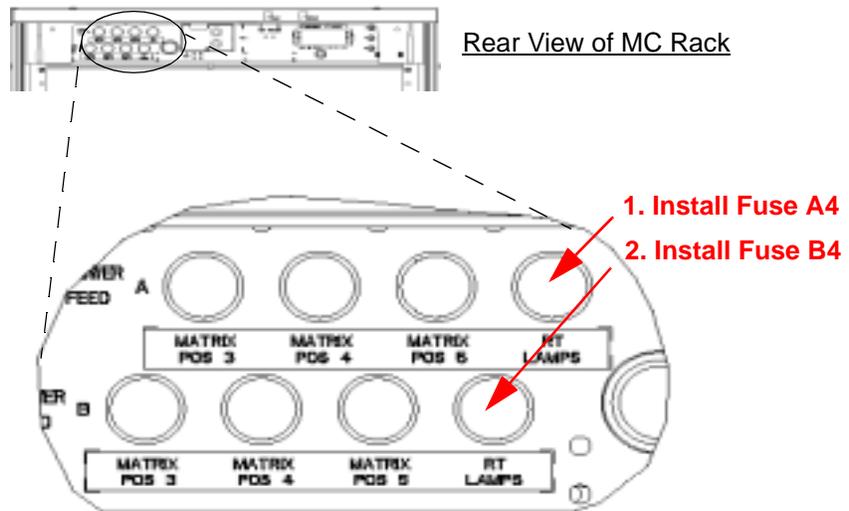
The front racktop lamps must be connected only to the rear alarm terminal strip, since racktop power is only supplied to the rear Power and Alarm Distribution Panel.

- **Step 17:** At the terminal strip on the **rear** MC Power Panel, **connect** the appropriate wires (red/blue) as indicated below for the Racktop Alarm Indicator Lamps (Prompt/Deferred) of the **front** MC Rack Assembly.



Terminal Strip of **Rear** MC Power Panel

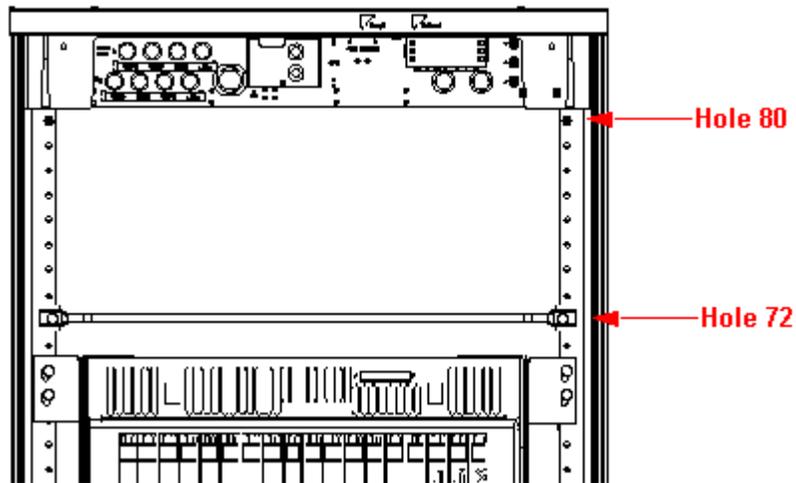
- **Step 18:** At the **rear** MC Power panel, **install** the supplied fuses into fuseholders **A4** and **B4** for the Racktop Alarms associated with the MC rack assembly.



New VAM-1 Unit & MCLAN Installation:

- *Step 19:* Using a 10mm nut driver and two M6 x 16 Hex Washerhead Self-tapping Screws (901331421), mount the previously removed **Cable Tie Bar (848253266)** above the rear mounting brackets of the Motorola Controller Subrack at hole location 72.

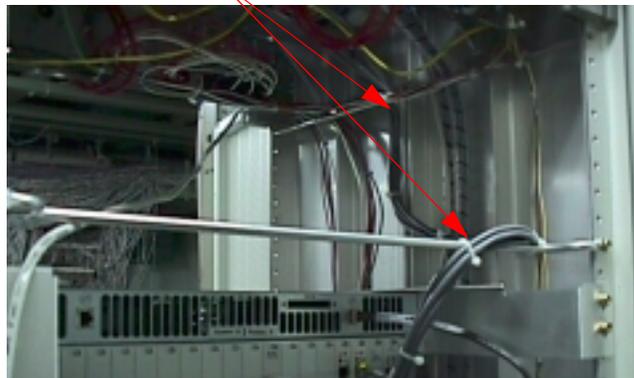
Rear View of MC Rack



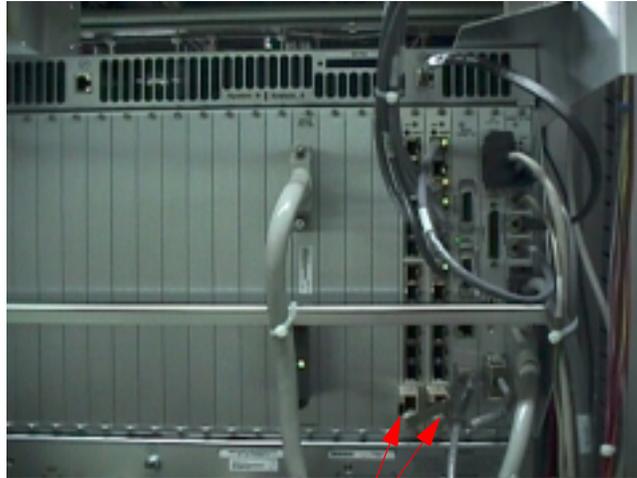
- *Step 20:* In the **rear** of the MC Rack Assembly, **route** all the existing MCLAN data cables from the **right-side** of the rack (when viewed from the rear) onto the cable tie bar above the Motorola Controller Subrack, and down to slot 4.

Rear View of MC Rack Assembly

Redress MCLAN Cables as indicated.



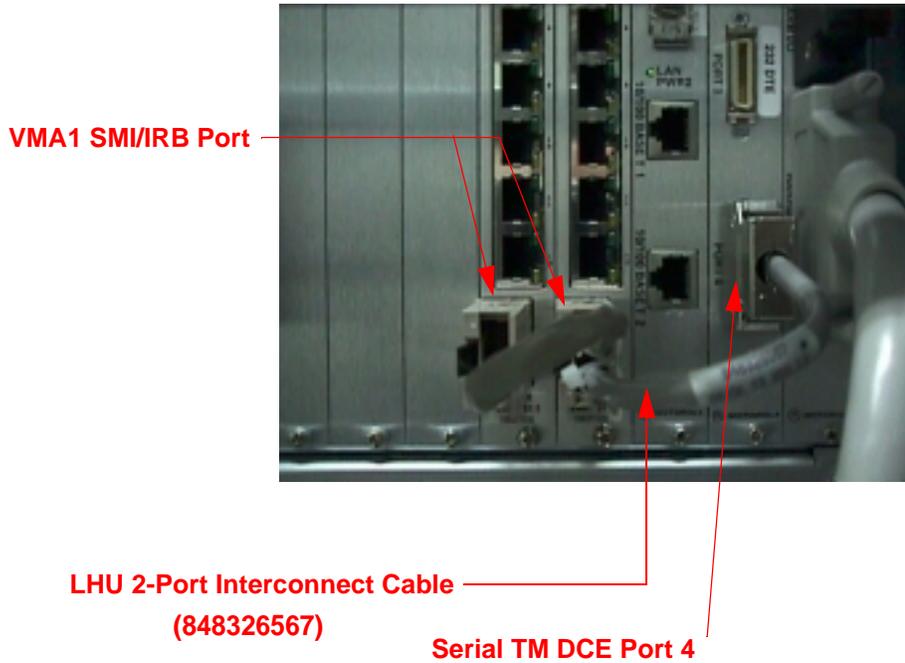
- Step 21:** From the **rear** of the Motorola Controller, install **two** internal **VMA1 LAN Hub Modules (108371535)**.
- Step 21-a:** Using phillips screwdriver, unscrew top and bottom mounting screws, remove slot covers, and discard covers.
- Step 21-b:** Install VMA-1 modules into slot, and tighten mounting screws.



1. Remove slot covers (x2)
2. Install VMA1 Modules (x2)

- **Step 22:** In the rear of the Motorola Controller, install the **LHU 2-Port Interconnect Cable (848326567)** between the **SMI/IRB Port** of both **VMA1 TM (108371535)** and **DCE Port 4** of the **Serial TM(XR712-121)**.

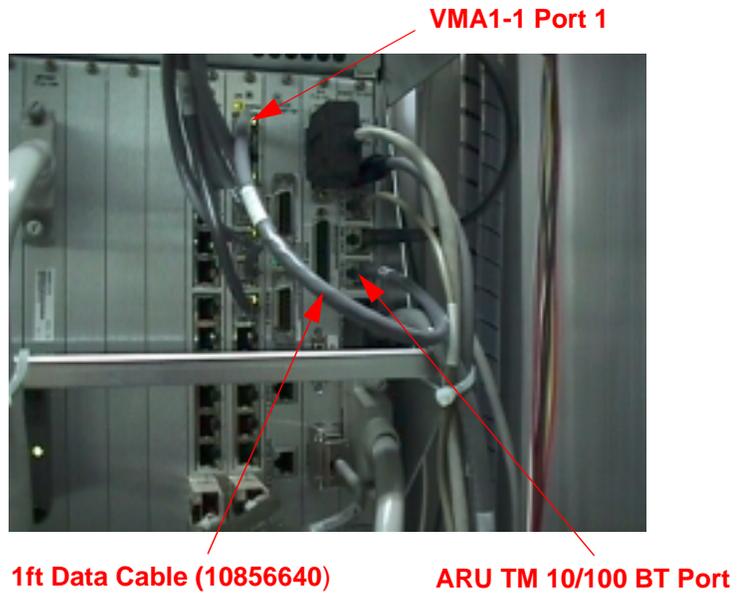
Correct Installation



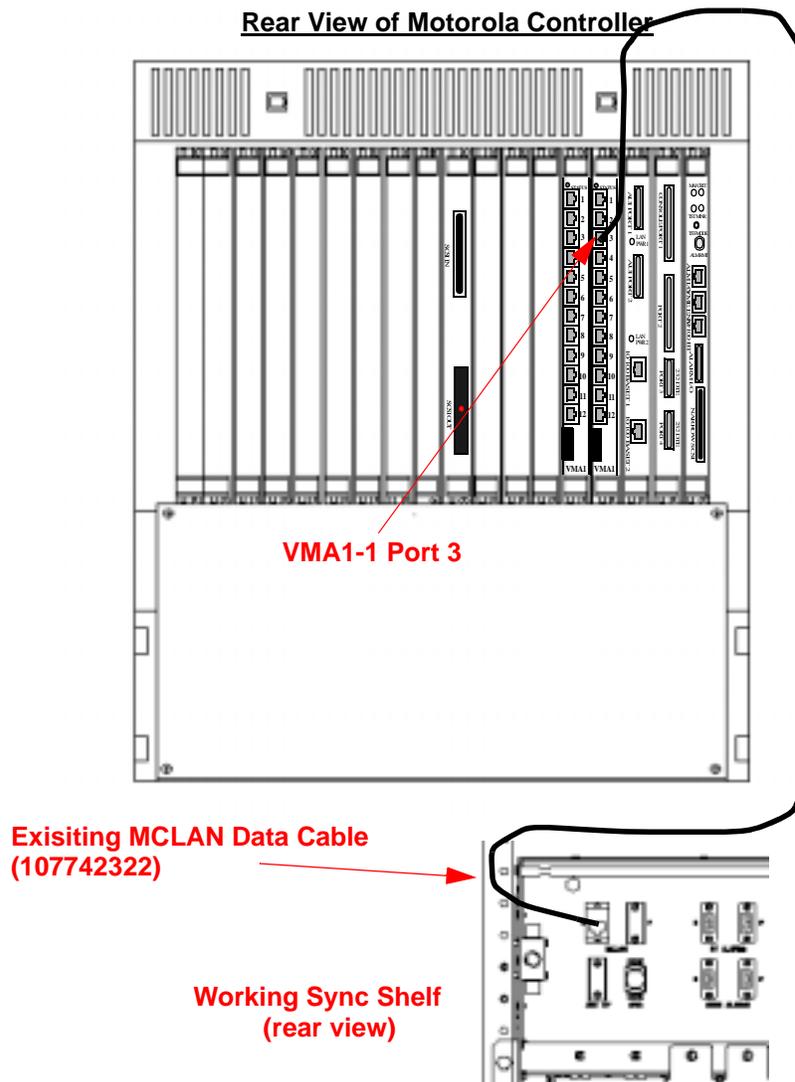
Incorrect Installation



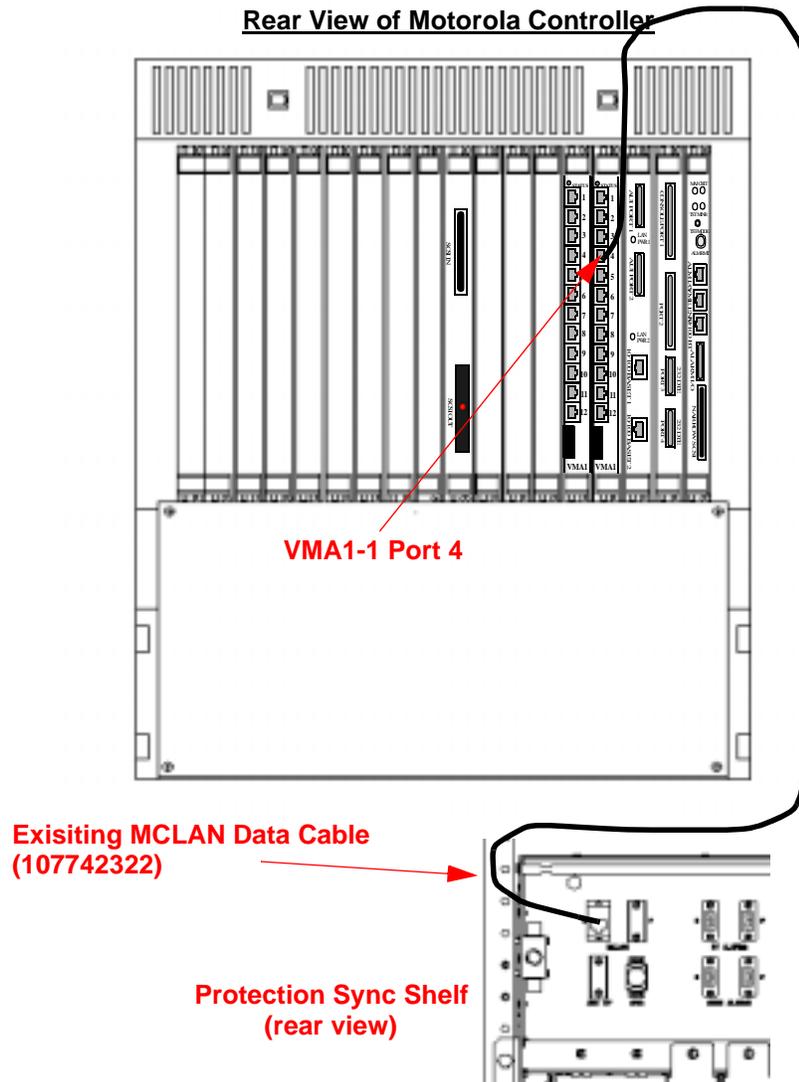
- ❑ *Step 23:* From the **rear** of the Motorola Controller, install the **LHU to ARU MCLAN** data connection.
- ❑ *Step 23-a:* Obtain the **MCLAN label Kit (408346831)** from the upgrade kit, locate 2 “**MC-W**” labels, and place on both ends of the **1ft Data Cable (107748121)**.
- ❑ *Step 23-b:* Install **1ft Data Cable (107748121)** between **VMA1-1 Port 1** and **ARU-TM 10/100 BT Port**.



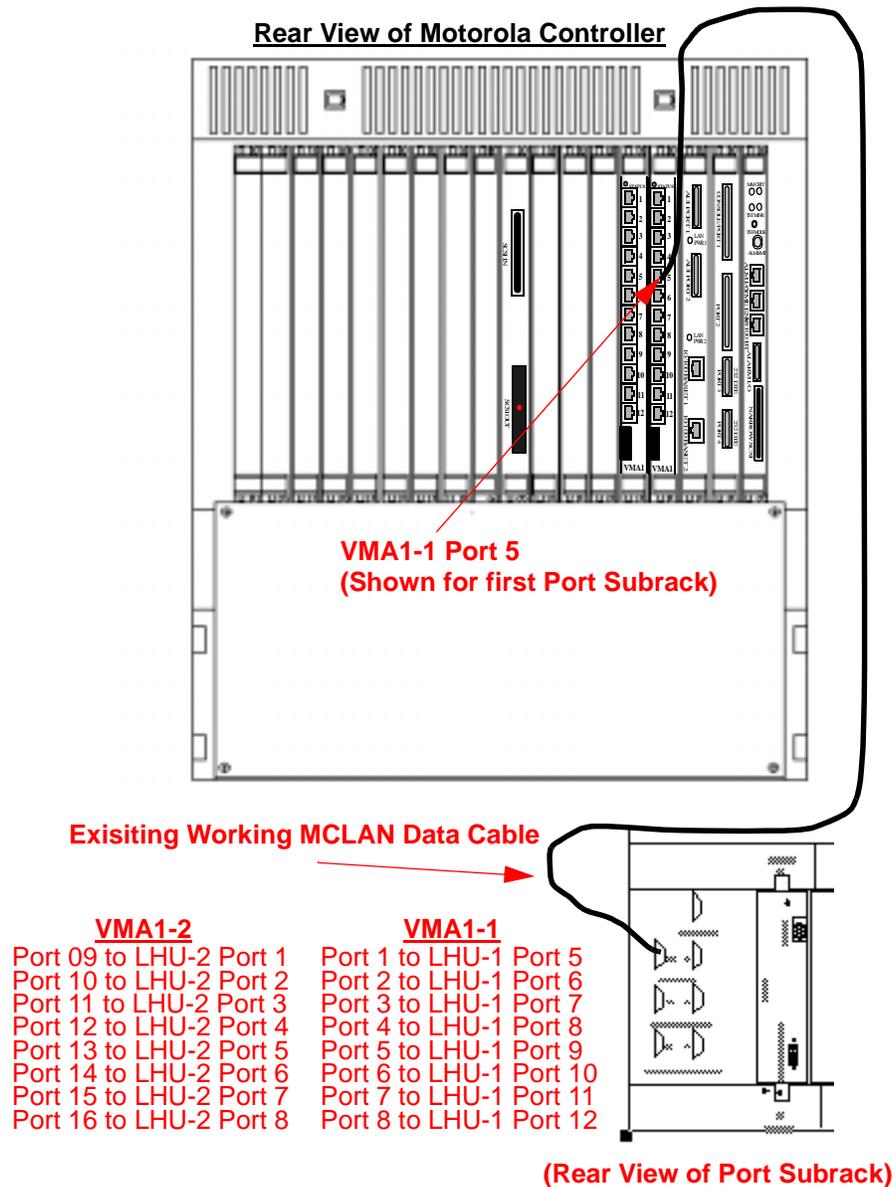
- ❑ *Step 24:* Re-install the **Working MCLAN** data cable for Working Sync Shelf to the appropriate port on the VMA1 modules in the Working MC Subrack (MC-1).
- ❑ *Step 24-a:* Obtain two labels "**MSW-W**" from MCLAN label Kit (408346831) from the upgrade kit.
- ❑ *Step 24-b:* Locate the existing Working MCLAN data cable for the Working Sync Subrack and place the "**MSW-W**" labels on both ends of cable.
- ❑ *Step 24-c:* Re-install existing Working MCLAN data cable from MCLAN-W of Working Sync Shelf to VMA1-1 Port 3.



- ❑ *Step 25:* Re-install the **Working MCLAN** data cable for Protection Sync Shelf to the appropriate port on the VMA1 modules in the Working MC Subrack (MC-1).
 - ❑ *Step 25-a:* Obtain two labels “**MSP-W**” from MCLAN label Kit (408346831) from the upgrade kit.
 - ❑ *Step 25-b:* Locate the existing Working MCLAN data cable for the Protection Sync Subrack and place the “**MSP-W**” labels on both ends of cable.
 - ❑ *Step 25-c:* Re-install existing Working MCLAN data cable from MCLAN-W of Protection Sync Shelf to VMA1-1 Port 4.

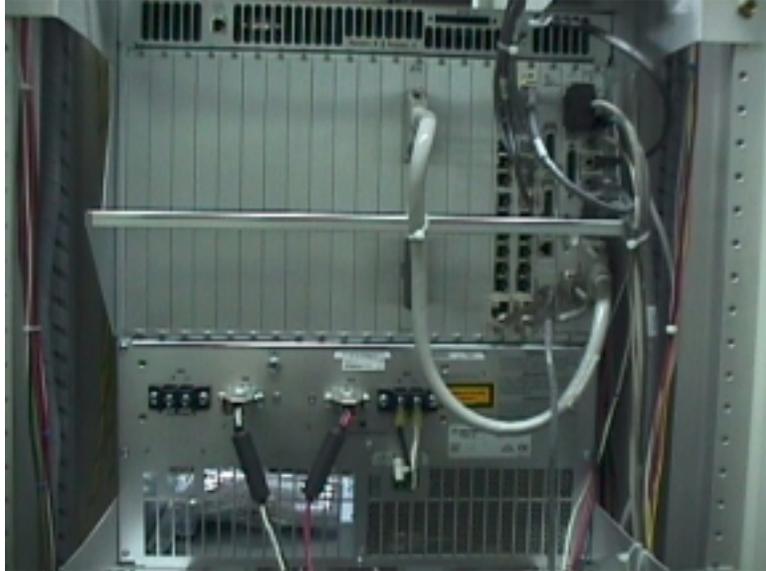


- ❑ **Step 26:** Re-install the **Working MCLAN** data cable for each of the existing Port Subracks in the system to the appropriate LHU ports on the VMA1 modules in the Working MC Subrack (MC-1). Perform steps below for each Port Subrack.
 - ❑ **Step 26-a:** Obtain two of the appropriate labels "**Port{1-16}-W**" from MCLAN label Kit (408346831) of upgrade kit for the specific Port Subrack.
 - ❑ **Step 26-b:** Locate the existing working MCLAN data cable for the specific Port Subrack and place the appropriate "**Port{1-16}-W**" labels on both ends of the cable.
 - ❑ **Step 26-c:** Re-install existing Working MCLAN data cable from MCLAN-W for the specific Port Subrack to the appropriate VMA1 port below:.



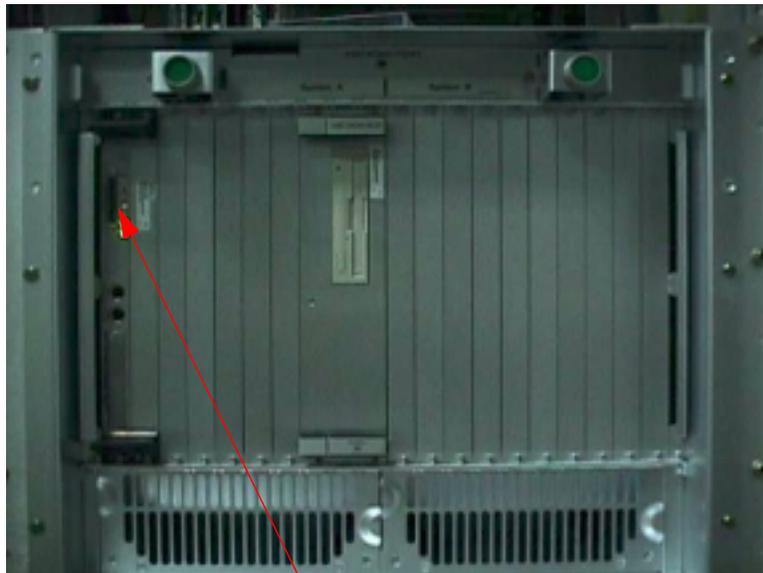
- Step 27:* In the **rear** of the MC Rack Assembly, **verify** that all the cables are dressed accordingly as indicated in pictures below:.

Rear View of MC Rack Assembly



New MPU Unit Installation:

- Step 28:* Carefully install the new MPU Unit (408420313 or SMMXRCPULUCNT5-K) into VME bus card slot 1 for the working Main Controller, then screw in top and bottom mounting screws.



Install new MPU Unit.

- Step 29:* Obtain the new **Upgrade Rack Labels** from the upgrade kit.



- Step 30:* Place the new labels **under** the current rack labels for **both** the MC Rack and MS Rack.

 **NOTE:**
Existing rack labels are normally located in the upper right-side front portion of the rack.



- Step 31:* Check-off the appropriate box corresponding to this procedure.

- Step 32:* This completes the "*Rel 2.0 Equipment Install Procedure*".
-

STOP- Return to Calling Procedure

Appendix H - Front MC Power Panel Power-Up Procedure

Description

The following procedure will explain the steps to re-install the station power cabling and power-up the front MC Power Panel. However, it is dependant on how the station power cabling is configured from the Customer Power Distribution Panel to the front and rear MC Power Panel (independently fused or jumpered).

For Independently Fused Power Panels:

If the front and rear MC Power Panels are independently fused at the Customer Power Distribution Panel, then the installation of the station power cabling and power-up of the front MC Power Panel can be done independantly from the rear MC Power Panel.

For Jumpered Power Panels:

If the front and rear MC Power Panels are jumpered together independantly for feeders A & B, then connected to independent fuses (for A & B) at the Customer Power Distribution Panel, then the installation of the station power cabling and power-up of the front MC Power Panel becomes a little more complicated. The station power cabling jumper should already be in place but not connected between the front and rear MC Power Panels for both feeders. Since the rear MC Power Panel is currently powered-on, each feeder must be temporarily turned off one at a time, in order to install the power cable jumper for the specific feeder on each power panel while the feeder is currently off. After the power cable jumper is installed between the front and rear MC Power Panels for the specific feeder, the feeder can be turned back on at the Customer Power Distribution Bay. The entire process is then repeated in order to install the jumper power cabling for the other power feeder. At all times, there must be at least one power feeder that remains turned on (to maintain power to matrix units) for the rear MC Power Panel.

Required Equipment:

- 1 → 3/16" Hex Tip Driver (R-6020)
- 1 → 10mm Nut Driver (R-5954)
- 1 → Screwdriver Set (R-5955)
- 1 → VOM Meter (ITE-6379A or equiv.)

Assumptions:

1. Station Power Cabling to front and rear Power Distribution Panels in the MC Rack **must not** be connected (jumpered) to Power Distribution Panels in any other Complex Racks (MS or Port).

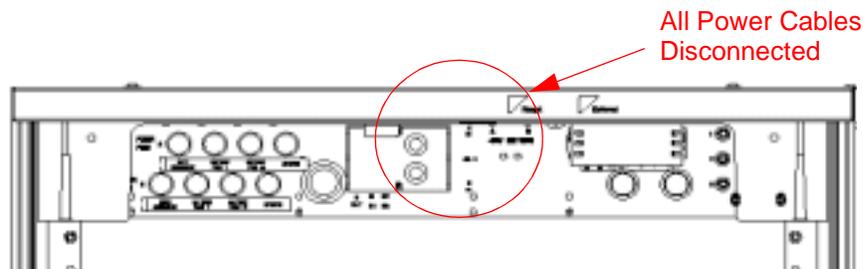
Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

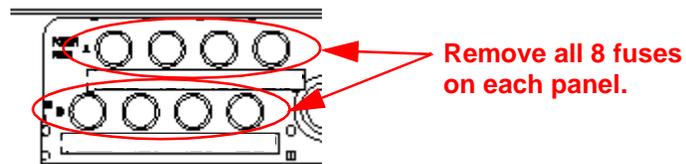
Use the boxes to check off the steps as they are completed.

- Step 1:** At this point, the **front** MC Power Panel is currently powered-off, and all the station power cables are disconnected for Feeder A and Feeder B.



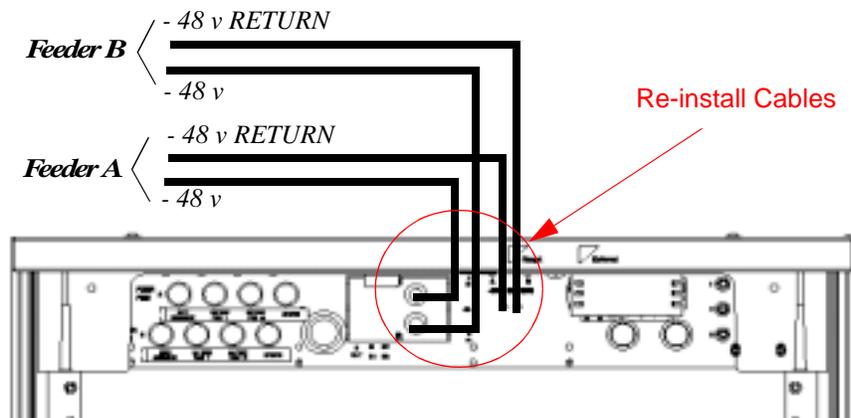
Front MC Power and Alarm Distribution Panel

- Step 2:** At the **front** MC Power Panel, **remove** the supplied fuses from **all eight (8)** of the fuseholder positions.



⚠ CAUTION:
Failure to remove fuses could result in possible damage to connected subracks/units if power is reversed when turning on station power to the power panel.

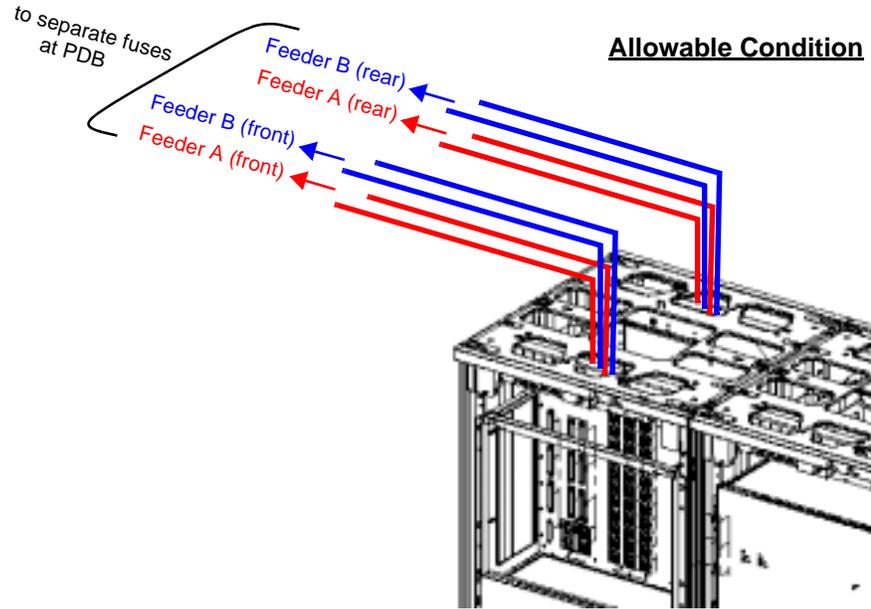
- Step 3:** Re-install the station power cables to the **front** MC Power Panel for Feeder A and Feeder B (From station fuse bay or from rear power panel).



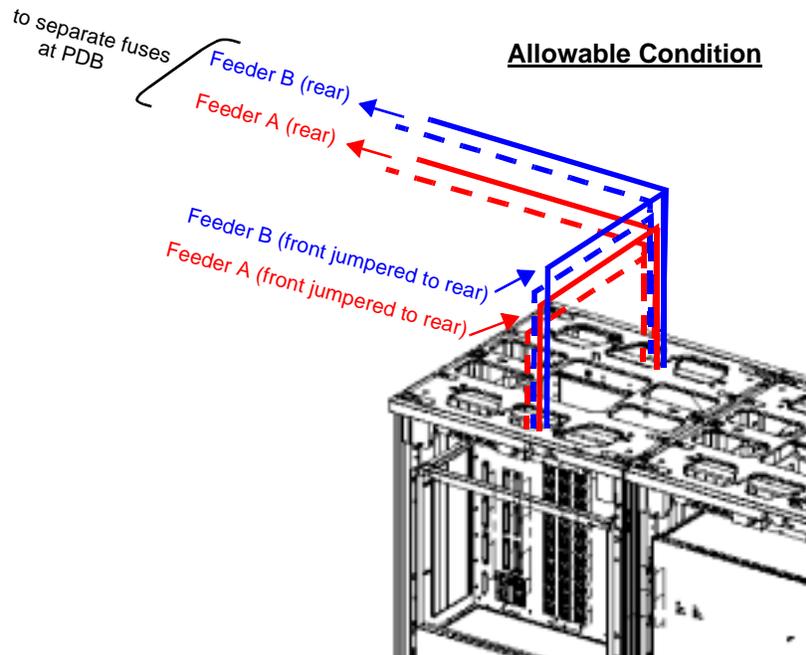
Front MC Power and Alarm Distribution Panel

- *Step 4:* Using the following diagrams, determine which station power cabling condition exists for the **front** MC Power Panel in the Core Complex.

Condition #1 (A&B, front & rear - independently fused):



Condition #2 (A & B - independently fused, front jumpered to rear):

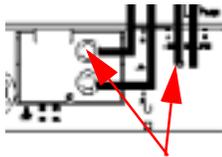


- Step 5:** Perform **one** of the procedural options below, based on the current station power cabling condition that exists for the **front** MC Power Panel:
- If **Condition #1** exists (most desirable), then each power feeder (A & B) for the **front** MC Power Panel is individually fused at the station's PDB, and can be powered-on without affecting power to the **rear** MC Power Panel. Proceed to **Step 6** to power-up and test the **front** MC Power Panel.
 - If **Condition #2** exists, then you **can not** turn on power to the **front** MC Power Panel without first installing the power cable jumpers to the **rear** MC Power Panel. In this case, the power feeders will be turned off (one at a time) for the **rear** MC Power Panel, and the power cable jumper can then be re-installed at the **rear** MC Power Panel. Proceed to **Step 16** to power-up and test the **front** MC Power Panel.

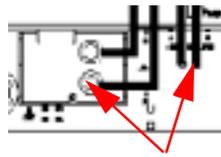
⚠ CAUTION:
Be extremely carefull not to turn power off to both feeders of the rear MC Power Panel or a service interruption will occur!

Condition #1 - Independent Front/Rear Power Panels:

- Step 6:** At the **front** MC Power Panel, verify that **no** short exists between the - 48 v and **Return** lead for **Power Feeder A** and **Power Feeder B** using a volt-ohm-meter (VOM).

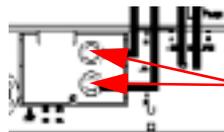


Test Points for Feeder A



Test Points for Feeder B

- Step 7:** At the **front** MC Power Panel, verify that **no** short exists between the - 48v **leads** for **Power Feeder A** and **Power Feeder B** using a volt-ohm-meter (VOM).

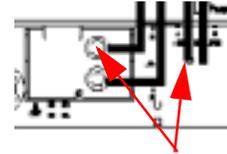


Test Point

- Step 8:* At the *Station's Power Distribution Bay (PDB)*, turn **on Power Feeder A** (install fuse or actuate circuit breaker) for the **front** MC Power Panel.

- Step 9:* At the **front** MC Power Panel, measure the voltage between the **- 48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:

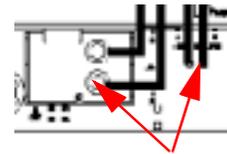
Voltage Range Requirement:
-40.5 Volts D.C. to **-57** Volts D.C.



Test Points for Feeder A

- Step 10:* At the **front** MC Power Panel, measure the voltage between the **- 48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.

Voltage Range Requirement:
0 Volts D.C.

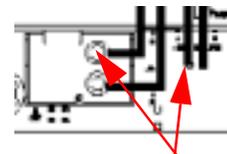


Test Points for Feeder B

- Step 11:* At the *Station's Power Distribution Bay (PDB)*, turn **on Power Feeder B** (install fuse or actuate circuit breaker) for the **front** MC Power Panel.

- Step 12:* At the **front** MC Power Panel, measure the voltage between the **- 48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:

Voltage Range Requirement:
-40.5 Volts D.C. to **-57** Volts D.C.



Test Points for Feeder B

-
- Step 13:* For the **front** MC Power Panel, verify that the difference between the *measured* voltage readings for **Power Feeder A** and **Power Feeder B** of is *not greater* than **6 volts**.

Voltage Difference Requirement:

6 volts or less



CAUTION:

Running the system with power feeders at greater than 6 volt difference will adversely affect system operation.

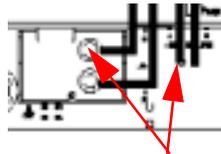
-
- Step 14:* Check-off the appropriate box corresponding to this procedure.

-
- Step 15:* This completes the "*Front MC Power Panel Power-Up Procedure*".
-

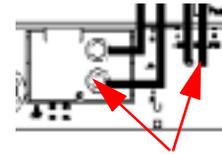
STOP- Return to Calling Procedure

Condition #2 - Jumpered Front/Rear Power Panels:

- Step 16:* At the front MC Power Panel, verify that **no** short exists between the - 48 v and **Return** lead for **Power Feeder A** and **Power Feeder B** using a volt-ohm-meter (VOM).

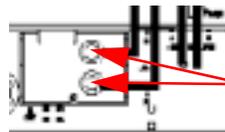


Test Points for Feeder A



Test Points for Feeder B

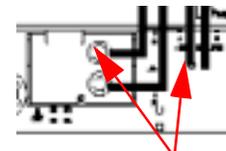
- Step 17:* At the front MC Power Panel, verify that **no** short exists between the - 48v **leads** for **Power Feeder A** and **Power Feeder B** using a volt-ohm-meter (VOM).



Test Point

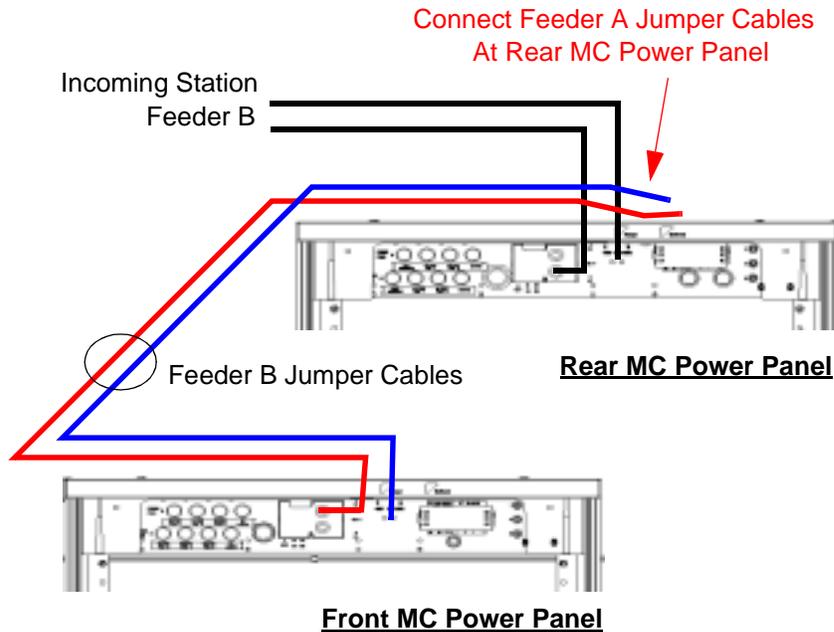
- Step 18:* At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder A** (remove fuse or disengage circuit breaker) corresponding to the front and rear MC Power Panels.
- Step 19:* At the rear MC Power Panel, measure the voltage between the - 48 V and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.

Voltage Range Requirement:
0 Volts D.C.

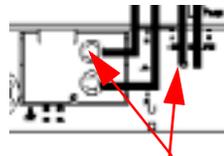


Test Points for Feeder A

- ❑ *Step 20:* Connect the jumper power cables for **Feeder A** at the power block of the rear MC Power Panel.



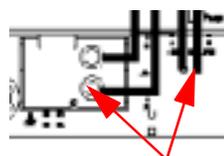
- ❑ *Step 21:* At the Station's Power Distribution Bay (PDB), turn **on** **Power Feeder A** (install fuse or engage circuit breaker) corresponding to the front and rear MC Power Panels.
- ❑ *Step 22:* At the front and rear MC Power Panels, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder A** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:



Test Points for Feeder A

Voltage Range Requirement:
-40.5 Volts D.C. to -57 Volts D.C.

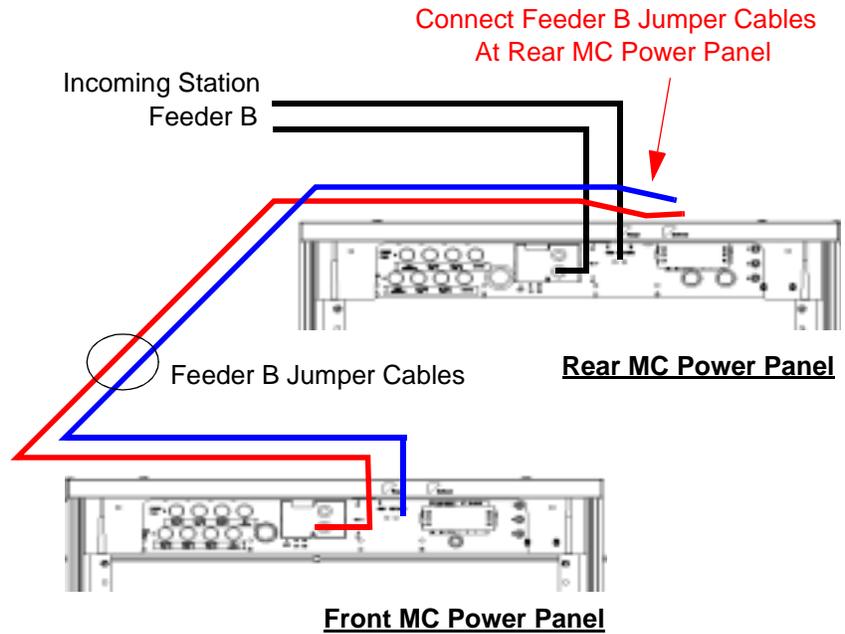
- ❑ *Step 23:* At the Station's Power Distribution Bay (PDB), turn **off** **Power Feeder B** (remove fuse or disengage circuit breaker) corresponding to the front and rear MC Power Panels.
- ❑ *Step 24:* At the rear MC Power Panel, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that **zero** voltage is present.



Test Points for Feeder B

Voltage Range Requirement:
0 Volts D.C.

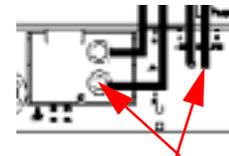
- Step 25:* Connect the jumper power cables for **Feeder B** at the power block of the rear MC Power Panel.



- Step 26:* At the Station's Power Distribution Bay (PDB), turn **on** **Power Feeder B** (install fuse or engage circuit breaker) corresponding to the front and rear MC Power Panels.

- Step 27:* At the front and rear MC Power Panels, measure the voltage between the - **48 V** and **Return** lead associated with **Power Feeder B** using a volt-ohm-meter (VOM), and verify that the voltage falls within the range below:

Voltage Range Requirement:
-40.5 Volts D.C. to -57 Volts D.C.



- Step 28:* Check-off the appropriate box corresponding to this procedure.
- Step 29:* This completes the "Front MC Power Panel Power-Up Procedure".
-

STOP- Return to Calling Procedure

Appendix I - Motorola Controller Power-up Procedure

Description

The following procedure will provide the steps to power-up the Rel 1.1 Motorola Controller Subrack.

Required Equipment:

- 1 → XC-CIT Workstation running GUI Application
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → Ethernet LAN Adapter
- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

1. The Workstation Ethernet Network Port is connected to the EXLAN Ethernet LAN port in the MC Subrack.
2. The Workstation Serial Port is connected to the WS1 port on the System User Panel.
3. User is currently logged into the *WaveStar*TM DACS 4/4/1 from the XC-CIT Workstation.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

- Step 1:** Verify that the serial port of the Workstation Computer is connected to the system workstation port labeled **WS1** on the System User Panel (SUP).

Use:

- 25ft 10 Base T Data Cable (ITE-7016)
- CIT Adapter (9 pin-female) (ITE-6999)

- Step 2:** Verify that the Workstation Computer is currently running the Hyperterminal Application (VT100 terminal emulation) and connected to the *WaveStar*TM DACS 4/4/1 Console.

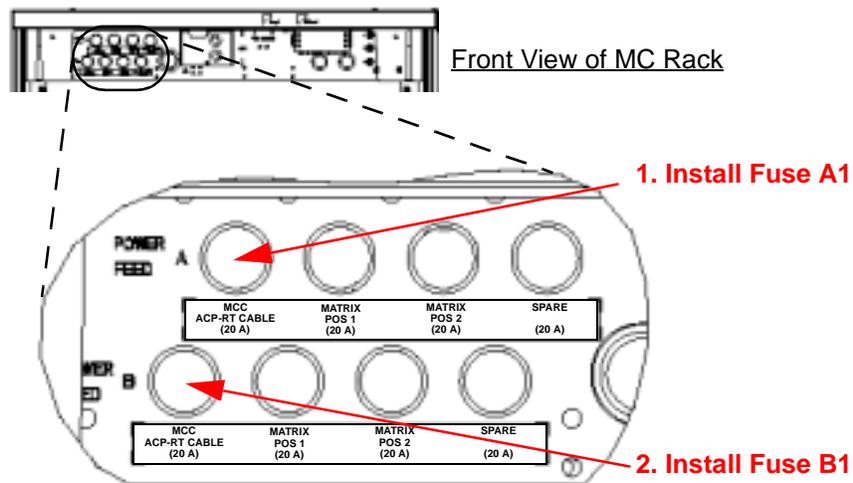
- Step 3:** Verify that the Workstation is currently logged into the *WaveStar*TM DACS 4/4/1 and the XC-CIT GUI Window is visible on the screen.



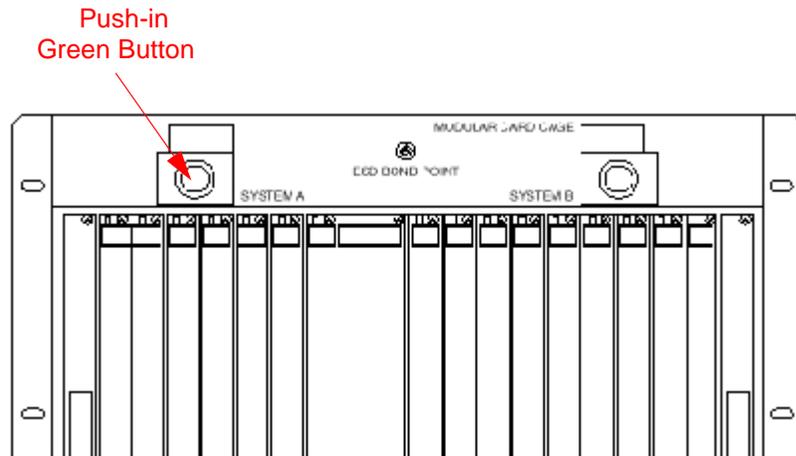
NOTE:

If **not**, connect and login to the system.
(See *GTP 11 - System Login Procedure*)

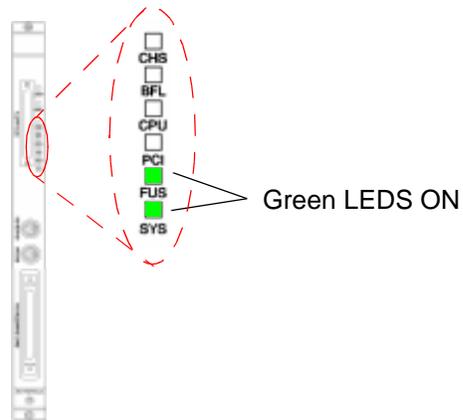
- Step 4:** At the front MC Power Panel, **install** the supplied fuses into fuseholders **A1** and **B1** to supply power to the Motorola Controller Subrack.



- Step 5:** In the front of the Motorola Controller Subrack, verify incoming power to the Power Supply Plug-in (PSP) by performing the following substeps:
 - Step 5-a:** Remove the bottom grille cover using supplied allen wrench.
 - Step 5-b:** Verify on the Power Supply Plug-in (PSP) that the **POWER GOOD** green LED is **ON** (means that PSP is receiving -48v input power).
 - Step 5-a:** Re-install the bottom grille cover using supplied allen wrench.
- Step 6:** Turn **on** the Motorola Controller Subrack by pushing in the green button on the front of the subrack. (Switch should remain pushed-in).

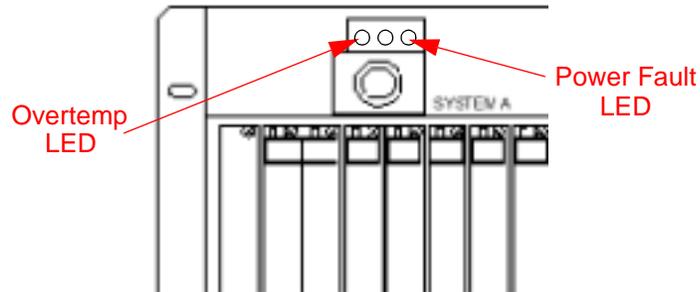


- Step 7:** In the front of the Motorola Controller Subrack, verify that the Motorola Controller Subrack is **ON**, by verifying that the **FUS** and **SYS** green leds on the MPU Unit are illuminated.



MPU VME Card

- Step 8:* Above the green power button, verify that the **Overtemp LED** (left-side), and Input **Power Fault LED** (right-side) are both **off**.
- The Overtemp LED illuminates in the event of excessive heat buildup within the controller chassis.
 - The Power Fault LED illuminates when +5 Vdc, +12 Vdc, or -12 Vdc system power is defective.



- Step 9:* Check-off the appropriate box corresponding to this procedure.
- Step 10:* This completes the "*Motorola Controller Power-up Procedure*".
-

STOP- Return to Calling Procedure

Appendix J - MPU Firmware Self-Tests Procedure

Description

The following procedure will explain the necessary steps to execute all the firmware diagnostic self-tests for a Main Processor Unit (MPU) in the Motorola Controller Subrack of the *WaveStar*TM DACS 4/4/1.

Firmware Self-Tests:

- **RAM** - Random Access Memory Tests
- **L2CACHE** - Level 2 Cache Tests
- **Z8536** - Counter/Timer Tests
- **RTC** - Real Time Clock Tests
- **PCIBUS** - PCI Bus Register Test
- **ISABRDGE** - PCI/ISA Bus Bridge Tests
- **VME3** - VME Channel Tests
- **NCR** - SCSI2 I/O Processor Tests
- **SCC** - Serial Communication Controller Tests
- **UART** - Serial Input/Output Tests
- **DEC** - Ethernet Controller Tests
- **XR712LUC** - Lucent Alarm Transition Module Tests

Required Equipment:

- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions

1. The Motorola Controller Subrack is powered-up.
2. MPU Unit is at the firmware level, and the PPC1-DIAG> firmware prompt is present on the system.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

Step 1: Verify that the Workstation Computer is currently running the Hyperterminal Application (VT100 terminal emulation) and connected to workstation port WS1 on the system user panel for the WaveStar™ DACS 4/4/1 Console.

Step 2: Perform the following steps to reset the MPU unit of the specific connected Main Controller (MC-1 or MC-2) of the Motorola Controller.

Step 2-a: Press the reset button on the front of the MPU Unit.

Output Response:

```
-----ATTENTION-----  
PPC1 Debugger/Diagnostics INTERNAL Release - XR712-129LUC FAT  
-----  
COLD Start  
  
Local Memory Found =20000000 (&536870912)  
  
MPU Clock Speed =367Mhz  
  
BUS Clock Speed =67Mhz  
  
WARNING: Keyboard Not Connected  
  
Reset Vector Location : ROM Bank B  
Mezzanine Configuration: Single-MPU  
Current 60X-Bus Master : MPU0  
Idle MPU(s) : NONE  
  
System Memory: 512MB, ECC Enabled (ECC-Memory Detected)  
L2Cache: 1024KB, 147Mhz  
  
SelfTest/Boots about to Begin... Press <BREAK> at anytime to Abort ALL  
  
SelfTest about to Begin... Press <ESC> to Bypass, <SPC> to Continue
```

Step 2-b: *Immediately* press key to bypass Self-Test.

Output Response:

```
AutoBoot about to Begin... Press <ESC> to Bypass, <SPC> to Continue
```

Step 2-c: *Immediately* press key again to bypass Auto Boot.

Output Response:

```
PPC1-Diag>
```



NOTE:

1. If you did not press key twice soon enough to stop at the firmware system prompt (PPC1-Diag>), repeat step.
2. If **PPC1-Bug>** prompt appears, change to **PPC1-Diag>** menu prompt by entering **SD** then press the key.
3. If **#** prompt appears, reboot controller by entering **sync;reboot - aDh** then press the key.

- **Step 3:** From the `PPC1-Diag>` prompt, determine which firmware self-tests for the Motorola Controller are currently masked during normal MPU reset, by entering **mask** then pressing the `(RETURN)` key.

Input Command:

```
PPC1-Diag> mask
```

Output Response:

```
PAR8730X/REG  
DEC/SPACK  
DEC/CLOAD  
  
PPC1-Diag>
```

- **Step 4:** Verify that only the **PAR8730X/REG**, **DEC/SPACK**, and **DEC/CLOAD** self tests are *masked*, then proceed directly to next step.

Otherwise, perform the following command to *mask* the appropriate missing firmware tests and *unmask* any firmware test which should not be masked.



NOTE:

Each time the mask command is entered, the specified test is toggled between “masked” and “un-masked” status.

Input Command:

```
PPC1-Diag> mask <testdir> <test>
```

Where:

PAR8730X or DEC

SPACK, CLOAD, CINIT ...

<testdir> =

<test> = REG,

Output Response:

```
Update Non-Volatile RAM (Y/N)? Y <- Enter Y
```

```
{lists currently masked tests}
```

- **Step 5:** From the PPC1-Diag> prompt, verify the **Controller Environment Settings** are programmed correctly, by entering **env** then pressing the **(RETURN)** key.

 **NOTE:**

If the option setting is correct as indicated below, step to the next option by pressing the **(RETURN)** key.

If option setting is incorrect, enter correct value then press the **(RETURN)** key.

When finished, type a "." (dot or period) and hit the **(RETURN)** key to exit environment mode.

The setting values most likely to change are shown in **Bold**.

Input Command:

```
PPC1-Diag> env
```

Output Response:

```
Bug or System environment [B/S] = S?  
Field Service Menu Enable [Y/N] = N?  
Remote Start Method Switch [G/M/B/N] = B?  
Probe System for Supported I/O Controllers [Y/N] = Y?  
Auto-Initialize of NVRAM Header Enable [Y/N] = Y?  
Network PReP-Boot Mode Enable [Y/N] = N?  
Negate VMEbus SYSFAIL* Always [Y/N] = N?  
SCSI Bus Reset on Debugger Startup [Y/N] = Y?  
Primary SCSI Bus Negotiations Type [A/S/N] = A?  
Primary SCSI Data Bus Width [W/N] = N?  
Secondary SCSI Identifier = "07"?  
NVRAM Bootlist (GEV.fw-boot-path) Boot Enable [Y/N] = N?  
NVRAM Bootlist (GEV.fw-boot-path) Boot at power-up only [Y/N] = N?  
NVRAM Bootlist (GEV.fw-boot-path) Boot Abort Delay = 5?  
Auto Boot Enable [Y/N] = Y?  
Auto Boot at power-up only [Y/N] = N?  
Auto Boot Scan Enable [Y/N] = N?  
Auto Boot Scan Device Type List = FDISK/CDROM/TAPE/HDISK/?  
Auto Boot Controller LUN = 00?  
Auto Boot Device LUN = 00?  
Auto Boot Partition Number = 00?  
Auto Boot Abort Delay = 7? . (RETURN)  
PPC1-Diag>
```

If any of the above environment options were changed the following output message will appear to save new values after exiting:

Output Response:

```
Update Non-Volatile RAM (Y/N)? y (RETURN)
```

```
Reset Local System (CPU) (Y/N)? n (RETURN)
```

```
WARNING: Updates will not be in effect until a RESET is performed.
```

- Step 6:** From the PPC1-Diag> prompt, run the **Level 2 Cache** firmware self-tests on the Motorola Controller by entering **l2cache** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed” (except DISUPD test which is set for “bypass”).

Input Command:

```
PPC1-Diag> l2cache
```

Output Response:

```
L2CACHE WBFL: L2-Cache WriteBack w/ Flush..... Running ---> PASSED
L2CACHE WBINV: L2-Cache WriteBack w/ Invalidate.... Running ---> PASSED
L2CACHE WRTHRU: L2-Cache WriteThru..... Running ---> PASSED
L2CACHE DISUPD: L2-Cache Disable Updating..... Running ---> BYPASS
L2CACHE ENUPD: L2-Cache Enable Updating..... Running ---> PASSED
L2CACHE PATTERN: L2-Cache WriteThru Pattern..... Running ---> PASSED
```

- Step 7:** From the PPC1-Diag> prompt, run the **Counter/Timer** firmware self-tests on the Motorola Controller by entering **z8536** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> z8536
```

Output Response:

```
Z8536 CNT: Counter..... Running ---> PASSED
Z8536 LNK: Linked Counter..... Running ---> PASSED
Z8536 IRQ: Interrupt..... Running ---> PASSED
Z8536 REG: Register..... Running ---> PASSED
```

- Step 8:** From the PPC1-Diag> prompt, run the **PCI/PMC Bus Register** firmware self-tests on the Motorola Controller by entering **pcibus** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> pcibus
```

Output Response:

```
PCIBUS REG: PCI/PMC Slot Register Access..... Running ---> PASSED
```

- Step 9:** From the PPC1-Diag> prompt, run the **PCI/ISA Bridge** firmware self-tests on the Motorola Controller by entering **isabrdge** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> isabrdge
```

Output Response:

```
ISABRDGE REG: i82378 Register Access..... Running ---> PASSED
ISABRDGE IRQ: Interrupt Request..... Running ---> PASSED
```

- Step 10:** From the PPC1-Diag> prompt, run the **VME Channel** firmware self-tests on the Motorola Controller by entering **vme3** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> vme3
```

Output Response:

```
VME3 REGR: Register Read..... Running ---> PASSED  
VME3 REGW: Register Walking Bit..... Running ---> PASSED
```

- Step 11:** From the PPC1-Diag> prompt, run the **SCSI2 I/O Processor** firmware self-tests on the Motorola Controller by entering **ncr** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> ncr
```

Output Response:

```
NCR PCI: 6000 NCR 53c8xx PCI Access..... Running ---> PASSED  
NCR ACC1: 6000 NCR 53c8xx Device Access..... Running ---> PASSED  
NCR ACC2: 6000 NCR 53c8xx Register Access..... Running ---> PASSED  
NCR SFIFO: 6000 NCR 53c8xx SCSI FIFO..... Running ---> PASSED  
NCR DFIFO: 6000 NCR 53c8xx DMA FIFO..... Running ---> PASSED  
NCR IRQ: 6000 NCR 53c8xx Interrupts..... Running ---> PASSED  
NCR SCRIPTS: 6000 NCR 53c8xx SCRIPTs Processor.. Running ---> PASSED
```

- Step 12:** From the PPC1-Diag> prompt, run the **Serial Communication Controller** firmware self-tests on the Motorola Controller by entering **scc** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> scc
```

Output Response:

```
SCC ACCESS: Device/Register Access..... Running ---> PASSED  
SCC IRQ: Interrupt Request..... Running ---> PASSED
```

- Step 13:** From the PPC1-Diag> prompt, run the **Serial I/O** firmware self-tests on the Motorola Controller by entering **uart** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> uart
```

Output Response:

```
UART REGA: Register Access..... Running ---> PASSED  
UART IRQ: Interrupt..... Running ---> PASSED  
UART BAUD: Baud Rate..... Running ---> PASSED  
UART LPBK: Internal Loopback..... Running ---> PASSED
```

- **Step 14:** From the `PPC1-Diag>` prompt, run the **Alarm Transition Module (XR712-129LUC)** firmware self-tests on the Motorola Controller by entering `xr712luc wd_timer wrt_reg` then pressing the `(RETURN)` key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> xr712luc wd_timer wrt_reg
```

Output Response:

```
XR712LUC WD_TIMER: XR712-129LUC Test Watch Dog Timer. Running ---> PASSED  
XR712LUC WRT_REG: XR712-129LUC Write Control Regs.... Running ---> PASSED
```

- **Step 15:** From the `PPC1-Diag>` prompt, run the **Ethernet Controller** firmware self-tests on the Motorola Controller by entering `dec` then pressing the `(RETURN)` key, and verify that each of the tests below have “passed”.



Time Estimate:

These self-tests take approximately 8-10 minutes to complete.

Input Command:

```
PPC1-Diag> dec
```

Output Response:

```
DEC      REGA: 7000 PCI Register Access..... Running ---> PASSED  
DEC      XREGA: 7000 Extended PCI Register Access... Running ---> PASSED  
DEC      ILR: 7000 Interrupt Line Register Access... Running ---> PASSED  
DEC      ERREN: 7000 ERREN and SERREN Bit Toggle.... Running ---> PASSED  
DEC      IOR: 7000 I/O Resource Register Access..... Running ---> PASSED  
DEC      SPACK: 7000 Single Packet Xmit/Recv..... Running ---> PASSED  
DEC      CINIT: 7000 Chip Initialization..... Running ---> PASSED  
DEC      CLOAD: 7000 Continuous Load..... Running ---> PASSED  
DEC      REGA: 11000 PCI Register Access..... Running ---> PASSED  
DEC      XREGA: 11000 Extended PCI Register Access... Running ---> PASSED  
DEC      ILR: 11000 Interrupt Line Register Access... Running ---> PASSED  
DEC      ERREN: 11000 ERREN and SERREN Bit Toggle.... Running ---> PASSED  
DEC      IOR: 11000 I/O Resource Register Access..... Running ---> PASSED  
DEC      SPACK: 11000 Single Packet Xmit/Recv..... Running ---> PASSED  
DEC      CINIT: 11000 Chip Initialization..... Running ---> PASSED  
DEC      CLOAD: 11000 Continuous Load..... Running ---> PASSED  
DEC      REGA: 11800 PCI Register Access..... Running ---> PASSED  
DEC      XREGA: 11800 Extended PCI Register Access... Running ---> PASSED  
DEC      ILR: 11800 Interrupt Line Register Access... Running ---> PASSED  
DEC      ERREN: 11800 ERREN and SERREN Bit Toggle.... Running ---> PASSED  
DEC      IOR: 11800 I/O Resource Register Access..... Running ---> PASSED  
DEC      SPACK: 11800 Single Packet Xmit/Recv..... Running ---> PASSED  
DEC      CINIT: 11800 Chip Initialization..... Running ---> PASSED  
DEC      CLOAD: 11800 Continuous Load..... Running ---> PASSED
```

- Step 16:** From the PPC1-Diag> prompt, run the **RAM Memory** firmware self-tests on the Motorola Controller by entering **ram** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.



Time Estimate:

These self-tests take approximately 10-12 minutes to complete.

Input Command:

```
PPC1-Diag> ram
```

Output Response:

```
RAM    QUIK: Quick Write/Read..... Running ---> PASSED
RAM    ALTS: Alternating Ones/Zeroes..... Running ---> PASSED
RAM    PATS: Patterns..... Running ---> PASSED
RAM    ADR: Addressability..... Running ---> PASSED
RAM    CODE: Code Execution/Copy..... Running ---> PASSED
RAM    PERM: Permutations..... Running ---> PASSED
RAM    RNDM: Random Data..... Running ---> PASSED
RAM    BTOG: Bit Toggle..... Running ---> PASSED
RAM    REF: Memory Refresh Test..... Running ---> PASSED
```

- Step 17:** From the PPC1-Diag> prompt, run the **Real Time Clock** firmware self-tests on the Motorola Controller by entering **rtc** then pressing the **(RETURN)** key, and verify that each of the tests below have “passed”.

Input Command:

```
PPC1-Diag> rtc ram adr
```

Output Response:

```
RTC    RAM: MK48T0x Battery Backed Up RAM..... Running ---> PASSED
RTC    ADR: MK48T0x RAM Addressing..... Running ---> PASSED
```

- Step 18:** Determine the status of the firmware self-tests of the specific MPU unit (acceptable or unacceptable) based on the reported self-test results, and perform **one** of the procedural options below:

- The firmware self-tests are considered **acceptable** only if the individual test results reported by the system do **not** include any failures. In this case, proceed to the next step.
- The firmware self-tests are considered **unacceptable** if the individual test results reported by the system contain **any** failures. In this case, do **not** continue with this procedure until fixing failures. Try resetting power for the controller, and performing a retest of failed test. If failure continues, then contact next level of support, or replace identified unit and repeat firmware self-tests.

- Step 19:** Check-off the appropriate box corresponding to this procedure on the appropriate *verification checklist*.

- Step 20:** This completes the “*MPU Firmware Self-Tests*” procedure.
-

STOP-Return to Calling Procedure

Appendix K - Core Software Upgrade (1.1 to 2.0)

Description

The following procedures will explain how to upgrade the *WaveStar*TM DACS 4/4/1 Core Software from Release 1.1 to Release 2.0. This procedure will load the Operating System (OS) software, the Network Element Function (NEF) software, the Rel 1.1 system database onto the hard disk of the MSU unit in the MC Controller Subrack. Then the system will perform a database conversion from Rel 1.1 to Rel 2.0, restore the new Rel 2.0 database into the system memory, and reboot the system core software.

Required Equipment:

- 1 → System Core Software MO Disk Set (customer supplied)
- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

1. Terminal is connected to the CIT connector on the Main Controller Subrack.
2. The system is currently at the MPU firmware level and the <Options> menu prompt is currently visible.

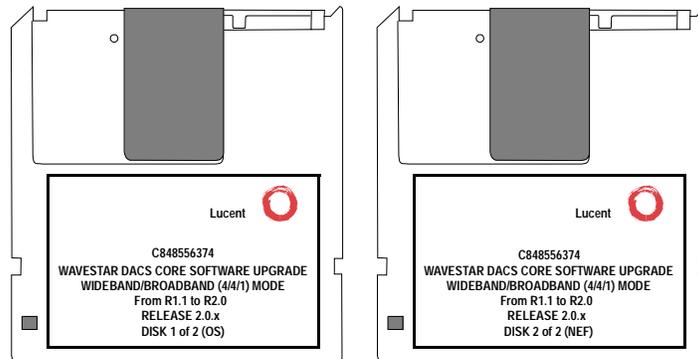
Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

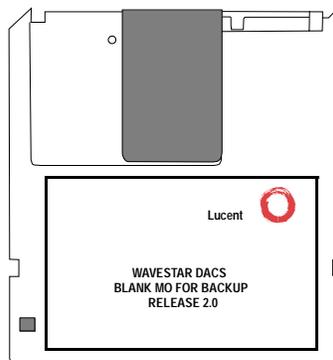
Procedure

Use the boxes to check off the steps as they are completed.

- Step 1:** Obtain the **Release 2.0.x Operation System MO Disk (DISK1)** and the **Network Element MO Disk (DISK 2)** from the *WaveStar™* DACS 4/4/1 Core Software Upgrade From Rel 1.1 to Rel 2.0 MO Disk Set as shown below:



- Step 2:** Obtain the “**Pre-Upgrade 1.1**” **System Database Backup MO Disk** which was made earlier in the upgrade procedure as shown below:



- ❑ **Step 3:** Perform the following steps to reset the controller and obtain the firmware system prompt.

- ❑ **Step 3-a:** Press the reset button on the MPU of the Motorola Controller.

Output Response:

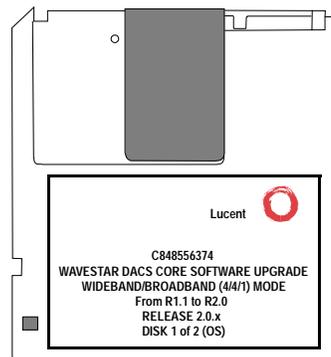
```
-----ATTENTION-----  
PPC1 Debugger/Diagnostics INTERNAL Release - XR712-129LUC FAT  
-----  
COLD Start  
  
Local Memory Found =20000000 (&536870912)  
  
MPU Clock Speed =367Mhz  
  
BUS Clock Speed =67Mhz  
  
WARNING: Keyboard Not Connected  
  
Reset Vector Location : ROM Bank B  
Mezzanine Configuration: Single-MPU  
Current 60X-Bus Master : MPU0  
Idle MPU(s) : NONE  
  
System Memory: 512MB, ECC Enabled (ECC-Memory Detected)  
L2Cache: 1024KB, 147Mhz  
  
PPC1-Bug>
```

- ❑ **Step 4:** Insert the **Operating System (OS) MO disk (DISK 1)** into the MO disk drive of the MSU unit in the MC Subrack.



NOTE:

See "Appendix A - Units" for MO disk installation procedure.



- Step 5:** Enter `pboot 0 20` then press the `(RETURN)` key to boot the MPU from the MO Drive instead of the Hard Disk Drive (default).

Input Command:

```
PPC1-Diag> pboot 0 20 (RETURN)
```

Output Response:

```
Booting from: NCR53C825, Controller 0, Drive 20
Device Name : /pci@80000000/pci1000,3@c,0/opticalmemory@2,0
Loading: Operating System

IPL Loaded at: $1F7EA000
Residual-Data Located at: $1FEF8000
CPU: MPC750 G3 (8), revision 0x8202 RAM Size: 512 Mb

Universe Driver Installed
mccInstall: info; mccInstall() Called.
sanityInstall: info; sanityInstall(0xb0117ca8) Called.
aruInstall: info; aruInstall() Called.
SKDB kernel debugger installed.
init: info; transitioning to OS Run Level 'Boot pass 2'.
init: info; transitioning to OS Run Level '2'.
Sat May 13 14:53:16 GMT 2000
/net/rc.network: info; performing network configuration...
lo0: flags=9<UP,LOOPBACK>
    inet 127.0.0.1 netmask 0xff000000
dec0: flags=8863<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST>
    inet 128.0.0.1 netmask 0xffff0000 broadcast 128.0.255.255
/net/rc.network: info; network interfaces configured.
init: info; transitioning to OS Run Level '3'.

user name:
```

- Step 6:** Enter the following installation user name at the `user name:` prompt, then press `(RETURN)`.



NOTE:

If the output stops with the prompt `#`, then enter `exit` and press `(RETURN)`.

Input Command:

```
user name: install
```

Output Response:

```
password:
```

- Step 7:** Enter the following installation password after the password: prompt, then press **(RETURN)**.

Input Command:

```
password: dacs6install
```

Output Response:

```
/*
|* LynxOS S2R2_0_20000421
|* Wavestar Digital Access Cross Connect
|* Copyright (c) Lucent Technologies
|* Copyright (c) Lynx Realtime Systems, Inc.
|* Compiled by lonniev
|* On Fri Apr 21 11:13:17 MDT 2000
|* ++ Ramdisk Kernel for Installation Only ++
\*****

install: welcome; Press ENTER to begin.../
```

- Step 8:** Begin the software installation procedure by pressing the **(RETURN)** key.

Output Response:

```
System Base Installation Procedure
-----

Caution !

The "install" installation will erase System Hard Disk sd0.
This implies that everything presently stored on the
Hard Disk will be deleted.

Continue with "install" installation? [yes/no]
```

Step 9: Continue the installation by entering **(Y)**, then press **(RETURN)**.



Time Estimate:

The step will take approximately 5 minutes.

Input Command:

```
Continue with "install" installation? [yes/no] Y
```

Output Response:

```
... Hard Disk Partition, and Install: (install)

repartition_install: info; repartitioning 4339 Mbyte drive /dev/sd0

Space Available      total blocks (mb)  largest hole blocks (mb)
base partitions:      604 ( 0.29)        604 ( 0.29)
extended partition d: 0 ( 0.00)         0 ( 0.00)
Partition  Boot      Megabytes      Id  Symbolic Name
a          0.00          65 (PowerPC boot partition)
b          599.98        64 (LynxOS)
c          800.00        64 (LynxOS)
d          2940.00*      5 (DOS Extended)
e          499.98        64 (LynxOS)
f          199.98        64 (LynxOS)
g          199.98        64 (LynxOS)
h          199.98        64 (LynxOS)
i          199.98        64 (LynxOS)
j          199.98        64 (LynxOS)
k          199.98        64 (LynxOS)
l          199.98        64 (LynxOS)
m          525.98        64 (LynxOS)
n          513.98        64 (LynxOS)
repartition_install: info; making filesystem /dev/sd0b...
repartition_install: info; making filesystem /dev/sd0c...
repartition_install: info; making filesystem /dev/sd0e...
repartition_install: info; making filesystem /dev/sd0m...
mkdir_mount_fstab: info; making and mounting /dev/sd0
directories...
common_install: info; installing dot files...
common_install: info; installing bin utilities...
common_install: info; installing library files...
common_install: info; installing net files...
common_install: info; installing etc files...
common_install: info; installing TimesTen messages files...
common_install: info; installing usr/local (Perl) files...
common_install: info; installing SRC bin files...
common_install: info; installing SRC net files...
common_install: info; installing SRC boot image...
common_install: info; linking nodetab...
common_install: info; making device nodes...
common_install: info; making lynx.os bootable...

Current System Time      -- Sat May 13 14:57:09 GMT 2000 --

Would you like to change the System Time? [ yes | no ]
```

- Step 10:** Enter the System Time Parameters setup menu by entering **(Y)**, then press **(RETURN)** at the setup prompt.

Input Command:

```
Would you like to change the System Time? [yes | no] Y
```

Output Response:

```
Current System Time      -- <day> <date> <time> <TZ> <Year> --
```

```
The Current System Time Parameters are:
```

1. Year..... <Year>
2. Month..... <month>
3. Day..... <day>
4. Time..... <time>

```
Note: In order for changes to take affect, you must 'Set' after  
changing
```

```
Change Which Parameter? [1 - 4 | Set | Quit]
```

- Step 11:** Change the year, month, day, and time parameters, by entering the corresponding number, **(1)**, **(2)**, **(3)**, or **(4)**, respectively, and then press **(RETURN)**. Then you will be prompted to enter the number for the year, month, day, or time. Enter the appropriate value and then press **(RETURN)**. Repeat this step for each parameter (regardless if parameter is set correctly) until all parameters have been set.



NOTE:

Enter the time in **UTC** (i.e. GMT), not local time.

- Step 12:** After accepting all the System Time Parameter entries, update the system memory by entering **SET**, then press **(RETURN)**.

Input Command:

```
Change Which Parameter? [1 - 4 | Set | Quit] set
```

Output Response:

```
Current System Time      -- <day> <date> <time> <TZ> <Year> --
```

```
The Current System Time Parameters are:
```

1. Year..... <Year>
2. Month..... <month>
3. Day..... <day>
4. Time..... <time>

```
Note: In order for changes to take affect, you must 'Set' after  
changing
```

```
Change Which Parameter? [1 - 4 | Set | Quit]
```

- ❑ **Step 13:** Exit the System Time Setup menu by entering **QUIT**, then press **(RETURN)**, and the system will *automatically* reset the Main Controller and the MPU firmware will begin to boot.

Input Command:

```
Change Which Parameter? [1 - 4 | Set | Quit] quit
```

Output Response:

```
common_install: info; Installation Complete.

common_install: info; rebooting the main controller.

reboot(0x108) called from pid 206, tid 26 ("/bin/reboot")

*** system rebooting... ***
An application called reboot.

recover: reason: Apps called reboot(0x108)
Waiting...
Syncing disk... done.
dcintr_st: info; abnormal interrupt on interface dec (media MII)
    Perhaps the cable disconnected...

**** LynxOS is down ****

Resetting CPU...
-----ATTENTION-----

PPC1 Debugger/Diagnostics  INTERNAL Release -  XR712-129LUC FAT
-----

COLD Start

Local Memory Found =20000000 (&536870912)

MPU Clock Speed =367Mhz

BUS Clock Speed =67Mhz

WARNING: Keyboard Not Connected

Reset Vector Location  : ROM Bank B
Mezzanine Configuration: Single-MPU
Current 60X-Bus Master : MPU0
Idle MPU(s)            : NONE

System Memory: 512MB, ECC Enabled (ECC-Memory Detected)
L2Cache:          1024KB, 147Mhz

SelfTest/Boots about to Begin... Press <BREAK> at anytime to Abort ALL

SelfTest about to Begin... Press <ESC> to Bypass, <SPC> to Continue
```



NOTE:

Do **NOT** press **(ESC)** key or the **(SPACE)** bar during boot sequence, let the boot continue. Proceed *immediately* to next step for continuation of output.

- **Step 14:** After the MPU firmware boot is complete, the system will *automatically* start booting from the hard disk drive.

Output Response: {Continued...}

```
Booting from: NCR53C825, Controller 0, Drive 0
Device Name : /pci@80000000/pci1000,3@c,0/harddisk@0,0
Loading: Operating System

IPL Loaded at: $1FC79000
Residual-Data Located at: $1FEF8000
CPU: MPC750 G3 (8), revision 0x8202 RAM Size: 512 Mb

Universe Driver Installed
mccInstall: info; mccInstall() Called.
sanityInstall: info; sanityInstall(0xb0117ca8) Called.
aruInstall: info; aruInstall() Called.
SKDB kernel debugger installed.
init: info; transitioning to OS Run Level 'Boot pass 1'.
init: info; transitioning to OS Run Level '1'.

LynxOS Reboot Flags:      [ma]

KDB is disabled (skdb_on = 0)
Sat May 13 14:59:28 GMT 2000

(all sizes and block numbers in decimal)
(block size is 512)
(file system creation time is Sat May 13 14:53:48 2000)
(file system contains 1228768 blocks and 76796 inodes)
checking used files
checking for orphaned files
making bit map free block list
making free inode list
787856 free blocks 75701 free inodes
Filesystem Ok

Starting System Log Daemon:
Syncing token controller ID...
Token set to [WAUS]
```



NOTE:

Proceed *immediately* to next step for continuation of output.

□ **Step 15:** The system will then *automatically* start system network initialization steps.

Output Response: {Continued...}

```
Beginning Network Initialization... (/net/rc.network)

dec0: Configuring Network Interface
dec0: Network Interface Configured (w001)

decb0: Configuring Network Interface
decb0: Network Interface Configured (p001)

dec0: Configuring Network Interface
dec0: Network Interface Configured (whub)

System Hostname is: w001

decc0:
flags=8863<UP,BROADCAST,NOTRAILERS,RUNNING,SIMPLEX,MULTICAST>
      inet 192.168.0.1 netmask 0xffffffff broadcast 192.168.0.255
decc0 1500 <Link>8.0.3e.2a.94.12          0 0      1 0 0
decc0 1500 192.168      192.168.0.1      0 0      1 0 0
add net default: gateway 192.168.0.254

Adding BCLAN Routes...
add net BCLANnet3: gateway w003
add net BCLANnet4: gateway w004
add net BCLANnet5: gateway w005
add net BCLANnet6: gateway w006
add net BCLANnet7: gateway w007
add net BCLANnet8: gateway w008
add net BCLANnet9: gateway w009
add net BCLANnet10: gateway w010
add net BCLANnet11: gateway w011
add net BCLANnet12: gateway w012
add net BCLANnet13: gateway w013
add net BCLANnet14: gateway w014
add net BCLANnet15: gateway w015
add net BCLANnet16: gateway w016
add net BCLANnet17: gateway w017
add net BCLANnet18: gateway w018
add net BCLANnet19: gateway w019
add net BCLANnet20: gateway w020
Routes Added.

Network Initialization Complete
```



NOTE:

Proceed *immediately* to next step for continuation of output.

- ☐ **Step 16:** The system will then *automatically* start file system checks on the hard drive.

Output Response: {Continued...}

```
fsck /dev/sd0c
(all sizes and block numbers in decimal)
(block size is 512)
(file system creation time is Sat May 13 14:53:49 2000)
(file system contains 1638400 blocks and 102400 inodes)
checking used files
checking for orphaned files
making bit map free block list
making free inode list
1593716 free blocks 101835 free inodes
Filesystem Ok
```

```
fsck /dev/sd0e
(all sizes and block numbers in decimal)
(block size is 512)
(file system creation time is Sat May 13 14:53:52 2000)
(file system contains 1023968 blocks and 63996 inodes)
checking used files
checking for orphaned files
making bit map free block list
making free inode list
1007716 free blocks 63995 free inodes
Filesystem Ok
```

```
fsck /dev/sd0m
(all sizes and block numbers in decimal)
(block size is 512)
(file system creation time is Sat May 13 14:53:53 2000)
(file system contains 1077216 blocks and 67324 inodes)
checking used files
checking for orphaned files
making bit map free block list
making free inode list
1060119 free blocks 67323 free inodes
Filesystem Ok
```



NOTE:

Proceed *immediately* to next step for continuation of output.

- Step 17:** The system will then *automatically* start mounting the file systems from the hard drive.

Output Response: {Continued...}

```
Mounting all Filesystems ...
Reading boot log...

Prior Reboot/Crash Reason from NVRAM:
    05/13/2000 09:59:16 /usr/ldacs6/bin/grandma
    Apps called reboot(0x20088)
Application's Log from NVRAM:
    grandma called reboot (reason=0)

Checking for recover dump directory ("/wlo/recover_dumps")...done.
Dump directory ("/wlo/recover_dumps") not found, attempting to
create it...done.

Checking for unsaved recover dump...done.
No unsaved recover dump found.

Create System RamDisk: (Complete)

Exporting directories for remote mount
exported: /
exported: /srcboot
exported: /net
exported: /net/mips
exported: /bin
exported: /bin/mips
exported: /home
exported: /usr/spool
exported: /usr/spool/console
exported: /MRAM
exported: /usr/dacs6
exported: /usr/add-on
/bin/keepsan: info; sanity timer enabled.
/usr/cron: File or directory doesn't exist
/usr/cron: created
tabs: File or directory doesn't exist
tabs: created
KDB is disabled (skdb_on = 0)
```



NOTE:

Proceed *immediately* to next step for continuation of output.

- Step 18:** After mounting the file system, the system will then *automatically* start the WaveStar™ DACS 4/4/1 applications, and prompt to load the Network Element Software (NEF Software).

Output Response: {Continued...}

```
Starting Millennia DACS Applications:...

Would you like to Install the Network Element System Software? (yes)
```

- Step 19:** Start the NEF Installation Procedure by entering **Y**, then press **RETURN** at the following system prompt:

Input Command:

```
Would you like to Install the Network Element System Software? Y
```

Output Response:

```
Network Element - System Software Installation  
<day> <month> <day> <time> <TZ> <year>
```

```
Insert the NEF MO disk into the MO drive  
( '<return>' when MO has been inserted, 'q' to quit)
```

- Step 20:** Remove the **Operating System (OS) MO Disk (DISK 1)** from the MO Disk Drive of the MSU unit.



NOTE:

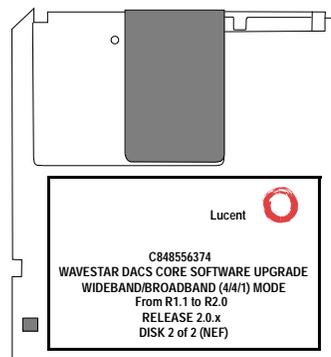
See "Appendix A - Units" for MO disk removal procedure.

- Step 21:** Install the **Network Element Function (NEF) MO Disk (DISK 2)** into the MO disk drive of the MSU unit.



NOTE:

See "Appendix A - Units" for MO disk installation procedure.



- ☐ **Step 22:** Verify that the **Network Element Function (NEF) MO disk** was installed in the MO Drive, and enter a **RETURN** to begin the NEF Installation Procedure.



Time Estimate:

The NEF software install will take approximately 2 minutes.

Output Response:

```
Proceeding with NEF Installation:
  1. Validate NEF Installation MO: ...mount..install. (Completed)
  2. Prepare for NEF Installation: ...
```

```
bin/d6install.nef
3022 blocks
```

```
Verifying MO checksums
OK
```

```
Installing from /MO/addon.cpio.gz
18914 blocks
```

```
Installing from /MO/dacs6.cpio.gz
145384 blocks
```

```
Installing from /MO/root.cpio.gz
3022 blocks
```

```
Installing from /MO/wlo.cpio.gz
5 blocks
```

```
Installing miscellaneous files
3022 blocks
```

```
*****
*****
***** The NEF software has been successfully installed *****
*****
*****
```

```
Entering software administration menu...
```

```
Option specified to break into software administration menu.
```

```
DACS                               System Administration
```

```
Pre-NEF Services
```

- 1. - Database/System Backup
- 2. - Database/System Restore
- 3. - Database Upgrade from 1.1
- 4. - Database Upgrade from 1.0
- ? - Help
- c - Continue Booting
- q - Quit Without Booting

```
Enter choice:
```

-
- Step 23:** *Remove* the **Network Element Function (NEF) MO Disk (DISK 2)** from the MO Disk Drive of the MSU unit.



NOTE:

See "Appendix A - Units" for MO disk removal procedure.

-
- Step 24:** From the System Administration Pre-NEF Services Menu, select the **Database Upgrade from 1.1** option by entering (3), then press (RETURN).

Input Command:

```
Enter choice:3
```

Output Response:

```
Upgrade from DACS Release B1.1 to B2.0 ready to begin.  
hit <Return> when ready :
```

-
- Step 25:** When ready to begin the **Database Upgrade** process, press the (RETURN).

Output Response:

```
Files will now be copied from the MO to the MC hard disk.  
Files stored on the MC hard disk will be replaced with the MO  
version.
```

```
Do you want to continue <y,n> >
```

-
- Step 26:** Start the **Database Upgrade** process by entering (Y), then press (RETURN).

Input Command:

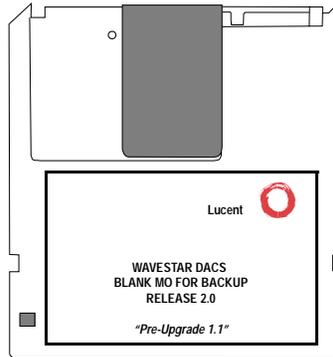
```
Do you want to continue <y,n> > Y
```

Output Response:

```
Please insert the MO disk containing Release B1.1 backup in MO drive.  
hit <Return> when complete :
```

- **Step 27:** *Install* the “**Pre-Upgrade 1.1” System Database Backup MO Disk** made earlier in the upgrade procedure into the MO disk drive of the MSU unit.

 **NOTE:**
See “*Appendix A - Units*” for MO disk installation procedure.



 **CAUTION:**
Make sure you have the correct database backup disk. You must use the “Pre-Upgrade 1.1” database backup that contains the removal of BSSU 1 and BSSU 2 in the database, otherwise, a service interruption may occur!

- **Step 28:** After installing the “**Pre-Upgrade 1.1” System Database Backup MO Disk**, enter a **RETURN** to begin the database upgrade.

Output Response:

```
Checking for presence of MO. Please be patient...
MO is present.
Checking to see if the MO has a valid DB backup...
Valid DB on MO.
Checking SYS_CON on MO...

1/1 row copied
Database information on MO disk:
  Frame ID is 1
  Software ID is 2112
  This backup was performed <backup date>
Database information on frame:
  Frame ID is 1
  Software ID is 4096
  Current time is <current date>
Do you want to continue the restore <y,n> >
```

□ **Step 29:** Perform **one** of the following options below, based on the reported database information:

- If the database information is correct, press **(y)**, and then press **(RETURN)** to continue the database backup restore.
- If the database information is **not** correct, press **(n)**, and then press **(RETURN)** to quit the database restore. Verify that you have inserted the correct MO. Replace with the correct MO and try again or contact next level of support.



CAUTION:

*Watch the screen output and check for any errors or messages that indicate that the restoral process was **not** successful.*

Output Response:

```
Copying the following files from MO to hard disk...
./safel/
./safel/cpdbnsys.info
./safel/usr/
./safel/usr/dacs6/
./safel/usr/dacs6/gdup/
./safel/usr/dacs6/gdup/nef/
./safel/usr/dacs6/gdup/nef/db/
.
.
.
./safetmp
./bkup.info
Finished restore of files from MO

Searching for any core files to remove...
Release B1.1 restore completed

Starting conversion of data from B1.1 to B2.0

Conversion of data complete.
.
.
.
Database upgrade completed, continue the booting

DACS                                     System Administration

Pre-NEF Services

1. - Database/System Backup
2. - Database/System Restore
3. - Database Upgrade from 1.1
4. - Database Upgrade from 1.0
? - Help
c - Continue Booting
q - Quit Without Booting

Enter choice:
```

-
- Step 30:* If the database upgrade **was** successful, the screen will indicate “Data-base upgrade completed, continue the booting”, then proceed to next step.

If the database upgrade **was not** successful, retry the procedure by returning to **Step 25**. If the upgrade fails again, do **not** proceed with this upgrade procedure, and contact your next level of support. Do **not** attempt backout procedures without first contacting technical support.

-
- Step 31:* **Remove** the “**Pre-Upgrade 1.1**” **System Database Backup MO Disk** from the MO disk drive of the MSU unit.



NOTE:

See “*Appendix A - Units*” for MO disk removal procedure.

- **Step 32:** Select the **Continue booting** option by entering **(C)**, then press **(RETURN)**. **Watch** the terminal screen for the appropriate output response below for error messages.



NOTE:

The “user name” prompt may appear before the output response is fully completed. Do **NOT** enter a login at the “user name” prompt, until after the appropriate response appears as shown in next step.

Input Command:

```
Enter choice: c
```

Output Response:

```
Creating /usr/add-on/scs/bin/mips/.sum_list
init: info; transitioning to OS Run Level '2'.
CSD daemon, Version "20000426", starting (Process 194)...
```

```
user name:FSM ready for events.
init: info; transitioning to OS Run Level '3'.
```

```
Networks Going Active... (/net/rc.network)
```

-
-
-

```
Networks Active
```

```
init: info; transitioning to OS Run Level '4'.
Grandma: w001 Mom (256) started at Sat May 13 15:07:45 2000
Booting NEF Software Release B2.0.1 2000/05/04 12:53:28
w001 Run Level: SYSTEM
w001 Run Level: SYSTEM_ACTIVE
w001 Run Level: BOOT
w001 Run Level: ACTIVE_NEF
```

- Verify following lines reported for working Sync Shelf:

```
Grandma: w003 Mom (xxx) started at <current date-time>
w003 Run Level: SYSTEM
w003 Run Level: BOOT
w003 Run Level: ACTIVE_NEF
<current date-time> GEN002 dacs6: w003 Software Initialisation Complete
```

- Verify following lines reported for protection Sync Shelf:

```
Grandma: w004 Mom (xxx) started at <current date-time>
w004 Run Level: SYSTEM
w004 Run Level: BOOT
w004 Run Level: STANDBY_NEF
<current date-time> GEN002 dacs6: w004 Software Initialisation Complete
```

- Verify following lines reported for each Port Subrack (starts with w005):

```
Grandma: w00? Mom (xxx) started at <current date-time>
w00? Run Level: SYSTEM
w00? Run Level: BOOT
w00? Run Level: STANDBY_NEF
<current date-time> GEN002 dacs6: w00? Software Initialisation Complete
```

- Verify following lines reported for working MC Subrack:

```
user name:

w001 Run Level: ACTIVE_ALL
Sat May 13 15:19:41 2000 GEN002 dacs6: w001 Software Initialisation Complete
```

-
- Step 33:* This successfully completes the "Core Software Upgrade (1.1 to 2.0)" procedure for the *WaveStar™* DACS 4/4/1. Ⓢ
-

STOP-Return to Calling Procedure

Appendix L - BSSU 1 & 2 Power-Up Procedure

Description

The following procedure will explain the steps to power-up Matrix Position 1 and Matrix Position 2 in the MC Rack Assembly. This is required because these units were temporarily powered down while the front Power Distribution Panel in the MC Rack Assembly was replaced as part of this System Upgrade.

This procedure will check the status of all BSSU units for proper state, and clear the current protection switch freeze of the matrix slices. Then the matrix units in Matrix Position 1 and Matrix Position 2 will be powered up by installing the appropriate fuses in the front Power and Alarm Distribution Panel on the MC Rack Assembly. Once under power, the manual protection switch will be cleared and the working matrix units in Matrix Position 1 and Matrix Position 2 will be returned to active status.

Required Equipment:

- 1 → XC-CIT Workstation running GUI Application
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → Ethernet LAN Adapter
- 1 → Workstation with Terminal VT100 Emulation (HyperTerminal)
- 1 → 25ft 10 Base T Data Cable (ITE-7016)
- 1 → CIT Adapter (9 pin-female) (ITE-6999)

Assumptions:

1. MC Rack is installed on the left-side of the Core Complex when facing the front of the system.
2. Matrix Position 1 and Matrix Position 2 of the MC Rack Assembly, correspond to matrix units BSSU-1 and BSSU-2, respectively. If the matrix positions correspond to BSSU-6 and BSSU-7, this procedure is not written for these positions (Contact CTS).
3. Fuse Positions A2, A3, B2, B3 or the Front MC Power Panel correspond to matrix units BSSU-1 and BSSU-2, respectively.
4. Matrix Position 1 and Matrix Position 2 currently powered down.

Precautions

- When working on the *WaveStar*TM DACS 4/4/1, ESD grounding procedures must be followed (e.g.: wrist strap, or grounded shoes, etc. must be worn) at all times.

Procedure

Use the boxes to check off the steps as they are completed.

Step 1: Verify the position of the MC Rack in the Complex Complex Assembly (left-side or right-side), and perform the appropriate procedural options below:

- If the MC Rack is on the **left-side** of the Core Complex, continue with upgrade by proceeding to **Step 2**.
- If the MC Rack is on the **right-side** of the Core Complex, then do **not** proceed with this procedure and contact CTS Support.

When on the **right-side**, the matrix units corresponding to the front MC Power Panel become BSSU-6 and BSSU-7 for which this procedure is not written.

Step 2: Verify that the XC-CIT Workstation is currently logged into the *WaveStar™* DACS 4/4/1 and the GUI Window is visible on the screen.

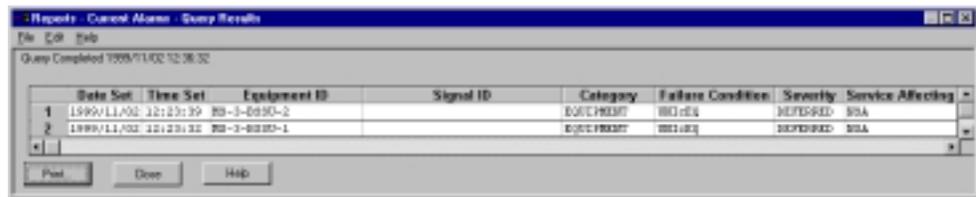
If **not**, connect and login to the system.
(See *GTP 11 - System Login Procedure*)

- **Step 3:** From the **View Current Alarms Window**, query the alarm status for the entire system, and verify that matrix units **BSSU 1** and **BSSU 2** are still in the **UNicEQ** alarm state.

- **Step 3-a:** Open the **Alarms-View Current Alarms Window** by pressing the **Current Alarms** button.

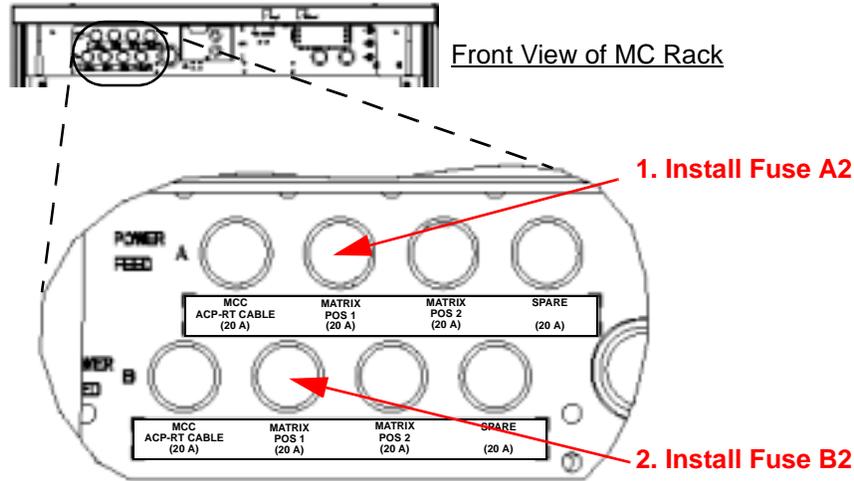


- **Step 3-b:** In the **View Current Alarms Window**, leave the default settings (for all alarms in the system) and press the **Query** button to execute the alarm query.
- **Step 3-c:** Press the **Query** button to execute the alarm query.
- **Step 3-d:** Verify **UNicEQ** alarms for matrix units in **Matrix Position 1** and **Matrix Position 2**.

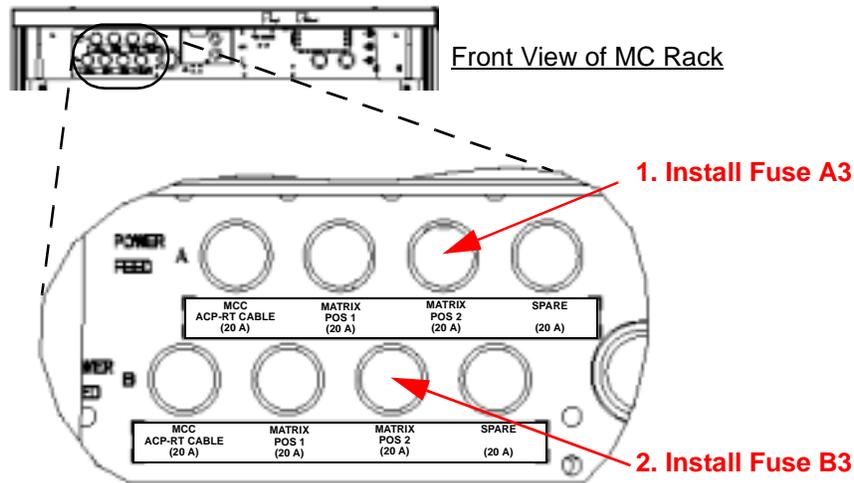


- **Step 3-e:** Close the **Reports-Current Alarms-Query Results Window** by pressing the **Close** button.
- **Step 3-f:** Close the **Reports-Current Alarms Window** by pressing the **Close** button.

- **Step 4:** At the **front** MC Power Panel, power-up the matrix unit **BSSU-1** in **Matrix Position 1** by **installing** the appropriate fuses into fuseholder positions **A2** and **B2**, and verify that the red LED Display indicates a **“F”**.



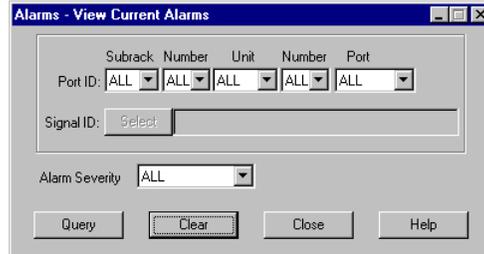
- **Step 5:** At the **front** MC Power Panel, power-up the matrix unit **BSSU-2** in **Matrix Position 2** by **installing** the appropriate fuses into fuseholder positions **A3** and **B3**, and verify that the red LED Display indicates a **“F”**.



- **Step 6:** The working matrix units in **Matrix Position 1** and **Matrix Position 2** will automatically begin to boot, so **wait** until the red **“F”** in the LED display turns **OFF** for both matrix units.

- ❑ **Step 7:** From the **View Current Alarms Window**, query the alarm status for the entire system, and verify that **no** alarms are reported for matrix units **BSSU 1** and **BSSU 2**.

- ❑ **Step 7-a:** Open the **Alarms-View Current Alarms Window** by pressing the **Current Alarms** button.



- ❑ **Step 7-b:** In the **View Current Alarms Window**, leave the default settings (for all alarms in the system) and press the **Query** button to execute the alarm query.

- ❑ **Step 7-c:** Press the **Query** button to execute the alarm query.

- ❑ **Step 7-d:** Verify **no** alarms for matrix units **BSSU 1** and **BSSU 2**.

- ❑ **Step 7-e:** Close the **Reports-Current Alarms-Query Results Window** by pressing the **Close** button.

- ❑ **Step 7-f:** Close the **Reports-Current Alarms Window** by pressing the **Close** button.

- ❑ **Step 8:** Open the **Protection-Equipment Window** and select **Matrix Slice Tab**.
WINDOW PATH:

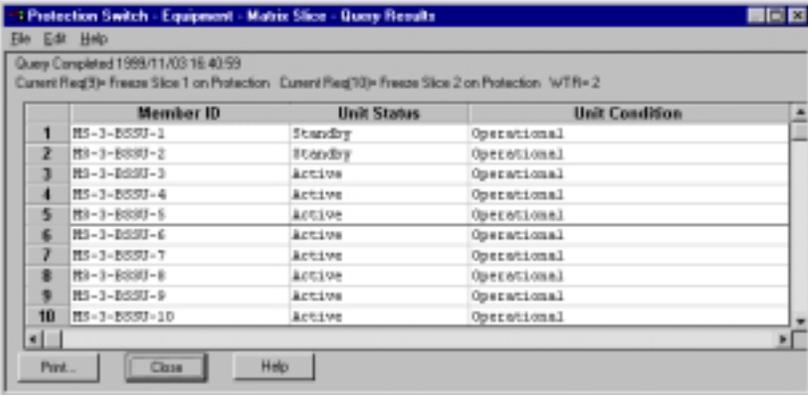


WINDOW:



- **Step 9:** Perform the following steps in order to query the **Unit Status** and **Unit Condition** of all ten of the **BSSU Units** in the system matrix.

- **Step 9-a:** In the **Protection-Equipment-Matrix Slice Window**, press the button in order to get the status reported for all the **BSSU units** in the matrix, and verify that all **BSSU units** are in the indicated state:



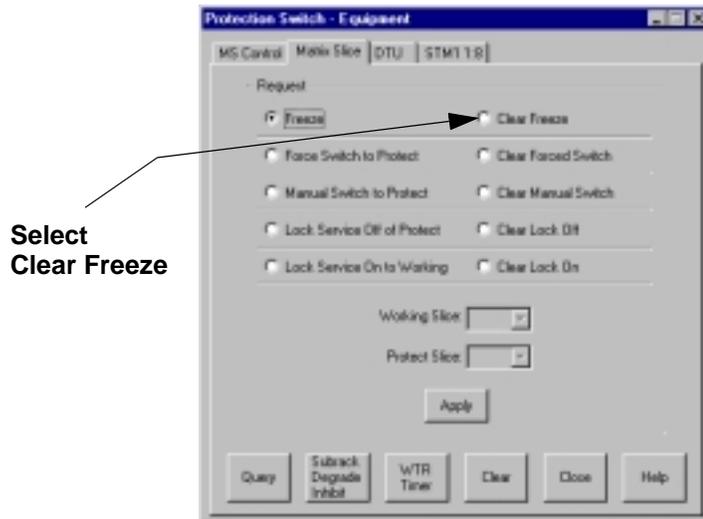
The screenshot shows a window titled "Protection Switch - Equipment - Matrix Slice - Query Results". The window contains a table with the following data:

	Member ID	Unit Status	Unit Condition
1	MS-3-BSSU-1	Standby	Operational
2	MS-3-BSSU-2	Standby	Operational
3	MS-3-BSSU-3	Active	Operational
4	MS-3-BSSU-4	Active	Operational
5	MS-3-BSSU-5	Active	Operational
6	MS-3-BSSU-6	Active	Operational
7	MS-3-BSSU-7	Active	Operational
8	MS-3-BSSU-8	Active	Operational
9	MS-3-BSSU-9	Active	Operational
10	MS-3-BSSU-10	Active	Operational

- **Step 9-b:** Verify that working matrix units **BSSU 1** and **BSSU 2** are "Standby" and "Operational".
- **Step 9-c:** Verify that protection matrix units **BSSU 9** and **BSSU 10** are "Active" and "Operational".
- **Step 9-d:** Close the **Protection Switch-Equipment- Matrix Slice-Query Results Window** by pressing the button.

- ❑ **Step 10:** Perform the **Clear Freeze Protection Switch** command, in order to **unlock** the current protection state of the matrix, and allow the working matrix units **BSSU 1** and **BSSU 2** to switch back to the Active state.

- ❑ **Step 10-a:** In the **Protection-Equipment-Matrix Slice Window**, select the **Clear Freeze** command below:



- ❑ **Step 10-b:** Press the **Apply** button to execute the **Protection Switch** command.
- ❑ **Step 10-a:** Press the **Query** button in order to get the status reported for **all** the **BSSU units** in the matrix, and verify that **all** **BSSU units** are in the indicated state:

The screenshot shows a window titled "Protection Switch - Equipment - Matrix Slice - Query Results" with a menu bar (File, Edit, Help) and a status bar. The main area contains a table with the following data:

	Member ID	Unit Status	Unit Condition
1	MS-3-BSSU-1	Active	Operational
2	MS-3-BSSU-2	Active	Operational
3	MS-3-BSSU-3	Active	Operational
4	MS-3-BSSU-4	Active	Operational
5	MS-3-BSSU-5	Active	Operational
6	MS-3-BSSU-6	Active	Operational
7	MS-3-BSSU-7	Active	Operational
8	MS-3-BSSU-8	Active	Operational
9	MS-3-BSSU-9	Standby	Operational
10	MS-3-BSSU-10	Standby	Operational

Buttons at the bottom include "Print...", "Close", and "Help".

- ❑ **Step 10-b:** Verify that all eight working matrix units (**BSSU 1** thru **BSSU 8**) are now "Active" and "Operational".
- ❑ **Step 10-c:** Verify that protection matrix units (**BSSU 9** and **BSSU 10**) are now "Standby" and "Operational".
- ❑ **Step 10-d:** Close the **Protection Switch-Equipment- Matrix Slice-Query Results Window** by pressing the **Close** button.
- ❑ **Step 10-e:** Close the **Protection Switch-Equipment Window** by pressing the **Close** button.

Step 11: Check-off the appropriate box corresponding to this procedure.

Step 12: This completes the "*BSSU Power-Up Procedure*".

STOP- Return to Calling Procedure

Attachments

List of Attachments

The following attachments contains the following forms:

- Completion Form

Completion Form

Lucent Technologies
Bell Labs Innovations



Document Title: WaveStar™ DACS 4/4/1, Rel 1.1 to Rel 2.0 System Upgrade (In-Service)
Modification Implementation Procedure

Identification No.: 365-367-307 Issue No.: Issue 2.0 Date: September

Location Information

This procedure was completed:

Start Date: _____ Completion Date: _____

Station Location: _____

Country: _____

Participants

	<u>Names (Printed)</u>	<u>Company</u>
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____

Customer Signature

Please read and sign the statement below:

*I have witnessed the successful implementation of this procedure on
this particular WaveStar™ DACS 4/4/1 System.*

Customer Signature

Date

**Note: This Completion Form is to be retained by the Lucent Technologies Representative
as a record of successful completion of this implementation procedure.**
