

IBM 3590 Tape Subsystem



# Maintenance Information

*A00 and A50 Controllers*



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**Note!**

Before using this information and the product it supports, be sure to read the general information under "Notices" on page A-1.

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## Preface

This manual is for use by service personnel who intend to install, remove, diagnose, repair, or test the IBM Model A00 and Model A50 ESCON attach.

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## Related Information

Additional information related to the subsystem is available in the following publications:

- *IBM 3590 High Performance Tape Subsystem Introduction and Planning Guide*, GA32-0329
- *IBM 3590 High Performance Tape Subsystem User's Guide*, GA32-0330 *IBM 3590 High Performance Tape Subsystem Hardware Reference*, GA32-0331
- *IBM 3494 Tape Library Dataserver Maintenance Information*, P/N 05H7566
- *IBM 3590 Tape Subsystem Models B11 and B1A MI* P/N 05H9018
- *Enterprise Systems Connection Adapter: User's Guide and Service Information*, SC23-2474
- *IBM Care and Handling of the IBM Magnetic Tape Cartridge*, GA32-0047

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## RISC System/6000<sup>®</sup> Information

Additional information related to the A00 subsystem is available in the following publications:

- *7009 Compact Server Service Guide*, SA23-2716-01
- *7009 Compact Server Operator Guide*, SA23-2715-01
- *POWERstation and POWERserver<sup>®</sup> Common Diagnostics Information Manual*, SA23-2765
- *POWERstation and POWERserver Adapters, Devices and Cable Information*, SA23-2764

For additional information about the RISC System/6000 subsystems and software, see:

- *RISC System/6000 Getting Started: Using RISC System/6000*, GC23-2377
- *RISC System/6000 Getting Started: Managing RISC System/6000*, GC23-2378
- *RISC System/6000 Problem Solving Guide*, SC23-2204
- *RISC System/6000 System Overview and Planning*, GC23-2406
- *RISC System/6000 Planning for System Installation*, GC23-2407
- *7202 Install and Service Guide*, SA23-2670
- *7015 Install and Service Guide*, SA23-2628

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## 9076 SP2<sup>®</sup> Information

- *Scalable POWERparallel Systems<sup>®</sup>: System Planning*, SC233864 PACKAGE on MKTTOOLS
- *Scalable POWERparallel Systems: Installation Guide*, SH23-3865
- *Scalable POWERparallel Systems: High-Performance Technical Computing Solutions*, GH23-2485
- *Scalable POWERparallel Systems: Business Solutions*, GA23-2475
- *IBM 9076 Scalable POWERparallel Systems: SP2 Administration Guide*, SH26-2486
- *IBM 9076 Scalable POWERparallel Systems: SP2 Diagnosis and Messages*, SC23-3866
- *IBM 9076 Scalable POWERparallel Systems: SP2 Command and Technical Reference*, SC23-3867
- *IBM 9076 Scalable POWERparallel Systems: Maintenance Information, Vol. 1*, SY66-0294
- *IBM 9076 Scalable POWERparallel Systems: Maintenance Information, Vol. 2*, SY66-0295

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## **Model 140 and 240 Information**

- *The RS/6000 7043 43SP Series Models 140 and 240 Setup Instructions*, SA38-0510
- *The RS/6000 7043 43SP Series Models 140 and 240 Service Guide*, SA38-0512
- *The RS/6000 7043 43SP Series Models 140 and 240 User's Guide*, SA38-0511
- *The PCI Graphics Adapter PCI Adapter Placement Reference*, SA38-0538
- *The Diagnostics Information for Macro Channel Bus Systems*, SA23-2765

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# Chapter 1. Introduction

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## 3590 A00 and A50 Introduction

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### Overview of the 3590 ESCON A00 and A50 Controllers

The 3590 A00 and A50 controllers are two of the 3590 tape subsystem ESCON host attachment for the 3590 tape drives.

**CAUTION:**

**For ESCON, all drives must be either Extended High Performance Cartridge or non-Extended High Performance Cartridge. ESCON cannot handle mixed pools. As an example, if you have Extended High Performance Cartridge on a 3494 Dataserver Library, all drives must be Extended High Performance Cartridge capable.**

The following are models of the 3590 A00 and A50 Controllers:

- Model A00 is an ESCON controller.
- Models A00 and A50 are ESCON controllers.
- A14 is a stand-alone frame that contains one or two ESCON controllers and up to four 3590 Model B11 or B1A drives.
- Rack Mounted with up to four 3590 drives.
- The Model A00 is a RISC/6000.
- The Models A00 and A50 are RISC/6000 based controller designed to provide the customer with the ability to attach 3590 tapes drives into processor complexes, which do not support the native SCSI attach provided directly by the drives.
- The Models A00, A50, 3494 D14, and 3494 L14 attach the 3590 SCSI adapter to an ESCON host.
- Any of the 3590 A00 and A50 Control Units can be integrated with any host system that support ESCON.
- The Model A00 is the Models A00 and A50 are integrated into the A14 frame, the Rack-mount, the 3494 D14 frame, or the 3494 L14 frame.
- The Model D14 is a A00 or A50 controller mounted in library systems with rear service, and ESCON capability.
- The Model L14 is a A00 or A50 mounted as head of string in 3494 library systems with rear service, and contains the library controller.

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## RAS Characteristics

### Availability

- The 3590 Models A00 and A50 in addition to the SIM/MIM messages, support Service Request Numbers (SRNs).
- The 3590 models A00 and A50 provides a service interface, a Service Terminal for Control Unit Configuration, Maintenance, Control and Status functions.
- Minimum number of cables.
- Predictive maintenance (hardware and media problems before they are evident) via SIM/MIM.
- The 3590 A00 and A50 models have only one RISC/6000 per control unit and does not support concurrent maintenance on the control unit. The attached 3590 drives do support concurrent maintenance. All control unit service will be disruptive to customer operations for hardware replacement operations.
- The ability to interrogate CU error logs and support certain microcode related service is a concurrent operation.
- SIM support enables CU hardware replacement operations to avoid service impacts during peak usage, and can be scheduled at the Customer's convenience.

### Serviceability

- No host resources or support is required for service.
- Most service actions are initiated from the 3590 Models A00 or A50 Service Terminal.
- Using the Service Terminal, there will be a combination of RISC/6000 SMIT menus and unique Model A00/A50 model menus. For consistency, and to prevent unique training of CEs, all actions performed will be menu driven versus forcing CEs to use command line entry in the AIX operating system.
- Some problems will exist with the RISC/6000 that cannot be surfaced to the Service Terminal or a SIM message. These will be indicated by a flashing indicator on the Model A00 and Model A50, and will require that the CE read the SRN from the operator panel on the RISC/6000.
- When necessary the CE will be directed to the existing RISC/6000 documentation to create a cohesive service flow.
- When the is Model A00/A50 models are part of a library subsystem, the existing library service documentation will be used for library problems.
- Wrap tools are provided to test all external interfaces (SCSI, RS-422, and ESCON).
- Non-disruptive microcode update from the Model A00/A50 models control units for the drives, ESCON and SCSI adapters.

**Note:** The control unit can update the microcode in the ESCON Model A00/A50 and SCSI adapters. If the control unit contains multiple ESCON Model A00/A50 or SCSI adapters, microcode update can occur without interfering with any other operations that may be going on in other ESCON Model A00/A50 and SCSI adapters,.

- Control Unit microcode loading is a disruptive call for the entire subsystem.
- Support functions will be included on the Service Terminal to handle microcode traces and dumps. This support will be limited to routing the dump from the hard disk to diskette or tape for later analysis at the development lab.
- Error information (SIM/MIM) and (SRNs) are sent to the host. In the ESCON Model A00/A50 control unit some SRNs will only be available by opening the covers and reading the SRN directly from the RISC/6000 operator panel.

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## 3590 A00 and A50 Maintenance Strategy

The 3590 A00 Controller Model A00/A50 controller maintenance strategy does not use diagnostics for problem recreation. The hardware and microcode are designed to capture and isolate failures when they occur. The Fault Symptom Code (FSC) generated either by the functional microcode or diagnostic microcode is converted into a FRU identifier (FID) and displayed to the operator and/or the CE by sending Service Information Messages (SIMs), Media Information Messages (MIMs), or Service Request Numbers (SRNs).

The 3590 Model A00 models A00 and A50 diagnostics are predominantly based on existing RISC/6000 diagnostics. In addition, there are POST (Power On Self Tests), BIST (Build In Self Test) and concurrent diagnostics while operational at the background level. If the host system does not support SIMs and MIMs, sense data is available if the subsystem is able to present it. The maintenance strategy described here is for all configurations of the Model A00/A50 models.

- In all Model A00/A50 models remote support is available through the RISC/6000 based control unit using a standalone modem that is purchased by the customer.
- The RAS package for the Model A00/A50 models uses the Service Terminal at the control unit for maintenance.
- The control unit can access many of the maintenance functions in the drive using the SCSI interface.
- The Maintenance Information is contained in one volume.
- The drive diagnostics can be executed using the Service Terminal attached to the control unit.

The 3590 models A00 and A50 diagnostics are predominantly based on existing RISC/6000 diagnostics. In addition, there are POST (Power On Self Tests), BIST (Build In Self Test) and concurrent diagnostics while operational at the background level. If the host system does not support SIMs and MIMs, sense data is available if the subsystem is able to present it. The maintenance strategy described here is for all configurations of the Model A00/A50 models

## Call Home Support (A50 Controller Only)

The Call Home function on the A50 Controller (not supported on the A00 Controller) automatically opens a service alert when a problem occurs with the Magstar 3590 Model A50 Controller. A service representative can be sent to the installation and status information can be transmitted to the Support Center for problem evaluation. In addition, Call Home allows these alerts to be sent to a pager service so that multiple people, including the customer, can be notified.

---

## Host Messages

Service Information Messages (SIM) and Media Information Messages (MIM) are incorporated into the 3590. These messages provide the customer and the CE with diagnostic and repair information before the call, which eliminates unnecessary service calls.

**Note:** When possible the SRN from the RISC/6000 control unit is part of the SIM that is sent to the host.

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## Power Supply

The A00 controller has its own power supply. Refer to Chapter 1 of the 7009 Compact Server Service Guide, document number SA23-2716-01.

Both the A00 and A50 Controllers have their own power supply; for the A00, refer to Chapter 1 of the **7009 Compact Server Service Guide, document number SA23-2716-01**, and for the A50, refer to Chapter 1 of the **Models 140 and 240 Service Guide, document number SA38-0512-01**.

## 3590 Model A14 Power Panel

The 3590 Model A14 power panel contains the following functions; refer to Figure 1-1 on page 1-6 for the model A14 Operator Panel:

1. Unit Emergency Switch
  - a. When the switch is OFF, **1**, all power is OFF for the entire subsystem.
  - b. When the switch is ON, **1**, power is available to the subsystem.

**Note:** When the Unit Emergency switch is first turned ON, all LED are turned ON for one (1) second as an indication that the power panel is functional.

2. System Power Switch
  - a. When the System Power Switch is ON, **2**, power is supplied to the 3590.
  - b. When the System Power Switch is turned OFF, **2**, a power down sequence will be initiated on the subsystem.

## Power Switch and Power Sequence

### 3590 Model A14

Refer to Figure 1-1 on page 1-6 for the Model A14 Operator Panel.

#### **Power On LED:**

1. When the LED, refer to **3** is OFF, power is removed from both the 3590 drives and the control unit(s).
2. When the LED, refer to **3** is ON, power is active at both the 3590 drives and the A00 Controller control unit(s).

**Controller Status LED:** The 3590 Model A14 can contain up to two controllers, a model A00, either a Model A00 and a Model A50 or two A50's.

**Note:** The A14 will not contain two A00's. If only one A00 or A50 is present in the A14 frame, only the top **4** will be active. If two A50 or a A00 and a A50 are in the A14 frame, then both **4** and **5** are used.

The operator panel may contain two LED. Only **4** is used with a single A00 controller in the A14 frame. If you have two A50 or one A00 and one A50 in the A14 frame, both the LEDs **4** and **5** may be used.

1. When the LED is OFF, **4**, no fault has been detected in the control unit.
2. When the LED is ON, **4**, the control unit has detected an error.
3. When the LED is flashing, **4**, the control unit is waiting for some self correcting action to complete.
  - a. When the LED is OFF, **4**, no fault has been detected in the upper control unit.
  - b. When the LED is ON, **4**, the upper control unit has detected an error.
  - c. When the LED is flashing, **4** the upper control unit is waiting for some self correcting action to complete.
  - d. When the LED is OFF, **5**, no fault has been detected in the lower control unit.
  - e. When the LED is ON, **5**, the lower control unit has detected an error.
  - f. When the LED is flashing, **5**, the lower control unit is waiting for some self correcting action to complete.

**Note:** If the self correcting action is not successful, the LED, **4**, and/or **5** will be turned ON solid.

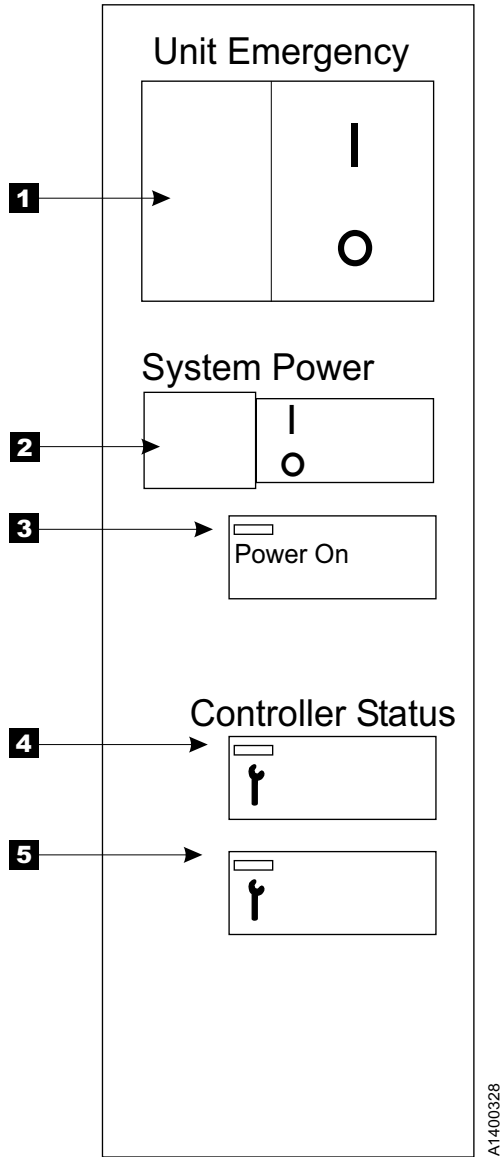


Figure 1-1. 3590 A14 Operator Panel



## A50 Control Unit Panel and Controls

The following items are referenced to Figure 1-2:

- **1** Power Switch: Turns the control unit power on and off.
- **2** Power-On Light: Glows when the control unit is on.
- **3** Hard disk Drive in-Use Light: Glows when control unit is reading from or writing to the hard disk.
- **4** Reset Button: (1) Causes the microcode to dump the control unit to the hard disk, and (2) following the dump, resets the RISC/6000.
- **5** Operator Panel Display: Displays status of the control unit, including CU error information.
- **6** Media Bay Cover: Covers the diskette and the CD-ROM drives when they are not in use.
- **7** Cover Lock: Security feature. Prevents the cover from being removed and locks the media bay cover in the closed position if locked. However, on the A50 control unit this cover is shipped in the un-locked position and keys are shipped with the CU.

**Note:** In the 3590 Model A00/A50 A14 frame, the L14 and the D14, the CU is not accessible to the customer.

- **8** Diskette-Drive In-Use Light: Glows when the control unit is reading from, or writing, to a diskette.
- **9** Diskette Eject Button: Releases diskette from the 3.5-inch diskette drive.
- **10** CD-ROM Eject Button: Releases diskette from the CD-ROM drive.
- **11** CD-ROM Emergency Eject: Ejects CD-ROM from the CD-ROM drive if power is not available.
- **12** CD-ROM Status Light: Indicates when the CD-ROM drive is active.
- **13** CD-ROM Volume Control: Not used in this control unit application.
- **14** CD-ROM Headphone Jack: Not used in this control unit application.

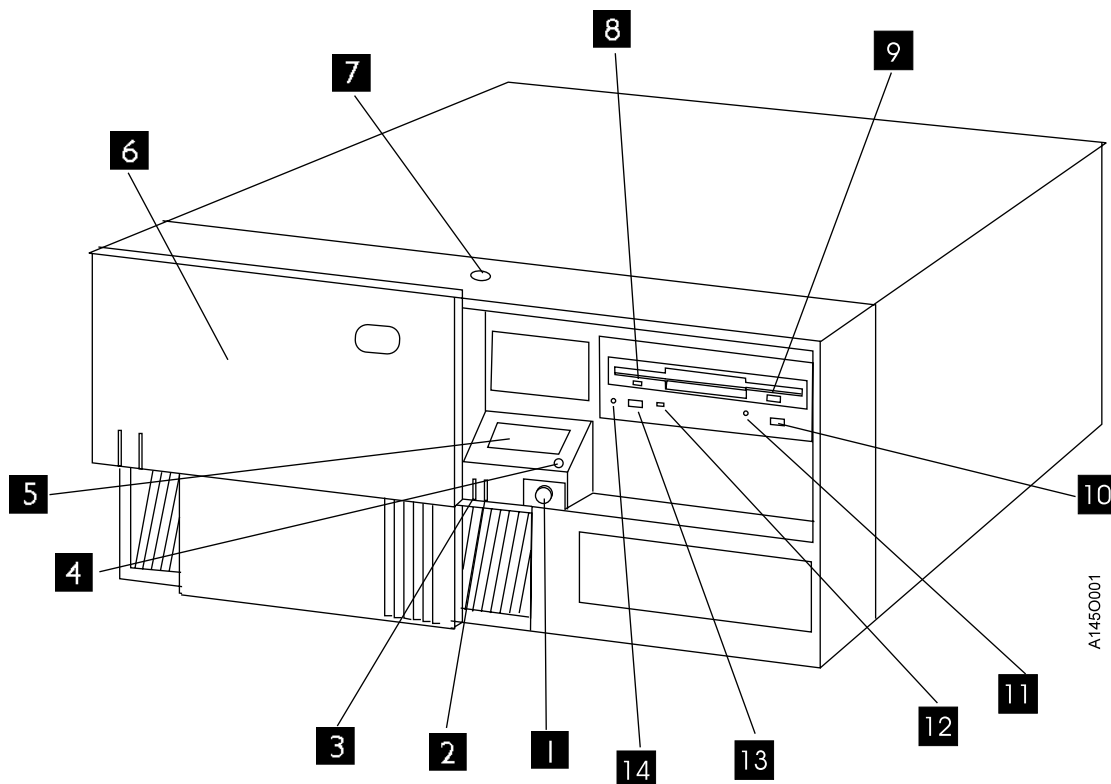


Figure 1-2. 3590 A50 Control Unit Panel

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## Field Microcode Support Using the Model A00/A50 Control Unit

Refer to “3590 A00/A50 Subsystem Microcode Addition or Activation” on page 11-7, and “Updating 3590 Device Microcode from A00 or A50 Using TAPEUTIL” on page 11-31.

---

### Special Tools

Special tools are shipped, purchased, or ordered; they are used to repair or maintain the Model A00/A50 controller.

A Service Terminal is needed for maintenance with all Model A00/A50 that are not part of a 3494 Library. This Service Terminal is not part of the subsystem. The Maintenance personnel servicing tool for the Model A00/A50 is the MoST.

### Service Terminal

The Service Terminal for the 3590 A00 controller Model A00/A50 controllers is a portable PC and must be equipped to act as an IBM 3151 Emulator. The diagnostic microcode to drive the menus and diagnose the subsystem is installed on the RISC/6000; see “Getting Started” on page 4-2.

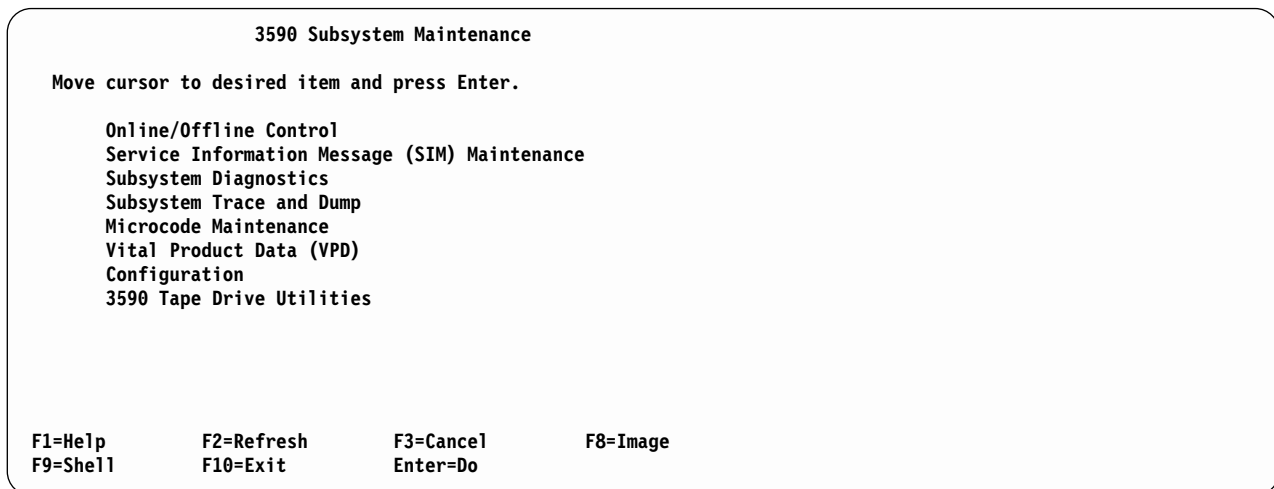


Figure 1-3. Main 3590 Subsystem Maintenance Screen

To select the **Online/Offline Control** Figure 1-3. move the cursor to that line and press **ENTER**, the next menu will become active.

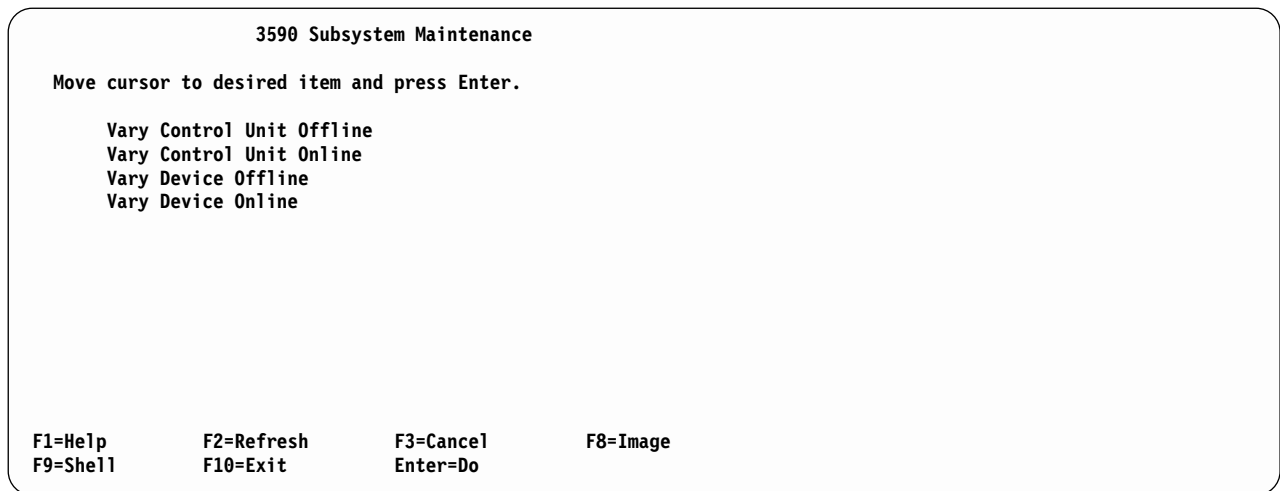


Figure 1-4. Online/Offline Control Screen

To select the **Service Information Message (SIM) Maintenance**, Figure 1-3 on page 1-8, move the cursor to that line and press **ENTER**.

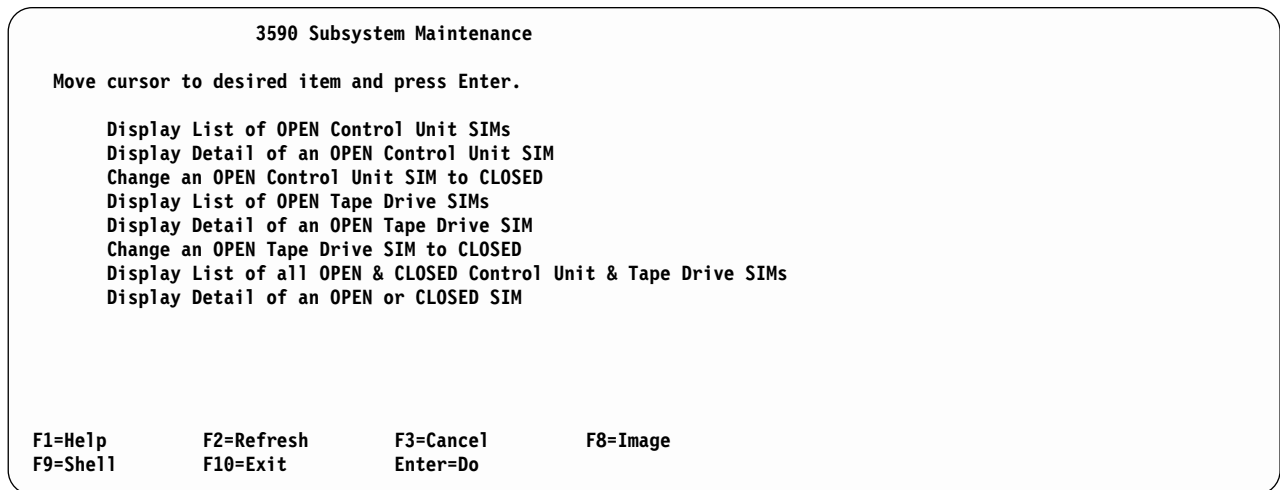


Figure 1-5. SIM Maintenance Screen

## ESD Kit

The ESD kit (P/N is available in *General CE Tools Reference Summary*, 5131-0075) is used to prevent damage when you work with electrostatic discharge (ESD) sensitive parts. **This tool, (Figure 1-6) is not shipped with the subsystem and must be ordered.**

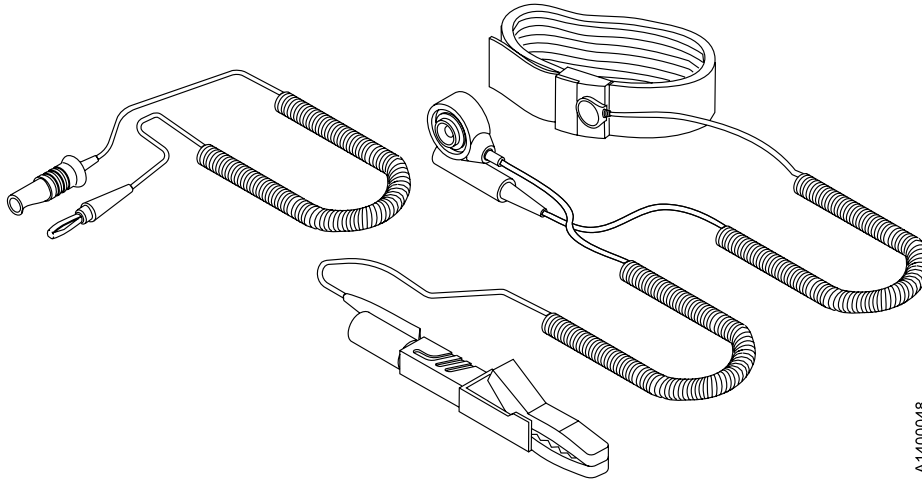


Figure 1-6. ESD Grounding Strap

## Wrap Tool

The ESCON wrap tool P/N 5605670, is used to verify the ESCON channel in the Model A00 Model A00/A50 models. **This tool, (Figure 1-7) is a unique part and cannot be swapped with other wrap tools.**

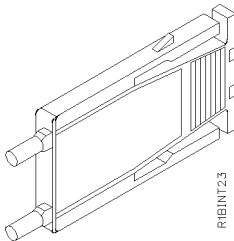


Figure 1-7. ESCON Wrap Tool

## 3590 Model Model A00/A50 Security Controls

Customer security and data integrity on the 3590 Model A00/A50 is safeguarded in several ways. The intent is to ensure the customer that unauthorized personnel cannot view or alter his/her data.

The RISC/6000 has the following security levels for the service package and support structures.

### Local Access Security

Service is performed on the Model A00/A50 through local access by using a serial port. This access is available through the Library Manager (LM) EBTERM or from the CE's MoST (NetTerm) service terminal.

When the LM is used for service, the terminal emulator program, EBTERM is only available in the password protected service mode of the LM.

This main service window has two options:

1. Service
2. Extended Service

Each of these functions require a different password. The intention is to prevent unauthorized access, even within the LM service mode functions.

Particular care has been taken in these menus to ensure the customer's data security. The following functions are examples of the service menu content:

- Subsystem control functions (Offline for service, Online, etc.)
- Diagnostics on devices and components when in an offline state
- Exercisers for extended testing
- Access to Error Logs, including SIMs (Service Information Messages) and MIMs (Media Information Messages)
- Code upgrade function

The extended service provides more extensive diagnostics and exercisers, but is generally not needed for typical service scenarios.

**Note:** **NEITHER** of the above service options ever provide the CE access to customer data or pointers. In addition, the design point of the service package blocks the CE from all AIX commands line access authority. The intention here is to prevent accidental command invocations that could damage the code integrity or data integrity.

### Remote Support Access Security

Remote access service has been implemented for many reasons, including, but not limited to, diagnosis and fix for various difficult hardware problems, plus microcode bug analysis. This allows faster fixes to code bugs without the associated re-duplication problems of the past, and provides the ability to resolve field problems by simply dialing in from the lab.

There are several layers of protection available and in place:

1. Security of the dial up hardware (Modem and WTI switch)
2. RISC/6000 security, as described above

The modems for remote service at customer accounts is the Microcom Deskporte FAST and the MultiTech. These modem were chosen for multiple reasons, including high/reliable bandwidth on noisy lines in conjunction with its password protection capabilities. It can be configured to have password protection, such that only dial in by authorized users with the password can gain access to the serial port of the RISC/6000 (which is still protected by the additional log in security described above). The modems can accept up to 50 unique passwords, can be tailored by the CE or the customer through the use of EBTERM or a similar terminal program facility for modems. When this is set by the customer, access, even by IBM

remote service, would be blocked, if desired, until the password was verbally given to the service personnel — or it could be left standardized to block only calls from other parties which did not have authorized access.

The WTI switch (FC 2711), if multiple Model A00/A50's or VTS II subsystems are present, has password protection as well. It allows selection of 1 unique password. This would typically be inline with the modem, and either or both could be password enabled. Having both enabled would be somewhat redundant, but possible.

**Remote Support Access Hierarchy:** Two levels of remote access authority are also employed within Tucson:

1. Tucson Support Center — this is the first lab level support interface to the customer/CE. Lab personnel can remotely perform all functions described above in the Service and Extended menus. They have greater technical knowledge than the CE on the product and serve as the first line of defense in problem isolation. They don't have access to any customer data or command line authority in the RISC/6000 and the Model A00/A50 Control Unit and have the same passwords as the CE's use to perform local service.
2. Development level personnel — this group comprises Product Field Engineers (PFE) and the lab microcode development functions. They have additional password authority not granted elsewhere to perform root access functions and have full command line authority. This password authority is tightly controlled in a small group on a "need to know" basis only.

The procedures for setting up remote access using password protection can be found on pages "Setting Up EBTERM or Terminal Emulator for Setting Modem Password" on page 11-44 and "Modem Initialization with Password (Microcom Deskport)" on page 11-46.

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## Chapter 2. Inspection

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## General Instructions

Use this checklist to ensure that a machine not covered by an IBM Maintenance Agreement, has the necessary safety items installed, and no other changes were made that would make it unsafe or inoperable. Each machine, as it was designed and assembled, had needed safety items installed to protect the owners, operators, and service personnel from injury.

**Note:** This equipment is designed for connection to IT (Impedance Transformer) power subsystems.

## Materials Needed

The following items are needed or are useful during the inspection:

- Copies of Safety Service Memorandums (SIMs) and Engineering Change Announcements (ECAs) for this machine type
- Machine history
- *Electrical Safety for IBM Customer Engineers*, S229-8124


## Education

Service personnel must be trained on the new general Maintenance Agreement Qualification (MAQ), Tailored-Maintenance Agreement Qualification, and changed Machine Safety Inspection Procedures as part of the electrical safety course.

---

## Safety

The general caution symbol, , identifies conditions where caution must be used.

The electrical caution symbol, , identifies electrical hazards where extreme caution must be used.

Perform this inspection before the normal inspection for a maintenance agreement. **Suspect that the 3590 is unsafe until you verify that it is safe.** If any unsafe conditions are present, decide how serious the hazard is and whether you can continue without first correcting the problem. Possible safety hazards are:

### Electrical

An electrically charged frame can cause serious or lethal electrical shock.

### Mechanical

Hazards, such as a safety cover missing, are potentially harmful to people.

### Chemical

Do not use solvents, cleaners, or other chemicals not approved for use on this product.

Any of the problems listed above must be repaired before you use the 3590.

The following notices are translated into selected languages. Each notice contains an identifier (Caution=Cx).



## C1

### CAUTION

The 3590 Model B11, with the ACF, weighs 40.5 kilograms (89 pounds); remove the ACF before lifting the 3590. The 3590 weighs 28.6 kilograms (63 pounds) without the ACF attached; it takes two persons to safely lift this unit.

## C2

### CAUTION

The 3590 Model B1A weighs 28.6 kilograms (63 pounds); it takes two persons to safely lift this unit.

## Safety Inspection Procedures

Before performing the safety procedures, ensure the existing room and electrical conditions are safe.

Read all Safety information on the label before starting. See Figure 2-1 on page 2-4 **2**.

Perform the following steps.

### Model A00/A50 AC Grounding Inspection

1. Power off the 3590.
2. Disconnect the channel cables and the power cord from its source.
3. Check that no voltage exists between the housing on the power source and building ground.
4. Check that resistance is less than 0.1 ohm from the building ground to the power supply enclosure **4**.
5. Inspect the power cable **3** for visible cracks, wear, or damage.
6. Check that the resistance between the power cable ground and the 3590 frame **1** is less than 0.1 ohm.
7. Inspect the power supply enclosure covers **4** to ensure all screws are installed and tight.

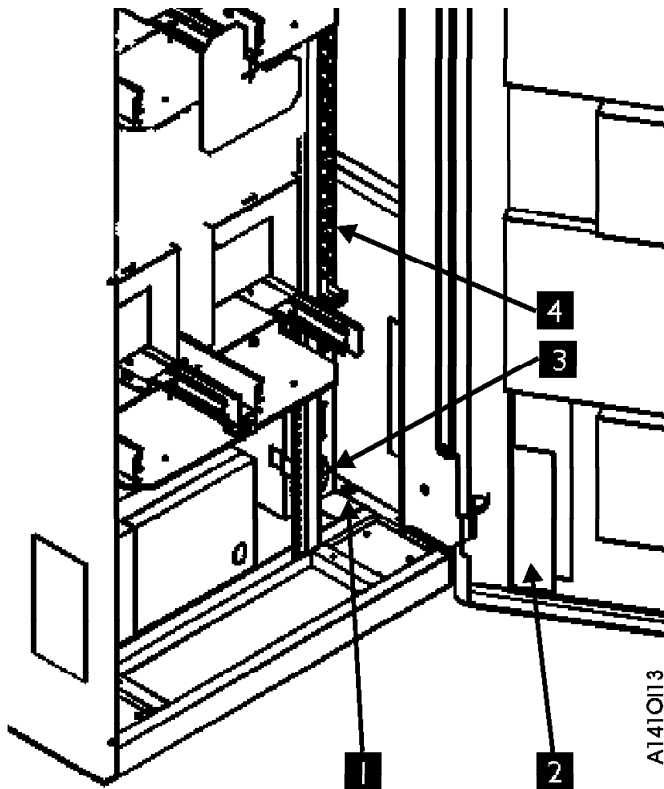


Figure 2-1. Model A00 AC Grounding Diagram (50 Hz and 60 Hz)

### 3590 Drive AC Grounding Inspection

1. Power off the 3590.
2. Disconnect the channel cables.
3. See Figure 2-2 on page 2-5. Disconnect the power cord **1** from its source.
4. Check that no voltage exists between the housing on the power source and building ground.
5. Check that resistance is less than 0.1 ohm from the building ground to the power supply enclosure **3**.
6. Inspect the power cable **1** for visible cracks, wear, or damage.
7. Check that the resistance between the power cable ground and the 3590 frame **2** is less than 0.1 ohm.
8. Inspect the power supply enclosure covers **3** to ensure all screws are installed and tight.

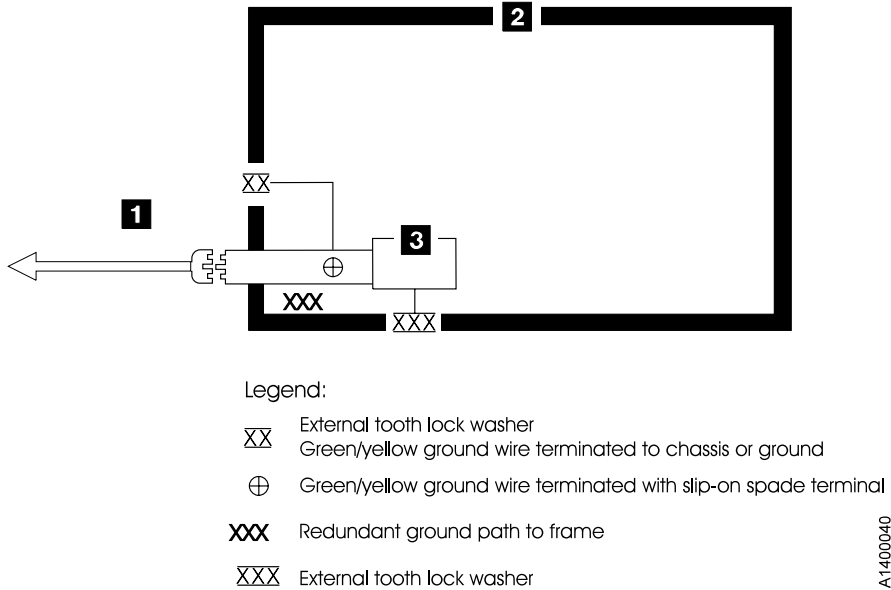



Figure 2-2. AC Grounding Diagram (50 Hz and 60 Hz)

## Seguridad

El símbolo general de precaución, , identifica situaciones en las que debe tener precaución.

El símbolo de precaución eléctrica, , identifica situaciones de riesgo eléctrico en las que debe extremar la precaución.

Realice esta inspección antes de la inspección normal para un acuerdo de mantenimiento. **Considere que la 3590 no es segura hasta verificar que lo es.** Si detecta alguna condición poco segura, decida el grado de riesgo existente y si puede continuar sin solucionar primero el problema. Posibles condiciones de riesgo para su seguridad son,

### Riesgos eléctricos

Un bastidor cargado eléctricamente puede producir descargas serias o letales.

### Riesgos mecánicos

Riesgos, como la falta de la cubierta de seguridad, son potencialmente perjudiciales para la gente.

### Riesgos químicos

No use disolventes, artículos de limpieza u otros productos químicos que no hayan sido aprobados para ser usados en este producto.

Cualquier problema de los listados anteriormente debe ser corregido antes de usar la 3590.

Los avisos siguientes se han traducido en varios idiomas. Cada aviso contiene un identificador (Precaución=Cx).

#### C1

PRECAUCIÓN La 3590 modelo B11 con el ACF (Dispositivo avanzado de comunicaciones) pesa 40.5 kilogramos (89 libras) por tanto, quite el ACF antes de levantar la 3590. La 3590 pesa 28.6 kilogramos (63 libras) sin el ACF montado; se necesitan dos personas para levantar la unidad sin peligro.

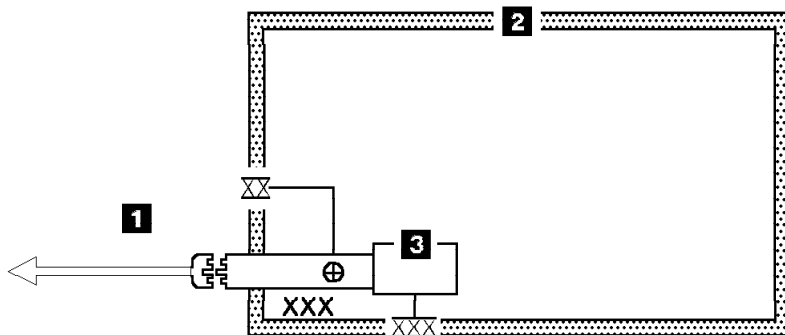
PRECAUCION La 3590 modelo B1A pesa 28.6 kilogramos (63 libras); se necesitan dos personas para levantar esta unidad sin peligro.

### Procedimiento de inspección de seguridad

Antes de proceder con esta inspección, asegúrese de que las condiciones eléctricas y de carácter general existentes son seguras.

Consulte “Cubiertas del dispositivo” (“Device Covers”) y “Etiquetas” (“Labels”) para saber donde se encuentran. Siga los pasos siguientes:

1. Desconecte la 3590.
2. Desconecte los cables de canal.
3. Consulte la Figure 2-3. Desconecte el cable de alimentación **1** de su fuente de alimentación.
4. Compruebe que no hay voltaje entre el receptáculo de la fuente de alimentación y la toma de tierra del edificio.
5. Compruebe que la resistencia es menor de 0.1 ohmios desde la toma de tierra del edificio hasta el recinto del dispositivo **2**.
6. Inspeccione el cable de alimentación **1** para detectar grietas, desgaste excesivo u otros desperfectos visibles.
7. Compruebe que la resistencia entre la toma de tierra del cable de alimentación y la 3590 es menor de 0.1 ohmios.
8. Inspeccione las cubiertas del recinto **3** para comprobar que todos los tornillos estan instalados y firmes.



Explicación:

⊗ Arandela de seguridad dentada externa. Cable de tierra verde/amarillo que acaba en chasis o toma de tierra.

⊕ Cable de tierra que acaba en terminal de horquilla deslizable

XXX Paso redundante de toma de tierra a bastidor


⊗ Arandela de seguridad dentada externa

A14SP040

Figure 2-3. Diagrama de toma de tierra CA (50 Hz y 60 Hz)

## 안전

일반 주의 기호  는 주의를 요합니다.

전기 주의 기호  는 극도의 주의를 요하는 전기적 위험을 표시합니다.

유지보수 계약에 대한 일반 검사 전에 이 검사를 수행하십시오. **3590**이 안전하다고 증명되기 전에는 **3590**이 안전하지 않다고 생각하십시오. 안전하지 않은 조건이 있으면 그 위험의 심각성을 결정하고 그 문제가 먼저 정정되지 않고 계속할 수 있는지 결정하십시오. 가능성이 있는 위험요소는 다음과 같습니다.

### 전기적

충전되어 있는 프레임은 심각하거나 치명적인 전기 쇼크를 일으킬 수 있습니다.

### 기계적

안전 커버가 없다면 하는 위험은 잠재적으로 인체에 해롭습니다.

### 화학적

이 제품에서 사용이 허용되지 않은 용해제, 클리너, 기타 화학 물질을 사용하지 마십시오.

**3590**을 사용하기 전에 위에 나열된 문제점 중 어떤 것이 있으면 반드시 시정하십시오.

다음 주의 사항은 선택된 언어로 번역되었습니다. 각 주의 사항은 식별명을 갖습니다 (주의 = Cx).

## C1

### 주의

**ACF**를 포함하는 **3590** 모델 **B11**은 **40.5** 킬로그램입니다 (**89** 파운드). **3590**을 들어올리기 전에 **ACF**를 제거하십시오. **ACF**가 부착되지 않은 **3590**은 **28.6** 킬로그램입니다 (**63** 파운드). 이 장치를 안전하게 들어 올리려면 두 사람이 들어야 합니다.

## C2

### 주의

**3590** 모델 **B1A**은 **28.6** 킬로그램입니다 (**63** 파운드). 이 장치를 안전하게 들어 올리려면 두 사람이 들어야 합니다.

## 안전 검사 프로시저

안전 프로시저를 수행하기 전에 설치 장소와 전기 상태가 안전한지 확인하십시오.

위치에 대해서는 “장치 커버” 와 “레이블”을 참조하십시오. 다음의 단계를 수행하십시오.

1. 3590의 전원을 끄십시오.
2. 채널 케이블을 분리하십시오.
3. 전원 코드 **1**을 소스에서 분리하십시오. 그림1을 참조하십시오.
4. 전원 소스의 단자와 빌딩 접지선 사이에 전압이 있는지 체크하십시오.
5. 빌딩 접지선과 AC 박스 커버 **2** 사이의 저항이 0.1 옴 보다 적은지 체크하십시오.
6. 전원 케이블 **1**이 눈에 띄는 파열이나 낡음, 혹은 파손된 곳이 있는지 점검하십시오.
7. 전원 케이블 그라운드와 3590 사이에 저항이 0.1 옴 보다 적은지 체크하십시오.
8. AC 박스 커버 **3**을 점검하여 모든 나사못이 제대로 짝 조여 있는지 확인하십시오.

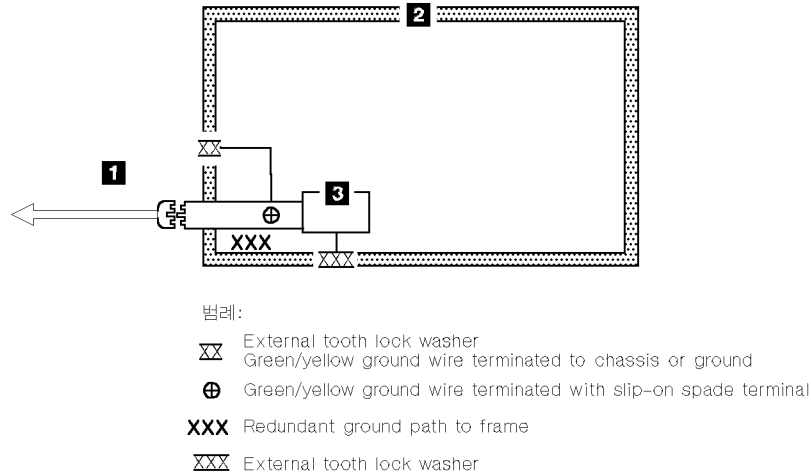



그림 1. AC 그라운드링 다이어그램 (50 Hz 와 60 Hz)

## Segurança

O símbolo geral de cuidado  identifica condições nas quais é necessário cuidado.

O símbolo de cuidado elétrico  identifica riscos elétricos onde é necessário cuidado máximo.

Execute esta inspeção antes da inspeção normal para um contrato de manutenção. **Não acredite na segurança do 3590 até certificar-se de que é seguro.** Se houver qualquer condição insegura, verifique a gravidade do risco e se você pode continuar sem antes corrigir o problema. Os riscos de segurança possíveis são:

### Elétrico

Uma estrutura carregada eletricamente pode causar choque elétrico sério ou letal.

### **Mecânico**

Riscos, tais como a falta de uma tampa de segurança, são potencialmente prejudiciais para as pessoas.

### **Químico**

Não utilize solventes, produtos de limpeza ou outros produtos químicos não-aprovados para uso neste produto.

Qualquer um dos problemas acima relacionados deve ser resolvido antes de se iniciar a utilização do 3590.

Os seguintes avisos são traduzidos nos idiomas selecionados. Cada aviso contém um identificador (Cuidado=Cx).

**C1** CUIDADO O 3590 Modelo B11 com o ACF pesa 40,5 quilos (89 libras), portanto remova o ACF antes de levantar o 3590. O 3590 pesa 28,6 quilos (63 libras) sem o ACF acoplado; são necessárias duas pessoas para levantar esta unidade com segurança.

**C2** CUIDADO

### **Procedimentos Para Inspeção de Segurança**

Antes de realizar os procedimentos de segurança, certifique-se de que o local e as condições elétricas existentes são seguras.

Consulte “Device Covers” e “Labels” para obter informações sobre localizações. Execute os seguintes passos:

1. Desligue o 3590.
2. Desconecte os cabos de canal.
3. Consulte Figure 2-4 on page 2-10. Desconecte o cabo de alimentação **1** da sua fonte.
4. Confirme se não existe voltagem entre o compartimento na fonte de alimentação e o terra do prédio.
5. Confirme se a resistência é menor do que 0,1 ohm entre o terra do prédio e o compartimento do dispositivo **2**.
6. Inspeccione o cabo de alimentação **1** para verificar se existem fissuras, desgastes ou danos.
7. Confirme se a resistência entre o terra do cabo de alimentação e o 3590 é menor do que 0,1 ohm.
8. Inspeccione as tampas dos compartimentos **3** para certificar-se de que todos os parafusos estão instalados e apertados.

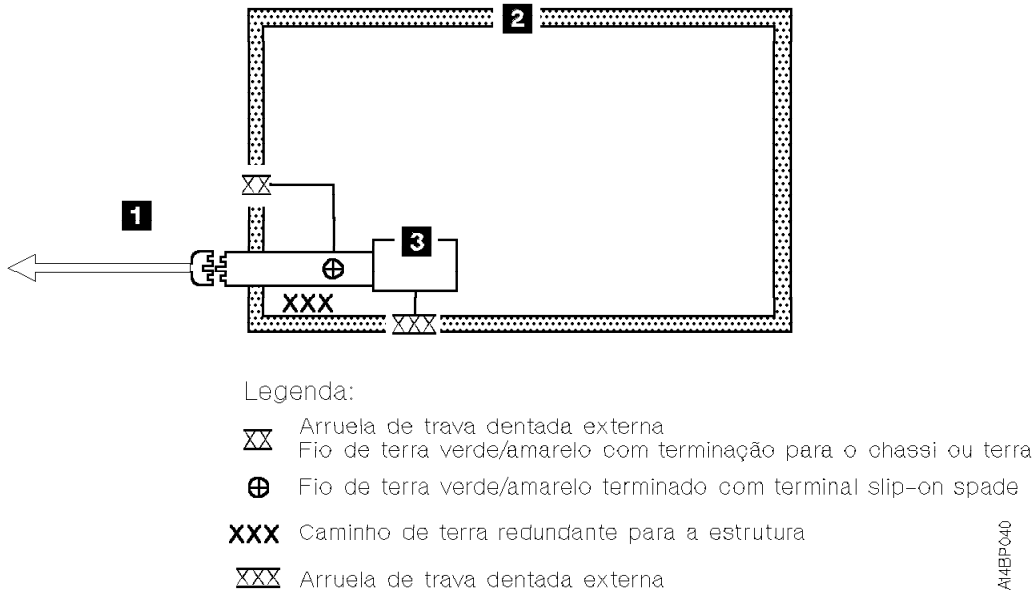




Figure 2-4. Diagrama de Aterramento AC (50 Hz e 60 Hz)

## Sécurité

Le symbole attention  indique qu'une attention particulière est nécessaire.

Le symbole risque électrique  identifie des risques liés au courant électrique; il faut en ce cas faire preuve d'une extrême prudence.

Ces procédures doivent être effectuées avant l'inspection normale pour un contrat de maintenance. **Le sous-système de bande magnétique IBM 3590 doit être considéré comme potentiellement dangereux tant qu'il n'a pas été vérifié.** Si vous détectez la moindre condition d'insécurité, vous devez évaluer sa gravité et déterminer si vous pouvez continuer ou non sans avoir d'abord corrigé le problème. Les risques peuvent être de différentes natures:

### Risques électriques

Un châssis chargé en électricité peut provoquer un choc électrique grave ou mortel.

### Risques mécaniques

L'absence d'un carter de sécurité, par exemple, peut être à l'origine de blessures.

### Risques chimiques

Utilisez uniquement les produits de nettoyage et autres produits chimiques recommandés pour ce matériel.

Assurez-vous que toutes ces conditions de sécurité sont remplies avant d'utiliser le sous-système de bande magnétique IBM 3590.

Chaque consigne est introduite par un identificateur (Attention=Cn).

**C1** ATTENTION Le sous-système 3590 modèle B11 doté du dispositif ACF (chargeur automatique de cartouches) pèse 40,5 kilogrammes. Retirez le



dispositif ACF avant de soulever le 3590. Sans ce dispositif, le sous-système pèse 28,6 kilogrammes. La présence de deux personnes est nécessaire pour le soulever.

C2

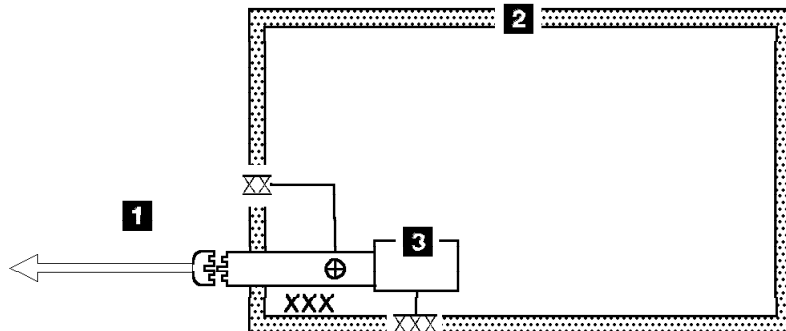
ATTENTION Le sous-système 3590 modèle B1A pèse 28,6 kilogrammes. La présence de deux personnes est nécessaire pour le soulever.

### Inspection de sécurité

Avant de procéder à l'inspection de sécurité, assurez-vous que la salle ainsi que l'installation électrique remplissent toutes les conditions de sécurité.

Pour plus de détails sur les emplacements des éléments, reportez-vous aux sections "Device Covers" et "Labels". Effectuez les opérations ci-dessous.

1. Mettez le sous-système 3590 hors tension.
2. Débranchez les cordons de transmission.
3. Reportez-vous à la Figure 2-5. Débranchez le cordon d'alimentation **1** du socle de prise de courant.
4. Assurez-vous que la tension est nulle entre le boîtier de la source d'alimentation et la terre du bâtiment.
5. Vérifiez que la résistance est inférieure à 0,1 ohm entre la terre du bâtiment et le carter du sous-système **2**.
6. Examinez le cordon d'alimentation **1** et assurez-vous qu'il n'est ni craquelé, ni troué, ni endommagé.
7. Vérifiez que la résistance entre la broche de terre du cordon d'alimentation et le sous-système 3590 est inférieure à 0,1 ohm.
8. Examinez les capots **3** et assurez-vous que les vis sont correctement placées et serrées.



Légendes :

- $\otimes$  Rondelle frein dentelée externe
- $\otimes$  Fil de terre vert/jaune aboutissant au châssis ou à la terre
- $\oplus$  Fil de terre vert/jaune muni d'une cosse plate
- XXX Chemin de mise à la terre redondant vers le châssis
- XXX Rondelle frein dentelée externe

AMFR040

Figure 2-5. Schéma de mise à la terre c.a. (50/60 Hz)

### Completion Report

- Safety inspection for A00 Controller Models
- General safety inspection
- Maintenance Agreement Qualification (MAQ)

- Safety inspection for 3590 drives — go to IBM 3590 Tape Subsystem A00 Controller Models

After the inspection, sign, date, and store the checklist with the Maintenance Agreement inspection.

\_\_\_\_\_  
NAME                                      DATE                                      SERIAL NUMBER

SAFETY HAZARDS

LIST ALL SAFETY HAZARDS. IF NONE, SAY NONE.

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_
8. \_\_\_\_\_
9. \_\_\_\_\_
10. \_\_\_\_\_

This report completes the safety inspection.

1. Reconnect the device power cable into the customer's power receptacle.
2. Reconnect the channel cables to the subsystem.

---

## Chapter 3. MAPs

MAP 0001: A00 and A50 Controller Power Problems . . . . . 3-2

---

## MAP 0001: A00 and A50 Controller Power Problems

Read all Safety information on the label before starting. See Figure 2-1 on page 2-4 **2**.

- This procedure helps you isolate power failures within the Model A14, D14, L14 or 3590 Subsystem in a rack that contains an A00 or A50 Controller.
- See the LOC\*CAR section for check, adjustment, removal, and replacement procedures.
- See “Power Supply” on page 1-4 for a description of 3590 power.
- If the recommended repair actions do not fix the problem, call your next level of support.
- When the repair is complete, perform a power-on of the A00 or A50 and of the affected drives to ensure that they all successfully run the POST test. Go to “End of Call” on page 11-3 when call is completed.

**001**

If not done before, have the customer vary all the drives offline that are associated with this device.

**Is your device a Model D14 or L14, or installed in a 3494 Library?**

Yes No

**002**

**Is this device a Model A14 with an A00 or A50 installed?**

Yes No

**003**

**Is this device a 3590 Subsystem in a rack with an A00 or A50 installed?**

Yes No

**004**

You are working on a device that this MAP cannot handle. Go to the IBM 3590 Tape Subsystem Models B11 and B1A MI, P/N 05H9018, MAP section to isolate the power problem.

**005**

Continue at Step 028 on page 3-5.

---

**006**

The Model A14 power problems are handled in this MAP, continue at Step 008.

---

**007**

This is a device in a 3494 Library. Go to the 3494 Library Maintenance Information START section and continue isolation of the power problem.

---

**008**

You are here to isolate a power problem in a Model A14 that contains a A00 or a A50. The Model A14 has an Operator Panel on the rear of the device that has a part in controlling power to the device. Observe the Operator Panel on the rear of the Model A14 frame. The System Power switch is a momentary rocker switch that, when pressed up, will power the device on, and when pushed down, will power the device off.

**Is this a Power On problem with a device?**

**Yes No**

**009**

The problem is that a device will not Power Off. Continue isolation at Step 024 on page 3-5.

**010**

This is a Power On problem. Check that the EPO switch is turned to ON, and that no circuit breakers are tripped in the PCC.

**Note:** If any CB's are tripped, reset them. If they trip again, either a device plugged into the circuit is defective, or the PCC is defective.

Press the System Power switch to the On position.

**Are the circuit breakers OK?**

**Yes No**

**011**

Circuit breakers are tripping. Perform the following:

1. Unplug one device at a time from the PCC and try to power on again.
2. If all devices are unplugged, and the circuit breakers continue to trip, replace the PCC.
3. If unplugging the device stops the circuit breaker from tripping, go fix or replace the power supply on that device. For an A00 power problem, go to 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 for isolation and repair. For a A50 power problem, go to Models 140 and 240 Service Guide, SA38-0512 for isolation and repair. For a 3590 drive problem, go to the IBM 3590 Tape Subsystem Models B11 and B1A MI MAP section to isolate problem.

When the repair is complete, go to "End of Call" on page 11-3.

**012**

Circuit breakers are OK. With a CE meter, power on the device and measure nominal ac voltage at the output of the PCC.

**Is nominal ac voltage present at all output plugs?**

**Yes No**

**013**

Continue isolation at Step 017 on page 3-4.

**014**

Power is OK at the output of the PCC.

**Is the problem that the A00 or A50 won't power on?**

**Yes No**

**015**

The problem is with one or more of the drives.

Continue isolation in the IBM 3590 Tape Subsystem Models B11 and B1A MI MAP section.

**016**

For the A00, continue isolation of the problem at 7009 Compact Server Service Guide, Power Station Power Server SA23-2716.

## MAP 0001 (continued)

For the A00, continue isolation of the problem at 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 and for the A50, continue isolation of the problem at Models 140 and 240 Service Guide, SA38-0512.

---

**017**

Be sure that there is power coming into the device from the customer power source. Check that:

1. There is correct AC voltage at the source. Refer to "Power Supply" on page 1-4 for power requirements.
2. The power chord is plugged into the power source.
3. No wall or PCC circuit breakers are tripped and the EPO switch is not off.
4. The operator panel control cable is plugged into the PCC.
5. The devices are plugged into the PCC power output positions.

Observe that the operator panel Power On LED switches to the on position when you press the System Power On switch.

**Does the operator panel Power On LED turn on solid?**

**Yes No**

**018**

**Does the operator panel Power On LED blink?**

**Yes No**

**019**

Replace the following FRUs in the order listed:

1. PCC
2. Operator panel

Go to "End of Call" on page 11-3.

**020**

Replace the following FRUs in the order listed:

1. Operator panel
2. PCC

Go to "End of Call" on page 11-3.

---

**021**

The Power On LED is lit.

**Is there still a power problem?**

**Yes No**

**022**

Problem is no longer present. Go to "End of Call" on page 11-3.

**023**

A power problem still exists. Go to Step 025 on page 3-5.

---

**024**

The device fails to power off when the System Power switch is pressed in the down position. Replace the following FRUs in the order listed:

1. Operator panel
2. PCC

Go to "End of Call" on page 11-3.

---

**025**

The device powered on OK.

**Is this an intermittent problem?**

**Yes No**

**026**

The device is working OK. Go to "End of Call" on page 11-3.

**027**

Replace the following FRUs in the order listed:

1. Operator panel
2. PCC

Go to "End of Call" on page 11-3.

---

**028**

You are here to isolate a power problem in a 3590 Subsystem in a rack with a A00 or A50 installed.

**Is this a Power On problem with a device?**

**Yes No**

**029**

The problem is that a device will not Power Off. Continue isolation at Step 037 on page 3-6

**030**

This is a Power On problem. Check that the EPO switch is turned to ON, and that no circuit breakers are tripped in the PCC.

**Note:** If any CB's are tripped, reset them. If they trip again, either a device on the circuit is defective, or the PCC is defective.

Press the System Power switch to the On position.

**Are the circuit breakers OK?**

**Yes No**

**031**

Circuit breakers are tripping. Perform the following:

1. Unplug one device at a time from the PCC and try to power On again.
2. If all devices are unplugged, and the circuit breakers continue to trip, replace the PCC.
3. If unplugging the device stops the circuit breaker from tripping, go fix or replace the power supply on that device. For an A00 power problem, go to 7009 Compact Server Service Guide, Power Station Power Server SA23-2716, for isolation and repair. For an A00 power problem, go to 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 and for a A50

## MAP 0001 (continued)

power problem to Models 140 and 240 Service Guide, SA38-0512 for isolation and repair. For a 3590 drive problem, go to the IBM 3590 Tape Subsystem Models B11 and B1A MI MAP section for isolation.

When the repair is complete, go to "End of Call" on page 11-3.

**032**

Circuit breakers are OK. With a CE meter, power on the device and measure nominal ac voltage at the output of the PCC.

**Is nominal ac voltage present at all output plugs?**

**Yes No**

**033**

Continue isolation at Step 038.

**034**

Power is OK at the output of the PCC.

**Is the problem. The A00 or A50 won't power on?**

**Yes No**

**035**

The problem is with one or more of the drives.

Continue isolation in the IBM 3590 Tape Subsystem Models B11 and B1A MI MAP section.

**036**

For the A00, continue isolation of the problem at 7009 Compact Server Service Guide, Power Station Power Server SA23-2716.

For the A00, continue isolation of the problem at 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 and for the A50, continue isolation of the problem at Models 140 and 240 Service Guide, SA38-0512.

---

**037**

The device fails to power off when the device is powered off. Replace the PCC.

Go to "End of Call" on page 11-3.

---

**038**

Be sure that there is power coming into the device from the customer power source. Check that:

1. There is correct AC voltage at the source. Refer to "Power Supply" on page 1-4 for power requirements.
2. The power chord is plugged into the power source.
3. No wall or PCC circuit breakers are tripped and the EPO switch is not off.
4. The devices are plugged into the PCC power output positions.

Observe the device when you power the rack subsystem on.

**Does the device power on?**

**Yes No**

**039**

Replace the PCC.

Go to "End of Call" on page 11-3.



040

Was this an intermittent problem?

Yes No

041

The problem seems to be fixed for now. If it returns, call your next level of support.

042

Call your next level of support.

---

**MAP 0001 (continued)**

---

## Chapter 4. Operator Panel

Model A00/A50 Service Terminal Connection and Menus. . . . .	4-2
Getting Started . . . . .	4-2
3590 Model A00/A50 Subsystem Maintenance Menu . . . . .	4-2
Model A00/A50 Menu Tree. . . . .	4-3

---

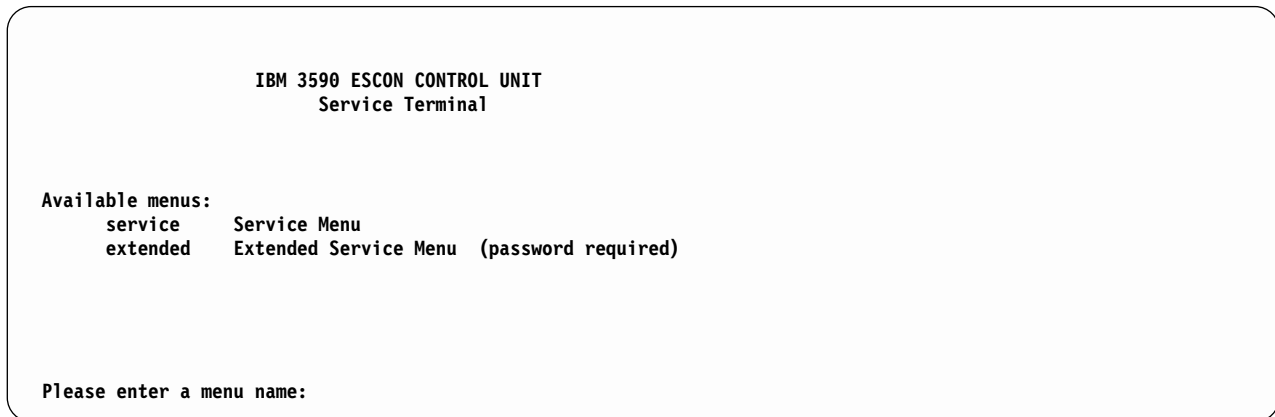
## Model A00/A50 Service Terminal Connection and Menus

### Getting Started

**Note:** Ensure the EBTERM Emulator software is loaded on your Service Terminal (LM) before continuing.

Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13 if the emulator is set up on your Service Terminal. If you need to load the emulator, and your Service Terminal is running OS/2, go to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13, or if your Service Terminal is running NetTerm, Windows, go to “Setting up NetTerm Terminal Emulator (Windows 95/98 Platforms)” on page 11-11 to load the emulator and return here when completed.

1. When EBTERM or NetTerm is running., Figure 4-1 is the first screen to be displayed.



*Figure 4-1. First Service Terminal Maintenance Screen*

2. At the prompt, from the screen shown above, (see Figure 4-1) type **service**. Press **ENTER**.

The Main Service Menu (see Figure 4-2 on page 4-3) is the first screen that will come, and you can select the option that is the reason for connecting the Service Terminal.

### 3590 Model A00/A50 Subsystem Maintenance Menu

This is the first screen shown after selecting the **Service Menu** from the 3590 Subsystem Maintenance Screen. See Figure 4-1.

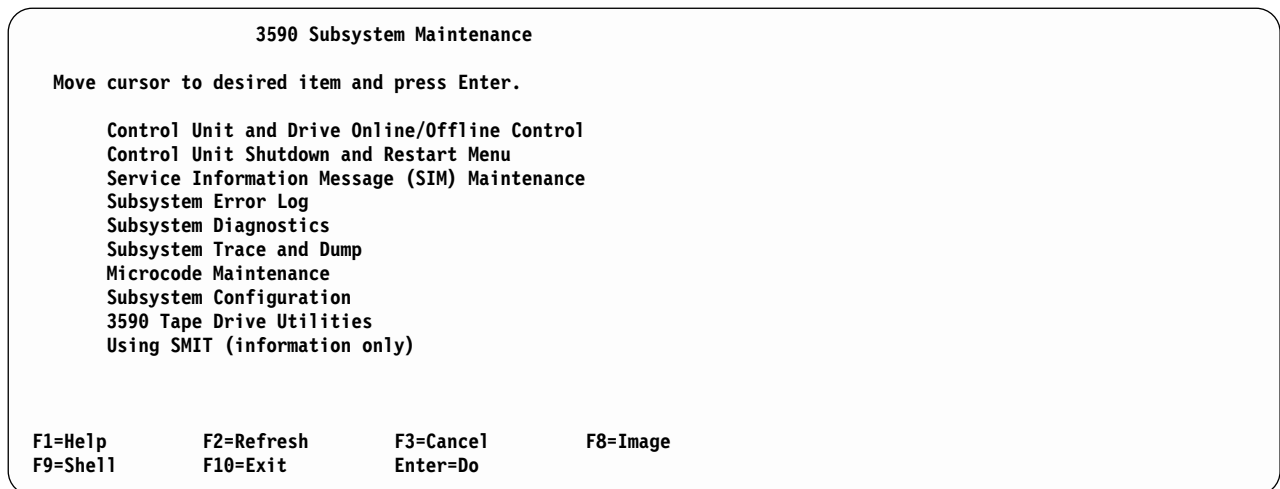


Figure 4-2. 3590 Subsystem Maintenance Screen

---

## Model A00/A50 Menu Tree

Shown here is a Menu Tree showing a road map to the many screens that are provided for service of the 3590 subsystem.

1. **Control Unit and Tape Drive Online/Offline Control**
  - Display Control Unit, ESCON, and Tape Device Status
  - Vary Control Unit Offline
  - Vary Control Unit Online
  - Vary Tape Drive Offline
  - Vary Tape Drive Online
  - Force Control Unit Offline
  - Show Channel Path Tables
  - Show Having Trace Table
2. **Control Unit Shutdown and Restart Menu**
  - Force Concurrent Control Unit Trace and Dump
  - Select Trace/Dump files and copy to diskette
  - Restart Only the Control Unit Code
  - Restart AIX and Control Unit Code
  - Shutdown AIX and Control Unit Code (use prior to power off)
3. **Service Information Message (SIM) Maintenance**
  - Show List/Detail of an OPEN Control Unit SIM
  - Change an OPEN Control Unit SIM to CLOSED
  - Show List/Detail of an OPEN Tape Drive SIM
  - Change an OPEN Tape Drive SIM to CLOSED
  - Show List/Detail of any OPEN or CLOSED SIM
  - Change ALL OPEN Control Unit and Tape Drive SIMS to CLOSED
  - Show/Change SIM & MIM Presentation Controls
  - Show Microcode Detected Error (MDE) Description

- Clear SIM Log, Error Log, and Trace/Dump Files

#### 4. Subsystem Error Log

- Generate an Error Report
- Clean the Error Log
- Show Microcode Detected Error (MDE) Description
- Make Entry in AIX Error Log

#### 5. Subsystem Diagnostics

**Note:** The subsystem Diagnostics are not controlled by the A00/A50 microcode load; these diagnostics are part of the AIX base code. The screens and menus shown under this tree may not always be the same as you will see on your subsystem. To ensure that you know what the actual subsystem diagnostics are, you can go to the latest level ***Diagnostic Information for Multiple Bus Systems*** manual for the RS/6000.

- The following screens show the diagnostic screens:

```
DIAGNOSTIC OPERATING INSTRUCTIONS  VERSION 4.3.2                                801001

LICENSED MATERIAL and LICENSED INTERNAL CODE - PROPERTY OF IBM
(C) COPYRIGHTS BY IBM AND BY OTHERS 1982, 1998.
ALL RIGHTS RESERVED.

These programs contain diagnostics, service aids, and tasks for
the system. These procedures should be used whenever problems
with the system occur which have not been corrected by any
software application procedures available.

In general, the procedures will run automatically. However,
sometimes you will be required to select options, inform the
system when to continue, and do simple tasks.

Several keys are used to control the procedures:
- The Enter key continues the procedure or performs an action.
- The Backspace key allows keying errors to be corrected.
- The cursor keys are used to select an option.

Press the F3 key to exit or press Enter to continue.
```

Figure 4-3. Diagnostic Operating Instructions Screen

cursor to selection, then press Enter.

**Diagnostic Routines**

This selection will test the machine hardware. Wrap plugs and other advanced functions will not be used.

**Advanced Diagnostics Routines**

This selection will test the machine hardware. Wrap plugs and other advanced functions will be used.

**Task Selection (Diagnostics, Advanced Diagnostics, Service Aids, etc.)**

This selection will list the tasks supported by these procedures. Once a task is selected, a resource menu may be presented showing all resources supported by the task.

**Resource Selection**

This selection will list the resources in the system that are supported by these procedures. Once a resource is selected, a task menu will be presented showing all tasks that can be run on the resource(s).

F1=Help

F10=Exit

F3=Previous Menu

Figure 4-4. Diagnostic Function Selection Screen

- **Under Diagnostic Routines** in screen Figure 4-4The following options appear:
    - System Verification
    - Problem Determination
  - **Under Advanced Diagnostics Routines** in screen Figure 4-4, the following options appear:
    - System Verification
    - Problem Determination
6. **Task Selection (Diagnostics, Advanced Diagnostics, Service Aids, etc.)** in screen Figure 4-4, the following options appear:
- Run Diagnostics
  - Display or Change Diagnostic Run Time Options
  - Display Service Hints
  - Display Previous Diagnostic Results
  - Display Hardware Error Report
  - Display Software Product Data
  - Display Configuration and Resource List
  - Display Hardware Vital Product Data
  - Display Resource Attributes
  - Change Hardware Vital Product Data
  - Format Media
  - Certify Media
  - Display Test Patterns
  - Local Area Network Analyzer
  - Add Resource to Resource List
  - Delete Resource from Resource List
  - SCSI BUS Analyzer
  - Download Microcode



- Display or Change Bootlist
- Periodic Diagnostics
- Backup and Restore Media
- Disk Maintenance
- Create Customized Configuration Diskette
- Update Disk Based Diagnostic
- Configure ISA Adapter
- Generic Microcode Download
- Run Error Log Analysis
- SCSI Device Identification and Removal Service Aid
- Display Microcode Level
- SCSD Tape Drive Service Aids
- 7135 RAID Array Service Aids
- Spare Sector Availability
- Update System Flash
- IBM Tape Drive Service Aids
  - This selection provides a set of tools to perform utility functions on Tape and Medium Changer Devices supported by the Atape Device Drive.

7. **Resource Selection** in screen Figure 4-4 on page 4-6, the following screen appear listing all of the Resources in your subsystem.

```

RESOURCE SELECTION LIST                                     801006
                                                           From
e list below, select any number of resources by moving
the cursor to the resource and pressing 'Enter'.
To cancel the selection, press 'Enter' again.
To list the supported tasks for the resource highlighted, press 'List'.

Once all selections have been made, press 'Commit'.
To exit without selecting a resource, press the 'Exit' key.

[TOP]
All Resources
  This selection will select all the resources currently displayed.
sysplanar0      00-00      System Planar
bus0            00-00      PCI Bus
bus1           04-A0      ISA Bus
siota0         01-A0      Tablet Adapter
ppa0           01-B0      Standard I/O Parallel Port Adapter
lp0            01-B0-00-00 Parallel Port P
[MORE...31]

F1=Help          F4=List          F7=Commit        F10=Exit
F3=Previous Menu

```

Figure 4-5. Resource Selection List Screen

**Note:** In the Screen above Figure 4-5 note, that there are 31 additional items to be seen in this example; scroll the screen down to view all resources.

### 8. Subsystem Trace and Dump

**Note:** Subsystem tracing should only be performed under the direction of Engineering Support.

- Start Subsystem Trace
- Show Current Trace Parameters

- Stop Subsystem Trace
  - Start Subsystem Dump
  - Clear (Disable) all Error Match Code (EMC) Settings
  - Show/Change Error Match Code (EMC) Settings
  - Set/Reset 3590 Drive FSC Trap
  - Select Trace/Dump Files and Copy to Diskette
  - Select Trace/Dump Files to Erase From Hard Disk
9. **Microcode Maintenance**
- Display Active Code level and Status
  - List Code Images Available for Activation
    - List 3590 Subsystem Code Images 'Whats new' Change History File
    - List 3590 Tape Drive Code Images
  - Copy Code Image From Source Media
    - List 3590 subsystem Code 'Whats new' Change History File from Diskette
    - List VTS Subsystem Code 'Whats new' Change History File from CD
    - Copy 3590 Tape Drive Code from Diskette
  - Activate Code Image
    - Activate 3590 Subsystem Code Image
    - Display 3590 Subsystem Code Image 'Whats new' Change History File
    - Activate 3590 Tape Drive Code
  - Display Detailed Results for Last Code Activation
  - Delete Code Image
    - Delete 3590 Subsystem Code
    - Delete 3590 Tape Drive Code
  - Display Control Unit Code 'Whats new' Change History File
    - Display Available Images 'Whats new' Change History File
    - Display Active Code 'Whats new' Change History File
    - Display Floppy Disk 'Whats new' Change History File
    - Display CD 'Whats new' Change History File
  - Install AIX Fixpack

## 10. Subsystem Configuration

- Show/Change Date, Time, and Time Zone
- Show/Change Vital Product Data (VPD)
  - Show/Change Control Unit Vital Product Data (VPD)
  - Show Tape Device Vital Product Data (VPD)
- Show Control unit Hardware Data (VPD)
- Show/Change Library Attachment Configuration
- Show/Change ESCON Channel Path Definitions
- Show/Change Control Unit Definitions
- Show/Change 3490 E Emulation Fencing Settings
- Show/Change Automatic REBOOT after System Crash
- Call Home configuration

## 11. Control Unit Service Utilities

- Run PFE/Support Center Provided Functions
- Display/Modify Tape Daemon Mode Parameters
- SCSI Utilities Menu
  - Display SCSI Configuration
  - Test SCSI Configuration
  - Run SCSI Configurator
  - Display SCSI Path Enabled/Disabled Status
  - Disable SCSI Path
  - Enable SCSI Path

## 12. 3590 Tape Drive Utilities (Tapeutil)

## 13. Using SMIT (information only)

The Command Status Screen becomes active from time-to-time, depending on the actions that the CE is performing with other menu items. This screen informs the CE of the status of the action being done. The Command Status Screen may not always contain the same information, but it is a good practice to read the information carefully.

**If you are ask to use a specific menu to complete a procedure, look in the menu tree shown above to determine the correct menu path to choose.**



---

## Chapter 5. Start

Maintenance Starting Point. . . . .	5-2
Entry Point With No SIM Information . . . . .	5-8

## Maintenance Starting Point

Start with the following table to find the correct entry to the maintenance package.

**Note:** If a repair procedure is required on a 3590 Tape Drive, the failing drive must be taken offline prior to any repair action taken. See “Varying On/Off 3590 drives from the A00 or A50 Controller” on page 11-31.

If a repair procedure is required in the A00 Controller that cannot be accomplished without removing the CU from the frame, refer to “A00 Removal and Replacement” on page 8-2.

If the A00 Controller requires replacement, refer to “A00 Hard Disk Removal and Replacement” on page 9-1. If the A50 hard disk needs to be replaced, refer to “A50 Hard Disk Removal and Replacement” on page 9-3.

Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table

If you are here for this reason	Perform this action
<b>Modem Procedures</b>	Choose the correct modem procedure from the following list: <ul style="list-style-type: none"> <li>• Go to “Modem Initialization with Password (Microcom Deskporte)” on page 11-46</li> <li>• Go to “Modem Initialization when using the WTI Data Switch (Microcom Deskporte)” on page 11-16</li> <li>• Go to “Modem Initialization without the WTI Data Switch (Microcom Deskporte)” on page 11-18</li> <li>• Go to “Multitech Modem Configuration” on page 11-48</li> <li>• Go to “38400 Buad without Multitech Modem Password (Modem Initialization when using the WTI Data Switch)” on page 11-48</li> <li>• Go to “38400 Baud with Multitech Modem Password (Modem Initialization when using the WTI Data Switch and Modem Password)” on page 11-49</li> <li>• Go to “9600 Baud without Multitech Modem Password (Modem initialization without the WTI Data Switch)” on page 11-50</li> <li>• Go to “9600 Baud With Multitech Modem Password (Modem Initialization with Password and without WTI data Switch)” on page 11-55</li> </ul>
<b>Setting up the Terminal Program (CE Panel)</b>	Select one of the following for the Terminal Program you are using: <ul style="list-style-type: none"> <li>• If using EBTERM as your Terminal, go to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13</li> <li>• If using NetTerm as your Terminal, go to “Setting up NetTerm Terminal Emulator (Windows 95/98 Platforms)” on page 11-11</li> </ul>
<b>Call Home (A50 Controller Only)</b>	Go to “A50 Controller Call Home Procedure” on page 11-63 for setup and descriptions.  Go to Figure 11-47 on page 11-72 for an example of the retain message sent.
<b>To execute one or all of the following:</b> <ol style="list-style-type: none"> <li>1. <b>Display SCSI Configuration</b></li> <li>2. <b>Test SCSI Configuration</b></li> <li>3. <b>Run SCSI Configurator</b></li> </ol>	Go to “SCSI Configuration Procedure” on page 11-73.
If you have “FFF” displayed on the Model A00/A50 LCD panel	Your system may have been affected by a power surge or close lightning strike. <b>RECYCLE THE POWER</b> before replacing any parts.

Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table (continued)

If you are here for this reason	Perform this action
<p>You have the SIM message that was sent to the host console (refer to "I/O Subsystem Service Information Message" on page 7-3)</p>	<p>Decode the SIM ref codes 1-3 refer to "Decoding SIM Refcodes" on page 7-12</p> <ul style="list-style-type: none"> <li>• If an A00 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>POWERstation and POWERserver, Document number SA23-2765 'Start of call MAP'</b>.</li> <li>• If an A50 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 'Start of call MAP'</b>.</li> <li>• If an Unknown CU hardware error is decoded:               <ol style="list-style-type: none"> <li>1. Record the AIX error log sequence number (Refcodes 2 and 3).</li> <li>2. Go to "Prepare the A00 or the A50 Controller for Service" on page 11-27 and return here when complete.</li> <li>3. For A00, go to the <b>POWERstation and POWERserver Diagnostic Information for Micro Channel Bus System, Document number SA23-2765: 'Start of call MAP'</b> and perform the procedure to verify correct system operation.</li> <li>4. For A50, go to the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 'Start of call MAP'</b> and perform the procedure to verify correct system operation.</li> <li>5. If this procedure fails to isolate the problem, then use the AIX error log entry to diagnose and fix this problem; see "Analyze the AIX Log Procedure" on page 11-40.</li> </ol> </li> <li>• If a Drive SIM is decoded: Determine the FID code (Refcode 1, lower nibble) and go to the <i>High Performance Tape Drive MI P/N 05H9018</i> START section to find the problem.</li> <li>• If a Control Unit MDE (Microcode Detected Error) is decoded: Determine the MDE code (Refcode 2) and go to "3590 A00 or A50: Retrieving Engineering and Dump Data" on page 11-28 to get Dump information, and then call your next level of support</li> </ul>
<p>You have the MIM message that was sent to the host console (see "Media Information Message" on page 7-9)</p>	<p>Determine the Refcode from the MIM message and use the first two digits as the ASCII Message code to determine a description for the MIM Message. See "Service and Media Information Messages (SIMs and MIMs)" on page 7-2 for further information.</p>

Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table (continued)

If you are here for this reason	Perform this action
<p>You have the SIM sense record from a host EREP report (see "SIM EREP Report (Format 71)" on page 7-13)</p>	<p>Decode the SIM ref codes 1-3 (refer to "Decoding SIM Refcodes" on page 7-12)</p> <ul style="list-style-type: none"> <li>• If an A00 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>POWERstation and POWERserver, Document number SA23-2765 'Start of call MAP'</b>.</li> <li>• If an A50 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 'Start of call MAP'</b>.</li> <li>• If an Unknown CU hardware error is decoded:               <ol style="list-style-type: none"> <li>1. Go to "Prepare the A00 or the A50 Controller for Service" on page 11-27 and return here when complete.</li> <li>2. Record the AIX error log sequence number (Refcodes 2 and 3).</li> <li>3. Go to "Prepare the A00 or the A50 Controller for Service" on page 11-27 and return here when complete.</li> <li>4. For A00, go to the <i>POWERstation and POWERserver Diagnostic Information for Micro Channel Bus System</i> Document number SA23-2765, '<b>Start of call MAP</b>' and perform the procedure to verify correct system operation.</li> <li>5. For A50, go to the <i>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 'Start of call MAP'</i> and perform the procedure to verify correct system operation.</li> <li>6. If this procedure fails to isolate the problem; then use the AIX error log entry to diagnose and fix this problem, see "Analyze the AIX Log Procedure" on page 11-40.</li> </ol> </li> <li>• If a Drive SIM is decoded: Determine the FID code (Refcode 1, lower nibble) and go to the <i>High Performance Tape Drive MI P/N 05H9018</i> START section to find the problem.</li> <li>• If a Control Unit MDE (Microcode Detected Error) is decoded: Determine the MDE code (Refcode 2) and go to "3590 A00 or A50: Retrieving Engineering and Dump Data" on page 11-28 to get Dump information, and then call you next level of support</li> </ul>
<p>You have the MIM message that was sent to the host EREP report (see "MIM EREP Report (Format 70)" on page 7-14)</p>	<p>Determine the Refcode from the MIM message and use the first two digits as the ASCII Message code to determine a description for the MIM Message. See "Service and Media Information Messages (SIMs and MIMs)" on page 7-2 for further information.</p>



Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table (continued)

If you are here for this reason	Perform this action
<p>The Operator reports an <b>Intervention Required</b> message was sent to the console</p> <p><b>Note:</b> If you have an ERA code 48, see “ES/9000 EREP Reports for ERA 48” on page 7-18 to decode the ERA 48</p>	<p>Connect the Service Terminal (see “Model A00/A50 Service Terminal Connection and Menus” on page 4-2) and view the 3590 SIM log (see “Model A00/A50 Menu Tree” on page 4-3).</p> <p>If multiple OPEN SIMs exist:</p> <ol style="list-style-type: none"> <li>1. Select the SIM entry with the occurrence that most closely corresponds to the time that the problem was first seen at the host.</li> <li>2. If this cannot be determined, select the SIM entry with the latest occurrence time.</li> </ol> <p>Decode the refcodes (see “Decoding SIM Refcodes” on page 7-12).</p> <ol style="list-style-type: none"> <li>1. If an A00 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>POWERstation and POWERserver, Document number SA23-2765 ‘Start of call MAP’</b>.</li> <li>2. If an A50 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 ‘Start of call MAP’</b>.</li> <li>3. If an Unknown CU hardware error is decoded: <ol style="list-style-type: none"> <li>a. Record the AIX error log sequence number (Refcodes 2 and 3).</li> <li>b. Go to “Prepare the A00 or the A50 Controller for Service” on page 11-27 and return here when complete.</li> <li>c. For A00, go to the <i>POWERstation and POWERserver Diagnostic Information for Micro Channel Bus System</i> Document number SA23-2765 ‘Start of call MAP’ and perform the procedure to verify correct system operation.</li> <li>d. For A50, go to the <i>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 ‘Start of call MAP’</i> and perform the procedure to verify correct system operation.</li> <li>e. If this procedure fails to isolate the problem, then use the AIX error log entry to diagnose and fix this problem. See “Analyze the AIX Log Procedure” on page 11-40.</li> </ol> </li> <li>4. If a Drive SIM is decoded: Determine the FID code (Refcode 1 lower nibble) and go to the <i>IBM 3590 Tape Subsystem Maintenance Information Manual P/N 05H9018 START</i> section and continue with isolation.</li> <li>5. If a A00 Model A00/A50 MDE (Microcode Detected Error) is decoded: Determine the MDE code (Refcode 2) and go to “3590 A00 or A50: Retrieving Engineering and Dump Data” on page 11-28 to get Dump information. Call your next level of support.</li> </ol>
<p>Jobs are failing when selected Drives are allocated to do a read or write</p>	<p><b>CAUTION:</b>  <b>For ESCON, all drives must be either Extended High Performance Cartridge or non-Extended High Performance Cartridge. ESCON can not handle mixed pools. As an example, if you have Extended High Performance Cartridge on a 3494 Dataserver Library, all drives must be Extended High Performance Cartridge capable.</b></p>
<p>A00 or A50 will not go on line</p>	<p>Can be caused by a drive having the unused SCSI port being online or by customer activity at the drive panel.</p>
<p>Tape is put in wrong drive</p>	<p>A host software problem or a data base problem.</p>
<p>Power problems</p>	<p>Go to “MAP 0001: A00 and A50 Controller Power Problems” on page 3-2 to diagnose a power problem.</p>
<p>A problem was reported to the host but you do not have the SIM information needed above</p>	<p>Connect the Service Terminal (See “Model A00/A50 Service Terminal Connection and Menus” on page 4-2) and view the 3590 SIM log (see “Model A00/A50 Menu Tree” on page 4-3).</p>

Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table (continued)

If you are here for this reason	Perform this action
<p>You suspect a problem with the 3590 A00 or a drive connected through the 3590 A00 but you do not have any error information from the host.</p>	<p>you suspect a problem with the 3590 Model A00/A50 or a drive connected through the 3590 Model A00/A50, but you do not have any error information from the host. Connect the Service Terminal (see “Model A00/A50 Service Terminal Connection and Menus” on page 4-2) and view the 3590 SIM log (see “Model A00/A50 Menu Tree” on page 4-3).</p> <p>If multiple OPEN SIMs exist:</p> <ol style="list-style-type: none"> <li>1. Select the SIM entry with the occurrence that most closely corresponds to the time that the problem was first seen at the host</li> <li>2. If this can not be determined, select the SIM entry with the earliest occurrence time.</li> </ol> <p>Decode the refcodes (see “Decoding SIM Refcodes” on page 7-12).</p> <ol style="list-style-type: none"> <li>1. If an A00 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>POWERstation and POWERserver, Document number SA23-2765 ‘Start of call MAP’</b>.</li> <li>2. If an A50 SRN is decoded: Record the SRN (Refcode 2, lower nibble and Refcode 3) and go to the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 ‘Start of call MAP’</b>.</li> <li>3. If an Unknown CU hardware error is decoded: <ol style="list-style-type: none"> <li>a. Go to “Prepare the A00 or the A50 Controller for Service” on page 11-27 and return here when complete.</li> <li>b. Record the AIX error log sequence number (Refcodes 2 and 3).</li> <li>c. For A00, go to the <i>POWERstation and POWERserver Diagnostic Information for Micro Channel Bus System</i> Document number SA23-2765 ‘Start of call MAP’ and perform the procedure to verify correct system operation.</li> <li>d. For A50, go to the <i>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 ‘Start of call MAP’</i> and perform the procedure to verify correct system operation.</li> <li>e. If this procedure fails to isolate the problem, then use the AIX error log entry to diagnose and fix this problem. See “Analyze the AIX Log Procedure” on page 11-40.</li> </ol> </li> <li>4. If a Drive SIM is decoded: Determine the FID code (Refcode 1 lower nibble) and go to the <i>IBM 3590 Tape Subsystem Maintenance Information Manual P/N 05H9018 START</i> section and continue with isolation.</li> <li>5. If a A00 /A50 MDE (Microcode Detected Error) is decoded: Determine the MDE code (Refcode 2) and go to “3590 A00 or A50: Retrieving Engineering and Dump Data” on page 11-28 to get Dump information. Then, call your next level of support.</li> </ol>
<p>Set Error Match Code (EMC) actions</p>	<p>See “3590 A00 or A50: Set Error Match Codes” on page 11-29.</p>
<p>Retrieve Dump/Engineering Data</p>	<p>See “3590 A00 or A50: Retrieving Engineering and Dump Data” on page 11-28.</p>
<p>Set Service Mode on the A50 CU</p>	<p>See “Setting Service Mode in the A50 Controller” on page 11-27.</p>
<p>Update 3590 Drive Microcode</p>	<p>See “Updating 3590 Device Microcode from A00 or A50 Using TAPEUTIL” on page 11-31.</p>
<p>Update A50 AIX Code</p>	<p>See “Installing AIX in the A50 Control Unit Environment” on page 11-4.</p>
<p>Update A00 AIX Code</p>	<p>See “Installing AIX in the A00 Controller Environment” on page 11-3.</p>

Table 5-1. 3590 Model A00/A50 Start Table 3590 Model A00 Start Table (continued)

<b>If you are here for this reason</b>	<b>Perform this action</b>
3590 A00/A50 Microcode Addition or Activation	See "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7.
Analyze Error Log Data	See "Service and Media Information Messages (SIMs and MIMs)" on page 7-2
View 3590 A00	View &3590 A00 and A50 SIM log, See "3590 A00 or A50: View SIMs in the 3590 CU SIM Log:" on page 11-30.
Close SIM(s) in 3590 A00	Close SIM(s) in 3590 A00 and A50 SIM log. See "3590 A00 or A50: View SIMs in the 3590 CU SIM Log:" on page 11-30
Vary devices online/offline from the 3590 A00	Vary devices online/offline form the 3590 A00 and A50 Service Terminal. See "Varying On/Off 3590 drives from the A00 or A50 Controller" on page 11-31.
Run Diagnostics from the 3590 A00	Run Diagnostics from the 3590 A00 and A50 Service Terminal. See "Running Diagnostics from the A00 or A50 Controller" on page 11-34.
Verify Axx Controller to Drive SCSI connections	Go to "Axx Controller to Drive SCSI Cabling Verification" on page 11-59.
<b>Discontinuance</b>	Go to "Discontinue Procedure" on page 11-32.

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## Entry Point With No SIM Information

Check first to see if there is any FID information on the Tape Drive panel.

- If you find a 3590 tape drive with FID information displayed, go the *High Performance Tape Drive MI P/N 05H9018* START section to find the problem.

If the 3590 drive panel shows no error information, go to the back of the frame that contains the A00 of the frame that contains the A00 or A50 to view the LED display on the front of the RS/6000 control unit.

**Note:** This LED displays a value used to direct the CE to the problem and its resolution.

If the display shows a steady number listed in the following table, go to the second column of the table and perform the listed action to resolve the problem.

If the displayed number is not in the following table:

- For the A00, go to the **POWERstation and POWERserver Diagnostic Information for Micro Channel Bus Systems (Document number SA23-2765), 'Start of Call Map'** and follow instructions.
- For the A50 go the **Diagnostic Information for Micro Channel Bus Systems, SA23-2765 'Start of Call Map'** and follow instructions.

Table 5-2. 3590 Model A00/A50 Value Match Table 3590 Model A00 Value Match Table

If You Have This value Displayed	Perform This Action
1c1	Common area check 1 (Not recovered). (See note below.)
1c2	Common area check 2 (Recovered). No CE action is required.
2c1	ATAPE (Device Driver for the 3590 area check 1 (Not recovered). (See note below.)
2c2	ATAPE area check 2 (Recovered). No CE action is required.
3c1	ATL (Automated Tape Lib. Ucode) area check 1 (Not recovered). (See note below.)
3c2	ATL area check 2 (Recovered). No CE action is required.
4c1	CU (Control Unit Process Ucode) area check 1 (Not recovered). (See note below.)
4c2	CU area check 2 (Recovered). No CE action is required.
500	Loading LP Code. (If on solid, see note below.)
501	Loading EP Code. (If on solid, see note below.)
502	Loading CDT. (If on solid, see note below.)
503	Setting Subchannel. (If on solid, see note below.)
504	Setting Adapter. (If on solid, see note below.)
505	Go Online. (If on solid, see note below.)
506	Online. (If on solid, see note below.)
507	Offline. No action required—Indicates CU taken offline.
508	Logout. No action required—Informational indicator only.
509	Running Diagnostics No action required—Indicates ESCON diagnostics are currently running.
520	Tape Daemon Started. (If on solid, see note below.)
521	Tape Daemon Started (If on solid, see note below.)
522	Tape Daemon Started (If on solid, see note below.)
523	Tape Daemon Started (If on solid, see note below.)
540	Library Started. (If on solid, see note below.)

Table 5-2. 3590 Model A00/A50 Value Match Table 3590 Model A00 Value Match Table (continued)

If You Have This value Displayed	Perform This Action
<b>560</b>	Tape Device Online. No action required—Indicates Tape daemon may have been restarted.
<b>561</b>	Tape Device Online. No action required—Indicates Tape daemon may have been restarted.
<b>562</b>	Tape Device Online. No action required—Indicates Tape daemon may have been restarted.
<b>563</b>	Tape Device Online. No action required—Indicates Tape daemon may have been restarted.
<b>5c1</b>	CADD (Channel Adapter Device Driver Ucode) area check 1 (Not recovered). (See note below.)
<b>5c2</b>	CADD area check 2 (Recovered). No CE action is required.
<b>7c1</b>	TAPE (Tape Ucode) area check 1 (Not recovered). (See note below.)
<b>7c2</b>	TAPE area check 2 (Recovered). No CE action is required.
<b>8c1</b>	RAS (RAS Ucode) area check 1 (Not recovered). (See note below.)
<b>8c2</b>	RAS area check 2 (Recovered). No CE action is required.
<b>9c0</b>	Install Procedures Drive Code Update (Informational). Code is currently being downloaded to a drive and/or card within the control unit. This process may take up to five minutes per drive. The control unit will not go online until the step has completed.
<b>9c1</b>	Install Procedures check 1 (Not recovered). (See note below.)
<b>9c2</b>	Install Procedures check 2 (Recovered). No CE action is required.
<b>u82</b>	LP check 1 Microcode error. Contact your next level of support for direction.
The value displayed is not in this table.	<ul style="list-style-type: none"> <li>• For the A00, go to the <b>POWERstation and POWERserver Diagnostic Information for Micro Channel Bus System (Document number SA23-2765)</b>, to <b>“Start of Call Map”</b> and follow instructions.</li> <li>• For the A50, go the <b>Diagnostic Information for Micro Channel Bus Systems, SA23-2765 “Start of Call map”</b> and follow instructions.</li> </ul>

**Note:** Connect the Service Terminal (see “Getting Started” on page 4-2) and retrieve the dump data. (see “3590 A00 or A50: Retrieving Engineering and Dump Data” on page 11-28.) Call your next level of support.



## Chapter 6. Installation

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### Before Installation

Open the shipping container and inventory the parts listed on the bills of material.

**Note:** If possible, save the packaging material for 3590 or other parts reshipment or relocation.

**Note:** If you are installing a 3590 Model C12, go to *IBM 3590 Tape Subsystem Models C12/C14 MI*, INST section under “Installation of the 3590 Model C12”.

Check to make sure that you received the following items.

**CAUTION:**

**Be aware that you will need assistance in lifting the drive or other heavy devices.**

Check with the branch office or physical planning representative **to ensure the installation planning specifications have been met.**

**Make sure the customer has the correct Host software levels and correct Host PTFs for 3590 and Model A00/A50 attachment.**

Make sure the **correct SCSI and power cables** were ordered. Check to ensure the correct length SCSI cables were ordered for connection to a host or to a control unit. Check that the correct terminators will be available.

You will be referred to *IBM 3590 Tape Subsystem Models B11 and B1A MI* for several procedures that are common to the 3590 drive models, so be sure to have that book available before you begin. Each time a reference is given, the **Maintenance Information Section** and **Procedure** to follow will be listed. You should go to the referenced book, and the appropriate section’s Table of Contents (TOC) to locate the page where the **Procedure** is located. At the time of publication, the references to the names of all sections and procedures were correct. Since the two books have no **cross references** between them, and because the names of the procedures may vary slightly, it is best to rely on the TOC.

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### Tools

The following tools are contained in the ship group. For Model B1A drives, some tools in the list are in the 3494 ship group. Not all tools are shipped with all drives.

- One **blank scratch cartridge** P/N 05H4434 for testing the 3590 when the device is not in the library. When the device is library-attached, P/N 05H7539 is supplied.
- One **FMR cartridge** that contains the EC level of the microcode shipped with this device. (The P/N of the cartridge changes with each EC release of the code.)
- One hand-held head cleaner brush P/N 05H8988 for cleaning the read/write head.
- One **cleaner cartridge** P/N 05H4435 (P/N 05H7540 when in a library) for cleaning the tape path.
- One **SCSI wrap block** P/N 62G1324 for testing the SCSI hardware.
- One **RS-422 wrap block** P/N 39F3884 for testing the library manager port (always a 3494 or 3495 special tool).
- One **tape removal tool** P/N 6850663 for rewinding the tape onto the cartridge. Refer to *IBM 3590 Tape Subsystem Models B11 and B1A MI*, PROC section under “Magnetic Tape Attachment Procedure”.
- One **library attachment wrap interposer tool** P/N 05H3895 (9-to-25 pin) for isolating cable problems (always a 3494 or 3495 special tool).
- **CE vacuum gauge adapter** P/N 05H9895 for testing the pneumatic system.
- The head cleaning brush for cleaning the read/write head assembly. Put this brush in a secure place.

- **Gap set tool** P/N 05H4671 for adjusting the machine reel motor hub.
- **ACF motor alignment tool** P/N 05H4724 for setting the gear mesh gap.
- **Two terminators** P/N 61G8324 for terminating the two SCSI ports. On newer devices, terminator P/N 05H4793 is shipped. Uses for the new terminator are:
  - Terminating the unused SCSI port in a 3590. Use the two short screws P/N 05H4782 or the two long screws P/N 05H8983, as required. The two sets of screws are shipped with the terminator (P/N 05H4793).
  - Daisy-chaining a non-IBM device or an IBM device that does not have a hammer head cable to a 3590.
  - Using a host cable that does not have a hammer-head in a 3495 to connect the library control unit frame to a drive unit frame that is at the end of the string (no device cables are long enough). Use the short screws P/N 05H4782 that are shipped with the terminator.

The following items, not in the ship group, may be needed to complete the installation:

- Flat-blade screwdriver
- Nut-drivers (5.5 mm, 3/16 in., and 7 mm for rack installation)
- Wrench (11 mm)
- Metal scale or flat ruler at least 5 in. (125 mm) long
- Pressure/vacuum gauge P/N 6850747

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## Installation of Model A00/A50 Control Unit with any Model 3590 drives

### Model A00/A50 Configurations

The Model A00/A50 ESCON controller allows the IBM 3590 High Performance Tape Subsystems to be directly attached to a host through an ESCON channel. The Model A00/A50 provides the interface between the SCSI attached drives and the ESCON based host channel.

The A00/A50 may be installed in the following environments:

#### IBM Model A14

- Used as a stand-alone box with from 1 to 4 drives
- Drives and A00/A50 may be assembled and tested in the factory
- Remote Assistance Feature available
- ACF units to be field installed

#### IBM 3494 Tape Library

- Models D14 or L14 library frame
- Mounting hardware included to make it field installable
- Remote Assistance Feature available

#### IBM Rack Subsystems

- May be installed in Models 9309, 7015R00 and 7202
- May be installed in any EIA compatible rack
- Mounting hardware included to make it field installable
- Remote Assistance Feature available

### Model A14 Installation Overview

The Model A14 can come from the Plant of Manufacture with the following components:

1. A00/A50 (1 A00, 1 A50 and 1 A50, or 2 A50's)
2. A00/A50 mounting hardware

3. Bulkhead (service panel plate)
4. Service cables (RS-232)
5. 1 to 4 3590 Drives and mounting hardware
6. SCSI cables for 1 to 4 drives
7. An ACF for each drive
8. Power control center (PCC)
9. Operator panel assembly
10. Operator panel cables
11. Special "Y" cable for service if library attached
12. Cable retention hardware

If the machine was assembled and tested at the factory, drives included, installation will consist primarily of cable installation and testing. If ACF devices are included, they must be installed and tested in the field. At install of the A00/A50 it will be tested to verify that it is error free. Wrap tests of the A00/A50 ESCON attachment will also be completed before the host cable/s is/are attached. Installed drives will be tested from the A00/A50. Finally, the host ESCON cables will be connected, and the host connection confirmed.

At Table 6-1, find the product model you are here to install, and follow the installation procedures listed.

*Table 6-1. Created by ActiveSystems. Entity not defined Installation Activity Begins Here*

<b>Name of Model or Device to be Installed</b>	<b>Go To This Procedure</b>
Model A14 with A00	"Model A14 Installation Procedures"
Model D14 with A00	"Model D14 Installation" on page 6-10
Model L14 with A00	"Model L14 Installation" on page 6-13
Rack Model with A00	"Rack Model with A00 controller Installation" on page 6-27
Model A14 adding an A50 with existing A00	"Adding One A50 Controller in A14 to existing A00 Controller" on page 6-30
Model A14 replacing A00 with one A50	"Replacing A00 Controller in A14 with one A50 Controller" on page 6-34
Model A14 adding a second A50	"Adding the Second A50 Controller in a A14" on page 6-42
Adding an A50 to a D14	"Adding One A50 Controller in D14" on page 6-44
Adding an A50 to a L14	"Installing A50 Controller in L14" on page 6-51
Adding an A50 to a RACK model	"Installing A50 Controller in RACK" on page 6-55

## **Model A14 Installation Procedures**

You are here to install and checkout a Model A14. The A14 must have a minimum of one drive and one A00/A50 with associated mounting hardware and cables installed from the plant of manufacture. If your customer requires additional hardware, the appropriate Installation Instructions will be supplied with the additional hardware.

Since an A14 may ship with or without drives installed, you will be asked to verify the installed hardware.

The following tables will assist you in determining what is to be done, and where to find the applicable procedures.

Table 6-2 on page 6-6 is a list of all of the possible procedures required to complete this installation. Skip those steps/procedures that do not apply.

Table 6-2. Model A14 Installation Procedure Selection

If Installation Procedure is Needed	Perform This Procedure
Before you begin:	"Before Installation" on page 6-3 and "Tools" on page 6-3.
For A14 Models, install service panel bracket.	Perform "Service Panel Installation—Model A14" on page 6-7.
For all Model A14 installations, install RS-232 cable.	Perform "A14 Installation of Service (RS-232) Cable to Service Panel" on page 6-9.
For all Model A14 installations, check the voltages.	Perform "Voltage Checks" on page 6-56.
For all installations with 3590's, check and adjust the Pneumatic System.	Perform procedure in <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , LOC*CAR section, under "Measurement and Adjustment of Pneumatic System".
For all Installations with 3590's, set up the drives.	Perform the procedure at <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, called "Installation Checkout—Drives", under Operator/CE Panel setup and tests, checking EC level, setting customer options, setting drive options, then return here. Tests will be run later.
<p>For all Axxs installed, perform the "Power On Self Test" (POST).</p> <p><b>Note:</b> Before powering up the Axx ensure that all the drive power-on switches are in the power-on position, to ensure that the drives are properly configured.</p>	Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57.
For all A14 installs, install the service panel (if required) and connect the cables.	Perform "Service Panel Installation—Model A14" on page 6-7 and "A14 Installation of Service (RS-232) Cable to Service Panel" on page 6-9.
For all A14 installs, if EBTERM is not installed, set up the service terminal with EBTERM or a terminal emulator.	Perform "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13, or use other terminal emulator setup.
After setting up EBTERM or an other terminal emulator, be sure that your service terminal is connected to your Axx. and then see the referenced procedure.	Perform "Getting Started" on page 4-2.
Control unit clock is to be set to the correct time zone, date and time.	Perform "Setting the Correct time on the A00 or the A50" on page 11-37.
Run diagnostics on RISC, on the drives (using the service terminal attached through the Axx. Perform short read and writes to a scratch cartridge) and Wrap tests (using advanced diagnostics).	"Running Diagnostics from the A00 or A50 Controller" on page 11-34.
For all Axxs installed:	Perform "Attaching the Host ESCON Cable(s)" on page 6-58.
For all Axx installs:	Perform "Host Interface Checkout" on page 6-67.
<p>For all Model A14 installs:</p> <ol style="list-style-type: none"> <li>1. Order diagnostic CD-ROM P/N 40H3394 for future diagnostic and repair use if it was not sent with the ship group.</li> <li>2. Complete your installation reporting.</li> <li>3. This should complete this installation.</li> </ol> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Ensure you validate the connection of each installed Axx through the modem by having your next level of support dial into the Axx.</li> <li>2. Perform only those procedures required for your installation.</li> <li>3. Test all interfaces where cables had to be installed.</li> </ol>	

## Cable Retention Hardware Verification

Before you begin the A14 frame installation, perform the following steps:

- \_\_\_ 1. If your A14 came populated with drives, remove the shipping braces as outlined in the Unpacking Instructions shipped with the box.
- \_\_\_ 2. Ensure that the rotating drive interlock plate, P/N 05H8986, shown in Figure 6-1, is installed. The plate is installed on a frame member to ensure only one drive at a time can be pulled to the rear for service. **This safety plate must be installed to maintain a balanced and safe environment.**
- \_\_\_ 3. When the drives are returned to the operating position, ensure that the safetylock lock screw (screw on a wire lanyard) is installed in the slide. This keeps the drives from shifting.

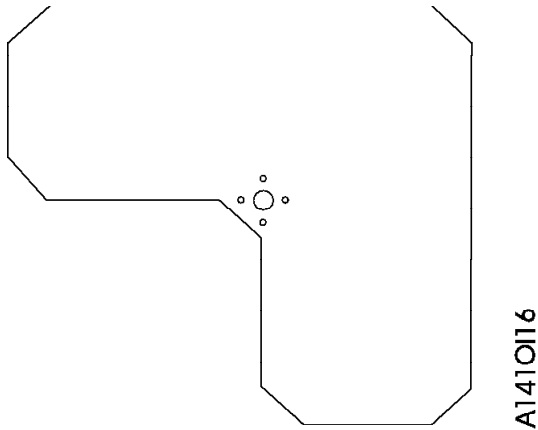


Figure 6-1. Rotating Drive Interlock Plate

## Service Panel Installation—Model A14

The service panel used in the Model A14 is a small bracket with two holes, which is installed in the vicinity of the A00 Controller. This panel is shown in Figure 6-2.

**Note:** If an A50 controller is added to or replaces the existing A00 CU, a new and different Service Panel will be installed and the location in the A14 changed. This panel is shown in Figure 6-3 on page 6-8.

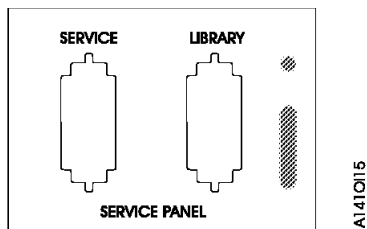
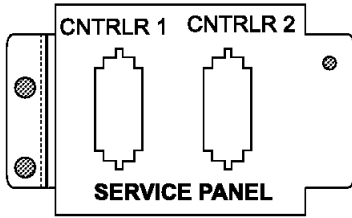


Figure 6-2. A00 Service Panel

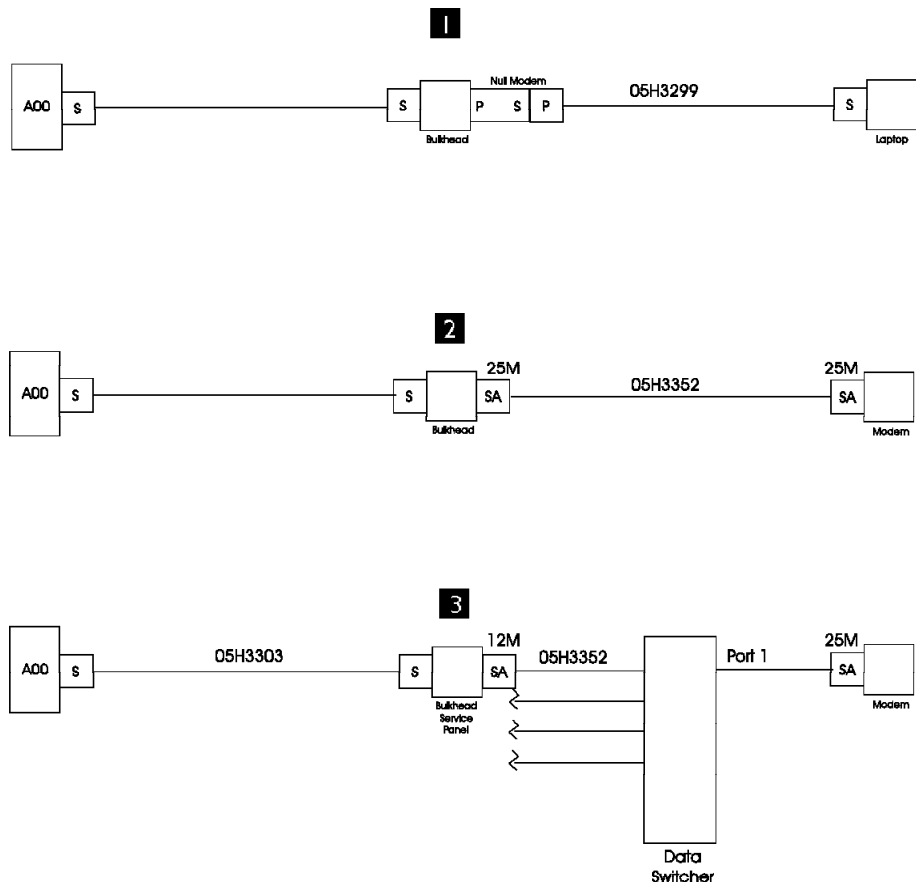


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Figure 6-3. A50 or A00/A50 Mix Service Panel

The service panel is installed in most A14 frames in the factory, but may have to be installed in the A14 box if field retrofitted. The installation of the bracket, and wiring of the RS-232 “service” cables, is covered in this section in case it is needed.

The service panel provides a single point in the A14 frame where the A00/A50 installed in A14 may be accessed for service. The service representative may attach his/her service terminal at the service panel, using a Null Modem, to checkout the installed A00/A50 or a modem may be installed so that the A00/A50 may be serviced remotely. Figure 6-4 on page 6-9 shows three examples of how to hook up the service panel when the “Y” cable is not used.



## EXAMPLES

- 1** If Laptop is to be used
- 2** Normal without switch
- 3** With switch

LEGEND	
P	= Pin
S	= Socket
C	= Converter P/N 50G0947
G	= Gender changer P/N 05H7939
N	= Null modem P/N 05H7876
SA	= Snap adapter P/N 05H3357 (SA-12M)
SA	= Snap adapter P/N 05H3368 (SA-26M)
Data switcher	P/N 05H3350 (MDS-16)
Cable asm. RJ12	P/N 05H3352 (AC-100)

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Figure 6-4. Service Panel Cabling without Y Cable

Several examples of service panel attachments, using the “Y” cable are shown in Figure 6-11 on page 6-25 .

**Note:** Whenever the service representative unhooks the modem to hook up a Null Modem and the service terminal, he/she should remember to hook the modem back up before leaving the account.

Install as required the A14 service panel bracket. The bracket is shown in Figure 6-2 on page 6-7.

### A14 Installation of Service (RS-232) Cable to Service Panel

Install the service (RS-232) cable from the rear of the A00 Controller serial port to the rear of the service panel. Refer to Figure 6-33 on page 6-60 for a view of the cable connectors on the A00 Controller. Also refer to Figure 6-35 on page 6-63 for a view of the cables as they are attached to the back of the A00 Controller or Figure 6-16 on page 6-34

Connect the one end of the RS-232 cable to the service panel. The other end connects to the serial connector located on the rear of the A00/A50

## A14 Installation of Service (RS-232) Cable to Service Panel

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Connect the one end of the RS-232 cable to the service panel. The other end connects to the serial connector located on the rear of the A00/A50

## Model D14 Installation

You are here to complete the install and checkout of a Model D14. Most of the installation was accomplished in the 3494 Maintenance Information that sent you here.

### Model D14 Installation—Overview

The Model D14 may come from the factory with the following components:

1. A00 controller mounting hardware
2. 0 to 1 A00 controller
3. Cables for the A00 controller if one is installed
4. Up to four 3590 Drives and mounting hardware
5. SCSI cables to the shipped and installed drives
6. Cable retention hardware
7. Power control center (PCC)

Unless the 3494 is being retrofitted in the field, it was built and tested at the factory as ordered above. If drive and drive hardware is to be installed in the field, follow the Install Instructions supplied with the upgrade. While most of the installation is handled by the 3494 MI, a few items will be installed and checked out in this section. Table 6-3 tells you what this section will direct you to do.

### Model D14 Installation—Procedures

**Note:** Some of the following may have been completed as part of the 3494 Installation Procedures. If a procedure has been completed, go to the next one.

Table 6-3 begins a list of procedures to complete this installation. Complete those procedures that apply to this install only.

*Table 6-3. Model D14 Installation Procedure In This Section*

Installation Procedure	Where it is Located
Before you begin, read the information at “Before Installation” on page 6-3 and “Tools” on page 6-3	“Before Installation” on page 6-3 and “Tools” on page 6-3.
Drive Shipping Braces and Secure Drives	“Model D14 Shipping Braces and Safety Hardware Check” on page 6-11.
A00 controller unpacking and installation	“Unpack and Install the A00 controller” on page 6-12.
Axx power-up and standalone checkout running POST	“A00/A50 Stand-Alone Power On and Checkout” on page 6-57.
Set up EBTERM or a terminal emulator in the Library Manager Terminal if not done before	“Installing EBTERM or Terminal Emulator in a 3494 Library Manager” on page 11-16.
Set up EBTERM or a terminal emulator in the Service Terminal	“Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
Ensure that your service terminal is attached to the back of the Axx and is setup as shown in the referenced procedure	“Getting Started” on page 4-2.



Table 6-3. Model D14 Installation Procedure In This Section (continued)

Installation Procedure	Where it is Located
Ensure that your Axx has the proper time and date set	"Setting the Correct time on the A00 or the A50" on page 11-37.
For all installations, check and adjust the Drive Pneumatic System <b>Note:</b> This may have been done earlier in this installation, but is mentioned here because of the importance of the adjustment. If not done already, do it now.	Perform the procedure in <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , LOC*CAR section, under "Measurement and Adjustment of Pneumatic System".
Drive checkout from Axx <b>Note:</b> If installing multiple Model D14's, you may skip this step for now and perform the drive checkouts from the Lxx box later if you desire.	"Checkout of Drives from A00/A50 Interface" on page 6-58.
ESCON wrap test; select Advanced Diagnostics from the menu at the referenced procedure, and select a test that performs a wrap of the ESCON adapter	"Running Diagnostics from the A00 or A50 Controller" on page 11-34.
ESCON host cable hookup	"Attaching the Host ESCON Cable(s)" on page 6-58.
ESCON host interface checkout	"Host Interface Checkout" on page 6-67.
Installation paperwork and closure 1. Order diagnostic CD ROM P/N 40H3394 for future diagnostic and repair use if it was not sent with the ship group. You may need this in the future. 2. Complete your installation reporting. 3. This should complete this installation. <b>Notes:</b> 1. Ensure you validate the connection of each installed Axx through the modem by calling your next level of support and having them dial in to the Axx. 2. Some of the above may have been installed by the factory, by MES instructions, or by direction of the 3494 MI. Perform only those items that need to be done here.	

**Model D14 Shipping Braces and Safety Hardware Check:** If not done before, perform the following steps:

- \_\_\_ 1. If your D14 came populated with all the drives that are to be installed, remove the shipping braces that keep the drives from moving during the shipping process. Ensure the rotating drive interlock plate, P/N 05H8986 is installed. This safety plate allows only one drive to be moved rearward into the service position at any one time, and must be installed to maintain a balanced and safe environment.
- \_\_\_ 2. Ensure that the drive safety locks are in place when not working on a drive. The locks are pins with cable lanyards attached that fit into a slide to keep it from moving.

Figure 6-5 on page 6-12 shows the A00 controller installed within the Model D14.

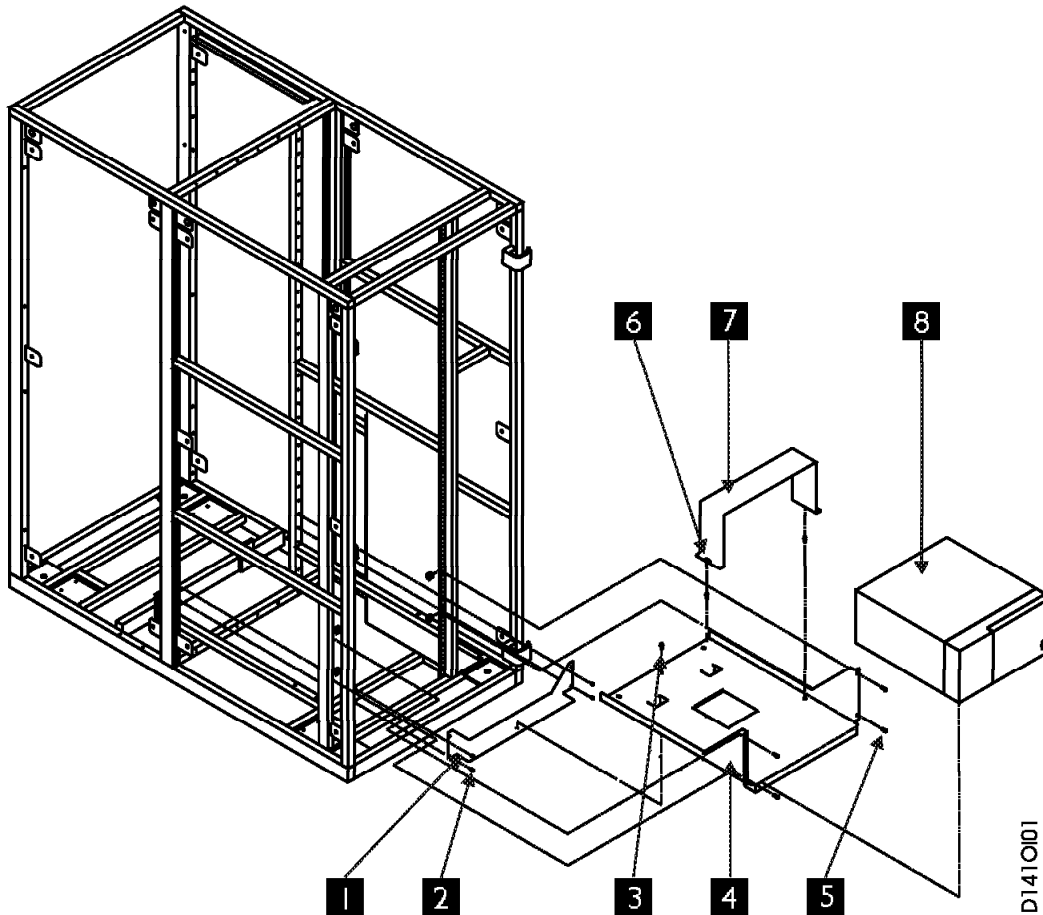


Figure 6-5. D14 Frame Installation of Model A00

**Unpack and Install the A00 controller:**

- \_\_\_ 1. Unpack the A00 controller, item **8**, from its carton, lay it on the shelf, item **4** on its side, with the air vent pointing up and the A00 Controller door hinge down and against the shelf.
  - \_\_\_ 2. Attach the following cables to the rear of the A00 Controller before sliding the unit into final position, and securing to shelf, item **4**. Refer to Figure 6-33 on page 6-60 for cable connections.
    - a. Special 'Y' cable, P/N 31F4126 to Serial connector Refer to Figure 6-35 on page 6-63 for a view of the "Y" cable coming from the back of the A00 Controller.
    - b. SCSI cable from 1st drive to adapter slot 2. If a second SCSI string in being installed, attach the second SCSI cable from the 1st drive to adapter slot 1.

**Note:** The fiber optic cable(s) from host CPU to Adapter slot 3 (and 4 if used) will be attached later after the A00 Controller has been checked out.

  - c. AC power cable from Model A00 to power source.
- \_\_\_ 3. After cables are secured and strain relief is installed, slide the A00 Controller onto the shelf P/N 05H7819, item **4**. The door must open facing rearward in the Model D14.
- \_\_\_ 4. Secure in place using the A00 Controller retaining bracket P/N 05H8990, item **7**, and two screws, P/N 1624779, item **6**, but leave loose for now.
- \_\_\_ 5. Continue installation at Table 6-3 on page 6-10.

## Unpack and Install the A50 Controller

- \_\_\_ 1. Unpack the A50, from its carton, lay it on the floor at the rear of the A14 frame with the front of the A50 facing you.
- \_\_\_ 2. In the following table “Control Unit Installation” on page 6-52 select the frame and A50 configuration you are here to install.
- \_\_\_ 3. To facilitate installation of the hardware for the A50 remove the front cover (drive side) in the A14 frame. Do this by pulling out the top two drives into the service position. Looking at the space between the cover and the A14 frame you will see where the screws holding the cover to the frame are located. Insert your hand and screw driver between the drive and the cover and remove the top two screws (one on each side). Save the screws for later use. Insert the top two drives into the normal position and pull the bottom two drives into the service position. Insert your hand and screw driver between the drive and the cover and remove the top lower screws (one on each side). Save the screws for later use. Insert the lower two drives into the normal position. Remove the front cover and set aside until installation and testing are complete.

**Note:** The front cover will have some resistance due to the design of the bayonet pins used to keep the cover from falling.

*Table 6-4. A50 Installation Activity Begins Here*

Name of Model or Device to be Installed	Go To This Procedure
Model A14 adding an A50 with existing A00	“Adding One A50 Controller in A14 to existing A00 Controller” on page 6-30
Model A14 replacing A00 with one A50 CU	“Replacing A00 Controller in A14 with one A50 Controller” on page 6-34
Model A14 adding a second A50 CU	“Adding the Second A50 Controller in a A14” on page 6-42
Model D14 adding the first A50 CU	“Adding One A50 Controller in D14” on page 6-44
Model D14 adding the second A50 Cu	“Adding One A50 Controller in D14” on page 6-44
Model L14 adding the first A50 CU	“Installing A50 Controller in L14” on page 6-51
Model L14 adding the first A50 CU	“Installing A50 Controller in L14” on page 6-51
RACK model adding the A50 CU	“Installing A50 Controller in RACK” on page 6-55

## Model L14 Installation

### Model L14 Installation—Overview

The Model L14 may come from the factory with the following components:

1. A00 Controller shelf hardware
2. A00 Controller and assorted cables
3. Zero to two 3590 drives and mounting hardware
4. SCSI cables for above drives
5. Power control center (PCC)
6. Service Panel (Local or Remote)
7. Cable retention hardware

If the machine was built at the factory as configured above, it will have been tested as well. The 3494 Maintenance Information will direct you to the proper procedures for the install. It will also direct you to install the service panel in the Lxx frame and route and connect RS-422 and RS-232 cables from the Dxx frames to the Lxx frame (if required).

This section will direct you to perform a brief test of the L14 frame A00/A50 and the service panel interface to each installed D14 frame A00/A50, perform a short test of the Lxx drives, if any, from the A00/A50, run an ESCON wrap test, connect the host cable, and confirm the host connection.

## Model L14 Installation—Procedures

Refer to Table 6-5 and if the left column fits your situation, perform the procedure in the right column:

Table 6-5. Installation and Checkout Procedures—Model L14

Installation Procedure Needed	Perform This Procedure
Before you begin, read the information at “Before Installation” on page 6-3 and “Tools” on page 6-3.	“Before Installation” on page 6-3 and “Tools” on page 6-3.
Install Model L14 A00 Controller shelf hardware if needed.	“Model L14 Shelf Hardware Installation” on page 6-16.
Unpack and install the A00 Controller.	“Unpack and Install the A00 Controller—Model L14” on page 6-17.
For all Axx installed, power on and checkout the controller.	Perform “A00/A50 Stand-Alone Power On and Checkout” on page 6-57.
Install service panel, (if not installed, see 3494 Install.).	“Service Panel Installation” on page 6-17.
Install RS-422 cables for Library Manager attachment (if not done in 3494 MI).	“RS-422 Cable Installation (Library Manager Attach)” on page 6-19.
Install RS-232 cables for service terminal attachment (if not done in 3494 MI).	“RS-232 Cable Installation (Service Interface Attachment)” on page 6-19.
Set up EBTERM or other terminal emulator on your Library Manager terminal if not done before.	“Installing EBTERM or Terminal Emulator in a 3494 Library Manager” on page 11-16.
Set up EBTERM or other terminal emulator on the service terminal, if not done before.	“Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
Ensure that the service terminal is attached to the Axx and that the referenced procedure is followed.	“Getting Started” on page 4-2.
Ensure that your Axx has the proper time and date set.	“Setting the Correct time on the A00 or the A50” on page 11-37.
For all installations where 3590 drives are being installed, check and adjust as necessary the Pneumatic System. <b>Note:</b> This may have been done earlier in this installation, but is mentioned here because of the importance of the adjustment. If not done, do it now.	Perform the procedure in <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , LOC*CAR section, under “Measurement and Adjustment of Pneumatic System”.
For all Installations, set up the drives if not done previously, but do not test the drives. This will be done later.	Perform the procedure at <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, called “Installation Checkout—Drives”, under Operator/CE Panel setup and tests, checking EC level, setting customer options, and setting drive options. <b>Note:</b> Do not run tests on the drives as that will be done later from the Axx.
For all L14 installs with drives, perform some short read and write operations on each drive, from the service terminal using the Axx interface. Each diagnostic is located under the Diagnostic Routines menu under Advanced Diagnostics.	Perform “Running Diagnostics from the A00 or A50 Controller” on page 11-34.
For all L14 installs, checkout the service panel interface to the Axx.	Perform “Service Terminal or Library Manager Attachment” on page 6-19.
ESCON wrap test; select Advanced Diagnostics from the menu at the referenced procedure, and select a test that performs a wrap of the ESCON adapter.	“Running Diagnostics from the A00 or A50 Controller” on page 11-34.

Table 6-5. Installation and Checkout Procedures—Model L14 (continued)

Installation Procedure Needed	Perform This Procedure
For all Axxs installed.	Perform “Attaching the Host ESCON Cable(s)” on page 6-58.
For all Axx installs:	Perform “Host Interface Checkout” on page 6-67.
<p>For all Model L14 installs:</p> <ol style="list-style-type: none"> <li>1. Order diagnostic CD ROM P/N 40H3394 for future diagnostic and repair use if it was not sent with the ship group. You may need this in the future.</li> <li>2. This should complete this installation. Return to the 3494 MI to complete your installation reporting. This should complete the installation procedures.</li> </ol> <p><b>Notes:</b></p> <ol style="list-style-type: none"> <li>1. Ensure you validate the connection of each installed Axx through the modem by calling your next level of support and having them dial in to the Axx.</li> <li>2. Perform only those procedures that need to be done. If your machine was totally assembled and tested by manufacturing, the tape drives and Axx may require very little testing. Test all interfaces where cables had to be installed.</li> </ol>	

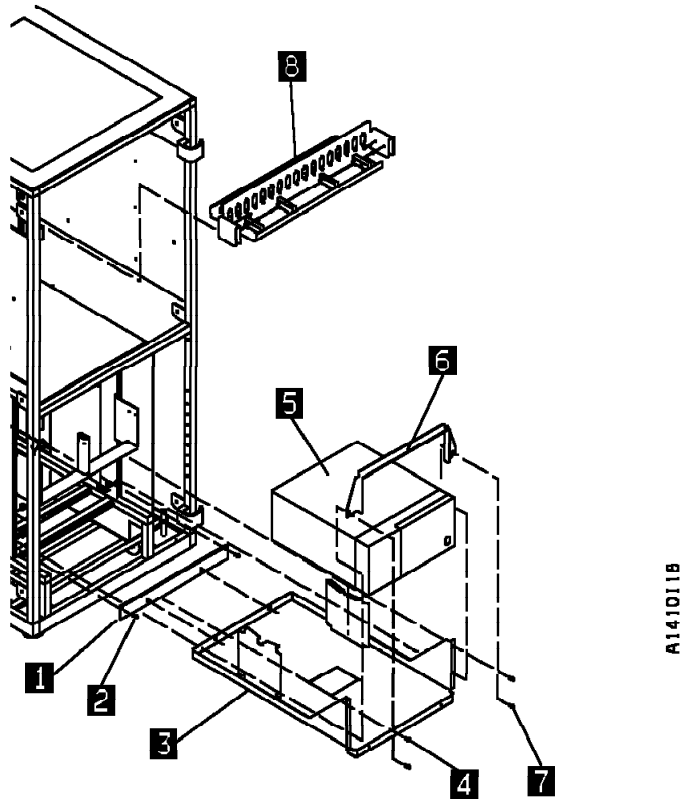


Figure 6-6. Model L14 Installation of A00 Controller

**Model L14 Shelf Hardware Installation:** Figure 6-6 shows the A00 Controller as it is assembled within the Model L14.

All new ships of the Model L14 hardware will include installation of the A00 Controller shelf hardware. Because some installations will be performed on older 3494 hardware in the field (a field retrofit), you may be required to install shelf hardware in the field.

If the shelf, item **3** needs to be installed, perform the following steps. Otherwise, return to the step that sent you here.

- \_\_\_ 1. If not done before, install the rear bracket P/N 05H7823, item **1** to the shelf, item **3**, using hole number 3 from the bottom on both the left and right sides, and with two screws P/N 1624779, item **2**.
- \_\_\_ 2. The service panel bracket, item **8** should have been installed as directed from the 3494 MI. Go to the 3494 MI for installation.

**Note:** The service panel comes in two configurations, as shown in Figure 6-7 on page 6-18, and Figure 6-9 on page 6-21 .

- \_\_\_ 3. Install the assembled shelf, item **3**, P/N 05H7822 to the L14 frame by aligning the rear holes of the shelf into the guide pins in bracket item **1** . Secure to the frame with two screws P/N 1624765, item **4** , two screws P/N 1624765, item **7** and four nut clips P/N 74F1823, in rear frame hole numbers 5 and 12 on both right and left rear. Leave the bottom two screws, item **7** loose for now.
- \_\_\_ 4. Return to the step that sent you here.

**Unpack and Install the A00 Controller—Model L14:** If the A00 Controller is received already installed in the L14, go back to the step that sent you here. If it is not installed, perform the following procedures:

- \_\_\_ 1. Unpack the A00 Controller, item **5** , from its carton, lay it on the mounting plate, item **3** on its side, with the air vent pointing up and the A00 Controller door hinge down and against the mounting plate as shown.
- \_\_\_ 2. Attach the following cables to the rear of the A00 Controller before sliding the unit into final position, and securing to mounting plate, item **3** . Refer to Figure 6-33 on page 6-60 for cable connections, and also to Figure 6-35 on page 6-63.
  - a. Special ‘Y’ cable to Serial connector. (This cable is the RS-232 cable; the single end (bottom of ‘Y’) attaches to the rear of the A00 Controller while the top of the “Y” will attach later, one leg to the cable going to the service panel, and the other left loose for future attachment to the library manager terminal). The other end of cable S2 goes to the ARTIC adapter, and the other end of cable S1 goes to the service terminal/service panel modem.
  - b. SCSI cable from 1st drive to adapter slot 2. If a second SCSI string is being installed, install the second SCSI cable from the 1st drive to adapter slot 1.
  - c. **Do Not attach** the fiber optic cable(s) from host CPU to Adapter slot 3 (and 4 if used).

**Note:** It may be easier to attach this cable now, but it should be delayed until later after the hardware has been checked out. The wrap test will not run with this cable installed.

- d. AC power cable from A00 Controller to power source.
- \_\_\_ 3. After cables are secured and strain relief is installed, slide the A00 Controller onto the mounting shelf P/N 05H7822, item **3** . The door must open facing rearward in the L14 frame.
- \_\_\_ 4. Secure in place using front support clamp P/N 05H7824, item **6** , and two screws P/N 1624779, item **7** left loose earlier.
- \_\_\_ 5. Return to the step that brought you here.

**Service Panel Installation:** The service panel is installed in most L14 frames in the factory, but may have to be installed in the Lxx box if field retrofitted. The installation of the bracket, and wiring of the RS-232 “service” cables is handled by the 3494 MI Installation procedures. A brief explanation of the service panel configurations is given here, and testing will be performed later.

A service panel is provided and is to be installed into the Lxx frame. When the A00/A50 is installed in D14 frames that are attached to a L10 or L12 frame (without an additional Model A00 installed in that frame), the service panel is still provided, but the far right position (FR1) is not used. The location of the service panel in the L10 and L12 frames will be the same as that of the L14 frame.

The same service panel is used for both the attachment of the service terminal/library manager, or Remote Assistance Feature. The only difference is in the cables and attachments.

- 1. Local CE Service (see Figure 6-7 on page 6-18)
- 2. Remote Assistance Feature (see Figure 6-9 on page 6-21)
- 3. Examples of several different service tool configurations are shown in Figure 6-11 on page 6-25

The service panel provides a single point in the Lxx frame where all A00 Controllers installed in D14 or L14 frames may be accessed for service. The service panel allows the service representative to manually attach the Library Manager terminal or a service terminal to any service panel position, and checkout each

A00 Controller from the Lxx service panel. A Null Modem must be attached to the service terminal or Library Manager terminal when performing this manual test. If the Lxx device has a modem attached into the service panel, the A00/A50 attached to that particular position may be checked out remotely. The Remote Assistance feature allows the A00/A50 devices to be accessed remotely through a modem and electronic switch without the need for manual intervention to move to each position. With the Remote Assistance feature installed, the local CE may still connect his/her service terminal to the individual A00/A50 devices by making sure the modem or WTI Electronic Switch is disconnected at the front of the service panel at any position to allow attachment of a service terminal or library manager terminal. In this approach, a Null Modem must be attached to the service terminal cable before it is plugged into the desired service panel position.

**Note:** Do not forget to hook the modem or WTI Electronic Switch back up to the service panel when you are done.

The Library Manager terminal is always attached via the “Y” cable to the ARTIC breakout box.

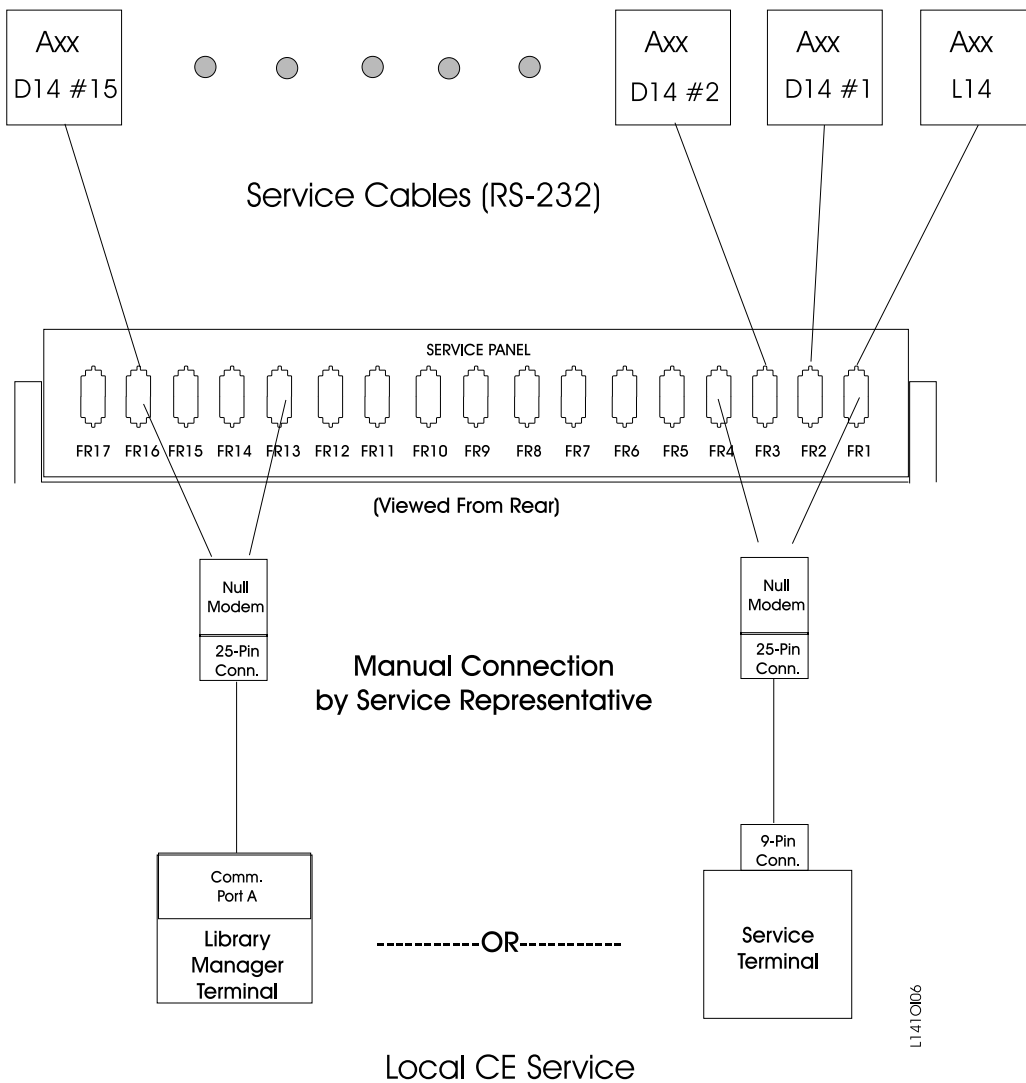


Figure 6-7. A00/A50 Service Panel Attachment—Local CE Service(new style)



**RS-422 Cable Installation (Library Manager Attach):** RS-422 cable installation should have been done earlier, but if not, refer to the 3494 Maintenance Information under INST to route and attach these cables. While running the RS-422 cables through the cable trough, it is easier and quicker to run the RS-232 (service) cables at the same time.

**Note:** Be sure to ground both the RS-422 cables and RS-232 (service) cables as they leave the D14 frame. These cables must also be grounded when they enter the Lxx frame.

**RS-232 Cable Installation (Service Interface Attachment):** RS-232 cable installation should have been done earlier, but if not, refer to the 3494 Maintenance Information under INST to route and attach these cables. While running the RS-422 cables through the cable trough, it is easier and quicker to run the RS-232 (service) cables at the same time.

**Note:** Be sure to ground the RS-422 cables as they leave the D14 frame. These cables must also be grounded when they enter the Lxx frame.

If these cables are not installed, go to the 3494 MI to complete cable installation.

Refer to Figure 6-35 on page 6-63 for a view of the cables as they are attached to the back of the A00 Controller or Figure 6-16 on page 6-34 as they are attached to the back of the A50.

Refer to Figure 6-7 on page 6-18 for attachment of the service terminal or library manager terminal, and Figure 6-9 on page 6-21 for attachment of the Remote Assistance feature.

If these cables are not installed, go to the 3494 MI to complete cable installation.

#### ***Service Terminal or Library Manager Attachment:***

**Note:** The service panel hardware was installed and RS-232 service cables were attached from the 3494 MI Installation section. We will now check out the attachment.

If your customer ordered the Remote Assistance feature, feature code 2710, you should go to “Remote Assistance Feature Installation”. If not, you will have a local CE service panel in your machine. Perform the following:

- \_\_\_ 1. Attach your Library Manager terminal to Comm Port A, through a Null Modem, or attach the service terminal to the service panel using the serial port and Null Modem.

**Note:** You must use a Null Modem on the end of the service terminal cable before it plugs into the service panel

- \_\_\_ 2. Verify that each used position of the service panel is operating correctly.

**Note:** If a modem is to be installed in this device, Whenever the service representative unhooks the modem to hook up a Null Modem and the service terminal, he/she should remember to hook the modem back up before leaving the account.

- \_\_\_ 3. If a modem is to be attached to this device, verify your modem setup at “Setting Up EBTERM or Terminal Emulator for Setting Modem Password” on page 11-44 or “Modem Initialization with Password (Microcom Deskporte)” on page 11-46 and ensure that the next level of support can access the device through the modem.
- \_\_\_ 4. When finished checking out the service panel, return to the step that brought you here.

#### ***Remote Assistance Feature Installation:***

**Note:** The service panel hardware was installed and RS-232 service cables were attached from the 3494 MI Installation section. We will now check out the attachment.

The are two remote assistance features that can be ordered. The instructions are explained for both shown in the list below:

- If your customer has ordered the Remote Assistance feature, code 2710, (refer to Figure 6-8) and perform the following.
- If your customer has ordered the Remote Assistance feature, code 2711 (refer to Figure 6-9 on page 6-21 and Figure 6-11 on page 6-25). Perform the following actions.
  - \_\_\_ 1. Check and set the line voltage on the back of the WTI switch to the proper line voltage for your account (115V or 230V).
  - \_\_\_ 2. Remove the null modem from the 05H3299 cable which goes from the Library Manager to the service panel (the one you move for each Control Unit in the Library).
  - \_\_\_ 3. Plug the gender changer supplied in feature code 2711, two are supplied for the Lxx, and one is provided for the HA1.
  - \_\_\_ 4. Plug the LDRJ-25 connector into the gender changer, and the 05H9744 RJ-45 cable into the LDRJ-25M connector.
  - \_\_\_ 5. Do the one or both of the following procedures depending upon the library configuration.
    - (StarTwin level pop-down)
      - a. At the tool bar on the Library Manager terminal, select “**Command**”
      - b. In the pop-down window, select “**Service Access**”
      - c. In the pop-up for service access, select “**Enable**”
    - (Current level)
      - a. Get to a service window and a C: prompt.
      - b. At the C:> type “**slconfig**”
      - c. At the next C:> type “**slenable**”

The LM is now set up for remote service.

- \_\_\_ 6. Return to the step that sent you here.

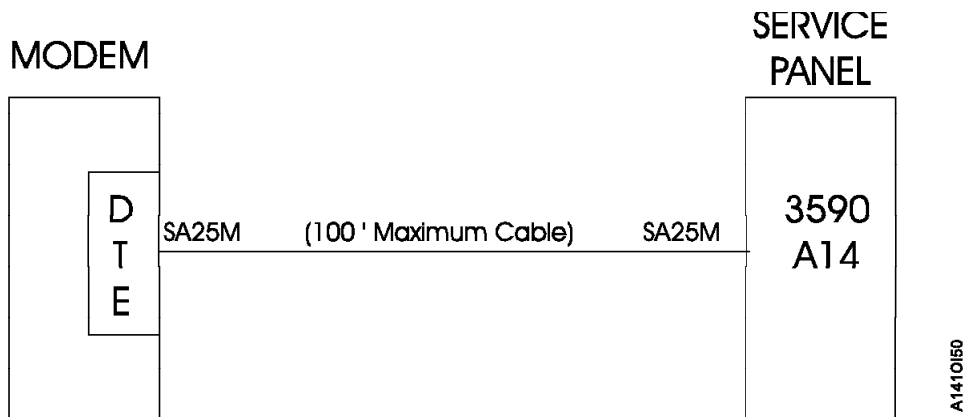
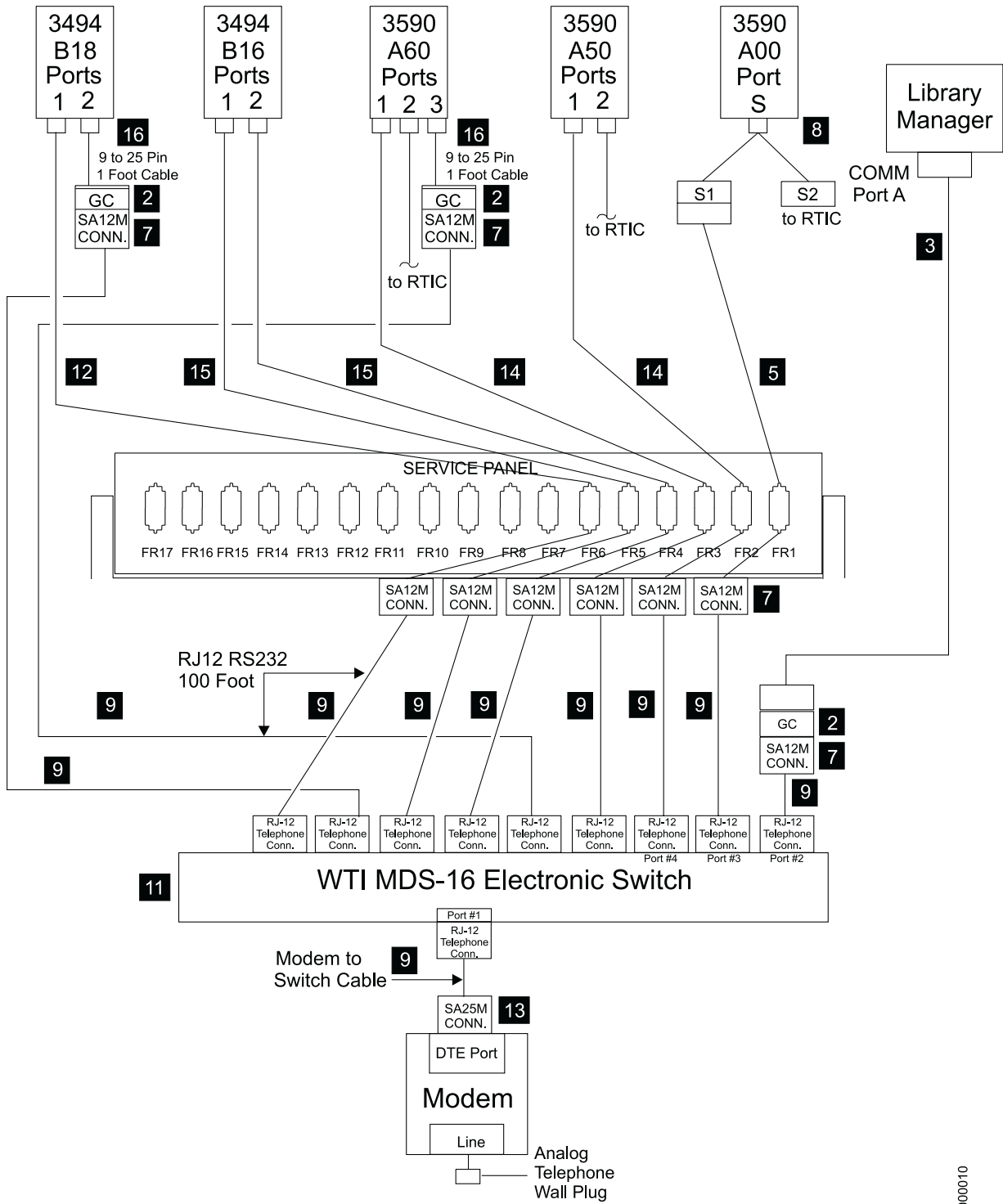


Figure 6-8. A00/A50 Remote Service Panel Attachment using feature code 2710.

- \_\_\_ 1. Install the modem near an electrical and analog telephone source, and as near to the L14 (or L10, L12) frame as possible.
- \_\_\_ 2. Install the WTI Electronic Switch in the vicinity of the Lxx frame, and near the modem.
- \_\_\_ 3. See Figure 6-9 on page 6-21 and attach the following cables.



### Remote Assistance Feature Using WTI MDS-16 Data Switch

Figure 6-9. A00/A50 Service Panel Attachment—Remote Feature MDS Switch

AG000010

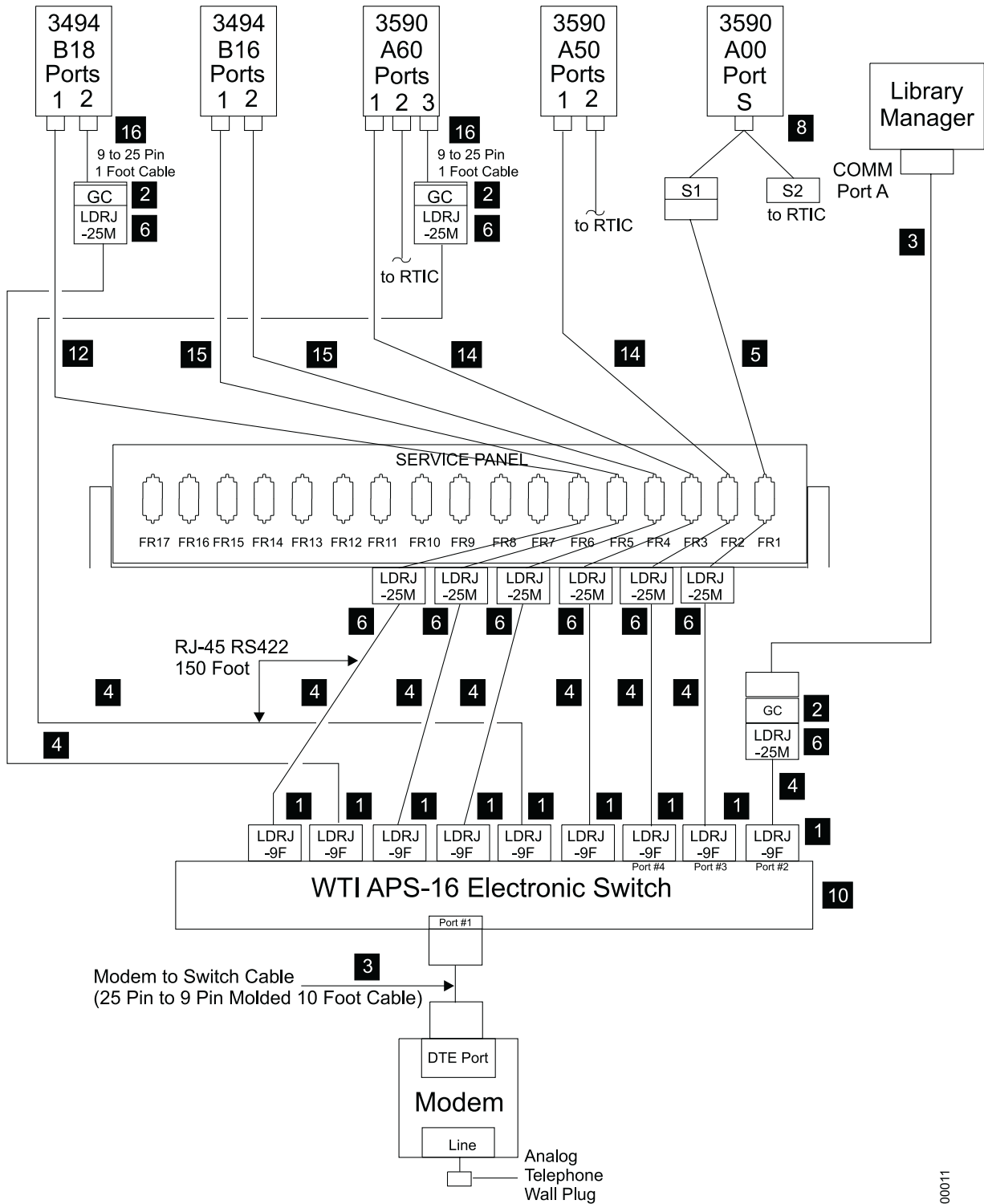
## WTI MDS-16 Electronic Switch

The following list identifies the highlighted keys and the associated part number for Figure 6-9 on page 6-21:

- **2** Gender Changer P/N 05H7939
- **3** Cable P/N 05H3299
- **5** Cable RS232 P/N 05H7878
- **7** Snap Adapter SA12M P/N 05H3357
- **8** Special 'Y' Cable P/N 31F4590
- **9** Cable RJ12 P/N 05H3352
- **11** MDS-16 Data Switcher P/N 05H3350
- **12** Cable P/N 05H8743
- **13** Snap Adapter SA-25M P/N 05H3358
- **14** Cable P/N 05H2943
- **15** Cable P/N 05H7878
- **16** Cable P/N 40H6328

For "Optional Configuration Settings" for **Remote assistance Feature Using WTI APS-16 Data Switch**, see Figure 6-10 on page 6-23

Null Modem P/N 005H7876 will be required when connecting directly from Library Manager (cable P/N 05H3299) to any of the service panel **Local Service** ports.



### Remote Assistance Feature Using WTI APS-16 Data Switch

Figure 6-10. A00/A50 Service Panel Attachment—Remote Feature WTI Switch

#### WTI APPS-16 Electronic Switch

The following list identifies the highlighted keys and the associated part number for Figure 6-10:

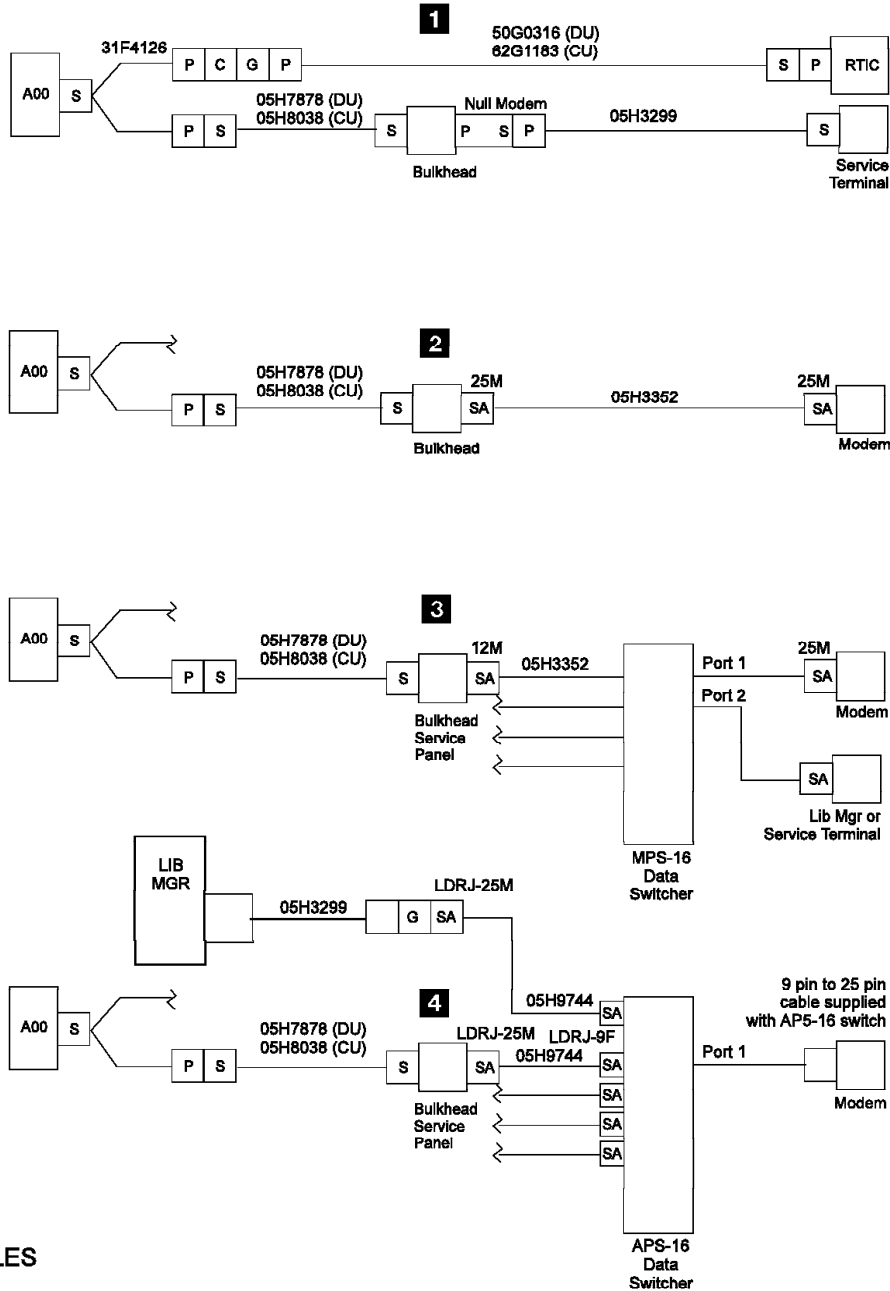
- **1** Snap Adapter LDRJ-9F P/N 05H9745

A6000011

- **2** Gender Changer P/N 05H7939
- **3** Cable P/N 05H3299
- **4** Cable P/N 05H9744
- **5** Cable RS232 P/N 05H7878
- **6** Snap Adapter LDRJ-25M P/N 05H9746
- **8** Special 'Y' Cable P/N 31F4590
- **10** APS-16 Data Switcher P/N 05H9742
- **12** Cable P/N 05H8743
- **14** Cable P/N 05H2943
- **15** Cable P/N 05H7878
- **16** Cable P/N 40H6328

Null Modem P/N 05H7876 will be required when connecting directly from Library Manager (Cable P/N 05H3299) to any of the service panel ports **Local Service**.

**Note:** Remove Null Modem Adapter from Library Manager service cable. Use gender changer to connect LDRJ-25M adapter to the library manager service cable. The LDRJ-35M connector, gender changer, and service cable connector will lay in tray in front of the service panel. Also store the Null Modem Adapter in the tray (it will be needed when the LM is used for local service).



**EXAMPLES**

- 1** If Laptop is to be used
- 2** Normal without switch
- 3** With MPS-16 switch
- 4** With APS-16 switch

**LEGEND**

- P = Pin
- S = Socket
- C = Converter P/N 50G0947
- G = Gender changer P/N 05H7939
- N = Null modem P/N 05H7876
- SA = Snap adapter P/N 05H3357 (SA-12M)
- SA = Snap adapter P/N 05H3358 (SA-25M)
- SA = Snap adapter P/N 05H9745 (LDRJ-9F)
- SA = Snap adapter P/N 05H9746 (LDRJ-25M)
- Data switcher P/N 05H3350 (MDS-16)
- Cable asm. RJ12 P/N 05H3352 (AC-100)
- Cable asm. RJ45 P/N 05H9744

L1410180

Figure 6-11. A00/A50 Service Panel Attachment Examples

a. Modem analog connector to telephone plug provided by the customer.

- b. Power cord from the modem to the customer power source. Leave the power to the modem turned off for now.
- c. Remove any Null Modems that may be attached to the cables.
- d. Find the model number on the front of the WTI data switch. It will be either a Model MPS-16 or APS-16. Select the appropriate instructions below based on the model number of the data switch.

*If installing WTI Model MPS-16 data switch:* Refer to Table 6-6 on page 6-27

- \_\_\_ 1. Attach the cable between the WTI Electronic Switch and the modem. The SA25M connector plugs into the DTE port of the modem, and the RJ-11 (telephone type plug) attaches into Port #1 of the WTI electronic switch.
- \_\_\_ 2. Attach cables from the output of the electronic switch to each used position of the service panel. Port #2 should go to service panel connector FR1, port #3 to FR2, and so on as shown in Figure 6-9 on page 6-21.
- \_\_\_ 3. Locate the "Setup" switches on the back of the WTI Electronic Switch and set according chart Table 6-6 on page 6-27.
- \_\_\_ 4. Continue at "Common Procedures for both Models of data switch".

*If installing WTI Model APS-16 data switch:* Refer to Table 6-6 on page 6-27

- \_\_\_ 1. Attach the 10 foot 9 pin to 25 pin modem cable between the WTI Electronic Switch and the modem. The 25 pin connector plugs into the DTE port of the modem, and the 9 pin connector attaches to Port #1 of the WTI Electronic Switch.
- \_\_\_ 2. Attach cables from the output of the electronic switch to each used position of the service panel. Port #3 should go to service panel connector FR1, port #4 to FR2, and so on as shown in Figure 6-10 on page 6-23.
- \_\_\_ 3. Locate the "Setup" switches on the back of the WTI Electronic Switch and set according to chart Table 6-6 on page 6-27.
- \_\_\_ 4. Continue at "Common Procedures for both Models of data switch".

*Common Procedures for both Models of data switch:* Refer to Table 6-6 on page 6-27

- \_\_\_ 1. Attach the WTI switch to a customer power source.
- \_\_\_ 2. Power on the WTI data switch. Press and hold both the **SET** button and the **CLEAR** button on the front of the WTI data switch. Release only the **CLEAR** button, and then release the **SET** button.

**Note:** This step needs to be done only once after changing the "Setup" switches on the back of the WTI data switch.

- \_\_\_ 3. Go to "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13 and set up the service terminal hardware to operate using EBTERM or terminal emulator, then return here.
- \_\_\_ 4. Power on the modem and initialize it for your environment using the procedure at "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13 or "Modem Initialization when using the WTI Data Switch (Microcom Deskporte)" on page 11-16, or your terminal emulator documentation, then return here.
- \_\_\_ 5. Ensure that the next level of support can access the device through the modem.
- \_\_\_ 6. Power on the electronic switch and perform a test of each D14 and L14 (if installed) A00/A50 to ensure that the switch and modem is working properly.
- \_\_\_ 7. Return to the step that sent you here.



The following table only applies until the A00/A50's change to SLIP with a baud of 38400.

Table 6-6. Matrix for WTI Switch Settings for A00/A50 and B16 Controllers

	<b>One Axx directly attached to modem, with no WTI Switch</b>	<b>Only Axx's on WTI Switch</b>	<b>Only B16's on WTI Switch</b>	<b>Mixed Axx's and B16's on WTI Switch</b>
Modem Settings	Use 3590-Axx set-up string (9600 baud).  LCD display on modem will show 9.6.	Use 3494-B16 set up string (38400 baud).  LCD display on modem will show 28.8.	Use 3494-B16 set up string (38400 baud).  LCD display on modem will show 28.8.	Use 3494-B16 set up string (38400 baud).  LCD display on modem will show 28.8.
Original Switch  WTI MDS-16 Switch Settings Refer to "Common Procedures for both Models of data switch" on page 6-26	Not applicable. WTI switch not used.	WTI switch 1,2,3 and 7 up, all others down.  (38400 baud) (DTR)	WTI switch 1,2,3 and 7 up, all others down.  (38400 baud)(DTR)	WTI switch 1,2,3 and 7 up, all others down.  (38400 baud)(DTR)
New High Speed Switch  WTI APS-16 Switch Settings Refer to "Common Procedures for both Models of data switch" on page 6-26	Not applicable. WTI switch not used.	WTI switches 2,4,5,6,and 7 on, switches 1,3 and 8 off.  (38400 baud) (DTR)	WTI switches 2,4,5,6 and 7 on, switches 1,3 and 8 off.  (38400 baud)(DTR)	WTI switches 2,4,5,6 and 7 on, switches 1,3 and 8 off.  (38400 baud)(DTR)
WTI individual port changes. Applies to both MDS-16 and APS-16 switches	Not applicable. WTI switch not used.	Use WTI /p command to change ONLY the Axx ports to a baud rate of 9600 and handshake to <b>xon</b> .	None required.	Use WTI /p command to change ONLY the Axx ports to a baud rate of 9600 and handshake to <b>xon</b> .

## Rack Model with A00 controller Installation

### Rack Model with A00 Controller Installation—Overview

The 3590 Subsystem installed in a rack, with a A00 Controller will never come from the factory assembled. This will always be field installed and may require all the components to be installed and tested: In any event, the hardware that will be shipped (with or without being installed) is summarized below:

1. A00 controller
2. Shelf for A00 controller and associated hardware
3. Up to four 3590 Drives
4. Up to four ACF Units
5. Drive mounting hardware (slides, mounting box, screws etc.)
6. Cable retention hardware and cables

When the frame is assembled in the field, the frame subassembly parts will need to be tested, the drives will be configured and checked out using the A00 Controller interface, a wrap test will be run on the A00 Controller ESCON interface to the host, and finally, the host ESCON cable will be connected, and the host connection confirmed.

Most drive and drive hardware installation will be the same as found in *IBM 3590 Tape Subsystem Models B11 and B1A MI*, INST section, in other rack mounted boxes. You will be sent to these areas when needed. Installation and test of the A00 Controller will be handled here, except for common procedures that affect all A00 Controller boxes.

If you are installing additional drives that were ordered as an MES, or are being installed after the initial Model A00 was installed, use the MES instructions to install and test them.

## A00 Controller Rack Mount Installation Procedures

Perform the following procedures as required:

Table 6-7. Rack Installation Procedures Found Elsewhere in this Book Frame

If You Need to Install These Items	Do These Procedures
Before you begin, read the information at "Before Installation" on page 6-3 and "Tools" on page 6-3.	"Before Installation" on page 6-3 and "Tools" on page 6-3.
Familiarize yourself with the drive numbering scheme.	Review <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, under "Device Numbering and EIA Units for Model B11".
Install rack containing 3590 Model B11 drives. <b>Note:</b> This will occur only on a relocation of equipment.	Perform <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, under "Install Rack That Contains Model B11 Devices".
Installation checkout of rack installed Model B11 drives which includes the following procedures in <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, listed under "Installation Checkout—Drives": <ol style="list-style-type: none"> <li>1. Operator/CE Panel Setup and Tests</li> <li>2. Check EC Level</li> <li>3. Set Customer Options</li> <li>4. Set Drive Options</li> <li>5. SCSI Attachment</li> <li>6. Cables to Device</li> <li>7. SCSI Cables for Model B11</li> <li>8. Cable Guides for Model B11</li> <li>9. Decorative Covers (2 Drive Cover) for Rack-Mounted Model B11</li> </ol>	Perform <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, under "Installation Checkout— Drives".  <b>Notes:</b> <ol style="list-style-type: none"> <li>1. Ensure you validate the connection of each installed A00 Controller through the modem by calling your next level of support and having them dial in to the A00 Controller.</li> <li>2. Perform only those procedures that need to be done. If your machine was totally assembled and tested by manufacturing, the tape drives and Model A00 may require very little testing. Test all interfaces where cables had to be installed.</li> </ol>

## A00 Controller Rack Installation

You will be asked to verify that certain procedures are correct, or that certain hardware is installed, but if the procedure is complete, you will also be given a 'go to' to branch around the procedure.

## Model A00 Installation Checkout Procedure—Rack Frame

Perform all the following procedures that apply.

Table 6-8. Choosing the Correct Installation Checkout Procedures—Rack Frame

If this is your situation	Do These Procedures
For all Model A00 racks, follow the rack voltage check procedures that come with the rack subsystem.	—
Ensure that your Axx has the proper time and date set.	"Setting the Correct time on the A00 or the A50" on page 11-37.
For all Model A00 racks.	Perform procedure in <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , LOC*CAR section, under "Measurement and Adjustment of Pneumatic System".

Table 6-8. Choosing the Correct Installation Checkout Procedures—Rack Frame (continued)

If this is your situation	Do These Procedures
1. Installed drives 2. Installed SCSI cables  <b>Note:</b> For all Installations, set up the drives, but do not test at this time. Testing will be done later from the A00 Controller.	Perform the procedure at <i>IBM 3590 Tape Subsystem Models B11 and B1A MI</i> , INST section, called "Installation Checkout—Drives", under Operator/CE Panel setup and tests, checking EC level, setting customer options, setting drive options, then return here. Tests will be run later from the service terminal through the A00 Controller.
For all A00 Controller racks	Perform "Service Panel Installation—Rack Model".
For all A00 Controller racks	Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57.
For all A00 Controller racks	Perform "Rack Installation of Service (RS-232) Cable to Service Panel" on page 6-30.
For all A00 Controller racks	Perform "Rack Installation Service Panel Checkout" on page 6-30.
For all Axx frames, run the ESCON wrap tests using Advanced Diagnostics menu at the referenced procedure.	Perform "Running Diagnostics from the A00 or A50 Controller" on page 11-34.
For all Axx frames	Perform "Attaching the Host ESCON Cable(s)" on page 6-58.
For all Axx frames	Perform "Host Interface Checkout" on page 6-67.
<b>Note:</b> Perform only those procedures that need to be done. Test all interfaces where cables had to be installed.	

**Service Panel Installation—Rack Model:** The service panel used in the Rack Model is a small bracket with two holes which is installed in the vicinity of the A00/A50. Refer to Figure 6-12. The service panel allows connection of a cable (RS-232) from the rear of the A00/A50 to the back of the service panel. The front of the service panel is used by the service representative to plug in his/her service terminal (through a Null Modem) to perform service on the A00/A50. The service panel may also be used to install a modem to provide remote assistance.

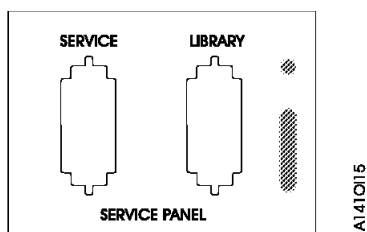
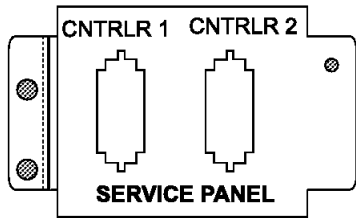


Figure 6-12. Service Panel Old Design



A1410163

Figure 6-13. Service Panel New Design

The service panel is installed in the field. The service panel provides a single point in the rack frame where the A00 Controller installed in the rack may be accessed for service. The service representative may attach his/her service terminal at the service panel, using a Null Modem, to checkout the installed A00 Controller, or a modem may be installed so that the A00/A50 may be serviced remotely.

**Note:** Whenever the service representative unhooks the modem to hook up a Null Modem and the service terminal, he/she should remember to hook the modem back up before leaving the account.

Install as required the rack service panel bracket, above the mounting tray in the first available holes on the right hand side on the rear of the rack. The bracket is shown in Figure 6-12 on page 6-29. Install the service (RS-232) cable from the rear of the A00 Controller serial port to the rear of the service panel. Refer to Figure 6-33 on page 6-60 for a view of the cable connectors on the A00 Controller.

**Rack Installation of Service (RS-232) Cable to Service Panel:** Connect the one end of the RS-232 cable to the service panel. The other end connects to the serial connector located on the rear of the A00 Controller. Refer to Figure 6-33 on page 6-60 for the location of the serial connector.

Also refer to Figure 6-35 on page 6-63 for a view of the cables as they are attached to the back of the A00 Controller.

**Rack Installation Service Panel Checkout:** Attach the service terminal or other service device to the service panel and ensure that communications can be established with the A00 Controller.

**Note:** You must use a Null Modem on the end of the service terminal cable before it plugs into the service panel

**Note:** If a modem is part of the installation, whenever the service representative unhooks the modem to hook up a Null Modem and the service terminal, he/she should remember to hook the modem back up before leaving the account.

Verify your modem setup at "Setting Up EBTERM or Terminal Emulator for Setting Modem Password" on page 11-44 or "Modem Initialization with Password (Microcom Deskporte)" on page 11-46 and ensure that the next level of support can access the device through the modem.

**Adding One A50 Controller in A14 to existing A00 Controller:** This installation section will accomplish the following:

- Remove the existing bulkhead from the A14 frame including nut clips and screws
- Remove Power Panel cover by removing 3 screws
- Remove existing Operator panel
- Install the new bulkhead at the top of the A14 frame using nut clips in holes 6 and 8
- Install two sliders for the A50
- Install a tray to hold the A50

- Attach cables to the A50
  - Install articulating SCSI cable arm
  - Install new Operator Panel
  - Plug and dress cables including the SCSI cables
  - Install new bulkhead and service cable from the existing A00 CU
  - Check out the machine
- \_\_\_ 1. Remove 3 screws from power cover (Operator Panel) and remove power cover from the A14 rear cover.
  - \_\_\_ 2. Remove the existing bulking from the A14 and the service cable to the existing A00 and discard.

### Installation of the A50 Control Unit

in the A14 Frame For the reverse keys called out in the steps below, see Figure 6-14:

- \_\_\_ 1. Install the new Operator Panel on the rear cover.
- \_\_\_ 2. Install articulating arm **1**, **do not use any retention.**
- \_\_\_ 3. Install the sliders **4** **5** and **6**, for the upper A50 referred to as controller 2. Sliders are installed in hole 14 on both sides of the A14 frame.
- \_\_\_ 4. Install the tray **3** to control unit 2 sliders (upper sliders), and the cable clamp **2** hardware.
- \_\_\_ 5. Install the new service bulkhead **8** on the A14 frame.

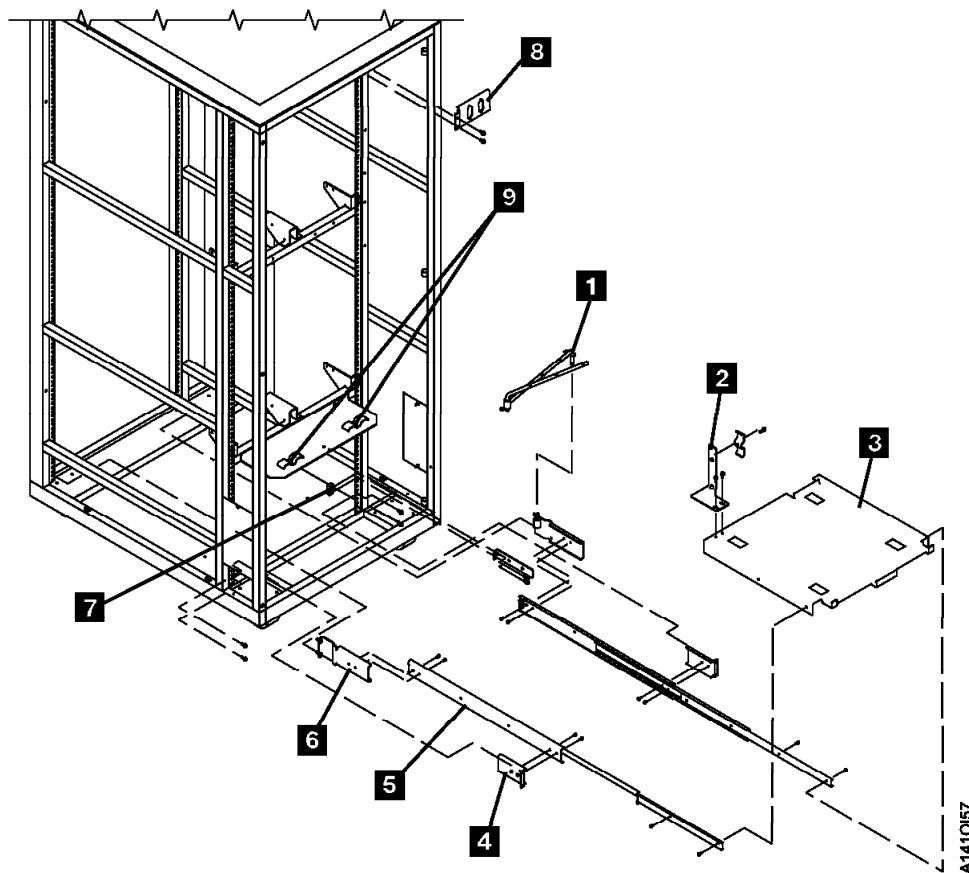


Figure 6-14. A50 Mounting Hardware in A14 Frame

- \_\_\_ 6. Set Control Unit 1 (lower A50) on the floor at the rear of the A14 frame.
- \_\_\_ 7. Attach SCSI 0 cable to the back of the A50 in adapter slot 1, **12** Refer to Figure 6-24 on page 6-41.

- \_\_\_ 8. Attach ESCON 0 cable to the back of the A50 in adapter slot 2, **12** Refer to Figure 6-24 on page 6-41 .
- \_\_\_ 9. Attach SCSI 1 cable to the back of the A50 in adapter slot 4, **12** Refer to Figure 6-24 on page 6-41.
- \_\_\_ 10. Attach ESCON 1 cable to the back of the A50 in adapter slot 3 **12** .

**Note:** This cable is only present of installing Feature Code 3312.  
Refer to Figure 6-24 on page 6-41.

- \_\_\_ 11. Attach service terminal to cable to the back of teh A50 in **S1**(left connector facing from the rear) **9** , refer to Figure 6-24 on page 6-41.
- \_\_\_ 12. Attach Op Panel cable to the back of the A50 in **3** . Refer to Figure 6-24 on page 6-41.
- \_\_\_ 13. Route the service terminal cable to the side of the A14 and up the frame. Refer to Figure 6-16 on page 6-34.
- \_\_\_ 14. Route the Op Panel cable to the side of the A14, up the frame and over to the Operator Panel. Refer to Figure 6-16 on page 6-34.
- \_\_\_ 15. Set the A50 on the tray and slide onto clips to secure.
- \_\_\_ 16. Clamp cable in cable clamp provided on the tray. Refer to Figure 6-16 on page 6-34 **1** .
- \_\_\_ 17. Install articulating arm. Refer to Figure 6-16 on page 6-34.
- \_\_\_ 18. Route SCSI cables from A50 along the articulating arm and clamp in place leaving large loops of cable at each side of frame. Refer to Figure 6-15 on page 6-33.

**Note:** SCSI cable from A50 always goes to drive 2 (upper left drive from the rear). The SCSI cable from A00 always goes to drive 0 (lower left drive from the rear).

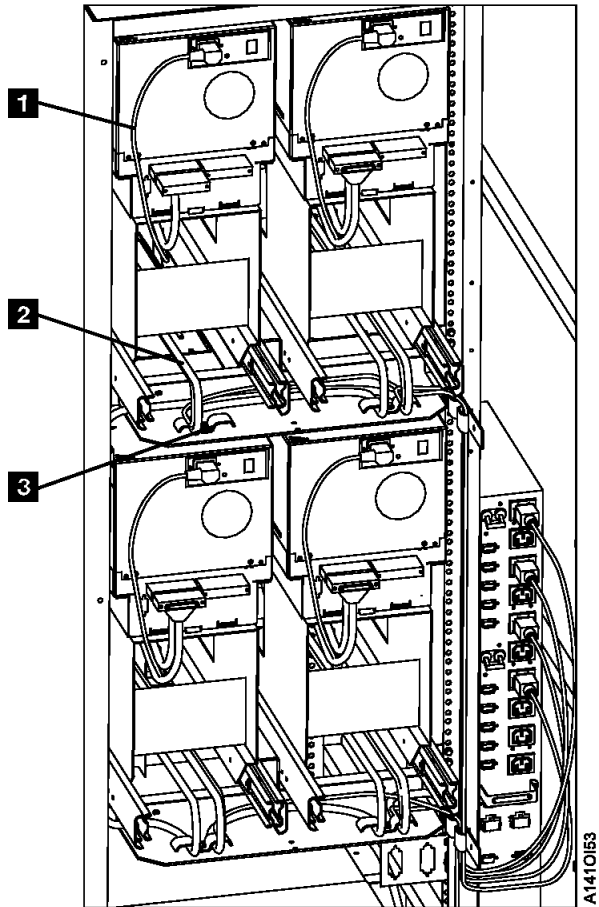


Figure 6-15. SCSI Cable Locations for Single A50

- \_\_\_ 19. Dress the cables up the side of the frame to the operator panel and the bulkhead. Use cable clamps as needed to dress the cables to the articulating arm. Refer to Figure 6-16 on page 6-34 and Figure 6-16 on page 6-34.
- \_\_\_ 20. Go to “A00/A50 Stand-Alone Power On and Checkout” on page 6-57 to check out the A50 controller and “Checkout of Drives from A00/A50 Interface” on page 6-58 to check out the drive to controller interfaces. Return here when check out is complete.
- \_\_\_ 21. Replace the front cover removed at the beginning of adding the new A50 hardware (see “Unpack and Install the A50 Controller” on page 6-13). Return the subsystem to the customer.

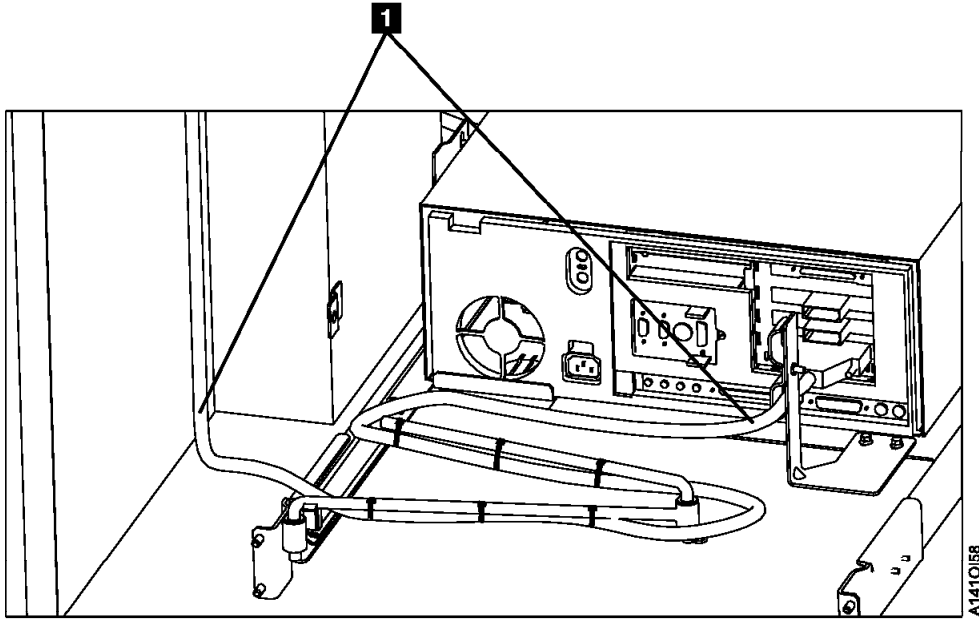


Figure 6-16. A50 Cable Locations

Table 6-9. A50 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1	SCSI
2	(unused)
3	ESCON
4	(unused)

Table 6-10. A50 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1	SCSI 0 Card P/N 40H2842 FRU P/N 52G3380
2	SCSI 1 Card P/N 40H2842 Fru P/N 52G3380
3	ESCON 1 FRI P/N 51H8701
4	ESCON 2 FRU P/N 51H8701

Table 6-11. A00 With new P/N 05H3090 SCSI Card

Adapter Slot	Adapter Plug
1	ESCON 1 FRU P/N 51H8701
2	ESCON 2 FRU P/N 51H8701
3	SCSI 0 Card/FRU P/N 05H3090
4	SCSI 1 Card/FRU P/N 05H3090

Replace front cover removed at the beginning (see “Unpack and Install the A50 Controller” on page 6-13).

### Replacing A00 Controller in A14 with one A50 Controller

This installation section will accomplish the following:

- Remove the A00 and all retention hardware from the A14 frame



- Remove all existing cables between the A00 and the A14 frame except for the **existing ESCON** cables
- Remove retaining bracket and two screws from frame
- Remove the existing bulkhead from the A14 frame including nut clips and screws
- Remove Power Panel cover by removing 3 screws
- Install the new bulkhead at the top of the A14 frame using nut clips in holes 6 and 8
- Install two sliders for the A50
- Install a tray to hold the A50
- Attach cables to the A50
- Install articulating SCSI cable arm
- Remove existing Operator panel

**Removal of:** The existing A00 from the A14 Frame

**Note:** All of the existing cables that physically attach at the back of the A00 will be removed completely from the A14 frame except the **ESCON** and the **SCSI cables from drive to drive**.

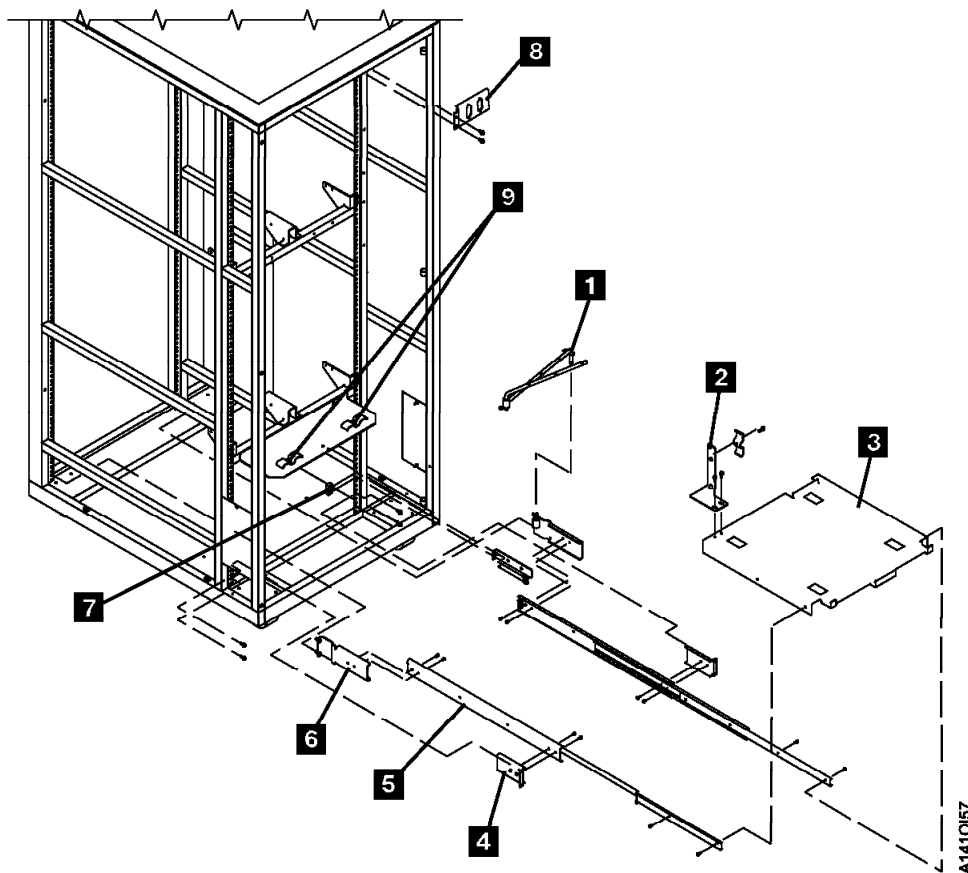


Figure 6-17. A50 Mounting Hardware in A14 Frame

1. Remove 3 screws from power cover (Operator Panel) and remove power cover from the A14 rear cover.
2. Remove A00 mounting hardware and pull the A00 from the A14 frame.
3. Remove any cable retention that is holding any cables to the back of the A00 control unit. Refer to Figure 6-18 on page 6-36 **8**.

- \_\_\_ 4. Remove all of the existing cables from the back, (front of the A14), of the A00 Control Unit. (Refer to Figure 6-18 for the cable locations.)
- \_\_\_ 5. Remove the Power cable **1** from the A00.
- \_\_\_ 6. Remove the Power cable from the PCC.
- \_\_\_ 7. **Do Not** remove the ESCON cables from the A14 frame, they will be used again. The ESCON cables **must** be removed from the A00 control unit.

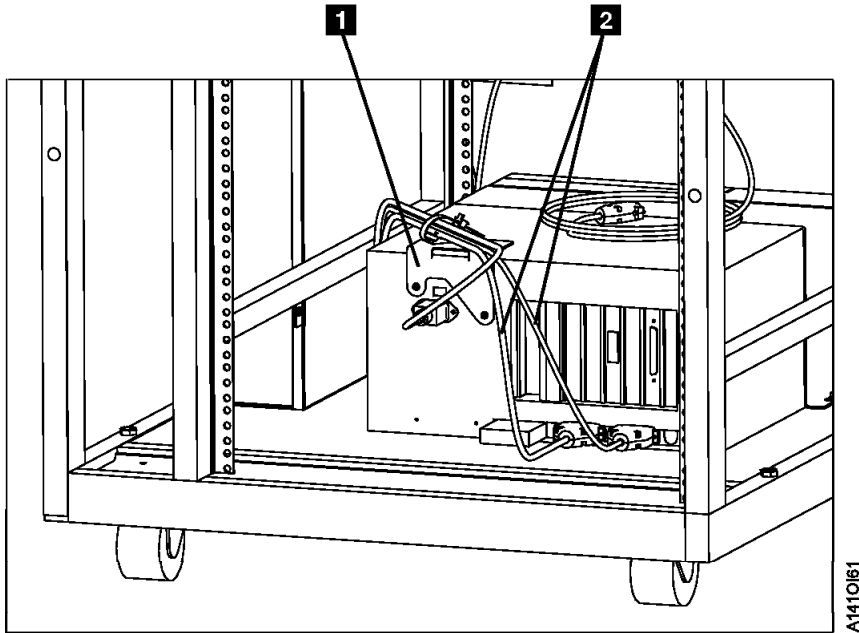


Figure 6-18. Rear A00 Controller Cable Connections

- \_\_\_ 8. Remove the SCSI cables from the A00 to Drive 0 and Drive 1 that are in the service position. (Refer to Figure 6-19 on page 6-37.)
- \_\_\_ 9. Completely remove the SCSI cables removed in the previous step from the A14 frame.

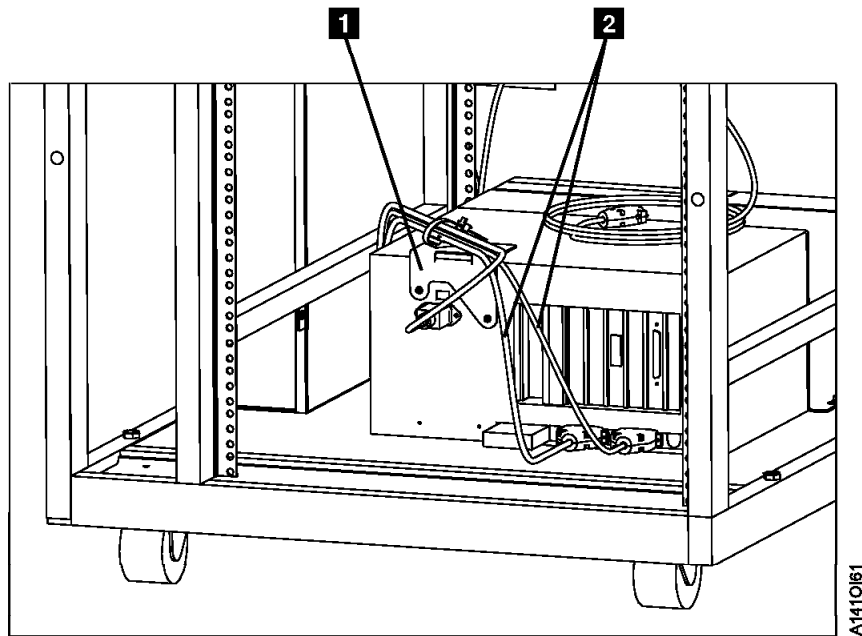


Figure 6-19. Drive SCSI Cable Routing

- \_\_ 10. Remove the Service cables to the Service panel.
- \_\_ 11. Completely remove the Service cables from the A14 frame.
- \_\_ 12. Remove the cables from the Operator Panel located on the rear cover.
- \_\_ 13. Remove the cables removed from the previous step from the A14 frame.
- \_\_ 14. Remove the service panel from the A14 frame.

At this point all of the A00 cables, A00 control unit and support hardware, the Operator panel and the service bulkhead should have been removed from the A14 frame. If this is not the case, make sure that it is completed before continuing.

**Installation of the A50 Control Unit:** In the A14 Frame

**Note:** For the reverse keys called out in the steps below, refer to Figure 6-20 on page 6-38.

- \_\_ 1. To facilitate installation of the hardware for the A50 remove the front cover (drive side) in the A14 frame. Do this by pulling out the top two drives into the service position. Looking at the space between the cover and the A14 frame you will see where the screws holding the cover to the frame are located. Insert your hand and screw driver between the drive and the cover and remove the top two screws (one on each side). Save the screws for later use. Insert the top two drives into the normal position and pull the bottom two drives into the service position. Insert your hand and screw driver between the drive and the cover and remove the top lower screws (one on each side). Save the screws for later use. Insert the lower to drives into the normal position. Remove the front cover and set aside until installation and testing are complete.

**Note:** The front cover will have some resistance due to the design of the bayonet pins used to keep the cover from falling.

- \_\_ 2. Install the new Operator Panel on the rear cover.
- \_\_ 3. Install articulating arm **1**, **do not use any retention.**
- \_\_ 4. Install the sliders **4**, **5** and **6**, for the lower A50 referred to as controller 1. Sliders are installed in hole 2 on both sides of the A14 frame.

- \_\_\_ 5. Install the sliders **4** **5** and **6**, for the upper A50 referred to as controller 2. Sliders are installed in hole 14 on both sides of the A14 frame.
- \_\_\_ 6. Install the tray **3** to control unit 2 sliders (upper sliders), and the cable clamp **2** hardware.
- \_\_\_ 7. Install the tray **3** to control unit 3 sliders (lower sliders), and the cable clamp **2** hardware.
- \_\_\_ 8. Install the new service bulkhead **8** on the A14 frame.

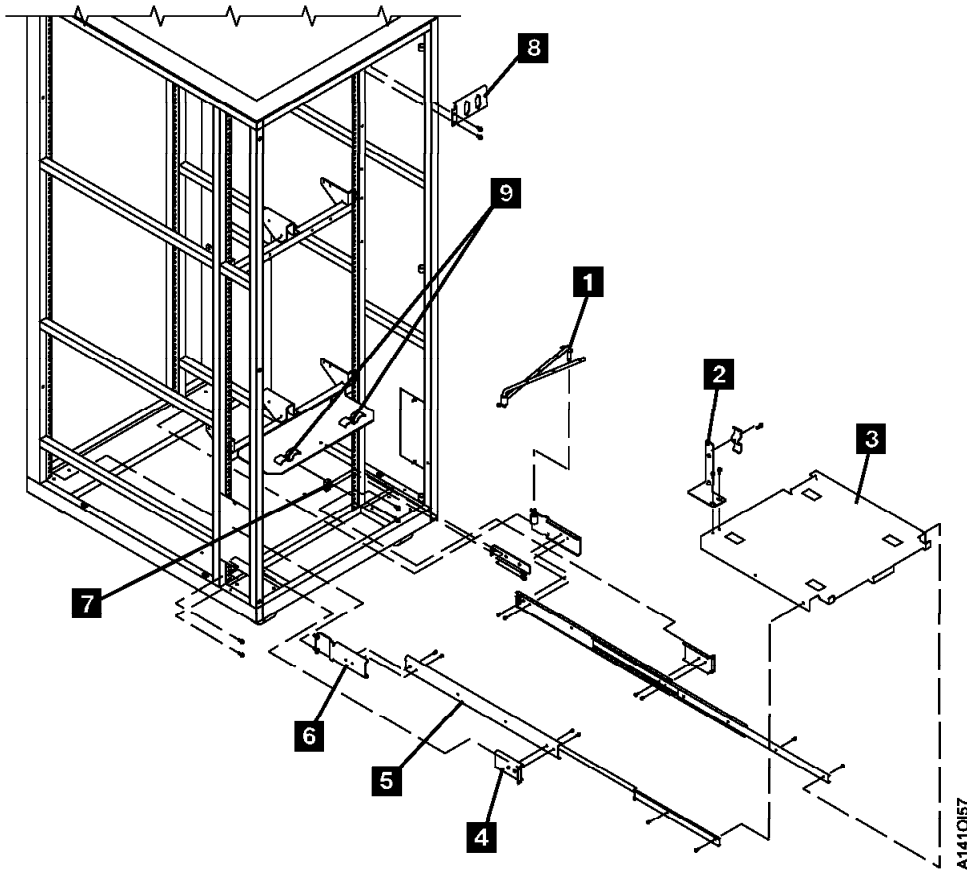


Figure 6-20. A50 Mounting Hardware in A14 Frame

- \_\_\_ 9. Set Control Unit 1 (lower A50) on the floor at the rear of the A14 frame.
- \_\_\_ 10. Attach SCSI 0 cable to the back of the A50 in adapter slot 1. Refer to Figure 6-23 on page 6-41, Table 6-12 on page 6-42 and Table 6-13 on page 6-42.
- \_\_\_ 11. Attach ESCON 0 cable to the back of the A50 in adapter slot 2. Refer to Figure 6-23 on page 6-41, Table 6-12 on page 6-42 and Table 6-13 on page 6-42.
- \_\_\_ 12. Attach SCSI 1 cable to the back of the A50 in adapter slot 4. Refer to Figure 6-23 on page 6-41, Table 6-12 on page 6-42 and Table 6-13 on page 6-42.
- \_\_\_ 13. Attach ESCON 1 cable to the back of the A50 in adapter slot 3.

**Note:** This cable is only present of installing Feature Code 3312.

Refer to Figure 6-21 on page 6-39, Table 6-12 on page 6-42 and Table 6-13 on page 6-42

- \_\_\_ 14. Attach service terminal cable to the back of the A50 in **9** position 0. Refer to Figure 6-21 on page 6-39.
- \_\_\_ 15. Attach Op Panel cable to the back of the A50 in **3**. Refer to Figure 6-21 on page 6-39.

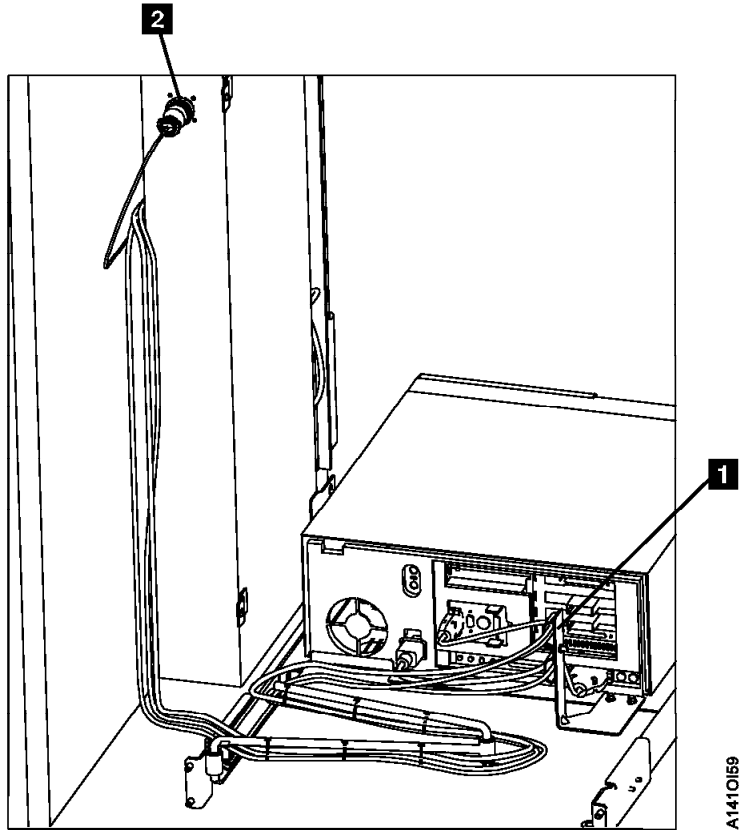


Figure 6-21. A50 Rear view with Cable Connections

- \_\_ 16. Route the service terminal cable to the side of the A14 and up the frame. Refer to Figure 6-21.
- \_\_ 17. Route the Op Panel cable to the side of the A14, up the frame and over to the Operator Panel. Refer to Figure 6-21.
- \_\_ 18. Set the A50 on the tray and slide onto clips to secure.
- \_\_ 19. Clamp cable in cable clamp provided on the tray. Refer to Figure 6-23 on page 6-41.
- \_\_ 20. Install articulating arm. Refer to Figure 6-23 on page 6-41.
- \_\_ 21. Route SCSI cables from A50 (both A50's if Feature Code 3312 is used) along the articulating arm and clamp in place leaving large loops of cable at each side of frame. Refer to Figure 6-22 on page 6-40.

**Note:** SCSI cable from CU 1 (upper A50) always goes to drive 2 (upper left drive from the rear). The SCSI cable from CU 0 (lower A50) always goes to drive 0 (lower left drive from the rear).

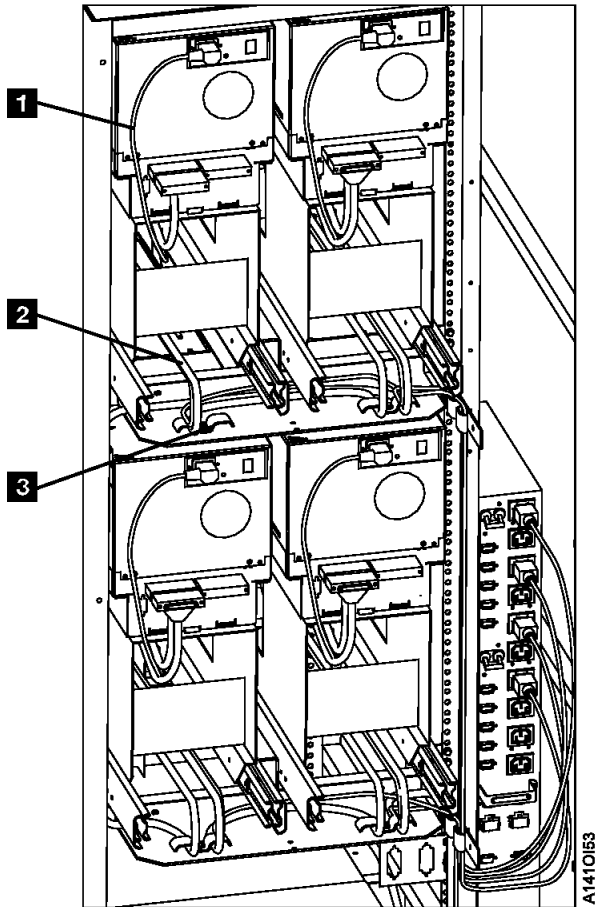


Figure 6-22. SCSI Cable Locations for Single A50

- \_\_\_ 22. Dress the cables up the side of the frame to the operator panel and the bulkhead. Use cable clamps as needed to dress the cables to the articulating arm. Refer to Figure 6-23 on page 6-41 and Figure 6-21 on page 6-39.
- \_\_\_ 23. Go to “A00/A50 Stand-Alone Power On and Checkout” on page 6-57 to check out the A50 controller and “Checkout of Drives from A00/A50 Interface” on page 6-58 to check out the drive to controller interfaces. Return here when check out is complete.
- \_\_\_ 24. Replace the front cover removed at the beginning of adding the new A50 hardware (see 1 on page 6-37). Return the subsystem to the customer.

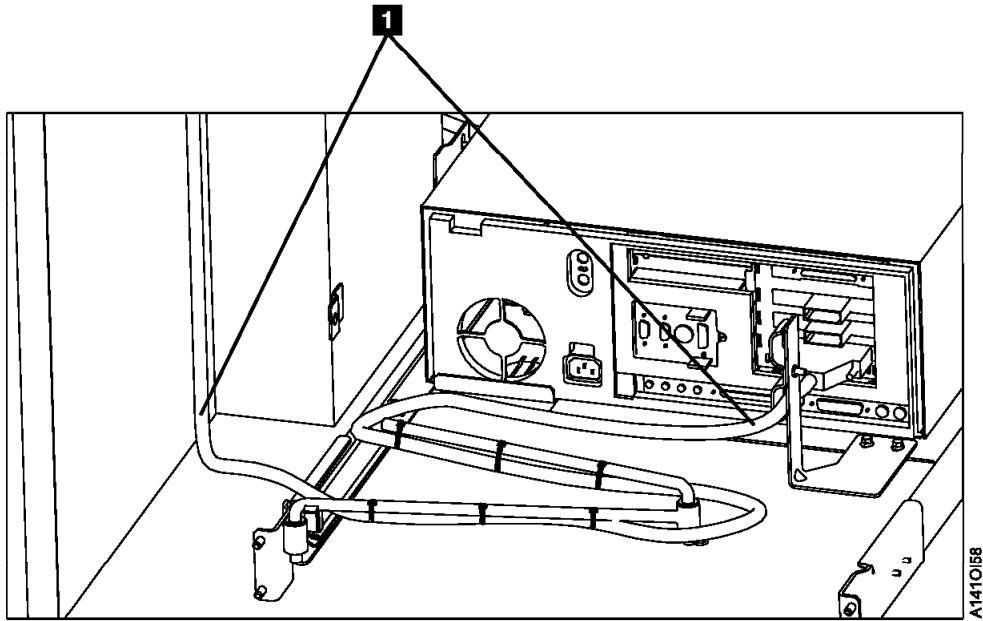


Figure 6-23. A50 Cable Locations

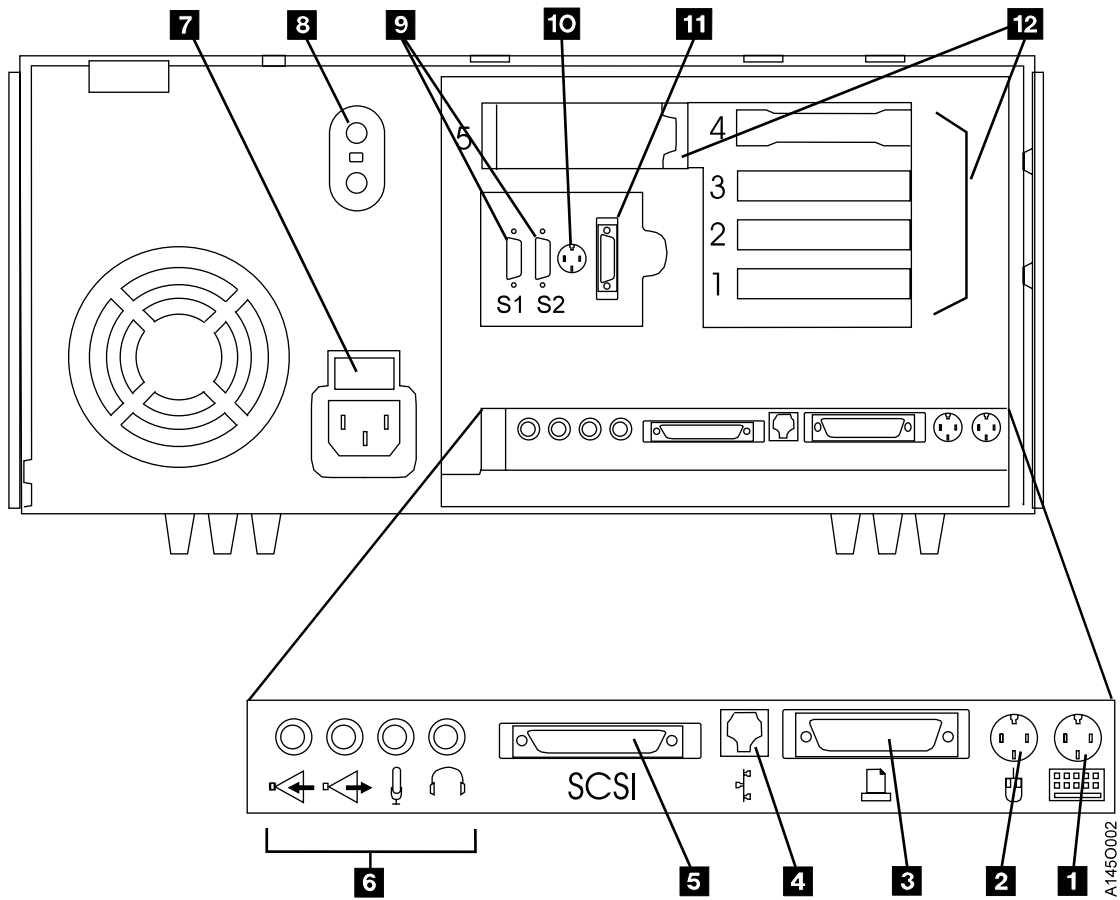


Figure 6-24. A50 Cable Plug Locations

Table 6-12. A50 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1 <b>12</b>	SCSI
2 <b>12</b>	ESCON
3	(unused)
4	(unused)

Table 6-13. A50 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1 <b>12</b>	SCSI 0
2 <b>12</b>	ESCON 1
3 <b>12</b>	ESCON 2
4 <b>12</b>	SCSI 1

### Adding the Second A50 Controller in a A14

This installation section will accomplish the following:

1. Attach cables to the A50's
2. Check out the machine

**Adding the Second A50 Control Unit in the A14 Frame:** If you are here to add a second A50 to this A14, all SCSI cables and needed hardware should already be installed in this frame. If for some reason everything is not present, return to "Installation of the A50 Control Unit" on page 6-37 and determine what needs to be completed before adding the second physical A50 controller.

- \_\_\_ 1. Set Control Unit 1 (lower A50) on the floor at the rear of the A14 frame.
- \_\_\_ 2. Attach SCSI 1 cable to the back of the A50 in adapter slot 4. Refer to Table 6-14 on page 6-43 and Table 6-15 on page 6-43.
- \_\_\_ 3. Attach Terminal cable to the back of the A50 in position 0. Refer to Table 6-14 on page 6-43 and Table 6-15 on page 6-43.
- \_\_\_ 4. Attach ESCON 1 cable to the back of the A50 in adapter slot 3. Refer to Table 6-14 on page 6-43 and Table 6-15 on page 6-43.
- \_\_\_ 5. Attach Terminal cable to the back of the A50 in position 0. Refer to Table 6-14 on page 6-43 and Table 6-15 on page 6-43.
- \_\_\_ 6. Attach Op Panel cable to the back of the A50 in. Refer to Table 6-14 on page 6-43 and Table 6-15 on page 6-43.
- \_\_\_ 7. Set the A50 on the upper tray and slide onto clips to secure.
- \_\_\_ 8. Clamp cables in cable clamp provided on the tray.
- \_\_\_ 9. Go to "A00/A50 Stand-Alone Power On and Checkout" on page 6-57 to check out the A50 controller, and "Checkout of Drives from A00/A50 Interface" on page 6-58 to check out the drive to controller interfaces. Return here when complete.
- \_\_\_ 10. Return the subsystem to the customer.



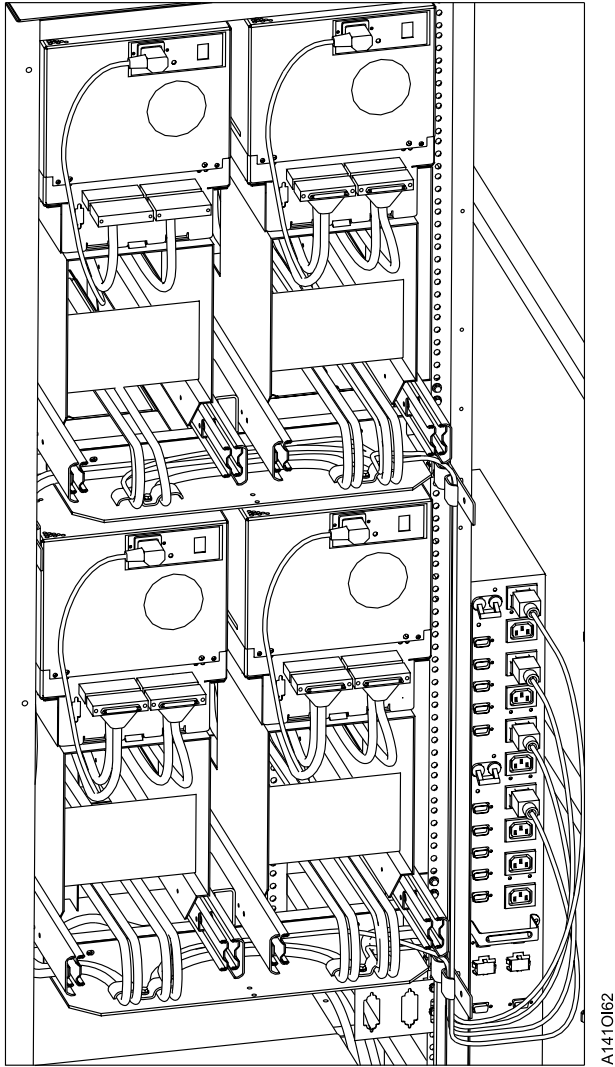


Figure 6-25. Two A50 SCSI Cable Routing

Table 6-14. A50 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1 <b>12</b> see Figure 6-24 on page 6-41	SCSI
2 <b>12</b> see Figure 6-24 on page 6-41	ESCON
3	(unused)
4	(unused)

Table 6-15. A50 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1 <b>12</b> see Figure 6-24 on page 6-41	SCSI 0
2 <b>12</b> see Figure 6-24 on page 6-41	ESCON 1
3 <b>12</b> see Figure 6-24 on page 6-41	ESCON 2
4 <b>12</b> see Figure 6-24 on page 6-41	SCSI 1

## Adding One A50 Controller in D14

- \_\_\_ 1. Remove the nine screws **1** that secure the lower RFI panel **2**.
- \_\_\_ 2. Slide the two drive at the top of the panel out and pull the RFI panel out from the top until it clears the drive.
- \_\_\_ 3. Pull the panel out. Discard the screws and RFI panel.
- \_\_\_ 4. Using nine screws install the new bottom RFI panel **2**.
  - \_\_\_ a. Counting from the bottom, leave the second and third screw holes (on both sides) empty. They will be used in a later step when the shelf adapter bracket is installed.
- \_\_\_ 5. Using four screws **8** (P/N 1624776, supplied), install the slide mounting bracket **9** (P/N 05H7446, supplied) locating pin into pin hole #52 (both left and right). **See Figure 6-26 on page 6-45 when performing the following steps.**
- \_\_\_ 6. Align the *2nd slot* on the adapter plate **2** (P/N 05H3148, supplied) to the *eighth slot* down (from the top, both left and right) on the lower RFI panel. Use four screws (**9**) (P/N 1624767, supplied) to attach the adapter plate.
- \_\_\_ 7. Insert the articulated arm **1** (P/N 05H9208, supplied) into the articulating mounting support hole within the adapter plate **2**.
- \_\_\_ 8. Install the two nut clips **20** (P/N 74F1823, supplied) through holes #10 and #11 (from the bottom) on the **right side only**.
- \_\_\_ 9. Assemble the slide assemblies:
  - \_\_\_ a. Using four screws **14** (P/N 1621190, supplied), attach the two slide mounting brackets **7** (P/N 05H9320, supplied) to the two slides **5** (P/N 05H9172, supplied).
  - \_\_\_ b. Using four screws **21** (P/N 1621190, supplied), attach the two slide mounting brackets **6** (P/N 05H9315, supplied) to the slides **5**.
- \_\_\_ 10. Install the slide assemblies:
  - \_\_\_ a. Push in the first slide until it comes in contact with the studs on the adapter plate **2**. Install two screws **19**, (P/N 1624778, 4 supplied) in rack hole #13 and #16 (counting from the bottom on the left side).
  - \_\_\_ b. Push in the second slide until it comes in contact with the studs on the adapter plate **9**. Install two screws **19**, in rack hole #13 and #16 (counting from the bottom on the right side).
- \_\_\_ 11. Proceed to the **INST** Section of the 3590 MI's for the purpose of installing the following:
  - \_\_\_ a. The 3590 Model B1A(s); AND
  - \_\_\_ b. The 3590 Model B1A SCSI cables to accommodate inter-drive cabling between the 3590 Model A50 and each 3590 Model B1A; AND
  - \_\_\_ c. Refer to the "Unpack and Install the A50 Controller" process, and attach the RS422 and RS232 hardware contained within FFBM 05H8121; AND
  - \_\_\_ d. Route the RS422 and RS232 cables through the bottom left side in the bottom RFI panel.
    - \_\_\_ 1) Take up all of the cable slack.
    - \_\_\_ 2) At the clamp point, strip the insulation and clamp the cables.
- \_\_\_ 12. Proceed to the **INST** Section of the 3494 MI's for the purpose of installing the following:
  - \_\_\_ a. The service cable (RS232 cable) panel hardware contained within FFBM 05H8101; AND
  - \_\_\_ b. The ARTIC adapter cable (RS422 cable).
- \_\_\_ 13. Using two screws **10** (P/N 6124778, supplied), attach the strain relief bracket **3** (P/N 05H2934, supplied) to the lower base plate **4** (P/N 05H9318, supplied).
- \_\_\_ 14. Using screw **12** (P/N 1624779, supplied), attach the cable clamp plate **11** (P/N 05H2629, supplied) to the strain relief bracket.
- \_\_\_ 15. Extend the two slides **5** into their service positions.
- \_\_\_ 16. Place the base plate **4** between the two slides, and install using four screws **15** (P/N 1621190, supplied).

- \_\_\_ 17. Using two screws **16** (P/N 1624779, supplied), attach the cable clamp bracket **8** (P/N 45G0181, supplied) to the two nut clips.
- \_\_\_ 18. Using screw **18** (P/N 1624779, supplied), attach the cable clamp plate **17** (P/N 05H2629, supplied) to the cable clamp bracket.
- \_\_\_ 19. Carefully inserting its feet into the square openings, place the A50 controller **13** on the base plate.
- \_\_\_ 20. Place the controller into its operating position.

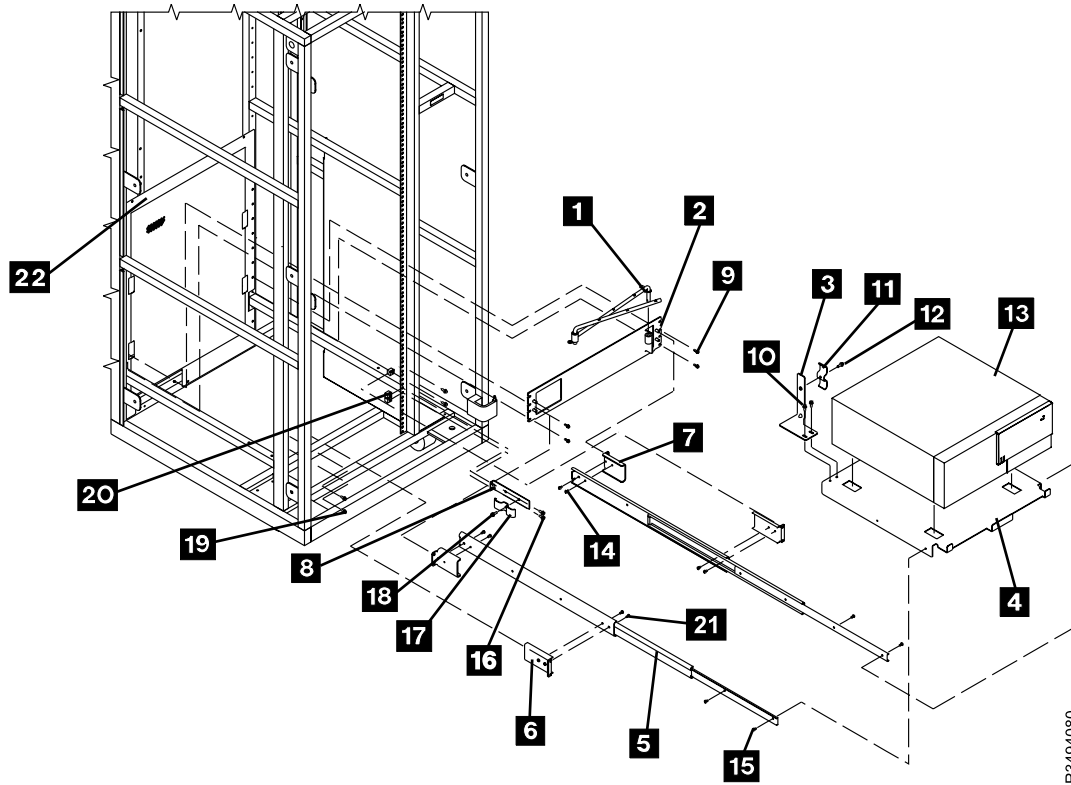


Figure 6-26. Installing the First 3590 A50 Controllers

- \_\_\_ 21. On the lower right corner of the rear control unit door, check to see if the correct power rating label (P/N 05H7609, supplied) is already in place. If appropriate, remove the old label (P/N 05H4113), and replace with the new label.
  - a. The old label has *P/N 05H4113* in the lower left corner, and **NO REFERENCE** to *CU* nor *DU* power ratings.
  - b. The new label has *P/N 05H7609* in the lower left corner, and reflects *CU = 6 AMPS MAX* and *DU = 7 AMPS MAX* on the same label.
- \_\_\_ 22. If previously removed, reinstall the side cover.
- \_\_\_ 23. Proceed to Section "Test Procedure" on page 6-51.

## Two Controller Installations

### Adding the First of Two Controllers in the D14

#### Notes:

1. This section deals with those installations where the total MES installation strategy involves the installation of TWO 3590 Model A50 controllers.
2. From the rear of the drive unit, perform the following steps.

See Figure 6-27 on page 6-47 (for items **1** through **22**) Figure 6-28 on page 6-48 (for items **23** through **38**) when performing the following steps.

1. Align the *2nd slot* on the first adapter plate **2** (P/N 05H3148, 2 supplied) to the eighth slot down (from the top, both left and right) on the lower RFI panel. Use four screws (**3**) (P/N 1624767, 8 supplied) to attach the adapter plate.
2. Align the *top slot* on the second adapter plate **24** (P/N 05H3148) to the *third slot* down (from the top, both left and right) on the lower RFI panel. Use four screws (**25**) (P/N 1624767) to attach the adapter plate.
3. Insert the first articulated arm **1** (P/N 05H9208, 2 supplied) into the articulating mounting support hole within the adapter plate **2**.
4. Insert the second articulated arm **23** into the articulating mounting support hole within the adapter plate **24**.
5. Install two nut clips **20** (P/N 74F1823, supplied) through holes #10 and #11 (from the bottom) on the **right side only**.
6. Assemble the slide assemblies:
  - a. Using eight screws (**14** and **33**) (P/N 1621190, supplied), attach the four slide mounting brackets (**7** and **32**) (P/N 05H9320, supplied) to the four slides (**5** and **26**) (P/N 05H9172, supplied).
  - b. Using eight screws (**21** and **34**) (P/N 1621190, supplied), attach the four slide mounting brackets (**6** and **37**) (P/N 05H9315, supplied) to the slides (**5** and **36**).
7. Install the slide assemblies:
  - a. Push in the first slide until it comes in contact with the studs on the lower adapter plate **2**. Using two screws **19**, (P/N 1624778, 8 supplied) install in rack hole #13 and #16 (counting from the bottom on the left side).
  - b. Push in the second slide until it comes in contact with the studs on the lower adapter plate **9**. Using two screws **19**, install in rack hole #13 and #16 (counting from the bottom on the right side).
  - c. Push in the third slide until it comes in contact with the studs on the upper adapter plate **24**. Using two screws **38**, install in rack hole #28 and #31 (counting from the bottom on the right side).
  - d. Push in the fourth slide until it comes in contact with the studs on the upper adapter plate **24**. Using two screws **38**, install in rack hole #28 and #31 (counting from the bottom on the left side).
8. Using two screws **10** (P/N 6124778, supplied), attach the strain relief bracket **3** (P/N 05H2934, supplied) to the lower base plate **4** (P/N 05H9318, supplied).
9. Using screw **12** (P/N 1624779, supplied), attach the cable clamp plate **11** (P/N 05H2629, supplied) to the strain relief bracket.
10. Extend the two lower slides **5** into their service positions.
11. Place the base plate **4** between the two slides, and install using four screws **15** (P/N 1621190, supplied).
12. Carefully inserting its feet into the square openings, place the A50 controller **13** on the base plate.

- \_\_ 13. Place the controller into its operating position.
- \_\_ 14. Using two screws **26** (P/N 6124778, supplied), attach the strain relief bracket **27** (P/N 05H2934, supplied) to the upper base plate **23** (P/N 05H9318, supplied).
- \_\_ 15. Using screw **29** (P/N 1624779, supplied), attach the cable clamp plate **28** (P/N 05H2629, supplied) to the strain relief bracket.
- \_\_ 16. Extend the two upper slides **24** into their service positions.
- \_\_ 17. Place the base plate **31** between the two slides, and install using four screws **35** (P/N 1621190, supplied).
- \_\_ 18. Using two screws **16** (P/N 1624779, supplied), attach the cable clamp bracket **8** (P/N 45G0181, supplied) to the two nut clips.
- \_\_ 19. Using screw **18** (P/N 1624779, supplied), attach the cable clamp plate **17** (P/N 05H2629, supplied) to the cable clamp bracket.
- \_\_ 20. Carefully inserting its feet into the square openings, place the A50 controller **30** on the base plate.
- \_\_ 21. Place the controller into its operating position.

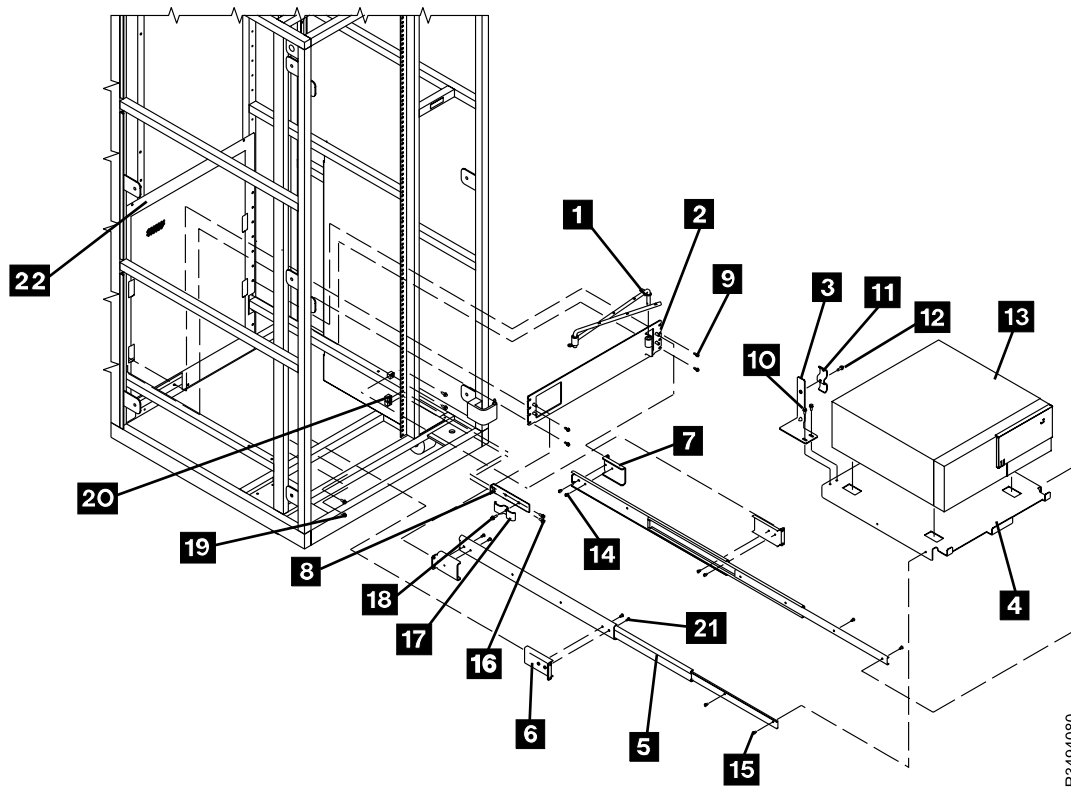


Figure 6-27. Installing the First of Two 3590 A50 Controllers

R3494080

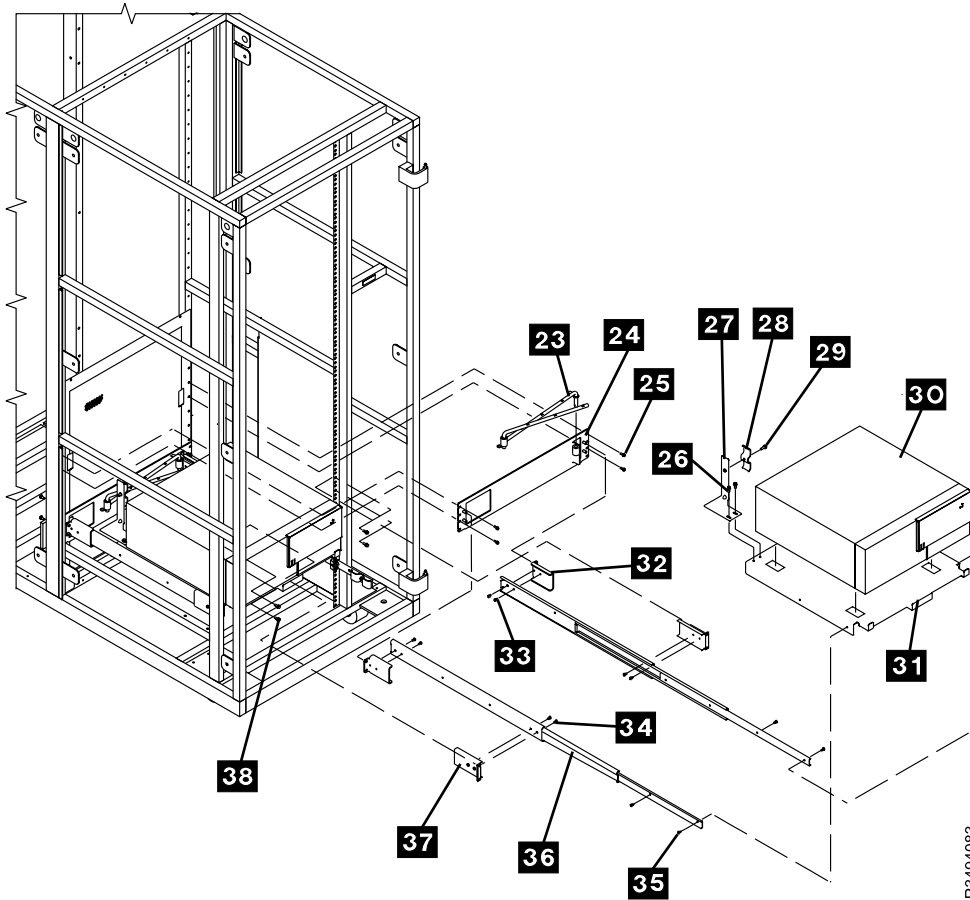


Figure 6-28. Installing the Second of Two 3590 A50 Controllers

- \_\_\_ 22. Place the cartridges that were removed into the new storage.
- \_\_\_ 23. On the lower right corner of the rear control unit door, check to see if the correct power rating label (P/N 05H7609, supplied) is already in place. If appropriate, remove the old label (P/N 05H4113), and replace with the new label.
  - \_\_\_ a. The old label has *P/N 05H4113* in the lower left corner, and **NO REFERENCE** to *CU* nor *DU* power ratings.
  - \_\_\_ b. The new label has *P/N 05H7609* in the lower left corner, and reflects *CU = 6 AMPS MAX* and *DU = 7 AMPS MAX* on the same label.
- \_\_\_ 24. Proceed to the **INST** Section of the 3590 MI's for the purpose of installing the following:
  - \_\_\_ a. The 3590 Model B1A(s); AND
  - \_\_\_ b. The 3590 Model B1A SCSI cables to accommodate inter-drive cabling between the 3590 control units and the 3590 tape units; AND
  - \_\_\_ c. Refer to the "Unpack and Install the A50 Controller" process, and attach the RS422 and RS232 hardware contained within FFBM 05H8121; AND
  - \_\_\_ d. Route the RS422 and RS232 cables through the bottom left side in the bottom RFI panel
    - \_\_\_ 1) Take up all of the cable slack.
    - \_\_\_ 2) At the clamp point, strip the insulation and clamp the cables.
- \_\_\_ 25. Proceed to the **INST** Section of the 3494 MI's for the purpose of installing the following:
  - \_\_\_ a. The service cable (RS232 cable) panel hardware contained within FFBM 05H8101; AND
  - \_\_\_ b. The ARTIC adapter cable (RS422 cable).
- \_\_\_ 26. If previously removed, reinstall the side cover.

\_\_ 27. Proceed to Section "Test Procedure" on page 6-51.

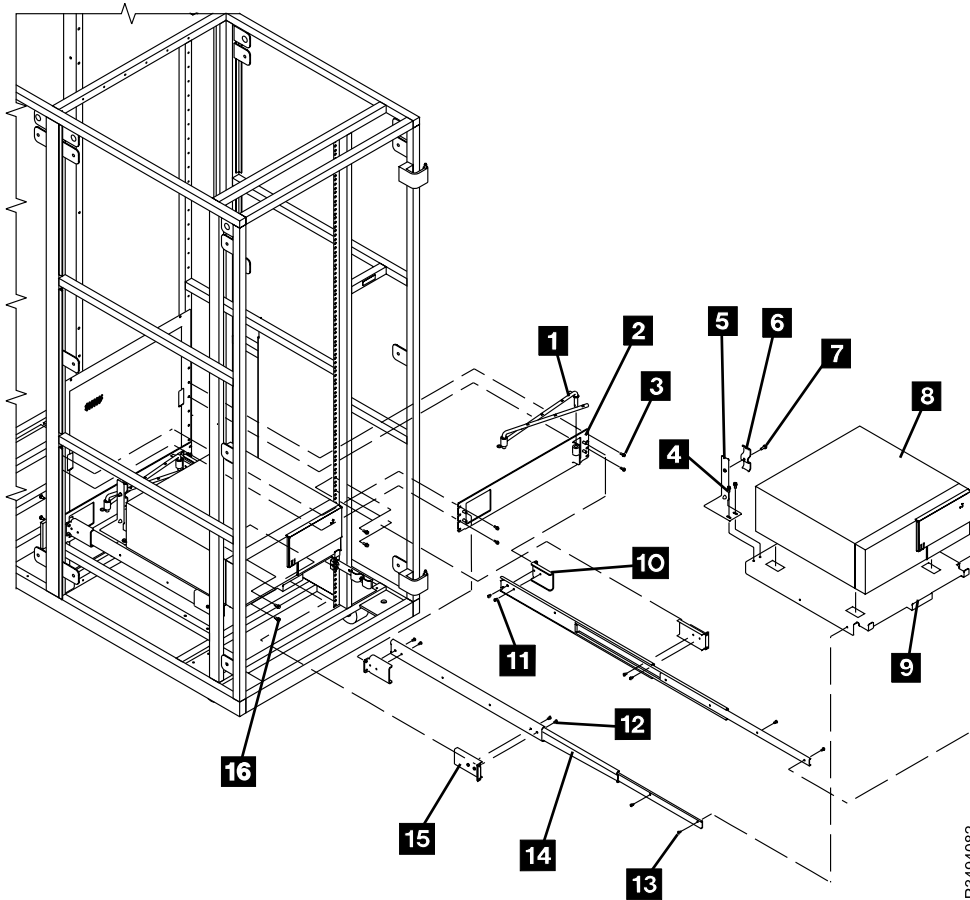
## Adding the Second of Two Controllers in the D14

**Note:** This section deals with those drive units that have ONE 3590 control unit (either Model A00 or Model A50) **previously installed**, and now plan to install the **SECOND** control unit (**Model A50 ONLY**). Refer back to the END OF the section that sent you here if this installation description does NOT match your final 3590 Model A50 installation strategy.

**Note:** From the rear of the drive unit, perform the following steps.

**See Figure 6-29 on page 6-50 when performing the following steps.**

- \_\_ 1. Align the *top slot* on the second adapter plate **2** (P/N 05H3148) to the *third slot* down (from the top, both left and right) on the lower RFI panel. Use four screws (**3**) (P/N 1624767) to attach the adapter plate.
- \_\_ 2. Insert the second articulated arm **1** into the articulating mounting support hole within the adapter plate **2**.
- \_\_ 3. Assemble the slide assemblies:
  - \_\_ a. Using four screws **11** (P/N 1621190, supplied), attach the two slide mounting brackets **10** (P/N 05H9320, supplied) to the two slides **14** (P/N 05H9172, supplied).
  - \_\_ b. Using four screws **12** (P/N 1621190, supplied), attach the two slide mounting brackets **15** (P/N 05H9315, supplied) to the slides **14**.
- \_\_ 4. Install the slide assemblies:
  - \_\_ a. Push in the first slide until it comes in contact with the studs on the upper adapter plate **2**. Using two screws **16**, install in rack hole #28 and #31 (counting from the bottom on the right side).
  - \_\_ b. Push in the second slide until it comes in contact with the studs on the upper adapter plate **2**. Using two screws **16**, install in rack hole #28 and #31 (counting from the bottom on the left side).
- \_\_ 5. Using two screws **4** (P/N 6124778, supplied), attach the strain relief bracket **5** (P/N 05H2934, supplied) to the upper base plate **1** (P/N 05H9318, supplied).
- \_\_ 6. Using screw **7** (P/N 1624779, supplied), attach the cable clamp plate **6** (P/N 05H2629, supplied) to the strain relief bracket.
- \_\_ 7. Extend the two upper slides **2** into their service positions.
- \_\_ 8. Place the base plate **9** between the two slides, and install using four screws **13** (P/N 1621190, supplied).
- \_\_ 9. Carefully inserting its feet into the square openings, place the A50 controller on the base plate.
- \_\_ 10. Place the controller into its operating position.



R3494082

Figure 6-29. Installing the Second 3590 A50 Controller

- \_\_\_ 11. Place the cartridges that were removed into the new storage.
- \_\_\_ 12. On the lower right corner of the rear control unit door, check to see if the correct power rating label (P/N 05H7609, supplied) is already in place. If appropriate, remove the old label (P/N 05H4113), and replace with the new label.
  - \_\_\_ a. The old label has *P/N 05H4113* in the lower left corner, and **NO REFERENCE** to *CU* nor *DU* power ratings.
  - \_\_\_ b. The new label has *P/N 05H7609* in the lower left corner, and reflects *CU = 6 AMPS MAX* and *DU = 7 AMPS MAX* on the same label.
- \_\_\_ 13. Proceed to the **INST** Section of the 3590 MI's for the purpose of installing the following:
  - \_\_\_ a. The 3590 Model B1A(s); AND
  - \_\_\_ b. The 3590 Model B1A SCSI cables to accommodate inter-drive cabling between the 3590 control units and the 3590 tape units; AND
  - \_\_\_ c. Refer to the "Unpack and Install the A50 Controller" process, and attach the RS422 and RS232 hardware contained within FFBM 05H8121; AND
  - \_\_\_ d. Route the RS422 and RS232 cables through the bottom left side in the bottom RFI panel
    - \_\_\_ 1) Take up all of the cable slack.
    - \_\_\_ 2) At the clamp point, strip the insulation and clamp the cables.
- \_\_\_ 14. Proceed to the **INST** Section of the 3494 MI's for the purpose of installing the following:
  - \_\_\_ a. The service cable (RS232 cable) panel hardware contained within FFBM 05H8101; AND
  - \_\_\_ b. The ARTIC adapter cable (RS422 cable).
- \_\_\_ 15. If previously removed, reinstall the side cover.



\_\_ 16. Proceed to Section "Test Procedure".

## Test Procedure

**Attention:** Selection of "Teach New" will erase the customer's data base. Therefore it is important that you DO NOT automatically select the default option when performing step 1.

- \_\_ 1. Select "Teach - Current Configuration" option on the Teach Pulldown Menu.
- \_\_ 2. If the 3494 subsystem will now contain **BOTH** 3490E AND 3590 drives, put the 3590 CE cartridge in cell 1A19 . If a customer volume is in cell 1A19, move the customer volume to an unused storage cell. Do not put the customer volume in a high-capacity output cell or in the error recovery cell.

**Note:** The 3590 CE cartridge must have a CE volume label and a type label J. If you are converting all of the frames in the library to 3590 frames, remove the old CE cartridge and place the 3590 CE cartridge in cell 1A20.

- \_\_ 3. Verify the Axx Controller to Drive SCSI connections, go to "Axx Controller to Drive SCSI Cabling Verification" on page 11-59
- \_\_ 4. Run the ESCON checkout procedure, refer to "ESCON System Interface Checkout" on page 11-26.
- \_\_ 5. Run "Verify Installation" on the Service pulldown menu.
- \_\_ 6. "Open Door Verification" will re-inventory the storage.

## Installing A50 Controller in L14

### Change Drive Cover Plate

**Note:** Skip the following step, and proceed to step 2 if this 3494 control unit does not have one 3590 model B1A already installed.

- \_\_ 1. From the rear of the control unit, press the drawer release latch and pull the drawer to the service position.

**See Figure 6-30 on page 6-52 when performing the following steps.**

**Note:** Perform the following steps from the front of the control unit.

- \_\_ 2. Remove the front two screws **1** from the teach bracket **2** , and tilt the bracket up. Set the screws to the side for reinstallation in a future step.

**Note:** Perform the following steps from the rear of the control unit. For ease of removal and installation, it is recommended that one C.E. be stationed on either side of the drive cover plate at the time of its replacement.

- \_\_ 3. Remove the fourteen screws **3** that are securing the current drive cover plate ( **4** or **6** ).
  - \_\_ a. Set the drive cover plate to the side for disposition.
  - \_\_ b. Set the screws to the side for installation in the next step.
- \_\_ 4. Using the fourteen screws removed in the previous step, install the new drive cover plate ( **4** or **5** ) (PN 05H4204 or PN 05H1955, supplied).

**Note:** Perform the following steps from the front of the control unit.

- \_\_ 5. Tilt the teach bracket **2** down, and secure with the two screws removed in Step 2.

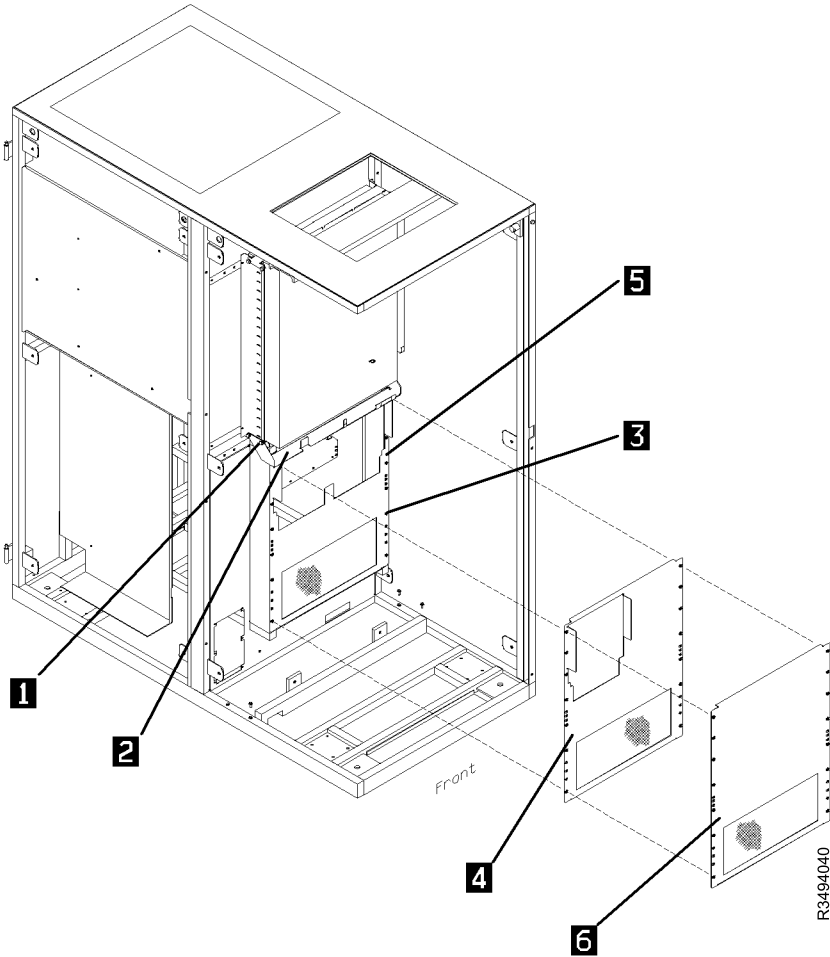


Figure 6-30. Change Drive Cover Plate

**Note:** Skip the following step, and proceed to step 7 if the drawer **was not** previously (within step 1 on page 6-51 ) placed into the service position.

- \_\_\_ 6. Press the drawer release latch and push the drawer to the operating position.
- \_\_\_ 7. Prior to proceeding to Section “Test Procedure” on page 6-51, proceed to the INSTALL section of the 3590 Maintenance Information manual for instructions pertinent to the installation of the 3590 B1A drive, including checkout and host cabling.

## Control Unit Installation

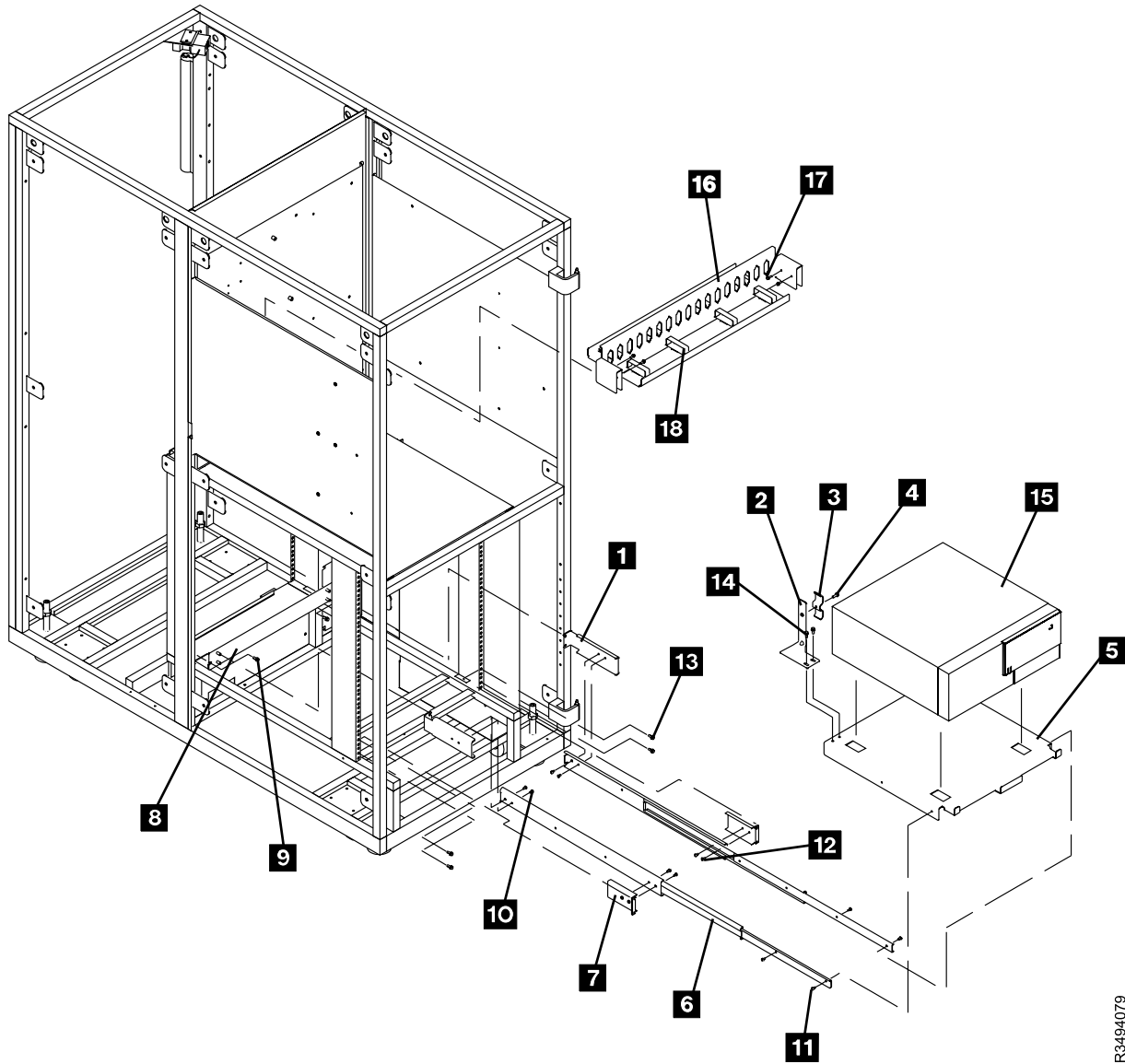
**Note:** For the purpose of installation within **this instruction** pin holes are to be counted from **the bottom of the rack up** towards the top of the rack. Pin holes are defined as the larger holes used by M5 or M6 screws that secure various brackets; and not the smaller holes used by M4 screws that installed the storage arrays and RFI panels.

**See Figure 6-31 on page 6-54 when performing the following steps.**

**Note:** Perform the following step from the rear of the control unit.

- \_\_\_ 1. Align the adapter plate **8** (P/N 05H3182, supplied) to the slot (from the top, both left and right) within the 19” rack hole pattern. Use two screws **9** (P/N 1624778, supplied) to attach the adapter plate.
- \_\_\_ 2. Assemble the slide assemblies:

- \_\_\_ a. Using four screws **12** (P/N 1621190, supplied), attach the two slide mounting brackets **7** (P/N 05H9315, supplied) to the two slides **6** (P/N 05H9172, supplied).
- \_\_\_ b. Using four screws **10** (P/N 1621190, supplied), attach the two slide mounting brackets **1** (P/N 05H9316, supplied) to the two slides **6**.
- \_\_\_ 3. Install the slide assemblies:
  - \_\_\_ a. Push in the first slide until it comes in contact with the studs on the adapter plate **8**. Using two screws **13** (P/N 1624778, 4 supplied), install in rack hole and (counting from the bottom on the left).
  - \_\_\_ b. Push in the second slide until it comes in contact with the studs on the adapter plate **8**. Using two screws **13**, install in rack hole and (counting from the bottom on the right).
- \_\_\_ 4. Using two screws **14** (P/N 1624778, supplied), attach the strain relief bracket **2** (P/N 05H9234, supplied) to the base plate **5** (P/N 05H9318, supplied).
- \_\_\_ 5. Using two screws **4** (P/N 1624779, supplied), attach the cable clamp plate **3** (P/N 05H2629, supplied) to the strain relief bracket **2**.
- \_\_\_ 6. Extend the two slides **6** into their service position.
- \_\_\_ 7. Place the base plate **5** between the two slides, and install using four screws **11** (P/N 1622190, supplied).
- \_\_\_ 8. Carefully inserting its feet into the square openings, place the A50 controller **15** on the base plate.
- \_\_\_ 9. Place the controller into its operating position.
- \_\_\_ 10. Proceed to the **INST** Section of the 3590 MI's for the purpose of:
  - \_\_\_ a. Installing the 3590 Model B1A(s); AND
  - \_\_\_ b. Attaching the RS422/RS232 hardware (referring to the "Unpack and Install the 3590 Controller" process) contained within FFBM 05H8120.
- \_\_\_ 11. Proceed to the **INST** Section of the 3494 MI's for the purpose of:
  - \_\_\_ a. Installing the service cable (RS 232 cable) panel hardware within FFBM 05H8101; AND
  - \_\_\_ b. Installing the ARTIC adapter cable (RS422 cable).
- \_\_\_ 12. Proceed to Section "Test Procedure" on page 6-51.



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Figure 6-31. Model L14 Installation of A50 Controller

## Test Procedure

**Attention:** Selection of “Teach New” will erase the customer’s data base. Therefore, it is important that you DO NOT automatically select the default option when performing step 1 on page 6-51.

- \_\_\_ 1. Connect the MoST.
- \_\_\_ 2. Select “Teach - Current Configuration” option on the Teach Pulldown Menu.

**Note:** Skip the following step if the 3590 Model A50 was previously installed.

- \_\_\_ 3. Verify the Axx Controller to Drive SCSI connections, go to “Axx Controller to Drive SCSI Cabling Verification” on page 11-59.
- \_\_\_ 4. Run ESCON Checkout procedure; refer to “ESCON System Interface Checkout” on page 11-26.
- \_\_\_ 5. Run “Verify Installation” (on the Service Pulldown menu) for the drive just installed.

## Installing A50 Controller in RACK

**Note:** If the RACK has an existing A00 controller installed, it must be completely removed with existing hardware and attached cables before continuing.

### A50 Control Unit Installation

See Figure 6-32 on page 6-56 when performing the following steps.

**Note:** For the purpose of installation within **this instruction** pin holes are to be counted from **the bottom of the rack up** towards the top of the rack. Pin holes are defined as the larger holes used by M5 or M6 screws that secure various brackets; and not the smaller holes used by M4 screws that installed the storage arrays and RFI panels.

**Note:** Perform the following step from the rear of the control unit.

- \_\_\_ 1. Assemble the slide assemblies:
  - \_\_\_ a. Using four screws attach the two slide mounting brackets **7** (P/N 05H9315, supplied) to the two slides **4** (P/N 05H9172, supplied).  
  
Install the slide assemblies:
    - \_\_\_ a. Push in the first slide until it is flush with the RACK.
    - \_\_\_ b. Install in rack hole 2 (counting from the bottom on the left).
    - \_\_\_ c. Push in the second slide until it is flush with the RACK. Using two screws install in rack hole 2 (counting from the bottom on the right).
- \_\_\_ 2. Using two screws attach the strain relief bracket **5** (P/N 05H9234, supplied) to the base plate **3** (P/N 05H9318, supplied).
- \_\_\_ 3. Using two screws attach the cable clamp plate (P/N 05H2629, supplied) to the strain relief bracket **5**.
- \_\_\_ 4. Extend the two slides **4** into their service position.
- \_\_\_ 5. Place the base plate **3** between the two slides, and install using four screws.
- \_\_\_ 6. Carefully inserting its feet into the square openings, place the A50 controller **2** on the base plate.
- \_\_\_ 7. Place the controller into its operating position.
- \_\_\_ 8. Install the articulating arm **1** to the right slide mounting bracket **6**. Do not use any retention hardware.
- \_\_\_ 9. Proceed to the **INST** Section of the 3590 MI's for the purpose of:
  - \_\_\_ a. Installing the 3590 Model B1A(s); AND
  - \_\_\_ b. Attaching the RS422/RS232 hardware (referring to the "Unpack and Install the 3590 Controller" process) contained within FFBM 05H8120.
- \_\_\_ 10. Proceed to the **INST** Section of the 3494 MI's for the purpose of:
  - \_\_\_ a. Installing the service cable (RS 232 cable) panel hardware within FFBM 05H8101; AND
  - \_\_\_ b. Installing the ARTIC adapter cable (RS422 cable).
- \_\_\_ 11. Proceed to Section "Test Procedure" on page 6-54.

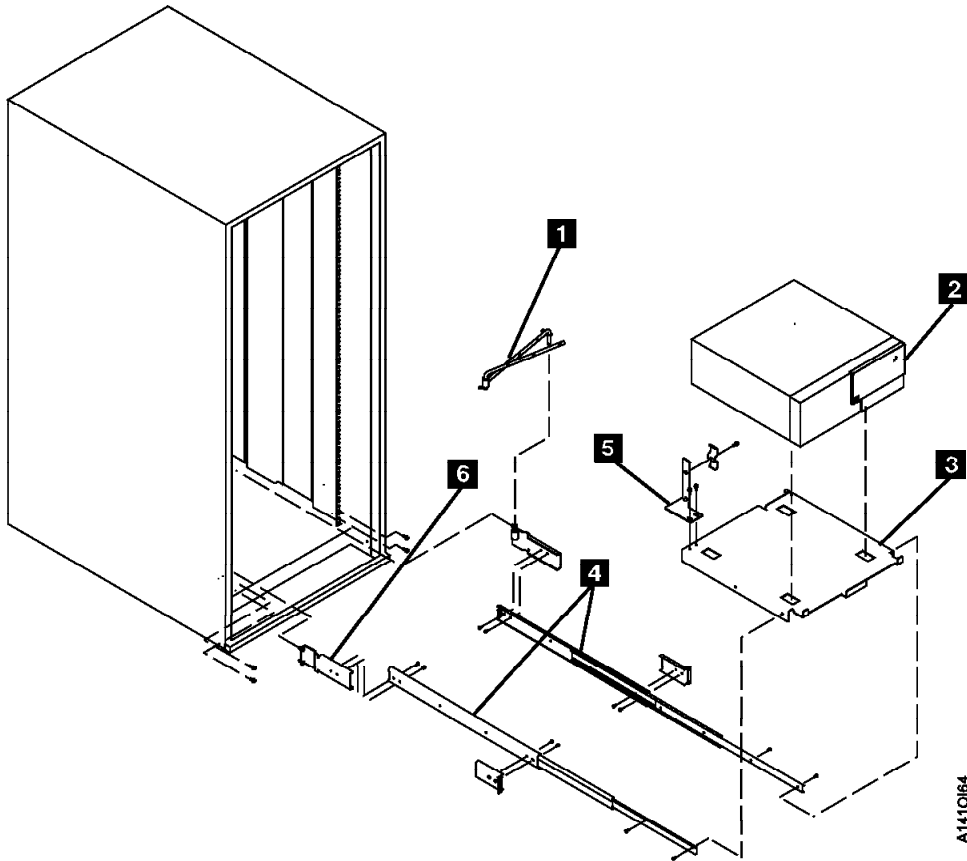


Figure 6-32. RACL Model Installation of A50 Controller

\_\_\_ 12. Run “A00/A50 Common Installation Procedures”.

## A00/A50 Common Installation Procedures

### Voltage Checks

The 3590 A00/A50 is designed for connection to IT (impedance-grounded neutral) power subsystems.

**Attention:** High grounding conductor current. Grounding circuit continuity is vital for safe operation of machine. Never operate machine with grounding conductor disconnected.

\_\_\_ 1. Determine the type of connector on the customer receptacle.

**Note:** In some World Trade countries no connector is used and the cable is wired directly to the building power source.

### CAUTION:

If any of the conditions in the following text are not as described, *do not proceed with the installation and do not allow anyone to come into contact with the metal parts.* Contact the customer to have the improper voltage or resistance conditions corrected before proceeding.

## DANGER

**Use only test probes to touch the shell of a metal outlet until the customer corrects any improper voltage or resistance.**

- \_\_\_ 2. If the outlet case is conductive (metal), measure for 0 V ac from building ground to the outlet case. For details, see “Safe-to-Handle Check” under “Miscellaneous Safety Tips” in *Electrical Safety for IBM Customer Engineers*.
- \_\_\_ 3. Measure for 0 V ac from the ground pin of the outlet to building ground. For details, see “Power Receptacle Safety Check” in *Electrical Safety for IBM Customer Engineers*.
- \_\_\_ 4. Measure for less than 1-ohm resistance from the ground pin of the outlet to building ground and from the ground pin of the 3590 Model A00 drive frame power cord to the drive frame.

**Note:** Digital meters may give unstable readings if leakage current is flowing in the building ground circuit. If the reading is unstable or is greater than 1 ohm, contact your installation planning representative.

- \_\_\_ 5. Measure the customer-supplied voltage. The nominal voltage is single-phase 200 to 240 V ac. The minimum is 180 V ac and the maximum is 259 V ac RMS. Write the voltage here:

V ac

- \_\_\_ 6. Have the customer switch off the branch circuit CBs before connecting the drive frame power cord into the outlet.
- \_\_\_ 7. Connect customer power to the drive frame.
- \_\_\_ 8. Have the customer switch on the branch circuit CBs.

## A00 Controller Stand-Alone Power On and Checkout

### A00/A50 Stand-Alone Power On and Checkout

The A00 Controller A00/A50 is ready to be powered up and checked out, but first, **Power on all the drives in this frame so that when the A00 Controller A00/A50 comes up, it will configure all the drives as present.** Perform the following:

1. Power on all the drives in this frame.
2. Set the power switch on the A00 Controller system unit to Off.
3. Set the mode switch to the **Normal** or **OK** position.
4. Wait 10 seconds.
5. Turn on system power.
6. Verify that the A00 Controller Power Light is **On**.
7. Your system unit should now perform POST Diagnostics and a normal initial program load (IPL).
8. Wait until one of the following occurs:
  - a. The same number is displayed in the three-digit display for more than three minutes (error condition).
  - b. The number **888** flashes in the three-digit display (error condition).
  - c. The three-digit display is blank for more than 1 minute at the end of the test (normal completion).

Here is a summary on what to expect. For more information, refer to *7009 Compact Server Service Guide*, SA23-2716 for the power on procedure, how to run diagnostics, and maintenance analysis procedures (MAPs) in case a problem is found.

**Operator Panel Display:** The operator panel display performs the following functions:

1. Tracks and controls the progress of the BIST, POST, and configuration programs.
2. Displays a crash message when the system control program comes to an abnormal end.

3. Displays a diagnostic program message when there is no console display present.

When a flashing 888 is displayed in the operator panel display, a crash message or a diagnostic message is waiting to be read.

**Automatic Diagnostic Tests:** All of the automatic diagnostic tests run after the system unit is turned on and before the AIX operating system is loaded. The automatic tests also run when the system is reset after a check stop.

The automatic diagnostic tests display numbers in the three-digit display to track test progress. If a test stops, the number for that test remains displayed to identify the unsuccessful test.

If the test runs successfully, return to the step that sent you here. If a failure occurs, go to *7009 Compact Server Service Guide*, SA23-2716 for the power on procedure, how to run diagnostics, and maintenance analysis procedures (MAPs) in case a problem is detected, and resolve the problem with that manual.

### Checkout of Drives from A00/A50 Interface

Perform a checkout of each drive in the frame you are installing:

If you are here from installing the second SCSI adapter in the A00 controller, you will be testing the previously unused SCSI Port 1 of each of the installed drives. Port 1 of each drive must have its address set.

**Note:** Do **NOT** change the tape drive SCSI Port 0 address on any of the drives.

Do the following before proceeding with the checkout below:

1. Continue with installation at "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13, then return here.
2. Set the SCSI Port 1 address for each of the drives according to the SCSI address table (see Table 6-22 on page 6-68). Use the procedure in *IBM 3590 Tape Subsystem Models B11 and B1A MI*, PROC section, under "Set Address Menu", to set the address from each of the drive's operator panel. The table shows full configuration of 6 drives. Your configuration may have less than 6 drives
3. Refer to "Running Diagnostics from the A00 or A50 Controller" on page 11-34 and select utilities that exercise the read and write circuits of each tape drive installed. The diagnostics are listed under Diagnostic Routines in the Advanced Diagnostics area of the procedure.
4. Select the tape utility to access the read/write tests.
5. Run the write and read options.
6. Load and Unload tape each time.
7. Remove the scratch cartridge when complete.
8. Return to the step that sent you here.

### Attaching the Host ESCON Cable(s)

Refer to Figure 6-33 on page 6-60 and attach the host ESCON cable(s) using the following procedure:

- \_\_\_ 1. If this installation is part of a 3494 subsystem, you must make sure that the VPD has been set up to make the connection between the A00 Controller and the Library. This can be done as follows:
  - a. From the main maintenance menu, select **Subsystem Configuration** Refer to Figure 4-2 on page 4-3.
  - b. From the Subsystem Configuration menu, select **Show/Change Vital Product Data**. Refer to "Model A00/A50 Menu Tree" on page 4-3.
  - c. From the Show/Change Vital product menu, select **Show/Change Control Unit Vital Product Data**. Refer to "Model A00/A50 Menu Tree" on page 4-3.
  - d. From the Show/Change Vital product menu, select **Add/Change Control Unit Vital Product Data**. Refer to "Model A00/A50 Menu Tree" on page 4-3.



- e. From the Add/Change Vital Product menu, select **Library Interface** Select Library Interface and press F4. Refer to "Model A00/A50 Menu Tree" on page 4-3.
- f. In the pop-up window, change the setting from **/dev/null** to **/dev/tty1** Refer to "Model A00/A50 Menu Tree" on page 4-3.

**Note:** There is now a connection between the and A00 and the Library. You can exit the maintenance menus by pressing the F10 key.

- \_\_\_ 2. Use the following procedure to route and attach the customer host ESCON cable to the Model A00 ESCON adapter in slot 3. If a second host ESCON cable is to be installed, attach it to the ESCON adapter in slot 4. See Figure 6-33 on page 6-60, Table 6-16 on page 6-62, and Table 6-17 on page 6-62.
  - a. Lay the ESCON host cable over the top of the A00 Controller, slightly hanging down the back (see **8** on Figure 6-35 on page 6-63.)
  - b. Move the A00 Controller out far enough to install the ESCON cable(s) to the back of the Model A00 Adapter Slots 3 and 4 (see Figure 6-33 on page 6-60 and Figure 6-35 on page 6-63).

**Notes:**

- 1) The following legend describes Figure 6-35 on page 6-63:

- 1** Power Connector
- 2** Connector to the LM ARTIC Port

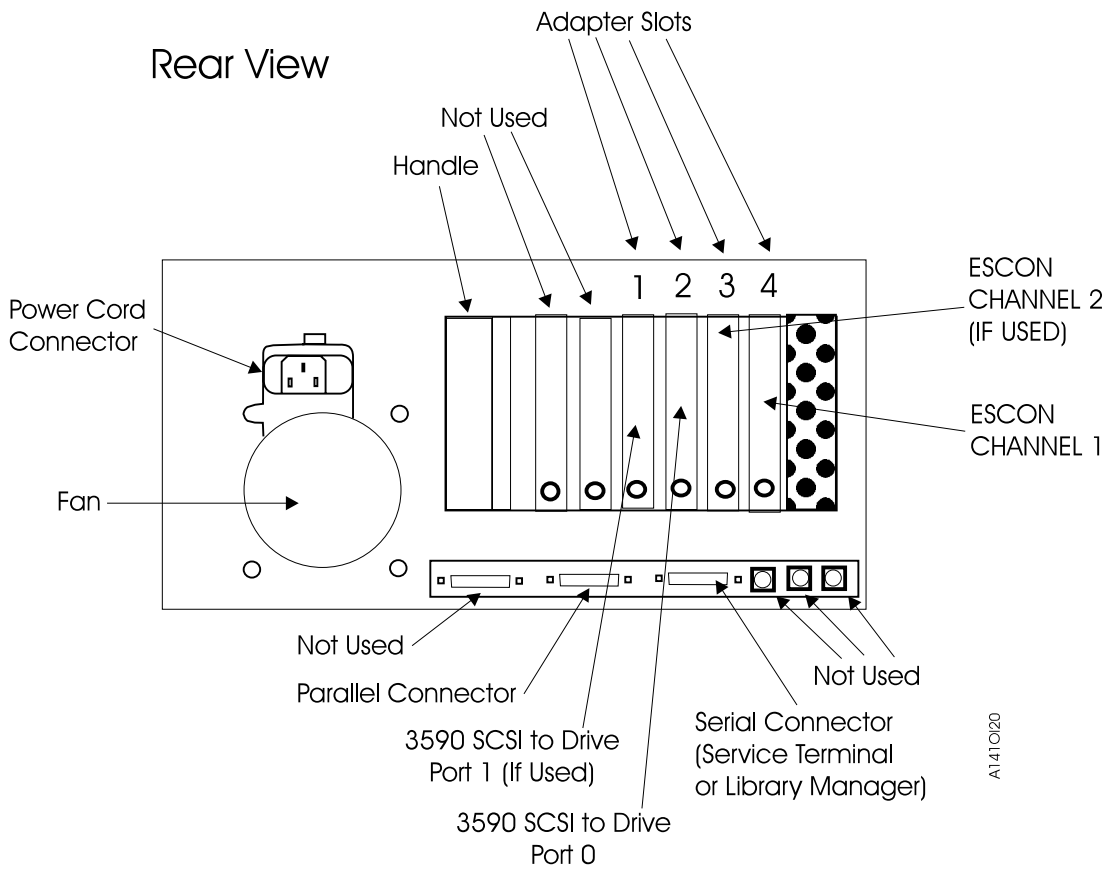
**Notes:**

- a) Some Cable connectors on the "Y" cable will be labeled S0 and S1, other connectors may be labeled S1 and S2. Shown here Are S1 and S2, however if your connectors are labeled differently, put them in the same sequence. for example S0 goes to the same position as S1 and S1 would connect the same as S2.

- 3** RS232 to RS422 Converter
- 4** S2 connection on Y cable (LM ARTIC Connection)
- 5** RISC internal SCSI bus Terminator
- 6** S1 connection on Y cable (Service Terminal Connection)
- 7** RISC/6000 (A00 Control Unit)
- 8** Cable Clamp for all cables attached at the back of the A00, including the ESCON cables

- c. When complete, move the A00 controller back onto the shelf bracket, and secure the holding bracket with the two screws provided.
- \_\_\_ 3. Perform the procedure at "Host Interface Checkout" on page 6-67, then return here.
- \_\_\_ 4. Save the ESCON Wrap Plug for future service if needed.
- \_\_\_ 5. Order Diagnostic CD ROM, P/N 40H3394 for future diagnostic and repair use if it was not sent with the shipping group. **You may need this on hand in the future.**

Now return to the 3494 INST section and complete installation from that manual. Use that manual's Post Installation Reporting.



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Figure 6-33. A00 Controller Cable Connections

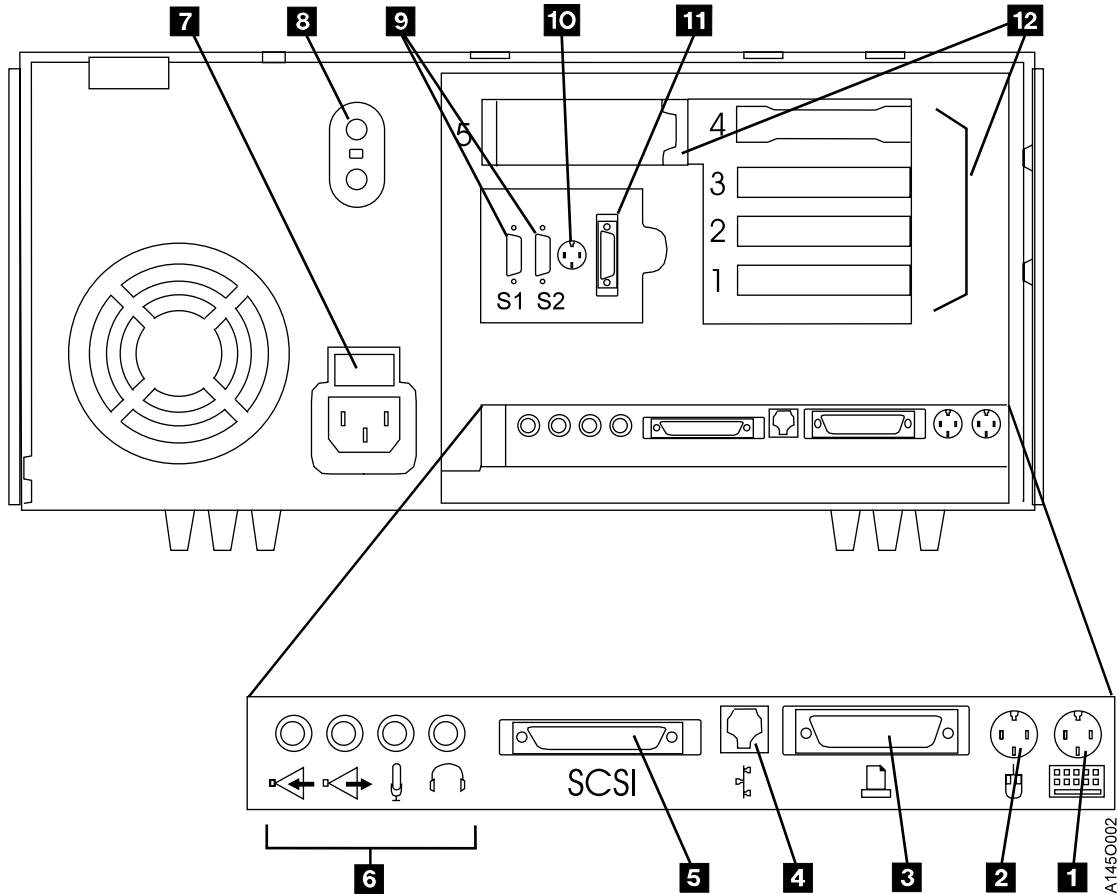


Figure 6-34. A50 Cable Connections

The A50 Controller, refer to Figure 6-34, is described as follows:

- **1** Keyboard Port
- **2** Mouse Port
- **3** Parallel Port
- **4** 10BaseT Ethernet Port
- **5** External SCSI Port
- **6** Audio Ports
- **7** Cover Lock: Security feature
- **8** Security tether attachment
- **9** 9-Pin Serial Ports
- **10** Tablet Port
- **11** 10Base5 Ethernet Port
- **12** Expansion Slots (SCSI and ESCON)

## Adapter Plugging (ESCON and SCSI) for the A00 Controller

In the field there are two type of SCSI adapter cards used for the A00 controller. One of these types contain a heat sink and require that the Adapter plugging be changed from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 6-16 on page 6-62, and Table 6-17 on page 6-62.

P/N 05H3090 is the new type with the heat sink, adapter plugging is shown in Table 6-19, and Table 6-18.

Table 6-16. A00 With FC 3311 (Single SCSI, Single ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H2842 (non heat sinked)
2	(unused)
3	ESCON - 51H8701
4	(unused)

Table 6-17. A00 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H2842 (non heat sinked)
2	SCSI 1 - SCSI Card P/N 40H2842 (non heat sinked)
3	ESCON 1 - 51H8701
4	ESCON 2 - 51H8701

Table 6-18. A00 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1	ESCON - 51H8701
2	(unused)
3	SCSI - SCSI Card P/N 05H3090 (heat sinked)
4	(unused)

Table 6-19. A00 With FC 3312

Adapter Slot	Adapter Plug
1	ESCON 1 - 51H8701
2	ESCON 2 - 51H8701
3	SCSI 0 - SCSI Card P/N 05H3090 - (heat sinked)
4	SCSI 1 - SCSI Card P/N 05H3090 - (heat sinked)

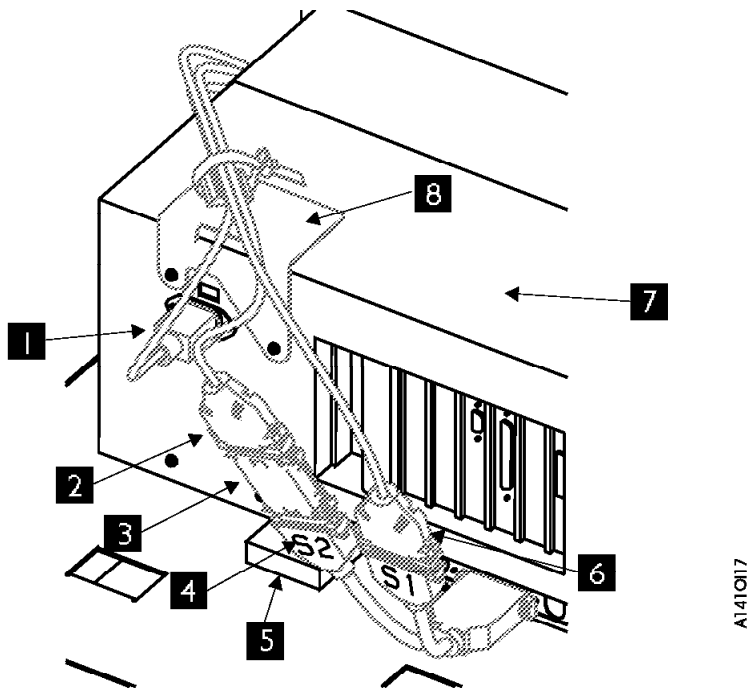


Figure 6-35. A00 Controller Cable Clamp and Cable Routing

## Attaching the A00/A50 Host ESCON Cable(s)

To attach the A00 CU, refer to Figure 6-33 on page 6-60, and attach the host ESCON cable(s) using the following procedure.

To attach the A50 CU, refer to Figure 6-34 on page 6-61, and attach the host ESCON cable(s) using the following procedure.

1. Continue with installation at “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13, then return here.

### Notes:

- a. If this installation is part of a 3494 subsystem, you must make sure that the VPD has been set up to make the connection between the A50 and the Library. This can be done as follows:
  - 1) From the main maintenance menu, select **Subsystem Configuration**. Refer to Figure 4-2 on page 4-3.
  - 2) From the Subsystem Configuration menu, select **Show/Change Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  - 3) From the Show/Change Vital product menu, select **Show/Change Control Unit Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  - 4) From the Show/Change Vital product menu, select **Add/Change Control Unit Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  - 5) From the Add/Change Vital Product menu, select **Library Interface** Select Library Interface and press F4. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  - 6) In the pop-up window, change the setting from **/dev/null** to **/dev/tty1** Refer to “Model A00/A50 Menu Tree” on page 4-3.

**Note:** There is now a connection between the A50 and the Library. You can exit the maintenance menus by pressing the F10 key.

- \_\_\_ 2. Use the following procedure to route and attach the customer host ESCON cable to the Model A00 ESCON adapter in slot 3. If a second host ESCON cable is to be installed, attach it to the ESCON adapter in slot 4. See Figure 6-33 on page 6-60, Table 6-20 on page 6-66, and Table 6-21 on page 6-66.
  - a. Lay the ESCON host cable over the top of the A50 slightly hanging down the back, (see **8** on Figure 6-35 on page 6-63.)
  - b. Move the A50 out far enough to install the ESCON cable(s) to the back of the Model A00 Adapter Slots 3 & 4 (see Figure 6-33 on page 6-60 and Figure 6-35 on page 6-63).

**Notes:**

- 1) The following legend describes Figure 6-35 on page 6-63:

- 1** Power Connector.
- 2** Connector to the LM ARTIC Port

**Notes:**

- a) Some Cable connectors on the 'Y' cable will be labeled S0 and S1, other connectors may be labeled S1 and S2. Shown here Are S1 and S;, however, if your connectors are labeled differently, put them in the same sequence. For example, S0 goes to the same position as S1 and S1 would connect the same as S2.

- 3** RS232 to RS422 Converter
  - 4** S2 connection on Y cable (LM ARTIC Connection)
  - 5** RISC internal SCSI bus Terminator
  - 6** S1 connection on Y cable (Service Terminal Connection)
  - 7** RISC/6000 (A50 Control Unit)
  - 8** Cable Clamp for all cables attached at the back of the A50, including the ESCON cables
- c. When complete, move the A50 back onto the shelf bracket, and secure the holding bracket with the two screws provided.

- \_\_\_ 3. Perform the procedure at "Host Interface Checkout" on page 6-67, then return here.
- \_\_\_ 4. Save the ESCON Wrap Plug for future service if needed.
- \_\_\_ 5. Order Diagnostic CD ROM, P/N 40H3394 for future diagnostic and repair use if it was not sent with the shipping group. **You may need this on hand in the future.**

Now return to the 3494 INST section and complete installation from that manual. Use that manual's Post Installation Reporting.

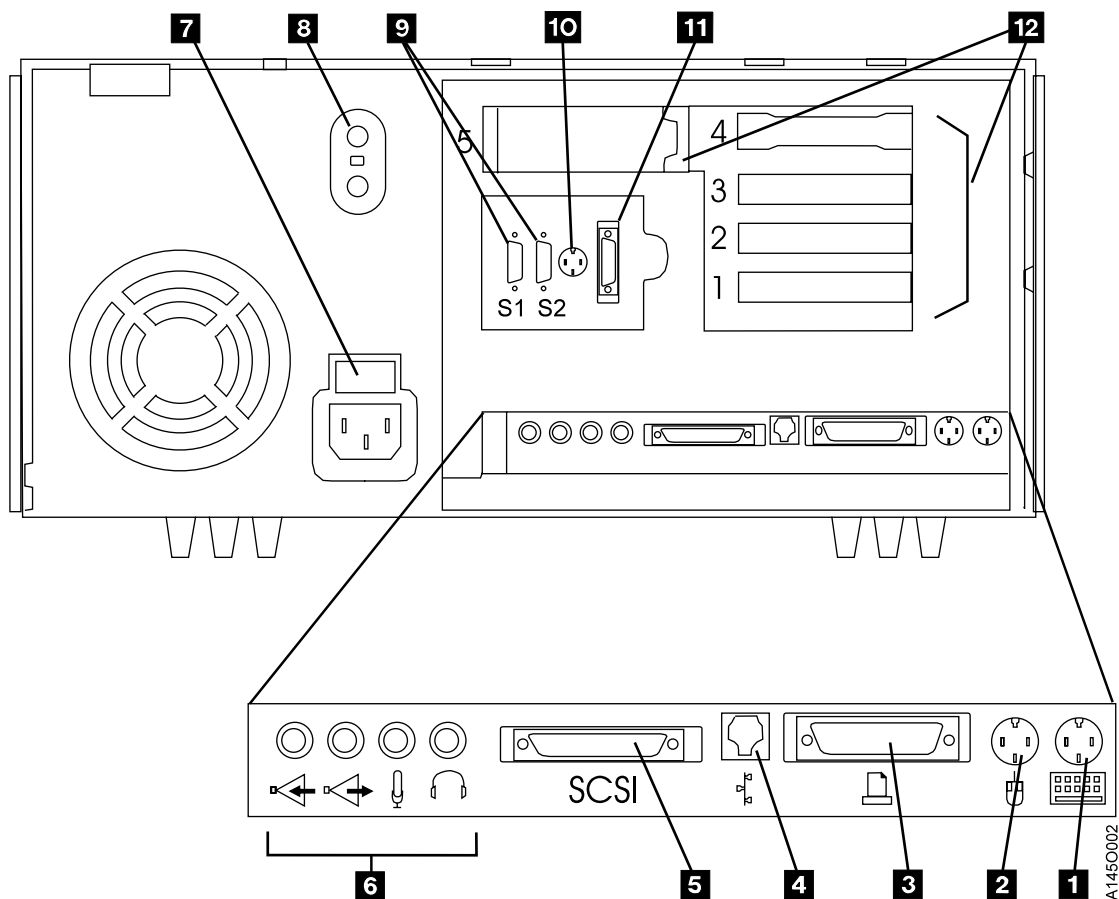


Figure 6-36. A50 Cable Connections

## A50 Connections

1. **1 Keyboard Port:** For keyboard port
2. **2 Mouse Port:** For mouse connection.
3. **3 Parallel Port:** For connecting a parallel printer or other parallel devices.
4. **4 10BaseT Ethernet Port:** For attaching your computer to an Ethernet/Twisted pair connection through a 10BaseT connector.
5. **5 External SCSI Port:** For connecting external SCSI devices.
6. **6 Audio Ports:**
  - Headphone
  - Microphone
  - Audio line out
  - Audio line in
7. **7 Voltage-Selection Switch** Select either 115-V or 230-V setting.
8. **8 Security Tether Attachment:** Attachment point for a security tether.
9. **9 9-Pin Serial Ports:** For a TTY terminal, Modem, or other serial device.
10. **10 Tablet Port:** For attaching a digitizing tablet to your computer.
11. **11 10Base5 Ethernet Port:** For attaching your computer to an Ethernet thick connection (or Ethernet thin) connection, using an optional transceiver through a 10Base5 connector.

12. **12 Expansion Slots:** For adding ISA and PCI adapters.

Table 6-20. A50 With FC 3311 (Single SCSI, Single ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI - 40H6593
2	ESCON - 51H8712
3	(unused)
4	(unused)

Table 6-21. A50 With FC 3312 (Dual SCSI, Dual ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI 0 - 40H6593
2	ESCON 0 - 51H8712
3	ESCON 1 - 51H8712
4	SCSI 1 - 40H6593

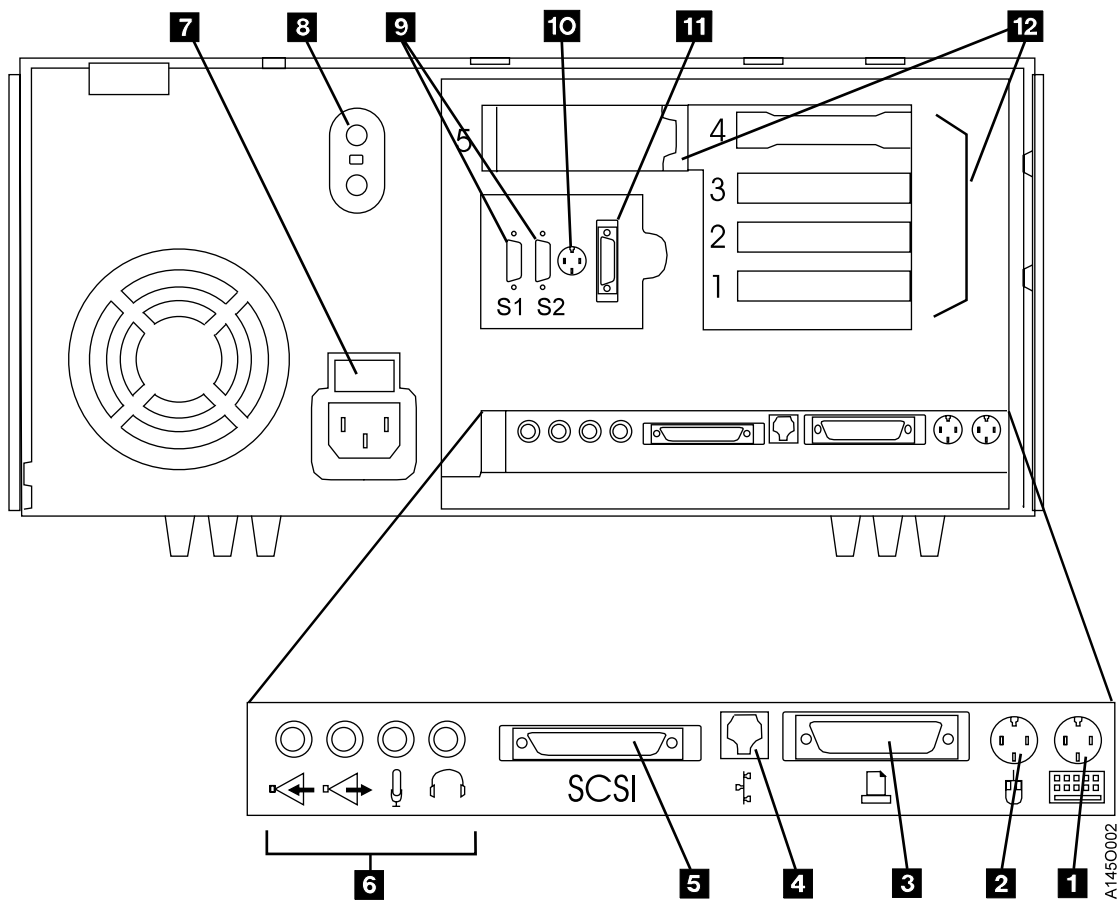


Figure 6-37. A50 Cable Clamp and Cable Routing



## IBM 3590 A00/A50 Subsystem Microcode

Should there be a reason that new A00/A50 microcode or the A00/A50 AIX operating system need to be installed in your A00/A50 see “3590 A00/A50 Subsystem Microcode Addition or Activation” on page 11-7 or “Installing AIX in the A00 Controller Environment” on page 11-3 and then return here and continue with install.

## Host Interface Checkout

Have the customer bring the 3590 A00/A50 Bxx subsystem on line to checkout the ESCON interface. If two hosts will be attached to Model A00, ensure that both ESCON interfaces are verified by the customer.

## Determining if or how to set the Library Connection

If you are installing this control unit in a 3494 Library, you must make sure that the VPD is set correctly, however if the control unit you are installing was previously in a library but is now being installed in some other frame, that the VPD is also set to tell the CU that it is not part of a Library. The procedure shown in “Making the A00/A50 to Library Connection” lets you set up the library connection by setting `/dev/null` to `/dev/null/tty1` this tells the CU that it is part of a library subsystem. If this CU is not part of a library subsystem, use the procedure in “Making the A00/A50 to Library Connection” to ensure that the VPD setting is set to `/dev/null`.

## Making the A00/A50 to Library Connection

It is necessary to set up the A00/A50 to talk to the library manager. This is done by using the 3590 Service option either from the Service Terminal or EBTERM in the library manager. If you are using EBTERM make sure that this program has been installed in the library manager, (see “Installing EBTERM or Terminal Emulator in a 3494 Library Manager” on page 11-16) before starting the following procedure. If the Control Unit code level is lower than 1.10.x.xx go to 1. If the Control unit code level is 1.10.x.xx or higher go to 2.

1. From the main maintenance menu, select **Subsystem Configuration** Refer to Figure 4-2 on page 4-3.
  2. From the Subsystem Configuration menu, select **Show/Change Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  3. From the Show/Change Vital product menu, select **Show/Change Control Unit Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  4. From the Show/Change Vital product menu, select **Add/Change Control Unit Vital Product Data**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  5. From the Add/Change Vital Product menu, select **Library Interface** Select Library Interface and press F4. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  6. In the pop-up window, change the setting from `/dev/null` to `/dev/tty1` Refer to “Model A00/A50 Menu Tree” on page 4-3.
1. There is now a connection between the Control Unit and the Library. You can exit the maintenance menus by pressing the F10 key.
  2. From the main maintenance menu, select **Subsystem Configuration** Refer to Figure 4-2 on page 4-3.
  3. From the Subsystem Configuration menu, select **Show/Change Library Attachment Configuration**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  4. From the Show/Change Vital product menu, select **Change Library Attachment Configuration**. Refer to “Model A00/A50 Menu Tree” on page 4-3.
  5. Type or select values in the entry fields.
  6. Press **ENTER** after making all desired changes.

---

## 3590 A00/A50 Controller SCSI Cabling

The A00/A50 controller SCSI adapters (slot 1 and 2) cable connections to the SCSI drives are shown in Table 6-22 on page 6-68.

Table 6-22. Controller to Drive SCSI Cable Connections

SCSI Adapter Slot 1/Drive Port 0	SCSI Adapter Slot 2/Drive Port 1
Drive 0 -> Address = 0	Drive 0 -> Address = 6
Drive 1 -> Address = 1	Drive 1 -> Address = 5
Drive 2 -> Address = 2	Drive 2 -> Address = 4
Drive 3 -> Address = 3	Drive 3 -> Address = 3

**Note:** The table shows the maximum number of four (4) 3590 drives, however your subsystem may not have the maximum number. Cable according to the table up to the number of 3590 drives that your subsystem contains.

The diagram shown in Figure 6-38 shows how the two SCSI adapters in the A00 Controller are connected to the 3590 drives.

The diagram shown in Figure 6-38 shows how the two SCSI adapters in the A00/A50 Controller are connected to the 3590 drives.

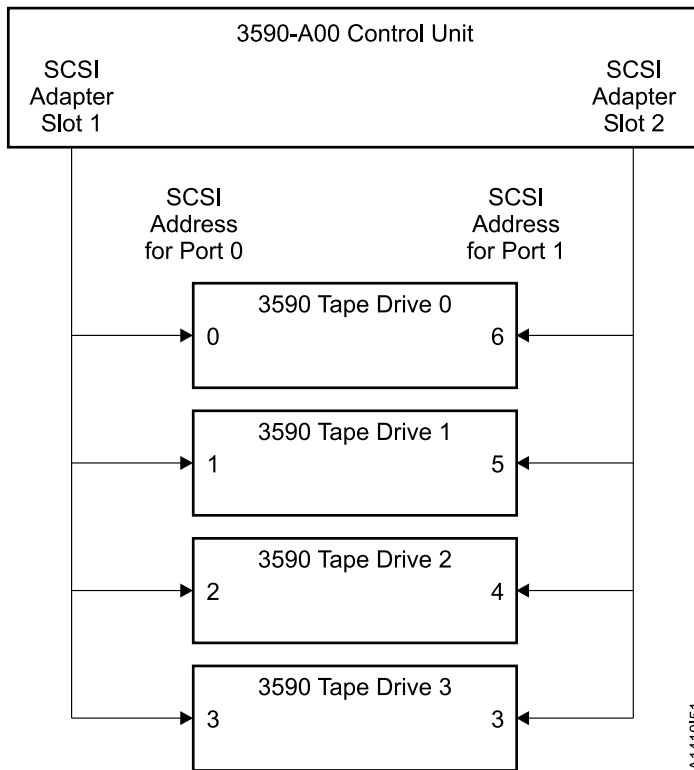
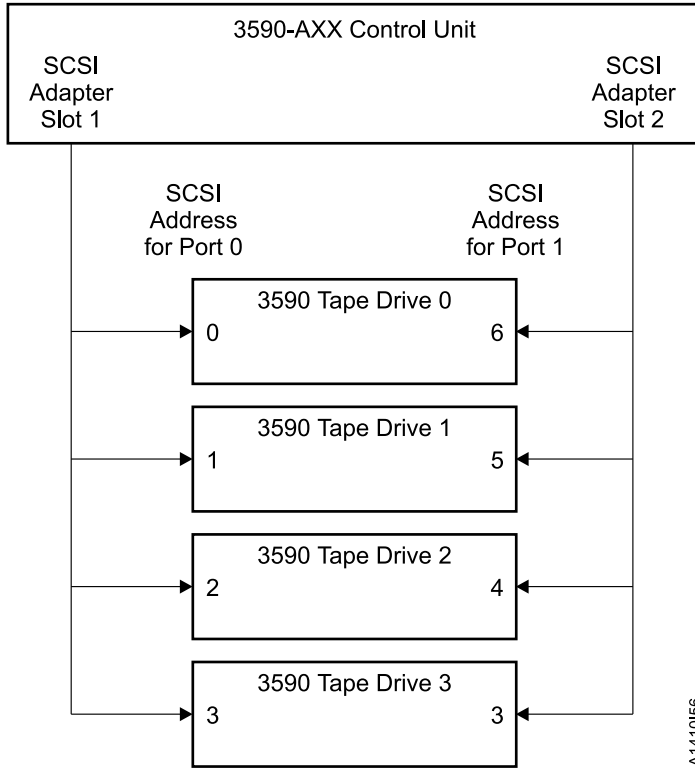


Figure 6-38. Controller to Drive SCSI Cables



A1410156



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## Chapter 7. Messages

### Contents

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## Service and Media Information Messages (SIMs and MIMs)

The SIM and MIM functions are a primary factor in the 3590 maintenance plan for improved product availability.

- A SIM alerts the customer when an abnormal operational condition in the subsystem requires service attention. Information in the SIM identifies the affected drive, or the Model A00/A50 CU, the failing component and the severity of the fault condition, and the expected operational impact of the pending service action. This information helps the user to initiate and expedite appropriate recovery and service procedures so that normal operation is restored with maximum efficiency and minimal disruption.

A SIM contains the machine type, machine serial number, and FID that allows the dispatch of the appropriate service personnel and the replacement parts required to correct the machine fault. This procedure helps improve service response time and helps reduce the time required for machine repair.

Physical location identifiers in the SIM direct the CE to the failing unit. The SIM FID code specifies the parts to be replaced and directs the CE to appropriate service procedures. This allows the machine fault to be repaired without first looking in log records and without having to try to recreate the failure with diagnostic procedures.

- A MIM identifies problems with the media (tape) and the volume number of the *problem* cartridge. This allows the customer to perform predictive maintenance within the tape library and to lessen service calls. The MIM contains a Volume Recovery Action, which assists the customer in the repair/replacement of the problem volume.

The customer can select, depending on their software, the severities that they wish to present to the console of the SIMs and MIMs. For example, one customer may only want to see the *Acute* SIM/MIM and another customer may want to see all the SIMs and MIMs that are sent to the host. The 4 severity codes follow:

- Severity 0 (FID4) code means that the device needs service.
- Severity 1 (FID3) code means that the problem is moderate.
- Severity 2 (FID2) code means that the problem is serious.
- Severity 3 (FID1) code means that the problem is acute.

A service message within the SIM also informs the customer what the service impact will be; for example, *impact unknown* disables access to the drive or requires the interface to be disconnected.

A MIM specifies what is wrong with the cartridge that is indicated. The 3 MIM severity codes are:

- Severity 1 indicates moderate *high temporary read/write* errors were detected.
- Severity 2 indicates serious *permanent read/write* errors were detected.
- Severity 3 indicates acute *block 0, cartridge type, or vol label* errors were detected.

---

## Model A00 SIM/MIM Presentation

To reach the detailed information concerning any of the open SIMs, use a service terminal or library manager to display the maintenance menus for Show/Change options and when Sim/Mim Logs are to be displayed.

The information obtained from looking at the SIM/MIM information from the Service Terminal or Library Manager is used in the section “Decoding SIM Refcodes” on page 7-12. Decoding and using the SIM/MIM information is described there.

The Actual SIM/MIM records sent to the host have a different format and are shown below (See “I/O Subsystem Service Information Message” on page 7-3, “Media Information Message” on page 7-9, and “Device Service Information Message” on page 7-4. MIM records are also sent to the host and will be described in “Media Information Message” on page 7-9.

## I/O Subsystem Service Information Message

The following text shows the message format for an I/O Subsystem Service Information Message:

msgnum dddd, TCU, type-mod, severity ALERT, SER=mmpp-sssss, MC=mc, ES=es, REF=ref1-ref2-ref3

Where the lower case fields have the following meanings:

Table 7-1. ESCON I/O Subsystem Service Information Message

Message Code Abbreviation	Description
msgnum	Operating System dependent message number
dddd	Device number from subchannel
severity	Severity from sense byte 9 (0-1)
type-mod	CU Type/Model from sense byte 30
mmpp-sssss	pp=plant of mfg. sssss=sequence no. Decoded from sense bytes 25-29
mc	Message Code from sense byte 6
es	Exception Message Code from sense byte 8 (0-3) and Service Message Code from sense byte 8 (4-7)
ref1-ref2-ref3	Ref Codes 1-3 from sense byte 17-21
<b>Note:</b> Refer to "Decoding SIM Refcodes" on page 7-12 for more details.	

Example of I/O Subsystem SIM Console Message

```
07.22.50      *IEA480E 1B93,TCU,3590-A00,ACUTE ALERT, SER=0113-00018,  
MC=F1,ES=11,REF=E000-3001-0000
```

## Device Service Information Message

The following text shows the message format for a device Service Information Message Console Message:

msgnum dddd, TAPE, type-mod, severity ALERT, SER=mmpp-sssss, MC=mc, ES=es, REF=ref1-ref2-ref3

Where the lower case fields have the following meanings:

Table 7-2. ESCON Device Service Information Message

Message Code Abbreviation	Description
msgnum	Operating System dependent message number
dddd	Device number from subchannel
severity	Severity from sense byte 9 (0-1)
type-mod	Dev Type/Model from sense byte 31
mmpp-ssss	pp=plant of mfg. sssss=sequence no. Decoded from sense bytes 25-29
mc	Message Code from sense byte 6
es	Exception Message Code from sense byte 8 (0-3) and Service Message Code from sense byte 8 (4-7)
ref1-ref2-ref3	REF Codes 1-3 from sense byte 17-21
<b>Note:</b> Refer to "Decoding SIM Refcodes" on page 7-12 for more details.	

EXAMPLE of Device SIM Console Message

07.19.24 \*IEA480E 1B91,TAPE,3590-B11,ACUTE ALERT, SER=0113-00018,  
MC=F2,ES=77,REF=60E4-3630-3335

Table 7-3 and Table 7-10 on page 7-18 provide the meaning of the SIM Sense Bytes:

Table 7-3. Model A00/A50 (A00 or A50) Controller SIM Sense Bytes

0-7 Common Sense Bytes																			
Byte	Meaning																		
0	Flags 0																		
1	Flags 1																		
2	<table border="0"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0-1</td> <td>Basic Recovery Action (BRAC)</td> </tr> <tr> <td>1</td> <td>Continue</td> </tr> <tr> <td>2</td> <td>Reissue</td> </tr> <tr> <td>2-4</td> <td>Logging Code (LC)</td> </tr> <tr> <td>3</td> <td>A3</td> </tr> <tr> <td>5</td> <td>VLF Active</td> </tr> <tr> <td>6</td> <td>Synchronous Transfer Mode</td> </tr> <tr> <td>7</td> <td>Medium Positioning</td> </tr> </tbody> </table>	Bit	Description	0-1	Basic Recovery Action (BRAC)	1	Continue	2	Reissue	2-4	Logging Code (LC)	3	A3	5	VLF Active	6	Synchronous Transfer Mode	7	Medium Positioning
Bit	Description																		
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3	A3																		
5	VLF Active																		
6	Synchronous Transfer Mode																		
7	Medium Positioning																		
3	Recovery Action code (RAC)																		
	<table border="0"> <tbody> <tr> <td>C0</td> <td>Basic Recovery Action (BRAC)</td> </tr> </tbody> </table>	C0	Basic Recovery Action (BRAC)																
C0	Basic Recovery Action (BRAC)																		



Table 7-3. Model A00/A50 (A00 or A50) Controller SIM Sense Bytes (continued)

4-5	Reason Code (RC) - Reason Qualifier Code (RQC) 11-01 I/O-Subsystem SIM 11-02 Device SIM	
6	Message Code (MC) F1 I/O-Subsystem SIM F2 Device SIM	
7	Sense Format 71 SIM Sense	
<b>8-22 Format Dependent Sense Bytes</b>		
<b>Byte</b>	<b>I/O-Subsystem SIM Sense (Message Code=F1) Meaning</b>	<b>Device SIM Sense (Message Code=F2) Meaning</b>

Table 7-3. Model A00/A50 (A00 or A50) Controller SIM Sense Bytes (continued)

8-9	Message Modifier	Message Modifier	
Bit	Description	Bit	Description
0-3	Exception Message Code	0-3	Exception Message Code
0	Reserved	0	Reserved
1	Effect of failure is unknown	1	Effect of failure is unknown
2	CU Exception - No performance Impact	2	DV Exception - No performance Impact
3-F	Reserved	3	DV Exception on Interface <i>xx</i>
4-7	Service Message Code	4	DV Exception on ACF
0	Reserved	5	DV Exception on Operator Panel
1	Repair Impact is unknown	6	DV Exception on Tape path
2	Repair will not impact CU performance	7	DV Exception in Drive
3-F	Reserved	8	DV Preventive Maintenance Required
8-9	Report Severity	9-F	Reserved
0	Service	Where italicized fields are determined as follows:	
1	Moderate	<i>xx</i>	Format 71, byte 10
2	Serious	4-7	Service Message Code
3	Acute	0	Reserved
10	Repeated Report Presentation: set to 1 if this SIM was previously reported.	1	Repair Impact is unknown
11	Message To Operator (MTO): set to 1 if this SIM should be reported to the Operator Console.	2-6	Reserved
12-14	Reserved	7	Repair will disable access to DV
15	Message Data Flag	8	Repair will disable message display <i>ids</i> on DV
		9	DV Cleaning Required
		A	DV Cleaning Complete
		B-F	Reserved
		8-9	Report Severity
		0	Service
		1	Moderate
		2	Serious
		3	Acute
		10	Repeated Report Presentation: set to 1 if this SIM was previously reported.
		11	Message To Operator (MTO): set to 1 if this SIM should be reported to the Operator Console.
		12-14	Reserved
		15	Message Data Flag

Table 7-3. Model A00/A50 (A00 or A50) Controller SIM Sense Bytes (continued)

<p><b>10-12</b></p>	<p>Message Data</p> <p>Reserved, set to X'000000'</p>	<table border="0"> <tr> <td><b>Byte</b></td> <td><b>Meaning</b></td> </tr> <tr> <td><b>10</b></td> <td>Exception Data xx</td> </tr> <tr> <td><b>11</b></td> <td>SIM Message Code</td> </tr> <tr> <td colspan="2"><b>Value (ASCII)</b></td> </tr> <tr> <td></td> <td><b>Description</b></td> </tr> <tr> <td><b>00</b></td> <td>No Message</td> </tr> <tr> <td><b>41</b></td> <td>Device Degraded - Call for Service</td> </tr> <tr> <td><b>42</b></td> <td>Device Hardware Failure - Call for Service</td> </tr> <tr> <td><b>43</b></td> <td>Service Circuits Failed, Operations Not Affected - Call for Service</td> </tr> <tr> <td><b>55</b></td> <td>Drive Needs Cleaning: Load Cleaning Cartridge</td> </tr> <tr> <td><b>57</b></td> <td>Drive Cleaning Complete: Cleaning Cartridge Ejected</td> </tr> <tr> <td><b>12</b></td> <td>Reserved - set to X'00'</td> </tr> </table>	<b>Byte</b>	<b>Meaning</b>	<b>10</b>	Exception Data xx	<b>11</b>	SIM Message Code	<b>Value (ASCII)</b>			<b>Description</b>	<b>00</b>	No Message	<b>41</b>	Device Degraded - Call for Service	<b>42</b>	Device Hardware Failure - Call for Service	<b>43</b>	Service Circuits Failed, Operations Not Affected - Call for Service	<b>55</b>	Drive Needs Cleaning: Load Cleaning Cartridge	<b>57</b>	Drive Cleaning Complete: Cleaning Cartridge Ejected	<b>12</b>	Reserved - set to X'00'
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<b>12</b>	Reserved - set to X'00'																									
<p><b>13</b></p>	<p>SIM Identifier</p> <p>This field contains the same value when a SIM is presented more than once and can be used in interactions with the product during maintenance activities.</p>	<p>SIM Identifier</p> <p>This field contains the same value when a SIM is presented more than once and can be used in interactions with the product during maintenance activities.</p>																								
<p><b>14-15</b></p>	<p>Unit Modifier</p> <p>Reserved - set to X'0000'</p>	<p>Unit Modifier</p> <p>Expert Systems Data from Log Page 31, bytes 16-19 (ASCII-&gt;HEX)</p>																								
<p><b>16-17</b></p>	<p>REF Code 1</p> <table border="0"> <tr> <td><b>Bit</b></td> <td><b>Description</b></td> </tr> <tr> <td><b>0-2</b></td> <td>SIM Type</td> </tr> <tr> <td></td> <td><b>B'000'</b> Hardware, non-encoded SRN (HDWE)</td> </tr> <tr> <td></td> <td><b>B'001'</b> Hardware, encoded POST error (EPOST) (future)</td> </tr> <tr> <td></td> <td><b>B'111'</b> Microcode Detected Error (MDE)</td> </tr> <tr> <td><b>3-15</b></td> <td>Reserved (used for encoded POST errors in future)</td> </tr> </table>	<b>Bit</b>	<b>Description</b>	<b>0-2</b>	SIM Type		<b>B'000'</b> Hardware, non-encoded SRN (HDWE)		<b>B'001'</b> Hardware, encoded POST error (EPOST) (future)		<b>B'111'</b> Microcode Detected Error (MDE)	<b>3-15</b>	Reserved (used for encoded POST errors in future)	<p>REF Code 1</p> <table border="0"> <tr> <td><b>Bit</b></td> <td><b>Description</b></td> </tr> <tr> <td><b>0-2</b></td> <td>SIM Type</td> </tr> <tr> <td></td> <td><b>B'011'</b> Device SIM</td> </tr> <tr> <td><b>3-7</b></td> <td>Reserved</td> </tr> <tr> <td><b>8-15</b></td> <td>FRU Identifier (FID)</td> </tr> </table>	<b>Bit</b>	<b>Description</b>	<b>0-2</b>	SIM Type		<b>B'011'</b> Device SIM	<b>3-7</b>	Reserved	<b>8-15</b>	FRU Identifier (FID)		
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	<b>B'011'</b> Device SIM																									
<b>3-7</b>	Reserved																									
<b>8-15</b>	FRU Identifier (FID)																									
<p><b>18-19</b></p>	<p>REF Code 2</p> <p><b>HDWE SIM Type</b> bits 0-7 are set to X'00' bits 8-15 are set to the first 2 digits of SRN</p> <p><b>MDE SIM Type</b> bits 0-15 are set to the CU MDE code</p>	<p>REF Code 2</p> <p>For Device SIMs, this value will be set to the 1st FSC code reported from the device.</p>																								

Table 7-3. Model A00/A50 (A00 or A50) Controller SIM Sense Bytes (continued)

<b>20-21</b>	REF Code 3 <b>HDWE SIM Type</b> bits 0-15 are set to the last 4 digits of SRN <b>MDE SIM Type</b> bits 0-15 contain CU MDE supporting data	REF Code 3 For Device SIMs, this value will be set to the last FSC code reported from the device.
<b>22</b>	Reserved	Reserved
<b>23-31 Common Sense Bytes</b>		
<b>Byte</b>	<b>Meaning</b>	
<b>23</b>	Flags 3	
<b>24</b>	Flags 4	
<b>25-26</b>	Product Identifier (MM-PP)	
<b>27-29</b>	Product Serial (SSSSS)	
<b>30</b>	CU/Library Type-Model	
<b>31</b>	Device Type-Model	

## Media Information Message

The following text shows the format for a Media Information Message Console Message:

msgnum, dddd, TVOL, severity ALERT, VOLUME=valid, MC=mc, ES=es, RC=vra-medi-fi

Where the lower case fields have the following meanings:

Table 7-4. ESCON Media Information Message Console Message

Message Code Abbreviation	Description
msgnum	Operation-system dependent message number
dddd	Device number from subchannel
severity	Severity from sense byte 9 (0-1)
valid	Valid from sense bytes 16-21
mc	Message Code from sense byte 6
es	Exception Message Code from sense byte 8 (0-3)
vra-medi-fi	vra=Volume Recovery Action as defined in 3590 Bxx MI Message Section as MIM Message Code. REF code from sense bytes 10-11, MEDIA ID from sense bytes 12-13, and FORMAT ID from sense byte 22.

EXAMPLE of MIM Console Message

```
09.36.07 IEA486E 1B90,TVOL,SERIOUS ALERT,VOLUME= ,MC=F0,
E=7,RC=6033-0130-23
```

Table 7-5 gives details on the contents of the MIM Sense Bytes:

Table 7-5. Model A00/A50 (A00 or A50) Controller MIM Sense Bytes

0-7 Common Sense Bytes																			
Byte	Meaning																		
0	Flags 0																		
1	Flags 1																		
2	<table border="1"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0-1</td> <td>Basic Recovery Action (BRAC)</td> </tr> <tr> <td>1</td> <td>Continue</td> </tr> <tr> <td>2</td> <td>Reissue</td> </tr> <tr> <td>2-4</td> <td>Logging Code (LC)</td> </tr> <tr> <td>3</td> <td>A3</td> </tr> <tr> <td>5</td> <td>VLF Active</td> </tr> <tr> <td>6</td> <td>Synchronous Transfer Mode</td> </tr> <tr> <td>7</td> <td>Medium Positioning</td> </tr> </tbody> </table>	Bit	Description	0-1	Basic Recovery Action (BRAC)	1	Continue	2	Reissue	2-4	Logging Code (LC)	3	A3	5	VLF Active	6	Synchronous Transfer Mode	7	Medium Positioning
Bit	Description																		
0-1	Basic Recovery Action (BRAC)																		
1	Continue																		
2	Reissue																		
2-4	Logging Code (LC)																		
3	A3																		
5	VLF Active																		
6	Synchronous Transfer Mode																		
7	Medium Positioning																		
3	Recovery Action code (RAC)																		
	<table border="1"> <tbody> <tr> <td>C0</td> <td>Basic Recovery Action (BRA)</td> </tr> </tbody> </table>	C0	Basic Recovery Action (BRA)																
C0	Basic Recovery Action (BRA)																		

Table 7-5. Model A00/A50 (A00 or A50) Controller MIM Sense Bytes (continued)

4-5	Reason Code (RC) - Reason Qualifier Code (RQC) <b>11-00</b> MIM																																												
6	Message Code (MC) <b>F0</b> MIM																																												
7	Sense Format <b>70</b> MIM Sense																																												
<b>8-22 Format Dependent Sense Bytes</b>																																													
8-9	<p>Message Modifier</p> <table border="0"> <thead> <tr> <th style="text-align: left;">Bit</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <tr> <td><b>0-3</b></td> <td>Exception Message Code</td> </tr> <tr> <td><b>0-1</b></td> <td>Reserved</td> </tr> <tr> <td><b>2</b></td> <td>Data Degraded</td> </tr> <tr> <td><b>3</b></td> <td>Data Degraded in Partition <i>yyyy</i></td> </tr> <tr> <td><b>4</b></td> <td>Medium Degraded</td> </tr> <tr> <td><b>5</b></td> <td>Medium Degraded in Partition <i>yyyy</i></td> </tr> <tr> <td><b>6</b></td> <td>Block 0 Error</td> </tr> <tr> <td><b>7</b></td> <td>Medium Exception</td> </tr> <tr> <td><b>8-F</b></td> <td>Reserved</td> </tr> <tr> <td colspan="2">Where italicized fields are determined as follows:</td> </tr> <tr> <td></td> <td><b><i>yyyy</i></b> Determined from sense format 70, bytes 14-15</td> </tr> <tr> <td><b>4-7</b></td> <td>Reserved</td> </tr> <tr> <td><b>8-9</b></td> <td>Report Severity</td> </tr> <tr> <td><b>0</b></td> <td>Reserved</td> </tr> <tr> <td><b>1</b></td> <td>Moderate</td> </tr> <tr> <td><b>2</b></td> <td>Serious</td> </tr> <tr> <td><b>3</b></td> <td>Acute</td> </tr> <tr> <td><b>10</b></td> <td>Repeated Report Presentation: set to 1 if this MIM was previously reported.</td> </tr> <tr> <td><b>11</b></td> <td>Message To Operator (MTO): set to 1 if this MIM should be reported to the Operator Console.</td> </tr> <tr> <td><b>12-14</b></td> <td>Reserved</td> </tr> <tr> <td><b>15</b></td> <td>Message Data Flag</td> </tr> </tbody> </table>	Bit	Description	<b>0-3</b>	Exception Message Code	<b>0-1</b>	Reserved	<b>2</b>	Data Degraded	<b>3</b>	Data Degraded in Partition <i>yyyy</i>	<b>4</b>	Medium Degraded	<b>5</b>	Medium Degraded in Partition <i>yyyy</i>	<b>6</b>	Block 0 Error	<b>7</b>	Medium Exception	<b>8-F</b>	Reserved	Where italicized fields are determined as follows:			<b><i>yyyy</i></b> Determined from sense format 70, bytes 14-15	<b>4-7</b>	Reserved	<b>8-9</b>	Report Severity	<b>0</b>	Reserved	<b>1</b>	Moderate	<b>2</b>	Serious	<b>3</b>	Acute	<b>10</b>	Repeated Report Presentation: set to 1 if this MIM was previously reported.	<b>11</b>	Message To Operator (MTO): set to 1 if this MIM should be reported to the Operator Console.	<b>12-14</b>	Reserved	<b>15</b>	Message Data Flag
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<b>12-14</b>	Reserved																																												
<b>15</b>	Message Data Flag																																												
10-11	REF Code																																												
12-13	Medium Identifier (MID) <b>X'0120 - 013F'</b> Half Inch Cartridge Tapes																																												
14-15	Medium Partition																																												

Table 7-5. Model A00/A50 (A00 or A50) Controller MIM Sense Bytes (continued)

<b>16-21</b>	<b>VOLID</b>  This field contains the volume id, in EBCDIC, associated with the reported condition. If the VOLID is not known or is not reliable, then this field will contain EBCDIC blanks (X'40').
<b>22</b>	<b>Format Identifier</b>  <b>X'23'</b> 16X8 (128) Track
<b>23-31 Common Sense Bytes</b>	
<b>23</b>	Flags 3
<b>24</b>	Flags 4
<b>25-26</b>	Product Identifier (MM-PP)
<b>27-29</b>	Product Serial (SSSSS)
<b>30</b>	CU/Library Type-Model
<b>31</b>	Device Type-Model

## Decoding SIM Refcodes

Use this chart to decode the Refcodes bytes extracted from:

- A host console SIM message
- A SIM sense record from a host EREP report
- The 3590 A00 or A50 SIM log

### Refcode 1, 2, and 3

The first digit of Refcode 1 is used to determine the source of the problem that caused the SIM. The remaining digits in Refcode 1, Refcode 2 and Refcode 3 will have different meaning depending on the source of the problem.

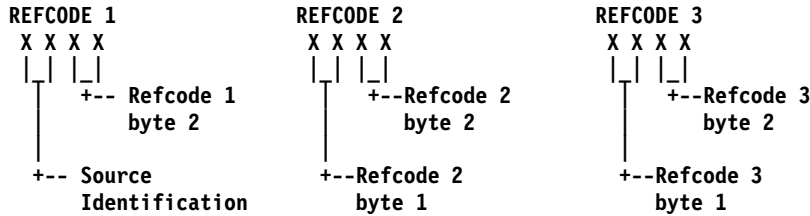


Table 7-6. Model A00/A50 SIM Source Decode

Source Identification Value (HEX)	Explanation
'00'	<p>Control Unit hardware error</p> <p>Refcode 2, byte 2 and Refcode 3, bytes 1 and 2 combine to form the SRN (Service Request Number) that will be used to identify and resolve the 3590 Model A00/A50 hardware problem. Record this number and return to procedure that sent you here.</p> <p>The diagram below is an example of how to decode the SRN from the Refcode bytes:</p> <pre> REFCODE 1          REFCODE 2          REFCODE 3 0 0 0 0          X X 8 6          5 5 0 3   +--+ Refcode 1   +-----+         +--+ Refcode 3    Unused         865                 503                 SRN = 865-503   </pre>
'40'	<p>Unknown Control Unit hardware error</p> <p>Refcode 2 and Refcode 3 combine to form the AIX error log sequence number of the failure that resulted in this SIM. Record the AIX error log sequence number and return to the procedure that sent you here.</p> <p>The diagram below is an example of how to decode the AIX error log sequence number from the Refcode bytes:</p> <pre> REFCODE 1          REFCODE 2          REFCODE 3 4 0 0 0          0 0 0 4          5 5 0 3   +--+ Refcode 1   +-----+         +--+ Refcode 3    Unused         045                 503                 AIX error log sequence # = 45503   </pre>



Table 7-6. Model A00/A50 SIM Source Decode (continued)

Source Identification Value (HEX)	Explanation
'60'	<p>3590 Drive Error</p> <p>Refcode 1, Byte 2 contains the Drive FRU ID (FID) that will be used to direct service on the 3590 drive. Refcodes 2 and 3 contain the first and second Fault Symptom Codes (FSCs) associated with the drive error. Record the FID code and both FSCs and return to the procedure that sent you here.</p> <p>The diagram below is an example of how to decode the FID code and the FSCs from the Refcode Bytes:</p> <pre>           REFCODE 1          REFCODE 2          REFCODE 3           6 0 D 4          3 6 3 0          3 3 3 5  +---+---+          +---+---+  FID = D4          FSC1 = 3630          FSC2 = 3335         </pre>
'E0'	<p>3590 Model A00/A50 Microcode detected error:</p> <p>Refcode 2 contains the Microcode Detected Error (MDE) code that will be used to identify the source of the microcode error and Refcode 3 contains supporting data (may be all 0's). Record the MDE code and the data byte and return to the procedure that sent you here.</p> <p>The diagram below is an example of how to decode the MDE code and the data byte from the Refcode Bytes:</p> <pre>           REFCODE 1          REFCODE 2          REFCODE 3           E 0 0 0          7 0 3 5          0 0 0 0   +---+          +---+---+          +---+---+   Unused          MDE = 7035          data = 0000         </pre>

## ES/9000 EREP Reports

An example of a SIM EREP report is shown below, as well as a table describing the entries.

### SIM EREP Report (Format 71)

```

1 TAPE SERVICE INFORMATION MESSAGES
2 REPORT DATE 263 96
3 PERIOD FROM 262 96
    TO 263 96

*****
4 DEVICE-0883 5 S/N 01113-00001 6 DATE-262/96 7 TIME-06:54:49:45 8 ID=21
9 * SERVICE ALERT 10 D/T-3590-B11 11 REF1-60FF 12 REF2-C559 13 REF3-C559 14 UM-1229
15 * DV PREVENTIVE MAINTENANCE COMPLETED
16 * DV CLEANING COMPLETE

DEVICE-0887 S/N 0113-23456 DATE-262/96 TIME-09:26:32:65 ID=73
* SERIOUS ALERT D/T-3590-A00 REF1-E000 REF2-7019 REF3-0000 UM-0000
* EFFECT OF FAILURE IS UNKNOWN
    
```

\* REPAIR IMPACT IS UNKNOWN

DEVICE-08A2 S/N 0113-00011 DATE-262/96 TIME-11:25:38:00 ID=3E  
 \* SERVICE ALERT D/T-3590-B1A REF1-60FF REF2-C559 REF3-C559 UM-2229  
 \* DV PREVENTIVE MAINTENANCE COMPLETED  
 \* DV CLEANING COMPLETE

DEVICE-08A3 S/N 0113-00011 DATE-262/96 TIME-11:25:56:01 ID=3F  
 \* SERIOUS ALERT D/T-3590-B1A REF1-60FF REF2-C559 REF3-C559 UM-2229  
 \* DV PREVENTIVE MAINTENANCE COMPLETED  
 \* DV CLEANING COMPLETE

An explanation of each of the reverse key fields is shown in Table 7-7.

Table 7-7. ESCON Service Information Message (SIM) format description

Reverse Keys	Field explanation
<b>1</b>	Type of EREP report - Service Information Messages (SIM)
<b>2</b>	Julian date the report ran
<b>3</b>	Julian date of the earliest record
The 4 hex digits of the control unit address	
<b>5</b>	Plant of manufacture and the machine sequence number
<b>6</b>	Date of failure ddd yy
<b>7</b>	Time of failure hh:mm:ss:01
<b>8</b>	SIM identifier. Contains the same value when presented more than once.
<b>9</b>	Severity: Moderate, Serious, Acute or Service
<b>10</b>	Machine type and model number
<b>11</b>	Reference code 1 from bytes 16 and 17 in format 71 sense. See note.
Reference code 2 from bytes 18 and 19 in format 71 sense. See note.	
<b>13</b>	Reference code three from bytes 20 and 21 in format 71 sense. See note.
<b>14</b>	Unit modifier for Expert System Data from bytes 14 and 15
<b>15</b>	Exception Message from byte 8, bits 0-3
<b>16</b>	Service Message from byte 8, bits 4-7
<b>Note:</b> Refer to the MSG section starting with "Service and Media Information Messages (SIMs and MIMs)" on page 7-2 for detailed definitions.	

## MIM EREP Report (Format 70)

```

1
TAPE MEDIA INFORMATION MESSAGES

2
REPORT DATE 262 96

3
PERIOD FROM 152 93
        TO 300 93
  
```

\*\*\*\*\*  
**4**            **5**            **6**            **7**

VOLUME-0883    DEVICE-0333    DATE-300/93    TIME-07:45:44:04  
 \* D/T-<sup>8</sup>                    S/N<sup>9</sup> 1804-MXGKM  
 \* SERIOUS ALERT REFCODE-6033    MEDIA IDENTIFIER-0130 IDENTIFIER-23<sup>10</sup>    <sup>11</sup>    <sup>12</sup>    <sup>13</sup>

**Note:** Refcode 60=REFCODE, 33=Engineering Data

\* MEDIUM EXCEPTION<sup>14</sup>  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx<sup>14</sup>

VOLUME-JANZ01    DEVICE-0338    DATE-300/93    TIME-07:40:45:04  
 \* D/T-UNKNOWN    S/N 160G-\*\*\*\*\*  
 \* SERVICE ALERT REFCODE-0124 MEDIA IDENTIFIER-0051 IDENTIFIER-E8  
 \* DATA DEGRADED IN PARTITION 0304  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx

VOLUME-JANZ01    DEVICE-0338    DATE-300/93    TIME-07:40:45:04 \*\*REPEATED\*\*  
 \* D/T-UNKNOWN    S/N 16G4-\*\*\*\*\*  
 \* SERVICE ALERT REFCODE-0124 MEDIA IDENTIFIER-0051 IDENTIFIER-E8  
 \* MEDIUM EXCEPTION  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx

VOLUME-JANZ04    DEVICE-0336    DATE-300/93    TIME-07:45:44:04  
 \* D/T-UNKNOWN    S/N 160G-\*\*\*\*\*  
 \* SERVICE ALERT REFCODE-0124 MEDIA IDENTIFIER-0051 IDENTIFIER-E8  
 \* DATA DEGRADED IN PARTITION 0304  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx

VOLUME-JANZ04    DEVICE-0337    DATE-300/93    TIME-07:39:44:0 \*\*REPEATED\*\*  
 \* D/T-UNKNOWN    S/N 16G4-\*\*\*\*\*  
 \* SERVICE ALERT REFCODE-0124 MEDIA IDENTIFIER-0051 IDENTIFIER-E8  
 \* MEDIUM EXCEPTION  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx

VOLUME-JANZ04    DEVICE-0341    DATE-300/93    TIME-07:45:44:04 \*\*REPEATED\*\*  
 \* D/T-UNKNOWN    S/N 16G4-\*\*\*\*\*  
 \* SERVICE ALERT REFCODE-0124 MEDIA IDENTIFIER-0051 IDENTIFIER-E8  
 \* MEDIUM EXCEPTION  
 \* REFERENCE MEDIA MAINTENANCE PROCEDURE xx

**Note:** xx=Engineering Data

\*\*\*\*\* An explanation of each of the reverse key fields is shown in Table 7-8.

Table 7-8. ESCON Media Information Message (MIM) Format Description

Reverse Keys	Field explanation
<b>1</b>	Type of report - Media Information Messages (MIM)
<b>2</b>	Julian date the report ran
<b>3</b>	Julian date of the earliest record and latest record
	The VOLID from bytes 16 - 21 in format 70 sense
<b>5</b>	The 3590 drive the tape was on when the failure occurred
<b>6</b>	Julian date that the MIM was sent to the host
<b>7</b>	Time that the failure occurred
<b>8</b>	Device type

Table 7-8. ESCON Media Information Message (MIM) Format Description (continued)

Reverse Keys	Field explanation
<b>9</b>	Machine sequence number
<b>10</b>	Severity: High number of <b>temporary R/W errors</b> , Serious <b>permanent R/W errors</b> , or <b>Acute block 0, cartridge type, or volume level errors</b> were detected R/W errors,
<b>11</b>	Reference code taken from bytes 10 and 11 of format 70 sense
	Media identifier taken from bytes 12 and 13 of format 70 sense indicates the type of media, for example, 0130 is 3590 standard length.
<b>13</b>	Format identifier taken from byte 22 of format 70 sense, 23 is 3590 128 track format.
<b>14</b>	Informational message for problem correction

## JES2 Job Log

```

1
2
JES2 JOB LOG -- SYSTEM 91AA -- NODE

22.32.31 JOB01383 IRR010I USERID 3 PFE IS ASSIGNED TO THIS JOB.
22.32.32 JOB01383 ICH70001I PFE 4 LAST ACCESS AT 16:28:39 ON FRIDAY DECEMBER 13, 1996
22.32.32 JOB01383 $HASP373 LB1EA2 5 STARTED - INIT D - CLASS A - SYS 91AA
22.32.32 JOB01383 *IEF233A M OEA2,DA4898,,LB1EA2,WRITEIT 6
22.32.32 JOB01383 IOS000I OEA2,28,I02,1F,0600,,**,DA4898,LB1EA2 7
8
024410C050305650000 001FFF0000000000 0331003529333690 43042300
9
0 POSITIONING LOST
22.33.56 JOB01383 *IEC513D I/O ERR OEA2,DA4898,SL,LB1EA2,WRITEIT 10
11
22.33.56 JOB01383 *83 IEC513D REPLY 'U' -ABEND OR 'M' -MOUNT SCRATCH

```

An explanation of each of the reverse key fields is shown in Table 7-9.

Table 7-9. ESCON JES2 Job Log Format Description

Reverse Keys	Field explanation
<b>1</b>	Type of report - JES2 Job Log
<b>2</b>	System path job was run on
<b>3</b>	User ID assigned to this job
	Last time this User ID had access to this system
<b>5</b>	Job start information.

Table 7-9. ESCON JES2 Job Log Format Description (continued)

Reverse Keys	Field explanation
<b>6</b>	Mount message for VOLID DA4898 on Drive EA2
<b>7</b>	IOS000I is the error message with sense
<b>8</b>	The sense data associated with <b>7</b>
<b>9</b>	Describes the error
<b>10</b>	The drive address and VOLID that failed. An Example is Drive EA2, Volid DA4898.
<b>11</b>	Operator recovery message

## Event History Log

EVENT HISTORY (S/370XA)

```

      TIME      JOBNAME RECTYP CP CUA DEVT  CMD CSW  SENSE  04 06 08 10
                                * DNO CRW CHP  SCSW                ESW
DATE 338 96

14 17 51 40 LB1EA0  OBRPRM 00 0EA0 3590 2F 02 0600 004810C0 50305650 0002FF0
0
14 17 51 88 N/A MDR 01 0EA0 3590 28
14 19 11 69 LAB1EA0 OBRPRM 01 0EA0 3590 2F 02 0600 004810C0 50305650 0002FF00
14 19 12 76 N/A MDR 01 0EA0 3590 2F
14 25 05 30 LAB1EA0 OBRPRM 00 0EA0 3590 2F 02 0600 004810C0 50305650 0002FF0
0
004810C0 50215751 0002FF00 00000000 03310036 01333D90 43042300 00901011
08 46 00 62 N/A MDR 01 0E71 3590 2F
08 47 06 49 N/A MDR 01 0E71 3590 2F
08 48 05 30 LB4E71 OBRPRM 01 0E71 3590 2F 02 0600 084910D0 50215751
0
084910D0 50215751 0002FF00 00000000 00000000 00000090 41042300 00091011
.*****

```

See *Environmental Record Editing and Printing Program (EREP) User's Guide and Reference (GC28-1378)* for more detailed information on Event History Log.

## ES/9000 EREP Reports for ERA 48

Table 7-10 provides the meaning of the SIM Sense Bytes:

Table 7-10. RISC/6000 SIM Sense Bytes

0-7 Common Sense Bytes																				
Byte	Meaning																			
0	Flags 0																			
1	Flags 1																			
2	<table border="1"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>0-1</td> <td>Basic Recovery Action (BRAC)</td> </tr> <tr> <td>1</td> <td>Continue</td> </tr> <tr> <td>2</td> <td>Reissue</td> </tr> <tr> <td>2-4</td> <td>Logging Code (LC)</td> </tr> <tr> <td>3</td> <td>A3</td> </tr> <tr> <td>5</td> <td>VLF Active</td> </tr> <tr> <td>6</td> <td>Synchronous Transfer Mode</td> </tr> <tr> <td>7</td> <td>Medium Positioning</td> </tr> </tbody> </table>	Bit	Description	0-1	Basic Recovery Action (BRAC)	1	Continue	2	Reissue	2-4	Logging Code (LC)	3	A3	5	VLF Active	6	Synchronous Transfer Mode	7	Medium Positioning	
Bit	Description																			
0-1	Basic Recovery Action (BRAC)																			
1	Continue																			
2	Reissue																			
2-4	Logging Code (LC)																			
3	A3																			
5	VLF Active																			
6	Synchronous Transfer Mode																			
7	Medium Positioning																			
3	Error Recovery Action (ERA)																			
	48	Unsolicited Informational Data																		
4-5	Reason Code (RC) - Reason Qualifier Code (RQC)																			
	11-01	I/O-Subsystem SIM																		
	11-02	Device SIM																		
6	Message Code (MC)																			
	F1	I/O-Subsystem SIM																		
	F2	Device SIM																		
7	Sense Format																			
	71	SIM Sense																		
8-22 Format Dependent Sense Bytes																				
Byte	I/O-Subsystem SIM Sense (Message Code=F1) Meaning	Device SIM Sense (Message Code=F2) Meaning																		

Table 7-10. RISC/6000 SIM Sense Bytes (continued)

8-9	Message Modifier	Message Modifier	
Bit	Description	Bit	Description
<b>0-3</b>	Exception Message Code	<b>0-3</b>	Exception Message Code
<b>0</b>	Reserved	<b>0</b>	Reserved
<b>1</b>	Effect of failure is unknown	<b>1</b>	Effect of failure is unknown
<b>2</b>	CU Exception - No performance Impact	<b>2</b>	DV Exception - No performance Impact
<b>3-F</b>	Reserved	<b>3</b>	DV Exception on Interface <i>xx</i>
<b>4-7</b>	Service Message Code	<b>4</b>	DV Exception on ACF
<b>0</b>	Reserved	<b>5</b>	DV Exception on Operator Panel
<b>1</b>	Repair Impact is unknown	<b>6</b>	DV Exception on Tape path
<b>2</b>	Repair will not impact CU performance	<b>7</b>	DV Exception in Drive
<b>3-F</b>	Reserved	<b>8</b>	DV Preventive Maintenance Required
<b>8-9</b>	Report Severity	<b>9-F</b>	Reserved
<b>0</b>	Service	Where italicized fields are determined as follows:	
<b>1</b>	Moderate		
<b>2</b>	Serious	<b><i>xx</i></b>	Format 71, byte 10
<b>3</b>	Acute	<b>4-7</b>	Service Message Code
<b>10</b>	Repeated Report Presentation: set to 1 if this SIM was previously reported.	<b>0</b>	Reserved
<b>11</b>	Message To Operator (MTO): set to 1 if this SIM should be reported to the Operator Console.	<b>1</b>	Repair Impact is unknown
<b>12-14</b>	Reserved	<b>2-6</b>	Reserved
<b>15</b>	Message Data Flag	<b>7</b>	Repair will disable access to DV
		<b>8</b>	Repair will disable message display <i>ids</i> on DV
		<b>9</b>	DV Cleaning Required
		<b>A</b>	DV Cleaning Complete
		<b>B-F</b>	Reserved
		<b>8-9</b>	Report Severity
		<b>0</b>	Service
		<b>1</b>	Moderate
		<b>2</b>	Serious
		<b>3</b>	Acute
		<b>10</b>	Repeated Report Presentation: set to 1 if this SIM was previously reported.
		<b>11</b>	Message To Operator (MTO): set to 1 if this SIM should be reported to the Operator Console.
		<b>12-14</b>	Reserved
		<b>15</b>	Message Data Flag

Table 7-10. RISC/6000 SIM Sense Bytes (continued)

<p><b>10-12</b></p>	<p>Message Data</p> <p>Reserved, set to X'000000'</p>	<table border="0"> <tr> <td><b>Byte</b></td> <td><b>Meaning</b></td> </tr> <tr> <td><b>10</b></td> <td>Exception Data xx</td> </tr> <tr> <td><b>11</b></td> <td>SIM Message Code</td> </tr> <tr> <td></td> <td><b>Value (ASCII)</b></td> </tr> <tr> <td></td> <td><b>Description</b></td> </tr> <tr> <td><b>00</b></td> <td>No Message</td> </tr> <tr> <td><b>41</b></td> <td>Device Degraded - Call for Service</td> </tr> <tr> <td><b>42</b></td> <td>Device Hardware Failure - Call for Service</td> </tr> <tr> <td><b>43</b></td> <td>Service Circuits Failed, Operations Not Affected - Call for Service</td> </tr> <tr> <td><b>55</b></td> <td>Drive Needs Cleaning: Load Cleaning Cartridge</td> </tr> <tr> <td><b>57</b></td> <td>Drive Cleaning Complete: Cleaning Cartridge Ejected</td> </tr> <tr> <td><b>12</b></td> <td>Reserved - set to X'00'</td> </tr> </table>	<b>Byte</b>	<b>Meaning</b>	<b>10</b>	Exception Data xx	<b>11</b>	SIM Message Code		<b>Value (ASCII)</b>		<b>Description</b>	<b>00</b>	No Message	<b>41</b>	Device Degraded - Call for Service	<b>42</b>	Device Hardware Failure - Call for Service	<b>43</b>	Service Circuits Failed, Operations Not Affected - Call for Service	<b>55</b>	Drive Needs Cleaning: Load Cleaning Cartridge	<b>57</b>	Drive Cleaning Complete: Cleaning Cartridge Ejected	<b>12</b>	Reserved - set to X'00'
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<b>12</b>	Reserved - set to X'00'																									
<p><b>13</b></p>	<p>SIM Identifier</p> <p>This field contains the same value when a SIM is presented more than once and can be used in interactions with the product during maintenance activities.</p>	<p>SIM Identifier</p> <p>This field contains the same value when a SIM is presented more than once and can be used in interactions with the product during maintenance activities.</p>																								
<p><b>14-15</b></p>	<p>Unit Modifier</p> <p>Reserved - set to X'0000'</p>	<p>Unit Modifier</p> <p>Expert Systems Data from Log Page 31, bytes 16-19 (ASCII-&gt;HEX)</p>																								
<p><b>16-17</b></p>	<p>REF Code 1</p> <table border="0"> <tr> <td><b>Bit</b></td> <td><b>Description</b></td> </tr> <tr> <td><b>0-2</b></td> <td>SIM Type</td> </tr> <tr> <td></td> <td><b>B'000'</b> Hardware, non-encoded SRN (HDWE)</td> </tr> <tr> <td></td> <td><b>B'001'</b> Hardware, encoded POST error (EPOST) (future)</td> </tr> <tr> <td></td> <td><b>B'111'</b> Microcode Detected Error (MDE)</td> </tr> <tr> <td><b>3-15</b></td> <td>Reserved (used for encoded POST errors in future)</td> </tr> </table>	<b>Bit</b>	<b>Description</b>	<b>0-2</b>	SIM Type		<b>B'000'</b> Hardware, non-encoded SRN (HDWE)		<b>B'001'</b> Hardware, encoded POST error (EPOST) (future)		<b>B'111'</b> Microcode Detected Error (MDE)	<b>3-15</b>	Reserved (used for encoded POST errors in future)	<p>REF Code 1</p> <table border="0"> <tr> <td><b>Bit</b></td> <td><b>Description</b></td> </tr> <tr> <td><b>0-2</b></td> <td>SIM Type</td> </tr> <tr> <td></td> <td><b>B'011'</b> Device SIM</td> </tr> <tr> <td><b>3-7</b></td> <td>Reserved</td> </tr> <tr> <td><b>8-15</b></td> <td>FRU Identifier (FID)</td> </tr> </table>	<b>Bit</b>	<b>Description</b>	<b>0-2</b>	SIM Type		<b>B'011'</b> Device SIM	<b>3-7</b>	Reserved	<b>8-15</b>	FRU Identifier (FID)		
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<b>3-7</b>	Reserved																									
<b>8-15</b>	FRU Identifier (FID)																									
<p><b>18-19</b></p>	<p>REF Code 2</p> <p><b>HDWE SIM Type</b> bits 0-7 are set to X'00' bits 8-15 are set to the first 2 digits of SRN</p> <p><b>MDE SIM Type</b> bits 0-15 are set to the CU MDE code</p>	<p>REF Code 2</p> <p>For Device SIMs, this value will be set to the 1st FSC code reported from the device.</p>																								



Table 7-10. RISC/6000 SIM Sense Bytes (continued)

<b>20-21</b>	REF Code 3 <b>HDWE SIM Type</b> bits 0-15 are set to the last 4 digits of SRN <b>MDE SIM Type</b> bits 0-15 contain CU MDE supporting data	REF Code 3  For Device SIMs, this value will be set to the last FSC code reported from the device.
<b>22</b>	Reserved	Reserved
<b>23-31 Common Sense Bytes</b>		
<b>Byte</b>	<b>Meaning</b>	
<b>23</b>	Flags 3	
<b>24</b>	Flags 4	
<b>25-26</b>	Product Identifier (MM-PP)	
<b>27-29</b>	Product Serial (SSSSS)	
<b>30</b>	CU/Library Type-Model	
<b>31</b>	Device Type-Model	

Table 7-11 gives details on the contents of the MIM Sense Bytes:

Table 7-11. RISC/6000 MIM Sense Bytes

<b>0-7 Common Sense Bytes</b>		
<b>Byte</b>	<b>Meaning</b>	
<b>0</b>	Flags 0	
<b>1</b>	Flags 1	
<b>2</b>	<b>Bit</b>	<b>Description</b>
	<b>0-1</b>	Basic Recovery Action (BRAC)
	1	Continue
	2	Reissue
	<b>2-4</b>	Logging Code (LC)
	3	A3
	5	VLF Active
	6	Synchronous Transfer Mode
	7	Medium Positioning
<b>3</b>	Error Recovery Action (ERA)	
	<b>48</b>	Unsolicited Informational Data
<b>4-5</b>	Reason Code (RC) - Reason Qualifier Code (RQC)	
	<b>11-00</b>	MIM
<b>6</b>	Message Code (MC)	
	<b>F0</b>	MIM

Table 7-11. RISC/6000 MIM Sense Bytes (continued)

7	Sense Format <b>70</b> MIM Sense																																								
<b>8-22 Format Dependent Sense Bytes</b>																																									
8-9	<p>Message Modifier</p> <table border="0"> <thead> <tr> <th>Bit</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><b>0-3</b></td> <td>Exception Message Code</td> </tr> <tr> <td><b>0-1</b></td> <td>Reserved</td> </tr> <tr> <td><b>2</b></td> <td>Data Degraded</td> </tr> <tr> <td><b>3</b></td> <td>Data Degraded in Partition <i>yyyy</i></td> </tr> <tr> <td><b>4</b></td> <td>Medium Degraded</td> </tr> <tr> <td><b>5</b></td> <td>Medium Degraded in Partition <i>yyyy</i></td> </tr> <tr> <td><b>6</b></td> <td>Block 0 Error</td> </tr> <tr> <td><b>7</b></td> <td>Medium Exception</td> </tr> <tr> <td><b>8-F</b></td> <td>Reserved</td> </tr> </tbody> </table> <p>Where italicized fields are determined as follows:</p> <p><b><i>yyyy</i></b> Determined from sense format 70, bytes 14-15</p> <table border="0"> <tbody> <tr> <td><b>4-7</b></td> <td>Reserved</td> </tr> <tr> <td><b>8-9</b></td> <td>Report Severity</td> </tr> <tr> <td><b>0</b></td> <td>Reserved</td> </tr> <tr> <td><b>1</b></td> <td>Moderate</td> </tr> <tr> <td><b>2</b></td> <td>Serious</td> </tr> <tr> <td><b>3</b></td> <td>Acute</td> </tr> <tr> <td><b>10</b></td> <td>Repeated Report Presentation: set to 1 if this MIM was previously reported.</td> </tr> <tr> <td><b>11</b></td> <td>Message To Operator (MTO): set to 1 if this MIM should be reported to the Operator Console.</td> </tr> <tr> <td><b>12-14</b></td> <td>Reserved</td> </tr> <tr> <td><b>15</b></td> <td>Message Data Flag</td> </tr> </tbody> </table>	Bit	Description	<b>0-3</b>	Exception Message Code	<b>0-1</b>	Reserved	<b>2</b>	Data Degraded	<b>3</b>	Data Degraded in Partition <i>yyyy</i>	<b>4</b>	Medium Degraded	<b>5</b>	Medium Degraded in Partition <i>yyyy</i>	<b>6</b>	Block 0 Error	<b>7</b>	Medium Exception	<b>8-F</b>	Reserved	<b>4-7</b>	Reserved	<b>8-9</b>	Report Severity	<b>0</b>	Reserved	<b>1</b>	Moderate	<b>2</b>	Serious	<b>3</b>	Acute	<b>10</b>	Repeated Report Presentation: set to 1 if this MIM was previously reported.	<b>11</b>	Message To Operator (MTO): set to 1 if this MIM should be reported to the Operator Console.	<b>12-14</b>	Reserved	<b>15</b>	Message Data Flag
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<b>15</b>	Message Data Flag																																								
10-11	REF Code																																								
12-13	Medium Identifier (MID) <b>X'0120 - 013F'</b> Half Inch Cartridge Tapes																																								
14-15	Medium Partition																																								
16-21	VOLID  This field contains the volume id, in EBCDIC, associated with the reported condition. If the VOLID is not known or is not reliable, then this field will contain EBCDIC blanks (X'40').																																								
22	Format Identifier <b>X'23'</b> 16X8 (128) Track																																								

Table 7-11. RISC/6000 MIM Sense Bytes (continued)

<b>23-31 Common Sense Bytes</b>	
<b>23</b>	Flags 3
<b>24</b>	Flags 4
<b>25-26</b>	Product Identifier (MM-PP)
<b>27-29</b>	Product Serial (SSSSS)
<b>30</b>	CU/Library Type-Model
<b>31</b>	Device Type-Model



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## Chapter 8. Locations, Checks, Adjustments, Removals, and Replacements

A00 Removal and Replacement . . . . .	8-2
Removal of A00 . . . . .	8-2
Replacement of A00 Controller . . . . .	8-2

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## A00 Removal and Replacement

### Removal of A00

Before removal of the A00 Controller, have the customer take the A00 Controller offline from the host, as the host cable must be removed.

Follow the procedures below to remove the A00 Controller.

**Note:** Each model that contains a A00 Controller has a slightly different set of shelf and mounting hardware, but these differences do not significantly affect removal and replacement of the A00 Controller.

1. On Model A14, D14 and Rack systems, remove the two screws on each side of the bracket holding the A00 Controller to the shelf, and remove the holding bracket.
2. On Model L14, loosen the two screws that retain the holding bracket against the A00 Controller, and lift the holding bracket clear of the A00 Controller.
3. Carefully slide the A00 Controller toward the rear of the frame.
4. Remove the following cables from the rear of the A00 Controller:
  - a. Power cable
  - b. Host cable
  - c. Special "Y" cable to the Serial connector
  - d. Operator panel cable (A14 only) to Parallel connector
  - e. SCSI cable from the 1st drive to Adapter slot 1
5. Slide the A00 Controller to the rear and remove it for service.
6. If service is needed on the A00 Controller, refer to the R/S 6000 Service Manual for procedures. Return here when you are ready to install the A00 Controller back into the frame.

### Replacement of A00 Controller

1. Perform the replacement procedure in the reverse order, then return here.
2. Perform "End of Call" on page 11-3.
3. Use your local procedures to report the FRU part number for the failing part you replaced, and use technical area code (TAC) **xxx** for the area of failure.

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## Chapter 9. Adapter Plugging (ESCON and SCSI) for the A00 Controller

In the field there are two type of SCSI adapter cards used for the A00 controller. One of these types contain a heat sink and require that the Adapter plugging be changed from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 9-1 and Table 9-2.

P/N 05H3090 is the new type with the heat sink, adapter plugging is shown in Table 9-4 and Table 9-3.

Table 9-1. A00 With FC 3311 (Single SCSI, Single ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H2842 - (non heat sinked)
2	(unused)
3	ESCON - 51H8701
4	(unused)

Table 9-2. A00 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 52G3380 - (non heat sinked)
2	SCSI 1 - SCSI Card P/N 52G3380 - (non heat sinked)
3	ESCON 0 - 51H7801
4	ESCON 1 - 51H7801

Table 9-3. A00 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1	ESCON 0 - 51H7801
2	(unused)
3	SCSI - SCSI Card P/N 05H3090 (heat sinked)
4	(unused)

Table 9-4. A00 With FC 3312

Adapter Slot	Adapter Plug
1	ESCON 0- 51H7801
2	ESCON 1-51H7801
3	SCSI 0 - SCSI Card P/N 05H3090 (heat sinked)
4	SCSI 1 - SCSI Card P/N 05H3090 (heat sinked)

---

## A00 Hard Disk Removal and Replacement

### Removal of A00 Hard Disk

Before removal of the A00 Controller, have the customer take the A00 Controller offline from the host, as the host cable must be removed.

This procedure will be sending you to other sections of this MI as well as to the R/S 6000 documentation for some of the procedures. You should always return here after completing those procedures.

Follow the procedures below to remove the A00 Controller hard disk drive.

1. Perform the removal procedure on “A00 Removal and Replacement” on page 8-2.
2. Go to the 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 and perform removal of the hard disk, then return here for further instructions on how to recover the microcode and other data.
3. When the hard disk is removed, and a new one is in hand, go to “Replacement of A00 Controller Hard Disk”.

## Replacement of A00 Controller Hard Disk

1. Refer to 7009 Compact Server Service Guide, Power Station Power Server SA23-2716 for procedures on how to replace the hard disk, and perform basic hard disk recovery. Return here for product specific recovery procedures.
2. Perform “Replacement of A00 Controller” on page 8-2.

**Note:** It is assumed that the hard disk comes formatted.

3. Perform “Installing AIX in the A00 Controller Environment” on page 11-3 and then return here.
4. Perform “A00/A50 Stand-Alone Power On and Checkout” on page 6-57 to ensure that the A00 Controller is now fully operational.
5. Perform “End of Call” on page 11-3.
6. Use your local procedures to report the FRU part number for the FID and use technical area code (TAC) **yyy** for the area of failure.

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## Adapter Plugging (ESCON and SCSI) for the A50 Controller

In the field there are two type of SCSI adapter cards used for the A50 controller. One of these types contain a heat sink and require that the Adapter plugging be changed from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 9-5 and Table 9-6.

*Table 9-5. A50 With FC 3311 (Single SCSI, Single ESCON) Frame*

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H6593
2	(unused)
3	ESCON - 51H8712
4	(unused)

*Table 9-6. A50 With FC 3312 (Dual SCSI, Dual ESCON)*

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H6593
2	SCSI 1 - SCSI Card P/N 40H6593
3	ESCON 0- 51H8712
4	ESCON 1 - 51H8712



## A50 Removal and Replacement

### Removal of A50

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

Follow the procedures below to remove the A50.

**Note:** Each model that contains a A50 has a slightly different set of shelf and mounting hardware, but these differences do not significantly affect removal and replacement of the A50.

1. Carefully slide the A50 toward the rear of the frame.
2. Remove the following cables from the rear of the A50:
  - a. Power cable
  - b. Host cable
  - c. Operator panel cable (A14 only) to Parallel connector
  - d. SCSI cable from the 1st drive to Adapter slot 1
3. Lift the A50 up and remove for service.
4. If service is needed on the A50, refer to the R/S 6000 Service Manual for procedures. Return here when you are ready to install the A50 back into the frame.

### Replacement of A50

1. Perform the replacement procedure in the reverse order, then return here.
2. Perform "End of Call" on page 11-3.
3. Use your local procedures to report the FRU part number for the failing part you replaced, and use technical area code (TAC) **xxx** for the area of failure.

## A50 Hard Disk Removal and Replacement

### Removal of A50 Hard Disk

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

This procedure will be sending you to other sections of this MI as well as to the R/S 6000 documentation for some of the procedures. You should always return here after completing those procedures.

Follow the procedures below to remove the A50 hard disk drive.

1. Go to the Models 140 and 240 Service Guide, SA38-0512 and perform removal of the hard disk, then return here for further instructions on how to recover the microcode and other data.
2. When the hard disk is removed, and a new one is in hand, go to "Replacement of A50 Hard Disk".

### Replacement of A50 Hard Disk

1. Refer to Models 140 and 240 Service Guide, SA38-0512 for procedures on how to replace the hard disk, and perform basic hard disk recovery. Return here for product specific recovery procedures.

**Note:** It is assumed that the hard disk comes formatted.

2. Perform "Installing AIX in the A00 Controller Environment" on page 11-3 and "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7 then return here.
3. Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57 to ensure that the A50 is now fully operational.
4. Perform "End of Call" on page 11-3.
5. Use your local procedures to report the FRU part number for the FID and use technical area code (TAC) **yyy** for the area of failure.

---

## Adapter Plugging (ESCON and SCSI) for the A50 Controller

In the field there are two type of SCSI adapter cards used for the A50 controller. One of these types contain a heat sink and require that the Adapter plugging be changed from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 9-6 on page 9-2.

Table 9-7. A50 With FC 3311 (Single SCSI, Single ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H6593
2	(unused)
3	ESCON - 51H8712
4	(unused)

Table 9-8. A50 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H6593
2	SCSI 1 - SCSI Card P/N 40H6593
3	ESCON 0- 51H8712
4	ESCON 1 - 51H8712

## A50 Removal and Replacement

### Removal of A50

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

Follow the procedures below to remove the A50.

**Note:** Each model that contains a A50 has a slightly different set of shelf and mounting hardware, but these differences do not significantly affect removal and replacement of the A50.

1. Carefully slide the A50 toward the rear of the frame.
2. Remove the following cables from the rear of the A50:
  - a. Power cable
  - b. Host cable
  - c. Operator panel cable (A14 only) to Parallel connector
  - d. SCSI cable from the 1st drive to Adapter slot 1
3. Lift the A50 up and remove for service.
4. If service is needed on the A50, refer to the R/S 6000 Service Manual for procedures. Return here when you are ready to install the A50 back into the frame.

### Replacement of A50

1. Perform the replacement procedure in the reverse order, then return here.
2. Perform "End of Call" on page 11-3.
3. Use your local procedures to report the FRU part number for the failing part you replaced, and use technical area code (TAC) **xxx** for the area of failure.

## A50 Hard Disk Removal and Replacement

### Removal of A50 Hard Disk

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

This procedure will be sending you to other sections of this MI as well as to the R/S 6000 documentation for some of the procedures. You should always return here after completing those procedures.

Follow the procedures below to remove the A50 hard disk drive.

1. Go to the Models 140 and 240 Service Guide, SA38-0512 and perform removal of the hard disk, then return here for further instructions on how to recover the microcode and other data.
2. When the hard disk is removed, and a new one is in hand, go to "Replacement of A50 Hard Disk" on page 9-3.

### Replacement of A50 Hard Disk

1. Refer to Models 140 and 240 Service Guide, SA38-0512 for procedures on how to replace the hard disk, and perform basic hard disk recovery. Return here for product specific recovery procedures.

**Note:** It is assumed that the hard disk comes formatted.

2. Perform "Installing AIX in the A00 Controller Environment" on page 11-3 and "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7 then return here.
3. Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57 to ensure that the A50 is now fully operational.
4. Perform "End of Call" on page 11-3.
5. Use your local procedures to report the FRU part number for the FID and use technical area code (TAC) **yyy** for the area of failure.



---

## Chapter 10. Adapter Plugging (ESCON and SCSI) for the A50 Controller

In the field there are two type of SCSI adapter cards used for the A50 controller. One of these types contain a heat sink and require that the Adapter plugging be changed from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 9-5 on page 9-2 and Table 9-6 on page 9-2.

*Table 10-1. A50 With FC 3311 (Single SCSI, Single ESCON) Frame*

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H6593
2	(unused)
3	ESCON - 51H8712
4	(unused)

*Table 10-2. A50 With FC 3312 (Dual SCSI, Dual ESCON)*

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H6593
2	SCSI 1 - SCSI Card P/N 40H6593
3	ESCON 0 - 51H8712
4	ESCON 1 - 51H8712

---

## A50 Removal and Replacement

### Removal of A50

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

Follow the procedures below to remove the A50.

**Note:** Each model that contains a A50 has a slightly different set of shelf and mounting hardware, but these differences do not significantly affect removal and replacement of the A50.

1. Carefully slide the A50 toward the rear of the frame.
2. Remove the following cables from the rear of the A50:
  - a. Power cable
  - b. Host cable
  - c. Operator panel cable (A14 only) to Parallel connector
  - d. SCSI cable from the 1st drive to Adapter slot 1
3. Lift the A50 up and remove for service.
4. If service is needed on the A50, refer to the R/S 6000 Service Manual for procedures. Return here when you are ready to install the A50 back into the frame.

### Replacement of A50

1. Perform the replacement procedure in the reverse order, then return here.
2. Perform "End of Call" on page 11-3.

- Use your local procedures to report the FRU part number for the failing part you replaced, and use technical area code (TAC) **xxx** for the area of failure.

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## A50 Hard Disk Removal and Replacement

### Removal of A50 Hard Disk

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

This procedure will be sending you to other sections of this MI as well as to the R/S 6000 documentation for some of the procedures. You should always return here after completing those procedures.

Follow the procedures below to remove the A50 hard disk drive:

- Go to the Models 140 and 240 Service Guide, SA38-0512 and perform removal of the hard disk, then return here for further instructions on how to recover the microcode and other data.
- When the hard disk is removed, and a new one is in hand, go to "Replacement of A50 Hard Disk" on page 9-3.

### Replacement of A50 Hard Disk

- Refer to Models 140 and 240 Service Guide, SA38-0512 for procedures on how to replace the hard disk, and perform basic hard disk recovery. Return here for product specific recovery procedures.

**Note:** It is assumed that the hard disk comes formatted.

- Perform "Installing AIX in the A00 Controller Environment" on page 11-3 and "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7 then return here.
- Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57 to ensure that the A50 is now fully operational.
- Perform "End of Call" on page 11-3.
- Use your local procedures to report the FRU part number for the FID and use technical area code (TAC) **yyy** for the area of failure.

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## Adapter Plugging (ESCON and SCSI) for the A50 Controller

Table 10-3. A50 With FC 3311 (Single SCSI, Single ESCON) Frame

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H6593
2	(unused)
3	ESCON - 51H8712
4	(unused)

Table 10-4. A50 With FC 3312 (Dual SCSI, Dual ESCON)

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H6593
2	SCSI 1 - SCSI Card P/N 40H6593
3	ESCON 0 - 51H8712
4	ESCON 1 - 51H8712

## A50 Removal and Replacement

### Removal of A50

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

Follow the procedures below to remove the A50:

**Note:** Each model that contains a A50 has a slightly different set of shelf and mounting hardware, but these differences do not significantly affect removal and replacement of the A50.

1. Carefully slide the A50 toward the rear of the frame.
2. Remove the following cables from the rear of the A50:
  - a. Power cable
  - b. Host cable
  - c. Operator panel cable (A14 only) to Parallel connector
  - d. SCSI cable from the 1st drive to Adapter slot 1
3. Lift the A50 up and remove for service.
4. If service is needed on the A50, refer to the R/S 6000 Service Manual for procedures. Return here when you are ready to install the A50 back into the frame.

### Replacement of A50

1. Perform the replacement procedure in the reverse order, then return here.
2. Perform "End of Call" on page 11-3.
3. Use your local procedures to report the FRU part number for the failing part you replaced, and use technical area code (TAC) **xxx** for the area of failure.

## A50 Hard Disk Removal and Replacement

### Removal of A50 Hard Disk

Before removal of the A50, have the customer take the A50 offline from the host, as the host cable must be removed.

This procedure will be sending you to other sections of this MI as well as to the R/S 6000 documentation for some of the procedures. You should always return here after completing those procedures.

Follow the procedures below to remove the A50 hard disk drive.

1. Go to the Models 140 and 240 Service Guide, SA38-0512 and perform removal of the hard disk, then return here for further instructions on how to recover the microcode and other data.
2. When the hard disk is removed, and a new one is in hand, go to "Replacement of A50 Hard Disk" on page 9-3.

### Replacement of A50 Hard Disk

1. Refer to Models 140 and 240 Service Guide, SA38-0512 for procedures on how to replace the hard disk, and perform basic hard disk recovery. Return here for product specific recovery procedures.

**Note:** It is assumed that the hard disk comes formatted.

2. Perform "Installing AIX in the A00 Controller Environment" on page 11-3, and "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7, then return here.
3. Perform "A00/A50 Stand-Alone Power On and Checkout" on page 6-57 to ensure that the A50 is now fully operational.
4. Perform "End of Call" on page 11-3.


- | 5. Use your local procedures to report the FRU part number for the FID and use technical area code (TAC) **yyy** for the area of failure.



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The  symbol identifies an ESD-sensitive part.

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## End of Call

Table 11-1. End of Call Table for all 3590 Models

<b>&amp;3590 Models</b>	<b>Procedure</b>
3590 Axx Control Unit Problem	Close SIMs at the Control Unit, see “3590 A00 or A50: View SIMs in the 3590 CU SIM Log:” on page 11-30. <b>Note:</b> Ensure that the &RISC is in the NORMAL position
3590 Models B11 and B1A attached to a A00 or A50 Control Unit	Close SIMs at the Control Unit, see “3590 A00 or A50: View SIMs in the 3590 CU SIM Log:” on page 11-30.

---

## Installing AIX in the A00 Controller Environment

**Attention:** If you are installing the Control Unit code in an Axx control unit, and the code level is **at or below 1.9.21.0**, you will also install AIX **4.3.2**. If you are at **1.10.2.xxx** or higher, AIX 4.3.2 should already be installed.

The following steps should be performed in the order indicated:

1. Ensure EBTERM “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13 or at the LM or Service processor is running; refer to the procedure for setting up NetTerm at “Setting up NetTerm Terminal Emulator (Windows 95/98 Platforms)” on page 11-11 if you are running Windows on the service terminal.
2. Attach Service Terminal to Service Panel connector.
3. The 3-digit LED display, located on the front panel of the A00 control unit, can be used to decode values that appear during IML or AIX installation. Refer to either the *7009 Operator’s Guide* or the **START** section of the *7009 Maintenance Information Manual*.
4. Power on or reset the Control Unit so that installation media may be inserted.
  - a. **If the Control Unit is already on:** continue with step 4a1; if not, go to step 4b1.
    - 1) Turn mode switch to the **Service** position (wrench icon).

**Note:** The **MODE SWITCH** is located on the front panel of the A00 Controller. The A00 Controller may have a plastic door which needs to be swung open to expose the panel. In all but the earliest units, the switch appears to be a keylock, but actually requires no key to turn the switch. Use a coin as a key.
    - 2) Depress and release the yellow front-panel reset button **TWICE** in succession.
    - 3) Turn mode switch immediately to **Secure** position (padlock icon). Continue with step 5.
  - b. **If Control Unit is off:**
    - 1) Turn mode switch to the Secure position (padlock icon).
    - 2) Power on the A00 Controller.
5. Wait until 3 digit LED reads '200'.
6. Insert AIX 4.X CD-ROM media into CD-ROM drive.
  - a. Press CD Eject button (wide blue button).
  - b. Pull out clips on CD tray to prevent media from falling.
  - c. Insert media into tray under clips.
  - d. Close tray door by pressing the Eject button again.
7. Insert 3590 Installation BOSDISK Diskette into floppy drive.
8. Turn mode switch to Service (wrench icon).

9. After a few minutes, AIX will begin installation which will take 15 to 20 minutes. You will get a message screen, "**Installing Base Operating System**". You will be told to turn the key to **Normal (OK)** position of the Axx front panel. The screen will display the percent complete.
10. At completion of loading the AIX code, the A00 control unit will automatically Reboot.

**Note:** During AIX installation you will see several screens of activity. Do **NOT** be concerned with any of these messages as long as the install activity continues.

- During the Re-boot, connection to the Service Terminal may be lost. Re-connect **IMMEDIATELY** to be ready for the next step.
11. Wait for "**3590 SERVICE TERMINAL**" screen to appear on the terminal. If it does not appear, go back to step 4 on page 11-3 and repeat the steps.
  12. Remove the diskette and AIX CD-ROM.
  13. To install new control unit code and new drive code, continue with "Installing Control Unit and Drive code in the A00 Controller Environment" on page 11-7.

**Notes:**

1. If the frame does not have a **BULKHEAD CONSOLE CONNECTOR**, or if the RISC/6000 has been removed from the frame, the Service Terminal can be cabled directly to the connector marked 'S' at the rear of the RISC/6000. A null-modem serial cable or equivalent assembly is required.
2. The 3 digit LED display is also located on the front panel of the RISC/6000. To decode values that appear during IML or AIX installation, refer to either the 7009 Operator's Guide or the START section of the 7009 Maintenance Information Manual.

---

## Installing AIX in the A50 Control Unit Environment

**Attention:** If you are installing the Control Unit code in a 3494 Dataserver Library, and the code is at level **1.10.2.0** or higher, you also need to install AIX **4.3.2** or higher.

**Attention:** Unless the code or instructions explicitly provide other options, if the process fails at **ANY** point in the install (including microcode activation or fixpack install), restart from step 1 of the instructions. Not doing so may result in the fixpack not being installed on the machine. If the failure repeats itself, contact support.

The following steps should be performed in the order indicated:

1. Attach the Service Terminal. Use your selected terminal emulator, NetTerm (see "Setting up NetTerm Terminal Emulator (Windows 95/98 Platforms)" on page 11-11) or EBTERM (see "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13).
2. If the Device Terminal display shows an \*, or you are unable to get to the Service Menus, press the **Yellow** reset button on the A50 Controller **TWICE** in succession and wait for the Service logon menu.
3. The 3-digit LED display located on the front panel of the A50 Controller can be used to decode values that appear during IML or AIX installation, refer to either the *7043 Operator's Guide* or *7043 Maintenance Information Manual*.
4. If the A50 Controller is already on, continue with step 4a. If the control unit is off, proceed to step 7 on page 11-5.
  - a. Use the Service Menus to select **Control Unit Shutdown and Restart Menu** (refer to "Shutting Down the A00 or the A50 Controller" on page 11-32).

**Note:** If for some reason you are unable to get the Service Menus, press the **yellow reset** button **twice** in succession.

- b. At the Control Unit Shutdown and Restart Menu, select **Restart AIX and control Unit Code**.
- c. You may see the following warning; *This procedure will stop then restart the control unit code and the AIX operating system ...etc.....*
- d. Press **Enter**.

- e. Press **Enter** to the message **Are you Sure?**. The system will Re-boot.
- f. Insert AIX 4.3.2 (or later) CD-ROM media into CD-ROM drive.
  - 1) Press CD Eject button (wide blue button).
  - 2) Install the CD-ROM in the tray
  - 3) Close tray door by pressing the Eject button again.
5. Insert 3590 Installation BOSDISK into the floppy drive.

**Note:** During the Restart, Connection to the Service Terminal may be lost. Re-connect **IMMEDIATELY** to be ready for the next step.

6. The Control Unit was on when you started, **skip to step 8.**
7. If the control unit is off:
  - a. Power on the A50 controller.
  - b. Insert AIX CD-ROM media into the CD-ROM drive.
    - 1) Press CD Eject button (wide blue button).
    - 2) Install the CD-ROM in the tray.
    - 3) Close tray door by pressing the Eject button again.
  - c. Insert the 3590–Axx BOSDISK diskette into the diskette drive.
8. **Attention: Critical Timing Step**

Wait for the display shown in Figure 11-1 on page 11-6 to appear (**it will appear quickly**). As soon as **Keyboard** appears on the bottom of the screen, **immediately** press **5** a couple of times on the Service Terminal keyboard to direct AIX to load from the CD in the CD-ROM instead of the harddrive. The **only** indication you will receive that the Control Unit is loading from the AIX CD is the flashing LED on the CD-ROM drive.

**Note:** If the screen shown in Figure 11-2 on page 11-6 comes up on the Service Terminal before you enter **5** on the Service Terminal keyboard, you will have to start from the beginning of the procedure.



10. AIX will now automatically be loaded into the RISC from the CD. Progress can be monitored with the front panel LED's or Service Terminal.
11. At completion of loading the AIX code, the A50 Controller will automatically Re-boot.

**Notes:**

- a. During AIX installation you will see several screens of activity. Do **NOT** be concerned with any of these messages as long as the install activity continues.
  - b. During the Re-boot, connection to the Service Terminal may be lost. Re-connect Immediately to be ready for the next step.
  - c. The screens show in Figure 11-1 on page 11-6 and Figure 11-2 on page 11-6 will be displayed again. This time **DO NOT PRESS 5**. Doing so will generate another new reload or AIX (which you just did).
12. Wait for '3590 SERVICE TERMINAL' screen to appear on the terminal.
  13. Remove the diskette and AIX CD-ROM.
  14. To install A50 Controller microcode, go to "Installing Control Unit and Drive code in the A50 Controller Environment" on page 11-9.

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## 3590 A00/A50 Subsystem Microcode Addition or Activation

### Installing Control Unit and Drive code in the A00 Controller Environment

- \_\_\_ 1. Login as **Service**. If you have just installed AIX, skip to step 6.
- \_\_\_ 2. Select **Microcode Maintenance**.
- \_\_\_ 3. Select **Copy Code Image from Source Media**.
- \_\_\_ 4. Select **Copy 3590 Subsystem Code from Source Media**.

**Note:** The Control unit can only store two control unit levels. You may be prompted to delete an earlier level. Follow all system prompts to delete an earlier CU level.

- \_\_\_ 5. You will be prompted to either install from CDs or diskettes. Type C for CD, press **Enter**, and follow the instructions given.
- \_\_\_ 6. You will be prompted to insert the microcode CD. Insert the 3590–Axx CD and press **Enter**. The code will be copied from the CD-ROM to the harddrive.
- \_\_\_ 7. The next screen will display the Control Unit Level. Press **Enter** to activate. The Date and Time, and percent complete will be displayed.
- \_\_\_ 8. Near the end of the code load install, the Service Terminal will prompt you to Press **Enter** to begin.

**Note:** You will only get the following screens (steps 9 through 22 on page 11-8) if you did an AIX install. Otherwise, if the serial number is not equal to zero, the settings are remembered.

- \_\_\_ 9. At the **Date and Time** menu, input the correct date/time and press **Enter**.
- \_\_\_ 10. Press F10 to exit.
- \_\_\_ 11. At the **Use Daylight Savings Time** menu, press the down arrow to select **Yes** or **No**, and press **Enter**.
- \_\_\_ 12. At the **Coordinated Universal Time** time zone menu, select the appropriate time zone for you area and press **Enter**.
- \_\_\_ 13. Press F10 to exit.
- \_\_\_ 14. Press Enter to begin.

- \_\_\_ 15. At the **Add/Change Subsystem Vital Product Data** menu, input the A50 Controller serial number in the **Machine S/N Field** and press **Enter** . A message will appear asking **Are You Sure**; press **Enter** .
- \_\_\_ 16. Press F10 to exit.
- \_\_\_ 17. At the **Select cu0 and update Type and Number of Attached Devices** menu, press **Enter** to begin.
- \_\_\_ 18. The **Control Unit Logical Name** screen will appear, press **Enter** . Verify that the default options are correct or make changes as needed.

Control Unit Logical Name	<b>CU0</b>	Default (Cannot be changed)
Device Buffer Size	<b>XXXXX</b>	Default (Cannot be changed)
Control Unit Type	<b>3590</b>	Default
Bass Address	<b>00</b>	Default
Number of Attached Devices	<b>4</b>	Default
Limited Shared Access Enabled	<b>True</b>	Default (Cannot be changed)

- \_\_\_ 19. Press **Enter** .
- \_\_\_ 20. Press F10.
- \_\_\_ 21. Press **Enter** at the **Now Update Library Interface** information screen.
- \_\_\_ 22. At the **Change Library Attachment Configuration** menu, press F4 on **Attachment Method** and select the appropriate library attachment configuration. Press **Enter** after the data is entered. Press F10 to exit the menu, unless otherwise directed.
- \_\_\_ 23. Wait a few minutes for the following display.

Successful Installation  
Install took - xx minutes

- \_\_\_ 24. Press **Enter** to display Configuration / Status.
- \_\_\_ 25. At the **Service@Local Host** menu, press the spacebar **TWICE** to continue, then press **Enter** . The status screen will reappear and continue installation until successful completion. Press **Enter** .

**Note:** You will **only** get the following prompt if you upgraded to a new level of AIX earlier.

- \_\_\_ 26. You will be prompted to insert the AIX Update (Fixpack CD. Insert the CDROM and press **Enter** . Installation of the Fixpack will take a few minutes. You will be prompted to type **r** and press **Enter** , which will cause the A00 Controller to reboot. When the control unit completes its reboot, the installation is complete and ready for use.
- \_\_\_ 27. Once the A00 Controller starts rebooting, remove the CD and any diskette that might have been installed.

**Note:** The A00 Controller and the drives can be but back **ONLINE** at this time. Use the following procedure to place the CU and drives online.

1. Logon in as **Service**.
2. Select **Control Unit and Tape Drive Online/Offline Control**.
3. Select **Vary Control Unit Online** and press **Enter** .
4. The CU will be highlighted. Press **Enter** .
5. Wait for **OK** to display in the upper left corner of the screen.
6. Press F10 to exit.



## Installing Control Unit and Drive code in the A50 Controller Environment

\_\_ Step 1. Login in as **Service**.

### Notes:

- a. Because code may not be loaded if you did an AIX install, you may get the following message: ***"No microcode has been detected on this control unit. Microcode must be installed in order for the control unit to be functional"***.
- b. The control unit can only store two control unit levels. You may be prompted to delete an earlier level. Follow all system prompts to delete an earlier CU level.

\_\_ Step 2. You will be prompted to either install from CDs or diskettes. Type C for CD, press **Enter** and follow the instructions given.

\_\_ Step 3. You will be prompted to insert the microcode CD with the message: ***"Please insert the Microcode CD into the CD-ROM, then press Enter"***. Insert the 3590–Axx CD and press **Enter**.

\_\_ Step 4. You will see the message, **Copying CU file from CD-ROM** as the code is copied to the harddrive.

\_\_ Step 5. After a short time you will see the message, **Code level copied is x.xx.x.x, Copy complete. Press Enter to activate code**. Press **Enter** to continue.

**Note:** In the message above, refer to 5 the x.xx.x.x will be the actual level of the code.

\_\_ Step 6. The next screen will display Control Unlit Level, Date and Time, and percent complete. This will take a few minutes.

\_\_ Step 7. Near code load install completion, the Service Terminal will prompt you to enter some configuration information. Press **Enter** to begin.

**Note:** You will only get the following screens (steps 8 through 19 on page 11-10) if you did an AIX install. Otherwise, if the serial number is not equal to zero, the settings are remembered.

\_\_ Step 8. At the **Date and Time** menu, input the correct date/time and press **Enter**.

\_\_ Step 9. Press F10 to exit.

\_\_ Step 10. At the **Use Daylight Savings Time** menu, press the down arrow to select **Yes** or **No**, and press **Enter**.

\_\_ Step 11. At the **Coordinated Universal Time** time zone menu, select the appropriate time zone for your area and press **Enter**.

\_\_ Step 12. Press F10 to exit. Press **Enter** to begin.

\_\_ Step 13. At the **Add/Change Subsystem Vital Product Data** menu, input the A50 Controller serial number in the **Machine S/N Field** and press Enter. A message screen will appear asking **Are You Sure?** press **Enter**.

\_\_ Step 14. Press F10 to exit.

\_\_ Step 15. At the **Select cu0 and update Type and Number of Attached Devices** menu, press **Enter** to begin.

\_\_\_ Step 16. The **Control Unit Logical Name** screen will appear with your CU selected. Press **Enter** .  
Verify that the default options are correct or make changes as needed.

Control Unit Logical Name	<b>CU0</b>	Default (Cannot be changed)
Device Buffer Size	<b>XXXXX</b>	Default (Cannot be changed)
Control Unit Type	<b>3590</b>	Default
Bass Address	<b>00</b>	Default
Number of Attached Devices	<b>4</b>	Default
Limited Shared Access Enabled	<b>True</b>	Default (Cannot be changed)

\_\_\_ Step 17. Press **Enter** . Press F10.

\_\_\_ Step 18. Press **Enter** at the **Now Update Library Interface** information screen.

\_\_\_ Step 19. At the **Change Library Attachment Configuration** menu, press F4 on **Attachment Method**, and select the appropriate library attachment configuration.

\_\_\_ Step 20. Press **Enter** after the attachment method is selected. Press F10 to exit the menu, unless other wise directed. Records will update and **Successful Completion** will display.

\_\_\_ Step 21. At the **Service@Local Host** menu, press the spacebar **TWICE**, and press **Enter** .

**Note:** You will **only** get the following prompt if you upgraded to a new level of AIX in the earlier section.

\_\_\_ Step 22. You will now be prompted to insert the AIX update (Fixpack CD. Press Enter. Installation of the Fixpack will take about 5 to 10 minutes.

\_\_\_ Step 23. You will be prompted to type **r** and press Enter which will cause the A50 Controller to reboot. When the Control Unit completes it reboot, the installation is complete and ready for use.

\_\_\_ Step 24. During the reboot, connection to the Service Terminal may be lost. Re-connect **IMMEDIATELY** to be ready for the next step.

\_\_\_ Step 25. Once the Control Unit starts rebooting, remove the AIX update CDROM.

**Note:** The CU and drives can be put back online at this time.

## Microcode Activation in the A50 Controller

**Attention:** If code activation fails, retry. If failure persists, contact support.

The following procedures need to be followed to activate one of the two microcode levels that is stored within the A50 controller.

1. Assure all drives are powered/cabled and on line to port 0; using either the Service Terminal or the LM. Enter **Service** and select **Microcode Maintenance**. Select **List Code Images Available for Activation**, and then select **List 3590 Subsystem Code Images**; check to make sure that the level of microcode you are there to activate is displayed. Depress F3 twice to return to the **Microcode Maintenance** screen.

**Note:** If the level you want to activate is not displayed, do not continue with this process.

2. Select **Activate Code Image**, then select **Activate 3590 Subsystem Code**. A pop up window will appear in the lower half of the screen; select the code load to activate with the cursor and press enter. A series of screens will scroll by that give the status of getting the microcode switched over. This process should take about 3 minutes for the A00/A50 and an additional 3 minutes for each 3590; drive.

**Note: Never Stop Process;** wait for success or failure to occur.

After successful install, hit **ENTER**; verify correct code level and follow menus.

**ATTENTION:** If you are updating the microcode in a A50 controller that is part of a 3494 subsystem, you must make sure that the VPD has been set up to make the connection between the A50 controller and the Library. This can be done as follows:

1. From the main maintenance menu, select **Subsystem Configuration**.
2. From the **Subsystem Configuration** select **Show/Change Library Attachment Configuration**.
3. From the **Show/Change Library Attachment Configuration** screen, select **Change Library Attachment Configuration**, and then press **F4**.
4. In the Pop-Up window select the type of Library Attachment you need, your choices are:
  - a. LAN

**Note:** LAN is not supported by A00/A50

- b. None
- c. RS422

---

## Setting up NetTerm Terminal Emulator (Windows 95/98 Platforms)

1. Start the NetTerm program.
2. From the NetTerm Startup window toolbar, select **File**.
3. From the File pop-up list, select **Phone Directory**.
4. From the Phone Directory window, select the **Modem Test** entry.
5. From the Phone Directory window, modify the following fields to the values listed:

Field	EntryName	3590-A00/A50 & 3494-Bxx Subsystem Service
Emulation	IBM-3151	
Keys	IBM_3151	

6. From the Phone Directory window, verify that the Connection field has **Modem** selected.
7. From the Phone Directory window, click on **Modem Settings**. This will bring up a Communication Setup Window.
8. From the Communication Setup window, click on the **Modems** box. This will bring up a Select Modem window.

9. From the Select Modem window, click on the **No Modem** box. You will be returned to the Phone Directory window.
10. From the Phone Directory window, click on **Modem Settings** to bring up the Communications Setup Window.
11. From the Communications Setup window, modify the following fields to the values listed:

Field	Entry
Port:	COM1
Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop bits:	1
Modem Initialize command - clear this field (leave blank).	

**Control Settings (click on box to change)**

DTR/DSR	box unchecked
RTS/CTS	box unchecked
XON/OFF	box checked
Tone Dialing	box unchecked
Direct Line	box unchecked
Ignore Carrier	box unchecked
Use TAPI	box unchecked

12. After making the changes to the Communication Setup window, click **OK**; you will be returned back to the Phone Directory window.
13. From the Phone Directory window, click on **Desktop**.
14. From the Desktop window, change the following settings:
  - a. Place a checkmark (✓) in the **Autowrap** box.
  - b. Remove the check mark in the **Exit NetTerm on disconnect** box.
15. From the Desktop window click on **OK**; you will be returned back to the phone Directory window.
16. From the Phone Directory window click on **Color**.
17. From the Screen Colors window, place a checkmark (✓) in the **Allow Graphics rendition code of 0 to reset colors to default** box.
18. From the Screen Colors window, click on **OK**. You will be returned back to the Phone Directory window.
19. From the Phone Directory window, click **Add**.

**Note:** The phone Directory entry **3590 & 3494-Bxx Subsystem Service** may not be displayed in the phone directory list until the NetTerm program is exited and restarted.

20. From the Phone Directory window, click **OK**.
21. Start the NetTerm program.
22. From the NetTerm Startup Window toolbar, select **File**.
23. From the File pop-up list, select **Phone Directory**.
24. From the Phone Directory window, select the **Modem Test** entry.
25. From the Phone Directory window, modify the following fields to the values listed:

Field	Entry
Name	3590-A00/A50 & 3494-Bxx Subsystem Service at 38400 BAUD
Emulation	IBM-3151
Keys	IBM_3151

26. From the Phone Directory window, verify that the *Connection* field has **Modem** selected.
27. From the Phone Directory window, click on **Modem Settings**. This will bring up a communication Setup Window.
28. From the Communication Setup window, click on the **Modems** box. This will bring up a Select Modem Window.

29. From the Select Modem window, click on the **No Modem** box. You will be returned to the Phone Directory window.
30. From the Phone Directory window, click on **Modem Settings** to bring up the Communications Setup Window.
31. From the Communications Setup window, modify the following fields to the values listed:

<b>Field</b>	<b>Entry</b>
Port:	COM1
Baud Rate:	38400
Data Bits:	8
Parity:	None
Stop bits:	1

Modem Initialize command - clear this field (leave blank).

**Control Settings (click on box to change)**

DTR/DSR	box unchecked
RTS/CTS	box unchecked
XON/OFF	box checked
Tone Dialing	box unchecked
Direct Line	box unchecked
Ignore Carrier	box unchecked

Use TAPI            box unchecked

32. After making the changes to the Communication Setup window, click **OK**; you will be returned back to the Phone Directory window.
33. From the Phone Directory window, click on **Desktop**.
34. From the Desktop window, change the following settings:
  - a. Place a checkmark (✓) in the **Autowrap** box.
  - b. Remove the check mark in the **Exit NetTerm on disconnect** box.
35. From the Desktop window, click on **OK**; you will be returned back to the phone Directory window.
36. From the Phone Directory window, click on **Color**.
37. From the Screen Colors window, place a checkmark (✓) in the **Allow Graphics rendition code of, 0 to reset colors to default** box.
38. From the Screen Colors window, click on **OK**; you will be returned back tot he Phone Directory window.
39. From the Phone Directory window, click **Add**.

**Note:** The phone Directory entry **3590 & 3494–Bxx Subsystem Service at 38400 BAUD** may not be displayed in the phone directory list until the NetTerm program is exited and restarted.

40. From the Phone Directory window, click **OK**.

---

## Setting up the EBTERM or Terminal Emulator (OS/2 Platform)

EBTERM or Terminal Emulator must be “setup” prior to using for the first time on the 3590 A00/A50 controller tape subsystem. The following steps will show how to accomplish this for EBTERM. If using a different emulator, refer to the manufacturer’s instructions suggested for setup as an IBM 3151 Emulator.

1. Go to “Installing EBTERM or Terminal Emulator in a 3494 Library Manager” on page 11-16 if EBTERM is **NOT** installed. Return here when completed.
2. Start EBTERM by double clicking on the EBTERM icon.
3. Select “Setup” from the toolbar across the top of the window.
4. Select “Dialing Profiles” from the pop-up list.
5. Select “Add Profile” from the pop-up list.
6. Select the first unused profile number from the pop-up list. This will open a window with the title “EBTERM[a]” Dialing Directory: Profile X, where X is the profile number just selected.

7. Set the fields of the following window as shown.

Field Name	Set to Value
Host Location Description	3590-A00/A50 & 3494-B16 Subsystem Service
Modem Initialization	<Clear this field-should be blank>
Number to Dial	<Clear this field-should be blank>
Long Distance Prefix	<Clear this field-should be blank>
Response to Connect	<Clear this field-should be blank>
Serial Port Speed	9600 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Auto
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark ON in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	IBM 3151
Host Codepage	ASCII 437 U.S. English
Host Type	ASCII
Logon Script	None

Point and click on Enter at bottom of the window after setting fields.

8. Select "Setup" from the tool bar across the top of the window.
9. Select "Save as..." from the pop-up list.
10. Press "Enter" to save changes just made.
11. Select "Setup" from the toolbar across the top of the window.
12. Select "Dialing Profiles" from the pop-up list.
13. Select the first unused profile number from the pop-up list. This will open a window with the title "EBTERM[A]" Dialing Directory: Profile X, where X is the profile number just selected.
14. Set the fields of the following window as shown.

Field Name	Set to Value
Host Location Description	3590-A00/A50 Tape Controller Modem Setup
Modem Initialization	AT&FQ1E0\Q1*E1%U1\$B9600&D0*W0&Y0<e <all are the number zero(0)> <alpha characters are upper/lower case sensitive
Number to Dial	<leave blank>
Long Distance Prefix	<leave blank>
Response to Connect	<Clear this field-should be blank>
Serial Port Speed	9600 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Auto
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark ON in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	IBM 3151
Host Codepage	ASCII 437 U.S. English
Host Type	ASCII
Logon Script	None

Point and click on Enter at bottom of the window after setting fields.

15. Select "Setup" from the tool bar across the top of the window.
16. Select "Save as..." from the pop-up list.
17. Press "Enter" to save changes just made.
18. Select "Setup" from the toolbar across the top of the window
19. Select "Dialing Profiles" from the pop-up list.

20. Select "Add Profile" from the pop-up list.
21. Select the first unused profile number from the pop-up list. This will open a window with the title "EBTERM[A]" Dialing Directory: Profile X, where X is the profile number just elected.
22. Set the fields of the following window as shown.

Field Name	Set to Value
Host Location Description	3494-B16 Virtual Tape Server Modem Setup
Modem Initialization	AT&F*E1%U1\$B384000&D0*W0&Y0<e <All are the number zero(0)> <alpha characters are upper/lower case> sensitive>
Number to Dial	<Leave blank>
Long Distance Prefix	<Leave blank>
Response to Connect	<Clear this field-should be blank>
Serial Port Speed	38400 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Ignore
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark OFF in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	IBM 3151
Host Codepage	ASCII 437 U.S. English
Host Type	ASCII
Logon Script	None

23. Point and click on Enter at bottom of the window after setting fields.
24. Select "Setup" from the tool bar across the top of the window.
25. Select "Save as..." from the pop-up list.
26. Press **Enter** to save changes just made.
27. Select "Setup" from the toolbar across the top of the window.
28. Select "Dialing Profiles" from the pop-up list.
29. Select "Add Profile" from the pop-up list.
30. Select the first unused profile number from the pop-up list. This will open a window with the title "EBTERM[A]" Dialing Directory: Profile X, where X is the profile number just selected.
31. Set the field of the following window as shown.

Field Name	Set to Value
Host Location Description	3494-B16 Virtual Tape Server Modem Setup
Modem Initialization	AT&F*E1%U1\$B384000&D0*W0&Y0<e <All are the number zero(0)> <alpha characters are upper/lower case> sensitive>
Number to Dial	<Leave blank>
Long Distance Prefix	<Leave blank>
Response to Connect	<Clear this field-should be blank>
Serial Port Speed	38400 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Ignore
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark OFF in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	IBM 3151
Host Codepage	ASCII 437 U.S. English
Host Type	ASCII
Logon Script	None

32. Point and click on Enter at bottom of the window after setting fields.

33. Select "Setup" from the toolbar across the top of the window.
34. Select "Configuration/Modem" from the pop-up list.
35. Clear the field "Modem Dial Prefix3". Leave all other fields unchanged. Point and click on "Enter" at bottom of window after clearing field.
36. Select "Setup" from the toolbar across the top of the window.
37. Select "Save as..." from the pop-up list.
38. Press **Enter** to save changes just made.

## Installing EBTERM or Terminal Emulator in a 3494 Library Manager

In a 3494 library, the library manager can be used as a terminal for the Model A00 instead of the Service Terminal if the CE chooses to do so. The advantage of using the library manager is that it is already there with a power source, and is easily set up.

EBTERM or Terminal Emulator must be loaded on the library manager just as it is on the Service Terminal. Listed below are the steps that are necessary to install EBTERM on the library manager if not already loaded.

1. Open a service window from the LM (Library Manager)
2. Insert the EBTERM installation diskette into the LM diskette drive
3. Type a:install
4. Remove the diskette from the diskette drive

## Modem Initialization when using the WTI Data Switch (Microcom Deskporte)

The Modem must be initialized prior to using the system. Use the following steps to accomplish this.

**Attention:** The Service Terminal must be set up with EBTERM or Terminal Emulator before continuing with the modem initialization. (See "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13 and "Installing EBTERM or Terminal Emulator in a 3494 Library Manager".)

- \_\_\_ 1. Turn Modem power off.
- \_\_\_ 2. Either the MoST or the Library Manager may be used to initialize the modem.
  - a. If using the MoST terminal:
    - Use the 9 pin to 25 pin cable included with the 3590 Control Unit to use with this procedure. Connect the 9 pin connector to the MoST terminal serial port and the 25 pin connector to the DTE connector on the back of the modem. (Do **NOT** use the null modem adapter that is also provided with the cable.)
  - b. If using the Library Manager:
    - Locate the Service Cable between the Library Manager Com Port A and the null modem connected to the Service Panel (refer to Figure 6-9 on page 6-21). Leave the 9 pin connector of the Service Cable connected to the Library Manager Com Port A. Disconnect the 25 pin connector from the null modem adapter and connect it to the DTE connector on the back of the modem (Do **NOT** use the null modem adapter for this procedure).
- \_\_\_ 3. Remove the small panel (approximately 1.5 inches X 0.3 inches ("DeskPorte FAST") on it) from the front of the modem. There will be a series of switches behind this panel.
- \_\_\_ 4. Set the switches as shown, from left to right.

D D D D D D D U D D D D

**Note:** Only **one** switch is up. The remainder are down. D=down, U=up.

- \_\_\_ 5. Turn modem power on.



- \_\_\_ 6. Start EBTERM.
  - a. Select “**Modify**” from the toolbar across the top of the window.
  - b. In the pop-up list, verify that “**Direct Connect Mode**” does **NOT** have a check mark (✓) next to it.
  - c. Point and click on “**Direct Connect Mode**” if it needs to be changed; remove the Check mark (✓).
- \_\_\_ 7. In the pop-up list displayed (step 6), select “**Dial Prefix Selections**”
- \_\_\_ 8. Select “**External Prefix 2**” from the pop-up list.

**Note:** there should be a check mark (✓) next to “External Prefix2”.

- \_\_\_ 9. Select “**Connect**” from the toolbar across the top of the window.
- \_\_\_ 10. Select “**3494-B16 Virtual Tape Server Modem Setup**” from the pop-up list.
- \_\_\_ 11. The characters “**AT&F\*E1%U1\$B38400&D0\*W0&Y0**”, should be displayed in the EBTERM window. On the next line, **OK** should be displayed.

If the specified displays are not correct;

- a. Check the switch settings in step 4 on page 11-16.
  - b. Return to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13 and make sure that EBTERM was set up correctly.
  - c. If the problem persists, contact your next level of support.
- \_\_\_ 12. Select “**Disconnect**” from the tool bar across the top of the EBTERM window.
  - \_\_\_ 13. Turn modem power “**Off**”.

- \_\_ 14. Reset the switches on the modem (see step 4 on page 11-16).

D D D D D D D D D D

**Note:** all switches are in the down (D) position.

- \_\_ 15. Turn the modem “On” and check the LCD display. The display should continue to show 28.8.

If the displays specified are not correct:

- a. Start at step 1 on page 11-16. If the problem persists, contact your next level of support.

- \_\_ 16. Reinstall the panel removed in step 3 on page 11-16.

---

## Modem Initialization without the WTI Data Switch (Microcom Deskporte)

The Modem must be initialized prior to using the system. Use the following steps to accomplish this.

**ATTENTION:** The Service Terminal must be set up with EBTERM or Terminal Emulator before continuing with the modem initialization. (See “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13 and “Installing EBTERM or Terminal Emulator in a 3494 Library Manager” on page 11-16.)

- \_\_ 1. Turn Modem power off.
- \_\_ 2. Either the MoST or the Library Manager may be used to initialize the modem.
- a. If using the MoST Terminal: Use the 9 pin to 25 pin cable included with the 3590 Control Unit to use with this procedure. Connect the 9 pin connector to the MoST terminal serial port and the 25 pin connector to the DTE connector on the back of the modem. (Do **NOT** use the null modem adapter that is also provided with the cable.)
- b. If using the Library Manager: Locate the Service Cable between the Library Manager Com Port A and the null modem connected to the Service panel (refer to Figure 6-8 on page 6-20). Leave the 9 pin connector of the Service Cable connected to the Library Manager Com Port A. Disconnect the 25 pin connector from the null modem adapter and connect it to the DTE connector on the back of the modem. (Do **NOT** use the null modem adapter for this procedure.)
- \_\_ 3. Remove the small panel (approximately 1.5 inches X 0.3 inches (“DeskPorte FAST”) on it) from the front of the modem. There will be a series of switches behind this panel.
- \_\_ 4. Set the switches as shown, from left to right.

D D D D D D D U D D D D

**Note:** Only **one** switch is up. The remainder are down. D=down, U=up.

- \_\_ 5. Turn modem power on.
- \_\_ 6. Start EBTERM.
- a. Select “**Modify**” from the toolbar across the top of the window.
- b. In the pop-up list, verify that “**Direct Connect Mode**” does **NOT** have a check mark (✓) next to it.
- c. Point and click on “**Direct Connect Mode**” if it needs to be changed; remove the Check mark (✓).
- \_\_ 7. In the pop-up list displayed, select “**Dial Prefix Selections**”
- \_\_ 8. Select “**External Prefix 2**” from the pop-up list.

**Note:** There should be a check mark (✓) next to “External Prefix2”.

- \_\_ 9. Select “**Connect**” from the toolbar across the top of the window.
- \_\_ 10. Select “**3590-A00/A50 Controller Modem Setup**” from the pop-up list.

- \_\_ 11. The characters “AT&FQ1E0\Q1\*E1%U1\$B9600&D0\*W0&Y0”, should be displayed in the EBTERM window. On the next line, **OK** should be displayed.

**Note:** If the displays specified are not correct,; check the switch settings in step 4 on page 11-16. Return to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13 and make sure that EBTERM was set up correctly. If the problem persists, contact your next level of support.

- \_\_ 12. Select “**Disconnect**” from the tool bar across the top of the EBTERM window.
- \_\_ 13. Turn modem power “**Off**”.
- \_\_ 14. Reset the switches on the modem (see step 4 on page 11-16).

D D D D D D D D D D

**Note:** All switches are in the down (D) position. Turn the modem “**On**” and check the LCD display. The display should continue to show 9.6.

**Note:** If the displays specified are not correct, start at step 1 on page 11-16. If the problem persists, contact your next level of support.

- \_\_ 15. Reinstall the panel removed in step 3 on page 11-16.

## Local Setup and Testing of WTI Switch

1. The WTI data switch may be tested/used locally by disconnecting the modem and connecting the Service Terminal (MoST or LM).
2. If using MDS-16 switch:
  - a. Remove the RJ12 cable from the SA25 Connector at the back of the modem.
  - b. Connect this RJ12 cable to a spare SA12 connector with a gender changer to the end of the Service Terminal 9 to 25 pin cable (see Figure 11-3).

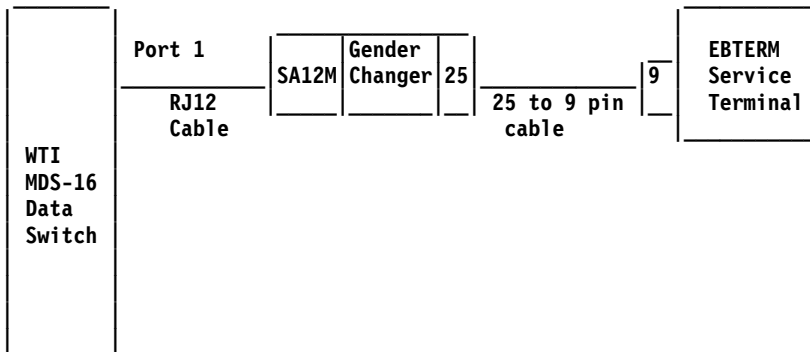


Figure 11-3. Local Setup and Test of MDS Switch

3. If using APS-16 switch:
  - a. Unplug the modem, 9 to 25 pin cable from the back of the modem.
  - b. Connect the 25 pin end just unplugged to the end of the Service Terminal cable. Use the Null Modem Adapter with the gender changer between the two 25 pin connectors (see Figure 11-4 on page 11-20).

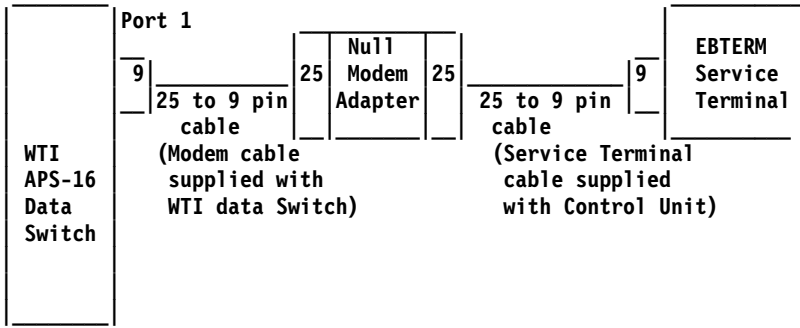


Figure 11-4. Local Setup and Test of APS Switch

4. Change the EBTERM baud rate to match the speed to the WTI switch port 1.

**Notes:**

- 1) Some EBTERM configurations use the Right Ctrl key as the “Enter” key.
- 2) Holding down the “E” key long may cause the WTI switch to enter an error state. Use WTI Error Correction Table below to correct.
  - a. Start EBTERM.
  - b. Select “**Setup**” from the tool bar across the top of the window.
  - c. Select “**Dialing Profiles**” from the pop-up list.
  - d. Select “**Update Profile**” from the pop-up list.
  - e. Select “**3590-A00/A50 & 3494-B16 Subsystem Service**” from the pop-up list
  - f. Change the **Serial Port Speed** from 9600 to 38400.
  - g. Point and click on Enter at bottom of window after changing Serial Port Speed.

**Note: IMPORTANT:** The speed will need to be changed back to 9600 after testing the WTI switch.

5. From EBTERM, select “**Modify**” from the tool bar across the top of the window. In the pop-up window verify the “**Direct Connect Mode**” has a check mark (✓) next to it. Point and click on “**Direct Connect Mode**” if you need to change it.
6. From EBTERM, select “**Connect**” from the tool bar across the top of the window. In the pop-up window select “**3590-A00/A50 & 3494-B16 Subsystem Service**”.
7. Wait for EBTERM to complete the connection before continuing. EBTERM is connected when the top status line changes from **EBTERM[A] [min]:** to **EBTERM[A] [0]:**
8. Issue the WTI “**Wake Port**” command to access the WTI switch Command Mode. Type “/”, then press and hold “**Ctrl**” key and momentarily press the **E** key; release the “**Ctrl**” key, then press “**Enter**”.
  - a. If the “MDS>” or “APS>” prompt is displayed, you have successfully accessed the WTI switch Command Mode.
  - b. If the “MDS>” or “APS>” prompt is not displayed, try the following to correct.

Table 11-2. WTI Error Correction Table.

Condition	Procedure to Correct
WTI switch in error state because the “E” key was held down to long in <b>Wake Port</b> command sequence (8).	Issue the Disconnect Sequence to the WTI switch. On your Service Terminal press “Enter”, then press “+” three times, then press “Enter”. This will put the switch in the state where the “APS>” or “MDS>” prompt is displayed but will not accept the “/H” or “/S” commands. Use the procedure in the next entry of this table to correct.

Table 11-2. WTI Error Correction Table. (continued)

Condition	Procedure to Correct
"APS>" or "MDS>" prompt is displayed but does not echo "/H" or "/S" to display when entered.	<ol style="list-style-type: none"> <li>1) Re-enter "WakePort" command (8 on page 11-20) and retry "/H" or "/S" command.</li> <li>2) If step 1 did not correct: <ol style="list-style-type: none"> <li>a) Select "Disconnect" from the EBTERM toolbar.</li> <li>b) On the WTI switch press and hold both the SET button and the CLEAR button. Release only the CLEAR button, and then release the SET button.</li> <li>c) Repeat steps 6 on page 11-20 through 8 on page 11-20 above.</li> </ol> </li> </ol>
WTI switch port that you are using has been left in a connected state to another port on the WTI data switch.	<p>Issue the Disconnect Sequence to the WTI switch. On you Service Terminal press "Enter", then press "+" three times, the press "Enter".</p> <p><b>Note:</b> The sequence above is (Enter + + + Enter)</p>
BAUD rate mismatch between WTI switch and EBTERM.	Verify that EBTERM setup has been changed to match the WTI port 1 baud rate; refer to 4 on page 11-20.
WTI setup switches not set correctly.	Refer to table on Table 6-6 on page 6-27 for correct switch setting for your configuration.
WTI switch has not been initialized with setting.	Press and hold both the <b>SET</b> button and the <b>CLEAR</b> button on the front of the WTI data switch. Release only the <b>CLEAR</b> button, and then release the <b>SET</b> button.

9. Display the WTI switch help screen:

- a. From the WTI "MDS>" or "APS>" prompt on the Service Terminal, type: "/h" then press "ENTER".
- b. The display should now show:

COMMAND MENU:

```

/^ E           Wake-up port
/X           Sleep - only accepts Wake-up command
/H           Help - displays command list
/S           Status - displays status screen
/W [n]       Who - displays port parameters
/C <n> [n]   Connect - local [remote] | N Port #
/D <n> ... *> Disconnect           | "or"
/E <n> ... *> Erase Buffer           | * "all"
/I           Initialize/test unit   | < Required entry |
/F           Enter Site ID          | [] Optional entry |
/J           Read Site ID
/P [n]       Set Port Parameters
/U           Read Port Parameters
/L-<N>       Load Port Parameters
/G-00       Reinitialize All Ports
    
```

/D, /E, /I commands: add /Y to bypass "Are you sure (y/n)?"

APS> -

Figure 11-5. WTI Command Menu Screen.

10. Display the WTI switch status screen:
  - a. From the WTI “MDS>” or “APS>” prompt on the Service Terminal type: “/s” then press “ENTER”.
  - b. The display should now show: (MDS-16 screen will be slightly different).

SYSTEM STATUS			VERSION 1.1						
PORT	NAME	STATUS	BAUD	COM	HS	MODE	TIMEOUT	BUF	CTS
01+		*Free	38.4K	8N1	RTS	Any	Off	0	H
02+		Free	38.4K	8N1	RTS	Any	Off	0	L
03		Free	38.4K	8N1	RTS	Any	Off	0	L
04		Free	38.4K	8N1	RTS	Any	Off	0	L
05		Free	38.4K	8N1	RTS	Any	Off	0	L
06		Free	38.4K	8N1	RTS	Any	Off	0	L
07		Free	38.4K	8N1	RTS	Any	Off	0	L
08		Free	38.4K	8N1	RTS	Any	Off	0	L
09		Free	38.4K	8N1	RTS	Any	Off	0	L
10		Free	38.4K	8N1	RTS	Any	Off	0	L
11		Free	38.4K	8N1	RTS	Any	Off	0	L
12		Free	38.4K	8N1	RTS	Any	Off	0	L
13		Free	38.4K	8N1	RTS	Any	Off	0	L
14		Free	38.4K	8N1	RTS	Any	Off	0	L
15		Free	38.4K	8N1	RTS	Any	Off	0	L
16		Free	38.4K	8N1	RTS	Any	Off	0	L

APS>

Figure 11-6. WTI Switch System Status Screen.

11. Set WTI APS-16 Data Modem Mode (for WTI APS-16 only),
  - a. From the WTI “APS>” prompt on the Service Terminal, type “/p 1” then press “ENTER” to select PORT PARAMETERS for the modem port.
  - b. Enter “1” then press “ENTER” to select PORT NAME option.
  - c. Enter the word “Modem” and press “ENTER”.
  - d. You should still be at the PORT PARAMETERS #01 menu. Type “7” then press “ENTER” to select MODE menu.
  - e. From the INPUT MODE menu type “4” then press “ENTER” to select “Modem”.
  - f. You should still be at the PORT PARAMETERS #01 menu. Type “71” and then press “ENTER” to select RESET STRING menu.
  - g. From the RESET STRING menu, press the “SPACE” bar and then press “ENTER” to clear the RESET STRING.
  - h. You should still be at the PORT PARAMETERS #01 menu. Type “71” then press “ENTER” to select INIT STRING menu.
  - i. From the INIT STRING menu, press the “SPACE” bar and then press “ENTER” to clear the INIT STRING.
  - j. You should still be at the PORT PARAMETERS #01 menu. Type “73” then press “ENTER” to select HANG-UP STRING menu.
  - k. From the HANGUP STRING menu type “ATH0” (0 is the number zero) then press “ENTER” to set the HANG-UP STRING.
  - l. You should still be at the PORT PARAMETERS #01 menu. Type “2” then press “ENTER” to select PASSWORD.
  - m. Type “pfe4u” as the password then press “ENTER”.

**Note:** If the customer requests a specific password, enter the customer's password instead of pfe4u.

- n. You should still be at the PORT PARAMETERS #01 menu. Verify that menu number **71** and **72** are both set to **undefined** and that menu number **73** is set to **ATH0**. Also verify that the **PASSWORD** is set to **pfe4u**. The Service Terminal screen should now show:

**PORT PARAMETERS #01**

```

1. PORT NAME:           Modem
2. PASSWORD:            pfe4u
3. BAUD RATE:           38.4K
4. BITS/PARITY:         8-None
5. STOP BITS:           1
6. HANDSHAKE:           RTS/CTS
7. MODE:                Modem
  71. RESET STRING:     (undefined)
  72. INIT STRING:      (undefined)
  73. HANG-UP STRING:   ATH0
8. COMMANDS:            All
9. LOGOFF CHAR:         +
10. SEQUENCE DISC:      0n
11. TIMEOUT DISC:       15 Min
12. MESSAGE TYPE:       Verbose
13. ECHO:                0n
  
```

```

Enter: "<" previous port,
      ">" next port,
      "##" change parameter,
      <CTRL-X> exit ...
  
```

- o. Press the left **Ctrl** and the **X** keys simultaneously to exit the PORT PARAMETERS screen. This will take you back to the "APS>" prompt. An example of a typical screen is shown:

**SYSTEM STATUS**

**VERSION 1.1**

PORT	NAME	STATUS	BAUD	COM	HS	MODE	TIMEOUT	BUF	CTS
01+	Modem	*Free	38.4K	8N1	RTS	Modem	15 Min	0	H
02+	LM	Free	38.4K	8N1	RTS	Any	Off	0	H
03	A00_F00	Free	9600	8N1	XON	Any	Off	0	H
04	A50_FC0	Free	9600	8N1	XON	Any	Off	0	H
05	B16_C00	Free	38.4K	8N1	RTS	Any	Off	0	H
06		Free	38.4K	8N1	RTS	Any	Off	0	L
07		Free	38.4K	8N1	RTS	Any	Off	0	L
08		Free	38.4K	8N1	RTS	Any	Off	0	L
09		Free	38.4K	8N1	RTS	Any	Off	0	L
10		Free	38.4K	8N1	RTS	Any	Off	0	L
11		Free	38.4K	8N1	RTS	Any	Off	0	L
12		Free	38.4K	8N1	RTS	Any	Off	0	L
13		Free	38.4K	8N1	RTS	Any	Off	0	L
14		Free	38.4K	8N1	RTS	Any	Off	0	L
15		Free	38.4K	8N1	RTS	Any	Off	0	L
16		Free	38.4K	8N1	RTS	Any	Off	0	L

APS>

12. Enter port 1 "Name" (for WTI MDS-16 only).
  - a. From the WTI "MDS>" prompt on the Service Terminal, type: **"/p 1"** then press **"ENTER"**.
  - b. The display should now show:

**PORT PARAMETERS #01**

```

1. PORT NAME:          (undefined)
2. PASSWORD:          (undefined)
3. BAUD RATE:         38.4K
4. BITS/PARITY:       8-None
5. STOP BITS:         1
6. HANDSHAKE:         RTS/CTS
7. MODE:              Any-to-Any
8. COMMANDS:          All
9. LOGOFF CHAR:       +
10. SEQUENCE DISC:    On
11. TIMEOUT DISC:     Off
12. MESSAGE TYPE:     Verbose
13. ECHO:              On

```

Enter: "<" previous port,  
 ">" next port,  
 "##" change parameter,  
 <CTRL-X> exit ...

*Figure 11-7. WTI Switch Port Parameters #01 Screen.*

- c. Enter **"1"** then press **"ENTER"** to select the PORT NAME option.
  - d. Enter the word **"Modem"** then press **"ENTER"**.
  - e. Press the left **Ctrl** and the **X** keys simultaneously (on some MDS-16 you may need to press **ESC**) to exit this screen. This will take you back to the "MDS>" prompt.
  - f. Enter **"/s"** to display the status screen. The word **Modem** should now be displayed in the Name column for Port 1.
13. Enter port 2 "name".
  - a. From the WTI "WTI>" or "APS>" prompt on the Service Terminal, type **"/p 1"** then press **"ENTER"**
  - b. Enter **"1"** then press **"ENTER"** to select the PORT NAME option.
  - c. Enter the word **"LM"** then press **"ENTER"**.
  - d. Press the left **Ctrl** and the **X** keys simultaneously (on some MPS-16 you may need to press **ESC**) to exit this screen. This will take you back to the "APS>" or "MPS>" prompt.
  - e. Enter **"/s"** to display the status screen. The word **LM** should now be displayed in the name column for port 2.
14. Configure WTI ports that have a 3590-A00/A50 connected.
  - a. From the WTI "MDS>" or "APS>" prompt on the Service Terminal, type: **"/p n"** ("**n**" is the port number that has the A00/A50 connected) then press **"ENTER"**, You should be at the PORT PARAMETERS screen for the selected port.
  - b. Enter 1 then press **"ENTER"** to select the **PORT NAME** option.
  - c. Enter a descriptive name to identify the A00/A50 then press **"ENTER"**
  - d. You should still be at the **PORT PARAMETERS** screen for the selected port. From this screen menu, enter the number to select the **BAUD RATE** and then press **"ENTER"**.



- e. From the BAUD RATE menu select the number for 9600 and then press “**ENTER**”.
  - f. You should still be at the **PORT PARAMETERS** screen for the selected port. From this screen menu enter the number to select **HAND SHAKE** and then press “**ENTER**”.
  - g. From the HAND SHAKE menu select the number for **XON/XOFF** and then press “**ENTER**”.
  - h. Press the left **Ctrl** and the **X** keys simultaneously (on some MDS-16 you may need to press **ESC**). This will take you back to the “APS>” or “MDS>” prompt.
  - i. Enter “/s” to display the status screen. Verify the **NAME**, **BAUD RATE**, and **HAND SHAKE** columns are correct for the port you just configured.
  - j. Repeat from 14 on page 11-24 for each A00/A50 connected to the WTI data switch.
15. Configure WTI ports that have a 3494-B16 connected. (Only the NAME field need to be entered for the 3494-B16. The other parameters should note be changed).
    - a. From the WTI “MDS>” or “APS>” prompt on the Service Terminal, type: /p n (n is the port number that has the A00/A50 connected) then press “**ENTER**”, You should be at the PORT PARAMETERS screen for the selected port.
    - b. Enter “1” then press “**ENTER**” to select the **PORT NAME** option.
    - c. Enter a descriptive name to identify the B16 then press “**ENTER**”
    - d. Press the left **Ctrl** and the **X** keys simultaneously (on some MDS-16 you may need to press **ESC**). This will take you back to the “APS>” or “MDS>” prompt.
    - e. Enter “/s” to display the status screen. Verify the **NAME** column is correct for the port you just configured.
    - f. Repeat steps from 15 for each B16 connected to the WTI data switch.
  16. Verify connections to A00/A50 controls units.

**Note:** These steps will not work with B16 control units as they use a protocol not compatible with EBTERM.

- a. To connect the switch port 1 to an A00/A50 enter “/c n” (“n” is the port number of the A00/A50 you want to connect to) then press “**ENTER**”.
- b. The following screen will be displayed when the A00/A50 is connected through the WTI switch (you may need to press “**ENTER**” a second time to display screen).

**IBM 3590 ESCON CONTROL UNIT**  
Service Terminal

Available menus:

Service	Service Menu
Extended	Extended Service Menu (password required)

Please enter a menu name:

Figure 11-8. Initial 3494 Service Terminal Screen

- c. Enter “**Service**” then press “**ENTER**” to go to the service menus.
- d. This completes the checkout for this port. Press **F10** to exit the service menu.
- e. Issue the WTI Disconnect Sequence. Press “Enter”, then press “+” three times, the press “Enter”

**Note:** The sequence above is (Enter + + + Enter)

The screen should now display the "APS>" or the "MDS>" prompt.

- f. Repeat from 16 on page 11-25 for each A00/A50 attached to the WTI switch.
17. From the "APS>" or "MDS>" prompt enter **"/x"** then press **"ENTER"**. The word **Asleep** should now be displayed indicating that the switch is in the sleep mode.
18. Disconnect your Service Terminal from port 1 of the WTI switch and reconnect the modem to port 1.
19. Change the EBTERM baud rate back to 9600.
  - a. Start EBTERM.
  - b. Select **"Setup"** from the tool bar across the top of the window.
  - c. Select **"Dialing Profiles"** from the pop-up list.
  - d. Select **"Update Profile"** from the pop-up list.
  - e. Select **"3590-A00/A50 & 3494-B16 Subsystem Service"** from the pop-up list.
  - f. Change the **Serial Port Speed from 38400 to 9600.**
  - g. Point and click on Enter at bottom of window after changing the Serial Port Speed.
20. Contact your support center and have them call the modem to verify the modem to WTI switch connection.

---

## ESCON System Interface Checkout

- \_\_\_ 1. Refer to your host operating system and host hardware checkout procedures for a system level test of the A00 Controller or A50 Controller ESCON interface.
- \_\_\_ 2. When you are satisfied that everything is working, turn the product over to the customer.

---

## Adapter Plugging (ESCON and SCSI) for the A00 Controller

In the field there are two types of SCSI adapters used for the A00 controller. One type contains a heat sink and requires a change in the Adapter plugging from the original configuration.

P/N 40H2842 is the original type without the heat sink, adapter plugging is shown in Table 11-3 and Table 11-4.

P/N 05H3090 is the new type with the heat sink, adapter plugging is shown in Table 11-6 on page 11-27 and Table 11-5 on page 11-27.

*Table 11-3. A00 With FC 3311 (Single SCSI, Single ESCON) Frame*

Adapter Slot	Adapter Plug
1	SCSI - SCSI Card P/N 40H2842
2	(unused)
3	ESCON
4	(unused)

*Table 11-4. A00 With FC 3312 (Dual SCSI, Dual ESCON)*

Adapter Slot	Adapter Plug
1	SCSI 0 - SCSI Card P/N 40H2842
2	SCSI 1 - SCSI Card P/N 40H2842
3	ESCON 1
4	ESCON 2

Table 11-5. A00 With FC 3311 (Single SCSI, Single ESCON)

Adapter Slot	Adapter Plug
1	ESCON
2	(unused)
3	SCSI - SCSI Card P/N 05H3090
4	(unused)

Table 11-6. A00 With FC 3312

Adapter Slot	Adapter Plug
1	ESCON 1
2	ESCON 2
3	SCSI 0 - SCSI Card P/N 05H3090
4	SCSI 1 - SCSI Card P/N 05H3090

---

## Prepare the A00 or the A50 Controller for Service

The control unit must be offline to the customer before starting and type of service. The following list will correctly take the CU offline.

1. Notify the Customer that you require the Subsystem offline. All customer operations to the subsystem must be halted.
2. Ensure EBTERM "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13 at the LM or Service processor is running.
3. From the 3590 Subsystem Maintenance screen, select **Control Unit and Drive Online/Offline Control**.
4. Following the repair action, be sure to go to "End of Call" on page 11-3 and close any open SIMs before returning Subsystem to the customer.

**Note:** Remember to re-connect the remote service cable to the switch when call is complete.

---

## Setting Service Mode in the A50 Controller

There are two ways to set service mode in the A50;

1. Service Mode Boot is used if you are to run the RISC diagnostics from the diagnostic CD-ROM; see "Service Mode Boot"..
2. Service Mode from the Custom Boot List, this does not require a disk, see "Booting in Service Mode from the Custom Boot List" on page 11-28

## Service Mode Boot

- \_\_\_ 1. Verify with the system administrator and users that all activities and programs to the A00/A50 are stopped.
- \_\_\_ 2. Power off the system.
- \_\_\_ 3. Wait 30 seconds, then POWER on.
- \_\_\_ 4. Start EBTERM **immediately**. See "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13.
- \_\_\_ 5. Press the **6** key on the keyboard.
- \_\_\_ 6. Enter passwords, as required.

## Booting in Service Mode from the Custom Boot List

1. Verify with the system administrator and users that all activities and programs to the A00/A50 are stopped.
2. Insert the diagnostic CD-ROM into the CD-ROM drive if you intend to run standalone diagnostics.
3. Power off the system.
4. Wait 30 seconds, then POWER on the system.
5. Start EBTERM **immediately**. See “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
6. Press the **5** key on the keyboard.
7. Enter passwords, as required.

---

## 3590 A00 or A50: Retrieving Engineering and Dump Data

The 3590 A00 or A50 automatically save trace, dump and error information whenever errors occur or unexpected conditions arise. The error data aids in problem resolution without having to recreate the exception conditions.

To retrieve Engineering and Dump Data (including device dumps):

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Subsystem Trace and Dump**. Press **ENTER**.
3. Select **Select Trace/Dump Files and Copy to Diskette**. Press **ENTER**.
4. Press **PF4** to display a list of available files.
5. Unless otherwise directed, select **ALL\_ENGR\_FILES** to offload all the engineering and dump data files. Press **ENTER** (twice).
6. Follow the instructions that appear on the interactive status screen.

### Notes:

- 1.44 MB (or greater) diskettes are required.
- DISKETTES MUST BE INSERTED IN THE A00 Controller or A50 Controller FLOPPY DISK DRIVE, NOT THE FLOPPY DISK DRIVE ON THE SERVICE TERMINAL.
- The procedure will format the diskettes if they are not already formatted.
- The procedure will offer to erase all files on the diskette if there is not enough space available.
- 7. When the procedure has completed, press **PF3** to return to the “3590 Subsystem Maintenance” display.

---

## 3590 A00 and A50: Show/Change SIM and MIM Reporting Level

The 3590 A00 and A50 Controller offloads SIM sense records to the host with a “message to Operator” control bit that the host software can use to determine whether to display a message on the host console or not. The CU sets this bit based on the severity of the SIM and according to a “clip level” that can be set from the Service Terminal. If “clip level” is specified, then the 3590 CU default is to turn the “message to Operator” bit on for all SIMS with a severity of 2 (Serious) or higher.

To Show/Change the SIM and MIM Severity Reporting Level:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Service Information Message (SIM) Maintenance**. Press **ENTER**.
3. Select **Show/Change Error Match Code (EMC) settings**. Press **ENTER**.

4. The current value is displayed (if no value has been specified, then the current value will read "NOT\_INITIALIZED").
5. To change the current value, press **PF4** to display a list of options, select the desired value. Press **ENTER** (twice).
6. The command status panel will be displayed.
7. When Command: **OK**, the command has completed.
8. Press **PF3** and return to the "3590 Subsystem Maintenance" panel.

---

## 3590 A00 or A50: Set Error Match Codes

The 3590 CU allows for up to 4 Error Match Codes (EMCs) to be enabled at one time. As described here, a variety of actions can be initiated by an EMC "hit". EMCs should only be set under the supervision of your next level of support.

To set an Error Match Code:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13.
2. At the "3590 Subsystem Maintenance" panel, select **Subsystem Trace and Dump**. Press **ENTER**.
3. Select **Show/Change Error Match Code (EMC) Settings**. Press **ENTER**.
4. There are four EMC entries and four fields per entry:
  - EMC MDE Code:  
This is the AIX errid to match. If this entry is left as all 0's, then the AIX errid will be ignored and only the MDE code/mask fields will be checked for a match.
  - EMC MDE Code:  
This is the 3590 CU Microcode Detected Error (MDE) code to match. If this entry is left as all 0's, then the MDE code will be ignored and only the AIX errid field will be checked for a match.
  - EMC MDE Mask:  
This is a bit mask that is AND'ed with the MDE code that gets logged, then checked against the EMC MDE Code for a match. If you want to match the EMC MDE Code exactly, then this field should be set to X'FFFF':
  - EMC Action Code:  
Each bit in this field specifies an action to be taken when a "hit" occurs or a characteristic of this EMC entry (SAVE across IMLs). Some possible actions are:
    - Do not log the error to the error/SIM log
    - Reset EMC code when 1st "hit" occurs
    - Snapshot trace when a "hit" occurs
    - Force a dump when a "hit" occurs
    - Kill the entire CU when a "hit" occurs
    - Start a trace when a "hit" occurs
    - Send a SIM when a "hit" occurs
5. Fill in the appropriate fields for one or more EMC entries. Press **ENTER**.
6. The command status panel will be displayed.
7. When COMMAND: **OK** the command has completed.
8. Press **PF3** twice to return to the "3590 Subsystem Maintenance" display.

---

## 3590 A00 or A50: Reset Set Error Match Codes

### Reset ALL Error Match Codes

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Subsystem Trace and Dump**. Press **ENTER**.
3. Select **Clear (Disable) all Error Match Code (EMC) Settings**. Press **ENTER**.
4. A warning screen will appear. Select **ENTER** to continue or **PF3** to cancel.
5. The command status panel will be displayed.
6. When Command: **OK**, the command has completed.
7. Press **PF3** and return to the “3590 Subsystem Maintenance” panel.

### Reset Individual Error Match Codes

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Subsystem Trace and Dump**. Press **ENTER**.
3. Set all 4 fields of the EMC entry(ies) that you want to reset to 0's. Press **ENTER**.
4. The command status panel will be displayed.
5. When Command: **OK**, the command has completed.
6. Press **PF3** and return to the “3590 Subsystem Maintenance” panel.

---

## 3590 A00 or A50: View SIMs in the 3590 CU SIM Log:

The 3590 CU records the SIM data for all SIMs sent to the host. This data is used to assist in problem analysis and resolution, and as a basis for subsequent SIM representation when a problem has not been resolved. It is important to close out SIMs at the conclusion of a maintenance call to avoid having erroneous SIM messages represented to the host.

### View SIMs in the 3590 CU SIM Log:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Subsystem Information Message (SIM) Maintenance**. Press **ENTER**.
3. Select the appropriate action:
  - If you suspect that the source of the problem is the A00 Controller or A50 Controller, select **Show List/Detail of an OPEN Control Unit SIM**. Press **ENTER**.
  - If you suspect that the source of the problem is a device: Select **Show List/Detail of an OPEN Tape Drive SIM**. Press **ENTER**.
  - If you do not know the source of the problem: Select **Show List/Detail of any OPEN SIMs**. Press **ENTER**.
4. If you know the SIM ID of the SIM that you want to view, enter it in the entry field and press **ENTER** to view the detailed data for that SIM. Otherwise, press **PF4** to display a summary list of all the SIM's that meet the criteria specified in step 3.
5. To view the detailed data or an individual SIM entry from the summary list, select the entry and press **ENTER** twice.
6. Press **PF4** to return to the previous panel.
7. Press **PF3** repeatedly to return to each prior panel.

## Close SIMs in the 3590 A00 or A50 SIM Log:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. At the “3590 Subsystem Maintenance” panel, select **Subsystem Information Message (SIM) Maintenance**. Press **ENTER**.
3. Select the appropriate action:
  - If you are here to close a Controller SIM: Select **Change an OPEN Control Unit SIM to CLOSED**. Press **ENTER**.
  - If you want to close a Device SIM: Select **Change an OPEN Tape Drive SIM to CLOSED**. Press **ENTER**.
  - If you want to close ALL OPEN SIM's: Select **Change ALL OPEN SIMs to CLOSED**. Press **ENTER**.
4. If you are closing an individual SIM, then enter the SIM ID of the SIM you want to close in the entry field and press **ENTER**. If you do not know the SIM ID, then press **PF4** to display a list of entries; select the entry that you want to close and press **ENTER** twice.
5. Press **PF4** to return to the previous panel.
6. Press **PF3** repeatedly to return to each prior panel.

---

## Updating 3590 Device Microcode from A00 or A50 Using TAPEUTIL

You may require assistance from the customer during this process.

This procedure downloads microcode to the tape drive from a file or diskette. This diskette must be in AIX/UNIX format. The Microcode Load utility is only supported on the IBM 3590 tape drive.

1. On the drive operator panel, verify that the drive is Online.
2. Verify that the drive is unloaded.
3. Insert the diskette with the microcode load into the A00 Controller or A50 Controller diskette reader.
4. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
5. From the main service menu select **Control Unit and Drive Online/Offline Control**. Press **ENTER**.
6. Select **Display Control Unit, ESCON and Tape Device Status**. Press **ENTER**. Check the displayed status for the Control Unit to be online and the Tape Device you are wanting to install code on to be offline. If the control unit or tape drive are not in the correct online/offline status, select the appropriate menu selection from the “Control Unit and Drive Online/Offline Control” menu to vary on the control unit and/or vary off the tape device.
7. Press **F3** twice to return to the initial main service menu.
8. Start the tape utility program by selecting **3590 Tape Drive Utilities**.
9. Go to *IBM 3590 Tape Subsystem Models B11 and B1A MI* Updating Microcode from RS/6000 by using TAPEUTIL.

---

## Varying On/Off 3590 drives from the A00 or A50 Controller

The following procedure lets you vary 3590 On/Off from the Service Terminal:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. From the main service menu select **Control Unit and Drive Online/Offline Control**. Press **ENTER**.
3. Select **Display Control Unit, ESCON, and Tape Device Status**. Press **ENTER**. Check the displayed status for the Tape Device you are wanting to put online or offline.
4. If the tape drive is not in the correct online/offline status, select the appropriate “Vary Tape Drive Online or Offline” menu selection from the “Control Unit and Drive Online/Offline Control” menu.

5. Select the desired drive from the pop-up list of available drives. Press **ENTER**. Check the command status for proper completion of the command.

---

## Discontinue Procedure

---

The purpose of this procedure is to prepare the Model A00/A50 control unit and/or frame containing the Model A00/A50 control unit to be discontinued.

- Go to “Shutting Down the A00 or the A50 Controller” to shutdown the control unit power.
- If discontinuing an A14 frame, turn power off at the operator panel on the front of the frame.
- Unplug the power cable from the customer source.
- Turn off all breakers on the PCC in the frame.
- Disconnect all the channel cables attached to the Model A00/A50.
- Disconnect the service cables from S1 and/or S2.
- Using the latest Discontinuance Procedures, procure packing material and prepare the unit for shipping.

---

## Shutting Down the A00 Controller

---

### Shutting Down the A00 or the A50 Controller

**Warning:** Use the shutdown procedure for your system. This is the correct command before you stop the system unit. Failure to do so may result in the loss of data.

1. Inform the customer that you need the A00 or the A50 varied off at the host before proceeding to power off your control unit.
2. To power off the A00 or the A50 CU, you must first perform the shutdown procedures that are **high-lighted** in Service Terminal screens as shown below.

From the 3590 Subsystem Maintenance Menu shown in Figure 11-9, select the **Control Unit Shutdown and Restart**. Press **ENTER**.

```
3590 Subsystem Maintenance

Move cursor to desired item and press Enter.

Control Unit and Tape Drive Online/Offline Control
Control Unit Shutdown and Restart Menu
Service Information Message (SIM) Maintenance
Subsystem Error Log
Subsystem Diagnostics
Subsystem Trace and Dump
Microcode Maintenance
Subsystem Configuration
Run PFE/Support Center Provided Functions
3590 Tape Drive Utilities (tapeutil)
Using SMIT (information only)

F1=Help      F2=Refresh   F3=Cancel    F8=Image
F9=Shell     F10=Exit    Enter=Do
```

Figure 11-9. 3590 Subsystem Maintenance Screen



When the **Control Unit Shutdown and Restart** option is selected, the following screen Figure 11-10 will be displayed.

```
Control Unit Shutdown and Restart

Move cursor to desired item and press Enter.

Force Concurrent Control Unit Trace and Dump
Select Trace/Dump Files and Copy to Diskette
Restart Only the Control Unit Code
Restart AIX and Control Unit Code
Shutdown AIX and Control Unit Code (use prior to power off)

F1=Help      F2=Refresh  F3=Cancel   F8=Image
F9=Shell     F10=Exit   Enter=Do
```

Figure 11-10. Control Unit Shutdown and Restart

Select **Shutdown AIX and Control Unit Code (use prior to power off)**. Press **ENTER**. Figure 11-11 is displayed. This is a *Warning* to verify that the customer has quiesced all jobs on this control unit before proceeding.

```
Control Unit Shutdown and Restart

Move cursor to desired item and press Enter.

WARNING.....
This procedure will STOP the control unit code and the AIX operating
system. Verify that the customer has quiesced all jobs running on this
control unit before proceeding. Press ENTER to continue or F3 to return
to the previous menu.

F1=Help      F2=Refresh  F3=Cancel   F8=Image
F9=Shell     F10=Exit   Enter=Do
```

Figure 11-11. Control Unit Shutdown and Restart First Warning

When the **Shutdown AIX and Control Unit Code (use prior to power off)** is selected Figure 11-11 will be shown. This is a second *Warning* before stopping the microcode in the control unit and AIX operating system.

```

Control Unit Shutdown and Restart

Move cursor to desired item and press Enter.

WARNING.....
This procedure will STOP the control unit code and the AIX operating
system. Verify that the customer has quiesced all jobs running on this
control unit before proceeding. Press ENTER to continue or F3 to return
to the previous menu.

* * * * *
*                ARE YOU SURE?                *
* * * * *
* Continuing may delete information you may want *
* to keep. This is your last chance to stop      *
* before continuing.                             *
* Press Enter to continue.                       *
* Press Cancel to return to the application.     *
* * * * *
F1=Help      F2=Refresh      F3=Cancel      F8=Image
F9=Shell     F10=Exit       Enter=Do

```

Figure 11-12. Control Unit Shutdown and Restart Second Warning

3. If the shutdown is on an A14 frame, turn off the A14 power after completing the previous step by using the Power off switch on the A14 operator panel.

**Note:** Using the power off switch will cause a power down sequence of the attached devices before powering down the CU. Do not shut down the A00 or the A50 at the RISC/6000 operator panel.

## Running Diagnostics from the A00 or A50 Controller

Have the customer vary the drives and control unit offline to the host before proceeding.

This procedure shows you how to execute diagnostics from the Service Terminal menus. Some of the RS/6000 maps may direct you to run diagnostics. In these instances, follow the directions given in the maps. For general diagnostic information refer to the **"Diagnostic Information for Micro Channel Bus Systems"**, and/or **"Using the Standalone and Online Diagnostics chapter"**.

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13.
2. From the main service menu, select **Control Unit and Drive Online/Offline Control**. Press **ENTER**.
3. Select **Display Control Unit, ESCON, and Tape Device Status**. Press **ENTER**. Verify from the displayed status that the ESCON adapter and all available Tape Drives are offline.
4. If the ESCON adapter or Tape Drives need to taken offline select the appropriate "Vary Control Unit Offline" and/or "Vary Tape Drive Offline" menu selection from the "Control Unit and Drive Online/Offline Control" menu.

**Note:** Before running diagnostics on Model A14 frames, ensure the Controller Status LED is Off solid (wrench icon). Diagnostic errors may be encountered if the Status LED is flashing.

5. Return to the main "3590 Subsystem Maintenance" menu and select **Subsystem Diagnostics**. Press **ENTER**.
6. The following screen (see Figure 11-13 on page 11-35) is displayed. Press **ENTER**.

DIAGNOSTIC OPERATING INSTRUCTIONS VERSION 4.1.4

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ALL RIGHTS RESERVED.

These programs contain diagnostics and service aids for the system.  
These procedures should be used whenever problems with the system  
occur which have not been corrected by any software application  
procedures available.

In general, the procedures will run automatically. However, sometimes  
you will be required to select options inform the system when to continue,  
do simple tasks, and exchange diskettes.

Several keys are used to control the procedures:  
- The Enter key continues the procedure or performs an action.  
- The Backspace key allows keying errors to be corrected.  
- The cursor keys are used to select an option.

Press the F3 key to exit or press Enter to continue.

*Figure 11-13. Diagnostic Operating Instruction*

7. The following screen (see Figure 11-14) will be displayed. **Diagnostic Routines** will run the basic diagnostics. **Advanced Diagnostic Routines** will run the advanced diagnostics which included the ESCON and TTY wrap tests. Press **ENTER** once selection is made.

FUNCTION SELECTION

Move cursor to selection, then press Enter.

Diagnostic Routines

This selection will test the machine hardware. A problem will  
be indicated by a SRN (Service Request Number).

Service Aids

This selection will look at the machine configuration, exercise  
external interfaces, format media, look at past diagnostic  
results, control what resources are tested, check out media, etc.

Advanced Diagnostic Routines

This selection will normally be used by the service representative.

F3=Cancel

F10=Exit

*Figure 11-14. Function Selection*

8. Following screen (see Figure 11-15 on page 11-36) is displayed.

## DIAGNOSTIC MODE SELECTION

Move cursor to selection, then press Enter.

### System Verification

This selection will not analyze the error log. Use this option to verify that the machine is functioning correctly after completing a repair or an upgrade.

### Problem Determination

This selection tests the system and analyzes the error log if one is available. Use this option when a problem is suspected on the machine.

F3=Cancel

F10=Exit

Figure 11-15. Diagnostic Mode Selection

- The following screen (see Figure 11-16) is displayed if “Diagnostic Routines” is selected. Move cursor to resource you want to test. Press **ENTER**.

801006

## DIAGNOSTIC SELECTION

An \* in front of the resource shows that the test has been selected.

Choose the test that you want to run.

Base System	00-00	CPU, fpa, memory, I/O planar, op panel
fd0	00-00-0D-00	Diskette Drive
lp0	00-00-0P-00	Standard Parallel Port P
scsi0	00-00-0S	Standard SCSI I/O Controller
hdisk0	00-00-0S-0,0	1.1 GB SCSI Disk Drive
cd0	00-00-0S-5,0	SCSI Multimedia CD-ROM Drive (600 MB)
tty0	00-00-S1-00	Serial Port
tty1	00-00-S2-00	Serial Port
ascsi0	00-01	Wide SCSI I/O Controller Adapter
rmt0	00-01-01-0,0	IBM 3590 Tape Drive and Medium Changer
rmt1	00-01-01-1,0	IBM 3590 Tape Drive and Medium Changer
rmt2	00-01-01-2,0	IBM 3590 Tape Drive and Medium Changer
rmt3	00-01-01-3,0	IBM 3590 Tape Drive and Medium Changer
escon0	00-02	ESCON Channel Adapter
tok0	00-04	Token-Ring High-Performance Adapter (8fa2)

F3=Cancel

F10=Exit

Figure 11-16. Diagnostic Selection

- The following screen (see Figure 11-17 on page 11-37) is displayed next if “Advanced Diagnostic Routines” is selected. Move cursor to resource you want to test. Press **ENTER**. For diagnostics that require wrap plugs, you will be prompted when to install and remove the wrap plugs.

#### ADVANCED DIAGNOSTIC SELECTION

An \* in front of the resource shows that the test has been selected.

Choose the test that you want to run.

Base System	00-00	CPU, fpa, memory, I/O planar, op panel
fd0	00-00-0D-00	Diskette Drive
lp0	00-00-0P-00	Standard Parallel Port P
scsi0	00-00-0S	Standard SCSI I/O Controller
hdisk0	00-00-0S-0,0	1.1 GB SCSI Disk Drive
cd0	00-00-0S-5,0	SCSI Multimedia CD-ROM Drive (600 MB)
tty0	00-00-S1-00	Serial Port
tty1	00-00-S2-00	Serial Port
ascsi0	00-01	Wide SCSI I/O Controller Adapter
rmt0	00-01-01-0,0	IBM 3590 Tape Drive and Medium Changer
rmt1	00-01-01-1,0	IBM 3590 Tape Drive and Medium Changer
rmt2	00-01-01-2,0	IBM 3590 Tape Drive and Medium Changer
rmt3	00-01-01-3,0	IBM 3590 Tape Drive and Medium Changer
escon0	00-02	ESCON Channel Adapter
tok0	00-04	Token-Ring High-Performance Adapter (8fa2)

F3=Cancel

F10=Exit

Figure 11-17. Advanced Diagnostic Selection

## Setting the Correct time on the A00 or the A50

This procedure describes how to set up the clock on the A00 or A50 using the Service Terminal menus.

1. Connect the Service Terminal (MoST) (see “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13) and go to the &3590 Subsystem Maintenance menu.
2. From the main service menu select **Subsystem Configuration** (see Figure 11-18 on page 11-38). Press **ENTER**.
3. Select the **Show/Change Date, Time, and Time Zone** (see Figure 11-19 on page 11-38). Press **ENTER**.
4. A pop-up menu will appear on the screen (see Figure 11-20 on page 11-39.)
5. Answer the question “Does this time zone go on DAYLIGHT SAVINGS TIME?”.

**Note:** Select either **yes** or **no**. Press **ENTER**.

6. A new pop-up screen will be displayed, “CUT (Coordinated Universal Time) Time Zone”. On this screen you are given 18 different options, select the one that matches where the machine is installed. Press **ENTER** (see Figure 11-21 on page 11-39.)
7. A full screen is displayed that allows you to enter values for the year, month, day, hour, minutes, and seconds. Type or select values in the entry fields. Press **ENTER**. (See Figure 11-22 on page 11-40.)

**Note:** It is very important to press **ENTER** after you have entered the values in the entry fields, or your values will not be saved, and the time, date, etc. will not be updated.

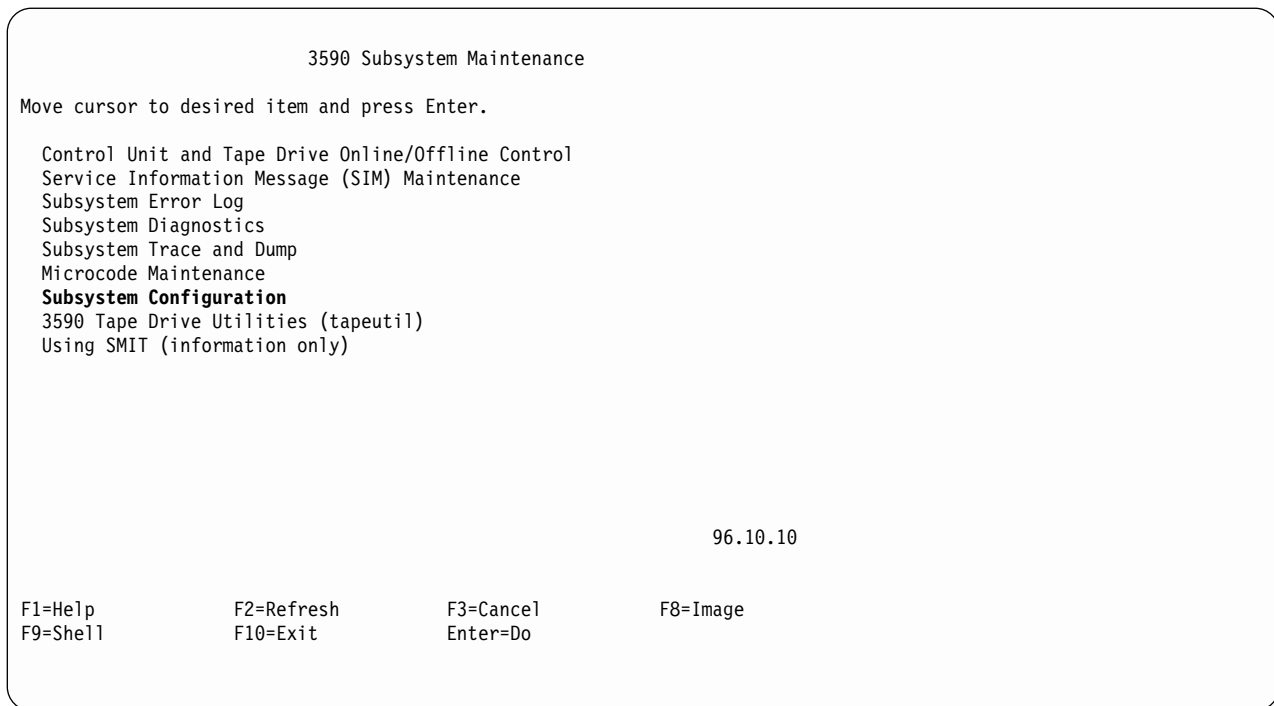


Figure 11-18. &3590 Subsystem Maintenance Screen

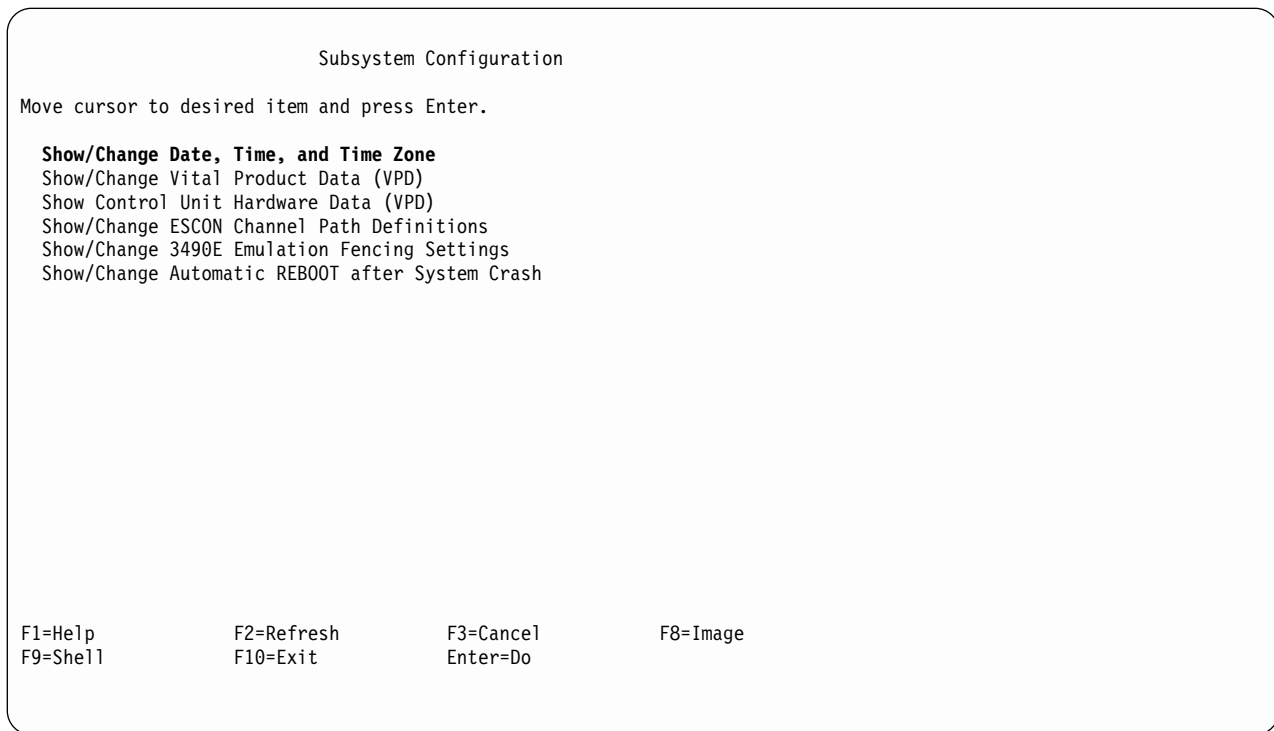


Figure 11-19. Subsystem Configuration

```

Subsystem Configuration
Move cursor to desired item and press Enter.

Show/Change Date, Time, and Time Zone
Show/Change Vital Product Data (VPD)
Show Channel Path Tables
Show/Change ESCON Channel Path Definitions
Show/Change Automatic REBOOT after System Crash

x x x x x x x x x x x x x x x x x x x x x x x x x x x x
x                               Use DAYLIGHT SAVINGS TIME? x
x                               x
x Move cursor to desired item and press Enter. x
x                               x
x # Does this time zone go on x
x # DAYLIGHT SAVINGS TIME? x
x # x
x 1 yes x
x 2 no x
x x x
x F1=Help F2=Refresh F3=Cancel x
x F8=Image F10=Exit Enter=Do x
F1x /=Find n=Find Next x
F9x x x x x x x x x x x x x x x x x x x x x x x x x x x x

```

Figure 11-20. Use DAYLIGHT SAVINGS Time?

```

Subsystem Configuration

x x x x x x x x x x x x x x x x x x x x x x x x x x x x
x                               CUT (Coordinated Universal Time) Time Zone x
x                               x
x Move cursor to desired item and press Enter. x
x                               x
x [TOP] x
x (CUT0) Coordinated Universal Time (CUT) x
x (GMT0) United Kingdom (CUT) x
x (AZOREST1) Azores; Cape Verde (CUT -1) x
x (FALKST2) Falkland Islands (CUT -2) x
x (GRNLNDST3) Greenland; East Brazil (CUT -3) x
x (AST4) Central Brazil (CUT -4) x
x (EST5) Eastern U.S.; Colombia (CUT -5) x
x (CST6) Central U.S.; Honduras (CUT -6) x
x (MST7) Mountain U.S. (CUT -7) x
x (PST8) Pacific U.S.; Yukon (CUT -8) x
x (AST9) Alaska (CUT -9) x
x [MORE...18] x
x x
x F1=Help F2=Refresh F3=Cancel x
x F8=Image F10=Exit Enter=Do x
F1x /=Find n=Find Next x
F9x x x x x x x x x x x x x x x x x x x x x x x x x x x x

```

Figure 11-21. CUT (Coordinated Universal Time)

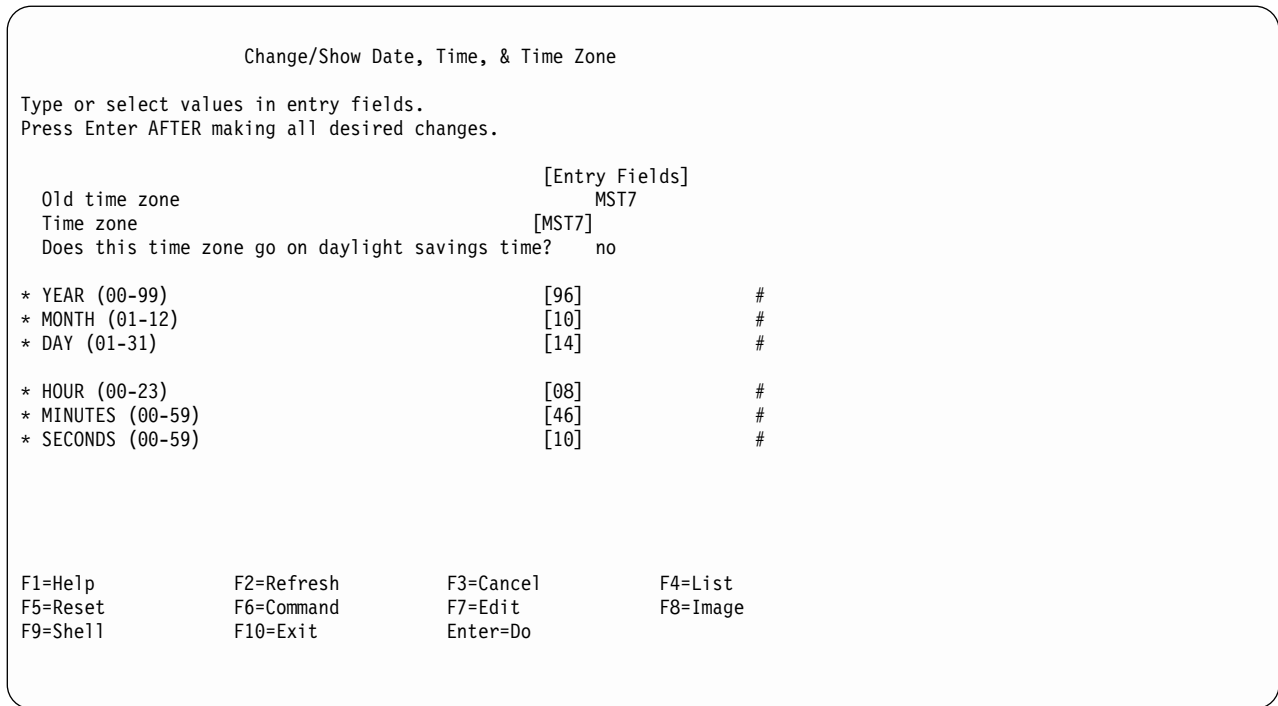


Figure 11-22. Show/Change Date, Time and Time Zones

## Analyze the AIX Log Procedure

The control unit logs all errors to the AIX error log and determines if a SIM or MIM should be sent to the host. In some cases, such as an intermittent or unknown CU hardware problem, the SIM or MIM record does not provide enough information to fix the problem and the diagnostics are unable to isolate the failure. In these cases, the actual AIX error log entry can be analyzed and used to isolate and repair the problem.

To View an AIX Error Log Entry:

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13.
2. From the main service menu select **Subsystem Error Log**. Press **ENTER**.
3. Select **Generate an Error Report** and press **ENTER**.
4. High-light **SUMMARY or DETAILED error report**. Press **PF4** to list the options.
5. Select **detailed**. Press **ENTER**.
6. If you have the sequence number of a specific AIX error log entry that you wish to analyze, then:
  - Highlight the line "SEQUENCE numbers (default is all)" and enter the sequence number in the brackets.
7. If you have the AIX Error ID of a specific AIX error log entry that you wish to analyze, then:
  - Highlight the line "Error ID's (default is all)" and enter the AIX error ID in the brackets. If you know the resource name for a specific AIX error log entry that you wish to analyze, then:
    - Highlight the line "Resource NAMES (default is all)" and enter the resource name in the brackets.
8. Press **ENTER** to generate the error report.



9. If multiple error log entries are displayed, then look for repetitive entries or entries with descriptions that are consistent with the symptoms of the failure you are trying to fix. Use the “U” and “D” keys to scroll up and down. If you are unable to find an entry that makes sense, then call your next level of support.
10. Follow the “Recommended Actions” and/or replace the FRUs identified by the “Failure Causes” and “Probably Causes”. If you are uncertain of how to proceed, call your next level of support.
11. Press the **Q** key to return to the “Generate an Error Report” panel.
12. Press **F3** twice to return to the “Subsystem Maintenance” panel.

---

## Set or Reset the A00 or the A50 Control Unit in 3490E Emulation Mode

**WARNING:** Only perform this procedure if the customer has requested that the A00 or A50 Control Unit operate in 3490E emulation mode or to reset 3490E emulation mode.

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. From the main service menu, select **Subsystem Configuration**. Press **ENTER**. Figure 11-23.

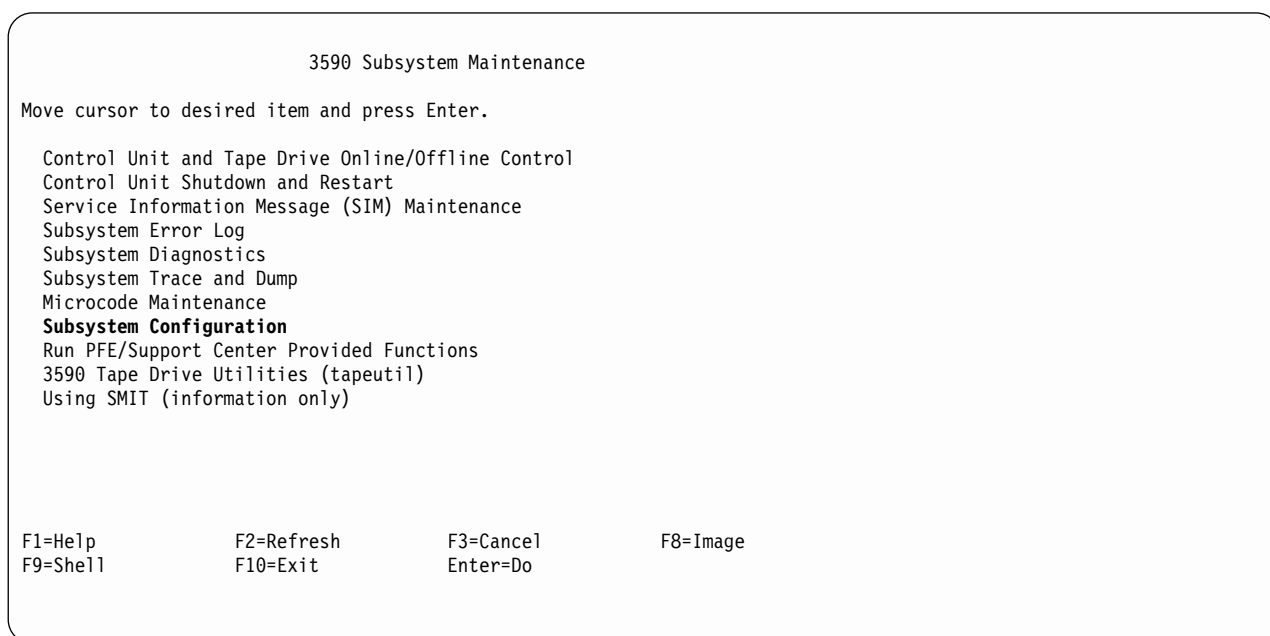


Figure 11-23. 3590 Subsystem Maintenance Screen

Select **Show/Change Control Unit Definitions**, Figure 11-24 on page 11-42. Press **ENTER**.

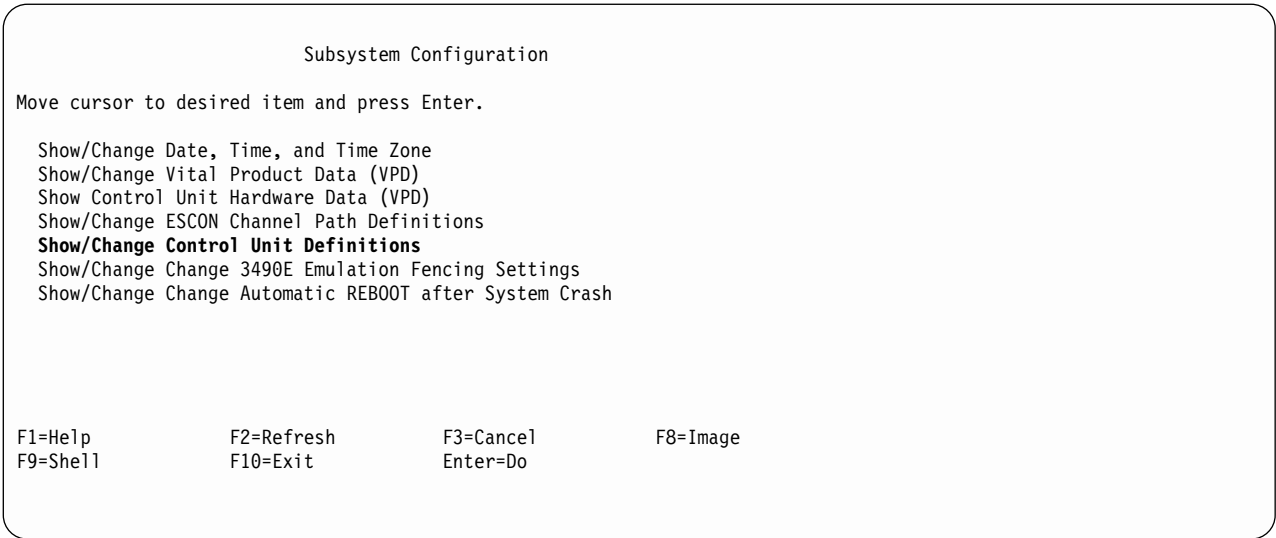


Figure 11-24. Subsystem Configuration Screen

Figure 11-25 will be displayed.

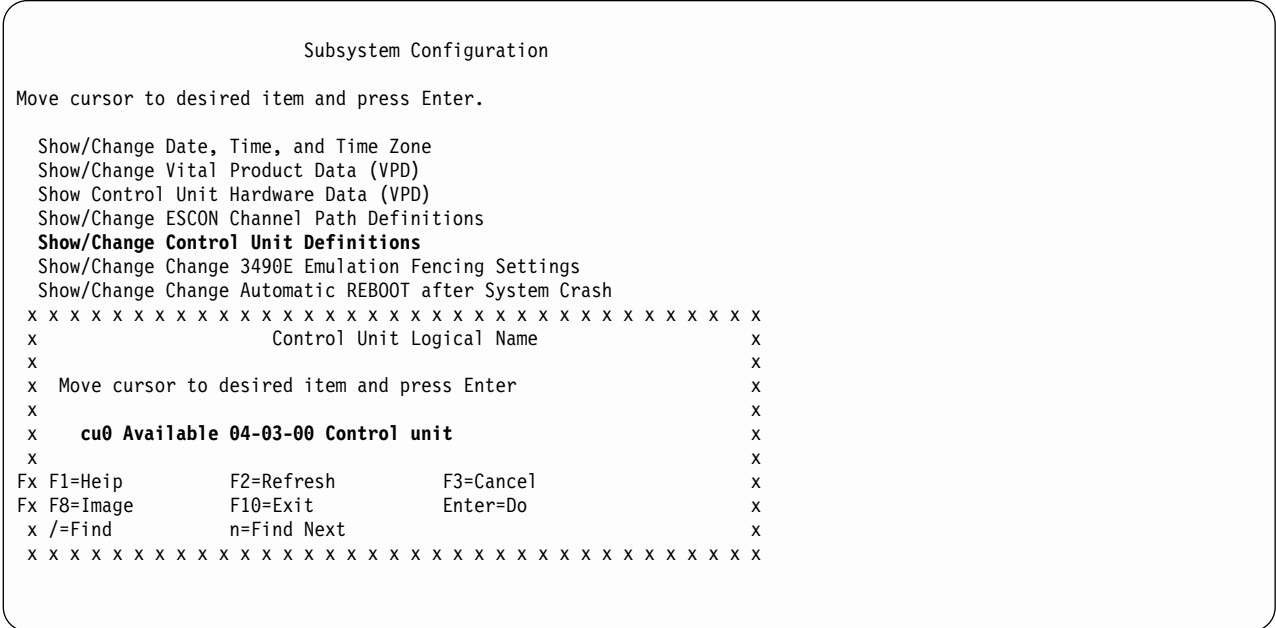


Figure 11-25. Control Unit Logical Name Screen

Select the desired Available Control unit, see Figure 11-24. Prss **ENTER**. The **Change a Control Unit** screen will be shown, see Figure 11-26 on page 11-43.

```

Change a Control Unit

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Control Unit Logical Name      [Entry Fields]      +
Device Buffer Size             4194304             +
Control Unit Type           [3590]              +
Base Address                   [00]                +X
Number of Attached Device     [4]                 +#

F1=Help      F2=Refresh      F3=Cancel      F4=List
F5=Reset     F6=Command    F7=Edit       F8=Image
F9=Shell     F10=Exit       Enter=Do

```

Figure 11-26. Change a Control Unit Screen

Select **Control Unit Type**. Press **ENTER**. A pop-up window will be shown, see Figure 11-27 . Select either a **3590** or **3490** control unit type.

To set 3490E emulation, select 3490 shown high lighted or to reset 3490E emulation mode, select 3590. When the selection has been made, press **ENTER**.

```

Change a Control Unit

Type or select values in entry fields.
Press Enter AFTER making all desired changes.

Control Unit Logical Name      [Entry Fields]      +
Device Buffer Size             4194304             +
Control Unit Type           [3590]              +
Base Address                   [00]                +X
Number of Attached Device     [4]                 +#

x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x
x               Control Unit Type                               x
x                                                         x
x Move cursor to desired item and press Enter                 x
x                                                         x
x  3590                                                         x
x  3490                                                         x
x                                                         x
Fx F1=Help      F2=Refresh      F3=Cancel      x
Fx F8=Image     F10=Exit       Enter=Do       x
Fx /=Find       n=Find Next    x
x x x x x x x x x x x x x x x x x x x x x x x x x x x x x x

```

Figure 11-27. Select Control Unit Type Screen

Verify the Control Unit Type field has changed to your selection. See Figure 11-28 on page 11-44

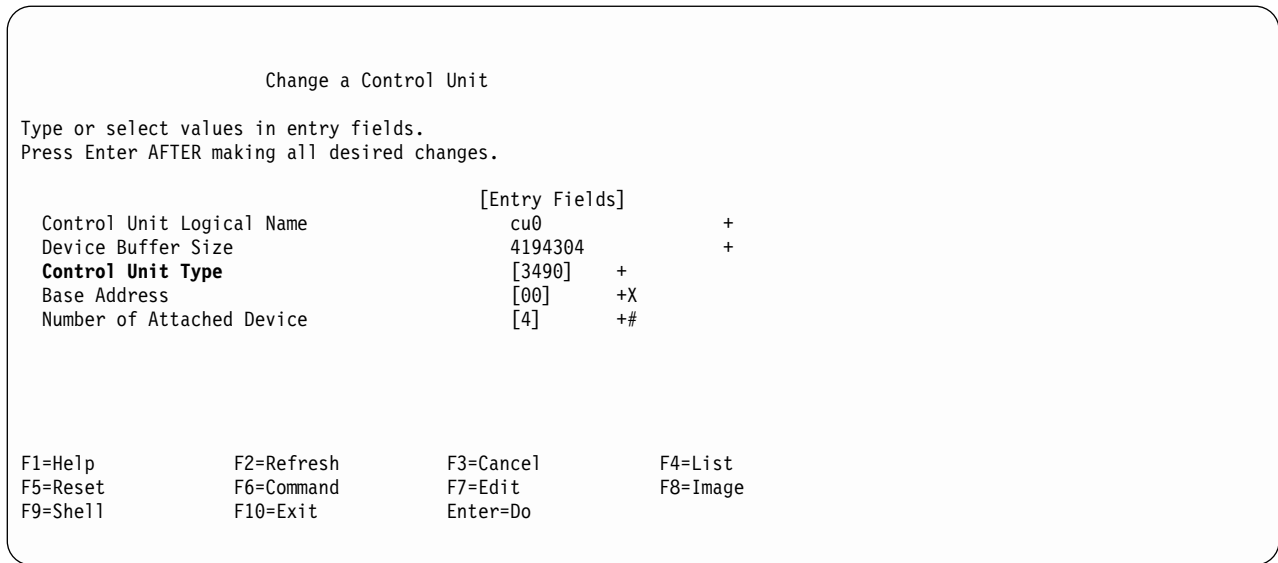


Figure 11-28. Change a Control Unit Screen

## Setting Up EBTERM or Terminal Emulator for Setting Modem Password

**Note:** The modem password should **only** be used for configurations where the A00/A50 is directly connected to the modem (**no** WTI data switch is used). For configurations with the WTI data switch the **WTI Data Switch password** should be used instead of the modem password.

EBTERM or Terminal Emulator must be “setup” prior to setting up for the first time the modem password. The following steps will show how to accomplish this only if using EBTERM. If using a different emulator, refer to the manufacturer’s instructions to set up as an IBM 3151 Emulator.

**ATTENTION:**

1. Connect the Service Terminal to the 3590 A00 or A50. Refer to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13.
2. Start EBTERM by double clicking on the EBTERM icon.
3. Select “**Setup**” from the tool bar across the top of the window.
4. Select “**Dialing Profiles**” from the pop-up list.
5. Select “**Add Profile**” from the pop-up list.
6. Select the first unused profile number from the pop-up list. This will open a window with the title “**EBTERM[A] Dialing Directory: Profile X**”, where X is the profile number just selected.
7. Set the fields of the following window as shown:

Field Name	Set To Value
Host Location Description	A00 or A50 Modem Setup with Password
Modem Initialization	AT&FQ1E0\Q1*E1%U1\$B9600&
D0&M2\N2*W0&Y0<e;	<all are the number zero(0)>
Number to Dial	<alpha characters are upper/lower case
Long Distance Prefix	<sensitive>
	<Leave blank>
	<Leave blank>

Response to Connect	<Clear this field-should be blank>
Serial Port Speed	9600 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Ignore
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark OFF in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	IBM 3151
Host Codepage	ASCII 437 U.S. English
Host Script	None

Point and click on **Enter** at the bottom of the window after setting fields.

8. Select **“Setup”** from the tool bar across the top of the window.
9. Select **“Save as...”** from the pop-up list.
10. Press **“Enter”** to save changes just made.
11. Select **“Setup”** from the toolbar across the top of the window.
12. Select **“Dialing Profiles”** from the pop-up list.
13. Select **“Add Profile”** from the pop-up list.
14. Select the first unused profile number from the pop-up list. This will open a window with the title **“EBTERM[A] Dialing Directory: Profile X”**, where X is the profile number just selected.
15. Set the fields of the following window as shown;

Field Name	Set To Value
Host Location Description	Direct Modem AT Command Entry
Modem Initialization	<Clear this field - should be blank>
Number to Dial	<Leave blank>
Long Distance Prefix	<Leave blank>
Response to Connect	<Clear this field-should be blank>
Serial Port Speed	9600 <point and click on arrows to scroll through choices>
Bits Setting	8/N/1
Serial Port Buffer	Ignore
Display Buffer	Checkmark OFF in box <point and click on box to change>
Flow Control XON/XOFF	Checkmark OFF in box
Flow Control CTS/RTS	Checkmark OFF in box
Host Protocol	DEC VT100
Host Codepage	ASCII 437 U.S. English
Host Type	ASCII
Logon Script	None

Point and click on **Enter** at the bottom of the window, after setting fields.

16. Select **“Setup”** from the tool bar across the top of the window.
17. Select **“Configuration/Modem”** from the pop-up list.
18. Clear the field **“Modem Dial Prefix 3”**. Leave all other fields unchanged. Point and click on **“Enter”** at the bottom of the window after clearing field.
19. Select **“Setup”** from the tool bar across the top of the window.
20. Select **“Save as...”** from the pop-up list.
21. Press **“Enter”** to save changes just made.

The EBTERM program is now set up to correctly initialize the modem with password protection.

**Note:**

Modem initialization string

```
&F      set factory defaults
Q1      disable result codes
E0      turn off echo of the AT commands
\Q1     set XON/XOFF on the DTE port
*E1     enable remote access
%U1     always keeps the current serial port speed
$B9600  set serial port rate to 9600
&D0     ignores DTR (DTR not needed for auto-answer)
&M2     set password verification
\N2     set modem to reliable mode (required for password verification)
*W0     store setup in memory zero
&Y0     make setup the default
```

---

## Modem Initialization with Password (Microcom Deskporte)

**Note:** The Modem password should **only** be used for configurations where the Model A00/A50 is directly connected to the modem (**no** WTI data switch is used). For configurations with the WTI data switch, the **WTI Data Switch password** should be used instead of the modem password.

The Modem must be initialized, prior to using the system. Use the following steps to accomplish this.

**ATTENTION:** The Service Terminal must be set up with EBTERM or Terminal Emulator before continuing with the modem initialization. (See “Setting Up EBTERM or Terminal Emulator for Setting Modem Password” on page 11-44.)

- \_\_\_ 1. Turn Modem power off.
- \_\_\_ 2. Either the MoST or the Library Manager may be used to initialize the modem.
  - a. If using the MoST terminal:
    - A spare 9 pin to 25 pin cable is included with the 3590-Model A00/A50 to use with this procedure. Connect the 9 pin connector to the MoST terminal serial port and the 25 pin connector to the DTE connector on the back of the modem (Do **NOT** use the null modem adapter that is provided with the cable).
  - b. If using the Library Manager:
    - Locate the Service Cable between the Library Manager Com Port A and the null modem connected to the Service Panel (refer to Figure 6-7 on page 6-18). Leave the 9 pin connector of the Service Cable connected to the Library Manager Com Port A. Disconnect the 25 pin connector from the null modem adapter and connect it to the DTE connector on the back of the modem (Do **NOT** use the null modem adapter for this procedure).
- \_\_\_ 3. Remove the small panel (approximately 1.5 inches X 0.3 inches (“DeskPorte FAST” on it) from the front of the modem. There will be a series of switches behind this panel.
- \_\_\_ 4. Set the switches as shown, from left to right.

D D D D D D D U D D D D

**Note:** Only **one** switch is up. The remainder are down. (D=down, U=up.)

- \_\_\_ 5. Turn modem power on.
- \_\_\_ 6. Start EBTERM.
  - a. Select “**Modify**” from the toolbar across the top of the window.
  - b. In the pop-up list, verify that “**Direct Connect Mode**” does **NOT** have a check mark (✓) next to it.

- c. If it needs to be changed, point and click on “**Direct Connect Mode**”, to remove the check mark (✓).
- \_\_ 7. In the pop-up list displayed in step 6 on page 11-46, select “**Dial Prefix Selections**”.
- \_\_ 8. Select “**External Prefix 2**” from the pop-up list.

**Note:** There should be a check mark (✓) next to “External Prefix 2”.

- \_\_ 9. Select “**Connect**” from the toolbar across the top of the window.
- \_\_ 10. Select “**3590-Model A00/A50 Modem Setup with Password**” from the pop-up list.
- \_\_ 11. The characters “**AT&FQ1E0\Q1\*E1%U1\$B9600&D0&M2\N2\*W0&Y0**” should be displayed in the EBTERM window. On the next line, **OK** should be displayed.

If the displays specified are not correct:

- a. Check the switch settings in step 4 on page 11-46.
- b. Return to “Setting Up EBTERM or Terminal Emulator for Setting Modem Password” on page 11-44 and make sure that EBTERM was set up correctly.
- c. If the problem persists, contact your next level of support.
- \_\_ 12. Select “**Disconnect**” from the tool bar across the top of the EBTERM window.
- \_\_ 13. Password protection is now active on the modem. The following steps are used to enter or change the password.
  - a. Select “**Modify**” from the toolbar across the top of the window.
  - b. In the pop-up list, verify the “**Direct Connect Mode**” does have a check mark (✓) next to it.
  - c. Point and click on “**Direct Connect Mode**“. If it needs to be changed, add the Check mark (✓).
- \_\_ 14. Select “**Connect**” from the tool bar across the top of the window.
- \_\_ 15. Select “**Direct Modem at Command Entry**” from the pop-up list.
- \_\_ 16. Wait a few seconds to allow the CONNECT to complete. CONNECT has completed when the EBTERM Status line (line above tool bar) changes from “**EBTERM[A] [min]**” to “**EBTERM[A] [0]**”
- \_\_ 17. Type **AT%I0** (letter I, number zero) and press ENTER.

**Note:** The **AT%I0** will not be displayed when entered

- \_\_ 18. The EBTERM display should now show **NEW PASSWORD**. Unless directed otherwise by your second level support or by your customer, enter **pfe4u** as the password. Type in the password and press ENTER.

**Note:** Passwords must contain exactly five alphanumeric characters. The password letters are not upper and lower case sensitive.

- \_\_ 19. Select “**Disconnect**” from the tool bar at the top of the EBTERM window.
- \_\_ 20. Turn modem power **OFF**.
- \_\_ 21. Reset the switches on the modem.

**D D D D D D D D D D**

**Note:** All switches are in the down (D) position.

- \_\_ 22. Turn the modem “**On**”. Check the LCD of the modem. The display should continue to show 28.8. If the displays specified are not correct:
  - a. Start at step 1 on page 11-46.
  - b. If the problem persists, contact your next level of support.
- \_\_ 23. Reinstall the panel removed in step 3 on page 11-46.

---

## Multitech Modem Configuration

1. Turn Modem Power off.
2. Either the MoST or the Library Manager can be used to initialize this modem.
  - a. If using the MoST terminal:
    - 1) Use the 9 pin to 25 pin cable included with the A50 controller unit to use with this procedure.
    - 2) Connect the 9 pin connector to the MoST terminal serial port, and the 25 pin connector to the DTE connector on the back of the modem.

**Note:** Do **NOT** use the null modem adapter that is also provided with the cable.
  - 3) If using the Library Manager:
    - a) Locate the Service Cable between the Library Manager com port A and the null modem connected to the Service Panel.
    - b) Leave the 9 pin connector of the Service Cable connected to the Library Manager com port A.
    - c) Disconnect the 25 pin connector from the null modem adapter and connect it to the DTE connector on the back of the modem.

**Note:** Do **NOT** use the null modem adapter for this procedure.
3. Turn the Modem Power on.

## 38400 Baud without Multitech Modem Password (Modem Initialization when using the WTI Data Switch)

### Using NetTerm

1. Start **NetTerm**.
  2. Select "**File**" from the tool bar located at the top of the NetTerm window.
  3. Select "**Phone Directory...**" from the drop down menu.
  4. In the pop-up selection window, select "**Modem Test**".
  5. Click on the "**Connect**" box at the bottom of the Phone Directory Window.
- Note:** The connection status (Connected/Disconnected) is indicated by a colored ball in the lower left of the NetTerm window. The ball is green when NetTerm is in the connected state and is red when in the disconnected state.
6. Type in **AT** and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the AT command.
  7. Type in "**AT\$SB38400**" and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the initialization command.
  8. Type in "**AT&F\*E1%U1\$B38400&D0\*W0&Y0**" and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the initialization command.
  9. Select "**File**" from the tool bar located at the top of the NetTerm window.
  10. In the drop down menu select "**DISCONNECT**".
  11. Turn the Modem power off. Wait 10 seconds, Turn the Modem power on.
  12. Return to the procedure that sent you here.

### Using EBTERM

1. Start **EBTERM**.
2. Select "**Modify**" from the toolbar across the top of the window.



3. In the pop-up list, verify the “**Direct Connect Mode**” does have a check mark (✓) next to it. Point and click on “**Direct Connect Mode**” if it needs to be changed.
4. Select “**Connect**” from the tool bar across the top of the window.
5. Select “**Direct Modem At Command Entry**” from the pop-up list.
6. Wait a few seconds to allow the CONNECT TO complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from “**EBTERM[A][min]**” to “**EBTERM[A][0]**”.
7. Type in “**AT**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the AT command.
8. Type in “**AT&SB38400**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
9. Type in “**AT&F\*E1%U1\$B38400&D0\*W0&Y0**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
10. Select “**Disconnect**” from the tool bar at the top of the EBTERM window.
11. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
12. Return to the procedure that sent you here

## **38400 Baud with Multitech Modem Password (Modem Initialization when using the WTI Data Switch and Modem Password)**

### **Using NetTerm**

1. Start **NetTerm**.
  2. Select “**File**” from the tool bar located at the top of the NetTerm window.
  3. Select “**Phone Directory...**” from the drop down menu.
  4. In the pop-up selection window select “**Modem Test**”.
  5. Click on the “**Connect**” box at the bottom of the Phone director window.
- Note:** The connection status (Connect/Disconnected) is indicated by a colored ball in the lower left of the NetTerm window. The ball is green when NetTerm is in the connected state and is red when in the disconnected state.
6. Type in “**AT**” and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the AT command.
  7. Type in “**AT&F**” and then press the **ENTER** key. The next line in the NetTerm should display **OK**. This restores defaults that interfere with password setup.
  8. Type in “**AT#CBP01=PFE4U**” (or customer defined password) and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the initialization command.
  9. Type in “**AT#CBN01=-**” and then press the **ENTER** key. The next line in the NetTerm should display **OK**. This verifies that the modem recognized the initialization command.
  10. Type in “**AT\$SB38400**” and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the initialization command.
  11. Type in “**AT&F\*E1%U1\$B38400&D0#DB1\*W0&Y0**” and then press the **ENTER** key. The next line in the NetTerm display should display **OK**. This verifies that the modem recognized the initialization command.
  12. Select “**File**” from the tool bar located at the top of the NetTerm Window.
  13. In the pop-up selection window select “**DISCONNECT**”.
  14. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
  15. Return to the procedure that sent you here.

## Using EBTERM

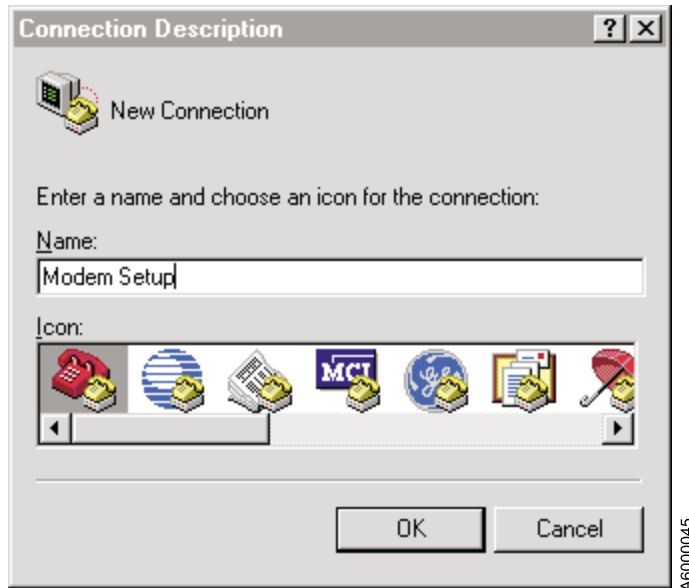
1. Start **EBTERM**
2. Select **Modify** from the tool bar across the top of the window.
3. In the pop-up list, verify the **Direct Connect Mode** does have a check mark (✓) next to it. Point and click on **Direct Connect Mode** if it needs to be changed.
4. Select **Connect** from the tool bar across the top of the window.
5. Select **Direct Modem AT Command Entry** from the pop-up list.
6. Wait a few seconds to allow the CONNECT to complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from "**EBTERM[A][min]**" to "**EBTERM[A][0]**".
7. Type in "**AT**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the AT command.
8. Type in "**AT&F**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This restores defaults that interfere with password setup.
9. Type in "**AT#CBP01=PFE4U**" (or customer defined password) and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
10. Type in "**AT#CBN01=-**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
11. Type in "**AT\$SB38400**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
12. Type in "**AT&F\*E1%U1\$B38400&D0#B1\*W0&Y0**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
13. Select "**Disconnect**" from the tool bar at the top of the EBTERM window.
14. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
15. Return to the procedure that sent you here.

## 9600 Baud without Multitech Modem Password (Modem initialization without the WTI Data Switch)

### Using HyperTerminal

1. Start HyperTerminal.

2. Name the Connection Description as follows:

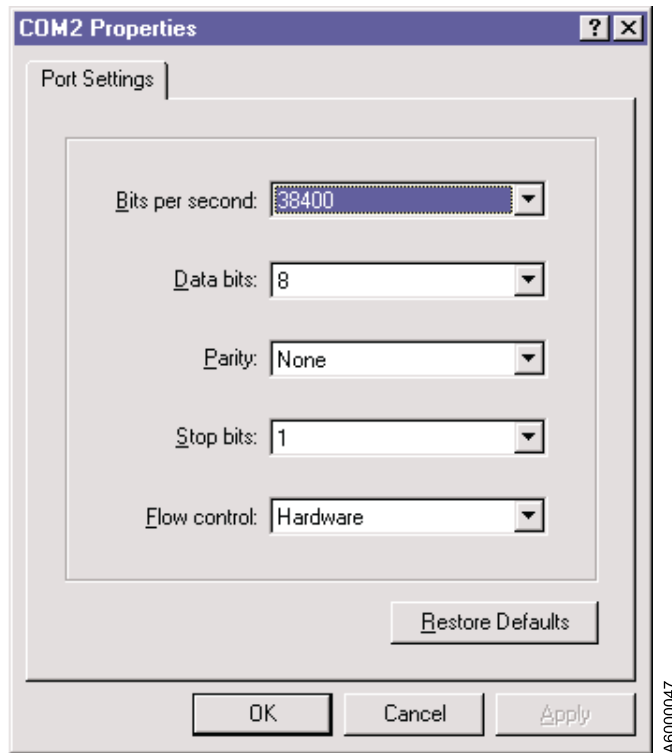


3. Select **“OK”**.
4. Change **“Connect using”** to the appropriate COM port.



5. Select **“OK”**.

6. Configure com port as seen below.

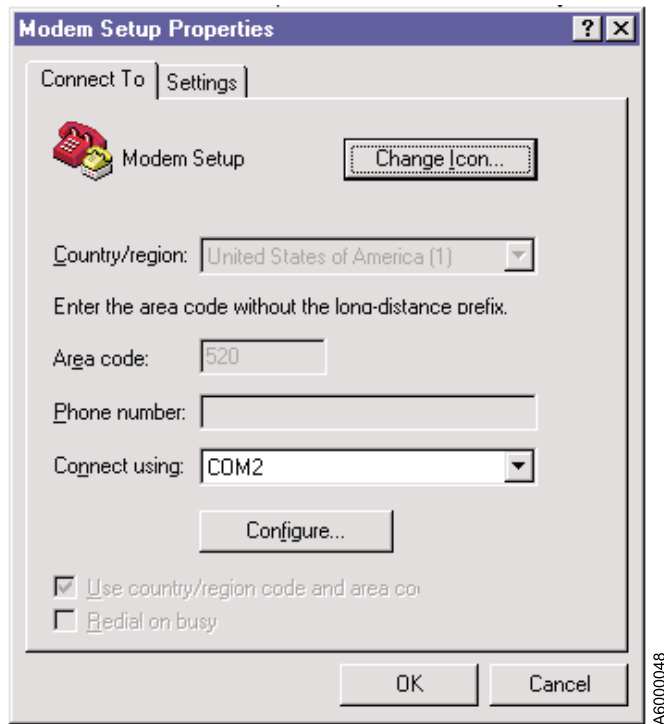


7. Select "OK".

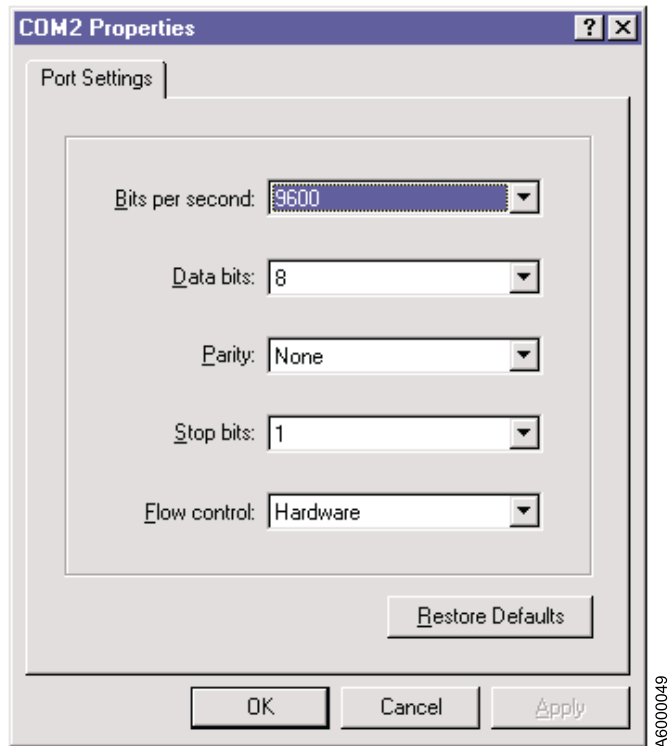
**Note:** The connection status (Connected/Disconnect) is indicated by the connect message in the bottom left.

8. Type in "AT" and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the AT command.
9. Type in "AT\$SB9600" and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the initialization command.

10. Change to 9600 baud. Under **"FILE"** drop down menu, select **"Properties"**.



11. Click on Configure.
12. Configure com port as seen below.



13. Select **OK**.
14. Select **OK** in the Modem Setup Properties.
15. Select **Call** from the tool bar located at the top of the HyperTerminal window.
16. Select **Disconnect**.
17. Select **Call** from the tool bar located at the top of the HyperTerminal window.
18. Select **Connect**.
19. Type in **AT** and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the AT command.
20. Type in "**AT&FQ1E0\Q1\*E1%U1\$B9600&D0\*W0&Y0**" and then press the **ENTER** key. The next line in HyperTerminal will **not** display OK.
21. Select **Call** from the tool bar located at the top of the HyperTerminal window
22. In the pop-up selection window select **DISCONNECT**.
23. Exit HyperTerminal.
24. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
25. Return to the procedure that sent you here.

## Using EBTERM

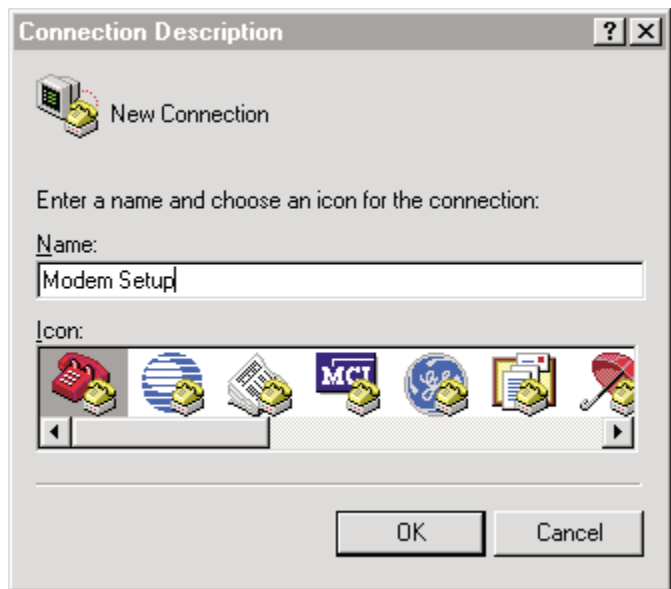
1. Start **EBTERM**.
2. Select **Modify** from the tool bar across the top of the window.
3. In the pop-up list, verify the **Direct Connect Mode** does have a check mark (✓) next to it. Point and click on **Direct Connect Mode** if it needs to be changed.
4. Select **Connect** from the tool bar across the top of the window.
5. Select **Direct Modem AT Command Entry** from the pop-up list.
6. Wait a few seconds to allow the connect to complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from "**EBTERM[A][min]**" to "**EBTERM[A][0]**".
7. Type in **AT** and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the AT command.
8. Type in "**AT\$SB9600**" and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
9. Change EBTERM to connect at 9600 baud as follows:
  - a. Select **Disconnect** from the tool bar at the top of the EBTERM window.
  - b. Select **Setup** from the tool bar across the top of the window.
  - c. Select **Dialing Profiles** from the pop-up list.
  - d. Select **Update Profile** from the pop-up list.
  - e. Select **Direct Modem AT Command Entry**.
  - f. In this profile window, change the **Serial Port Speed** from **38400** to **9600**. Click on the **Enter** box at the bottom of the profile window.
10. Select **Connect** from the tool bar across the top of the window.
11. Select **Direct Modem AT Command Entry** from the pop-up list.
12. Wait a few second to allow the connect to complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from **EBTERM[A][min]** to **EBTERM[A][0]**.
13. Type in "**AT&FQ1E0\Q1\*E1%U1\$B9600&D0\*W0&Y0**" and then press the **ENTER** key. The next line in EBTERM will **NOT** display OK.
14. Restore EBTERM's original setting to connect at 38400 baud as follows:
  - Select **Disconnect** from the tool bar at the top of the EBTERM window.
  - Select **Setup** from the tool bar across the top of the window.
  - Select **Update Profile** from the pop-up list.

- Select **Direct Modem AT Command Entry** from the pop-up list. This will bring up the profile window for the **Direct Modem AT Command Entry**.
  - In this profile window, change the **Serial Port Speed** from **9600** to **38400**. Click on the **Enter** box at the bottom of the profile window.
15. Select **Disconnect** from the tool bar at the top of the EBTERM window.
  16. Turn the Modem Power off. Wait 10 seconds. Turn the Modem power on.
  17. Return to the procedure that sent you here.

## 9600 Baud With Multitech Modem Password (Modem Initialization with Password and without WTI data Switch)

### Using HyperTerminal

1. Start **HyperTerminal**.
2. Name the Connection Description as follows.



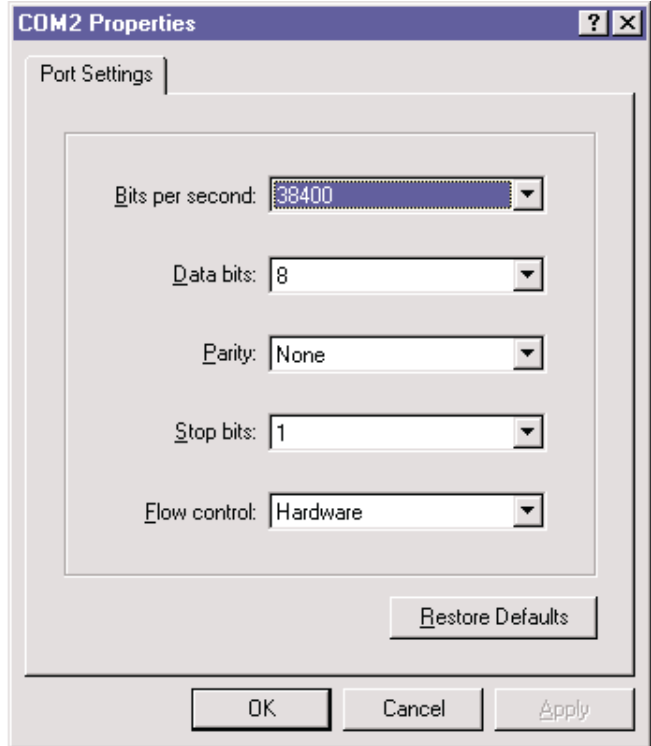
3. Select **OK**.

4. Change **"Connect using"** to the appropriate COM port.



A6000046

5. Select **"OK"**.
6. Configure com port as seen below.



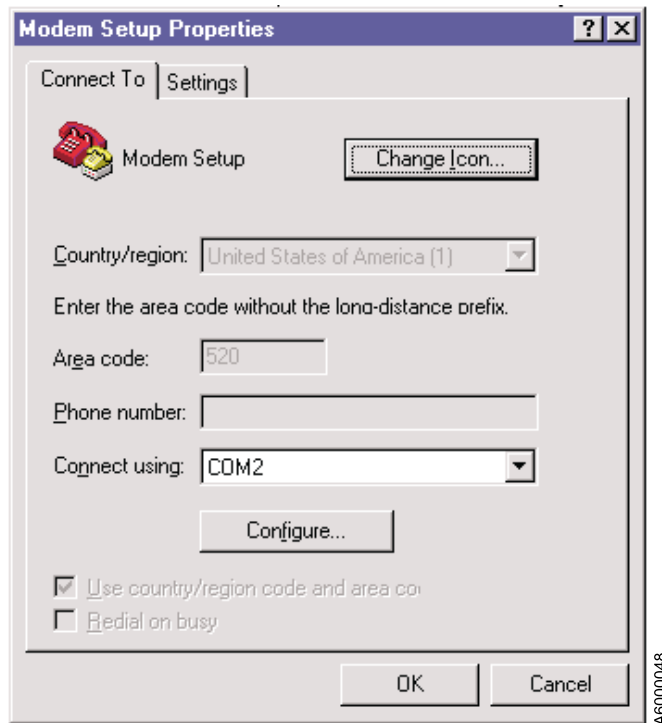
A6000047

7. Select **"OK"**:



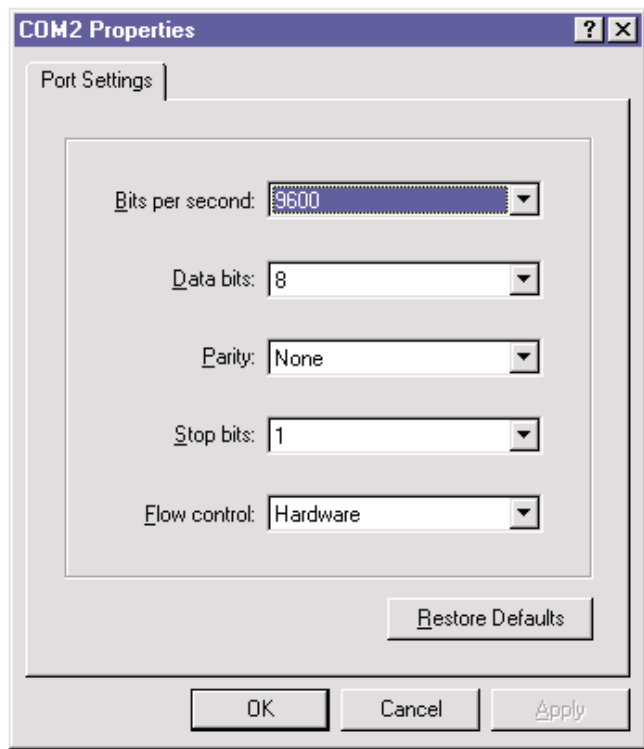
**Note:** The connection status (Connected/Disconnected) is indicated by the Connect message in the bottom left.

8. Type in “**AT**” and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the AT command.
9. Type in “**AT#CBP01=PFE4u**” (or customer defined password) and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the initialization command.
10. Type in “**AT#CBN01=-**” and then press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the initialization command.
11. Type in “**AT\$SB9600**” and then press **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the initialization command.
12. Change to 9600 baud. Under **FILE** drop down menu, select **Properties**.



13. Click on Configure.

14. Configure com port as seen below.



15. Select **OK**.
16. Select **OK** in the Modem Setup Properties
17. Select **Call** from the tool bar located at the top of the HyperTerminal window.
18. Select **Disconnect**.
19. Select **Call** from the tool bar located at the top of the HyperTerminal window.
20. Select **Connect**.
21. Type in **AT** and then Press the **ENTER** key. The next line in the HyperTerminal display should display **OK**. This verifies that the modem recognized the AT command.
22. Type in "**AT&FQ1E0\Q1\*E1%U1\$B9600&D0#DB1\*W0&Y0**" and then press the **ENTER** key. The next line in the HyperTerminal will **NOT** display OK.
23. Select **Call** from the tool bar located at the top of the HyperTerminal window.
24. In the pop-up selection window, select **DISCONNECT**.
25. Exit HyperTerminal.
26. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
27. Return to the procedure that sent you here.

## Using EBTERM

1. Start **EBTERM**.
2. Select **Modify** from the tool bar across the top of the window.
3. In the pop-up list, verify the **Direct Connect Mode** does have a check mark (✓) next to it. Point and click on **Direct Connect Mode** if it needs to be changed.
4. Select **Connect** from the tool bar across the top of the window.
5. Select **Direct Modem AT Command Entry** from the pop-up list.

6. Wait a few second to allow the connect to complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from **EBTERM[A][min]** to **EBTERM[A][0]**.
7. Type in “**AT**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the AT command.
8. Type in “**AT#CBP01=PFE4u**” (or customer defined password) and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
9. Type in “**AT#CBN01=-**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
10. Type in “**AT\$SB9600**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the initialization command.
11. Change EBTERM to connect at 9600 baud as follows:
  - Select **Disconnect** from the tool bar at the top of the EBTERM window.
  - Select **Setup** from the tool bar across the top of the window.
  - Select **Dialing Profiles** from the pop-up list.
  - Select **Update Profile** from the pop-up list.
  - Select **Direct Modem AT Command Entry** from the pop-up list. This will bring up the profile window for the **Direct Modem AT command Entry**.
  - In this profile window, change the **Serial Port Speed** from **38400** to **9600**. Click on the “**Enter**” box at the bottom of the profile window.
12. Select **Connect** from the tool bar across the top of the window.
13. Select **Direct Modem AT Command Entry** from the pop-up list.
14. Wait a few second to allow the connect to complete. CONNECT has completed when the EBTERM status line (line above tool bar) changes from **EBTERM[A][min]** to **EBTERM[A][0]**.
15. Type in “**AT**” and then press the **ENTER** key. The next line in the EBTERM display should display **OK**. This verifies that the modem recognized the AT command.
16. Type in “**AT&FQ1E0\Q1\*E1%U1\$B9600&D0#DB1\*W0&Y0**” and then press the **ENTER** key. The next line will **NOT** display **OK**.
17. Restore EBTERM’s original setting to connect at 38400 baud as follows:
  - a. Select **Disconnect** from the tool bar at the top of the EBTERM window.
  - b. Select **Setup** from the tool bar at the top of the EBTERM window.
  - c. Select **Dialing Profiles** from the pop-up list.
  - d. Select **Update Profile**.
  - e. Select **Direct Modem AT Command Entry** from the pop-up list. This will bring up the profile window for the **Direct Modem AT Command Entry**.
  - f. In this profile window, change the **Serial Port Speed** from **9600** to **38400**. Click on the **Enter** box at the bottom of the profile window.
18. Select **Disconnect** from the tool bar at the top of the EBTERM window.
19. Turn the Modem power off. Wait 10 seconds. Turn the Modem power on.
20. Return to the procedure that sent you here.

---

## Axx Controller to Drive SCSI Cabling Verification

**Note:** You are here to check the hardware connections between each of the drives and the Axx Controller. The following procedure will show that the cabling to the drives has been done correctly and/or show any problems that may exists in the drive to controller SCSI interface.

- \_\_\_ Step 1. Bring up EBTERM/NetTerm go to “Setting up the EBTERM or Terminal Emulator (OS/2 Platform)” on page 11-13. At the Axx Controller Maintenance screen Figure 11-29, select **Microcode Maintenance**.

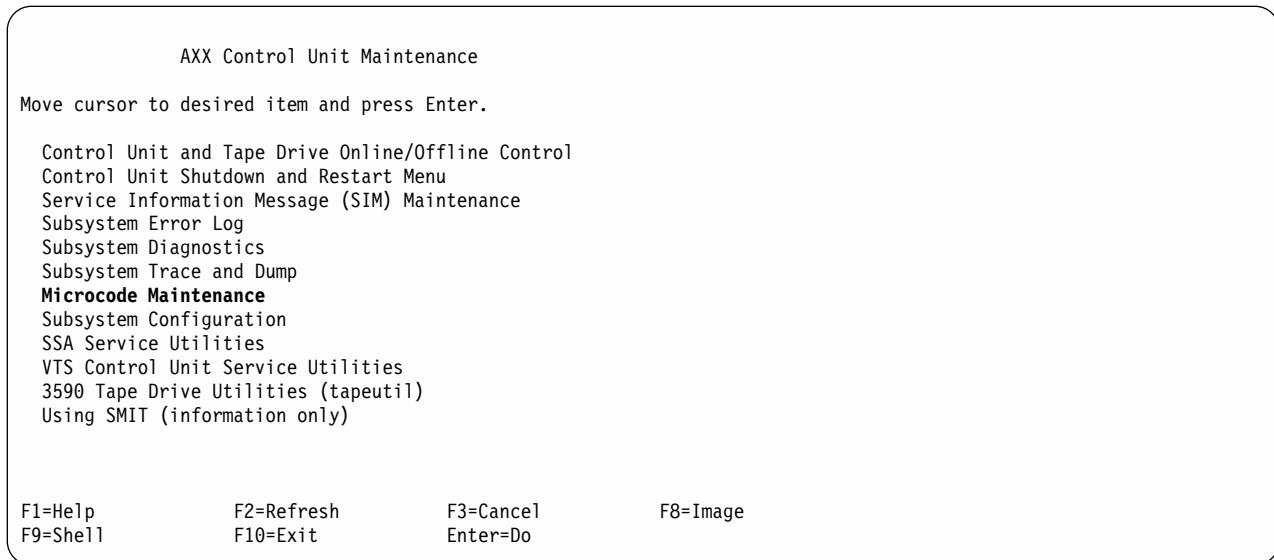


Figure 11-29. Main Maintenance Screen

- \_\_\_ Step 2. Select the first option shown on Figure 11-30, **Display Active Code level and Status**

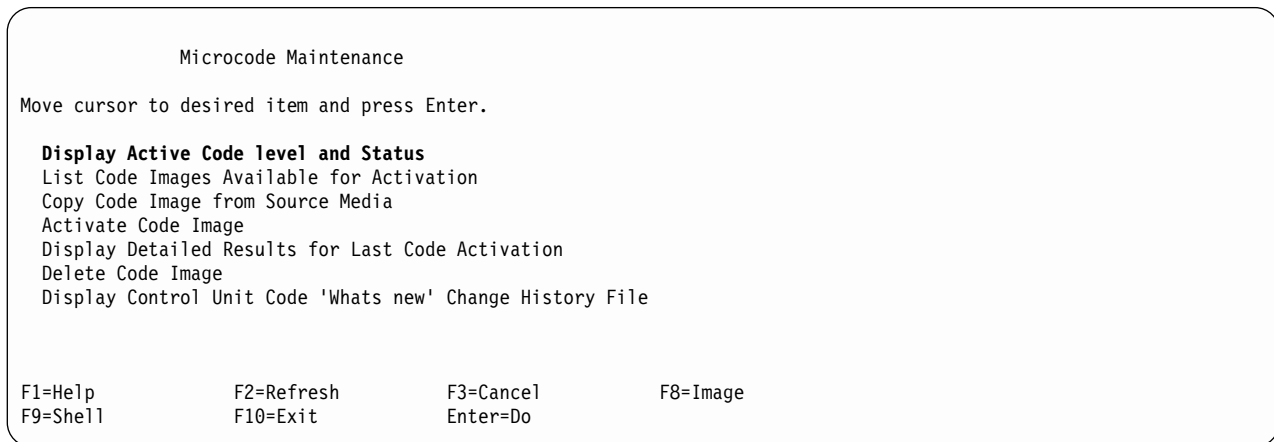


Figure 11-30. Microcode Maintenance

- \_\_\_ Step 3. A screen like Figure 11-31 on page 11-61 will be shown showing the primary and alternate addresses as well as each drive address

```

Microcode Maintenance

IBM 3590 TAPE DRIVE AND MEDIUM CHANGERS (4 Configured):
mt0 Available 10-71-00-0,0 model E11, s/n 000000000021, Level C747
mt0 Alternate 30-71-00-6,0 model E11, s/n 000000000021, Level C747
mt1 Available 10-71-00-1,0 model E11, s/n 0000000E0060, Level C747
mt1 Alternate 30-71-00-5,0 model E11, s/n 0000000E0060, Level C747
mt2 Available 10-71-00-2,0 model E11, s/n 0000000E0041, Level C747
mt2 Alternate 30-71-00-4,0 model E11, s/n 0000000E0041, Level C747
mt3 Available 10-71-00-3,0 model B11, s/n , Level A429
mt3 Alternate 30-71-00-3,0 model B11, s/n , Level A429

F1=Help          F2=Refresh      F3=Cancel      F8=Image
F9=Shell         F10=Exit       Enter=Do

```

Figure 11-31. Microcode Maintenance

Checking the information shown in this screen, you can tell if a link breaks at a certain point (Example would be drives 0 and 1 both show primary and alternate as 0,6 and 1.5 respectively). If drives 2 and 3 have primaries correct but no alternates configured or responding, means the SCSI bus is broken between drives 1 and 2.

If a problem is shown in the SCSI connections, go to the **Install** section for the frame that you are working on to see the appropriate Axx Controller to Drive cable charts for cabling and terminator positions.

**Attention:** After you fix the cabling, the **ONLY** way to remove the extra devices from the configuration is to do a Activate Code Image shown in screens Figure 11-32 and Figure 11-34 on page 11-62.

1. Bring up EBTERM/NetTerm/NetTerm go to "Setting up the EBTERM or Terminal Emulator (OS/2 Platform)" on page 11-13. At the Axx Controller Maintenance screen Figure 11-32, select **Microcode Maintenance**.

```

AXX Control Unit Maintenance

Move cursor to desired item and press Enter.

Control Unit and Tape Drive Online/Offline Control
Control Unit Shutdown and Restart Menu
Service Information Message (SIM) Maintenance
Subsystem Error Log
Subsystem Diagnostics
Subsystem Trace and Dump
Microcode Maintenance
Subsystem Configuration
SSA Service Utilities
VTS Control Unit Service Utilities
3590 Tape Drive Utilities (tapeutil)
Using SMIT (information only)

F1=Help          F2=Refresh      F3=Cancel      F8=Image
F9=Shell         F10=Exit       Enter=Do

```

Figure 11-32. Main Maintenance Screen

2. Select **Activate Code Image** shown on Figure 11-33 on page 11-62,

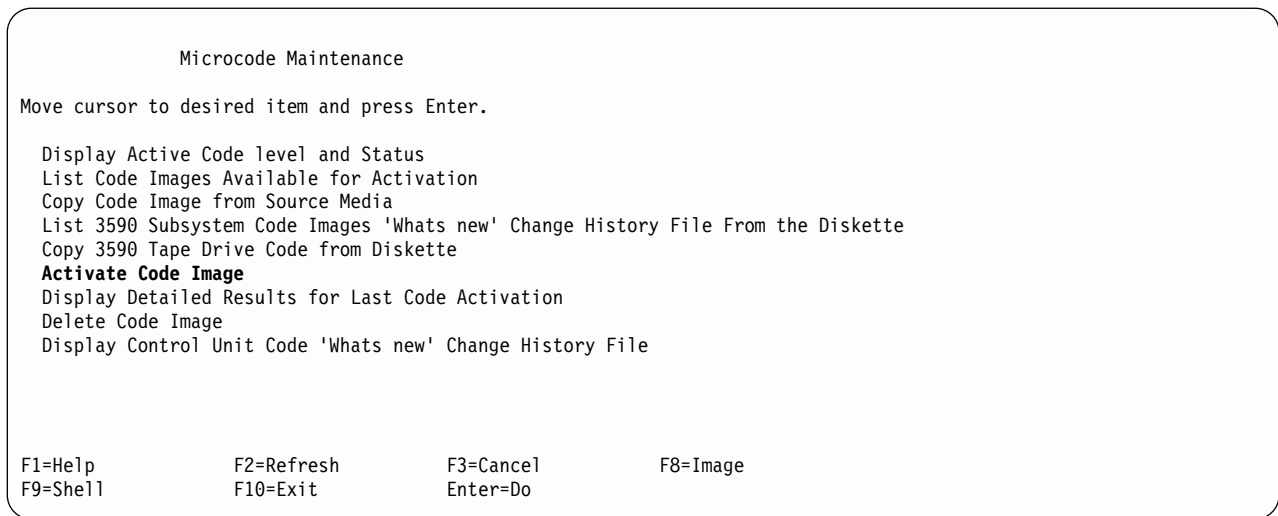


Figure 11-33. Microcode Maintenance

3. Select **Activate 3590 Subsystem Code Image** shown on Figure 11-34,

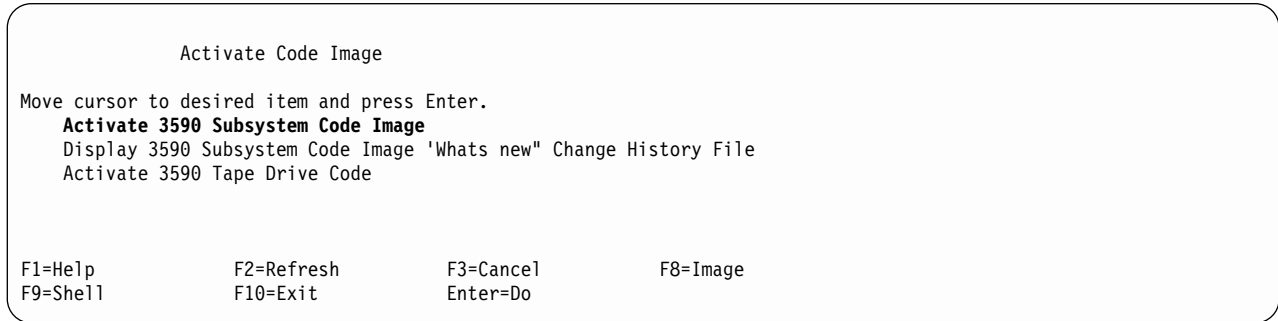


Figure 11-34. Activate Code Image

By activating the subsystem code image, the Axx Controller will configure the subsystem showing any changes made to the cabling.

**Note:** You can verify that the Axx Controller to drive SCSI cabling has been corrected by returning to “Axx Controller to Drive SCSI Cabling Verification” on page 11-59 again.

---

## A50 Controller Call Home Procedure

**Attention:** Call home is only supported on the A50 controller, and is **NOT** for the A00 controller.

The Microcode level to enable Call Home is **1.10.5.x** or higher with AIX code at 4.3.2 or higher.

**Attention:** As a caution you should verify that the following hardware connections are correct before continuing with the remainder of this procedure.

- Ensure APS or MDS switch is installed per “Local Setup and Testing of WTI Switch” on page 11-19.
- Ensure Modem is installed per “Modem Initialization when using the WTI Data Switch (Microcom Deskporte)” on page 11-16.
- Note which port # of the APS or MDS Switch the TTY (A50 Controller at S1) is connected to.

**Note:** Shown below, see Table 11-7, is a table with the correct serial port for each of the Control Unit Models.

Table 11-7. TTY Connections for Models A50, A60, and VTS Controllers

Control Unit Models	Serial Port Connection
Model A50	<b>S1</b>
Model A60	<b>S3</b>
VTS Model B18	<b>S2</b>

- The Modem connection is always to Port #1 of the APS or MDS switch.
  - to continue EBTERM must be started. Go to “Setting Up EBTERM or Terminal Emulator for Setting Modem Password” on page 11-44.
  - To trouble shoot an error that has been presented through the Call Home function go to “3590 A00 or A50: View SIMs in the 3590 CU SIM Log:” on page 11-30.
1. For **Call Home** Figure 11-35 on page 11-64, Figure 11-36 on page 11-64, Figure 11-37 on page 11-65 thru Figure 11-42 on page 11-69 are to be used for reference. At Figure 11-35 on page 11-64 select **Subsystem Configuration**. Press **ENTER**

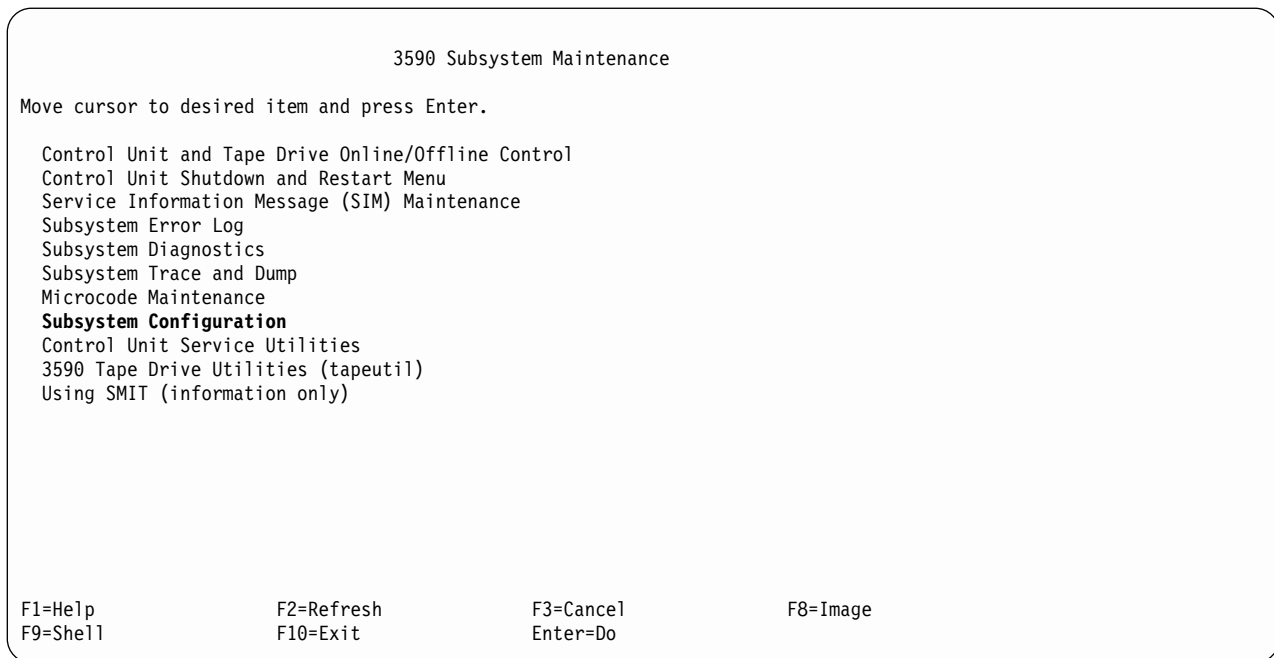


Figure 11-35. Main VTS Maintenance Screen

2. At Figure 11-36 select **Call Home configuration**. Press **ENTER**

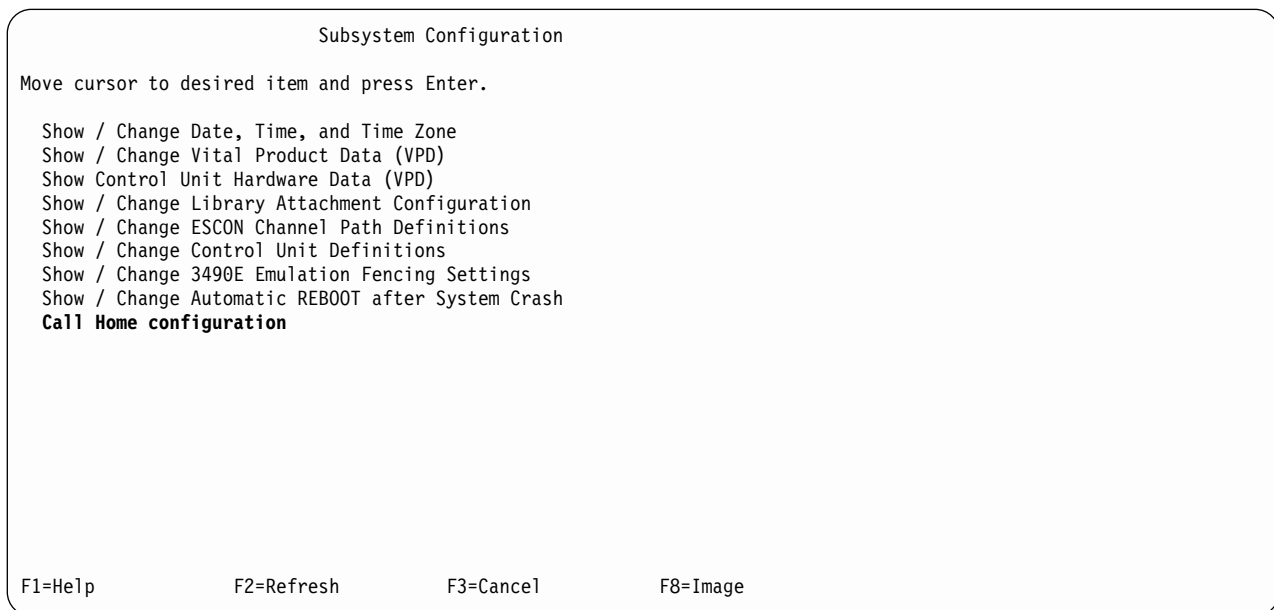


Figure 11-36. System Configuration Screen



```

Show / Change Date, Time, and Time Zone
Show / Change Vital Product Data (VPD)
Change / Show Call Home / Remote Services
Change / Show Modem Configuration
Remove Files from Modem Send Queue
Pager Users Menu
Send Test Notification Menu

F1=Help      1qqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqk
F2=Refresh  qqqqqqqF3=CancelqqqqqqqqqqF8=Image
F10=Exit     Enter=Do

```

Figure 11-37. Call Home Configuration

3. Figure 11-40 on page 11-67 is to be used as a reference for the following steps.

a. **Change / Show Call Home / Remote Services**

- \* **Enable Serious and Acute SIMs to Call Home?** gives the customer the option to select error initiated call home for serious and acute SIM events. Default is **No**. Press **F4** to alter selection.
- \* **LM Customer Initiated Call Home Allowed Frequency** gives the customer the option to initiate call home from an LM pull down menu. Default is **Disable**. **Enable** this option at the request of Tucson support ONLY. Press **F4** to select an off-load frequency from 1 minute to 24 hours.
- \* **Enable Paging?**

Problem Information is sent to a selected pager when you select **YES** to enable pager messages. Default is **No**. Press **F4** to alter selection.

- If **YES** is selected see Figure 11-38 on page 11-66. Follow the steps below.
- The following steps explain the usage for the items under the **Pager Users Menu** Call Home screen option. The **ENTER** key must be pressed to initiate each selection.
  - 1) **List All Pager Users** Press **ENTER** to display users.
  - 2) **Add a Pager User** see Figure 11-39 on page 11-66 and follow on screen directions.
  - 3) **Change / Show a Pager User** follow on screen directions.
  - 4) **Remove Pager Users** follow on screen directions.

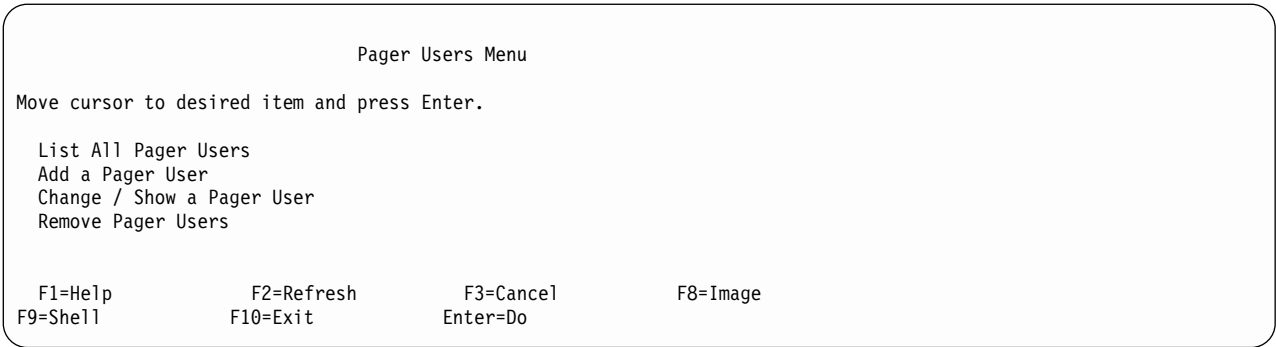


Figure 11-38. Pager Users Menu

The following steps explain the usage for the items under the **Add Pager User** menu Call Home screen option. The **ENTER** key must be pressed to initiate each selection.

- 1) \* **Enter Pager User Name:** Should be entered in Alphanumeric characters.
- 2) \* **Enter TAP/IXO Phone Number:** Information is supplied by pager company.
- 3) \* **Enter Pager User Pin:** Telephone number where pager information is sent.
- 4) \* **Enter Pager User Password:** as required.
- 5) \* **Enter Pager type:** alpha or numeric Press **F4** for selections. A numeric pager will receive limited data.
- 6) \* **Select Pager state:**. Default is Disabled. Press **F4** for selections.
- 7) \* **Select number of times to repeat page:**. Press **F4** for selections.

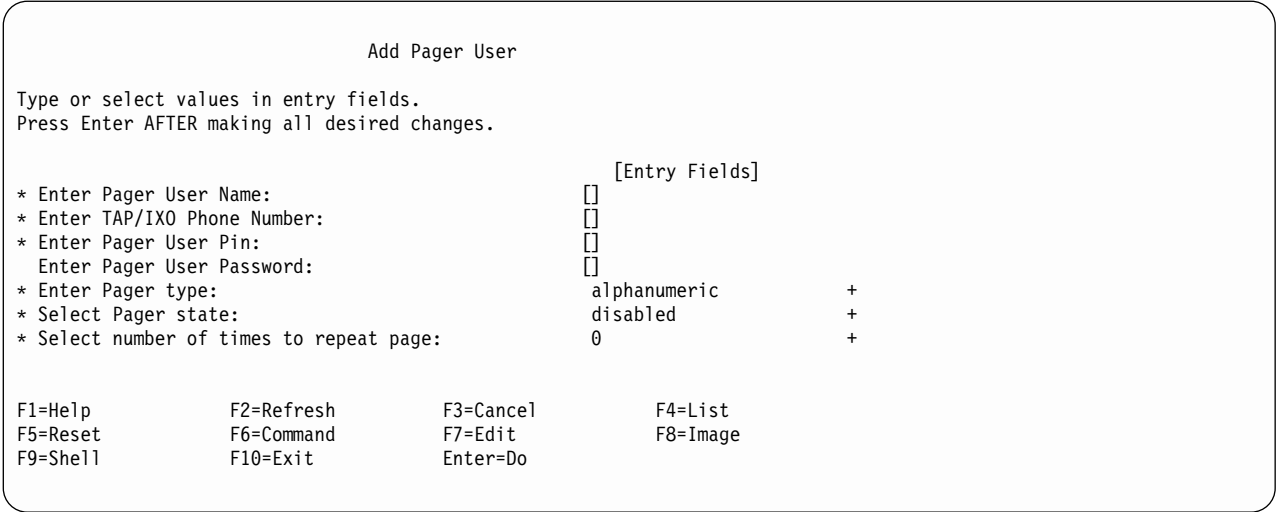


Figure 11-39. Add Pager User

- **Customer Business/Company Name:** The customer name is placed here.
- **Remote Phone Number 1:** Phone numbers should also have area codes.  
The following numbers MUST be entered depending on the country or global area of installation.
  - IBM U.S. 1-800-783-4525
  - AP (inside Japan) 0120-36-2105
  - AP (International) 81-44-244-4892
  - EMEA see the IBM ESDP Boeblingen web site for 2105 RSF Catcher PC phone numbers.
  - **Callback Phone Number.** Local Modem telephone number.
  - **Customer Phone Number.** Enter primary and off-shift phone numbers used for service to contact customer personnel.

**Note: DO NOT** place the 1 in front of the area code the numbers entered above in **Callback Phone Number** and **Customer Phone Number**.

- Press **ENTER** .

Change / Show Call Home / Remote Services

Type or select values in entry fields.  
Press Enter AFTER making all desired changes.

	[Entry Fields]	
* Enable Serious and Acute SIMs to Call Home?	no	+
* LM Customer Initiated Call Home Allowed Frequency	disabled	+
* Enable Paging?	yes	+
Customer Business/Company Name:	[RAS_Call_Home_Test_Lab]	
Remote Phone Number 1:	[]	
Remote Phone Number 2:	[]	
Callback Phone Number	[520-799-2146]	
Customer Phone Number	[520-799-2351]	
Customer Offshift Phone Number	[520-799-2700]	

F1=Help	F2=Refresh	F3=Cancel	F4=List
F5=Reset	F6=Command	F7=Edit	F8=Image
F9=Shell	F10=Exit	Enter=Do	

Figure 11-40. Change / Show Call Home / Remote Services

The following steps explain the usage for the items under the **Change / Show Modem Configuration** of the Call Home screen option. See Figure 11-37 on page 11-65.

- a. **Name of Modem Set: Microcom DeskPorte fast>** set to Default.
- b. **\* Dialer Phone System: tone** set to Default.
- c. **Cancel the call if not connected within (seconds): [45]** set to suggested default time.
- d. **\* Number of consecutive retries to connect: [1]** set to desired retry.
- e. **Name of Expander Set: WTI APS 16 or MDS 16** set to **no-expander** if you are directly connected to the modem.
- f. **Expander port for modem: 1.** The Modem connection is always to Port #1 of the APS or MDS switch.
- g. **Expander port for this Control Unit: 5.** Select the value reflecting which port # of the APS or MDS Switch the TTY (A50 Controller at S1) is connected to.

**Note:** Shown below, see Table 11-8, is a table with the correct serial port for each of the Control Unit Models.

Table 11-8. TTY Connections for Models A50, A60, and VTS Controllers

Control Unit Models	Serial Port Connection
Model A50	S1
Model A60	S3
VTS Model B18	S2

The following steps explain the usage for the items under the **Remove files from Modem send queue** Call Home screen option.

This option allows the CE to delete Call Home records which are queued, but not yet sent. Follow on screen directions.

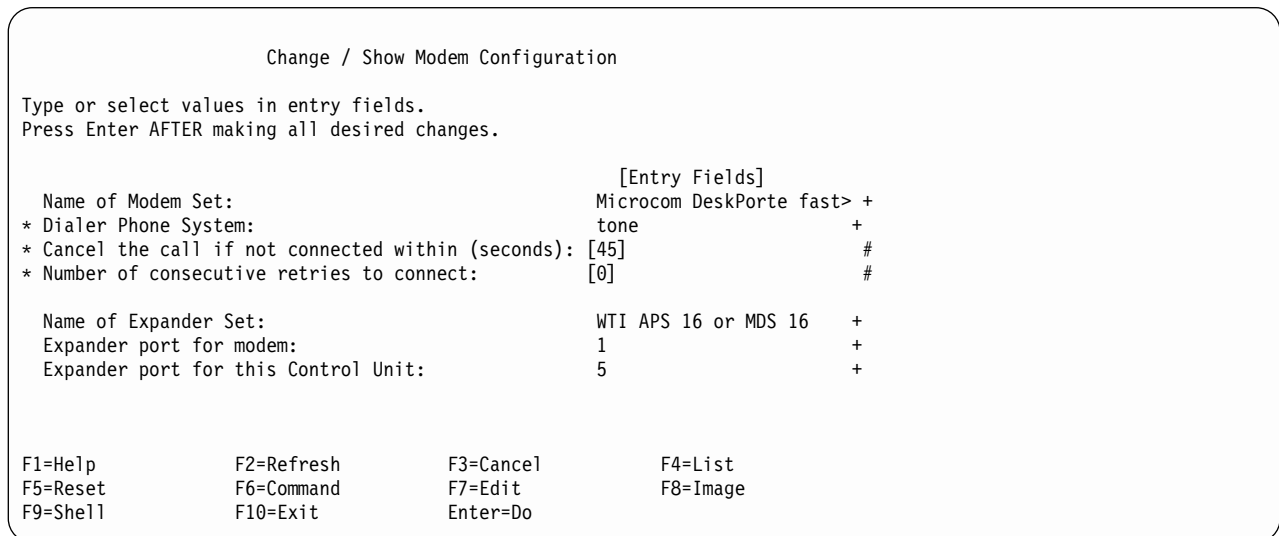


Figure 11-41. Change / Show Modem Configuration

At the **Send Test Notification** selection press **ENTER**. Select the notification type desired and press **ENTER**.

## Send Test Notification Menu

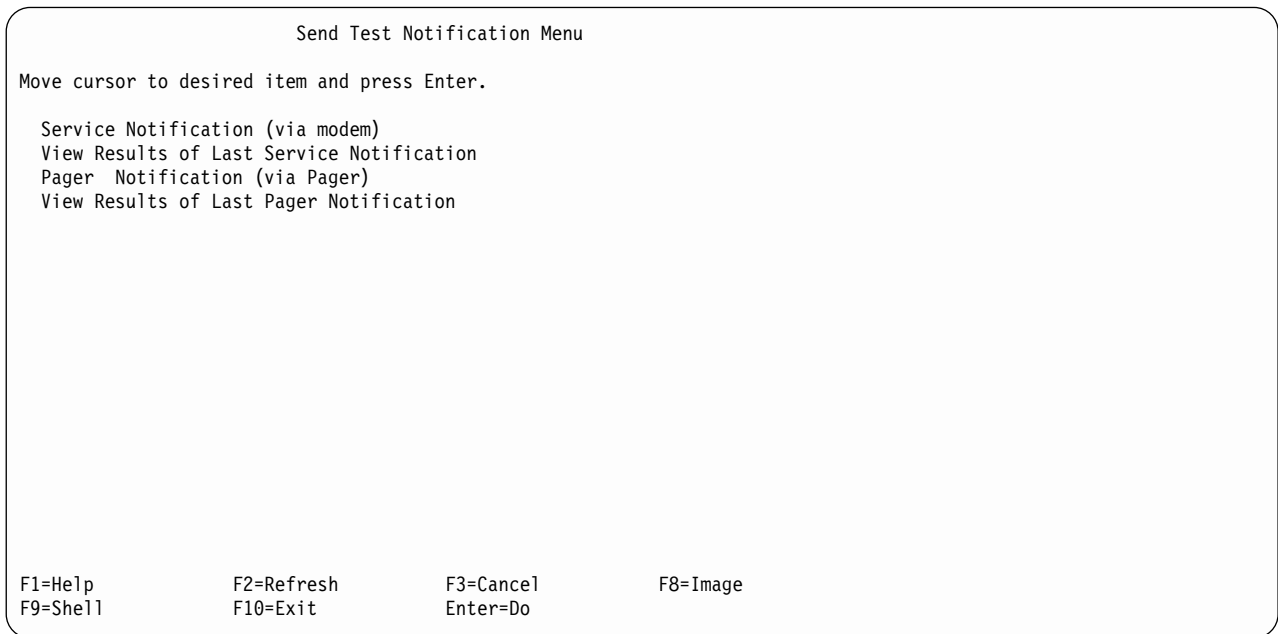


Figure 11-42. Send Test Notification Menu

When selection **Service Notification (via modem)**, read the screen carefully and follow the instruction, for example, the 15 minute wait if you are required to remove the Service Terminal.

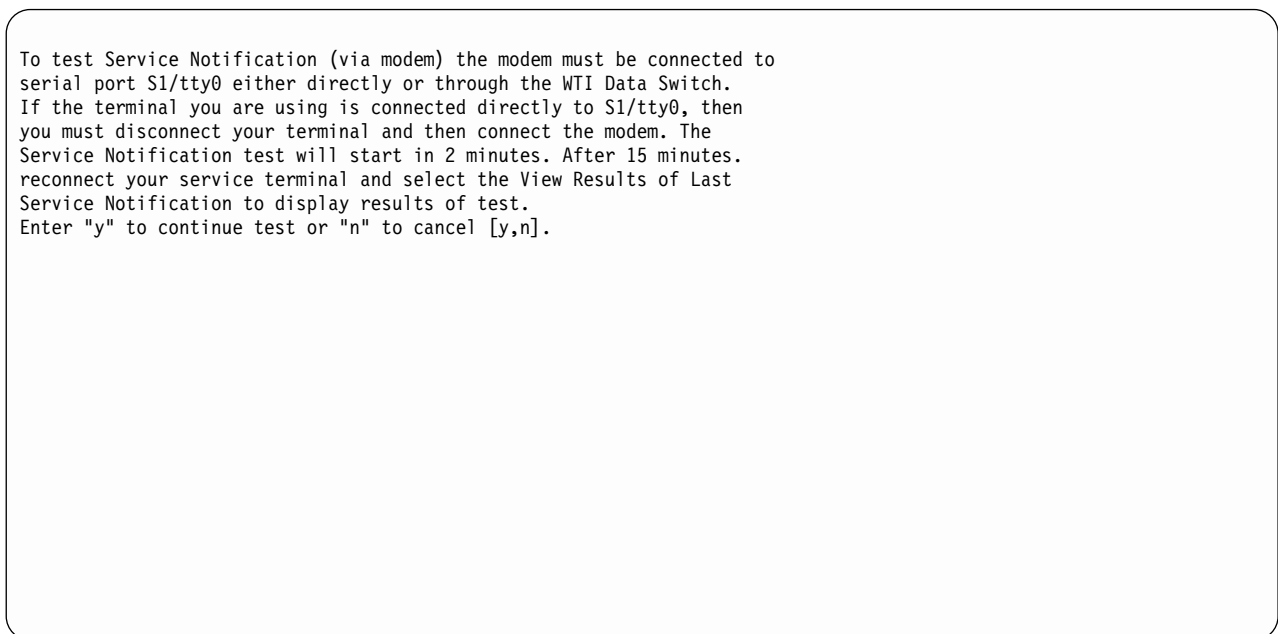


Figure 11-43. Service Notification (via modem) Instruction Screen

The Following screen show what the **View** results of the last Service notification looks like. In the example shown, an error was encountered.

```
COMMAND STATUS

Command: OK          stdout: yes          stderr: no

Before command completion, additional instructions may appear below.

CMVC Defect Number = 17541
Next position: 3
0: 386, Tue Mar 28 09:35:33 2000, trying to connect to tty
1: 418, Tue Mar 28 09:35:34 2000, trying to connect to expander port
2: 436, Tue Mar 28 09:35:39 2000, quitting - error return code = -1

F1=Help          F2=Refresh          F3=Cancel          F6=Command
F8=Image         F9=Shell            F10=Exit           /=Find
n=Find Next
```

Figure 11-44. View the Results of the Modem Notification Screen

When selection **Service Notification (via pager)**, read the screen carefully and follow the instruction, for example, the required minutes wait if you are required to remove the Service Terminal.

```
COMMAND STATUS

Command: running    stdout: yes          stderr: no

Before command completion, additional instructions may appear below.

To test Pager Notification (via Pager) the modem must be connected to
serial port S1/tty0 either directly or through the WTI Data Switch.
If the terminal you are using is connected directly to S1/tty0, then
you must disconnect your terminal and then connect the modem. The
Pager Notification test will start in 2 minutes. Please wait 10 minutes.
per pager to receive test page. After waiting the 10 minutes per pager
reconnect your service terminal and select the View Results of Last
Pager Notification to display results of test.
Enter "y" to continue test or "n" to cancel [y,n].
```

Figure 11-45. Service Notification (via pager) Instruction Screen

The Following screen shows an example of what the **View** results of the last Service notification looks like. In the example shown, an error was encountered.

```
COMMAND STATUS
Command: OK          stdout: yes          stderr: no
Before command completion, additional instructions may appear below.
No results for Pager Notification test found.

F1=Help           F2=Refresh       F3=Cancel        F6=Command
F8=Image          F9=Shell         F10=Exit         /=Find
n=Find Next
```

*Figure 11-46. View the Results of the Pager Notification Screen*

- To set up the reporting level under **Show/Change SIM & MIM Presentation Controls**, ensure “Number of Times SIM/MIMs are Presented (128 Max)” is set to a value of **2** or higher. Return to the procedure that sent you here.

Figure 11-47 on page 11-72 and Figure 11-48 on page 11-73 together represent an **EXAMPLE** of the error format sent to Retain from a Call Home response.

```

# Begin of call home record.....= BEGIN OF FILE (3226)
# Product Manufacturer ID and Date.....=
# Business/Company Name.....= Call_Home_Test
# Product Machine type and model number.= 3494B18
# Product serial number.....= 137xx03
# Remote service call back number.....= 1-520-799-5xxx
# Call back expander port ID.....= 2
# Call back user ID.....= support
# Call back password.....=
# Outside line prefix.....=
# Customer voice phone number.....= 1-520-799-2xxx
# Customer offshift voice phone number..= 1-520-584-8xxx
# LIC level of local complex.....= 2.17.xx.0
# LIC level of remote complex.....=
# Reporting Cluster Number.....= 0
# Record type.....= 1
# Report time/date stamp.....= 11/03/99 10:25:58 CST
# Host system type(s).....= escon
# Level CPSS information.....= /usr/sys/inst.images/2.17.xx.0
# Remaining Presentations. = 5
-----

```

```

Details for SIM ID 01...
Current Status:      OPEN
AIX Error ID:       EC9903DF (hardware error)
Sequence #:         66950
Resource name:      ssal
first occurred:     Nov 3 10:25:57 1999
# of occurrences:   1
last occurrence:    Nov 3 10:25:57 1999
# of times offloaded: 1
last offloaded:     Nov 3 10:25:57 1999
CU SIM Sense Data:
RC/RQC index:      3
Message Modifier:  1194
Message Data:      00 00 00
SIM Identifier:    1
Unit Identifier:   00
Ref Code 1:       0000
Ref Code 2:       0002
Ref Code 3:       a106

```

Figure 11-47. Retain Call Home message



```

-----
LABEL: SSA_DETECTED_ERROR
IDENTIFIER: EC9903DF

Date/Time:      Wed Nov  3 10:25:48
Sequence Number: 66950
Machine Id:     000057224C00
Node Id:       xxxxxx
Class:         H
Type:         PERM
Resource Name:  ssa1
Resource Class: adapter
Resource Type:  ssa
Location:      30-68
VPD:
  Part Number.....009L2140
  FRU Number.....009L2140
  Serial Number.....C8413060
  EC Level.....0000F23678
  Manufacturer.....IBM053
  ROS Level and ID.....6801
  Loadable Microcode Level...04
  Device Driver Level.....00
  Displayable Message.....SSA-ADAPTER
  Device Specific.(Z0).....DRAM=032
  Device Specific.(Z1).....CACHE=0
  Device Specific.(Z2).....00000020354d76d8

Description
LOSS OF REDUNDANT POWER/COOLING

Probable Causes
INTERNAL POWER UNIT
DASD DEVICE

Failure Causes
DISK DRIVE
INTERNAL POWER UNIT
POWER CORD

Recommended Actions
PERFORM PROBLEM DETERMINATION PROCEDURES

Detail Data
ERROR CODE
02A1 0600 0000 0000 0000 0000 0000

```

Figure 11-48. Retain Call Home message

---

## SCSI Configuration Procedure

This procedure enables you to **Display the SCSI Configuration**, **Test SCSI Configuration**, and **Run the SCSI Configurator**.

To Run any of these three (3) procedures, they can be invoked as shown below:

- \_\_\_ Step 1. Bring up EBTERM/NetTerm go to "Installing EBTERM or Terminal Emulator in a 3494 Library Manager" on page 11-16. Go to the 3590 Maintenance screen (see Figure 11-49 on page 11-74).

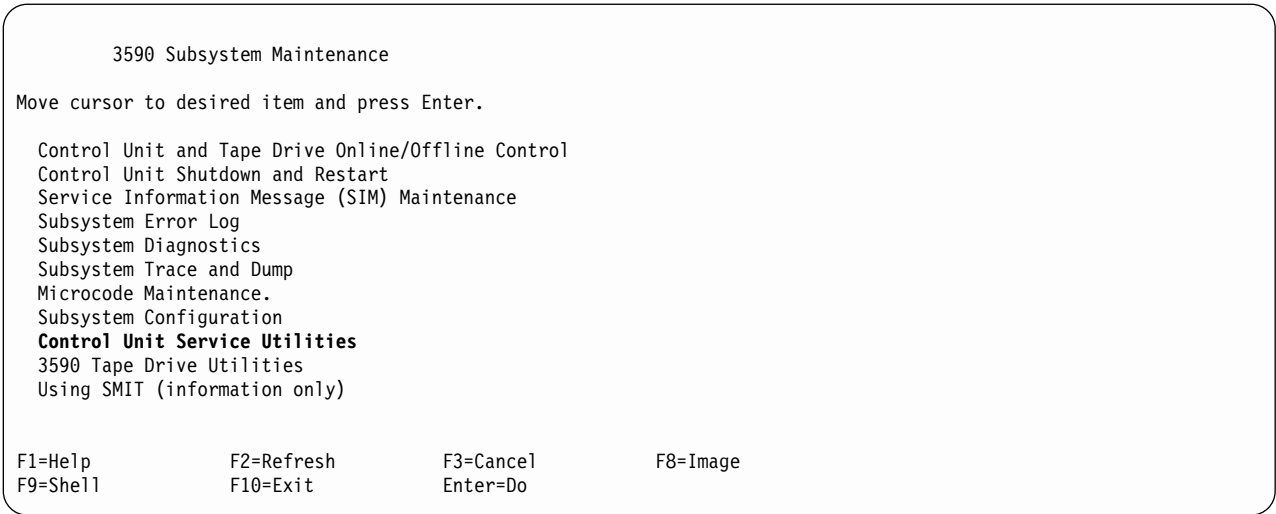


Figure 11-49. Model A00/A50 Maintenance Screen

\_\_\_ Step 2. Select **Control Unit Service Utilities**, The Control Unit Service Utilities will be displayed (see Figure 11-50).

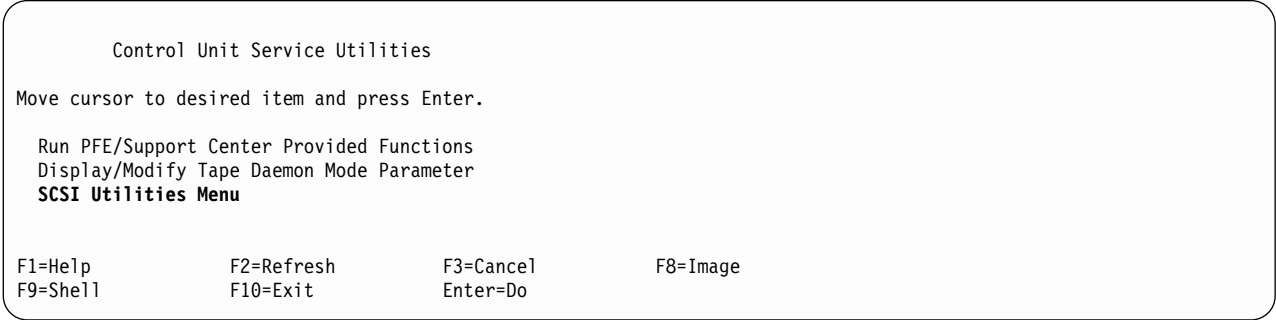


Figure 11-50. Control Unit Service Utilities

\_\_\_ Step 3. Select **SCSI Utilities Menu**, The SCSI Utilities Menu screen will be displayed (see Figure 11-51 on page 11-75).

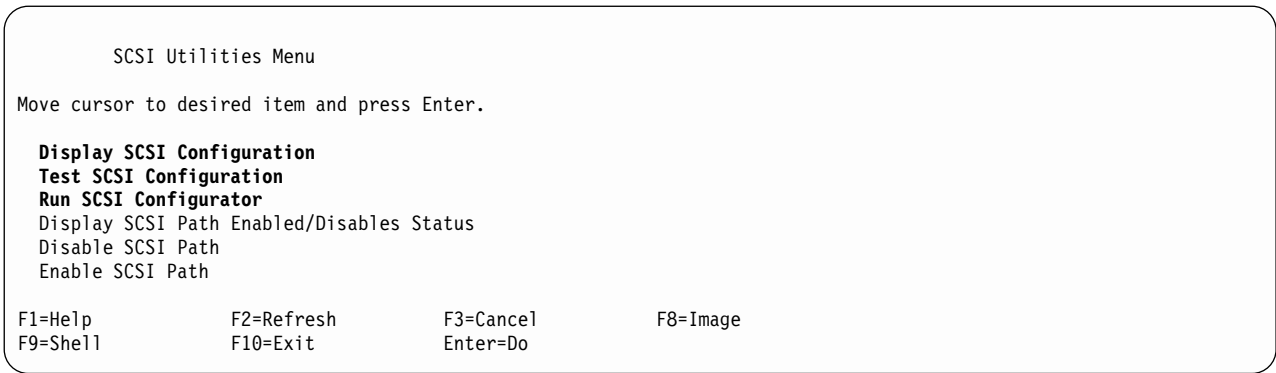


Figure 11-51. SCSI Utilities Menu

\_\_\_ Step 4. From the SCSI Utilities Menu, choose the configuration option that you were sent here for:

**Note:** Shown below, see Figure 11-52, Figure 11-53 on page 11-76, and Figure 11-54 on page 11-77 and the results screens that are displayed when choosing a configuration option.

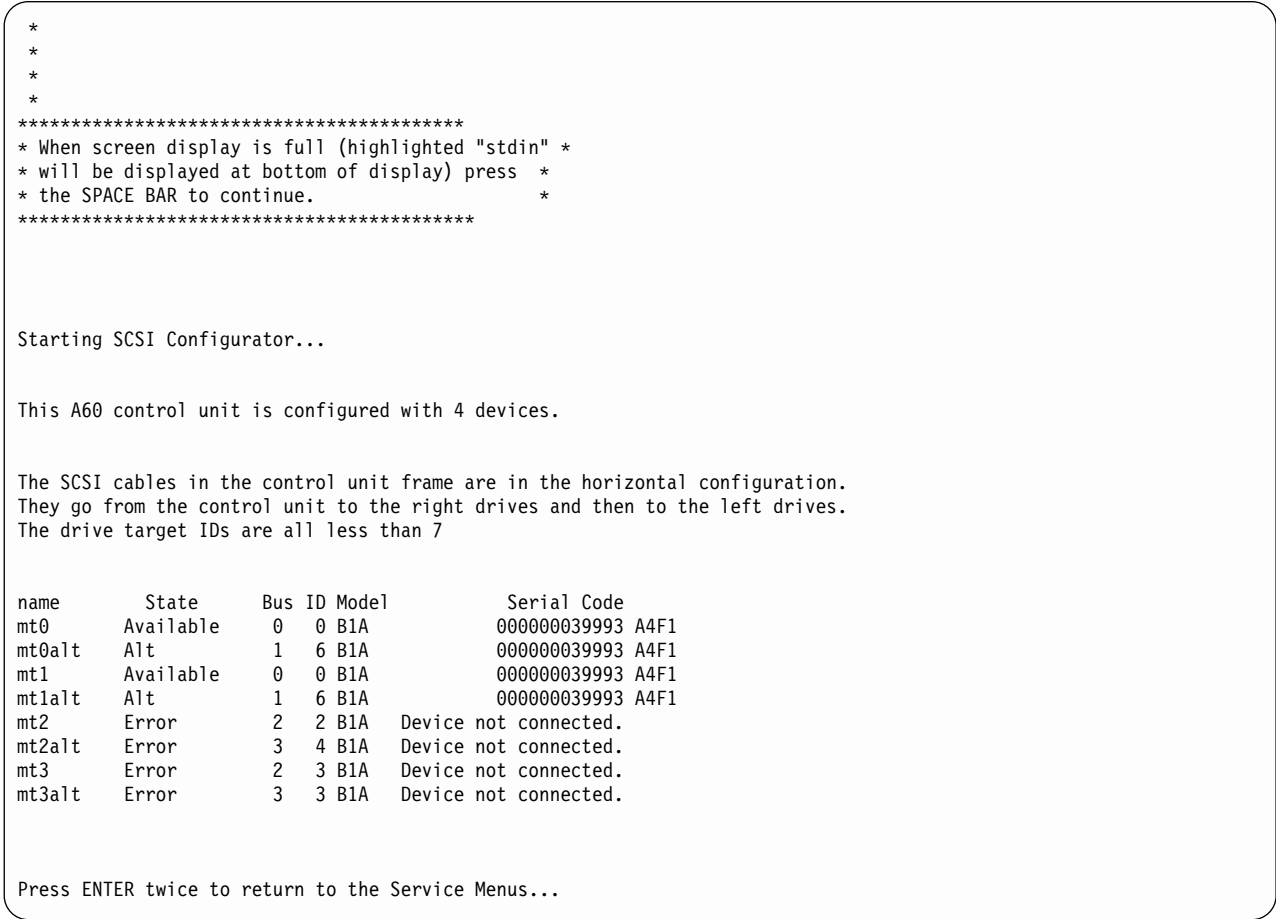


Figure 11-52. Example of the Run SCSI Configurator Results Screen

COMMAND STATUS

Command: OK            stdout: yes            stderr: no

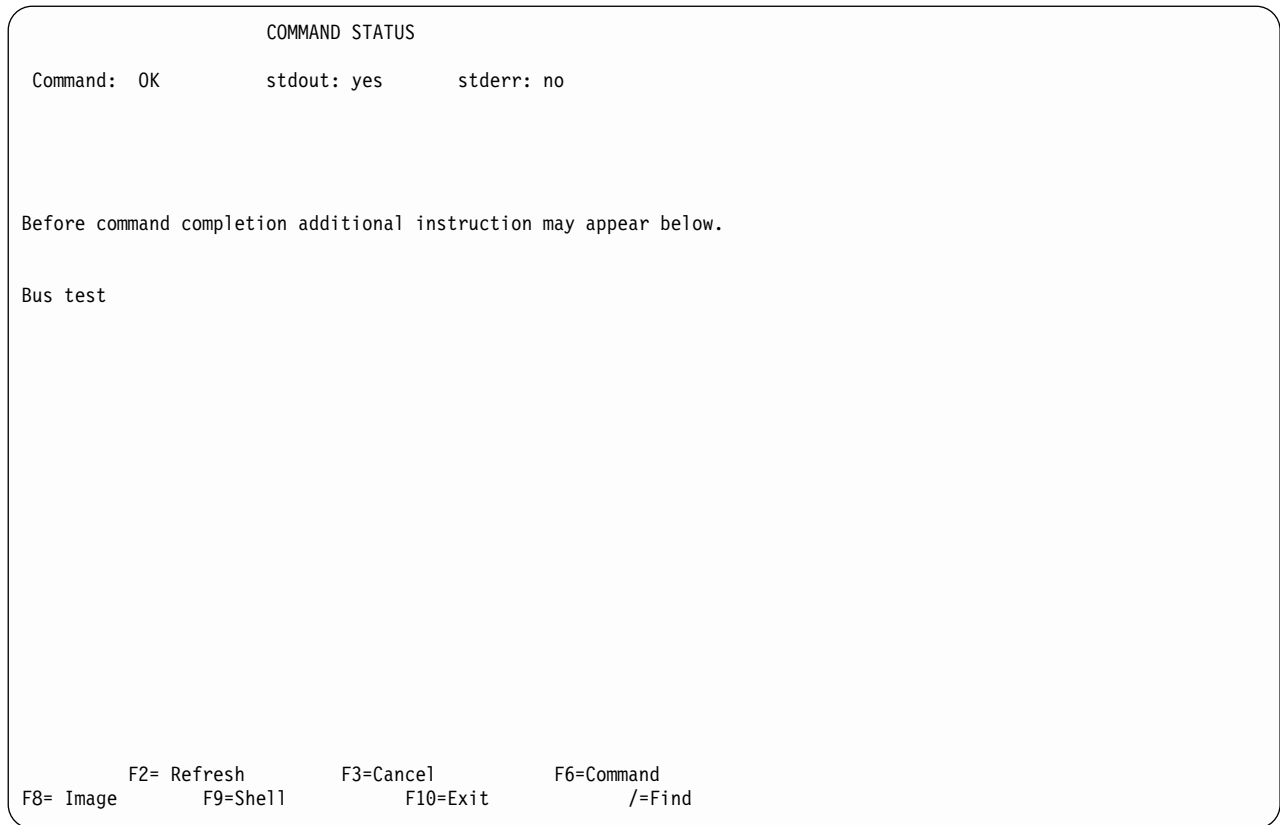
This A60 control unit is configured with 4 devices.

The SCSI cables in the control unit frame are in the horizontal configuration. They go from the control unit to the right drives and then to the left drives. The drive target IDs are all less than 7

name	State	Bus	ID	Model	Serial Code
mt0	Available	0	0	B1A	000000039993 A4F1
mt0alt	Alt	1	6	B1A	000000039993 A4F1
mt1	Available	0	0	B1A	000000039993 A4F1
mt1alt	Alt	1	6	B1A	000000039993 A4F1
mt2	Error	2	2	B1A	Device not connected.
mt2alt	Error	3	4	B1A	Device not connected. 5
mt3	Error	2	3	B1A	Device not connected.
mt3alt	Error	3	3	B1A	Device not connected.

F1=Help            F2= Refresh            F3=Cancel            F6=Command  
F8= Image            F9=Shell            F10=Exit            /=Find

Figure 11-53. Example of the Display SCSI Configurator Results Screen



*Figure 11-54. Example of the Display SCSI Configurator Results Screen*



---

## Chapter 12. Parts Catalog

---

### How to Use This Parts Catalog

- **SIMILAR ASSEMBLIES:** If two assemblies contain a majority of identical parts, they are broken down on the same list. Common parts are shown by one index number. Parts peculiar to one or the other of the assemblies are listed separately and identified by description.
- **AR:** (As Required) in the Units column indicates the quantity of the part is used as required.
- **NP:** (Non-Procurable) in the Units column indicates that the part is non-procurable and that the individual parts or the next higher assembly should be ordered.
- **NR:** (Not Recommended) in the Units column indicates that the part is procurable but not recommended for field replacement, and that the next higher assembly should be ordered.
- **R:** (Restricted) in the Units column indicates the part has a restricted availability.
- **INDENTURE:** The indenture is marked by a series of dots located before the parts description. The indenture indicates the relationship of a part to the next higher assembly. For example:

<b>Indenture</b>	<b>Relationship of Parts</b>
<b>(No dots)</b>	MAIN ASSEMBLY
<b>(One dot)</b>	• Detail parts of a main assembly
<b>(One dot)</b>	• Subassembly of the main assembly
<b>(Two dots)</b>	•• Detail part of a one-dot subassembly
<b>(Two dots)</b>	•• Subassembly of a one-dot subassembly
<b>(Three dots)</b>	••• Detail part of a two-dot subassembly

---

## Assembly 1: Cover Assembly (Sample)



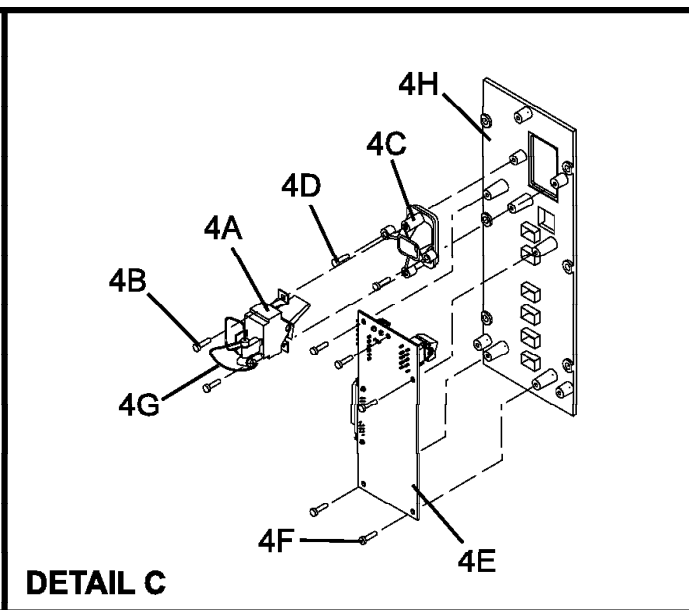
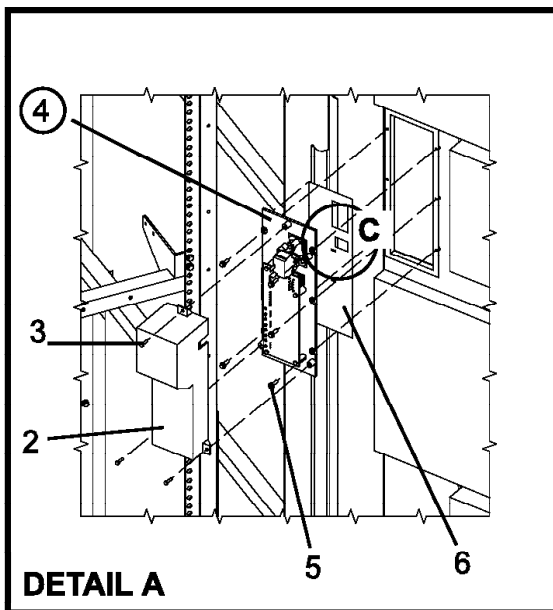
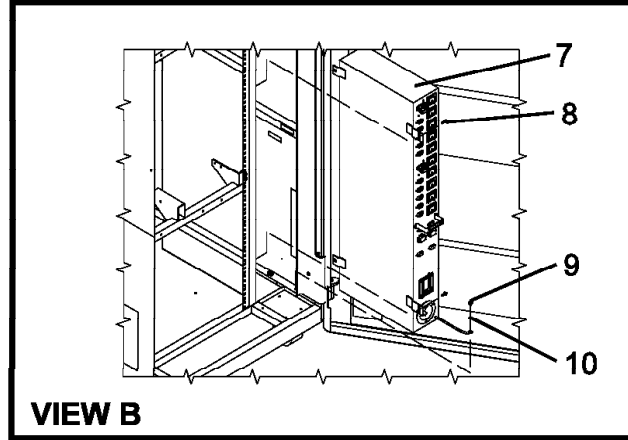
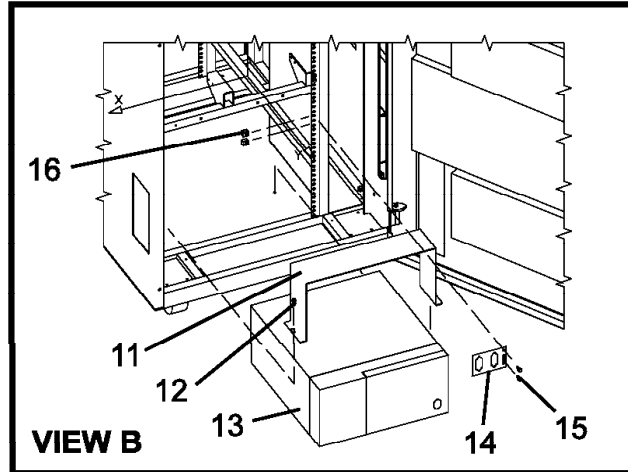
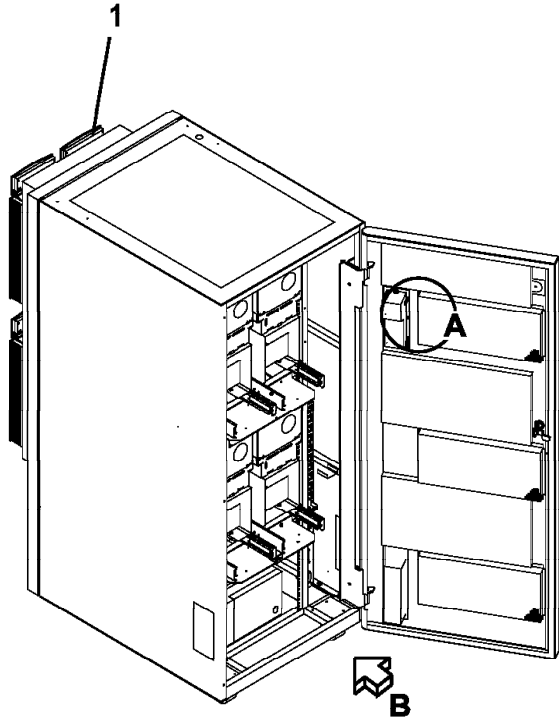
## Assembly 1: (continued)

Asm- Index	Part Number	Units	Description
1-	2512667	1	Cover Assembly, Rear, Red
-	2512668	1	Cover Assembly, Rear, Yellow
-	2512669	1	Cover Assembly, Rear, Blue
-	2512670	1	Cover Assembly, Rear, Gray
-	2513714	1	Cover Assembly, Rear, White For Next Higher Assembly, See 1-2 on page 15
-1	5373637	1	• Seal, Top
-2	5356429	2	• Clip, Retaining
-3	2513013	3	• Liner, Cover
-4	5373727	1	• Seal, Left Side
-5	5356429	3	• Clip, Retaining
-6	513668	2	• Catch, Cover
-7	81693	4	• Screw, Mach Bind Hd- 6-32, X 0.375 Long
-8	1847630	R	• Finger Stock Assembly
-9	1847602	NR	• Channel, Finger Stock
-10	1847604	NR	• Finger Stock, 2.00 Long
-11	5373639	AR	Seal, Bottom
-12	5356429	2	Clip, Retaining
-13		NP	Cover, Rear, without Paint

### Assemblies List

A14 Final Assembly . . . . .	12-4
Adapter Assemblies . . . . .	12-10
Adapter Assemblies . . . . .	12-12
Cable List . . . . .	12-6
Cover Assembly (Sample) . . . . .	12-2
Remote Switch Assembly . . . . .	12-8

# Assembly 2: A14 Final Assembly



A1480A06

Assembly 2: (continued)

Asm-Index	Part Number	Units	Description
2-		NP	A14 Final Assembly
-1		NP	3590 B11, Drive
-2	05H4509	1	Cover, Operator Panel Card
-3	1622533	3	Screw, Metric-Thd Rolling Pan Hd M3 X 12 mm Long
-4	05H4510	1	Panel Assembly, Operator
-4A	67X8763	1	Switch, UEPO
-4B	1622533	2	Screw, Metric-Thd Rolling Pan Hd M3 X 12 mm Long
-4C	4451782	1	Housing, Switch, UEPO
-4D	1622533	2	Screw, Metric-Thd Rolling Pan Hd M3 X 12 mm Long
-4E	05H4466	1	Card, OPN1
-4F	1622533	5	Screw, Metric-Thd Rolling Pan Hd M3 X 12 mm Long
-4G	1622533	1	Cable Assembly, UEPO to OPN1
-4H	05H4506	1	Operator Panel
-5	1624767	5	Screw, Metric-Hex Fling Hd M4 X 12 mm Long
-6	05H9001	1	Label, Operator Panel, English
-6	05H9002	1	Label, Operator Panel, German
-6	05H9003	1	Label, Operator Panel, Spanish
-7	21F9008	1	PCC Assembly, 25A 1PH AC PS
-8	1624776	2	Screw, Metric-Thd Form Hex Fling Hd M5 X 8 mm Long
-9	1624779	1	Screw, M5 X 14 Metric-Hex Fling Hd M5 X 14 mm Long
-10	1622347	1	Lockwasher, Metric-Ext Tooth 5.3 ID X 10 OD
-11	05H8990	1	Bracket, RISC Retaining
-12	1624779	2	Screw, M5 X 14 Metric-Hex Fling Hd M5 X 14 mm Long
-13		1	RISC 6000/C20 For A00 Detail Breakdown, Refer to 7009 Power Server Documentation For A50 Detail Breakdown, Refer to 7043 Power Server Documentation To see mounting hardware for each of the frames, choose the correct model from the table of contents of the Install section.
-14	05H7821	1	Bracket Connector
-15	1624779	2	Screw, M5 X 14 Metric-Hex Fling Hd M5 X 14 mm Long
-16	74F1823	1	Nut Clip, M5

---

## Assembly 3: Cable List

### Assembly 3: (continued)

Asm-Index	Part Number	Units	Description
3-		NP	Cable List
-	05J9572	AR	A50 Line cord, AC power
-	05H8911	AR	A00 Line cord, AC power A00/Bxx
-	05H3210	AR	Cable Assembly, Controller Interface
-	05H3211	AR	Cable Assembly, PCC to Operator Panel Card
-	05H3212	AR	Cable Assembly, UEPO
-	05H3221	AR	Cable Assembly, SCSI 2.9 Meter
-	05H3299	AR	Cable Assembly, RS323 Interface
-	05H3303	AR	Cable Assembly, RS323 A00 to Bulkhead
-	05H4647	AR	Cable Assembly, SCSI 2.8 Meter
-	05H8015	AR	Cable Assembly, SCSI 3.5 Meter
-	05H4648	AR	Cable Assembly, SCSI 4.5 Meter
			<b>Note:</b> For SCSI cable information, see IBM 3590 Tape Subsystem Models B11 and B1A MI.

---

## Assembly 4: Remote Switch Assembly

**Assembly 4: (continued)**

<b>Asm- Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
4-		NP	WTI Switch / Cable Assembly
-	05H9742	AR	APS-16, High Speed Async Port Switch
-	05H3352	AR	Modem Cable
-	05H3357	AR	Modem Adapter
-	05H3350	AR	MDS-16, Data Switch
-	05H3299	AR	MC925-10, Modem to Switch Cable, 25 Card pin to 9 pin, 10 feet
-	04H6328	AR	9-25 Pin Cable
-	05H9744	AR	RJC-150, 150 foot RJ-45 Cable
-	05H9745	AR	LDRJ-9F, RS-232 to 422 Converter, connects to APS-16 switch
-	05H9746	AR	LDRJ-25, RS-232 to 422 Converter, connects to IBM Control Unit serial port
-	05H9044	AR	Modem Deskport Fast USA

---

## Assembly 5: Adapter Assemblies



**Assembly 5: (continued)**

<b>Asm- Index</b>	<b>Part Number</b>	<b>Units</b>	<b>Description</b>
5-		NP	ESCON / SCSI Assemblies
-	51H8701	AR	ESCON Adapter-A00
-	51H8712	AR	ESCON Adapter-A50
-	5605670	AR	FOSA Wrap Plug Tool Card
-	93H7896	AR	SCSI Corvette Adapter-A00
-	05H3090	AR	SCSI Adapter with Heatsinks-A00
-	05H3090	AR	Ultra SCSI Adapter-A50

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## Assembly 6: Adapter Assemblies

Assembly 6: (continued)

Asm-Index	Part Number	Units	Description
6-		NP	World Wide Modems
-1	05H7048	1	ISM (South Africa), Microcom Deskporte FAST+ Modem
-1	05H7024	1	Czechia, Microcom Deskporte FAST+ Modem
-1	05H7024	1	Slovenia, Microcom Deskporte FAST+ Modem
-1	05H7024	1	Hungary, Microcom Deskporte FAST+ Modem
-1	05H7024	1	Jordan, Microcom Deskporte FAST+ Modem
-1	05H7024	1	Ukraine, Microcom Deskporte FAST+ Modem
-1	05H7027	1	Germany, Microcom Deskporte FAST+ Modem
-1	05H7030	1	Israel, Microcom Deskporte FAST+ Modem
-1	05H7033	1	France, Microcom Deskporte FAST+ Modem
-1	05H7033	1	Italy, Microcom Deskporte FAST+ Modem
-1	05H7033	1	Portugal, Microcom Deskporte FAST+ Modem
-1	05H7036	1	Japan, Microcom Deskporte FAST+ Modem
-1	05H7039	1	Belgium, Microcom Deskporte FAST+ Modem
-1	05H7039	1	Netherlands, Microcom Deskporte FAST+ Modem
-1	05H7042	1	New Zealand, Microcom Deskporte FAST+ Modem
-1	05H7044	1	USA and Canada, Microcom Deskporte FAST+ Modem
-1	05H7045	1	ILC, Microcom Deskporte FAST+ Modem
-1	05H7045	1	Denmark, Microcom Deskporte FAST+ Modem
-1	05H7045	1	Norway, Microcom Deskporte FAST+ Modem
-1	05H7045	1	Sweden, Microcom Deskporte FAST+ Modem
-1	05H7051	1	Cyprus, Microcom Deskporte FAST+ Modem
-1	05H7051	1	United kingdom, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Colombia, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Costa Rica, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Ecuador, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Taiwan, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Uruguay, Microcom Deskporte FAST+ Modem
-1	05H7054	1	Venezuela, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Argentina, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Brazil, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Chile, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Greece, Microcom Deskporte FAST+ Modem
-1	05H7057	1	India, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Indonesia, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Korea, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Lebanon, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Philippines, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Saudi Arabia, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Spain, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Thailand, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Turkey, Microcom Deskporte FAST+ Modem
-1	05H7057	1	Egypt, Microcom Deskporte FAST+ Modem
-1	05H7060	1	Austria, Microcom Deskporte FAST+ Modem
-1	05H7063	1	Switzerland, Microcom Deskporte FAST+ Modem
-1	05H7066	1	Finland, Microcom Deskporte FAST+ Modem
-1	05H7069	1	Australia, Microcom Deskporte FAST+ Modem
-1	05H7072	1	Mexico, Microcom Deskporte FAST+ Modem
-1	05H7075	1	People's Republic of China, Microcom Deskporte FAST+ Modem
-1	05H7075	1	Hong Kong, Microcom Deskporte FAST+ Modem
-1	05H7075	1	Malaysia, Microcom Deskporte FAST+ Modem
-1	05H7075	1	Singapore, Microcom Deskporte FAST+ Modem



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## Symbols

The following symbols are used in this manual:

### Symbol

### Description



Imprinted on the panel to indicate that the device requires service if the Processor Check LED is on. Also imprinted on the Change Mode switch to allow the CE to change between the operator menus and the CE menus.



Displayed on the panel to indicate that trace data is stored in the device. Also printed in text as an *attention* notice.



Printed in text and in figures to indicate an ESD-sensitive part.



Displayed on the panel to indicate that the thumbwheel on the cartridge is set to the file-protected position. Also imprinted on the magazine of the ACF to indicate the position where the magazine door is locked.



Displayed on the panel to indicate that the host file-protected the volume.



Displayed on the panel to indicate that the thumbwheel on the cartridge is set to the not file-protected position. Also imprinted on the magazine of the ACF to indicate the position where the magazine door is unlocked.

---

## Communication Statements

### Federal Communications Commission (FCC) Statement

**Note:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

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The United Kingdom Telecommunications Act 1984

This apparatus is approved under approval No. NS/G/1234/J/100003 for the indirect connections to the public telecommunications systems in the United Kingdom.

### Industry Canada Compliance Statement

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled: *Digital Apparatus*, ICES-003 of Industry Canada.

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# Glossary

This glossary defines the special terms, abbreviations, and acronyms that are used in this publication. If you do not find the term you are looking for, refer to the index or to the *Dictionary of Computing*, New York: McGraw-Hill, 1994.

## A

**ac.** Alternating current.

**access method.** A technique for moving data between main storage and input or output devices.

**ACF.** Automatic cartridge facility.

**adj.** Adjustment.

**AEN.** Asynchronous event notification.

**AIX.** Advanced Interactive Executive. IBM's implementation of the UNIX operating system. The RS/6000 system, among others, runs the AIX operating system.

**alter.** To change.

**ANSI.** American National Standards Institute.

**ARTIC.** A real time interface processor. In a tape library, the RS-422 communication path between the 3590 and the library manager.

**ASCII.** American National Standard Code for Information Interchange. A 7-bit coded character set (8 bits including parity check) that consists of control characters and graphic characters.

**assigning a device.** The establishing of the relationship of a device to a running task, process, job, or program.

**assignment.** The naming of a specific device to perform a function.

**assistance.** Aid.

**asynchronous.** Pertaining to two or more processes that do not depend upon the occurrence of specific events such as common timing signals.

**attention (notice).** A word for calling attention to the possibility of danger to a program, device, or system, or to data. Contrast with *caution* and *danger*.

**ATTN.** Attention.

## B

**backhitch.** Magnetic tape that makes a slight backward motion just prior to moving forward.

**backup.** To make additional copies of documents or software for safekeeping.

**BCR.** Buffer channel remainder register.

**BCSE.** Buffer channel status/error register.

**BDSE.** Buffer device status/error register.

**beginning-of-tape (BOT).** The location on a magnetic tape that indicates the start of the permissible recording area.

**bezel.** Decorative and safety cover.

**bicolored.** Having two colors.

**BM or bill of materials.** A list of specific types and amounts of direct materials expected to be used to produce a given job or quantity of output.

**BOB.** Beginning-of-block.

**BOT.** Beginning-of-tape.

**buffer.** A routine or storage used to compensate for a difference in rate of flow of data or time of occurrence of events, when transferring data from one device to another.

**bus.** A facility for transferring data between several devices located between two end points, only one device being able to transmit at a given moment.

## C

**Caution (notice).** A word to call attention to possible personal harm to people. Contrast with *attention* and *danger*.

**CCW.** Channel command word.

**CCW chain.** A list of channel command words to be performed in sequence.

**CE.** Customer engineer; field engineer; service representative.

**CEM.** customer engineering memorandum.

**CER.** Channel error register.

**channel command.** An instruction that directs a data channel, control unit, or device to perform an operation or set of operations.

**char.** Character.

**CHK.** Check.

**cm.** Centimeter.

**command.** A control signal that initiates an action or the start of a sequence of actions.

**concurrent.** Refers to diagnostic procedures that can be run on one control unit while the rest of the subsystem remains available for customer applications.

**contingent connection.** A connection between a channel path and a drive caused when a unit check occurs during an I/O operation.

**controller.** A device that provides the interface between a system and one or more tape drives.

**CP.** Circuit protector.

**CRC.** Cyclic redundancy check.

**CRR.** Channel request register.

**ctrl.** Control.

**CU.** Control unit.

## D

**danger (notice).** A word to call attention to possible lethal harm to people. Contrast with *attention* and *caution*.

**data.** Any representations such as characters or analog quantities to which meaning is or might be assigned.

**data buffer.** The storage buffer in the control unit. This buffer is used to increase the data transfer rate between the control unit and the channel.

**data check.** A synchronous or asynchronous indication of a condition caused by invalid data or incorrect positioning of data.

**dc.** Direct current.

**degradation.** A decrease in quality of output or throughput or an increase in machine error rate.

**degraded.** Decreased in quality of output or throughput or increased machine error rate.

**deserialize.** To change from serial-by-bit to parallel-by-byte.

**detented.** A part being held in position with a catch or lever.

**DEV.** Device.

**DIAG.** Diagnostic section of maintenance information manual.

**direct access storage.** A storage device in which the access time is independent of the location of the data.

**DLR.** Device level register.

**DLX.** Device configuration register (hexadecimal 13).

**DRAM.** Dynamic random-access memory.

**drive, magnetic tape.** A mechanism for moving magnetic tape and controlling its movement.

**DRV.** Drive.

**DSE.** Data security erase.

**DSE (register).** Device status and error register.

**DSH.** Control unit serial high register.

**DSL.** Control unit serial low register.

**DSP.** Digital signal processor.

## E

**EBCDIC.** Extended binary-coded decimal interchange code.

**EC.** Edge connector. Engineering change.

**ECC.** Error correction code.

**EEPROM.** Electrically erasable programmable read-only memory.

**EIA.** Electronics Industries Association.

**EIA unit.** A unit of measure, established by the Electronic Industries Association, equal to 44.45 millimeters (1.75 inches).

**end-of-block (EOB).** A code that marks the end of a block of data.

**end-of-file (EOF).** A code that marks the end of a file of data.

**end-of-tape (EOT).** The end of the recording area on a tape.

**EOB.** End-of-block.

**EOF.** End-of-file.

**EOT.** End-of-tape.

**EPO.** Emergency power off.

**EPROM.** Erasable programmable read only memory.

**EQC.** Equipment check.

**equipment check.** An asynchronous indication of a malfunction.

**EREP.** Environmental recording, editing, and printing.

**Error log.** A dataset or file in a product or system where error information is stored for later access.

**ESCON.** Enterprise Systems Connection.

**Enterprise Systems Connection (ESCON).** A set of IBM products and services that provide a dynamically connected environment within an enterprise. The ESCON channel connection allows the 3590 Model A00 to communicate directly with a System/390.

**ESD.** Electrostatic discharge.

## F

**fault symptom code (FSC).** A hexadecimal code generated by the drive or the control unit microcode in response to a detected subsystem error.

**fiducial.** A target used for teaching a physical location to a robot.

**FC.** Feature code.

**FCC.** Federal communications commission.

**FE.** Field engineer, customer engineer, or service representative.

**FID.** FRU identifier (may be more than one FRU).

**field replaceable unit (FRU).** An assembly that is replaced in its entirety when any one of its components fails.

**file.** A named set of records stored or processed as a unit. Also referred to as a dataset.

**file protection.** The processes and procedures established in an information system that are designed to inhibit unauthorized access to, contamination of, or deletion of a file.

**FLASH EEPROM.** An electrically erasable programmable read-only memory (EEPROM) that can be updated.

**FMR.** Field microcode replacement.

**format.** The arrangement or layout of data on a data medium.

**formatter.** Part of a magnetic tape subsystem that performs data conversion, speed matching, encoding, first level error recovery, and interfaces to one or more tape drives.

**FP.** File protect.

**frayed.** Damaged as if by an abrasive substance.

**FRU.** Field replaceable unit.

**FSC.** Fault symptom code.

**FSI.** Fault symptom index.

**functional microcode.** Microcode that is resident in the machine during normal customer operation.

## G

**g.** Gram.

**gnd.** Ground.

## H

**hertz (Hz).** Unit of frequency. One hertz equals one cycle per second.

**hex.** Hexadecimal.

**Hz.** Hertz (cycles per second).

## I

**ID.** Identifier.

**identifier (ID).** (1) In programming languages, a lexical unit that names a language object; for example, the names of variables, arrays, records, labels, or procedures. An identifier usually consists of a letter optionally followed by letters, digits, or other characters. (2) One or more characters used to identify or name data element and possibly to indicate certain properties of that data element. (3) A sequence of bits or characters that identifies a program, device, or system to another program, device, or system.

**IDRC.** Improved Data Recording Capability.

**IML.** Initial microprogram load.

**Improved Data Recording Format.** An improved data recording mode that can increase the effective data capacity and the effective data rate when enabled and invoked.

**initial microprogram load (IML).** The action of loading a microprogram from an external storage to writable control storage.

**initiator.** The component that executes a command. The initiator can be the host system or the tape control unit.

**INST.** Installation.

**interblock gap (IBG).** An area on a data medium to indicate the end of a block or physical record.

**interface.** A shared boundary. An interface might be a hardware component to link two devices or it might be a portion of storage or registers accessed by two or more computer programs.

**interposer.** The part used to convert a 68-pin connector to a 50-pin D-shell connector.

**intervention required.** Manual action is needed.

**INTRO.** Introduction.

**I/O.** Input/output.

**IOP.** Input/output processor.

**IPL.** Initial program load.

**ITST.** Idle-time self-test.

## K

**km.** kilometer.

## L

**LAN.** Local area network. A computer network within a limited area.

**LED.** Light-emitting diode.

**loadable.** Having the ability to be loaded.

**LZ-1.** Lempel-Ziv electronic data compactor.

## M

**magnetic tape.** A tape with a magnetical surface layer on which data can be stored by magnetic recording.

**MAP.** Maintenance analysis procedure.

**mask.** A pattern of characters that controls the retention or elimination of portions of another pattern of characters. To use a pattern of characters to control the retention or elimination of portions of another pattern of characters.

**master file.** A file used as an authority in a given job and that is relatively permanent, even though its contents may change. Synonymous with main file.

**media capacity.** The amount of data that can be contained on a storage medium, expressed in bytes of data.

**micro.** One millionth of.

**microcode.** (1) One or more micro instructions. (2) A code, representing the instructions of an instruction set, implemented in a part of storage that is not

program-addressable. (3) To design, write, and test one or more micro instructions. (4) See also *microprogram*.

**microdiagnostic routine.** A program that runs under the control of a supervisor, usually to identify field replaceable units.

**microdiagnostic utility.** A program that is run by the customer engineer to test the machine.

**microinstruction.** A basic or elementary machine instruction.

**microprogram.** A group of microinstructions that when executed performs a preplanned function.

The term microprogram represents a dynamic arrangement or selection of one or more groups of microinstructions for execution to perform a particular function. The term microcode represents microinstructions used in a product as an alternative to hard-wired circuitry to implement certain functions of a processor or other system component.

**MIM.** Media information message.

**mm.** Millimeter.

**modifier.** That which changes the meaning.

**mount a device.** To assign an I/O device with a request to the operator.

**MP.** Microprocessor.

**ms.** Millisecond.

**MSG.** Message.

**multipath.** Pertaining to using more than one path.

## N

**N/A.** Not applicable.

**node.** In a network, a point at which one or more functional units connect channels or data circuits.

**NVS.** Nonvolatile storage. A storage device whose contents are not lost when power is cut off.

## O

**offline.** Pertaining to the operation of a functional unit without the continual control of a computer. Contrast with *online*.

**online.** Pertaining to the operation of a functional unit that is under the continual control of a computer. Contrast with *offline*.

**OPER.** Operation.

**ov.** Over voltage.

**overrun.** Loss of data because a receiving device is unable to accept data at the rate it is transmitted.

**overtightening.** To tighten too much.

## P

**p bit.** Parity bit.

**parameter.** A variable that is given a constant value for a specified application and that may denote the application.

**PC.** Parity check.

**PCC.** Power control compartment.

**PE.** Parity error. Product engineer.

**PGID.** Path group identification.

**PM.** Preventive maintenance.

**PNEU.** Pneumatics.

**pneumatic.** The parts of the subsystem that control the pressurized air and vacuum.

**POR.** Power-on reset.

**port.** A physical connection for communication between the 3590 and the host processor. The 3590 has two SCSI ports.

**POST.** Power-on self-test.

**Power-on self-test (POST).** A series of diagnostic tests that are run automatically by a device when the power is turned on.

**PROM.** Programmable read only memory.

**PS.** Power supply.

**PTF.** Program temporary fix.

**PWR.** Power.

## R

**RAM.** Random access memory.

**Random access memory.** A storage device into which data is entered and from which data is retrieved in a nonsequential manner.

**RAS.** Reliability, availability, and serviceability.

**record.** A collection of related data or words, treated as a unit.

**recording density.** The number of bits in a single linear track measured per unit of length of the recording medium.

**recoverable error.** An error condition that allows continued execution of a program.

**ref.** Reference.

**reg.** Register.

**reinventor.** To inventory again.

**retension.** The process or function of tightening the tape onto the cartridge, if it is sensed that the tape has a loose wrap on the cartridge.

**RPQ.** Request for price quotation.

**R/W.** Read/write.

## S

**s.** Seconds of time.

**SARS.** Statistical analysis and reporting system. The microcode in the drive that assists in determining if read and write errors are caused by the tape or the hardware.

**SCSI.** Small computer system interface.

**segment.** A part.

**sel.** Select.

**serialize.** To change from parallel-by-byte to serial-by-bit.

**serializer.** A device that converts a space distribution of simultaneous states representing data into a corresponding time sequence of states.

**servo, servos.** An adjective noun for use in qualifying some part or aspect of a servomechanism.

**servomechanism.** A feedback control system in which at least one of the system signals represents mechanical motion.

**SIM.** Service information message.

**small computer system interface (SCSI).** An input and output bus that provides a standard interface between the host system and the 3590.

**SNS.** Sense.

**special feature.** A feature that can be ordered to enhance the capability, storage capacity, or performance of a product, but is not essential for its basic work.

**SR.** Service representative, see also *CE*.

**SRAM.** Static random access memory.

**SS.** Status store.

**ST.** Store.

**standard feature.** The significant design elements of a product that are included as part of the fundamental product.

**START.** Start maintenance.

**Stoplock.** A position-hold mode used when the tape is in a stopped position and under tension.

**subsystem.** A secondary or subordinate system, usually capable of operating independently of, or asynchronously with, a controlling system.

**SUPP.** Support.

**sync.** Synchronous, synchronize. Occurring with a regular or predictable time relationship.

## T

**TAC.** Technical area code.

**tachometer, tach.** A device that emits pulses that are used to measure/check speed or distance.

**tape cartridge.** A container holding magnetic tape that can be processed without separating it from the container.

**tape void.** An area in the tape in which no signal can be detected.

**TCP/IP.** Transmission Control Protocol/Internet Protocol. When in a tape library, the LAN communication path between the host and the library manager. This communication path is used for *tape library* commands that do not require the 3590, while the SCSI bus is used for commands, data, and responses that require the 3590. All SCSI-attached processors require an RS-232 or a LAN attachment for library control.

**TCU.** Tape control unit.

**TH.** Thermal.

**thread/load operation.** A procedure that places tape along the tape path.

**TM.** Tapemark.

**tty.** When in a tape library, the RS-232 communication path between the host and the library manager. This communication path is used for *tape library* commands that do not require the 3590, while the SCSI bus is used for commands, data, and responses that require the 3590. All SCSI-attached processors require an RS-232 or a LAN attachment for library control.

## U

**UART.** Universal asynchronous receiver/transmitter.

**unload.** Prepare the tape cartridge for removal from the drive.

**utilities.** Utility programs.

**utility programs.** A computer program in general support of the processes of a computer; for instance, a diagnostic program.

**uv.** Under voltage.

## V

**VOLSER.** Volume serial number.

**volume.** A certain portion of data, together with its data carrier, that can be handled conveniently as a unit.

**VPD.** Vital product data. The information contained within the tape drive that requires nonvolatile storage used by functional areas of the drive, and information required for manufacturing, RAS, and engineering.

## W

**word.** A character string that is convenient for some purpose to consider as an entity.

**Write.** Write command.

**WT.** world trade.

## X

**XR.** External register.

**XRA.** External register address register.



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Maintenance Information  
A00 and A50 Controllers**

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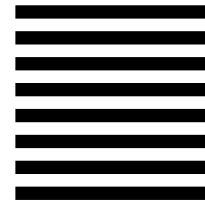
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