



4693, 4694, and 4695 Point-of-Sale Terminals:

SY27-0337-02

## **Hardware Service Manual**

**Note**

Before using this information and the products it supports, be sure to read the general information under "Notices" on page viii. Translations of the safety notices can be found in IBM 4693/4694 Point of Sale Terminals: Product Safety Information, P/N 60G1330.

**Third Edition (October, 1995)**

This is the third edition of the *IBM 4693, 4694, 4695 Point-of-Sale Terminals: Hardware Service Manual*.

Order publications through your IBM representative or the IBM branch office serving your locality. Publications are not stocked at the address given below.

A form for readers' comments is provided at the back of this publication. If the form has been removed, address your comments to:

IBM Corporation, Information Development, Department CJMA  
P.O. Box 12195  
Research Triangle Park, North Carolina 27709  
USA

When you send information to IBM, you grant IBM a nonexclusive right to use or distribute the information in any way it believes appropriate without incurring any obligation to you.

© **Copyright International Business Machines Corporation 1993, 1995. All rights reserved.**

Note to U.S. Government Users — Documentation related to restricted rights — Use, duplication or disclosure is subject to restrictions set forth in GSA ADP Schedule Contract with IBM Corp.

---

# Contents

|  |            |
|--|------------|
| Notices  | viii       |
| Trademarks   | viii       |
| Electronic Emission Notices                                | ix         |
| General Safety Considerations                              | ix         |
| Electrostatic Discharge (ESD)                              | x          |
| European Union (EU) Electromagnetic Compatibility          | xi         |
| Laser Product Identification                               | xi         |
| Preface  | xii        |
| Store System Library                                       | xii        |
| Store System Related Publications — Software               | xiii       |
| Store System Related Publications — Hardware               | xiii       |
| General Publications                                       | xiii       |
| Summary of Changes   | xiv        |
| <br>   |            |
| <b>Chapter 1. Start Here for 4693 Problems</b>             | <b>1-1</b> |
| 4693 Problem Determination                                 | 1-2        |
| MAP 0100: General Checkout                                 | 1-3        |
| MAP 0110: Input/Output (I/O) Device Isolation              | 1-6        |
| 4693 Messages  | 1-8        |
| How To Read 4693 Power-On Self-Test (POST) Messages        | 1-9        |
| How To Retrieve Network Remote Program Load (RPL) Messages | 1-9        |
| Power-On Self-Test Message Index                           | 1-10       |
| 4693 Power-On Self-Test Messages                           | 1-11       |
| Ethernet Messages  | 1-25       |
| PC Network Messages  | 1-26       |
| Token-Ring Messages  | 1-28       |
| 63nn Messages  | 1-31       |
| Application Program Status xxx*                            | 1-34       |
| Annn through Lnnn and Nnnn through Snnn Messages           | 1-34       |
| Mnnnn Messages   | 1-35       |
| Tnnnn Messages   | 1-39       |
| Unnn Messages  | 1-45       |
| Wnnn Messages  | 1-46       |
| Xnnn Messages  | 1-46       |
| Ynnn Messages  | 1-46       |
| Znnn Messages  | 1-46       |
| 4693 Symptoms  | 1-47       |
| 4693 Power-On Self-Test (POST) Beep Symptoms               | 1-48       |
| Problems with 4693 Models 3W1 and 741 Service Level Update | 1-49       |
| Input/Output Device Symptoms                               | 1-50       |
| 4693 Operator Panel Indicators and Switches                | 1-51       |
| Option Adapter Symptoms                                    | 1-54       |
| 4693 Programmable Power Control Symptoms                   | 1-55       |
| Fixed Disk Symptoms  | 1-55       |
| Diskette Drive Symptoms                                    | 1-56       |
| Network Communications Symptoms                            | 1-57       |
| Ethernet Network   | 1-57       |
| PC Network Baseband  | 1-58       |
| Token-Ring Network   | 1-58       |
| Store Loop Communications Symptoms                         | 1-59       |

|   |      |
|---|------|
| Storage Retention Symptoms                                | 1-60 |
| RS232 Serial Device Symptoms                              | 1-60 |
| Video Display Symptoms                                    | 1-61 |
| Miscellaneous Symptoms                                    | 1-62 |
| 4693 Configuration, Tests, and Utilities                  | 1-64 |
| Keyboard Differences                                      | 1-65 |
| Reference, Diagnostic, and Support Diskettes              | 1-65 |
| System Partition  | 1-65 |
| IML Image   | 1-66 |
| Test Programs Summary                                     | 1-67 |
| Power-On Self-Test (POST)                                 | 1-67 |
| Configuration Programs Summary                            | 1-68 |
| Utility Programs Summary                                  | 1-69 |
| Loading the System Programs                               | 1-71 |
| Flow of 4693 System Programs Menus                        | 1-73 |
| Flow of 4693-3W1 System Programs Menus                    | 1-74 |
| Test Procedure Using System Programs                      | 1-75 |
| Testing Procedure Using Operating System Exercisers       | 1-75 |
| Configuration Procedure Using System Programs             | 1-75 |
| Utilities Procedure Using System Programs                 | 1-75 |
| Resetting Configuration and the Terminal Load             | 1-76 |
| 4693 Removals and Replacements                            | 1-77 |
| Electrostatic Discharge (ESD)                             | 1-78 |
| Removing and Replacing the Front Panel                    | 1-79 |
| Removing and Replacing the Storage Retention Battery Pack | 1-80 |
| Removing and Replacing the Operator Panel Assembly        | 1-80 |
| Removing and Replacing the Power Supply                   | 1-81 |
| Removing and Replacing the Diskette Drive                 | 1-82 |
| Removing and Replacing the Cooling Fan and Plenum         | 1-82 |
| Removing and Replacing the Logic Tray                     | 1-83 |
| Removing and Replacing the Fixed Disk Drive               | 1-84 |
| Removing and Replacing an Option Adapter                  | 1-85 |
| Removing and Replacing Memory Modules                     | 1-85 |
| Removing and Replacing the Terminal System Board          | 1-86 |
| Removing and Replacing the Speaker                        | 1-86 |
| Removing and Replacing the Rear Cover                     | 1-86 |
| Removing and Replacing the Rear Connector Panel           | 1-87 |
| Removing and Replacing the Input/Output Devices           | 1-88 |
| Removing and Replacing the Top Cover                      | 1-89 |
| Removing and Replacing the Side Covers                    | 1-89 |
| Removing and Replacing the Keylock Insert                 | 1-90 |
| Removing and Replacing the Blank Keylock Insert           | 1-90 |
| Removing the Power-On Password                            | 1-91 |
| Removing and Replacing an Extended Duration Battery       | 1-92 |
| 4693 Model 741 Processor Jumper Information               | 1-93 |
| Removing the Power-On Password                            | 1-94 |
| <b>Chapter 2. Start Here for 4694 Problems</b>            | 2-1  |
| 4694 Problem Determination                                | 2-2  |
| Preliminary Checklist                                     | 2-2  |
| 4694 Symptom Table  | 2-3  |
| POST/Beep Messages  | 2-5  |
| Testing the 4694  | 2-8  |
| Service Diskette Menus                                    | 2-8  |

|   |            |
|---|------------|
| Point-of-Sale Device Tests . . . . .  | 2-9        |
| System Unit Tests . . . . .   | 2-9        |
| Utilities . . . . .   | 2-9        |
| Viewing Configuration . . . . .   | 2-9        |
| System Configuration Menus . . . . .  | 2-10       |
| 4694 Models 001, 004, and 024 Removals and Replacements . . . . .             | 2-11       |
| Electrostatic Discharge (ESD) . . . . .                                       | 2-11       |
| Removing and Replacing the Covers . . . . .                                   | 2-12       |
| Removing and Replacing the Diskette Drive or Fixed Disk Drive . . . . .       | 2-13       |
| Removing and Replacing the VGA Card . . . . .                                 | 2-13       |
| Removing and Replacing the Power Supply . . . . .                             | 2-14       |
| Removing and Replacing the Riser Card and PCMCIA Card . . . . .               | 2-14       |
| Removing and Replacing the System Board . . . . .                             | 2-15       |
| Removing and Replacing Memory Modules . . . . .                               | 2-16       |
| 4694 Models 041, 044, and 144 Removals and Replacements . . . . .             | 2-17       |
| Removing and Replacing the Front Panel and Logic Tray . . . . .               | 2-17       |
| Removing and Replacing the Diskette Drive or Fixed Disk Drive . . . . .       | 2-18       |
| Removing and Replacing the Power Supply . . . . .                             | 2-19       |
| Removing and Replacing the Riser Card and PCMCIA Card . . . . .               | 2-20       |
| Removing and Replacing the System Board . . . . .                             | 2-20       |
| Removing and Replacing Memory Modules . . . . .                               | 2-20       |
| <b>Chapter 3. Start Here for 4695 Problems . . . . .</b>                      | <b>3-1</b> |
| 4695 Service Diskette Introduction . . . . .                                  | 3-2        |
| Main Menu . . . . .   | 3-3        |
| 4695 Service Level Update Procedure . . . . .                                 | 3-4        |
| Removing the Power-On Password . . . . .                                      | 3-4        |
| Problem Determination – 4695 Models 002 and 012 . . . . .                     | 3-5        |
| Preliminary Checklist . . . . .   | 3-5        |
| Symptom Table – 4695 Models 002 and 012 . . . . .                             | 3-6        |
| Setting the 4695 Point of Sale Adapter Switches (Model 002 and 012) . . . . . | 3-9        |
| 4695 Models 002 and 012 Removals and Replacements . . . . .                   | 3-10       |
| Removing and Replacing the Tablet FRUs . . . . .                              | 3-10       |
| Removing and Replacing the Digital Interface Cable . . . . .                  | 3-12       |
| Removing and Replacing the Clutch . . . . .                                   | 3-12       |
| Removing the 4695 from the Counter . . . . .                                  | 3-13       |
| Closing the Rear Door . . . . .   | 3-13       |
| 4695 Models 002 and 012 Connector Panel . . . . .                             | 3-13       |
| Removing and Replacing the Interface Card and Shield . . . . .                | 3-14       |
| Removing and Replacing the Pedestal Stand . . . . .                           | 3-14       |
| Removing and Replacing the Rear Door . . . . .                                | 3-15       |
| Removing and Replacing the Customer Display . . . . .                         | 3-16       |
| Removing, Replacing, and Cleaning the Customer Display Lens . . . . .         | 3-16       |
| Removing and Replacing the MSR . . . . .                                      | 3-17       |
| Problem Determination – 4695 Models 201 and 211 . . . . .                     | 3-18       |
| Preliminary Checklist . . . . .   | 3-18       |
| Symptom Table – 4695 Models 201 and 211 . . . . .                             | 3-19       |
| Models 201 and 211 . . . . .  | 3-21       |
| POST Messages – Models 201 and 211 . . . . .                                  | 3-21       |
| POST Beep Codes – 4695 Models 201 and 211 . . . . .                           | 3-26       |
| Run-time Error Messages – 4695 Models 201 and 211 . . . . .                   | 3-27       |
| Test Error Messages – 4695 Models 201 and 211 . . . . .                       | 3-28       |
| Service Diskette Messages – Models 201 and 211 . . . . .                      | 3-32       |
| Rear Connector Panel – 4695 Models 201 and 211 . . . . .                      | 3-34       |

|   |            |
|---|------------|
| Front Panel – 4695 Models 201 and 211 . . . . .                       | 3-34       |
| Removals and Replacements – 4695 Models 201 and 211 . . . . .         | 3-35       |
| Removing and Replacing the Tablet . . . . .                           | 3-35       |
| Removing and Replacing the MSR or MSR Blanks . . . . .                | 3-36       |
| Removing and Replacing the Tablet FRUs . . . . .                      | 3-36       |
| Removing and Replacing the 4695 LCD Backlight (10.4 in.) . . . . .    | 3-38       |
| Removing and Replacing the Top Cover . . . . .                        | 3-39       |
| Removing and Replacing Memory Modules . . . . .                       | 3-40       |
| Removing and Replacing the Fixed Disk . . . . .                       | 3-40       |
| Removing and Replacing the Diskette Drive . . . . .                   | 3-41       |
| Removing and Replacing the Front Panel . . . . .                      | 3-41       |
| Removing and Replacing the System Board . . . . .                     | 3-42       |
| Removing and Replacing the Processor . . . . .                        | 3-42       |
| Removing and Replacing the Video RAM . . . . .                        | 3-43       |
| Installing the Expansion Feature . . . . .                            | 3-44       |
| Jumper Information . . . . .  | 3-45       |
| Removing and Replacing the Power Button . . . . .                     | 3-47       |
| Removing and Replacing the Lock Assembly FRUs . . . . .               | 3-48       |
| Removing and Replacing a Lock Insert . . . . .                        | 3-49       |
| Removing and Replacing a Blank Lock Insert . . . . .                  | 3-50       |
| Removing and Replacing the Upper Wedge . . . . .                      | 3-50       |
| Removing and Replacing the Tablet Latch . . . . .                     | 3-51       |
| Removing and Replacing the Lower Wedge Shaft Assembly . . . . .       | 3-51       |
| Removing and Replacing the Front Door . . . . .                       | 3-52       |
| Removing and Replacing the Rear Door . . . . .                        | 3-52       |
| Removing and Replacing the Customer Display . . . . .                 | 3-52       |
| Removing, Replacing, and Cleaning the Customer Display Lens . . . . . | 3-53       |
| Removing and Replacing the Lithium Battery . . . . .                  | 3-53       |
| Removing and Replacing The PCMCIA Feature . . . . .                   | 3-54       |
| Running Setup – 4695 Models 201 and 211 . . . . .                     | 3-55       |
| 4695 Setup Diskette . . . . .   | 3-56       |
| Creating A Setup Diskette . . . . .                                   | 3-56       |
| Using the Setup Diskette . . . . .                                    | 3-57       |
| <br>  |            |
| <b>Appendix A. 4693 Hardware Overview . . . . .</b>                   | <b>A-1</b> |
| Front and Rear Views of the IBM 4693 . . . . .                        | A-2        |
| Sockets and Devices . . . . .   | A-3        |
| Rear Connector Panels . . . . .                                       | A-4        |
| Description of 4693 Power Modes . . . . .                             | A-5        |
| <br>  |            |
| <b>Appendix B. Maintenance Inspection for the 4693 . . . . .</b>      | <b>B-1</b> |
| <br>  |            |
| <b>Appendix C. Preventive Maintenance . . . . .</b>                   | <b>C-1</b> |
| 4693 Preventive Maintenance Procedures . . . . .                      | C-3        |
| System Unit . . . . .   | C-3        |
| Cash Drawer . . . . .   | C-3        |
| Display . . . . .   | C-3        |
| Keyboard . . . . .  | C-3        |
| Keylocks . . . . .  | C-3        |
| Scanners . . . . .  | C-3        |
| Model 1 or 2 Printer . . . . .  | C-3        |
| Model 3 or 4 Printer . . . . .  | C-4        |
| <br>  |            |
| <b>Appendix D. Special Tools . . . . .</b>                            | <b>D-1</b> |

|   |     |
|---|-----|
| Expendable Supplies . . . . .   | D-1 |
| <b>Appendix E. Collecting Vital Product Data for the 4693</b> . . . . . | E-1 |
| Entering Vital Product Data Using the Reference Diskette . . . . .      | E-1 |
| Printing Vital Product Data Using the Reference Diskette . . . . .      | E-4 |
| <b>Appendix F. IBM Wireless LAN Return Codes</b> . . . . .              | F-1 |
| Novell RPL ROM Error Messages . . . . .                                 | F-2 |
| <b>Index</b> . . . . .  | X-1 |

---

## Notices

The following paragraph does not apply to the United Kingdom or any country where such provisions are inconsistent with local law: INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore, this statement may not apply to you.

References in this publication to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM product, program, or service is not intended to state or imply that only IBM's product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any of IBM's intellectual property rights may be used instead of the IBM product, program, or service. Evaluation and verification of operation in conjunction with other products, except those expressly designated by IBM, are the user's responsibility.

IBM may have patents or pending patent applications covering subject matter in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to the IBM Director of Licensing, IBM Corporation, 500 Columbus Avenue, Thornwood, NY 10594 USA.

## Trademarks

The following terms used in this publication are trademarks of the IBM Corporation in the United States of America or other countries or both:

IBM                      Micro Channel                      Sure Point Touch Screen

Windows is a trademark of Microsoft Corporation.

PC Direct is a trademark of Ziff Communications Company and is used by IBM Corporation under license.

UNIX is a registered trademark in the United States and other countries licensed exclusively through X/Open Company Limited.

Other company, product, and service names, which may be denoted by a double asterisk (\*\*), may be trademarks or service marks of others.



## Electronic Emission Notices

### 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.

Properly shielded and grounded cables and connectors must be used in order to meet FCC emission limits. IBM is not responsible for any radio or television interference caused by using other than recommended cables and connectors or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### Canada ICES – Class A:

This class A digital apparatus meets the requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### United Kingdom Office of Telecommunications Statement of Compliance:

The United Kingdom Telecommunications Act 1984. This apparatus is approved under number NS/G/1234/J/100003 for indirect connections to the public telecommunications systems in the United Kingdom.

## General Safety Considerations

The following general safety considerations should be observed whenever you work with electricity or with any electronic equipment.

### DANGER

**Never work on equipment or connect or disconnect signal cables during periods of lightning activity.**

### CAUTION:

**For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.**

The following general safety considerations should be observed whenever you work with a point-of-sale printer.

**CAUTION:**

**For safety when running the printer test, make sure personal articles such as ties, necklaces, or bracelets do not get caught in the moving print head.**

The following general consideration should be observed whenever you exchange batteries in a point-of-sale terminal.

Replaceable Lithium Battery inside system unit.

Non-replaceable Lithium Battery inside adapter.

**Nickel-Cadmium Batteries:**

Some Point-of-Sale products contain a nickel-cadmium battery. The battery must be recycled or disposed of properly. Recycling facilities may not be available in your area.

In the United States of America, IBM has established a collection process for reuse, recycling, or proper disposal of used IBM nickel-cadmium batteries and battery packs. For information on proper disposal of the nickel-cadmium batteries in this product, please contact IBM at 1-800-426-4333. Please have the IBM part listed on the battery available prior to your call.

For information on disposal of nickel-cadmium batteries outside the United States, contact your local waste disposal facility.

---

**Electrostatic Discharge (ESD)**

**Attention** ESD damage can occur when there is a difference in charge between the part, the product, and the service person. No damage will occur if the service person and the part being installed are at the same charge level.

**ESD Damage Prevention**

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

**Handling Removed Cards**

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

## European Union (EU) Electromagnetic Compatibility

This product is in conformity with the protection requirements of EC Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility. IBM cannot accept responsibility for any failure to satisfy the protection requirements resulting from a non-recommended modification of the product, including the fitting of non-IBM option cards.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22 / European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide reasonable protection against interference with licensed communication equipment.

**Attention** This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Dieses Gerät erfüllt die Bedingungen der EN 55022 Klasse A. Für diese Klasse von Geräten gilt folgende Bestimmung nach dem EMVG: Geräte dürfen an Orten, für die sie nicht ausreichend entstört sind, nur mit besonderer Genehmigung des Bundesministers für Post und Telekommunikation oder des Bundesamtes für Post und Telekommunikation betrieben werden. Die Genehmigung wird erteilt, wenn keine elektromagnetischen Störungen zu erwarten sind. (Auszug aus dem EMVG vom 9.Nov.92, Para.3, Abs.4)

### Hinweis:

Dieses Genehmigungsverfahren ist von der Deutschen Bundespost noch nicht veröffentlicht worden.

## Laser Product Identification

IBM Point of Sale Scanners and the IBM 1520 Hand-Held Scanner are laser products. Where required, the scanner has a label that identifies its classification. The information on the label in the U.S.A. is shown below.

**Class II Laser Product -  
Avoid Long-Term  
Viewing of Direct Light**

---

## Preface

This manual is the starting place for **HARDWARE** problem determination and repair of the IBM 4693, 4694, and 4695 Point of Sale Terminals.

The service personnel using this manual should be:

- Trained to service IBM point-of-sale terminals
- Trained to service IBM Personal Computers and Personal Systems.

**Chapter 1, Start Here for 4693 Problems**

**Chapter 2, Start Here for 4694 Problems**

**Chapter 3, Start Here for 4695 Problems**

---

## Store System Library

### IBM Point of Sale Terminals

*IBM 4693 Point of Sale Terminals: Installation and Operation Guide, SA27-3978*

*IBM 4694 Point of Sale Terminals: Installation and Operation Guide, SA27-4005*

*IBM 4695 Point of Sale Terminals: Installation and Operation Guide, GA27-4031*

*IBM 4693 Point of Sale Terminals: Quick Reference Card, P/N 73G1022*

*IBM 4693, 4694, and 4695 Point of Sale Terminals: Maintenance and Test Summary, SX27-3919*

*IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices, SY27-0339*

*IBM Store Systems: Installation and Operation Guide for Point-of-Sale Input/Output Devices, GA27-4028*

*IBM Store Systems Adapters: Installation and Problem Determination, GA27-4009*

*IBM Store Systems: Supplement for Point of Sale Terminals - Installation, Operation, and Service, GA27-4035*

*IBM Store Systems: Parts Catalog, S131-0097*

*IBM 4693 Point of Sale Terminals: Reference Diskette, SX27-3918*

*IBM 4693 Point of Sale Terminals: Diagnostic Diskette, SX27-3928*

*IBM 4693 Point of Sale Terminals: Support Diskette for Medialess Terminals, SX27-3929*

*IBM 4694 Point of Sale Terminals Service Diskette, SX27-3933*

*IBM 4695 Point of Sale Terminals Service Diskette, SX27-3965*

*IBM 4693/4694 Point of Sale Terminals Supplemental Drivers, SX27-3934*

*IBM 4695 Point of Sale Touch Terminals: Model 002, 012, 201, and 211 Installation and Operation Guide, GA27-4031*

### IBM 4690 Store System Library

*IBM 4690 Store System: Planning, Installation, and Configuration Guide – SC30-3600*

*IBM 4690 Store System: Programming Guide – SC30-3602*

*IBM 4690 Store System: User's Guide – SC30-3597*

*IBM 4690 Store System: Communications Programming Reference – SC30-3582*

*IBM 4690 Store System: Messages Guide – SC30-3598.*

*IBM Point of Sale Subsystem for OS/2: Programming Reference and User's Guide, SC30-3560*

*IBM Point of Sale Subsystem for DOS: Programming Reference, SC30-3621*

---

## Store System Related Publications — Software

### Networks

*IBM Local Area Network Support Program*, P/N 83X7873  
*IBM PC Network Baseband Planning Guide*, S68X-2269  
*IBM PC Network Broadband Guide*, S68X-2268  
*IBM Token-Ring Network Introduction and Planning Guide*, GA27-3677

---

## Store System Related Publications — Hardware

### Scanners

*IBM 1520 Hand-Held Scanner User's Guide*, GA27-3685  
*IBM 4684 Store Loop Adapter/A: Installation, Testing, Problem Determination, and Technical Reference*, SD21-0045  
*IBM 4686 Retail Point of Sale Scanner: Physical Planning, Installation, and Operation Guide*, SA27-3854  
*IBM 4686 Retail Point of Sale Scanner: Maintenance Manual*, SY27-0319  
*IBM 4687 Point of Sale Scanner Model 1: Physical Planning, Installation, and Operation Guide*, SA27-3855  
*IBM 4687 Point of Sale Scanner Model 1: Maintenance Manual*, SY27-0317  
*IBM 4687 Point of Sale Scanner Model 2: Physical Planning Guide*, SA27-3882  
*IBM 4687 Point of Sale Scanner Model 2: Operator's Guide*, SA27-3884  
*IBM 4687 Point of Sale Scanner Model 2: Maintenance Manual*, SY27-0324  
*IBM 4696 Point of Sale Scanner Scale: Physical Planning, Installation, and Operation Guide*, GA27-3965  
*IBM 4696 Point of Sale Scanner Scale: Maintenance Manual*, SY27-0333  
*IBM 4696 Point of Sale Scanner Scale: Specification Sheet*, G221-3361  
*IBM 4697 Point of Sale Scanner Model 001: Maintenance Manual*, SY27-0338  
*IBM 4697 Point of Sale Scanner Model 001: Physical Planning, Installation, and Operations Guide*, SY27-3990

### IBM Personal Computer and IBM Personal System/2

*IBM Personal System/2 – Store Loop Adapter/A – Supplements for the Hardware Maintenance Library*, SK2T-0319

### Cabling

*A Building Planning Guide for Communication Wiring* - G320-8059  
*IBM Cabling System Planning and Installation Guide* - GA27-3361  
*IBM Cabling System Catalog* - G570-2040  
*IBM PC Network Baseband Planning Guide* - S68X-2269  
*IBM PC Network Broadband Guide* - S68X-2268  
*IBM Token-Ring Network Introduction and Planning Guide* - GA27-3677  
*Using the IBM Cabling System with Communication Products* - GA27-3620

## General Publications

*Advanced Data Communications for Stores – General Information* - GH20-2188  
*Distributed Systems Executive – General Information* - GH19-6394  
*IBM Disk Operating System 4.0* - P/N 6280256  
*IBM Proprinters* - SC31-3793  
*IBM 3270 Emulation Feature for the IBM 4680 Store System* - (Online with the product)  
*IBM 4680 Support for COBOL Version 2* - (Online with the product)  
*IBM 4680 Store System Regression Tester* - (Online with the product)  
*NetView Distribution Manager: General Information* - GH19-6587  
*Systems Network Architecture: General Overview* - GC30-3073

---

## Summary of Changes

### **SY27-0337-02** (October 1995)

This edition includes updated service information for the 4693 and 4695 system units.

### **SY27-0337-01** (August 1994)

This edition includes service information for all models of the 4693, 4694, and 4695 system units.

### **SY27-0337-00** (June 1993)

This edition includes service information for 4693 Models 202, 321, 421, and 541.

---

# Chapter 1. Start Here for 4693 Problems

## DANGER

Never work on equipment or connect or disconnect signal cables during periods of lightning activity.

## CAUTION:

For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.

### Power Considerations

4693 terminals do not have a power ON/OFF switch that removes AC power to the power supply. Whenever the AC power cord is attached to the rear of the 4693 the power supply has AC power.

The 4693 has several power modes. See "Description of 4693 Power Modes" on page A-5 for a more detailed description.

The Mode Control Switch on the operator panel is used to switch between "Ready" and "Not-Ready" mode. The Ready indicator (green), when ON, indicates that the terminal is "Ready" or operational.

Throughout this manual, when you are instructed to *Switch Ready mode ON*, press the Mode Control Switch to set the Ready indicator ON. When instructed to *Switch Ready mode OFF*, press the Mode Control Switch to set the Ready indicator OFF.

The storage retention battery pack (or dummy battery pack on Model 202) must be connected to allow the power supply to output any voltages.

Use Table 1-1 to determine the page number to go to by cross referencing the task to be performed.

Table 1-1. Task Information

| Task   | Page |
|--|------|
| <b>Start 4693 problem determination</b>                | 1-2  |
| Look up a 4693 message                                 | 1-8  |
| Look up a 4693 symptom                                 | 1-47 |
| Load the 4693 system programs                          | 1-71 |
| Run tests on a 4693 point-of-sale terminal             | 1-75 |
| Remove and replace a 4693 field replaceable unit (FRU) | 1-77 |
| Look up an I/O device cable location                   | A-1  |
| Perform a maintenance inspection                       | B-1  |
| Perform preventive maintenance                         | C-1  |
| Special tools you may need                             | D-1  |
| Collect 4693 vital product data                        | E-1  |

---

## 4693 Problem Determination

Table 1-2. Start 4693 Problem Determination

| Condition  | Action   |
|--|--|
| You have one of these messages in the store controller system log <b>or</b> displayed at a store controller. <ul style="list-style-type: none"><li>• Application program status xxx*</li><li>• Annn through Snnn</li><li>• Wnnn</li><li>• Xnnn</li><li>• Ynnn</li><li>• Znnn</li></ul> | Follow the <i>User Response</i> for the message in “4693 Messages” <b>or</b> the <i>IBM 4690 Store System: Messages Guide</i> <b>or</b> the documentation for the application program. |
| <b>Note:</b> In the xxx* (application program status) message, the xxx can be any characters. The asterisk (*) appears at the end of all these messages.   |  |
| You have a Mnnnn message displayed.  | Follow the <i>User Response</i> for the message at “Mnnnn Messages” on page 1-35.  |
| You have a power-on self-test (POST) message displayed.  | Follow the <i>User Response</i> for the message at “4693 Power-On Self-Test Messages” on page 1-11.  |
| You have an Ethernet network message displayed.  | Follow the <i>User Response</i> for the message at “Ethernet Messages” on page 1-25.   |
| You have a PC network message displayed.   | Follow the <i>User Response</i> for the message at “PC Network Messages” on page 1-26.   |
| You have a token-ring network message displayed.   | Follow the <i>User Response</i> for the message at “Token-Ring Messages” on page 1-28.   |
| You have a 63nn message displayed when loading system programs.  | Follow the <i>User Response</i> for the message at “63nn Messages” on page 1-31.   |
| You have a Tnnnn message displayed.  | Follow the <i>User Response</i> for the message at “Tnnnn Messages” on page 1-39.  |
| You have a problem symptom at a 4693 terminal.   | Follow the <i>Action</i> for the symptom at “4693 Symptoms” on page 1-47.  |
| You have a Unnn message (U001 through U009) displayed at a 4693 terminal.  | Follow the <i>User Response</i> for the message at “Unnn Messages” on page 1-45.   |
| You have a blank display at a 4693 terminal.   | Go to “Input/Output Device Symptoms” on page 1-50.   |
| You have multiple problem symptoms at a 4693 terminal or more than one point-of-sale device appears to be failing.   | Go to “MAP 0100: General Checkout” on page 1-3.  |
| You have a 4693 terminal in an unknown state or hang condition and you do not know where to begin problem determination.   | Go to “MAP 0100: General Checkout” on page 1-3.  |



## MAP 0100: General Checkout

| Symptom Explanation  | Conditions That Could Cause This Symptom  |
|--|---|
| <p>This MAP serves as a general checkout procedure to use when you do not know where to begin problem determination.</p> <p>Use the error codes displayed to diagnose failures when possible. If more than one error code is displayed, begin the diagnosis with the first error code. The cause of the first error code can result in false errors being displayed. If no error code is displayed, see "4693 Symptoms" on page 1-47 and look for a symptom that matches the failure you are experiencing.</p> | <ul style="list-style-type: none"> <li>This MAP is a general checkout for any 4693 terminal. Any of the field replaceable units (FRUs) may be the cause of your failure.</li> </ul> |

### Notes:

- The storage retention battery pack (or dummy battery pack on Model xx2) must be connected to allow the power supply to output any voltages.
- The diagnostic tests are intended to test **only** IBM devices. Non-IBM devices, prototype adapters, or modified options can give false errors and system responses that are not valid.
- The **terminal system board** may have several FRUs attached. An error code or symptom may be caused by any of the FRUs. Before exchanging the terminal system board, remove the attached FRUs, one at a time, to see if the symptoms change. When a terminal system board is exchanged and the error code or symptom remains the same, remove the new system board and install the original back into the terminal.
- To disable the **power-on password**, move the password jumper to the unused position. See 1-91 for jumper location.
- Model Numbers** - When this MAP discusses terminal models, **xx** can be any number or letter.

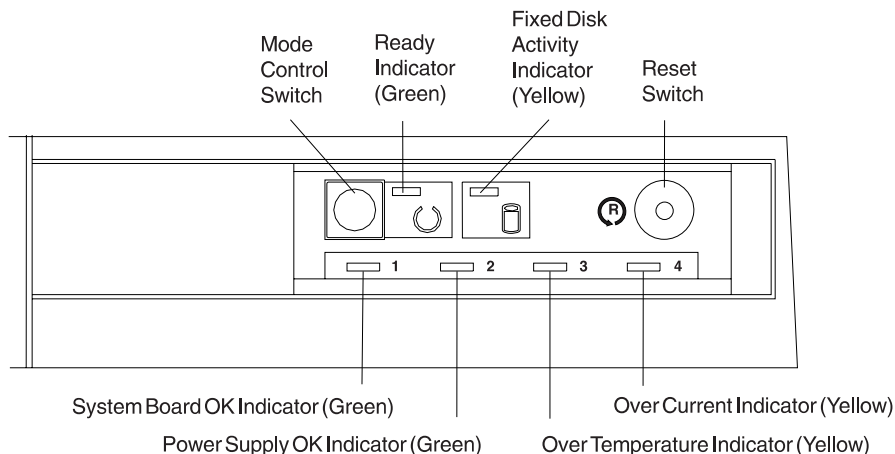


Figure 1-1. Typical Operator Panel. 4693 Models 421 and 321 do not have a Fixed Disk Activity Indicator.

**001**

- Switch Ready mode OFF at the 4693.
- Switch **POWER OFF** at all external devices.
- Make sure all cables and the AC power cord are connected properly and are not damaged.
- Make sure there is no diskette in the diskette drive (if terminal has a drive).
- Make sure the video display, if present, has its brightness control set approximately in the middle position.
- Press the Reset button on the operator panel. When Reset is pressed, storage retention is disabled.
- Switch power ON at all external devices.
- Switch Ready mode ON at the terminal and wait 10 seconds.
- Observe the indicator lights on the operator panel. See Figure 1-1 on page 1-3. The normal condition of the lights are:

|                               |     |
|-------------------------------|-----|
| Ready Indicator (green)       | ON  |
| Indicator 1 (system board OK) | ON  |
| Indicator 2 (power supply OK) | ON  |
| Indicator 3 (overtemperature) | OFF |
| Indicator 4 (overcurrent)     | OFF |

**Are the indicator lights normal?**

**Yes No**

**002**

Go to “4693 Operator Panel Indicators and Switches” on page 1-51.

**003**

- Switch Ready mode OFF.
  - Switch Ready mode ON and observe the display for a power-on self-test (POST) error code. Write down any error codes that are displayed.
- Note:** You will hear 2 or more beeps if a POST error is detected and 1 beep if no errors are detected.
- If the test stops and you cannot continue, see “4693 Messages” on page 1-8 or “4693 Symptoms” on page 1-47.  
(Step **003** continues)

**003** (continued)

**Did you hear just one beep at the end of POST?**

**Yes No**

**004**

Go to “4693 Messages” on page 1-8.  
– or –  
Go to “4693 Symptoms” on page 1-47.

**005**

- Switch Ready Mode OFF.
- Load the system programs. See “Loading the System Programs” on page 1-71. For a 4693 Model 541 with a fixed disk, the system programs are loaded from the fixed disk system partition. If this is a medialess terminal (no fixed disk) the system programs image are downloaded from the store controller/server over the store loop or network.

**Note:** You may be asked to press the 1 key on the numeric keypad before the MAIN MENU appears.

**Did the MAIN MENU appear?**

**Yes No**

**006**

Go to Step 012 on page 1-5.

**007**

- See “Flow of 4693 System Programs Menu” on page 1-73.
- Select START TESTS from the MAIN MENU.
- Select RUN SYSTEM UNIT TESTS.
- Select TEST SYSTEM UNIT.
- Select RUN TESTS ONE TIME.
- Select TEST ALL DEVICES.

**Did the system unit tests run error free?**

**Yes No**

**008**

Follow the displayed instructions or exchange the device associated with the error code.

**009**

- Select START TESTS from the MAIN MENU.  
(Step **009** continues)

**009** (continued)

- Select RUN POS DEVICE TESTS.
- Select the terminal to be tested.
- Test all the POS devices listed in the test menu.

**Did the POS device tests run error free?**

**Yes No**

**010**

Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.

**011**

You may have an intermittent problem.

- Check for damaged cables or connectors.
- Reseat all adapters, drives, and pluggable modules.
- Start an error log and run system unit tests multiple times.
- Reset the configuration and the terminal load.  
See page 1-76.

**Attention** Resetting configuration destroys the configuration record currently stored in NVRAM. Use it only when it seems necessary due to hang conditions, undetermined problems, or an inoperative system.

- Contact your support organization.

**012**

(From step 006) .

**Did any error messages display?**

**Yes No**

**013**

If your display is blank (dark):

- Make sure the display is properly connected to the rear connector panel.
- For a video display:
  - Make sure that it is connected to a known good AC power source and that its power is switched ON.
  - Check the fuse for the video AC power outlet on the rear panel.
  - Set the brightness control approximately to its middle position.
- Exchange the display and cable with a known good display or, if none is available, exchange the display or see the maintenance documentation for your display.

– or –

Go to “4693 Symptoms” on page 1-47 or “4693 Messages” on page 1-8.

**014**

Go to “4693 Messages” on page 1-8.

---

# MAP 0110: Input/Output (I/O) Device Isolation

| Symptom Explanation   | Conditions That Could Cause This Symptom   |
|---|--|
| You have an error message or a visible or audible symptom indicating that an I/O device is failing. | <ul style="list-style-type: none"> <li>I/O device</li> <li>I/O device cable</li> <li>Rear connector panel</li> <li>System board</li> </ul> |

### Notes:

1. See the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices* for a description of cash drawer, keyboard, MSR, and printer Tnnnn messages that display while running POS device tests.
2. Some of the POS I/O devices can be repaired while others are simply exchanged when they fail. See the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices* to determine if a repair procedure exists for an I/O device.
3. The diagnostic tests are intended to test **only** IBM devices. Non-IBM devices, prototype adapters, or modified options can give false errors and system responses that are not valid.

**001**

- Switch Ready mode OFF at the 4693.
- Press the Reset switch on the operator panel. When Reset is pressed, storage retention is disabled.
- Switch power ON at all external devices.
- Switch Ready mode ON at the terminal and wait 10 seconds.
- Observe the indicator lights on the operator panel. The normal condition of the lights are:

|                               |     |
|-------------------------------|-----|
| Ready Indicator (green)       | ON  |
| Indicator 1 (system board OK) | ON  |
| Indicator 2 (power supply OK) | ON  |
| Indicator 3 (overtemperature) | OFF |
| Indicator 4 (overcurrent)     | OFF |

### Are the indicator lights normal?

Yes No

**002**

Go to “4693 Operator Panel Indicators and Switches” on page 1-51.

**003**

### Is more than one I/O device failing?

Yes No

**004**

(Step **004** continues)

**004** (continued)  
Go to Step 006.

**005**

It is possible that one failing device can cause others to fail also.

- Switch Ready mode OFF.
- Disconnect each of the I/O devices, one at a time, to help determine which one is causing the failure. Retest for the failure after each device is disconnected.

**Attention** Switch Ready mode OFF whenever you are disconnecting or connecting devices. Exchange or repair the failing I/O device and cable. See the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices* for repairable devices.

**006**

(From step 004)

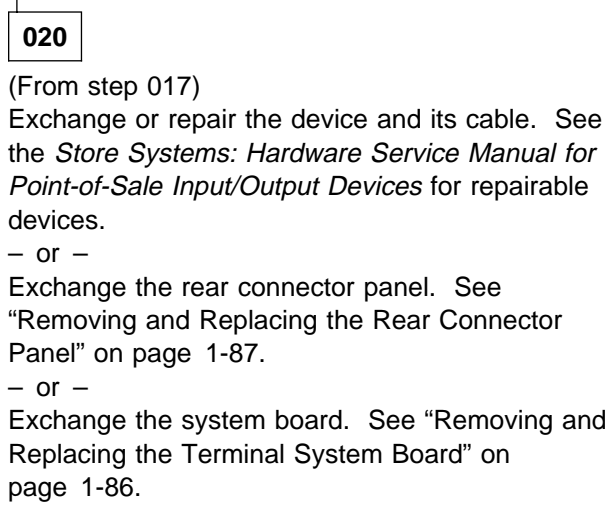
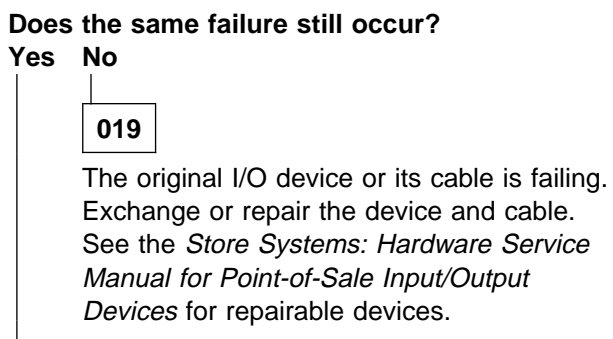
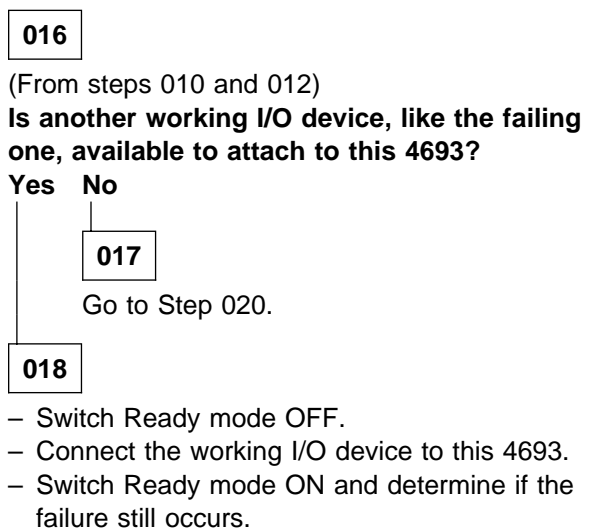
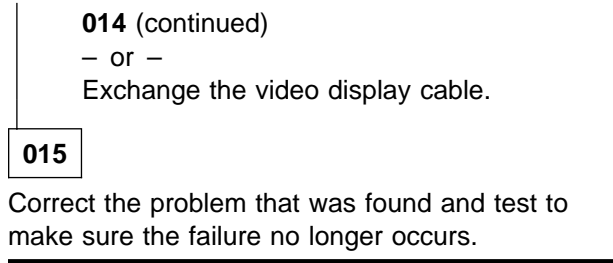
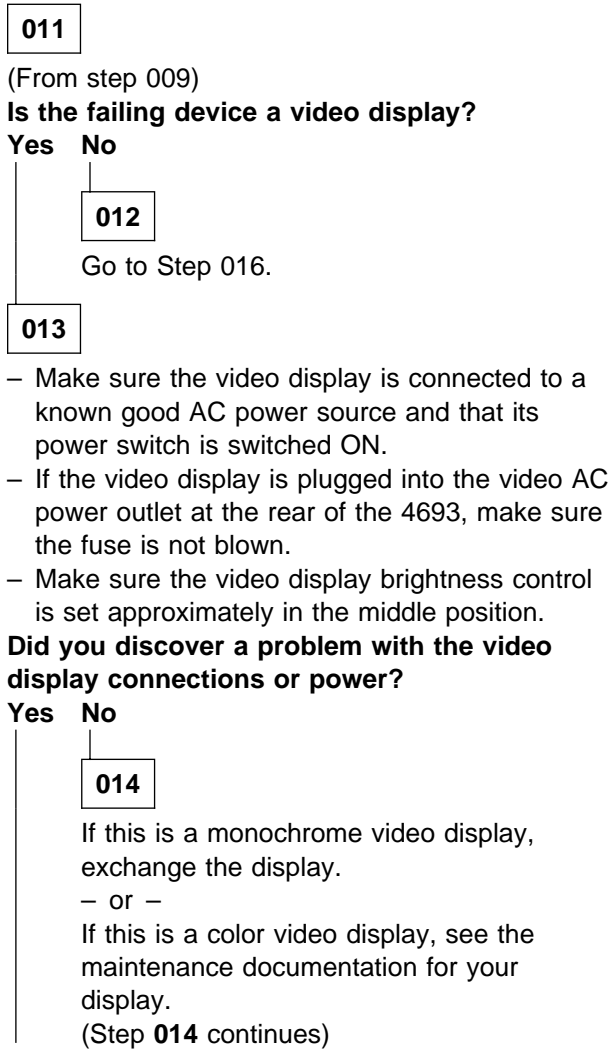
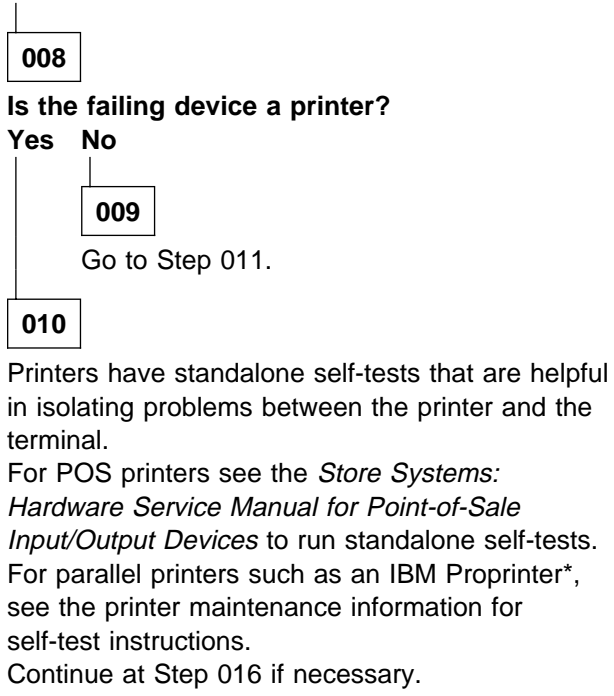
- Switch Ready mode OFF.
- Make sure the cable for the failing device is properly connected both to the device and to the rear connector panel of the 4693.

### Are the connections OK?

Yes No

**007**

- Correct the connection problem and test to make sure the failure no longer occurs.



---

## 4693 Messages

|  |      |
|--|------|
| How To Read 4693 Power-On Self-Test (POST) Messages . . . . .        | 1-9  |
| How To Retrieve Network Remote Program Load (RPL) Messages . . . . . | 1-9  |
| Power-On Self-Test Message Index . . . . .                           | 1-10 |
| 4693 Power-On Self-Test Messages . . . . .                           | 1-11 |
| Ethernet Messages . . . . .  | 1-25 |
| PC Network Messages . . . . .  | 1-26 |
| Token-Ring Messages . . . . .  | 1-28 |
| 63nn Messages . . . . .  | 1-31 |
| Application Program Status xxx* . . . . .                            | 1-34 |
| Annn through Lnnn and Nnnn through Snnn Messages . . . . .           | 1-34 |
| Mnnnn Messages . . . . .   | 1-35 |
| Tnnnn Messages . . . . .   | 1-39 |
| Unnn Messages . . . . .  | 1-45 |
| Wnnn Messages . . . . .  | 1-46 |
| Xnnn Messages . . . . .  | 1-46 |
| Ynnn Messages . . . . .  | 1-46 |
| Znnn Messages . . . . .  | 1-46 |

### DANGER

**Never work on equipment or connect or disconnect signal cables during periods of lightning activity.**

### CAUTION:

**For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.**

#### Operating System or Application Messages

The operating system or an application may display messages that do not appear in this manual. See the documentation for the appropriate operating system or application program.

**Note:** On keyboards that have a **Ctrl** key, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the **S1 or S2 key**.

## How To Read 4693 Power-On Self-Test (POST) Messages

Most POST error messages are displayed as an eight character message. Occasionally one may display that has less than eight characters. When this occurs, you can ignore the leading and trailing zeros of the messages in this list.

**Note:** *n* = any hexadecimal character (0-9 and A-F).

An example of one of these messages is:

00110100 (eight character)  
1101 (four character)

The breakdown of an eight digit message is as follows:

**0** = First digit  
**011** = Device number  
**01** = Error number  
**0** = Slot number  
**0** = Modifier

## How To Retrieve Network Remote Program Load (RPL) Messages

When a medialess terminal is performing a remote program load from a network server, several important messages are displayed. If a video display is present, these messages are displayed using the full screen and are easily available. However, when a 40-character display is being used, the messages appear too fast to be read. Use the following procedure to retrieve Ethernet and token-ring network RPL messages.

- 1** Make a note of the position of the manager's keylock position. While the ET-*nn:nn:nn* is displayed, switch the manager keylock on the keyboard to a different position. This change is sensed by the program and enables the **S2** and **S1** keys to be used for message retrieval.

**Note:** For enhanced alphanumeric keyboards (PS/2\* type), there is no manager keylock. Press **Ctrl + Alt + Home**. Then use the up and down cursor keys to retrieve the messages.

- 2** Press the **S2** key to display the previous message. Pressing the S2 key several times may be required to retrieve all the messages.

**Note:** Keyboards with a **Ctrl** key require **Ctrl + S2** or **Ctrl + S1**.

- 3** After retrieving the messages, you can press the **S1** key to move back to the ET- *nn:nn:nn* message. Switching the manager keylock to its original position also displays the *ET* message again.
- 4** When finished retrieving RPL messages, be sure to switch the manager keylock to its original position.

## Power-On Self-Test Message Index

The following is an index of all POST messages generated by the 4693 point-of-sale terminals. Messages displayed during system unit tests are not in this list. For system unit test messages follow the instructions that are displayed or see the documentation for any optional adapters that may be installed.

| Message                 | Page | Message              | Page |
|-------------------------|------|----------------------|------|
| AA: nnnnnnnnnnn         | 1-11 | 010007nn             | 1-20 |
| DR: "F4" - 04 "F6" - 16 | 1-28 | 010008nn to 010009nn | 1-20 |
| DR: "S1" - 04 "S2" - 16 | 1-29 | 0100nnnn             | 1-21 |
| ET - nn:nn:nn           | 1-12 | 0106nnnn             | 1-21 |
| RC=E1                   | 1-12 | 01290200             | 1-21 |
| RC=E2                   | 1-12 | 014515nn             | 1-21 |
| RC=E3                   | 1-12 | 01458501             | 1-21 |
| RC=E4                   | 1-12 | 01458502             | 1-22 |
| RC=En                   | 1-12 | 0145nnnn             | 1-22 |
| 63nn                    | 1-31 | 0148nnnn             | 1-22 |
| 000101nn to 000104nn    | 1-13 | 0166nnnn             | 1-22 |
| 000110nn                | 1-13 | 0167nnnn             | 1-22 |
| 000112nn to 000113nn    | 1-13 | 0208nnnn             | 1-23 |
| 000115nn                | 1-13 | 0210nnnn             | 1-23 |
| 000161nn                | 1-13 | 0265nnnn             | 1-23 |
| 000163nn                | 1-13 | 02nnnnnn             | 1-23 |
| 000164nn                | 1-14 | I99900n5             | 1-23 |
| 000165nn                | 1-14 | I999001n to I999009n | 1-23 |
| 000166nn to 000167nn    | 1-14 | I99900nn             | 1-23 |
| 000169nn                | 1-14 | I9990301             | 1-24 |
| 000171nn to 000172nn    | 1-14 | I9990302             | 1-24 |
| 000173nn to 000174nn    | 1-15 | I9990303             | 1-24 |
| 000179nn                | 1-15 | I9990305             | 1-24 |
| 000181nn                | 1-15 | I9990306             | 1-24 |
| 000184nn                | 1-15 | I9990401             | 1-24 |
| 000186nn                | 1-15 | I9990403             | 1-24 |
| 0001nnnn                | 1-15 |                      |      |
| 00021nnn                | 1-16 |                      |      |
| 0002nnnn                | 1-16 |                      |      |
| 000301nn                | 1-16 |                      |      |
| 000303nn to 000304nn    | 1-17 |                      |      |
| 000305nn                | 1-17 |                      |      |
| 000401nn                | 1-17 |                      |      |
| 0006nnnn                | 1-17 |                      |      |
| 0007nnnn                | 1-17 |                      |      |
| 001101nn to 001102nn    | 1-17 |                      |      |
| 001701nn to 001780nn    | 1-18 |                      |      |
| 002401nn                | 1-18 |                      |      |
| 003015nn                | 1-18 |                      |      |
| 0037nnnn                | 1-18 |                      |      |
| 0046nnnn                | 1-19 |                      |      |
| 005610nn                | 1-19 |                      |      |
| 0062nnnn                | 1-19 |                      |      |
| 00630000                | 1-19 |                      |      |
| 00630800                | 1-19 |                      |      |
| 00638000                | 1-20 |                      |      |
| 0064nnnn                | 1-20 |                      |      |
| 0086010n to 0086020n    | 1-20 |                      |      |
| 0086030n to 0086040n    | 1-20 |                      |      |
| 010002nn to 010006nn    | 1-20 |                      |      |



## 4693 Power-On Self-Test Messages

When the Mode Control Switch is pressed to switch Ready mode ON and storage retention is disabled, POST is automatically performed on the system unit and some adapters. These tests provide messages that indicate errors or status detected by the POST.

If you have an error code that is not in this list, check “How To Read 4693 Power-On Self-Test (POST) Messages” on page 1-9 to see if your error code can be translated to an error code that **is** in this list. If your error code does not translate into a listed error code, it may be for an optional adapter that was not recognized at the time this document was printed. Contact the store programmer for more information or see the documentation that came with the adapter.

**Attention** Switching Ready mode OFF at a store controller or network server affects operations at all point-of-sale terminals attached to it.

---

### AA: nnnnnnnnnnnn

nnnnnnnnnnn = network adapter address (12 hexadecimal characters)

**Explanation:** This message is displayed to help the user when starting up a network or when network problems occur.

**User Response:** Contact the network administrator to define this adapter address to the network server software. When the adapter address has been defined, press any key to continue.

---

### DR: “F4” - 04 “F6” - 16

**Explanation:** This message appears when a 16/4 Token-Ring Adapter/A is installed and has not been configured to select the data rate.

**User Response:** You must determine the correct data rate for your token-ring network. Contact the store programmer, help desk, installation planner, or store support personnel for this information.

On the PC keyboard:

Press the F4 key if the data rate is 4 Mbyte/sec.

Press the F6 key if the data rate is 16 Mbyte/sec.

**Note:** If a similar message appears again, make sure that the correct data rate was chosen and select the correct data rate again. If this message continues to appear, contact the network administrator.

---

### DR: “S1” - 04 “S2” - 16

**Explanation:** This message appears when a 16/4 Token-Ring Adapter/A is installed and has not been configured to select the data rate.

**User Response:** You must determine the correct data rate for your token-ring network. Contact the store programmer, help desk, installation planner, or store support personnel for this information.

On the POS keyboard:

Press the S1 key if the data rate is 4 Mbyte/sec.

Press the S2 key if the data rate is 16 Mbyte/sec.

**Note:** If a similar message appears again, make sure that the correct data rate was chosen and select the correct data rate again. If this message continues to appear, contact the network administrator.

## ET - nn:nn:nn or nn:nn:nn • RC=En

---

### ET - nn:nn:nn or nn:nn:nn

**Explanation:** This message indicates the elapsed time of a network load. Normally it increments until the load is complete.

**User Response:** If the elapsed time stops incrementing or increments for an unreasonable length of time, see “4693 Messages” on page 1-8 and go to the messages for your type of network.

---

### RC=E1

**Explanation:** Base driver functions not available. A 0145nnnn message was probably displayed prior to this message.

**User Response:**

- If 0145nnnn was displayed, follow the *User Response* for 0145nnnn to correct this problem.
  - If 0145nnnn was **not** displayed, see “Utilities Procedure Using System Programs” on page 1-75 to create a new backup reference diskette.
- 

### RC=E2

**Explanation:** A device driver is already installed for this device.

**User Response:** Load the system programs and run CHANGE CONFIGURATION to configure the terminal. See “Utilities Procedure Using System Programs” on page 1-75.

**Note:** If this occurs using the application diskette, contact the store programmer.

---

### RC=E3

#### nnnnnnnn RC=E3

#### nnnnnnnn = 8 character device driver handle

**Explanation:** A device identified by the driver handle that precedes the RC=E3 is configured but not attached or is failing.

**User Response:**

- 1** Ensure that all devices are properly attached to the terminal.
  - 2** If a model xx2 terminal is present, ensure that its Ready indicator is ON and it is connected to the 4693 master terminal with cable 11.
  - 3** There is often a 63nn message that displays before or after the RC=E3 message. Continue problem determination using the *User Response* for the 63nn message.
- 

### RC=E4

**Explanation:** The DSP480 or AKY-BIOS.SYS device driver is required but has not been installed.

**User Response:**

- If you are using the backup reference diskette and the problem persists, see “Utilities Procedure Using System Programs” on page 1-75 to create a new backup reference diskette.
  - If you are **not** using the reference diskette and the problem persists, ensure that the DSP480 and AKY-BIOS.SYS device drivers are available. Also ensure that the DSP480 entry in the CONFIG.SYS file is correct.
- 

### RC=En

**Explanation:** The base driver has detected an error. A 0145nnnn message was probably displayed prior to this message.

**Note:** In this message, *n* = any letter from a to u.

**User Response:**

- If 0145nnnn see 0145nnnn message in this list.
- If 0145nnnn was **not** displayed, create a new backup reference diskette and update the system

programs with the new backup reference diskette. See “Utilities Procedure Using System Programs” on page 1-75.

**000101nn to 000104nn**

**Explanation:** A terminal system board error occurred.

**User Response:**

Exchange the terminal system board. See page 1-86.

**000110nn**

**Explanation:** A system board parity check error occurred.

**User Response:** Load the system programs and run system unit tests to test the memory. See “Test Procedure Using System Programs” on page 1-75.

- If the tests do not indicate which memory module failed, exchange the modules one at a time until you determine the one that failed. See page 1-85.
- If the problem persists after exchanging the modules, exchange the terminal system board. See page 1-86.

**Note:** Tests may deallocate defective memory. After you exchange memory always run the tests to recognize the new memory module.

**000112nn and 000114nn**

**Explanation:** A terminal system board error occurred.

**User Response:**

**Note:** Any adapter can cause these errors to occur.

- 1** Switch Ready mode OFF and remove all optional adapters from the terminal. See page 1-85.
- 2** Switch Ready mode ON and see if the same error occurs.
  - If the same error no longer occurs, one of the adapters that was removed is failing. Exchange them one at a time to determine the failing adapter.

**Note:** 4693 Models 321 and 421 can have only one loop or network adapter present.

- If the problem persists, exchange the terminal system board. See page 1-86.

**000115nn (4693-541, (Fixed Disk))**

**Explanation:** The IML image has an error, or ROM has failed.

**User Response:**

- 1** Update the system partition using the reference diskette.
- 2** If the error still exists, exchange the system board.

**000161nn**

**Explanation:** A nonvolatile storage error occurred.

**User Response:** Exchange the terminal system board. See page 1-86.

**000163nn**

**Explanation:** A date and time error occurred.

**User Response:** Run the SET DATE AND TIME utility if it has not been run.

If the problem persists, switch Ready mode OFF and exchange the terminal system board. See page 1-86.

---

000164nn

**Explanation:** A nonvolatile storage error occurred.

**User Response:**

- 1 Load the system programs. See page 1-71.
- 2 Select START CONFIGURATION from the MAIN MENU.
- 3 Select AUTO CONFIGURATION from the CONFIGURATION MENU and follow the instructions on the display.
- 4 If the problem persists, exchange the terminal system board. See page 1-86.

---

000165nn

**Explanation:** A configuration error was detected during POST. If an option adapter has been recently added, the configuration program should be run to update the configuration record in NVRAM.

**User Response:**

- 1 The system programs load automatically.
- 2 When message M0101 is displayed, answer YES.
- 3 If any error messages are displayed, find the message in this list and follow the User Response.
- 4 Follow the instructions on the display.
- 5 If the problem persists, exchange the terminal system board. See page 1-86.

---

000166nn and 000167nn

**Explanation:** A terminal system board error was detected.

**Note:** Any adapter can cause these errors to occur.

**User Response:**

- 1 Switch Ready mode OFF and remove all optional adapters from the terminal. See page 1-85.
- 2 Switch Ready mode ON and see if the same error occurs.
  - If the same error no longer occurs, one of the adapters that was removed is failing. Exchange them one at a time to determine the failing adapter.
  - If the problem persists, exchange the terminal system board. See page 1-86.

---

000169nn

**Explanation:** A terminal configuration or system board error was detected.

**User Response:**

- 1 The system programs load automatically.
- 2 When message M0101 is displayed, answer YES.
- 3 If any error messages are displayed, find the message in this list and follow the User Response.
- 4 Follow the instructions on the display.
- 5 If the problem persists, exchange the terminal system board. See page 1-86.

---

000171nn and 000172nn

**Explanation:** A terminal system board error occurred.

**User Response:** Exchange the terminal system board. See page 1-86.

---

**000173nn to 000174nn**

**Explanation:** A configuration or hardware error occurred. Any one of the option adapters in the terminal can cause this problem.

**User Response:**

- 1** The system programs load automatically.
- 2** When message M0101 is displayed, answer YES if an option adapter has been added or removed recently.
- 3** If any error messages are displayed, find the message in this list and follow the User Response.
- 4** Follow the instructions on the display.
- 5** If the problem persists, exchange the terminal system board. See page 1-86.

If an option adapter has **not** been added or removed recently, run system unit tests to help isolate the failing device. See "Test Procedure Using System Programs" on page 1-75.

---

**000179nn**

**Explanation:** The NVRAM error log is full.

**User Response:**

- 1** Load the system programs and select START UTILITIES. See "Utilities Procedure Using System Programs" on page 1-75.
- 2** Select DISPLAY NVRAM ERROR LOG.
- 3** Reset the log after displaying the errors.

---

**000181nn**

**Explanation:** The configuration is not valid. No boot device was found.

**User Response:** Ensure that a network adapter is installed in the terminal.

If no network adapter is installed, you must install one to prevent this error from reoccurring.

If a network adapter is installed, exchange it. See page 1-85.

---

**000184nn**

**Explanation:** The power-on password is corrupted.

**User Response:** Load the system programs and enter a new password. See "Utilities Procedure Using System Programs" on page 1-75.

---

**000186nn**

**Explanation:** A security error was detected during POST.

**User Response:** Exchange the terminal system board. See page 1-85.

---

**0001nnnn (not listed above)**

**Explanation:** Any other 0001nnnn messages not listed above.

**User Response:** Exchange the terminal system board. See page 1-86.

---

00020nnn

**Explanation:** A terminal system board memory error occurred.

**User Response:** Load the system programs and run system unit tests to test the memory. See "Test Procedure Using System Programs" on page 1-75.

- If the tests do not indicate which memory module failed, exchange the modules one at a time until you determine the one that failed. See page 1-85.
- If the problem persists after exchanging the modules, exchange the terminal system board. See page 1-86.

**Notes:**

1. Always switch Ready mode OFF when exchanging memory modules.
2. Tests may deallocate defective memory. After you exchange memory always run the tests to recognize the new memory module.

---

00021nnn

**Explanation:** An unrecoverable memory error occurred in the first megabyte of memory.

**User Response:** Make sure that the memory module is installed properly. See Figure 1-11 on page 1-85 for location of memory modules.

If the module is installed correctly, exchange the memory module. See page 1-85.

---

000225nn

**Explanation:** A memory module of the wrong type was detected.

**User Response:**


- 1 Make sure that the memory modules installed are of the correct type for this terminal. See the *Store Systems: Parts Catalog*.
- 2 Remove the memory modules, one at a time, until the problem goes away. See page 1-85. When this happens, either the last memory module removed or the terminal system board is failing. Install a known good memory module of the correct type into the same connector. If the problem persists, exchange the terminal system board. See page 1-86.

---

000301nn and 000302nn


**Explanation:** A system unit keyboard error occurred.

**User Response:** Switch Ready mode OFF and follow this list to isolate and correct the cause of the problem.


- 1 Ensure the keyboard is attached to the **Kybd**  socket on the rear connector panel. See Figure A-3 on page A-4.
- 2 Ensure that no keys are pressed during the initial program load (IPL).
- 3 Exchange or service the system unit keyboard. Go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
- 4 Exchange the system unit keyboard cable.
- 5 Exchange the terminal system board. See page 1-86.

---

**000303nn and 000304nn**

**Explanation:** A terminal system unit keyboard error occurred. This message can only be caused by the keyboard attached to the **Kybd**  socket on the rear connector panel.

**User Response:**

- 1 Ensure the keyboard is correctly attached to the **Kybd**  socket on the rear connector panel. See Figure A-3 on page A-4.
- 2 Exchange or service the system unit keyboard and cable. Go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

---

**000305nn**

**Explanation:** An error occurred on the terminal system unit keyboard.

**User Response:**

- 1 Exchange the system unit keyboard cable.
- 2 Exchange the terminal system board. See page 1-86.

---

**000401nn to 000501nn**

**Explanation:** A terminal system board error occurred.

**User Response:** If the problem persists, exchange the terminal system board. See page 1-86.

---

**000602nn**

**Explanation:** The diskette IPL boot record is not valid.

**User Response:** Try another diskette. If failure continues, see the *User Response* for 0006nnnn.

---

**0006nnnn**

**Explanation:** A 4693 diskette drive error occurred while trying to load programs from the diskette.

**User Response:**

- 1 Load the system programs from the fixed disk. See “Loading the System Programs” on page 1-71 and “Test Procedure Using System Programs” on page 1-75.
- 2 Run system unit tests to test the diskette drive.
  - If an error is detected, follow the displayed instructions.
  - If no error is detected, try using a different diskette to load programs.
  - If the problem persists, exchange the diskette drive. See page 1-82.

---

**0007nnnn**

**Explanation:** A math coprocessor or system board error occurred.

**User Response:**

- 1 Exchange the math coprocessor module on the terminal system board.
- 2 Exchange the terminal system board. See page 1-86.

---

**001101nn to 001102nn**

**Explanation:** A terminal system board asynchronous port error occurred.

**User Response:**

- 1 Switch Ready mode OFF.
- 2 Disconnect the cables attached to the SERIAL A and SERIAL B socket.
- 3 Switch Ready mode ON.

## 001701nn through 001718nn • 0037nnnn

- If the problem is corrected by disconnecting the cables, switch Ready mode OFF and reconnect the devices that were attached to SERIAL A and SERIAL B one at a time until the failing device is determined.
- If the problem is not corrected by disconnecting the cables, exchange the terminal system board. See page 1-86.

---

### 001701nn through 001718nn

**Explanation:** A fixed disk test error occurred.

**User Response:**

**Note:** Message 1713 is a status message only, no action is required.

- 1 Exchange the fixed disk cable.
- 2 Exchange the fixed disk.

**Note:** The user may want to try to backup the fixed disk before exchanging. Otherwise, user data may be lost.

---

### 001780nn

**Explanation:** A fixed disk configuration error or fixed disk failure occurred.

**User Response:** Run Setup.

If running Setup does not correct the problem:

- 1 Exchange the fixed disk cable.
- 2 Exchange the fixed disk.

---

### 0024nnnn

**Explanation:** A system board video error occurred.

**User Response:**

- 1 If possible, load the system programs and run system unit tests to test the video adapter. See "Test Procedure Using System Programs" on page 1-75.
- 2 If the problem persists, exchange the terminal system board. See page 1-86.

---

### 003015nn

**Explanation:** A PC Network Baseband Adapter error occurred.

**User Response:**

- 1 Check for a missing wrap or terminator plug on the adapter.
- 2 Exchange the PC Network Baseband adapter. See page 1-85.

---

### 0037nnnn

**Explanation:** A SCSI adapter error occurred.

**User Response:**

- 1 Exchange the terminal system board. See page 1-86.
- 2 Exchange the fixed disk. See page 1-84.
- 3 Exchange the fixed disk cable. See page 1-84.



---

**0046nnnn**

**Explanation:** A Real-time Interface Coprocessor Multiport/2 (ARTICm/2) or X.25/2 (ARTICx/2) adapter error occurred.

**User Response:** Load the system programs and run system unit tests to test the real-time interface coprocessor. See "Test Procedure Using System Programs" on page 1-75.

---

**005610nn**

**Explanation:** The DSP480 device driver related font file has not been installed. by this Explanation and User Response.

**User Response:**

- 1** Ensure that the related font file names in the DSP480 entry of the CONFIG.SYS file are correct.
  - 2** Ensure that the related font files referenced in the DSP480 entry of the CONFIG.SYS file are available.
- 

**0062nnnn**

**Explanation:** A store loop adapter error occurred.

**User Response:** Load the system programs and run system unit tests to test the store loop adapter. See "Test Procedure Using System Programs" on page 1-75.

---

**00630000**

**Explanation:** The 4693-xx1 I/O configuration record is corrupted. This message can be caused by system software or by a failing terminal system board. POST attempts to correct this condition automatically.

**User Response:**

- 1** Load the system programs. See "Loading the System Programs" on page 1-71 and "Utilities Procedure Using System Programs" on page 1-75.
  - 2** Select START CONFIGURATION from the MAIN MENU.
  - 3** Select AUTO CONFIGURATION from the CONFIGURATION MENU.
  - 4** Follow the instructions on the display.
- If the problem persists, exchange the 4693-xx1 terminal system board. See page 1-86.
- 

**00630800**

**Explanation:** The 4693-xx2 I/O configuration record, stored in the 4693-xx1 NVRAM, is corrupted. This message can be caused by system software or by a failing terminal system board. Power-On Self-Test (POST) attempts to correct this condition automatically.

**User Response:**

- 1** Load the system programs. See "Loading the System Programs" on page 1-71 and "Utilities Procedure Using System Programs" on page 1-75.
  - 2** Select START CONFIGURATION from the MAIN MENU.
  - 3** Select AUTO CONFIGURATION from the CONFIGURATION MENU.
  - 4** Follow the instructions on the display.
- If the problem persists, exchange the 4693-xx1 terminal system board. See page 1-86.

---

00638000

**Explanation:** The 4693-xx2 terminal NVRAM data is corrupted. POST attempts to correct this condition automatically.

**User Response:** If the problem persists, exchange the 4693-xx2 terminal system board. See page 1-86.

---

0064nnnn

**Explanation:** An Ethernet adapter error occurred.

**Note:** Error codes 006418nn through 006424nn can be caused by a loose or improper LAN cable connection or by activity on a live network.

**User Response:** Verify the LAN cable connection or termination and retry the test. If the error continues, see "Ethernet Messages" on page 1-25 or exchange the Ethernet adapter. See page 1-85.

---

0086010n to 0086020n

**Explanation:** A pointing device (mouse) error occurred.

**User Response:** Exchange the pointing device (mouse).

---

008603nn and 008604nn

**Explanation:** A pointing device (mouse) error occurred.

**User Response:**

- 1 Exchange the pointing device.
- 2 If the problem persists, exchange the terminal system board. See page 1-86.

---

010002nn through 010006nn

**Explanation:** A multiprotocol adapter error occurred.

**User Response:**

- 1 Load the system programs and run system unit tests to test the MPA. See "Test Procedure Using System Programs" on page 1-75.
- 2 If the problem persists, exchange the Multiprotocol Adapter/A.

---

010007nn

**Explanation:** A multiprotocol adapter communications error occurred.

**User Response:**

- 1 Exchange the communications cable attached to the Multiprotocol Adapter/A.
- 2 Switch Ready mode ON and see if the error still occurs.
- 3 If the problem persists, exchange the Multiprotocol Adapter/A. See page 1-85.

---

010008nn and 010009nn

**Explanation:** A multiprotocol adapter communications error occurred.

**User Response:**

- 1 Exchange the Multiprotocol Adapter/A. See page 1-85.
- 2 If exchanging the multiprotocol adapter fails to correct the problem, any external serial device can cause this error. Disconnect the serial devices one at a time to help isolate the failing device.

---

**0100nnnn**

**Explanation:** A multiprotocol adapter communications error occurred.

**User Response:**

- 1 Exchange the Multiprotocol Adapter/A. See page 1-85.
- 2 Exchange the terminal system board. See page 1-86.

---

**0106nnnn**

**Explanation:** An Ethernet adapter error occurred.

**User Response:**

- 1 Exchange the Ethernet adapter. See page 1-85.
- 2 Exchange the terminal system board. See page 1-86.

---

**0129nnnn**

**Explanation:** A system board error occurred.

**User Response:** Exchange the terminal system board. See page 1-85.

---

**0133nnnn**

**Explanation:** An IBM Wireless LAN adapter error occurred.

**User Response:**

- 1 Run the IBM Wireless LAN tests.
- 2 Continue problem determination using the maintenance documentation provided with the IBM Wireless LAN. See the "Troubleshooting Wireless Network Problems" appendix in the *IBM Wireless LAN: Installing and Operating Your Network*

---

**01451500**

**Explanation:** A device channel error was detected during POST.

**User Response:** Exchange the terminal system board. See page 1-86.

---

**01458501**

**Explanation:** A device channel error occurred at a master terminal. Any device attached to the channel can cause this message.

**User Response:**

- 1 If U001 is displayed, follow the *User Response* for the U001 message to continue problem determination. See page 1-45.
- 2 Switch Ready mode OFF.
- 3 Disconnect the AC power cord to the device.
- 4 With the exception of the system unit video display, disconnect all other external devices from the system unit.
- 5 Reconnect the AC power cord to the device.
- 6 Switch Ready mode ON.
  - If error message 01458501 is again displayed, the message is caused by a failure in the system unit. Exchange the terminal system board. See page 1-86.
  - If error message 01458501 is **not** displayed, a failure in one of the devices or cables you disconnected is causing the message.

Switch Ready mode OFF, reconnect one of the disconnected devices to its original socket, and switch Ready mode ON.

- If error message 01458501 is again displayed, a failure in the device that was just reconnected is causing the message. Exchange or service the failing device.
- If error message 01458501 is **not** displayed, repeat the preceding steps until the failing device has been identified.

---

**01458502**

**Explanation:** A device channel error occurred at a satellite terminal. Any device attached to the channel can cause this message.

**User Response:**

- 1** If U001 is displayed, follow the *User Response* for the U001 message to continue problem determination. See page 1-45.
- 2** Switch Ready mode OFF.
- 3** Disconnect the AC power cord to the device.
- 4** With the exception of the system unit video display, disconnect all other external devices from the system unit.
- 5** Reconnect the AC power cord to the device.
- 6** Switch Ready mode ON.
  - If error message 01458502 is again displayed, the message is caused by a failure in the system unit. Exchange the terminal system board. See page 1-86.
  - If error message 01458502 is **not** displayed, a failure in one of the devices or cables you disconnected is causing the message.

Switch Ready mode OFF, reconnect one of the disconnected devices to its original socket, and switch Ready mode ON.

- If error message 01458502 is again displayed, a failure in the device that was just reconnected is causing the message. Exchange or service the failing device.
- If error message 01458502 is **not** displayed, repeat the preceding steps until the failing device has been identified.

---

**0145nnnn**

**Explanation:** A device channel error occurred.

**User Response:** Exchange the terminal system board. See page 1-86.

---

**0148nnnn**

**Explanation:** A Flat Panel Display Adapter/A, or 4695 Point-of-Sale Adapter/A, or IBM Point-of Sale LCD Adapter error occurred.

**User Response:** Exchange the adapter. See page 1-85.

---

**0166nnnn**

**Explanation:** A primary token-ring adapter error occurred.

**User Response:** Continue problem determination using the maintenance documentation provided with the token-ring adapter.

---

**0167nnnn**

**Explanation:** An alternate token-ring adapter error occurred.

**User Response:** Continue problem determination using the maintenance documentation provided with the token-ring adapter.

---

**0208nnnn**

**Explanation:** A SCSI device error was detected during POST.

**User Response:** Verify that there are no duplicate SCSI ID settings. Any SCSI device can cause this error.

---

**0210nnnn**

**Explanation:** A SCSI fixed disk error was detected during POST.

**User Response:** Load the backup reference diskette and run system unit tests to test the SCSI fixed disk. See "Test Procedure Using System Programs" on page 1-75.

If the problem persists, exchange the SCSI fixed disk drive. See page 1-84.

---

**0265nnnn**

**Explanation:** An Ethernet error occurred.

**User Response:** Exchange the terminal system board. See page 1-86.

---

**02nnnnnn (not listed above)**

**Explanation:** A SCSI device error was detected.

**User Response:** Run the system unit tests to test the SCSI device. See "Test Procedure Using System Programs" on page 1-75.

If the problem persists, see the documentation that came with the SCSI adapter or contact your store support personnel.

---

**I99900n5**

**Explanation:** The reference diskette recovery was prevented.

**User Response:**

- 1** Switch Ready mode OFF.
- 2** Move the power-on password jumper to the other position to disable the password. See page 1-91.
- 3** Load the backup reference diskette and run system unit tests to test the system board and system unit devices. See "Test Procedure Using System Programs" on page 1-75.
- 4** If no system unit errors are detected, exchange the SCSI fixed disk drive. See page 1-84.
- 5** Exchange the terminal system board. See page 1-86.

---

**I999001n through I999009n**

**Explanation:** A problem exists with the fixed disk initial machine load (IML) record.

**User Response:** The user response for this error is only valid when running the system from the fixed disk.

Update the system partition using the system diskettes. See "Utilities Procedure Using System Programs" on page 1-75.

---

**I99900nn (not listed above)**

**Explanation:** A problem exists with the diskette IML record.

**User Response:** The user response for this error is only valid when running the system from the system diskettes.

Restart the system from the reference diskette. If the same error code appears, try new system diskettes.

---

I9990301

**Explanation:** There is a fixed disk reset failure.

**User Response:**

- 1 Switch Ready mode OFF.
- 2 Load the system programs from the system diskettes to test the fixed disk. See "Test Procedure Using System Programs" on page 1-75.

---

I9990302

**Explanation:** No operating system was found on the default fixed disk with SCSI ID 6

**User Response:** Install an operating system.

---

I9990303

**Explanation:** The IML code did not load from the system partition.

**User Response:** Update the system programs using the system diskettes. See "Utilities Procedure Using System Programs" on page 1-75.

---

I9990305

**Explanation:** No startup device was found.

**User Response:** Restart the system using a diskette or check for a valid selectable startup sequence. See "Utilities Procedure Using System Programs" on page 1-75.

---

I9990306

**Explanation:** A CD-ROM or read/write optical drive error occurred.

**User Response:** Restart the system using a suitable diskette or fixed disk drive.

---

I9990401

**Explanation:** Unauthorized access was detected.

**User Response:** Remove the power-on password. See page 1-91.

If the problem still exists, exchange the terminal system board. See page 1-86.

---

I9990403

**Explanation:** Terminal system board failure.

**User Response:** Exchange the terminal system board. See page 1-86.

## Ethernet Messages

These messages can occur when the terminal is attempting to connect to the network. See the LAN information for your network.

The 4693 Model 3W1 Ethernet adapter is on the system board. Exchange the terminal system board. See page 1-86.

### AA: nnnnnnnnnnnn

nnnnnnnnnnn = network adapter address (12 hexadecimal characters)

**Explanation:** This message is displayed to help the user when network problems occur.

**User Response:** Contact the network administrator to define this adapter address to the network server software. When the adapter address has been defined, press any key to continue.

### ET-nn:nn:nn nn:nn:nn

**Explanation:** This message indicates the elapsed time of a remote program load (RPL). Normally it continues to increment until the load is complete.

**User Response:** If the time stops incrementing or continues for an unreasonable length of time:

- 1 Make sure that the controller/server is operational.
- 2 Make sure that the terminal is properly attached to the network. If a problem is found, switch Ready mode OFF and then ON to retry the load operation.
- 3 Look for other messages that are indicating a network problem.
  - On a video display, there are several messages displayed on the screen at the same time.
  - On a 40-character display, only one message can be seen. To retrieve the other network messages, see page 1-9.
- 4 After recording the network messages, contact your network administrator for assistance.

If the problem persists, exchange the Ethernet adapter. See page 1-85.

### RQ-nnnn

**Explanation:** When nnnn = 000A or greater, the controller/server is not present or is overloaded.

**User Response:** Check that:

- 1 The controller/server is present and fully operational.
- 2 The address for the network adapter was properly defined to the network software.
- 3 The adapter configuration is set properly.

If the above items are correct and the problem persists, exchange the Ethernet adapter. See page 1-85.

**Note:** If the 4693 is a Model 3W1, the Ethernet adapter is on the system board. Exchange the terminal system board. See page 1-86.

### SF-nnnn

**Explanation:** When nnnn = 000A or greater, the controller/server was found but is not responding.

**User Response:** Check that:

- 1 The controller/server is present and fully operational.
- 2 The address for the network adapter was properly defined to the network software.

If the above items are correct and the problem persists, exchange the Ethernet adapter. See page 1-85.

## PC Network Messages

These messages list possible error conditions that can occur in the remote program load (RPL) panel when attempting to connect to the network. See the LAN documentation for your network for more detail on network problems.

---

### AA: nnnnnnnnnnnn

nnnnnnnnnnn = network adapter address (12 hexadecimal characters)

**Explanation:** This message is displayed to help the user when network problems occur.

**User Response:** Contact the network administrator to define this adapter address to the network server software. When the adapter address has been defined, press any key to continue.

---

### ET-nn:nn:nn nn:nn:nn

**Explanation:** This message indicates the elapsed time of an RPL. Normally it continues to increment until the load is complete.

**User Response:** If the time stops incrementing or continues for an unreasonable length of time, check that:

- 1 The controller/server is operational.
- 2 All cables are properly attached to the terminal. If a problem is found, switch Ready mode OFF and then ON to retry the load operation.
- 3 The address for the network adapter was properly defined to the network server software.

To retrieve the PC network adapter address, switch Ready mode OFF and then ON. Look for the **AA: nnnnnnnnnnnn** message. Record this address and contact the network administrator to make sure that it is defined to the server. Switch Ready mode OFF and then ON when you are ready to retry the load operation.

If the problem persists, exchange the PC network adapter. See page 1-85.

---

### PC-06 nnnn

nnnn = Alert Code

**Explanation:** The requesting terminal is sending alerts.

**User Response:** when nnnn is:

0000 - Unknown error code was received from a load error response frame.

0002 - A file not found response was received by the requesting terminal.

0004 - An attempt was made to store file response frame data at an address that does not exist in the terminal.

0006 - An attempt was made to store file response frame data at a hexadecimal memory address between 0000:0000 and 00C0:0000.

See the LAN documentation for your network for more detail on network problems.

---

### PC-08 0000

**Explanation:** Hardware error detected.

When the requesting terminal detects a hardware error, the status panel fields are updated and the RPL process stops. User intervention is required to break out of this mode.

**User Response:** See the LAN documentation for your network for more detail on network problems.



---

**PC-08 0001**

**Explanation:** Load error response shutdown.

When the requesting terminal receives a load error response X'34', the panel status fields are updated and the requesting terminal stops sending RPL frames, but continues to receive RPL load error response frames.

**User Response:** See the LAN documentation for your network for more detail on network problems.

---

**PC-08 0002**

**Explanation:** The requesting terminal detected a continuous-carrier condition on the network.

**User Response:**

- If the condition ends within 3.5 minutes, the requesting terminal starts the RPL process again.
- If the condition is still present after 3.5 minutes, the requesting terminal restarts itself to allow POST diagnostics to provide more information about the continuous-carrier condition.

See the LAN documentation for your network for more detail on network problems.

## Token-Ring Messages

These messages list possible error conditions that can occur when the terminal is attempting to connect to the network. See the LAN documentation for your network for more detail on network problems.

---

### AA: nnnnnnnnnnnn

nnnnnnnnnnn = network adapter address (12 hexadecimal characters)

**Explanation:** This message is displayed to help the user when network problems occur.

**User Response:** Contact the network administrator to define this adapter address to the network server software. When the adapter address has been defined, press any key to continue.

---

### AC-0040 0000 0000

**Explanation:** This message indicates that the token-ring adapter has detected an internal error.

**User Response:** Restart the terminal. If the problem persists, exchange the token-ring adapter. See page 1-85.

---

### BU-nnnn

**Explanation:** When nnnn = any code other than 0000 and is highlighted, an error occurred during startup.

**User Response:** Following is a list of possible nnnn error codes:

- **0024** – The shared RAM diagnostic failed. Ensure that the RAM address assigned for the token-ring adapter does not conflict with other devices installed in the terminal.
- **All other codes** – Exchange the token-ring adapter. See page 1-85.

---

### CE-0085

**Explanation:** This is an indication that a data rate configuration error was found during POST.

**User Response:** Check that:

- 1** The correct data rate is set for the token-ring adapter.
- 2** The address for the network adapter was properly defined to the network software.
- 3** The adapter configuration is set properly.

If the above items are correct and the problem persists, exchange the token-ring adapter. See page 1-85.

---

### DR: “F4” - 04 “F6” - 16

**Explanation:** This message appears when a 16/4 Token-Ring Adapter/A is installed and has not been configured to select the data rate.

**User Response:** You must determine the correct data rate for your token-ring network. Contact the store programmer, help desk, installation planner, or store support personnel for this information.

Press the F4 key if the data rate is 4 Mbyte/sec.

Press the F6 key if the data rate is 16 Mbyte/sec.

**Note:** If a similar message appears again, make sure that the correct data rate was chosen and select the correct data rate again. If this message continues to appear, contact the network administrator.

---

**DR: "S1" - 04 "S2" - 16**

**Explanation:** This message appears when a 16/4 Token-Ring Adapter/A is installed and has not been configured to select the data rate.

**User Response:** You must determine the correct data rate for your token-ring network. Contact the store programmer, help desk, installation planner, or store support personnel for this information.

Press the S1 key if the data rate is 4 Mbyte/sec.

Press the S2 key if the data rate is 16 Mbyte/sec.

**Note:** If a similar message appears again, make sure that the correct data rate was chosen and select the correct data rate again. If this message continues to appear, contact the network administrator.

---

**ET-nn:nn:nn  
nn:nn:nn**

**Explanation:** This message indicates the elapsed time of an RPL. Normally it continues to increment until the load is complete.

**User Response:** If this message stops incrementing or continues for an unusual length of time:

- 1 Make sure that the controller/server is operational.
- 2 Make sure that the terminal is properly attached to the network. If a problem is found, switch Ready mode OFF and then ON to retry the load operation.
- 3 Look for other messages that are indicating a network problem.
  - On a video display, there are several messages displayed on the screen at the same time.
  - On a 40-character display, only one message can be seen. To retrieve the other network messages, see page 1-9.
- 4 After recording the network messages, contact your network administrator for assistance.

If the problem persists, exchange the token-ring adapter. See page 1-85.

---

**OP-0000 nn**

**Explanation:** When nnnn = any code other than 0000 and is displayed highlighted or flashing, an error occurred.

**User Response:** Following are the possible nnnn error codes.

- **0011 or 002E**

- 1 Ensure all cables are attached properly to the terminal and to the network access point.
- 2 Ensure that the controller/server is available and fully operational.
- 3 The network adapter is configured for a different data rate than the LAN segment. You must change the data rate of the adapter to match that of the LAN segment.

If the problem persists, exchange the token-ring adapter. See page 1-85.

---

**PC-4020**

**Explanation:** This message indicates that the token-ring adapter is not functioning properly with the terminal. In most cases the screen freezes and this message is highlighted because the adapter cannot continue.

**User Response:** Restart the terminal.

If the problem persists, exchange the token-ring adapter. See page 1-85.

---

**RQ-nnnn**

**Explanation:** When nnnn = 0010 or greater, the controller/server is not present or is overloaded.

**User Response:** Check that:

- 1** The controller/server is present and fully operational.
- 2** The address for the network adapter was properly defined to the network software.

If the above items are correct and the problem persists, exchange the token-ring adapter. See page 1-85.

---

**RS-nnnn**

**Explanation:** When nnnn = any code other than 0000 and is displayed in reverse video, a ring error was detected.

**User Response:** Following is a list of possible nnnn error codes.

- **2000** – The adapter has detected a soft error condition. Restart the terminal.
- **04nn or 08nn** – Exchange the token-ring adapter. See page 1-85.
- **n1nn** – The token-ring adapter has been removed from the ring. Ensure that the correct adapter address was defined to the network software. If the problem persists, exchange the token-ring adapter. See page 1-85.
- **0080** – One of the error log counters has incremented past 256. Restart the terminal.
- **0040 or 0060** – If the terminal is the only one connected to the LAN, restart the terminal. If other terminals are connected, try running the token-ring tests. See “Test Procedure Using System Programs” on page 1-75. If the problem persists, exchange the token-ring adapter. See page 1-85.
- **All other error codes** – Try running the token-ring tests. See “Test Procedure Using System Programs” on page 1-75. If the problem persists, exchange the token-ring adapter. See page 1-85.

---

**SF-nnnn**

**Explanation:** When nnnn = 0010 or greater, the controller/server has been found but is not responding.

**User Response:** Check that:

- 1** The controller/server is present and fully operational.
- 2** The address for the network adapter was properly defined to the network software.

If the problem persists, exchange the token-ring adapter. See page 1-85.

## 63nn Messages

These messages are generated by the IBM 4693 Point of Sale Terminals when using the system programs. These messages usually appear as a result of a point-of-sale device configuration mismatch or as a result of a failing device.

**Note:** When using any of the RPOS keyboard family of keyboards, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the S1 or S2 key.

**Attention** Switching Ready mode OFF at a store controller network server affects operations at all point-of-sale terminals attached to it.

### 6301 to 6307

**Explanation:** A 4693 (Model 321, 3W1, 421, or 541) point-of-sale device indicated by this message number is attached but not configured.

**User Response:**

Load the system programs and run AUTO CONFIGURATION. See page 1-71. The terminal re-IPLs after auto configuration is complete.

**This list shows the message number (630n) and the device it indicates.**

|             |                                       |
|-------------|---------------------------------------|
| <b>6301</b> | 4693 Keyboard                         |
| <b>6302</b> | 4693 Display                          |
| <b>6303</b> | 4693 Printer                          |
| <b>6304</b> | 4693 MSR, Scanner, or Bar Code Reader |
| <b>6305</b> | 4693 Totals Retention or Cash Drawer  |
| <b>6306</b> | 4693 External Device                  |
| <b>6307</b> | 4693 External Device                  |

### 6309 to 630F

**Explanation:** A 4693 (Model xx2) point-of-sale device indicated by this message number is attached but not configured.

**User Response:**

Load the system programs and run AUTO CONFIGURATION. See page 1-71. The terminal re-IPLs after auto configuration is complete.

**This list shows the message number (630n) and the device it indicates.**

|             |                                       |
|-------------|---------------------------------------|
| <b>6309</b> | 4693 Keyboard                         |
| <b>630A</b> | 4693 Display                          |
| <b>630B</b> | 4693 Printer                          |
| <b>630C</b> | 4693 MSR, Scanner, or Bar Code Reader |
| <b>630D</b> | 4693 Totals Retention or Cash Drawer  |
| <b>630E</b> | 4693 External Device                  |
| <b>630F</b> | 4693 External Device                  |

### 6310 to 6377

**Explanation:** A 4693 (Model 321, 3W1, 421 or 541) point-of-sale device indicated by this message number is configured but not responding.

**User Response:** Make sure that the device that corresponds to the 63xx message identified in the following list is attached and powered ON.

If any identified device is not attached or has been removed, run AUTO CONFIGURATION to update the configuration record.

If any identified device is attached and powered ON, go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.

**This list shows the message number (63nn) and the device it indicates.**

|                     |  |
|---------------------|--|
| <b>6310</b>         | 50-Key Keyboard or the keyboard<br>on the Combined Keyboard/Display (5A) |
| <b>6311</b>         | 50-key keyboard or the keyboard<br>on the combined keyboard/display (5B) |
| <b>631A</b>         | ANPOS keyboard (5A)  |
| <b>631B</b>         | ANPOS keyboard (5B)  |
| <b>631C</b>         | Any keyboard in the RPOS family of keyboards (5A)                        |
| <b>631D</b>         | Any keyboard in the RPOS family of keyboards (5B)                        |
| <b>6320</b>         | Alphanumeric display (4A)  |
| <b>6321</b>         | Alphanumeric display (4B, 9A, 9B, 9C)                                    |
| <b>6322</b>         | Display in the combined keyboard/display (5A)                            |
| <b>6323</b>         | Display in the combined keyboard/display (5B)                            |
| <b>6326</b>         | Shopper display (4A)   |
| <b>6327</b>         | Shopper display (4B, 9A, 9B, 9C)   |
| <b>632A</b>         | Character graphics display (4A)  |
| <b>632B</b>         | Character graphics display (4B, 9A, 9B, 9C)                              |
| <b>6330</b>         | Point-of-sale printer Model 1 or 2 (7)                                   |
| <b>6334</b>         | Point-of-sale printer Model 3 or 4 (7)                                   |
| <b>6336</b>         | Fiscal point-of-sale printer Model 2A (7)                                |
| <b>6338</b>         | Fiscal point-of-sale printer Model 3A (7)                                |
| <b>6340</b>         | Keyboard or single-track MSR (5A)  |
| <b>6341</b>         | Keyboard or single-track MSR (5B)  |
| <b>6346</b>         | Dual-track MSR or low profile dual-track MSR (5A)                        |
| <b>6347</b>         | Dual-track MSR or low profile dual-track MSR (5B)                        |
| <b>6348</b>         | 3-track MSR (5A)   |
| <b>6349</b>         | 3-track MSR (5B)   |
| <b>634A</b>         | Point-of-sale scanner (4B, 9A, 9B, 9C)                                   |
| <b>634B</b>         | IBM Bar Code Reader  |
| <b>6350</b>         | Totals retention (system board)  |
| <b>6354</b>         | Cash drawer (3A or 3B)   |
| <b>6364</b>         | RS232 Serial A   |
| <b>6368</b>         | RS232 Serial B   |
| <b>636E</b>         | Scale (9C)   |
| <b>636n to 637n</b> | External device  |

## 6390 to 63F7

**Explanation:** A satellite 4693 (Model xx2) point-of-sale device indicated by this message number is configured but not responding.

**User Response:** Make sure that the satellite terminal has its Mode Indicator ON and that it is connected to the 4693 master terminal with cable 11.

Make sure that the device that corresponds to the 63xx message identified in the following list is attached and powered ON.

If any identified device is not attached or has been removed, run AUTO CONFIGURATION to update the configuration record.

If any identified device is attached and powered ON, go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.

**This list shows the message number(63nn) and the device it indicates.**

|             |  |
|-------------|--|
| <b>6390</b> | 50-key keyboard or the keyboard on the combined keyboard/display (5A)                  |
| <b>6391</b> | 50-key keyboard or the keyboard on the combined keyboard/display (5B)                  |
| <b>639A</b> | ANPOS keyboard (5A)  |
| <b>639B</b> | ANPOS keyboard (5B)  |
| <b>639C</b> | Any keyboard in the RPOS family of keyboards (5A)                                      |
| <b>639D</b> | Any keyboard in the RPOS family of keyboards (5B)                                      |
| <b>63A0</b> | Alphanumeric display (4A)  |
| <b>63A1</b> | Alphanumeric display (4B, 9A, 9B, 9C)  |
| <b>63A2</b> | Operator display (4A) or the display on the combined keyboard/display (5A)             |
| <b>63A3</b> | Operator display (4B, 9A, 9B, 9C) or the display on the combined keyboard/display (5B) |
| <b>63A6</b> | Shopper display (4A)   |
| <b>63A7</b> | Shopper display (4B, 9A, 9B, 9C)   |
| <b>63AA</b> | Character graphics display (4A)  |
| <b>63AB</b> | Character graphics display (4B, 9A, 9B, 9C)  |
| <b>63B0</b> | Point-of-sale printer Model 1 or 2 (7)   |
| <b>63B4</b> | Point-of-sale printer Model 3 or 4 (7)   |
| <b>63B6</b> | Fiscal point-of-sale printer Model 2A (7)  |
| <b>63B8</b> | Fiscal point-of-sale printer Model 3A (7)  |
| <b>63C0</b> | Keyboard or single-track MSR (5A)  |
| <b>63C1</b> | Keyboard or single-track MSR (5B)  |
| <b>63C6</b> | Dual-track MSR or low profile dual-track MSR (5A)                                      |
| <b>63C7</b> | Dual-track MSR or low profile dual-track MSR (5B)                                      |
| <b>63C8</b> | 3-track MSR (5A)   |
| <b>63C9</b> | 3-track MSR (5B)   |
| <b>63CA</b> | Point-of-sale scanner (4B, 9A, 9B, 9C)   |
| <b>63CB</b> | IBM Bar Code Reader  |
| <b>63D1</b> | Totals retention (system board)  |
| <b>63D4</b> | Cash drawer (3A or 3B)   |
| <b>63E6</b> | RS232 Serial A   |
| <b>63E7</b> | RS232 Serial B   |
| <b>63EE</b> | Scale (9C)   |

## Application Messages

### Application Program Status xxx\*

These messages are generated by the application program.

In the message:

- The *xxx* can be any characters.
- The asterisk (\*) appears at the end of all these messages.

To correct the problem, see the documentation for the application program.

### Annn through Lnnn and Nnnn through Snnn Messages

These messages are generated by the application program:

- *Annn* – IBM 4680/90 General Sales Application
- *Bnnn* – IBM 4680/90 Supermarket Application
- *Cnnn* – IBM 4680/90 Chain Drug Sales Application
- *Hnnn* – IBM 4680/90 Store Management Application

To correct the problem, see the *Guide to Operations* for the application program.



## Mnnnn Messages

These messages are generated by the master point-of-sale terminal when using the system programs.

### Notes:

1. When using any of the RPOS keyboard family of keyboards, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the S1 or S2 key.
2. Switching Ready mode OFF at a store controller or network server affects operations at all point-of-sale terminals attached to it.

---

#### M0001 M0001 PRESS THE 1 ON THE NUMERIC KEYPAD.

**Explanation:** This message appears following the copyright message. When the **1** key is pressed, the program determines the keypad layout for the keyboards.

**User Response:** Press the **1** key on the console keyboard. If the display does not proceed to the MAIN MENU, follow this list to isolate and correct the cause of the problem:

- 1 Ensure that the **1** key was pressed on the console keyboard.  
Try pressing the **1** key on one of the other keyboards if more than one is attached.
- 2 Ensure that the keyboard is connected to the terminal.
- 3 If available, connect a different keyboard and cable.
- 4 Exchange or service the keyboard. Go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
- 5 Exchange the keyboard cable.

---

#### M0002 M0002 THE 4693 SYSTEM UNIT IS FAILING.

**Explanation:** An error was detected while reading or writing non-volatile memory (NVRAM).

**User Response:** Start configuration again to retry the operation.

If the problem persists, exchange the terminal system board. See page 1-86.

---

#### M0012 M0012 TIME IS INCORRECT.

**Explanation:** The time that was entered is not a valid time.

**User Response:** Notice the format of the time (HHMMSS). Enter the time again, being careful to enter a valid time in the correct format.

---

#### M0013 M0013 DATE IS INCORRECT.

**Explanation:** The date that was entered is not a valid date.

**User Response:** Notice the format of the date (MMDDYYYY or DDMMYYYY or YYYYMMDD). Enter the date again, being careful to enter a valid date in the correct format.

---

#### M0020 M0020 NONVOLATILE STORAGE ERROR OCCURRED WHILE SAVING OR RESTORING CONFIGURATION

**Explanation:** An error was detected when reading or writing NVRAM while running the Save or Restore Configuration Utility.

**User Response:** If you were attempting to save configuration, the data may not be valid. Run automatic configuration and then try saving and restoring again. Otherwise, obtain a new copy of the system diskettes and try again. If the problem persists, exchange the terminal system board. See page 1-86.

---

|              |  |
|--------------|--|
| <b>M0099</b> | <b>M0099 ERROR READING THE SUPPORT DISKETTE IMAGE.</b><br><b>Explanation:</b> An error was detected while reading the image of the Support Diskette For Medialess Terminals.<br><b>User Response:</b> Contact your LAN administrator.  |
| <hr/>        |  |
| <b>M0100</b> | <b>M0100 ERROR READING REFERENCE DISKETTE. ENSURE THAT THE REFERENCE DISKETTE IS CORRECTLY INSERTED.</b><br><b>Explanation:</b> An error was detected while reading the reference diskette.<br><b>User Response:</b> Press <b>S1 (F3)</b> . If the problem persists, try using a different reference diskette.<br>If you do not have a different diskette, use the original reference diskette to create a new backup reference diskette. See "Utilities Procedure Using System Programs" on page 1-75.<br>If a different diskette does not solve the problem, load the system programs and run system unit tests to test the diskette drive. See "Test Procedure Using System Programs" on page 1-75.   |
| <hr/>        |  |
| <b>M0101</b> | <b>M0101 A CONFIGURATION ERROR HAS OCCURRED. DO YOU WANT TO RUN CONFIGURATION?</b><br><b>Explanation:</b> A configuration error or mismatch was detected during the IPL.<br><b>User Response:</b> <ul style="list-style-type: none"><li>• If you have added or removed a device or option adapter, you should answer YES (you want to run configuration) and, depending upon the devices installed, you may have to respond to some additional questions. Follow the instructions on the display. The terminal reloads automatically after configuration.</li><li>• If you have <b>not</b> added or removed a device or option adapter, you should answer NO (<b>do not</b> run configuration). Load the system programs and run system unit tests to test all the system unit devices. See "Test Procedure Using System Programs" on page 1-75.</li></ul> |
| <hr/>        |  |
| <b>M0110</b> | <b>M0110 ERROR READING THE REFERENCE DISKETTE.</b><br><b>Explanation:</b> An error was detected while reading the backup reference diskette.<br><b>User Response:</b> Try using a different backup reference diskette. <ul style="list-style-type: none"><li>• If you do not have a different diskette, use the original reference diskette to create a new backup reference diskette. See "Utilities Procedure Using System Programs" on page 1-75.</li><li>• If a different diskette does not solve the problem, exchange the diskette drive. See page 1-82.</li></ul>   |
| <hr/>        |  |
| <b>M0198</b> | <b>M0198 TESTS COMPLETE. ENSURE THAT THE REFERENCE DISKETTE IS CORRECTLY INSERTED.</b><br><b>Explanation:</b> Tests have been completed and the reference diskette must be inserted.<br><b>User Response:</b> Insert the reference diskette and press <b>S2/Enter</b> .  |
| <hr/>        |  |
| <b>M0199</b> | <b>M0199 SYSTEM RESTART WILL FOLLOW. PREPARE SYSTEM FOR RESTART.</b><br><b>Explanation:</b> A system restart must be done before any other programs can run.<br><b>User Response:</b> Select one of the following: <ul style="list-style-type: none"><li>• Restart using the fixed disk. Remove any diskette from the diskette drive and press <b>S2/Enter</b>.</li><li>• Restart using a different IPL diskette. Put the desired diskette in the diskette drive and press <b>S2</b>.</li><li>• Restart using the backup reference diskette. Put the diskette in the drive and press <b>S2</b>.</li></ul>  |

---

**M0300 M0300 PRIMARY KEYBOARD IS FAILING.**

**Explanation:** The keyboard in use for the terminal console is now failing.

**User Response:** If M0300 remains in the display, ensure that the keyboard cable is connected to the keyboard and the 4693 system unit.

If the cable, sockets, and connections are OK, switch Ready mode OFF and follow this list to isolate and correct the cause of the problem:

- 1 Reboot the terminal and retry the operation.
- 2 Exchange the keyboard cable.
- 3 Exchange or service the keyboard. Go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
- 4 Exchange the rear connector panel. See page 1-87.

---

**M0310 M0310 PRIMARY DISPLAY ERROR**

**Explanation:** The display in use for the terminal console is now failing.

**User Response:** If M0310 remains in the display, ensure that the display cable is connected to the display and the 4693 system unit.

If the cable, sockets, and connections are OK, switch Ready mode OFF and follow this list to isolate and correct the cause of the problem.

- 1 Make sure that a known good 40-character or video display is connected to the terminal.
- 2 Reboot the terminal and retry the operation.
- 3 Exchange the display cable.
- 4 Exchange the display.
- 5 Exchange the rear connector panel. See page 1-87.

---

**M0320 M0320 PRIMARY KEYBOARD IS FAILING.**

**Explanation:** There is no keyboard on this terminal suitable as a console keyboard.

**User Response:** If M0320 remains in the display, ensure that the keyboard cable is connected to the keyboard and to the 4693 system.

If the cable, sockets, and connections are OK, switch Ready mode OFF and follow this list to isolate and correct the cause of the problem:

- 1 Make sure that a known good keyboard is connected to the terminal.
- 2 Reboot the terminal and retry the operation.
- 3 Exchange the keyboard cable.
- 4 Exchange or service the keyboard. Go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
- 5 Exchange the rear connector panel. See page 1-87.

---

**M0330 M0330 PRIMARY DISPLAY FAILED**

**Explanation:** There is no display on this terminal suitable for use as a console display.

**User Response:** If M0330 remains in the display, ensure that the display cable is connected to the display and to the 4693.

If the cable, sockets, and connections are OK, switch Ready mode OFF and follow this list to isolate and correct the cause of the problem.

- 1 Reboot the terminal and retry the operation.
- 2 Exchange the display cable.

- 3 Exchange the display.
- 4 Exchange the rear connector panel. See page 1-87.

---

**M1110 M1110 THE CONFIGURATION PROGRAM CANNOT EXECUTE. NOTIFY YOUR SYSTEM COORDINATOR.**

**Explanation:** The configuration program has detected an unrecoverable error.

**User Response:** Contact the system coordinator.

---

**M2000 M2000 4693-xx1 DRIVER COMMAND FAILED FOR THE (xxxxxxx) DRIVER.**

**Explanation:** xxxxxxx is the name of the driver related to this error.

- 1 The POSCONFIG.COM file on the reference diskette or system partition is bad.
- 2 The named device driver file is bad.
- 3 The device associated with the named driver is failing.
- 4 There are incompatible features installed (two devices answering to the same device channel address).

**User Response:**

- Exchange the device associated with the named driver.
- If the problem persists, try using a new reference diskette or restore the system partition using a known good reference diskette.

---

**M2001 M2001 4693-xx2 DRIVER COMMAND FAILED FOR THE (xxxxxxx) DRIVER.**

**Explanation:** xxxxxxx is the name of the driver related to this error.

- 1 The POSCONFIG.COM file on the reference diskette or system partition is bad.
- 2 The named device driver file is bad.
- 3 The device associated with the named driver is failing.
- 4 There are incompatible features installed (two devices answering to the same device channel address).

**User Response:**

- Exchange the device associated with the named driver.
- If the problem persists, try using a new reference diskette or restore the system partition using a known good reference diskette.

---

**M5610 M5610 DSP480 FONT MISSING PRESS ANY KEY TO CONTINUE.**

**Explanation:** The DSP480 device driver related font file has not been installed.

**User Response:** If the problem persists, try using a new reference diskette or restore the system partition using a known good reference diskette. See "Utilities Procedure Using System Programs" on page 1-75.

## Tnnnn Messages

These messages are generated when POS device tests are requested from the system programs, reference diskette, or diagnostic diskette. If you have a Tnnnn message displayed that is not in this list, go to the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

If the operating system online exercisers were used to request tests, see the *IBM 4690 Store System: Messages Guide* for Tnnnn messages.

**Note:** When using any of the RPOS keyboard family of keyboards, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the S1 or S2 key.

**Attention** Switching Ready mode OFF at a 4693 affects operations at all point-of-sale terminals attached to it.

---

|              |  |
|--------------|--|
| <b>T0019</b> | <p><b>T0019 KEYBOARD OR DISPLAY ON 4693-xx2 DOES NOT RESPOND.</b></p> <p><b>Explanation:</b> The 4693-xx2 is configured but its Mode indicator is off or cable (11) is disconnected.</p> <p><b>User Response:</b></p> <ol style="list-style-type: none"> <li><b>1</b> Make sure that the Model xx2 has its Mode indicator ON.</li> <li><b>2</b> Make sure that cable 11 is connected to the 4693-xx1 master terminal and to the Model xx2 terminal.</li> <li><b>3</b> If no problems are found, exchange the 4693-xx2 terminal system board. See page 1-86.</li> </ol> |
|--------------|--|

---

|              |  |
|--------------|--|
| <b>T0151</b> | <p><b>T0151 SYSTEM UNIT IS FAILING</b></p> <p><b>Explanation:</b> The totals retention test detected that totals retention is not communicating.</p> <p><b>User Response:</b> Exchange the terminal system board. See page 1-86.</p> |
|--------------|--|

---

|              |   |
|--------------|---|
| <b>T1751</b> | <p><b>T1751 SCANNER OR CABLE IS FAILING</b></p> <p><b>Explanation:</b> The point-of-sale scanner test detected a failure.</p> <p><b>User Response:</b> See your scanner scale maintenance manual and follow the problem determination procedures.</p> |
|--------------|---|

---

|              |  |
|--------------|--|
| <b>T1752</b> | <p><b>T1752 SCANNER IS FAILING</b></p> <p><b>Explanation:</b> The point-of-sale scanner test detected a scanner failure.</p> <p><b>User Response:</b> See your scanner scale maintenance manual and follow the problem determination procedures.</p> |
|--------------|--|

---

|              |   |
|--------------|---|
| <b>T1755</b> | <p><b>T1755 BAD LABEL, OR SCANNER IS FAILING</b></p> <p><b>Explanation:</b> The point-of-sale scanner test did not recognize the data from the scanner when a label was read.</p> <p><b>User Response:</b> See your scanner scale maintenance manual and follow the problem determination procedures.</p> |
|--------------|---|

---

|              |   |
|--------------|---|
| <b>T21nn</b> | <p><b>(nn = any number)</b></p> <p><b>Explanation:</b> These messages are scale test status and instruction messages.</p> <p><b>User Response:</b> See your scanner scale maintenance manual and follow the problem determination procedures.</p> |
|--------------|---|

---

|                            |   |
|----------------------------|---|
| <b>T2375</b>               | <b>T2375 SYSTEM UNIT IS FAILING</b><br><b>Explanation:</b> The test detected a failure when testing the asynchronous communication ports (SERIAL A and SERIAL B).<br><b>User Response:</b><br><ol style="list-style-type: none"><li>1 Make sure that the wrap plug was connected properly.</li><li>2 If no problems are found, exchange the 4693-xx2 terminal system board. See page 1-86.</li></ol>  |
| <hr/>                      |   |
| <b>T3100 Through T3144</b> | <b>Explanation:</b> These messages are cash drawer test status and instruction messages.<br><b>User Response:</b> Follow the instructions that are displayed. For more detail see the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> .  |
| <hr/>                      |   |
| <b>T3151</b>               | <b>T3151 CASH DRAWER, OR SYSTEM UNIT IS FAILING</b><br><b>Explanation:</b> The cash drawer adapter on the system board is not communicating.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.  |
| <hr/>                      |   |
| <b>T3152</b>               | <b>T3152 SYSTEM UNIT IS FAILING</b><br><b>Explanation:</b> A cash drawer adapter error was detected.<br><b>User Response:</b> Exchange the terminal system board. See page 1-86.  |
| <hr/>                      |   |
| <b>T3153</b>               | <b>T3153 CASH DRAWER(S) NOT OPENED OR MANAGER KEYLOCK NOT ACTIVATED</b><br><b>Explanation:</b> The cash drawer test requires that the cash drawers to be tested are opened with a key or that the manager keylock be activated before continuing the test.<br><b>User Response:</b> If this message is displayed after opening the cash drawer with the key or activating the manager keylock, go to the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and repair the cash drawer. |
| <hr/>                      |   |
| <b>T4151</b>               | <b>T4151 DISPLAY 4A, DISPLAY CABLE OR SYSTEM UNIT IS FAILING</b><br><b>Explanation:</b> The display test detected the display attached to socket 4A is failing.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.   |
| <hr/>                      |   |
| <b>T4152</b>               | <b>T4152 DISPLAY 4A IS FAILING</b><br><b>Explanation:</b> The display test detected that display 4A is failing.<br><b>User Response:</b> Exchange the display.  |
| <hr/>                      |   |
| <b>T4157</b>               | <b>T4157 THE DISPLAY ON THE COMBINED KEYBOARD/DISPLAY 5A, THE CABLE, OR THE SYSTEM UNIT IS FAILING</b><br><b>Explanation:</b> The display test detected a combined keyboard/display failure.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.  |
| <hr/>                      |   |
| <b>T4158</b>               | <b>T4158 THE DISPLAY ON THE COMBINED KEYBOARD/DISPLAY 5A IS FAILING.</b><br><b>Explanation:</b> The display test detected a combined keyboard/display failure.<br><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display in the Combined Keyboard/Display attached to socket 5A.   |

---

|              |   |
|--------------|---|
| <b>T4161</b> | <p><b>T4161 DISPLAY 4B, 9A, 9B, 9C, DISPLAY CABLE OR THE SYSTEM UNIT IS FAILING</b></p> <p><b>Explanation:</b> The display test detected the display attached to socket 4B, 9A, 9B, or 9C is failing.</p> <p><b>User Response:</b> Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.</p> |
|--------------|---|

---

|              |  |
|--------------|--|
| <b>T4162</b> | <p><b>T4162 DISPLAY 4B, 9A, 9B, 9C IS FAILING</b></p> <p><b>Explanation:</b> The display test detected the display attached to socket 4B, 9A, 9B, or 9C is failing.</p> <p><b>User Response:</b> Exchange the display.</p> |
|--------------|--|

---

|              |   |
|--------------|---|
| <b>T4167</b> | <p><b>T4167 THE DISPLAY ON THE COMBINED KEYBOARD/DISPLAY 5B, CABLE, OR THE SYSTEM UNIT IS FAILING</b></p> <p><b>Explanation:</b> The display test detected a combined keyboard/display failure.</p> <p><b>User Response:</b> Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.</p> |
|--------------|---|

---

|              |   |
|--------------|---|
| <b>T4168</b> | <p><b>T4168 THE DISPLAY ON THE COMBINED KEYBOARD/DISPLAY 5B IS FAILING</b></p> <p><b>Explanation:</b> The display test detected a combined keyboard/display failure.</p> <p><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display in the combined keyboard/display attached to socket 5B.</p> |
|--------------|---|

---

|              |   |
|--------------|---|
| <b>T4351</b> | <p><b>T4351 DISPLAY 4A, CABLE, OR SYSTEM UNIT IS FAILING.</b></p> <p><b>Explanation:</b> The display test detected a display failure.</p> <p><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display.</p> |
|--------------|---|

---

|              |  |
|--------------|--|
| <b>T4352</b> | <p><b>T4352 DISPLAY 4A IS FAILING.</b></p> <p><b>Explanation:</b> The display test detected a display failure.</p> <p><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display.</p> |
|--------------|--|

---

|              |   |
|--------------|---|
| <b>T4361</b> | <p><b>T4361 DISPLAY 4B, 9A, 9B, 9C, CABLE, OR THE SYSTEM UNIT IS FAILING.</b></p> <p><b>Explanation:</b> The display test detected a display failure.</p> <p><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display.</p> |
|--------------|---|

---

|              |   |
|--------------|---|
| <b>T4362</b> | <p><b>T4362 DISPLAY 4B, 9A, 9B, OR 9C IS FAILING.</b></p> <p><b>Explanation:</b> The display test detected a display failure.</p> <p><b>User Response:</b> See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> and exchange the display.</p> |
|--------------|---|

---

|                            |   |
|----------------------------|---|
| <b>T5100 Through T5115</b> | <p><b>Explanation:</b> These messages are keyboard test status and instruction messages.</p> <p><b>User Response:</b> Follow the instructions that are displayed. For more detail see the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i>.</p> |
|----------------------------|---|

---

|              |  |
|--------------|--|
| <b>T5151</b> | <p><b>T5151 KEYBOARD, CABLE, OR THE SYSTEM UNIT IS FAILING</b></p> <p><b>Explanation:</b> The keyboard test detected that the keyboard is failing.</p> <p><b>User Response:</b> Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.</p> |
|--------------|--|

---

|              |   |
|--------------|---|
| <b>T5152</b> | <b>T5152 KEYBOARD 5A IS FAILING</b><br><b>Explanation:</b> The keyboard test detected that the keyboard is failing.<br><b>User Response:</b> Exchange or repair the keyboard. See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> .  |
| <b>T6151</b> | <b>T6151 MSR, KEYBOARD, OR CABLE 5A IS FAILING</b><br><b>Explanation:</b> The MSR test detected that the keyboard/MSR attached to socket 5A is failing.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.   |
| <b>T6152</b> | <b>T6152 MSR OR KEYBOARD IS FAILING</b><br><b>Explanation:</b> The MSR test detected that the keyboard/MSR is failing.<br><b>User Response:</b> Exchange or repair the keyboard. See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> .   |
| <b>T6155</b> | <b>T6155 READ CARD AGAIN. CARD (P/N 90X9640), MSR, OR KEYBOARD IS FAILING</b><br><b>Explanation:</b> The MSR test detected an operational problem.<br><b>User Response:</b> <ol style="list-style-type: none"><li>1 Verify that test card P/N 90X9640 is being used.</li><li>2 Clean the MSR read head using MSR cleaning card (P/N 6019483).</li><li>3 Press <b>S2/Enter</b> to restart the test.</li><li>4 Pass the test card through the MSR slot several more times.</li><li>5 If the problem persists:<ul style="list-style-type: none"><li>• Try another test card.</li><li>• Exchange the MSR with a new unit.</li><li>• Exchange or service the keyboard.</li></ul></li></ol> |
| <b>T6161</b> | <b>T6161 MSR, KEYBOARD, OR CABLE 5B IS FAILING</b><br><b>Explanation:</b> The MSR test detected that the keyboard/MSR attached to socket 5B is failing.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.   |
| <b>T6162</b> | <b>T6162 MSR OR KEYBOARD IS FAILING</b><br><b>Explanation:</b> The MSR test detected that the keyboard/MSR is failing.<br><b>User Response:</b> Exchange or repair the keyboard. See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> .   |
| <b>T6181</b> | <b>T6181 MSR OR MSR CABLE IS FAILING</b><br><b>Explanation:</b> The MSR test detected that the dual-track MSR is not communicating.<br><b>User Response:</b> Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.   |
| <b>T6185</b> | <b>T6185 READ TEST CARD AGAIN. CARD (P/N 90X9640) OR MSR IS FAILING</b><br><b>Explanation:</b> The MSR test detected an operational problem.<br><b>User Response:</b> <ol style="list-style-type: none"><li>1 Verify that test card P/N 90X9640 is being used.</li><li>2 Clean the MSR read head using the MSR cleaning card (P/N 6019483).</li><li>3 Press <b>S2/Enter</b> to restart the test.</li></ol>  |

---



- 4 Pass the test card through the MSR slot several more times.
- 5 Try another test card.
- 6 Exchange the MSR with a new unit.

---

**T6194 T6194 MSR, KEYBOARD, OR CABLE CONNECTED TO KEYBOARD PORT IS FAILING.**

**Explanation:** The MSR test detected that the keyboard/MSR (system unit keyboard) attached to the kybd port is failing.

**User Response:** Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.

---

**T7101 Through T7140**

**Explanation:** These messages are printer test status and instruction messages.

**User Response:** Follow the instructions that are displayed. For more detail see the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

---

**T7151 Through T7174**

**Explanation:** These messages are printer test instruction and error messages.

**User Response:** Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.

---

**T9451 T9451 IBM BAR CODE READER OR SYSTEM UNIT IS FAILING**

**Explanation:** The IBM Hand-Held Bar Code Reader is not communicating.

**User Response:** Go to “MAP 0110: Input/Output (I/O) Device Isolation” on page 1-6.

---

**T9452 T9452 IBM BAR CODE READER IS FAILING**

**Explanation:** The IBM Hand-Held Bar Code Reader is failing.

**User Response:** Exchange the bar code reader. See the *Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

---

**T9455 T9455 ERROR, VERIFY THAT LABEL IS GOOD**

**Explanation:** The test detected an error when reading a label with the Hand-Held Bar Code Reader.

**User Response:** Try several times to read the labels.

If the problem persists:

- 1 Verify that the labels being used are valid for the bar code reader.
- 2 Verify that the labels are in good condition.

If the labels are good, exchange the IBM Hand-Held Bar Code Reader.

---

**T95nn**

**Explanation:** The T95nn messages are related to the fiscal printer utilities.

**User Response:** See your fiscal printer supplementary documentation.

---

**T9801 T9801 ENTER TYPE AND MODEL NUMBER XXXXXXX**

**Explanation:** The 4693 type and model must be keyed in for the vital product data entry procedure.

**User Response:** Key the type and model number of the 4693.

---

---

**T9802**      **T9802 ENTER SERIAL NUMBER MM-SSSSS**

**Explanation:** The serial number of the 4693 must be keyed in for the vital product data entry procedure.

**User Response:** Key the serial number of the 4693.

---

**T9803**      **T9803 ENTER SYSTEM BOARD PN XXXXXXX**

**Explanation:** The part number (PN) of the 4693 system board must be keyed in for the vital product data entry procedure.

**User Response:** Key the PN of the 4693.

---

**T9804**      **T9804 ENTER POWER SUPPLY EC XXXXXXX**

**Explanation:** The engineering change (EC) number of the 4693 power supply must be keyed in for the vital product data entry procedure.

**User Response:** Key the EC number of the power supply.

---

**T9805**      **T9805 ENTRY COMPLETE UPDATING VPD**

**Explanation:** The vital product data entry procedure is complete.

**User Response:** No action is required.

## Unnn Messages

These messages are generated by the point-of-sale terminal and the IBM 4690 Operating System during terminal POST or IPL.

---

### U001

#### U001

**Explanation:** The point-of-sale display has completed POST is waiting to receive communications from the system unit.

**User Response:** Wait a maximum of 30 seconds for the next message to display. If U001 remains on the display:

- 1** Switch Ready mode OFF then press the RESET switch on the operator panel.
- 2** Switch Ready mode ON and wait 15 seconds.
- 3** Look at the operator panel indicators.
  - If **System Board OK** (indicator 1) is off, go to "4693 Operator Panel Indicators and Switches" on page 1-51.
  - If **System Board OK** (indicator 1) is on, go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.

---

### U002

#### U002

**Explanation:** A Model xx2 terminal has completed POST and is waiting to receive communications from its 4693 master (Model 321, 421, or 541) terminal.

**User Response:** After Ready mode is switched ON at the 4693 master terminal wait for it to become operational. If U002 remains on the display:

- Make sure cable 11 is attached to both the Model xx2 terminal displaying U002 and its master terminal.
- Make sure that the master terminal is operational.
- Switch Ready mode OFF then ON at the failing Model xx2 terminal.
  - If the problem persists, try another cable 11 or exchange the cable.
  - If the problem persists, exchange the satellite terminal system board. See page 1-86.

---

### U003 to Unnn

**Explanation:** These are progress and status messages that are displayed as the 4690 Operating System is establishing communications and loading programs into the terminal.

**User Response:** See the *IBM 4690 Store System: Messages Guide* for further explanation and problem determination.

## Wnnn Messages

The W messages (*nnn* = any number) are generated by the IBM 4690 Operating System during store operations.

Find these messages in the *IBM 4690 Store System: Messages Guide*.

## Xnnn Messages

The X*nnn* messages (*nnn* = any number) are generated by IBM 4690 Operating System DEBUG.

Find these messages in the *IBM 4690 Store System: Messages Guide*.

## Ynnn Messages

The Y*nnn* messages (*nnn* = any number) are generated by IBM 4690 Operating System UTILITIES.

Find these messages in the *IBM 4690 Store System: Messages Guide*.

## Znnn Messages

The Z messages (*nnn* = any number) are generated by the IBM 4690 Operating System during Set Terminal Characteristics.

Find these messages in the *IBM 4690 Store System: Messages Guide*.

---

## 4693 Symptoms

### DANGER

Never work on equipment or connect or disconnect signal cables during periods of lightning activity.

### CAUTION:

For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.

**Note:** When using keyboards that have a **Ctrl** key, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the **S1 or S2** key.

|  |      |
|--|------|
| 4693 Power-On Self-Test (POST) Beep Symptoms . . . . . | 1-48 |
| Input/Output Device Symptoms . . . . .                 | 1-50 |
| 4693 Operator Panel Indicators and Switches . . . . .  | 1-51 |
| Option Adapter Symptoms . . . . .                      | 1-54 |
| 4693 Programmable Power Control Symptoms . . . . .     | 1-55 |
| Fixed Disk Symptoms . . . . .                          | 1-55 |
| Diskette Drive Symptoms . . . . .                      | 1-56 |
| Network Communications Symptoms . . . . .              | 1-57 |
| Ethernet Network . . . . .                             | 1-57 |
| PC Network Baseband . . . . .                          | 1-58 |
| Token-Ring Network . . . . .                           | 1-58 |
| Store Loop Communications Symptoms . . . . .           | 1-59 |
| Storage Retention Symptoms . . . . .                   | 1-60 |
| RS232 Serial Device Symptoms . . . . .                 | 1-60 |
| Video Display Symptoms . . . . .                       | 1-61 |
| Miscellaneous Symptoms . . . . .                       | 1-62 |

## 4693 Power-On Self-Test (POST) Beep Symptoms

Table 1-3. Beep Symptoms

| SYMPTOM  | ACTIONS   |
|--|---|
| One beep during POST   | This is the normal completion of POST when no errors are detected.  |
| No beeps during POST   | <ol style="list-style-type: none"><li>1 If the terminal appears to work except for the speaker, exchange the speaker. See "Removing and Replacing the Speaker" on page 1-86.</li><li>2 See "Problems with 4693 Models 3W1 and 741 Service Level Update" on page 1-49 if this is a 4693 model 3W1.</li><li>3 Exchange the system board. See page 1-86.</li></ol> |
| Two beeps during POST  | This is an indication that an error was detected during POST. Look for the error message that is displayed and go to 1-8.   |
| One long and one short beep<br>or<br>One long and two short beeps        | <ol style="list-style-type: none"><li>1 If you have a video display, see 1-61 before exchanging any FRUs.</li><li>2 Exchange the terminal system board. See page 1-86.</li></ol>  |
| One or two beeps and a blank or unreadable display, or a blinking cursor | <ol style="list-style-type: none"><li>1 If you have a video display, see page 1-61 before exchanging any FRUs.</li><li>2 Exchange the display.</li><li>3 Exchange the terminal system board. See page 1-86.</li></ol>   |
| Continuous beep  | Exchange the system board. See page 1-86.   |
| Repeating short beeps  | <ol style="list-style-type: none"><li>1 A key is stuck.</li><li>2 Exchange or repair the keyboard. See the <i>IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i>.</li><li>3 Exchange the system board. See page 1-86.</li></ol>  |

---

## Problems with 4693 Models 3W1 and 741 Service Level Update

When a Service Level Update is required for the 4693 Model 3W1 or 4693 Model 741, a service level package is supplied. If power is interrupted during the Service Level Update, the system unit may not reboot successfully after power is restored. This reboot failure usually appears as a blank display or POST 000115nn error. To recover from this condition, perform the following procedure:

**Note:** Steps 1 through 5 are for the 4693 Model 3W1 only. Steps 6, 7 and 8 are for both models..

- 1** Switch Ready mode OFF.
- 2** Disconnect the AC power cord(s) from the rear connector panel.
- 3** Remove the Logic Tray. See "Removing and Replacing the Logic Tray" on page 1-83.
- 4** A jumper on the terminal system board is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to. See Figure 1-24 on page 1-94 for the location of the **Service Level Update Recovery Jumper**.

The system detects the change during POST. You do not need to move the jumper back to its original position.

- 5** Reinstall the Logic Tray
- 6** Retry the Service Level Update procedure.
- 7** If your 4693 does not have a 1.44 MB diskette drive, temporarily install one.
- 8** Retry the Service Level Update procedure, using the diskette drive and the Service Level Update diskette.

## Input/Output Device Symptoms

For those I/O devices that can be repaired, the repair procedures are in the *IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

Table 1-4. I/O Device Symptoms

| FAILING I/O DEVICE and PORT  | ACTIONS  |
|--|--|
| Displays - 4A, 4B, 9A, 9B, 9C<br>Video display - video port  | <b>1</b> If the video display is failing, see "Video Display Symptoms" on page 1-61.   |
| Keyboards - 5A, 5B,<br>Keyboard - kybd port  | <b>2</b> If an error message is displayed, see page 1-8.   |
| Cash drawers - 3A, 3B  | <b>3</b> See "Test Procedure Using System Programs" on page 1-75 for system programs test procedure for the failing device.  |
| Printers - 7<br>Printer - parallel port  | <b>4</b> Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6 when trying to isolate the failure between the I/O device, the cable, the rear connector panel, and the system board. |
| Scanners - 4B, 9A, 9B, 9C<br>Magnetic stripe readers - 5A, 5B<br>Hand-held bar code readers - 9B   |  |
| An I/O device is attached but does not appear in the list of devices to test (MENU TEST-6 on the reference/diagnostic diskette or system programs) | Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.   |



## 4693 Operator Panel Indicators and Switches

The operator panel has up to six indicators depending upon the model. The indicators are used to indicate the following:

|  |                                    |
|--|------------------------------------|
| <b>Ready indicator (green)</b>                   | Terminal is ready to operate       |
| <b>Yellow indicator (Model 541 only)</b>         | Fixed disk activity                |
| <b>Diskette drive indicator (Model 541 only)</b> | Diskette drive activity            |
| <b>Indicator 1</b>                               | System board OK                    |
| <b>Indicator 2</b>                               | Power supply OK                    |
| <b>Indicator 3</b>                               | Overtemperature condition detected |
| <b>Indicator 4</b>                               | Overcurrent condition detected     |

The operator panel has two pushbutton switches. These switches are used for the following:

|  |   |
|--|---|
| <b>Mode Control Switch</b>                   | Switch between Ready and non-Ready mode.    |
| <b>Reset Switch (when Ready mode is OFF)</b> | Disable storage retention and standby mode. |
| <b>Reset Switch (when Ready mode is ON)</b>  | Cause a terminal reload.                    |

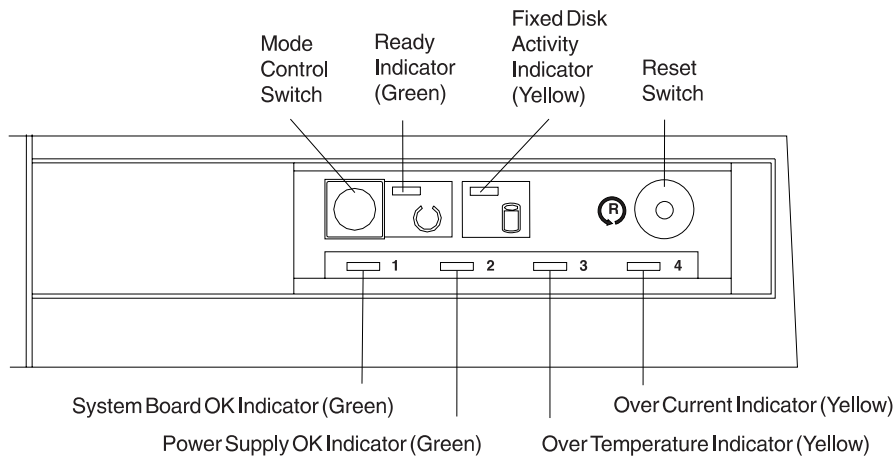


Table 1-5 (Page 1 of 3). Operator Panel Indicators

| INDICATOR/SWITCH   | ACTIONS   |
|--|---|
| The terminal is operational and no other failure symptoms appear but the operator panel indicators are not normal. | Exchange the operator panel assembly.   |
| All operator panel indicators are OFF.   | <ol style="list-style-type: none"> <li>1 Ensure that the storage retention battery pack (dummy battery pack on Model xx2) is properly connected to the power supply.<br/>The storage retention battery pack (or dummy battery pack on Model xx2) must be connected to allow the power supply to provide any voltages.</li> <li>2 If the battery pack or dummy pack is OK, ensure that the terminal is connected to a known good AC power source.</li> <li>3 If the AC power is OK, exchange the power supply. See page 1-81.</li> </ol> |

Table 1-5 (Page 2 of 3). Operator Panel Indicators

| INDICATOR/SWITCH  | ACTIONS   |
|---|---|
| The Ready indicator is OFF.   | <ol style="list-style-type: none"> <li><b>1</b> The terminal may have been in STANDBY mode, waiting to be switched to Ready mode ON by the program.</li> <li><b>2</b> Press the Mode Control Switch. If the Ready indicator <b>does not</b> come ON: <ul style="list-style-type: none"> <li>• Look at indicators 3 and 4. If either is ON, follow the action for the indicator that is ON.</li> <li>• If the terminal appears to be in a Ready state but the indicator remains OFF, check the operator panel connection or exchange the operator panel. See page 1-80.</li> <li>• If all indicators are OFF, ensure that the storage retention battery pack (or dummy battery pack on Model xx2) is connected properly. Also, ensure that the terminal is connected to a known good AC power source.</li> <li>• If the battery pack is OK and AC power is present, exchange the power supply.</li> </ul> </li> </ol>  |
| Mode Control Switch does not cause change between Ready ON and Ready OFF modes. | <ol style="list-style-type: none"> <li><b>1</b> Look at the operator panel indicators. The normal condition of the indicators are as follows: <p style="margin-left: 20px;">Ready indicator (green)      ON<br/> Indicator 1 (system board OK) ON<br/> Indicator 2 (power supply OK) ON<br/> Indicator 3 (overtemperature) OFF<br/> Indicator 4 (overcurrent)      OFF</p> <ul style="list-style-type: none"> <li>• If the indicators are normal, exchange the operator panel assembly. See page 1-80.</li> <li>• If the indicators are not normal, follow the actions for the indicator that is not in a normal condition.</li> </ul> </li> </ol>  |
| Indicator 1 (system board OK) is OFF  | <ol style="list-style-type: none"> <li><b>1</b> Ensure that indicator 2 is ON. If indicator 2 is <b>not ON</b>, follow the action for indicator 2 is OFF.</li> <li><b>2</b> Switch Ready mode OFF and press the Reset Switch on the operator panel.</li> <li><b>3</b> Switch Ready mode ON and look for POST error codes. If any errors are displayed, go to “4693 Messages” on page 1-8.</li> <li><b>4</b> If this is a Model 3W1 and the video display is blank, make sure that the memory modules are plugged properly.</li> <li><b>5</b> If this is a model that has a fixed disk or diskette drive, make sure that the cables are connected properly.</li> <li><b>6</b> Exchange the terminal system board. See page 1-86.</li> <li><b>7</b> If the failure persists after exchanging the system board, other possible causes include: <ul style="list-style-type: none"> <li>• Fixed disk drive and cable</li> <li>• Diskette drive and cable</li> <li>• Optional adapters</li> <li>• Rear connector panel</li> </ul> </li> </ol> |

Table 1-5 (Page 3 of 3). Operator Panel Indicators

| INDICATOR/SWITCH   | ACTIONS   |
|--|---|
| Indicator 2 (power supply OK) is OFF                           | <ol style="list-style-type: none"> <li><b>1</b> Look at indicators 3 and 4. If either is ON, use the actions described for that symptom.</li> <li><b>2</b> Ensure that the terminal is connected to a known good AC power source.</li> <li><b>3</b> Ensure that the storage retention battery pack (or dummy battery pack on Model xx2) is connected properly.</li> <li><b>4</b> Press the Mode Control Switch. If indicator 2 is still OFF but the Ready Indicator is ON, exchange the operator panel. See page 1-80.<br/><br/>If indicator 2 is still OFF and the Ready Indicator is also OFF, exchange the power supply. See page 1-81.</li> </ol>   |
| Indicator 3 (overtemperature) is ON                            | <ol style="list-style-type: none"> <li><b>1</b> Ensure that the air flow through the terminal is not blocked.</li> <li><b>2</b> Wait for the terminal to cool and press the Mode Control switch to set Ready mode ON. Listen carefully for the fan. If the fan is not operating, ensure that it is properly connected to the power supply. If it is connected but not operating, exchange the fan. See page 1-82.</li> <li><b>3</b> If the fan is operating and Indicator 3 continues to come ON, exchange the power supply. See page 1-81.</li> </ol>  |
| Indicator 4 (overcurrent) is ON                                | <p>This indicates that the terminal was shutdown due to an over current condition. The most likely cause is one of the attached devices.</p> <ol style="list-style-type: none"> <li><b>1</b> Switch Ready mode OFF and disconnect all the devices attached to the rear of the terminal, one at a time. Switch Ready mode ON after disconnecting each device. If the overcurrent indicator stays OFF after a device is disconnected, that device is causing the overcurrent condition.</li> <li><b>2</b> Switch Ready mode OFF and disconnect the diskette drive (if present), fixed disk (if present), and optional adapters, one at a time. If the overcurrent indicator stays OFF after a device is disconnected, that device is causing the overcurrent condition.</li> <li><b>3</b> If the overcurrent condition is still present after disconnecting the devices, exchange the terminal system board. See page 1-86.</li> <li><b>4</b> If the overcurrent condition is still present after exchanging the system board, exchange the power supply. See page 1-81.</li> </ol> |
| Reset Switch does not cause expected action (xx1 models only). | Exchange the operator panel assembly. See page 1-80.  |

## Option Adapter Symptoms

Table 1-6. Option Adapter Symptoms

| OPTION ADAPTER SYMPTOM   | ACTIONS  |
|--|--|
| <p>An optional adapter is failing.</p> <p>Some of the more common optional adapters are:</p> <ul style="list-style-type: none"> <li>Store loop</li> <li>Token-ring</li> <li>PC network baseband</li> <li>Ethernet network</li> <li>Multiprotocol</li> <li>Dual asynchronous</li> <li>Internal modem</li> </ul> | <ol style="list-style-type: none"> <li><b>1</b> If an error message is displayed, see "4693 Messages" on page 1-8.</li> <li><b>2</b> Make sure that the operator panel indicators are normal: <ul style="list-style-type: none"> <li>Ready Indicator (green) ON</li> <li>Indicator 1 (system board OK) ON</li> <li>Indicator 2 (power supply OK) ON</li> <li>Indicator 3 (overtemperature) OFF</li> <li>Indicator 4 (overcurrent) OFF</li> </ul> </li> <li><b>3</b> If the operator panel indicators are not normal, see page 1-51.</li> <li><b>4</b> Make sure that the cables that attach to the option adapter are properly connected.</li> <li><b>5</b> Look for error messages that may appear when Ready mode is switched on.</li> <li><b>6</b> Load the system programs and run the test for the failing option adapter. See "Test Procedure Using System Programs" on page 1-75.</li> <li><b>7</b> Load the system programs and view the configuration to verify that the adapter is configured properly. See "Loading the System Programs" on page 1-71.</li> </ol> |
| <p>An adapter is installed but does not appear in the list of devices to test (MENU TEST-4 when running system programs)</p>   | <ol style="list-style-type: none"> <li><b>1</b> Switch Ready mode OFF and wait a few seconds.</li> <li><b>2</b> Switch Ready mode ON.</li> <li><b>3</b> Load the system programs and run AUTO CONFIGURATION. See page 1-71. The terminal re-IPLs after auto configuration is complete.</li> <li><b>4</b> If the problem still occurs after auto configuration: <ul style="list-style-type: none"> <li>• Exchange the adapter. See page 1-85.</li> <li>• Exchange the bus adapter. See page 1-85.</li> </ul> </li> </ol>  |
| <p>An adapter is installed but does not appear when configuration is printed or viewed.</p>  | <ol style="list-style-type: none"> <li><b>1</b> Switch Ready mode OFF and wait a few seconds.</li> <li><b>2</b> Switch Ready mode ON.</li> <li><b>3</b> Load the system programs and run AUTO CONFIGURATION. See page 1-71. The terminal re-IPLs after auto configuration is complete.</li> <li><b>4</b> If the problem still occurs after auto configuration: <ul style="list-style-type: none"> <li>• Exchange the adapter. See page 1-85.</li> <li>• Exchange the bus adapter. See page 1-85.</li> </ul> </li> </ol>  |

## 4693 Programmable Power Control Symptoms

Table 1-7. 4693 Power Control Symptoms

| POWER CONTROL SYMPTOM   | ACTIONS   |
|---|---|
| <ul style="list-style-type: none"> <li>Does not switch to Ready ON mode under program control</li> <li>Does not switch to Ready OFF mode under program control</li> </ul> | <ol style="list-style-type: none"> <li>1 Make sure the terminal is connected to a known good AC power source.</li> <li>2 Make sure that the operator panel indicators are normal:<br/>Indicator 1 (system board OK) ON<br/>Indicator 2 (power supply OK) ON<br/>Indicator 3 (overtemperature) OFF<br/>Indicator 4 (overcurrent) OFF</li> <li>3 If the operator panel indicators are not normal, see page 1-51.</li> <li>4 Exchange the system board. See page 1-86.</li> <li>5 Exchange the power supply. See page 1-81.</li> </ol> |

## Fixed Disk Symptoms

Table 1-8. Fixed Disk Symptoms

| FIXED DISK SYMPTOM   | ACTIONS   |
|--|---|
| Fixed disk (SCSI fixed disk) is failing.   | <ol style="list-style-type: none"> <li>1 Look for error messages related to the fixed disk. See "4693 Messages" on page 1-8.</li> <li>2 Load the backup reference diskette and test the fixed disk. See "Loading the System Programs" on page 1-71 and "Test Procedure Using System Programs" on page 1-75.</li> <li>3 Have the user backup the fixed disk before exchanging it.</li> <li>4 Exchange the fixed disk only if necessary.</li> </ol> |
| The fixed disk indicator stays ON.   | <ol style="list-style-type: none"> <li>1 Switch Ready mode OFF and insert the backup reference diskette.</li> <li>2 Switch Ready mode ON and run the system unit tests to test the fixed disk.</li> <li>3 Follow the displayed instructions.<br/><br/>If the tests do not detect a failure and the problem persists, exchange the terminal system board. See page 1-86.</li> </ol>  |
| The fixed disk indicator does not turn ON when accessing the fixed disk. Terminal functions correctly. | Exchange the operator panel assembly. See page 1-80.  |

## Diskette Drive Symptoms

Table 1-9. Diskette Drive Symptoms

| <b>DISKETTE DRIVE SYMPTOM</b>   | <b>ACTIONS</b>  |
|---|---|
| Diskette drive is failing.  | <ol style="list-style-type: none"><li><b>1</b> Look for error messages related to the diskette drive. See "4693 Messages" on page 1-8.</li><li><b>2</b> Load the system programs and test the diskette drive.</li><li><b>3</b> Exchange the diskette drive, if necessary. See page 1-82.</li></ol>  |
| The diskette drive activity indicator stays ON.   | <ol style="list-style-type: none"><li><b>1</b> Switch Ready mode OFF and insert the backup reference diskette.</li><li><b>2</b> Switch Ready mode ON and run the system unit tests to test the diskette drive.</li><li><b>3</b> Follow the displayed instructions.<br/><br/>If the tests do not detect a failure and the problem persists, exchange the terminal system board. See page 1-86.</li></ol> |
| The diskette drive activity indicator does not turn ON when accessing the diskette drive. The terminal functions correctly. | Exchange the diskette drive. See page 1-82.   |

## Network Communications Symptoms

When troubleshooting local area network (LAN) problems, see the documentation for your network. Contact the network administrator for assistance when necessary.

### Ethernet Network

Table 1-10. Ethernet Network Communications Symptoms

| SYMPTOM  | ACTIONS   |
|--|---|
| <ul style="list-style-type: none"><li>• Messages are displayed indicating network communications failures.</li><li>• A failure occurs when attempting a remote initial program load (RIPL) or a remote program load (RPL) on a medialess terminal.</li></ul> | <ol style="list-style-type: none"><li><b>1</b> See “4693 Messages” on page 1-8 to retrieve and look up Ethernet Network messages.</li><li><b>2</b> Switch Ready mode OFF.</li><li><b>3</b> Press the Reset button on the operator panel to disable storage retention.</li><li><b>4</b> Switch Ready mode ON. As POST is running, look for errors to be displayed. If a POST error is displayed, see page 1-8 and follow the <i>User Response</i> for the message.</li><li><b>5</b> If no POST errors are detected, load the system programs and select SYSTEM UNIT TESTS to test the Ethernet network adapter. See “Loading the System Programs” on page 1-71.</li><li><b>6</b> See the documentation for the Ethernet network adapter.</li></ol> |

## PC Network Baseband

Table 1-11. PC Network Baseband Communications Symptoms

| SYMPTOM  | ACTIONS   |
|--|---|
| <ul style="list-style-type: none"><li>• Messages are displayed indicating network communications failures.</li><li>• A failure occurs when attempting a remote initial program load (RIPL) or a remote program load (RPL) on a medialess terminal.</li></ul> | <ol style="list-style-type: none"><li><b>1</b> See “4693 Messages” on page 1-8 to retrieve and look up PC network baseband messages.</li><li><b>2</b> Switch Ready mode OFF.</li><li><b>3</b> Press the Reset button on the operator panel to disable storage retention.</li><li><b>4</b> Switch Ready mode ON. As POST is running, look for errors to be displayed. If a POST error is displayed, see page 1-8 and follow the <i>User Response</i> for the message.</li><li><b>5</b> If no POST errors are detected, load the system programs and select SYSTEM UNIT TESTS to test the store loop or network communications adapter. See “Loading the System Programs” on page 1-71.</li><li><b>6</b> See the documentation for the PC network baseband adapter.</li></ol> |

## Token-Ring Network

Table 1-12. Token-Ring Network Communications Symptoms

| SYMPTOM   | ACTIONS   |
|---|---|
| <ul style="list-style-type: none"><li>• Messages are displayed indicating token-ring network communications failures.</li><li>• A failure occurs when attempting a remote initial program load (RIPL) or a remote program load (RPL) on a medialess terminal.</li></ul> | <ol style="list-style-type: none"><li><b>1</b> See “4693 Messages” on page 1-8 to retrieve and look up token-ring network messages.</li><li><b>2</b> Switch Ready mode OFF.</li><li><b>3</b> Press the Reset button on the operator panel to disable storage retention.</li><li><b>4</b> Switch Ready mode ON. As POST is running, look for errors to be displayed. If a POST error is displayed, see page 1-8 and follow the <i>User Response</i> for the message.</li><li><b>5</b> If no POST errors are detected, load the system programs and select SYSTEM UNIT TESTS to test the token-ring network adapter. See “Loading the System Programs” on page 1-71.</li><li><b>6</b> See the <i>IBM Token-Ring Network Remote Program Load</i> manual for help in isolating problems loading a medialess terminal.</li></ol> |



## Store Loop Communications Symptoms

Table 1-13. Store Loop Communications Symptoms

| SYMPTOM   | ACTIONS  |
|---|--|
| <ul style="list-style-type: none"><li>A failure occurs when attempting a remote initial program load (RIPL) or a remote program load (RPL) on a medialess terminal.</li><li>Messages are displayed indicating store loop communications failures.</li></ul> | <ol style="list-style-type: none"><li>Switch Ready mode OFF.</li><li>Press the Reset button on the operator panel to disable storage retention.</li><li>Switch Ready mode ON. As POST is running, look for errors to be displayed. If a POST error is displayed, see page 1-8 and follow the <i>User Response</i> for the message.</li><li>If no POST errors are detected, load the system programs and select SYSTEM UNIT TESTS to test the store loop adapter. See "Loading the System Programs" on page 1-71.</li><li>See the documentation for the store loop adapter.</li><li>See the <i>IBM 4690 Store System: Messages Guide</i> for store loop messages.</li></ol> |



## Storage Retention Symptoms

Table 1-14. Storage Retention Symptoms

| STORAGE RETENTION SYMPTOM   | ACTIONS  |
|---|--|
| Terminal storage is not retained when AC power is available to the terminal and the Ready indicator is OFF. | <ol style="list-style-type: none"> <li>When storage retention is enabled, AC power is present and the green Ready indicator is OFF, the operator panel indicators behind the front access door should be: <ul style="list-style-type: none"> <li>Indicator 1 (system board OK) ON</li> <li>Indicator 2 (power supply OK) ON</li> <li>Indicator 3 (overtemperature) OFF</li> <li>Indicator 4 (overcurrent) OFF</li> </ul> </li> <li>If the operator panel indicators are not normal, go to page 1-51.</li> <li>Exchange the terminal system board. See page 1-86.</li> </ol>  |
| Terminal storage is not retained when AC power is absent and the Ready indicator is OFF.                    | <ol style="list-style-type: none"> <li>Make sure the storage retention battery is properly attached.</li> <li>Make sure that the terminal has had AC power present long enough to properly charge the storage retention battery.</li> <li>Exchange the storage retention battery. See page 1-80. <div style="border: 1px solid black; padding: 5px; margin-top: 5px;"> <p style="text-align: center;"><b>Storage Retention Batteries</b></p> <p>The storage retention batteries contain nickel-cadmium (Ni-Cd). These batteries must be recycled or disposed of properly. Recycling facilities may not be available in your area.</p> </div> </li> <li>Exchange the terminal system board. See page 1-86.</li> </ol> |

## RS232 Serial Device Symptoms

Table 1-15. RS232 Device Symptoms

| SYMPTOM   | ACTIONS  |
|---|--|
| <p>A device attached to either the SERIAL A  A or SERIAL B  B socket is not working correctly.</p> <p><b>Note:</b> These are asynchronous communications devices.</p> | <ol style="list-style-type: none"> <li>Make sure that the failing device is attached to the SERIAL A or SERIAL B socket correctly.</li> <li>Load the system programs and START TESTS to test the SERIAL A and SERIAL B sockets. Follow the instructions that are displayed.</li> <li>Exchange the failing device and cable.</li> </ol> |

# Video Display Symptoms

Table 1-16. Video Display Symptoms

| SYMPTOM  | ACTIONS  |
|--|--|
| The screen is rolling.   | Exchange the video display.  |
| The display is failing (screen not rolling).<br>(All Models except Model 3W1 and 741.) | <ol style="list-style-type: none"> <li><b>1</b> Switch Ready mode OFF.</li> <li><b>2</b> Switch power OFF at the display.</li> <li><b>3</b> Disconnect the video display cable from the rear of the 4693.</li> <li><b>4</b> Switch Power ON at the display. If the display is plugged into the 4693 video AC power outlet you have to switch Ready mode ON.</li> <li><b>5</b> Turn the contrast control to its maximum position.</li> <li><b>6</b> Turn the brightness control to the center detent position.</li> <li><b>7</b> Check for the following: <ul style="list-style-type: none"> <li>• The screen should be white or light gray with a black margin.</li> <li>• The contrast and brightness controls should vary the screen intensity.</li> </ul> </li> <li><b>8</b> If the screen does not meet these conditions: <ul style="list-style-type: none"> <li>• If the display is plugged into the video AC power outlet, unplug the 4693 AC power cord from the rear of the 4693 and check the fuse for the video AC power outlet. Exchange it if necessary. See Figure A-3 on page A-4.</li> <li>• Exchange the video display.</li> </ul> </li> <li><b>9</b> Switch Ready mode OFF and reconnect the display to the 4693.</li> <li><b>10</b> Switch Ready mode ON.</li> <li><b>11</b> Load the system programs and test the video display. See page 1-71. Follow the displayed instructions.</li> </ol> |
| 4693 Model <b>3W1</b> or <b>741</b> video display is blank.                            | <p>This symptom is unique to the 4693 Model 3W1 and 741. For other 4693 models with a blank video display, use “The display is failing” symptom above.</p> <ol style="list-style-type: none"> <li><b>1</b> Make sure that the display has AC power and is powered ON.</li> <li><b>2</b> Make sure that the display is properly attached to the rear of the 4693.</li> <li><b>3</b> Make sure that the brightness and contrast controls are set correctly.</li> <li><b>4</b> Switch Ready mode OFF and make sure that the memory modules on the terminal system board are plugged correctly. If the modules seem to be plugged correctly, exchange the memory modules. See the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i>.</li> <li><b>5</b> See “Problems with 4693 Models 3W1 and 741 Service Level Update” on page 1-49 for BIOS update problems.</li> </ol>   |

# Miscellaneous Symptoms

Table 1-17 (Page 1 of 2). Miscellaneous Symptoms


| SYMPTOM  | ACTIONS   |
|--|---|
| The terminal appears to be in a hang condition or there is an undetermined or intermittent problem.                  | Go to "MAP 0100: General Checkout" on page 1-3.   |
| The memory count displayed when power is switched ON does not match the amount of memory installed.                  | Follow the User Response for 000110nn message before exchanging any FRUs. See "4693 Messages" on page 1-8.  |
| A reference diskette is in the diskette drive but the program loads from the fixed disk.                             | <ol style="list-style-type: none"><li>1 Try a different reference diskette, if available.</li><li>2 Exchange the diskette drive. See page 1-82.</li></ol>   |
| An I/O device is attached but does not appear in the list of devices to test (MENU TEST-6 using the system programs) | Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6.  |
| An adapter is installed but does not appear in the list of devices to test (MENU TEST-4 using the system programs).  | <ol style="list-style-type: none"><li>1 Load the system programs and run AUTO CONFIGURATION. See page 1-71. The terminal re-IPLs after auto configuration is complete.</li><li>2 If the problem still occurs after auto configuration, exchange the adapter. See page 1-85.</li></ol>   |
| A KEY icon (symbol) with an "X" through it is displayed after entering a password.                                   | <p>This usually means that the user simply keyed in a password that is not valid. After keying a valid password, the OK icon is displayed and the terminal begins the boot sequence.</p> <p>If after three attempts to enter the password, the terminal still does not recognize a valid password, a NOT OK icon (OK with a slash through it) is displayed and the terminal is locked. You must switch Ready mode OFF then ON again to unlock the terminal.</p> <p>If the KEY icon and the NOT OK icon are displayed at the same time, the terminal does not recognize the keyboard connected to the Kybd port  at the rear of the 4693. You must have a keyboard attached to this port to use the password feature.</p> <p>If you continue to have problems with the password:</p> <ol style="list-style-type: none"><li>1 Make sure you are entering a valid password.</li><li>2 Remove the password by moving the password jumper on the terminal system board then load the system programs and have the user enter a new password. See page 1-91.</li><li>3 Exchange the keyboard connected to the Kybd port.</li></ol> |

Table 1-17 (Page 2 of 2). Miscellaneous Symptoms

| SYMPTOM   | ACTIONS   |
|---|---|
| A NOT OK icon (OK with a slash through it) is displayed at the end of POST. | <p>This indicates one of the following:</p> <ul style="list-style-type: none"> <li>• A startup sequence occurred that is not valid. (The default drive is not in the startup sequence).</li> <li>• No operating system was found.</li> <li>• No IML code was found.</li> <li>• A fixed disk or diskette drive failure occurred.</li> </ul> <ol style="list-style-type: none"> <li><b>1</b> Insert the reference diskette in the diskette drive and press the F1 or Ctrl/S1 key to load the reference diskette.</li> <li><b>2</b> If a video display and an enhanced alphanumeric or RANPOS keyboard are present, select START UTILITIES from the MAIN MENU and then select SET STARTUP SEQUENCE from the UTILITY MENU. Verify that the default drive (fixed disk) is in the startup sequence.</li> <li><b>3</b> If the fixed disk is not in the startup sequence, follow the instructions on the screen and then test the fixed disk. See "Test Procedure Using System Programs" on page 1-75.</li> <li><b>4</b> If the default drive is in the startup sequence:             <ol style="list-style-type: none"> <li><b>a</b> Remove the reference diskette and switch Ready mode OFF.</li> <li><b>b</b> Switch Ready mode ON.</li> <li><b>c</b> If the INSERT DISKETTE icon is displayed, this means that no operating system was found on the fixed disk. Go to 4e on page 1-63.</li> <li><b>d</b> If the NOT OK icon is displayed, this means that the terminal cannot access the fixed disk system partition. Select UPDATE SYSTEM PROGRAMS from the UTILITY MENU. See "Utilities Procedure Using System Programs" on page 1-75.</li> <li><b>e</b> Either install an operating system on a device that is in the startup sequence or change the startup sequence to include the device that has an operating system.</li> </ol> </li> </ol> |

---

## 4693 Configuration, Tests, and Utilities

|  |      |
|--|------|
| Keyboard Differences   | 1-65 |
| Reference, Diagnostic, and Support Diskettes                     | 1-65 |
| System Partition   | 1-65 |
| IML Image  | 1-66 |
| Test Programs Summary  | 1-67 |
| Power-On Self-Test (POST)  | 1-67 |
| System Unit Tests  | 1-67 |
| Verification Tests   | 1-67 |
| Point-of-Sale Device Tests                                       | 1-67 |
| 4690 Store System Point-of-Sale Exercisers                       | 1-67 |
| Configuration Programs Summary                                   | 1-68 |
| View Configuration   | 1-68 |
| Print Configuration  | 1-68 |
| Change Configuration   | 1-68 |
| Auto Configuration   | 1-68 |
| Save and Restore Configuration                                   | 1-68 |
| Set and View SCSI Device Configuration                           | 1-68 |
| Utility Programs Summary   | 1-69 |
| Backup and Restore System Programs (Model 541)                   | 1-69 |
| Copy Option Diskette   | 1-69 |
| Set Time and Date  | 1-69 |
| Set Password   | 1-69 |
| Set Keyboard Rate  | 1-69 |
| Display Revision Level   | 1-70 |
| Update System Programs (Model 541 only)                          | 1-70 |
| Set Startup Sequence (Model 541 only)                            | 1-70 |
| Display Memory Map (Video Console only)                          | 1-70 |
| Display NVRAM Error Log  | 1-70 |
| Enter/Print Vital Product Data                                   | 1-70 |
| Loading the System Programs                                      | 1-71 |
| Procedure to Load from the System Partition or Controller/Server | 1-71 |
| Procedure to Load From System Diskettes                          | 1-72 |
| Flow of 4693 System Programs Menus                               | 1-73 |
| Flow of 4693-3W1 System Programs Menus                           | 1-74 |
| Test Procedure Using System Programs                             | 1-75 |
| Testing Procedure Using Operating System Exercisers              | 1-75 |
| Configuration Procedure Using System Programs                    | 1-75 |
| Utilities Procedure Using System Programs                        | 1-75 |
| Resetting Configuration and the Terminal Load                    | 1-76 |

## Keyboard Differences

There are many different keyboards that may be attached to the 4693 terminal and all keyboards do not have the same control keys defined.

The system programs prompt the user on which keys to use according to the type of keyboard.

**Note:** When using keyboards that have a **Ctrl** key, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the **S1 or S2** key.

## Reference, Diagnostic, and Support Diskettes

There are three diskettes available to support the 4693 family of terminals:

IBM 4693 Point of Sale Terminal Reference Diskette, SX27-3918

IBM 4693 Point of Sale Terminal Diagnostic Diskette, SX27-3928

IBM 4693 Point of Sale Terminal Support Diskette for Medialess Terminals, SX27-3929.

The reference and diagnostic diskettes, commonly referred to as **system diskettes**, are not shipped with each terminal. However, they do reside in the system partition of the fixed disk on a 4693 Model 541. The Support Diskette for Medialess Terminals is shipped as part of the bill of materials for store controller or LAN server machines.

The programs on these diskettes, called **system programs**, are for running configuration, tests, and utilities on 4693 terminals.

For 4693 Models 421 and 321 (medialess terminals), the image of the support diskette is downloaded from the store controller/network server when requested at the medialess terminal. The instructions for installation and use of the support diskette at the store controller or network server are in a README.DOC file present on each diskette. Each medialess terminal that requires the diskette image must be defined at the controller/server.

For 4693 Model 3W1 (medialess terminal), the image of the support diskette is pre-loaded in the 4690 Operating System.

The preferred method of operation on a Model 541 is to run the reference and diagnostic diskette programs (system programs) from the system partition. However, when necessary due to a fixed disk failure, you can run these programs using the system diskettes.

## System Partition

The system partition is a protected area on the fixed disk that contains the Initial Machine Load (IML) image and the programs from the reference diskette and the diagnostic diskette (system programs).

The 4693 Model 541 may have zero, one, or two fixed disks installed. The fixed disk drive in the left position, when viewed from the front, contains the system partition. If no fixed disk is present, it is considered a medialess terminal and no system partition is assigned.

## IML Image

The 4693 uses the IML image to store the power-on self-test (POST) and Basic Input/Output System (BIOS) code. With IML, some of the code stored in ROM is used for preliminary testing immediately after the Mode Control Switch is pressed to switch Ready ON. The balance of the POST and BIOS code, called the IML image, is stored in the system partition. The IML image is loaded on the fixed disk when the terminal is manufactured.

**Note:** The IML code in the system partition must be at the same program revision level as the code in ROM on the system board. In some instances, replacing the system board may require an update of the code on the fixed disk. Use UPDATE SYSTEM PROGRAMS to do this when required.

If a fixed disk is exchanged, use BACKUP/RESTORE SYSTEM PROGRAMS to create the system partition on the new fixed disk.



## Test Programs Summary

The following are available for 4693 terminals:

- Power-On Self-Tests (POST)
- System Unit Tests
- Verification Tests
- Point of Sale (POS) Device Tests
- Point of Sale (POS) Exercisers

### Power-On Self-Test (POST)

The power-on self-tests, which reside in the read-only memory (ROM), run automatically when Ready mode is switched ON and storage retention is disabled. All basic functions of the terminal hardware are tested and errors are reported via an eight digit error code displayed on the console display. See "4693 Messages" on page 1-8.

**System Unit Tests:** The system unit tests reside on the fixed disk of the controller and on the backup diagnostic diskette. These tests are designed primarily for use by service personnel. A test is provided for each device in the terminal such as the diskette drive, the fixed disk drive, and option adapters.

**Verification Tests:** The verification tests reside on the fixed disk of the controller and on the backup diagnostic diskette. The verification tests test the basic functions of the master terminal and satellite terminal with a minimum of operator intervention. These tests are used primarily to verify operation after initial installation or after a service call. These tests can be used by the operator or service personnel.

**Point-of-Sale Device Tests:** The point-of-sale device tests reside on the fixed disk of the controller and on the backup diagnostic diskette. These tests are designed for use by operator or service personnel. A test is provided for each point-of-sale I/O device attached to the terminal.

**4690 Store System Point-of-Sale Exercisers:** These exercisers reside on the fixed disk of the store controller. They are designed for use by operator or service personnel. An exerciser is provided for each point-of-sale device that is attached and configured. See your *4690 Store System: Messages Guide* for instructions on how to request these exercisers.

## Configuration Programs Summary

There are several configuration programs available in the system programs. Some are only available when a video display and an enhanced A/N keyboard console are attached. This is known as a video console. Also, some programs that deal specifically with the fixed disk and diskette drive are only available when running on a 4693-541 that has a fixed disk.

The configuration programs are:

- View configuration
- Print configuration
- Change configuration
- Auto configuration
- Save configuration
- Restore configuration
- Set and view SCSI device configuration

Running configuration should only be necessary when the options and devices attached to the terminal are changed. Most of the time automatic configuration is all that is necessary.

**View Configuration:** displays the current configuration data that is stored in NVRAM.

**Print Configuration:** prints the same data that is displayed by *View* on the POS printer or parallel printer.

**Change Configuration:** allows the user to select configuration options other than the defaults. This function is limited when no video display is present.

**Auto Configuration:** allows the user to configure the terminal and select the default options. It requires very little manual intervention.

**Save and Restore Configuration:** allows the user to backup (save) the configuration data to the system partition or to a diskette. This data can then be used to restore the configuration to a 4693 terminal.

**Set and View SCSI Device Configuration:** allows the user to display the SCSI ID for each installed SCSI device. The ID appears in a set of two numbers separated by a comma. The first number is the assigned ID. All fixed disks for the 4693, installed in the left side (looking at the front), are set to SCSI ID 6. An additional fixed disk on the right side of the logic tray (if present) is set to SCSI ID 5.

## Utility Programs Summary

There are several utility programs available on the reference diskette. Some are only available when a video display and an Enhanced A/N keyboard console are attached. This is known as a video console. Also, some of the utilities that deal specifically with the fixed disk and diskette drive are only available when running on a 4693-541 that has a fixed disk.

The utility programs are:

- Backup and restore system programs
- Copy option diskette
- Set time and date
- Enter/print vital product data
- Display revision level
- Update system programs
- Set password
- Set keyboard rate
- Set startup sequence
- Display NVRAM error log
- Display memory map
- Vital product data

**Backup and Restore System Programs (Model 541):** The backup function of this utility is used to copy the system programs from the system partition to diskettes or to create backup copies of the original system diskettes.

The restore function is used to copy all system programs from the system diskettes to the fixed disk system partition. Since it erases any option files that have been added to the system partition since the last restore, you may have to use the **Update System Programs** utility to copy the option diskettes to the system partition.

Restore creates a system partition if none is present when this utility is started from a reference diskette.

**Note:** The 4693 has two fixed disk drive slots. If only one drive is installed it must be located in the left slot and contains the system partition. If two drives are present, the one on the left side is always considered the first fixed disk drive and it contains the system partition.

**Copy Option Diskette:** copies option files for an optional adapter to the reference and diagnostic diskettes or to the system partition. If the reference diskette is loaded from the diskette drive the option files are copied from the option diskette to the appropriate reference or diagnostic diskette. If the reference diskette is loaded from the system partition the option files are copied from the option diskette to the system partition.

**Set Time and Date:** allows the user to set or change the current date and time in NVRAM.

**Set Password:** allows the user to set or change the power-on password. When a power-on password is active (set), the user must key in the password each time Ready mode is switched ON.

**Set Keyboard Rate:** allows selection of the typamatic keyboard rate for the enhanced A/N keyboard connected to keyboard socket 1. The normal rate is 10.9 characters per second (CPS) and the fast rate is 30 CPS.

**Display Revision Level:** displays the following information:

- POST/BIOS part number
- POST/BIOS date
- POST/BIOS level
- Model number
- Sub model number
- Reference diskette version
- Diagnostic program version
- Configuration program version
- IML file name (if available)
- Power control level
- Serial I/O level

**Update System Programs (Model 541 only):** updates the programs in the system partition from the reference and diagnostic diskettes (system diskettes).

**Set Startup Sequence (Model 541 only):** allows selection of the search sequence for a boot device. Boot devices are devices such as a diskette drive, a fixed disk or a remote initial program load (RIPL) adapter such as a token-ring, Ethernet, PC network baseband, or store loop adapter.

A default sequence is selected automatically when there is no video display.

**Display Memory Map (Video Console only):** displays a map indicating how the memory is being utilized by the installed adapters. This utility is not available when there is no video display.

**Display NVRAM Error Log:** displays the NVRAM error log entries and allows you to clear the log data.

**Enter/Print Vital Product Data:** allows entry and printing of the vital product data. See Appendix E, "Collecting Vital Product Data for the 4693" on page E-1.

## Loading the System Programs

Depending upon the model of the 4693, there are different methods of loading the system programs.

- 4693 Model 541 - system programs can be loaded from the fixed disk system partition or from the system diskettes using the diskette drive.  
**Note:** Some 4693 Model 541 terminals may not have a diskette drive. These operate like a model 421.
- 4693 Models 421, 321, 3W1, medialess 541, and 741 - system programs can be loaded only from a controller/server using the network or store loop. This is often referred to as downloading the system programs.
- 4693 Model xx2 (satellite terminal) does not receive a load. It uses its master terminal load.

Read the notes below before beginning and then use the appropriate procedure.


### Notes:

1. If a power-on password is active you have to either enter the correct password or remove the power-on password. See "Removing the Power-On Password" on page 1-91.
2. When using any of the RPOS keyboard family of keyboards or some of the older 4680-type keyboards, the S1 and S2 functions require a combination of two keys. If your keyboard has a **Ctrl** key, first press and hold the **Ctrl** key then press the S1 or S2 key.
3. When more than one keyboard is attached, only one is defined as the primary keyboard to be used when running system programs. In this situation, if the keyboard you try does not work, try using the other keyboard.
4. System programs load automatically under certain error conditions detected during POST.

### Procedure to Load from the System Partition or Controller/Server

- 1** Use the store procedures to stop any application programs that are running.
- 2** Switch Ready mode OFF at the 4693 terminal.
- 3** Press the Reset Switch to disable storage retention.

**Note:** A special keying sequence is required at a specific time during the POST sequence to initiate the loading of system programs. This key sequence must occur during a three second (approximately) period when the cursor or minus (-) appears in the upper right corner of the display. The key sequence required varies depending upon the type of keyboard you are using and where it is attached.

- For keyboards attached to socket 5A or 5B that have a *Ctrl* key, press and hold the **Ctrl** key then press **S1** (Ctrl + S1) when the cursor appears at the right side. If the keyboard has no *Ctrl* key, just press the **S1**.
  - For keyboards attached to the Kybd  socket (PS/2 Type), press and hold the **Ctrl** key and the **Alt** key and then press the **Insert** key (Ctrl + Alt + Ins) when the cursor appears at the right side.
- 4** Switch Ready mode ON and look for the cursor to appear in the upper right corner of the display.
  - 5** When the cursor appears, enter the appropriate key sequence as defined above.

This enables the terminal to load the system programs from the fixed disk system partition or from the store controller/server.

- If an error code is displayed before the main menu appears, see “4693 Messages” on page 1-8.
- If you have an audible or visible symptom, see “4693 Symptoms” on page 1-47.

**Procedure to Load From System Diskettes:** If for some reason you cannot load the system programs from the fixed disk system partition, you can load them from backup copies of the reference/diagnostic diskettes (system diskettes). These backup diskettes should be created when the terminal is installed.

- 1 Use the store procedures to stop any application programs that are running.
  - 2 Switch Ready mode OFF at the 4693 terminal. (The Ready indicator goes OFF.)
  - 3 Press the Reset Switch to disable storage retention (Indicators 1 and 2 remains ON.)
  - 4 Insert the reference diskette in the diskette drive.
  - 5 Switch Ready mode ON. (The Ready indicator goes ON.)
  - 6 Follow the displayed instructions.
- If an error code is displayed before the MAIN MENU appears, see “4693 Messages” on page 1-8.
  - If you have an audible or visible symptom, see “4693 Symptoms” on page 1-47.

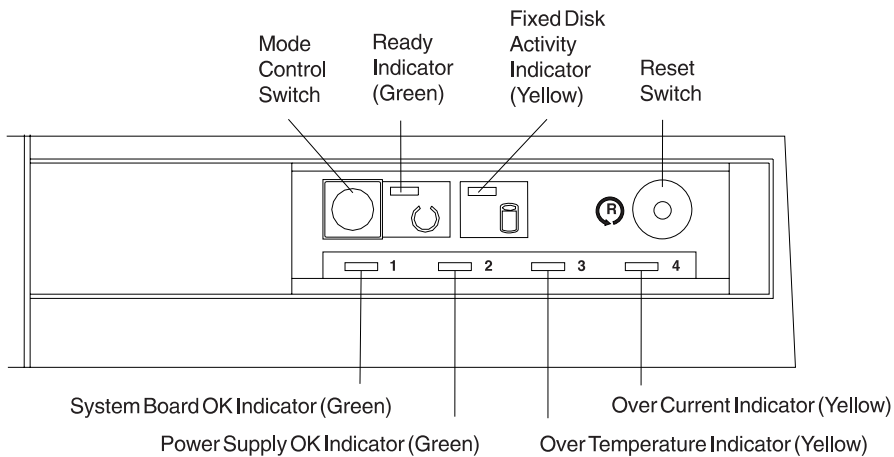
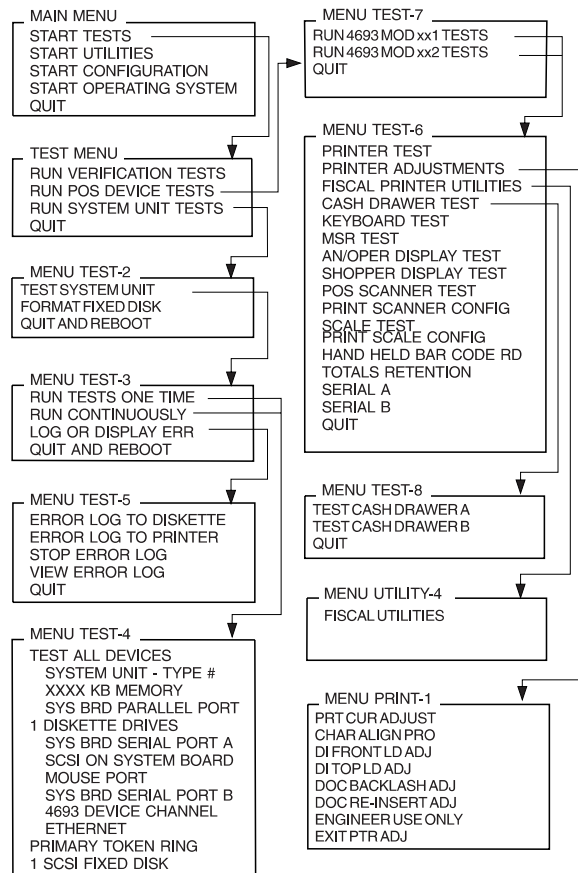


Figure 1-2. IBM 4693 Operator Panel

# Flow of 4693 System Programs Menus

## Test, Printer Adjustment, and Fiscal Printer Utilities Menus



## Configuration and Utility Menus

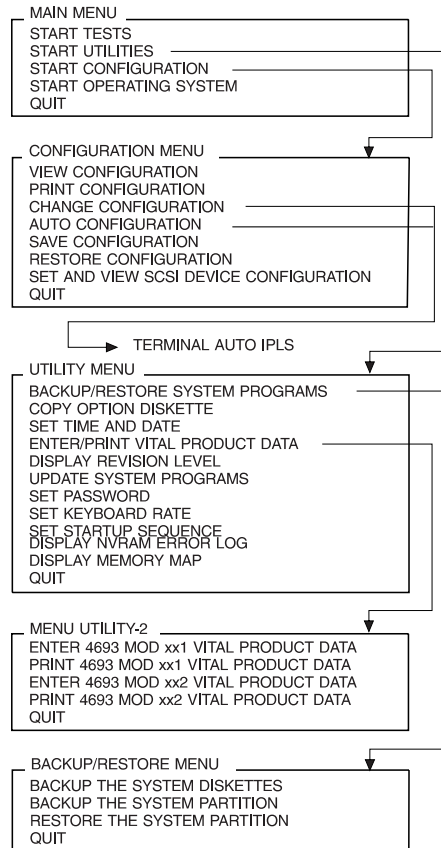


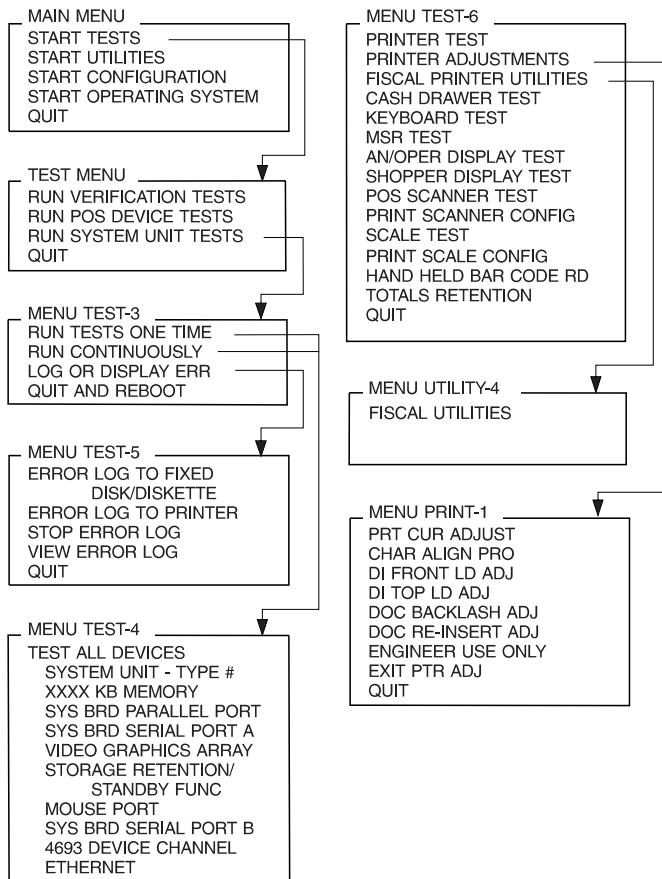
Figure 1-3. 4693 Models 541, 421, 321, and xx2 Menus

### Notes:

1. For 4693-3W1, see "Flow of 4693-3W1 System Programs Menus" on page 1-74.
2. The contents of these menus vary with the models and with the features installed on the terminal.
3. MENU TEST-7 appears only if a model xx2 satellite terminal is attached to the 4693 terminal.

# Flow of 4693-3W1 System Programs Menus

## Test, Printer Adjustment, and Fiscal Printer Utilities Menu



## Configuration and Utility Menu

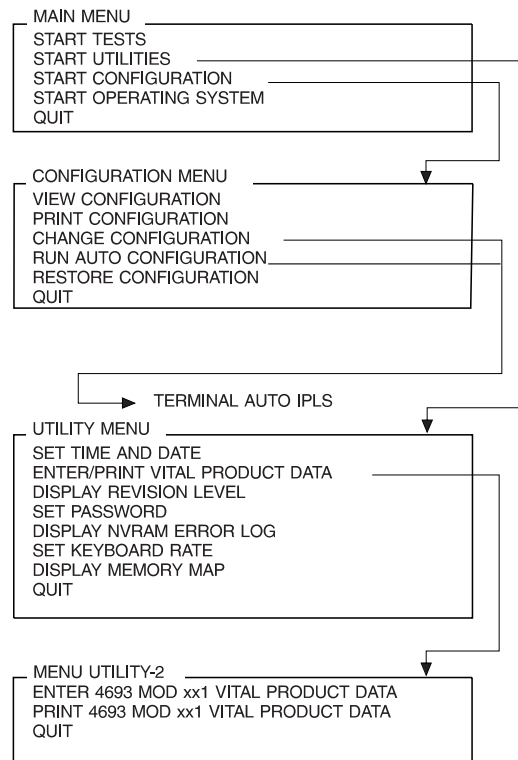


Figure 1-4. 4693 Model 3W1 Menus

**Note:** The contents of these menus vary with the models and with the features installed on the terminal.



## Test Procedure Using System Programs

- 1 See "Loading the System Programs" on page 1-71.
- 2 When the MAIN MENU appears, select **START TESTS**.
- 3 When the TEST MENU appears, select the desired test.
  - RUN POS DEVICE TESTS
  - RUN SYSTEM UNIT TESTS
  - RUN VERIFICATION TESTS
- 4 Follow the instructions that are displayed or select from the next menu that is displayed.

**Note:** If a device that you want to test does not appear in the list of devices to be tested (MENU TEST-4 OR MENU TEST-6), switch Ready mode OFF and then load the reference diskette and run AUTO CONFIGURATION. If the device still fails to appear in the test menu, it is failing to communicate. Go to "MAP 0110: Input/Output (I/O) Device Isolation" on page 1-6 to help isolate the problem.

## Testing Procedure Using Operating System Exercisers

When a terminal is running the IBM 4690 Store System Operating System, point-of-sale device exercisers are available to be downloaded from the store controller. See the *IBM 4690 Store System: Messages Guide* for the procedure to use to load and run these exercisers.

## Configuration Procedure Using System Programs

- 1 See "Loading the System Programs" on page 1-71.
- 2 When the MAIN MENU appears, select START CONFIGURATION.
- 3 When the CONFIGURATION MENU appears, select the desired configuration function. See "Configuration Programs Summary" on page 1-68.

Follow the instructions that are displayed. See "Flow of 4693 System Programs Menus" on page 1-73.

## Utilities Procedure Using System Programs

- 1 See "Loading the System Programs" on page 1-71.
- 2 When the MAIN MENU appears, select START UTILITIES.
- 3 When the UTILITY MENU appears, select the desired utility program.

Follow the instructions that are displayed or select from the next menu that is displayed. See "Flow of 4693 System Programs Menus" on page 1-73.

## Resetting Configuration and the Terminal Load

### Configuration Record

This procedure destroys the configuration record currently stored in NVRAM. Use it only when the terminal system board has been exchanged or when it seems necessary due to hang conditions, undetermined problems, or an inoperative system.

Depending upon the installed option adapters, you may be asked several questions regarding configuration. Be prepared to select the appropriate configuration for this terminal.

- 1** Use the store procedures to stop any application programs that are running.
- 2** Switch Ready mode OFF at the 4693 terminal. (The Ready indicator goes OFF.)
- 3** Press the Reset Switch to disable storage retention (Indicators 1 and 2 remain ON.)  
**Note:** When you switch Ready mode ON in the next step, start looking for the cursor to appear in the upper right corner of the display. It displays for only three seconds (approximately) and during this period of time you must press and release the Reset Switch to clear the configuration record.
- 4** Switch Ready mode ON.
- 5** Look for the cursor or minus (-) to appear in the upper right of the display. When the cursor appears, press and immediately release the Reset Switch on the operator panel.  
This enables the terminal to clear the configuration record.  
The system programs load and several error messages are displayed. Ignore these messages as they are expected after clearing the configuration record.
- 6** Follow the displayed prompts to exit each error message.
- 7** When message M0101 is displayed, answer YES. The configuration program reconfigures the terminal. Follow the displayed prompts and answer any questions that appear. After configuration the terminal restarts and loads the operating system.  
To take an operating system program dump, see the documentation for your operating system.

---

## 4693 Removals and Replacements

|   |      |
|---|------|
| Electrostatic Discharge (ESD) . . . . .                             | 1-78 |
| Removing and Replacing the Front Panel . . . . .                    | 1-79 |
| Removing and Replacing the Storage Retention Battery Pack . . . . . | 1-80 |
| Removing and Replacing the Operator Panel Assembly . . . . .        | 1-80 |
| Removing and Replacing the Power Supply . . . . .                   | 1-81 |
| Removing and Replacing the Diskette Drive . . . . .                 | 1-82 |
| Removing and Replacing the Cooling Fan and Plenum . . . . .         | 1-82 |
| Removing and Replacing the Logic Tray . . . . .                     | 1-83 |
| Removing and Replacing the Fixed Disk Drive . . . . .               | 1-84 |
| Removing and Replacing an Option Adapter . . . . .                  | 1-85 |
| Removing and Replacing Memory Modules . . . . .                     | 1-85 |
| Removing and Replacing the Terminal System Board . . . . .          | 1-86 |
| Removing and Replacing the Speaker . . . . .                        | 1-86 |
| Removing and Replacing the Rear Cover . . . . .                     | 1-86 |
| Removing and Replacing the Rear Connector Panel . . . . .           | 1-87 |
| Removing and Replacing the Input/Output Devices . . . . .           | 1-88 |
| Removing and Replacing the Top Cover . . . . .                      | 1-89 |
| Removing and Replacing the Side Covers . . . . .                    | 1-89 |
| Removing and Replacing the Keylock Insert . . . . .                 | 1-90 |
| Removing and Replacing the Blank Keylock Insert . . . . .           | 1-90 |
| Removing the Power-On Password . . . . .                            | 1-91 |
| Removing and Replacing an Extended Duration Battery . . . . .       | 1-92 |

### DANGER

|  |
|--|
| <p><b>Never work on equipment or connect or disconnect signal cables during periods of lightning activity.</b></p> |
|--|

### CAUTION:

**For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.**

## Electrostatic Discharge (ESD)

**Attention**ESD damage can occur when there is a difference in charge between the part, the product, and the service person. No damage occurs if the service person and the part being installed are at the same charge level.

### ESD Damage Prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

### Handling Removed Cards

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

## Removing and Replacing the Front Panel

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

- 1** Ensure that the keylock (if present) behind the front panel door is turned all the way clockwise to the unlocked position. Notice the locked and unlocked symbols next to the keylock. See Figure 1-5.
- 2** To disengage the front panel, press the buttons on each side at the front (one at a time) while gently pulling forward on each side of the panel until both sides are released from the latches. Then press down on the center release in the top center of the panel and slide the panel forward to remove it.
- 3** To exchange the front panel, reverse this procedure.

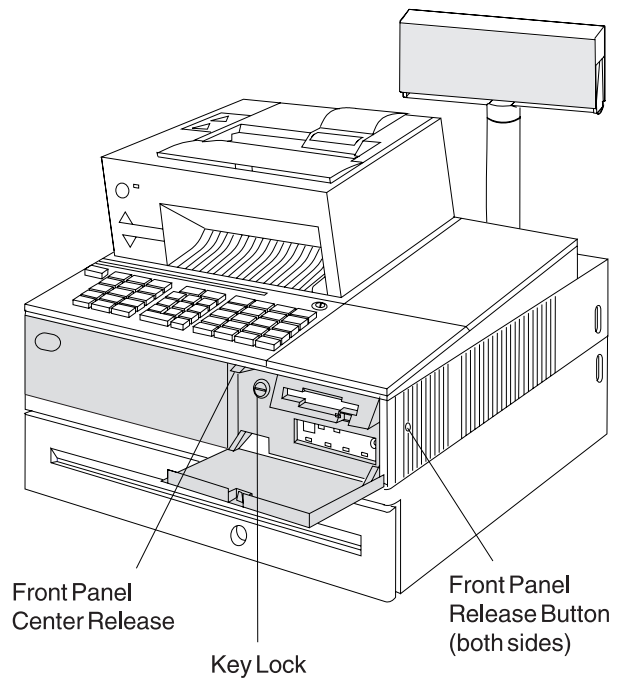


Figure 1-5. Front Panel Remove and Replace

## Removing and Replacing the Storage Retention Battery Pack

### Storage Retention Batteries

The storage retention batteries contain nickel-cadmium (Ni-Cd). These batteries must be recycled or disposed of properly. Recycling facilities may not be available in your area.

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

- 1 Remove the front panel. See page 1-79.
- 2 Turn the battery release to the vertical position to disengage the battery assembly. Notice the locked and unlocked symbols next to the battery release.
- 3 Pull the battery assembly forward using the small plastic pull tab.
- 4 To exchange the battery assembly, reverse this procedure.

## Removing and Replacing the Operator Panel Assembly

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

- 1 Remove the front panel. See page 1-79.
- 2 Remove the storage retention battery.
- 3 There are three tabs holding the operator panel in place. See Figure 1-6. Unlatch the left side of the operator panel by gently prying outward on the tab with a small screwdriver while gently pulling forward on the left side of the panel.

- 4 Unlatch the right side by pushing the tab free with a small screwdriver through the opening in the right side frame while gently pulling forward on the right side of the panel.
- 5 Unlatch the center of the operator panel by using a small screwdriver to press upward on the center tab until the panel can be pulled free of the unit.
- 6 To exchange the operator panel, reverse this procedure.

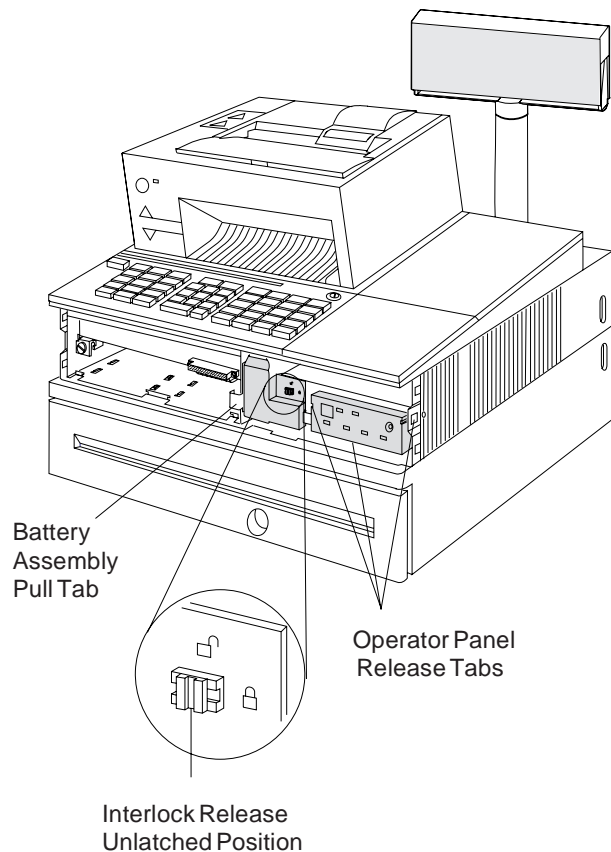


Figure 1-6. Operator Panel Remove and Replace

## Removing and Replacing the Power Supply

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Remove the front panel. See page 1-79.
- 4 Remove the storage retention battery. See page 1-80.
- 5 Remove the operator panel. See page 1-80.

**Note:** Observe the routing of the diskette drive cable, if present, to make exchanging the power supply easier.
- 6 Disconnect the diskette drive cable, if present, from the connector at the front of the logic tray. See Figure 1-7.
- 7 Turn the power supply retaining screw, located at the lower right front, counterclockwise 2 to 2 1/2 turns or until the locking tab is fully out of the slot.
- 8 Pull the power supply toward the front and remove it from the terminal.

**Note:** It may be difficult to pull the power supply toward the front since it is attached to the rear connector panel. Try prying gently at the lower right corner to start the power supply forward.
- 9 If the power supply is to be exchanged with a new one, remove the diskette drive, if present, from the power supply. See page 1-82. Also, remove the fan and plenum. See page 1-82.
- 10 To exchange the power supply, reverse this procedure.

**Note:** When exchanging the power supply, you must push it inward with enough force to overcome the resistance provided by the rear connector panel. **Make sure that the retaining screw lug is aligned to the corresponding slot in the frame.**

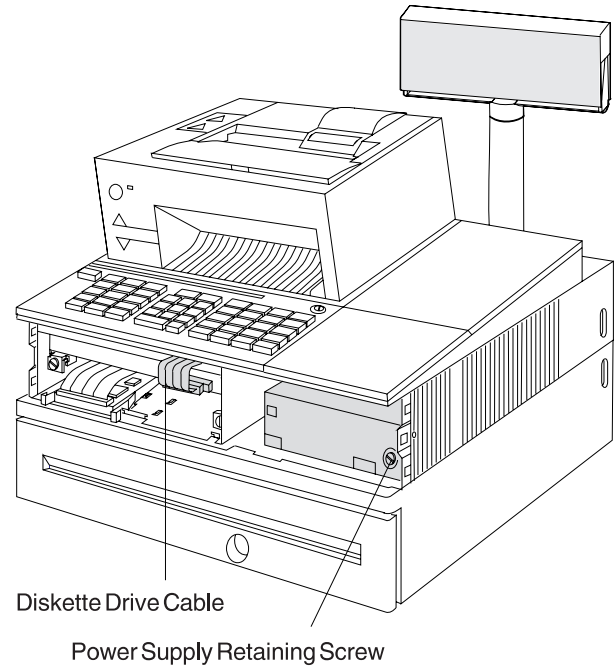


Figure 1-7. Power Supply Remove and Replace

## Removing and Replacing the Diskette Drive

- 1 Remove the power supply. See page 1-81.
- 2 Lift the diskette drive latch on the left side of the power supply and slide the drive to the right until it disengages. See Figure 1-8.
- 3 Remove the cable from the diskette drive.

### Diskette Drive Replacement

- 1 With the power supply removed from the terminal, align the four guides on the bottom of the drive with the elongated holes in the top of the power supply. Then slide the diskette drive to the left until the latch engages.
- 2 Route the diskette drive cable in the same manner as it was when removed and connect the cable.
- 3 Reinstall the power supply. See “Removing and Replacing the Power Supply” on page 1-81.

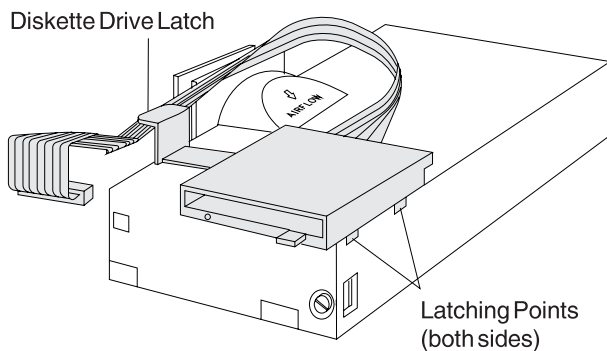


Figure 1-8. Diskette Drive Remove and Replace

## Removing and Replacing the Cooling Fan and Plenum

- 1 Remove the power supply. See page 1-81.
- 2 Disconnect the fan connector from the power supply by depressing the latch located on top of the connector. See Figure 1-9.
- 3 Set the power supply on its side with the plenum facing upward.
- 4 Remove the plenum by pulling or prying outward on the two plenum release tabs until the plenum is disengaged from the power supply.
- 5 Remove the fan from the plenum by prying the fan release tabs on the bottom of the plenum away from the fan housing until the fan can be removed.
- 6 To exchange the cooling fan and plenum, reverse this procedure.

**Note:** Make sure that the air flow arrows on the plenum and fan are pointing in the same direction.

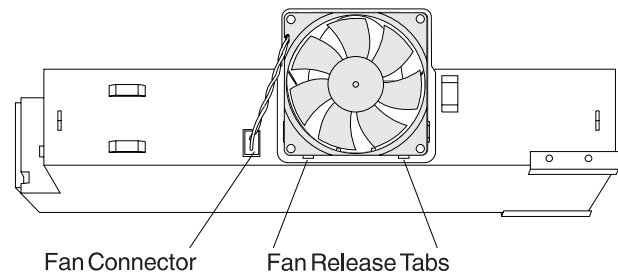


Figure 1-9. Fan Remove and Replace



## Removing and Replacing the Logic Tray

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

**Note:** If your terminal is attached to a store loop or PC baseband network, removing the logic tray may interrupt loop or network communications.

**Store loop:** Disconnect the store loop cable at the store loop receptacle, at the wall receptacle or at the wiring panel before disconnecting from the adapter.

**PC network baseband:** Connect the baseband cables to the wrap plug after disconnecting from the adapter.

**Ethernet and token-ring:** These adapters should not require a wrap plug. Check with the network administrator for any restrictions.

- 1 Disconnect any cables attached to option adapters at the rear of the terminal. Note the location of the cables to make it easier to reconnect them later.
- 2 Remove the front panel. See page 1-79.
- 3 Remove the storage retention battery. See page 1-80.
- 4 Disconnect the diskette drive cable from the connector at the front of the logic tray. See Figure 1-10.
- 5 Turn the retaining screws located on each side at the front of the logic tray counterclockwise approximately 2 1/2 turns.

- 6 Using the handle located at the front top of the tray, pull the logic tray forward until it can be removed from the terminal.
- 7 To exchange the logic tray, reverse this procedure.

**Note:** When replacing the logic tray, you must push it inward with enough force to overcome the resistance provided by the rear connector panel. **Make sure that the retaining screw lugs are aligned to the corresponding slots in the frame.**

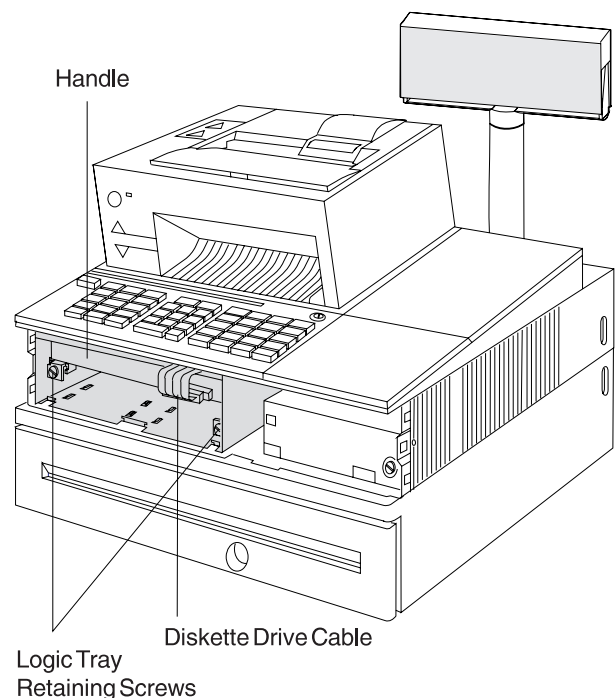


Figure 1-10. Logic Tray Remove and Replace

## Removing and Replacing the Fixed Disk Drive

Procedure Using System Programs” on page 1-75.

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78. If you are exchanging the fixed disk drive, be sure the original fixed disk is backed up before beginning the removal procedure.

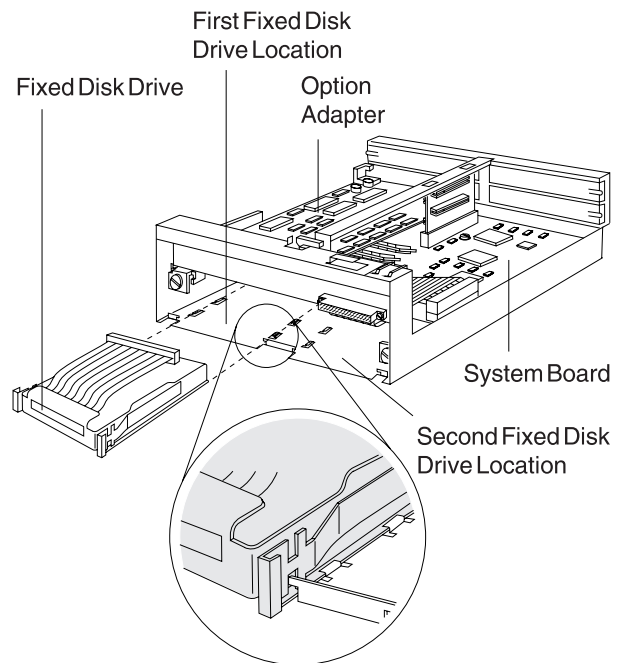
- 1 Remove the logic tray. See page 1-83.
- 2 Disconnect the fixed disk cable from the system board.
- 3 Depress the levers on each side of the fixed disk drive and pull the drive forward until it is free from the logic tray.

**Note:** The fixed disk can be installed in two different locations. Take note of the fixed disk location (left or right position when viewed from the front). If only one drive is present, it must be installed in the **left** position.

- 4 To exchange the fixed disk, reverse this procedure.

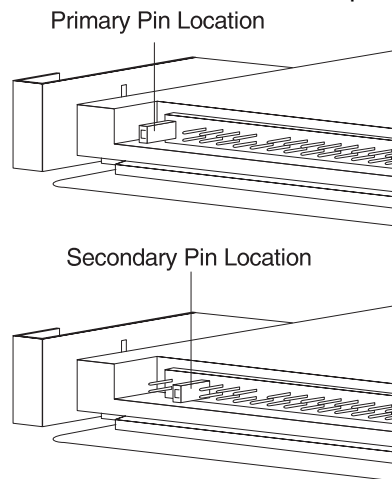
After the drive has been installed completely, the system partition must be recreated on the new fixed disk. This requires the use of the backup copies of the system diskettes.

- Switch Ready mode ON with the backup reference diskette inserted in the diskette drive. See “Loading the System Programs” on page 1-71 for more detail.
- At the MAIN MENU, select START UTILITIES.
- At the UTILITY MENU, select BACKUP/RESTORE SYSTEM PROGRAMS.
- At the BACKUP/RESTORE MENU, select RESTORE THE SYSTEM PARTITION.
- Follow the instructions that are displayed.
- When the system partition creation is complete, run the tests on the fixed disk to verify correct operation. See “Test



The 4693 Models 741 and 3W1 use fixed disks that enable 32-bit addressing. One or two optional fixed disks can be installed in the 4693 Models 741 and 3W1.

**Note:** The fixed disk comes from the factory with the jumper in the primary disk location. When installing two fixed disks the jumper on the secondary fixed disk needs to be moved from the primary disk location to the secondary disk location. A dual cable is required.



## Removing and Replacing an Option Adapter

Non-replaceable Lithium Battery inside unit.

- 1 Remove the logic tray. See page 1-83.
- 2 Note which slot the option adapters are plugged into.
- 3 Loosen the retaining screw holding the adapter at the rear connector panel.
- 4 Remove the option adapter by sliding it out to the side.
- 5 To exchange an option adapter, reverse this procedure.

### Notes:

- a. You may need to run Auto Configuration.
- b. Each Ethernet, token-ring, and PC network baseband adapter has a unique adapter address. When one of these is exchanged, the new adapter's address must be defined to the network server software. If you do not know what the new adapter's address is, see "How To Retrieve Network Remote Program Load (RPL) Messages" on page 1-9 and record the AA: nnnnnnnnnnn message.

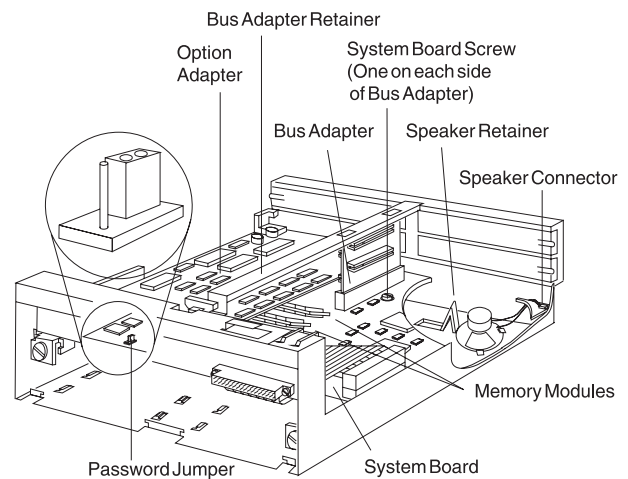


Figure 1-11. Logic Tray Components

## Removing and Replacing Memory Modules

There are two memory module connectors on the terminal system board.

- 1 Remove the logic tray. See page 1-83.
- 2 If your terminal has an option adapter that is installed over the top of the memory modules, the option adapter must be removed.
- 3 Push the memory module retainers outward simultaneously until they release the module. See Figure 1-12.
- 4 Lift the module from the memory module connector.
- 5 To exchange a memory module, reverse this procedure.

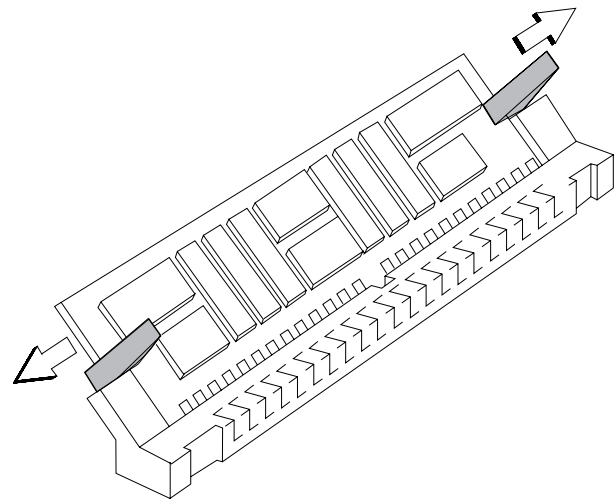


Figure 1-12. Memory Module Remove and Replace

## Removing and Replacing the Terminal System Board

- 1 Remove the logic tray. See page 1-83.
- 2 Note their locations and remove any option cards that are present. See page 1-85.
- 3 Remove the bus adapter, if present, by removing the bus adapter retainer and unplugging it from the system board.
- 4 Remove the fixed disk (if present).
- 5 Remove the two screws located near the center of the system board adjacent to the bus adapter socket.

**Note:** The 4693-xx2 has no bus adapter socket. However, the location of the screws that hold the system board is obvious when you look at the board.

- 6 Disconnect the speaker connector.
- 7 Move the system board forward until the slots in the edge of the board align with the tabs in the frame. Then lift the board out of the tray. See Figure 1-13.
- 8 If you are exchanging the system board, the replacement board is **not** supplied with memory installed. Therefore, you must remove the memory modules from the board being exchanged and install them on the replacement board. See Figure 1-11 on page 1-85 for the memory module locations.

### Notes:

- a. Only the 4693-xx1 models have memory modules on the board.
  - b. Non-replaceable Lithium Battery inside unit.
- 9 To exchange the system board, reverse this procedure.
  - 10 The EC number is located on the left edge of the system board near the rear of the board. Record the EC number of the replacement system board. This number is needed later to enter into vital product data.
  - 11 To eliminate the possibility of a configuration problem with the new system board, you should reset the configuration record. See

“Resetting Configuration and the Terminal Load” on page 1-76. This procedure leads you through configuring the terminal and creating a new configuration record.

- 12 After configuration is complete, you may want to run some other utilities or test the terminal. See “Utilities Procedure Using System Programs” on page 1-75 and “Test Procedure Using System Programs” on page 1-75.
- 13 Go to Appendix E, “Collecting Vital Product Data for the 4693” on page E-1 and enter the EC number of the system board.

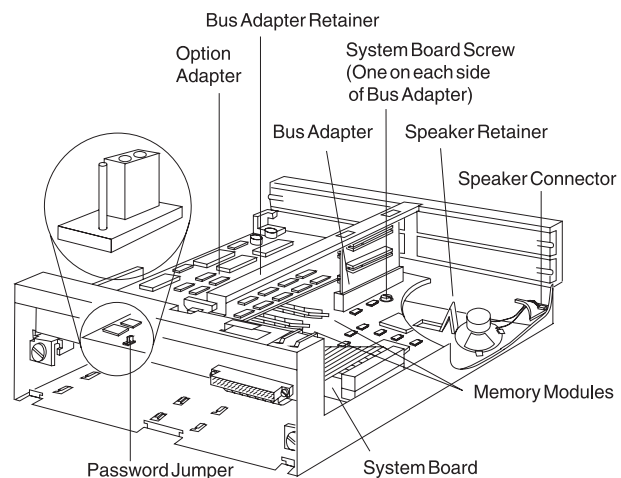


Figure 1-13. System Unit Components

## Removing and Replacing the Speaker

- 1 Remove the terminal system board. See page 1-86.
- 2 Release the speaker from its retainer and remove it from the base.
- 3 To exchange the speaker, reverse this procedure.

## Removing and Replacing the Rear Cover

- 1 Open the rear cover by pressing on the rear cover buttons.
- 2 Press the two latching tabs located on the

top of the rear cover to disengage it from the top cover. See Figure 1-14 on page 1-87.

- 3 To exchange the rear cover, reverse this procedure.

## Removing and Replacing the Rear Connector Panel

- 1 Switch Ready mode OFF.
- 2 Open the rear cover and disconnect the AC power cords from the rear connector panel.
- 3 Remove the logic tray. See page 1-83.

**Note:** You only have to slide the logic tray to the front far enough to disconnect it from the rear connector panel.

- 4 Remove the power supply. See page 1-81.

**Note:** You only have to slide the power supply to the front far enough to disconnect it from the rear connector panel.

- 5 Disconnect all remaining cables attached to the rear of the 4693.

**Note:** Mark the location of each cable to make it easier to reconnect when finished.

- 6 Remove the rear cover button on the left (facing the rear). This is done by compressing the button retainer tabs on the inside of the button with your fingers while sliding the button outward. Notice the position of the button when you remove it. It must go back in the same position.

- 7 Remove the six screws that secure the rear connector panel.

- 8 Pull the panel straight back approximately 1 inch until the locator pins are cleared.

**Note:** You cannot see the locator pins, so you must estimate the distance.

- 9 Pivot the left end (facing the rear) of the rear connector panel outward so that it clears the side cover. This is a very tight fit, so you may have to flex the side cover slightly outward. See Figure 1-15.

- 10 To exchange the rear connector panel, reverse this procedure.

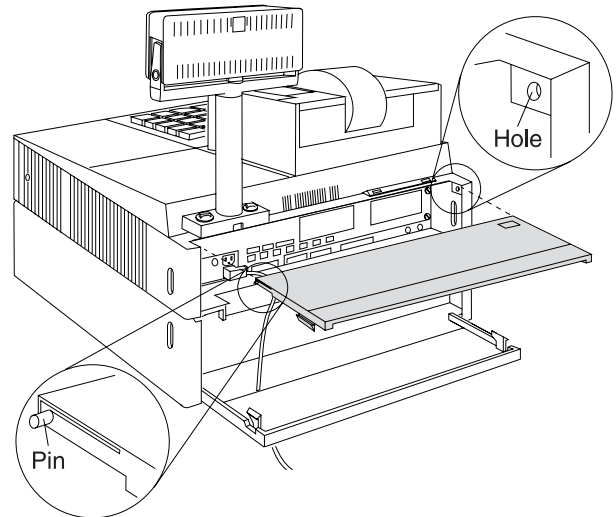


Figure 1-14. Rear and Side Covers

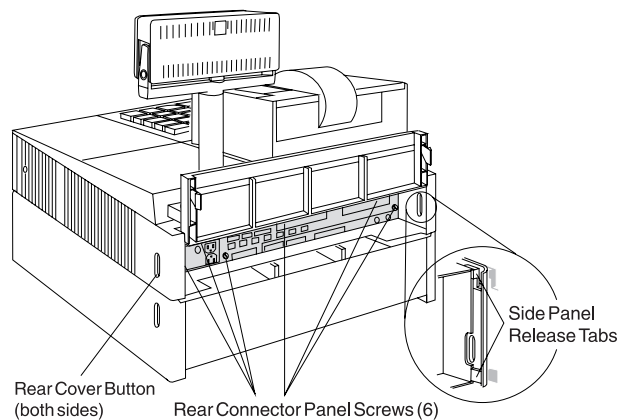


Figure 1-15. Rear Connector Panel

## Removing and Replacing the Input/Output Devices

- 1 Switch Ready mode OFF.
- 2 Open the rear cover by pressing inward on the release buttons located at the rear of the side covers.
- 3 Disconnect the AC power cords from the rear connector panel.
- 4 Disconnect all cables attached to the I/O devices.

**Note:** Mark the location of each cable to make it easier to reconnect when finished.

- 5 On an integrated terminal the I/O devices are locked into the top cover by lugs located under the devices. See Figure 1-16. The locking lever for these is located on the left side (from the front) of the top cover. Pull this lever outward to unlock the devices. Once unlocked, the printer can be lifted up and out of the top. The keyboard must be pushed slightly to the rear and then lifted up and out.
- 6 To exchange the I/O devices, reverse this procedure and be sure to push the locking lever inward to lock the devices into the top cover.

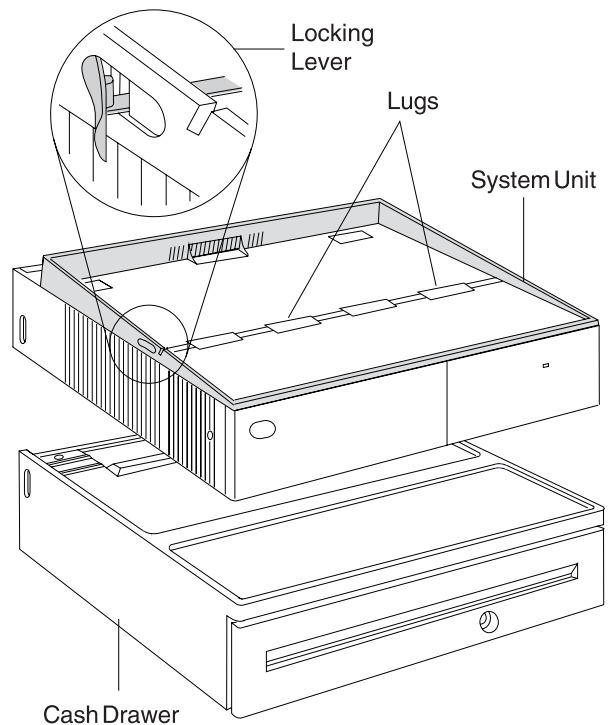


Figure 1-16. I/O Device Removal

## Removing and Replacing the Top Cover

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Remove the rear cover. See page 1-86.
- 4 Remove the I/O devices from the top of the terminal. See page 1-88.
- 5 Disengage the cover from the terminal and lift off.  
**Note:** This may require the use of a screwdriver to gently pry at the cover latching points. See Figure 1-17.
- 6 To exchange the top cover, align the cover at the latching points and reverse this procedure.

## Removing and Replacing the Side Covers

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Remove the front panel. See page 1-79.

- 4 Remove the I/O devices from the top of the terminal.
- 5 Remove the rear cover. See page 1-86.
- 6 Remove the top cover from the top of the terminal.
- 7 From the rear of the terminal, press the latching tabs on the inside rear of each side cover while pushing the cover forward until it becomes disengaged. See Figure 1-15 on page 1-87.
- 8 To exchange the side covers, reverse this procedure.

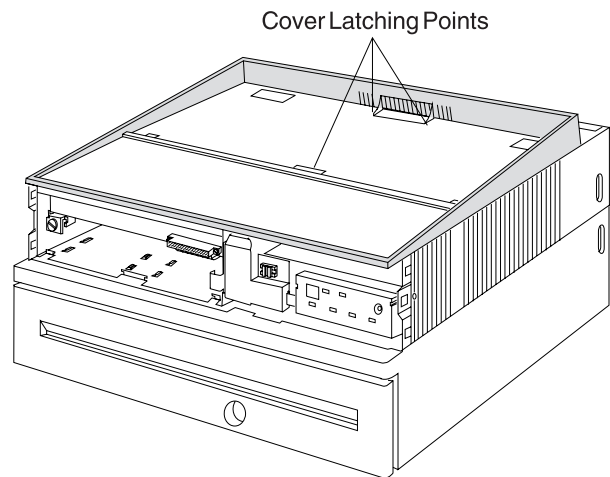


Figure 1-17. Top Cover

## Removing and Replacing the Keylock Insert

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 See Figure 1-18 for identification of the lock pieces.
- 4 Unlock the keylock.
- 5 Insert the lock installation-removal key (B) fully into the lock insert (E).  
**Note:** The installation-removal key is shipped with the store controller.
- 6 Pivot the key slightly downward while pulling the lock insert out of the cylinder (F) until the insert is disengaged from the cylinder.
- 7 When exchanging the lock insert, it fits all the way into the lock cylinder only when the slot in the bottom of the cylinder and the lug on the end of the insert are both in alignment. If necessary, insert the aligner tool (A) into the lock cylinder and rotate it until you feel it engage the slot at the bottom of the cylinder. Then turn the aligner tool until the arrow points to the left.
- 8 Remove the key that came with the new lock insert.
- 9 Push the brass installation-removal key into the lock insert. Be sure the key is FULLY INSERTED.
- 10 With the brass installation-removal key still in the lock insert, push the lock insert fully into the lock cylinder.
- 11 Hold the insert in place with your finger and remove the installation-removal key.
- 12 Test the lock using the keys that came with the insert to be sure that the lock operates correctly.

## Removing and Replacing the Blank Keylock Insert

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.  
See Figure 1-18 for identification of the lock pieces.  
**Note:** The blank lock insert handle (C) is shipped with the store controller.
- 3 Insert the blank keylock insert handle into the blank keylock cylinder (D).
- 4 Using the blank keylock insert handle, turn the locking screw counterclockwise until the insert can be removed from the cylinder.
- 5 When exchanging the blank lock insert, the insert has a lug on one end that must be aligned with the slot in the bottom of the lock cylinder. Hold the blank lock insert so that the lug is aligned with the slot.
- 6 Push the blank lock insert into the empty lock cylinder until it is flush with the top of the lock cylinder.
- 7 Use the blank lock insert handle to turn the locking screw clockwise until it reaches the bottom of the hole. Do not overtighten.

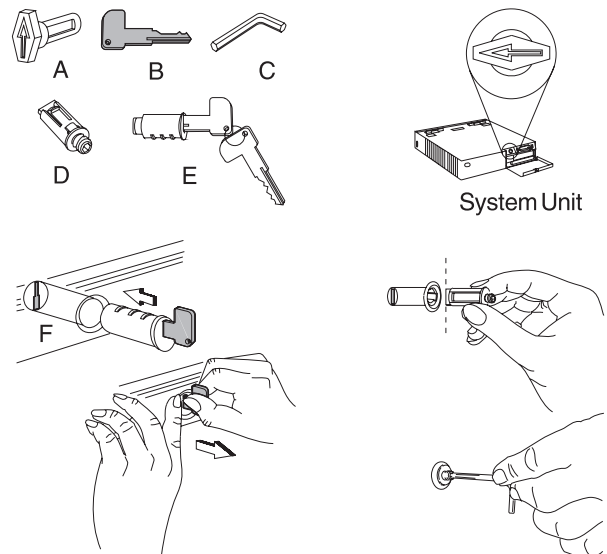


Figure 1-18. Keylock Removal and Replacement



## Removing the Power-On Password

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 1-78.

**Note:** This procedure should only be used when servicing a terminal that has an active, unknown, power-on password.

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Follow the instructions to remove the logic tray. See page 1-83.

**Note:** You only have to pull the logic tray out far enough to gain access to the jumper which is located on the front left corner of the logic board when viewed from the front. See Figure 1-19 or Figure 1-20 (for model 3W1).

- 4 The jumper is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to.

The system detects the change during power up and removes the password. You do not need to move the jumper back to its original position.

To reactivate the password, the user must load the system programs and select START UTILITIES from the main menu. Then select SET PASSWORD and follow the instructions that are displayed.

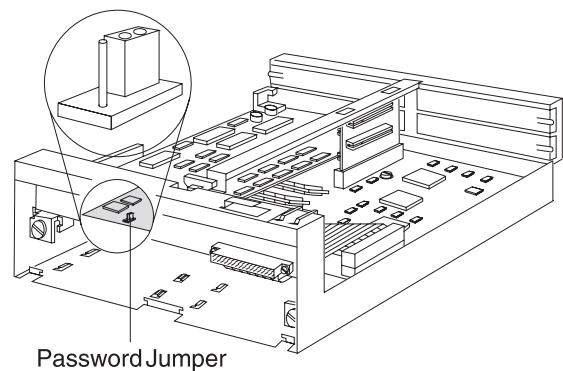


Figure 1-19. Password Jumper

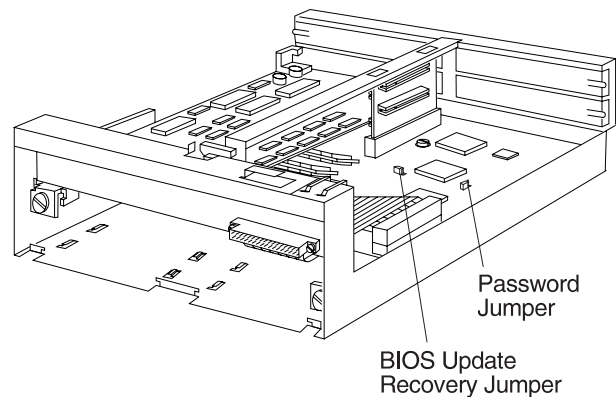


Figure 1-20. Password Jumper (Model 3W1)

## Removing and Replacing an Extended Duration Battery

- 1 Remove the power supply. See page 1-81.
- 2 Remove the battery and plenum assembly from the power supply.
- 3 Remove the cooling fan from the plenum.
- 4 Install the new battery and plenum assembly onto the power supply by aligning the tabs at the top of the plenum with the cutouts in the top of the power supply. Pivot the assembly downward while aligning the locating tabs at the bottom of the plenum with the cutouts in the side of the power supply. Press downward until the plenum snaps into place. See Figure 1-21.
- 5 Install the fan into the plenum so that the air flow arrows on the plenum and the fan housing are pointing in the same direction. Push the top of the fan in first, then snap it in at the bottom.  
**Note:** The air flow direction is **into** the power supply from the logic tray area.
- 6 Plug the fan cable into the connector on the power supply.
- 7 Reinstall the power supply. See page 1-81.  
**Note:** Be sure to install the new interlock assembly supplied with the battery and plenum assembly.

### Storage Retention Batteries

Return used **Ni Cd** (storage retention) batteries to IBM for disposal.

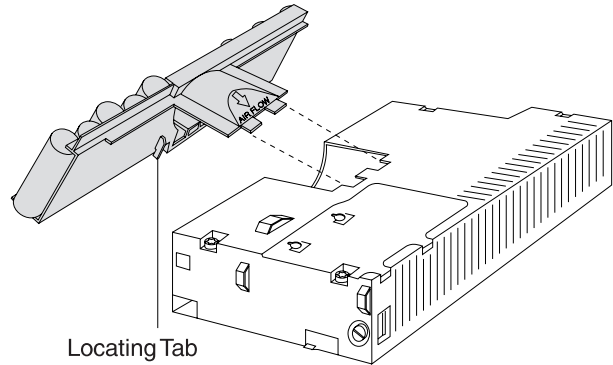


Figure 1-21. Installing the Plenum and Battery Assembly

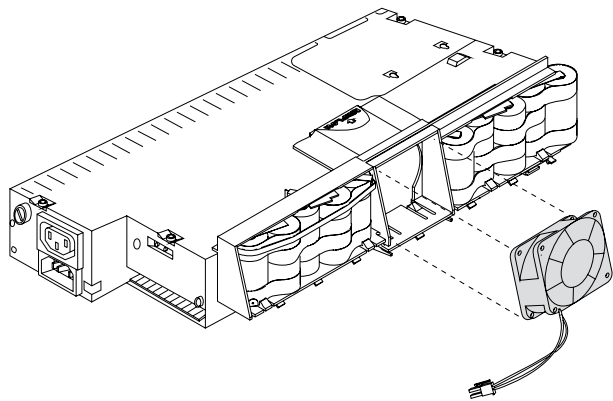


Figure 1-22. Installing the Fan

---

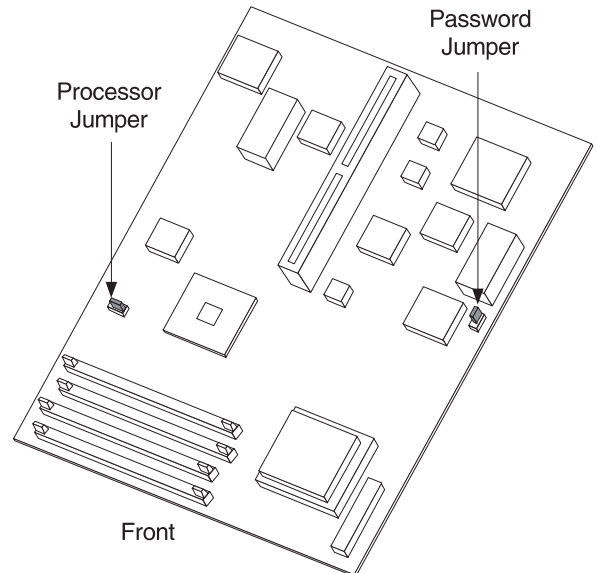
## 4693 Model 741 Processor Jumper Information

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page x.

**Note:** This procedure should only be used when changing the main processor from a 486SX to any other processor.

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Remove the logic tray. See page 1-83.  
**Note:** You only have to pull the logic tray out far enough to gain access to the processor jumper.
- 4 The processor jumper is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to.

The system detects the change during POST. You do not need to move the jumper back to its original position.



## Removing the Power-On Password

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page x.

**Note:** This procedure should only be used when servicing a terminal that has an active, unknown, power-on password.

- 1 Switch Ready mode OFF.
- 2 Disconnect the AC power cords from the rear connector panel.
- 3 Remove the logic tray. See page 1-83.  
**Note:** You only have to pull the logic tray out far enough to gain access to the jumper. See Figure 1-23 and Figure 1-24.
- 4 The password jumper is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to.

The system detects the change during POST and removes the password. You do not need to move the jumper back to its original position.

To reactivate the password, the user must load the system programs and select START UTILITIES from the main menu. Then select SET PASSWORD and follow the instructions that are displayed.

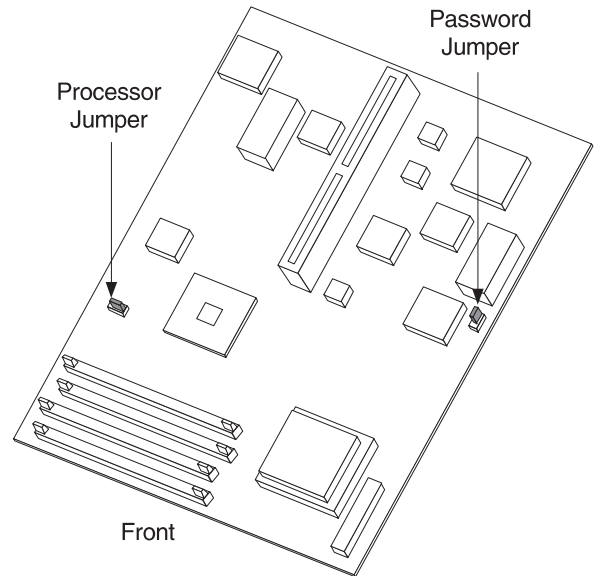


Figure 1-23. 4693 Model 741 Password Jumper Location

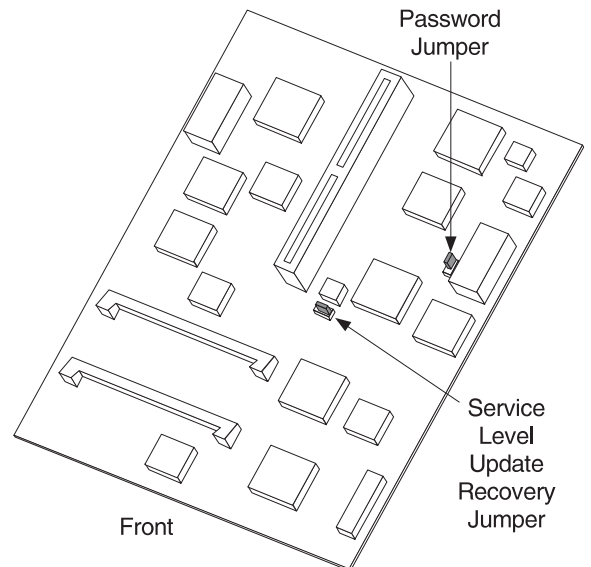


Figure 1-24. 4693 Model 3W1 Password Jumper Location

---

## Chapter 2. Start Here for 4694 Problems

### DANGER

Never work on equipment or connect or disconnect signal cables during periods of lightning activity.

### CAUTION:

For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.

Problems with the 4694 can be caused by both software errors or hardware failures. This chapter contains troubleshooting information to help you determine the cause of a problem and how to solve it.

Use Table 2-1 to determine the page number to go to by cross-referencing the task to be performed.

*Table 2-1. 4694 Task Information*

| <b>TASK</b>   | <b>Page</b> |
|---|-------------|
| <b>Start 4694 Problem Determination</b>               | 2-2         |
| Look up a 4694 message or beep code                   | 2-5         |
| Look up a 4694 symptom                                | 2-3         |
| Run tests on a 4694 point-of-sale terminal            | 2-8         |
| Remove and exchange a 4694 Model 001, 004, or 024 FRU | 2-11        |
| Remove and exchange a 4694 Model 041, 044, or 144 FRU | 2-17        |
| Perform a maintenance inspection                      | B-1         |
| Perform preventive maintenance                        | C-1         |
| Special tools you may need                            | D-1         |

---

## 4694 Problem Determination

Begin each service call by checking all items in the preliminary checklist. If, after performing all the steps, a problem still exists, see the “4694 Symptom Table” on page 2-3 to continue problem determination.

### Preliminary Checklist

- 1** Observe the power light (behind the door on the front). If it is not ON, go to “4694 Symptom Table” on page 2-3.
- 2** Ensure that the I/O device cables are securely and correctly connected.
- 3** Ensure that the I/O devices that have their own power switch are connected to a good AC power outlet and are powered ON.
- 4** Ensure the contrast and brightness controls on the video display (if attached) are set correctly.
- 5** Ensure that the correct diskette is inserted.
- 6** Ensure that all hardware devices installed (such as a memory module, feature card, printer, or mouse) are connected correctly and securely.
- 7** **POWER OFF** then ON and listen for beep(s) at the completion of POST. Indications of a successful completion of POST are:
  - An **OK** is displayed on all point-of-sale displays
  - Point-of-sale keyboards beep 3 times
  - The point-of-sale printer prints a test pattern
  - System unit beeps one time.

If none of the successful POST indications occur on any I/O device, the 4694 system unit is failing. See “4694 Symptom Table” on page 2-3.


If, for example, the POS display fails to display **OK** but the POS keyboard does beep 3 times, this is an indication that the POST was successful and the display and/or cable is failing.

If the problem still exists after performing these preliminary checks, record any error codes. See “POST/Beep Messages” on page 2-5 for a list of error codes and messages. If you have no error message, see “4694 Symptom Table” on page 2-3.

---

## 4694 Symptom Table

| If the problem is...  | Here's what to do...  |
|---|---|
| The power light (behind the door in the front) is OFF.  | <ul style="list-style-type: none"><li>• Check that the AC power cord is plugged into both the wall outlet and the back of the terminal.</li><li>• Check that the terminal is powered on.</li><li>• Ensure that AC power is present at the wall outlet.</li><li>• Disconnect all attached devices and feature cards to determine if one is overloading the power supply. If the power light returns, reconnect them one at a time to determine the failing FRU.</li><li>• Exchange the power supply. See page 2-14 for Models 001, 004, or 024 or see page 2-19 for Models 041, 044, or 144.</li><li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li></ul> |
| Terminal is not working at all.   | <ul style="list-style-type: none"><li>• <b>POWER OFF</b>, wait 5 seconds, then switch power ON. Check that the power light on the front panel is ON. Look for a POST error message and listen for a beep at the completion of POST.</li><li>• Check for a blown fuse, tripped circuit breaker, or power failure. (First, check at the fuse or breaker box, then inside the terminal.)</li><li>• Check that all cables are securely connected to the terminal.</li><li>• Check that the correct software is installed.</li></ul>   |
| No beep occurs after POST. This symptom applies only if no POS keyboard is attached. See "POS keyboard does not beep three times after POST". | <ul style="list-style-type: none"><li>• Check for messages displayed during POST.</li><li>• Check that the power light on the front panel is ON.</li><li>• Check that all memory modules and feature cards are installed correctly.</li><li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li></ul>  |
| POS keyboard does not beep three times after POST. This symptom applies only if a POS keyboard is attached. See "No beep after POST".         | <ul style="list-style-type: none"><li>• Check that the power light on the front panel is ON.</li><li>• Check that all memory modules and feature cards are installed correctly.</li><li>• Check for an <b>OK</b> displayed on the POS display (if attached) after POST. If OK is not displayed, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li><li>• Check for a printer test pattern printed on the POS printer (if attached) after POST. If no test pattern is printed, exchange the system board.</li><li>• Exchange the POS keyboard.</li></ul>   |
| POS display does not display <b>OK</b> after POST. This symptom applies only if a POS display is attached.                                    | <ul style="list-style-type: none"><li>• Check that the power light on the front panel is ON.</li><li>• Check that all memory modules and feature cards are installed correctly.</li><li>• Listen for three beeps from the POS keyboard (if attached) after POST. If you do not hear three beeps, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li><li>• Check for a printer test pattern printed on the POS printer (if attached) after POST. If no test pattern is printed, exchange the system board.</li><li>• Exchange the POS display.</li></ul>  |
| POS printer does not print a test pattern after POST. This symptom applies only if a POS printer is attached.                                 | <ul style="list-style-type: none"><li>• Check that the power light on the front panel is ON.</li><li>• Check that all memory modules and feature cards are installed correctly.</li><li>• Listen for three beeps from the POS keyboard (if attached) after POST. If you do not hear three beeps, exchange the system board.</li><li>• Check for an <b>OK</b> displayed on the POS display (if attached) after POST. If OK is not displayed, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li><li>• Service the POS printer.</li></ul>  |
| A beep sequence or a continuous beep occurs after POST.   | <ul style="list-style-type: none"><li>• See "POST/Beep Messages" on page 2-5 for beep sequences.</li><li>• Check that all memory modules and feature cards are installed correctly.</li><li>• See "POST/Beep Messages" on page 2-5 for explanation of POST messages and beep codes.</li></ul>   |

| If the problem is...                     | Here's what to do...   |
|--|--|
| A POST error message is displayed.       | Go to "POST/Beep Messages" on page 2-5.  |
| Diskette does not load.                  | <ul style="list-style-type: none"> <li>• Make sure you are using the correct type of diskette and that it is formatted correctly.</li> <li>• Ensure that the diskette is inserted into the drive correctly.</li> <li>• Try to read a known good diskette. If it works, the first diskette may be defective.</li> <li>• Try loading the 4694 service diskette to test the diskette drive.</li> <li>• Exchange the diskette drive and cable. See page 2-13 for Models 001, 004, or 024 or see page 2-18 for Models 041, 044, or 144.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li> </ul>   |
| Cannot write information to diskette.    | <ul style="list-style-type: none"> <li>• Ensure that the diskette is formatted correctly.</li> <li>• Ensure that the diskette is not write protected.</li> <li>• Ensure that you are sending information to the correct drive.</li> <li>• Ensure that there is space on the diskette for the information. (Try using a blank, formatted diskette.)</li> <li>• Try loading the 4694 service diskette to test the diskette drive.</li> <li>• Exchange the diskette drive and cable. See page 2-13 for Models 001, 004, or 024 or see page 2-18 for Models 041, 044 or 144.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li> </ul>   |
| One or more POS I/O devices are failing. | <ul style="list-style-type: none"> <li>• Ensure that the I/O devices are securely and correctly connected to the 4694 system unit.</li> <li>• If the device has its own power cord and power switch, ensure that it has power and the power switch is ON.</li> <li>• Try exchanging the failing device with a known good one (if available) to help in isolating the failure.</li> <li>• The keyboard, mouse, and printer use +5 V DC. Check the +5 V DC fuse inside the system unit. <ul style="list-style-type: none"> <li>– If the fuse is blown, exchange it and verify that it does not blow again immediately.</li> <li>– If the fuse blows again, disconnect the keyboard, mouse, and printer from the rear connector panel.</li> </ul> <p><b>Note:</b> The print head may be damaged when the +5 V DC fuse blows. Check the printer before completing the service call.</p> <ul style="list-style-type: none"> <li>– If the fuse continues to blow with the devices disconnected, exchange the system board.</li> <li>– If the fuse does not blow with the devices disconnected, reconnect them, one at a time, to determine which is causing the fuse to blow.</li> </ul> </li> <li>• Load the 4694 service diskette to test the I/O devices. <ul style="list-style-type: none"> <li>– If the scanner is failing, use the reference documentation that came with the scanner.</li> <li>– If the keyboard attached to the 5  socket at the rear of the 4694 is failing: <ul style="list-style-type: none"> <li>- Move your fingers across the keys. Make sure no keys are stuck.</li> <li>- Make sure you are on a screen that allows typing. Some screens do not.</li> <li>- Exchange the keyboard and cable.</li> </ul> </li> <li>– If the cash drawer, point-of-sale keyboard, or point-of-sale printer is failing, use the <i>Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices</i> to service them.</li> <li>– If the video display is failing, use the reference documentation that came with the display.</li> </ul> </li> </ul> |



| <b>If the problem is...</b>  | <b>Here's what to do...</b>   |
|--|---|
| An optional feature adapter is failing   | See the reference documentation that came with the adapter for service information.   |
| Video display is failing:<br><br>Totally blank screen<br>No cursor displayed<br>Screen is unreadable<br>Other display problems | <ul style="list-style-type: none"> <li>• Check that the video display cables are securely connected.</li> <li>• Ensure that the video display power cord is connected and power is ON.</li> <li>• Check that the power indicator lights are on at the 4694 and the video display.</li> <li>• Adjust contrast and brightness controls on the display.</li> <li>• Look for an <b>OK</b> displayed on the POS display (if attached). This indicates that the 4694 system board is probably ok.</li> <li>• Listen for beeps when power is switched ON. If you have a POS keyboard, you should hear three beeps after POST. If you have only a PC-type keyboard, you should hear one beep. See "POST/Beep Messages" on page 2-5 for beep codes.</li> <li>• Use the reference documentation that came with the display (if any).</li> <li>• Exchange the video display.</li> <li>• Exchange the VGA card and cable. See page 2-13 for Models 001, 004, or 024.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li> </ul> |
| LAN activity <b>LED #1</b> (yellow) at the rear of the 4694 is on solid (not blinking).  | The LAN is sending more than 512 bytes of data or the transmit line is stuck on. If this problem persists, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.   |
| LAN activity <b>LED #2</b> (yellow) at the rear of the 4694 is blinking.   | The LAN adapter has detected that it collided with another LAN adapter trying to transmit at the same time. This is a normal condition.   |
| LAN activity <b>LED #3</b> (green) at the rear of the 4694 is not blinking.  | This LED blinks when data is detected on the LAN. If LED #3 never comes on, contact the network administrator.  |
| LAN activity <b>LED #4</b> (green) at the rear of the 4694 is not blinking.  | This LED blinks when the LAN adapter transmit line is active. If LED #4 never comes on, contact the network administrator or exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.   |

## POST/Beep Messages

**Note:** When using application software, error messages that pertain to the application may be displayed. See the appropriate software manual for a description of those messages.

| <b>If the message is...</b>              | <b>Description</b>             | <b>Here's what to do...</b>                  |
|--|--------------------------------|--|
| Three beeps from POS keyboard after POST | Successful completion of POST. | For information only. No action is required. |
| One beep from 4694 after POST            | Successful completion of POST. | For information only. No action is required. |
| 170<br>Beep = 3-2-3                      | CMOS programming complete.     | For information only. No action is required. |
| 172                                      | CMOS programming in process.   | For information only. No action is required. |

| If the message is...   | Description                                  | Here's what to do...   |
|--|--|--|
| 173  | CMOS programming is unsuccessful.            | Try again. If failure persists: <ul style="list-style-type: none"> <li>• Try creating a new diskette.</li> <li>• Exchange the diskette drive and cable. See page 2-13 for Models 001, 004, or 024 or see page 2-18 for Models 041, 044, or 144.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li> </ul>                           |
| 174<br>Beep = 3-3-2  | CMOS is corrupt.                             | Switch <b>POWER OFF</b> then ON again. Usually CMOS recovers successfully. Otherwise, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.  |
| 990<br>Beep = 1-1-1  | BIOS programming is complete.                | For information only. No action is required.   |
| 997<br>Beep = 3-2-3  | BIOS programming is unsuccessful.            | Try again. If failure persists: <ul style="list-style-type: none"> <li>• Try creating a new diskette.</li> <li>• Exchange the diskette drive and cable. See page 2-13 for Models 001, 004, or 024 or see page 2-18 for Models 041, 044, or 144.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li> </ul>                            |
| 998  | BIOS programming is in process.              | For information only. No action is required.   |
| 999<br>Beep = 1-1-4  | BIOS is corrupted.                           | Exchange the system board or call your support organization for assistance in reprogramming the BIOS. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.   |
| Blank video<br>Beep = 3-2-4                                    | Keyboard controller test failed during POST. | Check the +5 V DC fuse on the system board. <ul style="list-style-type: none"> <li>• If the fuse is OK, exchange the system board.</li> <li>• If the fuse is blown, see "4694 Symptom Table" on page 2-3.</li> </ul>   |
| Blank video<br>Beep = 1-1-1<br>(immediately after powering ON) | POST failure occurred.                       | Ensure that the memory modules are connected correctly and securely. <ul style="list-style-type: none"> <li>• If the memory modules are connected OK, exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li> <li>• Exchange the memory modules. See page 2-16 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044 or 144.</li> </ul> |
| Beep = 3-4-1   | VGA card not found.                          | <ul style="list-style-type: none"> <li>• If a video display is attached, ensure that a VGA card is present. See Figure 2-3 on page 2-13.</li> <li>• If a video display is attached and the VGA card is present, exchange the VGA card. See page 2-13 for Models 001, 004, or 024.</li> <li>• If no video display is attached, you must run configuration to remove VGA from the configuration record.</li> </ul>   |

| If the message is...                       | Description  | Here's what to do...  |
|--|--|---|
| Stops with U001 displayed (on POS display) | Display is not communicating on device channel.  | <ul style="list-style-type: none"> <li>• Ensure that the memory modules are connected correctly and securely.</li> <li>• <b>POWER OFF</b> then ON and listen for beep(s) at the completion of POST. A single beep indicates a successful completion. No beep(s) or more than one indicates a failure. If a failure is indicated, see "4694 Symptom Table" on page 2-3.</li> <li>• Disconnect all POS devices except the display, one at a time, to determine if one is causing the failure.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li> <li>• Exchange the POS display.</li> </ul> |
| Stops with U003 displayed (on POS display) | Display is communicating on device channel but no program loading occurs from the boot device (diskette, fixed disk, LAN). | <ul style="list-style-type: none"> <li>• Try booting a known good diskette.</li> <li>• Ensure that the correct diskette is in the diskette drive.</li> <li>• Exchange the system board. See page 2-15 for Models 001, 004, or 024 or see page 2-20 for Models 041, 044, or 144.</li> </ul>  |

## Testing the 4694

The 4694 service diskette (SX27-3933) provides menu driven tests and utilities for testing and isolating a failing 4694 FRU. It is intended for use by trained service personnel. This diskette is not shipped with your terminal, but can be purchased from IBM.

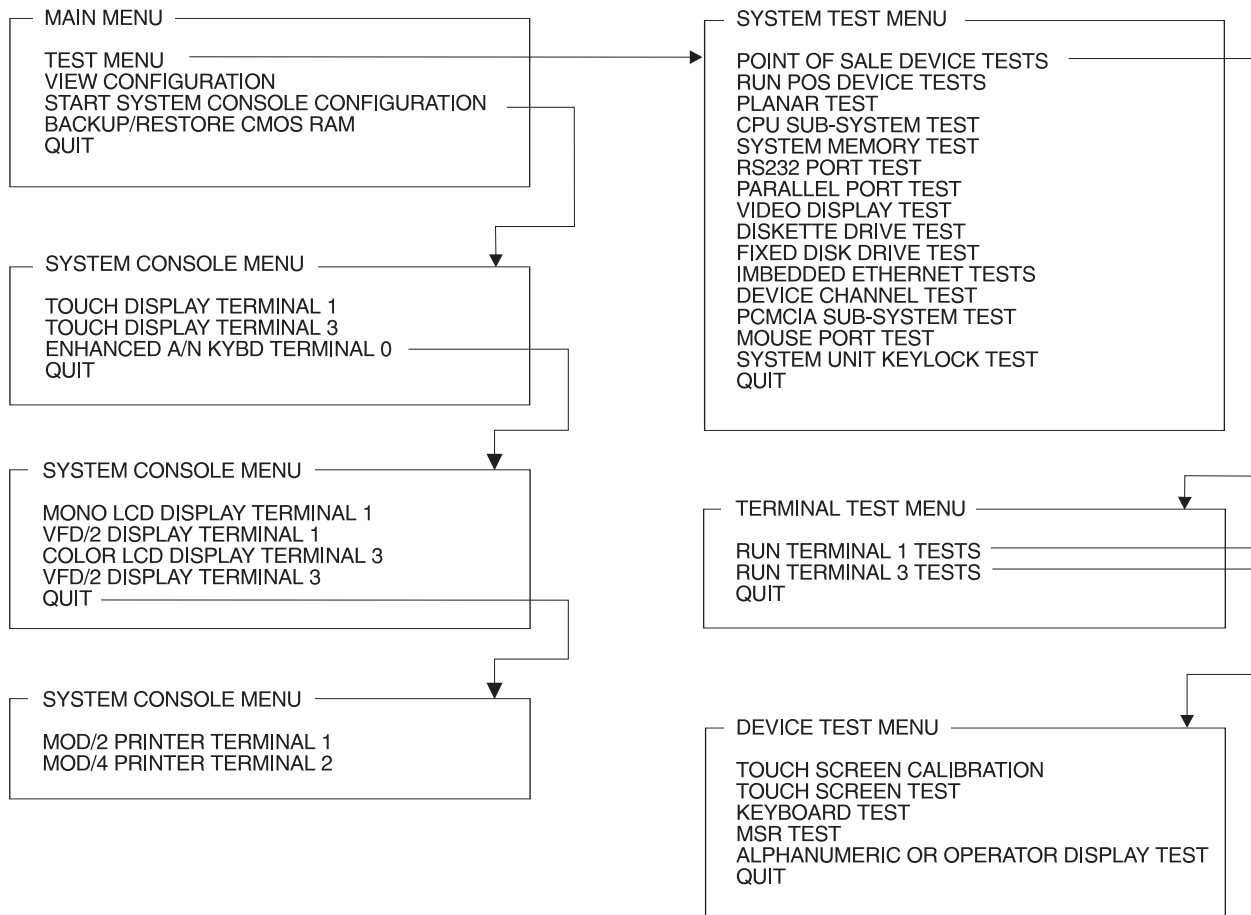
When the 4694 is booted with the service diskette, point-of-sale devices are automatically configured. You should follow any displayed instructions. When the MAIN MENU appears you can select the desired test or utility.

## Service Diskette Menus

The menus appear differently depending upon the type of devices attached. If a video display is attached, the menus appear with all possible menu items displayed together. If no video display is attached, each menu is displayed, one menu item at a time on the top line of the display. Your choice of responses is displayed on the bottom line of the display. Depending upon your response, the program either goes to the next item in the menu, goes to another menu, or guides you through the choice that you selected.

The TEST menus contain only those devices that are attached and configured.

The service diskette menu flow is as follows:



## Point-of-Sale Device Tests

A test is provided for each of the point-of-sale devices such as:

- Cash drawer port
- Customer display
- Keyboard
- Printer
- Scanner

## System Unit Tests

A test is provided for each of the system unit devices such as:

- CPU sub-system
- System memory
- Mouse port
- Serial (RS232) port
- VGA sub-system
- PCMCIA sub-system
- PC Printer
- Diskette drive
- Fixed disk drive

## Utilities

The following utilities are provided on the service diskette:

- Backup service diskette
- Set system date and time

## Viewing Configuration

There are two view configuration selections:

- View system configuration
- View POS configuration

When you view system configuration, the following information is displayed:

- CPU type
- DRAM RAM size
- ASIC I/O usage
- NVRAM address usage
- SIO IRQ level
- Shared memory address usage
- Flash memory write enable/disable
- Fixed disk drive
- Diskette drive
- LAN boot ROM address
- LAN adapter IRQ
- LAN adapter usage
- LAN IEEE ID
- PCMCIA adapter installed/not installed
- PCMCIA adapter address usage
- VGA card installed/not installed
- VGA address usage
- VGA monitor type selection

## System Configuration Menus

When you start the system configuration program, the first menu you see is "STANDARD SYSTEM PARAMETERS". Many of these values are set automatically by the program when you power on the terminal and are not configurable. In the above menu, you can change the system date and time, and enable or disable the COM ports.

Using the cursor keys, select the option that you want to change. Press the + or – keys to change the value. If you want more help, press the **F1** key.

Press the **PgDn** key to see the next page of the system configuration menu, "BOOT SEQUENCE". All items on the second menu are configurable. **BOOT SOURCE** refers to the order in which POST looks for a valid boot load. A standard PC looks first at drive A; then at drive C. Most PCs typically have no third boot source. The 4694 does have a third option since it can perform a remote program load (RPL) off of a LAN using the IBM Ethernet Remote Program Load protocol.

**Note:** For the 4694 Model 144, all RPL protocol settings enable the RPL ROM into adapter address range C8000-CFFFF. If you are not using the RPL protocol option, select the LAN Adapter option setting. This disables the RPL ROM and makes address range C8000-CFFFF available for other adapters to use. To invoke the system program, switch power ON. Then press F2, when prompted by the display.

The POS adapter options refer to memory addresses and interrupt levels used by the integrated POS adapter. Unless you are using non-IBM POS device drivers, you should not change these values.

Press **ESC** to exit the system configuration menus (and create the system configuration diskette if using the CSETUP program).

---

## 4694 Models 001, 004, and 024 Removals and Replacements

These procedures provide step-by-step instructions for removing and replacing field replaceable units (FRUs) for the 4694 Models 001, 004, and 024. For the procedures for 4694 Models 041, 044, and 144 see “4694 Models 041, 044, and 144 Removals and Replacements” on page 2-17. These procedures are designed for a trained service person.

### Electrostatic Discharge (ESD)

**Attention** ESD damage can occur when there is a difference in charge between the part, the product, and the service person. No damage occurs if the service person and the part being installed are at the same charge level.

#### ESD Damage Prevention

Anytime a service action involves physical contact with logic cards, modules, back-panel pins, or other ESD sensitive (ESDS) parts, the service person must be connected to an ESD common ground point on the product through the ESD wrist strap and cord.

The ESD ground clip can be attached to any frame ground, ground braid, green wire ground, or the round ground prong on the AC power plug. Coax or connector outside shells can also be used.

#### Handling Removed Cards

Logic cards removed from a product should be placed in ESD protective containers. No other object should be allowed inside the ESD container with the logic card. Attach tags or reports that must accompany the card to the outside of the container.

## Removing and Replacing the Covers

- 1** **POWER OFF** the 4694 and any attached devices that have a power ON/OFF switch.
- 2** Disconnect the 4694 power cord from the electrical outlet.
- 3** Disconnect the power cord for any external devices from the electrical outlet.
- 4** Remove the rear modesty cover by sliding it upward.
- 5** Take note of the cable connections for all I/O devices before disconnecting them.
- 6** Disconnect and remove the keyboard, printer, display, and any other I/O devices from the top of the system unit.
- 7** Press down on the spring catch at the rear, under side of the top cover and slide the cover to the rear until it stops.
- 8** Flex the sides of the top cover outward and pull upward until the cover is free.
- 9** To remove the top metal cover, remove the mounting screw and lift the cover to an angle of about 30 degrees. The cover can now be disengaged from the base by moving the cover in the direction shown in Figure 2-1.

- 10** To exchange the covers, reverse this procedure.

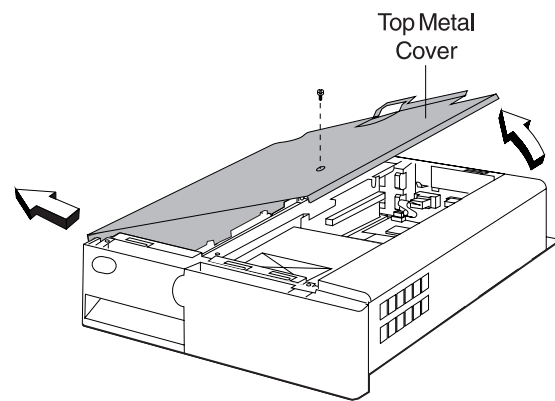
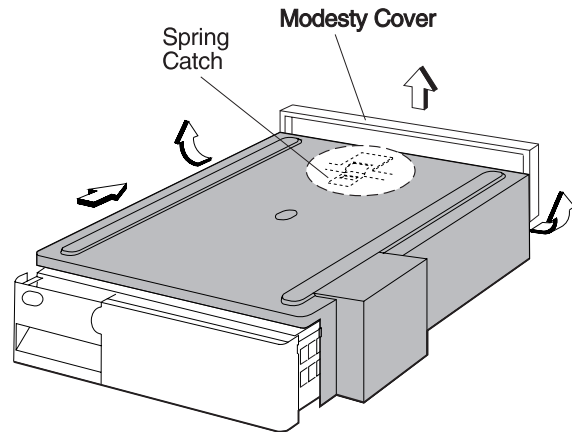


Figure 2-1. Cover Removal



## Removing and Replacing the Diskette Drive or Fixed Disk Drive

- 1 Remove the covers. See page 2-12.
- 2 Remove the spline from the chassis. See Figure 2-5 on page 2-14.
- 3 Note of the plug location of the cables at the rear of the drives and disconnect them. It may help to disconnect the flat cables at the system board also.
- 4 Release the locking catch on the file bucket by using a flat blade screwdriver as shown in Figure 2-2. At the same time, slide the file bucket to the rear until the bucket clears the guides.
- 5 Once the guides have been cleared, lift the file bucket up and out of the chassis.
- 6 Remove the four screws that retain the drive in the file bucket and slide the drive out.
- 7 To exchange the drive, reverse this procedure.

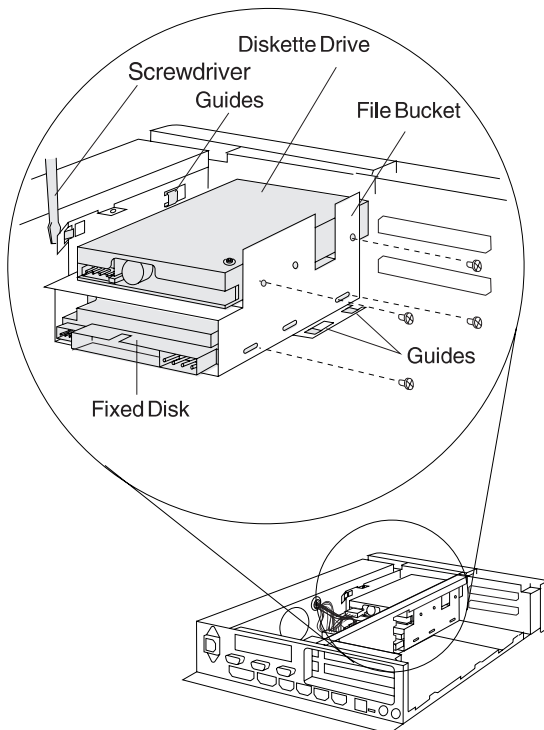


Figure 2-2. Diskette and Fixed Disk Drive

## Removing and Replacing the VGA Card

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 Remove the covers. See page 2-12.
- 2 Remove any feature cards.
- 3 Remove the two screws that hold the central spline and remove it.
- 4 If the PCMCIA card is present, remove the mounting screw.
- 5 Remove the riser card and PCMCIA card (if present) together from the system board.
- 6 Disconnect the VGA cable from the VGA card.
- 7 Lift and remove the VGA card from the system board.
- 8 To exchange the VGA card, reverse this procedure.

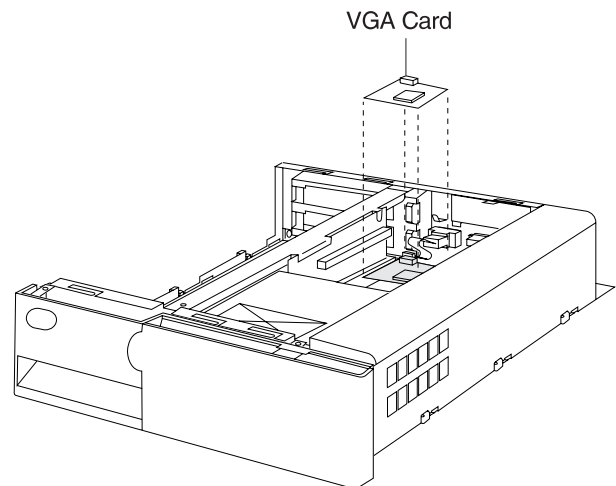


Figure 2-3. VGA Card Removal

## Removing and Replacing the Power Supply

- 1 Remove the covers. See page 2-12.
- 2 Take note of the location of all power supply cables that connect to the drives and to the system board and disconnect them.
- 3 Remove the two screws that attach the front cover assembly to the chassis.
- 4 Tilt the cover assembly at a 30 degree angle and lift it off the front of the chassis.
- 5 Remove the two screws at the rear of the 4694 that attach the power supply to the chassis.
- 6 If the optional PCMCIA card is installed, remove the screw that attaches it to the tab on the power supply.
- 7 Slide the power supply toward the front (see arrows in Figure 2-4) until it stops, then lift it from the chassis. If the PCMCIA card is installed, it must clear the supporting tab before the power supply can be lifted out.
- 8 To exchange the power supply, reverse this procedure.

### Notes:

- a. When reinstalling the power supply in a 4694 with a PCMCIA card, ensure that the tab returns to its position under the card.
- b. After the power supply has been installed so that it touches the rear of the chassis, ensure that the slot guide on the bottom of the power supply is engaged with the chassis.

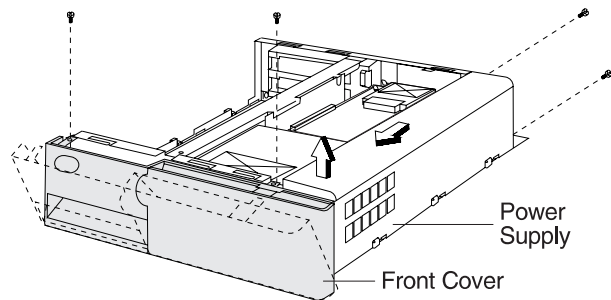


Figure 2-4. Removing Front Cover and Power Supply

## Removing and Replacing the Riser Card and PCMCIA Card

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 Remove the covers. See page 2-12.
- 2 Remove any feature cards plugged into the riser card.
- 3 Remove the two screws that attach the spline and lift it off the chassis.
- 4 If a PCMCIA card is installed, remove the screw that attaches it to the power supply.
- 5 Unplug the riser card from the system board and lift it out.
- 6 Unplug the PCMCIA card from the riser card.
- 7 To exchange the riser card or PCMCIA card, reverse this procedure.

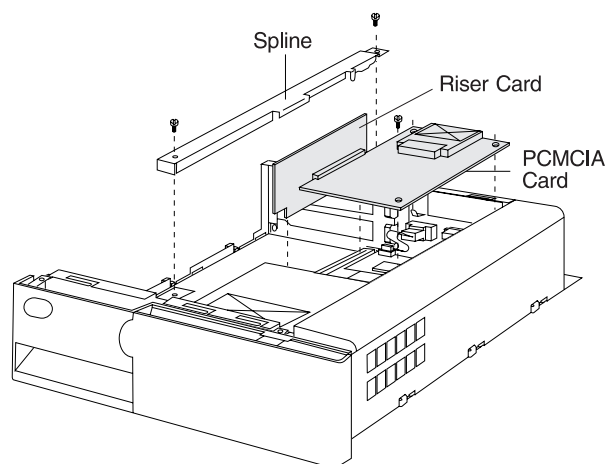


Figure 2-5. Riser Card and PCMCIA Card Removal

## Removing and Replacing the System Board

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

**Note:** This board contains a non-replaceable lithium battery within a board component.

- 1** Remove the covers. See page 2-12.
- 2** Remove any feature cards.
- 3** Remove the spline, riser card, and the PCMCIA card, if present. See page 2-14.
- 4** Remove the memory modules. See page 2-16.
- 5** If the VGA card is installed on the system board, unplug and lift it off the board. See Figure 2-3 on page 2-13. The VGA card is to be reinstalled on the replacement system board before it is placed into the chassis.
- 6** Remove the file bucket assembly. Do not remove the files from the file bucket. See “Removing and Replacing the Diskette Drive or Fixed Disk Drive” on page 2-13.

### Notes:

- a. Note the plug locations of all cables on the system board. You need to replug them later.
- b. It is important to remove the memory modules from the system board being

exchanged. The replacement board does not come with memory modules installed.

- 7** Disconnect any remaining cables attached to the system board.
- 8** Locate and remove the five screws that attach the system board to the chassis.
- 9** Slide the system board toward the front of the chassis until the edge of the board clears the chassis.
- 10** Tilt the board upward and guide it out of the chassis.
- 11** To exchange the system board, reverse this procedure.

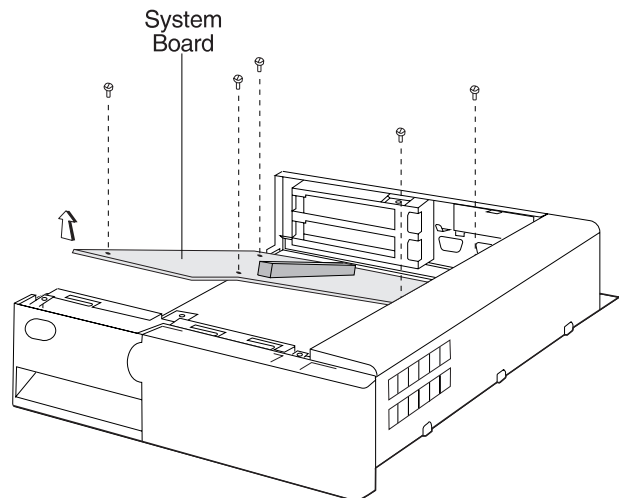


Figure 2-6. System Board Removal

## Removing and Replacing Memory Modules

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 Remove the covers. See page 2-12.
- 2 Remove any full length feature cards that cover the memory modules.
- 3 Follow any special handling instructions that came with the memory modules.
- 4 Release the retainers for all the memory modules, starting with the module closest to the rear of the system board. They pivot to the rear when released.
- 5 Remove the modules being exchanged.
- 6 To exchange the memory modules, reverse this procedure.

### Notes:

- a. Insert the memory modules into the socket with the component side of the module facing toward the front of the system board. Pivot all modules, starting with the one closest to the front of the system board, toward the front until they latch into the retainers.
- b. If only two modules are installed, they must be installed in the two slots closest to the front of the 4694.

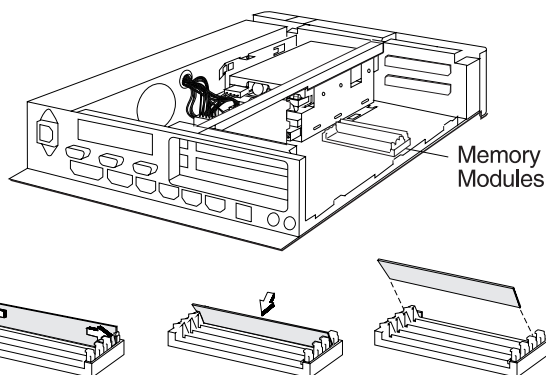


Figure 2-7. Memory Modules

There are four 30-pin memory module sockets on the 4694 system board. This makes two memory banks (Bank 0 and Bank 1). The 4694 comes with two 1 MB or two 4 MB memory modules installed. This fills two of the slots, SM1 and SM2 (Bank 0). You can install the following combinations of memory modules on the 4694 Models 001, 004, and 024:

| Total<br>Memory | Bank 0 |     | Bank 1 |     |
|-----------------|--------|-----|--------|-----|
|                 | SM1    | SM2 | SM3    | SM4 |
| 2 MB            | 1      | 1   | 0      | 0   |
| 4 MB            | 1      | 1   | 1      | 1   |
| 8 MB            | 4      | 4   | 0      | 0   |
| 16 MB           | 4      | 4   | 4      | 4   |

Table 2-2. Valid Memory Module Combinations – Models 001, 004, 024

---

## 4694 Models 041, 044, and 144 Removals and Replacements

### Removing and Replacing the Front Panel and Logic Tray

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 POWER OFF** the 4694 and any attached devices that have a power ON/OFF switch.
- Disconnect the 4694 power cord from the rear of the 4694.
- Disconnect the power cord for any external devices from the electrical outlet.
- Disconnect all cables attached at the rear of the terminal. Note the location of the cables to make it easier to reconnect them later.
- To disengage the front panel, press the buttons on each side at the front (one at a time) while gently pulling forward on each side of the panel until both sides are released from the latches. Press the release latch (behind the front door) and pull the panel off.
- Pull up on the logic tray latch to release it and then pull the tray forward until it can be removed from the terminal.
- To replace the logic tray, reverse this procedure.
- Reinstall the front panel.

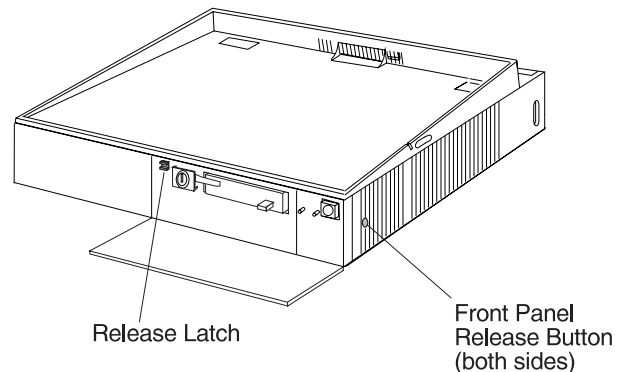


Figure 2-8. Front Panel Removal

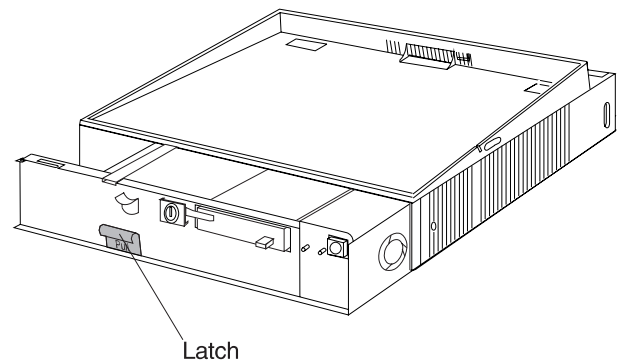


Figure 2-9. Logic Tray Removal

## Removing and Replacing the Diskette Drive or Fixed Disk Drive

- 1 Remove the front panel and logic tray. See page 2-17.
- 2 Note the plug location of the cables at the rear of the drives and disconnect them.
- 3 Release the tabs on the drive to be removed and slide it to the rear until it can be lifted out of the chassis.  
**Note:** When replacing the fixed disk, it may help to remove the diskette drive first.
- 4 Remove the two screws from the brackets attached to each side of the drive and remove the brackets.
- 5 Place the brackets onto the replacement drive and install the two screws for each bracket.
- 6 Slide the drive into position until it snaps into place.

- 7 Reconnect all cables.
- 8 Replace the logic tray and front panel.

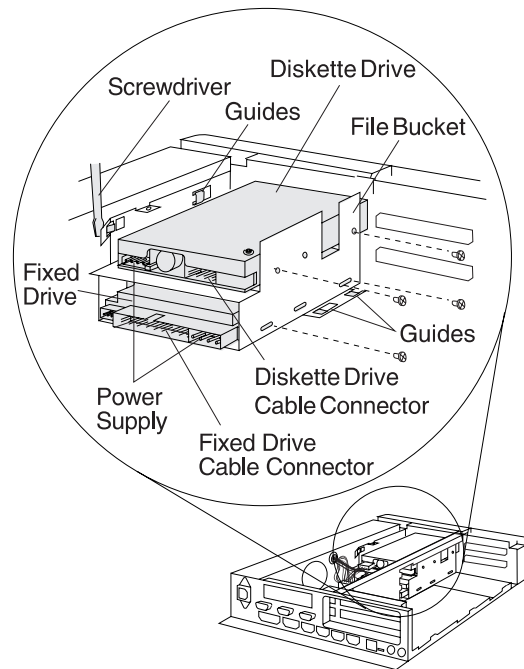


Figure 2-10. Diskette and Fixed Disk Drive

## Removing and Replacing the Power Supply

- 1 Remove the front panel and logic tray. See page 2-17.
- 2 Take note of the location of all power supply cables that connect to the drives and to the system board and disconnect them.
- 3 Remove the two screws at the rear of the 4694 that attach the power supply to the chassis. See Figure 2-11.

4 Slide the power supply toward the front. See Figure 2-11. until it stops, then lift it from the chassis.

- 5 To exchange the power supply, reverse this procedure.

**Note:** After the power supply has been installed so that it touches the rear of the chassis, ensure that the slot guide on the bottom of the power supply is engaged with the chassis.

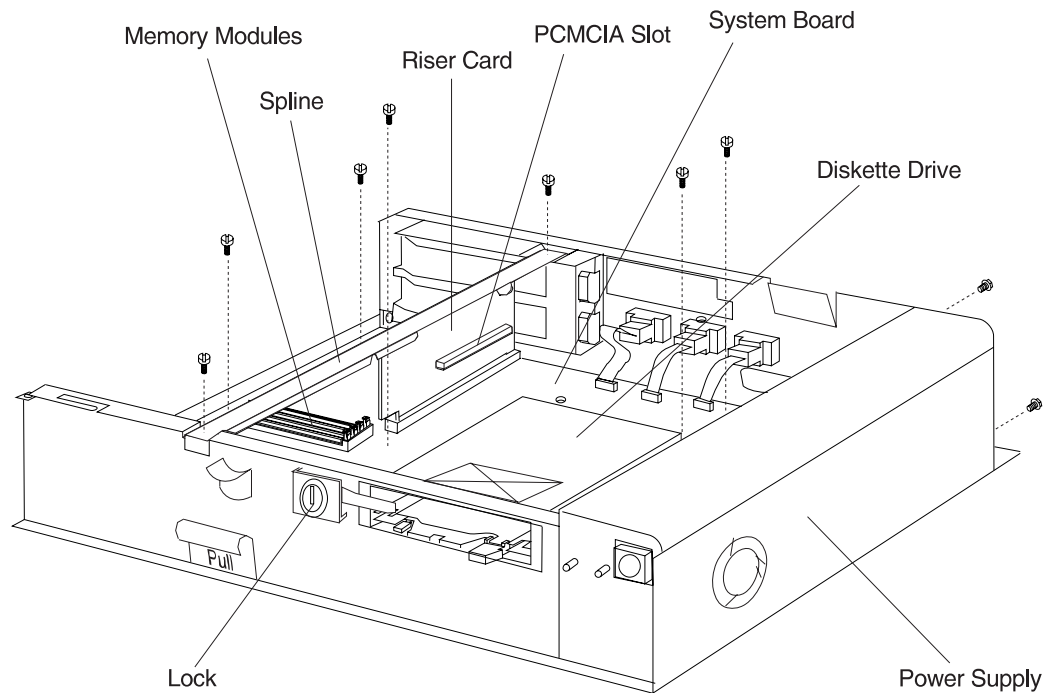


Figure 2-11. Removing the Power Supply

## Removing and Replacing the Riser Card and PCMCIA Card

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 Remove the front panel and logic tray. See page 2-17.
- 2 Remove any feature cards plugged into the riser card.
- 3 Remove the two screws that attach the spline and lift it off the chassis. See Figure 2-11 on page 2-19.
- 4 If a PCMCIA card is installed, remove the screw that attaches it to the rear panel.
- 5 Unplug the riser card from the system board and lift it out.
- 6 Unplug the PCMCIA card from the riser card.
- 7 To exchange the riser card or PCMCIA card, reverse this procedure.

## Removing and Replacing the System Board

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

**Note:** This board contains a non-replaceable lithium battery within a board component.

- 1 Remove the front panel and logic tray. See page 2-17.
- 2 Remove any feature cards.
- 3 Remove the spline, riser card, and the PCMCIA card (if present). See page 2-20.
- 4 Remove the memory modules. See page 2-20.

### Notes:

- a. Note the plug locations of all cables on the system board. You need to replug them later.
- b. It is important to remove the memory modules from the system board being

exchanged. The replacement board does not come with memory modules installed.

- 5 Disconnect any remaining cables attached to the system board.
- 6 Locate and remove the five screws that attach the system board to the chassis.
- 7 Slide the system board toward the front of the chassis until the edge of the board clears the chassis.
- 8 Tilt the board upward and guide it out of the chassis.
- 9 To exchange the system board, reverse this procedure.

## Removing and Replacing Memory Modules

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page 2-11.

- 1 Remove the front panel and logic tray. See page 2-17.
- 2 Remove any full-length feature cards that cover the memory modules.
- 3 Follow any special handling instructions that came with the memory modules.
- 4 See Table 2-3 on page 2-21
- 5 Release the retainers for all the memory modules.
- 6 Remove the modules being exchanged.
- 7 To exchange the memory modules, reverse this procedure.

Insert the memory modules into the socket with the component side of the module facing toward the front of the system board. Pivot all modules, starting with the one closest to the front of the system board, toward the front until they latch into the retainers.



**Note:** 4694 Models 041 and 044 have four 30-pin memory module sockets on the system board. This makes two memory banks (Bank 0 and Bank 1). The 4694 uses 1 MB or 4 MB memory modules for the various combinations of memory. You can install the following combinations of memory modules on the 4694 Models 041 and 044:

| Total Memory | Bank 0 |     | Bank 1 |     |
|--------------|--------|-----|--------|-----|
|              | SM1    | SM2 | SM3    | SM4 |
| 2 MB         | 1      | 1   | 0      | 0   |
| 4 MB         | 1      | 1   | 1      | 1   |
| 8 MB         | 0      | 0   | 4      | 4   |
| 10 MB        | 1      | 1   | 4      | 4   |
| 16 MB        | 4      | 4   | 4      | 4   |

Table 2-3. Valid Memory Module Combinations—Models 041 and 044

The 4694 Model 144 comes factory-installed with 4 MB of memory. Memory modules are available in 2 MB, 4 MB or 8 MB. They can be installed in any combination. The memory modules are installed in order, starting with socket SM1.

For information on installing options, see the *4694 Point of Sale Terminals: Installation and Operation Guide*, SA27-4005.

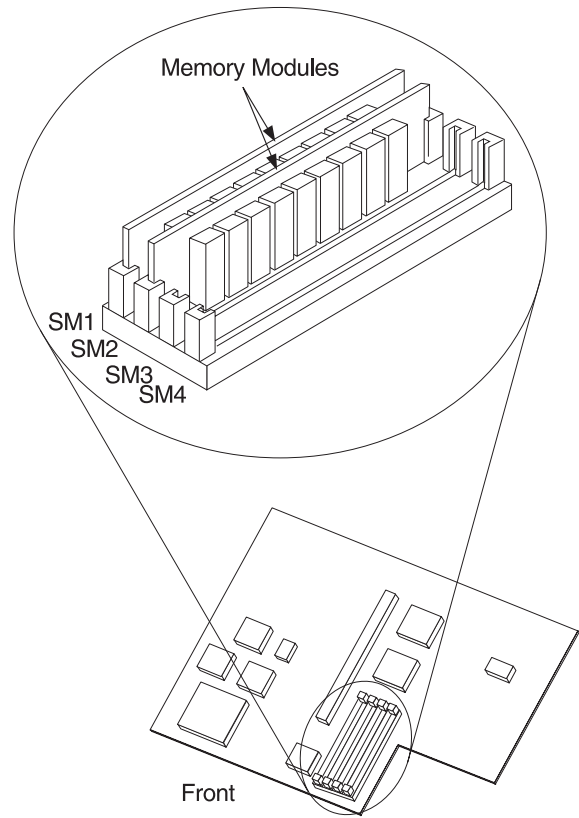


Figure 2-12. 4694 Model 144 Memory Locations



---

## Chapter 3. Start Here for 4695 Problems

Problems with the 4695 can be caused by both software errors, or hardware failures. This chapter contains troubleshooting information to help you determine the cause of a problem and how to solve it.

Begin each service call by checking all items in "Problem Determination – 4695 Models 002 and 012" on page 3-5 or "Problem Determination – 4695 Models 201 and 211" on page 3-18.

Table 3-1 provides a quick way to locate the information for the task you want to perform.

*Table 3-1. 4695 Task Information*

| <b>TASK</b>                           | <b>Page</b> |
|---------------------------------------|-------------|
| Use the service diskette              | 3-2         |
| Look up a Model 002/012 symptom       | 3-6         |
| Remove or replace a Model 002/012 FRU | 3-10        |
| Look up a Model 201/211 symptom       | 3-19        |
| Look up a Model 201/211 message       | 3-21        |
| Remove or replace a Model 201/211 FRU | 3-35        |
| Perform setup on a Model 201/211      | 3-55        |

## 4695 Service Diskette Introduction

The 4694/4695 Service Diskette, SX27-3933, contains programs for configuring and testing the 4695 Model 002 and 012, the 4695 Point-of-Sale Adapter, and the 4695 Model 201 and 211 attached I/O devices. These menu-driven programs are intended for service personnel use only. When the diskette is booted, a main menu appears. All selections begin from this menu. See Figure 3-1 for the menu flow.

To service a system unit where the 4695 Point-of-Sale Adapter resides, use the maintenance documentation and diskettes for that system unit. For example, when the 4695 Point-of-Sale Adapter is installed in a 4694 system unit, use the 4694 service diskette to configure and test it.

The 4695 Service Diskette menus are dynamic and change depending upon the configuration. Therefore, what you see on your 4695 may be somewhat different than what you see here. The following illustrates the flow of the menus.

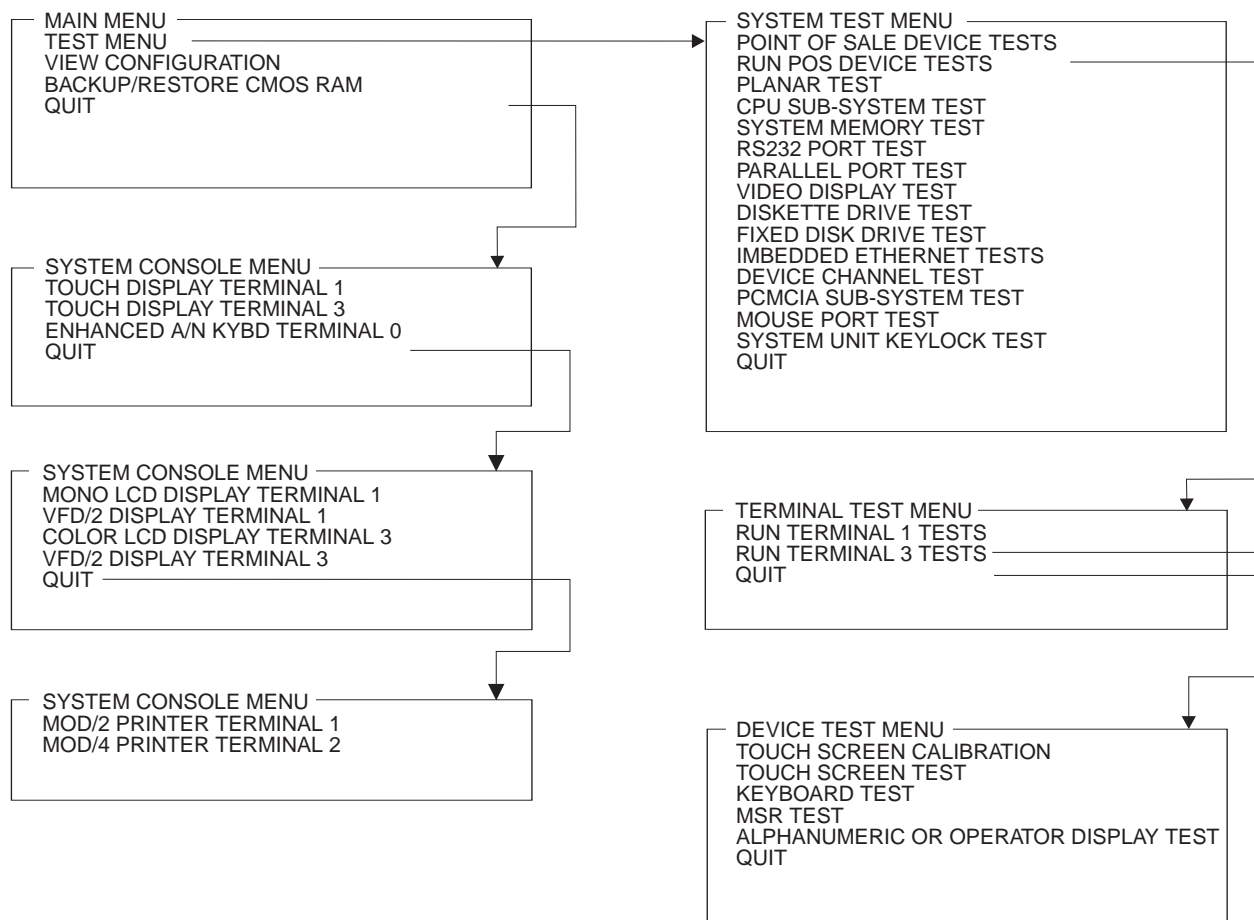


Figure 3-1. 4695 Service Diskette Menus

## Main Menu

- Test Menu** Use this selection to view the System Test Menu which allows you to test the Point-of-Sale Adapters or attached and configured POS devices.
- View Configuration** Use this selection to display the configured POS devices and to verify configuration results. This program does not change the configuration.
- Start System Console Configuration** Use this selection to define the attached point-of-sale devices to the system at installation time or anytime devices are added or removed. The host keyboard and display are also selected at this time. The terminal reboots automatically after running this program.
- Backup / Restore CMOS RAM** Use this selection to write the CMOS RAM data to the backup service diskette. This is helpful, for example, when the battery needs exchanging. The CMOS data can be backed up, then after the battery replacement is complete, CMOS data can be restored.
- Quit** This selection exits the utility.

**System Test Menu:** Use this menu to select the component of the 4695 system you want to test.

**Terminal Test Menu:** Use this menu to select which 4695 terminal to test. There may be as many as four terminals attached and only one can be tested at a time. Terminals attached to the 4695 Point-of-Sale Adapter are assigned odd numbers (1, 3, 5, 7).

**Device Test Menu:** Use this menu to select the POS device to test. The program dynamically determines which devices are attached to the selected terminal.

---

## 4695 Service Level Update Procedure

When a Service Level Update (Flash BIOS) is required for the 4695, a service level package is supplied. If power is interrupted during the Service Level Update, the 4695 may not reboot successfully after power is restored. This symptom usually appears as a blank display or a beep code. To recover from this condition, perform the following procedure:

- 1 Switch **POWER OFF**.
- 2 Disconnect the AC power cords from the rear connector panel and follow the instructions to remove the cover.
- 3 See Figure 3-2 for the location of the Service Level Update Recovery Jumper.
- 4 The Service Level Update Recovery Jumper is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to.

The system detects the change during power-up self-test (POST). There is no need to move the jumper back to its original position.

- 5 Follow the instructions to reinstall the cover, then reboot the system using the Service Level Update Diskette.

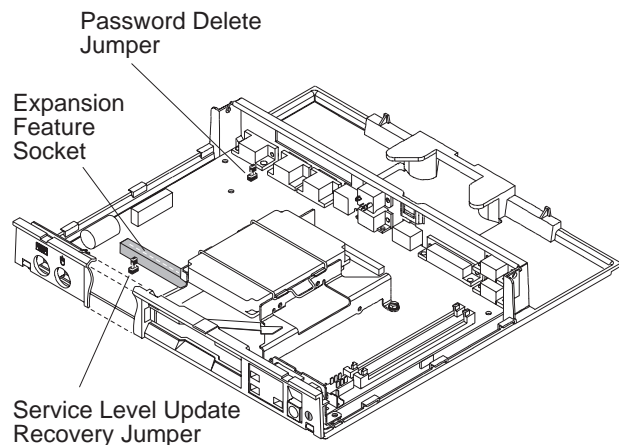


Figure 3-2. Service Level Update Recovery Jumper and Password Jumper

## Removing the Power-On Password

**Note:** This procedure should only be used when servicing a terminal that has an active, unknown, power-on password.

- 1 Switch **POWER OFF**.
- 2 Disconnect the AC power cords from the rear connector panel
- 3 Remove the top cover.
- 4 See Figure 3-2 for the location of the Password Delete Jumper.
- 5 The Password Delete Jumper is connected between the center pin and one of the outside pins. Move the jumper so that it is connected between the center pin and the pin on the opposite end from the one it is currently connected to.

**Note:**

- The system detects the change during POST and removes the password. There is no need to move the jumper back to its original position.
- To reactivate the password, you must load the setup program during POST and select CHANGE PASSWORD from the main menu. See "Running Setup – 4695 Models 201 and 211" on page 3-55.

---

## Problem Determination – 4695 Models 002 and 012

### Preliminary Checklist

- 1 Observe the power light (on the touch display). If it is not ON, go to “Symptom Table – 4695 Models 002 and 012” on page 3-6.
- 2 Make sure all I/O devices are connected correctly.
- 3 Make sure the contrast and brightness controls on the display are adjusted correctly.
- 4 Make sure all hardware devices installed (such as a memory module, feature card, printer, or mouse) are connected correctly and securely.
- 5 Switch the controller **POWER OFF** then ON and listen for beeps at the completion of POST. A single beep indicates a successful completion. No beeps or more than one indicates a failure. If a failure is indicated, see Table 3-2.

If your system passes these preliminary checks and the problem still exists, record any error codes. See Table 3-2 for a list of error codes and messages for the 4695, or see the service documentation for your controller. If you do not receive an error message, see Table 3-3 on page 3-6. If there is a problem with the IBM 4695 Point of Sale Adapter, the following error code or beeps might occur during POST:

Table 3-2. Message Table – Models 002 and 012

| Error Code or Beeps                                      | Actions   |
|--|---|
| 83nn   | <ul style="list-style-type: none"><li>• The 4695 Point of Sale Adapter failed during POST. Disconnect the POS devices (MSR, customer display, and cash drawer). If the problem persists, exchange the adapter.</li></ul>  |
| 1 long and up to 6 short beeps, blank display after POST | <ul style="list-style-type: none"><li>• Check the 4695 Point of Sale Adapter(s) switch SW2, positions 1 and 2, to ensure that each adapter is set correctly for your system. See “Setting the 4695 Point of Sale Adapter Switches (Model 002 and 012)” on page 3-9.</li><li>• Check the 4695 Point of Sale Adapter(s) switch SW2, position 5 to ensure that each adapter is set correctly for your system. When more than one adapter is installed, one must be set for primary and all others for secondary.</li><li>• Exchange the 4695 Point of Sale Adapter for the failing terminal.</li></ul> |
| No beeps, blank display                                  | <ul style="list-style-type: none"><li>• Check the Point of Sale Adapter(s) switch SW2, positions 3 and 4, to ensure that each adapter is set correctly for your system. See “Setting the 4695 Point of Sale Adapter Switches (Model 002 and 012)” on page 3-9.</li><li>• Exchange the 4695 Point of Sale Adapter for the failing terminal.</li></ul>  |

---

## Symptom Table – 4695 Models 002 and 012

If your system fails and there is no error code, see Table 3-3 for a list of symptoms and troubleshooting procedures.

**Note:** Table 3-3 is a troubleshooting chart for the distributed touch terminal only. For a troubleshooting chart for the controller to which the 4695 is attached, see the controller manual.

Table 3-3 (Page 1 of 3). Troubleshooting Chart – Models 002 and 012

---

| If the problem is...   | Here's what to do...  |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
|--|---|-----|-------|----------------|--|--------------------|--------------|---------------------|-------------|---------------------|--------------|-----------------------|---------------------|
| The power indicators on the touch display or power supply are not ON | <ul style="list-style-type: none"><li>• Check that the power supply is plugged into an AC outlet and reseal the power cable into the 4695.</li><li>• Check for blown fuses, tripped circuit breaker, or power failure.</li><li>• Perform the following steps to test the 4695 power supply:<ul style="list-style-type: none"><li>– Switch <b>POWER OFF</b> at the 4695.</li><li>– Disconnect the power cord from the rear of the 4695.</li><li>– Plug the 4695 wrap plug (P/N 13H6231) into the end of the power cable from the power supply.</li><li>– If the power indicator on the power supply is ON, the power supply is good; otherwise, measure the voltages on the wrap plug pins. The voltages should be within the following ranges:<table><thead><tr><th>Pin</th><th>Range</th></tr></thead><tbody><tr><td><b>1 (Gnd)</b></td><td></td></tr><tr><td><b>2 (+5 V DC)</b></td><td>4 – 6.5 V DC</td></tr><tr><td><b>3 (+12 V DC)</b></td><td>9 – 15 V DC</td></tr><tr><td><b>4 (+38 V DC)</b></td><td>30 – 48 V DC</td></tr><tr><td><b>5 (power good)</b></td><td>greater than 3 V DC</td></tr></tbody></table></li></ul></li></ul> <p>If any of the voltages are not within these ranges, exchange the 4695 power supply.</p> <ul style="list-style-type: none"><li>• Reseat all the cables.</li><li>• Exchange the 4695 interface card.</li><li>• Exchange the 4695 Point of Sale Adapter.</li><li>• Exchange the controller cable.</li><li>• Exchange the touch screen controller card.</li></ul> | Pin | Range | <b>1 (Gnd)</b> |  | <b>2 (+5 V DC)</b> | 4 – 6.5 V DC | <b>3 (+12 V DC)</b> | 9 – 15 V DC | <b>4 (+38 V DC)</b> | 30 – 48 V DC | <b>5 (power good)</b> | greater than 3 V DC |
| Pin  | Range   |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| <b>1 (Gnd)</b>   |   |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| <b>2 (+5 V DC)</b>   | 4 – 6.5 V DC  |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| <b>3 (+12 V DC)</b>  | 9 – 15 V DC   |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| <b>4 (+38 V DC)</b>  | 30 – 48 V DC  |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| <b>5 (power good)</b>  | greater than 3 V DC   |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |
| When the screen is touched, there is no response                     | <ul style="list-style-type: none"><li>• Try to run the touch screen test using the service diskette. If the test is successful, the software may be failing.</li><li>• Check that the touch ring cable is securely connected.</li><li>• Exchange the touch screen controller card.</li><li>• Exchange the touch ring cable.</li><li>• Exchange the touch ring card.</li><li>• Remove the front cover of the touch screen. Try to run the touch screen test using the service diskette. If the test is successful, exchange the front cover.</li></ul>   |     |       |                |  |                    |              |                     |             |                     |              |                       |                     |



Table 3-3 (Page 2 of 3). Troubleshooting Chart – Models 002 and 012

| If the problem is...   | Here's what to do...   |
|--|--|
| Totally blank touch display  | <ul style="list-style-type: none"> <li>• Check that the power indicator the touch display is ON. If not, go to the first symptom in this table.</li> <li>• Check that the backlight is ON (the display has brightness). If not, go to the <i>Backlight symptom</i> in this table.</li> <li>• Check that the 4695 controller cable is securely connected to the 4695 Point of Sale Adapter and to the 4695.</li> <li>• Check that the 4695 Point of Sale Adapter switches are set correctly. See “Setting the 4695 Point of Sale Adapter Switches (Model 002 and 012)” on page 3-9.</li> <li>• Check that the LCD cable is securely connected.</li> <li>• Exchange the LCD cable.</li> <li>• Exchange the touch screen controller card.</li> <li>• Exchange the LCD.</li> <li>• Exchange the 4695 Point of Sale Adapter.</li> <li>• Exchange the interface card.</li> </ul> |
| Incorrectly displayed data   | <ul style="list-style-type: none"> <li>• Try to run the 4695 display test using the service diskette. If the test is successful, the software may be failing.</li> <li>• Check that the 4695 controller cable is securely connected to the 4695 Point of Sale Adapter and to the 4695.</li> <li>• Check that the LCD cable is securely connected.</li> <li>• Exchange the LCD cable.</li> <li>• Check that the digital interface cable is securely connected.</li> <li>• Exchange the digital interface cable.</li> <li>• Exchange the touch screen controller card.</li> <li>• Exchange the 4695 Point of Sale Adapter.</li> <li>• Exchange the 4695 controller cable.</li> <li>• Exchange the interface card.</li> <li>• Exchange the LCD.</li> </ul>  |
| Vertical bars appearing across top or bottom half of touch display | <ul style="list-style-type: none"> <li>• Check that the LCD cable and digital interface cable are securely connected.</li> <li>• Check that the 4695 controller cable is securely connected to the 4695 Point of Sale Adapter and the 4695.</li> <li>• Exchange the LCD cable.</li> <li>• Exchange the digital interface cable.</li> <li>• Exchange the 4695 Point of Sale Adapter.</li> <li>• Exchange the 4695 controller cable.</li> <li>• Exchange the interface card.</li> <li>• Exchange the touch screen controller card.</li> </ul>  |
| Blocks of missing data on touch display                            | <ul style="list-style-type: none"> <li>• Exchange the LCD.</li> </ul>  |
| Cash drawer  | <ul style="list-style-type: none"> <li>• Run the cash drawer test using the service diskette.</li> <li>• Check that the cash drawer is securely connected.</li> <li>• Exchange the cash drawer cable.</li> <li>• Exchange the cash drawer latch assembly.</li> <li>• Exchange the interface card.</li> </ul>   |
| Magnetic stripe reader (MSR)                                       | <ul style="list-style-type: none"> <li>• Run the MSR test using the service diskette.</li> <li>• Make sure the MSR is securely attached to the touch display.</li> <li>• Exchange the MSR.</li> <li>• Exchange the touch screen controller card.</li> </ul>  |

Table 3-3 (Page 3 of 3). Troubleshooting Chart – Models 002 and 012

| If the problem is...                                   | Here's what to do...  |
|--|---|
| Customer display                                       | <ul style="list-style-type: none"><li>• Run the customer display test using the service diskette.</li><li>• Make sure the customer display cable is securely connected to the customer display and to the 4695.</li><li>• Exchange the customer display cable.</li><li>• Exchange the customer display.</li><li>• Exchange the interface card.</li></ul>                                    |
| Backlight:<br>Dim, dark or partially lit touch display | <ul style="list-style-type: none"><li>• Adjust the contrast and brightness on the display using the service diskette.</li><li>• Check that the backlight is good by using the test on the service diskette.</li><li>• Check that the backlight is securely connected.</li><li>• Exchange the backlight.</li></ul> <p><b>Note:</b> Do <b>not</b> exchange the LCD to solve this problem.</p> |

**Notes:**

1. Some devices that attach to the system have test instructions. See those instructions when testing those devices.
2. Record any error message or symptom for future reference.
3. When using application programs, you may receive error messages that pertain to the application software. See the application program manual for a description of those messages.

## Setting the 4695 Point of Sale Adapter Switches (Model 002 and 012)

Problems occur if you do not have the 4695 Point of Sale Adapter switches set correctly. To set the switches, perform the following steps:

- 1 Contact the programmer who installed your software application for the memory map specified for your application. You need to know this information in order to set the correct switches on the 4695 Point of Sale Adapter to match the addresses in the memory map.
- 2 Locate switch SW2 on the 4695 Point of Sale Adapter.

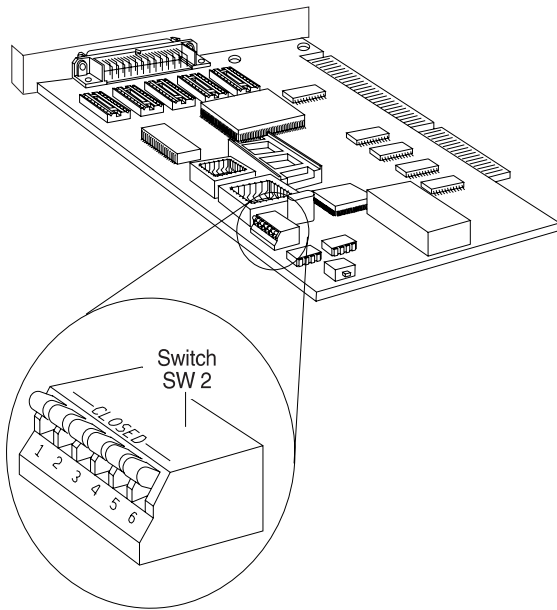


Figure 3-3. Switch SW2 Location

- 3 See the following tables to set the switches on SW2 so that the configuration matches the memory map.

Table 3-4. I/O Address Configurations

| Position 1 | Position 2 | I/O Address Space |
|------------|------------|-------------------|
| Closed     | Closed     | 600-61F           |
| Open       | Closed     | 640-65F           |
| Closed     | Open       | 680-69F           |
| Open       | Open       | 6C0-6DF           |

Table 3-5. Memory Address Configurations

| Position 3 | Position 4 | Memory Address Space |
|------------|------------|----------------------|
| Closed     | Closed     | C8000 - CBFFF        |
| Open       | Closed     | D0000 - D3FFF        |
| Closed     | Open       | D8000 - DBFFF        |
| Open       | Open       | DC000 - DFFFF        |

Table 3-6. Primary and Secondary Adapter Configurations

| Position 5 | Function          |
|------------|-------------------|
| Closed     | Primary Adapter   |
| Open       | Secondary Adapter |

Table 3-7. Interrupt Select Configurations

| Position 6 | Function                  |
|------------|---------------------------|
| Closed     | Interrupt Request (IRQ) 7 |
| Open       | IRQ 11                    |

### Notes:

1. Select Primary for one 4695 Point of Sale Adapter, and Secondary for all other point of sale adapters.
2. The switch settings for the I/O address and for the memory address must be unique for each point of sale adapter.
3. The video graphics array (VGA) adapter should not be installed when installing a 4695 Point of Sale Adapter. If it is removable, remove the VGA adapter from the 4694 and disable the VGA adapter using the configuration Setup program on the 4694. If the VGA adapter is not removable, disable it on the 4694, PS/1\*, or ValuePoint\* by changing the jumper or through software.

## 4695 Models 002 and 012 Removals and Replacements

**Note:** Switch **POWER OFF** and disconnect the power cord from the electrical outlet before performing any of the removal and replacement procedures.

### Removing and Replacing the Tablet FRUs

- 1 Remove the tablet front cover by inserting a small flat-blade screwdriver in the slots at the top of the cover as shown below. (Do not use the two smallest slots.)

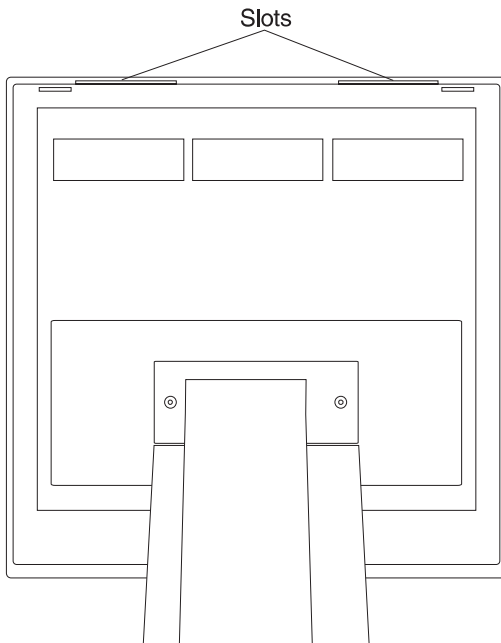


Figure 3-4. Rear of Tablet

- 2 Unplug the touch ring cable from the touch ring card. See Figure 3-6.
- 3 Remove the touch ring card.
- 4 Unplug the backlight cable and LCD cable from the LCD.

- 5 Carefully remove the LCD.

**Attention** Do not touch the LCD surface.

- 6 Unplug the LCD cable, digital interface cable and touch ring cable from the touch screen controller card.
- 7 If you have an MSR installed, remove the MSR. See page 3-17.
- 8 If you have a color LCD, remove the ground strap before removing the touch screen controller card.

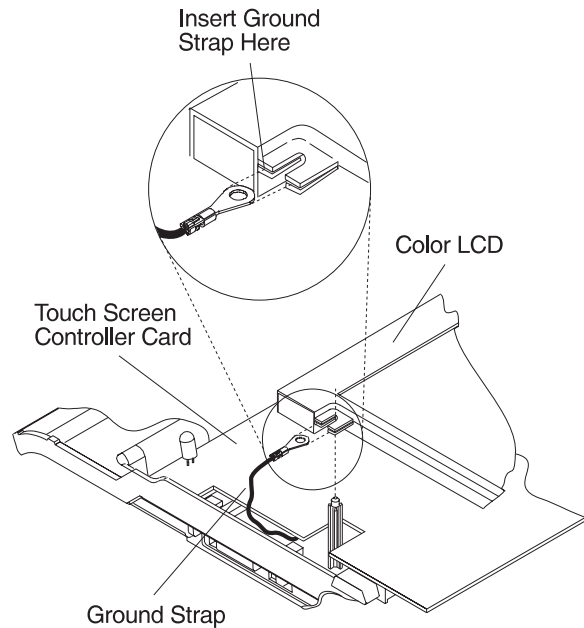


Figure 3-5. Removing the Ground Strap

- 9 Disconnect the digital interface cable and remove the touch screen controller card.

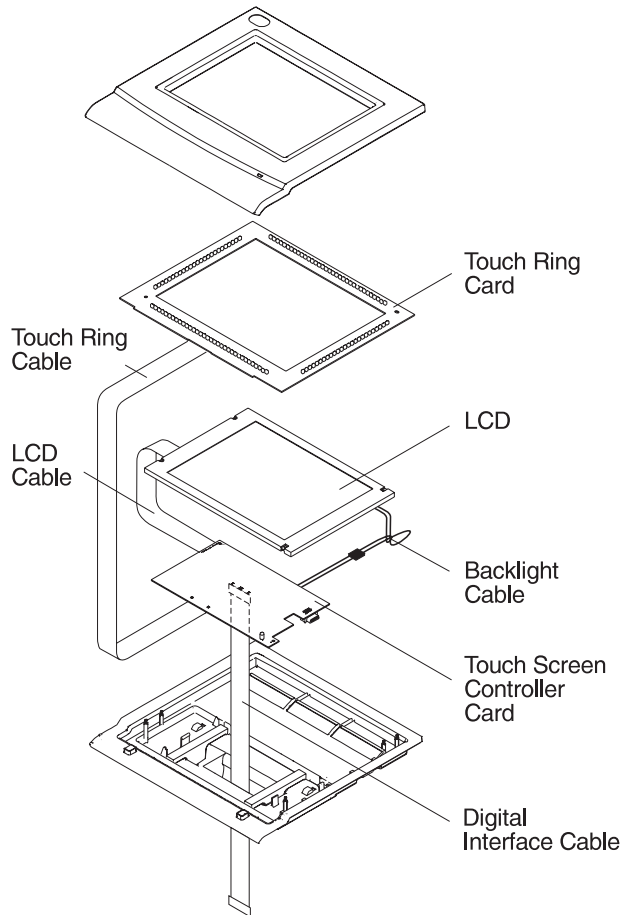


Figure 3-6. Removing the Tablet FRUs

- 10 To remove the backlight from the monochrome LCD, remove the three screws from the backlight cover.

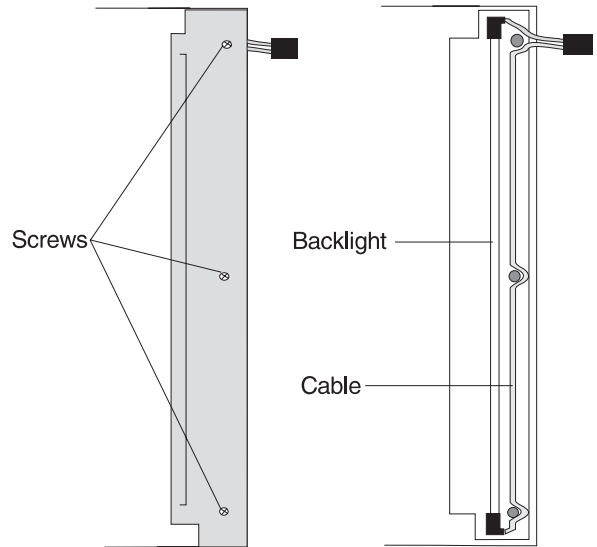


Figure 3-7. Removing the Monochrome Backlight

- 11 Lift the backlight and backlight cable out of the LCD.
- 12 Install the new backlight with the cable routed as shown in Figure 3-7.
- 13 To remove the backlight from the color LCD, remove the two screws from the backlight cover.

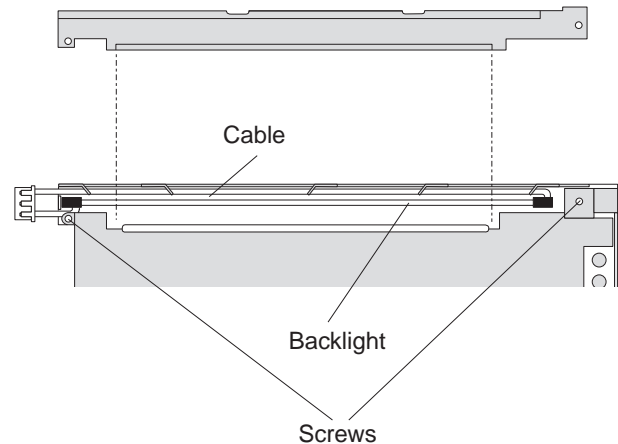


Figure 3-8. Removing the Color Backlight

- 14 Lift the backlight and backlight cable out of the LCD.

- 15 Install the new backlight with the cable routed underneath the tabs as shown in Figure 3-8.
- 16 To remove the tablet rear cover, remove the two screws that fasten the rear cover to the clutch using an allen wrench. See Figure 3-9. for the location of the screws.
- 17 Perform the above steps in reverse order to exchange with new parts.

**Note:** Exchange the tablet cover with the bottom edge down first, then the top edge.

## Removing and Replacing the Digital Interface Cable

- 1 Remove the 4695 from the counter. See page 3-13.
- 2 Remove the two screws that fasten the tablet rear cover to the clutch using an allen wrench and remove the tablet.

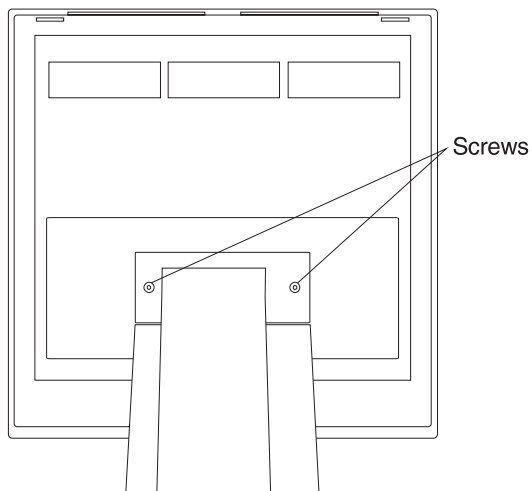


Figure 3-9. Removing the Tablet

- 3 Unplug the digital interface cable from the tablet.
- 4 Unplug the digital interface cable from the touch screen controller card. See "Removing and Replacing the Interface Card and Shield" on page 3-14.

- 5 Pull the digital interface cable all the way through the pedestal and remove the cable.
- 6 To exchange the digital interface cable, route the connector side-ways through the cable opening in the pedestal. Route the slack in the digital interface cable inside the pedestal.

## Removing and Replacing the Clutch

- 1 Tilt the tablet so that you have access to the clutch.
- 2 Remove the two allen head screws from the back of the tablet and remove the tablet. See Figure 3-9 for the screw locations.
- 3 Disconnect the digital interface cable from the touch screen controller card.
- 4 Remove the two screws in the clutch with an allen wrench.
- 5 Turn the clutch to match the opening on the left side and slide the clutch upward and out.
- 6 To exchange the clutch, perform the above steps in reverse order.

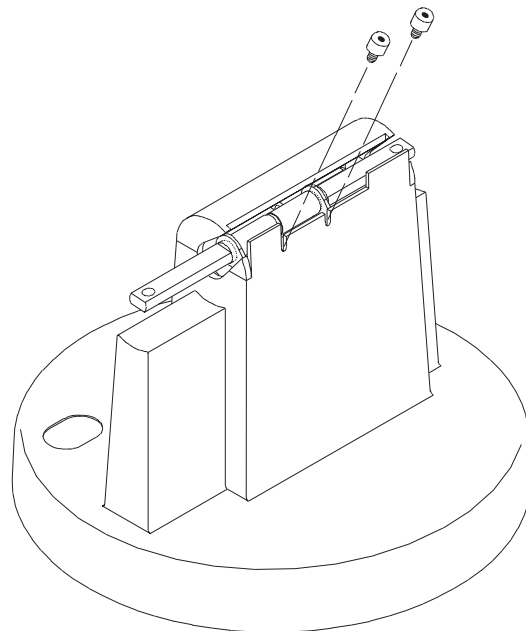


Figure 3-10. Removing the Clutch

## Removing the 4695 from the Counter

- 1 Slide the rear door all the way out, then pivot the rear door upward as shown in Figure 3-11

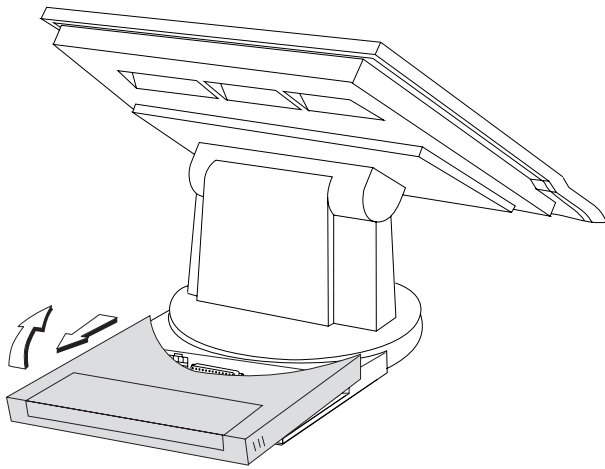


Figure 3-11. Opening the Rear Door

- 2 Disconnect all the cables from the back panel.
- 3 Remove the two screws and washers that fasten the touch terminal to the counter.
- 4 Slide the 4695 forward and lift it up.

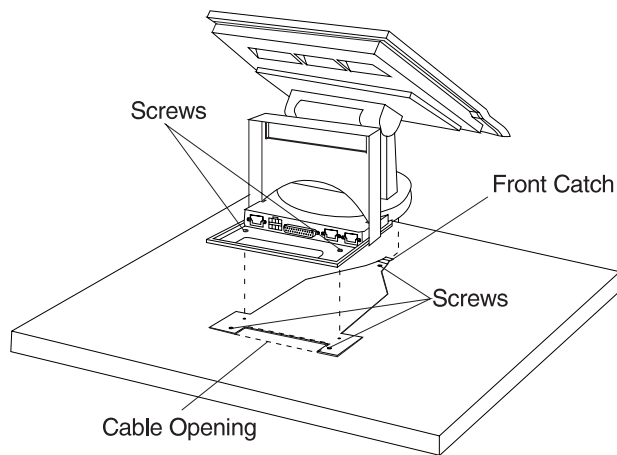


Figure 3-12. Removing the 4695 from the Counter

- 5 To remove the base plate from the counter, remove the base plate nuts and washers from under the counter.
- 6 To mount the 4695 to the counter, perform the above steps in reverse order.

## Closing the Rear Door

Close the rear door by pushing it forward at the angle shown below.

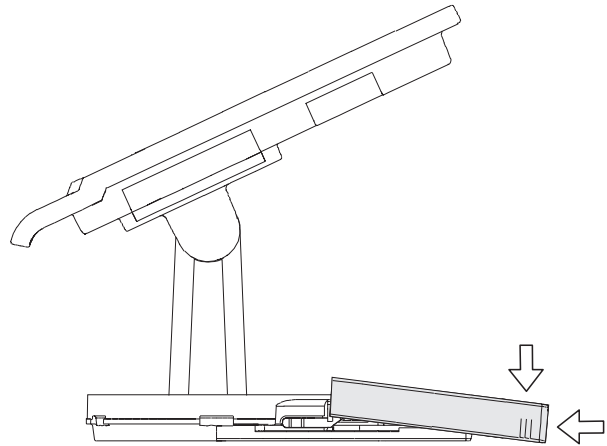
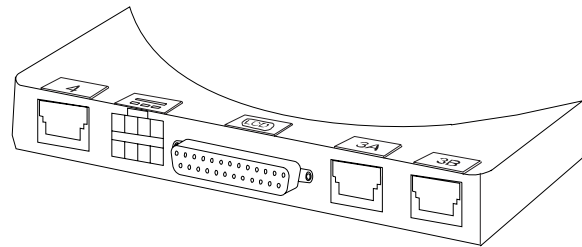


Figure 3-13. Closing the Rear Door

## 4695 Models 002 and 012 Connector Panel





- 4 Customer Display
-  Power cord (from power supply)
-  4695 controller cable
- 3A POS cash drawer
- 3B POS cash drawer

Figure 3-14. Model 002/012 Rear Connector Panel

## Removing and Replacing the Interface Card and Shield

- 1 Remove the 4695 from the counter. See page 3-13.
- 2 Remove the shield from underneath the swivel base by carefully bending the middle outward.
- 3 Press the two snaps as shown in Figure 3-15 and remove the interface card from underneath the touch terminal.
- 4 Unplug the digital interface cable from the interface card.

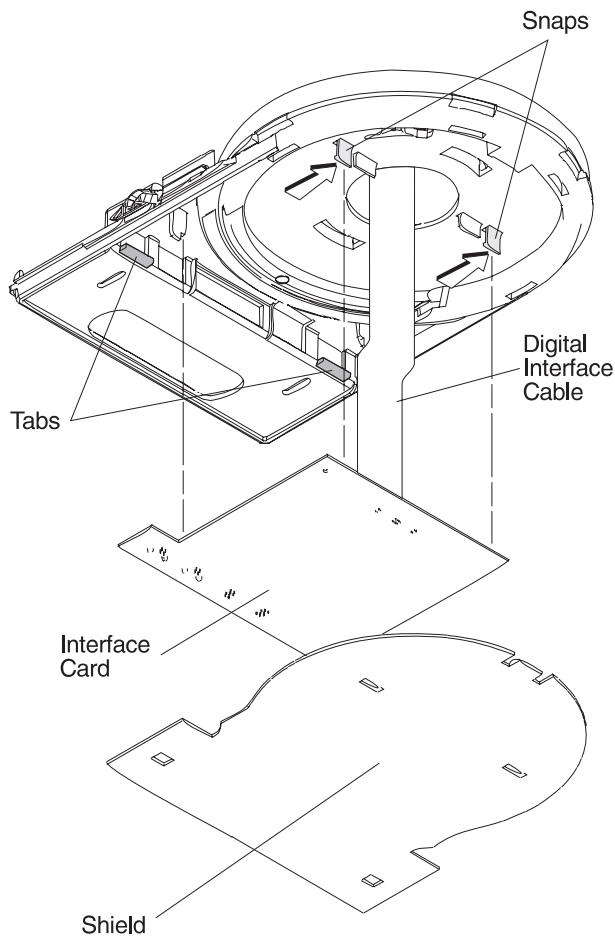


Figure 3-15. Removing the Interface Card

- 5 To exchange the interface card, connect the digital interface cable, and place the card under the tabs first, then under the snaps.

- 6 To install the shield and mount the 4695 to the counter, perform the above steps in reverse order.

## Removing and Replacing the Pedestal Stand

- 1 Remove the 4695 from the counter. See page 3-13.
- 2 Remove the tablet and the clutch. See page 3-12.
- 3 Unplug the digital interface cable from the tablet.
- 4 Rotate the swivel base 90 degrees clockwise to align the plastic tab with the metal tab.
- 5 Remove the shield from underneath the swivel base by carefully bending the middle of the shield outward.

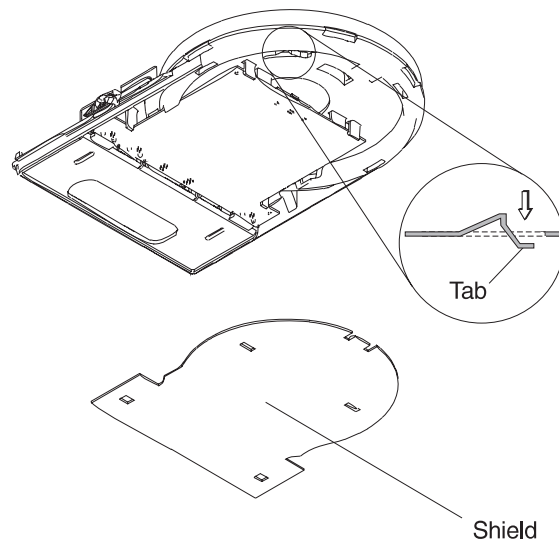


Figure 3-16. Releasing the Pedestal

- 6 Pull the tab down, away from the base, to release the pedestal from the base.



- 7 Remove the four screws from the bottom of the pedestal stand.

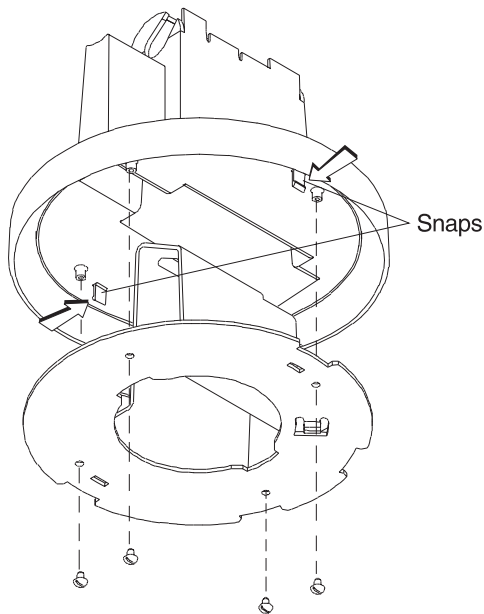


Figure 3-17. Removing the Pedestal Stand

- 8 Press the two snaps as shown in Figure 3-17 and slide the pedestal stand out from the pedestal cover.
- 9 To exchange the pedestal stand or pedestal cover, perform the above steps in reverse order.

## Removing and Replacing the Rear Door

- 1 Slide the rear door all the way out. Then slide the rear door half-way forward to the position shown and remove the rear door by lifting it out of the slots.

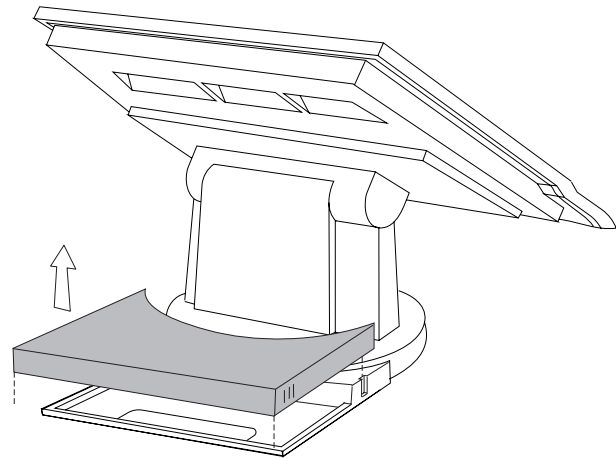


Figure 3-18. Removing the Rear Door

- 2 To exchange the rear door, place the rear door down into the slot and slide it forward.

**Note:** If the customer display is installed, disconnect the customer display cable from the inside of the rear door.

## Removing and Replacing the Customer Display

- 1 Open the rear door. See Figure 3-11 on page 3-13.
- 2 Unplug the customer display cable from the customer display connector on the 4695.
- 3 Release the snaps on the sides of the customer display from inside the rear door and remove the customer display from the 4695.

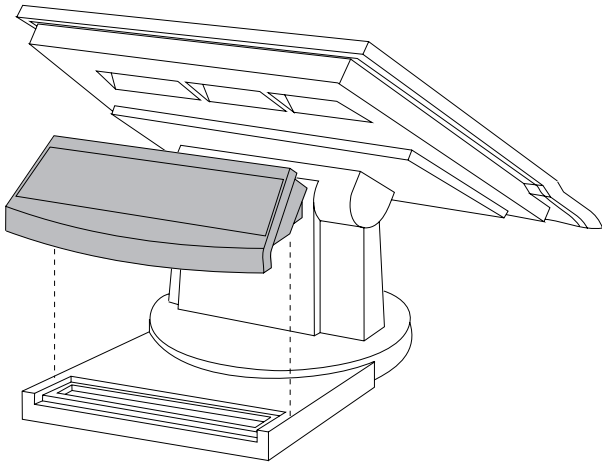


Figure 3-19. Removing the Customer Display

- 4 Unplug the customer display cable from the customer display.
- 5 To exchange the customer display, perform the above steps in reverse order. Route the cable with the toroid as shown.

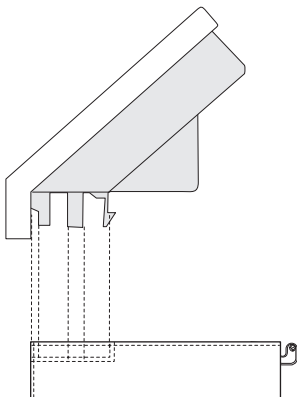


Figure 3-20. Replacing the Customer Display

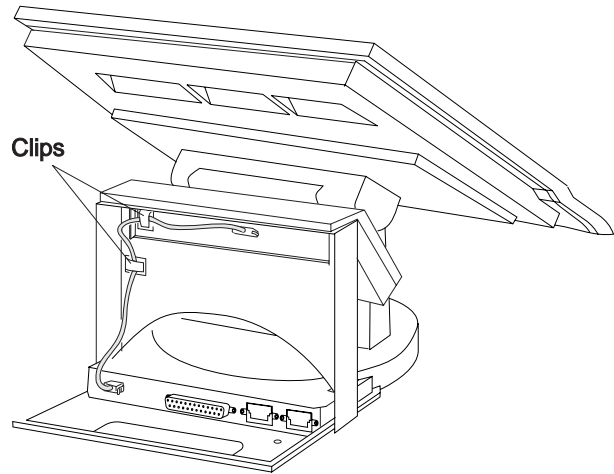


Figure 3-21. Routing the Customer Display Cable

## Removing, Replacing, and Cleaning the Customer Display Lens

- 1 Remove the customer display from the rear door.
- 2 Using a small flatblade screwdriver and starting at the top edge of the display, pry at the points indicated to release the lens frame.  
**DO NOT SPRAY CLEANING SOLUTION INTO THE DISPLAY.**
- 3 Use a soft cloth dampened with a mild cleaning solution to clean the display glass and the lens.
- 4 To remove the lens from the frame for replacement, flex the frame outward as shown by the arrows and snap the lens out.
- 5 Position the replacement lens into the frame from the outside and snap it into position in the frame.
- 6 Snap the frame onto the display starting at the bottom edge.
- 7 Install the display into the rear door.

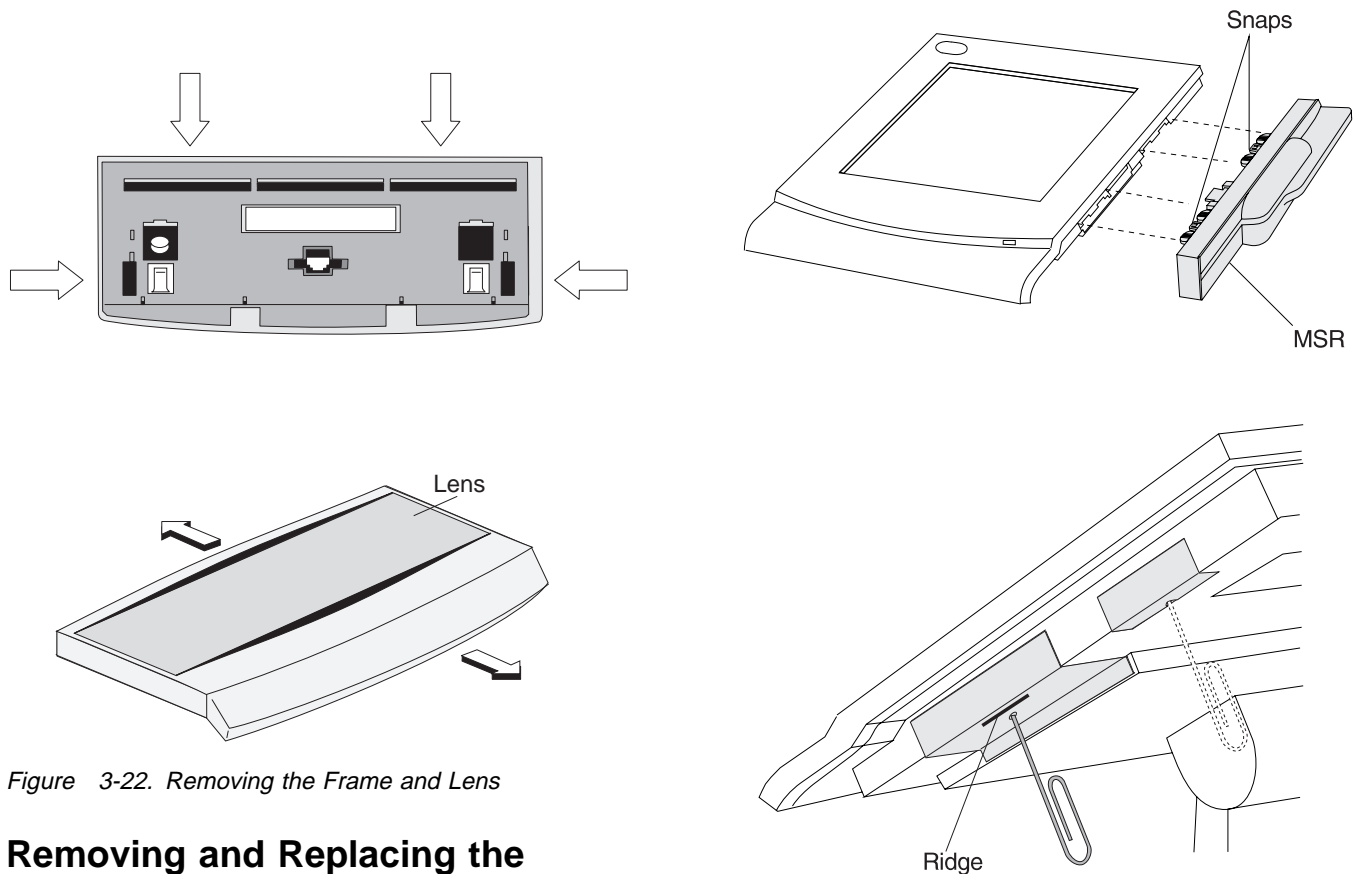


Figure 3-22. Removing the Frame and Lens

## Removing and Replacing the MSR

- 1 Push a small allen wrench or paper clip into a slot underneath the MSR as shown. Push upward to unlatch the MSR and pull the MSR out sideways from the tablet. Repeat this procedure for the second slot.

**Note:** To remove the MSR blanks, use the same procedure.

- 2 To exchange the MSR, perform the above steps in reverse order.

---

## Problem Determination – 4695 Models 201 and 211

This section contains the problem determination procedures for 4695 Models 201 and 211.

### Preliminary Checklist

- 1 Observe the power indicators on the touch display and the power supply. If they are not ON, go to “Symptom Table – 4695 Models 201 and 211” on page 3-19.
- 2 Make sure all I/O devices are connected correctly.
- 3 Make sure the correct diskette is inserted.
- 4 Make sure all hardware devices installed (such as memory modules or feature cards) are connected correctly.
- 5 Switch **POWER OFF** then ON and listen for beeps at the completion of POST. A single beep indicates a successful completion. No beeps or more than one indicates a failure. If a failure is indicated, see “Symptom Table – 4695 Models 201 and 211” on page 3-19.
- 6 When using application programs, you may receive error messages that pertain to the application software. See the application program manual for a description of those messages.

#### Note:

- If your system passes these preliminary checks and the problem still exists, record any error codes. See “Models 201 and 211” on page 3-21 for a list of error codes and messages.
- If your system fails and there is no error code, see “Symptom Table – 4695 Models 201 and 211” on page 3-19 for a list of symptoms and problem determination procedures.

## Symptom Table – 4695 Models 201 and 211

For exchanging FRUs, see “Removals and Replacements – 4695 Models 201 and 211” on page 3-35.

Table 3-8 (Page 1 of 2). Troubleshooting Chart – Models 201 and 211

| If the problem is...   | Here's what to do...   |     |       |         |   |             |              |              |             |              |              |                |                     |
|--|--|-----|-------|---------|---|-------------|--------------|--------------|-------------|--------------|--------------|----------------|---------------------|
| The power indicators on the touch display or power supply are not ON                 | <ul style="list-style-type: none"> <li>• Check that the power supply is plugged into a known good AC outlet and reseal the power cable into the 4695.</li> <li>• Check for blown fuses, a tripped circuit breaker, or a power failure.</li> <li>• Test the 4695 power supply:               <ul style="list-style-type: none"> <li>– Switch <b>POWER OFF</b> at the 4695.</li> <li>– Disconnect the power cord from the rear of the 4695.</li> <li>– Plug the 4695 wrap plug (P/N 13H6231) into the end of the power cable you disconnected from the power supply.</li> <li>– If the power indicator on the power supply is OFF, exchange the power supply.</li> <li>– If the power indicator on the power supply is ON, measure the voltages at the wrap plug. If the voltages are not within the following ranges, exchange the power supply.                   <table border="1"> <thead> <tr> <th>Pin</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td>1 (Gnd)</td> <td>–</td> </tr> <tr> <td>2 (+5 V DC)</td> <td>4 – 6.5 V DC</td> </tr> <tr> <td>3 (+12 V DC)</td> <td>9 – 15 V DC</td> </tr> <tr> <td>4 (+38 V DC)</td> <td>30 – 48 V DC</td> </tr> <tr> <td>5 (power good)</td> <td>greater than 3 V DC</td> </tr> </tbody> </table> </li> </ul> </li> <li>• Exchange the digital interface cable. <sup>1</sup></li> <li>• Exchange the touch screen controller card. <sup>1</sup></li> <li>• Exchange the system board.</li> </ul> | Pin | Range | 1 (Gnd) | – | 2 (+5 V DC) | 4 – 6.5 V DC | 3 (+12 V DC) | 9 – 15 V DC | 4 (+38 V DC) | 30 – 48 V DC | 5 (power good) | greater than 3 V DC |
| Pin  | Range  |     |       |         |   |             |              |              |             |              |              |                |                     |
| 1 (Gnd)  | –  |     |       |         |   |             |              |              |             |              |              |                |                     |
| 2 (+5 V DC)  | 4 – 6.5 V DC   |     |       |         |   |             |              |              |             |              |              |                |                     |
| 3 (+12 V DC)   | 9 – 15 V DC  |     |       |         |   |             |              |              |             |              |              |                |                     |
| 4 (+38 V DC)   | 30 – 48 V DC   |     |       |         |   |             |              |              |             |              |              |                |                     |
| 5 (power good)   | greater than 3 V DC  |     |       |         |   |             |              |              |             |              |              |                |                     |
| A beep code is sounded during POST (a single beep indicates a successful completion) | Go to “POST Beep Codes – 4695 Models 201 and 211” on page 3-26.  |     |       |         |   |             |              |              |             |              |              |                |                     |
| When the screen is touched, there is no response                                     | <ul style="list-style-type: none"> <li>• Run the touch screen test using the service diskette. If the test is successful, the software may be failing.</li> <li>• Exchange the touch ring cable. <sup>1</sup></li> <li>• Exchange the touch screen controller card. <sup>1</sup></li> <li>• Exchange the touch ring card. <sup>1</sup></li> <li>• Remove the front cover of the touch screen. <sup>1</sup> Run the touch screen test using the service diskette. If the test is successful, exchange the front cover.</li> </ul>   |     |       |         |   |             |              |              |             |              |              |                |                     |
| Blank touch display  | <ul style="list-style-type: none"> <li>• Check that the power indicator on the display is ON. If not, go to the first symptom in this table.</li> <li>• Check that the backlight is ON (the display is illuminated). If the backlight is not ON, go to the <i>Backlight</i> symptom in this table on page 3-20.</li> <li>• Check that the display cable is securely connected. <sup>1</sup></li> <li>• Exchange the display cable. <sup>1</sup></li> <li>• Exchange the touch screen controller card. <sup>1</sup></li> <li>• Exchange the display. <sup>1</sup></li> </ul>  |     |       |         |   |             |              |              |             |              |              |                |                     |

<sup>1</sup> See “Removing and Replacing the Tablet FRUs” on page 3-36.

Table 3-8 (Page 2 of 2). Troubleshooting Chart – Models 201 and 211

| If the problem is...  | Here's what to do...  |
|---|---|
| Incorrectly displayed data  | <ul style="list-style-type: none"> <li>• Run the 4695 display test using the service diskette. If the test is successful, the software may be failing.</li> <li>• Check that the display cable is securely connected. <sup>1</sup></li> <li>• Exchange the display cable.</li> <li>• Exchange the touch screen controller card. <sup>1</sup></li> <li>• Exchange the display. <sup>1</sup></li> </ul>   |
| Vertical bars appear across the top or bottom half of the touch display   | <ul style="list-style-type: none"> <li>• Check that the display cable and digital interface cable are securely connected. <sup>1</sup></li> <li>• Exchange the digital interface cable. <sup>1</sup></li> <li>• Exchange the touch screen controller card. <sup>1</sup></li> </ul>  |
| Blocks of missing data on touch display                                   | <ul style="list-style-type: none"> <li>• Exchange the display. <sup>1</sup></li> </ul>  |
| Cash Drawer   | <ul style="list-style-type: none"> <li>• Check that the cash drawer is securely connected to the 4695.</li> <li>• Run the cash drawer test using the service diskette.</li> <li>• Exchange the cash drawer cable.</li> <li>• Exchange the cash drawer latch assembly.</li> <li>• Exchange the touch screen controller card.</li> </ul>  |
| Fixed Disk  | <ul style="list-style-type: none"> <li>• Run the fixed disk test using the service diskette.</li> <li>• Run setup and review the fixed disk configuration to ensure that it is properly configured. See "Running Setup – 4695 Models 201 and 211" on page 3-55.</li> <li>• Check that the fixed disk is securely connected to the system board.</li> <li>• Exchange the fixed disk cable.</li> <li>• Exchange the fixed disk.</li> </ul>  |
| Magnetic Stripe Reader (MSR)  | <ul style="list-style-type: none"> <li>• Make sure the MSR is securely attached to the touch display.</li> <li>• Run the MSR test using the service diskette.</li> <li>• Exchange the MSR.</li> <li>• Exchange the touch screen controller card.</li> </ul>   |
| Customer Display  | <ul style="list-style-type: none"> <li>• Make sure the customer display cable is securely connected to the customer display and to the 4695.</li> <li>• Run the customer display test using the service diskette.</li> <li>• Exchange the customer display cable.</li> <li>• Exchange the customer display.</li> </ul>  |
| Backlight:<br>Dim, dark, or partially lit touch display                   | <ul style="list-style-type: none"> <li>• Adjust the contrast and brightness on the display using the service diskette.</li> <li>• Check that the backlight is good by using the test on the service diskette.</li> <li>• Check that the backlight is securely connected.</li> <li>• Exchange the backlight.</li> </ul>  |
| <b>Note:</b> Do <b>not</b> exchange the display to solve this problem.    |   |
| Terminal not working at all   | Start at "Preliminary Checklist" on page 3-18.  |
| Diskette drive  | <ul style="list-style-type: none"> <li>• Make sure you are using the correct type of diskette and that it is formatted.</li> <li>• Make sure the diskette is inserted in the drive correctly.</li> <li>• Use a known good diskette. If it works, the first diskette might not be valid.</li> <li>• Boot terminals using the 4695 Service Diskette and run the diskette drive test.</li> <li>• Exchange the diskette drive cable.</li> <li>• Exchange the diskette drive.</li> </ul> |
| Cannot send information (write) to a diskette or cannot format a diskette | <ul style="list-style-type: none"> <li>• Make sure the diskette is not write-protected.</li> <li>• Use a known good diskette.</li> <li>• Boot the 4695 Service Diskette and run the diskette drive test.</li> <li>• Exchange the diskette drive cable.</li> <li>• Exchange the diskette drive.</li> </ul>   |

---

## Models 201 and 211

Several types of messages may be displayed:

- POST messages occur immediately after powering ON.
- Run-time error messages may occur anytime during or after the boot load.
- Test error messages and service diskette messages are displayed while using the service diskette.
- POST beep codes occur during POST.

## POST Messages – Models 201 and 211

---

101

**Explanation:** A timer tick interrupt failure occurred.

**User Response:** Exchange the system board. See page 3-42.

---

102

**Explanation:** A timer 2 test failure occurred.

**User Response:** Exchange the system board. See page 3-42.

---

114

**Explanation:** An option ROM checksum failure occurred.

**User Response:**

- 1 If option adapters are installed, remove all of them.
    - If the error persists, exchange the system board. See page 3-42.
    - If the error no longer occurs, reinstall the option adapters, one at a time, until the error occurs again. Exchange the option adapter that causes the error.
  - 2 If no option adapters are installed, exchange the system board. See page 3-42.
- 

151

**Explanation:** A real-time clock failure occurred.

**User Response:** Exchange the system board. See page 3-42.

---

161

**Explanation:** The CMOS RAM battery voltage is low.

**User Response:**

- 1 Use the 4695 Service Diskette to boot the system, then select BACKUP / RESTORE CMOS RAM.
- 2 Select BACKUP to write the data stored in CMOS RAM on the backup copy of the service diskette. CMOS RAM can hold up to 128 Kb of data.
- 3 Switch **POWER OFF** and exchange the battery. See "Removing and Replacing the Lithium Battery" on page 3-53.
- 4 Use the 4695 Service Diskette to boot the system, then select BACKUP / RESTORE CMOS RAM.
- 5 Select RESTORE to read the data from the backup copy of the service diskette and write it to CMOS RAM.

---

162

**Explanation:** CMOS RAM data is corrupt or a configuration mismatch was detected during POST. This message displays if the battery is removed or is defective.

**User Response:**

- If the battery has recently been exchanged, ensure that it is installed with the correct polarity. See page 3-53.
- Ensure that the fixed disk cable is correctly connected to the system board.
- Ensure that the fixed disk jumper is present and correctly plugged. Looking at the rear of the fixed disk, the jumper must be plugged to the two connector pins at the extreme right end.
- Run Setup. See “Running Setup – 4695 Models 201 and 211” on page 3-55. If the failure persists:
  - 1 Exchange the battery. See page 3-53.
  - 2 Exchange the system board. See page 3-42.

---

163

**Explanation:** The time-of-day was not set.

**User Response:** Use operating system services or the Setup Utility to set the time and date.

---

164

**Explanation:** The memory size does not match CMOS.

**User Response:** Install the correct amount of memory in the system or run Setup from the System Utility, if the memory configuration change was intentional.

---

169

**Explanation:** There is a ROM search error after three consecutive attempts to boot.

**User Response:**

- Run Setup to reconfigure. See page 3-55.
- If the failure persists, exchange the system board. See page 3-42.

---

201

**Explanation:** A system board memory error occurred.


**User Response:** Use the Service Diskette to boot the system. Run the system unit tests to test the memory.

---

301

**Explanation:** A system unit keyboard error occurred.

**User Response:**

- 1 If your system unit normally has a keyboard attached, follow this list to correct the problem:
  - Switch **POWER OFF**.
  - Ensure the keyboard cable is attached to the keyboard  socket on the front panel and to the keyboard.
  - Ensure that no keys are pressed during the IPL.
  - Exchange the keyboard cable.
  - Exchange or service the keyboard. Go to the *IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
  - Exchange the terminal system board. See page 3-42.



2 If your system unit normally has no keyboard attached, follow this list to correct the problem.

- Temporarily connect a keyboard to the system unit and invoke the ROM-based Setup Utility Program or go to another system unit that has a keyboard and run the setup diskette. See “Running Setup – 4695 Models 201 and 211” on page 3-55.
- Select the Boot Options Setup Menu.
- Enable keyboardless operation.
- Save these settings.
- Exit Setup.
- If you connected a keyboard to the failing system unit, disconnect it.
- If you created a setup diskette on a different system, boot it in the failing system. The configuration record is automatically corrected.

303

**Explanation:** A terminal system unit keyboard error occurred.

**User Response:** Exchange the terminal system board. See page 3-42.

306

**Explanation:** A keyboard password is in effect and the keyboard is locked.

**User Response:** Ignore this message if the keyboard is not used. Otherwise, type the keyboard password when prompted.

601

**Explanation:** A diskette controller failure occurred.

**User Response:** Exchange the system board. See page 3-42.

602

**Explanation:** The diskette boot record was not valid.

**User Response:** Remove the diskette if you did not intend to boot the system from a diskette. Otherwise, exchange the diskette with one that has a valid boot record.

604

**Explanation:** A diskette drive failure occurred.

**User Response:** Exchange the diskette drive. See page 3-41.

1780

**Explanation:** A fixed disk configuration error or fixed disk failure occurred.

**User Response:** Run Setup. See page 3-55.

If running Setup does not correct the problem:

- 1 Exchange the fixed disk cable.
- 2 Exchange the fixed disk. See page 3-40.

2400

**Explanation:** A display adapter failure occurred while using an alternate display adapter.

**User Response:** Exchange the system board. See page 3-42.

6300 and 6308

**Explanation:** The POS I/O configuration record is corrupted.

**User Response:** Use the 4695 Service Diskette to boot the system. This should correct the configuration record.

If the failure persists each time the service diskette is booted, exchange the system board.

---

8310

**Explanation:** A device channel failure occurred.

**User Response:**

1. Exchange the Point-of-Sale Adapter.
  2. Exchange the system board. See page 3-42.
- 

8350

**Explanation:** Non-volatile RAM data is not valid.

**User Response:**

1. If the error occurs after specific operations are completed before powering off, the NVRAM data was corrupted by software.
  2. If the error occurs every time power remains off for a specific amount of time, the Point-of-Sale Adapter battery or the system board might be failing. Exchange the Point-of Sale Adapter. Exchange the system board. See page 3-42.
- 

8381

**User Response:** Switch the system **POWER OFF**, unplug all POS I/O devices connected to the rear of the system unit, then switch power ON again. If the failure occurs only when POS devices are connected to the system unit, isolate and exchange the failing device; otherwise, exchange:

- The Point-of-Sale Adapter.
  - The system board. See page 3-42.
- 

8382

**Explanation:** The device channel port B wrap-back test failed.

**User Response:** Switch the system **POWER OFF**, unplug cable number 11 from the rear of the system unit, then power ON again. If the failure occurs only when cable number 11 is connected to the system unit, use the appropriate service documentation to repair the satellite terminal. Otherwise, exchange the system board in the 4695. See page 3-42.

---

8601

**Explanation:** A pointer device (mouse) failure occurred.

**User Response:** Exchange the pointer device.

---

8603

**Explanation:** A pointer device (mouse) has been removed.

**User Response:** Reconnect the pointer device or run Setup if the configuration change was intentional.

---

---

**0133nnnn**

**Explanation:** An IBM Wireless LAN adapter error occurred.

**User Response:**

- 1** Run the IBM Wireless LAN tests.
- 2** Continue problem determination using the maintenance documentation provided with the IBM Wireless LAN. See the “Troubleshooting Wireless Network Problems” appendix in the *IBM Wireless LAN: Installing and Operating Your Network*

---

**2650001**

**Explanation:** Ethernet POST ROM integrity error.

**User Response:**

- Reboot the system unit.
- Exchange the memory simms one at a time.
- Exchange the system board. See page 3-42.

---

**2650002**

**Explanation:** Ethernet shared memory interface error.

**User Response:**

- Exchange the memory simms one at a time.
- Exchange the system board. See page 3-42.

---

**2650003**

**Explanation:** Ethernet IRQ Setup error.

**User Response:**

- Run Setup. Choose an IRQ that is not being used for other system hardware.
- Exchange the system board. See page 3-42.

---

**2650004**

**Explanation:** Ethernet interrupt failure.

**User Response:**

- Run Setup. Choose an IRQ that is not being used for other system hardware.
- Exchange the system board. See page 3-42.

---

**2650005**

**Explanation:** Ethernet EEPROM integrity error.

**User Response:** Exchange the system board. See page 3-42.

---

**2650006**

**Explanation:** Ethernet buffer memory integrity error.

**User Response:**

- Exchange the memory simms one at a time.
- Exchange the system board. See page 3-42.

---

**2650008**

**Explanation:** Ethernet transmission loopback error.

**User Response:** Exchange the system board. See page 3-42.

---

**2650009**

**Explanation:** Ethernet host bus interface error.

**User Response:** Exchange the system board. See page 3-42.

---

**2650010**

**Explanation:** Ethernet adapter not available for RPL.

**User Response:** Exchange the system board. See page 3-42.

---

**I9990301**

**Explanation:** No boot device was found. The diskette drive and the LAN adapter are failing. The fixed disk is also failing, if one is present.

**User Response:**

1. Exchange the diskette drive. See page 3-41.
  2. Exchange the fixed disk. See page 3-40.
  3. Exchange the system board. See page 3-42.
- 

**I9990303**

**Explanation:** A boot drive failure occurred.

**User Response:**

1. Exchange the diskette drive if the system is trying to boot from a diskette. See page 3-41.
  2. Exchange the fixed disk if the system is trying to boot from the fixed disk. See page 3-40.
- 

**I9990305**

**Explanation:** No bootable media was found.

**User Response:** Insert a bootable diskette, install a boot record on the fixed disk, or connect the system unit to a LAN that is configured to boot the 4695 Model 201 or Model 211.

---

## POST Beep Codes – 4695 Models 201 and 211

Beep codes are sequences of tones that present hardware failures to the speaker. For example, beep code 2-1-4 (a burst of two beeps, a single beep, and a burst of four beeps) indicates a system board failure. Beep codes are required anytime a failure is detected prior to initialization of the video subsystem.

*Table 3-9 (Page 1 of 2). Beep Codes*

| Beep Code                | Description   | Corrective Action  |
|--------------------------|---|--|
| Two beeps following POST | An error was detected during POST.                  | Look for any displayed error messages. See "POST Messages – Models 201 and 211" on page 3-21.  |
| 1-1-4                    | A system board test error was detected during POST. | <ul style="list-style-type: none"> <li>• If a FLASH update was attempted just prior to this beep code, see "4695 Service Level Update Procedure" on page 3-4 and perform this procedure.</li> <li>• Exchange the system board. See page 3-42.</li> </ul> |

Table 3-9 (Page 2 of 2). Beep Codes

| Beep Code   | Description   | Corrective Action   |
|---|---|---|
| 1-1-2 1-1-3 1-2-1<br>1-2-2 1-2-3 1-2-4<br>2-1-1 2-1-2 2-1-3<br>2-1-4 2-2-1 2-2-2<br>2-2-3 2-2-4 2-3-1<br>2-3-2 2-3-3 2-3-4<br>2-4-1 3-1-1 3-1-2<br>3-1-4 3-2-1 3-2-2<br>3-2-3 | A system board test error was detected during POST. | <ul style="list-style-type: none"> <li>• Ensure that the fixed disk cable is correctly attached to the system board.</li> <li>• Exchange the system board. See page 3-42.</li> </ul>                            |
| 1-3-1<br>1-3-2<br>3-1-3   | A memory test error was detected during POST.       | <ul style="list-style-type: none"> <li>• Exchange the memory modules. See page 3-40.</li> <li>• Exchange the system board. See page 3-42.</li> </ul>  |
| One long beep followed by up to six short beeps   | A video subsystem error was detected during POST.   | Exchange the system board. See page 3-42.   |
| 3-2-4<br>3-3-1  | A memory size mismatch was detected during POST.    | <ul style="list-style-type: none"> <li>• Run setup to reconfigure CMOS. See page 3-55.</li> <li>• Exchange the memory module(s). See page 3-40.</li> <li>• Exchange the system board. See page 3-42.</li> </ul> |

## Run-time Error Messages – 4695 Models 201 and 211

These messages are called run-time errors because they typically occur during or after the boot load. When these errors occur, the BIOS displays, in segment:offset format, the address of the failing software instruction. See **xxxx:xxxx** in the Message column of Table 3-10. In cases of memory parity errors, the software instruction address can be, but is not always the location of the parity error. When an unexpected interrupt occurs, BIOS displays the failing interrupt number. (See **nn** in the Message column of 3-27.)

Table 3-10. Run-time Error Messages

| Message   | Description   | Corrective Action  |
|---|---|--|
| I/O card parity interrupt at <b>xxxx:xxxx</b> . Type (S)hut off NMI, (R)eboot, other keys to continue.    | Memory on an option adapter has failed.                         | Check the memory on the option adapters.   |
| Memory parity interrupt at <b>xxxx:xxxx</b> . Type (S)hut off NMI, (R)eboot, other keys to continue.      | A memory SIMM on the system board has failed.                   | Check the memory on the system board.  |
| Unexpected type 02 interrupt at <b>xxxx:xxxx</b> . Type (S)hut off NMI, (R)eboot, other keys to continue. | An NMI interrupt occurred, but the source cannot be determined. | Switch system <b>POWER OFF</b> and <b>ON</b> .   |
| Unexpected HW interrupt <b>nn</b> at <b>xxxx:xxxx</b> . Type (R)eboot, other keys to continue.            | A hardware problem occurred.                                    | Check all hardware in the system, especially option adapters.  |
| Unexpected SW interrupt <b>nn</b> at <b>xxxx:xxxx</b> . Type (R)eboot, other keys to continue.            | A software problem occurred.                                    | Switch <b>POWER OFF</b> . If the failure occurs again, check the application programs you are running in the system. |

## Test Error Messages – 4695 Models 201 and 211

---

### 603 Diskette size error

**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Ensure that the diskette is either a 1 MB or 2 MB diskette.
  - 2 Ensure that the diskette is correctly formatted.
  - 3 Use a known good diskette.
- 

### 606 Diskette verify failed

**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

### 607 Write-protect failure

**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
  - 2 Exchange the diskette drive. See page 3-41.
  - 3 Exchange the system board. See page 3-42.
- 

### 626 Data compare error

**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

### 627 Diskette change error

**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
- 2 Exchange the diskette drive. See page 3-41.
- 3 Exchange the system board. See page 3-42.

---

**631 Error – cause undetermined**  
**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
- 2 Exchange the diskette drive. See page 3-41.
- 3 Exchange the system board. See page 3-42.

---

**645 No index pulse**  
**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
- 2 Exchange the diskette drive. See page 3-41.
- 3 Exchange the system board. See page 3-42.

---

**648 Format test failed**  
**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Use a known good diskette.
- 2 Exchange the diskette drive cable. See page 3-41.
- 3 Exchange the diskette drive. See page 3-41.
- 4 Exchange the system board. See page 3-42.

---

**649 An incorrect media type is in the drive.**  
**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Use a known good 1 or 2 MB diskette.
- 2 Exchange the diskette drive. See page 3-41.

---

**650 No media is detected in the drive.**  
**Explanation:** A diskette drive test error occurred.

**User Response:**

- 1 Ensure that the diskette is installed correctly.
- 2 Exchange the diskette drive cable. See page 3-41.
- 3 Exchange the diskette drive. See page 3-41.
- 4 Exchange the system board. See page 3-42.

---

**Address mark not found**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**Attachment failed to respond**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
  - 2 Exchange the diskette drive. See page 3-41.
  - 3 Exchange the system board. See page 3-42.
- 

**CRC on diskette read operation**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**Diskette controller has failed.**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
  - 2 Exchange the diskette drive. See page 3-41.
  - 3 Exchange the system board. See page 3-42.
- 

**Media removed**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Install a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**Media type not found.**

**Explanation:** Diskette drive test failure.

**User Response:** The diskette is formatted incorrectly.



---

**Media type not supported**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 The diskette formatted incorrectly.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**No media installed in the drive**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Exchange the diskette drive cable. See page 3-41.
  - 2 Exchange the diskette drive. See page 3-41.
  - 3 Exchange the system board. See page 3-42.
- 

**Requested sector not found**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**Seek and diskette controller failed**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Use a known good diskette.
  - 2 Exchange the diskette drive cable. See page 3-41.
  - 3 Exchange the diskette drive. See page 3-41.
  - 4 Exchange the system board. See page 3-42.
- 

**Seek operation failed**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 Use a known good diskette.
- 2 Exchange the diskette drive cable. See page 3-41.
- 3 Exchange the diskette drive. See page 3-41.
- 4 Exchange the system board. See page 3-42.

---

**Write attempted on protected diskette**

**Explanation:** A diskette drive test failure occurred.

**User Response:**

- 1 The diskette write-protect tab is in the protect-position. Move it to the write-position and try this test again.
- 2 Exchange the diskette drive cable. See page 3-41.
- 3 Exchange the diskette drive. See page 3-41.
- 4 Exchange the system board. See page 3-42.

---

**1701 through 1718**

**Explanation:** Fixed disk test error messages.

**User Response:**

**Note:** Message 1713 is a status message only, no action is required.

- 1 Exchange the fixed disk cable. See page 3-40.

**Note:** The user may want to try to backup the fixed disk before exchanging it. Otherwise, user data may be lost.

- 2 Exchange the fixed disk. See page 3-40.

---

**5601 and 5603**

**Explanation:** Pointing device (mouse) test error messages.

**User Response:** If the failure persists, exchange the pointing device.

## Service Diskette Messages – Models 201 and 211

---

**M0002 The system board is failing.**

**Explanation:** A system board failure was detected while running the service diskette.

**User Response:** Exchange the system board. See page 3-42.

---

**M2000 A driver command failed for PORT/POLL address (xxxx) ON TERMINAL x**

**Explanation:** xxxx is the port/poll address of the device associated with this error.

- 1 The service diskette may be defective. Try another service diskette.
- 2 The device associated with the port/poll address is failing.
- 3 There are incompatible features installed (two devices answering to the same Device Channel address).

**User Response:**

- Exchange the device.
- If the problem persists, use a new service diskette.

---

**M0320 Primary keyboard is failing.**

**Explanation:** There is no keyboard on this terminal suitable for use as a console keyboard.

**User Response:** If M0320 remains in the display, ensure that the keyboard cable is connected to the keyboard and to the 4695 system.

If the cable, sockets, and connections are OK, switch **POWER OFF** and follow this list to isolate and correct the cause of the problem:

- 1 Make sure that a known good keyboard is connected to the terminal.
- 2 Reboot the terminal and retry the operation.
- 3 Exchange the keyboard cable.
- 4 Exchange or service the keyboard. See the *IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.
- 5 Exchange the system board. See page 3-42.

---

**M0330 Primary display failed.**

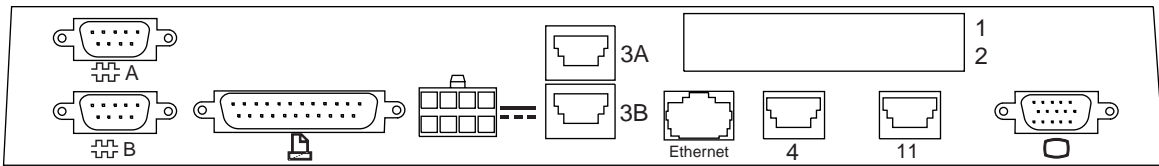
**Explanation:** There is no display on this terminal suitable for use as a console display.


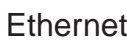










**User Response:** If M0330 remains in the display, ensure that the display cable is connected to the display and to the 4695.

If the cable, sockets, and connections are OK, switch **POWER OFF** and follow this list to isolate and correct the cause of the problem.

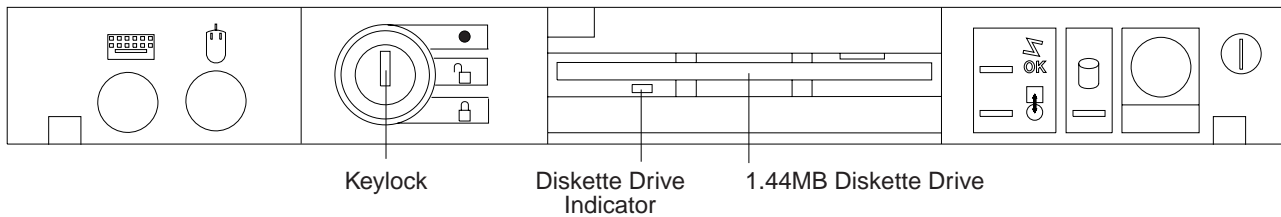
- 1 Reboot the terminal and retry the operation.
- 2 Exchange the display cable.
- 3 Exchange the display.
- 4 Exchange the system board. See page 3-42.










## Rear Connector Panel – 4695 Models 201 and 211



|   |    |                                |   |          |                                       |
|---|----|--------------------------------|---|----------|---------------------------------------|
|  | A  | External serial device (COM1)  |  | Ethernet | Ethernet cable                        |
|  | B  | External serial device (COM2)  |  | 4        | POS customer display                  |
|  |    | Parallel port                  |  | 11       | Serial I/O (SIO) satellite            |
|  |    | Power plug (from power supply) |  |          | VGA video (CRT)                       |
|  | 3A | POS cash drawer                |  | 1        | PCMCIA card slot 1 (optional feature) |
|  | 3B | POS cash drawer                |  | 2        | PCMCIA card slot 2 (optional feature) |

## Front Panel – 4695 Models 201 and 211



|   |                            |   |                            |
|---|----------------------------|---|----------------------------|
|  | Keyboard cable connector   |  | Diskette drive is locked   |
|  | Mouse cable connector      |  | Ethernet link OK           |
|  | Manager's mode             |  | Ethernet data activity     |
|  | Diskette drive is unlocked |  | Fixed disk drive indicator |
|   |                            |  | Power button               |

### Notes:

1. The manager's mode position unlocks the diskette drive, touch screen, and system unit cover to allow you to remove the touch screen and system unit cover. You cannot remove the key.
2. When the diskette drive is unlocked, The touch screen and system unit cover remains locked, preventing removal. You can remove the key.
3. When the diskette drive is locked, diskettes cannot be inserted or removed. The touch screen and system unit cover also remain locked, preventing removal. You can remove the key.

## Removals and Replacements – 4695 Models 201 and 211

**Note:** Switch **POWER OFF** and disconnect the power cord from the electrical outlet before performing any of the removal and replacement procedures.

### Removing and Replacing the Tablet

- 1 Turn the key to the manager's mode position (fully counterclockwise).
  - 2 Insert a small flat-blade screwdriver into the opening near the diskette drive as shown in Figure 3-23. Push the screwdriver inward to release the bottom edge of the tablet from the wedge. Slide the tablet upward to remove it.
- Attention** Do not insert the screwdriver into the diskette drive.
- 3 Disconnect the digital interface cable from the rear of the touch screen controller card.
  - 4 To exchange the tablet, make sure that the tablet latches are in the position shown in Figure 3-24.
  - 5 Connect the digital interface cable to the rear of the tablet.
  - 6 Align the tabs and insert them into the openings in the rear tablet cover.
  - 7 Press inward at the bottom of the tablet to latch it into position.

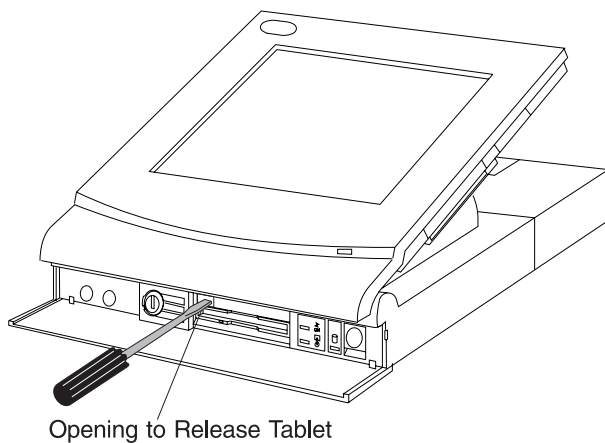


Figure 3-23. Removing the Tablet

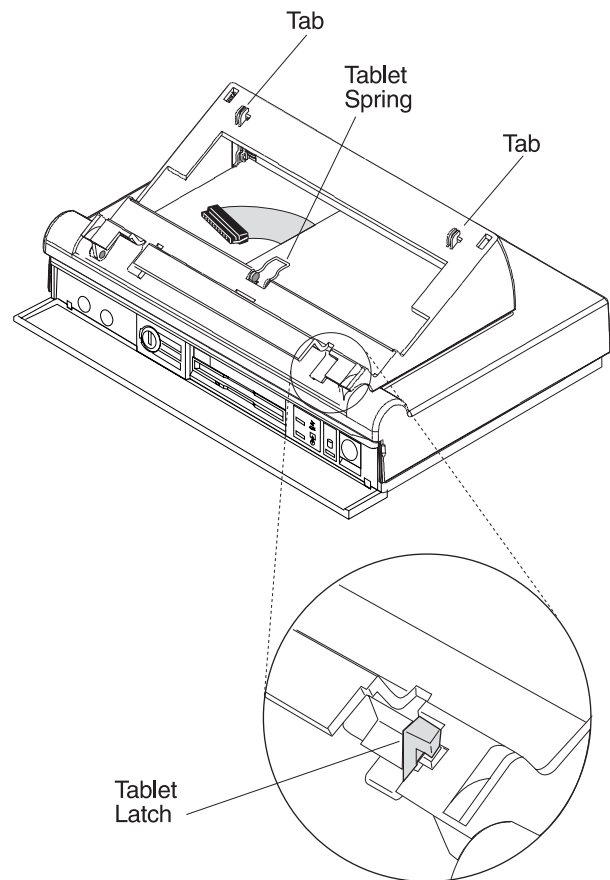


Figure 3-24. Replacing the Tablet

## Removing and Replacing the MSR or MSR Blanks

- 1 Insert a small allen wrench or paper clip into one of the two slots underneath the MSR or blanks as shown in Figure 3-25. Push the clip upward to unlatch the snaps on the MSR or MSR blank and pull out sideways from the tablet. Repeat this procedure for the second slot.
- 2 To exchange the MSR or MSR blanks, align it to the tablet, and push inward until it snaps into position.

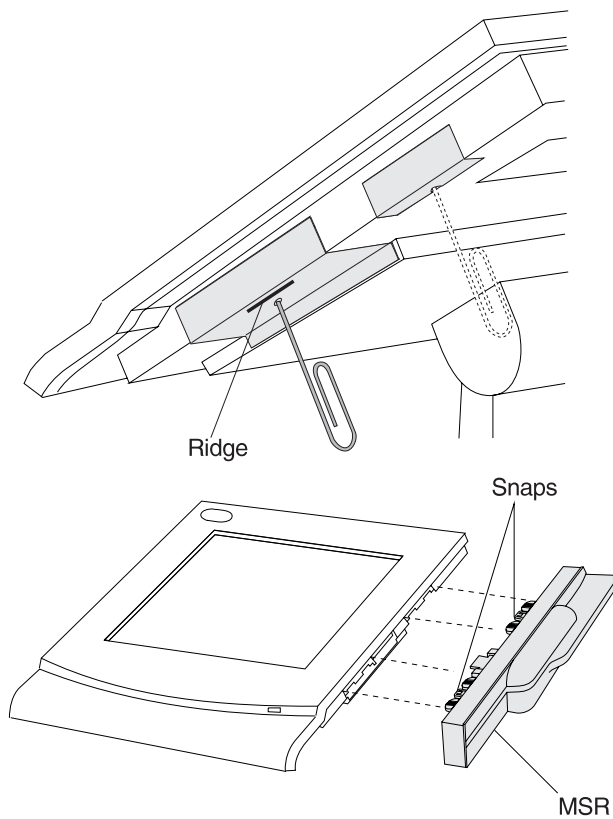


Figure 3-25. Removing the MSR or MSR Blanks

## Removing and Replacing the Tablet FRUs

**Note:** It is not necessary to remove the tablet from the wedge to remove or exchange the FRUs inside the tablet. If you want to remove the tablet from the wedge, see Figure 3-23 on page 3-35. Otherwise, continue at the next step.

- 1 Remove the tablet cover by inserting a small flat-blade screwdriver into the slots at the top rear of the cover and prying the cover loose.

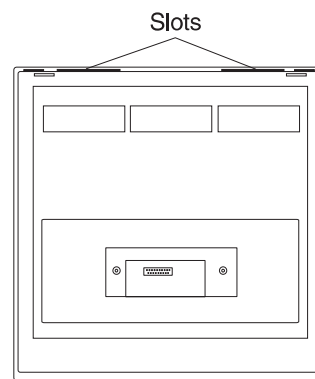


Figure 3-26. Removing the Tablet Cover

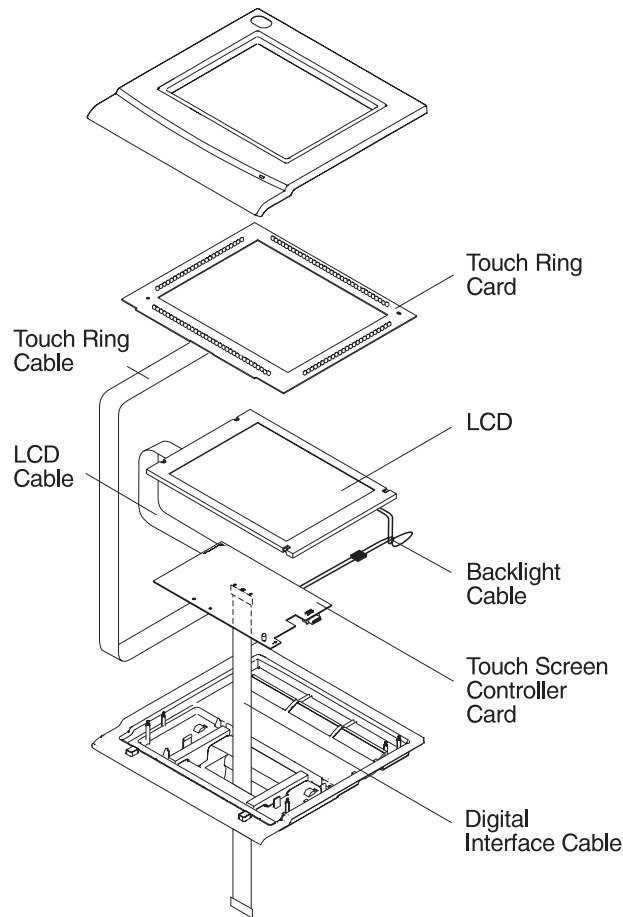


Figure 3-27. Removing the Tablet FRUs

- 2 Disconnect the touch ring cable from the touch ring card. See Figure 3-27.
- 3 Remove the touch ring card.
 

**Attention** Do not touch the LCD surface. If necessary, clean the surface using isopropyl alcohol and a soft cloth.
- 4 Unplug the backlight cable and LCD cable from the LCD.
- 5 Carefully remove the LCD.
- 6 If you have a color LCD, remove the ground strap. See Figure 3-28.
- 7 If you have a 9.5 in. color LCD, continue at step 10 on page 3-38. To remove the backlight from a monochrome LCD, remove the three screws from the backlight cover. If you have a 10.4 in. color LCD, see “Removing and Replacing the 4695 LCD Backlight (10.4 in.)” on page 3-38.

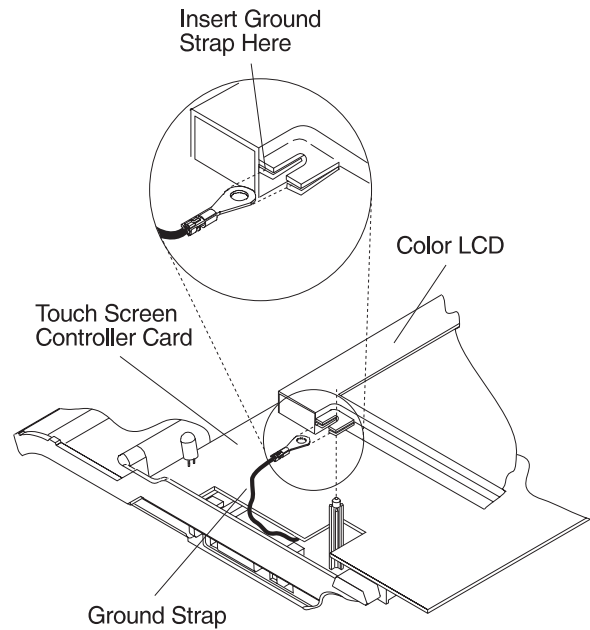


Figure 3-28. Removing the Ground Strap

- 8 Lift the backlight and backlight cable out of the LCD.
- 9 Install the new backlight with the cable routed as shown in Figure 3-29. Continue at step 13 on page 3-38.

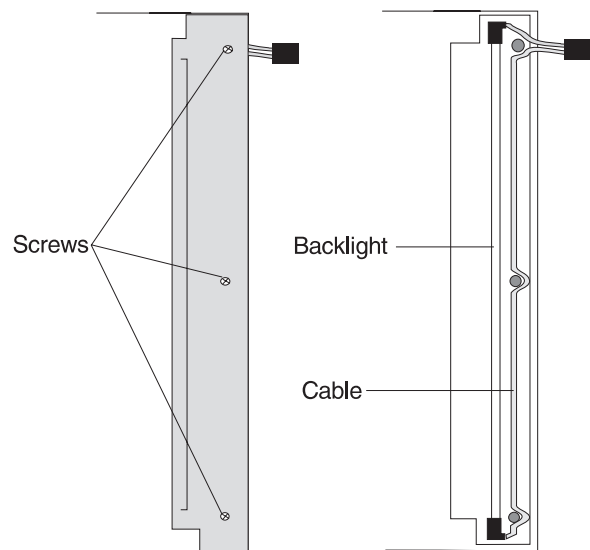


Figure 3-29. Removing the Monochrome Backlight

- 10 To remove the backlight from the color display, remove the two screws from the backlight cover.
- 11 Lift the backlight and backlight cable out of the display.
- 12 Install the new backlight with the cable routed underneath the tabs as shown in Figure 3-30.
- 13 If you have an MSR installed, remove the MSR. See "Removing and Replacing the MSR" on page 3-17.
- 14 To remove the touch screen controller card, disconnect the remaining digital interface cable from the card and unlatch the snap at the left side of the card. When exchanging the card, position it using the locating pins and holes.
- 15 To exchange the tablet FRUs, reverse this procedure.

**Note:** When replacing the tablet cover, align the bottom edge first and then snap it together at the top edge.

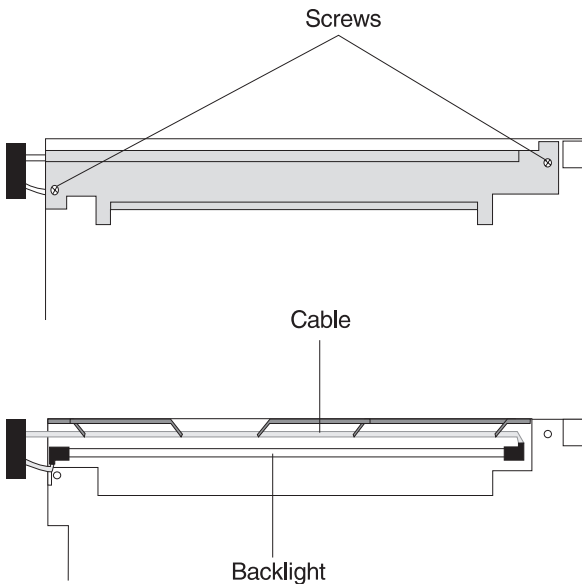


Figure 3-30. Removing the Color Backlight

## Removing and Replacing the 4695 LCD Backlight (10.4 in.)

- 1 Switch **POWER OFF** and disconnect the power cord from the electrical outlet before performing any of the removal and replacement procedures.
- 2 Free the backlight wires from the retainer tabs. See Figure 3-31.
- 3 Pull the backlight latch outward and, using your fingernail or a small screwdriver, lift the backlight assembly up and out of the cavity in the display.
- 4 Reverse this procedure to exchange the backlight, making sure that the wires are properly routed between the retainer tabs.

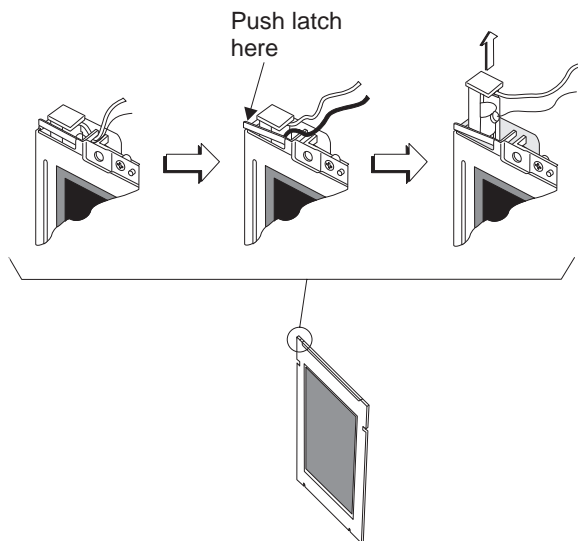


Figure 3-31. Removing 10.4 inch Color Backlight.



## Removing and Replacing the Top Cover

**Attention** Establish personal grounding before touching this unit. See “Electrostatic Discharge (ESD)” on page x.

- 1 Turn the key to the manager’s mode position (fully counterclockwise) to unlock the cover.

**Note:** If no keylock is installed, the blank lock insert must be removed and the lock assembly must be rotated to the manager’s mode position (fully counterclockwise) using the aligner tool. See “Removing and Replacing a Blank Lock Insert” on page 3-50.

- 2 Open the rear cover and press the latches inward as shown in Figure 3-32 to disengage the cover.

- 3 Slide the cover in the direction shown (toward the front) until it stops.

**Attention** There is a digital interface cable from the display to the system board. When lifting the cover to remove it, be careful not to put too much strain on the cable.

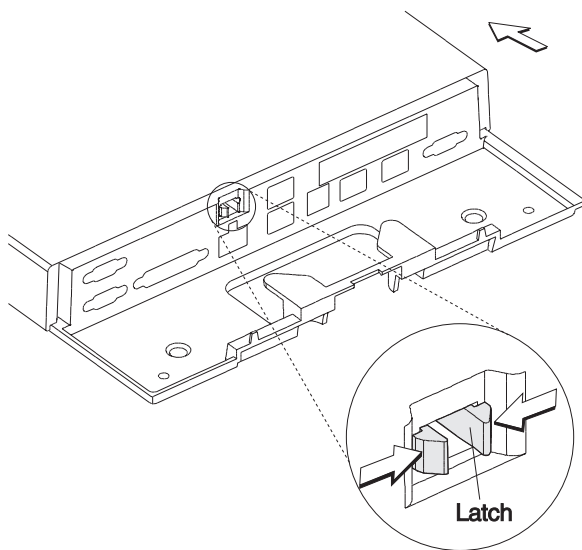


Figure 3-32. Removing the Top Cover

- 4 Lift the cover up and tilt to the side (facing the front) far enough to reach in and disconnect the digital interface cable from the system board. To disconnect the digital interface cable, press in on both sides and pull up.

- 5 To install the cover, connect the digital interface cable to the system board. Position the cover so that it fits over the ridges on the base as shown in Figure 3-33. Lower the cover onto the base and slide it to the rear until the latch engages the rear connector panel.

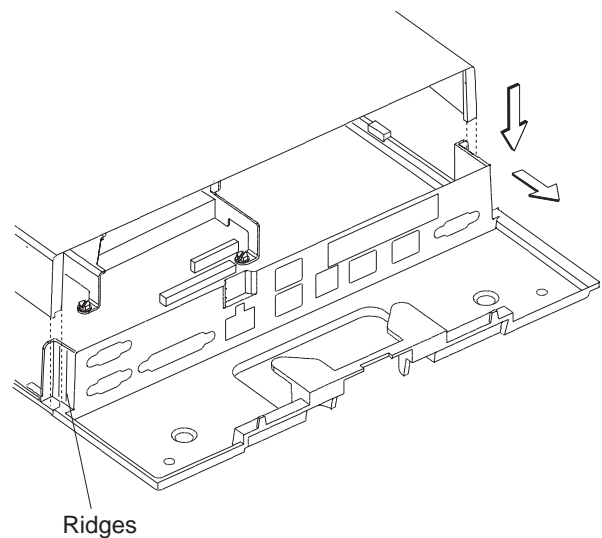


Figure 3-33. Installing the Cover

## Removing and Replacing Memory Modules

**Note:** There are two memory module sockets on 4695 Models 201 and 211 system boards. You can install combinations of memory modules from 2 MB up to 64 MB. If you have only one module to install, it can be plugged into either socket. If you have two modules to install, plug any size module into either socket.

- 1 Remove the top cover. See page 3-39.
- 2 To remove the memory modules, release the retainers and tilt the module inward and lift it out of the socket.
- 3 When exchanging a memory module, insert it into the socket as shown in Figure 3-34 and rotate it upright until it latches into place.
- 4 Reinstall the top cover.

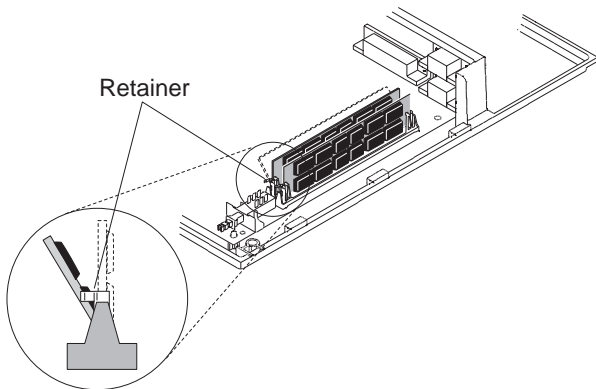


Figure 3-34. Installing a Memory Module

## Removing and Replacing the Fixed Disk

- 1 Remove the top cover. See page 3-39.
  - 2 Disconnect the fixed disk cable from the system board.
  - 3 Pull outward on the metal retainer to release it from the tabs and lift up as shown in Figure 3-35.
- Note:** If the fixed disk is fastened to the bracket with four screws, remove the screws.
- 4 Remove the fixed disk from the bracket.
  - 5 Disconnect the cable from the rear of the fixed disk.
  - 6 Connect the cable to the new fixed disk and verify that the address jumper is in place.
- Note:** Looking at the rear of the fixed disk, the jumper must be plugged to the two connector pins at the extreme right end.
- 7 Perform the above steps in reverse order to install a new fixed disk.

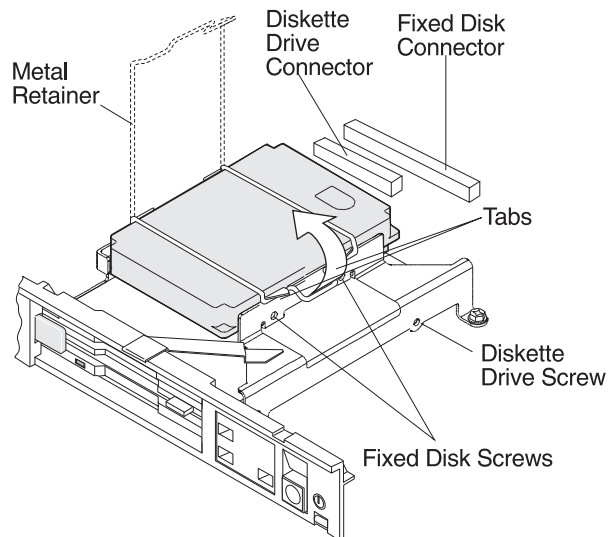


Figure 3-35. Removing the Fixed Disk

## Removing and Replacing the Diskette Drive

- 1 Remove the top cover. See page 3-39.
- 2 Disconnect the fixed disk cable from the system board.
- 3 Unclamp the diskette drive cable and disconnect it from the system board.  
**Note:** The diskette drive cable connector does not unplug from the system board. See Figure 3-36.
- 4 Remove the four screws that fasten the disk drive bracket to the system board and lift the drive and bracket out.
- 5 Remove the four screws that fasten the diskette drive to the bracket and remove the drive.
- 6 Unclamp and remove the diskette drive cable from the drive.
- 7 To install a new diskette drive, perform the above steps in reverse order.

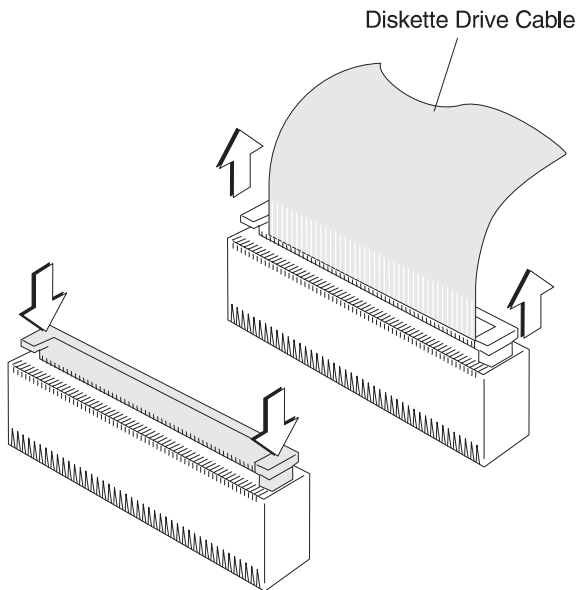


Figure 3-36. Removing the Diskette Drive Cable

## Removing and Replacing the Front Panel

- 1 Remove the top cover. See page 3-39.
- 2 Disconnect the keyboard and pointing device cables (if attached).
- 3 Remove the two screws that fasten the front panel to the base.
- 4 Remove the four screws holding the diskette drive bracket to the system board.
- 5 Remove the front panel by lifting up the diskette drive bracket and sliding the panel to the front.  
**Note:** If you are exchanging the front panel, you must remove the lock assembly and the door and install them on the new panel. See "Removing and Replacing the Lock Assembly FRUs" on page 3-48 and "Removing and Replacing the Front Door" on page 3-52.
- 6 To exchange the front panel, perform the above steps in reverse order.

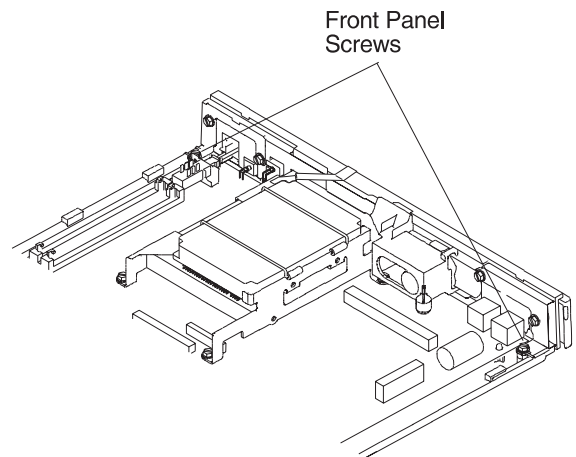


Figure 3-37. Removing the Front Panel

## Removing and Replacing the System Board

- 1 Remove the top cover. See page 3-39.
- 2 Remove the four screws holding the diskette drive and the fixed disk drive bracket to the system board.
- 3 Disconnect the diskette drive and the fixed disk drive cables from the system board. See page 3-40.
- 4 Remove the front panel. See page 3-41.
- 5 Remove the following parts from the old system board, if installed on system boards with serial numbers beginning with 41-Dxxxx and above or 77-S2xxx and above. See Figure 3-38 for serial number location.
  - Processor, see Removing and Replacing the Processor.
  - Memory modules, see page 3-40.
  - Expansion Adapter, see page 3-44.
  - Video RAM, see page 3-43.
- 6 Lift the system board up and out of the system unit.
- 7 Install the parts, if any, from the old system board onto the new system board.

### Notes:

- a. Make sure the processor type jumpers on the new board are in the same locations as the jumpers on the old board.
  - b. Leave the password and the service level update jumpers in the default positions. See Figure 3-43 on page 3-45 and Table 3-11 on page 3-46.
- 8 Reassemble.
  - 9 Run setup to configure the CMOS RAM. See "Running Setup – 4695 Models 201 and 211" on page 3-55.

## Removing and Replacing the Processor

- 1 Remove the top cover. See page 3-39.
- 2 Place the front of the system unit facing you.
- 3 Slightly push the locking lever towards the left side and then lift upward. See Figure 3-38.
- 4 Remove the old processor.
- 5 Locate pin 1 on the new processor. Look for one of the following markings that indicates the pin 1 location:
  - A beveled corner of the processor casing.
  - A dot located in a corner on the top of the processor casing.
  - A square solder joint (instead of round) at the base of a pin (bottom view).
- 6 Install the new processor with pin 1 located in the lower left corner.
- 7 Make sure the processor jumpers are in the correct locations for the new processor. See Table 3-11 on page 3-46 for the locations on the processor jumpers.
- 8 Reassemble.

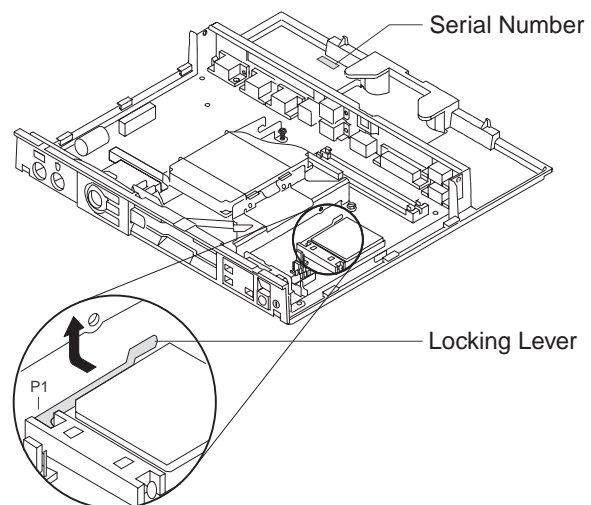


Figure 3-38. Processor Locking Lever

## Removing and Replacing the Video RAM

**Note:** Removal and replacement procedures are also included in the video RAM package.

- 1 Remove the top cover. See page 3-39.
- 2 Place the front of the system unit facing you.
- 3 If an expansion adapter is installed, remove it now. See "Installing the Expansion Feature" on page 3-44.

- 4 Insert one side of the extraction tool (part number 25F9651) into the extraction cavity located at one end of the chip carrier socket. See Figure 3-39 and Figure 3-40.

**Note:** Insertion of the extraction tool with an incorrect angle results in damage to the chip carrier socket.

- 5 With a slight downward pressure, rotate the tool away from the chip carrier and pry the corner of the chip away from the chip carrier socket.
- 6 Repeat steps 4 and 5 on the opposite extraction slot and lift chip out of the chip carrier socket.
- 7 Reassemble.

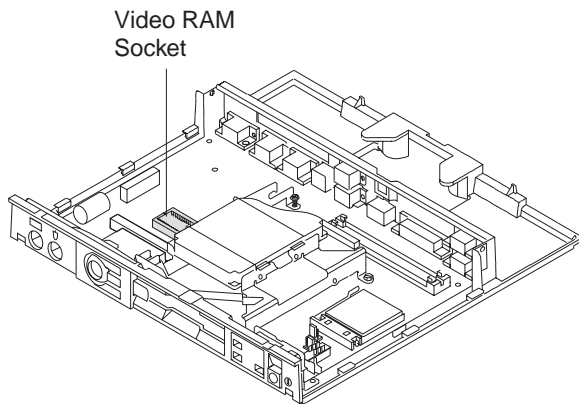


Figure 3-39. Video RAM Socket Location

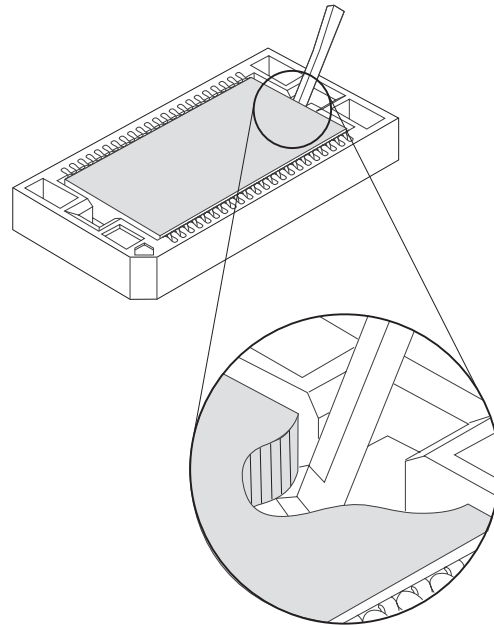
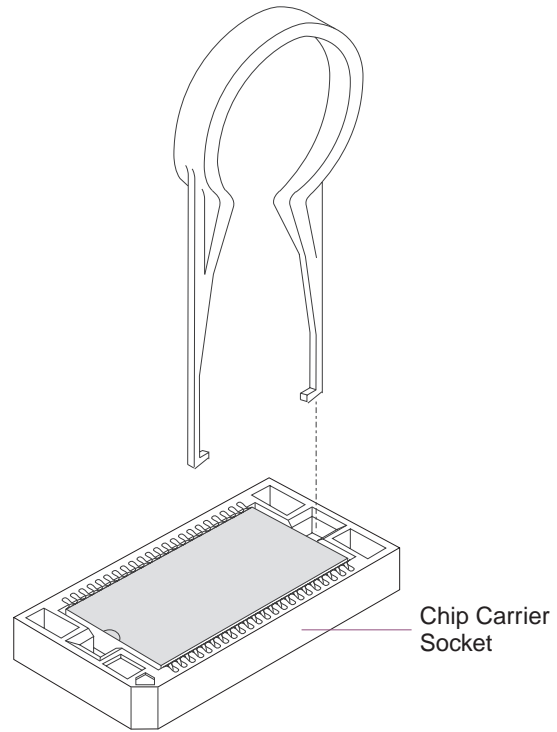


Figure 3-40. Video RAM Tool

## Installing the Expansion Feature

- 1 Remove the top cover. See page 3-39.
- 2 Plug the standoff into the feature card. See Figure 3-41.
- 3 Place the end of the feature card into the rear panel.
- 4 Align the connector with the socket on the system board. Push down on the feature card to ensure the connector is securely attached to the system board.
- 5 Align the standoff with the hole in the system board and push down to snap it into place.
- 6 Loosen the diskette drive bracket screw and insert the ground wire between the screw and the bracket. Tighten the screw.  
**Note:** A ground wire is not present on the *4695 Point-of-Sale Adapter*.
- 7 Install the expansion feature controller cable. See Figure 3-42.

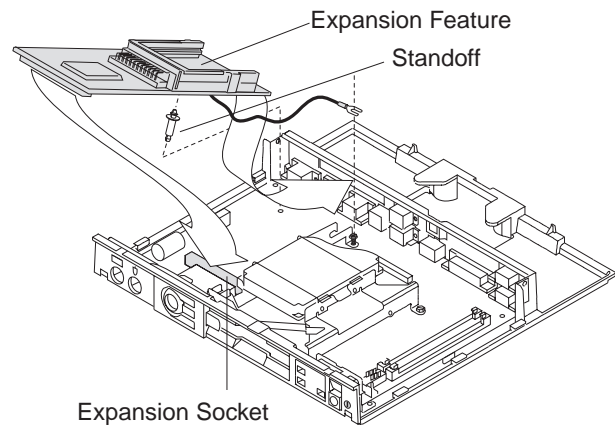


Figure 3-41. Installing the Expansion Feature

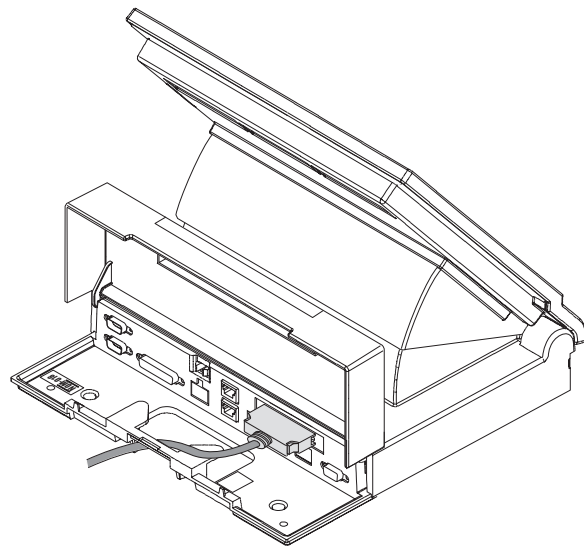


Figure 3-42. Installing the Controller Cable

## Jumper Information

Figure 3-43 shows the system board jumper locations. See Table 3-11 and Table 3-12 on page 3-46 for jumper descriptions.

**Note:** The blowout in Figure 3-43 showing JP10 and JP11 is for Cyrix processors only.

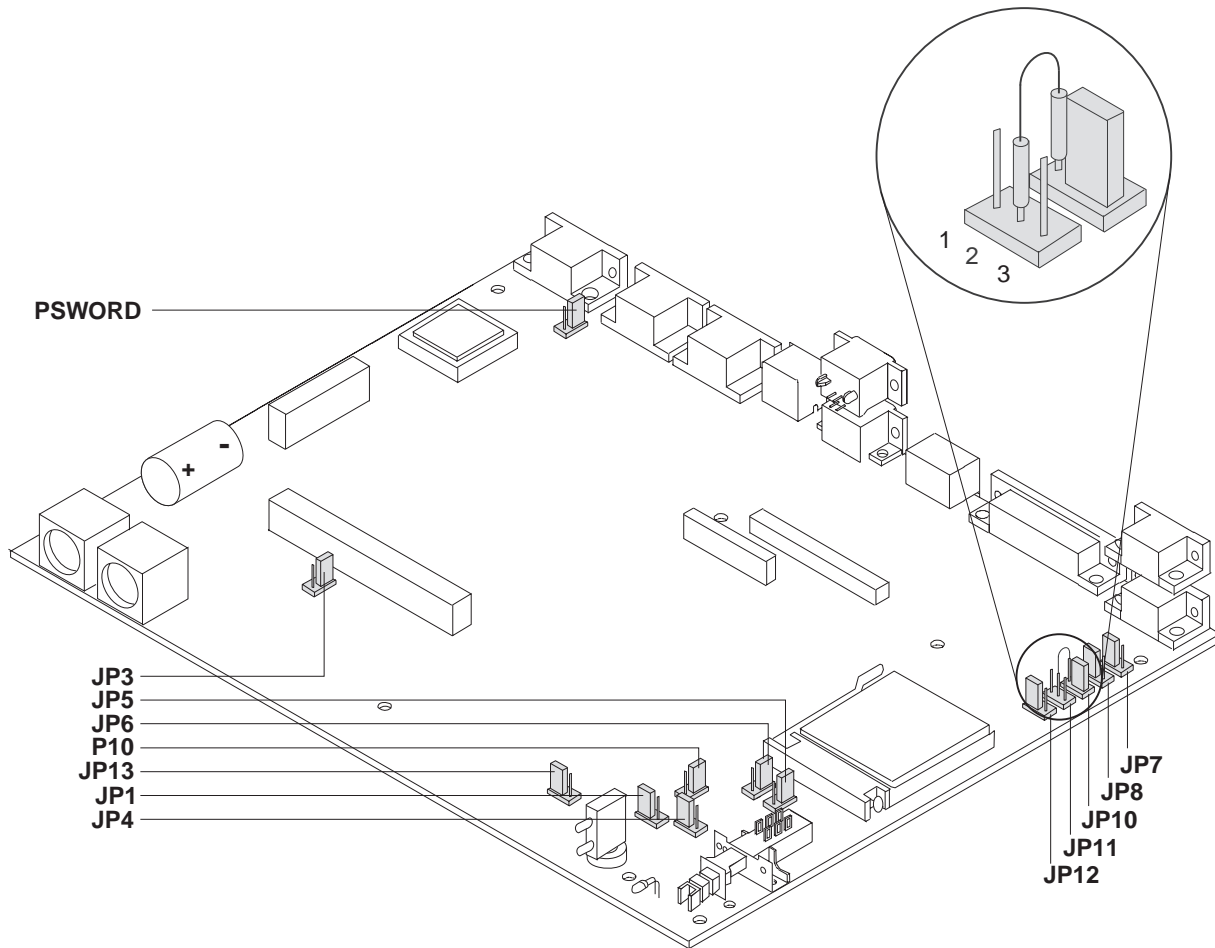


Figure 3-43. System Board Jumper Locations

| <i>Table 3-11. Processor Jumper Locations</i> |  |   |
|---|--|---|
| <b>Jumper Name</b>                            | <b>Jumper Description</b>  | <b>Pin Connections</b>  |
| JP1   | Processor Frequency Select   | Pins 1-2 jumpered for 25 Mhz<br>Pins 2-3 jumpered for 33 Mhz  |
| JP3   | Service Level Update - toggle to other position when system power is interrupted during a service level update (FLASH Update). | Pins 1-2 are default positions.   |
| JP4   | Processor Type   | Pins 1-2, 486 DX, DX2 or DX4 processor<br>Pins 2-3, 486 SX processor  |
| JP5 and JP6                                   | Processor Voltage<br>Note: JP5 and JP6 must always match each other.   | Pins 1-2 jumpered for 5 V<br>Pins 2-3 open for 3.45 V   |
| JP7   | Processor Type   | Pins 1-2, other 486 processors<br>Pins 2-3, Cyrix pinout processor  |
| JP8   | Processor Type   | Pins 1-2, other 486 processors<br>Pins 2-3, Cyrix pinout processor  |
| PSWord  | Password   | Pins 1-2, default positions - toggle to other position to reset power-on password.  |
| JP10  | Processor Type   | Pins 1-2, other 486 processors<br>Pins 2-3, Cyrix pinout processor<br><br>A special jumper is required when using a Cyrix pinout processor. The jumper is connected to JP10 pin 1 and JP11 pin 2. See Figure 3-43 on page 3-45. |
| JP11  | Processor Type   | Pins 1-2, AMD and other 486 processors<br>Pins 2-3, not used<br>OPEN for Cyrix pinout processor   |
| JP12  | Processor Type   | Pins 1-2, other 486 processors<br>Pins 2-3, Cyrix 3.45 V processors<br>OPEN for Cyrix 5.0 V   |
| JP13  | Processor Type   | Pins 1 and 2 for AMD DX2s<br>OPEN for other processors  |

| <i>Table 3-12. Power Jumper Locations</i> |  |
|---|--|
| <b>Jumper</b>                             | <b>Description</b>                           |
| P10                                       | +5.0 V heat sink fan power connector, +5.0 V |



## Removing and Replacing the Power Button

- 1 Remove the top cover. See page 3-39.
- 2 Remove the front panel. See page 3-41.
- 3 Lift the clip upward from the power button.
- 4 Pull the power button off of the switch shaft.
- 5 To install the power button, perform these steps in reverse order.

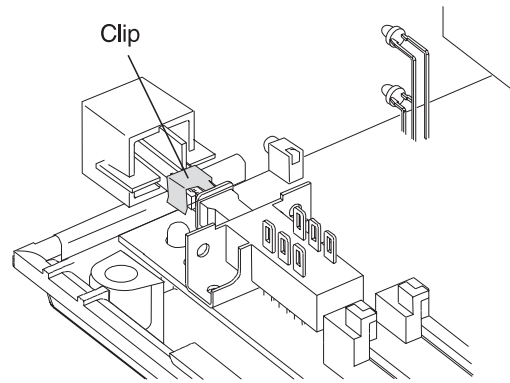


Figure 3-44. Removing the Power Button Clip

## Removing and Replacing the Lock Assembly FRUs

- 1 Remove the top cover. See page 3-39.
- 2 Remove the front door. See page 3-52.
- 3 Remove the front panel. See page 3-41.
- 4 Position the keylock in the unlocked position (center position).
- 5 Lift and remove the clip to release the flag assembly.
- 6 Slide the flag assembly and spacer off the keylock barrel. The lock gear falls out of the flag assembly as it is pulled off the shaft.
- 7 Remove the keylock from the front panel.
- 8 To exchange the lock assembly FRUs, place the keylock in the unlocked position (center position) and insert it into the front panel.
- 9 Slide the flag assembly and spacer onto the keylock and place the lock gear on the end of the keylock shaft.
- 10 Place the keylock in the locked position (fully clockwise).
- 11 Position the flag assembly and lock gear as shown in Figure 3-45.
- 12 Rotate the keylock counterclockwise enough to fasten the flag assembly into place with the clip.  
**Note:** The clip goes between the lock spacer and the flag assembly.
- 13 Reinstall the front panel, front cover, and the top cover.

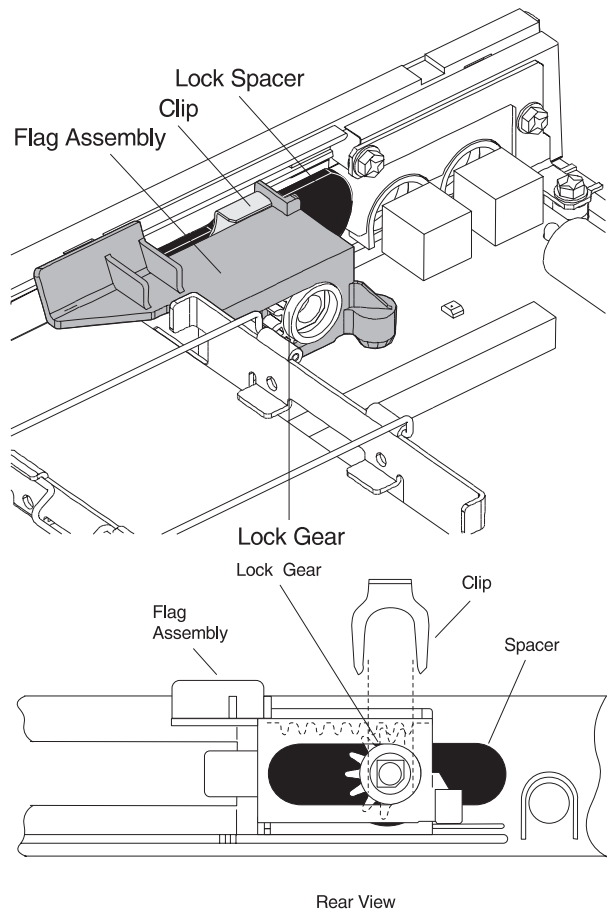
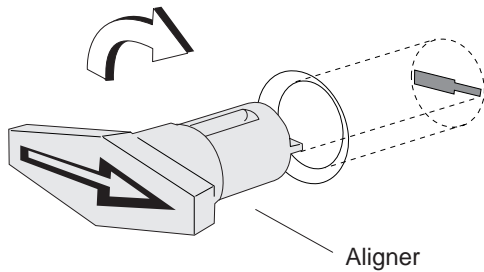


Figure 3-45. Lock Assembly

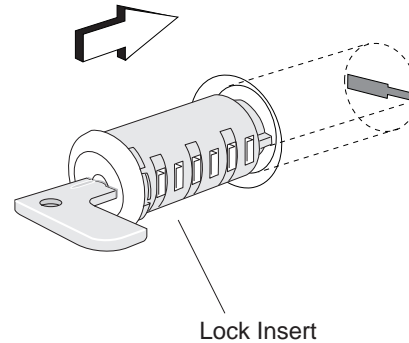
## Removing and Replacing a Lock Insert

- 1 To remove the lock insert, place the brass installation/removal key **fully** into the lock.
- 2 Gently pull the brass key.  

The brass key and the lock insert comes out of the lock cylinder together. Pressing downward or sideways on the brass key as you pull makes it easier for the lock insert to come out along with the brass key.
- 3 To exchange the lock insert, place the aligner into the empty lock cylinder and gently turn the aligner until you feel it go into the slot at the bottom of the lock cylinder.
- 4 Turn the aligner so that the arrow points in the direction shown.



- 5 Remove the aligner.
- 6 Remove the keys that came with the lock insert.
- 7 Place the brass installation/removal key **fully** into the lock insert.
- 8 Hold the lock and brass key so that the key points in the same direction as did the aligner.
- 9 Push the lock insert and brass key **fully** into the empty lock cylinder.

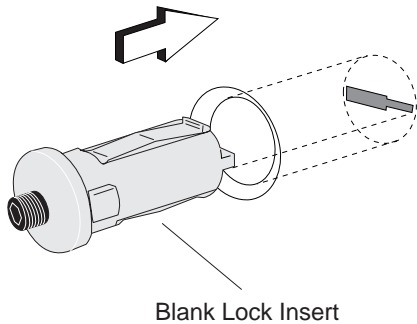


- 10 Hold the lock insert in place with your finger and remove the brass key.
- 11 Test the lock to be sure it operates correctly with the keys.

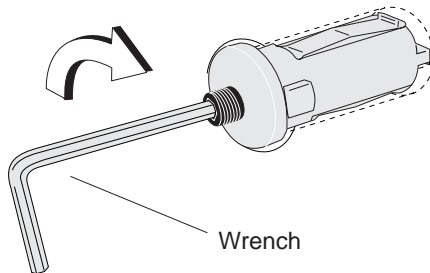
## Removing and Replacing a Blank Lock Insert

Blank lock inserts are used to cover the opening at the lock cylinder if no lock has been installed.

- 1 To remove the blank lock insert, use the blank lock allen wrench to turn the locking screw counterclockwise until the insert can be removed. The blank lock inserts have a lug on one end that must be aligned.
- 2 To exchange the blank lock insert, position the blank lock insert so that the lug is aligned with the slot in the lock cylinder.
- 3 Install the blank lock insert into the empty lock cylinder until it is flush with the top of the lock cylinder.



- 4 Use the blank lock allen wrench to turn the locking screw clockwise until it reaches the bottom of the hole. Do not overtighten.



## Removing and Replacing the Upper Wedge

- 1 Remove the tablet. See Figure 3-23 on page 3-35.
- 2 Remove the top cover. See page 3-39.
- 3 Pivot the wedge to the uppermost position.
- 4 Pry the two tabs on the upper wedge inward to release them from the lower wedge. This may be easiest to do from underneath the lower wedge.
- 5 Using grease part number 93F0415, lubricate the grooves inside the new upper wedge.
- 6 Position the upper wedge so that the grooves align with the ends of the gear shaft in the lower wedge.
- 7 Press the tabs at the front of the upper wedge into the grooves at the front of the lower wedge until they snap into place. Ensure that the upper wedge tilts up and down without binding.

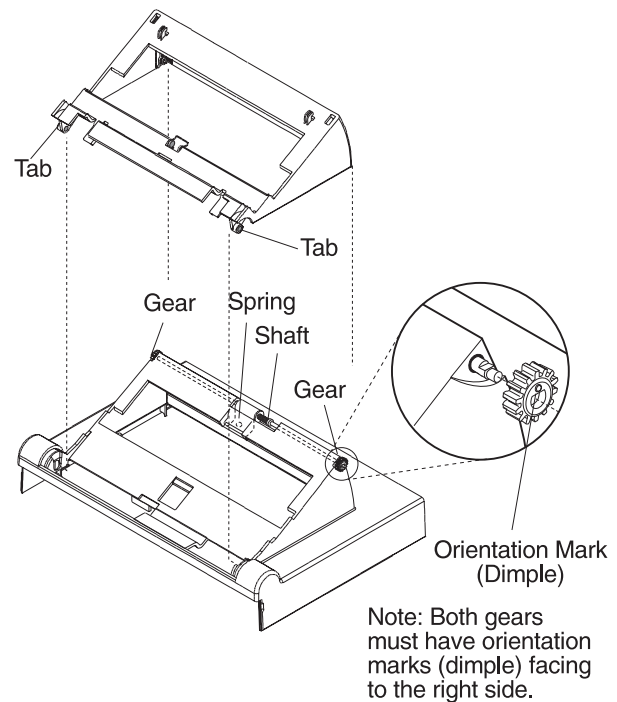


Figure 3-46. Removing and Replacing the Upper Wedge

## Removing and Replacing the Tablet Latch

- 1 Remove the top cover. See page 3-39.
- 2 Remove the upper wedge from the lower wedge. See page 3-50.
- 3 Press the tab on the upper wedge as shown in Figure 3-47.
- 4 Turn the upper wedge upside down, press the two tabs, and remove the tablet latch in the direction shown in Figure 3-48.
- 5 Press the latch spring on both sides and remove it.
- 6 To exchange the tablet latch, press the two tabs and slide the tablet latch down into the cover as shown in Figure 3-48.

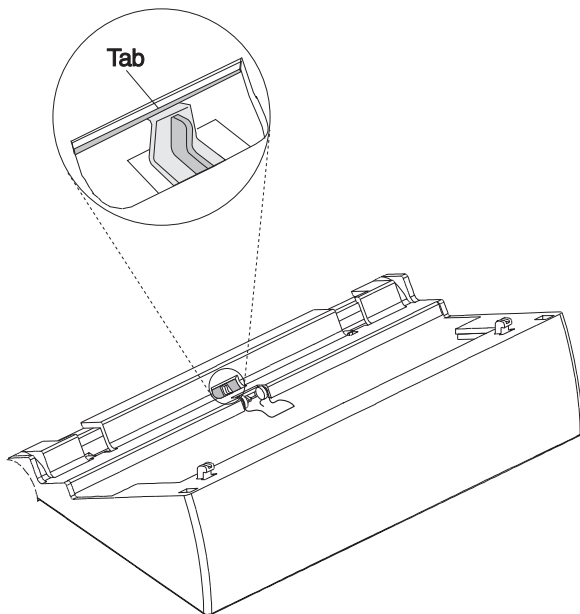


Figure 3-47. Removing the Tablet Latch - Part 1

## Removing and Replacing the Lower Wedge Shaft Assembly

- 1 Remove the upper wedge. See page 3-50.
- 2 Pull the two gears off the shaft in the lower wedge.
- 3 Unclip the spring from the lower wedge.
- 4 Slide the shaft to the right until you can remove it from inside the wedge.
- 5 To exchange the shaft assembly, lubricate the ends of the shaft with grease part number 93F0415. Perform the above steps in reverse order.

**Note:** When installing or exchanging the gears, the orientation of the gears is important. The orientation marks on each of the two gears must be facing to the right side. See “Removing and Replacing the Upper Wedge” on page 3-50.

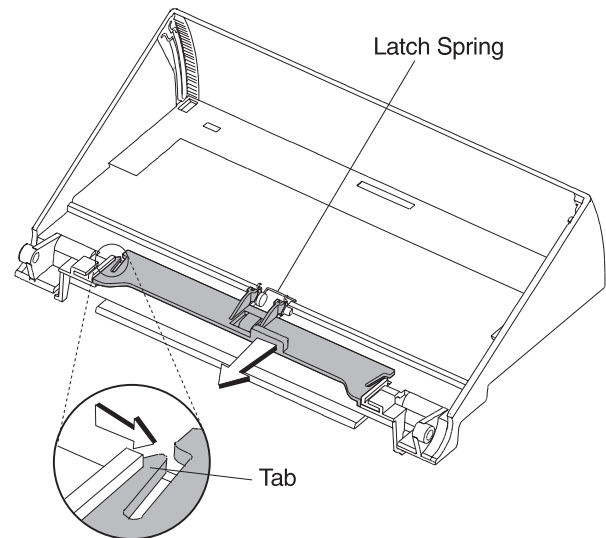


Figure 3-48. Removing the Tablet Latch - Part 2

## Removing and Replacing the Front Door

- 1 With your fingers at both sides of the front door, swing the door out and downward until it unsnaps.
- 2 To exchange the front door, snap the door onto the front panel.

## Removing and Replacing the Rear Door

- 1 Remove the top cover. See 3-39.
- 2 If a customer display is attached, disconnect it from the rear connector panel socket 4.
- 3 Placing your fingers on each side of the rear door, pull the tabs that hold the rear door to the system unit outward, then remove the rear door.

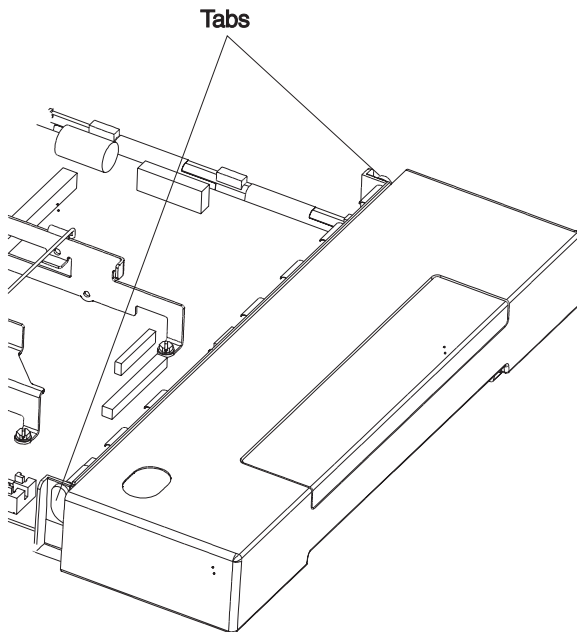


Figure 3-49. Removing the Rear Door

## Removing and Replacing the Customer Display

- 1 Open the rear door.
- 2 Unplug the customer display cable from the rear connector panel socket 4.
- 3 Disengage the snaps on the sides of the customer display from inside the rear door and remove the customer display from the 4695.
- 4 Unplug the customer display cable from the customer display.
- 5 To exchange the customer display, perform the above steps in reverse order. See Figure 3-50. Ensure that the customer display cable is routed as shown in Figure 3-51.

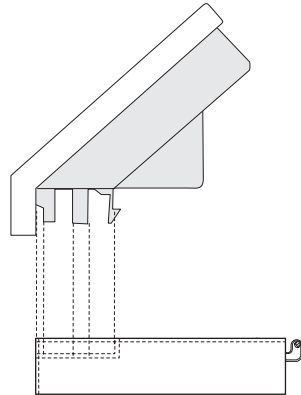


Figure 3-50. Installing the Customer Display

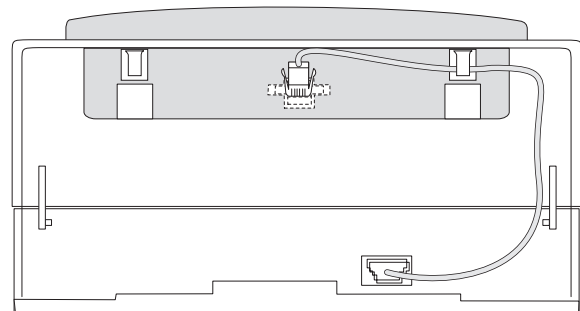


Figure 3-51. Routing the Customer Display Cable

## Removing, Replacing, and Cleaning the Customer Display Lens

- 1 Remove the customer display from the rear door. See page 3-52.
- 2 Using a small flat-blade screwdriver and starting at the top edge of the display, pry at the points indicated in Figure 3-52 to release the lens frame.  
**Attention** Do not spray cleaning solution into the display.
- 3 Use a soft cloth dampened with a mild cleaning solution to clean the display glass and the lens.
- 4 To remove the lens from the frame for replacement, flex the frame outward as shown by the arrows and snap the lens out.
- 5 Place the replacement lens into the frame from the outside and snap it into position in the frame.
- 6 Snap the frame onto the display starting at the bottom edge.
- 7 Install the customer display into the rear door.

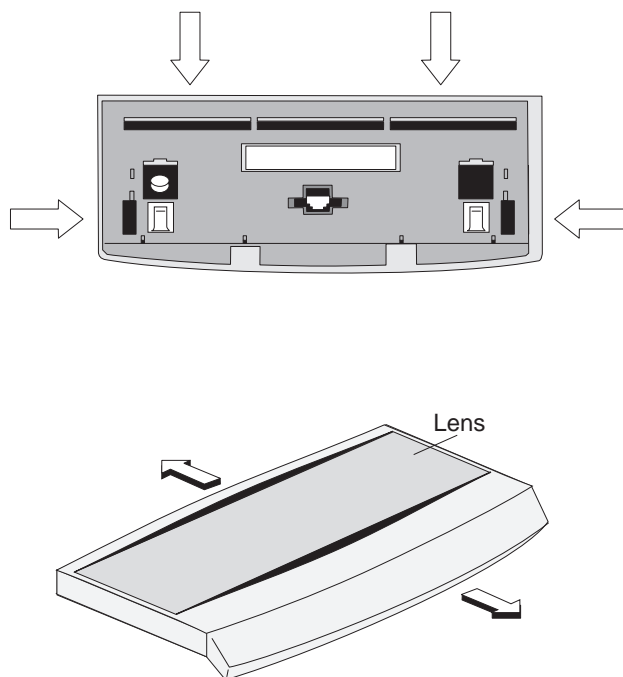


Figure 3-52. Removing the Frame and Lens

## Removing and Replacing the Lithium Battery

### CAUTION:

**Replaceable lithium batteries: Do not open, throw in fire, recharge, or short circuit. Replace only with the same or equivalent type recommended by the manufacturer.**

- 1 Remove the top cover. See 3-39.
- 2 It is important that the new battery be installed with the correct polarity. Notice the polarity markings on the battery before removing the old one. See Figure 3-53 on page 3-54.
- 3 Remove the lithium battery from the battery holder.
- 4 To install the new lithium battery, perform the above steps in reverse order.
- 5 When a new battery is installed, the CMOS RAM data must be restored. This can be done in one of three ways:
  - Run RESTORE CMOS RAM from the service diskette if BACKUP was run prior to removing the battery. See "4695 Service Diskette Introduction" on page 3-2.
  - Use the setup diskette (if available).
  - Run the ROM-based setup program. See "Running Setup – 4695 Models 201 and 211" on page 3-55.

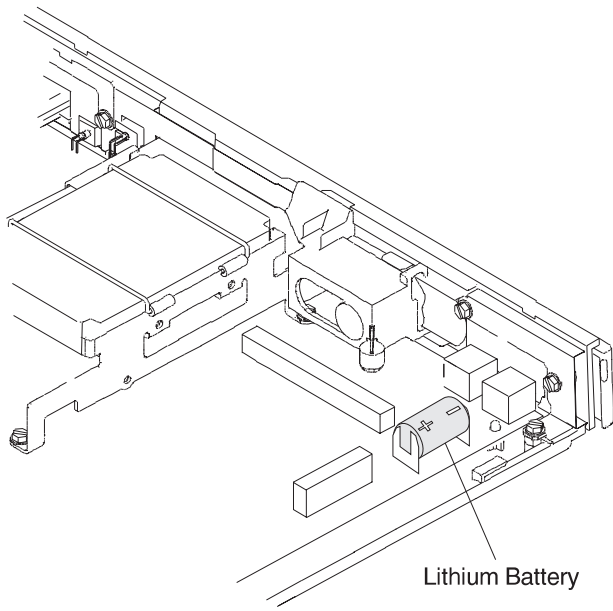


Figure 3-53. Removing the Lithium Battery

## Removing and Replacing The PCMCIA Feature

- 1 Remove any cards plugged into the PCMCIA feature.
- 2 Remove the top cover. See page 3-39.
- 3 Disconnect the grounding wire from the PCMCIA feature to the diskette drive bracket screw. See Figure 3-54.
- 4 Snap the standoff that is attached to the PCMCIA feature out of the hole in the system board.
- 5 Unplug the feature from the system board and lift it out of the base.
- 6 To install a new PCMCIA feature, perform these steps in reverse order.

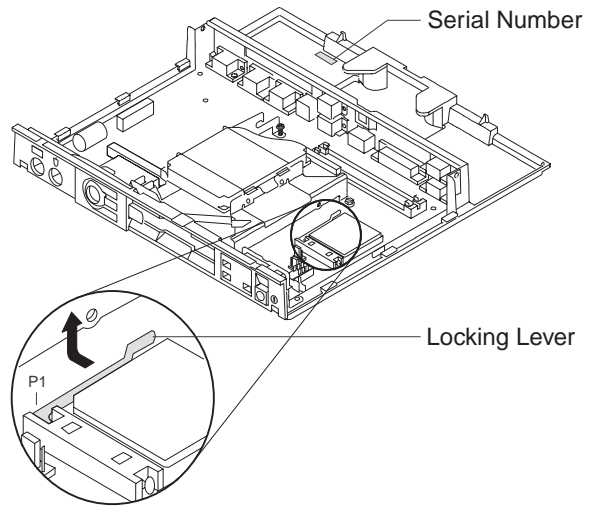


Figure 3-54. PCMCIA Feature



---

## Running Setup – 4695 Models 201 and 211

The basic input/output system (BIOS) configuration of each 4695 can be customized for the hardware and features installed. There is a ROM-based setup utility in each 4695 Model 201 and 211 to perform this function. The setup utility is initiated by operator intervention during power-on self-test (POST).

To start the setup utility, perform the following steps:

- 1 Switch POWER ON at the 4695 and look for F1 to appear in the upper right-hand corner of the touch display.
- 2 If a PC-type keyboard is attached, press the F1 key on the keyboard.  
If no PC-type keyboard is attached, touch F1 on the display.

**Note:** You must press the F1 key or touch F1 on the display while it is visible on the display.

The MAIN MENU appears when POST is complete.

If the MAIN MENU does not appear, you must use a setup diskette to run the Setup utility. Go to “4695 Setup Diskette” on page 3-56.

- 3 The MAIN MENU is:
  - System Setup
  - Fixed Disk Setup
  - Device Channel Setup
  - Ethernet Setup
  - Change Password
  - Boot Options
  - System Summary
  - Save Settings
  - Restore Settings
  - Load Default Settings
  - Exit Setup
- 4 At the MAIN MENU, select LOAD DEFAULT SETTINGS.
- 5 Make the desired selections from each of the first five menu items. You can make changes to any of the fields that have square brackets ([ ]) around their values. Fields without the brackets are for information only.
- 6 Select SYSTEM SUMMARY to review your selections.
- 7 Select SAVE SETTINGS.
- 8 Select EXIT SETUP. The 4695 reboots automatically using any new setup information that you entered.

**Note:** If you have changed the Ethernet memory address, you must **POWER OFF** then ON to load the new address.

---

## 4695 Setup Diskette

This section provides instructions on how to create a setup diskette and describes how and when to use it.

### Creating A Setup Diskette

Programs and information files required to create a setup diskette are distributed on the *469x Supplemental Drivers Diskette SX27-3934-03*, V2.00 or later. They can be found in the \4695\UTIL subdirectory.

The name of the program used to create the setup diskette is:

CMOSETUP.EXE

Information about using this program can be found in the following file:

CMOSETUP.DOC

The following data file contains the resulting CMOS setup data that is generated when creating a setup diskette:

CMOSFILE

Additional program files are necessary when creating a setup diskette. The names of these program files are:

CMOSBIOS.COM  
CCBOOTS.COM  
CCMOS.COM  
SETUP.COM

To create a setup diskette:

**Note:** A PC-type keyboard must be attached to the system unit.

- 1 Copy all seven of the data and program files listed above from the *469x Supplemental Drivers Diskette* \4695\UTIL subdirectory to the fixed disk of the computer or 4695 where the diskette is to be created.
- 2 Go to the directory or subdirectory where the files were placed and type the following:  
CMOSETUP /S  
where /S requests 'run 4695 setup'
- 3 When the Main Menu appears, select LOAD DEFAULT SETTING.
- 4 Make the desired selections from each of the first five menu items. You can make changes to any of the fields that have square brackets ([ ]) around their values. Fields without the brackets are for information only.

**Notes:**

- a. It is not required that you choose a fixed disk type or enter the time and date. The correct fixed disk type is configured automatically when Setup is run on the 4695. The time and date must be set by the operating system or application program.
- b. Press the F1 key one time for help information or press the F1 key two times for more detailed help information.

- 5 When you have entered all the information select: `SAVE SETUP`.  
The `CMOSFILE` is then updated with your setup data.
- 6 Insert a blank formatted diskette in the A drive of your computer or 4695 when instructed to do so.
- 7 The `CMOSFILE`, in addition to the necessary program files, are written to the diskette in the A drive. This is now a bootable diskette that performs setup automatically when booted in the 4695.
- 8 If you want to create additional bootable diskettes with the same 4695 setup data that was created in step 5, without running setup each time, type the following without any parameters: `CMOSETUP`.

## Using the Setup Diskette

There are two situations where a 4695 Setup Diskette may be used:

1. For 4695s where the Setup utility cannot be initiated from the PC-type keyboard or touch display, a setup diskette is required to perform Setup. This is typically done at the time of installation or after a failing system board has been exchanged. The Setup diskette is prepared at a PC or terminal that has a PC-type keyboard attached. It is used to boot the keyboardless 4695 and setup is performed automatically.
2. If all 4695s in a store are to be configured the same way, a setup diskette can be created at a central site and then distributed to the store at installation time. Rather than performing manual setup on each 4695, you simply use the setup diskette to boot each 4695 and it is automatically configured. The setup diskette can be used in any 4695 Model 201 or 211 whether it has a PC-type keyboard or not.



---

## Appendix A. 4693 Hardware Overview

|  |     |
|--|-----|
| Front and Rear Views of the IBM 4693 . . . . . | A-2 |
| Sockets and Devices . . . . .                  | A-3 |
| Rear Connector Panels . . . . .                | A-4 |
| Description of 4693 Power Modes . . . . .      | A-5 |
| On . . . . .                                   | A-5 |
| Off . . . . .                                  | A-5 |
| Standby . . . . .                              | A-5 |
| Backup . . . . .                               | A-5 |
| Power Down . . . . .                           | A-5 |
| Interlock Shutdown . . . . .                   | A-5 |

# Front and Rear Views of the IBM 4693

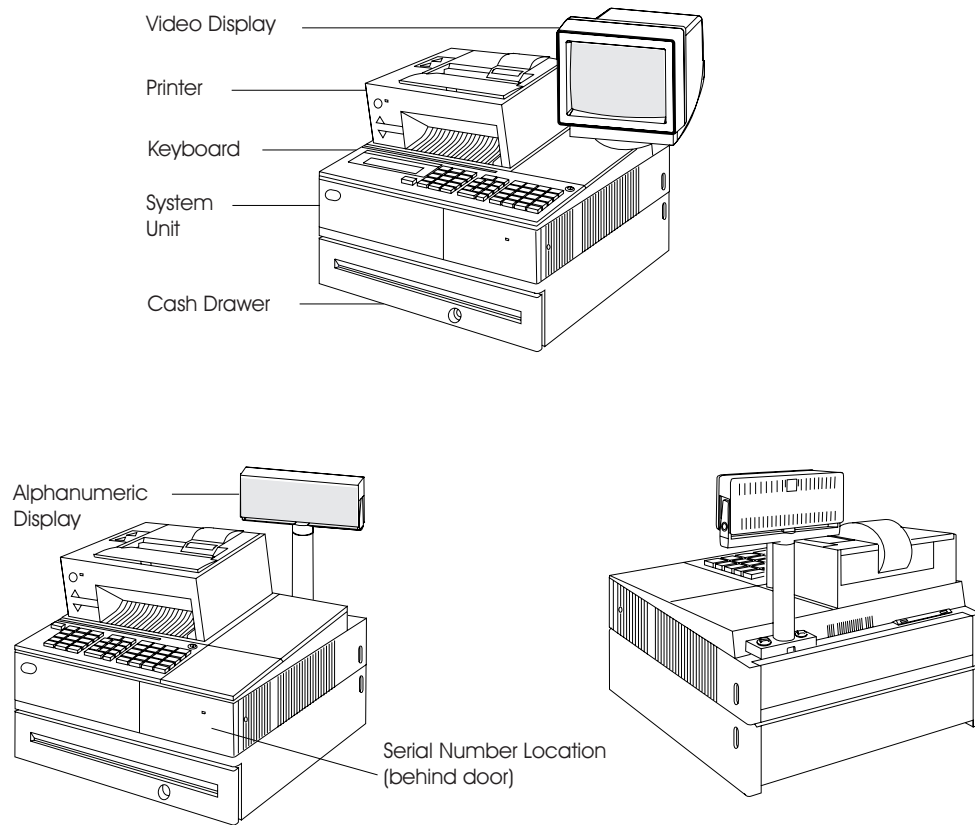


Figure A-1. Front and Rear Views of the 4693

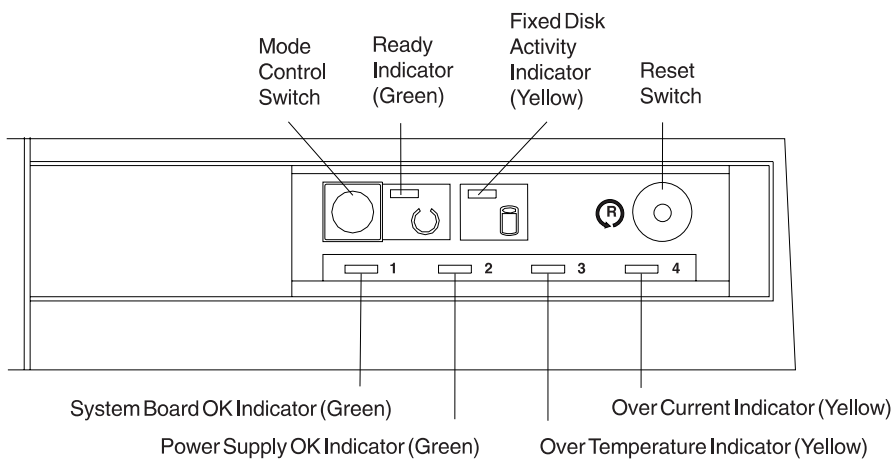









Figure A-2. Typical 4693 Operator Panel. 4693 Models 421 and 321 do not have the Fixed Disk Activity Indicator.

## Sockets and Devices

Table A-1. Sockets and Devices

| Socket         | Device Name   | Cable Number |
|----------------|---|--------------|
| 3A             | Cash drawer A or remote alarm A   | 3            |
| 3B             | Cash drawer B or remote alarm B   | 3            |
| 4A and 4B      | POS displays  | 4            |
| 5A and 5B      | POS keyboards   | 5            |
| 6              | Single-track magnetic stripe reader (MSR)<br><b>Note:</b> Socket 6 is located on the 50-key keyboard.             | None         |
| 7              | Point-of-sale printer   | 7            |
| 9A, 9B, and 9C | POS displays, checkout scanner/scale, handheld bar code reader  | –            |
| 11             | 4693 Model xx2 terminal   | 11           |
| Kybd           |  System unit keyboard            | –            |
| Aux            |  Pointing device (mouse)         | –            |
| LCD            |  Flat panel display              | –            |
| Video          |  Video display                   | –            |
| Parallel       |  System unit printer             | –            |
| Serial A       |  A Asynchronous communications   | –            |
| Serial B       |  B Asynchronous communications | –            |

# Rear Connector Panels

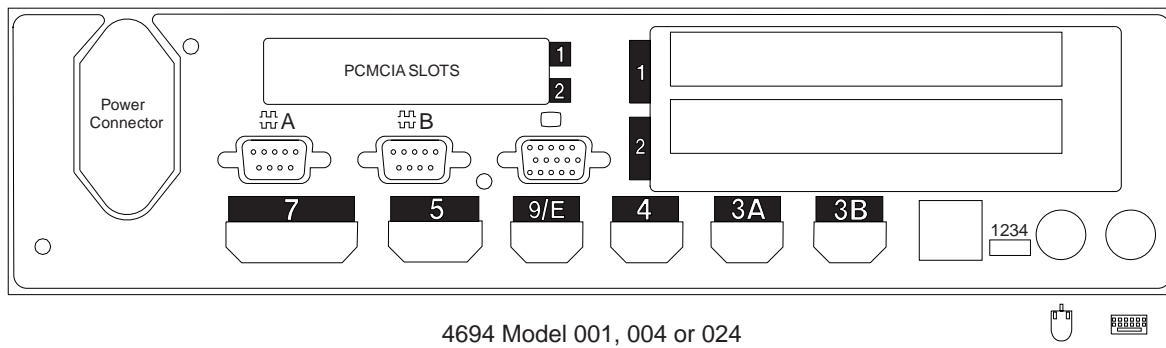
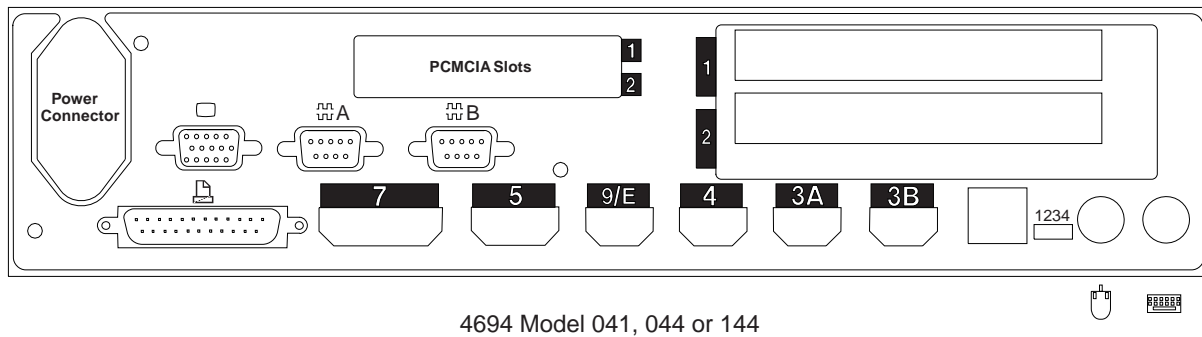
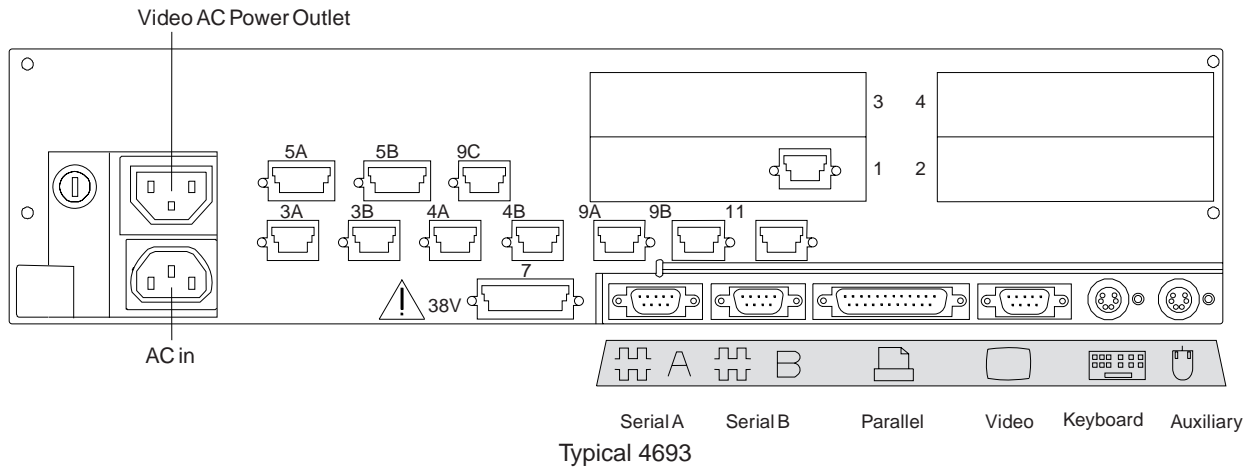


Figure A-3. Typical Rear Connectors. Some models do not have all the connector sockets shown.

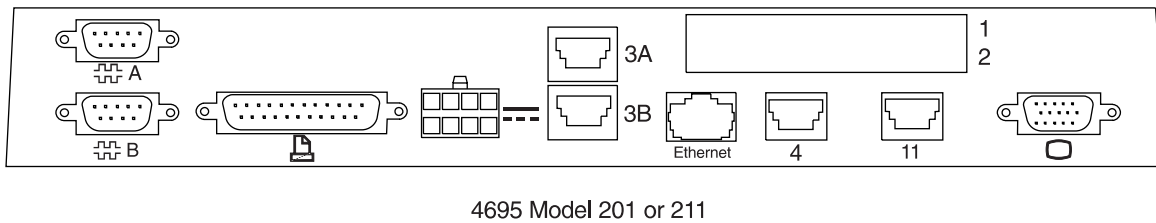


Figure A-4. Typical Rear Connectors. Some models do not have all the connector sockets shown.



## Description of 4693 Power Modes

### Turning on Power to the 4693

The 4693 has no power ON/OFF switch. The Mode Control Switch on the operator panel is used to switch between “Operational” Mode (ON) and “Non-Operational” Mode (OFF).

Throughout this manual, when you are instructed to *Switch Ready mode ON*, this means to press the Mode Control Switch to turn the Ready indicator ON. When you are instructed to *Switch Ready mode OFF*, this means to press the Mode Control Switch to turn the Ready indicator OFF.

**On:** In this mode AC power is present at the terminal and the terminal is fully operational. The Ready Indicator, and Indicators 1 and 2 will be ON.

**Off:** In this mode AC power is present at the terminal and Storage Retention is disabled. The Ready Indicator is OFF. Indicators 1 and 2 will be ON. The terminal is not operational.

**Standby:** In this mode AC power is present at the terminal and Storage Retention is enabled. The Ready Indicator is OFF. Indicators 1 and 2 will be ON. The indicators are the same as in OFF mode but Storage Retention is enabled.

**Backup:** In this mode AC power is absent at the terminal and Storage Retention is enabled. All indicators are OFF.

**Power Down:** In this mode AC power is absent at the terminal and Storage Retention is disabled. All indicators are OFF.

**Interlock Shutdown:** In this mode AC power is present but the storage retention battery pack is disconnected. This prevents the power supply from outputting any voltages. All indicators are OFF.

Table A-2. Power Mode Description

| Mode   | AC Voltage | Ready Indicator | Indicator 1 | Indicator 2 |
|--|------------|-----------------|-------------|-------------|
| ON - Fully operational                                       | present    | ON              | ON          | ON          |
| OFF - Storage retention disabled                             | present    | OFF             | ON          | ON          |
| STANDBY - Storage retention enabled                          | present    | OFF             | ON          | ON          |
| BACKUP - Storage retention enabled and battery power present | absent     | OFF             | OFF         | OFF         |
| POWER DOWN - Storage retention disabled                      | absent     | OFF             | OFF         | OFF         |
| INTERLOCK SHUTDOWN - Power supply/battery interlock absent   | present    | OFF             | OFF         | OFF         |



---

## Appendix B. Maintenance Inspection for the 4693

### DANGER

Never work on equipment or connect or disconnect signal cables during periods of lightning activity.

### CAUTION:

For your safety, connect equipment requiring electrical power to a properly wired and grounded outlet.

IBM products are designed to be safe during normal use, foreseeable misuse and under fault conditions.

**Note:** See *Electrical Safety for IBM Customer Engineers*, S229-8124.

An IBM maintenance inspection is to be performed as part of any alterations and attachments review on any IBM product presently on lease rental, maintenance agreement or per call service by IBM. If the inspection indicates the level of safeness of the IBM product is unacceptable it must be brought up to an acceptable level.

### Maintenance Checklist for the 4693:

**Note:** All non-IBM devices and attachments must be removed from the 4693 unit before conducting the maintenance checklist. See the *Hardware Service Manual for Point-of-Sale Input/Output Devices*.

- Switch Ready mode OFF.
- Disconnect the AC power cord from the wall receptacle.
- Remove the front panel. See page 1-79.
- Check the AC power cord for the following:
  1. Use a meter to measure third-wire ground continuity for 0.1 ohms or less between the external ground pin and the frame of the power supply. Access the power supply frame at the rear near the fuse.
  2. The AC power cord should not be frayed or damaged.
- Check for non-IBM alterations. If any are present, has *R009 non-IBM Alterations/Attachments Survey* been completed?
- Check for damaged or missing insulation on wires.
- Check for exposed electrical connections or terminals.
- Check for the presence and condition of the following safety labels:
  1. The safety label on the outside surface of the video display (if present) should read: "Hazardous voltage. Do not remove this cover. No serviceable parts inside."
  2. Rechargeable battery labels should read: **Ni Cd Return used batteries to IBM for disposal.**
- Check the inside of the system base unit for obvious unsafe conditions such as metal filings, contamination, water or other fluids, or marks of fire or smoke damage.
- Ensure that the voltage specified on the voltage label matches the voltage of the AC power cord.
- Ensure that the fasteners that hold the top cover of the power supply are not missing and have not been changed.
- For models with batteries, check the condition of the battery.
- Ensure that Ready mode is OFF and reinstall the front panel.
- Connect the AC power cord to a power receptacle and ensure that the machine switches to Ready mode ON.



---

## Appendix C. System maintenance

|   |       |
|---|-------|
| Customer / End User product care procedures . . . . .   | C - 1 |
| System unit . . . . .                                   | C-1   |
| Display . . . . .                                       | C-1   |
| Keyboard . . . . .                                      | C-2   |
| Scanners . . . . .                                      | C-2   |
| Service Provider System Maintenance Procedures. . . . . | C-2   |
| System Unit . . . . .                                   | C-2   |
| Cash drawer. . . . .                                    | C-2   |
| Display . . . . .                                       | C-2   |
| Keyboard . . . . .                                      | C-2   |
| Keylocks . . . . .                                      | C-2   |
| Scanners . . . . .                                      | C-2   |
| Model 1 or 2 printer . . . . .                          | C - 3 |
| Model 3 or 4 printer . . . . .                          | C-3   |
| Model 4610 printer . . . . .                            | C-4   |

---

### Customer / End User product care procedures

Owners and users should periodically inspect their system unit and its components for cleanliness and perform the following procedures based on usage and environmental characteristics, at a minimum of once every 12 months.

#### System unit

1. Vacuum the exterior cover vent grills.
2. Clean the cover for cosmetic purposes as required.
  - IBM suggests the use of a soft clean cloth with warm soapy water for cleaning the plastic parts on IBM product
  - Use of a soft, dry cloth with isopropyl alcohol or any non abrasive and non alkaline/ammonia/chloride based cleaner is permissible but some deterioration in the finish could be seen.
3. Ensure that there is at least 51 mm (2 in.) clearance space around the unit.

**Note:** Do not apply cleaning solution directly to the cover. Always apply the cleaner on a clean cloth and then wipe the cover with the damp cloth. Be certain that the cloth is only damp and not dripping wet.

#### Display

1. Clean the display covers for cosmetic purposes as required.
  - IBM suggests the use of a soft clean cloth with warm soapy water for cleaning the plastic parts on IBM product.
  - Use of a soft dry cloth with isopropyl alcohol or any nonabrasive and non alkaline/ammonia/chloride based cleaner is permissible but some deterioration in the finish could be seen.

**Note:** Do not apply cleaning solution directly to the cover. Always apply the cleaner on a clean cloth and then wipe the cover

## Keyboard

1. Vacuum the keyboard.
2. Clean the keyboard cover and the tops of the keys for cosmetic purposes as required.
  - IBM suggests the use of a soft clean cloth with warm soapy water for cleaning the plastic parts on IBM products
  - Use of a soft, dry cloth with isopropyl alcohol or any nonabrasive and non alkaline/ammonia/chloride based cleaner is permissible but some deterioration in the finish could be seen.

**Note:** Do not apply cleaning solution directly to the cover or keys. Always apply/spray the cleaner on a clean cloth and then wipe the cover and keytops.

## Scanners

1. Clean the window (glass).
  - Use of a soft, dry cloth with isopropyl alcohol or any nonabrasive and non alkaline/ammonia/chloride based cleaner is permissible.

**Note:** Do not apply cleaning solution directly to the glass. Always apply/spray the cleaner on a clean cloth and then wipe the cover and keytops.

## Service Provider System Maintenance Procedures

The following procedures can be performed during normal service call routines but should not be required more than once per year under normal machine use:

### System Unit

1. Inspect the cables and power cord for chafing, frayed insulation, cracks, or breaks. Replace any cables and power cords that appear to be faulty.

### Cash drawer

1. Inspect the cash drawer rails for damage, wear or binding. If the rails are damaged, use rail repair kit, P/N 25F6269 (light gray model only).

### Display

1. Inspect for broken covers and missing mounting hardware. Exchange if necessary.

### Keyboard

1. Pass the MSR cleaning card (P/N 6019483) through the reader a few times.
2. Run the keyboard test.

### Keylocks

1. Apply three drops of silicon lubricant (P/N 96X4791) into the key opening of the keylocks of the cash drawer, keyboard, printer and the 4694 system unit.

### Scanners

1. 4687-2- Remove the scanner unit and clean the inside of the perimeter housing and under the scale platter if required.

**Model 1 or 2 printer**

1. Clean the print head, if required. See the *IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices* for the print head cleaning procedure.
2. Lubricate the carriage shaft, wear shoe skid-plate, and the print head guide rod shaft bearings with IBM #6 oil, if required.
3. Clean the teeth of the toggle gear, if required.
4. Exchange the carriage shaft wiper and saturate it with IBM #6 oil, if required.

**Model 3 or 4 printer**

1. Clean the dust, fuzz balls, debris, and chad from the printer, if required.
2. Clean any dust and debris from the following sensors, if required.:
  - Home sensor
  - Cover sensor
  - Document insert (DI) upper and lower sensors (journal side)
  - Journal sensor

**Note:** If you clean the DI sensors, reset the **sensor sensitivity**. To **reset**: Press the Up Feed, Down Feed, and green buttons at the same time, open the cover and wait for the line feeding to stop. Then close the cover.

3. Clean the lead screw and black carrier shafts with a clean dry cloth, if required. Do **not** lubricate lead screw or black carrier shafts, if required.
4. Inspect to see if the print wires are snagging the ribbon. This situation can cause home errors.
5. Inspect the ribbon drive clutch for proper (one-way) operation.
6. Inspect the DI rollers, if required. Clean using alcohol. Press the Up Feed or Down Feed buttons to move the rollers.
7. Inspect the Upper Forms Entry Shield for even clearance across platen face and make sure that the shield is not trapped between the Platen and the Print Head Assembly.
8. Inspect that the forms compensation system moves freely by feeding a thick form. The print head should move back as the feed rollers open up.
9. Inspect the two blue idler rollers and four paper bucket rollers for free movement/rotation. Lubricate with #6 oil, if required.
10. Clear the debris around the platen rollers, if required
11. Oil the cutter blade pivots with #6 oil, if required. Wipe off any excess oil.
12. Inspect the metal bails that are used to hold the paper flush against the platen, in both the receipt and journal stations. Verify that the paper loads correctly.
13. On Models 3R and 4R printers, perform the following procedures:
  - Clean the MICR read head and feed rollers.
  - Inspect the MICR pressure pad for wear and damage.
  - Exchange the document insert gears, if required. Use document insert gear kit P/N 73G2598.
  - Run the stand-alone printer test and the MICR stand-alone tests when the procedure is complete.

**Helpful hints:**

1. The microcode in the printer allows a change in horizontal and vertical character alignment, which can compensate for wear in the printer. If the print line

appears to be misaligned, use the appropriate printer adjustment procedure for your terminal. See the *IBM Store Systems: Hardware Service Manual for Point-of-Sale Input/Output Devices*.

2. If the printer is reporting false home errors, the problem may be the transport motor, helix assembly, and nut.
3. The journal slip clutch or the O-ring can cause false journal out-of-paper conditions, which require opening the cover even though paper is present.

**Model 4610 printer**

1. Run the printer offline tests. See the *4610 SureMark Point-of-Sale Printers Hardware Service Manual*.
2. Clean the dust, fuzz balls, debris, and chad from the printer, if required.



---

## Appendix D. Special Tools

To maintain point of sale terminals, the service representative may need the following items not supplied in the tool kit:

- Keytop puller, P/N 1647720 (shipped with 4680 style keyboards)
- Lock cylinder alignment key, lock installation-removal key, and dummy lock insert key, P/N 4783922 (shipped with the store controller)
- Miniprobes (two), P/N 453718
- Module extractor, P/N 9900764
- MSR cleaning card, P/N 6019483
- MSR test card, P/N 90X9640
- RS232 cable wrap plug, P/N 6165746 (shipped with the RS232 cable)
- Store loop cable test plug, P/N 61X3948 (shipped with the store loop cable)
- Store loop test cable, P/N 96X4967 (used when a non-IBM store loop cable is attached to the store controller)
- Wrap plug kit, P/N 96X5047
- Wrap plug for 4695 power supply, P/N 13H6231.
- Baseband network cable adapter, P/N 96X5037
- Baseband network terminator plug, P/N 96X4975
- Baseband network wrap plug, P/N 96X4974
- X.25 Interface Coprocessor/2 Wrap Plug
- Tri-connector wrap plug, P/N 72X8546 for serial and parallel ports.

### Expendable Supplies

- Paper for the point-of-sale printer, P/N 432768 (or equivalent)
- Print ribbon for the Models 1 and 2 point-of-sale printer, P/N 4483015 (or equivalent)
- Print ribbon for the Models 3 and 4 point-of-sale printer, P/N 1040888 (black) or IBM P/N 1040875 (purple) or IBM P/N 1040900 (black auto-inking) (or equivalent)

**Attention** Failure to use the recommended ribbon may affect print head life and print quality.



---

## Appendix E. Collecting Vital Product Data for the 4693

### Notes:

1. To enter and print vital product data using the IBM 4690 Operating System, use the *IBM 4690 Store System: Messages Guide*.
2. When using any of the POS keyboard/MSR family of keyboards, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the S1 or S2 key.

p. To collect vital product data for the 4693:

1. Use your store procedures to stop any application programs that are running on the 4693.

### Switching Ready mode OFF

Switching Ready mode OFF at a 4693 affects operations at all point-of-sale terminals attached to it.

2. Switch Ready mode OFF at the 4693.
3. Record the type, model, and serial number of the system unit. These numbers are printed on a label behind the front access panel.
4. Record the engineering change (EC) number of the system board installed in your system unit. This number is printed on the left edge of the system board near the rear of the board.
5. Record the EC number of the power supply installed in your system unit. This number is printed on a label on the right side of the power supply.

---

## Entering Vital Product Data Using the Reference Diskette

### Notes:

1. When using any of the POS keyboard/MSR family of keyboards, the S1 and S2 functions require a combination of two keys. First press and hold the **Ctrl** key then press the S1 or S2 key.
2. When using one of the older 4680 type keyboards, the S1 and S2 functions require a combination of two keys on some but only the S1 or S2 key on others. If a Ctrl key is present, a two key combination is required. When no Ctrl key is present, use only the S1 or S2 key.

To enter vital product data using the reference diskette:

1. Use your store procedures to stop any application programs that are running on the 4693.

### Switching Ready mode OFF

Switching Ready mode OFF at a 4693 affects operations at all point-of-sale terminals attached to it.

2. Switch Ready mode OFF at the 4693.
3. Load the reference diskette. See "4693 Configuration, Tests, and Utilities" on page 1-64.
4. Select START UTILITIES from the MAIN MENU.
5. Select ENTER/PRINT VITAL PRODUCT DATA from the UTILITY MENU.
6. Select ENTER VITAL PRODUCT DATA from MENU UTILITY-2.

**Note:** To bypass an entry, press **S2** (or Enter on the enhanced A/N keyboard). The assignment of the alphabetic keys is shown on the following page.

Message T9801 displays.

7. Key in the 7-digit type and model number *excluding* the dash (-) and then press **S2** (or Enter).

EXAMPLE: 4693541

Message T9802 displays.

8. Key in the 7-digit serial number *including* the dash (-) and then press **S2** (or Enter).

EXAMPLE: 23-12345

Message T9803 displays.

9. Key in the EC number of the system board installed in your system unit and then press **S2** (or Enter). Message T9804 displays.

10. Key in the EC number of the power supply installed in your system unit and then press **S2** (or Enter).

**Note:** To print and review the data just entered, see "Printing Vital Product Data Using the Reference Diskette" on page E-4.

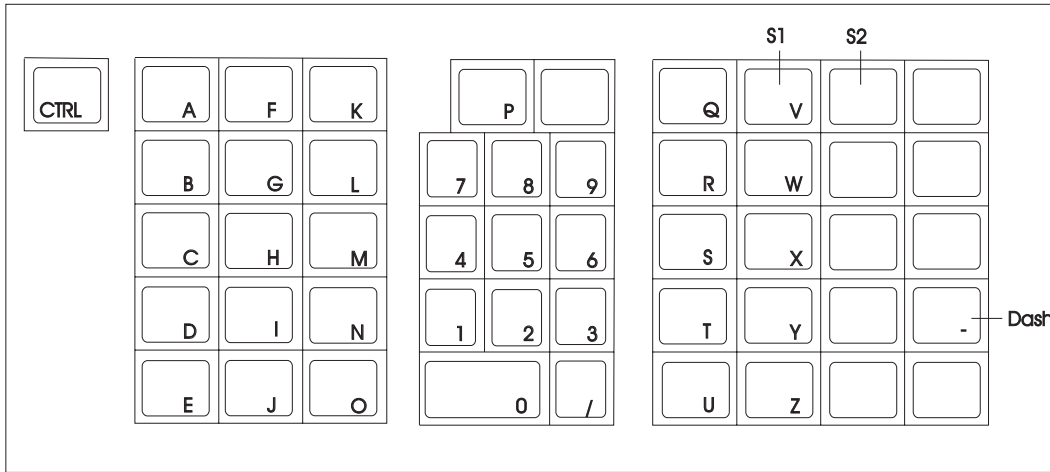


Figure E-1. RPOS Keyboard/Reader Key Assignments. This also applies to the RPOS Keyboard/Reader/Display.

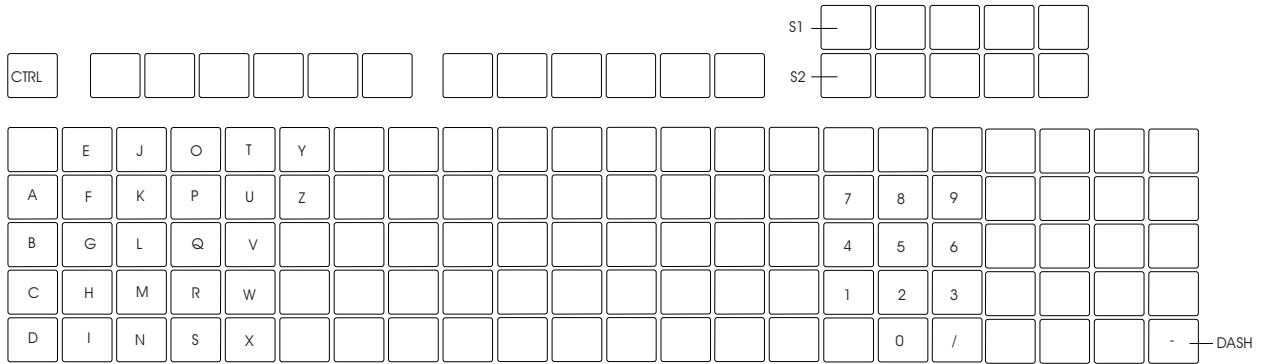


Figure E-2. Modifiable Layout Keyboard with Reader Key Assignments. This keyboard is sometimes referred to as ML Keyboard/Reader.

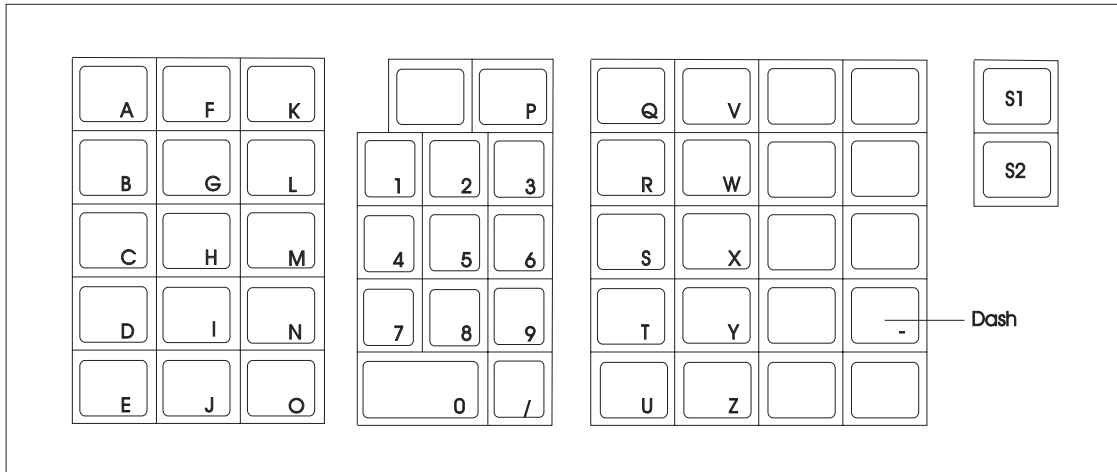


Figure E-3. 50-Key Keyboard Key Assignments and Combined Keyboard/Display Key Assignments. This figure is for the older 4680 type keyboard.

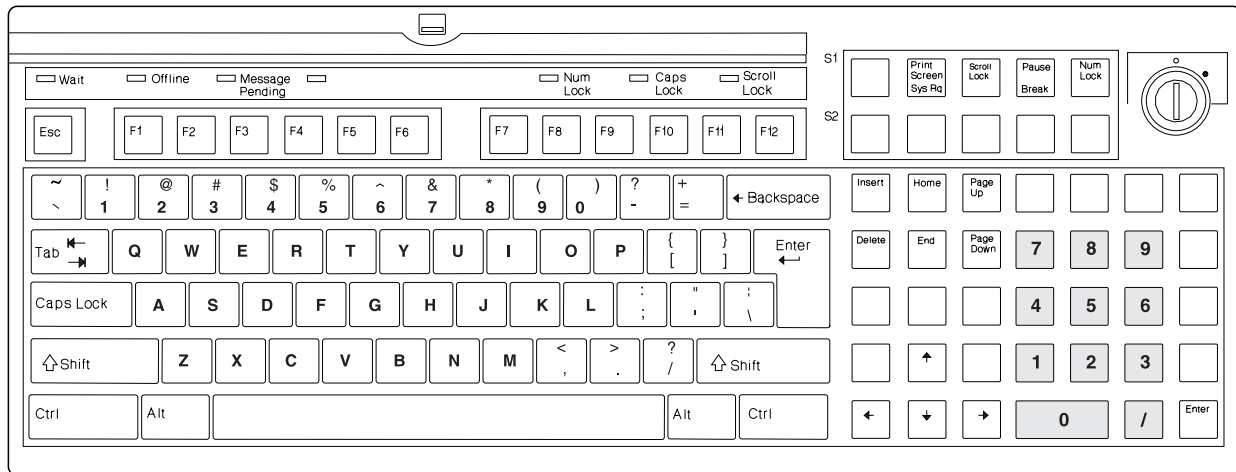


Figure E-4. NANPOS Keyboard Key Assignments

---

## Printing Vital Product Data Using the Reference Diskette

Use this procedure to print the vital product data.

1. Use your store procedures to stop any application programs that are running on the 4693.

### Switching Ready mode OFF

Switching Ready mode OFF at a 4693 affects operations at all point-of-sale terminals attached to it.

2. Switch Ready mode OFF at the 4693.
3. Load the reference diskette. See "4693 Configuration, Tests, and Utilities" on page 1-64.
4. Select START UTILITIES from the MAIN MENU.

5. Select ENTER/PRINT VITAL PRODUCT DATA from the UTILITY MENU.
6. Select PRINT VITAL PRODUCT DATA from MENU UTILITY-2. The vital product data is printed at the receipt station on the 4680 printer attached to the 4693.

The vital product data is printed one item per line. Each item represents a segment of the vital product data for the selected terminal.

The first four lines list:

Terminal type  
Terminal serial number  
EC number of the system board  
EC number of the power supply

---

## Appendix F. IBM Wireless LAN Return Codes

---

### RC = 0B

**Explanation:** The remote workstation is not able to communicate to the wireless network because the base station's signal strength is too low.

**User Response:**

- 1 Check a remote workstation that is not too far from the base station to make sure it is operational.
- 2 Check the base station to make sure it is operational.

---

### RC = 0E

**Explanation:** The remote workstation is not able to communicate to the wireless network because the base station was not detected.

**User Response:**

- 1 Check a remote workstation that is not too far from the base station to make sure it is operational.
- 2 Check the base station to make sure it is operational.
- 3 Retry again later or reduce the number of workstations attached to the base station.

---

### RC = 0F

**Explanation:** The base station adapter is overloaded.

**User Response:** Retry again later or reduce the number of workstations attached to this base station.

---

### RC = 19

**Explanation:** The network name is mismatched with the base contacted.

**User Response:** Contact your network administrator for the correct network name. Change the wireless network name parameter to match the base.

---

### RC = 1A

**Explanation:** The country code is mismatched with the base contacted.

**User Response:** Change the wireless network country code parameter to match the base.

---

### RC = 1D

**Explanation:** The encryption code is mismatched with the base contacted.

**User Response:** Change the wireless network encryption code parameter to match the base.

---

### RC = 20, 21, 22

**Explanation:** There is an internal adapter error occurring at adapter open time.

**User Response:** Retry the operation by booting the station. If the problem persists, run the IBM Wireless LAN diagnostics.

---

**RC = 30**

**Explanation:** The remote workstation is not able to communicate to the wireless network because there is too much interference.

**User Response:**

- 1 Check a remote workstation that is not too far from the base station to make sure it is operational.
- 2 Check the base station to make sure it is operational.

---

**RC = 31**

**Explanation:** The remote workstation is not able to communicate to the wireless network because the base station that was selected was lost during registration time.

**User Response:**

- 1 Check a remote workstation that is not too far from the base station to make sure it is operational.
- 2 Check the base station to make sure it is operational.

---

**RC = 3A, 3B, 3C, 3D, 3E**

**Explanation:** There is an internal adapter error occurring at adapter open time.

**User Response:** Retry the operation by booting the station. If the problem persists, run the IBM Wireless LAN diagnostics.

---

**RC = 8A, 8B, 8C, 8D**

**Explanation:** A timeout occurred. There is an internal adapter error occurring at adapter opening time because of a communication problem with the base station.

**User Response:** Run the IBM Wireless LAN diagnostics to ensure that the base station is operational.

---

**RC = 90**

**Explanation:** The workstation was not allowed to register to the wireless network because of access control.

**User Response:** Contact your network administrator to check the workstation's allowed access.

## Novell RPL ROM Error Messages

These Novell\*\* RPL ROM error messages can occur when the terminal is attempting to connect to the network. See the LAN documentation for your network for more detail on network problems.

---

**RPL-ROM-ADR xxxx xxxx xxxx**

**Explanation:** Six byte node universal adapter address (UAA) of the installed adapter.

**User Response:**

- 1 Make sure that the cable is securely connected to the radio module and to the adapter card.
- 2 Make sure that the adapter card is securely connected.
- 3 Contact your network administrator for assistance.



---

**RPL-ROM-DMA nn**

**Explanation:** One byte decimal field containing the DMA channel used by the adapter.

**User Response:**

- 1** Make sure that the cable is securely connected to the radio module and to the adapter card.
- 2** Make sure that the adapter card is securely connected.
- 3** Contact your network administrator for assistance.

---

**RPL-ROM-IRQ nn**

**Explanation:** One byte decimal field containing the interrupt number used by the adapter.

**User Response:**

- 1** Make sure that the cable is securely connected to the radio module and to the adapter card.
- 2** Make sure that the adapter card is securely connected.
- 3** Contact your network administrator for assistance.

---

**RPL-ROM-PIO xxxx**

**Explanation:** A two byte hexadecimal field containing the I/O address used by the adapter.

**User Response:**

- 1** Make sure that the cable is securely connected to the radio module and to the adapter card.
- 2** Make sure that the adapter card is securely connected.
- 3** Contact your network administrator for assistance.

---

**RPL-ROM-SLT xxxx**

**Explanation:** A two byte hexadecimal field containing the slot number used by the Micro Channel adapter.

**User Response:**

- 1** Make sure that the cable is securely connected to the radio module and to the adapter card.
- 2** Make sure that the adapter card is securely connected.
- 3** Contact your network administrator for assistance.

---

**RPL-ROM-FFC nnnn**

**Explanation:** A decimal field containing the number of find frames sent by the boot ROM. An excessive find frame count indicates that the RPL server is not present or is not able to communicate with the remote workstation.

**User Response:** If the problem is the remote workstation, exchange the IBM Wireless Adapter card in the remote workstation. If the problem is the server, contact your network administrator for assistance.

---

**RPL-ROM-SFC nnnn**

**Explanation:** A decimal field containing the number of send file request frames sent by the boot ROM. An excessive send file request count indicates that the RPL server is not responding after it has been found.

**User Response:** Contact your network administrator for assistance.

---

**RPL-ROM-SEQ nnnn**

**Explanation:** A decimal field containing the number specifying the last valid sequence number received.

**User Response:** Contact your network administrator for assistance.

---

**RPL-ROM-ERR cccc RPL halted**

**Explanation:** A fatal error from either the driver or the boot ROM occurred.

**User Response:** Possible *cccc* error codes include:

- **BADA** – There is an error in the file data response from the server containing a locate or transfer address that is not valid.
- **DExx** – There is an error from the driver HSM that issued a DOS interrupt, function code **xx** that is not valid.

Contact your network administrator for assistance.

---

# Index

## Numerics

- 4693
  - configuration 1-64
  - how to read POST messages 1-9
  - locations 1-77
  - logic tray 1-83
  - messages 1-8
  - operator panel 1-1, A-2
  - POST message index 1-10
  - power modes A-5
  - power supply 1-51, 1-55, 1-81
  - system maintenance C-1
  - problem determination 1-2
  - removals and replacements 1-77
  - retrieving network RPL messages 1-9
  - symptoms 1-47
  - tests 1-64
  - utilities 1-64
- 4694
  - configuration 2-9
  - locations 2-11
  - messages 2-5
  - preliminary checklist 2-2
  - problem determination 2-1, 2-2
  - service diskette 2-8
  - symptoms 2-3
  - tests 2-8
  - utilities 2-9
- 4694 models 001,004,024
  - covers 2-12
  - diskette drive 2-13
  - fixed disk 2-13
  - memory modules 2-16
  - PCMCIA card 2-14
  - power supply 2-14
  - removals and replacements 2-11
  - riser card 2-14
  - terminal system board 2-15
  - VGA card 2-13
- 4694 models 041,044
  - covers 2-17
  - diskette drive 2-18
  - fixed disk 2-18
  - logic and power supply tray 2-17
  - memory modules 2-20
  - PCMCIA card 2-20
  - power supply 2-19
  - removals and replacements 2-17
  - riser card 2-20
  - terminal system board 2-20
- 4695
  - configuration 3-55, 3-56
  - configuring 3-2
  - creating 3-56
  - device test menu 3-3
  - diskette drive 3-41
  - fixed disk 3-40
  - front panel 3-34
  - lock assembly FRUs 3-48
  - main menu 3-3
  - memory modules 3-40
  - messages 3-21
  - POST 3-21
  - POST beep codes, 4695 3-26
  - power button 3-47
  - problems 3-1
  - rear connector panel 3-34
  - removals and replacements, models 002 and 021 3-10
  - removing power-on password 3-4
  - run-time error messages 3-27
  - running setup, 4695 3-56
  - service diskette 3-2
  - service diskette messages 3-32
  - service level update diskette 3-4
  - symptoms, model 002 and 012 3-6
  - symptoms, Models 201 and 211 3-19
  - system board 3-42, 3-43
  - test error messages 3-28
  - test menu 3-3
  - tests 3-2
  - top cover, 4695 3-39
  - using 3-57
- 4695 Point-of-Sale Adapter 3-44
- 4695 service diskette menus 3-2

## B

- backlight, 4695 3-38
- base memory address, 4695 3-9
- blank lock inserts, 4695 3-50

## C

- cable sockets and devices, 4693 A-3
- cabling publications xiii
- configuration
  - 4693 1-64
  - 4694 2-8, 2-9
  - 4695 I/O address 3-9
  - 4695 memory address 3-9
  - interrupt select, 4695 3-9

configuration (*continued*)  
  primary adapter, 4695 3-9  
  secondary adapter, 4695 3-9  
configuration, Models 201 and 211 3-55, 3-56  
covers  
  4693 1-77  
  4694 - 001,004,024 2-12  
  4694 - 041,044, 144 2-17  
  4695 3-10  
customer display lens, 4695 3-53

## D

disk drive  
  See fixed disk  
diskette drive 3-41  
  4693 1-56, 1-82  
  4694 2-3  
  4694 - 001,004,024 2-13  
  4694 - 041,044 2-18

## E

electronic discharge (ESD) x  
electronic emission notices ix  
error codes  
  See messages  
expansion feature, installing 3-44  
expendable supplies  
  point-of-sale printer paper D-1  
  point-of-sale printer ribbon cartridge D-1

## F

failures  
  See symptoms  
FCC information ix  
feature adapter  
  See optional adapter  
feature card  
  See optional adapter  
fixed disk  
  4693 1-55, 1-84  
  4694 2-3  
  4694 - 001,004,024 2-13  
  4694 - 041,044 2-18  
fixed disk, 4695 3-40  
front door, 4695 3-52  
front panel 3-41  
front panel, 4695 Models 201 and 211 3-34  
front view of the 4693 A-2

## G

general safety considerations ix

## I

I/O address configuration 3-9  
I/O connectors A-3  
I/O devices  
  4693 1-64  
interrupt select configuration 3-9

## L

library, 4693/4694/4695 xii  
lithium battery, 4695 3-53  
locations  
  4693 1-77  
  4694 2-11  
lock assembly FRUs, 4695 3-48  
lock insert, 4695 3-49  
lower wedge, 4695 3-51

## M

magnetic strip reader, (MSR) 3-36  
memory address configuration 3-9  
memory modules 3-40  
messages  
  4693 1-8  
  4694 2-5  
messages, 4695 3-21  
mode control switch operation, 4693 A-5

## N

network  
  4693 1-8, 1-47

## O

operator panel  
  4693 1-1, 1-3, 1-51, 1-80  
optional adapter  
  4693 1-8, 1-47, 1-64, 1-85

## P

PCMCIA feature 3-54  
POST beep codes, 4695 3-26  
POST messages, 4695 3-21  
power button, 4695 3-47  
power supply  
  4693 1-51, 1-81  
  4694 2-3  
  4694 - 001,004,024 2-14  
  4694 - 041,044, 144 2-19  
power-on password, 4695 3-4  
preventive maintenance C-1  
primary adapter configuration, 4695 3-9

problem determination  
4693 1-1, 1-2  
4694 2-1, 2-2  
4695 3-1  
publications, related hardware xiii  
publications, related software xiii

## R

ready indicator, 4693 A-5  
rear connector panel, 4695 Models 201 and 211 3-34  
rear connector panels A-3  
rear door, 4695 3-52  
related publications, hardware xiii  
related publications, software xiii  
removing and replacing FRUs  
4693 1-77  
4694 - 001,004,024 2-11  
4694 - 041,044, 144 2-17  
4695 models 002 and 021 3-10  
return codes, wireless F-1  
run-time error messages, 4695 3-27

## S

safety notices ix  
secondary adapter configuration, 4695 3-9  
service diskette messages, 4695 3-32  
service level update 3-4  
service marks viii  
setup diskette, 4695 3-56  
setup program, Models 201 and 211 3-55  
socket locations A-3  
special tools D-1  
store system library xii  
supplies  
See expendable supplies  
supply item part numbers D-1  
symptoms  
4693 1-47  
4694 2-3  
4695 models 002, 012 3-6  
system board, 4695 3-42  
system partition 1-65  
system unit  
See 4693  
See 4694  
See 4695

## T

tablet 3-36  
tablet latch, 4695 3-51  
terminal system board  
4693 1-86  
4694 - 001,004,024 2-15

terminal system board (*continued*)  
4694 - 041,044 2-20  
test card D-1  
test error messages, 4695 3-28  
tests  
4693 1-64  
4694 2-8  
tools D-1  
trademarks viii  
troubleshooting  
See problem determination

## U

upper wedge, 4695 3-50  
utilities  
4693 1-64  
4694 2-9

## V

VGA card, 4694 2-13

## W

wireless return codes F-1  
wrap plug D-1



---

# Tell Us What You Think!

**4693, 4694, and 4695 Point-of-Sale Terminals:**

**Hardware Service Manual**

**Publication No. SY27-0337-02**

We hope you find this publication useful, readable, and technically accurate, but only you can tell us! Your comments and suggestions will help us improve our technical publications. Please take a few minutes to let us know what you think by completing this form. If you are in the U.S.A., you can mail this form postage free or fax it to us at 1-800-253-3520. Elsewhere, your local IBM branch office or representative will forward your comments or you may mail directly to us.

| Overall, how satisfied are you with the information in this book? | Satisfied                | Dissatisfied             |
|---|--------------------------|--------------------------|
|   | <input type="checkbox"/> | <input type="checkbox"/> |

| How satisfied are you that the information in this book is: | Satisfied                | Dissatisfied             |
|---|--------------------------|--------------------------|
| Accurate  | <input type="checkbox"/> | <input type="checkbox"/> |
| Complete  | <input type="checkbox"/> | <input type="checkbox"/> |
| Easy to find  | <input type="checkbox"/> | <input type="checkbox"/> |
| Easy to understand  | <input type="checkbox"/> | <input type="checkbox"/> |
| Well organized  | <input type="checkbox"/> | <input type="checkbox"/> |
| Applicable to your task                                     | <input type="checkbox"/> | <input type="checkbox"/> |

Specific comments or problems:

---

---

---

Please tell us how we can improve this book:

---

---

---

Thank you for your comments. If you would like a reply, provide the necessary information below.

\_\_\_\_\_  
Name

\_\_\_\_\_  
Address

\_\_\_\_\_  
Company or Organization

\_\_\_\_\_  
Phone No.

Tell Us What You Think!  
SY27-0337-02



Cut or Fold  
Along Line

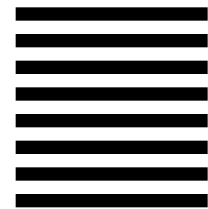
Fold and Tape

Please do not staple

Fold and Tape



NO POSTAGE  
NECESSARY  
IF MAILED IN THE  
UNITED STATES



# BUSINESS REPLY MAIL

FIRST-CLASS MAIL PERMIT NO. 40 ARMONK, NEW YORK

POSTAGE WILL BE PAID BY ADDRESSEE

Design & Information Development  
Dept. CJMA/Bldg. 645  
International Business Machines Corporation  
PO BOX 12195  
RESEARCH TRIANGLE PARK NC 27709-9990



Fold and Tape

Please do not staple

Fold and Tape

SY27-0337-02

Cut or Fold  
Along Line







Printed in U.S.A.

SY27-0337-02

