UPDATE INSTRUCTIONS

Date : August 28, 2000

To : Holders of **P9030TA** LOGIQ 500 Service Manual

Subject : **P9030TA LOGIQ 500 SERVICE MANUAL UPGRADE – REV 14**

Enclosed please find the following Rev14 upgrade pages.

SUMMARY OF CHANGES (Reason)

- Chapter 1: Addition of the caution label and change of address
- Chapter 3: Additional information for Ver. 6 system and the new probes
- Chapter 4: Additional information for Ver. 6 system software options
- Chapter 5: Additional information for Ver. 6 system
- Chapter 6: Additional descriptions for new FRUs and others

UPDATE INSTRUCTIONS

To properly upgrade your manual, exchange the upgraded pages in the list below:

CHAPTER	REMOVE PAGE NUMBERS	SHEETS (Pgs)	INSERT PAGE NUMBERS	SHEETS (Pgs)
	Title page REV 13	1	Title page REV 14	1
	A REV 13	1	A REV 14	1
	i to vi	3	i to vi	3
1	1–1 to 1–2 1–9 to 1–20	1 6	1–1 to 1–2 1–9 to 1–22	1 7
3	3–1 to 3–2 3–11 to 3–16	1 3	3–1 to 3–2 3–11 to 3–18	1 4
4	4–1 to 4–2 4–15 to 4–16 4–21 to 4–26 4–35 to 4–40	1 1 3 3	4–1 to 4–2 4–15 to 4–16 4–21 to 4–26 4–35 to 4–42	1 1 3 4
5	5–11 to 5–12	1	5–11 to 5–12	1
6	6–1 to 6–252	126	6–1 to 6–266	133
	TOTAL REMOVED	151	**TOTAL INSERTED**	161

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P9030TA

Revision 14

LOGIQ 500
Service Manual

LIST OF EFFECTIVE PAGES

REV	DATE	PRIMARY REASON FOR CHANGE
0	March 10, 1994	Initial release
1	July 25, 1994	Software version 1.10 Release, Error correction and Additional descriptions
2	August 15, 1994	Error Correction
3	October 26, 1994	Software version 1.11 Release, Error correction and Additional descriptions
4	January 25, 1995	Software version 1.20 Release, Error correction and Additional descriptions
5	May 8, 1995	Software version 2.00 Release, Error correction and Additional descriptions
6	November 17, 1995	Software version 2.20 Release
7	July 10, 1996	Software version 3.00 Release
8	March 10, 1997	Software version 3.10 Release
9	October 23, 1997	Software version 4.00 Release
10	June 19, 1998	Software version 4.10 Release
11	April 21, 1999	Software version 4.20 Release
12	August 30, 1999	Software version 5.00 Release
13	December 14, 1999	Software version 5.00A Release
14	August 28, 2000	Software version 6.00 Release

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CHAPTER 6 – RENEWAL PARTS

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CHAPTER 6 – RENEWAL PARTS (continued)

SECTION   **TITLE**   **PAGE**

CHAPTER 6 – RENEWAL PARTS (continued)

CHAPTER 7 – PERIODIC MAINTENANCE

CHAPTER 8 – INSTALLATION FOR OPTIONS

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CHAPTER 1 – INTRODUCTION

TABLE OF CONTENTS

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1–1   SERVICE MANUAL CONTENTS

This manual provides service information on the LOGIQ 500 Ultrasound Scanning System. It contains the following chapters:

1.   **Chapter 1, Introduction:** Contains a content summary and warnings;

2.   **Chapter 2, Installation:** Contains physical and electrical requirements that must be considered prior to installation and a complete LOGIQ 500 installation procedure with installation checklist;

3.   **Chapter 3, System Configuration:** Contains system configuration and specifications;

4.   **Chapter 4, Functional Checks:** Contains functional checks that must be performed as part of the installation, or as required during servicing and periodic maintenance;

5.   **Chapter 5, Diagrams:** Contains block diagrams and functional explanations of the LOGIQ 500 electronics;

6.   **Chapter 6, Renewal Parts:** Contains a complete list of replacement parts for the LOGIQ 500 and disassembly procedures for all changeable FRU;

7.   **Chapter 7, Periodic Maintenance:** Provides periodic maintenance procedures for the LOGIQ 500.

8.   **Chapter 8, Installation for Options:** is provided to keep the option installation instructions supplied with each option.

1–2   SAFETY

1–2–1   Warnings

WARNING!

CAREFULLY READ ALL THE WARNINGS LISTED BELOW!

1. The operator manual should be fully read and understood before operating the LOGIQ 500 and kept nearby for quick reference.

2. Although the ultrasound energy transmitted from the LOGIQ 500 transducer is within AIUM/NEMA standards, unnecessary exposure should be avoided. Only trained personnel should operate the LOGIQ 500.

3. To prevent electrical shock, the LOGIQ 500 should be connected to a properly grounded power receptacle. Do not use a three prong to two prong adapter. This defeats safety grounding.

4. Do not use with Defibrillator when LOGIQ 500 is being operated .

5. Probes are fragile, please handle with care.

6. Concerning Outside Markings, refer to Illustration 1–1 through 1–10.

7. For the cleaning, disinfection, and sterilization, refer to Probe section in LOGIQ 500 User Manual and Caution Sheet supplied with each probe.

<div align="center">NOTICE</div>

This medical equipment is approved, in terms of the prevention of radio wave interference, to be used in hospitals, clinics and other institutions which are environmentally qualified. The use of this equipment in an inappropriate environment may cause some electronic interference to radios and televisions around the equipment. Proper handling of this equipment is required in order to avoid such trouble according to the operator and service manuals.
This equipment can be used in residential areas only under the supervision of physicians or qualified technicians.

CAUTION

Improper performance possibility. Do not use the following devices near this equipment.
Cellular phone, radio transceiver, mobile radio transmitter, radio-controlled toy, etc.
Use of these devices near this equipment could cause this equipment to perform outside the
published specifications. Keep power to these devices turned off when near this equipment.

1–2–1 Warnings (continued)

12-inch Monitor
☞ **[Consoles with Software prior to V5.00 y]**

15-inch Monitor
☞ **[Consoles with V5.00 y or Later]**

OUTSIDE MARKINGS OF LOGIQ 500 (For All Units)
ILLUSTRATION 1–1

Note
This caution label has been removed at the installation of the system.

1–2–1 Warnings (continued)

12-inch Monitor
[Consoles with Software prior to V5.00 y]

15-inch Monitor
[Consoles with V5.00 y or Later]

**Labels including English, Russian, Swedish, Danish, Greek, and Turkish
[supplied with European Console]**

OUTSIDE MARKINGS OF LOGIQ 500 (For All Units)
ILLUSTRATION 1–2

Note

For further details regarding the cautions above, refer to 2–2–8 MOVING INTO POSITION in Chapter 2.

1–2–1 Warnings (continued)

```
{ CAUTION }
```

Possible Injury. Placing objects on top of the monitor may cause the monitor to tilt with the falling objects resulting in injury to the operator. Do not place any objects on the monitor.

⚠ CAUTION 注意 ACHTUNG ATTENTION ATTENZIONE ATENÇÃO ATENCIÓN

Possible injury. Placing objects on top of the monitor may cause the monitor to tilt with the falling objects resulting in injury to the operator. Do not place any objects on the monitor.

怪我の可能性あり。モニタ上に物を載せるとモニタが傾き、物が落下して怪我をすることがあります。モニタの上に物を載せないこと。

Eventuelle Verletzungsgefahr. Auf den Monitor gelegte Gegenstände können ihn neigen und herunterfallende Gegenstände evtl. Verletzungen verursachen. Keinerlei Gegenstände auf den Monitor legen.

Risque de blessure possible : le poids d'objets posés sur le moniteur peut le faire s'incliner. Afin d'éviter tout risque de blessure occasionné par la chute de ces objets, ne rien poser sur le moniteur.

Rischio di lesione. Eventuali oggetti riposti sul monitor, ne possono provocare l'inclinamento. Per evitare il rischio di caduta di tali oggetti con conseguenti ferite, non riporre alcun oggetto sul monitor.

Existe a possibilidade de ocorrer acidentes. Caso algum objeto seja colocado sobre o monitor, este poderá inclinar-se e o objeto poderá cair, provocando algum acidente. Não coloque nenhum objeto sobre o monitor.

Existen posibilidades de lesiones. Al colocar objetos sobre el monitor, puede inclinarse el monitor, caerse los objetos y causar lesiones. No colocar objetos sobre el monitor.
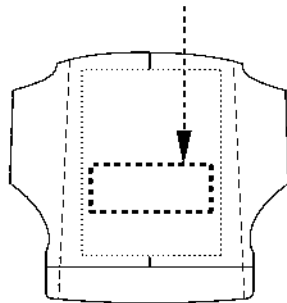
12-inch Monitor
☞ **[Consoles with Software prior to V5.00 y]**
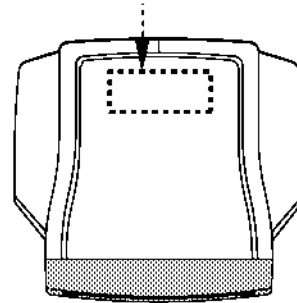
15-inch Monitor
☞ **[Consoles with V5.00 y or Later]**

⚠ CAUTION ВНИМАНИЕ! FORSIKTIG FORSIGTIG ΠΡΟΣΟΧΗ DIKKAT

Possible injury. Placing objects on top of the monitor may cause the monitor to tilt with the falling objects resulting in injury to the operator. Do not place any objects on the monitor.

Возможные травмы. Размещение каких-либо предметов на верхней поверхности монитора может привести к наклону монитора, в результате чего падающие с него предметы могут нанести травму оператору. Не допускайте размещения на мониторе посторонних предметов.

Skaderisk. Om föremål placeras ovanpå monitorn kan den tippa varvid föremålen kan falla på operatören och orsaka skada. Placera inga föremål på monitorn.

Fare for uheld. Genstande, der placeres ovenpå monitoren, kan få bordet til at vælte, og den faldende genstand kan forårsage skade på operatøren. Undlad at placere genstande oven på monitoren.

Πιθανός τραυματισμός. Η τοποθέτηση αντικειμένων επάνω στην οθόνη μπορεί να προκαλέσει την κλίση της, με αποτέλεσμα τα αντικείμενα να πέσουν και να τραυματίσουν το χειριστή. Μην τοποθετείτε αντικείμενα στην οθόνη.

Muhtemel yaralanma. Monitörün üzerine eşya konulması, monitörün yana yatmasına ve düşen eşyaların operatörün yaralanmasına yolaçabilir. Monitörün üzerine herhangi bir eşya koymayınız.

Labels including English, Russian, Swedish, Danish, Greek, and Turkish [supplied with European Console]

OUTSIDE MARKINGS OF LOGIQ 500 (For All Units)
ILLUSTRATION 1–3

1–2–1 Warnings (continued)

Do not use the following devices near this equipment. Cellular phone, radio transceiver, mobile radio transmitter, radio controlled toy, etc.
Use of these devices near this equipment could cause this equipment to perform outside the published specifications.
Keep power to these devices turned off when near this equipment.

OUTSIDE MARKINGS OF LOGIQ 500 (For USA/Asia)
ILLUSTRATION 1–4

Note

The ETL label described in ILLUSTRATION 1–4 is attached on the system software version 2.00 or later console. The system software 1.20 or former console has the different style of ETL label.
For the symbols shown in the illustration above, refer to latter pages in this chapter.
The CAUTION label for the radio influence is attached on the console from April, 1996.

1–2–1 Warnings (continued)

OUTSIDE MARKINGS OF LOGIQ 500 (For Europe) [a]
ILLUSTRATION 1–5

Note

For the symbols shown in the illustration above, refer to latter pages in this chapter.

1–2–1 Warnings (continued)

OUTSIDE MARKINGS OF LOGIQ 500 (For Europe) [b]
ILLUSTRATION 1–6

Note

The ILLUSTRATION 1–6 shows the labels for console with the software version 2.00 or later. The ILLUSTRATION 1–5 shows the labels for console with the software version 1.20 or former.
For the symbols shown in the illustration above, refer to latter pages in this chapter.
The CAUTION label for the radio influence is attached on the console from April, 1996.
The GOST label is attached on the console from June, 1998.

1–2–1 Warnings (continued)

```
┌─────────────────────────────────┐
│  CISPR 11 / EN 55011            │
│  CLASS: A   GROUP: 1           │
│  CLASSE: A   GROUPE: 1         │
└─────────────────────────────────┘
```

CE Marking Label (For Europe)
ILLUSTRATION 1–7

Note

The ILLUSTRATION 1–7 shows the labels for console with the software version 6.00 or later. The LO-GIQ™ 500 system conforms to the CISPR11, Group 1, Class A of the international standard for Electromagnetic disturbance characteristics. However, when a probe with a CISPR11, Group 2, Class A conformance is connected to the LOGIQ™ 500, the system rating is CISPR11, Group 2, Class A. When a LOGIQ™ 500 is upgraded to version 6.0 software, it also conforms to the CISPR11, Group 2, Class A.

1–2–1 Warnings (continued)
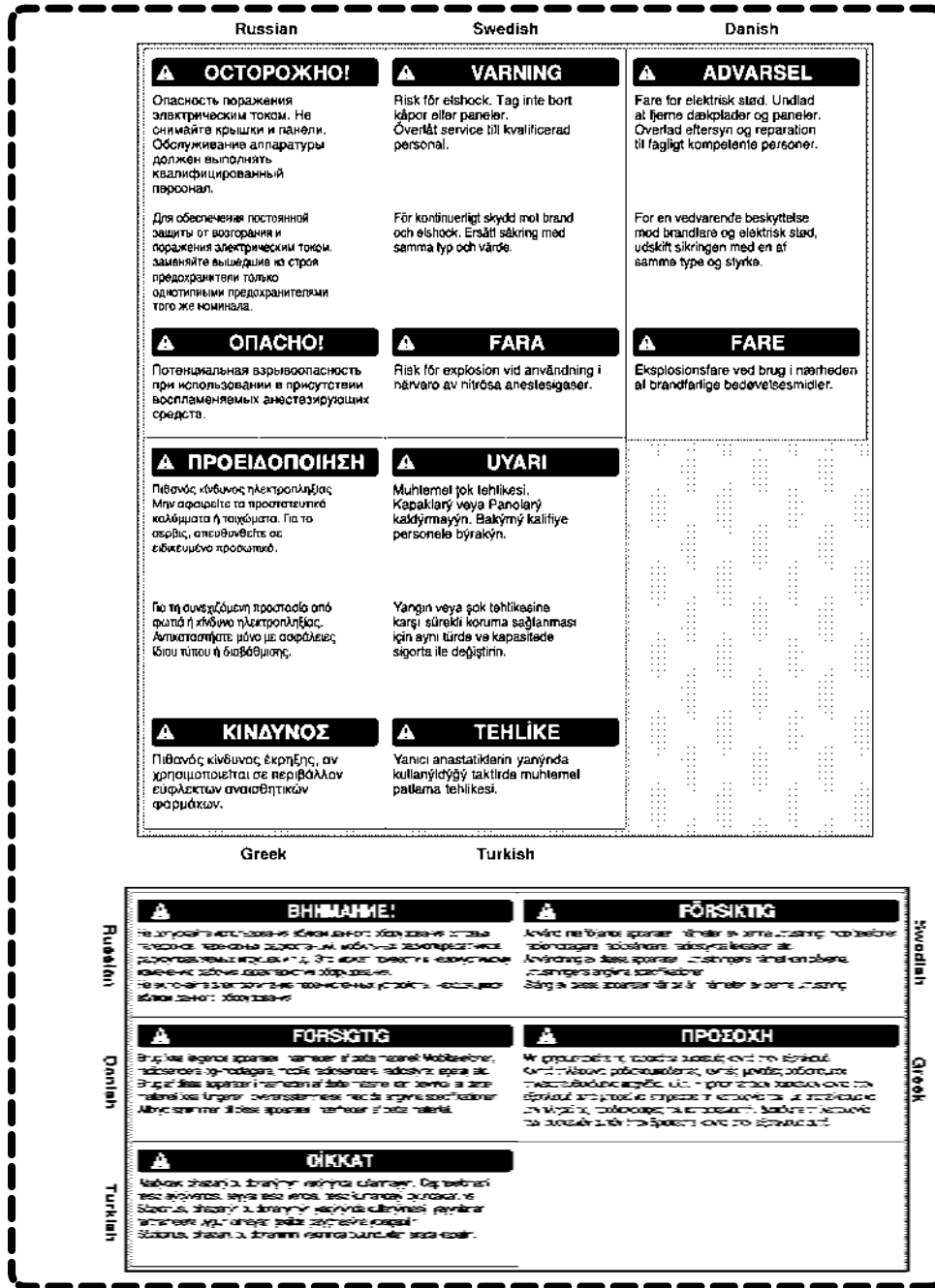
**Labels including English, Russian, Swedish, Danish, Greek, and Turkish
[supplied with European Console]**

OUTSIDE MARKINGS OF LOGIQ 500 (For Europe) [c]
ILLUSTRATION 1–8

Note

The labels shown in ILLUSTRATION 1–8 are supplied with the consoles for Europe. They shall be attached on the console over the existing labels as necessary. Refer to the installation instructions supplied with the labels.

1–2–1 Warnings (continued)

OUTSIDE MARKINGS OF LOGIQ 500 (For Japan)
ILLUSTRATION 1–9

Note

For the symbols shown in the illustration above, refer to latter pages in this chapter.
The CAUTION label for the radio influence is attached on the console from April, 1996.
The Japanese EMC label is attached on the console wiith the software version 4.10 or later instead of the VCIM label.

1–2–1 Warnings (continued)

{ **CAUTION** }

Do not use a Defibrillator simultaneously with the ECG, as its excessive voltage will damage the signal input block of the ECG unit.

OUTSIDE MARKINGS OF LOGIQ 500 (For Units with ECG)
ILLUSTRATION 1–10

Note
This label is attached only on the LOGIQ™ 500 console with the optional ECG unit.

Labels including English, Russian, Swedish, Danish, Greek, and Turkish [supplied with European Console]

EUROPEAN LANGUAGE LABEL ON ECG LABEL
ILLUSTRATION 1–11

Note
The labels shown in ILLUSTRATION 1–11 are supplied with the consoles for Europe. They shall be attached on the console over the existing labels as necessary. Refer to the installation instructions supplied with the labels.

INTRODUCTION

1–2–1 Warnings (continued)

NOTE: Same labels are attached on both left and right side of the transformer box inside the
       side covers

MARKINGS OF LOGIQ 500 (INSIDE SIDE COVERS)
ILLUSTRATION 1–12

Note
For further details, refer to 4–4 POWER SUPPLY ADJUSTMENT in Chapter 4.

1–2–1   Warnings (Continued)

The following table describes the purpose and location of safety labels and other important information provided on the equipment.

Label/Symbol	Purpose/Meaning	Location
Identification and Rating Plate	• Manufacturer's name and address • Date of manufacture • Model and serial numbers • Electrical ratings	Rear of console near power inlet
Type/Class Label	Used to indicate the degree of safety or protection.	
IP Code (IPX1)	Indicates the degree of protection provided by the enclosure per IEC 529. IPX1 indicates drip proof.	Footswitch
	Equipment Type BF (man in the box symbol) IEC 878–02–03 indicates B Type equipment having a floating applied part.	Probe connectors and PCG connector
	Equipment Type CF (heart in the box symbol) IEC 878–02–05 indicates equipment having a floating applied part having a degree of protection suitable for direct cardiac contact.	ECG connector and surgical probes
Device Listing/ Certification Labels	Laboratory logo or labels denoting conformance with industry safety standards such as UL or IEC.	Rear of console
CAUTION – This unit weighs...Special care must be used to avoid..."	This precaution is intended to prevent injury that may result if one person attempt to move the unit considerable distances or on an incline due to the weight of the unit.	On the console where easily seen during transport
"DANGER – Risk of explosion used in..."	The system is not designed for use with flammable anesthetic gases.	Rear of console
	"CAUTION" The equilateral triangle is usually used in combination with other symbols to advise or warn the user.	Various
	• ATTENTION – Consult accompanying documents " is intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label.	Various

1–2–1 Warnings (Continued)

Label/Symbol	Purpose/Meaning	Location
	• "CAUTION – Dangerous voltage" (the lightning flash with arrowhead in equilateral triangle) is used to indicate electric shock hazards.	Various
	• "Mains OFF" Indicates the power off position of the mains power switch.	Rear of system Adjacent to mains switch
	• "OFF/Standby" Indicates the power off/standby position of the power switch. CAUTION This Power Switch DOES NOT ISOLATE Mains Supply	Adjacent to On–Off/Standby Switch
	• "Mains ON" Indicates the power on position of the mains power switch.	Rear of system Adjacent to mains switch
	• "ON" Indicates the power on position of the power switch. CAUTION This Power Switch DOES NOT ISOLATE Mains Supply	Adjacent to On–Off/Standby Switch
	• "Protective Earth" Indicates the protective earth (grounding) terminal.	Not used
	• "Equipotentiality" Indicates the terminal to be used for connecting equipotential conductors when interconnecting (grounding) with other equipment.	Rear of console

1–2–2 Specifications

Type of protection against electric shock: Class I EQUIPMENT (*1)

Degree of protection against electric shock: Type BF EQUIPMENT (*2) (Except ECG)
                                                                    Type CF EQUIPMENT (*3) (ECG Only)

Ordinary Equipment
Continuous Operation

*1. Class I EQUIPMENT
     EQUIPMENT in which protection against electric shock does not rely on BASIC INSULATION only, but which
     includes an additional safety precaution in that means are provided for the connection of the EQUIPMENT to
     the protective earth conductor in the fixed wiring of the installation in such a way that ACCESSIBLE METAL
     PARTS cannot become LIVE in the event of a failure of the BASIC INSULATION.

*2. Type BF EQUIPMENT
     TYPE B EQUIPMENT with an F–TYPE APPLIED PART
     TYPE B EQUIPMENT: EQUIPMENT providing a particular degree of protection against electric shock, partic-
     ularly regarding:

     –   allowable LEAKAGE CURRENT;

	Normal mode	**Single failure mode**
Patient leakage current	Less than 100μA	Less than 500μA

*3. Type CF EQUIPMENT
     EQUIPMENT providing a particular degree of protection higher than that for TYPE OF BF EQUIPMENT
     against electric shock particularly regarding allowable LEAKAGE CURRENT, and having an F–TYPE AP-
     PLIED PART.

     –   allowable LEAKAGE CURRENT;

	Normal mode	**Single failure mode**
Patient leakage current	Less than 10μA	Less than 50μA

1–3   EMC (Electromagnetic Compatibility)

1–3–1   EMC Performance

All types of electronic equipment may characteristically cause electromagnetic interference with other equipment, either through air or connecting cables. The term EMC (Electromagnetic Compatibility) indicates capability of the equipment, which curbs electromagnetic influence from other equipment and at the same time does not affect other equipment with similar electromagnetic radiation from itself.

This product is designed to fully comply with the EN60601−1−2 (IEC601−1−2), in Medical electrical equipment EMC regulations.

Note

Manufacturer built consoles with version 2.00 software or later conform with EN60601−1−2. Consoles upgraded to version 2.00 or later software (using optional upgrade kits) will not conform to EN60601−1−2.

Proper installation following this service manual is required in order to achieve the full EMC performance of the product.

The product must be installed as stipulated in 1−3−2, Notice upon Installation of Product.

In case of issues related to EMC, please follow procedures stated in 1−3−4, Countermeasures against EMC-related Issues.

1–3–2   Notice upon Installation of Product

1) Use either power supply cords provided by GEMS or ones designated by GEMS. Products equipped with power source plug should be plugged into the fixed power socket which has the protective grounding conductor.

   Connect a three-pole plug to a three-pole socket without using a three-pole-to-two-pole converter.

2) Locate the equipment as far as possible from other electronic equipment.

3) Be sure to use either any cables provided by GEMS or ones designated by GEYMS. Wire these cables following these installation procedures.

   (Example)   Wire power cables separately from signal cables.

4) Lay out the main equipment and other peripherals following the installation procedures described in Chapter2, INSTALLATION.

1−3−3 General Notice

1) Designation of Peripheral Equipment Connectable to This Product

   The equipment which conforms to EM60601−1−2 (IEC601−1−2), can be hooked up to the product without compromising its EMC performance.

   Avoid using other equipment. Failure to comply with this instruction may result in poor EMC performance of the product.

2) Notice against User Modification

   Never modify this product. Unilateral user modification may cause degradation in EMC performance. Modification of the product includes:

   a) Changes in cables (length, material, wiring etc.)

   b) Changes in system installation/layout

   c) Changes in system configuration/components

   d) Changes in means of fixing system/parts (cover open/close, cover screwing)

3) Operate the system with all covers closed. If you open any cover for some reason, be sure to shut it before starting/resuming operation.

   Operating the system with any cover open may affect EMC performance.

1−3−4 Countermeasures against EMC-related Issues

Generally it is very difficult to grapple with issues related to EMC. It may take much time and cost.

General countermeasures
   Electromagnetic interference with other equipment

   1) Electromagnetic interference may be alleviated by positioning other equipment far from the system.

   2) Electromagnetic interference may be mitigated by changing the relative location (installation angle) between the system and other equipment.

   3) Electromagnetic interference may be eased by changing wiring locations of power/signal cables of other equipment.

   4) Electromagnetic influence may be reduced by altering the path of power supply for other equipment.

1−3−5 Notice on Service

   1) Ensure all screws are tight after servicing. Loose screws may cause degradation in EMC performance.

   2) In case the high frequency gasket of this system is broken, replace it with a new one immediately.

1–4 ADDRESS

This system is not repairable by the customer. If this equipment does not work as indicated in the Operator Manual, please contact your service support center. If the service engineer needs additional information to repair this equipment, please contact the following address (The necessary information will be provided to the Service Engineer as needed):

GE Medical Systems
Ultrasound Business Group
4855 W. Electric Ave., Milwaukee, WI 53219
USA/CANADA
TEL: (1) 800–321–7937
FAX: (1) 414–647–4125

LATIN & SOUTH AMERICA
TEL: (1) 414–524–5300

GE Ultrasound Europe
GE Ultraschall Deutschland GmbH & Co. KG
Beethovenstr. 239
42655 Solingen, GERMANY
TEL: OLC–Europe Toll Free Numbers
        or
        General Imaging Hotline   (49) (212) 2802 207
        Cardiac Hotline   (49) (212) 2802 208
FAX: (49) (212) 2802 431

GE YOKOGAWA MEDICAL SYSTEMS
On–Line Center (OLC), Asia
Ultrasound Group
67–4 Takakura–cho, Hachioji–shi, Tokyo, 192–0033
JAPAN
TEL: (81) 426–48–2940
FAX: (81) 426–48–2905

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CHAPTER 2 – INSTALLATION

TABLE OF CONTENTS

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2–1   PREINSTALLATION

2–1–1   Introduction

This section describes various general electrical, operational, and environmental considerations that must be considered before installing the LOGIQ 500 Ultrasound unit.

2–1–2   Power Line Requirements

The following power line parameters should be monitored for one week before installation. We recommend that you use an analyzer Dranetz Model 606–3 or Dranetz Model 626:

PARAMETER	:		**LIMITS**
Voltage Range	:	Japan.	: 100 VAC ±10% (90–110 VAC)
	:	Europe	: 220–240 VAC ±10% (198–264 VAC)
		USA	: 115 VAC ±10% (103–127 VAC)
Power	:	Japan	: MAX. 1350 VA
	:	Europe	: MAX. 1350 VA
	:	USA	: MAX. 1350VA
Line Frequency	:	All applications	: 50/60Hz (±2Hz)
Power Transients	:	Less than 25 % of nominal peak voltage for less than 1 millisecond for any type of transient, including line frequency, synchronous, asynchronous, or aperiodic transients.	
Decaying Oscillation	:	Less than 15 % of peak voltage for less than 1 millisecond.	

2–1–3 Physical Specifications

The LOGIQ 500 (excluding accessories) weighs 180 kg (397 lbs). See Chapter 3, ILLUSTRATION 3–1 for dimensions.

Note

The weight of the console with software version 5.00y or later is approximately 192 kg (423 lbs).
The weight of the Tall–version console with software version 5.00y or later is approximately 200 kg (441 lbs).

Operating Conditions

The LOGIQ 500 is designed to operate within a temperature range of 10 degrees C to 40 degrees C (50 degrees F to 104 degrees F), and a relative humidity range of 30 % to 85 % (Non–condensing).

Patient Comfort

Concerning permissible operating temperature and humidity tolerances, we recommend that ambient room temperature should be maintained between 20 to 26 degrees C (68 to 79 degrees F), Humidity should be maintained between 50 % and 70 % for patient comfort during ultrasound scanning.

Electromagnetic Interference (EMI)

Ultrasound machines are susceptible to interference from the radio frequencies, magnetic fields, and transients in the air or power leads. Possible EMI sources should be identified. Electrical and electronic equipment may produce EMI unintentionally as the result of a malfunction. These sources include medical lasers, cauterizing guns, computers, monitors, fans, gel warmers, microwave ovens, and cellular phones. The presence of broadcast station or van may also cause interference.

Carefully read the following precautions before installing the unit.

1.   Connect the power plug for any other equipment into the fixed outlet with ground wire.

2.   Securely connect any equipment with permanent ground connection to the earth ground furnished in the building.

3.   Install the unit as far from any electrical or electronic equipment as possible.

If any EMI troubles are known or suspected to be present, try to deal with the equipment suspected to have influence on the Ultrasound machine as follows:

1.   Move the ultrasound machine as far from the equipment as possible.

2.   Change the arrangement of the equipment in the room.

3.   Plug the equipment into other outlet.

4.   Move the power cable or signal cable connected with the equipment.

Securely re–tighten drive any screws for the Ultrasound machine after re–assembling for service operation.

2–1–4 Recommended Ultrasound Room Layout

Table 2–1 provides the requirements for an ultrasound room:

TABLE 2–1
ULTRASOUND ROOM REQUIREMENTS

POWER SOURCE	220–240VAC, 50Hz, SINGLE PHASE For Europe Version 115V, 60Hz, SINGLE PHASE For USA Version
CURRENT RATING	20A (115V, 100V) ; 7.5A (220–240V) CIRCUIT BREAKER
RADIATION SHIELDING	NONE REQUIRED for ULTRASOUND ENERGY
TEMPERATURE	20–26 DEG. C (68–79 DEG F) for PATIENT COMFORT
HUMIDITY	50% to 70% for PATIENT COMFORT
HEAT DISSIPATION	2000 BTU/Hr for LOGIQ 500 ;
FLOOR LOADING	Approximately 680 – 800 kg/m^2 without Accessories
FLOOR CONDITION	Gradient : WITHIN 5 degrees
LOGIQ 500 Weight	180 kg (397lbs) without Accessories

2–1–4 Recommended Ultrasound Room Layout (Continued)

Optional Desirable Ultrasound Room Facilities

These facilities are:

1. Lab sink with hot and cold water;

2. Emergency oxygen supply;

3. Dimmer control for overhead lights;

4. Film viewer;

5. Film and linen storage;

6. Medical equipment storage;

7. Hospital grade equipment electrical outlet;

8. Analog telephone line for connection to InSite;

9. Document storage area for operating and service manuals;

10. Nearby waiting room, dressing room, lavatory

11. Trash bin.

Recommended and Alternate Ultrasound Console Floor Plans

ILLUSTRATION 2–1 provides a recommended standard floor plan and a minimal floor plan for ultrasound equipment

■ **2–1–4   Recommended Ultrasound Room Layout** (continued)
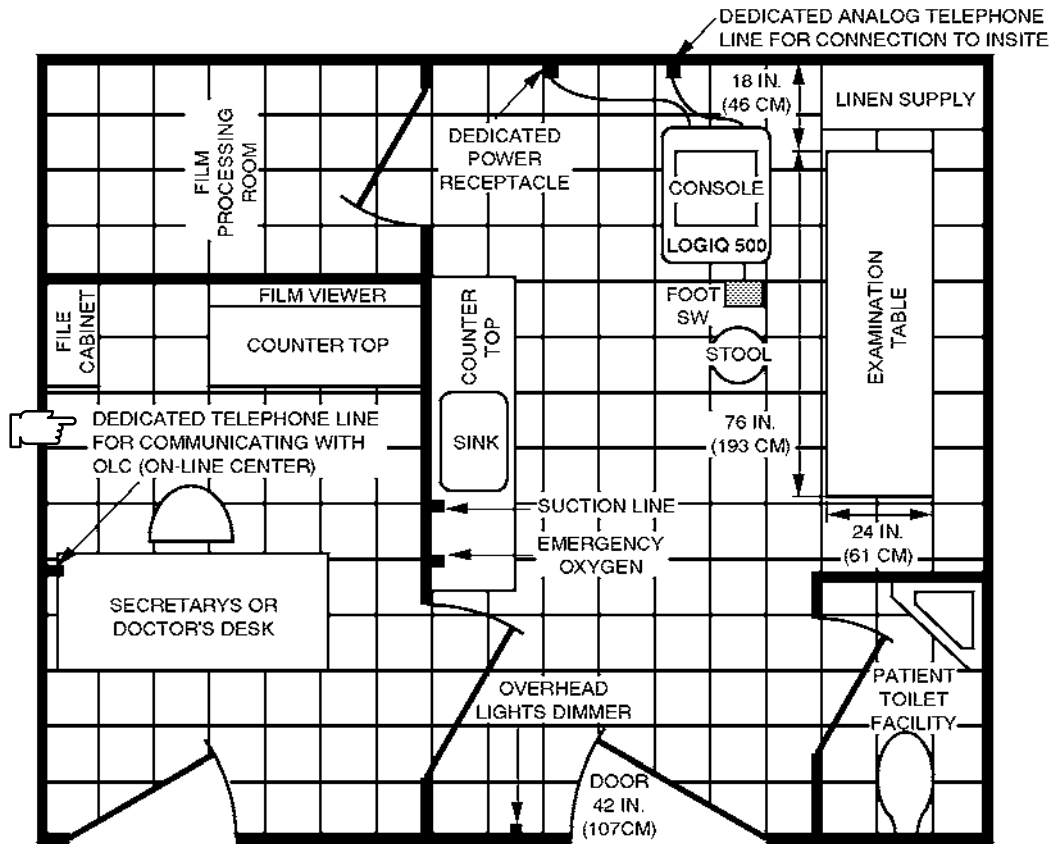
A 14 by 17 foot Recommended Floor Plan

Scale: Each square equals one square foot
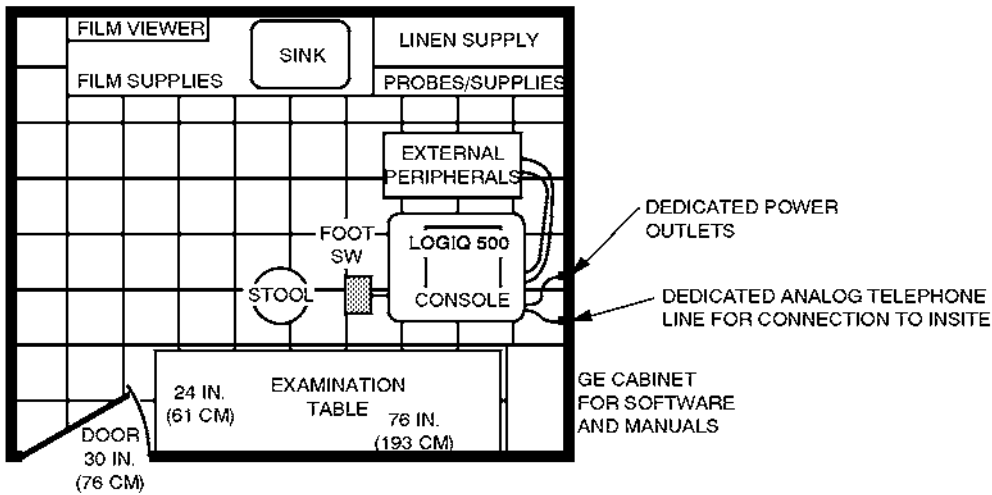
An 8 by 10 foot Minimal Floor Plan

RECOMMENDED ULTRASOUND FLOOR PLAN
ILLUSTRATION 2–1

2–2   INSTALLATION

2–2–1   Introduction

This section contains many of the procedures required to install the LOGIQ 500 console.

2–2–2   Average Installation Time

The LOGIQ 500 has been designed to be installed and checked out by an experienced service technician in approximately four hours. LOGIQ 500 consoles with optional equipment may take slightly longer.

2–2–3   Installation Warnings

1.   Since the LOGIQ 500 weighs approximately 397 lbs (180 kg) without options, preferably two people should unpack it. Two people are also preferable for installing any additional bulky items.

2.   There are no operator serviceable components. To prevent shock, do not remove any covers or panels. Should problems or malfunctions occur, unplug the power cord. Only qualified service personnel should carry out servicing and troubleshooting.

Note

For information regarding packing labels, refer to ILLUSTRATION 2–3, LABELS ON PACKAGE.

3.   After being transported, the unit may be very cold or hot. If this is the case, allow the unit to acclimate before you turn it on. It requires one hour for each 2.5°C increment it's temperature is below 10°C or above 40°C.

CAUTION

Equipment damage possibility. Turning the system on without acclimation after arriving at site may cause the system to be damaged.

TABLE 2–2
TIME FOR SETTLEMENT

°C	60	55	50	45	40	35	30	25	20	15	10	5	0	−5	−10	−15	−20	−25	−30	−35	−40
°F	140	131	122	113	104	95	86	77	68	59	50	41	32	23	14	5	−4	−13	−22	−31	−40
hrs	8	6	4	2	0	0	0	0	0	0	0	2	4	6	8	10	12	14	16	18	20

2–2–4   Checking the Components

When a new system arrives, check that any components are not damaged and are not in short supply. If shipping damage or shortage occurs, contact the address shown in Chapter 1.

2–2–5   Unpacking LOGIQ 500

{ **CAUTION** }

Do not lift the unit by the Keyboard. Equipment damage may result.

{ **CAUTION** }

The unit weighs approximately 180kg (397 lbs). Be prepared for a sudden shift of weight as the unit is removed from its base (pallet).

Refer to ILLUSTRATION 2–2 while performing the following procedure.

1.   Cut the two PLASTIC BANDs.

2.   Lift the CAP up and off.

3.   Remove the eight PLASTIC JOINTs from the OUTER SLEEVEs.

4.   Remove the OUTER SLEEVEs.

5.   Lift the Monitor up by pressing the <UP/DOWN> button located on the Monitor Arm.

6.   Remove the MONITOR SLEEVE.

7.   Remove the SLOPE.

8.   Remove the UPPER and LOWER CUSHIONs.

9.   Unlock the brakes by stepping down on the brake pads in front, then carefully roll the LOGIQ 500 rear side first off the SKID.

10. Remove the Caution Label attached on the CRT Filter and clean the CRT Filter.

Note
Check the shipping container for special instructions. Verify that the container is intact. In some cases a secondary container may be used. If so, ask the carrier for unpacking instructions.

2–2–5 Unpacking LOGIQ 500 (Continued)
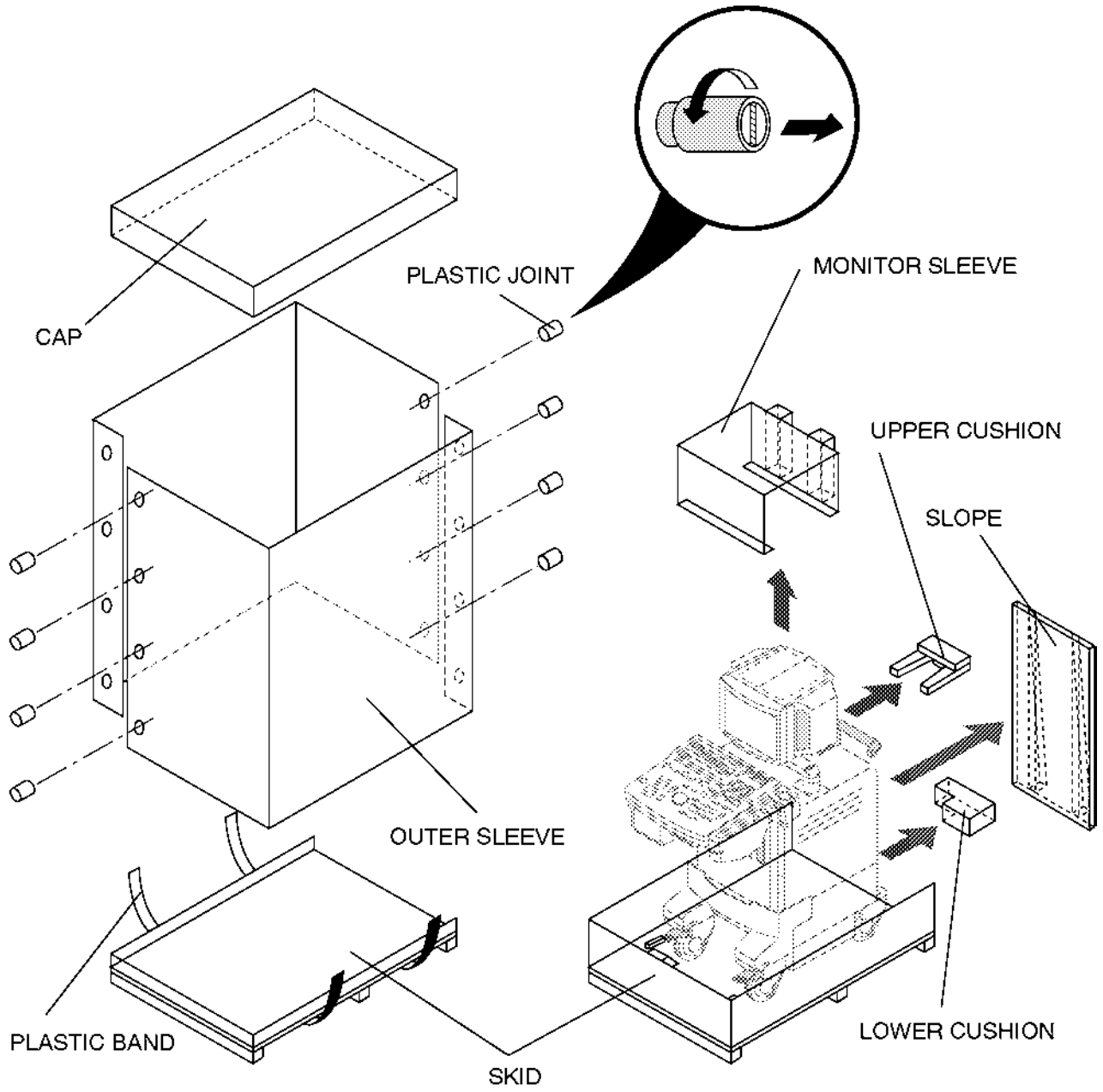
UNPACKING LOGIQ 500
ILLUSTRATION 2–2

2–2–5 Unpacking LOGIQ 500 (Continued)
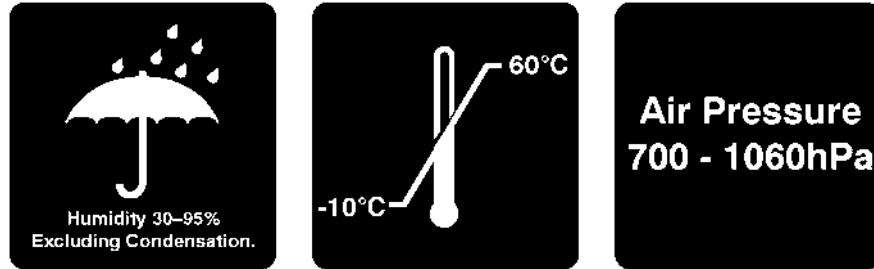
LABELS ON PACKAGE
ILLUSTRATION 2–3

2–2–6 MTZ Probe Holder Installation

One MTZ probe holder is supplied with the LOGIQ 500 console. Assemble the MTZ probe holder at the bottom of standard probe holder by screwing two screws (①) and (②): supplied with the starter kit) as shown in ILLUSTRATION 2–4.

Note

Two sets of screw holes are provided at the bottom of standard probe holder to install the MTZ probe holder. You can choose the most convenient position for your customer between the two sets of screw holes.
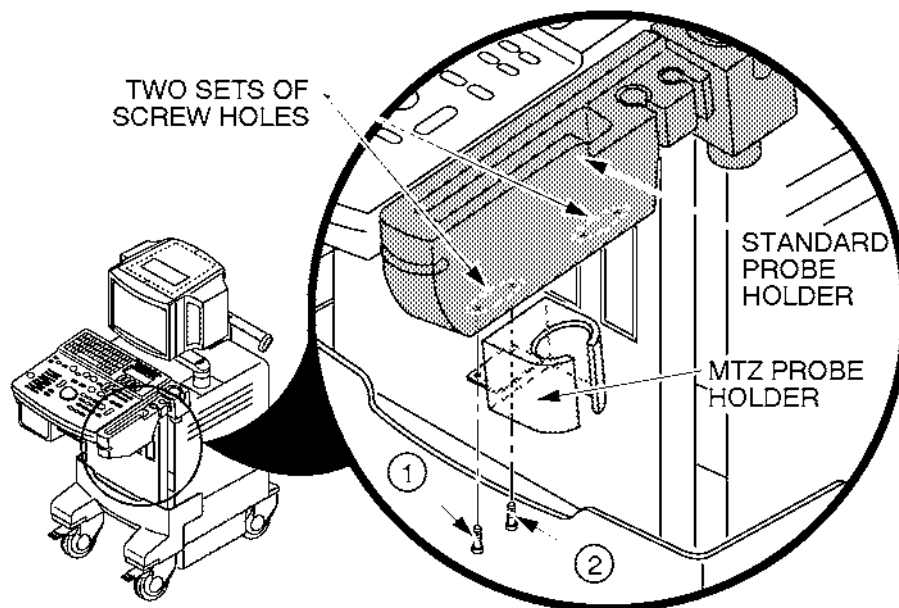
MTZ PROBE HOLDER INSTALLATION (a)
ILLUSTRATION 2–4

2–2–6 MTZ Probe Holder Installation (Continued)

The standard probe holder is changed to new one from the LOGIQ 500 console with system software version 2.00. Only one MTZ probe holder can be installed on the console with the new standard probe holder. Refer to ILLUSTRATION 2–5.
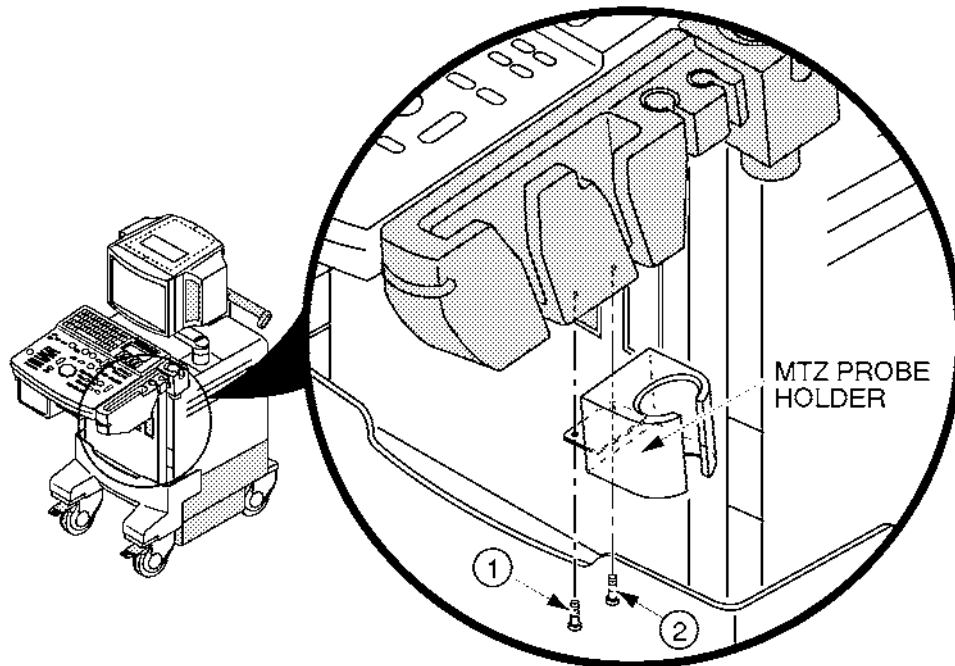
MTZ PROBE HOLDER INSTALLATION (b)
ILLUSTRATION 2–5

2–2–7 Transducer Connection

1. Connect a transducer to the upper transducer receptacle as follows:

    a. Ensure that the transducer twist lock lever points towards the 3 o'clock position.

    b. Insert the transducer connector on the receptacle guide pin until it touches the receptacle mating surface.

    c. Twist the transducer twist lock lever to the 7 o'clock position to lock it in place. Twist the lever to the 3 o'clock position to disconnect the transducer.

Note
It is not necessary to turn OFF power to connect or disconnect a transducer.

2. Connect the main power cable to a hospital grade power receptacle with the proper rated voltage checked during preinstallation. Never use a three–to–two prong adapter; this defeats the safety ground.

2–2–8 Moving into Position

⟨ CAUTION ⟩

Do not lift the unit by the Keyboard.
Do not tilt the unit more than 5 degrees to avoid tipping it over.
To avoid injury by tipping over. Set the monitor to the lowest position before moving.

⟨ CAUTION ⟩

Equipment Damage Possibility. Lifting the console by holding covers may damage the cov-
ers. Do not lift the console by holding any covers.

In general, a single adult can move the LOGIQ 500 along an even surface with no steep grades. At least two people should move the machine when large humps, grooves, or grades will be encountered. (It is better to pull from the rear rather than push from the front of the unit). Before moving, store all loose parts in the unit. Wrap transducers in soft cloth or foam to prevent damage.

Although LOGIQ 500 is a compact and mobile machine, two people should move it over rough surfaces or up and down grades.

2–2–9 Adjusting System Clock

Set the system clock for the LOGIQ 500 to the local time. For procedure of adjusting the system clock, refer to 4–3–3 Utility Menu, (A) TIME ADJUSTMENT, in Chapter 4, FUNCTIONAL CHECKS.

2–2–10 Product Locator Installation Card

Fill out proper customer Information the Product Locator Installation Card. Refer to ILLUSTRATION 2–6. Mail this Installation Card "Product Locator" to the address corresponding to your pole.

Note

The Product Locator Installation Card shown in ILLUSTRATION 2–6 may not be same as the provided Product Locator card.

PRODUCT LOCATOR INSTALLATION CARD
ILLUSTRATION 2–6

CHAPTER 3 – SYSTEM CONFIGURATION

TABLE OF CONTENTS

This page is left blank intentionally.

3–1 INTRODUCTION

This chapter describes system configuration and specifications.

3–2 DIMENSIONS

Regarding LOGIQ 500 dimensions, Refer to ILLUSTRATION 3–1 for planning the position of your LOGIQ 500.

Note
The weight of the console with software version 5.00y or later is approximately 192 kg (423 lbs).

WEIGHT: 180 kg
            397 lbs

NOTE
LENGTH   : mm (inches)
ABERRATION : ±5%
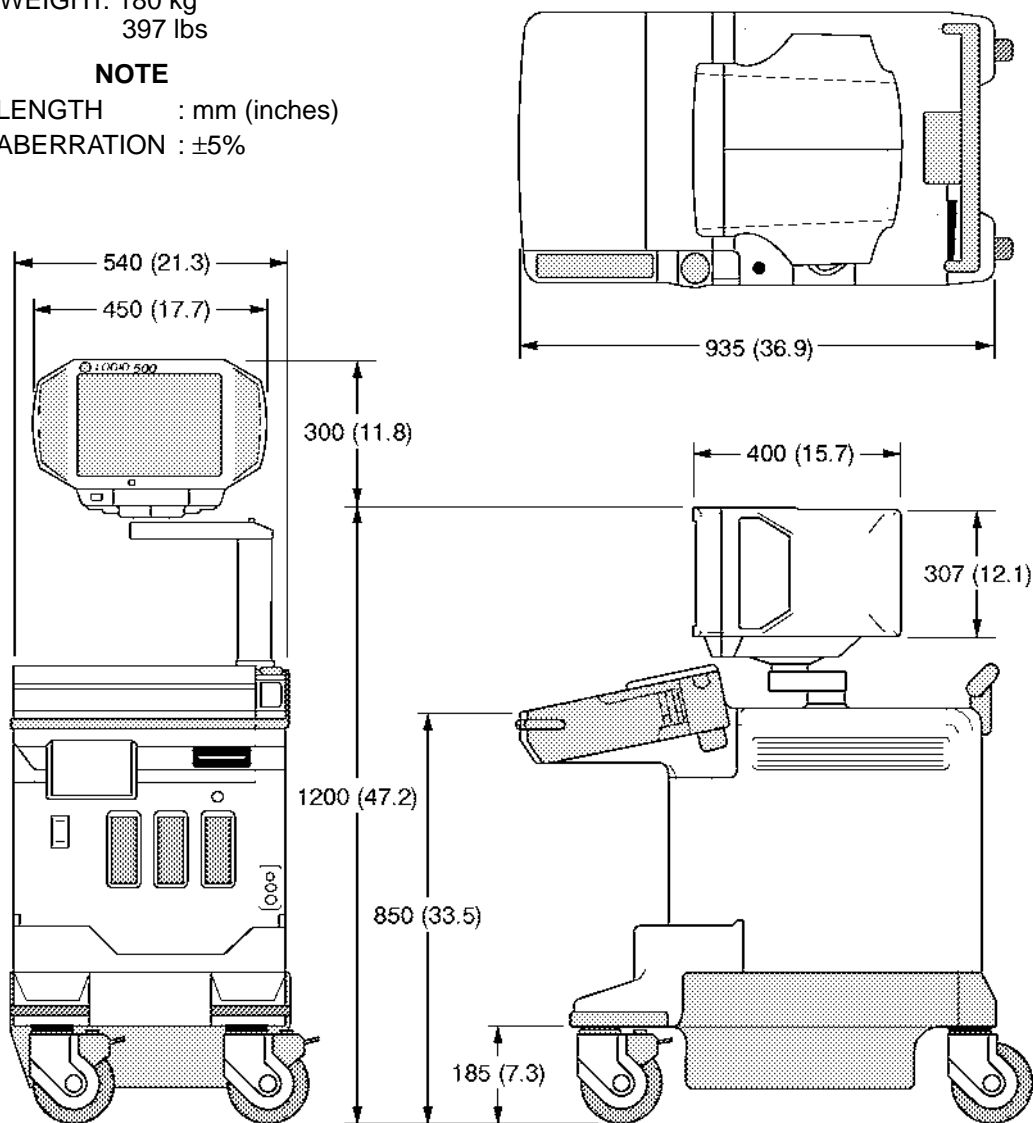
OVERALL DIMENSIONS
ILLUSTRATION 3–1

3–2 DIMENSIONS (continued)

ILLUSTRATION 3–2 shows the dimensions for the LOGIQ™ 500 Tall type console with the software version 5.00 y or later.

Note

The tall type console is 75 mm taller than the normal height console.

WEIGHT: 200 kg
441 lbs

NOTE
LENGTH   : mm (inches)
ABERRATION : ±5%
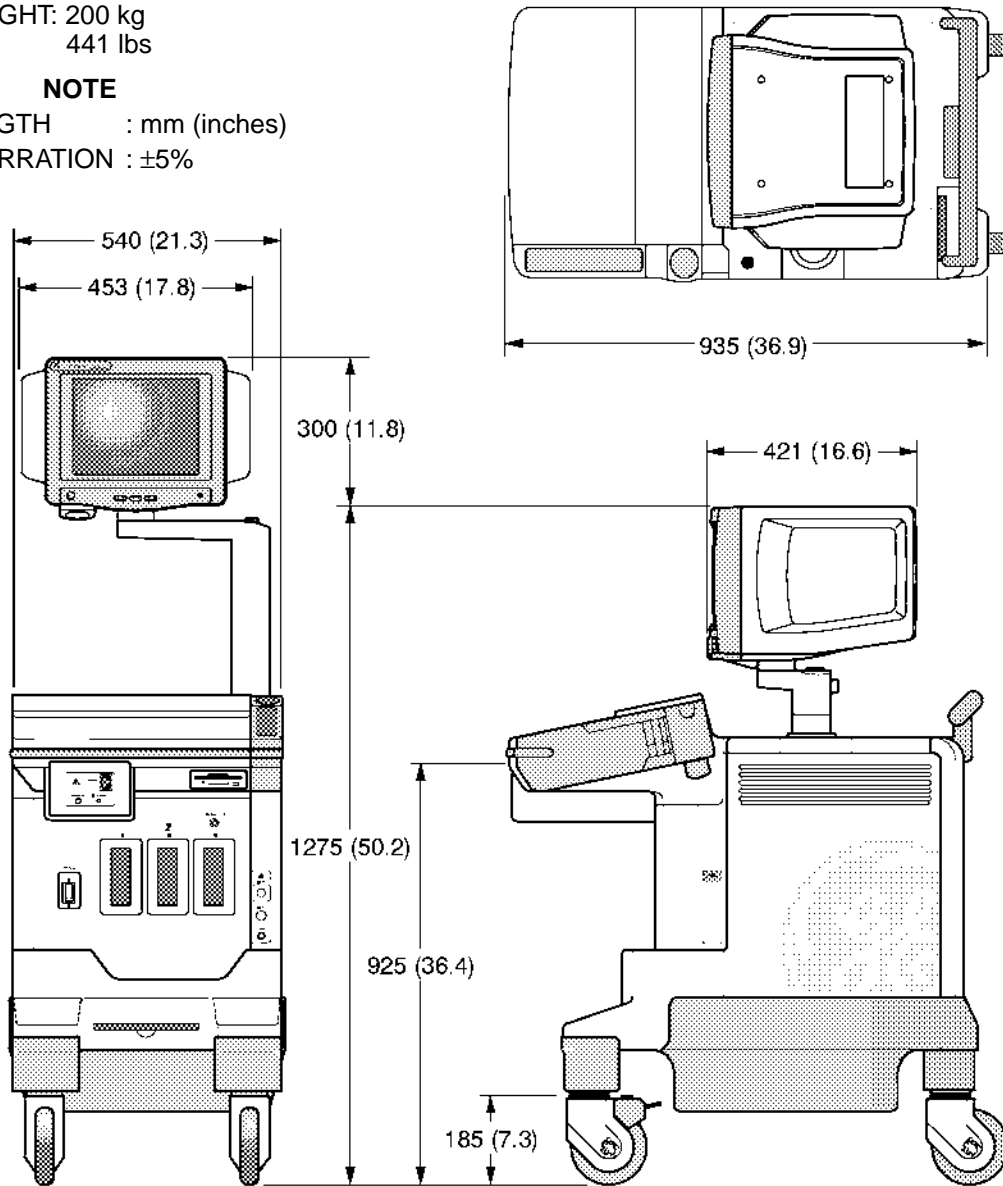
OVERALL DIMENSIONS (for Tall Type Console with S/W V5.00y or Later)
ILLUSTRATION 3–2

SYSTEM CONFIGURATION

3–3 ELECTRICAL SPECIFICATIONS

Electrical conduit, junction boxes, outlets, circuit breakers, and switches should be in place before installing the LO-GIQ 500 console.

3–3–1 Power Supply

Voltage setup is performed in the factory, since different rear panels which contain different power cables and circuit breakers are used for the 100 VAC and 220 VAC versions.

3–3–2 Facility Power Receptacle

A separate power outlet with a 20 amp circuit breaker for 115 VAC units, or a 7.5 amp circuit breaker for 220 VAC units, is recommended. The specific power receptacle used depends on your country's power line standards.

The receptacle should have International Electrotechnical Commission (IEC) approval, or equivalent.

3–4 STORAGE AND OPERATION REQUIREMENTS

The LOGIQ 500 is shipped in a single container excluding PROBES. Shipping weight is approximately 472 lbs (214kg). The size of the container is B120 cm x W66 cm x H139 cm. (47 in. x 26 in. x 55 in).   Table 3–1 provides a summary of temperature, atmospheric pressure, and humidity tolerances for shipping, installation, and operation:

TABLE 3–1
STORAGE AND OPERATION REQUIREMENTS

PARAMETER	STORAGE	OPERATION
TEMPERATURE (DEG.C) (DEG.F)	−10 to 60 14 to 140	10 to 40 50 to 104
ATOMOSPHERIC PRESSURE (hPa)	700 to 1060	700 to 1060
HUMIDITY (%) (Non–condensing)	30 to 95	30 to 85

3–5   OPTIONAL PERIPHERALS

3–5–1   Peripherals/Accessories Connector Panel

LOGIQ 500 peripherals and accessories can be properly connected using the rear connector panel located behind the rear door.

Located on the panel are video input and output connectors, audio input and output, camera expose connectors, foot-switch connector power connector and control connections for VCR, printer, MIC and service tools.

This section indicates the pin assignment for each connector (①–⑧ in ILLUSTRATION 3–3) at pages 3–7 through 3–10.

OLD TYPE   **NEW TYPE**
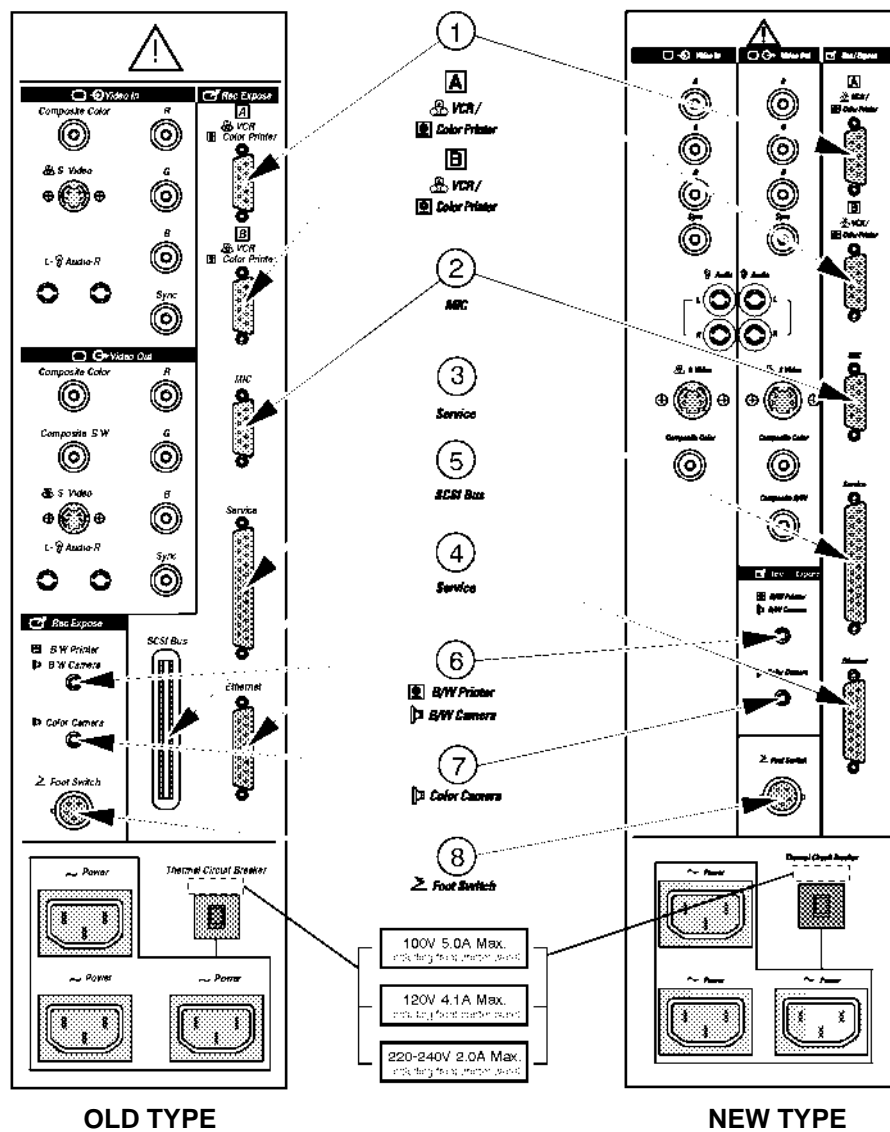
REAR CONNECTOR PANEL
ILLUSTRATION 3–3

3–5–1   Peripherals/Accessories Connector Panel (continued)

Note

The SCSI port is not available for the console with the 3.5–inch HDD. The SCSI Terminator is not supplied with the console with the 3.5–inch HDD.

Note

The new Rear CONN Panel2 Assy cannot be used for the console with the 2.5–inch HDD Assy. The new Rear CONN Panel2 Assy does not have the SCSI connector.

Note

Each outer (case) ground line of peripheral/accessory connectors are protectively grounded. Signal ground lines are Not Isolated, except the Service port (③). All of signal lines (include signal GND) of the Service port are isolated.

① Pin Assignement of RS232C for VCR/Color Printer

Connector: Male, D-SUB, 9-pin

Pin No.	Signal	Pin No.	Signal
1	(DCD)	6	DSR+12V
2	RXD	7	RTS
3	TXD	8	CTS
4	(DTR+12)	9	NC
5	Signal GND		
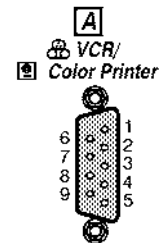
② Pin Assignement of RS232C for MIC (Multi Image Camera)

Connector: Male, D-SUB, 9-pin

Pin No.	Signal	Pin No.	Signal
1	12V	6	DSR+12V
2	RXD	7	RTS
3	TXD	8	CTS
4	(DTR+12)	9	NC
5	Signal GND		
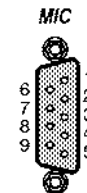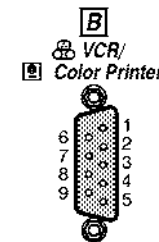
Note

Output level of RS232C signals:

High	+3V to +15V
Low	−15V to 0V

3–5–1 Peripherals/Accessories Connector Panel (continued)

③ Pin Assignement of RS232C for Service

    Connector: Male, D-SUB, 25-pin

Pin No.	Signal	Pin No.	Signal
1		14	
2	TXD	15	
3	RXD	16	
4	RTS	17	
5	CTS	18	
6		19	
7	Signal GND	20	DTR
8	DCD	21	
9		22	
10		23	
11		24	
12		25	
13			

Service
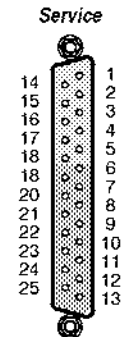
④ Pin Assignement of RS232C for Ethernet

    Connector: Male, D-SUB, 15-pin

Pin No.	Signal	Pin No.	Signal
1		9	CN
2	CP	10	TN
3	TP	11	
4		12	+12V
5	RP	13	RN
6	Signal GND	14	
7		15	
8			
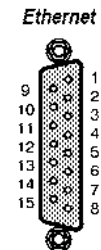
Ethernet

Note

Output level of RS232C signals:

High	+3V to +15V
Low	−15V to 0V

3–5–1 Peripherals/Accessories Connector Panel (continued)

⑤ Pin Assignement of SCSI

Connector: Male, D-SUB, 50-pin, Ribbon Type

Pin No.	Signal	Pin No.	Signal	Pin No.	Signal
1	GND	18	GND	35	GND
2	GND	19	GND	36	GND
3	GND	20	GND	37	(Reserved)
4	GND	21	GND	38	TERMPWP
5	GND	22	GND	39	(Reserved)
6	GND	23	GND	40	GND
7	GND	24	GND	41	ATN
8	GND	25	GND	42	GND
9	GND	26	DB (0)	43	BSY
10	GND	27	DB (1)	44	ACK
11	GND	28	DB (2)	45	RST
12	(Reserved)	29	DB (3)	46	MSG
13	(Open)	30	DB (4)	47	SEL
14	(Reserved)	31	DB (5)	48	D/C
15	GND	32	DB (6)	49	REQ
16	GND	33	DB (7)	50	I/O
17	GND	34	DB (P)		
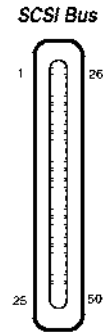
SCSI Bus

Note

The SCSI Bus connector and the SCSI Terminator plug are not supplied for the console with the Rear CONN Panel2 Assy, 2211163, 2211164,and 2211165.

Note

The SCSI Bus connector is unavailable for the console with the 3.5–inch HDD.

Note

Output level of RS232C signals:

High	+3V to +15V
Low	−15V to 0V

⑥ Pin Assignement of Mini Jack for Controlling B/W Printer

Connector: Stereo Mini Jack

Ⓐ *B/W Printer*
Ⓑ *B/W Camera*

Pin No.	Output Signal
1	PRINT *¹
2	Signal GND

*¹: Printer starts printing by receiving the LOW pulse more than 100ms.

Note

Output level of control signals indicated in the above tables are TTL level.

3–5–1 Peripherals/Accessories Connector Panel (continued)

⑦ Pin Assignement of Mini Jack for Controlling Color Poraloid Camera

Connector: Stereo Mini Jack

To Color Camera

Pin No.	Output Signal
1	SHUTTER *2
2	Signal GND

*2: Camera starts printing by receiving the LOW pulse more than 2ms.

⑧ Pin Assignement of Connector for Foot Switch

Connector: Round 5-pin connector

2 Foot Switch

Pin No.	Output Signal
1	FSW1+
2	FSW1-
3	FSW2+
4	FSW2-
5	Frame GND

Note

Output level of control signals indicated in the above tables are TTL level.

3–5–2 List of Optional Peripherals

The tables below shows the suggested optional peripherals for LOGIQ™ 500.

1. RECORDING DEVICES

TABLE 3–2
LIST OF RECORDING DEVICES

DEVICE	MANUFACTURER	MODEL	VIDEO SIGNAL
Video Cassette Recorder	SONY	SVO–9500MD	NTSC
	SONY	SVO–9500MDP	PAL
Color Video Printer	SONY	UP–1800	NTSC
	SONY	UP–3030MD	NTSC
	SONY	UP–1800EPM	PAL
	SONY	UP–1850EPM	PAL
	SONY	UP–2950MD	NTSC
	SONY	UP–2900MD	NTSC
	SONY	UP–2850P	PAL
	SONY	UP–2800P	PAL
Video Graphic Printer	SONY	UP870MD	NTSC
	SONY	UP890MD	NTSC
	SONY	UP860CE	PAL
	SONY	UP890CE	PAL
	SONY	UP890MDG	NTSC / PAL
Multi Image Camera	International Imaging Electronics	IIE360	NTSC
	REPRODINE	MX4	PAL
	REPRODINE	MF2	PAL

Note

See each option installation instructions for installation and connection procedures.

Note

The "Quad–Frm" format is available only for the following color printers:

UP–1850MD, UP–1850EPM, UP–2950MD, and UP–2850P

The "Quad–Frmls" selection for the Color Printer Memory in the SYSTEM PARAMETER SETUP, is not available for those printers. This function is valid only for the UP–3030MD printer.

3–5–2 List of Optional Peripherals (continued)

2. TRANSDUCER (PROBE)

TABLE 3–3
LIST OF TRANSDUCERS

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	REQUIRED ADAPTER	WITH FERRITE BEADS	FAMILY PROBES	PART No.
C364	PES	ABDOMINAL	CONVEX	H45202CF	No need		HEADSHELL IS SAME AS CBF	P9607AB P9607AA
				H40212LD H79082P	No need	√	HEADSHELL IS SAME AS CBF	2259251 2259250
CBF	PES	ABDOMINAL	CONVEX	H46022CB	PA 51			P9603AD P9603AA
C551	PES	ABDOMINAL	CONVEX	H45202CE	No need		HEADSHELL IS SAME AS CAE	P9607AD P9607AC
				H40212LN H79172P	No need	√	HEADSHELL IS SAME AS CAE	2261026 2261025
CAE	PES	ABDOMINAL	CONVEX	H46022CA	PA 51			P9603AE P9603AB
E721	PES	INTRACAVITY	CONVEX	H45202MT	No need		HEADSHELL IS SAME AS MTZ	P9607AF P9607AE
				H40212LR H79192P	No need	√	HEADSHELL IS SAME AS MTZ	2261056 2261055
MTZ	PES	INTRACAVITY	CONVEX	H46022MT	PA 51			P9603AU P9603AL
739L	NORYL	SUPERFICIAL	LINEAR	H45202AG	No need			2107460–2 2107460
				H40212LB H79062P	No need	√		2259145 2259144
S316	PES	CARDIAC/ABDOMINAL	SECTOR	H45202SC	No need		HEADSHELL IS SAME AS UC	P9606AB P9606AA
				H40202LB H79222P	No need	√	HEADSHELL IS SAME AS UC	2261033 2261032
UC	PES	CARDIAC/ABDOMINAL	SECTOR	H4163B	5S			P9600BE P9600BA
L764	PES	SUPERFICIAL	LINEAR	H45202HP	No need		HEADSHELL IS SAME AS LH	2121377–2 2121377
				H40212LG H79112P	No need	√	HEADSHELL IS SAME AS LH	2259256 2259255
C721	NORYL	NEONATAL	CONVEX	H45202MN	No need			2121267–2 2121267
				H40212LP H79182P	No need	√		2261018 2261017
LH	PES	SUPERFICIAL	LINEAR	H46022LH	PA51			P9601AS P9601AC
W	PES	CARDIAC	SECTOR	H4162C	5S			P9600BH P9600BD
B510	PU	CARDIAC	BI–PLANE SECTOR	H45202BT	PA51			2123593 2133115
				H40202LD H79242P	PA51	√		2259260 2259259
S220	PES	CARDIAC	SECTOR	H45202WG	No need		HEADSHELL IS SAME AS W	2121793–2 2121793
				H40202LA H79212P	No need	√	HEADSHELL IS SAME AS W	2261043 2261042
CWD2	NORYL	CARDIAC	SECTOR	H45202DB	No need			2123594 2123116
CWD5	NORYL	CARDIAC	SECTOR	H45202DE	No need			2123595 2123117

3–5–2 List of Optional Peripherals (continued)

2. TRANSDUCER (PROBE)

TABLE 3–3
LIST OF TRANSDUCERS (continued)

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	REQUIRED ADAPTER	WITH FERRITE BEADS	FAMILY PROBES	PART No.
546L	NORYL	ABDOMINAL/ SUPERFICIAL	LINEAR	H45202LE	No need			2144266–2 2144266
				H40212LA H79052P	No need	√		2259135 2259134
S317	NORYL	CARDIAC/ABDOMINAL	SECTOR	H45202SD	No need			2144268–2 2144268
				H40212LK H79142P	No need	√		2259230 2259229
S611	NORYL	CARDIAC/NEONATAL/ PEDIATRICS	SECTOR	H45202SF	No need			2144267–2 2144267
				H40212LL H79152P	No need	√		2259238 2259237
C386	NORYL	ABDOMINAL/ OB/GYN	CONVEX	H45202CC	No need			2154186–2 2154186
				H40212LE H79092P	No need	√		2259162 2259160
I739	NORYL	INTRAOPERATIVE/ INTRACAVITY	LINEAR	H45202JG	No need			2147189–2 2147189
				H40212LF H79102P	No need	√		2259206 2259205
T739	NORYL	INTRAOPERATIVE	LINEAR	H45202TG	No need			2147188–2 2147188
				H40212LM H79162P	No need	√		2259246 2259245
LA39	NORYL	SUPERFICIAL	LINEAR	H45202LA	No need		HEADSHELL IS SAME AS 739L	2155078–2 2155078
				H40212LH H79122P	No need	√	HEADSHELL IS SAME AS 739L	2259214 2259213
S222	NORYL	TRANSCRANICAL	SECTOR	H45202TC	No need			2156263 2156263
				H40212LJ H79132P	No need	√		2259222 2259221
P509	PU	CARDIAC	MULTI–PLANE SECTOR	H45202RT	No need			2169773 2169772
				H40202LC H79232P	No need	√		2259258 2259257
C358	PES	ABDOMINAL	CONVEX	H45202CD	No need			2193617 2172443
				H40212LC H79072P	No need	√		2259153 2259152
LD	PES	BIOPSY	LINEAR	H45202LD	PA51			2124318 P9601AD
				H40212LS H79202P	PA51	√		2261049 2261048
ERB7	NORYL	ENDOCAVITY	CONVEX LINEAR	H40392LC	No need			2239590 2204232
				H40202LE H79252P	No need	√		2259263 2259262
3S	NORYL	CARDIOLOGY	SECTOR	H4550SZ H79292P	No need			2252157 2261743
M12L	NORYL	SMALL PARTS	LINEAR	H45282ML H75362SR	No need	√		2236016 2241735

3–5–2 List of Optional Peripherals (continued)

2. TRANSDUCER (PROBE) (continued)

TABLE 3–3
LIST OF TRANSDUCERS (continued)

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	REQUIRED ADAPTER	WITH FERRITE BEADS	FAMILY PROBES	PART No.
CS	PES	ABDOMINAL/ NEONATAL	CONVEX	H45222CS	PA21	√		2202320
i12L	ABS	INTRAOPERATIVE	LINEAR	H4012L H79322P	PA51	√		2264883 2270556

Note

PES : Polyethersulfone   NORYL : Modified Polyphenylene Oxide   PU : Polyurethane
ABS : Acrylonitrile Butadiene Styrene

Note

Some probes indicated on the TABLE 3–3 have two different part numbers. The upper row shows the part numbers of probes for regions other than Japan. The lower row shows the part numbers of probes for Japan.
Probes which have only one part number are not available in Japan.

Note

L764 and C721 probes are available on consoles from software version 1.20.

Note

B510, S220, CWD2 and CWD5 probes are available on consoles from software version 2.00.

Note

B510 probe requires new PA51 probe adapter, 2136306 for Japan and 2136307 for other countries.

3–5–2 List of Optional Peripherals (continued)

2. TRANSDUCER (PROBE) (continued)

Note

546L, S317, S611, C386, I739 and T739 probes are available on consoles from software version 2.20.

Note

LA39 and S222 probes are available on consoles from software version 3.00.

Note

To use the LA39 probe on the console which is upgraded the software version to 3.00 from 2.20 using the software upgrade kit, it is also requried to install the MD Hardware Kit (2165223 for Japan and 2165224 for other regions) in the console.

Note

P509 probe is available on consoles from software version 3.10. In addition, it is necessary to install the optional Multiple TEE Upgrade Kit in the console to use the P509 probe.

Note

C358 probe is available on consoles from software version 4.00.
LD probe is available for the Japanese console with software version 4.00 or later.
LD probe is available for the European console with software version 4.20 or later.

Note

ERB7 probe is available on consoles from software version 4.20.

Note

M12L and 3S probes are available on consoles from software version 5.00.

Note

i12L probes is available on consoles from software version 6.00.

Note

CS probes is available only on consoles for Asia from software version 6.00.

Note

CS probe requires PA21 probe adapter, 2277668 for Asia.

3–5–2 List of Optional Peripherals (continued)

3. CONNECTING CABLES

```
{ CAUTION }
```

Equipment damage possibility. Be sure to use the following recommended connecting cables to connect recording devices and a network with LOGIQ 500 console.

■

TABLE 3–4
LIST OF CONNECTING CABLES

NAME	PART NO.	FIGURE	NOTE
POWER CABLE	P9509EE		
	P9509MM		Used only for installing Color Video Printer facing Sideways
	P9509LH		Used only for installing B/W Video Printer on front of console
RS232C CABLE	P9509MN		For control signals
	P9509NA		For InSite connection
MINI PLUG CABLE	P9509BE		For control signals (used only for B/W Video Printer)
ETHERNET CABLE	2195662		For DICOM capability Included in the DICOM Support option with Tranceivers

3–5–3 Power Consumption of Optional Peripherals

The table below shows the power consumption of each optional peripheral for LOGIQ™ 500.

■

TABLE 3–5
POWER CONSUMPTION OF OPTIONAL RECORDING DEVICES

DEVICE	MODEL	POWER CONSUMPTION
Video Cassette Recorder	SVO–9500MD	64W
	SVO–9500MDP	
Color Video Printer	UP–3030MD	140W
	UP–1800	
	UP–1850EPM	
	UP–2950MD	220W (at printing)
	UP–2850P	
	UP–2900MD	180W (at printing)
	UP–2800P	
B/W Video Printer	UP870MD	110W
	UP890MD	
	UP860CE	
	UP890CE	
	UP890MDG	120W (at printing)
Multi–Image Camera	IIE360	60W
	MX4	80W
	MF2	380W

3–6   VIDEO SPECIFICATIONS

■

TABLE 3–6
VIDEO SPECIFICATIONS

		12–inch monitor		15–inch monitor	
		NTSC	**PAL**	**NTSC**	**PAL**
Total Line per Frame	**[Line]**	525	625	525	625
Vertical Frame Frequency	**[Hz]**	30	25	60	50
Horizontal Scanning Frequency	**[kHz]**	15.734	15.625	31.469	31.250
Displayed Image Pixels	**[mm]**	207.0 by 157.3	207.0 by 157.3	239.5 by 180	239.5 by 180
Total Horizontal Line Time	**[μs]**	63.56	64.00	31.78	32.00
Horizontal Display	**[μs]**	49.54	48.81	24.77	24.41
Front Porch Width	**[μs]**	2.76	3.09	1.39	1.54
Sync Pulse Width	**[μs]**	4.73	4.68	2.36	2.34
Back Porch Width	**[μs]**	6.53	7.42	3.26	3.71
Total Horizontal Blanking	**[μs]**	14.02	15.19	7.01	7.59
Vertical Blanking Interval	**[H]**	31.50	38.50	31.50	38.50
Vertical Front Porch Width	**[H]**	6.5	9.0	6.5	9.0
Vertical Sync Width	**[H]**	3	2.5	3	2.5
Vertical Back Porch Width	**[H]**	22	27	22	27
Pixel Clock	**[MHZ]**	12.2727	14.7500	24.5454	29.5000
H	**[μs]**	63.56	64	31.78	32

CHAPTER 4 – FUNCTIONAL CHECKS

TABLE OF CONTENTS

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4–1 INTRODUCTION

This chapter provides procedures for quickly checking major functions of the LOGIQ 500 console, diagnostics by using the built–in service software, and power supply adjustments.

4–1–1 Required Equipment

To perform these tests, you'll need any of a sector, linear, or a convex transducer.

4–2 FUNCTIONAL CHECK PROCEDURES

Note

•LOGIQ 500 has new key–display function. While turning the power switch ON, three situations of illumination should be displayed on the keyboard. These means as follows:

Bright or fully illuminated Keys; are ACTIVE or CANCELABLE selections.
Dim or half illuminated Keys; are ENABLED or AVAILABLE selections.
OFF or Keys that are not illuminated; are DISABLED or UNAVAILABLE selections.

4–2–1 Basic Controls

Step	Check	Expected result
1.	Connect the sector or convex transducer to "Probe 1" connector beneath keyboard.	
2.	Turn ON Power toggle switch.	
3.	Type USER ID and then press return key.	PATIENT ENTRY MENU should appear.
4.	Press N key.	After a few seconds, the B mode screen should appear as shown in ILLUSTRATION 4–1.
5.	Click **Dynamic Range** up/down.	Image grows softer and harder depending on position.
6.	Rotate **B/M Gain** knob.	Image grows lighter and darker with rotation.
7.	Slide **TGC** potentiometers (pots).	Image grows darker or brighter at depth equivalent to pot's location.
8.	Rotate **Depth** knob.	The depth of image should be magnified/reduced.
9.	Press **Reverse** key.	The image reverses the left/right orientation.
10.	Press **Reverse** key again.	The image reverses the left/right orientation.
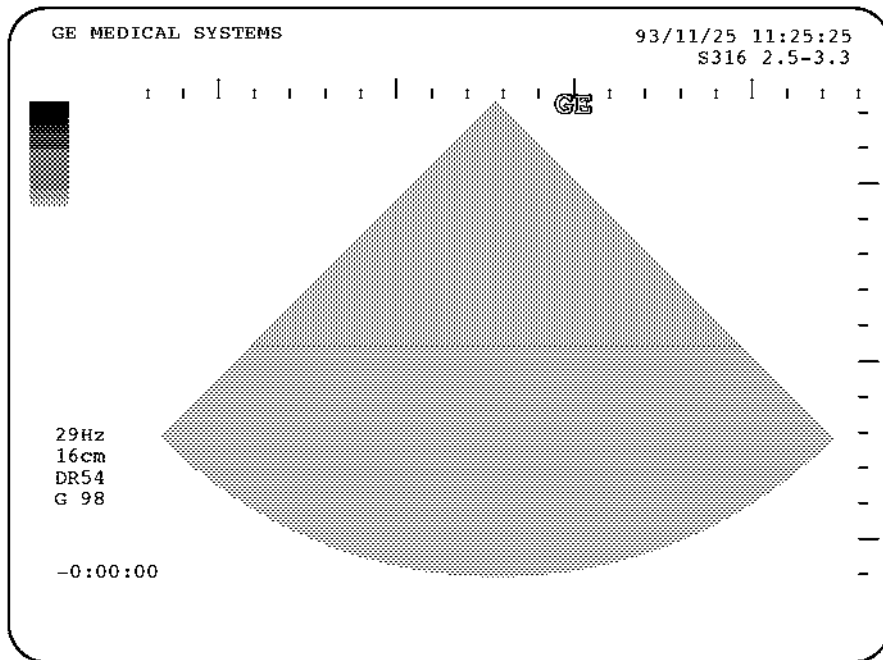
B–MODE DISPLAY SCREEN
ILLUSTRATION 4–1

4–2–1 Basic Controls (Continued)

Step	Check	Expected result
11.	Press M key.	The M mode timeline should appear below the B image as shown in ILLUSTRATION 4–2. Whether it takes half the screen or two–thirds depends on the preset.
12.	Roll trackball.	The Mode cursor should follow trackball movement and the timeline should update for new location of focus.
13.	Press **Scan Area** button.	The M mode cursor should be inactive. The scan area frame should appear. The scan area frame grows wider or narrower depending on trackball movement.
14.	Press **M/D Cursor** button.	The M mode cursor should be active again.
15.	Click paddle under the 2nd softkey choice to adjust M **Edge Enhancement** up/down.	Changes the M image.
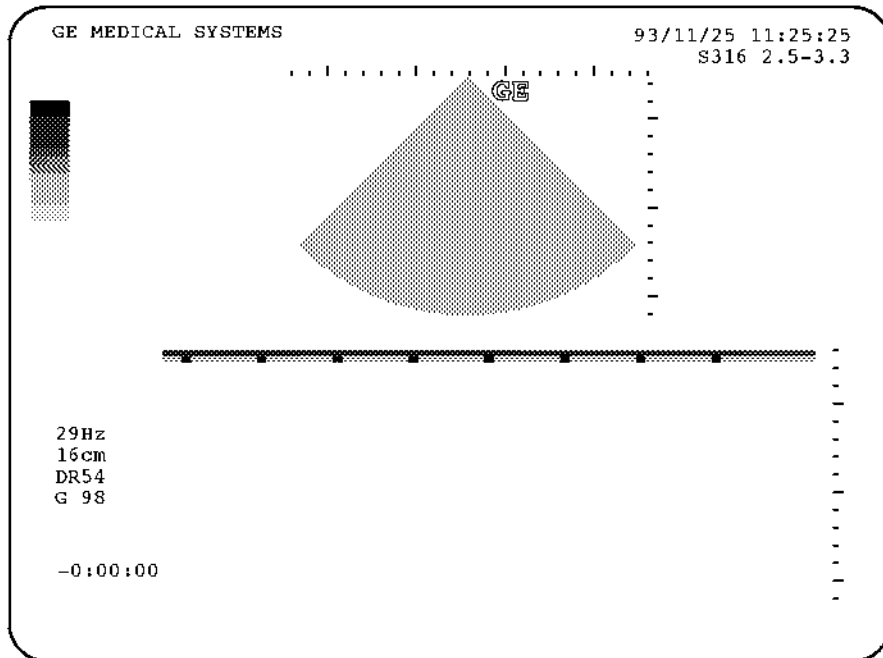
M–MODE DISPLAY SCREEN
ILLUSTRATION 4–2

Note

You can select several types of display format by using the Preset Menu. For the Preset Menu, refer to Customizing Your System in the LOGIQ 500 User Manual.

4–2–1 Basic Controls (Continued)

Step	Check	Expected result
16.	Press **CFM** key.	The CFM mode screen should appear as shown in ILLUSTRATION 4–3.
17.	Rotate **Gain** knob	Color image noise should appear.
18.	Press **Freeze** key.	The image should freeze.
19.	Press **Freeze** key again.	The image revives acquisition.
20.	Press **CFM** key again.	The B mode screen should appear as shown in ILLUSTRATION 4–1.
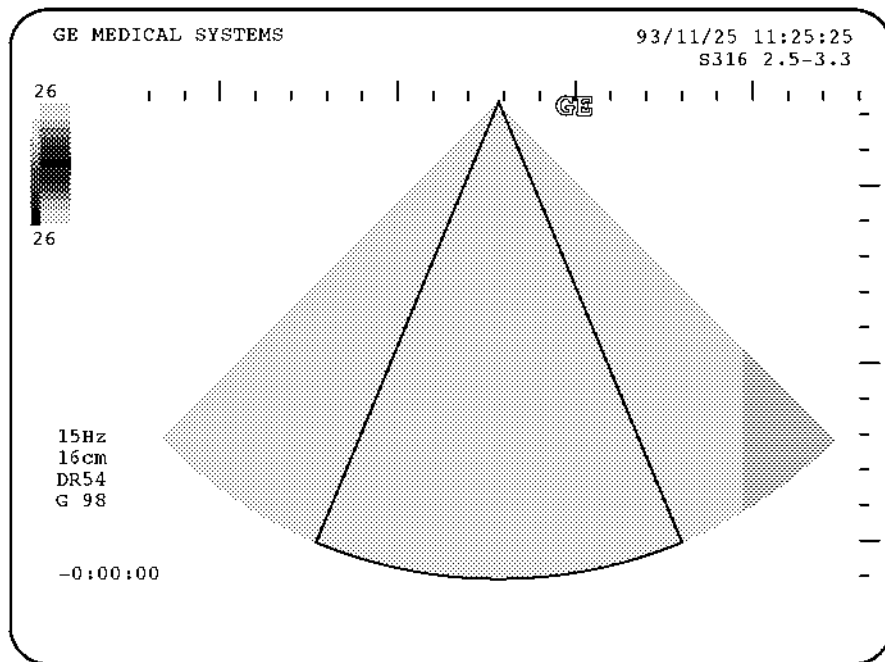
CFM MODE DISPLAY SCREEN
ILLUSTRATION 4–3

4–2–1 Basic Controls (Continued)

Step	Check	Expected result
21.	Press **PD** key twice.	The Pulse Doppler mode screen should appear as shown in ILLUSTRATION 4–4.
22.	Rotate **Angle** knob.	A line should appear in the box on the B mode image and that line should rotate.
23.	Rotate **Gain** knob.	The Doppler noise should increase/decrease.
24.	Rotate **Audio Volume** knob.	The Doppler audio volume should increase/decrease.
25.	Press **B** key.	The B mode screen should appear as shown in ILLUSTRATION 4–1.
26.	Click **Acoustic Output** up/down.	The upper portion of the image grows lighter or darker depending on position
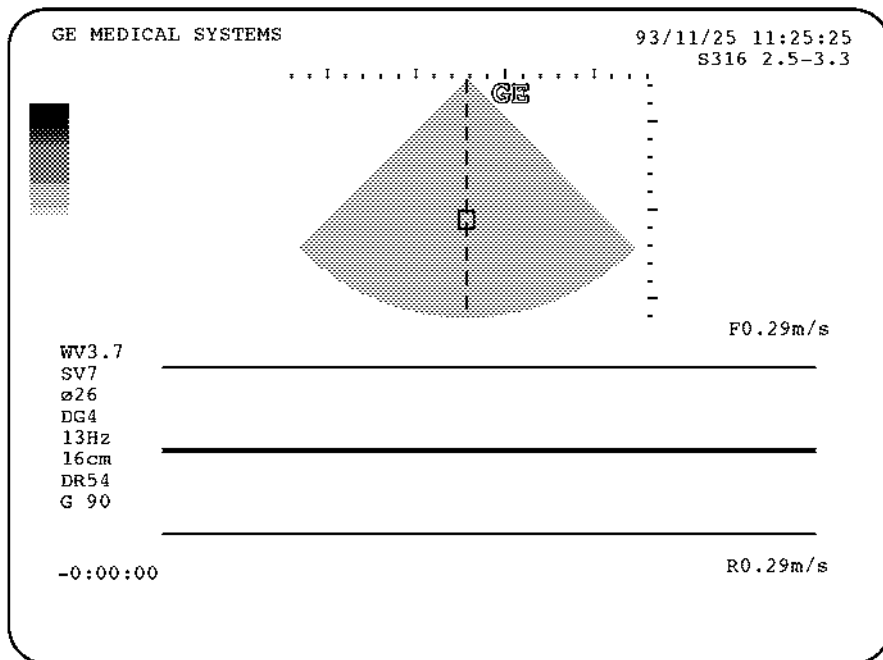
PULSE DOPPLER MODE DISPLAY SCREEN
ILLUSTRATION 4–4

Note
You can select the two types of display format: Side by Side (with the 2–D display to the left of the PD–mode display) and Top/Bottom (with the 2–D display on top of the PD–mode display) by using the Preset Menu. For the Preset Menu, refer to Customizing Your System in the LOGIQ 500 User Manual.

4–2–1 Basic Controls (Continued)

Step	Check	Expected result
27.	(If the sector probe is connected) Press **CWD** key.	The CWD mode screen should appear as shown in ILLUSTRATION 4–5.
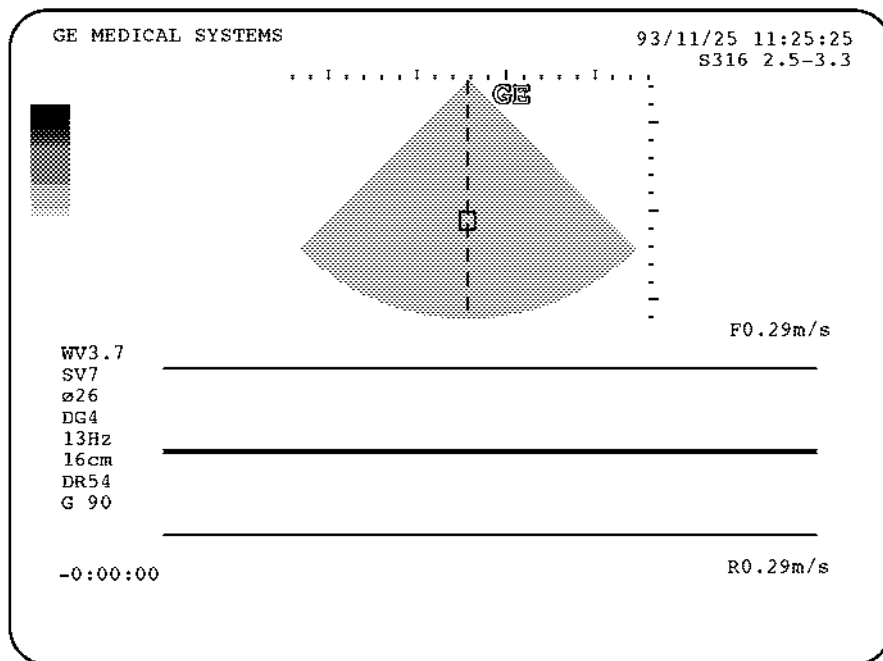
CWD MODE DISPLAY SCREEN
ILLUSTRATION 4–5

4–3 DIAGNOSTICS

4–3–1 Service Software Menu

1. Select the Set Up function by pressing the Top Menu Select button located above the Set Up section as shown in ILLUSTRATION 4–6.
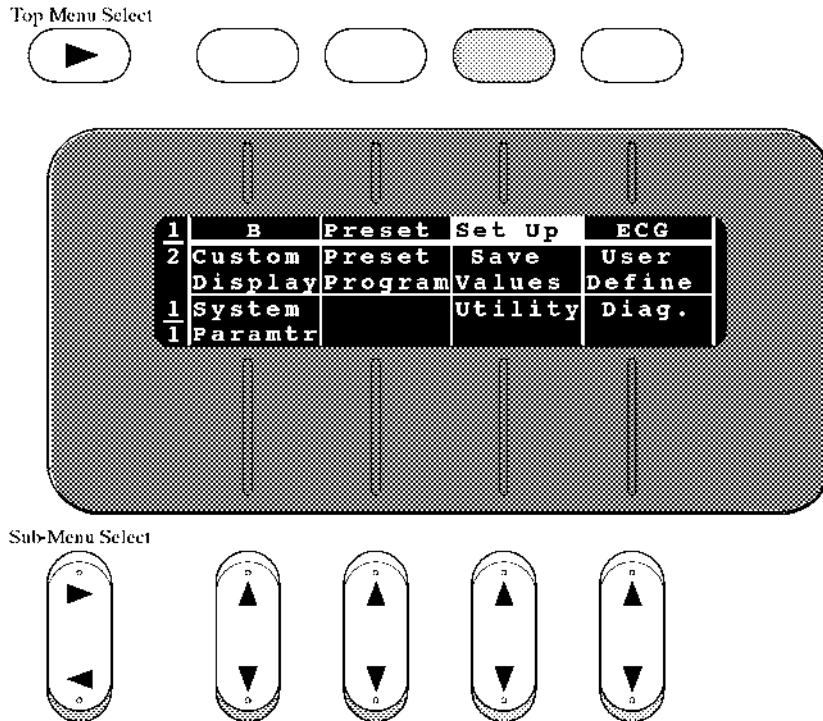
MENU PANEL
ILLUSTRATION 4–6

2. Pressing the ▼ position of the Sub–Menu Select key located under the ECG section selects User Diagnostics function and the Diagnosis Menu is displayed on the CRT monitor. Refer to ILLUSTRATION 4–7. Pressing the ▼ position of the Sub–Menu Select key located under the Set Up section selects User Utility function and the Utility Menu is displayed on the CRT monitor. Refer to ILLUSTRATION 4–12.

4–3–2 Diagnosis Test Menu

Pressing the ▼ position of the Sub–menu key located under the ECG section selects User Diagnostics function and the Diagnosis Menu is displayed on the CRT monitor as shown in ILLUSTRATION 4–7.

```
Diagnosis Menu (1/1)

 No Time Menu Name
 01  15M System Test(Reduced)
 02    0 Test Pattern Black & White
 03    0 Test Pattern Color
 04    0 Test Pattern Graphics









 Enter Menu Number =
```
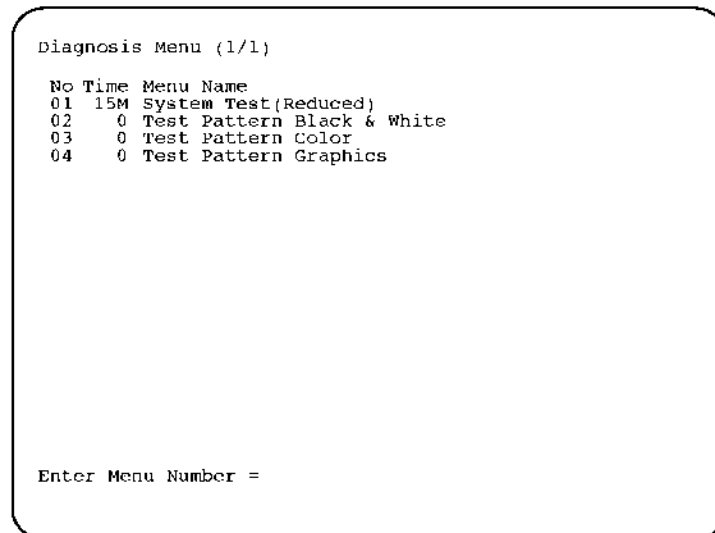
DIAGNOSIS TEST MENU
ILLUSTRATION 4–7

4–3–2 Diagnosis Test Menu (Continued)

(A) SYSTEM TEST 1

Be sure to connect any probes with the unit to check the following system test.
Type **1** and then press Enter key when the Diagnosis Menu is displayed. The system test will start automatically.
After checking each test item, "PASSED" or "FAILED" is displayed depending on the actual test result.

```
System Test (Reduced) (1/1)
No    Test Name                             PASSED
03    Beam Former Test1                     PASSED
04    Beam Former Test2                     PASSED
05    Log Test                              PASSED
06    Frequency Characteristic Test         PASSED
08    Doppler Test1                         PASSED
09    Doppler Test2                    ACFP  PASSED
11    Color Flow Test1                      PASSED
12    Color Flow Test2                      PASSED
13    TLMP Test(Reduced)                    PASSED
14    DDSC Test(Reduced)                    PASSED
15    CINE Test(Reduced)                    RUNNING
16    VIDO Test(Reduced)
17    VIDO & VPBM Test(Reduced)
18    EXBO Test(Reduced)
19    RCTL Test(Reduced)
20    PIOP Interface Test
21    Keyboard RAM Test(Reduced)
27    Power Supply & Thermal Test
29    B Mode Noise Floor Test
30    D Mode Noise Floor Test
31    CFM Mode Noise Floor TEest
```

SYSTEM TEST 1
ILLUSTRATION 4–8

Note
For the software version 3.00 or later, "ACFP" or "COLP" is indicated on the CRT monitor screen depending on the type of board assy currently installed in the console when the Color Flow Test 2, Item 12, is completed.

The system beeps three times after checking all the tests.

If system did not pass the diagnostic test, please contact the qualified service engineer in your area. Please refer to page 1–18 to for the appropriate address/phone number to contact service.

4–3–2   Diagnosis Test Menu (Continued)

(B) TEST PATTERN BLACK & WHITE

The black & white pattern permits the serviceman to accurately adjust the contrast of an optional equipment (such as a camera) to see the details in the lightest and darkest areas of the image.

Type **2** and then press Enter key when the Diagnosis Menu is displayed. The Test Pattern Black & White is displayed as shown in ILLUSTRATION 4–9.
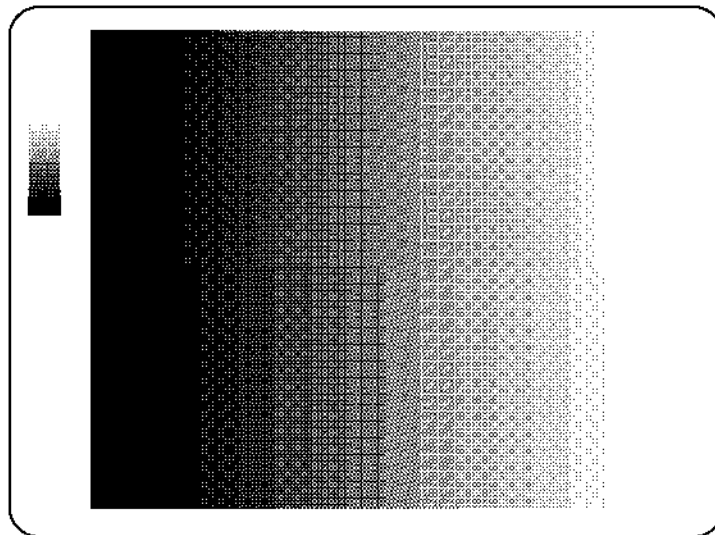
TEST PATTERN BLACK & WHITE
ILLUSTRATION 4–9

4–3–2   Diagnosis Test Menu (Continued)

(C) TEST PATTERN COLOR

The color scale permits the serviceman to adjust the color contrast of an optional equipment (such as a color video printer).

Type **3** and then press Enter key when the Diagnosis Menu is displayed. The Test Pattern Color is displayed as shown in ILLUSTRATION 4–10.
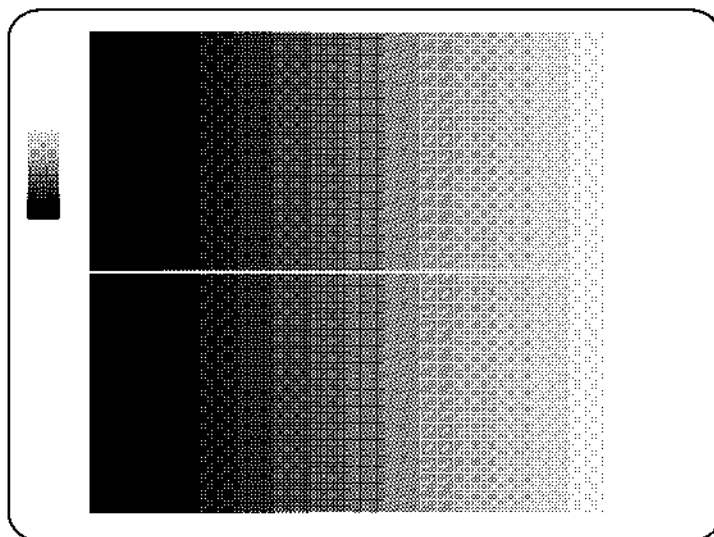
TEST PATTERN COLOR
ILLUSTRATION 4–10

4–3–2 Diagnosis Test Menu (Continued)

(D) TEST PATTERN GRAPHICS

The vertical linearity and graphics perimeter pattern should be centered on the optional equipment display. This ensures all whitescale graphics overlays will be visible.

Type **4** and then press Enter key when the Diagnosis Menu is displayed. The Test Pattern Graphics is displayed as shown in ILLUSTRATION 4–11.
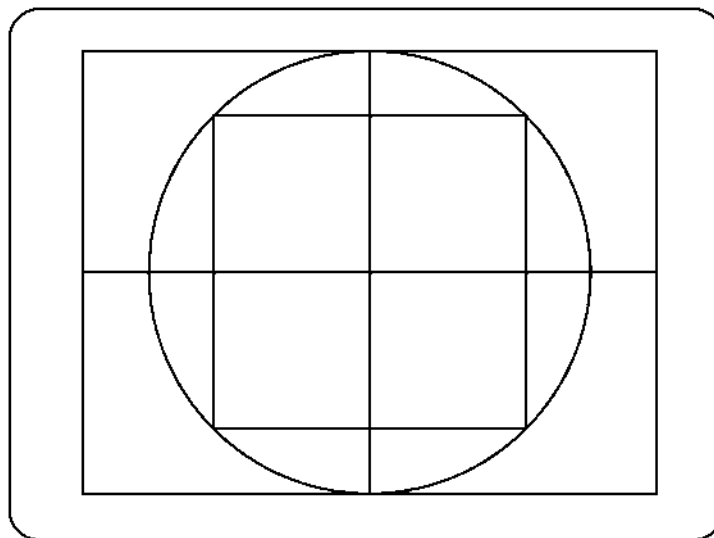
TEST PATTERN GRAPHICS
ILLUSTRATION 4–11

4–3–3 Utility Menu

Pressing the ▼ position of the Sub–Menu Select key located under the Set Up section selects User Utility function and the Utility Menu is displayed on the CRT monitor as shown in ILLUSTRATION 4–12.

```
Utility Menu(1/1)

No Menu Name
01 Time Adjustment
02 Error Log Display
03 Trouble Image Save/Load/Display
04 User Data Back Up
05 User Option Display
06 Board Configuration Display
07 Software Configuration Display
08 Modem Set Up
09 Media Initialize




Enter Menu Number ?_
```

**Sample Display for Console with
Software Version 1.11B or 1.20**

```
Utility Menu(1/1)

No Menu Name
01 Time Adjustment
02 Error Log Display
03 Trouble Image Save/Load/Display
04 User Data Back Up
05 User Option Display
06 Board Configuration Display
07 Software Configuration Display
08 Modem Set Up
09 Media Initialize
10 System ID Entry/Display




Enter Menu Number ?_
```

**Sample Display for Console with
Software Version 2.00 or later**

```
Utility Menu(1/1)

No Menu Name
01 Time Adjustment
02 Error Log Display
03 Trouble Image Save/Load/Display
04 User Data Back Up
05 User Option Display
06 Board Configuration Display
07 Software Configuration Display
08 Modem Set Up
09 Media Initialize
10 System ID Entry/Display
11 Network Error log Display



Enter Menu Number ?_
```

**Sample Display for Console with
Software Version 4.10/6.00 or later**

```
Utility Menu(1/1)

No Menu Name
01 Time Adjustment
02 Error Log Display
03 Trouble Image Save/Load/Display
04 User Data Back Up
05 User Option Display
06 Board Configuration Display
07 Software Configuration Display
08 Modem Set Up
09 Media Initialize
10 System ID Entry/Display
11 Monitor Adjustment
12 Network Error log Display


Enter Menu Number ?_
```

**Sample Display for Console with
Software Version 4.20 or later**

UTILITY MENU
ILLUSTRATION 4–12

Note
Press and hold the **Control** key and press **R** to display the previous screen in the User Utility mode.

Note
Item 12 (for V4.20) or item11 (for V4.10), Network Error Log Display, is available only when the Storage/Print DICOM option is installed in the console with the system software version 4.10 or later.

Note
Monitor Adjustment is not displayed on the monitor of the console with the system software version 6.00 or later.

4–3–3 Utility Menu (Continued)

(A) TIME ADJUSTMENT

This changes the current time in the system.

Type **1** and then press Enter key when the Utility Menu is displayed. The system date and time previously set is displayed as shown in ILLUSTRATION 4–13.

```
Time Adjustment(1/1)

  [Caution] You can change only time within +,-12hours


  Input the difference of time (HH:MM) ?
```
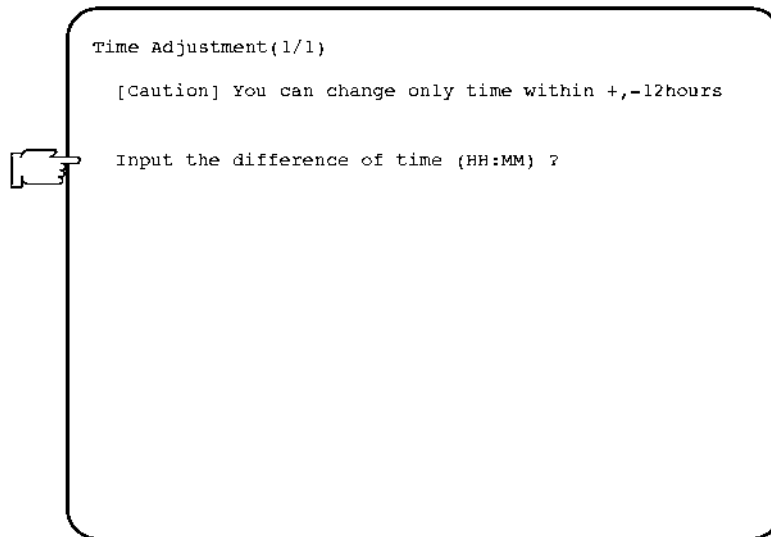
TIME ADJUSTMENT SCREEN
ILLUSTRATION 4–13

Procedure

1. Input the new current time by using the keyboard and then press <Enter>. The input format for the time is "HH:MM". You can change the current time within ±12 hours

Note
Put a "–" character in front of the time difference to decrease the current rime.

After changing the current time, the Utility Menu reappears on the CRT monitor.

4–3–3   Utility Menu (Continued)

(B) ERROR LOG DISPLAY

This loads and displays an error log file, or saves it into a Floppy disk for the console with software version 1.20 or former or into a MO disk for the console with software version 2.00 or later.

Type **2** and then press Return key when the Utility Menu is displayed. The Error Log Display is displayed as shown in ILLUSTRATION 4–14.

```
Error Log Display(1/3)

001 1995/02/22 13:07
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
002 1995/02/22 14:22
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
003 1995/02/25 09:23
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
004 1995/02/27 11:47
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
005 1995/02/27 20:11
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
006 1995/02/28 10:30
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
007 1995/03/01 16:14
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
008 1995/03/03 17:02
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0
009 1995/03/04 16:45
    SYS ERROR: BUS ERROR.     PC:     0 AD:     0

Do you copy this file ? (Y/N)
```

☞ **Sample Display for Console with Software Version 2.00 or later**

```
Error Log Display(1/1)

001 WARNING: HV Abnormal.HV UNIT
002 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
003 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
004 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
005 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
006 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
007 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
008 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
009 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
010 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
011 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
012 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
013 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
014 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
015 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
016 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
017 SYS ERROR: BUS ERROR.     PC:     0 AD:     0
018 SYS ERROR: BUS ERROR.     PC:     0 AD:     0

Do you copy this file ? (Y/N)
```

☞ **Sample Display for Console with Software Version 1.11B or 1.20**

ERROR LOG FILE DISPLAY
ILLUSTRATION 4–14

Procedure for Saving File

1. Type **Y** and then press **Return** key.

2. Insert a floppy disk into the FD drive and press any key in the case of system software version 1.20 or former console.
   Insert an 128MB MO (Magneto Optical) disk into the MOD drive and press any key in the case of system software version 2.00 or later console.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

During the time that the system is saving the error log file, "Copying now" is displayed on the CRT monitor.

4–3–3   Utility Menu (Continued)

(C) TROUBLE IMAGE SAVE/LOAD/DISPLAY

This saves the trouble image recorded in the Hard Disk into a Floppy or MO (Magneto Optical) Disk. This also loads the image data saved in the Floppy or MO Disk into the Hard Disk and displays the selected trouble image on the CRT monitor by using the image recall function.

Note

Press and hold the **Control** key and press **W** to save the trouble image recorded in the VCR Playback Memory into the hard disk. You can save the maximum 4 images into the hard disk of the system software version 1.20 or former console. The system software version 2.00 or later console can save the maximum 8 images.

Type **3** and then press Return key when the Utility Menu is displayed. The following screen is displayed.

```
Trouble Image Save/Load/Display

   1:Save    2:Load    3:Display

Enter Menu Number ?
```

```
Trouble Image Save/Load/Display

   1:Save   2:Load    3:Display

Enter Menu Number ?
Set a media to drive and then press any key


No   Data Name   Date           Mode      (1/2)
01   DIAGIG00.VR  1995/02/18 13:24    B
     kan
02   DIAGIG01.VR  1995/02/22 09:55    C,B
     kan2
03   DIAGIG02.VR  1995/02/26 14:32    B
     kan3
04   DIAGIG03.VR  1995/03/01 18:12    B
     kan4

Enter Menu Number ?
```

☞ **Sample Display for Console with
Software Version 2.00 or Later**

```
Trouble Image Save/Load/Display

   1:Save   2:Load    3:Display

Enter Menu Number ?
Set a media to drive and then press any key




No    File Name   Date
01    TRBIG00.VC  93/09/20 12:12
02    TRBIG01.VC  93/09/20 12:13
03    TRBIG02.VC  93/09/20 12:14
04    TRBIG03.VC  93/09/20 12:15

Enter Menu Number ?
```

☞ **Sample Display for Console with
Software Version 1.11B or 1.20**

TROUBLE IMAGE SAVE/LOAD/DISPLAY
ILLUSTRATION 4–15

4–3–3   Utility Menu (Continued)

(C) TROUBLE IMAGE SAVE/LOAD/DISPLAY (Continued)

Procedure for Saving Trouble Images

1. Type **1** and then press **Return** key. The message "Set a media to drive and then press any key." is displayed.

2. Set a floppy disk into the FD drive and press any key in the case of system software version 1.20 or former console.
    Set an 128MB MO (Magneto Optical) disk into the MOD drive and press any key in the case of system software version 2.00 or later console.
    The Trouble Image File Menu will be displayed. Refer to ILLUSTRATION 4–15.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

3. Input the menu number you desire to save into the disk.

4. Press **Return** key.

During the system is saving the file, "Saving now" is displayed on the CRT monitor. After saving the file, "Succeeded" or "Failed" is displayed on the CRT monitor. Then, "Press Y to continue, Control + R to quit" is displayed. Type **Y** and press **Enter** to continue to use this function. Press and hold **Control**, and press **R** to quit this function.

Procedure for Loading Trouble Image

1. Type **2** and then press **Return** key. The message "Set a media to drive and then press any key." is displayed.

2. Set the floppy disk storing the previous trouble images into the FD drive and press any key in the case of system software version 1.20 or former console.
    Set the 128MB MO (Magneto Optical) disk storing the previous trouble images into the MOD drive and press any key in the case of system software version 2.00 or later console.
    The Trouble Image File Menu will be displayed. Refer to ILLUSTRATION 4–15.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

3. Input the menu number you desire to load from the floppy or MO disk.

4. Press **Return** key.

During the system is loading the file, "Loading now" is displayed on the CRT monitor. After loading the file, "Succeeded" or "Failed" is displayed on the CRT monitor. Then, "Press Y to continue, Control + R to quit" is displayed. Type **Y** and press **Enter** to continue to use this function. Press and hold **Control**, and press **R** to quit this function.

4–3–3 Utility Menu (Continued)

(C) TROUBLE IMAGE SAVE/LOAD/DISPLAY (Continued)

Procedure for Displaying Trouble Image

1. Type **3** and then press **Return** key. The Trouble Image File Menu will be displayed. Refer to ILLUSTRATION 4–15.

2. Input the menu number you desire to display on the CRT monitor.

3. Press **Return** key.

Press and hold **Control** key and press **Q** to display the Trouble Image Menu on the CRT monitor again.

4–3–3 Utility Menu (Continued)

(D) USER DATA BACK UP

This saves the user preset data into the external recording media. This also loads the user preset data stored in external recording media to the hard disk.

The software version 2.00 or later console with the MOD drive can save and load all user preset data using one initialized disk. The software version 1.20 or former console with FD drive requires some floppy disks as same as the number of categories.

Note

The user preset data is different depending on each category and is saved into a floppy disk by each category. The user preset data is divided as follows:

    System Data
    Application (Rad/Abdomen) Data
    Application (Obstetrics) Data
    Application (Gynecology) Data
    Application (Cardiology) Data
    Application (Vascular) Data
    Application (Urology) Data
    Application (Small Parts) Data

System data includes:

        System preset data file, User define data file*, VCR registration information data file*,
        VCR patient information data file*, and Image archive search data file*

Each application data includes:

        Application Preset Data file, Probe Preset Data file, Report Format Data file,
        OB Table Data file, Fetal trend patient data file*, and Cardiac calc auto sequence data file*

The files with the symbol "*" listed above are saved only when the optional software is installed and any files are stored in the hard disk.

The software version 1.20 or former console can save and load only the following files among the files listed above:

        System preset data file,
        Application Preset Data file, Probe Preset Data file, Report Format Data file,
        and OB Table Data file

Note

The console with software version 2.00 or later can save the all system data and application data into a MO disk.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

4–3–3   Utility Menu (Continued)

(D) USER DATA BACK UP (Continued)

Type **4** and then press **Return** key when the Utility Menu is displayed. The User Data Back Up Menu is displayed as shown in ILLUSTRATION 4–16.

```
User Data Back Up(1/1)

   1:Save    2:Load

Enter Menu Number ?_
Set a media to drive and then press any key.
```
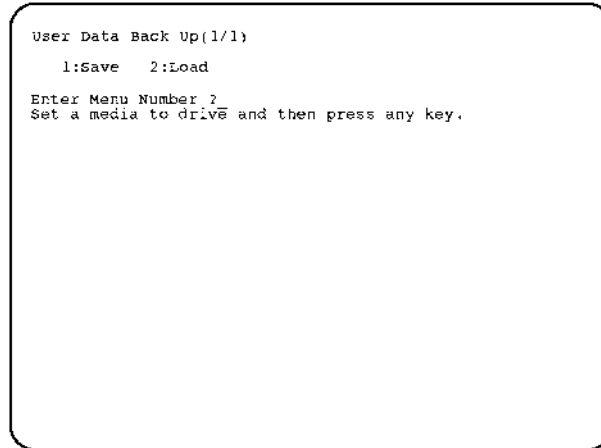
USER DATA BACK–UP MENU
ILLUSTRATION 4–16

Procedure for Saving User Data

1. Type **1** and then press the **Return** key. The message "Set a media to drive and then press any key." is displayed.

2. Insert a floppy disk into the FD drive and press the Return key in the case of system software version 1.20 or former console. Insert an initialized 128MB MO disk into the MOD drive and press the Return key in the case of system software version 2.00 or later console. The User Data Menu will be displayed.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

```
User Data Back Up(1/1)

   1:Save      2:Load

Enter Menu Number ?1
Set a media to drive and then press any key.

 No Data Name
 01 System Data
 02 Application(Rad/Abdomen)Data
 03 Application(Obstetrics)Data
 04 Application(Gynecology)Data
 05 Application(Cardiology)Data
 06 Application(Vascular)Data
 07 Application(Ulorogy)Data
 08 Application(Small Parts)Data
 09 All System & Application Data


Enter Menu Number ?_
Saving now
Succeeded
Press "Y" to continue, or 'ctrl+R' to Return.
```
Sample Display for Console with
Software Version 2.00 or Later

```
User Data Back Up(1/1)

   1:Save      2:Load

Enter Menu Number ?2
Set a media to drive and then press any key.

 No Data Name
 01 System Data
 02 Application(Rad/Abdomen)Data
 03 Application(Obstetrics)Data
 04 Application(Gynecology)Data
 05 Application(Cardiology)Data
 06 Application(Vascular)Data
 07 Application(Ulorogy)Data
 08 Application(Small Parts)Data


Enter Menu Number ?_
Saving now
Succeeded
Press "Y" to continue, or 'ctrl+R' to Return.
```
Sample Display for Console with
Software Version 1.11B or 1.20

USER DATA MENU
ILLUSTRATION 4–17

4–3–3 Utility Menu (Continued)

(D) USER DATA BACK UP (Continued)

   3. Input the menu number you desire to save into the disk.

Note
   The system software version 2.00 or later console can save all user data using one MO disk. Type **9**
   and then press **Return** key to save all user data into a MO disk.

   4. Press the **Return** key. The system starts saving.

   During the system is saving the file, "Saving now" is displayed on the CRT monitor. After saving the file,
   "Succeeded" or "Failed" is displayed on the CRT monitor. Then, "Press Y to continue, Control + R to quit" is dis-
   played. Type **Y** and press **Enter** to continue to use this function. Press and hold **Control**, and press **R** to quit this
   function.

   Type **S** and then press **Return** key to save the User Data. Type **L** and then press **Return** key to load the User
   Data.

Procedure for Loading User Data

   1. Type **2** and then press the **Return** key. The message "Set a media to drive and then press any key." is dis-
       played.

   2. Insert a floppy disk into the FD drive and press the Return key in the case of system software version 1.20 or
       former console.
       Insert a 128MB MO disk into the MOD drive and press the Return key in the case of system software version
       2.00 or later console.
       The User Data Menu will be displayed. Refer to ILLUSTRATION 4–17.

Note
   The 230MB MO disk is available on the console with software version 3.10 or later.

   3. Input the menu number you desire to load from the disk.

Note
   The system software version 2.00 or later console can load all user data using one MO disk. Type **9**
   and then press **Return** key to load all user data stored in the MO disk to the hard disk.

   4. Press **Return** key. The system starts loading.

   During the system is saving the file, "Loading now" is displayed on the CRT monitor. After saving the file,
   "Succeeded" or "Failed" is displayed on the CRT monitor. Then, "Press Y to continue, Control + R to quit" is dis-
   played. Type **Y** and press **Enter** to continue to use this function. Press and hold **Control**, and press **R** to quit this
   function.

Note
   After loading the User Data, turn the system power OFF. Turn system power ON again after com-
   pleting the power off process.

4–23   FUNCTIONAL CHECKS

4–3–3 Utility Menu (continued)

(E) USER OPTION DISPLAY

This displays the option names and the current status for each option.

Type **5** and then press **Return** key when the Utility Menu is displayed. The User Option Display is displayed as shown in ILLUSTRATION 4–18.

```
User Option Display(1/3)

No  Option Name                        Status
01  Image Softener                     Installed
02  PW Doppler                         Installed
03  CW Doppler                         Installed
04  B Color                            Installed
05  Dop/CFM for Intravaginal Probe     Installed
06  Segmented Doppler                  Installed
07  Realtime Auto Doppler Trace        Installed
08  Frame Rate Maintain Control        Installed
09  Dual CFM Beamforming               Installed
10  CFM Capture                        Installed
11  Biopsy Guideline                   Installed
12  Basic Vascular Calculation         Installed
13  OB Calculation                     Installed
14  GYN Calculation                    Installed
15  Basic Cardiac Calculation          Installed
16  Urology Calculation                Installed
17  Heading VCR Playback               Installed
18  Insite                             Not Installed
```

```
User Option Display(2/3)

No  Option Name                        Status
19  Power Doppler Imaging              Installed
20  Cine Capture                       Installed
21  Advanced Cardiac Calculation       Installed
22  Fetal Trend                        Installed
23  Image Archive                      Installed
24  Cine Vision                        Installed
25  Multigestation Calculation         Installed
26  Advanced Vascular Calculation      Installed
27  CFM/PDI Enhancement                Installed
28  Digital Image Softener             Installed
29  MD Startup Display                 Installed
30  3DvieW-1                           Installed
31  3DvieW-2                           Not Installed
32  Realtime Doppler Calc              Installed
33  ACE-2                              Installed
34  Time Intensity Curve(Test Version) Not Installed
35  Storage/Print(DICOM)               Installed
36  MR3 Startup Display                Installed
```

```
User Option Display(3/3)

No  Option Name                        Status
37  Worklist(DICOM)                    Installed
38  ATO                                Installed
39  THI                                Installed
40  3DvieW-3(3D-Surface)               Installed
41  PFD                                Installed
42  Contrast Imaging                   Installed
43  Contrast Imaging(ECG Trig)         Not Installed
```

Sample Display for Console with Software Version 6.00

USER OPTION DISPLAY
ILLUSTRATION 4–18

Note
Only the first page is displayed in the case of system software version 1.20 or former console.

Note
The following six (6) options are available only for the console with software version 2.00 or later.

Item 19:   Power Doppler Imaging
Item 20:   Cine Capture
Item 21:   Advanced Cardiac Calculation
Item 22:   Fetal Trend
Item 23:   Image Archive
Item 24:   Cine Vision

4–3–3   Utility Menu (continued)

(E) USER OPTION DISPLAY (continued)

Note

The following five (5) options are available only for the console with software version 3.00 or later.

Item 25:	Multigestation Calculation
Item 26:	Advanced Vascular Calculation
Item 27:	CFM/PDI Enhancement
Item 28:	Digital Image Softener
Item 29:	MD Startup Display

Note

The following option is available only for the console with software version 3.10 or later.

Item 30:	3D Imaging

Note

The following seven (7) options are available only for the console with software version 4.00 or later.

Item 30:	3DvieW–1
Item 31:	3DvieW–2
Item 32:	Real Time Doppler Calculation
Item 33:	ACE–2
Item 34:	Time Intensity Curve (Test Version)
Item 35:	DICOM
Item 36:	MR3 Startup Display

Note

The following option is available only for the console with software version 4.10 or later.

Item 37:	Worklist(DICOM)

Note

The name of item 30, "3D Imaging" on the software version 3.10 is changed to "3DvieW–1" from the software version 4.00.

Note

The item 35, "DICOM" on the software version 4.00 is renamed to "Storage/Print(DICOM" from the software version 4.10.

Note

The item 31, "3DvieW–2" is NOT available on the console with the software version 4.00 and 4.10.

Note

This function can only display the option names. It is not possible for the user to change the option settings.

Note

Press and hold the **Control** key and press **F** to go to next page. Press and hold the **Control** key and press **B** to go to previous page.

Note

The status of options indicated on the user option display is different depending on the system configuration.

4–3–3   Utility Menu (continued)

(E) USER OPTION DISPLAY (continued)

Note

This following three (3) options are available only for the console with the system software version 4.20 or later.

Item 38:	ATO
Item 39:	THI
Item 40:	3DvieW–3(3D–Surface)

Note

This following option is available only for the console with the system software version 5.00 or later.

Item 41:	PFD

Note

This following option is available only for the console with the system software version 6.00 or later. This following option is not available in USA and Europe.

Item 42:	Contrast Imaging
Item 43:	Contrast Imaging (ECG trig)

(F) BOARD CONFIGURATION DISPLAY

This displays the configurations of all PC boards installed in the console. This also displays the version and capacity of memory (only operator usable memory) for each installed board.

Type **6** and then press **Return** key when the Utility Menu is displayed. The Board Configuration Display is displayed as shown in ILLUSTRATION 4–19 and ILLUSTRATION 4–19b.

```
Board Configuration Display(1/1)

No   Board Name   Version     Status          Memory(kb)
01   MOTHER       -----------  Not Checked     -----------
02   CONN(1)      -----------  Not Checked     -----------
03   CONN(2)      -----------  Not Checked     -----------
04   EXBO         3            Installed       -----
05   VIDO         cc           Not Installed   -----
06   VPBM         1            Installed       -----
07   CINE         1            Installed       40960
08   DDSC         0            Installed       -----
09   TLMP         1            Installed       -----
10   COLP         c            Installed       -----
11   DIGP         8            Installed       -----
12   RCTL         4            Installed       -----
13   ANLP         4            Installed       -----
14   PIOP         2            Installed       -----
15   HBBF(1)      6            Installed       -----
16   HBBF(2)      6            Installed       -----
17   HBBF(3)      6            Installed       -----
18   HBBF(4)      6            Installed       -----
19   HBFC(1)      5            Installed       -----
20   HBFC(2)      5            Installed       -----
21   HBFC(3)      5            Installed       -----
22   HBFC(4)      5            Installed       -----
23   DNID         0            Installed       -----
```

**Sample Display for Console with
Software Version 2.00 or 2.20**

```
Board Configuration Display(1/1)

No   Board Name   Version     Status          Memory(kb)
01   MOTHER       -----------  Not Checked     -----------
02   CONN(1)      -----------  Not Checked     -----------
03   CONN(2)      -----------  Not Checked     -----------
04   EXBO         3            Installed       -----
05   VIDO         cc           Not Installed   -----
06   VPBM         1            Installed       -----
07   CINE         cc           Not Installed   8192
08   DDSC         0            Installed       -----
09   TLMP         1            Installed       -----
10   COLP         8            Installed       -----
11   DIGP         4            Installed       -----
12   RCTL         1            Installed       -----
13   ANLP         1            Installed       -----
14   PIOP         2            Installed       -----
15   HBBF(1)      4            Installed       -----
16   HBBF(2)      4            Installed       -----
17   HBBF(3)      4            Installed       -----
18   HBBF(4)      4            Installed       -----
19   HBFC(1)      5            Installed       -----
20   HBFC(2)      5            Installed       -----
21   HBFC(3)      5            Installed       -----
22   HBFC(4)      5            Installed       -----
```

**Sample Display for Console with
Software Version 1.11B or 1.20**

BOARD CONFIGURATION DISPLAY (a)
ILLUSTRATION 4–19

■ **4–3–3   Utility Menu** (continued)

(F) BOARD CONFIGURATION DISPLAY (continued)

```
Board Configuration Display(1/2)

No    Board Name   Version    Status        Memory(kb)
01    MOTHER       -----      Not Checked   -----
02    CONN(1)      -----      Not Checked   -----
03    CONN(2)      -----      Not Checked   -----
04    EXBO         3          Installed     -----
05    VIDO         cc         Not Installed -----
06    VPBM         84         Installed     -----
07    CINE         1          Installed     40960
08    DDSC         4          Installed     -----
09    TLMP         4          Installed     -----
10    COLP         cc         Not Installed -----
11    DIGP         c          Installed     -----
12    RCTL         4          Installed     -----
13    ANLP         4          Installed     -----
14    PIOP         2          Installed     -----
15    HBBF(1)      6          Installed     -----
16    HBBF(2)      6          Installed     -----
17    HBBF(3)      6          Installed     -----
18    HBBF(4)      6          Installed     -----
19    HBFC(1)      5          Installed     -----
20    HBFC(2)      5          Installed     -----
21    HBFC(3)      5          Installed     -----
22    HBFC(4)      5          Installed     -----
23    DNID         -----      Installed     -----
```

```
Board Configuration Display(2/2)

No    Board Name   Version    Status        Memory(kb)
24    ACFP         0          Installed     -----
```

Sample Display for Console with Software Version 3.00 or Later

```
Board Configuration Display(1/2)

No    Board Name   Version    Status        Memory(kb)
01    MOTHER       -----      Not Checked   -----
02    CONN(1)      -----      Not Checked   -----
03    CONN(2)      -----      Not Checked   -----
04    EXBO         3          Installed     -----
05    VIDO         cc         Not Installed -----
06    VPBM         cc         Not Installed -----
07    CINE         1          Installed     40960
08    DDSC         4          Installed     -----
09    TLMP         4          Installed     -----
10    COLP         cc         Not Installed -----
11    DIGP         c          Installed     -----
12    RCTL         4          Installed     -----
13    ANLP         4          Installed     -----
14    PIOP         2          Installed     -----
15    HBBF(1)      6          Installed     -----
16    HBBF(2)      6          Installed     -----
17    HBBF(3)      6          Installed     -----
18    HBBF(4)      6          Installed     -----
19    HBFC(1)      5          Installed     -----
20    HBFC(2)      5          Installed     -----
21    HBFC(3)      5          Installed     -----
22    HBFC(4)      5          Installed     -----
23    DNID         -----      Installed     -----
```

```
Board Configuration Display(2/2)

No    Board Name   Version    Status        Memory(kb)
24    ACFP         8          Installed     -----
25    VIPP         0          Installed     -----
```

Sample Display for Console with Software Version 5.00 or Later

BOARD CONFIGURATION DISPLAY (b)
ILLUSTRATION 4–19b

Note

The board configuration and version of each board indicated on board configuration display are different depending on the style of console. For the version of each board assy, refer to section 5–6, CIRCUIT BOARD DESCRIPTION.

■ **4–3–3   Utility Menu** (continued)

(G) SOFTWARE CONFIGURATION DISPLAY

This displays the configurations of all system software installed in the console.

Type **7** and then press **Return** key when the Utility Menu is displayed. The Software Configuration Display is displayed as shown in ILLUSTRATION 4–20.

The software version installed in each console is displayed.

```
Software Configuration Display(1/2)
                                          V/R=02.00
  No    Software    Date
  01    BOOT.LO     1995/03/31 12:27
  02    RTLIB.LO    1995/03/31 12:34
  03    VTSH.LO     1995/03/31 12:34
  04    KRNL03.LO   1995/02/27 22:34
  05    KRNL02.LO   1994/12/21 18:46
  06    KRNL01.LO   1994/12/21 17:35
  07    KRNL00.LO   1994/12/21 16:56
  08    BEND.LO     1995/04/03 09:05
  09    DSPI.LO     1995/03/31 12:28
  10    CMNC.LO     1995/03/31 12:27
  11    PIFC.LO     1995/03/31 12:31
  12    MESC.LO     1995/04/03 09:46
  13    IIPC.LO     1995/03/31 14:21
  14    IMDC.LO     1995/03/31 12:30
  15    STRC.LO     1995/03/31 20:47
  16    SCNI.LO     1995/04/03 09:04
  17    PRTM.LO     1995/03/31 12:31
  18    RTSH.LO     1995/03/31 12:32
```

```
Software Configuration Display(2/2)
                                          V/R=02.00
  No    Software    Date
  19    VCRD.LO     1995/03/31 12:34
  20    PLCD.LO     1995/03/31 12:31
  21    MICD.LO     1995/03/31 02:18
  22    PWRD.LO     1995/04/03 09:09
  23    CLPD.LO     1995/03/31 12:27
  24    BWPD.LO     1995/03/31 12:27
  25    RCDI.LO     1995/03/31 12:32
  26    RCDC.LO     1995/04/03 09:54
  27    PRSC.LO     1995/03/31 12:31
  28    VPBD.LO     1995/04/03 04:27
  29    ISTI.LO     1995/03/31 12:30
  30    KRMT.LO     1995/04/03 09:07
  31    SVSC.LO     1995/04/01 15:39
  32    IPTI.LO     1995/04/03 08:54
  33    MSC0.LO     1995/04/03 09:46
  34    MSC1.LO     1995/04/03 08:53
  35    MSC2.LO     1995/04/03 09:45
  36    MSC3.LO     1995/04/03 08:52
```

SAMPLE OF SOFTWARE CONFIGURATION DISPLAY
ILLUSTRATION 4–20

Note

The software configuration indicated on this display is different depending on the software version of console.

■ **4–3–3 Utility Menu** (continued)

(H) MODEM SET UP

This displays and changes the current settings for the modem.

Type **8** and then press **Return** key when the Utility Menu is displayed. The Modem Set Up is displayed as shown in ILLUSTRATION 4–21.

```
Modem Set Up(1/1)

No Menu Name                      Status
01 Telephone Jack Interface       (RJ11/RJ41S/RJ145S)
02 Private Line Operation         Invalid
03 Modulation Mode at 300bps      Bell 103




Enter Menu Number ?
```

MODEM SET UP
ILLUSTRATION 4–21

Procedure for Changing Each Settings

1. Input the item number you desire to change the settings. The choices for the selected item are displayed.

2. Type the appropriate number and press the Return key.

Note

This function is valid only when the USrobotics modem is selected by the option setting function of the service software. If the Motolora modem is selected, the message "This function is not available." is displayed on the CRT monitor screen.

4–3–3   Utility Menu (continued)

(I)   MEDIA INITIALIZE

This initialize the floppy disk.

Type **9** and then press **Return** key when the Utility Menu is displayed. The Media Initialize screen is displayed as shown in ILLUSTRATION 4–22.

```
Media Initialize(1/1)

Set a media to drive and then press any key.
```
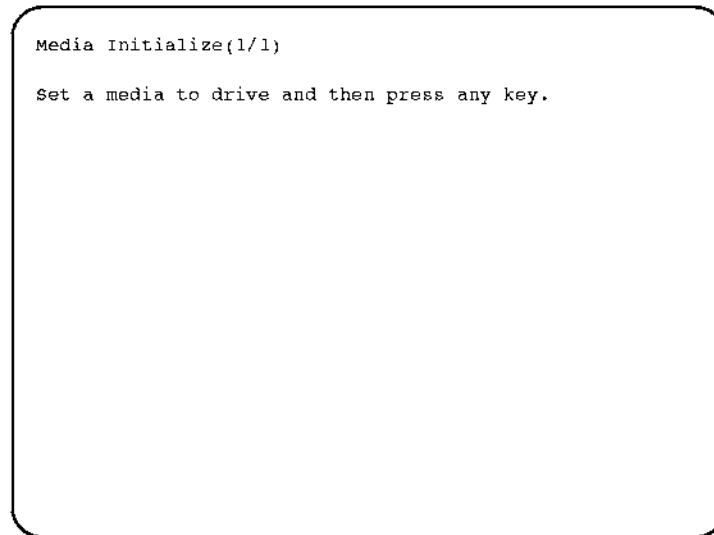
MEDIA INITIALIZATION
ILLUSTRATION 4–22

Procedure for Initializing Media

Set a floppy disk into the FD drive and press the Return key in the case of system software version 1.20 or former console.
Set an 128MB MO disk into the MOD drive and press the Return key in the case of system software version 2.00 or later console.
The system automatically starts initializing the disk.

Note

The 230MB MO disk is available on the console with software version 3.10 or later.

During the system is initializing the floppy disk, "Initializing" is displayed on the CRT monitor. After initializing, "Succeeded" or "Failed" is displayed on the CRT monitor. Then, "Press Y to continue, Control + R to quit" is displayed. Type **Y** and press **Enter** to continue to use this function. Press and hold **Control**, and press **R** to quit this function.

■ **4–3–3 Utility Menu** (continued)

(J) SYSTEM ID ENTRY/DISPLAY

This displays the current system ID number and set the new one.

Note

This function can be used on the consoles being installed the system software version 2.00 or later.

Type **10** and then press **Return** key when the Utility Menu is displayed. The System ID Entry/Display menu is displayed as shown in ILLUSTRATION 4–23.

```
System ID Entry/Display(1/1)

   1:Entry  2:Display

Enter Menu Number ?
```

```
System ID Entry/Display(1/1)

   1:Entry  2:Display

Enter Menu Number ?1
Input System ID(00000 - 16383)




        System ID:
```

```
System ID Entry/Display(1/1)

   1:Entry  2:Display

Enter Menu Number ?2



        System ID:XXXXX



Press 'Y' to continue, or 'Ctrl+R' to return
```

New System ID Number Entry Menu   **Current System ID Number Display**
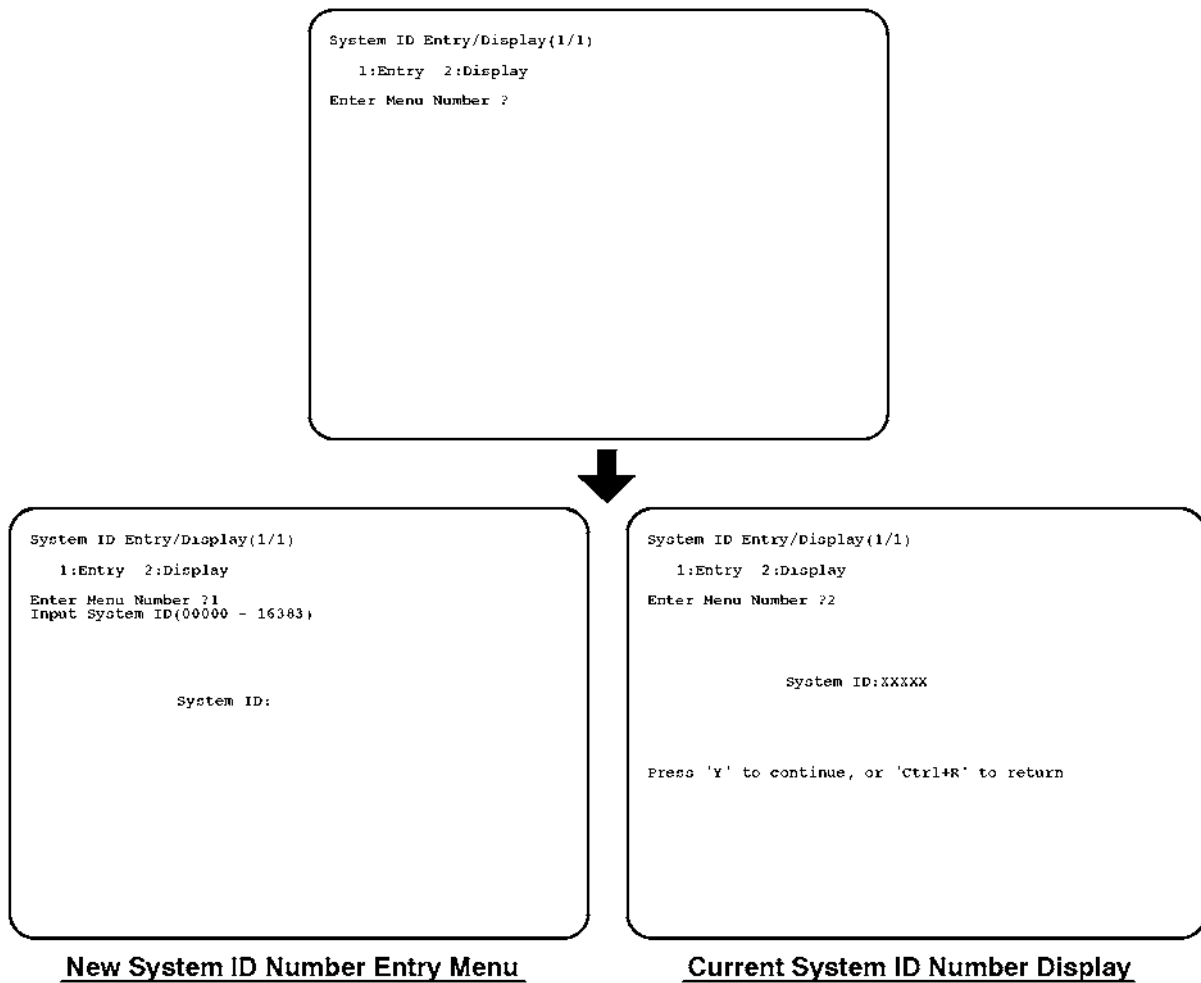
SYSTEM ID ENTRY/DISPLAY
ILLUSTRATION 4–23

4–3–3 Utility Menu (continued)

(J)   SYSTEM ID ENTRY/DISPLAY (continued)

Procedure for Setting New System ID

1. Type **1** and then press **Return** key. The system ID number entry menu is displayed as shown in ILLUSTRATION 4–23.

2. Type any 5–digit number within the limits of 00000 to 16383 and press the **Return** key. The new system ID number is set.

Procedure for Displaying Current System ID

1. Type **2** and then press **Return** key. The current system ID number is displayed as shown in ILLUSTRATION 4–23.

2. Type **Y** and then press **Return** key to continue this function. Press and hold the **Control** key and press **R** to exit this function.
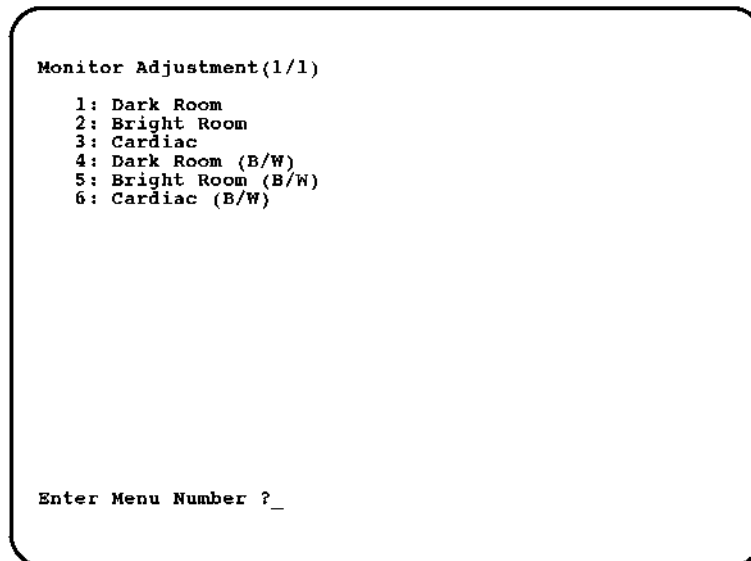
4–3–3 Utility Menu (continued)

(K)   MONITOR ADJUSTMENT

This helps to adjust the settings of the Contrast and the Brightness on the CRT Monitor suitably.

Note
This function is available only for the console with the system software version 4.20 or later.

Type **11** and then press **Return** key when the Utility Menu is displayed. The Monitor Adjustment menu is displayed as shown in ILLUSTRATION 4–24.
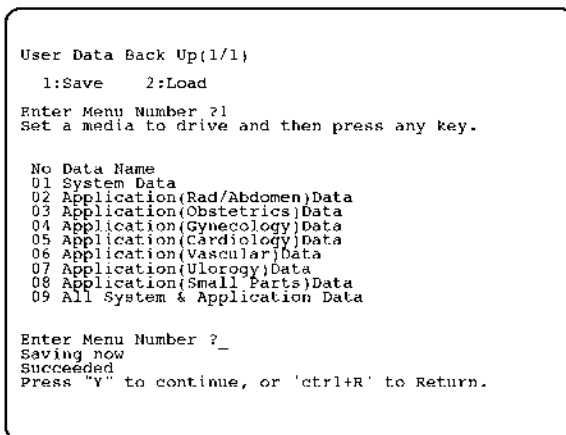
```
Monitor Adjustment(1/1)

   1: Dark Room
   2: Bright Room
   3: Cardiac
   4: Dark Room (B/W)
   5: Bright Room (B/W)
   6: Cardiac (B/W)




Enter Menu Number ?_
```

MONITOR ADJUSTMENT
ILLUSTRATION 4–24

4–3–3 Utility Menu (continued)

(K) MONITOR ADJUSTMENT (continued)

Procedure for Adjusting Monitor

1. Input the item number according to the brightness of Exam room.
    The Gray Scale Bar for adjustment will be displayed on the CRT monitor screen as shown in
    ILLUSTRATION 4–25.
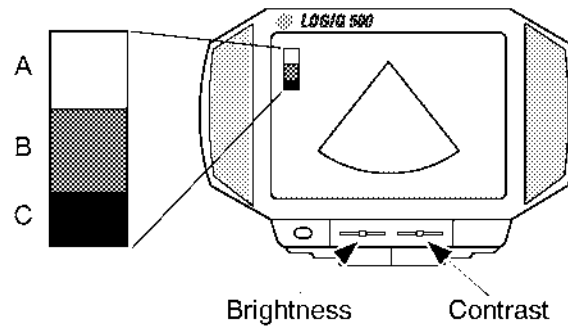
GRAY SCALE BAR
ILLUSTRATION 4–25

2. Open the front door at the lower center of the Monitor Assy by pushing the top center of the door.

3. Move **Contrast** and **Brightness** slide potentiometers rightwards to the maximum to increase both settings.

4. Decrease brightness by moving **Brightness** slide potentiometer leftwards by degrees until "**B**" in the gray
    scale bar is not visible.

5. Decrease contrast by moving **Contrast** slide potentiometer leftwards by degrees until "**A**" in the gray scale bar
    is not visible.

6. Move **Brightness** slide potentiometer rightwards to the maximum again.

7. Decrease brightness by moving **Brightness** slide potentiometer leftwards by degrees until "**C**" in the gray
    scale bar is not visible.

4–3–3 Utility Menu (continued)

(K)   MONITOR ADJUSTMENT (continued)

Procedure for Adjusting Monitor for 15–inch Monitor

1. Press the monitor's toggle button (2) for brightness and contrast. Confirm that the brightness (or contrast) is displayed on the monitor. If the contrast is displayed, press the toggle button again.
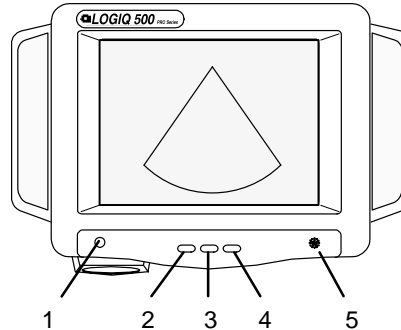
1	Task Light Switch	4	Brightness/Contrast Adjustment (+) Button
2	Brightness/Contrast Toggle Button	5	Microphone
3	Brightness/Contrast Adjustment (–) Button		

GRAY SCALE BAR
ILLUSTRATION 4–26

2. Adjust the brightness (or contrast) by pressing the monitor's left (3) and right (4) adjustment buttons. Refer to TABLE 4–1 as the monitor adjustment guide.

TABLE 4–1
RECOMMENDED CONTRAST AND BRIGHTNESS VALUES

Room Condition	Monitor Adjustment	
	Brightness	**Contrast**
Dark room for Radiology/Cardiology	50	20
Dim room for Radiology/Cardiology	65	50
Bright room for OB	50	75
Dark room for Cardiology	45	45
Bright room for Demo	60	90

Note
After readjusting the monitor's Contrast and Brightness, readjust all preset and peripheral settings.

Note
The process of adjusting Contrast and Brightness for the 15–inch monitor is available on consoles from software version 5.00.

4–3–3 Utility Menu (continued)

(L) NETWORK ERROR LOG DISPLAY

This displays and copies an error log file into a MO disk.

Note

This function is available only when the Storage/Print DICOM option is installed in the console with the system software version 4.10 or later.

Note

This function can be used on the consoles being installed the system software version 4.10 or later.

Type **11** and then press **Return** key when the Utility Menu is displayed. The Network Error Log Display menu is displayed as shown in ILLUSTRATION 4–27.

Note

The option number of this function is changed to "**12**" from the software version 4.20.

```
Network Error Log Display(1/1)

001 1998/06/23 14:23
    Error in Binding the application. [104]




















Do you copy this file ? (Y/N)_
```

NETWORK ERROR LOG DISPLAY
ILLUSTRATION 4–27

Procedure for Saving File

1. Type **Y** and then press **Return** key.

2. Insert a MO disk into the MOD drive and press any key.

During the time that the system is copying the error log file, "Copying now" is displayed on the CRT monitor screen.

4–4   POWER SUPPLY ADJUSTMENTS

{ CAUTION }

HAZARDOUS VOLTAGE. 380 Vdc and 253–260 Vac can cause a severe injury or death, or the power supply to be damaged. Turn OFF the power and check the residual voltage of capacitors before accessing the power box. Carefully work while accessing the power unit.
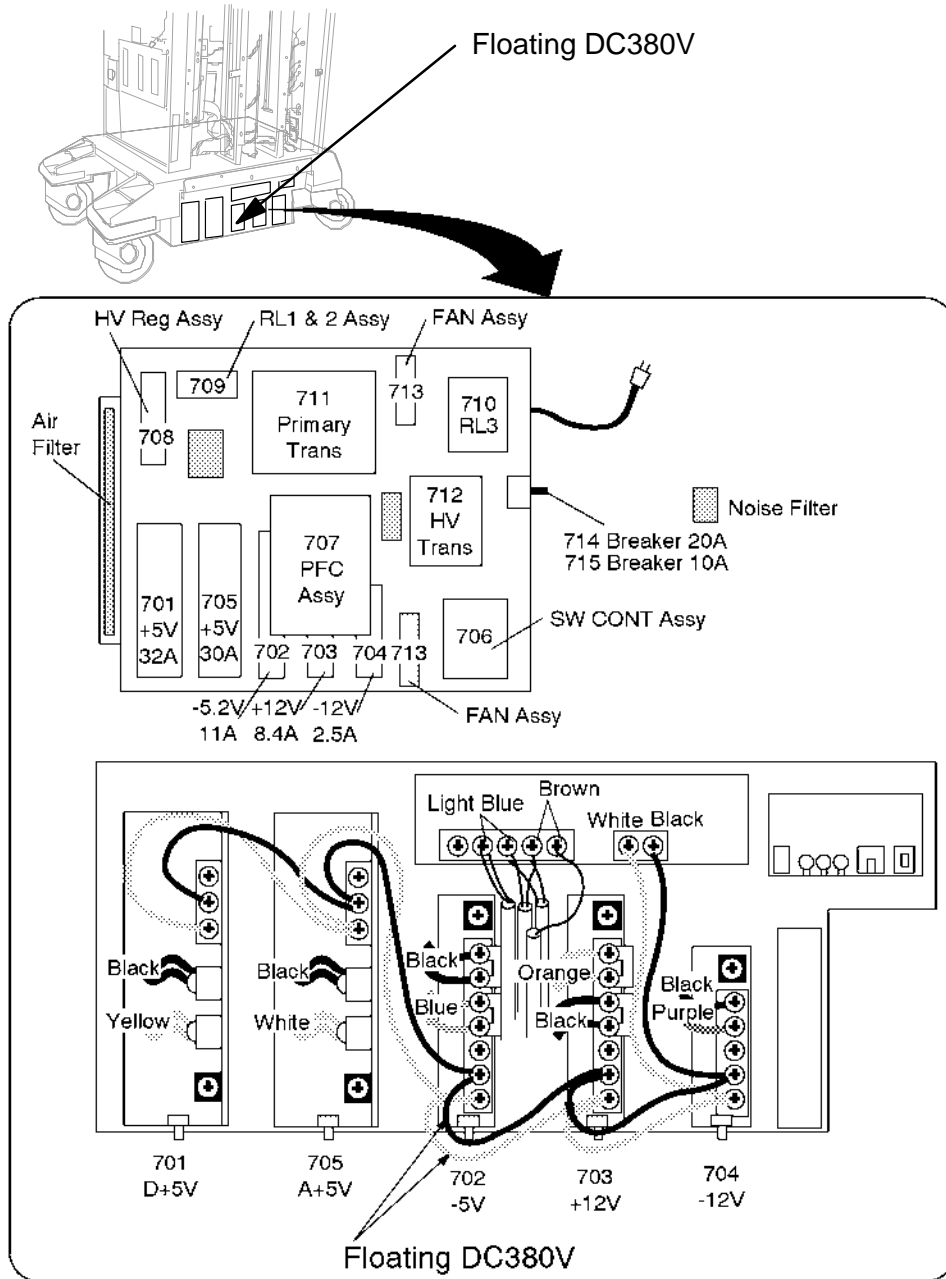
POWER SUPPLY UNIT
ILLUSTRATION 4–28

4–4   POWER SUPPLY ADJUSTMENTS (continued)

This section provides power supply adjustment procedures for the LOGIQ™ 500. Adjustments should be only made when necessary. Power supply adjustments should be made in accordance with the schedule for periodic mainte- nance in Chapter 7 of this manual.

Before beginning the power supply adjustments procedure, make sure the power outlet should provide the power line standards. Refer to Chapter 2, Installation.

Note

If the adjustment pot is over–turned clockwise, the power supply output is down to protect the circuits against the over–voltage. In that case, power the LOGIQ™ 500 OFF and turn the pot counterclock- wise all the way. Then power it ON and try to adjust the power supply again.

There are five power supplies in the bottom of the LOGIQ™ 500. These power supplies are located at the bottom of the console as shown in ILLUSTRATION 4–31 on page 4–39.

4–4–1   Power Supply Access

1.   Unscrew four screws and remove the Front Cover as shown in the ILLUSTRATION 4–29.
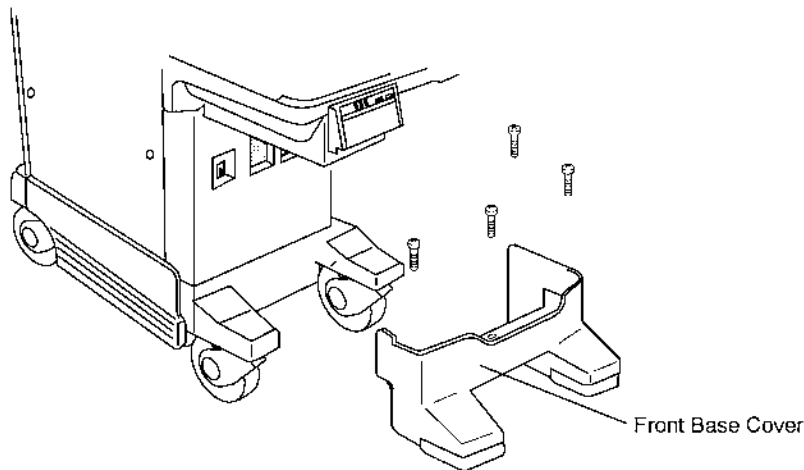
Front Base Cover

FRONT BASE COVER REMOVAL
ILLUSTRATION 4–29

4–4–1 Power Supply Access (continued)

2. Remove five screw caps and unscrew five screws to remove the Side Cover Right as shown in the ILLUSTRATION 4–30.
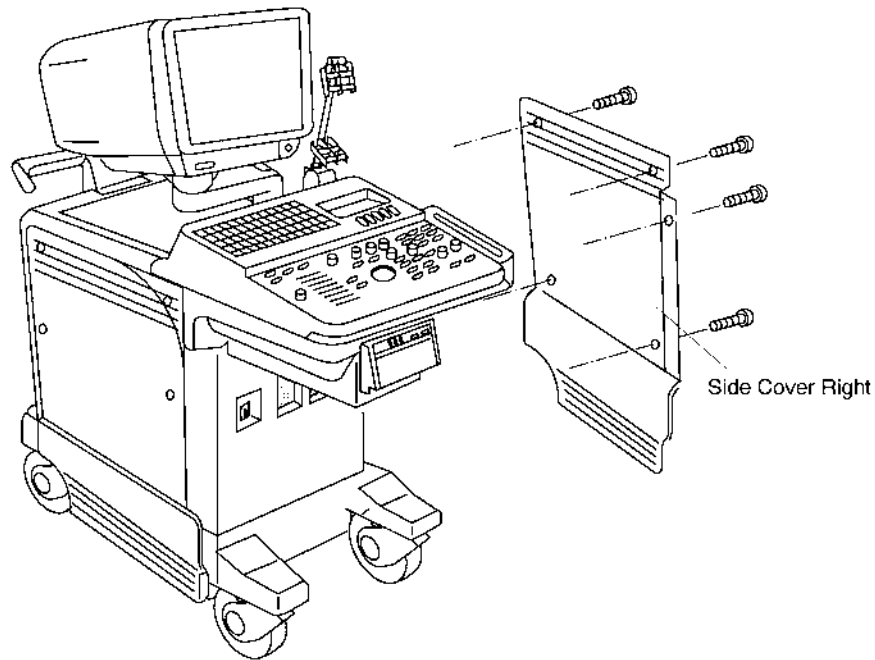
RIGHT COVER REMOVAL
ILLUSTRATION 4–30

3. Unscrew five screws to remove the PS Cover Right. Refer to the ILLUSTRATION 4–31.
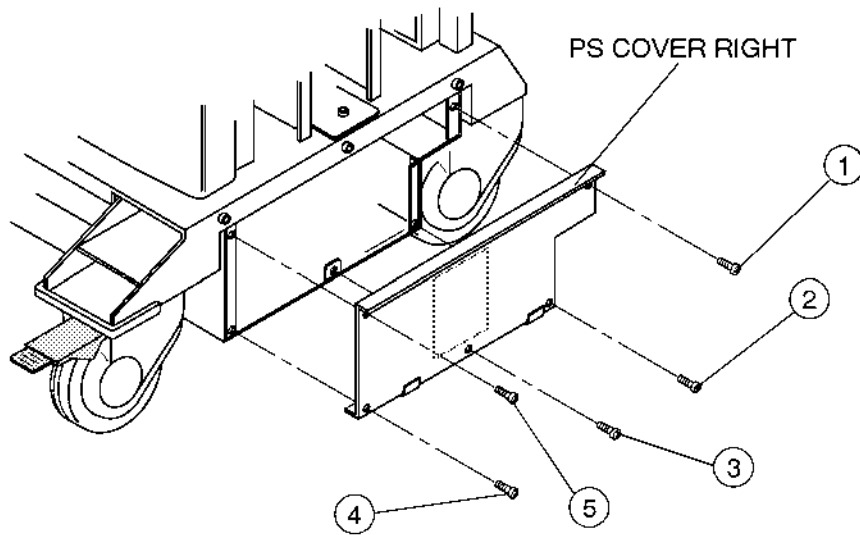
PS UNIT REMOVAL
ILLUSTRATION 4–31

4–4–2 Power Supply Adjustment Procedure

1. Power LOGIQ™ 500 ON. Wait for about 30 seconds to warm up the console.

2. For each of the power supplies which are located at the bottom of LOGIQ™ 500, connect a DVM to the appropriate place shown in TABLE 4–2.

3. Verify that the voltages are as shown in TABLE 4–3.

TABLE 4–2
POWER SUPPLY MEASUREMENT LOCATION

POWER SUPPLY	MEASURE AT	RETURN AT
+5V for Digital	+5V Terminal on Power Supply See ILLUSTRATION 4–32	GND Terminal on Power Supply See ILLUSTRATION 4–32
+5V for Analog	+5V Terminal on Power Supply See ILLUSTRATION 4–32	GND Terminal on Power Supply See ILLUSTRATION 4–32
–5.2V	–5V Terminal on Power Supply See ILLUSTRATION 4–32	GND Terminal on Power Supply See ILLUSTRATION 4–32
+12V	+12V Terminal on Power Supply See ILLUSTRATION 4–32	GND Terminal on Power Supply See ILLUSTRATION 4–32
–12V	–12V Terminal on Power Supply See ILLUSTRATION 4–32	GND Terminal on Power Supply See ILLUSTRATION 4–32

TABLE 4–3
POWER SUPPLY MEASUREMENT TOLERANCES

POWER SUPPLY	MIN.	MAX
+5V for Digital	+5.0V	+5.2V
+5V for Analog	+5.0V	+5.2V
–5.2V	–5.4V	–5.2V
+12V	+12.0V	+12.5V
–12V	–12.5V	–12.0V

4–4–2 Power Supply Adjustment Procedure (continued)

① +5V, 32A
POWER SUPPLY
for DIGITAL
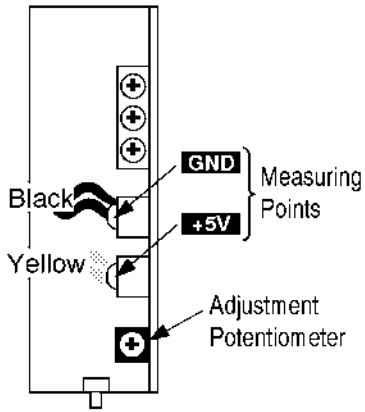
② +5V, 30A
POWER SUPPLY
for ANALOG
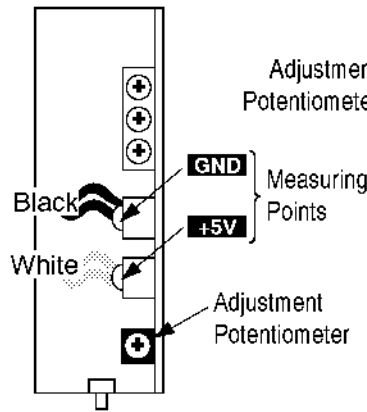
③ -5.2V, 11A
POWER SUPPLY
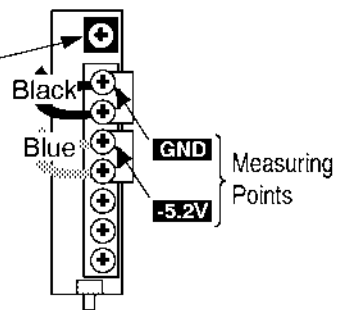
④ +12V, 8.4A
POWER SUPPLY
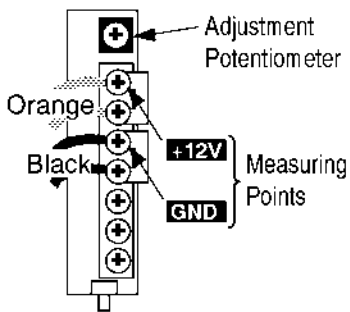
⑤ -12V, 2.5A
POWER SUPPLY
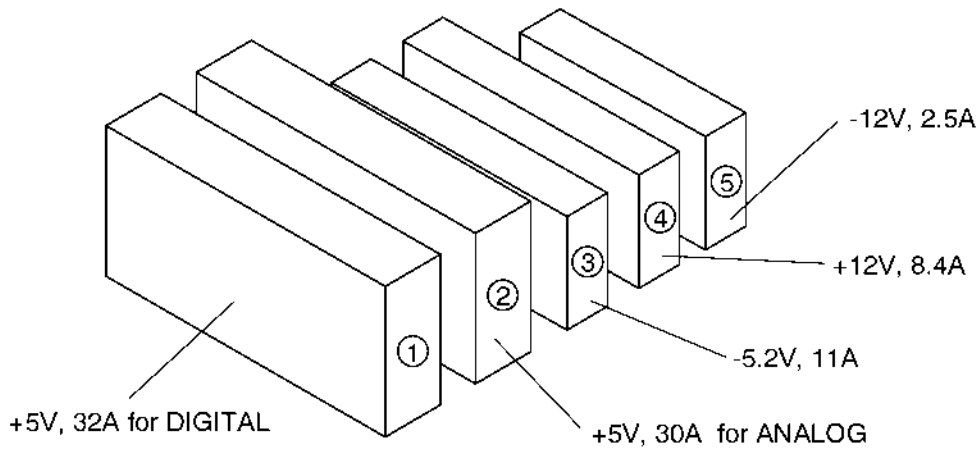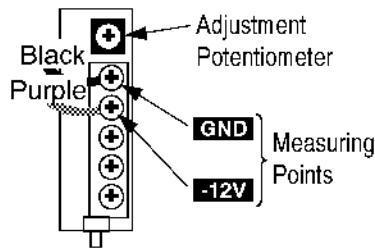
POWER SUPPLIES
ILLUSTRATION 4–32

FUNCTIONAL CHECKS

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CHAPTER 5 – DIAGRAMS

TABLE OF CONTENTS

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5–1 INTRODUCTION

LOGIQ 500 is a compact ultrasound scanner supporting a wide range of probes. This gives the system added benefits to meet diverse applications.

5–2 LOGIQ 500   SYSTEM

The LOGIQ 500 has a 64 channel beamformer that digitizes the RF signal. It uses analog and digital delay to focus the beam. The analog delay is short and fixed. The digital delay is used for long delay and dynamic focus. It offers parallel receive beam formation which can increase frame rate by a factor of two in time critical applications like Color Flow. This system also features many advanced image processing controls.

User surveys and the latest technology were used to increase console ease–of–use. Digital circuitry enables more reliable and precise operation.

System Features

The key design goals of this system are:

- High Image Quality

- Increased User Productivity

- Multiple Clinical Applications

- Planned Upgradeability

- High Mobility

Types of Applications

The system supports many clinical uses. Scan and display parameters may be user selected to default to desired values for each application. The system presets many parameters to clinically determined, optimal values.

- Radiology

- Cardiology

- OB/GYN, and

- Vascular

See Illustration 5–1, the LOGIQ 500 system can be divided into an analog signal processing section, a digital signal processing section, and the microprocessor driven system control section, which controls the system based on operator commands and system status information.

5–3 BLOCK DIAGRAM
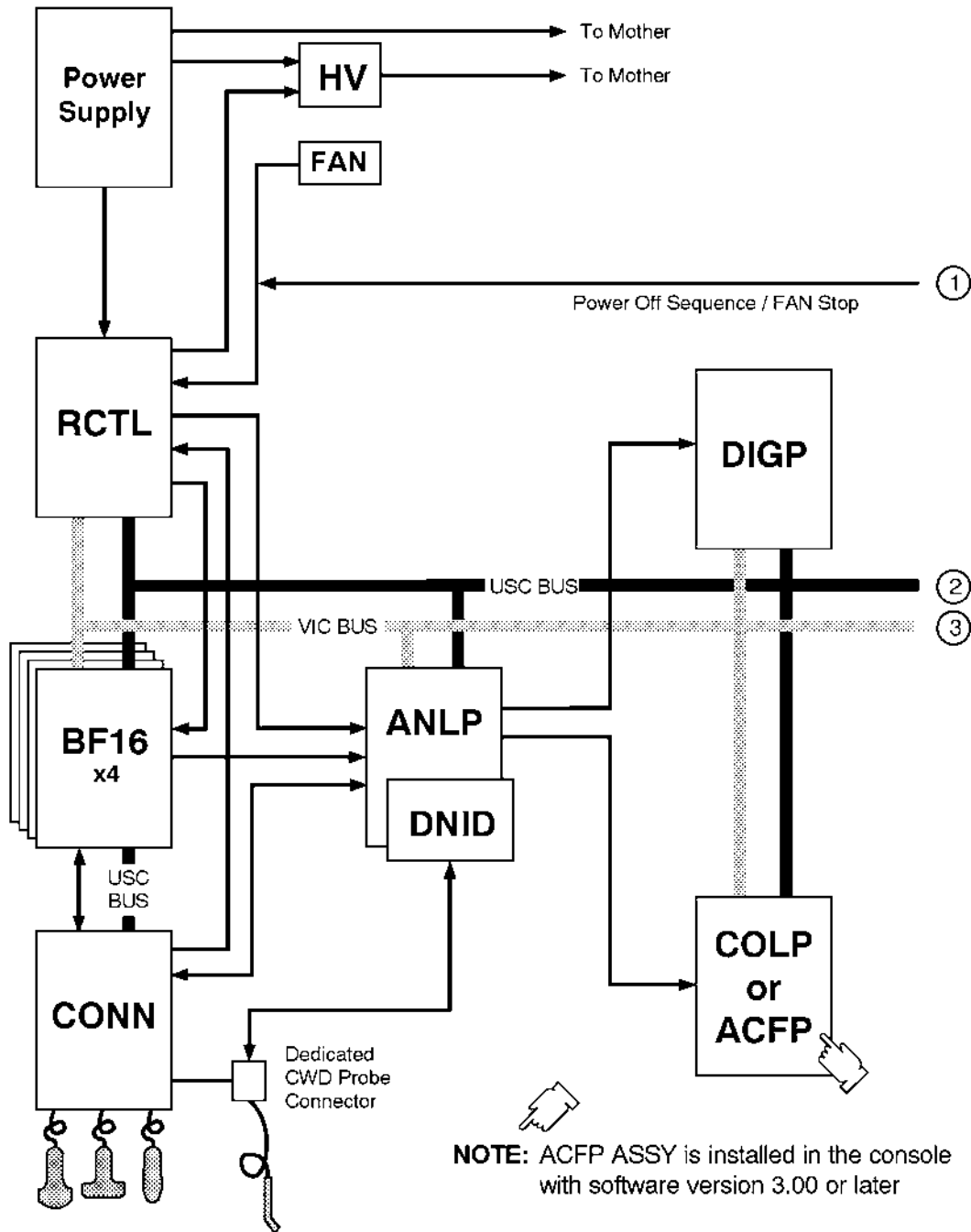
LOGIQ 500 SYSTEM BLOCK DIAGRAM
ILLUSTRATION 5–1 (a)

■ **5–3 BLOCK DIAGRAM** (continued)

NOTE: The SCSI port on the Rear Panel is not available on the console with the 3.5–inch HDD.

*MODD is installed onto V2.0 or later console, instead of FDD.

NOTE: The DICOM option is available for the console with software version 4.00 or later.

NOTE: VIPP Assy is installed on the console with software version 5.00y or later.
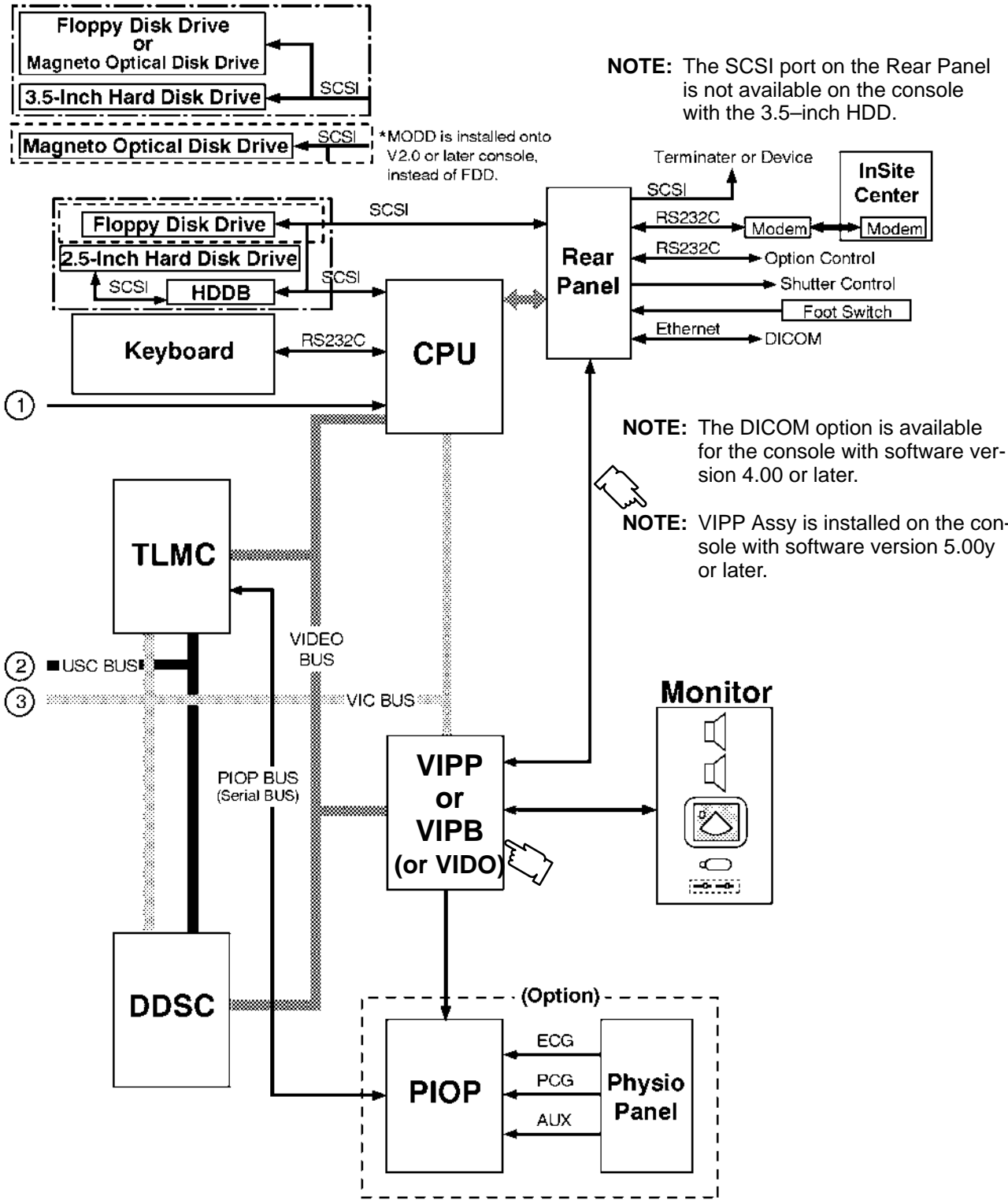
LOGIQ 500 SYSTEM BLOCK DIAGRAM
ILLUSTRATION 5–1 (b)

5–4 WIRING DIAGRAM

NOTE: The CB46 and CB45N are not installed in the console with the new 3.5–inch HDD (Quantum™ Fireball™ 1280S) because the HDD LED Assy is not supplied.
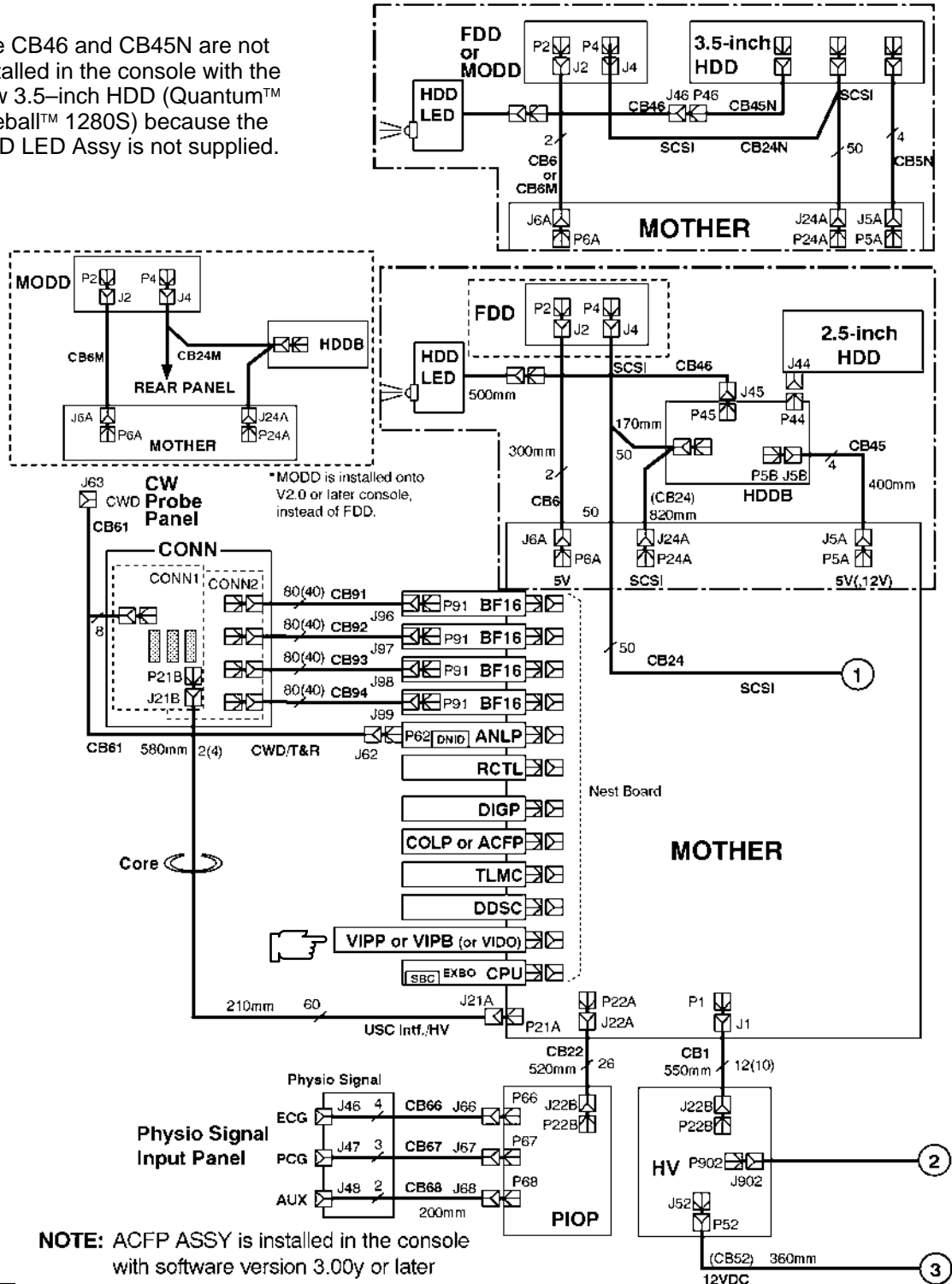
NOTE: ACFP ASSY is installed in the console with software version 3.00y or later

NOTE: VIPP ASSY is installed in the console with software version 5.00y or later

LOGIQ 500 SYSTEM WIRING DIAGRAM
ILLUSTRATION 5–2 (a)

■ **5–4 WIRING DIAGRAM** (continued)

NOTE: 15–inch Monitor is installed in the console with the software version 5.00y or later.
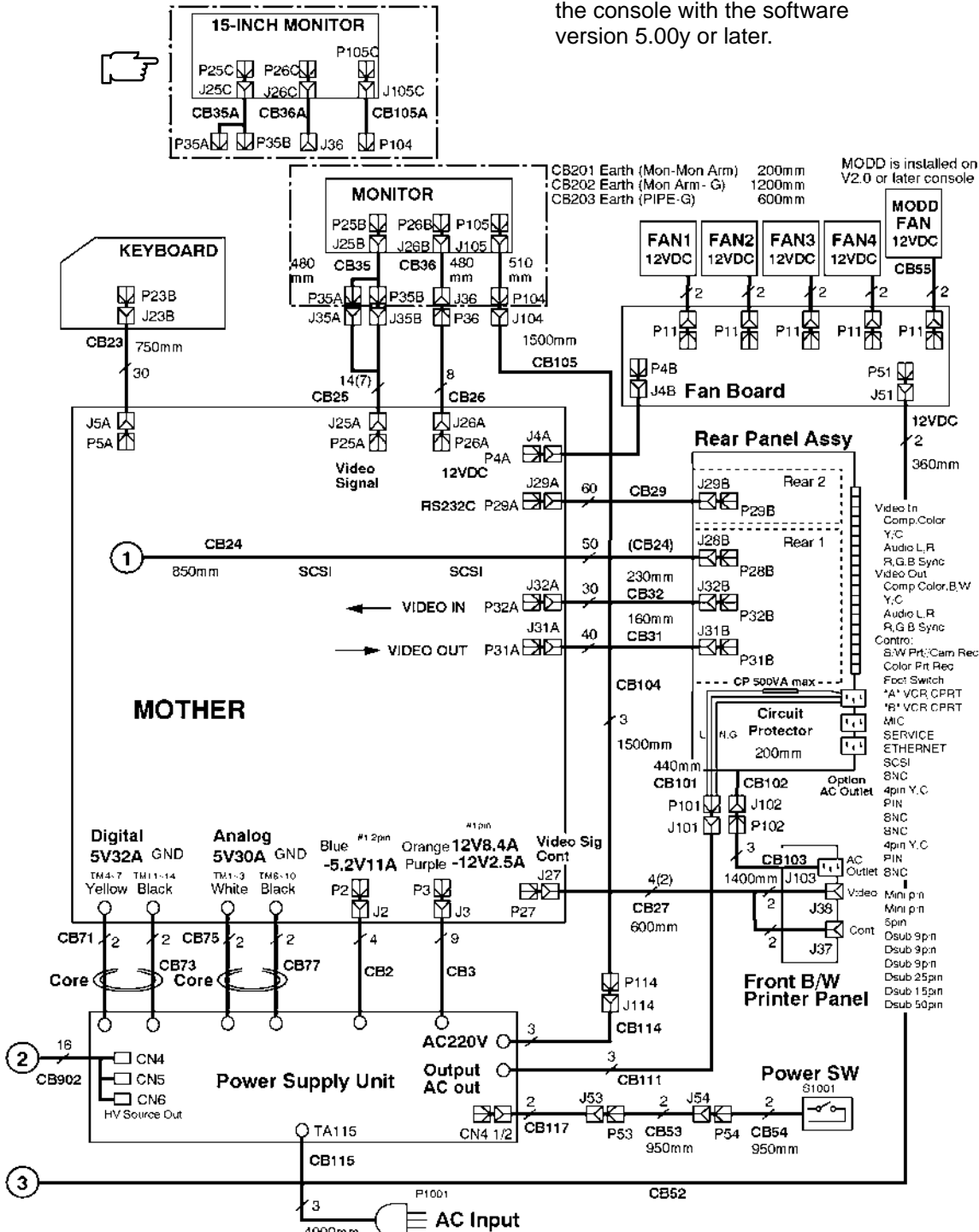
LOGIQ 500 SYSTEM WIRING DIAGRAM
ILLUSTRATION 5–2 (b)

5–5 POWER SUPPLY BLOCK DIAGRAM
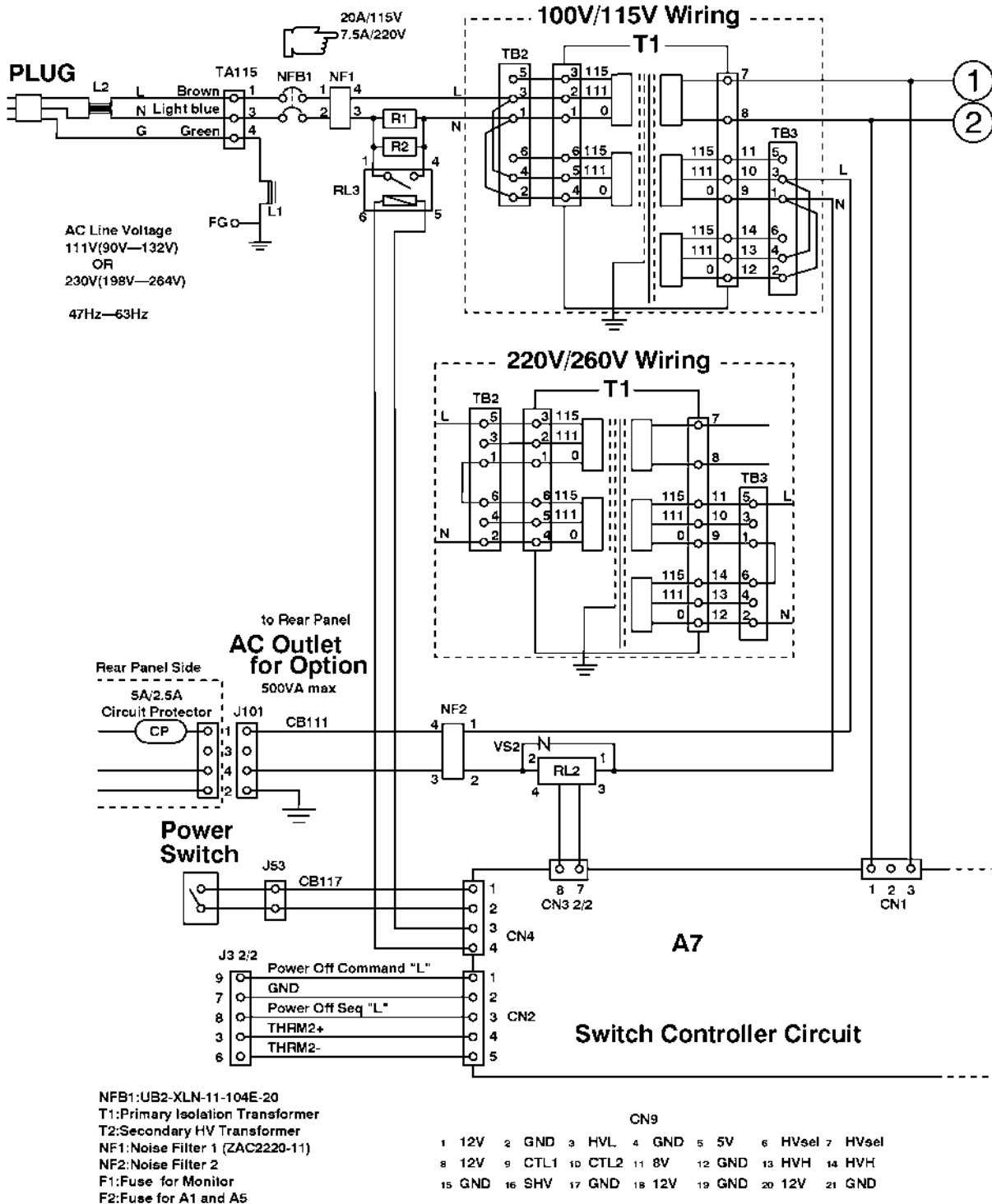
LOGIQ 500 SYSTEM POWER SUPPLY BLOCK DIAGRAM
ILLUSTRATION 5–3 (a)

5–5 POWER SUPPLY BLOCK DIAGRAM (Continued)
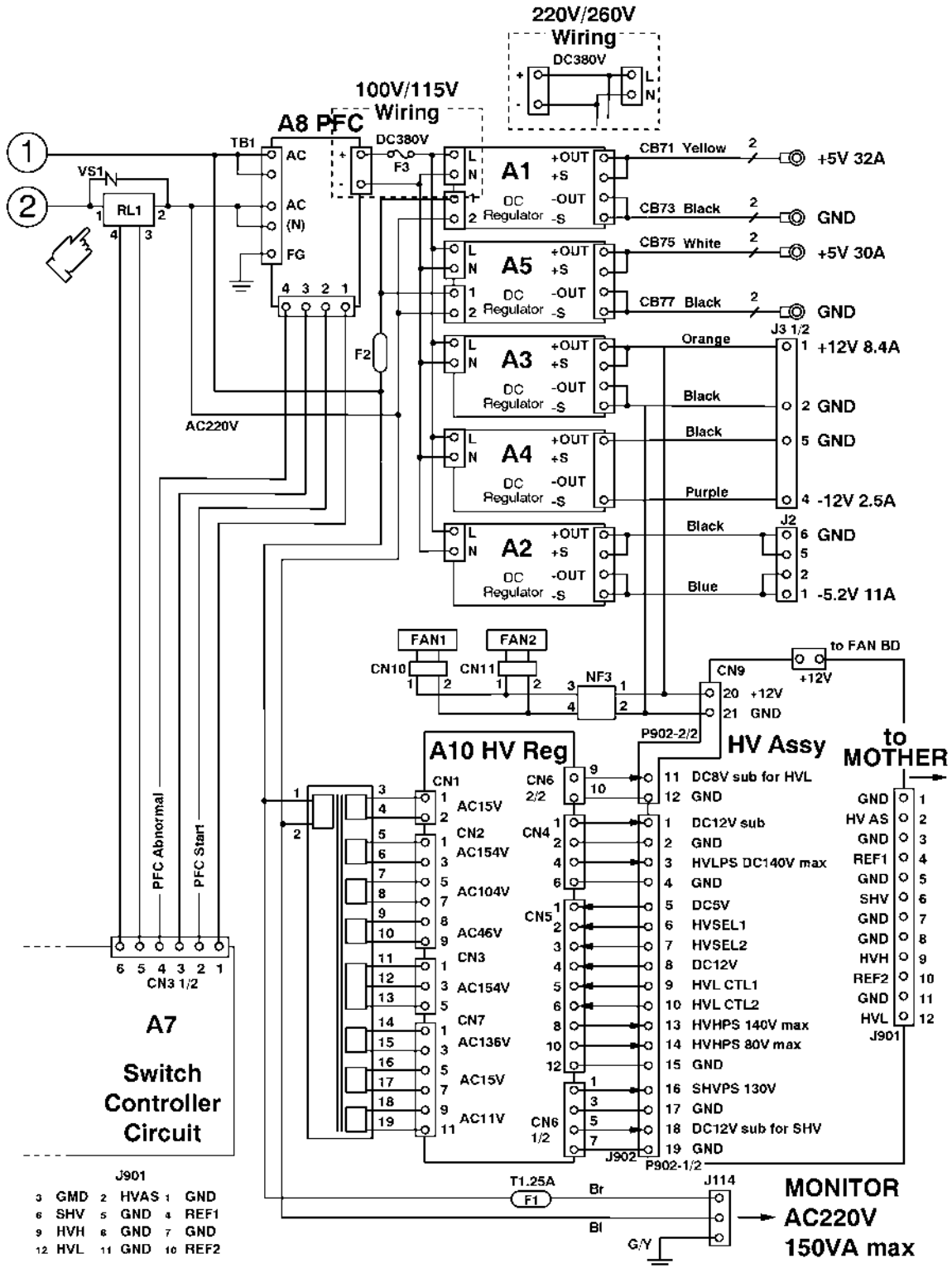
LOGIQ 500 SYSTEM POWER SUPPLY BLOCK DIAGRAM
ILLUSTRATION 5–3 (b)

5–6 CIRCUIT BOARD DESCRIPTION

The following table lists circuit boards and their respective card cage slot assignments on the mother board of the LOGIQ 500 system.

TABLE 5–1
CIRCUIT BOARD DESCRIPTION

CARD CAGE SLOT	BOARD NAME	DESCRIPTION	NOTE
A0	BF16 ASSY	16 Channel Beam Former Assembly	
A1	BF16 ASSY	16 Channel Beam Former Assembly	
A2	BF16 ASSY	16 Channel Beam Former Assembly	
A3	BF16 ASSY	16 Channel Beam Former Assembly	
A4	ANLP ASSY	Analog Processor Assembly	
A5	RCTL ASSY	Real Time Controller Assembly	
A6		Reserved	
A7	DIGP ASSY	Digital Processor Assembly	
A8	COLP ASSY	Color Processor Assembly	For V2.50 or former
	ACFP ASSY	Advanced Color Flow Processor Assembly	For V3.00 or later
A9	TLMC ASSY	Time Line Memory Processor and Cine Assembly	
A10	DDSC ASSY	Dual Digital Scan Converter Assembly	
A11	VIPB ASSY	Video Output Processor Assembly with VCR Playback Memory	for USA/Europe/Asia system
	VIDO ASSY	Video Output Processor Assembly	for Japanese system
	VIPP ASSY	Video Assy with Interlace Progressive Scan Converter and VCR Playback	For V5.00y or later
A12	CPU ASSY	CPU Module and CPU Extender Board Assembly	
	HV ASSY	High Voltage Assembly	
	CONN ASSY	Connector Assembly	

5–6 CIRCUIT BOARD DESCRIPTION (continued)

TABLE 5–2
CIRCUIT BOARD VARIATIONS

BOARD NAME	VARIATIONS	NOTE	VERSION
BF16 ASSY	BF16 ASSY BF16–2 ASSY BF16–3 ASSY	BF16 ASSY can be replaced with BF16–2 ASSY From software version 2.00 console For the image appearence, there is no compatibility between BF16–2 Assy and BF16–3 Assy	HBBF: 4 HBFC: 5 HBBF: 6 HBFC: 5
ANLP ASSY	ANLP ASSY ANLP_B ASSY ANLP2 ASSY ANLP2 ASSY ANLP3 ASSY ANLP3 ASSY	ANLP ASSY can be replaced with ANLP_B ASSY For system software version 1.20 or older console **2123291**, From software version 2.00 console **2123291–2**, From software version 3.00 console Old ANLP2 Assy (**2123291**) can be replaced with new ANLP2 Assy (**2123291–2**) From software version 4.00 console **2192674–2**, From software version 4.20 console Old ANLP3 Assy (2192674) can be replaced with new ANLP3 Assy **2192674–3**, From software version 6.00 console Old ANLP3 Assy (2192674–2) can be replaced with new ANLP3 Assy	1 2 4 8, 9 or a d 11 15
RCTL ASSY	RCTL ASSY RCTL2 ASSY RCTL2 ASSY	RCTL ASSY can be replaced with RCTL2 ASSY From software version 2.00 console **2180314**, Required for the P509 probe	1 4 or 5
DIGP ASSY	DIGP ASSY DIGP2 ASSY DIGP3 ASSY DIGP4 ASSY DIGP5 ASSY DIGP6 ASSY	DIGP ASSY is replaced with DIGP2 ASSY by FMI72069 DIGP2 ASSY can be replaced with DIGP3 ASSY From software version 2.00 console From software version 3.00 console DIGP4 (**2123296–2**) Assy can be replaced with DIGP5 (**2123296–3**) Assy From software version 4.00 console	0 4 8 c 10 14
COLP ASSY	COLP ASSY COLP2 ASSY COLP3 ASSY COLP3 VAR2 ASSY COLP3 VAR3 ASSY COLP4 ASSY	COLP ASSY is replaced with COLP2 ASSY by FMI72069 From software version 1.10 console COLP3 ASSY can be replaced with COLP3 VAR3 ASSY COLP3 VAR2 ASSY can be replaced with COLP3 VAR3 ASSY From software version 2.00 console From software version 2.20 console	0 4 8 c d 10
	ACFP ASSY ACFP2 ASSY ACFP3 ASSY	From software version 3.00 console From software version 4.00 console From software version 5.00y console	0, 1 or 2 4 8
TLMC ASSY	TLMC ASSY TLMC ASSY TLMC ASSY	**P9525WY**, Software version 2.20 or former **2158390**, From software version 3.00 console Old TLMC ASSY (**P9525WY**) can be replaced with new TLMC ASSY (**2158390**). **2158390–2**, Old TLMC ASSY (**2158390**) can be replaced with new TLMC ASSY (**2158390–2**).	2 4 or 5 8
DDSC ASSY	DDSC ASSY DDSC2 ASSY DDSC3 ASSY	DDSC ASSY and DDSC2 ASSY have no compatibility. Each assembly has been replaced with equivalent one. DDSC ASSY should be used only for V1 console and DDSC2 ASSY should be used only for V2 console. From software version 4.00 console DDSC2 Assy can be replaced with DDSC3 Assy	0 4, 8 or 9 c

5–6   CIRCUIT BOARD DESCRIPTION (continued)

TABLE 5–3
CIRCUIT BOARD VARIATIONS (continued)

BOARD NAME	VARIATIONS	NOTE	VERSION
VIDO ASSY	VIDO ASSY VIDO2 ASSY VIDO2 ASSY	VIDO ASSY is replaced with VIDO2 ASSY by FMI72076 **2117032–2** **2117032–3**, Applied to MVME147–010 Old VIDO2 ASSY (**2117032–2**) can be replaced with new VIDO2 ASSY (**2117032–3**).	1 3 8 or 9
VIPB ASSY	VIPB ASSY VIPB ASSY VIPB2 ASSY	**P9525VA** **2149141**, Applied to MVME147–010 Old VIPB ASSY (**P9525VA**) can be replaced with new VIPB ASSY (**2149141**). **2212616**, Available only for console with software version 4.10B or later	1 4 or 5 8
VIPP ASSY	VIPP ASSY	**2245652**, Available only for console with software version 5.00y or later	0
CPU ASSY	CPU ASSY CPU2 ASSY CPU2 ASSY CPU–A ASSY	CPU ASSY can be replaced with CPU2 ASSY 2131698, From software version 2.00 console 2131698–2, From software version 3.00 console Old CPU2 ASSY (**2131698**) can be replaced with new CPU2 ASSY (**2131698–2**). From software version 4.00 console	EXBO: 3 or less EXBO: 3 EXBO: 3 EXBO: 3
PIOP ASSY	PIOP ASSY PIOP2 ASSY	Included in ECG Board Assy (**P9522WZ**) Included in ECG Board2 Assy (**2207806**)	2 4

Note

On the above table, the VERSION shows the version of each boards displayed on Board Configuration Display of Utility Menu.

Note

The Window ASIC and Gate Array used in some board assemblies are changed. With this change, the revision and settings of DIP switches for the relative board assemblies were changed as follows:

BOARD NAME	PART NUMBER AND BOARD REVISION		VERSION DISPLAYED ON BOARD CONFIGURATION DISPLAY	
	OLD	NEW	OLD	NEW
DDSC2 ASSY	2141644–2 Rev.0	2141644–2 Rev.1	8	9
VIPB ASSY	2149141 Rev.0	2149141 Rev.1	4	5
VIDO2 ASSY	2117032–3 Rev.0	2117032–3 Rev.1	8	9
TLMC ASSY	2158390 Rev.0	2158390 Rev.1	4	5

Each board has complete functional compatibility with old version.

CHAPTER 6 – RENEWAL PARTS

TABLE OF CONTENTS

TABLE OF CONTENTS (continued)

TABLE OF CONTENTS (continued)

LIST OF ABBREVIATIONS

1   **Stock item**

2   **Non stock item**

6–1   RENEWAL PARTS

LOGIQ 500
MATERIAL LIST (1)

PART NAME	PART NO.	QUANTITY												DESCRIPTION
OPERATOR CONSOLE ASSY	P9522BA	1												120V, NTSC VER1.11B
OPERATOR CONSOLE ASSY	P9522CA		1											220V, PAL VER1.11B
OPERATOR CONSOLE ASSY	P9522AA			1										100V, NTSC VER1.11B
OPERATOR CONSOLE ASSY	2113639				1									100V, NTSC, A TYPE VER1.11B
OPERATOR CONSOLE ASSY	2120175					1								120V, NTSC VER1.11B
OPERATOR CONSOLE ASSY	2120176						1							220V, PAL VER1.11B
OPERATOR CONSOLE ASSY	2126608							1						120V, NTSC, VER1.20
OPERATOR CONSOLE ASSY	2126619								1					220V, PAL, VER1.20
OPERATOR CONSOLE ASSY	2126602									1				100V, NTSC, VER1.20
OPERATOR CONSOLE ASSY	2126605										1			100V, NTSC, A TYPE, VER1.20
OPERATOR CONSOLE ASSY	2126610											1		120V, NTSC, VER1.20
OPERATOR CONSOLE ASSY	2126621												1	220V, PAL, VER1.20
CABLE ARM ASSY	P9522YF		1	1	1	1	1		1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1						1						
MTZ HOLDER ASSY	P9522XM	1	1			1	1	1	1			1	1	
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	1	1	1	Another probe hook is attached onto console at shipping
INSITE REMOTE CABLE	P9509NA		1							1				RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1							1				InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1			1	1	1	1	1	
VINYL COVER ASSY	P9524NN		1	1						1	1			
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2114794					1	1					1	1	English
OPERATION MANUAL	P9893MA			1	1					1	1			Japanese
SERVICE MANUAL	P9030TA	1	1			1	1	1	1			1	1	

USA (RA0501BA)	ASIA (RA0504CH)
EUROPE (RA0501AH)	ASIA (RA0502CK)
JAPAN (RA0500BJ)	JAPAN (RA0501AJ)
JAPAN (RA0500AJ)	JAPAN (RA0501BJ)
ASIA (RA0501CK)	EUROPE (RA0502AH)
ASIA (RA0500CH)	USA (RA0502BA)

LOGIQ 500

MATERIAL LIST (2)

PART NAME	PART NO.	QUANTITY							DESCRIPTION
OPERATOR CONSOLE ASSY	2126615	1							120V, NTSC VER2.0
OPERATOR CONSOLE ASSY	2126624		1				1		220V, PAL VER2.0
OPERATOR CONSOLE ASSY	2126607			1					100V, NTSC VER2.0
OPERATOR CONSOLE ASSY	2131676				1				100V, NTSC, A TYPE VER2.0
OPERATOR CONSOLE ASSY	2126617					1			120V, NTSC VER2.0
OPERATOR CONSOLE ASSY	2126626						1		220V, PAL VER2.0
CABLE ARM ASSY	P9522YF		1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1							
CABLE ARM SPACER	P9510HK	1							
MTZ HOLDER ASSY	P9522XM	1	1			1	1	1	
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	Another probe hook is attached onto console at shipping
INSITE REMOTE CABLE	P9509NA		1				1		RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1				1		InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN			1	1				
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	
V2.00 PRESET MO DISK	2143410	1							
MO DISK	2131693	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	
OPERATION MANUAL	2130977–100					1	1		English (Revision 0)
OPERATION MANUAL	2130977–140			1	1				Japanese (Revision 0)
QUICK GUIDE	2141643–140			1	1				Japanese
SERVICE MANUAL	P9030TA	1	1			1	1	1	
FOOT SWITCH	P9509NB						1		
SINGLE CWD	2129360						1		
EXPANSION CINE MEMORY	P9523UC						1		
PHYSIO SIGNAL FUNCTION	P9522WY						1		
ECG CABLE	P9509KH						1		
IMAGE ARCHIVE S/W	2131681						1		
FETAL TREND S/W	2131682						1		
CINE CAPTURE S/W	2131683						1		
AMCAL S/W	2131684						1		
PDI S/W	2131685						1		

Region	Code
USA	(RA0503BA)
EUROPE	(RA0503AH)
JAPAN	(RA0502BJ)
JAPAN	(RA0502AJ)
ASIA	(RA0503CK)
ASIA	(RA0505CH)
EUROPE [GEM]	(RA0504AH)

LOGIQ 500

MATERIAL LIST (3)

PART NAME	PART NO.										DESCRIPTION
					QUANTITY						
OPERATOR CONSOLE ASSY	2149595	1									120V, NTSC VER2.20
OPERATOR CONSOLE ASSY	2149597		1					1	1	1	220V, PAL VER2.20
OPERATOR CONSOLE ASSY	2149593			1							100V, NTSC VER2.20
OPERATOR CONSOLE ASSY	2149594				1						100V, NTSC, A TYPE VER2.20
OPERATOR CONSOLE ASSY	2149596					1					120V, NTSC VER2.20
OPERATOR CONSOLE ASSY	2149588						1				220V, PAL VER2.20
CABLE ARM ASSY	P9522YF		1	1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1									
CABLE ARM SPACER	P9510HK	1									
MTZ HOLDER ASSY	P9522XM	1	1			1	1	1	1	1	
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	Another probe hook is attached onto console at shipping
INSITE REMOTE CABLE	P9509NA		1					1	1	1	RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1					1	1	1	InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN		1	1							
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1			
V2.20 PRESET MO DISK	2149583	1									
MO DISK	2131693	1	1	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2130977–100					1	1				English (Revision 1)
OPERATION MANUAL	2130977–140			1	1						Japanese (Revision 1)
QUICK GUIDE	2141643–140			1	1						Japanese
SERVICE MANUAL	P9030TA	1	1			1	1	1	1	1	
FOOT SWITCH	P9509NB							1	1		
SINGLE CWD	2129360							1	1		
EXPANSION CINE MEMORY	P9523UC							1	1		
PHYSIO SIGNAL FUNCTION	P9522WY							1	1		
ECG CABLE	P9509KH							1	1		
IMAGE ARCHIVE S/W	2131681							1	1		
FETAL TREND S/W	2131682							1			
CINE CAPTURE S/W	2131683							1	1		
AMCAL S/W	2131684							1			
PDI S/W	2131685		1					1	1	1	

USA (RA1500AE)	
EUROPE (RA1500AH)	
JAPAN (RA1500AA)	
JAPAN (RA1500AB)	SOUTH AMERICA (RA1500AJ)
ASIA (RA1500AC)	EUROPE [CARD] (RA1500AG)
ASIA (RA1500AD)	EUROPE [GEM] (RA1500AF)

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MATERIAL LIST (4)

PART NAME	PART NO.	AM	AR	AN	AQ	AP	AS	AL	AK	AT	DESCRIPTION
OPERATOR CONSOLE ASSY	2164533	1	1								120V, NTSC VER3.00
OPERATOR CONSOLE ASSY	2164534			1	1	1					220V, PAL VER3.00
OPERATOR CONSOLE ASSY	2164531						1				100V, NTSC VER3.00
OPERATOR CONSOLE ASSY	2164532							1			100V, NTSC, A TYPE VER3.00
OPERATOR CONSOLE ASSY	2164535								1		120V, NTSC VER3.00
OPERATOR CONSOLE ASSY	2164536									1	220V, PAL VER3.00
CABLE ARM ASSY	P9522YF			1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1	1								
CABLE ARM SPACER	P9510HK	1	1								
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	Another probe hook is attached onto console at shipping
MTZ HOLDER ASSY	P9522XM	1	1	1	1	1			1	1	
INSITE REMOTE CABLE	P9509NA			1	1	1					RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092			1	1	1					InSite Installation Instructions
CRT FILTER	P9522WD			1	1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN						1	1			
AQUASONIC GEL	U0403BD	1		1	1	1	1	1	1	1	
V3.00 PRESET MO DISK	2165236		1	1							
MO DISK	2131693	1	1	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2156394–100								1	1	English (Revision 0)
OPERATION MANUAL	2156394–140						1	1			Japanese (Revision 0)
QUICK GUIDE	2137069–100								1	1	English
QUICK GUIDE	2141643–140						1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1	1	1			1	1	
PDI S/W	2131685			1	1	1					
IMAGE ARCHIVE S/W	2131681			1							
AMCAL S/W	2131684					1					
FETAL TREND S/W	2131682			1							
CINE CAPTURE S/W	2131683					1					
EXPANDED CINE MEMORY	P9523UC					1					
PHYSIO SIGNAL FUNCTION	P9522WY					1					
ECG CABLE	P9509KH					1					
SINGLE CWD	2137769					1					
FOOT SWITCH	P9509NB					1					
COLOR ENHANCEMENT S/W	2165092			1		1	1	1	1	1	
MULTIGESTATION S/W	2165093				1		1	1	1	1	
ADVANCED VASCULAR CALCULATION S/W	2165094					1	1	1	1	1	
DIGITAL IMAGE SOFTENER S/W	2165095	1		1		1	1	1	1	1	
START UP MD DISPLAY	2165096	1		1		1	1	1	1	1	

USA (RA1500AM)	
USA (STD) (RA1500AR)	
EUROPE (RA1500AN)	
EUROPE (STD) (RA1500AQ)	ASIA (RA1500AL)
EUROPE (CARD) (RA1500AP)	ASIA (RA1500AK)
JAPAN (RA1500AS)	JAPAN (RA1500AT)

LOGIQ 500

MATERIAL LIST (5)

PART NAME	PART NO.	QUANTITY							DESCRIPTION
OPERATOR CONSOLE ASSY	2180824	1							120V, NTSC VER3.10
OPERATOR CONSOLE ASSY	2180825		1	1					220V, PAL VER3.10
OPERATOR CONSOLE ASSY	2180823				1				100V, NTSC VER3.10
OPERATOR CONSOLE ASSY	2177235					1			100V, NTSC, A TYPE VER3.10
OPERATOR CONSOLE ASSY	2180826						1		120V, NTSC VER3.10
OPERATOR CONSOLE ASSY	2180827							1	220V, PAL VER3.10
CABLE ARM ASSY	P9522YF		1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1							
CABLE ARM SPACER	P9510HK	1							
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	Another probe hook is attached onto console at shipping
MTZ HOLDER ASSY	P9522XM	1	1	1			1	1	
INSITE REMOTE CABLE	P9509NA		1	1					RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1	1					InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN		1	1					
AQUASONIC GEL	U0403BD	1	1	1	1	1	1		
V3.10 PRESET MO DISK	2180329	1							
MO DISK	2131693	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	
OPERATION MANUAL	2177611–100						1	1	English (Revision 0)
OPERATION MANUAL	2177611–140				1	1			Japanese (Revision 0)
QUICK GUIDE	2137069–100						1	1	English
QUICK GUIDE	2141643–140				1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1			1	1	
PDI S/W	2131685		1	1					
IMAGE ARCHIVE S/W	2131681		1	1					
AMCAL S/W	2131684		1						
FETAL TREND S/W	2131682		1	1					
CINE CAPTURE S/W	2131683		1	1					
EXPANDED CINE MEMORY	P9523UC		1						
PHYSIO SIGNAL FUNCTION	P9522WY		1						
ECG CABLE	P9509KH		1						
SINGLE CWD	2137769		1						
FOOT SWITCH	P9509NB		1						
COLOR ENHANCEMENT S/W	2165092	1		1	1	1	1	1	
MULTIGESTATION S/W	2165093		1	1	1	1	1	1	
ADVANCED VASCULAR CALCULATION S/W	2165094			1	1	1	1	1	
DIGITAL IMAGE SOFTENER S/W	2165095	1	1	1	1	1	1	1	
START UP MD DISPLAY	2165096	1	1	1	1	1	1	1	

USA	(RA1501LD, 2179110–3)
EUROPE	(RA1501LE, 2179110–6)
EUROPE (CARD)	(RA1501LF, 2179110–7)
JAPAN	(RA1501LB, 2179110)
JAPAN	(RA1501LC, 2179110–2)
ASIA	(RA1501LG, 2179110–8)
ASIA	(RA1501LH, 2179110–9)

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MATERIAL LIST (6)

PART NAME	PART NO.	QUANTITY							DESCRIPTION
OPERATOR CONSOLE ASSY	2196726	1							120V, NTSC　　　VER4.00
OPERATOR CONSOLE ASSY	2196727		1	1					220V, PAL　　　VER4.00
OPERATOR CONSOLE ASSY	2186725				1				100V, NTSC　　　VER4.00
OPERATOR CONSOLE ASSY	2196729					1			100V, NTSC, A TYPE　VER4.00
OPERATOR CONSOLE ASSY	2196730						1		120V, NTSC　　　VER4.00
OPERATOR CONSOLE ASSY	2196731							1	220V, PAL　　　VER4.00
CABLE ARM ASSY	P9522YF		1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1							
CABLE ARM SPACER	P9510HK	1							
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	Another probe hook is attached
MTZ HOLDER ASSY	P9522XM	1	1	1			1	1	onto console at shipping
INSITE REMOTE CABLE	P9509NA		1	1					RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1	1					InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN				1	1			
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	
MO DISK	2131693	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	
OPERATION MANUAL	2193631–100						1	1	English　(Revision 0)
OPERATION MANUAL	2193631–140				1	1			Japanese　(Revision 0)
QUICK GUIDE	2193742–100						1	1	English
QUICK GUIDE	2193742–140				1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1			1	1	
IMAGE ARCHIVE S/W	2131681		1	1					
AMCAL S/W	2131684		1						
FETAL TREND S/W	2131682		1						
CINE CAPTURE S/W	2131683		1	1					
EXPANDED CINE MEMORY	P9523UC		1						
PHYSIO SIGNAL FUNCTION	P9522WY		1						
ECG CABLE	P9509KH		1						
SINGLE CWD	2137769		1						
FOOT SWITCH	P9509NB		1						
COLOR ENHANCEMENT S/W	2165092	1			1	1	1	1	
MULTIGESTATION S/W	2165093		1		1	1	1	1	
ADVANCED VASCULAR CALCULATION S/W	2165094				1	1	1	1	
DIGITAL IMAGE SOFTENER S/W	2165095	1	1	1	1	1	1	1	

USA	(RA1504LC, 2196716–3)	
EUROPE	(RA1504LD, 2196716–4)	
EUROPE (CARD)	(RA1504LE, 2196716–5)	
JAPAN	(RA1504LA, 2196716)	
JAPAN	(RA1504LB, 2196716–2)	
ASIA	(RA1504LF, 2196716–6)	ASIA　(RA1504LG, 2196716–7)

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MATERIAL LIST (7)

PART NAME	PART NO.	QUANTITY									DESCRIPTION
OPERATOR CONSOLE ASSY	2212962	1									120V, NTSC　　　　VER4.10
OPERATOR CONSOLE ASSY	2212963		1	1							220V, PAL　　　　　VER4.10
OPERATOR CONSOLE ASSY	2212961				1		1				100V, NTSC　　　　VER4.10
OPERATOR CONSOLE ASSY	2212964					1		1			100V, NTSC, A TYPE　VER4.10
OPERATOR CONSOLE ASSY	2212965								1		120V, NTSC　　　　VER4.10
OPERATOR CONSOLE ASSY	2212966									1	220V, PAL　　　　　VER4.10
CABLE ARM ASSY	P9522YF		1	1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1									Another probe hook is attached
CABLE ARM SPACER	P9510HK	1									onto console at shipping
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	
MTZ HOLDER ASSY	P9522XM	1	1	1					1	1	
INSITE REMOTE CABLE	P9509NA		1	1							RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1	1							InSite Installation Instructions
CRT FILTER	P9522WD		1	1	1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN				1	1	1	1			
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	
V4.10 AM PRESET MO	2225755	1									
MO DISK	2131693		1	1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2209829–100								1	1	English　(Revision 0)
OPERATION MANUAL	2209829–140				1	1	1	1			Japanese　(Revision 0)
QUICK GUIDE	2193742–100								1	1	English
QUICK GUIDE	2193742–140				1	1	1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1					1	1	
IMAGE ARCHIVE S/W	2131681		1	1					1	1	
AMCAL S/W	2131684			1							
FETAL TREND S/W	2131682		1								
CINE CAPTURE S/W	2131683		1	1							
EXPANDED CINE MEMORY	P9523UC	1		1							
PHYSIO SIGNAL FUNCTION	P9522WY			1							
ECG CABLE	P9509KH			1							
SINGLE CWD	2137769			1							
FOOT SWITCH	P9509NB			1					1	1	

USA　　　　　　　(RA1505LF, 2212960–3)	
EUROPE　　　　　(RA1505LG, 2212960–4)	
EUROPE (CARD)　(RA1505LH, 2212960–5)	
JAPAN　　　　　(RA1505LB, 2212960)	ASIA　　(RA1505LN, 2212960–7)
JAPAN　　　　　(RA1505LC, 2212960–2)	ASIA　　(RA1505LM, 2212960–6)
JAPAN　　　　　(RA1505LD, 2212960–8)	JAPAN　(RA1505LE, 2212960–9)

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MATERIAL LIST (7) (continued)

PART NAME	PART NO.	QUANTITY									DESCRIPTION
COLOR ENHANCEMENT S/W	2165092	1		1	1	1	1	1	1	1	
MULTIGESTATION S/W	2165093		1		1	1	1	1	1	1	
ADVANCED VASCULAR CALCULATION S/W	2165094			1	1	1			1	1	
DIGITAL IMAGE SOFTENER S/W	2165095	1	1	1	1	1	1	1	1	1	
Realtime Doppler Calculation S/W	2197967	1							1	1	
CW DOPPLER S/W	2220554	1	1	1	1	1			1	1	
B COLOR S/W	2220555	1	1	1	1	1			1	1	
REALTIMEDOPPLER TRACE S/W	2220556	1	1	1	1	1			1	1	
OB CALCULATION S/W	2220557	1	1	1	1	1			1	1	
BASIC CARDIAC S/W	2220558	1	1	1	1	1			1	1	

USA	(RA1505LF, 2212960–3)		
EUROPE	(RA1505LG, 2212960–4)		
EUROPE (CARD)	(RA1505LH, 2212960–5)		
JAPAN	(RA1505LB, 2212960)	ASIA	(RA1505LN, 2212960–7)
JAPAN	(RA1505LC, 2212960–2)	ASIA	(RA1505LM, 2212960–6)
JAPAN	(RA1505LD, 2212960–8)	JAPAN	(RA1505LE, 2212960–9)

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MATERIAL LIST (8)

PART NAME	PART NO.	1	2	3	4	5	6	7	8	9	DESCRIPTION
OPERATOR CONSOLE ASSY	2240875	1									120V, NTSC VER4.20
OPERATOR CONSOLE ASSY	2242843		1								220V, PAL VER4.20
OPERATOR CONSOLE ASSY	2240876			1							220V, PAL VER4.20
OPERATOR CONSOLE ASSY	2240874				1		1				100V, NTSC VER4.20
OPERATOR CONSOLE ASSY	2240877					1		1			100V, NTSC, A TYPE VER4.20
OPERATOR CONSOLE ASSY	2240878								1		120V, NTSC VER4.20
OPERATOR CONSOLE ASSY	2240879									1	220V, PAL VER4.20
CABLE ARM ASSY	P9522YF			1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1	1								Another probe hook is attached onto console at shipping
CABLE ARM SPACER	P9510HK	1	1								
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	
MTZ HOLDER ASSY	P9522XM	1	1	1					1	1	
INSITE REMOTE CABLE	P9509NA				1						RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092				1						InSite Installation Instructions
CRT FILTER	P9522WD			1	1	1	1	1	1	1	
VINYL COVER ASSY	P9524NN				1	1	1	1			
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	
V4.10 AM PRESET MO	2225755	1	1								
MO DISK	2131693			1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2230527–100								1	1	English (Revision 0)
OPERATION MANUAL	2230527–140				1	1	1	1			Japanese (Revision 0)
QUICK START GUIDE	2227260–100								1	1	English
QUICK GUIDE	2193742–140				1	1	1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1					1	1	
IMAGE ARCHIVE S/W	2131681				1				1	1	
AMCAL S/W	2131684										
FETAL TREND S/W	2131682				1						
CINE CAPTURE S/W	2131683				1						
EXPANDED CINE MEMORY	P9523UC	1	1								
FOOT SWITCH	P9509NB								1	1	

USA	(RA1516LB, 2240873–3)		
USA	(RA1516LJ, 2240873–10)		
EUROPE	(RA1516LA, 2240873–4)		
JAPAN	(RA1516LE, 2240873)	ASIA	(RA1516LC, 2240873–7)
JAPAN	(RA1516LF, 2240873–2)	ASIA	(RA1516LD, 2240873–6)
JAPAN	(RA1516LG, 2240873–8)	JAPAN	(RA1516LH, 2240873–9)

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MATERIAL LIST (8) (continued)

PART NAME	PART NO.	QUANTITY									DESCRIPTION
COLOR ENHANCEMENT S/W	2165092	1	1		1	1	1	1	1	1	
MULTIGESTATION S/W	2165093			1	1	1	1	1	1	1	
ADVANCED VASCULAR CALCULATION S/W	2165094				1	1			1	1	
DIGITAL IMAGE SOFTENER S/W	2165095	1	1	1	1	1	1	1	1	1	
Realtime Doppler Calculation S/W	2197967	1	1						1	1	
CW DOPPLER S/W	2220554	1	1	1	1	1			1	1	
B COLOR S/W	2220555	1	1	1	1	1			1	1	
REALTIMEDOPPLER TRACE S/W	2220556	1	1	1	1	1			1	1	
OB CALCULATION S/W	2220557	1	1	1	1	1			1	1	
BASIC CARDIAC S/W	2220558	1	1	1	1	1			1	1	
THI S/W	2241568				1	1					
ATO S/W	2241570	1	1	1	1	1			1	1	

USA	(RA1516LB, 2240873–3)			
USA	(RA1516LJ, 2240873–10)			
EUROPE	(RA1516LA, 2240873–4)			
JAPAN	(RA1516LE, 2240873)	ASIA	(RA1516LC, 2240873–7)	
JAPAN	(RA1516LF, 2240873–2)	ASIA	(RA1516LD, 2240873–6)	
JAPAN	(RA1516LG, 2240873–8)	JAPAN	(RA1516LH, 2240873–9)	

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MATERIAL LIST (9)

PART NAME	PART NO.	QUANTITY									DESCRIPTION
OPERATOR CONSOLE ASSY	2250227	1									120V, NTSC VER5.00
OPERATOR CONSOLE ASSY	2250232		1								220V, PAL VER5.00
OPERATOR CONSOLE ASSY	2250228			1							220V, PAL VER5.00
OPERATOR CONSOLE ASSY	2250226				1						100V, NTSC VER5.00
OPERATOR CONSOLE ASSY	2250229					1					100V, NTSC, A TYPE VER5.00
OPERATOR CONSOLE ASSY	2250230								1		120V, NTSC VER5.00
OPERATOR CONSOLE ASSY	2250231									1	220V, PAL VER5.00
CABLE ARM ASSY	P9522YF			1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1	1								Another probe hook is attached
CABLE ARM SPACER	P9510HK	1	1								onto console at shipping
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	
MTZ HOLDER ASSY	P9522XM	1	1	1					1	1	
INSITE REMOTE CABLE	P9509NA		1								RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1								InSite Installation Instructions
BODY COVER	2251995			1	1	1	1				
AQUASONIC GEL	U0403BD	1		1	1	1	1	1	1	1	
MO DISK	2131693			1	1	1	1	1	1	1	
3.5 INCH MO CLEANING KIT	U0055ZA	1		1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1		1	1	1	1	1	1	1	
OPERATION MANUAL	2250487–100								1	1	English (Revision 0)
OPERATION MANUAL	2250487–140				1	1	1	1			Japanese (Revision 0)
QUICK START GUIDE	2237878–100								1	1	English
QUICK GUIDE	2193742–140				1	1	1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1					1	1	
EXPANDED CINE MEMORY	P9523UC	1	1						1	1	
FOOT SWITCH	P9509NB	1	1						1	1	

USA	(H40172LB, 2250225–5)		
USA	(H40172LC, 2250225–6)		
EUROPE	(H40172LA, 2250225–7)		
JAPAN	(H75002, 2250225)	ASIA	(H40172LD, 2250225–9)
JAPAN	(H75012, 2250225–2)	ASIA	(H40172LE, 2250225–8)
JAPAN	(H75022, 2250225–3)	JAPAN	(H75032, 2250225–4)

LOGIQ 500
MATERIAL LIST (10)

PART NAME	PART NO.	\u200b	\u200b	\u200b	QUANTITY	\u200b	\u200b	\u200b	\u200b	\u200b	DESCRIPTION
OPERATOR CONSOLE ASSY	2275352	1									120V, NTSC VER6.00
OPERATOR CONSOLE ASSY	2275357		1								220V, PAL VER6.00
OPERATOR CONSOLE ASSY	2275353			1							220V, PAL VER6.00
OPERATOR CONSOLE ASSY	2275351				1						100V, NTSC VER6.00
OPERATOR CONSOLE ASSY	2275354					1					100V, NTSC, A TYPE VER6.00
OPERATOR CONSOLE ASSY	2275355							1			120V, NTSC VER6.00
OPERATOR CONSOLE ASSY	2275356								1		220V, PAL VER6.00
CABLE ARM ASSY	P9522YF			1	1	1	1	1	1	1	
CABLE ARM ASSY	P9514FT	1	1								Another probe hook is attached
CABLE ARM SPACER	P9510HK	1	1								onto console at shipping
PROBE HOOK	P9524MK	1	1	1	1	1	1	1	1	1	
MTZ HOLDER ASSY	P9522XM	1	1	1					1	1	
INSITE REMOTE CABLE	P9509NA		1								RS232C Cable for InSite
INSITE INSTRUCTIONS	2119092		1								InSite Installation Instructions
15 CRT FILTER	2251942		1								
CONSOLE COVER	2255167				1	1	1	1			
15 MON COVER	2251996				1	1	1	1			
WARRANTY CARD C ASSY	P9889AH				1	1	1	1			
AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	
MO DISK	2131693			1	1	1	1	1	1	1	
PRESET MO	2275517	1	1								USA
3.5 INCH MO CLEANING KIT	U0055ZA	1	1	1	1	1	1	1	1	1	
3.5 INCH MO HEAD CLEANER	2148392	1	1	1	1	1	1	1	1	1	
OPERATION MANUAL	2250487–100								1	1	English (Revision 0)
OPERATION MANUAL	2250487–140				1	1	1	1			Japanese (Revision 0)
QUICK START GUIDE	2237878–100								1	1	English
QUICK GUIDE	2193742–140				1	1	1	1			Japanese
SERVICE MANUAL	P9030TA	1	1	1					1	1	
EXPANDED CINE MEMORY	P9523UC	1	1						1	1	
FOOT SWITCH	P9509NB								1	1	
CAUTION LABEL SET	2255338			1							Europe

USA	(H40202LB, 2275350–5)
USA	(H40202LC, 2275350–6)
EUROPE	(H40202LA, 2275350–7)
JAPAN	(H75342, 2275350)
JAPAN	(H75352, 2275350–2)
JAPAN	(H75362, 2275350–3)

ASIA	(H40202LD, 2275350–9)
ASIA	(H40202LE, 2275350–8)
JAPAN	(H75372, 2275350–4)

OPERATOR CONSOLE ASSY

PC BOARDS
(FRU601–620)
See ILLUSTRATION 6–9

KEYBOARD BLOCK
(FRU400–412)
See ILLUSTRATION 6–6

MONITOR BLOCK
(FRU100–117)
See ILLUSTRATION 6–2

15–INCH MONITOR BLOCK
(FRU170–182)
See ILLUSTRATION 6–2b

NECK BLOCK
(FRU201–203)
See ILLUSTRATION 6–4

REAR & RIGHT
SIDE ACCESS
(FRU501–511, 590)
See ILLUSTRATION 6–7

COVERS
(FRU300–323)
See ILLUSTRATION 6–5

FRONT & UPPER
SIDE ACCESS
(FRU512–551, 580–582)
See ILLUSTRATION 6–8

POWER SUPPLY
(FRU701–718)
See ILLUSTRATION 6–10

LOGIQ 500 CONSOLE
ILLUSTRATION 6–1

OPERATOR CONSOLE ASSY 1/9

ILLUSTRATION 6–2

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**

MATERIAL LIST (1/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
100	MONITOR ASSY	P9522WB	1	1	Only for console with software V2.20 or former. excluding FRU 110, 111	6–2–1
	MONITOR ASSY	2162081–2	1	1	Available for all console	6–2–1
101	MONITOR COVER SET	P9523NA	1	2	Only for console with software V2.20 or former. Including FRU102+104 +105+106+108	6–2–2
	MONITOR COVER SET	2162082–2	1	2	Available for all console	6–2–2
102	ESCUTCHEON ASSY	P9522WJ	1	2	Only for console with software V2.20 or former.	6–2–2
	ESCUTCHEON ASSY	2162083	1	2	Available for all console Including four (4) different labels	6–2–2
103	ESCUTCHEON LATCH	P9523ND	1	2		6–2–3
104	MONITOR COVER L ASSY	2168465	1	2	including caution label	6–2–2
105	MONITOR COVER R ASSY	2168466	1	2	including caution label	6–2–2
106	MONITOR COVER TOP	P9523NH	1	2	including caution label	6–2–2
108	ESCUTCHEON FRONT DOOR	P9524JJ	1	2		6–2–4
109	CRT CAP SET	P9523NB	1	2	2 knobs and lamp switch key	6–2–5
110	CRT FILTER	P9522WD	1	2	including FRU 111	6–2–6
111	CRT FILTER CLAMP SET	P9523NC	1	2		6–2–6
112	P9523HE ACCESSORY ASSY	2114190	1	2		6–2–7
113	SPEAKER ASSY	P9522WA	1	1	Left and right speakers are interchangeable.	6–2–8
114	CRT LAMP ASSY	P9522WC	1	2	Without CRT lamp	6–2–9
115	CRT LAMP	U0107EH	1	1		6–2–9
116	CRT ASSY	P9523HA	1	2	Including Accessory Assy (FRU112)	6–2–10
117	CRT CABLE SET	P9522MR	1	1	CB35, CB36, and CB105	6–2–11

**OPERATOR CONSOLE ASSY 1/9b
(15–INCH MONITOR)**
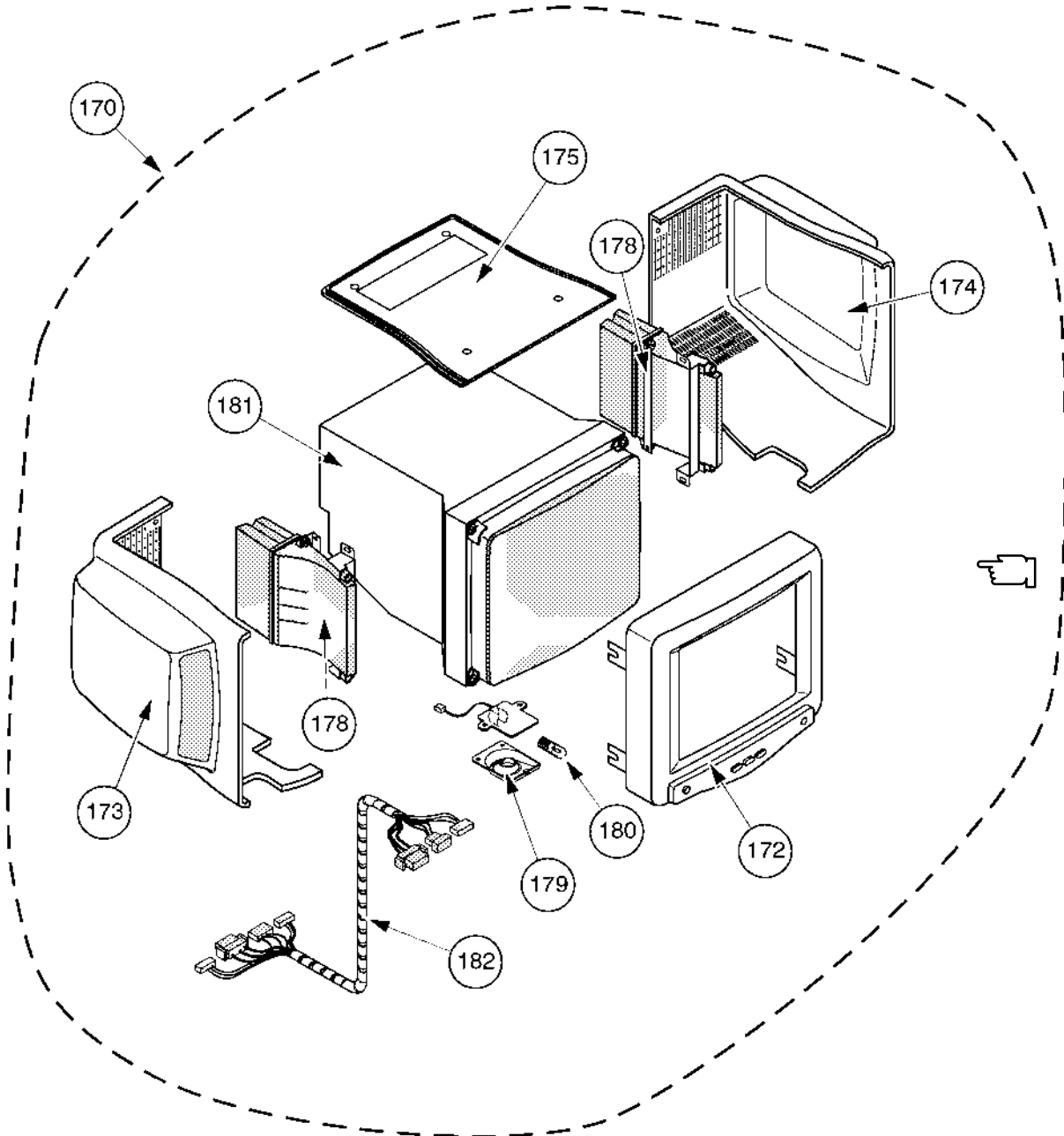
ILLUSTRATION 6–2b

OPERATOR CONSOLE ASSY

2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231   **: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356   **: V6.00**

MATERIAL LIST (1/9b)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
170	MONITOR15 ASSY	2250404	1	1	including FRU 171, 179, 180, 181, 182, and 183	6–2–12
171	MONITOR15 COVER SET	2250405	1	2	including FRU 172, 173, 174, and 175	6–2–13
172	ESCUTCHEON2 ASSY	2250406	1	2		6–2–13
173	MONITOR COVER L2 ASSY	2250407	1	2	including caution label	6–2–13
174	MONITOR COVER R2 ASSY	2250409	1	2	including caution label	6–2–13
175	TRAY2 ASSY	2250410	1	2	including caution label	6–2–13
178	SPEAKER ASSY	2250413	1	1	left and right speakers are interchangeable.	6–2–14
179	LAMP SHADE2	2246213	1	2		——
180	TASK LAMP	U0107EH	1	1		6–2–15
181	CRT ASSY	2251431	1	2	including tilt mechanism	——
182	CRT CABLE SET	2251953	1	1		6–2–16

OPERATOR CONSOLE ASSY 2/9

ILLUSTRATION 6–3

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2255232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (2/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
201	NECK ASSY	P9522WF	1	1		6–2–17
	NECK ASSY	2251969	1	1	From V5.00y Console	6–2–17
202	NECK GRIP	P9524HJ	1	2		6–2–18
203	NECK SPACE PLATE	P9524GL	1	2		6–2–19

OPERATOR CONSOLE ASSY 3/9

ILLUSTRATION 6–4

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (3/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
301	SIDE COVER LEFT	P9524CG	1	2	For V4.2 or former	6–2–20
	SIDE COVER L	2251974	1	2	From V5 System	6–2–20
302	SIDE COVER RIGHT	P9524CH	1	2	For V4.2 or former	6–2–21
	SIDE COVER R	2251975	1	2	From V5 System	6–2–21
303	REAR COVER ASSY	P9522WG	1	2	including Rear Door Assy For V4.2 or former	6–2–22
	REAR COVER ASSY	2251968	1	2	From V5 System	
304	REAR DOOR ASSY	P9522WH	1	2	including Latch (FRU 305)	6–2–23
305	REAR DOOR LATCH ASSY	2162607	1	2	Including cover	6–2–24
306	REAR DOOR LOCK BLK	P9524CS	1	2		6–2–25
307	FRONT BASE COVER	P9523PC	1	2		6–2–26
308	FRONT COVER	P9524CE	1	2		6–2–27
	FRONT COVER ASSY	2211257	1	2	For V4.2 or former Front Cover (P9524CE) + Blind Label	6–2–27
	FRONT COVER ASSY	2253599	1	2	From V5 System	6–2–27
309	KEYBOARD BOTTOM COVER	P9524CN	1	2	For V4.2 or former	6–2–28
	KB BOTTOM	2251976	1	2	From V5 System	6–2–28

Note

The new Rear Door Latch cannot be installed on the Rear Door with the old cover. The new Rear Door Latch (FRU 305, 2162607) includes the suitable cover.

Note

The Front Cover Assy (2211257) consists of the Front Cover (P9524CE) and the Blind Label. It is necessary to attach the Blind Label on the Front Cover to cover the openings for the HDD LED in case of the console with the new type of 3.5–inch HDD (Quantum™ FireBall™ 1280S). Because the new type of 3.5–inch HDD does not support the HDD LED function to indicate the access status.

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (3/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
310	TOP COVER	P9524CD	1	2	For V4.2 or former	6–2–29
	TOP COVER	2251973	1	2	From V5 System	6–2–29
311	TOP COVER SHEET	P9524CV	1	2		
312	FRONT BUMPER SET	P9523NJ	1	2	left and right bumpers	6–2–30
	BUMPER LONG	2251921	1	2	For V5 Tall Version left and right BUMPER LONG are interchangeable.	
313	CORNER GUARD	P9524MJ	1	2	Keyboard bumper	6–2–31
314	PROBE HOLDER	P9524MD	1	2		6–2–32
	PROBE HOLDER	2135393	1	2	For V2.0 or later console	6–2–32
315	GEL HOLDER	P9524MF	1	2		6–2–33
316	GEL HOLDER BOTTOM	P9524MG	1	2		6–2–33
317	HANDLE	P9524BC	1	2		6–2–34
318A	AIR FILTER	P9524BJ	1	2	2 filters are used in a console	6–2–35
318B	P9524SD PW FILTER	2112668	1	2		6–2–35
319	CABLE ARM ASSY	P9510KK	1	2		6–2–36
320	CABLE ARM KNOB	P9510KQ	1	2	1 Knob	6–2–37
321	FRONT CASTER ASSY	P9523PD	1	2		6–2–38
322	REAR CASTER ASSY	P9523PE	1	2		6–2–39
323	CASTER COVER ASSY	P9523NE	1	2	1 cover	6–2–40

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OPERATOR CONSOLE ASSY 4/9

Note

The PCB included in the LED SW KEYBOARD2 SET has no openings for the Gain Encoder because the Gain Encoder is mounted on that PCB.
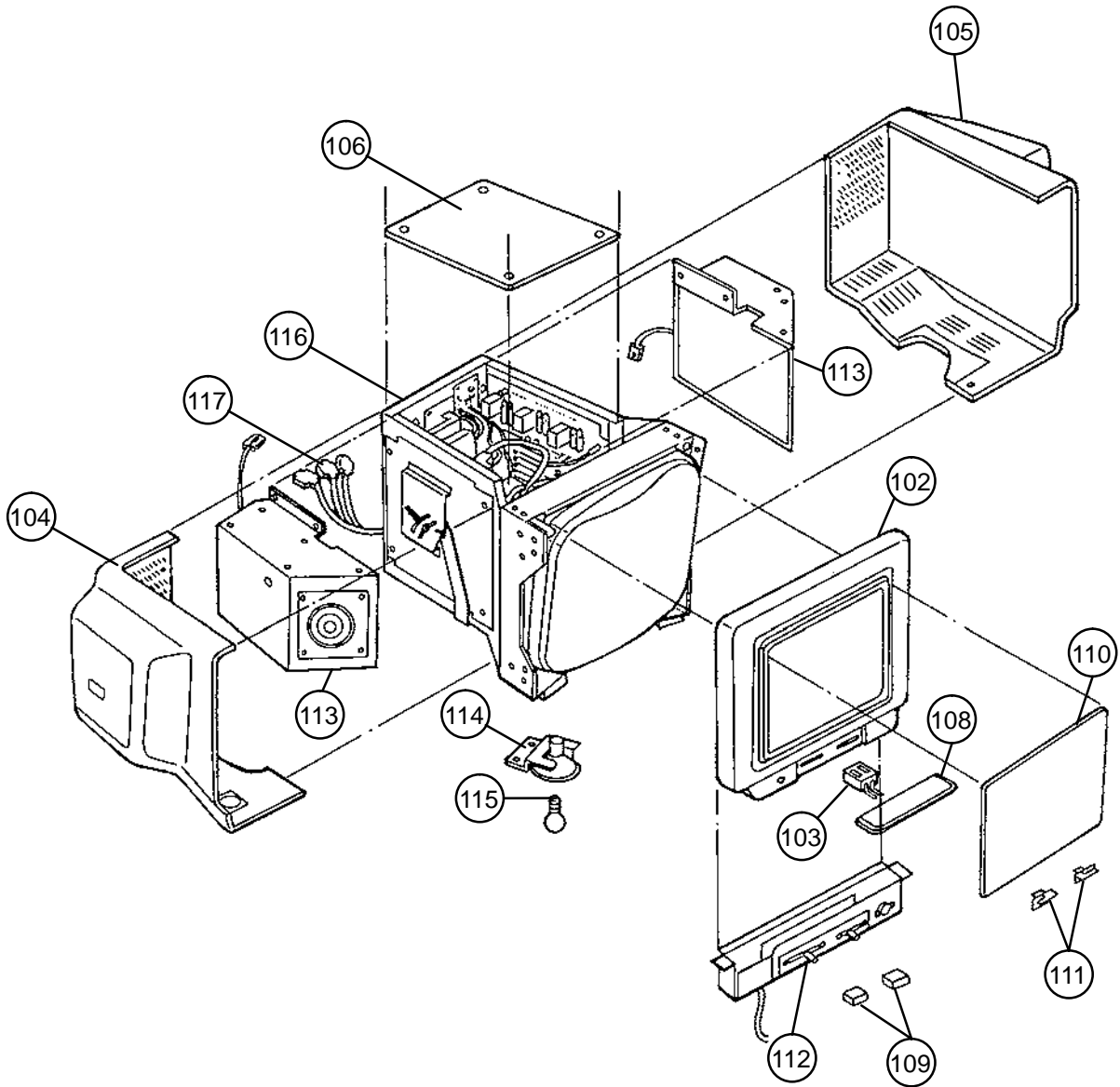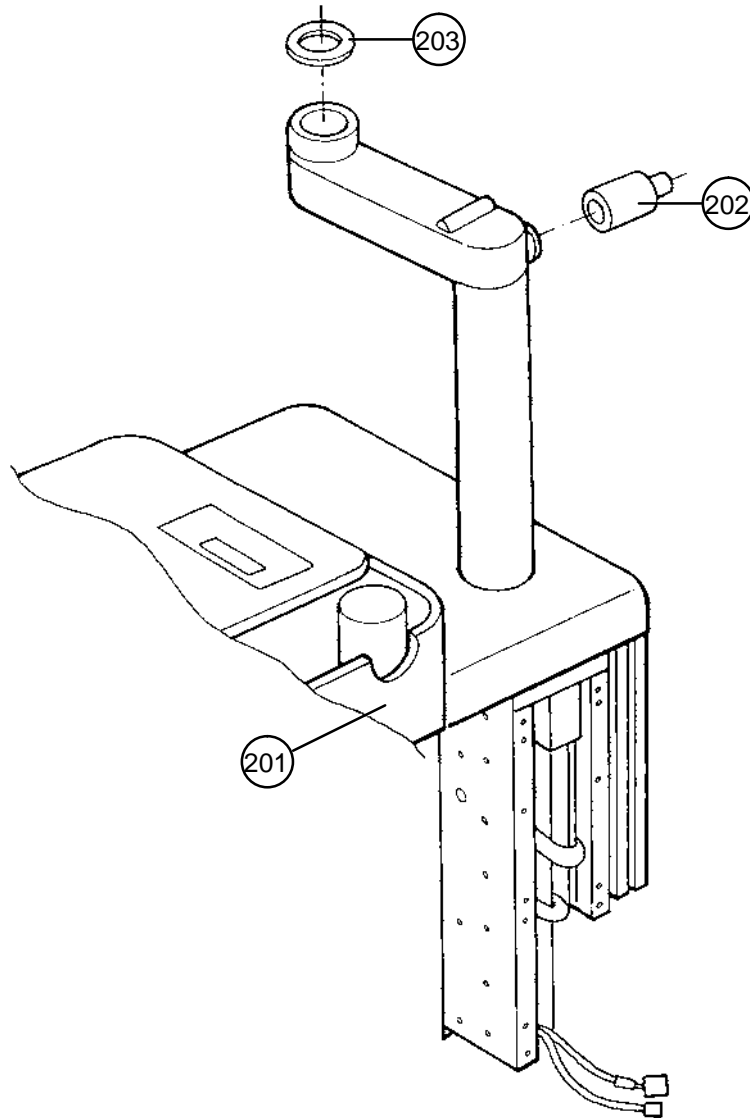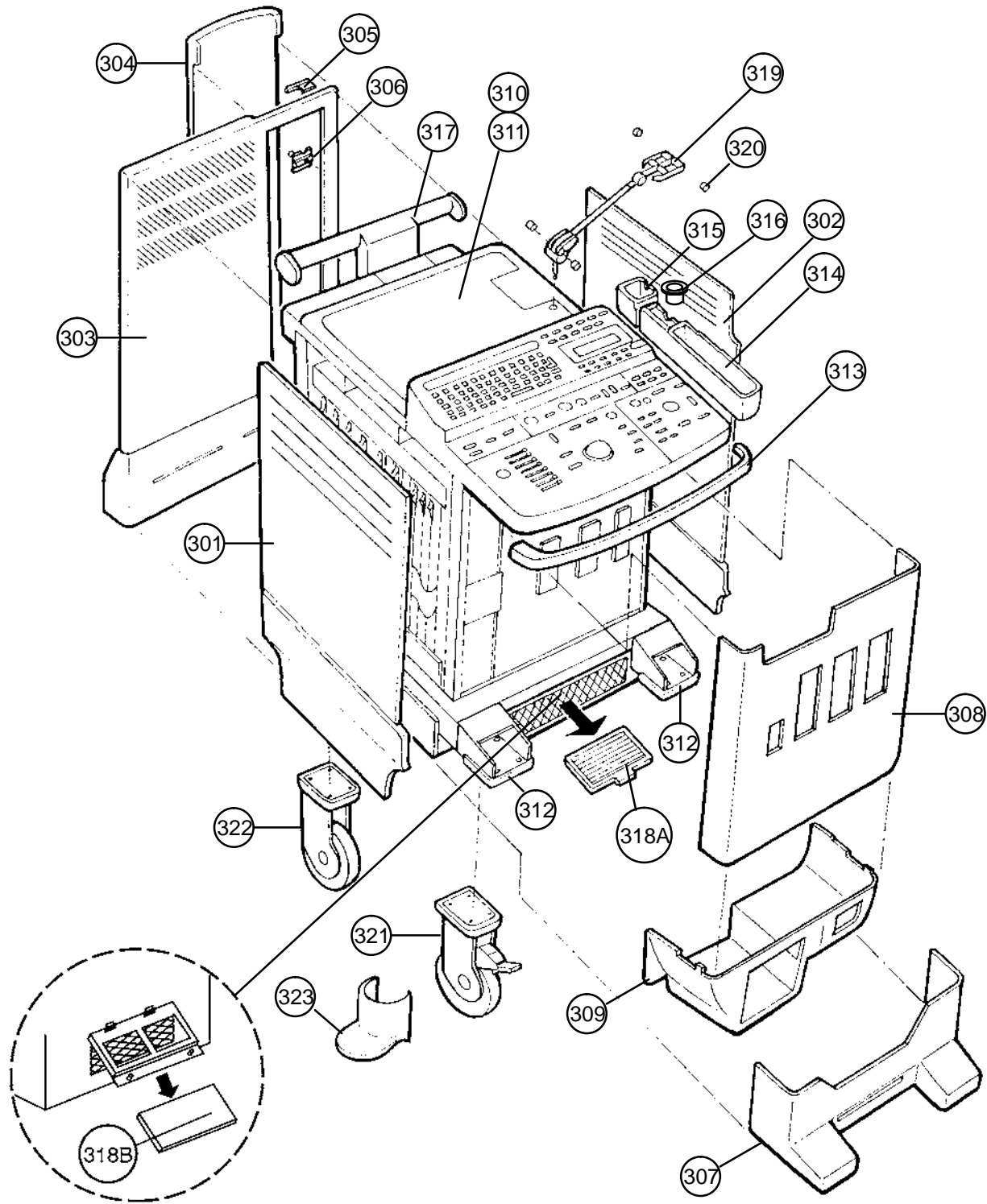
ILLUSTRATION 6–5

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176   : V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626   : V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588   : V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536   : V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827   : V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731   : V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966   : V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879 : V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231 : V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356 : V6.00

MATERIAL LIST (4/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
400	KEYBOARD PANEL ASSY	P9522WN	1	1		6–2–41
	KEYBOARD PANEL2 ASSY	2206004	1	1	Available only for console with software version 3.30 or later	6–2–41
☞	KEYBOARD PANEL ASSY V6	2282233	1	1	Available only for console with software version 6.00 or later	6–2–41
401	KEYBOARD KNOB SET	P9523NL	1	2	7 Caps and 8 TGC knobs	6–2–42
402	TRACKBALL	P9523FC	1	1		6–2–43
403	TGC ASSY	P9523FD	1	1	Without knobs	6–2–44
405	I/F BOARD ASSY	P9523FF	1	1		6–2–45
406	A/N KEYBOARD ASSY	P9523FG	1	1	including A/N Keytop Set (FRU411)	6–2–46
☞	A/N KEYBOARD ASSY V6	2282087	1	1	including A/N Keytop Set (FRU411)	6–2–46
407	LED SW KEYBOARD SET	P9523FJ	1	1	Combined with three separate boards	6–2–47
	LED SW KEYBOARD2 SET	2216959	1	1	Including PCB which Gain Encoder is mounted on it	6–2–47

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (4/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
408	GAIN ENCODER	2164871	1	1	40–click gain encoder For console with software version 3.10Cy or former	6–2–48
	GAIN ENCODER	2216957	1	1	20–click gain encoder 40–click encoder (2164871) can be replaced with this 20–click encoder (2216957)	6–2–48
	GAIN ENCODER	2216958	1	1	20–click gain encoder For console with software version 3.30 or later	6–2–48
409	VFD ASSY	P9523FE	1	1		6–2–49
410	KEYBOARD CASE	P9523FB	1	1		6–2–50
411	A/N KEY-TOP SET	P9523FH	1	2		6–2–51
	A/N KEY-TOP SET GENERAL	2281703	1	1	From V6 System	6–2–51
	A/N KEY-TOP SET RUSSIAN	2281704	1	1	From V6 System	6–2–51
	A/N KEY-TOP SET GREEK	2281705	1	1	From V6 System	6–2–51
	A/N KEY-TOP SET TURKISH	2282083	1	1	From V6 System	6–2–51
412	LED SW KEY-TOP SET	P9523FK	1	2		6–2–52
413	ROTALY ENCODER	2216958	1	1	other encoders	——

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OPERATOR CONSOLE ASSY 5/9

ILLUSTRATION 6–6

OPERATOR CONSOLE ASSY

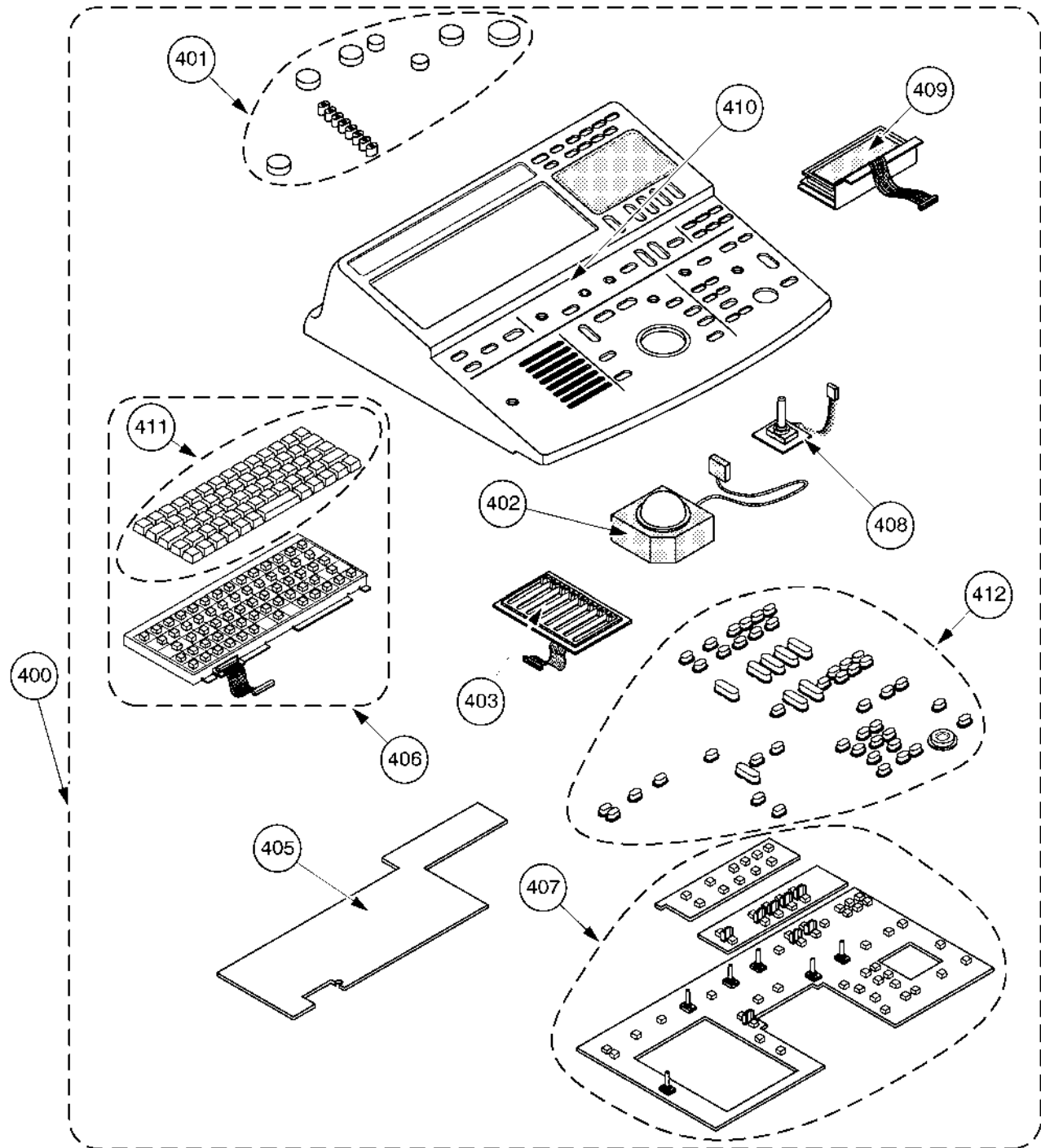|	
P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (5/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
501	REAR CONN PANEL ASSY	P9522WK	1	1	For Japan	6–2–53
	REAR CONN PANEL ASSY	P9522WV	1	1	For USA/Asia	6–2–53
	REAR CONN PANEL ASSY	P9522WW	1	1	For Europe [FRU501 includes FRU502, 503, 504, 505, 506 (or 507)]	6–2–53
501B	REAR CONN PANEL2 ASSY	2211163	1	1	For Japan	6–2–53
	REAR CONN PANEL2 ASSY	2211164	1	1	For USA/Asia	6–2–53
	REAR CONN PANEL2 ASSY	2211166	1	1	For Europe [FRU501B includes FRU502, 504, 506 (or 507) and 513]	6–2–53
502	REAR 1 ASSY	P9525XL	1	2	Used only for Rear CONN Panel Assy (P9522WK, WV, and WW)	6–2–54
503	REAR 2 ASSY	P9525XN	1	2		6–2–55
504	REAR CONNECTOR SET	P9523PL	1	2	BNC:4, AUDIO:2, DIN:1, and Y/C:1 Used only for Rear1 Assy (P9522WL)	6–2–57
505	SCSI TERMINATOR	U0463FD	1	1	This is not included in console with 3.5–inch HDD	6–2–58

Note

The new Rear CONN Panel2 Assy cannot be used for the console with the 2.5–inch HDD Assy because the SCSI termination is made with the external SCSI Terminator plug on the old Rear CONN Panel Assy. The new Rear CONN Panel2 Assy does not have the external SCSI connector.

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (5/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
506	CIRCUIT PROTECTOR 7A	U0027EK	1	1	For P9522BA	6–2–59
507	CIRCUIT PROTECTOR 3A	U0026EK	1	1	For P9522CA	6–2–59
508	HV ASSY	P9523DC	1	1	With cover	6–2–60
509	HV FAN SET	P9522QZ	1	1	2 Fans	6–2–61
510	ECG BOARD ASSY	P9522WZ	1	1		6–2–62
	ECG BOARD2 ASSY	2207806	1	1	From V5 System Old ECG Board Assy (P9522WZ) can be re-placed with new ECG Board2 Assy (2207806)	6–2–62
511	ECG PANEL ASSY	P9522XB	1	1		6–2–63
	ECG CONN PNL ASSY	2251836	1	1	From V5 System	6–2–63
590	REAR3 ASSY	2200670	1	2	Used only for Rear CONN Panel2 Assy (2211163, 2211164, and 2211166)	6–2–56

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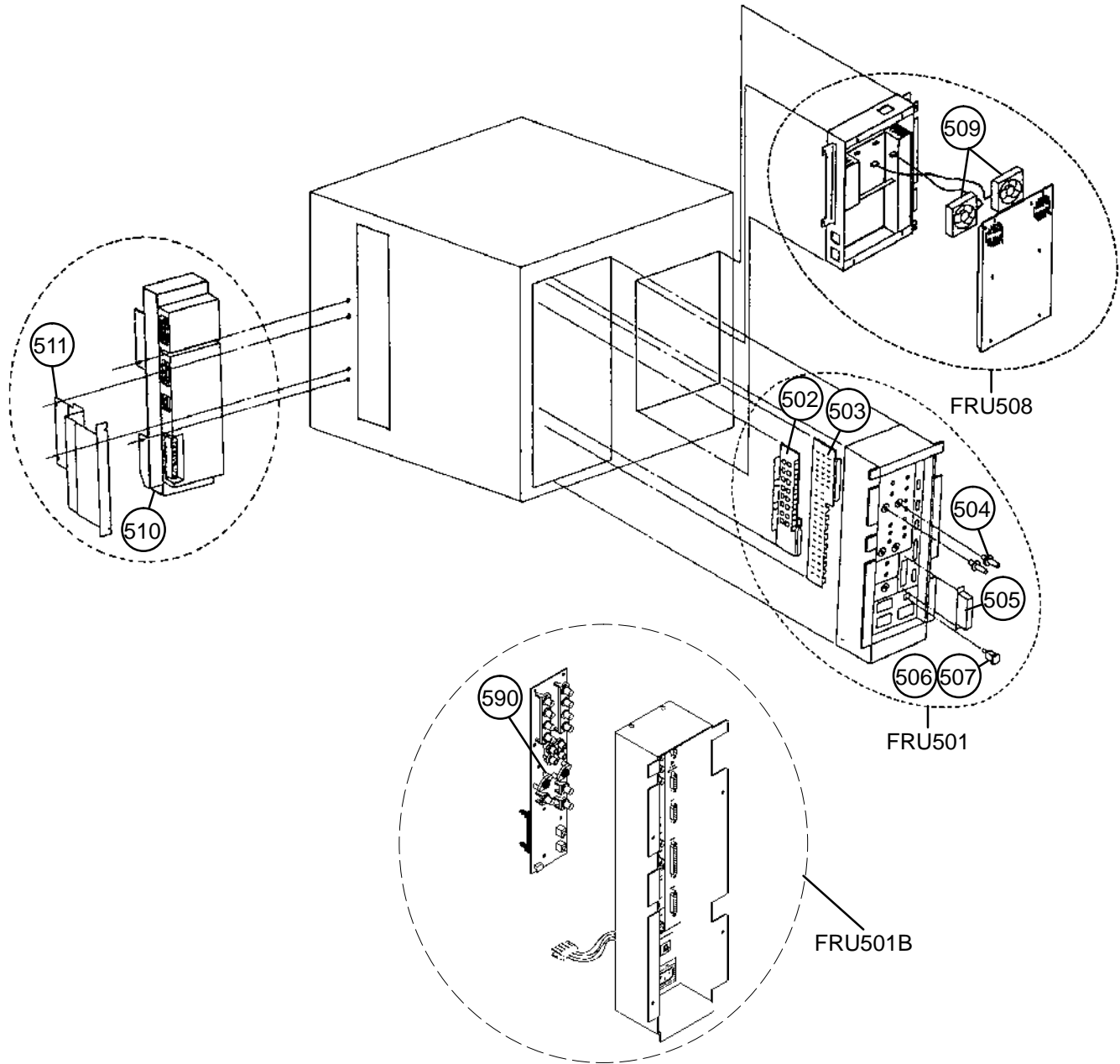
OPERATOR CONSOLE ASSY 6/9

ILLUSTRATION 6–7

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (6/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
512	NEST FAN ASSY	P9522WP	1	1	For V4.20 Ay or former	6–2–64
	NEST FAN ASSY	2251834	1	1	From V5 system	6–2–64
513	PROBE CONN SET ASSY	P9522WM	1	1	2 Boards and Case	6–2–65
	PROBE CONN SET ASSY	2164635–2	1	1	from software V3.10 console. This has back–ward compatibility with old Assy (P9522WN)	6–2–65
	PROBE CONN SET ASSY	2251833–2	1	1	From V5 System For 3 Probe Port	6–2–65
	PROBE CONN SET ASSY	2177234–2	1	1	For 2 Probe Port	6–2–65
	PROBE CONN SET ASSY	2280480	1	1	From V5 System For 2 Probe Port	6–2–65
514	SHIELD FINGER LONG	P9524DW	1	1		6–2–66
515	SHIELD FINGER SHORT	P9524DX	1	1		6–2–66
516	PROBE CONN 1 ASSY	P9525XE	1	2		6–2–67
	PROBE CONN 1–2 ASSY	2231575–2	1	2	PROBE CONN1 Assy can be replaced with PROBE CONN1–2 ASSY. From V4.10B software console	6–2–67
	PROBE CONN 1 ASSY	2180315–2	1	2	Required to use P509 Probe	6–2–67
517	PROBE CONN 2 ASSY	P9525DC	1	2		6–2–68
518	FDD	U0047ZA	1	1	Software version 1.20 or older console	6–2–69
519	FDD HOLDER ASSY	P9522WR	1	2	Software version 1.20 or older console	6–2–69

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
520	P9526WB V/R 1.11 (2.5–INCH) INIT'ED HDD KIT	2117235–3	1	1	V/R 1.11By Software is installed This FRU includes HDD holder assy (P9522WS)	6–2–70
	P9526WC V/R 1.20 (2.5–INCH) INIT'ED HDD KIT	2124006–2	1	1	V/R 1.20 y Software is installed This FRU includes HDD holder assy (P9522WS)	6–2–70
	P9526WC V/R 2.00 INIT'ED HDD KIT	2147390–2	1	1	3.5–inch HDD which V/R 2.00 By Software is installed	6–2–70
	V/R 2.20 INIT'ED HDD KIT (3.5–INCH)	2149586–2	1	1	3.5–inch HDD which V/R 2.20 Ay Software is installed	6–2–70
	V/R 3.00 INIT'ED HDD KIT (3.5–INCH)	2164545–4	1	1	3.5–inch HDD which V/R 3.00 Cy Software is installed	6–2–70
	V/R 3.10 INIT'ED HDD KIT (3.5–INCH)	2180321–4	1	1	3.5–inch HDD which V/R 3.10 Cy Software is installed	6–2–70
	V/R 2.50 INIT'ED HDD KIT (3.5–INCH)	2179696–2	1	1	3.5–inch HDD which V/R 2.50 y Software is installed	6–2–70

Note

Three types of HDD (Fujitsu M1603SA, Quantum™ Fireball™ 1280S, and Quantum™ Fireball™ EL) are used for the console. The appearance is different depending on the type of HDD. When replacing the HDD, make sure that the jumper switches and the DIP switches are set properly. Refer to the section 6–2–70 on page 6–162.

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
520	V/R 4.00 INIT'ED HDD KIT (3.5–INCH)	2197979–6	1	1	3.5–inch HDD which V/R 4.00 Dy Software is installed	6–2–70
	V/R 3.30 INIT'ED HDD KIT (3.5–INCH)	2208948–3	1	1	3.5–inch HDD which V/R 3.30 By Software is installed	6–2–70
	V/R 4.10 INIT'ED HDD KIT (3.5–INCH)	2219205–6	1	1	3.5–inch HDD which V/R 4.10 Dy Software is installed	6–2–70
	V/R 4.20 INIT'ED HDD KIT (3.5–INCH)	2239420–4	1	1	3.5–inch HDD which V/R 4.20Cy Software is installed	6–2–70
	V/R 5.00 INIT'ED HDD KIT (3.5–INCH)	2248936–4	1	1	3.5–inch HDD which V/R 5.00Cy Software is installed	6–2–70
	V/R 6.00 INIT'ED HDD KIT (3.5–INCH)	2275346	1	1	3.5–inch HDD which V/R 6.00y Software is installed	6–2–70
521	HDD HOLDER2 ASSY	P9522WS	1	2	HDD holder is changed from August 1994 shipment for 2.5–inch HDD	6–2–70

Note

The console with the new type of 3.5–inch HDD (Quantum™ FireBall™ 1280S or Quantum™ FireBall™ EL) does not include the HDD LED Assy (P9525XU).

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
522	HDDB ASSY	P9525XU	1	1		6–2–71
523	HDD LED ASSY	P9522XN	1	2		6–2–72
525	POWER SWITCH ASSY	P9522WL	1	1	For V4.20 Ay or former	6–2–73
	POWER SWITCH ASSY	2251835	1	1	From V5 system	6–2–73
536	HDD HOLDER2 ASSY	2145973	1	2	For 3.5–inch HDD	6–2–70

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
526	FLAT CABLE CB91	P9522MV	1	1	HB16 to CONN 1	——
527	FLAT CABLE CB21	P9522ME	1	1	CONN 2 to Mother	——
528	FLAT CABLE CB22	P9522MG	1	1	ECG board to Mother	——
529	FLAT CABLE CB23	P9522MH	1	1	Keyboard to Mother	——
530	FLAT CABLE CB24	P9522MJ	1	1	REAR 1 to FDD Software version 1.20 or older console	——
531	FLAT CABLE CB29	P9522MN	1	1	REAR 2 to Mother	——
532	FLAT CABLE CB31	P9522MP	1	1	REAR 1 to Mother	——
533	FLAT CABLE CB32	P9522MQ	1	1	REAR 1 to Mother	——
534	FLAT CABLE CB24M	2122995	1	1	MOTHER to HDDB to MODD to REAR Panel ☞	——
535	FLAT CABLE CB24N	2145889	1	1	MOTHER to 3.5–inch HDD to MODD ☞	——
537	CABLE CB45N	2145891	1	2	3.5–inch HDD to cable CB46 HDD LED	——
538	CABLE CB46	P9522NJ	1	2	REAR 1 and MOTHER to MODD and 2.5–inch HDD From Ver.2.00 software console	——
550	CB6M CABLE	2122996	1	2	MODD – Mother	——
551	CB5 CABLE	P9522MC	1	2	2.5–inch HDD – Mother	——

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
540	MODD	U0052ZA	1	1	From Ver.2.00 software console	6–2–74
	MODD	2187012	1	1	Refer to Note below:	6–2–74
	MODD	2187012–2	1	1	Refer to Note below:	6–2–74
☞	MODD	2271309	1	1	New one (2271309) can be replaced by Old one	6–2–74
541	MODD FAN ASSY	2122998–2	1	2	From Ver.2.00 software console	6–2–74
542	MODD HOLDER ASSY	2117029–2	1	2	From Ver.2.00 software console This FRU includes MODD FAN (2122998)	6–2–74

Note

The folding method of CB24M (or CB24N) cable is different between the case of using the old MODD (U0052ZA) and the case of using the new one (2187012 or 2187012–2). For more details regarding the folding cable, refer to 6–6–4 on page 6–251.

Note

Three types of MODD (U0052ZA, 2187012, and 2187012–2) are used for the console. The appearance is different depending on the type of MODD. When replacing the MODD, make sure that the jumper switches and the DIP switches are set properly. Refer to the section 6–2–74 on page 6–172.

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (6/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
580	HDD REPLACEMENT KIT	2160057	1	2	Including required parts to replace 2.5–inch HDD with 3.5–inch HDD: HDD Holder2 Assy, three cables (CB24N, CB5N, CB45N), Tie Wrap, and Instructions	——
582	DCON ASSY	2123321	1	1	For Japanese A console with software version 3.10 or later	——

OPERATOR CONSOLE ASSY 7/9

605 COLP Assy
      COLP2 Assy
      COLP3 VAR2 Assy
      COLP3 VAR3 Assy
      COLP 4 Assy
605B ACFP Assy
      ACFP2 ASSY
      ACFP3 ASSY

614 Nest Mother Assy

606 TLMC Assy

604 DIGP Assy   DIGP5 Assy
      DIGP2 Assy   DIGP6 Assy
      DIGP3 Assy
      DIGP4 Assy

607 DDSC Assy
      DDSC2 ASSY
      DDSC3 Assy
609 VIPB Assy
      VIPB2 ASSY
      VIPP ASSY
608 VIDO ASSY
      VIDO2 Assy
610 CPU Assy
      CPU2 Assy
      CPU-A Assy

603 RCTL Assy
      RCTL2 Assy

Space

602 ANLP Assy
      ANLP2 Assy
      ANLP3 Assy

601 BF16 Assy
      BF16-2 Assy
      BF16-3 Assy

601 BF16 Assy
      BF16-2 Assy
      BF16-3 Assy

Nest Cover

601 BF16 Assy
      BF16-2 Assy
      BF16-3 Assy

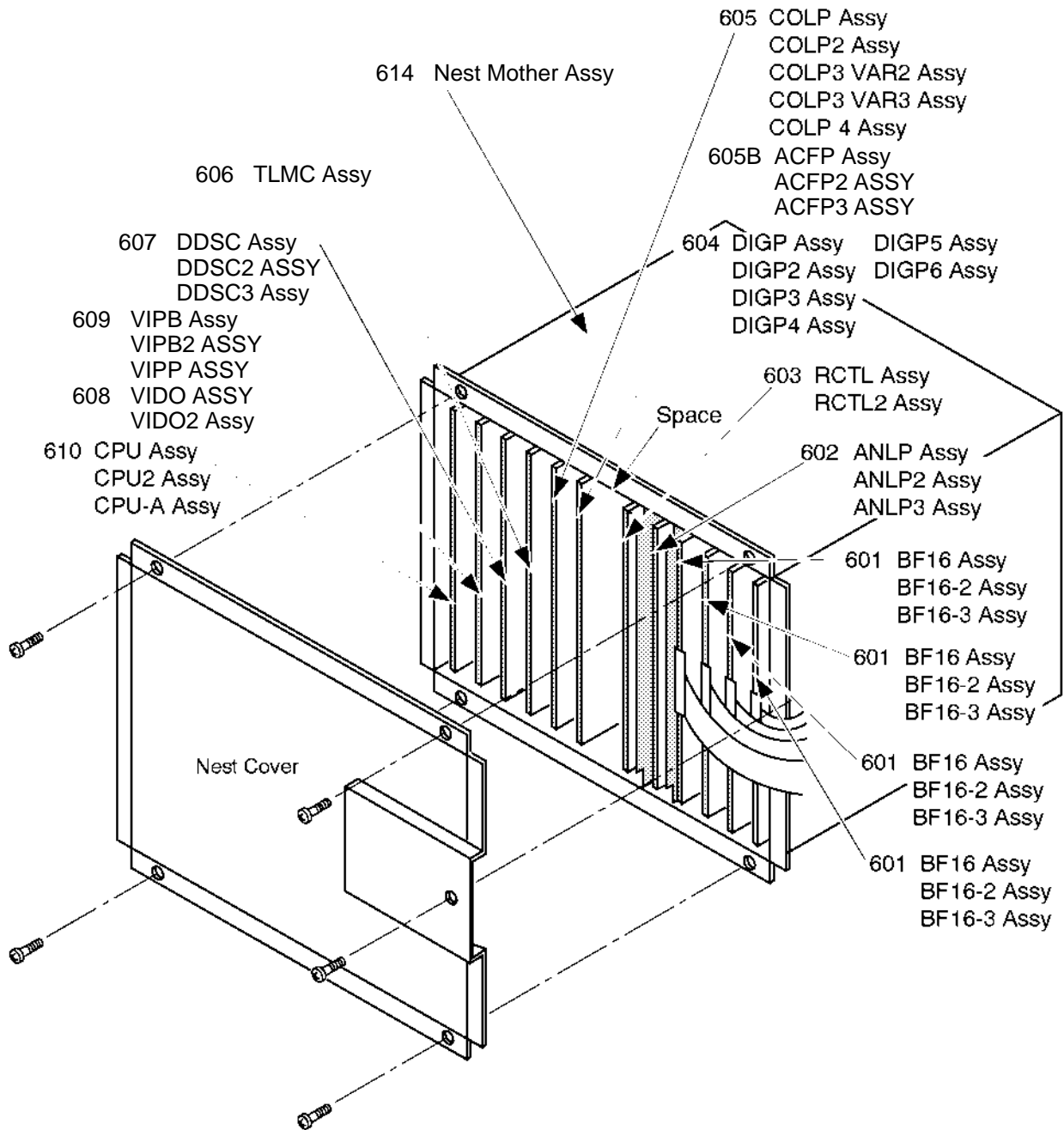601 BF16 Assy
      BF16-2 Assy
      BF16-3 Assy

ILLUSTRATION 6–8

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176   **: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626   **: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588   **: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536   **: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827   **: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731   **: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966   **: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879 **: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231 **: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356 **: V6.00**

MATERIAL LIST (7/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
601	BF16 ASSY	P9525UC	1	1	BF16 ASSY can be replaced with BF16–2 ASSY	6–2–75
	BF16–2 ASSY	2123304–2	1	1	From Ver.2.00 software console	6–2–75
	BF16–3 ASSY	2180838	1	1	Refer to Note below:	6–2–75
602	ANLP ASSY	P9525WC	1	1	For system software Ver. 1.20 or older console	6–2–75
	ANLP_B ASSY	2123670	1	1	ANLP ASSY can be replaced with ANLP_B ASSY	6–2–75
	ANLP2 ASSY	2123291	1	1	From Ver.2.00 software console excluding DNID2 ASSY	6–2–75
	ANLP2 ASSY	2123291–2	1	1	From Ver.3.00 software console Old ANLP2 (2123291) can be replaced with new ANLP2 (2123291–2)	6–2–75
	ANLP3 ASSY	2192674	1	1	From Ver.4.00 software console	6–2–75

Note

The BF16–3 Assy is not backward compatible with BF16–2 Assy and BF16 Assy. The noise appearance in near field is different between the consoles with the BF16/BF16–2 and BF16–3. Never use both assemblies together in the same console except for tentative solution.

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (7/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
602	ANLP3 ASSY	2192674–2	1	1	Old ANLP3 (2192674) can be replaced with new ANLP3 (2192674–2) ANLP3 (2192674–2) is required when optional THI is installed	6–2–75
☞	ANLP3 ASSY	2192674–3	1	1	Old ANLP3 (2192674) can be replaced with new ANLP3 (2192674–3) ANLP3 (2192674–3) is required when optional THI is installed	6–2–75
603	RCTL ASSY	P9525WG	1	1	RCTL ASSY can be replaced with RCTL2 ASSY	6–2–75
	RCTL2 ASSY	2123300	1	1	From Ver.2.00 software console	6–2–75
	RCTL2 ASSY	2180314	1	1	Required to use P509 PROBE	6–2–75
604	DIGP ASSY	P9525WJ	1	1		6–2–75
	DIGP2 ASSY	2116900	1	1	DIGP2 ASSY can be replaced with DIGP3 ASSY	6–2–75
	DIGP3 ASSY	2123296	1	1	From Ver.2.00 software console	6–2–75

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (7/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
604	DIGP4 ASSY	2123296–2	1	1	From Ver.3.00 software console	6–2–75
	DIGP5 ASSY	2123296–3	1	1	For console with Ver.3,00 or later DIGP4 ASSY can be replaced with DIGP5 ASSY	6–2–75
	DIGP6 ASSY	2123296–4	1	1	From Ver.4.00 software console DIGP4 ASSY and DIGP5 ASSY can be replaced with DIGP6 ASSY	6–2–75
605	COLP ASSY	P9525WL	1	1		6–2–75
	COLP2 ASSY	2116896	1	1	For Ver.1.10 software console	6–2–75
	COLP3 ASSY	2121455	1	1	From Ver.1.20 software console COLP3 ASSY can be replaced with COLP3 VAR3 ASSY	6–2–75
	COLP3 VAR2 ASSY	2121455–2	1	1	COLP3 VAR2 Assy can be replaced with COLP3 VAR3 Assy	6–2–75
	COLP3 VAR3 ASSY	2121455–3	1	1	For Ver.2.00 software console	6–2–75
	COLP4 ASSY	2152053	1	1	For Ver.2.20 software console	6–2–75

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (7/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
605B	ACFP ASSY	2153228	1	1	ACFP ASSY is installed instead of COLP ASSY from Ver.3.00 software console	6–2–75
	ACFP2 ASSY	2192562–2	1	1	From Ver.4.00 software console	6–2–75
	ACFP3 ASSY	2249191–2	1	1	From Ver.5.00 software console	6–2–75
606	TLMC ASSY	P9525WY	1	1	excluding OMEM	6–2–75
	TLMC ASSY	2158390–2	1	1	From Ver.3.00 software console Old TLMC (P9525WY and 2158390) can be replaced with new TLMC (2158390–2)	6–2–75
607	DDSC ASSY	P9525WQ	1	1	For V1 console	6–2–75
	DDSC2 ASSY	2141644–2	1	1	From Ver.2.00 software console	6–2–75
	DDSC3 ASSY	2141644–3	1	1	For console with software Ver.2.00 or later DDSC2 ASSY can be replaced with DDSC3 ASSY	6–2–75
608	VIDO ASSY	P9525WW	1	1	For Japan	6–2–75
	VIDO2 ASSY	2117032–2	1	1	For Japan	6–2–75
	VIDO2 ASSY	2117032–3	1	1	For MVME147–010	6–2–75

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (7/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
609	VIPB ASSY	P9525VA	1	1		6–2–75
	VIPB ASSY	2149141	1	1	For MVME147–010	6–2–75
	VIPB2 ASSY	2212616–2	1	1	Available on console with software version 4.10B or later	6–2–75
609B	VIPP ASSY	2245652	1	1	Available on console with software version 5.00y or later	6–2–75
610	CPU ASSY	P9525UA	1	1	CPU ASSY can be replaced with CPU2 ASSY	6–2–75
	CPU2 ASSY	2131698	1	1	From Ver.2.00 software console	6–2–75
	CPU2 ASSY	2131698–2	1	1	From Ver.3.00 software console Old CPU2 (2131698) can be replaced with new CPU2 (2131698–2)	6–2–75
	CPU–A ASSY	2195754	1	1	For console with software Ver.4.00 or later	6–2–75
	CPU–A ASSY	2195754–3	1	1	Old CPU–A Assy (2196754 and 2196754–2) can be replaced with new one (2195754–3)	6–2–75
	CPU–A ASSY	2195754–4	1	1	From V5 System	6–2–75

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (7/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
611	V1 TIME KEEPER RAM	2117237	1	1	on MVME147SRF For console with software Ver.1.20 or former	6–2–76
	V2 TIME KEEPER RAM	2131692	1	1	Old V1 Time Keeper RAM (2117237) can be replaced with new one (2131692)	6–2–76
612	TIMEKEEPER BATTERY	2143867	1	1	For MVME147–010	6–2–77
613	OMEM ASSY	P9525WU	1	1	on TLMC Assy	6–2–79
614	NEST MOTHER ASSY	P9522WQ	1	1	Nest Box and Mother B'd	6–2–80
	NEST MOTHER ASSY	2164636	1	1	from software V3.10 console. This has back–ward compatibility with old Assy (P9522WN) included FRU 615	6–2–80
615	MOTHER IC	P9522PK	1	1		6–2–81
616	V4 TIME KEEPER RAM	2195762	1	1	For MVME167–002B	6–2–78
620	DNID2 ASSY	2123294	1	1	on ANLP2 Assy supplied with optional CWD upgrade kit	6–2–82

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (7/9) (continued)

Note

There are two types of SBC (Single Board Computer) ASSY (included in CPU/CPU2 ASSY), MVME147SRF and MVME147–010. Those two assemblies have functional compatibility. However, the type of time keeper RAM mounted on each board is different. In the case of MVME147SRF, the RAM with built-in back-up battery is used. On the other hand, RAM is soldered on the MVME147–010 and the battery is mounted on the RAM with a socket. Be sure to choose an appropriate one when replacing the time keeper RAM.

To know which SBC ASSY is installed in the V2 console, check the 7-digit (or 9-digit) number displayed on the CRT monitor screen at the first of power-up sequence, 2135131 or 2135131–3 for MVME147SRF and 2135131–2 or 2135131–4 for MVME147–010. In case of V1 console, we have no way to check it. We have to remove the CPU ASSY and check it.

SBC ASSY (included in CPU or CPU2 Assy)	MVME147SRF	MVME147–010
Time Keeper Battery Status	Built in the Time KeeperRAM	Use FRU 612
Number displayed during power up sequence	2135131 or 2135131–3	2135131–2 or 2135131–4

For V1 Console	Check the board	Check the board

Note

FMI72069 upgrades the system software to version 1.10. Two Assys listed in table above, DIGP and COLP, are replaced with another ones, DIGP2 and COLP2, respectively by FMI72069.

Note

Seven board assemblies, four BF16, ANLP, RCTL, and DIGP2, are replaced with another ones, four BF16–2, ANLP_B, RCTL2, and DIGP3, respectively by FMI 72078 or 72079

Note

VIDO ASSY is replaced with VIDO2 ASSY by FMI72076.

Note

COLP3 VAR2 ASSY can be replaced with COLP3 VAR3 ASSY.

OPERATOR CONSOLE ASSY

|	
P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (7/9) (continued)

Note

DDSC ASSY and DDSC2 ASSY have no compatibility. Each assembly has been replaced with equivalent one, respectively. DDSC ASSY should be used only for V1 console and DDSC2 ASSY should be used only for V2 console.

Note

TLMC ASSY is changed with a backward compatibility from the console with software version 3.00. With this change, the part number of TLMC ASSY is changed to 2158390 from P9525WY.

Note

VIDO2 ASSY and VIPB ASSY are changed with the backward compatibility to correspond to the new SBC ASSY, MVME147–010. With this changes, the part numbers of VIDO2 ASSY and VIPB ASSY are changed to 2117032–3 and 2149141 from 2117032–2 and P9525VA, respectively. Be sure to use the new Video board to replace the VIDO2 or VIPB ASSY installed in the console with the CPU2 ASSY including the new SBC ASSY, MVME147–010.

Note

DIGP4 Assy has backward compatibility with DIGP3 Assy. DIGP3 ASSY can be replaced with DIGP4 ASSY.

Note

To install the VIPB2 Assy (2212616) in the console, the CPU–A Assy has to be installed in the console and the software version has to be 4.10By or later.

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OPERATOR CONSOLE ASSY 8/9
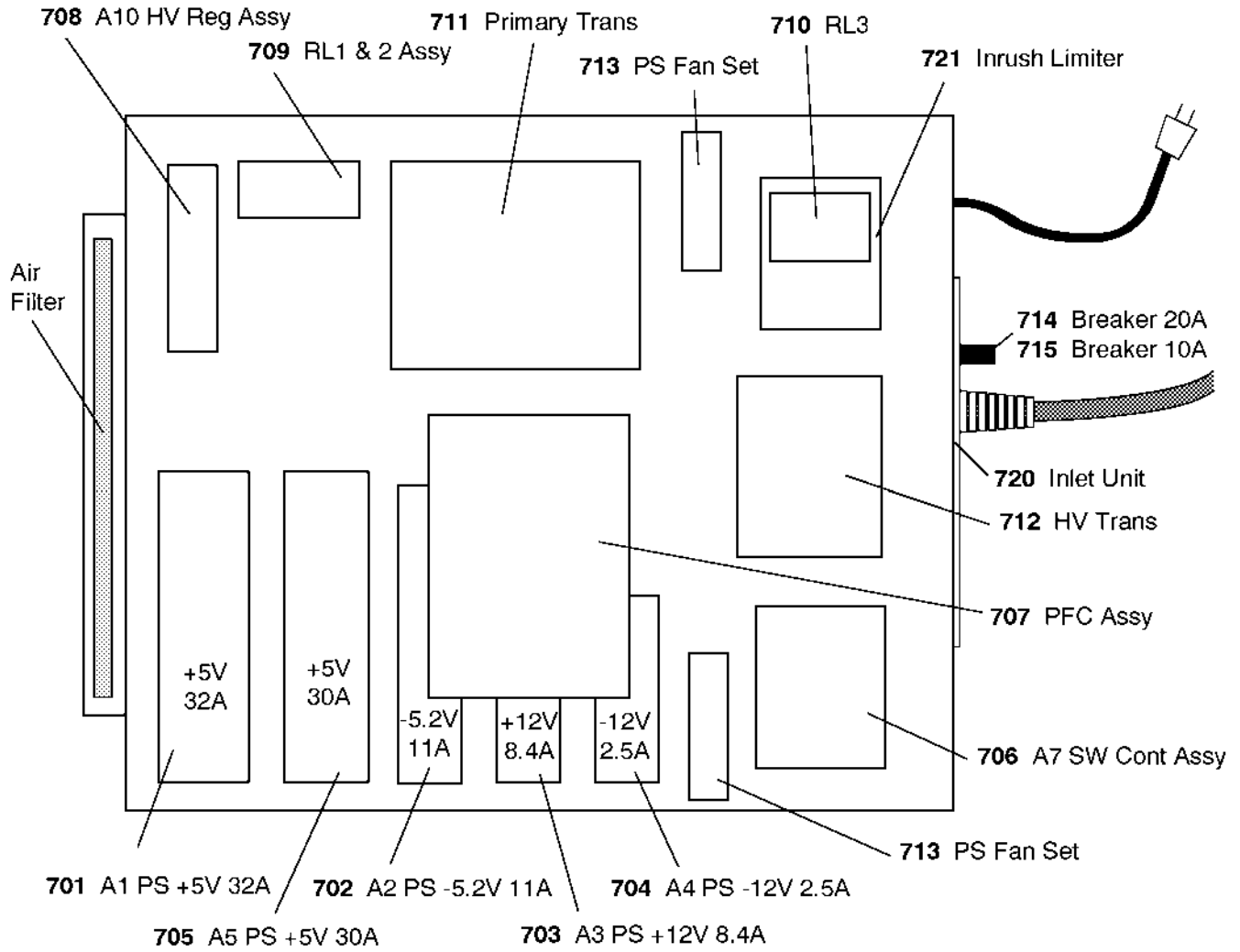
ILLUSTRATION 6–9

OPERATOR CONSOLE ASSY

|	
P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (8/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
701	A1 PS +5V 32A	P9522QA	1	1	For 100/120V console	6–2–83
	A1 PS +5V 32A	P9522RA	1	1	For 220V console	6–2–83
702	A2 PS –5.2V 11A	P9522QB	1	1	For 100/120V console	6–2–84
	A2 PS –5.2V 11A	P9522RB	1	1	For 220V console	6–2–84
703	A3 PS +12V 8.4A	P9522QC	1	1	For 100/120V console	6–2–85
	A3 PS +12V 8.4A	P9522RC	1	1	For 220V console	6–2–85
704	A4 PS –12V 2.5A	P9522QD	1	1		6–2–86
705	A5 PS +5V 30A	P9522QE	1	1	For 100/120V console	6–2–87
	A5 PS +5V 30A	P9522RE	1	1	For 220V console	6–2–87
706	A7 SW CONT ASSY	P9522QF	1	1		6–2–88
707	A8 PFC ASSY	P9522QG	1	1		6–2–89
708	A10 HV REG ASSY	P9522QH	1	1		6–2–90
709	RL1 & 2 ASSY	P9522QJ	1	1		6–2–91
710	RL3	P9522QK	1	1		6–2–92
711	PRIMARY TRANS	P9522QL	1	1		——
712	HV TRANS	P9522QM	1	1		——
713	PS FAN SET	P9522QN	1	1		6–2–93
714	BREAKER 20A	P9522QP	1	1	For 100/120V console	6–2–94
715	BREAKER 7.5A	P9522QQ	1	1	For 220V console	6–2–94
717	POWER SUPPLY AC 120V	P9523DB	1	2		6–5
718	POWER SUPPLY AC 220V	P9523DA	1	2		6–5
720	INLET UNIT 120V	2220699	1	2	For 120V console	6–2–95
	INLET UNIT 220V	2220700	1	2	For 220V console	6–2–95
721	INRUSH LIMITER 120V	2220701	1	2	For 120V console	6–2–96
	INRUSH LIMITER 220V	2220702	1	2	For 220V console	6–2–96

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (9/9)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
801	FUSE SET	P9522RF	1	1		——
802	SCREW SET	P9523NW	1	1		——
901	PROBE ADAPTER TYPE PA51	2136306	1	1	For Japan	——
	PROBE ADAPTER TYPE PA51	2136307	1	1	For USA/Europe/Asia	——
902	PROBE ADAPTER TYPE 5S	P9602AN	1	1	For Japan	——
	PROBE ADAPTER TYPE 5S	P9602AT	1	1	For USA/Europe/Asia	——
☞903	PROBE ADAPTER TYPE PA21	2277668	1	1	For Asia	——
						——
905	Ver.2.00 MO Disk Set	2131689–2	1	2	V2.00 By	6–4
906	Ver.2.20 MO Disk Set	2149584–2	1	2	V2.20 Ay	6–4
907	Ver.3.00 MO Disk Set	2164548–4	1	2	V3.00 Cy	6–4
908	Ver.3.10 MO Disk Set	2180333–4	1	2	V3.10 Cy	6–4
909	Ver.4.00 MO Disk Set	2197976–6	1	2	V4.00 Dy	6–4
910	E721 PROBE HANDLE SET	2132282	1	1	E721 and MTZ probes use this part	——
911	PROBE CONNECTOR KNOB SET	2133634	1	1	Following probes use this part: C364, C551, E721, S316, C721, L764, S220, CAE, CBF, MTZ, LH	——
919	Ver.2.50 MO Disk Set	2179694–2	1	2	V2.50 y	6–4
920	Ver.3.30 MO Disk Set	2208949–3	1	2	V3.30 By	6–4
921	Ver.4.10 MO Disk Set	☞2219207–6	1	2	V4.10 Dy	6–4
922	Ver.4.20 MO Disk Set	☞2239418–4	1	2	V4.20 Cy	6–4
923	Ver.5.00 MO Disk Set	☞2248933–4	1	2	V5.00 Cy	6–4
☞924	Ver.6.00 MO Disk Set	2275344	1	2	V6.00 y	6–4

OPERATOR CONSOLE ASSY

| P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176 | : V1.11 |
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (9/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
950	CBF PROBE	P9603AD	1	1	For USA/Europe/Asia	——
	CBF PROBE	P9603AA	1	1	For Japan	——
951	CAE PROBE	P9603AE	1	1	For USA/Europe/Asia	——
	CAE PROBE	P9603AB	1	1	For Japan	——
952	MTZ PROBE	P9603AU	1	1	For USA/Europe/Asia	——
	MTZ PROBE	P9603AL	1	1	For Japan	——
953	UC PROBE	P9600BE	1	1	For USA/Europe/Asia	——
	UC PROBE	P9600BA	1	1	For Japan	——
954	LH PROBE	P9601AS	1	1	For USA/Europe/Asia	——
	LH PROBE	P9601AC	1	1	For Japan	——
955	W PROBE	P9600BH	1	1	For USA/Europe/Asia	——
	W PROBE	P9600BD	1	1	For Japan	——
956	C364 PROBE	P9607AB	1	1	For USA/Europe/Asia	——
	C364 PROBE	P9607AA	1	1	For Japan	——
	C364 PROBE 🔣	2259251	1	1	For USA/Europe/Asia With Ferrite Beads	——
	C364 PROBE 🔣	2259250	1	1	For Japan With Ferrite Beads	——
957	C551 PROBE	P9607AD	1	1	For USA/Europe/Asia	——
	C551 PROBE	P9607AC	1	1	For Japan	——
	C551 PROBE 🔣	2261026	1	1	For USA/Europe/Asia With Ferrite Beads	——
	C551 PROBE 🔣	2261025	1	1	For Japan With Ferrite Beads	——
958	E721 PROBE	P9607AF	1	1	For USA/Europe/Asia	——
	E721 PROBE	P9607AE	1	1	For Japan	——

OPERATOR CONSOLE ASSY

|	
P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

### *MATERIAL LIST (9/9)* (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
958	E721 PROBE	2261056	1	1	For USA/Europe/Asia With Ferrite Beads	——
	E721 PROBE	2261055	1	1	For Japan With Ferrite Beads	——
959	739L PROBE	2107460–2	1	1	For USA/Europe/Asia	——
	739L PROBE	2107460	1	1	For Japan	——
	739L PROBE	2259145	1	1	For USA/Europe/Asia With Ferrite Beads	——
	739L PROBE	2259144	1	1	For Japan With Ferrite Beads	——
960	S316 PROBE	P9606AB	1	1	For USA/Europe/Asia	——
	S316 PROBE	P9606AA	1	1	For Japan	——
	S316 PROBE	2261033	1	1	For USA/Europe/Asia With Ferrite Beads	——
	S316 PROBE	2261032	1	1	For Japan With Ferrite Beads	——
961	L764 PROBE	2121377–2	1	1	For USA/Europe/Asia	——
	L764 PROBE	2121377	1	1	For Japan	——
	L764 PROBE	2259256	1	1	For USA/Europe/Asia With Ferrite Beads	——
	L764 PROBE	2259255	1	1	For Japan With Ferrite Beads	——
962	C721 PROBE	2121267–2	1	1	For USA/Europe/Asia	——
	C721 PROBE	2121267	1	1	For Japan	——
	C721 PROBE	2261018	1	1	For USA/Europe/Asia With Ferrite Beads	——
	C721 PROBE	2261017	1	1	For Japan With Ferrite Beads	——

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (9/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
963	B510 PROBE	2123593	1	1	For USA/Europe/Asia	——
	B510 PROBE	2133115	1	1	For Japan	——
	B510 PROBE	2259260	1	1	For USA/Europe/Asia With Ferrite Beads	——
	B510 PROBE	2259259	1	1	For Japan With Ferrite Beads	——
964	S220 PROBE	2121793–2	1	1	For USA/Europe/Asia	——
	S220 PROBE	2121793	1	1	For Japan	——
	S220 PROBE	2261043	1	1	For USA/Europe/Asia With Ferrite Beads	——
	S220 PROBE	2261042	1	1	For Japan With Ferrite Beads	——
						——
970	CWD2 PROBE	2123594	1	1	For USA/Europe/Asia	——
	CWD2 PROBE	2133116	1	1	For Japan	——
971	CWD5 PROBE	2123595	1	1	For USA/Europe/Asia	——
	CWD5 PROBE	2133117	1	1	For Japan	——
						——
973	546L PROBE	2144266–2	1	1	For USA/Europe/Asia	——
	546L PROBE	2144266	1	1	For Japan	——
	546L PROBE	2259135	1	1	For USA/Europe/Asia With Ferrite Beads	——
	546L PROBE	2259134	1	1	For Japan With Ferrite Beads	——
974	S317 PROBE	2144268–2	1	1	For USA/Europe/Asia	——
	S317 PROBE	2144268	1	1	For Japan	——

OPERATOR CONSOLE ASSY

|	
P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (9/9) (continued)

| FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
974	S317 PROBE	2259230	1	1	For USA/Europe/Asia With Ferrite Beads	——
	S317 PROBE	2259229	1	1	For Japan With Ferrite Beads	——
975	S611 PROBE	2144267–2	1	1	For USA/Europe/Asia	——
	S611 PROBE	2144267	1	1	For Japan	——
	S611 PROBE	2259238	1	1	For USA/Europe/Asia With Ferrite Beads	——
	S611 PROBE	2259237	1	1	For Japan With Ferrite Beads	——
976	C386 PROBE	2154186–2	1	1	For USA/Europe/Asia	——
	C386 PROBE	2154186	1	1	For Japan	——
	C386 PROBE	2259162	1	1	For USA/Europe/Asia With Ferrite Beads	——
	C386 PROBE	2259160	1	1	For Japan With Ferrite Beads	——
977	I739 PROBE	2147189–2	1	1	For USA/Europe/Asia	——
	I739 PROBE	2147289	1	1	For Japan	——
	I739 PROBE	2259206	1	1	For USA/Europe/Asia With Ferrite Beads	——
	I739 PROBE	2259205	1	1	For Japan With Ferrite Beads	——
978	T739 PROBE	2147188–2	1	1	For USA/Europe/Asia	——
	T739 PROBE	2147188	1	1	For Japan	——
	T739 PROBE	2259246	1	1	For USA/Europe/Asia With Ferrite Beads	——
	T739 PROBE	2259245	1	1	For Japan With Ferrite Beads	——

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	**: V1.11**
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	**: V2.00**
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	**: V2.20**
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	**: V3.00**
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	**: V3.10**
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	**: V4.00**
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	**: V4.10**
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	**: V4.20**
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	**: V5.00**
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	**: V6.00**

MATERIAL LIST (9/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
979	LA39 PROBE	2155078–2	1	1	For USA/Europe/Asia	——
	LA39 PROBE	2155078	1	1	For Japan	——
	LA39 PROBE	2259214	1	1	For USA/Europe/Asia With Ferrite Beads	——
	LA39 PROBE	2259213	1	1	For Japan With Ferrite Beads	——
980	S222 PROBE	2159263	1	1	For USA/Europe/Asia	——
	S222 PROBE	2159263	1	1	For Japan	——
	S222 PROBE	2259222	1	1	For USA/Europe/Asia With Ferrite Beads	——
	S222 PROBE	2259221	1	1	For Japan With Ferrite Beads	——
981	P509 PROBE	2169773	1	1	For Europe/Asia	——
	P509 PROBE	2169772	1	1	For Japan	——
	P509 PROBE	2259258	1	1	For Europe/Asia With Ferrite Beads	——
	P509 PROBE	2259257	1	1	For Japan With Ferrite Beads	——
982	C358 PROBE	2193617	1	1	For USA/Europe/Asia	——
	C358 PROBE	2172443	1	1	For Japan	——
	C358 PROBE	2259153	1	1	For USA/Europe/Asia With Ferrite Beads	——
	C358 PROBE	2259152	1	1	For Japan With Ferrite Beads	——
983	LD PROBE	2124318	1	1	For Europe	——
	LD PROBE	P9601AD	1	1	For Japan	——

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (9/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
983	LD PROBE	2261049	1	1	For Europe With Ferrite Beads	——
	LD PROBE	2261048	1	1	For Japan With Ferrite Beads	——
984	ERB7 PROBE	2239590	1	1	For USA/Europe/Asia	——
	ERB7 PROBE	2204232	1	1	For Japan	——
	ERB7 PROBE	2259263	1	1	For USA/Europe/Asia With Ferrite Beads	——
	ERB7 PROBE	2259262	1	1	For Japan With Ferrite Beads	——
985	M12L PROBE	2236016	1	1	For USA/Europe/Asia With Ferrite Beads	——
	M12L PROBE	2241735	1	1	For Japan With Ferrite Beads	——
986	3S PROBE	2252157	1	1	For USA/Europe/Asia With Ferrite Beads	——
	3S PROBE	2261743	1	1	For Japan With Ferrite Beads	——
988	CS PROBE	2202320	1	1	For Asia With Ferrite Beads	——
989	i12L PROBE	2264883	1	1	For USA/Europe/Asia With Ferrite Beads	——
	i12L PROBE	2270556	1	1	For Japan With Ferrite Beads	——

OPERATOR CONSOLE ASSY

P9522BA, P9522CA, P9522AA, 2113639, 2120175, 2120176	: V1.11
2126615, 2126624, 2126607, 2131676, 2126617, 2126626	: V2.00
2149595, 2149597, 2149593, 2149594, 2149596, 2149588	: V2.20
2164533, 2164534, 2164531, 2164532, 2164535, 2164536	: V3.00
2180824, 2180825, 2180823, 2177235, 2180826, 2180827	: V3.10
2196726, 2196727, 2196725, 2196729, 2196730, 2196731	: V4.00
2212962, 2212963, 2212961, 2212964, 2212965, 2212966	: V4.10
2240875, 2242843, 2240876, 2240874, 2240877, 2240878, 2240879	: V4.20
2250227, 2250232, 2250228, 2250226, 2250229, 2250230, 2250231	: V5.00
2275352, 2275357, 2275353, 2275351, 2275354, 2275355, 2275356	: V6.00

MATERIAL LIST (9/9) (continued)

FRU NO.	PART NAME	PART NO.	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
995	10BASE–2 MAU	2195663	1	1		——
996	10BASE–T MAU	2195664	1	1		——
997	ETHERNET CABLE	2195662	1	2		——

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6–2 DISASSEMBLY/RE–ASSEMBLY

WARNING!

ONLY QUALIFIED SERVICE PERSONNEL SHOULD REMOVE ANY COVERS OR PANELS.
ELECTRICAL HAZARDS EXISTS AT SEVERAL POINTS INSIDE. BECOME THOROUGHLY FA-
MILIAR WITH ALL HAZARDOUS VOLTAGES AND HIGH CURRENT LEVELS TO AVOID ACCI-
DENTAL CONTACT

CAUTION

**Do not wear the ESD wrist strap when you remove a part of power supply unit. Turn OFF power
and unplug the power cord before removing a part of power supply unit. However be sure to
turn off power and wear the strap before you remove a circuit boards.**

6–2–1 Monitor Assy (FRU No. 100)

Time Required

0.25 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

WARNING!

**PERSONAL INJURY HAZARD. VIDEO MONITOR SUPPORT ARM IS SPRING LOADED. RE-
LEASING ARM WHEN MONITOR IS NOT INSTALLED WILL CAUSE SUDDEN UPWARD MOVE-
MENT. KEEP YOUR HEAD AND BODY AWAY FROM ABOVE VIDEO MONITOR SUPPORT ARM.**

■ Refer to ILLUSTRATION 6–10 on page 6–67.

1.   Turn OFF the system.

■ 2.   Remove the CRT Filter. Refer to 6–2–6 on page 6–75.

3.   Unscrew four hexagonal screws (① – ④) located beneath the horizontal part of the Neck Assy.

4.   Remove the cover located at the bottom of the Neck Assy.

5.   Unscrew two screws (⑤ and ⑥) and remove the plate fixing the cables.

6.   Disconnect the four connectors (⑦ – ⑩).

7.   Remove the screw cap located at position (⑪).

8.   Loosen one screw (⑪) and pull the Monitor Assy upwards.

Note

The Monitor Assy (FRU100) does not include the CRT Filter (FRU110) and CRT Filter Clamps (FRU111).

Note

When replacing the monitor with the new Monitor Assy (2162081), be sure to attach the proper label included with the Monitor Assy on to the new Escutcheon. To attach the new label, refer to the proce-
■   dures in section 6–2–2 on page 6–68.

6–2–1 Monitor Assy (FRU No. 100) (continued)
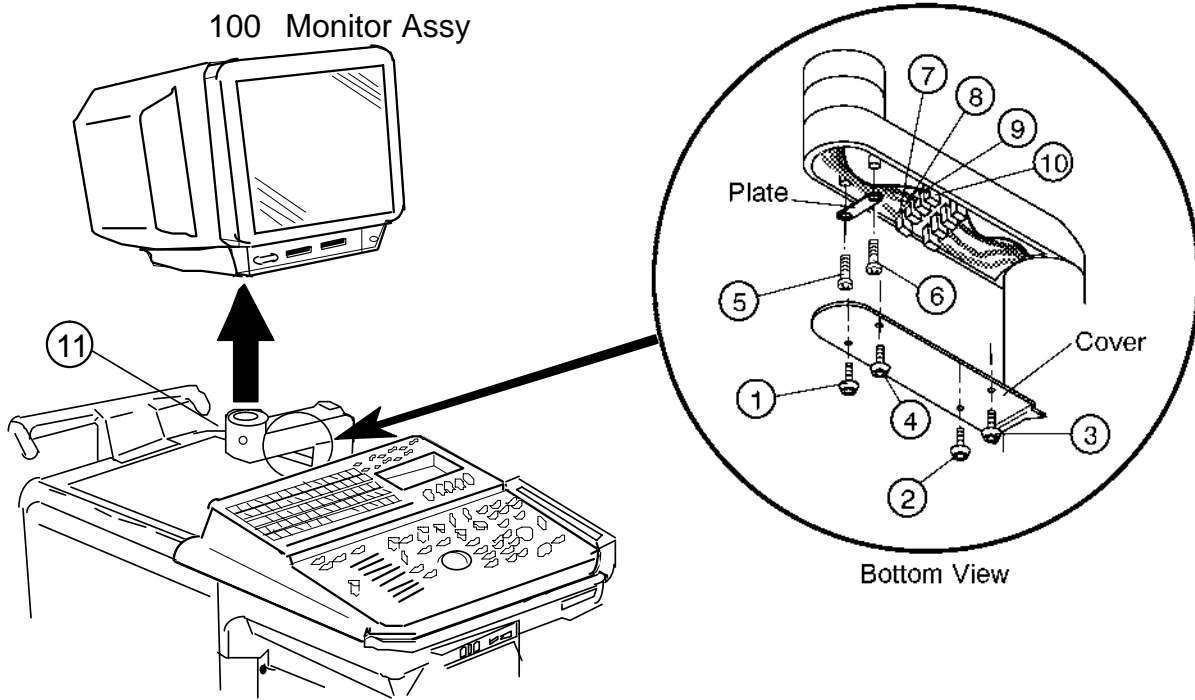
MONITOR BLOCK ASSY DISASSEMBLY
ILLUSTRATION 6–10

6–2–2 Monitor Cover Set (FRU No. 101)

Time Required

20 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–11 on page 6–69.

1. Turn OFF the system.

2. Unscrew six screws (① – ⑥).

3. Remove the Monitor Cover Left (FRU 104) and Right (FRU 105).

4. Remove the Monitor Cover Top (FRU 106).

5. Push and open the Escutcheon Front Door (FRU 108).

6. Pull the two caps (⑦ and ⑧: FRU 109) out.

7. Loosen four screws (⑨ – ⑫).

8. Disconnect one connector.

9. Remove the Escutcheon Assy (FRU 102).

Note

Monitor Cover Set includes the Monitor Cover Left (FRU 104), Monitor Cover Right (FRU 105), Monitor Cover Top (FRU 106), and the Escutcheon Assy (FRU 102).

Note

When replacing the monitor covers or the Escutcheon with the new Monitor Cover Set (2162082) or the new Escutcheon Assy (2162083), be sure to attach the proper label included with the Monitor Cover Set or Escutcheon Assy on to the new Escutcheon. To attach the new label, refer to the procedures described on the following pages.

6–2–2 Monitor Cover Set (FRU No. 101) (continued)

101

Monitor Cover
Top (106)

Monitor Cover
Right (105)

Monitor Cover
Left (104)

Escutcheon
Assy (102)

⑧

⑦

① ②

③

④ ⑤

⑥

⑨

⑩

⑪

⑫

Escutcheon
Front Door (108)
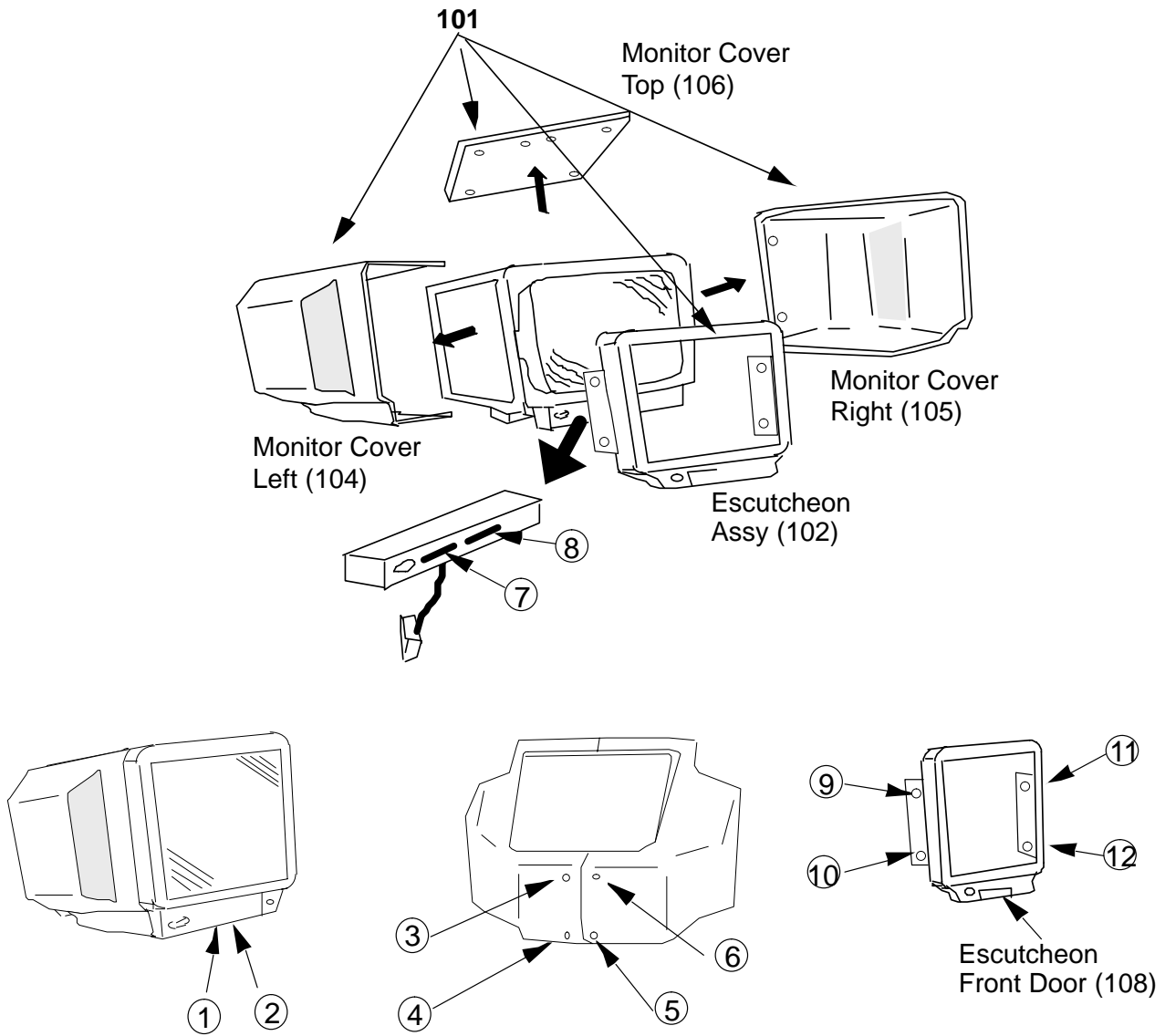
MONITOR COVER SET DISASSEMBLY
ILLUSTRATION 6–11

6–2–2 Monitor Cover Set (FRU No. 101) (continued)

Note

The new Monitor Cover Set (2162082) and the Escutcheon Assy (2162083) include the four different labels for the Escutcheon. When replacing the Escutcheon with the new Monitor Cover Set or replacing the new Escutcheon Assy, be sure to attach the proper label on the Escutcheon Assy as follows:

a. Choose the proper label, "LOGIQ 500" or "LOGIQ 500 MD" indicating the same model name as the label on the removed Escutcheon.

b. Remove the lower pasteboard from the proper label. Refer to ILLUSTRATION 6–12.
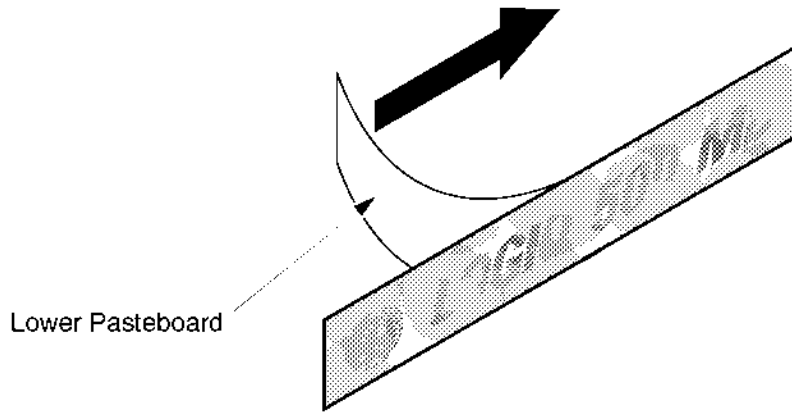
REMOVING LOWER PASTEBOARD
ILLUSTRATION 6–12

c. Set and attach the label on the Escutcheon. Adjust the position of the label attached as shown in ILLUSTRATION 6–13. Be careful not to attach the label with a misalignment.
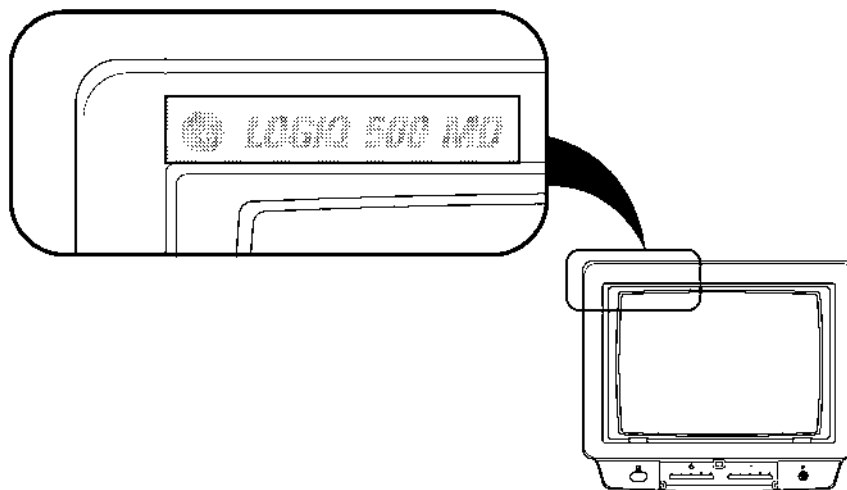
ATTACHING LABEL
ILLUSTRATION 6–13

6–2–2 Monitor Cover Set (FRU No. 101) (continued)

   d. Press down the label all around.

   e. Remove the upper pasteboard from the label. refer to ILLUSTRATION 6–14.
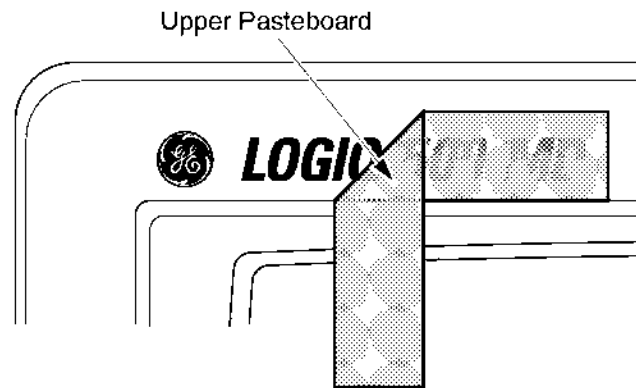
REMOVING UPPER PASTEBOARD
ILLUSTRATION 6–14

6–2–3 Escutcheon Latch (FRU No. 103)
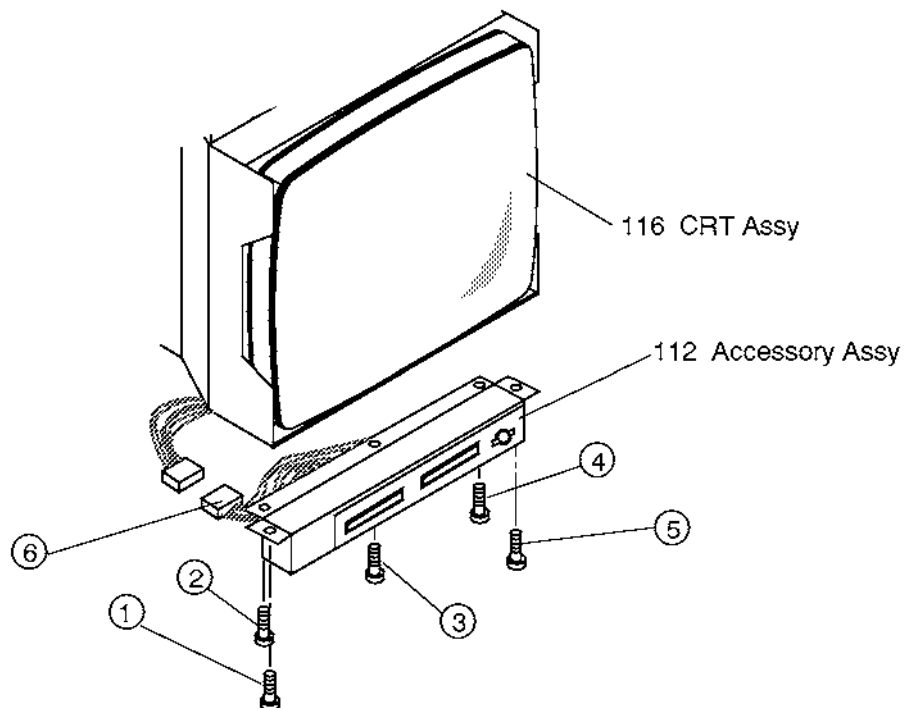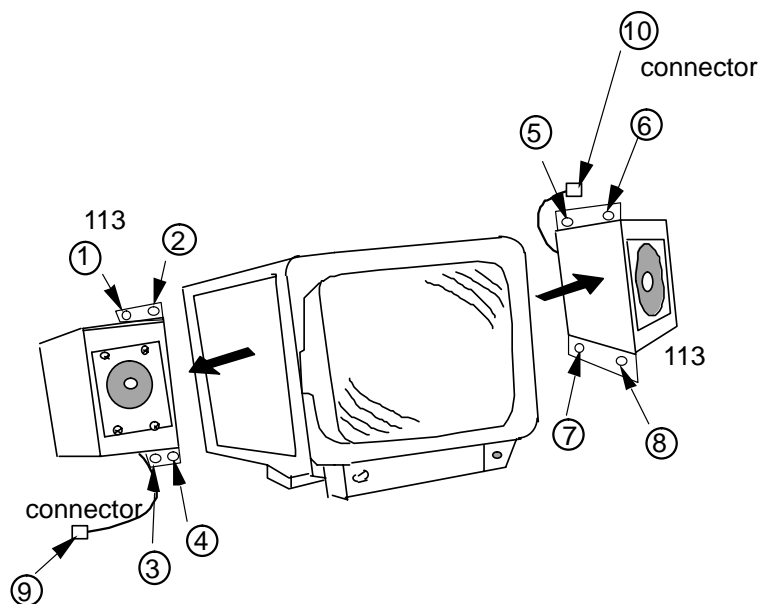
Time Required

10 Minute
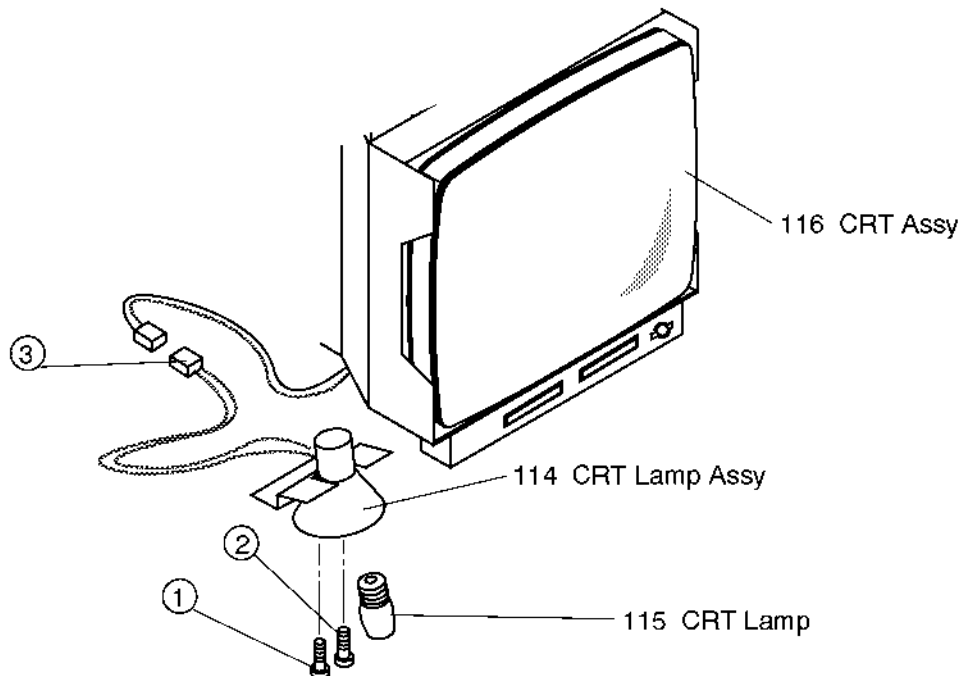
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–15.

1.   Turn OFF the system.

■ 2.   Remove the Monitor Cover Set (FRU 101). Refer to 6–2–2 on page 6–68.

3.   Remove the Escutcheon Latch (FRU 103) from the Escutcheon Assy (FRU 102) as shown in ILLUSTRATION 6–15.
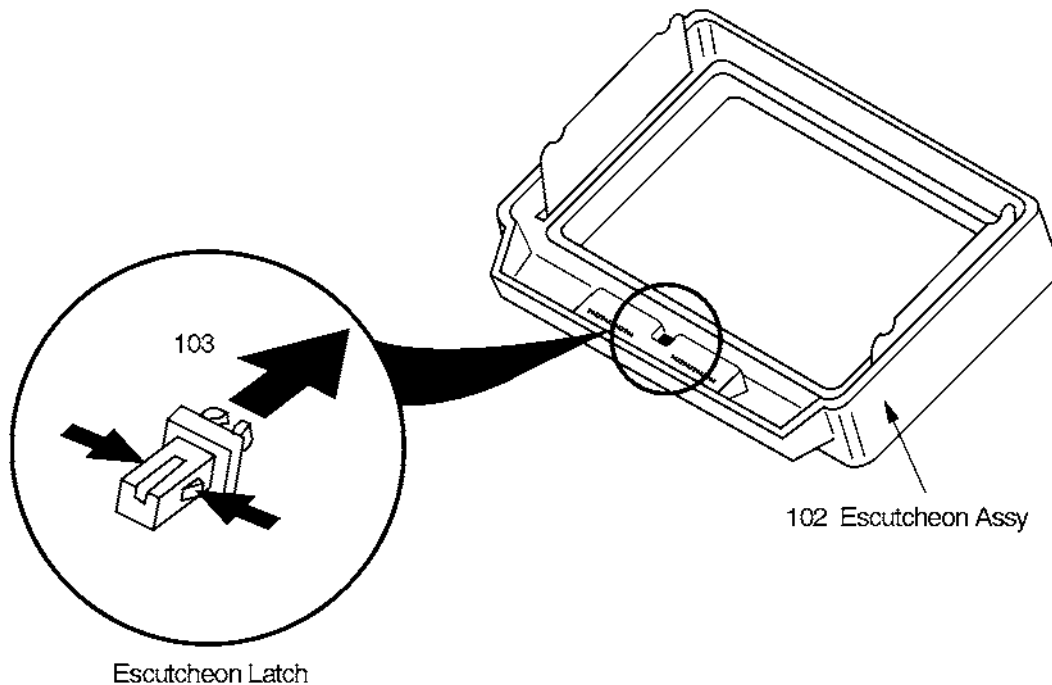
ESCUTCHEON LATCH DISASSEMBLY
ILLUSTRATION 6–15

6–2–4 Escutcheon Front Door (FRU No. 108)

Time Required

1 Minute

Tool Required

Not necessary

Procedure

Refer to ILLUSTRATION 6–16.

1.   Turn OFF the system.

2.   Pull out the Escutcheon Front Door (FRU 108) from the Escutcheon Assy (FRU 102) as shown in ILLUSTRATION 6–16.
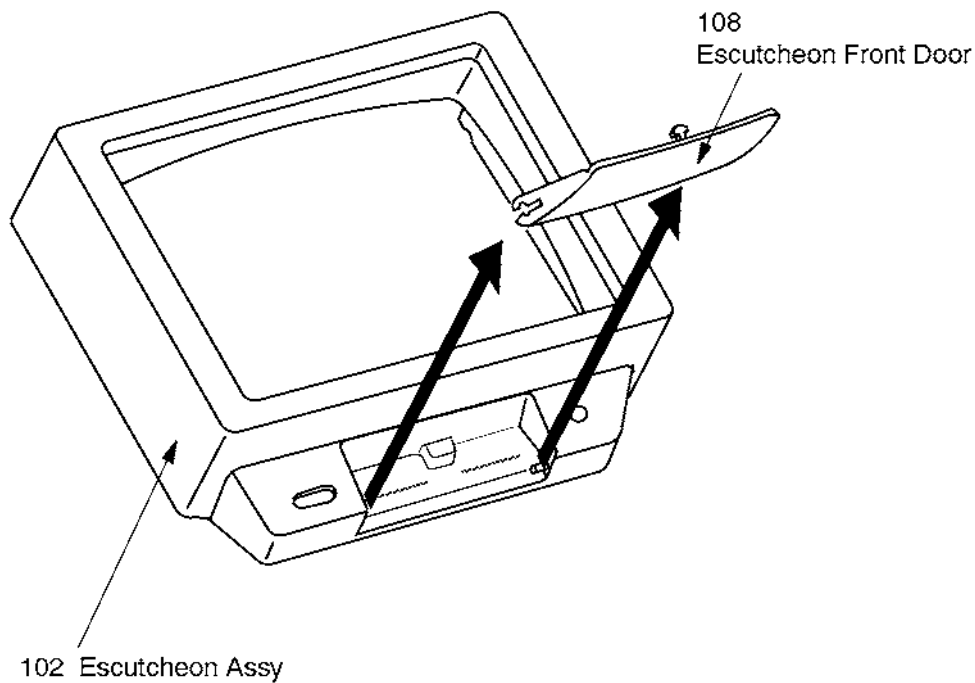
ESCUTCHEON FRONT DOOR DISASSEMBLY
ILLUSTRATION 6–16

6–2–5   CRT Cap Set (FRU No. 109)

Time Required

1 Minute

Tool Required

Not necessary

Procedure

Refer to ILLUSTRATION 6–17.

1.   Turn OFF the system.

■ 2.   Remove the Escutcheon Front Door (FRU 108). Refer to 6–2–4 on page 6–73.

3.   Pull out two CRT Caps (FRU 109) from the front side of the Monitor Assy (FRU 100).

Key Top for
Lamp Switch

109
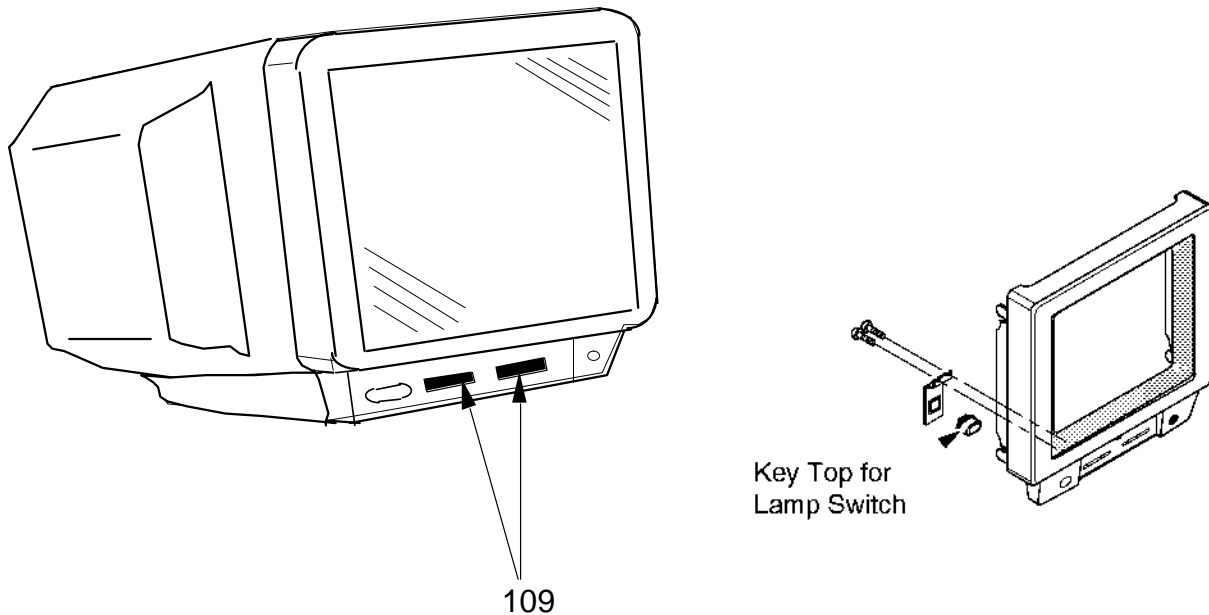
CRT CAP SET DISASSEMBLY
ILLUSTRATION 6–17

Note
The CRT Cap Set (FRU109) includes the key top for lamp switch.

6–2–6   CRT Filter (FRU No. 110)

Time Required

1 Minutes

Tool Required

Not necessary

Procedure

Refer to ILLUSTRATION 6–18.

1.   Turn OFF the system.

2.   Remove the two CRT Filter Clamps (① and ②: FRU 111).

3.   Remove the CRT Filter.
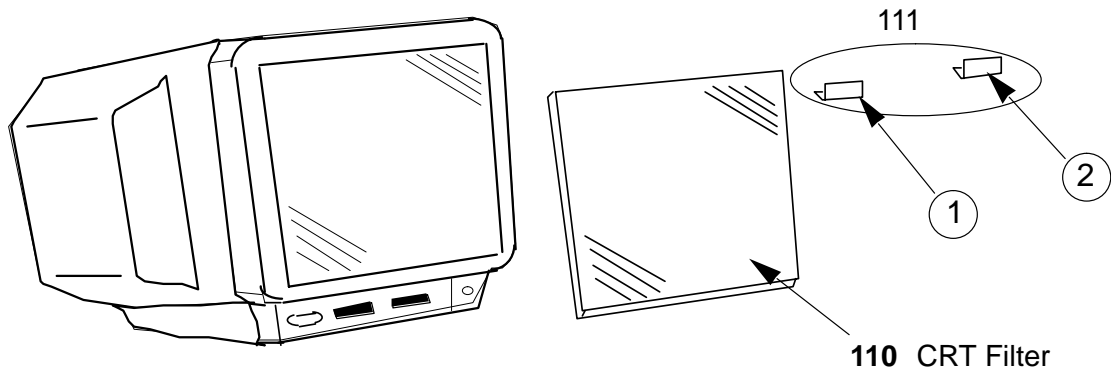
CRT FILTER DISASSEMBLY
ILLUSTRATION 6–18

Note
The CRT Filter (FRU110) includes the CRT Filter Clamps (FRU111).

6–2–7 Accessory Assy (FRU No. 112)

Time Required

0.5 Hours

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–19.

1.   Turn OFF the system.

■ 2.   Remove the Monitor Cover Set (FRU 101). Refer to 6–2–2 on page 6–68.

3.   Unscrew five screws (① – ⑤).

4.   Disconnect one connector (⑥).

5.   Remove the Accessory Assy (FRU 112).

ACCESSORY ASSY DISASSEMBLY
ILLUSTRATION 6–19

6–2–8   Speaker Assy (FRU No. 113)

Time Required

0.5 Hours

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–20.

1.   Turn OFF the system.

2.   Remove the Monitor Cover Left (FRU 104) and Monitor Cover Right (FRU 105). Refer to 6–2–2 on page 6–68.

3.   Cut off the tie wrap fixing the CRT Cable Set (FRU 117) to the speaker.

4.   Unscrew eight screws (① – ⑧).

5.   Disconnect one connector for each speaker (⑨ and ⑩) from the back side of the monitor.

6.   Remove the Speakers.

SPEAKER ASSY DISASSEMBLY
ILLUSTRATION 6–20

Note

Left and right speakers are interchangeable.

6–2–9 CRT Lamp Assy (FRU No. 114)

Time Required

0.5 Hours

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–21.

1.   Turn OFF the system.

■ 2.   Remove the Monitor Cover Left (FRU 104) and Monitor Cover Right (FRU 105). Refer to 6–2–2 on page 6–68.

3.   Unscrew two screws (① and ②).

4.   Disconnect one connector (③).

5.   Remove the CRT Lamp Assy (FRU 114).

CRT LAMP ASSY DISASSEMBLY
ILLUSTRATION 6–21

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6–2–10 CRT Assy (FRU No. 116)

Time Required

0.5 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

WARNING!

PERSONAL INJURY HAZARD. VIDEO MONITOR SUPPORT ARM IS SPRING LOADED. RE-LEASING ARM WHEN MONITOR IS NOT INSTALLED WILL CAUSE SUDDEN UPWARD MOVE-MENT. KEEP YOUR HEAD AND BODY AWAY FROM ABOVE VIDEO MONITOR SUPPORT ARM.

■ Refer to ILLUSTRATION 6–22 on page 6–81.

1. Turn OFF the system.

2. Remove the Monitor Assy (FRU 100). Refer to 6–2–1 on page 6–66.

3. Remove the Monitor Cover Set (①: FRU 101) Refer to 6–2–2 on page 6–68.

4. Remove the Speaker Assy (②: FRU 113) Refer to 6–2–8 on page 6–77.

5. Remove the tilt mechanism.

6–2–10 CRT Assy (FRU No. 116) (continued)

FRU 113
SPEAKER
ASSY

FRU 116
CRT ASSY

FRU 113
SPEAKER
ASSY

FRU 101
MONITOR COVER
SET

FRU 116
CRT ASSY
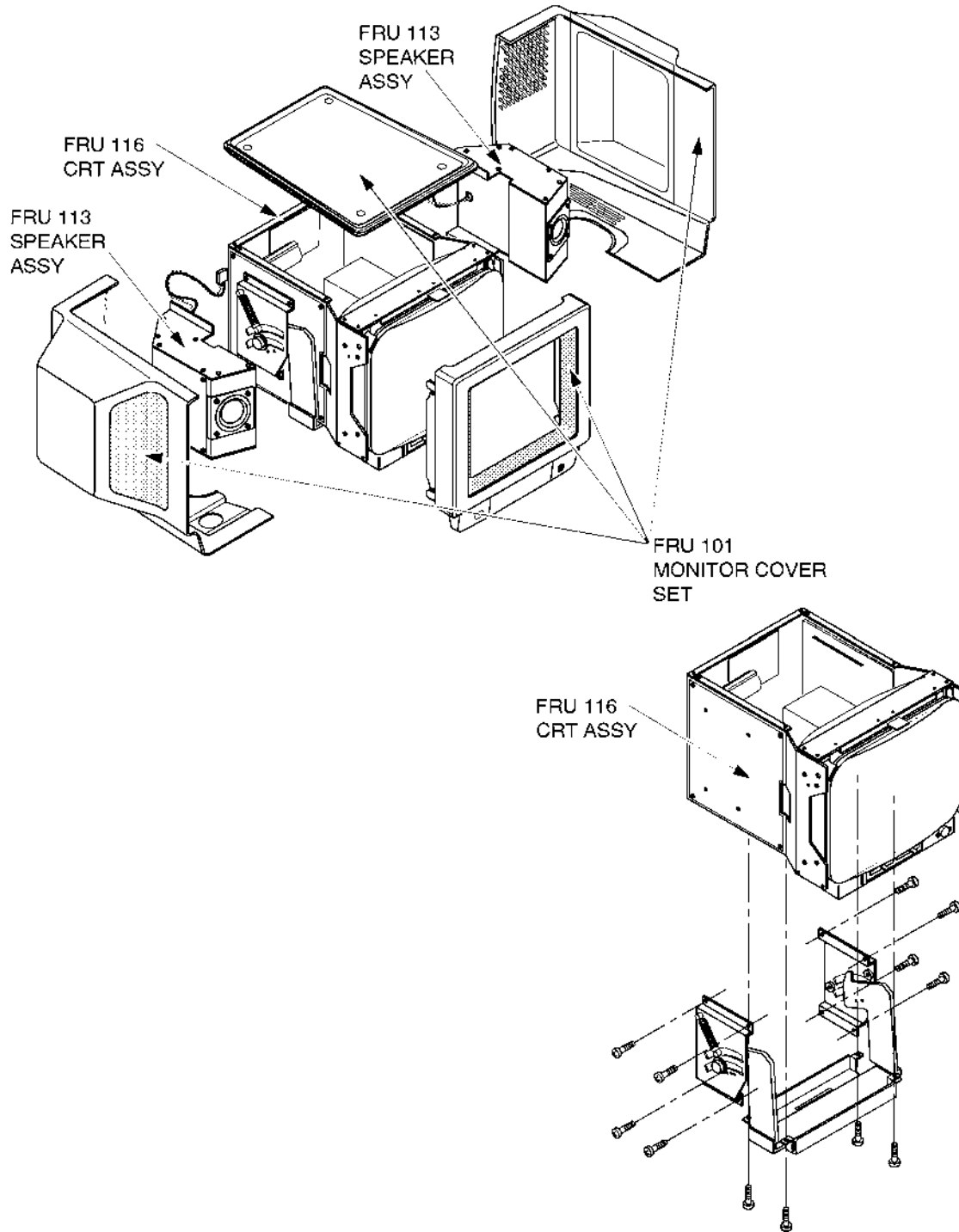
CRT ASSY DISASSEMBLY
ILLUSTRATION 6–22

Note
The CRT Assy does not include the tilt mechanism.

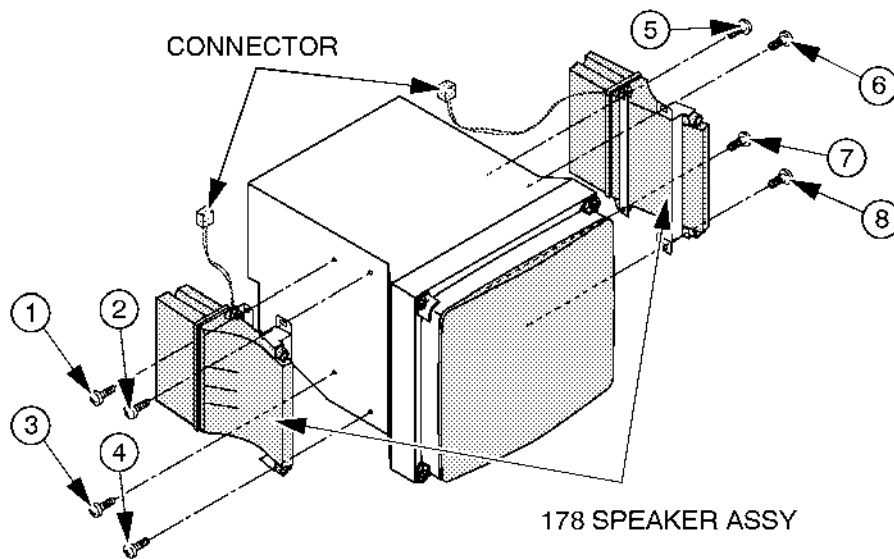**6–2–11 CRT Cable Set (FRU No. 117)**

Time Required

0.5 Hour

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6–23.

1. Turn OFF the system.

2. Remove the Monitor Assy (FRU 100). Refer to 6–2–1 on page 6–66.

3. Remove the Monitor Cover Set (FRU 101). Refer to 6–2–2 on page 6–68.

4. Disconnect three connectors (① – ③) from the back side of the CRT Assy.
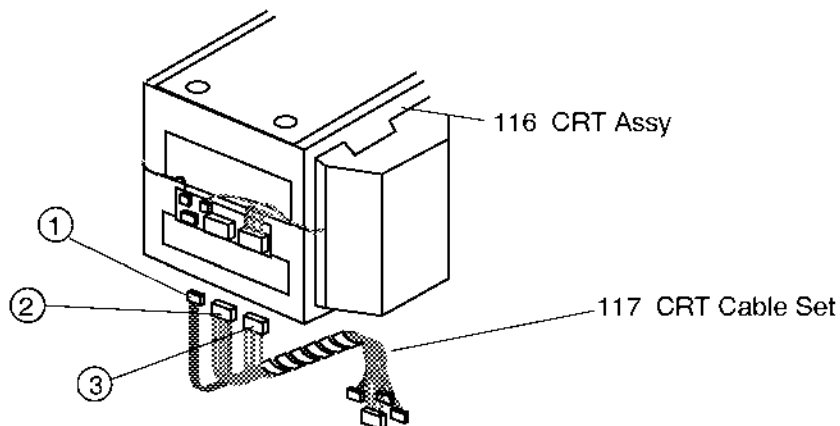
BACK SIDE VIEW

CRT ASSY DISASSEMBLY
ILLUSTRATION 6–23

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6–2–12 Monitor15 Assy (FRU No. 170)

Time Required

0.25 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

WARNING!

PERSONAL INJURY HAZARD. VIDEO MONITOR SUPPORT ARM IS SPRING LOADED. RE-LEASING ARM WHEN MONITOR IS NOT INSTALLED WILL CAUSE SUDDEN UPWARD MOVE-MENT. KEEP YOUR HEAD AND BODY AWAY FROM ABOVE VIDEO MONITOR SUPPORT ARM.

▮ Refer to ILLUSTRATION 6–24 on page 6–85.

1. Turn OFF the system.

2. Unscrew four hexagonal screws (① – ④) located beneath the horizontal part of the Neck Assy.

3. Remove the cover located at the bottom of the Neck Assy.

4. Unscrew two screws (⑤ and ⑥) and remove the plate fixing the cables.

5. Disconnect the four connectors (⑦ – ⑩).

6. Remove the screw cap located at position (⑪).

7. Loosen one screw (⑪) and pull the Monitor15 Assy upwards.

6–2–12 Monitor15 Assy (FRU No. 170) (continued)
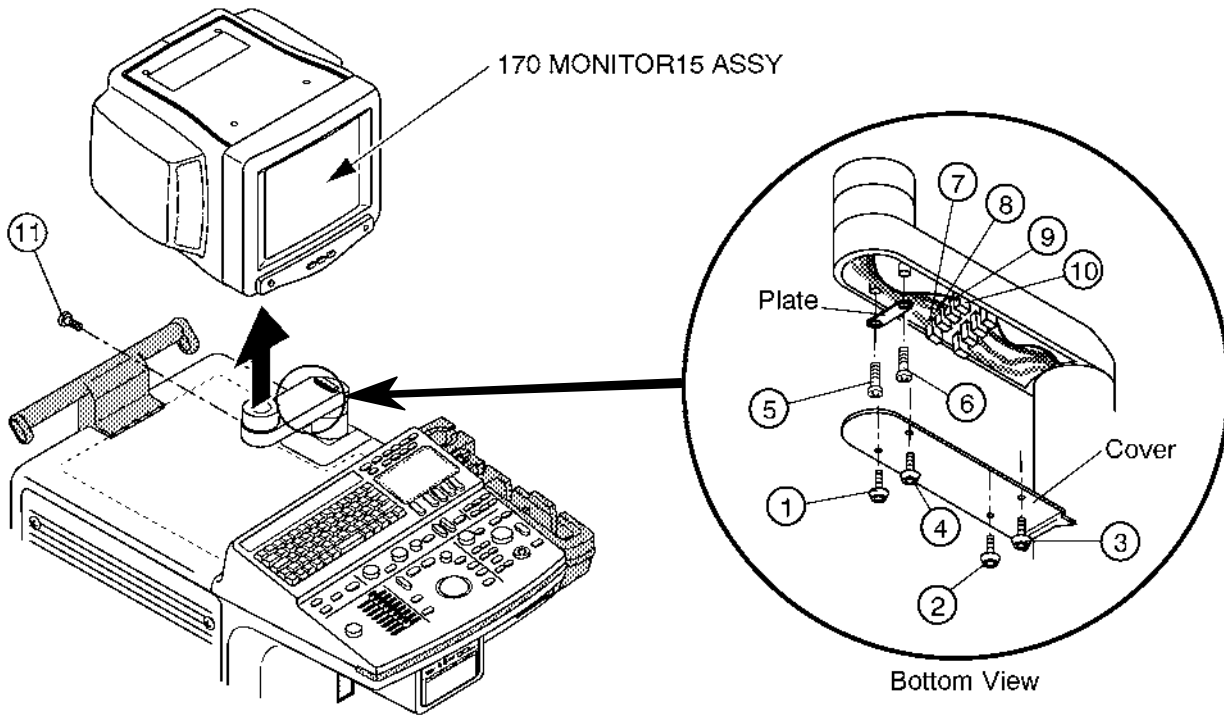
MONITOR15 BLOCK ASSY DISASSEMBLY
ILLUSTRATION 6–24

6–2–13 Monitor15 Cover Set (FRU No. 171)
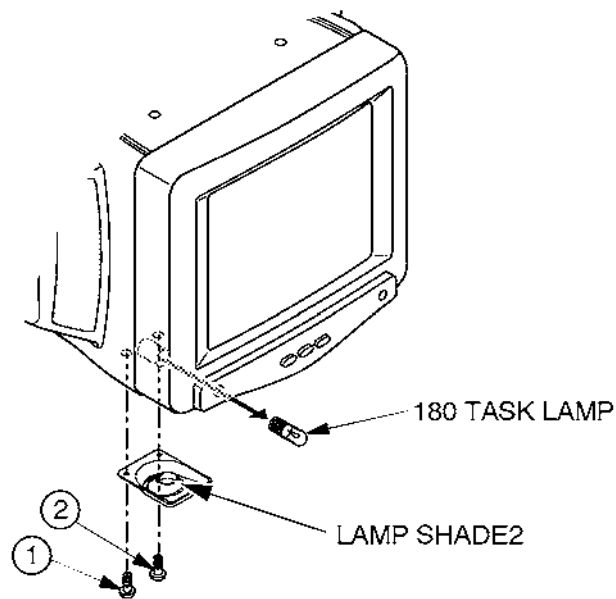
Time Required

20 Minutes

Tool Required

Screwdriver

Procedure

▌ Refer to ILLUSTRATION 6–25 on page 6–87.

1. Turn OFF the system.

2. Unscrew two screws (① – ②).

3. Remove the LAMP SHADE2 (FRU179).

4. Unscrew six screws (③ – ⑧).

5. Remove the Monitor Cover L2 Assy (FRU 173) and R2 Assy (FRU 174).

6. Remove the Tray2 Assy (FRU 175).

7. Loosen four screws (⑨ – ⑫).

8. Remove the Escutcheon2 Assy (FRU 172).

9. Disconnect one connector (⑬).

10. Disconnect one connector (⑭) from the back side of the Escutcheon2 Assy.

Note
Monitor15 Cover Set includes the Monitor Cover L2 Assy (FRU 173), Monitor Cover R2 Assy (FRU 174), Tray2 Assy (FRU 175), and the Escutcheon2 Assy (FRU 172).

6–2–13 Monitor15 Cover Set (FRU No. 171) (continued)

171 MONITOR15 COVER SET

175 TRAY2 ASSY

174 MONITOR COVER R2 ASSY

172 ESCUTCHEON2 ASSY

173 MONITOR COVER L2 ASSY

LAMP SHADE2
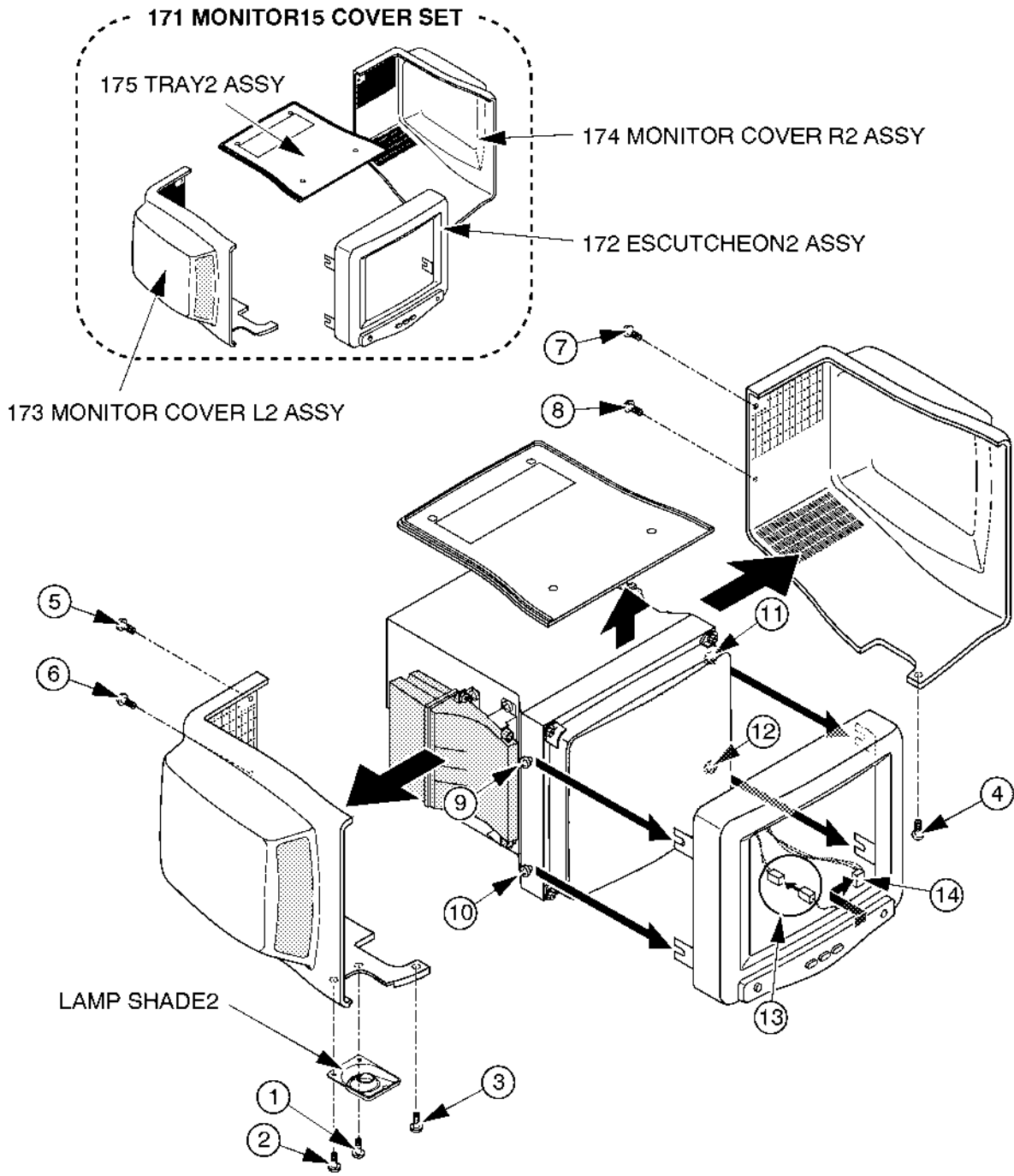
MONITOR COVER SET DISASSEMBLY
ILLUSTRATION 6–25

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6–2–14 Speaker Assy (FRU No. 178)

Time Required

0.5 Hours

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–26.

1. Turn OFF the system.

2. Remove the Monitor Cover L2 Assy (FRU 173) and Monitor Cover R2 Assy (FRU 174). Refer to 6–2–13 on page 6–86.

4. Unscrew eight screws (① – ⑧).

5. Disconnect one connector for each speaker from the back side of the monitor.

6. Remove the Speakers.

SPEAKER ASSY DISASSEMBLY
ILLUSTRATION 6–26

Note

Left and right speakers are interchangeable.

■ **6–2–15 TASK Lamp (FRU No. 180)**
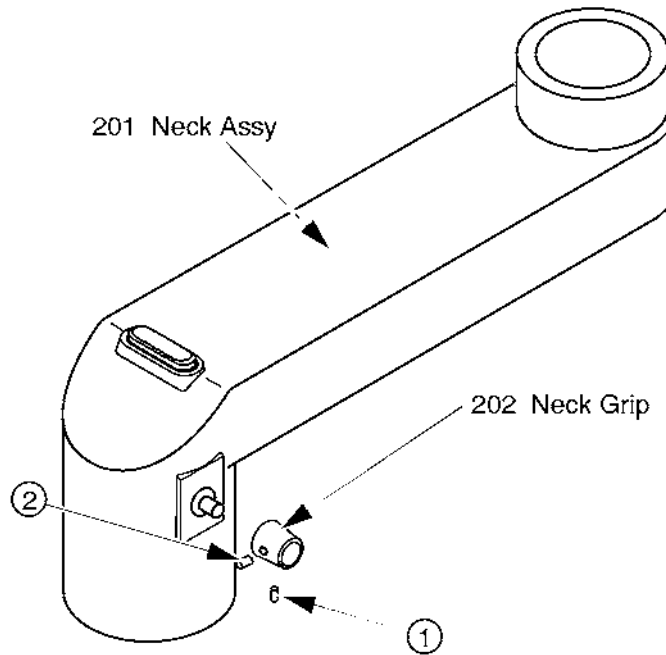
Time Required

0.5 Hours

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–27.

   1.   Turn OFF the system.

   2.   Unscrew two screws (① and ②).

   3.   Remove the Lamp Shade2.

   4.   Remove the TASK LAMP (FRU 180).

TASK LAMP DISASSEMBLY
ILLUSTRATION 6–27

■

■ **6–2–16 CRT Cable Set (FRU No. 182)**

Time Required

0.5 Hour

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–28.

1.   Turn OFF the system.

2.   Remove the Monitor15 Assy (FRU 170). Refer to 6–2–12 on page 6–84.

3.   Remove the Monitor15 Cover Set (FRU 171). Refer to 6–2–13 on page 6–86.

4.   Disconnect three connectors (① – ③) from the back side of the CRT Assy.
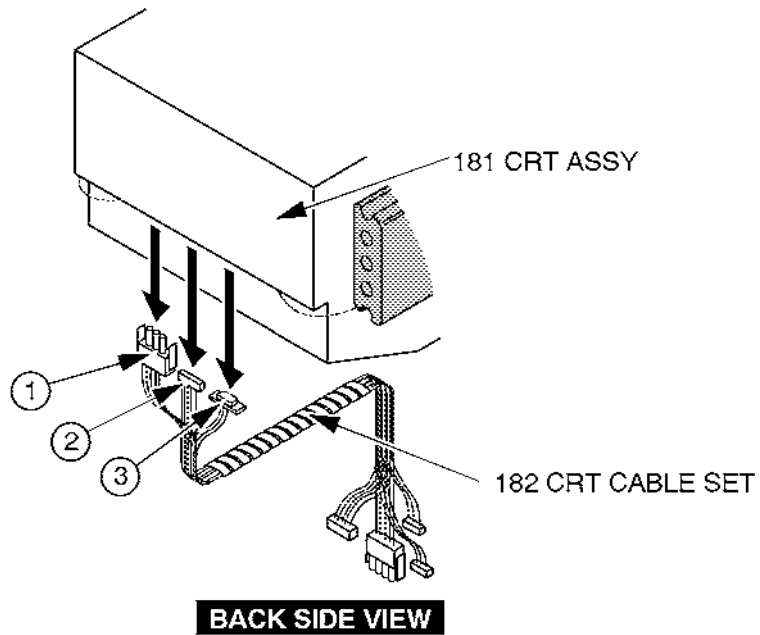
CRT ASSY DISASSEMBLY
ILLUSTRATION 6–28

■ **6–2–17 Neck Assy (FRU No. 201)**

Time Required

0.6 Hour

Tool Required

Screwdriver
Hex Wrench

Procedure

■ Refer to ILLUSTRATION 6–29 on page 6–93.

1. Turn OFF the system and unplug the power cord from outlet.

2. Lift and set the Monitor to the highest position by pushing down the Up/down Release Button located on the Neck Assy.

■ 3. Remove the Monitor Assy from the Neck Assy. Refer to 6–2–1 on page 6–66.

4. Remove the Neck Space Plate.

5. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

6. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

Note
The Linear Slide Cover is installed from the production unit of LOGIQ™500 console with software Version 5.00y or later. Refer to ILLUSTRATION 6–30 on page 6–93. Unscrew six screws (⑰ – ㉒) to remove the Linear Slide Cover.

■ 7. Remove the Rear Cover (FRU 303). Refer to 6–2–22 on page 6–99.

8. Disconnect the three connectors (⑭ – ⑯). One of these connectors is connected with the Power Supply Assy. The other two connectors are connected with the Mother Board.

Note
Removing the Rear CONN Panel Assy eases to connect and disconnect the cables. For removal of the Rear CONN Panel Assy, refer to 6–2–53 on page 6–138.

9. Unscrew two screws and remove two frame ground wires.

10. Remove thirteen hexagonal bolts (① – ⑬).

■ **6–2–17 Neck Assy (FRU No. 201)** (continued)

FG
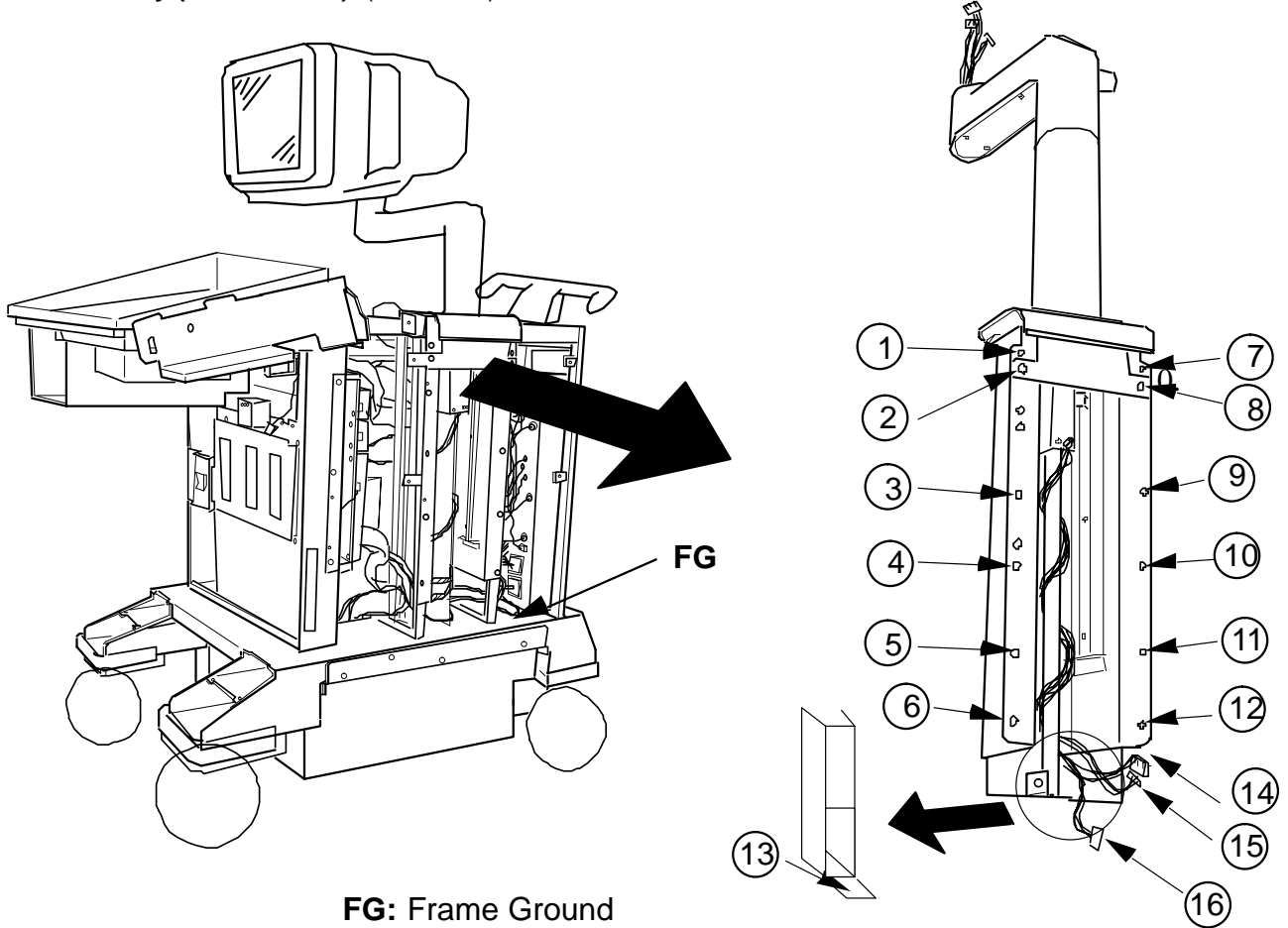
FG: Frame Ground

NECK ASSY DISASSEMBLY
ILLUSTRATION 6–29

■
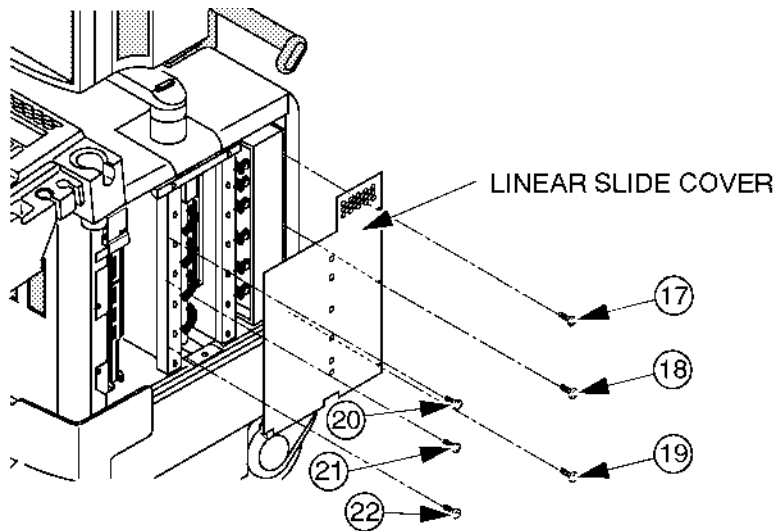
LINEAR SLIDE COVER

LINEAR SLIDE COVER DISASSEMBLY
ILLUSTRATION 6–30

■

■ **6–2–18 Neck Grip (FRU No. 202)**

Time Required

5 Minutes

Tool Required

Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–31.

1. Turn OFF the system.

2. Unscrew two hexagonal screws (① and ②).

3. Remove the Neck Grip (FRU 202).

■

NECK GRIP DISASSEMBLY
ILLUSTRATION 6–31

■ **6–2–19 Neck Space Plate (FRU No. 203)**

Time Required

0.25 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–32.

1. Turn OFF the system.

■ 2. Remove the Monitor Assy (FRU No. 100) from the Neck Assy. Refer to 6–2–1 on page 6–66.

3. Remove the Neck Space Plate (①).
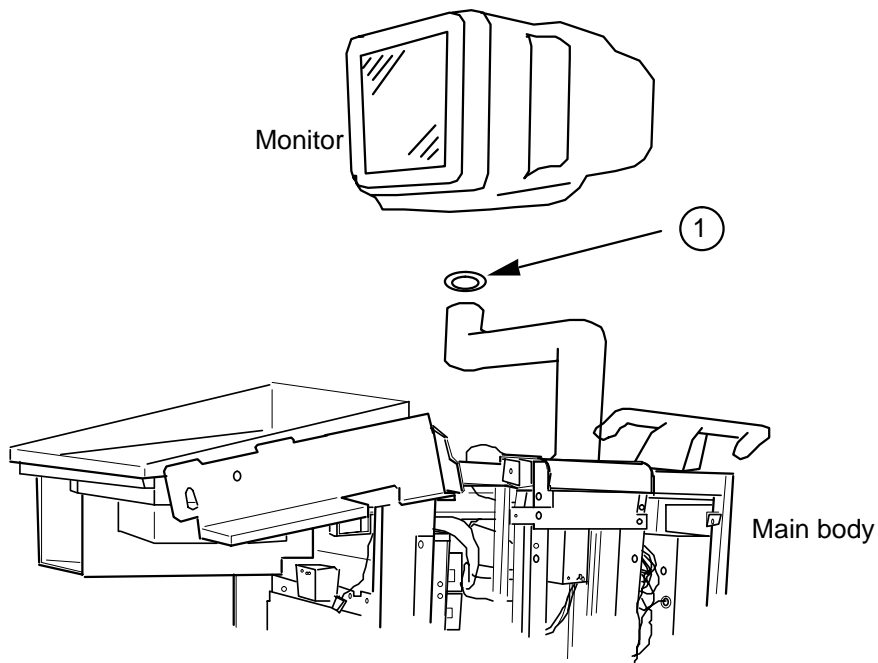
NECK SPACE PLATE DISASSEMBLY
ILLUSTRATION 6–32

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■ **6–2–20 Side Cover Left (FRU No. 301)**

Time Required

5 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–33.

1.   Turn OFF the system.

2.   Remove four screw caps and unscrew four screws (① – ④).

3.   Remove the Side Cover Left (FRU 301).
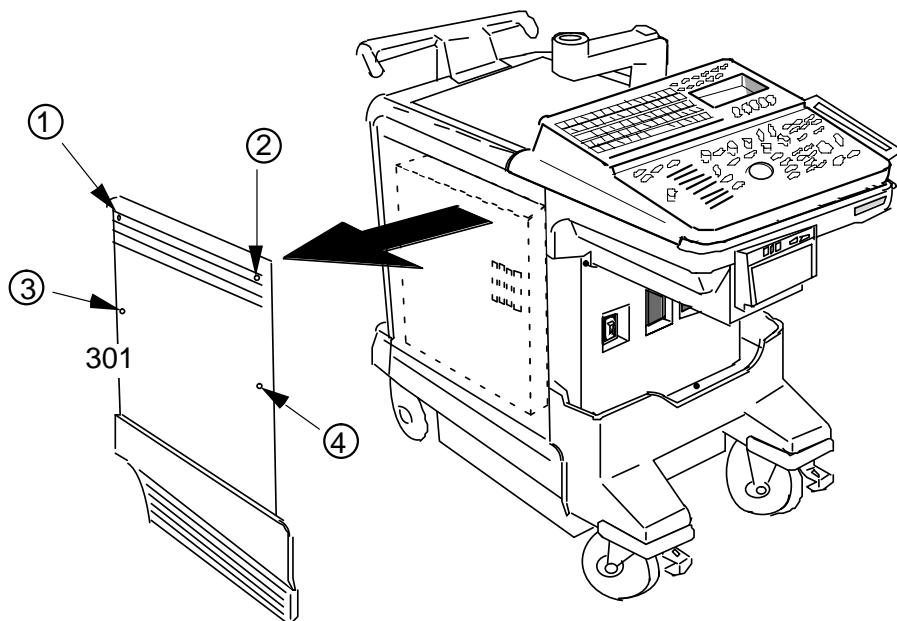
SIDE COVER LEFT DISASSEMBLY
ILLUSTRATION 6–33

■

6–2–21 Side Cover Right (FRU No. 302)

Time Required

5 Minutes
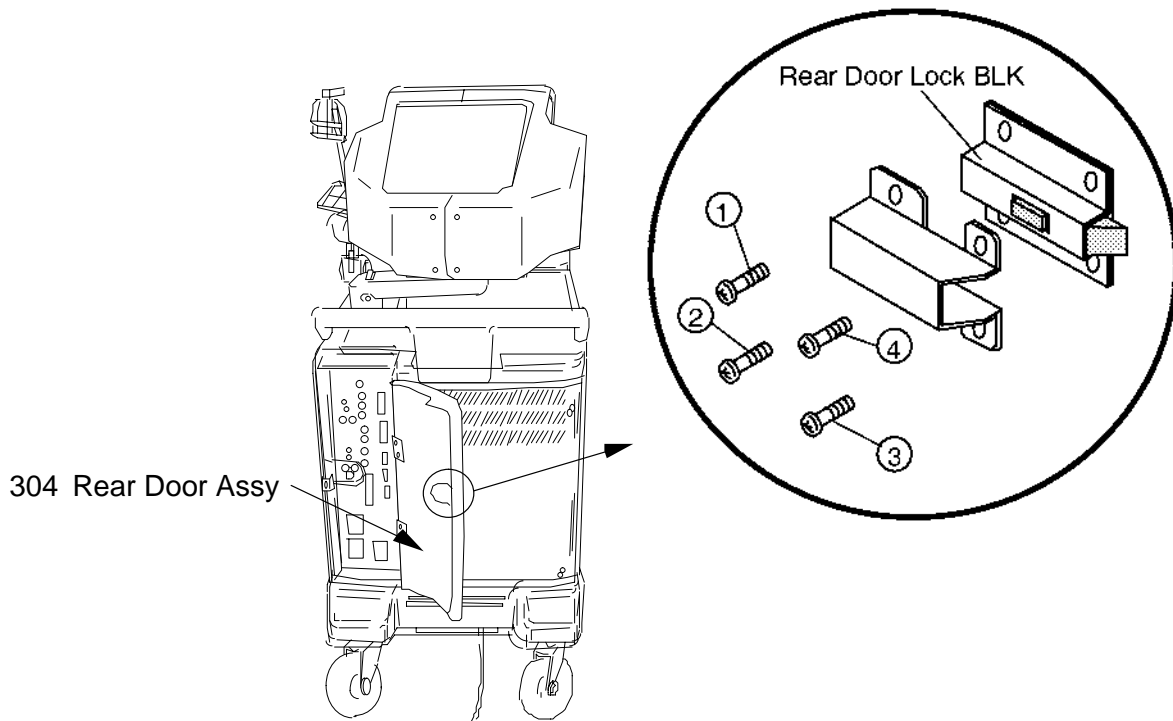
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–34.

1. Turn OFF the system.

2. Unscrew four screws and remove the Front Base Cover (FRU No. 307). Refer to 6–2–26 on page 6–103.

3. Remove the five screw caps and unscrew five screws (① – ⑤).

4.   Open the Rear Door and remove the Side Cover Right.
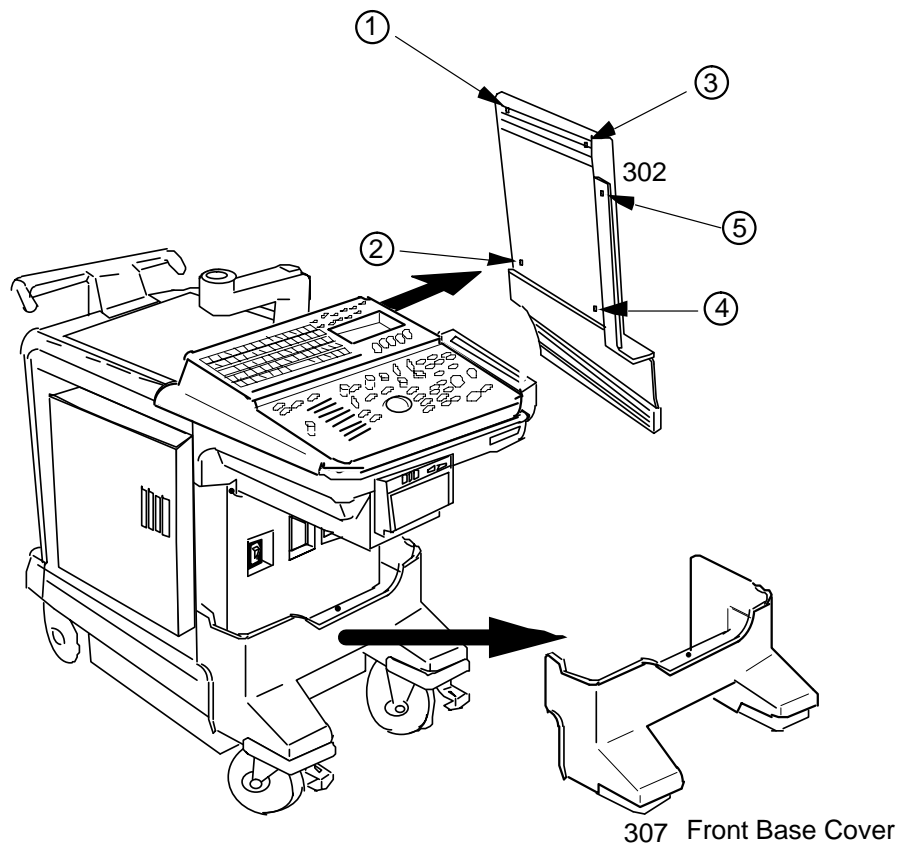
RIGHT COVER DISASSEMBLY
ILLUSTRATION 6–34

■ **6–2–22 Rear Cover Assy (FRU No. 303)**

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–35.

1. Turn OFF the system.

2. Pull out the Air Filter (①).

3. Remove the two rubber caps and unscrew two screws (② and ③).

4. Open the Rear Door and unscrew six screws (④ – ⑨).

5. Remove the Rear Cover Assy.
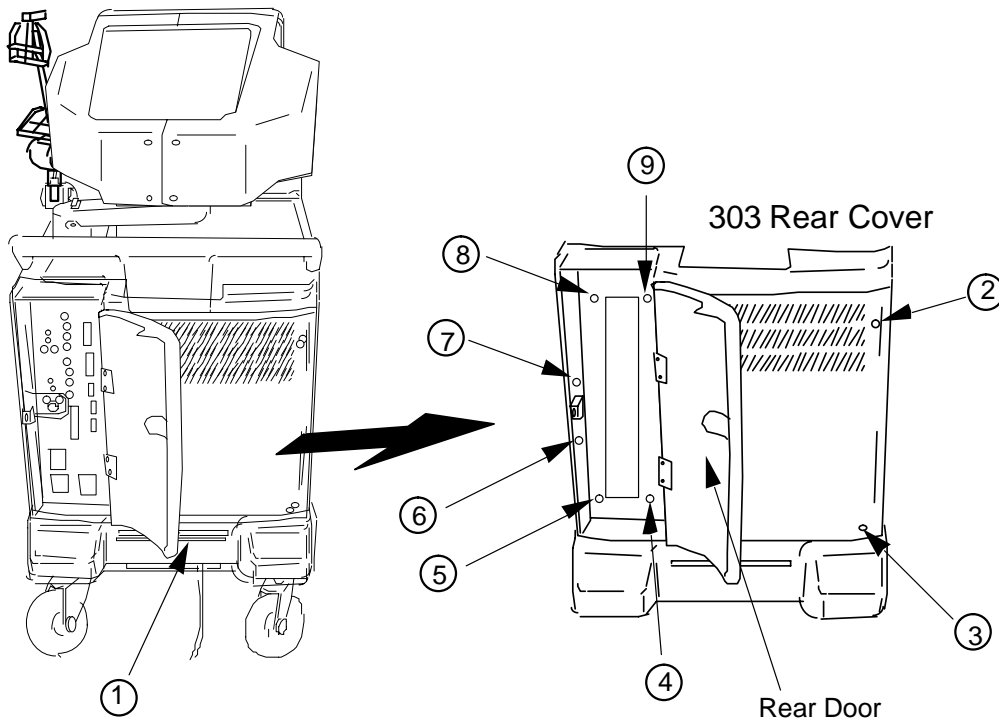
REAR COVER ASSY DISASSEMBLY
ILLUSTRATION 6–35

■

6–2–23 Rear Door Assy (FRU No. 304)

Time Required

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–36.

1. Turn OFF the system.

2. Open the Rear Door (FRU 304).

3. Unscrew four screws (① – ④).

4. Remove the Rear Door Assy.
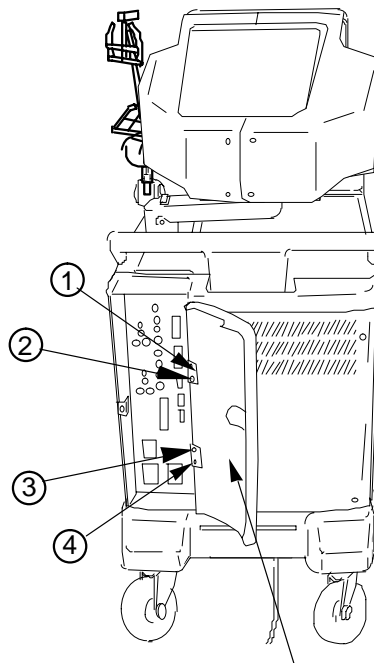
304 REAR DOOR ASSY

REAR DOOR ASSY DISASSEMBLY
ILLUSTRATION 6–36

■ **6–2–24 Rear Door Latch (FRU No. 305)**

Time Required

4 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–37.

1. Turn OFF the system.

2. Open the Rear Door and unscrew two screws (① and ②).

3. Remove the Rear Door Latch.
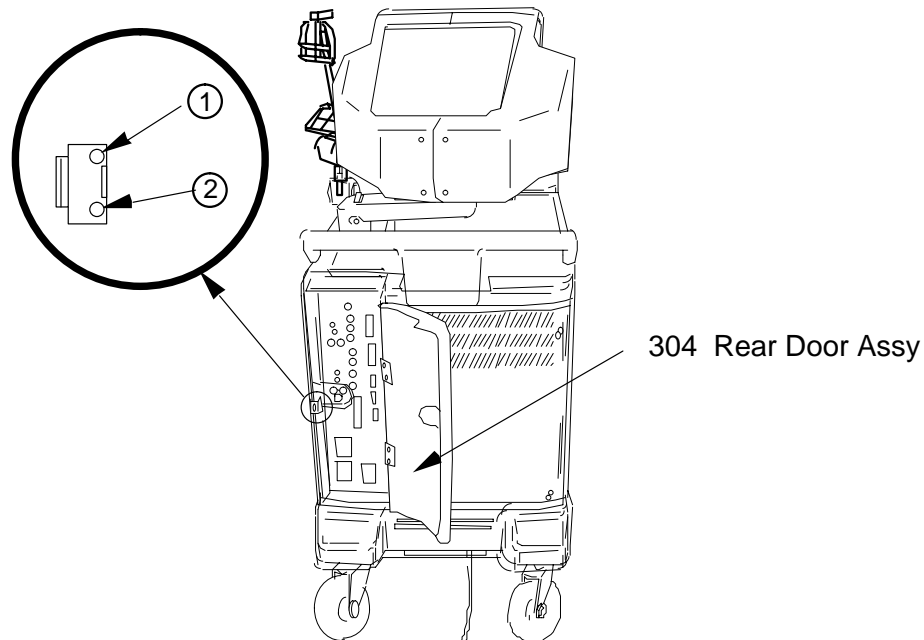
REAR DOOR LATCH DISASSEMBLY
ILLUSTRATION 6–37

■

■ **6–2–25 Rear Door Lock BLK (FRU No. 306)**

Time Required

4 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–38.

1. Turn OFF the system.

2. Open the Rear Door and unscrew four screws (① – ④).

3. Remove the Rear Door Lock BLK.

304 Rear Door Assy

REAR DOOR LOCK BLK DISASSEMBLY
ILLUSTRATION 6–38

■

■ **6–2–26 Front Base Cover (FRU No. 307)**

Time Required

5 Minutes

Tool Required

Driver

Procedure

Refer to ILLUSTRATION 6–39.

1.   Turn OFF the system.

2.   Pull the Air Filter out.

3.   Unscrew four screws (① – ④).

4.   Remove the Front Base Cover.

Front Base Cover
TOP VIEW

Air Filter
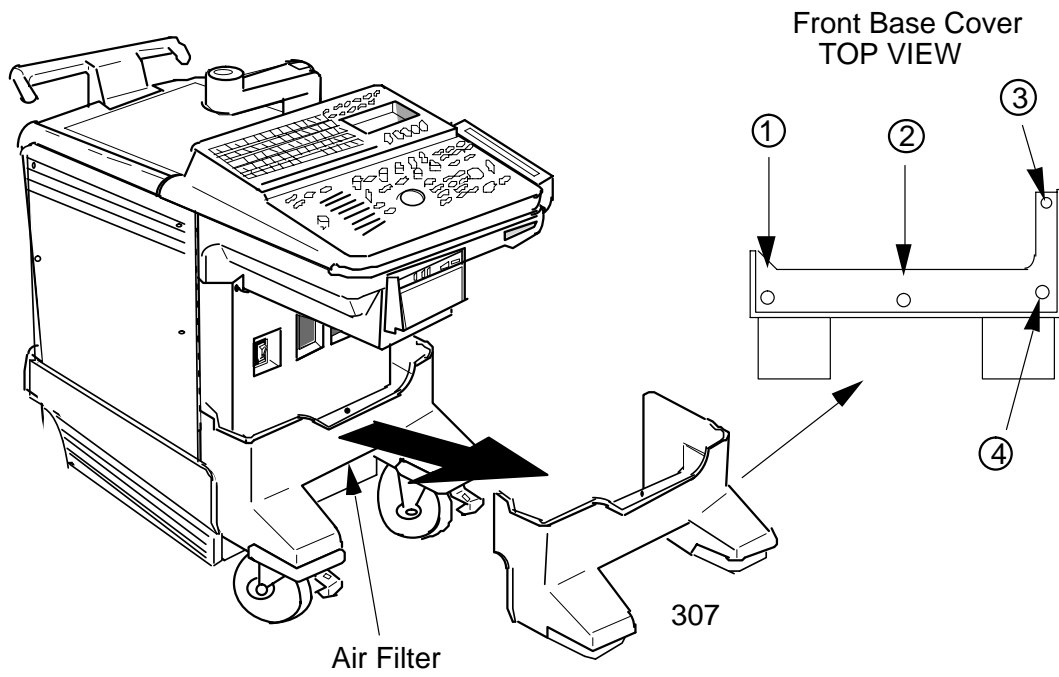
FRONT BASE COVER DISASSEMBLY
ILLUSTRATION 6–39

■

■ **6–2–27 Front Cover (FRU No. 308)**

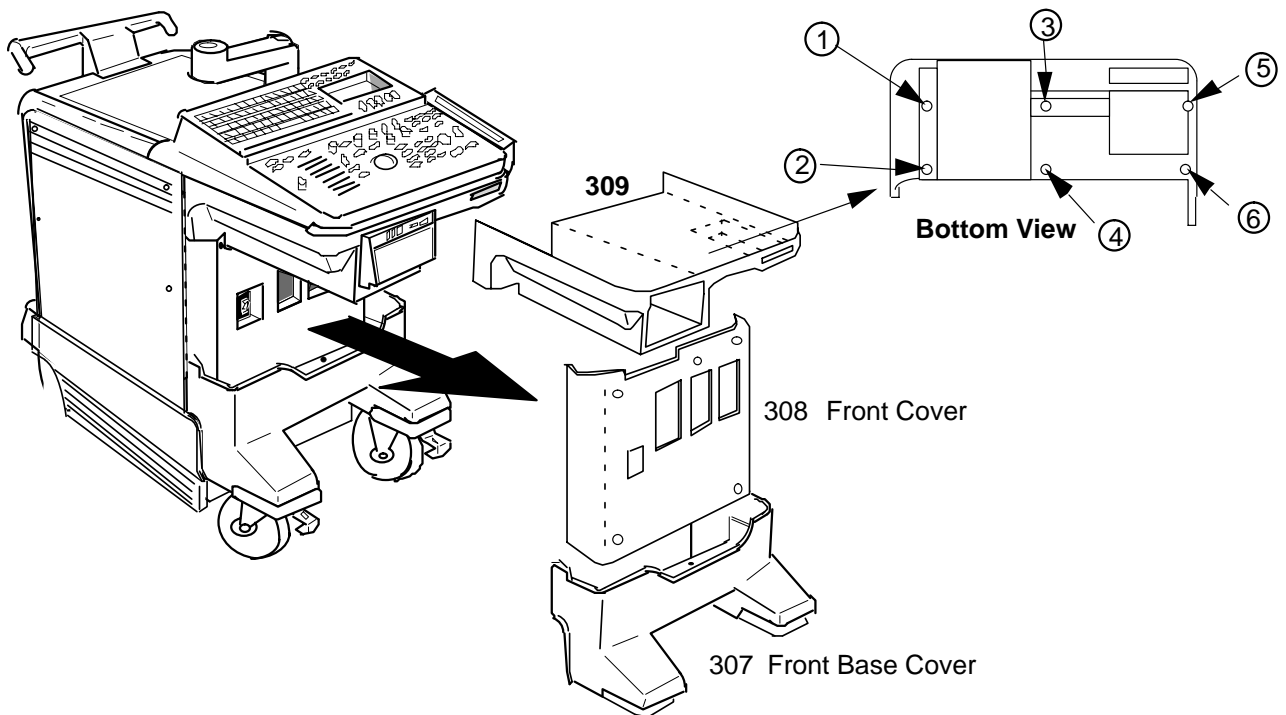**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–40.

1. Turn OFF the system.

■ 2. Remove the Front Base Cover (FRU No. 307). Refer to 6–2–26 on page 6–103.

3. Unscrew four screws ($①$ – $④$).

4. Remove the Front Cover.
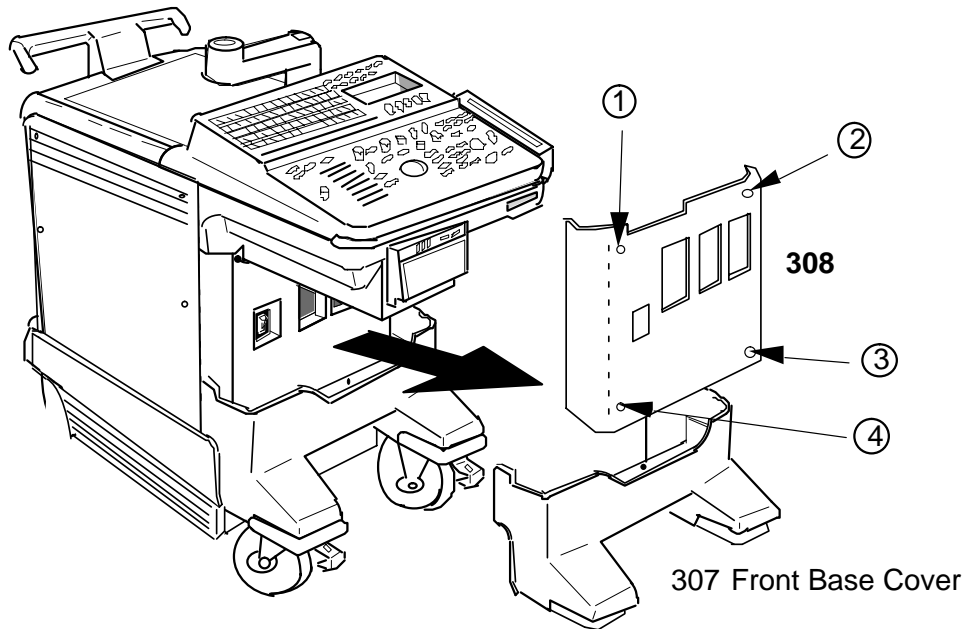
FRONT COVER DISASSEMBLY
ILLUSTRATION 6–40

■ **6–2–27 Front Cover (FRU No. 308)** (continued)

Note

The Front Cover Assy (2211257) consists of the Front Cover (P9524CE) and the Blind Label. It is necessary to attach the Blind Label on the Front Cover to cover the openings for the HDD LED in case of the console with the new type of 3.5–inch HDD (Quantum™ FireBall TM 1280S). Because the new type of 3.5–inch HDD does not support the HDD LED function to indicate the access status of HDD. To attach the Blind Label to the Front Cover, refer to ILLUSTRATION 6–41.
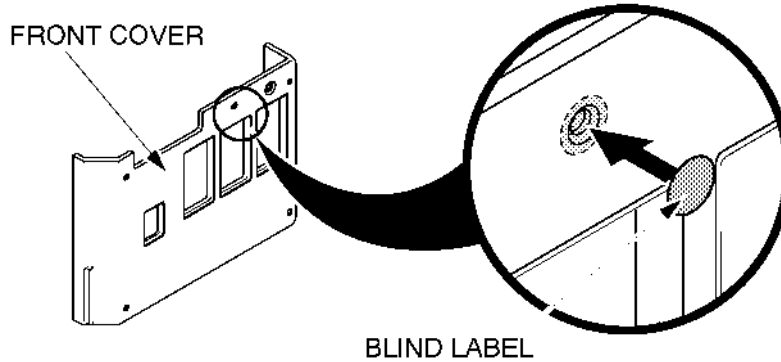
ATTACHING BLIND LABEL TO FRONT COVER
ILLUSTRATION 6–41

■

▌ 6–2–28 Keyboard Bottom Cover (FRU No. 309)

Time Required

20 Minutes

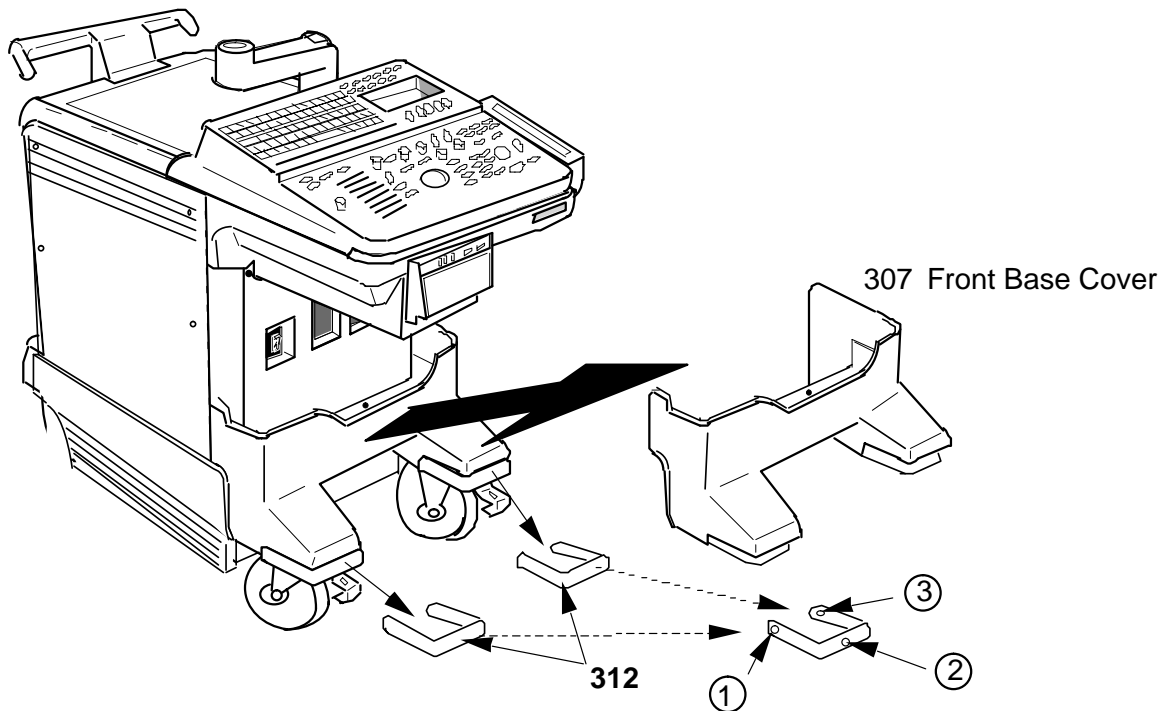**Tool Required**

Screwdriver

Procedure

▌ Refer to ILLUSTRATION 6–42.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

4. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

5. Remove the Front Cover (FRU 308). Refer to 6–2–27 on page 6–104.

6. Unscrew six screws ($\textcircled{1}$ – $\textcircled{6}$).

7. Remove the Keyboard Bottom Cover (FRU 309).

KEYBOARD BOTTOM COVER DISASSEMBLY
ILLUSTRATION 6–42

This page is left blank intentionally.

■ **6–2–29 Top Cover (FRU No. 310)**

Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–43 on page 6–109.

1. Turn OFF the system.

2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

4. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

5. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

6. Unscrew six screws (① – ⑥).

7. Unscrew two Hexagonal bolts (⑦ – ⑧).

8. Remove the Top Cover.

■ **6–2–29 Top Cover (FRU No. 310)** (continued)

302 Side Cover Right

301 Side Cover Left

307 Front Base Cover
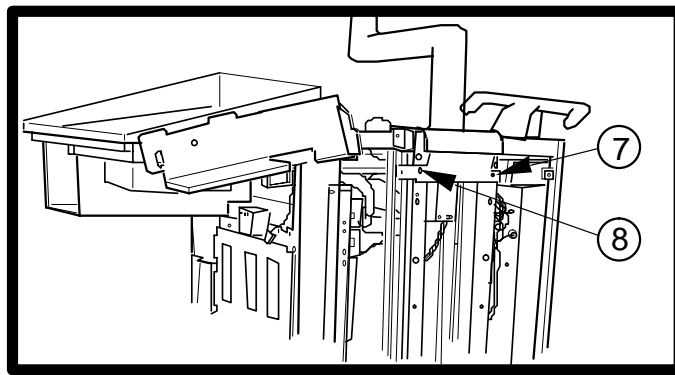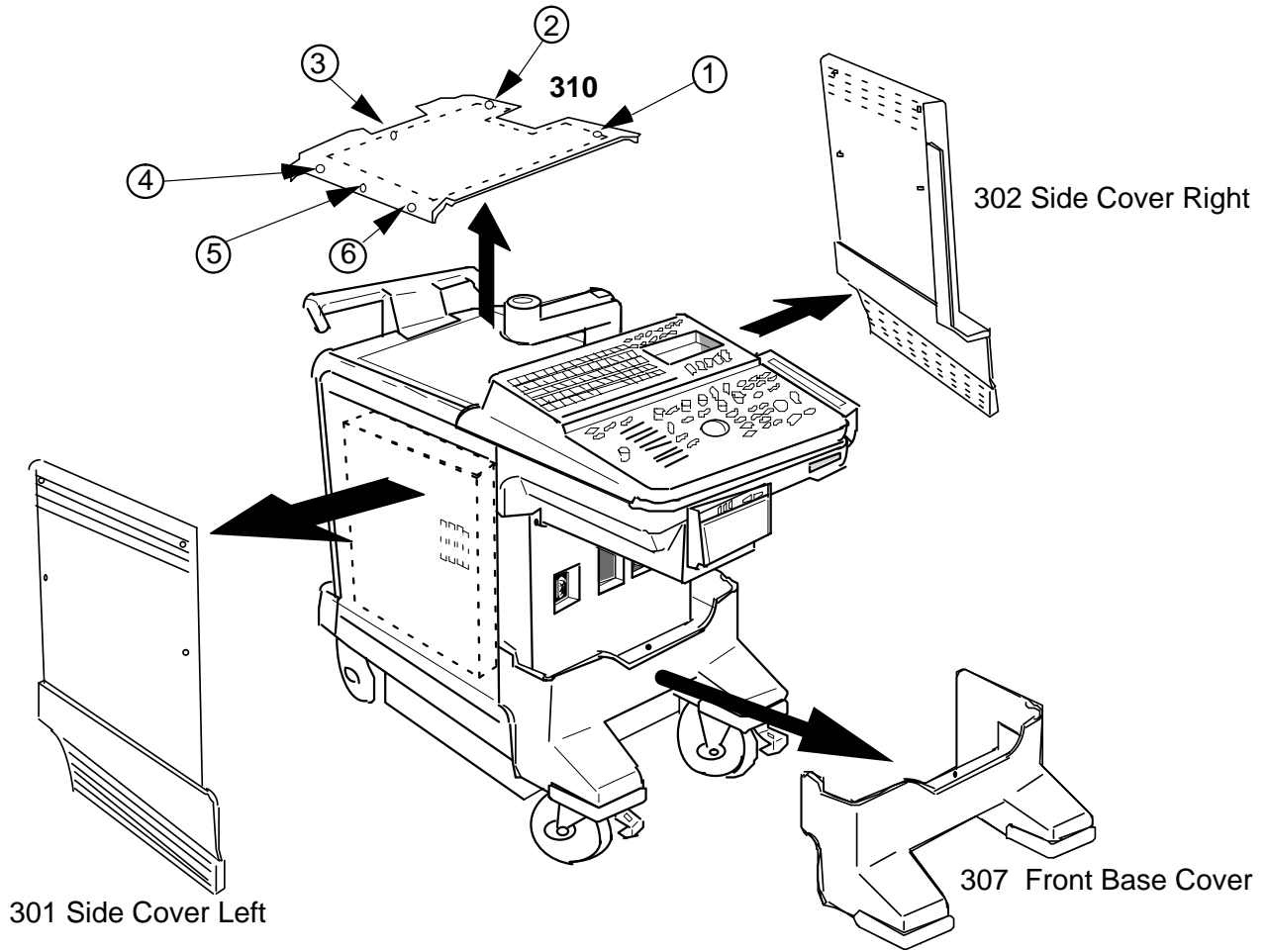
Right Side View

TOP COVER DISASSEMBLY
ILLUSTRATION 6–43

■

■ **6–2–30 Front Bumper Set (FRU No. 312)**

Time Required

10 Minutes

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–44.

1. Turn OFF the system.

■ 2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Loosen three hexagonal bolts from each Caster Bumper (① – ③).

4. Remove the Front Bumpers (FRU 312).

FRONT BUMPER SET DISASSEMBLY
ILLUSTRATION 6–44

■

Note
Reuse the hexagonal bolts removed to install the new front bumper(s).

■ **6–2–31 Corner Guard (FRU No. 313)**

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–45.

1.   Turn OFF the system.

■ 2.   Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

3.   Unscrew five screws fixing the corner guard to the frame (OUTSIDE).

4.   Unscrew three screws (① – ③) (INSIDE).

5.   Remove the Corner Guard.

400 Keyboard Panel Assy

313
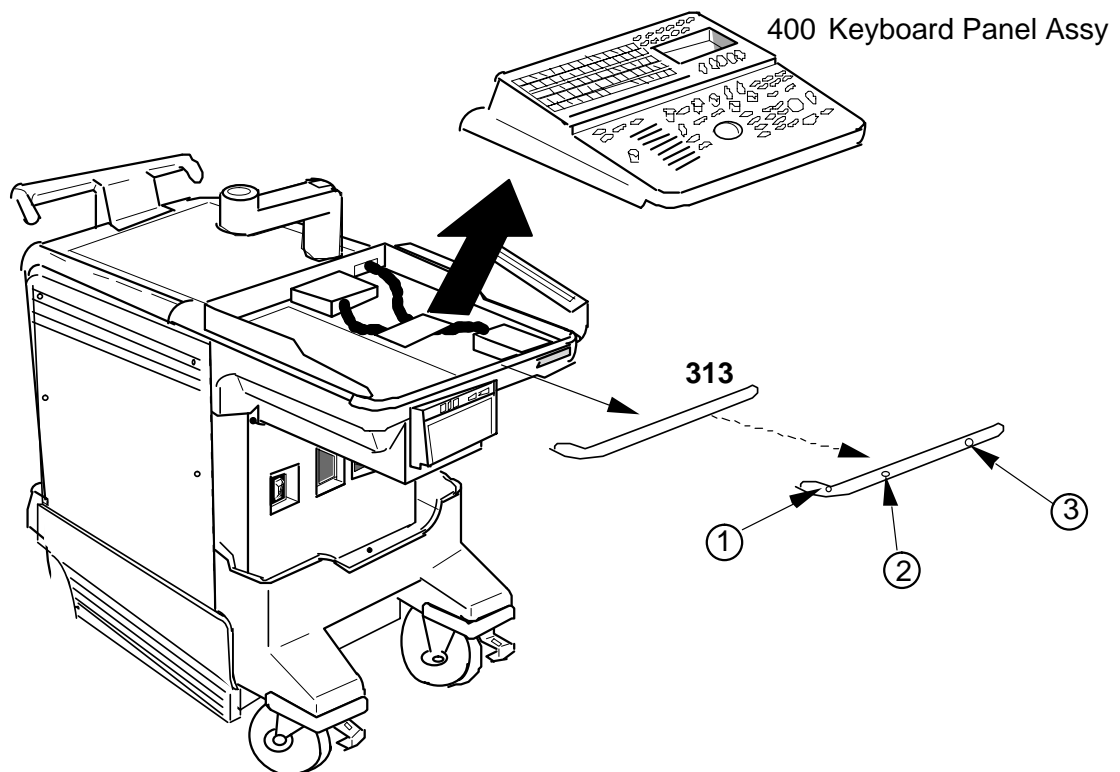
KEYBOARD BUMPER DISASSEMBLY
ILLUSTRATION 6–45

Note

Reuse the hexagonal bolts and screws removed to install the new corner guard.

▌ 6–2–32 Probe Holder (FRU No. 314)

Time Required

1 Minutes

Tool Required

Not necessary

Procedure

▌ Refer to ILLUSTRATION 6–46.

1. Turn OFF the system.

2. Pull the latch located at bottom of the probe holder.

▌ 3. Pull the Probe Holder out as shown in ILLUSTRATION 6–46.
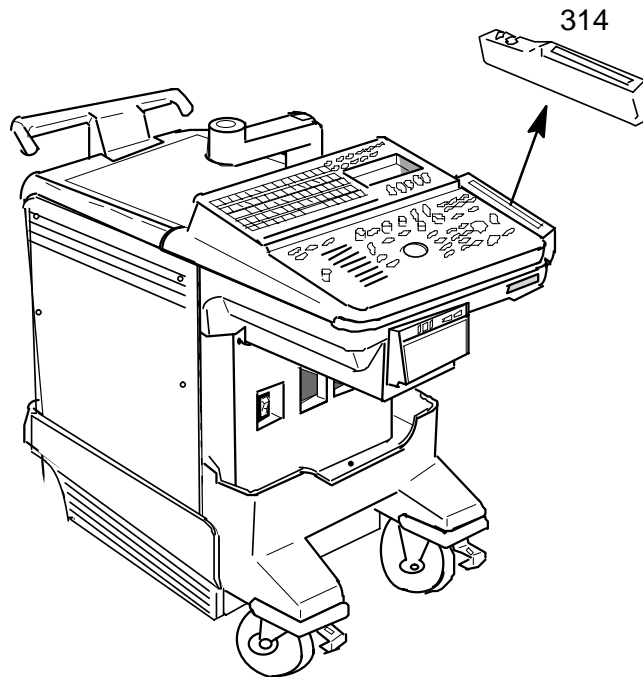
PROBE HOLDER DISASSEMBLY
ILLUSTRATION 6–46

▌

■ **6–2–33 Gel Holder (FRU No. 315)**

Time Required

1 Minutes

Tool Required

Not necessary

Procedure

■ Refer to ILLUSTRATION 6–47.

1. Turn OFF the system.

■ 2. Pull the Gel Holder out as shown in ILLUSTRATION 6–47.

3. Remove the Gel Holder Bottom (FRU 316) from the Gel Holder.
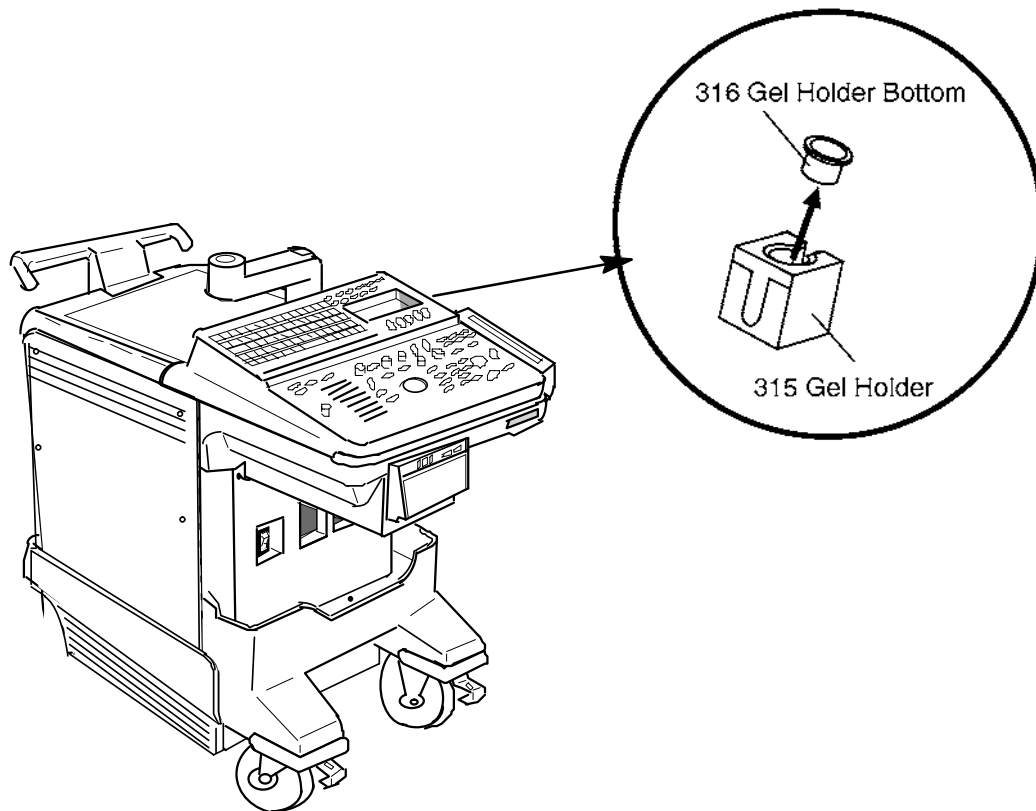
GEL HOLDER DISASSEMBLY
ILLUSTRATION 6–47

■

6–2–34 Handle (FRU No. 317)

Time Required

10 Minutes

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6–48.

1. Turn OFF the system.

2. Remove the Rear Cover Assy (FRU No. 303). Refer to 6–2–22 on page 6–99.

3. Remove four hexagonal bolts (① – ④).

4. Remove the Handle.
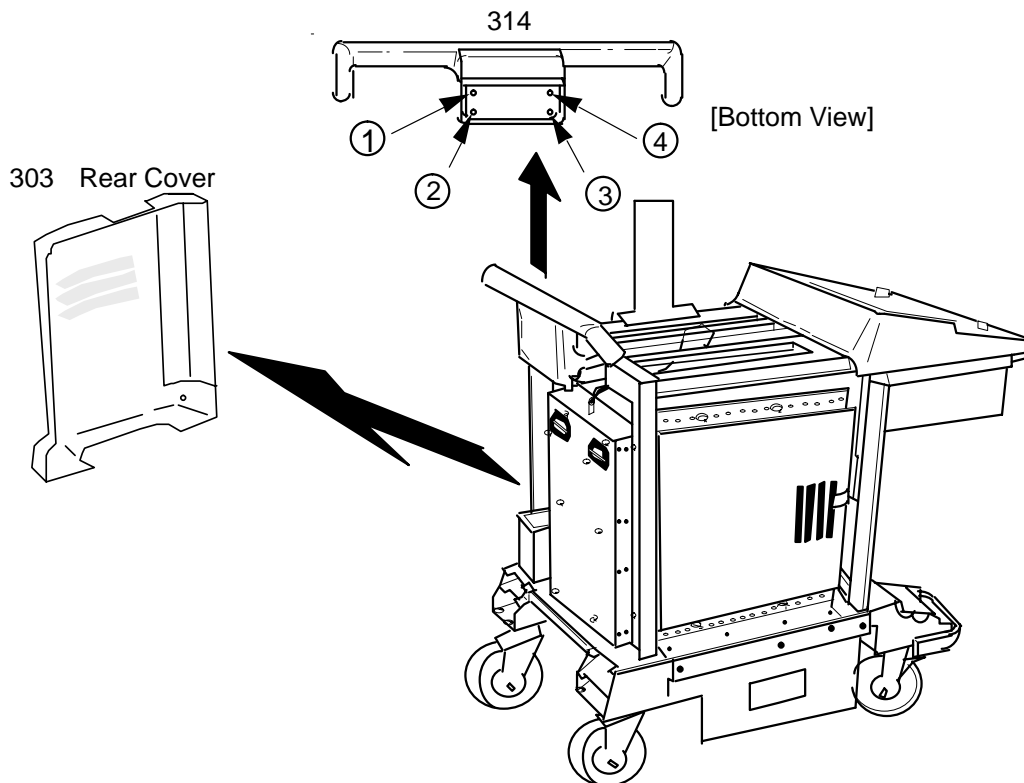
HANDLE DISASSEMBLY
ILLUSTRATION 6–48

■ **6–2–35 Air Filter (FRU No. 318A), PW Filter (FRU No. 318B)**
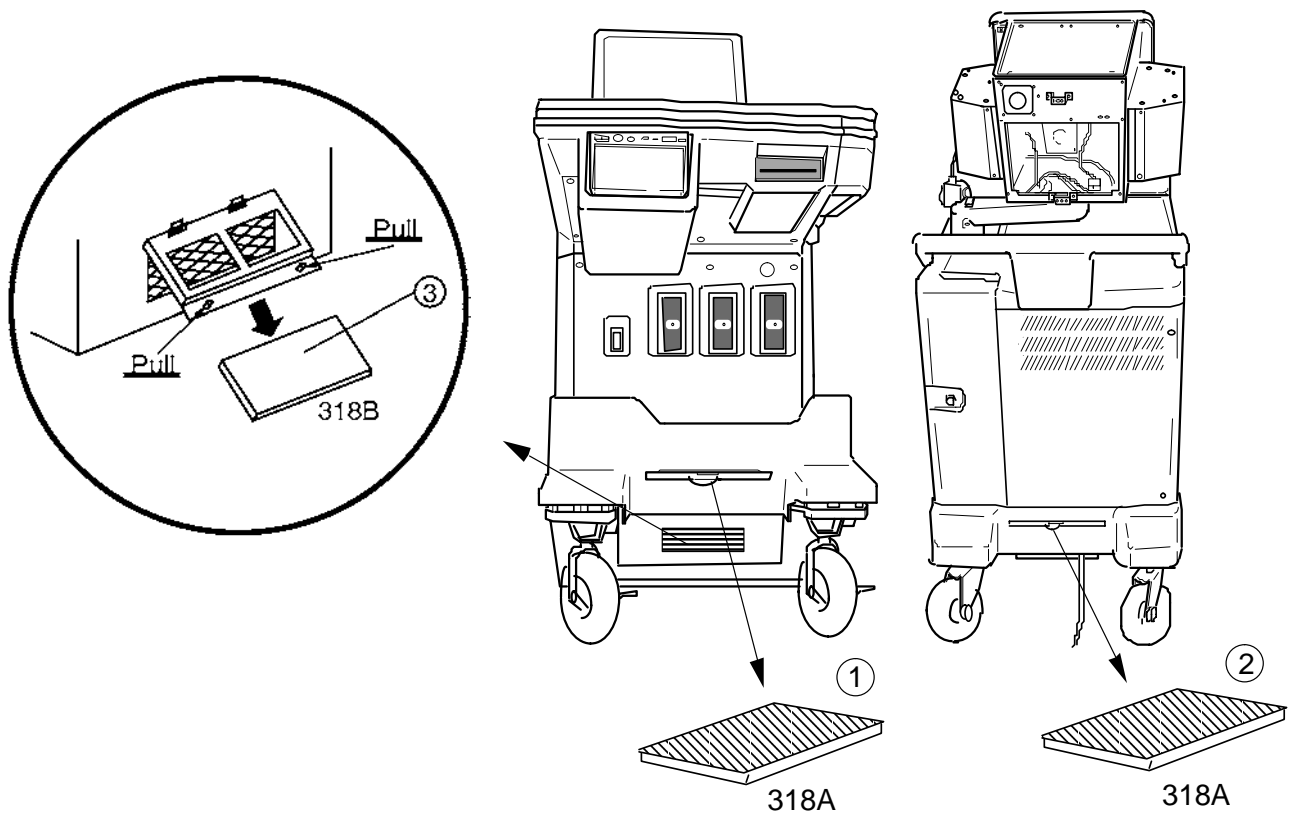
Time Required

3 Minutes

Tool Required

Not necessary

Procedure

■ Refer to ILLUSTRATION 6–49.

1. Turn OFF the system.

■ 2. Pull out the two Air Filters (①and②) and Remove the one PW Filter (③) as shown in ILLUSTRATION 6–49.

AIR FILTERS DISASSEMBLY
ILLUSTRATION 6–49

■

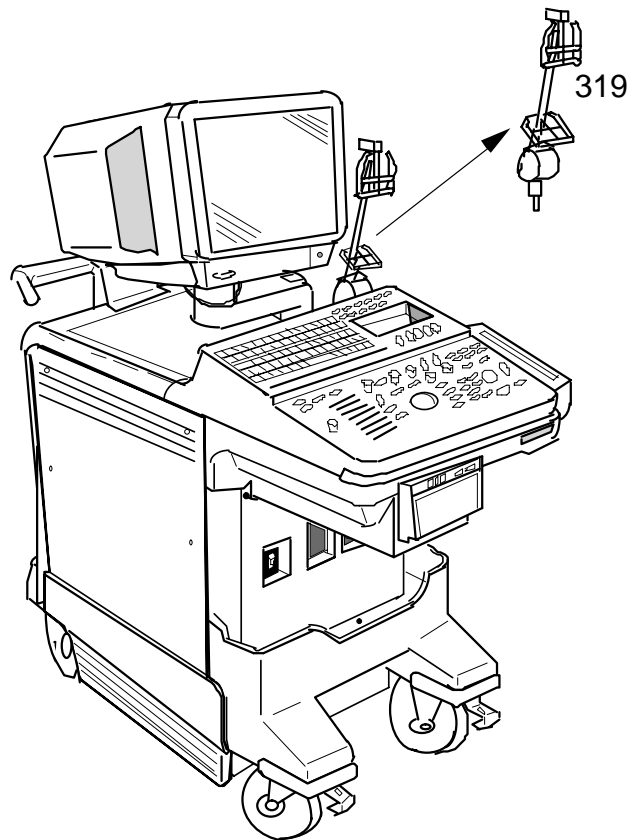■ **6–2–36 Cable Arm Assy (FRU No. 319)**

Time Required

1 Minute

Tool Required

Not necessary

Procedure

■ Refer to ILLUSTRATION 6–50.

1.   Turn OFF the system.

■ 2.   Pull the Cable Arm Assy out as shown in ILLUSTRATION 6–50.

CABLE ARM ASSY REMOVAL
ILLUSTRATION 6–50

■

■ **6–2–37 Cable Arm Knob (FRU No. 320)**
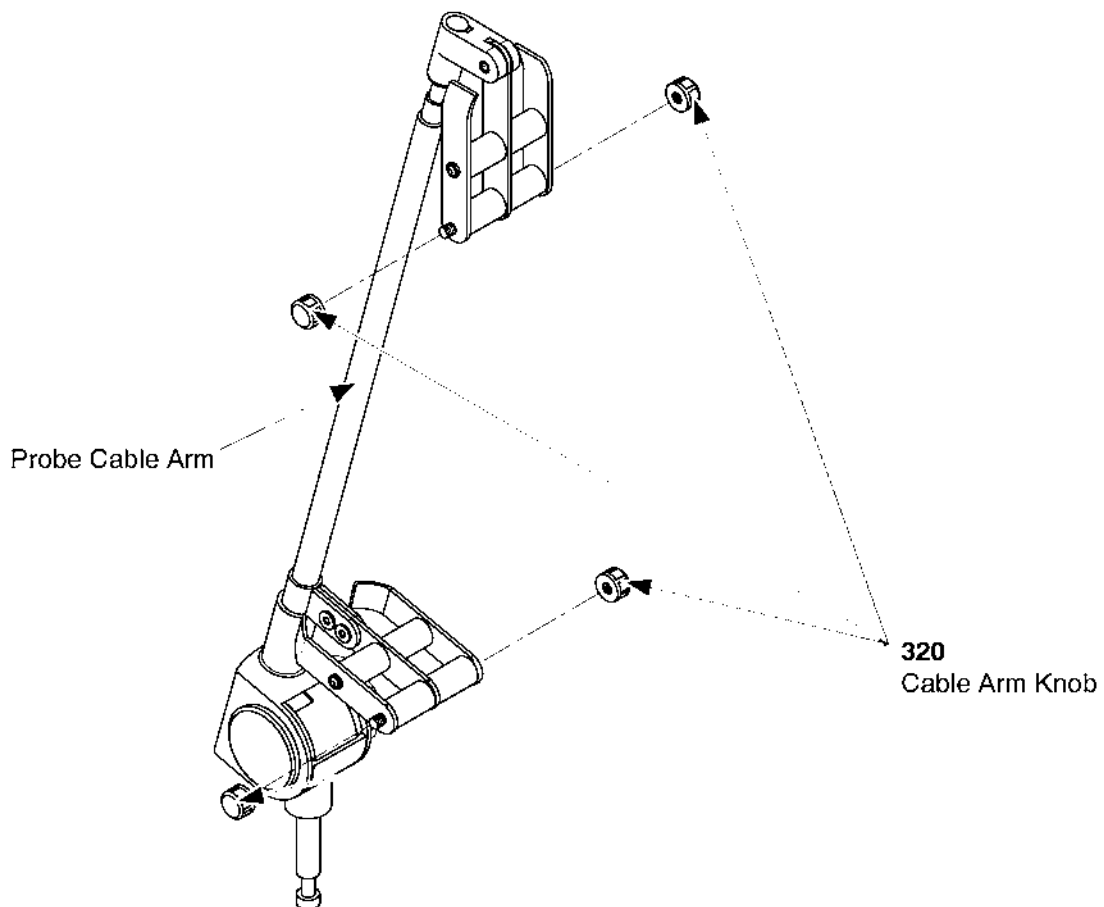
Time Required

1 Minutes

Tool Required

Not necessary

Procedure

■ Refer to ILLUSTRATION 6–51.

1.　Turn OFF the system.

2.　Turn each Cable Arm Knob counterclockwise and remove it.

Probe Cable Arm

320
Cable Arm Knob

CABLE ARM KNOB REMOVAL
ILLUSTRATION 6–51

■

6–2–38 Front Caster (FRU No. 321)

Time Required

15 Minutes

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6–52.

1. Turn OFF the system.

2. Put the system on a box.

3. Remove the Caster Covers (FRU 323). Refer to 6–2–40 on page 6–120.

4. Unscrew four hexagonal bolts ($①$ – $④$) and remove the Front Caster.

Box

323 Caster Cover

321
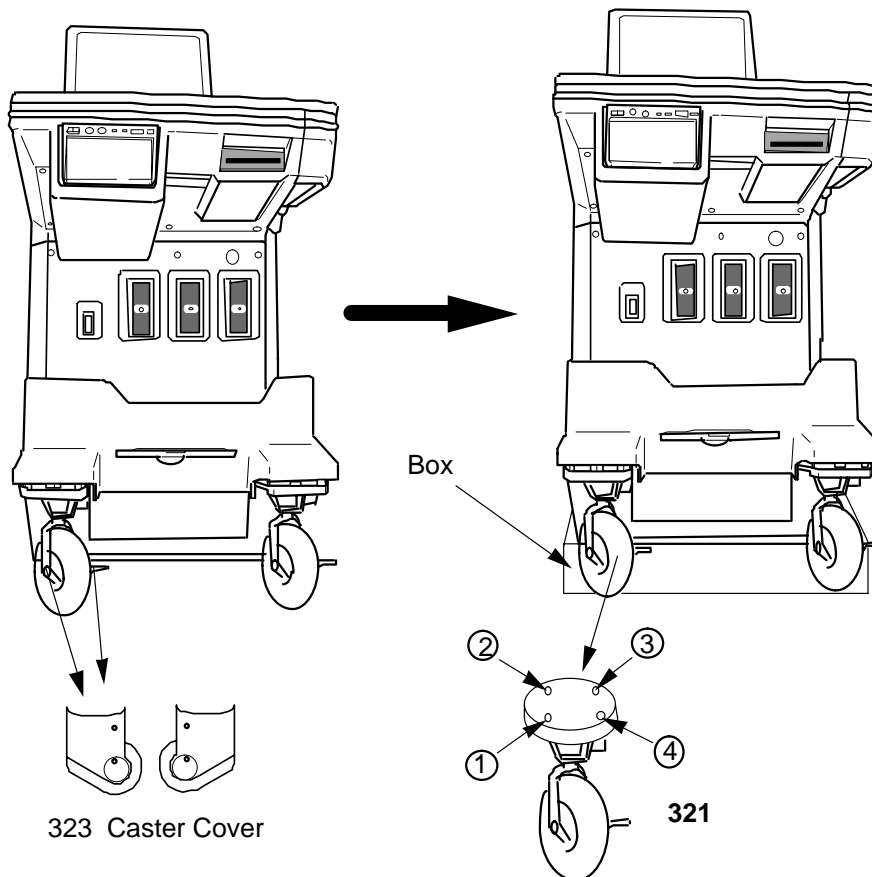
FRONT CASTER DISASSEMBLY
ILLUSTRATION 6–52

■ **6–2–39 Rear Caster (FRU No. 322)**

Time Required
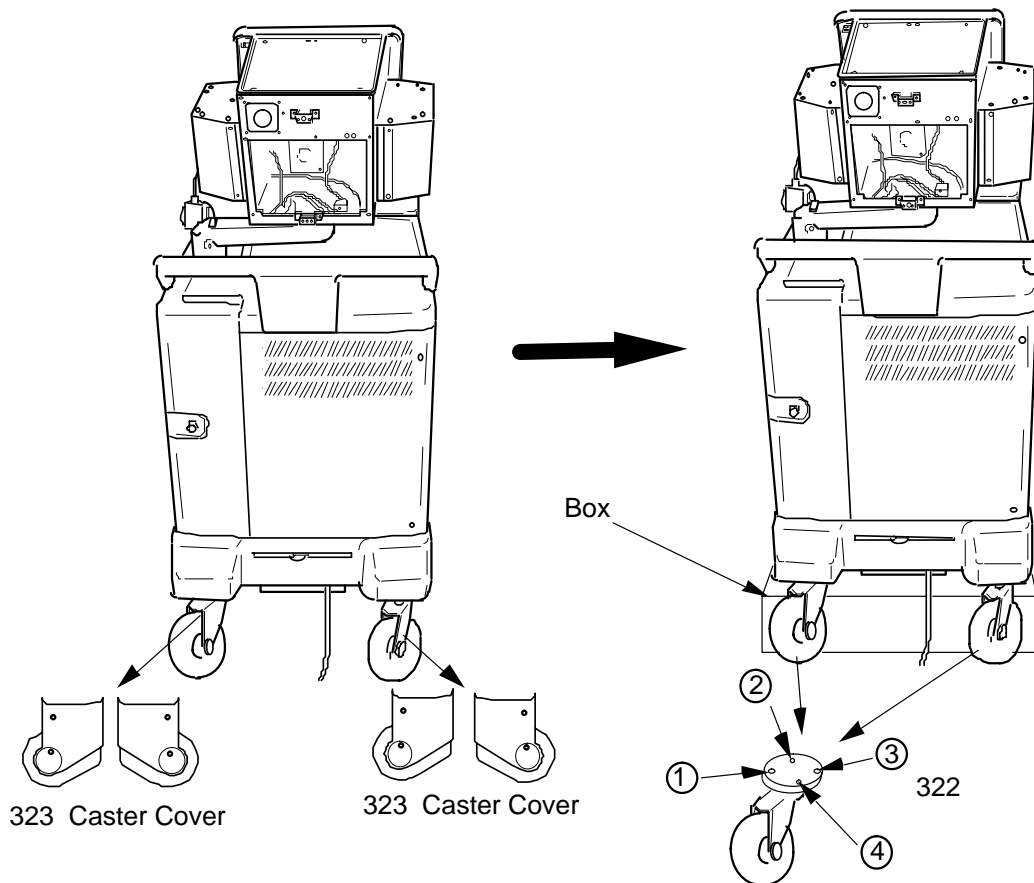
15 Minutes

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–53.

1.   Turn OFF the system.

2.   Put the system on a box.

■ 3.   Remove the Caster Covers (FRU 323). Refer to 6–2–40 on page 6–120.

4.   Unscrew four screws (①–④) and remove the Rear Caster.

REAR CASTER DISASSEMBLY
ILLUSTRATION 6–53

■

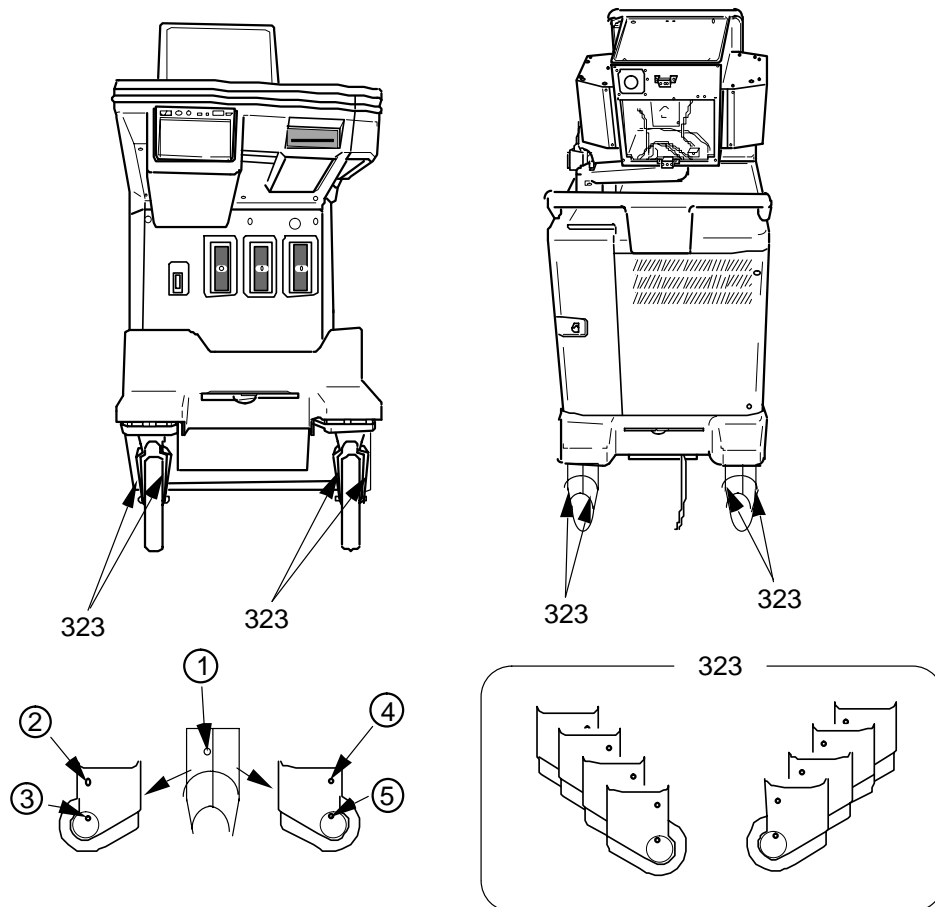■ **6–2–40 Caster Cover Set (FRU No. 323)**

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–54.

1. Turn OFF the system.

2. Unscrew five screws (①–⑤).

3. Remove the Caster Covers.

CASTER COVERS DISASSEMBLY
ILLUSTRATION 6–54

■

6–2–41 Keyboard Panel Assy and Keyboard Panel2 Assy (FRU No. 400)
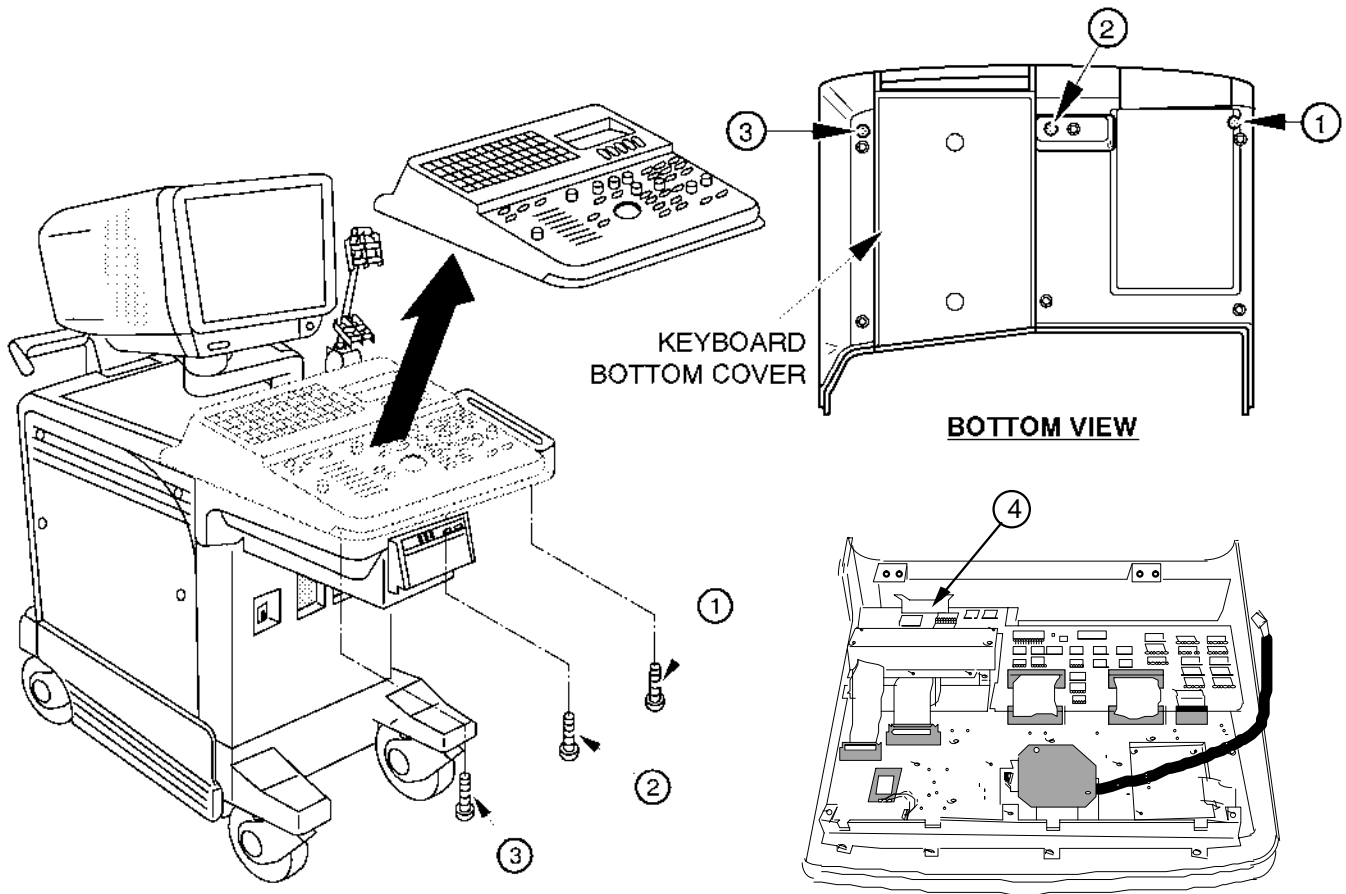
Time Required

8 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–55.

1. Turn OFF the system.

2. Unscrew three screws (①–③) of the Keyboard Panel Assy or Keyboard Panel2 Assy.

3. Lift the Keyboard Panel Assy or Keyboard Panel2 Assy up.

4. Disconnect the connector (④).

5. Pull the Keyboard Panel Assy out.

KEYBOARD PANEL(2) ASSY DISASSEMBLY
ILLUSTRATION 6–55

■ **6–2–42 Keyboard Knob Set (FRU No. 401)**

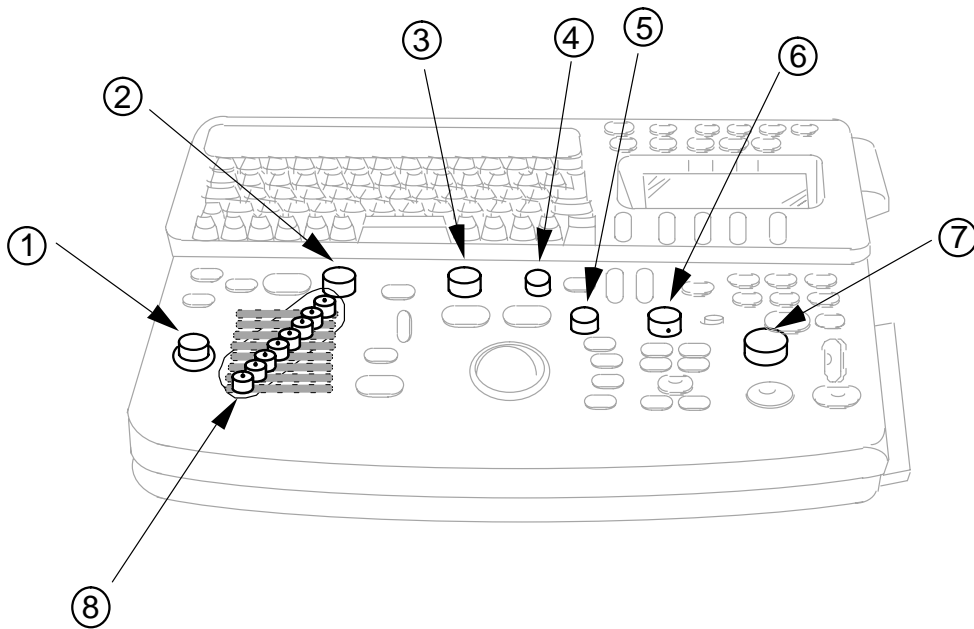**Time Required**

15 Minutes

Tool Required

Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–56.

1. Turn OFF the system.

2. Unscrew two hexagonal bolts for each encoder knob and remove the seven Encoder Knobs (①–⑦).

3. Pull the eight TGC Pot Knobs (⑧) out.

KEYBOARD KNOBS DISASSEMBLY
ILLUSTRATION 6–56

■

■ **6–2–43 Trackball (FRU No. 402)**
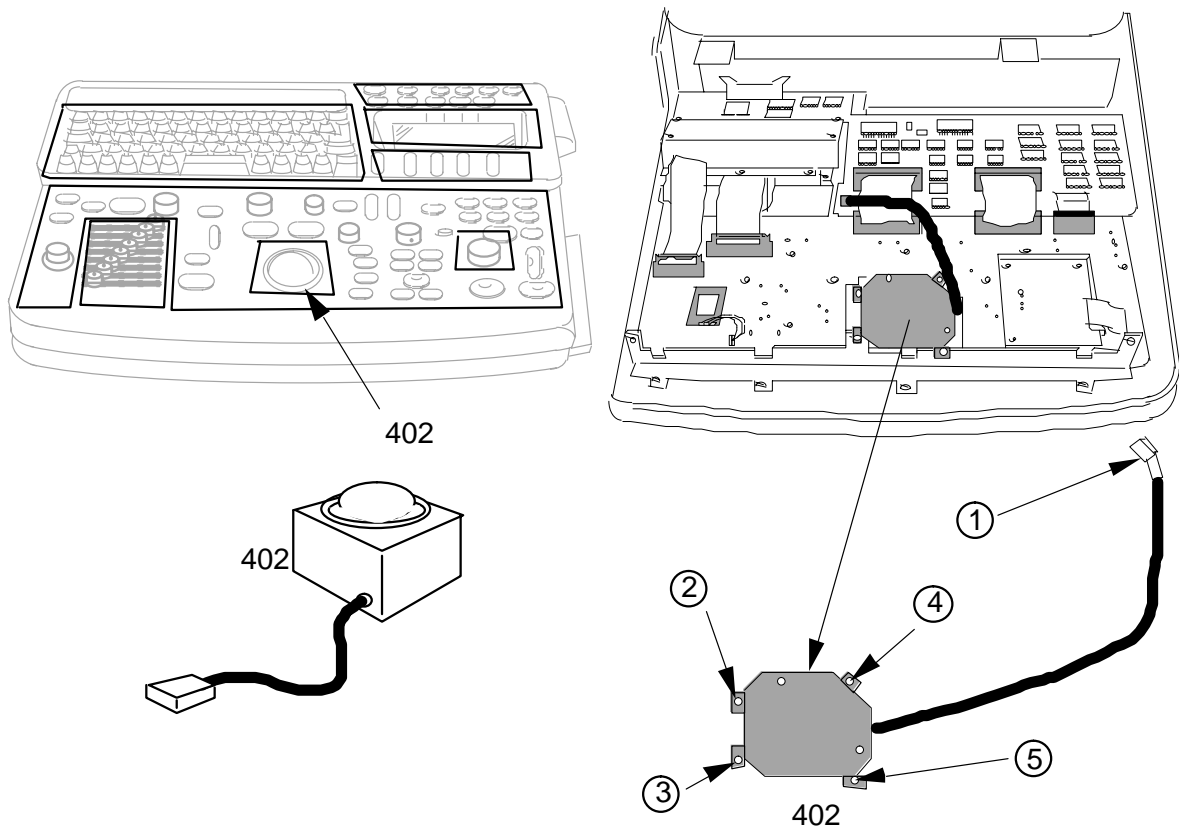
Time Required

11 Minute

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–57.

  1.   Turn OFF the system.

■ 2.   Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

  3.   Disconnect the I/F board connector (①).

  4.   Unscrew four screws (② – ⑤).

  5.   Remove the Trackball.

TRACKBALL DISASSEMBLY
ILLUSTRATION 6–57

■

6–2–44 TGC Assy (FRU No. 403)
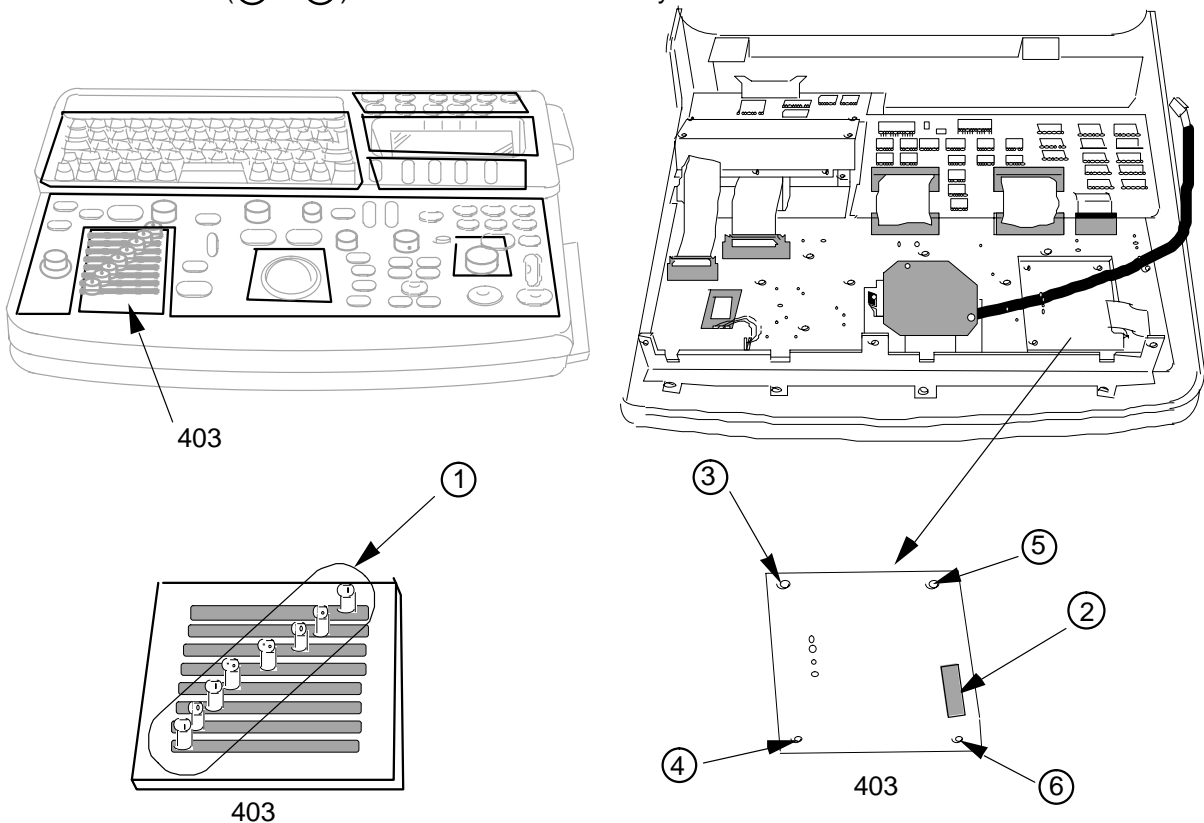
Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–58.

1. Turn OFF the system.

2. Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

3. Pull the eight TGC Pot Knobs (①: FRU 401) out. Refer to 6–2–42 on page 6–122.

4. Disconnect the TGC connector (②).

5. Unscrew four screws (③ – ⑥) and remove the TGC Assy.

TGC ASSY DISASSEMBLY
ILLUSTRATION 6–58

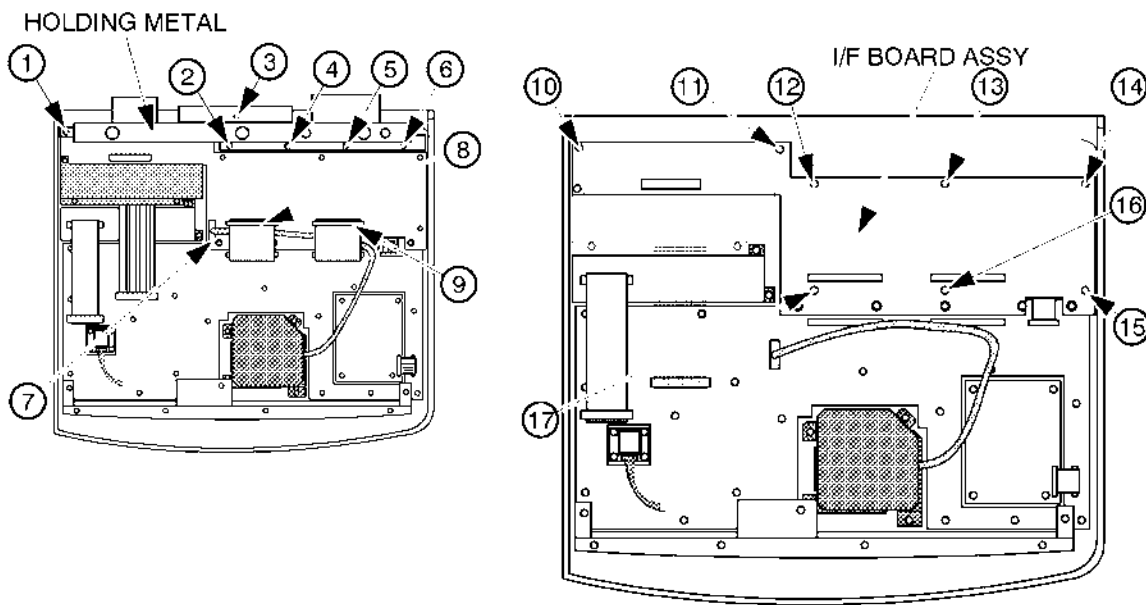## ▐ 6–2–45 I/F Board Assy (FRU No. 405)

Time Required

25 Minutes

Tool Required

Screwdriver
Hexagonal Socket Wrench

Procedure

▐ Refer to ILLUSTRATION 6–59.

1. Turn OFF the system.

2. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3. Remove the VFD Assy. Refer to 6–2–49 on page 6–131.

4. Unscrew six screws (① – ⑥) and remove the Holding Metal.

5. Disconnect the three connectors (⑦ – ⑨).

6. Remove one Stud (⑩).

7. Unscrew seven screws (⑪ – ⑰) and remove the I/F Board Assy.

I/F BOARD ASSY DISASSEMBLY
ILLUSTRATION 6–59

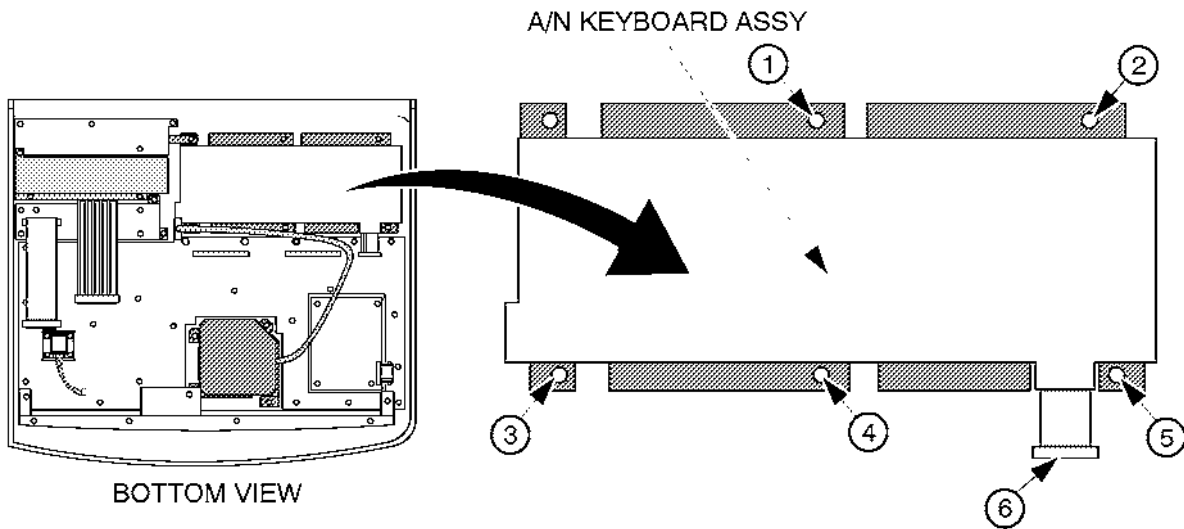## 6–2–46 A/N Keyboard Assy (FRU No. 406)

Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Socket Wrench

Procedure

Refer to ILLUSTRATION 6–60.

1. Turn OFF the system.

2. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3. Remove the VFD Assy. Refer to 6–2–49 on page 6–131.

4. Remove the I/F Board Assy. Refer to 6–2–45 on page 6–125.

5. Unscrew five screws (① – ⑤).

6. Disconnect the A/N keyboard connectors (⑥).

7. Remove the A/N Keyboard Assy.

A/N KEYBOARD ASSY DISASSEMBLY
ILLUSTRATION 6–60

This page is left blank intentionally.

■ **6–2–47 LED SW Keyboard Set (FRU No. 407)**
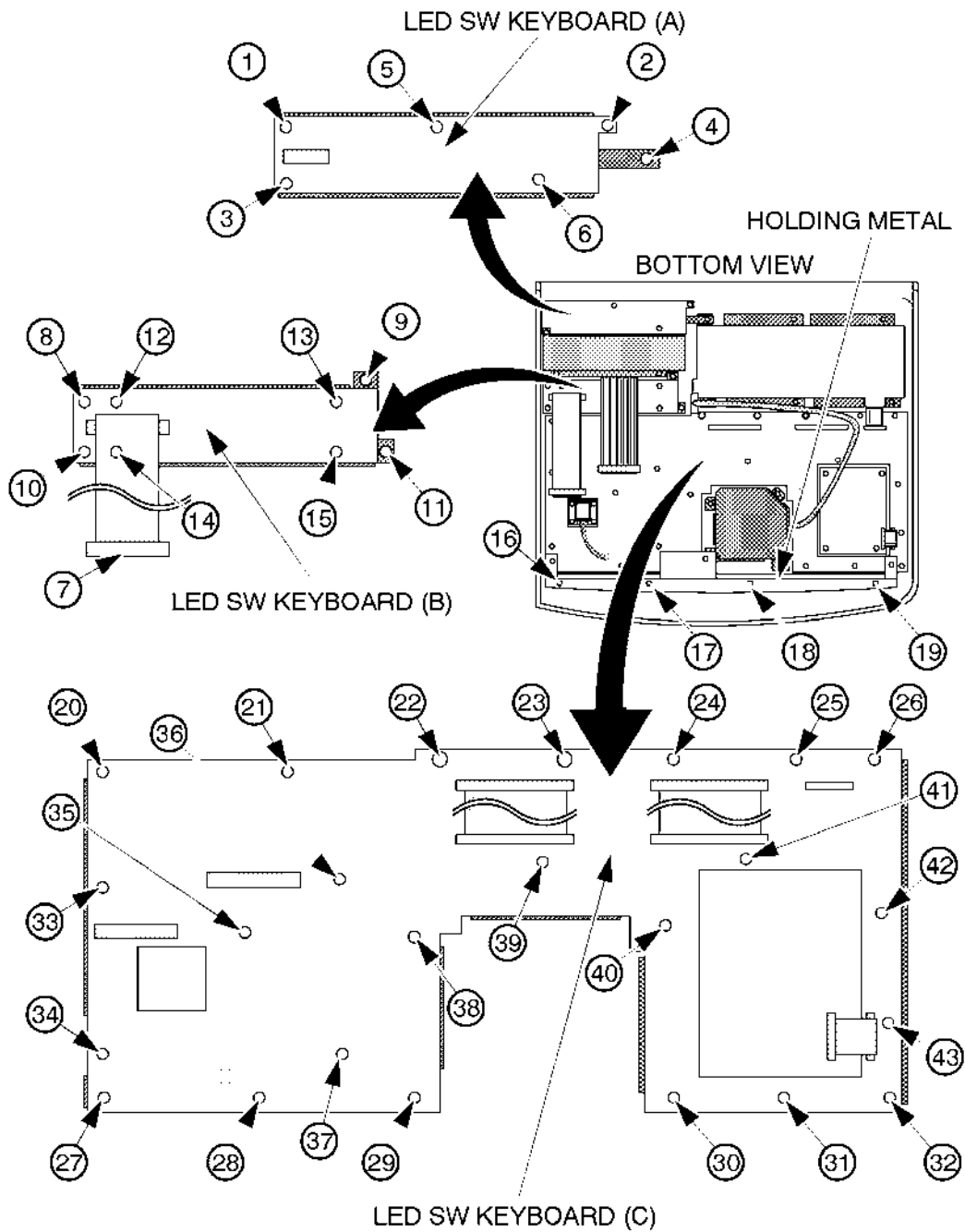
Time Required

40 Minutes

Tool Required

Screwdriver
Hexagonal Socket Wrench

Procedure

■ Refer to ILLUSTRATION 6–61 on page 6–129.

1. Turn OFF the system.

2. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3. Remove the I/F Board Assy. Refer to 6–2–45 on page 6–125.

4. Remove three Studs (① – ③).

5. Unscrew one screw (④) and remove the LED SW KEYBOARD (A) with the cover metal from the Keyboard Case.

6. Unscrew two screws (⑤ and ⑥) and remove the LED SW KEYBOARD (A) from the cover metal.

7. Disconnect one connector (⑦).

8. Unscrew four screws (⑧ – ⑪) and remove the LED SW KEYBOARD (B) with the cover metal from the Keyboard Case.

9. Unscrew four screws (⑫ – ⑮) and remove the LED SW KEYBOARD (B) from the cover metal.

10. Unscrew four screws (⑯ – ⑲) and remove the Holding Metal.

11. Unscrew thirteen (13) screws (⑳ – ㉜) and remove the LED SW KEYBOARD (C) with the cover metal from the Keyboard Case.

12. Unscrew eleven (11) screws (㉝ – ㊸) and remove the LED SW KEYBOARD (C) from the cover metal.

■ **6–2–47 LED SW Keyboard Set (FRU No. 407)** (continued)

LED SW KEYBOARD SET DISASSEMBLY
ILLUSTRATION 6–61

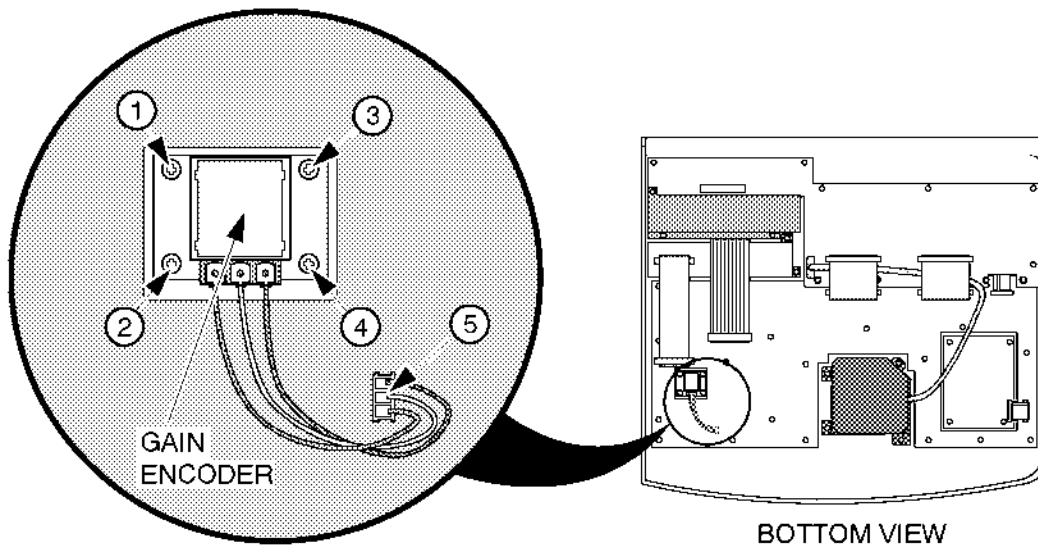## ■ 6–2–48 Gain Encoder (FRU No. 408)

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–62.

1. Turn OFF the system.

■ 2. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3. Unscrew four screws (① – ④).

4. Disconnect the gain encoder connector (⑤).

GAIN ENCODER DISASSEMBLY
ILLUSTRATION 6–62

Note
The appearance of new Gain Encoder (2206005) is different from the old one (2164871).

Note
The new Gain Encoder (2206005) can be used only for the console with the software version 3.30 or later.

■ **6–2–49 VFD Assy (FRU No. 409)**
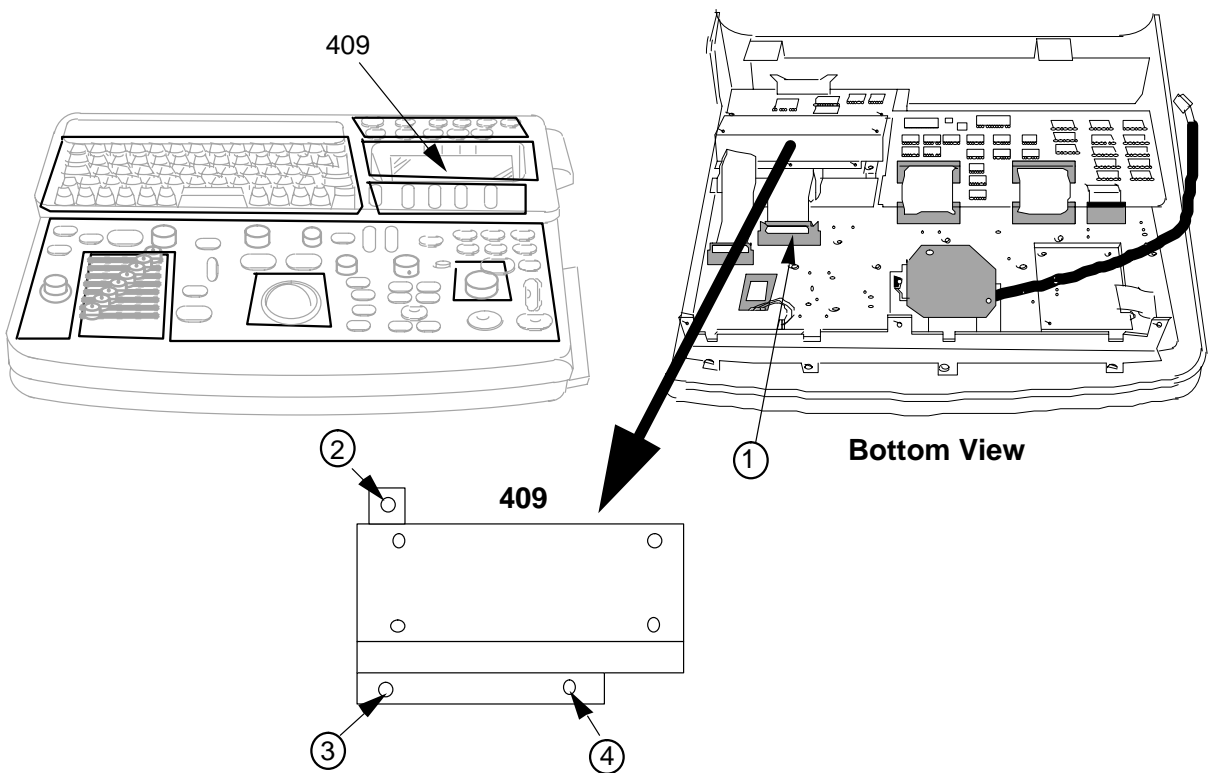
Time Required

20 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–63.

1.   Turn OFF the system.

■ 2.   Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3.   Disconnect the VFD connector (①).

4.   Unscrew three screws (② – ④) and remove the VFD Assy.

VFD ASSY DISASSEMBLY
ILLUSTRATION 6–63

6–2–50 Keyboard Case (FRU No. 410)

Time Required

1 Hour

Tool Required

Screwdriver
Hexagonal Socket Wrench

Procedure

Refer to ILLUSTRATION 6–64.

1.   Turn OFF the system.

2.   Remove the Keyboard Knobs. Refer to 6–2–42 on page 6–122.

3.   Remove the Trackball. Refer to 6–2–43 on page 6–123.

4.   Remove the TGC Assy. Refer to 6–2–44 on page 6–124.

5.   Remove the Gain Encoder. Refer to 6–2–48 on page 6–130.

6.   Remove the VFD Assy. Refer to 6–2–49 on page 6–131.

7.   Remove the I/F Board Assy. Refer to 6–2–45 on page 6–125.

8.   Remove the three LED SW Keyboards with cover metals. Refer to 6–2–47 on page 6–128.

9.   Remove the A/N Keyboard Assy. Refer to 6–2–46 on page 6–126.
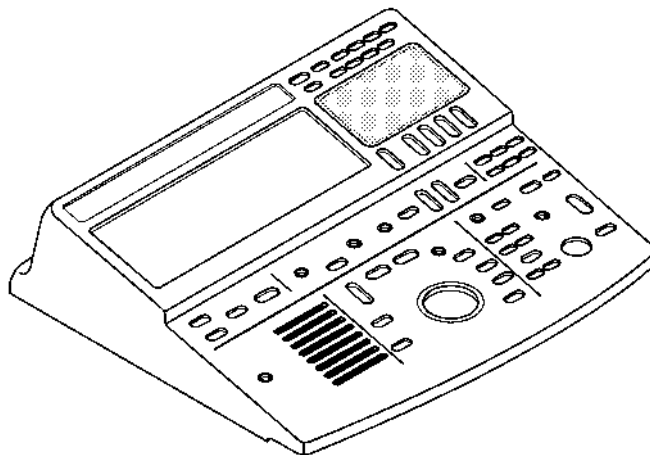
KEYBOARD CASE
ILLUSTRATION 6–64

■ 6–2–51 A/N Key–top Set (FRU No. 411)
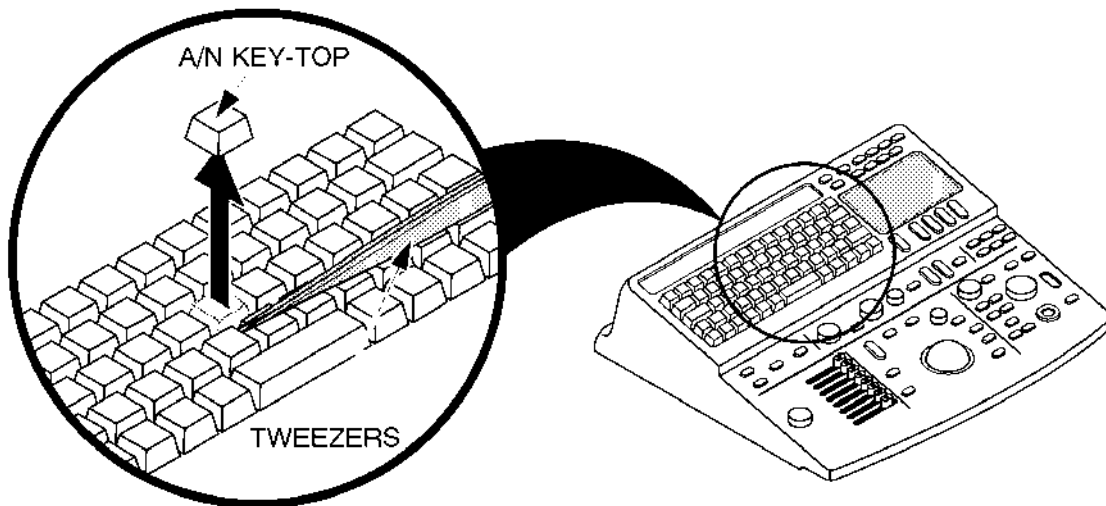
Time Required

5 Minutes

Tool Required

Tweezers

Procedure

■ Refer to ILLUSTRATION 6–65.

1. Turn OFF the system.

2. Insert the tweezers into the bottom of key–top.

3. Remove the key–top as shown in ILLUSTRATION 6–65.

4. Insert the A/N Key–top Set according to the language. Refer to ILLUSTRATION 6–66 on page 6–134.

A/N KEY–TOP DISASSEMBLY
ILLUSTRATION 6–65

6–2–51 A/N Key–top Set (FRU No. 411) (continued)
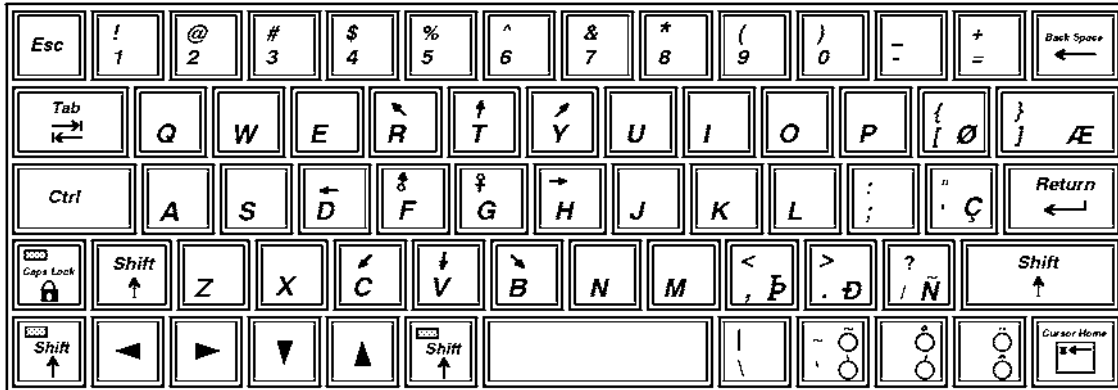
Key–top for English, French, German, Spanish, Italian, Portuguese, Swedish and Danish

Key–top for Greek
ILLUSTRATION 6–66

6–2–51 A/N Key–top Set (FRU No. 411) (continued)

Key–top for Turkish
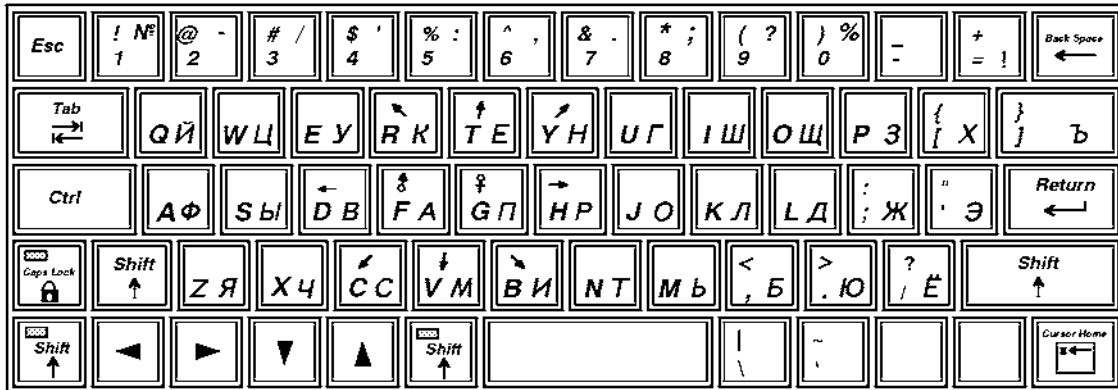
Key–top for Russian
ILLUSTRATION 6–66 (continued)

■ **6–2–52 LED SW Key–top Set (FRU No. 412)**
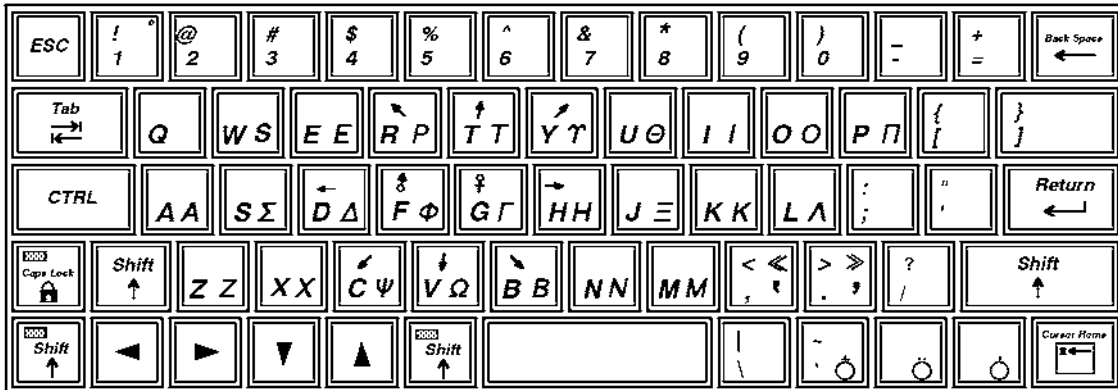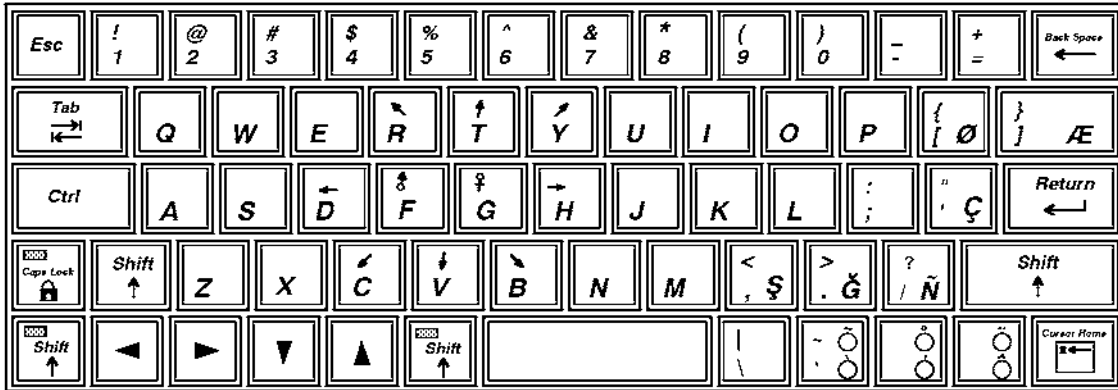
Time Required

40 Minutes

Tool Required

Screwdriver
Hexagonal Socket Wrench

Procedure

■ Refer to ILLUSTRATION 6–67.

1. Turn OFF the system.

2. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

3. Remove the LED SW Keyboards. Refer to 6–2–47 on page 6–128.

4. Remove the key–tops for rocker switch as shown in ILLUSTRATION 6–67.
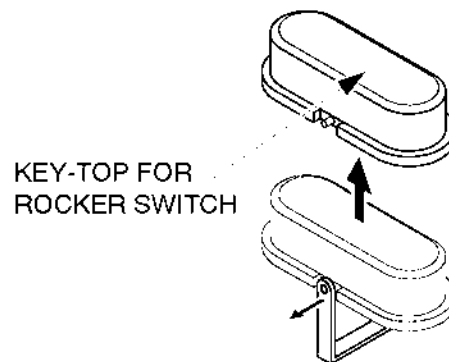
LED SW KEY–TOP DISASSEMBLY
ILLUSTRATION 6–67

■

Note
You can remove the key–tops for push switch by removing the holding metals from the LED SW Key-
boards.

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▉ 6–2–53 Rear CONN Panel Assy (FRU No. 501) and Rear CONN Panel2 Assy (FRU No. 501B)

Time Required

0.5 Hour

Tool Required

Screwdriver

Procedure

▉ Refer to ILLUSTRATION 6–68 and ILLUSTRATION 6–69.

1. Turn OFF the system.

▉ 2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

▉ 3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

Note

▉ The Linear Slide Cover is installed from the production unit of LOGIQ™500 console with software Version 5.00y or later. Refer to ILLUSTRATION 6–30 on page 6–93. Remove the Linear Slide Cover.

Note

▉ Unscrew the two screws (① and ②) to remove the Rear CONN Spacer. Refer to ILLUSTRATION 6–68. The Rear CONN Spacer is installed from the production unit of LOGIQ™500 console with software Version 5.00y or later.

▉
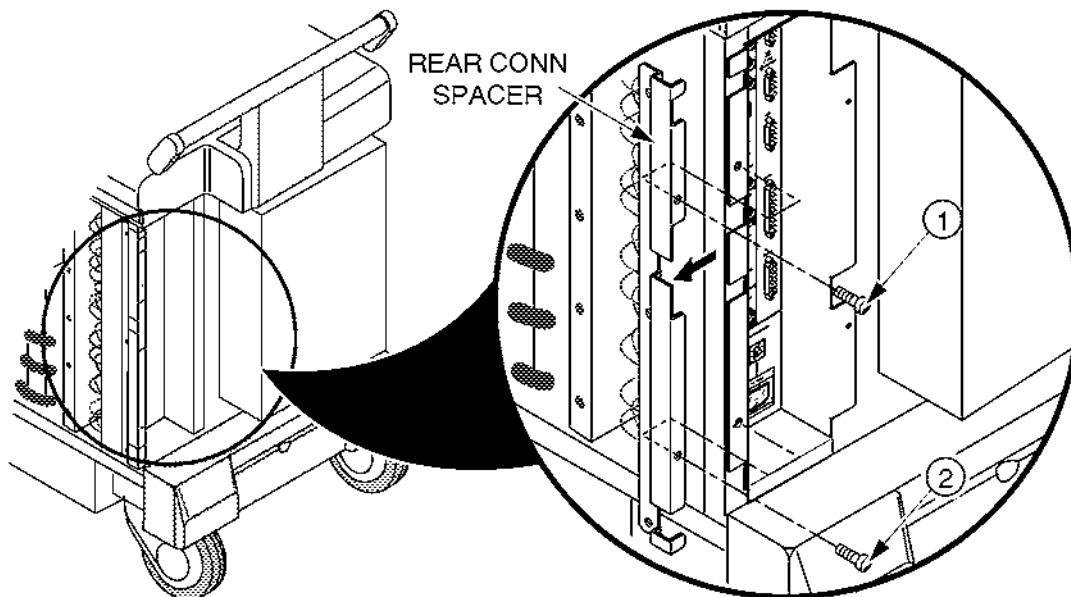
REAR CONN SPACER DISASSEMBLY
ILLUSTRATION 6–68

6–2–53 Rear CONN Panel Assy (FRU No. 501) and Rear CONN Panel2 Assy (FRU No. 501B) (continued)

4.　Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

5.　Unscrew four screws (① – ④) and pull the Rear CONN Panel Assy or the Rear CONN Panel2 Assy out.

6.　Disconnect three connectors (⑤) out of the Rear 1 Assy or one connector out of the Rear3 Assy.

7.　Disconnect one connector (⑥) out of the Rear 2 Assy.

8.　Disconnect two connectors. One of them is connected with the Power Supply Unit (⑦), and another is connected with the B/W Printer Panel (⑧).

9.　Unscrew three screws to remove the frame ground fixed on the frame at the right side of the console.

10.　Remove the Rear CONN Panel Assy (or the Rear CONN Panel2 Assy).

Rear 1 Assy ⑤

⑦ connector P101

Rear 2 Assy ⑥ P102　⑧ connector

Back side of Rear Panel Assy

Front side of Rear Panel Assy
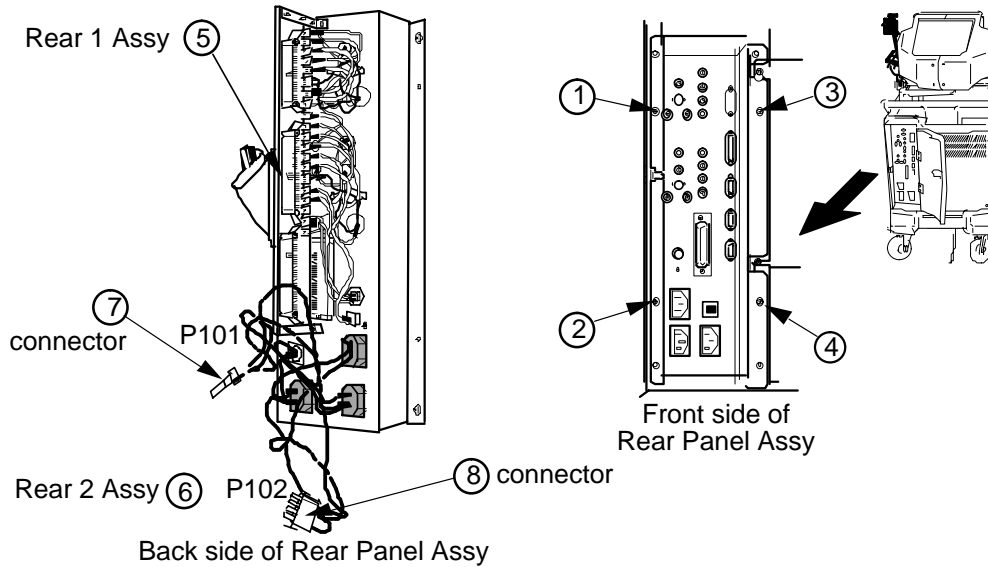
REAR CONN PANEL ASSY DISASSEMBLY
ILLUSTRATION 6–69

■ **6–2–54 Rear 1 Assy (FRU No. 502)**

Time Required

1 Hour

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–70 on page 6–141.

1. Turn OFF the system.

■ 2. Remove the Rear CONN Panel Assy (FRU 501). Refer to 6–2–53 on page 6–138.

3. Disconnect three connectors (⑤ – ⑦) out of the Rear 1 Assy.

4. Disconnect twenty connectors in the gray shaded area (⑨).

■ 5. Remove the SCSI Terminator (FRU 505). Refer to 6–2–58 on page 6–146.

Note
The SCSI Terminator is not installed in the console with the 3.5–inch HDD.

6. Unscrew two screws (⑧) out of the SCSI BUS Connector located on the front of the Rear Panel Assy.

7. Unscrew four screws (① – ④).

8. Remove the Rear 1 Assy.

Note
The Rear1 Assy is not included in the Rear CONN Panel2 Assy.

■ **6–2–54 Rear 1 Assy (FRU No. 502)** (continued)
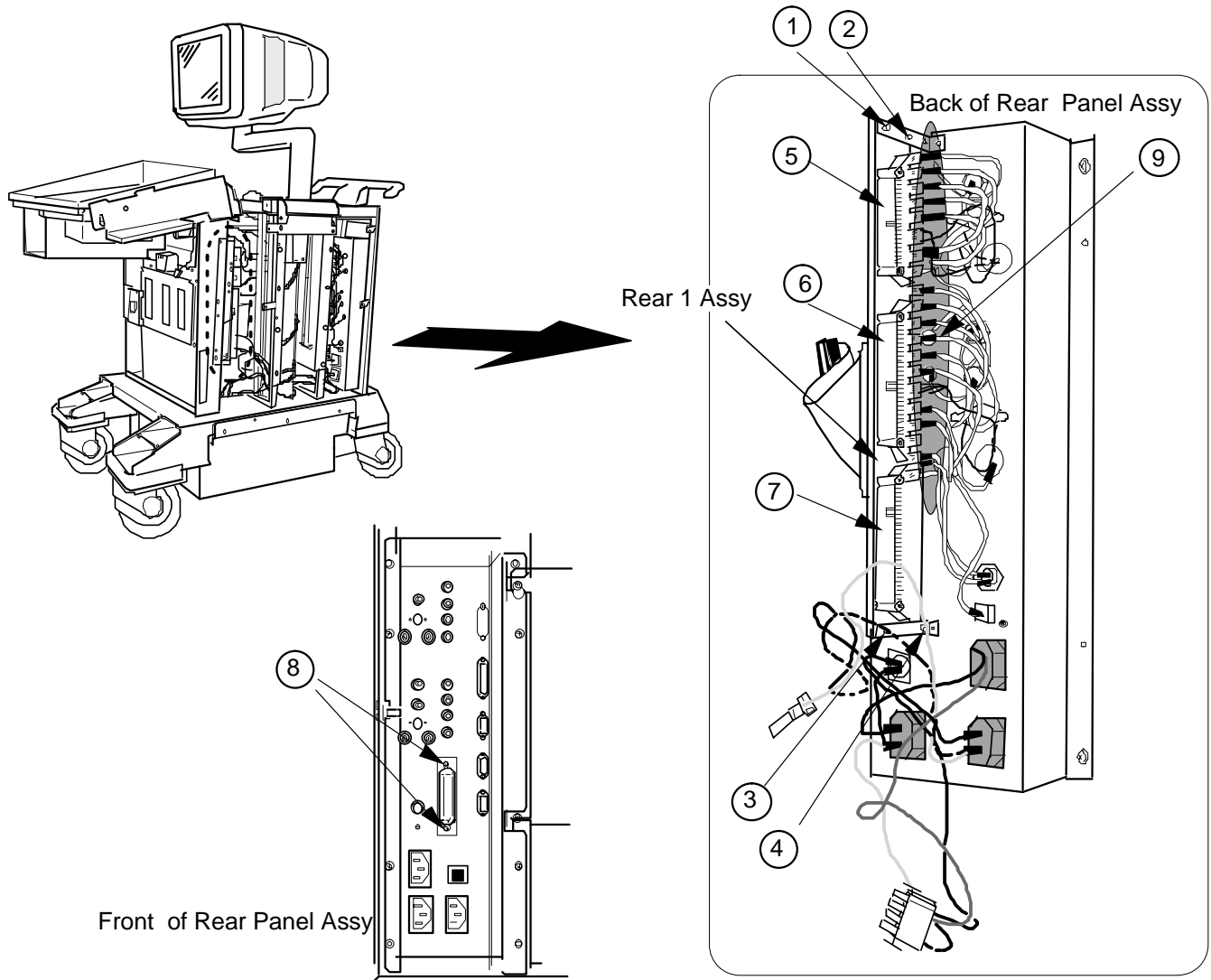
REAR 1 ASSY DISASSEMBLY
ILLUSTRATION 6–70

■

■ **6–2–55 Rear 2 Assy (FRU No. 503)**

Time Required

1 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–71 on page 6–143.

1. Turn OFF the system.

2. Remove the Rear CONN Panel Assy (FRU 501) or the Rear CONN Panel2 Assy (FRU 501B). Refer to 6–2–53 on
■   page 6–138.

3. Unscrew four screws (① – ④) to remove the rear plate.

4. Unscrew ten hexagonal bolts (⑤ – ⑭).

5. Remove the Rear 2 Assy.

■ **6–2–55 Rear 2 Assy (FRU No. 503)** (continued)

REAR 2 ASSY DISASSEMBLY
ILLUSTRATION 6–71

Note
The back view of the Rear CONN Panel2 Assy is different from the Rear CONN Panel Assy.

■ **6–2–56 Rear 3 Assy (FRU No. 590)**

Time Required

1 Hours

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–72.

1. Turn OFF the system.

2. Remove the Rear CONN Panel2 Assy (FRU 501B). Refer to 6–2–53 on page 6–138.

3. Disconnect one connector (①) from the Rear3 Assy as shown in ILLUSTRATION 6–72.

4. Unscrew thirteen screws (② – ⑭). Refer to ILLUSTRATION 6–72.

5. Remove the Rear 3 Assy.

REAR 3 ASSY DISASSEMBLY
ILLUSTRATION 6–72

■ **6–2–57 Rear Connector Set (FRU No. 504)**

Time Required

10 Minutes

Tool Required

Screwdriver
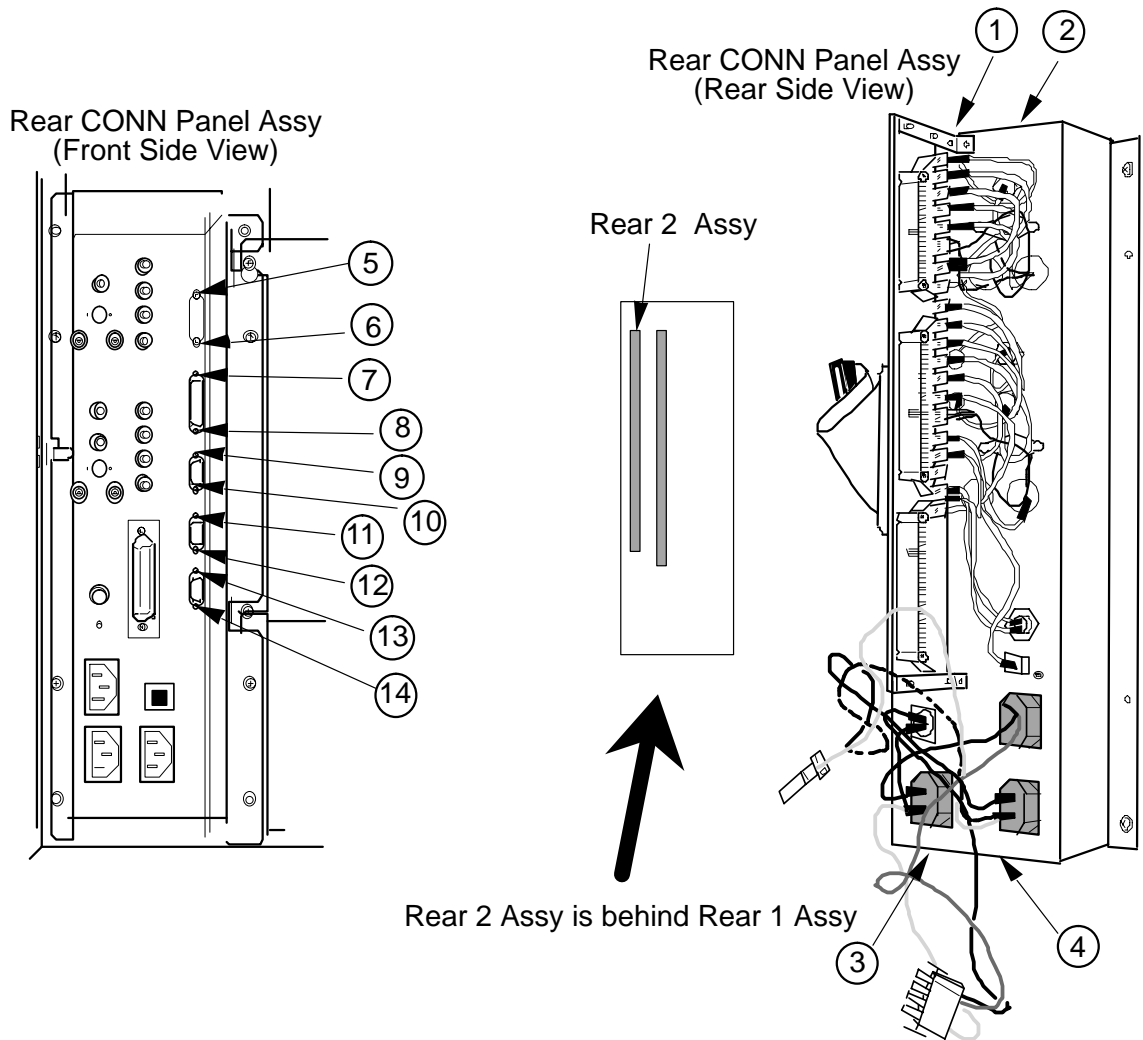Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–73.

1.   Turn OFF the system.

■ 2.   Remove the Rear CONN Panel Assy (FRU 501). Refer to 6–2–53 on page 6–138.

3.   Unscrew four screws (①–④) to remove the rear plate.

4.   Unscrew the hexagonal bolts (⑤ and ⑥) from the back side of the Rear CONN Assy to remove five BNC pins and two Audio pins.

5.   Unscrew two screws (⑦) to remove the Y/C Jack.

6.   Disconnect the connectors from the Rear 1 Assy.

REAR CONNECTORS DISASSEMBLY
ILLUSTRATION 6–73

■ **6–2–58 SCSI Terminator (FRU No. 505)**

Time Required

1 Minutes

Tool Required

Not necessary

Procedure

■ Refer to ILLUSTRATION 6–74.

1.   Turn OFF the system.

2.   Open the Rear Door.

3.   Remove the SCSI Terminator.

② SCSI Terminator

① Rear Door Assy
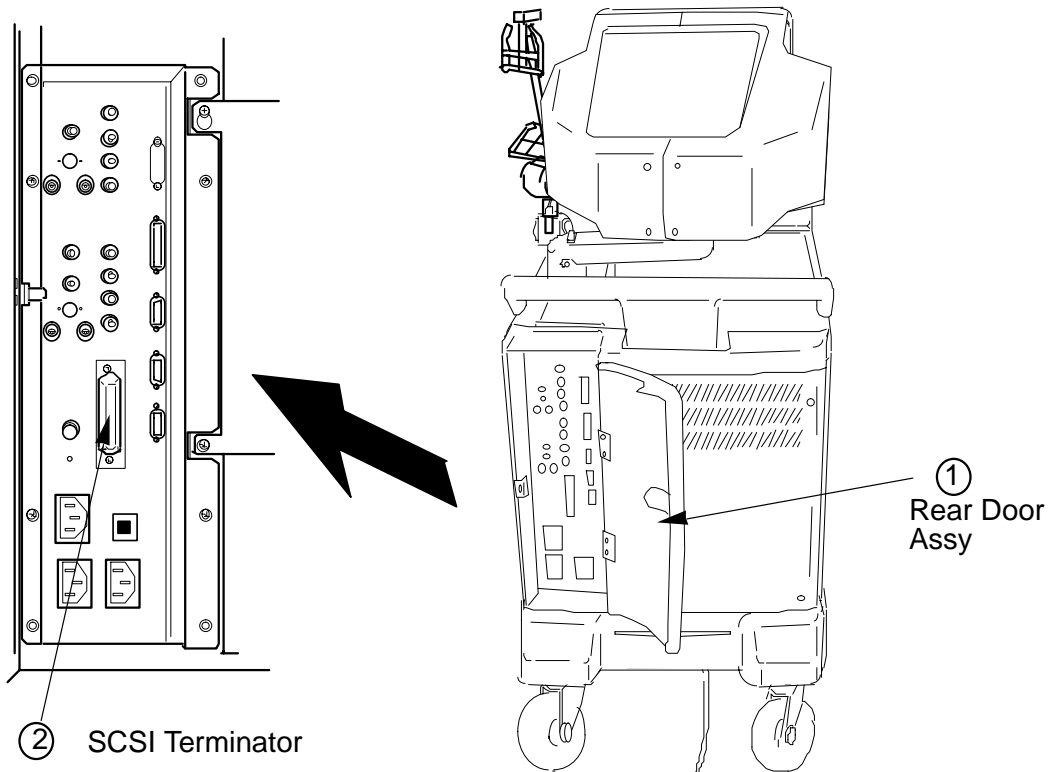
SCSI TERMINATOR DISASSEMBLY
ILLUSTRATION 6–74

■

Note
The SCSI Terminator is not supplied to the console with the 3.5–inch HDD Assy.

■ **6–2–59 Circuit Protector (FRU No. 506: 7A, FRU No. 507: 3A)**
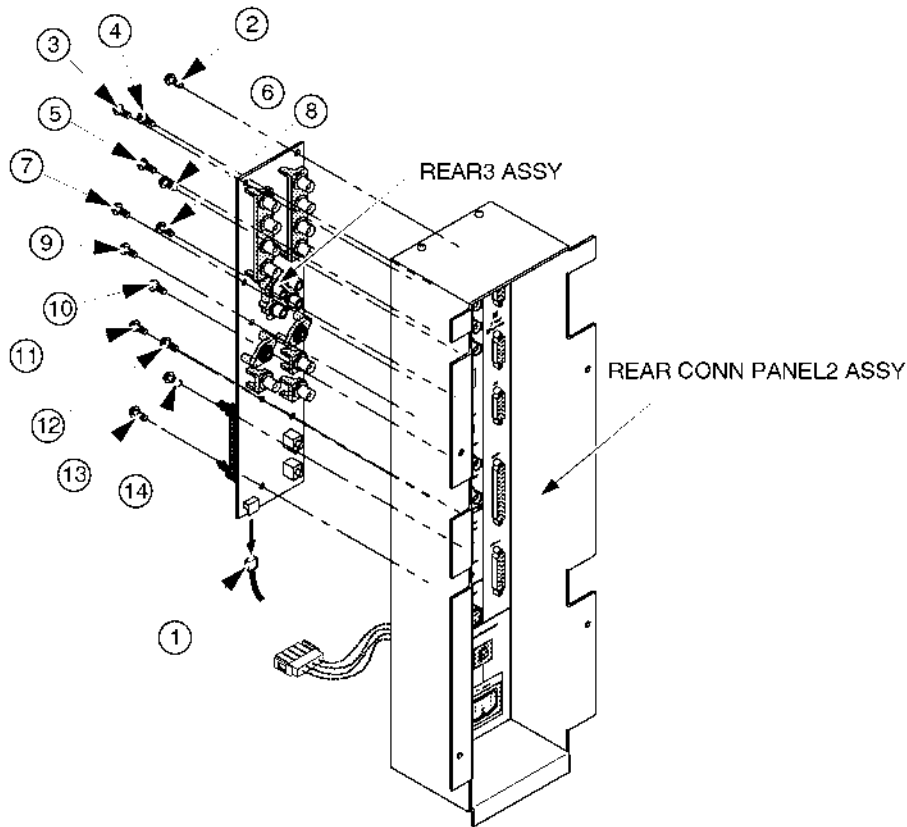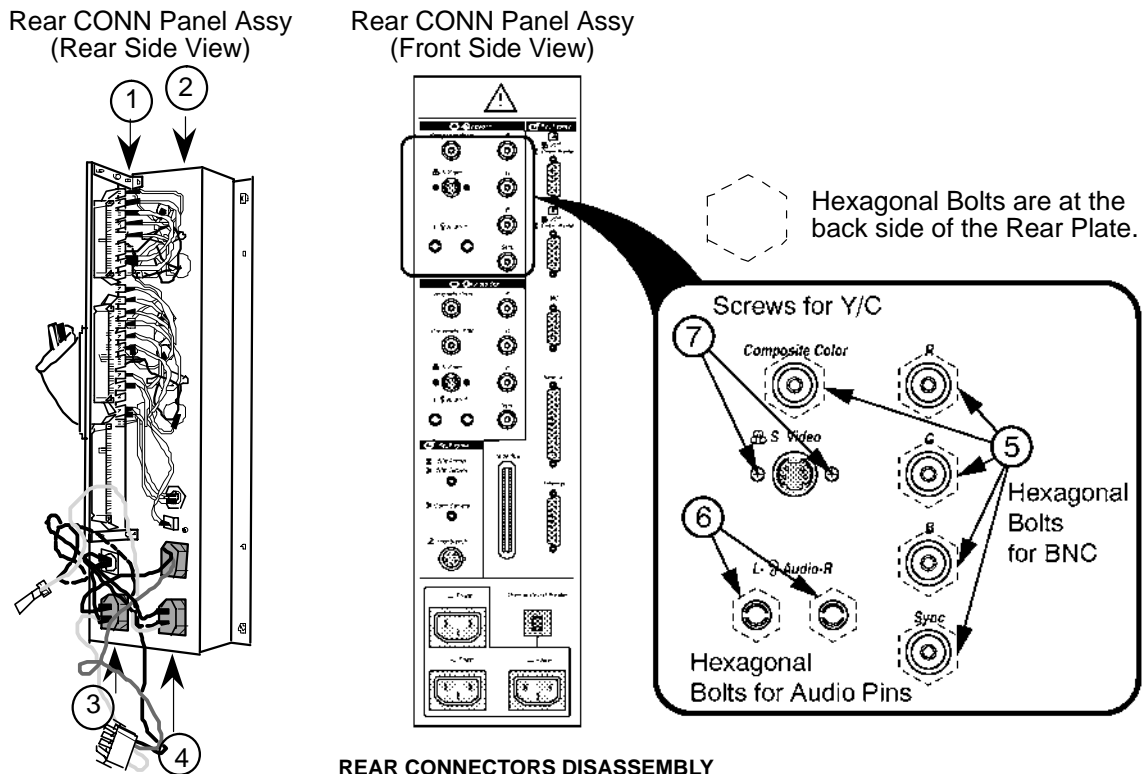
Time Required

30 Minutes

Tool Required

Screwdriver
Soldering Iron

Procedure

■ Refer to ILLUSTRATION 6–75.

1. Turn OFF the system.

2. Remove the Rear CONN Panel Assy (FRU 501) or the Rear CONN Panel2 Assy (FRU 501B). Refer to 6–2–53 on page 6–138.

3. Remove the soldered cord (①).

4. Remove the Circuit Protector toward the direction indicated by the ② arrow.

CIRCUIT PROTECTOR DISASSEMBLY
ILLUSTRATION 6–75

■ **6–2–60 HV Assy (FRU No. 508)**

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–76.

1. Turn OFF the system.

■ 2. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

3. Disconnect three connectors ($①$ – $③$).

4. Remove two screws ($⑤$ and $⑦$) and loosen two screws ($④$ and $⑥$).

5. Remove the HV Assy.

HV ASSY DISASSEMBLY
ILLUSTRATION 6–76

■

■ **6–2–61 HV Fan Set (FRU No. 509)**

Time Required

15 Minutes
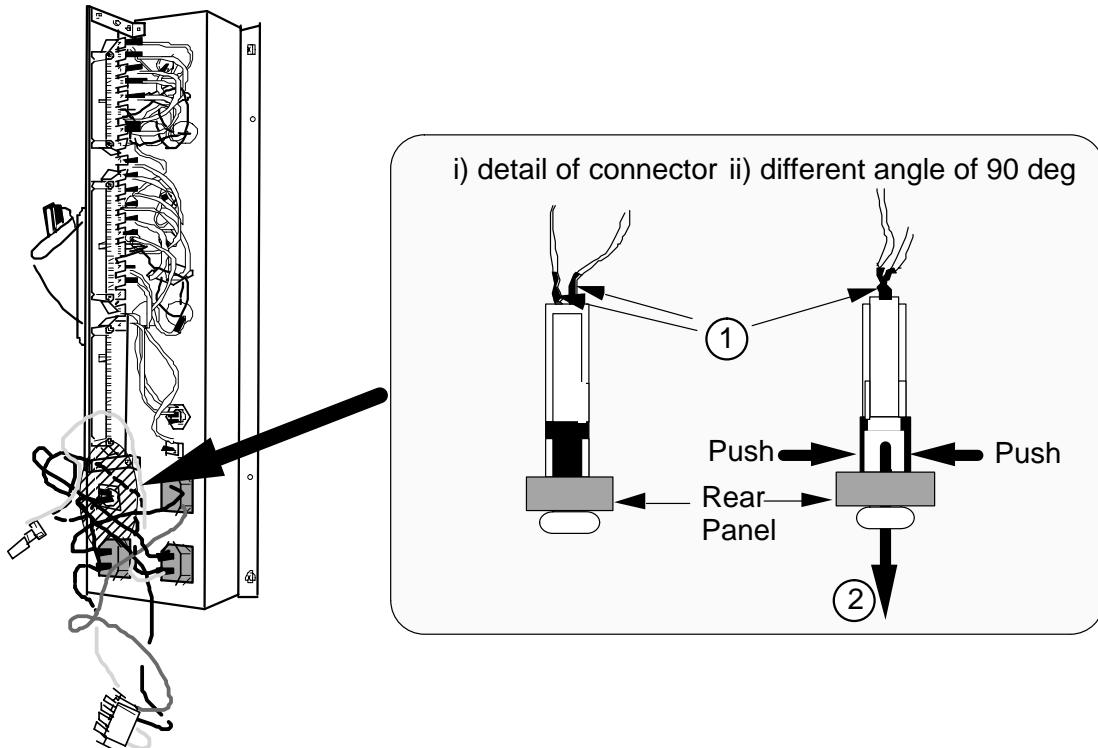
Tool Required

Screwdriver
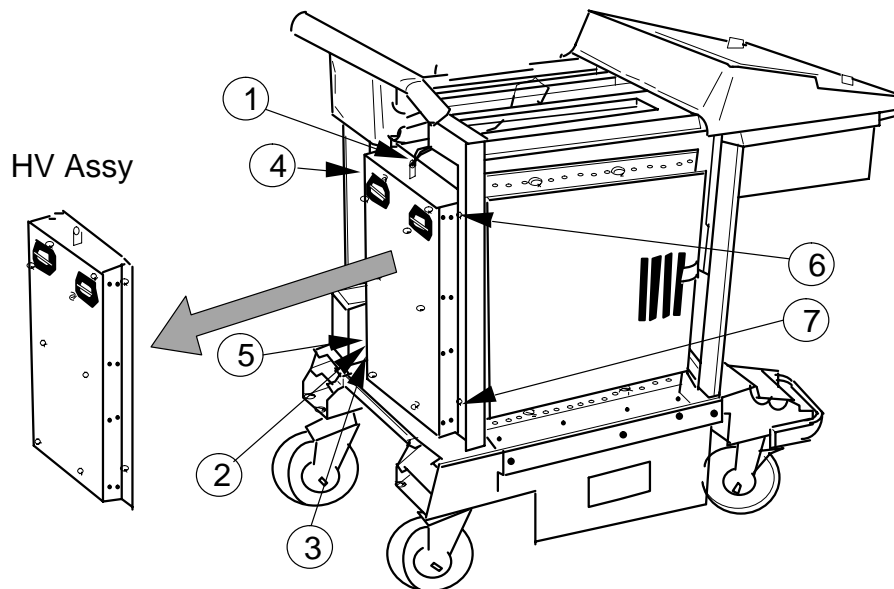
Procedure

■ Refer to ILLUSTRATION 6–77.

1. Turn OFF the system.

2. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

3. Remove the HV Assy (FRU 508). Refer to 6–2–60 on page 6–148.

4. Unscrew six screws (① – ⑥) to disassemble the HV Assy.

5. Disconnect two connectors (⑦ and ⑧).

6. Unscrew four screws (⑨ – ⑫).
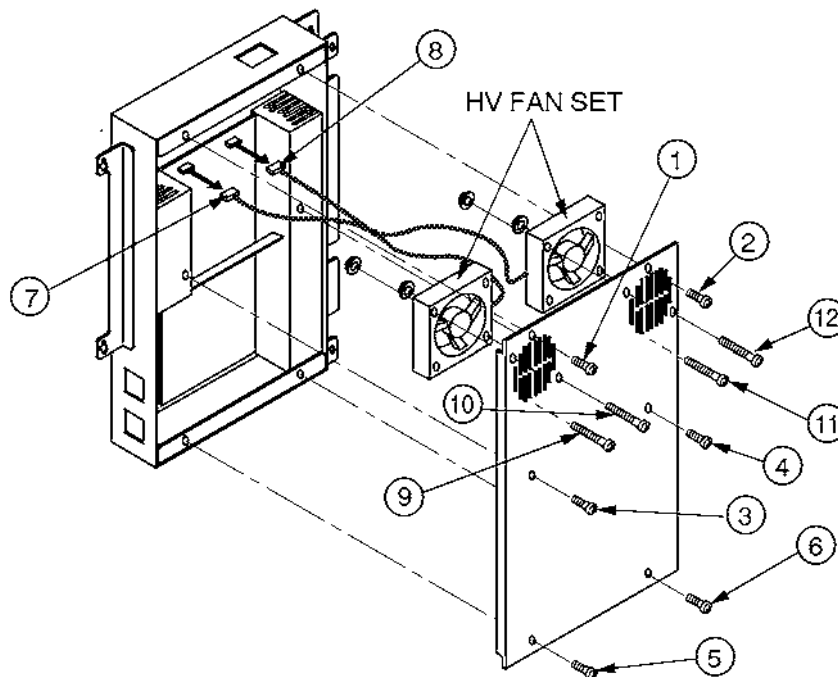
HV FAN SET DISASSEMBLY
ILLUSTRATION 6–77

6–2–62 ECG Board Assy (FRU No. 510)

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–78.

NOTE

The new type of ECG Board Assy is installed from production unit of LOGIQ™500 console with soft-
■ ware version 5.00 y or later. Refer to page 6–151.

1. Turn OFF the system.

2. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

3. Remove the ECG Panel Assy (FRU 511). Refer to 6–2–63 on page 6–152.

4. Disconnect the connector (①).

5. Unscrew two screws (② and ③).

6. Remove the ECG Board Assy.
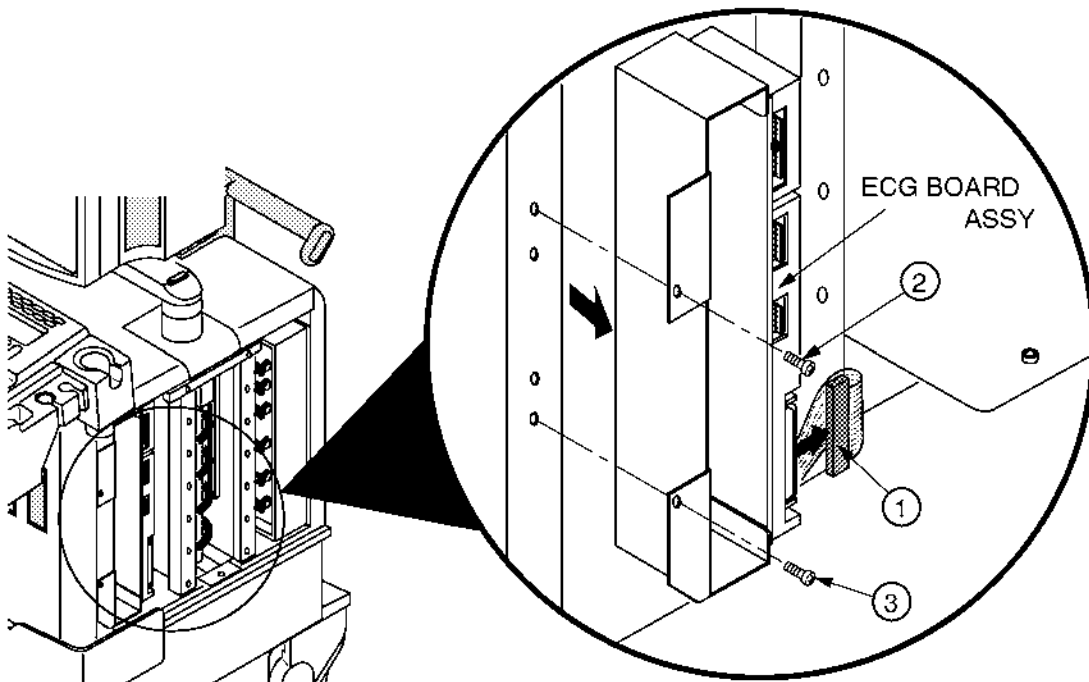
ECG BOARD ASSY DISASSEMBLY (a)
ILLUSTRATION 6–78

■ **6–2–62 ECG Board Assy (FRU No. 510)** (continued)

Note

New type of ECG Board Assy (2207806) has the reserved connector (P69). This connector is not used for the LOGIQ™ 500 console.

NOTE

To remove the new type of ECG Board Assy, disconnect the connector (①). Unscrew the four
■ screws (② – ⑤). Refer to ILLUSTRATION 6–79 on page 6–151.
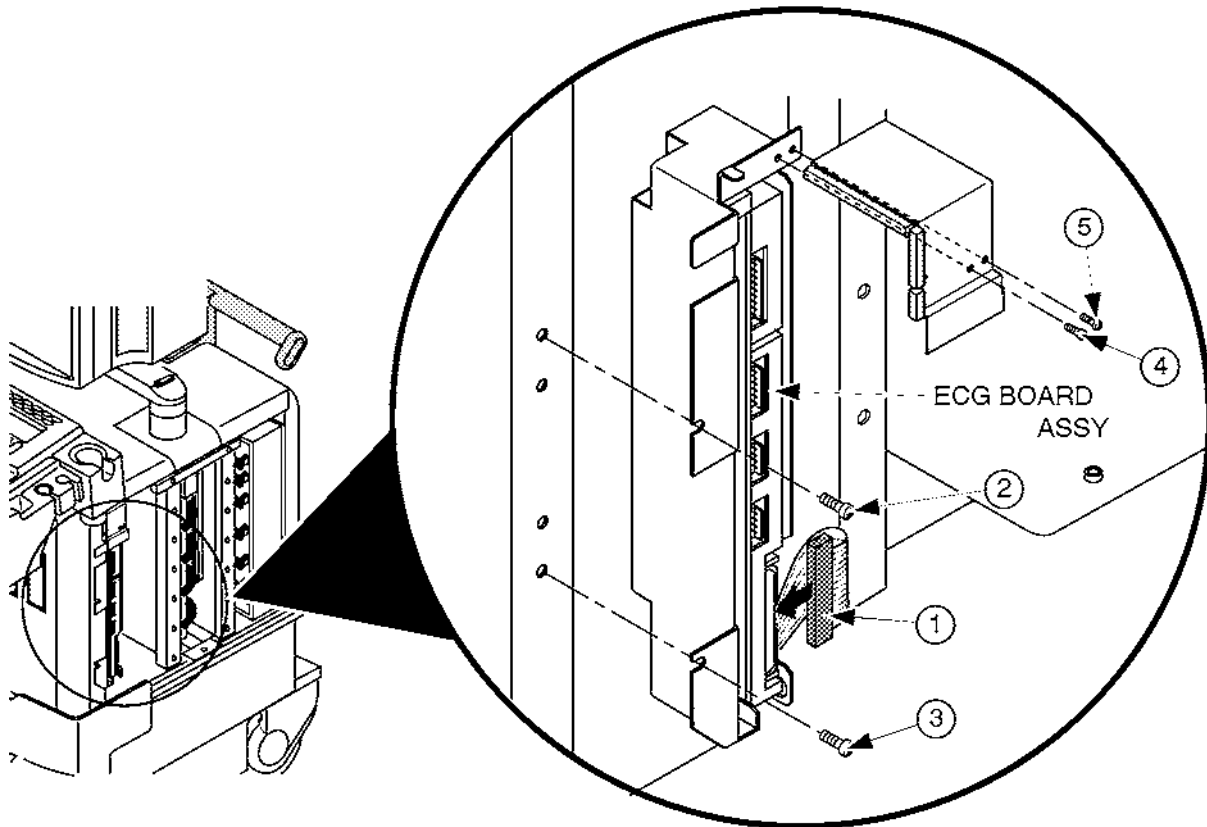
ECG BOARD ASSY DISASSEMBLY (b)
ILLUSTRATION 6–79

■ **6–2–63 ECG Panel Assy (FRU No. 511)**

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–80.

NOTE

The new type of ECG Panel Assy is installed from production unit of LOGIQ™500 console with software Version 5.00 y or later. Refer to page 6–153.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

3.   Disconnect three connectors (① – ③).

4.   Unscrew two screws (④ and ⑤).

5.   Loosen two screws (⑥ and ⑦).

6.   Remove the ECG Panel Assy.
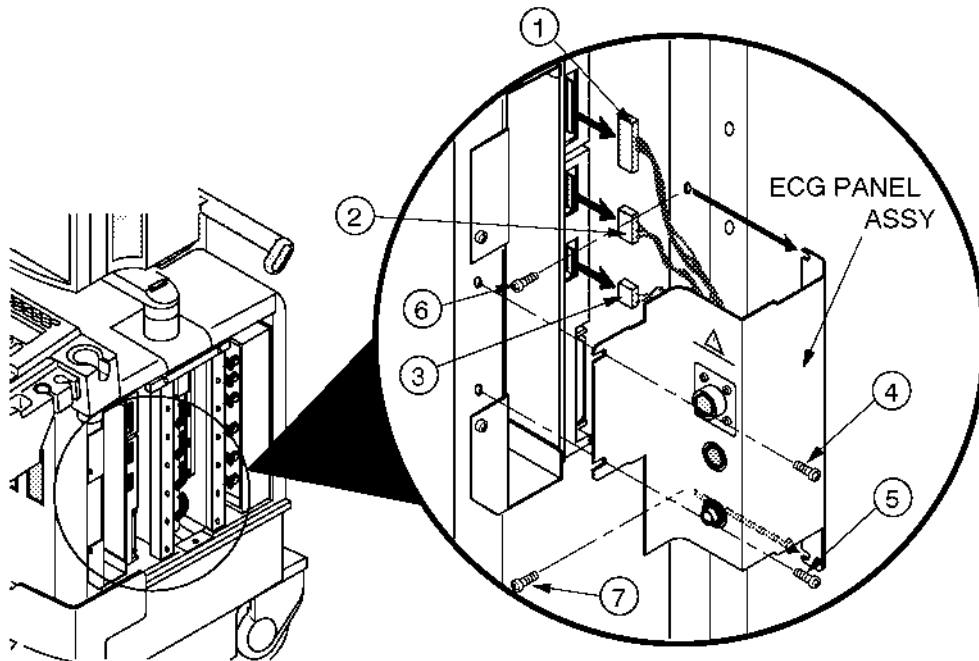
ECG PANEL ASSY DISASSEMBLY (a)
ILLUSTRATION 6–80

RENEWAL PARTS

■ **6–2–63 ECG Panel Assy (FRU No. 511)** (continued)

NOTE

To remove the new type of ECG Panel Assy, unscrew two screws (①) and ②)). Loosen two screws (③) and ④)). Remove the new type of ECG Panel Assy after disconnect three connectors (⑤)–⑦)).
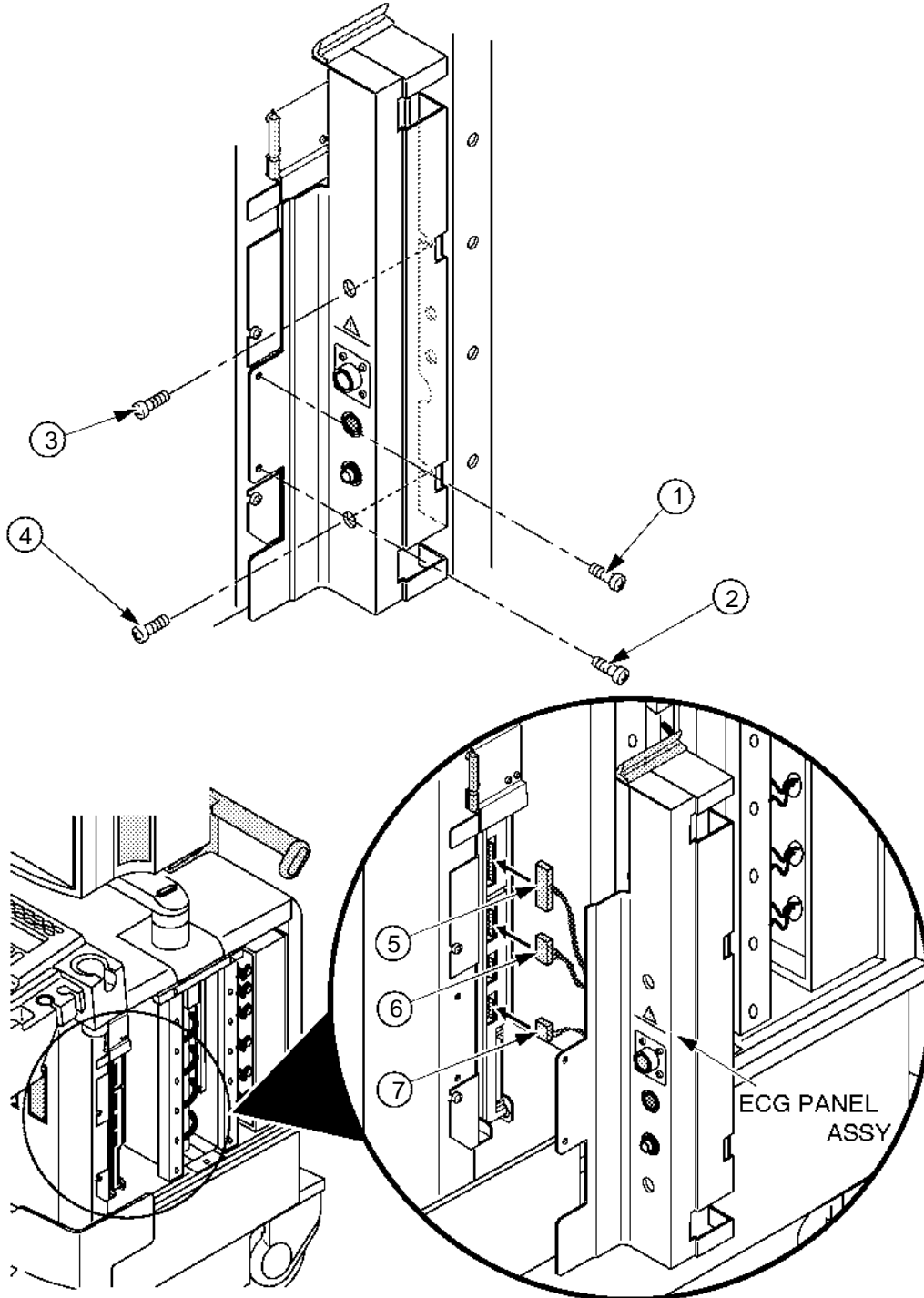
ECG PANEL ASSY DISASSEMBLY (b)
ILLUSTRATION 6–81

■

6–2–64 Nest Fan Assy (FRU No. 512)

Time Required

45 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–83.

1. Turn OFF the system.

2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

4. Remove the Top Cover (FRU 310). Refer to 6–2–29 on page 6–108.

NOTE

The FRAME BASE is installed from the production unit of the LOGIQ™500 console with software version 5.00 y or later. Refer to ILLUSTRATION 6–82. Unscrew six screws (①–⑥) to remove the FRAME BASE.
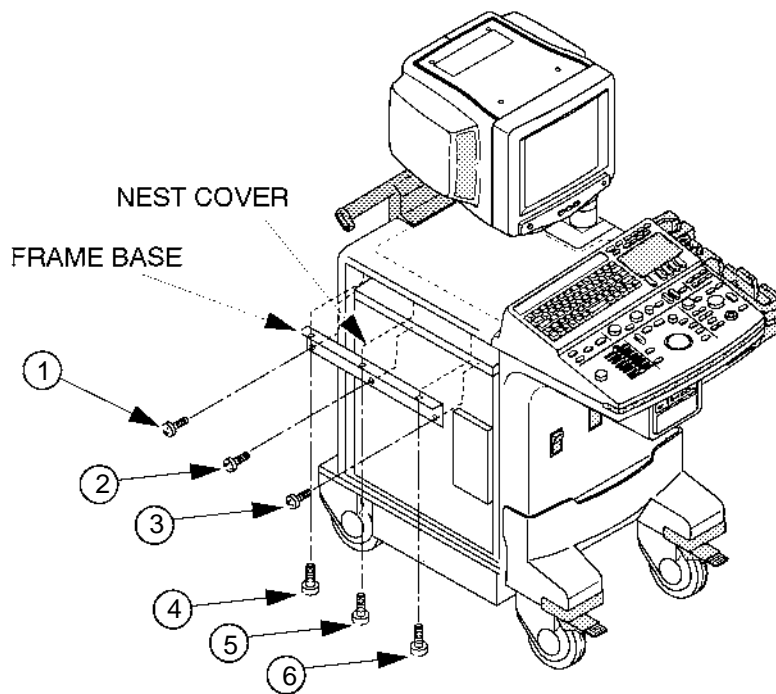
NEST FAN ASSY DISASSEMBLY(a)
ILLUSTRATION 6–82

■ **6–2–64 Nest Fan Assy (FRU No. 512)** (continued)

5.   Disconnect two connectors (① and ②).

6.   Unscrew three screws (③ – ⑤).

7.   Unscrew three screws and remove the frame plate (⑥).

8.   Pull out the Nest Fan Assy leftwards.
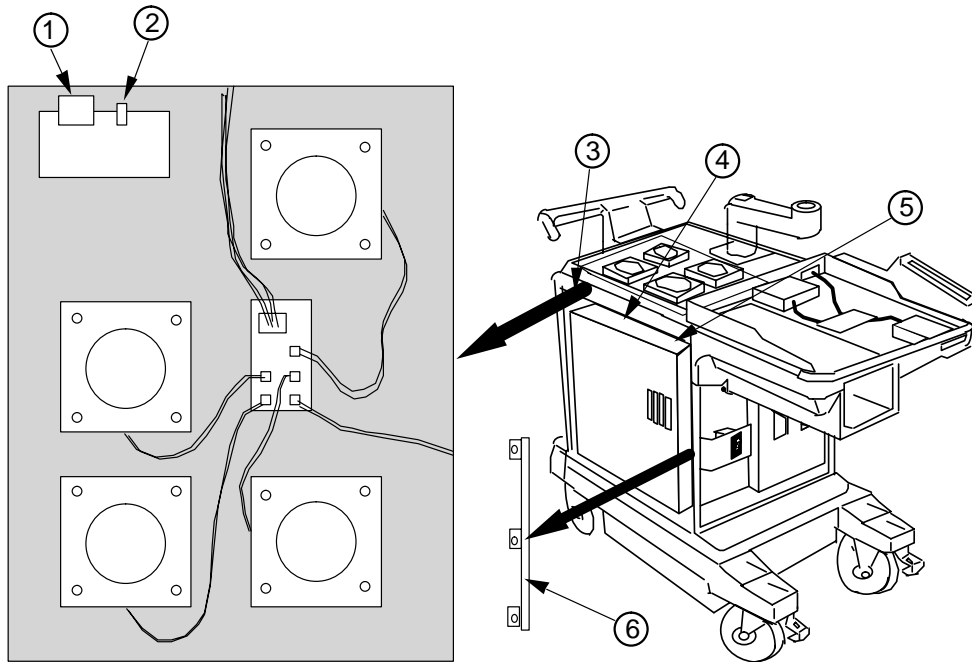
NEST FAN ASSY DISASSEMBLY(b)
ILLUSTRATION 6–83

■

■ **6–2–65 Probe CONN Set Assy (FRU No. 513)**

Time Required

40 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–84 and ILLUSTRATION 6–85.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Front Cover (FRU 308). Refer to 6–2–27 on page 6–104.

4. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

5. Remove the Keyboard Bottom Cover (FRU 309). Refer to 6–2–28 on page 6–106.

6. Remove the HDD LED Assy (FRU 523). Refer to 6–2–72 on page 6–169.

<div align="center">

Note

</div>

The HDD LED Assy is not installed on the console with the new type of 3.5–inch HDD Assy (Quantum™ FireBall™ 1280S or newer).

<div align="center">

Note

</div>

When the customer uses the Single CWD option, the CWD2 Assy is installed on the case metal of the Probe CONN Set Assy. Remove the CWD2 Assy from the Probe CONN Set Assy removed and re–install it to the new Probe CONN Set Assy.

■ 7. Remove the Power Switch Assy (FRU 525). Refer to 6–2–73 on page 6–170.

<div align="center">

Note

</div>

The FRONT SHIELD is installed from production unit of LOGIQ™500 console with software version 5.00 y or later. Refer to ILLUSTRATION 6–85 on page 6–157. Unscrew the four screws (⑩ and ⑬) to remove the FRONT SHIELD and BLIND METAL PLATE.

8. Disconnect one connector (①).

9. Disconnect four connectors (② – ⑤).

10. Loosen two screws (⑥ and ⑦).

11. Unscrew two screws (⑧ and ⑨).

12. Slightly lift the Probe CONN Set Assy up, move it leftwards, and remove it.

13. Unscrew two screws (⑩ and ⑪).

■ 6–2–65 Probe CONN Set Assy (FRU No. 513) (continued)

14. Remove the Blind Metal Plate.

Note

When the customer uses the P509 probe, the Probe CONN 1 Assy is connected to the RCTL2 Assy with the cable. Unplug the connector from the RCTL2 Assy before removing the Probe CONN Set Assy.
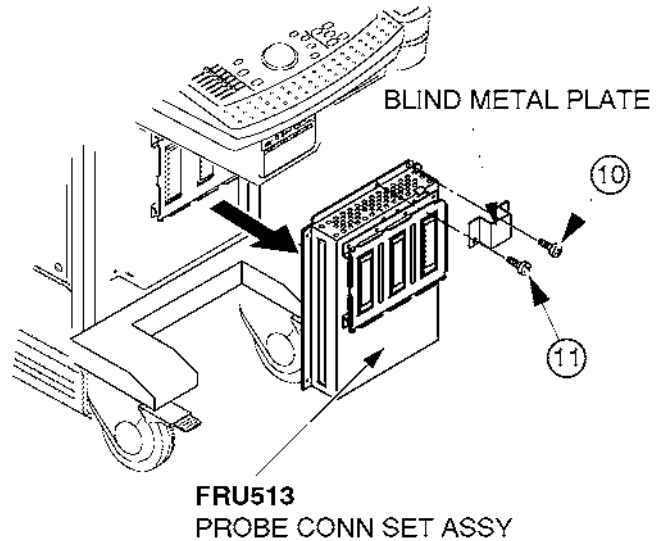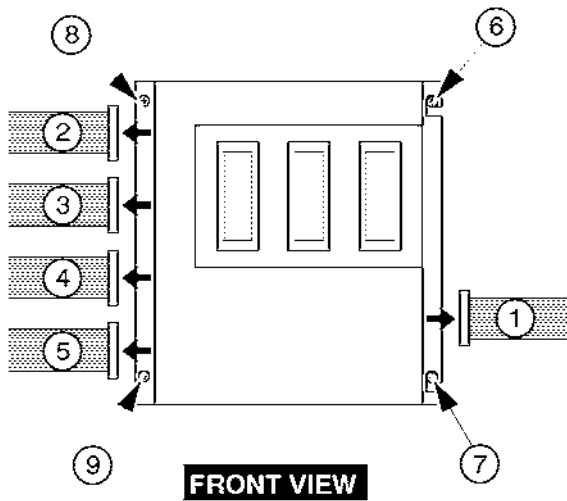
PROBE CONN SET ASSY DISASSEMBLY (a)
ILLUSTRATION 6–84
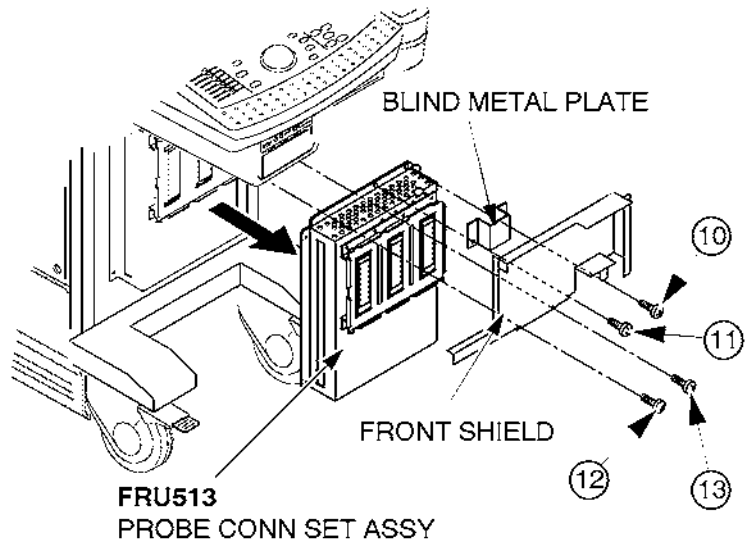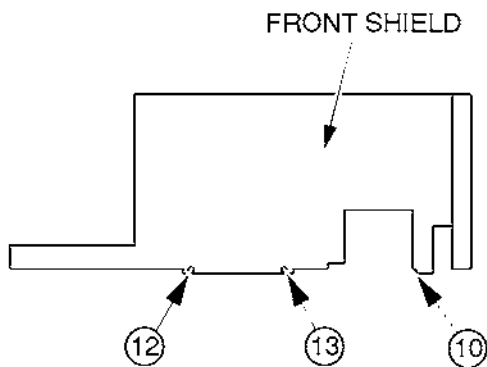
PROBE CONN SET ASSY DISASSEMBLY (b)
ILLUSTRATION 6–85

6–2–66 Shield Finger Long (FRU No. 514), Shield Finger Short (FRU No. 515)

Time Required

45 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–86.

1. Turn OFF the system.

■ 2. Remove the Probe CONN Set Assy (FRU 513). Refer to 6–2–65 on page 6–156.

3. Unscrew eight screws (① – ⑧).

4. Remove the connector frame.

5. Remove the Shield Finger Long (FRU 514) or Shield Finger Short (FRU 515).
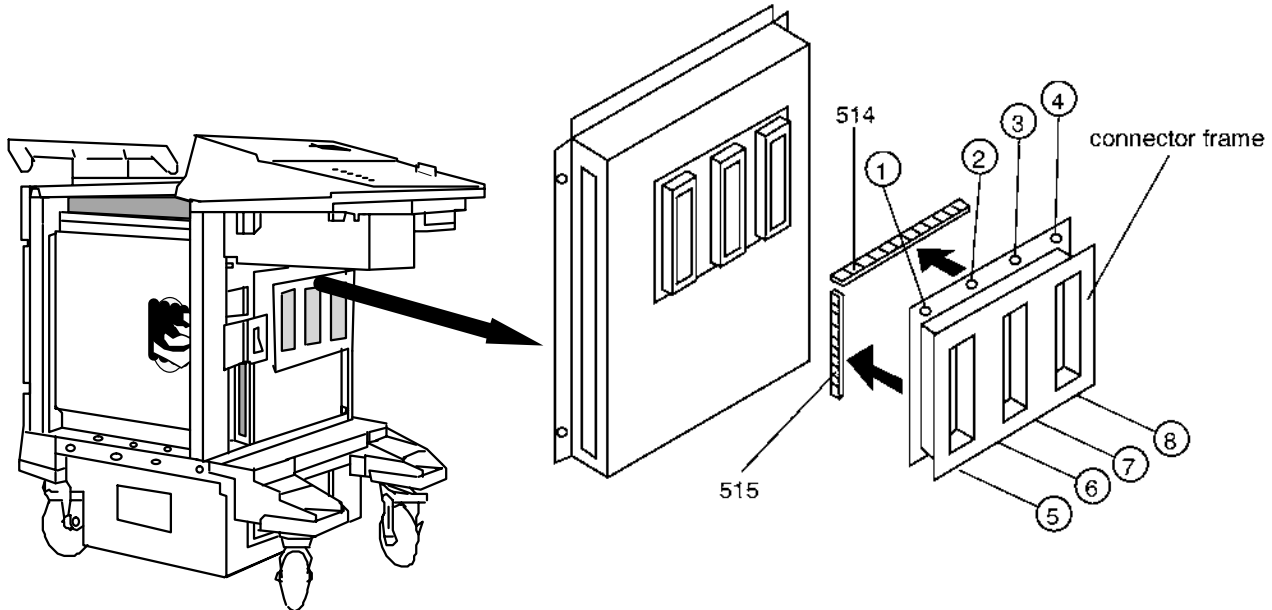
SHIELD FINGER DISASSEMBLY
ILLUSTRATION 6–86

■

6–2–67 Probe CONN 1 Assy (FRU No. 516)

Time Required

45 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–87.

1. Turn OFF the system.

2. Remove the Probe CONN Set Assy (FRU 513). Refer to 6–2–65 on page 6–156.

3. Remove the Probe CONN 2 Assy (FRU 516). Refer to 6–2–68 on page 6–160.

4. Unscrew four hexagonal bolts (① – ④).

5. Remove the Probe CONN 1 Assy.

Note

If the customer uses the P509 Probe, the Probe CONN1 Assy for P509 Probe (2180315) is installed. In this case, you have to disconnect the connector from the RCTL2 Assy before removing Probe CONN Set Assy.
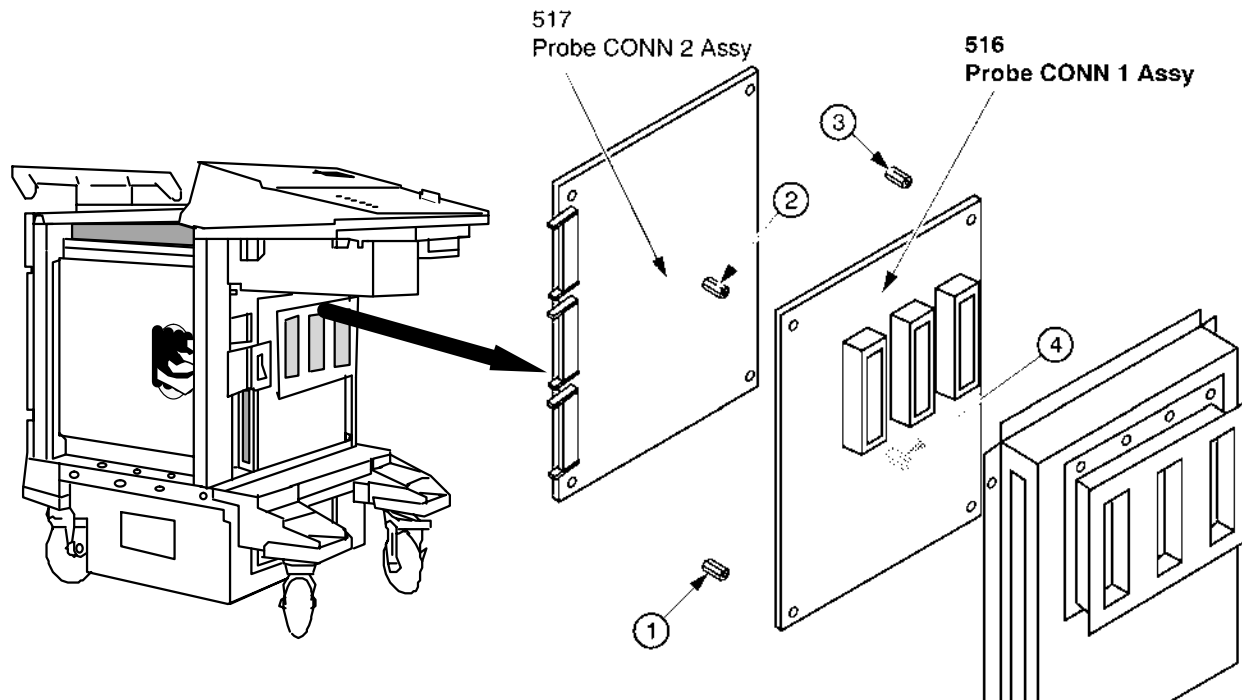
PROBE CONN 1 ASSY DISASSEMBLY
ILLUSTRATION 6–87

■ **6–2–68 Probe CONN 2 Assy (FRU No. 517)**

Time Required

45 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–88.

1.   Turn OFF the system.

■ 2.   Remove the Probe CONN Set Assy (FRU 513). Refer to 6–2–65 on page 6–156.

3.   Unscrew four screws ($\textcircled{1}$ – $\textcircled{4}$).

4.   Remove the Probe CONN 2 Assy.
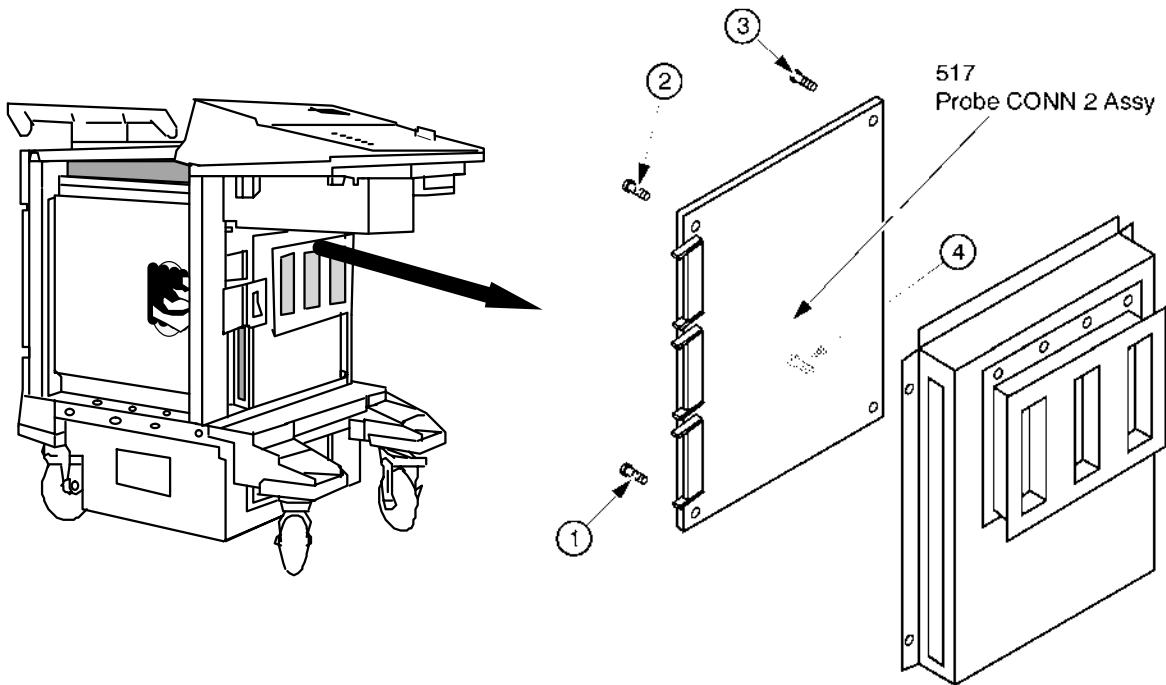
PROBE CONN 2 ASSY DISASSEMBLY
ILLUSTRATION 6–88

■

■ **6–2–69 FDD (FRU No. 518), FDD Holder Assy (FRU No. 519)**

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–89.

1. Turn OFF the system.

■ 2. Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

3. Disconnect two connectors (①) and ②).

4. Unscrew four screws (③) – ⑥).

5. Remove the FDD Holder Assy.

6. Unscrew four screws (⑦) – ⑩).

7. Remove the FDD (FRU 518) out of the FDD Holder Assy (FRU 519).
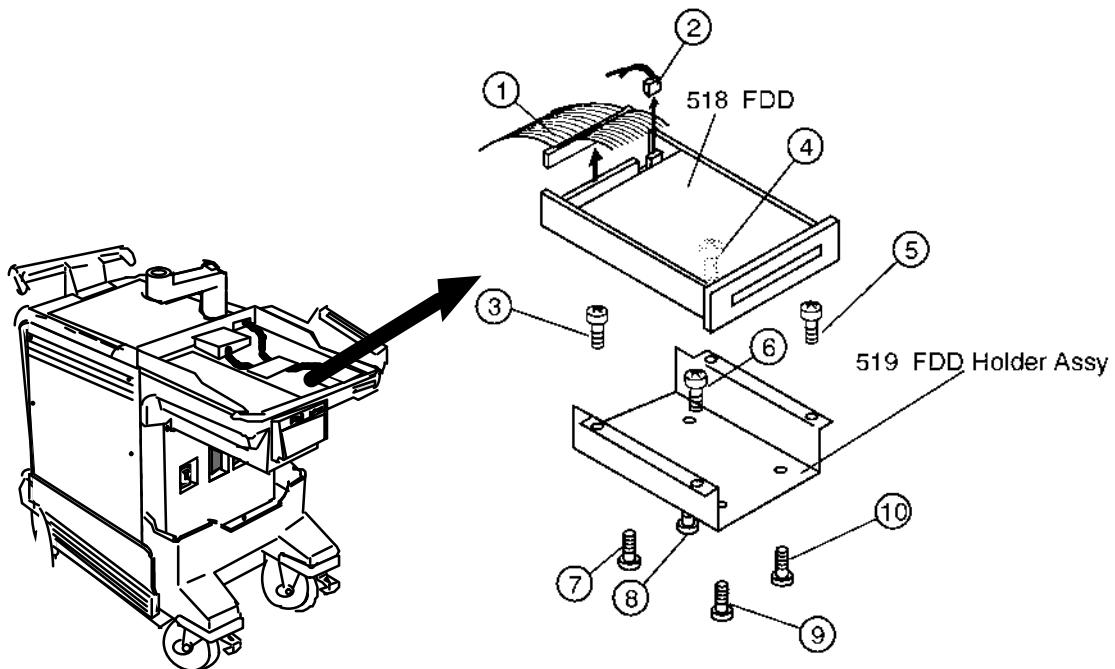
FDD AND FDD HOLDER ASSY DISASSEMBLY
ILLUSTRATION 6–89

■

■ 6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)

Time Required

1.5 Hours

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–90 on page 6–163.

1. Make sure the customer data is saved on disks (floppy disks for system software version 1.20 or former console and MO disk for 2.00 or later console). Refer to 4–3–3 (D) on page 4–21, USER DATA BACK UP.

2. Turn OFF the system.

3. Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

4. Remove the HDDB Assy (FRU 522). Refer to 6–2–71 on page 6–168.

5. Unscrew two screws (① and ②).

6. Remove the HDD Holder Assy.

7. Unscrew four screws (③ – ⑥).

8. Remove the HDD (FRU 520) out of the HDD Holder Assy (FRU 521).

Note

After replacing a HDD Assy with new one, the following works have to be done:

a. Set up the system preset parameters without regard to current settings. For set-up procedures, refer to LOGIQ™ 500 Proprietary Manual, P9030TB.

  a–1. Set the Country/Zone properly. It takes approximately 40 minutes to complete this step.

  a–2. Set other three parameters, Video Signal, Power Frequency and Modem Kind.

  a–3. Reset the system using System Reset function of the Service Menu. Refer to LOGIQ™ 500 Proprietary Manual, P9030TB.

b. Install the customer data into new HDD using the back-up disk(s) after resetting the system. Refer to 4–3–3 (D) on page 4–21, USER DATA BACK UP.

■ **6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)** (continued)
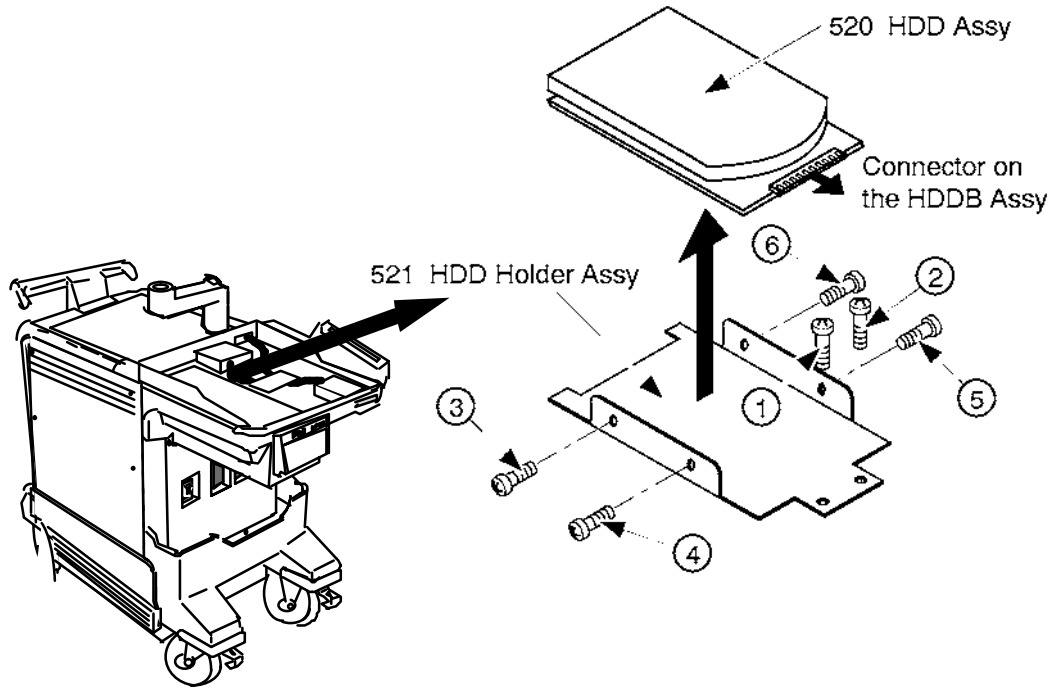
HDD ASSY AND HDD HOLDER ASSY DISASSEMBLY
ILLUSTRATION 6–90

■

■ **6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)** (continued)

3.5–Inch HDD Disassembly

■ Refer to ILLUSTRATION 6–91 on page 6–165.

1. Make sure the customer data is saved on MO disk. Refer to 4–3–3 (D) on page 4–21, USER DATA BACK UP.

2. Turn OFF the system.

■ 3. Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

4. Unscrew two screws (① and ②).

5. Pull out the HDD Holder2 Assy.

■ 6. Disconnect three connectors, CB24N, CB5N, and CB45N. Refer to ILLUSTRATION 6–91 on page 6–165.

7. Unscrew four screws (③ – ⑥).

8. Remove the HDD (FRU 520) out of the HDD Holder2 Assy (FRU 536).

Note

After replacing a HDD Assy with new one, the following works have to be done:

a. Set up the system preset parameters without regard to current settings. For set-up procedures, refer to LOGIQ™ 500 Proprietary Manual, P9030TB.

a–1. Set the Country/Zone properly. It takes approximately 40 minutes to complete this step.

a–2. Set other three parameters, Video Signal, Power Frequency and Modem Kind.

Note

Two additional parameters, "Power On Hardware Test" and "Trouble Image Compression", should be also reset for the console with system software version 2.00 or later.

Note

The additional parameter, "Power Unit Type", should be also reset for the console with system software version 4.00 or later.

a–3. Reset the system using System Reset function of the Service Menu. Refer to LOGIQ™ 500 Proprietary Manual, P9030TB.

b. Install the customer data into new HDD using the back-up disk(s) after resetting the system. Refer to 4–3–3 (D) on page 4–21, USER DATA BACK UP.

■ **6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)** (continued)

3.5–Inch HDD Disassembly (continued)
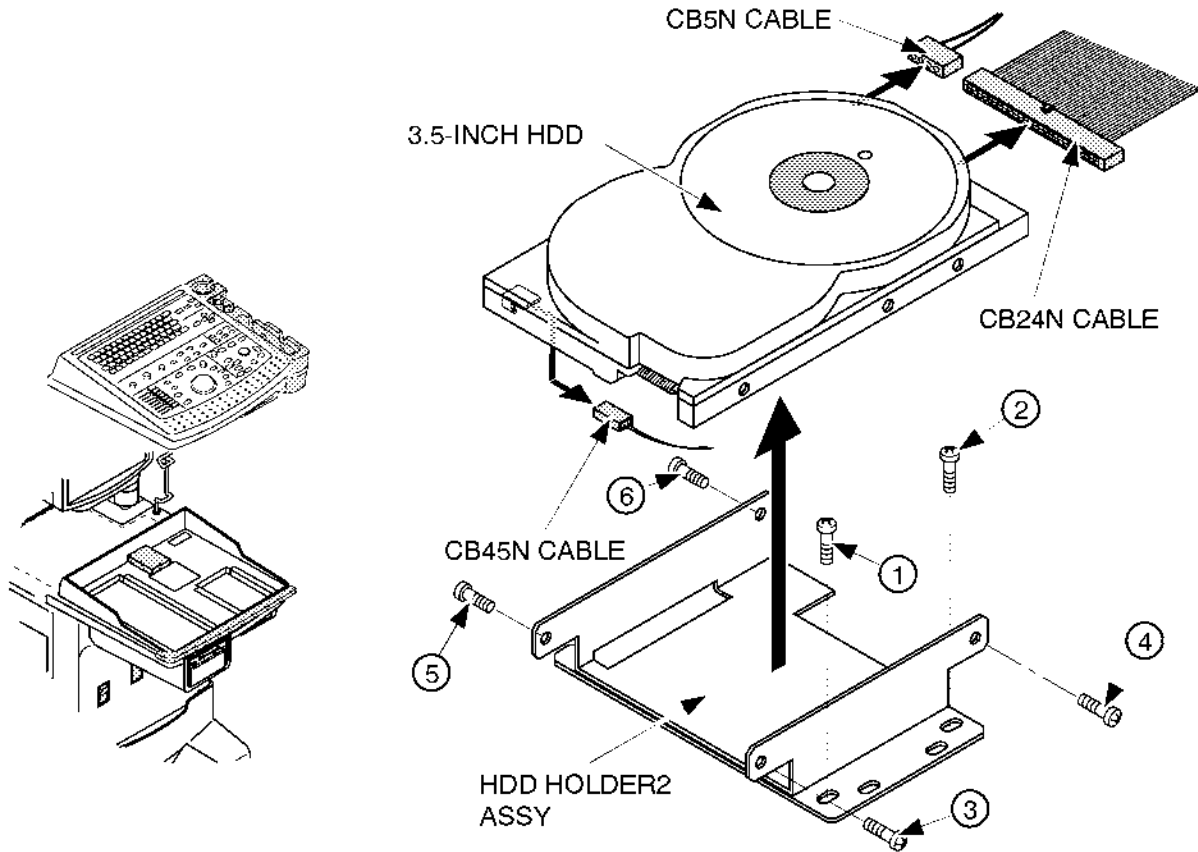
HDD ASSY AND HDD HOLDER2 ASSY DISASSEMBLY
ILLUSTRATION 6–91

■

■ **6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)** (continued)

3.5–Inch HDD Disassembly (continued)

Note

Before installing new 3.5–inch HDD Assy, make sure that the jumper switches located at the bottom of new 3.5–inch HDD are set properly and the terminator module IC is NOT mounted on RP1 as shown in ILLUSTRATION 6–92. If the terminator module IC is installed on the 3.5–inch HDD, remove it out of the IC socket.
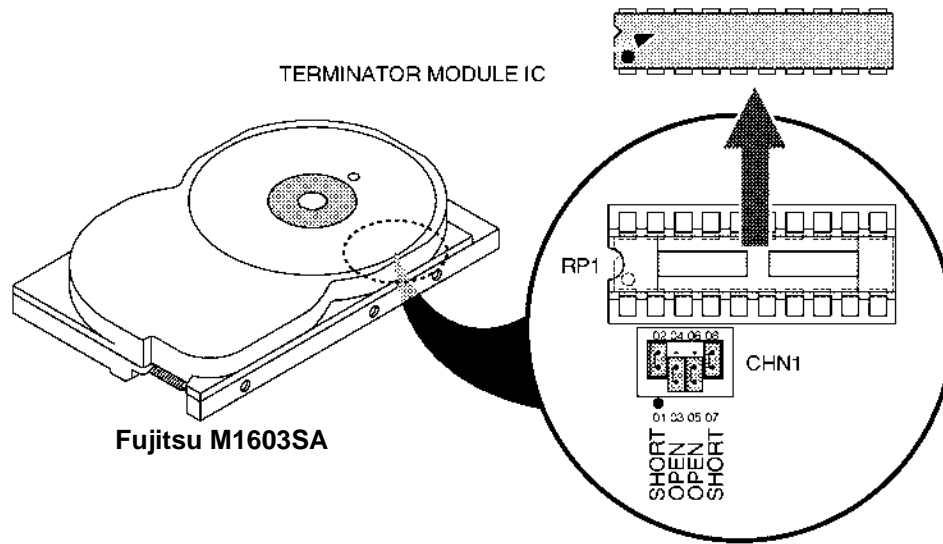
BOTTOM VIEW OF 3.5–INCH HDD
ILLUSTRATION 6–92

Note

The setting of jumper switches for the new 3.5–inch HDD Assy (Quantum™ Fireball™ 1280S) is different from the old one. Refer to ILLUSTRATION 6–93 to check and set the jumper switches properly.
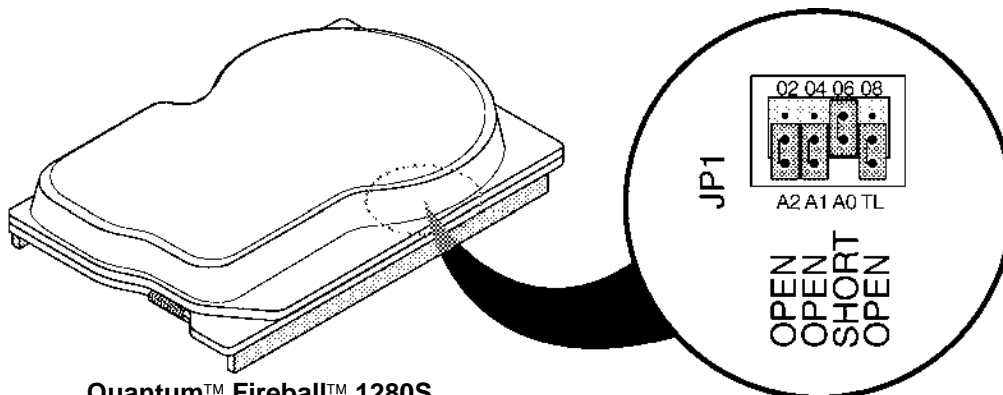
BOTTOM VIEW OF 3.5–INCH HDD (b)
ILLUSTRATION 6–93

■ **6–2–70 HDD Assy (FRU No. 520), HDD Holder Assy (FRU No. 521)** (continued)

3.5–Inch HDD Disassembly (continued)

Note

■ The setting of jumper switches for the new 3.5–inch HDD Assy (Quantum™ Fireball™ EL) is different from others. Refer to ILLUSTRATION 6–94 to check and set the jumper switches properly.

OPEN: 1, 2, 5, 6, 7, 8, 9, 10, 11, 12
SHORT: 3, 4

Quantum™ Fireball™ EL
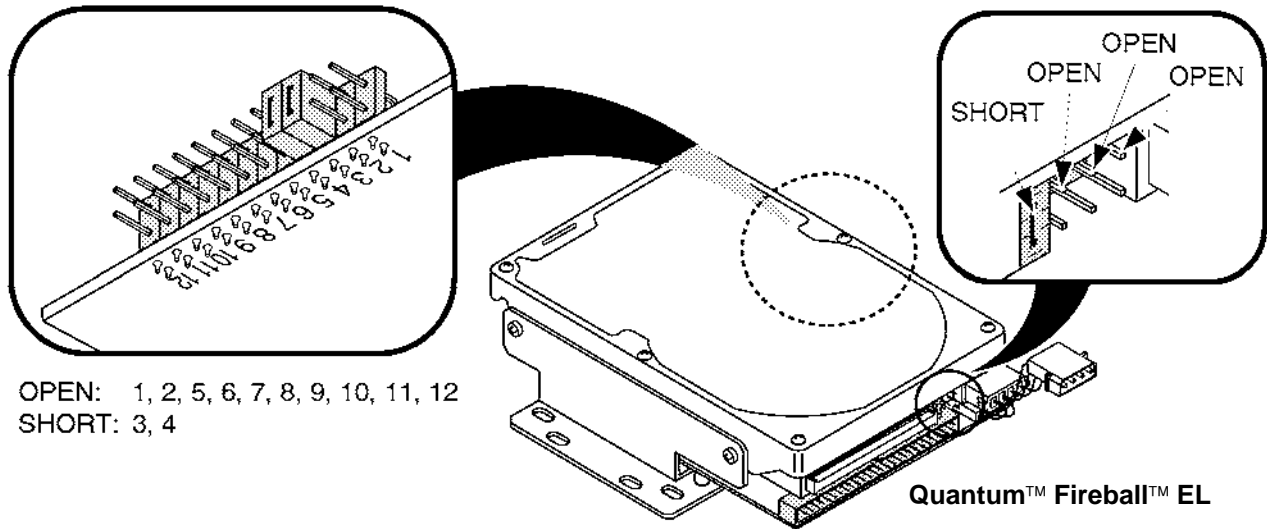
APPEARANCE OF 3.5–INCH HDD (QUANTUM FIREBALL EL)
ILLUSTRATION 6–94

■

▌ 6–2–71 HDDB Assy (FRU No. 522)

Note
The HDDB Assy is not used for the console with the 3.5–inch HDD Assy.

Time Required

15 Minutes

Tool Required

Screwdriver

Procedure

▌ Refer to ILLUSTRATION 6–95.

1. Turn OFF the system.

▌ 2. Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

3. Disconnect three connectors (① – ③).

4. Unscrew four screws (④ – ⑦).

5. Remove the HDDB Assy.

HDDB ASSY DISASSEMBLY
ILLUSTRATION 6–95

6–2–72 HDD LED Assy (FRU No. 523)

Note

The HDD LED Assy is not available on the console with the new type of 3.5–inch HDD Assy (Quantum™ FireBall™ 1280S or newer).

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–96.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Front Cover (FRU 308). Refer to 6–2–27 on page 6–104.

4. Unscrew two screws (① – ②).

5. Disconnect one connector (③).

6. Remove the HDD LED Assy.
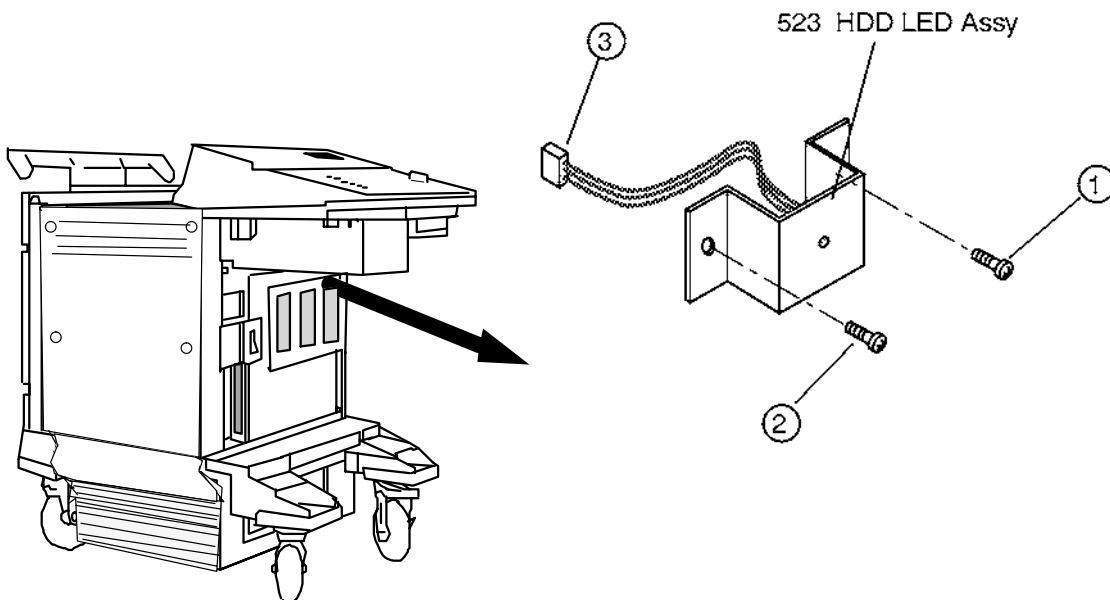
HDD LED ASSY DISASSEMBLY
ILLUSTRATION 6–96

6–2–73 Power Switch Assy (FRU No. 525)

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6–97.

NOTE
The new type of Power Switch Assy is installed from production unit of LOGIQ™500 console with software version 5.00 y or later. Refer to ILLUSTRATION 6–98 on page 6–171.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Front Cover (FRU 308). Refer to 6–2–27 on page 6–104.

4. Disconnect one connector (①).

5. Unscrew two screws (② and ③).

6. Remove the Power Switch Assy.

FRU525
POWER SWITCH
ASSY
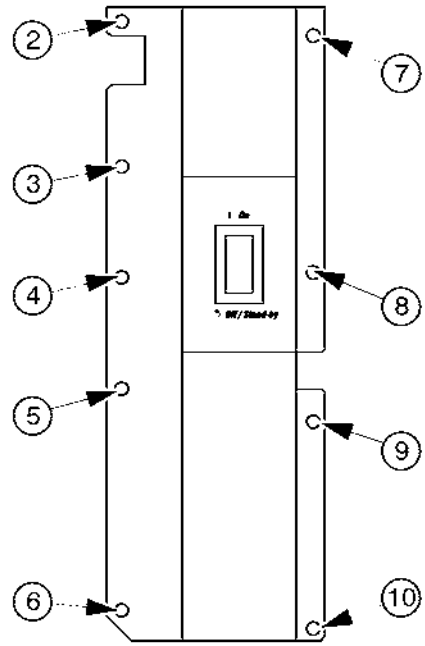
FRONT VIEW

POWER SWITCH ASSY DISASSEMBLY (a)
ILLUSTRATION 6–97

■ **6–2–73 Power Switch Assy (FRU No. 525)**

NOTE

To remove the new type of Power Switch Assy, disconnect one connector (①). Unscrew the nine screws (② – ⑩) to remove the new type of Power Switch Assy.

POWER SWITCH ASSY DISASSEMBLY (b)
ILLUSTRATION 6–98

■ **6–2–74 MODD (FRU No. 540), MODD Fan (FRU No. 541), MODD Holder Assy (FRU No. 542)**
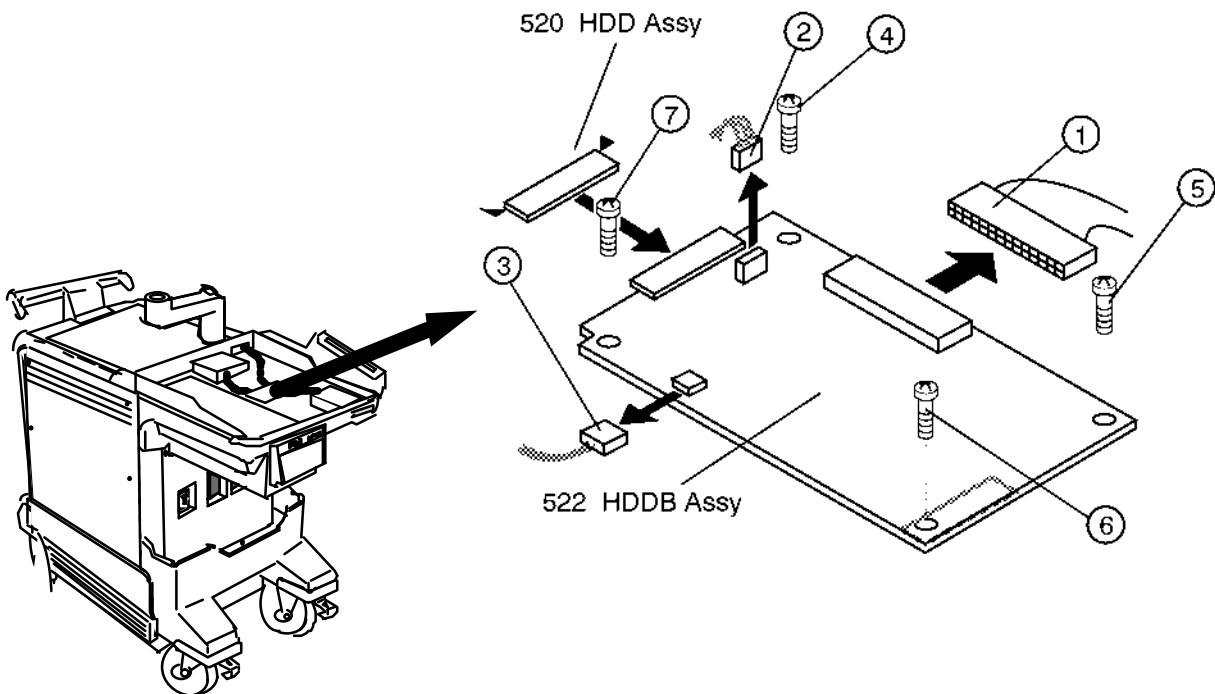
Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–99 on page 6–173.

1.   Turn OFF the system.

■ 2.   Remove the Keyboard Panel Assy (FRU 400). Refer to 6–2–41 on page 6–121.

3.   Disconnect the MODD Fan Power Cable.

4.   Unscrew two screws (① and ②).

5.   Remove the MODD Fan Assy

■ 6.   Remove the HDDB Assy (FRU 522). Refer to 6–2–71 on page 6–168.

Note
The HDDB Assy is not used for the console with the 3.5–inch HDD Assy.

7.   Unscrew four screws (③ – ⑥).

8.   Remove the upper metal plate.

9.   Disconnect the SCSI Cable and MODD Power Cable.

10. Remove the MODD Holder Assy.

11. Unscrew four screws (⑦ – ⑩).

12. Remove the MODD.

6–2–74 MODD (FRU No. 540), MODD Fan Assy (FRU No. 541), MODD Holder Assy (FRU No. 542)
(continued)
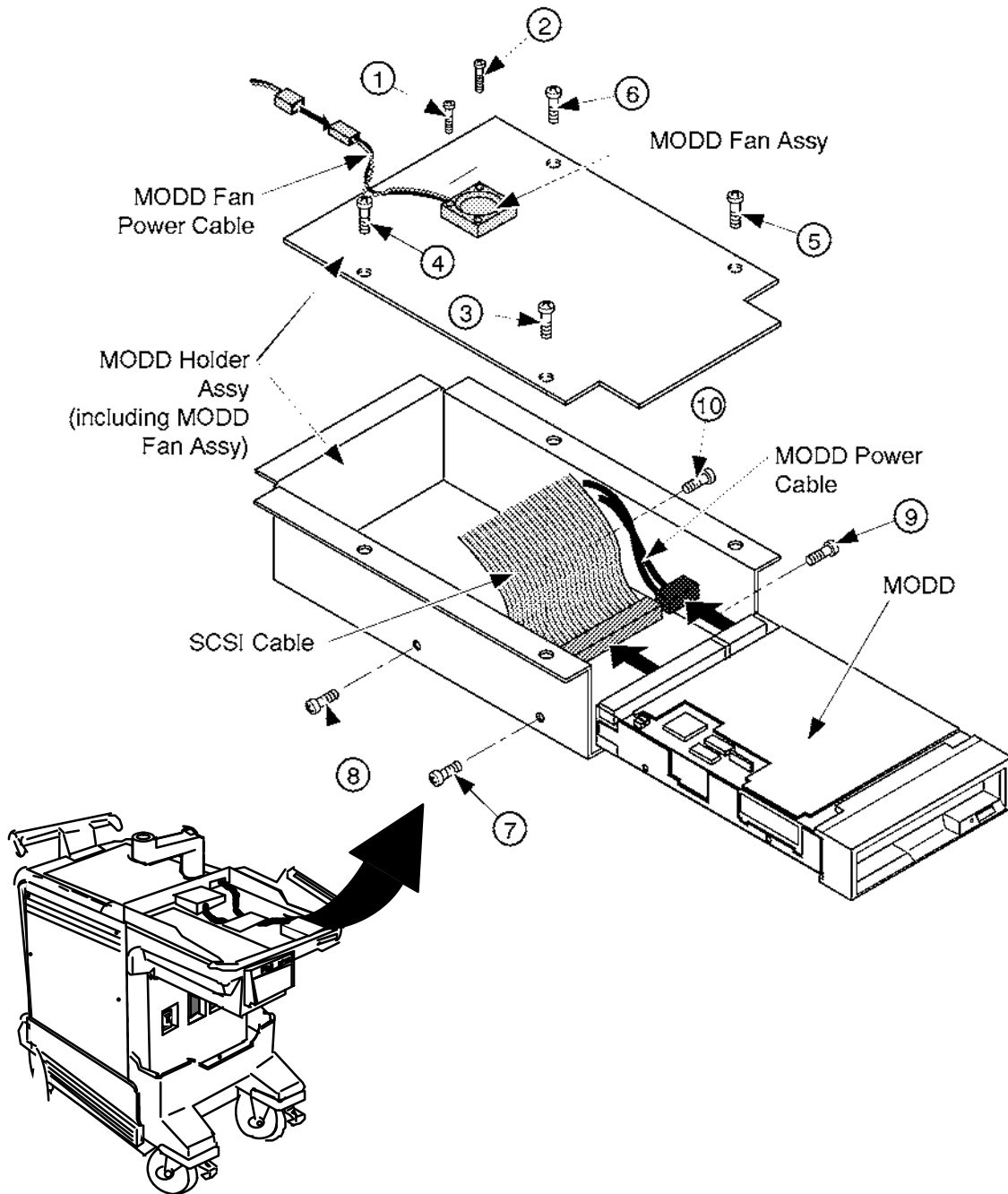
MODD, MODD FAN ASSY, AND MODD HOLDER ASSY REMOVAL
ILLUSTRATION 6–99

6–2–74 MODD (FRU No. 540), MODD Fan Assy (FRU No. 541), MODD Holder Assy (FRU No. 542)
(continued)

Note

Make sure that the DIP switches and jumper switches located on the MODD are set as follows before you install a new MODD onto the system.

ILLUSTRATION 6–100 shows the settings of jumper switches when the 2.5–inch HDD is installed on the console.

OPEN: Jumper switch is not installed
SHORT: Jumper switch is installed

Jumper Switches for another type of MODD (2187012)

SW1:
 ON: 1, 3, 4, 7
 OFF: 2, 5, 6, 8
SW2:
 ON: 2
 OFF: 1, 3, 4, 5, 6, 7, 8

MODD (U0052ZA)
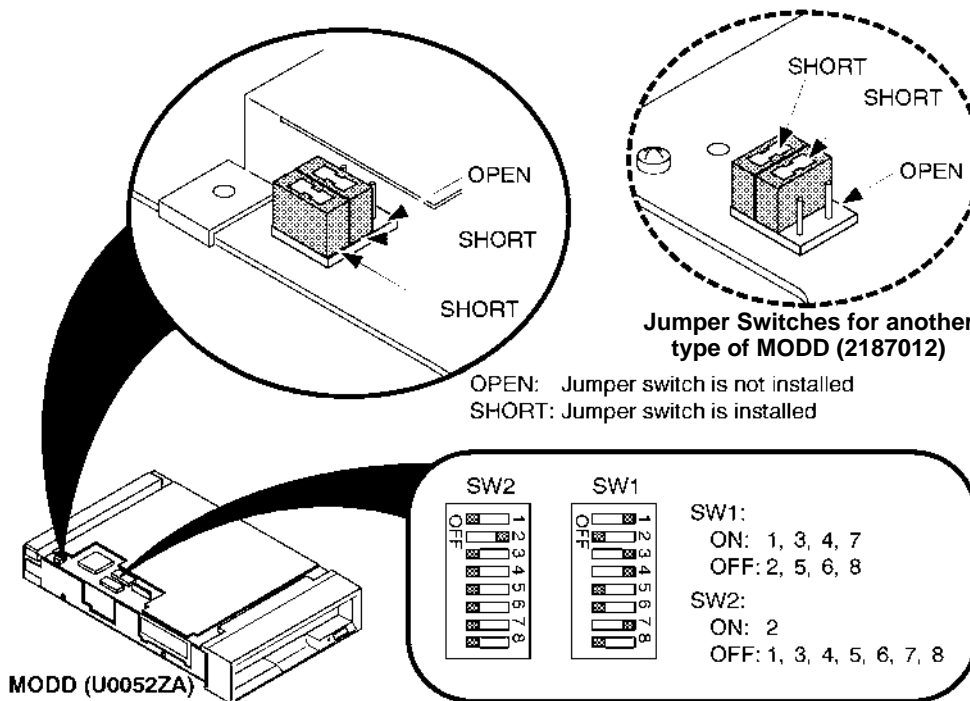
SETTINGS OF SWITCHES ON MODD
ILLUSTRATION 6–100

Note

If the 3.5–inch HDD is installed on the console, set the jumper switches as shown in ILLUSTRATION 6–101.

MODD (U0052ZA)

Jumper Switches for another type of MODD (2187012)
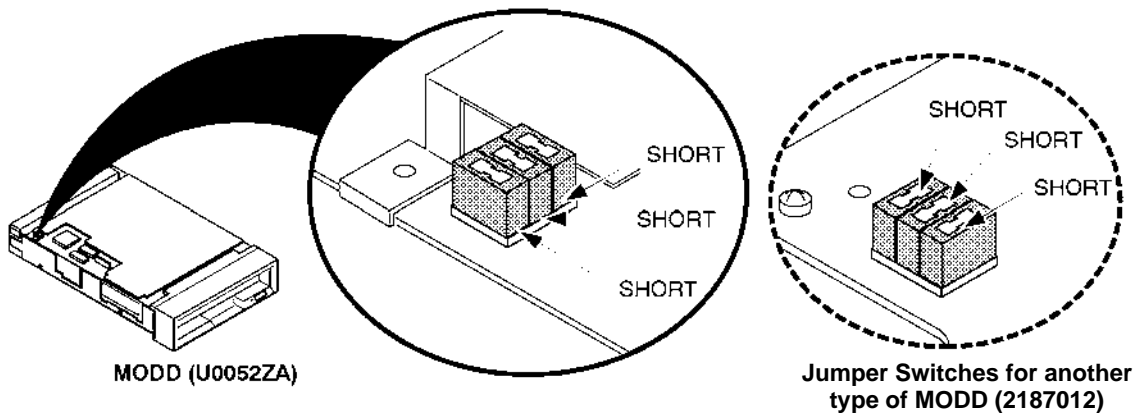
SETTINGS OF JUMPER SWITCHES
ILLUSTRATION 6–101

6–2–74 MODD (FRU No. 540), MODD Fan Assy (FRU No. 541), MODD Holder Assy (FRU No. 542)
(continued)

Note

If the 3.5–inch HDD is installed on the console, set the jumper switches as shown in ILLUSTRATION 6–102.
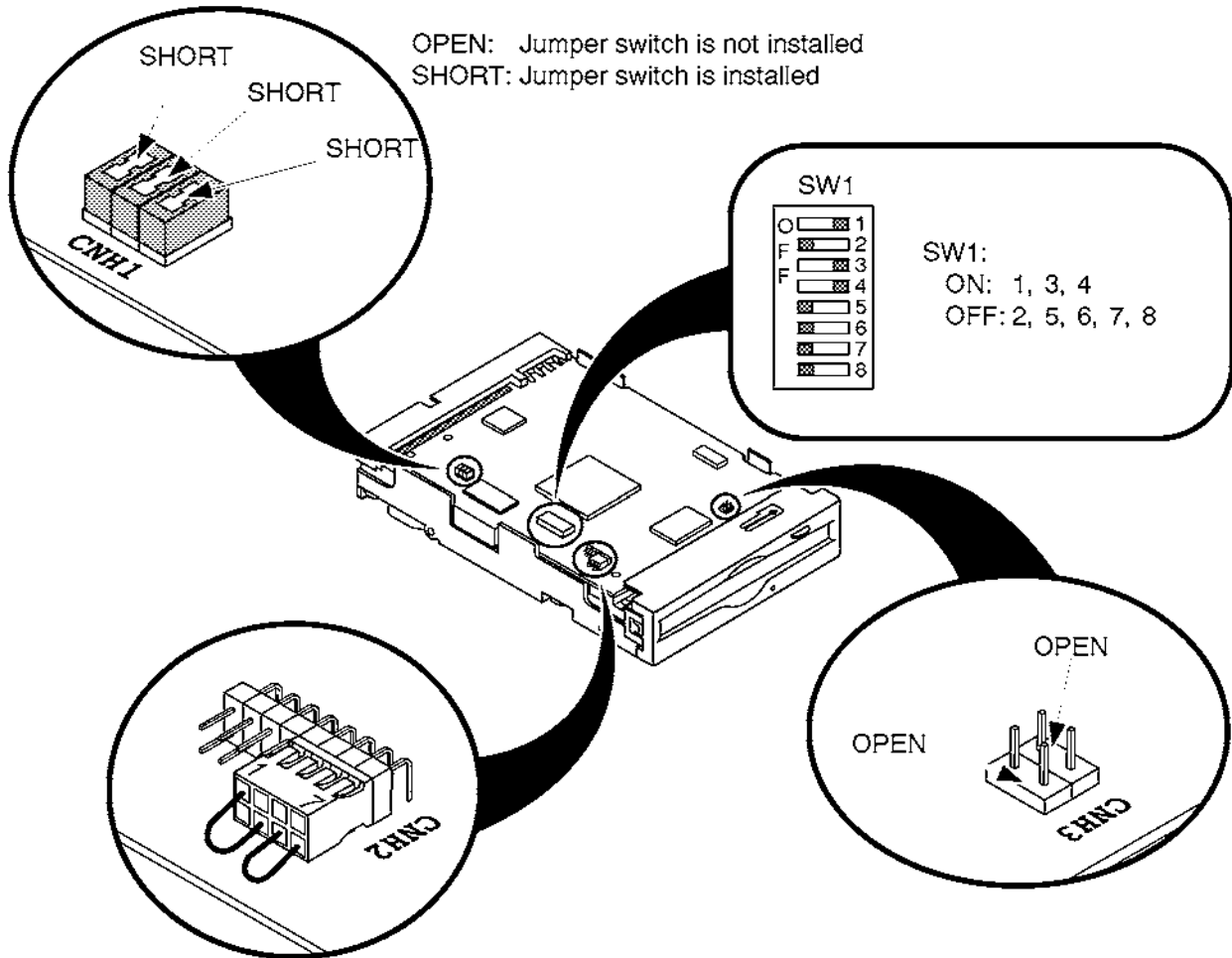
SETTINGS OF JUMPER SWITCHES ON MODD (2187012–2)
ILLUSTRATION 6–102

6–2–74 MODD (FRU No. 540), MODD Fan Assy (FRU No. 541), MODD Holder Assy (FRU No. 542)
    (continued)

Note

If the 3.5–inch HDD is installed on the console, set the jumper switches as shown in ILLUSTRATION 6–103.
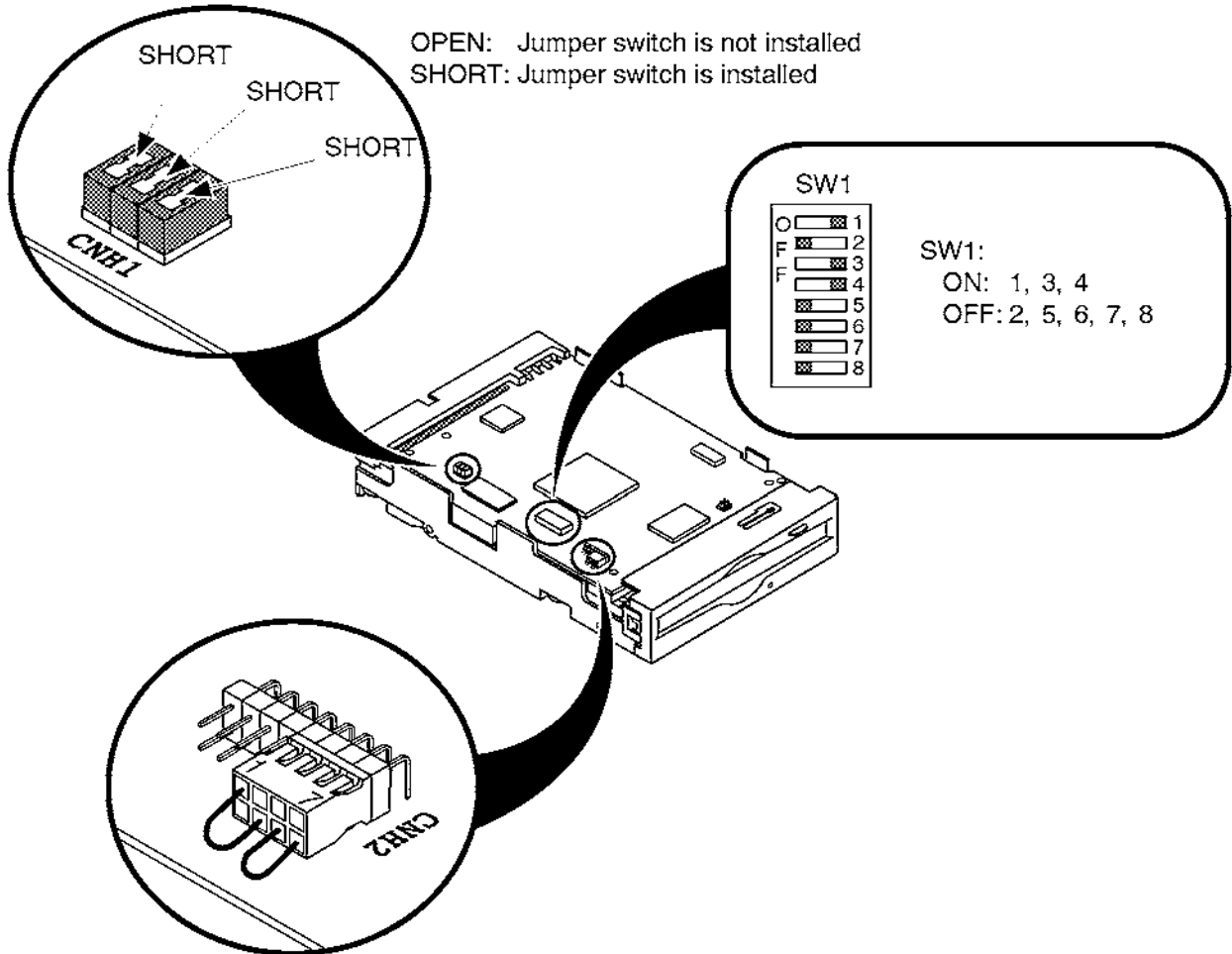
SETTINGS OF JUMPER SWITCHES ON MODD (2271309)
ILLUSTRATION 6–103

6–2–74 MODD (FRU No. 540), MODD Fan Assy (FRU No. 541), MODD Holder Assy (FRU No. 542)
(continued)

Emergency Ejection

When your disk is not mounted and the eject button does not function, eject the disk following the procedure below:

{ CAUTION }

Use the emergency ejection procedure only in emergency situations. If this procedure is used while a MO disk is inserted, data in the disk can be destroyed.

1.   Turn the system power OFF.

2.   Unfold and straighten one end of a large wire paper clip.

3.   Insert the straightened end of the clip into the emergency eject hole and press firmly.

      This will eject the disk.
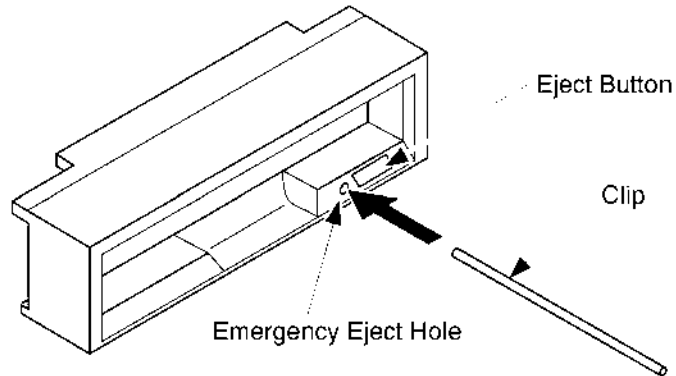
EMERGENCY EJECTION
ILLUSTRATION 6–104

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■ **6–2–75 P.C. Board(s) (FRU No. 601 through 610)**

Time Required

10 Minutes

Tool Required

Screwdriver

Procedure

{ **CAUTION** }

An electrostatic discharge may damage a component. Turn OFF power and wear the wrist strap before you remove a circuit boards. Do not unplug the power cord to keep ground continuity.
Do not bend or flex the boards when mounting/dismounting each board. Surface mount IC boards are very susceptible to damage from flex/torque.

■ Refer to ILLUSTRATION 6–105 on page 6–181.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew the five Nest Cover screws.

4.   Remove the Nest Cover.

5.   Disconnect the connector if removing one of the BF16 boards. Otherwise, skip this step.

■ 6.   Move the upper and lower ejector in the direction indicated by the arrow ①. Refer to ILLUSTRATION 6–105 on page 6–181.

7.   Pull out the board, do not bend it (②).

Note

After replacing a CPU Assy with new one, it is necessary to install the system ID number into the time keeper RAM on new CPU Assy and set up two items, Video Signal and Power Frequency among four system preset parameters. For set-up procedures of system preset parameter, refer to LOGIQ™ 500 Proprietary Manual, P9030TB.
The system software version 2.00 or later console can be installed the system ID number into the time keeper RAM on new CPU Assy using the utility function. Refer to Section 4–3–3 (J) on page 4–31, SYSTEM ID ENTRY/DISPLAY in Chapter 4 of this manual.
For the procedure of installing system ID number into the system software version 1.20 or former console, refer to LOGIQ 500™ Proprietary Manual, P9030TB.

Note

If the customer uses the P509 probe, you have to disconnect the connector from the RCTL2 Assy before removing the RCTL2 Assy.

■ 6–2–75 P.C. Boards (FRU No. 601 through 610) (continued)
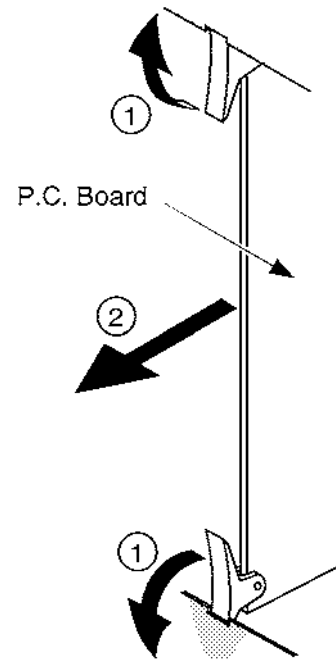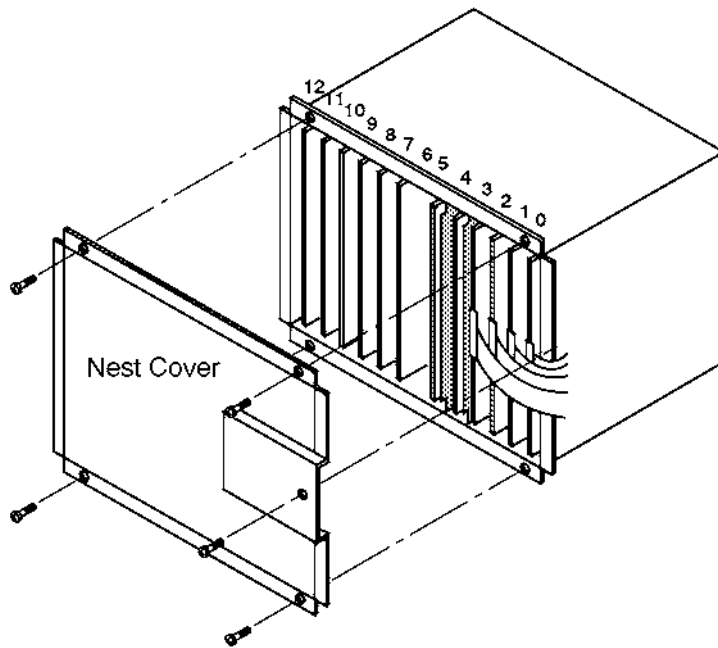
Cardcage Number	Board	NOTE	Cardcage Number	Board	NOTE
0	BF16 ASSY	BF16 ASSY can be replaced with BF16-2 ASSY	7	DIGP6 ASSY	From ver.4.00 software console
	BF16-2 ASSY		8	COLP ASSY	COLP ASSY is replaced with COLP2 Assy by FMI72069
	BF16-3 ASSY			COLP2 ASSY	From ver.1.10 software console
1	BF16 ASSY	BF16-2 ASSY: from ver.2.00 software console		COLP3 VAR2 ASSY	From ver.1.20 software console COLP3 ASSY and COLP3 VAR2 ASSY can be replaced with COLP3 VAR3 ASSY
	BF16-2 ASSY				
	BF16-3 ASSY				
2	BF16 ASSY	The image appearence is different between the consoles with BF16-2 ASSY or BF16-3 ASSY. Never use both assemblies together in a console.		COLP3 VAR3 ASSY	From ver.2.00 software console
	BF16-2 ASSY				
	BF16-3 ASSY			COLP4 ASSY	From ver.2.20 software console
3	BF16 ASSY			ACFP ASSY	From ver.3.00 software console
	BF16-2 ASSY			ACFP2 ASSY	From ver.4.00 software console
	BF16-3 ASSY			ACFP3 ASSY	From ver.5.00 software console
4	ANLP ASSY	For ver.1.20 or older software console	9	TLMC ASSY	
	ANLP_B ASSY	ANLP ASSY can be replaced with ANLP_B ASSY	10	DDSC ASSY	For console with ver.1.20 or former software
	ANLP2 ASSY	From ver.2.00 software console		DDSC2 ASSY	From ver.2.00 software console
	ANLP3 ASSY	From ver.4.00 software console		DDSC3 ASSY	From ver.4.00 software console
5	RCTL ASSY	RCTL ASSY can be replaced with RCTL2 ASSY	11	VIPB ASSY	
	RCTL2 ASSY	From ver.2.00 software console RCTL2 ASSY (2123300-2) is required to use P509 probe		VIPB2 ASSY	S/W ver.4.10 or later
				VIDO ASSY	For Japan VIDO ASSY is replaced with VIDO2 ASSY by FMI72076
6	Reserved			VIDO2 ASSY	For Japan
7	DIGP ASSY	DIGP ASSY is replaced with DIGP2 ASSY by FMI72069		VIPP ASSY	For V5.00y or later
	DIGP2 ASSY	DIGP2 ASSY can be replaced with DIGP3 ASSY	12	CPU ASSY	CPU ASSY can be replaced with CPU2 ASSY
	DIGP3 ASSY	From ver. 2.00 software console		CPU2 ASSY	From ver.2.00 software console
	DIGP4 ASSY	From ver. 3.00 software console		CPU-A ASSY	From ver.4.00 software console
	DIGP5 ASSY	DIGP4 ASSY is replaced with DIGP5 Assy			

P.C. BOARD(S) REMOVAL

ILLUSTRATION 6–105

■ **6–2–76 Time Keeper RAM (FRU No. 611)**

Time Required

1 Hour

Tool Required

Screwdriver
IC Remover

Procedure

■ Refer to ILLUSTRATION 6–106 on page 6–183.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew the four Nest Cover screws.

4.   Remove the Nest Cover.

■ 5.   Remove the CPU Assy (FRU 610). Refer to 6–2–75 on page 6–180.

6.   Remove the Time Keeper RAM.

Note

After replacing a time keeper RAM with new one, it is necessary to install the system ID number into new time keeper RAM and set up two items, Video Signal and Power Frequency among four system preset parameters. For set-up procedures of system preset parameter, refer to LOGIQ 500™ Proprietary Manual, P9030TB.
The system software version 2.00 or later console can be installed the system ID number into new time keeper RAM using the utility function. Refer to Section 4–3–3 (J) on page 4–31, SYSTEM ID ENTRY/DISPLAY in Chapter 4 of this manual.
For the procedure of installing system ID number into the system software version 1.20 or former console, refer to LOGIQ 500™ Proprietary Manual, P9030TB.

■ **6–2–76 Time Keeper RAM (FRU No. 611)** (continued)

SBC ASSY
(MVME147SRF)

611 Time Keeper RAM

TIME KEEPER RAM REMOVAL
ILLUSTRATION 6–106

■

■ **6–2–77 Time Keeper Battery (FRU No. 612)**

Time Required

1 Hour

Tool Required

Screwdriver
IC Remover

Procedure

■ Refer to ILLUSTRATION 6–107 on page 6–185.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew the four Nest Cover screws.

4.   Remove the Nest Cover.

■ 5.   Remove the CPU Assy (FRU 610). Refer to 6–2–75 on page 6–180.

6.   Remove the Time Keeper Battery.

Note

After replacing a time keeper battery with new one, it is necessary to install the system ID number into the time keeper RAM and to set up the factory preset data.
The system software version 2.00 or later console can be installed the system ID number into new time keeper RAM using the utility function. Refer to Section 4–3–3 (J) on page 4–31, SYSTEM ID ENTRY/DISPLAY in Chapter 4 of this manual.
For the procedure of installing system ID number into the system software version 1.20 or former console, refer to LOGIQ™ 500 Proprietary Manual, P9030TB.

■ **6–2–77 Time Keeper Battery (FRU No. 612)** (continued)
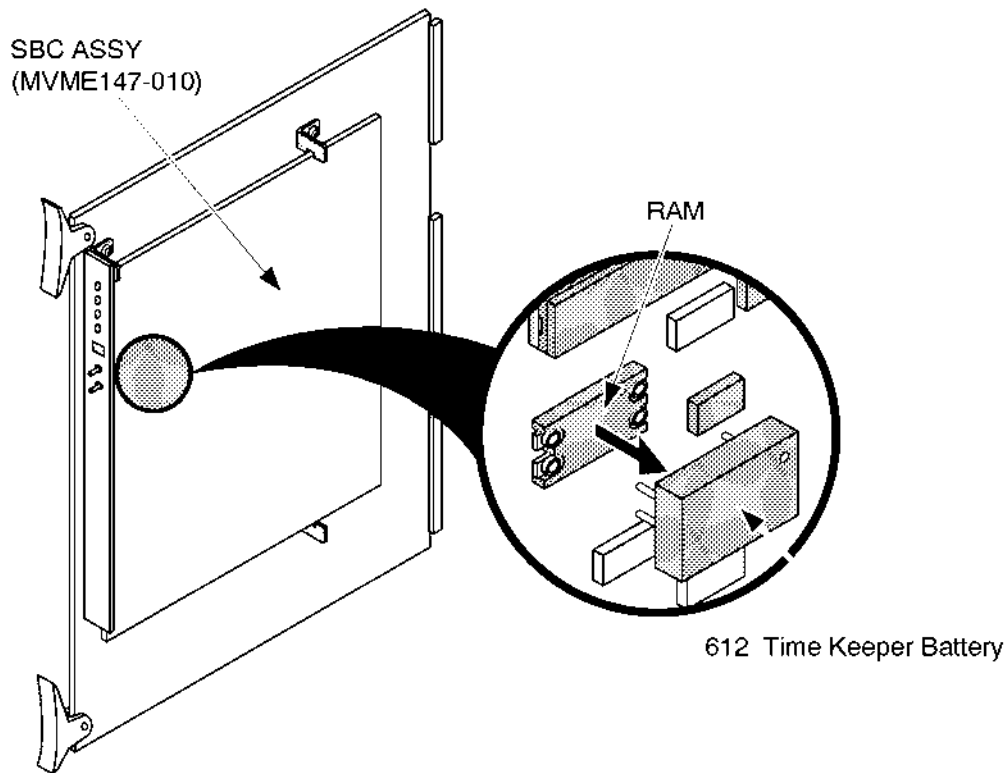
TIME KEEPER BATTERY REMOVAL
ILLUSTRATION 6–107

■

■ **6–2–78 Time Keeper RAM (for MVME167–002B) (FRU No. 616)**

Time Required

1 Hour

Tool Required

Screwdriver
IC Remover

Procedure

■ Refer to ILLUSTRATION 6–108 on page 6–187.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew the four Nest Cover screws.

4.   Remove the Nest Cover.

■ 5.   Remove the CPU–A Assy (FRU 610). Refer to 6–2–75 on page 6–180.
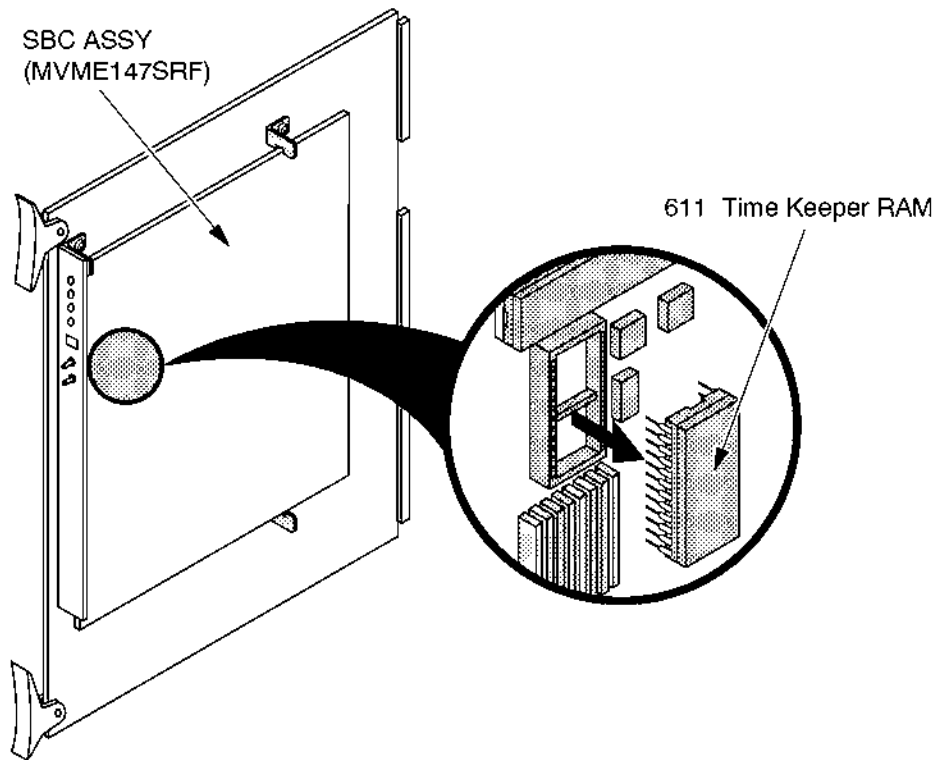
6.   Remove the Time Keeper RAM on the SBC–A Assy (MVME167–002B).

Note
After replacing a time keeper RAM with new one, it is necessary to install the system ID number into the time keeper RAM and to set up the factory preset data.

■ **6–2–78 Time Keeper RAM (for MVME167–002B) (FRU No. 616)** (continued)

Timekeeper RAM

U12

SBC–A ASSY
(MVME167-002B)
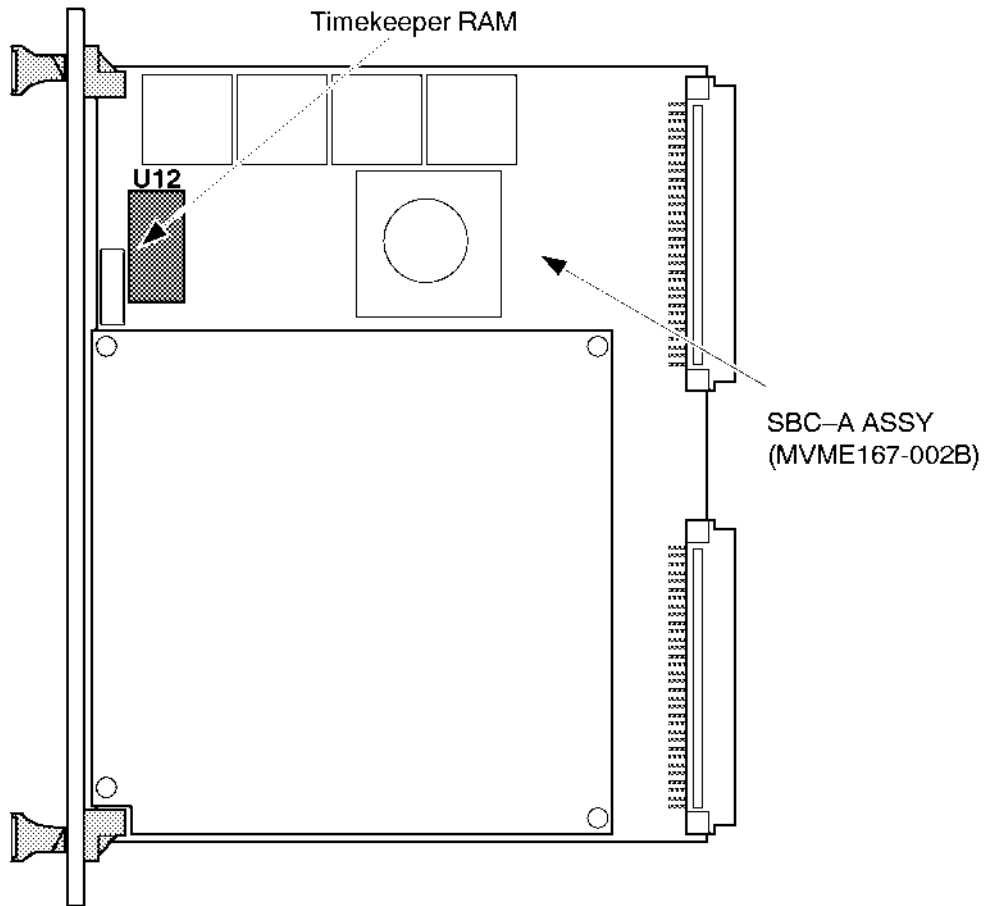
TIME KEEPER RAM (for MVME167–002B) REMOVAL
ILLUSTRATION 6–108

■

6–2–79 OMEM Assy (FRU No. 613)

Time Required

20 Minutes

Tool Required

Screwdriver

Procedure

╬ CAUTION ╬

Do not bend or flex the boards when mounting/dismounting the piggyback boards. Surface mount IC boards are very susceptible to damage from flex/torque.

■ Refer to ILLUSTRATION 6–109 on page 6–189.

1. Turn OFF the system.

■ 2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Unscrew the four Nest Cover screws.

4. Remove the Nest Cover.

■ 5. Remove the TLMC Assy (FRU 606). Refer to 6–2–75 on page 6–180, P.C. Board(s).

6. Unscrew one screw (①).

7. Remove the OMEM Assy out of the TLMC Assy.

■ **6–2–79 OMEM Assy (FRU No. 613)** (continued)
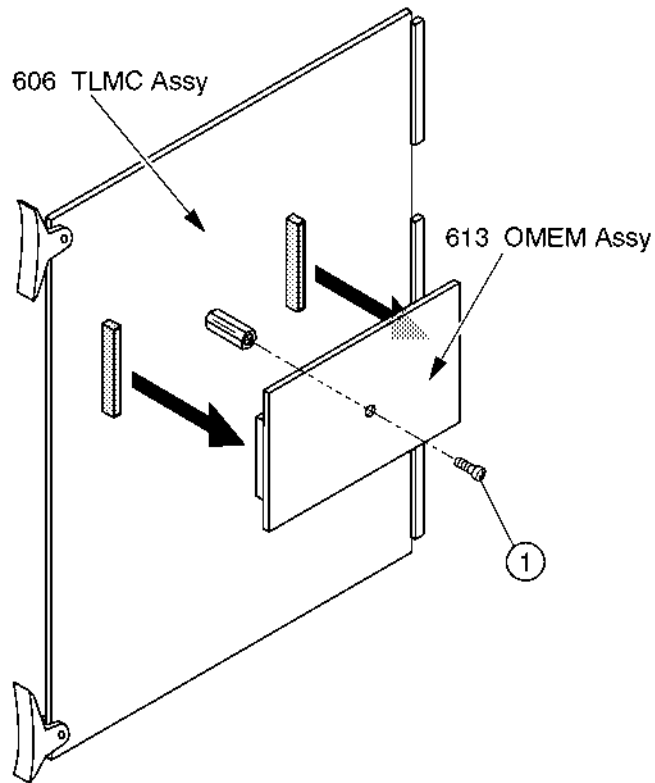
OMEM ASSY DISASSEMBLY
ILLUSTRATION 6–109

6–2–80 Nest Mother Assy (FRU No. 614)

Time Required

2 Hours

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6–110 on page 6–192.

```
{ CAUTION }
```

An electrostatic discharge may damage a component. Turn OFF power and wear the wrist strap before you remove a circuit boards. Do not unplug the power cord to keep ground continuity.

```
{ CAUTION }
```

Do not bend or flex the boards when mounting/dismounting each board. Surface mount IC boards are very susceptible to damage from flex/torque.

1. Turn OFF the system.

2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

4. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

5. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

6. Remove the Front Cover (FRU 308). Refer to 6–2–27 on page 6–104.

7. Remove the Top Cover (FRU 310). Refer to 6–2–29 on page 6–108.

8. Unscrew the four Nest Cover screws.

9. Remove the Nest Cover.

10. Remove all the P.C. Boards. Refer to 6–2–75 on page 6–180.

6–2–80 Nest Mother Assy (FRU No. 614) (continued)

11. Remove the Rear CONN Panel Assy (FRU 501). Refer to 6–2–53 on page 6–138.

12. Remove the HDD LED Assy (FRU 523). Refer to 6–2–72 on page 6–169.

13. Remove the Power Switch Assy (FRU 525). Refer to 6–2–73 on page 6–170.

14. Remove the Probe CONN Set Assy (FRU 513). Refer to 6–2–65 on page 6–156.

Note

When the customer uses the Single CWD option, the CWD2 Assy is installed on the case metal of the Probe CONN Set Assy. Remove the CWD2 Assy before removing the Probe CONN Set Assy.

15. Unscrew two screws and remove the CONN Assy holding plate.

16. Remove the Nest Fan Assy (FRU 512). Refer to 6–2–64 on page 6–154.

17. Remove the Neck Assy (FRU 201). Refer to 6–2–17 on page 6–92.

18. Disconnect sixteen connectors connected with the mother board.

19. Unscrew four hexagonal bolts to remove the four power line connected on the mother board.

20. Unscrew four hexagonal bolts ($①$ – $④$) on the left side of the console. Refer to ILLUSTRATION 6–110 on page 6–192.

21. Unscrew three hexagonal bolts ($⑤$ – $⑦$) on the right side of the console. Refer to ILLUSTRATION 6–110 on page 6–192.

22. Remove the Nest Mother Assy (FRU No. 614).

■ **6–2–80 Nest Mother Assy (FRU No. 614)** (continued)
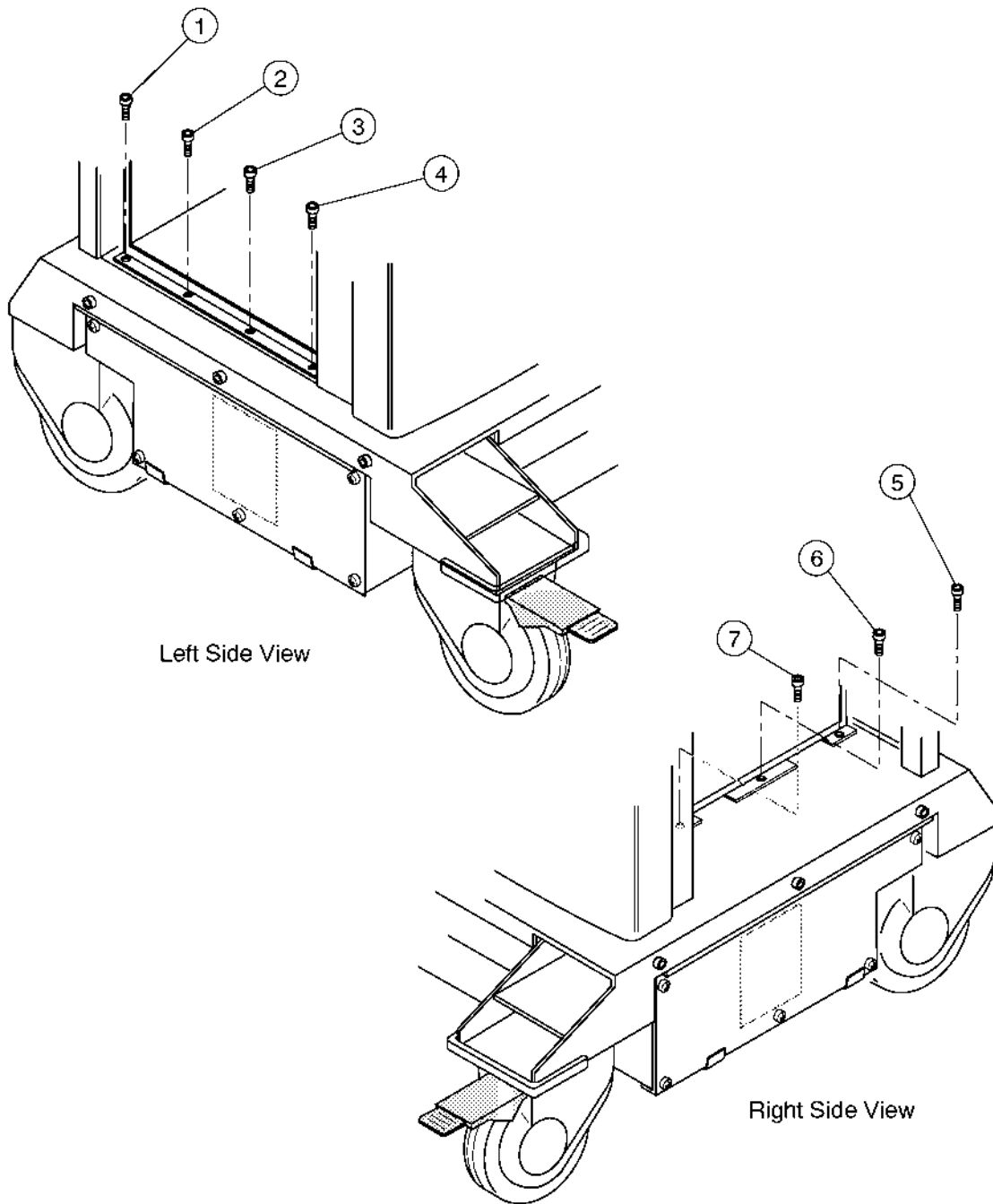
NEST MOTHER ASSY DISASSEMBLY
ILLUSTRATION 6–110

■ 6–2–81 Mother IC (FRU No. 615)

Time Required

1 Hour

Tool Required

Screwdriver
Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–111.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

5. Remove the Neck Assy (FRU 201). Refer to 6–2–17 on page 6–92.

6. Remove the Mother IC.
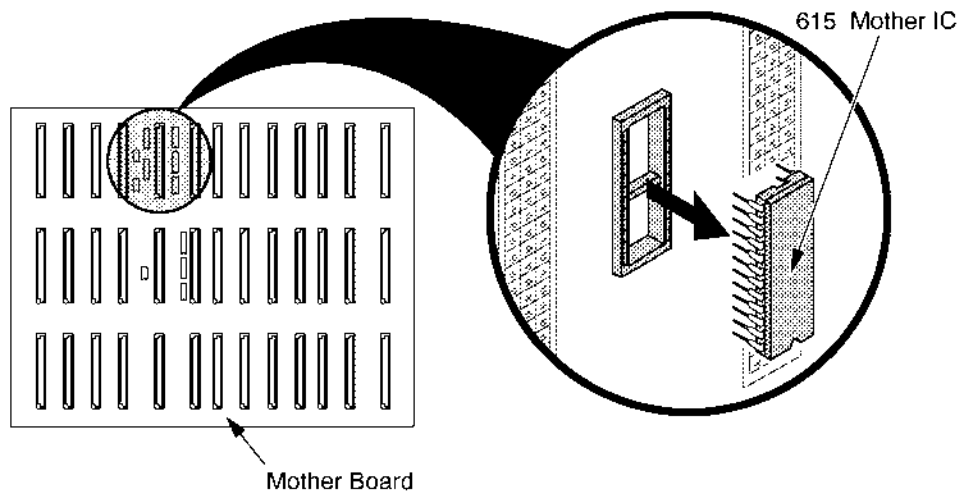
MOTHER IC REMOVAL
ILLUSTRATION 6–111

6–2–82 DNID2 Assy (FRU No. 620)

Note

The DNID2 Assy is supplied with the optional Single CWD upgrade kit.

Time Required

20 Minutes

Tool Required

Screwdriver

Procedure

```
CAUTION
```

Do not bend or flex the boards when mounting/dismounting the piggyback boards. Surface mount IC boards are very susceptible to damage from flex/torque.

Refer to ILLUSTRATION 6–112 on page 6–195.

1.   Turn OFF the system.

2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew the four Nest Cover screws.

4.   Remove the Nest Cover.

5.   Disconnect the CB16J62 connector from the J2 connector on the DNID2 Assy.

6.   Remove the ANLP2 Assy (FRU 602) installed in slot 4. Refer to 6–2–75, P.C. Board(s) on page 6–180.

7.   Unscrew one screw (①).

8.   Remove the DNID2 Assy out of the ANLP2 Assy.

■ **6–2–82 DNID2 Assy (FRU No. 620)** (continued)

ANLP2 Assy

DNID2 Assy

ANLP2 Assy

J2
CONNECTOR

CB16J62
CONNECTOR

DNID2 Assy

①
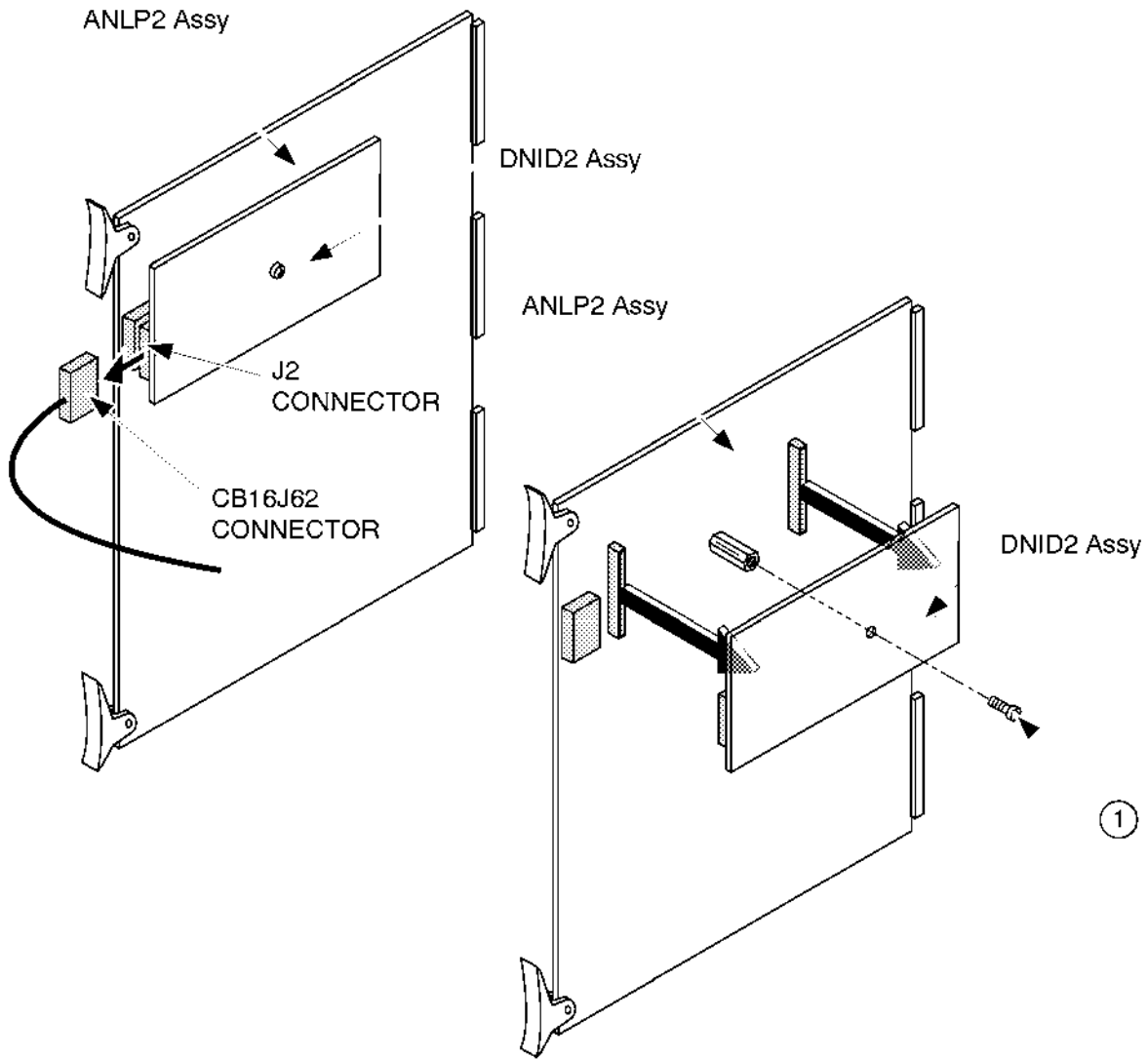
DNID2 ASSY DISASSEMBLY
ILLUSTRATION 6–112

■

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■ **6–2–83 A1 PS +5V 32A (FRU No. 701)**

Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–113 on page 6–199.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4. Unscrew five screws (① – ⑤).

5. Remove the PS Cover Right.

6. Slide the transparent cover (⑥) upwards and remove it.

7. Unscrew two screws (⑦ and ⑧).

8. Remove the two cables (⑨ and ⑩).

9. Unscrew one hexagonal bolt (⑪).

10. Pull the A1 PS +5V 32A outwards.

11. Unscrew two screws (⑫ and ⑬).

12. Remove the four cables (⑭ – ⑰).

13. Disconnect one connector (⑱).

■ **6–2–83 A1 PS +5V 32A (FRU No. 701)** (continued)

A1 PS +5V 32A DISASSEMBLY
ILLUSTRATION 6–113

■ **6–2–84 A2 PS –5.2V 11A (FRU No. 702)**

Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–114 on page 6–201.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4. Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5. Slide the transparent cover (①) upwards and remove it.

6. Unscrew six screws (② – ⑦).

7. Remove the eight cables (⑧ – ⑮).

8. Unscrew one hexagonal bolt (⑯).

■ **6–2–84 A2 PS –5.2V 11A (FRU No. 702)** (continued)

A2 PS –5.2V 11A DISASSEMBLY
ILLUSTRATION 6–114

■

■ 6–2–85 A3 PS +12V 8.4A (FRU No. 703)

Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–115 on page 6–203.

1.   Turn OFF the system.

2.   Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3.   Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4.   Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5.   Slide the transparent cover (①) upwards and remove it.

6.   Unscrew six screws (② – ⑦).

7.   Remove the eight cables (⑧ – ⑮).

8.   Unscrew one hexagonal bolt (⑯).[16]

■ **6–2–85 A3 PS +12V 8.4A (FRU No. 703)** (continued)

A3 PS +12V 8.4A DISASSEMBLY
ILLUSTRATION 6–115

■

■ **6–2–86 A4 PS –12V 2.5A (FRU No. 704)**

Time Required

30 Minutes
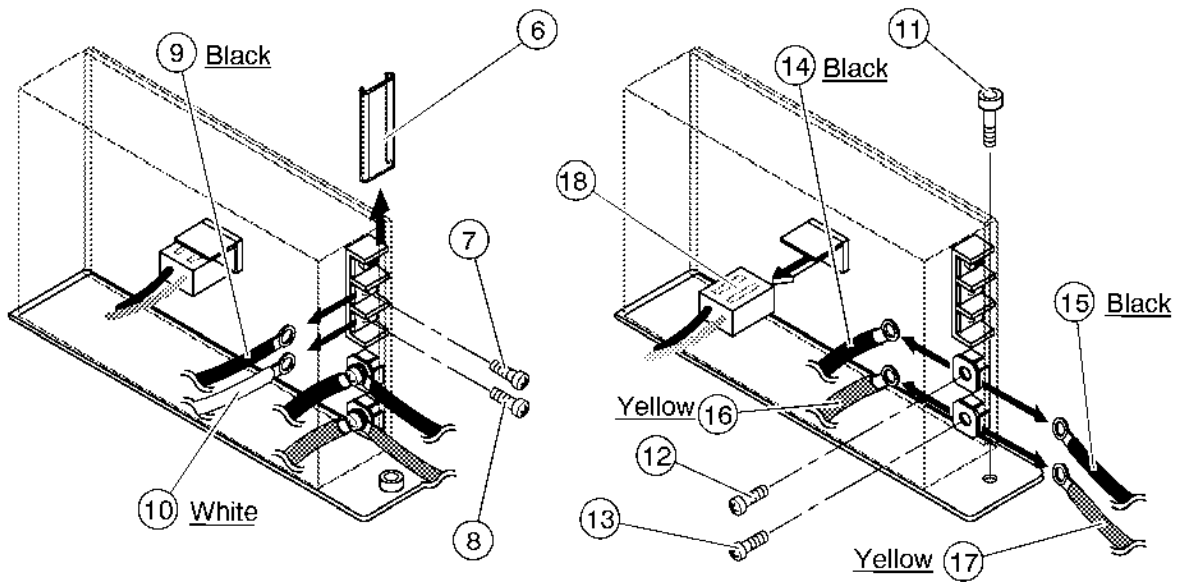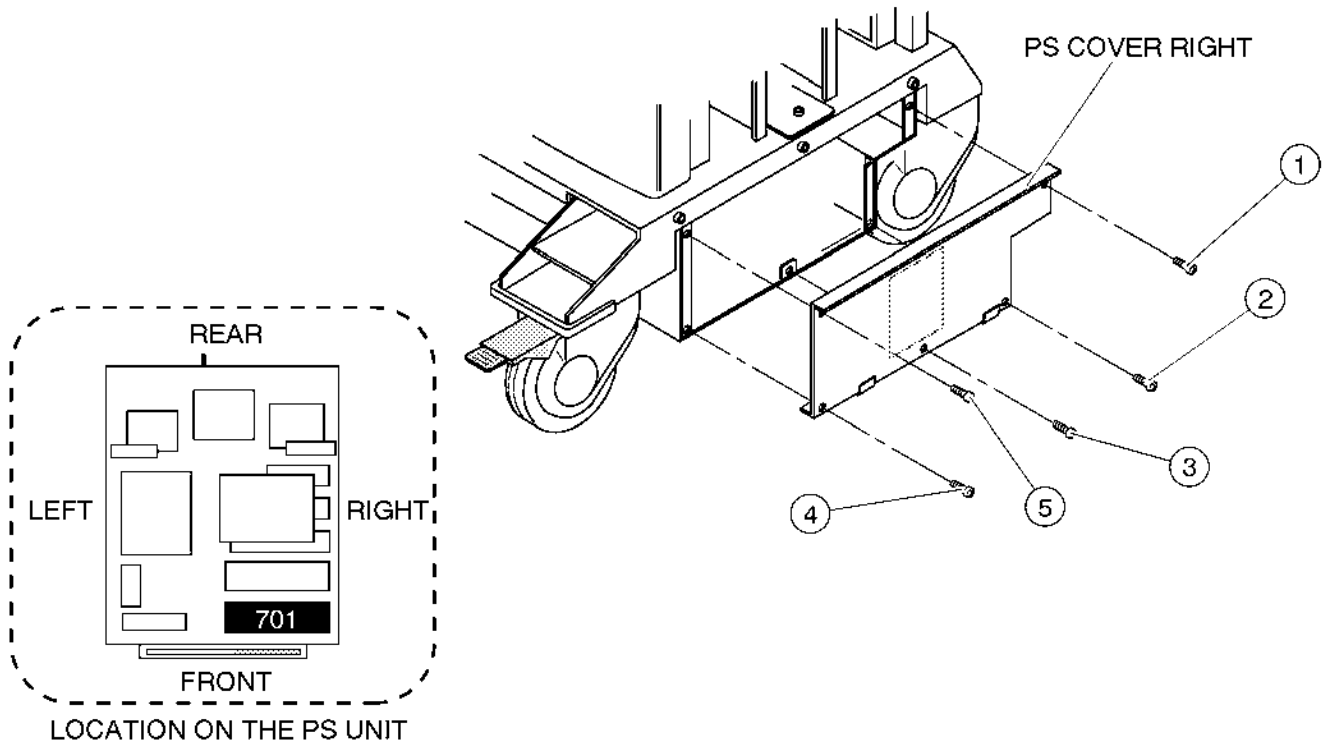
Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–116 on page 6–205.

1.   Turn OFF the system.

2.   Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3.   Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4.   Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5.   Slide the transparent cover (①) upwards and remove it.

6.   Unscrew four screws (② – ⑤).

7.   Remove the six cables (⑥ – ⑪).

8.   Unscrew one hexagonal bolt (⑫).

■ 6–2–86 A4 PS –12V 2.5A (FRU No. 704) (continued)
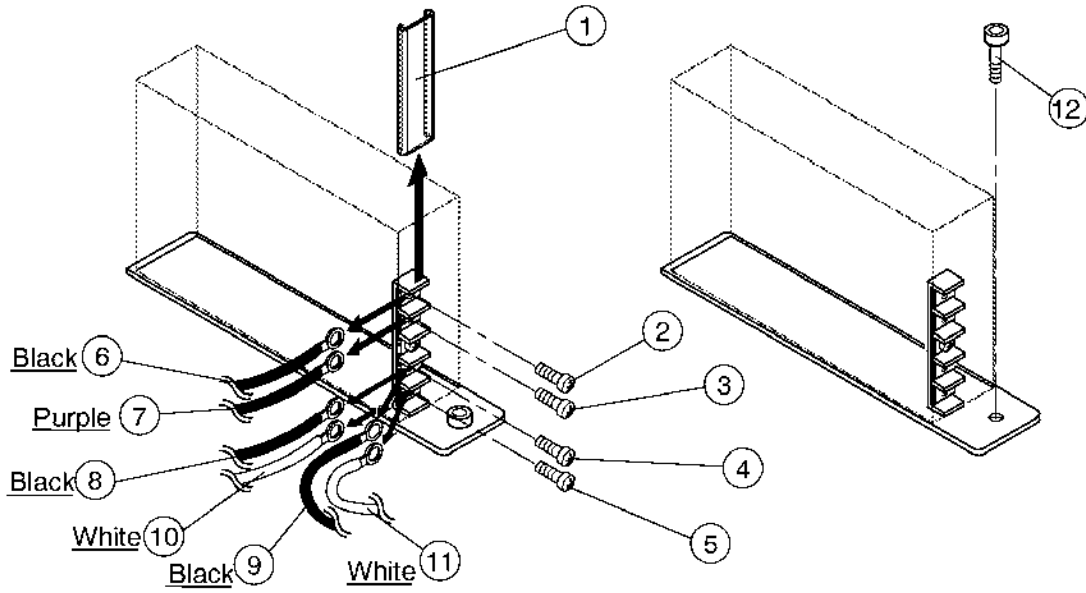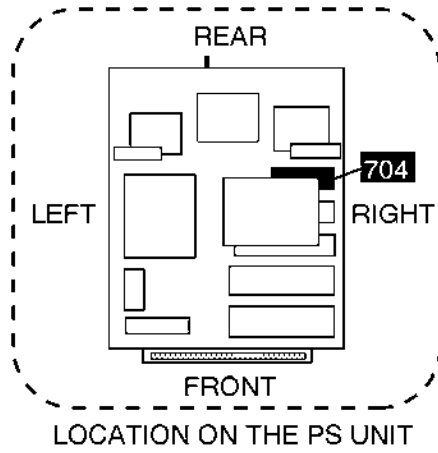
A4 PS –12V 2.5A DISASSEMBLY
ILLUSTRATION 6–116

6–2–87 A5 PS +5V 30A (FRU No. 705)

Time Required
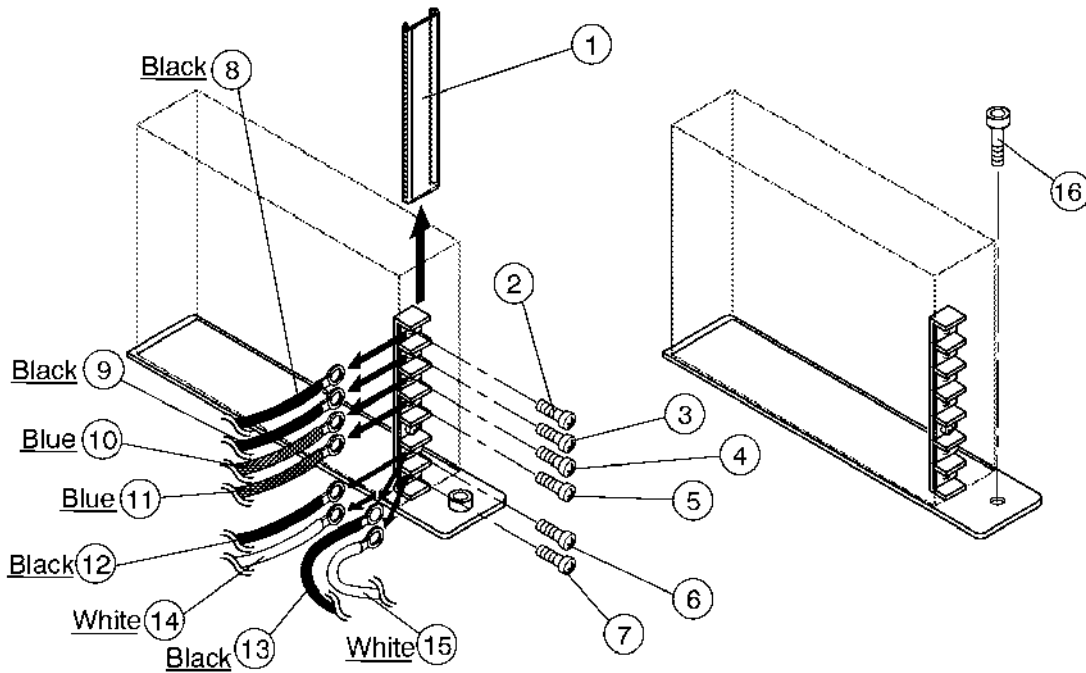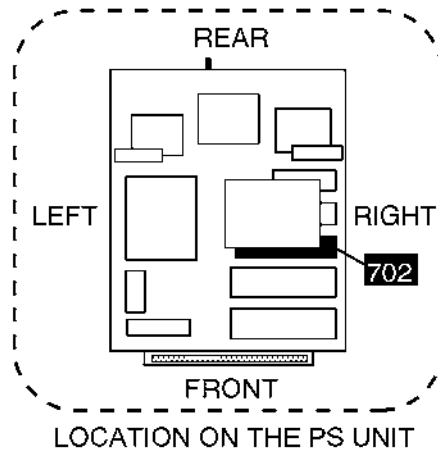
30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

Refer to ILLUSTRATION 6–117 on page 6–207.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4. Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5. Slide the transparent cover (①) upwards and remove it.

6. Unscrew two screws (② and ③).

7. Remove the four cables (④ – ⑦).

8. Unscrew one hexagonal bolt (⑧).

9. Pull the A2 PS –5.2V 11A outwards.

10. Unscrew two screws (⑨ and ⑩).

11. Remove the four cables (⑪ – ⑭).

12. Disconnect one connector (⑮).

■ **6–2–87 A5 PS +5V 30A (FRU No. 705)** (continued)

LOCATION ON THE PS UNIT

A5 PS +5V 30A DISASSEMBLY
ILLUSTRATION 6–117

■

■ **6–2–88 A7 SW Cont Assy (FRU No. 706)**
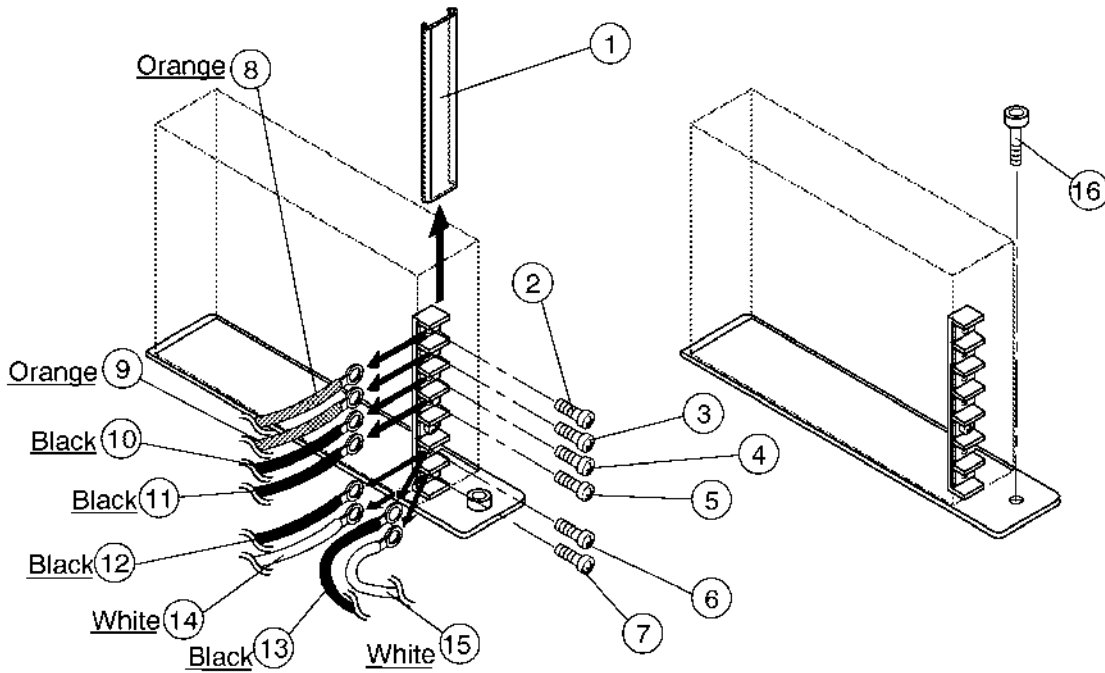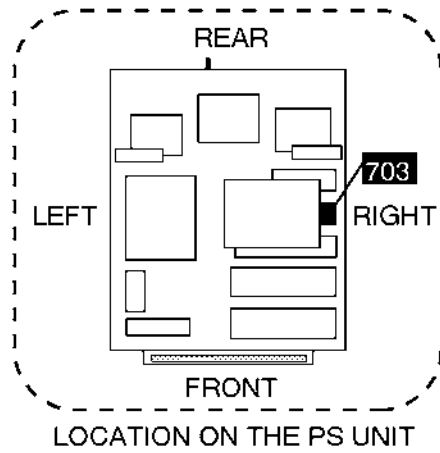
Time Required

30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–118 on page 6–209.

1.   Turn OFF the system.

2.   Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3.   Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4.   Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5.   Unscrew one hexagonal bolt (①).

6.   Pull the SW Cont Assy outwards and disconnect four connectors (② – ⑤).

■ 6–2–88 A7 SW Cont Assy (FRU No. 706) (continued)
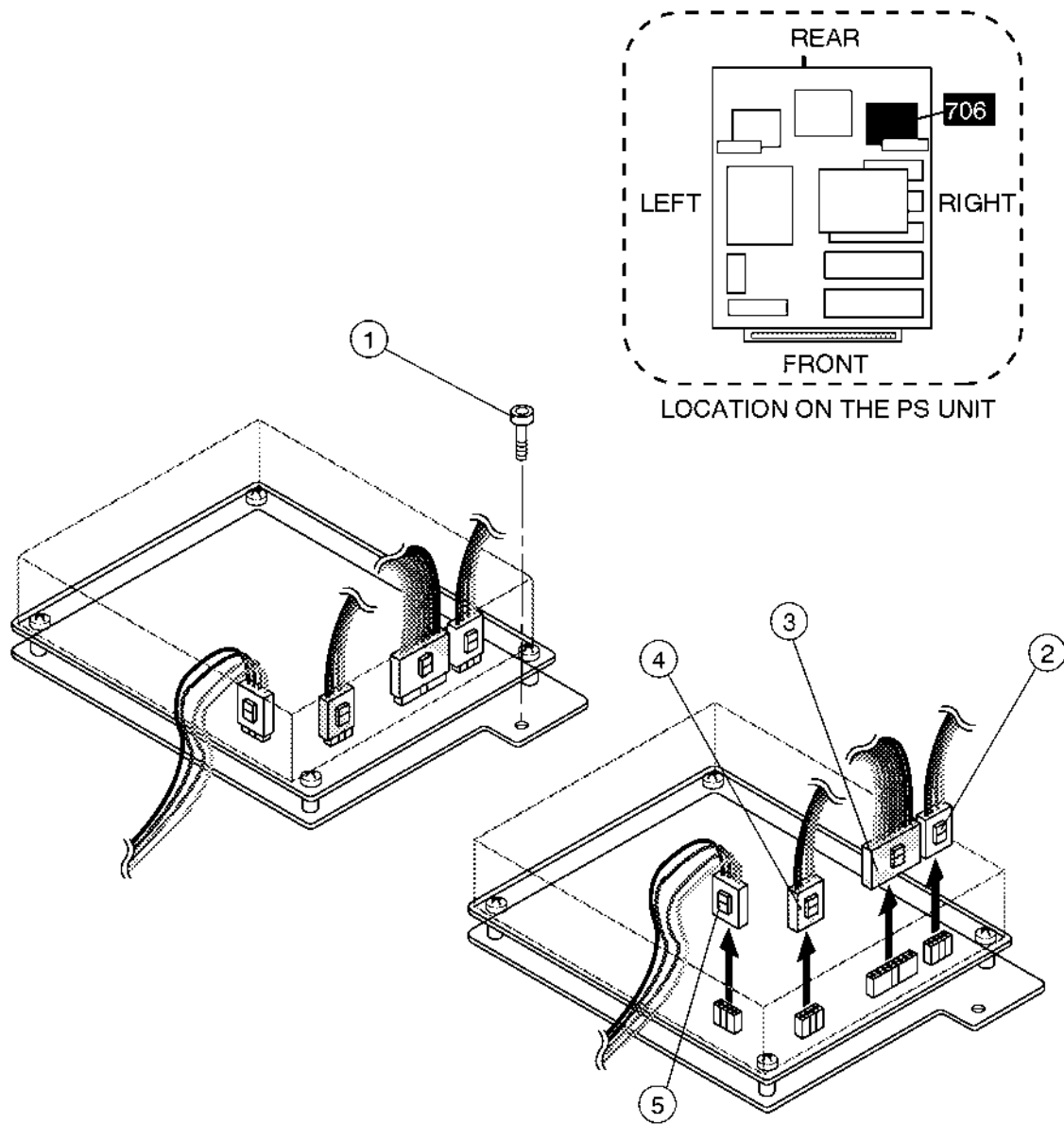
A7 SW CONT ASSY DISASSEMBLY
ILLUSTRATION 6–118

■ **6–2–89 A8 PFC Assy (FRU No. 707)**

Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–119 on page 6–211.

1. Turn OFF the system.

2. Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

3. Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

4. Remove the PS Cover Right. Refer to 6–2–83 on page 6–198.

5. Remove the transparent cover (①).

6. Unscrew two screws (③ and ④).

7. Remove the two cables (⑤ and ⑥).

8. Remove the transparent cover (②).

9. Unscrew four screws (⑦ – ⑩).

10. Remove the seven cables (⑪ – ⑰).

11. Disconnect one connector (⑱).

12. Unscrew two screws (⑲ and ⑳).

■ **6–2–89 A8 PFC Assy (FRU No. 707)** (continued)

REAR

707

LEFT   RIGHT

FRONT

LOCATION ON THE PS UNIT

⑤ Black
⑥ White

⑪ Brown
⑫ Brown
⑬ Brown
⑭ Light Blue
⑮ Light Blue
⑯ Light Blue
⑰ Light Blue

A8 PFC ASSY DISASSEMBLY
ILLUSTRATION 6–119

■ **6–2–90 A10 HV REG Assy (FRU No. 708)**

Time Required
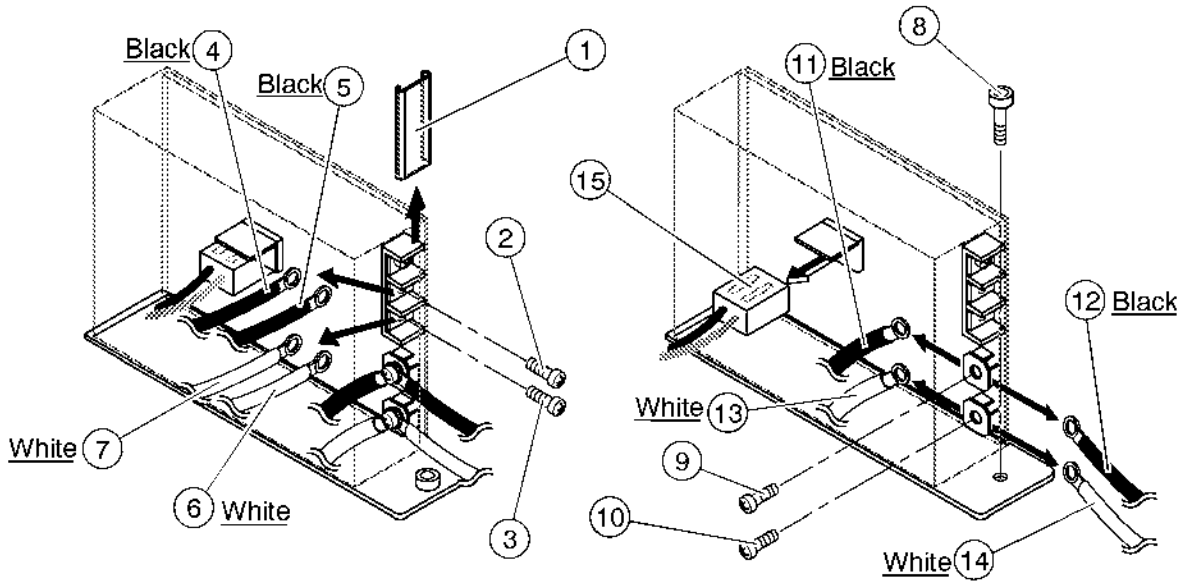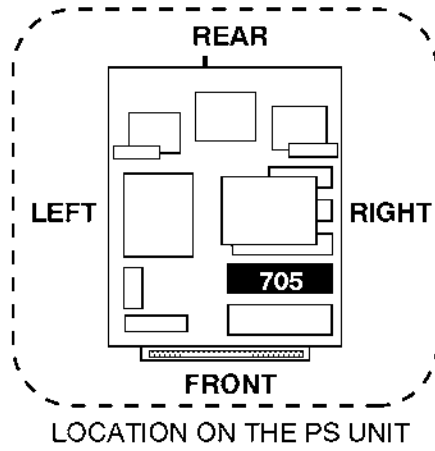
30 Minutes

Tool Required

Screwdriver
Hexagonal Wrench (Key Size: 3 mm)

Procedure

■ Refer to ILLUSTRATION 6–120 on page 6–213.

1.   Turn OFF the system.

■ 2.   Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.   Unscrew five screws (① – ⑤).

4.   Remove the PS Cover Left.

5.   Unscrew one screw (⑥).

6.   Pull the HV REG Assy outwards and disconnect seven connectors (⑦ – ⑬).

■ **6–2–90 A10 HV REG Assy (FRU No. 708)** (continued)
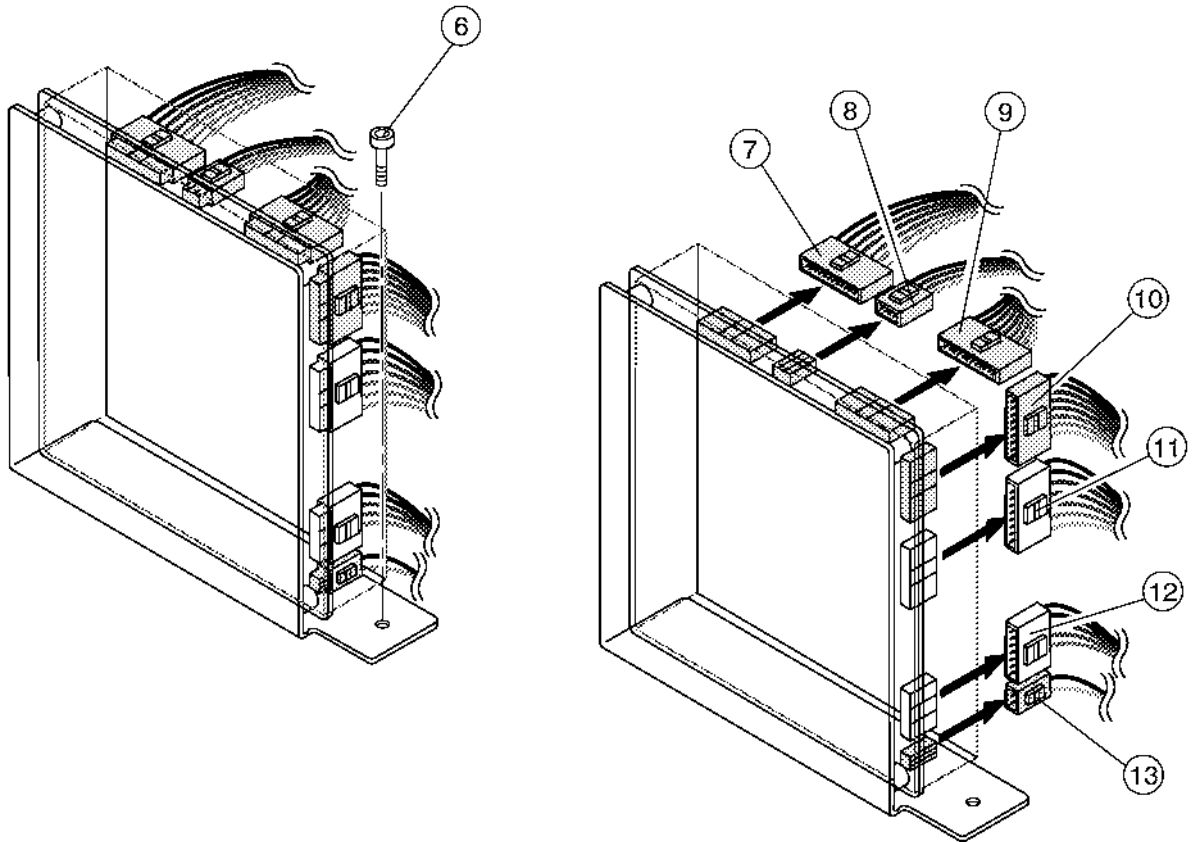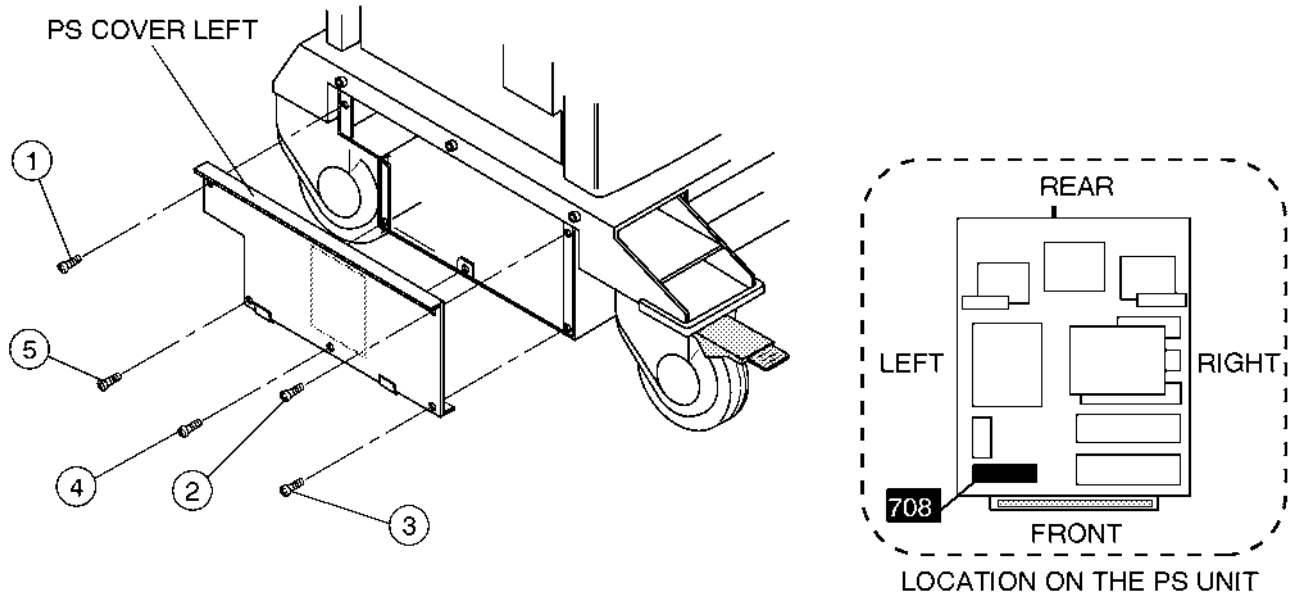
A10 HV REG ASSY DISASSEMBLY
ILLUSTRATION 6–120

■ **6–2–91 RL1 & 2 Assy (FRU No. 709)**

Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–121 on page 6–215.

1. Turn OFF the system.

2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Remove the PS Cover Left. Refer to 6–2–90 on page 6–212.

4. Unscrew eight screws (① – ⑧).

5. Disconnect eight connectors (⑨ – ⑯).

6. Unscrew two screws (⑰ and ⑱).

■ **6–2–91 RL1 & 2 Assy (FRU No. 709)** (continued)
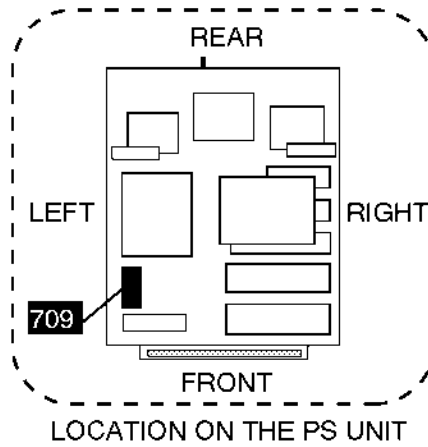
RL1 & 2 ASSY DISASSEMBLY
ILLUSTRATION 6–121

■ **6–2–92 RL3 (FRU No. 710)**

Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–122 on page 6–217.

1. Turn OFF the system.

2. Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3. Remove the PS Cover Left. Refer to 6–2–90 on page 6–212.

4. Pull four cables out by hand (① – ④).

5. Unscrew two screws (⑤ and ⑥).

■ **6–2–92 RL3 (FRU No. 710)** (continued)

LOCATION ON THE PS UNIT
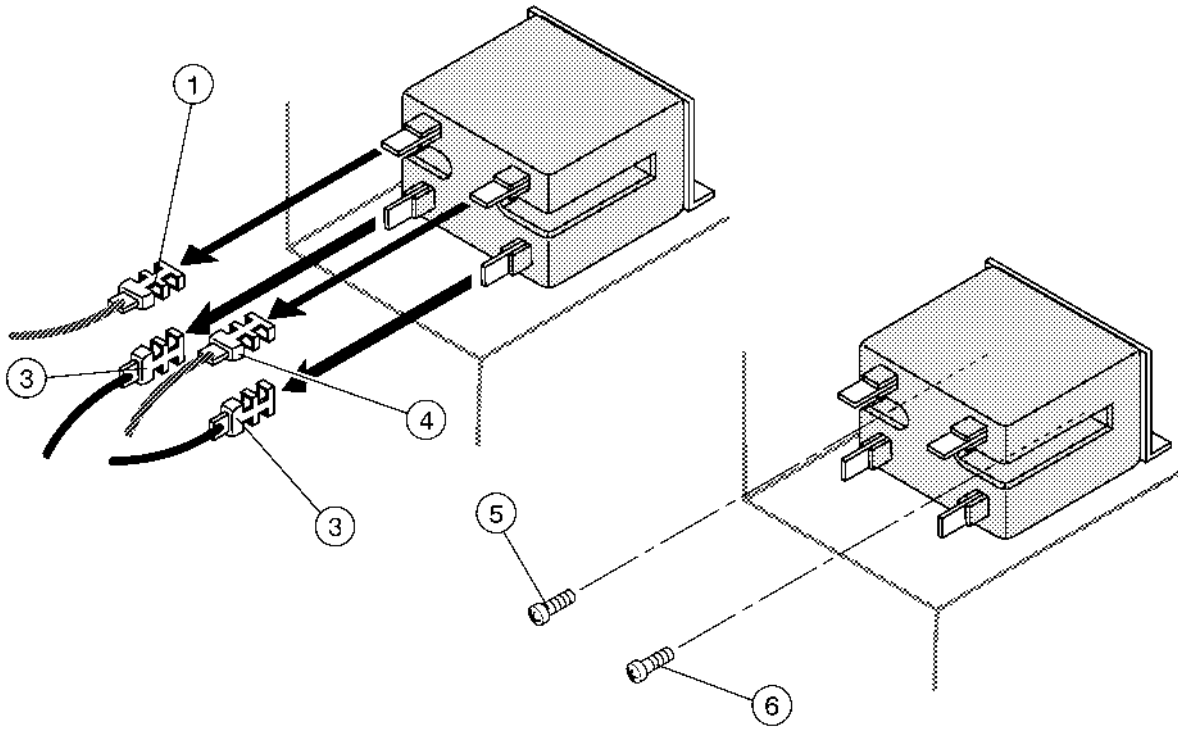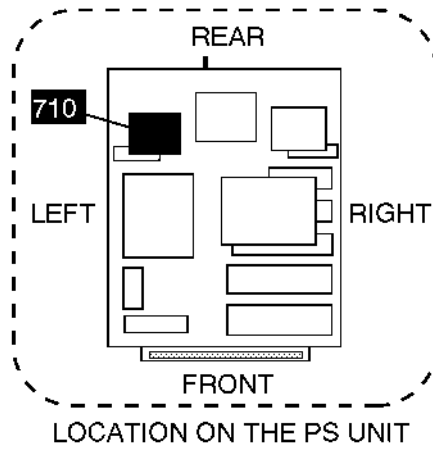
RL3 DISASSEMBLY
ILLUSTRATION 6–122

▌ 6–2–93 PS Fan Set (FRU No. 713)

Time Required
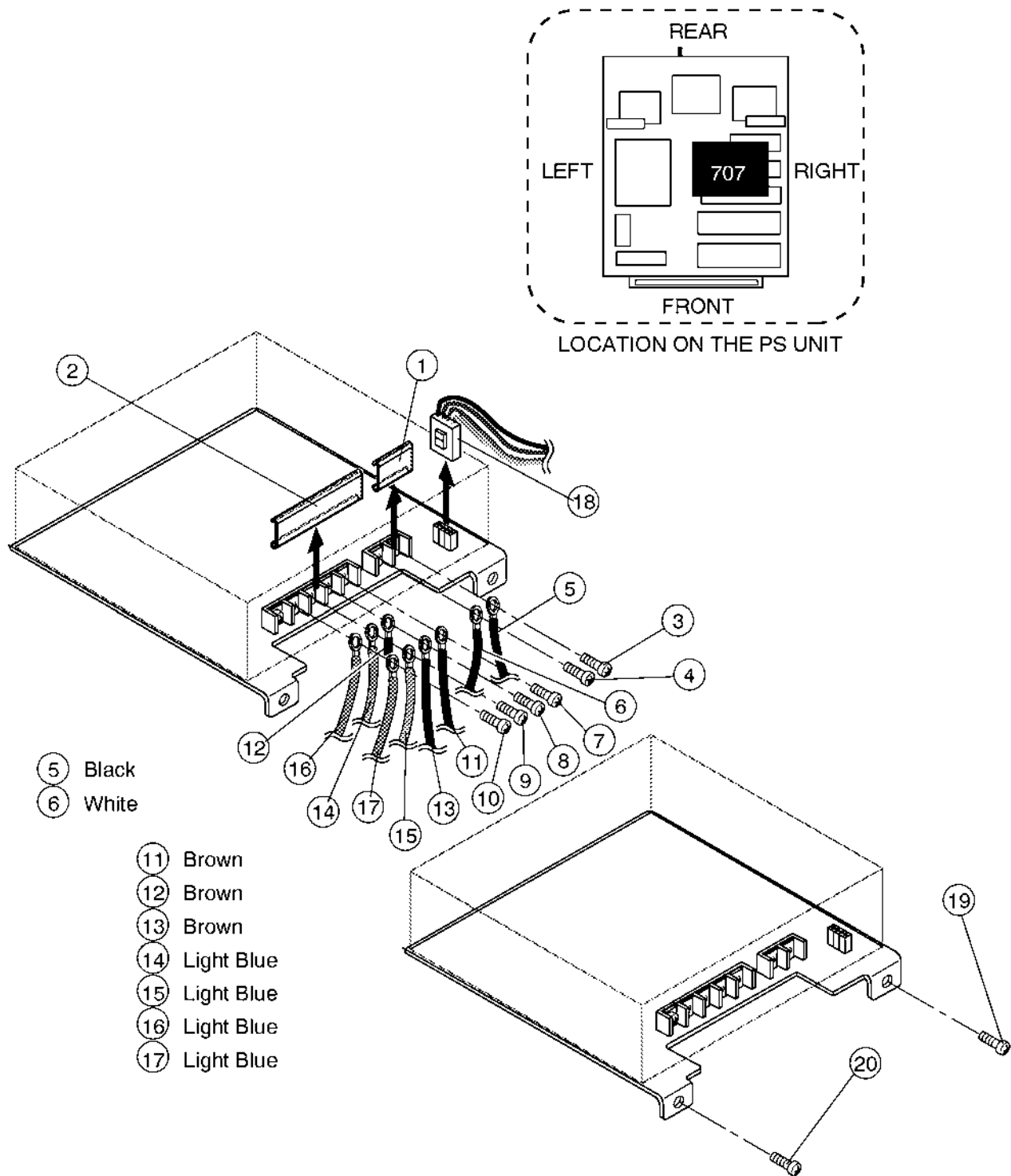
30 Minutes

Tool Required

Screwdriver

Procedure

▌ Refer to ILLUSTRATION 6–123 on page 6–219.

1.　Turn OFF the system.

2.　Remove the Side Cover Left (FRU 301). Refer to 6–2–20 on page 6–97.

3.　Remove the PS Cover Left. Refer to 6–2–83 on page 6–198.

4.　Unscrew two screws (① and ②).

5.　Disconnect one connector (③).

6.　Remove the Front Base Cover (FRU 307). Refer to 6–2–26 on page 6–103.

7.　Remove the Side Cover Right (FRU 302). Refer to 6–2–21 on page 6–98.

8.　Remove the PS Cover Right. Refer to 6–2–90 on page 6–212.

9.　Unscrew two screws (④ and ⑤).

10.　Disconnect one connector (⑥).

■ **6–2–93 PS Fan Set (FRU No. 713)** (continued)
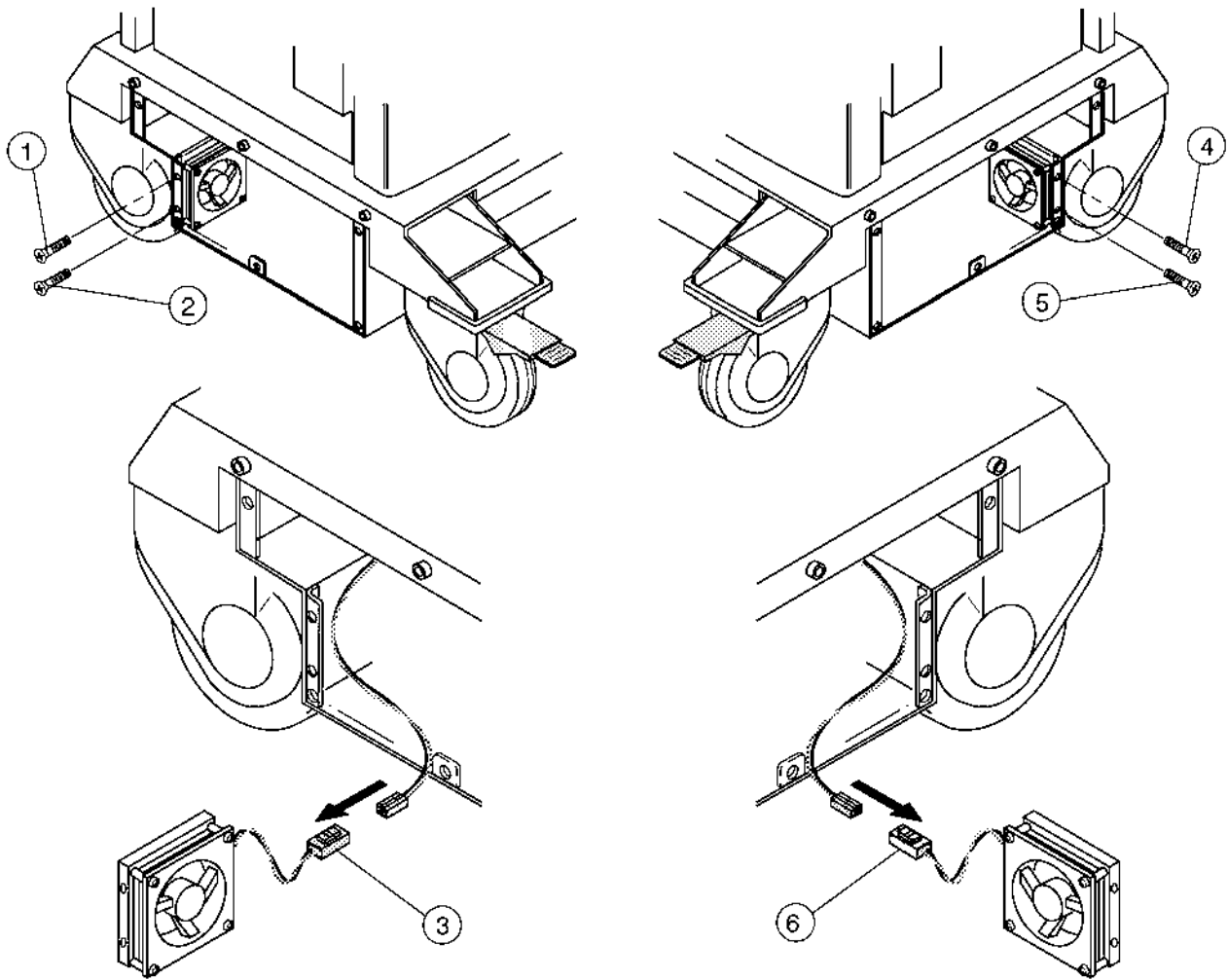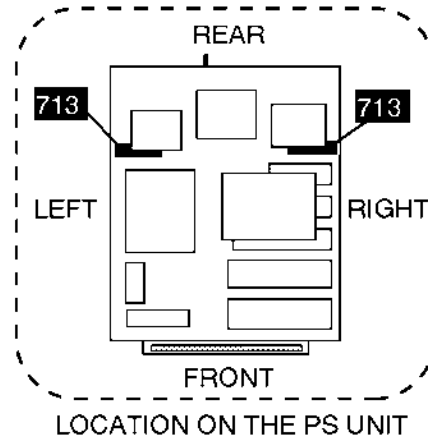
PS FAN SET DISASSEMBLY
ILLUSTRATION 6–123

■ **6–2–94 Breaker 20A (FRU No. 714), Breaker 7.5A (FRU No. 715)**

Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–124 on page 6–221.

1.   Turn OFF the system.

■ 2.   Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

3.   Unscrew four screws (① – ④).

4.   Remove the PS Rear Panel.

5.   Unscrew two screws (⑤ and ⑥).

6.   Unscrew four screws (⑦ – ⑩).

7.   Remove four cables (⑪ – ⑭).

■ **6–2–94 Breaker 20A (FRU No. 714), Breaker 7.5A (FRU No. 715)** (continued)
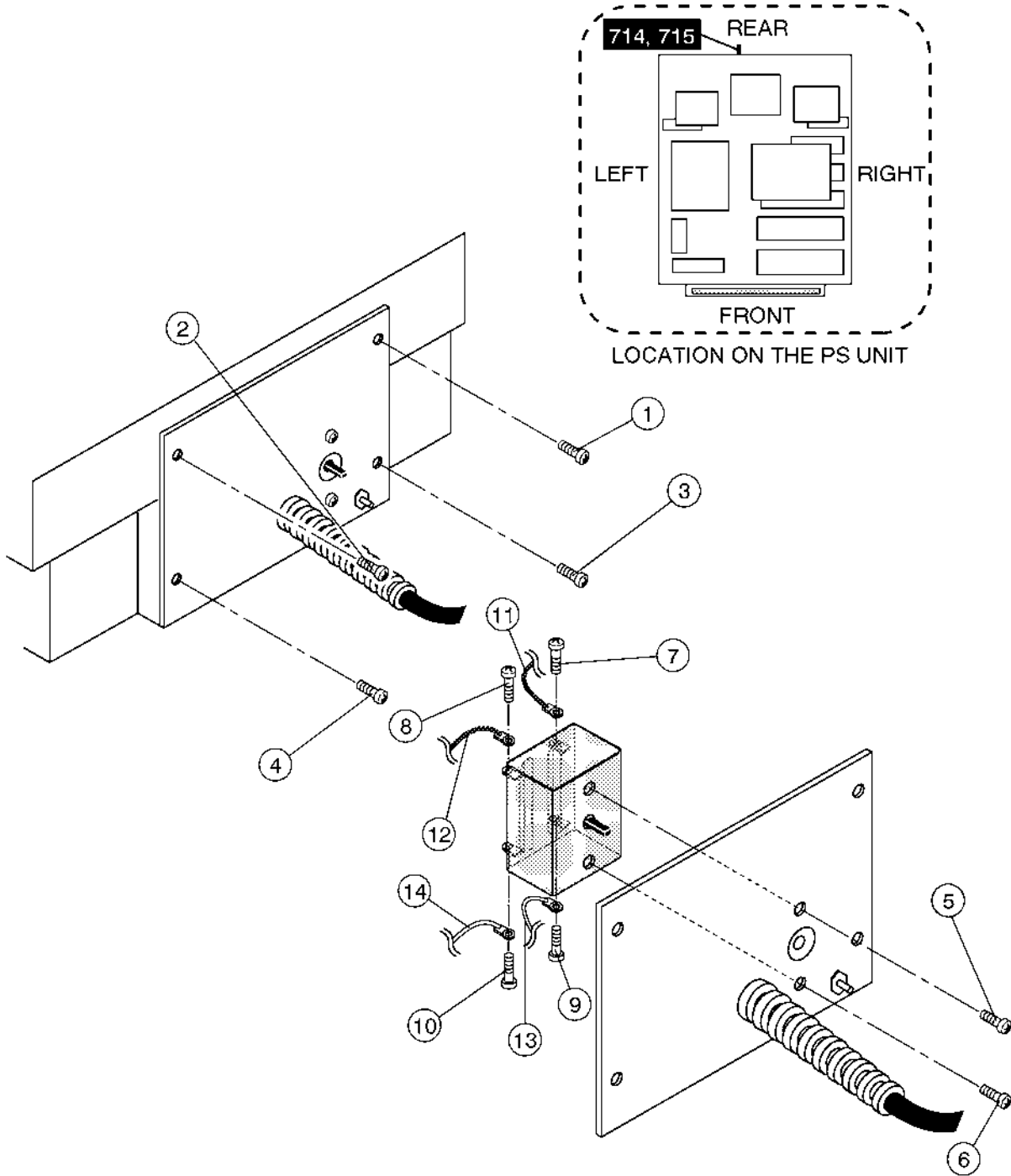
BREAKER DISASSEMBLY
ILLUSTRATION 6–124

■ **6–2–95 Inlet Unit 120V, Inlet Unit 220V (FRU No. 720)**

Time Required

30 Minutes

Tool Required

Screwdriver

Procedure

■ Refer to ILLUSTRATION 6–125 on page 6–223.

1. Turn OFF the system.

2. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

3. Remove the Power Supply Unit. Refer to 6–5–2 on page 6–243.

4. Unscrew four screws (① – ④). Refer to ILLUSTRATION 6–124 on page 6–221.

5. Remove the transparent plastic cover.

6. Unscrew two screws (⑤ and ⑥) and remove the two cables.

7. Unscrew one screw (⑦).

8. Pull the Ground Wire out by hand.

9. Unscrew two screws (⑧ and ⑨) and remove the two cables.

10. Cut two Tie Wraps and remove them.

11. Remove the Inlet Unit.

■ **6–2–95 Inlet Unit 120V, Inlet Unit 220V (FRU No. 720)** (continued)

TRANSPARENT PLASTIC COVER

Ground Wire

Tie Wrap

■
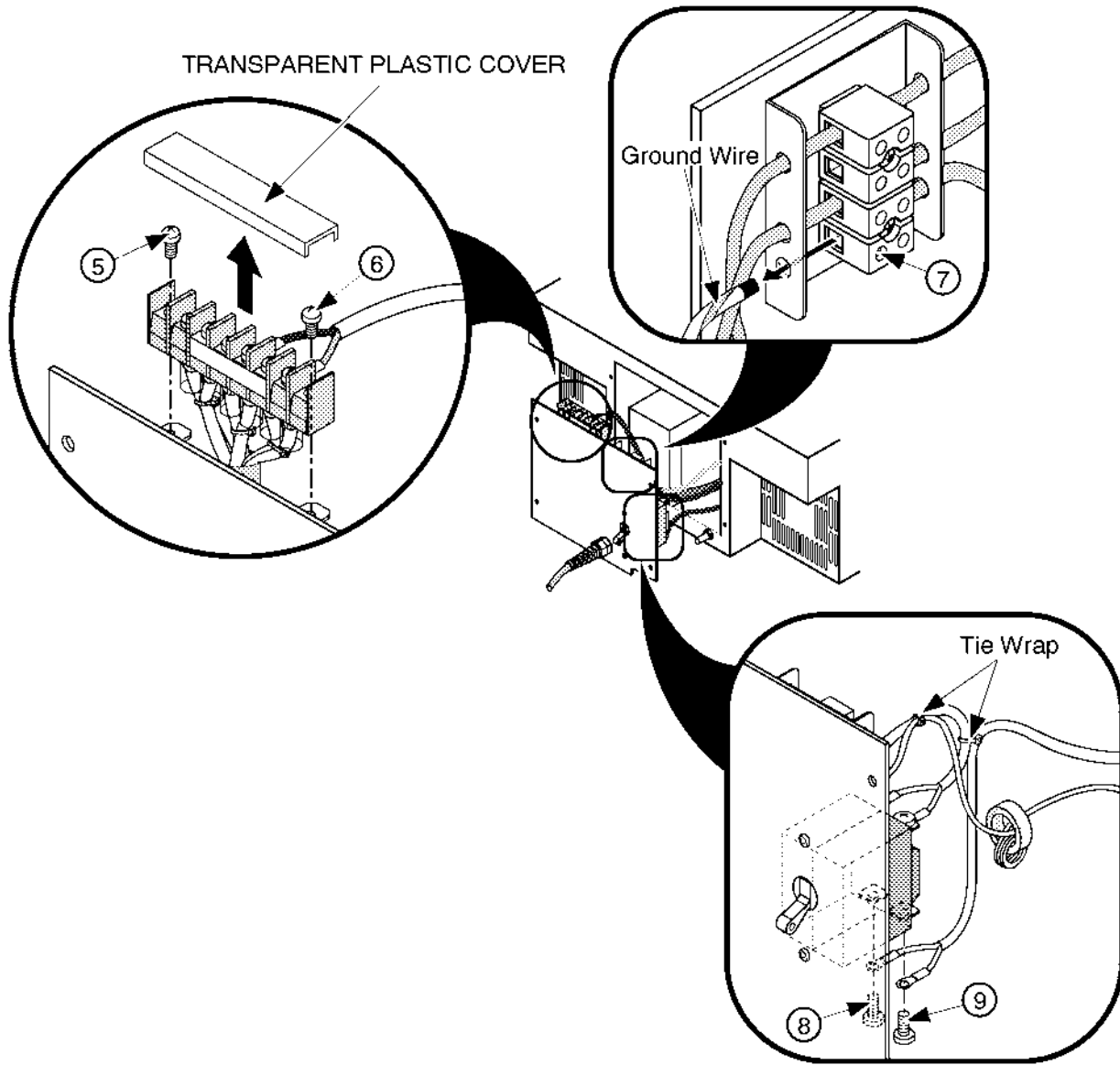
INLET UNIT DISASSEMBLY
ILLUSTRATION 6–125

■ **6–2–96 Inrush Limiter 120V, Inrush Limiter 220V (FRU No. 721)**
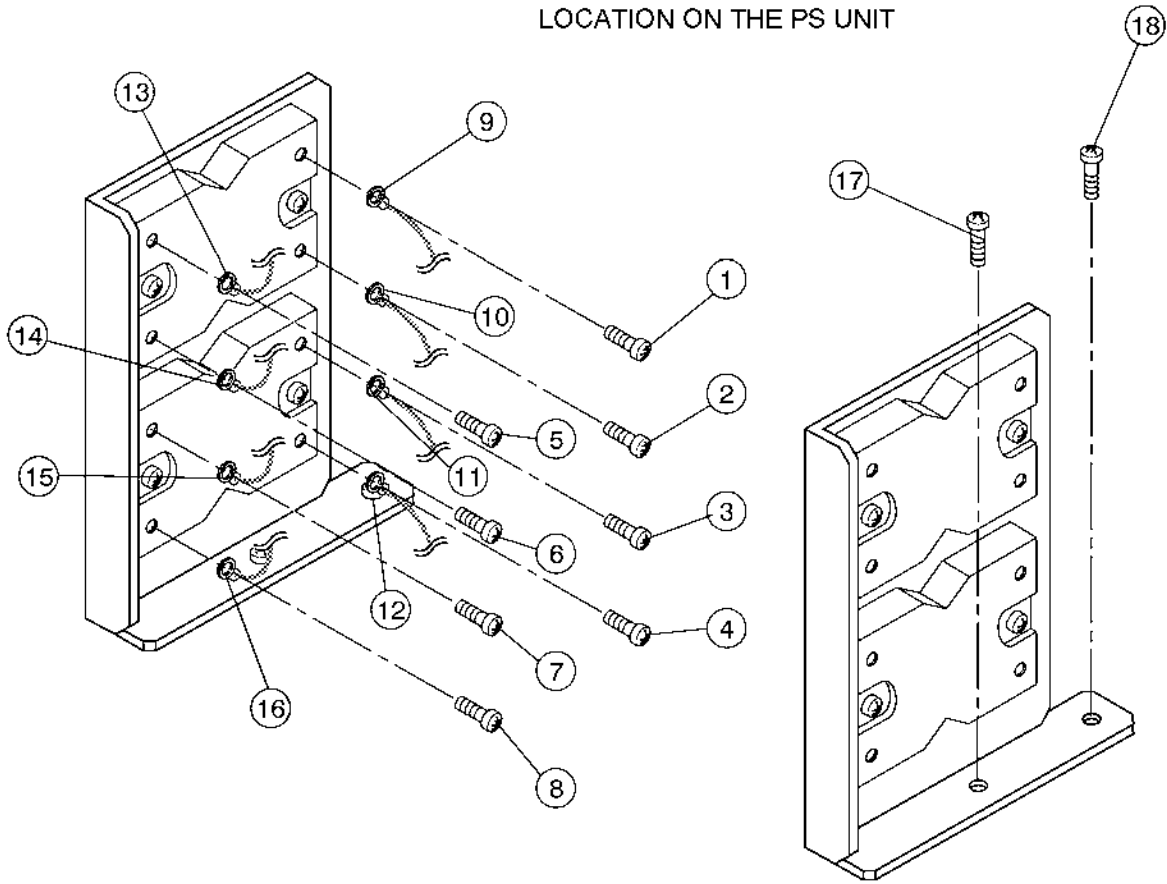
Time Required

30 Minutes

Tool Required

Screwdriver

Hexagonal Wrench

Procedure

■ Refer to ILLUSTRATION 6–126 on page 6–225.

1. Turn OFF the system.

2. Remove the Rear Cover Assy (FRU 303). Refer to 6–2–22 on page 6–99.

3. Remove the Power Supply Unit. Refer to 6–5–2 on page 6–243.

4. Unscrew four screws (① – ④). Refer to ILLUSTRATION 6–124 on page 6–221.

5. Remove the A7 SW Cont Assy (FRU No. 706). Refer to 6–2–88 on page 6–208.

6. Unscrew two nuts (⑤ and ⑥) and remove the two cables.

7. Remove the transparent plastic cover.

8. Unscrew two screws (⑦ and ⑧) and remove the two cables.

9. Unscrew two screws (⑨ and ⑩).

10. Pull two cables out by hand (⑪ and ⑫).

11. Remove the Inrush Limiter (FRU 721).

■ **6–2–96 Inrush Limiter 120V, Inrush Limiter 220V (FRU No. 721)** (continued)
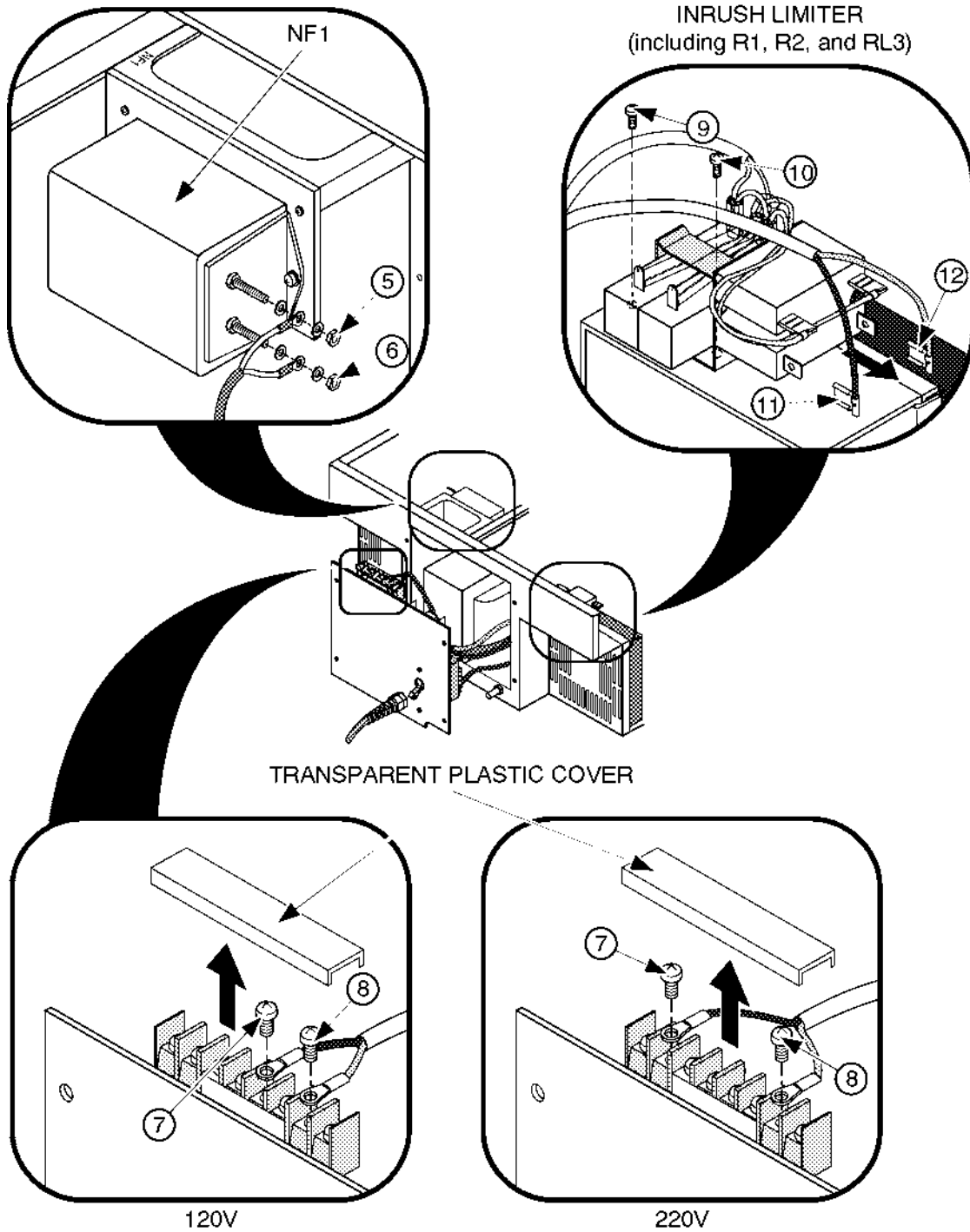
INRUSH LIMITER DISASSEMBLY
ILLUSTRATION 6–126

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6–3 FUSE REPLACEMENT

6–3–1 Introduction

LOGIQ 500 has sixteen replaceable fuses. The table below states the items of those fuses.

TABLE 6–1
REPLACEABLE FUSES

LOCATION		Ref. No.	RATING		REMARKS
REAR1 ASSY		F1	1A	250V	
INSIDE POWER SUPPLY UNIT	TB3	F1	800mA	250V	
		F2	1.6A	250V	
		F3	5A	500V	For 110V model
	A7SW CONT ASSY	F1	500mA	250V	
		F2	500mA	250V	
	A8 PFC ASSY	F1	8A	250V	
	A10 HV REG ASSY	F1	800mA	250V	
		F2	350mA	250V	
		F3	800mA	250V	
		F4	6.3A	125V	
		F5	630mA	250V	
		F6	630mA	250V	
		F7	350mA	250V	
		F8	350mA	250V	
		F9	350mA	250V	

6–3–2 Replacement Procedures

Concerning replacing each fuse of LOGIQ 500, refer to the following steps;

Note
This system contains no operator serviceable parts inside. Please refer servicing to qualified personnel from GE. (See Address of Chapter 1.)

Parts Required

FRU	PART NAME	QTY	PART #	REMARKS
801	Fuse Set	1	P9522RF	

Tools Required

Screwdriver
Hexagonal Wrench (Key Size: 3mm)

6–3–2 Replacement Procedures (continued)

(A) F1 on REAR1 Assy

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the Side Cover Right (FRU302). Refer to sub–section 6–2–21 on page 6–98.

3. Replace the defective fuse with new one. Make sure that only fuse with the required rated current and of same type is used for replacement. For the removal of the F1 fuse, refer to ILLUSTRATION 6–127.

4. After replacing Fuse, re-install the Side Cover Right.

F1
1A
250V

FRU502 REAR1 Assy
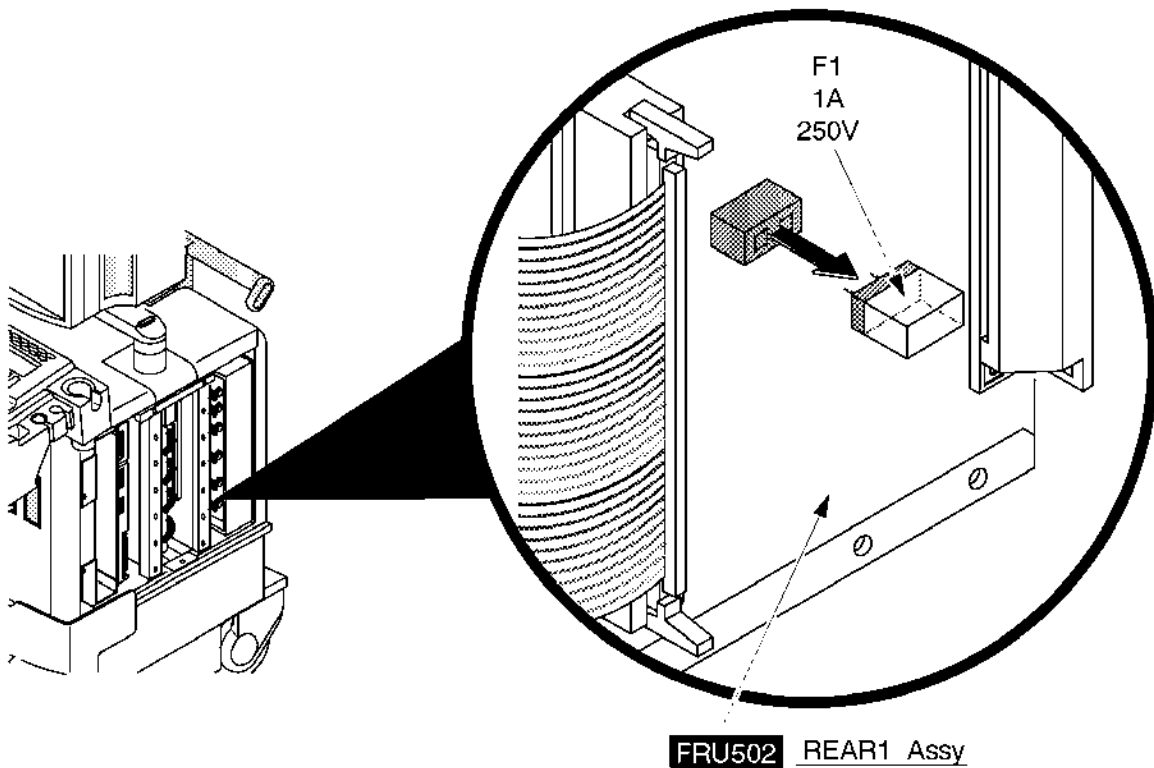
REMOVING FUSE (F1) FROM REAR1 ASSY
ILLUSTRATION 6–127

6–3–2   Replacement Procedures (continued)

(B) F1 and F2 located on TB3

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the PS Cover Left. Refer to sub–section 6–2–90 on page 6–212.

3. Rotate the fuse cap(s) counterclockwise and pull the fuse(s) out as shown in ILLUSTRATION 6–128.

4. Replace the defective fuse with new one. Make sure that only fuse(s) with the required rated current and of same type are used for replacement.

5. After replacing Fuse, re-install the PS Cover Left.

FUSES F1 AND F2 REMOVAL
ILLUSTRATION 6–128

6–3–2 Replacement Procedures (continued)

(C) F3 in PS Unit

Note

This F3 fuse is used only on the 120V unit.

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the PS Cover Right. Refer to sub–section 6–2–83 on page 6–198.

3. Remove the defective fuse as shown in ILLUSTRATION 6–129.

4. Install the new fuse. Make sure that only fuse with the required rated current and of same type is used for replacement.

5. After replacing Fuse, re-install the PS Cover Right.

RIGHT SIDE VIEW
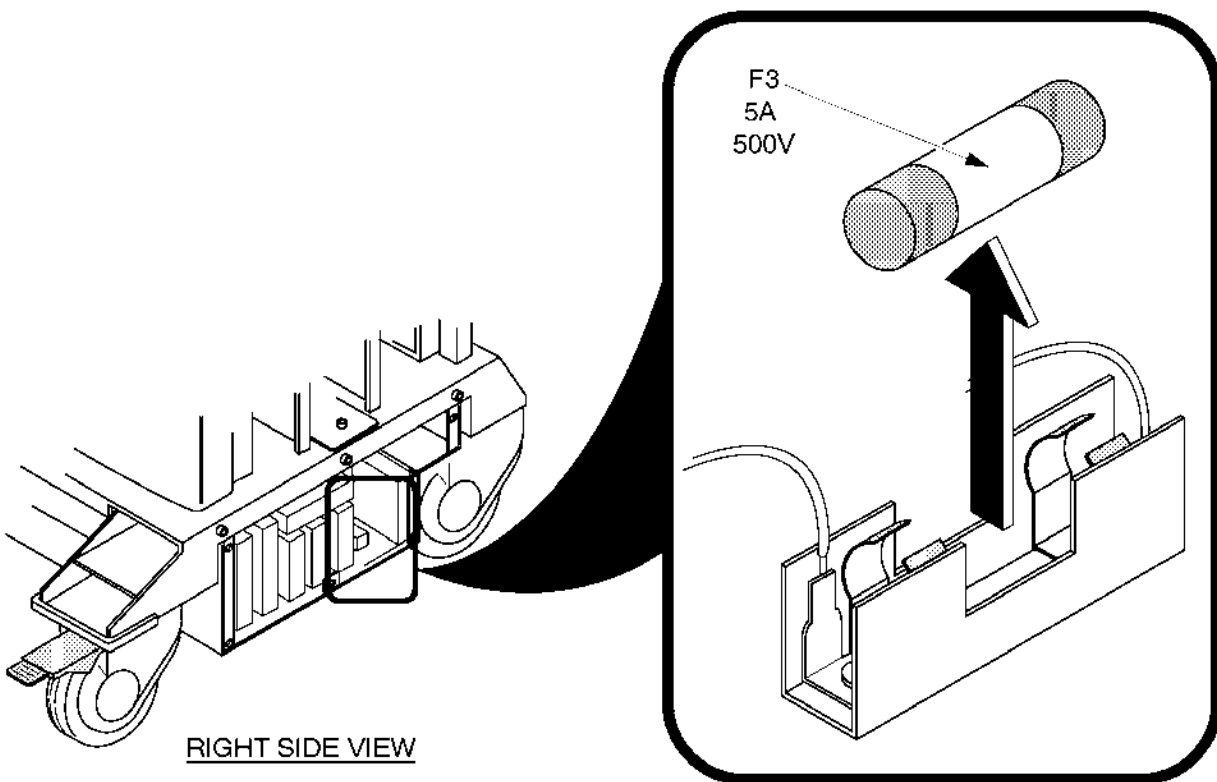
FUSE F3 REMOVAL
ILLUSTRATION 6–129

6–3–2 Replacement Procedures (continued)

(D) F1 and F2 on SW Cont Assy

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the PS Cover Right. Refer to sub–section 6–2–83 on page 6–198.

3. Remove the A7 SW Cont Assy (FRU706). Refer to sub–section 6–2–88 on page 6–208.

4. Replace the defective fuse(s) with new one(s). For the location of fuses, refer to ILLUSTRATION 6–130. Make sure that only fuses with the required rated current and of same type are used for replacement.

5. After replacing fuse(s), re-install the A7 SW Cont Assy.

6. Re-install the PS Cover Right.
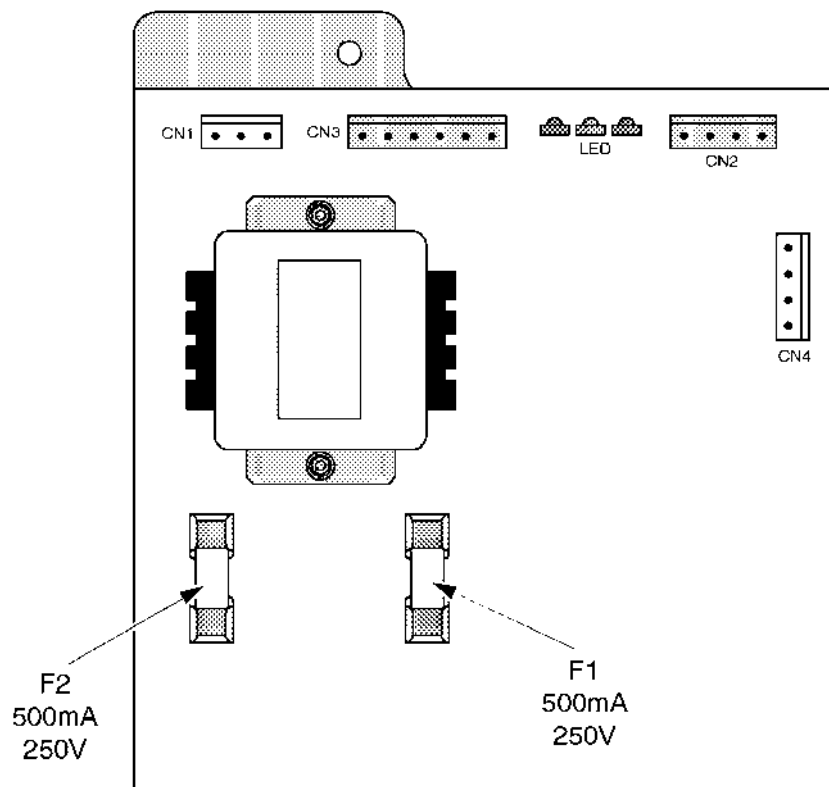
A7 SW CONT ASSY
ILLUSTRATION 6–130

6–3–2 Replacement Procedures (continued)

(E) F1 on PFC Assy

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the PS Cover Right. Refer to sub–section 6–2–83 on page 6–198.

3. Remove the A8 PFC Assy (FRU707). Refer to sub–section 6–2–89 on page 6–210.

4. Replace the defective fuse with new one. For the location of fuse, refer to ILLUSTRATION 6–131. Make sure that only fuse with the required rated current and of same type is used for replacement.

5. After replacing fuse, re-install the A8 PFC Assy.

6. Re-install the PS Cover Right.
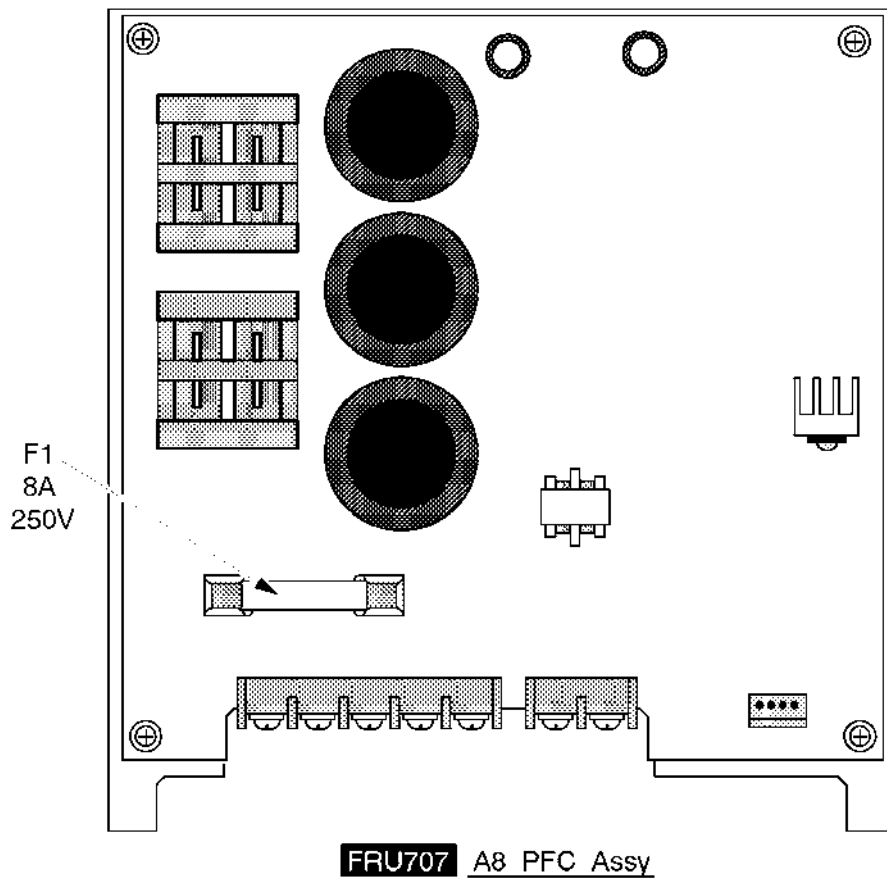
A8 PFC ASSY
ILLUSTRATION 6–131

6–3–2 Replacement Procedures (continued)
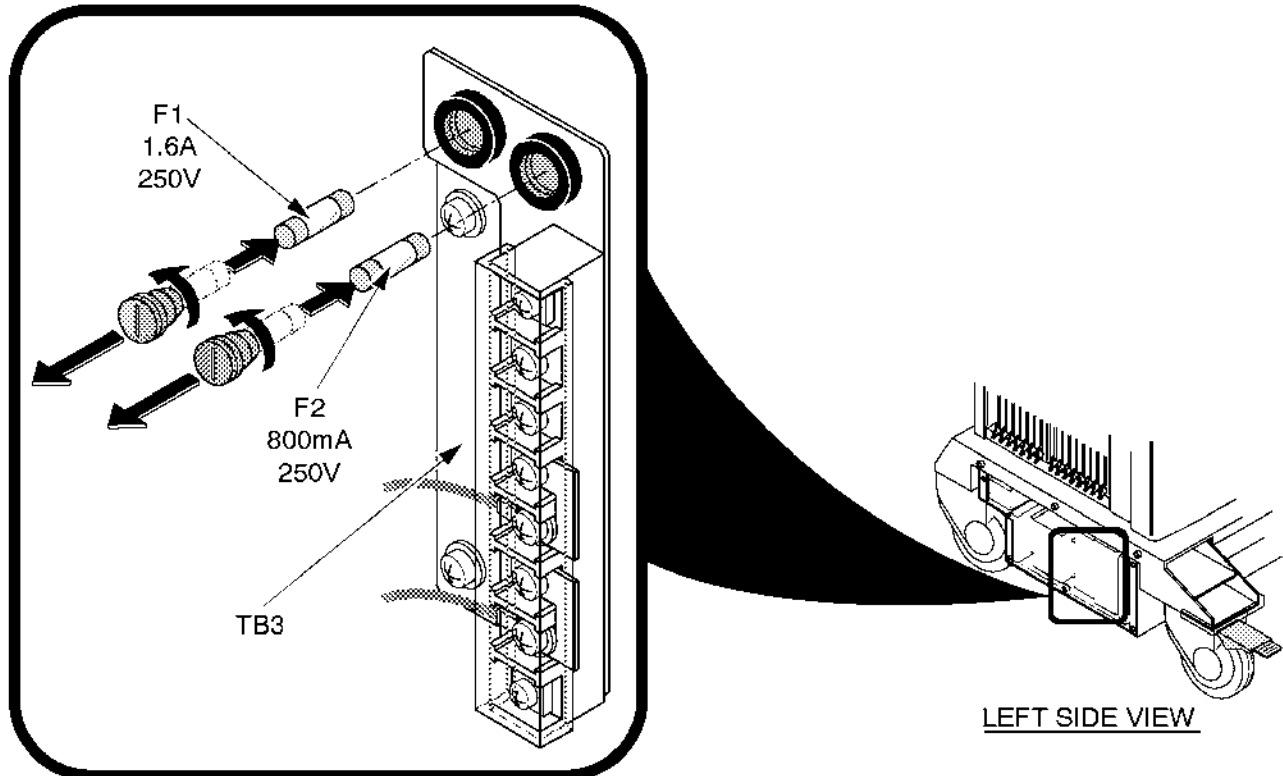
(F) F1 through F9 on HV REG Assy

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

2. Remove the PS Cover Left. Refer to sub–section 6–2–90 on page 6–212.

3. Remove the A10 HV REG Assy (FRU708). Refer to sub–section 6–2–90 on page 6–212.

4. Replace the defective fuse(s) with new one(s). For the location of fuses, refer to ILLUSTRATION 6–132. Make sure that only fuse with the required rated current and of same type is used for replacement.

5. After replacing fuse, re-install the A10 HV REG Assy.

6. Re-install the PS Cover Left.
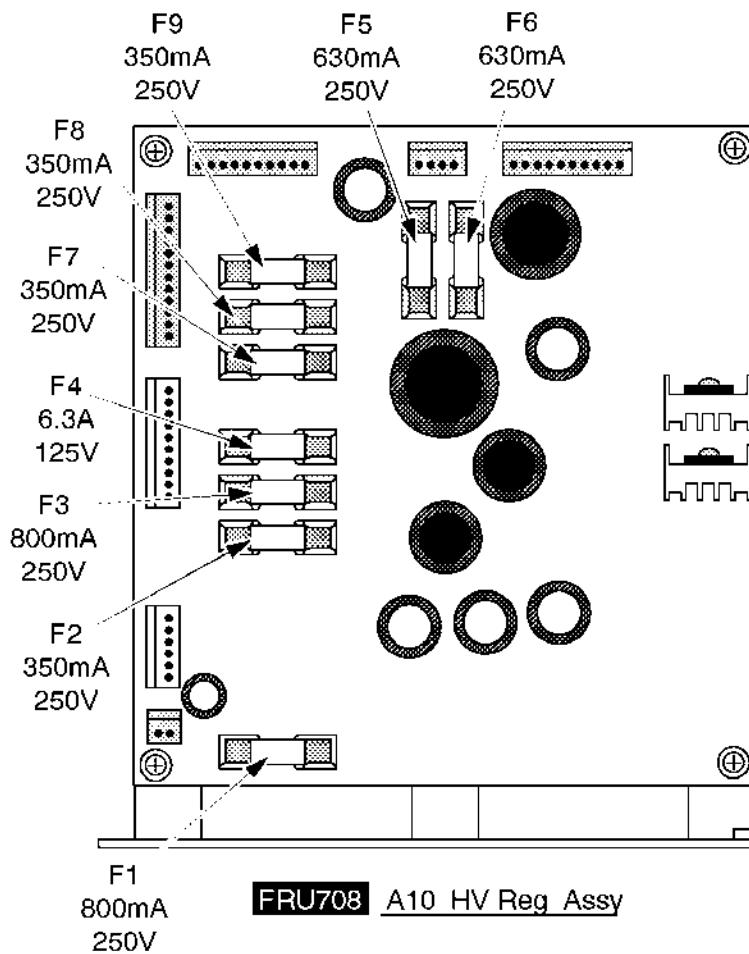
A10 HV REG ASSY
ILLUSTRATION 6–132

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6–4   SYSTEM SOFTWARE INSTALLATION

```
CAUTION
```

Software floppies and MO (Magneto Optical) disks are not available in Europe. Please replace the hard disk for European systems instead of installing system software.
GEMS–AM recommends replacement of the HDD assy with the system software installed. Refer to the spare parts section of the service manual to identify the correct HDD assy with the correct version of software loaded.

6–4–1   Introduction

This section describes the procedures for installing the system software into the hard disk on LOGIQ 500.

Note
You can upgrade the version of LOGIQ 500 system software up using the Software Version Up function of LOGIQ 500 Service Software. Refer to LOGIQ 500 Proprietary Manual, P9030TB.

Note
If you upgrade the system version, it is not necessary to backup the user data before installing new software. Because the user data remains unchanged after upgrading the system. If you install the system software a damaged hard disk, it is impossible to backup the user data before installation. Therefore, it is recommended to backup the user data periodically.

Tool Required

Standard service tool
Laptop PC with terminal emulation
RS232C serial interface cable (cross type)
System software floppy disk set or MO disk
Backup user data (floppy disks or MO disk)

Note
Refer to the following example or the pin assignment of Service port described in Chapter 3 and use the appropriate interface cable.

In the case of 9–pin to 25–pin interface cable:

Service Port of LOGIQ 500 :			Serial Port of Your PC :	
Pin No.	**Signal**		**Pin No.**	**Signal**
2	TXD	————————	2	RXD
3	RXD	————————	3	TXD
4	RTS	————————	8	CTS
5	CTS	————————	7	RTS
7	GND	————————	5	GND

6–4–2 Preparing before Installation

1.   Turn the system power OFF.

2.   Unplug the system. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

3.   Replace the hard disk with new one if necessary. Refer to sub-section 6–2–70 on page 6–162 for the replacement procedure of hard disk.

4.   Connect the RS232C cable with the serial port of the Laptop PC. Refer to ILLUSTRATION 6–133.

5.   Connect the connector of another side with the Service port located at the rear side of the LOGIQ™ 500 as shown in ILLUSTRATION 6–133.

Note

You may have to disconnect the insite connection.
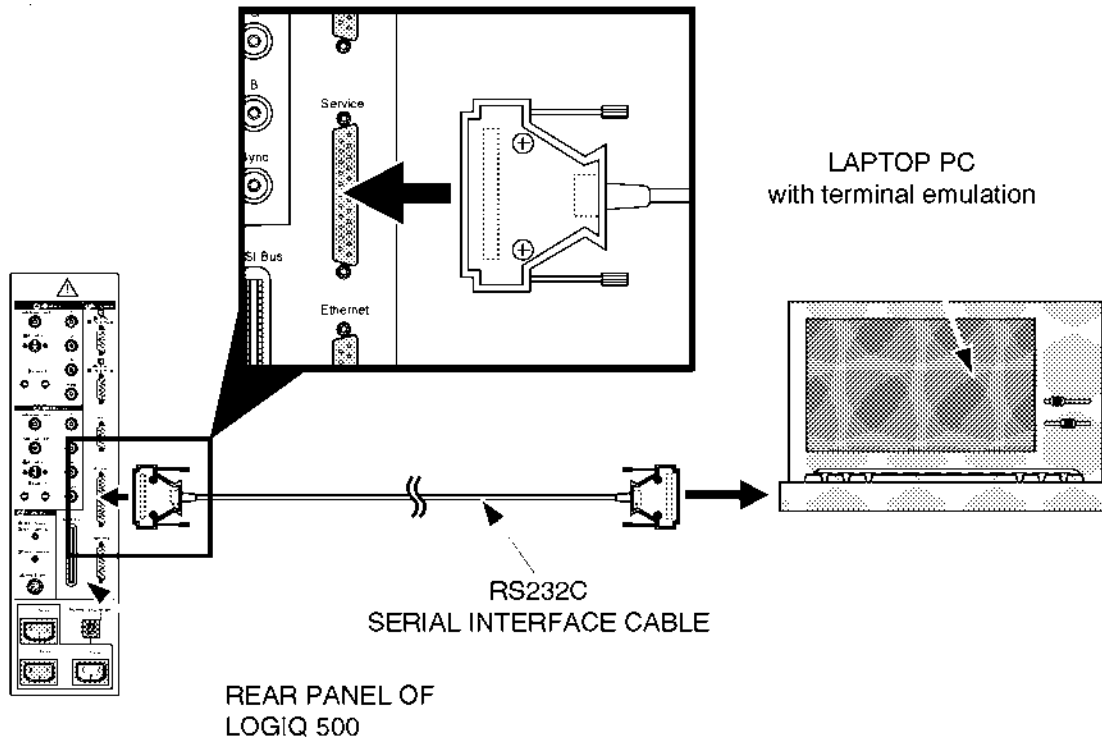
CHARACTER TERMINAL CONNECTION
ILLUSTRATION 6–133

6.   Plug the system into a dedicated power receptacle.

7.   Plug the Laptop PC into a wall outlet.

6–4–2 Preparing before Installation (continued)

8.   Power the Laptop PC ON.

9.   Start the terminal emulation software.

10.   Make sure that the communication parameters are set as follows:

Baud Rate	:	9600 bps
Data Bits	:	8 bits
Stop Bit(s)	:	1 bit
Parity	:	None
Flow Control	:	None
Connector	:	COM1

6–4–3 Initializing Hard Disk

```
┌────────────┐
│  CAUTION   │
└────────────┘
```

Do not initialize the hard disk when upgrading the system software version up.
Initialize the hard disk before installing the system software only when the hard disk has been
replaced with new one

1.   Turn the main power switch of the LOGIQ™ 500 system ON. The system does not perform the normal power up
      sequence and the message is indicated on the display of the Laptop PC as follows:

```
***VENUS RESET/START***
***SCSI Device Mount Fail Device:HDD0 Error Code 20166
ERROR CODE 200A
VTSH>
```

MESSAGE ON PC DISPLAY
ILLUSTRATION 6–134

6–4–3 Initializing Hard Disk (continued)

2.   Type the following command and press the return key.

       VTSH>mediainit_0.0_PHILE_240000000_20_10000_4000

Note

For the console with software version 4.10 or later, use the following command:

       VTSH>mediainit_0.0_PHILE_540000000_20_10000_4000

Note

The character "_" described in operating commands indicates the space.

After 20 minutes, the system completes the formatting of hard disk. The message "***Format Completed***" is displayed on the screen of Laptop PC.

3.   Type the following command and press the return key. The hard disk become valid by entering this command.

       VTSH>mount_0.0

6–4–4 Installing Software

1.   Insert first floppy disk of the system software floppy disk set into the floppy disk drive of LOGIQ™ 500. If your system has a MO disk drive, insert the appropriate system software MO disk into the MO disk drive of LOGIQ™ 500.
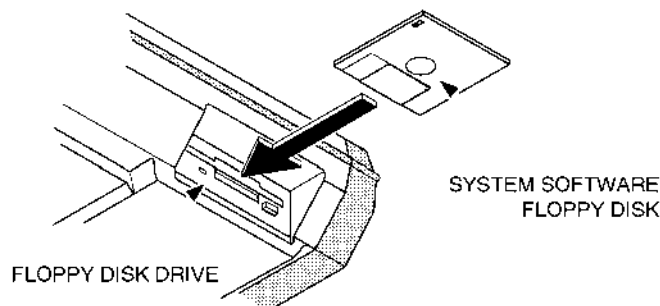
FLOPPY DISK INSERTION
ILLUSTRATION 6–135

2.   Type the following command and press the return key. Software stored in the floppy disk is copied to the hard disk.

       VTSH>cp_-r_1.0/*_0.0/

If your system has a MO disk drive, type the following command and press the return key. The system will start writing software in the hard disk.

       VTSH>cp_-r_2.0/*_0.0/

3.   Repeat the above steps 1 and 2 for other disks in the proper sequence. If your system has a MO disk drive, skip this step.

4.   Turn the main switch of the system OFF after completing to write the software into the hard disk.

6–4–4 Installing Software (continued)

5.   Turn the Laptop PC power OFF.

6.   Disconnect the interface cable from the system.

6–4–5 Final Procedures

1.   Turn the system power ON.

2.   Check that the version number of the system software displayed on the CRT monitor screen during the power up sequence is correct.

3.   Set up the system preset parameters without regard to current settings. For set-up procedures, refer to LOGIQ 500 Proprietary Manual, P9030TB.

   3–1   Set the Country/Zone properly. It takes approximately 40 minutes to complete this step.

   3–2.   Set other three parameters, Video Signal, Power Frequency and Modem Kind.

   3–3.   Reset the system using System Reset function of the Service Menu. Refer to LOGIQ 500 Proprietary Manual, P9030TB.

4.   Perform functional checks to verify that the system is functioning properly. Refer to Chapter 4, FUNCTIONAL CHECKS, in this manual.

5.   Load the back-up user data into the system. For the procedure of loading back-up user data, refer to sub-section 4–3–3, Utility Menu in Chapter 4, FUNCTIONAL CHECKS.

6.   This completes the installation of the LOGIQ 500 system software.

6–4–6   Installing Using MO Disk

The system software version 2.0 or later console has a MO (Magneto Optical) disk drive. You can use another way to install the system software into hard disk using the system software MO disk.

1.   Make sure that the system power is turned OFF.

2.   Insert the system software MO disk into the MO disk drive of LOGIQ 500 console.

3.   Turn the system power ON.
     LOGIQ 500 system does not perform the ordinary power-up sequence and the message "Now starting the version up process!!" is displayed on the CRT monitor screen.

     After mounting the MOD drive and checking the system versions of hardware and software, the following message will be displayed on the CRT monitor screen.

```
          Current Version   = XX.XX
          New Version       = YY.YY

          It is not an available version.
          If you continue to execute this process,
          user data will be deleted.

      Hit "Y" to continue or "N" to reset the system.


      [CAUTION DON'T TURN POWER BREAKER SWITCH OFF]
```
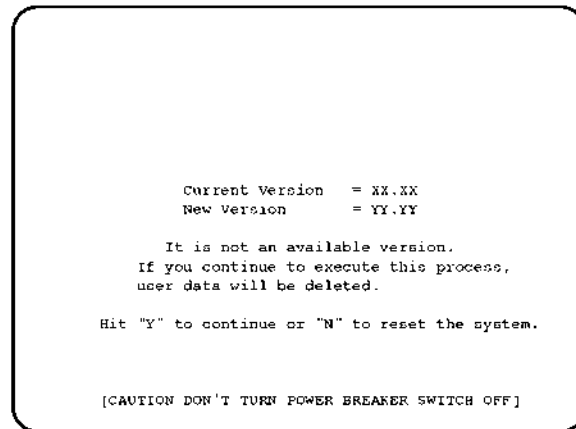
MESSAGE BEFORE BEGINNING INSTALLATION
ILLUSTRATION 6–136

4.   Press the Y key then the system begin to install the system software into the hard disk.

     After installing the new system software, the MO disk set in MOD drive is ejected automatically and the LOGIQ 500 system is reset.

5.   Follow the sub-section 6–4–5, Final Procedures on page 6–213.

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6–5   POWER SUPPLY REPLACEMENT

6–5–1   Introduction

This section describes the procedures for replacing the power supply unit of LOGIQ 500.

6–5–2   Replacement Procedure

READ and UNDERSTAND these instructions thoroughly before proceeding with the replacement. Perform each step in sequence and check it off when completed. If a problem occurs after completion, go back through the procedure and check for implementation errors before contacting your Ultrasound Region Engineer.

CAUTION

> **Possible operational damage. Failure to strictly follow ESD (Electrostatic Discharge) precautions during this upgrade may cause constant or intermittent operational abnormalities. Strictly follow all precautions.**

Check each step as it is completed.

Parts Required

FRU	PART NAME	QTY	PART #	REMARKS
717	Power Supply AC110V	1	P9523DB	for 110–120V model
718	Power Supply AC220V	1	P9523DA	for 220–240V model

Time Required

Approximately four (4) hours

Tools Required

Standard field Service Tool kit
Three Jacks
Pallet (Height: 70mm, Width and Depth: suitable length)

6–5–2   Replacement Procedure (continued)

(A)   Removing Monitor, Covers, and Neck Assy

1.   Turn the system power OFF and unplug the unit.

2.   Lift and set the Monitor to the highest position by pushing down the Up/down Release Button located on the Neck Assy.

3.   Remove the Monitor Assy. Refer to 6–2–1 on page 6–66.

{ CAUTION }

Personal injury hazard. If you remove the monitor assy without lifting monitor arm up to highest position, pushing the Up/down Release Button causes the monitor arm to spring up with great force. This may cause personal injury. Do not push the Up/down Release Button after removing the monitor assy.

4.   Remove the Side Cover Left. Refer to 6–2–20 on page 6–97.

5.   Remove the Front Base Cover. Refer to 6–2–26 on page 6–103.

6.   Remove the Side Cover Right. Refer to 6–2–21 on page 6–98.

7.   Remove the Rear Cover Assy. Refer to 6–2–22 on page 6–99.

8.   Remove the Neck Assy. Refer to 6–2–17 on page 6–92.

6–5–2 Replacement Procedure (continued)

(B) Disconnecting Cables

1. Disconnect fourteen cables listed below. Cut the tie wraps off if necessary. For each cable, refer to ILLUSTRATION 6–137.

   a. Unscrew eight hexagonal bolts and remove eight cables (two CB71, two CB73, two CB75, and two CB77) from the Mother Assy.

   b. Disconnect three connectors (J53, J101, and J114).

   c. Disconnect two connectors (J2 and J3) connected with the connectors (P2 and P3) on the Mother Assy.

   d. Disconnect one connector (J902) connected with the connector (P902) on HV Assy.
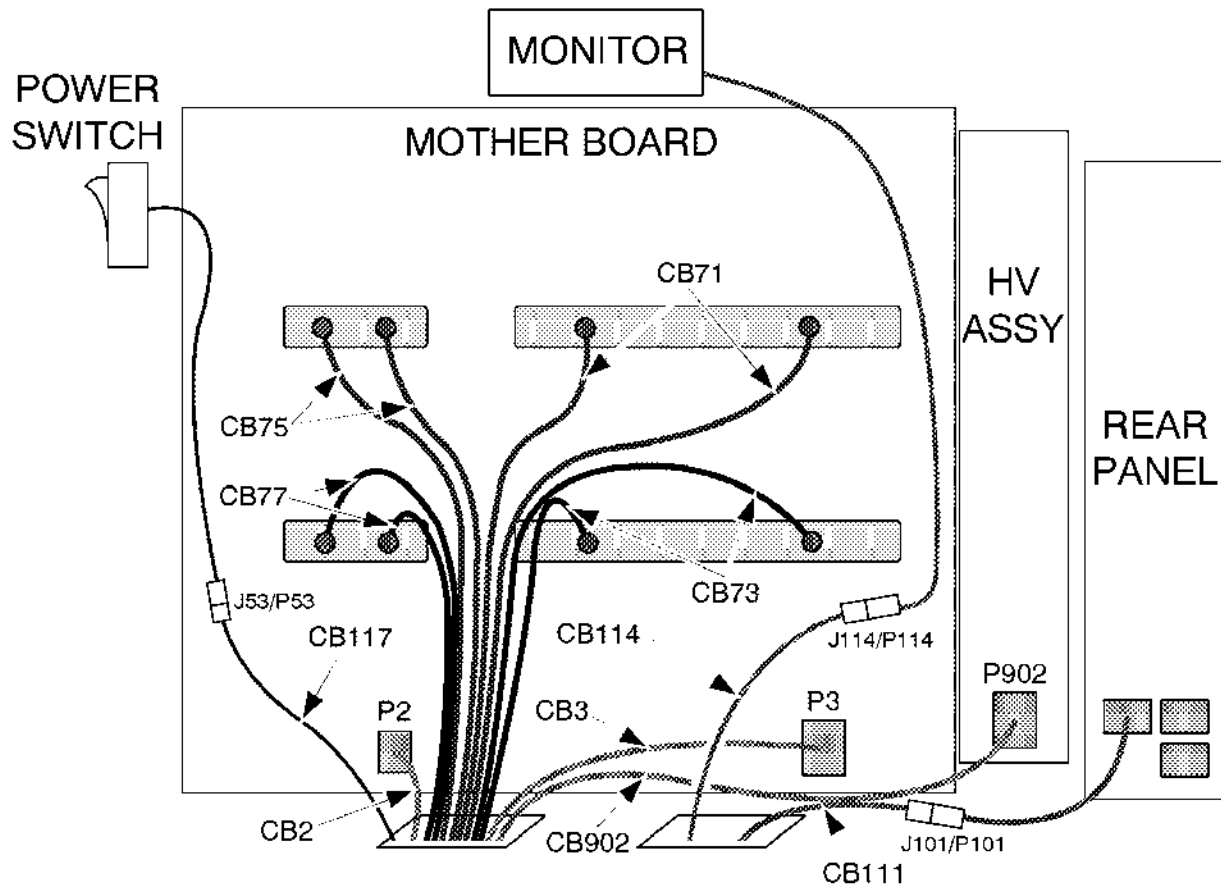
RIGHT SIDE VIEW
ILLUSTRATION 6–137

6–5–2 Replacement Procedure (continued)

(C) Replacing Power Supply

■ 1.   Place three jacks at the positions indicated in ILLUSTRATION 6–138.

2.   Make sure that the jacks are evenly seated on the floor and the flat surface of the console.

3.   Make sure that the jacks can support the complete load of the console.
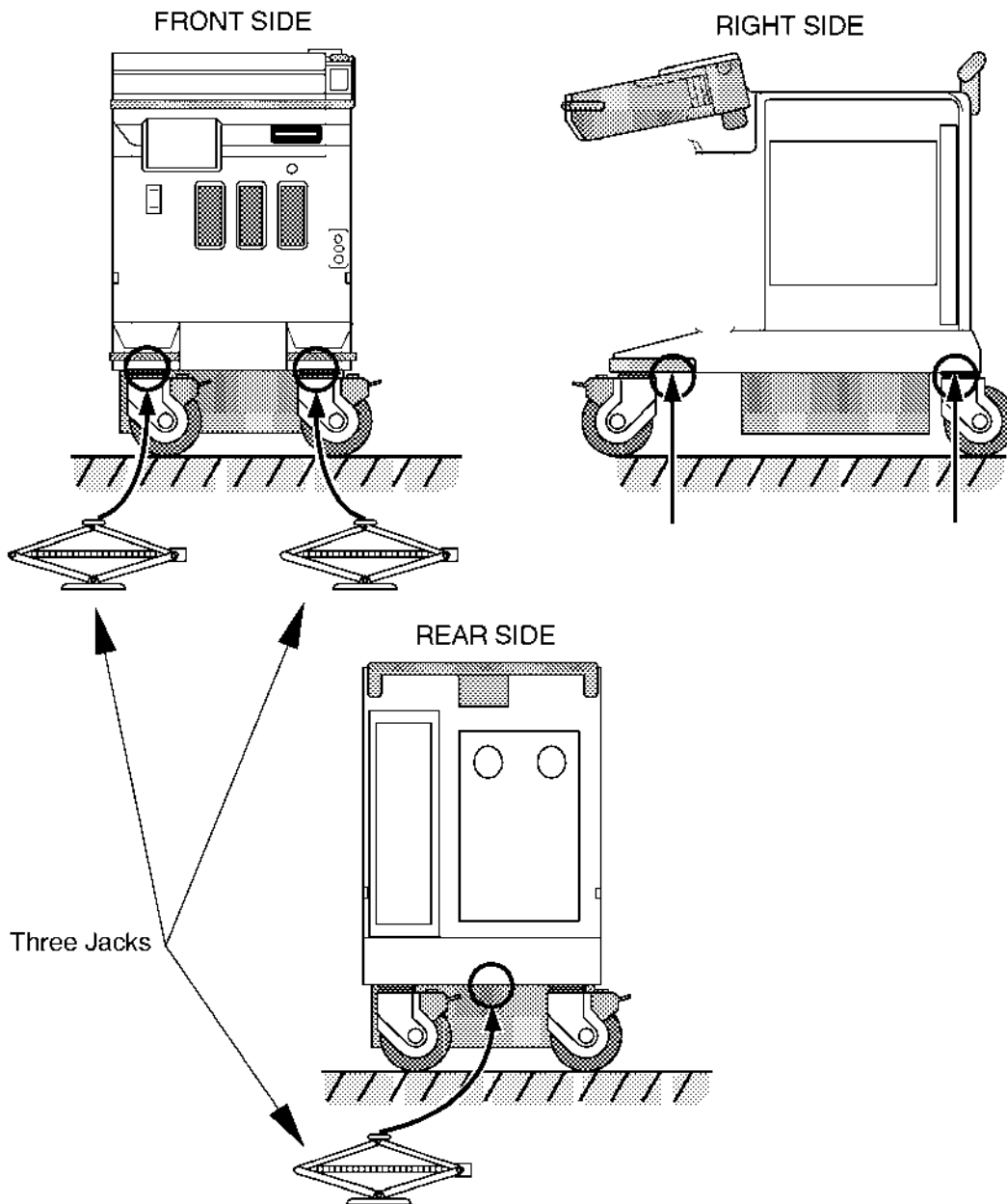
PLACING JACKS
ILLUSTRATION 6–138

6–5–2 Replacement Procedure (continued)

2.   Lift the system up using the jacks by approximately 30mm. Be careful to keep the console horizontally as much as you can.

■ 3.   Insert the pallet between the floor and the Power Supply unit. Refer to ILLUSTRATION 6–139.

FRONT   RIGHT SIDE

Palet

30mm
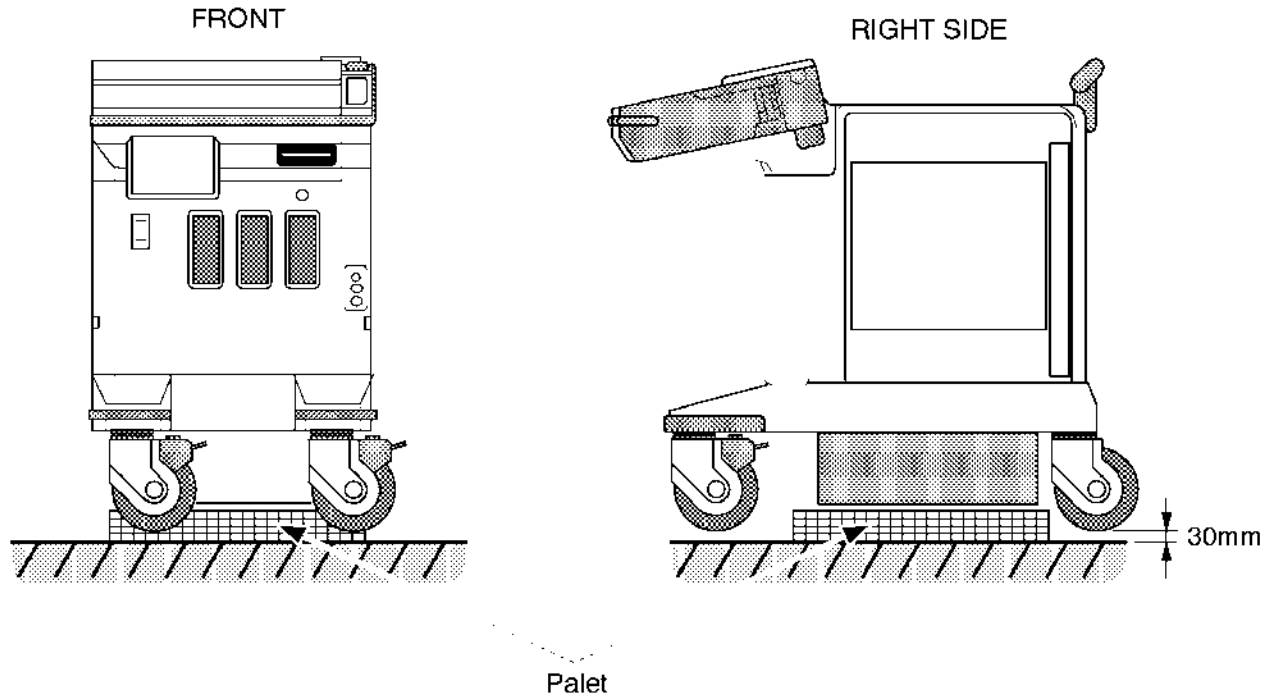
PALLET INSERTION
ILLUSTRATION 6–139

4.   Lower the console and put the console on the pallet.

6–5–2 Replacement Procedure (continued)

5.   Unscrew six hexagonal bolts. Three bolts are located at the right side and other three bolts are located at the left side.

6.   Lift the console up using the jacks by approximately 100mm to pull the cables out of the console. Refer to ILLUSTRATION 6–140.

RIGHT SIDE

Hexagonal Bolts

Cables

100mm
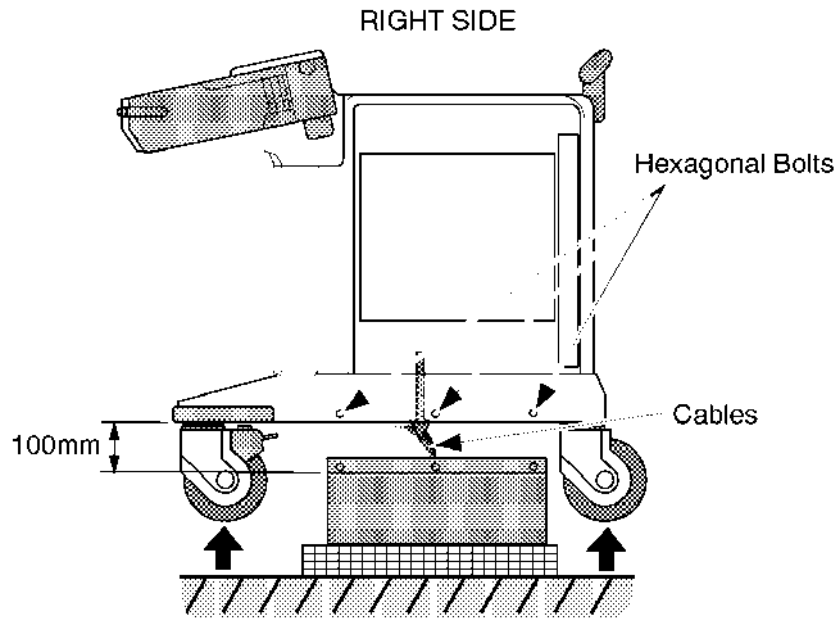
POWER SUPPLY UNIT REMOVAL (a)
ILLUSTRATION 6–140

6–5–2 Replacement Procedure (continued)

7.   Slide the pallet sideways.

FRONT

Power Supply Unit

125mm
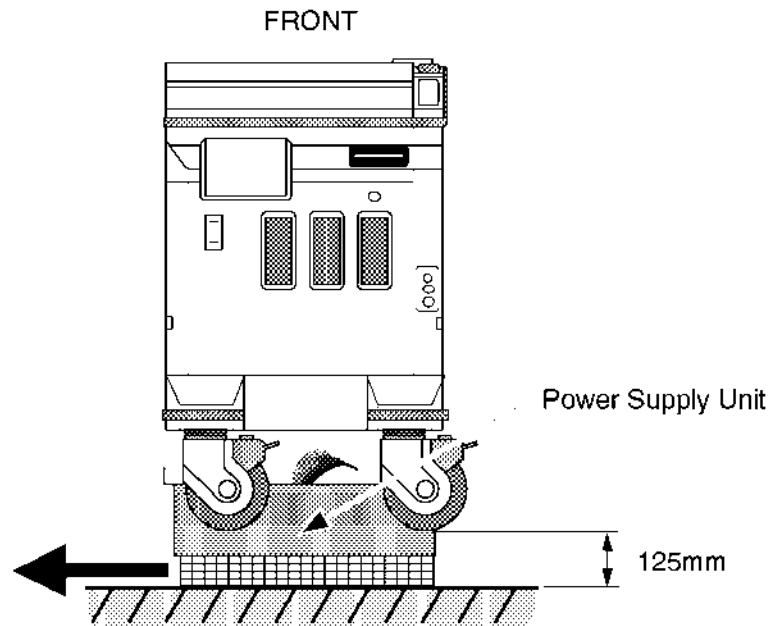
POWER SUPPLY UNIT REMOVAL (b)
ILLUSTRATION 6–141

8.   Remove the power supply unit and place new one on the pallet.

WARNING!

PERSONAL INJURY HAZARD! POWER SUPPLY UNIT WEIGHS APPROXIMATELY 51 KILO-GRAMS (112 POUNDS). PAY ATTENTION NOT TO BE INJURED.

9.   Slide and move the pallet to the position just under the console. Make sure that the power supply unit is placed in the correct direction.

10.   Put the cables into the inside of the console through two holes located at the bottom of the console.

11.   Lower the console and adjust the position of the pallet to install the power supply unit to the console.

12.   Screw six hexagonal screws to assemble new power supply unit to the console.

13.   Jack the console up and remove the pallet.

14.   Put down the console on the floor.

6–5–2 Replacement Procedure (continued)

(D) Final Procedure

1. Connect fourteen cables with the appropriate connectors. For the details of cables, refer to 6–5–2 (B), Disconnecting Cables on page 6–219.

2. Re–assemble the removal parts. Refer to section 6–2, DISASSEMBLY/RE-ASSEMBLY.

3. Plug the system and power it ON.

4. Perform all power supply checks and leakage current test. Refer to 7–3, ELECTRICAL SAFETY TEST in Chapter 7.

5. Perform functional checks to verify that the system is functioning properly. Refer to Chapter 4, FUNCTIONAL CHECKS, in this manual.

6. This completes the replacement of the Power Supply Unit.

6–6 REPLACING 2.5–INCH HDD ASSY WITH 3.5–INCH HDD ASSY

6–6–1 Introduction

This section provides the installation procedures of the 3.5–Inch HDD Assy using the Installation Kit for LOGIQ 500 console.

6–6–2 Time Required

1 hour

6–6–3 Parts Required

ITEM	PART NAME	QTY	PART #	REMARKS
1.	3.5–inch HDD Assy	2	——	Part number is different depending on the software version.
2.	HDD Replacement Kit	1	2160057	
	HDD Holder2 Assy	1	2145973	For 3.5–inch HDD Assy
	CB24N Cable Assy	1	2145889	MOD and HDD to MOTHER
	CB5N Cable Assy	1	2145890	HDD to MOTHER
	CB45N Cable Assy	1	2145891	HDD to HDD LED Ass through CB46
	Screw	4	——	
	Screw	2	——	
	Tie Wrap	2	——	200mm

6–6–4 Procedures

(A) Removing 2.5–inch HDD Assy, HDDB Assy and Cables

1. Turn the main power switch OFF.

2. Wait a while until the power off process is completed.

3. Set the circuit breaker located at the rear of Power Supply unit to OFF position (lower side).

4. Unplug the unit. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46–015902).

5. Remove the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

6. Remove the Front Base Cover. Refer to 6–2–26 on page 6–103.

7. Remove the Side Cover Right. Refer to 6–2–21 on page 6–98.

6–6–4 Procedures (continued)

(A) Removing 2.5–inch HDD Assy, HDDB Assy and Cables (continued)

8.   Cut the three tie wraps and remove them. Refer to ILLUSTRATION 6–142.
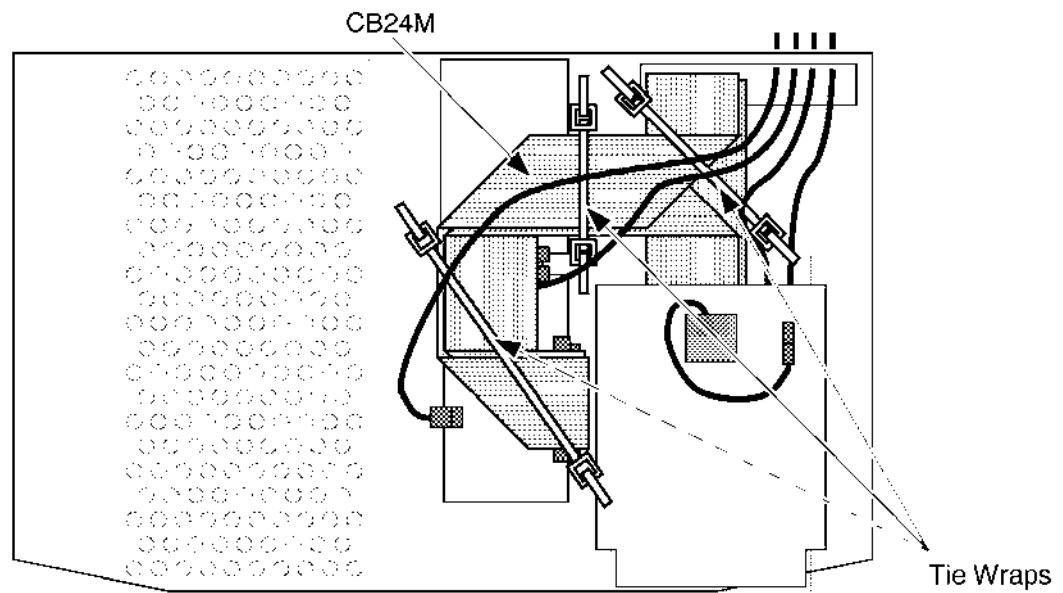
REMOVING HDDB ASSY
ILLUSTRATION 6–142

■

6–6–4 Procedures (continued)

(A) Removing 2.5–inch HDD Assy, HDDB Assy and Cables (continued)

9.   Unscrew four screws and remove the MODD Cover Metal.
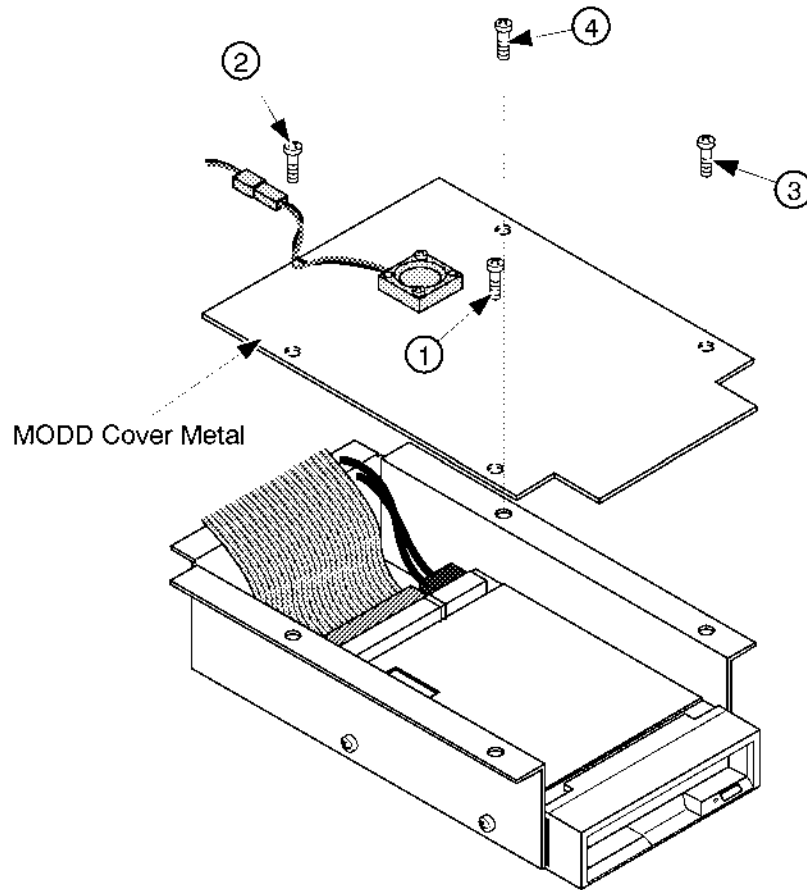
REMOVING MODD COVER METAL
ILLUSTRATION 6–143

6–6–4 Procedures (continued)

(A) Removing 2.5–inch HDD Assy, HDDB Assy and Cables (continued)

■ 10. Disconnect the CB24M cable. Refer to ILLUSTRATION 6–144.
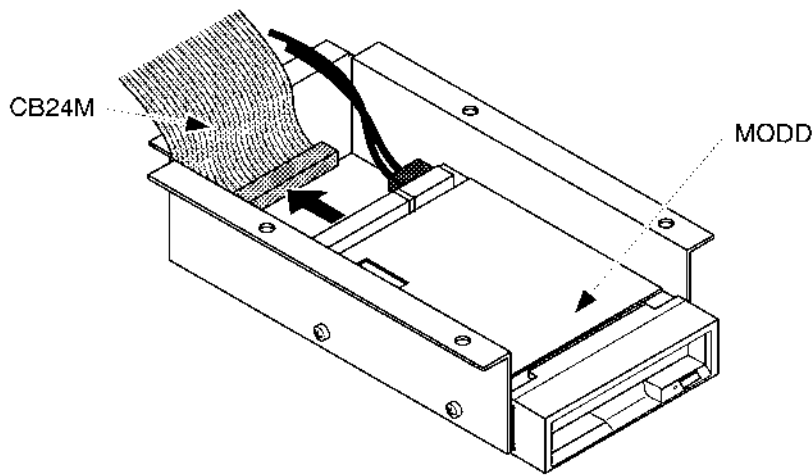
DISCONNECTING CB24 CABLE
ILLUSTRATION 6–144

11. Disconnect three cables, CB24M, CB5, and CB46, from the HDDB Assy. Refer to ILLUSTRATION 6–145.
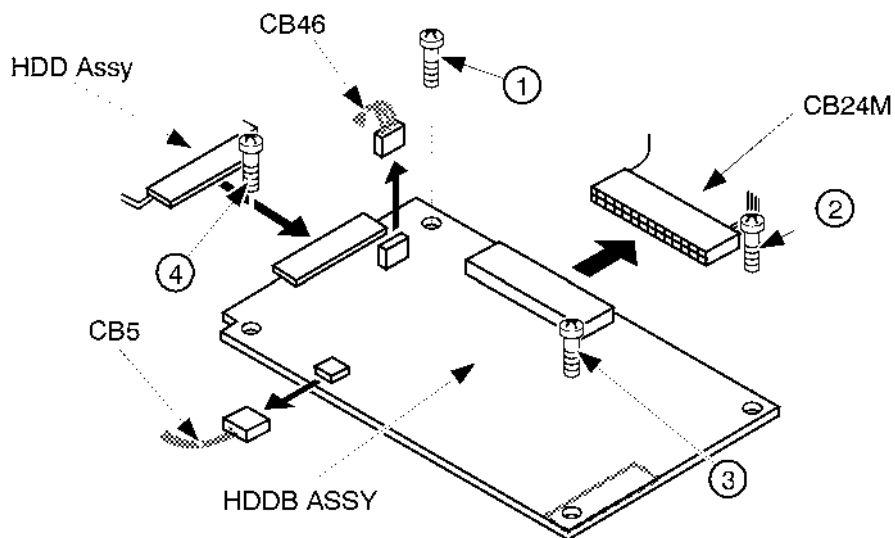
REMOVING HDDB ASSY
ILLUSTRATION 6–145

12. Unscrew four screws and remove the HDDB Assy. Refer to ILLUSTRATION 6–145.

6–6–4 Procedures (continued)

(A) Removing 2.5–inch HDD Assy, HDDB Assy and Cables (continued)

■ 13. Unscrew two screws and remove the 2.5–inch HDD Assy with HDD Holder Assy. Refer to ILLUSTRATION 6–146.
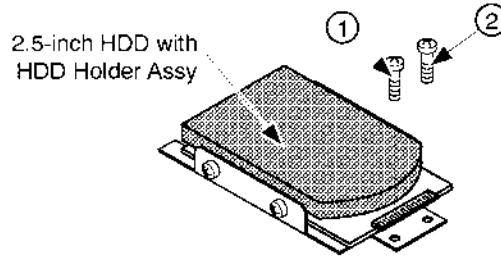
REMOVING 2.5–INCH HDD ASSY
ILLUSTRATION 6–146

14. Remove the Rear CONN Panel Assy (FRU 501). Refer to 6–2–53 on page 6–138.

15. Disconnect the CB24M cable from the Mother Assy and Rear1 Assy and the CB5 cable from the Mother Assy.
■   Refer to ILLUSTRATION 6–147.
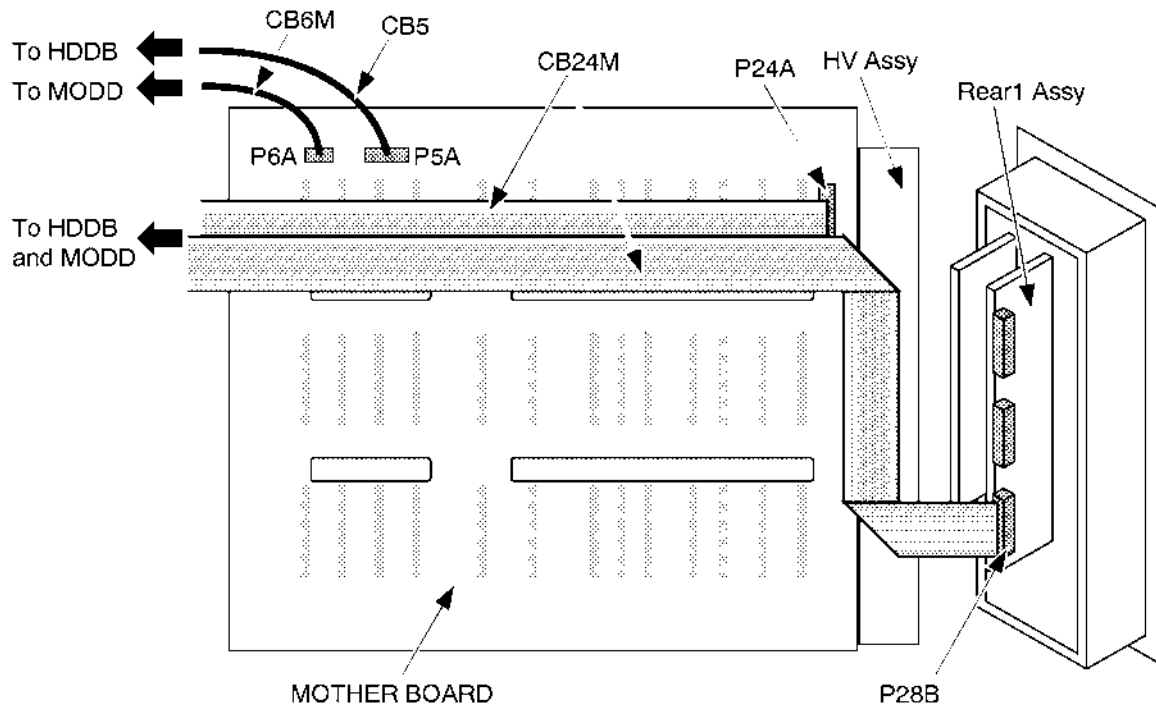
REMOVING CABLES
ILLUSTRATION 6–147

16. Remove the CB24M and CB5 cables.

6–6–4 Procedures (continued)

(B) Connecting Cables

Note

The Cable Bracket is installed from production unit of LOGIQ™500 console with software
version 5.00 y or later. Insert and thread the CB24N Cable into the slit of the Cable Bracket as shown
in ILLUSTRATION 6–148.
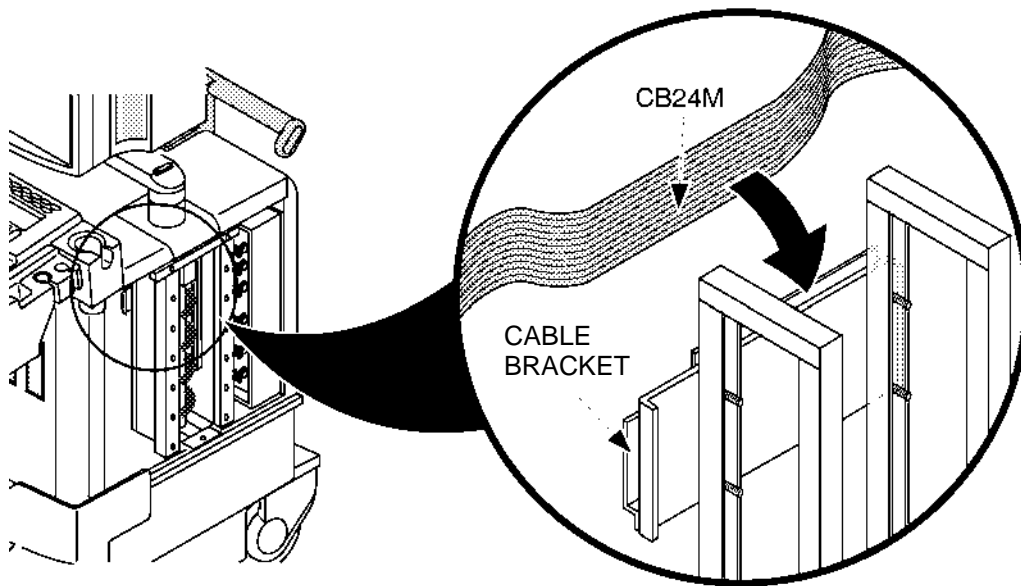
CABLE BRACKET
ILLUSTRATION 6–148

6–6–4 Procedures (continued)

(B) Connecting Cables (continued)

17. Connect the CB24N Cable with the P24A connector on the Mother Assy. Refer to ILLUSTRATION 6–149.

18. Connect the CB5N Cable with the P5A connector on the Mother Assy. Refer to ILLUSTRATION 6–149.
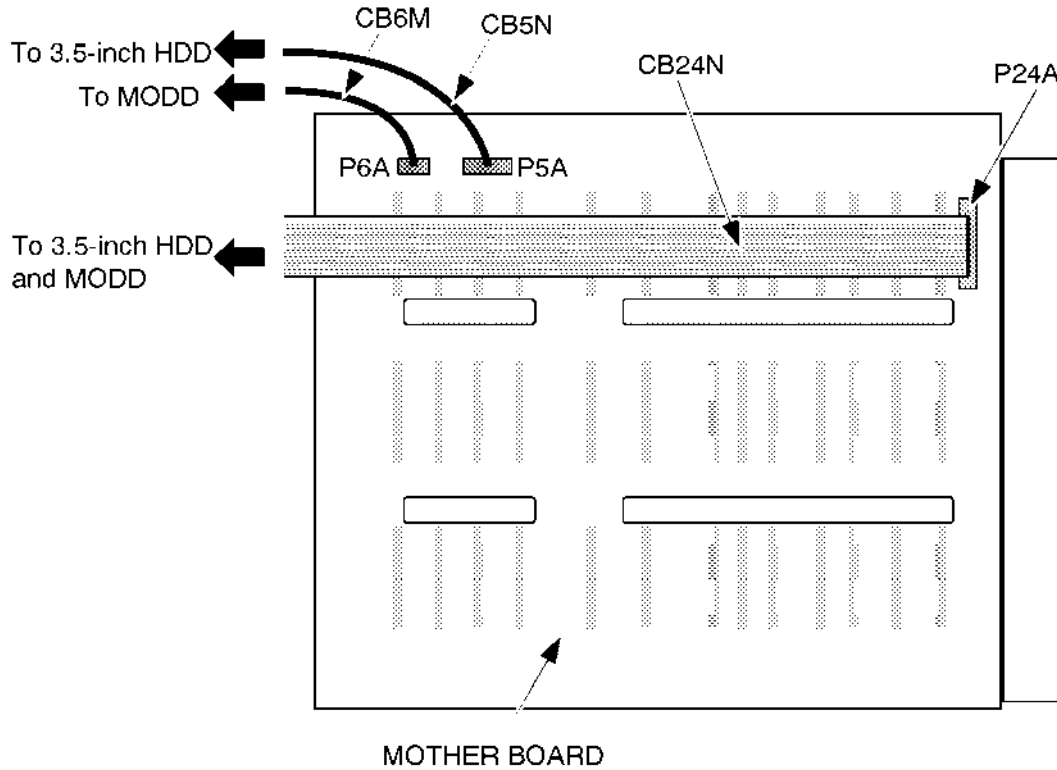
CONNECTING CABLES
ILLUSTRATION 6–149

19. Pass another side of cables through the opening of Frame forward to the MODD and HDD.

6–6–4   Procedures (continued)

(C)   Installing 3.5–Inch HDD Assy

20.   Make sure that the four jumper switch are set as shown in ILLUSTRATION 6–150.

21.   Make sure that the Terminator Module IC is not mounted on the 3.5–inch HDD Assy. Refer to ILLUSTRATION 6–150.
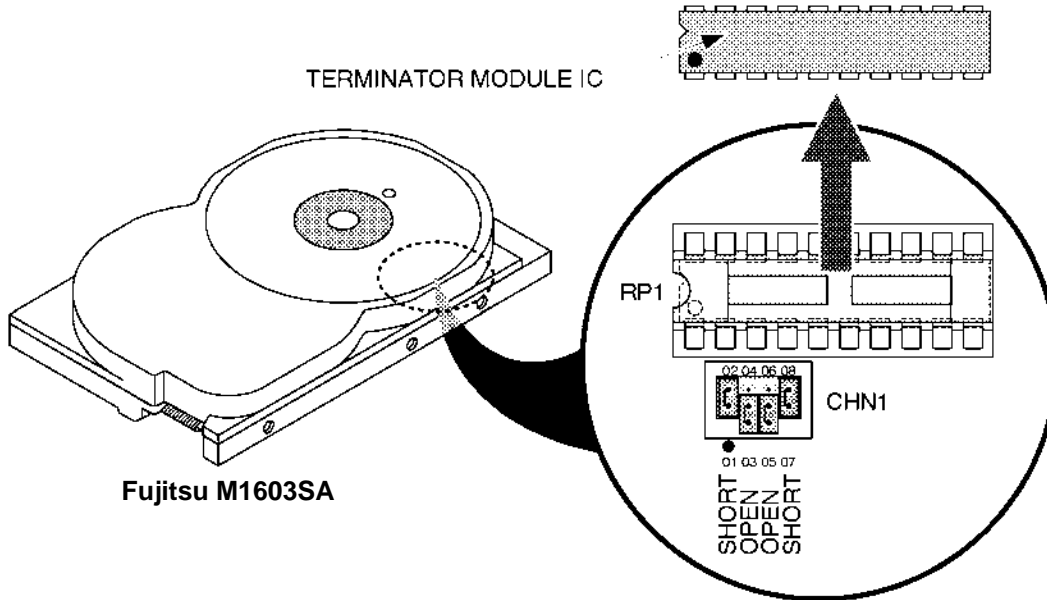
TERMINATOR MODULE IC
ILLUSTRATION 6–150

Note
The setting of jumper switches for the new 3.5–inch HDD Assy (Quantum™ Fireball TM 1280S) is different from the old one. Refer to ILLUSTRATION 6–151 to check and set the jumper switches properly.
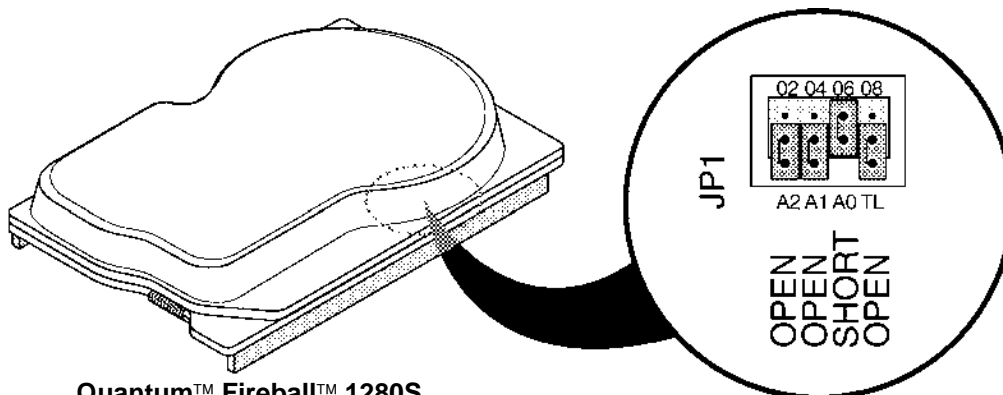
BOTTOM VIEW OF 3.5–INCH HDD (b)
ILLUSTRATION 6–151

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

Note

The setting of jumper switches for the new 3.5–inch HDD Assy (Quantum™ Fireball™ EL) is different
from others. Refer to ILLUSTRATION 6–152 to check and set the jumper switches properly.

OPEN: 1, 2, 5, 6, 7, 8, 9, 10, 11, 12
SHORT: 3, 4

Quantum™ Fireball™ EL
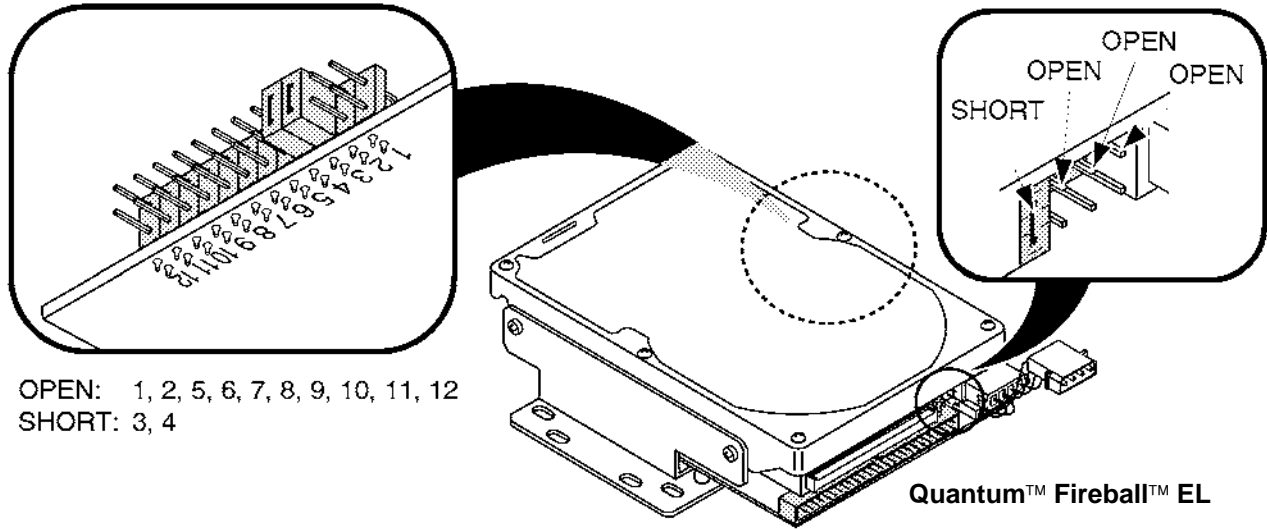
APPEARANCE OF 3.5–INCH HDD (QUANTUM FIREBALL EL)
ILLUSTRATION 6–152

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

■ 22. Connect the CB45N cable with the 3.5–inch HDD Assy. Refer to ILLUSTRATION 6–153.

23. Connect another side of the CB45N cable to the CB46 cable.

■ 24. Set the 3.5–inch HDD Assy on the HDD Holder2 Assy. Refer to ILLUSTRATION 6–153.

25. Screw four screws supplied with the HDD Change Kit to install the 3.5–inch HDD Assy to the HDD Holder2 Assy.
■   Refer to ILLUSTRATION 6–153.
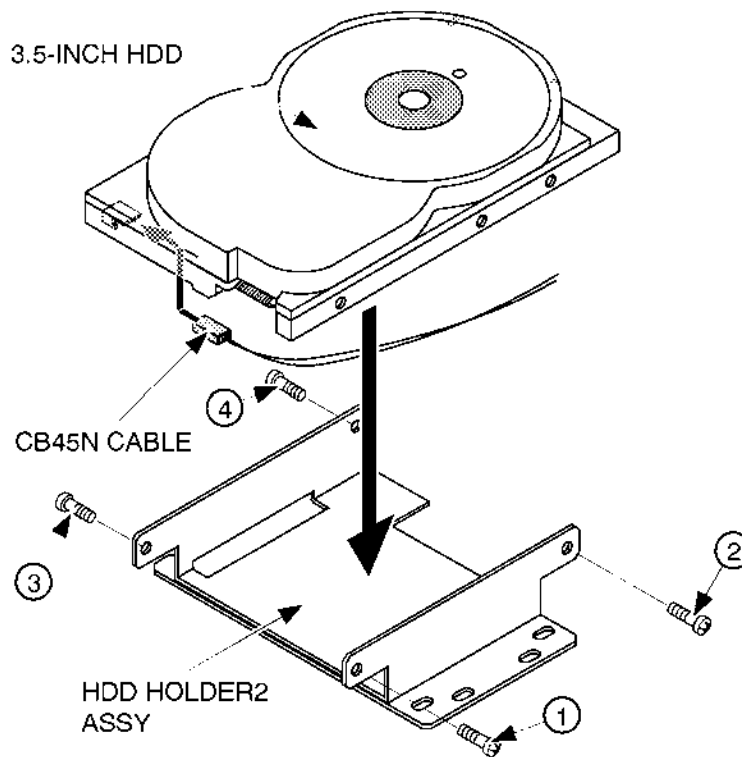
INSTALLING 3.5–INCH HDD ASSY ON HDD HOLDER2 ASSY
ILLUSTRATION 6–153

Note
The HDD LED Assy is not available on the console with the new type of 3.5–inch HDD Assy (Quan-
tum™ FireBall™ 1280S or Quantum™ FireBall™ EL). In this case, the CB45N cable is not used. Hold
the CB46 cable onto the metal frame with an adhesive tape.

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

26. Screw two screws supplied with the HDD Change Kit to install the 3.5–inch HDD Assy with HDD Holder2 Assy on the console. Refer to ILLUSTRATION 6–154.

27. Connect the CB24N and CB5N cables with the 3.5–inch HDD Assy as shown in ILLUSTRATION 6–154.
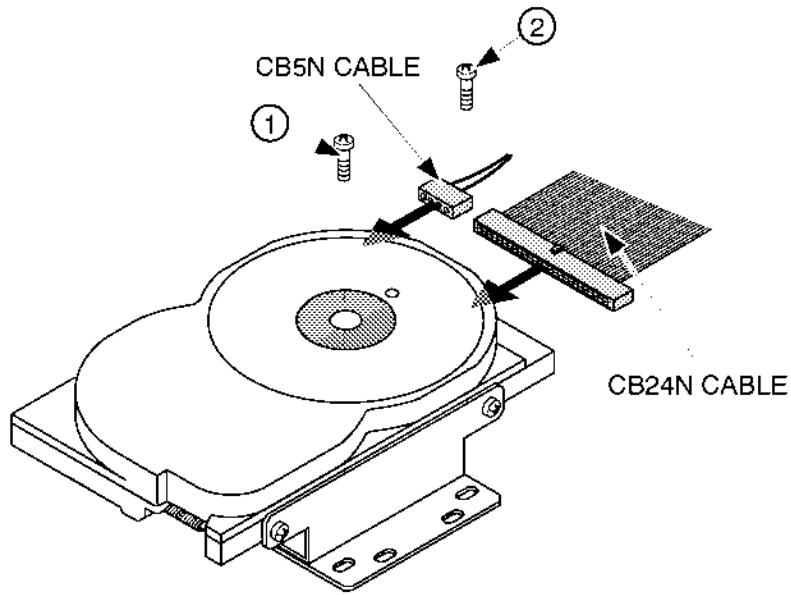
INSTALLING 3.5–INCH HDD ASSY WITH HOLDER
ILLUSTRATION 6–154

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

Note

The folding method of CB24N cable is different depending on the type of MODD (U0052ZA or 2187012). Before connecting the CB24N cable, fold the CB24N cable suitably. Refer to ILLUSTRATION 6–155.
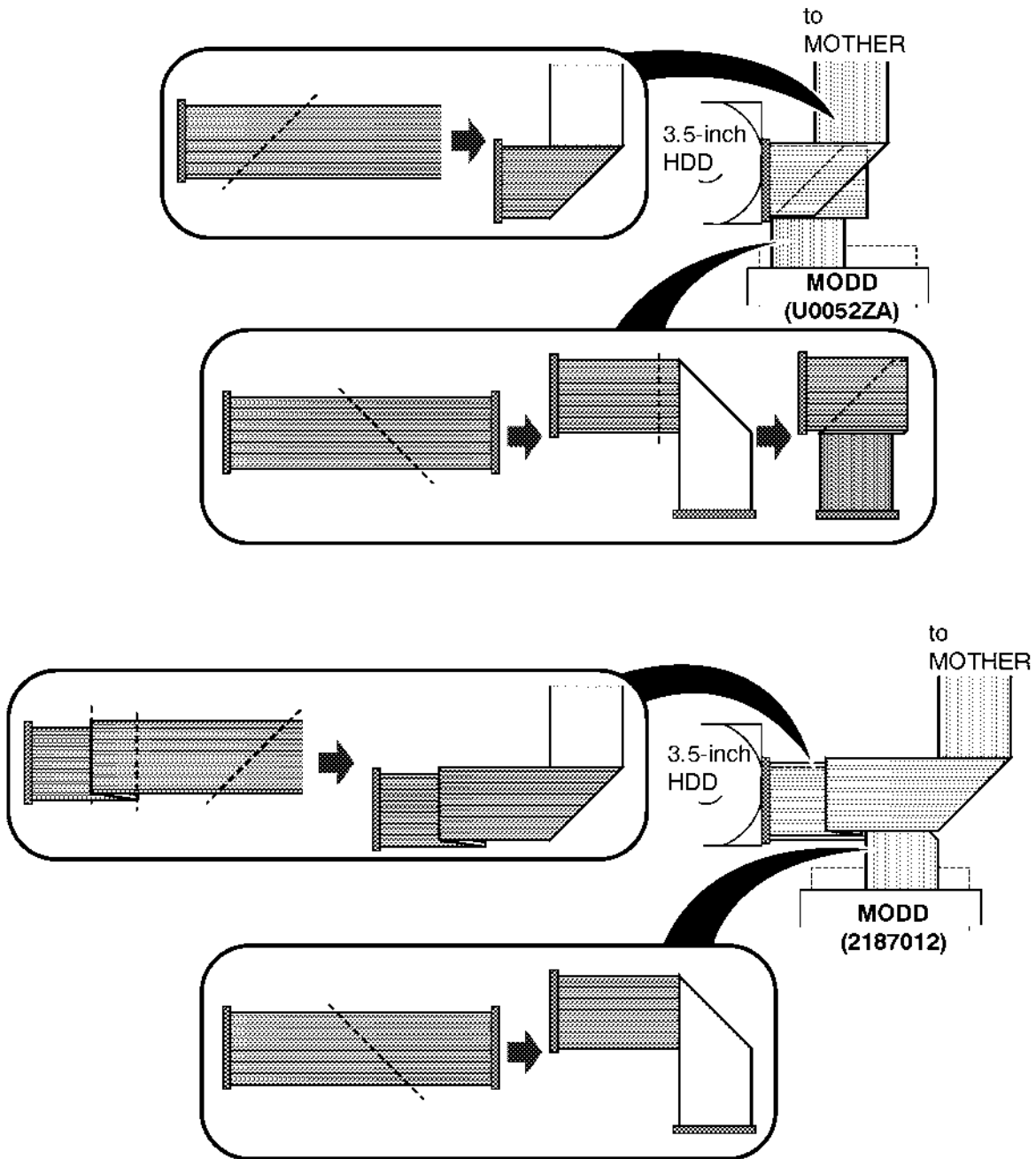
FOLDING CABLE
ILLUSTRATION 6–155

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

■ 28. Change the settings of jumper switches on the MODD Assy as shown in ILLUSTRATION 6–156.

Note
The new MODD (2187012) is different in appearance from the old one (U0052ZA).

OPEN: Jumper switch is not installed
SHORT: Jumper switch is installed

SW1:
  ON: 1, 3, 4, 7
  OFF: 2, 5, 6, 8
SW2:
  ON: 2
  OFF: 1, 3, 4, 5, 6, 7, 8
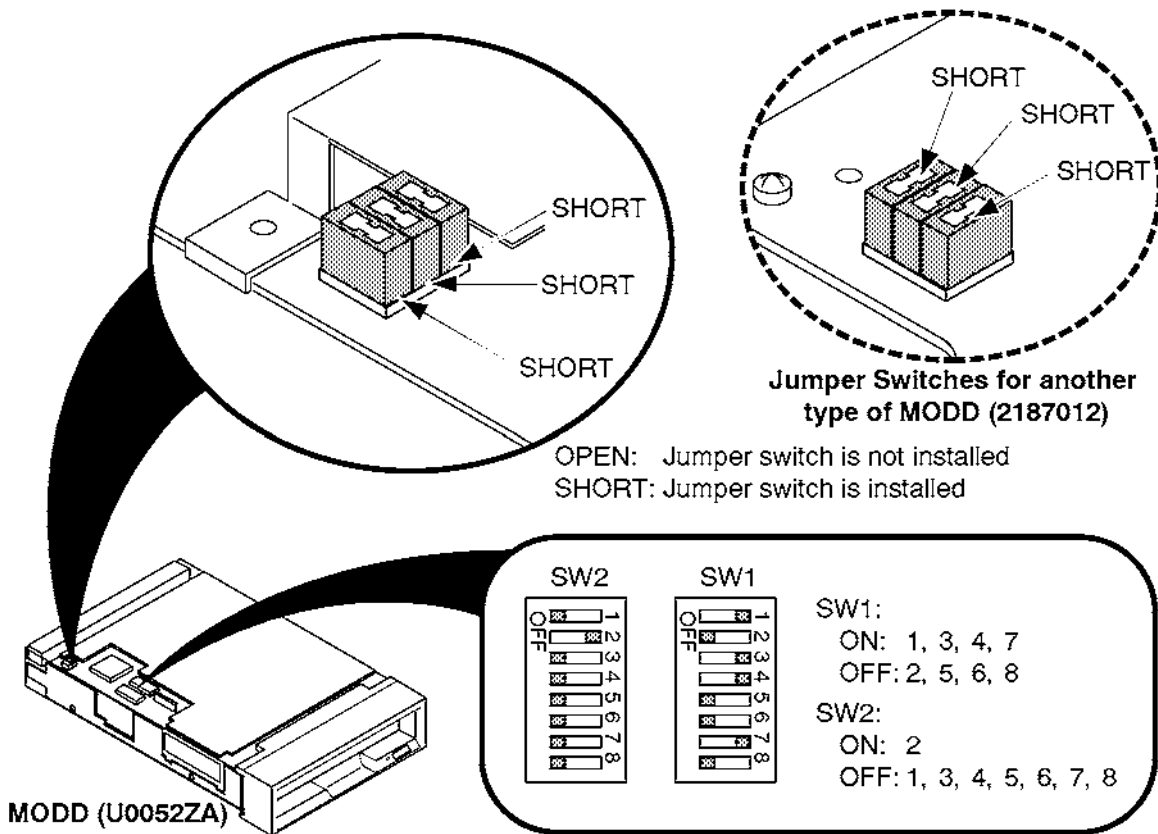
MODD JUMPER SWITCH SETTINGS
ILLUSTRATION 6–156

■

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

Note

If the 3.5–inch HDD is installed on the console, set the jumper switches as shown in ILLUSTRATION 6–157.
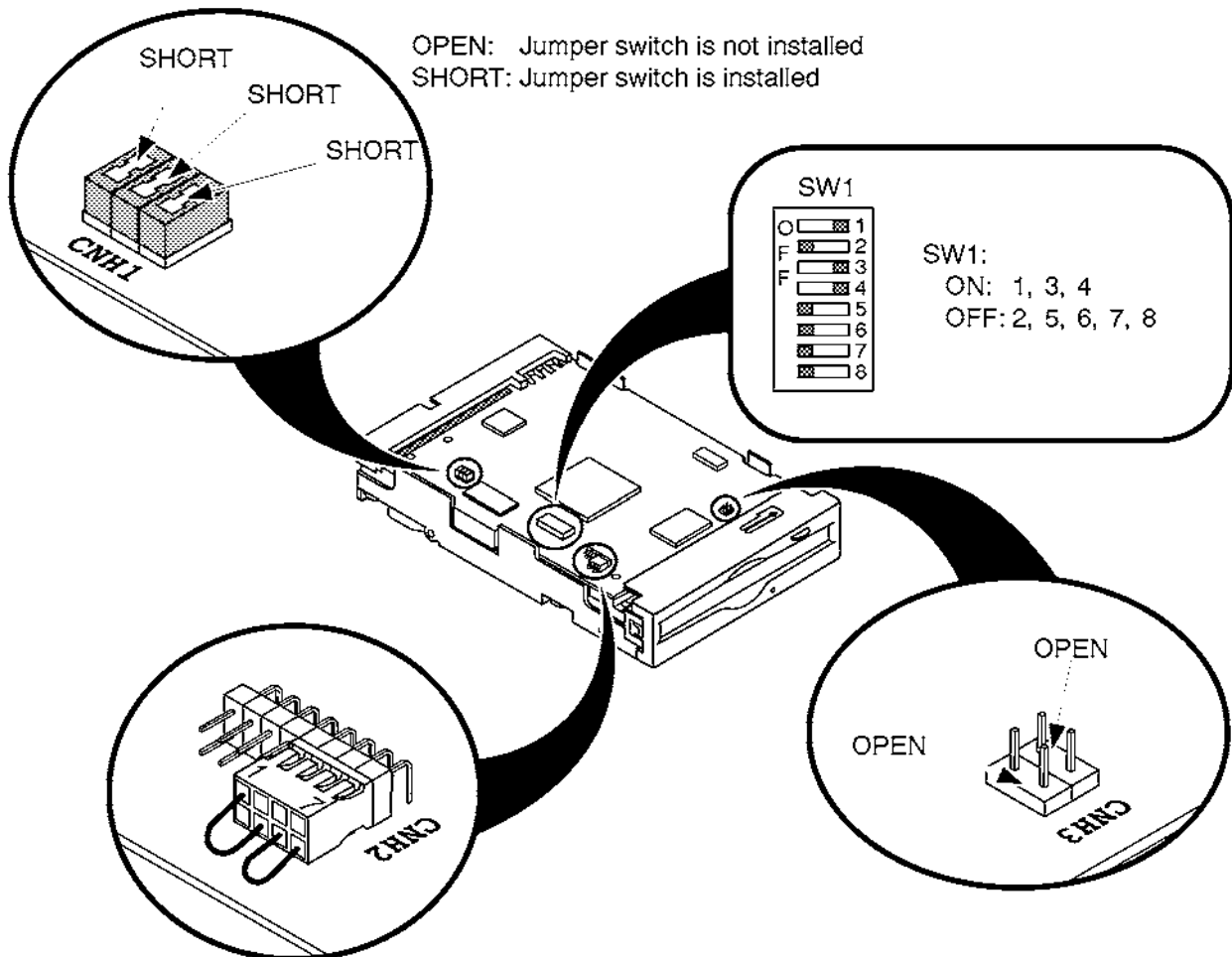
SETTINGS OF JUMPER SWITCHES ON MODD (2187012–2)
ILLUSTRATION 6–157

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

Note

If the 3.5–inch HDD is installed on the console, set the jumper switches as shown in ILLUSTRATION 6–157.
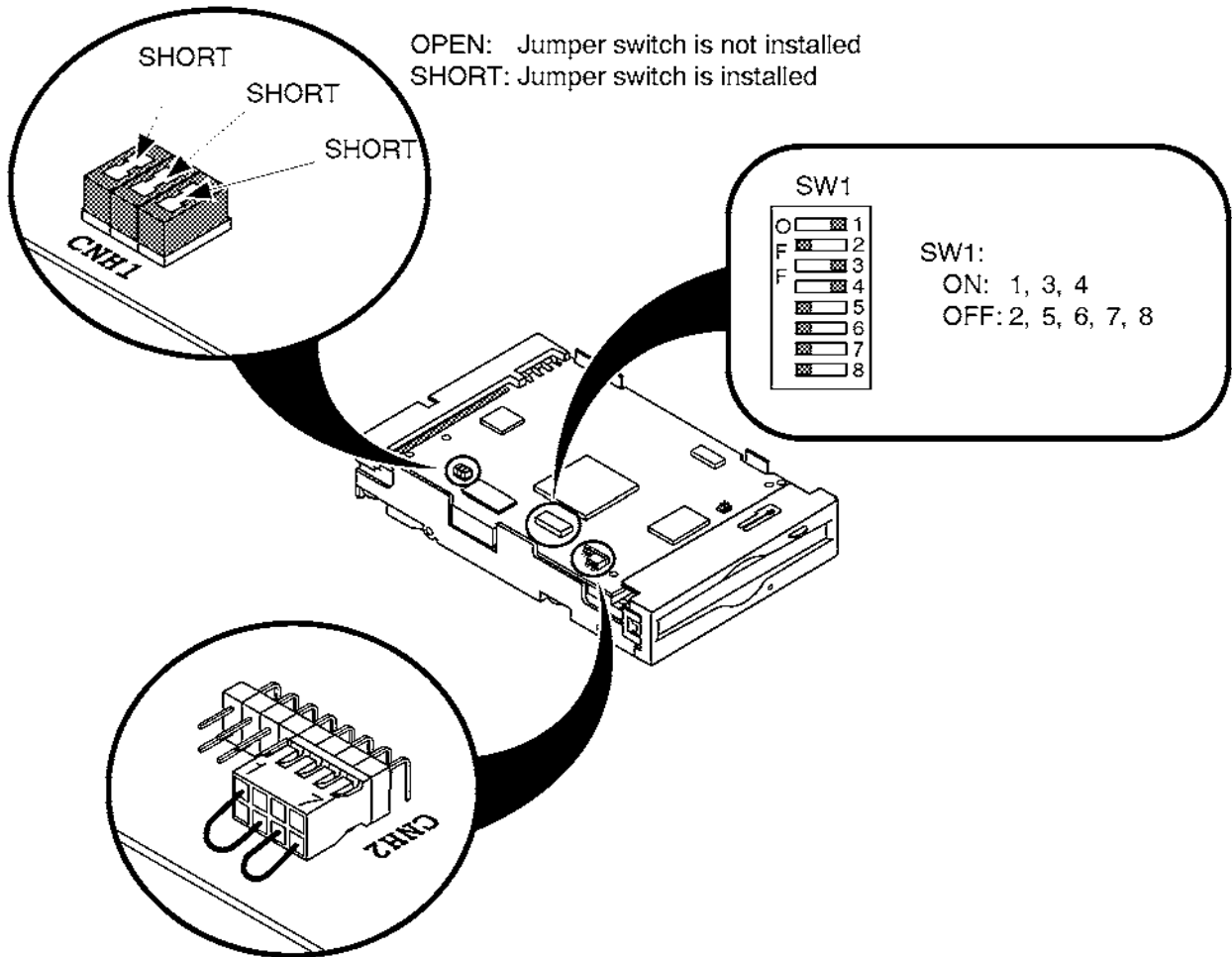
SETTINGS OF JUMPER SWITCHES ON MODD (2271309)
ILLUSTRATION 6–158

29. Connect the CB24N with the MODD Assy. Refer to ILLUSTRATION 6–144 on page 6–254.

30. Screw four screws and install the MODD Cover Metal. Refer to ILLUSTRATION 6–143 on page 6–262.

6–6–4 Procedures (continued)

(C) Installing 3.5–Inch HDD Assy (continued)

■ 31. Bind the CB24N cable with two tie wraps as shown in ILLUSTRATION 6–159.

Note

Be careful not to bind the CB24N tightly.
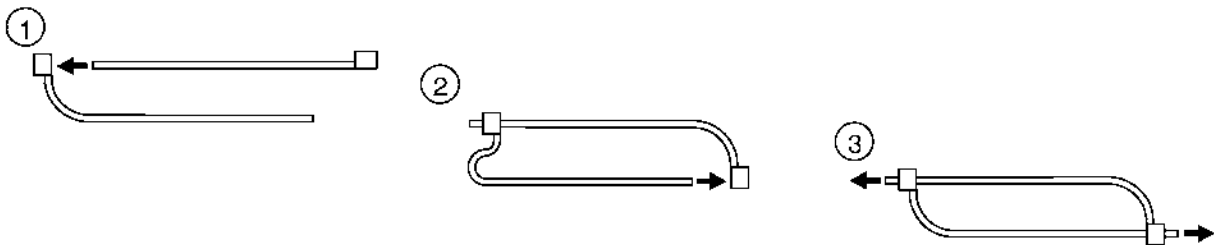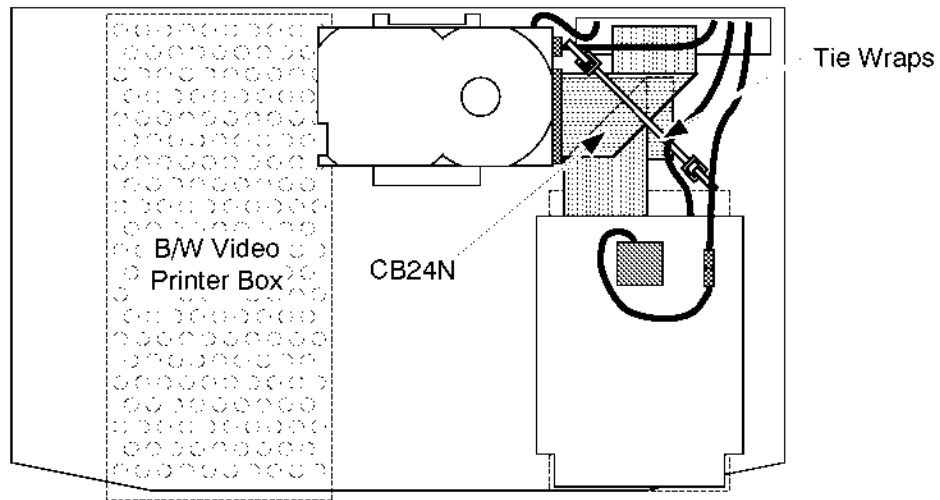
ATTACHING TIE WRAP
ILLUSTRATION 6–159

32. Reinstall the Side Cover Right. Refer to 6–2–21 on page 6–98.

33. Reinstall the Front Base Cover. Refer to 6–2–26 on page 6–103.

34. Reinstall the Keyboard Panel Assy. Refer to 6–2–41 on page 6–121.

35. This completes the Replacing 2.5–inch HDD Assy with 3.5–inch HDD Assy.

CHAPTER 7 – PERIODIC MAINTENANCE

TABLE OF CONTENTS

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7–1   INTRODUCTION

This chapter provides Periodic Maintenance procedures. It is an effective and efficient method of reducing equipment down time and service cost.

Note

Cleaning the Air Filters described in this chapter should be done by the customer following the procedures described in the LOGIQ 500 User Manual.

It is recommended that the Air Filter Cleaning be included as part of the periodic maintenance procedures performed on site with a maintenance contract.

7–1–1   Periodic Maintenance

Periodic Maintenance consists of visual inspections, system performance checks, periodic cleaning of certain critical parts and user data backup. Perform this procedure at six month intervals. This schedule for maintenance is based on an estimated equipment usage of 40 hours per week.

7–2   PERIODIC MAINTENANCE PROCEDURE

7–2–1   Visual Inspection

a. Check cables for cracks nicks and abrasions of their insulation.

b. Check that cables sheath are securely clamped in cable glands/connector clamps where applicable.

c. Check that cables are correctly routed and secured.

d. Check that all screws are in place and not missing.

e. Check that all detachable cable connectors are fully home in their sockets.

f. Check that all equipment covers and fixing are in place and undamaged.

g. Check that all plug–in boards are fully seated in cardcage connector.

h. Check operation of the cooling fans and that the airflow paths are clear. LOGIQ 500 has five Fans : three for PC Boards, two for Power Supplies.

i. Check that the keyboard keys , some volumes and Track Ball have correct function and no mechanical damage.

j. Check that three Air Filters indicated in the ILLUSTRATION 7–1 are clean and undamaged.

7–2–2   Cleaning

a. Clean the CRT filter.

a–1. Remove the CRT filter from the monitor. Refer to section 6–2–6 in Chapter 6, RENEWAL PARTS.

⟨ CAUTION ⟩

Equipment damage possibility. Do not use a hydrocarbon glass cleaner on a monitor with an anti-glare shield. Prolonged use of such cleaners damages the shield.

a–2. Wipe the monitor face and CRT filter using a soft, non-abrasive folded cloth with a glass cleaner.

a–3. Install the CRT filter after cleaning the monitor face and CRT filter. Set the CRT filter on the monitor, insert the CRT filter clamps (①), and slide them inwards securely (②).
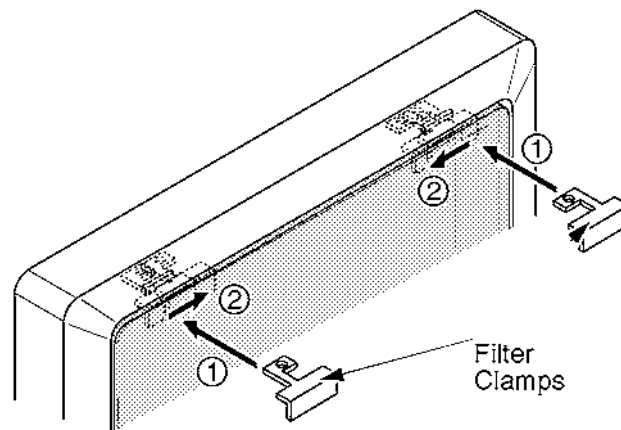
INSTALLING CRT FILTER AND CLAMPS
ILLUSTRATION 7–1

Note

Make sure that the filter is securely fixed by the filter clamps. These are important to prevent a hazard from the filter falling. A "click" sound will be heard when the filter clamp is secured by the lock mechanism.

b. Clean the Fans and the Finger Guards by using a vacuum cleaner and bristled brush.

▌ 7–2–2   Cleaning (Continued)

▌
c. Clean two Air Filters (①) and (②)) and one PW Filter (③)) by using a vacuum cleaner and bristled brush. If these filters are damaged, replace them. For the positions of three filters, refer to ILLUSTRATION 7–2.

318A   318A
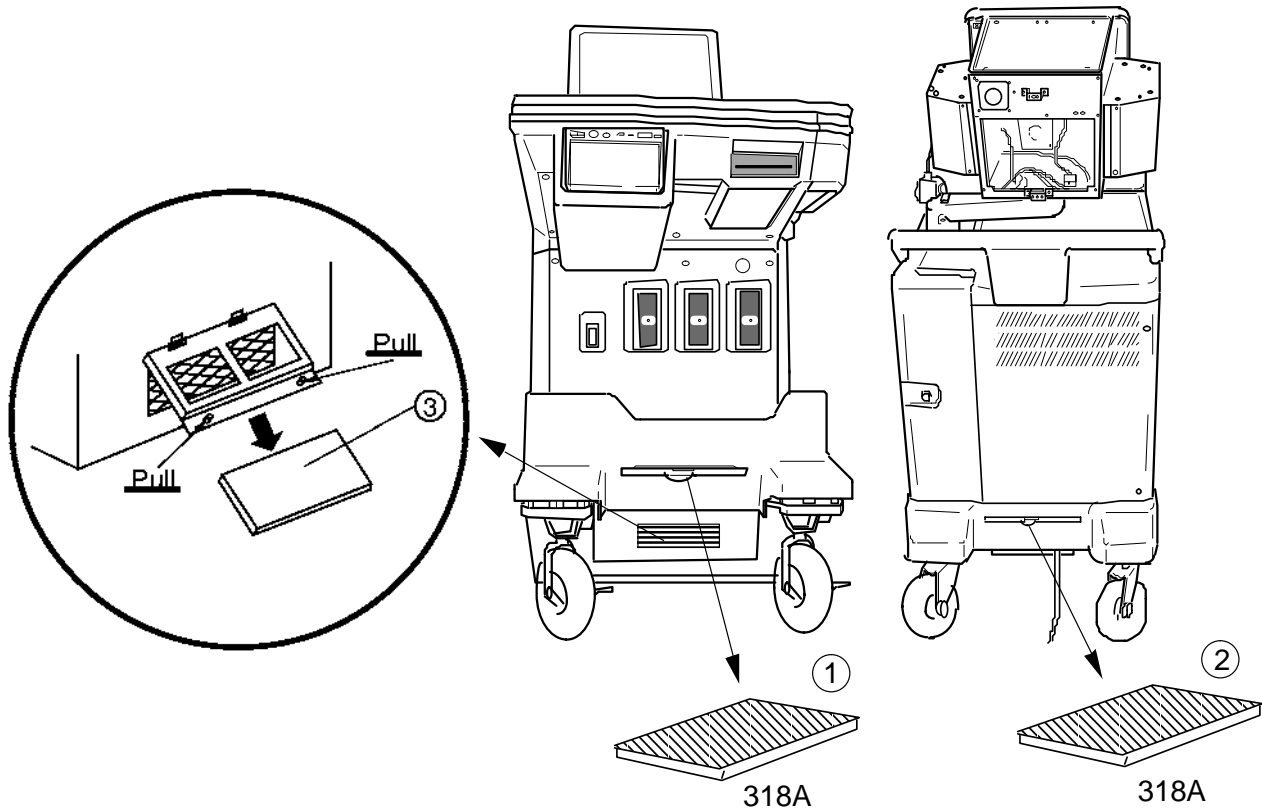
AIR FILTERS REMOVAL
ILLUSTRATION 7–2

d. Clean out the interior of the Console by using a vacuum cleaner.

7–2–3   Measurement

a. Make sure that electrical outlet of hospital should provide the power line standard.
Refer to Chapter 2, Installation.

b. Ensure all power supply voltages are within tolerance.
Refer to section 4–4, Power Supply Adjustment in Chapter 4, Functional Checks, for adjustment procedure.

c. Make sure that leakage currents are within tolerance.
Refer to section 2–3, ELECTRICAL SAFETY TESTS in Chapter 2, INSTALLATION, for measurement procedures.

7–2–4   User Data Backup

a. Keep user preset data into some floppy disks or MO disk using the User Data Backup of LOGIQ 500 Utility menu. Refer to 4–3–3, Utility Menu in Chapter 4, FUNCTIONAL CHECKS.

7–2–5   Note

Visual inspection of probes ("head", cable and connector)

7–3 ELECTRICAL SAFETY TESTS

The following tests are performed at the factory and should be performed at the site. These tests are: grounding continuity, chassis leakage current, probe leakage current, and ECG leakage current. All measurements are made with an Electrical Safety Analyzer Model Dale 600/600E built by Dale Technology Corporation or equivalent device.

Note

In GEMS–America region, it is NOT necessary to do the leakage current test when installing the LOGIQ™ 500 systems on condition that no optional devices are installed with the console. For more details, contact your regional service support center.

Recommended Tool

PART NUMBER	NAME	DESCRIPTION
46–285652G1	Electric Safety Analyzer DALE 600	For 120V Units
46–328406G2	Electric Safety Analyzer DALE 600E	For 220V Units
2113015	Leakage Current Ultrasound Kit	For 120V and 220V Units

7–3–1 Outlet Test Wiring Arrangement

Test all outlets in the area for proper wiring arrangement by plugging in the Dale 600/600E and noting the combination of lights that are illuminated (Refer to ILLUSTRATION 7–3).
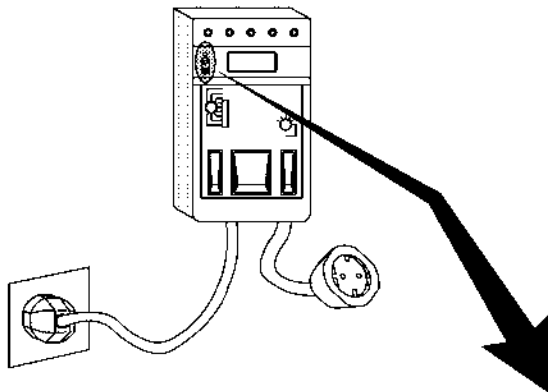
OUTLET TEST
ILLUSTRATION 7–3

Note

No outlet tester can detect the condition where the Neutral (grounded supply) conductor and the Grounding (protective earth) conductor are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

7–3–2 Grounding Continuity

$$\boxed{\{ \text{CAUTION} \}}$$

Electric Shock Hazard. The patient must not be contacted to the equipment during this test.

Measure the resistance from the third pin of the attachment plug to the exposed metal parts of the case (ILLUSTRATION 7–4). The ground wire resistance should be less than **0.2** ohms.

CONSOLE

ACCESSIBLE METAL PARTS

1. Monitor Housing
2. Rear Panel Connector
3. Any Caster/Wheel Support

GROUND PIN

OHMMETER

GROUND CONTINUITY TEST
ILLUSTRATION 7–4
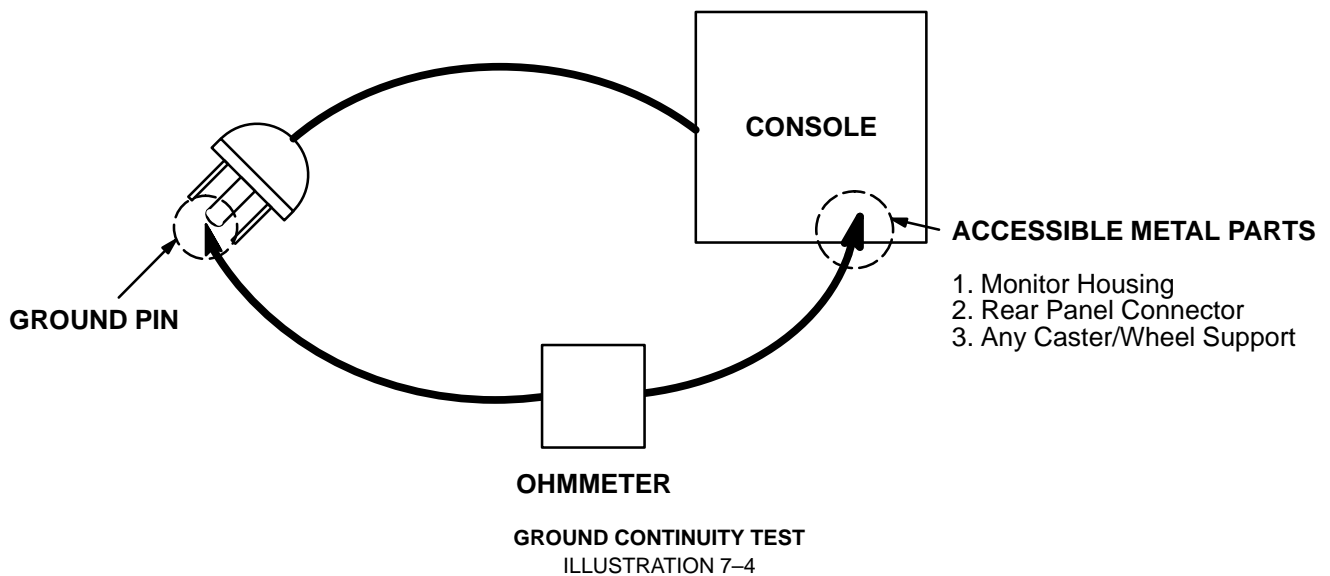
Meter Procedure

Follow these steps to test the ground wire resistance.

1.   Turn the LOGIQ™ 500 unit OFF.

2.   Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 7–6).

3.   Plug the black chassis cable into the meter's "CHASSIS" connector and attach the black chassis cable clamp to an exposed metal part of the LOGIQ™ 500 unit (Refer to ILLUSTRATION 7–6).

4.   Set the meter's "FUNCTION" switch to the RESISTANCE position.

5.   Set the meter's "POLARITY" switch to the OFF (center) position.

6.   Measure the ground wire resistance and keep a record of the results with other hard copies of PM data kept on site.

7–3–3 Chassis Leakage Current Test

Definition

Leakage current is the electrical current that could flow through the patient or sonographer should a ground wire break. The unit, the probes, the ECG module, and all external peripherals must be tested.

Generic Procedure

The test verifies the isolation of the power line from the chassis. The testing meter is connected from accessible metal parts of the case to ground. Measurements should be made with the unit ON and OFF, with the power line polarity Normal and Reversed. **Record the highest reading of current.**
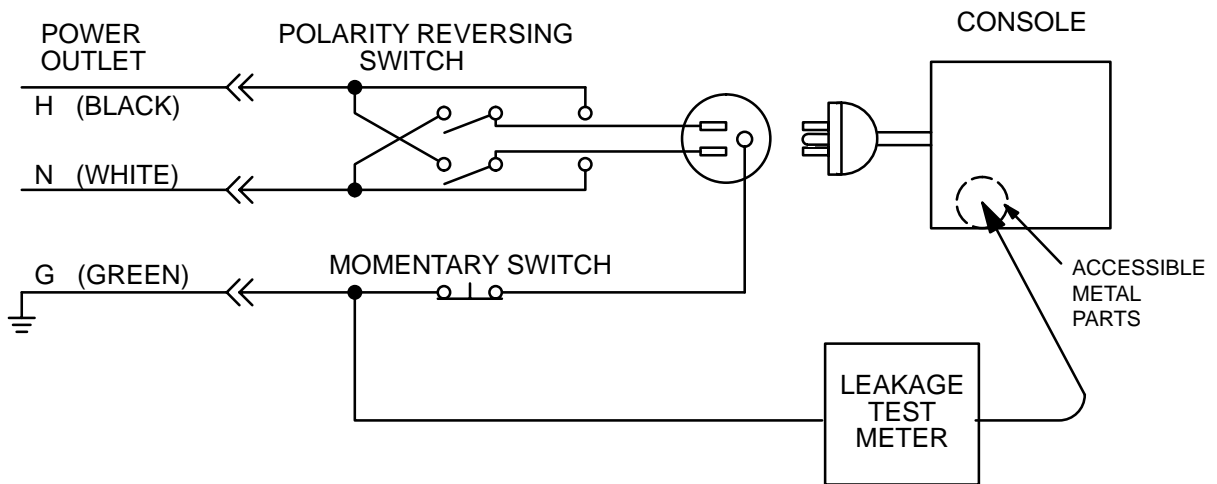
SETUP FOR CHASSIS SOURCE LEAKAGE CURRENT
ILLUSTRATION 7–5

7–3–3   Chassis Leakage Current Test (Continued)

Meter Procedure

Follow these steps to test the unit for leakage current.

1.   Turn the LOGIQ™ 500 unit OFF.

2.   Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 7–6).
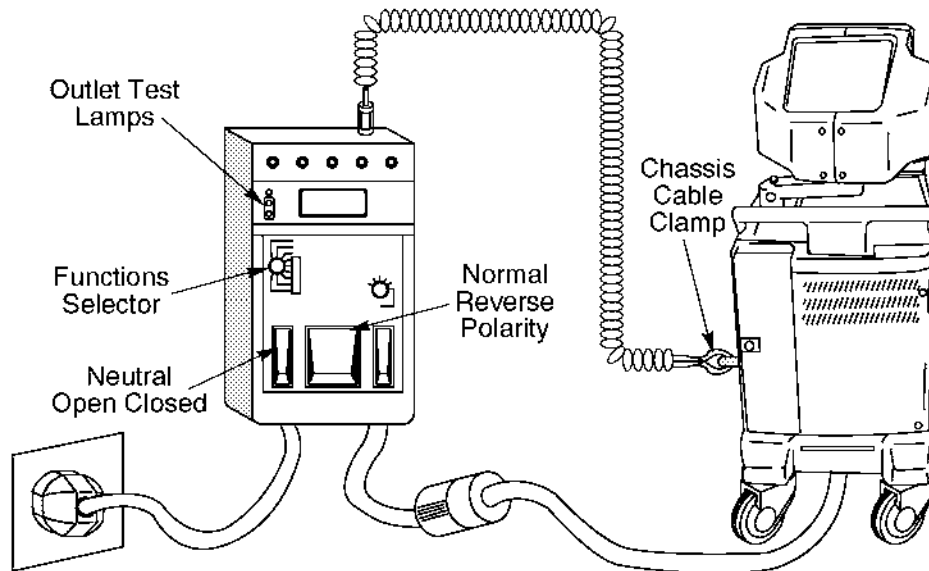
GROUND AND CHASSIS LEAKAGE CURRENT TEST
ILLUSTRATION 7–6

3.   Plug the black chassis cable into the meter's "CHASSIS" connector and attach the black chassis cable clamp to an exposed metal part of the LOGIQ™ 500 unit (Refer to ILLUSTRATION 7–6).

4.   Set the tester's "FUNCTION" switch to CHASSIS position.

5.   Follow the test conditions described in the following table for every test point on the unit.

TABLE 7–1
CHASSIS LEAKAGE CURRENT TEST CONDITIONS

TEST	CONDITION
1	Mounting screw for transducer receptacle
2	Wheel support
3	Mounting screw for CRT housing
4	Mounting screw for peripheral plugged into unit
5	Mounting screw for other peripheral powered by unit

6.   Keep a record of the results with other hard copies of PM data kept on site.

7–3–3   Chassis Leakage Current Test (Continued)

Data Sheet for Chassis Source Leakage Current

Follow the foregoing test procedure. The test passes when all readings measure less than the value shown in the table below (TABLE 7–2).

TABLE 7–2
MAXIMUM ALLOWANCE LIMIT FOR CHASSIS SOURCE LEAKAGE CURRENT

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	N/A	0.3mA	0.3mA	N/A
OTHERS	0.1mA	0.5mA	0.5mA	0.5mA

{ **CAUTION** }

Electric Shock Hazard. When the meter's ground switch is OPEN, don't touch the unit!

{ **CAUTION** }

Equipment damage possibility. Never switch the Polarity and the status of Neutral when the unit is powered ON. Be sure to turn the unit power OFF before switching them using the PO-LARITY switch and/or the NEUTRAL switch. Otherwise, the unit may be damaged.

TABLE 7–3
DATA SHEET FOR CHASSIS SOURCE LEAKAGE CURRENT

Unit Power	Tester POLARITY Switch	Tester NEUTRAL or GROUND Switch	Test1 Probe connector	Test2 wheel	Test3 CRT	Test4	Test5
Enter name of tested peripheral here:							
ON	NORM	OPEN					
ON	NORM	CLOSED					
ON	REV	OPEN					
ON	REV	CLOSED					
OFF	NORM	OPEN					
OFF	NORM	CLOSED					
OFF	REV	OPEN					
OFF	REV	CLOSED					

7–3–4 Probe Leakage Current Test

Definition

This test measures the current that would flow to ground from any of the probes through a patient who is being scanned and becomes grounded by touching some other grounded surface.

Generic Procedure

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the probe must be active to find the worst case condition.
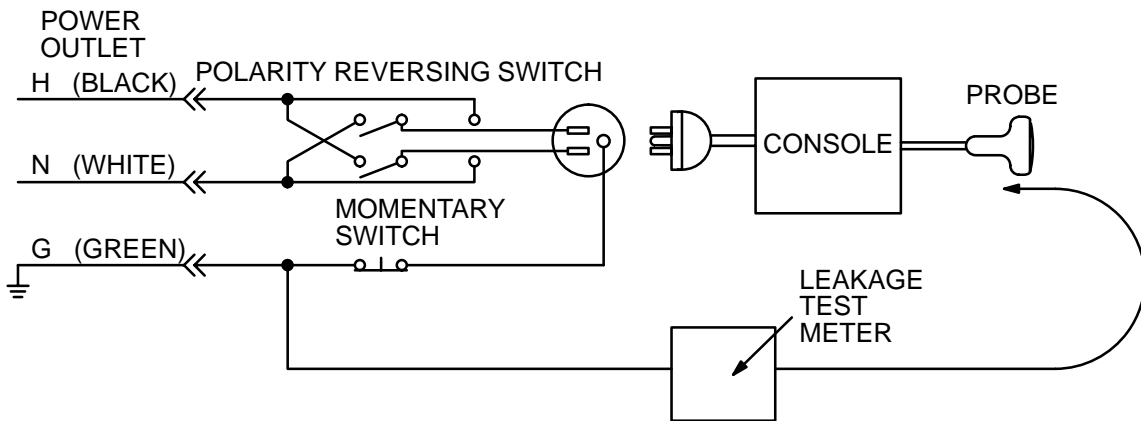
SETUP FOR PROBE LEAKAGE CURRENT
ILLUSTRATION 7–7

Note

Each probe will have some amount of leakage current, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement.

7–3–4 Probe Leakage Current Test (Continued)

Meter Procedure Using Probe Adapter

The Dale 600/600E provides a method for testing probes independently from the system. The meter utilizes a probe adapter to apply a test potential commonly to all connector pins.

The probe's imaging area is immersed in a saline solution along with a grounding probe from the meter to complete the current path. Saline solution is a mixture of water and salt. The salt adds a free ion to the water, making it conductive. Normal saline solution is 0.9% salt or 1/2 gram salt per 1 liter of water. If saline is not available, a mixture of 1 quart water with one or more grams of table salt, mixed thoroughly, will substitute.

{ **CAUTION** }

> **To avoid probe damage and possible electric shock, do not immerse probes into any liquid beyond the level indicated in the probe users manual. Do not touch the probe, conductive liquid or any part of the unit under test while the ISO TEST switch is depressed.**

Follow these steps to test each transducer for leakage current.

1.   Turn the LOGIQ™ 500 unit OFF.

2.   Plug the unit into the test meter, and the meter into the tested AC wall outlet.

3.   Connect the probe for test with the meter's appropriate adapter (Refer to ILLUSTRATION 7–8).

4.   Plug the saline probe into the meter's "CHASSIS" connector (Refer to ILLUSTRATION 7–8).
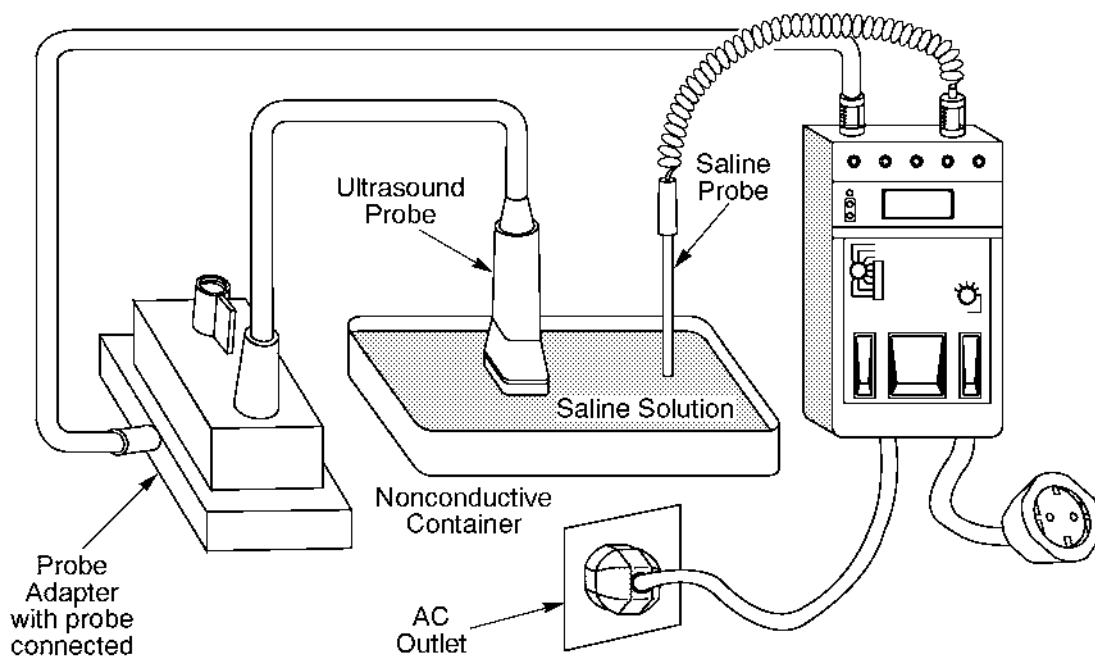
TRANSDUCER SOURCE LEAKAGE CURRENT TEST
ILLUSTRATION 7–8

7–3–4 Probe Leakage Current Test (Continued)

5.   Plug the probe adapter into the meter's connector marked "EXTERNAL" (Refer to ILLUSTRATION 7–8).

6.   Set the meter's "FUNCTION" switch to EXTERNAL position.

7.   Add the saline probe and the imaging area of the probe into the saline bath.

8.   Have unit power ON for the first part; turn it OFF for the second half.

9.   Depress the ISO TEST rocker switch and record the highest current reading.

10. Follow the test conditions described in the following table (TABLE 7–5) for every transducer.

11. Keep a record of the results with other hand copies of PM data.

Meter Procedure

Follow these steps to test each transducer for leakage current.

1.   Turn the LOGIQ™ 500 unit OFF.

2.   Plug the unit into the test meter, and the meter into the tested AC wall outlet.

3.   Plug the external probe into the meter's "EXTERNAL" connector.

4.   Set the meter's "FUNCTION" switch to EXTERNAL position.

5.   Connect the probe for test with the connector of the console.

6.   Apply a liberal amount of gel to the transducer's lens.

7.   Wrap the transducer in aluminum foil, making sure there is good contact with its acoustic aperture.

8.   Either suspend the transducer by its cable or place it on an insulated surface.

9.   Have unit power ON for the first part; turn it OFF for the second half.

10. Hold the external probe against the aluminum foil on the transducer when the unit is ready to scan.

11. Depress the ISO TEST rocker switch and record the highest current reading.

12. Follow the test conditions described in the following table (TABLE 7–5) for every transducer.

13. Keep a record of the results with other hand copies of PM data.

7–3–4   Probe Leakage Current Test (Continued)

Data Sheet for Transducer Source Leakage Current

Follow the foregoing test procedure for every transducer. The test passes when all readings measure less than the value shown in the table below (TABLE 7–4).

TABLE 7–4
MAXIMUM ALLOWANCE LIMIT FOR PROBE LEAKAGE CURRENT

1. Type BF Applied Part Leakage Current Limits
    [Non–conductive (floating) Surface and Cavity Transducers]

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	0.05mA	0.05mA	0.05mA	0.05mA
OTHERS	0.1mA	0.5mA	0.5mA	0.5mA

2. Type CF Applied Part Leakage Current Limits
    [Surgical Transducer and ECG Connections]

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	0.01mA	0.01mA	0.01mA	0.01mA
OTHERS	0.01mA	0.05mA	0.05mA	0.05mA

⦃ CAUTION ⦄

Equipment damage possibility. Never switch the Polarity and the status of Neutral when the unit is powered ON. Be sure to turn the unit power OFF before switching them using the PO-LARITY switch and/or the NEUTRAL switch. Otherwise, the unit may be damaged.

TABLE 7–5
DATA SHEET FOR TRANSDUCER SOURCE LEAKAGE CURRENT

Transducer tested:			
LOGIQ™ 500 Unit Power	**Tester Power POLARITY Switch**	**Tester GROUND or NEUTRAL Switch**	**Measurement**
ON	NORM	OPEN	
ON	NORM	CLOSED	
ON	REV	OPEN	
ON	REV	CLOSED	
OFF	NORM	OPEN	
OFF	NORM	CLOSED	
OFF	REV	OPEN	
OFF	REV	CLOSED	

7–3–5 ECG Leakage Current Test

Definition

This test measures the current which would flow to ground from any of the isolated ECG leads. The meter simulates a patient who is contacted to the monitoring equipment and is grounded by touching some other grounded surface.

Generic Procedure

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the operating controls such as the lead switch should be operated to find the worst case condition.
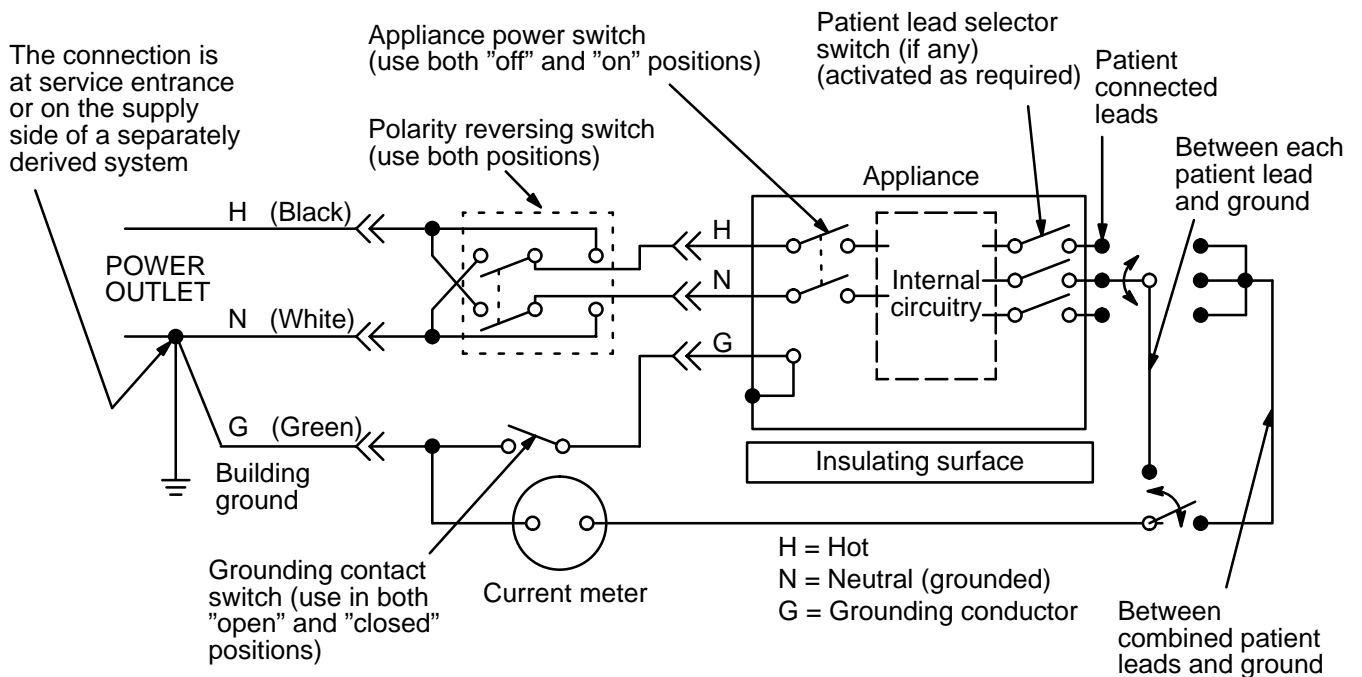
TEST CIRCUIT FOR MEASURING NON–ISOLATED PATIENT LEADS (PROBES & ECG)
ILLUSTRATION 7–9

7–3–5   ECG Leakage Current Test (Continued)

Meter Procedure

The Dale 600/600E provides five snap type ECG buttons for testing patient leads. Snap on all patient leads to the meter and assure that the ground clip is connected to the system's ground terminal.

<div align="center">

⟨ **CAUTION** ⟩

</div>

Line voltage is applied to the ECG leads during this test. To avoid possible electric shock hazard, the system being tested must not be touched by patients, users or anyone while the ISO TEST switch is depressed.

When the meter's ground switch is OPEN, don't touch the unit!

Follow these steps to test the ECG module for leakage current.

1.   Turn the LOGIQ™ 500 unit OFF.

2.   Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 7–10).

3.   Plug the black chassis cable into the meter's "CHASSIS" connector and attach the black chassis cable clamp to an exposed metal part of the LOGIQ™ 500 unit (Refer to ILLUSTRATION 7–10).

4.   Connect the patient leads to the corresponding snaps located at the upper front of the Dale 600/600E. Lead nomenclature for this test is not important (Refer to ILLUSTRATION 7–10).
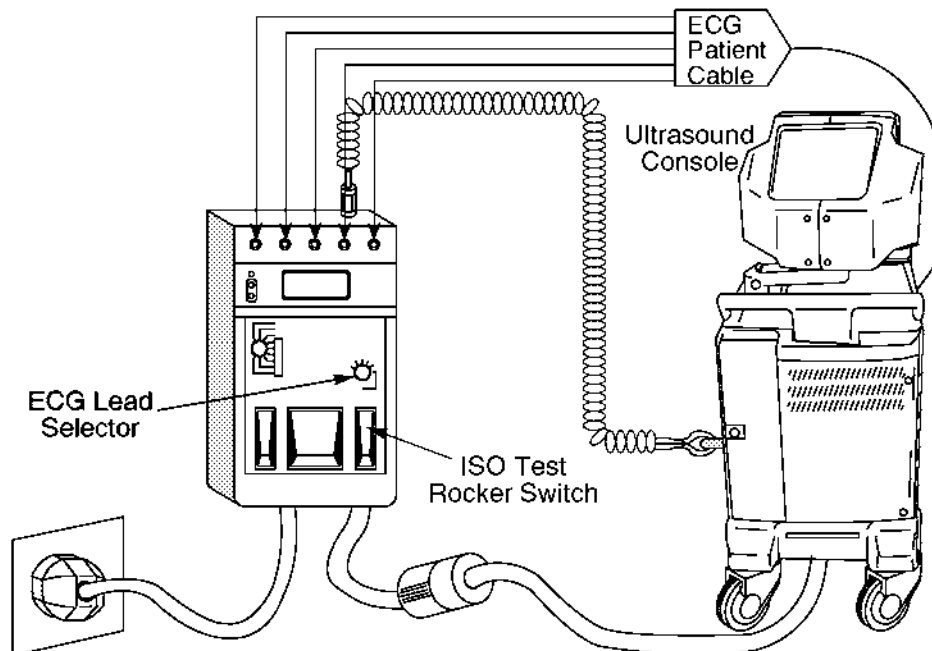
ECG LEAKAGE CURRENT TEST
ILLUSTRATION 7–10

7–3–5   ECG Leakage Current Test (Continued)

5.   Set the meter's "FUNCTION" switch to LEAD TO GROUND position to measure the patient lead to leak-age current.

6.   Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations shown in TABLE 7–6.

TABLE 7–6
TESTING POWER CONDITIONS

ECG Power	Meter's Polarity Switch	Meter's Neutral Switch
ON	NORM	CLOSED
ON	NORM	OPEN
ON	REVERSE	CLOSED
ON	REVERSE	OPEN
OFF	NORM	CLOSED
OFF	NORM	OPEN
OFF	REVERSE	CLOSED
OFF	REVERSE	OPEN

7.   Record the patient lead to ground leakage current measured on the data sheet (Refer to TABLE 7–8).

8.   Set the meter's "FUNCTION" switch to LEAD TO LEAD position to measure the lead to lead leakage current.

9.   Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations shown in TABLE 7–6.

10.   Record the lead to lead leakage current measured on the data sheet (Refer to TABLE 7–8).

11.   Set the meter's "FUNCTION" switch to LEAD ISO position to measure the patient lead isolation current.

12.   Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations shown in TABLE 7–6.

13.   Depress the rocker switch to ISO TEST and read the isolation current. To apply the voltage to the lead safely, the voltage is only applied when the rocker switch is depressed to ISO TEST.

14.   Record the patient lead isolation current measured on the data sheet (Refer to TABLE 7–8).

7–3–5 ECG Leakage Current Test (Continued)

Data Sheet for ECG Leakage Current

Follow the foregoing test procedure. The test passes when all readings measure less than the value shown in the table below (TABLE 7–7).

TABLE 7–7
MAXIMUM ALLOWANCE LIMIT FOR ECG LEAKAGE CURRENT

	AC POWER SOURCE	MAXIMUM ALLOWANCE LIMIT	
		GROUND OPEN	GROUND CLOSED
Patient Lead to Ground Leakage Current Test and **Patient Lead to Lead Leakage Current Test**	115V	10 µA	10 µA
	220/240V	500 µA	10 µA

	AC POWER SOURCE	MAXIMUM ALLOWANCE LIMIT
Patient Lead Isolation Current Test	115V	20 µA
	220/240V	5mA

```
CAUTION
```

Equipment damage possibility. Never switch the Polarity when the unit is powered ON. Be sure to turn the unit power OFF before switching the polarity using the POLARITY switch. Otherwise, the unit may be damaged.

TABLE 7–8
DATA SHEET FOR ECG LEAKAGE CURRENT

Patient Lead Isolation Current Test

Patient Lead to Lead Leakage Current Test

Patient Lead to Ground Leakage Current Test

ECG Power	Tester Polarity Switch	Tester GROUND Switch	Tester Lead Selector				
			RL	RA	LA	LL	C
ON	NORM	CLOSED					
ON	REVERSE	CLOSED					
ON	NORM	OPEN					
ON	REVERSE	OPEN					
OFF	NORM	CLOSED					
OFF	REVERSE	CLOSED					
OFF	NORM	OPEN					
OFF	REVERSE	OPEN					

7–3–6 When There's Too Much Leakage Current...

Chassis Fails

Check the ground on the power cord and plug for continuity. Ensure the ground is not broken, frayed, or intermittent. Replace any defective part.

Tighten all grounds. Ensure star washers are under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Test the wall outlet; verify it is grounded. Notify the user or owner to correct any deviations. As a work around, check the other outlets to see if they could be used instead.

Note

No outlet tester can detect the condition where the white neutral wire and the green grounding wire are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

Probe Fails

Test the probe in another transducer interface connector.

If excessive leakage current is slot dependent, inspect the Transducer Interface board for bent pins, poor connections, and ground continuity.

If the problem still has stayed with the probe, replace the probe.

Peripheral Fails

Tighten all grounds. Ensure star washers are under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Still Fails

If all else fails, begin isolation by removing the probes, external peripherals, then the on board ones, one at a time while monitoring the leakage current measurement.

New Unit

If the leakage current measurement tests fail on a new unit and if situation can not be corrected, submit a Safety Failure Report to document the system problem. Remove unit from operation.

CHAPTER 8 – INSTALLATION FOR OPTIONS

TABLE OF CONTENTS

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8–1   INTRODUCTION

This chapter is provided to keep option installation instructions. Keep the option installation instructions on this chapter after completing installation for options.

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