



GE Medical Systems

Technical Publications

P9030GX

Revision 25

RTfino/RT3200 Advantage–II/RT–x200 Service Manual

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Operating Documentation

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WARNING

- THIS SERVICE MANUAL IS AVAILABLE IN ENGLISH ONLY.
- IF A CUSTOMER'S SERVICE PROVIDER REQUIRES A LANGUAGE OTHER THAN ENGLISH, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.
- DO NOT ATTEMPT TO SERVICE THE EQUIPMENT UNLESS THIS SERVICE MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.
- FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR OR PATIENT FROM ELECTRIC SHOCK, MECHANICAL OR OTHER HAZARDS.

AVERTISSEMENT

- CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENTION SUR LES ÉQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ÉTÉ CONSULTÉ ET COMPRIS.
- LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÎNER CHEZ LE TECHNICIEN, L'OPÉRATEUR OU LE PATIENT DES BLESSURES DUES À DES DANGERS ÉLECTRIQUES, MÉCANIQUES OU AUTRES.

WARNUNG

- DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.
- FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
- VERSUCHEN SIE NICHT, DAS GERÄT ZU REPARIEREN, BEVOR DIESES KUNDENDIENST-HANDBUCH NICHT ZU RATE GEZOGEN UND VERSTANDEN WURDE.
- WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE SCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

AVISO

- ESTE MANUAL DE SERVICIO SÓLO EXISTE EN INGLÉS.
- SI ALGÚN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCIÓN.
- NO SE DEBERÁ DAR SERVICIO TÉCNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.
- LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.

ATENÇÃO

- ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.
- SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEMS, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.
- NÃO TENTE REPARAR O EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO ESTE MANUAL DE ASSISTÊNCIA TÉCNICA.
- O NÃO CUMPRIMENTO DESTE AVISO PODE POR EM PERIGO A SEGURANÇA DO TÉCNICO, OPERADOR OU PACIENTE DEVIDO A' CHOQUES ELÉTRICOS, MECÂNICOS OU OUTROS.

AVVERTENZA

- IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLTANTO IN INGLESE.
- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE È TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.
- SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO.
- NON TENERE CONTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

警告

- ・このサービスマニュアルには英語版しかありません。
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注意:

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- 忽略本注意事项会对维修员，操作员或病人造成触电，机械伤害或其他伤害。

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0	Feb. 14, 1991	Initial Release.
1	Feb. 20, 1991	
2	Feb. 27, 1991	
3	Jun. 21, 1991	
4	Aug. 23, 1991	
5	Dec. 12, 1991	
6	Mar. 3, 1992	
7	Mar. 18, 1992	
8	May 25, 1992	
9	Aug. 26, 1992	
10	Dec. 1, 1992	
11	Dec. 29, 1992	CRT monitor is mounted onto the system as one unit shipping
12	Feb. 18, 1993	Style C (version 3) Console for Asia
13	Apr. 23, 1993	Style C (version 3) Console for America and Europe
14	Aug. 20, 1993	Style D (version 4) Console
15	Nov. 25, 1993	TRC board modification for Europe (console P9515CG) and VDO Board modification for America
16	Feb. 10, 1994	Additional of the rating plate for the console made in India
17	June. 15, 1994	Style E (version 5) Console
18	July. 26, 1994	Part number correction
19	Aug. 11, 1994	Part number correction
20	Oct. 1, 1994	Part number correction
21	Jan. 17, 1995	Addition of leakage current measurement procedure
22	Jun. 2, 1995	Part number correction and Additional descriptions for Japanese console
23	Dec. 4, 1995	Additional descriptions for EMC, peripherals and others
24	July 15, 1996	Style F (Version 6) Console
25	Aug. 19, 1998	Additional descriptions for new parts and error correction

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1-1 SERVICE MANUAL CONTENTS

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

1. **Chapter 2, Preinstallation:** Contains physical and electrical requirements that should be considered prior to installation;
2. **Chapter 3, Installation and Replacement:** Contains a complete installation procedure with checklist;
3. **Chapter 4, Functional Checks:** Contains functional checks that should be performed as part of the installation, or as required during servicing and periodic maintenance;
4. **Chapter 5, Theory of Operation:** Contains functional explanations of the RTfino/RT3200 Advantage-II/RT-x200 electronics;
5. **Chapter 6, Service Adjustments:** Contains adjustment procedures for all field adjustable RTfino/RT3200 Advantage-II/RT-x200 potentiometers and other adjustable elements;
6. **Chapter 7, Schematics:** Contains copies of the RTfino/RT3200 Advantage-II/RT-x200 schematics;
7. **Chapter 8, Diagnostics:** Contains troubleshooting information for the analog and digital sections of the RTfino/RT3200 Advantage-II/RT-x200;
8. **Chapter 9, Parts List:** Contains a complete list of replacement parts for the RTfino/RT3200 Advantage-II/RT-x200;
9. **Chapter 10, Periodic Maintenance:** Provides periodic maintenance procedures for the RTfino/RT3200 Advantage-II/RT-x200.
10. **Chapter 11, Option Manuals:** Provides option manuals for the RTfino/RT3200 Advantage-II/RT-x200.

1-2 SAFETY

1-2-1 Warnings



WARNING!

CAREFULLY READ ALL THE WARNINGS LISTED BELOW!

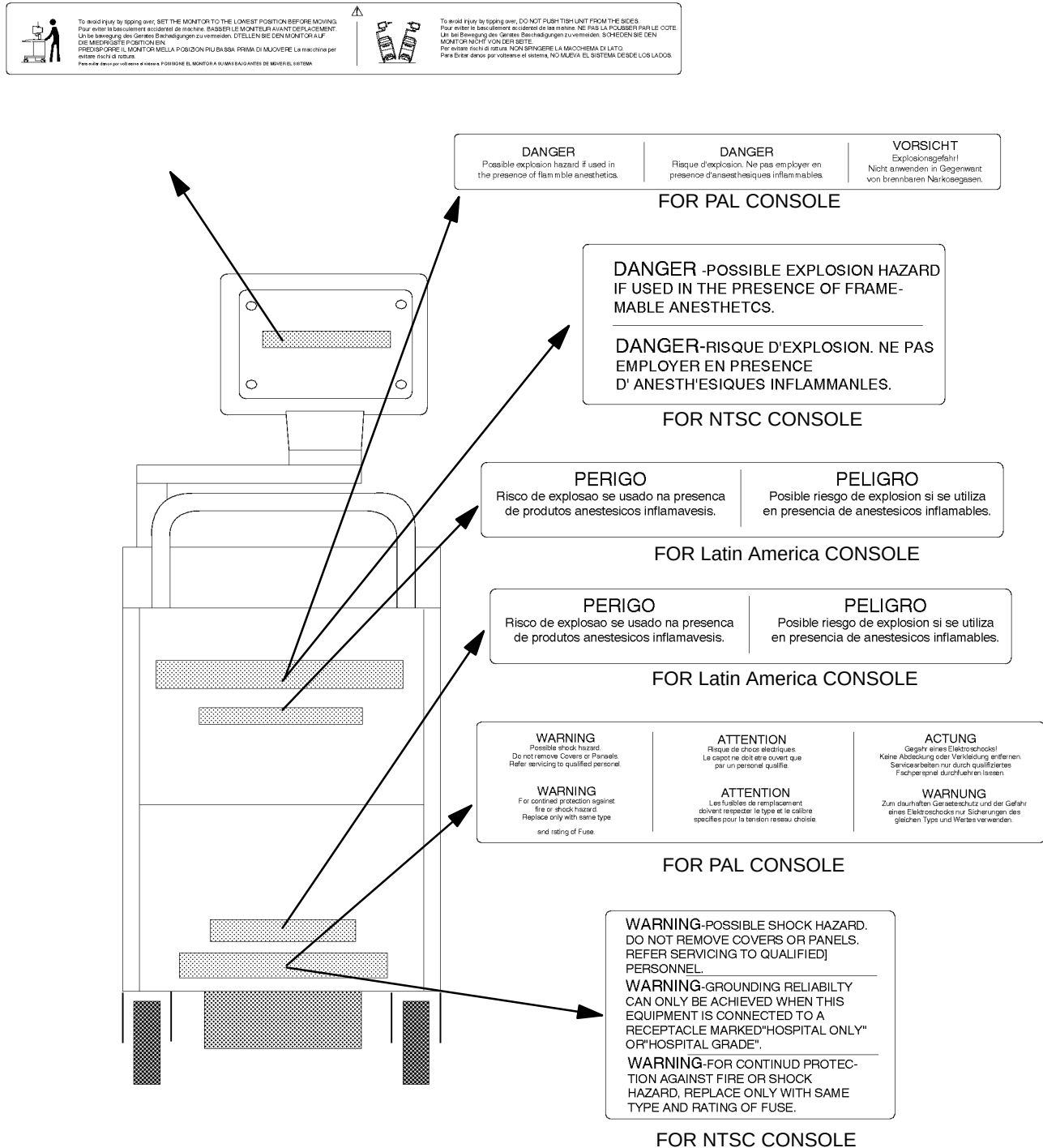
1. The operator manual should be fully read and understood before operating the RTfino/RT3200 Advantage-II/RT-x200 and kept nearby for quick reference.
2. Although the ultrasound energy transmitted from the RTfino/RT3200 Advantage-II/RT-x200 transducer is within AIUM/NEMA standards, unnecessary exposure should be avoided. Only trained personnel should operate the RTfino/RT3200 Advantage-II/RT-x200.
3. To prevent electrical shock, the RTfino/RT3200 Advantage-II/RT-x200 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 RTfino/RT3200 Advantage-II/RT-x200 is operated .
5. Probes are fragile, handle with care.
6. Concerning Outside Markings, refer to Illustrations 1-1 and 1-2.
7. For the cleaning, disinfection, and sterilization, refer to Probe section in RTfino/RT3200 Advantage-II/RT-x200 User Manual and Caution Sheet supplied with each probe.

NOTICE

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.

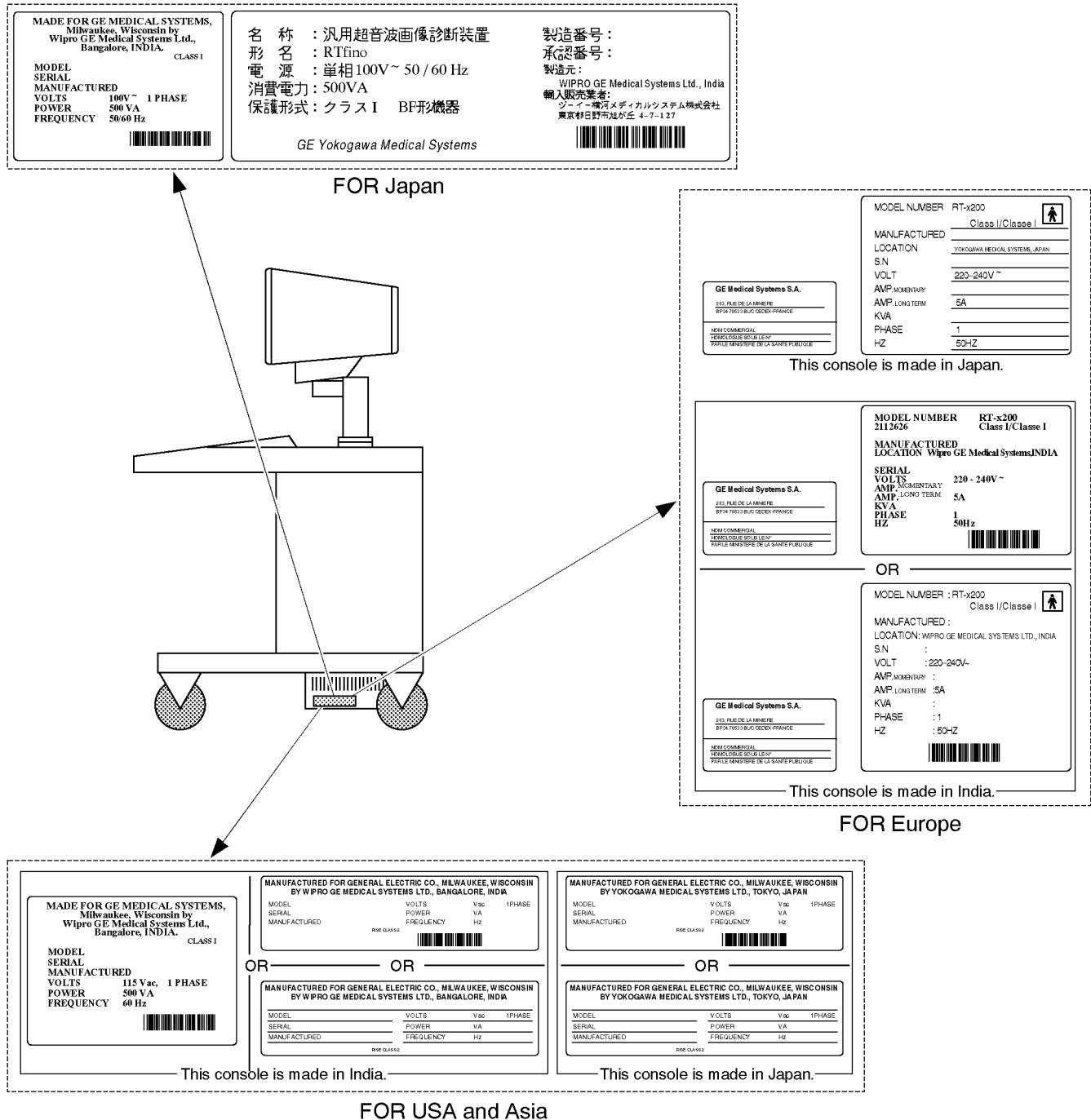
1-2-1 Warnings (Continued)



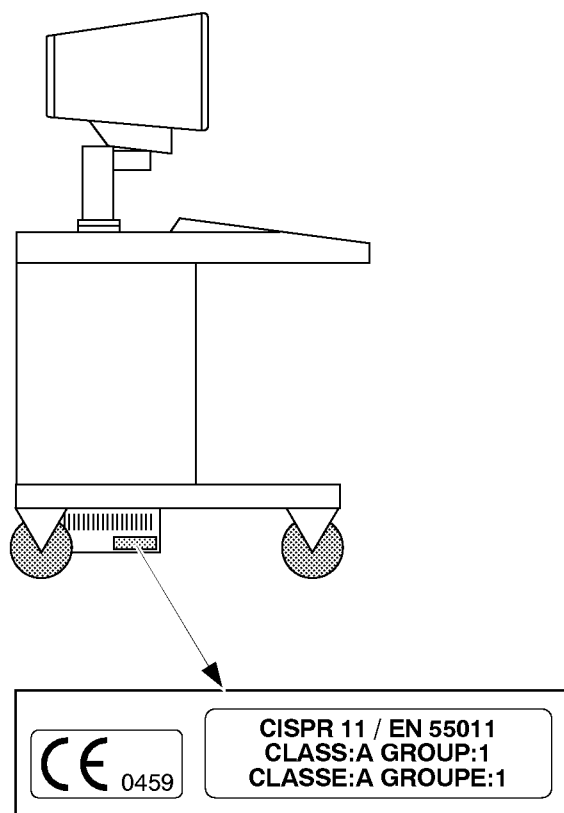
REAR SIDE MARKINGS OF RTfino/RT3200 Advantage-II/RT-x200

ILLUSTRATION 1-1

1-2-1 Warnings (Continued)



RIGHT SIDE MARKINGS OF RTfino/RT3200 Advantage-II/RT-x200
ILLUSTRATION 1-2

1-2-1 Warnings (Continued)

LEFT SIDE MARKINGS OF RT-x200
ILLUSTRATION 1-3

Note

The labels indicated in ILLUSTRATION 1-3 are attached onto the RT-x200 from 1996, January shipment.

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.	
	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
Device Listing/Certification Labels	Laboratory logo or labels denoting conformance with industry safety standards such as UL or IEC.	Rear of console
"DANGER – Risk of explosion used in..."	The system is not designed for use with flammable anesthetic gases.	Rear of console
	• "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
	• "Mains OFF" Indicates the power off position of the mains power switch.	Adjacent to On–Off Switch
	• "Mains ON" Indicates the power on position of the mains power switch.	Adjacent to On–Off Switch
	• "Protective Earth" Indicates the protective earth (grounding) terminal.	Various

1-2-2 Specifications

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

Degree of protection against electric shock : Type BF EQUIPMENT *2

Power source voltage

:US : 115V ~ ±10%

:Europe : 220-240V ~ ±10%

:Far East : 100V ~ ±10%

Line Frequency : 50/60Hz (±2Hz)

***1. Class 1 EQUIPMENT**

EQUIPMENT in which protection against electric shock does not rely on BASIC INSULATION only, but which includes an additional safety precaution in such a way that means are provided for the connection of ACCESSIBLE CONDUCTIVE PARTS to the PROTECTIVE(EARTH) CONDUCTOR in the fixed wiring of the installation in such a way that ACCESSIBLE CONDUCTIVE PARTS cannot become LIVE in the event of a failure of the BASIC INSULATION.

***2. Type BF EQUIPMENT**

Type B EQUIPMENT with a F-TYPE isolated applied part providing a degree of protection against electric shock to such a degree that the allowable PATIENT LEAKAGE CURRENT under SINGLE FAULT CONDITIONS is not exceeded when 1.1 times the highest rated MAINS VOLTAGE is applied between the APPLIED PART and earth.

— allowable LEAKAGE CURRENT;

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

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.

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 Chapter3, INSTALLATION.

1-3-3 General Notice

1) Designation of Peripheral Equipment Connectable to This Product

The equipment which conforms to EN60601-1-2 (IEC601-1-2), can be hooked up to the product without compromising its EMC performance.

Avoid using non-standardized 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 provide to the Service Engineer as needed):

GE Medical Systems

Ultrasound Business Group
4855 W. Electric Ave., Milwaukee, WI 53219
USA
TEL: (1) 800-437-1171
FAX: (1) 414-647-4090

CANADA

TEL: (1) 800-668-0732

LATIN & SOUTH AMERICA

TEL: (1) 305-735-2304

GE Medical Systems Europe

Ultrasound Business Division
283 rue de la miniere
BP 34
78533 BUC CEDEX
FRANCE
TEL: (33) (1) 30.70.40.40
FAX: (33) (1) 30.70.42.50

GE YOKOGAWA MEDICAL SYSTEMS

Ultrasound Group
7 -127 Asahigaoka 4-Chome, Hino-Shi, Tokyo, 191
JAPAN
TEL: (81) 426-56-0014
FAX: (81) 426-56-0002

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2-1 FOREWORD

This chapter describes various general electrical, operational, and environmental considerations that should be considered before installing the RTfino/RT3200 Advantage-II/RT-x200 Ultrasound Unit.

2-2 GENERAL DESCRIPTION

This unit is an ultrasound scanner designed to aid the physician in diagnosing diseases. See Illustration 2-1 for a pictorial view of the machine.

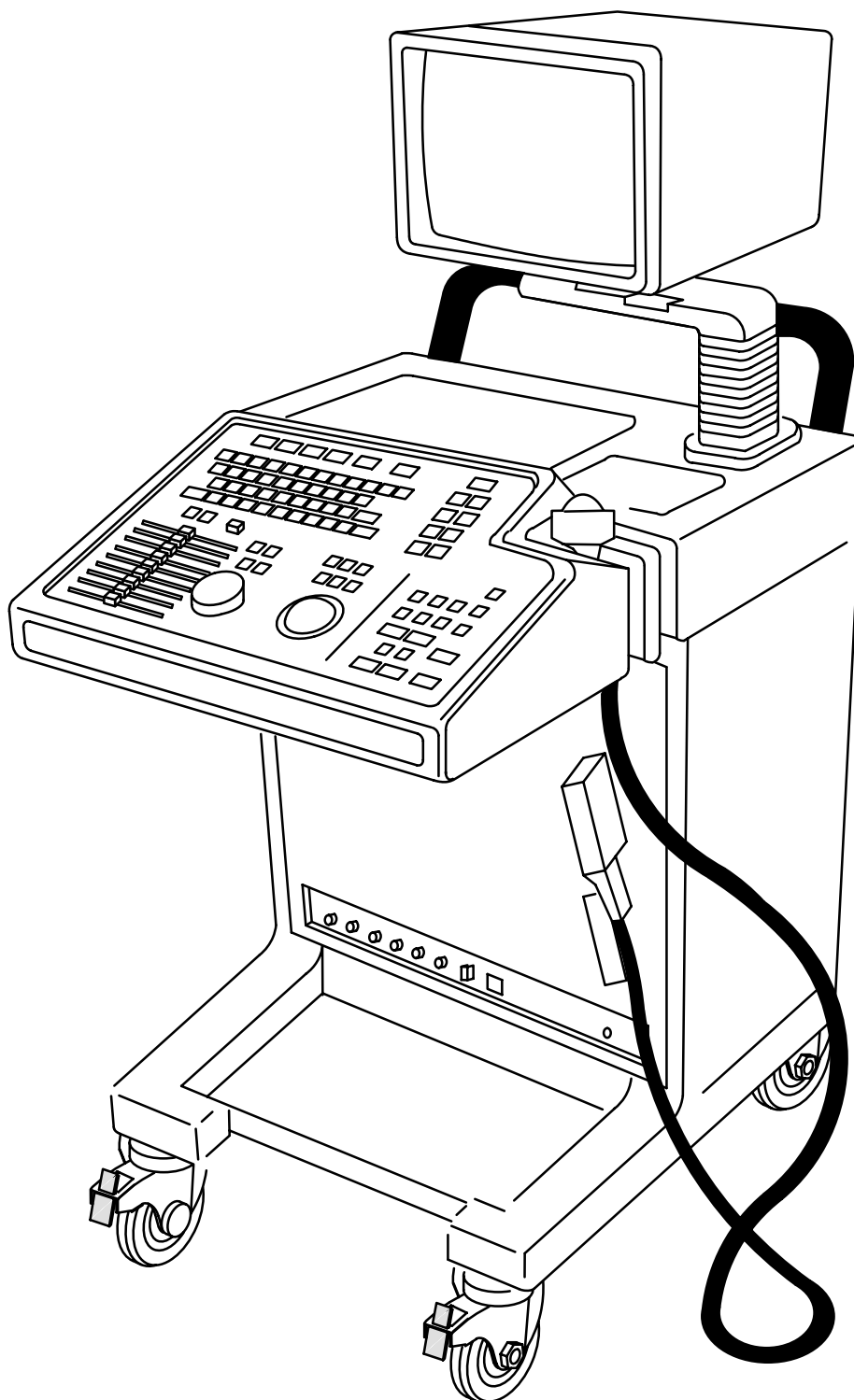
2-2-1 Ultrasound Imaging

This unit allows the physician to “see into” the patient’s body, using high frequency ultrasound imaging. When the physician places the transducer on a patient’s skin, acoustic pulses are transmitted into the body, reflected, and returned to the transducer. These returns, called echoes, are processed, amplified, and projected on a video monitor to form an image of the area scanned in the patient’s body.

2-2-2 Imaging Functions

All necessary imaging functions are performed by this console and its transducers. The console front panel contains operator controls for optimizing the image and a keyboard for entering data onto the image. Selected key LEDs illuminate when their respective key is pressed. Unacceptable keyboard entries trigger a beeper alarm. In addition, a graphics controller central processing unit automatically superimposes certain machine parameters over the edges of the image.

2-2-2 Imaging Functions (continued)



RTfino/RT3200 Advantage-II/RT-x200 PICTORIAL VIEW
ILLUSTRATION 2-1

2-3 ELECTRICAL SPECIFICATIONS

Electrical conduit, junction boxes, outlets, circuit breakers, and switches should be in place before installing this Console. It is customer's responsibility to ensure proper environmental and electrical Power Requirements are satisfied prior to installation.

2-3-1 Power Supply

This unit operates on 115 or 220 VAC, single phase, 50/60 Hz power. Maximum current drawn is 5.0 amps at 120 VAC, and 2.0 amps at 220/240 VAC. The 115 VAC main circuit breaker is rated at 15A; the 220/240 VAC version at 10A. Voltage setup is performed in the factory, because different rear panels containing different power cables and circuit breakers are used for the 115 VAC and 220 VAC versions.

2-3-2 Leakage Current

Total ground leakage from any exposed conductive surface to ground is less than 100 microamps (For UL 544). Total ground leakage is less than 500 microamps (For 220V). Patient leakage current is less than 10 microamps. (These parameters are checked during installation). This unit is classified as Class I, type BF equipment in accordance with IEC-601-1.

2-3-3 Power Line Requirements

The following power line parameters should be monitored for one week before installation. We recommend that a Dranetz Model 605-3 Power Line Monitor with option 101 be used:

PARAMETER	:	LIMITS
Voltage Range	: U.S.	: 103-127 VAC
	: Europe	: 206-254 VAC
	: Far East	: 90-110 VAC
Power	: U.S.	: MAX. 500 VA
	: Europe	: MAX. 500 VA
	: Far East	: MAX. 500 VA
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.	

2-3-4 Transient Protection

If testing indicates excessive transients occur, we recommend that a transient suppressor be installed, such as the Isolatrol Model LAI-115 made by Control Concept Corporation.

2-3-5 Facility Power Receptacle

A separate power outlet with a 15 amp circuit breaker for 115 VAC units, or a 10 amp circuit breaker for 220 VAC units, is recommended. The specific power receptacle used depends on your country's power line standards.

For U.S. applications, use an Underwriters Laboratory (UL) approved Hospital Grade receptacle. For Canadian applications, the receptacle should be approved by the Canadian Standards Association (CSA). For other countries, the receptacle should have International Electrotechnical Commission (IEC) approval.

2-4 PHYSICAL SPECIFICATIONS

The RTfino/RT3200 Advantage-II/RT-x200 (excluding accessories) weighs 86 kg (190 lbs). See Illustration 2-2 for dimensions.

2-4-1 Operating Conditions

This unit is designed to operate within a temperature range of 50 degrees F to 104 degrees F (15.6 degrees C to 40 degrees C), and a relative humidity range of 30 % to 75 %. (Non-condensing).

Patient Comfort

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

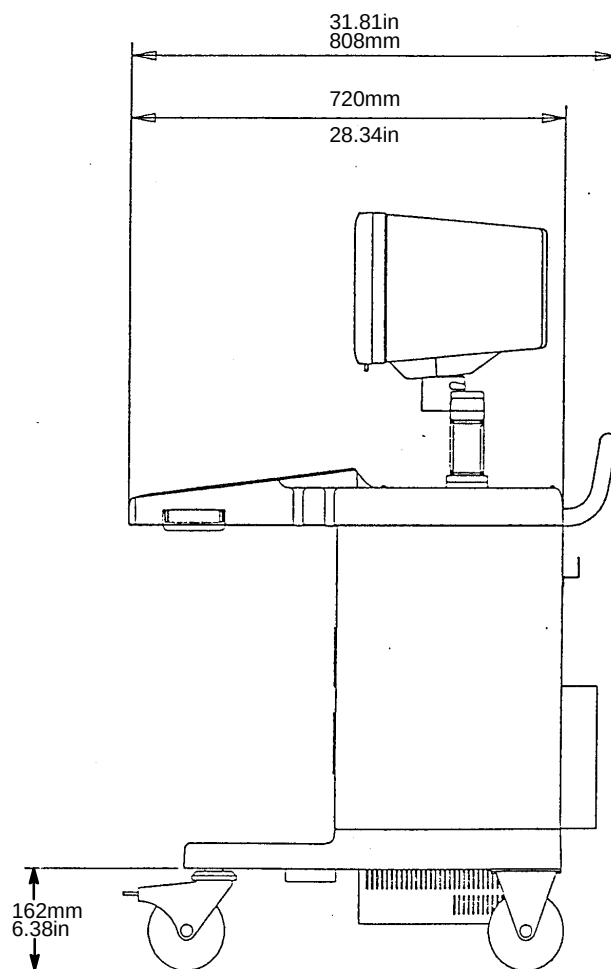
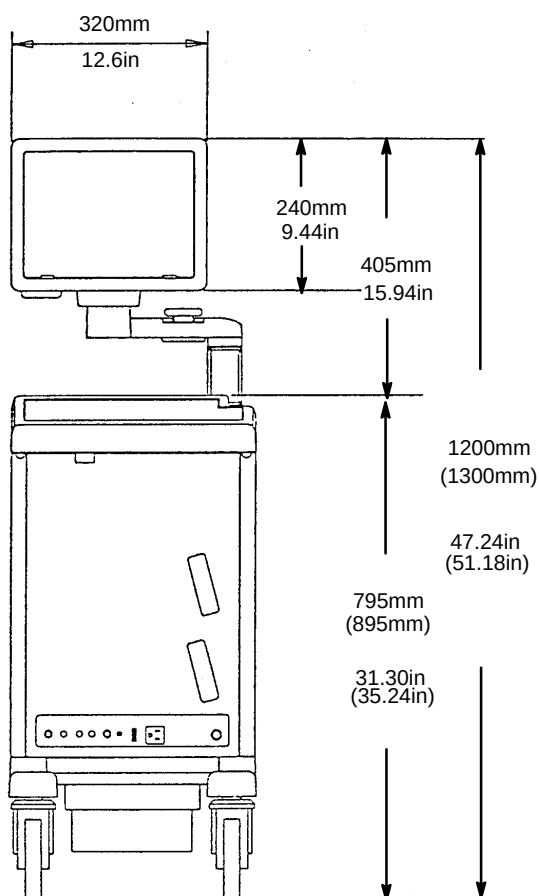
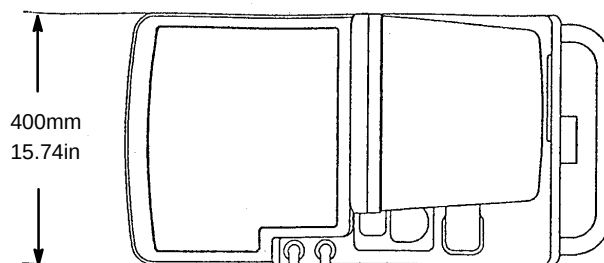
Electromagnetic Interference (EMI)

In general, the maximum EMI noise Field Strength Intensity should be no more than 100 dB uV/m within the 10 kHz to 100 MHz frequency range, as measured three meters from the this unit. If there is reason for concern, we recommend that you measure EMI using a spectrum analyzer.

1. EMI sources should be located and their effects minimized. These noise sources include microwave ovens, certain types of electronic surgical equipment, and digital equipment such as desk top computers and terminals, gel warmers, and AM radio broadcast sources.
2. Keep the unit at least 15 feet (approximately five meters) away from the above noise sources; preferably in another room since wood or plaster walls, doors, floors, and ceilings provide some EMI shielding. Special EMI shielding may be required to eliminate noise problems caused by high frequency, high powered radio or video broadcast signals.

WEIGHT 86 kg (89 kg)

190 lbs (196 lbs)



NOTE:

MEASUREMENTS IN PARENTHESES REFERS TO TALL MODEL.

RTfino/RT3200 Advantage-II/RT-x200 DIMENSIONS

ILLUSTRATION 2-2

2-4-2 Shipping and Storage Requirements

This unit excluding PROBES is shipped in a single container. Dimension of two types of models, namely Short and Tall,,are given below.

TABLE 2-1
SHIPPING REQUIREMENTS

MODEL TYPE	WEIGHT kg (lbs)	DIMENSION (cm)
Short	Monitor Container = 12.5 kg (27.5)	49 x 45 x 43
	Console Container = 98 kg (215.6)	53 x 94 x 120
Tall	Monitor Container = 12.5 kg (27.5)	49 x 45 x 43
	Console Container = 100 kg (220)	53 x 94 x 130

Table 2-2 provides a summary of temperature, atmospheric pressure, and humidity tolerances for shipping and operation:

TABLE 2-2
STORAGE AND OPERATION REQUIREMENTS

PARAMETER	STORAGE	OPERATION
TEMPERATURE (DEG.C) (DEG.F)	0 to 50 32 to 122	10 to 40 50 to 104
ATMOSPHERIC PRESSURE (hPa)	700 to 1060	700 to 1060
HUMIDITY (%) (Non-condensing)	10 to 85	30 to 75

2-5 RECOMMENDED ULTRASOUND ROOM LAYOUT

Table 2-3 provides the requirements for an ultrasound room:

TABLE 2-3
ULTRASOUND ROOM REQUIREMENTS

MIN. FLOOR AREA	130 SQ FT (12 SQ M)
POWER SOURCE	115VAC, 60HZ or 220VAC, 50HZ, SINGLE PHASE
CURRENT RATING	15A (115V) ; 10A (220V) CIRCUIT BREAKER
RADIATION SHIELDING	NONE REQUIRED for ULTRASOUND ENERGY
TEMPERATURE	68–79 DEG F (20–26 DEG. C) for PATIENT COMFORT
HUMIDITY	50% to 70% for PATIENT COMFORT
HEAT DISSIPATION	650 BTU/Hr for RTfino/RT3200 Advantage-II/RT-x200 ; 300 BTU/Hr per PERSON
FLOOR LOADING	about 2.4 kg/cm ² /wheel

2-5-1 Floor Loading

The floor must be capable of supporting the RTfino/RT3200 Advantage-II/RT-x200 Console, which weighs more than 86kg(190lbs), depending on options added. The floor load is approximately 2.4kg/cm²/wheel.

2-6 PERIPHERALS/ACCESSORIES CONNECTOR PANEL

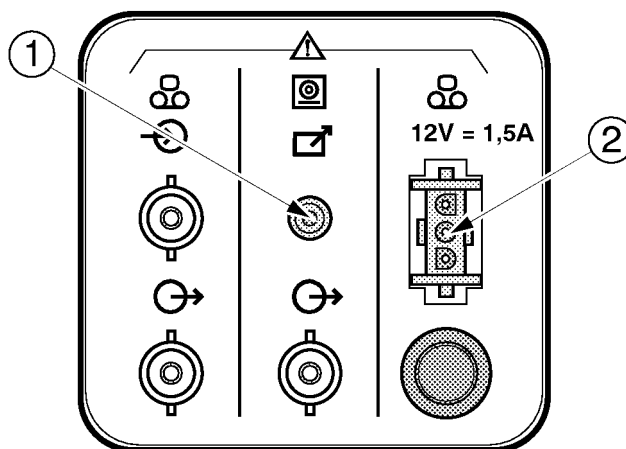
RTfino/RT3200 Advantage-II/RT-x200 peripherals and accessories can be properly connected using the upper and lower connector panels.

The video input/output connectors, audio input/output connectors, camera expose connectors, foot switch connector, and power outlet connectors for peripherals are located on the upper and lower panels.

This section indicates the pin assignment for each connector (①–④ in ILLUSTRATION 2-3 and ILLUSTRATION 2-4) on pages 2-11 through 2-12.

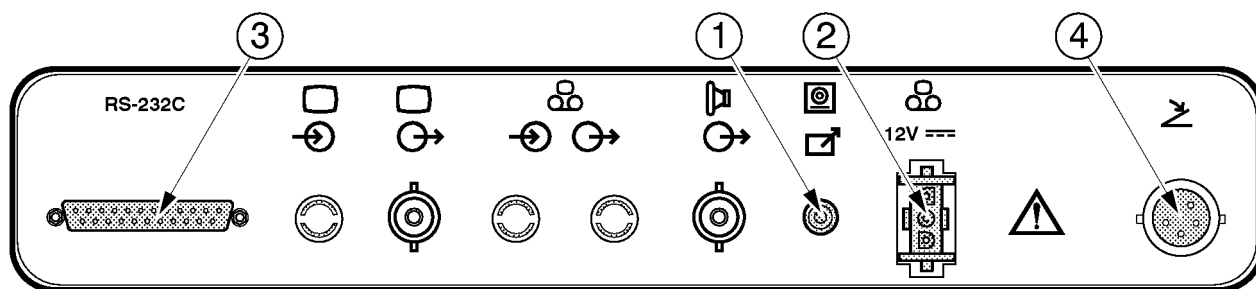
Note

The following illustrations show the example of RT-x200 upper and lower connector panels. There are some differences depending on the model. For the connector specifications of other models, contact your service support center.



UPPER CONNECTOR PANEL

ILLUSTRATION 2-3



LOWER CONNECTOR PANEL

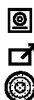
ILLUSTRATION 2-4

2-6 PERIPHERALS/ACCESSORIES CONNECTOR PANEL (Continued)**Note**

Each outer (case) ground line of peripheral/accessory connectors are protectively grounded.
Signal ground lines are Not Isolated.

① Pin Assignment of Mini Jack

Connector: Stereo Mini Jack



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

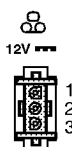
*2: Camera starts printing by receiving the LOW pulse more than 100ms.

Note

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

② Pin Assignment of 12Vdc

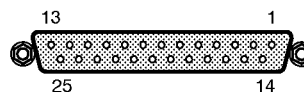
Connector: Maintain Lock 3-pin



Pin No.	Output Signal
1	SG
2	12Vdc
3	FG

2-6 PERIPHERALS/ACCESSORIES CONNECTOR PANEL (Continued)

③ Pin Assignment of RS232C

Connector: Female, D-SUB, 25-pin

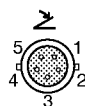
Pin No.	Signal	Pin No.	Signal
1	GND S0	14	
2	TXD	15	
3	RXD	16	
4	DSR	17	
5	DTR	18	
6	RTS	19	
7	GND S1	20	CTS
8	DCD	21	
9		22	RI
10		23	
11		24	
12		25	
13			

Note

Output level of RS232C signals:

High	+3V to +15V
Low	-15V to 0V

④ Pin Assignment of Connector for Foot Switch

Connector: Round 5-pin connector

Pin No.	Output Signal
1	TTL
2	SG
3	SG
4	SG
5	SG

Note

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

2-7 OPTIONAL PERIPHERALS

2-7-1 Probes

1. Probes applied to CE Mark:

TABLE 2-4
LIST OF TRANSDUCERS (a)

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	PART No.	NOTE
A	PBT	ABDOMINAL	LINEAR	H4061A	B9714AK B9714AA	
B	PBT	ABDOMINAL	LINEAR	H4061B	B9714AL B9714AJ	
D	PES	ABDOMINAL	LINEAR	H4061D	B9714AN B9714AD	With Probe Adapter
E	PBT	ABDOMINAL	LINEAR	H4061E	B9714AP B9714AE	
H	PBT	SUPERFICIAL	LINEAR	H4061H	B9714AS B9714AH	
LP	PES	SUPERFICIAL	LINEAR	H45202LP	P9601AP P9601AN	
CA	PES	ABDOMINAL	CONVEX	H4061CA	B9719AN B9719AE	
CB	PES	ABDOMINAL	CONVEX	H4061CB	B9719AL B9719AC	
CTV	ABS	INTRACABILITY	CONVEX	H4061TV	46-285221G1 B9719UM	
S	PES	ABDOMINAL	CONVEX	H40612S	B9719AR B9719AQ	
TRR7	ABS	INTRACABILITY	CONVEX	H4061TR	46-285515G1 2118380	
ATF (SH)	ABS	INTRACABILITY	CONVEX	H44201TT	2114530 2118378	
ATF (BH)	ABS	INTRACABILITY	CONVEX	H44201BH	2101125 2118505	
Wide MZ	PES	INTRACABILITY	CONVEX	H45202FM	2120311 2120310	
Wide CK	PES	ABDOMINAL	CONVEX	H45202FK	2120305 2120304	For V5 and V6 Console 

Note

Probes whose part number are indicated by “”, are applied to CE Mark.

Note

Some probes on the above list 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.

2-7-1 Probes (Continued)

2. Other Probes:

TABLE 2-5
LIST OF TRANSDUCERS (b)

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	PART No.	NOTE
C	PBT	ABDOMINAL	LINEAR	H4061C	B9714AM B9714AC	
F	PBT	INTRAOPERATION	LINEAR	H4061F	B9714AQ B9714AF	With Probe Adapter
G	PBT	INTRACABILITY	LINEAR	H4061G	B9714AR B9714AG	With Probe Adapter
I	PBT	INTRAOPERATION	LINEAR	H4061I	B9719AJ B9719AA	With Probe Adapter
J	PBT	INTRAOPERATION	LINEAR	H4061J	B9719AK B9719AB	With Probe Adapter
SB(L)	PVDF	INTRAOPERATION	LINEAR	H44201SB	45310649	
CC	PES	ABDOMINAL	CONVEX	H4061CC	B9719AM B9719AD	
ATV	ABS	INTRACABILITY	CONVEX	H44201AT	46-285644G1	
SV	ABS	INTRACABILITY	CONVEX	H4061SV	46-285499G1	
ATRR7	NORYL	INTRACABILITY	CONVEX	H4061RA	46-285613G1	
MZ	PES	INTRACABILITY	CONVEX	H45022MZ	B9719AV B9719AU	
CK	PES	ABDOMINAL	CONVEX	H45202CK	P9603AV P9603AC	For V1, V2, V3, and V4 console
CD	PVDF	NEONETAL	CONVEX	H44201CD	45310651	

Note

Some probes on the above list 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.

3. Probe Adapters applied to CE Mark:

TABLE 2-6
LIST OF PROBE ADAPTERS (a)

PROBE NAME	DESCRIPTION	PART NO. FOR JAPAN	PART NO. FOR OTHERS	CATALOG NO.
D	Probe only	B9714GS	B9714GT	—
	Probe + Adapter	B9714AD	B9714AN	H4061D
	Adapter only	B9714GC	B9714GD	—
	Probe + Adapter + Attachment	P9515PA	P9515QA	H45052E
	Adapter + Attachment	P9515PJ	P9515QJ	H45062F

Note

Probes whose part number are indicated by " ", are applied to CE Mark.

2-7-1 Probes (Continued)

4. Other Probe Adapters:

TABLE 2-7
LIST OF PROBE ADAPTERS (b)

PROBE NAME	DESCRIPTION	PART NO. FOR JAPAN	PART NO. FOR OTHERS	CATALOG NO.
F	Probe only	B9714HS	B9714HT	—
	Probe + Adapter	B9714AF	B9714AQ	H4061F
	Adapter only	B9714HC	B9714HD	—
	Probe + Adapter + Attachment	P9515PB	P9515QB	H45072G
	Adapter + Attachment	P9515PK	P9515QK	H45082H
G	Probe only	B9714JS	B9714JT	—
	Probe + Adapter	B9714AG	B9714AR	H4061G
	Adapter only	B9714JC	B9714JD	—
	Probe + Adapter + Attachment	P9515PC	P9515QC	H45042D
	Adapter + Attachment	P9515PL	P9515QL	H45032C
I	Probe only	B9719AA	B9719AJ	—
	Probe + Adapter	B9719JV	—	—
	Probe + Adapter + Attachment	P9515PD	P9515QD	H45092J
J	Probe only	B9719AB	B9719AK	—
	Probe + Adapter	B9719JW	—	—
	Probe + Adapter + Attachment	P9515PE	P9515QE	H45022B
I, J	Adapter only	B9714LC	B9714LD	—
	Adapter + Attachment	P9515PM	P9515QM	H45012A

2-7-2 Recording Devices

1. Devices:

The following recording devices are suggested to connect with RT-x200.

TABLE 2-8
LIST OF RECORDING DEVICES

DEVICE	MANUFACTURER	MODEL	VIDEO SIGNAL
Video Cassette Recorder	SONY	SVO-9500MDP	PAL
Video Graphic Printer	SONY	UP890CE	PAL

2-7-2 Recording Devices (Continued)

2. Power Consumption:

The table 2-9 shows the power consumption of each optional peripheral for RTfino/RT3200 Advantage-II/RT-x200.

TABLE 2-9
POWER CONSUMPTION OF OPTIONAL RECORDING DEVICES

DEVICE	MODEL	POWER CONSUMPTION
Video Cassette Recorder	SVO-9500MDP	64W
B/W Video Printer	UP890CE	110W

2-7-3 Connecting Cables



Equipment damage possibility. Be sure to use the following recommended connecting cables to connect recording devices with RTfino/RT3200 Advantage-II/RT-x200 console.

TABLE 2-10
LIST OF CONNECTING CABLES

NAME	PART NO.	FIGURE	NOTE
POWER CABLE	P9515UD		For B/W Video Printer
BNC CABLE	P9509BD		Video signal cable for B/W Video Printer
MINI PLUG CABLE	P9509BC		Control signal cable for B/W Video Printer

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3-1 INTRODUCTION

This chapter contains many of the procedures required to install this Console. The Functional Checks chapter contains the remaining installation procedures. All these procedures are included in Table 3-1, the Installation Checklist. Use this checklist to check off each installation step. This ensures a thorough installation and functional checkout of the unit.

3-2 AVERAGE INSTALLATION TIME

The RTfino/RT3200 Advantage-II/RT-x200 has been designed to be installed and checked out by an Ultrasound service technician in approximately four hours. RTfino/RT3200 Advantage-II/RT-x200 Consoles with optional equipment may take slightly longer.

3-3 WARNINGS

1. Since the RTfino/RT3200 Advantage-II/RT-x200 weighs approximately 190 lbs (86 kg) without options, preferably two people should unpack it.
2. The operator manual should be fully read and understood before operating the RTfino/RT3200 Advantage-II/RT-x200 and kept nearby for quick reference.
3. Although the ultrasound energy transmitted from the RTfino/RT3200 Advantage-II/RT-x200 transducer is within AIUM/NEMA standards, unnecessary exposure should be avoided.
4. To prevent electrical shock, the RTfino/RT3200 Advantage-II/RT-x200 should be connected to a properly grounded power receptacle. Do not use a three prong to two prong adapter. This defeats safety grounding.
5. This System has no operator serviceable components. To prevent shock, do not remove any covers or panels. Should problems or malfunctions occur, unplug the power cord. Only service personnel should carry out servicing and troubleshooting.

TABLE 3-1
RTfino/RT3200 Advantage-II/RT-x200 INSTALLATION CHECKLIST

	PROCEDURES	PARAGRAPH	INITIALS
1.	OBSERVE WARNINGS	3-3	_____
2.	UNPACK RTfino/RT3200 Advantage-II/RT-x200 COMPONENTS	3-5	_____
3.	ASSEMBLE THE RTfino/RT3200 Advantage-II/RT-x200	3-6	_____
4.	PERFORM ELECTRICAL SAFETY TESTS	3-8	_____
5.	PERFORM FUNCTIONAL CHECKS (SEE CHAPTER 4 FOR PROCEDURES)		

3-4 UNPACKING RTfino/RT3200 Advantage-II/RT-x200 COMPONENTS

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.

3-4-1 Normal Unpacking Procedure

1. Leaving the bottom of the container intact, cut the plastic bands. (See Illustration 3-0)
2. Pull the cap up and off of the container.
3. Pull out the three plastic joints by hand or with pliers; turn the plastic joints counterclockwise and pull.
4. Open the outer sleeve and cut the corners of the bottom tray.
5. Remove protective packing material; save it for future shipments, if required.
6. Preferably with a helper, carefully roll the RTfino/RT3200 Advantage-II/RT-x200 off its shipping platform.



The RTfino/RT3200 Advantage-II/RT-x200 System weighs approximately 86kg (190lbs). Be prepared for a surge as the RTfino/RT3200 Advantage-II/RT-x200 is rolled off of its shipping platform.

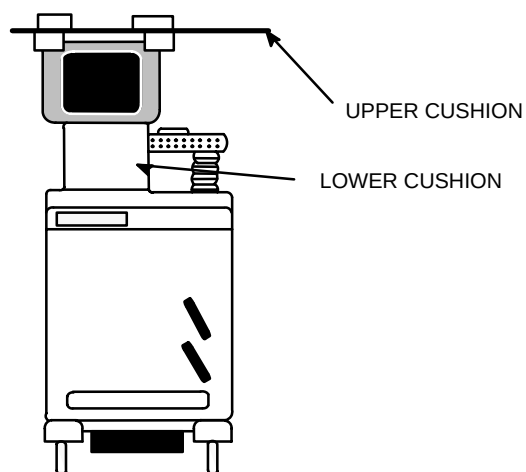
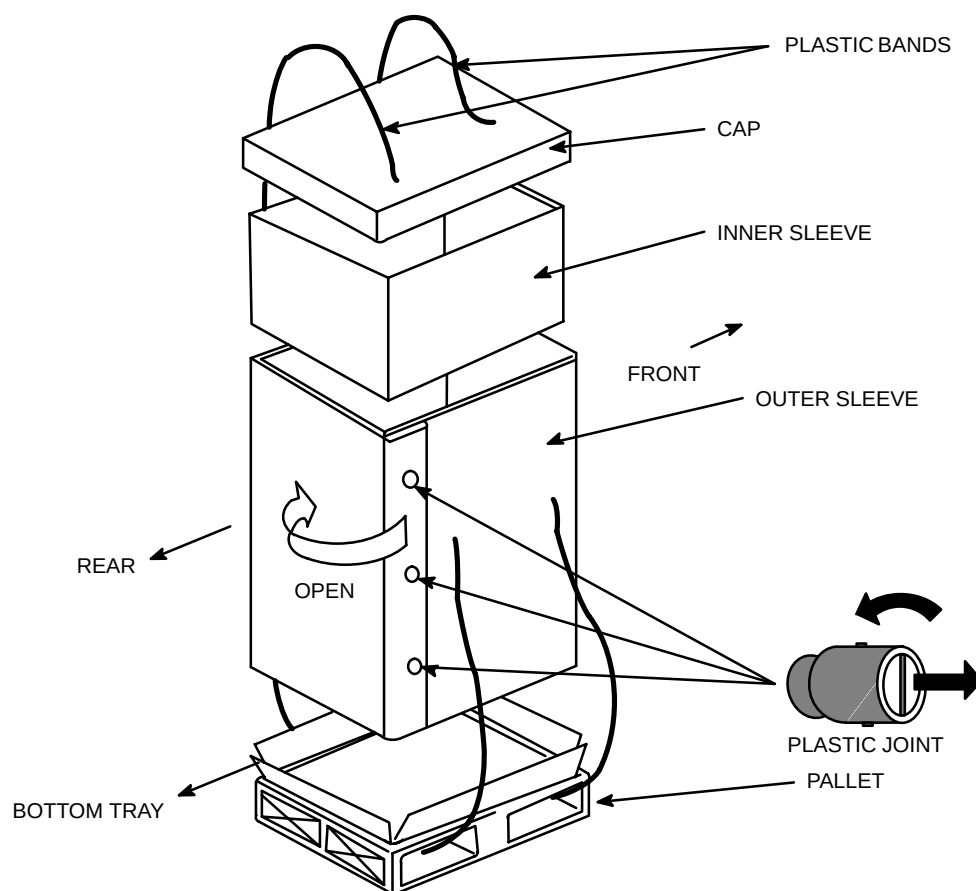
3-4-1 Normal Unpacking Procedure (Continued)**UNPACKING OF RTfino/RT3200 ADVANTAGE-II/RT-x200**

ILLUSTRATION 3-1

3-5 ASSEMBLING THE RTfino/RT3200 Advantage-II/RT-x200 SYSTEM

3-5-1 Installation

1. Locate remove, and unpack the transducers located in the separate container.
2. Secure any of transducers to either of the two receptacle as follows.
 - a. Ensure transducer twist lock lever points towards the 2 o'clock position.
 - b. Install transducer connector on the receptacle guide pin until it touches the receptacle mating surface.
 - c. Twist the transducer connector twist lock lever to the 6 o'clock position to lock it in place. Twist the lever to the 2 o'clock position to disconnect the transducer.
3. It is not necessary to turn off to RTfino/RT3200 Advantage-II/RT-x200 system power to connect or disconnect a transducer.
4. Unpack the foot switch. Connect the foot switch to the Connector on the lower RTfino/RT3200 Advantage-II/RT-x200 front panel.
5. Connect the RTfino/RT3200 Advantage-II/RT-x200 power cable to a hospital grade power receptacle of the proper voltage. Never use a three-to-two prong adapter; this defeats the safety ground.

3-6 MOVING THE RTfino/RT3200 Advantage-II/RT-x200 SYSTEM

3-6-1 Moving the RTfino/RT3200 Advantage-II/RT-x200 to Another Room

In general, a single adult can move the system 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 the console from the rear rather than to push the console). Before moving, store all loose parts in the unit. Wrap transducers in soft cloth or foam to prevent damage.

3-6-2 Transporting the RTfino/RT3200 Advantage-II/RT-x200 System

All shipping should be done by General Electric representatives, or their assignees. Follow the instructions in paragraph 3-6-1, with the following additional precautions:

1. The original packaging should be used when reshipping the unit. General Electric representatives or assignees shall repackage the console before shipment.
2. Carefully load the RTfino/RT3200 Advantage-II/RT-x200 system aboard the van. Use four straps to secure the unit and prevent lateral movement. Set the unit over the van's center of gravity. **Do not lay the unit down for shipment!**
3. Prevent shock by driving at 45–55 mph on paved roads. Avoid unpaved roads and drive carefully at road and railroad crossings.
4. Repeat the installation procedure, completing the installation checklist, at the new site.



3-7 ELECTRICAL SAFETY TESTS

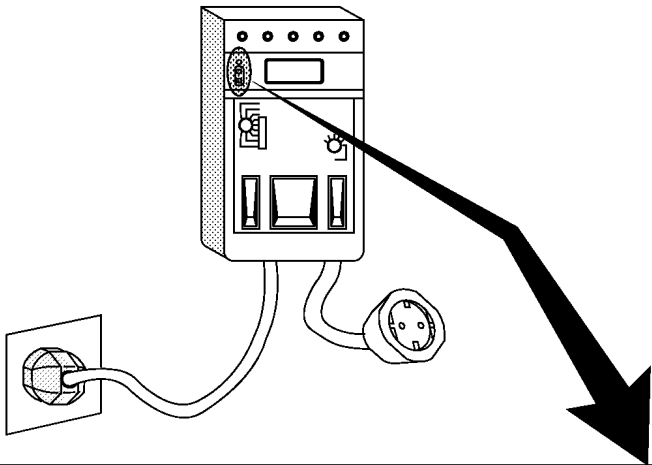
The following tests are performed at the factory and should be performed at the site. These tests are: grounding continuity, chassis leakage current, probe leakage current, and ECG leakage current. All measurements are made with an Electrical Safety Analyzer Model Dale 600/600E built by Dale Technology Corporation or equivalent device.

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

3-7-1 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 3-2).



Combination of Lights					
Condition	CORRECT WIRING	REVERSE POLARITY	OPEN GROUND	OPEN HOT	HOT/GROUND REVERSED

OUTLET TEST
ILLUSTRATION 3-2

Note

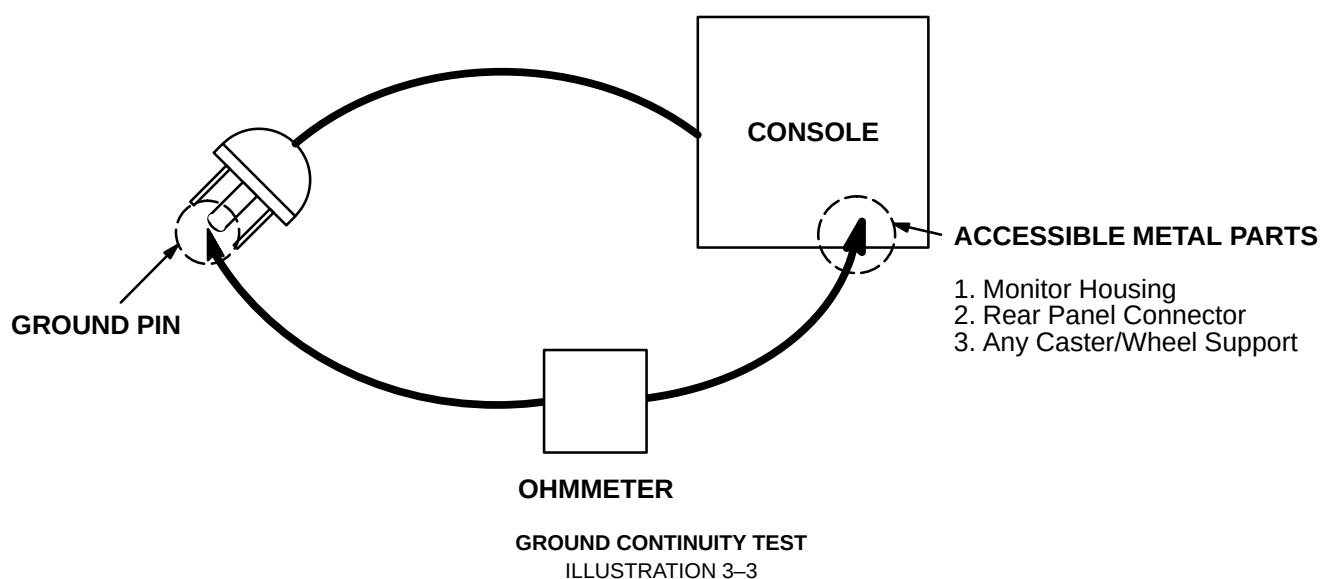
No outlet tester can detect the condition where the Neutral (grounded supply) conductor and the Grounding (protective earth) conductor are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

3-7-2 Grounding Continuity



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 3-3). The ground wire resistance should be less than **0.2 ohms**.



Meter Procedure

Follow these steps to test the ground wire resistance.

1. Turn the RTfino/RT3200 Advantage-II/RT-x200 unit OFF.
2. Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 3-5).
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 RTfino/RT3200 Advantage-II/RT-x200 unit (Refer to ILLUSTRATION 3-5).
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.

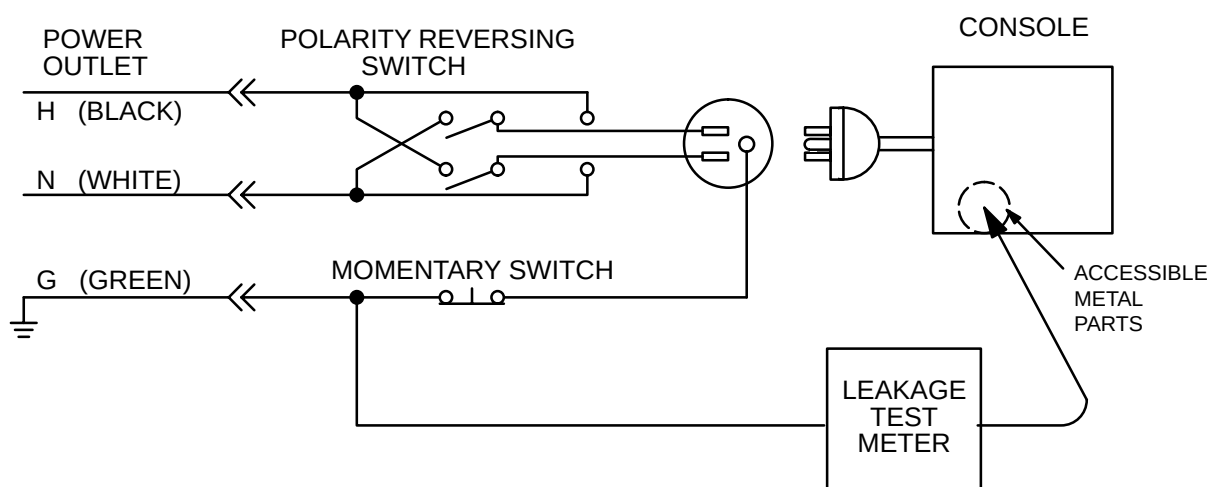
3-7-3 Chassis Leakage Current Test

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.**



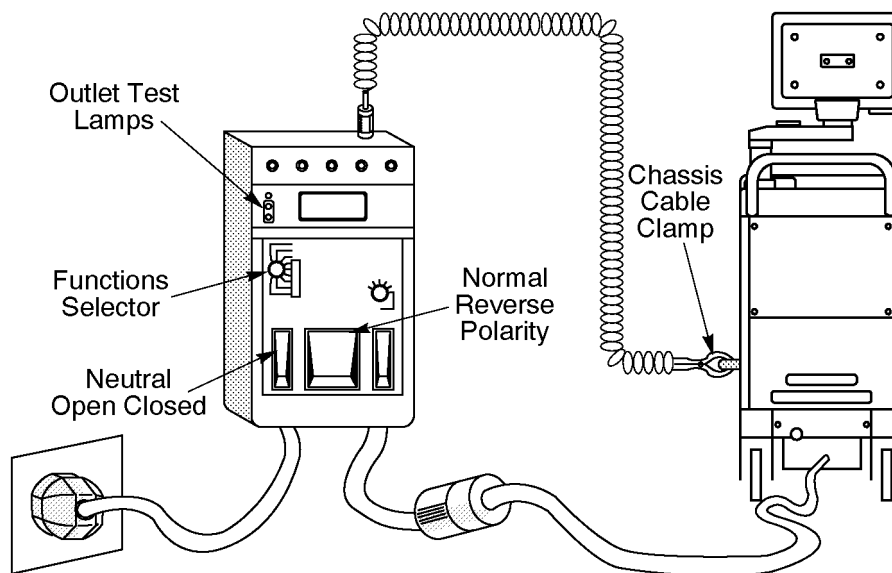
SETUP FOR CHASSIS SOURCE LEAKAGE CURRENT
ILLUSTRATION 3-4

3-7-3 Chassis Leakage Current Test (Continued)

Meter Procedure

Follow these steps to test the unit for leakage current.

1. Turn the RTfino/RT3200 Advantage-II/RT-x200 unit OFF.
2. Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 3-5).



GROUND AND CHASSIS LEAKAGE CURRENT TEST

ILLUSTRATION 3-5

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 RTfino/RT3200 Advantage-II/RT-x200 unit (Refer to ILLUSTRATION 3-5).
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 3-2
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.

3-7-3 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 3-3).

TABLE 3-3
MAXIMUM ALLOWANCE LIMIT FOR CHASSIS SOURCE LEAKAGE CURRENT

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	N/A	0.1mA	0.1mA	N/A
OTHERS	0.1mA	0.5mA	0.5mA	0.5mA



Electric Shock Hazard. When the meter's ground switch is OPEN, don't touch the unit!

TABLE 3-4
DATA SHEET FOR CHASSIS SOURCE LEAKAGE CURRENT

Unit Power	Tester POLARITY Switch	Tester NEUTRAL 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					

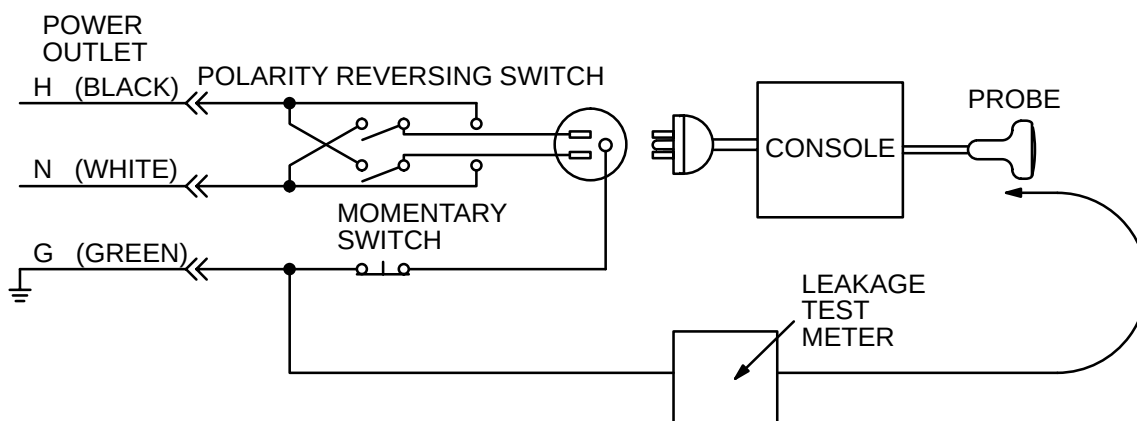
3-7-4 Probe Leakage Current Test

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 3-6

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.

3-7-4 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.

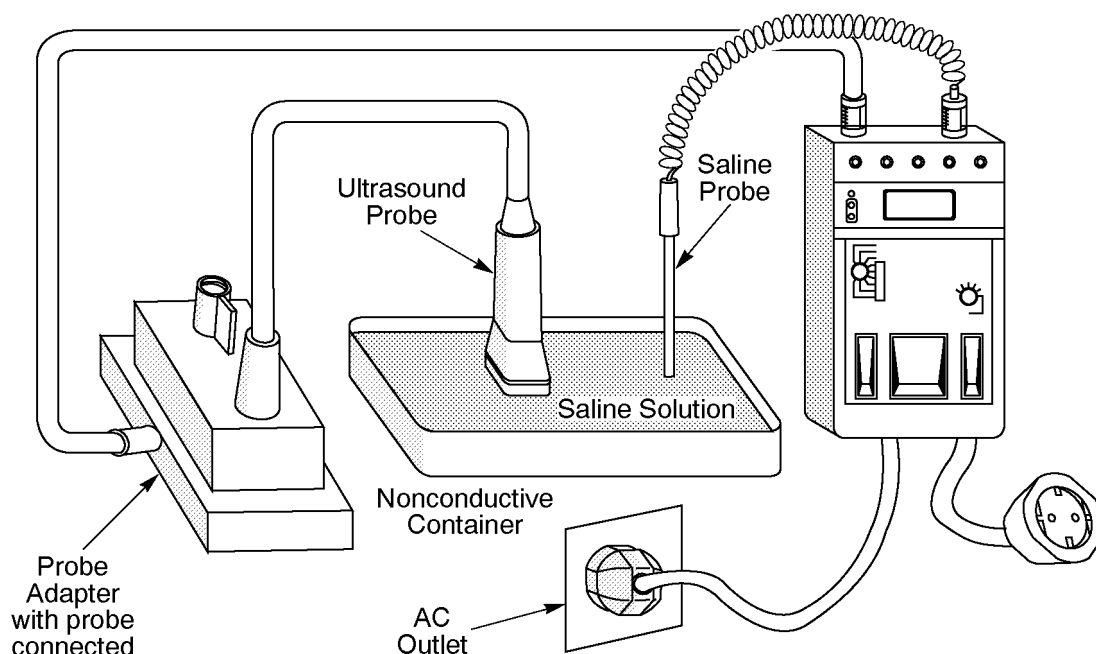
The probe's imaging area is immersed in a saline solution along with a grounding probe from the meter to complete the current path. Saline solution is a mixture of water and salt. The salt adds a free ion to the water, making it conductive. Normal saline solution is 0.9% salt or 1/2 gram salt per 1 liter 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 RTfino/RT3200 Advantage-II/RT-x200 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 3-7).
4. Plug the saline probe into the meter's "CHASSIS" connector (Refer to ILLUSTRATION 3-7).



TRANSDUCER SOURCE LEAKAGE CURRENT TEST
ILLUSTRATION 3-7

3-7-4 Probe Leakage Current Test (Continued)

5. Plug the probe adapter into the meter's connector marked "EXTERNAL" (Refer to ILLUSTRATION 3-7).
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 3-6) 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 RTfino/RT3200 Advantage-II/RT-x200 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.

Note

Do not test all the probes on the same XDIF connector. Use all three slots eventually.

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.

Note

Lift only one probe at a time from its resting hook.

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 3-6) for every transducer.
13. Keep a record of the results with other hand copies of PM data.

3-7-4 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 3-5).

TABLE 3-5
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

TABLE 3-6
DATA SHEET FOR TRANSDUCER SOURCE LEAKAGE CURRENT

Transducer tested:

RTfino/RT3200 Advantage-II/RT-x200 Unit Power	Tester Power Polarity	Tester Ground 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	

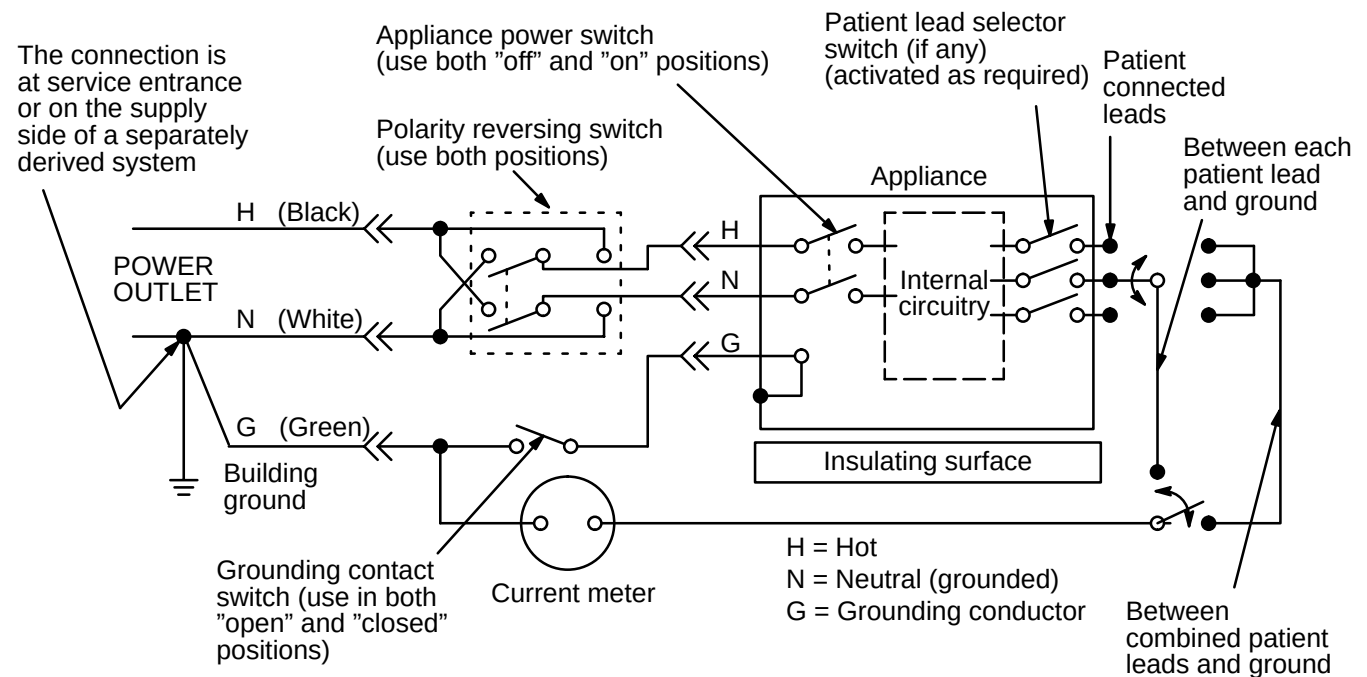
3-7-5 ECG Leakage Current Test

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 3-8

3-7-5 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.

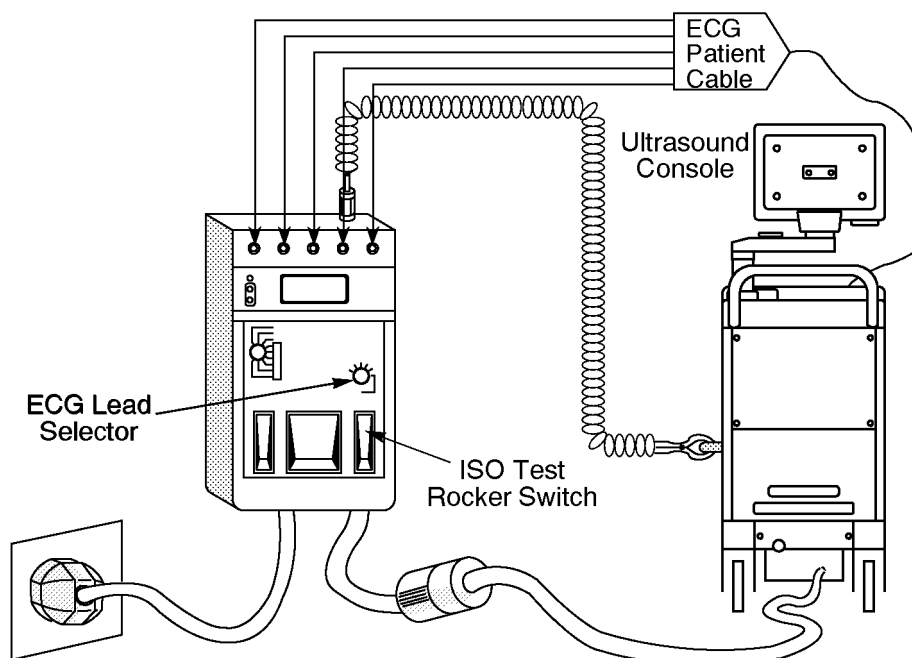
CAUTION

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 RTfino/RT3200 Advantage-II/RT-x200 unit OFF.
2. Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 3-9).
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 RTfino/RT3200 Advantage-II/RT-x200 unit (Refer to ILLUSTRATION 3-9).
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 3-9).



ECG LEAKAGE CURRENT TEST

ILLUSTRATION 3-9

3-7-5 ECG Leakage Current Test (Continued)

5. Set the meter's "FUNCTION" switch to LEAD TO GROUND position to measure the patient lead to ground leakage 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 3-7.

TABLE 3-7
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 3-9).
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 3-7.
10. Record the lead to lead leakage current measured on the data sheet (Refer to TABLE 3-9).
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 3-7.
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 3-9).

3-7-5 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 3-8).

TABLE 3-8
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 μ A	10 μ A
	220/240V	500 μ A	10 μ A
Patient Lead Isolation Current Test	AC POWER SOURCE	MAXIMUM ALLOWANCE LIMIT	
		115V	220/240V
	115V	20 μ A	
	220/240V	5mA	

TABLE 3-9
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 Neutral 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					

3-7-6 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.

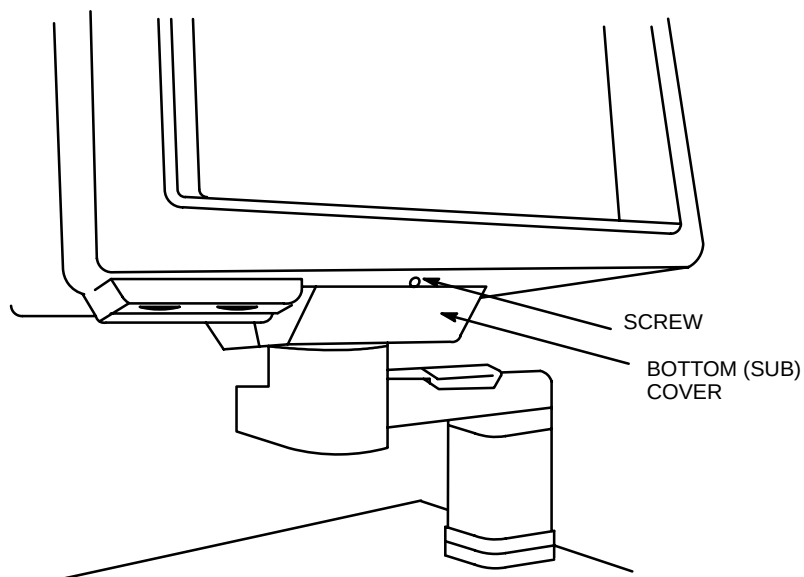
New Unit

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.

3-8 REPLACEMENT

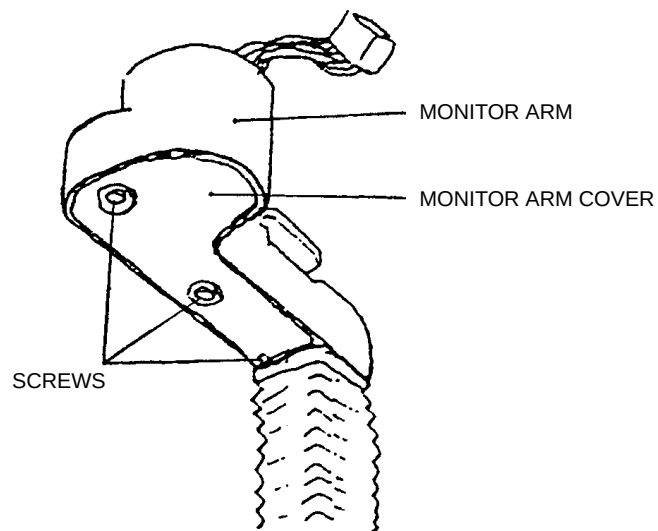
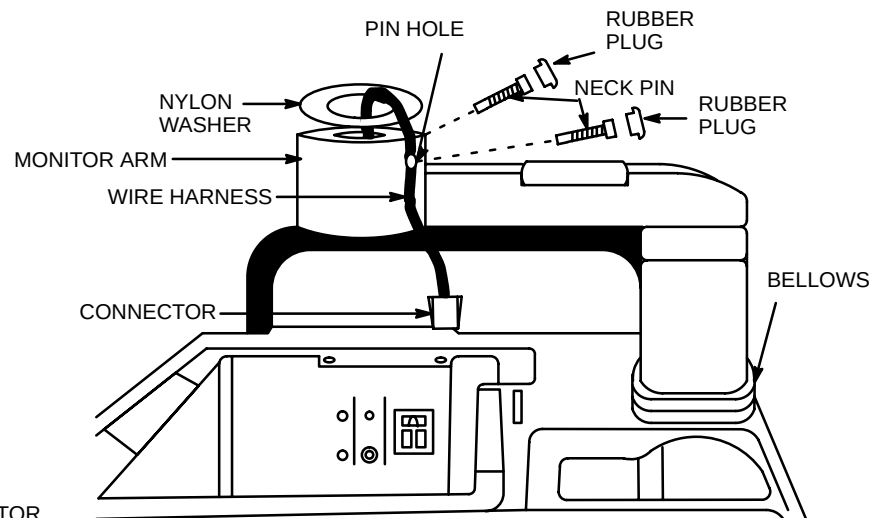
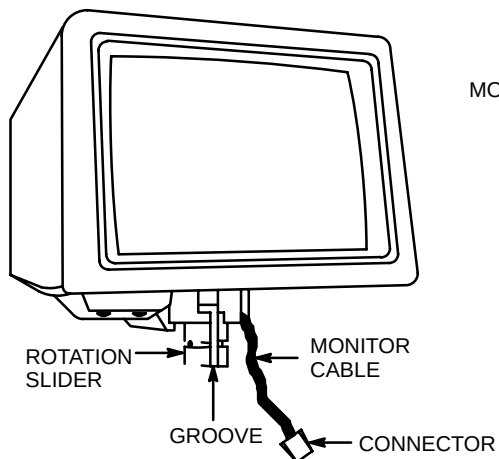
3-8-1 GAS SPRING REPLACEMENT

1. Raise the monitor to the highest position.
- 2. Unscrew and then remove the bottom (sub) cover. (See Illustration 3-10)

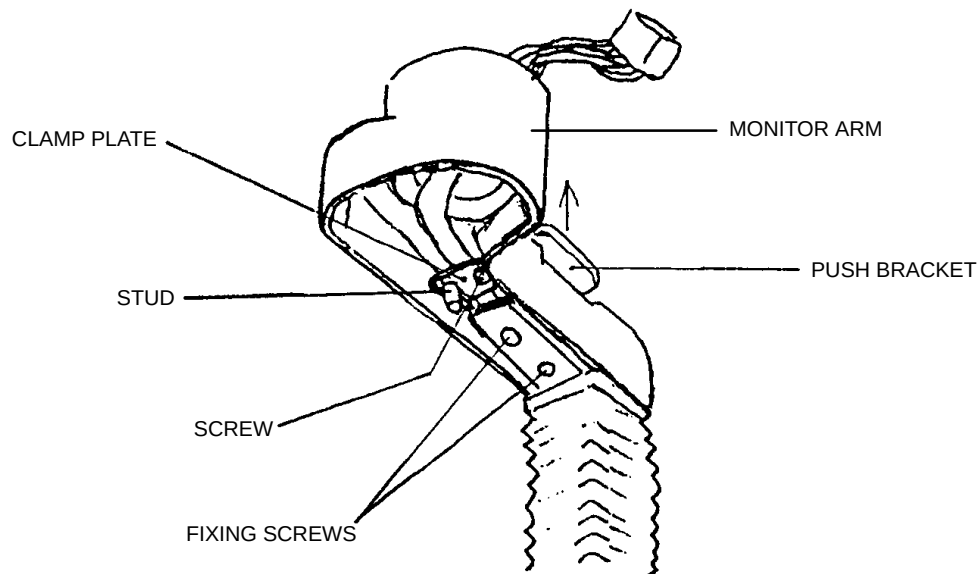


ASSEMBLED MONITOR BOTTOM VIEW
ILLUSTRATION 3-10

- 3. Pull out the monitor cable and disconnect the connector. (See Illustration 3-11)
- 4. Remove two rubber plugs and unscrew the two neck pins and then lower the monitor to the lowest position. (See Illustration 3-12)
- 5. Turn the monitor until the groove in the rotation slider (See Illustration 3-11) comes to the position of the pin hole. (See Illustration 3-12)
- 6. Pull the monitor out of the monitor arm. Ensure that the nylon washer remains in place in the monitor arm. (See Illustration 3-12)
- 7. Unscrew the three screws fixing the monitor arm cover under the monitor arm and remove monitor arm cover. (See Illustration 3-13)

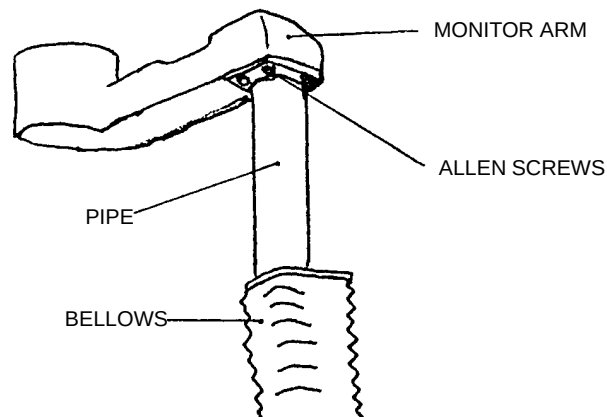
3-8-1 GAS SPRING REPLACEMENT (continued)

8. Unscrew the two screws fixing the push bracket and remove the push bracket from the monitor arm. (See Illustration 3-14)
9. Unscrew the one screw and stud fixing the clamp plate and remove the clamp plate. (See Illustration 3-14)

3-8-1 GAS SPRING REPLACEMENT (continued)

BOTTOM VIEW - MONITOR ARM
ILLUSTRATION 3-14

10. Remove the bellows both from the monitor arm and the main unit. Some force may have to be applied to loosen the adhesive holding the bellows.
11. Unscrew the four Allen screws to remove the monitor arm from the pipe.



RAISED MONITOR ARM
ILLUSTRATION 3-15

12. Unscrew the screws from the front cover, front plate, front panel, rear cover, and remove them so that the inside of the main body will be exposed.

3-8-1 GAS SPRING REPLACEMENT (continued)

13. Remove the connectors of signal cable and power supply (used for monitor) cable from the mother board. At the same time, the tiewrap that bundles them.

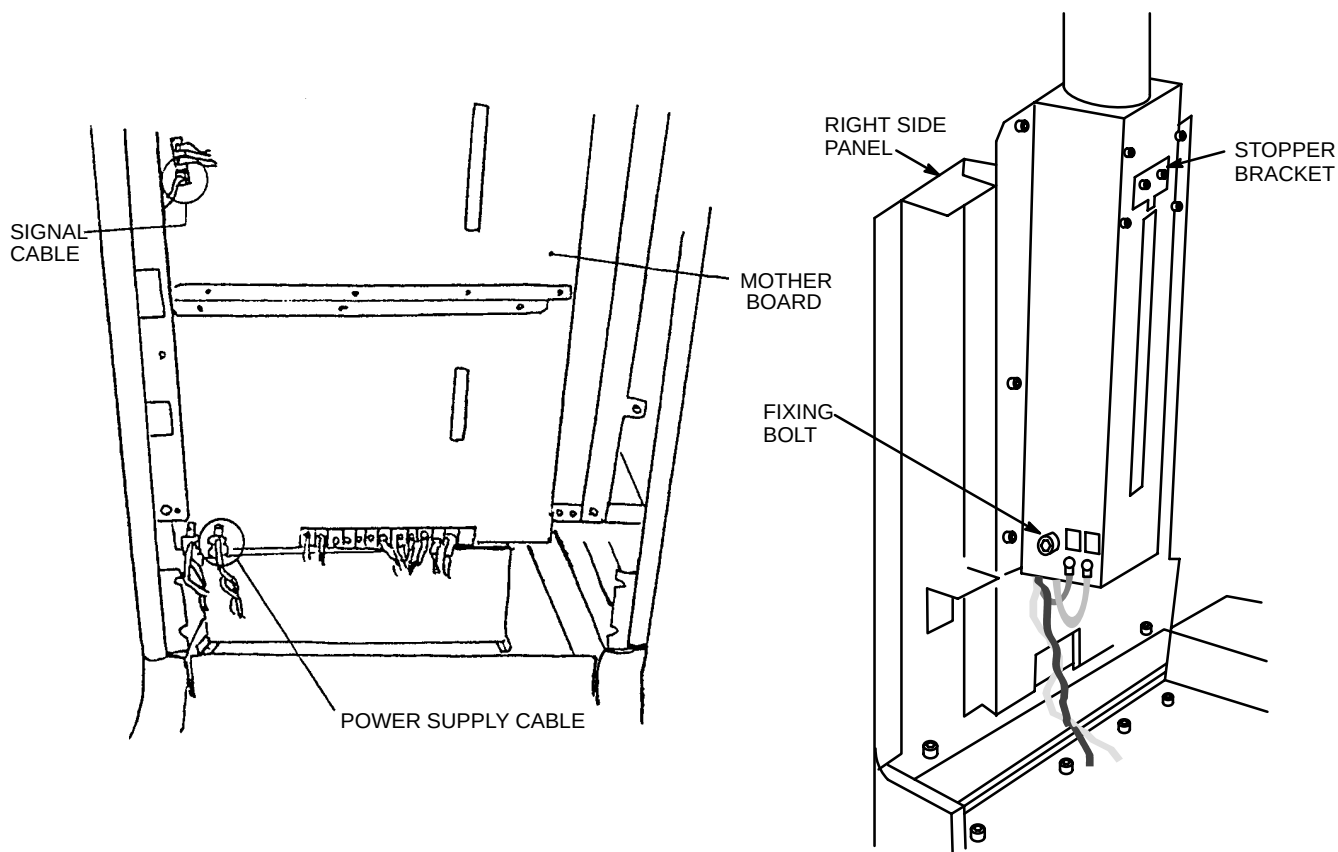
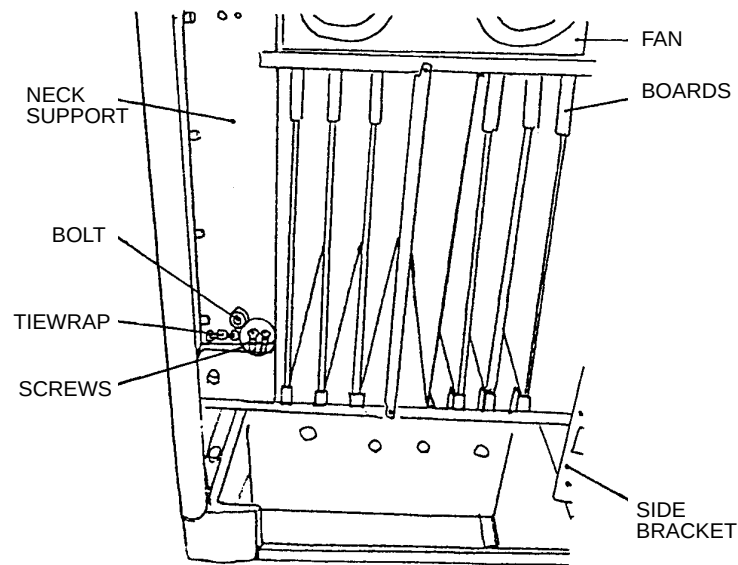
**SYSTEM REAR VIEW (REAR PLATES REMOVED)**

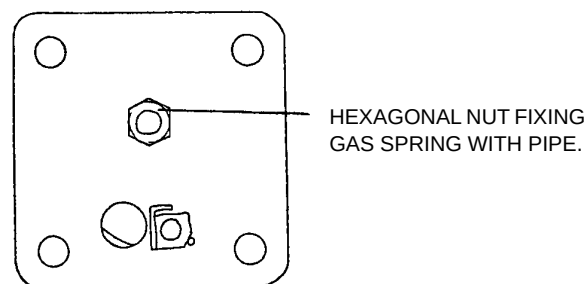
ILLUSTRATION 3-16

14. Unscrew two screws fixing stopper bracket located on the left side to rear, and remove the stopper bracket.
15. Unscrew two screws fixing ground wire from rear to neck support and remove the earth wire.
16. Cut the tiewrap fixing cable from monitor to main board.
17. Unscrew the screw fixing gas spring and remove the bolt.

3-8-1 GAS SPRING REPLACEMENT (continued)

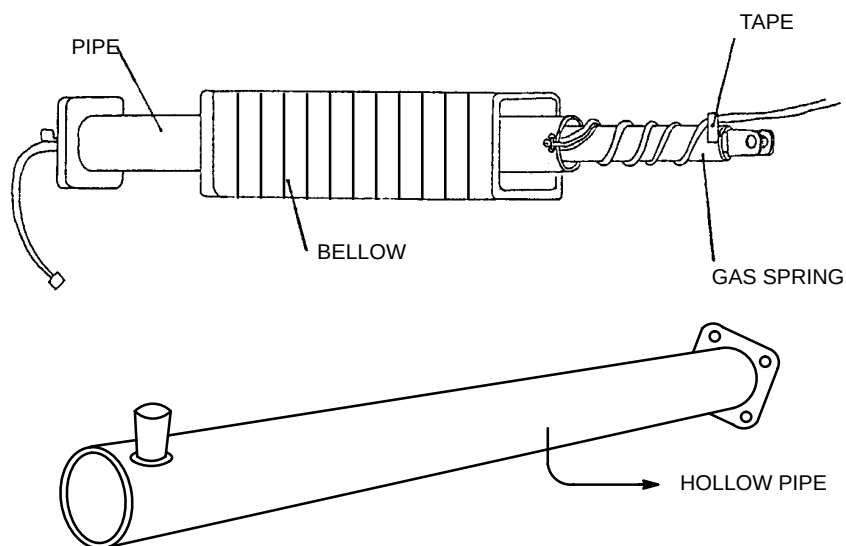
REAR VIEW
ILLUSTRATION 3-17

18. Hold the pipe and raise it until the pin welded pipe reaches plastic of main board. Pull the pipe with a little twist.
19. Unscrew the nut fixing gas spring to pipe and remove the gas spring from the pipe. Hollow pipe without gas spring looks as shown in Illustration 3-19.



BOTTOM VIEW - GAS SPRING
ILLUSTRATION 3-18

20. Put a new gas spring through the pipe and fix it with the nut.
21. Wind the cable four times around the gas spring and fix the cable to the gas spring with tape.

3-8-1 GAS SPRING REPLACEMENT (continued)

GAS SPRING ASSEMBLY
ILLUSTRATION 3-19

22. Put the assembly from step 21 back to the same position pulled from the main position. Be careful not to get the cable in between bearing and pipe.
23. Remove the tape fixing cable in step 21 from the low part of the main body and fix the part of cable covered the heat compression tube on neck support with tiewrap.
24. Insert the screw removed in step 17 to original position and fix the gas spring.
25. Fix two earth cables removed in step 15 with two screws.
26. Install the side bracket removed in step 14.
27. Install the signal cable and power supply cable removed in step 13 to the mother board.
28. Install the front cover, front plate, front panel and rear cover removed in step 12.
29. Install the monitor arm removed in step 11 to pipe.
30. Install the push bracket removed in step 8 with insert from the upper part to the monitor arm.
31. Install the clamp plate removed in step 9. Be careful as stud is easy to break.
32. Install the monitor arm cover removed in step 7 to the monitor arm.

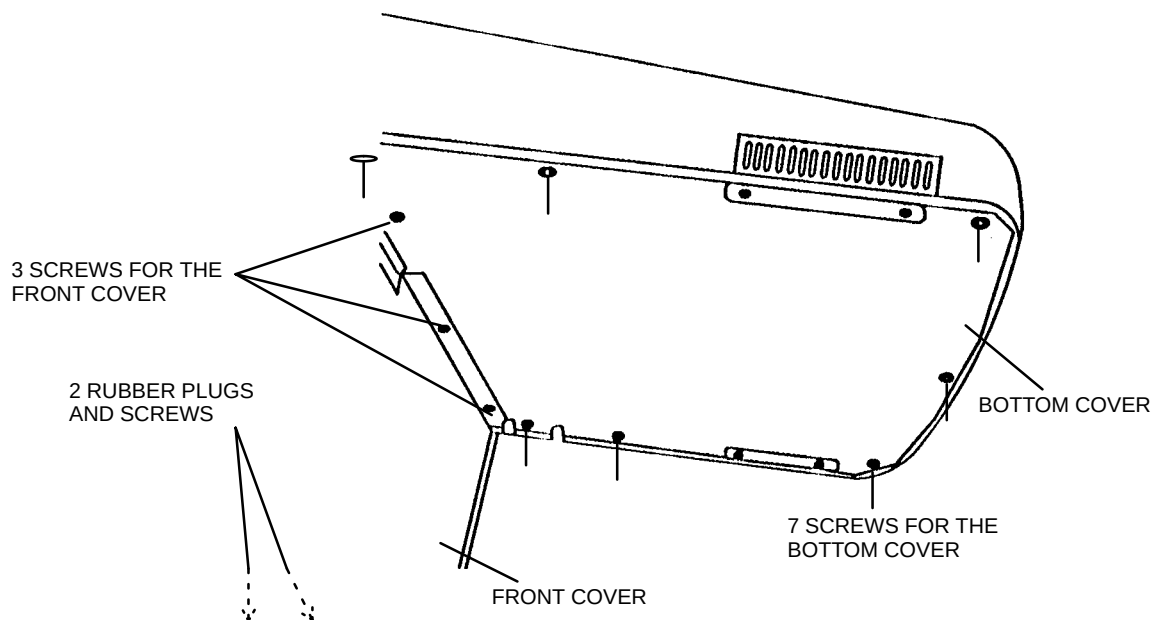
3-8-1 GAS SPRING REPLACEMENT (continued)

33. Ensure that the nylon washer is in place (see Illustration 3-12) on the monitor arm.
34. Position the arm wire harness over the pin hole (see Illustration 3-12).
35. Gently place the monitor on the monitor arm, aligning the groove of the rotation slider with the pin-hole of the monitor arm. Take care to route the wire harness through the groove. (see Illustration 3-11 and 3-12)
36. Connect the connector. (see Illustration 3-11 and 3-12)
37. Fix the neck pins and insert the rubber plugs. (see Illustration 3-12)
38. Ensure that the monitor arm does not pinch the wire harness. (see Illustration 3-12)
39. Fix the bottom (sub) cover. (see Illustration 3-10)
40. Install the bellows removed in step 10 to both the monitor arm and the main unit. Additional Adhesive may be used to secure Bellows. (see Illustration 3-15)

3-8-2 Keyboard (Track Ball, TGC Assy) Replacement

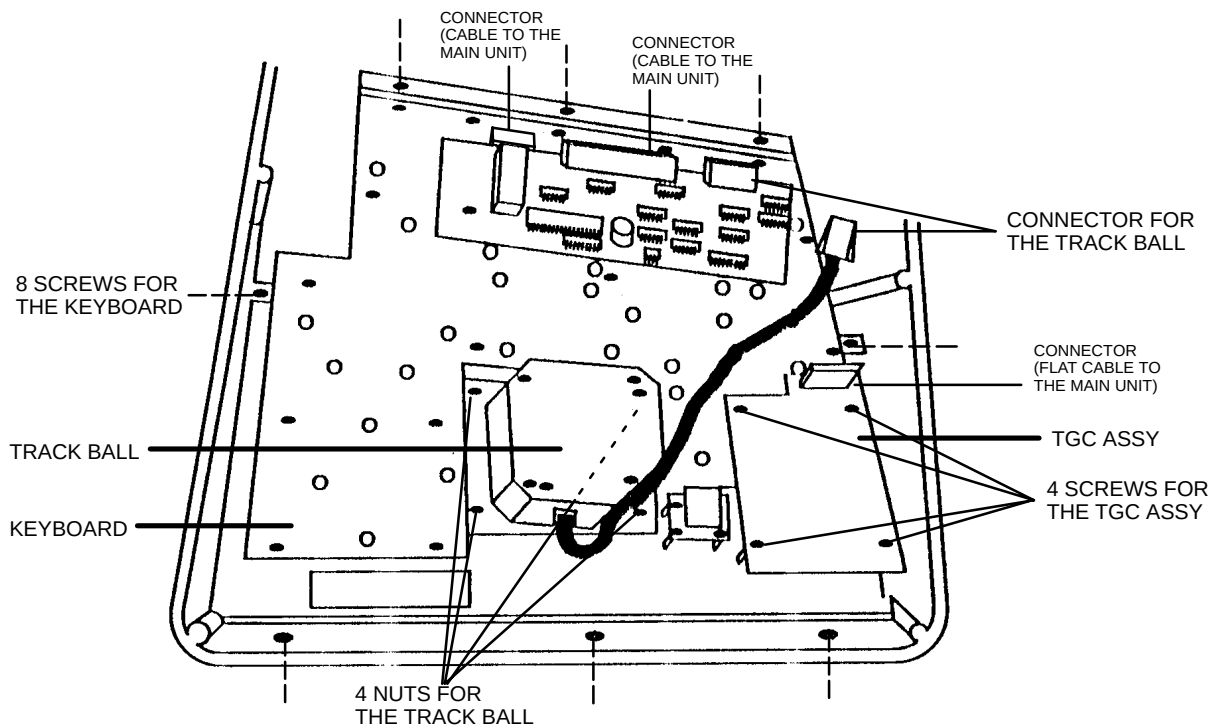
1. Remove the two rubber plugs and screws from the front cover. (see Illustration 3-20)
2. Remove the front cover by unscrewing its three screws and the bottom cover of keyboard by unscrewing its seven screws. (see Illustration 3-20)
3. Disconnect the three cables from keyboard unit to the main unit. (see Illustration 3-21)
4. Unscrew the eight keyboard screws. (see Illustration 3-21)
5. Remove the keyboard (pc boards and touch panel as one assembly).
6. If required, remove the track ball assembly by disconnecting the connector and then unscrewing the four nuts.
7. If required, remove the TGC assembly by disconnecting the connector and then unscrewing the four screws.
8. Install the new keyboard and fasten its eight screws.
9. If removed, install the new track ball assembly, connect its connector, and screw it with its four nuts.
10. If removed, install the new TGC assembly, connect its connector, and screw it with its four screws.
11. Install the bottom cover with its seven screws.
12. Install the front cover with its five screws and two rubber plugs.

3-8-2 Keyboard Replacement (continued)



KEYBOARD - BOTTOM COVER

ILLUSTRATION 3-20



KEYBOARD - PC BOARD

ILLUSTRATION 3-21

3-8-3 MONITOR REPLACEMENT

1. Refer to step 2 to 6 of 3-8-1 GAS SPRING REPLACEMENT for disassembly of the monitor.
2. Refer to step 33 to 39 of 3-8-1 GAS SPRING REPLACEMENT for assembly of the monitor.

3-9 FRENCH ROM

Purpose

Installation of the French ROM on the MST Board.

Supply Parts List :

There are six kinds of French ROM. The one used depends on the MST Board's Part number and Revision level. Install French EPROM(s) up carefully. See the Table below.

NO	Version (Style)	MST-E Assy	French ROM	LOCATION
1	Version 1 (style A)	P9514XJ-02	P9514PF-01	U9A
	Version 1 (style A)	P9514XJ-03	P9514PF-01	U9A
2	Version 1 (style A)	P9514XJ-04	P9514PF-02	U9A
			P9514PL-02	U11A
3	Version 1 (style A)	P9514XJ-05	P9514PF-03	U9A
			P9514PL-03	U11A
4	Version 2 (style B)	P9514HX-02	P9514PV-02	U9A
			P9514PW-02	U11A
5	Version 4 (style D)	P9514ZZ-00	P9514QT-00	U9A
			P9514QU-00	U11A
6	Version 5 (style E)	2113953-3	2113969-3	U9A
			2113970-3	U11A

Man Power

1.5~4 h 1 SVE Engineer (Depending on whether the system has already been used by customer or not; refer to Illustration 3-22).

Required Tool

Standard Tolls

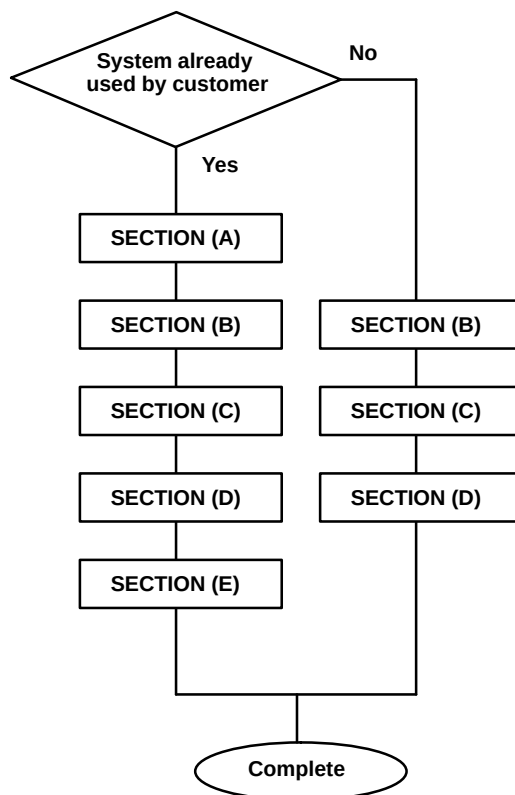
Procedure

This French ROM Installation Instruction is described for Version 2 (Style B) and Version 4 (Style D) mainly. If this procedure is used for version 1 (Style A) systems, be careful since there are some differences (skipped operations or different Illustrations) between this and Version 1 (Style A).

This French ROM Installation Instruction consists of the following sections.

- SECTION (A) : Data Recording
- SECTION (B) : Installation of the French ROM
- SECTION (C) : System Initialization
- SECTION (D) : Confirm the System is French Software.
- SECTION (E) : Preset All Parameters reset by Initialization

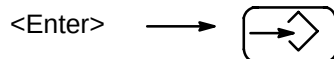
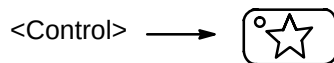
If the system has already been used by the customer, it is necessary to record the user's defined preset parameters prior to changing the EPROM(s). In this case, refer to the Operator Manual to input the system data.

Procedure (continued)

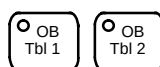
PROCEDURE FLOW CHART
ILLUSTRATION 3-22

SECTION (A) Data Recording

The <Control> key , <Enter> key and Function key group are represented below:



Function key group



← Right arrow

OPERATION KEYS
ILLUSTRATION 3-23

SECTION (A) Data Recording (continued)**1. Preparation for Installation**

Perform functional checks to verify that the System is functioning properly. Refer to Functional Check Chapter 4 in this Service Manual.

2. Record or identify all parameters set by the user. Refer to Operator Manual to record or identify.**2-1. Record the Hospital Name.**

- i Record the Hospital Name, which is displayed in the upper-left corner of the monitor.

2-2. Record Output (Gamma Curve Selection).

- i Identify whether the user was using video or polaroid. If the user was using polaroid, measure the Film Development Time.

Measure the Film Development Time.

- i Press the <Control>, R, P and then the <Enter> key.
- ii Press the <Record> key and then measure the Film Development Time and record it.
- iii Press the <Control> key.

2-3. Identify the Inverse Display Setting.

- i Record the Monitor Display inverse setting (negative or positive).
- ii Press the <Record> key and then note the Inverse setting of the printout recorder. If the Monitor Display changes polarity (negative or positive) then the printout recorder is set opposite to the monitor.

2-4. Identify the Map Package.

- i Read the Operator Manual carefully for this function to avoid confusion.
- ii Press the <Control> and N keys and then record whether the Map is A or B.
- iii Press the <Control> key.

2-5. Identify the Dotted line.

- i Measure the length of something and then record whether the system Dotted Line is ON or OFF.

2-6. Identify the Frame Averaging.

- i Watch the image carefully to compare the frame averaging condition before and after step ii is performed.
- ii Press the <Control>, W and <Enter> keys and then record whether the Frame Averaging is ON or OFF.
- iii Press the <Control> key.

2-7. Record the OB Table Data set by the user.

- i Press the <Control> key.
- ii Input "G1" followed by the <Enter> key.
- iii Record all the OB Table Data set by the user and press the <Enter> key.
- iv Repeat steps ii and iii for each of G2, G3, G4 and G5.
- v Press the <Control> key.

2-8. Identify the Body Pattern Package in use.

- i Press the <>key.
- ii Record the Body Pattern which is displayed in the lower-left corner of the monitor.
- iii Press the <>key.

SECTION (A) Data Recording (continued)**2-9. Record Probe Data.**

The number of connectable probes differs depending on the Version (Style).

The parameter setting image in Illustration 3-24 may not be the same in every case. Illustration 3-24 is shown as Version 2(Style B) . However the procedure is the same as the following:

- i. Press the <Control>, S , ! and then the <Enter> key and verify that the CRT displays "SERVICE !" in upper-left corner of the screen.
- ii Press the S , E and <Enter> keys.
- iii All the probe parameter settings appear on the screen. If they are different from those in the attached list, record the screen (or write down any different items directly onto illustration 3-24).
- iv Press the <Control> key.

[SERVICE! 13/12/91 13:55:26 CA 5MHz *1.0									
	PRB	G	DR	FOCUS	SCL	DIR	INV	MAP	HFR
	MZ	50	48	3	1.5	RVS	NOR	NOR	OFF
	RA	50	54	3	1.0	NOR	NOR	NOR	OFF
	L	50	54	3	1.0	NOR	NOR	NOR	OFF
	S	50	54	3	1.0	NOR	NOR	NOR	OFF
	K	50	54	3	1.0	NOR	NOR	NOR	OFF
	A	50	54	3	1.0	NOR	NOR	NOR	OFF
	B	50	54	3	1.0	NOR	NOR	NOR	OFF
	C	50	54	3	1.0	NOR	NOR	NOR	OFF
	D	50	54	3	1.0	NOR	NOR	NOR	OFF
	E	50	54	3	1.0	NOR	NOR	NOR	OFF
	F	50	54	3	1.0	NOR	NOR	NOR	OFF
	G	50	54	3	1.0	NOR	NOR	NOR	OFF
	H	50	54	3	1.0	NOR	NOR	NOR	OFF
	I	50	54	3	1.0	NOR	NOR	NOR	OFF
	J	50	54	3	1.0	NOR	NOR	NOR	OFF
	R	50	54	3	1.0	NOR	NOR	NOR	OFF
	CV	50	54	3	1.0	NOR	NOR	NOR	OFF
	CA	50	54	3	1.0	NOR	NOR	NOR	OFF
	CB	50	54	3	1.0	NOR	NOR	NOR	OFF
	CC	50	54	3	1.0	NOR	NOR	NOR	OFF
G50D54T60 CONTROL : SE									
GE									

MANUFACTURE'S PRESET PARAMETER
ILLUSTRATION 3-24

SECTION (A) Data Recording (continued)

- 2–10. Record the additional anatomical features added by the user in the Anatomical Survey Summary (Version 2 Style B, Version 4 Style D or Version 5 Style E). Skip this step so that this image is not displayed for Version 1 (Style A).
- i. Press the <Control>, O and then the <Enter> key.
 - ii Press the right arrow key at the bottom of the Function key group twice.
 - iii The anatomical Survey Summary appears on the screen. If the operator added anatomical features to the list, record the screen (or write down any different items directly onto illustration 3–25).
 - iv Press the <Control> key.

NAME :
ID :
REFERRAL :
REFERRED FOR:

EXAM DATE: 12/08/92

LMP :
GRAVIDA:
PARA :

ANATOMICAL SURVEY		
	IMAGED?	APPEARANCE
HEAD	YES NO	
FOUR CHAMBER VIEW	YES NO	
SPIN	YES NO	
STOMACH	YES NO	
KIDNEYS	YES NO	
CORD INSERTION	YES NO	
BLADDER	YES NO	
UPPER EXTREMITIES	YES NO	
LOWER EXTREMITIES	YES NO	
	YES NO	
	YES NO	
	YES NO	
	YES NO	

COMMENTS :
REPORTED BY :
REPORT DATE :

USER SETTING AREA

ANATOMICAL SURVEY TABLE
ILLUSTRATION 3–25

SECTION (A) Data Recording (continued)

2–11. Record the User Programmable Comments Library (Version 2 Style B, Version 4 Style D or Version 5 Style E).

Skip this step so that this image is not displayed for Version 1 (Style A).

- i. Press the <Control>, O and then the <Enter> key.
- ii Press the right arrow key at the bottom of the Function key group three times.
- iii The User Programmable Comments Library appears on the screen. If the operator has entered a code and text , record the screen (or write down any different items directly onto illustration 3–26).
- iv Press the <Control> key.

USER PROGRAMMABLE COMMENTS LIBRARY	
<u>CODE</u>	<u>TEXT</u>

USER PROGRAMMABLE COMMENTS LIBRARY
ILLUSTRATION 3-26

3. Turn the power switch off and unplug the unit.

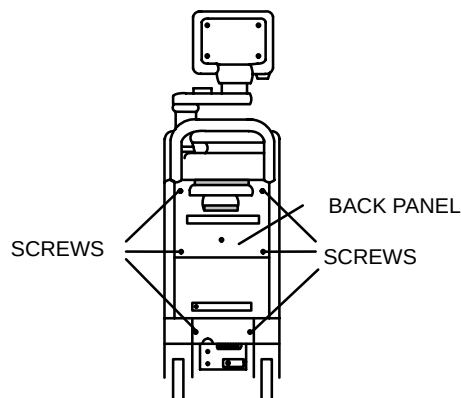
SECTION (B) Installation of the French ROM

4. Remove the BACK PANEL to access the MST board. Refer to illustration 3-27.

4-1. Remove the six rubber caps.

4-2. Unscrew the six screws from the back panel of the RT-x200.

4-3. Remove the back panel from the console.



BACK PANEL REMOVAL

ILLUSTRATION 3-27

5. MST Board

5-1. Remove the MST Board (A3) from the card cage and confirm that the MST Board # is in the list below:

5-2. Remove the English ROM(s) at the location(s) listed in step 5-3.

CAUTION

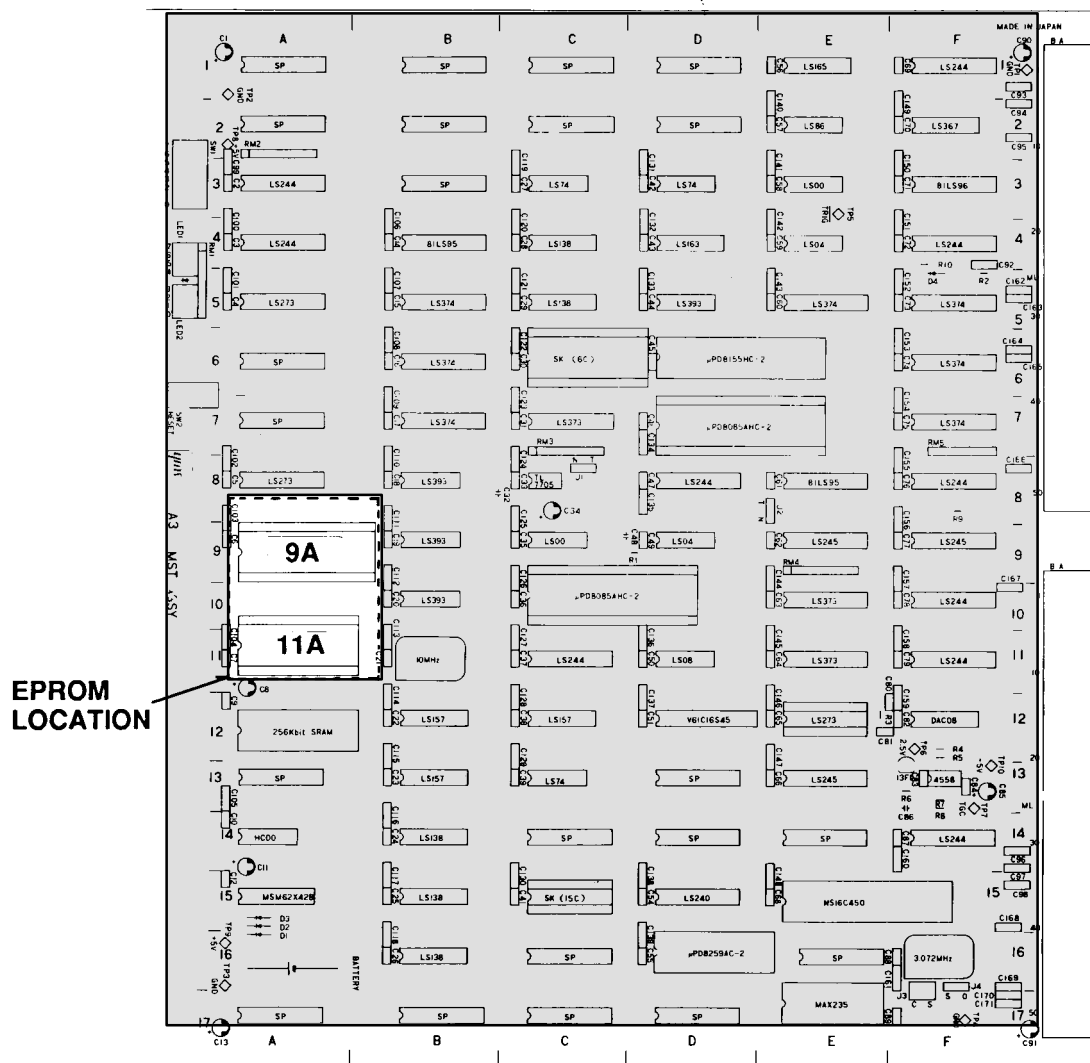
Be sure the EPROM pins are straight before installation!

Be very careful to straighten pins if necessary.

- 5-3. Install the French ROM(s) in the following location(s) identified in the Table. Refer to illustration 3-28.

MST Board #	Location	English ROM Part #	French ROM Part #
P9514XJ-02 P9514XJ-03	U9A	P9514PD-01	P9514PF-01
P9514XJ-04	U9A	P9514PD-02	P9514PF-02
	U11A	P9514PE-02	P9514PL-02
P9514XJ-05	U9A	P9514PD-03	P9514PF-03
	U11A	P9514PE-03	P9514PL-03
P9514XH-02	U9A	P9514PT-02	P9514PV-02
	U11A	P9514PU-02	P9514PW-02
P9514ZZ-00	U9A	P9514NW-00	P9514QT-00
	U11A	P9514NX-00	P9514QU-00
2113953	U9A	2113967-3	2113969-3
	U11A	2113968-3	2113970-3

SECTION (B) Installation of the French ROM (continued)



A3 MST ASSY COMPONENT SIDE
ILLUSTRATION 3-28

- 5-4. Reinstall the MST board.
- 5-5. Reinstall the back panel of the RT-x200 unit.
6. Put the English EPROM in the ROM case and then ask the customer to keep it.
7. Plug In the RT-x200 unit.
8. Turn the power on.

SECTION (C) System Initialization

9. System Initialize

- 9-1. Press the <Control>, S, ! and then the <Enter> key.
- 9-2. Press the S, V and <Enter> keys.
- 9-3. Press the S, W and <Enter> keys.
- 9-4. Press the S, Z and <Enter> keys.

SECTION (D) Confirm the system is French ROM software.

10 Confirm the system is French ROM software.

Gestational Report Page of Version 1 (style A) has some different points from Illustration 3-29. Confirm image is displayed in French.

10-1. Press the <Control>, G, R and <Enter> keys.

10-2. Confirm that the Gestational Report Page is displayed in French. Refer to Illustration 3-29.

10-3. Press the <Control> key.

NOM :		DATE EXAM: 12/08/92	
ID :	AGE :		
REFERENT :	DDR :		
MOTIF VISITE :		GRAVI DE :	PARA :
AGE GESTATION		CALCULS	
AG DDR :		INDEX CEPHAL :	%
BIP (HADLOCK)	AGC? N	LF/BIP:	%
DOF		LF/PA :	%
LCC (ROBINSON)	AGC? N	PC/PA :	%
LF (O BRIEN)	AGC? N	POIDS:	
PC (HADLOCK)	AGC? N	#1 (BIP, PA) :	GR
DAT		#2 (LF, PA) :	GR
DAP		#3 (LF, PA, PC) :	GR
PA (HADLOCK)	AGC? N	BPM :	BPM
(TBL2)	AGC? N	IFA :	cm
(TBL2)	AGC? N	/	%
(TBL2)	AGC? N		
(TBL2)	AGC? N	TERME/DDR :	
(TBL2)	AGC? N	TERME/AGC :	
AGC :			
COMMENT :			
EXCRIT PAR :		DATE :	

FRENCH SOFTWARE
ILLUSTRATION 3-29

SECTION (E) Preset all the parameters reset by the initialization.**11. Preset all the parameters reset by the initialization.****11-1. Hospital Name setting.**

- i. Press the <Control>, H and then the <Enter> key.
- ii Type "Hospital Name" and press the <Enter> key. Confirm that the Hospital Name is displayed in upper-left corner on the monitor.
- iii Press the <Control> key.

11-2. Record Output (Gamma Curve Selection) setting.

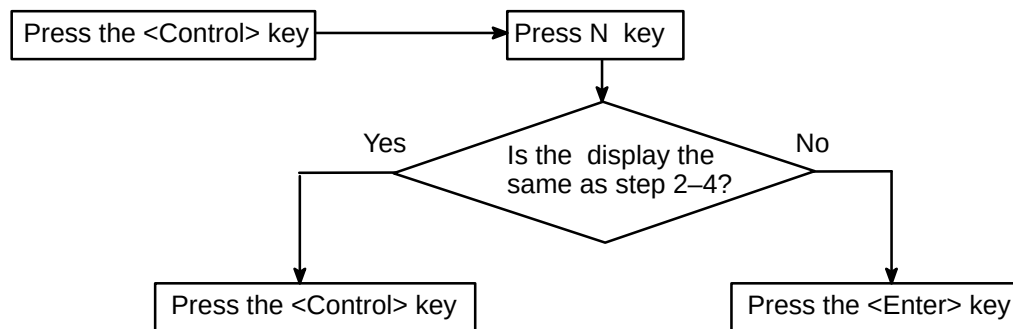
- i. Preset the Record Output (Gamma Curve Selection) recorded in step 2-2.
Refer to the Operator Manual to preset the Record Output (Gamma Curve Selection). If user was using polaroid , preset the Film Development Time.

Film Development Time setting.

- i. Preset the Film Development Time recorded in step 2-2.
Refer to the Operator Manual to preset the Film Development Time.

11-3. Inverse setting.

- i. Preset the Inverse setting recorded in step 2-3
Refer to the Operator Manual to preset the Inverse.

11-4. Map Package setting.**11-5. Dotted Line setting.**

- i. Preset the Dotted Line setting recorded in step 2-5.
Refer to the Operator Manual to preset the Dotted Line.

11-6. Frame Averaging setting.

- i. Preset the Frame Averaging setting recorded in step 2-6.
Refer to the Operator Manual to preset the Frame Averaging.

11-7. OB Table Data settings.

- i. Preset the OB Table Data recorded in step 2-7.
Refer to the Operator Manual to preset OB Table Data.

11-8. Body Pattern Package settings.

- i. Preset the Body Pattern Package recorded in step 2-8.
Refer to the Operator Manual to preset the Body Pattern Package.

SECTION (E) (continued)**11–9. Probes parameter settings.**

- i. Connect one of the probes used by the doctor and modify the value of the probe parameter settings in order to obtain the correct values (Gain, Dynamic, Focus, Scale, Direction, Inverse, Map and HFR). Refer to the Operator Manual to preset the Probes parameter.
- ii. Press the <Control>, B and then the <Enter> key. Now, all the settings for one probe are completed.
- iii. Repeat the same setting procedure for the other probes.
- iv. Press the <Control> key.

11–10. Additional anatomical features settings (Version 2 style B, Version 4 Style D or Version 5 Style E).

Skip this step for Version 1 (Style A).

- i. Enter the Additional anatomical features recorded in step 2–10.
Refer to the Operator Manual to enter Additional anatomical features.

11–11. User Programmable Comments Library (Version 2 style B, Version 4 Style D or Version 5 Style E)..

Skip this step for Version 1 (Style A).

- i. Enter code and text recorded in step 2–11.
Refer to the Operator Manual to Enter code and text.

12. Dispose of excess material.

13. This completes the procedures.

3-10 GERMAN ROM

Purpose

Installation of the German ROM on the MST Board.

Supply Parts List :

There are two kinds of German ROM. The one used depends on the MST Boards Parts number. Install German EPROMs up carefully. See the Table below.

NO	Version (Style)	MST-E Assy	German ROM	LOCATION
1	Version 4 (style D)	P9514ZZ-00	P9514QV P9514QW	U9A U11A
2	Version 5 (style E)	2113953-3	2113971-3 2113972-3	U9A U11A

Man Power

1.5~4 h 1 SVE Engineer (Depending on whether the system has already been used by customer or not; refer to Illustration 3-30).

Required Tool

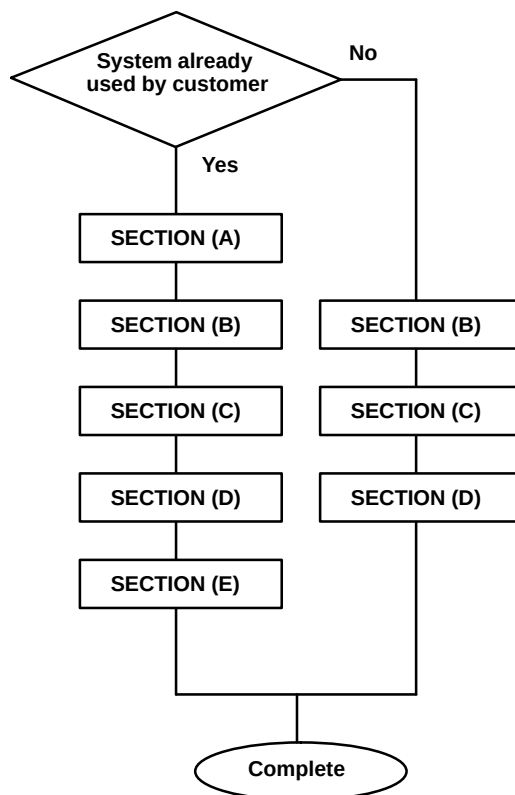
Standard Tolls

Procedure

This German ROM Installation Instruction consists of the following sections.

- SECTION (A) : Data Recording
- SECTION (B) : Installation of the German ROM
- SECTION (C) : System Initialization
- SECTION (D) : Confirm the System is German Software.
- SECTION (E) : Preset All Parameters reset by Initialization

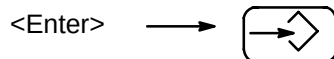
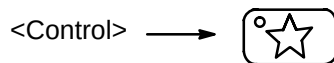
If the system has already been used by the customer, it is necessary to record the user's defined preset parameters prior to changing the EPROM(s). In this case, refer to the Operator Manual to input the system data.

Procedure (continued)

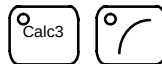
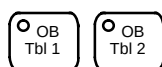
PROCEDURE FLOW CHART
ILLUSTRATION 3-30

SECTION (A) Data Recording

The <Control> key , <Enter> key and Function key group are represented below:



Function key group



Right arrow

OPERATION KEYS
ILLUSTRATION 3-31

SECTION (A) Data Recording (continued)**1. Preparation for Installation**

Perform functional checks to verify that the System is functioning properly. Refer to Functional Check Chapter 4 in this Service Manual.

2. Record or identify all parameters set by the user. Refer to Operator Manual to record or identify.**2-1. Record the Hospital Name.**

- i Record the Hospital Name, which is displayed in the upper-left corner of the monitor.

2-2. Record Output (Gamma Curve Selection).

- i Identify whether the user was using video or polaroid. If the user was using polaroid, measure the Film Development Time.

Measure the Film Development Time.

- i Press the <Control>, R, P and then the <Enter> key.
- ii Press the <Record> key and then measure the Film Development Time and record it.
- iii Press the <Control> key.

2-3. Identify the Inverse Display Setting.

- i Record the Monitor Display inverse setting (negative or positive).
- ii Press the <Record> key and then note the Inverse setting of the printout recorder. If the Monitor Display changes polarity (negative or positive) then the printout recorder is set opposite to the monitor.

2-4. Identify the Map Package.

- i Read the Operator Manual carefully for this function to avoid confusion.
- ii Press the <Control> and N keys and then record whether the Map is A or B.
- iii Press the <Control> key.

2-5. Identify the Dotted line.

- i Measure the length of something and then record whether the system Dotted Line is ON or OFF.

2-6. Identify the Frame Averaging.

- i Watch the image carefully to compare the frame averaging condition before and after step ii is performed.
- ii Press the <Control>, W and <Enter> keys and then record whether the Frame Averaging is ON or OFF.
- iii Press the <Control> key.

2-7. Record the OB Table Data set by the user.

- i Press the <Control> key.
- ii Input "G1" followed by the <Enter> key.
- iii Record all the OB Table Data set by the user and press the <Enter> key.
- iv Repeat steps ii and iii for each of G2, G3, G4 and G5.
- v Press the <Control> key.

2-8. Identify the Body Pattern Package in use.

- i Press the <>key.
- ii Record the Body Pattern which is displayed in the lower-left corner of the monitor.
- iii Press the <>key.

SECTION (A) Data Recording (continued)**2-9. Record Probe Data.**

The number of connectable probes differs depending on the Version (Style).

The parameter setting image in Illustration 3-32 may not be the same in every case. Illustration 3-32 is shown as Version 4(Style D) . However the procedure is the same as the following:

- i. Press the <Control>, S , ! and then the <Enter> key and verify that the CRT displays "SERVICE !" in upper-left corner of the screen.
- ii Press the S , E and <Enter> keys.
- iii All the probe parameter settings appear on the screen. If they are different from those in the attached list, record the screen (or write down any different items directly onto illustration 3-32).
- iv Press the <Control> key.

[SERVICE! 13/12/91 13:55:26 CA 5MHz *1.0									
PRB	G	DR	FOCUS	SCL	DIR	INV	MAP	HFR	
CK	50	54	3	1.0	NOR	NOR	NOR	OFF	
ATV	50	54	3	1.0	NOR	NOR	NOR	OFF	
MZ	50	48	3	1.5	RVS	NOR	NOR	OFF	
RA	50	54	3	2.0	NOR	NOR	NOR	OFF	
L	50	54	3	1.0	NOR	NOR	NOR	OFF	
S	50	54	3	1.0	NOR	NOR	NOR	OFF	
K	50	54	3	1.0	NOR	NOR	NOR	OFF	
A	50	54	3	1.0	NOR	NOR	NOR	OFF	
B	50	54	3	1.0	NOR	NOR	NOR	OFF	
C	50	54	3	1.0	NOR	NOR	NOR	OFF	
D	50	54	3	1.0	NOR	NOR	NOR	OFF	
E	50	54	3	1.0	NOR	NOR	NOR	OFF	
F	50	54	3	1.0	NOR	NOR	NOR	OFF	
G	50	54	3	1.0	NOR	NOR	NOR	OFF	
H	50	54	3	1.0	NOR	NOR	NOR	OFF	
I	50	54	3	1.0	NOR	NOR	NOR	OFF	
J	50	54	3	1.0	NOR	NOR	NOR	OFF	
R	50	54	3	1.0	NOR	NOR	NOR	OFF	
CV	50	54	3	1.0	NOR	NOR	NOR	OFF	
CA	50	54	3	1.0	NOR	NOR	NOR	OFF	
CB	50	54	3	1.0	NOR	NOR	NOR	OFF	
CC	50	54	3	1.0	NOR	NOR	NOR	OFF	
G50D54T60									
CONTROL : SE									
									GE

MANUFACTURE'S PRESET PARAMETER

ILLUSTRATION 3-32

SECTION (A) Data Recording (continued)

- 2-10. Record the additional anatomical features added by the user in the Anatomical Survey Summary.
- i. Press the <Control>, O and then the <Enter> key.
 - ii Press the right arrow key at the bottom of the Function key group twice.
 - iii The anatomical Survey Summary appears on the screen. If the operator added anatomical features to the list, record the screen (or write down any different items directly onto illustration 3-33).
 - iv Press the <Control> key.

NAME :
ID :
REFERRAL :
REFERRED FOR:

EXAM DATE: 12/08/92

LMP :
GRAVIDA:
PARA :

ANATOMICAL SURVEY		
	IMAGED?	APPEARANCE
HEAD	YES NO	
FOUR CHAMBER VIEW	YES NO	
SPIN	YES NO	
STOMACH	YES NO	
KIDNEYS	YES NO	
CORD INSERTION	YES NO	
BLADDER	YES NO	
UPPER EXTREMITIES	YES NO	
LOWER EXTREMITIES	YES NO	
	YES NO	
	YES NO	
	YES NO	
	YES NO	

COMMENTS :
REPORTED BY :
REPORT DATE :

USER SETTING AREA

ANATOMICAL SURVEY TABLE
ILLUSTRATION 3-33

-



-

SECTION (B) Installation of the French ROM

4. Remove the BACK PANEL to access the MST board. Refer to illustration 3–35.

- 4–1. Remove the six rubber caps.
 4–2. Unscrew the six screws from the back panel of the RT-x200.
 4–3. Remove the back panel from the console.

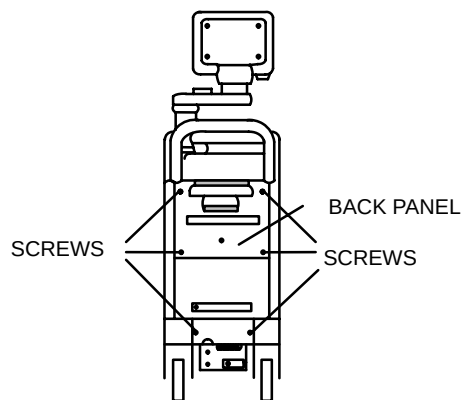
**BACK PANEL REMOVAL**

ILLUSTRATION 3–35

5. MST Board

- 5–1. Remove the MST Board (A3) from the card cage and confirm that the MST Board # is in the list below:
 5–2. Remove the English ROM(s) at the location(s) listed in step 5–3.



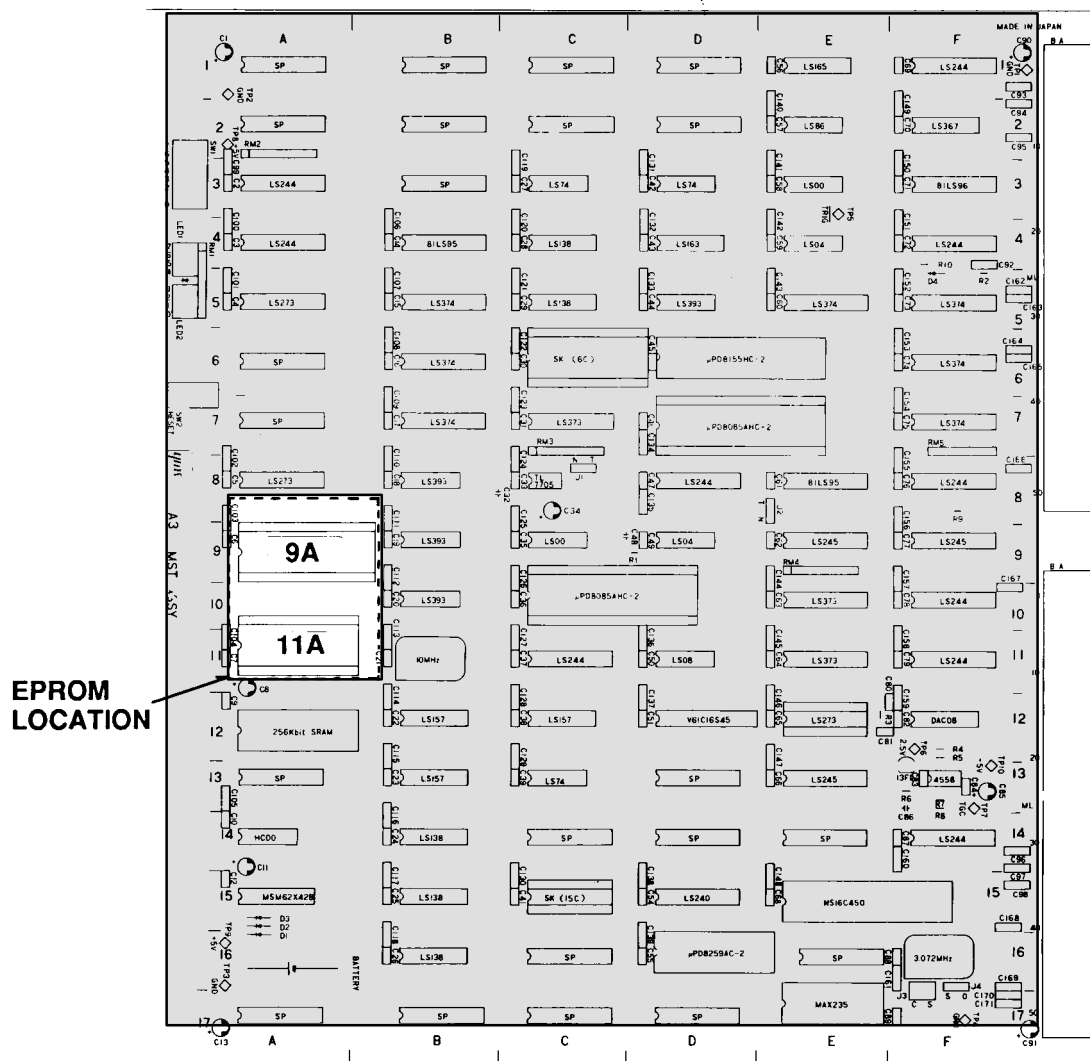
Be sure the EPROM pins are straight before installation!

Be very careful to straighten pins if necessary.

- 5–3. Install the German ROM(s) in the following location(s) identified in the Table. Refer to illustration 3–36.

MST Board #	Location	English ROM Part #	German ROM Part #
P9514ZZ-00	U9A	P9514NW-00	P9514QV
	U11A	P9514NX-00	P9514QW
2113953	U9A	2113967-3	2113971-3
	U11A	2113968-3	2113972-3

SECTION (B) Installation of the French ROM (continued)



A3 MST ASSY COMPONENT SIDE
ILLUSTRATION 3-36

- 5-4. Reinstall the MST board.
- 5-5. Reinstall the back panel of the RT-x200 unit.
6. Put the English EPROM in the ROM case and then ask the customer to keep it.
7. Plug In the RT-x200 unit.
8. Turn the power on.

SECTION (C) System Initialization

9. System Initialize

- 9-1. Press the <Control>, S, ! and then the <Enter> key.
- 9-2. Press the S, V and <Enter> keys.
- 9-3. Press the S, W and <Enter> keys.
- 9-4. Press the S, Z and <Enter> keys.

SECTION (D) Confirm the system is German ROM software.

10 Confirm the system is German ROM software.

- 10-1. Press the <Control>, G, R and <Enter> keys.
- 10-2. Confirm that the Gestational Report Page is displayed as shown in Illustration 3-37.
- 10-3. Press the <Control> key.

NAME : _____		EXAM DATE: 04 / 04 / 93	
ID : _____	AGE :		
REFERRAL: _____	LMP :	EGA: _____	GRAVI DA : _____
REFERRED FOR: _____		PARA : _____	
GESTATIONAL AGE		CALCULATIONS	
GA BY LMP :	CGA? N	FL/BPD :	%
BPD(HANSMANN)	CGA? N		
CRL(HANSMANN)	CGA? N		
FL(HANSMANN)	CGA? N		
GSD(HANSMANN)	CGA? N	EFBW:	
ATD(HANSMANN)	CGA? N	(BIP, ATD):	0,000 KG
		HEART RATE:	BPM
(TBL2)	CGA? N	AFI:	cm
(TBL2)	CGA? N	/	%
(TBL2)	CGA? N		
(TBL2)	CGA? N	EDD BY LMP :	
(TBL2)	CGA? N	EDD BY EGA :	
CGA :		EDD BY CGA :	
COMMENT :			
REPORTED BY : _____		REPORT DATE : _____	

GERMAN OB SOFTWARE

ILLUSTRATION 3-37

SECTION (E) Preset all the parameters reset by the initialization.**11. Preset all the parameters reset by the initialization.****11-1. Hospital Name setting.**

- i. Press the <Control>, H and then the <Enter> key.
- ii Type "Hospital Name" and press the <Enter> key. Confirm that the Hospital Name is displayed in upper-left corner on the monitor.
- iii Press the <Control> key.

11-2. Record Output (Gamma Curve Selection) setting.

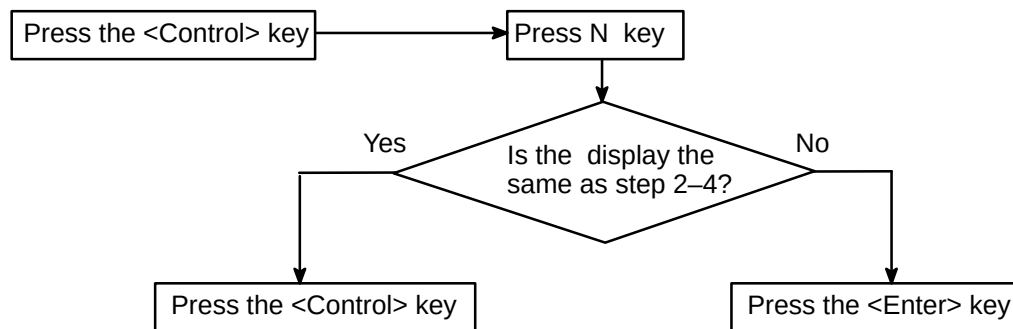
- i. Preset the Record Output (Gamma Curve Selection) recorded in step 2-2.
Refer to the Operator Manual to preset the Record Output (Gamma Curve Selection). If user was using polaroid , preset the Film Development Time.

Film Development Time setting.

- i. Preset the Film Development Time recorded in step 2-2.
Refer to the Operator Manual to preset the Film Development Time.

11-3. Inverse setting.

- i. Preset the Inverse setting recorded in step 2-3
Refer to the Operator Manual to preset the Inverse.

11-4. Map Package setting.**11-5. Dotted Line setting.**

- i. Preset the Dotted Line setting recorded in step 2-5.
Refer to the Operator Manual to preset the Dotted Line.

11-6. Frame Averaging setting.

- i. Preset the Frame Averaging setting recorded in step 2-6.
Refer to the Operator Manual to preset the Frame Averaging.

11-7. OB Table Data settings.

- i. Preset the OB Table Data recorded in step 2-7.
Refer to the Operator Manual to preset OB Table Data.

11-8. Body Pattern Package settings.

- i. Preset the Body Pattern Package recorded in step 2-8.
Refer to the Operator Manual to preset the Body Pattern Package.

SECTION (E) (continued)**11–9. Probes parameter settings.**

- i. Connect one of the probes used by the doctor and modify the value of the probe parameter settings in order to obtain the correct values (Gain, Dynamic, Focus, Scale, Direction, Inverse, Map and HFR). Refer to the Operator Manual to preset the Probes parameter.
- ii Press the <Control>, B and then the <Enter> key. Now, all the settings for one probe are completed.
- iii Repeat the same setting procedure for the other probes.
- iv Press the <Control> key.

11–10. Additional anatomical features settings.

- i. Enter the Additional anatomical features recorded in step 2–10.
Refer to the Operator Manual to enter Additional anatomical features.

11–11. User Programmable Comments Library.

- i Enter code and text recorded in step 2–11.
Refer to the Operator Manual to Enter code and text.

12. Dispose of excess material.

13. This completes the procedures.

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4–1 INTRODUCTION

This chapter provides procedures for quickly checking of the RTfino/RT3200 Advantage–II/RT–x200. The other service chapters are Chapter 6, Service Adjustments.

Note

- These procedures form part of the Installation Checklist found in Chapter 3, Installation, and should be performed during installation.
- However, these procedures are also the basic checks to use when service is required. In this case, use this section's table of contents to locate and exercise the specific function related to the service complaint.

4–1–1 Required Equipment

To perform these tests, you'll need the following items:

- 3.5 MHz B Type Linear Transducer or a 3.5 MHz CB type convex transducer.

4-2 FUNCTIONAL CHECK PROCEDURES

4-2-1 Power Up

Test Setup/Operation

1. Connect the B type transducer or the CB type transducer to Probe Receptacle No. 1.
2. Turn on **POWER** switch.

Functional Check/Evaluation

- a. Two beeps sound.



- b. The following LED is ON continuously:

Preset

- c. After about two seconds, the following LEDs light:

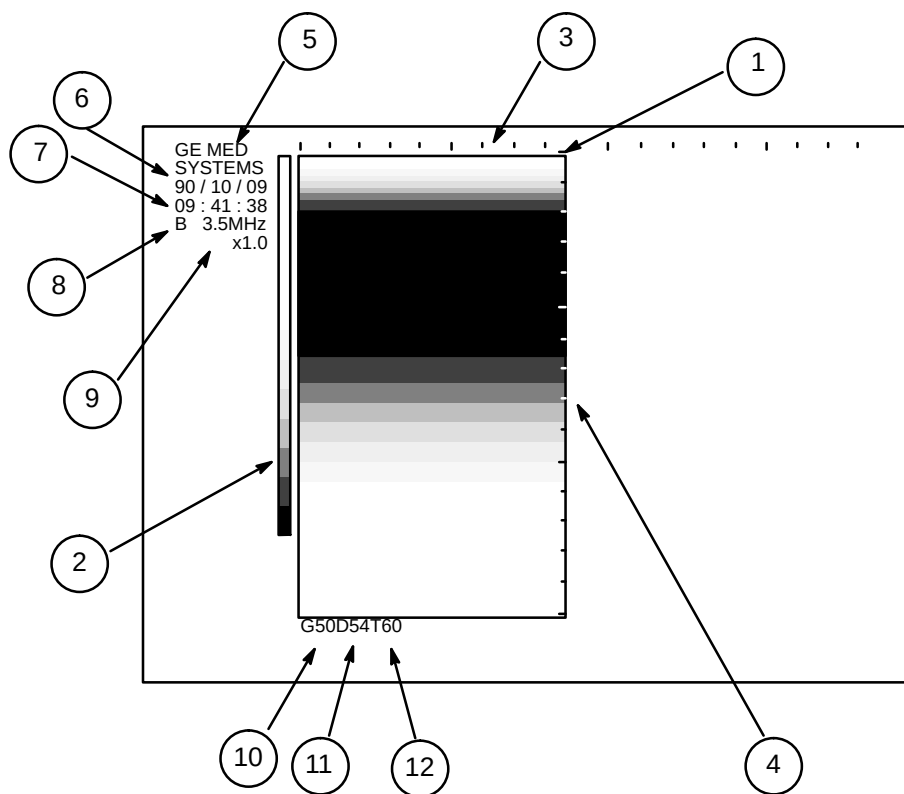
1. Focus – 3
2. Scale – X1

- d. After about 3 seconds, these LEDs lightup :
Mode B / Probe / Sweep speed

- e. After about four seconds, these displays appear on CRT (See Illustration 4-1):

1. B-Mode Image
2. Gray Scale Display
3. Horizontal Scale Marker
4. Vertical Range Marker
5. Hospital Name (Optional)
6. Date (Day, Month, Year)
7. Time (Hour, Min., Second)
8. Probe Type/Frequency
9. Scale Factor
10. Gain (G50)
11. Dynamic Range (D54)
12. Transmit Focus (T60)

(Items 10 through 12 form a continuous code in lower left hand corner of CRT.)



POWER UP CRT DISPLAY
ILLUSTRATION 4-1

4-2-2 REMAINING FUNCTIONAL CHECK

Please refer to OPERATOR MANUAL for the remaining functional checks.

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5-1 INTRODUCTION

RTfino/RT3200 Advantage-II/RT-x200 is a compact ultrasound scanner. It meets the routine needs of both Obstetrics and Gynecology investigations. Support of wide range of probes, gives the system added benefits to meet the diverse applications.

5-2 PRINCIPLES OF ULTRASOUND IMAGING

Ultrasound is produced by applying a short duration, high voltage pulse to the piezoelectric elements in a transducer. This causes these elements to vibrate at their resonant frequency. (This is determined by the element's thickness and tuning.) If the element is making good mechanical contact with the skin, ultrasound waves will be transmitted into the tissue. (Ultrasound gel applied to the skin prior to ultrasound scanning maximizes transmission).

5-2-1 Ultrasound Emission

Ultrasound imaging is based on the sonar principle. A short pulse of sound is transmitted from the transducer's piezoelectric crystal element into a medium of known density and propagation velocity, in this case soft tissue.

5-2-2 Reflection

1. The product of density and velocity is called acoustic impedance. If any change in acoustic impedance is encountered by the sound pulse, some of the sound will be reflected back to the piezoelectric element in the transducer. The remaining pulse will continue to greater body depths. The greater the change in acoustic impedance, the more sound will be reflected.
2. As the sound travels out and back, an electronic device is used to measure the travel time. Knowing the travel time (go-return time) and the velocity of the ultrasound wave, the distance traveled can be calculated. Thus, diagnostic ultrasound images consist of plots of distances between changes in acoustic impedances.
3. The propagation velocity of an ultrasound wave traveling through different types of body tissues is relatively consistent. An average of 1540 meters per second is used as the standard for normal diagnostic ultrasound applications. Actually, the percentage of ultrasound wave reflected by soft tissue averages less than 1%. However, signal reflection increases to 41 to 48 percent when soft tissue-bone interfaces are encountered. Table 5-1 provides reflection percentages for various types of materials.

TABLE 5-1
REFLECTION PERCENTAGES

MATERIAL TYPE	PERCENT REFLECTION
Fat-Muscle Interface (I/F)	1.08
Fat-Kidney I/F	0.64
Muscle-Blood I/F	0.07
Bone-Fat I/F	48.91
Bone-Muscle I/F	41.23
Soft Tissue-Water I/F	0.23
Soft Tissue-Air I/F	99.90
Reference: McDicken (1976)	

5-2-3 Ultrasound Displays

See Illustration 5-1. Once an ultrasound echo has returned to the transducer, it is converted into an electronic pulse which is used to calculate the distance between the transducer and the echo producing body organ. Echoes can be displayed as a function of distance by three methods:

- **Amplitude Mode:** (Not available on RTfino/RT3200 Advantage-II/RT-x200). This is simply a one-dimensional oscilloscope type display showing echo return amplitude on the vertical axis versus body depth on the horizontal axis. (See Illustration 5-1a). If transducers were only equipped with one piezoelectric element and no mechanical positioners, this would be the only display available. However, transducers usually contain piezoelectric element arrays to develop the B-Mode and M-Mode displays.
- **Brightness (B) Mode:** (Available on RTfino/RT3200 Advantage/RT-x200). This two dimensional display mode permits the operator to see ultrasound images of body tissue, bones and organs. These are the standard displays shown in Illustration 5-1b. They are cross sectional views of the body organs beneath the transducer displayed at their relative depth as measured in centimeters. (The deepest area scanned appears at the bottom of the CRT; the skin next to the probe appears at the top.)

The display is obtained by plotting, or mapping, echo source locations and intensities as display pixels. The brightness of each pixel represents the strength or amplitude of the returning echoes; in the normal display mode, the brighter the pixel, the stronger the returning signal.

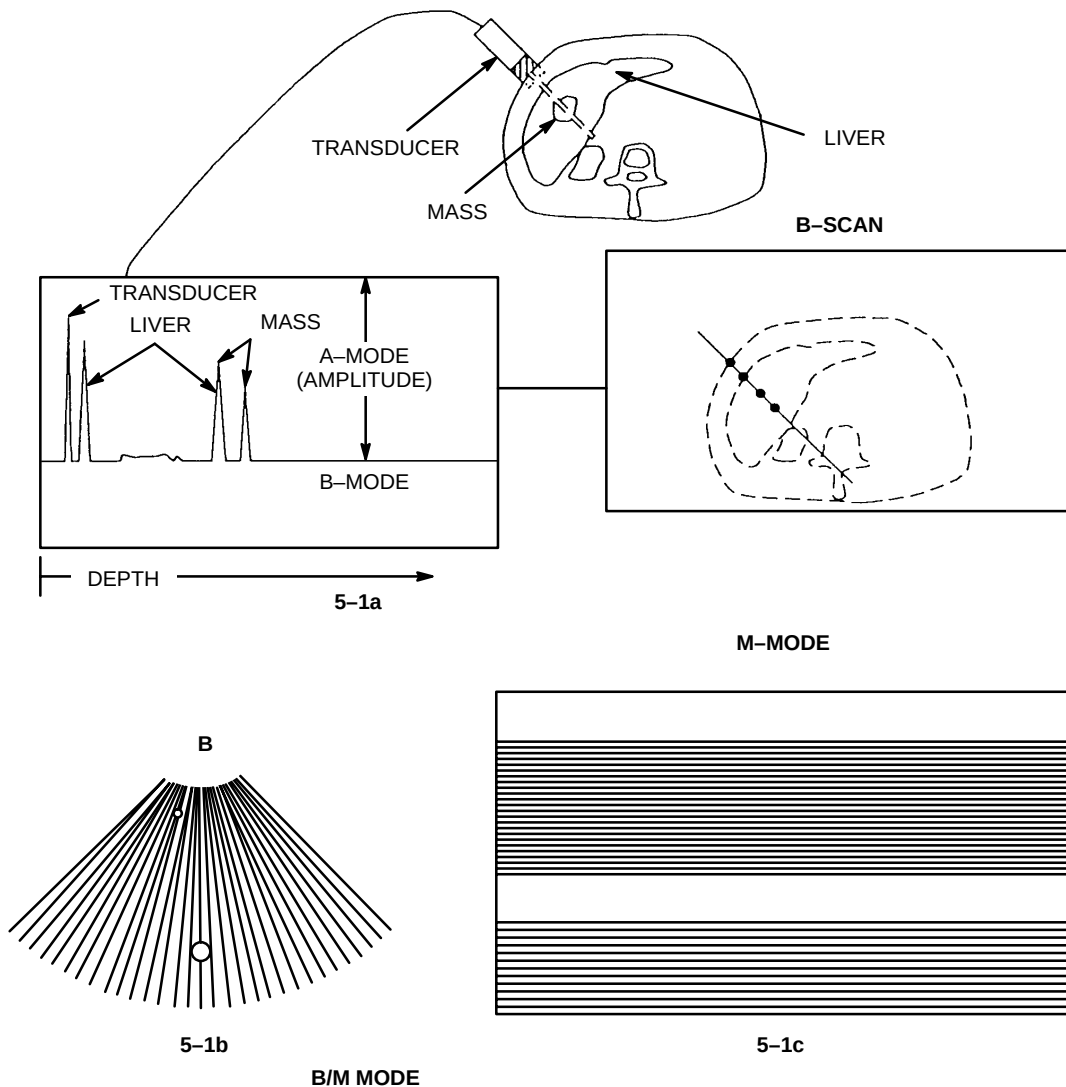
This display method requires a transducer with an array of piezoelectric elements. The elements in the array are sequentially pulsed and the returning echoes are processed to obtain an image.

- **Motion (M) Mode:** (Available on RTfino/RT3200 Advantage/RT-x200). This display is formed by plotting brightness mode information on the vertical axis versus time on the horizontal axis. (See Illustration 5-1c). Motion studies are used to detect fetal heart rates, heart valve functions and other cardiac functions.

5-2-4 Beam Focusing

Ultrasound energy from a group of elements is formed into a beam for scanning purposes. This beam must be focused, or narrowed down, in a specific area called the focal zone to obtain a sharp image at the body depth under examination. Focal zone depth depends on four factors:

- Ultrasound signal frequency;
- Aperture Size of Transducer Array (the number of piezoelectric transducer elements);
- Radius of curvature for each group of piezoelectric elements. (Each element grouping is shaped like a parabola to focus its beam at a certain body depth).
- The type of electronic focusing method employed. These methods utilize various phase delay techniques to optimize focus at a specific body depth.



ULTRASOUND DISPLAY
ILLUSTRATION 5-1

Since a narrow beam is necessary to resolve small anatomical detail, it would be ideal to produce an ultrasound beam with a narrow focal zone extending along the beam's entire length. Unfortunately, this is not possible. Therefore, it is necessary to optimize ultrasound imaging by providing a variety of transducers, each designed to sharply image different body depths.

5-2-5 Echo Signal Processing

The received echo signal varies in amplitude and frequency as well as in return time. Not only is this caused by the acoustic impedance of the body material causing the echo, it is also due to the normal attenuation rate of the ultrasound signal as it travels through the body.

5-2-5 Echo Signal Processing (continued)

1. Typically, a dynamic range of more than 100 dB exists between the strongest near field echoes and the weakest far field echoes just above the threshold of noise. The strong near field echo returns are logarithmically compressed prior to signal detection to compensate for increased signal attenuation at greater body depths. This permits a uniform display of the echo source, regardless of the body depth.

5-2-6 Time Gain Compensation (TGC)/Time Frequency Compensation (TFC)

These signals are applied to the echo signal returns at the RFL pc Board.

1. TGC varies echo gain to compensate for the greater attenuation occurring to echoes from greater body depths. The amount of TGC applied depends on transducer type, echo center frequency and the acoustic impedance characteristics of the patient.
2. In operation, TGC on this system, can be adjusted by the slide Potentiometer provided on the front panel. System gain and Dynamic range are selected on power up to the default settings.
3. TFC varies the bandpass frequency of the detector in the RFL pc Board to compensate for shifts in the bandpass center frequency spectrum of echoes returning from greater body depths.

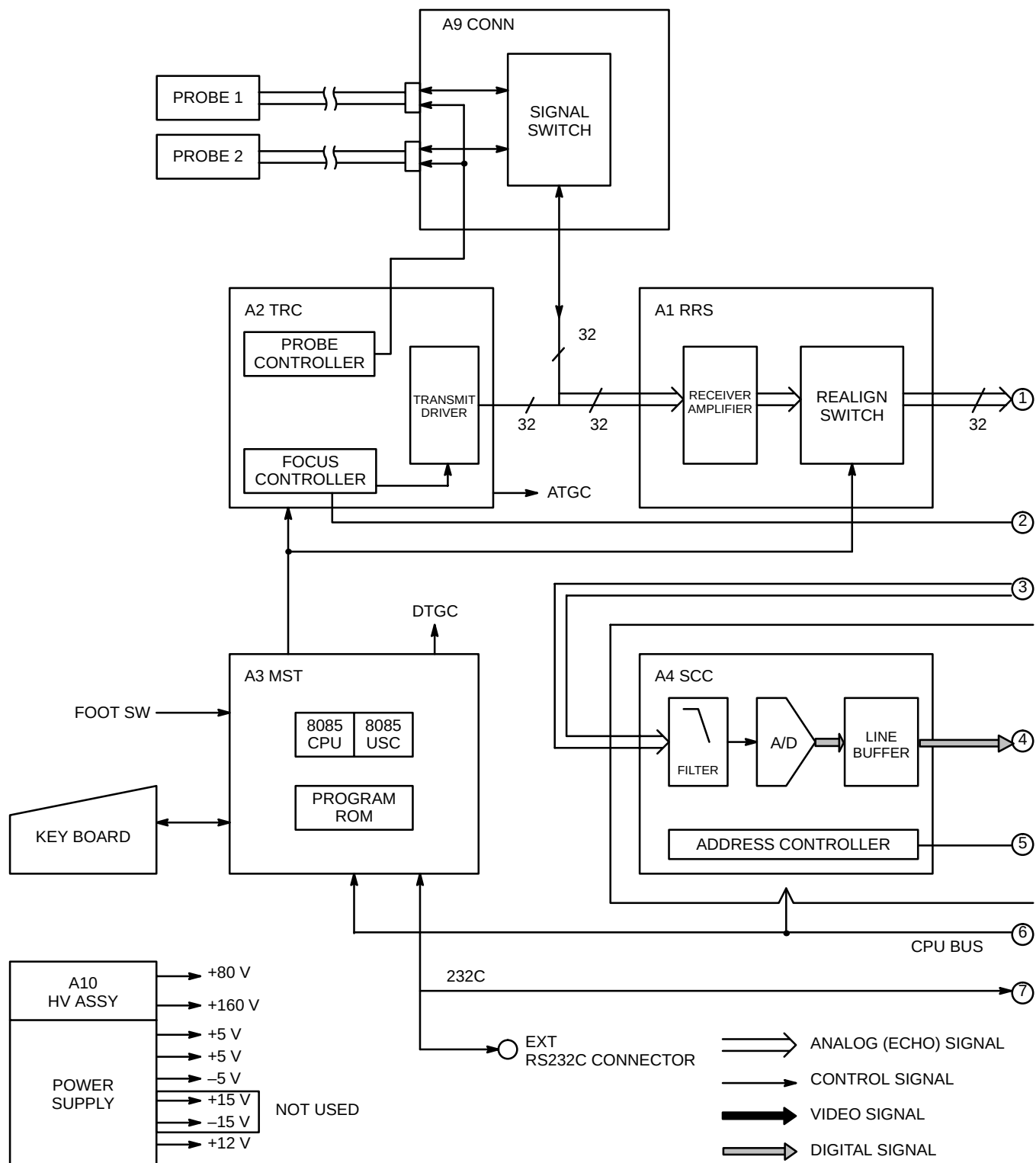
5-3 RTfino/RT3200 Advantage-II/RT-x200 SYSTEM

See Illustration 5-2, the RTfino/RT3200 Advantage-II/RT-x200 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.

5-3-1 Echo Signal Flow

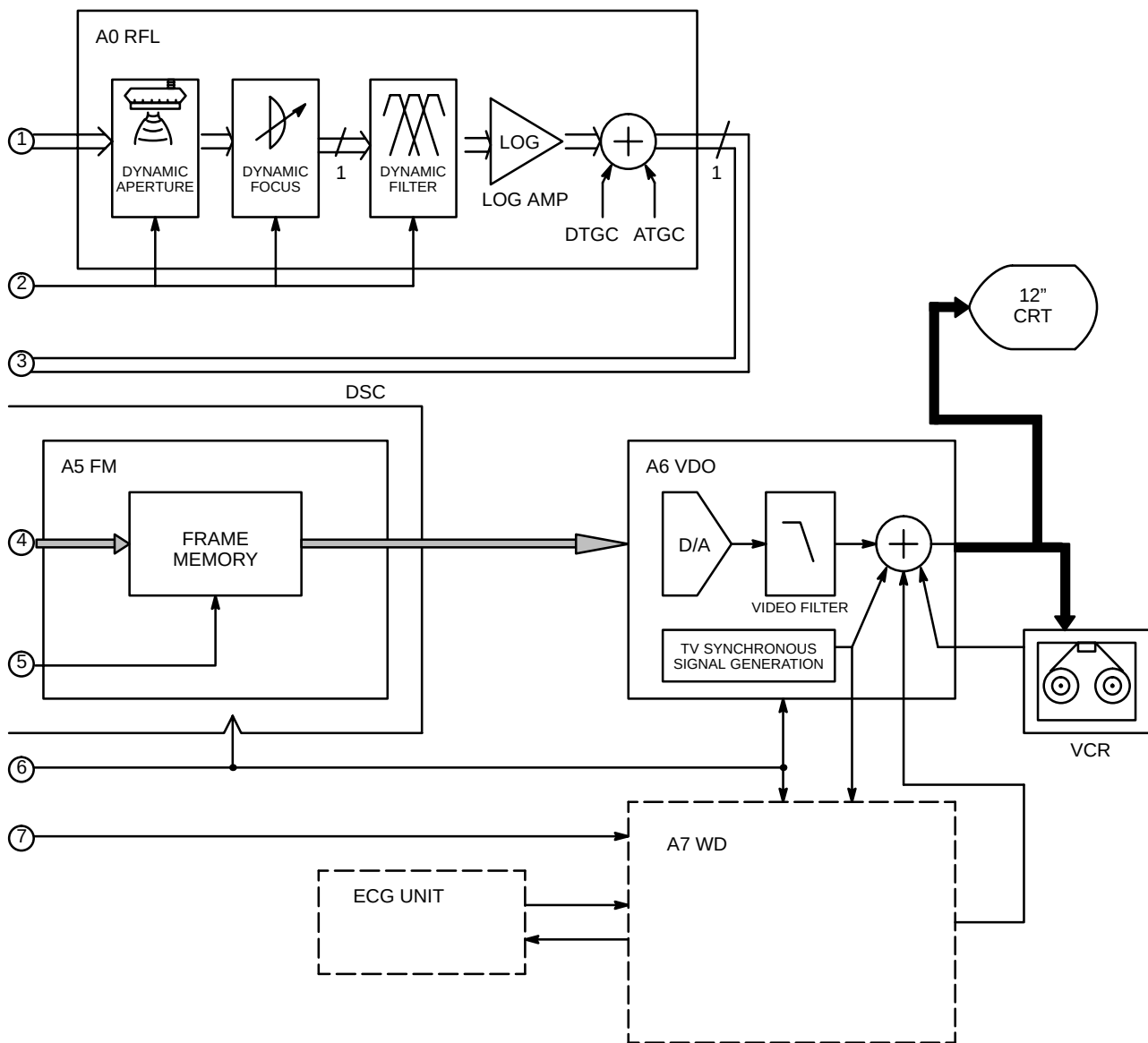
The image information signal is used in three forms as shown in Illustration 5-2. The white arrow shows the analog image signal path; the gray arrows show the digital image signal path. The black arrows show the standard TV composite video signal path. Control signals are shown in the block diagram as thin black lines. Most control lines emanate from the control section's microprocessor.

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RTfino/RT3200 Advantage-II/RT-x200 SYSTEM BLOCK DIAGRAM

ILLUSTRATION 5-2 (a)



RTfino/RT3200 Advantage-II/RT-x200 SYSTEM BLOCK DIAGRAM
ILLUSTRATION 5-2 (b)

5-3-2 Circuit Board Nomenclature

The following table lists the circuit boards and their respective card cage slot assignments on the mother board of the RTfino/RT3200 Advantage-II/RT-x200 system. The switching power supply and CRT monitors are not included in the list. PC boards in card cage slots A0 through A2 constitute the analog signal processing cards. PC boards in slots A3 through A6 comprise the digital signal processing cards. The MST board in slot A3 is the master control card. It contains the MST CPU and the USC CPU central processing units.

TABLE 5-2
CIRCUIT BOARD NOMENCLATURE

CARD CAGE SLOT	PC BOARD
A0	RFL (Receive Focus and Log)
A1	RRS (Receive and Rearrange Signal)
A2	TRC (Transmit and Receive Control)
A3	MST (Master Controller)
A4	SCC (Scan Converter Controller)
A5	FM (Frame Memory)
A6	VDO (Video Data Output)

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6-1 INTRODUCTION

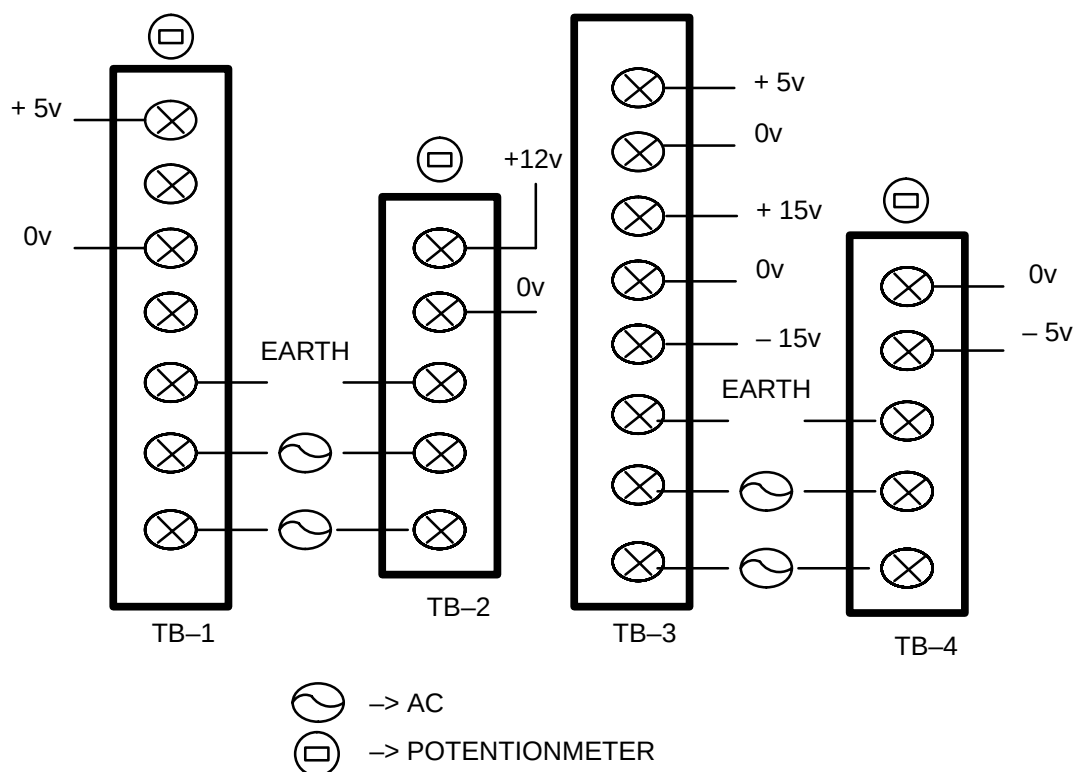
This chapter provides service adjustment procedures for the RTfino/RT3200 Advantage-II/RT-x200. Adjustments should be made only when necessary.

6-2 LOW VOLTAGE (+/- 5 VDC, +12 VDC) POWER SUPPLY ADJUSTMENT

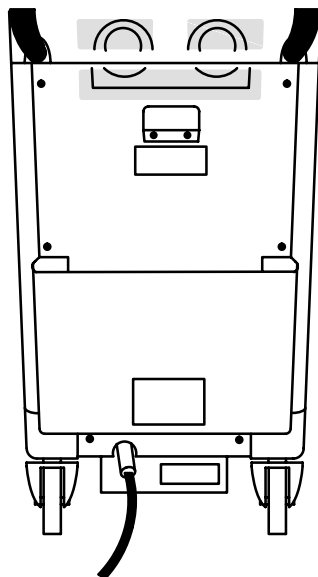
These supply voltages should be adjusted under load; therefore leave all cards and the TV monitor connected.

Procedure:

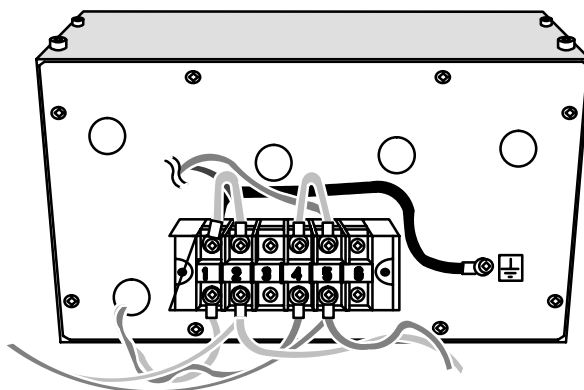
1. Remove the rear cover to gain access to the power supply area. Unscrew six screws shown in Illustration 6-2; then remove rear cover.
2. To gain access to power supply adjustment potentiometers, remove eight screws fastening cover of power supply. (See Illustration 6-3).
3. Move the cover to the side, ensuring no damage to the wires. Gently, pull out the plastic shields on the terminal blocks.
4. Connect a DVM with 100,000 ohms/volt isolation, minimum, to the 5 vdc monitor points on the terminal block, TB-1. (See Illustration 6-1). Turn system on.
5. Adjust the 5 vdc potentiometer for 5.20 vdc (+/- 0.05 vdc).
6. Reconnect DVM to -5 vdc monitor points on terminal block, TB-4. (See Illustration 6-1).
7. Adjust -5 vdc potentiometer for -5.00 vdc (+/- 0.05 vdc).
8. Reconnect DVM to +12 vdc monitor points on Terminal Block, TB-2. (See Illustration 6-1).
9. Adjust +12 vdc potentiometer for 12.10 vdc (+/- 0.10 vdc). Adjustments are complete.

6-2 LOW VOLTAGE (+/- 5 VDC, +12 VDC) POWER SUPPLY ADJUSTMENT (continued)

LOCATION OF TERMINAL AND POTENTIOMETER
ILLUSTRATION 6-1



REAR CONSOLE COVER
ILLUSTRATION 6-2

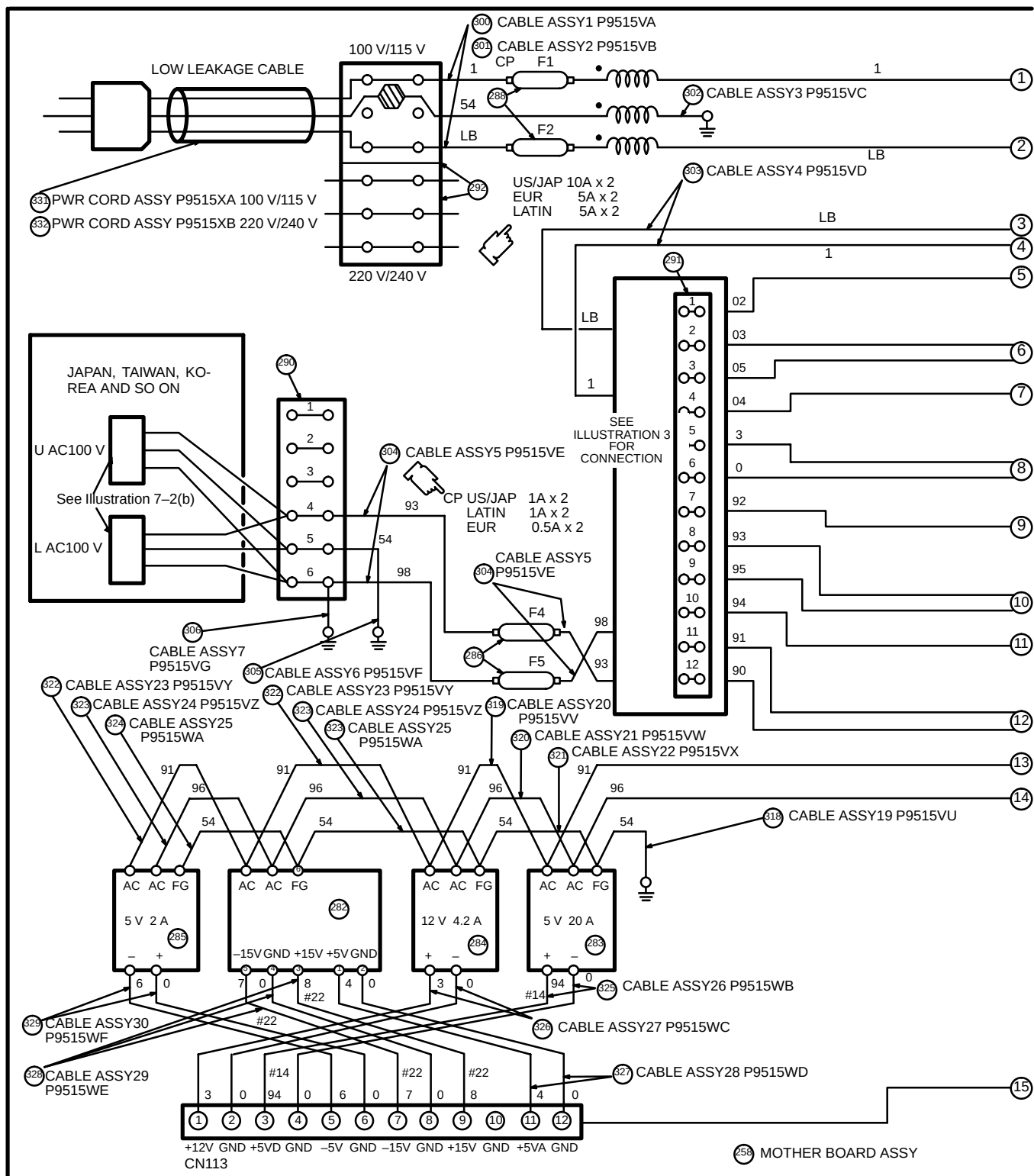
6-2 LOW VOLTAGE (+/- 5 VDC, +12 VDC) POWER SUPPLY ADJUSTMENT (continued)

POWER SUPPLY UNIT
ILLUSTRATION 6-3

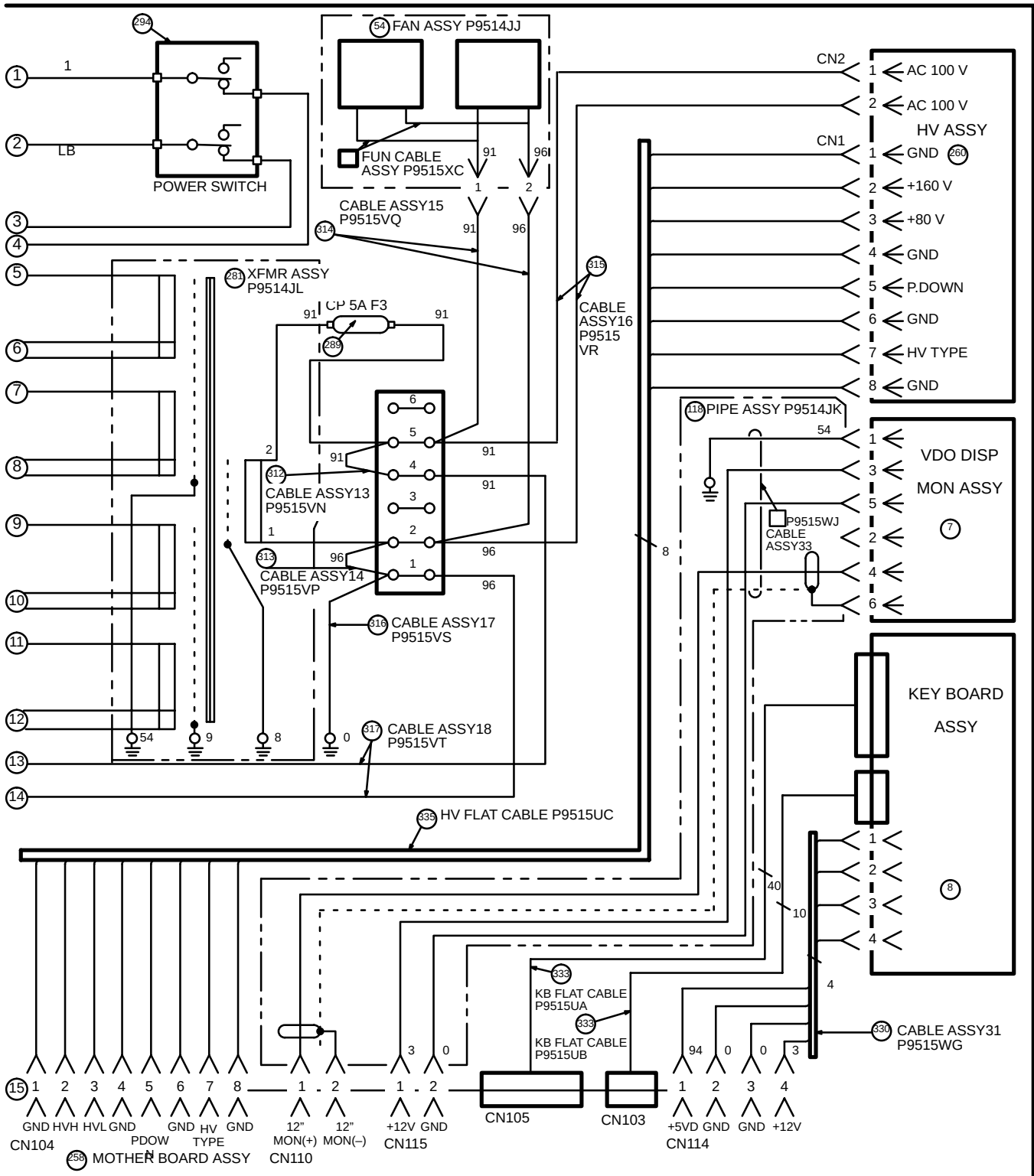
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7-1 OPERATOR CONSOLE ASSY (RTfino/RT3200 Advantage-II/RT-x200)



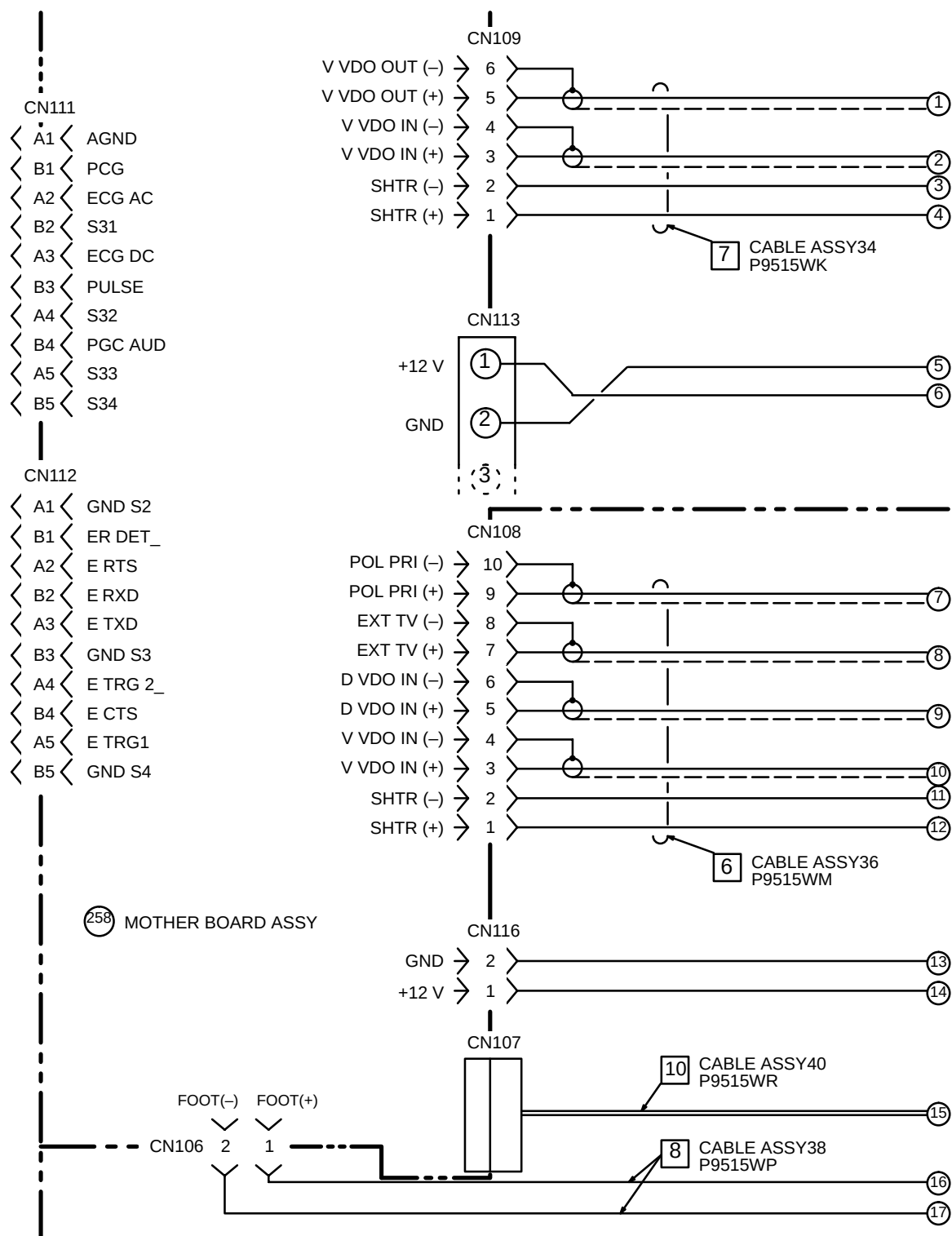
7-1 OPERATOR CONSOLE ASSY (RTfino/RT3200 Advantage-II/RT-x200) (Continued)



RTfino/RT3200 Advantage-II/RT-x200 WIRING SCHEMATIC (1)

ILLUSTRATION 7-1 (b)

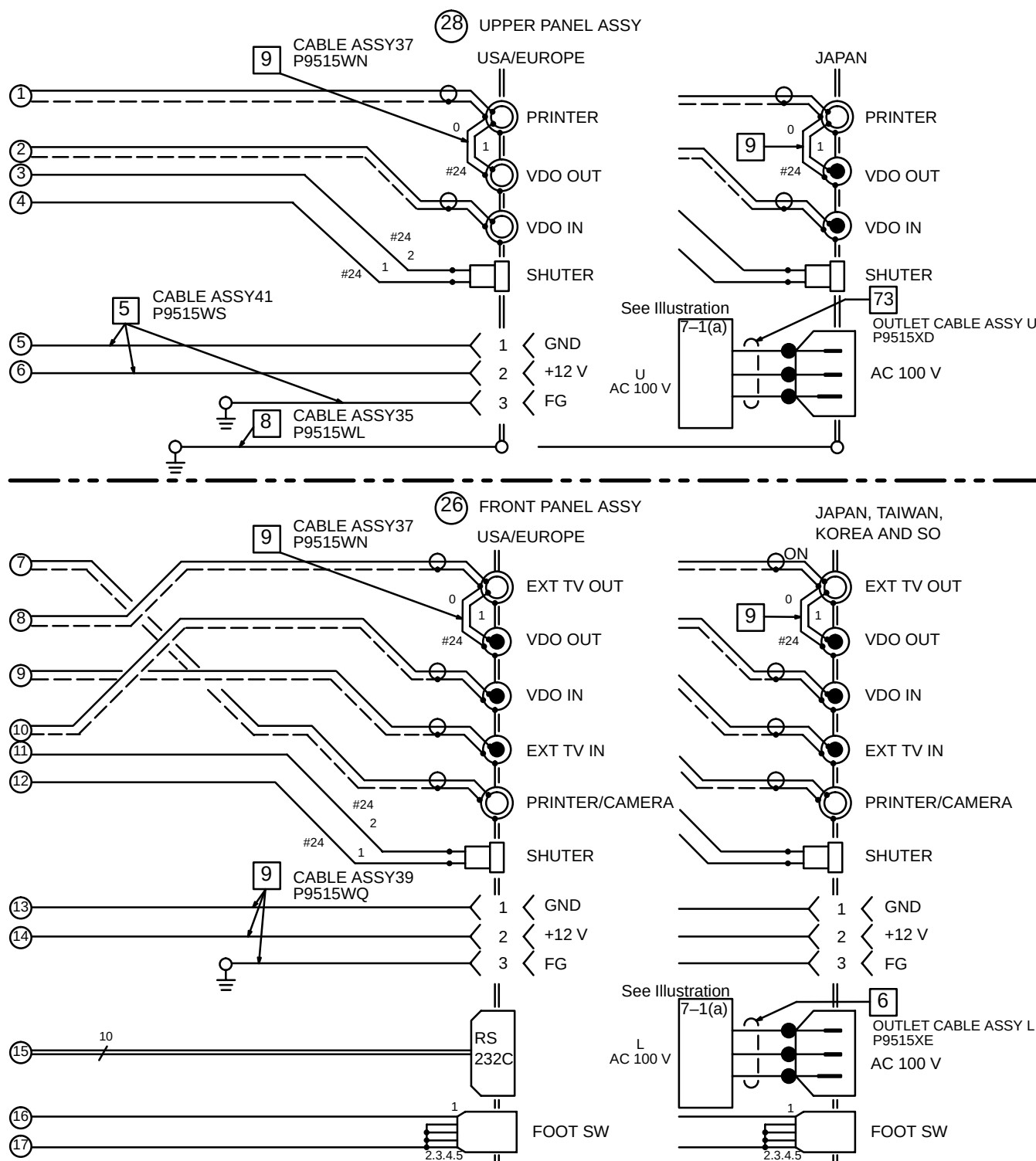
7-1 OPERATOR CONSOLE ASSY (RTfino/RT3200 Advantage-II/RT-x200) (continued)



RTfino/RT3200 Advantage-II/RT-x200 WIRING SCHEMATIC (2) △

ILLUSTRATION 7-2 (a)

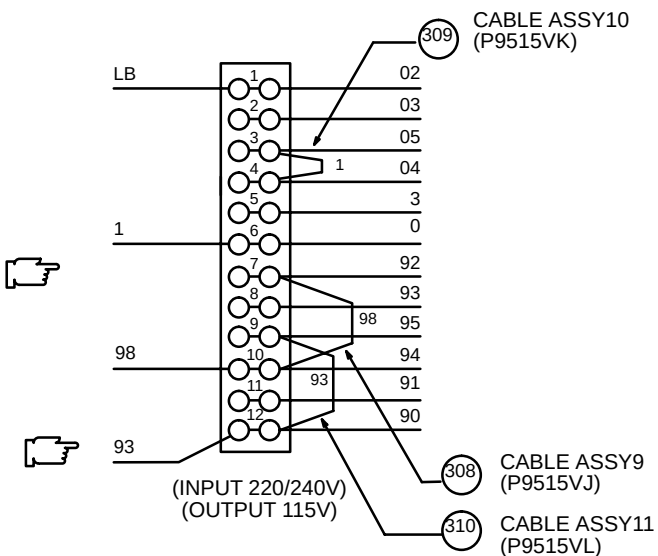
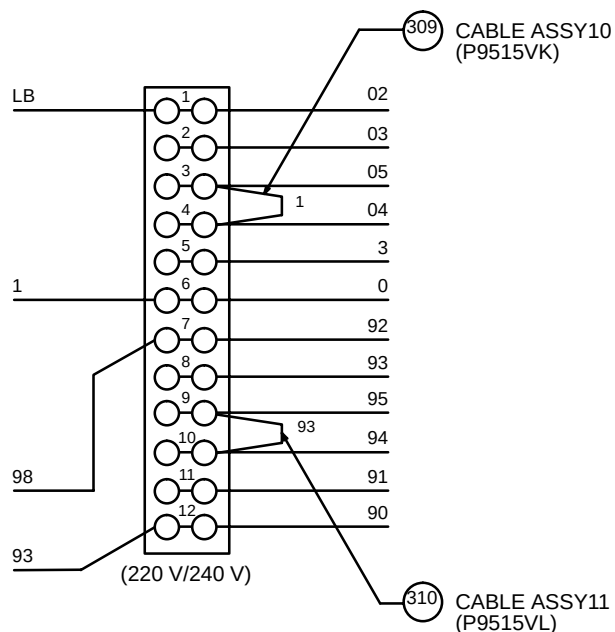
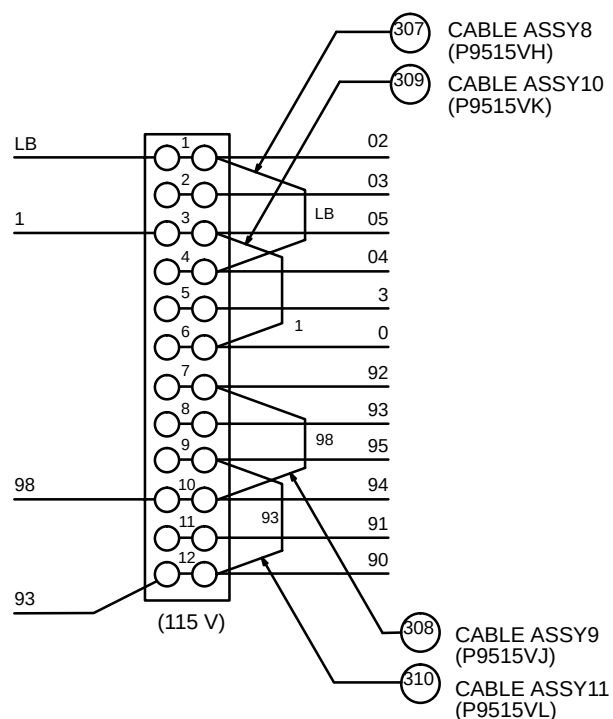
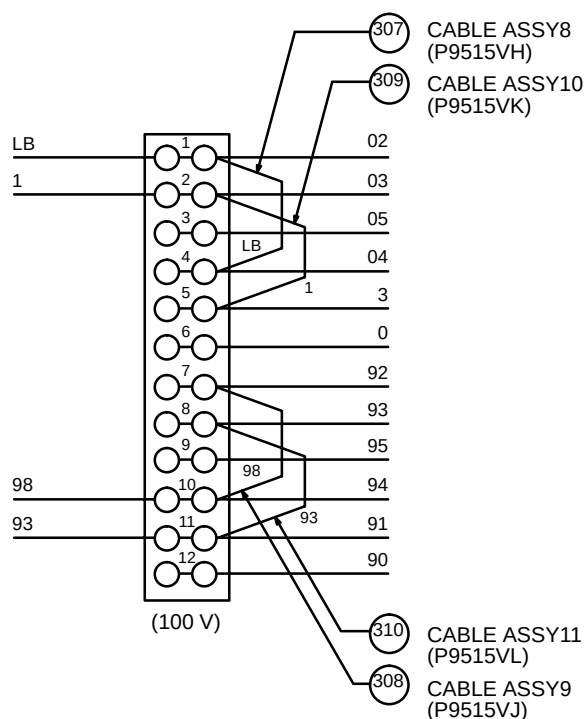
7-1 OPERATOR CONSOLE ASSY (RTfino/RT3200 Advantage-II/RT-x200) (continued)



RTfino/RT3200 Advantage-II/RT-x200 WIRING SCHEMATIC (2)

ILLUTRATION 7-2 (b)

7-1 OPERATOR CONSOLE ASSY (RTfino/RT3200 Advantage-II/RT-x200) (continued)



RTfino/RT3200 Advantage-II/RT-x200 WIRING SCHEMATIC (3)

ILLUSTRATION 7-3

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8-1 INTRODUCTION

The following paragraphs describe the two software diagnostics programs used to localize fault areas on pc boards in card slots A3 through A6. These cards are the A3 MST board, A4 Scan Converter Controller, A5 Frame Memory, and A6 VDO board.

8-2 SERVICE SOFTWARE

There are two service software operating modes: SS (Service Software Program) and SDP (Service Diagnostics Program). The SDP program tests MST CPU memory ICs on the MST Board. The SS Program tests memory ICs on the other digital pc boards.

8-3 THE SERVICE SOFTWARE (SS) PROGRAM

8-3-1 Entering Service Software Program

Press **<CONTROL> S** [**<SHIFT>** and!] **<ENTER>** on the keyboard to enter the service software program. In response, SERVICE will appear on the second line of the USER NAME area. Now the Service Software routines can be accessed by means of keyboard entries.

Note

Throughout this section, the **<** and **>** marks around a key function mean press the key marked with that function, do not type it out. For example, **<CONTROL>** and **<ENTER>** are keys named CONTROL and ENTER, which you should press.

8-3-2 Leaving Service Software Program

To return to normal operating mode from service software, type **<CONTROL> S Z <ENTER>**. This resets and restarts the system similar to system initialization during power up.

8-3-3 Stopping Looping Service Software Routines

Step once on the footswitch to stop continuously looping routines.

Note

Stepping on the footswitch will no longer freeze or melt the display in the SS or SDP modes.

8-3-4 Sample Command Summary

Table 8-1 provides the command codes, operation performed, pc board tested, and looping/non-looping program type. (Memory tests loop, while test display and initialization programs run only once).

TABLE 8-1
SS COMMAND CODE SUMMARY

COMMAND	OPERATION	PC BOARD TESTED	LOOPS?
<CONTROL>			
S!	Enter Service Software Program	—	—
SB	Generate Borderline	A6 VDO Board	No
SD	Check Graphic Memory Read/Write	A6 VDO Board	Yes
<FREEZE>			
SL	Generate Grid Pattern	A6 VDO Board	No
SZ	Reset System	A3 MST Board	No

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (1/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515BE	1												Version 2 Tall, Light Gray, 115V, NTSC
		P9515JA	1												Version 2 Tall, Light Gray, 115V, NTSC
		P9515GE		1											Version 2 Tall, Light Gray, 220V, PAL
		P9515BF			1										Version 3 Tall, Light Gray, 115V, NTSC
		P9515GF				1									Version 3 Tall, Light Gray, 220V, PAL
		P9515BG					1								Version 4 Tall, Light Gray, 115V, NTSC
		P9515GG						1							Version 4 Tall, Light Gray, 220V, PAL
		P9515JB							1						Version 4 Tall, Light Gray, 115V, NTSC
		2112625 (P9515BH)								1					Version 5 Tall, Light Gray, 115V, NTSC
		2112633 (P9515GH)									1				Version 5 Tall, Light Gray, 220V, PAL
		2112634 (P9515JC)										1			Version 5 Tall, Light Gray, 115V, NTSC
	RA0005NK For USA														
	RA0005JK For USA (DF)														
	RA0005GH For Latin														
	RA0007NK For USA													RA0009JK For USA (Adv-I)	
	RA0007GH For Latin													RA0009GH For Latin	
	RA0008NK For USA													RA0009NK For USA	
	RA0008GH For Latin													RA0008JK For USA (Adv-I)	

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (2/16)

ITEM	PART NAME	PART NO.	QTY.													DESCRIPTION		
	CBL HOOK ARM2	P9514FT	1	1	1	1	1	1	1	1	1	1	1					
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	1	1					
	BAG	B9685WX	1	1	1	1	1	1	1	1	1	1	1					
	BNC CABLE	P9509BD	1	1	1	1	1	1	1	1	1	1	1					
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1	1	1	1					
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1	1	1	1					
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1	1	1	1					
	FOOT SWITCH	B9686AF	1	1	1	1	1	1	1	1	1	1	1					
	PRN PWR CORD	P9515UD	1	1	1	1	1	1	1	1	1	1	1					
	TIE WRAP	U0204AC	2	2	2	2	2	2	2	2	2	2	2					
	OP MANUAL	P9893KZ	1			1												
		P9893KU			1													
		P9893KP					1	1										
		P9893KN							1	1			1	1				
		P9893KM									1				1			
	SVC MANUAL	P9030GX	1	1	1	1	1	1	1	1	1	1	1	1				
	RA0005NK For USA																	
	RA0005JK For USA (DF)																	
	RA0005GH For Latin																	
RA0007NK For USA																RA0009JK For USA (Adv-I)		
RA0007GH For Latin																RA0009GH For Latin		
RA0008NK For USA																RA0009NK For USA		
RA0008GH For Latin																RA0008JK For USA (Adv-I)		

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (3/16)

ITEM	PART NAME	PART NO.	QTY.													DESCRIPTION
	Operator CSL Assy	2159902 (P9515BJ)	1	1												Version 6 Tall, Light Gray, 115V, NTSC
		2159908 (P9515GJ)			1	1										Version 6 Tall, Light Gray, 220V, PAL
		2159910 (P9515JD)					1	1								Version 6 Tall, Light Gray, 115V, NTSC
	Video Graphic Printer	E8310KA		1		1			1							
	CBL HOOK ARM2	P9514FT	1	1	1	1	1	1								
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1								
	BAG	B9685WX	1	1	1	1	1	1								
	BNC CABLE	P9509BD	1	1	1	1	1	1								
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1								
	Printer Tray Set	P9514JY	1	1	1	1	1	1								
	Upper Cover	P9514BS	1	1	1	1	1	1								
	FOOT SWITCH	B9686AF	1	1	1	1	1	1								
	PRN PWR CORD	P9515UD	1	1	1	1	1	1								
	TIE WRAP	U0204AC	2	2	2	2	2	2								
	TIE WRAP	U0201AC		1		1		1								
	OP MANUAL	2158323 P9893KM	1	1	1	1			1	1						
	SVC MANUAL	P9030GX	1	1	1	1	1	1								
	RA0010NK	For USA (Advantage-III)														
	RA0010PA	For USA (Advantage-III)														
	RA0010GH	For Latin														
	RA0010PB	For Latin														
	RA0010JK	For USA (Advantage-I)														
	RA0010PC	For USA (Advantage-I)														

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (4/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515CA	1												Version 1 Short, Light Gray, 220V, PAL
		P9515CC	1												Version 2 Short, Light Gray, 220V, PAL
		P9515CD		1											Version 2 Short, Light Gray, 220V ,PAL for FTZ
		P9515CF			1										Version 4 with old TRC Short, Light Gray, 220V, PAL
		P9515CG				1									Version 4 with new TRC Short, Light Gray, 220V, PAL
		P9515CH					1								Version 5 Short, Light Gray, 220V, PAL
		2163995 (P9515CJ)						1							Version 6 Short, Light Gray, 220V, PAL
	CBL HOOK ARM	P9514FJ	1	1	1	1	1	1	1						
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1					
	BAG	B9685WX	1	1	1	1	1	1	1	1					
	BNC CABLE	P9509BD	1	1	1	1	1	1	1	1					
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1					
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1					
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1					
	FOOT SWITCH	B9686AF	1	1	1	1	1	1	1	1					
	PRN PWR CORD	P9515UD	1	1	1	1	1	1	1	1					
	TIE WRAP	U0204AC	2	2	2	2	2	2	2	2					
	SHELF C SET	P9514JV	1	1	1	1	1	1	1	1					
	TIE WRAP	U0202AC									1				
	FERRITE CORE	2152657									1				
	OP MANUAL	P9893KX	1												ENGLISH
		P9893KY	1												FRENCH
	SVC MANUAL	P9030GX	1	1	1	1	1	1	1	1					
	RA0005AH	For Europe													
	RA0006AH	For Europe													
	RA0006BH	For Europe													
	RA0008AH	For Europe													
	RA0008AH	For Europe													
	RA0009AH	For Europe													
	RA0010AH	For Europe													

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MATERIAL LIST (5/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515DA	1												Version 1 Short, Light Gray, 220V, PAL
		P9515DB	1												Version 1 Short, Pink, 220V, PAL
		P9515DC		1											Version 1 Short, Green, 220V, PAL
		P9515DD			1										Version 1 Short, Blue, 220V, PAL
		P9515EA				1									Version 1 Short, Light Gray, 115/100V, NTSC
		P9515EB					1								Version 1 Short, Pink, 115/100V, NTSC
		P9515EC						1							Version 1 Short, Green, 115/100V, NTSC
		P9515ED							1						Version 1 Short, Blue, 115/100V, NTSC
		P9515FA								1					Version 1 Short, Light Gray, 115V, NTSC
		P9515FB									1				Version 1 Short, Pink, 115V, NTSC
		P9515FC										1			Version 1 Short, Green, 115V, NTSC
		P9515FD											1		Version 1 Short, Blue, 115V, NTSC
	RA0005CH	For China													
	RA0005DH	For China													
	RA0005EH	For China													
	RA0005FH	For China													RA0005HK For Taiwan
	RA0005AK	For Korea													RA0005GK For Taiwan
	RA0005CK	For Korea													RA0005FK For Taiwan
	RA0005DK	For Korea													RA0005BK For Taiwan
															RA0005EK For Korea

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (7/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515DE	1												Version 2 Short, Light Gray, 220V, PAL
		P9515DF	1												Version 2 Short, Pink, 220V, PAL
		P9515DG		1											Version 2 Short, Green, 220V, PAL
		P9515DH			1										Version 2 Short, Blue, 220V, PAL
		P9515EE				1									Version 2 Short, Light Gray, 115/100V, NTSC
		P9515EF					1								Version 2 Short, Pink, 115/100V, NTSC
		P9515EG						1							Version 2 Short, Green, 115/100V, NTSC
		P9515EH							1						Version 2 Short, Blue, 115/100V, NTSC
		P9515FE								1					Version 2 Short, Light Gray, 115V, NTSC
		P9515FF									1				Version 2 Short, Pink, 115V, NTSC
		P9515FG										1			Version 2 Short, Green, 115V, NTSC
		P9515FH											1		Version 2 Short, Blue, 115V, NTSC
	RA0006CH	For China													
	RA0006DH	For China													
	RA0006EH	For China												RA0006HK	For Taiwan
	RA0006FH	For China												RA0006GK	For Taiwan
	RA0006AK	For Korea												RA0006FK	For Taiwan
	RA0006CK	For Korea												RA0006BK	For Taiwan
	RA0006DK	For Korea												RA0006EK	For Korea

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (8/16)

ITEM	PART NAME	PART NO.	QTY.														DESCRIPTION	
	CBL HOOK ARM	P9514FJ	1	1	1	1	1	1	1	1	1	1	1	1	1			
	PLUG	U0907FD					1	1	1	1	1	1	1	1	1			
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	1	1	1	1			
	BAG	B9685WX	1	1	1	1	1	1	1	1	1	1	1	1	1			
	BNC CABLE	P9509BD	1	1	1	1	1	1	1	1	1	1	1	1	1			
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1	1	1	1	1	1			
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1	1	1	1	1	1			
	FOOT SWITCH	B9686AF	1	1	1	1						1	1	1	1			
	PRN PWR CORD	P9515UD	1	1	1	1												
	TIE WRAP	U0204AC	2	2	2	2												
	OP MANUAL	P9893KW	1	1	1	1	1	1	1	1	1	1	1	1	1			
	SVC MANUAL	P9030GX	1	1	1	1	1	1	1	1	1	1	1	1	1			
	RA0006CH For China																	
RA0006DH For China																		
RA0006EH For China																RA0006HK	For Taiwan	
RA0006FH For China																RA0006GK	For Taiwan	
RA0006AK For Korea																RA0006FK	For Taiwan	
RA0006CK For Korea																RA0006BK	For Taiwan	
RA0006DK For Korea																RA0006EK	For Korea	

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MATERIAL LIST (9/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515DJ	1												Version 3 Short, Light Gray, 220V, PAL
		P9515DK	1												Version 3 Short, Pink, 220V, PAL
		P9515DL		1											Version 3 Tall, Light Gray, 220V, PAL
		P9515EK			1										Version 3 Short, Light Gray, 115V, NTSC
		P9515FJ				1									Version 3 Short, Light Gray, 115V, NTSC
		P9515FK					1								Version 3 Short, Pink, 115V, NTSC
		P9515HB						1							Version 3 Short, Light Gray, 220V, PAL
		P9515DN							1						Version 4 Short, Light Gray, 220V, PAL
		P9515DP								1					Version 4 Short, Pink, 220V, PAL
		P9515FL									1				Version 4 Short, Light Gray, 115V, NTSC
		P9515FM										1			Version 4 Short, Pink, 115V, NTSC
		P9515HC											1		Version 4 Short, Light Gray, 220V, PAL
		P9515EL												1	Version 4 Short, Light Gray, 115V, NTSC
	RA0007CH	For Singapore													
	RA0007DH	For Singapore													RA0008AK For Korea
	RA0007BH	For China													RA0008EH For India
	RA0007AK	For Korea													RA0008FK For Taiwan
	RA0007BK	For Taiwan													RA0008BK For Taiwan
	RA0007FK	For Taiwan													RA0008DH For Singapore
	RA0007EH	For India													RA0008CH For Singapore

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (10/16)

[illegible]

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (11/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy														
		2112627 (P9515DQ)	1												Version 5 Short, Light Gray, 220V, PAL
		2112628 (P9515DR)		1											Version 5 Short, Pink, 220V, PAL
		2112629 (P9515HD)			1										Version 5 Short, Light Gray, 220V, PAL
		2112630 (P9515EM)				1									Version 5 Short, Pink, 115V, NTSC
		2112631 (P9515FN)					1								Version 5 Short, Light Gray, 115V, NTSC
		2112632 (P9515FP)						1							Version 5 Short, Pink, 115V, NTSC
		2132043 (P9515EN)							1						Version 5 Short, Pink, 220V, NTSC
		2159905 (P9515DS)								1					Version 6 Short, Light Gray, 220V, PAL
		2159907 (P9515DT)									1				Version 6 Short, Pink, 220V, PAL
		2159909 (P9515HE)										1			Version 6 Short, Light Gray, 220V, PAL
	RA0009CH	For Singapore													
	RA0009DH	For China													
	RA0009EH	For India													
	RA0009AK	For Korea													
	RA0009BK	For Taiwan													
	RA0009FK	For Taiwan												RA0010EH	For India
	RA0009KH	For Korea												RA0010DH	For China
														RA0010CH	For Singapore

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (12/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	CBL HOOK ARM	P9514FJ	1	1	1	1	1	1	1	1	1	1			
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1	1	1			
	BAG	B9685WX	1	1	1	1	1	1	1	1	1	1			
	BNC CABLE	P9509BD	1	1	1	1	1	1	1	1	1	1			
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1	1	1			
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1	1	1			
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1	1	1			
	FOOT SWITCH	B9686AF	1	1	1		1	1		1	1	1			
	PRN PWR CORD	P9515UD	1	1	1					1	1	1			
	TIE WRAP	U0204AC	2	2	2					2	2	2			
	SHELF C SET	P9514JV			1							1			
	OP MANUAL	P9893KR P9893KA	1	1		1	1	1		1	1				
	SVC MANUAL	P9030GX	1	1	1	1	1	1	1	1	1	1			
	RA0009CH	For Singapore													
	RA0009DH	For China													
	RA0009EH	For India													
	RA0009AK	For Korea													
	RA0009BK	For Taiwan												RA0010EH	For India
	RA0009FK	For Taiwan												RA0010DH	For China
	RA0009KH	For Korea												RA0010CH	For Singapore

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (13/16)

ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515AA	1												Version 1 Short, Gray, 100V, NTSC
		P9515AB		1											Version 1 Short, Pink, 100V, NTSC
		P9515AC			1										Version 1 Short, Green, 100V, NTSC
		P9515AD				1									Version 1 Short, Blue, 100V, NTSC
		P9515AE					1								Version 1 Tall, Gray, 100V, NTSC
		P9515AF						1							Version 1 Tall, Pink, 100V, NTSC
		P9515AG							1						Version 1 Tall, Green, 100V, NTSC
		P9515AH								1					Version 1 Tall, Blue, 100V, NTSC
		CBL Hook Arm	P9514FJ	1	1	1	1	1	1	1	1				
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1					
	BAG	B9685WX	1	1	1	1	1	1	1	1					
	BNC Cable	P9509BD	1	1	1	1	1	1	1	1					
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1					
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1					
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1					
	PLUG	U0907FD	1	1	1	1	1	1	1	1					
	OP MANUAL	P9893KA	1	1	1	1	1	1	1	1					
RA0005AE For Japan															
RA0005BE For Japan															
RA0005CE For Japan															
RA0005DE For Japan															
RA0005NE For Japan															
RA0005PE For Japan															
			RA0005QE For Japan												

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (14/16)

ITEM	PART NAME	PART NO.	QTY.											DESCRIPTION
	Operator CSL Assy	P9515AJ	1											Version 2 Short, Gray, 100V, NTSC
		P9515AK		1										Version 2 Short, Pink, 100V, NTSC
		P9515AL			1									Version 2 Short, Green, 100V, NTSC
		P9515AM				1								Version 2 Short, Blue, 100V, NTSC
		P9515AN					1							Version 2 Tall, Gray, 100V, NTSC
		P9515AP						1						Version 2 Tall, Pink, 100V, NTSC
		P9515AQ							1					Version 2 Tall, Green, 100V, NTSC
		P9515AR								1				Version 2 Tall, Blue, 100V, NTSC
	CBL Hook Arm	P9514FJ	1	1	1	1	1	1	1	1				
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1				
	BAG	B9685WX	1	1	1	1	1	1	1	1				
	BNC Cable	P9509BD	1	1	1	1	1	1	1	1				
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1				
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1				
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1				
	PLUG	U0907FD	1	1	1	1	1	1	1	1				
	KB Overlay Set	P9514JZ	1	1	1	1	1	1	1	1				
	OP MANUAL	P9893KA	1	1	1	1	1	1	1	1				
	RA0006AE For Japan													
	RA0006BE For Japan													
RA0006CE For Japan														
RA0006DE For Japan														
RA0006NE For Japan										RA0006RE	For Japan			
RA0006PE For Japan										RA0006QE	For Japan			

RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (15/16)

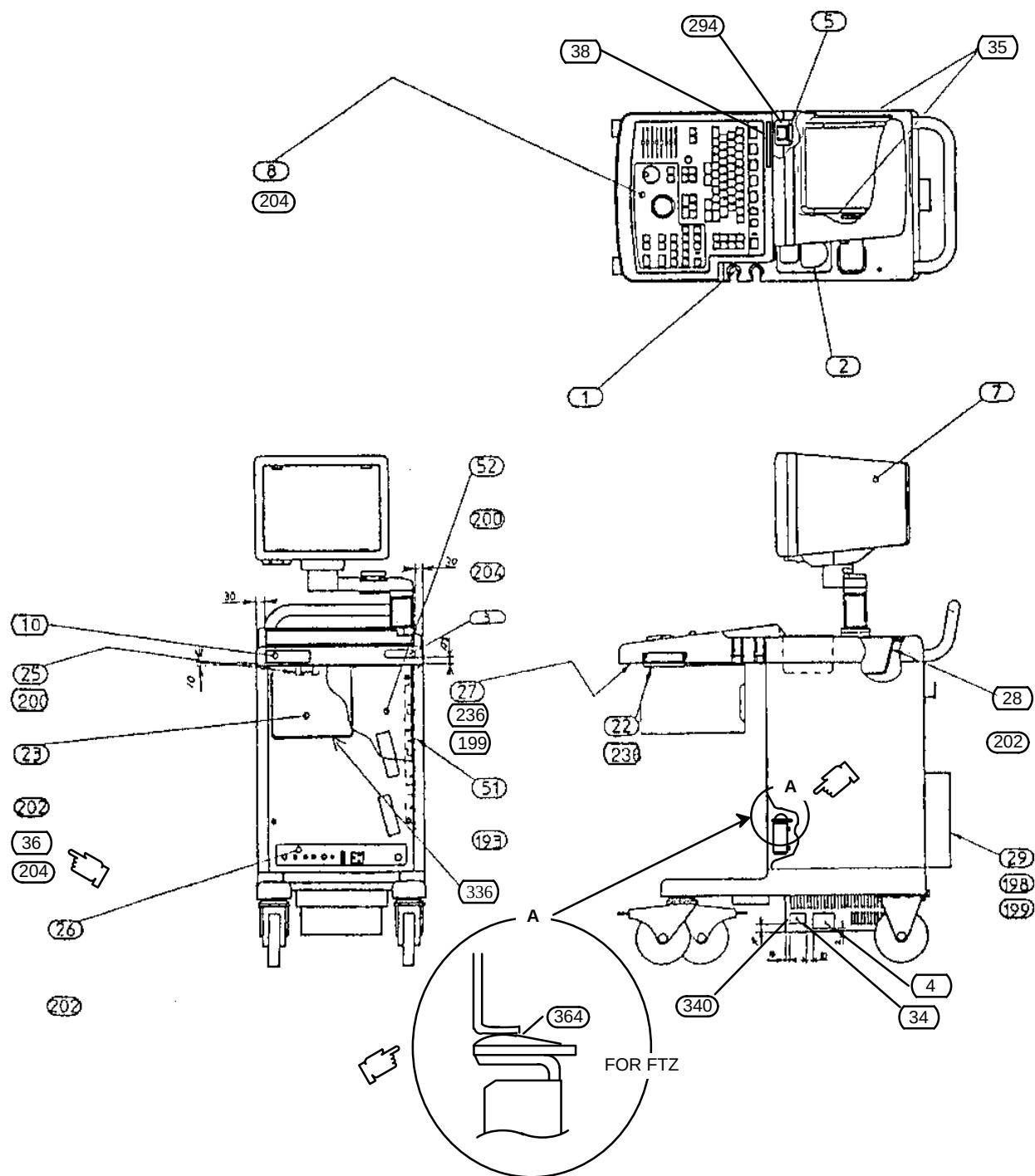
ITEM	PART NAME	PART NO.	QTY.												DESCRIPTION
	Operator CSL Assy	P9515AS	1												Version 3 Short, Light Gray, 100V, NTSC
		P9515AT	1												Version 3 Short, Pink, 100V, NTSC
		P9515AU		1											Version 3 Tall, Light Gray, 100V, NTSC
		P9515AV			1										Version 3 Tall, Pink, 100V, NTSC
		P9515AW				1									Version 4 Short, Light Gray, 100V, NTSC
		P9515AX					1								Version 4 Short, Pink, 100V, NTSC
		P9515AY						1							Version 4 Tall, Light Gray, 100V, NTSC
		P9515AZ							1						Version 4 Tall, Pink, 100V, NTSC
	CBL Hook Arm	P9514FJ	1	1	1	1	1	1	1	1					
	AQUASONIC GEL	U0403BD	1	1	1	1	1	1	1	1					
	BAG	B9685WX	1	1	1	1	1	1	1	1					
	BNC Cable	P9509BD	1	1	1	1	1	1	1	1					
	MINI PLUG CABLE	P9509BC	1	1	1	1	1	1	1	1					
	Printer Tray Set	P9514JY	1	1	1	1	1	1	1	1					
	Upper Cover	P9514BS	1	1	1	1	1	1	1	1					
	KB Overlay2 Set	P9514SV	1	1	1	1	1	1	1	1					
	OP MANUAL	P9893KA	1	1	1	1	1	1	1	1					
RA0007AE For Japan															
RA0007BE For Japan															
RA0007NE For Japan															
RA0007PE For Japan															
RA0008AE For Japan															RA0008PE For Japan
RA0008BE For Japan															RA0008NE For Japan

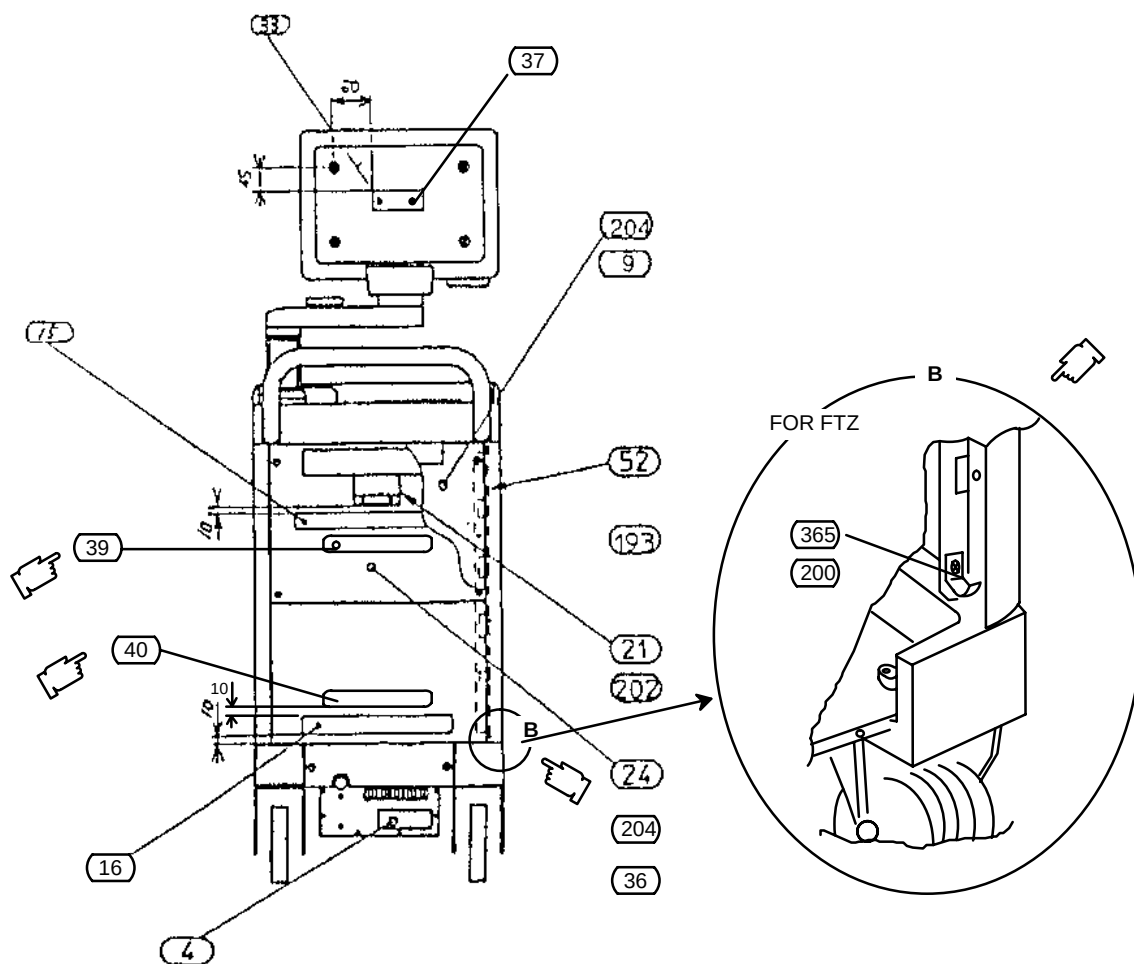
RTfino / RT3200 Advantage-II / RT-x200

MATERIAL LIST (16/16)

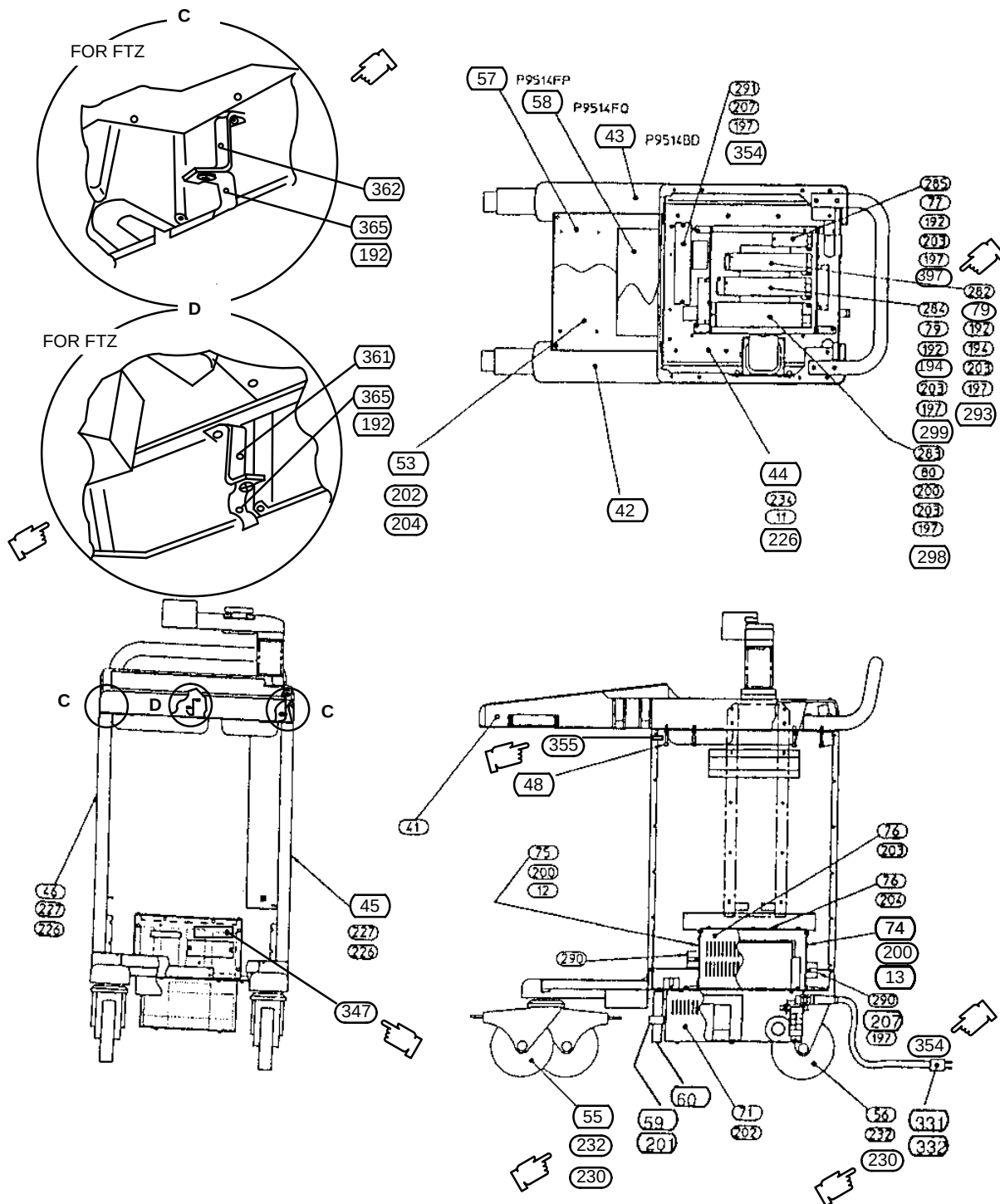
ITEM	PART NAME	PART NO.	QTY.										DESCRIPTION
	Operator CSL Assy	2112635 (P9515KA)	1										Version 5 Short, Light Gray, 100V, NTSC
	 2112637 (P9515KB)		1										Version 5 Short, Pink, 100V, NTSC
	 2112640 (P9515KC)			1									Version 5 Tall, Light Gray, 100V, NTSC
	 2112642 (P9515KD)				1								Version 5 Tall, Pink, 100V, NTSC
	CBL Hook Arm	P9514FJ	1	1	1	1							
	AQUASONIC GEL	U0403BD	1	1	1	1							
	BAG	B9685WX	1	1	1	1							
	BNC Cable	P9509BD	1	1	1	1							
	MINI PLUG CABLE	P9509BC	1	1	1	1							
	Printer Tray Set	P9514JY	1	1	1	1							
	Upper Cover	P9514BS	1	1	1	1							
	KB Overlay2 Set	P9514SV	1	1	1	1							
	OP MANUAL	P9893KA	1	1	1	1							
	RA0009AE, AW For Japan												
	RA0009BE, BW For Japan												
	RA0009NE, NW For Japan												
	RA0009PE, PW For Japan												

OP CONSOLE ASSY

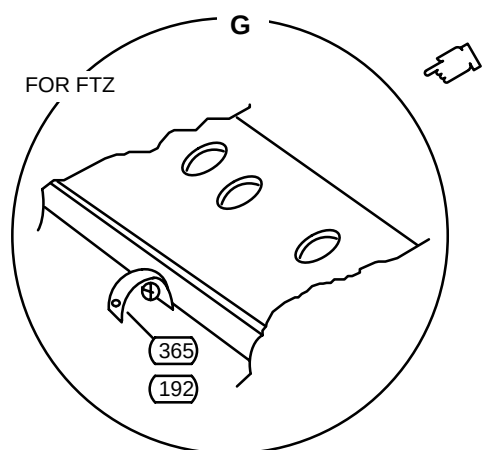
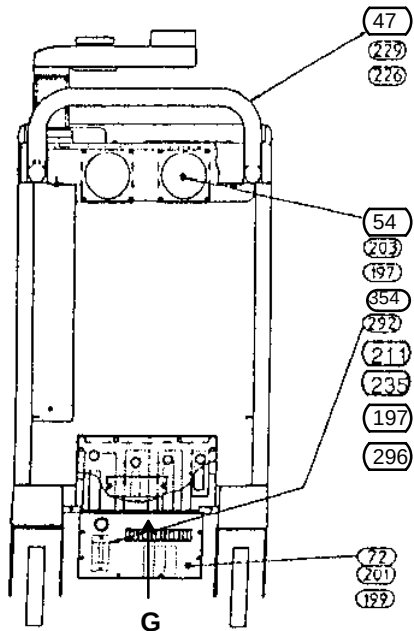
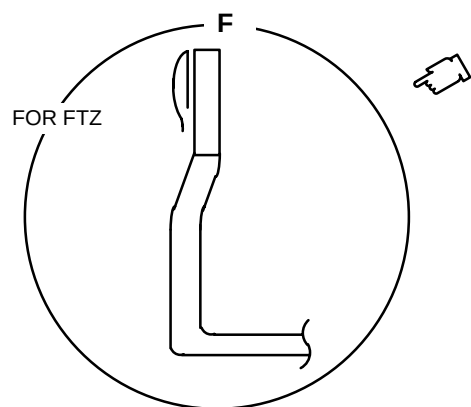
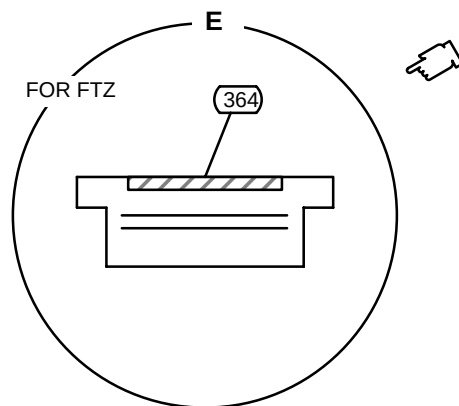
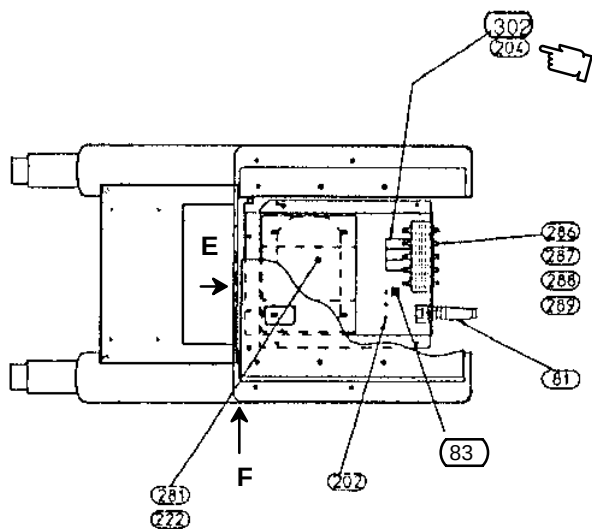
1/4 

OP CONSOLE ASSY 1/4 (Continued)

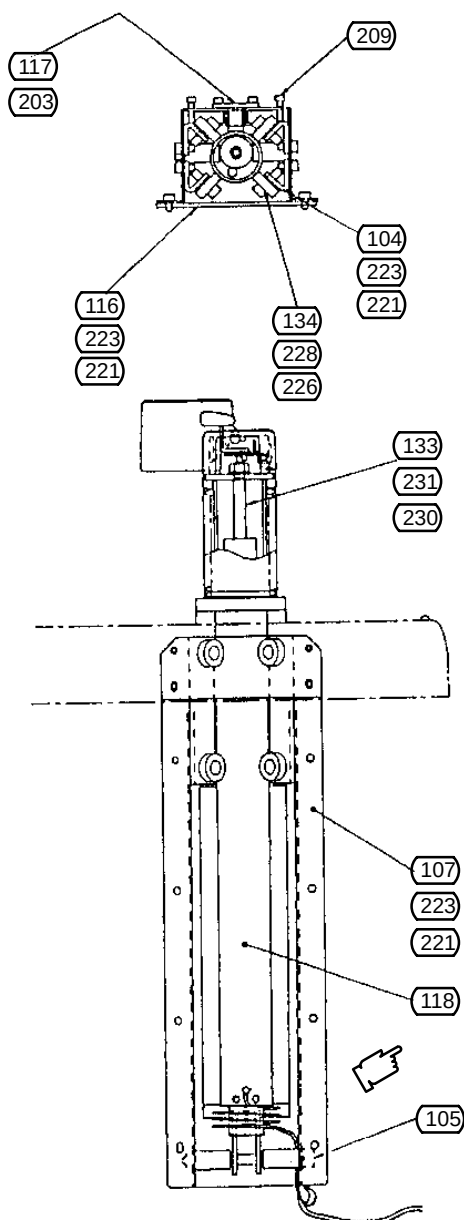
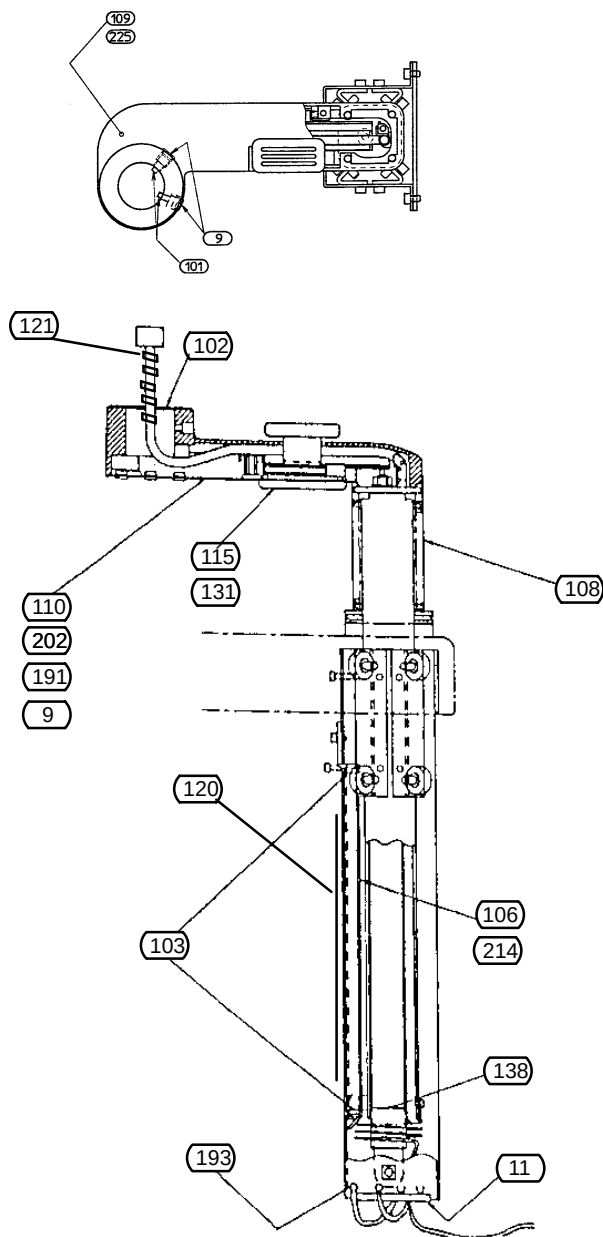
OP CONSOLE ASSY

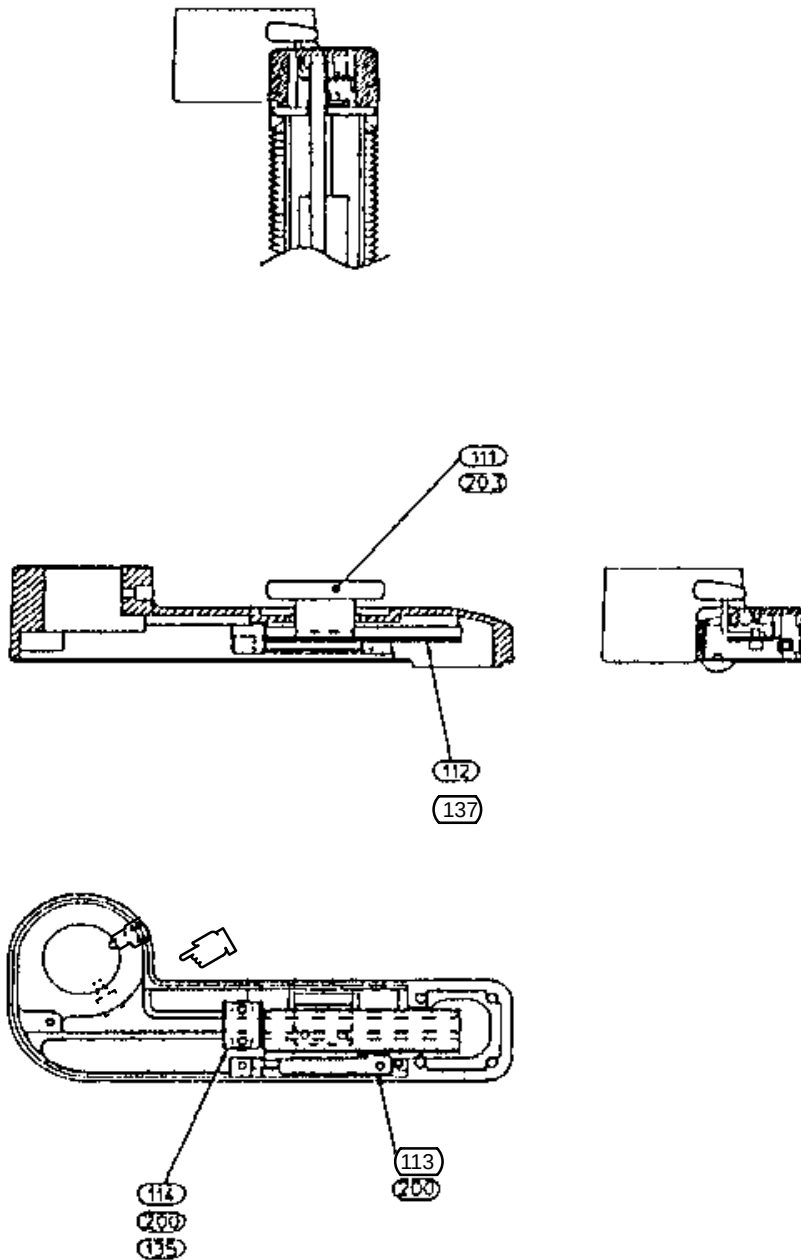
2/4 

OP CONSOLE ASSY 2/4 (Continued)

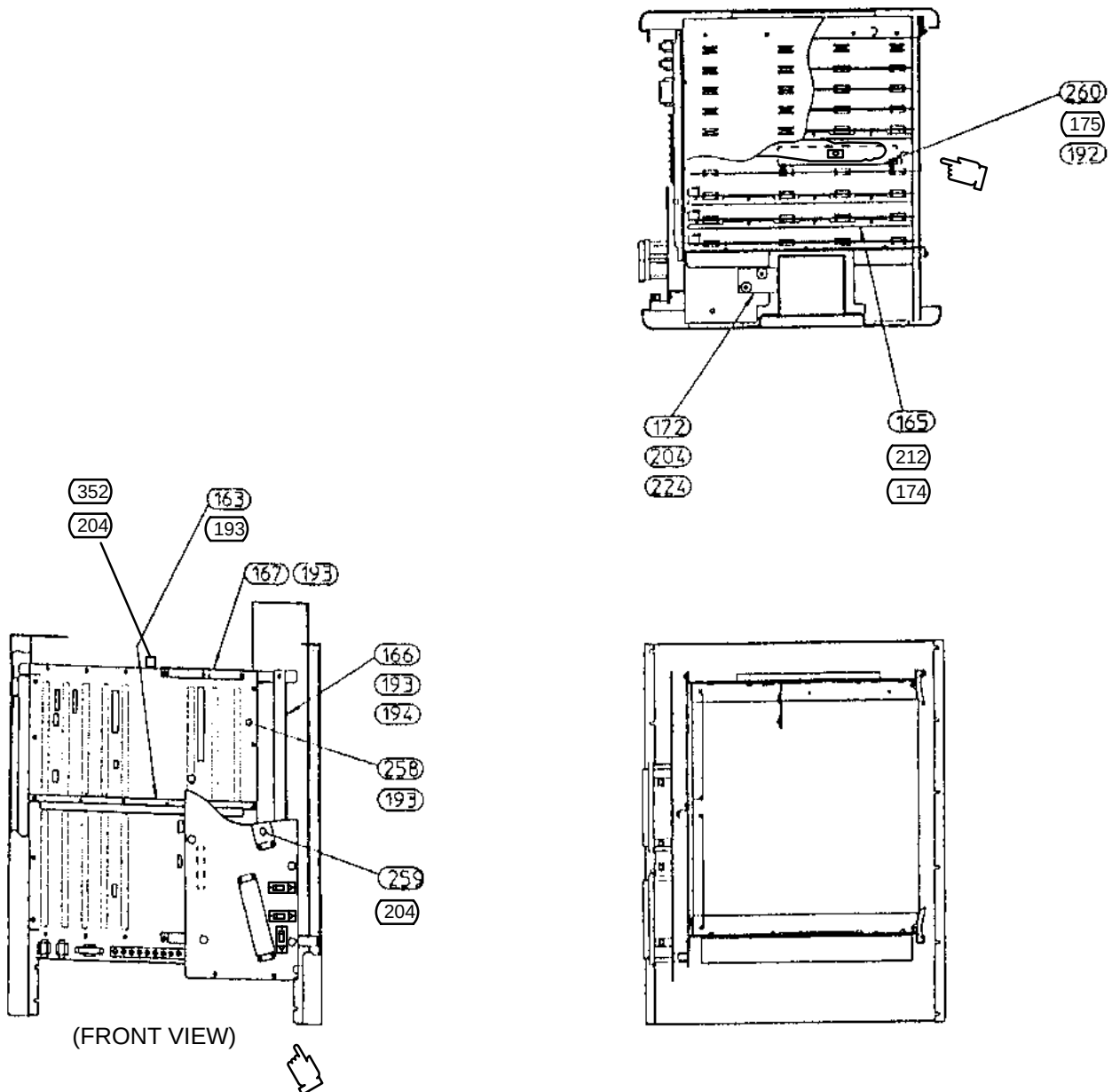


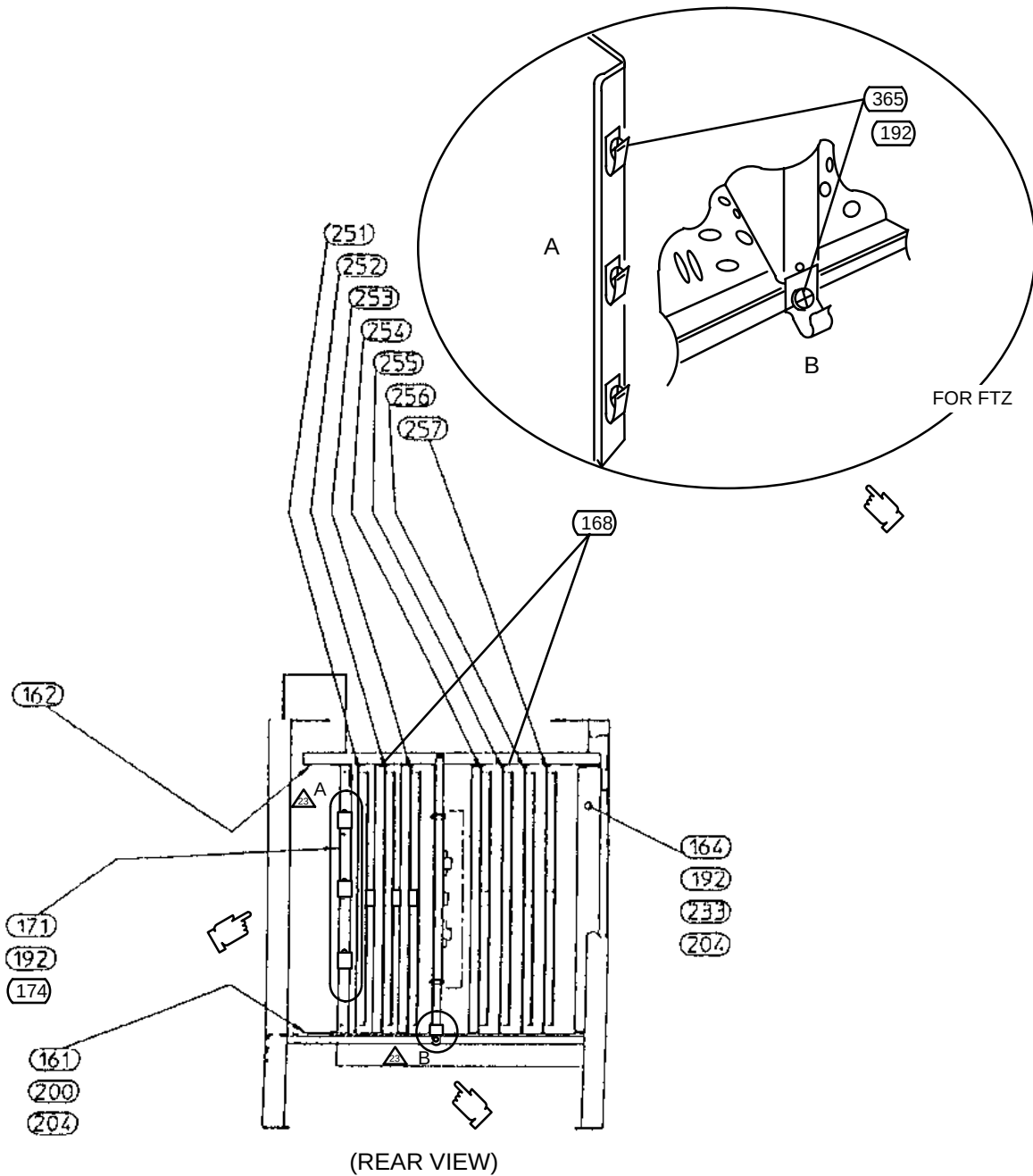
OP CONSOLE ASSY

3/4 

OP CONSOLE ASSY 3/4 (Continued)

OP CONSOLE ASSY

4/4 

OP CONSOLE ASSY 4/4 (Continued)

OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)

MATERIAL LIST (1/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	P9514GJ	1	
		P9514LY	1	FOR P9515JB, BG, GG made in India
		2111567	1	FOR P9515JC, BH, GH, BJ, GJ, JD
		2108158		
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC			
	GLASS FILTER ASSY	P9514KC	1	FOR P9515BE, JA, BF, JB, BG
		2152047	1	FOR P9515JC, BH, BJ, JD
	MONITOR PAL ASSY	P9514JB	1	FOR P9515GE, GF, GG
		2152046	1	FOR P9515GH, GJ
8	KB GRAY ASSY	P9514JM	1	FOR P9515BE, GE
	KB GRAY ASSY 2	P9514KX	1	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
9	CAP	U0236AE	6	
10	EMBLEM	P9514GF	1	
		2165039	1	RT3200 Advantage-III for P9515BJ, GJ
10A	EMBLEM	P9514GM	1	RT3200 Advantage-I for P9515JA, JB, JC, JD
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	4	CV-100
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514HD	1	
24	REAR COVER	P9514HE	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JD	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JG	1	FOR P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH
		2164140	1	FOR P9515BJ, GJ, JD
29	REAR BOX	P9514BQ	1	
30	TEL LABEL	2156773	1	FOR P9515BF, BG, BH, BJ, GF, GG, GH, GJ, JA, JB, JC, JD
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL	P9514GK	1	FOR P9515BE, GE
		P9514GV	1	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
38	NAME PLATE	U0093BN	1	FOR P9515JB, JC, JD
39	DANGER LABEL	P9514GP	1	FOR P9515GE, GF, GG, GH, GJ
40	CAUTION LABEL	P9514GQ	1	FOR P9515GE, GF, GG, GH, GJ
41	KB PANEL	P9514BB	1	
42	BASE R	P9514HS	1	
43	BASE L	P9514HT	1	
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514HB	1	
46	SIDE FRAME L	P9514HC	1	
47	HANDLE	P9514BK	1	

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514HL	1	
51	FRONT SIDE BRKT	P9514HM	2	
52	REAR SIDE BRKT	P9514HN	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0134AE	2	FRONT SWIVEL CASTER
56	CASTER	U0135AE	2	REAR CASTER
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515BE, GE
	CASE XFMR 2	P9515DN	1	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
72	CASE XFMR REAR GE	P9514HF	1	FOR P9515BE
	CASE XFMR REAR CGR	P9514HG	1	FOR P9515GE
	CASE XFMR REAR II 115V	P9514DR	1	FOR P9515BF, JA, JB, BG, JC, BH, BJ, JD
	CASE XFMR REAR III 220V	P9514DQ	1	FOR P9515GF, GG, GH, GJ
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	9	⊕
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	66	
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	FOR P9515BE, GE
			37	FOR P9515BF, GF, JA, JB, BG, GG JC, BH, GH, BJ, GJ, JD
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
			6	FOR P9515GE, GF, GG, GH, GJ
199	WASHER	N9401WL	17	FOR P9515BE, GE, JA, BF, JB, BG, JC, BH, BJ, JD
			10	FOR P9515GF, GG, GH, GJ
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	FOR P9515BE, GE
			21	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, BH, BJ, JD
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	52	FOR P9515BE,
			47	FOR P9515JA, JB, JC, JD
			46	FOR P9515GE, BF, BG, BH, BJ
			41	FOR P9515GF, GG, GH, GJ
205	SCREW	N9408LK	4	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
210	SCREW	N9422LE	0	FOR P9515BE
211	SCREW	N9420JS	2	FOR P9515BR, JA, BF, GF, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	0	FOR P9515BE
			6	FOR P9515GE
			5	FOR P9515GF, GG, GH, GJ

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
214	SCREW	N9308ES	5	FOR P9515BE, JA, JB, JC, JD
			6	FOR P9515GE, BF, GF
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	9	
223	SCREW	N9508ZX	20	
224	WASHER	N9518TM	4	
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515BE, GE
			17	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515BE, GE
			16	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
233	SCREW	N9306JL	2	FOR P9515BE, GE
			3	FOR P9515BF, GF, JA, JB, BG, GG, JC, BH, GH, BJ, GJ, JD
234	SCREW	N9612YX	8	
235	SCREW	N9316JS	2	FOR P9515GF, GG, GH, GJ
237	SCREW	N9816YX	8	FOR P9515BE, JA, GE, JB, JC, JD
238	WASHER	N9800WS	8	FOR P9515BE, JA, GE, JB, JC, JD
239	WASHER	N9800WS	8	FOR P9515BE, JA, GE, JB, JC, JD
251	RFL-A ASSY	P9514XA	1	
252	RRS-A ASSY	P9514XC	1	
253	TRC-A ASSY	P9514XE	1	FOR P9515JA, GF, BF, BE, GE
	TRC-B ASSY	P9514YF	1	FOR P9515JB, BG, GG
	P9514YA TRC-A5 ASSY	2113948-2	1	FOR P9515JC, BH, GH
	P9514YR TRC-A6 ASSY	2159930	1	FOR P9515BJ, GJ, JD

OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
254	MST-A ASSY	P9514WJ	1	FOR P9515BE
	MST-E2 ASSY	P9514XH	1	FOR P9515GE
	MST-AR ASSY	P9514ZJ	1	FOR Urology, P9515BE
	MST-A3 ASSY	P9514ZS	1	FOR P9515BF
	MST-E3 ASSY	P9514ZT	1	FOR P9515GF
254A	MST-AD ASSY	P9514YJ	1	RT3200 Advantage-I, FOR P9515JA
254	MST-E4 ASSY	P9514ZZ	1	FOR P9515GG
	MST-A4 ASSY	P9514ZY	1	FOR P9515BG
	MST-AD2 ASSY	P9514YK	1	FOR P9515JB
	P9514ZB MST-AI5 ASSY	2113952-4	1	FOR P9515JC, JD
	P9514ZA MST-A5 ASSY	2113951-4	1	FOR P9515BH
	P9514ZC MST-E5 ASSY	2113953-5	1	FOR P9515GH
	P9514ZK MST-A6 ASSY	2159932	1	FOR P9515BJ
	P9514ZM MST-E6 ASSY	2159933	1	FOR P9515GJ
255	SCC-N ASSY	P9514WK	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
	SCC-P ASSY	P9514XK	1	FOR P9515GE, GF, GG, GH, GJ
256	FM-NA ASSY	P9514XN	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
256	FM-PA ASSY	P9514YM	1	FOR P9515GE, GF, GG, GH, GJ
257	VDO-NA ASSY	P9514XQ	1	FOR P9515BE, JA, BF
	VDO-PA ASSY	P9514YP	1	FOR P9515GE, GF, GG, GH, GJ
	VDO-NA2 ASSY	P9514VP	1	FOR P9515JB, BG, JC, BH, BJ, JD
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0040EK	2	10A FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
	CIRCUIT PROTECTOR	U0043EK	2	5A FOR P9515GE, GF, GG, GH, GJ
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12
292	TERMINAL	U0020FP	1	3 FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
292	TERMINAL	U0108FP	1	3 FOR P9515GE, GF, GG, GH, GJ
293	NAME PLATE	Z9814PX	1	A + 5V
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
296	DISCON PLATE	P9500DZ	1	FOR P9515GE
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
300	CABLE ASSY 1	P9515VA	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
301	CABLE ASSY 2	P9515VB	1	FOR P9515GE, GF, GG, GH, GJ
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
304A	CABLE ASSY 5	P9515VE	1	RT3200 Advantage-I
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	

**OPERATOR CSL ASSY FOR 115V TALL MODEL
P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH,
2159902 (P9515BJ), 2159908 (P9515GJ), 2159910 (P9515JD)**

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
331	PWR CORD ASSY	P9515XA	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
332	PWR CORD ASSY	P9515XB	1	FOR P9515GE, GF, GG, GH, GJ
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
336	SHELF (D) SET	P9514JW	1	FOR P9515BE, JA, GE, BF, GF, JB, BG, GG, JC, BH, GH
		2163997	1	FOR P9515BJ, GJ, JD
340	ETL LABEL	P9300UK	1	FOR P9515BE, JA, BF, JB, BG, JC, BH, BJ, JD
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
352	CLAMP BASE	U0208AC	1	
354	LABEL	P9100FF	4	
355	TIE WRAP	U0203AC	1	
356	LABEL	U0040BN	2	FOR P9515GE, GF, GG, GH, GJ

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OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)

**MATERIAL LIST (1/10) **

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	P9514GG	1	
		P9514LZ	1	FOR P9515CF, CG, CH, CJ made in India
		2112531	1	FOR P9515CH, CJ
5	NPL PWR SW	P9514GC	1	
7	MONITOR PAL ASSY	P9514JB	1	FOR P9515CA, CC, CD, CF, CG
		2152046	1	FOR P9515CH, CJ
8	KB GRAY ASSY	P9514JS	1	FOR P9515CA, CC, CD
	KB SYNBOL ASSY	P9514KV	1	FOR P9515CF, CG, CH, CJ
9	CAP	U0236AE	6	
10	EMBLEM RT-x200	P9514GE	1	
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	P9503HT	1	
16	NAME PLATE	P9503HU	1	
17	CLAMP	U0011AC	1	CKN-07

OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	6	CV-100 FOR P9515CA, CC, CD
			4	CV-100 FOR P9515CF, CG, CH, CJ
19	CLAMP	U0012AC	5	CNN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	
24	REAR COVER	P9514BJ	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JE	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JH	1	
29	REAR BOX	P9514BQ	1	
33	NAME PLATE	P9140EU	1	
34	RATING PLATE 2	P9503HJ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL	P9514GV	1	FOR P9515CF, CG, CH, CJ
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515CA, CC, CD
		P9514HS	1	FOR P9515CF, CG, CH, CJ
43	BASE L	P9514BD	1	FOR P9515CA, CC, CD
		P9514HT	1	FOR P9515CF, CG, CH, CJ
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	
46	SIDE FRAME L	P9514BG	1	
47	HANDLE	P9514BK	1	

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514BV	1	
51	FRONT SIDE BRKT	P9514BW	2	
52	REAR SIDE BRKT	P9514BX	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515CA, CC, CD
		U0134AE	2	FOR P9515CF, CG, CH, CJ
56	CASTER	U0130AE	2	FOR P9515CA, CC, CD
		U0137AE	2	FOR P9515CF, CG, CH, CJ
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515CA, CC, CD
	CASE XFMR 2	P9514DN	1	FOR P9515CF, CG, CH, CJ
72	CASE XFMR REAR CGR	P9514HG	1	FOR P9515CA, CC, CD
	CASE XFMR REAR II	P9514DQ	1	FOR P9515CF, CG, CH, CJ
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	10	⊕ FOR P9515CA, CC, CD
			9	⊕ FOR P9515CF, CG, CH, CJ
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	66	FOR P9515CA, CC
			70	FOR P9515CD, CF, CG, CH, CJ
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	FOR P9515CA, CC, CD
			37	FOR P9515CF, CG, CH, CJ
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	6	
199	WASHER	N9401WL	10	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	51	FOR P9515CC, CD
			46	FOR P9515CA, CF, CG, CH, CJ
205	SCREW	N9408LK	4	FOR P9515CF, CG, CH, CJ
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
210	SCREW	N9422LE	2	
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	5	FOR P9515CA
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	
223	SCREW	N9508ZX	20	

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
224	WASHER	N9518TM	4	
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515CA, CC, CD
			17	FOR P9515CF, CG, CH, CJ
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515CA, CC, CD
			16	FOR P9515CF, CG, CH, CJ
233	SCREW	N9306JL	2	FOR P9515CA, CC, CD
			3	FOR P9515CF, CG, CH, CJ
234	SCREW	N9612YX	8	
235	SCREW	N9316JS	2	FOR P9515CC,CD,CF,CG, CH, CJ
		N9414JS	2	FOR P9515CA

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
251	RFL ASSY	P9514WA	1	FOR P9515CA
	RFL-A ASSY	P9514XA	1	FOR P9515CC,CD,CF,CG, CH, CJ
252	RRS ASSY	P9514WC	1	FOR P9515CA
	RRS-A ASSY	P9514XC	1	FOR P9515CC,CD,CF,CG, CH, CJ
253	TRC ASSY	P9515WE	1	FOR P9515CA
	TRC-A ASSY	P9514XE	1	FOR P9515CC, CD
	TRC-B ASSY	P9514YF	1	FOR P9515CF
	TRC-D ASSY	P9514YE	1	FOR P9515CG
	P9514YB TRC-E5	2113949	1	FOR P9515CH, CJ
254	MST-E ASSY	P9514XJ	1	FOR P9515CA
	MST-E2 ASSY	P9514XH	1	FOR P9515CC, CD
	MST-E4 ASSY	P9514ZZ	1	FOR P9515CF, CG
	P9514ZC MST-E5	2113953-4	1	FOR P9515CH
	P9514ZM MST-E6 ASSY	2159933	1	FOR P9515CJ
255	SCC-P ASSY	P9514XK	1	
256	FM-P ASSY	P9514XM	1	FOR P9515CA
	FM-PA ASSY	P9514YM	1	FOR P9515CC,CD,CF,CG, CH, CJ
257	VDO-P ASSY	P9514XP	1	FOR P9515CA
	VDO-PA ASSY	P9514YP	1	FOR P9515CC,CD,CF,CG, CH, CJ
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	FOR P9515CA,CC
		P9514XV	1	FOR P9515CD,CF,CG, CH, CJ
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
286	CIRCUIT PROTECTOR	U0024EK	2	0.5A
288	CIRCUIT PROTECTOR	U0043EK	2	5A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12
292	TERMINAL	U0108FP	1	3
293	NAME PLATE	Z9814PX	1	A+5V
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
296	DISCON PLATE	P9500DZ	1	
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
301	CABLE ASSY 2	P9515VB	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

**OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515CA, P9515CC, P9515CD, P9515CF, P9515CG, P9515CH,
2163995 (P9515CJ)**

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
332	PWR CORD ASSY	P9515XB	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
336	SHELF(D) SET	P9514JW	1	
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
347	PWR TERMINAL LABEL	P9514GL	1	FOR P9515CC,CD,CF,CG, CH, CJ
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515CC,CD,CF,CG, CH, CJ
355	TIEWRAP	U0203AC	1	FOR P9515CC,CD,CF,CG, CH, CJ
361	FTZ BRKT 2	P9514EY	1	FOR P9515CC,CD,CF,CG, CH, CJ
362	FTZ BRKT 1	P9514EX	2	FOR P9515CC,CD,CF,CG, CH, CJ
363	FTZ LABEL	P9514GN	1	FOR P9515CC,CD,CF,CG, CH, CJ
364	GASKET	U0040AQ	61	FOR P9515CC,CD,CF,CG, CH, CJ
365	GASKET	U0041AQ	10	FOR P9515CC,CD,CF,CG, CH, CJ

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OPERATOR CSL ASSY FOR PAL SHORT MODEL

P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (1/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	P9514GJ	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DN
		2111567	1	FOR P9515DQ, DR, HD, DS, DT, HE
5	NPL PWR SW	P9514GC	1	
7	MONITOR PAL ASSY	P9514JB	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, HB, DN, DP, HC
				FOR P9515DQ, DR, HD, DS, DT, HE
		P9514KD	1	FOR P9515DL Glass Filter
8	KB GRAY ASSY	P9514JN	1	FOR P9515DA, DE
	KB PINK ASSY	P9514JP	1	FOR P9515DB, DF
	KB GREEN ASSY	P9514JQ	1	FOR P9515DC, DG
	KB BLUE ASSY	P9514JR	1	FOR P9515DB, DH
	KB GRAY ASSY 2	P9514KX	1	FOR P9515DJ, DL, HB, DN, HC, DQ, HD, DS, HE
	KB PINK ASSY 2	P9514KW	1	FOR P9515DK, DP, DR, DT
9	CAP	U0236AE	6	
10	EMBLEM RTfino	P9514GH	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DN, DP, DQ, DR, DS, DT
		P9514GF	1	FOR P9515DL, HB, HC, HD, HE
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	P9503HT	1	
16	NAME PLATE	P9503HU	1	
17	CLAMP	U0011AC	1	CKN-07

OPERATOR CSL ASSY FOR PAL SHORT MODEL

P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	6	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
			4	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	2	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
			6	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	FOR P9515DA, DB, DC, DD, DE, DG, DH
				FOR P9515DJ, DK, HB, DN, DP, HC
24	REAR COVER			FOR P9515DQ, DR, HD, DS, DT, HE
		P9514HD	1	FOR P9515DL
		P9514BJ	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HE	1	FOR P9515DL
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JD	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JG	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD
		2164140	1	FOR P9515DS, DT, HE
29	REAR BOX	P9514BQ	1	
30	TEL LABEL	2156773	1	
33	NAME PLATE	P9140EU	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL	P9514GK	1	FOR P9515DL
		P9514GV	1	FOR P9515HB, HC, HD, HE
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
		P9514HS	1	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE

OPERATOR CSL ASSY FOR PAL SHORT MODEL

P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
43	BASE L	P9514BD	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
		P9514HT	1	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	FOR P9515DA, DB, DC, DD, DE, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HB	1	FOR P9515DL
46	SIDE FRAME L	P9514BG	1	FOR P9515DA, DB, DC, DD, DE, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HC	1	FOR P9515DL
47	HANDLE	P9514BK	1	
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514BV	1	FOR P9515DA, DB, DC, DD, DE, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HL	1	FOR P9515DL
51	FRONT SIDE BRKT	P9514BW	2	FOR P9515DA, DB, DC, DD, DE, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HM	2	FOR P9515DL
52	REAR SIDE BRKT	P9514BX	2	FOR P9515DA, DB, DC, DD, DE, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
		P9514HN	2	FOR P9515DL
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
		U0134AE	2	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
56	CASTER	U0130AE	2	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
		U0135AE	2	FOR P9515DL
		U0137AE	2	FOR P9515DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	

OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ,
DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515DA, DB, DC, DD, DF, DG, DH
	CASE XFMR 2	P9514DN	1	FOR P9515DJ, DK, DL, HB, DE, DN, DP, HC, DQ, DR, HD, DS, DT, HE
72	CASE XFMR REAR	P9514HG	1	FOR P9515DA, DB, DC, DD, DF, DG, DH
	CASE XFMR REAR 2 220V	P9514DQ	1	FOR P9515DJ, DK, DL, HB, DE, DN, DP, HC, DQ, DR, HD, DS, DT, HE
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	10	⊕ FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DN, DP, DQ, DR, DS, DT, HE
			9	⊕ FOR P9515HB, HC, HD
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	

OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ,
DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

OPERATOR CSL ASSY FOR PAL SHORT MODEL

P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	66	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DN, DP, DQ, DR, DS, DT
			70	FOR P9515HB, HC, HD, HE
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	FOR P9515DA, DB, DC, DD
194			37	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	6	
199	WASHER	N9401WL	10	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
			41	FOR P9515DL
205	SCREW	N9408LK	4	FOR P9515DS, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
210	SCREW	N9422LE	2	FOR P9515HB
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	0	FOR P9515DE, DF, DG, DH, DJ, DK, DN, DP, DQ, DR, DS, DT
			5	FOR P9515DA, DB, DC, DE, DL,
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
			9	FOR P9515DL
223	SCREW	N9508ZX	20	

OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ,
DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
224	WASHER	N9518TM	4	
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
			17	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515DA, DB, DC, DD, DE, DF, DG, DH
			16	FOR P9515DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
233	SCREW	N9306JL	2	FOR P9515DA, DB, DC, DD
			3	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
234	SCREW	N9612YX	8	
235	SCREW	N9414JS	2	FOR P9515DA, DB, DC, DD
		N9316JS	2	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
251	RFL-A ASSY	P9514XA	1	
252	RRS ASSY	P9514WC	1	FOR P9515DA, DB, DC, DD
	RRS-A ASSY	P9514XC	1	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
253	TRC ASSY	P9514WE	1	FOR P9515DA, DB, DC, DD
	TRC-A ASSY	P9514XE	1	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB
	TRC-C ASSY	P9514XZ	1	FOR P9515DN, DP
	TRC-B	P9514YF	1	FOR P9515HC
	P9514YC TRC-J5	2113950	1	FOR P9515DQ, DR, DS, DT
	P9514YA TRC-E5	2113949-2	1	FOR P9515HD, HE

OPERATOR CSL ASSY FOR PAL SHORT MODEL
P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ,
DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
254	MST-E ASSY	P9514XG	1	FOR P9515DA, DB, DC, DD
	MST-C2 ASSY	P9514YH	1	FOR P9515DE, DF, DG, DH
	MST-C3 ASSY	P9514ZR	1	FOR P9515DJ, DK, DL
	MST-E3 ASSY	P9514ZT	1	FOR P9515HB
	MST-C4 ASSY	P9514ZX	1	FOR P9515DN, DP
	MST-E4 ASSY	P9514ZZ	1	FOR P9515HC
	P9514ZD MST-C5	2113954-4	1	FOR P9515DQ, DR
	P9514ZN MST-C6 ASSY	2159934	1	FOR P9515DS, DT
	P9514ZC MST-E5	2113953-5	1	FOR P9515HD
	P9514ZM MST-E6 ASSY	2159933	1	FOR P9515HE
255	SCC-P ASSY	P9514XK	1	
256	FM-P ASSY	P9514XM	1	FOR P9515DA, DB, DC, DD
	FM-PA ASSY	P9514YM	1	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
257	VDO-P ASSY	P9514XP	1	FOR P9515DA, DB, DC, DD
	VDO-P2 ASSY	P9514ZP	1	FOR P9515DE, DF, DG, DH, DJ, DK, DL, DN, DP, DQ, DR, DS, DT
	VDO-PA ASSY	P9514YP	1	FOR P9515HB, HC, HD, HE
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

OPERATOR CSL ASSY FOR PAL SHORT MODEL

**P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ,
DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),**

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
286	CIRCUIT PROTECTOR	U0024EK	2	0.5A
288	CIRCUIT PROTECTOR	U0043EK	2	5A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12
292	TERMINAL	U0108FP	1	FOR P9515DA. DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, DN, DP, DQ, DR, DS, DT
		U0020FP	1	FOR P9515HB, HC, HD, HE
293	NAME PLATE	Z9814PX	1	A+5V
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
296	DISCON PLATE	P9500DZ	1	
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
301	CABLE ASSY 2	P9515VB	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

OPERATOR CSL ASSY FOR PAL SHORT MODEL

P9515DA, DB, DC, DD, DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, 2159905 (P9515DS), 2159907 (P9515DT), 2159909 (P9515HE),

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
332	PWR CORD ASSY	P9515XB	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
336	SHELF (D) SET	P9514JW	1	FOR P9515HB, HC, HD, HE
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
347	PWR TERMINAL LABEL	P9514GL	1	FOR P9515HB, HC, HD, HE
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE
355	TIE WRAP	U0203AC	1	FOR P9515DE, DF, DG, DH, DJ, DK, DL, HB, DN, DP, HC, DQ, DR, HD, DS, DT, HE

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OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (1/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	P9514GJ	1	FOR P9515EA, EB, EC, ED, EE, EF
				FOR P9515EG, EH, EK, EL
		2111567	1	FOR P9515EM
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC ASSY	P9514JA	1	
8	KB GRAY ASSY	P9514JN	1	FOR P9515EA, EE
	KB PINK ASSY	P9514JP	1	FOR P9515EB, EF
	KB GREEN ASSY	P9514JQ	1	FOR P9515EC, EG
	KB BLUE ASSY	P9514JR	1	FOR P9515ED, EH
	KB GRAY ASSY 2	P9514KX	1	FOR P9515EK, EL, EM
9	CAP	U0236AE	6	FOR P9515EA, EB, EC, ED
			10	FOR P9514EE, EF, EG, EH, EK, EL, EM
10	EMBLEM RTfino	P9514GH	1	
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	4	CV-100
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	
24	REAR COVER	P9514BJ	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JC	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JF	1	
29	REAR BOX	P9514BQ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		P9514HS	1	FOR P9515EK, EL, EM
43	BASE L	P9514BD	1	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		P9514HT	1	FOR P9515EK, EL, EM
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	
46	SIDE FRAME L	P9514BG	1	
47	HANDLE	P9514BK	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514BV	1	
51	FRONT SIDE BRKT	P9514BW	2	
52	REAR SIDE BRKT	P9514BX	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		U0134AE	2	FOR P9515EK, EL, EM
56	CASTER	U0130AE	2	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		U0137AE	2	FOR P9515EK, EL, EM
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		P9514DN	1	FOR P9515EK, EL, EM
72	CASE XFMR REAR	P9514DC	1	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
		P9514DP	1	FOR P9515EK, EL, EM
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	9	
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	66	
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	
199	WASHER	N9401WL	17	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	FOR P9515EA, EB, EC, ED
			51	FOR P9515EE, EF, EG, EH, EK, EL, EM
206	SCREW	N9410EB	11	FOR P9515EA, EB, EC, ED
		N9412JS	8	FOR P9515EE, EF, EG, EH, EK, EL, EM
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
210	SCREW	N9422LE	0	
211	SCREW	N9420JS	2	
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	5	FOR P9515EA, EB, EC, ED
			0	FOR P9515EE, EF, EG, EH, EK, EL, EM
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	
223	SCREW	N9508ZX	20	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
224	WASHER	N9518TM	4	
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
			17	FOR P9515EK, EL, EM
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515EA, EB, EC, ED, EE, EF, EG, EH
			16	FOR P9515EK, EL, EM
233	SCREW	N9306JL	2	
234	SCREW	N9612YX	8	
236	SCREW	N9408EB	0	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
251	RFL ASSY	P9514WA	1	FOR P9515EA, EB, EC, ED
	RFL-A ASSY	P9514XA	1	FOR P9515EE, EF, EG, EH, EK, EL, EM
252	RRS ASSY	P9514WC	1	FOR P9515EA, EB, EC, ED
	RRS-A ASSY	P9514XC	1	FOR P9515EE, EF, EG, EH, EK, EL, EM
253	TRC ASSY	P9514WE		FOR P9515EA, EB, EC, ED
	TRC-A ASSY	P9514XE	1	FOR P9515EE, EF, EG, EH, EK
	TRC-C ASSY	P9514XZ	1	FOR P9515EL
	P9514YC TRC-J5	2113950	1	FOR P9515EM
254	MST-J ASSY	P9514WG	1	FOR P9515EA, EB, EC, ED
	MST-J2 ASSY	P9514YG	1	FOR P9515EE, EF, EG, EH
	MST-J3 ASSY	P9514ZQ	1	FOR P9515EK
	MST-J4 ASSY	P9514ZW	1	FOR P9515EL
	P9514ZE MST-J5	2113955-5	1	FOR P9515EM
255	SCC-N2 ASSY	P9514WK	1	
256	FM-N ASSY	P9514WM	1	FOR P9515EA, EB, EC, ED
	FM-NA ASSY	P9514XN	1	FOR P9515EE, EF, EG, EH, EK, EL, EM
257	VDO-N ASSY	P9514WP	1	FOR P9515EA, EB, EC, ED
	VDO-N2 ASSY	P9514YQ	1	FOR P9515EE, EF, EG, EH, EK, EL, EM
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0040EK	2	10A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
292	TERMINAL	U0020FP	1	3
293	NAME PLATE	Z9814PX	1	FOR P9515EE, EF, EG, EH, EK, EL, EM
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
300	CABLE ASSY 1	P9515VA	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515EA, EB, EC, ED, EE, EF, EG, EH, EK, EL, EM

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
331	PWR CORD ASSY	P9515XA	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515EE, EF, EG, EH, EK, EL, EM
355	TIE WRAP	U0203AC	1	FOR P9515EE, EF, EG, EH, EK, EL, EM

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OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (1/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	P9514GJ	1	FOR P9515FA, FB, FC, FE, FF, FG
				FOR P9515FF, FG, FH, FJ, FL, FM
		2111567	1	FOR P9515FN, FP
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC ASSY	P9514JA	1	
8	KB GRAY ASSY	P9514JN	1	FOR P9515FA, FE
	KB PINK ASSY	P9514JP	1	FOR P9515FB, FF
	KB GREEN ASSY	P9514JQ	1	FOR P9515FC, FG
	KB BLUE ASSY	P9514JR	1	FOR P9515FD, FH
	KB GRAY ASSY 2	P9514KX	1	FOR P9515FJ, FL, FN
	KB PINK ASSY 2	P9514KW	1	FOR P9515FK, FM, FP
9	CAP	U0236AE	6	
10	EMBLEM RTfino	P9514GH	1	
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	4	CV-100
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	
24	REAR COVER	P9514BJ	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514KA	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514KB	1	
29	REAR BOX	P9514BQ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
	BASE R	P9514HS	1	FOR P9515FJ, FK, FL, FM, FN, FP
43	BASE L	P9514BD	1	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
	BASE L	P9514HT	1	FOR P9515FJ, FK, FL, FM, FN, FP
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	
46	SIDE FRAME L	P9514BG	1	
47	HANDLE	P9514BK	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514BV	1	
51	FRONT SIDE BRKT	P9514BW	2	
52	REAR SIDE BRKT	P9514BX	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
		U0134AE	2	FOR P9515FJ, FK, FL, FM, FN, FP
56	CASTER	U0130AE	2	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
		U0137AE	2	FOR P9515FJ, FK, FL, FM, FN, FP
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
		P9514DN	1	FOR P9515FJ, FK, FL, FM, FN, FP
72	CASE XFMR REAR	P9514HF	1	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
		P9514DP	1	FOR P9515FJ, FK, FL, FM, FN, FP
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	9	
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	66	
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	
199	WASHER	N9401WL	17	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	FOR P9515FA, FB, FC, FD
			51	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM
				FOR P9515FN, FP
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
210	SCREW	N9422LE	0	
211	SCREW	N9420JS	2	
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	0	
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	
223	SCREW	N9508ZX	20	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
224	WASHER	N9518TM	4	
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
			17	FOR P9515FJ, FK, FL, FM, FN, FP
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515FA, FB, FC, FD, FE, FF, FG, FH
			16	FOR P9515FJ, FK, FL, FM, FN, FP
233	SCREW	N9306JL	2	
234	SCREW	N9612YX	8	
236	SCREW	N9408EB	0	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
251	RFL ASSY	P9514WA	1	FOR P9515FA, FB, FC, FD
	RFL-A ASSY	P9514XA	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9515FN, FP
252	RRS ASSY	P9514WC	1	FOR P9515FA, FB, FC, FD
	RRS-A ASSY	P9514XC	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9515FN, FP
253	TRC ASSY	P9514WE	1	FOR P9515FA, FB, FC, FD
	TRC-A ASSY	P9514XE	1	FOR P9515FE, FF, FG, FH, FJ, FK
	TRC-C ASSY	P9514XZ	1	FOR P9515FL, FM
	P9514YC TRC-J5	2113950	1	FOR P9515FN, FP
254	MST-J ASSY	P9514WG	1	FOR P9515FA, FB, FC, FD
	MST-J2 ASSY	P9514YG	1	FOR P9515FE, FF, FG, FH
	MST-J3 ASSY	P9514ZQ	1	FOR P9515FJ, FK
	MST-J4 ASSY	P9514ZW	1	FOR P9515FL, FM
	P9514ZE MST-J5	2113955-5	1	FOR P9515FN, FP
255	SCC-N ASSY	P9514WK	1	
256	FM-N ASSY	P9514WN	1	FOR P9515FA, FB, FC, FD
	FM-NA ASSY	P9514XN	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9515FN, FP
257	VDO-N ASSY	P9514WP	1	FOR P9515FA, FB, FC, FD
	VDO-N2 ASSY	P9514YQ	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9515FN, FP
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0040EK	2	10A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12
292	TERMINAL	U0020FP	1	3
293	NAME PLATE	Z9814PX	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9515FN, FP
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
300	CABLE ASSY 1	P9515VA	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

OPERATOR CSL ASSY FOR 115V NTSC SHORT MODEL P9515FA, FB, FC, FD, FE, FF, FG, FH, FJ, FK, FL, FM, FN, FP

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
331	PWR CORD ASSY	P9515XA	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9514FN, FP
355	TIE WRAP	U0203AC	1	FOR P9515FE, FF, FG, FH, FJ, FK, FL, FM FOR P9514FN, FP

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OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (1/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
4	DATA PLATE	46-303268P1	1	
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC ASSY	P9514JA	1	
8	KB PINK ASSY 2	P9514KW	1	
9	CAP	U0236AE	6	
10	EMBLEM RTfino	P9514GH	1	
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
18	TIE WRAP	U0201AC	4	CV-100
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	
24	REAR COVER	P9514BJ	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JC	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JF	1	
29	REAR BOX	P9514BQ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL2	P9514GV	1	
41	KB PANEL	P9514BB	1	
42	BASE R	P9514HS	1	
43	BASE L	P9514HT	1	
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	
46	SIDE FRAME L	P9514BG	1	
47	HANDLE	P9514BK	1	
48	BOLT	P9514BR	8	

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
50	FRONT PLATE	P9514BV	1	
51	FRONT SIDE BRKT	P9514BW	2	
52	REAR SIDE BRKT	P9514BX	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0134AE	2	
56	CASTER	U0137AE	2	
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DN	1	
72	CASE XFMR REAR	P9514DQ	1	
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	10	



OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
191	SCREW	N9305ES	1	
192	SCREW	N9306JS	50	
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	49	
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	
199	WASHER	N9401WL	17	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	21	
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	
205	SCREW	N9408LK	4	
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
211	SCREW	N9420JS	2	
212	SCREW	N9304JS	18	
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	
223	SCREW	N9508ZX	20	
224	WASHER	N9518TM	4	

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	17	
231	NUT	N9801BS	1	
232	SCREW	N9816YX	16	
233	SCREW	N9306JL	3	
234	SCREW	N9612YX	8	

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
251	RFL-A ASSY	P9514XA	1	
252	RRS-A ASSY	P9514XC	1	
253	P9514YC TRC-J5	2113950	1	
254	P9514ZE MST-J5	2113955-5	1	
255	SCC-N ASSY	P9514WK	1	
256	FM-NA ASSY	P9514XN	1	
257	VDO-N2 ASSY	P9514YQ	1	
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0043EK	3	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12
292	TERMINAL	U0108FP	1	3
293	NAME PLATE	Z9814PX	1	
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
296	DISCON PLATE	P9500DZ	1	
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
301	CABLE ASSY 2	P9515VB	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	

OPERATOR CSL ASSY FOR 220V NTSC SHORT MODEL 2132043

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
331	PWR CORD ASSY	P9515XB	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
341	CN105 LABEL	Z9814QC	1	
342	CN1LABEL	Z9814PY	1	
343	CN103LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	
355	TIE WRAP	U0203AC	1	
356	LABEL	U0040BN	2	

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**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

**MATERIAL LIST (1/10) **

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
3	EMBLEM YMS	P9514GA	1	FOR P9515AJ, AK, AL, AM
4	DATA PLATE	P9514GB	1	FOR P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC ASSY	P9514JA	1	
8	KB GRAY ASSY	P9514JN	1	FOR P9515AA, AJ
	KB PINK ASSY	P9514JP	1	FOR P9515AB, AK
	KB GREEN ASSY	P9514JQ	1	FOR P9515AC, AL
	KB BLUE ASSY	P9514JR	1	FOR P9515AD, AM
	KB GRAY ASSY 2	P9514KX	1	FOR P9515AS, AW, 2112635
	KB PINK ASSY 2	P9514KW	1	FOR P9515AT, AX, 2112637
9	CAP	U0236AE	6	
10	EMBLEM RTfino	P9514GD	1	FOR P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT
	EMBLEM GE RTfino	P9514GH	1	FOR P9515AW, AX, 2112635, 2112637
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07
18	TIE WRAP	U0201AC	4	CV-100

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514BH	1	
24	REAR COVER	P9514BJ	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JC	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JF	1	
29	REAR BOX	P9514BQ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL	P9514GK	1	FOR P9515AJ, AK, AL, AM, AS, AT
	CAUTION LABEL 2	P9514GV	1	FOR P9515AW, AX, 2112635, 2112637
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515AA, AB, AC, AD
	BASE R	P9514HS	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
43	BASE L	P9514BD	1	FOR P9515AA, AB, AC, AD
	BASE L	P9514HT	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514BF	1	
46	SIDE FRAME L	P9514BG	1	
47	HANDLE	P9514BK	1	

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
48	BOLT	P9514BR	8	
50	FRONT PLATE	P9514BV	1	
51	FRONT SIDE BRKT	P9514BW	2	
52	REAR SIDE BRKT	P9514BX	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515AA, AB, AC, AD
		U0134AE	2	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
56	CASTER	U0130AE	2	FOR P9515AA, AB, AC, AD
		U0137AE	2	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515AA, AB, AC, AD
		P9514DN	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
72	CASE XFMR REAR	P9514DC	1	FOR P9515AA, AB, AC, AD
		P9514DP	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	9	⊕
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	
191	SCREW	N9305ES	1	

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
192	SCREW	N9306JS	50	FOR P9515AA, AB, AC, AD, AW, AX, 2112635, 2112637
			66	FOR P9515AJ, AK, AL, AM, AS, AT
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	49	FOR P9515AA, AB, AC, AD, AW, AX, 2112635, 2112637
			33	FOR P9515AJ, AK, AL, AM
			37	FOR P9515AS, AT
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	
199	WASHER	N9401WL	17	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	FOR P9515AA, AB, AC, AD, AJ, AK, AL, AM
			21	FOR P9515AS, AT, AW, AX, 2112635, 2112637
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	FOR P9515AA, AB, AC, AD, AS, AT, AW, AX 2112635, 2112637
			51	FOR P9515AJ, AK, AL, AM
205	SCREW	N9408LK	4	FOR P9515AS, AT, AW, AX, 2112635, 2112637
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
211	SCREW	N9420JS	2	
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	5	FOR P9515AA, AB, AC, AD
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	4	
223	SCREW	N9508ZX	20	
224	WASHER	N9518TM	4	

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515AA, AB, AC, AD
			17	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515AA, AB, AC, AD
			16	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
233	SCREW	N9306JL	2	FOR P9515AA, AB, AC, AD, AJ, AK, AL, AM
			3	FOR P9515AS, AT, AW, AX, 2112635, 2112637
234	SCREW	N9612YX	8	
251	RFL ASSY	P9514WA	1	FOR P9515AA, AB, AC, AD
	RFL-A ASSY	P9514XA	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
252	RRS ASSY	P9514WC	1	FOR P9515AA, AB, AC, AD
	RRS-A ASSY	P9514XC	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
253	TRC ASSY	P9514WE	1	FOR P9515AA, AB, AC, AD
	TRC-A ASSY	P9514XE	1	FOR P9515AJ, AK, AL, AM, AS, AT
	TRC-C ASSY	P9514XZ	1	FOR P9515AW, AX
	P9514YC TRC-J5	2113950	1	FOR 2112635, 2112637

OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
254	MST-J ASSY	P9514WG	1	FOR P9515AA, AB, AC, AD
	MST-J2 ASSY	P9514YG	1	FOR P9515AJ, AK, AL, AM
	MST-J3 ASSY	P9514ZQ	1	FOR P9515AS, AT
	MST-J4 ASSY	P9514ZW	1	FOR P9515AW, AX
	P9514ZE MST-J5	2113955-5	1	FOR 2112635, 2112637
255	SCC-N ASSY	P9514WK	1	
256	FM-N ASSY	P9514WM	1	FOR P9515AA, AB, AC, AD
	FM-NA ASSY	P9514XN	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
257	VDO-N ASSY	P9514WP	1	FOR P9515AA, AB, AC, AD
	VDO-N2 ASSY	P9514YQ	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0040EK	2	10A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
292	TERMINAL	U0020FP	1	3
293	NAME PLATE	Z9814PX	1	
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
300	CABLE ASSY 1	P9515VA	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

**OPERATOR CSL ASSY FOR 100V NTSC SHORT MODEL
P9515AA, AB, AC, AD, AJ, AK, AL, AM, AS, AT, AW, AX,
2112635, 2112637**

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
331	PWR CORD ASSY	P9515XA	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637
355	TIE WRAP	U0203AC	1	FOR P9515AJ, AK, AL, AM, AS, AT, AW, AX, 2112635, 2112637

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**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

**MATERIAL LIST (1/10) **

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	HOLDER RUBBER	P9514FL	2	
2	PROBE HOLDER	P9514FD	1	
3	EMBLEM YMS	P9514GA	1	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
4	DATA PLATE	P9514GB	1	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ
5	NPL PWR SW	P9514GC	1	
7	MONITOR NTSC ASSY	P9514JA	1	
8	KB GRAY ASSY	P9514JN	1	FOR P9515AE, AN
	KB PINK ASSY	P9514JP	1	FOR P9515AF, AP
	KB GREEN ASSY	P9514JQ	1	FOR P9515AG, AQ
	KB BLUE ASSY	P9514JR	1	FOR P9515AH, AR
	KB GRAY ASSY 2	P9514KX	1	FOR P9515AU, AY, 2112640
	KB PINK ASSY 2	P9514KW	1	FOR P9515AV, AZ, 2112642
9	CAP	U0236AE	6	
10	EMBLEM RTfino	P9514GD	1	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV
	EMBLEM GE RTfino	P9514GH	1	FOR P9515AY, AZ, 2112640, 2112642
11	EDGING	U0508AC	1	
12	EDGING	U0507AC	1	
13	BUSHING	U0501AC	1	
14	CLAMP	U0006AC	1	
15	NAME PLATE	B9716EC	1	
16	NAME PLATE	B9716ED	1	
17	CLAMP	U0011AC	1	CKN-07
18	TIE WRAP	U0201AC	4	CV-100

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (2/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
19	CLAMP	U0012AC	5	CKN-10
20	CLAMP	U0013AC	6	
21	PWR CORD HOOK	P9500EX	1	
22	GRIPPER	P9510EG	2	
23	FRONT COVER	P9514HD	1	
24	REAR COVER	P9514HE	1	
25	COVER PLATE	P9514BL	1	
26	FRONT PANEL ASSY	P9514JC	1	
27	KB BOTTOM COVER	P9514BN	1	
28	UPPER PANEL ASSY	P9514JF	1	
29	REAR BOX	P9514BQ	1	
35	MAGNET	U0426AE	24	[cm]
36	CAP	P9123PC	8	
37	CAUTION LABEL	P9514GK	1	FOR P9515AN, AP, AQ, AR, AU, AV
	CAUTION LABEL 2	P9514GV	1	FOR P9515AY, AZ, 2112640, 2112642
41	KB PANEL	P9514BB	1	
42	BASE R	P9514BC	1	FOR P9515AE, AF, AG, AH
	BASE R	P9514HS	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
43	BASE L	P9514BD	1	FOR P9515AE, AF, AG, AH
	BASE L	P9514HT	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
44	BASE PLATE	P9514BE	1	
45	SIDE FRAME R	P9514HB	1	
46	SIDE FRAME L	P9514HC	1	
47	HANDLE	P9514BK	1	
48	BOLT	P9514BR	8	

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (3/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
50	FRONT PLATE	P9514HL	1	
51	FRONT SIDE BRKT	P9514HM	2	
52	REAR SIDE BRKT	P9514HN	2	
53	ACCESSORY BOX	P9514FC	1	
54	FAN ASSY	P9514JJ	1	
55	CASTER	U0102AE	2	FOR P9515AE, AF, AG, AH
		U0134AE	2	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
56	CASTER	U0130AE	2	FOR P9515AE, AF, AG, AH
		U0135AE	2	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
57	RUBBER SHEET 1	P9514FP	1	
58	RUBBER SHEET 2	P9514FQ	1	
59	CLAMP	U0006AC	1	
60	SILICON TUBE	U0489BA	110	[CM]
71	CASE XFMR	P9514DB	1	FOR P9515AE, AF, AG, AH
		P9514DN	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
72	CASE XFMR REAR	P9514DC	1	FOR P9515AE, AF, AG, AH
		P9514DP	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
73	CASE PS TOP	P9514DE	1	
74	CASE PS REAR	P9514DF	1	
75	CASE PS FRONT	P9514DG	1	
76	CASE PS	P9514DH	1	
77	PS SPRT 1	P9514DJ	1	Rev. 1
78	PS SPRT 2	P9514DK	1	
79	PS SPRT 3	P9514DL	1	Rev. 1
80	PS SPRT 4	P9514DM	1	Rev. 1

Note

The PS SPRT 1, PS SPRT 3, and the PS SPRT 4 (Items 77, 79, and 80) are modified with the change of the SW Regulators. Each PS SPRT modified can be mounted on both old and new SW Regulators, respectively.

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (4/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
81	CORD STOPPER	U0549AC	1	
83	NAME PLATE	U0022BN	9	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
			10	FOR P9515AU, AV, AY, AZ, 2112640, 2112642
101	SCREW	P9503LH	2	
102	SPACER	P9506LZ	1	
103	STOPPER BLOCK	P9510DL	2	
104	BEARING SPRT	P9514CB	4	
105	STOPPER	P9514CD	1	
106	NECK GUIDE	P9514CE	1	
107	NECK SPRT	P9514CF	1	
108	BELLOWS	P9514CG	1	
109	MONITOR ARM	P9514CH	1	
110	ARM COVER	P9514CJ	1	
111	PUSH BRKT	P9514CK	1	
112	PUSH PLATE	P9514CL	1	
113	PUSH ANGLE	P9514CM	1	
114	CLAMP PLATE	P9514CP	1	
115	GRIPPER	P9514CQ	1	



**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (5/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
116	SPRT PLATE	P9514CR	1	
117	STOPPER PLATE	P9514CS	1	
118	PIPE ASSY	P9514JK	1	
120	PLATE SCREW	P9514DT	1	
121	SPIRAL TUBE	U0534AC	6	[cm]
131	CS RING	U0943AA	2	
133	GAS SPRING	U0022AQ	1	
134	BEARING	U0018AH	8	
135	STUD	U0099AG	1	
136	BUSHING	U0502AC	1	
137	BEARING	U0918AH	2	
138	TUBE	U0453BA	1	
161	NEST BASE	P9514EA	1	
162	NEST TOP	P9514EB	1	
163	BRKT SUPPORT	P9514EC	1	
164	NEST SIDE L	P9514ED	1	
165	SHIELD PLATE	P9514EE	3	
166	CONN BRKT	P9514EF	1	
167	CONN BD BRKT	P9514EL	2	
168	NEST LABEL	Z9814PU	1	
171	NEST SIDE R	P9514EM	1	
172	NEST SPRT BRKT	P9514EN	1	
173	BUSHING	U0000AG	5	
174	FILM	P9510CT	4	

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (6/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
191	SCREW	N9305ES	1	
192	SCREW	N9306JS	66	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV
			50	FOR P9515AY, AZ, 2112640, 2112642
193	SCREW	N9306LK	24	
194	SCREW	N9308JL	33	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
			37	FOR P9515AU, AV
			49	FOR P9515AY, AZ, 2112640, 2112642
195	SCREW	N9308JS	2	
196	SCREW	N9325JS	3	
197	WASHER	N9400WS	13	
198	NUT	N9401BS	4	
199	WASHER	N9401WL	17	
200	SCREW	N9406JS	30	
201	SCREW	N9406LE	7	
202	SCREW	N9406LK	25	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
			21	FOR P9515AU, AV, AY, AZ, 2112640, 2112642
203	SCREW	N9406ZX	14	
204	SCREW	N9408JL	46	FOR P9515AE, AF, AG, AH, AU, AV, AY, AZ, 2112640, 2112642
			51	FOR P9515AN, AP, AQ, AR
205	SCREW	N9408LK	4	FOR P9515A
206	SCREW	N9410EB	11	
207	SCREW	N9410JS	6	
209	SCREW	N9416ZX	4	
211	SCREW	N9420JS	2	
212	SCREW	N9304JS	18	
213	SCREW	N9406JL	5	FOR P9515AE, AF, AG, AH
214	SCREW	N9308ES	6	
221	WASHER	N9500WS	7	
222	SCREW	N9508LK	9	
223	SCREW	N9508ZX	20	
224	WASHER	N9518TM	4	

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (7/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
225	SCREW	N9518ZX	4	
226	WASHER	N9600WS	24	
227	SCREW	N9610YX	6	
228	SCREW	N9616YX	16	
229	SCREW	N9640YX	4	
230	WASHER	N9800WS	1	FOR P9515AE, AF, AG, AH
			17	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
231	NUT	N9801BS	1	
232	SCREW	N9816YX	8	FOR P9515AE, AF, AG, AH
			16	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
233	SCREW	N9306JL	2	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
			1	FOR P9515AU, AV, AY, AZ, 2112640, 2112642
234	SCREW	N9612YX	8	
251	RFL ASSY	P9514WA	1	FOR P9515AE, AF, AG, AH
	RFL-A ASSY	P9514XA	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
252	RRS ASSY	P9514WC	1	FOR P9515AE, AF, AG, AH
	RRS-A ASSY	P9514XC	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
253	TRC ASSY	P9514WE	1	FOR P9515AE, AF, AG, AH
	TRC-A ASSY	P9514XE	1	FOR P9515AN, AP, AQ, AR, AU, AV
	TRC-C ASSY	P9514XZ	1	FOR P9515AY, AZ
	P9514YC TRC-J5	2113950	1	FOR 2112640, 2112642
254	MST-J ASSY	P9514WG	1	FOR P9515AE, AF, AG, AH
	MST-J2 ASSY	P9514YG	1	FOR P9515AN, AP, AQ, AR
	MST-J3 ASSY	P9514ZQ	1	FOR P9515AU, AV
	MST-J4 ASSY	P9514ZW	1	FOR P9515AY, AZ
	P9514ZE MST-J5	2113955-5	1	FOR 2112640, 2112642
255	SCC-N ASSY	P9514WK	1	

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (8/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
256	FM-N ASSY	P9514WM	1	FOR P9515AE, AF, AG, AH
	FM-NA ASSY	P9514XN	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
257	VDO-N ASSY	P9514WP	1	FOR P9515AE, AF, AG, AH
	VDO-N2 ASSY	P9514YQ	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
258	MOTHER B'd ASSY	P9514WT	1	
259	CONN B'd ASSY	P9514WV	1	
260	HV ASSY	P9514WX	1	
281	XFMR ASSY	P9514JL	1	
282	SW REGULATOR	U0219EE	1	RT-3-5FF
283	SW REGULATOR	U0231EE	1	K100AU-5
	SW REGULATOR	2222324	1	R100U-5, including PS SPRT4 (P9514DM Rev.1)
284	SW REGULATOR	U0261EE	1	K50AU-12
	SW REGULATOR	2222325	1	R50U-12, including PS SPRT3 (P9514DL Rev.1)
285	SW REGULATOR	U0262EE	1	K10AU-5
	SW REGULATOR	2222326	1	R15U-5, including PS SPRT1 (P9514DJ Rev.1)

Note

Three types of the SW Regulators (Items 283, 284, and 285) change to new ones because of the discontinuance of parts. You can replace old SW Regulator with new one using modified PS SPRT supplied with each new SW Regulator.

286	CIRCUIT PROTECTOR	U0025EK	2	1A
288	CIRCUIT PROTECTOR	U0040EK	2	10A
289	CIRCUIT PROTECTOR	U0043EK	1	5A
290	TERMINAL	U0002FP	2	6
291	TERMINAL	U0003FP	1	12

**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (9/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
292	TERMINAL	U0020FP	1	FOR P9515AE, AF, AG, AH, AN, AP, AQ, AR
		U0108FP	1	FOR P9515AU, AV, AY, AZ, 2112640, 2112642
293	NAME PLATE	Z9814PX	1	
294	POWER SW ASSY	P9515XZ	1	
295	TROIDAL CORE	U0012MC	5	TR-28-16-13
297	NAME PLATE	Z9814QX	1	G
298	NAME PLATE	Z9814QY	1	D+5V
299	NAME PLATE	Z9814QZ	1	D+12V
300	CABLE ASSY 1	P9515VA	1	
302	CABLE ASSY 3	P9515VC	1	
303	CABLE ASSY 4	P9515VD	1	
304	CABLE ASSY 5	P9515VE	2	
305	CABLE ASSY 6	P9515VF	1	
306	CABLE ASSY 7	P9515VG	1	
307	CABLE ASSY 8	P9515VH	1	
308	CABLE ASSY 9	P9515VJ	1	
309	CABLE ASSY 10	P9515VK	1	
310	CABLE ASSY 11	P9515VL	1	
312	CABLE ASSY 13	P9515VN	1	
313	CABLE ASSY 14	P9515VP	1	
314	CABLE ASSY 15	P9515VQ	1	
315	CABLE ASSY 16	P9515VR	1	
316	CABLE ASSY 17	P9515VS	1	
317	CABLE ASSY 18	P9515VT	1	
318	CABLE ASSY 19	P9515VU	1	
319	CABLE ASSY 20	P9515VV	1	
320	CABLE ASSY 21	P9515VW	1	
321	CABLE ASSY 22	P9515VX	1	

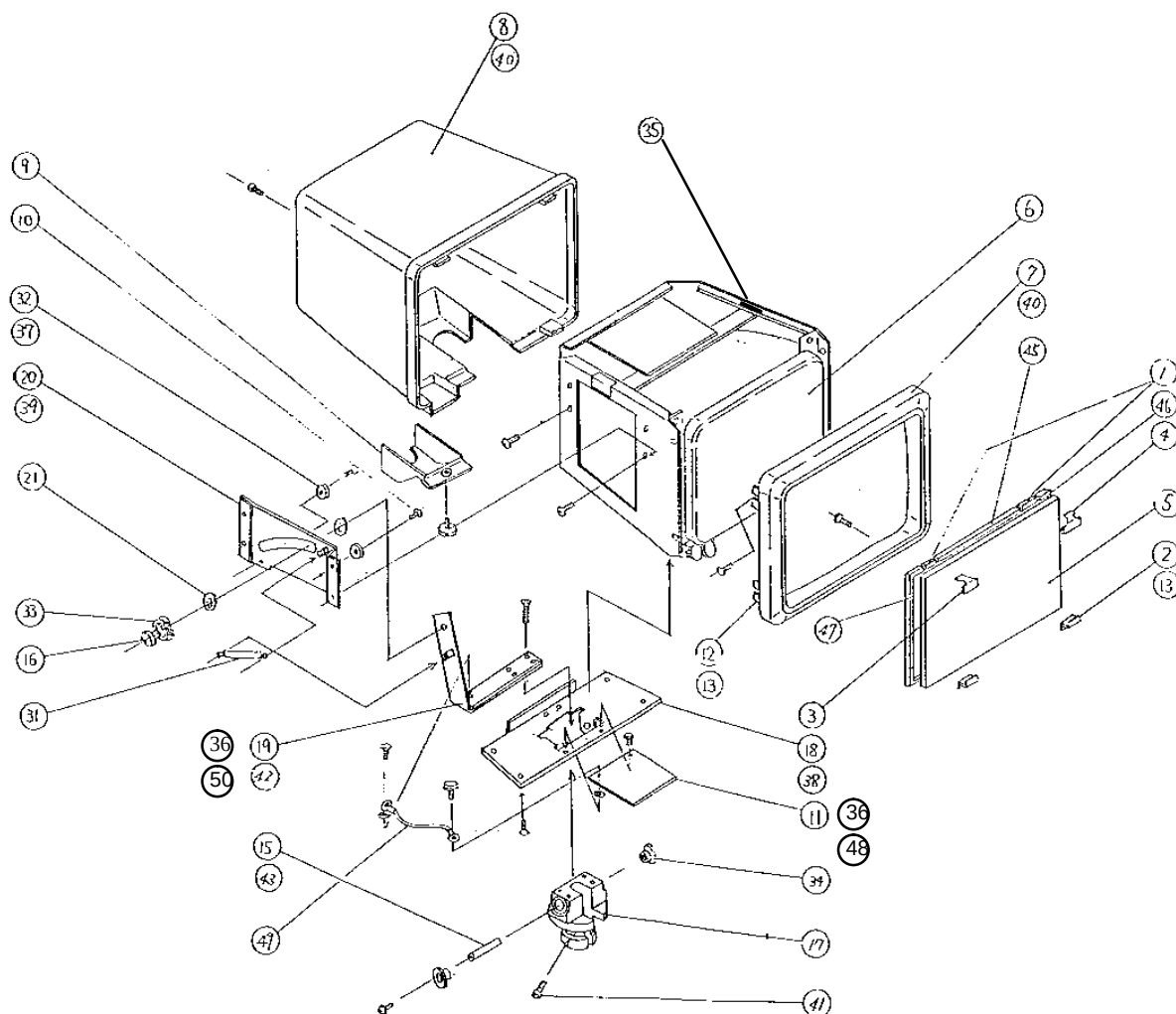
**OPERATOR CSL ASSY FOR 100V NTSC TALL MODEL
P9515AE, AF, AG, AH, AN, AP, AQ, AR, AU, AV, AY, AZ,
2112640, 2112642**

MATERIAL LIST (10/10)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
322	CABLE ASSY 23	P9515VY	2	
323	CABLE ASSY 24	P9515VZ	2	
324	CABLE ASSY 25	P9515WA	2	
325	CABLE ASSY 26	P9515WB	1	
326	CABLE ASSY 27	P9515WC	1	
327	CABLE ASSY 28	P9515WD	1	
328	CABLE ASSY 29	P9515WE	1	
329	CABLE ASSY 30	P9515WF	1	
330	CABLE ASSY 31	P9515WG	1	
331	PWR CORD ASSY	P9515XA	1	
333	KB FLAT CABLE	P9515UA	1	40 Core
334	KB FLAT CABLE	P9515UB	1	10 Core
335	HV FLAT CABLE	P9515UC	1	8 Core
341	CN105 LABEL	Z9814QC	1	
342	CN1 LABEL	Z9814PY	1	
343	CN103 LABEL	Z9814QA	1	
344	ATGC LABEL	Z9814PV	1	
345	CN104 LABEL	Z9814QB	1	
346	CN2 LABEL	Z9814PZ	1	
351	CABLE ASSY 43	P9515WU	2	
354	LABEL	P9100FF	4	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642
355	TIE WRAP	U0203AC	1	FOR P9515AN, AP, AQ, AR, AU, AV, AY, AZ, 2112640, 2112642

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VIDEO MONITOR ASSY 1/1 

VIDEO DISPLAY MONITOR ASSY P9514JA, P9514JB, P9514KC

MATERIAL LIST (1/2)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	FILTER RUBBER 1	P9514DU	2	FOR P9514JA, P9514JB
	FILTER RUBBER	P9301KL	2	FOR P9514KC
2	FILTER BRKT	P9500CL	2	
3	FILTER CLAMP R	P9514DY	1	FOR P9514JA, P9514JB
	FILTER CLAMP R	P9500CP	1	FOR P9514KC
4	FILTER CLAMP L	P9514DZ	1	FOR P9514JA, P9514JB
	FILTER CLAMP L	P9500CN	1	FOR P9514KC
5	CRT FILTER	P9514BY	1	FOR P9514JA, P9514JB
	VDT FILTER	P9500SF	1	FOR P9514KC GLASS FILTER
6	12 MONITOR NTSC	P9510TA	1	FOR P9514JA, P9514KC NTSC
	12 MONITOR PAL	P9514UA	1	FOR P9514JB PAL/SEC
7	ESCUTCHEON	P9514CU	1	
8	MONITOR COVER	P9514CV	1	
9	MONITOR COVER BOT	P9514CW	1	
10	MONITOR SCREW	P9514CX	1	
11	MONITOR COVER PLATE	P9514CY	1	
12	MONITOR ANGLE	P9514CZ	4	
13	TAPPING SCREW	U0023AA	10	
15	TILT SHAFT	P9506LD	1	
16	SLIDE SCREW	P9506LG	1	
17	ROTATION SLIDER	P9510FC	1	
18	SHAFT BRKT	P9510FD	1	
19	BALANCE BRKT	P9510FE	1	
20	STAB BRKT	P9510FH	1	
21	SLIDE PLATE	P9510FM	2	
31	SPRING	U0018AQ	1	
32	GUM FOOT	U0127AE	2	
33	WAVE WASHER	U0709AA	2	
34	BEARING	U0916AH	2	

VIDEO DISPLAY MONITOR ASSY P9514JA, P9514JB, P9514KC

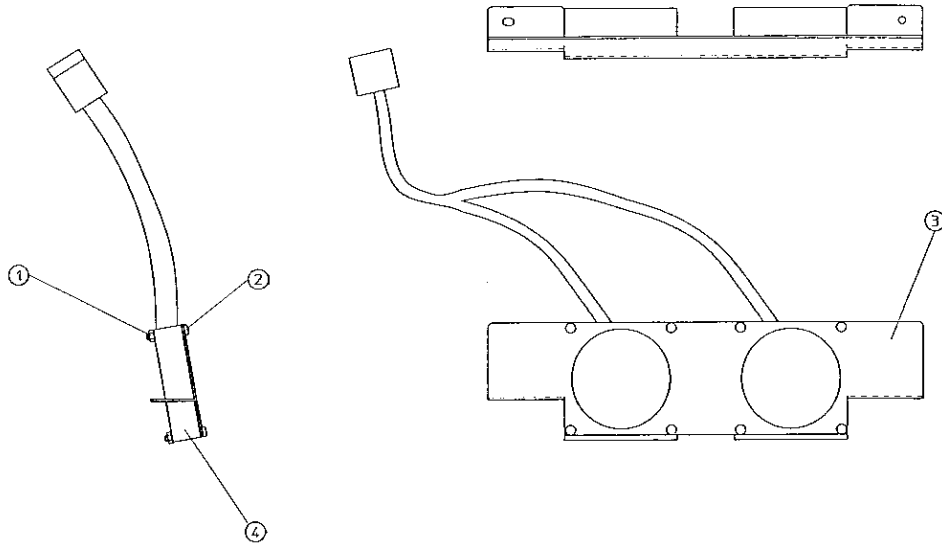
MATERIAL LIST (2/2)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
35	NAME PLATE	B9713EK	1	
36	WASHER	N9401WL	2	
37	SCREW	N9406JS	3	
38	SCREW	N9408ES	4	
39	SCREW	N9408JS	4	
40	SCREW	N9408LK	8	
41	SCREW	N9406ZX	1	
42	SCREW	N9414ES	4	
43	SCREW	N9510LK	2	
45	FILTER RUBBER 2	P9514DV	1	FOR P9514JA, P9514JB
46	FILTER RUBBER 3	P9514DW	1	FOR P9514JA, P9514JB
47	FILTER RUBBER 4	P9514DX	1	FOR P9514JA, P9514JB
48	SCREW	N9406LK	2	
49	CABLE ASSY 42	P9515WT	1	

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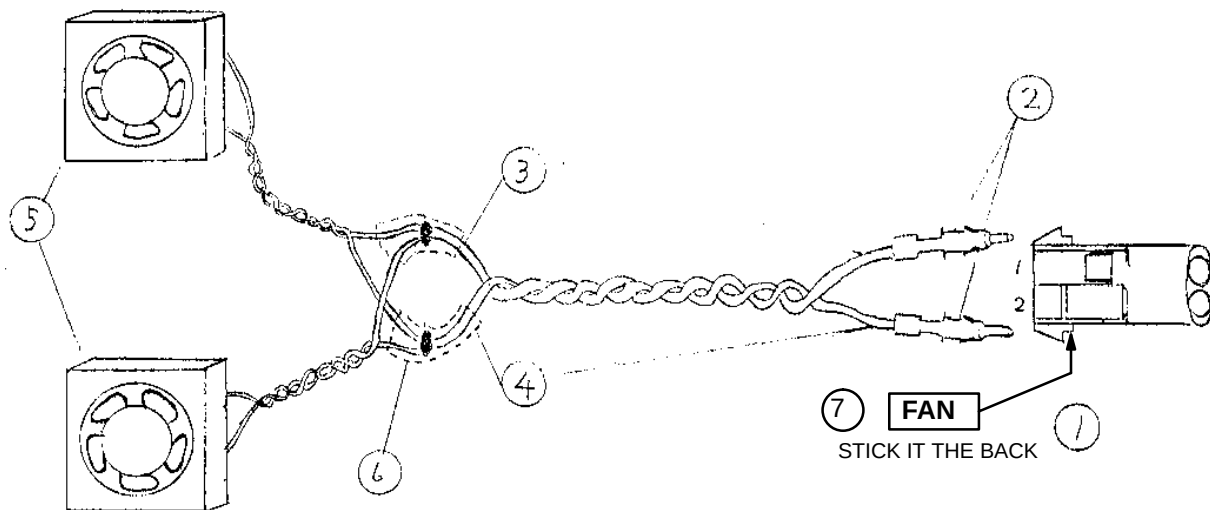
FAN ASSY

1/1 



FAN CABLE ASSY

1/1 



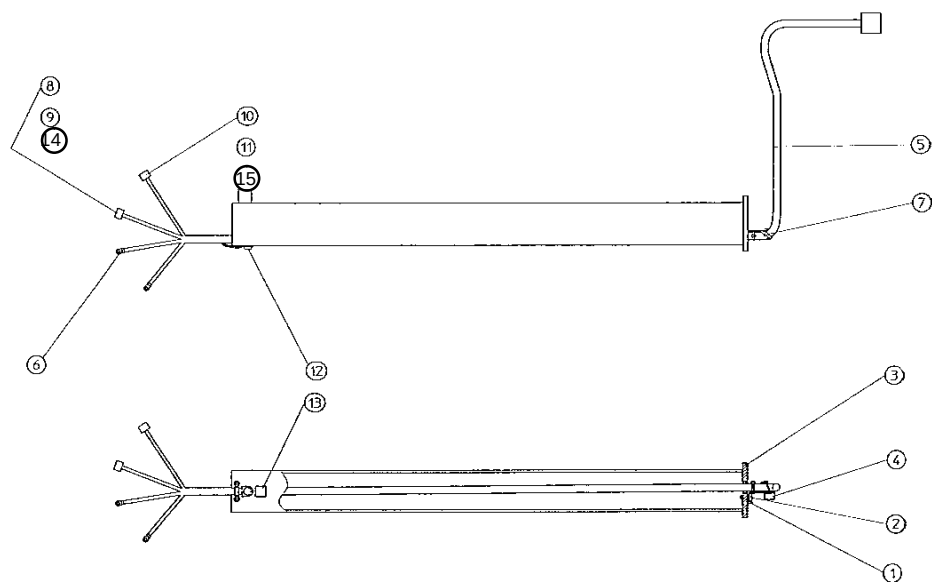
**FAN ASSY
P9514JJ****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	NUT	N9401CS	8	
2	SCREW	N9925JS	8	
2	FAN BRKT	P9514BM	1	
3	FAN CABLE ASSY	P9515XC	1	

**FAN CABLE ASSY
P9515XC****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CONN	U6702FA	1		
2	PIN	U6909FA	2		
3	WIRE	U0031WW	45		[CM]
4	WIRE	U0036WW	45		[CM]
5	FAN	U0510AM	2		
6	TUBE	U0446BA	4	Heat shrink Tube	[CM]
7	FAN LABEL	Z9804FM	1		

PIPE ASSY

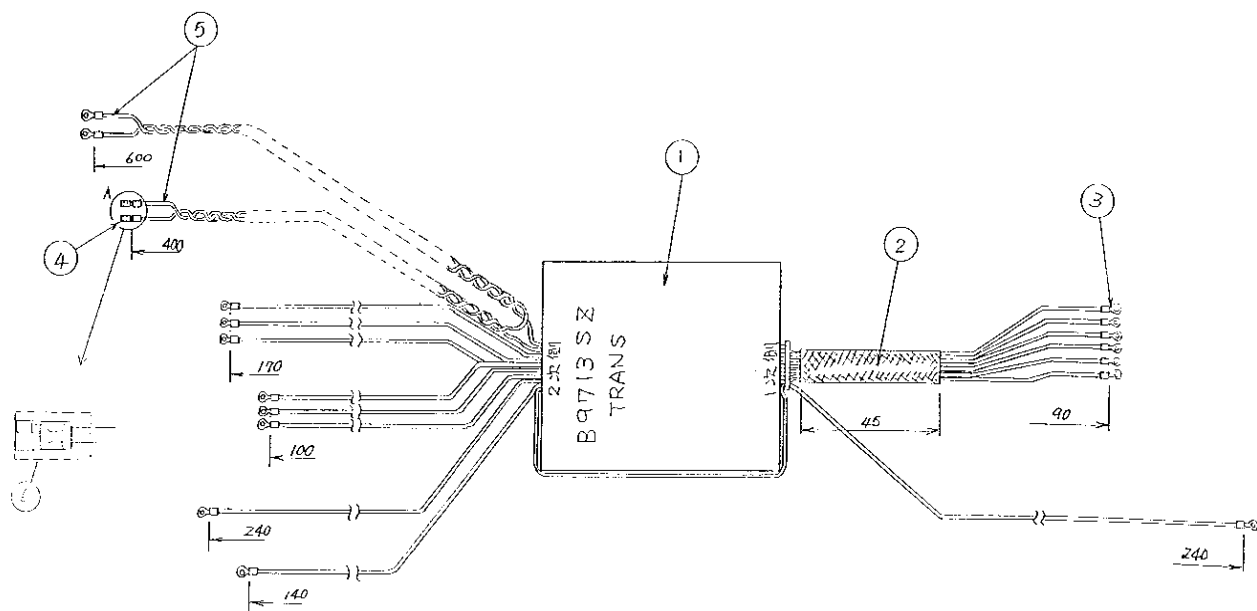
1/1 

PIPE ASSY P9514JK

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	SPRING PIN	N9206PS	1	
2	SCREW	N9406JS	1	
3	PIPE	P9514CC	1	
4	CLAMP BRKT	P9514CN	1	
5	CABLE ASSY 33	P9515WJ	1	
6	CS TERM	U0110FQ	2	
7	TIE WRAP	U0201AC	3	
8	CONN	U4202FA	1	
9	SOCKET	U4900FA	2	
10	CONN	U6602FA	1	
11	SOCKET	U6908FA	2	
12	SCREW	N9406LK	1	
13	NAME PLATE	U0036BN	1	
14	CN110 LABEL	Z9814QH	1	
15	CN115 LABEL	Z9814QK	1	

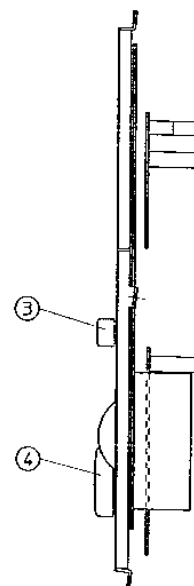
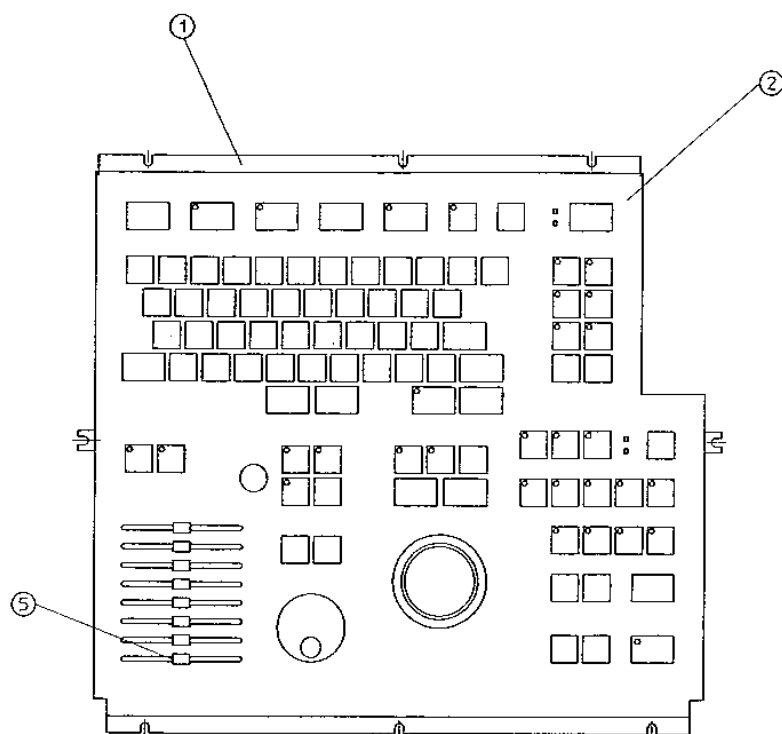
XFMR ASSY

1/1 

**XFMR ASSY
P9514JL*****MATERIAL LIST (1/1)***

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	TRANS	B9713SZ	1		
2	TUBE	U0412BA	45		[MM]
3	TIP	U0109FQ	16		
4	TIP	U0105FQ	1		
5	CABLE ASSY 12	P9515VM	1		
6	TUBE	U0446BA	40	Heat Shrink Tube	[MM]

KEYBOARD ASSY

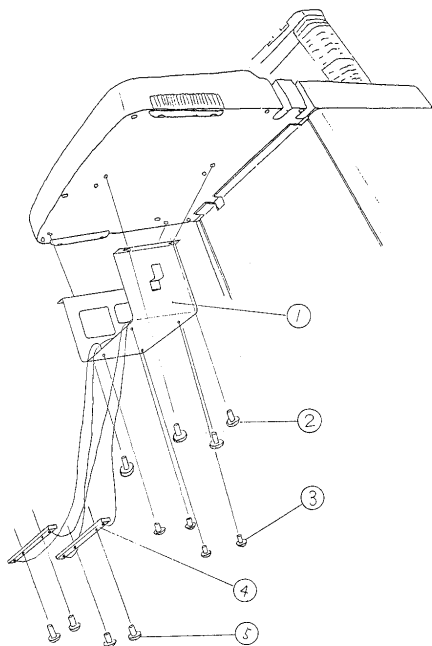
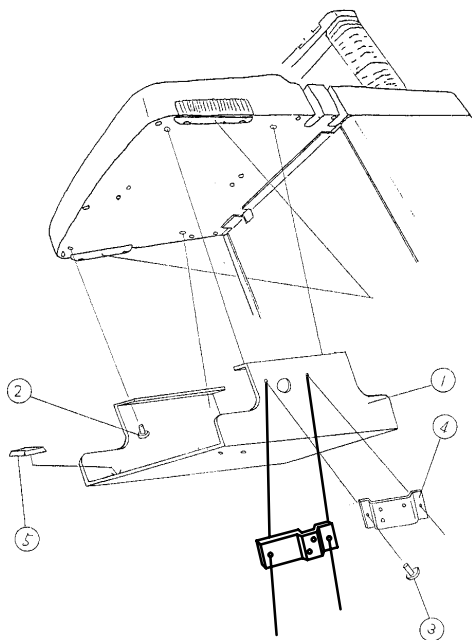
1/1 

KEYBOARD ASSY

**P9514JN, P9514JP, P9514JQ, P9514JR, P9514JS, P9514JM, P9514KW,
P9514KX, P9514KV**

**MATERIAL LIST (1/1) **

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	KEYBOARD	P9514SA	1	
2	K/B SHEET GRAY	P9514SB	1	FOR P9514JN
	K/B SHEET PINK	P9514SC	1	FOR P9514JP
	K/B SHEET GREEN	P9514SD	1	FOR P9514JQ
	K/B SHEET BLUE	P9514SE	1	FOR P9514JR
	K/B SHEET SIMBOL	P9514SF	1	FOR P9514JS
	K/B SHEET ACCENT GRAY	P9514SJ	1	FOR P9514JM
	K/B Sheet Light Gray 421	P9514SP	1	FOR P9514KX
	K/B Sheet Pink Ver.3	P9514SS	1	FOR P9514KW
	K/B Sheet SYNBOL 2	P9514ST	1	FOR P9514KV
3	KNOB B	U0230AE	1	
4	KNOB D	U0232AE	1	
5	KNOB SLIDE	U0238AE	8	
6	SET SCREW	N9904SJ	2	

SHELF B SET**1/1** **SHELF C SET****1/1** 

SHELF B SET FOR POLAROID CAMERA P9514JU

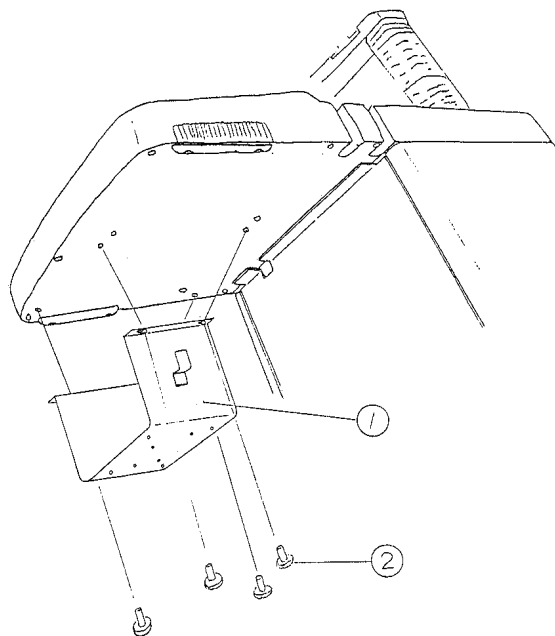
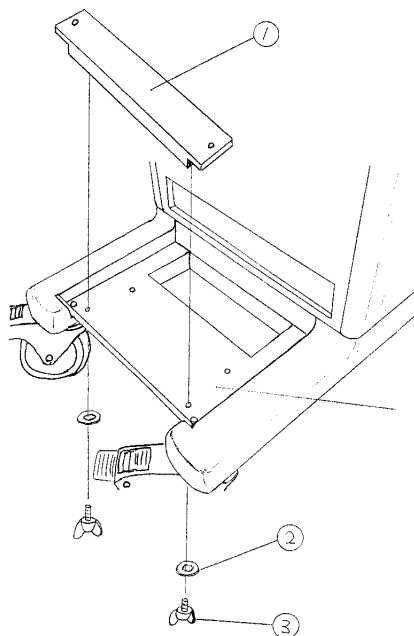
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	SHELF B	P9514FB	1	
2	SCREW	N9408LK	4	
3	SCREW	N9405JS	4	
4	SHELF BRKT	P9510JN	2	
5	SCREW	N9306JS	4	

SHELF C SET FOR 380mm VTR P9514JV

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	SHELF C	P9514FE	1	
2	SCREW	N9408LK	4	
3	SCREW	N9405JS	2	
4	HOLDER BRKT	P9514FG	1	
5	GUM FOOT	U0129AE	4	
6	HOLDER BRKT	P9514FS	1	

SHELF D SET**1/1** **ADAPTOR SPRT SET****1/1** 

SHELF D SET FOR THERMAL PRINTER P9514JW, 2163997

MATERIAL LIST (1/1)

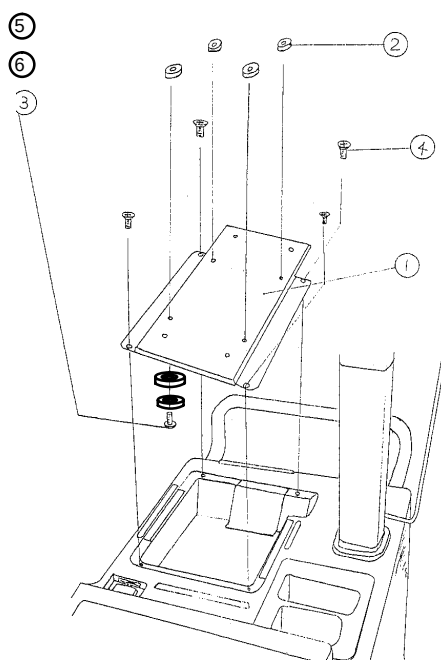
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	SHELF D	P9514FK	1	FOR P9514JW
		2159291	1	FOR 2163997
2	SCREW	N9408LK	4	
3	SCREW	N9314JS	4	FOR 2163997
4	SPRING WASHER	N9300SS	4	FOR 2163997
5	WASHER	N9300WS	4	FOR 2163997
6	SPACER	U0043AG	4	FOR 2163997

ADAPTOR SPRT SET P9514JX

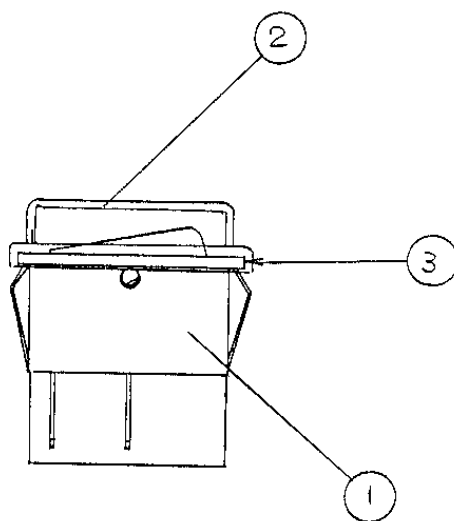
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	ADAPTOR SPRT	P9514FH	1	
2	WASHER	N9401WL	2	
3	SCREW	U0403AA	2	

PRINTER TRAY SET

1/1 

POWER SW ASSY

1/1 

PRINTER TRAY SET P9514JY

MATERIAL LIST (1/1)

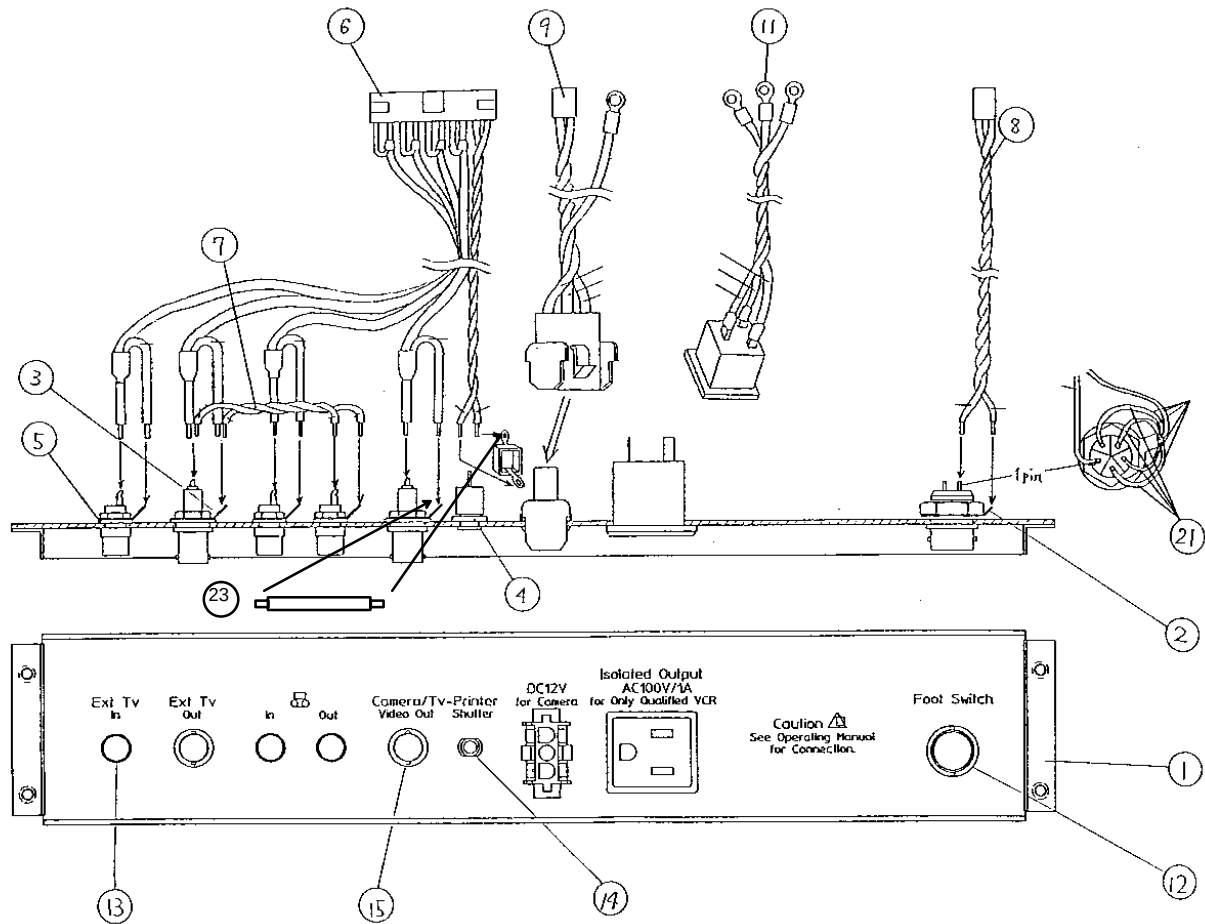
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	PRINTER TRAY	P9514FF	1	
2	SPACER	U0043AG	4	
3	SCREW	N9312JS	4	
4	SCREW	N9410EB	4	
5	SPRING WASHER	N9300SS	4	
6	WASHER	P9300WS	4	

POWER SW ASSY P9515XZ

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	SWITCH	U0024SS	1	
2	COVER	U0700SS	1	
3	BOND	U0401BD	1	

FRONT PANEL ASSY (P9514JC) 1/1

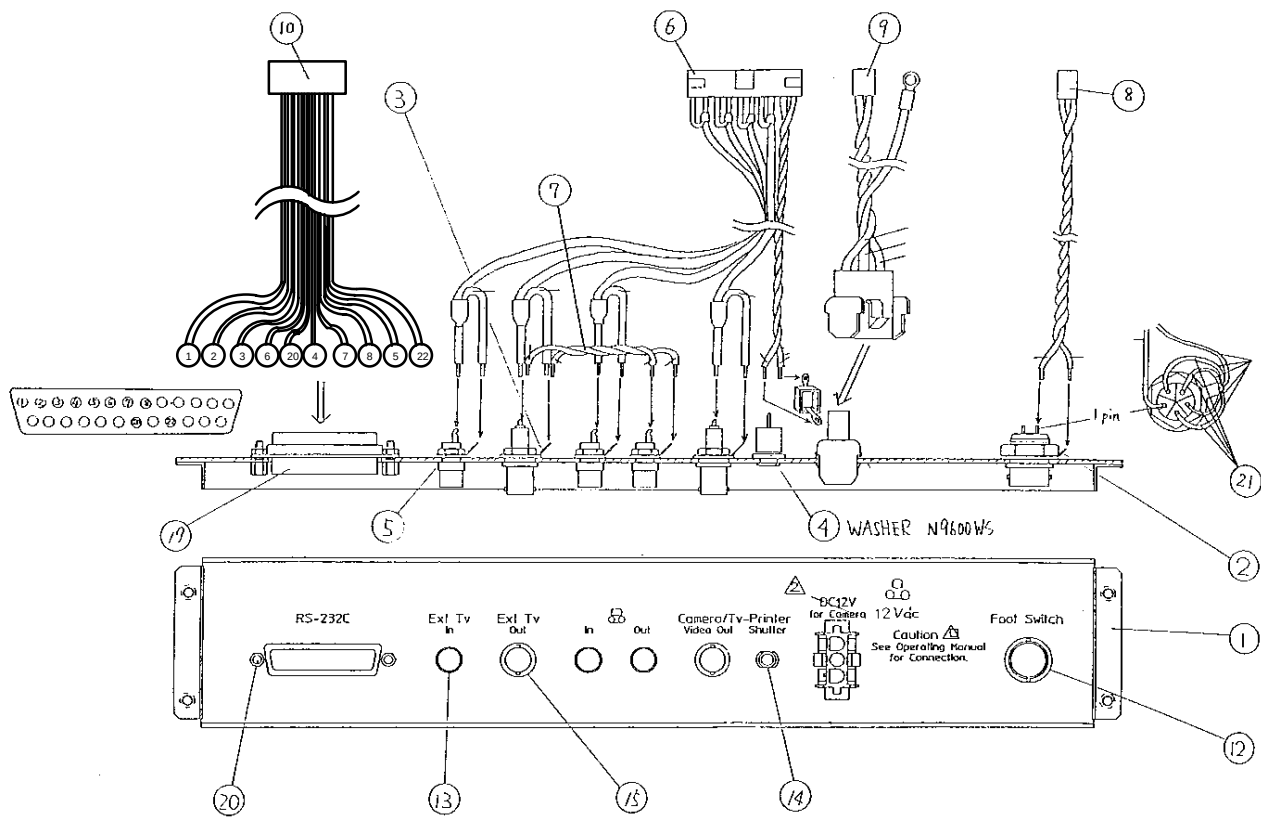


FRONT PANEL ASSY P9514JC, P9514KA

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	FRONT CONN PANEL	P9514BT	1		
2	PLATE	B9686JG	1		
3	PLATE	B9713GN	2		
4	WASHER	N9600WS	1		
5	WASHER	N9601WL	3		
6	CABLE ASSY 36	P9515WM	1		
7	CABLE ASSY 37	P9515WN	1		
8	CABLE ASSY 38	P9515WP	1		
9	CABLE ASSY 39	P9515WQ	1		
11	OUTLET CABLE ASSY L	P9515XE	1		
12	CONN	U0403FD	1		
13	CONN	U0434FD	3		
14	CONN	U0468FD	1		
15	CONN	U1013FD	2		
17	TIE WRAP	U0201AC	3		
18	CLAMP	U0012AC	1		
21	WIRE	U1000WW	20		[CM]
22	NAME PLATE	U0071BN	1	FOR P9514KA	115V
23	WIRE	U0000WW	5		[CM]

FRONT PANEL ASSY (P9514JD) 1/1

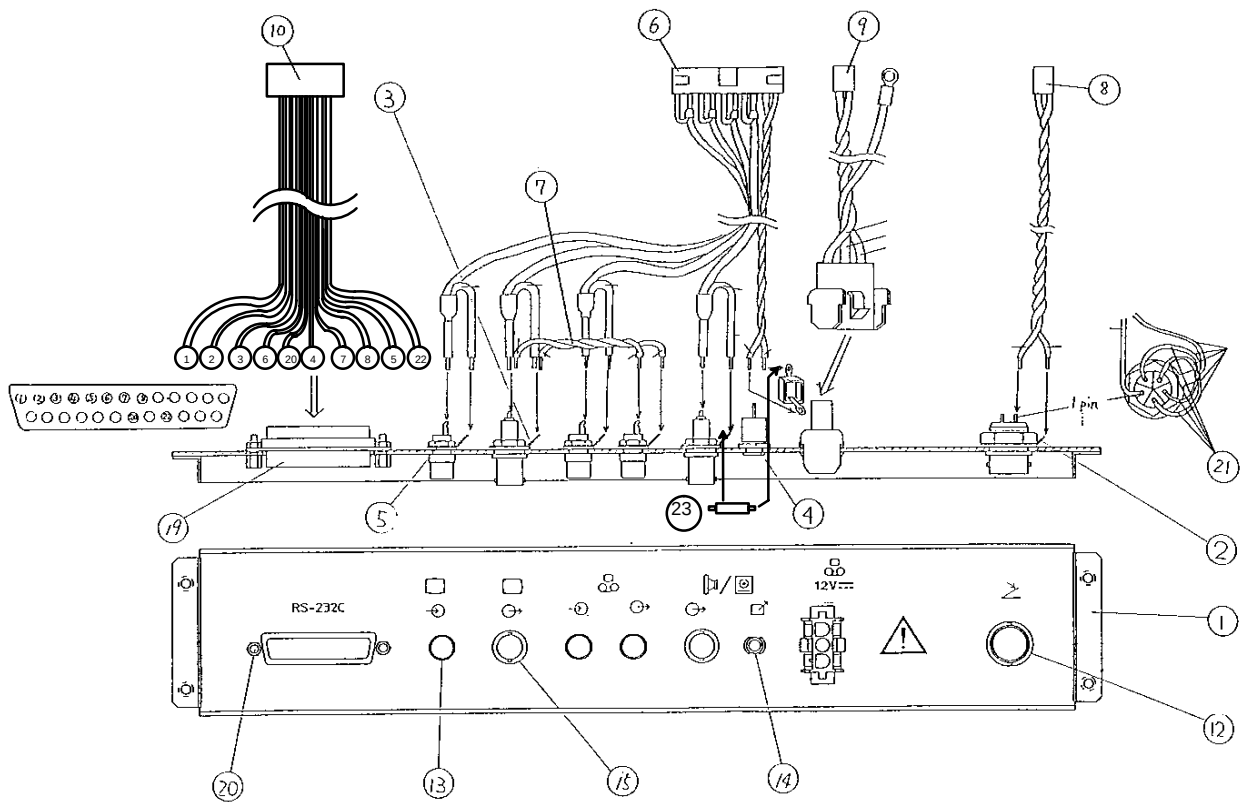


FRONT PANEL ASSY P9514JD

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	FRONT CONN PANEL	P9514HH	1	
2	PLATE	B9686JG	1	
3	PLATE	B9713GN	2	
4	WASHER	N9600WS	1	
5	WASHER	N9601WL	3	
6	CABLE ASSY 36	P9515WM	1	
7	CABLE ASSY 37	P9515WN	1	
8	CABLE ASSY 38	P9515WP	1	
9	CABLE ASSY 39	P9515WQ	1	
11	CABLE ASSY 40	P9515WR	1	
12	CONN	U0403FD	1	
13	CONN	U0434FD	3	
14	CONN	U0468FD	1	
15	CONN	U1013FD	2	
17	TIE WRAP	U0201AC	3	
18	CLAMP	U0012AC	2	
19	CONN	U0111FD	1	
20	LOCK POST	U0927FD	2	
21	WIRE	U1000WW	20	[CM]
22	CLAMP	U0011AC	3	
23	WIRE	U0000WW	5	[CM]

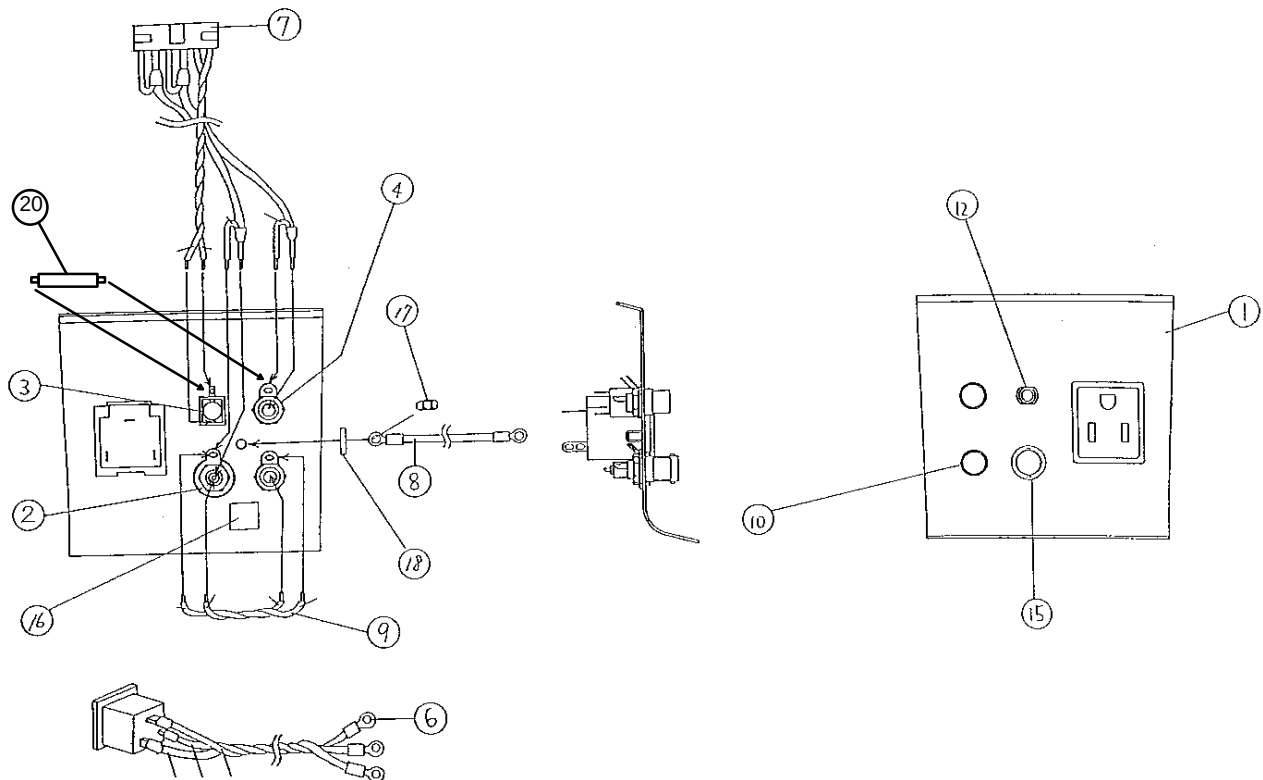
FRONT PANEL ASSY (P9514JE) 1/1



FRONT PANEL ASSY P9514JE

MATERIAL LIST (1/1)

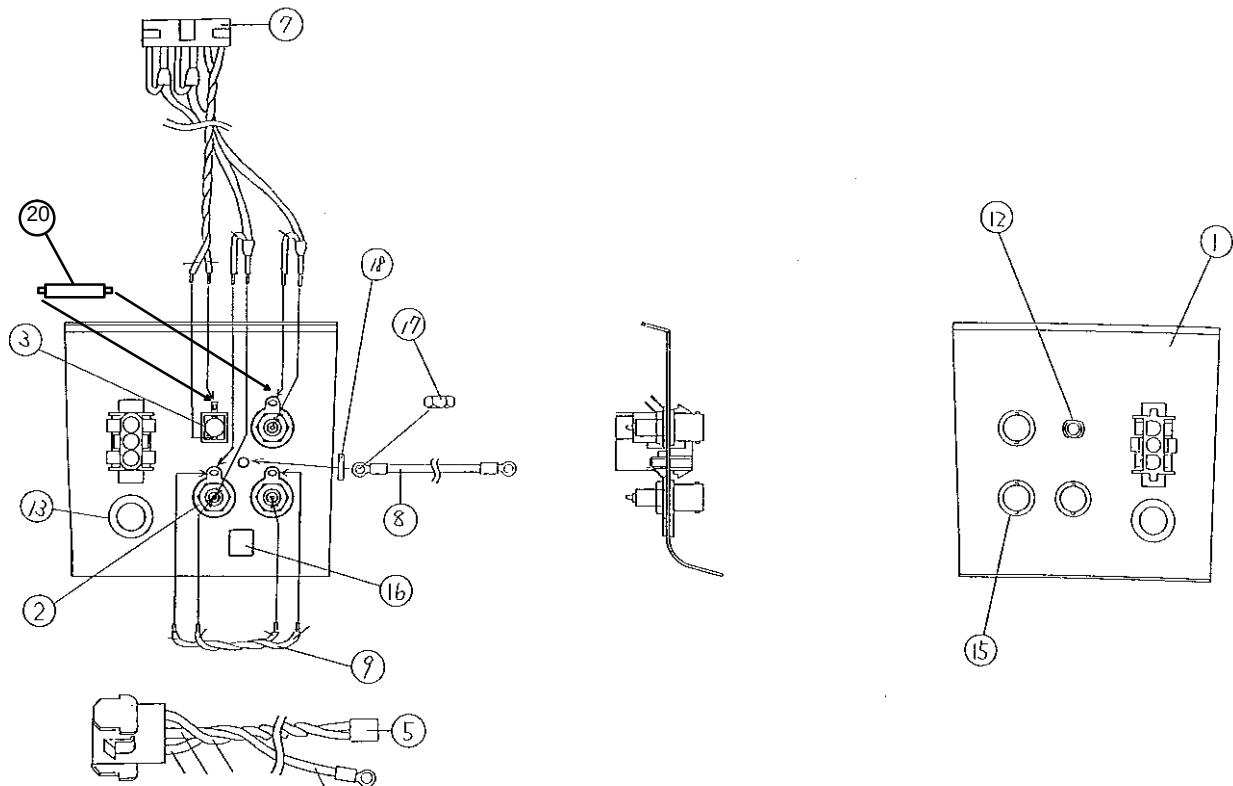
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	FRONT CONN PANEL	P9514HP	1	
2	PLATE	B9686JG	1	
3	PLATE	B9713GN	2	
4	WASHER	N9600WS	0	
5	WASHER	N9601WL	3	
6	CABLE ASSY 36	P9515WM	1	
7	CABLE ASSY 37	P9515WN	1	
8	CABLE ASSY 38	P9515WP	1	
9	CABLE ASSY 39	P9515WQ	1	
11	CABLE ASSY 40	P9515WR	1	
12	CONN	U0403FD	1	
13	CONN	U0434FD	3	
14	CONN	U0468FD	1	
15	CONN	U1013FD	2	
17	TIE WRAP	U0201AC	3	
18	CLAMP	U0012AC	2	
19	CONN	U0111FD	1	
20	LOCK POST	U0927FD	2	
21	WIRE	U1000WW	20	[CM]
22	CLAMP	U0011AC	3	
23	WIRE	U0000WW	5	

**UPPER PANEL ASSY (P9514JF) 1/1 **

UPPER PANEL ASSY P9514JF, P9514KB

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	UPPER CONN PANEL	P9514BP	1		
2	PLATE	P9713GN	1		
3	WASHER	N9600WS	1		
4	WASHER	N9601WL	2		
6	OUTLET CABLE ASSY U	P9515XD	1		
7	CABLE ASSY 34	P9515WK	1		
8	CABLE ASSY 35	P9515WL	1		
9	CABLE ASSY 37	P9515WN	1		
10	CONN	U0434FD	2		
12	CONN	U0468FD	1		
14	TIE WRAP	U0201AC	4		
15	CONN	U1013FD	1		
16	NAME PLATE	U0022BN	1		
17	NUT	N9401BS	1		
18	WASHER	N9401WL	1		
19	NAME PLATE	U0071BN	1	FOR P9514KB	115V
20	WIRE	U0000WW	5		[CM]

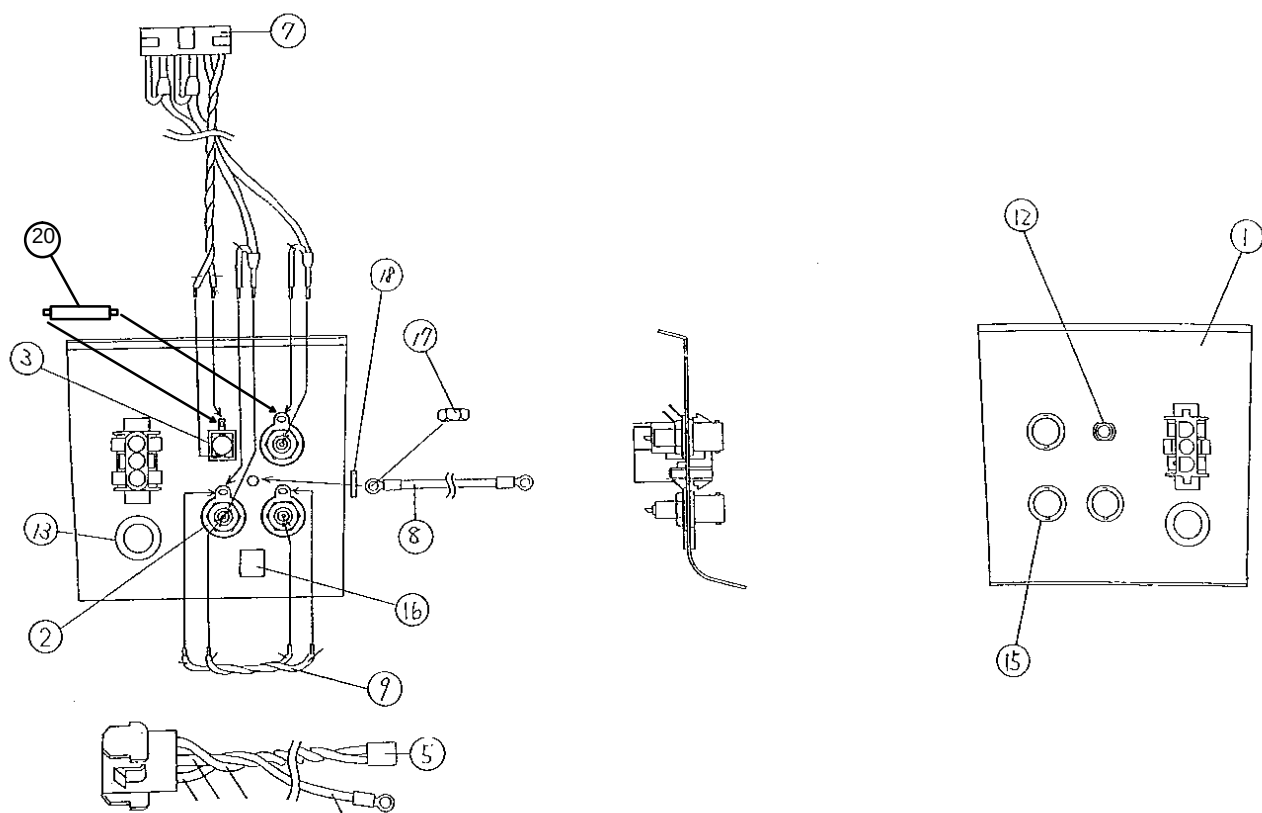
**UPPER PANEL ASSY (P9514JG) 1/1 **

UPPER PANEL ASSY P9514JG, 2164140

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	UPPER CONN PANEL	P9514HJ	1	FOR P9514JG
		2159292	1	FOR 2164140
2	PLATE	P9713GN	3	
3	WASHER	N9600WS	1	
5	CABLE ASSY 41	P9515WS	1	
7	CABLE ASSY 34	P9515WK	1	
8	CABLE ASSY 35	P9515WL	1	
9	CABLE ASSY 37	P9515WN	1	
12	CONN	U0468FD	1	
13	BUSHING	U0531AC	1	FOR P9514JG
		2164001	1	FOR 2164140
14	TIE WRAP	U0201AC	4	
15	CONN	U1013FD	3	
16	NAME PLATE	U0022BN	1	
17	NUT	N9401BS	1	
18	WASHER	N9401WL	1	
20	WIRE	U0000WW	5	
21	HOLE PLUG	2164000	1	FOR 2164140

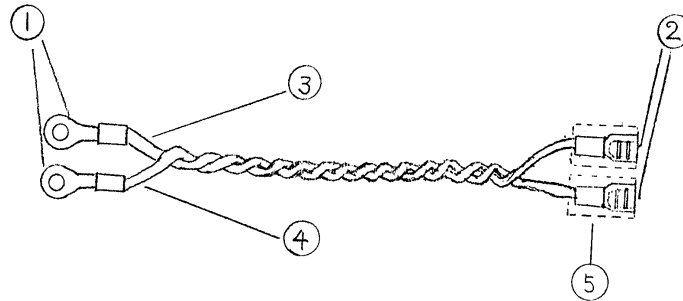
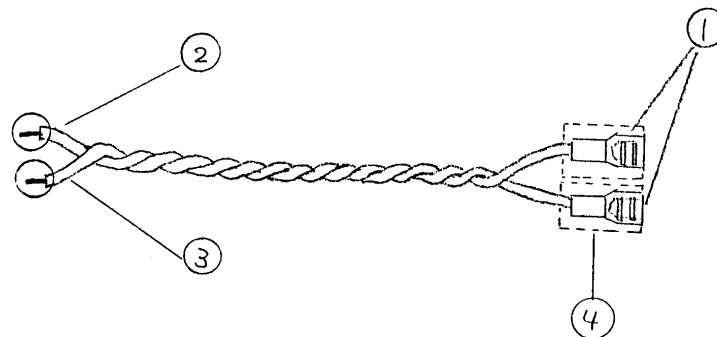
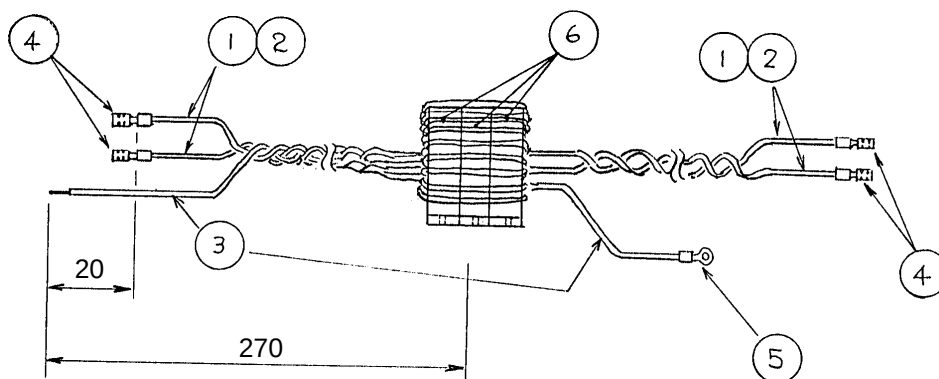
[CM]

UPPER PANEL ASSY (P9514JH) 1/1 

UPPER PANEL ASSY P9514JH

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	UPPER CONN PANEL	P9514HQ	1	
2	PLATE	P9713GN	3	
3	WASHER	N9600WS	1	
5	CABLE ASSY 41	P9515WS	1	
7	CABLE ASSY 34	P9515WK	1	
8	CABLE ASSY 35	P9515WL	1	
9	CABLE ASSY 37	P9515WN	1	
12	CONN	U0468FD	1	
13	BUSHING	U0531AC	1	
14	TIE WRAP	U0201AC	4	
15	CONN	U1013FD	3	
16	NAME PLATE	U0022BN	1	
17	NUT	N9401BS	1	
18	WASHER	N9401WL	1	
20	WIRE	U0000WW	5	

CABLE ASSY 11/1 $\triangle_0$ **CABLE ASSY 2**1/1 $\triangle_1$ **CABLE ASSY 3**1/1 $\triangle_0$ 

CABLE ASSY 1 P9515VA

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	CS TERM	U0105FQ	2		
2	WIRE	U3100WW	12	BRN	[CM]
3	WIRE	U3101WW	12	LBLU	[CM]
4	TUBE	U0446BA	4	Heat Shrink Tube	[CM]

CABLE ASSY 2 P9515VB

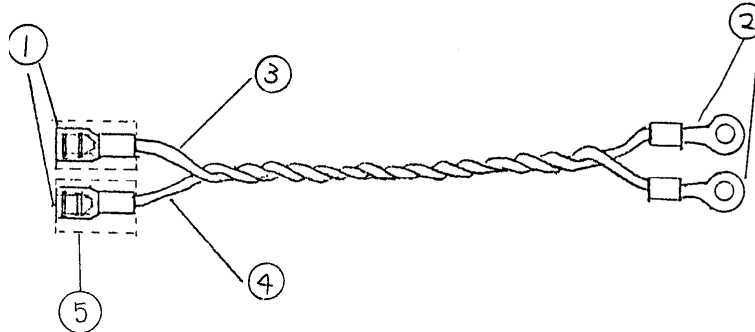
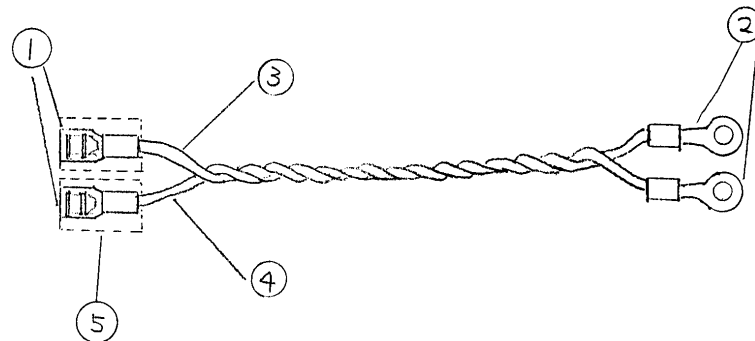
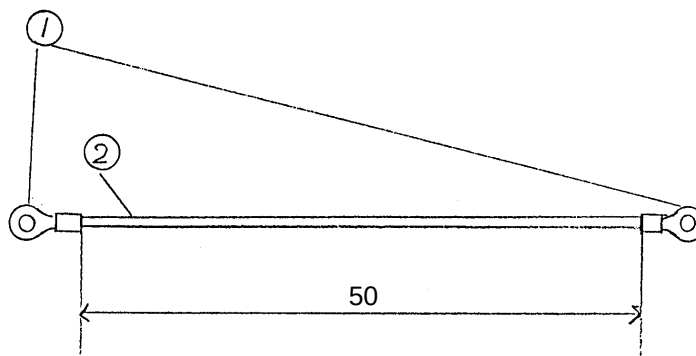
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0105FQ	2		
2	WIRE	U3100WW	11	BRN	[CM]
3	WIRE	U3101WW	13	LBLU	[CM]
4	TUBE	U0446BA	4	Heat Shrink Tube	[CM]

CABLE ASSY 3 P9515VC

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U3100WW	190	BRN	[CM]
2	WIRE	U3101WW	190	LBLU	[CM]
3	WIRE	U0110WW	100	GRN/YEL	[CM]
4	TIP	U0105FQ	4		
5	TIP	U0109FQ	1		
6	CORE	U0002MC	3		

CABLE ASSY 41/1 **CABLE ASSY 5**1/1 **CABLE ASSY 6**1/1 

**CABLE ASSY 4
P9515VD****MATERIAL LIST (1/1)**

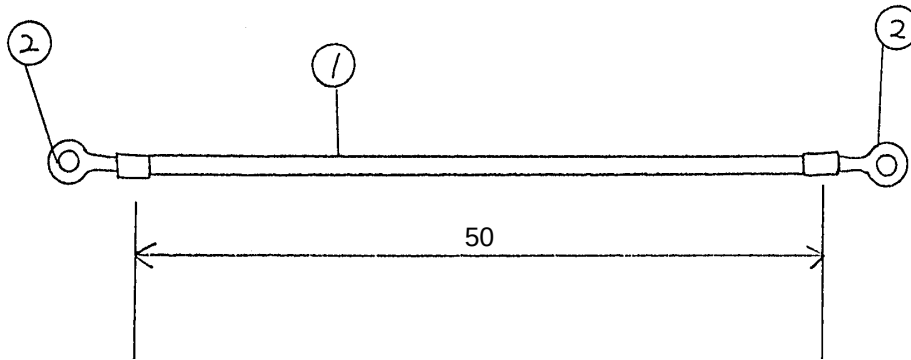
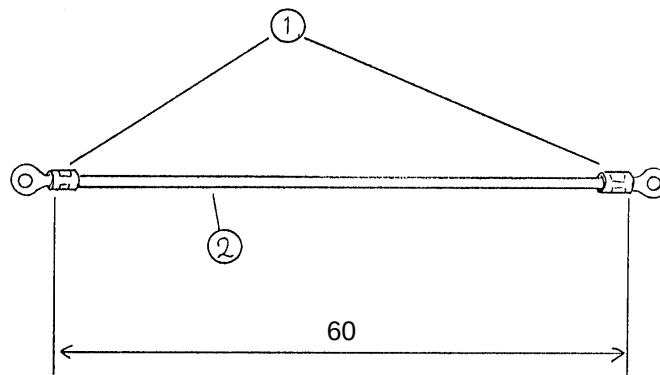
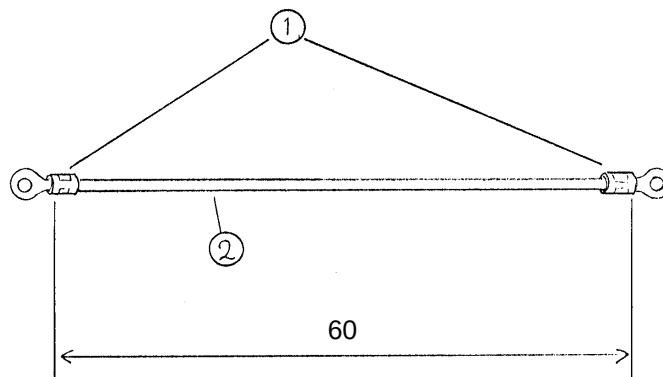
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0105FQ	2		
2	CS TERM	U0109FQ	2		
3	WIRE	U3100WW	90	BRN	[CM]
4	WIRE	U3101WW	90	LBLU	[CM]
5	TUBE	U0446BA	4	Heat Shrink Tube	[CM]

**CABLE ASSY 5
P9515VE****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0105FQ	2		
2	CS TERM	U0109FQ	2		
3	WIRE	U0033WW	60	WHT/ORG	[CM]
4	WIRE	U0038WW	60	WHT/GRY	[CM]
5	TUBE	U0446BA	4	Heat Shrink Tube	[CM]

**CABLE ASSY 6
P9515VF****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
2	CS TERM	U0109FQ	2		
4	WIRE	U0010WW	5	GRN/YEL	[CM]

CABLE ASSY 71/1 **CABLE ASSY 8**1/1 **CABLE ASSY 9**1/1 

**CABLE ASSY 7
P9515VG****MATERIAL LIST (1/1)**

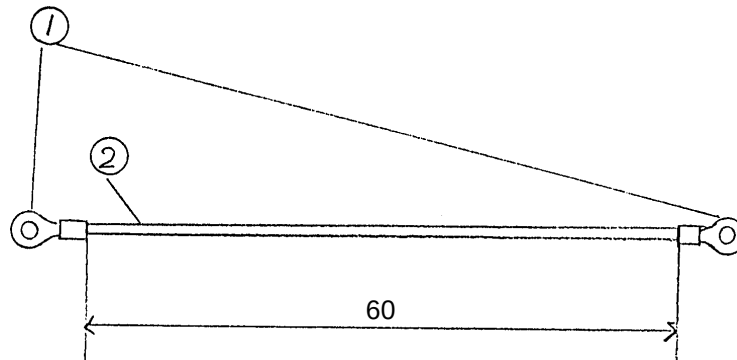
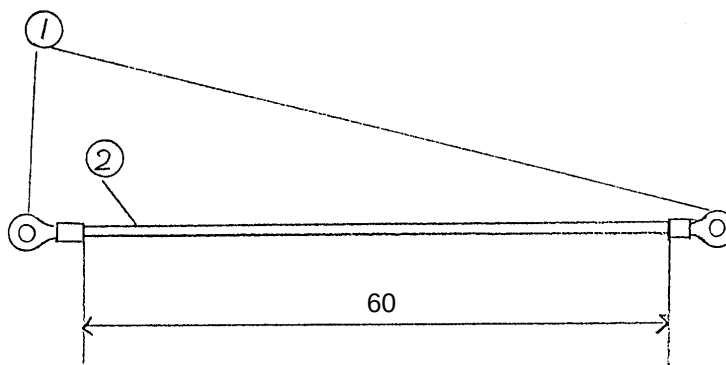
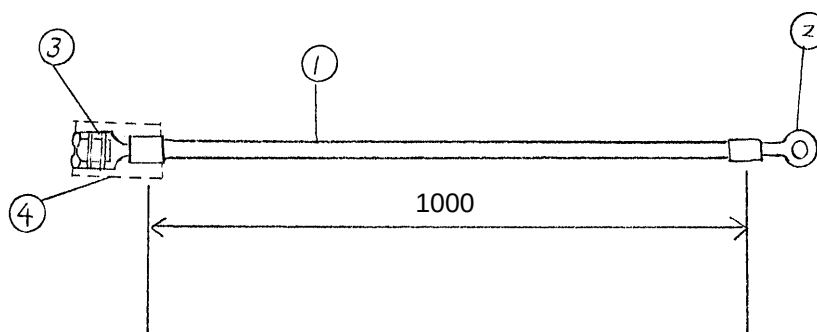
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0000WW	5	BLK	[CM]
2	CS TERM	U0109FQ	2		

**CABLE ASSY 8
P9515VH****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		[CM]
2	WIRE	U3101WW	6	LBLU	

**CABLE ASSY 9
P9515VJ****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		[CM]
2	WIRE	U0038WW	6	WHT/GRY	

CABLE ASSY 101/1 **CABLE ASSY 11**1/1 **CABLE ASSY 12**1/1 

CABLE ASSY 10
P9515VK**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	WIRE	U3100WW	6	BRN	[CM]

CABLE ASSY 11
P9515VL**MATERIAL LIST (1/1)**

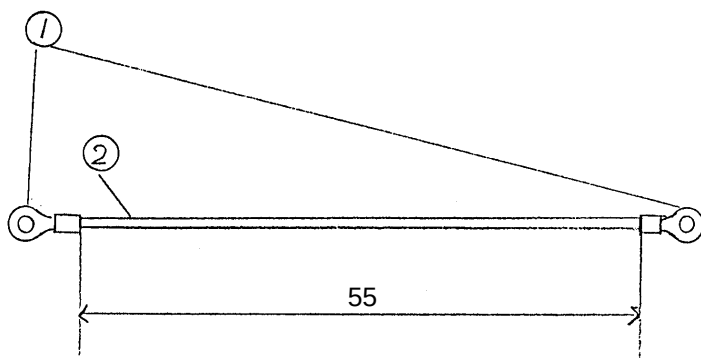
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	WIRE	U0033WW	6	WHT/ORG	[CM]

CABLE ASSY 12
P9515VM**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0002WW	100	RED	[CM]
2	CS TERM	U0109FQ	1		
3	CS TERM	U0105FQ	1		
4	TUBE	U0446BA	2	Heat Shrink Tube	[CM]

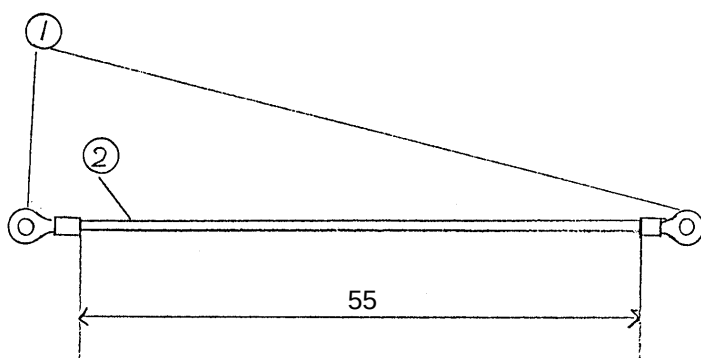
CABLE ASSY 13

1/1 



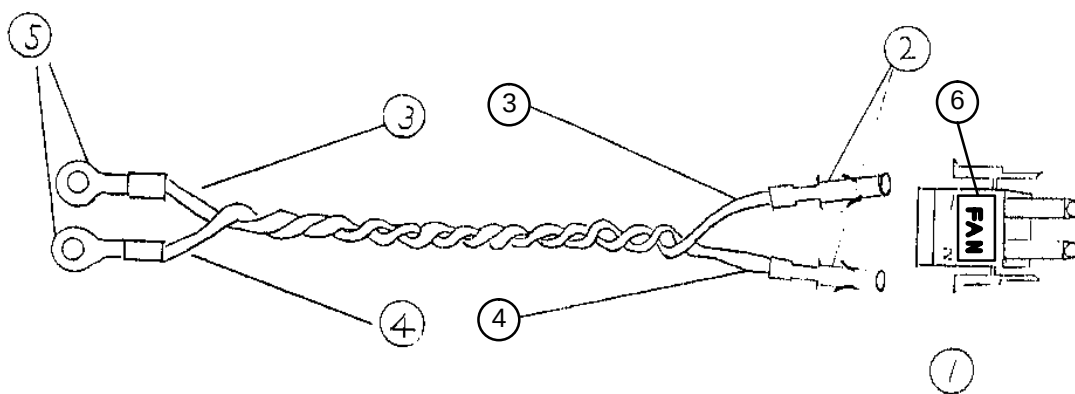
CABLE ASSY 14

1/1 



CABLE ASSY 15

1/1 



CABLE ASSY 13 P9515VN

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	WIRE	U0031WW	55	WHT/BRN	[MM]

CABLE ASSY 14 P9515VP

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	WIRE	U0036WW	55	WHT/BLU	[MM]

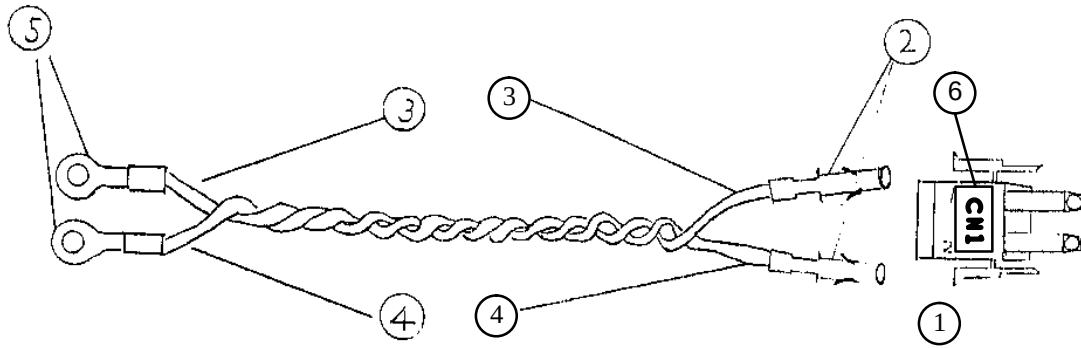
CABLE ASSY 15 P9515VQ

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CONN	U6602FA	1		
2	SOCKET	U6908FA	2		
3	WIRE	U0031WW	30	WHT/BRN	[CM]
4	WIRE	U0036WW	30	WHT/BLU	[CM]
5	CS TERM	U0109FQ	2		
6	FAN LABEL	Z9804FM	1		

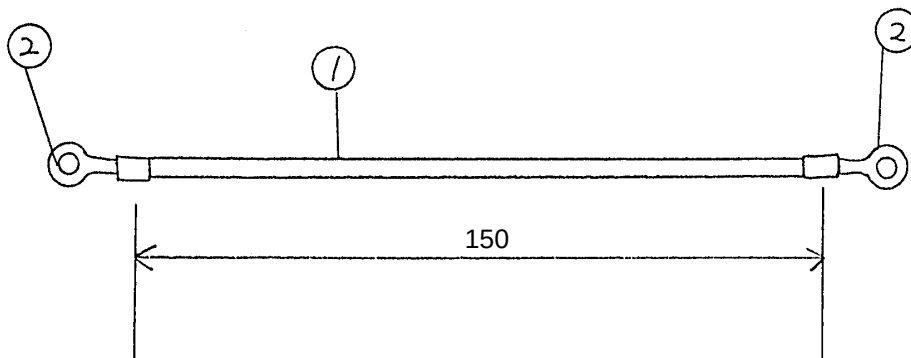
CABLE ASSY 16

1/1 



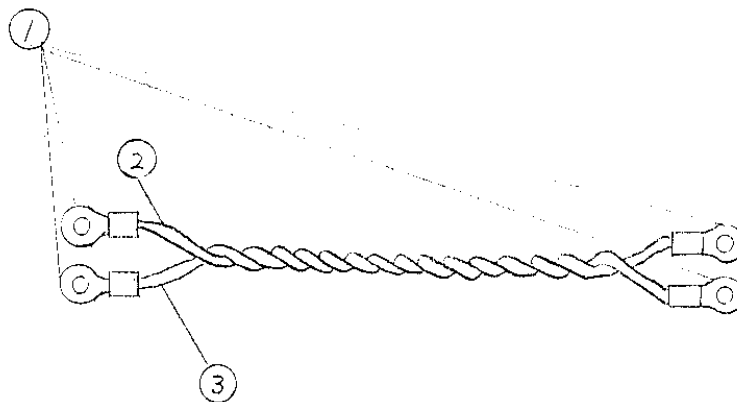
CABLE ASSY 17

1/1 



CABLE ASSY 18

1/1 



CABLE ASSY 16 P9515VR

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CONN	U6602FA	1		
2	SOCKET	U6908FA	2		
3	WIRE	U0031WW	50	WHT/BRN	[CM]
4	WIRE	U0036WW	50	WHT/BLU	[CM]
5	CS TERM	U0109FQ	2		
6	CN1 LABEL	Z9814PY	1		

CABLE ASSY 17 P9515VS

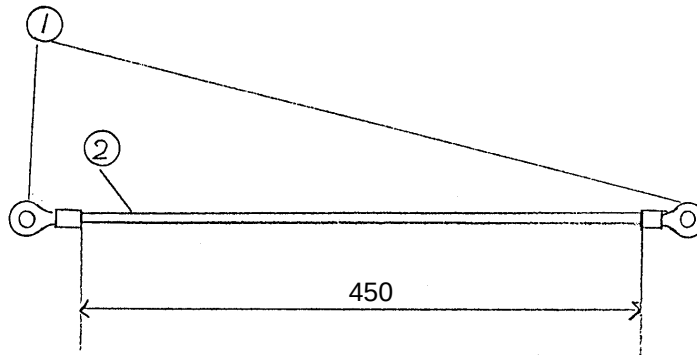
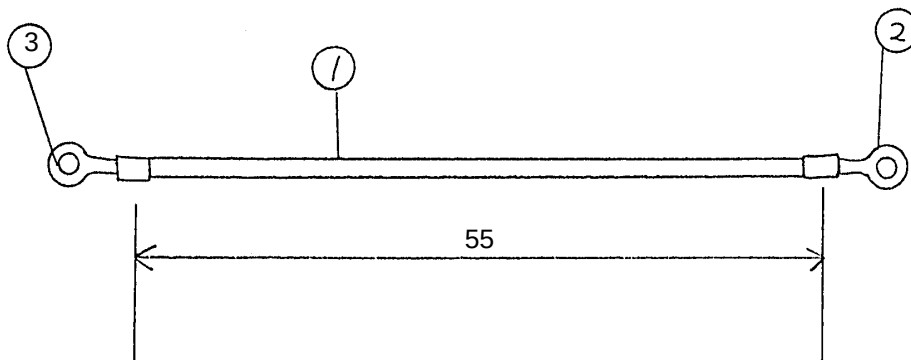
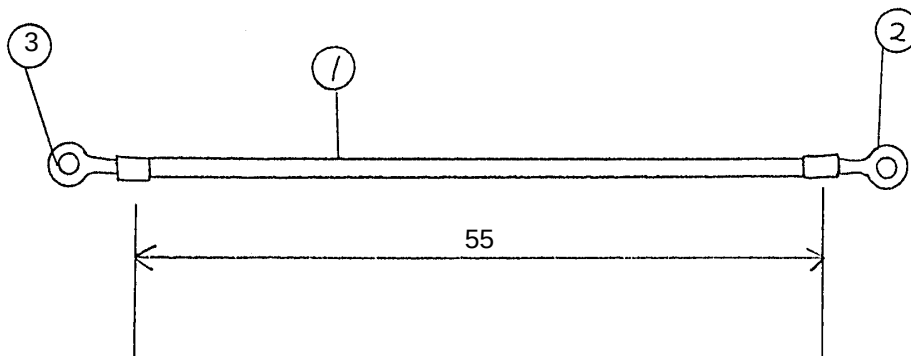
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0000WW	15	BLK	[CM]
2	CS TERM	U0109FQ	2		

CABLE ASSY 18 P9515VT

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	4		
2	WIRE	U0031WW	20	WHT/BRN	[CM]
3	WIRE	U0036WW	20	WHT/BLU	[CM]

CABLE ASSY 191/1 **CABLE ASSY 20**1/1 **CABLE ASSY 21**1/1 

CABLE ASSY 19
P9515VU**MATERIAL LIST (1/1)**

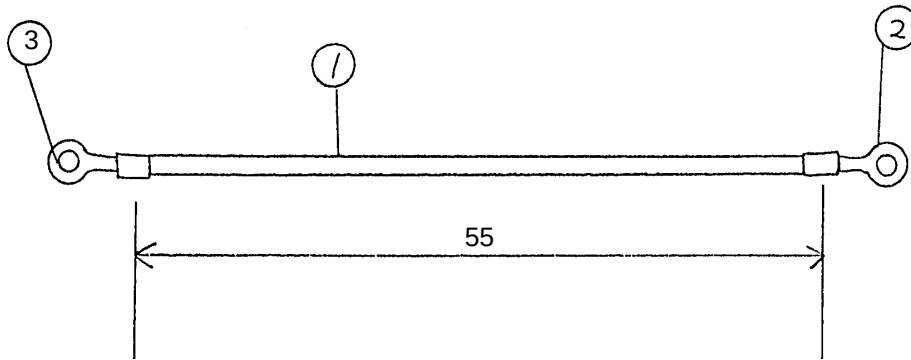
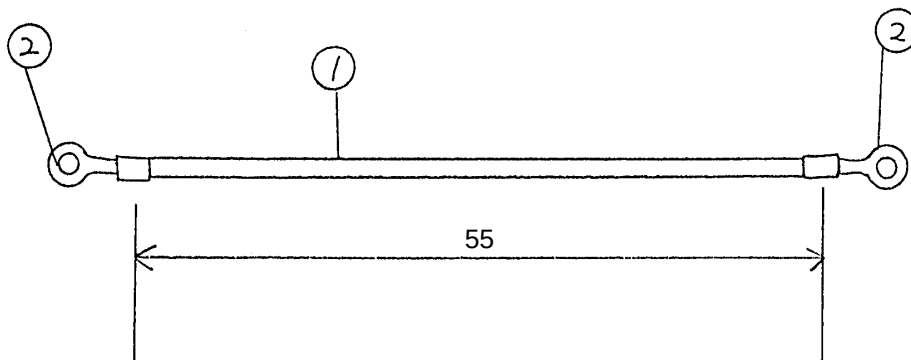
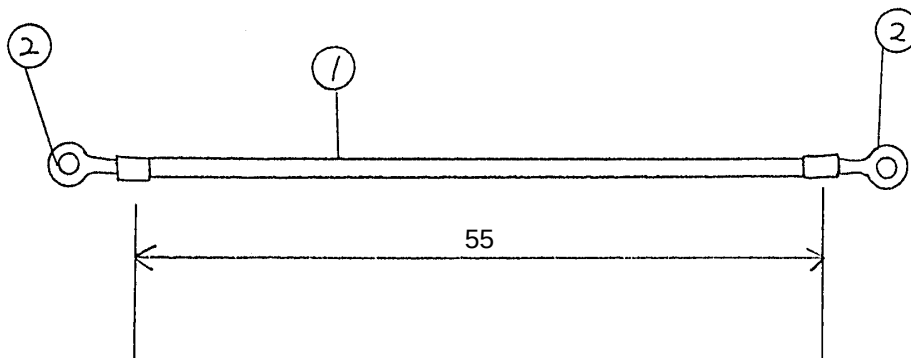
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	WIRE	U0010WW	45	GRN/YEL	[CM]

CABLE ASSY 20
P9515VV**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U3100WW	55	BRN	[MM]
2	CS TERM	U0109FQ	1		
3	CS TERM	U0110FQ	1		

CABLE ASSY 21
P9515VW**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U3101WW	55	LBLU	[MM]
2	CS TERM	U0109FQ	1		
3	CS TERM	U0110FQ	1		

CABLE ASSY 221/1 **CABLE ASSY 23**1/1 **CABLE ASSY 24**1/1 

**CABLE ASSY 22
P9515VX****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0010WW	55	GRN/YEL	[MM]
2	CS TERM	U0109FQ	1		
3	CS TERM	U0110FQ	1		

**CABLE ASSY 23
P9515VY****MATERIAL LIST (1/1)**

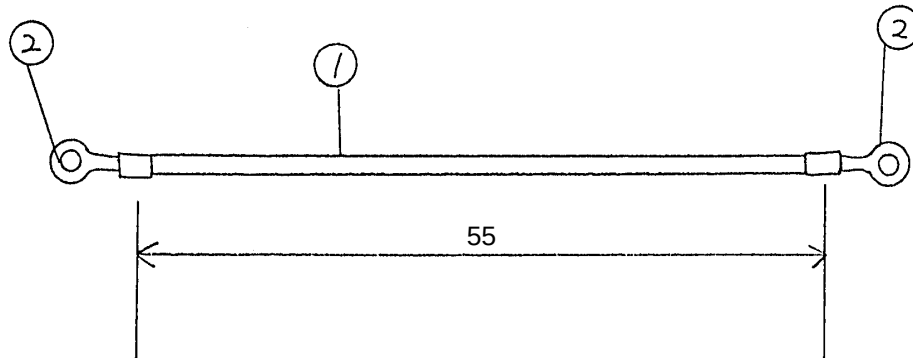
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U3100WW	55	BRN	[MM]
2	CS TERM	U0110FQ	2		

**CABLE ASSY 24
P9515VZ****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U3101WW	55	LBLU	[MM]
2	CS TERM	U0110FQ	2		

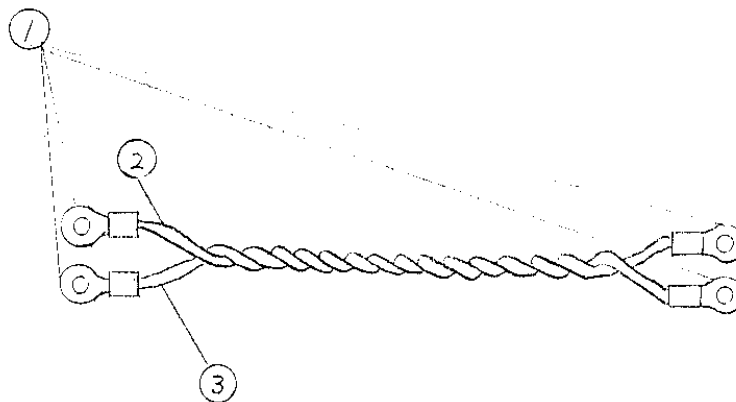
CABLE ASSY 25

1/1 



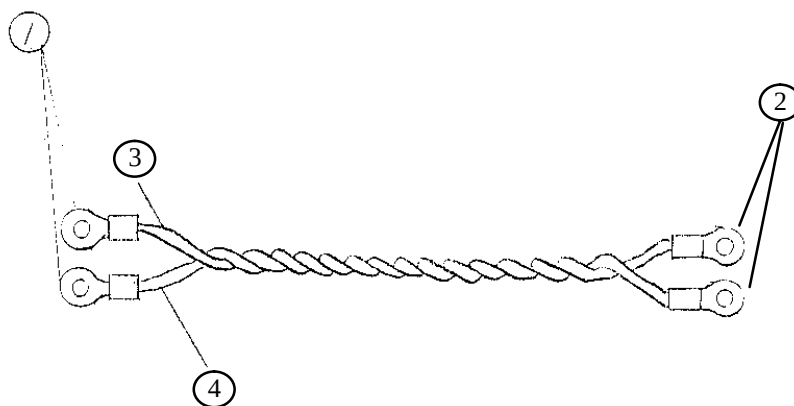
CABLE ASSY 26

1/1 



CABLE ASSY 27

1/1 



CABLE ASSY 25
P9515WA**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0010WW	55	GRN/YEL	[MM]
2	CS TERM	U0110FQ	2		

CABLE ASSY 26
P9515WB**MATERIAL LIST (1/1)**

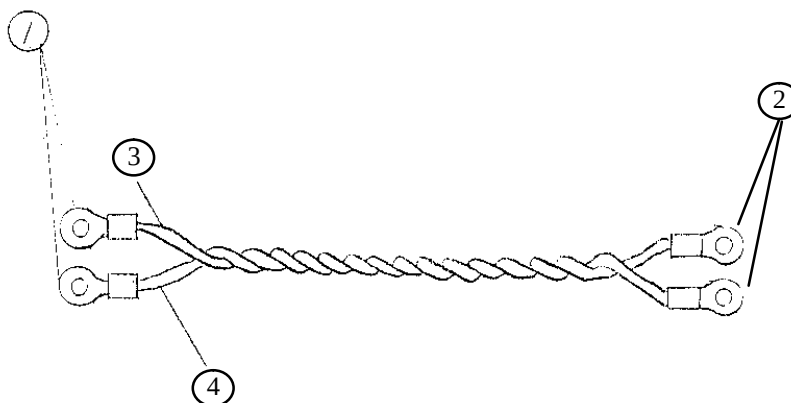
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	4		
2	WIRE	U0134WW	58	WHT/YEL	[CM]
3	WIRE	U0100WW	58	BLK	[CM]

CABLE ASSY 27
P9515WC**MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0110FQ	2		
2	CS TERM	U0109FQ	2		
3	WIRE	U0003WW	49	ORG	[CM]
4	WIRE	U0000WW	49	BLK	[CM]

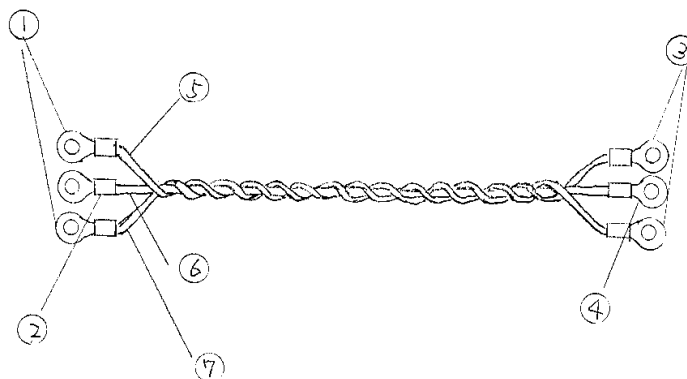
CABLE ASSY 28

1/1 



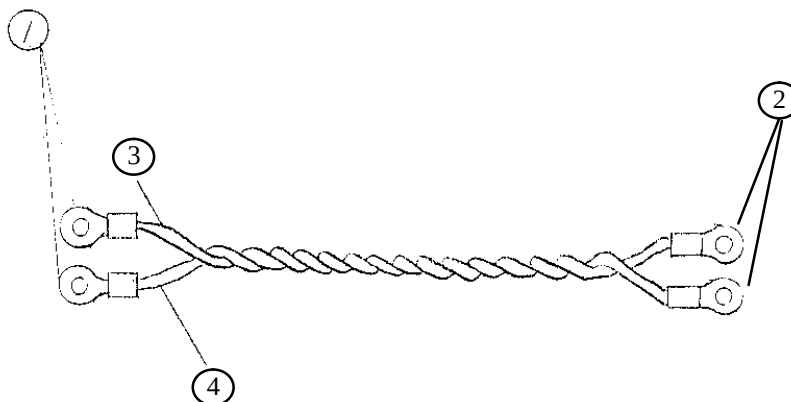
CABLE ASSY 29

1/1 



CABLE ASSY 30

1/1 



CABLE ASSY 28 P9515WD

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0110FQ	2		
2	CS TERM	U0109FQ	2		
3	WIRE	U0004WW	50	YEL	[CM]
4	WIRE	U0000WW	50	BLK	[CM]

CABLE ASSY 29 P9515WE

MATERIAL LIST (1/1)

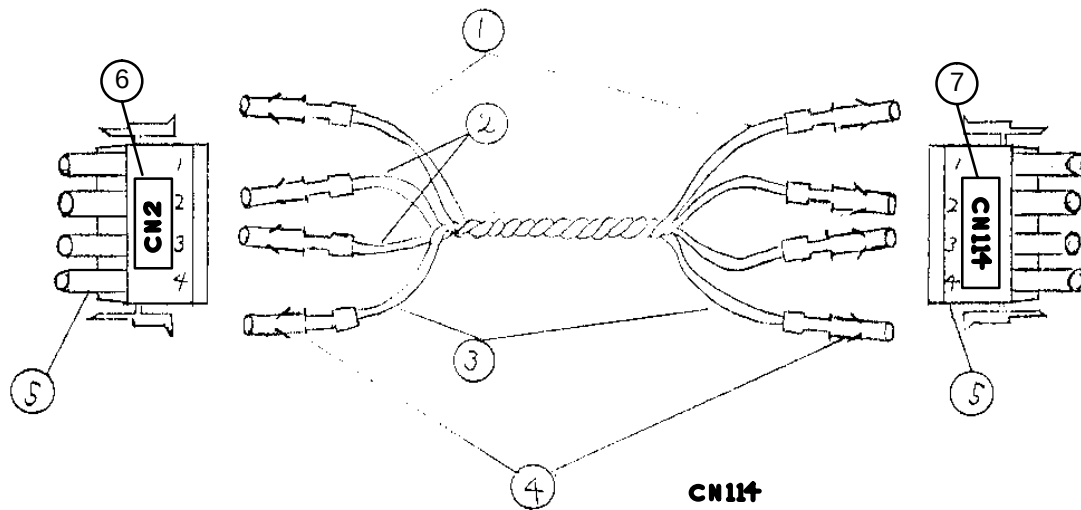
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0003FQ	2		
2	CS TERM	U0110FQ	1		
3	CS TERM	U0004FQ	2		
4	CS TERM	U0109FQ	1		
5	WIRE	U1108WW	51	PUR	[CM]
6	WIRE	U0000WW	51	BLK	[CM]
7	WIRE	U1107WW	51	GRY	[CM]

CABLE ASSY 30 P9515WF

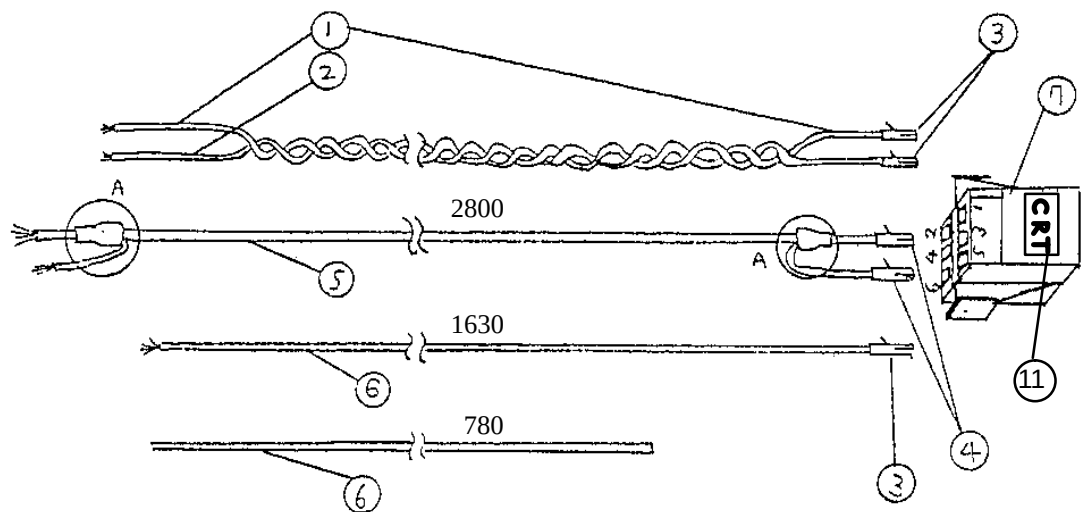
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0110FQ	2		
2	CS TERM	U0109FQ	2		
3	WIRE	U0006WW	50	BLU	[CM]
4	WIRE	U0000WW	50	BLK	[CM]

CABLE ASSY 31

1/1 $\triangle_0$ 

CABLE ASSY 33

1/1 $\triangle_0$ 

CABLE ASSY 31 P9515WG

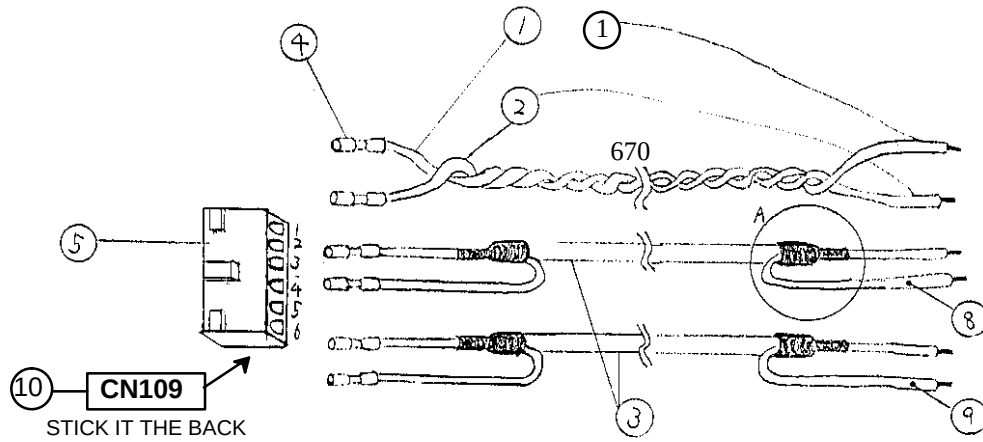
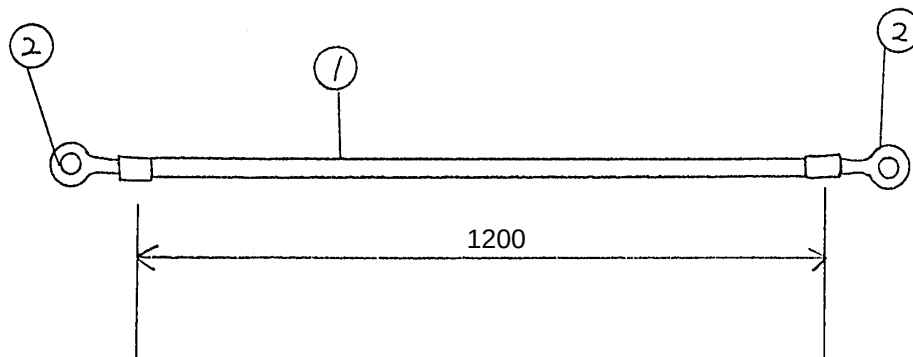
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0034WW	100	WHT/YEL	[CM]
2	WIRE	U0000WW	200	BLK	[CM]
3	WIRE	U0003WW	100	ORG	[CM]
4	SOCKET	U6908FA	8		
5	CONN	U6604FA	2		
6	CN2 LABEL	Z9814PZ	1		
7	CN114 LABEL	Z9814QZ	1		

CABLE ASSY 33 P9515WJ

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0303WW	260	ORG	[CM]
2	WIRE	U0300WW	260	BLK	[CM]
3	PIN	U6903FA	3		
4	PIN	U6914FA	2		
5	WIRE	U0000WC	280	SHIELD CABLE	[CM]
6	WIRE	U0010WW	241	GRN/YEL	[CM]
7	CONN	U6106FA	1		
8	TUBE	U0405BA	425		[MM]
9	WIRE	U1000WW	12	BLK	[CM]
10	TUBE	U0444BA	4	Heat Shrink Tube	[CM]
11	CRT LABEL	Z9814PW	1		

CABLE ASSY 341/1 **CABLE ASSY 35**1/1 

**CABLE ASSY 34
P9515WK****MATERIAL LIST (1/1)**

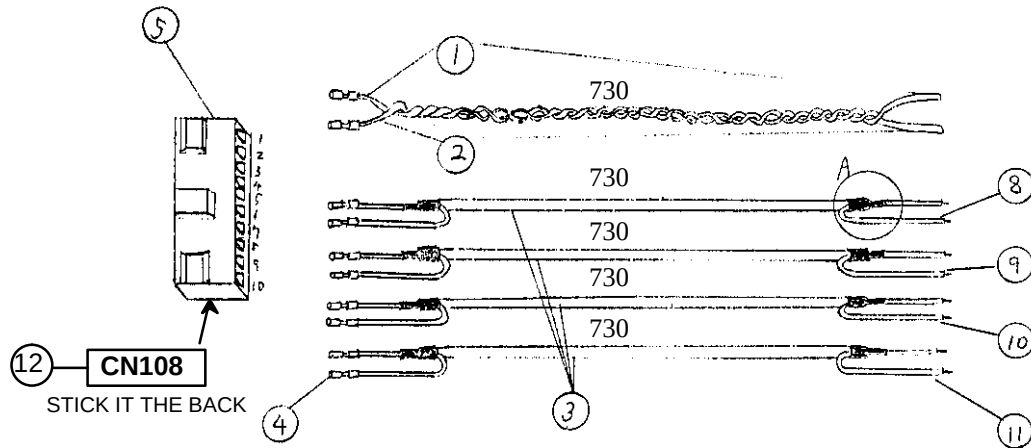
ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U1001WW	67	BRN	[CM]
2	WIRE	U1002WW	67	RED	[CM]
3	WIRE	U0000WC	134	SHIELD CABLE	[CM]
4	SOCKET	U4900FA	6		
5	CONN	U4206FA	1		
6	TUBE	U0444BA	8	Heat Shrink Tube	[CM]
7	TIE WRAP	U0201AC	2		
8	WIRE	U1000WW	12	BLK	[CM]
9	WIRE	U1001WW	12	BRN	[CM]
10	CN109 LABEL	Z9814QZ	1		

**CABLE ASSY 35
P9515WL****MATERIAL LIST (1/1)**

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0010WW	120	GRN/YEL	[CM]
2	CS TERM	U0109FQ	2		

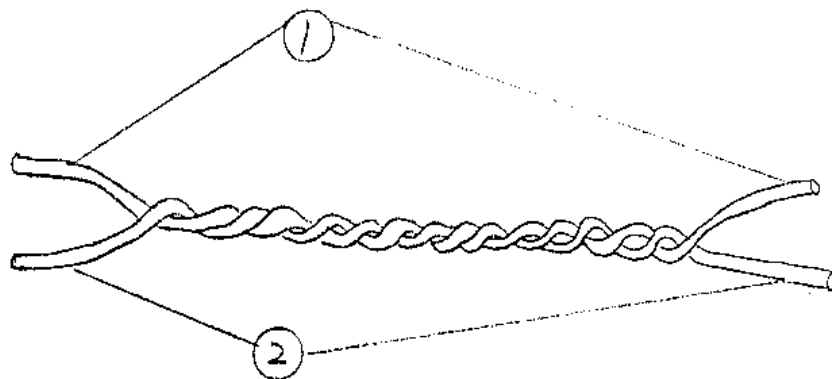
CABLE ASSY 36

1/1 



CABLE ASSY 37

1/1 



CABLE ASSY 36 P9515WM

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U1001WW	73	BRN	[CM]
2	WIRE	U1002WW	73	RED	[CM]
3	WIRE	U0000WC	292	SHIELD CABLE	[CM]
4	SOCKET	U4900FA	10		
5	CONN	U4210FA	1		
6	TUBE	U0444BA	16	Heat Shrink Tube	
7	TIE WRAP	U0201AC	1		
8	WIRE	U1000WW	12	BLK	[CM]
9	WIRE	U1001WW	12	BRN	[CM]
10	WIRE	U1006WW	12	BLU	[CM]
11	WIRE	U1008WW	12	GRY	[CM]
12	CN108 LABEL	Z9814QF	1		

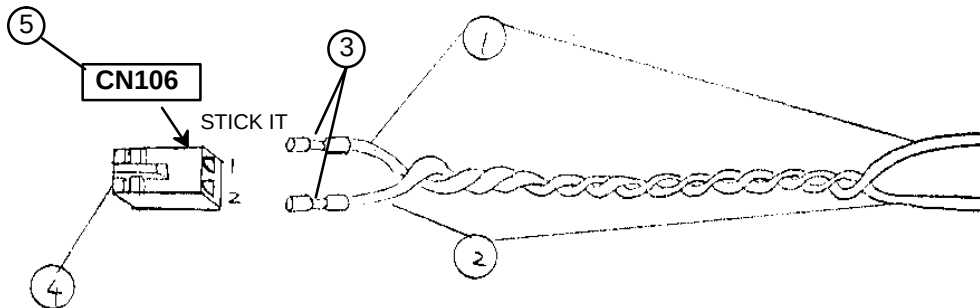
CABLE ASSY 37 P9515WN

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U1000WW	8	BLK	[CM]
2	WIRE	U1001WW	8	BRN	[CM]

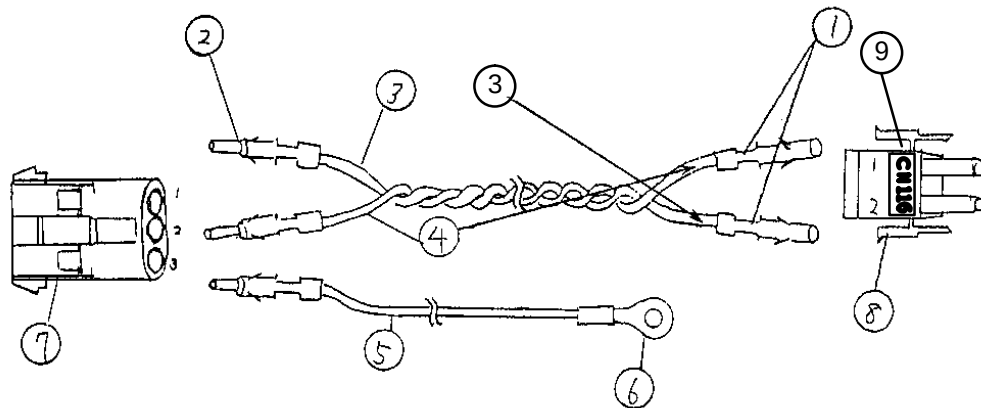
CABLE ASSY 38

1/1 



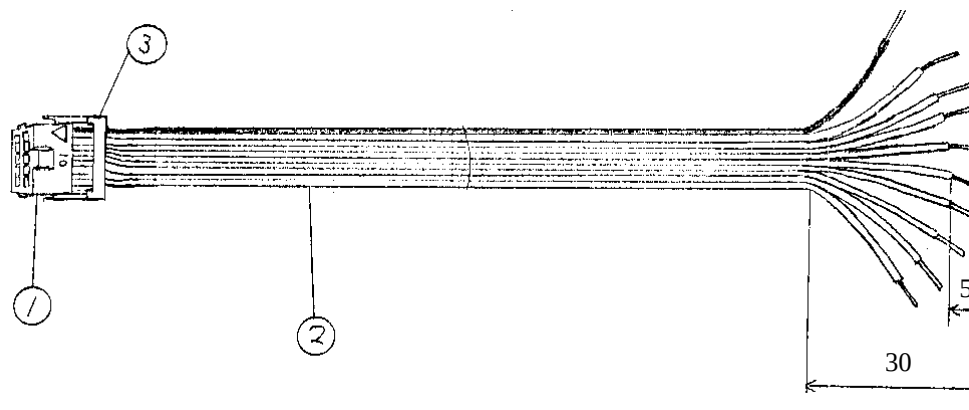
CABLE ASSY 39

1/1 



CABLE ASSY 40

1/1 



CABLE ASSY 38 P9515WP

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U1002WW	85	RED	[CM]
2	WIRE	U1000WW	85	BLK	[CM]
3	SOCKET	U4900FA	2		
4	CONN	U4202FA	1		
5	CN106 LABEL	Z9814QP	1		

CABLE ASSY 39 P9515WQ

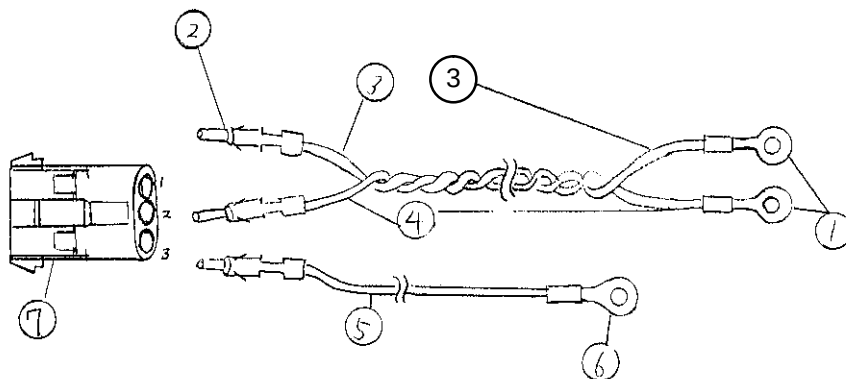
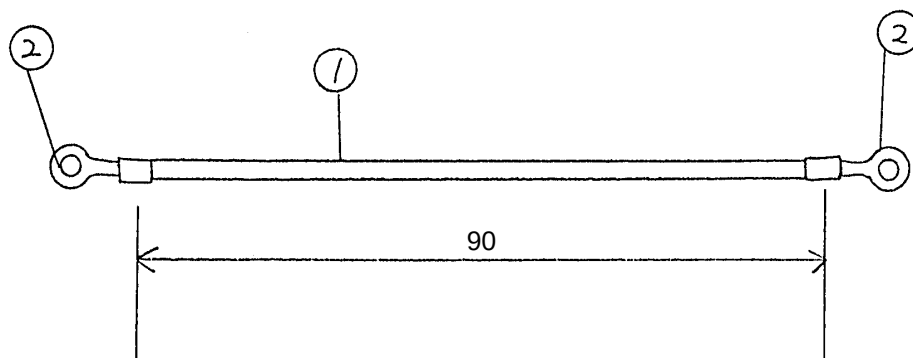
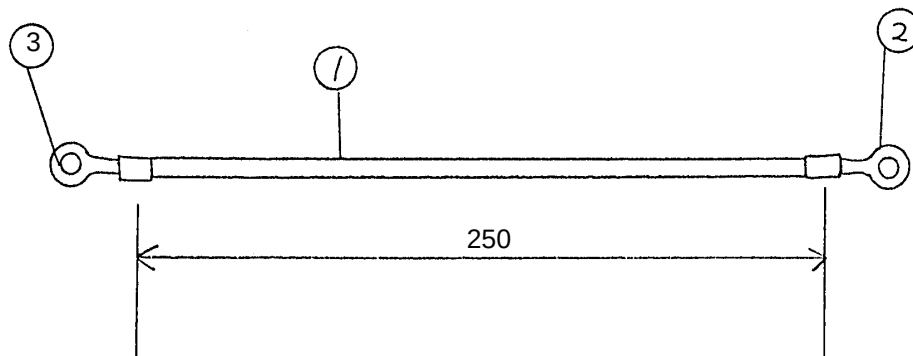
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	SOCKET	U6908FA	2		
2	PIN	U6909FA	3		
3	WIRE	U0000WW	35	BLK	[CM]
4	WIRE	U0003WW	35	ORG	[CM]
5	WIRE	U0010WW	30	GRN/YEL	[CM]
6	CS TERM	U0109FQ	1		
7	CONN	U6703FA	1		
8	CONN	U6602FA	1		
9	CN116 LABEL	Z9814QL	1		

CABLE ASSY 40 P9515WR

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CONN	U1010FA	1		
2	WIRE	U0001WF	33		[CM]
3	CONN	U1210FA	1		
4	CN109 LABEL	Z9814QE	1		

CABLE ASSY 411/1 **CABLE ASSY 42**1/1 **CABLE ASSY 43**1/1 

CABLE ASSY 41 P9515WS

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	CS TERM	U0109FQ	2		
2	PIN	U6909FA	3		
3	WIRE	U0000WW	100	BLK	[CM]
4	WIRE	U0003WW	100	ORG	[CM]
5	WIRE	U0010WW	40	GRN/YEL	[CM]
6	CS TERM	U0110FQ	1		
7	CONN	U6703FA	1		

CABLE ASSY 42 P9515WT

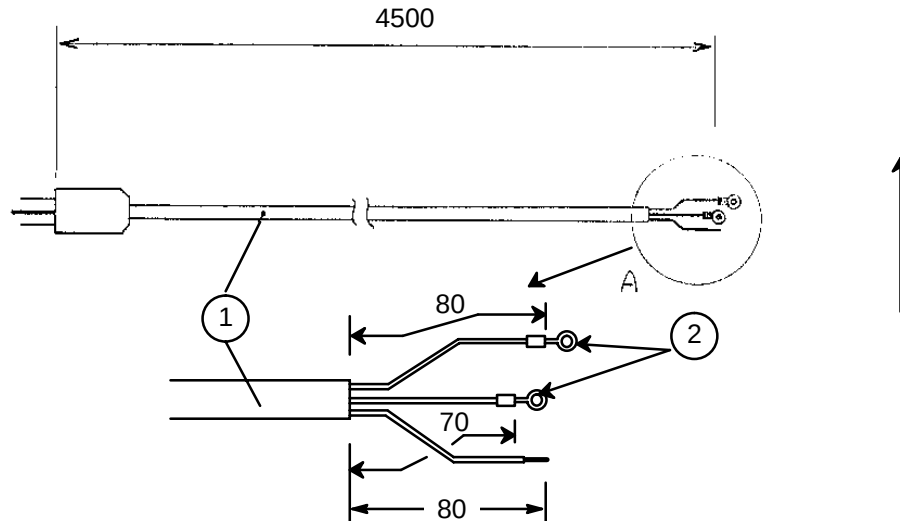
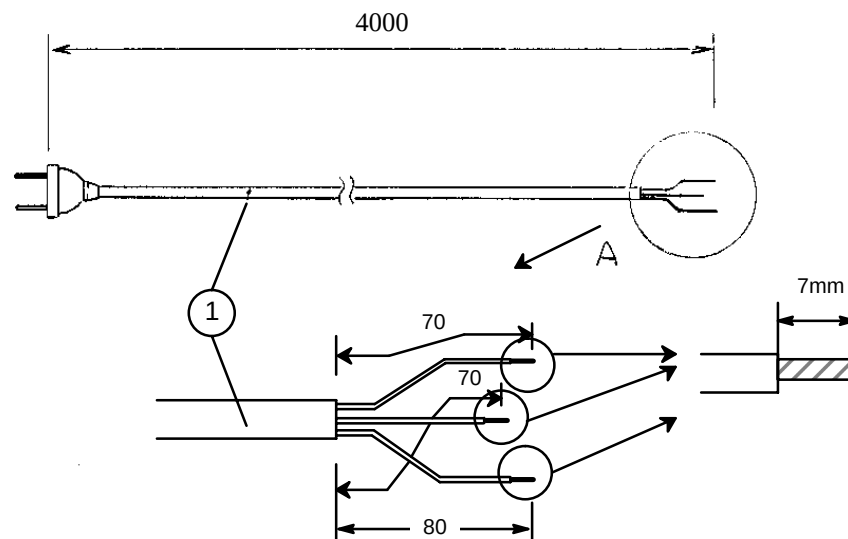
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0300WW	90	BLK	[MM]
2	CS TERM	U0004FQ	2		

CABLE ASSY 43 P9515WU

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	WIRE	U0000WW	25	BLK	[CM]
2	CS TERM	U0109FQ	1		

POWER CORD ASSY 1/1 **POWER CORD ASSY** 1/1 **FAN CABLE ASSY** 1/1

Refer to Page 9-90.

**PWR CORD ASSY
P9515XA**

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	CORD	U2001WD	1	
2	TIP	U0109FQ	2	

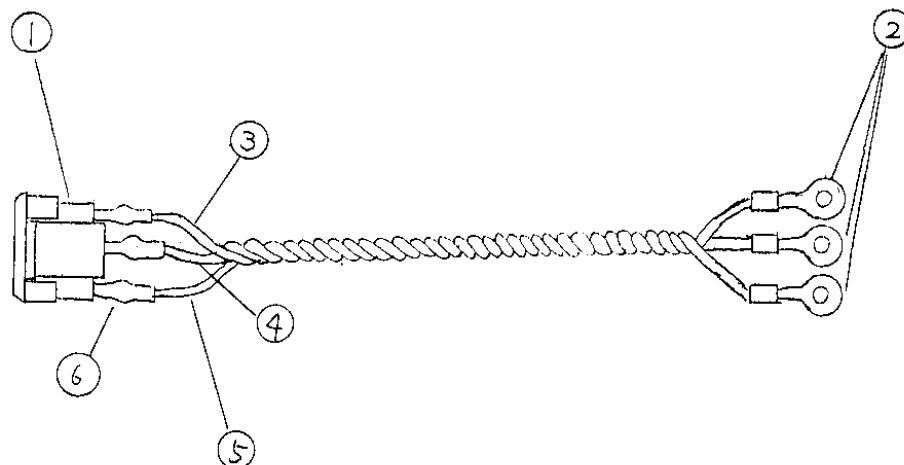
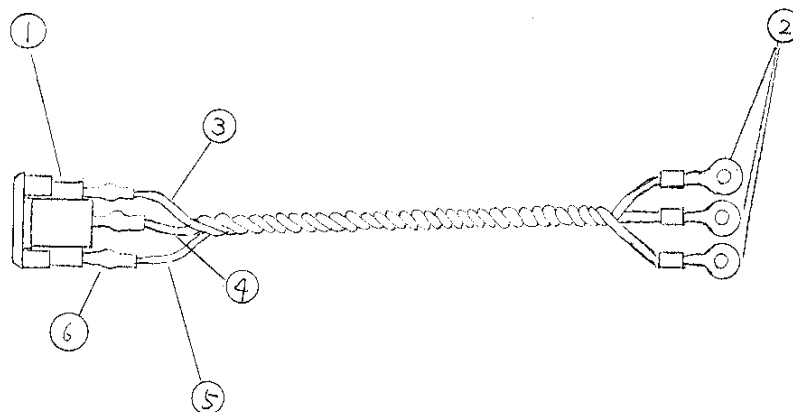
**PWR CORD ASSY
P9515XB**

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	CORD	U3001WD	1	

**FAN CABLE ASSY
P9515XC**

See Page 9–91.

OUTLET CABLE ASSY U 1/1 **OUTLET CABLE ASSY L 1/1** 

OUTLET CABLE ASSY U P9515XD

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	OUTLET	U0476FD	1		
2	CS TERM	U0109FQ	3		
3	WIRE	U0033WW	150	WHT/ORG	[CM]
4	WIRE	U0010WW	150	GRN/YEL	[CM]
5	WIRE	U0038WW	150	WHT/GRY	[CM]
6	TUBE	U0446BA	6		[CM]

OUTLET CABLE ASSY L P9515XE

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION	
1	OUTLET	U0476FD	1		
2	CS TERM	U0109FQ	3		
3	WIRE	U0033WW	23	WHT/ORG	[CM]
4	WIRE	U0010WW	23	GRN/YEL	[CM]
5	WIRE	U0038WW	23	WHT/GRY	[CM]
6	TUBE	U0446BA	4	Heat Shrink Tube	[CM]

RUBBER CAP SET P9514KY

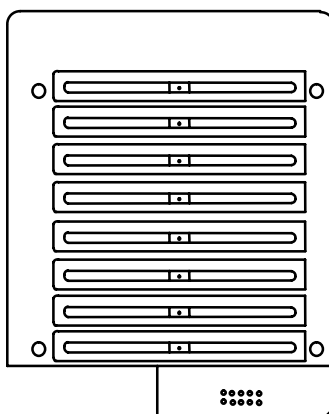
MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	CAP	U0236AE	14	
2	CAP	PP9123PC	8	

TGC ASSY P9514TA

MATERIAL LIST (1/1)

ITEM	PART NAME	PART NO.	QTY.	DESCRIPTION
1	TGC ASSY	P9514TA	1	Without Plastic Slide Knob. The part number of one piece of Plastic Slide Knob is U0238AE.



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10-1 INTRODUCTION

This chapter provides preventative maintenance procedures. If performed according to schedule, they should keep the RTfino/RT3200 Advantage-II/RT-x200 operating properly and safely.

10-1-1 Periodic Maintenance

Periodic maintenance consists of visual inspections, system performance checks and periodic cleaning of certain critical parts. Perform this procedure at twelve month intervals.

10-1-2 Reference Chapters

Many of the procedures in this chapter are described in Chapter 4, Functional Checks, Chapter 6, Service Adjustments, and Chapter 7, Schematics. If part replacement is required, refer to Chapter 9, Renewal Parts.

10-2 PERIODIC MAINTENANCE PROCEDURE

1. Perform functional checks as described in Chapter 4, Functional Checks. Exercise all console functions as described in Operator Manual.
2. Check power cable, transducer cable(s), footswitch cable, video monitor cable and their respective connectors for signs of wear. Replace as required. See Chapter 9, Renewal Parts, for parts numbers and ordering information.
3. Check the four PC Board cooling fans; check the two power supply cooling fans for signs of wear.
4. Ensure all power supply voltages are within tolerance.
See Chapter 6, Service Adjustments, for adjustment procedure.
5. Check the Tilt shaft and screw for signs of wear. Make sure screws are tight. (See Chapter 9, Video Display Monitor Assy ITEM 15 and 43)
Check the 6 of rear cover mounting screw. (See Chapter 9, OP Console Assy ITEM)
Check the 4 of the page printer mounting screw. Make sure they are tight. (See Chapter 9, OP Console Assy ITEM)
6. Apply touch up paint as required. Use Mist Gray.

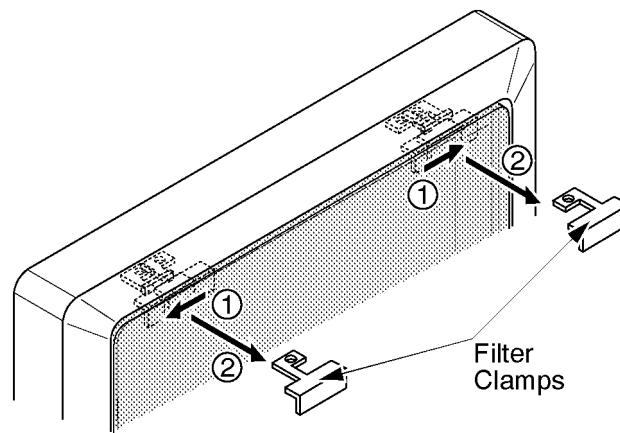
10-2 PERIODIC MAINTENANCE PROCEDURE (Continued)

7. Gently clean video monitor.



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.

- 7-1. Remove the CRT (VDT) filter from the monitor.
- Slide the left filter clamp leftwards and pull it out.
 - Slide the right filter clamp rightwards and pull it out.
 - Remove the CRT (VDT) filter.
- 7-2. Wipe the monitor face and CRT filter using a soft, non-abrasive folded cloth with a glass cleaner.
- 7-3. Install the CRT (VDT) filter after cleaning the monitor face and CRT (VDT) filter. Set the CRT (VDT) filter on the monitor, insert the CRT filter clamps (①), and slide them inwards securely (②). Refer to ILLUSTRATION 10-1.



INSTALLING CRT FILTER AND CLAMPS

ILLUSTRATION 10-1

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.

10-2 PERIODIC MAINTENANCE PROCEDURE (Continued)**Note**

The CRT Filter Clamps and Escutcheon mounted on the monitor for the RTfino/RT3200 Advantage–II/RT–x200 console are changed to strengthen the mounting grip of the CRT filter on the escutcheon. With these changes, the CRT Filter Clamp Kit are provided to improve the installed base systems. This is:

PART NAME	QTY	PART #	REMARKS
CRT Filter Clamp P Kit	1	2152056	For CRT FILTER (plastic filter, P9514BY)
CRT Filter Clamp G Kit	1	2152119	For VDT FILTER (glass filter, P9500SF)

8. Perform electrical safety tests on the following components:

- a. Hospital outlet (Facility power wiring test).
- b. All transducers (Transducer source leakage current test).
- c. Console and peripherals (Chassis source leakage current test and ground continuity test).

See Chapter 3 of the RTfino/RT3200 Advantage–II/RT–x200 Service Manual for test procedures.

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