



GE Medical Systems

Technical Publications

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Revision 6

LOGIQ™ 200 PRO Series

CE₀₄₅₉

Service Manual

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Operating Documentation

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LIST OF EFFECTIVE PAGES

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0	August 1, 1999	Initial release
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5	January 24, 2001	Manufacturer Name Change
6	August 14, 2001	System Version 3.17a release

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CHAPTER 1 – INTRODUCTION

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1-1 SERVICE MANUAL CONTENTS

This manual provides service information on the LOGIQ 200 PRO Series Ultrasound Scanning System. It contains the following chapters:

1. **Chapter 1, Introduction:** Contains a content summary and warnings.
2. **Chapter 2, Installation:** Contains physical and electrical requirements that must be considered prior to installation and a complete LOGIQ 200 PRO Series installation procedure with installation checklist.
3. **Chapter 3, System Configuration:** Contains system configuration and specifications.
4. **Chapter 4, Functional Checks:** Contains functional checks that must be performed as part of the installation, or as required during servicing and periodic maintenance.
5. **Chapter 5, Diagrams:** Contains block diagrams and functional explanations of the LOGIQ 200 PRO Series electronics.
6. **Chapter 6, Renewal Parts:** Contains a complete list of replacement parts for the LOGIQ 200 PRO Series and disassembly procedures for all changeable FRU.
7. **Chapter 7, Periodic Maintenance:** Provides periodic maintenance procedures for the LOGIQ 200 PRO Series.
8. **Chapter 8, Installation for Options:** is provided to keep the option installation instructions supplied with each option.

1-2 SAFETY

1-2-1 Warnings



CAREFULLY READ ALL THE WARNINGS LISTED BELOW!

1. The operator manual should be fully read and understood before operating the LOGIQ 200 PRO Series and kept nearby for quick reference.
2. Although the ultrasound energy transmitted from the LOGIQ 200 PRO Series transducer is within AIUM/NEMA standards, unnecessary exposure should be avoided. Only trained personnel should operate the LOGIQ 200 PRO Series.
3. To prevent electrical shock, the LOGIQ 200 PRO Series should be connected to a properly grounded power receptacle. Do not use a three to two prong adapter. This defeats safety grounding.
4. Do not use with Defibrillator when LOGIQ 200 PRO Series is being operated .
5. Probes are fragile, please handle with care.
6. Concerning Outside Markings, refer to Illustration 1-1, 1-2, 1-3, 1-4, 1-5, 1-6, 1-7, 1-8, and 1-9.
7. For the cleaning, disinfection, and sterilization, refer to Probe section in LOGIQ 200 PRO Series Advanced Reference Manual (2233222-100) and Caution Sheet supplied with each probe.

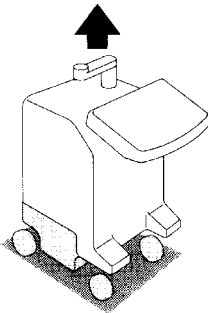
NOTICE

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)

WARNING 警告 **WARNUNG** **AVERTISSEMENT** **AVVERTENZA** **ADVERTÊNCIA** **ADVERTENCIA** 경고



Hazardous movement can cause serious injury. Keep your head and body away from above video monitor support arm. Video monitor support arm is spring loaded. Releasing arm when monitor is not attached will cause sudden upward movement.

怪我をするので飛び出しに注意。顔や手をモニターアームの上にもっていかないこと。ビデオモニターが搭載されていない状態でモニターアームのロックを解除すると、モニターアームが飛び出します。

Gefährliche Bewegungen können zu schweren Verletzungen führen. Bringen Sie nicht Gesicht oder Hände in die Nähe des Videomonitortragerarms. Der Videomonitortragerarm ist federgelagert. Entriegelung des Arms ohne aufgesetzten Monitor läßt den Arm nach oben federn.

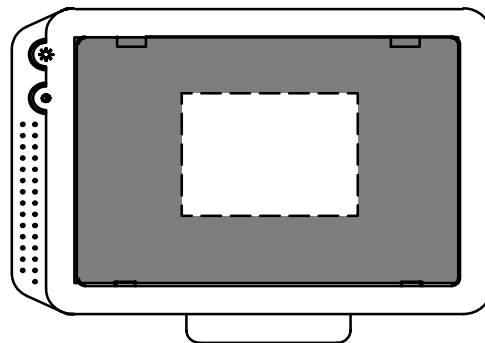
Tout mouvement dangereux peut provoquer des blessures sérieuses. Se tenir à bonne distance du bras de support à ressorts du moniteur vidéo. Quand le moniteur n'est pas monté, la libération du bras provoquera son soulèvement brutal.

Bruschi movimenti possono provocare ferite. Tenete la testa ed il corpo lontano dal supporto del monitor quando il monitor non è montato. Lo sganciamento accidentale del supporto può causare un improvviso movimento di quest'ultimo verso l'alto.

Movimentos perigosos podem causar danos sérios. Mantenha sua cabeça e corpo afastados da parte superior da alavanca de suporte do monitor de vídeo. Alavanca de suporte do monitor de vídeo é equipada de mola. Liberando a alavanca, quando o monitor não estiver fixado, causará movimento repentino dirigido para cima.

El movimiento peligroso puede ocasionar daños serios. Mantenga la cabeza y el cuerpo apartados de la parte superior del brazo de soporte del monitor de vídeo. El brazo de soporte del monitor de vídeo tiene carga de resorte. Si se suelta el brazo cuando no está montado el monitor, se ocasionará el movimiento súbito hacia arriba.

모니터 지지대의 뒷쪽에 머리나 몸을 가까이 하지 마십시오. 모니터 지지대에는 스프링이 압축되어 있습니다. 모니터를 장착치 않고 상하조정 버튼을 누르면 갑자기 위로 튀어오르니 주의하십시오.

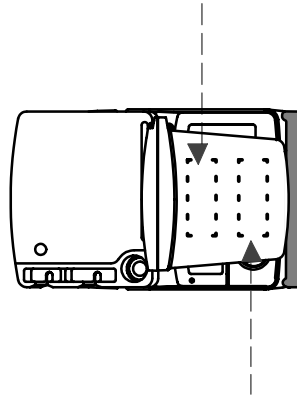


OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR ALL UNITS)

ILLUSTRATION 1-1

1-2-1 Warnings (Continued)

CAUTION	注意	ACHTUNG	ATTENTION	ATTENZIONE	ATENÇÃO	ATENCION	주의
<p>Possible injury. Placing objects on top of the monitor may cause the monitor to tilt with the falling objects resulting in injury to the operator. Do not place any objects on the monitor.</p> <p>怪我の可能性あり。モニタ上に物を載せるとモニタが傾き、物が落下して怪我をすることがあります。モニタの上に物を載せないこと。</p> <p>Keine Gegenstände auf den Monitor legen, da diese herabfallen und Beschädigungen und/oder Verletzungen verursachen können.</p> <p>Le moniteur risquant de s'incliner, ne rien poser dessus, qui pourrait vous blesser.</p>				<p>Pericolo di farsi male. Se si mettono oggetti sul monitor, questo si inclina e c'è il pericolo che gli oggetti cadano e ci si faccia male. Non mettere oggetti sul monitor.</p> <p>Existe a possibilidade de ocorrer acidentes. Caso algum objeto seja colocado sobre o monitor, este poderá inclinar-se e o objeto poderá cair, provocando algum acidente. Não coloque nenhum objeto sobre o monitor.</p> <p>Existen posibilidades de lesiones. Al colocar objetos sobre el monitor, puede inclinarse el monitor. caerse los objetos y causar lesiones. No colocar objetos sobre el monitor.</p> <p>모니터 위에는 어떠한 물건도 올려놓지 마십시오. 모니터가 기울어 물건을 떨어져 사용자가 다칠 수 있습니다.</p>			



CAUTION	注意	ACHTUNG	ATTENTION	ATTENZIONE	ATENÇÃO	ATENCION	주의	
<p>To avoid injury by tipping over, SET THE MONITOR TO THE LOWEST POSITION BEFORE MOVING.</p> <p>怪我をすることで転倒に注意。機器の移動時にはモニターアームを最下位置まで下げてから移動のこと。</p> <p>Da ein Umkippen zu Verletzungen führen kann, DEN MONITOR DES GERÄTES AUF VOR STELLUNGSWECHSEL AUF DIE NIEDRIGSTE POSITION EINSTELLEN.</p> <p>Pour éviter le basculement accidentel de la machine, BAISSER LE MONITEUR AVANT LE DÉPLACEMENT.</p> <p>PREDISPORRE IL MONITOR NELLA POSIZIONE PIÙ BASSA PRIMA DI MUOVERE la macchina, per evitare rischi di ferite causate dal ribaltamento.</p> <p>Para evitar danos por deslizamentos, POSICIONE O MONITOR NO SEU NÍVEL MAIS BAIXO.</p> <p>Para evitar daños por deslizamientos, POSICIONE EL MONITOR A SU NIVEL MÁS BAJO ANTES DE MOVERLO.</p> <p>기기의 안전을 위하여 이동중에는 반드시 모니터를 최저위치로 조정하십시오.</p>					<p>To avoid injury by tipping over, DO NOT PUSH THIS UNIT FROM THE SIDES.</p> <p>怪我をすることで転倒に注意。機器の側面から押さないこと。</p> <p>Da ein Umkippen zu Verletzungen führen kann, DIE EINHEIT NICHT VON DER SEITE SCHIEBEN.</p> <p>Pour éviter le basculement accidentel de la machine, NE PAS LA POUSSER PAR LE CÔTÉ.</p> <p>NON SPINGERE LA MACCHINA DI LATO per evitare rischi di ferite causate dal ribaltamento.</p> <p>Para evitar danos por deslizamentos, NÃO MOVA A UNIDADE PELAS LATERAIS.</p> <p>Para evitar daños por deslizamientos, NO EMPUJE LA UNIDAD POR LOS LADOS.</p> <p>기기의 안전을 위하여 제품의 측면에서 절대로 말지마십시오.</p>			

OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR ALL UNITS)
ILLUSTRATION 1-2

Note

For further details regarding the cautions above, refer to NO TAG MOVING INTO POSITION in Chapter 2.

1-2-1 Warnings (Continued)

⚠ CAUTION 注意 ACHTUNG ATTENTION ATTENZIONE ATENÇÃO ATENCIÓN 주의

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

本機の近くでは以下の機器を使用しないでください。本機が仕様から外れた動作をすることがあります。携帯電話、トランシーバー、携帯無線機、ラジコンのおもちゃなど。本機の近くではこれらの機器の電源スイッチを切ってください。

In der Nähe dieser Ausrüstung folgende Geräte nicht benutzen: Funktelefone, Radioempfänger, mobile Radiosender, ferngesteuertes Spielzeug, usw. Der Gebrauch dieser Geräte könnte während des Betriebes Fehlfunktionen verursachen. Schalten Sie die Stromversorgung dieser Geräte in der Nähe der Ausrüstung ab.

Prrière de ne pas utiliser les appareils suivant à côté de cet équipement. Les téléphones portables, les transmetteurs radios, les radios mobiles, les commandes à distance, etc. L'utilisation de ces appareils à proximité de cet équipement peut amener l'équipement a fonctionner en dehors des spécifications publiées. Prrière d'éteindre ces appareils lorsqu'ils sont a proximité de cet équipement.

Non utilizzare mai i dispositivi menzionati di seguito vicino a questo apparecchio. Telefono cellulare, ricetrasmittitore di ràdio, trasmettitore di ràdio mòbile, giocattoli con controllo di ràdio, ecc. La utilizzazione dei dispositivi potrebbe causare il funzionamento anormale di questo apparecchio. Tenere spenti tali dispositivi quando vicini a questo apparecchio.

Favor não utilizar os seguintes aparelhos perto deste equipamento. Telefone móvel, rádio trans-receptor, rádio transmissor móvel, brinquedos à controle remoto, etc. A utilização desses aparelhos perto deste equipamento pode fazê-lo com que não funcione segundo as especificações publicadas. Favor manter esses aparelhos desligados quando estiverem perto deste equipamento.

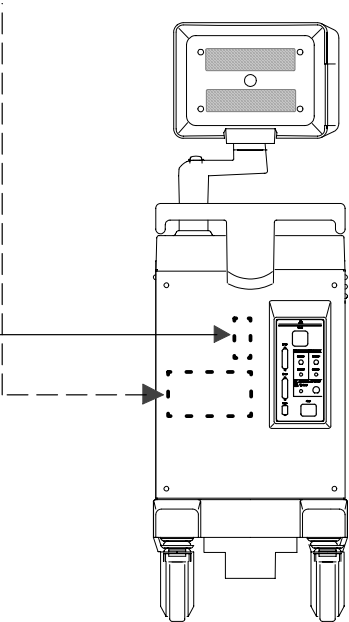
No utilice los siguientes aparatos cerca de este equipo. Teléfono movil, transmisor-receptor, transmisor de radio movil, juguete radio controlado, etc. La utilización de estos aparatos cerca de este equipo puede hacer con que el equipo no funcione según las especificaciones publicadas. Mantenga estos aparatos apagados cuando cerca de este equipo.

본 장비의 근처에서 휴대폰, 무전기, 이동용 무선송신기, 무선장난감 등을 사용하지 마십시오. 장비가 오동작을 일으킬 수도 있으므로 이러한 기기들의 전원을 반드시 꺼 주십시오.

⚠ CAUTION 注意 ACHTUNG ATTENTION ATTENZIONE ATENÇÃO ATENCIÓN 주의

Do not use with Defibrillator.
除細動器との併用はしないこと。
Nicht zusammen mit einem Defibrillator betreiben.
Ne pas faire fonctionner avec un défibrillateur.
Non fare funzionare con un defibrillatore.
Não use com desfibrilador.
No hacer funcionar con un desfibrilador.
제세동기와 함께 사용하지 마십시오.

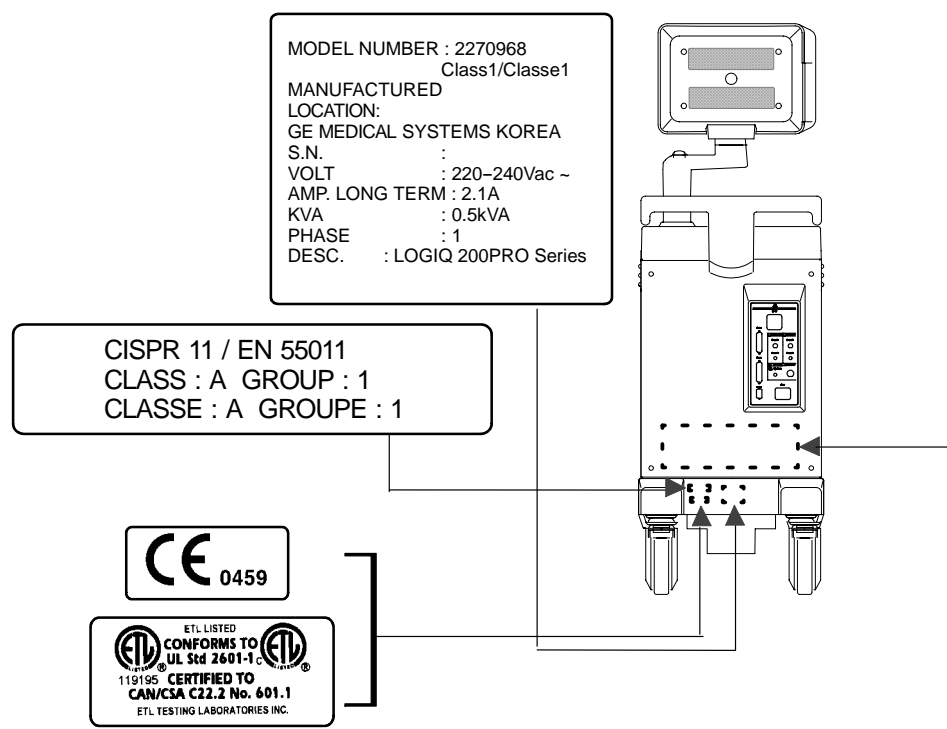
Defibrillator
Caution
Label



OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR ALL UNITS)
ILLUSTRATION 1-3

1-2-1 Warnings (Continued)

⚠ WARNING 警告 WARNUNG AVERTISSEMENT AVVERTENZA ADVERTÊNCIA ADVERTENCIA 경고			
<p>Possible shock hazard. Do not remove Covers or Panels. Refer servicing to qualified personnel.</p> <p>感電の危険あり。カバー(または背板)を取り除かないこと。修理点検はサービスセンターに依頼すること。</p> <p>Schlaggefahr! Abdeckungen oder Verkleidungen nicht entfernen. Wartungsarbeiten nur durch qualifiziertes Fachpersonal durchführen lassen.</p> <p>Risque de chocs électriques. La capot ne doit être ouvert que par un personnel qualifié.</p>	<p>Rischio di scosse elettriche, i pannelli di chiusura dello strumento devono essere tolti solo dal personale qualificato.</p> <p>Possivel choque. Não remova tampas ou painéis. Solicite à assistência técnica por pessoal qualificado.</p> <p>Peligro de descargas eléctricas. No saque las cubiertas ni los paneles. El servicio debe realizarlo el personal cualificado.</p> <p>감전의 위험이 있으니 커버나 판넬을 열지 마십시오. 수리점검은 반드시 서비스센터에 의뢰하십시오.</p>	<p>For continued protection against fire or shock hazard. Replace only with same type and rating of Fuse.</p> <p>火災の危険あり。表示されたヒューズと交換のこと。</p> <p>Zum dauerhaften Geräteschutz und zur Vermeidung elektrischer Schläge nur Sicherungen des gleichen Typs und Nennwertes verwenden.</p> <p>Les fusibles de remplacement doivent respecter le type et le calibre spécifiés pour la tension réseau choisie.</p>	<p>Sostituire i fusibili utilizzando soltanto fusibili dello stesso tipo, dimensione e valori di corrente.</p> <p>Para proteção continua contra fogo ou choque. Substitua somente com fusível do mesmo tipo e capacidade.</p> <p>Como protección continua contra descargas eléctricas e incendios, reemplace el fusible sólo por otro que sea del mismo tipo y del mismo amperaje.</p> <p>현재나 감전의 위험이 있으니 반드시 동일용량의 퓨즈를 사용하십시오.</p> <p>Grounding reliability can only be achieved when this equipment is connected to a receptacle marked "Hospital Only" or "Hospital Grade".</p> <p>この機器は「医用コンセント(Ⓜマーク)」に接続したときのみ保護接地の信頼性が保証されます。</p>
⚠ DANGER 危険 VORSICHT DANGER PERICOLO PERIGO PELIGRO 위험			
<p>Possible explosion hazard if used in the presence of flammable anesthetics.</p> <p>爆発の危険あり。引火性麻酔剤のある場所では使用しないこと。</p>	<p>Explosionsgefahr! Nicht in Gegenwart brennbarer Narkosegase verwenden.</p> <p>Risque d'explosion. Ne pas employer en présence d'anesthésiques inflammables.</p>	<p>Possibilità di esplosione se il sistema è usato in presenza di gas anestetici infiammabili.</p> <p>Possivel explosão se usado na presença de anestésicos inflamáveis.</p>	<p>Riesgo de explosión. No emplear en presencia de anestésicos inflamables.</p> <p>폭발의 위험이 있으니 인화성 마취제가 있는 곳에서 사용하지 마십시오.</p>



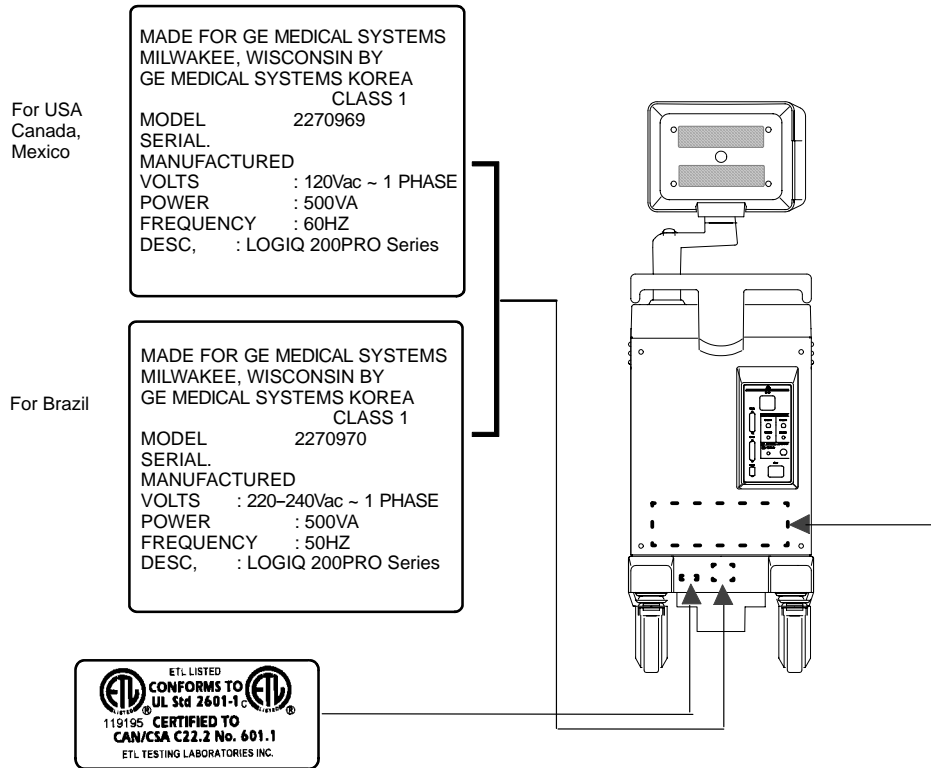
OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR EUROPE)
ILLUSTRATION 1-4

Note

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

1-2-1 Warnings (Continued)

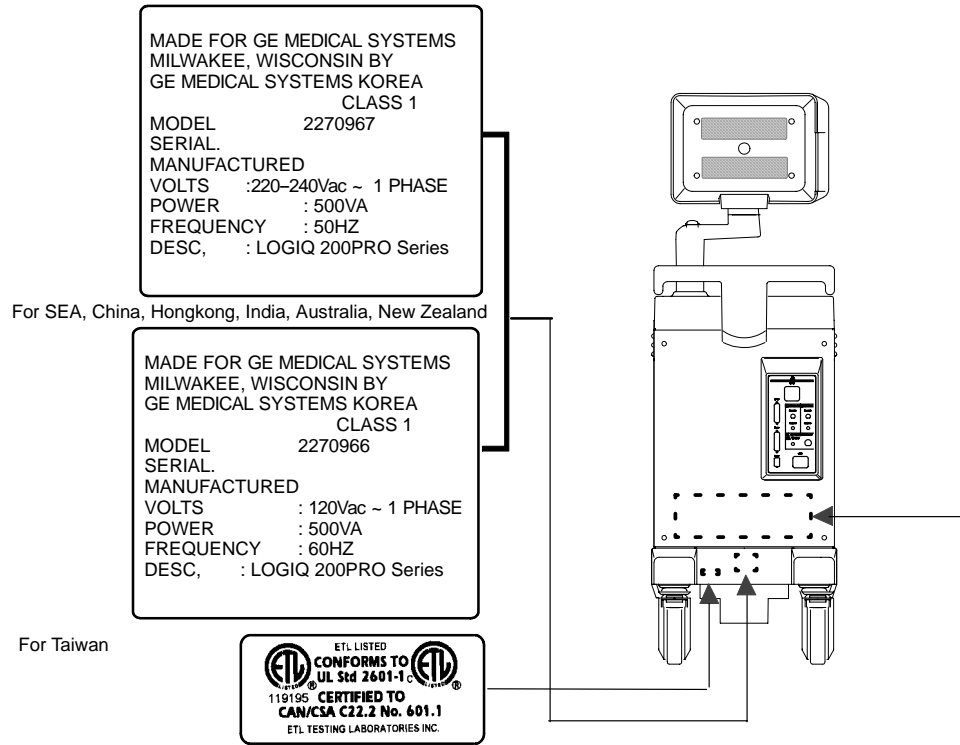
⚠ WARNING 警告 WARNUNG AVERTISSEMENT AVVERTENZA ADVERTÊNCIA ADVERTENCIA 경고							
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⚠ DANGER 危険 VORSICHT DANGER PERICOLO PERIGO PELIGRO 위험							
<p>Possible explosion hazard if used in the presence of flammable anesthetics.</p> <p>爆発の危険あり。引火性麻酔剤のある場所では使用しないこと。</p>	<p>Explosionsgefahr! Nicht in Gegenwart brennbarer Narkosegase verwenden.</p> <p>Risque d'explosion. Ne pas employer en présence d'anesthésiques inflammables.</p>	<p>Possibilità di esplosione se il sistema è usato in presenza di gas anestetici infiammabili.</p> <p>Possível explosão se usado na presença de anestésicos inflamáveis.</p>	<p>Riesgo de explosión. No emplear en presencia de anestésicos inflamables.</p> <p>폭발의 위험이 있으니 인화성 마취제가 있는 곳에서 사용하지 마십시오.</p>				



OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR USA CANADA MEXICO BRAZIL)
ILLUSTRATION 1-5

1-2-1 Warnings (Continued)

<p>⚠ WARNING 警告 WARNUNG AVERTISSEMENT AVVERTENZA ADVERTÈNCIA ADVERTENCIA 경고</p>					
<p>Possible shock hazard. Do not remove Covers or Panels. Refer servicing to qualified personnel.</p> <p>感電の危険あり。カバー(または背板)を取り除かないこと。修理点検はサービスセンターに依頼すること。</p> <p>Schiaggefahr! Abdeckungen oder Verkleidungen nicht entfernen. Wartungsarbeiten nur durch qualifiziertes Fachpersonal durchführen lassen.</p> <p>Risque de chocs électriques. La capot ne doit être ouvert que par un personnel qualifié.</p>	<p>Rischio di scosse elettriche, i pannelli di chiusura dello strumento devono essere tolti solo dal personale qualificato.</p> <p>Possível choque. Não remova tampas ou painéis. Solicite à assistência técnica por pessoal qualificado.</p> <p>Peligro de descargas eléctricas. No saque las cubiertas ni los paneles. El servicio debe realizarlo el personal cualificado.</p> <p>감전의 위험이 있으니 커버나 판넬을 열지 마십시오. 수리점검은 반드시 서비스센터에 의뢰하십시오.</p>	<p>For continued protection against fire or shock hazard. Replace only with same type and rating of Fuse.</p> <p>火災の危険あり。表示されたヒューズと交換のこと。</p> <p>Zum dauerhaften Geräteschutz und zur Vermeidung elektrischer Schläge nur Sicherungen des gleichen Typs und Nennwertes verwenden.</p> <p>Les fusibles de remplacement doivent respecter le type et le calibre spécifiés pour la tension réseau choisie.</p>	<p>Sostituire i fusibili utilizzando soltanto fusibili dello stesso tipo, dimensione e valori di corrente.</p> <p>Para proteção continua contra fogo ou choque. Substitua somente com fusível do mesmo tipo e capacidade.</p> <p>Como protección continua contra descargas eléctricas e incendios, reemplace el fusible sólo por otro que sea del mismo tipo y del mismo amperaje.</p> <p>화재나 감전의 위험이 있으니 반드시 동일용량의 퓨즈를 사용하십시오.</p>	<p>Grounding reliability can only be achieved when this equipment is connected to a receptacle marked "Hospital Only" or "Hospital Grade".</p> <p>この機器は「医用コンセント (Hマーク)」に接続したときのみ保護接地の信頼性が保証されます。</p>	<p>⚠ CAUTION</p> <p>United States law restricts this device to sale or use by or on the order of a physician.</p>
<p>⚠ DANGER 危険 VORSICHT DANGER PERICOLO PERIGO PELIGRO 위험</p>					
<p>Possible explosion hazard if used in the presence of flammable anesthetics.</p> <p>爆発の危険あり。引火性麻酔剤のある場所では使用しないこと。</p>	<p>Explosionsgefahr! Nicht in Gegenwart brennbarer Narkosegase verwenden.</p> <p>Risque d'explosion. Ne pas employer en présence d'anesthésiques inflammables.</p>	<p>Possibilità di esplosione se il sistema è usato in presenza di gas anestetici infiammabili.</p> <p>Possível explosão se usado na presença de anestésicos inflamáveis.</p>	<p>Riesgo de explosión. No emplear en presencia de anestésicos inflamables.</p> <p>폭발의 위험이 있으니 인화성 마취제가 있는 곳에서 사용하지 마십시오.</p>		

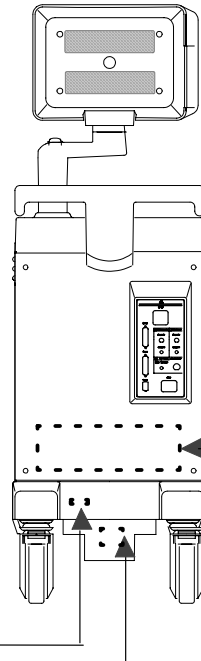


OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR SEA CHINA HONGKONG INDIA AUSTRALLIA NEWZEALAND TAIWAN PHILLIPPINES)
ILLUSTRATION 1-6

1-2-1 Warnings (Continued)

⚠ WARNING 警告 WARNUNG AVERTISSEMENT AVVERTENZA ADVERTENCIA 경고						
<p>Possible shock hazard. Do not remove Covers or Panels. Refer servicing to qualified personnel.</p> <p>感電の危険あり。カバー(または背板)を取り除かないこと。修理点検はサービスセンターに依頼すること。</p> <p>Schlaggefahr! Abdeckungen oder Verkleidungen nicht entfernen. Wartungsarbeiten nur durch qualifiziertes Fachpersonal durchführen lassen.</p> <p>Risque de chocs électriques. La capot ne doit être ouvert que par un personnel qualifié.</p>	<p>Rischio di scosse elettriche, i pannelli di chiusura dello strumento devono essere tolti solo dal personale qualificato.</p> <p>Possível choque. Não remova tampas ou painéis. Solicite à assistência técnica por pessoal qualificado.</p> <p>Peligro de descargas eléctricas. No saque las cubiertas ni los paneles. El servicio debe realizarlo el personal cualificado.</p> <p>감전의 위험이 있으니 커버나 판넬을 열지 마십시오. 수리점검은 반드시 서비스센터에 의뢰하십시오.</p>	<p>For continued protection against fire or shock hazard. Replace only with same type and rating of Fuse.</p> <p>火災の危険あり。表示されたヒューズと交換のこと。</p> <p>Zum dauerhaften Geräteschutz und zur Vermeidung elektrischer Schläge nur Sicherungen des gleichen Typs und Nennwertes verwenden.</p> <p>Les fusibles de remplacement doivent respecter le type et le calibre spécifiés pour la tension réseau choisie.</p>	<p>Sostituire i fusibili utilizzando soltanto fusibili dello stesso tipo, dimensione e valori di corrente.</p> <p>Para proteção contínua contra fogo ou choque. Substitua somente com fusível do mesmo tipo e capacidade.</p> <p>Como protección continua contra descargas eléctricas e incendios, reemplace el fusible sólo por otro que sea del mismo tipo y del mismo amperaje.</p> <p>현재나 감전의 위험이 있으니 반드시 동일용량의 퓨즈를 사용하십시오.</p>	<p>Grounding reliability can only be achieved when this equipment is connected to a receptacle marked "Hospital Only" or "Hospital Grade".</p> <p>この機器は「医用コンセント (Hマーク)」に接続したときのみ保護接地の信頼性が保証されます。</p>	<p>⚠ CAUTION</p> <p>United States law restricts this device to sale or use by or on the order of a physician.</p>	
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MADE FOR GE MEDICAL SYSTEMS
MILWAKEE, WISCONSIN BY
GE MEDICAL SYSTEMS KOREA
CLASS 1
MODEL : 2270971
SERIAL :
MANUFACTURED :
VOLTS : 220-240Vac~ 1 PHASE
POWER : 500VA
FREQUENCY : 60HZ
DESC : LOGIQ 200PRO Series

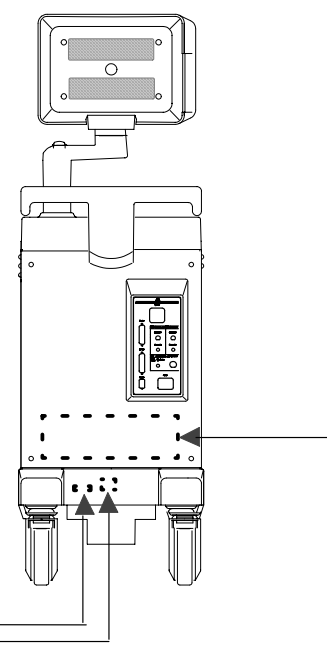


OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR CHILE)
ILLUSTRATION 1-7

1-2-1 Warnings (Continued)

⚠ WARNING 警告 WARNUNG AVERTISSEMENT AVVERTENZA ADVERTÊNCIA ADVERTENCIA 경고					
Possible shock hazard. Do not remove Covers or Panels. Refer servicing to qualified personnel. 感電の危険あり。カバー(または背板)を取り除かないこと。修理点検はサービスセンターに依頼すること。 Schlaggefahr! Abdeckungen oder Verkleidungen nicht entfernen. Wartungsarbeiten nur durch qualifiziertes Fachpersonal durchführen lassen. Risque de chocs électriques. La capot ne doit être ouvert que par un personnel qualifié.	Rischio di scosse elettriche, i pannelli di chiusura dello strumento devono essere tolti solo dal personale qualificato. Possível choque. Não remova tampas ou painéis. Solicite à assistência técnica por pessoal qualificado. Peligro de descargas eléctricas. No saque las cubiertas ni los paneles. El servicio debe realizarlo el personal cualificado. 감전의 위험이 있으니 커버나 판넬을 열지 마십시오. 수리점검은 반드시 서비스센터에 의뢰하십시오.	For continued protection against fire or shock hazard. Replace only with same type and rating of Fuse. 火災の危険あり。表示されたヒューズと交換のこと。 Zum dauerhaften Geräteschutz und zur Vermeidung elektrischer Schläge nur Sicherungen des gleichen Typs und Nennwertes verwenden. Les fusibles de remplacement doivent respecter le type et le calibre spécifiés pour la tension réseau choisie.	Sostituire i fusibili utilizzando soltanto fusibili dello stesso tipo, dimensione e valori di corrente. Para proteção contínua contra fogo ou choque. Substitua somente com fusível do mesmo tipo e capacidade. Como protección continua contra descargas eléctricas e incendios, reemplace el fusible sólo por otro que sea del mismo tipo y del mismo amperaje. 화재나 감전의 위험이 있으니 반드시 동일용량의 퓨즈를 사용하십시오.	Grounding reliability can only be achieved when this equipment is connected to a receptacle marked "Hospital Only" or "Hospital Grade". この機器は「医用コンセント(Hマーク)」に接続したときのみ保護接地の信頼性が保証されます。 CAUTION United States law restricts this device to sale or use by or on the order of a physician.	
⚠ DANGER 危険 VORSICHT DANGER PERICOLO PERIGO PELIGRO 위험					
Possible explosion hazard if used in the presence of flammable anesthetics. 爆発の危険あり。引火性麻酔剤のある場所では使用しないこと。	Explosionsgefahr! Nicht in Gegenwart brennbarer Narkosegase verwenden. Risque d'explosion. Ne pas employer en présence d'anesthésiques inflammables.	Possibilità di esplosione se il sistema è usato in presenza di gas anestetici infiammabili. Possível explosão se usado na presença de anestésicos inflamáveis.	Riesgo de explosión. No emplear en presencia de anestésicos inflamables. 폭발의 위험이 있으니 인화성 마취제가 있는 곳에서 사용하지 마십시오.		

품목허가번호 : 제 호
 명 칭 : 초음파 명상진단장치
 형 명 : LOGIQ 200MD
 정격전압 : 220V 사용주파수 : 60Hz
 소비전력 : 500VA 총량 : 76kg
 보호형식 : 1급기기
 보호경도 :
 제조번호 :
 제조년월일 :
 제조자상호 : 지이메디칼시스템코리아(주)
 제조자주소 : 경기도 성남시 중원구
 삼대원동 85-1
 제조업허가번호 : 제 205호



OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR KOREA)
ILLUSTRATION 1-8

1-2-1 Warnings (Continued)

CAUTION

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

⚠ CAUTION

注意 ACHTUNG
ATTENTION
ATTENZIONE
ATENÇÃO
ATENCION
주의

Do not use with Defibrillator.
除細動器との併用はしないこと。

Nicht zusammen mit einem Defibrillator betreiben.

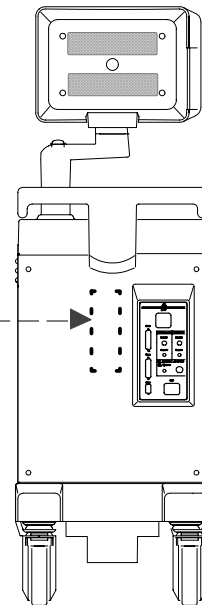
Ne pas faire fonctionner avec un défibrillateur.

Non fare funzionare con un defibrillatore.

Não use com desfibrilador.

No hacer funcionar con un desfibrilador.

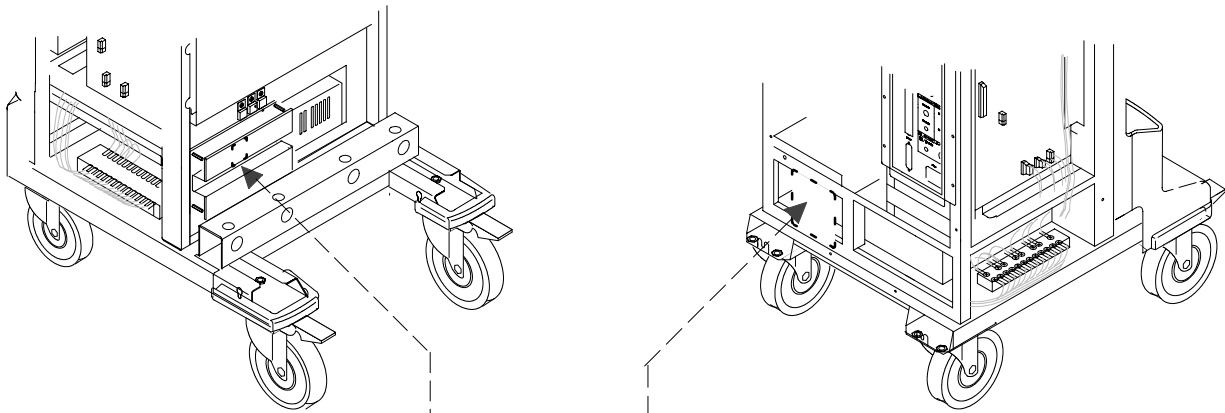
제세동기와 함께 사용하지 마십시오.



OUTSIDE MARKINGS OF LOGIQ 200 PRO Series (FOR UNITS WITH ECG)

ILLUSTRATION 1-9

1-2-1 Warnings (Continued)



⚠ WARNING

⚡

**Hazardous Voltage
Can Cause
service injury, death
or damage
power supply.**





Turn off power and check
residual voltage of capacitor
before access in the power box.

NOTE: Two labels are attached on rear of the SMPS assy box inside the rear cover and front of BPHV Board Assy inside the front base cover.






MARKINGS OF LOGIQ 200PRO Series (INSIDE COVERS)
ILLUSTRATION 1-10

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/Icon	Purpose/Meaning	Location
Identification and Rating Plate	Manufacturer's name and address Date of manufacture Model and serial numbers Electrical ratings (Volts, Amps, phase, and frequency)	Rear of console near power inlet
Type/Class Label	Used to indicate the degree of safety or protection.	
IP Code (IPX1)	Indicates the degree of protection provided by the enclosure per IEC 529. IPX1 indicates drip proof.	Foot Switch
	Equipment Type BF (man in the box symbol) IEC 878-02-03 indicates B Type equipment having a floating applied part.	Probe connectors
	Equipment Type CF (heart in the box symbol) IEC 878-02-05 indicate equipment having a floating applied part having a degree of protection suitable for direct cardiac contact.	ECG connector and surgical probes
Device Listing/ Certification Labels	Laboratory logo or labels denoting conformance with industry safety standards such as UL or IEC.	Rear of console
"DANGER – Risk of explosion used in..."	The system is not designed for use with flammable anesthetic gases.	Rear of console
	"CAUTION" The equilateral triangle is usually used in combination with other symbols to advise or warn the user.	Various
	"ATTENTION – Consult accompanying documents" is intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label.	Various

1-2-1 Warnings (Continued)

Label/Icon	Purpose/Meaning	Location
	<p>“CAUTION – Dangerous voltage” (the lightning flash with arrowhead in equilateral triangle) is used to indicate electric shock hazards.</p>	<p>Various</p>
	<p>“Mains OFF” Indicates the power off position of the mains power switch.</p>	<p>Front of system, Main power switch</p>
	<p>“Mains ON” Indicates the power on position of the mains power switch.</p>	<p>Front of system, Main power switch</p>
	<p>“Equipotentiality” Indicates the terminal to be used for connecting equipotential conductors when interconnecting (grounding) with other equipment.</p> <p>CAUTION This is only for “FUNCTIONAL GROUNDING”, NOT “PROTECTIVE EARTH”.</p>	<p>Rear of console</p>
	<p>Indicates Main protective earth terminal</p>	<p>Various</p>

1-2-2 Specifications

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

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

Type CF EQUIPMENT (*3) (ECG Only)

Ordinary Equipment
Continuous Operation

***1. Class I EQUIPMENT**

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

***2. Type BF EQUIPMENT**

TYPE B EQUIPMENT with an F-TYPE APPLIED PART

TYPE B EQUIPMENT: EQUIPMENT providing a particular degree of protection against electric shock, particularly regarding:

- allowable LEAKAGE CURRENT;

	Normal mode	Single failure mode
Patient leakage current	Less than 100 μ A	Less than 500 μ A

***3. Type CF EQUIPMENT**

EQUIPMENT providing a particular degree of protection higher than that for TYPE OF BF EQUIPMENT against electronic shock particularly regarding allowable LEAKAGE CURRENT, and having an F-TYPE APPLIED PART.

- allowable LEAKAGE CURRENT;

	Normal mode	Single failure mode
Patient leakage current	Less than 10 μ A	Less than 50 μ A

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 designated to fully comply with EN60601-1-2 (IEC 601-1-2), In Medical electronic 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 or designated by GEMS or SGMS. 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 cables provided by GEMS and SGMS. Wire these cables following these installation procedures.

(Example) Wire power cables separately from signal cables.

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

1-3-3 General Notice

1) Designation of Peripheral Equipment Connectable to This Product

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

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

2) Notice against User Modification

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

- a) Changes in cables (length, material, wiring etc.)
- b) Changes in system installation/layout
- c) Changes in system configuration/components
- d) Changes in means of fixing system/parts (cover open/close, screwing cover)

3) Operate the system with all covers closed. If you open any cover for some reason, be sure to close 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 handle issues related to EMC. It may be time consuming and costly.

General countermeasures

Electromagnetic interference with other equipment

- 1) Electromagnetic interference may be alleviated by positioning other equipment far from the system.
- 2) Electromagnetic interference may be mitigated by changing the relative location (installation angle) between the system and other equipment.
- 3) Electromagnetic interference may be eased by changing wiring locations of power/signal cables of other equipment.
- 4) Electromagnetic influence may be reduced by altering the path of power supply for other equipment.

1-3-5 Notice on Service

- 1) Ensure all screws are tight after servicing. Loose screws may cause degradation in EMC performance.
- 2) In case the high frequency gasket of this system is broken, replace it with a new one immediately.

1-4 ADDRESS

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

GE Medical Systems

Ultrasound Business Group
4855 W. Electric Ave., Milwaukee, WI 53219
USA
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 Ultrasound Europe

GE Ultraschall GmbH & Co.KG
Beethovenstraße 239 Postfach 11 05 60
D-42655 Solingen GERMANY
TEL: 0130-81-6370 (OLC-Europe Toll Free Number)
(49) 212-2802-207 (English/German Hotline)
(49) 212-2802-208 (English/German/French Hotline)
FAX: (49) 212-2802-431

GE Yokogawa Medical Systems

On-Line Center (OLC), Asia
Ultrasound Group
67-4, Takakura-cho, Hachioji-shi, Tokyo, 192-0033
JAPAN
TEL: (81) 426-48-2940
FAX: (81) 426-48-2950

GE MEDICAL SYSTEMS KOREA

65-1, Sangdaewon-dong, Chungwon-Ku,
Sungnam-Si, Kyunggi-do,
KOREA
TEL: (82) 31-740-6000
FAX: (82) 31-740-6436

CHAPTER 2 – INSTALLATION

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2-1 PREINSTALLATION

2-1-1 Introduction

This section describes various general electrical, operational, and environmental considerations that must be considered before installing the LOGIQ 200 PRO Series Ultrasound unit.

2-1-2 Power Line Requirements

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

PARAMETER	:	LIMITS
Voltage Range	:	Korea : 220 VAC ± 10% (198 – 242 VAC)
		USA : 115 VAC ± 10% (103 – 127 VAC)
		Europe, LA : 220 – 240 VAC ± 10%(198 –264 VAC)
		Japan. : 100 VAC ± 10% (90 – 110 VAC)
		Asia : 115 VAC ± 10% (103 – 127 VAC)
		: 220 – 240 VAC ± 10%(198 –264 VAC)
Voltage Range	:	All applications : 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.

2-1-3 Physical Specifications

The LOGIQ 200 PRO Series (excluding accessories) weighs 76 Kg (168 lbs). See Chapter 3, ILLUSTRATION 3-1 for dimensions.

Operating Conditions

The LOGIQ 200 PRO Series is designed to operate within a temperature range of 10 °C to 40 °C (50 °F to 104 °F), and a relative humidity range of 5 % to 90 % (Non-condensing).

Patient Comfort

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

Electromagnetic Interference (EMI)

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

Carefully read the following precautions before installing the unit.

1. Connect the power plug for any other equipment into the fixed outlet with ground wire.
2. Securely connect any equipment with permanent ground connection to the earth ground furnished in the building.
3. Install the unit as far from any electrical or electronic equipment as possible.

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

1. Move the ultrasound machine as far from the equipment as possible.
2. Change the arrangement of the equipment in the room.
3. Plug the equipment into other outlet.
4. Move the power cable or signal cable connected with the equipment.

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

2-1-4 Recommended Ultrasound Room Layout

TABLE 2- 1 provides the requirements for an ultrasound room:

TABLE 2- 1
ULTRASOUND ROOM REQUIREMENTS

POWER SOURCE	230VAC, 50Hz, SINGLE PHASE 115V, 60Hz, SINGLE PHASE	For Europe Version For USA Version
CURRENT RATING	10A (115V, 100V) ; 5A (220-240V) CIRCUIT BREAKER	
RADIATION SHIELDING	NONE REQUIRED for ULTRASOUND ENERGY	
TEMPERATURE	20-26 °C (68-79 °F) for PATIENT COMFORT	
HUMIDITY	50% to 70% for PATIENT COMFORT	
HEAT DISSIPATION	2000 BTU/Hr for LOGIQ 200 PRO SeriesMD	
FLOOR LOADING	Approximately 240 – 300 kg/m ² without Accessories	
FLOOR CONDITION	Gradient : WITHIN 5 degrees	
LOGIQ 200 PRO Series Weight	76 kg (168lbs) without Accessories	

2-1-4 Recommended Ultrasound Room Layout (Continued)**Optional Desirable Ultrasound Room Facilities**

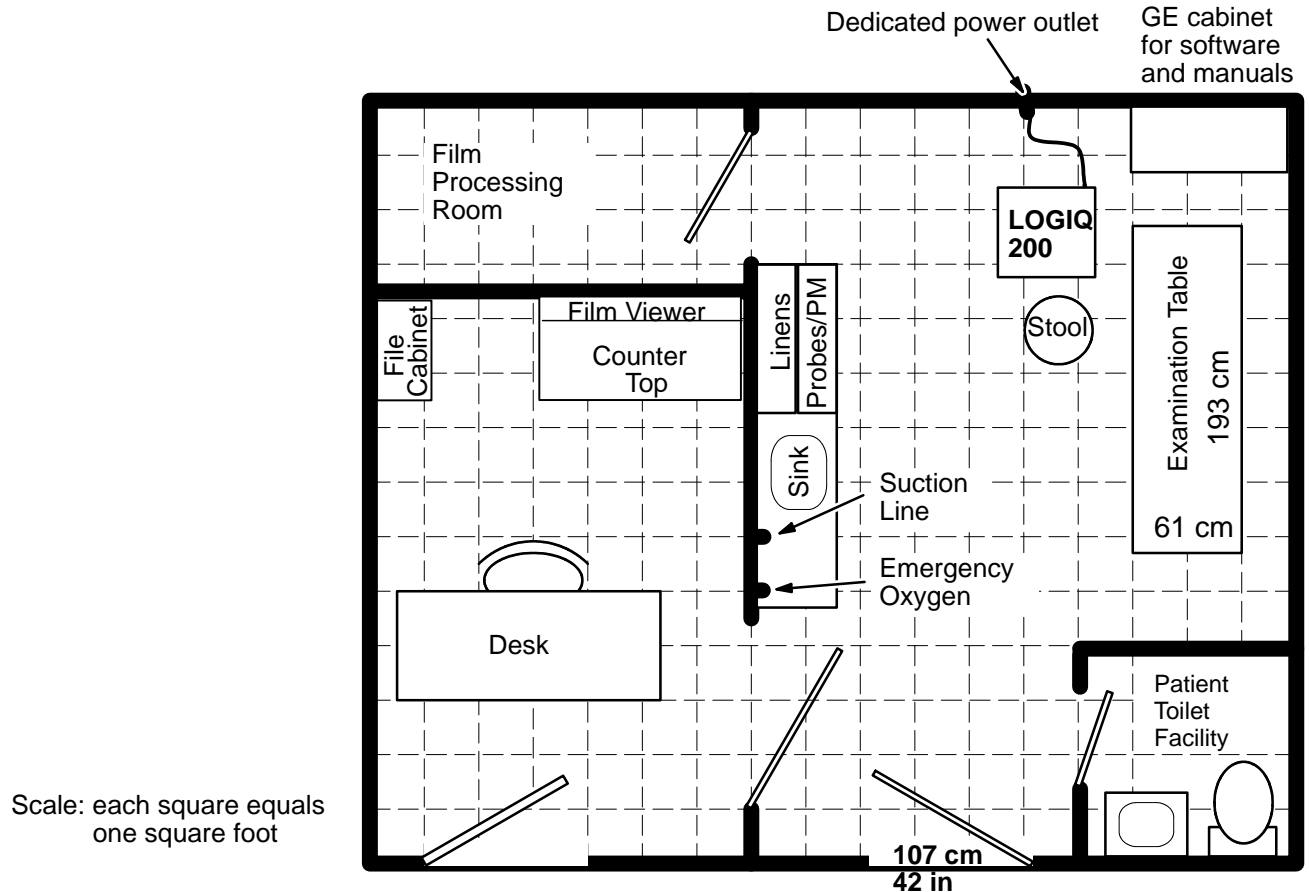
These facilities are:

1. Lab sink with hot and cold water.
2. Emergency oxygen supply.
3. Dimmer control for overhead lights.
4. Film viewer.
5. Film and linen storage.
6. Medical equipment storage.
7. Hospital grade equipment electrical outlet.
8. Document storage area for operating and service manuals.
9. Nearby waiting room, dressing room, lavatory.
10. Trash bin.

Recommended and Alternate Ultrasound Console Floor Plans

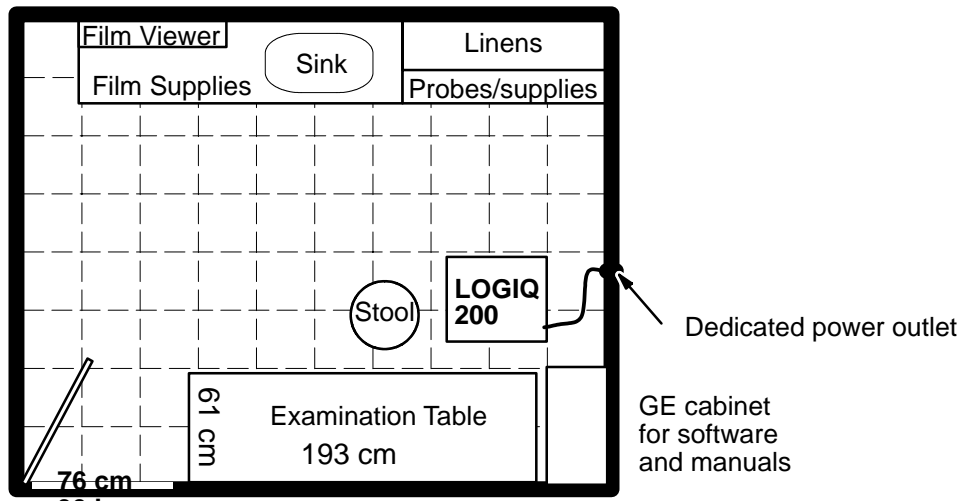
ILLUSTRATION 2-1 provides a recommended standard floor plan and a minimal floor plan for ultrasound equipment

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



Scale: each square equals one square foot

A 14 by 17 Recommended Floor Plan



An 8 by 10 Minimal Floor Plan

RECOMMENDED ULTRASOUND FLOOR PLAN

ILLUSTRATION 2-1

2-2 INSTALLATION

2-2-1 Introduction

This section contains many of the procedures required to install the LOGIQ 200 PRO Series console.

2-2-2 Average Installation Time

The LOGIQ 200 PRO Series has been designed to be installed and checked out by an experienced service technician in approximately three hours. LOGIQ 200 PRO Series consoles with optional equipment may take slightly longer.

2-2-3 Installation Warnings

1. Since the LOGIQ 200 PRO Series weighs approximately 76 kg (168 lbs) without options, preferably two people should unpack it. Two people are also preferable for installing any additional bulky items.
2. There are no operator serviceable components. To prevent shock, do not remove any covers or panels. Should problems or malfunctions occur, unplug the power cord. Only qualified service personnel should carry out servicing and troubleshooting.

Note

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

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



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

TABLE 2- 2
TIME FOR SETTLEMENT

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

2-2-4 Checking the Components

When a new system arrives, check that any components are not damaged and or missing. If shipping damage or shortages occur, contact the address shown in Chapter 1.

2-2-5 Unpacking LOGIQ 200 PRO Series

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



The unit weighs approximately 76 kg (168 lbs). Be prepared for a sudden shift of weight as the unit is removed from its base (pallet).

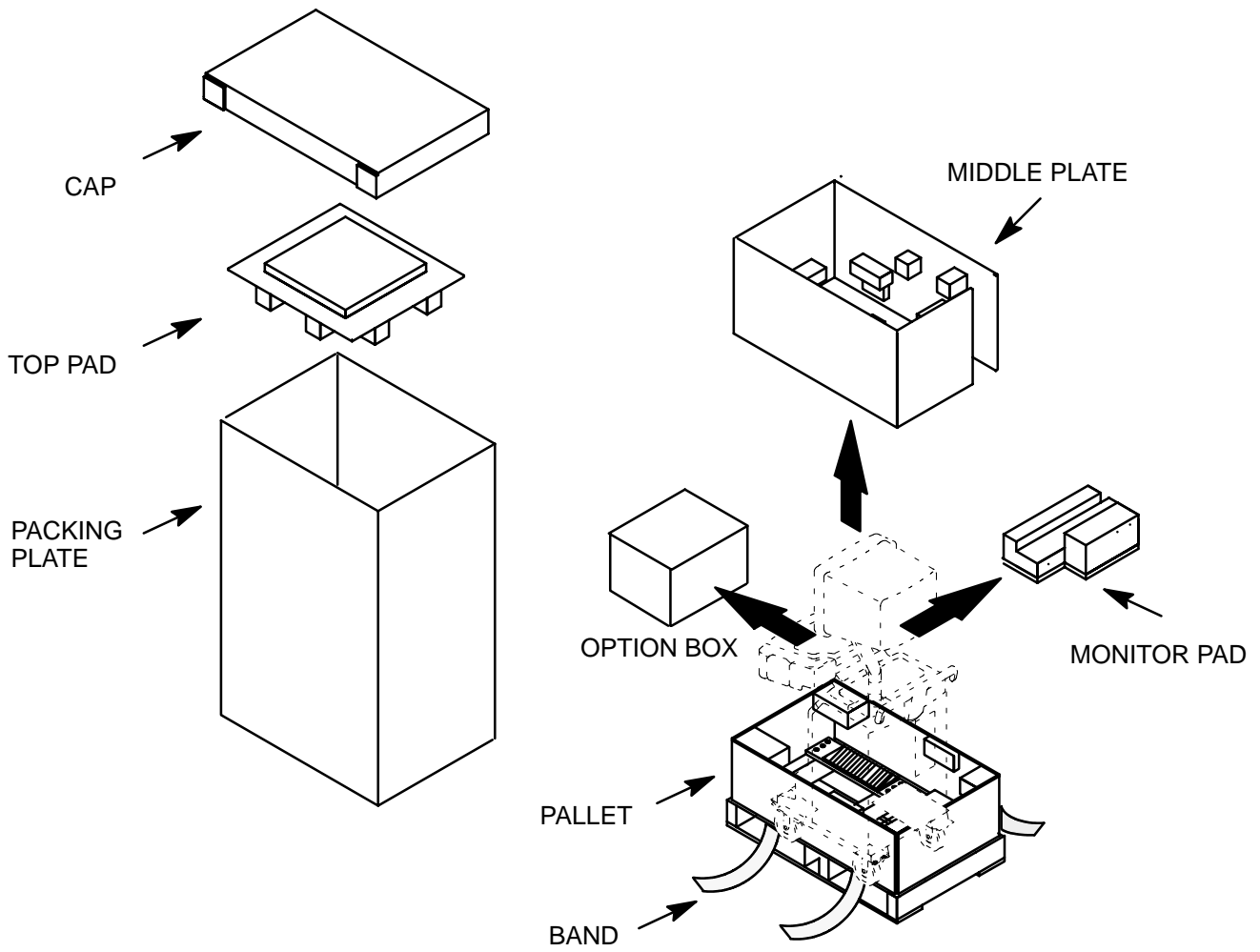
Refer to ILLUSTRATION 2-2 while performing the following procedure.

1. Cut the two BANDs.
2. Lift the CAP up and off.
3. Lift the TOP PAD up and off.
4. Remove the OPTION BOX.
5. Remove the VINYL COVER.
6. Remove the MIDDLE PLATE ASSY.
7. Remove the MONITOR COVER.
8. Lift the PACKING CASE up and off.
9. Lift the Monitor up by pressing the <UP/DOWN> button located on the Monitor Arm.
10. Remove the MONITOR PAD.
11. Return the Monitor arm to its lowest position.
12. Carefully roll the LOGIQ 200 PRO Series from the PALLET.
13. Remove the Caution Label attached on the CRT Filter and clean the CRT Filter.

Note

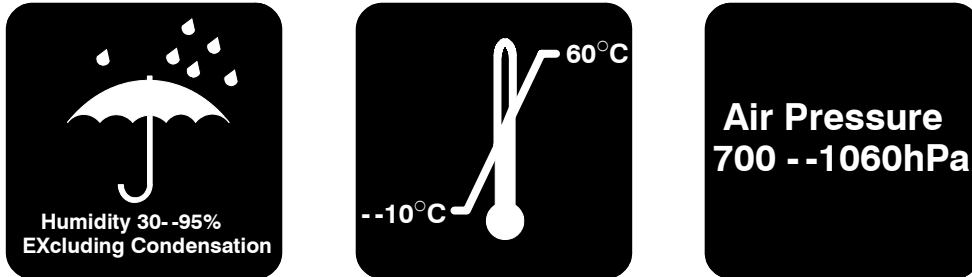
Check the shipping container for special instructions. Verify that the container is intact. In some cases a secondary container may be used. If so, ask the carrier for unpacking instructions.

2-2-5 Unpacking LOGIQ 200 PRO Series (Continued)



UNPACKING LOGIQ 200 PRO Series
ILLUSTRATION 2-2

2-2-5 Unpacking LOGIQ 200 PRO Series (Continued)



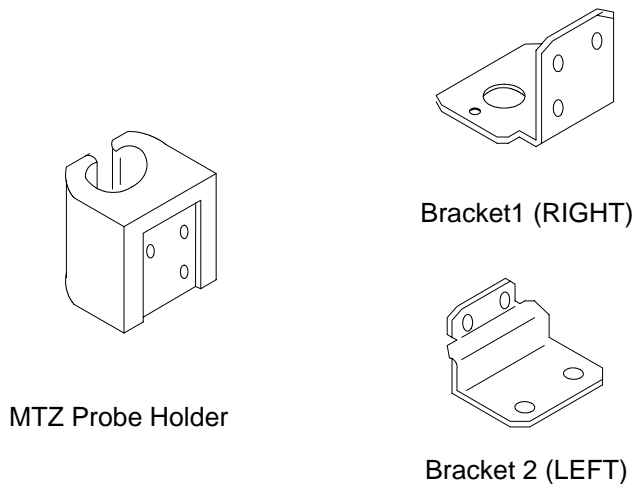
LABELS ON PACKAGE
ILLUSTRATION 2-3

2-2-6 MTZ Probe Holder Installation (Option)

One MTZ probe holder and two brackets are supplied with the LOGIQ 200 PRO Series console as shown in ILLUSTRATION 2-4.

Note

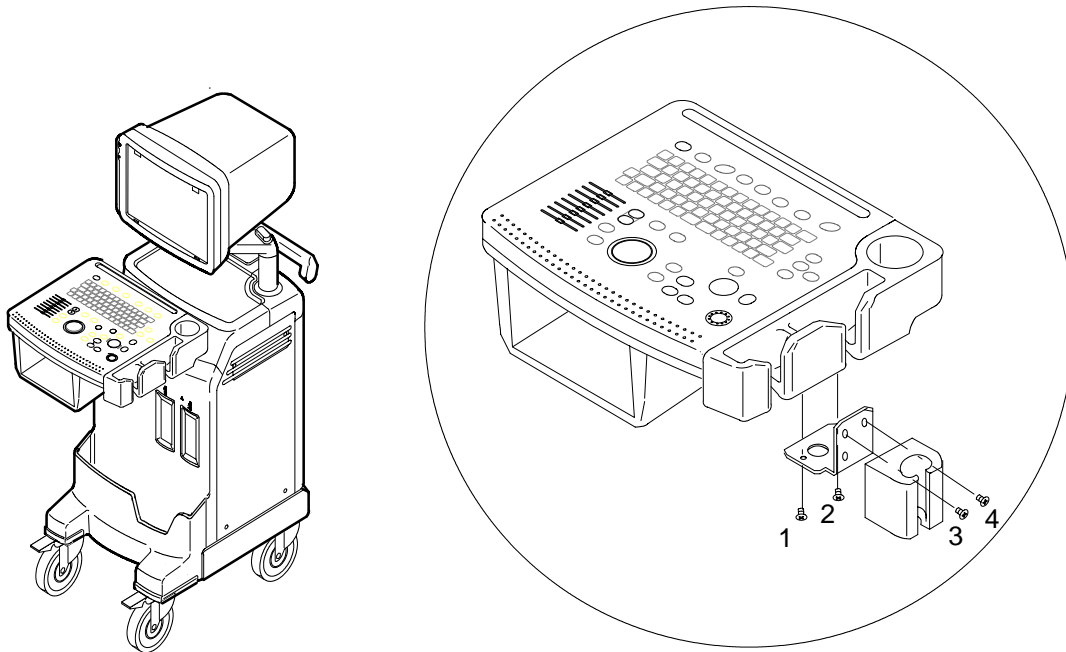
Two sets of screw holes are provided at the bottom of standard probe holder and left side of keyboard to install the MTZ probe holder. You can choose the most convenient position for your customer between the two sets of screw holes.



MTZ PROBE HOLDER SET
ILLUSTRATION 2-4

2-2-6 MTZ Probe Holder Installation (Option) (Continued)

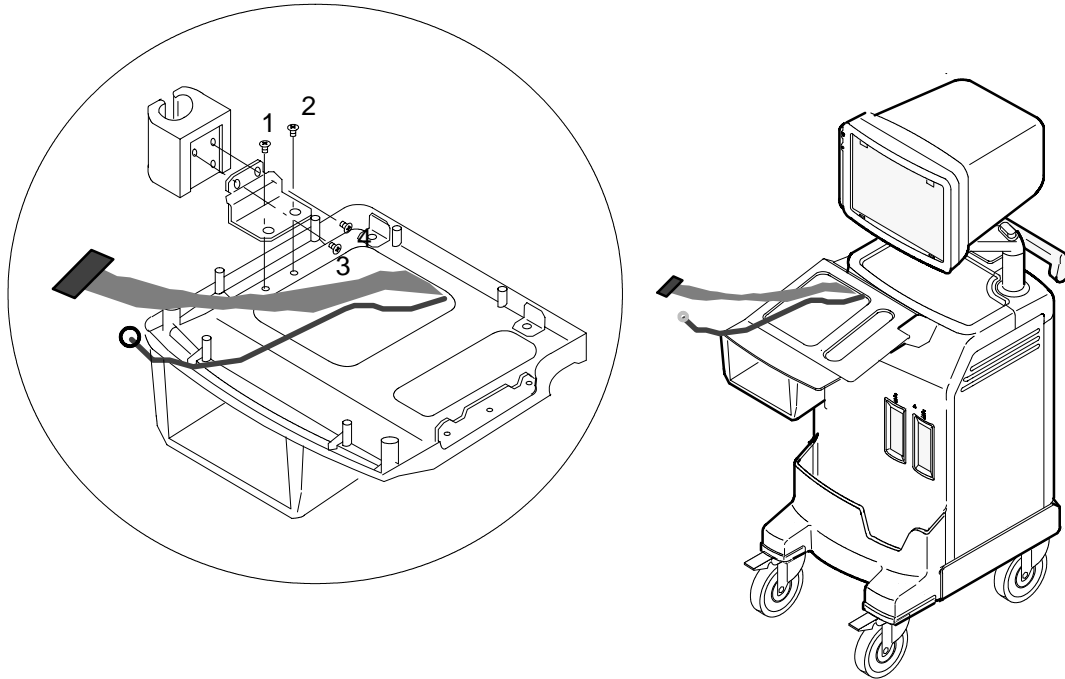
1. Assemble the MTZ probe holder at the bottom of standard probe holder by screwing four (1 – 4) screws as shown in ILLUSTRATION 2-5.



MTZ PROBE HOLDER INSTALLATION (1)
ILLUSTRATION 2-5

2-2-6 MTZ Probe Holder Installation (Option) (Continued)

2. After removing the Keyboard Assy (Refer to NO TAG, 6-2 DISASSEMBLY/RE-ASSEMBLY), Assemble the MTZ probe holder at the left side of keyboard by screwing four (1 - 4) screws as shown in ILLUSTRATION 2-6.



MTZ PROBE HOLDER INSTALLATION (2)
ILLUSTRATION 2-6

2-2-7 Transducer Connection

1. Connect a transducer to the left side connector slot #1, transducer receptacle as follows:
 - a. Ensure that the transducer twist lock lever points towards the 12 o'clock position.
 - b. Insert the transducer connector on the receptacle guide pin until it touches the receptacle mating surface.
 - c. Twist the transducer twist lock lever to the 4 o'clock position to lock it in place. Twist the lever to the 12 o'clock position to disconnect the transducer.

Note

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

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

2-2-8 Moving into Position



Do not lift the unit by the Keyboard.

Do not tilt the unit more than 5 degrees to avoid tipping it over.

To avoid injury by tipping over. Set the monitor to the lowest position before moving.



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

In general, a single adult can move the LOGIQ 200 PRO Series. (It is better to pull from the rear rather than push from the front of the unit). Before moving, store all loose parts in the unit. Wrap transducers in soft cloth or foam to prevent damage.

2-2-9 Adjusting System Clock

Set system clock for the LOGIQ 200 PRO Series to the local time. For procedure of adjusting the System clock, refer to "Customizing Your System" in the Users manual.

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CHAPTER 3 – SYSTEM CONFIGURATION

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3-6-5	Jumper	3-15

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3-1 INTRODUCTION

This chapter describes system configuration and specifications.

3-2 DIMENSIONS

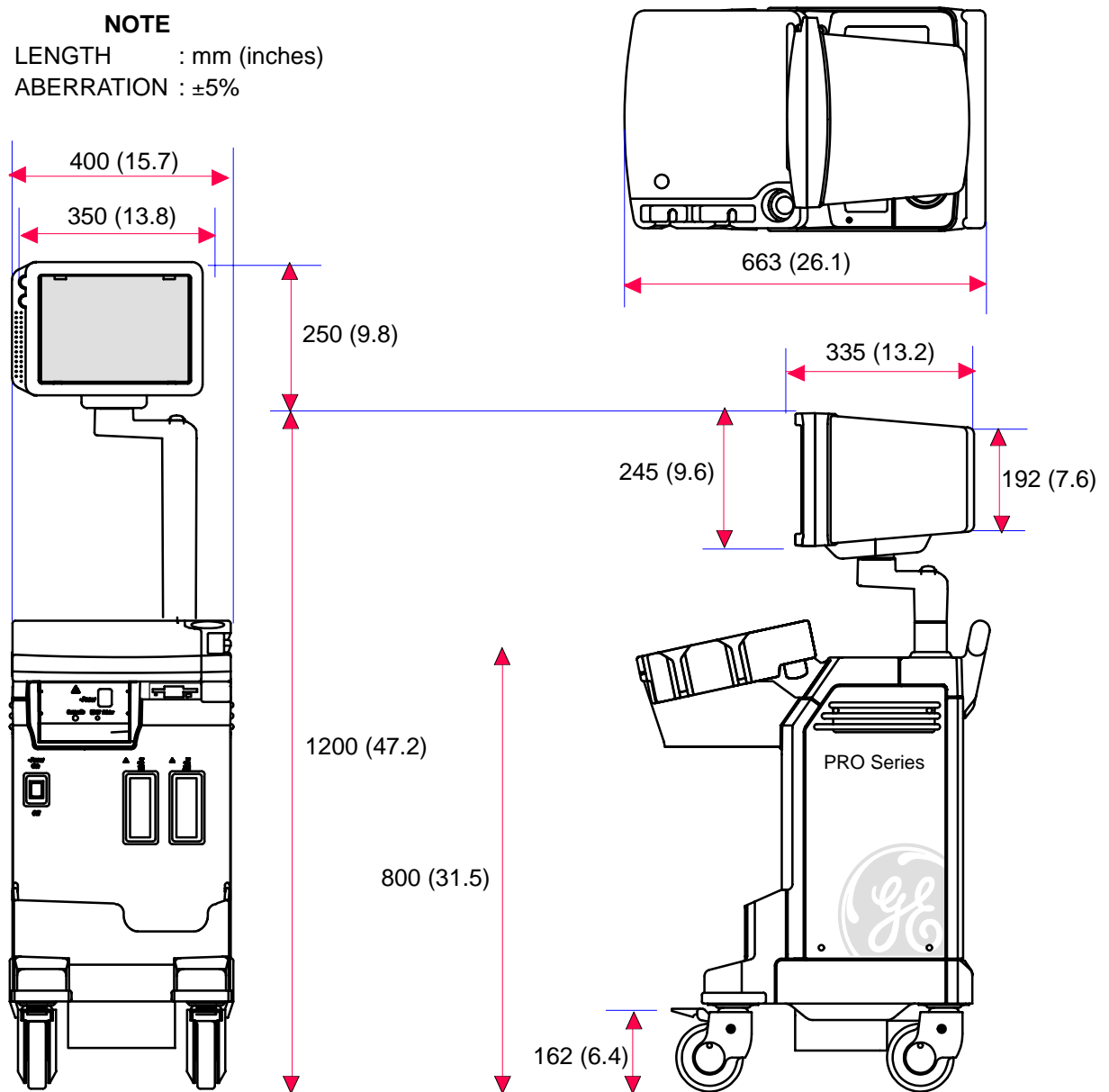
Regarding LOGIQ 200 PRO Series dimensions, Refer to ILLUSTRATION 3-1 for planning the position of your LOGIQ 200 PRO Series.

WEIGHT: 76 kg
168 lbs

NOTE

LENGTH : mm (inches)

ABERRATION : ±5%



OVERALL DIMENSIONS
ILLUSTRATION 3-1

3-3 ELECTRICAL SPECIFICATIONS

Electrical conduit, junction boxes, outlets, circuit breakers, and switches should be in place before installing the LOGIQ 200 PRO Series console.

3-3-1 Power Supply

Voltage setup is performed in the factory. Different power cables and circuit breakers are used for the 100 (115) Vac and 220 (240) Vac versions.

3-3-2 Facility Power Receptacle

A separate power outlet with a 10 amp circuit breaker for 100 (115) Vac units, or a 5 amp circuit breaker for 220 (240) Vac units, is recommended. The specific power receptacle used depends on your country's power line standards.

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

3-4 STORAGE AND OPERATION REQUIREMENTS

Probes and peripherals are shipped in separate containers. Shipping weight is approximately 210 lbs (96 kg). The size of the container is L82 cm x W53 cm x H140 cm (32 in. x 21 in. x 55 in). Table 3-1 provides a summary of temperature, atmospheric pressure, and humidity tolerances for shipping, installation, and operation.

TABLE 3- 1
STORAGE AND OPERATION REQUIREMENTS

PARAMETER	STORAGE	OPERATION
TEMPERATURE (°C) (°F)	-10 to 60 14 to 140	10 to 40 50 to 104
ATMOSPHERIC PRESSURE (hPa)	700 to 1060	700 to 1060
HUMIDITY (%) (Non-condensing)	5 to 90	5 to 90

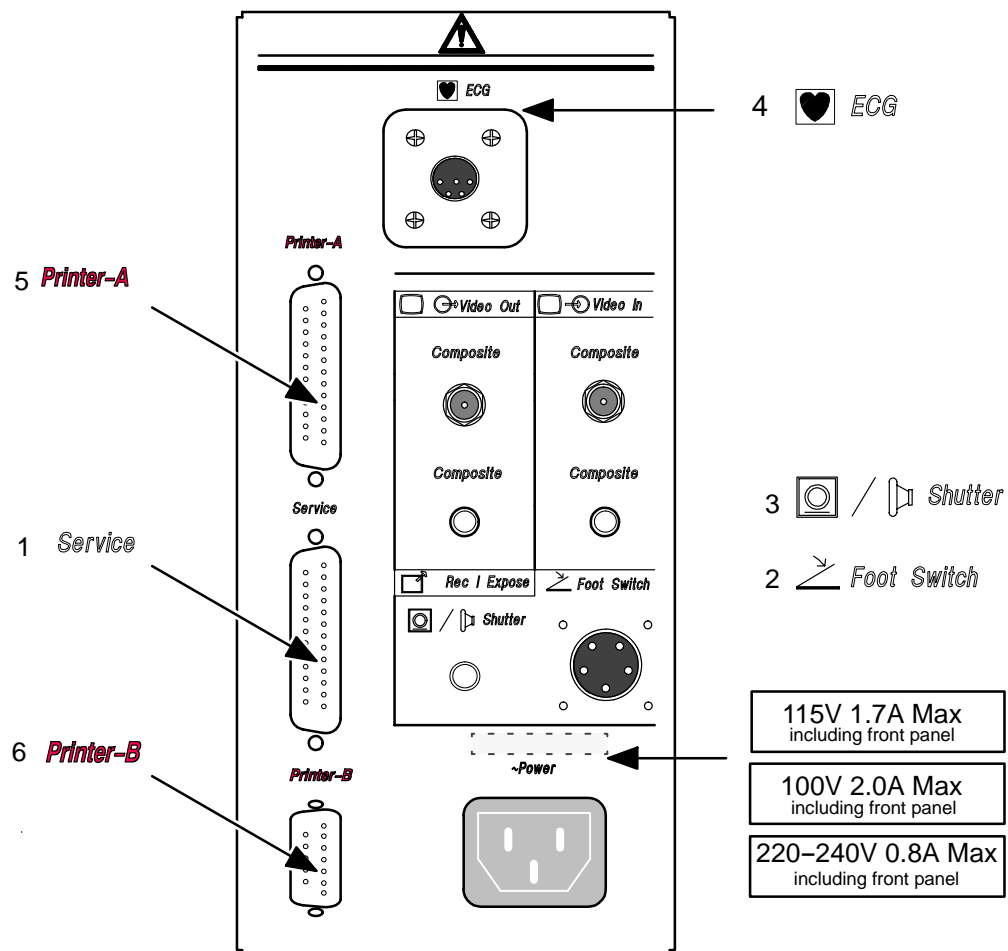
3-5 OPTIONAL PERIPHERALS

3-5-1 Peripherals/Accessories Connector Panel

LOGIQ 200 PRO Series peripherals and accessories can be properly connected using the rear connector panel.

Located on the panel are video input and output connectors, camera expose connector, foot switch connector, power connector and service ports.

This section indicates the pin assignment for each connector (1 – 4 in ILLUSTRATION 3-2) at pages 3-6 through 3-7.



REAR CONNECTOR PANEL
ILLUSTRATION 3-2

3-5-1 Peripherals/Accessories Connector Panel (Continued)

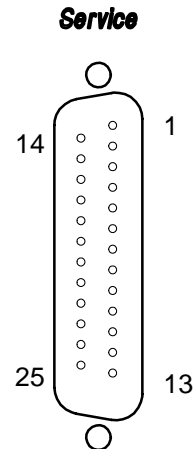
Note

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

1. Pin Assignment of RS232C for Service

Connector : Female, D-SUB, 25-pin

Pin No.	Signal	Pin No.	Signal
1	Frame GND	14	
2	TXD	15	
3	RXD	16	
4	RTS	17	
5	CTS	18	
6	DSR	19	
7	Signal GND	20	DTR
8	DCD	21	
9		22	Ring Indicator
10		23	
11		24	
12	+ 5 V ^{*1} (300mA Max)	25	
13			



*1 : This voltage shall be apply to this Pin in case of MODEM usage.

Note

Output level of RS232C signals :

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

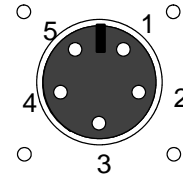
3-5-1 Peripherals/Accessories Connector Panel (Continued)

2. Pin Assignment of Foot Switch

Connector : Round 5-pin connector

Pin No.	Output Signal	Pin No.	Output Signal
1	FOOT SW	4	
2	FOOT SW_G	5	Frame GND
3			

 **Foot Switch**



3. Pin Assignment of Mini Jack for Controlling B/W Printer

Connector :Stereo Mini Jack

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

 /  **Shutter**



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

Note

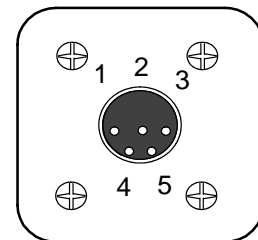
Output level of control signals indicated in the above tables are TTL level.

4. Pin Assignment of ECG

Connector :

Pin No.	Output Signal	Pin No.	Output Signal
1	RA	4	Signal GND
2	LF	5	Signal GND
3	RF		

 **ECG**

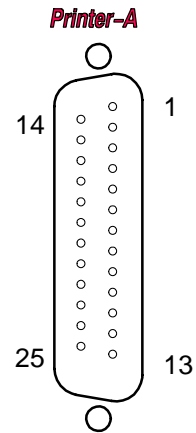


3-5-1 Peripherals/Accessories Connector Panel (Continued)

5. Pin Assignment of Parallel Printer for Printer-A

Connector :

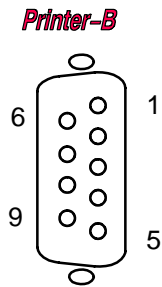
Pin No.	Signal	Pin No.	Signal
1	STB (L)	14	AFD(L)
2	PD0	15	ERR(L)
3	PD1	16	INIT(L)
4	PD2	17	SLIN(L)
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK (L)	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		



6. Pin Assignment of for Printer-B

Connector :

Pin No.	Signal	Pin No.	Signal
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	Ring Indicator
5	Signal GND		



3-5-2 List of Optional Peripherals

The tables below shows the suggested optional peripherals for LOGIQ 200 PRO Series.

1. RECORDING DEVICES

TABLE 3- 2
LIST OF RECORDING DEVICES

DEVICE	MANUFACTURER	MODEL	CATALOG No.	VIDEO SIGNAL
Video Cassette Recorder	SONY	SVO-9500MD	Local	NTSC
	SONY	SVO-9500MDP	Local	PAL
Video Graphic Printer	SONY	UP890	Local	
	MITSUBISHI	P90	Local	
Multi Image Camera	International Imaging Electronics	IIE460	Local	
Magneto Optic Disk Driver	FUJITSU	MDD3064AP	Local	

Note

See each option installation instructions for installation and connection procedures.

3-5-2 List of Optional Peripherals (Continued)

2. TRANSDUCER (PROBE)

TABLE 3- 3
LIST OF TRANSDUCERS

PROBE NAME	MATERIAL OF HEADSHELL	AREA OF USING	TYPE	CATALOG NO.	REQUIRED ADAPTER	PART NO. FOR JAPAN	PART NO.
CBF	PES	Abdom.	Convex	H46022CB	Not Required	P9603AA	P9603AD
CAE	PES	Abdom.	Convex	H46022CA	Not Required	P9603AB	P9603AE
MTZ	PES	Intercavity	Convex	H46022MT	Not Required	P9603AL	P9603AU
CZB	NORYL	Neonatal	Convex	H45202CZ	Not Required	2152402	2152422
CS	PES	Abdom.	Convex	H45222CS	Not Required	2202315	2202320
ATR	PES	Urology	Convex	H4061PR	Not Required	2201223	2201222
LH	PES	Superficial	Linear	H46022LH	Not Required	P9601AC	P9601AS
LE	PES	OB/Gyn.	Linear	H46022LE	Not Required	P9601AB	P9601AR
LI	PES	Intraoperative	Linear	H46022LI	Not Required	P9601AG	P9601AW
LT	PES	Intraoperative	Linear	H46022LT	Not Required	P9601AJ	P9601AX
LB	PES	OB/Gyn.	Linear	H46022LB	Not Required	P9601AA	P9601AQ
LD	NORYL	Intraoperative	Linear	H45202LD	Not Required	P9601AD	2124317
ERB	PES	Urology	Linear, Convex	H45202ER	Not Required	-	-
10Lb	PES	Superficial	Linear	H45202LM	Not Required	-	-
SY	PES	Abdom.	Sector	H46022SY	Not Required	-	-
3C	PES	OB/Gyn	Linear	H45202WB	Not Required	-	-
S317	NORYL	Cardiology	Sector	H45202SD	Not Required	2144268-2	-



Equipment damage possibility. Be sure to use the following recommended connecting cables to connect recording devices with LOGIQ 200 PRO Series console.

3. CONNECTING CABLES

TABLE 3- 4
LIST OF CONNECTING CABLES

NAME	PART NO.	FIGURE	NOTE
Printer Install Kit	2176459	Printer Cable Assy, BNC cable, Shutter cable	For B/W Printer
MOD Install Kit	2235371	MOD Driver, Top Bracket, Bottom Bracket, Screw	For MOD Driver

3-5-3 Power Consumption of Optional Peripherals

The table below shows the power consumption of each optional peripheral for LOGIQ 200 PRO Series.

TABLE 3- 5
POWER CONSUMPTION OF OPTIONAL RECORDING DEVICES

DEVICE	MODEL	POWER CONSUMPTION
Video Cassette Recorder	SVO-9500MD	64 W
	SVO-9500MDP	
Video Graphic Printer	UP890	110 W
Multi Image Camera	IIE460	60 W
MOD Driver	MDD3064AP	5.3 W

3-6 TEST POINT, LED, DIP SWITCH AND RESET SWITCH

3-6-1 Test Point List

The table below shows The Test Point list for LOGIQ 200 PRO Series.

TABLE 3- 6
TEST POINT

LOCATION	NAME	DESCRIPTION	POSITION
MVP ASSY	TP1	Non-interlaced HSYNC	Edge of board
	TP2	Non-interlaced VSYNC	Edge of board
	TP3	M-mode data clock	-
	TP4	M_EN	-
	TP5	SLN7	-
	TP6	B mapping clock	-
	TP7	B DTC	-
	TP8	CPU clock	-
	GND	Ground	Edge of board
	VCC1	+5V for analog/digital	Edge of board
	-5V	-5V for analog	-
MSTE ASSY	TP1	+5V for digital	Edge of board
	TP2	GND	Edge of board
	TP3	Foot switch status	-
TBF ASSY	DGND2	Ground for Digital	-
	AGND1	Ground for Analog	-
	AGND2	Ground for Analog	-

3-6-1 Test Point List (continued)

The table below shows The Test Point list for LOGIQ 200 PRO Series.

TABLE 3- 7
TEST POINT

LOCATION	NAME	DESCRIPTION	POSITION
BPHV ASSY	TP±THV	High Voltage for transmitting	-
	TP±SHV	High Voltage for High Voltage switch on CONN Assy	-
	TP HV_REF	D/A output for HV control	-
RBF ASSY	V5AP	+5V for Analog	Edge of board
	V5AN	-5V for analog	Edge of board
	V5BG	+5V for Gain Control Block	-
	V5AD	+5V for ADC Block	-
	VCC1	+5V for Digital	-
	AGND1	Ground for Analog	-
	AGND2	Ground for Analog	-
	GND1	Ground for Digital	-
	GND2	Ground for Digital	-
	GND3	Ground for Digital	-
	GND4	Ground for Digital	-
GND5	Ground for Digital	-	
SCAN ASSY	+5V	+5V for digital	Edge of board
	±SHV	±SHV for high voltage switch	Edge of board
MOTHER 3 ASSY	MON_12P	+12V for Monitor	-
	ECG_12P	+12V for ECG Module	-
	ECG_12M	-12V for ECG Module	-
	GND1	Ground	-
	GND2	Ground	-
	GND3	Ground	-
	TRIG	TRIG Signal	-

3-6-2 LED List

The table below shows the LED list for LOGIQ 200 PRO Series.

TABLE 3-7
LED

LOCATION	NAME	DESCRIPTION	POSITION	NORMAL	ABNORMAL
MSTE ASSY	DS9	+5V for digital	Edge of board	ON	OFF
	DS10	Watchdog timer out (CPU FAULT)		OFF	ON
	DS1~DS8	Reserved		-	-
	DS11	MOD Active		-	-
MVP ASSY	DS1	+5V for digital	Edge of board	ON	OFF
	DS2	Scan Frame Clock		BLINKING	FIXED
	DS3				
	DS4				
	DS5	DSP running		ON	OFF
BPHV ASSY	DS1, DS2	BPHV ASSY status (ON:normal)	ON	OFF	
SMPS ASSY	GREEN LED	SMPS ASSY status (ON:normal)	SMPS ASSY	ON	OFF

Note

Three LED (DS2~DS4) of MVP assy should be blinked when the system operated with the Probe.

3-6-3 DIP Switch

The table below shows the DIP Switch list for LOGIQ 200 PRO Series.

TABLE 3-8
DIP SWITCH Setting

LOCATION	NAME	Switch No.	DESCRIPTION	STATUS	
				ON	OFF
MSTE ASSY	S1	1 ~6	Assy Version Read, I/O check	-	-
		7	System Cold Reset	enable	disable
		8	Reserved	-	-
	S2	1	Initialize Setup data to factory default	enable	disable
		2	Reserved		
		3	Reserved		
		4	A-Mode		
		5	Emergency mode for download by MOD or PL		
		6	Reserved		
		7	Flash memory/SRAM Test & Clear		
		8	NTSC/PAL Selector		

Note

To activate the dip switch S2-7 fuction, S2-1 should be set to ON.

Note

To activate the A-Mode fuction, S2-4 should be set to ON.

LOCATION	NAME	Switch No.	DESCRIPTION	POSITION
MVP ASSY	S1	1 ~8	Assy Version Read, I/O Check	-
TBF ASSY	S1	1 ~8	Assy Version Read, I/O check	Edge of board
RBF ASSY	S1	1 ~7	Assy Version Read, I/O check	DIN connector side

3-6-4 Reset Switch

Reset switch (S3) on edge of MSTE Assy used for resetting the system.

3-6-5 Video Signal Specification

The table below shows the video signal specification for LOGIQ 200 PRO Series.

TABLE 3-9
VIDEO SIGNAL SPECIFICATIONS

		NTSC		PAL	
		VCR OUT	Monitor OUT	VCR OUT	Monitor OUT
Total Line per Frame	[Line]	525	525	625	625
Vertical Field Frequency	[Hz]	60	60	50	50
Horizontal Scanning Frequency	[KHz]	15.733	31.466	15.625	31.25
Total Horizontal Line Time	[μs]	63.56	31.78	64.00	32.00
Horizontal Display	[μs]	49.54	27.3	48.81	27.52
Horizontal Porch Width	[μs]	2.76	1.18	3.09	1.42
Horizontal Pulse Width	[μs]	4.73	2.81	4.68	2.76
Horizontal Porch Width	[μs]	6.53	0.49	7.42	0.3
Total Horizontal Blanking	[μs]	14.02	4.48	15.19	4.48
Vertical Front Porch Width	[H]	6.5	0	9.0	0
Vertical Sync Width	[H]	3	4	2.5	4
Vertical Back Porch Width	[H]	22	0	27	0
Total Blanking Interval	[H]	31.50	0	38.50	0
Pixel Clock	[MHZ]	12.27	24.54	14.75	29.5
H	[μs]	63.56	31.87	64	32
Display Area Size	[mm]	-	207X157	-	207X157

CHAPTER 4 – FUNCTIONAL CHECKS

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4-1 INTRODUCTION

This chapter provides procedures for quickly checking major functions of the LOGIQ 200 PRO Series console, and SMPS adjustments.

4-1-1 Required Equipment

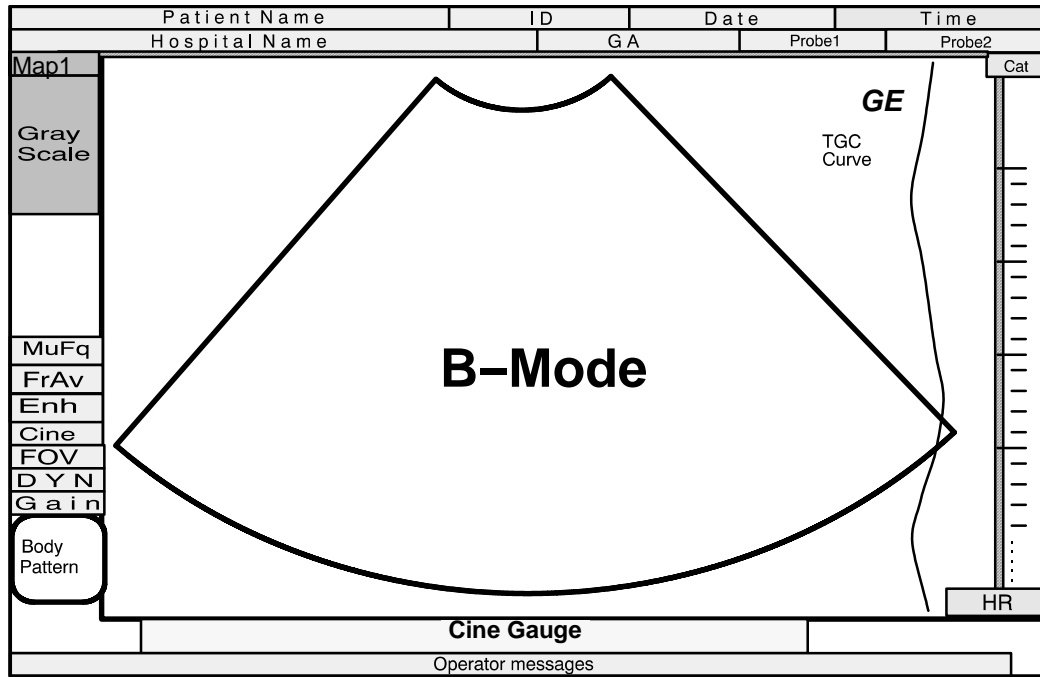
To perform these tests, you'll need a linear, or a convex transducer.

4-2 FUNCTIONAL CHECK PROCEDURES

4-2-1 Basic Controls

Step	Check	Expected Result
1	Connect the convex transducer to "Probe 1" connector.	
2	Power On	After few seconds, the B mode screen should appears as shown in ILLUSTRATION 4-1.
3	Rotate B/M Gain knob	Image gets lighter with CW rotation and darker with CCW.
4	Press Map key to select another gray scale Map.	The gray scale adjusts to each new Map selected.
5	Press Dyn Range Arrow up or down key.	At lower Dynamic Range settings, image speckle fades and prominent objects in the display are more pronounced from the background image.
6	Rotate Depth knob.	The depth of image should be increased /decreased.
7	Slide TGC potentiometers (pots)	Image grows darker or brighter at depth equivalent to pot's location.
8	Press Zoom . key. Press it again to exit.	The image should increase to X2 size.
9	Press Frame Avg key.	Image speckle fades and probe or wire movement is smeared.
10	Press Edge Enhc key.	The edges inside the focal area(s) should become lighter when you increase and darker as you decrease its value.
11	Press Reverse key.	The image reverses the left/right orientation.
12	Press Reverse key again.	The image reverses again.

4-2-1 Basic Controls (Continued)

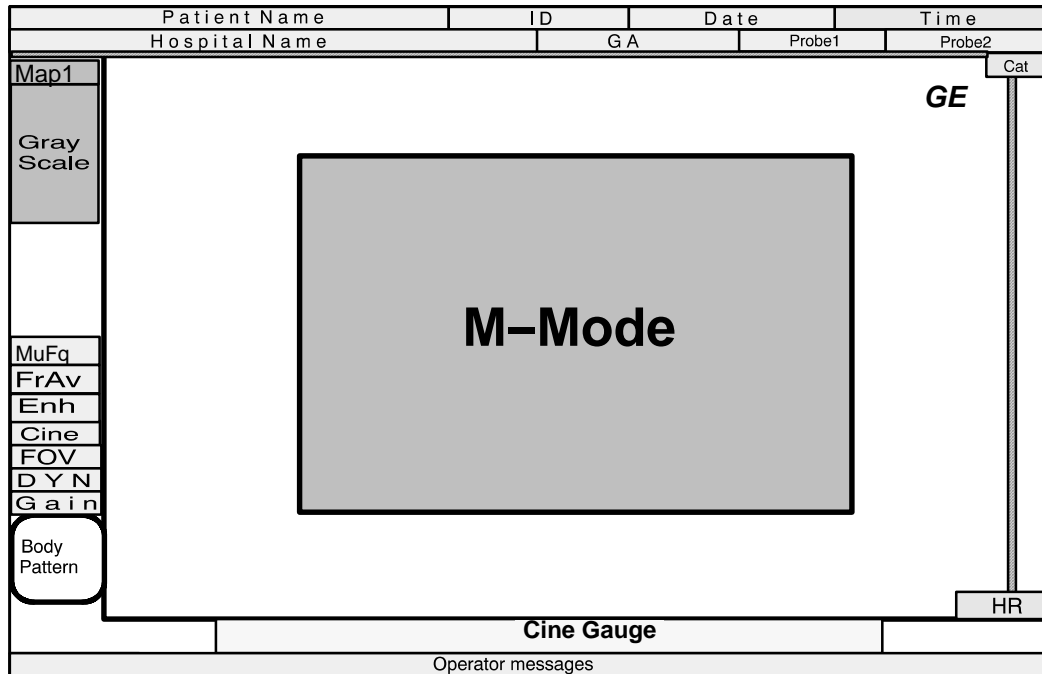


B-MODE DISPLAY SCREEN
ILLUSTRATION 4-1

4-2-2 M-Mode Check

Step	Check	Expected Result
13	Press M key. Roll trackball, position cursor over area you want to see in motion. Press M key again.	The M mode timeline should appear next to the B image as shown in ILLUSTRATION 4-2. Whether it takes half the screen or two-thirds depends on the preset. The Mode cursor should follow trackball movement and the timeline should update for new location of focus. The full M-mode should appear on the CRT monitor.
14	Rotate B/M Gain knob	The M timeline should get brighter with CW rotation and darker with CCW.
15	Press Dyn Range Arrow up or down key.	Dynamic Range affects grays and the last added scan mode; to adjust the basic B, M must be off. Turn Dynamic Range down to increase contrast, turn up to soften.
16	Press Sweep Speed key Press it again to exit.	The timeline speed should increase to 4 second sweeps and decrease to 16 second sweeps. Fast=4 Medium=8 Slow=16
17	Press Freeze key. Press it again to exit.	The image should freeze. The image revives acquisition.
18	Press Edge Enhc key.	Changes the M image
19	Press B key.	The M Mode timeline should disappear and the B-mode image should appear as shown in ILLUSTRATION 4-1.

4-2-2 M-Mode Check (Continued)



M-MODE DISPLAY SCREEN

ILLUSTRATION 4-2

Note

You can select several types of display formats by using the Setup Menu. For the Preset Menu, refer to Customizing Your System in the LOGIQ 200 PRO Series User Manual.

4-3 SMPS ADJUSTMENTS

This section provides SMPS adjustment procedures for the LOGIQ 200 PRO Series. Adjustments should be only made when necessary. SMPS adjustments should be made in accordance with the schedule for periodic maintenance in Chapter 7 of this manual.

Before beginning the SMPS adjustments procedure, make sure the power outlet conforms to the proper power line standards. Refer to Chapter 2, Installation.

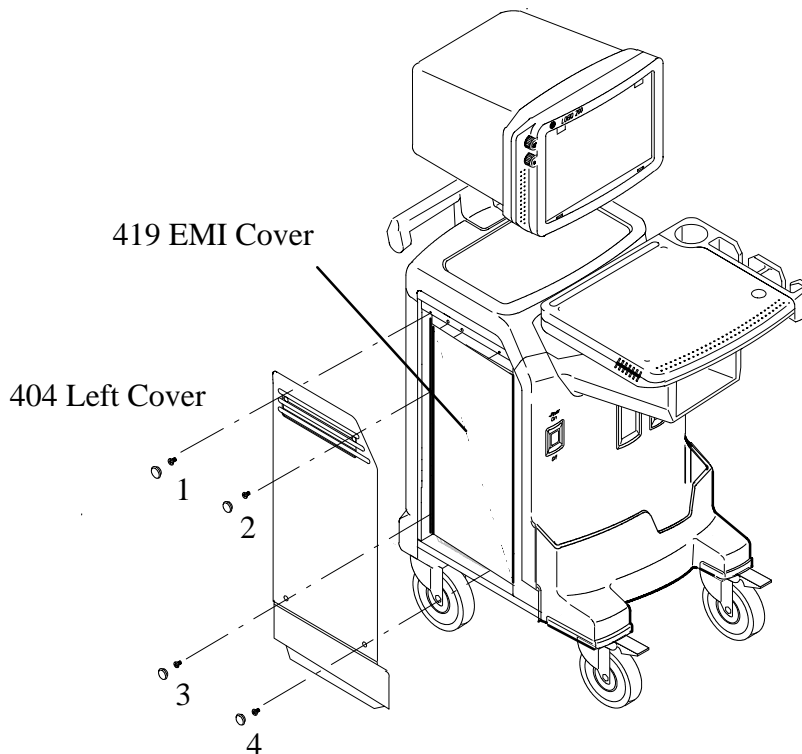
Note

If the adjustment pot is turned to far clockwise, the SMPS output shuts down to protect the circuits against the over-voltage. In that case, power the LOGIQ 200 PRO Series OFF and turn the pot counterclockwise all the way. Wait for 5 minutes for recovering of SMPS protection circuit. Then power it ON and try to adjust the SMPS again.

The SMPS Assy is in the bottom of the LOGIQ 200 PRO Series as shown in ILLUSTRATION 4-7.

4-3-1 SMPS Assy Access

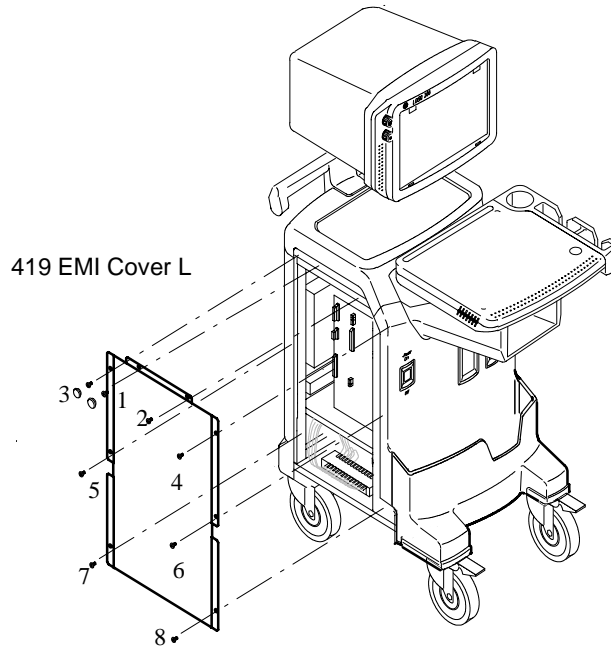
1. Remove the four screw caps and unscrew the screws to remove the Left Cover as shown in the ILLUSTRATION 4-3.



LEFT COVER REMOVAL
ILLUSTRATION 4-3

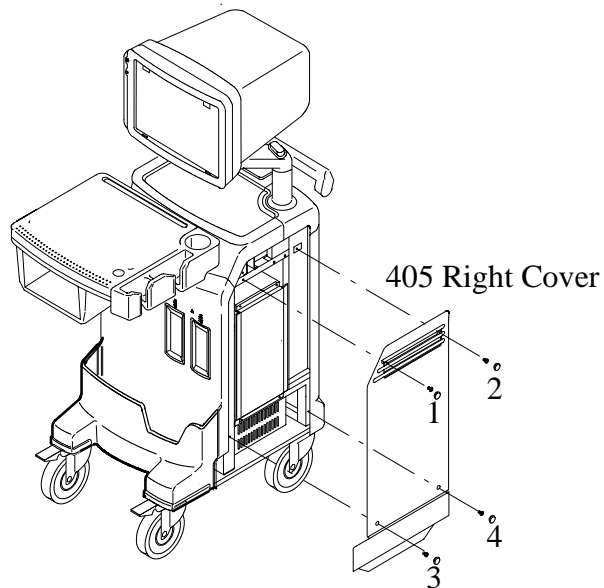
4-3-1 SMPS Assy Access (Continued)

- 2. Remove the EMI Cover L as shown in ILLUSTRATION 4-4.



EMI COVER REMOVAL
ILLUSTRATION 4-4

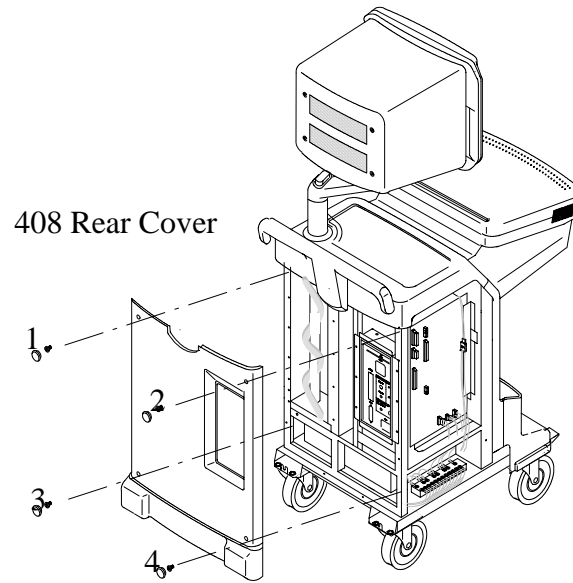
- 3. Remove the four screw caps and unscrew the screws to remove the Right Cover as shown in the ILLUSTRATION 4-5.



RIGHT COVER REMOVAL
ILLUSTRATION 4-5

4-3-1 SMPS Assy Access (Continued)

4. Remove the four screw caps and unscrew the screws to remove the Rear Cover as shown in the ILLUSTRATION 4-6.



REAR COVER REMOVAL
ILLUSTRATION 4-6

4-3-2 SMPS Adjustment Procedure

1. Power LOGIQ 200 PRO Series ON. Wait for about 30 seconds to warm up the console.
2. Connect a DVM to the appropriate place shown in Table 4-1.
3. Verify that the voltages are as shown in Table 4-2.

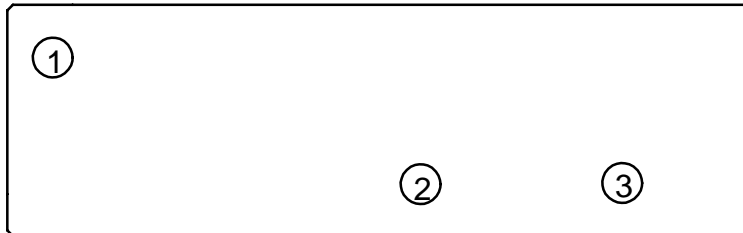
TABLE 4- 1
SMPS MEASUREMENT LOCATION

SMPS	MEASURE AT	RETURN AT	ADJUST AT
± 12V for ECG	ECG_12P, ECG_12M on MOTHER3 BD ASSY	AGND3 (Ground) on MOTHER3 BD ASSY	1 on SMPS ASSY See ILLUSTRATION 4-7
+12 for Monitor	MON_12P on MOTHER3 BD ASSY	AGND3 on MOTHER3 BD ASSY	3 on SMPS ASSY See ILLUSTRATION 4-7
+5V for Digital	VCC1 (+5V) on MVP BD ASSY	GND1 (GND) on MVP BD ASSY	2 on SMPS ASSY See ILLUSTRATION 4-7

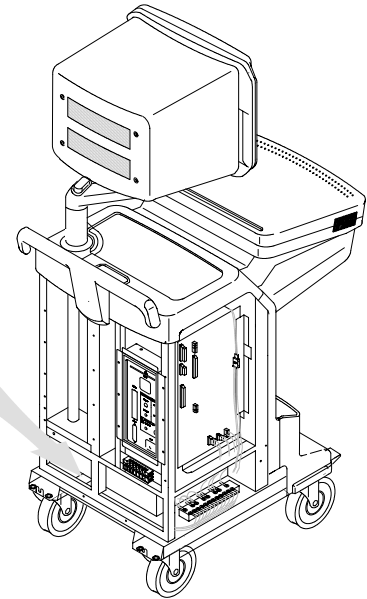
TABLE 4-2
SMPS MEASUREMENT TOLERANCES

SMPS	MIN	MAX
-5V, ± 12V for Analog	-4.8 V -12.6V +12.6 V	-5.2 V -11.4 V +11.4 V
+12 for Monitor	+11.8 V	+12.2 V
+5V for Digital and Analog	+4.8 V	+5.2 V

4-3-2 SMPS Adjustment Procedure (Continued)



1. Adjustment Point for -5V, ±12V SMPS
2. Adjustment Point for +5V SMPS
3. Adjustment Point for +12V SMPS



SMPS ASSY
ILLUSTRATION 4-7

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CHAPTER 5 – DIAGRAMS

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5-1 INTRODUCTION

LOGIQ 200 PRO Series is a compact ultrasound scanner supporting a wide range of probes. This gives the system added benefits and flexibility to meet diverse applications.

5-2 LOGIQ 200 PRO Series SYSTEM

The LOGIQ 200 PRO Series has a 48 channel beamformer that digitizes the RF signal. It uses digital delay to focus the acoustic beam. It offers parallel receive beam formation which can increase frame rate by a factor of two in time critical applications. This system also features many advanced image processing controls.

User surveys and the latest technology were used to increase console ease-of-use.

System Features

The key design goals of this system are:

- High Image Quality
- Increased User Productivity
- Multiple Clinical Applications
- Planned Upgradeability
- High Mobility

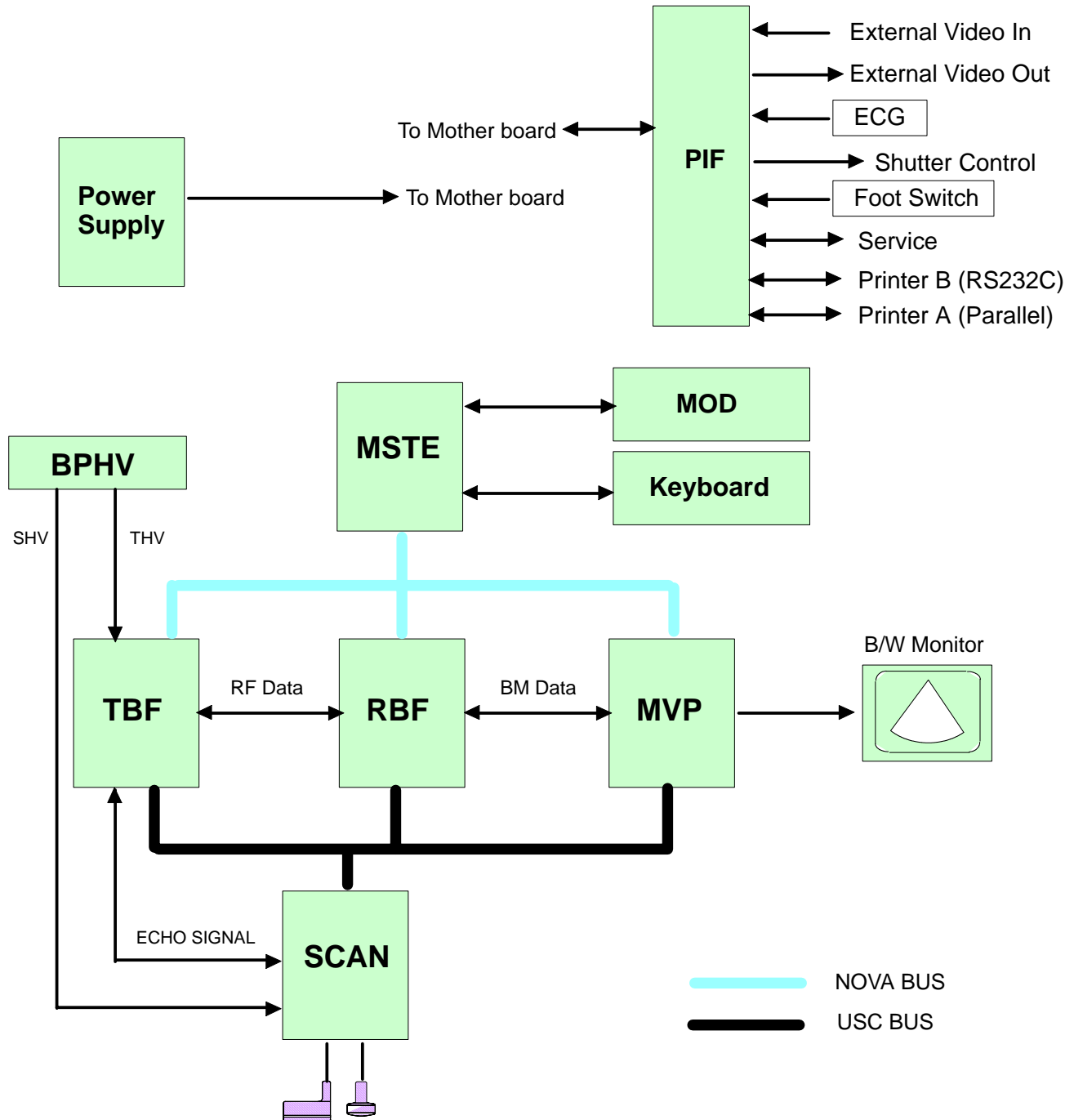
Types of Applications

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

- RAD/ABDOMEN
- OB/GYN
- UROLOGY
- SMALL PARTS
- UROLOGY
- CARDIOLOGY

See Illustration 5-1, the LOGIQ 200 PRO Series system can be divided into an beamforming section (from TBF to RBF assy) and an image reconstruction processing section (from MVP to MSTE). The beamforming section is to focus a RF signal in transmitting and receiving. Image reconstruction section converts the receiving scan data to some kinds of images that are B mode convex image, B-mode linear image, M-mode image. Another section has the microprocessor driven system control section, which controls the system based on operator commands and system status information.

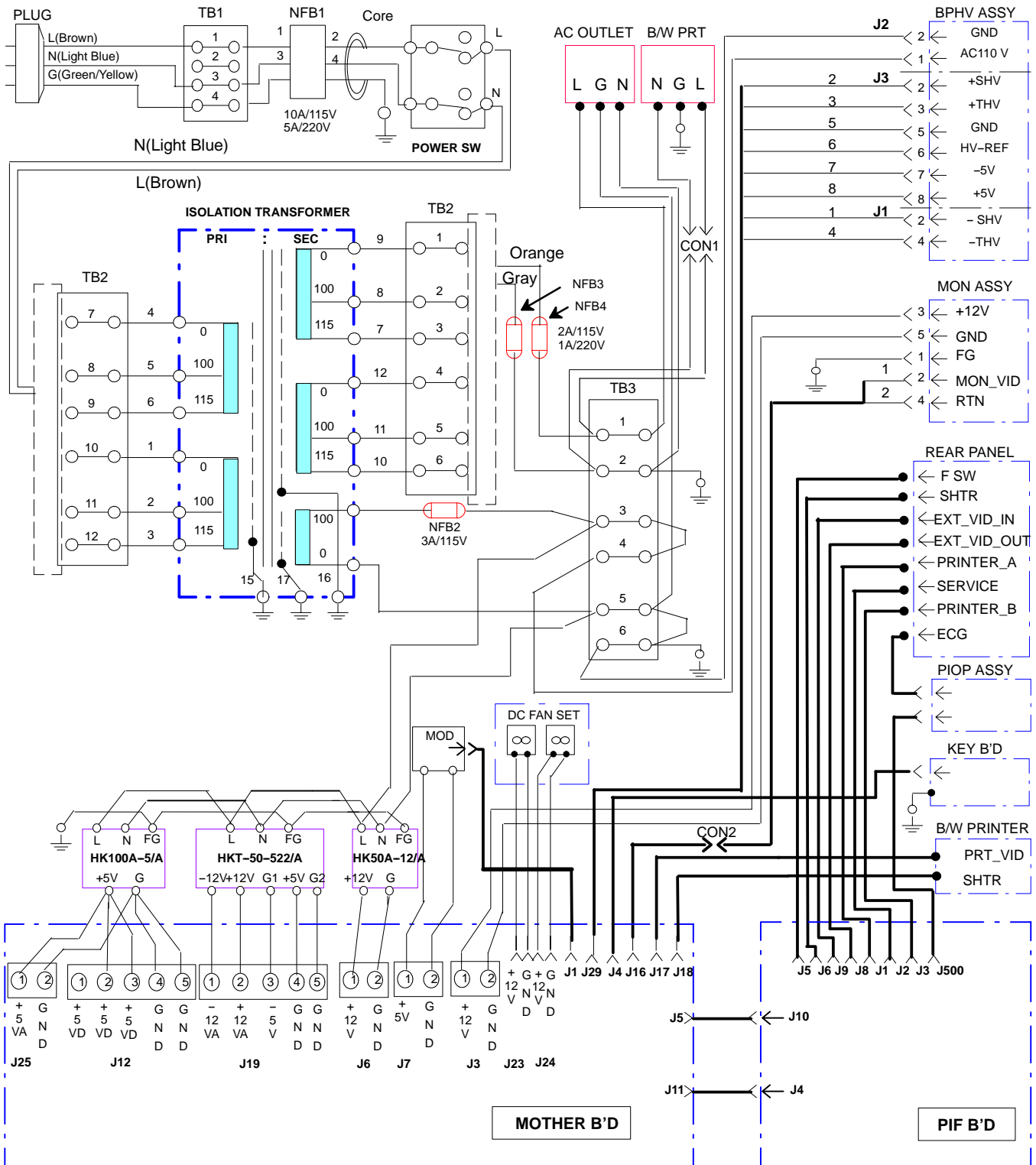
5-3 BLOCK DIAGRAM



LOGIQ 200 PRO Series SYSTEM BLOCK DIAGRAM

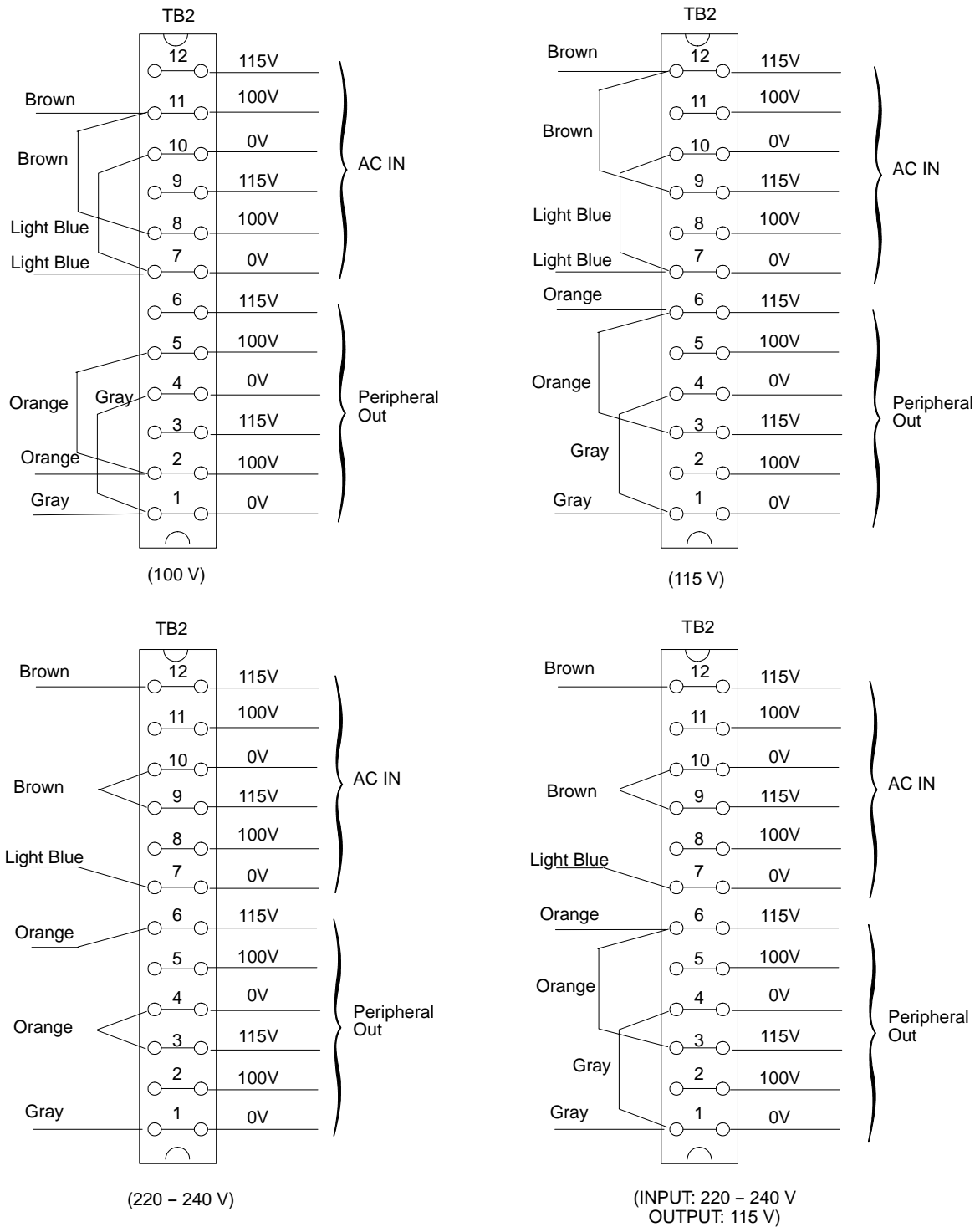
ILLUSTRATION 5-1

5-4 WIRING DIAGRAM



LOGIQ 200 PRO Series SYSTEM WIRING DIAGRAM
ILLUSTRATION 5-2

5-4 WIRING DIAGRAM (Continued)



LOGIQ 200 PRO Series SYSTEM WIRING DIAGRAM (CONTINUED)

ILLUSTRATION 5-3

5-5 CIRCUIT BOARD DESCRIPTION

The following table lists circuit boards and their respective card cage slot assignments on the mother board of the LOGIQ 200 PRO Series system.

TABLE 5- 1
CIRCUIT BOARD DESCRIPTION

CARD CAGE SLOT	BOARD NAME	DESCRIPTION	NOTE
1	TBF BD ASSY	Transmit Beam Former Board Assembly	
2	RBF BD ASSY	Receive Beam Former Board Assembly	
3	MVP BD ASSY	Multi-Function Video Processor Board Assembly	
4	MSTE BD ASSY	Master Enhanced Board Assembly	
	SCAN BD ASSY	Scan Board Assembly	
	BPHV BD ASSY	Bipolar High Voltage Board Assembly	
	MOTHER 3 ASSY	Motherboard Assembly	

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CHAPTER 6 – RENEWAL PARTS

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6-1 RENEWAL PARTS

LOGIQ 200 PRO Series

MATERIAL LIST (1)

PART NAME	PART NO.	QUANTITY										DESCRIPTION		
CONSOLE ASSY	2233819	1											220V, 4SW	VER. 3.0
CONSOLE ASSY	2242419		1										220V, 4SW	VER. 3.0
CONSOLE ASSY	2233820			1									100V, 4SW	VER. 3.0
CONSOLE ASSY	2233821				1								115V, 4SW	VER. 3.0
CONSOLE ASSY	2233822					1	1						220V, 4SW	VER. 3.0
CONSOLE ASSY	2233823							1	1				220V, 4SW	VER. 3.0
CONSOLE ASSY	2233824									1			115V, 2SW	VER. 3.0
CONSOLE ASSY	2233825										1		220V, 2SW	VER. 3.0
CONSOLE ASSY	2233826											1	220V, 2SW	VER. 3.0
PROBE CABLE ARM	2215992	1	1	1	1	1	1	1	1	1	1	1		
MOD INSTALL KIT	2235371									1	1	1	Include MOD	
MTZ INSTALL KIT	2242590												RIGHT & LEFT	
FOOT SWITCH ASSY	2162242									1	1	1		
CINE S/W	2242585	1		1	1		1	1		1	1	1		
PRINTER INSTALL KIT	2242589	1	1	1	1	1	1	1	1	1	1	1		
ATO S/W	2251544			1										
VINYL COVER	2235373			1										
INSITE KIT	2242586													
ADVANCED REF. MANUAL	2233222-100	1	1		1	1	1			1	1	1	English	
SERVICE MANUAL	2235374							1	1	1	1	1	English	
QUICK START GUIDE	2234974-100									1	1	1	English	
SONY B/W PRINTER	E8310KA									1	1	1		
ECG INSTALL KIT	2242584													
L500 ECG CABLES	P9509KH												Clip type	
ECG CABLE SET	2137161												Rod type	
ECG CABLE ASSY	P9509KG												Japan only, Clip type	
ECG CABLE ASSY	2137160												Japan only, Rod type	
KOREA (H43132LA)														
PHILIPPINES (H43132LK)														
JAPAN (H43132LB)														
TAIWAN (H43132LC)														
CHINA, HONGKONG, INDIA (H43132LD)														
SOUTHEAST ASIA, AUSTRALIA, NJ (H43132LD)														
CHILE (H43132LH)														
BRAZIL (H43132LG)														
USA (H43132LF)														
EUROPE (H43132LL)														
EUROPE (H43132LE)														

6-1 RENEWAL PARTS (Continued)

LOGIQ 200 PRO Series
MATERIAL LIST (2)

PART NAME	PART NO.	QUANTITY										DESCRIPTION			
CONSOLE ASSY	2270964	1											220V, 4SW	VER. 3.1	
CONSOLE ASSY	2270972		1										220V, 4SW	VER. 3.1	
CONSOLE ASSY	2270965			1									100V, 4SW	VER. 3.1	
CONSOLE ASSY	2270966				1								115V, 4SW	VER. 3.1	
CONSOLE ASSY	2271424					1							220V, 4SW	VER. 3.1	
CONSOLE ASSY	2270967						1						220V, 4SW	VER. 3.1	
CONSOLE ASSY	2270968							1	1				220V, 4SW	VER. 3.1	
CONSOLE ASSY	2270969									1			115V, 2SW	VER. 3.1	
CONSOLE ASSY	2270970										1		220V, 2SW	VER. 3.1	
CONSOLE ASSY	2270971											1		220V, 2SW	VER. 3.1
PROBE CABLE ARM	2215992	1	1	1	1	1	1	1	1	1	1	1			
MOD INSTALL KIT	2235371			1							1	1	1	Include MOD	
MTZ INSTALL KIT	2242590													RIGHT	
MTZ INSTALL KIT	2242591													LEFT	
FOOT SWITCH ASSY	2162242										1	1	1		
CINE S/W	2242585	1		1		1	1	1			1	1	1		
PRINTER INSTALL KIT	2242589	1	1	1	1	1	1	1	1	1	1	1	1		
ATO S/W	2251544			1											
VINYL COVER	2235373			1											
INSITE KIT	2242586														
ADVANCED REF. MANUAL	2233222-100	1	1		1	1	1				1	1	1	English	
SERVICE MANUAL	2235374							1	1		1	1	1	English	
QUICK START GUIDE	2234974-100										1	1	1	English	
SONY B/W PRINTER	E8310KA										1	1	1		
ECG INSTALL KIT	2242584														
KOREA (H43142LA)															
PHILIPPINES (H43142LK)															
JAPAN (H43142LB)														CHILE (H43142LH)	
TAIWAN (H43142LC)														BRAZIL (H43142LG)	
INDIA (H43142LM)														USA (H43142LF)	
SEA, AUS, NJ, CHINA, HONGKONG (H43142LD)														EUROPE (H43142LL)	
														EUROPE (H43142LE)	

OPERATOR CONSOLE ASSY

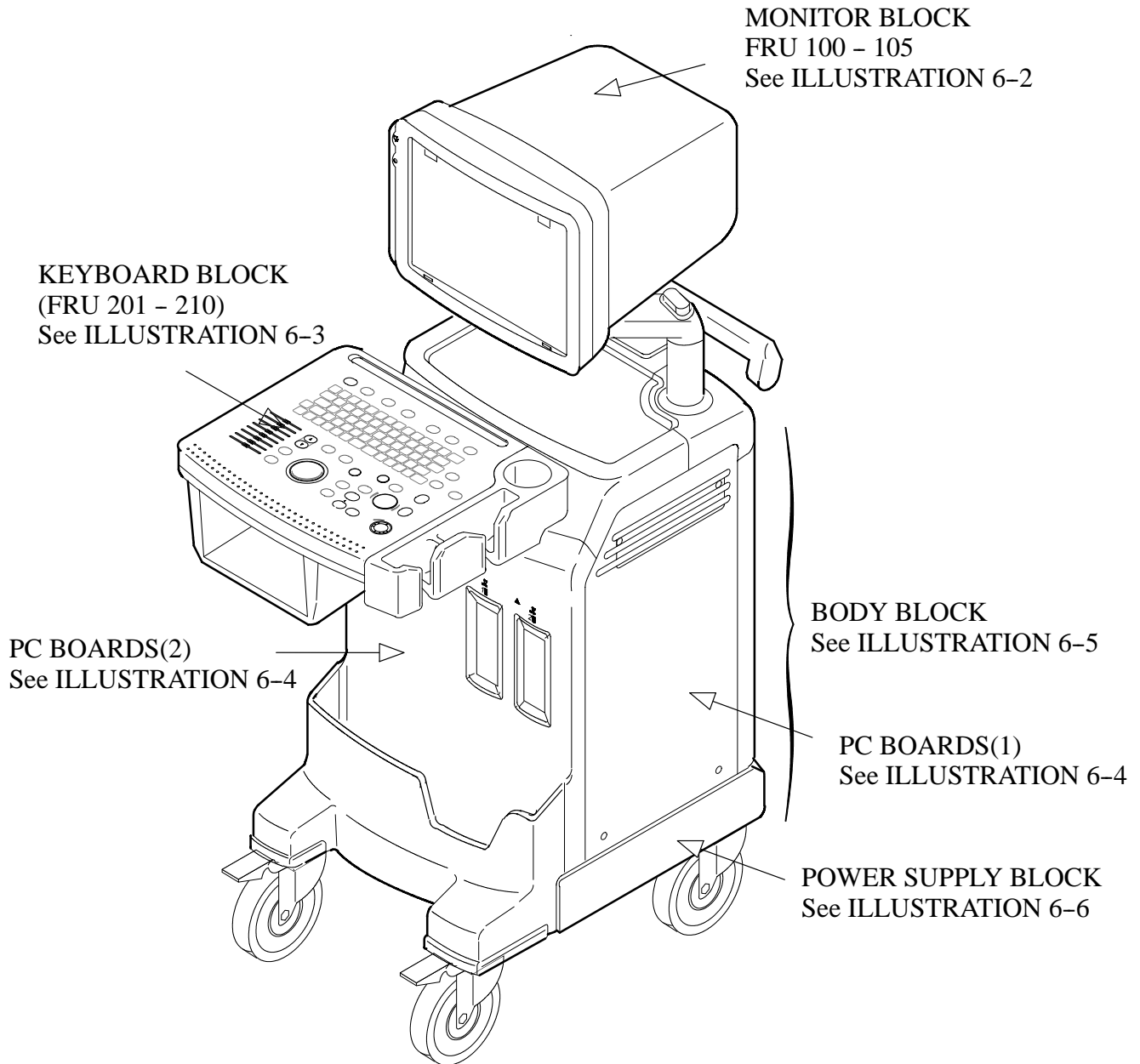


ILLUSTRATION 6-1

OPERATOR CONSOLE ASSY 1/7

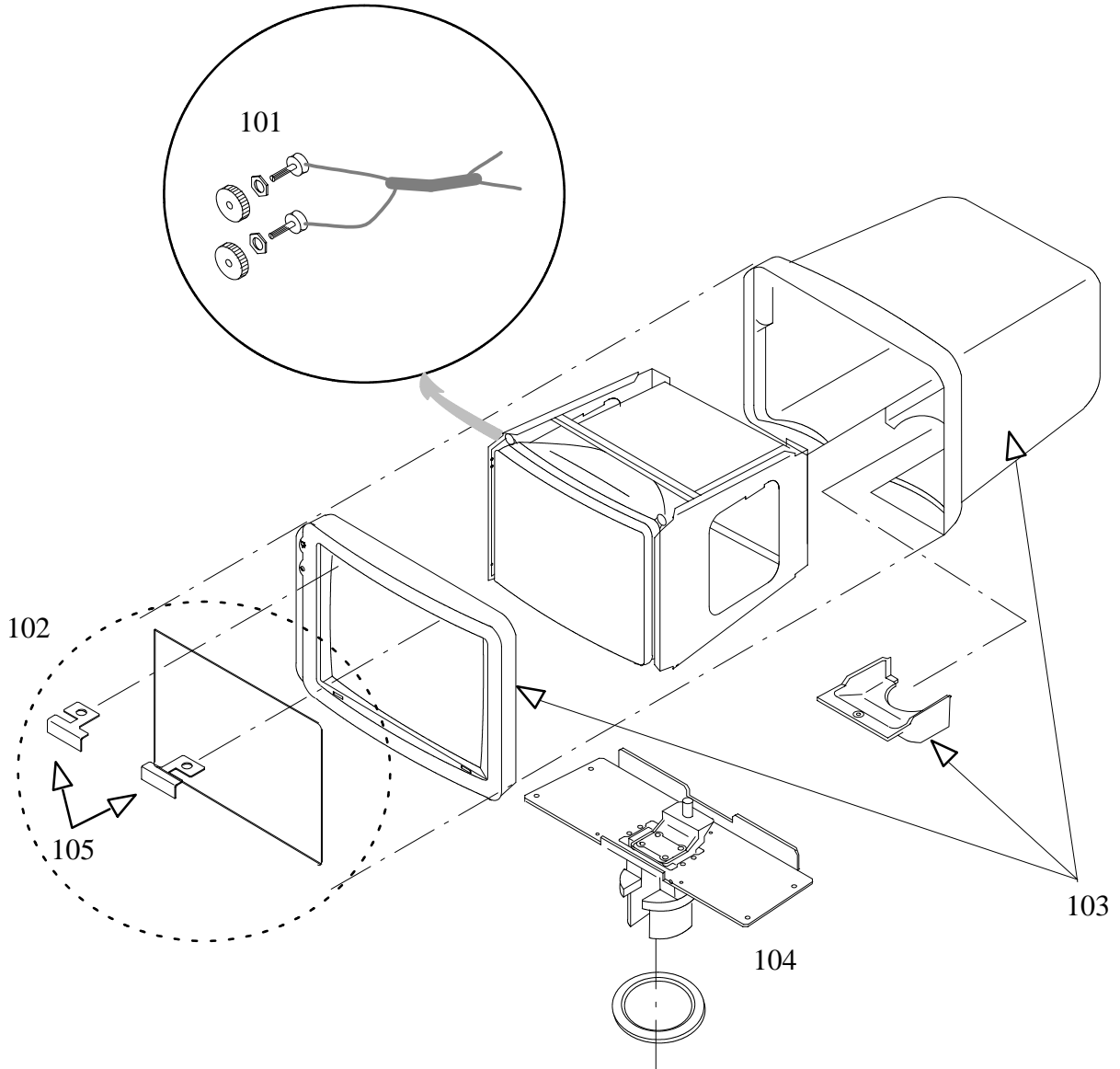


ILLUSTRATION 6-2

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (1/8)

FRU NO.	PART NAME	PART NO	QTY	FRU	DESCRIPTION	SECTION FOR REFERENCE
100	MONITOR ASSY	2235375-3	1	1	Including Caution Label, Glass Filter	6-2-1
	MONITOR ASSY	2235376-3	1	1	Including Caution Label , Plastic Filter	6-2-1
	MONITOR ASSY	2249964-3	1	1	Including Caution Label, For JAPAN only	6-2-1
101	POT SET ASSY	2148193	1	2	Bright and Contrast, Include Knob	6-2-2
102	CRT FILTER (PLASTIC)	2251535	1	2	Include 2 brackets	6-2-3
	CRT FILTER (GLASS)	2175438	1	2	Include 2 brackets For USA, Brazil, Chile,	6-2-3
103	MONITOR COVER SET	2235385	1	2	For Plastic Filter	6-2-4
	MONITOR COVER SET	2249415			For Glass Filter	6-2-4
	MONITOR COVER SET	2249966			For Japan only	6-2-4
104	TILT ASSY	2249414	1	2		6-2-5
105	FILTER CLAMP SET	2214397	1	2	For Plastic Filter	6-2-6
		2214398			For Glass Filter	

OPERATOR CONSOLE ASSY 2/7

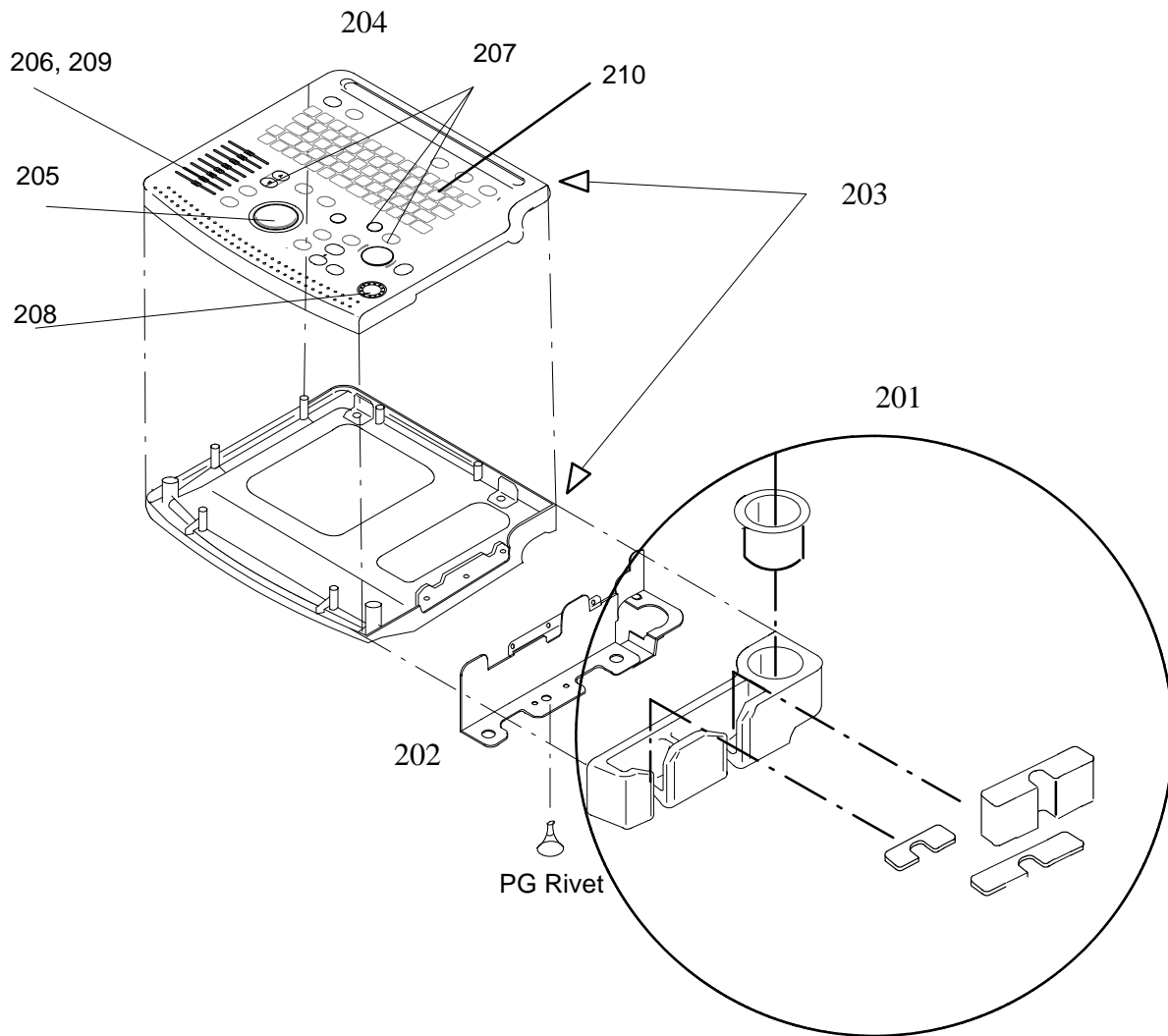


ILLUSTRATION 6-3

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (2/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
201	PROBE HOLDER	2175439	1	2	Include Probe Cup Holder and Probe Sheet	6-2-7
202	HOLDER BRACKET ASSY	2148199	1	2	Include PG Rivet	6-2-8
203	COVER SET	2235384	1	2		6-2-9
204	KEY BOARD ASSY	2235386-2	1	1	Include FRU 205-210	6-2-10
205	TRACKBALL ASSY	2235387	1	2		6-2-11
206	TGC ASSY	2235388-2	1	2		6-2-12
207	ENCODER SET	2235390	1	2	3 Knobs	6-2-13
208	FREEZE/RECORD KEY ASSY	2235391	1	2		6-2-14
209	TGC KNOB SET	2214594	1	2	8 Knobs	6-2-15
210	RUBBER KEY SET	2249182	1	1		6-2-16

OPERATOR CONSOLE ASSY 3/7

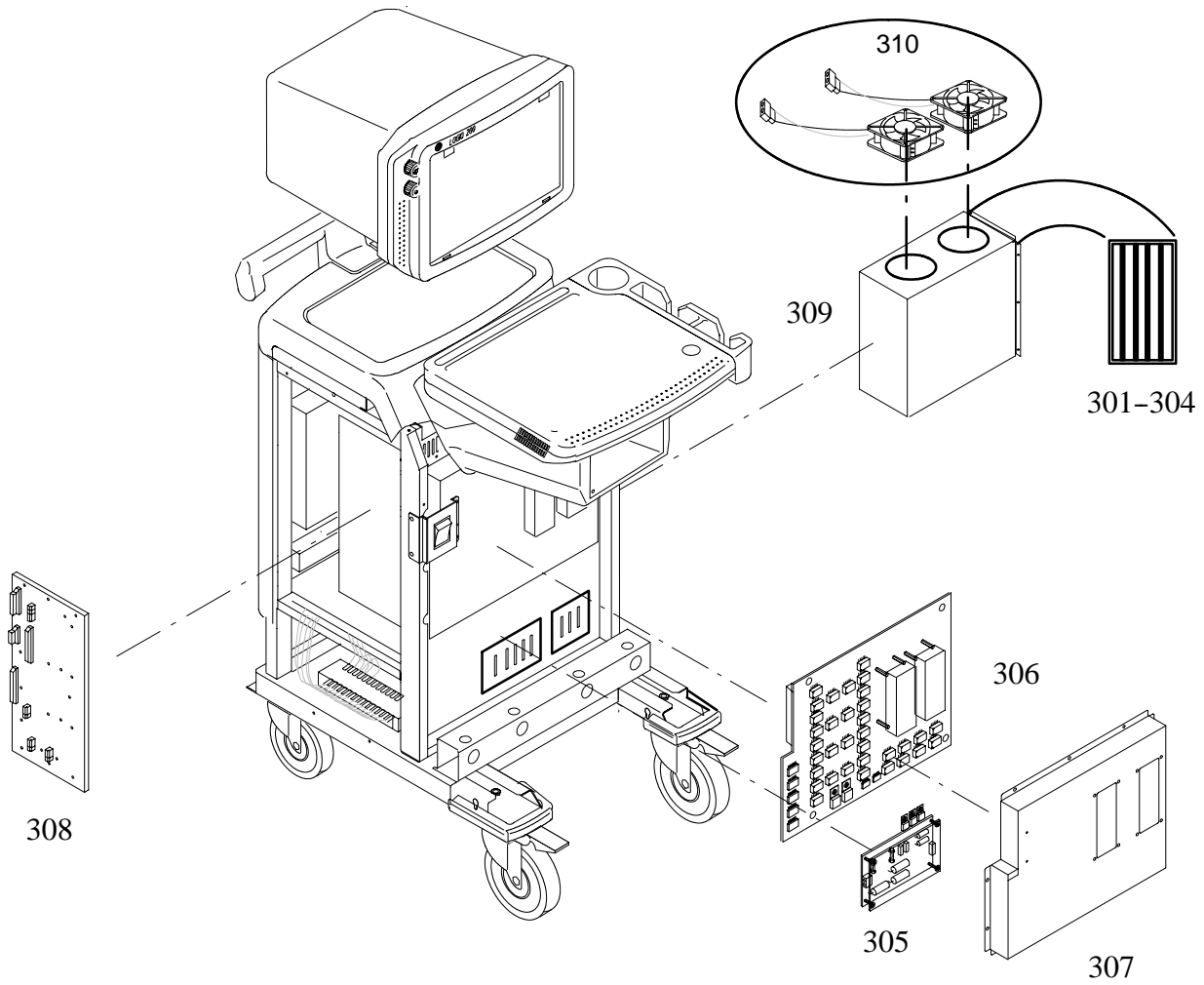


ILLUSTRATION 6-4

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

**2233819 – 2233826
2270964 – 2270972, 2271424**

**: V3.0
: V3.1**

MATERIAL LIST (3/8)

FRU NO.	PART NAME	PART NO	QTY	FRU	DESCRIPTION	SECTION FOR REFERENCE
301	TBF ASSY	2216833-2	1	1	software ver 3.02 or later	6-2-17
302	RBF ASSY	2216835-2	1	1		
303	MVP ASSY	2233428-3	1	1	software ver 3.05 or later	
		2266029-3	1	1	software ver 3.15 or later	
304	MSTE ASSY	2216832-9	1	1	software ver 3.06b	
		2266030-10	1	1	software ver 3.17a	
305	BPHV ASSY	2240652	1	1	Include Bracket	6-2-18
306	SCAN ASSY	2217956	1	1	Include Bracket Probe	6-2-19
307	SHIELD PANEL	2240645	1	2		6-2-20
308	MOTHER3 ASSY	2220786-2	1	1		6-2-21
309	NEST BOX	2235392	1	2		6-2-22
310	DC FAN ASSY	2244961	1	1	2 fans	6-2-23

OPERATOR CONSOLE ASSY 4/7

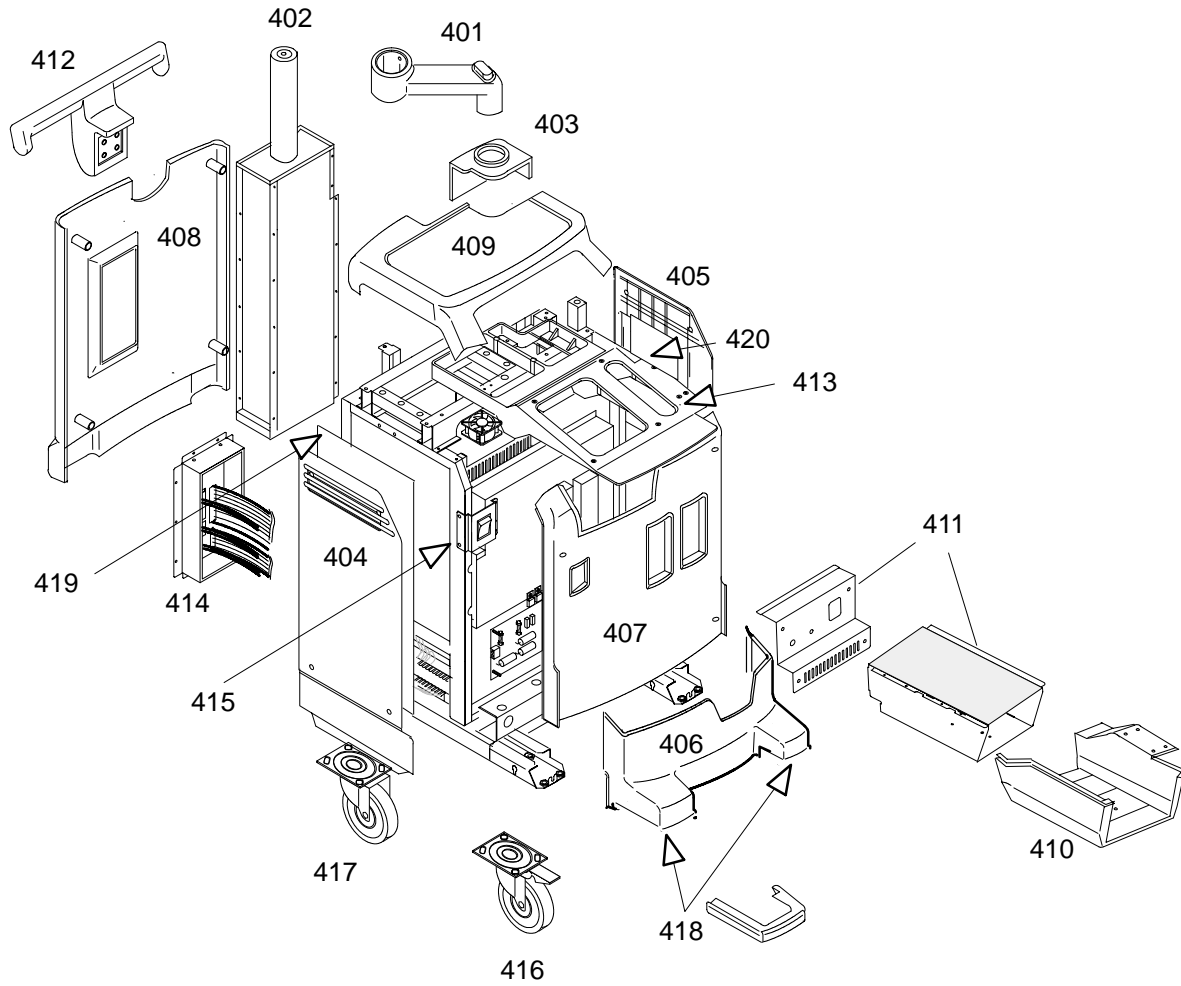


ILLUSTRATION 6-5

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

**2233819 – 2233826
2270964 – 2270972, 2271424**

**: V3.0
: V3.1**

MATERIAL LIST (4/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
401	SWING ARM ASSY	2148212	1	1		6-2-24
402	PIPE ASSY	2256761	1	1	Include Cable Assy	6-2-25
403	POLE COVER	2148214	1	2	Include Cover Pole, Curtain Pole	6-2-26
404	LEFT COVER	2235396	1	1		6-2-27
405	RIGHT COVER	2235397	1	1		6-2-28
406	FRONT BASE COVER	2148217	1	1		6-2-29
407	FRONT COVER	2148218-2	1	1		6-2-30
408	REAR COVER	2175441	1	2	Include Caution Label	6-2-31
409	TOP COVER	2158086	1	1		6-2-32
410	PRINTER COVER SET	2235395	1	2		6-2-33
411	PRINTER BRACKET ASSY	2242780	1	2	For Korea, Taiwan, Phillipines, USA, Chile	6-2-34
	PRINTER BRACKET ASSY	2242781	1	2	For Japan	
	PRINTER BRACKET ASSY	2242782	1	2	For China, Hongkong, Southeast Asia, India, Australia, Europe, Brazil	

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

**2233819 – 2233826
2270964 – 2270972, 2271424**

**: V3.0
: V3.1**

MATERIAL LIST (4/8)(Continued)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
412	REAR HANDLE	2148222	1	2		6-2-35
413	NECK FRAME	2148223-2	1	2		6-2-36
414	REAR PANEL ASSY	2240733	1	1	For Korea, Taiwan, Philippines, USA, Chile	6-2-37
	REAR PANEL ASSY	2240734	1	1	For Japan	
	REAR PANEL ASSY	2240735	1	1	For China, Hongkong, Southeast Asia, India, Australia, Europe, Brazil	
415	POWER S/W ASSY	2148226	1	1		6-2-38
416	FRONT CASTER	2192111	2	1		6-2-39
417	REAR CASTER	2192112	2	1	Swivel For Japan, Taiwan, Philippines, China, Hongkong, Southeast Asia, India, Australia, Europe	6-2-40
	REAR CASTER	2192113	2	2	Fixed For USA, Brazil, Chile	
418	BUMPER SET	2148230	1	2		6-2-41
419	EMI COVER L	2169025	1	2		6-2-42
420	PCB GUIDE ASSY	2169263	1	2		6-2-43

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OPERATOR CONSOLE ASSY 5/7

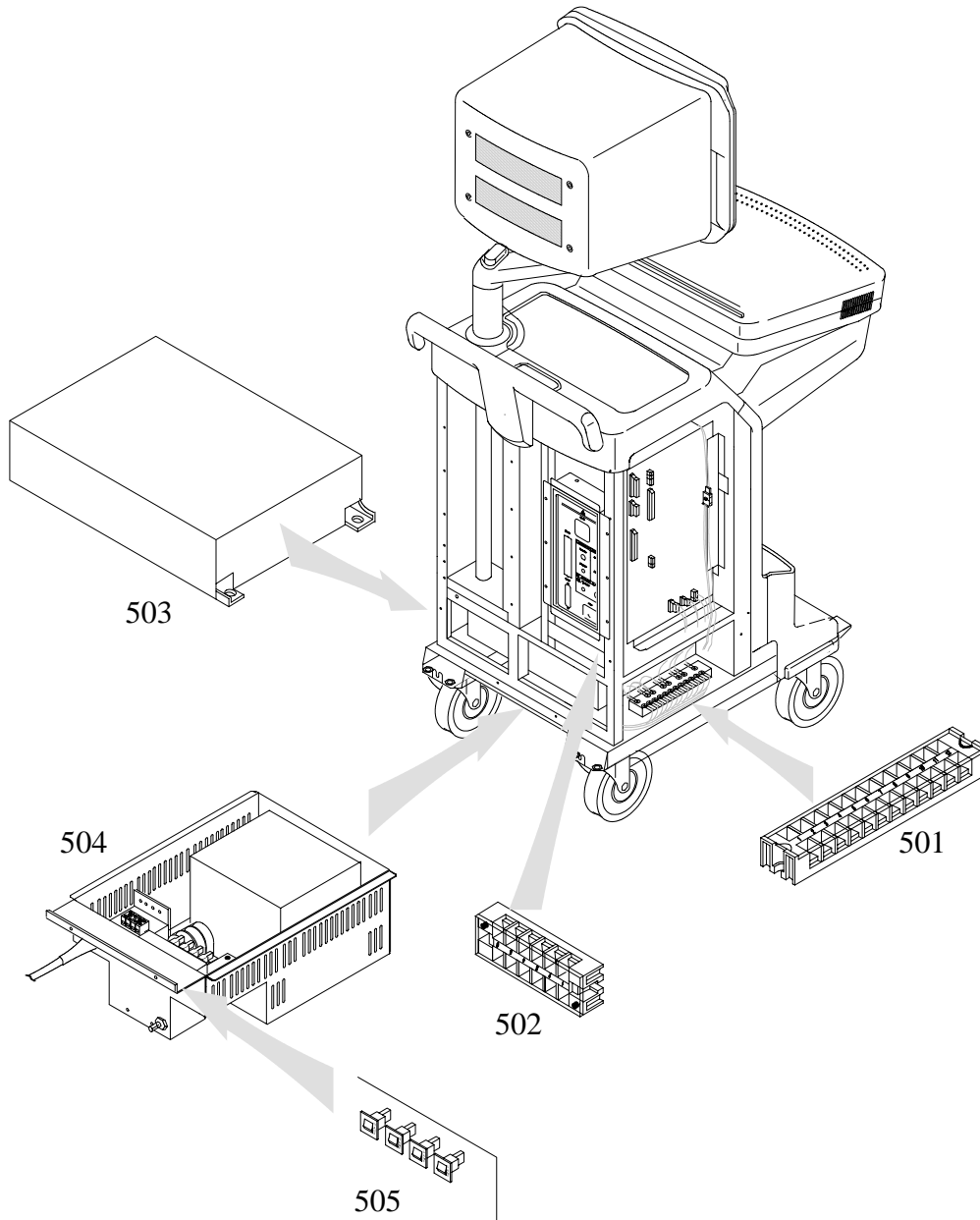


ILLUSTRATION 6-6

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (5/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
501	TERMINAL BLOCK 12 ASSY	2148231	1	2	12 pins	6-2-44
502	TERMINAL BLOCK 6 ASSY	2248909	1	2	6 pins	6-2-45
503	SMPS ASSY	2235398	1	1		6-2-46
504	POWER TRANS ASSY (INPUT:220V-OUTPUT:115V)	2243660	1	1	For Korea, Chile, Phillippines	6-2-47
	POWER TRANS ASSY (INPUT:100V-OUTPUT:100V)	2243661	1	1	For Japan	
	POWER TRANS ASSY (INPUT:115V-OUTPUT:115V)	2243662	1	1	For Taiwan, USA	
	POWER TRANS ASSY (INPUT:220V-OUTPUT:220V)	2243664	1	1	For China, Hongkong, India, Southeast Asia, Australia, Europe, Brazil	
505	CIRCUIT BREAKER SET	2174991	1	1	2A(2),3A, 5A , For Korea, Chile, Phillippines	6-2-48
	CIRCUIT BREAKER SET	2174992	1	1	2A(2), 3A, 10A For Japan, Taiwan, USA	
	CIRCUIT BREAKER SET	2174993	1	1	1A(2), 3A, 5A For China, Hongkong, India, Southeast Asia, Australia, Europe, Brazil	

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (6/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
601	CABLES SET	2235401	1	1	CABLES for Boards, Power Switch and Cable Tie.	—
602	HARDWARE SET	2235402	1	2	Screws, Washers, Nuts, Cable Tie, Screw Cap...	—
603	CABLE HOOK ARM SET	2170597	1	2	Include Washer	—
604	TOP COVER SHEET	2158087	1	2		—
605	FUSE SET	2249717-2	1	1	BPHV-1A250V, 0.5A250V Monitor-3A 250V	6-

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (7/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	SECTION FOR REFERENCE
701	CBF PROBE	P9603AD	1	1		—
		P9603AA	1	1	For Japan Only	—
702	CAE PROBE	P9603AE	1	1		—
		P9603AB	1	1	For Japan Only	—
703	MTZ PROBE	P9603AU	1	1	Not Include MTZ HOLDER ASSY	—
		P9603AL	1	1	Not Include MTZ HOLDER ASSY For Japan Only	—
704	CZB PROBE	2152422	1	1		—
		2152402	1	1	For Japan Only	—
705	LH PROBE	P9601AS	1	1		—
		P9601AC	1	1	For Japan Only	—
706	LE PROBE	P9601AR	1	1		—
		P9601AB	1	1	For Japan Only	—
707	LI PROBE	P9601AW	1	1		—
		P9601AG	1	1	For Japan Only	—
708	LT PROBE	P9601AX	1	1		—
		P9601AJ	1	1	For Japan Only	—
709	LB PROBE	P9601AQ	1	1		—
		P9601AA	1	1	For Japan Only	—
710	LD PROBE	2124317	1	1		—
		P9601AD	1	1	For Japan Only	—
711	CS PROBE	2202320	1	1		—
		2202315	1	1	For Japan Only	—
712	10Lb PROBE	H45202LM	1	1		—
713	ERB PROBE	H45202ER	1	1		—
714	3C PROBE	H45202WB	1	1		—
715	S317 PROBE	H45202SD	1	1		—

**LOGIQ 200 PRO Series
OPERATOR CONSOLE ASSY**

2233819 – 2233826
2270964 – 2270972, 2271424

: V3.0
: V3.1

MATERIAL LIST (8/8)

FRU NO.	PART NAME	PART NO	QTY.	FRU	DESCRIPTION	REFEREN CE
717	FOOT SWITCH ASSY	2162242	1	2		
718	RIGHT MTZ OPTION INSTALL KIT	2242590	1	2		
719	B/W PRINTER INSTALL KIT	2242589	1	2	FOR B/W PRINTER	
720	ECG INSTALL KIT	2242584	1	2		
721	CINE S/W	2242585	1	2		
722	INSITE INSTALL KIT	2242586	1	2		
723	PROBE CABLE ARM INSTALL KIT	2215992	1	2		
724	MOD INSTALL KIT	2235371	1	2		8-1
725	ATO S/W	2251544	1	2		
726	PIOP2 ASSY	2181871	1	2		
727	LEFT MTZ OPTION INSTALL KIT	2242591	1	2		
728	MOD ASSY	2242409	1	2		8-1
729	VER 3.16 UPGRADE KIT	2273388	1	2	Version between 3.10 to 3.15	

6-2 DISASSEMBLY/RE-ASSEMBLY**WARNING!**

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

CAUTION

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

CAUTION

Do NOT unplug the power cord before turning OFF the power switch.

6-2-1 Monitor Assy (FRU No. 100)**Time Required**

5 Minutes

Tool Required

Screwdriver

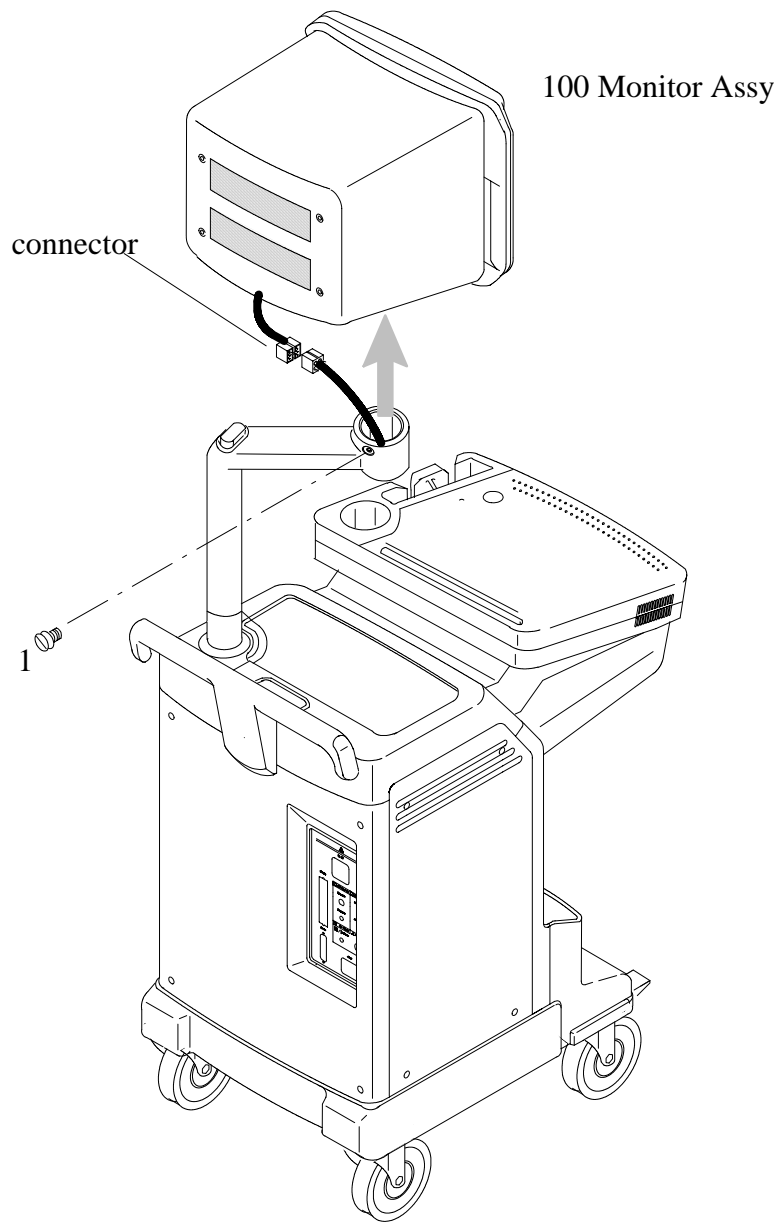
Procedure

PERSONAL INJURY HAZARD. VIDEO MONITOR SUPPORT ARM IS SPRING LOADED. RELEASING ARM WHEN MONITOR IS NOT INSTALLED WILL CAUSE SUDDEN UPWARD MOVEMENT. KEEP YOUR HEAD AND BODY AWAY FROM ABOVE VIDEO MONITOR SUPPORT ARM.

Refer to ILLUSTRATION 6-7.

1. Turn OFF the system.
2. Lift and set the Monitor to the highest position by pushing down the Up/down Release Button located on the Swing Arm Assy.
3. Remove the Monitor Bottom Cover. Refer to 6-2-4.
4. Disconnect the connector.
5. Unscrew one screw (1).
6. Pull the Monitor Assy upwards.

6-2-1 Monitor Assy (FRU No. 100) (Continued)



MONITOR ASSY DISASSEMBLY
ILLUSTRATION 6-7

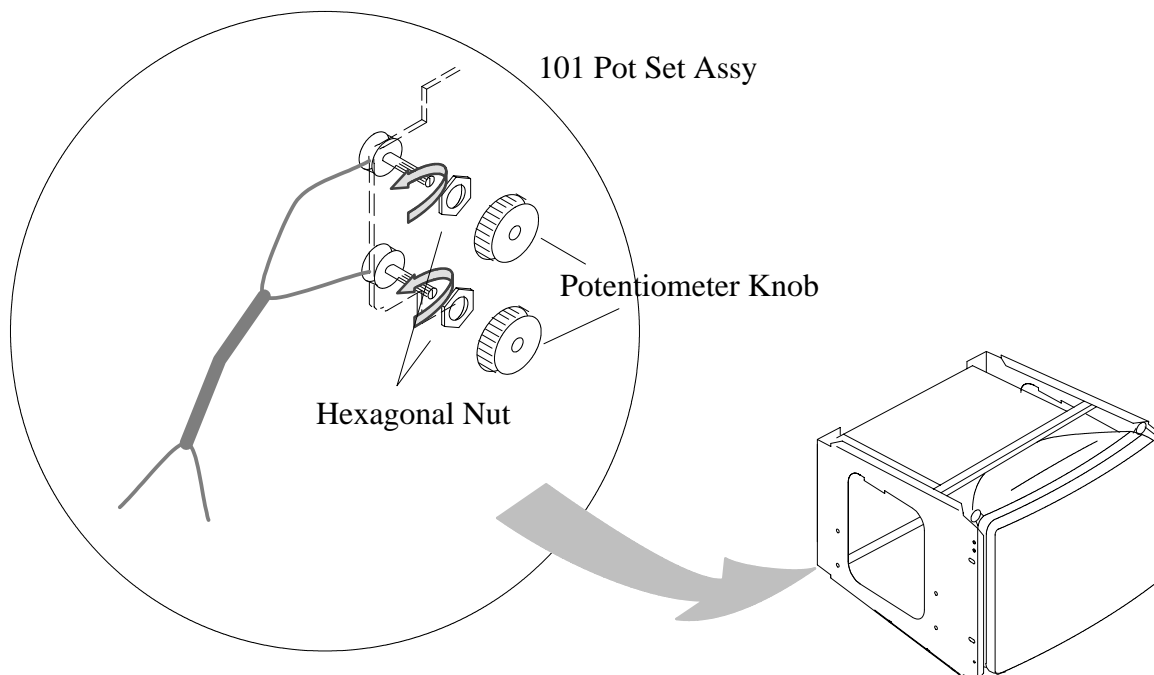
6-2-2 Pot Set Assy (FRU No. 101)**Time Required**

6 Minute

Tool RequiredScrewdriver
Soldering Iron**Procedure**

Refer to ILLUSTRATION 6-8.

1. Turn OFF the system.
2. Remove the Monitor Cover Set. Refer to 6-2-4.
3. Remove two Potentiometer Knob and unscrew two hexagonal nuts on each Pot.
4. Unscrew four screws (1 - 4) and remove the EMI Cover and PCB.
5. Remove the wire from PCB with Soldering Iron.
6. Remove the Pot Set Assy.

**POT SET DISASSEMBLY**
ILLUSTRATION 6-8

6-2-3 CRT Filter(FRU No. 102)**Time Required**

2 Minutes

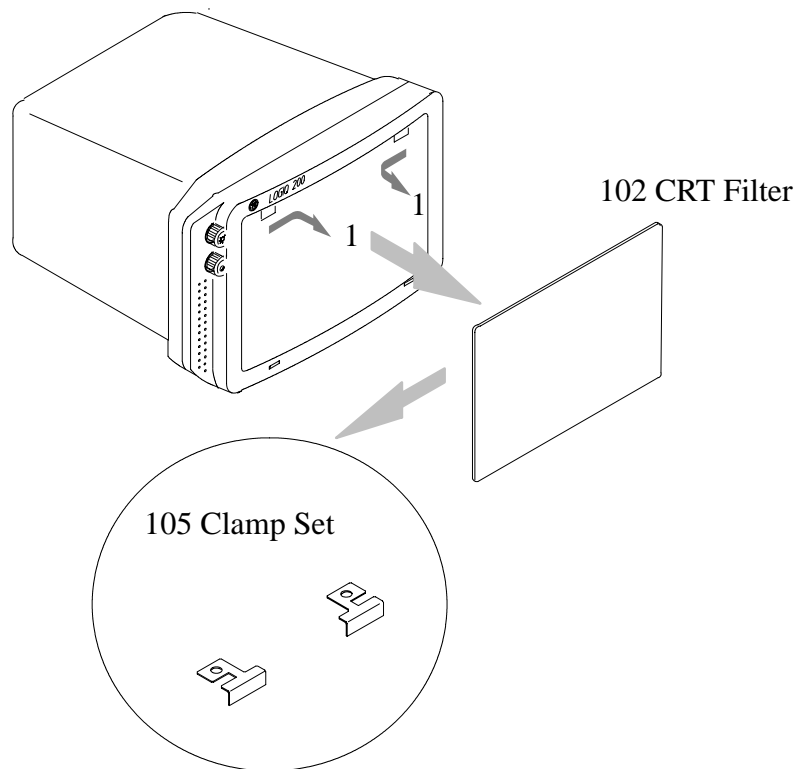
Tool Required

Not necessary

Procedure

Refer to ILLUSTRATION 6-9.

1. Turn OFF the system.
2. Push the two Filter Clamp Assy inward (1) as shown in ILLUSTRATION 6-9 and remove Filter Clamp Assy.
3. Pull forward CRT Filter.



CRT FILTER DISASSEMBLY
ILLUSTRATION 6-9

6-2-4 Monitor Cover Set (FRU No. 103)

Time Required

4 Minutes

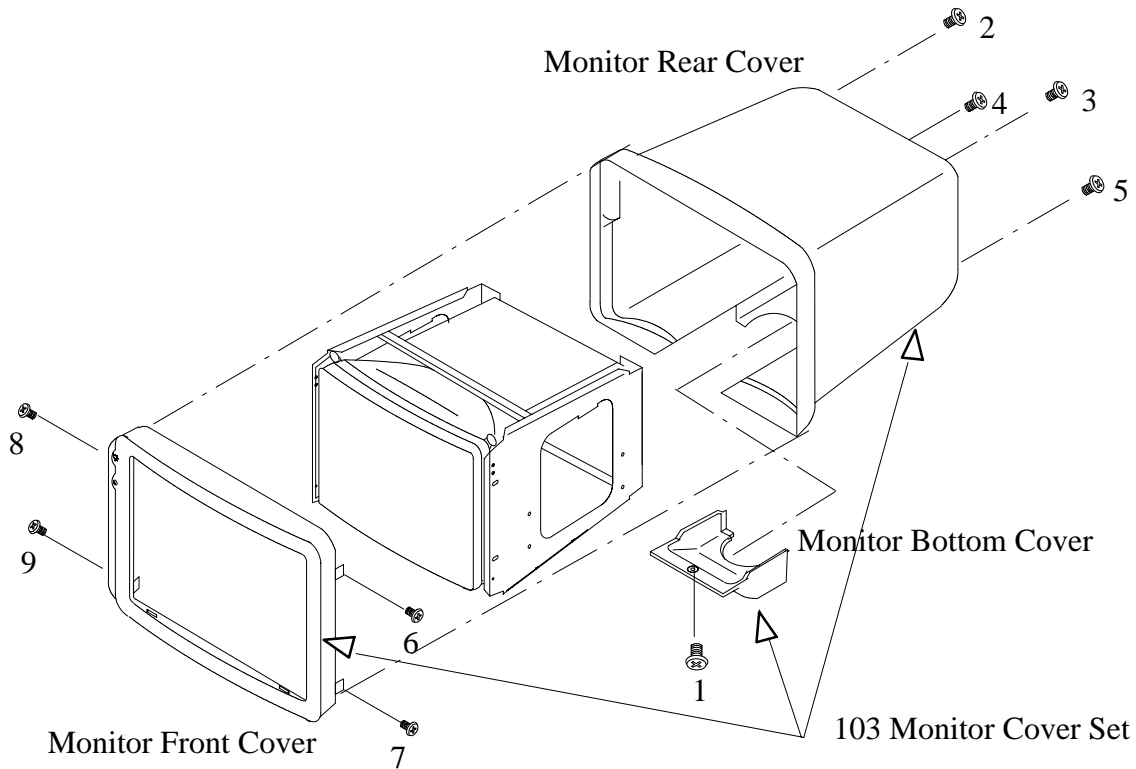
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-10.

1. Turn OFF the system.
2. Lift and set the Monitor to the highest position by pushing down the Up/down Release Button located on the Swing Arm Assy.
3. Unscrew one screws (1) and remove the Monitor Bottom Cover.
4. Unscrew four screws (2 – 5) and remove the Monitor Rear Cover.
5. Unscrew four screws (6 – 9) and remove the Monitor Front Cover.



MONITOR COVER ASSY DISASSEMBLY

ILLUSTRATION 6-10

6-2-5 Tilt Assy(FRU No. 104)**Time Required**

8 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-11.

1. Turn OFF the system.
2. Remove the Monitor Assy (FRU No. 100) from the Swing Arm Assy. Refer to 6-2-1.
3. Remove the Monitor Rear Cover. Refer to 6-2-4.
4. Unscrew four screws (1 - 4).
5. Remove the Tilt Assy.

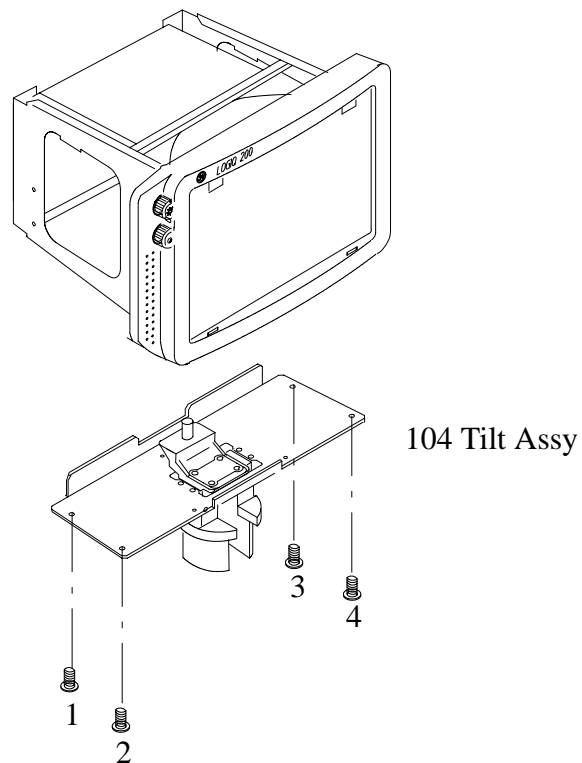
**TILT ASSY DISASSEMBLY**

ILLUSTRATION 6-11

6-2-6 Filter Clamp Set (FRU No. 105)**Time Required**

6 Minutes

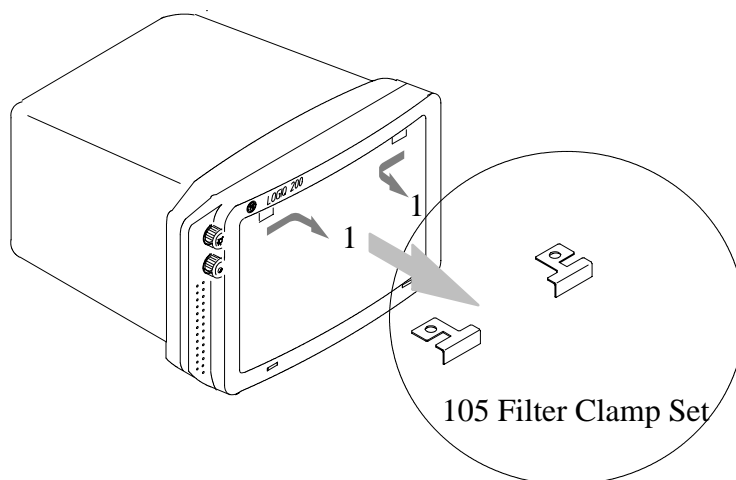
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-9.

1. Turn OFF the system.
2. Push the two Filter Clamp Assy inward (1) as shown in ILLUSTRATION 6-12 and remove Filter Clamp Assy.



FILTER CLAMP SET DISASSEMBLY
ILLUSTRATION 6-12

6-2-7 Probe Holder (FRU No. 201)**Time Required**

2 Minutes

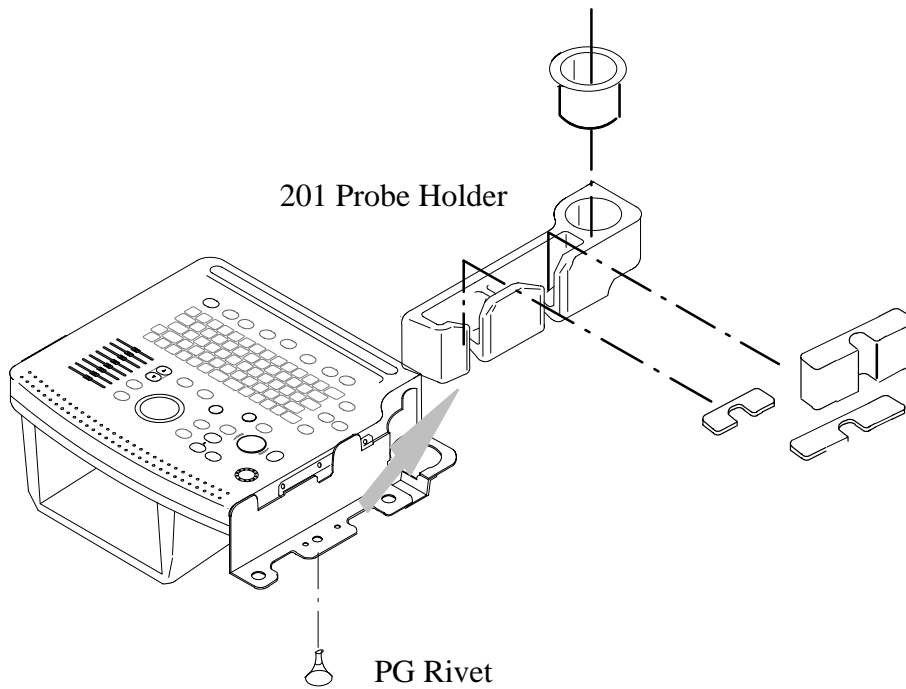
Tool Required

Not necessary

Procedure

Refer to ILLUSTRATION 6-13.

1. Turn OFF the system.
2. Pull the PG rivet located at bottom of the Probe Holder.
3. Pull the Probe Holder out as shown in ILLUSTRATION 6-13.



PROBE HOLDER DISASSEMBLY
ILLUSTRATION 6-13

6-2-8 Holder Bracket Assy (FRU No. 202)**Time Required**

3 Minutes

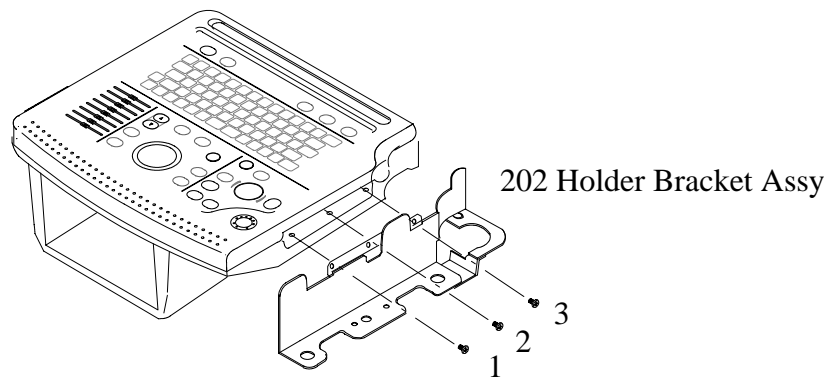
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-14.

1. Turn OFF the system.
2. Remove the Probe Holder (FRU No. 201). Refer to 6-2-7.
3. Unscrew three screws (1 - 3).
4. Remove the Holder Bracket Assy.



HOLDER BRACKET ASSY DISASSEMBLY
ILLUSTRATION 6-14

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6-2-9 Cover Set (FRU No. 203)**Time Required**


11 Minutes

Tool Required

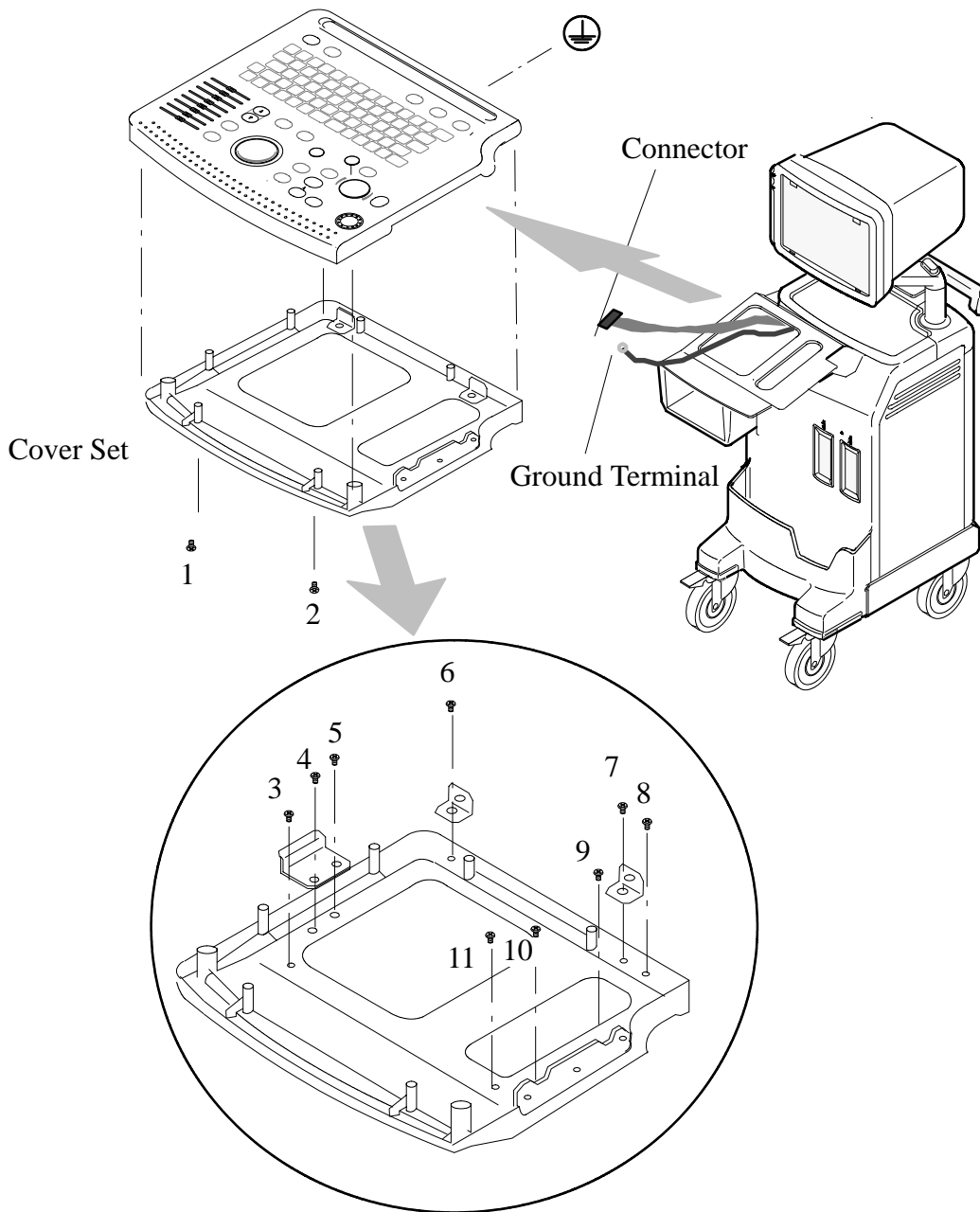
Screwdriver

Procedure

Refer to ILLUSTRATION 6-15.

1. Turn OFF the system.
2. Remove the Probe Holder (FRU No. 201). Refer to 6-2-7.
3. Remove the Holder Bracket Assy (FRU No.202) Refer to 6-2-8.
4. Remove MOD Assy. (FRU No.723). Refer to Chapter 8.
5. Unscrew the two screw(1 and 2) on the front bottom of Keyboard .
6. Unscrew the ground screw () and remove the Ground Terminal.
7. Disconnect the connector and cut the tie wraps off.
8. Remove the Keyboard Assy (FRU No. 204).
9. Unscrew nine screws (3 – 11) and remove the Keyboard assy.

6-2-9 Cover Set (FRU No. 203) (Continued)



COVER SET DISASSEMBLY
ILLUSTRATION 6-15

6-2-10 Keyboard Assy (FRU No. 204)**Time Required**


6 Minutes

Tool Required

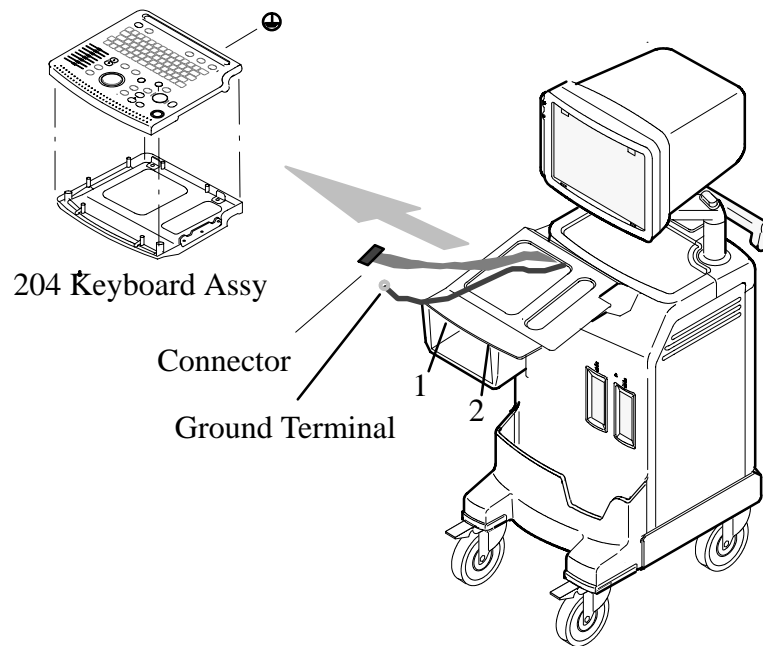
Screwdriver

Procedure

Refer to ILLUSTRATION 6-16.

1. Turn OFF the system.
2. Remove MOD Assy (FRU.723). Refer to Chapter 8.
3. Unscrew two screws (1 and 2) on the front bottom of Keyboard.
4. Unscrew the ground screw () and remove the Ground Terminal.
5. Disconnect the connector and cut the tie wraps off.
6. Pull the Keyboard Assy out.

6-2-10 Keyboard Assy (FRU No. 204) (Continued)



KEYBOARD ASSY DISASSEMBLY
ILLUSTRATION 6-16

6-2-11 Trackball Assy (FRU No. 205)**Time Required**

8 Minutes

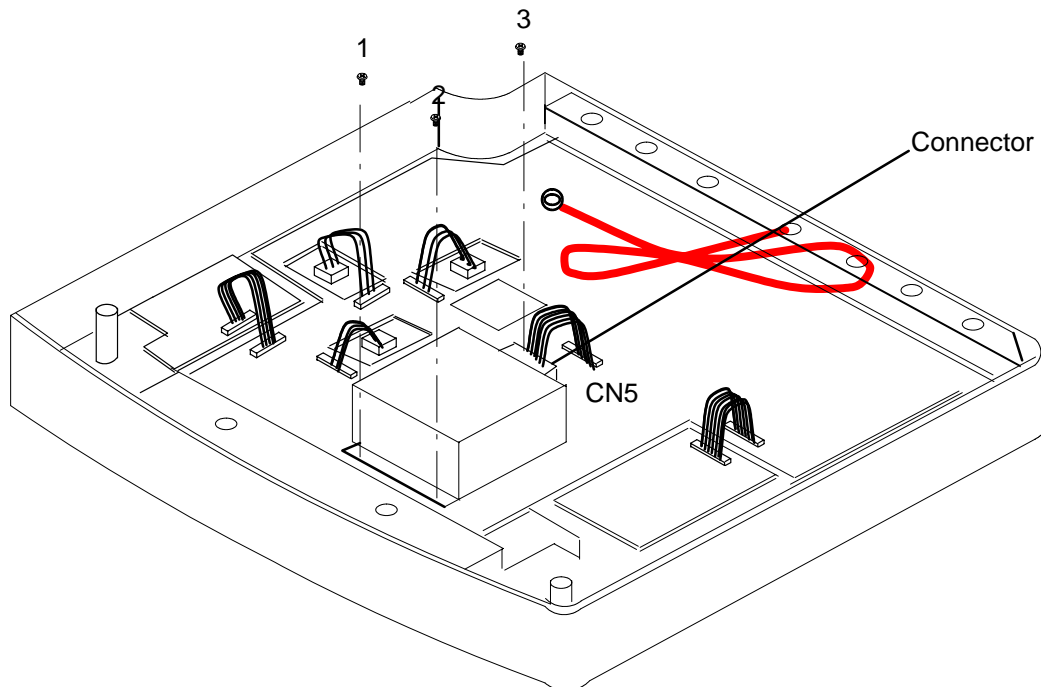
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-17.

1. Turn OFF the system.
2. Pull the Keyboard Assy out. Refer to 6-2-10.
3. Unscrew three screws (1 – 3) and disconnect one connector (CN5) on Trackball Assy.
4. Remove Trackball Assy.



TRACKBALL ASSY DISASSEMBLY
ILLUSTRATION 6-17

6-2-12 TGC Assy (FRU No. 206)

Time Required

8 Minutes

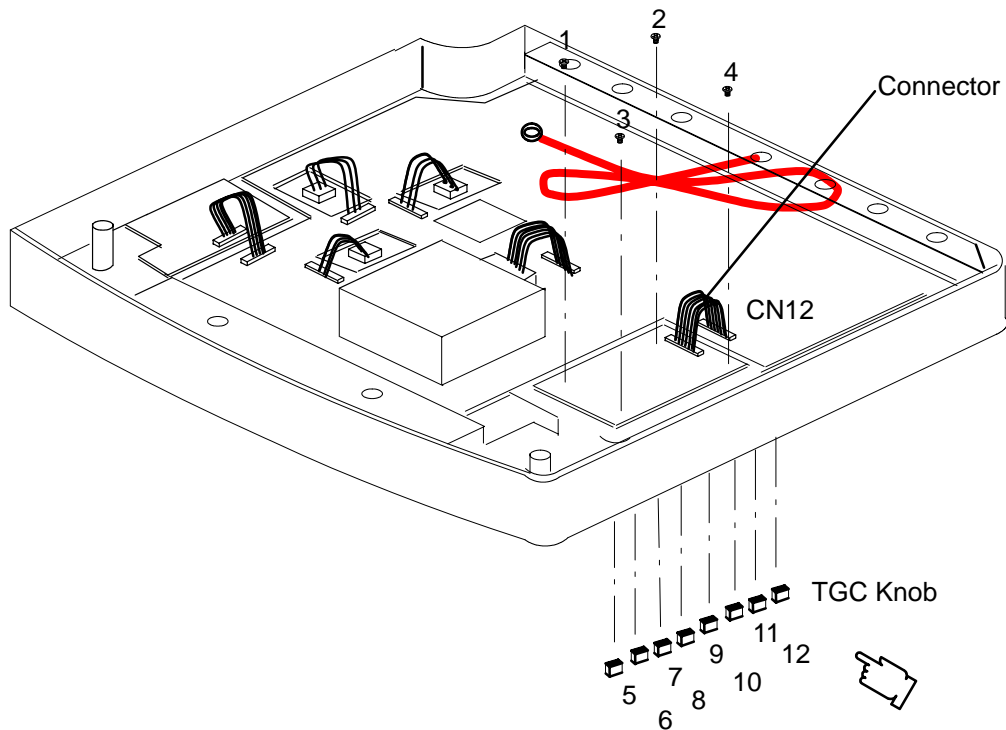
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-18.

1. Turn OFF the system.
2. Pull the Keyboard Assy out . Refer to 6-2-10.
3. Pull out the TGC Knobs (5 – 12) on Keyboard Assy.
4. Unscrew four screws (1 – 4) and disconnect one connector (CN12).
5. Remove TGC Assy.



TGC ASSY DISASSEMBLY
ILLUSTRATION 6-18

6-2-13 Encoder Set (FRU No. 207)**Time Required**

14 Minutes

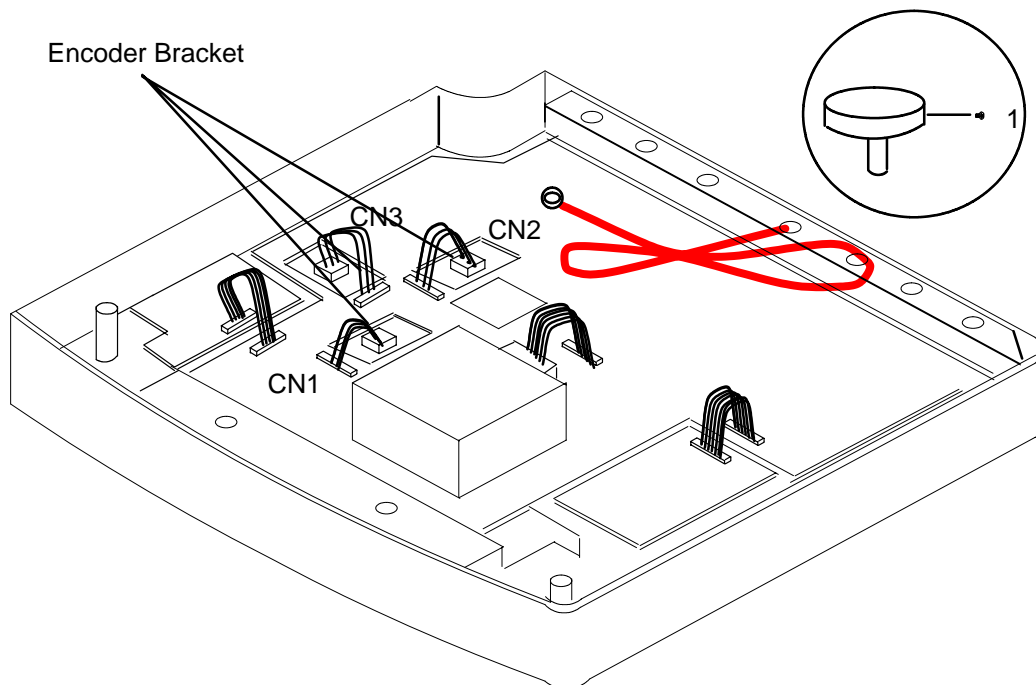
Tool Required

Screwdriver, Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-19

1. Turn OFF the system.
2. Pull the Keyboard Assy out. Refer to 6-2-10
3. Unscrew hexagonal screws (1) on each Encoder Knob and remove three knobs.
4. Unscrew two screws on each Encoder Bracket and disconnect three connectors (CN1 –CN3).
5. Remove Encoder Set.



ENCODER SET DISASSEMBLY
ILLUSTRATION 6-19

6-2-14 Freeze/Record Key Assy (FRU No. 208)

Time Required

10 Minutes

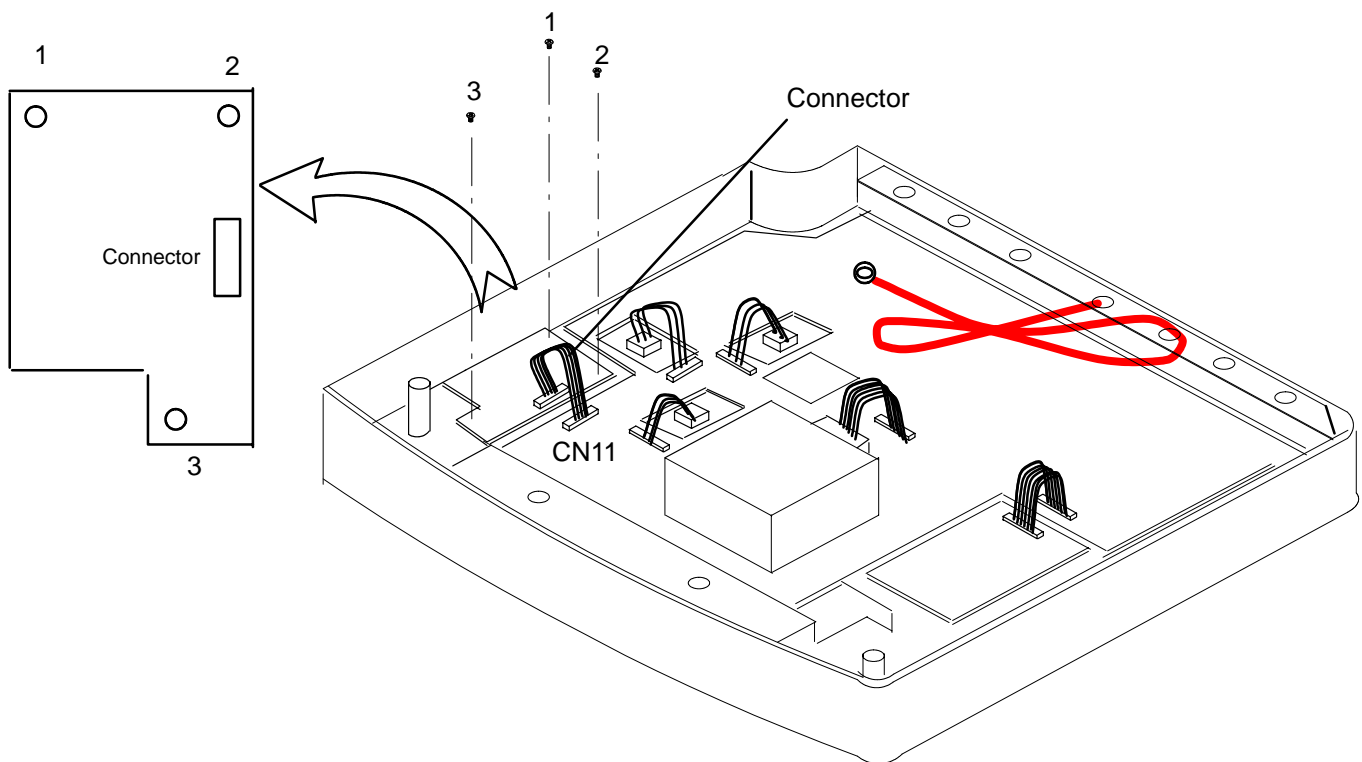
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-20.

1. Turn OFF the system.
2. Pull the Keyboard Assy out. Refer to 6-2-10.
3. Unscrew three screws (1 – 3) and disconnect the connector (CN11).
4. Remove Freeze/Record Key Assy.



FREEZE/RECORD KEY ASSY DISASSEMBLY
ILLUSTRATION 6-20

6-2-15 TGC Knob Set (FRU No. 209)**Time Required**

5 Minutes

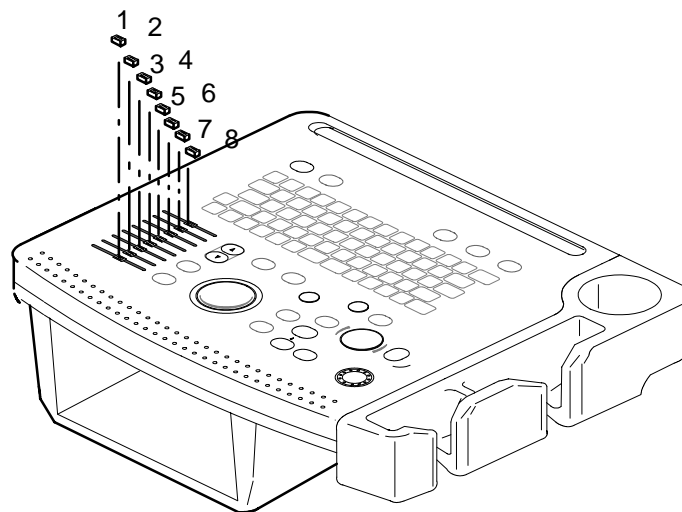
Tool Required

None

Procedure

Refer to ILLUSTRATION 6-21.

1. Turn OFF the system.
2. Pull out the TGC Knobs (1 - 8).



TGC KNOB SET DISASSEMBLY
ILLUSTRATION 6-21

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6-2-16 Rubber Key Set (FRU No. 210)**Time Required**

20 Minutes

Tool Required

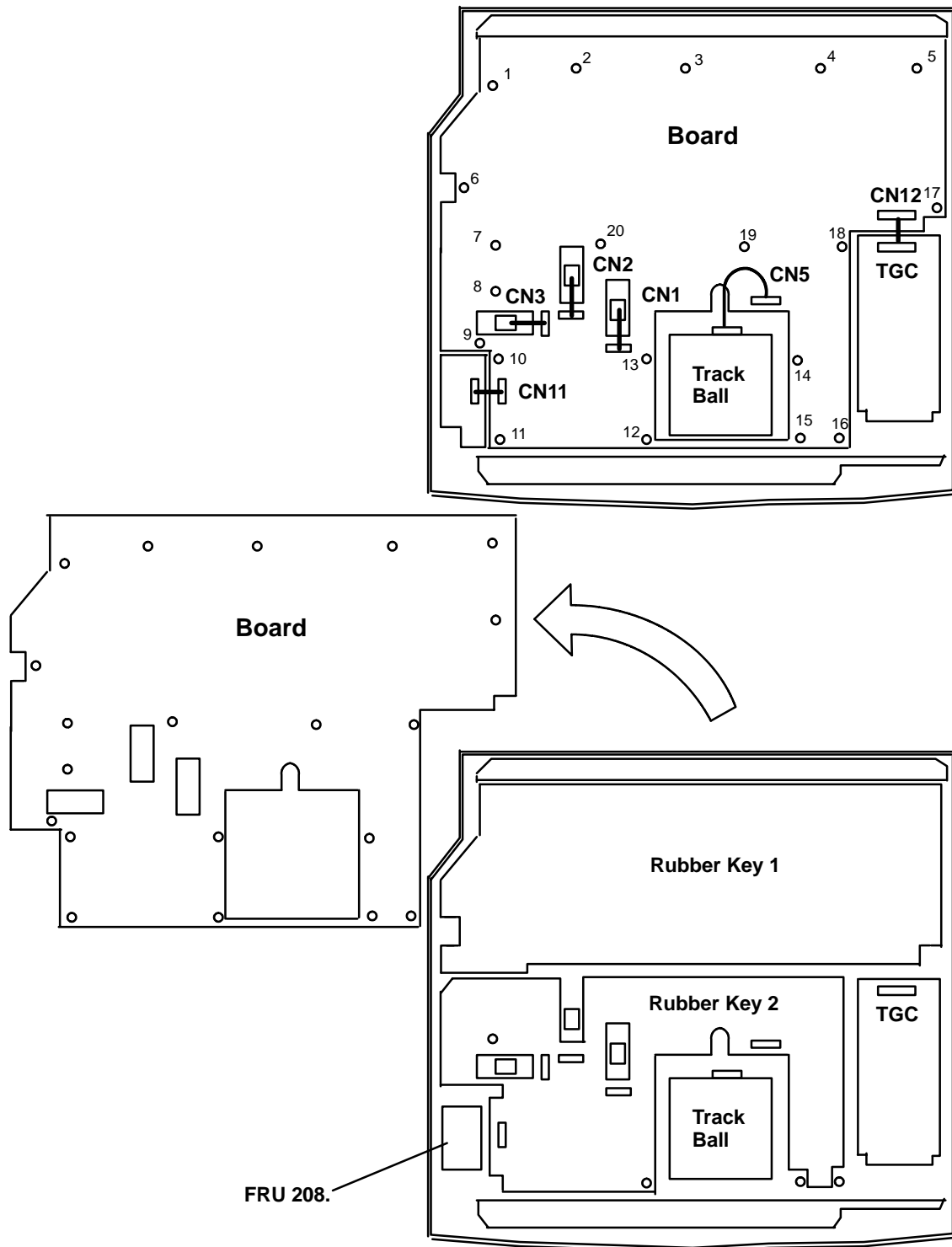
Screw Driver.

Procedure

Refer to ILLUSTRATION 6-22.

1. Turn OFF the system.
2. Remove the Keyboard assy. Refer to 6-2-10.
3. Pull out the TGC knobs. Refer to 6-2-15.
4. Using the hexagonal wrench, remove the three Encoder knobs. Refer to 13.
5. Remove the Freeze/Record key. Refer to 6-2-14.
6. Disconnect five connectors (CN1, CN2, CN3, CN5, CN11, CN12).
7. Unscrew 20 screws (1-20) and remove the board from the Keyboard assy. Refer to ILLUSTRATION 6-22.
8. Carefully remove 2 Rubber key pieces (1-2) from the Keyboard assy. Refer to ILLUSTRATION 6-22.

6-2-16 Rubber Key Set (FRU No. 210) (continued)



RUBBER KEY SET DISASSEMBLY
ILLUSTRATION 6-22

6-2-17 P.C.Board(s) (FRU No.301 through 304)**Time Required**

7 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-23.

Refer to Proprietary Service Manual (2242594) for initialization.



An electrostatic discharge may damage a component. Turn OFF power and wear the wrist strap before you remove a circuit boards. Do not unplug the power cord to keep ground continuity.

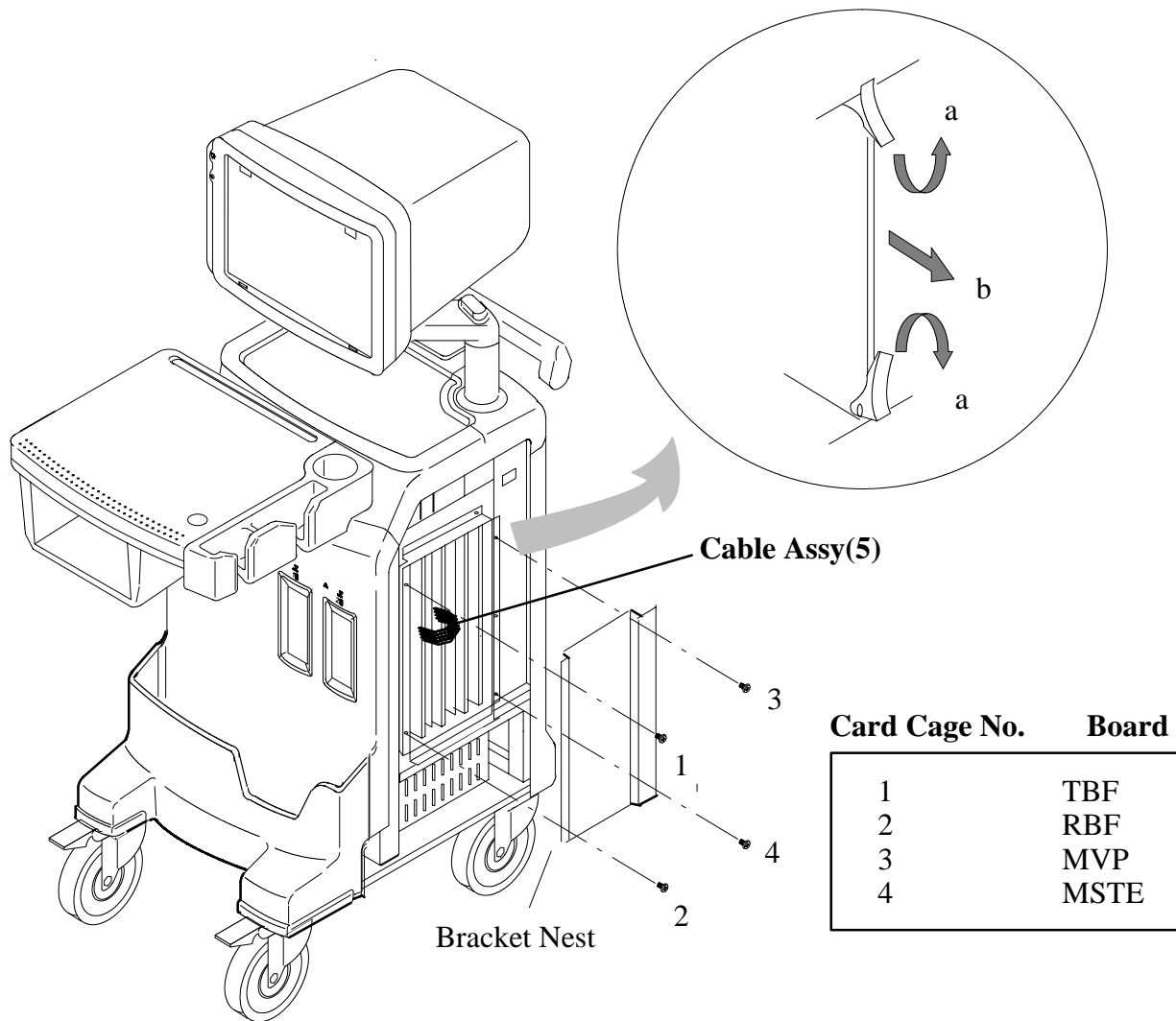
Do not bend or flex the boards when mounting/dismounting each board. Surface mount IC boards are very susceptible to damage from flex/torque.

Make sure the Dip switch position is set correctly before changing the MSTE Assy. Refer to chapter 3, section 3-6-3 DIP Switch for correct setting.

Refer to ILLUSTRATION 6-23.

1. Turn OFF the system.
2. Remove the Right Cover(FRU 405). Refer to 6-2-28.
3. Remove the PCB Guide Assy (FRU 420). Refer to 6-2-43.
4. Unscrew four screws (1 – 4) and Remove the Bracket Nest.
5. Disconnect the Cable Assy(5) from Board Assy.
6. Pull the upper and lower ejector in the direction indicated by the arrows(a). Refer to ILLUSTRATION 6-23.
7. Pull out the board, do not bend it (b).

6-2-17 P.C.Board(s) (FRU No.301 through 304) (Continued)



P.C.BOARD(S) REMOVAL
ILLUSTRATION 6-23

CAUTION

In the case of the system for India, MSTE Dip switch SW2 No.4 should be on for A-Mode Operation. Make sure the Dip switch position is set correctly before changing the MSTE Assy. Refer to chapter 3, section 3-6-3 DIP Switch for correct setting.

6-2-18 BPHV Assy (FRU No. 305)**Time Required**

10 Minutes

Tool Required

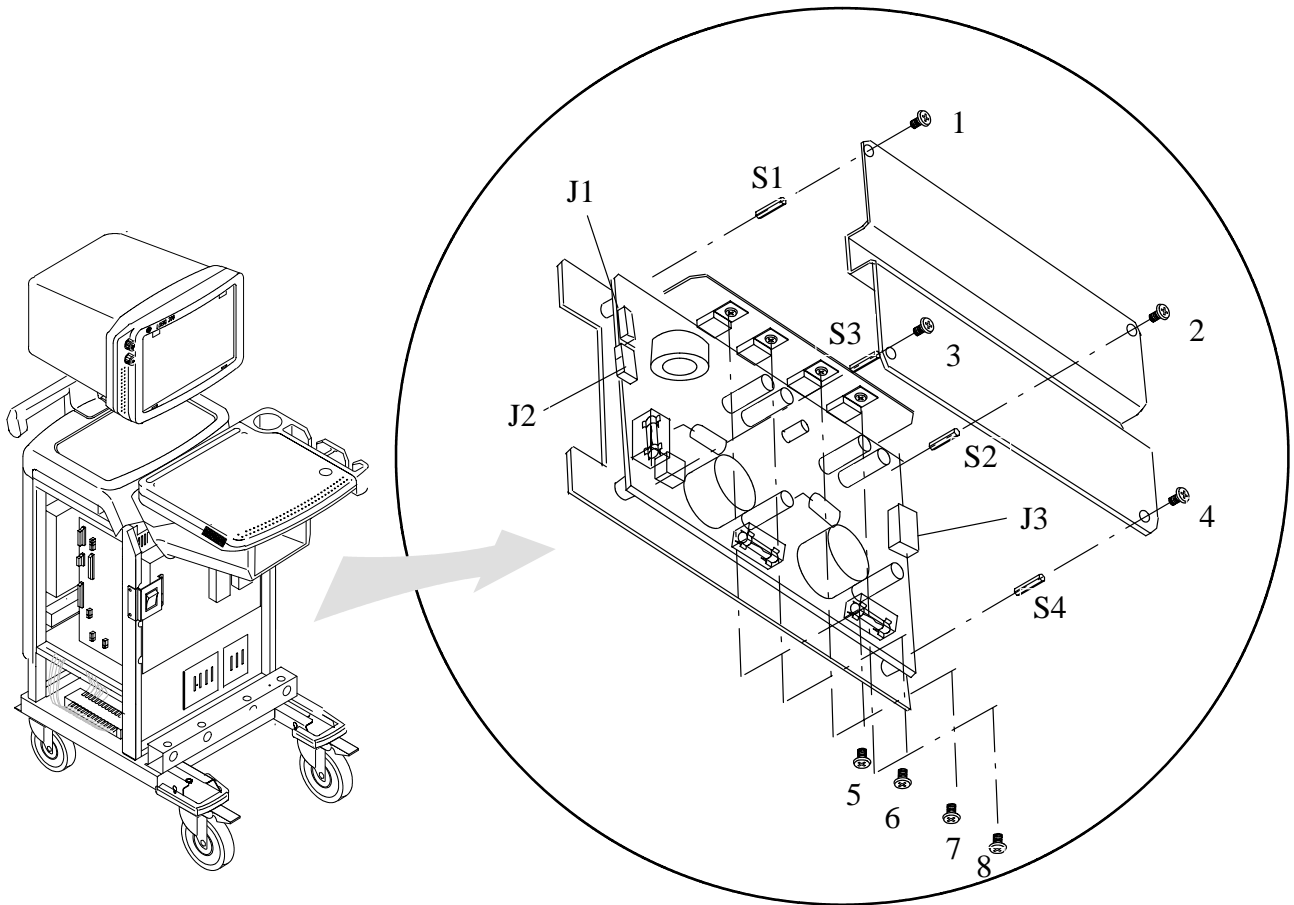
Screwdriver

Procedure

Refer to ILLUSTRATION 6-24.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Unscrew four screws (1 – 4), and remove top cover.
7. Unscrew four screws (5 – 8) being used fixing TR.
8. Disconnect three connectors (J1 – J3) on the BPHV Assy.
9. Unscrew and remove four supporters(S1 – S4).
10. Remove the BPHV Assy.

6-2-18 BPHV Assy (FRU No. 305) (Continued)



BPHV ASSY DISASSEMBLY
ILLUSTRATION 6-24

6-2-19 SCAN Assy (FRU No. 306)**Time Required**

13 Minutes

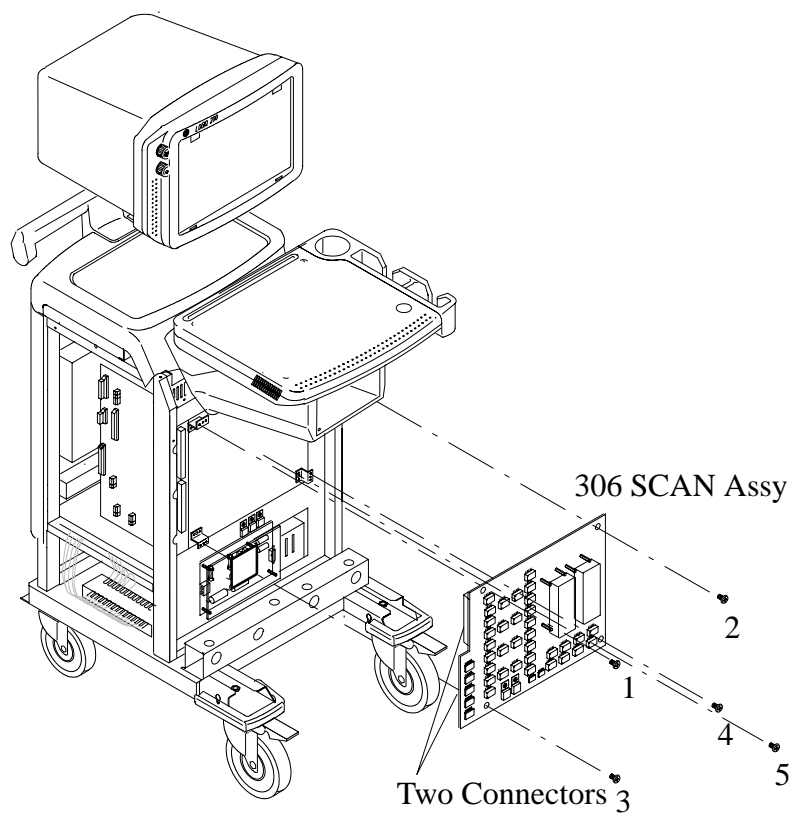
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-25.

1. Turn OFF the system and plug out.
2. Remove the Shield Panel (FRU 307). Refer to 6-2-20.
3. Unscrew four screws (1 – 5).
4. Disconnect two connector.
5. Pull out the Probe SCAN Assy.



SCAN ASSY DISASSEMBLY
ILLUSTRATION 6-25

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6-2-20 Shield Panel (FRU No. 307)**Time Required**

11 Minutes

Tool Required

Screwdriver

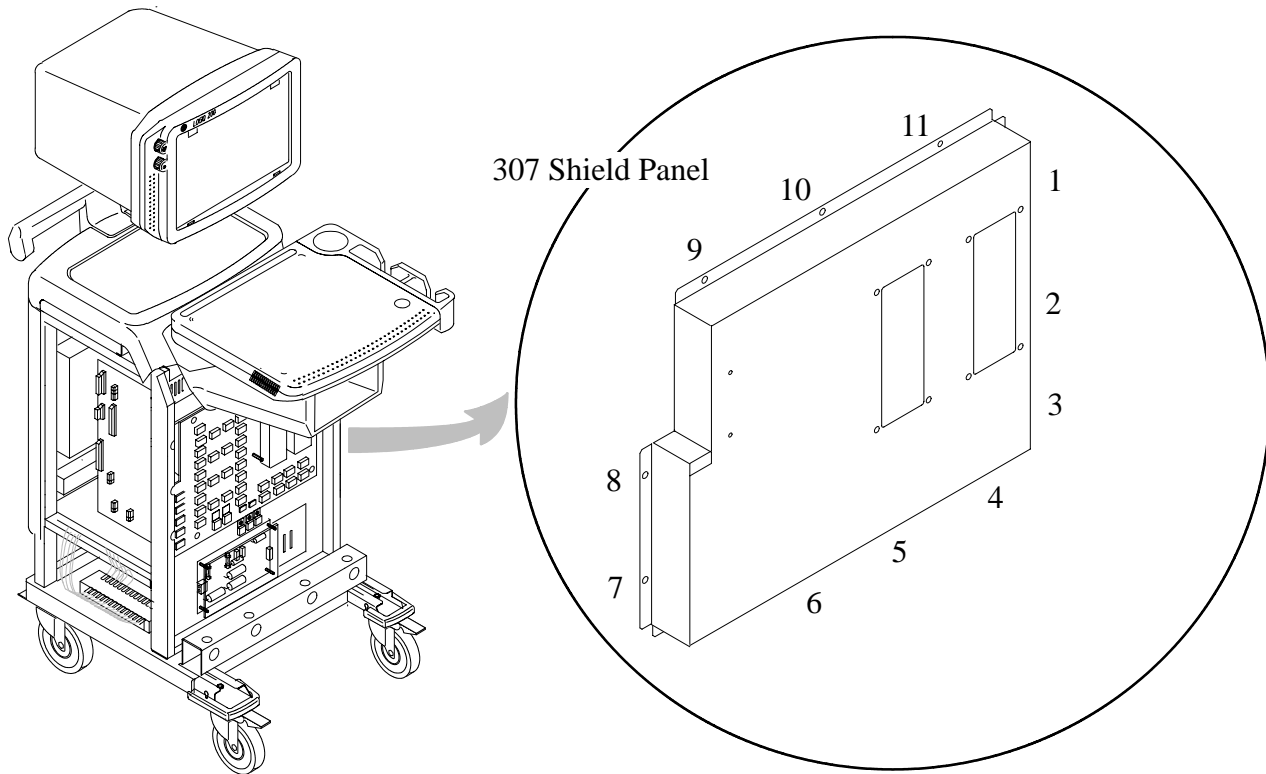
Procedure

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-26.

1. Turn OFF the system & plug out
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Remove the Power S/W Assy (FRU 415). Refer to 6-2-38.
7. Unscrew eleven screws (1 -11).
8. Remove the Shield Panel (FRU 307).

6-2-20 Shield Panel (FRU No. 307) (Continued)



SHIELD PANEL DISASSEMBLY
ILLUSTRATION 6-26

6-2-21 Mother 3 Assy (FRU No. 308)**Time Required**

0.5 Hours

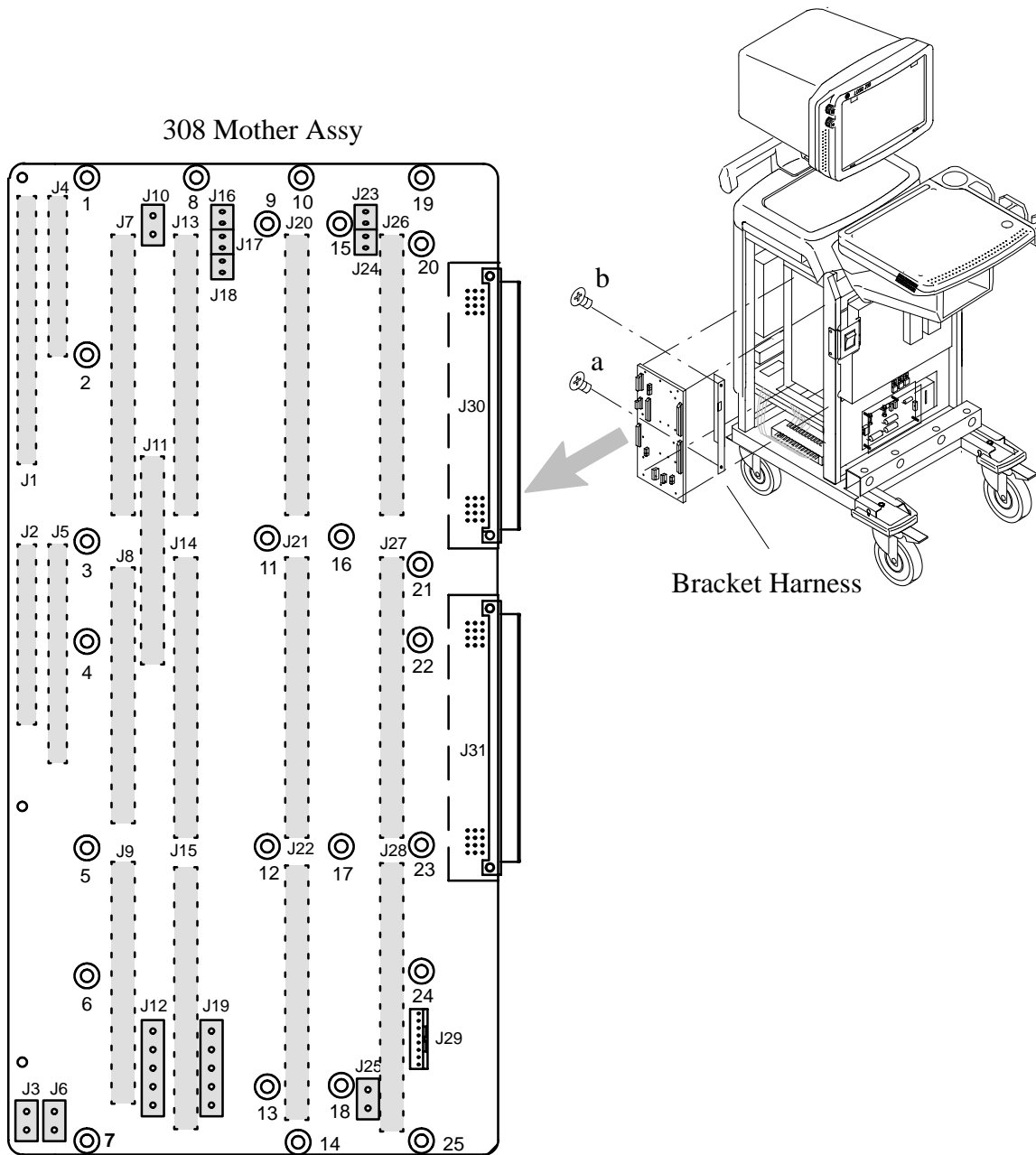
Tool RequiredScrewdriver
Hexagonal Wrench**Procedure**

An electrostatic discharge may damage a component. Turn OFF power and wear the wrist strap before you remove a circuit boards. Do not unplug the power cord to keep ground continuity. Do not bend or flex the boards when mounting/dismounting each board. Surface mount IC boards are very susceptible to damage from flex/torque.

Refer to ILLUSTRATION 6-27.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Remove the EMI Cover L (FRU 419). Refer to 6-2-42.
7. Remove the four PCB Guide Assy (FRU 420). Refer to 6-2-43.
8. Remove the four P.C.Boards (FRU 301 to 304). Refer to 6-2-17.
9. Remove the Shield Panel (FRU 307). Refer to 6-2-20.
10. Remove the Scan Assy (FRU306). Refer to 6-2-19.
11. Disconnect 29 connectors connected with the mother board. (J1 – J29)
12. Unscrew two screws (a and b), and remove the Bracket Harness. If necessary, cut the tie wrap.
13. Unscrew 25 screws (1 – 25).
14. Remove the Mother3 Assy (FRU No. 308).

6-2-21 Mother 3 Assy (FRU No. 308) (Continued)



MOTHER3 ASSY DISASSEMBLY
ILLUSTRATION 6-27

CAUTION

Before connect the cables, Check and distinguish the labels especially for J12, J19, J3, J6.

6-2-22 Nest Box (FRU No. 309)**Time Required**

0.6 Hour

Tool Required

Screwdriver

Hexagonal Wrench



An electrostatic discharge may damage a component. Turn OFF power and wear the wrist strap before you remove a circuit boards. Do not unplug the power cord to keep ground continuity.

Do not bend or flex the boards when mounting/dismounting each board. Surface mount IC boards are very susceptible to damage from flex/torque.

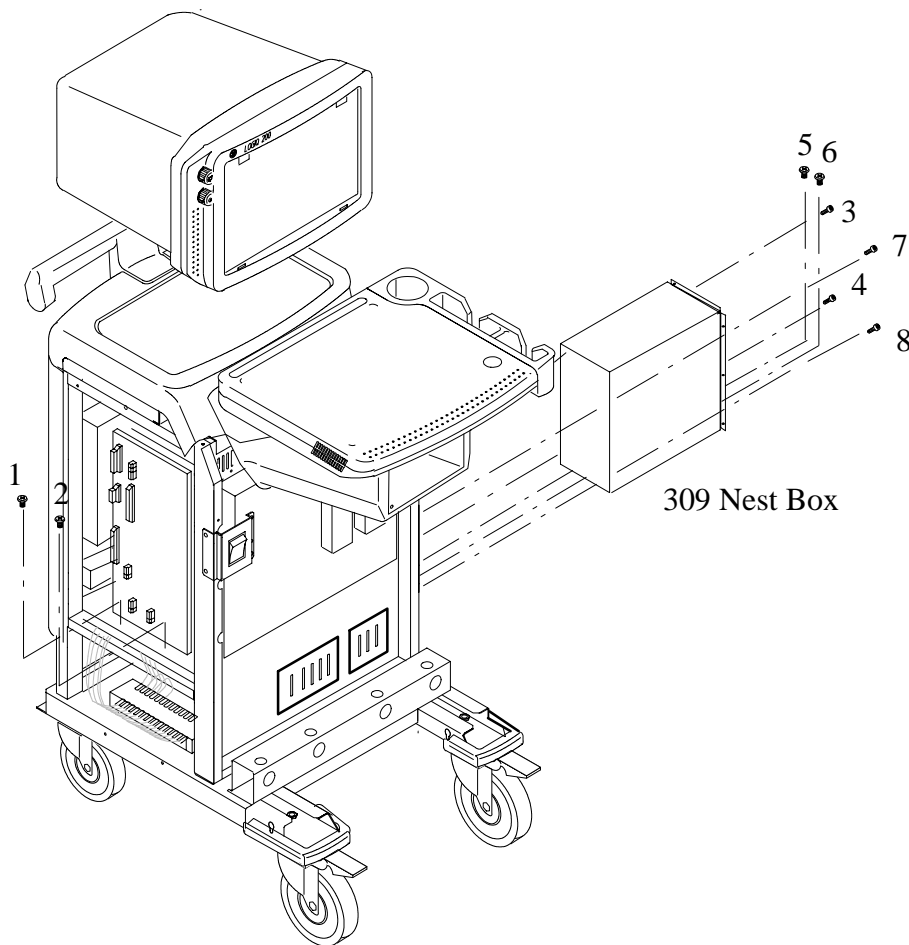
Procedure

Refer to ILLUSTRATION 6-28.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
7. Remove the EMI Cover L (FRU 419). Refer to 6-2-42.
8. Remove the four PCB Guide Assy (FRU 420). Refer to 6-2-43.
9. Remove the four P.C.Boards (FRU 301 to 304). Refer to 6-2-17.
10. Remove the Shield Panel (FRU 307). Refer to 6-2-20.

6-2-22 Nest Box (FRU No. 309) (Continued)

11. Remove the SCAN Assy (FRU 306). Refer to 6-2-19.
12. Remove the Mother3 Assy (FRU 308). Refer to 6-2-21.
13. Remove the eight Screws (1 – 8) on both side of the Nest Box. Refer to ILLUSTRATION 6-28.
14. Remove the Nest Box (FRU 309).



NEST BOX DISASSEMBLY
ILLUSTRATION 6-28

6-2-23 DC Fan Assy (FRU No. 310)**Time Required**

45 Minutes

Tool Required

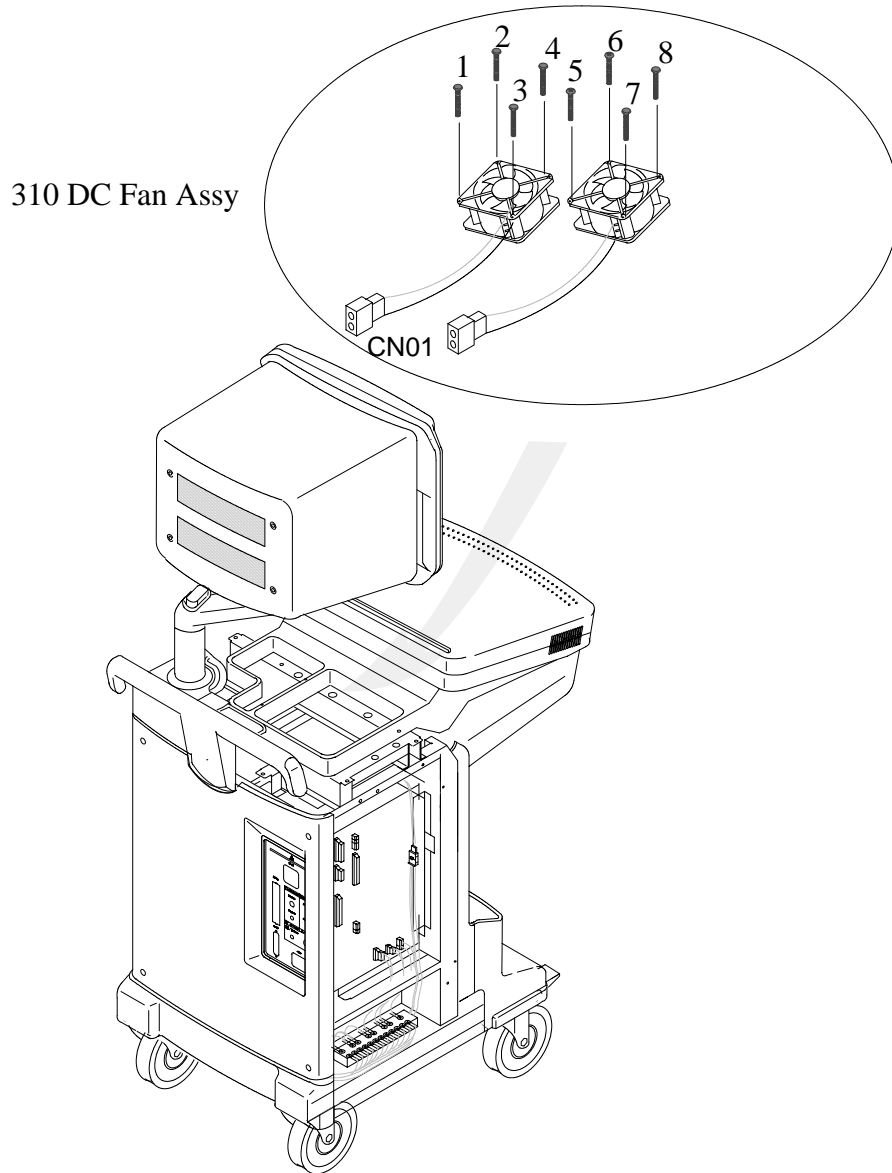
Screwdriver

Procedure

Refer to ILLUSTRATION 6-29.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Top Cover (FRU 409). Refer to 6-2-32.
5. Disconnect two connectors (2 x CN01).
6. Unscrew eight screws (1- 8) on the fan.
7. Pull out the Fan Assy outwards.

6-2-23 DC Fan Assy (FRU No. 310) (Continued)



6-2-24 Swing Arm Assy (FRU No. 401)**Time Required**


0.6 Hour

Tool Required

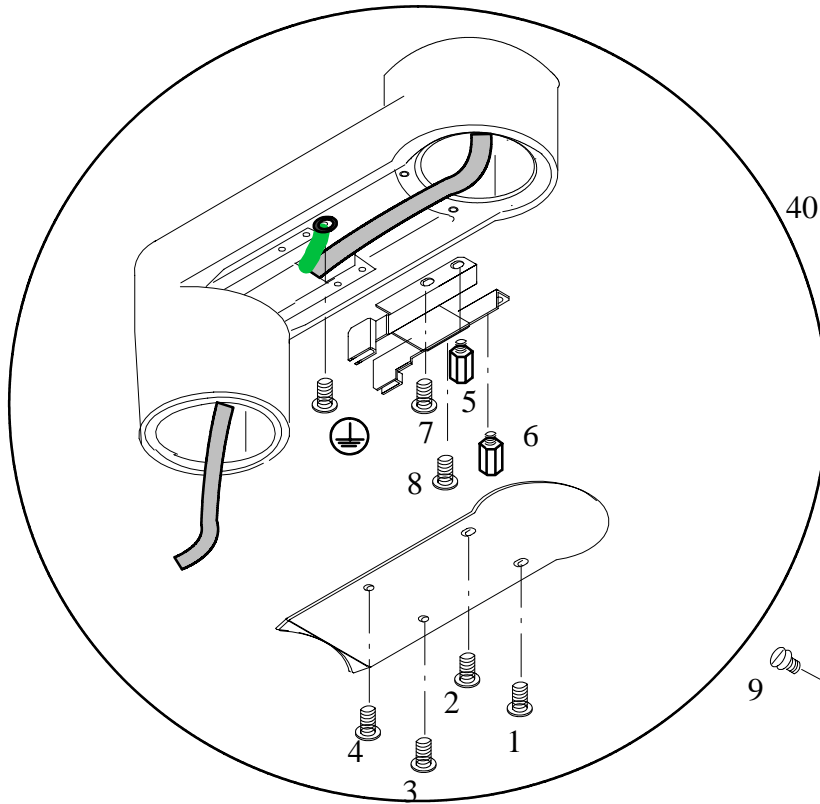
Screwdriver
Hex Wrench

Procedure

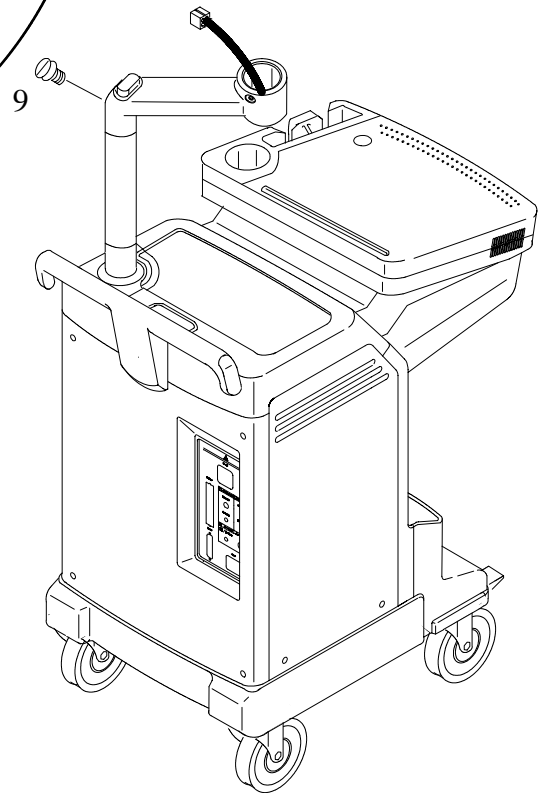
Refer to ILLUSTRATION 6-30.

1. Turn OFF the system and unplug the power cord from outlet.
2. Remove the Monitor Assy (FRU No. 100) from the Swing Arm Assy. Refer to 6-2-1.
3. Remove the Monitor Space Plate.
4. Unscrew four screws (1 -4) and remove the Cover located at the bottom of the Swing Arm Assy.
5. Unscrew one screw to remove Ground Terminal ().
6. Unscrew two supporters (5 and 6) and two screws (7 and 8).
7. Remove the Guide.
8. Unscrew one screws (9).
9. Remove the Swing Arm Assy (FRU No.401).

6-2-24 Swing Arm Assy (FRU No. 401) (Continued)



401 Swing Arm Assy



NECK ASSY DISASSEMBLY
ILLUSTRATION 6-30

6-2-25 Pipe Assy (FRU No. 402)**Time Required**

0.4 Hour

Tool Required

Screwdriver
Hex Wrench

Procedure

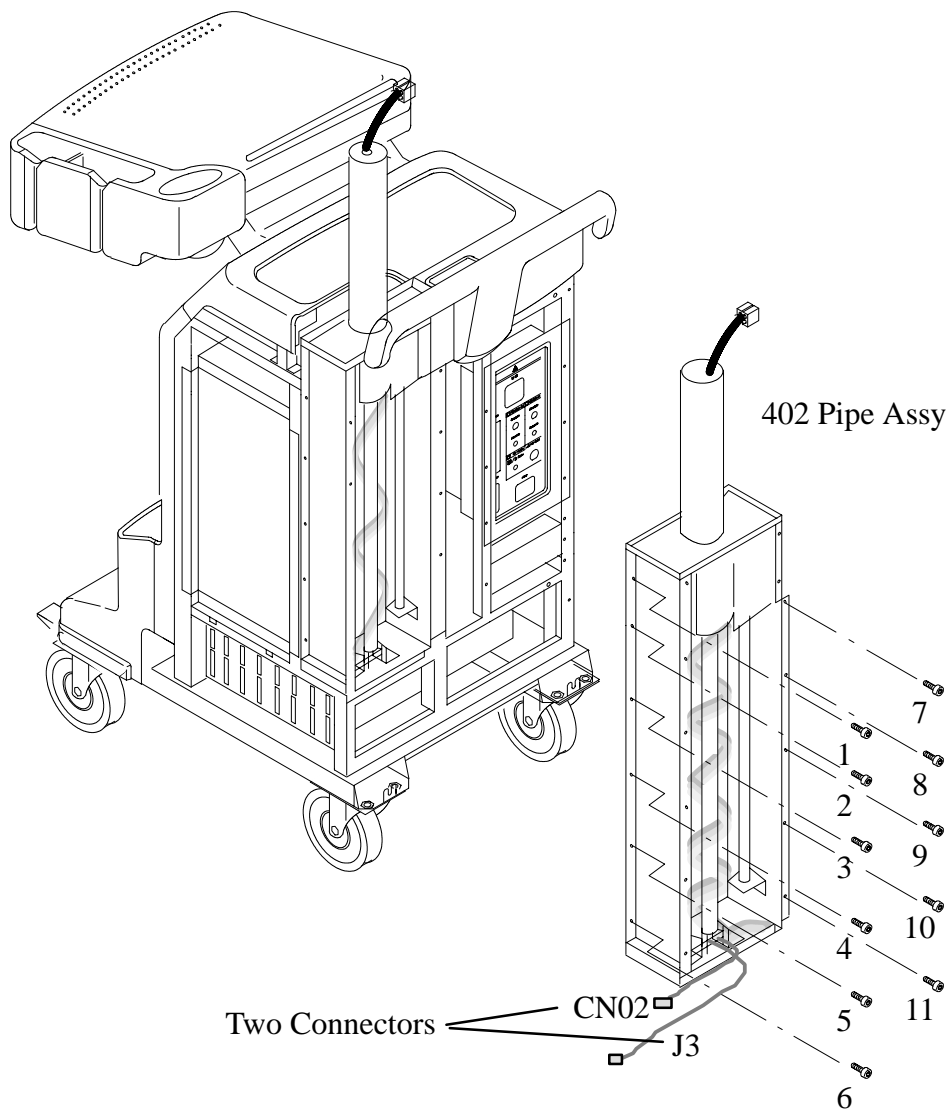
Refer to ILLUSTRATION 6-31.

1. Turn OFF the system and unplug the power cord from outlet.
2. Remove the Monitor Assy (FRU No. 100) from the Swing Arm Assy. Refer to 6-2-1.
3. Remove the Swing Arm Assy (FRU 401). Refer to 6-2-24.
4. Remove the Left Cover (FRU 404). Refer to 6-2-27.
5. Remove the Right Cover (FRU 405). Refer to 6-2-28.
6. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
7. Remove the Pole Cover (FRU 403) Refer to 6-2-26.
8. Remove eleven hexagonal bolts (1 - 11).
9. Disconnect two connectors (CN02,J3).
10. Remove the Pipe Assy.

NOTE

When assembling the Tilt assy, fix two screw(1,7) with one drop of Loctite262.

6-2-25 Pipe Assy (FRU No. 402) (Continued)



NECK ASSY DISASSEMBLY
ILLUSTRATION 6-31

6-2-26 Pole Cover (FRU No. 403)**Time Required**

20 Minutes

Tool Required

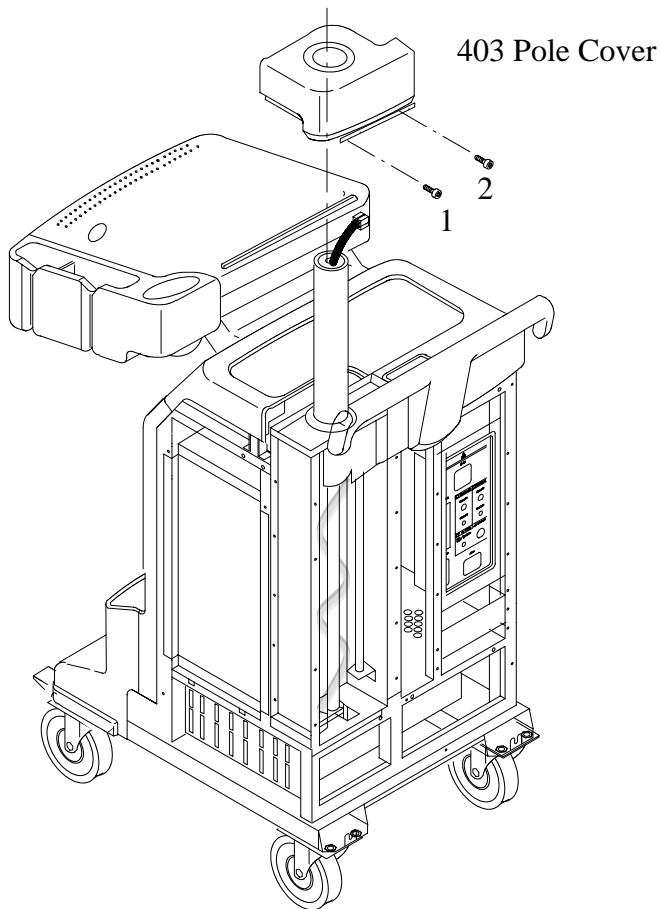
Screwdriver

Procedure

Refer to ILLUSTRATION 6-32.

1. Turn OFF the system.
2. Remove the Monitor Assy (FRU No. 100) from the Swing Arm Assy. Refer to 6-2-1.
3. Remove the Swing Arm Assy (FRU 401). Refer to 6-2-24.
4. Remove the Left Cover (FRU 404). Refer to 6-2-27.
5. Remove the Right Cover (FRU 405). Refer to 6-2-28.
6. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
7. Unscrew two screws (1 and 2).
8. Pull upward the Pole Cover.

6-2-26 Pole Cover (FRU No. 403) (Continued)



POLE COVER DISASSEMBLY
ILLUSTRATION 6-32

6-2-27 Left Cover (FRU No. 404)**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-33.

1. Turn OFF the system.
2. Remove four screw caps and unscrew four screws (1 - 4).
3. Remove the Left Cover (FRU 404).

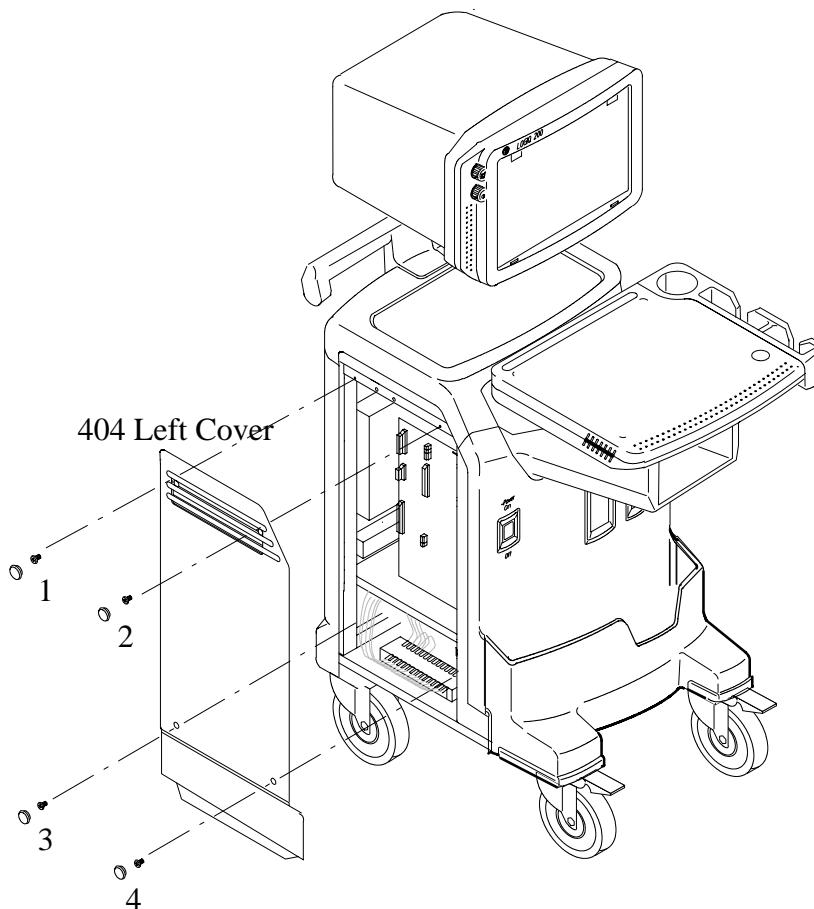
**LEFT COVER DISASSEMBLY**

ILLUSTRATION 6-33

6-2-28 Right Cover (FRU No. 405)**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-34.

1. Turn OFF the system.
2. Remove the four screw caps and unscrew four screws (1 – 4).
3. Remove the Right Cover (FRU 405).

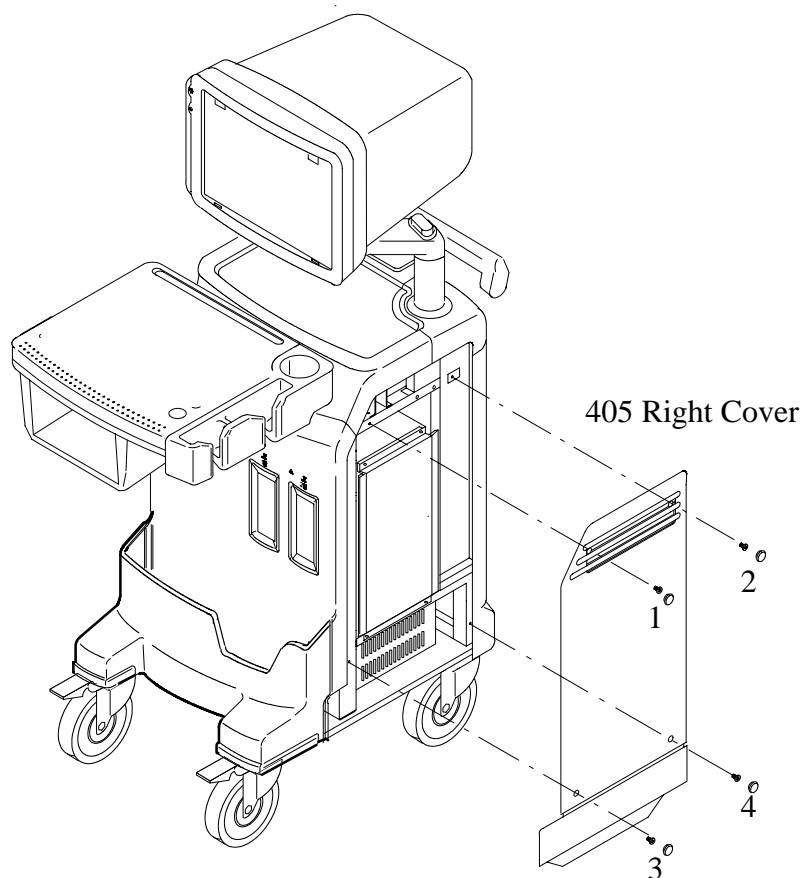
**RIGHT COVER DISASSEMBLY**

ILLUSTRATION 6-34

6-2-29 Front Base Cover (FRU No. 406)**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-35.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Unscrew two screws (1 and 2).
5. Remove the Front Base Cover (FRU 406).

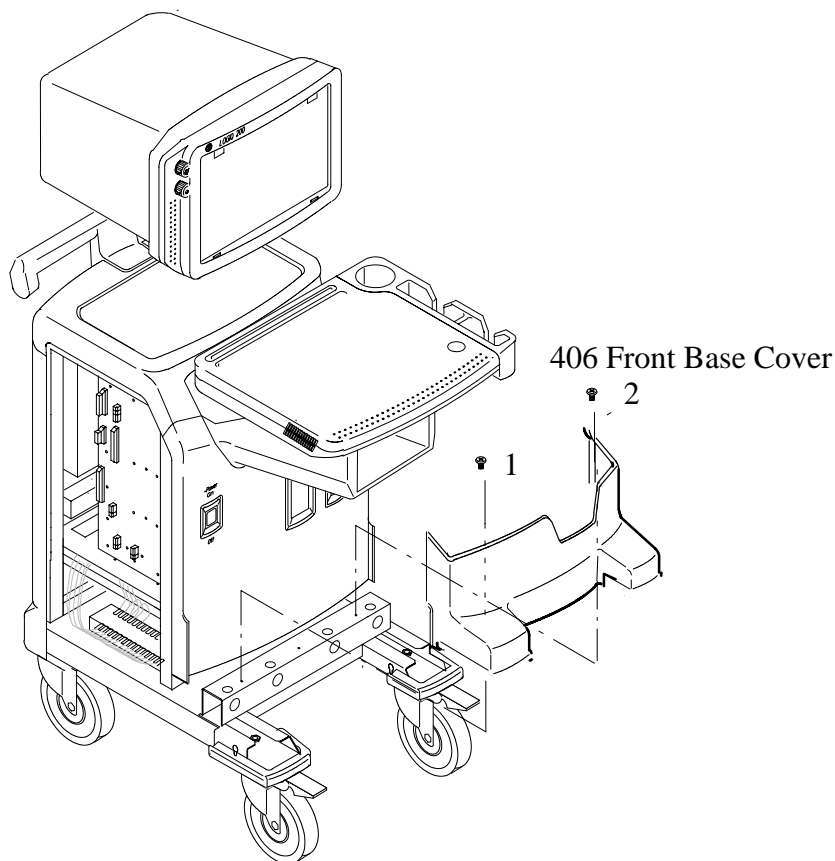
**FRONT BASE COVER DISASSEMBLY**

ILLUSTRATION 6-35

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6-2-30 Front Cover (FRU No. 407)**Time Required**

5 Minutes

Tool Required

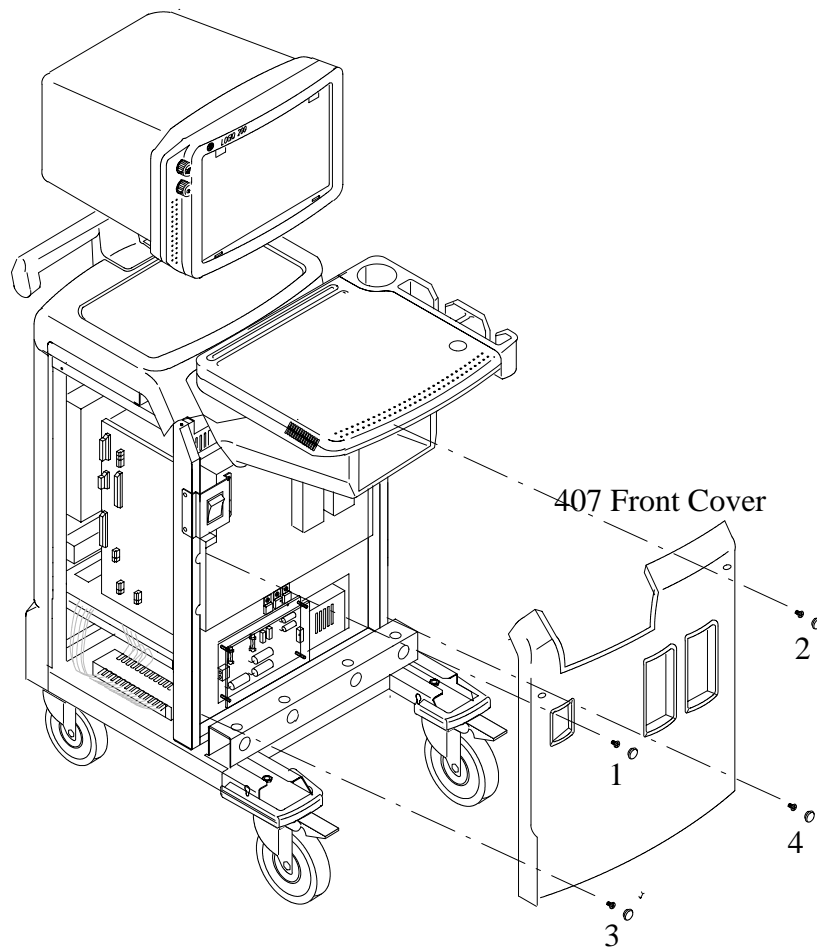
Screwdriver

Procedure

Refer to ILLUSTRATION 6-36.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the fore screw caps and unscrew fore screws (1 - 4).
6. Remove the Front Cover (FRU 407).

6-2-30 Front Cover (FRU No. 407) (Continued)



FRONT COVER DISASSEMBLY
ILLUSTRATION 6-36

6-2-31 Rear Cover (FRU No. 408)**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-37.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Remove the four screw caps and unscrew four screws (1 - 4).
5. Remove the Rear Cover(FRU No. 408).

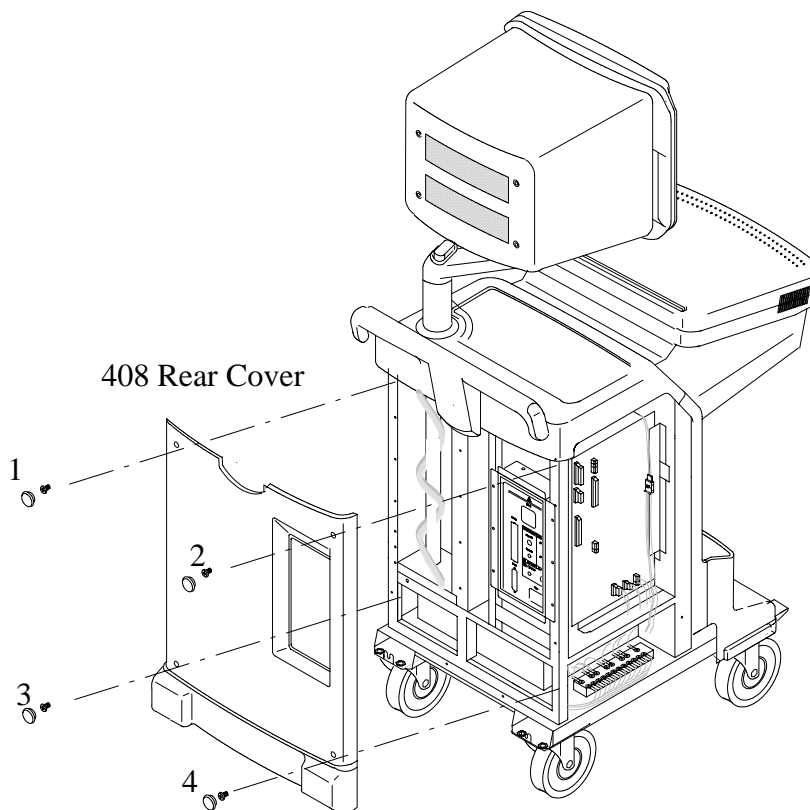
**REAR COVER DISASSEMBLY**

ILLUSTRATION 6-37

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6-2-32 Top Cover (FRU No. 409)**Time Required**

5 Minutes

Tool Required

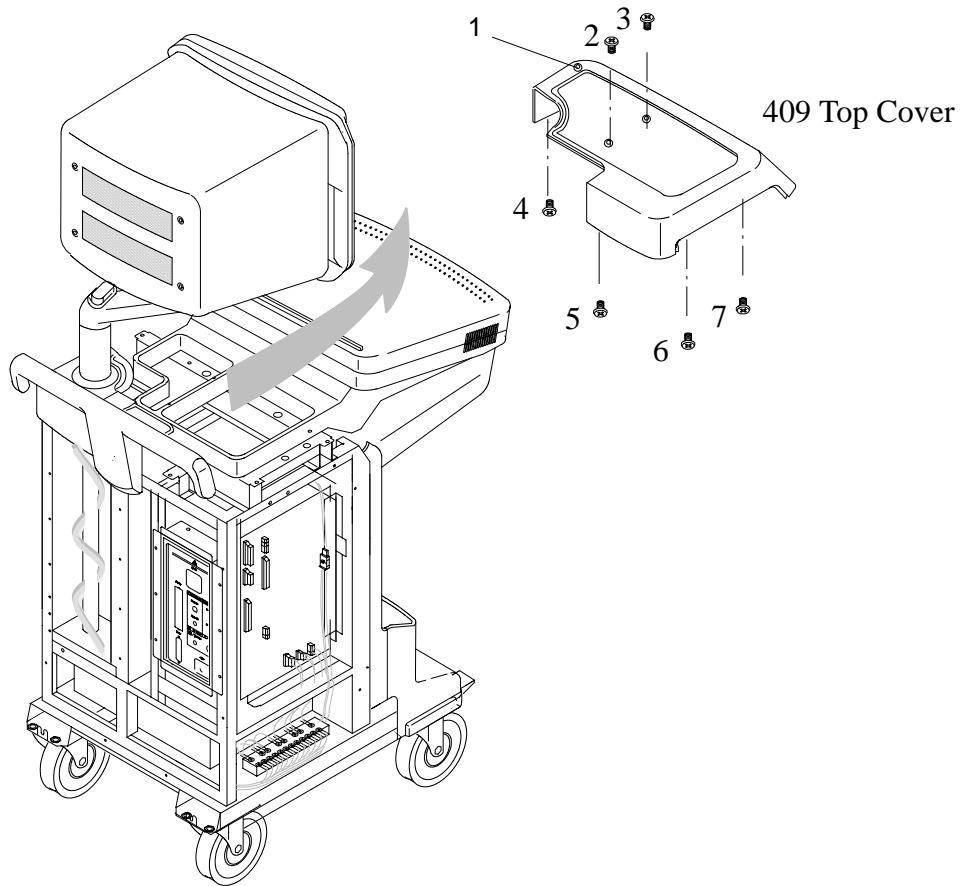
Screwdriver

Procedure

Refer to ILLUSTRATION 6-38.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
5. Pull up the Pole Cover (FRU 403). Refer to 6-2-26.
6. Remove the Cable Hook Arm (1)
7. Unscrew two screws (2 - 3) and four bolts (4 -7).
8. Remove the Top Cover.

6-2-32 Top Cover (FRU No. 409) (Continued)



REAR COVER DISASSEMBLY
ILLUSTRATION 6-38

6-2-33 Printer Cover (FRU No. 410)**Time Required**

5 Minutes

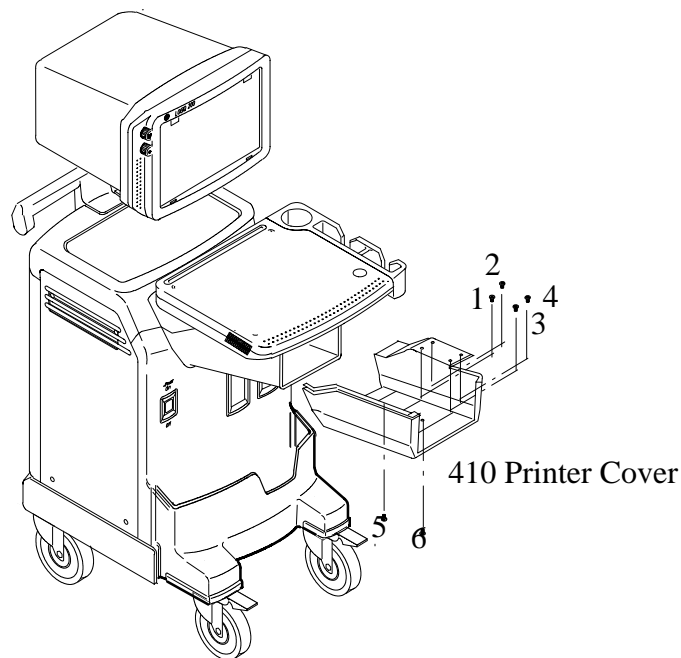
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-39.

1. Turn OFF the system.
2. Remove the Front Cover (FRU 407). Refer to 6-2-30.
3. Remove the Top Cover (FRU 409). Refer to 6-2-32.
4. Unscrew the six screw (1 - 6).
5. Remove the Printer Cover (FRU No. 410).



PRINTER COVER DISASSEMBLY
ILLUSTRATION 6-39

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6-2-34 Printer Bracket Assy(FRU No. 411)**Time Required**

30 Minutes

Tool Required

Screwdriver

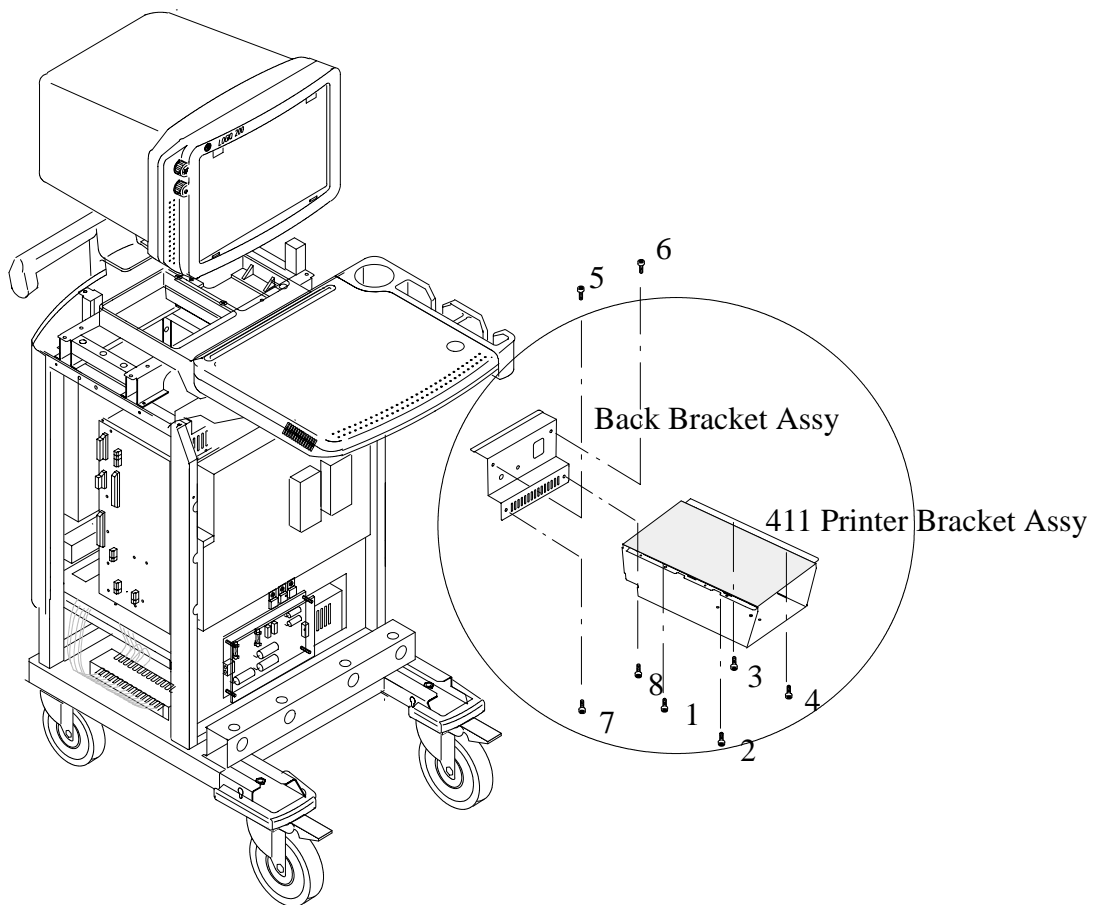
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-40.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Remove the Top Cover (FRU 409). Refer to 6-2-32.
7. Remove the Printer Cover (FRU 410). Refer to 6-2-33.
8. Disconnect three cables connected to Back Bracket Assy as listed below. Cut the tie wraps off if necessary.
 - a. Unscrew and Disconnect two ring terminals (1 and 2) from the Terminal Block 6 Assy. Refer to 6-2-45, ILLUSTRATION 6-51.
 - b. Unscrew and disconnect one ring terminals(Protective Earth) from the chassis.
 - c. Disconnect two connectors (J5 and J9) from the Mother Assy. Refer to 6-2-21, ILLUSTRATION 6-27.
9. Remove four hexagonal bolts (1 – 4) and pull out Printer Bracket Assy with Back Bracket Assy.
10. Unscrew the four screw (5 – 8).
11. Disassemble Printer Bracket Assy with Back Bracket Assy (FRU411).

6-2-34 Printer Bracket Assy(FRU No. 411) (Continued)



PRINTER BRACKET ASSY AND BACK BRACKET ASSY DISASSEMBLY
ILLUSTRATION 6-40

6-2-35 Rear Handle (FRU No. 412)**Time Required**

1 Hours

Tool Required

Screwdriver

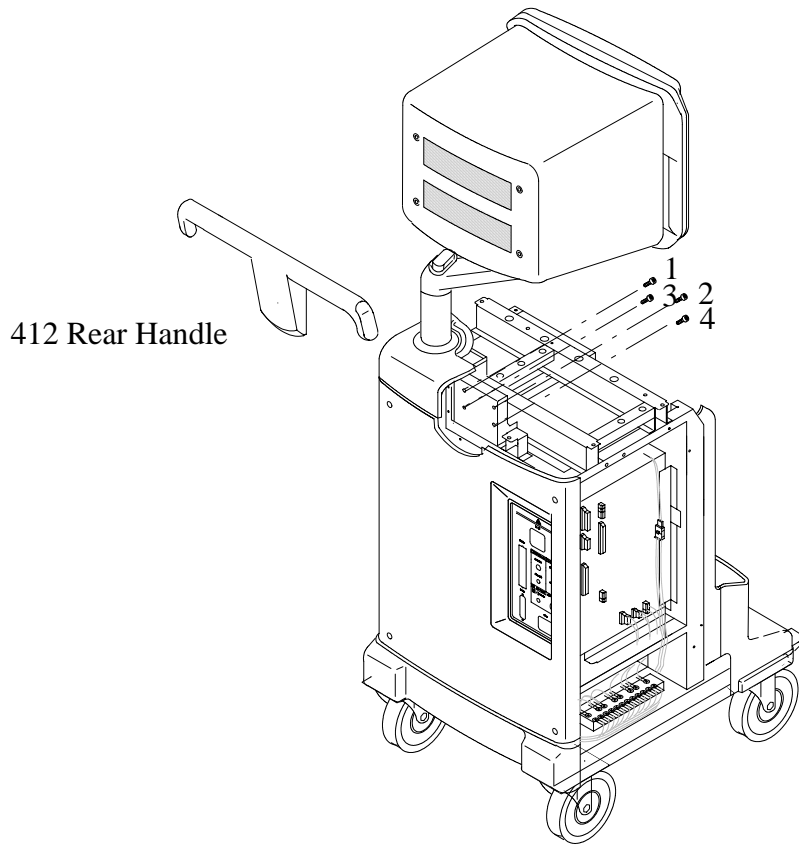
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-41.

1. Turn OFF the system.
2. Remove the Keyboard Assy (FRU 204). Refer to 6-2-10.
3. Remove the Left Cover (FRU 404). Refer to 6-2-27.
4. Remove the Right Cover(FRU 405). Refer to 6-2-28.
5. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
6. Remove the Front Cover (FRU 407). Refer to 6-2-30.
7. Remove the Top Cover (FRU 409). Refer to 6-2-32.
8. Remove the Printer Cover (FRU 410). Refer to 6-2-33.
9. Remove the Neck Frame (FRU 413). Refer to 6-2-36.
10. Remove four hexagonal bolts (1 - 4).
11. Remove the Rear Handle.

6-2-35 Rear Handle (FRU No. 412) (Continued)



REAR HANDLE DISASSEMBLY
ILLUSTRATION 6-41

6-2-36 Neck Frame (FRU No. 413)**Time Required**

0.5 Hours

Tool Required

Screwdriver

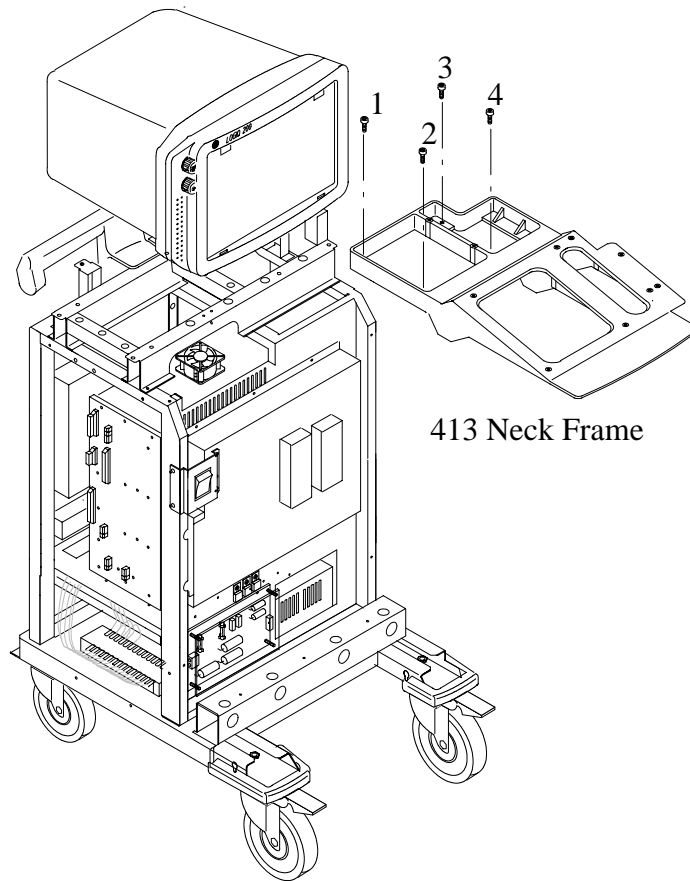
Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-42.

1. Turn OFF the system.
2. Remove the Keyboard Assy (FRU No. 204). Refer to 6-2-10.
3. Remove the Left Cover (FRU 404). Refer to 6-2-27.
4. Remove the Right Cover (FRU 405). Refer to 6-2-28.
5. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
6. Remove the Front Cover (FRU 407). Refer to 6-2-30.
7. Remove the Top Cover (FRU 409). Refer to 6-2-32.
8. Remove the Printer Cover (FRU 410). Refer to 6-2-33.
9. Remove four hexagonal bolts (1 - 4).
10. Remove the Neck Frame (FRU No. 413).

6-2-36 Neck Frame (FRU No. 413) (Continued)



NECK FRAME DISASSEMBLY
ILLUSTRATION 6-42

6-2-37 Rear Panel Assy (FRU No. 414)**Time Required**

0.5 Hour

Tool Required

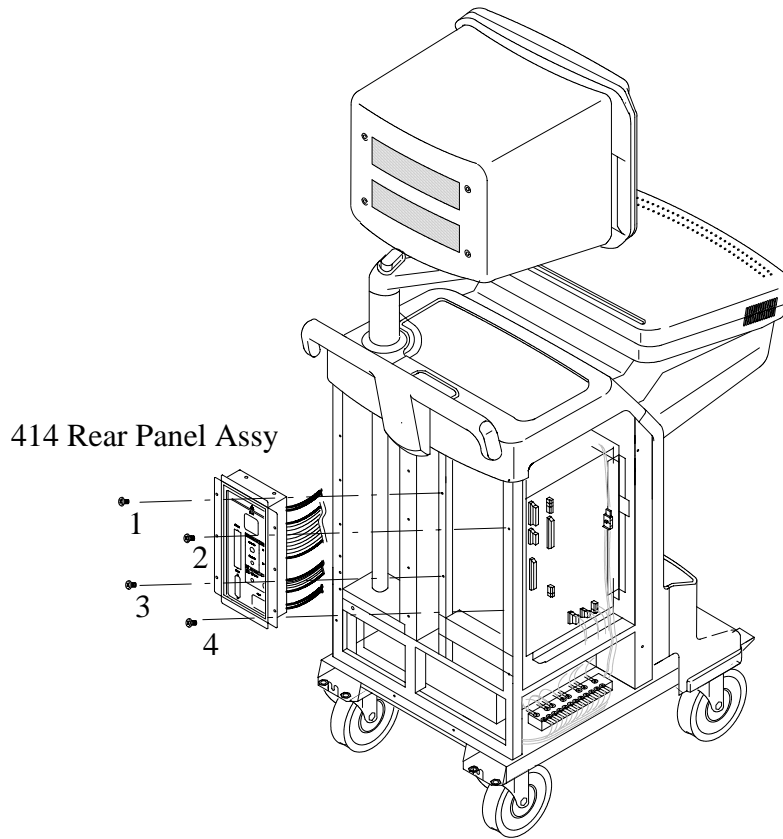
Screwdriver

Procedure

Refer to ILLUSTRATION 6-43.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
5. Remove the EMI Cover (FRU 419). Refer to 6-2-42.
6. Disconnect all connectors out of the Rear Panel Assy. If necessary, cut tie wraps. Connectors are listed below.
 - a. Unscrew and disconnect three ring terminals (1A, 2A and 5A) from the Terminal Block 6 Assy. Refer to 6-2-45, ILLUSTRATION 6-51.
 - b. Disconnect four connectors (J2, J3, J6 and J8) from the Mother Assy. For each cable, refer to 6-2-21, ILLUSTRATION 6-27.
7. Unscrew four screws (1 - 4) and pull the Rear Panel Assy out.
8. Remove the Rear Panel Assy.

6-2-37 Rear Panel Assy (FRU No. 414) (Continued)



REAR PANEL ASSY DISASSEMBLY
ILLUSTRATION 6-43

6-2-38 Power S/W Assy (FRU No. 415)**Time Required**

10 Minutes

Tool Required

Screwdriver

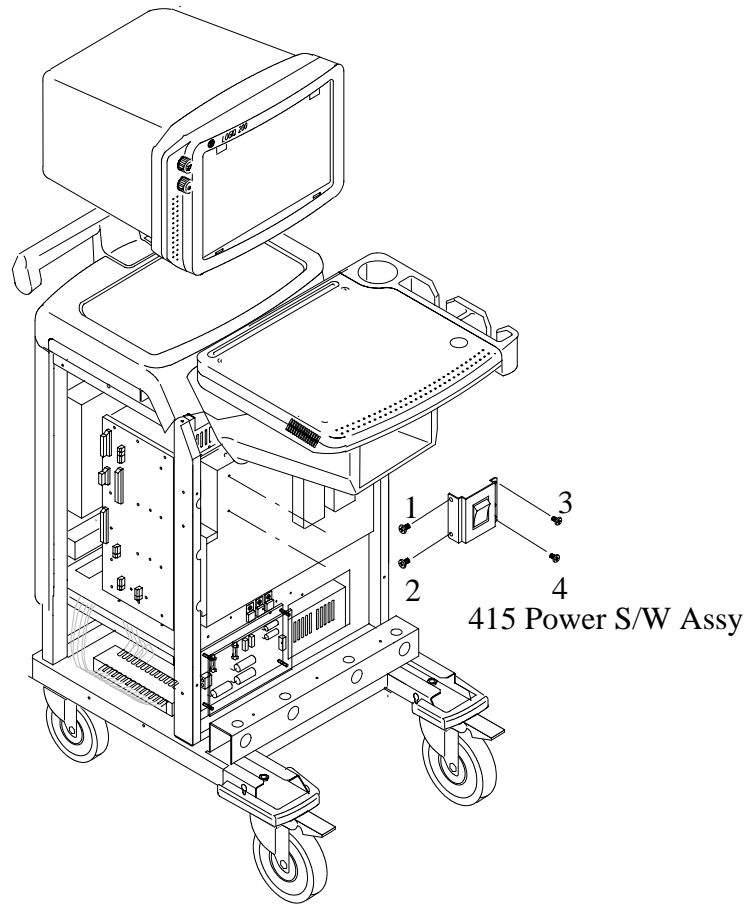
Procedure

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-44.

1. Turn OFF the system and unplug the power cord from the outlet.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Unscrew four screws (1 - 4).
7. Disconnect fore Terminals from the Power S/W Assy.
8. Remove the Power S/W Assy.

6-2-38 Power S/W Assy (FRU No. 415) (Continued)



POWER S/W ASSY DISASSEMBLY
ILLUSTRATION 6-44

6-2-39 Front Caster (FRU No. 416)**Time Required**

15 Minutes

Tool Required

Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-45.

1. Turn OFF the system.
2. Put a box below the Power Trans box.
3. Unscrew four hexagonal bolts (1 - 4) on each Front Caster.
4. Remove the Front Caster.

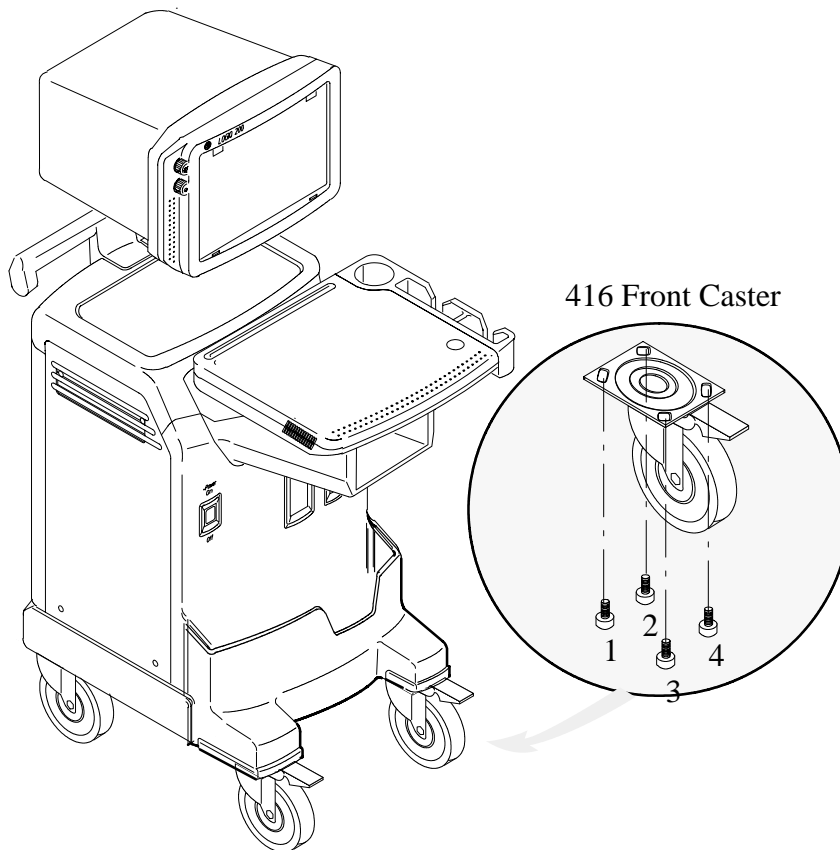
**FRONT CASTER DISASSEMBLY**

ILLUSTRATION 6-45

6-2-40 Rear Caster (FRU No. 417)**Time Required**

15 Minutes

Tool Required

Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-46.

1. Turn OFF the system.
2. Put a box below the Power Trans box.
3. Unscrew four hexagonal bolts (1 – 4) on each Rear Caster.
4. Remove the Rear Caster.

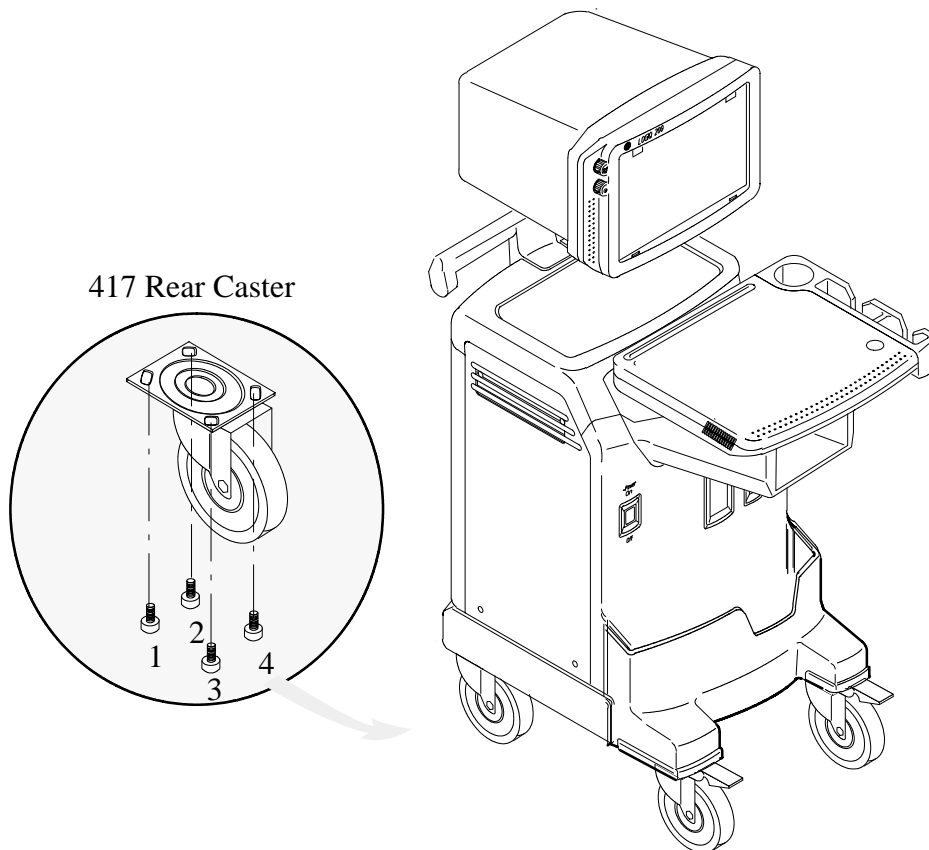
**REAR CASTER DISASSEMBLY**

ILLUSTRATION 6-46

6-2-41 Bumper Set (FRU No. 418)**Time Required**

10 Minutes

Tool Required

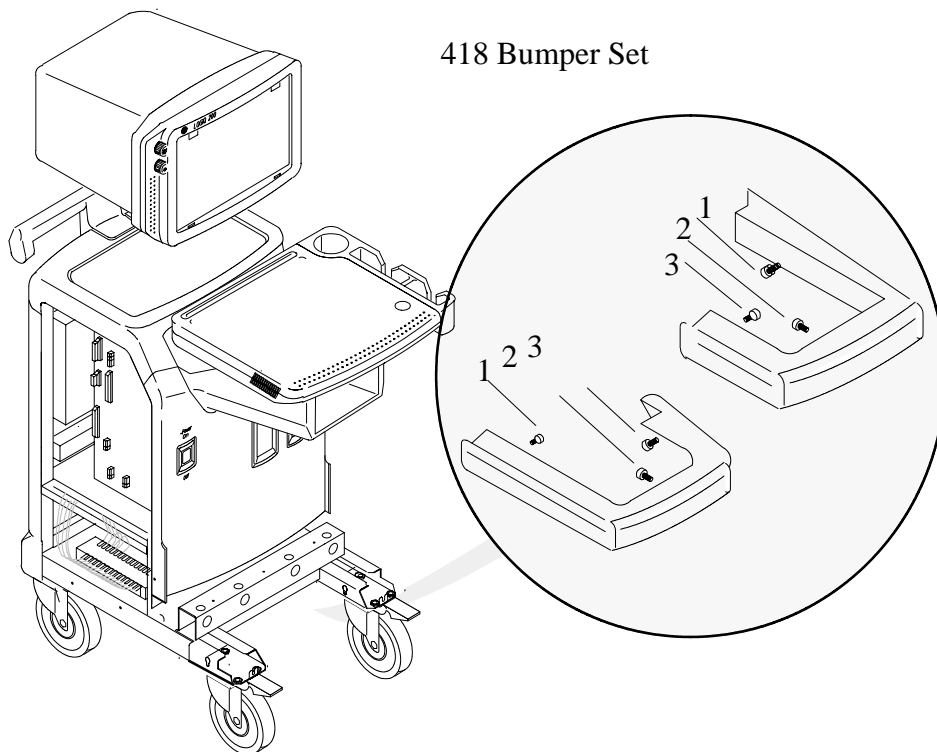
Screwdriver

Hexagonal Wrench

Procedure

Refer to ILLUSTRATION 6-47.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Unscrew three hexagonal bolts (1 - 3) on each Bumper Set
6. Remove the Bumper Set (FRU 418).



BUMPER SET DISASSEMBLY
ILLUSTRATION 6-47

6-2-42 EMI Cover L (FRU No. 419)

Time Required

5 Minutes

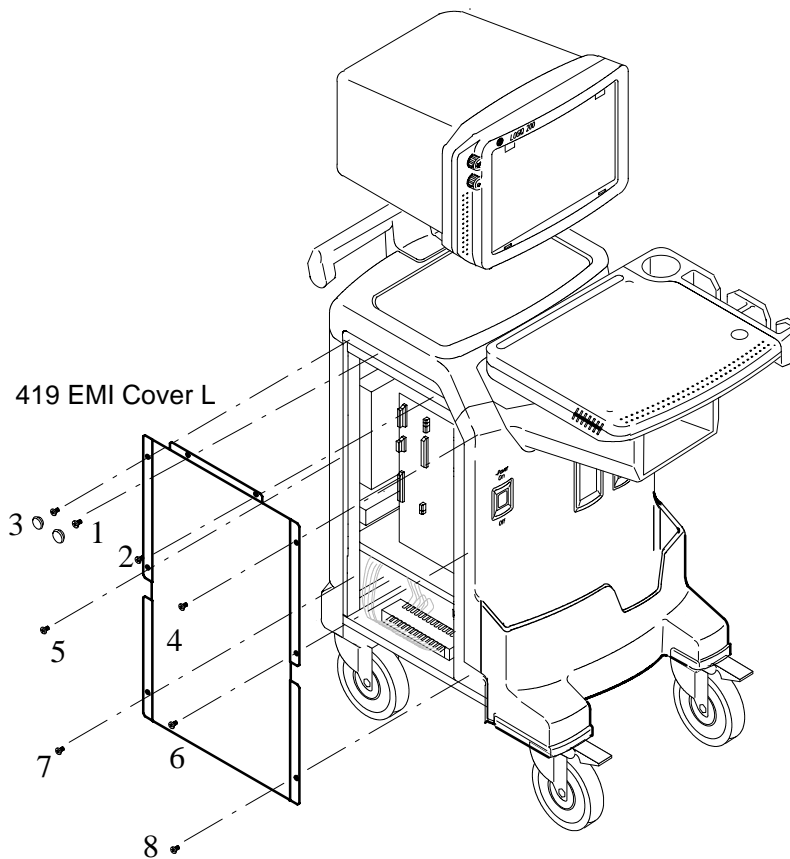
Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-48.

1. Turn OFF the system.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Unscrew eight screws (1 - 8).
4. Remove the EMI Cover L (FRU 419).



EMI COVER L DISASSEMBLY
ILLUSTRATION 6-48

6-2-43 PCB Guide Assy (FRU No. 420)**Time Required**

5 Minutes

Tool Required

Screwdriver

Procedure

Refer to ILLUSTRATION 6-34.

1. Turn OFF the system.
2. Remove the Right Cover(FRU 405). Refer to 6-2-28.
3. Unscrew four screws (1 – 4).
4. Remove the PCB Guide Assy (FRU 420).

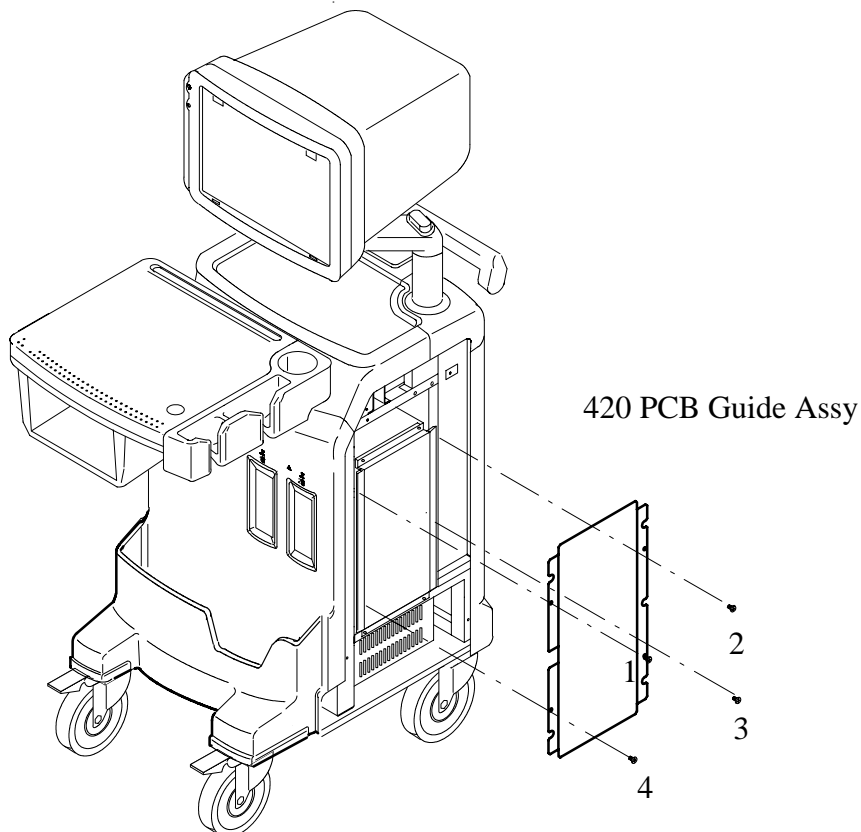
**PCB GUIDE DISASSEMBLY**

ILLUSTRATION 6-49

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6-2-44 Terminal Block 12 Assy (FRU No. 501)**Time Required**

10 Minutes

Tool Required

Screwdriver

Hexagonal Wrench

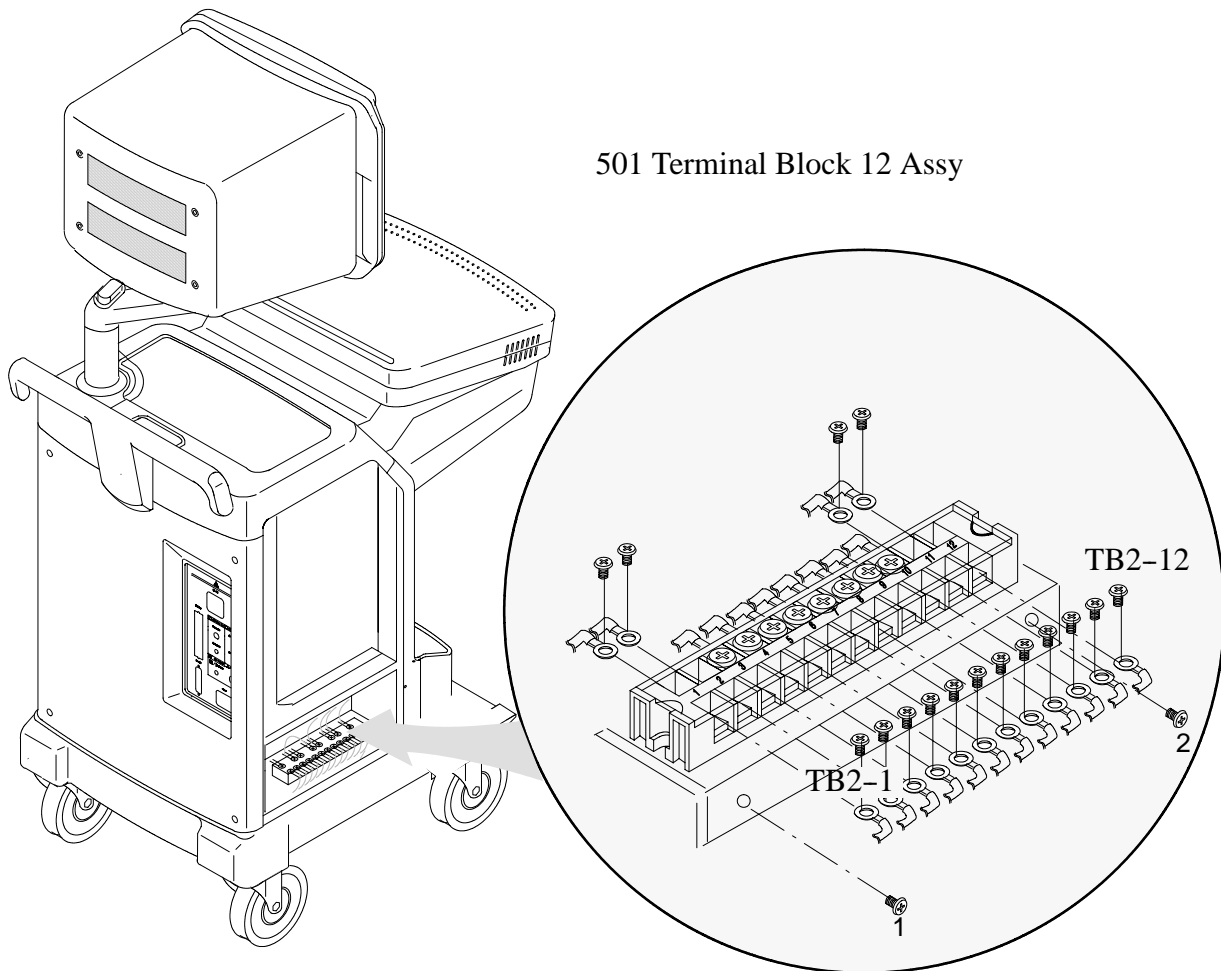
Procedure

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-50.

1. Turn OFF the system and unplug the power cord from the outlet.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Unscrew the two screws (1 and 2) and pull out the Terminal Block 12 Assy.
4. Unscrew and Disconnect twelve ring terminals (TB2-1 ~ TB2-12). Refer to NO TAG, Chapter 5. Cut the tie wrap, if necessary.
5. Unscrew and Disconnect twelve ring terminals (TB2-1 ~ TB2-12).
6. Remove the Terminal Block 12 Assy.

6-2-44 Terminal Block 12 Assy (FRU No. 501) (Continued)



TERMINAL BLOCK 12 ASSY DISASSEMBLY
ILLUSTRATION 6-50

6-2-45 Terminal Block 6 Assy (FRU No. 502)**Time Required**

10 Minutes

Tool Required

Screwdriver

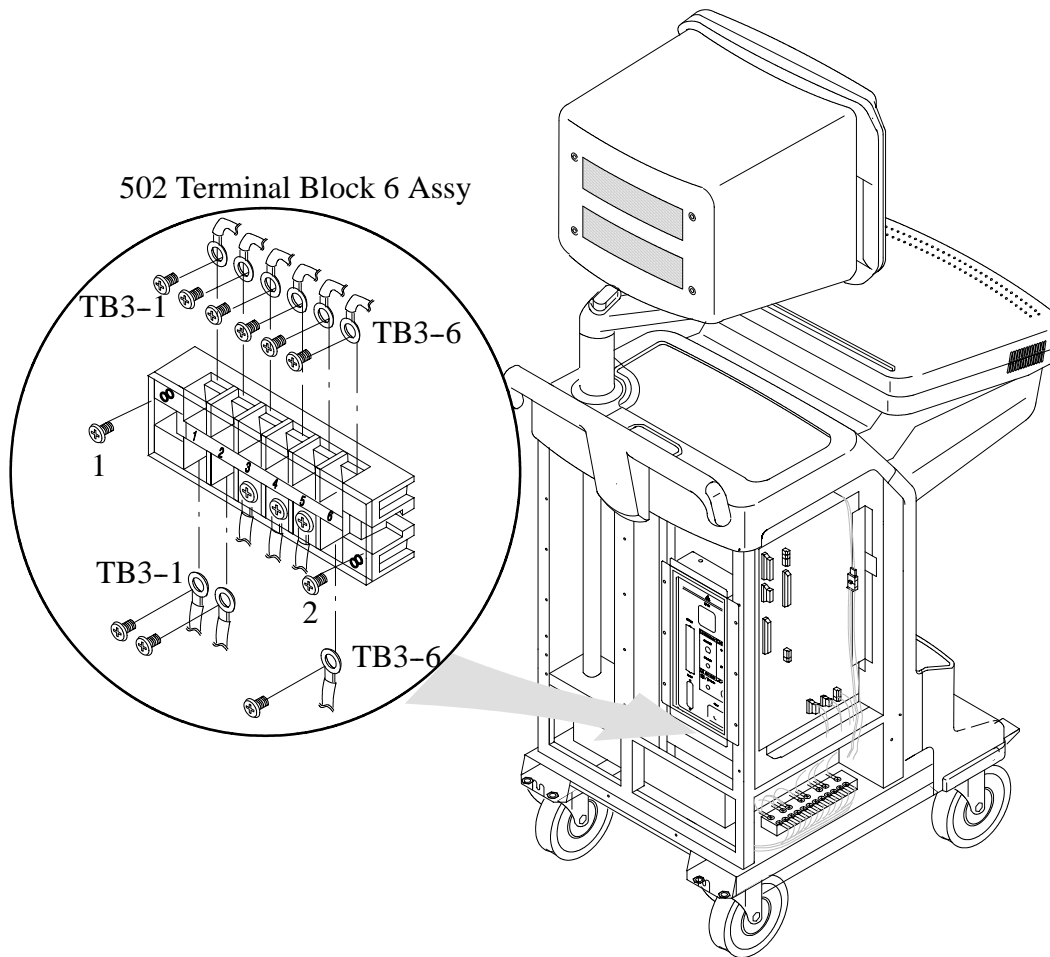
Procedure

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-51.

1. Turn OFF the system and unplug the power cord from the outlet.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
5. Unscrew and Disconnect six ring terminals (TB3-1 ~TB3-6).
6. Unscrew and Disconnect six ring terminals (TB3-1 ~TB3-6).
7. Unscrew the two screws (1 and 2) and pull out the Terminal Block 6 Assy.
8. Remove the Terminal Block 6 Assy.

6-2-45 Terminal Block 6 Assy (FRU No. 502) (Continued)



TERMINAL BLOCK 6 ASSY DISASSEMBLY
ILLUSTRATION 6-51

6-2-46 SMPS Assy (FRU No. 503)

Time Required

10 Minutes

Tool Required

Screwdriver

Hexagonal Wrench (Key Size: 4 mm)

Procedure

Refer to 6-4, SMPS Assy REPLACEMENT.

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6-2-47 Power Trans Assy (FRU No. 504)**Time Required**

20 Minutes

Tool Required

Screwdriver

Hexagonal Wrench

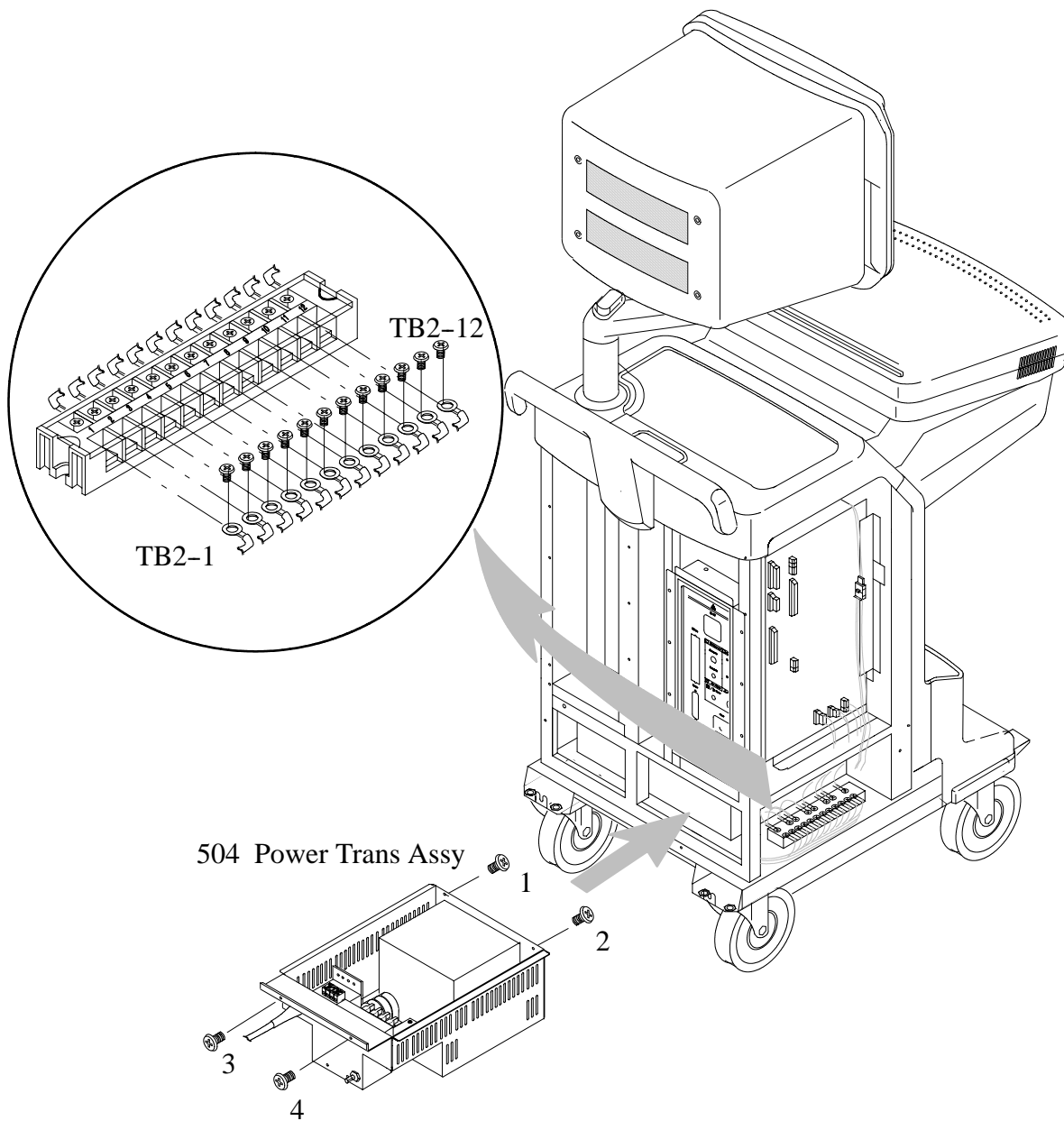
Procedure

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-52.

1. Turn OFF the system and unplug the power cord from the outlet.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
6. Remove the SMPS Assy (FRU 503). Refer to Refer to 6-4, SMPS Assy REPLACEMENT..
7. Disconnect sixteen cables listed below. Cut the tie wraps off if necessary. For each cable, refer to ILLUSTRATION 6-52.
 - a. Unscrew and Disconnect twelve ring terminals (TB2-1 ~ TB2-12) from the Terminal Block 12 Assy. Refer to 6-2-44.
 - b. Unscrew and Disconnect two ring terminals. Refer to 6-2-45.
 - c. Disconnect two terminals from the Power S/W Assy.
8. Unscrew two screws (1 and 2) of front side and two screws (3 and 4) of rear side of the system.
9. Pull out the Power Trans Assy to the backward of the system.

6-2-47 Power Trans Assy (FRU No. 504) (Continued)



POWER TRANS ASSY DISASSEMBLY
ILLUSTRATION 6-52

6-2-48 Circuit Breaker Set (FRU No. 505)**Time Required**

30 Minutes

Tool Required

Screwdriver

Procedure**CAUTION**

Do NOT unplug the power cord before OFF the power switch.

Refer to ILLUSTRATION 6-53.

1. Turn OFF the system & unplug the power cord from the outlet.
2. Remove the Power Trans Assy (FRU 504). Refer to 6-2-47.
3. Unscrew four screws (1 - 4) on the front of Power Trans Assy. Refer to ILLUSTRATION 6-53.
4. Remove the defective Circuit Breaker.

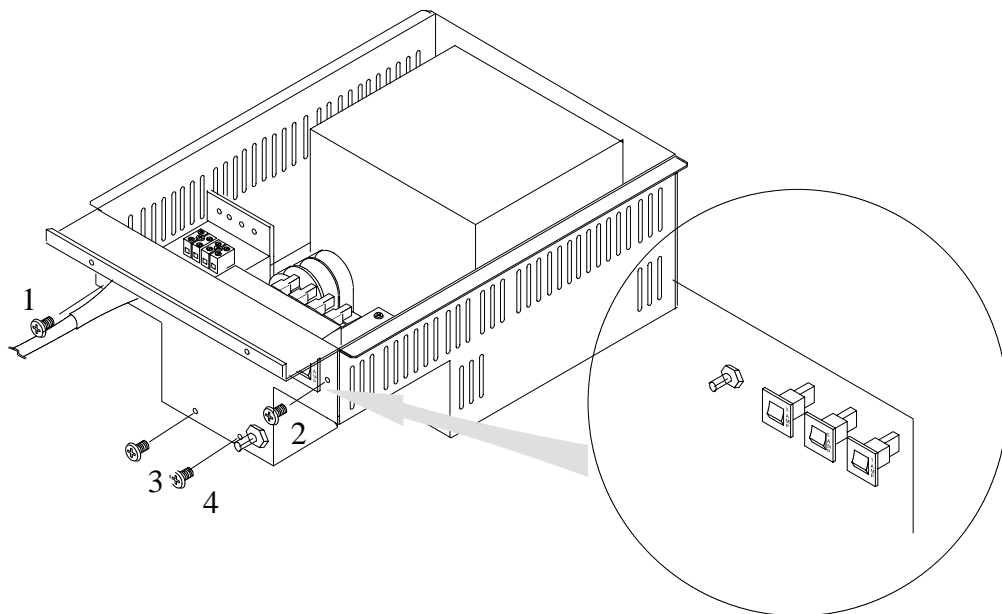
**CIRCUIT BREAKER DISASSEMBLY**

ILLUSTRATION 6-53

6-3 FUSE REPLACEMENT

6-3-1 Introduction

LOGIQ 200 PRO Series has four replaceable fuses. The table below states the items of those fuses.

TABLE 6- 1
REPLACEABLE FUSES

LOCATION	Ref. No.	RATING		REMARKS
BPHV Assy	F1	1 A, SB	250 V	(SB ; Slow Blow type)
BPHV Assy	F2	500 mA, SB	250 V	(SB ; Slow Blow type)
BPHV Assy	F3	500 mA, SB	250 V	(SB ; Slow Blow type)
Monitor	F1	3 A, SB	250 V	(SB ; Slow Blow type)

6-3-2 Replacement Procedures

Concerning replacing each fuse of LOGIQ 200 PRO Series, refer to the following steps;

Note

This system contains no operator serviceable parts inside. Please refer servicing to qualified personnel from GE. (See Address of Chapter 1.)

Parts Required

FRU	PART NAME	QTY	PART #	REMARKS
605	FUSE SET	1	2249717-2	

Tools Required

- Screwdriver
- Hexagonal Wrench (Key Size: 3mm)

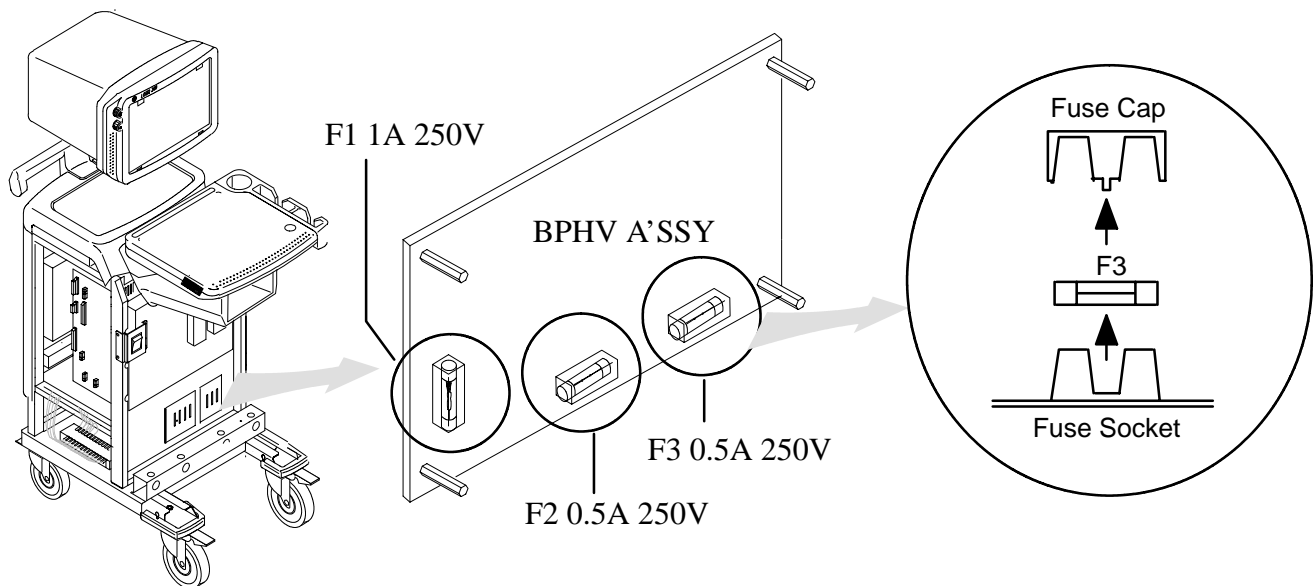
6-3-2 Replacement Procedures (Continued)

(A) F1, F2 and F3 on BPHV Assy



Make sure that only fuse with the required rated current and of the same type is used for replacement.

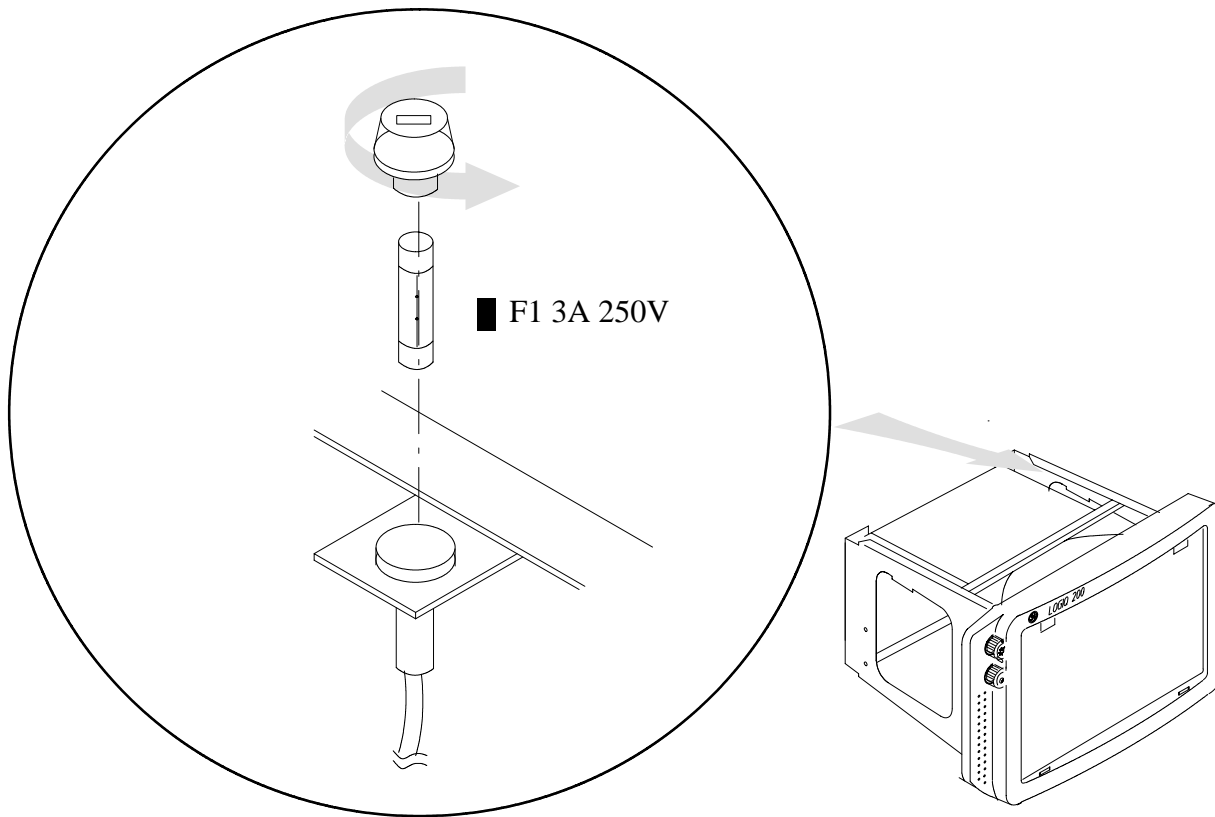
1. Turn the system power OFF and unplug the power cord from the outlet. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46-015902).
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover (FRU 405). Refer to 6-2-28.
4. Remove the Front Base Cover (FRU 406). Refer to 6-2-29.
5. Remove the Front Cover (FRU 407). Refer to 6-2-30.
6. Remove the BPHV top cover. Refer to 6-2-18.
7. Replace the defective fuse(s) with new one(s). For the location of fuses, refer to ILLUSTRATION 6-54.
8. Re-install the Covers.



BPHV ASSY
ILLUSTRATION 6-54

6-3-2 Replacement Procedures (Continued)**(B) F1 on Monitor Assy**

1. Turn the system power OFF. Follow the OSHA Lockout/Tagout Requirements (29 CFR 1910.147, Direction 46-015902).
2. Remove the Monitor Bottom Cover and Monitor Rear Cover. Refer to 6-2-4.
3. Replace the defective fuse with new one. For the location of fuses, refer to ILLUSTRATION 6-55. Make sure that only fuse with the required rated current and of same type is used for replacement.
4. Re-install the Monitor Bottom Cover and Monitor Rear Cover.



MONITOR ASSY
ILLUSTRATION 6-55

6-4 SMPS Assy REPLACEMENT

6-4-1 Introduction

This section describes the procedures for replacing the SMPS Assy unit of LOGIQ 200 PRO Series.

6-4-2 Replacement Procedure

READ and UNDERSTAND these instructions thoroughly before proceeding with the replacement. Perform each step in sequence and check it off when completed. If a problem occurs after completion, go back through the procedure and check for implementation errors before contacting your Ultrasound Region Engineer.



Possible operational damage. Failure to strictly follow ESD (Electrostatic Discharge) precautions during this upgrade may cause constant or intermittent operational abnormalities. Strictly follow all precautions.

Check each step as it is completed.

Parts Required

FRU	PART NAME	QTY	PART #	REMARKS
503	SMPS ASSY	1	2235398	

Time Required

Approximately one (1) hours

Tools Required

Standard field Service Tool kit

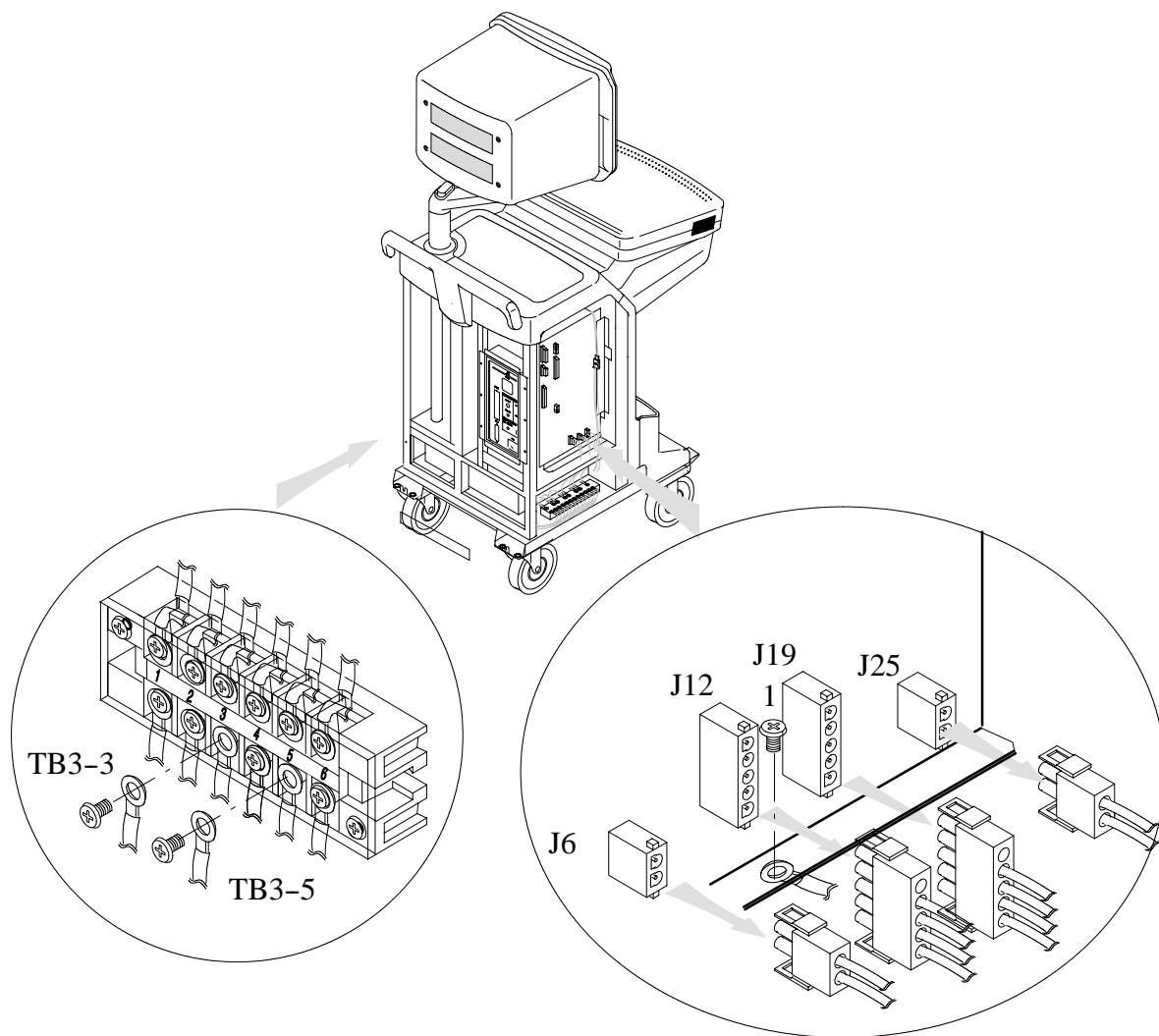
(A) Removing Covers

1. Turn the system power OFF and unplug the unit.
2. Remove the Left Cover (FRU 404). Refer to 6-2-27.
3. Remove the Right Cover(FRU 405). Refer to 6-2-28.
4. Remove the Rear Cover (FRU 408). Refer to 6-2-31.
5. Remove the EMI Cover L (FRU 419). Refer to 6-2-42.

6-4-2 Replacement Procedure (Continued)

(B) Disconnecting Cables

1. Disconnect seven cables listed below. Cut the tie wraps off if necessary. For each cable, refer to ILLUSTRATION 6-56.
 - a. Disconnect four connectors (J6, J12, J19, J25) from the Mother Assy.
 - b. Unscrew and Disconnect two ring terminals (TB3-3 and TB3-5) from the Terminal Block 6 Assy.
 - c. Unscrew one ground screw (1).



LEFT SIDE VIEW
ILLUSTRATION 6-56

6-4-2 Replacement Procedure (Continued)**(C) Replacing SMPS Assy**

1. Unscrew two hexagonal bolts (1 and 2). Two bolts are located at the front of SMPS Assy.
2. Pull out the SMPS Assy forwards. Refer to ILLUSTRATION 6-57.

WARNING!

PERSONAL INJURY HAZARD! SMPS ASSY UNIT WEIGHTS APPROXIMATELY 3.5 KILOGRAMS (7.8 POUNDS). PAY ATTENTION NOT TO BE INJURED.

3. Remove the SMPS Assy and place new one on the pallet.
4. Slide and move the pallet to the position just under the console. Make sure that the SMPS Assy unit is placed in the correct direction.
5. Screw two hexagonal screws to assemble new SMPS Assy unit to the console.

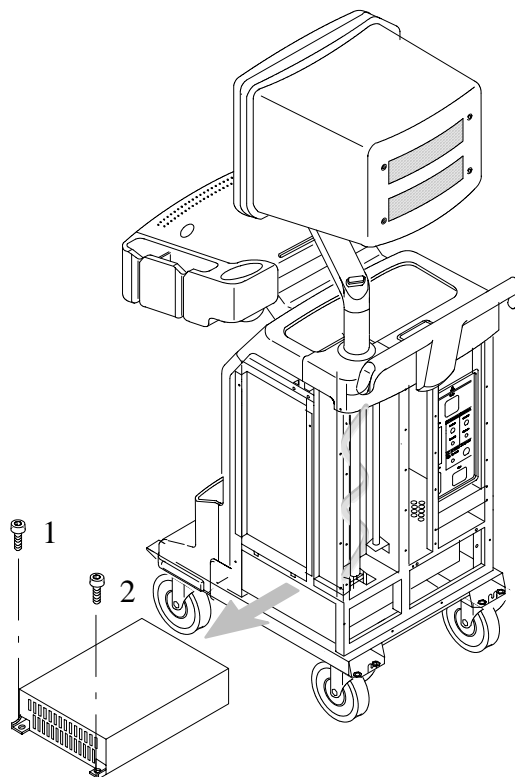
**SMPS ASSY UNIT REMOVAL**

ILLUSTRATION 6-57

6-4-2 Replacement Procedure (Continued)**(D) Final Procedure**

1. Connect four cables with the appropriate connectors. For the details of cables, refer to 6-4-2, (B), Disconnecting Cables.
2. Re-assemble the removal parts.
3. Plug the system and power it ON.
4. Perform all SMPS Assy checks and leakage current test.
5. Perform functional checks to verify that the system is functioning properly. Refer to Chapter 4, FUNCTIONAL CHECKS, in this manual.
6. This completes the replacement of the SMPS Assy Unit.



Before connect the cables, Check and distinguish the labels especially for J12, J19, J3, J6.

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CHAPTER 7 – PERIODIC MAINTENANCE

TABLE OF CONTENTS

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	7-3-5 When There's Too Much Leakage Current... ..	7-14

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7-1 INTRODUCTION

This chapter provides Periodic Maintenance procedures. It is an effective and efficient method of reducing equipment down time and service cost.

7-1-1 Periodic Maintenance

Periodic Maintenance consists of visual inspections, system performance checks, and periodic cleaning of certain critical parts. Perform this procedure at one year intervals. This schedule for maintenance is based on an estimated equipment usage of 40 hours per week.

7-2 PERIODIC MAINTENANCE PROCEDURE

7-2-1 Visual Inspection

1. Check all cables for cracks nicks and abrasions in their insulation.
2. Check that cable sheaths are securely clamped in cable ground/connector clamps where applicable.
3. Check that cables are correctly routed and secured.
4. Check that there are no missing screws or fasteners and replace if necessary.
5. Check that all detachable cable connectors are properly seated in their sockets.
6. Check that all equipment covers and fixtures are in place and undamaged.
7. Check that all plug-in boards are properly seated in cardcage connector.
8. Check that the keyboard keys, controls and Trackball function properly and that no mechanical damage is apparent.

7-2-2 Cleaning

1. Clean CRT filter.
2. Clean out the interior of the Console by using a vacuum cleaner.

7-2-3 Measurement

1. Make sure that electrical outlet of hospital should provide the power line standard.
Refer to Chapter 2, Installation.
2. Ensure all SMPS voltages are within tolerance.
Refer to section 4-3, SMPS ADJUSTMENT in Chapter 4, FUNCTIONAL CHECKS, for adjustment procedure.
3. Make sure that leakage currents are within tolerance.
Refer to section 2-3, ELECTRICAL SAFETY TESTS in Chapter 2, INSTALLATION, for measurement procedures.

7-2-4 Note

Visual inspection of probes ("head", cable and connector)

7-3 ELECTRICAL SAFETY TESTS

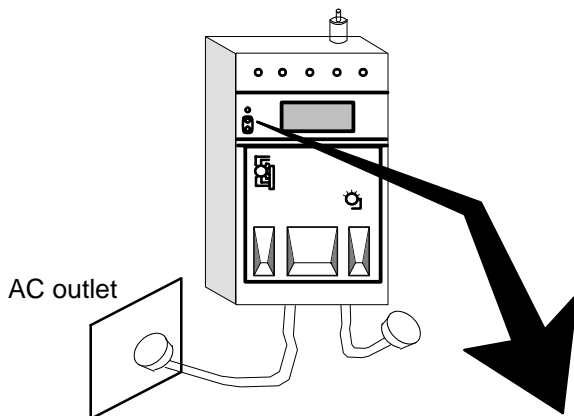
The following tests are performed at the factory and should be performed at the site. These tests are: grounding continuity, chassis leakage current, probe leakage current, and ECG leakage current. All measurements are made with an Electrical Safety Analyzer Model Dale 600/600E built by Dale Technology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

Recommended Tool

<u>PART NUMBER</u>	<u>NAME</u>	<u>DESCRIPTION</u>
46-285652G1	Electric Safety Analyzer DALE 600	For 110/115V Units
46-328406G2	Electric Safety Analyzer DALE 600E	For 220/240V Units
2113015	Leakage Current Ultrasound Kit	For 100/115V and 220/240V Units

7-3-1 Outlet Test Wiring Arrangement

Test all outlets in the area for proper wiring arrangement by plugging in the Dale 600/600E and noting the combination of lights that are illuminated (Refer to ILLUSTRATION 7-1).



Combination of Light	● ☀ ☀	☀ ☀ ●	● ☀ ●	● ● ●	☀ ● ☀
Condition	CORRECT WIRING	REVERSE POLARITY	OPEN GROUND	OPEN HOT	HOT/GROUND REVERSED

OUTLET TEST
ILLUSTRATION 7-1

Note

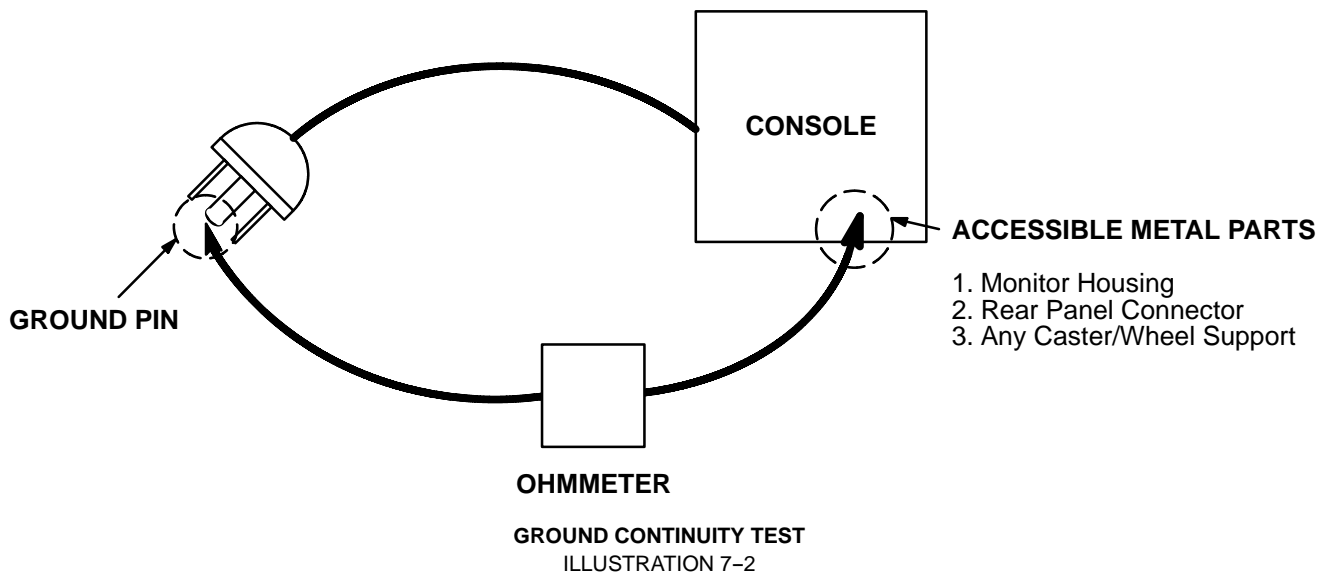
No outlet tester can detect the condition where the Neutral (grounded supply) conductor and the Grounding (protective earth) conductor are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

7-3-2 Grounding Continuity



Electric Shock Hazard. The patient must not be contacted to the equipment during this test.

Measure the resistance from the third pin of the attachment plug to the exposed metal parts of the case (ILLUSTRATION 7-2). 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 LOGIQ 200 PRO Series unit OFF.
2. Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 7-2).
3. Plug the black chassis cable into the meter's "CHASSIS" connector and attach the chassis cable clamp to an exposed metal part of the LOGIQ 200 PRO Series unit (Refer to ILLUSTRATION 7-2).
4. Set the meter's "FUNCTION" switch to the RESISTANCE position.
5. Set the meter's "POLARITY" switch to the OFF (center) position.
6. Measure the ground wire resistance and keep a record of the results with other hard copies of PM data kept on site.

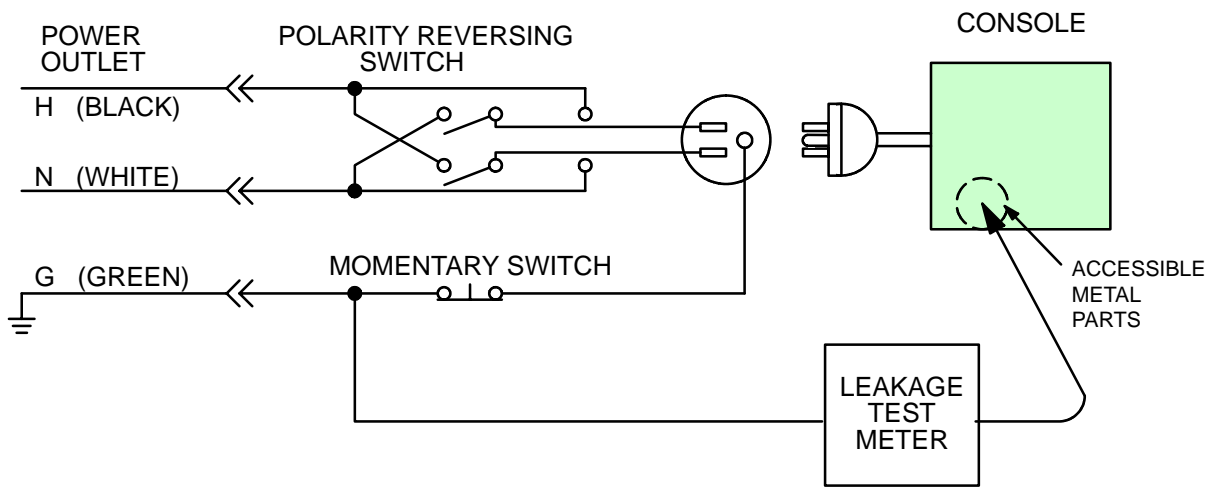
7-3-3 Chassis Leakage Current Test

Definition

Leakage current is the electrical current that could flow ground wire break. The unit, the probes, the ECG module, and all external peripherals must be tested.

Generic Procedure

The test verifies the isolation of the power line from the chassis. The testing meter is connected from accessible metal parts of the case to ground. Measurements should be made with the unit ON and OFF, with the power line polarity Normal and Reversed. **Record the highest reading of current.**



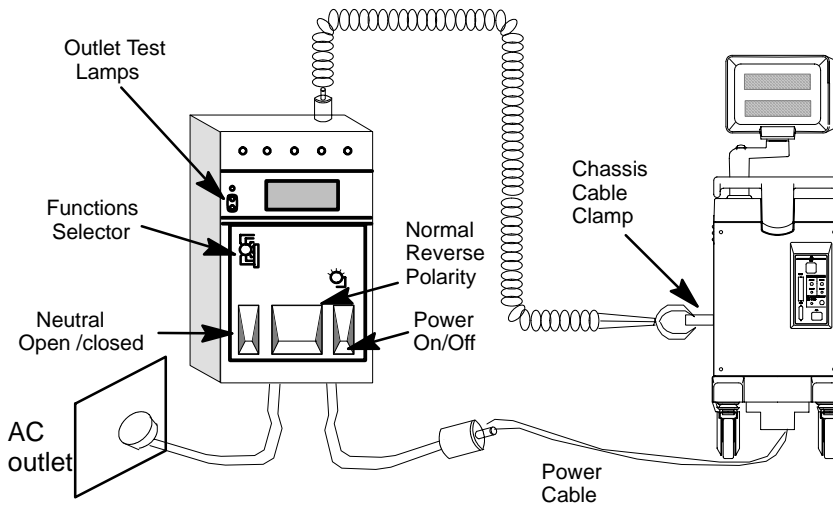
SETUP FOR CHASSIS SOURCE LEAKAGE CURRENT
ILLUSTRATION 7-3

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

Meter Procedure

Follow these steps to test the unit for leakage current.

1. Turn the LOGIQ 200 PRO Series unit OFF.
2. Plug the unit into the meter, and the meter into the tested AC wall outlet (Refer to ILLUSTRATION 7-4).



GROUND AND CHASSIS LEAKAGE CURRENT TEST
ILLUSTRATION 7-4

3. Plug the black chassis cable into the meter's "CHASSIS" connector and attach the black chassis cable clamp to an exposed metal part of the LOGIQ 200 PRO Series unit (Refer to ILLUSTRATION 7-4).
4. Set the tester's "FUNCTION" switch to CHASSIS position.
5. Follow the test conditions described in the following table for every test point on the unit.

TABLE 7- 1
CHASSIS LEAKAGE CURRENT TEST CONDITIONS

TEST	CONDITION
1	Mounting screw for transducer receptacle
2	Wheel support
3	Mounting screw for CRT housing
4	Mounting screw for peripheral plugged into unit
5	Mounting screw for other peripheral powered by unit

6. Keep a record of the results with other hard copies of PM data kept on site.

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

Data Sheet for Chassis Source Leakage Current

Follow the foregoing test procedure. The test passes when all readings measure less than the value shown in the table below (TABLE 7- 2).

TABLE 7- 2
MAXIMUM ALLOWANCE LIMIT FOR CHASSIS SOURCE LEAKAGE CURRENT

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	N/A	0.3mA	0.3mA	N/A
OTHERS	0.1mA	0.5mA	0.5mA	0.5mA



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

TABLE 7- 3
DATA SHEET FOR CHASSIS SOURCE LEAKAGE CURRENT

Unit Power	Tester POLARITY Switch	Tester NEUTRAL or GROUND Switch	Test1 Probe connector	Test2 wheel	Test3 CRT	Test4	Test5
Enter name of tested peripheral here:							
ON	NORM	OPEN					
ON	NORM	CLOSED					
ON	REV	OPEN					
ON	REV	CLOSED					
OFF	NORM	OPEN					
OFF	NORM	CLOSED					
OFF	REV	OPEN					
OFF	REV	CLOSED					

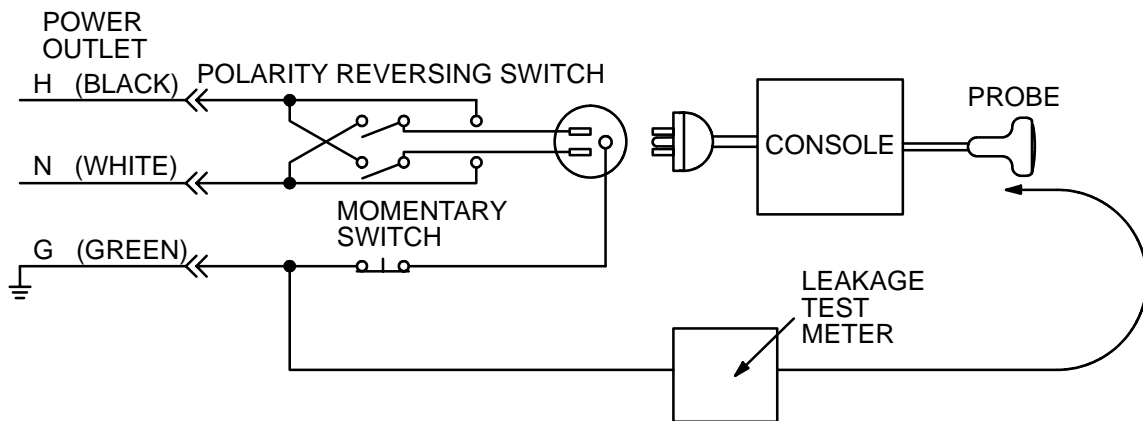
7-3-4 Probe Leakage Current Test

Definition

This test measures the current that would flow to ground from any of the probes through a patient who is being scanned and becomes grounded by touching some other grounded surface.

Generic Procedure

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the probe must be active to find the worst case condition.



SETUP FOR PROBE LEAKAGE CURRENT
ILLUSTRATION 7-5

Note

Each probe will have some amount of leakage current, dependent on its design. Small variations in probe leakage currents are normal from probe to probe. Other variations will result from differences in line voltage and test lead placement.

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

Meter Procedure Using Probe Adapter

The Dale 600/600E provides a method for testing probes independently from the system. The meter utilizes a probe adapter to apply a test potential commonly to all connector pins.

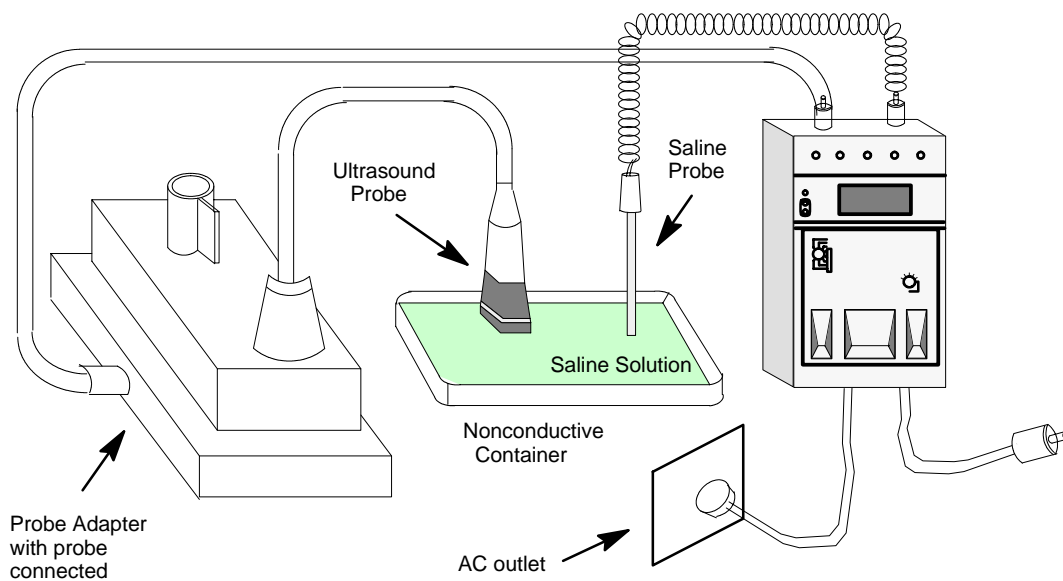
The probe's imaging area is immersed in a saline solution along with a grounding probe from the meter to complete the current path. Saline solution is a mixture of water and salt. The salt adds a free ion to the water, making it conductive. Normal saline solution is 0.9% salt or 1/2 gram salt per 1 liter of water. If saline is not available, a mixture of 1 quart water with one or more grams of table salt, mixed thoroughly, will substitute.



To avoid probe damage and possible electric shock, do not immerse probes into any liquid beyond the level indicated in the probe users manual. Do not touch the probe, conductive liquid or any part of the unit under test while the ISO TEST switch is depressed.

Follow these steps to test each transducer for leakage current.

1. Turn the LOGIQ 200 PRO Series unit OFF.
2. Plug the unit into the test meter, and the meter into the tested AC wall outlet.
3. Connect the probe for test with the meter's appropriate adapter (Refer to ILLUSTRATION 7-6).
4. Plug the saline probe into the meter's "CHASSIS" connector (Refer to ILLUSTRATION 7-6).



TRANSDUCER SOURCE LEAKAGE CURRENT TEST

ILLUSTRATION 7-6

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

5. Plug the probe adapter into the meter's connector marked "EXTERNAL" (Refer to ILLUSTRATION 7-6).
6. Set the meter's "FUNCTION" switch to EXTERNAL position.
7. Add the saline probe and the imaging area of the probe into the saline bath.
8. Have unit power ON for the first part; turn it OFF for the second half.
9. Depress the ISO TEST rocker switch and record the highest current reading.
10. Follow the test conditions described in the following table (TABLE 7- 5) for every transducer.
11. Keep a record of the results with other hand copies of PM data.

Meter Procedure

Follow these steps to test each transducer for leakage current.

1. Turn the LOGIQ 200 PRO Series unit OFF.
2. Plug the unit into the test meter, and the meter into the tested AC wall outlet.
3. Plug the external probe into the meter's "EXTERNAL" connector.
4. Set the meter's "FUNCTION" switch to EXTERNAL position.
5. Connect the probe for test with the connector of the console.
6. Apply a liberal amount of gel to the transducer's lens.
7. Wrap the transducer in aluminum foil, making sure there is good contact with its acoustic aperture.
8. Either suspend the transducer by its cable or place it on an insulated surface.
9. Have unit power ON for the first part; turn it OFF for the second half.
10. Hold the external probe against the aluminum foil on the transducer when the unit is ready to scan.
11. Depress the ISO TEST rocker switch and record the highest current reading.
12. Follow the test conditions described in the following table (TABLE 7- 5) for every transducer.
13. Keep a record of the results with other hand copies of PM data.

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

Data Sheet for Transducer Source Leakage Current

Follow the foregoing test procedure for every transducer. The test passes when all readings measure less than the value shown in the table below (TABLE 7- 4).

TABLE 7- 4
MAXIMUM ALLOWANCE LIMIT FOR PROBE LEAKAGE CURRENT

1. Type BF Applied Part Leakage Current Limits
 [Non-conductive (floating) Surface and Cavity Transducers]

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	0.05mA	0.05mA	0.05mA	0.05mA
OTHERS	0.1mA	0.5mA	0.5mA	0.5mA

2. Type CF Applied Part Leakage Current Limits
 [Surgical Transducer and ECG Connections]

COUNTRY	NORMAL CONDITION	OPEN GROUND	REVERSE POLARITY	OPEN NEUTRAL
USA	0.01mA	0.01mA	0.01mA	0.01mA
OTHERS	0.01mA	0.05mA	0.05mA	0.05mA

TABLE 7- 5
DATA SHEET FOR TRANSDUCER SOURCE LEAKAGE CURRENT

Transducer tested:

LOGIQ 200 PRO Series Unit Power	Tester Power Polarity Switch	Tester Ground or Neutral Switch	Measurement
ON	NORM	OPEN	
ON	NORM	CLOSED	
ON	REV	OPEN	
ON	REV	CLOSED	
OFF	NORM	OPEN	
OFF	NORM	CLOSED	
OFF	REV	OPEN	
OFF	REV	CLOSED	

7-3-5 When There's Too Much Leakage Current...

Chassis Fails

Check the ground on the power cord and plug for continuity. Ensure the ground is not broken, frayed, or intermittent. Replace any defective part.

Tighten all grounds. Ensure star washers are under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Test the wall outlet; verify it is grounded. Notify the user or owner to correct any deviations. As a work around, check the other outlets to see if they could be used instead.

Note

No outlet tester can detect the condition where the white neutral wire and the green grounding wire are reversed. If later tests indicate high leakage currents, this should be suspected as a possible cause and the outlet wiring should be visually inspected.

Probe Fails

Test the probe in another transducer interface connector.

If excessive leakage current is slot dependent, inspect the Transducer Interface board for bent pins, poor connections, and ground continuity.

If the problem still has stayed with the probe, replace the probe.

Peripheral Fails

Tighten all grounds. Ensure star washers are under all ground studs.

Inspect wiring for bad crimps, poor connections, or damage.

Still Fails

If all else fails, begin isolation by removing the probes, external peripherals, then the on board ones, one at a time while monitoring the leakage current measurement.

New Unit

If the leakage current measurement tests fail on a new unit and if situation can not be corrected, submit a Safety Failure Report to document the system problem. Remove unit from operation.

CHAPTER 8 – INSTALLATION FOR OPTIONS

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8-1 INTRODUCTION

This chapter provides the installation procedures and renewal parts for optional devices. The installation procedures for the following optional devices are included in this chapter.

MOD Assy : FUJITSU MDD3064AP

Keep the option installation instructions on this chapter after completing installation for other options.

8-2 MOD ASSY INSTALLATION

8-2-1 INTRODUCTION

These Section describes the installation of the optional MOD FUJITSU MDD3064AP for LOGIQ 200.

8-2-2 TOOLS REQUIRED

Standard field Service Tool kit

8-2-3 TIME REQUIRED

Approx. 0.5 Hour

8-2-4 PARTS REQUIRED

ITEM	PART NAME	QTY	PART #	REMARKS
1.	MOD ASSY	1	2242409	
2.	MOD Top Bracket	1	2240642	
3.	MOD Bottom Bracket	1	2240643	
4.	SCREW M3X6	4	2159624	
5.	SCREW M4X10	4	2159632	

8-2-5 Functional Check-out

READ and UNDERSTAND these instructions thoroughly before proceeding with the installation. Perform each step in sequence and check it off when completed. If a problem occurs after completion, go back through the procedure and check for implementation errors before contacting your Ultrasound Region Engineer.



Possible operational damage. Failure to strictly follow ESD (Electrostatic Discharge) precautions during this upgrade may cause constant or intermittent operational abnormalities. Strictly follow all precautions.

Check each step as it is completed.

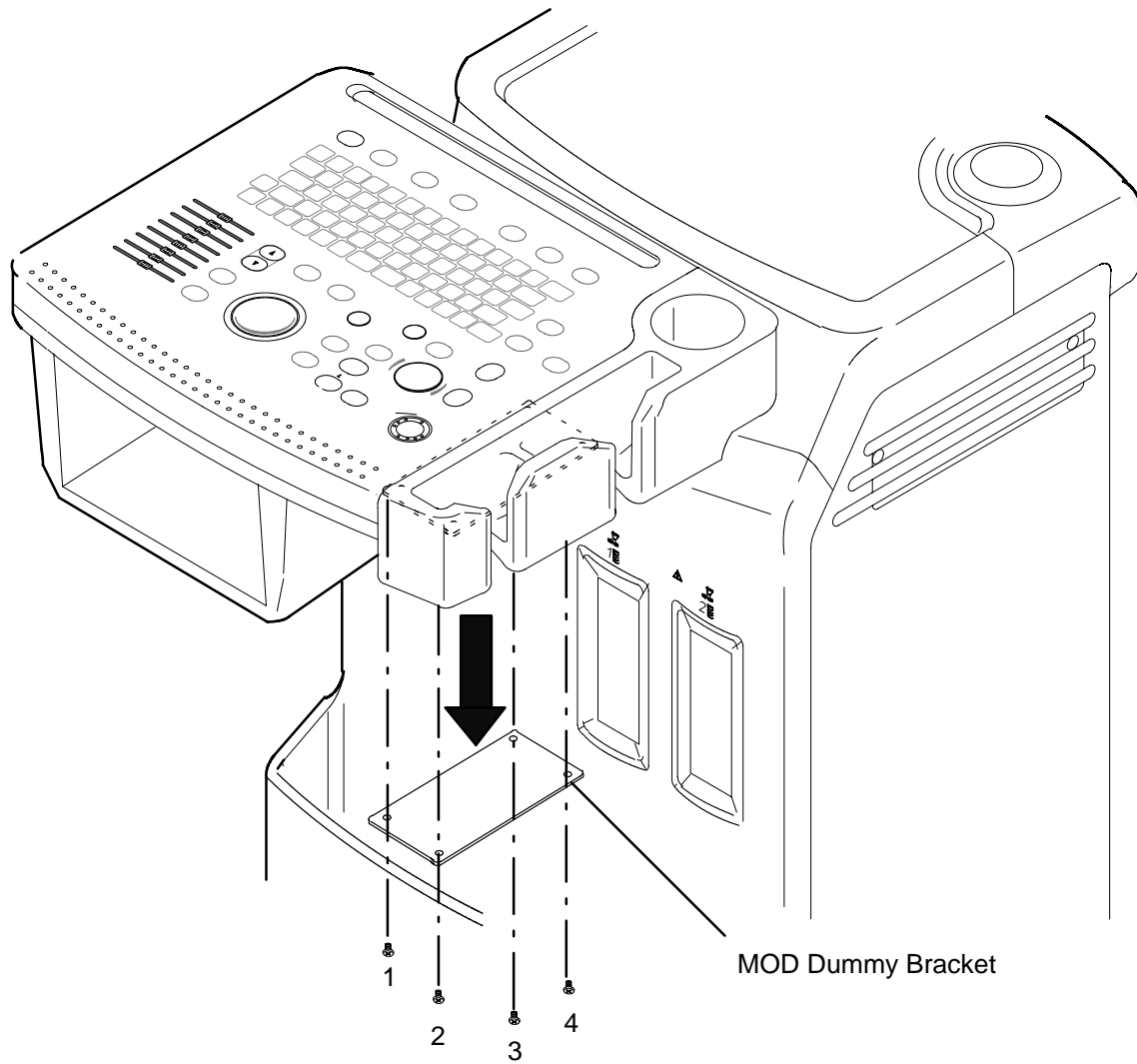
Perform functional checks to verify that the system is functioning properly. Refer to Functional Checks in Chapter 4.

8-2-6 Disassembling Dummy Bracket Assy

1. Turn the system power OFF and unplug the unit.
2. Unscrew four screws (1-4) and remove MOD dummy bracket. Refer to ILLUSTRATION 1-1.

Note

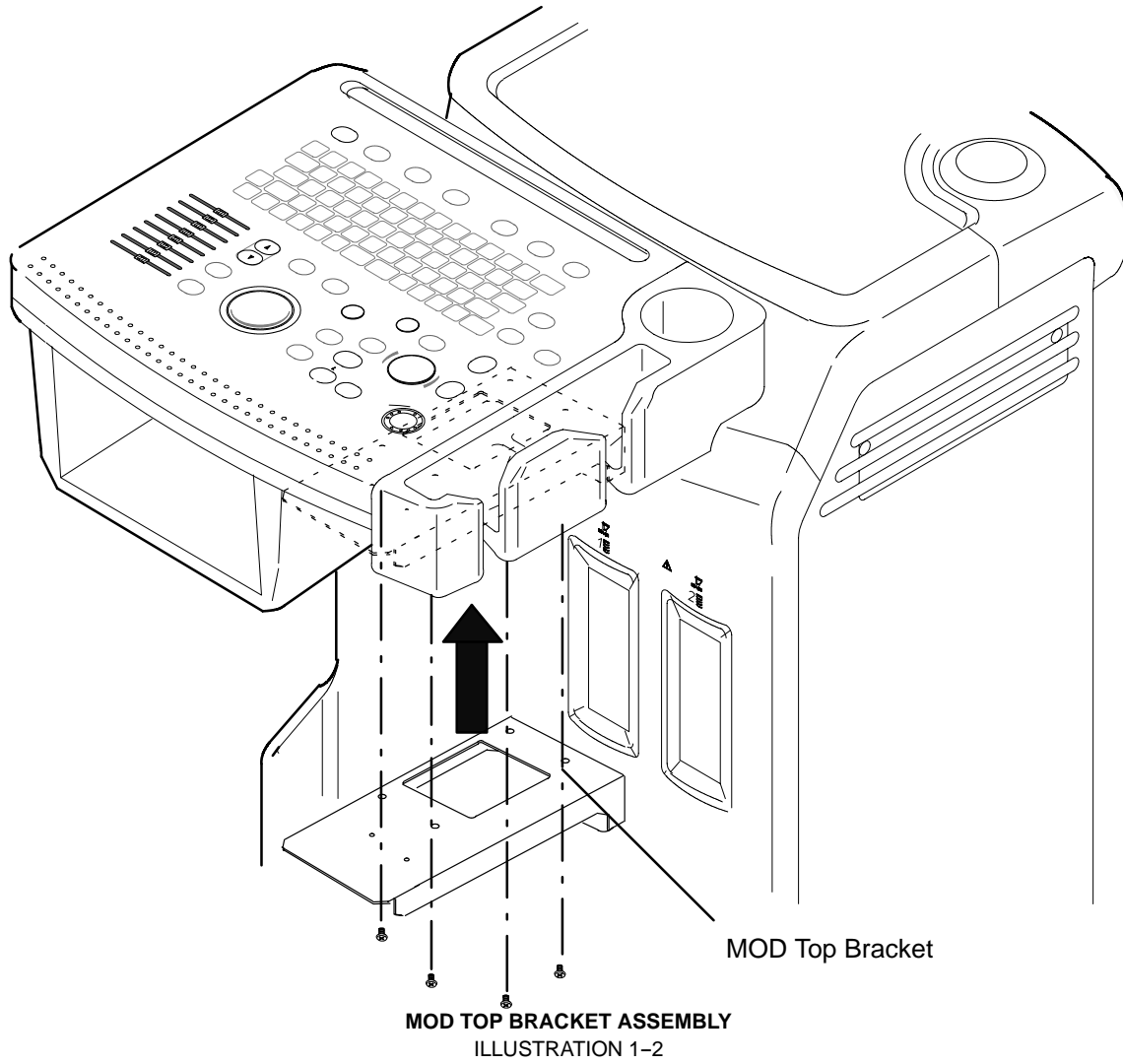
Keep removed screws (1-4) because they are required to mount the MOD Top Bracket.



MOD DUMMY BRACKET DISASSEMBLY
ILLUSTRATION 1-1

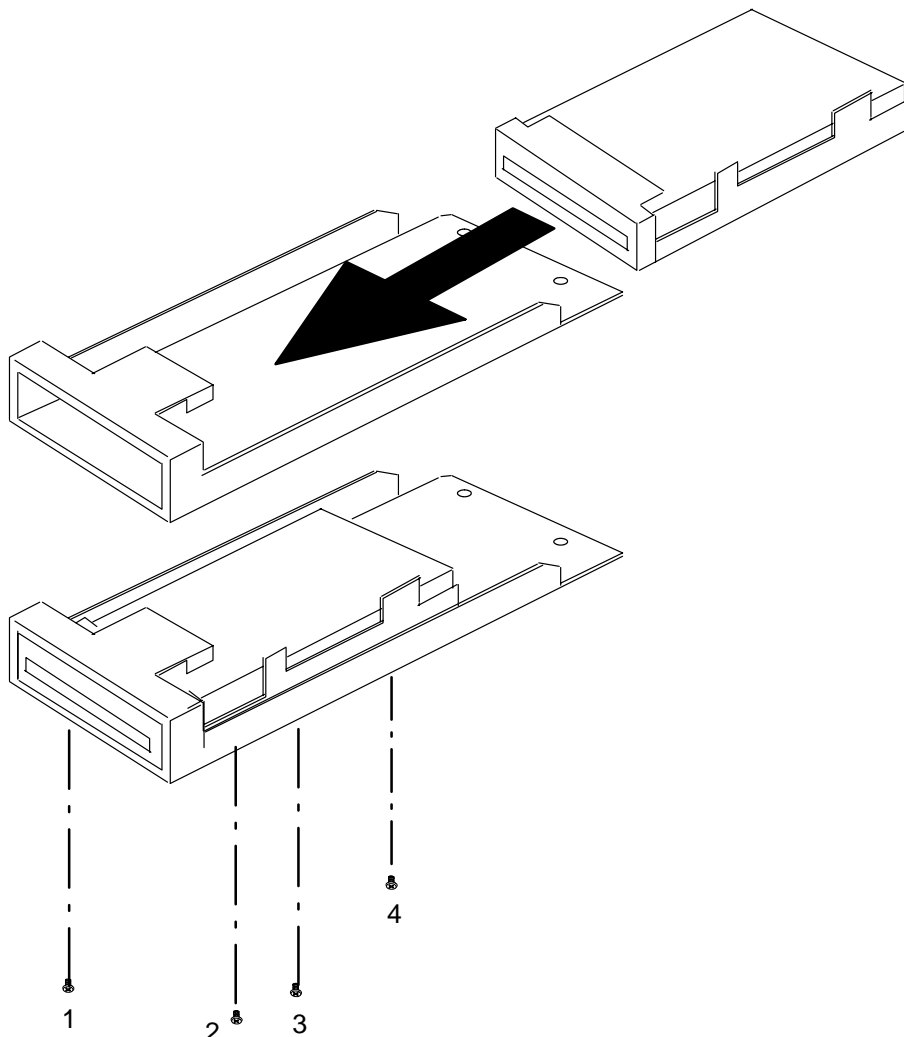
8-2-7 Installing MOD Top Bracket

1. Screw 4 screws (1-4) and install MOD Top Bracket. Refer to ILLUSTRATION 1-2.



8-2-8 Assembling MOD Assy

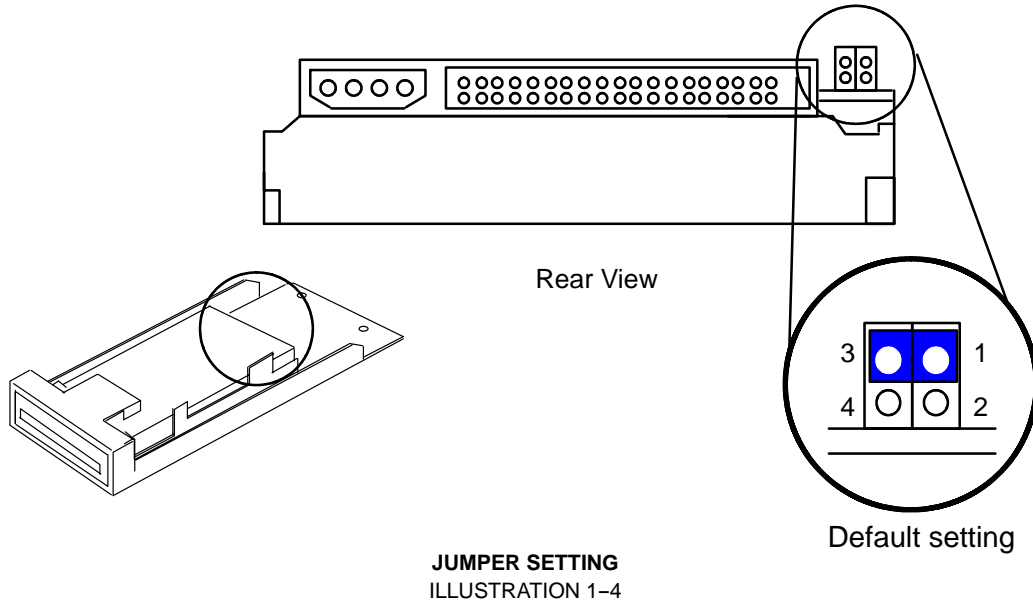
1. Assemble MOD Assy and MOD Bottom Bracket with four screws (1-4). Refer to ILLUSTRATION 1-3.



MOD ASSEMBLY
ILLUSTRATION 1-3

8-2-9 Jumper Setting

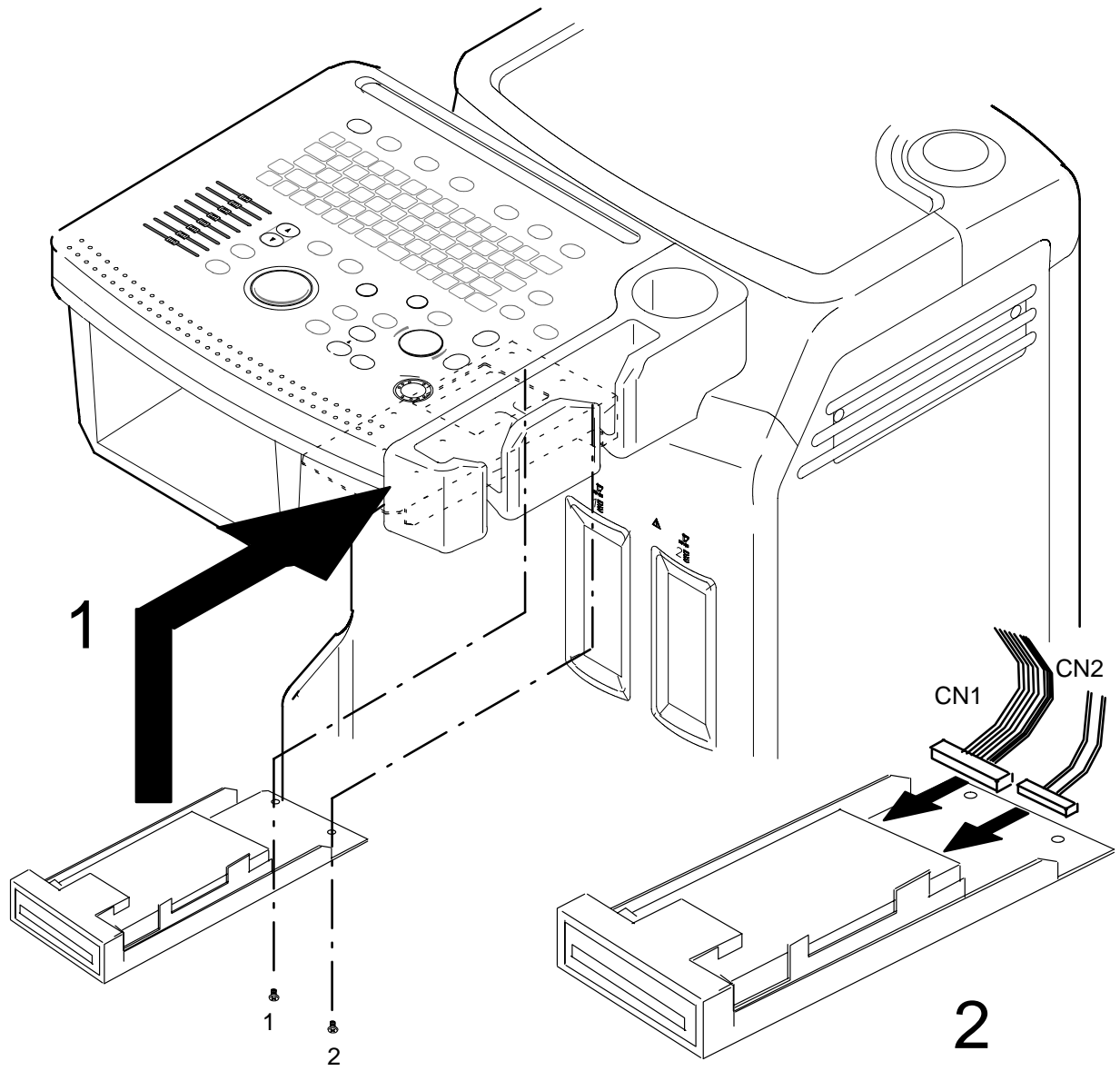
1. Confirm that Jumper Setting is as illustrated in ILLUSTRATION 1-4.



8-2-10 Installing MOD Assy

1. Insert MOD Assy with Bottom Bracket in to the MOD Top Bracket and screw 2 screws. Refer to ILLUSTRATION 1-5.
2. Connect two connectors (CN1, CN2) from the console to MOD Assy.

8-2-10 Installing MOD Assy (Continued)



INSTALLING MOD ASSY
ILLUSTRATION 1-5

8-2-11 Operational Check-out

1. Turn the system power ON.
2. Enter the service software after completing the power-up sequence. For the service software, refer to LOGIQ 200 PRO Series Proprietary Manual, 2242594. The Service Utility Menu:Top Menu will be displayed as shown in ILLUSTRATION 4 . The password is required to enter. For the password, refer to the service note.

```
Service Utility MENU : Top Menu          99/03/12 09:16:37
Current Software Version is 3.0

System Diagnosis
Board/Program Version
System Reset
Key Operation History
* Option Set
Initialize : 1 (1: America 2: Europe 3: Asia 4: Japan)
System Clock Adjust
Software/Probe data upgrade
Exit
```

SERVICE UTILITY MENU:TOP MENU

ILLUSTRATION 4

3. Move the cursor to the item "Option Set" and press **Set** key. Option Set Menu will be displayed.

8-2-11 Operational Check-out (continued)

4. Set among the optional items, MOD Driver to the “:Installed”. Refer to ILLUSTRATION 5.

```

Service Utility MENU : Option Set          99/03/12 09:16:37
Current Software Version is 3.0

CINE                :1 (1:Not Install 2:Install)
ATO                 :1 (1:Not Install 2:Install)
* MDD Driver        :2 (1:Not Install 2:Install)
Biopsy Guideline    :1 (1:Not Install 2:Install)
MGOB Calculation    :1 (1:Not Install 2:Install)
Cardiac Calculation :1 (1:Not Install 2:Install)
Urology Calculation :1 (1:Not Install 2:Install)
Serial Printer      :1 (1:Not Install 2:Install)
Paralled Printer    :1 (1:Not Install 2:Install)
Data Management Center:1 (1:Not Install 2:Install)
InSite              :1 (1:Not Install 2:Install)
Exit
    
```

OPTION SET MENU
ILLUSTRATION 5

Note

To activate the options, move the cursor to the item, type **2**, and press the **Set** key.

5. Exit the Option Set Menu and Power OFF the system.
6. Turn the system power ON.

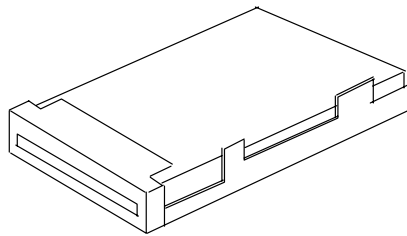
8-2-12 Final Procedure

1. Properly dispose of excess material.
2. This completes the installation of the LOGIQ 200 PRO Series MOD Option.

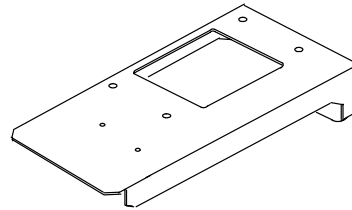
8-2-13 Renewal Parts

MATERIAL LIST (1/1)

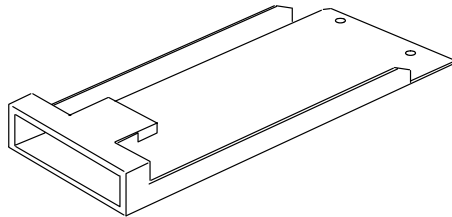
ITEM	PART NAME	QTY	PART #	REMARKS
1.	MOD ASSY	1	2295442	
2.	MOD Top Bracket	1	2240642	
3.	MOD Bottom Bracket	1	2240643	
4.	SCREW M3X6	4	2299256	
5.	SCREW M4X10	4	2159632	



1. MOD ASSY



2. MOD Top Bracket



3. MOD Bottom Bracket

RENEWAL PARTS
ILLUSTRATION 1-6