



***GE Healthcare***

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# **Technical Publication**

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**GE Healthcare**

**LOGIQ™ 7 Service Manual**

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# ***Important Precautions***

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## **WARNING**

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

## **AVERTISSEMENT**

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

## **WARNUNG**

- DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.
- FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN, FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
- WARTEN SIE DIESES GERÄT NUR, WENN SIE DIE ENTSPRECHENDEN ANWEISUNGEN IM KUNDENDIENST-HANDBUCH GELESEN HABEN UND NACHVOLLZIEHEN KÖNNEN.
- WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH ELEKTRISCHE SCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

**AVISO**

- ESTE MANUAL DE SERVICIO SÓ LO ESTÁ DISPONIBLE EN INGLÉS.
- SI ALGÚN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLÉS, LA TRADUCCIÓN ES RESPONSABILIDAD DEL CLIENTE.
- NO SE DEBERÁ DAR SERVICIO TÉCNICO AL EQUIPO SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO.
- LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL USUARIO O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR DESCARGAS ELÉCTRICAS, PROBLEMAS MECÁNICOS O PELIGROS DE OTRA NATURALEZA.

**ATENÇÃO**

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

**AVVERTENZA**

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

**HOIATUS**

- KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.
- KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÕLKETEENUSE OSUTAMISE EEST.
- ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.
- KÄESOLEVA HOIATUSE EIRAMINE VÕIB PÕHJUSTADA TEENUSEOSUTAJA, OPERAATORI VÕI PATSIENDI VIGASTAMIST ELEKTRILISE, MEHAANILISE VÕI MUU OHU TAGAJA RIIJEL.



**VAROITUS**

- TÄMÄ HUOLTO-OHJE ON SAATAVILLA VAIN ENGLANNIKSI.
- JOS ASIAKKAAN PALVELUNTARJOAJA VAATII MUUTA KUIN ENGLANNINKIELISTÄ MATERIAALIA, TARVITTAVAN KÄÄNNÖKSEN HANKKIMINEN ON ASIAKKAAN VASTUULLA.
- ÄLÄ YRITÄ KORJATA LAITTEISTOA ENNEN KUIN OLET VARMASTI LUKENUT JA YMMÄRTÄNYT TÄMÄN HUOLTO-OHJEEN.
- MIKÄLI TÄTÄ VAROITUSTA EI NOUDATETA, SEURAUKSENA VOI OLLA PALVELUNTARJOAJAN, LAITTEISTON KÄYTTÄJÄN TAI POTILAAN VAHINGOITTUMINEN SÄHKÖISKUN, MEKAANISEN VIAN TAI MUUN VAARATILANTEEN VUOKSI.

**ΠΡΟΕΙΔΟΠΟΙΗΣΗ**

- ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.
- ΕΑΝ ΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ ΕΝΟΣ ΠΕΛΑΤΗ ΑΠΑΙΤΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΓΛΩΣΣΑ ΕΚΤΟΣ ΤΩΝ ΑΓΓΛΙΚΩΝ, ΑΠΟΤΕΛΕΙ ΕΥΘΥΝΗ ΤΟΥ ΠΕΛΑΤΗ ΝΑ ΠΑΡΕΧΕΙ ΥΠΗΡΕΣΙΕΣ ΜΕΤΑΦΡΑΣΗΣ.
- ΜΗΝ ΕΠΙΧΕΙΡΗΣΕΤΕ ΤΗΝ ΕΚΤΕΛΕΣΗ ΕΡΓΑΣΙΩΝ ΣΕΡΒΙΣ ΣΤΟΝ ΕΞΟΠΛΙΣΜΟ ΕΚΤΟΣ ΕΑΝ ΕΧΕΤΕ ΣΥΜΒΟΥΛΕΥΤΕΙ ΚΑΙ ΕΧΕΤΕ ΚΑΤΑΝΟΗΣΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ.
- ΕΑΝ ΔΕ ΛΑΒΕΤΕ ΥΠΟΨΗ ΤΗΝ ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΑΥΤΗ, ΕΝΔΕΧΕΤΑΙ ΝΑ ΠΡΟΚΛΗΘΕΙ ΤΡΑΥΜΑΤΙΣΜΟΣ ΣΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ, ΣΤΟ ΧΕΙΡΙΣΤΗ Ή ΣΤΟΝ ΑΣΘΕΝΗ ΑΠΟ ΗΛΕΚΤΡΟΠΛΗΞΙΑ, ΜΗΧΑΝΙΚΟΥΣ Ή ΑΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.

**FIGYELMEZTETÉS**

- EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHETŐ EL.
- HA A VEVŐ SZOLGÁLTATÓJA ANGOLTÓL ELTÉRŐ NYELVRE TART IGÉNYT, AKKOR A VEVŐ FELELŐSSÉGE A FORDÍTÁS ELKÉSZÍTTETÉSE.
- NE PRÓBÁLJA ELKEZDENI HASZNÁLNI A BERENDEZÉST, AMÍG A KARBANTARTÁSI KÉZIKÖNYVBEN LEÍRTAKAT NEM ÉRTELMEZTÉK.
- EZEN FIGYELMEZTETÉS FIGYELMEN KÍVÜL HAGYÁSA A SZOLGÁLTATÓ, MŰKÖDTETŐ VAGY A BETEG ÁRAMÚTÉS, MECHANIKAI VAGY EGYÉB VESZÉLYHELYZET MIATTI SÉRÜLÉSÉT EREDMÉNYEZHETI.

**VIÐVÖRUN**

- ÞESSI ÞJÓNUSTUHANDBÓK ER EINGÖNGU FÁANLEG Á ENSKU.
- EF ÞJÓNUSTUAÐILI VIÐSKIPTAMANNS ÞARFNAST ANNARS TUNGUMÁLS EN ENSKU, ER ÞAÐ Á ÁBYRGÐ VIÐSKIPTAMANNS AÐ ÚTVEGA ÞÝÐINGU.
- REYNIÐ EKKI AÐ ÞJÓNUSTA TÆKIÐ NEMA EFTIR AÐ HAFA SKOÐAÐ OG SKILIÐ ÞESSA ÞJÓNUSTUHANDBÓK.
- EF EKKI ER FARIÐ AÐ ÞESSARI VIÐVÖRUN GETUR ÞAÐ VALDIÐ MEIÐSLUM ÞJÓNUSTUVEITANDA, STJÓRNANDA EÐA SJÚKLINGS VEGNA RAFLOSTS, VÉLRÆNNAR EÐA ANNARRAR HÆTTU.

**VÝSTRAHA**

- TENTO SERVISNÍ NÁVOD EXISTUJE POUZE V ANGLICKÉM JAZYCE.
- V PŘÍPADĚ, ŽE POSKYTOVATEL SLUŽEB ZÁKAZNÍKŮM POTŘEBUJE NÁVOD V JINÉM JAZYCE, JE ZAJIŠTĚNÍ PŘEKLADU DO ODPOVÍDAJÍCÍHO JAZYKA ÚKOLEM ZÁKAZNÍKA.
- NEPROVÁDĚJTE ÚDRŽBU TOHOTO ZAŘÍZENÍ, ANIŽ BYSTE SI PŘEČETLI TENTO SERVISNÍ NÁVOD A POCHOPILI JEHO OBSAH.
- V PŘÍPADĚ NEDODRŽOVÁNÍ TÉTO VÝSTRAHY MŮŽE DOJÍT ÚRAZU ELEKTRICKÁM PROUDEM PRACOVNÍKA POSKYTOVATELE SLUŽEB, OBSLUŽNÉHO PERSONÁLU NEBO PACIENTŮ VLIVEM ELEKTRICKÉHO PROUDU, RESPEKTIVE VLIVEM K RIZIKU MECHANICKÉHO POŠKOZENÍ NEBO JINÉMU RIZIKU.

**ADVARSEL**

- DENNE SERVICEMANUAL FINDES KUN PÅ ENGELSK.
- HVIS EN KUNDES TEKNIKER HAR BRUG FOR ET ANDET SPROG END ENGELSK, ER DET KUNDENS ANSVAR AT SØRGE FOR OVERSÆTTELSE.
- FØRSØG IKKE AT SERVICERE Udstyret MEDMINDRE DENNE SERVICEMANUAL ER BLEVET LÆST OG FORSTÅET.
- MANGLENDE OVERHOLDELSE AF DENNE ADVARSEL KAN MEDFØRE SKADE PÅ GRUND AF ELEKTRISK, MEKANISK ELLER ANDEN FARE FOR TEKNIKEREN, OPERATØREN ELLER PATIENTEN.

**WAARSCHUWING**

- DEZE ONDERHOUDSHANDLEIDING IS ENKEL IN HET ENGELS VERKRIJGBAAR.
- ALS HET ONDERHOUDSPERSONEEL EEN ANDERE TAAL VEREIST, DAN IS DE KLANT VERANTWOORDELIJK VOOR DE VERTALING ERVAN.
- PROBEER DE APPARATUUR NIET TE ONDERHOUDEN VOORDAT DEZE ONDERHOUDSHANDLEIDING WERD GERAADPLEEGD EN BEGREPEN IS.
- INDIEN DEZE WAARSCHUWING NIET WORDT OPGEVOLGD, ZOU HET ONDERHOUDSPERSONEEL, DE OPERATOR OF EEN PATIËNT GEWOND KUNNEN RAKEN ALS GEVOLG VAN EEN ELEKTRISCHE SCHOK, MECHANISCHE OF ANDERE GEVAREN.

**BRĪDINĀJUMS**

- ðĪ APKALPES ROKASGRĀMATA IR PIEĒJAMA TIKAI ANĢĪU VALODĀ.
- JA KLIENTA APKALPES SNIEDZĶJAM NEPIECIEDAMA INFORMĀCIJA CITĀ VALODĀ, NEVIS ANĢĪU, KLIENTA PIENĀKUMS IR NODRODINĀT TULKODĀNU.
- NEVEICIET APRĪKOJUMA APKALPI BEZ APKALPES ROKASGRĀMATAS IZLASĪDĀNAS UN SAPRAĢDĀNAS.
- ÐĪ BRĪDINĀJUMA NEIEVĢRODĀNA VAR RADĪT ELEKTRISKĀS STRĀVAS TRIECIENA, MEHĀNISKU VAI CITU RISKU IZRAISĪTU TRAUMU APKALPES SNIEDZĶJAM, OPERATORAM VAI PACIENTAM.

**ĀSPĒJIMAS**

- ŠIS EKSPLOATAVIMO VADOVAS YRA ĮDLEISTAS TIK ANGLŲ KALBA.
- JEI KLIENTO PASLAUGŲ TEIKĖJUI REIKIA VADOVO KITA KALBA – NE ANGLŲ, VERTIMU PASIRŪPINTI TURI KLIENTAS.
- NEMĖGINKITE ATLIKTI ĄRANGOS TECHNINĖS PRIĖPIŲROS DARBŲ, NEBENT VADOVAUTUMĖTĖS ĖIUO EKSPLOATAVIMO VADOVU IR JĀ SUPRASTUMĖTE
- NEPAISANT ĖIO PERSPĖJIMO, PASLAUGŲ TEIKĖJAS, OPERATORIUS AR PACIENTAS GALI BŪTI SUĖEISTAS DĖL ELEKTROS SMŪGIO, MECHANINIŲ AR KITŲ PAVOJŲ.

**ADVARSEL**

- DENNE SERVICEHĀNDBOKEN FINNES BARE PĀ ENGELSK.
- HVIS KUNDENS SERVICELEVERANDŲR TRENGER ET ANNET SPRĀK, ER DET KUNDENS ANSVAR Ā SŲRGE FOR OVERSETTELSE.
- IKKE FORSŲK Ā REPARERE UTSTYRET UTEN AT DENNE SERVICEHĀNDBOKEN ER LEST OG FORSTĀTT.
- MANGLENDE HENSYN TIL DENNE ADVARSELEN KAN FŲRE TIL AT SERVICELEVERANDŲREN, OPERATŲREN ELLER PASIENTEN SKADES PĀ GRUNN AV ELEKTRISK STŲT, MEKANISKE ELLER ANDRE FARER.

**OSTRZEŻENIE**

- NINIEJSZY PODRĘCZNIK SERWISOWY DOSTĘPNY JEST JEDYNIĘ W JĘZYKU ANGIELSKIM.
- JEŚLI FIRMA ŚWIADCZĄCA KLIENTOWI USŁUGI SERWISOWE WYMAGA UDOSTĘPNIENIA PODRĘCZNIKA W JĘZYKU INNYM NIŻ ANGIELSKI, OBOWIĄZEK ZAPEWNIENIA STOSOWNEGO TŁUMACZENIA SPOCZYWA NA KLIENCIE.
- NIE PRŲBOWAĆ SERWISOWAĆ NINIEJSZEGO SPRZĘTU BEZ UPRZEDNIEGO ZAPOZNANIA SIĘ Z PODRĘCZNIKIEM SERWISOWYM.
- NIEZASTOSOWANIE SIĘ DO TEGO OSTRZEŻENIA MOŻE GROZIĆ OBRAŻENIAMI CIAŁA SERWISANTA, OPERATORA LUB PACJENTA W WYNIKU PORAŻENIA PRĄDEM, URAZU MECHANICZNEGO LUB INNEGO RODZAJU ZAGROŻEŃ.

**ATENȚIE**

- ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.
- DACĂ UN FURNIZOR DE SERVICII PENTRU CLIEȚI NECESITĂ O ALTĂ LIMBĂ DECĂȚ CEA ENGLEZĂ, ESTE DE DATORIA CLIEȚULUI SĂ FURNIZEZE O TRADUCERE.
- NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECĂȚ ULTERIOR CONSULTĂRII □ ÎNȚELEGERII ACESTUI MANUAL DE SERVICE.
- IGNORAREA ACESTUI AVERTISMENT AR PUTEA DUCE LA RĂNIREA DEPANATORULUI, OPERATORULUI SAU PACIENTULUI ÎN URMA PERICOLELOR DE ELECTROCUTARE, MECANICE SAU DE ALTĂ NATURĂ.

**ОСТОРОЖНО!**

- Данное руководство по обслуживанию ПРЕДОСТАВЛЯЕТСЯ только на английском языке.
- Если сервисному ПЕРСОНАЛУ клиента необходимо руководство не на английском языке, клиенту следует самостоятельно ОБЕСПЕЧИТЬ перевод.
- ПЕРЕД ОБСЛУЖИВАНИЕМ ОБОРУДОВАНИЯ ОБЯЗАТЕЛЬНО ОБРАТИТЕСЬ К ДАННОМУ РУКОВОДСТВУ И ПОЙМИТЕ ИЗЛОЖЕННЫЕ В НЕМ СВЕДЕНИЯ.
- НЕСОБЛЮЖДЕНИЕ УКАЗАННЫХ ТРЕБОВАНИЙ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ТЕХОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЭЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.

**UPOZORNENIE**

- TÁTO SERVISNÁ PRÍRUČKA JE K DISPOZÍCII LEN V ANGLIČTINE.
- AK ZÁKAZNÍKOV POSKYTOVATEĽ SLUŽIEB VYŽADUJE INÝ JAZYK AKO ANGLIČTINU, POSKYTNUTIE PREKLADATEĽSKÝCH SLUŽIEB JE ZODPOVEDNOSŤOU ZÁKAZNÍKA.
- NEPOKÚŠAJTE SA VYKONÁVAŤ SERVIS ZARIADENIA SKÔR, AKO SI NEPREČÍTATE SERVISNÚ PRÍRUČKU A NEPOROZUMIETE JEJ.
- ZANEDBANIE TOHTO UPOZORNENIA MÔŽE VYÚSTIŤ DO ZRANENIA POSKYTOVATEĽA SLUŽIEB, OBSLUHUJÚCEJ OSOBY ALEBO PACIENTA ELEKTRICKÝM PRÚDOM, PRÍPADNE DO MECHANICKÉHO ALEBO INÉHO NEBEZPEČENSTVA.

**VARNING**

- DEN HÄR SERVICEHANDBOKEN FINNS BARA TILLGÄNGLIG PÅ ENGELSKA.
- OM EN KUNDS SERVICETEKNIKER HAR BEHOV AV ETT ANNAT SPRÅK ÄN ENGELSKA ANSVARAR KUNDEN FÖR ATT TILLHANDAHÅLLA ÖVERSÄTTNINGSTJÄNSTER.
- FÖRSÖK INTE UTFÖRA SERVICE PÅ UTRUSTNINGEN OM DU INTE HAR LÄST OCH FÖRSTÅR DEN HÄR SERVICEHANDBOKEN.
- OM DU INTE TAR HÄNSYN TILL DEN HÄR VARNINGEN KAN DET RESULTERA I SKADOR PÅ SERVICETEKNIKERN, OPERATÖREN ELLER PATIENTEN TILL FÖLJD AV ELEKTRISKA STÖTAR, MEKANISKA FAROR ELLER ANDRA FAROR.

**DİKKAT**

- BU SERVİS KILAVUZU YALNIZCA İNGİLİZCE OLARAK SAĞLANMIŞTIR.
- EĞER MÜŞTERİ TEKNİSYENİ KILAVUZUN İNGİLİZCE DİĞER DİLDE OLMASINI İSTERSE, KILAVUZU TERCÜME ETTİRMEK MÜŞTERİNİN SORUMLULUĞUNDADIR.
- SERVİS KILAVUZUNU OKUYUP ANLAMADAN EKİPMANLARA MÜDAHALE ETMEYİNİZ.
- BU UYARININ GÖZ ARDI EDİLMESİ, ELEKTRİK ÇARPMASI YA DA MEKANİK VEYA DİĞER TÜRDE KAZALAR SONUCUNDA TEKNİSYENİN, OPERATÖRÜN YA DA HASTANIN YARALANMASINA YOL AÇABİLİR.

**警告**

このサービスマニュアルには英語版しかありません。

GEMS以外でサービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。

このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないで下さい。

この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。

**注意:**

本维修手册仅存有英文本。

非 GEMS 公司的维修员要求非英文本的维修手册时，客户需自行负责翻译。

未详细阅读和完全了解本手册之前，不得进行维修。忽略本注意事项会对维修员，操作员或病人造成触电，机械伤害或其他伤害。

**경고**

- 본 서씨 지침은 영뵁 만 이용실 수 있쑤다 .
- 고크 서씨 제뵁가 영어 이외 언뵁 요할 경우, 번역 서씨를 제뵁는 것은 고크 책임대 .
- 본 서씨 지침을 참쑤고 이해지 않는 한은 해당 장뵁 수려뵁 시화지 마쑤오 .
- 이 경뵁 유뵁지 않뵁 전기쇼크, 기뵁의 혹은 다른 위험부터 서씨 제뵁 , 운뵁 혹은 환제게 위험 가할 수 있쑤다 .

## **DAMAGE IN TRANSPORTATION**

All packages should be closely examined at time of delivery. If damage is apparent write "Damage In Shipment" on ALL copies of the freight or express bill BEFORE delivery is accepted or "signed for" by a GE representative or hospital receiving agent. Whether noted or concealed, damage MUST be reported to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this 14 day period.

## **CERTIFIED ELECTRICAL CONTRACTOR STATEMENT**

All electrical Installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations and testing shall be performed by qualified GE Medical Systems personnel. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE equipment shall only utilize qualified personnel (i.e., GE's field engineers, personnel of third-party service companies with equivalent training, or licensed electricians) to perform electrical servicing on the equipment.

## **OMISSIONS & ERRORS**

If there are any omissions, errors or suggestions for improving this documentation, please contact the GE Medical Systems Global Documentation Group with specific information listing the system type, manual title, part number, revision number, page number and suggestion details. Mail the information to : Service Documentation, 9900 Innovation Drive (RP-2123), Wauwatosa, WI 53226, USA.

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# Revision History

| Revision | Date               | Reason for change                                                                                                                                                                                                                                   |
|----------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0        | September 1, 2001  | Initial Release                                                                                                                                                                                                                                     |
| 1        | November 20, 2001  | Revision 1                                                                                                                                                                                                                                          |
| 2        | February 22, 2002  | Electrical Requirements (sec2), STCW and TxCW theory, Monitor video specification (sec5), TRAP2 Dip SW, QCON Dip SW, LV2 unit released, Trackball cleaning (sec 6), New diagnostics (sec 7), New LFC procedure added (sec8), New part number (sec9) |
| 3        | November 11, 2002  | Probe precaution (sec1), Optional peripherals (sec3), Dongles (sec5), Trackball cleaning, Jumper and Dip switch setting (sec6), Diagnostics (sec7), PC box replacement, software loading for R2 (sec8), New part number (sec9),                     |
| 4        | April 2, 2003      | Monitor and LCD Adjustment, DDBF and Trap settings (sec6), Keyboard FRU replacement (sec8), Renewal Parts (sec9)                                                                                                                                    |
| 5        | October 22, 2003   | Added: New Printer and probe (Sec. 3), HDD Jumper setting (sec 6), New PC box and DGVIC replacement, MOD setting, Service dongle notice at Ghost, R3 software, DVD, TxCW connection notice (sec 8), New spare parts (Sec. 9)                        |
| 6        | September 17, 2004 | BT04                                                                                                                                                                                                                                                |
| 7        | March 3, 2005      | For L7Pro: Renewal Parts (sec9), Component Replacement (sec8)                                                                                                                                                                                       |
| 8        | September 30, 2005 | BT06                                                                                                                                                                                                                                                |
| 9        | June 26, 2006      | BT06-2 released                                                                                                                                                                                                                                     |
| 10       | September 22, 2006 | Minor correction (sec 8), V65x (Sec1, Sec3, Sec5, Sec8, Sec9)                                                                                                                                                                                       |
| 11       | March 5, 2007      | BT07 Supported                                                                                                                                                                                                                                      |
| 12       | May 28, 2007       | Setting Report Printer added (sec 8)                                                                                                                                                                                                                |
| 13       | Oct.1, 2007        | R7.5.x supported, other modifications (all sections)                                                                                                                                                                                                |
| 14       | July 16, 2008      | BT09 newly released                                                                                                                                                                                                                                 |

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# Chapter 1

## Introduction

---

### Section 1-1 Overview

#### 1-1-1 Purpose of Chapter 1

This Chapter describes important issues related to safety servicing this ultrasound machine. The service provider must read and understand all the information presented here before installing or servicing a unit.

#### 1-1-2 Chapter Contents

Table 1-1 Contents in Chapter 1

| Section | Description           | Page Number |
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| 1-1     | Overview              | 1-1         |
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| 1-4     | EMC, EMI, and ESD     | 1-21        |
| 1-5     | Customer Assistance   | 1-22        |

#### 1-1-3 Purpose of Service Manual

This manual provides service information on the LOGIQ™ 7 Ultrasound Scanning System. It contains the following chapters:

- 1.) **Chapter 1, Introduction:** Contains a content summary and warnings.
- 2.) **Chapter 2, Pre-Installation:** Contains any pre-installation requirements for the LOGIQ™ 7.
- 3.) **Chapter 3, Installation:** Contains the LOGIQ™ 7 installation procedure with installation checklist.
- 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 Theory:** Contains block diagrams and functional explanations of the LOGIQ™ 7 electronics.
- 6.) **Chapter 6, Service Adjustments:** Contains instructions on how to make any available adjustments to the LOGIQ™ 7.
- 7.) **Chapter 7, Diagnostics/Trouble Shooting:** Provides procedures for running and diagnostic or related routines for the LOGIQ™ 7.
- 8.) **Chapter 8, Replacement Procedures:** Provides disassembly procedures and reassembly procedures for all changeable FRU.
- 9.) **Chapter 9, Renewal Parts:** Contains a complete list of replacement parts for the LOGIQ™ 7.
- 10.) **Chapter 10, Periodic Maintenance:** Provides periodic maintenance procedures for the LOGIQ™ 7.

## 1-1-4 Typical Users of the Basic Service Manual

- Service Personnel (installation, maintenance, etc.).
- Hospital's Service Personnel
- Architects (Some parts of Chapter 2 - Pre-Installation)

## 1-1-5 LOGIQ™ 7 Models Covered by this Manual

**Table 1-2 LOGIQ™ 7 Model Designations**

| Part Number | Description                                                         | Reference | Remarks |
|-------------|---------------------------------------------------------------------|-----------|---------|
| 2287317     | LOGIQ™ 7 100V / NTSC Console and Peripherals                        | BT01      |         |
| 2304806     | LOGIQ™ 7 120V / NTSC Console and Peripherals                        | BT01      |         |
| 2304807     | LOGIQ™ 7 220V / PAL Console and Peripherals                         | BT01      |         |
| 2304808     | LOGIQ™ 7 220V / NTSC Console and Peripherals                        | BT01      |         |
| 2354857     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style B/Ver2)         | BT02      |         |
| 2354858     | LOGIQ™ 7 120V / NTSC Console and Peripherals (Style B/Ver2)         | BT02      |         |
| 2354859     | LOGIQ™ 7 220V / PAL Console and Peripherals (Style B/Ver2)          | BT02      |         |
| 2354860     | LOGIQ™ 7 220V / NTSC Console and Peripherals (Style B/Ver2)         | BT02      |         |
| 2355589     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style B/Ver2)         | BT02      |         |
| 2389221     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style C/Ver3)         | BT03      |         |
| 2389220     | LOGIQ™ 7 120V / NTSC Console and Peripherals (Style C/Ver3)         | BT03      |         |
| 2389219     | LOGIQ™ 7 220V / PAL Console and Peripherals (Style C/Ver3)          | BT03      |         |
| 2389218     | LOGIQ™ 7 220V / NTSC Console and Peripherals (Style C/Ver3)         | BT03      |         |
| 2389217     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style C/Ver3)         | BT03      |         |
| 5118055     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style D/Ver4)         | BT04      |         |
| 5118056     | LOGIQ™ 7 120V / NTSC Console and Peripherals (Style D/Ver4)         | BT04      |         |
| 5118057     | LOGIQ™ 7 220V / PAL Console and Peripherals (Style D/Ver4)          | BT04      |         |
| 5118058     | LOGIQ™ 7 220V / NTSC Console and Peripherals (Style D/Ver4)         | BT04      |         |
| 5118059     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style D/Ver4)         | BT04      |         |
| 5148047     | LOGIQ™ 7 100V / NTSC Console and Peripherals, CRT monitor (Style E) | BT06 CRT  |         |
| 5148048     | LOGIQ™ 7 120V / NTSC Console and Peripherals, CRT monitor (Style E) | BT06 CRT  |         |
| 5148049     | LOGIQ™ 7 220V / PAL Console and Peripherals, CRT monitor (Style E)  | BT06 CRT  |         |
| 5148050     | LOGIQ™ 7 220V / NTSC Console and Peripherals, CRT monitor (Style E) | BT06 CRT  |         |
| 5148052     | LOGIQ™ 7 100V / NTSC Console and Peripherals, LCD monitor (Style E) | BT06 LCD  |         |
| 5148053     | LOGIQ™ 7 120V / NTSC Console and Peripherals, LCD monitor (Style E) | BT06 LCD  |         |
| 5148054     | LOGIQ™ 7 220V / PAL Console and Peripherals, LCD monitor (Style E)  | BT06 LCD  |         |
| 5148055     | LOGIQ™ 7 220V / NTSC Console and Peripherals, LCD monitor (Style E) | BT06 LCD  |         |
| 5148057     | LOGIQ™ 7PRO 100V / NTSC Console and Peripherals (Style E)           | BT06 PRO  |         |

Table 1-2 LOGIQ™ 7 Model Designations

| Part Number | Description                                                         | Reference     | Remarks                                               |
|-------------|---------------------------------------------------------------------|---------------|-------------------------------------------------------|
| 5148058     | LOGIQ™ 7PRO 120V / NTSC Console and Peripherals (Style E)           | BT06 PRO      |                                                       |
| 5148059     | LOGIQ™ 7PRO 220V / PAL Console and Peripherals (Style E)            | BT06 PRO      |                                                       |
| 5148060     | LOGIQ™ 7 220V / NTSC Console and Peripherals (Style E)              | BT06 PRO      |                                                       |
| 5176232     | LOGIQ™ 7 100V / NTSC Console and Peripherals, CRT monitor           | BT06-2 CRT    | BT06 New Hardware - requires software R6.2.x or later |
| 5176567     | LOGIQ™ 7 120V / NTSC Console and Peripherals, CRT monitor           | BT06-2 CRT    |                                                       |
| 5176948     | LOGIQ™ 7 220V / PAL Console and Peripherals, CRT monitor            | BT06-2 CRT    |                                                       |
| 5176508     | LOGIQ™ 7 220V / NTSC Console and Peripherals, CRT monitor           | BT06-2 CRT    |                                                       |
| 5176713     | LOGIQ™ 7 100V / NTSC Console and Peripherals, LCD monitor           | BT06-2 LCD    |                                                       |
| 5176888     | LOGIQ™ 7 120V / NTSC Console and Peripherals, LCD monitor           | BT06-2 LCD    |                                                       |
| 5176300     | LOGIQ™ 7 220V / PAL Console and Peripherals, LCD monitor            | BT06-2 LCD    |                                                       |
| 5176380     | LOGIQ™ 7 220V / NTSC Console and Peripherals, LCD monitor           | BT06-2 LCD    |                                                       |
| 5176619     | LOGIQ™ 7PRO 100V / NTSC Console and Peripherals                     | BT06-2 PRO    |                                                       |
| 5176454     | LOGIQ™ 7PRO 120V / NTSC Console and Peripherals                     | BT06-2 PRO    |                                                       |
| 5176439     | LOGIQ™ 7PRO 220V / PAL Console and Peripherals                      | BT06-2 PRO    |                                                       |
| 5176774     | LOGIQ™ 7 220V / NTSC Console and Peripherals                        | BT06-2 PRO    |                                                       |
| 5179605     | LOGIQ™ 7PRO 220V / PAL Console and Peripherals, LCD monitor         | BT06-2 CONSIP | SOI (BT06-2 PRO with LCD)                             |
| 5183269     | LOGIQ™ 7 100V / NTSC Console and Peripherals, CRT monitor           | V65x CRT      |                                                       |
| 5183237     | LOGIQ™ 7 120V / NTSC Console and Peripherals, CRT monitor           | V65x CRT      |                                                       |
| 5183396     | LOGIQ™ 7 220V / PAL Console and Peripherals, CRT monitor            | V65x CRT      |                                                       |
| 5183304     | LOGIQ™ 7 220V / NTSC Console and Peripherals, CRT monitor           | V65x CRT      |                                                       |
| 5183330     | LOGIQ™ 7 100V / NTSC Console and Peripherals, LCD monitor           | V65x LCD      |                                                       |
| 5183410     | LOGIQ™ 7 120V / NTSC Console and Peripherals, LCD monitor           | V65x LCD      |                                                       |
| 5183412     | LOGIQ™ 7 220V / PAL Console and Peripherals, LCD monitor            | V65x LCD      |                                                       |
| 5183190     | LOGIQ™ 7 220V / NTSC Console and Peripherals, LCD monitor           | V65x LCD      |                                                       |
| 5183352     | LOGIQ™ 7PRO 100V / NTSC Console and Peripherals                     | V65x PRO      |                                                       |
| 5183136     | LOGIQ™ 7PRO 120V / NTSC Console and Peripherals                     | V65x PRO      |                                                       |
| 5183125     | LOGIQ™ 7PRO 220V / PAL Console and Peripherals                      | V65x PRO      |                                                       |
| 5183515     | LOGIQ™ 7PRO 220V / NTSC Console and Peripherals                     | V65x PRO      |                                                       |
| 5191090     | LOGIQ™ 7 100V / NTSC Console and Peripherals, CRT monitor (Style H) | BT07 CRT      |                                                       |
| 5191824     | LOGIQ™ 7 120V / NTSC Console and Peripherals, CRT monitor (Style H) | BT07 CRT      |                                                       |
| 5191341     | LOGIQ™ 7 220V / PAL Console and Peripherals, CRT monitor (Style H)  | BT07 CRT      |                                                       |
| 5191701     | LOGIQ™ 7 220V / NTSC Console and Peripherals, CRT monitor (Style H) | BT07 CRT      |                                                       |
| 5191499     | LOGIQ™ 7 100V / NTSC Console and Peripherals, LCD monitor (Style H) | BT07 LCD      |                                                       |
| 5191946     | LOGIQ™ 7 120V / NTSC Console and Peripherals, LCD monitor (Style H) | BT07 LCD      |                                                       |

Table 1-2 LOGIQ™ 7 Model Designations

| Part Number | Description                                                         | Reference  | Remarks    |
|-------------|---------------------------------------------------------------------|------------|------------|
| 5191853     | LOGIQ™ 7 220V / PAL Console and Peripherals, LCD monitor (Style H)  | BT07 LCD   |            |
| 5191441     | LOGIQ™ 7 220V / NTSC Console and Peripherals, LCD monitor (Style H) | BT07 LCD   |            |
| 5191006     | LOGIQ™ 7 100V / NTSC Console and Peripherals (Style H)              | BT07 PRO   |            |
| 5191258     | LOGIQ™ 7 120V / NTSC Console and Peripherals (Style H)              | BT07 PRO   |            |
| 5191436     | LOGIQ™ 7 220V / PAL Console and Peripherals (Style H)               | BT07 PRO   |            |
| 5191259     | LOGIQ™ 7 220V / NTSC Console and Peripherals (Style H)              | BT07 PRO   |            |
| 5244924     | LOGIQ™ 7 100V / NTSC Console and Peripherals, LCD monitor (Style I) | R7.5.x LCD |            |
| 5244925     | LOGIQ™ 7 120V / NTSC Console and Peripherals, LCD monitor (Style I) | R7.5.x LCD |            |
| 5244926     | LOGIQ™ 7 220V / PAL Console and Peripherals, LCD monitor (Style I)  | R7.5.x LCD |            |
| 5244927     | LOGIQ™ 7 220V / NTSC Console and Peripherals, LCD monitor (Style I) | R7.5.x LCD |            |
| 5309921     | LOGIQ™ 7 LCD, 100V, 60Hz, NTSC, Japan                               | BT09       | BEP4 Intro |
| 5309922     | LOGIQ™ 7 LCD, 120V, 60Hz, NTSC                                      | BT09       | BEP4 Intro |
| 5309923     | LOGIQ™ 7 LCD, 220V, 50Hz, PAL                                       | BT09       | BEP4 Intro |
| 5309924     | LOGIQ™ 7 LCD, 220V, 60Hz, NTSC, Asia                                | BT09       | BEP4 Intro |

## 1-1-6 Purpose of Operator Manual(s)

The Operator Manual(s) should be fully read and understood before operating the LOGIQ™ 7 and also kept near the unit for quick reference.

## Section 1-2 Important Conventions

### 1-2-1 Conventions Used in Book

#### Model Designations.

This manual covers the LOGIQ™ 7scanners.

#### Icons.

Pictures, or icons, are used wherever they will reinforce the printed message. The icons, labels and conventions used on the product and in the service information are described in this chapter.

#### Safety Precaution Messages.

Various levels of safety precaution messages may be found on the equipment and in the service information. The different levels of concern are identified by a flag word that precedes the precautionary message. Known or potential hazards are labeled in one of three ways:



**DANGER** **DANGER IS USED TO INDICATE THE PRESENCE OF A HAZARD THAT WILL CAUSE SEVERE PERSONAL INJURY OR DEATH IF THE INSTRUCTIONS ARE IGNORED.**



**WARNING** **WARNING IS USED TO INDICATE THE PRESENCE OF A HAZARD THAT CAN CAUSE SEVERE PERSONAL INJURY OR PROPERTY DAMAGE IF INSTRUCTIONS ARE IGNORED.**



**CAUTION** **Caution is used to indicate the presence of a hazard that will or can cause minor personal injury and property damage if instructions are ignored.**



**NOTICE** *Equipment Damage Possible*  
*Notice is used when a hazard is present that can cause property damage but has absolutely no personal injury risk.*  
*Example: Disk Drive will crash.*

**NOTE:** *Notes are used to provide important information about an item or a procedure. Be sure to read the notes; the information contained in a note can often save you time or effort.*

1-2-2

Standard Hazard Icons

Important Information will always be preceded by the exclamation point contained within a triangle, as seen throughout this chapter. In addition to text, several different graphical icons (symbols) may be used to make you aware of specific types of hazards that could possibly cause harm.

Some others make you aware of specific procedures that should be followed.

Table 1-3     Standard Hazard Icons

| ELECTRICAL                                                                        | MECHANICAL                                                                        | RADIATION                                                                           |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |
| LASER                                                                             | HEAT                                                                              | PINCH                                                                               |
|  |  |  |

Some others make you aware of specific procedures that should be followed.

Table 1-4     Standard Icons that indicates that a special procedure is to be used

| AVOID STATIC ELECTRICITY                                                            | TAG AND LOCK OUT                                                                    | WEAR EYE PROTECTION                                                                   |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |



## 1-2-3 Product Icons

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

**Table 1-5 Warnings**

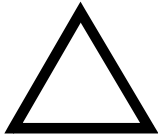
| Label/Symbol                                                                        | Purpose/Meaning                                                                                                                                                                           | Location                                          | Note |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|------|
| Identification and Rating Plate                                                     | Manufacturer's name and address<br>Date of manufacture<br>Model and serial numbers<br>Electrical ratings                                                                                  | Rear of console near power inlet                  |      |
| Type/Class Label                                                                    | Used to indicate the degree of safety or protection.                                                                                                                                      |                                                   |      |
| IP Code (IPX8)                                                                      | Indicates the degree of protection provided by the enclosure per IEC60529. IPX8 indicates can be used in operating room environment.                                                      | Footswitch                                        |      |
|    | Equipment Type BF (man in the box symbol) IEC 60878-02-03 indicates B Type equipment having a floating applied part.                                                                      | Probe connectors and PCG connector                |      |
|   | Equipment Type CF (heart in the box symbol) IEC 878-02-05 indicates equipment having a floating applied part having a degree of protection suitable for direct cardiac contact.           | ECG connector and Probes marked Type CF           |      |
| Device Listing/Certification Labels                                                 | Laboratory logo or labels denoting conformance with industry safety standards such as UL or IEC.                                                                                          | Rear of console                                   |      |
| CAUTION - This unit weighs...Special care must be used to avoid..."                 | This precaution is intended to prevent injury that may result if one person attempt to move the unit considerable distances or on an incline due to the weight of the unit.               | On the console where easily seen during transport |      |
| "DANGER - Risk of explosion used in..."                                             | The system is not designed for use with flammable anesthetic gases.                                                                                                                       | Rear of console                                   |      |
|  | "CAUTION" The equilateral triangle is usually used in combination with other symbols to advise or warn the user.                                                                          | Various                                           |      |
|  | ATTENTION - Consult accompanying documents is intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label. | Various                                           |      |

Table 1-5 Warnings

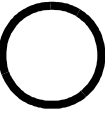
| Label/Symbol                                                                        | Purpose/Meaning                                                                                                                                                                                                                                                                              | Location                                                                                    | Note          |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|---------------|
|    | "General Warning Sign"                                                                                                                                                                                                                                                                       | Rear panel and UPS battery                                                                  | BT07 or later |
|    | "Warning" - Dangerous voltage" (the lightning flash with arrowhead) is used to indicate electric shock hazards.                                                                                                                                                                              | Rear panel and inside of console                                                            | BT07 or later |
|    | "Mains OFF" Indicates the power off position of the mains power switch.                                                                                                                                                                                                                      | Rear of system adjacent to mains switch                                                     |               |
|    | "Mains ON" indicates the power on position of the mains power switch.                                                                                                                                                                                                                        | Rear of system adjustment to mains switch                                                   |               |
|   | "ON" indicates the power on position of the power switch.<br>CAUTION<br>This Power Switch DOES NOT ISOLATE Mains Supply<br>"Standby" indicates the power stand by position of the power switch.<br>CAUTION<br>This Power Switch DOES NOT ISOLATE Mains Supply                                | Adjacent to On/Standby Switch                                                               |               |
|  | "Protective Earth" Indicates the protective earth (grounding) terminal.                                                                                                                                                                                                                      | Various                                                                                     |               |
|  | "Equipotentiality" Indicates the terminal to be used for connecting equipotential conductors when interconnecting (grounding) with other equipment.                                                                                                                                          | Rear of console                                                                             |               |
|  | Alternating Current symbol is in accordance with IEC 60878-01-14.                                                                                                                                                                                                                            | Rear Panel, Rating Plate, Circuit breaker label of console and front panel (if applicable). | BT07 or later |
|  | This symbol indicates that waste electrical and electronic equipment must not be disposed of as unsorted municipal waste and must be collected separately. Please contact an authorized representative of the manufacturer for information concerning the decommissioning of your equipment. | Rear Panel                                                                                  | BT07 or later |

Table 1-5 Warnings

| Label/Symbol                                                                        | Purpose/Meaning                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Location                       | Note          |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|---------------|
|    | Indicates the presence of hazardous substance(s) above the maximum concentration value. Maximum concentration values for electronic information products, as set by the People's Republic of China Electronic Industry Standard SJ/T11364-2006, include the hazardous substances of lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE). "10" indicates the number of years during which the hazardous substance(s) will not leak or mutate so that the use of this product will not result in any severe environmental pollution, bodily injury, or damage to any assets. | Probe                          | BT07 or later |
|    | Indicates the presence of hazardous substance(s) above the maximum concentration value. Maximum concentration values for electronic information products, as set by the People's Republic of China Electronic Industry Standard SJ/T11364-2006, include the hazardous substances of lead, mercury, hexavalent chromium, cadmium, polybrominated biphenyl (PBB), and polybrominated diphenyl ether (PBDE). "20" indicates the number of years during which the hazardous substance(s) will not leak or mutate so that the use of this product will not result in any severe environmental pollution, bodily injury, or damage to any assets. | Rear Panel, China Rating Plate | BT07 or later |
|  | Do not use the following devices near this equipment: cellular phone, radio receiver, mobile radio transmitter, radio controlled toy, broadband power lines, 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.                                                                                                                                                                                                                                                                                     | Rear Panel                     | BT07 or later |

## Section 1-3 Safety Considerations

### 1-3-1 Introduction

The following safety precautions must be observed during all phases of operation, service and repair of this equipment. Failure to comply with these precautions or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture and intended use of the equipment.

### 1-3-2 Human Safety

Operating personnel must not remove the system covers.

Servicing should be performed by authorized personnel only.

Only personnel who have participated in a LOGIQ™ 7 Training Seminar are authorized to service the equipment.

### 1-3-3 Mechanical Safety

 **WARNING** *WHEN THE UNIT IS RAISED FOR A REPAIR OR MOVED ALONG ANY INCLINE, USE EXTREME CAUTION SINCE IT MAY BECAUSE UNSTABLE AND TIP OVER.*

 **WARNING** *ULTRASOUND PROBES ARE HIGHLY SENSITIVE MEDICAL INSTRUMENTS THAT CAN EASILY BE DAMAGED BY IMPROPER HANDLING. USE CARE WHEN HANDLING AND PROTECT FROM DAMAGE WHEN NOT IN USE. DO NOT USE A DAMAGED OR DEFECTIVE PROBE. FAILURE TO FOLLOW THESE PRECAUTIONS CAN RESULT IN SERIOUS INJURY AND EQUIPMENT DAMAGE.*

 **WARNING** *NEVER USE A PROBE THAT HAS FALLEN TO THE FLOOR. EVEN IF IT LOOKS OK, IT MAY BE DAMAGED.*

 **CAUTION** Always lock the Control Console in its parking (locked) position before moving the scanner around.

 **CAUTION** Disconnect all probes before moving the scanner around.

 **CAUTION** The LOGIQ™ 7 weighs 225 kg or more, depending on installed peripherals, (496 lbs, or more) when ready for use. Care must be used when moving it or replacing its parts. Failure to follow the precautions listed below could result in injury, uncontrolled motion and costly damage.

ALWAYS:

- Be sure the path way is clear.
- Use slow, careful motions.
- Use two people when moving on inclines or lifting more than 23 kg (50 lb).

**NOTE:** *Special Care should be taken when transporting the unit in a vehicle:*

- Secure the unit in an upright position.
- Lock the wheels (brake).
- DO NOT use the Control Panel as an anchor point.
- Place the probes in the carrying case.
- Eject any Magnet Optical disk from the MO Drive (if installed).

### **1-3-4 Electrical Safety**

To minimize shock hazard, the equipment chassis must be connected to an electrical ground. The system is equipped with a three-conductor AC power cable. This must be plugged into an approved electrical outlet with safety ground. If an extension cord is used with the system, make sure that the total current rating of the system does not exceed the extension cord rating.

The power outlet used for this equipment should not be shared with other types of equipment.

Both the system power cable and the power connector meet international electrical standards.

# 1-3-5 Label Locations (For BT07 or later, including R7.5.x)

**NOTE:** For the symbols shown in the illustration below, refer to previous pages in this chapter.

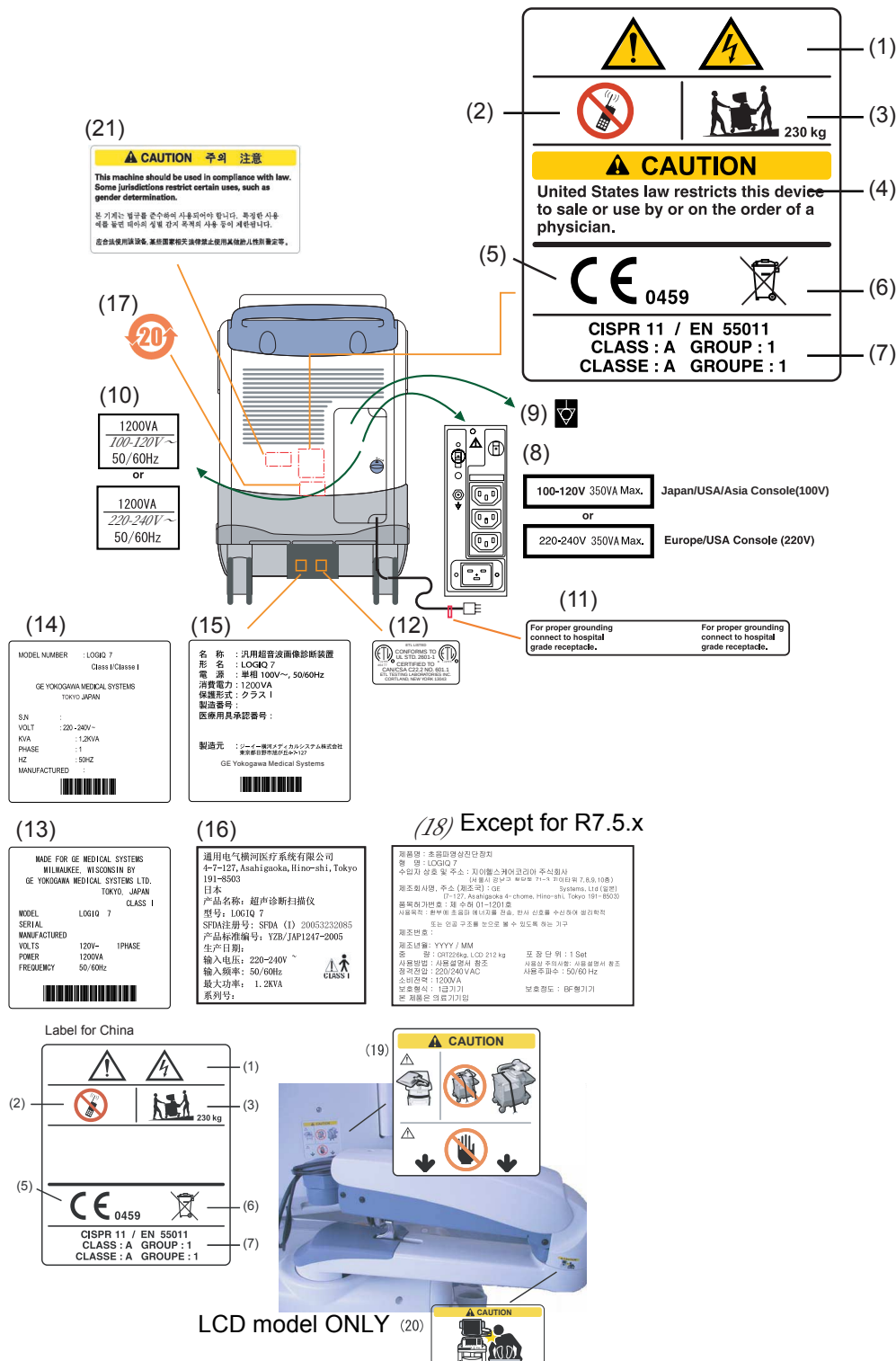


Figure 1-1 OUTSIDE MARKINGS OF LOGIQ™ 7 For BT07 or later, including R7.5.x (Back Side)

### 1-3-5 Label Locations (For BT07 or later, including R7.5.x) (cont'd)

- 1.) Possible Shock Hazard
- 2.) Caution for devices near by the equipment
- 3.) Caution for Transportation
- 4.) Prescription Devices (For USA Only)
- 5.) CE Marking of conformity
- 6.) WEEE mark
- 7.) CISPR
- 8.) Voltage Range
- 9.) Signal Ground Point Label
- 10.) Power Indication Label
- 11.) Caution for Grounding Reliability (For USA, Canada and Japan)
- 12.) ETL Label
- 13.) Identification and Rating Plate (USA/Asia 120V console)
- 14.) Identification and Rating Plate (Europe/Asia/USA 220V console)
- 15.) Identification and Rating Plate (Jpan 100V console)
- 16.) Identification and Rating Plate (China)
- 17.) Label that indicates the presence of hazardous substance(s) above the maximum concentration value.
- 18.) Identification and Rating Plate (Korean)
- 19.) Caution label on the monitor
- 20.) Caution label for the range of motion
- 21.) This machine should be used in compliance with law. Some jurisdictions restrict certain uses, such as gender determination. - Korea Console

## 1-3-6 Label Locations (For BT04, BT06, and V65x)

**NOTE:** For the symbols shown in the illustration below, refer to previous pages in this chapter.

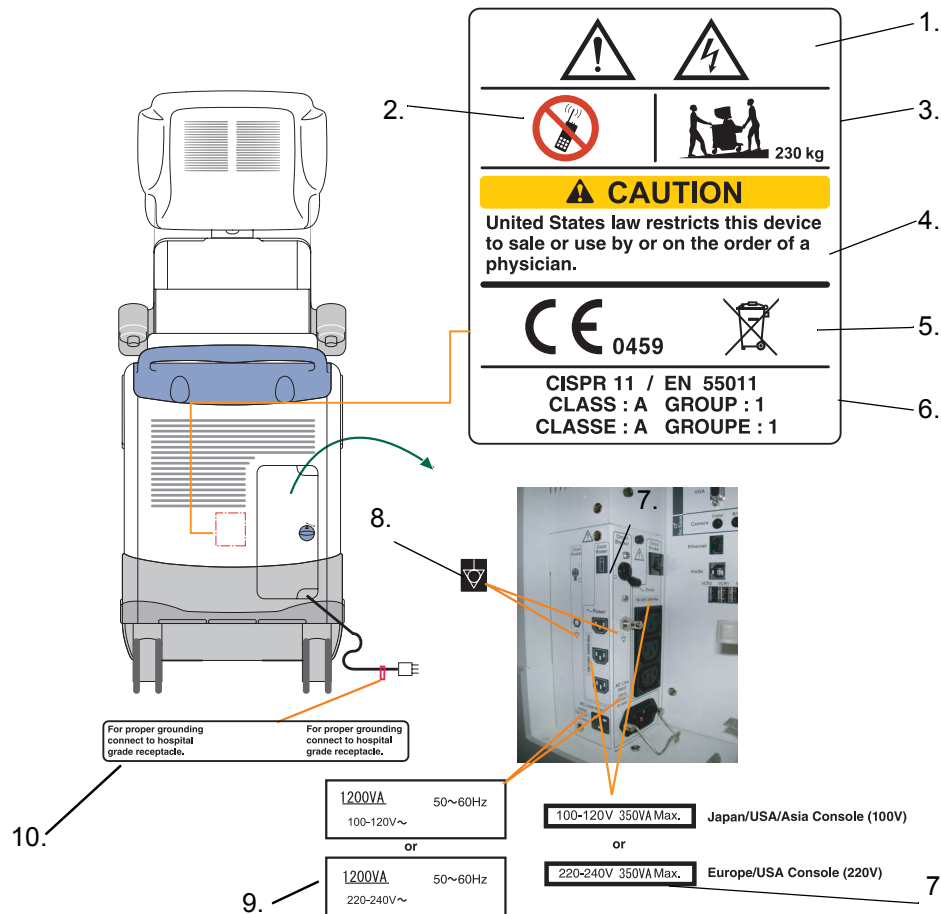


**Figure 1-2 OUTSIDE MARKINGS OF LOGIQ™ 7 For BT04 or later (Back Side)**

- 1.) Possible Shock Hazard
- 2.) Caution for devices near by the equipment
- 3.) Caution for Transportation
- 4.) Prescription Devices (For USA Only)
- 5.) CE Marking of conformity and WEEE mark
- 6.) CISPR
- 7.) Voltage Range
- 8.) Signal Ground Point Label
- 9.) Power Indication Label
- 10.) Caution for Grounding Reliability (For USA, Canada and Japan)



### 1-3-6 Label Locations (For BT04, BT06, and V65x) (cont'd)

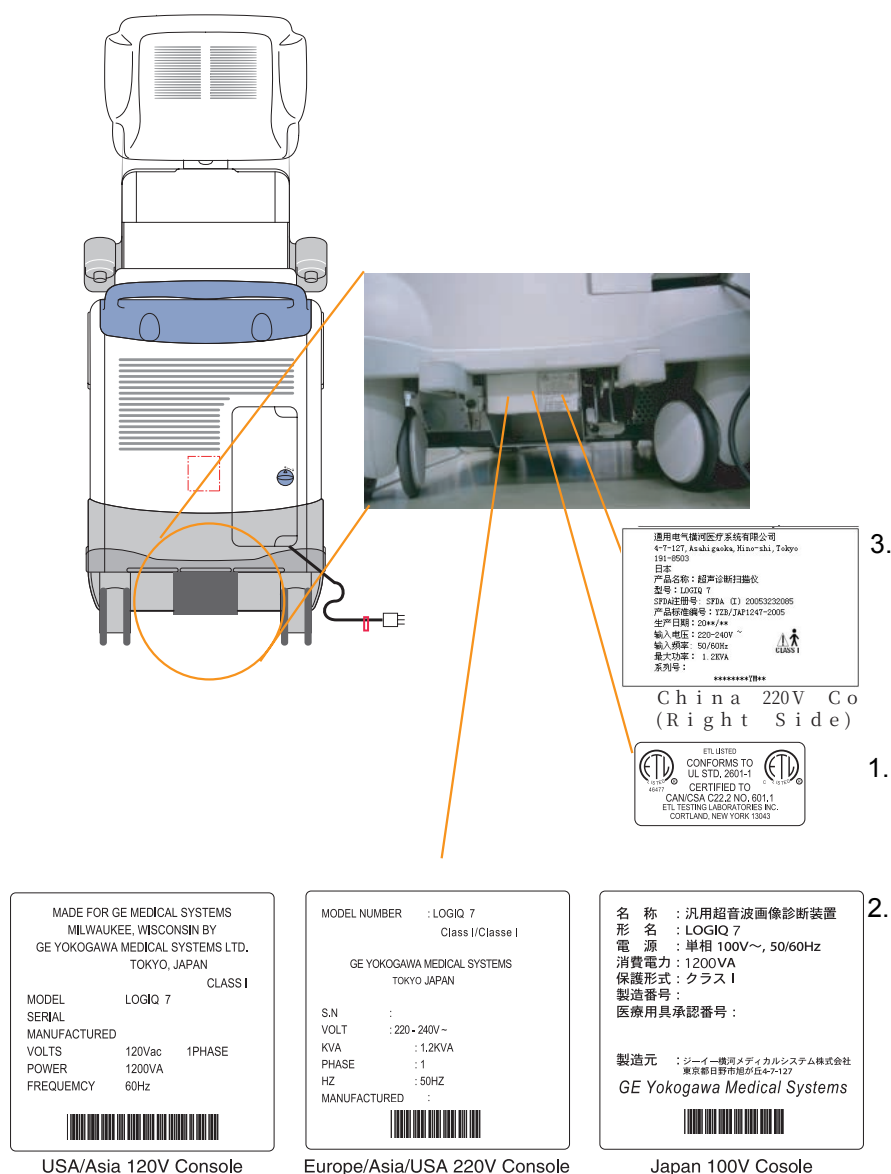


**Figure 1-3 OUTSIDE MARKINGS OF LOGIQ™ 7 For BT04 or later**

- 1.) ETL Label
- 2.) Identification and Rating Plate
- 3.) SFDA or SDA Label (For China ONLY)

### 1-3-7 Label Locations (For BT03 or lower)

**NOTE:** For the symbols shown in the illustration below, refer to previous pages in this chapter.

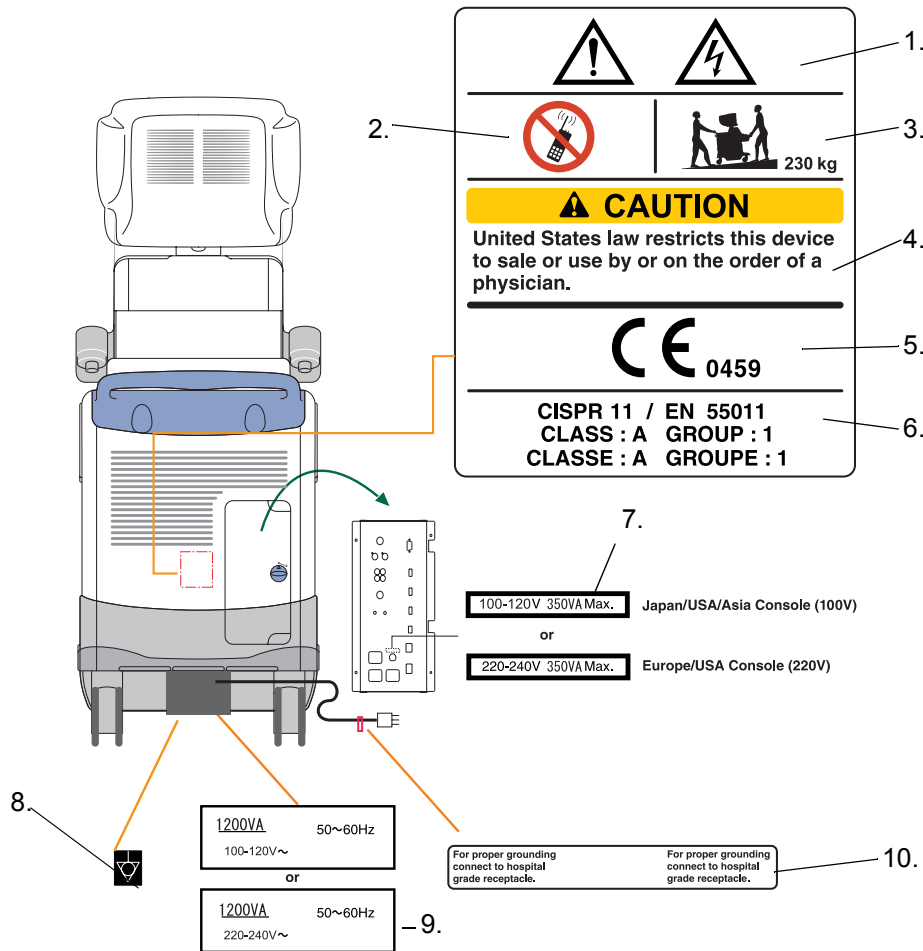


**Figure 1-4 OUTSIDE MARKINGS OF LOGIQ™ 7 For BT03 or lower (Back Side)**

- 1.) Possible Shock Hazard
- 2.) Caution for devices near by the equipment
- 3.) Caution for Transportation
- 4.) Prescription Devices (For USA Only)
- 5.) CE Marking of conformity
- 6.) CISPR
- 7.) Voltage Range
- 8.) Signal Ground Point Label
- 9.) Power Indication Label
- 10.) Caution for Grounding Reliability (For USA, Canada and Japan)

### 1-3-7 Label Locations (For BT03 or lower) (cont'd)

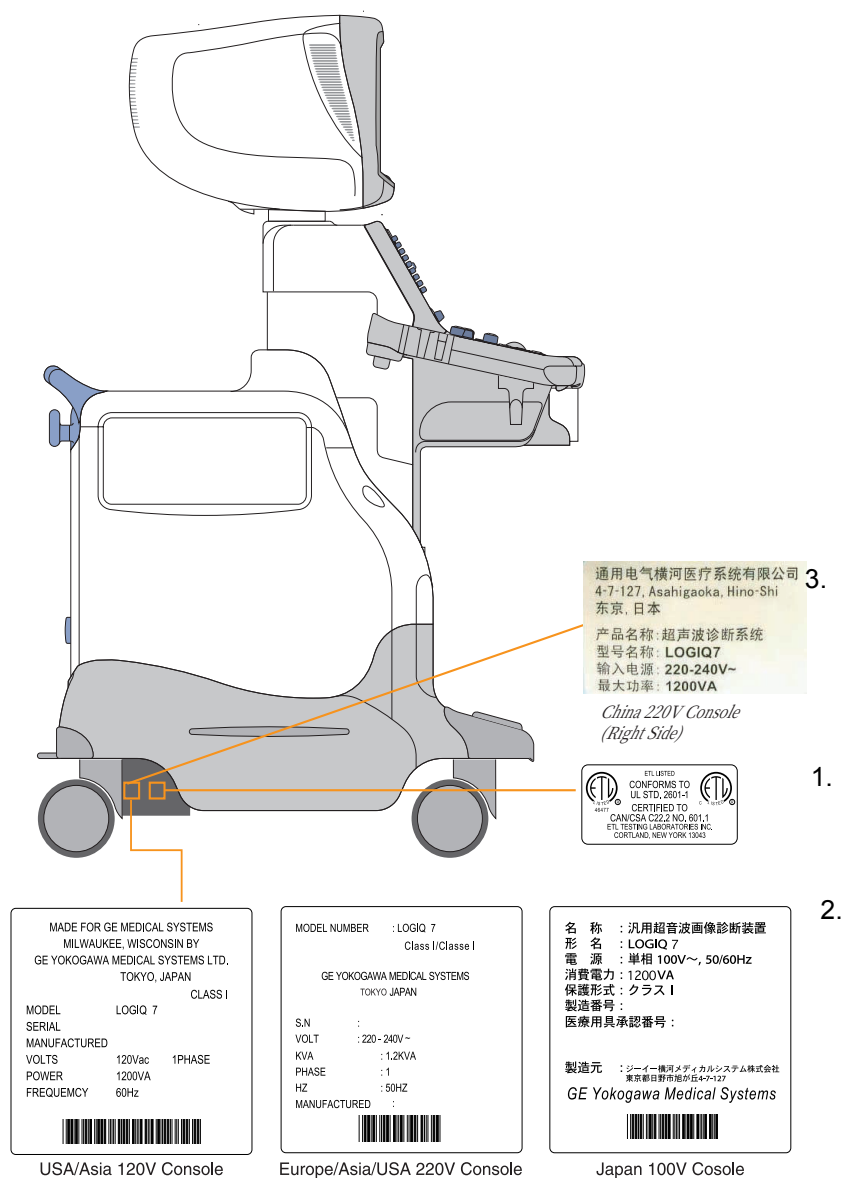


**Figure 1-5 OUTSIDE MARKINGS OF LOGIQ™ 7 For BT03 or lower (Left Side)**

- 1.) ETL Label
- 2.) Identification and Rating Plate
- 3.) SDA Label (For China ONLY)

### 1-3-8 Dangerous Procedure Warnings

Warnings, such as the example below, precede potentially dangerous procedures through our this manual. Instructions contained in the warnings must be followed.

-  **DANGER** **DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.**
-  **WARNING** **EXPLOSION WARNING: DO NOT OPERATE THE EQUIPMENT IN AN EXPLOSIVE ATMOSPHERE. OPERATION OF ANY ELECTRICAL EQUIPMENT IN SUCH AN ENVIRONMENT CONSTITUTES A DEFINITE SAFETY HAZARD.**
-  **WARNING** **DO NOT SUBSTITUTE PARTS OR MODIFY EQUIPMENT: BECAUSE OF THE DANGER OF INTERDICTING ADDITIONAL HAZARDS, DO NOT INSTALL SUBSTITUTE PARTS OR PERFORM ANY UNAUTHORIZED MODIFICATION OF THE EQUIPMENT.**

### 1-3-9 Lockout/Tagout Requirements (For USA Only)

Follow OSHA Lockout/Tagout requirements by ensuring you are in total control of the electrical Mains plug.

-  **NOTICE** Energy Control and Power Lockout for LOGIQ™ 7
- When servicing parts of the system where there is exposure to voltage greater than 30 Volts:  
Unplug the system  
Maintain control of the system power plug  
There are no test points to verify isolation, you must wait for at least 20 seconds for capacitors to discharge  
Beware that the AC Control Box, Front End Processor and Back End Processor may be energized even if the power is turned off when the cord is still plugged into the AC Outlet.

### 1-3-10 Returning/Shipping Probes and Repair Parts

Equipment being returned must be clean and free of blood and other infectious substances.

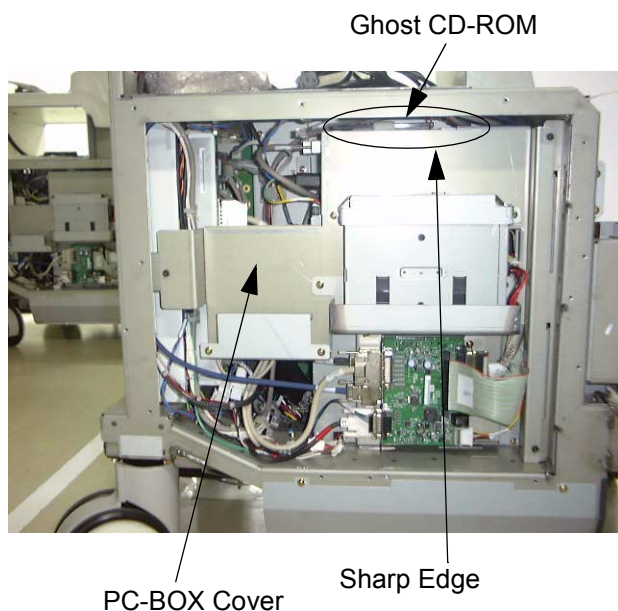
GEMS policy states that body fluids must be properly removed from any part or equipment prior to shipment. GEMS employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstance should a part or equipment with visible body fluids be taken or shipped from a clinic or site (for example, body coils or an ultrasound probe).

The purpose of the regulation is to protect employees in the transportation industry, as well as the people who will receive or open this package.

**NOTE:** *The US Department of Transportation (DOT) has ruled that “items that were saturated and/or dripping with human blood that are now caked with dried blood; or which were used or intended for use in patient care” are “regulated medical waste” for transportation purposes and must be transported as a hazardous material.*

### 1-3-11 How to remove the Ghost CD-ROM

The Ghost CD-ROM (Base System Software Load Image CD-ROM) is mounted on the PC-BOX inside the scanner using velcro tapes. The upper side of the PC-BOX cover contains sharp edge causing a FE to have possibility of cutting his hand if he removes the CD-ROM with the PC-BOX cover closed.



#### NG: WITH PC BOX COVER CLOSED



Do NOT remove the Ghost CD-ROM when the PC-Box cover is closed.

#### For BT04 or later



#### OK: WITH PC BOX COVER OPEN



Figure 1-6 How to Remove Ghost CD-ROM



### 1-3-11 How to remove the Ghost CD-ROM (cont'd)

The sharp edge of the PC Box Cover are chamfered before shipment. However, the Ghost CD-ROM must be removed with the PC-Box cover open according to the following steps.

- 1.) Disconnect the DVI-D connector, then remove the four mounting bolts (three hex bolts and one phillips screw).

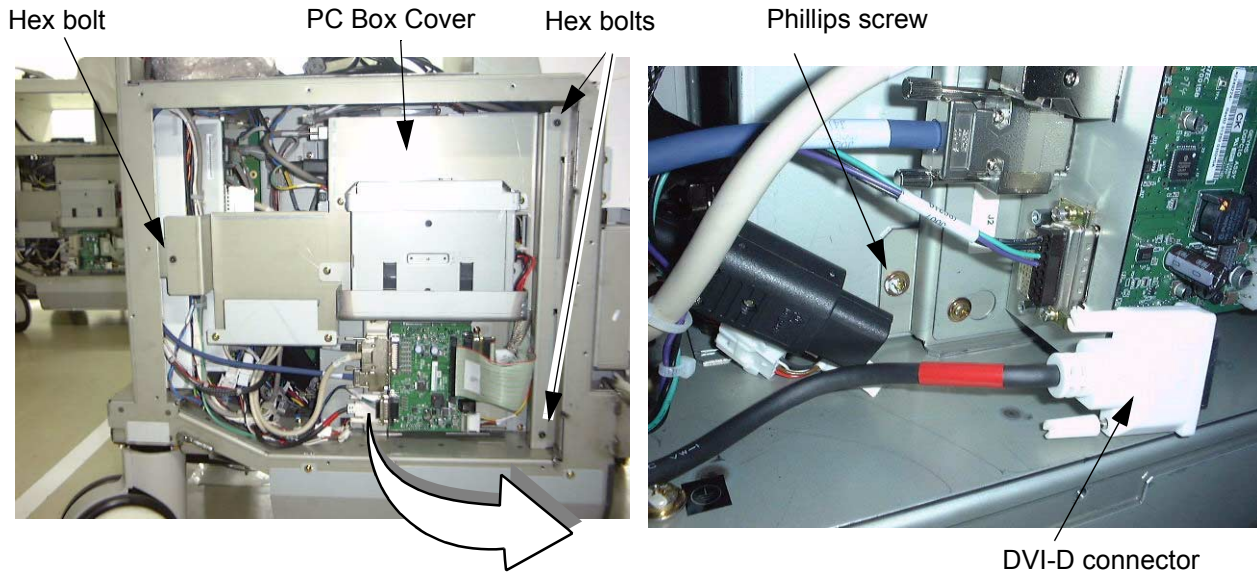


**Figure 1-7 Removing Bolts**

- 2.) Open the PC box cover and remove the Ghost CD-ROM from the PC box.

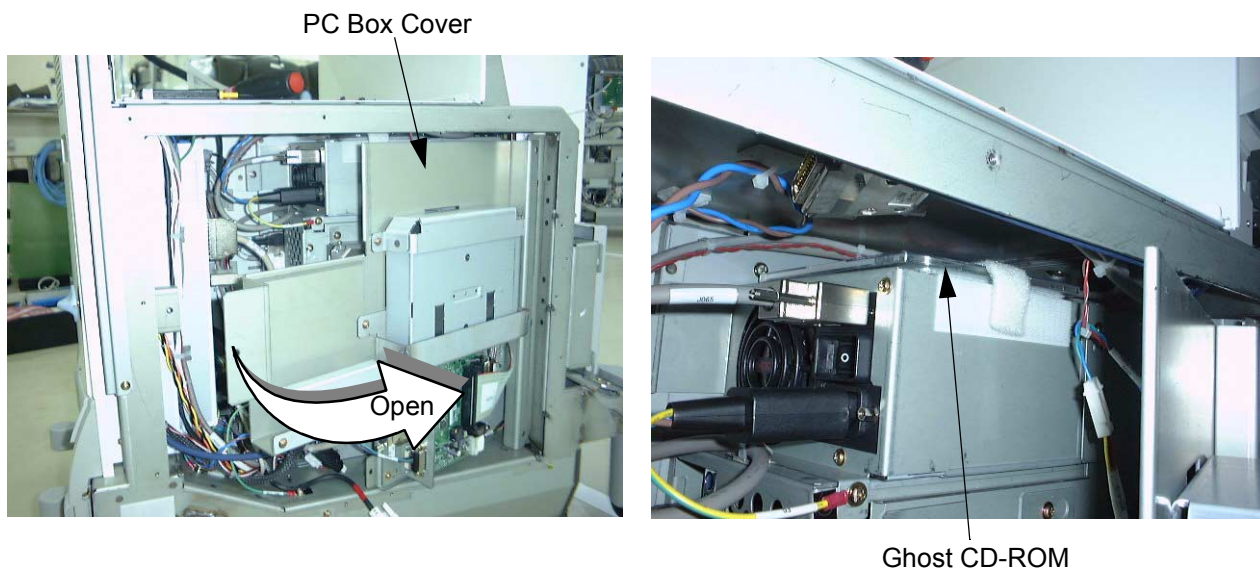


**Figure 1-8 Removing Ghost CD-ROM**

## Section 1-4 EMC, EMI, and ESD

### 1-4-1 Electromagnetic Compatibility

Electro Magnetic Compatibility describes a level of performance of a device within its electromagnetic environment. This environment consists of the device itself and its surroundings including other equipment, power sources and persons with which the device must interface. Inadequate compatibility results when a susceptible device fails to perform as intended due interface from its environment or when the device produces unacceptable levels of mission to its environment. This interface is often referred to as radio-frequency or electromagnetic interface (RFI/EMI) and can be radiated through space or conducted over interconnecting power or signal cables. In addition to electromagnetic energy, EMC also includes possible effects from electrical fields, magnetic fields, electrostatic discharge and disturbances in the electrical power supply.

### 1-4-2 Electrostatic Discharge (ESD) Prevention



**WARNING** ***DO NOT TOUCH ANY BOARDS WITH INTEGRATED CIRCUITS PRIOR TO TAKING THE NECESSARY ESD PRECAUTIONS:***

- 1.) ***Always connect yourself, via an arm-wrist strap, to the dedicated ground point located on the rear of the scanner (to the left of the power connector) or a proper frame ground.***
- 2.) ***Follow general guide lined for handling of electrostatic sensitive equipment.***

### 1-4-3 CE Compliance

The LOGIQ™ 7 unit conforms to all applicable conducted and radiated emission limits and immunity from electrostatic discharge, radiated and conducted RF fields, magnetic fields and power line transient requirements.

Applicable standards are: 47CFR Part18, IEC60601-1-2, and 806-13.

**NOTE:** *For CE Compliance, it is critical that all covers, screws, shielding, gaskets, mesh, clamps, are in good condition, installed tightly without skew or stress. Proper installation following all comments noted in this service manual is required in order to achieve full EMC performance.*

## Section 1-5 Customer Assistance

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).

### 1-5-1 System Manufacture

**Table 1-6 System Manufacture**

| GE YOKOGAWA MEDICAL SYSTEMS                            |
|--------------------------------------------------------|
| 4-7-127 Asahigaoka, Hino-shi, Tokyo, 191-8503<br>JAPAN |

### 1-5-2 Contact Information

**For GE Service:**

**Table 1-7 Phone Numbers for Customer Assistance**

| Location                                                                                                                                              | Phone Number                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| USA/ Canada<br>GE Medical Systems<br>Ultrasound Service Engineering<br>4855 W. Electric Avenue<br>Milwaukee, WI 53219<br><br>Customer Answer Center   | Tel: 1-800-321-7937<br><br><br><br><br>1-800-682-5327<br>1-262-524-5698<br>Fax: +1-414-647-4125     |
| Latin America<br>GE Medical Systems<br>Ultrasound Service Engineering<br>4855 W. Electric Avenue<br>Milwaukee, WI 53219<br><br>Customer Answer Center | Tel: 1-262-524-5300<br><br><br><br><br>1-262-524-5698<br>Fax: +1-414-647-4125                       |
| Europe<br>GE Ultraschall Deutschland GmbH & Co. KG<br>BeethovenstraBe 239<br>Postfach 11 05 60, D-42655 Solingen<br>Germany                           | Tel:<br>+33 0 130 831 300 - CARDIAC<br>+33 0 130 831 300 - GENERAL IMAGING<br>Fax: +49 212 2802 431 |
| Asia (Singapore)<br>GE Ultrasound Asia<br>Service Department - Ultrasound<br>298 Tiong Bahru Road #15-01/06<br>Central Plaza<br>Singapore 169730      | Tel: +65-6277-3512<br><br><br><br><br>Fax: +65 6272-3997                                            |
| ASIA (Japan)                                                                                                                                          | +65-277-3512                                                                                        |



## 1-5-2 Contact Information (cont'd)

**NOTE:**     *If this equipment does not work as indicated in the Operator Manual(s), contact your support center. Have the system ID number available when you call.*

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# Chapter 2

## Pre Installation

---

### Section 2-1 Overview

#### 2-1-1 Purpose of this chapter 2

This chapter provides the information required to plan and prepare for the installation of a LOGIQ™ 7. Included are descriptions of the facility and electrical needs to be met by the purchaser of the unit. A checklist is also provided at the end of this section to help determine whether the proper planning and preparation is accomplished before the actual equipment installation is scheduled.

**Table 2-1 Contents in Chapter 2**

| Section | Description                  | Page Number |
|---------|------------------------------|-------------|
| 2-1     | Overview                     | 2-1         |
| 2-2     | General Console Requirements | 2-2         |
| 2-3     | Facility Needs               | 2-7         |

## Section 2-2 General Console Requirements

### 2-2-1 Console Environmental Requirements

**Table 2-2 Environmental Requirements for LOGIQ™ 7 Scanners**

|                    | Operational                | Storage                    | Transport                  |
|--------------------|----------------------------|----------------------------|----------------------------|
| <b>Temperature</b> | 10 - 35 °C<br>50 - 95 °F   | -10 - 50 °C<br>14 - 122°F  | -10 - 50 °C<br>14 - 122 °F |
| <b>Humidity</b>    | 30 - 80%<br>non-condensing | 30 - 80%<br>non-condensing | 30 - 80%<br>non-condensing |
| <b>Pressure</b>    | 700 - 1060hPa              | 700 - 1060hPa              | 700 - 1060hPa              |

**Table 2-3 Environmental Requirements for an Ultrasound Room**

| Item                       | Values                                                        |
|----------------------------|---------------------------------------------------------------|
| <b>Power Source</b>        | Refer to Table 2-4 on page 2-3.                               |
| <b>Current Rating</b>      | 20A (120V, 100V); 7.5A (220-240V) CIRCUIT BREAKER             |
| <b>Radiation Shielding</b> | NONE REQUIRED for ULTRASOUND ENERGY                           |
| <b>Temperature</b>         | 20-26 DEG. C (68-79 DEG F) for PATIENT COMFORT                |
| <b>Humidity</b>            | 50% to 70% for PATIENT COMFORT                                |
| <b>Heat Dissipation</b>    | 3500 BTU/Hr.                                                  |
| <b>Floor Landing</b>       | Approximately 680 - 800 kg/m <sup>2</sup> without Accessories |
| <b>Floor Condition</b>     | Gradient: WITHIN 5 degrees                                    |
| <b>Weight</b>              | Approximately 225 kg (496lbs) without Accessories             |

#### 2-2-1-1 Cooling

The cooling requirement for the LOGIQ™ 7 is 3500 BTU/hr. This figure does not include cooling needed for lights, people, or other equipment in the room. Each person in the room places an additional 300 BTU/hr. demand on the cooling system.

#### 2-2-1-2 Lighting

Bright light is needed for system installation, updates and repairs. However, operator and patient comfort may be optimized if the room light is subdued and indirect. Therefore a combination lighting system (dim/bright) is recommended. Keep in mind that lighting controls and diameters can be a source of EMI which could degrade image quality. These controls should be selected to minimize possible interface.

## 2-2-2 Electrical Requirements

### 2-2-2-1 Electrical Requirements

**NOTE:** GE Medical Systems requires a dedicated power and ground for the proper operation of its Ultrasound equipment. This dedicated power shall originate at the last distribution panel before the system.

Sites with a mains power system **with defined Neutral and Line:**

The dedicated line shall consist of one phase, a neutral (not shared with any other circuit), and a full size ground wire from the distribution panel to the Ultrasound outlet.

Sites with a mains power system **without a defined Neutral:**

The dedicated line shall consist of one phase (two lines), not shared with any other circuit, and a full size ground wire from the distribution panel to the Ultrasound outlet.

Please note that image artifacts can occur, if at any time within the facility, the ground from the main facility's incoming power source to the Ultrasound unit is only a conduit.

### 2-2-2-2 LOGIQ™ 7 Power 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:

**Table 2-4 Electrical Specifications for LOGIQ™ 7**

| PARAMETER            | AREA             | LIMITS                                                                                                                                                                     |
|----------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Voltage Range        | 100V             | 100 VAC $\pm$ 10% (90-110 VAC)                                                                                                                                             |
|                      | 220V             | 220-240 VAC $\pm$ 10% (198-264 VAC)                                                                                                                                        |
|                      | 120V             | 120 VAC $\pm$ 10% (108-132 VAC)                                                                                                                                            |
| Power                | All applications | MAX. 1200 VA                                                                                                                                                               |
| Line Frequency       | All applications | 50/60Hz ( $\pm$ 2Hz)                                                                                                                                                       |
| Power Transients     | All applications | 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 | All applications | Less than 15% of peak voltage for less than 1 millisecond.                                                                                                                 |

### 2-2-2-3 Inrush Current

Inrush Current is not a factor to consider due to the inrush current limiting properties of the power supplies.

### 2-2-2-4 Site Circuit Breaker

It is recommended that the branch circuit breaker for the machine be ready accessible.



**CAUTION**

**POWER OUTAGE MAY OCCURE.** The LOGIQ™ 7 requires a dedicated single branch circuit. To avoid circuit overload and possible loss of critical care equipment, make sure you DO NOT have any other equipment operating on the same circuit.

**2-2-2-5 Site Power Outlets**

A desiccated AC power outlet must be within reach of the unit without extension cords. Other outlets adequate for the external peripherals, medical and test equipment needed to support this unit must also be present within 1 m (3.2 ft.) of the unit. Electrical installation must meet all current local, state, and national electrical codes.

**2-2-2-6 Unit Power Plug**

If the unit arrives without the power plug, or with the wrong plug, you must contact your GE dealer or the installation engineer must supply what is locally required.

**2-2-2-7 Power Stability Requirements**

**Voltage drop-out**

Max 10 ms.

**Power Transients**

Refer Table

## 2-2-3 EMI Limitations

Ultrasound machines are susceptible to Electromagnetic Interference (EMI) from radio frequencies, magnetic fields, and transient in the air wiring. They also generate EMI. The LOGIQ™ 7 complies with limits as stated on the EMC label. However there is no guarantee that interface will not occur in a particular installation.

Possible EMI sources should be identified before the unit is installed.

Electrical and electronic equipment may produce EMI unintentionally as the result of defect.

These sources include:

- medical lasers,
- scanners,
- cauterizing guns,
- computers,
- monitors,
- fans,
- gel warmers,
- microwave ovens,
- light dimmers,
- portable phones.

The presence of broadcast station or broadcast van may also cause interference. See for EMI Prevention tips.

**Table 2-5 EMI Prevention/abatement**

| EMI Rule                                         | Details                                                                                                                                                                                                                                                                                                                         |
|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Be aware of RF sources                           | Keep the unit at least 5 meters or 15 feet away from other EMI sources. Special shielding may be required to eliminate interference problems caused by high frequency, high powered radio or video broadcast signals.                                                                                                           |
| Ground the unit                                  | Poor grounding is the most likely reason a unit will have noisy images. Check grounding of the power cord and power outlet.                                                                                                                                                                                                     |
| Replace all screws, RF gaskets, covers, cores    | After you finish repairing or updating the system, replace all covers and tighten all screws. Any cable with an external connection requires a magnet wrap at each end. Install the shield over the front of card cage. Loose or missing covers or RF gaskets allow radio frequencies to interface with the ultrasound signals. |
| Replace broken RF gaskets                        | If more than 20% or a pair of fingers on the RF gaskets are broken, replace the gaskets. Do not turn on the unit until any loose metallic part is removed.                                                                                                                                                                      |
| Do not place labels where RF gaskets touch metal | Never place a label where RF gaskets meet the unit. Otherwise, the gap created will permit RF leakage. Or, if a label has been found in such a position, move the label.                                                                                                                                                        |
| Use GE specified harnesses and peripherals       | The interconnect cables are grounded and require ferrite beads and other shielding. Also, cable length, material, and routing are all important; do not change from what is specified.                                                                                                                                          |
| Take care with cellular phones                   | Cellular phones may transmit a 5 V/m signal; that could cause image artifacts.                                                                                                                                                                                                                                                  |
| Properly dress peripheral cables                 | Do not allow cables to lie across the top of the card cage or hang out of the peripheral bays. Loop the excess length for peripheral cables inside the peripheral bays. Attach the monitor cables to the frame.                                                                                                                 |

## 2-2-4 Probes Environmental Requirements

**Table 2-6 Operation and storage Temperatures for 2D Probes**

|                    | Operational                | Storage                    | Transport                   |
|--------------------|----------------------------|----------------------------|-----------------------------|
| <b>Temperature</b> | 10 - 40 °C<br>50 - 104 °F  | -10 - 60 °C<br>14 - 140°F  | -40 - 60 °C<br>-40 - 140 °F |
| <b>Humidity</b>    | 30 - 85%<br>non-condensing | 30 - 90%<br>non-condensing | 30 - 90%<br>non-condensing  |
| <b>Pressure</b>    | 700 - 1060hPa              | 700 - 1060hPa              | 700 - 1060hPa               |

**Table 2-7 Operation and storage Temperatures for 4D Probes**

|                    | Operational                | Storage                    | Transport                  |
|--------------------|----------------------------|----------------------------|----------------------------|
| <b>Temperature</b> | 18 - 30 °C<br>64- 86 °F    | -10 - 50 °C<br>14 - 122 °F | -10 - 50 °C<br>14 - 122 °F |
| <b>Humidity</b>    | Max. 70%<br>non-condensing | Max. 90%<br>non-condensing | Max. 90%<br>non-condensing |
| <b>Pressure</b>    | 700 - 1060hPa              | 700 - 1060hPa              | 700 - 1060hPa              |



## Section 2-3 Facility Needs

### 2-3-1 Purchaser Responsibilities

The work and materials needed to prepare the site is the responsibility of the purchaser. Delay, confusion, and waste of manpower can be avoided by completing pre installation work before delivery. Use the Pre Installation checklist to verify that all needed steps have been taken, Purchaser reasonability includes:

- Procuring the materials required.
- Completing the preparations before delivery of the ultrasound system.
- Paying the costs for any alternations and modifications not specifically provided in the sales contract.

**NOTE:** *All electrical installation that are preliminary to the positioning of the equipment at the site prepared for the equipment must be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, products involved (and the accompanying electrical installations) are highly sophisticated and special engineering competence is required. All electrical work on these product must comply with the requirements of applicable electrical codes. The purchaser of GE equipment must only utilize qualified personnel to perform electrical servicing on the equipment.*

The desire to use a non-listed or customer provided product or to place an approved product further from the system than the interface kit allows presents challenges to the installation team. To avoid delays during installation, such variances should be made known to the individuals or group performing the installation at the earliest possible date (preferable prior to purchase).

The ultrasound suite must be clean proof to delivery of the machine. Carpet is not recommended because it collects dust and creates static. Potential sources of EMI (electromagnetic interference) should also be investigated before delivery. Dirt, static, and EMI can negatively impact system.

### 2-3-2 Required Features

- Dedicated single branch power outlet of adequate amperage (see *Table 2-3*) meeting all local and national codes which is located less than 2.5 m (8 ft.) from the unit's proposed location
- Door opening is at least 76 cm (30 in) wide
- Proposed location for unit is at least 0.3 m (1 ft.) from the wall for cooling
- Power outlet and place for any external peripheral are within 2 m (6.5 ft.) of each other with peripheral within 1 m of the unit to connect cables.

**NOTE:** *The LOGIQ™ 7 has four outlets inside the unit. One is for the monitor and three for on board peripherals.*

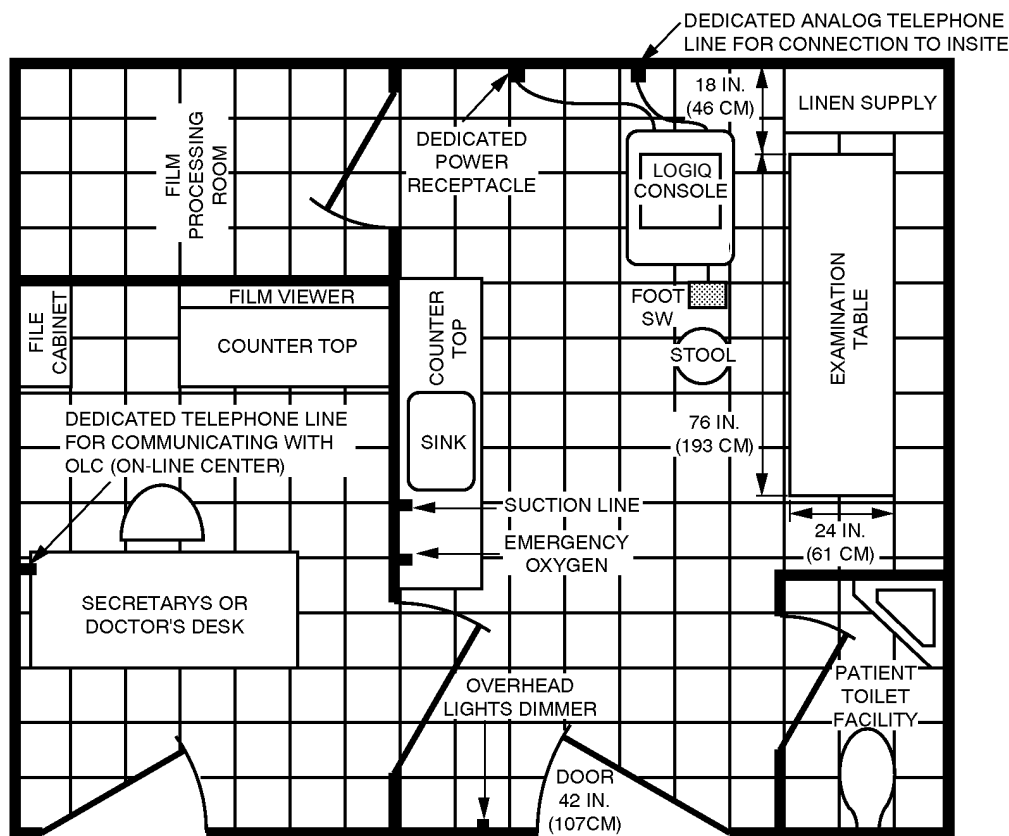
- Power outlets for other medical equipment and gel warmer
- Power outlets for test equipment and modem within 1 m (3.2 ft.) of unit
- Clean and protected space to store transducers (in their cases or on a rack)
- Material to safely clean probes (done with a plastic container, never metal)

### 2-3-3 Desirable Ultrasound Room Facilities

- Door is at least 92 cm (3 ft.) wide
- Circuit breaker for dedicated power outlet is easily accessible
- Sink with hot and cold water
- Receptacle for bio-hazardous waste, like used probe sheaths
- Emergency oxygen supply
- Storage for linens and equipment
- Nearby waiting room, lavatory, and dressing room
- Dual level lighting (bright and dim)
- Lockable cabinet ordered by GE for its software and proprietary manuals

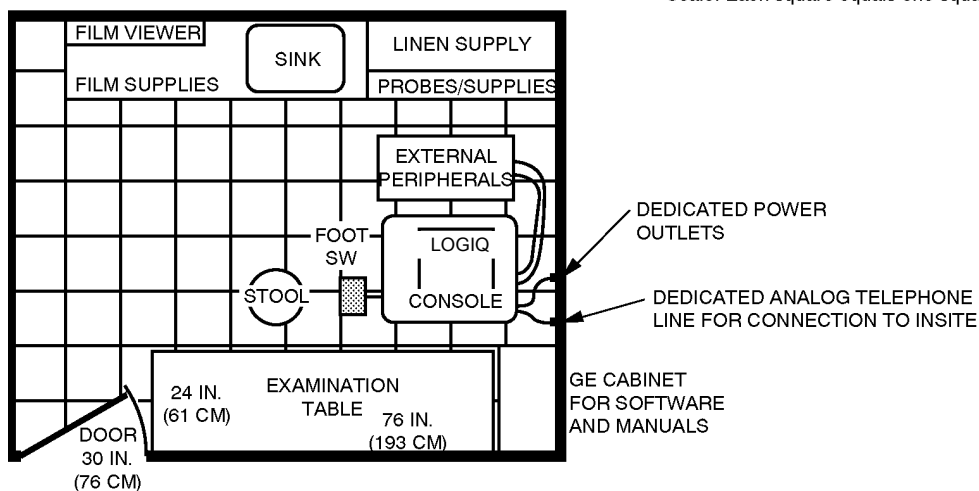
## 2-3-4 Recommended and Alternate Ultrasound Room Layout

Recommended standard floor plan and a minimal floor plan for ultrasound equipment:



A 14 by 17 foot Recommended Floor Plan

Scale: Each square equals one square foot



An 8 by 10 foot Minimal Floor Plan

Figure 2-1 RECOMMENDED ULTRASOUND ROOM LAYOUT

---

## **2-3-5      Networking Pre-installation Requirements**

### **2-3-5-1      Purpose of DICOM Network Function**

DICOM services provide the operator with clinically useful features for moving images and patient information over a hospital network. Examples of DICOM services include the transfer of images to workstations for viewing or transferring images to remote printers. As an added benefit, transferring images in this manner frees up the on-board monitor and peripherals, enabling viewing to be done while scanning continues. With DICOM, images can be archived, stored, and retrieved faster, easier, and at a lower cost.

### **2-3-5-2      DICOM Option Pre-installation Requirements**

To configure the LOGIQ™ 7 to work with other network connections, the site's network administrator must provide some necessary information.

Information must include:

- A host name, local port number, AE Title, IP address and Net Mask for the LOGIQ™ 7.
- The IP addresses for the default gateway and other routers at the site for ROUTING INFORMATION.
- The host name, IP address, port and AE Title for each device the site wants connected to the LOGIQ™ 7 for DICOM APPLICATION INFORMATION. A field for the make (manufacturer) and the revision of the device, is also included. This information may be useful for solving errors.

2-3-5-2 DICOM Option Pre-installation Requirements (cont'd)

LOGIQ™ 7  
Host Name  Local Port  IP Address  .  .  .   
AE Title  Net Mask  .  .  .

ROUTING INFORMATION

|         | Destination<br>IP Addresses |                      |                      |                      | Default              | GATEWAY IP Addresses |                      |                      |                      |
|---------|-----------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| ROUTER1 | <input type="text"/>        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| ROUTER2 | <input type="text"/>        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| ROUTER3 | <input type="text"/>        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |

DICOM APPLICATION INFORMATION

|                | NAME                 | MAKE/REVISION        | AE TITLE             | IP ADDRESSES                                                                              | PORT                 |
|----------------|----------------------|----------------------|----------------------|-------------------------------------------------------------------------------------------|----------------------|
| Store 1        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Store 2        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Store 3        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Store 4        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Store 5        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Store 6        | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Worklist       | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| Storage Commit | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |
| MPPS           | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . <input type="text"/> . <input type="text"/> . <input type="text"/> | <input type="text"/> |

Figure 2-2 Worksheet for DICOM Network Information

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# Chapter 3

## Installation

### Section 3-1 Overview

#### 3-1-1 Purpose of Chapter 3

This chapter contains information needed to install the unit. Included are references to a procedure that describes how to receive and unpack the equipment and how to file a damage or loss claim. How to prepare the facility and unit of the actual installation, and how to check and test the unit, probes, and external peripherals for electrical safety are included in this procedure. Also included in this section are guidelines for transporting the unit to a new site.

**Table 3-1 Contents in Chapter 3**

| Section | Description                           | Page Number |
|---------|---------------------------------------|-------------|
| 3-1     | Overview                              | 3-1         |
| 3-2     | Receiving and Unpacking the Equipment | 3-3         |
| 3-3     | Preparing for Installation            | 3-10        |
| 3-4     | Completing the Installation           | 3-11        |
| 3-5     | Installation Paperwork                | 3-18        |

#### 3-1-2 Average Installation Time

**Table 3-2 Average Installation Time**

| Description           | Average Installation Time | Comments                                        |
|-----------------------|---------------------------|-------------------------------------------------|
| Unpacking the scanner | 0.5 hour                  |                                                 |
| Scanner wo/options    | 0.5 hour                  | Dependant on the configuration that is required |
| DICOM Option          | 0.5 hour                  | Dependant on the amount of configuration        |
| InSite Option         | 0.5 hour                  |                                                 |

The LOGIQ™ 7 has been designed to be installed and checked out by an experienced service technician in approximately four hours. LOGIQ™ 7 consoles with optional equipment may take slightly longer.

### 3-1-3 Installation Warnings

- 1.) Since the LOGIQ™ 7 weighs approximately 225 kg. (496 lb) 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.
- 3.) After being transported, the unit may be very cold or hot. If this is the case, allow the unit to acclimate before you turn it on. It requires one hour for each 2.5°C increment it's temperature is below 10°C or above 40°C.

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

Table 3-3 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 | 96 | 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  |

#### 3-1-3-1 Brake Pedal Operation

 **WARNING** *REMEMBER: IF THE FRONT CASTER SWIVEL LOCK IS ENGAGED FOR TRANSPORTATION, PRESSING THE RELEASE PEDAL ONCE DISENGAGES THE SWIVEL LOCK. YOU MUST DEPRESS THE RELEASE PEDAL A SECOND TIME TO ENGAGE THE BRAKE.*



## Section 3-2 Receiving and Unpacking the Equipment

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

Example shown:  
LOGIQ 7 system

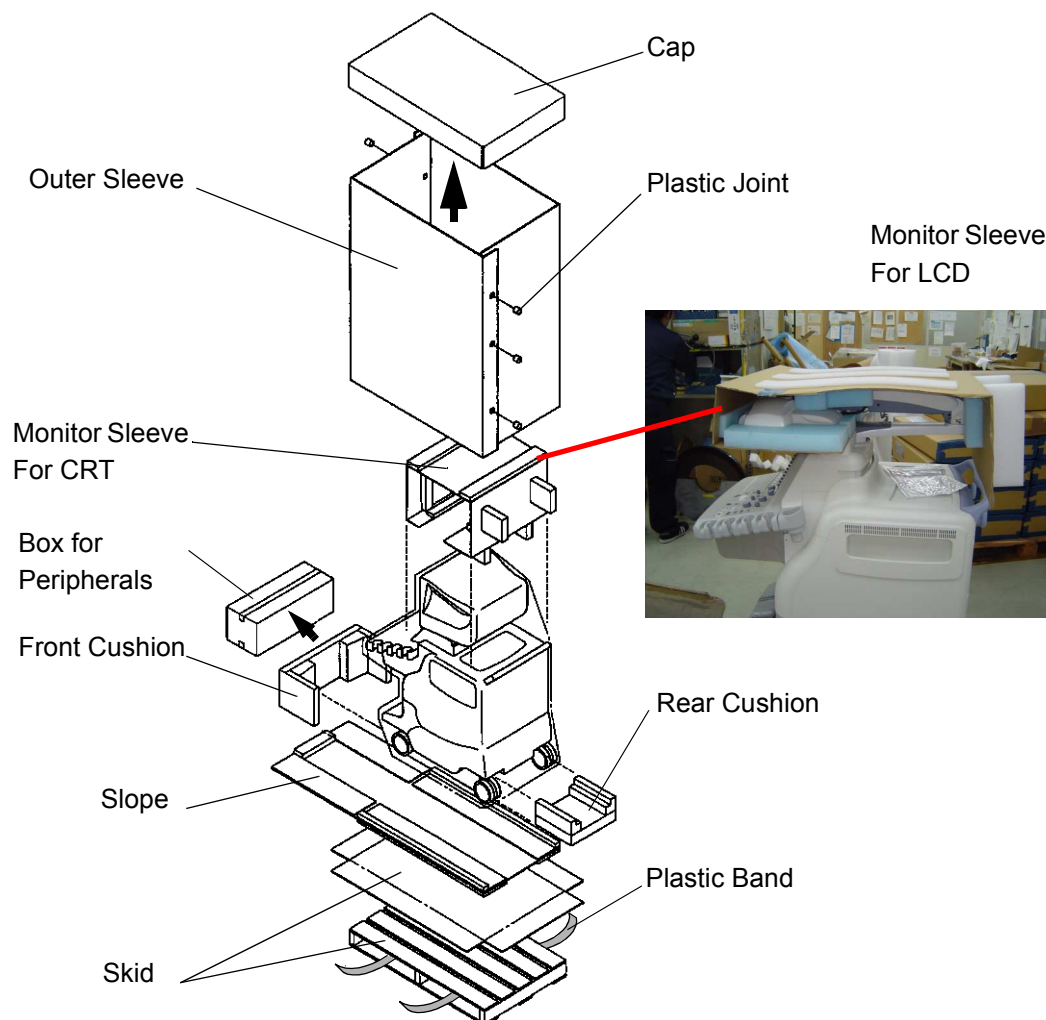


**Figure 3-1 Unpacking Procedures**

Unpacking Procedures:

- 1.) Cut the two Metal Bands.
- 2.) Lift the Cap up and off.
- 3.) Remove the six (6) Plastic Joints from the Outer Sleeves.
- 4.) Remove the Outer Sleeves.
- 5.) Remove the Monitor Sleeve.
- 6.) Remove the Box for Peripherals.
- 7.) Remove the Front and Rear Cushions.
- 8.) Slide out and set up the Slope.
- 9.) Unlock the brakes by stepping down on the brake pedal in front, then carefully roll the LOGIQ™ 7 rear side first off the Skid.

Section 3-2     Receiving and Unpacking the Equipment (cont'd)

*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.

 **NOTICE**     For the protection of LCD monitor, re-use the packing sleeve whenever possible, in case of shipment after unpacking.



Secure the LCD Sleeve with adhesive tape after placing it to the proper location.

Adhesive Tape (Each side)



Turn over the LCD monitor, and place the sleeve to the location above. Make sure LCD arm is locked.



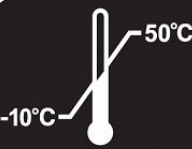
Pull over the sleeve to the LCD arm.



Make sure the LCD arm hinge is placed inside of the protective pad.



Humidity 30-80%  
Excluding Condensation  
湿度: 30-80%, 不凝結



-10°C — 50°C  
The maximum allowable rate  
of change of 60 deg C/hr  
每小时最大变化范围为60摄氏度

Air Pressure  
700-1060hPa  
大气压 700-1060hPa

Note: These labels are attached onto the shipping box, defining environment at which consoles are to be transported or stored.

Figure 3-2 Labels on Package

### 3-2-1 Safety Reminders

-  **DANGER** **WHEN USING ANY TEST INSTRUMENT THAT IS CAPABLE OF OPENING THE AC GROUND LINE (I.E., METER'S GROUND SWITCH IS OPEN), DO NOT TOUCH THE UNIT!**
-  **CAUTION** Two people should unpack the unit because of its weight. Two people are required whenever a part weighing 19kg (35 lb.) or more must be lifted.
-  **CAUTION** If the unit is very cold or hot, do not turn on its power until it has had a chance to acclimate to its operating environment.
-  **CAUTION** To prevent electrical shock, connect the unit to a properly grounded power outlet. Do not use a three to two prong adapter. This defeats safety grounding.
-  **CAUTION** Do NOT wear the ESD wrist strap when you work on live circuit and more than 30 V peak is present.
-  **CAUTION** Do not use a 20 Amp to 15 Amp adapter on the 120 Vac unit's power cord. This unit requires a dedicated 20 A circuit and can have a 15 A plug if the on board peripherals do not cause the unit to draw more than 14.0 amps.
-  **CAUTION** Do not operate this unit unless all board covers and frame panels are securely in place. System performance and cooling require this.
-  **CAUTION** **OPERATOR MANUAL(S)**  
The User Manual(s) should be fully read and understood before operating the LOGIQ™ 7 and kept near the unit for quick reference.
-  **CAUTION** **ACOUSTIC OUTPUT HAZARD**  
Although the ultrasound energy transmitted from the LOGIQ™ 7 probe is within FDA limits, avoid unnecessary exposure. Ultrasound energy can produce heat and mechanical damage.
-  **CAUTION** Do not lift the unit by the Keyboard. Equipment damage may result.
-  **CAUTION** The crate with the LOGIQ™ 7 weighs approximately 340 kg. (749.7 lb) Be prepared for a sudden shift of weight as the unit is removed from its base (pallet)

### 3-2-2 Moving into Position

-  **CAUTION** Do not lift the unit by the Keyboard.  
Do not tilt the unit more than 5 degrees to avoid tipping it over.  
To avoid injury by tipping over. Set the monitor to the lowest position before moving.
-  **CAUTION** Equipment Damage Possibility. Lifting the console by holding covers may damage the covers.  
Do not lift the console by holding any covers.

In general, a single adult can move the LOGIQ™ 7 along an even surface with no steep grades. At least two people should move the machine when large humps, grooves, or grades will be encountered. (It is better to pull from the rear rather than push from the front of the unit). Before moving, store all loose parts in the unit. Wrap transducers in soft cloth or foam to prevent damage.

Although LOGIQ™ 7 is a compact and mobile machine, two people should move it over rough surfaces or up and down grades.

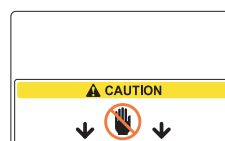
-  **CAUTION** For LCD Model ONLY:  
Always lock the LCD monitor arm before removing the LCD monitor. This prevents the monitor arm from being suddenly and unexpectedly extended when removing the LCD monitor. Failure to heed this warning may result in personal harm, harm to others or death..



Arm Lock (LCD Model ONLY)

### 3-2-3 LCD Monitor Tilt Caution

 **CAUTION** Do NOT put your hand here! Your fingers might be pinched when adjusting angle of the LCD monitor.



For R7.5.x 19inch LCD system

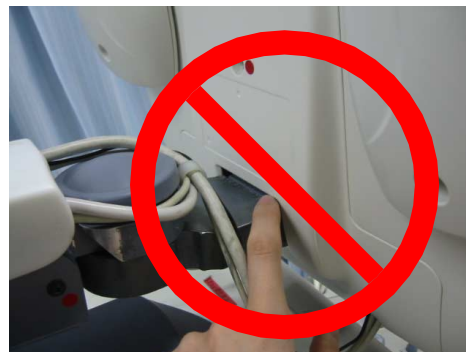
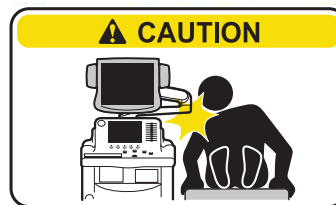


Figure 3-3 LCD Monitor Tilt Caution

### 3-2-4 LCD Monitor Swing Caution LCD Monitor Tilt Caution

 **CAUTION** Arm can be swung 180 degree left and right, and stick out from the side frame. Pay attention to the location from the wall in the room for room layout, and notice the attention to customer for Examination Table side.



 **CAUTION** LCD will hit the KBD in case of moving over the right/left side.





### 3-2-5 LCD Monitor Removal Caution



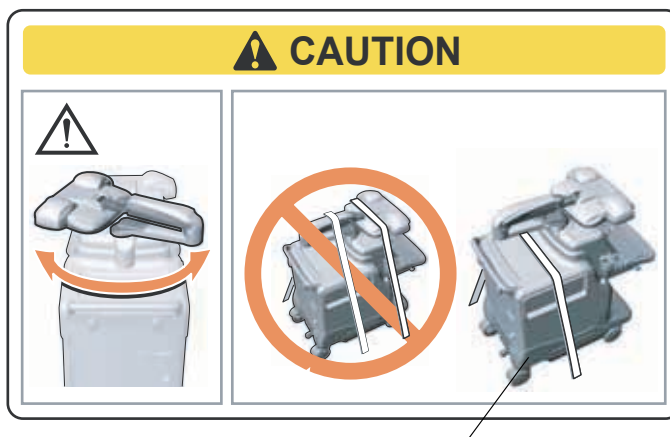
**CAUTION** Always lock the LCD monitor arm before removing the LCD monitor. This prevents the monitor arm from being suddenly and fastly extended when removing the LCD monitor. Failure to heed this warning may result in personal harm, harm to others or death.



Arm Lock (LCD Model ONLY)

### 3-2-6 Shipping Delivery Requirements

Do NOT hold the scanner at the LCD monitor or rotating arm using the belt as shown. Always hold it at the body part of the console.



Always hold the scanner at the body.

Figure 3-4 Shipping Delivery Requirements

## Section 3-3 Preparing for Installation

### 3-3-1 Verify Customer Order

Compare items received by the customer to that which is listed on the delivery order. Report any items that are missing, back ordered or damaged.

### 3-3-2 Physical Inspection

#### 3-3-2-1 System Voltage Settings

- Verify that the scanner is set to the correct voltage. The Voltage settings for the LOGIQ™ 7 Scanner is found on the label onto the rear lower of the scanner.

 **WARNING** ***CONNECTING A LOGIQ™ 7 SCANNER TO THE WRONG VOLTAGE LEVEL WILL MOST LIKELY DESTROY THE SCANNER.***

 **WARNING** ***PROTECTIVE EARTH MUST BE TAKEN WHEN CONNECTING AC POWER CABLE (200V) WITHOUT ITS PLUG TO WALL OUTLET.***

### 3-3-3 EMI Protection

This Unit has been designed to minimize the effects of Electro Magnetic Interference (EMI). Many of the covers, shields, and screws are provided primarily to protect the system from image artifacts caused by this interference. For this reason, it is imperative that all covers and hardware are installed and secured before the unit is put into operation.



## Section 3-4 Completing the Installation

### 3-4-1 Probe (Transducer) Connection

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



**NOTICE** To make effective use of the memory space:

1. When a scanner has one linear probe, it must be connected to the most left receptacle.
2. When a scanner has several linear probes, they must be connected from the left to the right.
  - a.) Ensure that the transducer twist lock lever to the horizontal 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 vertical position to lock it in place. Twist the lever to the horizontal 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 pre installation. Never use a three-to-two prong adapter; this defeats the safety ground.

3-4-2

Optional Peripherals/Peripheral Connection

Depending on the customer order, the peripheral(s) already has been installed onto the scanner before shipment. If it does not, select the proper location to install the peripherals, following the table below.

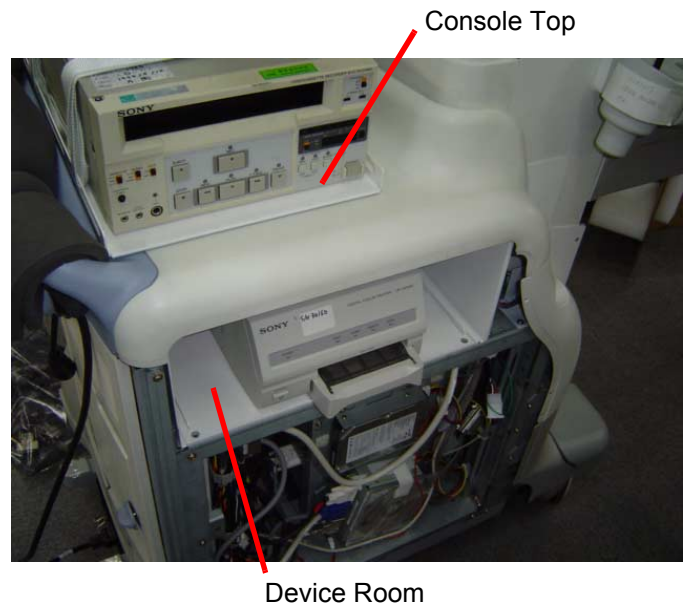


Figure 3-5 Optional Peripherals/Peripheral Connection

| Location for peripheral | One peripheral (Color printer ONLY) | One peripheral (VCR or DVD recorder) | Two peripherals     |
|-------------------------|-------------------------------------|--------------------------------------|---------------------|
| Consle Top              | Not used                            | Not used                             | VCR or DVD recorder |
| Device Room             | <u>Used</u>                         | <u>Used</u>                          | Color Pinter        |

### 3-4-2 Optional Peripherals/Peripheral Connection (cont'd)

Check if the fixing belts are loosen. If it is, tighten the belts again to secure the peripheral(s). If necessary, remove the peripheral from the device room to tighten the belts.

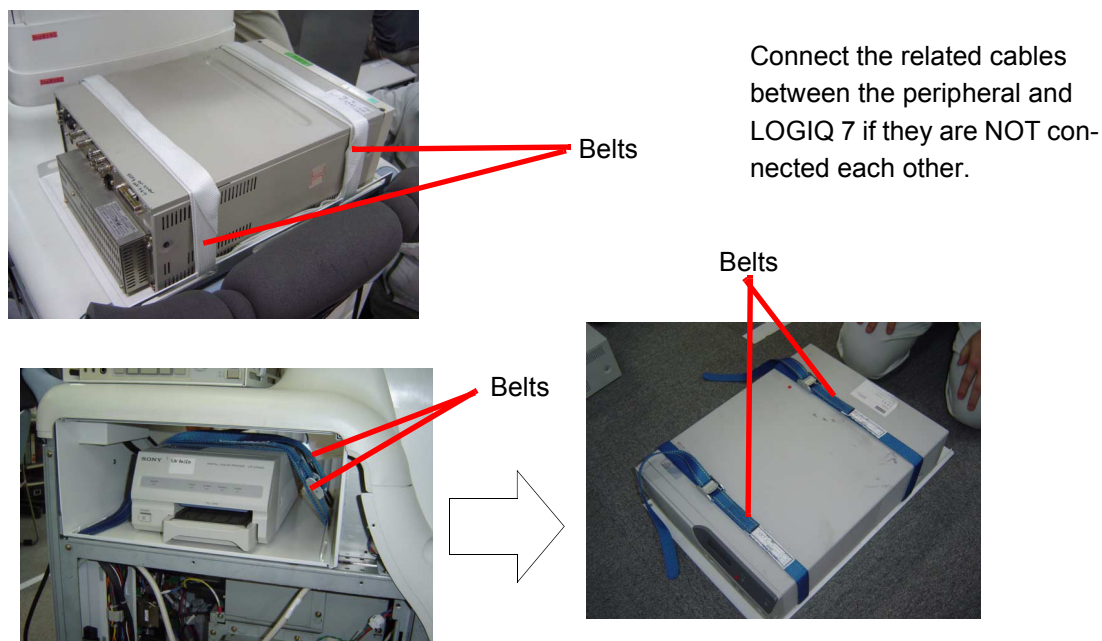


Figure 3-6 How to Hold Peripherals

#### 3-4-2-1 Approved on-board peripherals

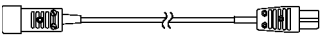
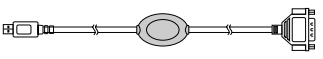
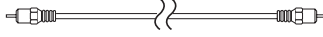
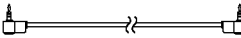
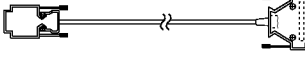
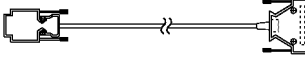
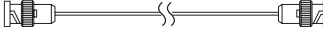
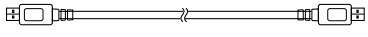
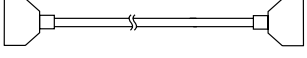
Refer to [Section 5-3 Peripheral Compatibility](#).

### 3-4-2-1 Approved on-board peripherals (cont'd)

#### Connecting Cables

**CAUTION**  Equipment damage possibility. Be sure to use the following recommended connecting cables to connect recording devices and a network with LOGIQ™ 7 console.

**Table 3-4 List of Connecting Cables**

| Name                                                          | Part No. | Figure                                                                               | NOTE                                                                                        |
|---------------------------------------------------------------|----------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------|
| Power Supply Cable                                            | P9509EE  |    | Connected to power                                                                          |
| USB Serial Bridge Cable                                       | 2304621  |    | For converting the signal of RS232C cable to USB cable: connected to VCR1 on the Rear Panel |
| AV Cable                                                      | 2119874  |    | Connected to Video-In/Out on the Rear Panel                                                 |
| The followings are the cables for BT04 ore lower system ONLY. |          |                                                                                      |                                                                                             |
| Mini-Plug Cable                                               | P9509BE  |     | Shutter control signals: connected to B/W Printer                                           |
| RS232C Cable Cross                                            | 2305550  |     | For control signals: connected to Serial Bridge Cable                                       |
| RS232C Cable Straight                                         | 2305549  |   | For control signals: connected to Serial Bridge Cable                                       |
| BNC Cable                                                     | 2297053  |  | For control signal: connected to Composite B/W                                              |
| USB Cable                                                     | 2324360  |  | Connected to USB port.                                                                      |
| SCSI cables (UP-D50 ONLY)                                     | 2375479  |  | Connected to SCSI port and SCSI Cable Connector.                                            |

### 3-4-2-2 Reference off-board peripherals and options

None.

### 3-4-3 Available Probes

See in specification in the LOGIQ™ 7 Reference Manual for Probes and intended use.  
See Chapter 9 - Renewal Parts for Part Numbers to be used when ordering new or replacement probes.

**Table 3-5 List of Transducers supported (All models)**

| Probe Name | Material of Headshell | Area of Using                           | TYPE          | Catalog Number       | Part Number          |
|------------|-----------------------|-----------------------------------------|---------------|----------------------|----------------------|
| 3C         | PES                   | ABDOMINAL                               | CONVEX        | H79802P<br>H40412LB  | 2286353<br>2286354   |
| 5C         | PES                   | ABDOMINAL                               | CONVEX        | H79822P<br>H40412LA  | 2294515<br>2294516   |
| 8C         | PBT                   | NEONATAL<br>PEDIATRICS                  | MICRO-CONVEX  | H79792P<br>H40412LJ  | 2348093<br>2348094   |
| E8C        | NORYL<br>PBT          | TRANSVAGINAL                            | MICRO-CONVEX  | H79852P<br>H40412LE  | 2294640<br>2294641   |
| M7C        | PBT                   | ABDOMINAL                               | CONVEX        | H79832P<br>H40412LC  | 2294513<br>2294514   |
| M12L       | PBT                   | SMALL PARTS                             | LINEAR        | H79842P<br>H40412LD  | 2294510<br>2294511   |
| 7L         | NORYL                 | ABDOMINAL<br>SUPERFICIAL                | LINEAR        | H79862P<br>H40412LF  | 2294520<br>2294521   |
| 10L        | NORYL                 | SUPERFICIAL                             | LINEAR        | H79872P<br>H40412LG  | 2294522<br>2294523   |
| 10S        | ABS                   | PEDIATRIC                               | SECTOR        | H79922P<br>H4901PC   | 2309478<br>2298589   |
| 3.5C       | NORYL                 | ABDOMINAL                               | CONVEX        | H79812P<br>H4901PE   | 2303215<br>2050357   |
| 3.5CS      | NORYL                 | ABDOMINAL                               | CONVEX        | H78042P<br>H40412LK  | 2380854<br>2051858   |
| 3S         | NORYL                 | CARDIOLOGY                              | SECTOR        | H79632P<br>H4701SZ   | 2348878<br>2323337   |
| i12L       | ABS                   | INTRAOPERATIVE                          | LINEAR        | H79322P<br>H4012L    | 2270556<br>2264883   |
| M3S        | PBT                   | CARDIOLOGY                              | SECTOR        | H79892P<br>H45011SZ  | 2293726<br>2378099   |
| 6T-OR-TEE  | PU: PolyUrethane      | TRASOPHAGEAL FOR<br>ADULT<br>CARDIOLOGY | SECTOR        | H79932P<br>H45521DX  | 5131947<br>KN100068  |
| 7S         | PBT                   | CARDIOLOGY                              | SECTOR        | H78082P<br>H40422LB  | 2355698<br>2347471   |
| BE9C       | PBT                   | TRANSRECTAL                             | MICRO-CONVEX  | H40412LW             | 2389381<br>2389382   |
| T739       | NORYL                 | INTRAOPERATIVE                          | LINEAR        | H76572SR<br>H40212LM | 2259245<br>2259246   |
| 4D3C_L     | PBT                   | ABDOMINAL                               | CONVEX Volume | H44801G              | 5121652<br>KTZ195893 |

**Table 3-5 List of Transducers supported (All models)**

| Probe Name | Material of Headshell | Area of Using | TYPE          | Catalog Number | Part Number          |
|------------|-----------------------|---------------|---------------|----------------|----------------------|
| 4D10L      | PBD                   | SUPERFICIAL   | LINEAR Volume | H44801GB       | 5121651<br>KTZ156836 |
| 4C         | PBT                   | ABDOMINAL     | CONVEX        | H4904PC        | 5131944<br>5123455   |
| 12L        | Noryl                 | SUPERFICIAL   | LINEAR        | H40412LH       | 2295375<br>2295377   |
| P2D        | ABS                   | CARDIOLOGY    | CWD           | H4830JE        | TE100024             |
| P6D        | ---                   | SUPERFICIAL   | CWD           | H4830JG        | TQ100002             |

**NOTE:** PES: Polyethersulfone NORYL: Modified Polyphenylene Oxide PU: Polyurethane  
PBT: Polybutylene Terephthalate ABS: Acrylonitrile Butadiene Styrene

**NOTE:** Some probes indicated on the table above have two different part numbers. The upper row shows the part numbers of probes for Japan. The lower row shows the part numbers of probes for regions other than Japan. Probes which have only one part number are not available in Japan.

The following transducers, additional to ones listed in Table 3-6, are supported by V65x and later LOGIQ 7 models.

**Table 3-6 List of Transducers supported by V65x and later**

| Probe Name | Material of Headshell | Area of Using        | TYPE          | Catalog Number | Part Number |
|------------|-----------------------|----------------------|---------------|----------------|-------------|
| 9L         | PBT                   | VASCULAR SMALL PARTS | LINEAR        | H40412LT       | 5131433     |
| 4DE7C      | PBT                   | OB Gyn Urology       | CONVEX Volume | H44801GA       | 5121650     |

The following transducers, additional to ones listed in Table 3-7, are supported by R7.5.x and later LOGIQ 7 models.

**Table 3-7 List of Transducers supported by R7.5.x and later**

| Probe Name | Material of Headshell | Area of Using | TYPE         | Catalog Number | Part Number        |
|------------|-----------------------|---------------|--------------|----------------|--------------------|
| 3CRF       | PU: PolyUrethane      | ABDOMINAL     | MICRO-CONVEX | H40442LP       | 5214820<br>5196216 |

The following transducers, additional to ones listed in Table 3-8, are supported by BT09 and later LOGIQ 7 models.

**Table 3-8 List of Transducers supported by BT09 and later**

| Probe Name | Material of Headshell | Area of Using | TYPE   | Catalog Number      | Part Number        |
|------------|-----------------------|---------------|--------|---------------------|--------------------|
| 11L        | PBT                   | SUPERFICIAL   | LINEAR | H78842P<br>H40412LY | 5251881<br>5171885 |

## 3-4-4 Video Specification

**Table 3-9 Video Specifications**

| CRT                           |                 | LCD                           |                      |
|-------------------------------|-----------------|-------------------------------|----------------------|
| Timing Parameter              | 800x600<br>75Hz | Timing Parameter              | 1280 x 1024<br>60Hz  |
| Horizontal Rate [kHz]         | 46.88           | Horizontal Rate [kHz]         | 64                   |
| Horizontal Period [μs]        | 21.33           | Horizontal Period [μs]        | 15.625               |
| Pixel Clock [MHz]             | 49.50           | Pixel Clock [MHz]             | 108                  |
| H Blank Width [μs]            | 5.17            | H Blank Width [μs]            | 3.778 (408dots)      |
| H Sync Width [μs]             | 1.62            | H Sync Width [μs]             | 1.037 (112dots)      |
| H Front Porch [μs]            | 0.32            | H Sync Front Porch [μs]       | 0.444 (48dots)       |
| Active Horizontal Period [μs] | 16.16           | Active Horizontal Period [μs] | 11.852<br>(1280dots) |
| Vertical Rate [Hz]            | 75.00           | Vertical Rate [Hz]            | 60.0                 |
| Vertical Period [ms]          | 13.33           | Vertical Period [ms]          | 16.67<br>(1066lines) |
| V Sync Width [lines=ms]       | 25=0.53         | V Sync Front Porch [ms]       | 0.016 (1 line)       |
| V Front Porch [lines=μs]      | 3=64.00         | Equalization Porch            | None                 |
| Equalization Gate [lines=μs]  | 1=21.3          | Lines: Field/Frame            | 1066                 |
| Lines: Field/Frame            | 625             | Active Lines/Frame            | 1024                 |
| Active Lines/Frame            | 600             |                               |                      |

## 3-4-5 Software Option Configuration

### 3-4-5-1 Onsite check and configuration

Select **Utility > Admin > System Admin** and check the option software to be installed.

## Section 3-5 Installation Paperwork

**NOTE:** *During and after installation, the documentation (i.e. Users Manual, Installation Manuals...) for the peripheral units must be kept as part of the original system documentation. This will ensure that all relevant safety and user informations are available during the operation and service of the complete system.*

### 3-5-1 Peripherals/Accessories Connector Panel

LOGIQ™ 7 peripherals and accessories can be properly connected using the rear connector panel located behind the rear door, front connector panel located next to the video printer, and Footswitch connector located bottom of the OP panel.



### 3-5-1-1 Rear Panel Connector

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

This section indicates the pin assignment for each connector.

Rear Pannel Connector for BT04 and later models

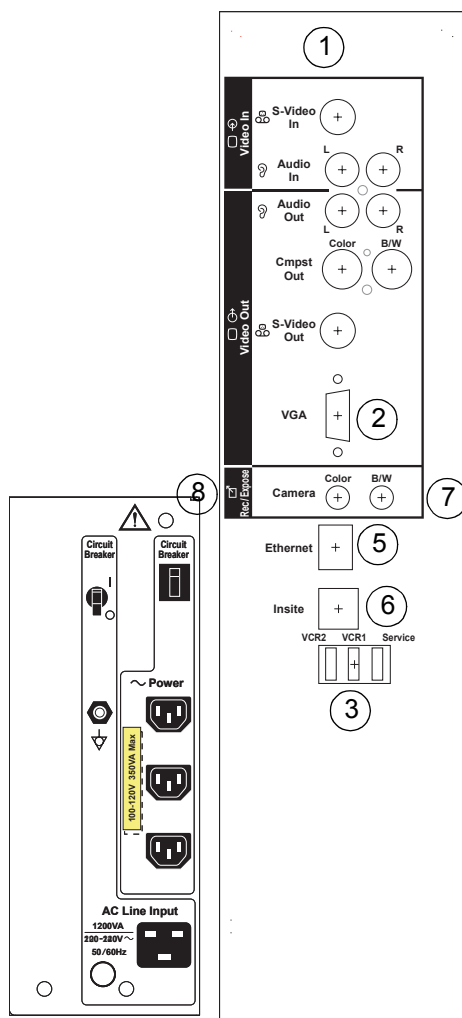


Figure 3-7 Rear Pannel Connector (BT04 or later)

3-5-1-1 Rear Panel Connector (cont'd)

Rear Panel Connector for BT03 or lower

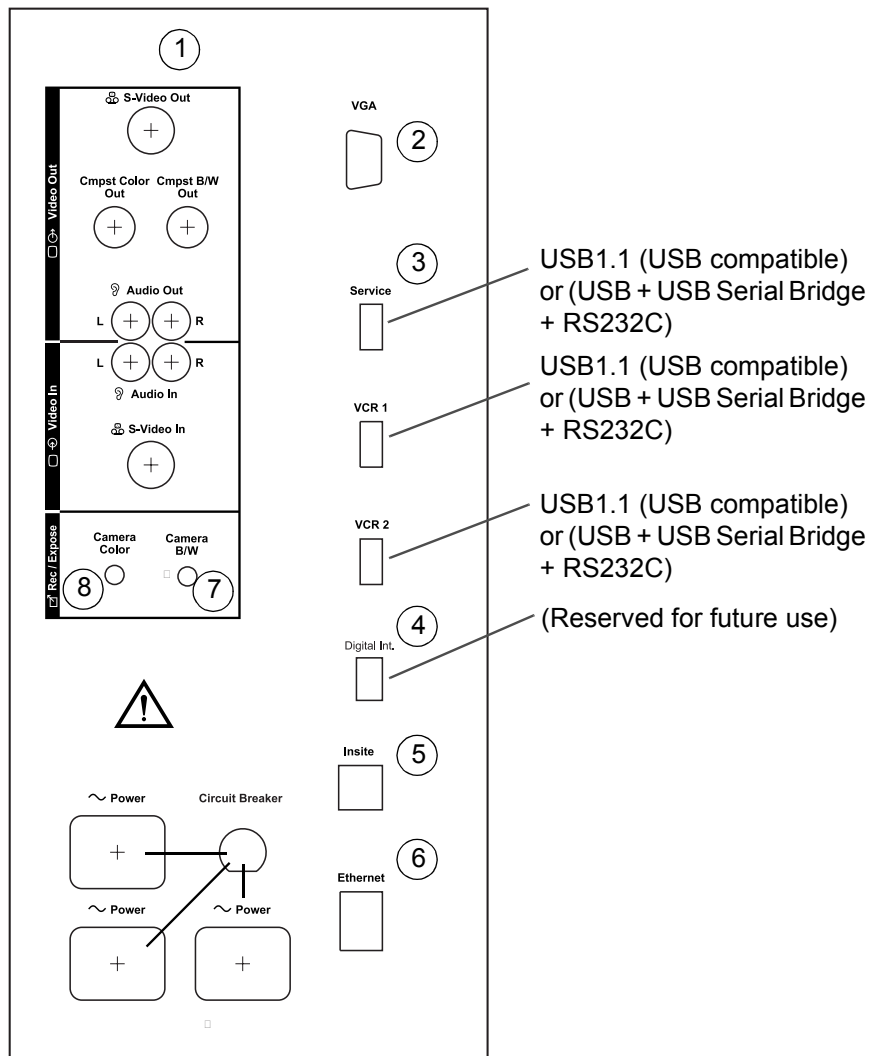


Figure 3-8 Rear Panel Connector (BT03 or lower)

**NOTE:** Each outer (case) ground line of peripheral/accessory connectors are protectively grounded. Signal ground lines are not isolated, except the Service port (3). All of signal lines (include signal GND) of the Service port are isolated. The specified peripherals/accessories only can be connected to the USB ports.

### 3-5-1-1 Rear Panel Connector (cont'd)

#### ① Pin Assignment of S-Video Connector

Connector: S-Terminal, 4-pin



**Table 3-10 Pin Assignment of S-Video Connector**

| Pin No | Output/Input Signal | Description       |
|--------|---------------------|-------------------|
| 1      | SVIDEO OUT/IN YG    | Y (Luma) GND      |
| 2      | SVIDEO OUT/IN CG    | C (Chroma) GND    |
| 3      | SVIDEO OUT/IN Y     | Y (Luma) SIGNAL   |
| 4      | SVIDEO OUT/IN C     | C (Chroma) SIGNAL |

#### ② Pin Assignment of VGA Connector

Connector: Shrank D-Sub, 15-pin

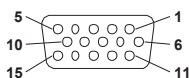


**Table 3-11 Pin Assignment of VGA Connector**

| Pin No | Output Signal  | Description |
|--------|----------------|-------------|
| 1      | IO VGA OUT1 R  | Red         |
| 2      | IO VGA OUT1 G  | Green       |
| 3      | IO VGA OUT1 B  | Blue        |
| 6      | IO VGA OUT1 RG | Reg GND     |
| 7      | IO VGA OUT1 GG | Green GND   |
| 8      | IO VGA OUT1 BG | Blue GND    |
| 13     | IO VGA OUT1 HS | H Sync      |
| 14     | IO VGA OUT1 VS | V Sync      |
| Others | GND            | GND         |

#### ③ Pin Assignment of Service/VCR 1/VCR 2 Connector, USB1.1

Connector: 4 pin

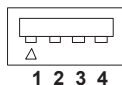
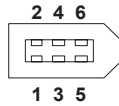


**Table 3-12 Pin Assignment of Service/VCR 1/VCR 2 Connector**

| Pin No | Output Signal | Description  |
|--------|---------------|--------------|
| 1      | VBUSn         | Power Supply |
| 2      | Dn            | Data (-)     |
| 3      | Dn            | Data (+)     |
| 4      | GNDn          | Power Ground |

### 3-5-1-1 Rear Panel Connector (cont'd)

#### ④ Pin Assignment of Digital Int. Connector

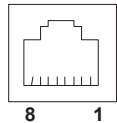


Connector: 6-pin

**Table 3-13 Pin Assignment of IEEE-1394 Connector)**

| Pin No | Output Signal | Description       |
|--------|---------------|-------------------|
| 1      | VP            | 1394 Power Supply |
| 2      | VG            | 1394 Power Ground |
| 3      | TPB           | 1394 Data B (-)   |
| 4      | TPB           | 1394 Data B (+)   |
| 5      | TPA           | 1394 Data A (-)   |
| 6      | TPA           | 1394 Data A (+)   |

#### ⑤ Pin Assignment of Ethernet

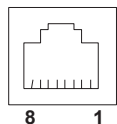


Connector: RJ-45 Modular, 8-pin

**Table 3-14 Pin Assignment of Ethernet Connector**

| Pin No | Output Signal | Description    |
|--------|---------------|----------------|
| 1      | ETHER TD      | Ethernet TD+   |
| 2      | ETHER TD      | Ethernet TD-   |
| 3      | ETHER RD      | Ethernet RD+   |
| 6      | ETHER RD      | Ethernet RD-   |
| Others | NC            | Non-connection |

#### ⑥ Pin Assignment of Insite



Connector: RJ-11 Modular, 6-pin

**Table 3-15 Pin Assignment of Insite Connector**

| Pin No | Output Signal | Description    |
|--------|---------------|----------------|
| 2      | TEL L4        | Telephone L4   |
| 3      | TEL L2        | Telephone L2   |
| 4      | TEL L1        | Telephone L1   |
| 5      | TEL L3        | Telephone L3   |
| Others | NC            | Non-connection |

### 3-5-1-1 Rear Panel Connector (cont'd)

#### ⑦ Pin Assignment for Camera B/W

Camera  
B/W  
○

**Table 3-16 Pin Assignment of Mini-Jack for Controlling B/W Camera**

| Pin No | Output Signal |
|--------|---------------|
| 1      | PRINT         |
| 2      | Signal GND    |

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

#### ⑧ Pin Assignment of Insite

Camera  
Color  
○

**Table 3-17 Pin Assignment of Mini-Jack for Controlling Color Camera**

| Pin No | Output Signal |
|--------|---------------|
| 1      | SHUTTER       |
| 2      | Signal GND    |

### 3-5-1-2 Front Connector Panel

Located on the front panel are Microphone, LED, and Reset.

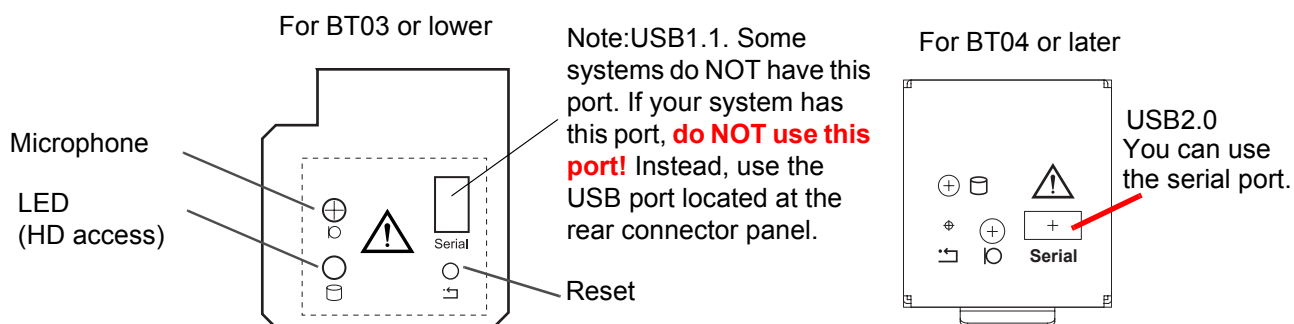


**Figure 3-9 Front Connector Panel**

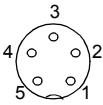
3-5-1-3 B/W Printer Connector Panel



Table 3-18 Pin Assignment of Mini-Jack for Controlling B/W Printer

| Pin No | Output Signal |
|--------|---------------|
| 1      | PRINT         |
| 2      | Signal GND    |

3-5-1-4 Footswitch Connector Panel



Round 5 pin connector.

Table 3-19 Pin Assignment of Mini-Jack for Footswitch

| Pin No | Output Signal          |
|--------|------------------------|
| 1      | SW1-WH                 |
| 2      | SW2-RD                 |
| 3      | SW3-GN                 |
| 4      | SW1-BK, SW2-BK, SW3-BK |
| 5      | Frame GND              |

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

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# Chapter 4

## Functional Checks

### Section 4-1 Overview

#### 4-1-1 Purpose for Chapter 4

This chapter provides procedures for quickly checking major functions of the LOGIQ™ 7 console, diagnostics by using the built-in service software, and power supply adjustments.

**Table 4-1 Contents in chapter 4**

| Section | Description                     | Page Number |
|---------|---------------------------------|-------------|
| 4-1     | Overview                        | 4-1         |
| 4-2     | General Procedure               | 4-2         |
| 4-3     | Functional Checks               | 4-20        |
| 4-4     | Application Turnover Check List | 4-27        |
| 4-5     | Diagnostics                     | 4-28        |
| 4-6     | Power Supply                    | 4-29        |
| 4-7     | Site Log                        | 4-30        |



**NOTICE** Most of the information pertaining to this Functional Checks chapter is found in the LOGIQ™ 7 Quick Guide (Direction Number 2291859-100). Look for the letters (QG) after a section in the Table of Contents to determine if the information is in this chapter or in the Quick Guide.

#### 4-1-2 Special Equipment Required

- An empty (blank) MO Disk.
- At least one transducer.  
(normally you should check all the transducers used on the system.)

## Section 4-2 General Procedure

 **CAUTION** **SYSTEM REQUIRES ALL COVERS**  
Operate this unit only when all board covers and frame panels are securely in place. The covers are required for safe operation, good system performance and cooling purposes.

### 4-2-1 Lockout/Tagout Requirements

Follow OSHA Lockout/Tagout requirements by ensuring you are in total control of the plug.

### 4-2-2 Power On/Boot Up

**NOTE:** After turning off the system, wait at least ten seconds before turning it on again. The system may not be able to boot if power is recycled too quickly.

#### 4-2-2-1 Power Up

1.) Connect the Main Power Cable at the rear of the System.

 **WARNING** **PROTECTIVE EARTH MUST BE TAKEN WHEN CONNECTING AC POWER CABLE (200V) WITHOUT ITS PLUG TO WALL OUTLET.**

2.) Connect the Main Power cable to an appropriate mains power outlet.

3.) Switch ON the Main Circuit Breaker at the rear of the System.

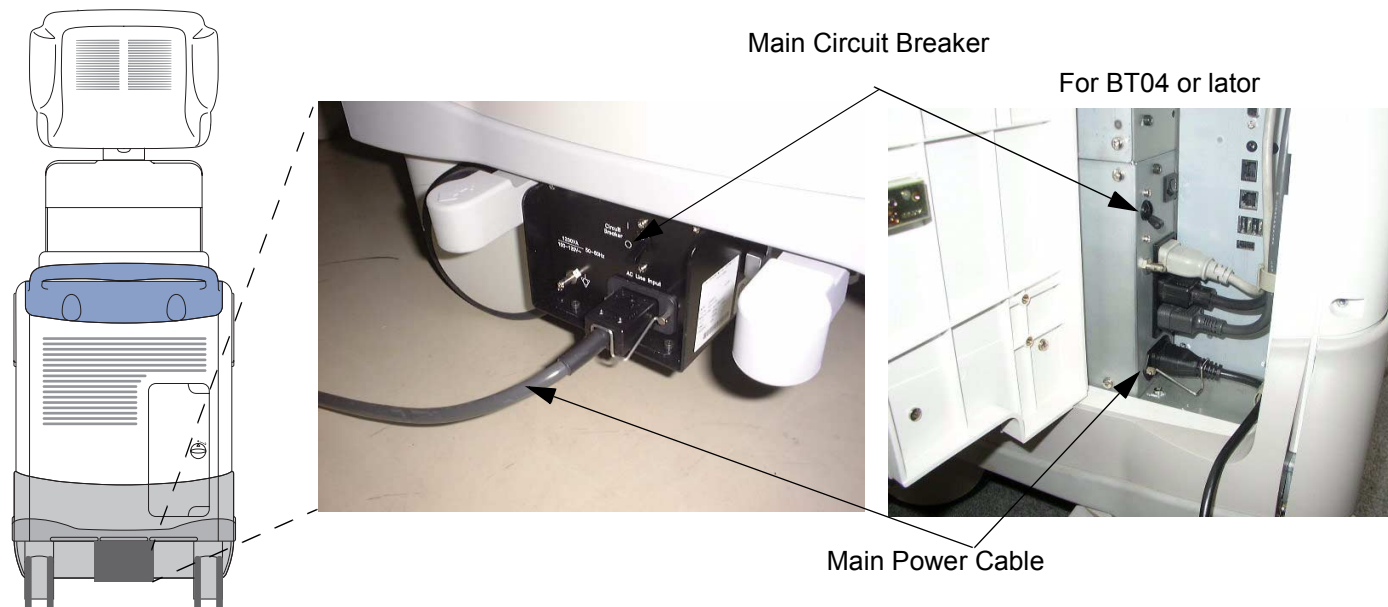


**Figure 4-1 Circuit Breaker**

When power is applied to the Scanner, and the Rear Circuit breaker is turned ON, Power is distributed to the Fans, Control panel, Monitor, Internal and External I/O's, Cage Boards, Peripherals and the Backend Processor. When the Power ON/OFF key is pressed once, the Backend Processor starts and its software code is distributed to initiate the scanner.

#### 4-2-2-1 Power Up (cont'd)

- 4.) Press the ON/OFF key at the front of the System once.

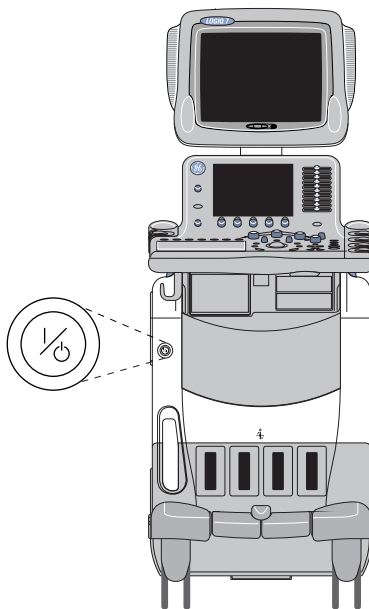


Figure 4-2 Power On/Off Standby Switch Location

#### 4-2-2-2 Power Up Sequence

**NOTE:** For consoles with BEP4 (BT09), power switch lamp is darker compared to existing BT04-BT07 consoles with BEP3. This is NOT abnormality and system will function normally regardless of the brightness of the power button.

- 1.) The Start Up Screen will be shown on the Monitor display when the system is turned ON.

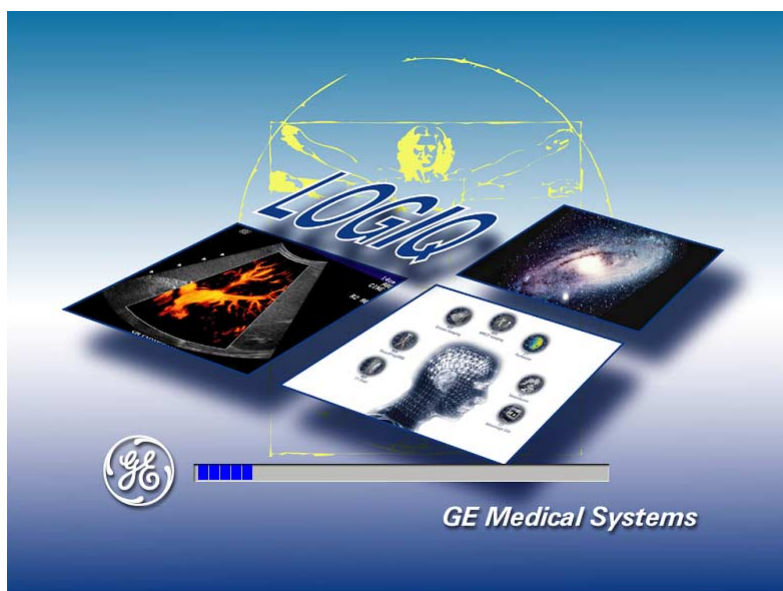


Figure 4-3 Start Up Screen

- 2.) After initialization is complete, all lighted buttons on the Control Panel light and the default B-Mode screen or Patient screen (no probes are connected) is displayed on the monitor display.

#### 4-2-2-3 Entering Maintenance Mode

##### 4-2-2-3-1 R6.2.x or later

- 1.) Insert the service dongle into any USB port.
- 2.) Wait for scanner boot-up.
- 3.) Tap ON/OFF the power switch.
- 4.) Click on **Exit**.

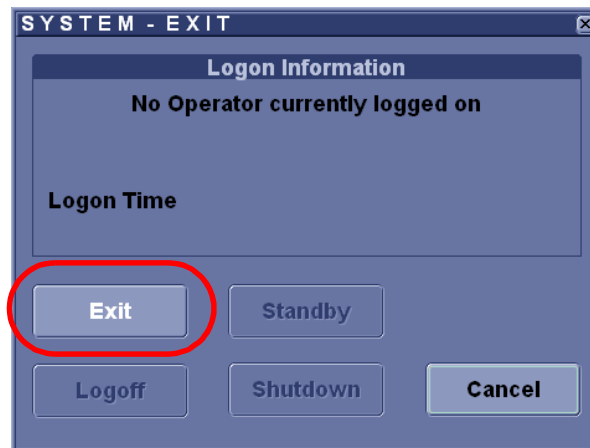


Figure 4-4 Clicking on Exit

- 5.) Enter the proper password to enter the maintenance mode.
- 6.) Click on **OK**.

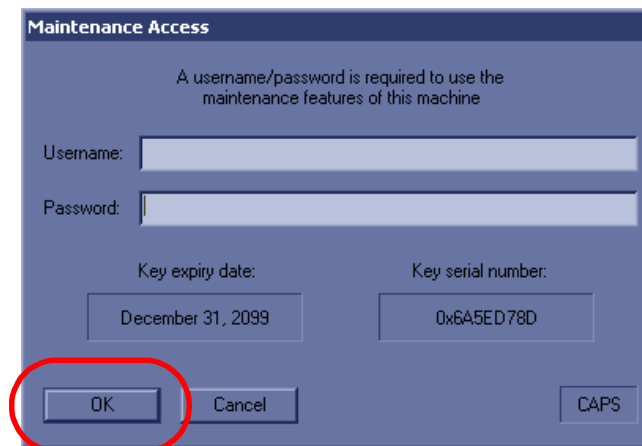


Figure 4-5 Clicking on OK

#### 4-2-2-3 Entering Maintenance Mode (cont'd)

- 7.) Click on **maintenance**.

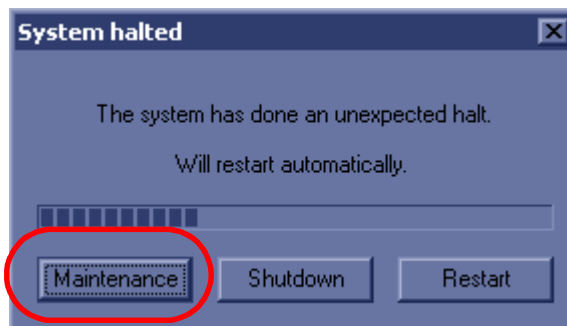


**Figure 4-6 Clicking on Maintenance**

- 8.) Click on **Exit to window**.

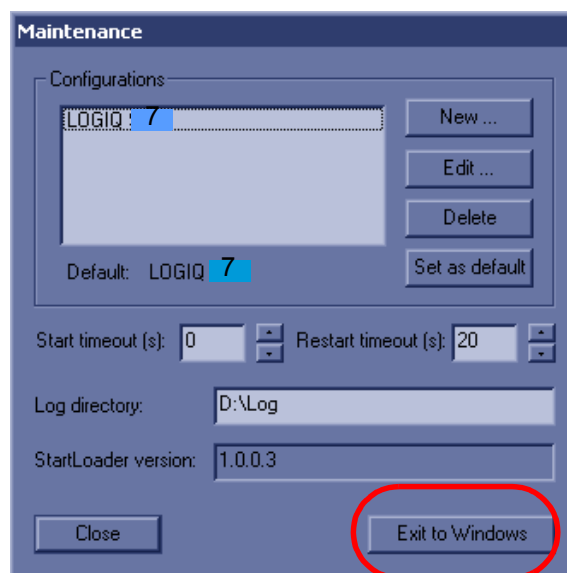


**Figure 4-7 Clicking on Exit to Window**

### 4-2-2-3 Entering Maintenance Mode (cont'd)

#### 4-2-2-3-2 R 4.x.x to R6.0.x

- 1.) The Start Up Screen will be shown on the Monitor display when the system is turned ON.
- 2.) The “Probing for maintenance access” dialog appears. Enter **Password**, then click on **OK**.
- 3.) Then Start Loader display will be shown on the Monitor display. Click on **Maintenance**.

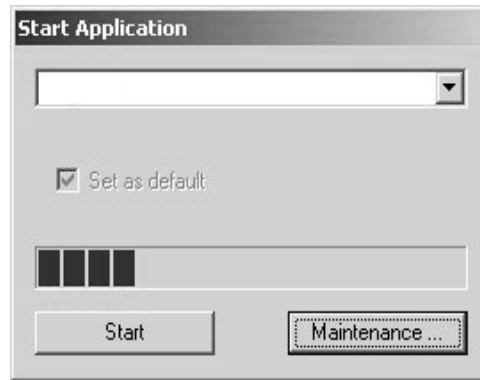


**Figure 4-8 Clicking on Maintenance**

- 4.) Click on **Exit to Windows** in maintenance dialog window. Then the scanner is booted up automatically.

#### 4-2-2-3-3 R2.x.x to R4.x.x

- 1.) Insert the service dongle in the Service port located at the rear panel.
- 2.) The Start Up Screen will be shown on the Monitor display when the system is turned ON.
- 3.) Then Start Loader display will be shown on the Monitor display. Then the scanner is booted up automatically.

**NOTE:** To enter the Maintenance Mode, select Maintenance button.

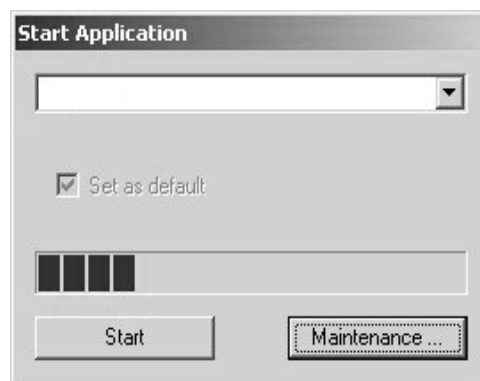


**Figure 4-9 Start Application Window**

**NOTE:** Start is selected automatically when it time out.

## 4-2-3 Power Shutdown

Purpose: This is a description on how to Shutdown the system.

### 4-2-3-1 Complete Power Down

- 1.) Press the **ON/OFF** key at the front of the System for about two (2) seconds. Refer to Figure 4-2.
- 2.) Switch OFF the Main Circuit Breaker at the rear of the system Refer to Figure 4-1.
- 3.) Disconnect the Main Power Cable if needed. Refer to Figure 4-1.

## 4-2-4 System Stand-by

LOGIQ 7 is available with Stand-by option. The option is effective in reducing the scanner power up time, when used as portable device.

Users must follow the procedures in order to use the option.

**NOTE:** *Do not use more than 20 Stand-by mode continuously without shutting down the system. The scanner must be powered off daily.*

- 1.) Press the POWER switch once.
- 2.) Select **Standby**. At this point, both the touch panel and the main monitor will go blank. Keyboard lights also turns dark. Power switch button will be illuminated.



**Figure 4-10 Selecting Standby**

- 3.) Wait more than 20seconds.



**NOTICE** Do not disconnect the power cable immediately.

- 4.) Plug off the power cord from wall outlet.



**NOTICE** Do not press the Power button without connecting the power cable.

- 5.) Transport the scanner as required, but re-connect to power outlet within 20 minutes. If not powered system may shut down due to loss of sustained battery power.
- 6.) Connect the scanner to a wall electrical outlet.

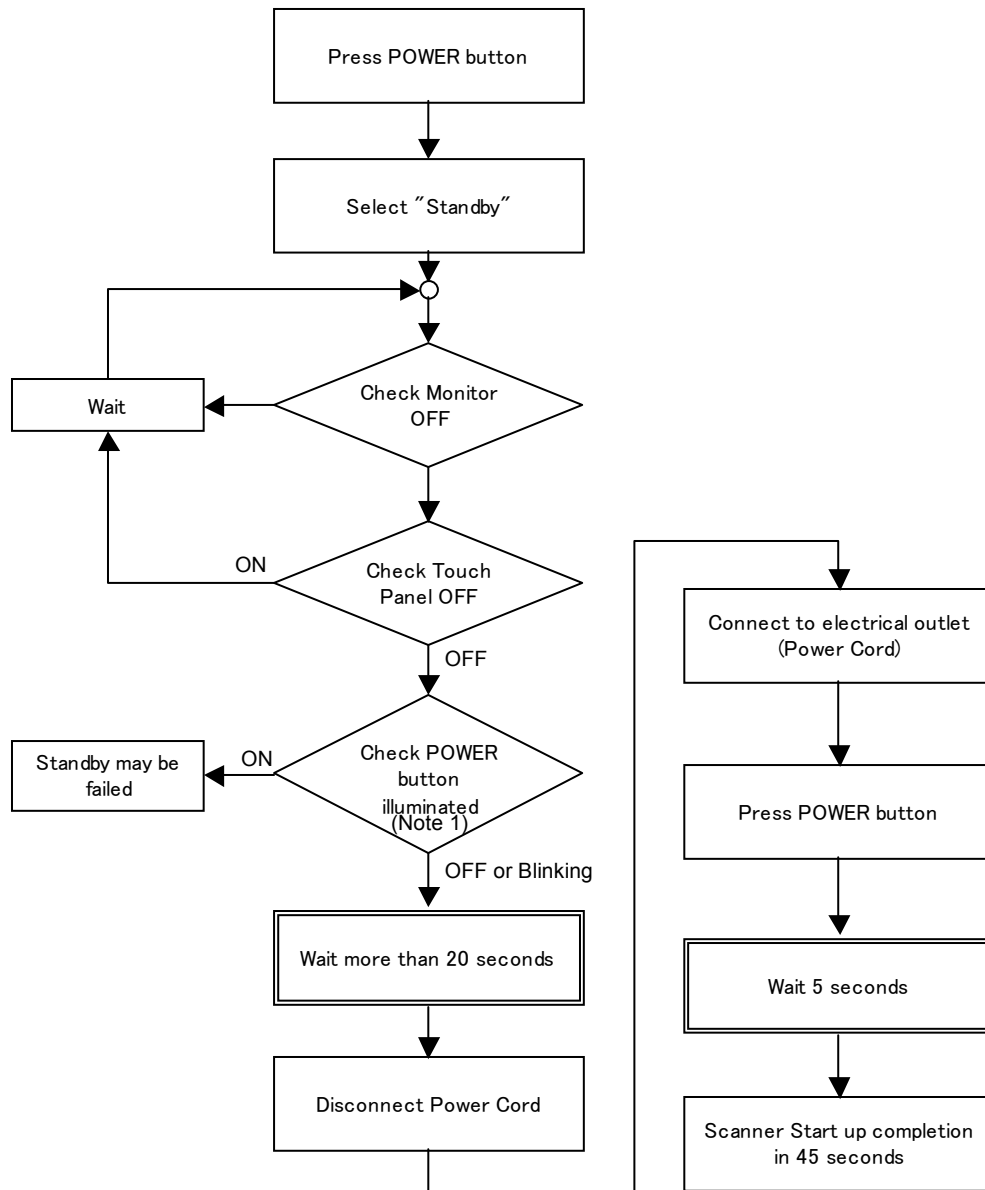
#### 4-2-4 System Stand-by (cont'd)

- 7.) To power up the scanner, tap POWER button momentary, and wait for power up. It will approximately 45seconds for the scanner to power up.



**NOTICE** Do not press the Power button long time, as it will cause the system to power down.

##### *Stand-by Sequence*



Note1 : BT09 Release with BEP4 Hardware have "Blinking Power Button" capability to indicate the console in Stand-by condition. For BEP3 and earlier, Power button must be "OFF" before disconnecting the power cord.

**Figure 4-11 Stand-by Sequence**



## 4-2-5 Using CD-R/MOD/DVD Drive

### 4-2-5-1 Using CD-R or DVD Drive



**NOTICE** Never move the unit with a disk in the CD-R or DVD because the drive actuator will not be locked and the CD-R or DVD could break.

- 1.) Push the **EJECT** button, the disk tray will appear.
- 2.) Put the disk onto the disk tray.
- 3.) Press the **EJECT** button to insert the disk into the CD-R or DVD device.
- 4.) There are a number of methods to eject a disk from the CD-R or DVD. Ejection is automatic in some cases. Manual ejection methods, listed in preferred order of use, are:
  - a.) Press **EJECT** button on the CD-R or DVD while system is ON.
  - b.) Press and hold **EJECT** button while the system is booting.
  - c.) Mechanical ejection. Insert the end of a paper clip into the hole while system power is OFF.



**NOTICE** Avoid mechanical ejection whenever possible. Mechanical ejection leaves the actuator unlocked and the MOD susceptible to damage if moved. If forced to use this method, reboot the system, then insert and eject a known good disk using one of the other methods.

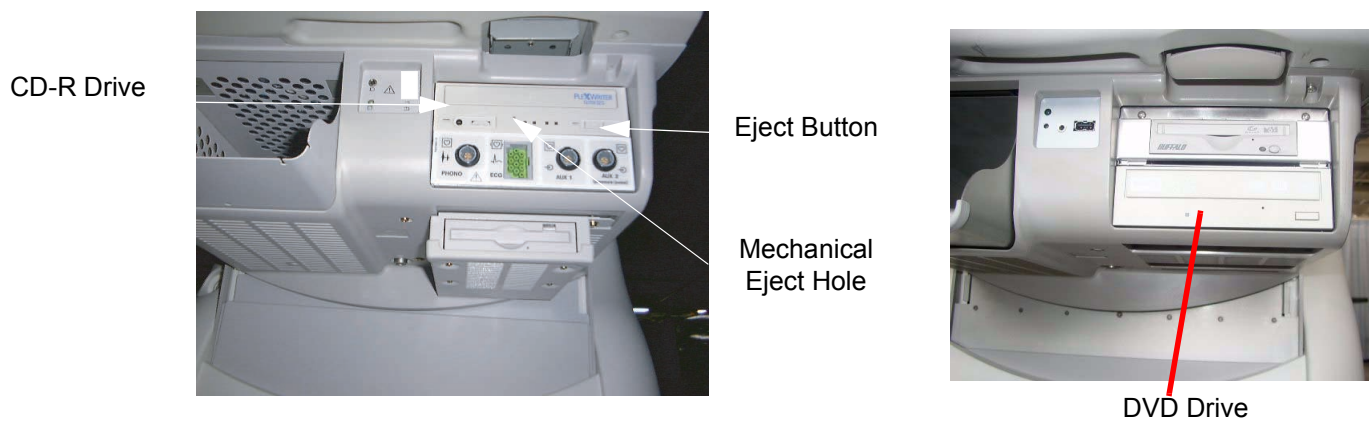


Figure 4-12 CD-R or DVD drive

**NOTE:** Be careful not to scratch the disk when wiping it off for cleaning.

**NOTE:** Keeping your CD-R or DVD disc in an original CD-R or DVD case or caddy all the time will prevent it from becoming dirty or damaged.

**NOTE:** **Media Requirement:**  
Please be aware of the following regarding saving data to DVD-R on R6.0.x.:

Use x8 or x16 speed compatible DVD-R. When it is the upgraded R6.0.x system from R4.x.x. or prior version, some systems have a number "4" or "5" printed on the disc tray of the media drive and others don't. If there is no number printed on the disc tray, use x4 or x16 speed compatible DVD-R.

#### 4-2-5-2 Using MOD Drive

- 1.) Before installing an MO disk in the MOD, check the MO disk for loose hardware or damaged labels which could jam inside the MO Drive. Also ensure that the slide switch in one corner of the disk is set so that the disk is write enabled (disk hole closed).
- 2.) Insert the disk into the MOD with the label facing up.

 **NOTICE** Never move the unit with a disk in the MOD because the drive actuator will not be locked and the MOD could break.

- 3.) There are a number of methods to eject a disk from the MOD. Ejection is automatic in some cases. Manual ejection methods, listed in preferred order of use, are:
  - a.) Press **EJECT** button on the MOD while system is ON.
  - b.) Press and hold **EJECT** button while the system is booting.
  - c.) Mechanical eject. Insert the end of a paper clip into the hole while system power is OFF.

 **NOTICE** Avoid mechanical ejection whenever possible. Mechanical ejection leaves the actuator unlocked and the MOD susceptible to damage if moved. If forced to use this method, reboot the system, then insert and eject a known good disk using one of the other methods.

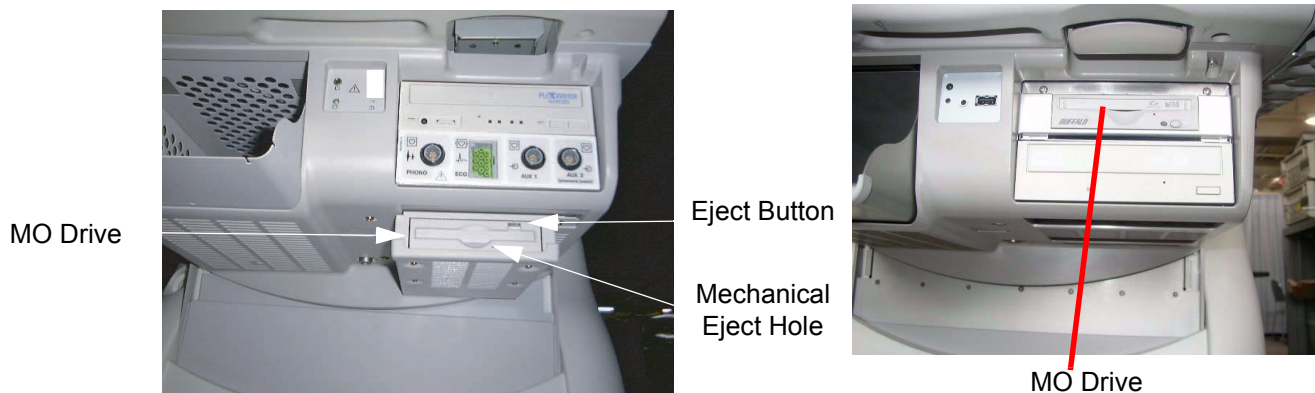


Figure 4-13 MOD drive

## 4-2-6 Archiving and Loading Presets for BT07 (Including R7.5.x)

**NOTE:** *Always save presets before any software reload. This ensures the presets loaded after the software reload are as up-to-date as possible.*

All user presets except changes to Summary, Anatomy, and Biometry pages, can be saved on an CD-R/MO/DVD-R disk for reloading on the system.



**NOTICE** Presets should NOT be saved on the same CD-R/MO/DVD-R disk as images. The Archive Menu lists the images but does NOT list the presets stored on a CD-R/MO/DVD-R disk.

### 4-2-6-1 Regional Preset - General (Supported from BT07)



**NOTICE** Do not attempt to change/use Regional Preset buttons for Upgraded BT07. For Upgrade BT07 always use Factory Default in order to avoid preset conflict. Contact application specialist for details.

This feature has the capability to have factory default preset defined by the following regions; Americas, Europe, Asia, or Japan.

**Table 4-2**

| Presets Unique to Regions                                                                                                                                                                                                                                                                                                        | Presets NOT unique to Regions                                                                                                                                         |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| System Imaging (System>System Imaging page)<br>System Measure (System->System Measure page)<br>Imaging Settings (Imaging page)<br>Comments (Comments page)<br>Body Patterns (Body Patterns page)<br>Application (Application page)<br>3D/4D (3D/4D page)<br>Measure (Measure page) : Utility/Measure Advanced and Doppler preset | System General (System>General page)<br>Connectivity (Connectivity page)<br>Reports (Report page)<br>Measure (Measure page) : Utility/Measure M&A and OB Table preset |

4-2-6-2 Using Regional Preset

Regional Preset is selected during Application Load (Refer to 8-8-13 - Installing R7.x.x Application Software for details).

Current Regional Preset is displayed under **Utility > System > About** .

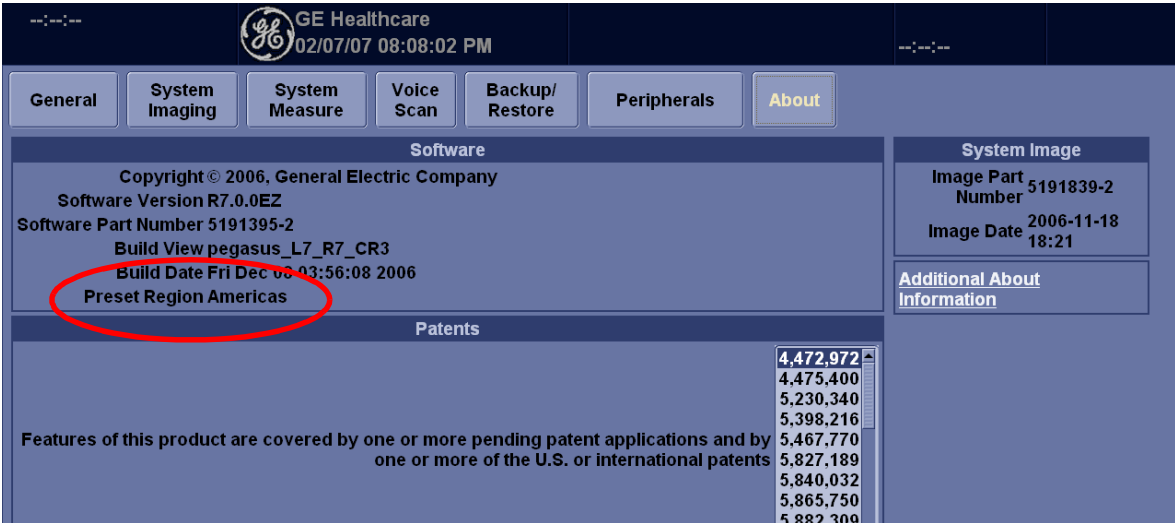


Figure 4-14 Current Regional Preset

 **NOTICE** For Upgraded BT07, this field always shows "None" as Region Preset is feature available for pure BT07 and onward.

Factory Default Regional Preset can be re-loaded from **Utility > Systme > About > Additional About**.

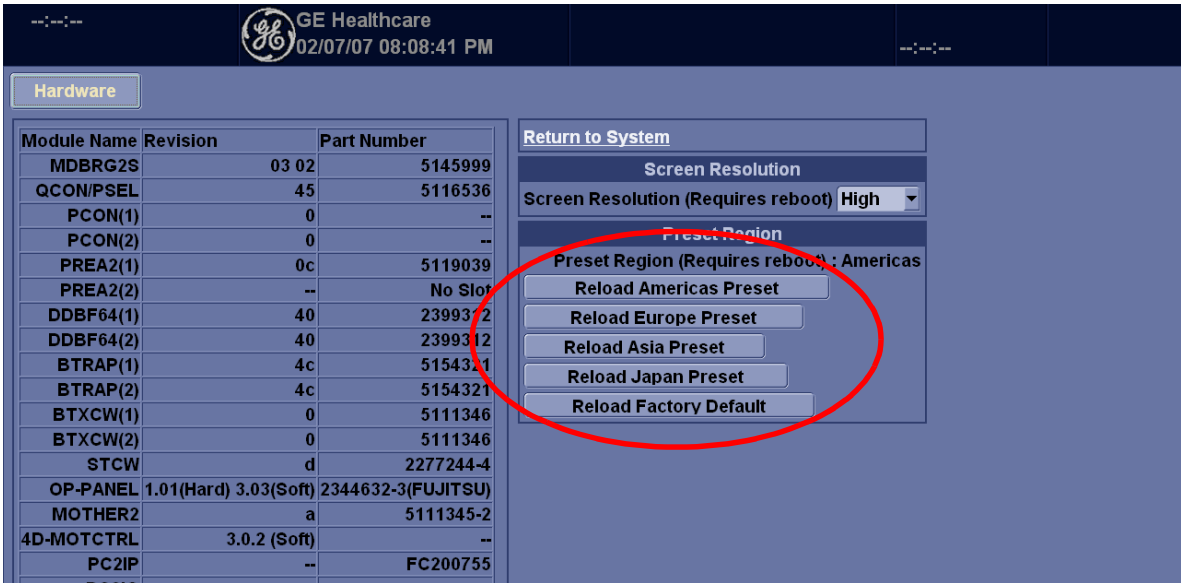


Figure 4-15 Factory Default Regional Preset

#### 4-2-6-3 Cautions Using Regional Preset

- Do not attempt to modify Regional Preset on Upgraded BT07.
- Backup/Restore function should be used between the same region systems. Unexpected setting may result if you restore the preset files to another region setting system.



**CAUTION** When software is upgraded (from BT07 and on) re-loaded or upgraded (from BT07 and on), make sure to select the factory default. Because the preset region information in globalconfig.res file shall not be upgraded, if different region presets are loaded, then it may cause conflict between system setting and region presets.

#### 4-2-6-4 Formatting CD-R/DVD-R Disk

- 1.) Insert an empty (blank) CD-R/DVD-R disk into the CD-R/DVD-R device.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **Connectivity>Removable Media**.
- 3.) Select the removable media from media list.
- 4.) Type a name for the removable media in Label field.
- 5.) Select Format button.



Figure 4-16 Selecting Format Button

#### 4-2-6-5 Archiving Presets to an CD-R/DVD-R Disk

- 1.) Insert an empty (blank) formatted CD-R/DVD-R disk into the CD-R/DVD-R device.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **System>Backup/Restore**. The Backup screen will be shown on the monitor.
- 3.) Select the item to back up either from Resource Files.
- 4.) Select the media to locate the items.
- 5.) Click on **Backup**. The backup status for each item is displayed on the Result column.

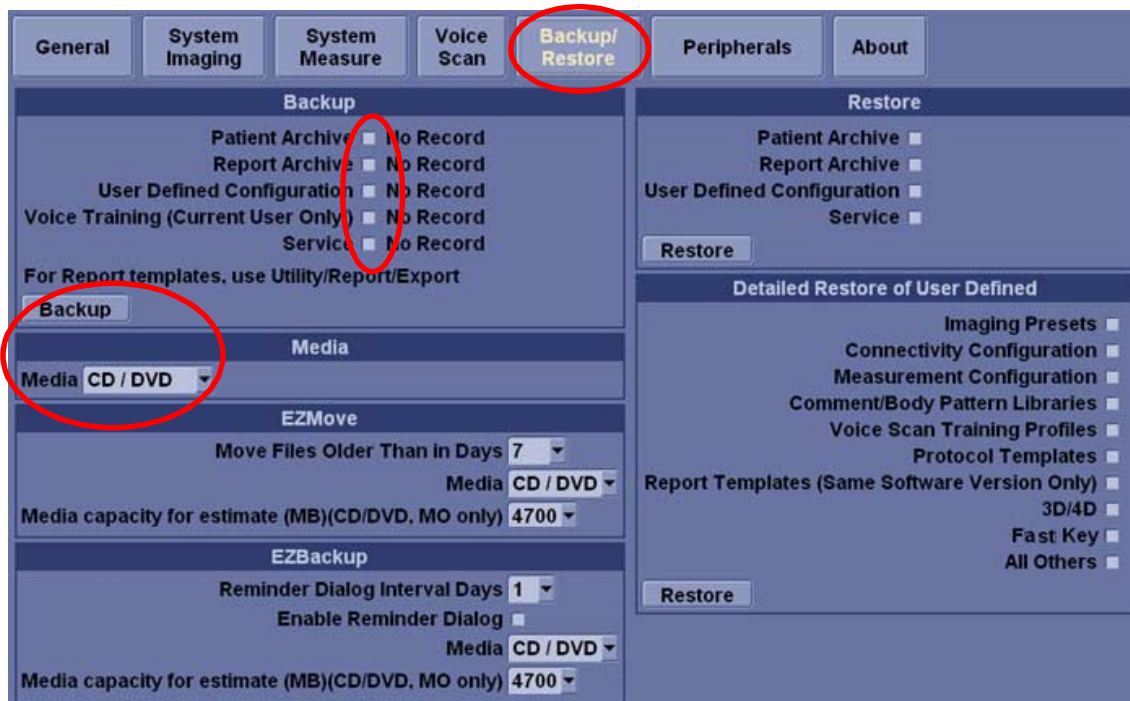


Figure 4-17 Clicking on Backup

- 6.) Make sure "Finished OK" is displayed on the Result column.

#### 4-2-6-6 Loading Presets from an CD-R/DVD-R disk

- 1.) Insert the CD-R/DVD-R disk with the archived Presets into the CD-R/DVD-R.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **System>Backup/Restore**. The Restore sheet will be shown on the monitor.
- 3.) Select the item to restore either from resource Files.
- 4.) Click on **Restore**. A message to make sure the restore process is displayed on the monitor. Click **OK**. The restore status for each item is displayed on the Result column.

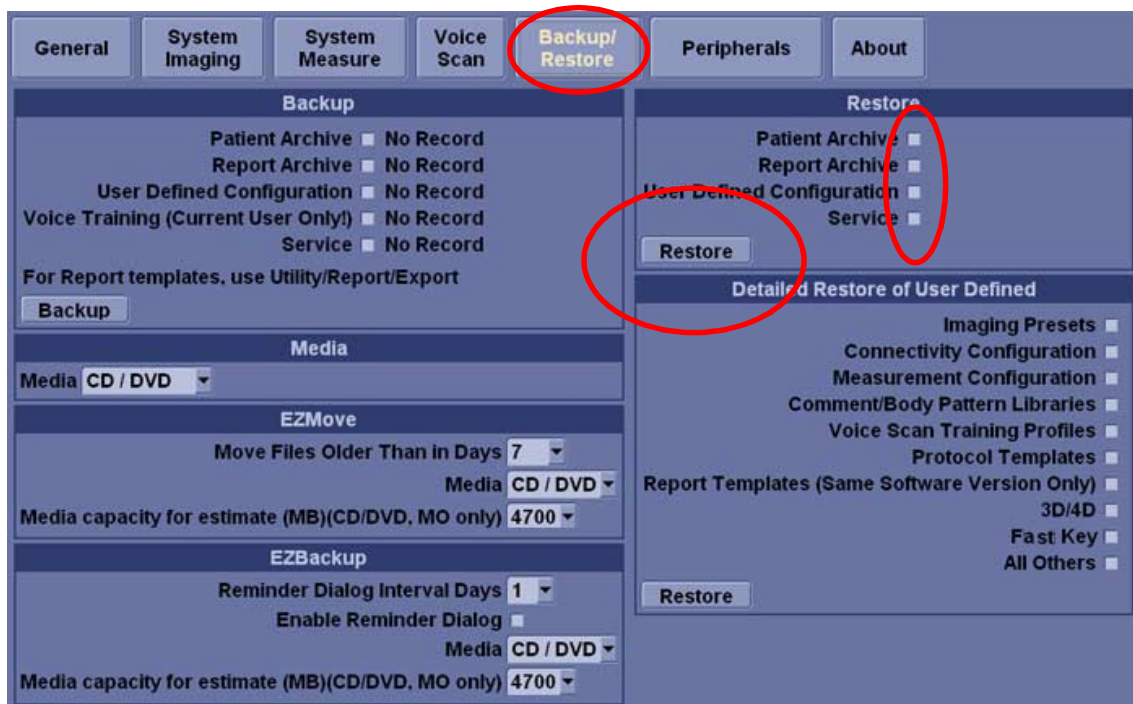


Figure 4-18 Clicking on Restore

- 5.) Make sure "Finished OK" is displayed on the Result column.

#### 4-2-6-7 Regional Preset - Files

**Service Tip:** The system shall have each region preset files into:

- Americas : C:/Pegasus/target/resources/Pegasus/ Americas/userdefs/
- Europe: C:/Pegasus/target/resources/Pegasus/Europe/userdefs/
- Asia: C:/Pegasus/target/resources/Pegasus/ Asia/userdefs/
- Japan: C:/Pegasus/target/resources/Pegasus/Japan/userdefs/

When region is selected, Region preset files are copied to:

- C:/Pegasus/target/resources/idunn/userdefs/



## 4-2-7 Archiving and Loading Presets for BT06/V65x or lower

**NOTE:** Always save presets before any software reload. This ensures the presets loaded after the software reload are as up-to-date as possible.

All user presets except changes to Summary, Anatomy, and Biometry pages, can be saved on an CD-R/MO/DVD-R disk for reloading on the system.

**NOTICE** Presets should NOT be saved on the same CD-R/MO/DVD-R disk as images. The Archive Menu lists the images but does NOT list the presets stored on a CD-R/MO/DVD-R disk.

### 4-2-7-1 Formatting CD-R/MO/DVD-R Disk

- 1.) Insert an empty (blank) CD-R/MO/DVD-R disk into the CD-R/MO/DVD-R device.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **Connectivity>Removable Media or Tools**.

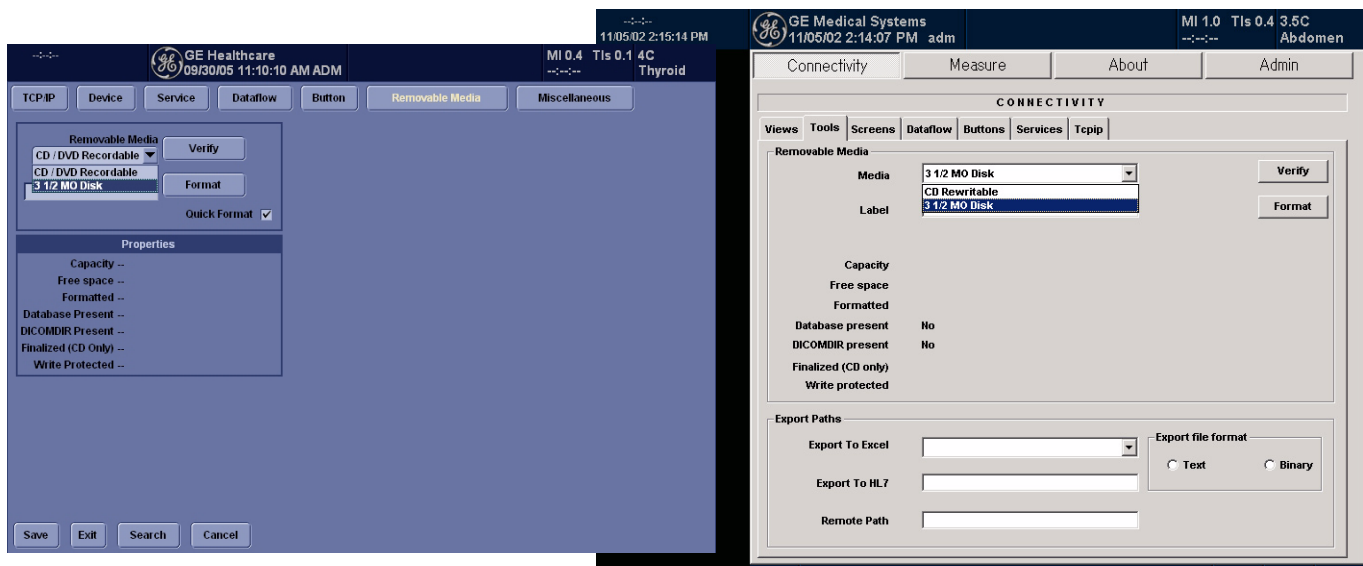


Figure 4-19 Formatting Removable Media1



#### 4-2-6-4 Formatting CD-R/DVD-R Disk (cont'd)

- 3.) Select the removable media from media list.
- 4.) Type a name for the removable media in Label field.

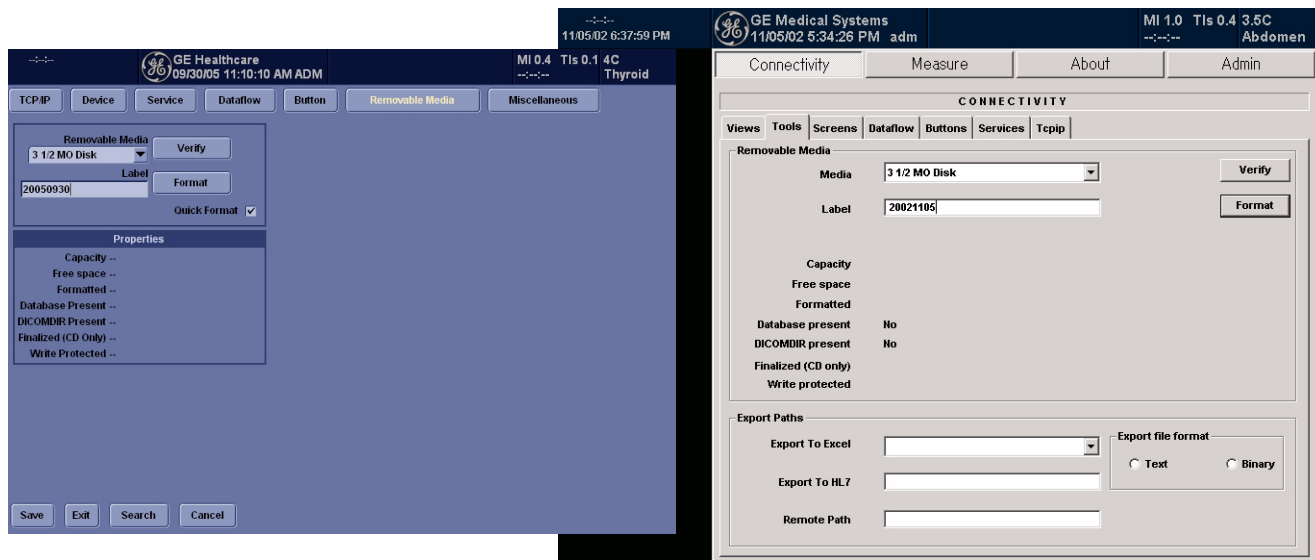


Figure 4-20 Formatting Removable Media2

- 5.) Select Format button.

#### 4-2-7-2 Archiving Presets to an CD-R/MO/DVD-R Disk

- 1.) Insert an empty (blank) formatted CD-R/MO/DVD-R disk into the CD-R/MO/DVD-R device.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **System>Backup/Restore**. The Backup screen will be shown on the monitor.

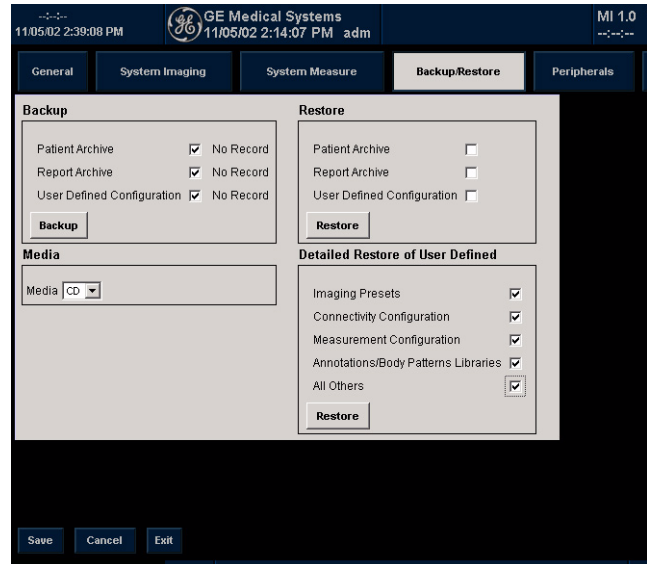
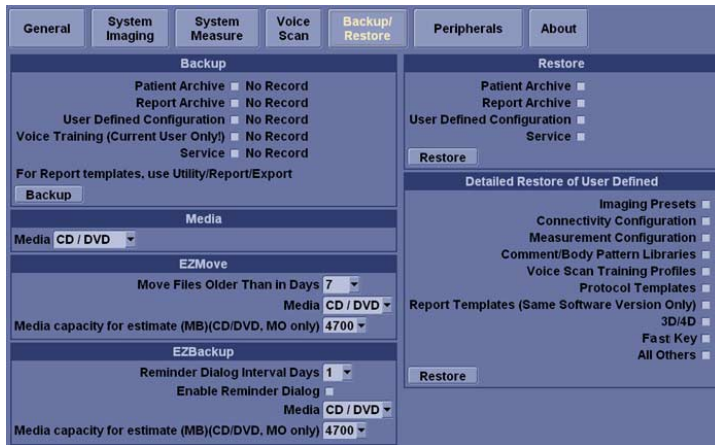


**Figure 4-21 Backup Sheet**

- 3.) Select the item to back up either from Resource Files.
- 4.) Select the media to locate the items.
- 5.) Click on **Backup**. The backup status for each item is displayed on the Result column.
- 6.) Make sure "Finished OK" is displayed on the Result column.

### 4-2-7-3 Loading Presets from an CD-R/MO/DVD-R disk

- 1.) Insert the CD-R/MO/DVD-R disk with the archived Presets into the CD-R/MO/DVD-R.
- 2.) Access to the **Utility** Menu on the Touch Panel, and select **System>Backup/Restore**. The Restore sheet will be shown on the monitor.

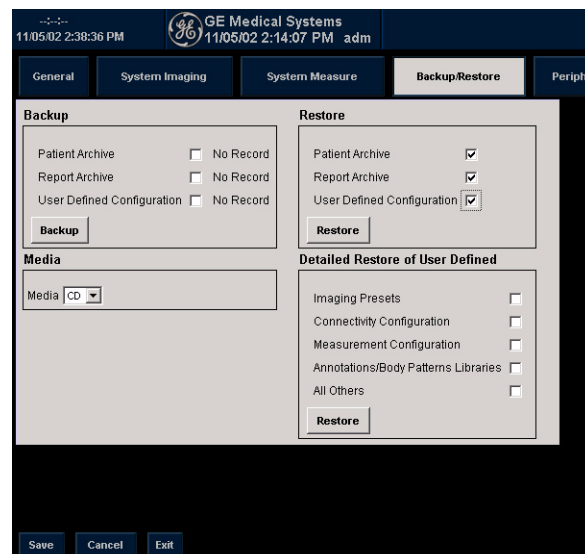
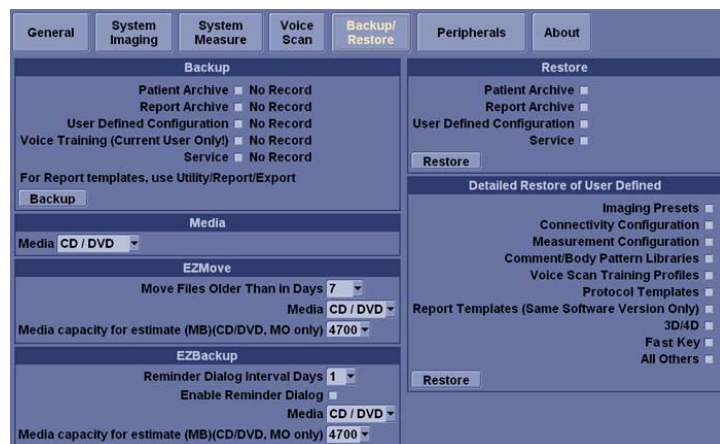


**Figure 4-22 Restore Sheet**

- 3.) Select the item to restore either from resource Files.
- 4.) Click on **Restore**. A message to make sure the restore process is displayed on the monitor. Click **OK**. The restore status for each item is displayed on the Result column.
- 5.) Make sure "Finished OK" is displayed on the Result column.

## Section 4-3 Functional Checks

### 4-3-1 Basic Controls

For a functional check of the system's features, including the **Control Panel**, **Touch Panel**, **Monitor**, **Keyboard** and **Trackball**, refer to the LOGIQ™ 7 Quick Guide.

### 4-3-2 Performance Tests

#### 4-3-2-1 Recommended Test Phantoms

GE Healthcare recommends the RMI 430GS phantom, but it is not required. It is the most current phantom recommended to our field service personnel and provides the necessary targets and extended life necessary for consistent system testing.

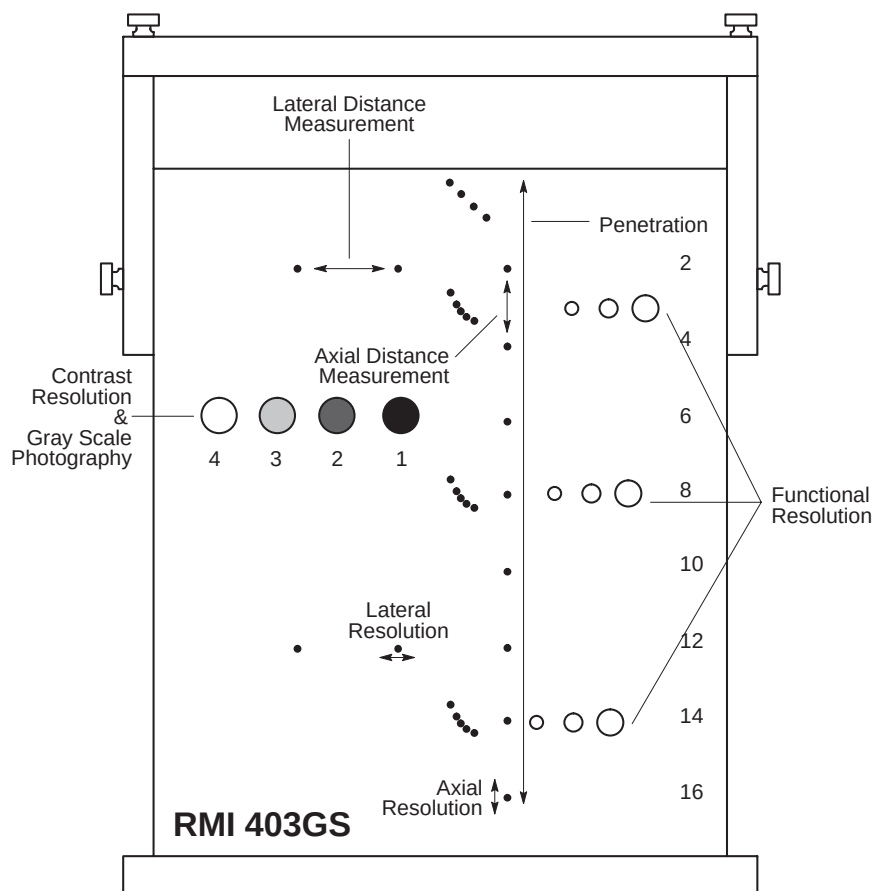


Figure 4-23 Performance Test

### 4-3-3 Mode Checks

For a functional check of the system's different modes, refer to the LOGIQ™ 7 Quick Guide. The Quick Guide will familiarize you with image optimization for **B-Mode**, **M-Mode**, **Color Flow**, and **Doppler**.

#### 4-3-3-1 System Checks

**Table 4-3 System Functional Checks**

| Step | Item           | Description                                                                                                                  |
|------|----------------|------------------------------------------------------------------------------------------------------------------------------|
| 1    | B-Mode         | Verify basic B-Mode (2D) operation. Check the basic system controls that affect this mode of operation.                      |
| 2    | CF-Mode        | Verify basic CF-Mode (Color Flow Mode) operation. Check the basic system controls that affect this mode of operation.        |
| 3    | Doppler Modes  | Verify basic Doppler operation (PW and CW if available). Check the basic system controls that affect this mode of operation. |
| 4    | M-Mode         | Verify basic M-Mode operation. Check the basic system controls that affect this mode of operation.                           |
| 5    | Probe Elements | Perform an Element Test on each probe to verify that all probe elements (and system channels) are functional.                |
| 6    | Monitor        | Verify basic Monitor display functions. Refer to Chapter 3 of the User Manual.                                               |

### 4-3-4 Basic Measurements

Basic Measurements for the LOGIQ™ 7 include **Distance and Tissue Depth**, **Circumference/Area (Ellipse and Trace)**, **Volume**, **Time Interval**, **Velocity**, **PI**, **RI**, **S/D Ratio**, **D/S Ratio**, and **A/B Ratio**. Information for all these tests is found in the LOGIQ™ 7 Quick Guide.

### 4-3-5 ECG Checks

Connect the ECG Harness and check:

**Table 4-4 ECG Control**

| Step | Task                                                        | Expected Result(s)                                                |
|------|-------------------------------------------------------------|-------------------------------------------------------------------|
| 1    | Connect the ECG at the Connector on the Front of the system | It will display a curve along the bottom edge of the image sector |

### 4-3-6 Cineloop Check

For activating Cine, creating and storing Cine Loops, and information on the Cine Timeline, refer to the LOGIQ™ 7 Quick Guide.

### 4-3-7 Backend Processor Checks

- If all the previous tests have been passed successfully, the backend processor is most likely OK.
- See Service Platform.
- If the system seems to be operating erratically, please refer to Chapter 7, Diagnostic/Troubleshooting.

### 4-3-8 Probe/Connectors Usage (QG)

The LOGIQ™ 7 Quick Guide, provides information on connecting, activating, deactivating and disconnecting probes.

## 4-3-9 Peripheral Checks

Check that peripherals work as described below:

**Table 4-5 Peripheral checks**

| Step | Task to do                              | Expected Result(s)                                                                                                  |
|------|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| 1.   | Press Freeze                            | Stop image acquisition.                                                                                             |
| 2.   | Press (P1) or (P4) on the Control panel | The image displayed on the screen is printed on B&W or Color printer depending on the key assignment configuration. |

### 4-3-9-1 Peripheral/Option Checks

If any peripherals or options are not part of the system configuration, the check can be omitted. Refer to the User Manual for a list of approved peripherals/options.

**Table 4-6 GE Approved Peripheral/Hardware Option Functional Checks**

| Step | Item          | Description                                                                                                               |
|------|---------------|---------------------------------------------------------------------------------------------------------------------------|
| 1    | VCR           | Verify record/playback capabilities of the VCR. Clean heads and covers if necessary.                                      |
| 2    | B/W Printer   | Verify hardcopy output of the B/W video page printer. Clean heads and covers if necessary.                                |
| 3    | Color Printer | Verify hardcopy output of the Color video page printer. Clean heads and covers if necessary.                              |
| 4    | DICOM         | Verify that DICOM is functioning properly. Send an image to a DICOM device.                                               |
| 5    | InSite/iLinq  | Verify that InSite is functioning properly. Ensure two-way remote communications.<br>(Warranty & Contract Customers only) |
| 6    | Camera        | Verify hardcopy output of the film camera. Clean as necessary.                                                            |
| 7    | Footswitch    | Verify that the footswitch is functioning as programmed. Clean as necessary.                                              |
| 8    | ECG           | Verify basic operation with customer                                                                                      |
| 9    | 3D Probe      | Ask Engineering about Calibration Check for 3-D                                                                           |

4-3-10      Mechanical Functions

4-3-10-1    Keyboard and Display Platform Console Check

Table 4-7    Display platform Maneuverability check

| Step | Task to do                                                 | Expected Result(s)                                           |
|------|------------------------------------------------------------|--------------------------------------------------------------|
| 1.   | Pull release lever under the OP Panel to release the lock. | The height of the Monitor and OP Panel will be maneuverable. |

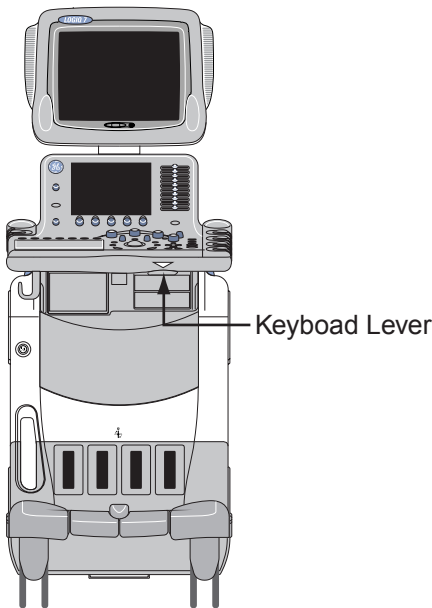


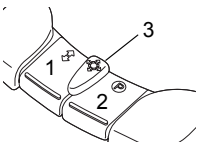
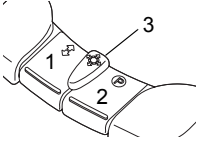
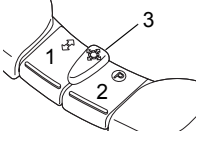
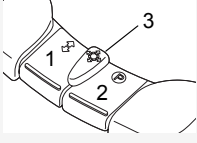
Figure 4-24 Keyboard Lever



#### 4-3-10-2 Brakes and Direction Locks Checks

Check that: brakes and direction locks function as described below. Refer to Figure 4-25 for the locations of brake and swivel.

**Table 4-8 Brakes and Direction Lock Check**

| Step | Task to do                                                                                                 | Expected Result(s)               |
|------|------------------------------------------------------------------------------------------------------------|----------------------------------|
| 1.   | Press on pedal no.2<br>   | To engage the pedal in full lock |
| 2.   | Press on pedal no.3<br>   | To release the brake             |
| 3.   | Press on pedal no.1<br>  | To engage swivel lock            |
| 4.   | Press on pedal no.3<br> | To release swivel lock           |

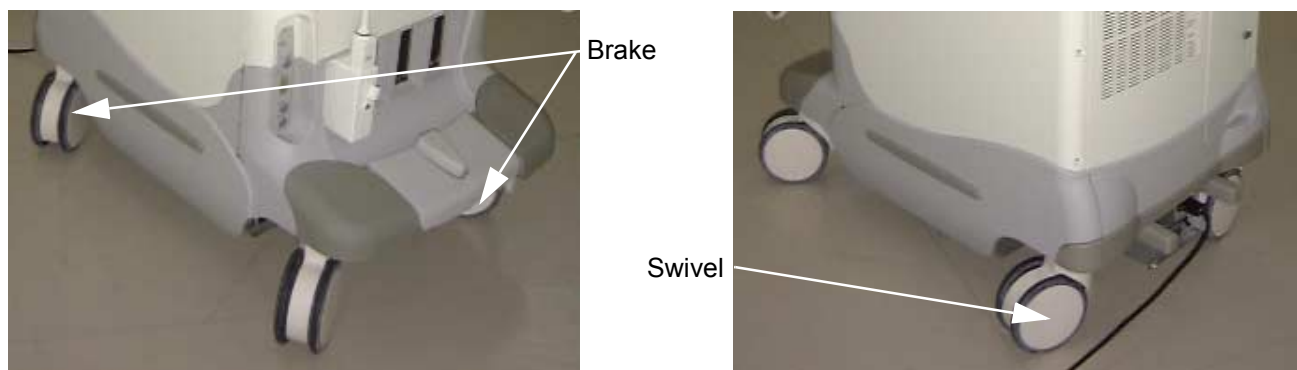


**Figure 4-25 Brake and Swivel Location**

#### 4-3-10-3 Caster and Caster Link Checks

Check if:

- For Caster:
  - No loose caster with it jacked up.
  - Smooth operation when moving the scanner.
- For Caster Link Assy:
  - Effective brake and direction lock function (See section [4-3-10-2](#)).
  - The pedals can be smoothly returned.
  - The lock pin must be removed.

## Section 4-4

### Application Turnover Check List

Complete these checks before returning the scanner to customer for use:

#### 4-4-1 Software Configuration Checks

**Table 4-9 Software Configuration Checks**

| Step | Task to do                                                    | Expected Result(s)        |
|------|---------------------------------------------------------------|---------------------------|
| 1.   | Check Date and Time setting                                   | Date and Time are correct |
| 2.   | Check that Location (Hospital Name and Department) is correct | Location Name is correct  |
| 3.   | Check Language setting                                        | Language is proper        |
| 4.   | Check Units setting                                           | Units are proper          |

## **Section 4-5**

### **Diagnostics**

#### **4-5-1 Service Software Menu**

Refer to Section 5-5 - Common Service Platform.

#### **4-5-2 Diagnostics Test Menu**

Refer to Section 5-5-5 - Diagnostics.

#### **4-5-3 Utility Menu**

Refer to Section 5-5-9 - Utilities.

## **Section 4-6 Power Supply**

### **4-6-1 Power Supply Test Procedure**

There is no need to perform any special tests on the Power Supplies if there does not seem to be a problem that may be related to the Power Supplies.

Refer to Section 6-2 - LV Unit Adjustments (For BT03 or lower) if you appear to have a problem that may be related to the Power Supplies.

### **4-6-2 Power Supply Adjustment**

There are no adjustments on the power supplies. The DC Power is self-regulated. If a voltage is outside the specified range, it means that something is wrong, either with the power supply itself or with a unit connected to that specific power outlet.

## 4-30

### Section 4-7 - Site Log

[illegible]

### Table 4-10 Site Log

[illegible]





# Chapter 5

## Components and Functions (Theory)

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### Section 5-1 Overview

This chapter explains LOGIQ™ 7's system concepts, component arrangement, and subsystem function. It also describes the Power Distribution System (PDS) and probes.

**Table 5-1**      **Contents in Chapter 5**

| Section | Description                   | Page Number |
|---------|-------------------------------|-------------|
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| 5-8     | Monitor Video Specification   | 5-44        |

## Section 5-2 Hardware Compatibility Matrix

### 5-2-1 Hardware Compatibility BT09 or later

#### 5-2-1-1 Monitor

| <b>FRU compatibility</b><br><b>BT09 ~</b> |                                            | R8.0.x                                 | R8.0.x                               | R8.0.x                                     | R8.0.x        | Latest Software                                                                                    |
|-------------------------------------------|--------------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|---------------|----------------------------------------------------------------------------------------------------|
| FRU Part#                                 | Description                                | SW Upgraded BT09 (w BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                                                                            |
| 2283334-5                                 | P9534WA CRT MONITOR ASSY                   | Y                                      | Y*                                   | N                                          | N             | Fixed AKB Issue....Monitor Firm Ver.4.2 or higher<br>* Y if CRT console                            |
| 5117797-2                                 | ?CABLE DUCT ASSY                           | N                                      | Y*                                   | N                                          | N             | * Y if CRT console                                                                                 |
| 2297882                                   | P9534WL SPEAKER & BRACKET ASSY             | N                                      | N                                    | N                                          | N             | Non-compatible for BT03 or lower system                                                            |
| 2386616                                   | P9534ZT SPEAKER & BRACKET                  | Y                                      | Y*                                   | N                                          | N             | Only for BT03 or higher and upgraded BT03 system<br>* Y if CRT console                             |
| 2297050                                   | P9534WK USER SW ASSY OF MONITOR            | Y                                      | Y*                                   | N                                          | N             | User Switch assy for CRT                                                                           |
| 2304171                                   | ?MON-CABLE-ASSY                            | Y                                      | Y*                                   | N                                          | N             | * Y if CRT console                                                                                 |
| 5169935-2                                 | 17inch LCD monitor assy                    | N                                      | Y+                                   | N                                          | N             | Improved Parameter : Contains Front/Rear Covers and Swtichs (exclude Speaker)<br>Y+ if LCD monitor |
| 5137744                                   | SWITCH MIC_ASSY LCD_MONITOR                | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5132576                                   | SPEAKER LCD L7                             | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5132572                                   | PANEL FRONT LCD L7                         | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5132573                                   | PANEL REAR LCD L7                          | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5132574                                   | COVER VESA LCD L7                          | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5125391                                   | LCD D-SUB CABLE ASSY CSL L7                | N                                      | N                                    | N                                          | N             | Y+ if LCD monitor / Long BEP-LCD cable (replaced by 5198733)                                       |
| 5198733                                   | FRU_Parts_LCD_TOP_BOTTOM_DSUB_CABLE_ASSY   | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor / Two piece BEP-LCD cbl<br>This part replaces 5125391                            |
| 5189828                                   | DVI_CABLE_TOP_LCD_L7                       | N                                      | Y+                                   | Y+                                         | N             | Y+ if LCD monitor / Two piece BEP-LCD cbl                                                          |
| 5137743                                   | MIC_SPK CBL CSL_LCD L7                     | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5132394                                   | AC CABLE LCD ASSY LOGIQ7                   | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5139307-2                                 | LCD CABLE DUCT ASSY CSL L7                 | N                                      | N                                    | N                                          | N             | Y+ if LCD monitor (replaced by 5139307-3)                                                          |
| 5139307-3                                 | FRU_Parts_LCD_CABLE_DUCT_ASSY              | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor<br>This part replaces 5139307-2                                                  |
| 5309932                                   | FRU_Parts_LCD_CABLE_DUCT_ASSY NO RGB CABLE | N                                      | N                                    | N                                          | Y             | Only for R8.0.0 or later system                                                                    |
| 5132571-2                                 | LCD ARM LCD L7                             | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor. OK to use if updated using part 5264730                                         |
| 5132571-3                                 | LCD ARM LCD L7                             | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor. OK to use if updated using part 5264730                                         |
| 5132571-4                                 | LCD ARM LCD L7                             | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor. Improved rotational force.                                                      |
| 5136256                                   | ARM COVER LCD L7                           | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5136257                                   | ARM JOINT COVER LCD L7                     | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5137688                                   | Monitor Screws LCD L7                      | N                                      | Y+                                   | N                                          | N             | Y+ if LCD monitor                                                                                  |
| 5212808                                   | 19Inch LCD Monitor for LOGIQ               | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5199460                                   | L9 19 In. LCD Speaker Assembly             | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5248133                                   | COVER VESA ASSY L7                         | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5240769                                   | 19 LCD LATCH-N-LOK CABLE                   | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5245143                                   | 19inch LCD ARM WITH CABLE ASSY             | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5245143-2                                 | 19INCH LCD ARM WITH CABLE ASSY LCD L       | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD. Improved rotational force.<br>Old part can be updated using part 5264730         |
| 5224943                                   | 19 LCD DVI HDMI CABLE                      | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5224944                                   | 19 LCD MIC SPK CABLE ASSY                  | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5224942                                   | 19 LCD POWER CABLE                         | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5248134                                   | 19inch AC DC ASSY L7                       | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5224941                                   | 19 LCD 48V UNIT CABLE                      | N                                      | N                                    | Y                                          | Y             | Only 19 inch LCD                                                                                   |
| 5240848                                   | DVI-HDMI ADAPTOR                           | N                                      | N                                    | Y                                          | N             | Only 19 inch LCD Upgraded from 17 inch LCD                                                         |

Figure 5-26 Monitor - FRU Compatibility

5-2-1-2 Recording Devices

| <b><u>FRU compatibility</u></b><br><b><u>BT09 ~</u></b> |                            | R8.0.x                                 | R8.0.x                               | R8.0.x                                     | R8.0.x        | Latest Software                                 |
|---------------------------------------------------------|----------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|---------------|-------------------------------------------------|
| FRU Part#                                               | Description                | SW Upgraded BT09 (w BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                         |
| 2388429-5                                               | DVD5 Unit                  | Y                                      | Y                                    | Y                                          | Y             |                                                 |
| 2388429-6                                               | DVD Unit 6                 | Y                                      | Y                                    | Y                                          | Y             |                                                 |
| FA200801                                                | PAT. I/O                   | Y                                      | Y                                    | Y                                          | Y             |                                                 |
| 2324098                                                 | P9534XE FRONT-IF-ASSY      | N                                      | N                                    | N                                          | N             |                                                 |
| 5111715-2                                               | LOGIQ7 FRONT CONN2 ASSY    | N                                      | Y                                    | Y                                          | Y             | Backward compatible among BT04 system           |
| 2355070                                                 | P9534ZH 1.3GMOD OPTION     | Y                                      | N                                    | N                                          | N             | 1.3G SCSI                                       |
| 5113449                                                 | MOD DRIVE LOGIQ7           | N                                      | Y                                    | N                                          | N             | 1.3G IDE                                        |
| 2302393                                                 | P9534XD FRONT CONTROL ASSY | Y                                      | N                                    | N                                          | N             |                                                 |
| 5111714                                                 | LOGIQ7 REAR CONN2 ASSY     | N                                      | Y                                    | N                                          | N             | For Console BT04 / BT06                         |
| 5174604                                                 | LOGIQ7 REAR CONN3 ASSY     | N                                      | N                                    | Y                                          | Y             | For Console BT06-2 and later                    |
| 5314714                                                 | SVP REAN4 PANEL            | N                                      | N                                    | N                                          | Y             | For BEP4 units (including BEP upgraded to BEP4) |
| 5314713                                                 | SVP REAN4 USB CBL          | N                                      | N                                    | N                                          | Y             | For BEP4 units (including BEP upgraded to BEP4) |

Figure 5-27 Recording Devices- FRU Compatibility

5-2-1-3 OP Panel and Keyboard

| FRU compatibility<br>BT09 ~ |                                    | R8.0.x                                 | R8.0.x                               | R8.0.x                                     | R8.0.x        | Latest Software                                                                                                                                                                |
|-----------------------------|------------------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FRU Part#                   | Description                        | SW Upgraded BT09 (w BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                                                                                                                                                        |
| 2267259-2                   | P9534XA KEYBOARD ASSY              | Y                                      | N                                    | N                                          | N             |                                                                                                                                                                                |
| 2299453                     | P9536AG OP PANEL A/N KEYBOARD ASSY | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2306274                     | P9536AR OP PANEL KEY ACCESSORY SET | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2299448                     | P9536AB OP PANEL ENCODER ASSY      | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2306270                     | P9536AP OP PANEL CONTROL           | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2299447                     | P9536AA OP PANEL LCD UNIT          | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2306273                     | P9536AQ OP PANEL KEY SWITCH        | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2299452                     | P9536AF OP PANEL TGC ASSY          | Depends                                | N                                    | N                                          | N             | Replaceable only on KBD 2267259 and 2267259-2                                                                                                                                  |
| 2299451                     | P9536AE OP PANEL TRACKBALL ASSY    | Depends                                | N                                    | N                                          | N             | Replaceable on any KBD                                                                                                                                                         |
| 2344632-2                   | P9534XK KEYBOARD ASSY              | Y                                      | N                                    | N                                          | N             |                                                                                                                                                                                |
| 2369818                     | P9536BG A/N KBD ASSY               | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369816                     | P9536BR KEY ACCESSORY              | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2 Contains A/N Key Tops Clear Caps Labels for clear caps Knobs for rotally encoders TGS Slid Caps                 |
| 2369816-2                   | P9536BR KEY ACCESSORY              | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2 Contains A/N Key Tops Clear Caps Labels for clear caps incl.4D Knobs for rotally encoders incl.4D TGS Slid Caps |
| 2369826                     | P9536BB ROTARY ENCODER ASSY        | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369817                     | P9536BP I/F BOARD ASSY             | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369825                     | P9536BA LCD UNIT                   | N                                      | N                                    | N                                          | N             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369815                     | P9536BQ SW BOARD ASSY              | v                                      | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369822                     | P9536BF TGC ASSY                   | Depends                                | Y                                    | Y                                          | Y             | Replaceable only on KBD 2344632, 2344632-2, 5138507, 5138507-2                                                                                                                 |
| 2369823                     | P9536BE TRACKBALL ASSY             | Depends                                | Y                                    | Y                                          | Y             | Replaceable on any KBD                                                                                                                                                         |
| 2344632-3                   | P9534XK KEYBOARD ASSY              | Y                                      | Y                                    | N                                          | N             | 2369825(TouchPanel) cannot be assembled on 2344632-3.                                                                                                                          |
| 5138507-3                   | SVC KEYBOARD LOGIQ7                | Y                                      | Y                                    | Y                                          | Y             | Cost reduction from previous KBD                                                                                                                                               |
| 2301857                     | P9536SD LAMP ASSY                  | Y                                      | N                                    | N                                          | N             |                                                                                                                                                                                |
| 5117796                     | LAMP STAY ASSY OPA L7              | N                                      | Y                                    | Y                                          | Y             |                                                                                                                                                                                |
| 2301853-4                   | P9536RB TASK LAMP ASSY             | Y                                      | Y                                    | Y                                          | Y             |                                                                                                                                                                                |
| 2357676                     | P9536RK LIGHT BULB                 | Y                                      | Y                                    | Y                                          | Y             | Light Bulb only (lower level of 2301853-4)                                                                                                                                     |
| 5117485                     | ? FCON Cable Assy                  | N                                      | Y                                    | Y                                          | Y             |                                                                                                                                                                                |
| 5117795                     | ? FOOT SW Bracket ASSY             | N                                      | Y                                    | Y                                          | Y             |                                                                                                                                                                                |

Figure 5-28 OP Panel and Keyboard- FRU Compatibility

5-2-1-4 Front End

| <b><u>FRU compatibility</u></b><br><b><u>BT09 ~</u></b> |                          | R8.0.x                                 | R8.0.x                               | R8.0.x                                     | R8.0.x        | Latest Software                                                                                                 |
|---------------------------------------------------------|--------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|---------------|-----------------------------------------------------------------------------------------------------------------|
| FRU Part#                                               | Description              | SW Upgraded BT09 (w BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                                                                                         |
| 2357804-2                                               | P9536CA DDBF SVC         | N                                      | N                                    | N                                          | N             | 32ch                                                                                                            |
| 2399312                                                 | P9535CL DDBF64 ASSY      | Y                                      | Y                                    | Y                                          | N             | 64ch                                                                                                            |
| 5182379                                                 | DDBF128 ASSY CSL L7      | N                                      | N                                    | N                                          | Y             | 128ch/use with EBUS4                                                                                            |
| 2315492                                                 | P9538JD NEST BD JIG      | Y                                      | Y                                    | Y                                          | Y             |                                                                                                                 |
| 2264606-2                                               | P9535AU MDBRG ASSY       | N                                      | N                                    | N                                          | N             |                                                                                                                 |
| 2264606-3                                               | P9535AU MDBRG ASSY       | N                                      | N                                    | N                                          | N             | Noise reduction on BT04                                                                                         |
| 2264606-4                                               | P9535AU MDBRG ASSY       | Y                                      | Y+                                   | N                                          | N             | +Y if upgraded from BT04~BT06 but not BT06-2                                                                    |
| 2264606-5                                               | P9535AU MDBRG ASSY       | Y                                      | Y+                                   | N                                          | N             | +Y see comment above<br>6T Issue solved from -4 or lower version                                                |
| 5145999                                                 | MDBRG2S ASSY CSL L7      | N                                      | Y*                                   | Y                                          | Y             | MDBRG2S only on BT06-2 console (MDBRG2S = MDBRG+SINANO2, Insert to SINANO2 slot )<br>*Y if upgraded from BT06-2 |
| 5145999-2                                               | MDBRG2S ASSY CSL L7      | N                                      | Y*                                   | Y                                          | Y             | Improvement for Memory Test false fail. Previous parts can still be used as FRU                                 |
| 2271702-2                                               | P9535BA EBUS ASSY        | N                                      | N                                    | N                                          | N             |                                                                                                                 |
| 2399317                                                 | P9535FA EBUS2 ASSY       | Y                                      | N                                    | N                                          | N             | Only for Upgraded BT04 from BT01/02/03                                                                          |
| 5111348                                                 | EBUS3T ASSY CSL LOGIQ7   | N                                      | Y                                    | Y                                          | N             | Upper                                                                                                           |
| 5112465                                                 | EBUS3B ASSY CSL LOGIQ7   | N                                      | Y                                    | Y                                          | N             | Bottom                                                                                                          |
| 5182215                                                 | EBUS4T ASSY CSL L7       | N                                      | N                                    | N                                          | Y             |                                                                                                                 |
| 5182757                                                 | EBUS4B ASSY CSL L7       | N                                      | N                                    | N                                          | Y             |                                                                                                                 |
| 2273295                                                 | P9535BC MDCON ASSY       | N                                      | N                                    | N                                          | N             | No need in BT04system                                                                                           |
| 2264608-3                                               | P9535AY MOTHER ASSY      | N                                      | N                                    | N                                          | N             |                                                                                                                 |
| 5111345-2                                               | MOTHER2 ASSY CSL LOGIQ7  | N                                      | Y                                    | Y                                          | Y             |                                                                                                                 |
| 2264596-2                                               | P9535AE PREA ASSY        | N                                      | N                                    | N                                          | N             | 32ch                                                                                                            |
| 5119039                                                 | PREA2F ASSY CSL LOGIQ7   | N                                      | Y                                    | Y                                          | Y             | 64ch                                                                                                            |
| 2393853                                                 | PREA2H ASSY CSL LOGIQ7   | Y                                      | N                                    | N                                          | N             | Only for Upgraded BT04 from BT01/02/03                                                                          |
| 2264604-2                                               | P9535AS PROMP ASSY       | N                                      | N                                    | N                                          | N             | No need in BT04/BT06system                                                                                      |
| 2304617-5                                               | P9538HW QCON ASSY        | Y                                      | Y                                    | Y                                          | Y             | Noise reduction on BT04                                                                                         |
| 2264602-3                                               | P9535AQ SINANO ASSY      | N                                      | N                                    | N                                          | N             |                                                                                                                 |
| 2374744                                                 | P9535BQ SINANO2 ASSY     | Y                                      | Y                                    | N                                          | N             |                                                                                                                 |
| 2277244-4                                               | P9535AG STCW ASSY        | Y                                      | Y                                    | Y                                          | Y             |                                                                                                                 |
| 2268026                                                 | P9535BY TERMINATOR ASSY  | Y                                      | Y                                    | Y                                          | Y             |                                                                                                                 |
| 2323353-4                                               | P9535BJ TRAP2 ASSY       | N                                      | N                                    | N                                          | N             | 32ch                                                                                                            |
| 5118342-3                                               | BTRAPHV ASSY             | N                                      | Y                                    | N                                          | N             | 64ch. Countermeasured against HVL current control with full heigh HVPS.                                         |
| 5154321                                                 | BTRAPP5AHV Assy          | Y                                      | N                                    | Y                                          | Y             | P5A 64ch.                                                                                                       |
| 2323450-4                                               | P9535GA TRAPCW ASSY      | N                                      | N                                    | N                                          | N             | TRAP + TXCW                                                                                                     |
| 5111346                                                 | LOGIQ7 BTXCW ASSY        | Y                                      | Y                                    | Y                                          | Y             | BTXCW only (piggy board)                                                                                        |
| 5244917                                                 | MOTHER2A ASSY CSL LOGIQ7 | N                                      | N                                    | N                                          | N             |                                                                                                                 |
| 2305111-3                                               | ? TX CABLE ASSY          | Y                                      | Y                                    | Y                                          | Y             |                                                                                                                 |

Figure 5-29 Front End- FRU Compatibility

5-2-1-5 Backend

| <b>FRU compatibility</b><br><b>BT09 ~</b> |                                              | R8.0.x                                  | R8.0.x                               | R8.0.x                                     | R8.0.x        | Latest Software                                                                                                                                                                                            |
|-------------------------------------------|----------------------------------------------|-----------------------------------------|--------------------------------------|--------------------------------------------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FRU Part#                                 | Description                                  | SW Upgraded BT09 (w/ BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                                                                                                                                                                                    |
| 5119906-2                                 | BCOMPSW3 SVC CSL L7 (w/o Video Card)         | Y                                       | Y                                    | N                                          | N             | No Video card mounted. Need to reuse Video Card when BECOMP3 replace to this new one. Pentium 4 (BEP3) PCMother +CPU+PC2IPB+ATX +Ethernet+HDD+Chasis +Memory+ MiscParts                                    |
| 5119906-3                                 | BCOMPSW3 SVC CSL L7 (w/o Video Card / PC2IP) | Y                                       | Y                                    | Y                                          | N             | No Video card/PC2IP/FALCON mounted. Need to reuse Video Card / PC2IP/FALCON when BECOMP3 replace to this new one. Pentium 4 (BEP3) PCMother +CPU+ATX +Ethernet+HDD+Chasis +Memory+ MiscParts +BaselImageCD |
| 5119906-4                                 | BCOMPSW3 SVC CSL L7 (w/o Video Card / PC2IP) | Y                                       | Y                                    | Y                                          | N             | No Video card/PC2IP/FALCON mounted. Need to reuse Video Card / PC2IP/FALCON when BECOMP3 replace to this new one. Pentium 4 (BEP3) PCMother +CPU+ATX +Ethernet+HDD+Chasis +Memory+ MiscParts +BaselImageCD |
| 5308149                                   | SVP-BECOMP4-L7                               | N                                       | N                                    | N                                          | Y             | No Video card/PC2IP/FALCON mounted. Need to reuse Video Card / PC2IP/FALCON when BECOMP4 replace to this new one. Core2 DUO (BEP4) PCMother +CPU+ATX +Ethernet+HDD+Chasis +Memory+ MiscParts               |
| 5316350                                   | SVP BECOMP4 PARTS                            | N                                       | N                                    | N                                          | Y             | Misc. parts for BEP4. Parts include SATA signal/power cable for HDD, DVI-VGA connector, BEP4 internal USB cables and BEP4 Label                                                                            |
| 2304809-2                                 | P9536RH BATTERY PACK                         | Y                                       | Y                                    | Y                                          | Y             |                                                                                                                                                                                                            |
| 5118511                                   | Extended MEMORY3 LOGIQ7                      | Y                                       | Y                                    | Y                                          | N             | Never be used on BEP2/BEP4                                                                                                                                                                                 |
| 5306528                                   | DDR2 MEMORY4 1GB                             | N                                       | N                                    | N                                          | Y             |                                                                                                                                                                                                            |
| 5118510                                   | HD LOGIQ7                                    | Y                                       | Y                                    | Y                                          | N             | 80GB PATA                                                                                                                                                                                                  |
| 5306526                                   | SATA HDD 160GB                               | N                                       | N                                    | N                                          | Y             | 160GB SATA type. To be used with BEP4                                                                                                                                                                      |
| 5179643                                   | HDD For Consip L7 Console                    | N                                       | N                                    | N                                          | N             | 160GB PATA type                                                                                                                                                                                            |
| FC200656                                  | PC2IP II B                                   | Y                                       | Y*                                   | N                                          | N             | Only supported by BECOMPSW3<br>*Y if BT04/BT06 / N if BT06-2/V65x/BT07~                                                                                                                                    |
| FC200755                                  | PC2IP 3                                      | N                                       | N                                    | Y                                          | Y             | PC2IP3 need R620 application                                                                                                                                                                               |
| 2362887                                   | P9536TK AGP BOARD ASSY                       | Y                                       | Y+                                   | N                                          | N             | G550 Video Card AGP Type for CRT console<br>*Y if CRT console                                                                                                                                              |
| 5111298                                   | DUAL DVI AGP                                 | N                                       | Y\$                                  | Y                                          | N             | SONO64 Video Card AGP Type : Only for LCD System<br>Y\$ if LCD console                                                                                                                                     |
| 5121039                                   | PCI VGA                                      | N                                       | Y\$                                  | Y                                          | N             | G450 Video Card PCI Type : Only for LCD System                                                                                                                                                             |
| 5306525                                   | PCI Express Graphic board                    | N                                       | N                                    | N                                          | Y             | Matrox P690 Video Card for PCI-E slot                                                                                                                                                                      |
| 5142743                                   | BECOMP3 Rear Fan Assy                        | Y                                       | Y                                    | Y                                          | Y             | Common for BEP3/BEP4                                                                                                                                                                                       |
| TBD                                       | SCSI Card                                    | Y                                       | N                                    | N                                          | N             | Mounted only on Upgraded BT04/BT06 system in BECOMP3 for MOD Connection                                                                                                                                    |
| 5147460                                   | FALCON Capture Board                         | N                                       | Y%                                   | Y                                          | Y             | VideoCapture Board directly from REAN3 on BT06-2 console<br>Y% if upgraded from BT06-2/V65x~ (with REAN3)                                                                                                  |
| 5169391                                   | ? YC Cable (S-Video)                         | N                                       | Y%                                   | Y                                          | Y             | Cable that connects VideoCapture Board between REAN3 on BT06-2 console<br>Y% if upgraded from BT06-2/V65x~ (with REAN3)                                                                                    |
| 2384944                                   | P9536CE DGPCIO/VIC_SVC                       | N                                       | N                                    | N                                          | N             | Only supported by BEP2. Even if BEP2 mounted, if PCVIC is mounted, order PC2IO/VIC for BT01 console.                                                                                                       |
| 5133526                                   | DGPCIO VIC 2-A ASSY                          | Y                                       | Y                                    | Y                                          | N             | Updated for LCD                                                                                                                                                                                            |
| 2389075                                   | ? PCI CABLE                                  | Y                                       | Y                                    | Y                                          | Y             |                                                                                                                                                                                                            |
| 5301220-2                                 | PCI-DGVIC2 Assembly                          | N                                       | N                                    | N                                          | Y             |                                                                                                                                                                                                            |
| 5257226                                   | BulkHead for L7 and LS6                      | N                                       | N                                    | N                                          | Y             |                                                                                                                                                                                                            |
| 5257231                                   | Cable13 for BulkHead                         | N                                       | N                                    | N                                          | Y             |                                                                                                                                                                                                            |
| 5257233                                   | Cable25 for BulkHead                         | N                                       | N                                    | N                                          | Y             |                                                                                                                                                                                                            |

Figure 5-30 Backend - FRU Compatibility

5-2-1-6 Power Units

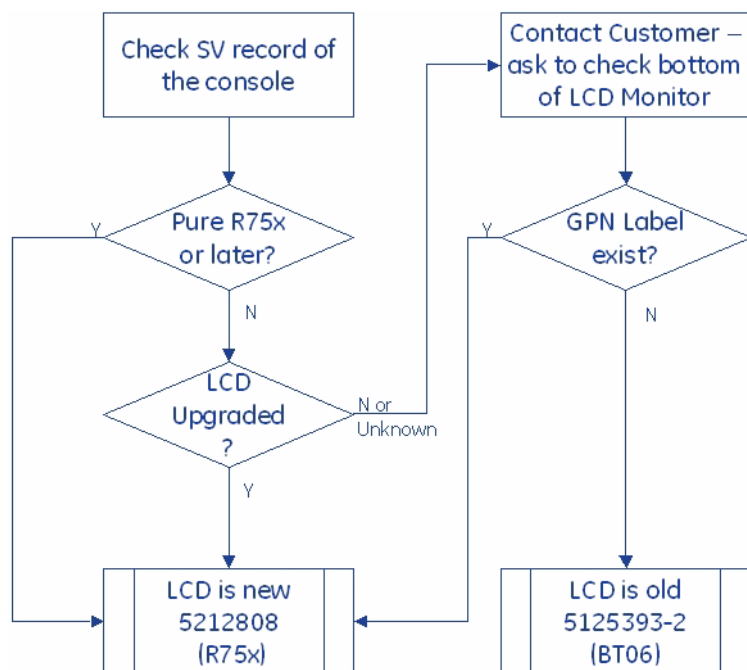
| <b><i>FRU compatibility</i></b><br><b><i>BT09 ~</i></b> |                                 | R8.0.x                                 | R8.0.x                               | R8.0.x                                     | R8.0.x        | <i>Latest Software</i>                                           |
|---------------------------------------------------------|---------------------------------|----------------------------------------|--------------------------------------|--------------------------------------------|---------------|------------------------------------------------------------------|
| FRU Part#                                               | Description                     | SW Upgraded BT09 (w BT02/BT03 console) | SW Upgraded BT09 from BT04/BT06/BT07 | 19 inch LCD Upgraded BT09 from 17 inch LCD | R8.0.X (BEP4) | comment                                                          |
| 2304538-4                                               | P9534WP AC POWER BOX 200V       | Y                                      | N                                    | N                                          | N             | Include AC BOX, AC Code, and extention cable                     |
| 2384371                                                 | P9534XL AC POWER BOX ASSY JPN   | Y                                      | N                                    | N                                          | N             | Include AC BOX, AC Code, and extention cable<br>(Only for Japan) |
| 2384370                                                 | P9534XP AC POWER BOX ASSY 100V  | Y                                      | N                                    | N                                          | N             | Include AC BOX, AC Code, and extention cable<br>(not for Japan)  |
| 2304624                                                 | P9538JC CONSOLE FAN SSY         | N                                      | N                                    | N                                          | N             |                                                                  |
| 5117493                                                 | CONSOLE FAN ASSY 2 CSL L7       | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5122614                                                 | CONSOLE FAN ASSY-A UPG L7       | Y                                      | N                                    | N                                          | N             | Only for Upgraded BT04 from BT01/02/03                           |
| 2372387                                                 | P9534XH L7HV-SVC                | Y                                      | Y                                    | Y                                          | Y             |                                                                  |
| 2334197                                                 | P9534WU LV-2 SERVICE UNIT       | Y                                      | N                                    | N                                          | N             | Compatible with 2283531 (LV)                                     |
| 2292209                                                 | P9534WF SSR PANEL               | Y                                      | N                                    | N                                          | N             |                                                                  |
| 2315585                                                 | P9534WR FUSE FOR SSR PANEL      | Y                                      | N                                    | N                                          | N             |                                                                  |
| 2283530                                                 | P9534WB MAIN TRANS              | Y                                      | N                                    | N                                          | N             |                                                                  |
| 2373331-2                                               | MAIN TRANS2 ASSY CSL L7         | Y                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117721                                                 | LV-04 UNIT MAIN PS L7           | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5118824-2                                               | LV-04 UNIT with Cables          | N                                      | Y                                    | Y                                          | Y             | Noise Improvement                                                |
| 5117723                                                 | NF INLET ASSY MAIN PS L7        | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117724                                                 | AC IN OUT 100V MAIN PS L7       | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117725                                                 | AC IN OUT 200V MAIN PS L7       | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5118052                                                 | AC IN200 OUT100 ASSY MAIN PS L7 | N                                      | Y                                    | Y                                          | Y             | Only for Korea System                                            |
| 5117726                                                 | SSR PCB ASSY MAIN PS L7         | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117727                                                 | FUSE HOLDER MAIN PS L7          | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117728-3                                               | CONN ASSY MAIN PS L7            | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5119119                                                 | SSR-HLV CABLE                   | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5119120                                                 | SSR-AC PANEL CABLE              | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5119121                                                 | VOLTAGE SEL CABLE               | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 2301858-3                                               | ? PW SW ASSY                    | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117493                                                 | CONSOLE FAN ASSY2               | N                                      | Y                                    | Y                                          | Y             |                                                                  |
| 5117491                                                 | FAN CABLE BRAKET ASSY           | N                                      | Y                                    | Y                                          | Y             |                                                                  |

Figure 5-31 Power Units- FRU Compatibility

## 5-2-2 Hardware Identification Tip

### 5-2-2-1 LCD Monitor Differences

The flowchart below describes how to differentiate LCD monitor type.



GPN Identification Mark  
(Bottom of LCD monitor)

Figure 5-32 LCD monitor- How to Differentiate



### 5-2-2-1 LCD Monitor Differences (cont'd)

LCD Variation Tips:

- Bezel Shape
  - Curvy for 17 inch
  - Straight for 19 inch
- GE Logo
  - Silver for 17 inch
  - Silver on black background for 19 inch

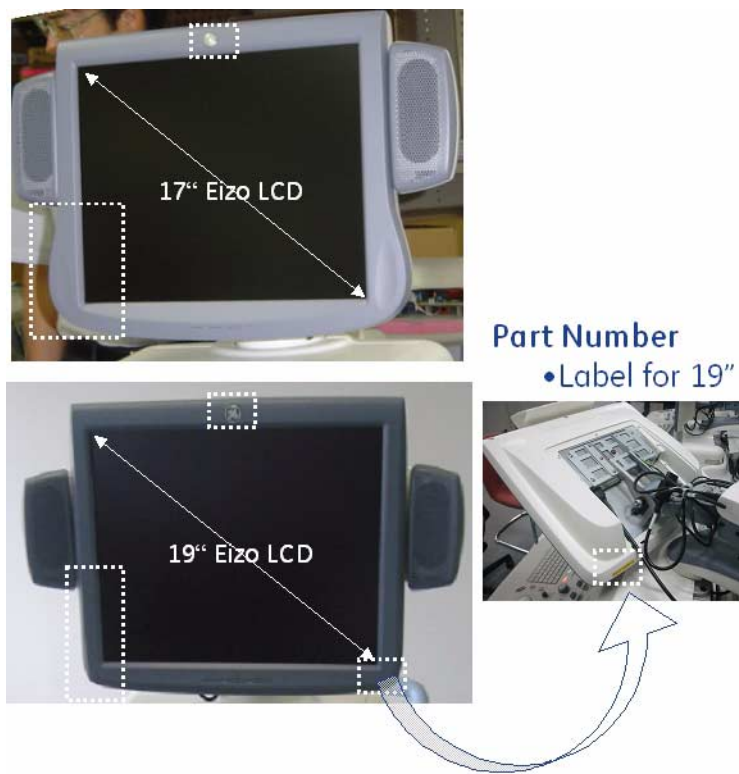


Figure 5-33 LCD Variation Tips

5-2-2-2      BT09\_SV\_BEP4 Configuration Variationos

| Config                     | Software | Console                         | Note                                                                                                      |
|----------------------------|----------|---------------------------------|-----------------------------------------------------------------------------------------------------------|
| BT09 Original<br>(BEP4)    | R8.x.x   | BT04/BT06/B<br>T07/BT09<br>base | • Utility Menu shows Ghost Part Number<br>• REAR Panel have GPN printed :<br>5304518 : REAR CONN4 ASSY L7 |
| Upgraded to BT09<br>(BEP3) | R8.x.x   | BT04/BT06/<br>BT07 base         | • Utility Menu shows Ghost Part Number<br>• NO Rear Panel markings                                        |
| MD-3000 USB                | N/A      | N/A                             | • Label "RS232C Not Available" on back                                                                    |

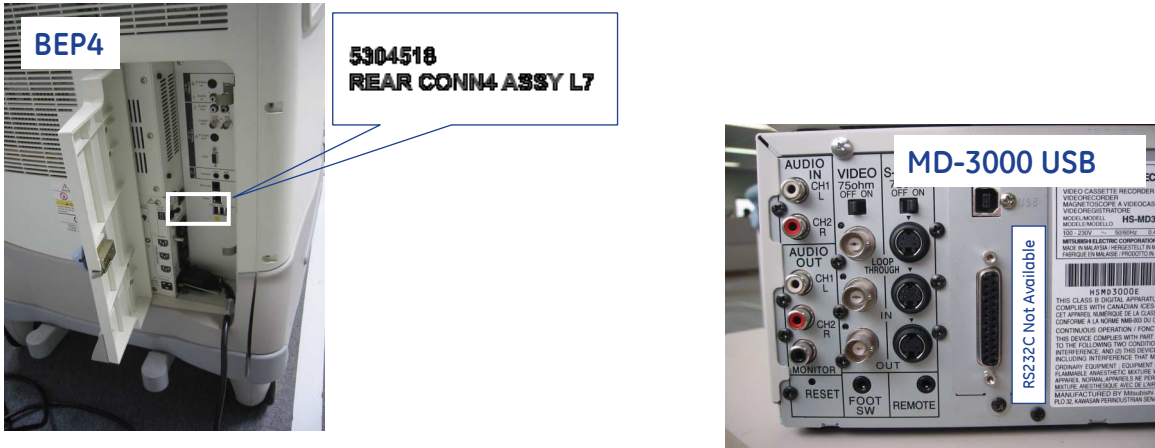


Figure 5-34    BT09 Configuration Variations

## Section 5-3 Peripheral Compatibility

**NOTE:** For SONY D21MD (or D23MD) color printer ONLY:  
The D21MD (or D23MD) printer contains the L-sized ribbon cassette and paper as a standard. However, the S-sized paper is recommended for LOGIQ 7 system. If the S-sized paper is used with the L-sized ribbon cassette, "Incorrect paper size setting" error occurs with no print. So, when using the S-sized paper, change the ribbon cassette to the S-sized.

| List of All Supported Printers                                                                                                                           |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   | ●: Supported<br>Blank: No Support |                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|---------------------------|---------------------------|---------------------------|-------------------------------|----------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------------|-----------------------------------------------|-----------------------------------|-----------------------------------|---------------------------------|
| Product<br>Version                                                                                                                                       | Ghost Number | Printer Name | LOGIQ 7                   |                           |                           |                               |                                  |                           | LOGIQ S6                    |                             |                             |                                     |                                               |                                   | Other                             |                                 |
|                                                                                                                                                          |              |              | BT04<br>R4.2.1<br>5137307 | BT04<br>R5.0.6<br>5146100 | BT06<br>R6.0.3<br>5146100 | BT06-2<br>R6.2.1<br>5174668-2 | BT06-2<br>L7 R6.2.2<br>5174668-2 | V65x<br>R6.5.0<br>5182424 | BT07<br>R7.0.x<br>5191839-2 | BT07<br>R7.5.x<br>5191839-2 | BT09<br>R8.0.x<br>5305206-3 | LS6 BT06<br>LS6 R6.1.x<br>5170144-2 | LS6 BT06<br>LS6 BT06<br>LS6 R6.2.x<br>5194288 | LS6 BT08<br>LS6 R7.6.x<br>5252046 |                                   | Driver/CD Kit<br>—<br>5115568-2 |
| Canon                                                                                                                                                    |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| PIXUS 550i                                                                                                                                               |              | ●            |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| PIXUS 560i                                                                                                                                               |              | ●            |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| PIXUS 860i                                                                                                                                               |              |              | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PIXUS 960i                                                                                                                                               |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PIXUS IP7500                                                                                                                                             |              |              |                           |                           |                           | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PIXUS IP8600                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PIXUS IP4500                                                                                                                                             |              |              |                           |                           |                           |                               |                                  |                           |                             |                             | ●                           |                                     |                                               |                                   |                                   |                                 |
| EPSON                                                                                                                                                    |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| PM-870C                                                                                                                                                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PM-G730                                                                                                                                                  |              |              |                           |                           |                           | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PM-C800                                                                                                                                                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PX-C900                                                                                                                                                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PX-C920                                                                                                                                                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| PM-C860                                                                                                                                                  |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             | ●                                   |                                               |                                   |                                   |                                 |
| HP                                                                                                                                                       |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| Deskjet 5600                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| Deskjet 6122                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| Deskjet 6500                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| Deskjet 6800                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| Deskjet 890C                                                                                                                                             |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| SONY                                                                                                                                                     |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| UP-D21MD                                                                                                                                                 |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| UP-D23MD                                                                                                                                                 |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| UP-D50                                                                                                                                                   |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| UP-D55                                                                                                                                                   |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| UP-D895                                                                                                                                                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| UP-D897                                                                                                                                                  |              |              |                           |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                             | ●                                 | ●                                 |                                 |
| MITSUBISHI                                                                                                                                               |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| P91DW                                                                                                                                                    |              | ●            |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| CP900                                                                                                                                                    |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |
| Note 1: If System has SCSI-MOD, UP-D51 does not work.<br>Note 2: R8.0.x support slightly different version of UP-D897, for improved print response time. |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                               |                                   |                                   |                                 |

| List of All Supported VCR/DVD Video |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                     |                                   | ●: Supported<br>Blank: No Support |                                 |
|-------------------------------------|--------------|--------------|---------------------------|---------------------------|---------------------------|-------------------------------|----------------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|-------------------------------------|-------------------------------------|-----------------------------------|-----------------------------------|---------------------------------|
| Product<br>Version                  | Ghost Number | VCR DVD Name | LOGIQ 7                   |                           |                           |                               |                                  |                           | LOGIQ S6                    |                             |                             |                                     |                                     |                                   | Other                             |                                 |
|                                     |              |              | BT04<br>R4.2.1<br>5137307 | BT04<br>R5.0.6<br>5146100 | BT06<br>R6.0.3<br>5146100 | BT06-2<br>R6.2.1<br>5174668-2 | BT06-2<br>L7 R6.2.2<br>5174668-2 | V65x<br>R6.5.0<br>5182424 | BT07<br>R7.5.1<br>5191839-2 | BT07<br>R7.5.1<br>5191839-2 | BT09<br>Ver8.0<br>5305206-3 | LS6 BT06<br>LS6 R6.1.2<br>5170144-2 | LS6 BT06<br>LS6 R6.2.2/3<br>5194288 | LS6 BT08<br>LS6 R7.6.0<br>5252046 |                                   | Driver/CD kit<br>—<br>5115568-2 |
| MITSUBISHI                          |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                     |                                   |                                   |                                 |
| VCR MD3000 Serial                   |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                   | ●                                 | ●                                 |                                 |
| VCR MD3000 USB                      |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                     |                                   |                                   |                                 |
| Panasonic                           |              |              |                           |                           |                           |                               |                                  |                           |                             |                             |                             |                                     |                                     |                                   |                                   |                                 |
| DVD Video LG-MD900                  |              | ●            | ●                         |                           | ●                         | ●                             | ●                                | ●                         | ●                           | ●                           | ●                           | ●                                   | ●                                   | ●                                 | ●                                 |                                 |

Figure 5-35 Peripheral Compatibility

## Section 5-4 Block Diagrams and Theory

### 5-4-1 Block Diagram (R7.5.x or later, 19 inch LCD model)

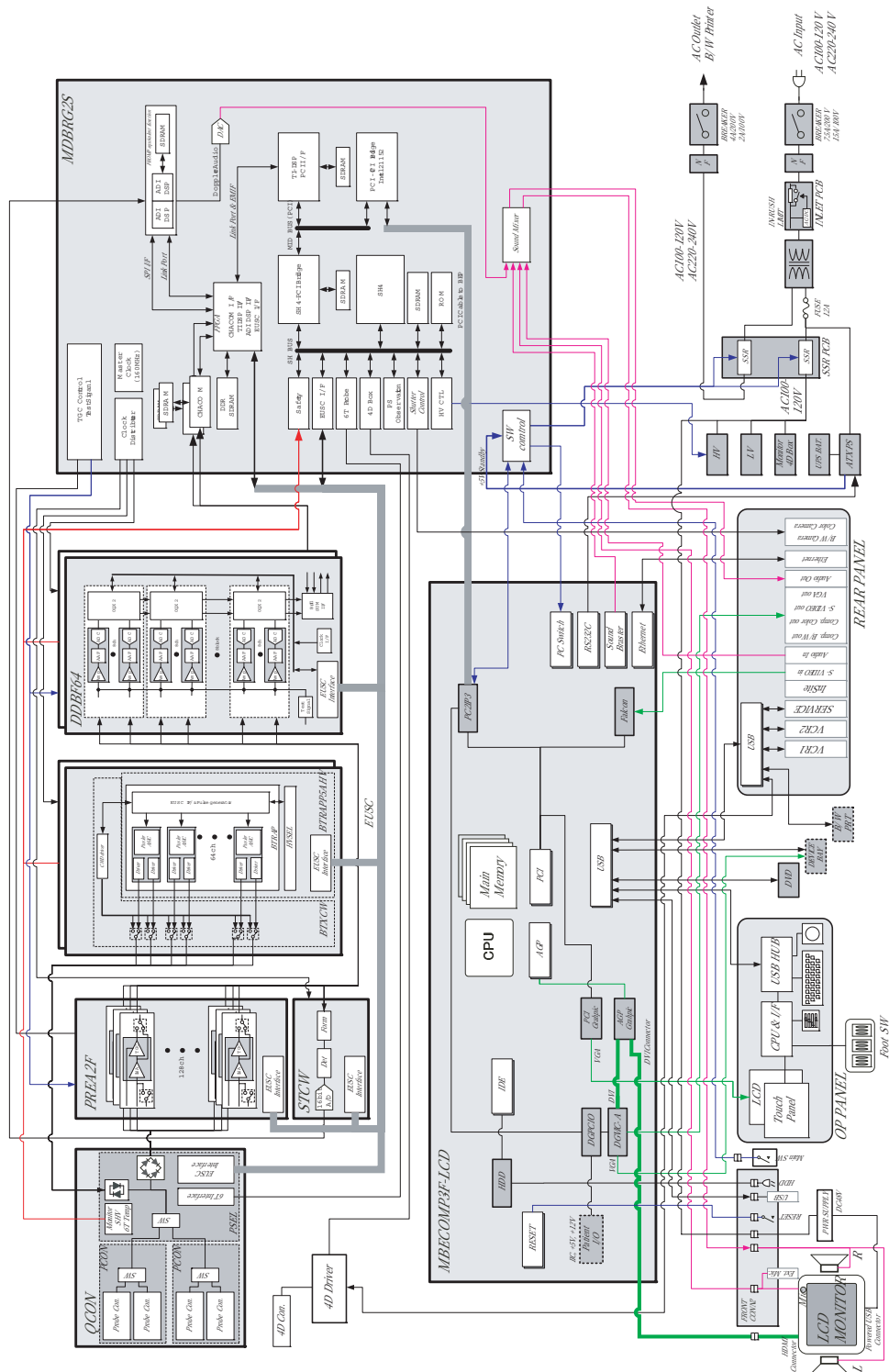


Figure 5-36 System Block Diagram (R7.5.x or later)

## 5-4-2 General Information

- LOGIQ™ 7 is a phased and linear array ultrasound imaging scanner. It has provisions for analog input sources like ECG and phono. A dedicated Doppler probe may also be connected and used.
- The system can be used for:
  - 2D Black and White imaging
  - 2D Color Flow
  - M-Mode Black and White imaging
  - Color M-Mode
  - Doppler
  - a number of combinations of the above
- LOGIQ™ 7 is a digital beam forming system that can handle up to 192 element linear probes through multiplexing.
- Signal flow from the Probe Connector Panel to the Front End, to the Mid Processors and Back End Processor and finally to the monitor and peripherals.
- System configuration is stored on a hard disk and all necessary software is loaded from the hard disk on power up.

## 5-4-3 CPU/Back End Processor (For BEP4 for BT09 or later)

### 5-4-3-1 BEP4 Signal Connections

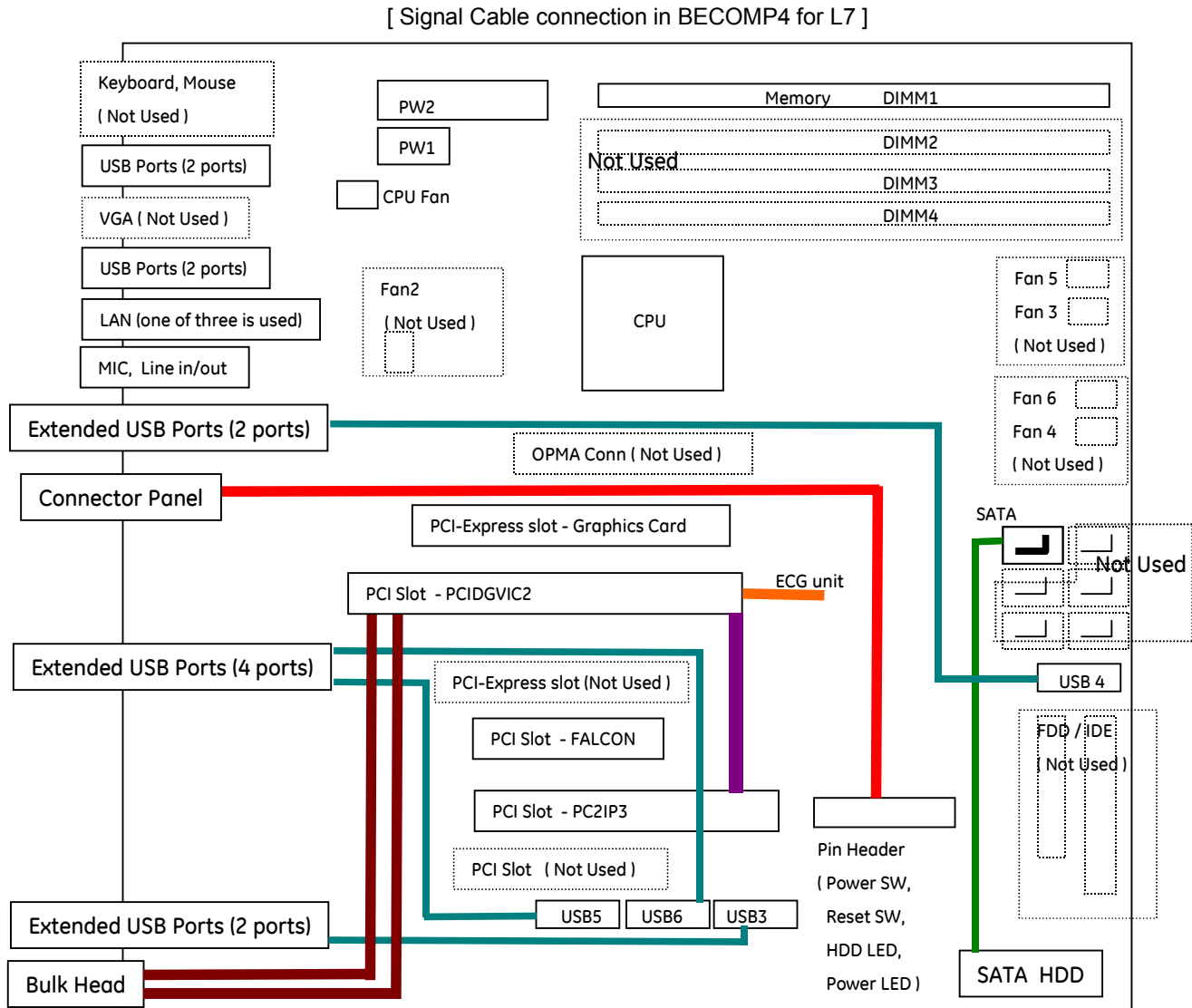


Figure 5-37 BEP4 Signal Cable Connection

### 5-4-3-2 BEP4 Devices/Connectors

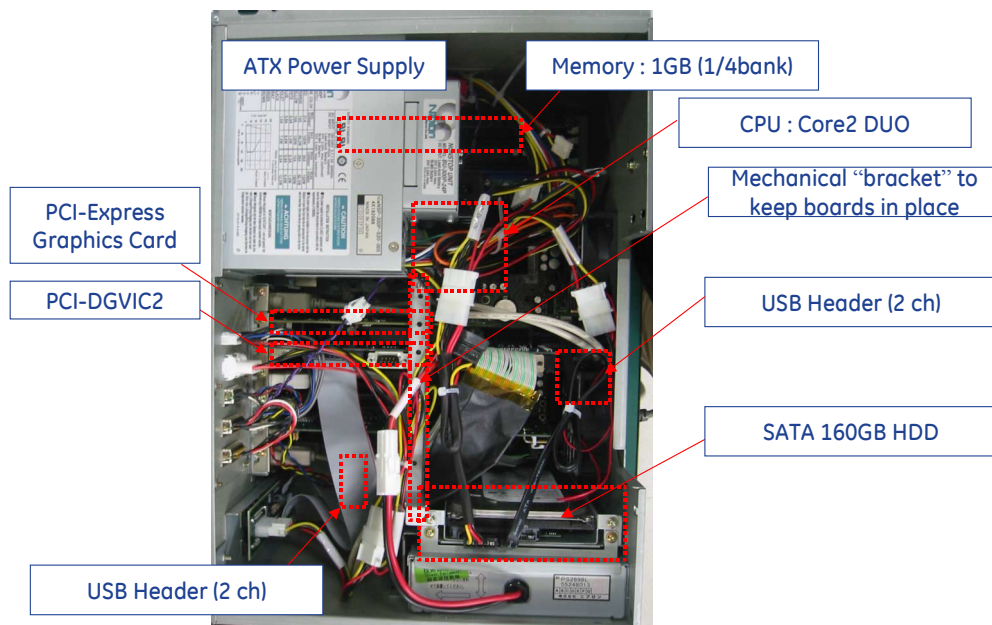
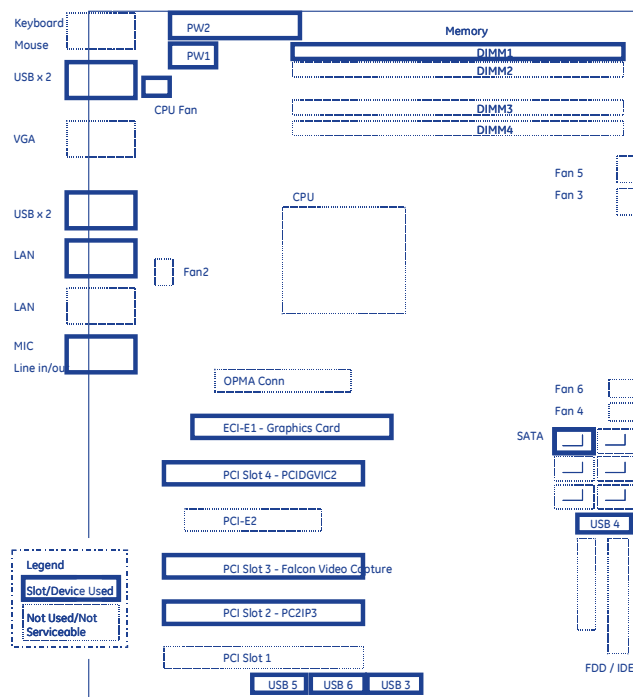


Figure 5-38 BEP4 Physical Configuration



BEP4 Motherboard  
- Internal Connector Locations

| Device/Connector | Description            |
|------------------|------------------------|
| PW1              | 4 pin CPU Power Conn   |
| PW2              | Connects to ATX Power  |
| CPU Fan          | Connects to CPU Fan    |
| Memory           | 1GB DDR2 at DIMM1 slot |
| SATA             | Connects to 160GB HDD  |
| USB3             | USB Ext. (2Ch, Bottom) |
| USB4             | USB Ext. (2Ch, Top)    |
| USB5/6           | USB Ext. (4Ch)         |
| PCI-E1           | P690 Graphics Board    |
| PCI-Slot 4       | PCI-DGVIC2             |
| PCI-Slot 3       | Falcon Video Capture   |
| PCI-Slot 2       | PC2IP3 Comm Board      |

Figure 5-39 BEP4 Components

### 5-4-3-3 BEP4 Power Connections

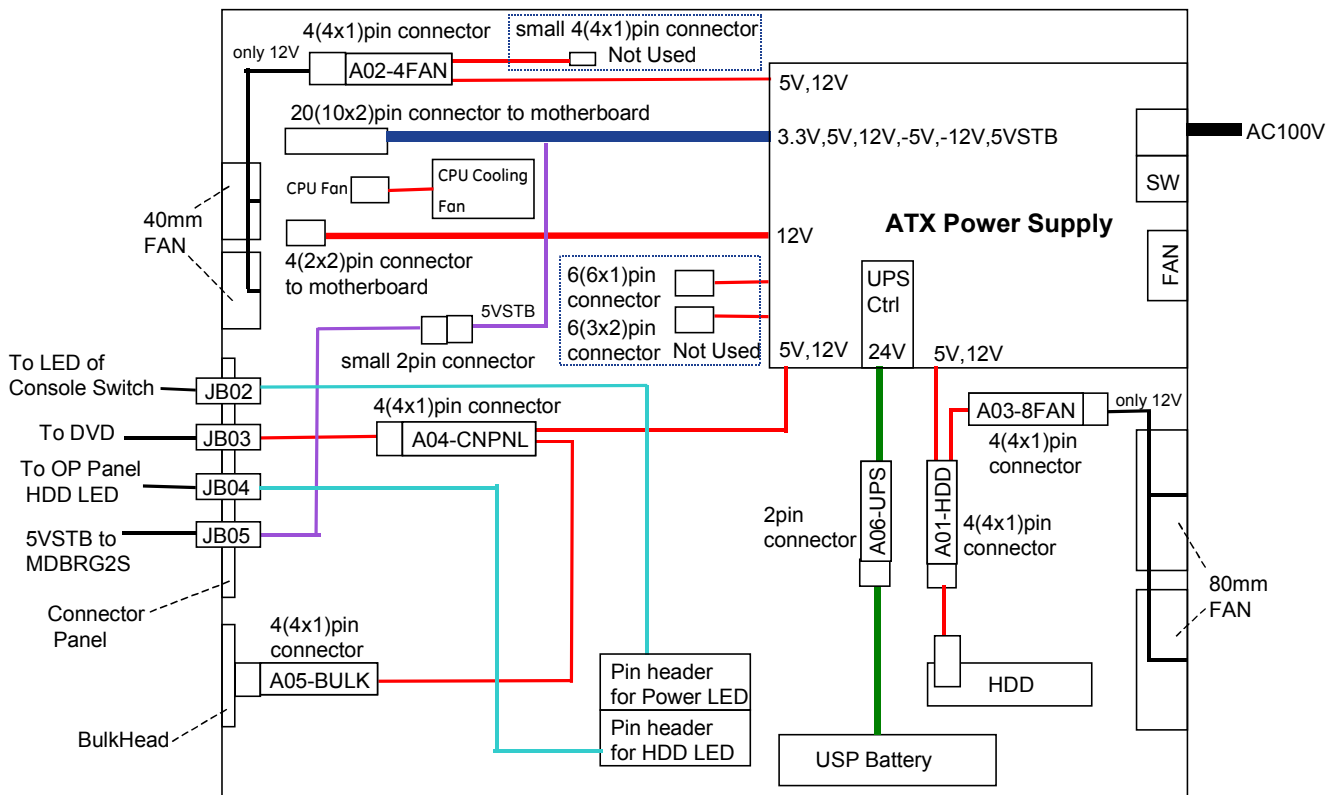


Figure 5-40 BEP4 AC line and DC line connection Connections



5-4-3-4 BEP4 BIOS Default Values

| TAB  | Top Menu            | Sub Menu1                   | Sub Menu2 | Sub Menu3 | GEYMS Custom Setting Ver.7008 |
|------|---------------------|-----------------------------|-----------|-----------|-------------------------------|
| Main | System Time         |                             |           |           | -                             |
|      | System Date         |                             |           |           | -                             |
|      | Legacy Diskette A:  |                             |           |           | Disabled                      |
|      | STAT Port 1         | Type                        |           |           | Auto                          |
|      |                     | Multi-Sector Transfers      |           |           | 16Sector (gray out)           |
|      |                     | LBA Mode Control            |           |           | Enable (gray out)             |
|      |                     | 32 Bit I/O                  |           |           |                               |
|      |                     | Transfer Mode               |           |           | FPIO4/DMA2 (gray out)         |
|      |                     | Ultra DMA Mode              |           |           | Mode5 (gray out)              |
|      | STAT Port 2         |                             |           |           | -                             |
|      | STAT Port 3         |                             |           |           | -                             |
|      | STAT Port 4         |                             |           |           | -                             |
|      | STAT Port 5         |                             |           |           | -                             |
|      | STAT Port 6         |                             |           |           | -                             |
|      | Ext. Primary Master |                             |           |           | -                             |
|      | Ext. Primary Slave  |                             |           |           | -                             |
|      | Memory Cache        | Cache System BIOS area      |           |           | Write Protect                 |
|      |                     | Cache Video BIOS area       |           |           | Write Protect                 |
|      |                     | Cache Base 0-512k           |           |           | Write Back                    |
|      |                     | Cache Base 512k-640k        |           |           | Write Back                    |
|      |                     | Cache Extended Memory Area  |           |           | Write Back                    |
|      |                     | Cache A000 - AFFF           |           |           | Disabled                      |
|      |                     | Cache B000 - BFFF           |           |           | Disabled                      |
|      |                     | Cache C800 - CBFF           |           |           | Disabled                      |
|      |                     | Cache CC00 - CFFF           |           |           | Disabled                      |
|      |                     | Cache D000 - D3FF           |           |           | Disabled                      |
|      |                     | Cache D400 - D7FF           |           |           | Disabled                      |
|      |                     | Cache D800 - DBFF           |           |           | Disabled                      |
|      |                     | Cache DC00 - DFFF           |           |           | Disabled                      |
|      |                     | Cache E000 - E3FF           |           |           | Write Protect                 |
|      |                     | Cache E400 - E7FF           |           |           | Write Protect                 |
|      |                     | Cache E800 - EBFF           |           |           | Write Protect                 |
|      |                     | Cache EC00 - EFFF           |           |           | Write Protect                 |
|      | Boot Features       | Floppy check                |           |           | Disabled                      |
|      |                     | Halt on Errors              |           |           | ALL Errors                    |
|      |                     | Keyboard Error Report       |           |           | Enabled                       |
|      |                     | Summary screen              |           |           | Disabled                      |
|      |                     | Boot-time Diagnostic Screen |           |           | Disabled                      |
|      |                     | QuickBoot Mode              |           |           | Enabled                       |
|      |                     | Extended Memory Testing     |           |           | Just zero it                  |

| TAB      | Top Menu                   | Sub Menu1                          | Sub Menu2            | Sub Menu3                 | GEYMS Custom Setting Ver.7008 |
|----------|----------------------------|------------------------------------|----------------------|---------------------------|-------------------------------|
| Advanced | Advanced Chipset Control   | Integrated Device Control Sub-Menu | LAN Control Sub-Menu | LAN1                      | Enabled                       |
|          |                            |                                    |                      | LAN1 Option ROM Scan      | Disabled                      |
|          |                            |                                    |                      | LAN2                      | Disabled                      |
|          |                            |                                    |                      | LAN2 Option ROM Scan      |                               |
|          |                            |                                    | USB Dev #29          |                           | Fun #0,1,2,3,7                |
|          |                            |                                    | USB Dev #26          |                           | Fun #0,1,7                    |
|          |                            | PCI Express Sub-Menu               | PCI-E1 Sub-Menu      | PCI Express Graphics Port | Auto                          |
|          |                            |                                    | PCI-E2 Sub-Menu      | PCI -E Port 1             | Auto                          |
|          |                            | WatchDog Mode                      |                      |                           | Disable                       |
|          |                            | Memory Raclaiming                  |                      |                           | Enabled                       |
|          |                            | Default Primary Video Adapter      |                      |                           | Auto                          |
|          |                            | IGD -Device 2:                     |                      |                           | Auto                          |
|          |                            | IDG - Device 2, Function 1:        |                      |                           | Auto                          |
|          |                            | DVMT 4.0 Mode:                     |                      |                           | Auto                          |
|          |                            | Azalia Audio                       |                      |                           | Auto                          |
|          |                            | Enable Multimedia Timer            |                      |                           | No                            |
|          |                            | Serial ATA                         |                      |                           | Enabled                       |
|          |                            | Native Mode Operation              |                      |                           | Auto                          |
|          |                            | SATA RAID Enable                   |                      |                           | Disabled                      |
|          |                            | SATA AHCI Enable                   |                      |                           | Disabled                      |
|          | Advanced Processor Options | Core Multi-Processing              |                      |                           | Enabled                       |
|          |                            | Machine Checking                   |                      |                           | Enabled                       |
|          |                            | Compatible FPU Code                |                      |                           | Disabled                      |
|          |                            | Thermal Management 2               |                      |                           | Enabled                       |
|          |                            | Set Max Ext CPUID = 3              |                      |                           | Disabled                      |
|          |                            | C1 Enhanced Mode                   |                      |                           | Disabled                      |
|          |                            | PECI Interface                     |                      |                           | Enabled                       |
|          |                            | No Execute Mode Mem Protection     |                      |                           | Enabled                       |
|          |                            | Processor Power Management         |                      |                           | GV1/GV3 Only                  |
|          | I/O Device Configuration   | Floppy disk controller             |                      |                           | Enable                        |
|          |                            | Serial Port A:                     |                      |                           | Enable                        |
|          |                            | Base I/O address:                  |                      |                           | 3F8                           |
|          |                            | Interrupt:                         |                      |                           | IRQ 4                         |
|          |                            | Serial Port B:                     |                      |                           | Enable                        |
|          |                            | Mode:                              |                      |                           | Normal                        |
|          |                            | Base I/O address:                  |                      |                           | 2F8                           |
|          |                            | Interrupt:                         |                      |                           | IRQ 3                         |

| TAB                  | Top Menu                 | Sub Menu1                                                               | Sub Menu2 | Sub Menu3 | GEYMS Custom Setting Ver.7008 |
|----------------------|--------------------------|-------------------------------------------------------------------------|-----------|-----------|-------------------------------|
| Advanced<br>(Cont'd) | DMI Event Logging        | View DMI event log                                                      |           |           | -                             |
|                      |                          | Event Logging                                                           |           |           | Enabled                       |
|                      |                          | Mark DMI events as read                                                 |           |           | -                             |
|                      |                          | Clear all DMI event logs                                                |           |           | No                            |
|                      | Reset Configuration Data |                                                                         |           |           | No                            |
|                      | Large Disk Access Mode   |                                                                         |           |           | Dos                           |
|                      | Legacy USB Support       |                                                                         |           |           | Enabled                       |
|                      | Hardware Monitor         | (Fan Rotation number and CPU temperature, etc., appears on the screen.) |           |           | -                             |
|                      |                          | Voltage Monitoring                                                      |           |           | -                             |
|                      |                          | FAN Fail LED Indicator                                                  |           |           | Disabled                      |
|                      |                          | Auto Fan Control                                                        |           |           | Enabled                       |
|                      | Console Redirection      | Com Port Address                                                        |           |           | Disabled                      |
|                      |                          | Baud Rate                                                               |           |           | 19.2K                         |
|                      |                          | Console Type                                                            |           |           | PC ANSI                       |
|                      |                          | Flow Control                                                            |           |           | CTS/RTS                       |
|                      |                          | Console Connection                                                      |           |           | Direct                        |
|                      |                          | Continue C.R. after POST                                                |           |           | Off                           |
| Security             | Set Supervisor Password  |                                                                         |           |           | Set                           |
|                      | Set User Password        |                                                                         |           |           | Clear                         |
|                      | Diskette access:         |                                                                         |           |           | Supervisor                    |
|                      | Fixed disk boot sector:  |                                                                         |           |           | Normal                        |
|                      | Password on boot:        |                                                                         |           |           | Disable                       |
| Power                | (Blank)                  |                                                                         |           |           | S1                            |
|                      | Resume On Time           |                                                                         |           |           | Off                           |
|                      | Resume Time              |                                                                         |           |           | 0:00:00                       |
|                      | Chassis Intrusion Detect |                                                                         |           |           | No                            |
|                      | Power On By PCI          |                                                                         |           |           | Disabled                      |
|                      | After Power Failur       |                                                                         |           |           | Stay Off                      |
| Boot                 | Boot priority order      |                                                                         |           |           | -                             |
|                      | 1                        |                                                                         |           |           | USB CDROM                     |
|                      | 2                        |                                                                         |           |           | IDE CD                        |
|                      | 3                        |                                                                         |           |           | SATA 1                        |
|                      | 4                        |                                                                         |           |           | -                             |
|                      | 5                        |                                                                         |           |           | -                             |
|                      | 6                        |                                                                         |           |           | -                             |
|                      | 7                        |                                                                         |           |           | -                             |
|                      | 8                        |                                                                         |           |           | -                             |

| TAB  | Top Menu                | Sub Menu1 | Sub Menu2 | Sub Menu3 | GEYMS Custom Setting Ver.7008 |
|------|-------------------------|-----------|-----------|-----------|-------------------------------|
| Exit | Exit Saving Changes     |           |           |           | -                             |
|      | Exit Discarding Changes |           |           |           | -                             |
|      | Load Setup Defaults     |           |           |           | -                             |
|      | Discard Changes         |           |           |           | -                             |
|      | Save Changes            |           |           |           | -                             |

## 5-4-4 CPU/Back End Processor (For BT06-2 or later)

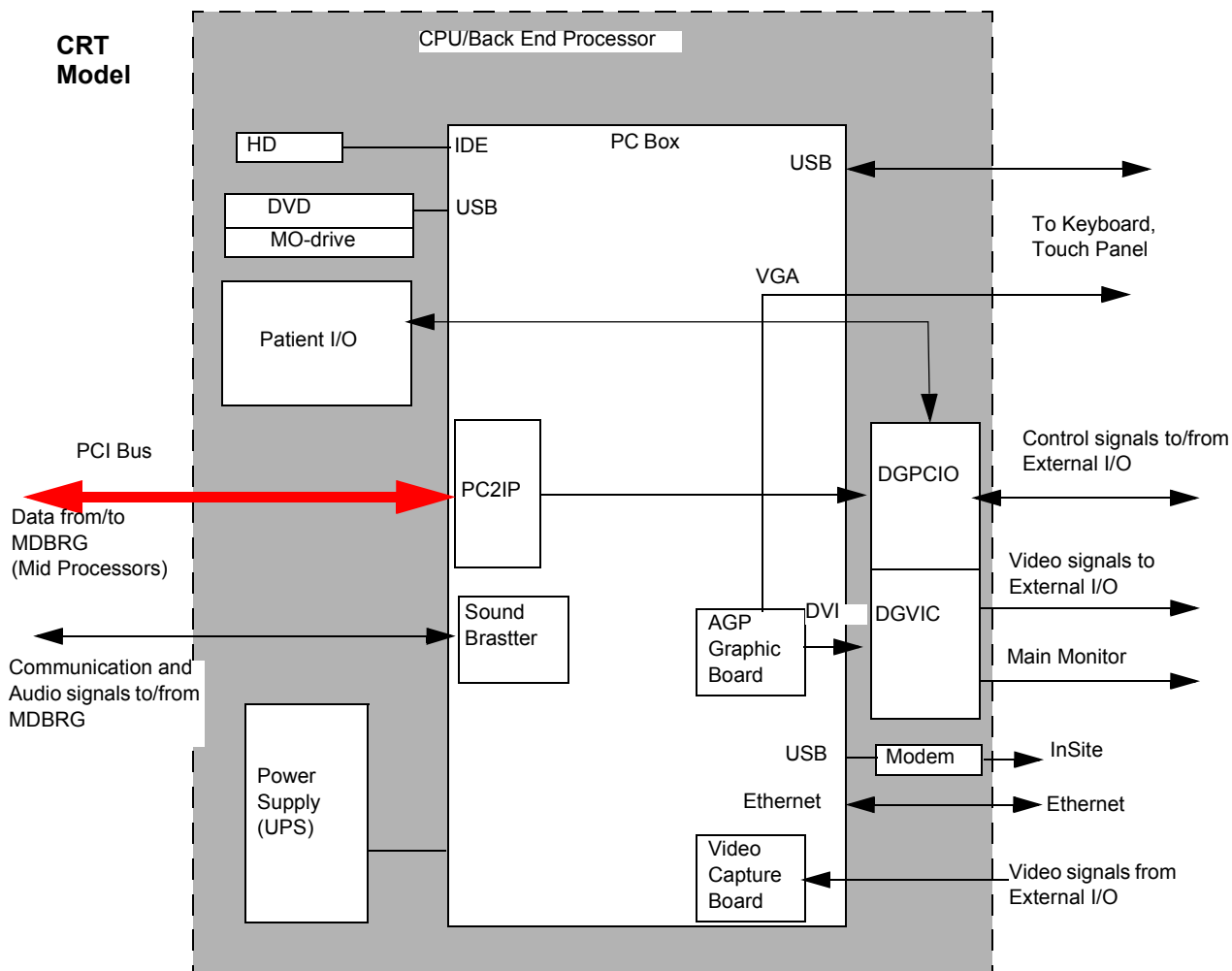


Figure 5-41 CPU/Backend Processor (BT06-2 or later, CRT)

#### 5-4-4 CPU/Back End Processor (For BT06-2 or later) (cont'd)

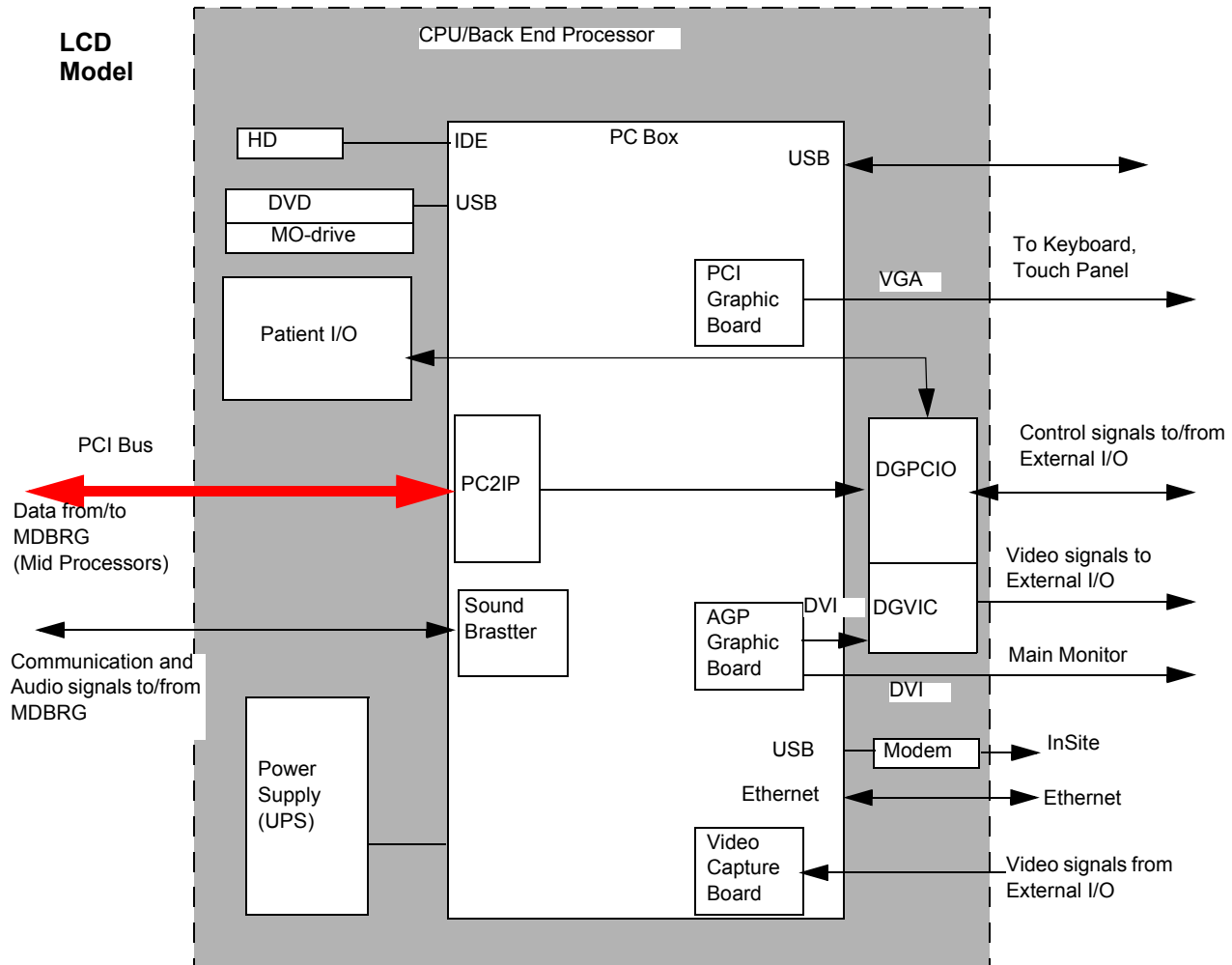


**Figure 5-42 CPU/Backend Processor (BT06-2 or later, LCD)**

The Back End Processor grabs the data from the Image Port, stores it in a memory, performs scan conversion to pixel domain and drives the system RGB monitor.

##### Storing Devices:

- Hard Disk Drive (HD Drive) (In the PC box)
- DVD Drive (Available from front of scanner).
- Optional Magneto Optical Drive (MO Drive) (Available from front of scanner).

#### **5-4-5 Patient I/O (Option)**

The optional Patient I/O is mounted at the front of the scanner with its connector panel.

**Available inputs:**

- PCG
- ECG
- AUX1
- AUX2

#### **5-4-6 Top Console**

The Top Console includes a Stand By/On switch, a keyboard, different controls for manipulating the picture quality, controls for use in Measure & Analyze (M&A), and loudspeakers for stereo sound output (used during Doppler scanning, inside the CRT monitor cover).

#### **5-4-7 External I/O (Rear Panel)**

The External I/O is the interface between the scanner and all external items, located at the rear side of the scanner.

Examples: InSite, TCP/IP network, Printer, etc.

#### **5-4-8 Peripherals**

A VCR, a Black & White Video Printer and a Color Printer may be installed onboard the scanner. These devices are connected to the External I/O (Rear Panel).

## 5-4-9 Interconnect Cabling (BT09 or later)

### 19 in LCD Model

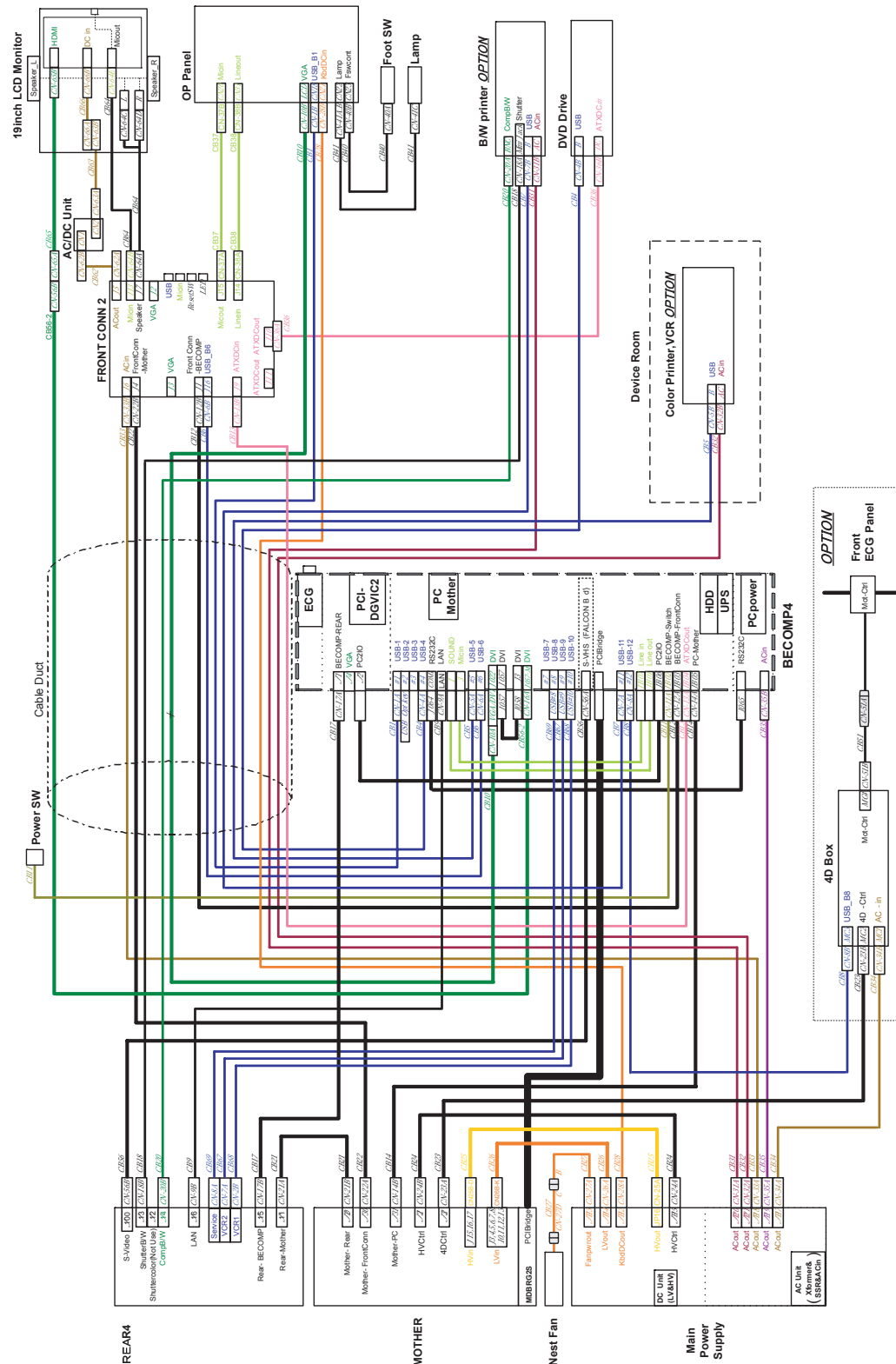


Figure 5-43 Interconnect cable connection (BT09 or later)



### 5-4-9 Interconnect Cabling (BT09 or later) (cont'd)

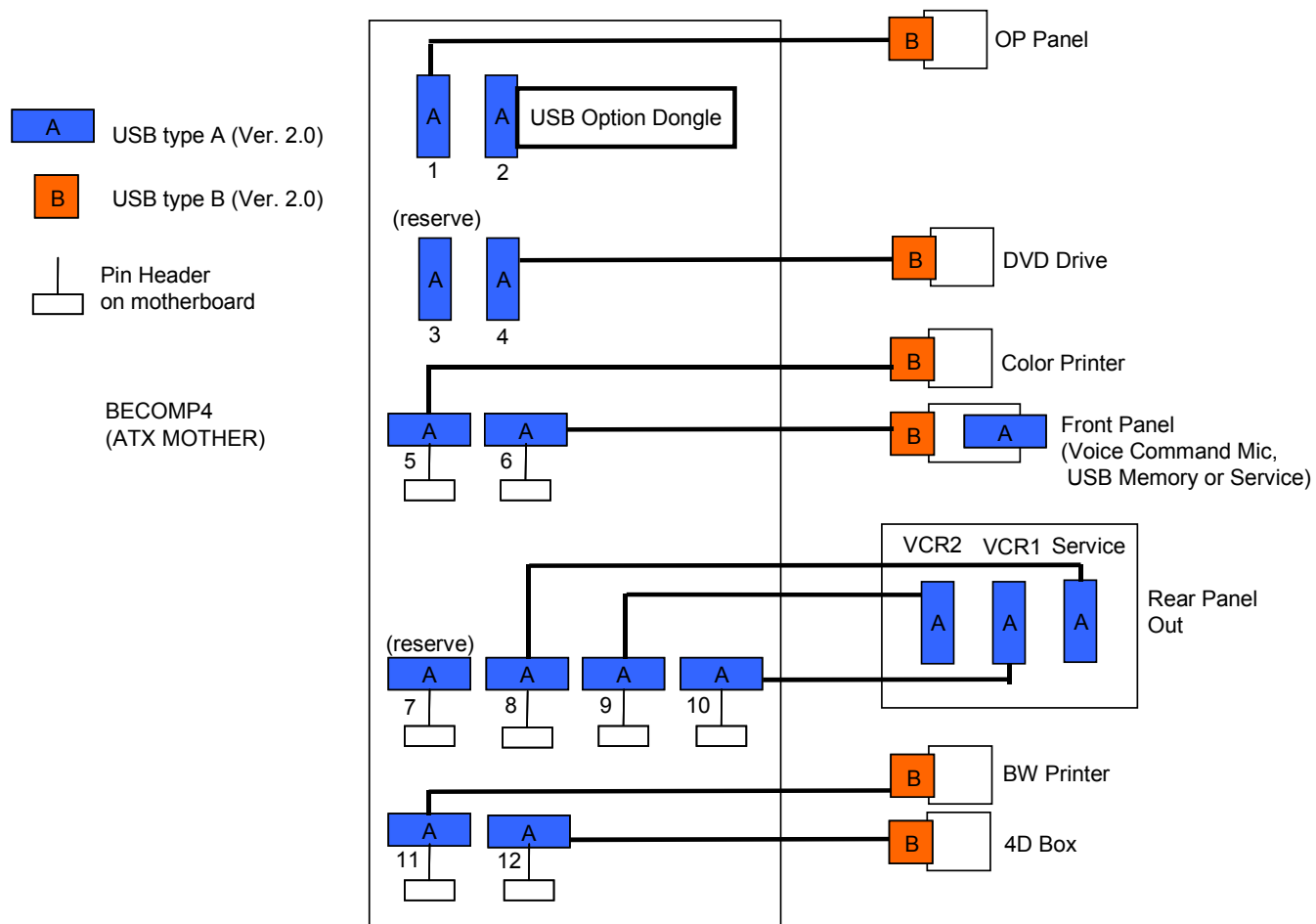


Figure 5-44 USB Connection (BT09 or later)

## 5-4-10 Difference points between BT07 (or later) and BT06 (or earlier) Systems for R7.5.x 17" to 19" LCD Monitor Upgrade

For BT06 or earlier system, the DVI cable is connected directly to the monitor from the BECOMP3 via the DVI-HDMI adapter.

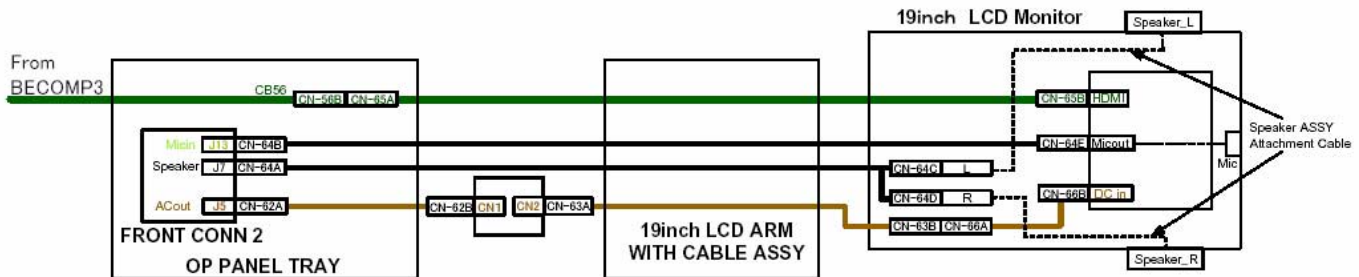


Figure 5-45 R7.5.x 17" to 19" LCD Monitor Upgrade (For BT07 or later)

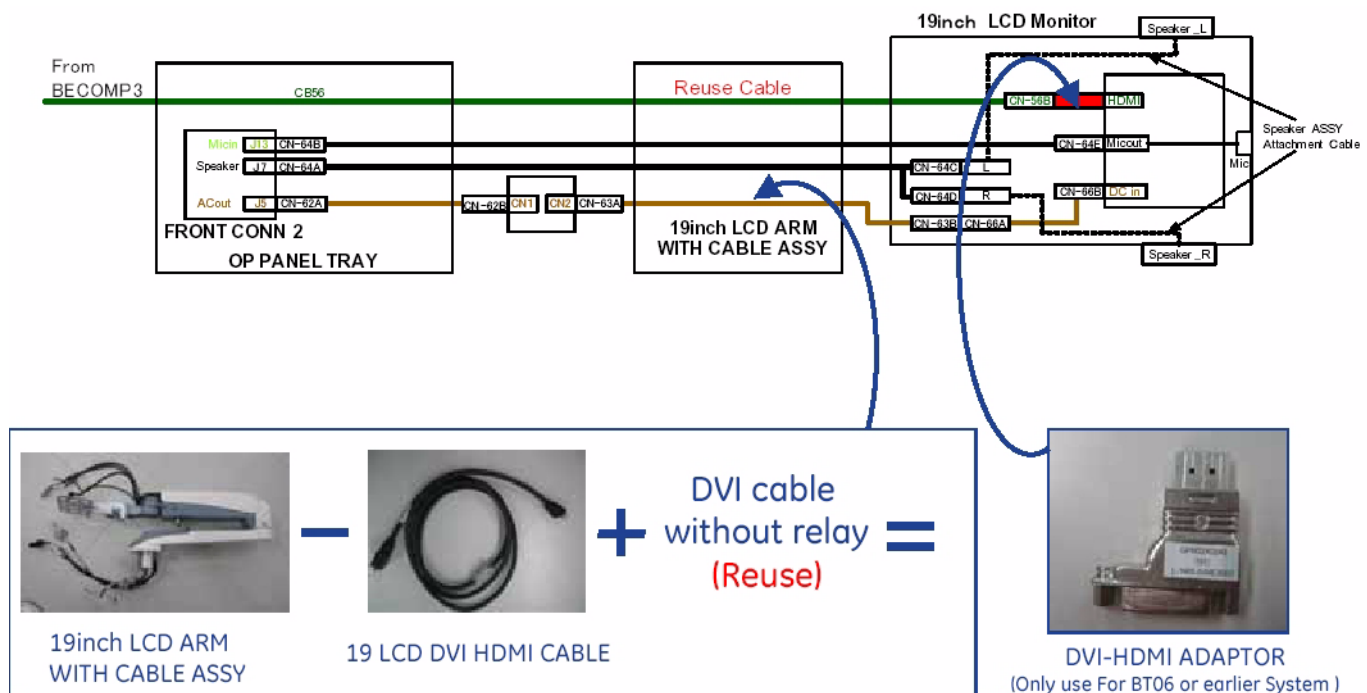


Figure 5-46 R7.5.x 17" to 19" LCD Monitor Upgrade (For BT06 or earlier)

## Section 5-5 Common Service Platform

### 5-5-1 Introduction

The Service Platform contains a set of software modules that are common to all PC backend ultrasound and cardiology systems. This web-enabled technology provides linkage to e-Services, e-Commerce, and the iCenter, making GE's scanners more e-enabled than ever. The Common Service Platform will increase service productivity and reduce training and service costs.

### 5-5-2 Global Service User Interface (GSUI)

GSUI is the pattern for the user interface. This interface standard will be followed by all modalities to achieve a common look-and-feel for service software across all GEMS products.

#### 5-5-2-1 Internationalization

The user interfaces provided by the service platform are designed for GE personnel and as such are in English only. At this time there is no multi-lingual capability built into the Common Service Interface.

#### 5-5-2-2 Service Login

5-5-2-2-1 For BT04 or later

- 1.) Touch **Utility > Service**. It will take about ten (10) seconds for activating.
- 2.) Make sure that **CAPS** is OFF (should be released or dimmed) for password entry performed later.
- 3.) The Service Login window for Service Platform will be shown on the monitor display.

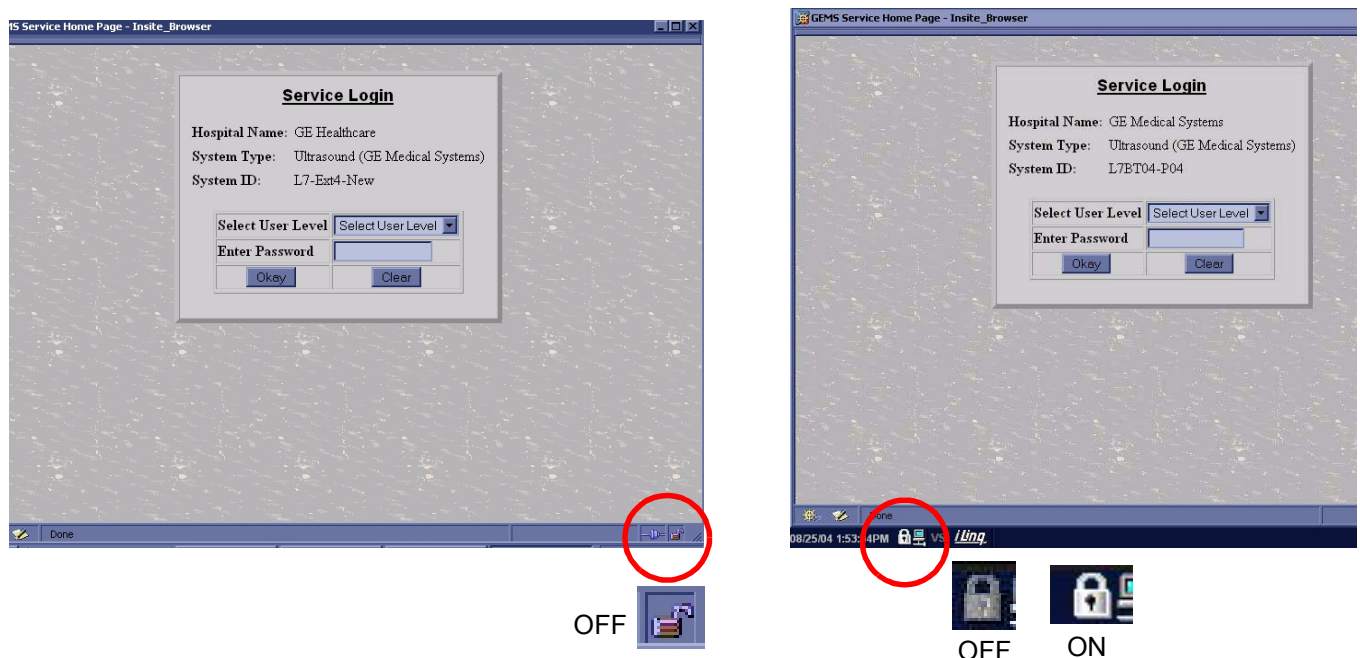


Figure 5-47 Service Login



**CAUTION** If the Login window for Service Platform is not displayed on the monitor, the installation of the Service Platform has failed. Reload the application software or Base System Software (OS) + application software. Contact a Technical Support for details.

- 5-5-2-2      **Service Login** (cont'd)
- 4.) Select **GE Service** at the “Select User Level” field.

5.) Enter the password for the Service Platform.

6.) Click on **Okay**.

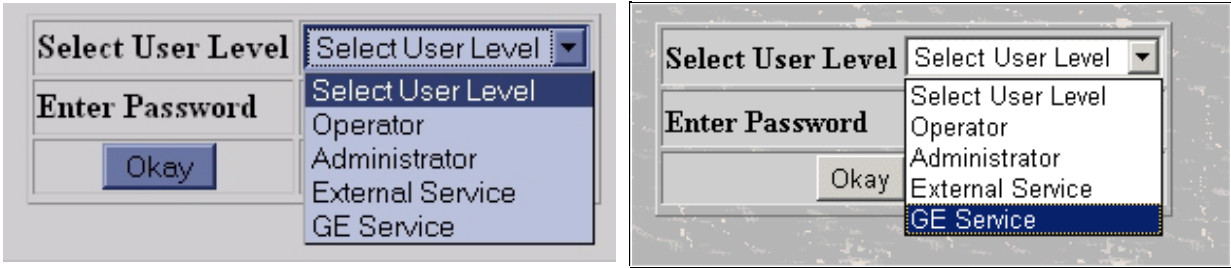


Figure 5-48    User Level

5-5-2-2-2      For BT03 or lower:

Click on the button with the wrench icon  in the status bar at the bottom of the scanner console. This button links the user or the Field Engineer (FE) to the service login screen.

- 5-5-2-3      **Access / Security**
- The service interface has different access and security user levels. Users are only granted access to the tools they are authorized to use.

Table 5-2    User Level

| User Level       | Access Authorization                                                                                                                             |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| Operator         | These service tools are normally used in-house and are protected with a special scanner configuration that is not allowed to leave the facility. |
| Administrator    | Use the OnLine Center access method provided by iLinq.                                                                                           |
| External Service | Required for a external Service other than GE FE.                                                                                                |
| GE Service       | Requires a network connection and knowledge of a password.*                                                                                      |

NOTE:      *\*For a GE Field Engineer, the password changes at specific intervals.*

Except for iLinq, all access to the service interface is via the Network port. A modem on the scanner is specifically intended for iLinq use.

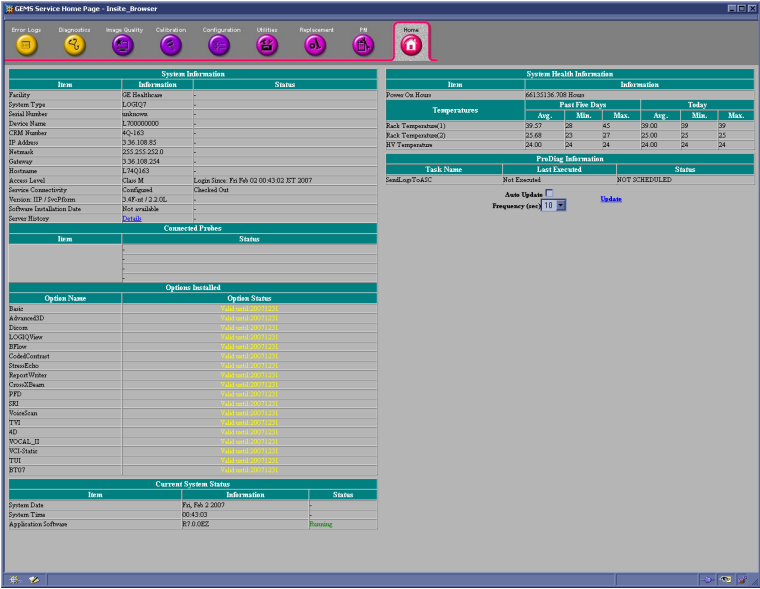
Every access request, whether successful or not, will be logged into a service access log that is viewable to authorized users.

5-5-3 Service Home Page

When the Common Service Desktop is started, the Service Home Page appears. The Home Page contains the software revision along with the hardware inventory and the results of the latest System Health Information. The navigation bar at the top of the screen allows the user to select from several tools and applications.

**NOTE:** When using the Common Service Desktop do **NOT** iconify any of the Common Service Desktop windows. If you iconify them they end up in the lower left-hand corner of the screen behind the Service Desktop Manager window and cannot be restored. Resize the windows with the mouse and move them as needed to make room for other windows.

For BT07 or later



For BT06 or lower

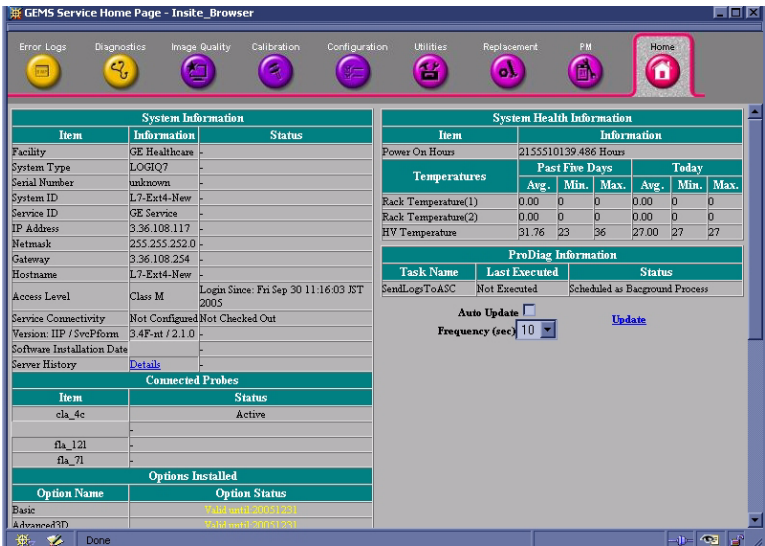


Figure 5-49 Service Home Page

## 5-5-4 Error Logs Page

From the Error Logs page the Log Viewer displays five categories with pull-down sub-menus. The Service Interface has a log viewing tool driven by the following high-level requirements.

- Simple filtering of the scanner log(s) with filtering capabilities being a function of login access permissions.
- Logs are viewable by all service modes.
- Allow for multiple instances of the log viewer.
- Color-coded log entries for severity levels:
  - \* Severity 1 - Color coded Green
  - \* Severity 2 - Color coded Yellow
  - \* Severity 3 - Color coded Red
- Support the transfer of logs to local and/or remote destinations

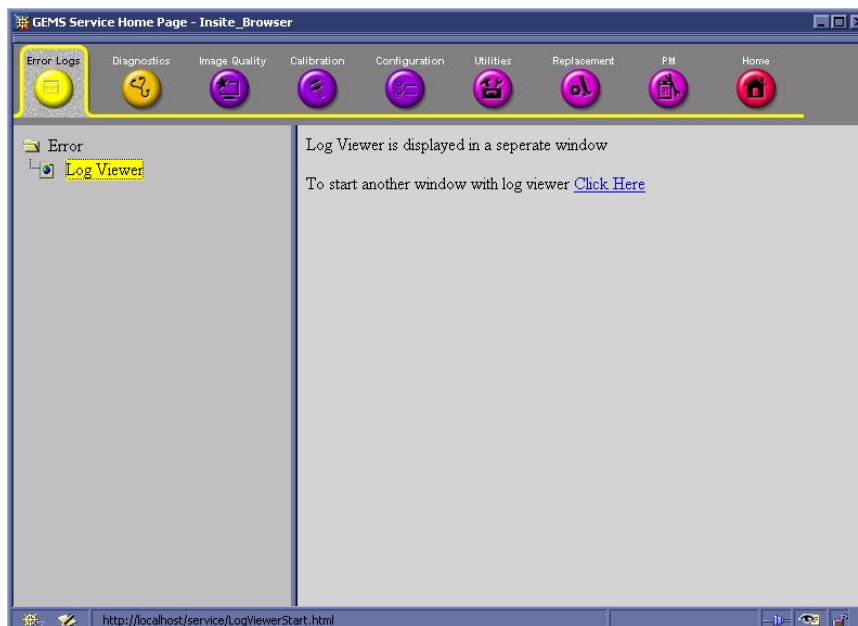


Figure 5-50 Log Page

5-5-4-1      **Logs**

The six sub-menus of the Logs category are System, Power, Temperature, Probe, Board, and DICOM.

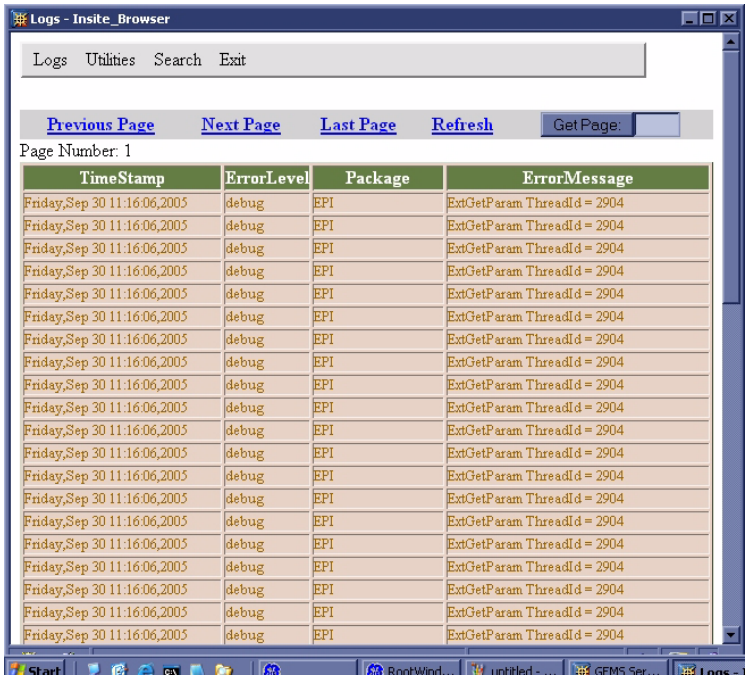


Figure 5-51    Log Sub-Menus (System)

| Logs       | Descriptions                                                                                               |
|------------|------------------------------------------------------------------------------------------------------------|
| System     | Software bug information for software engineering to debug the software.                                   |
| Power      | Not used for LOGIQ 7.                                                                                      |
| Infomatics | Exam informations. Whenever the New patient or End Current Patient is pressed, they are reported as a log. |

| Logs        | Descriptions                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature | Error (!!)                                                                                                                                                                                                                   | <p>The error occurred in the temperature with “!!” mark. In the time when the error occurred, the message “Temp is above safe limit. Check air-filter! Shutdown in #seconds.” appears in the status bar and the system is automatically shut down.</p> <p>The temperature which the error occurs:</p> <ul style="list-style-type: none"> <li>• 75 degrees or higher for Rack Temperature (1)</li> <li>• 65 degrees or higher for Rack Temperature (2)</li> <li>• 65 degrees or higher for HV Temperature</li> </ul> |
|             | Warning (@@)                                                                                                                                                                                                                 | <p>The warning occurred in the temperature with “@@” mark. In the time when the warning occurred, the message “This system is overheated! Check air-filter!” appears in the status bar.</p> <p>The temperature which the warning occurs:</p> <ul style="list-style-type: none"> <li>• 70 degrees or higher for Rack Temperature (1)</li> <li>• 60 degrees or higher for Rack Temperature (2)</li> <li>• 60 degrees or higher for HV Temperature</li> </ul>                                                          |
|             | Info (^)                                                                                                                                                                                                                     | <p>The information occurred in the temperature with “^” mark to call attention. In the time when the information occurred, the message “Approaching the overheat limit! Check air-filter!” appears in the status bar.</p> <p>The temperature which the information occurs:</p> <ul style="list-style-type: none"> <li>• 65 degrees or higher for Rack Temperature (1)</li> <li>• 50 degrees or higher for Rack Temperature (2)</li> <li>• 50 degrees or higher for HV Temperature</li> </ul>                        |
|             | Others                                                                                                                                                                                                                       | Temperature information                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Probe       | Displays the probe name and connector #.                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Board       | Displays the Part #, Board #, and Dip switch revision.                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| DICOM       | Whenever DICOM data are sent, logs are reported. An error log is reported in an error status and an information log is reported in a normal status. (The log is command or status information specified by DICOM statement.) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |



#### 5-5-4-1-1 Log Viewing

The Service Platform has a log viewing tool driven by the following high-level requirements.

- Simple filtering of the scanner log(s) with filtering capabilities being a function of login access permissions.
- Logs are viewable by all service modes.
- Allow for multiple instances of the log viewer.
- Color-coded log entries for severity levels:
  - \* Severity 1 - Color coded Green
  - \* Severity 2 - Color coded Blue
  - \* Severity 3 - Color coded Red
- Support the transfer of logs to local and/or remote destinations

#### 5-5-4-1-2 Informatics

Informatics is the ability to collect and upload usage information logged on the scanner. The Service Platform is used to report the logged data via the log viewing feature.

#### 5-5-4-2 Utilities

The two sub-menu of the Utilities category are Plot Log and Plot Page.

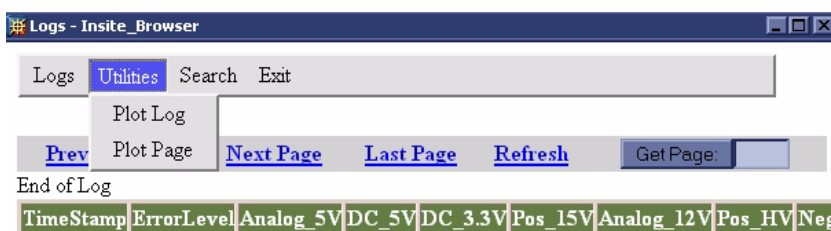


Figure 5-52 Utilities Category

#### 5-5-4-3 Search

On the **Text Search** sub-menu of the Search category, users enter case-sensitive text they wish to filter.

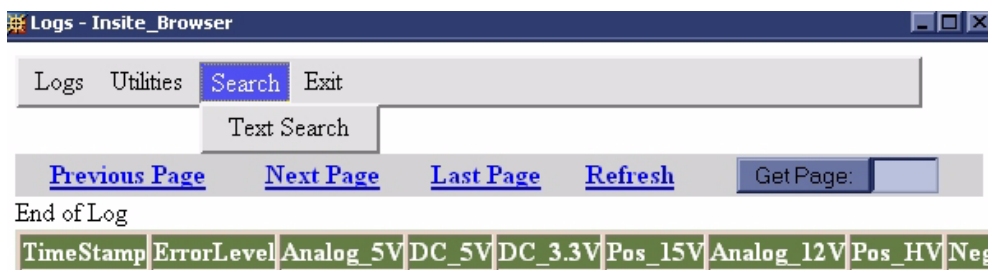


Figure 5-53 Search Category

5-5-4-4      **Filter**

Click on he sub-menu, **System Logs**, to enter Filter menu. Filtering is used to extract select data from the Error Logs. There are four different error levels and 11 packages that can be filtered.



Figure 5-54    Filter Category

5-5-4-5      **Exit**

The sub-menu, **Exit Log Viewer**, returns the user to the Common Service Desktop home page.

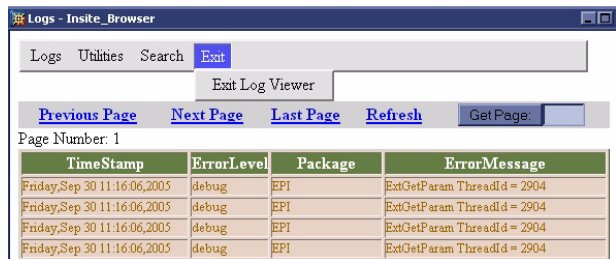


Figure 5-55    Exit Category

## 5-5-5 Diagnostics

The Diagnostic page includes various diagnostic tests for troubleshooting.

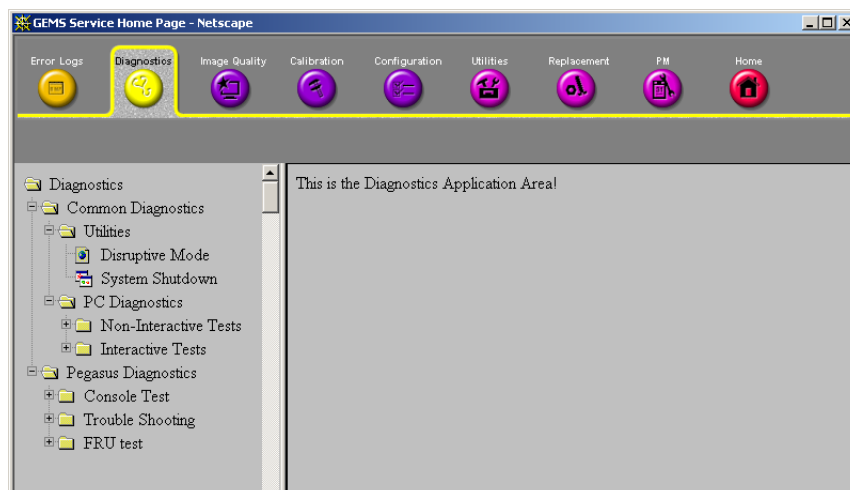


Figure 5-56 Diagnostic Page

### 5-5-5-1 Diagnostic Reports

Diagnostic tests return a report to the Service Platform. The platform retains the report and allows for future viewing of the diagnostic logs.

### 5-5-5-2 Proactive Diagnostics

A system of self-monitoring is largely supported with the integration of *iLinq*. The scheduler, executive, user interfaces, and some of the proactive diagnostic functions are provided by *iLinq*. Other tasks will need to be provided by the product team.

## 5-5-6 Image Quality

Field is not yet populated.

The Image Quality page contains tools for troubleshooting image quality issues.

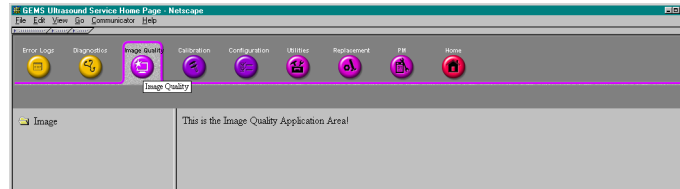


Figure 5-57 Image Quality Page

## 5-5-7 Calibration

Field is not yet populated.

The Calibration page is used to calibrate the system.

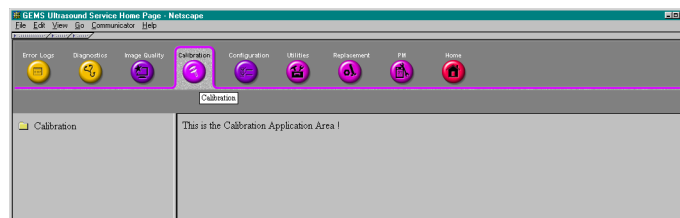


Figure 5-58 Calibration Page

## 5-5-8 Configuration

Field is not yet populated.

The Configuration page is used to setup various configuration files on the system.

The Service Platform is used as the access and authorization control for remote access to the configuration subsystem.

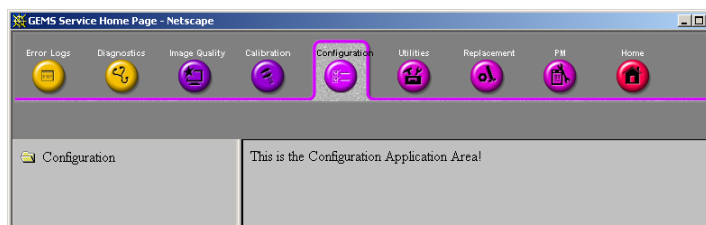


Figure 5-59 Configuration Page

## 5-5-9 Utilities

The Utilities page contains several miscellaneous tools. These includes access to the problem/solution database at the Online center.

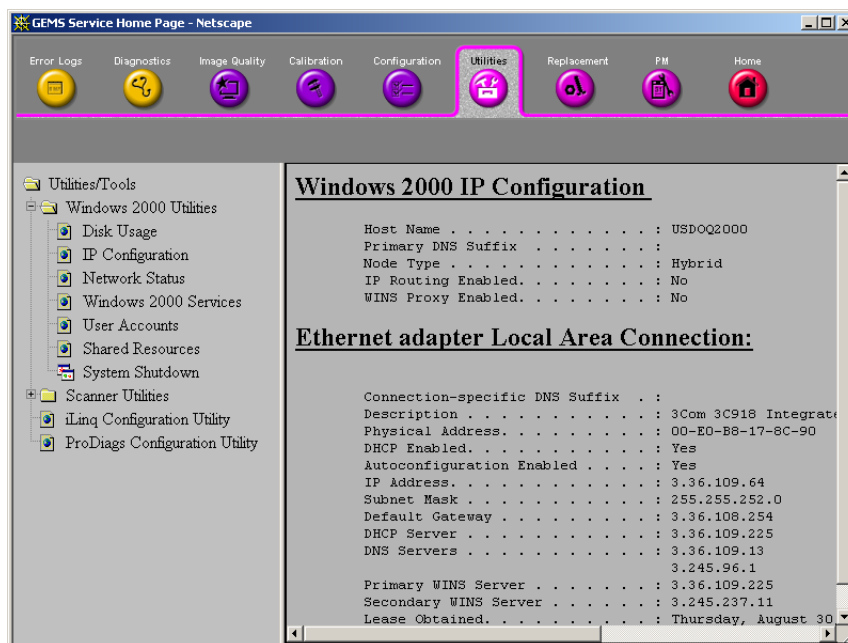


Figure 5-60 Utilities Page

## 5-5-10 Replacement

Field is not yet populated.

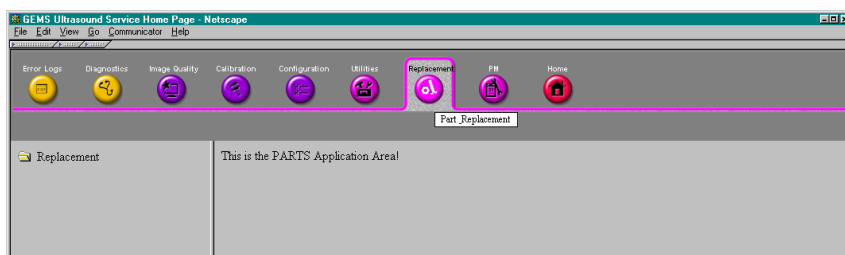


Figure 5-61 Part Replacement Page

## 5-5-11 PM

Field is not yet populated.

Run the Planned/Preventive/Proactive Maintenance tools during such PM visits as running error logs and deleting old test files.

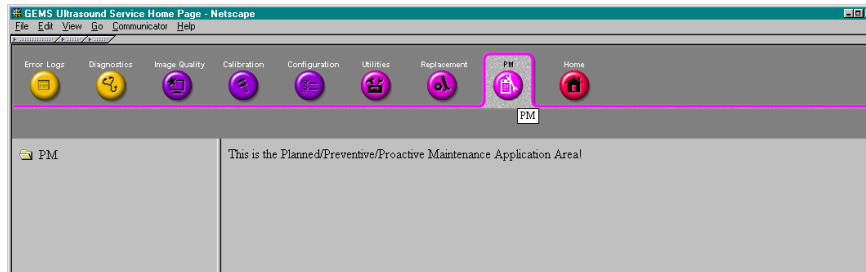


Figure 5-62 Planned Maintenance Page

## 5-5-12 Remote Software/Option Installation and Updates

The Common Service Platform provides for remote software downloads including A11 downloads to the scanner. Any file transferred to the scanner will be in the form of an installation package. The actual content of the installation package is dependent on each product. The Service Platform downloads the software module into an appropriate directory and executes the product-specific installer executive.

Software installation is simple and automated with a Graphic User Interface (GUI), where applicable.

- Supports software upload via remote transmission
- Supports software upload via Service Platform
- Supports partial upgrades
- Supports de-installs of the latest partial upgrade
- Supports remote activation/installation of software options
- Options can be activated permanently
- Options can be activated for a timed period
- Options can be limited to a number of uses
- Options that expire must give notice to the user that the option has expired

### 5-5-12-1 Remote System Shutdown and Restart

The Service Platform provides the ability to restart the system as per standard shutdown/startup procedures. Remote shutdown will only be provided if a software-controlled shutdown exists on the scanner. Scanner system restart is always accessible from the OLC.

### 5-5-12-2 File and/or Image Transfer

The Service Platform supports file transfers and archived image transfers to the OnLine Center. The Service Platform provides interfaces of the displayed images for transfer to the OLC.

## 5-5-13 InSite II Configuration

### 5-5-13-1 InSite II Setting (Supported from BT07)

Select **Service Platform > Configuration > Questra Agent Configuration**. Then enter the followings:

The screenshot shows the 'GEMS Service Home Page - Insite\_Browser' window. The 'Configuration' tab is selected in the top navigation bar. On the left, a tree view shows 'Configuration' > 'Questra Agent Configuration' selected. The main area displays the 'Agent Configuration' form with the following fields:

- Device Name: L7305014764
- CRM No.: 4Q-163
- Display Name: InSite2 Test
- Description: L7 Default Install
- Addr Line1: (empty)
- Addr Line2: (empty)
- City: (empty)
- State(Prov): (empty)
- Postal Code: (empty)
- Country: UNITED STATES
- Latitude: (empty)
- Longitude: (empty)

Below the Agent Configuration is the 'Advanced Configuration' section:

- Enterprise Server: PILOT (dropdown)
- Log Level: WARN (dropdown)
- Enterprise Server URL: https://plt.us1-ws.service.gehealthcare.com:443
- Enterprise Tunnel URL: https://plt.us1-rd.service.gehealthcare.com:443
- File Repository: C:/pegasus/target/service/Questra/5.0/vsa/etc
- File Watcher: Disable (dropdown)
- Dir: D:\Export
- Filter: \*.log

Below the Advanced Configuration is the 'Proxy Configuration' section:

- Proxy: Enable (dropdown)
- IP Addr: 3.20.128.6
- Port: 88
- Proxy Authentication: Disable (dropdown)
- Scheme: NONE (dropdown)
- Proxy User: (empty)
- Password: (empty)

At the bottom of the form are two buttons: 'Submit Changes' and 'Reset Form'.

Figure 5-63

Table 5-3 InSite II Entry

| Item          | Descriptions                             | Modifiable?    |
|---------------|------------------------------------------|----------------|
| Device Name   | Should be set to Dongle ID.              | DO NOT MODIFY. |
| CRM No.       | FE/OLC Field to enter device identifier. | Modifiable     |
| Display Name  | FE/OLC Field to enter descriptive name.  | Modifiable     |
| Address/Proxy | Contact OLC for contents.                | Modifiable     |

**NOTE:** Refer to Section 8-14 - InSite II Installation for details.

## Section 5-6

### Password

The following windows request entry of Password. This allows you to be entered into Utility function or Service function with different access and security use levels.

#### 5-6-1 For Operator Login Window

When you login the LOGIQ7 application with a different user level, this window is open. You can modify the user level and password without restraint using one of the Utility function (**Utility > Admin > Users**).



Figure 5-64 Operator Login window

#### 5-6-2 For Service Login Window

When you access the Common Service Desktop, this window is open. The user level and password are preset. They can NOT be modified.

Table 5-4 Password to enter common service desktop

| User Level       | Password                                                          |
|------------------|-------------------------------------------------------------------|
| Operator         | uls                                                               |
| Administrator    | uls                                                               |
| External Service | gogems                                                            |
| GE Service       | The password must change at specific intervals. (every six month) |



## 5-6-2 For Service Login Window (cont'd)

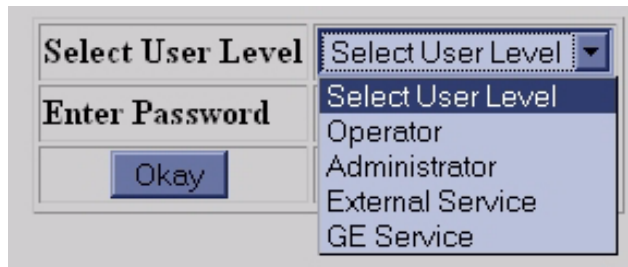


Figure 5-65 Service Login window

## 5-6-3 For Maintenance Access Window

When you login Windows desktop for maintenance access, this window is open.  
The user name and password are preset. They can NOT be modified..

Table 5-5 Password to enter windows desktop

| Username | Password                                                                                                                                       |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| No entry | <b><u>Access is protected with the Service Dongle and a password.</u></b><br>The password must change at specific intervals. (every six month) |

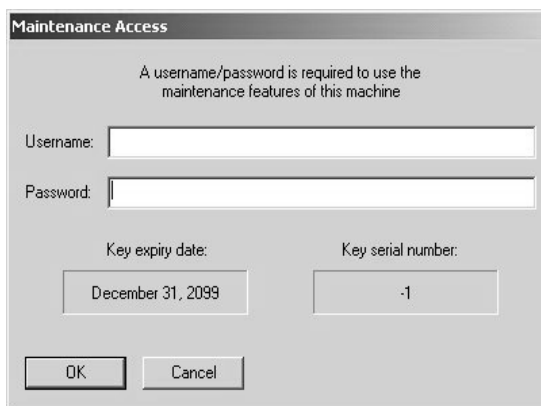


Figure 5-66 Windows desktop Login Window

## Section 5-7 Air Flow Control

### 5-7-1 Air Flow Distribution

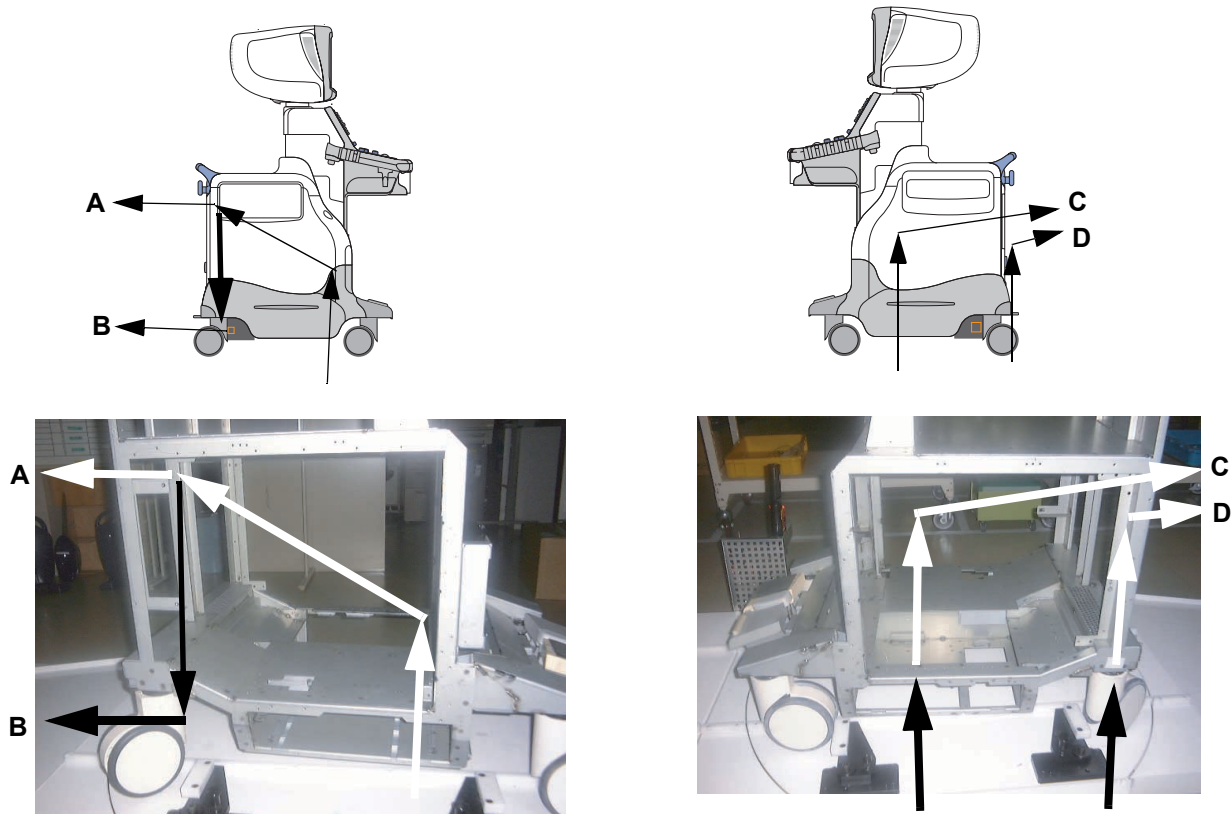


**Figure 5-67 Air Flow Inside the Scanner**

The four air flow pathes allow the scanner to be cooled down as shown in the figure above.

- Path A (Front lower left > Filter > PC Box > Rear upper left) for PC Box cooling.
- Path B (Front lower left > Filter > LV unit > Rear lower left) for LV unit cooling.
- Path C (Bottom right > Filter > NEST Assy > Rear upper right) for NEST Assy cooling.
- Path D (Rear bottom right > Filter > HV unit > Rear upper right) for HV unit cooling.

### 5-7-2 Filters

The scanner contains the three filters located at:

- Front lower left for air flow of the LV unit and PC box.
- Bottom right for air flow of the NEST Assy.
- Rear bottom right for air flow of the HV unit.

## 5-7-3 Fans

Example: For BT03 or lower



Fan for HV unit



Fan for PC Box

Fans for LV unit



Fans for NEST Assy

**Figure 5-68 Fans**

The scanner contains the eight fans at the following positions for producing an air flow.

- Two fans: Inside the LV unit for air flow path A and B
- One fan: On the PC Box for air flow path A
- Four fans: At the bottom of the NEST Assy for air flow path C
- One fan: On the HV unit for air flow path D

## Section 5-8 Monitor Video Specification

### 5-8-1 Input

| Standard | Format            | Signal          | Sync             | DDC               | Termination |
|----------|-------------------|-----------------|------------------|-------------------|-------------|
| SVGA     | 800 x 600 / 75 Hz | RGB: 0 - 700 mV | H: TTL<br>V: TTL | VESA DDC2 signals | 75 ohms     |

### 5-8-2 Outputs

#### 5-8-2-1 SVGA

| Standard | Format            | Signal          | Sync             | DDC               | Termination |
|----------|-------------------|-----------------|------------------|-------------------|-------------|
| SVGA     | 800 x 600 / 75 Hz | RGB: 0 - 700 mV | H: TTL<br>V: TTL | VESA DDC2 signals | 75 ohms     |

#### 5-8-2-2 TV Format

| Type            | Standards                 | Termination |
|-----------------|---------------------------|-------------|
| SVHS            | NTSC EIA and<br>PAL BDGHI | 75 ohms     |
| Composite Video | NTSC EIA and<br>PAL BDGHI | 75 ohms     |
| RGB             | NTSC EIA and<br>PAL BDGHI | 75 ohms     |
| B&W             | NTSC EIA and<br>PAL BDGHI | 75 ohms     |

#### 5-8-2-3 PAL BDGHI

| General                                                                   | SVHS-luma                                         | SVHS-croma                                                                                  | Composite                | RGB                                                                | B&W       |
|---------------------------------------------------------------------------|---------------------------------------------------|---------------------------------------------------------------------------------------------|--------------------------|--------------------------------------------------------------------|-----------|
| Line/field: 625/50<br>FH: 15625 Hz<br>FV: 50 Hz<br>Bandwidth: 6MHz (luma) | Signal: 100 IRE<br>100% amplitude<br>Sync: 43 IRE | Burst amplitude:<br>+/- 21.5 IRE, 10<br>cycles<br>Fsc: 4.43361875<br>MHz 100%<br>saturation | Summed luma<br>and croma | Signal: 0-700<br>mV<br>Comp sync/H<br>sync/ V sync: 0.3<br>- 4 Vpp | SVHS luma |

#### 5-8-2-4 NTSC EIA

| General                                                                                | SVHS-luma                                                                                              | SVHS-croma                                                                             | Composite                | RGB                                                               | B&W       |
|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------|-----------|
| Line/field: 525/60<br>FH: 15734 Hz<br>FV: 59.94 Hz<br>Bandwidth: Min.<br>4.2MHz (luma) | Signal: 92.5 IRE<br>(from black level)<br>100% amplitude<br>Blanking setup:<br>7.5 IRE<br>Sync: 40 IRE | Burst amplitude:<br>+/- 20 IRE, 9<br>cycles<br>Fsc: 3.579545<br>MHz 100%<br>saturation | Summed luma<br>and croma | Signal: 0-700<br>mV<br>Comp sync/H<br>sync/V sync: 0.3<br>- 4 Vpp | SVHS luma |

### 5-8-3 SVHS and Composite Video

#### 5-8-3-1 Basic DC Parameters

| Parameters                     | NTSC          | PAL           |
|--------------------------------|---------------|---------------|
| White relative to blank        | 714 +/- 7 mV  | 700 +/- 7 mV  |
| Black relative to blank        | 54 +/- 7 mV   | 0             |
| Sync relative to blank         | -286 +/- 7 mV | -300 +/- 7 mV |
| Burst amplitude (nominal, p-p) | 286 +/- 7 mV  | 300 +/- 7 mV  |

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# Chapter 6

## Service Adjustments

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### Section 6-1 Overview

#### 6-1-1 Purpose of this chapter 6

This section describes how to test and adjust the scanner. These tests are optional. You may use them to check the system for errors.

**Table 6-1 Contents in chapter**

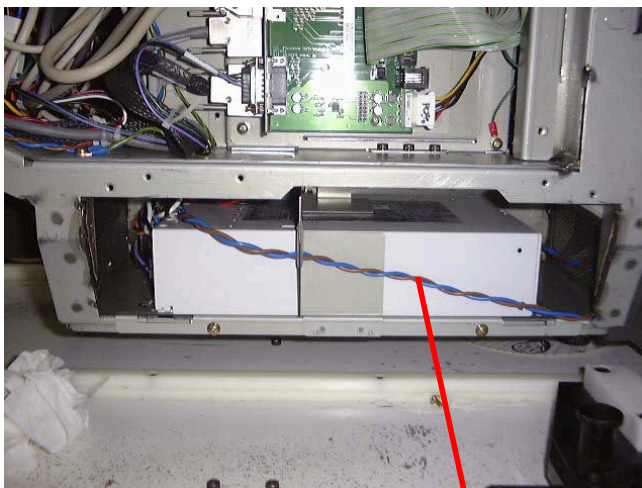
| Section | Description                              | Page Number |
|---------|------------------------------------------|-------------|
| 6-1     | Overview                                 | 6-1         |
| 6-2     | LV Unit Adjustments (For BT03 or lower)  | 6-2         |
| 6-3     | Caster Brake/Swivel Function Adjustments | 6-4         |
| 6-4     | Reloading the Probe Data                 | 6-9         |
| 6-5     | Monitor and LCD Adjustments              | 6-10        |
| 6-6     | BW Printer Setting / Adjustment          | 6-27        |
| 6-7     | Cleaning the Trackball                   | 6-33        |
| 6-8     | Jumper and Dip Switch Setting            | 6-37        |

## Section 6-2 LV Unit Adjustments (For BT03 or lower)

This system contains three power supply modules; LV unit. **The LV unit for BT04 or later can not be adjusted.**

### 6-2-1 Access to Adjustments

- 1.) Remove the LV unit:
  - a.) Remove the left side cover.
  - b.) Remove the LV unit cover.
  - c.) Remove the bracket, then pull out the LV unit Assy with the cables connected.



LV Unit Assy

**Figure 6-1 LV Unit Assy**

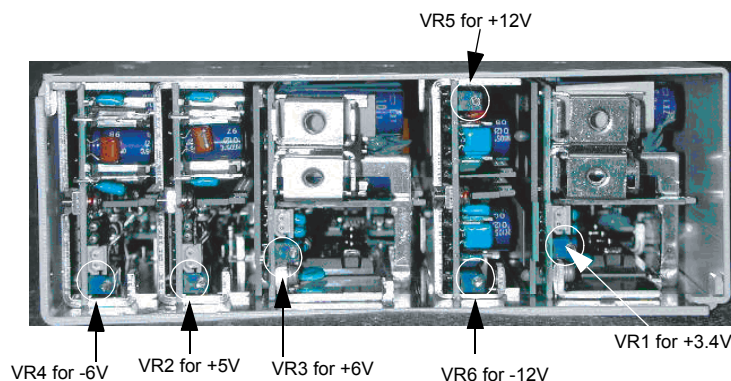


## 6-2-2 Adjustments Procedures

1.) Using the following VRs, DC output can be adjusted.

**Table 6-2 DC Output Specification for LV Unit**

| VR  | Specifications |
|-----|----------------|
| VR1 | 3.4V +/- 34mV  |
| VR2 | 5V +/- 50mV    |
| VR3 | 6V +/- 60mV    |
| VR4 | -6 V +/- 60mV  |
| VR5 | 12V +/- 120mV  |
| VR6 | -12V +/- 120mV |



OR

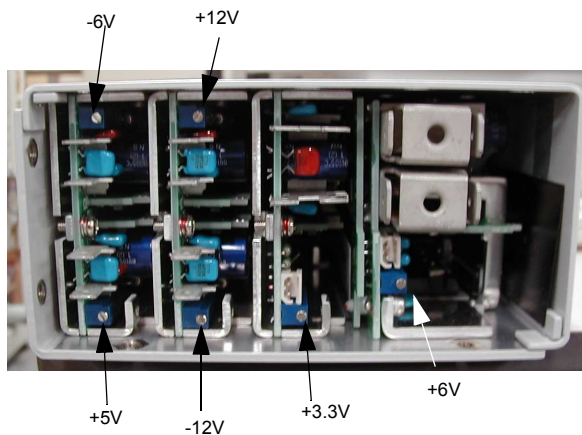


**Figure 6-2 VRs for Adjusting DC Output**

## Section 6-3 Caster Brake/Swivel Function Adjustments

### 6-3-1 Brake Function Adjustment

The LOGIQ 7 contains front and rear brake lock adjusters. They are separately adjusted using the similar method.



**Figure 6-3** Locations of Brake Lock Adjusters

### 6-3-1 Brake Function Adjustment (cont'd)

- 1.) Locate the adjuster nut on the caster linkage joint.

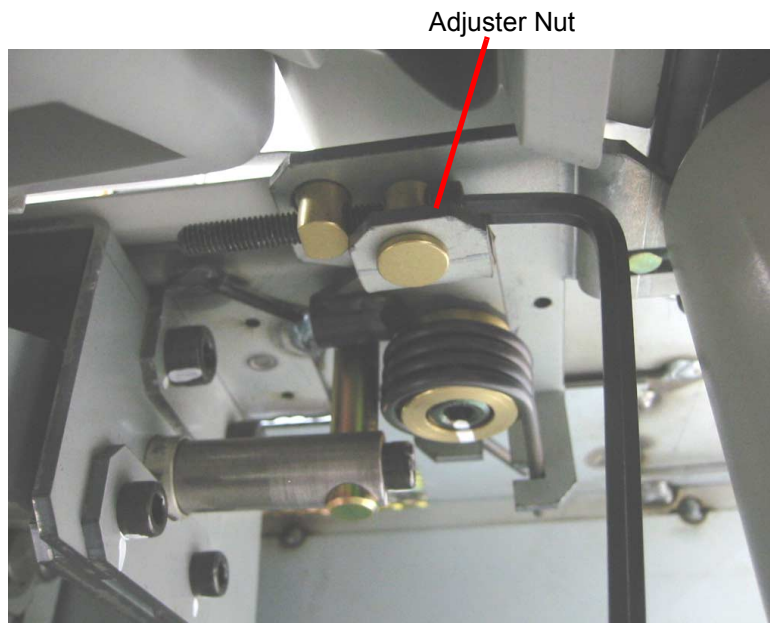


**Figure 6-4 Adjuster Nut Location**

- 2.) Rotate the adjuster until the caster lock lever comes center as shown.

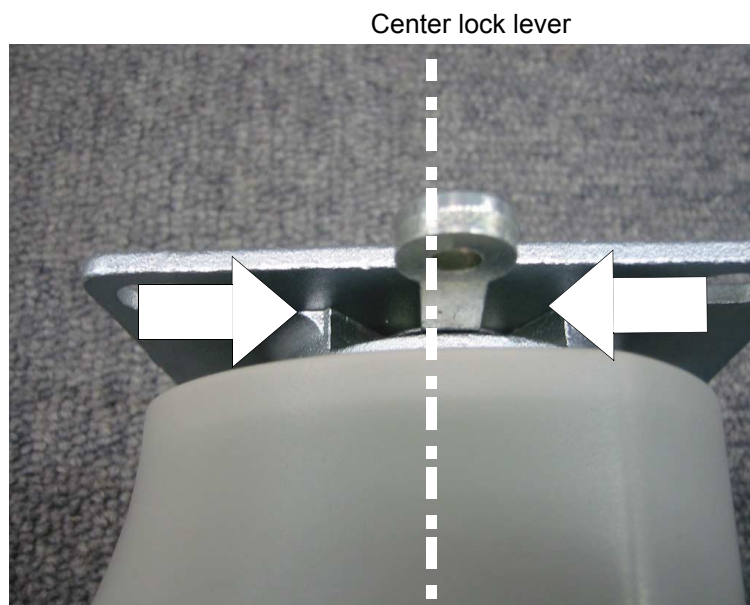
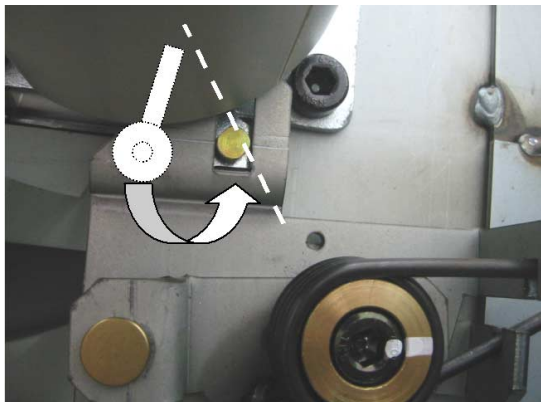


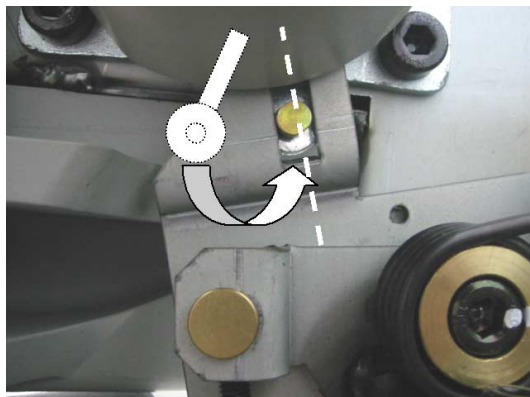
**Figure 6-5 Rotating Adjuster**

### 6-3-1 Brake Function Adjustment (cont'd)

- 3.) After completion of adjustment, press on the brake and check its function and location of the boss, connected to the caster lock arm.



Example: GOOD  
Boss of the front caster in place, and brake properly adjusted.



Example: NO GOOD  
Boss of the front caster NOT in place, and brake NOT properly adjusted.

**Figure 6-6 Brake Function Check**

### 6-3-1 Brake Function Adjustment (cont'd)

- 4.) Adjuster of the rear caster is also located on the caster linkage joint as shown.

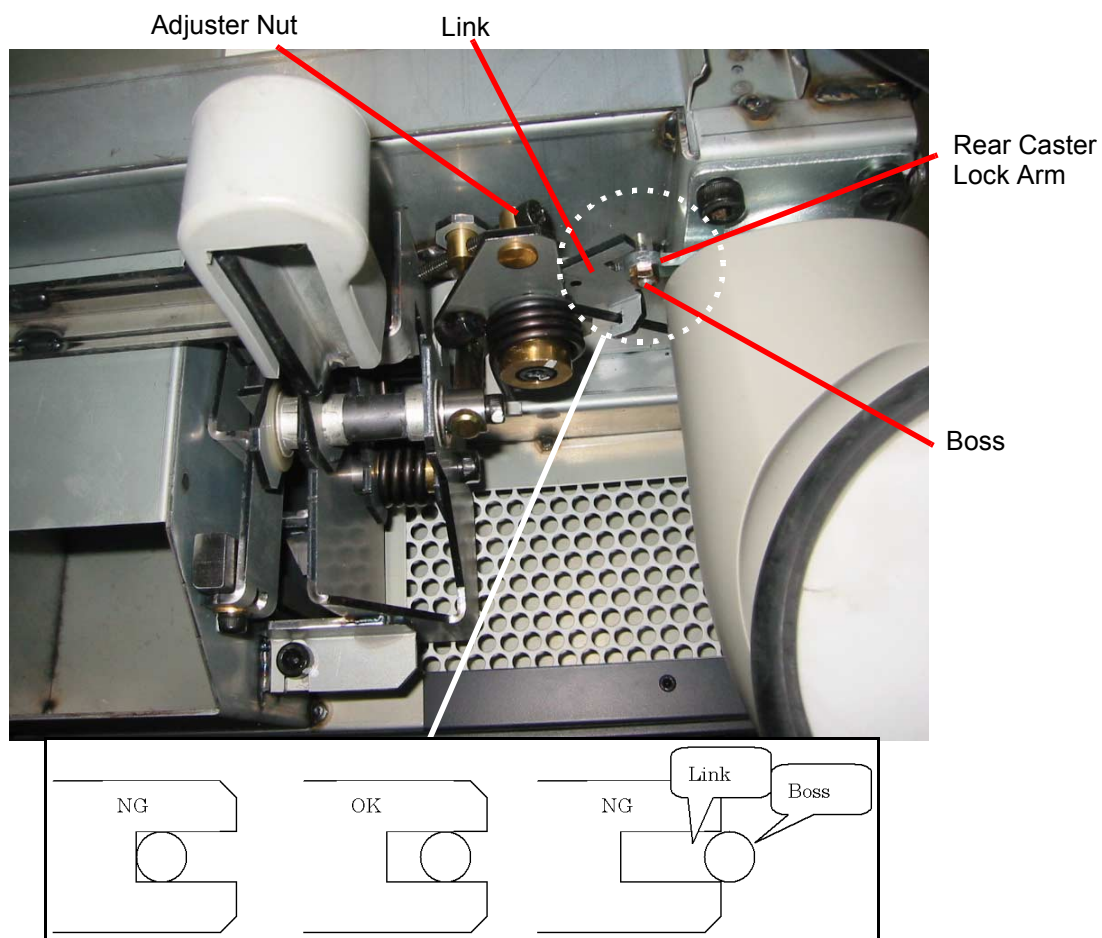


**Figure 6-7 Rear Caster Adjuster Location**

- 5.) Turn the adjuster so that the caster lock lever is in the center position, as same as the front caster, and the link is securely in place.

### 6-3-2 Swivel Function Adjustment

The LOGIQ 7 contains one swivel lock adjuster. It can be adjusted using the similar method as brake function adjustment described above.



Swivel Lock Adjuster

**Figure 6-8 Locations of Swivel Lock Adjuster**

## Section 6-4 Reloading the Probe Data

This procedure will be used for troubleshooting when a image sensitivity is NOT recovered. For details, refer to Section 7, Troubleshooting.

This rewrites the probe data (probe delay data for beam forming) saved on the flash memories of DDBF and TRAP boards.

- 1.) Insert the Service Dongle into the USB port, located at the rear panel of the scanner.



**Figure 6-9 Inserting the Service Dongle**

- 2.) Power ON the scanner.
- 3.) Refer to [4-2-2-3 Entering Maintenance Mode](#) to enter the windows desktop.
- 4.) Windows Desktop screen is displayed.
- 5.) Erase the file, "D:\Pegasus\target\resources\Pegasus\ProbeInfo.res."
- 6.) Erase the above file completely from Recycle bin, then restart the scanner.



## Section 6-5 Monitor and LCD Adjustments

### 6-5-1 CRT Monitor Contrast and Brightness Adjustment

Before calibrate the Monitor, check your PCVIC or DGVIC Part Number on the Utility Screen. The typical setting value changes with its Part Number.  
(To enter this screen, select **Utility > System > About > Additional About Information.**)

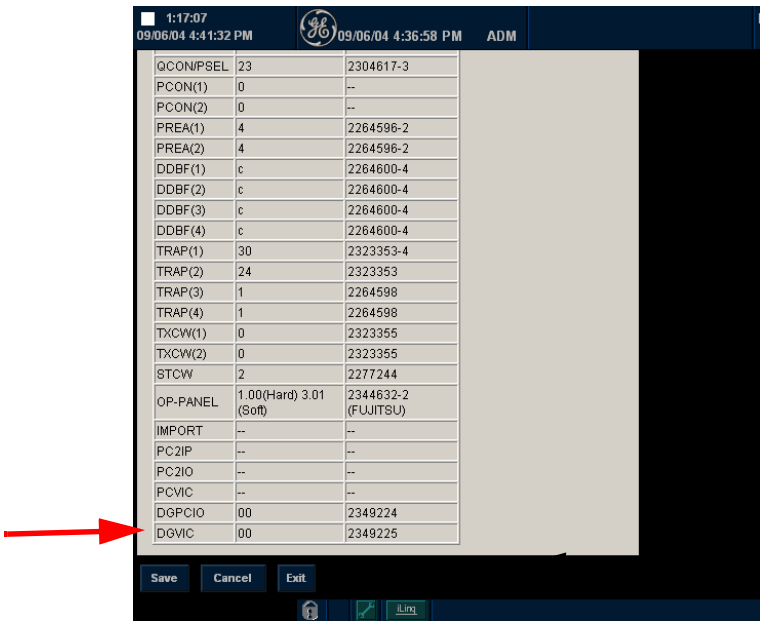


Figure 6-10 PCVIC/DGVIC Part Number Check

To adjust the contrast and brightness:

- 1.) Select Calibration from the Test Pattern Utility Touch Panel. The test pattern consists of a small box inside a larger box.

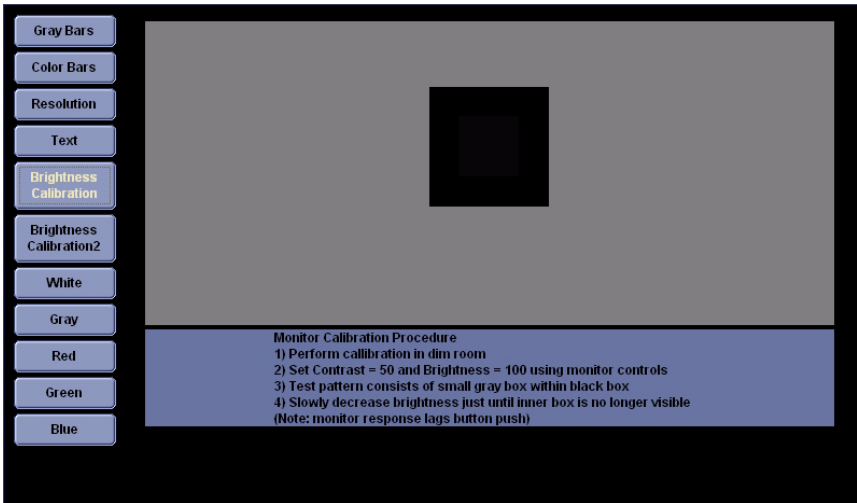


Figure 6-11 Calibration



### 6-5-1 CRT Monitor Contrast and Brightness Adjustment (cont'd)

- 2.) Press the Toggle button (1) for contrast and brightness. Confirm that the contrast (or brightness) indicator is displayed on the monitor. If the brightness is displayed, press the toggle button again.

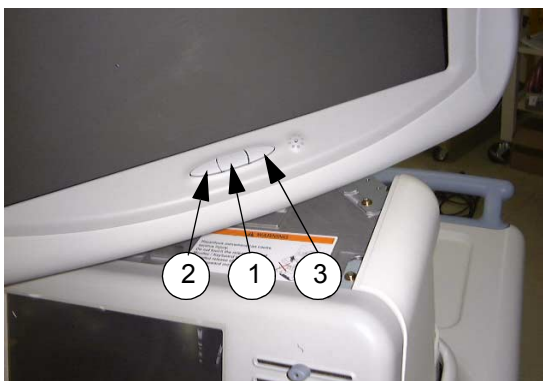


**Figure 6-12 Monitor Adjustment buttons**

- 3.) Set the Contrast according to the table below.
- 4.) Set the Brightness at 100. Then slowly decrease the Brightness until the inner box is no longer visible. Please note that the monitor response to this adjustment logs behind the button push.

**Table 6-3 Contrast Recommended Setting**

| Room Condition                      | Monitor Adjustment                    |                            |                                       |
|-------------------------------------|---------------------------------------|----------------------------|---------------------------------------|
|                                     | Contrast for PCVIC other than 2349225 | Contrast for PCVIC 2349225 | Contrast for DGVIC 2349225-2 or later |
| Dark room for Radiology/ Cardiology | 50                                    | 45                         | 50                                    |
| Dim room for Radiology/ Cardiology  | 60                                    | 55                         | 60                                    |
| Bright room for OB                  | 70                                    | 65                         | 70                                    |
| Dark room for Cardiology            | 60                                    | 55                         | 60                                    |

Record the final brightness and contrast settings and leave this information with the system. Generally speaking, do not change the controls once they have been set, the display becomes the reference for the hard copy device(s).

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

## 6-5-2 19 inch LCD Monitor Brightness Adjustment

To adjust the brightness:

- 1.) Press the Toggle button (2) or (3) **Once** for brightness adjustment.



**Figure 6-13 19 inch LCD Monitor Adjustment buttons**

- a.) Verify that Brightness is **80**.  
If it is not, increase brightness to press the adjustment button (3).  
If it is not, decrease brightness to press the adjustment button (2).
- b.) Press the button (1) **Once**. The brightness display disappears.

**NOTE:** 19 inch LCD is **ONLY** a brightness adjustment.

### 6-5-3 17 inch LCD Monitor Contrast and Brightness Adjustment

To adjust the contrast and brightness:

- 1.) Press the Toggle button (1) **Once** for brightness adjustment.



**Figure 6-14 17 inch LCD Monitor Adjustment buttons**

- a.) Verify that Brightness is **55**.  
If it is not, increase brightness to press the adjustment button (3).
- b.) Press the button (1) again for confirmation.
- 2.) Press the Toggle button (1) **Twice** for contrast adjustment.
  - a.) Verify that Contrast is **90**.  
If it is not, increase contrast to press the adjustment button (3).
  - b.) Press the button (1) again for confirmation.
- 3.) Press and hold the button (1) for 30 second or more for temperature and gamma adjustment. The advance menu appears.
  - a.) Press the button (3) Once. The second item changes in pink.
  - b.) Press the button (1) Twice to select the temperature menu.
  - c.) Verify that Temperature is **15000**.  
If it is not, increase or decrease temperature to press the adjustment button (3) or (2).
  - d.) Press the button (1) again for confirmation.
  - e.) Press the button (3) Once. The second item changes in pink.
  - f.) Press the button (1) Once to select the gamma menu.
  - g.) Verify that Gamma is **2.6**.  
If it is not, increase or decrease gamma to press the adjustment button (3) or (2).
  - h.) Press the button (1) again for confirmation.
  - i.) Press the button (3) repeatedly to turn the Return in pink.
  - j.) Press the button (1) Once to return to the advance menu.
  - k.) Press the button (3) repeatedly to turn the Exit in pink.
  - l.) Press the button (1) Once to exit from adjustment menu.
- 4.) Record the final brightness, contrast, temperature, and gamma settings and leave this information with the system. Generally speaking, do not change the controls once they have been set, the display becomes the reference for the hard copy device(s).

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

## 6-5-4 LCD Monitor Resolution

Should one encounter “small screen” on the LCD monitor, screen resolution must be adjusted in order to view full size.

- 1.) From the touch panel, select **Utility > System > About**.
- 2.) Click **Additional About Info**.
- 3.) Select **High Resolution**.

## 6-5-5 LCD Touch Panel Adjustment

There are two types of the touch panel LCD in LOGIQ 7 (manufactured by Gaudi or Technart). Depending on the LCD type on the system, adjustment procedure is slightly different. Some models of LOGIQ 7 have the LCD with the cover plate. Open the key board and remove those plate to identify the content:

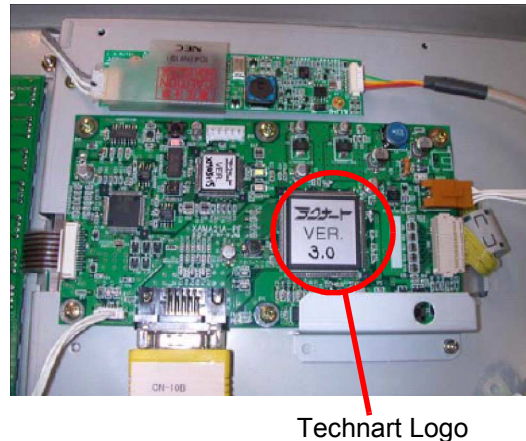
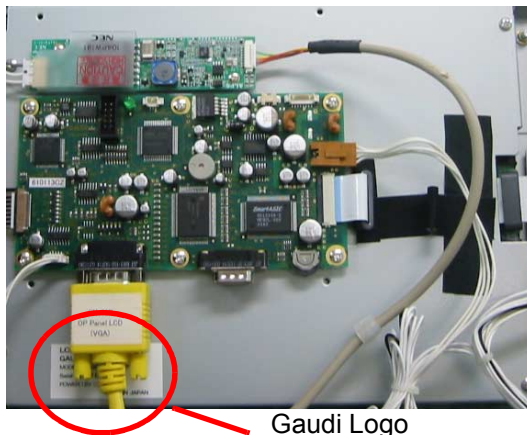


**Figure 6-15 LOGO Location**

This adjustment must be performed when always replacing:

- PC Box Assy
- Keyboard Assy
- Cable between LCD unit and PC Box

**6-5-5-1 For Gaudi LCD**

- 1.) Refer to [4-2-2-3 Entering Maintenance Mode](#) to enter the windows desktop.
- 2.) The following screen should appear when exiting to Windows.



**Figure 6-16 Start-up Screen**

- 3.) Check the followings:
  - Proper balance of the LCD display as shown in Figure 6-17
  - No Jitter (Phenomenon that a character does not move sideways)

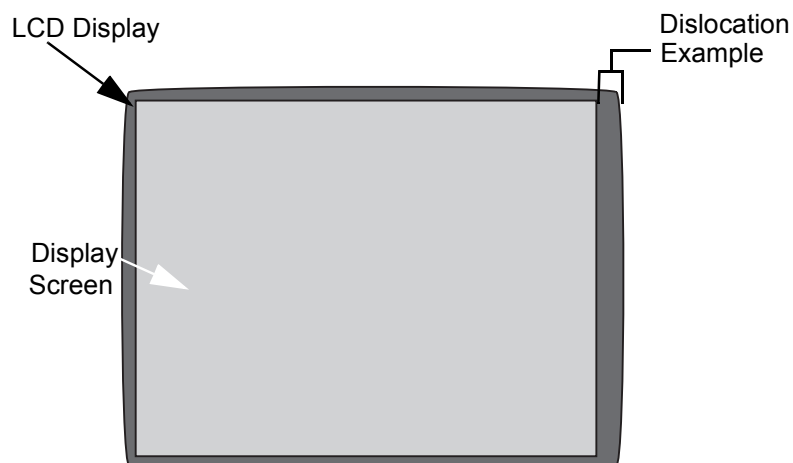


**Figure 6-17 Example of LCD Bad balance**

**NOTE:** *If the location of the LCD screen is appropriately set in center, do not proceed this adjustment procedures.*

- 4.) Open the OP Panel, and hold the OP Panel using maintenance service rod. Refer to Replacement Procedure in chapter 8 for the procedures.



**NOTICE** Only when the windows desktop appears in the 17 inch CRT monitor or 17 inch LCD monitor, you can use Auto Adjust function. Also 640 x 480 dots pictures must be displayed on the LCD monitor to function Auto Adjust correctly.

**6-5-5-1 For Gaudi LCD (cont'd)**

- 5.) Find out the notch to access OSD Switch located at backside of the LCD as shown in Figure 6-18. Press the switch inside of the notch.



**Figure 6-18 Switch Location**

**NOTE:** Be careful not to cut fingers with notch.

- 6.) OSD menu is shown on the LCD display.
- 7.) Remove the maintenance rod, and re-install the OP Panel temporarily to use the LCD touch panel. Refer to Replacement Procedure in chapter 8 for the procedures.
- 8.) Using **SELECT** button, select **AUTO ADJUST**. The letters will be blue when it is selected.

 **NOTICE** Never select AUTO CONTRAST in this menu. Selecting AUTO CONTRAST might occur in an improper contrast.

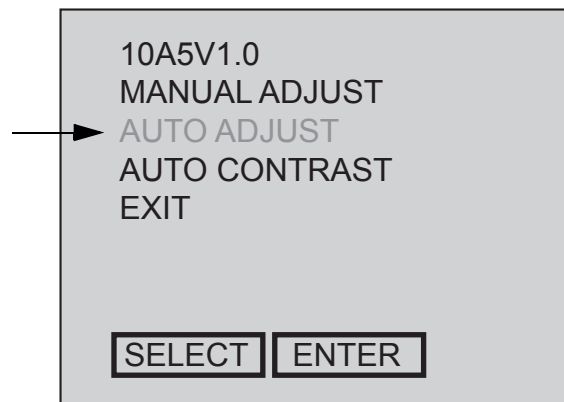


**Figure 6-19 OSD Softmenu 1**

- 9.) Make sure that the **AUTO ADJUST** is selected, then touch **ENTER**.
- 10.) LCD display Auto Adjustment procedures will be started automatically.

**6-5-5-1 For Gaudi LCD (cont'd)**

11.) After finishing the Auto Adjustment procedures, the following menu is displayed on the LCD.

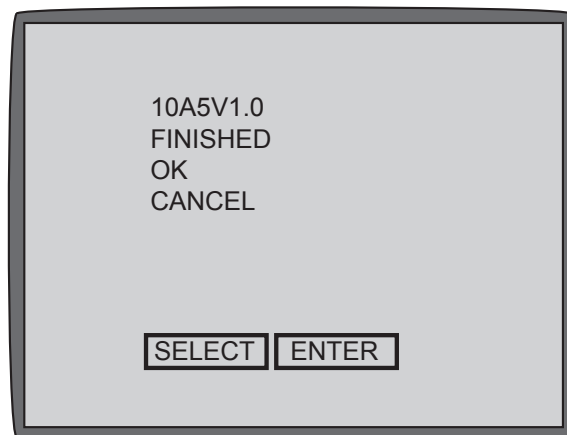


**Figure 6-20 OSD Softment 2**

- 12.) Make sure that the LCD position is fixed and shown at the center location.
- 13.) If it is fixed appropriately, select **OK** then touch **ENTER** to go on to the next step.  
If the display is not adjusted yet, select **CANCEL** then touch **ENTER** to repeat the adjustment procedures from step 6.
- 14.) The first screen is shown on the display. Touch **SELECT** three times to select **EXIT**. Refer to Figure 6-19.
- 15.) Touch **ENTER** button. OSD menu will be finished, and go back to regular display.

## 6-5-5-2 For Technart

### 6-5-5-2-1 Auto Adjustment

- 1.) Refer to [4-2-2-3 Entering Maintenance Mode](#) to enter the windows desktop.
- 2.) The following screen should appear when exiting to Windows.



Figure 6-21 Start-up Screen

- 3.) Press the **AUTO** button **once** on the LCD touch panel board.

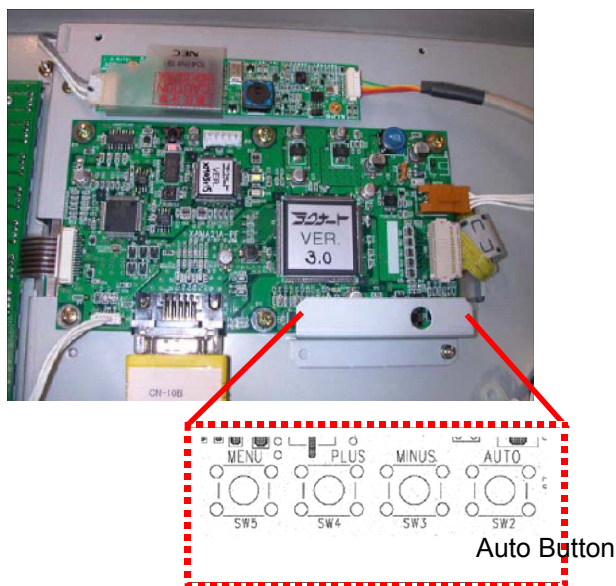


Figure 6-22 Auto Button



**6-5-5-2 For Technart (cont'd)**

- 4.) "AutoAdjust OK" message will appear. If it does not appear. press **AUTO** button again.



**Figure 6-23 AutoAdjust OK message**

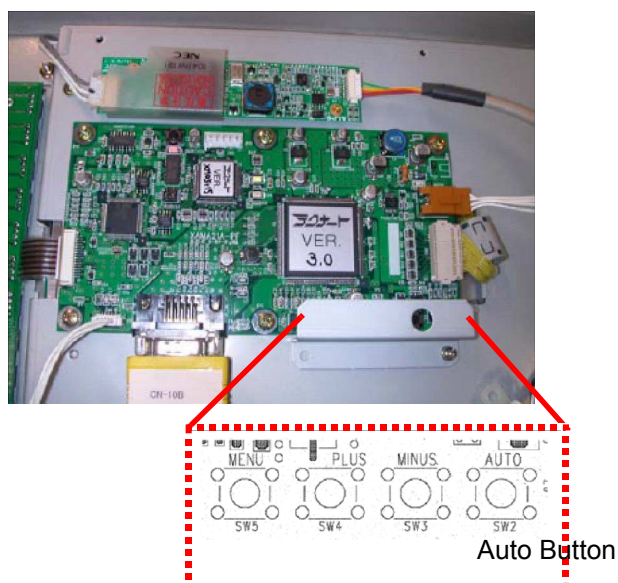


**Figure 6-24 Auto Button**

**6-5-5-2 For Technart (cont'd)**

5.) Display the LCD monitor menu and visually check if auto adjustment succeeds.

Example: Blurring



Blurring at the right side of the character

Example: No blurring



**Figure 6-25 Blurring/No Blurring**

- If no character blurring exists, auto adjustment succeeds. Go to [6-5-5-2-3 Completing adjustment.](#)
- If character blurring exists, auto adjustment fails. Perform [6-5-5-2-2 Manual Deblurring \(For Technart ONLY\).](#)

6-5-5-2-2 Manual Deblurring (For Technart ONLY)

Perform manual deblurring only when auto adjustment fails.

- 1.) Refer to [4-2-2-3 Entering Maintenance Mode](#) to enter the windows desktop.
- 2.) Select **Program > Accessories > Paint** to run the paint software.



**Figure 6-26 Paint Software**

3.) Phase Check:

- a.) Drag and drop the paint screen on the touch panel screen.



**Figure 6-27 Moving Paint Screen**

- b.) Click on square symbol at the top right corner of the paint screen to maximize the screen.

6-5-5-2

For Technart (cont'd)

- c.) Click on the line icon and select the thinnest line.

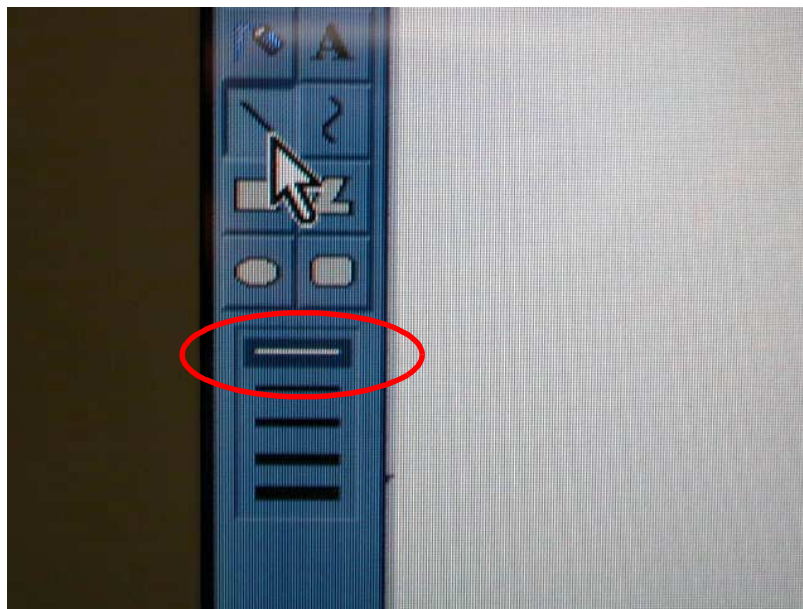


Figure 6-28 Line

- d.) Draw a vertical line at the right side of the screen below and check if it has no deblurring.

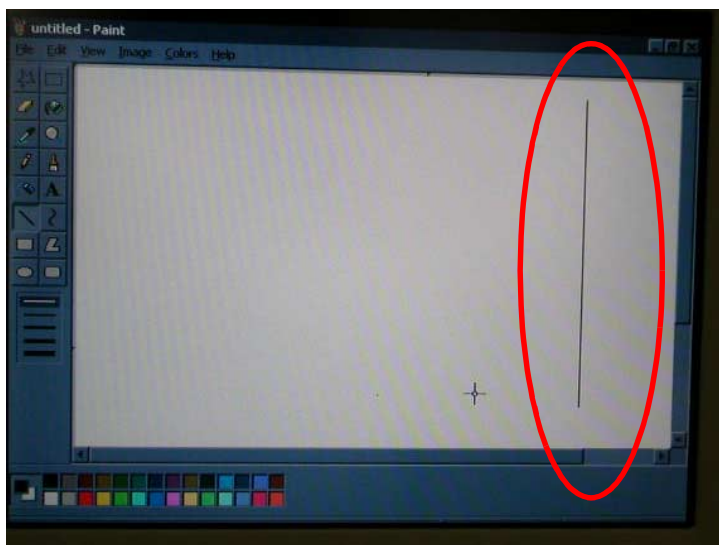


Figure 6-29 Drawing Line

- If deblurring exists, go to next step.
- If no deblurring exists, go to step 4- HTotal Check

6-5-5-2

For Technart (cont'd)

e.) Display the LCD monitor menu and press the MENU button once. The following menu appears.

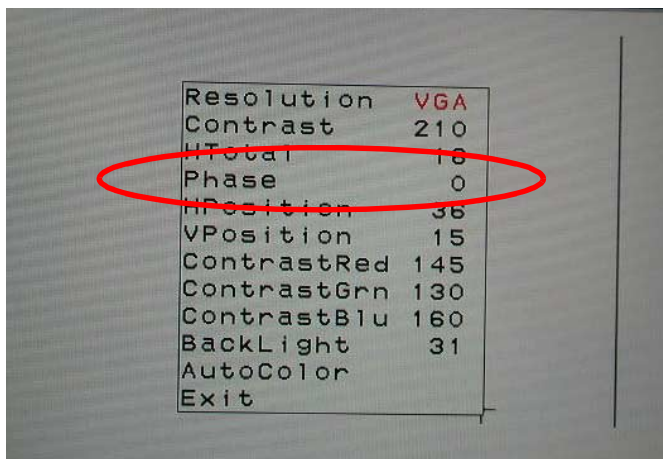


Figure 6-30 Menu Screen

- f.) Repeat to press the MENU button until the "Phase" blinks.
- g.) Repeat to press the PLUS button to find the value with no character blurring. For example, this value is X.



**NOTICE** You can select the number from 0-62. Values with deblurring cause are continuous seven or eight values. So, tips for searching the best value is to avoid such a group. This depends on video card or VGA cable of your scanner.

- h.) Set the value (**X + 14**) to Phase.
- i.) Press the AUTO button once to save the setting.
- j.) Repeat to press the MENU button until the "Exit" blinks
- k.) Press the AUTO button once to exit from the menu.



**6-5-5-2 For Technart (cont'd)**

4.) Htotal Check:

- a.) Display the LCD monitor menu and press the MENU button once. The following menu appears.
- b.) Check HTotal value:
  - If it is 16, go to step5 - Hposition/VPosition check
  - If it is NOT 16, go to next step.

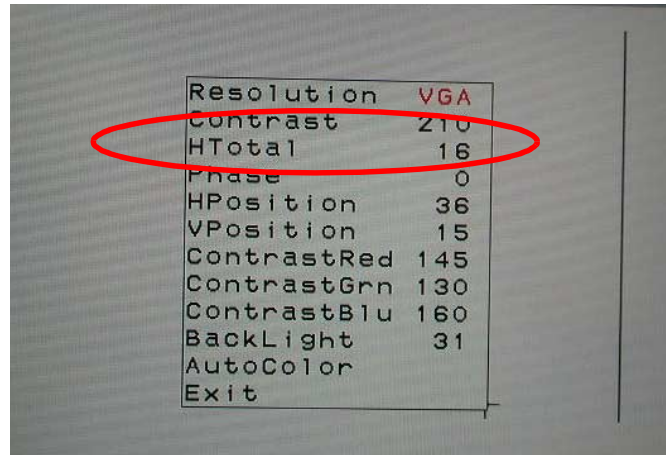


**Figure 6-31 H Total**

- c.) Repeat to press the MENU button until the "HTotal" blinks.
  - d.) Repeat to press the PLUS or MINUS button to set **16**.
  - e.) Press the AUTO button once to save the setting.
  - f.) Repeat to press the MENU button until the "Exit" blinks.
  - g.) Press the AUTO button once to exit from the menu.
- 5.) Hposition/VPosition Check:
- a.) Close the paint software and display windows desktop.



**Figure 6-32 Start-up Screen**

6-5-5-2

**For Technart (cont'd)**

- b.) Check the upper, lower, left, and right edge of the screen. They should be centered evenly in the monitor.
  - If they are vertically out of alignment, adjust VPosition.
  - If they are horizontally out of alignment, adjust HPosition.
- c.) Display the LCD monitor menu and press the MENU button once. The following menu appears.

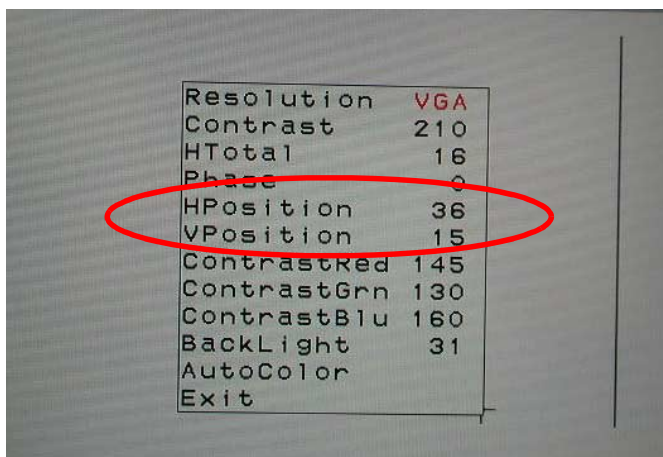


**Figure 6-33 H Position or V Position**

- d.) Repeat to press the MENU button until the “HPosition” or “VPosition” blinks.
  - e.) Repeat to press the PLUS or MINUS button until the screen should be centered evenly in the monitor.
  - f.) Press the AUTO button once to save the setting.
  - g.) Repeat to press the MENU button until the “Exit” blinks
  - h.) Press the AUTO button once to exit from the menu.
- 6.) Go to [6-5-5-2-3 Completing adjustment](#).

6-5-5-2-3 Completing adjustment

- 1.) Display the LCD monitor menu and press the left button (MENU). The following menu appears.
- 2.) Verify that:
  - Contrast: 210
  - ContrastRed: 145
  - ContrastGrn: 130
  - ContrastBlu: 160

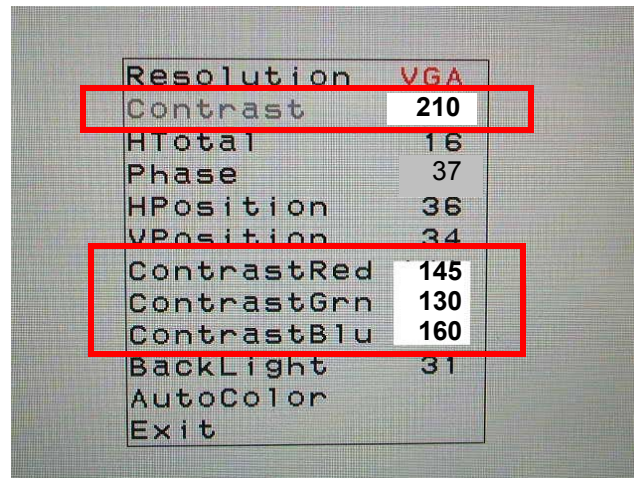


**Figure 6-34 Contrast**

- 3.) Verify that:
  - The display does not move up, down, or sideways.
  - All menu are shown in the LCD display.
  - Turning the brightness knob clockwise fades in and turning it counterclockwise fades out.



## Section 6-6 BW Printer Setting / Adjustment

### 6-6-1 Parameters for UP-D897

- 1.) When system started, Go to **Utility > System > Peripherals**, then hit **Printers** button in the Setup group.
- 2.) Click **SONY UP-D897** in the Printer List, then right click and select **"Properties"**.
- 3.) Select **"General"** tab, then hit **"Printing Preferences ..."**
- 4.) Select **"Layout"** tab, then ...
  - Set **"1920x1280"** into "Paper"
  - Check **off** into "Enlarge to Paper"
  - Set **"Bilinear"** into "Interpolation Method"
  - Set **"Landscape"** into "Orientation"

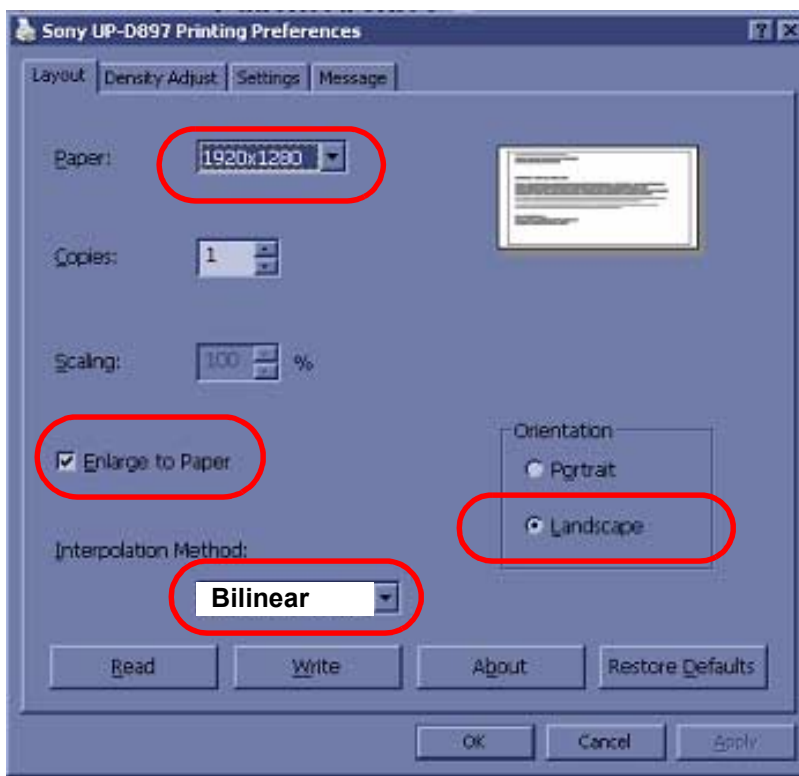


Figure 6-35 Printing Preferences

### 6-6-1 Parameters for UP-D897 (cont'd)

- 5.) Select "**Density Adjust**" tab, then ...
  - Set "**TONE1**" into "GAMMA"
  - Set 7 into "Sharpness"

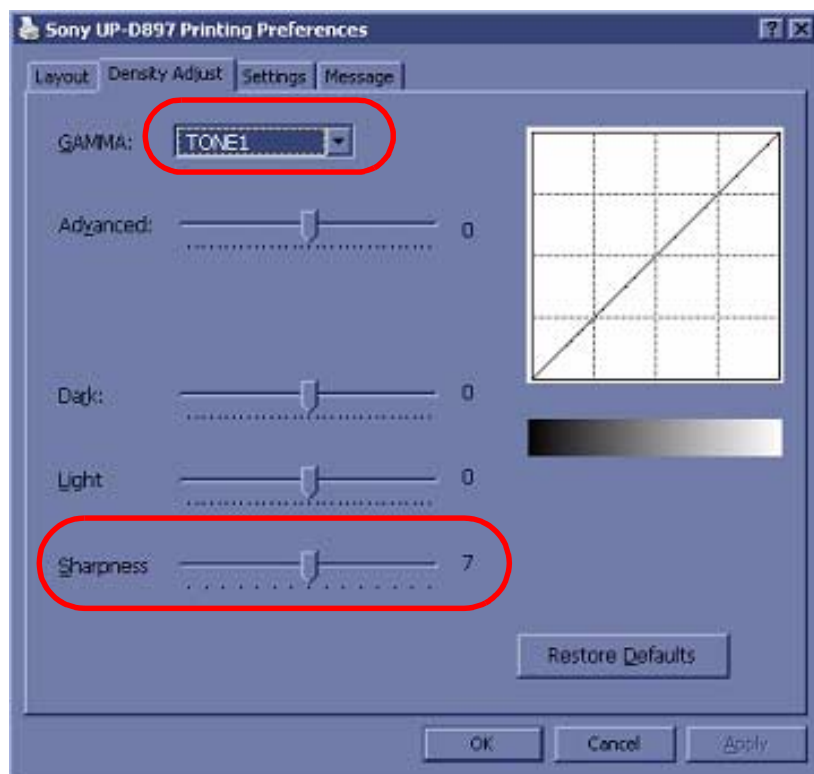


Figure 6-36 Printing Preferences

## 6-6-2 Parameters for UP-D895

- 1.) When system started, Go to **Utility > System > Peripherals**, then hit **Printers** button in the Setup group.
- 2.) Click **SONY UP-D895** in the Printer List, then right click and select "**Properties**".
- 3.) Select "**General**" tab, then hit "**Printing Preferences ...**"
- 4.) Set "**Landscape**" into "Orientation", then click on **Advanced...**

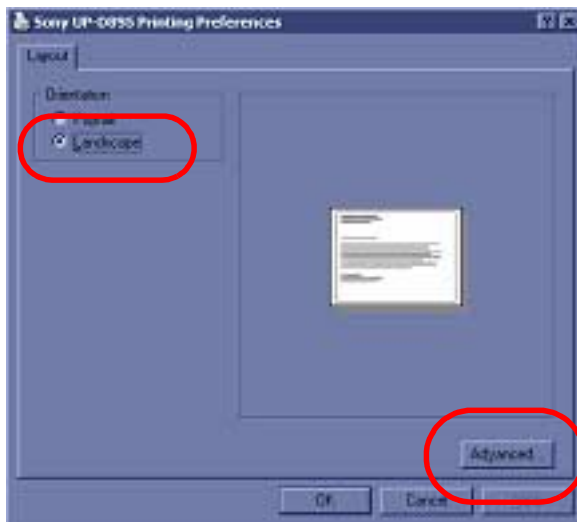


Figure 6-37 Landscape

- 5.) Set "**1920x1280**" into "Paper"

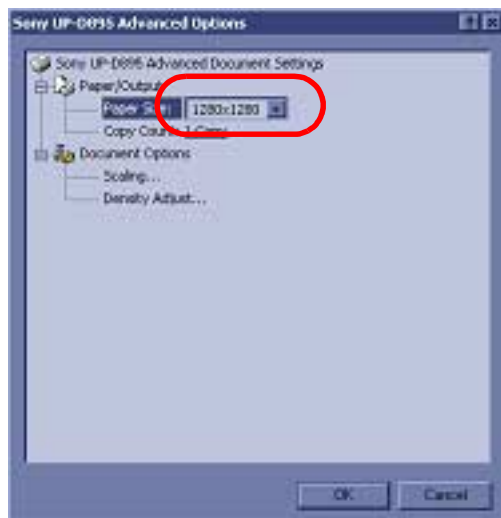


Figure 6-38 Paper

### 6-6-2 Parameters for UP-D895 (cont'd)

- 6.) Click on **Scaling...**, then check **off** into "Enlarge to Paper" and set "**Bilinear**" into "Interpolation Method".

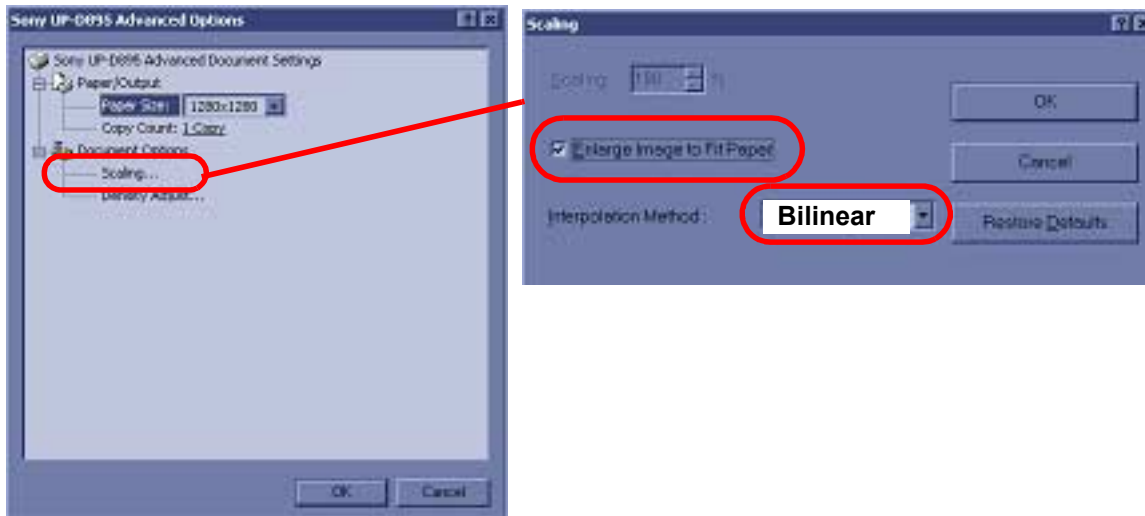


Figure 6-39 Scaling

- 7.) Click on **Density Adjust...**, set "TONE1" into "GAMMA" and set 7 into "Sharpness".

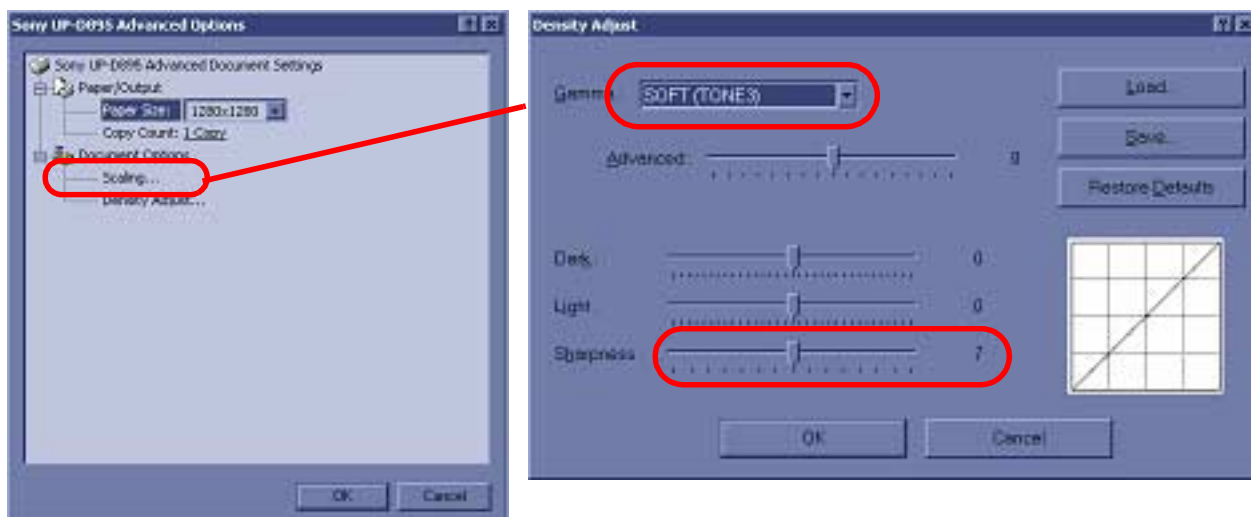


Figure 6-40 Density Adjust

### 6-6-3 Service Tips - Print Quality

When printer is set to "Nearest Neighbor" interpolation method, comments and body pattern may become hard to read. Re-adjust interpolation method to "Bi-Linear" to avoid this situation.

## 6-6-4 Service Tips - Print Speed



### NOTICE Problem:

Compared to the UP-D895, it takes a few seconds longer for the UP-D897 to receive data from L7 system. All that time, an user cannot operate the L7 system and must wait until the UP-D897 finished receiving data from the L7.

### Cause:

This is due to driver software difference between UP-D895 and UP-D897. It seems the UP-D897 driver software has been modified from the UP-D895.

### Solution:

The following actions must be required:

- UP-D897 printer: Change from UP-D897 to UP-D895 on “COMD” menu using the printer jog dial. This solution allows the UP-D897 to be configured to use the UP-D895 interface and driver. When the “COMD” is selected to “CO:895”, the response time becomes the same as the UP-D895. Perform this section.
  - LOGIQ7: Change from UP-D897 to UD-D895 using **Connectivity > Service > BW Printer** to use UP-D895 driver software.
- 1.) Make sure that the UP-D897 is switched ON. (The back light of the LCD light is in green.) If not, press the ON/OFF switch.
  - 2.) Confirm that “READY” is displayed on the LCD, then press the jog dial.

The UP-D897 enters the menu mode. When you perform a menu operation for the first time after you purchase the unit, the top item of the “BEEP” menu will be displayed. If you already have performed a menu operation, the items that you set last is displayed.



Jog Dial  
(PRESS)

## 6-6-4 Service Tips - Print Speed (cont'd)

- 3.) Turn the jog dial up or down until "COMD" is displayed on the LCD.
- 4.) Press the jog dial. "CO:897" is displayed.

The UP-D897 enters the mode in which you can select the driver setting. "CO:897", which is the driver setting for D897, is displayed on the LCD. You need to change to "CO:895" which is the driver setting for the D895.



- 5.) Turn the jog dial up or down until "CO:895" is displayed on the LCD.
- 6.) Press the jog dial. The LCD display changes to "COMD". The UP-D897 completes to be set to the UP-D895 mode.



### Notice:

With setting the UP-D897 COMD to UP-D895, the following items cannot be selected or operated from the jog dial.

| Item No. | Items | Descriptions                                                                                                                                                                                                                                                                                                       |
|----------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1        | GAMMA | TONE4(VERY SOFT) cannot be selected.                                                                                                                                                                                                                                                                               |
| 2        | GAMMA | Cannot be selected from jog dial. It can change only from Properties of UP-D895 menu.<br>Corresponding type of GAMMA between UP-D895 and UP-D897 is as follows:<br><u>UP-D897 -&gt; UP-D895</u><br>TONE1 -> SOFT (TONE3)<br>TONE2 -> NORMAL (TONE2)<br>TONE3 -> HARD (TONE1)<br>TONE4 (VERY SOFT) -> Not Supported |
| 3        | QTY   | Cannot be selected from jog dial. It can change only from Properties of UP-D895 menu.                                                                                                                                                                                                                              |
| 4        | RSIZE | Cannot be selected from jog dial. It can change only from Properties of UP-D895 menu.                                                                                                                                                                                                                              |
| 5        | SHARP | Cannot be selected from jog dial. It can change only from Properties of UP-D895 menu.                                                                                                                                                                                                                              |

## Section 6-7 Cleaning the Trackball

- 1.) Power OFF the scanner.
- 2.) Place your fingers onto the notches of the trackball retainer ring.
- 3.) Rotate the retainer ring counterclockwise until it can be removed from the keyboard.



**Figure 6-41 Rotating the Retainer Ring**

- 4.) Lift off the inner retainer and trackball from the keyboard.

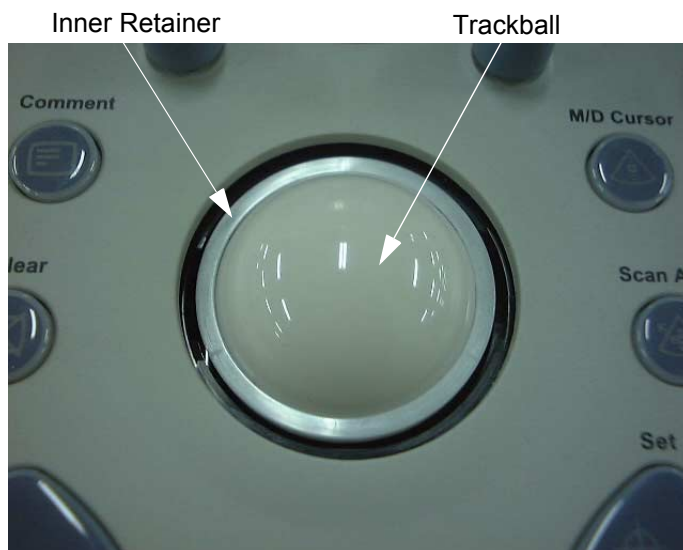


**Figure 6-42 Removing Inner Retainer and Trackball**

## Section 6-7 Cleaning the Trackball (cont'd)

- 5.) Wipe off any oil or dust from the trackball using a cleaner or dry cloth.
- 6.) Wipe off any oil or dust from the trackball housing, rollers, and small ball, using a cleaner or cotton bud.

 **NOTICE** When cleaning the trackball housing, make sure not to spill or spray any liquid into the trackball housing (Keyboard or system).  
Avoid organic solvents that may damage the mechanical parts of the trackball assembly.  
Do not apply much force to the small ball.



**Figure 6-43 Cleaning TrackBall and Housing**



## Section 6-7 Cleaning the Trackball (cont'd)

7.) Wipe off any oil or dust from the two rollers using a cleaner or cotton bud.



**NOTICE**

When cleaning the roller, make sure not to spill or spray any liquid into the trackball housing (Keyboard or system). Use either ethanol, isopropyl alcohol or VCR head cleaner to clean the trackball assembly. Avoid other solvents that may damage the mechanical parts of the trackball assembly.

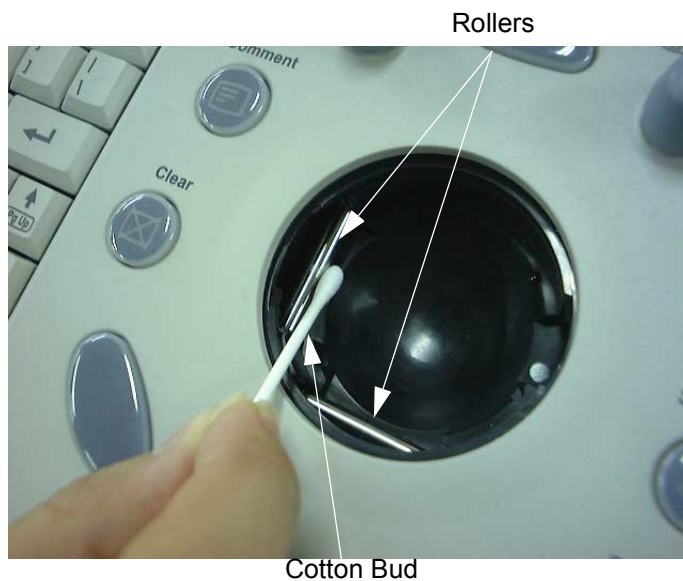


**Figure 6-44 Cleaning Rollers**

## Section 6-7 Cleaning the Trackball (cont'd)

- 8.) Insert the trackball into the housing.
- 9.) Place the trackball and inner retainer into the housing with its stopper facing down. Lift off the inner retainer and trackball from the keyboard.

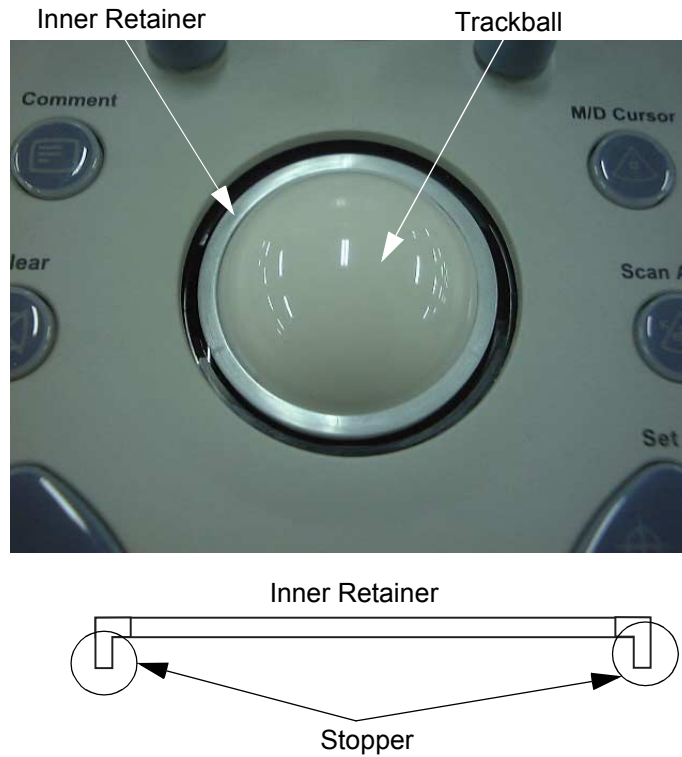


**Figure 6-45 Removing Inner Retainer and Trackball**

- 10.) Install the trackball retainer ring onto the inner retainer, then rotate it clockwise until its notches are set in the horizontal position.

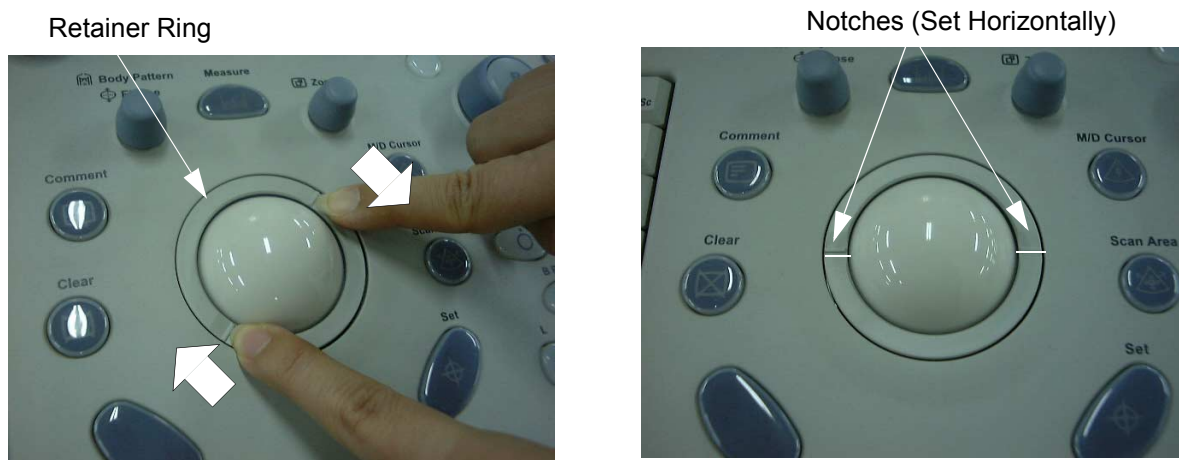


**Figure 6-46 Rotating the Retainer Ring**

## Section 6-8 Jumper and Dip Switch Setting

### 6-8-1 Dip Switch Setting

Normally the dip switches shall not be adjusted. In case of special needs, such as scanner upgrade, refer to each instructions/documentations for proper setting.

The dip switch must be set properly according to the table below. The value in the table (Dip Switch setting) represents the bit location as shown.

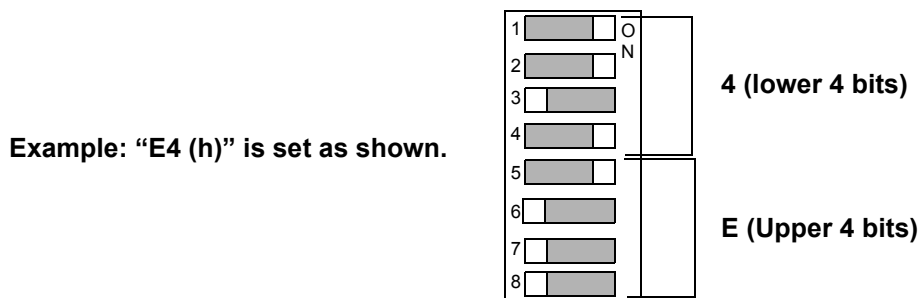


Figure 6-47 Dip Switch Setting

#### Bit Setting for DIP Switch 1 to 4 (lower 4 bits)

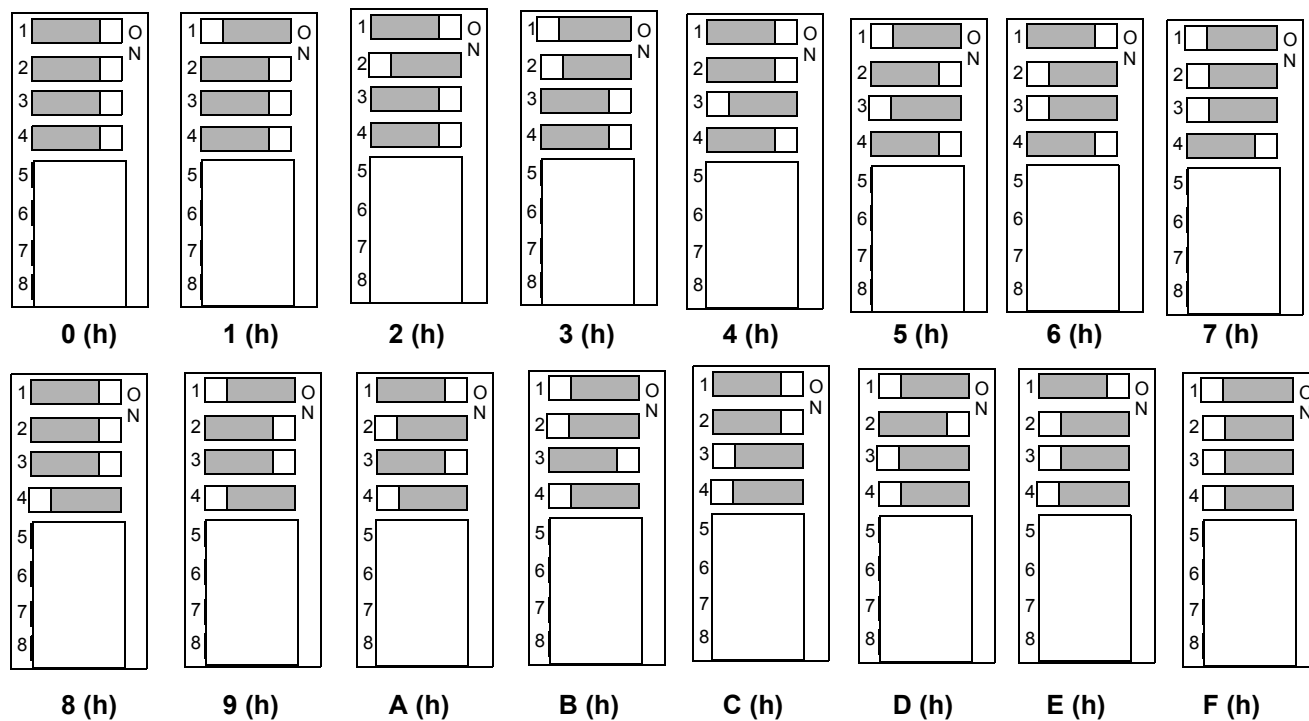


Figure 6-48 Bit Setting (1 to 4)

6-8-1 Dip Switch Setting (cont'd)

Bit Setting for DIP Switch 5 to 8 (Upper 4 bits)

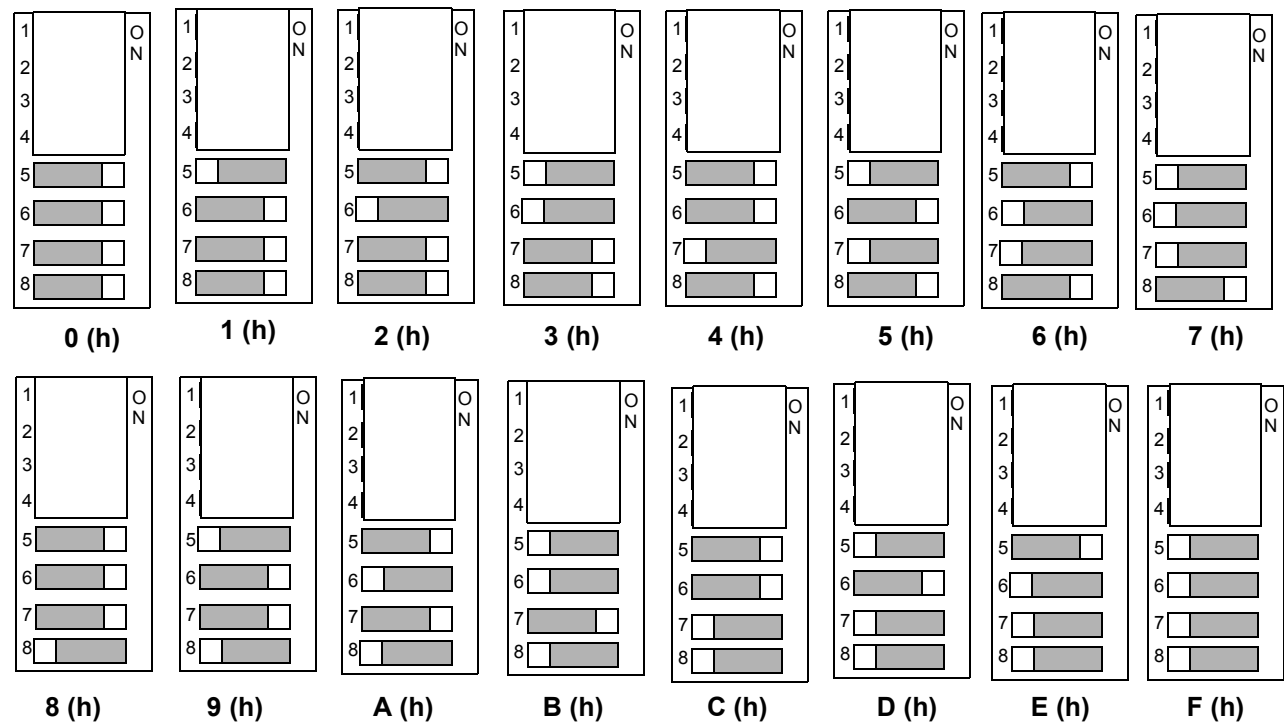


Figure 6-49 Bit Settings (5 to 8)

## 6-8-2 Jumper Setting

### 6-8-2-1 HDD

Always set the jumper between MASTER pins.

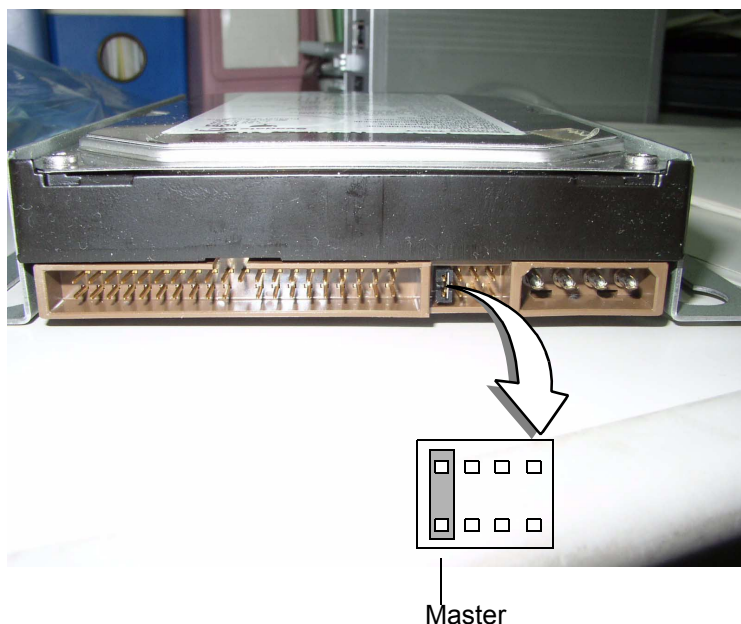


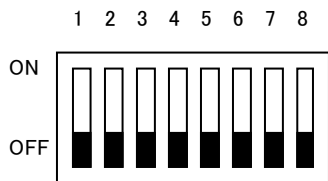
Figure 6-50 HDD Jumper

## 6-8-3 Printer Dip Switch Setting

### 6-8-3-1 Mitsubishi MD-3000 VCR Dip Switch Setting

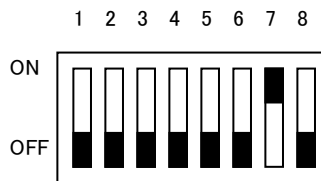
This section describes Mitsubishi MD-3000 VCR communication setting. Field Service Engineer (FSE) is not allowed to modify dip switch setting. Following setting is documented for purpose of troubleshooting by FSE.

SW5001



Serial Communicatiton

SW5001



USB Communicatiton

Figure 6-51 MD-3000 Dip Switch

### 6-8-3-2 Accessing Dip Switch Module for inspection

- 1.) Remove the two screws of RS232C board plate.

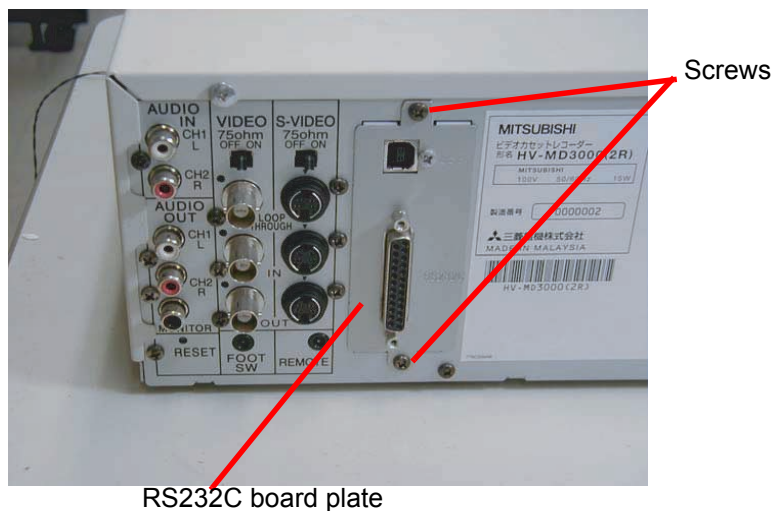


**Figure 6-52 Opening Board Plate**

- 2.) Remove the RS232C board from the VCR to access the dip switch.

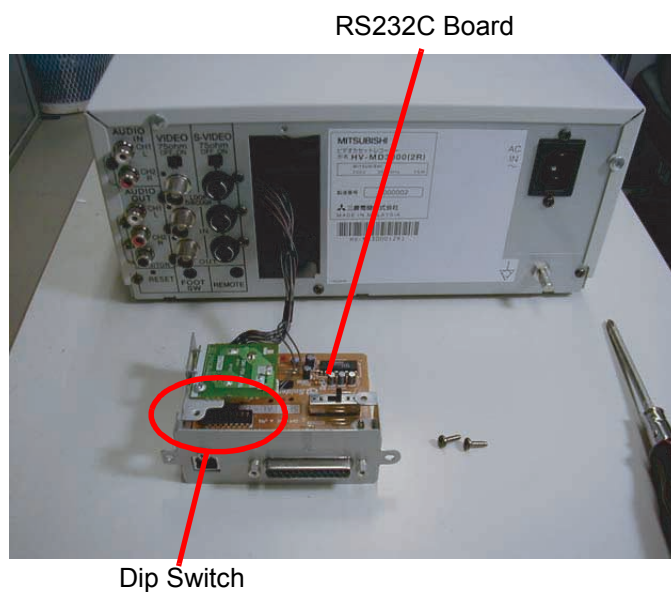


**Figure 6-53 Removing Board**

### 6-8-3-3 CP30D Dip Switch Setting



**NOTICE** Do NOT change the DIP SW setting!!

This section describes CP30D Dip Switch setting. Field Service Engineer (FSE) is not allowed to modify dip switch setting. Following setting is documented for purpose of troubleshooting by FSE.

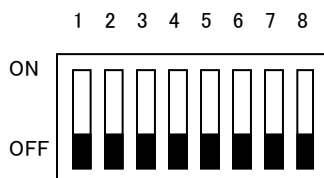


**Figure 6-54 CP30D Dip Switch (All OFF)**





# Chapter 7

## Diagnostics/Troubleshooting

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### Section 7-1 Overview

#### 7-1-1 Purpose of Chapter 7

This section describes how to setup and run the tools and software that help maintain image quality and system operation. Very basic host, system and board level diagnostics are run whenever power is applied. Some Service Tools may be run at the application level. However most software tests are required.

**Table 7-1 Contents in Chapter 7**

| Section | Description | Page Number |
|---------|-------------|-------------|
| 7-1     | Overview    | 7-1         |

## 7-1-2 Diagnostic Procedure Summary

Although Diagnostics can be run in any order, the *Bottom-up Confidence-Building Order* outlined in this section:

- Provides a framework from which overall diagnostic testability can be discussed.
- Provides a top-level model that describes the confidence-building aspect of the diagnostics.
- Provides a logical step-by-step approach to system check-out and fault isolation.

There are two levels of diagnostic: board-level and system level.

- Board-level diagnostics are intended to test functionality of a single circuit board.
- System-level diagnostics are intended to test functionality on more than one circuit board.

Unused system components (board or signals) for each diagnostic test are drawn in gray (ghosted).

**NOTE:** *In this document, the Host includes all hardware upstream of the PCI cable. The diagnostics in this chapter do NOT test anything upstream of the PCI cable. Therefore, any upstream hardware or software must be functional before running these diagnostics.*

# Chapter 8

## Replacement Procedures

### Section 8-1 Overview

#### 8-1-1 Purpose of Chapter 8

This chapter describes replacement procedures for the following modules and subsystems.

**Table 8-1 Contents in Chapter 8**

| Section | Description                                            | Page Number |
|---------|--------------------------------------------------------|-------------|
| 8-1     | Overview                                               | 8-1         |
| 8-2     | Software Loading Procedures for BT09 (R8.x.x or later) | 8-3         |

#### 8-1-2 Returning/Shipping Probes and Repair Parts

Equipment being returned must be clean and free of blood and other infectious substances.

GEMS policy states that body fluids must be properly removed from any part or equipment prior to shipment. GEMS employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstance should a part or equipment with visible body fluids be taken or shipped from a clinic or site (for example, body coils or an ultrasound probe).

The purpose of the regulation is to protect employees in the transportation industry, as well as the people who will receive or open this package.

**NOTE:** *The US Department of Transportation (DOT) has ruled that “items that were saturated and/or dripping with human blood that are now caked with dried blood; or which were used or intended for use in patient care” are “regulated medical waste” for transportation purposes and must be transported as a hazardous material.*

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## Section 8-2

### Software Loading Procedures for BT09 (R8.x.x or later)



**CAUTION** This software can be installed for the system with software version R8.x.x.

#### 8-2-1 General

This describes software loading procedures for BT09 System with BEP4 only. For the consoles upgraded BT09 systems (contains BEP3 inside), follow procedure in Section 8-7 Software Loading Procedures (R7.5.x or later).

Also, do not attempt to apply this procedure if you are upgrading older BTs to BT09/R8.x.x.



**CAUTION** Loading R8.x.x application software procedures requires basically C drives to be ghosted. In this case, patient image data, preset parameters, and customer data will be kept. However, in case full ghost will be required, you **MUST** back up before starting this procedure as follows. For customer data safe, we recommend you to back up even for the C ghost only.

**NOTE:** Be sure no images are in the clipboard or opened exams before loading base image software.

**NOTE:** Before loading base image software, if you are troubleshooting loss of image or patient data, review troubleshooting to collect information for future analysis.

#### 8-2-2 Parts Required

- LOGIQ 7 R8.x.x Application CD
- LOGIQ7 Ghost DVD for BECOMP4: 5305206-x

#### 8-2-3 Time Required

Approximately 1 hour

## 8-2-4 Software Loading Work-flow and Check-list

This check sheet is prepared to assist a FE during software loading.

|               |  |                  |  |
|---------------|--|------------------|--|
| Customer Name |  | Customer Contact |  |
| Console #     |  | Unit ID          |  |
|               |  | Unit Type        |  |

|  | Section                                                   | Item                                                              | Check Parameter             | Result                                                        |
|--|-----------------------------------------------------------|-------------------------------------------------------------------|-----------------------------|---------------------------------------------------------------|
|  | 5-2-2-2<br>BT09_SV_BEP4<br>Configuration Varia-<br>tionos | Check current system version before ghost/application loading     | Should be R8.x.x or later   | Ver.                                                          |
|  | 8-2-6-1 - Disabling<br>USB Devices                        | Check if all USB printers are OFF.<br>Check if SCSI UP-D50 is ON. | Should be OFF.              | <input type="checkbox"/> OK <input type="checkbox"/> N/A      |
|  | 8-2-6-2 - Save Cus-<br>tomer Data / Setting               | Save Customer Setting                                             | User and Password           | <input type="checkbox"/> OK <input type="checkbox"/> N/A      |
|  |                                                           | Save Customer Setting                                             | Connectivity Parameter      | <input type="checkbox"/> OK <input type="checkbox"/> N/A      |
|  |                                                           | Save Customer Setting                                             | Option Key String           | <input type="checkbox"/> OK <input type="checkbox"/> N/A      |
|  |                                                           | Regional Preset                                                   |                             | <input type="checkbox"/> OK <input type="checkbox"/> N/A      |
|  | 8-2-7 - Install Base<br>System                            | Install Base System                                               | Select fullghost or C ghost | <input type="checkbox"/> Full <input type="checkbox"/> C only |
|  | 8-2-8 - Modify Sys-<br>tem/Windows Set-<br>tings          | UPS Setting                                                       | Run UPSSETUP.reg            | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  |                                                           | Drive Letter setting                                              | CD/DVD to be Drive 'G'      | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  |                                                           | Hardware Dvice                                                    |                             | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  |                                                           | LAN Parameter                                                     |                             | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  |                                                           | TCP/IP Setting                                                    | Verify                      | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  |                                                           | Date/Time Setting                                                 | Verify                      | <input type="checkbox"/> OK <input type="checkbox"/> NG       |
|  | 8-2-9 - Installing<br>R8.x.x Application<br>Software      | Application CD correctly recognized                               | App loading                 | <input type="checkbox"/> OK <input type="checkbox"/> NG       |

|  | Section                   | Item                           | Check Parameter                   | Result                                                   |
|--|---------------------------|--------------------------------|-----------------------------------|----------------------------------------------------------|
|  | 8-2-10 - System Settings  | Software Version               | expected version R8.x.x           | ver.                                                     |
|  |                           | Check Local Data Flow          | Local Archive – Int.HDD           | <input type="checkbox"/> OK <input type="checkbox"/> NG  |
|  |                           | Computer Name and connectivity | Set parameters                    | <input type="checkbox"/> OK <input type="checkbox"/> NG  |
|  |                           | Software Options               | Check                             | <input type="checkbox"/> OK <input type="checkbox"/> NG  |
|  |                           | Set VCR parameters             | Set parameters                    | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | Set Language                   | Set Language options              | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | Printer Registration           | Set printer                       | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | Report Template                | Set user template                 | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | Regional Preset                | Set Regional Preset.              | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | Analog Peripheral              | Set analog peripheral parameters. | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  |                           | UP-D897                        | Set UP-D897 parameter.            | <input type="checkbox"/> OK <input type="checkbox"/> N/A |
|  | 8-2-11 - Functional Check | Service Platform               | Be able to enter SV platform      | <input type="checkbox"/> OK <input type="checkbox"/> NG  |
|  |                           | Probe Recognition              | No artifacts or no problem'       | <input type="checkbox"/> OK <input type="checkbox"/> NG  |

## 8-2-5 Software Loading Steering Guide

This section and the following pages should provide detailed guide of the system and application installation procedures.

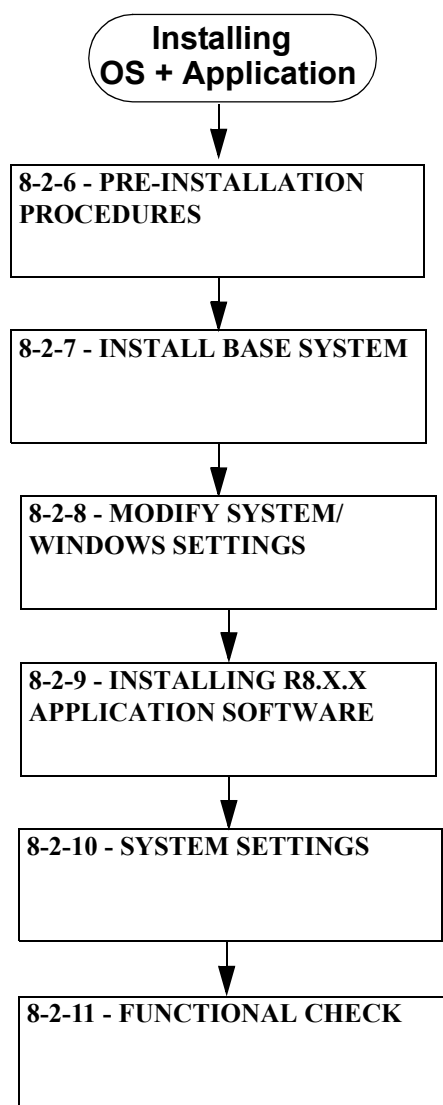


Figure 8-55 BT07 Software Loading Procedures



### 8-2-5-1 Processes prior to R8.x.x Installation

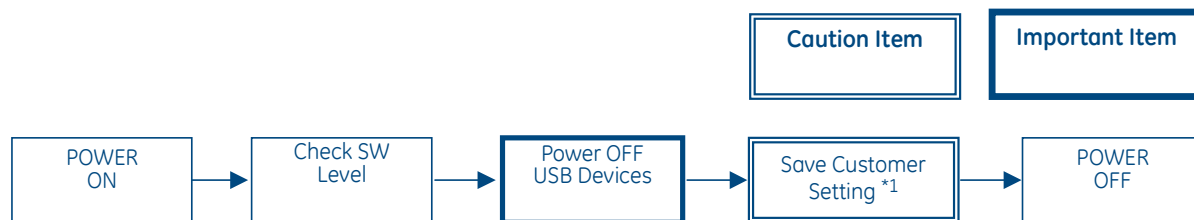


Figure 8-56 Pre-installation Procedures



**NOTICE** \*1: Loading R8.x.x application software procedures requires, at minimum, C: Drives to be ghosted (as opposed to full ghost). In such case, patient image data, preset parameters, and customer data will be maintained. Nonetheless, for safe-keeping customer data, it is recommended to back up all data prior to R8.x.x installation.  
In case of Full Ghost, customer data/setting must be saved for restoration after the process.

### 8-2-5-2 Processes to install R8.x.x

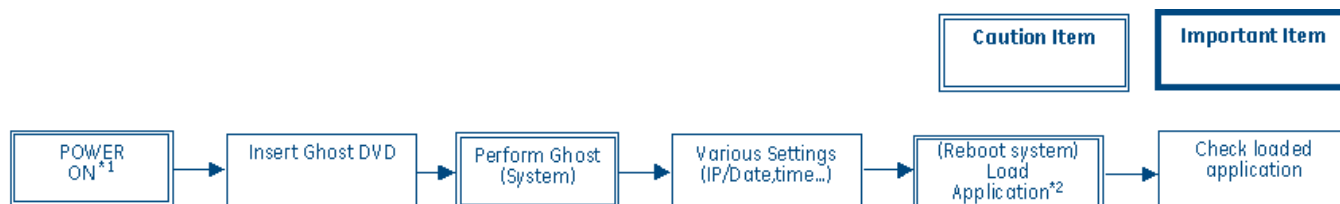


Figure 8-57 Software Loading Procedures



**NOTICE** \*1: Do not power ON the peripherals when installing base system image. Disconnecting LAN is also recommended procedure to ensure stable process.

\*2: Press the **N** key at start of process should FE wish to abort installation process.

Pop-up window may appear to notify process in progress - FE does not have to click **OK** as it disappears automatically.

Do NOT operate mouse or keyboard during process. It may cause abnormal system shutdown during installation.

The system will shut down and restart automatically during process of application loading.

8-2-5-3 After installation of R8.x.x

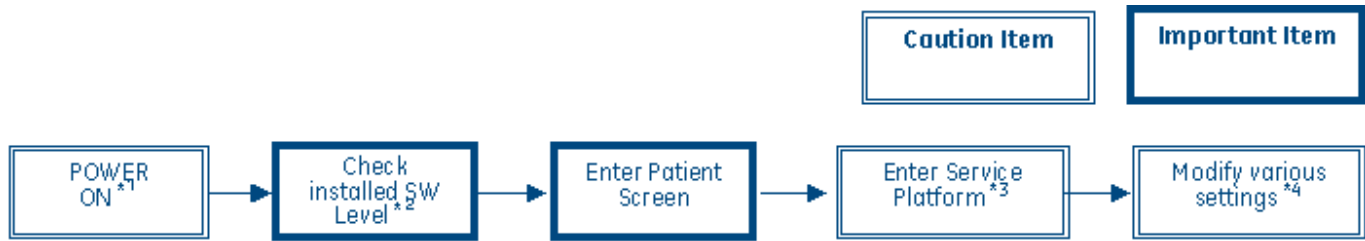


Figure 8-58 Post Installation Procedures

-  **NOTICE** \*1: Verify that Probes are not connected to the scanner. Other peripheral devices such as printers should be turned ON at this time.
- \*2: If Operator logon window appears, select "adm"(administrator) and enter the password that is configured already (default value is no password ? just press "enter" key).
- \*3: If FE cannot see login window for Service Platform, then installation of the platform have failed. FE must double check the installation setting, and repeat ghost/appli load procedure.  
For entering password, make sure CAPS (lock) is OFF.
- \*4: Each computer name is unique. Check the scanner serial number printed on the label located at the rear lower side of the scanner. For example, if 123456YM1 is printed, then enter **L7-123456YM1**. Regional Preset, Analog Peripheral, and UP-D897 setting must be required.  
Make sure to press "Save Setting" before exiting scanner setup window, or otherwise operator cannot enter the new patient screen.

## 8-2-6 Pre-installation Procedures



**CAUTION** Loading R8.x.x application software procedures requires basically C drives to be ghosted. In this case, patient image data, preset parameters, and customer data will be kept. However, in case full ghost will be required, you **MUST** back up before starting this procedure as follows. For customer data safe, we recommend you to back up even for the C ghost only.

The following section describes activities necessary before system and application installation.

### 8-2-6-1 Disabling USB Devices

1.) Turn OFF all USB peripherals connected to the scanner.

### 8-2-6-2 Save Customer Data / Setting

Save the following user data.

- Patient image data (Refer to operation manual.)

**Please confirm the user if the user has the Media (CD/DVD-R) that is not finalized on the system. You should finalize the Media before R8.x.x Upgrade.**

**Because once the system is upgraded to R8.x.x, The system never recognizes the no-finalized media (CD/DVD-R).**

### 8-2-6-3 Operator Login Password

The Operator Login Password will be deleted even if the BECOMP is not replaced. So, write down the password if necessary.

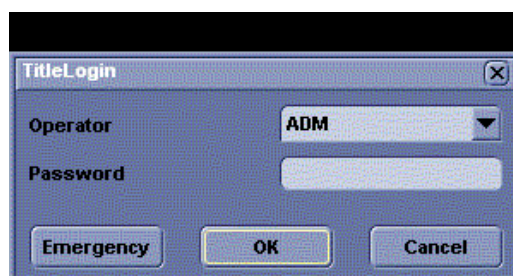


Figure 8-59 Login Password

| Parameters              | Descriptions |
|-------------------------|--------------|
| Operator Login Password |              |

Table 8-2 Login Password

8-2-6-4     **Saving Connectivity**

Before starting upgrading, write down the **Connectivity Setting** for back-up.

- 1.) Touch **Utility > Connectivity** on the touch panel and click the **TCP/IP** tab.
- 2.) Write down the following parameters:

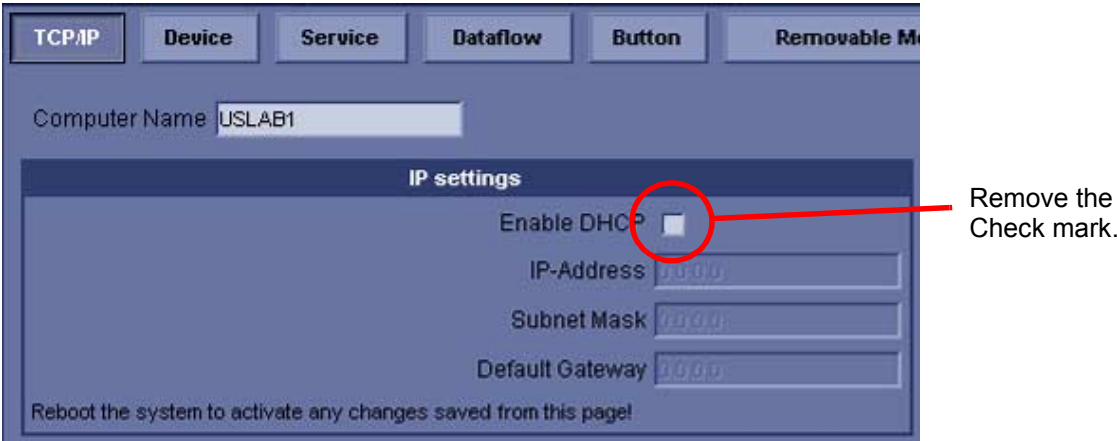


Figure 8-60    TCP/IP

| Parameters                                                                                                                | Descriptions (Entry for Stand-Alone System) |
|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Computer Name                                                                                                             |                                             |
| Enable DHCP                                                                                                               | This parameter <b>must NOT</b> be selected. |
| IP-Address                                                                                                                | (192.168.1.2)                               |
| Subnet Mask                                                                                                               | (255.255.255.0)                             |
| Default Gateway                                                                                                           | (192.168.1.1)                               |
| Note : For a stand-alone system, preset values of IP adress, subnet mask, and default gateway, shown above, must entered. |                                             |

Table 8-3    TCP/IP

### 8-2-6-5 Software Option

- 1.) Touch **Utility > Admin.**
- 2.) Click on **System Admin** tab and write down **HW Number** and **Installed Option Keys..**

The screenshot shows the 'System Admin' tab selected. The 'Product' field is set to 'Radiology Pegasus'. The 'HW Number' field is highlighted with a red box and an arrow pointing to it. The 'SW Option Key' section shows a list of 'Installed Option Keys' with two keys highlighted: 'E5D9N-JP6GZ-E3MX5-VK4ST-4ZTF3' and 'BX73B-GHK7H-JSKFN-VTWWK-HZXRS'. A red box and arrow point to this list. On the right, there is a table of options and their status.

| Option        | Status                 |
|---------------|------------------------|
| Basic         | Permanent              |
| Advanced3D    | Valid until:12/31/2004 |
| Dicom         | Valid until:12/31/2004 |
| LOGIQView     | Valid until:12/31/2004 |
| BFlow         | Valid until:12/31/2004 |
| CodedContrast | Valid until:12/31/2004 |
| StressEcho    | Valid until:12/31/2004 |
| ReportWriter  | Valid until:12/31/2004 |
| CrossBeam     | Valid until:12/31/2004 |
| PFD           | Valid until:12/31/2004 |

Figure 8-61 System Admin

| Items                | Descriptions |
|----------------------|--------------|
| HW Number            |              |
| Installed Option Key |              |
|                      |              |
|                      |              |
|                      |              |
|                      |              |
|                      |              |
|                      |              |
|                      |              |

Table 8-4 System Admin

## 8-2-6-6 Regional Preset

- 1.) Go to **Utility > System > About**.
- 2.) Write down the current Preset Region.

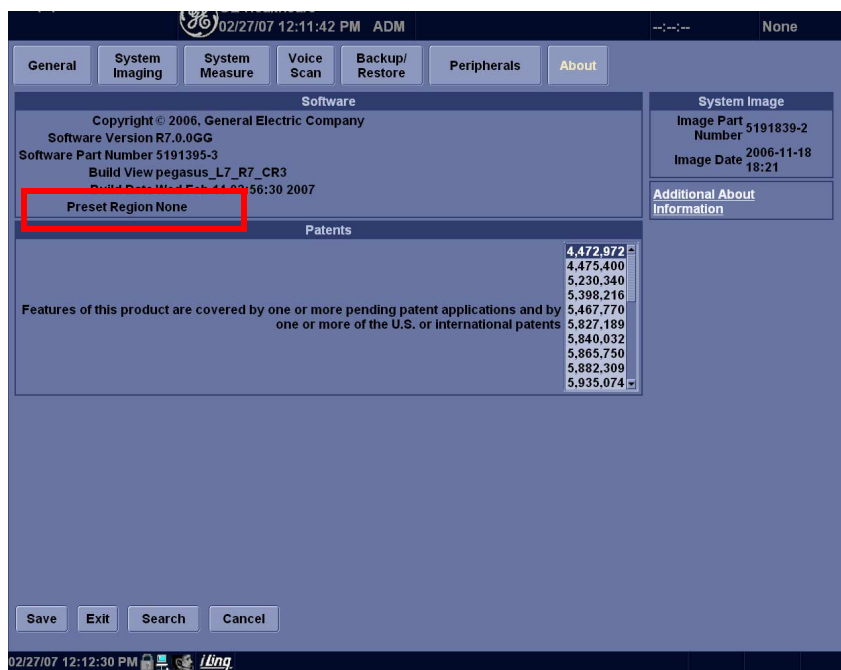


Figure 8-62 Preset Region

### 8-2-6-7 Printer Registration

- 1.) Select **Utility > Connectivity > Button**.
- 2.) Write down the printer names which are registered to Print1 through Print4.
- 3.) Click on >> to add Printflow View.

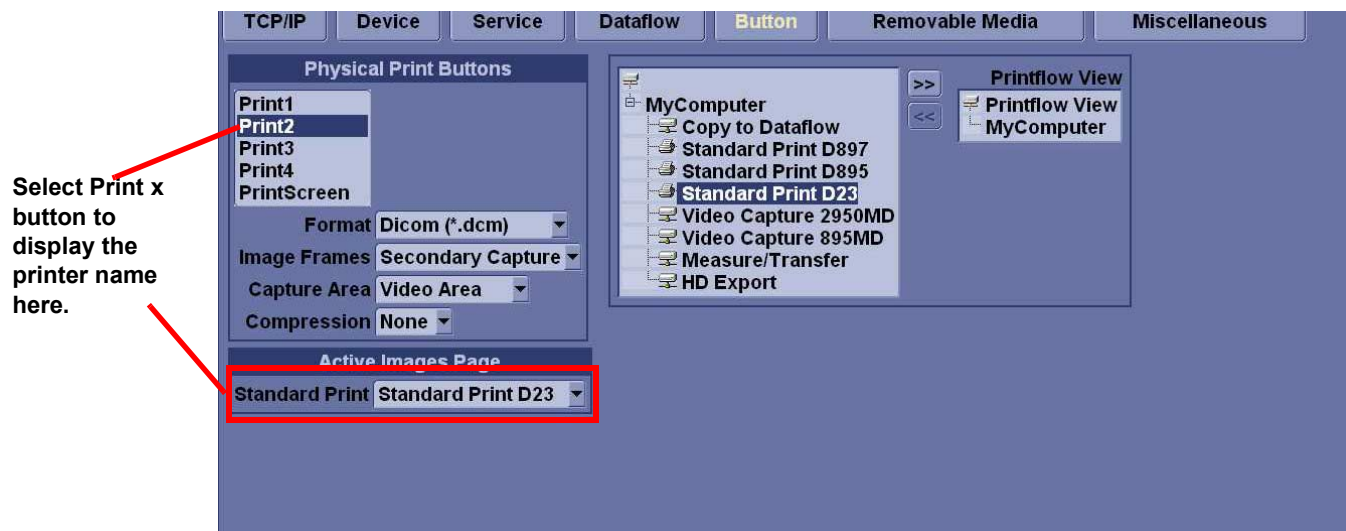


Figure 8-63 Printer Registration

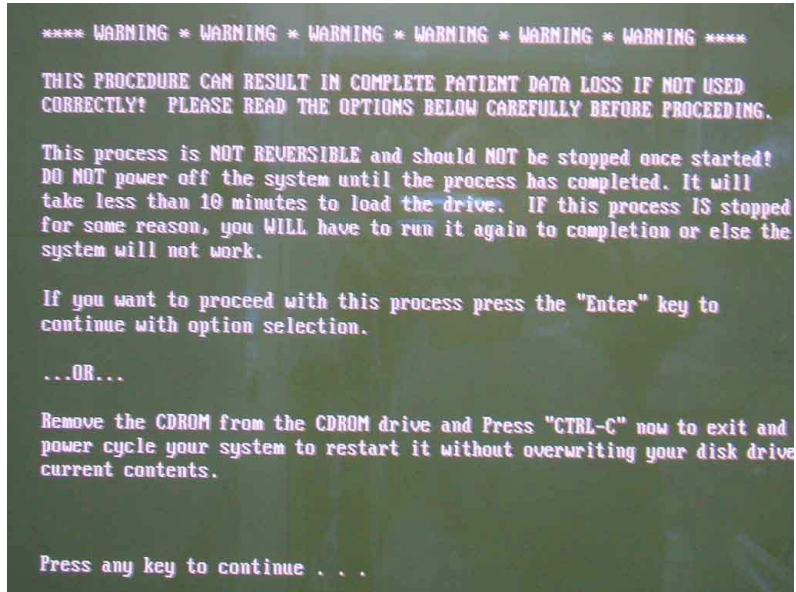
| Button | Active Image Printer |
|--------|----------------------|
| Print1 |                      |
| Print2 |                      |
| Print3 |                      |
| Print4 |                      |

Table 8-5 Printer Registration

## 8-2-7 Install Base System

 **NOTICE** Before starting to install base system, all printer must be disconnected from the system.

- 1.) Power OFF the scanner, wait more than 5 seconds, then power ON the scanner.
- 2.) Open the DVD drive and set the Ghost DVD.  
DVD drive reads Ghost DVD automatically and go to next step.
- 3.) After loading software, when the following screen appears, press the **Enter** key.



```
**** WARNING * WARNING * WARNING * WARNING * WARNING * WARNING ****

THIS PROCEDURE CAN RESULT IN COMPLETE PATIENT DATA LOSS IF NOT USED
CORRECTLY! PLEASE READ THE OPTIONS BELOW CAREFULLY BEFORE PROCEEDING.

This process is NOT REVERSIBLE and should NOT be stopped once started!
DO NOT power off the system until the process has completed. It will
take less than 10 minutes to load the drive. IF this process IS stopped
for some reason, you WILL have to run it again to completion or else the
system will not work.

If you want to proceed with this process press the "Enter" key to
continue with option selection.

...OR...

Remove the CDROM from the CDROM drive and Press "CTRL-C" now to exit and
power cycle your system to restart it without overwriting your disk drive
current contents.

Press any key to continue . . .
```

Figure 8-64 Enter



## 8-2-7 Install Base System (cont'd)

- 4.) The following screen appears. Press **B** then **Enter** to initialize the **C** drive

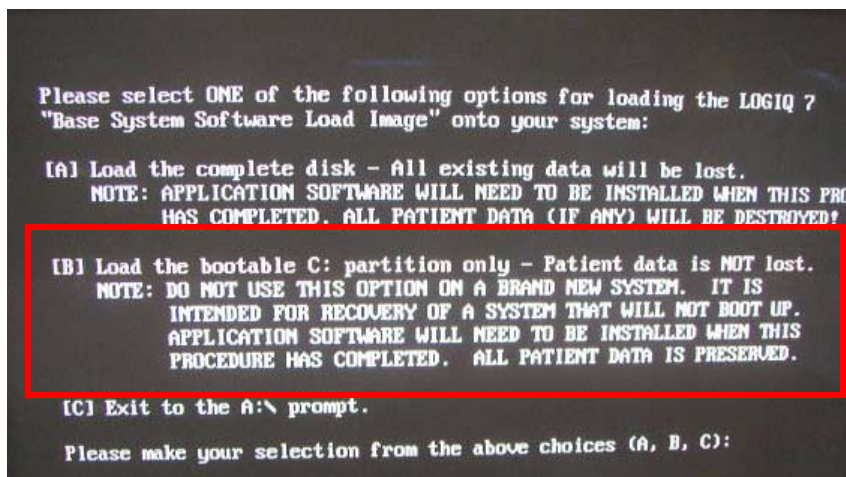


Figure 8-65 Select B



**CAUTION** If you select [A], all the archive would be lost.

- 5.) Check if the message appears as reloading C: partition only, then press **Enter** key.  
If the message appears as reloading the entire disk, press **CTRL-ALT-DEL** to reboot the system and retry from procedures described in previous page.

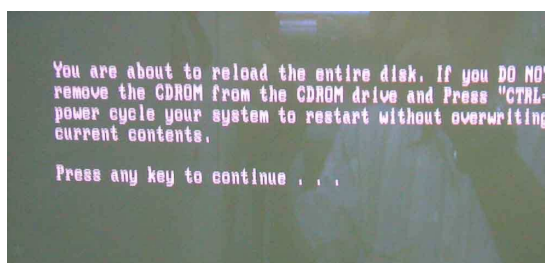


Figure 8-66 Enter

## 8-2-7 Install Base System (cont'd)

- 6.) If the following screen appears, verify that **OK** button is selected, then press **Enter** key. (If it is not selected, select **OK** button using the arrow keys then press **Enter** key.)



Figure 8-67 OK

- 7.) Approx. fifteen minutes later, the following screen appears. Eject the **Base System Software Load Image DVD** from the drive.

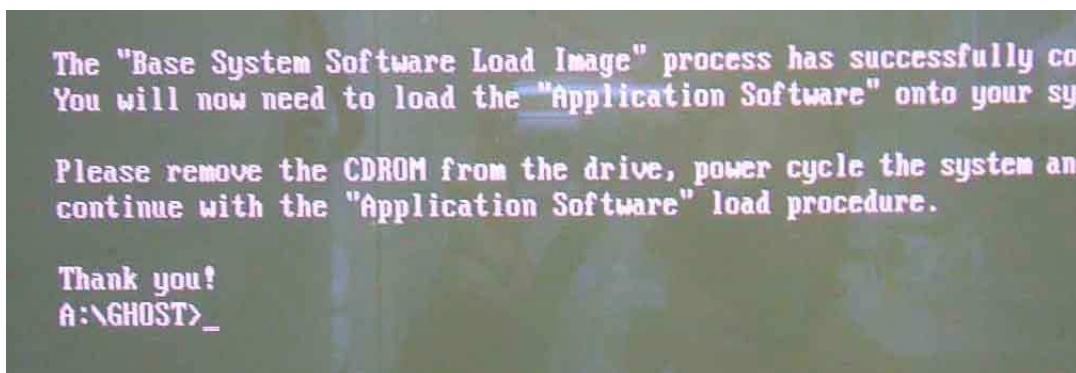


Figure 8-68 Ejecting DVD



**NOTICE** The Base System Software Load Image DVD must be stored onto the PC box cover.

- 8.) To restart the system, press **Ctrl + Alt + DEL** key at the same time.

## 8-2-8 Modify System/Windows Settings

After Base System is successfully installed, various parameters must be properly set before proceeding to Application load. The below outlines necessary system/windows setting.

**Table 8-6 System/Windows Settings**

| Item              | Method                                                                                                                                                                  | Proper Value                             |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| UPS Setting       | Automatic Setting                                                                                                                                                       | (n/a – just load)                        |
| (Restart System)  |                                                                                                                                                                         |                                          |
| Avance AC97 Audio | Load from c:\windows\system32\drivers                                                                                                                                   | (n/a – just load)                        |
| (Restart System)  |                                                                                                                                                                         |                                          |
| Drive Letter      | Automatic Setting but check desktop icon if not.                                                                                                                        | DVD Drive = G                            |
| HW Device         | My Computer<br>\_Properties                                                                                                                                             | Various                                  |
| LAN               | Desktop<br>\_My Network Places<br>\_Properties<br>\_Local Area Connection                                                                                               | Double Click to activate                 |
| TCP/IP Setting    | Desktop<br>\_My Network Places<br>\_Properties<br>\_Local Area Connection<br>\_Internet Protocol (TCP/IP)<br>\_Properties<br>\_Advanced<br>\_Options<br>\_TCP/IP Filter | Values in 'Permit Only'                  |
| Date/Time         | Start<br>\_Settings<br>\_Control Panel<br>\_Date and Time                                                                                                               | Proper Time Zone<br>Accurate Date / Time |

### 8-2-8-1 UPS Setting

UPS automatically setup by Ghost. You do not need to setup it manually. You can see the message below on the desktop.



**Figure 8-69 UPS Setting**

Please choose **OK**.

### 8-2-8-2 Drive Letter Setting

If you CANNOT see this dialog at the first boot up, this dialog appears at 2nd boot up.



Figure 8-70 OK

Please choose **OK**.

You should check the Drive Letter manually by Windows Explorer for double check.

- DVD Drive should be assigned to G:



**CAUTION** Drive F: (Swap) Letter is removed on R7.0.0EZ. (This is correct.)

If Drive letter is wrong, please double-click **Remap Drive Letter** icon on the desktop.

### 8-2-8-3 Hardware Device Check:

- 1.) On the windows desktop, left-click on **My Computer**, then right-click on **Properties**.



Figure 8-71 Properties

- 2.) The System Properties window appears. Select **Hardware > Device Manager...**
- 3.) Verify that X or ! is not displayed.

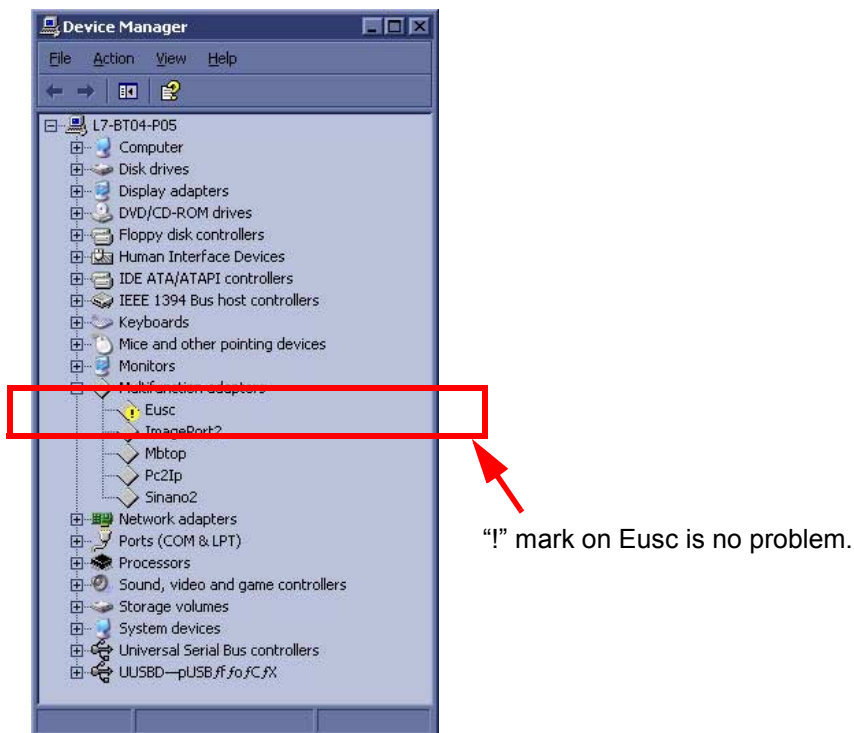


**Figure 8-72 Device Manager**



**NOTICE** The **Eusc** (Multifunction adapters > Eusc) might contain “!” mark, but it is no problem. Skip any of device driver installation procedures described below.

**8-2-8-3      Hardware Device Check: (cont'd)**

4.) If **X** or **!** is displayed:

- Left-click on the device with **x** mark, then right-click on **Enable**.
- Left-click on the device with **!** mark, then right-click on **Properties** to perform the device driver reconfiguration. When some files are required, designate the file in the directories of **C:\WINDOWS\SYSTEM32** or **C:\WINDOWS\SYSTEM32\DRIVERS**. If they are not found, search them using a windows search function.

5.) Close the window.

#### 8-2-8-4 LAN Parameter Setting

- 1.) On the desktop, left-click on **My Network Places**, then right-click on **Properties...**
- 2.) Verify that two network icons appears. (If “Local Area Connection” icon does not appear, the hardware failure might occur.)

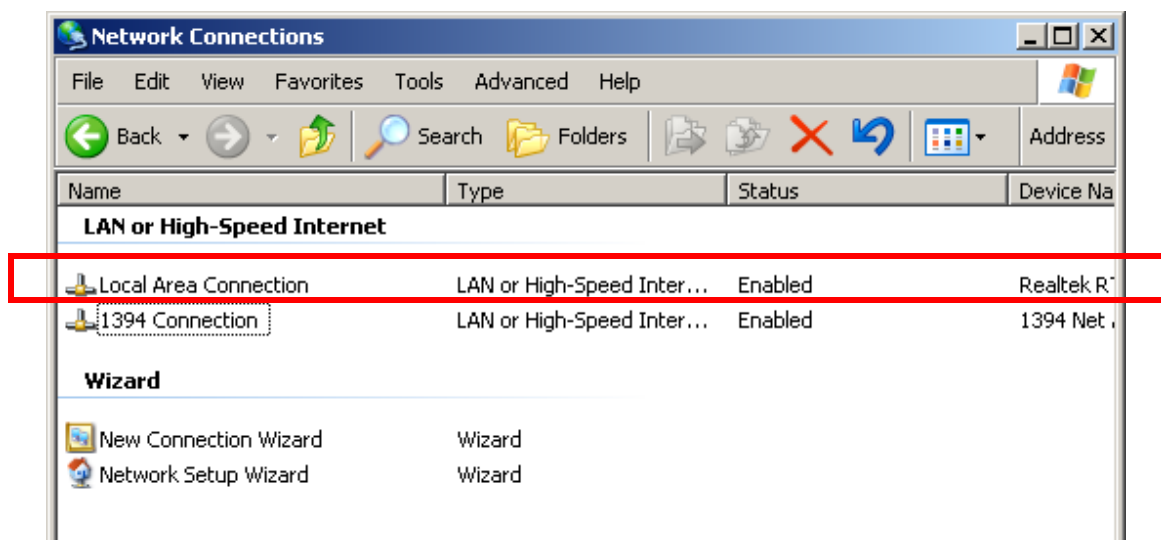


**Figure 8-73 Properties**

- 3.) Using the right trackball button, double-click on **Local Area Connection**.
- 4.) When the following window appears, it will be automatically closed later.



**Figure 8-74 Local Area Connection**

- 5.) When the following window appears, right-click on **Cancel**.



**Figure 8-75 Cancel**

- 6.) Close all windows.

### 8-2-8-5 TCP/IP Filter Setup

- 1.) On the desktop, left-click on **My Network Places**, then right-click on **Properties...**
- 2.) Double-click **Local Area Connection** or **Local Area Connection #2** (if you do NOT find "Local Area Connection").

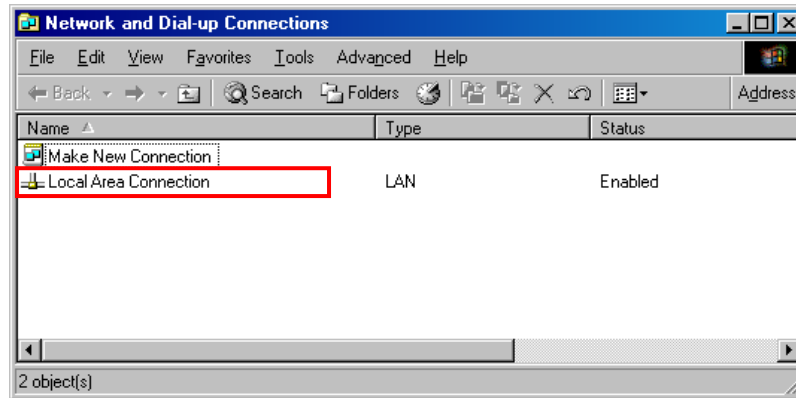


Figure 8-76 Local Area Connection

- 3.) Select **Internet Protocol (TCP/IP)**, then click **Properties** button.

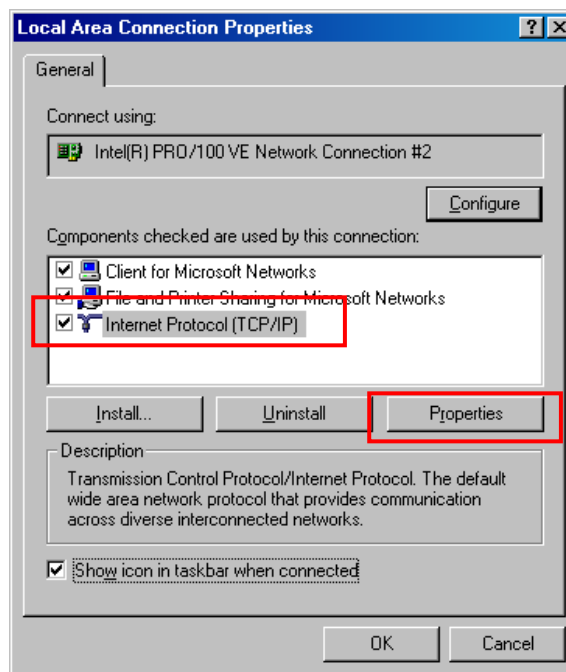


Figure 8-77 Internet Protocol (TCP/IP)



## 8-2-8-5 TCP/IP Filter Setup (cont'd)

- 4.) Click **Advanced...** button.

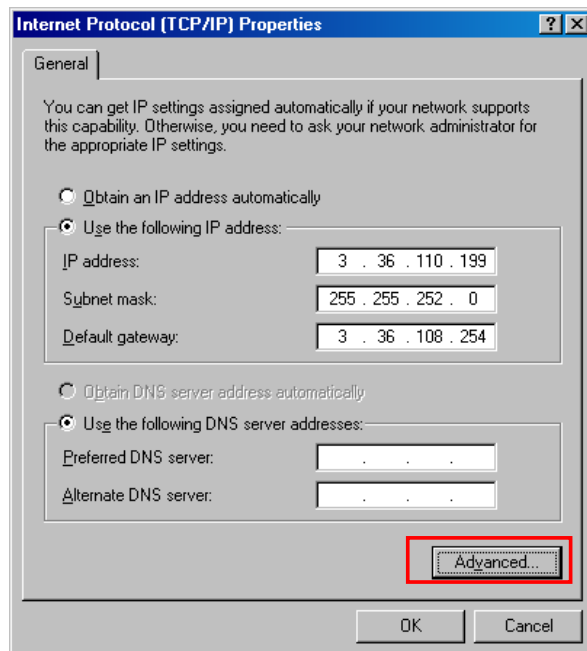


Figure 8-78 Advanced

- 5.) Click **Options** tab.

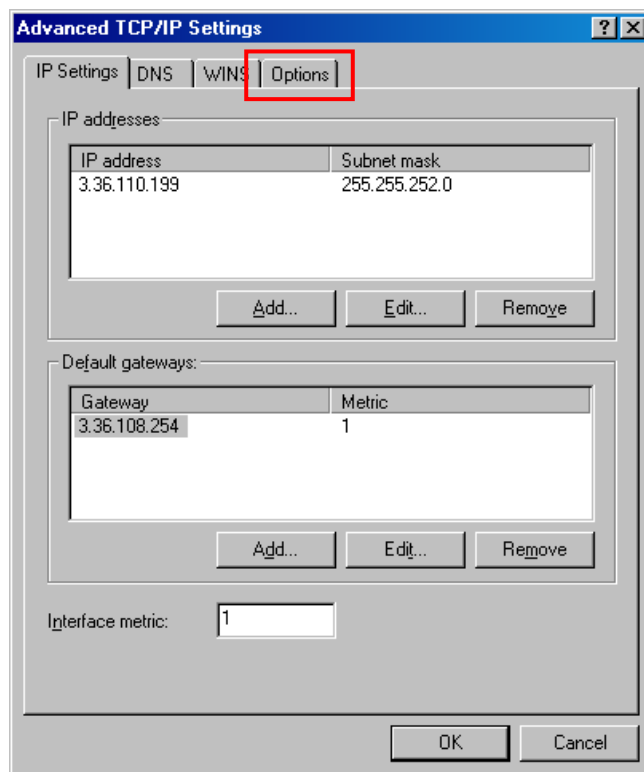


Figure 8-79 Options

**8-2-8-5 TCP/IP Filter Setup (cont'd)**

6.) Select **TCP/IP Filtering**, then click **Properties** button.

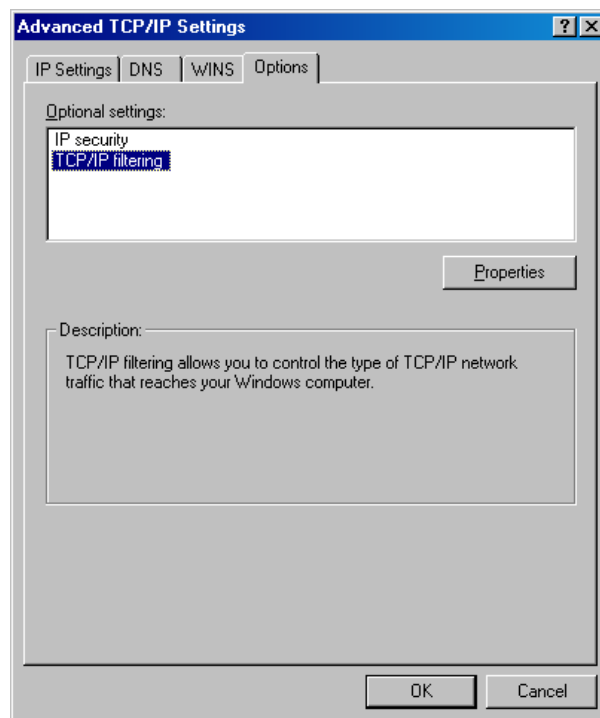
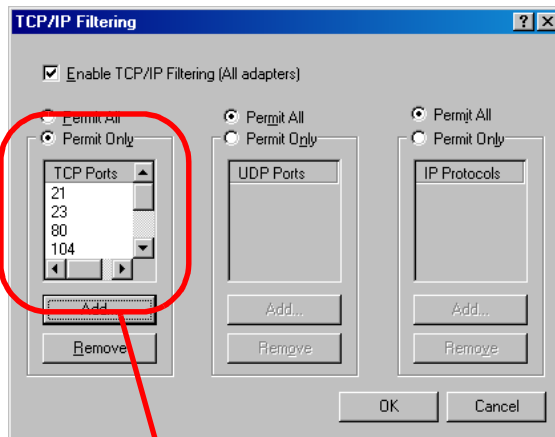


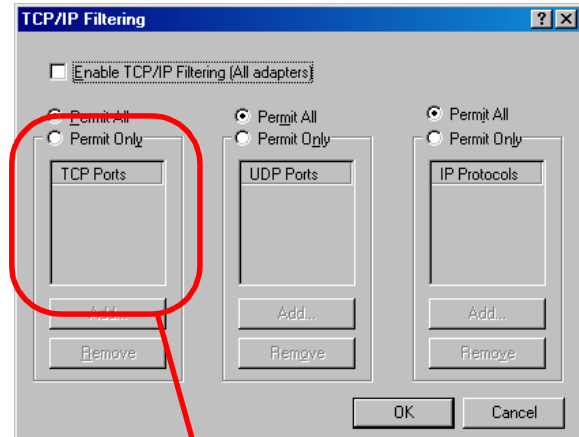
**Figure 8-80 TCP/IP Filtering**

### 8-2-8-5 TCP/IP Filter Setup (cont'd)

- 7.) If your system has no TCP port numbers as follows, perform these procedure to add the TCP port numbers. If the TCP port already have been set, skip these procedures. (This depends on the network card installed in the PC box.)



The TCP port numbers, **21, 23, 80, 104, 512, 3003, 5800, 5801, 5900, and 5901**, have been set.



No TCP port number is set. They must be set.

**Figure 8-81 TCP port number**

- \* At first check mark **Enable TCP/IP Filtering (All adapters)**.
- \* Check mark **Permit Only** in TCP ports box
- \* Click **Add...** button.
- \* Enter **21** (port number) as the TCP Port ,then click **OK** button to apply it.
- \* Repeat these procedures to register **21, 23, 80, 104, 512, 3003, 5800, 5801, 5900, and 5901** for TCP ports.



**NOTICE** UDP Ports and IP Protocols must be kept default settings.

#### 8-2-8-5 TCP/IP Filter Setup (cont'd)

- 8.) Verify that the proper TCP port numbers are entered in TCP Ports box, then click **OK** buttons for all opened window to complete the **TCP/IP Filter Setup**.

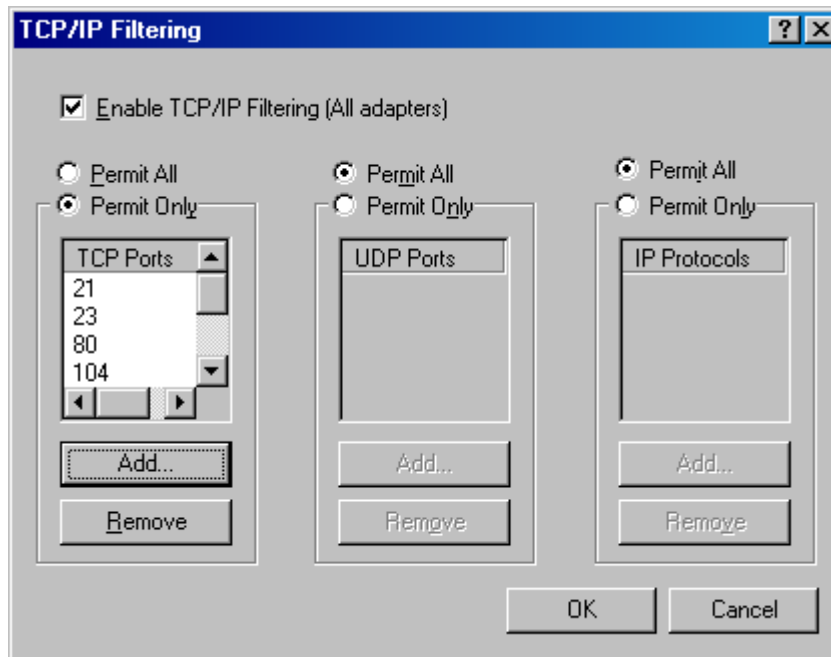


**Figure 8-82 TCP/IP Filter Setup**

- 9.) The following dialog box appears. Click **No** to proceed the other settings. (After completion of all system checks, the system is shut down.)

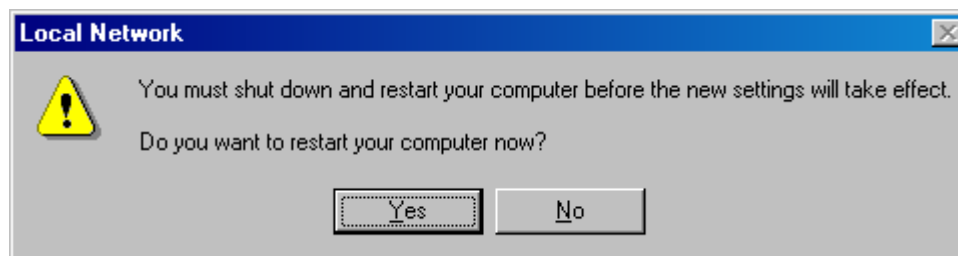


**Figure 8-83 No**

 **NOTICE** In case the last dialog box to restart the computer does NOT appear, check the TCP/IP Filter setup again.  
Connectivity check will be performed in 8-2-10 System Settings.

#### 8-2-8-6 Date and Time Setting

- 1.) Select **Start > Settings > Control Panel > Date and Time.**
- 2.) Click on **Time Zone** tab.

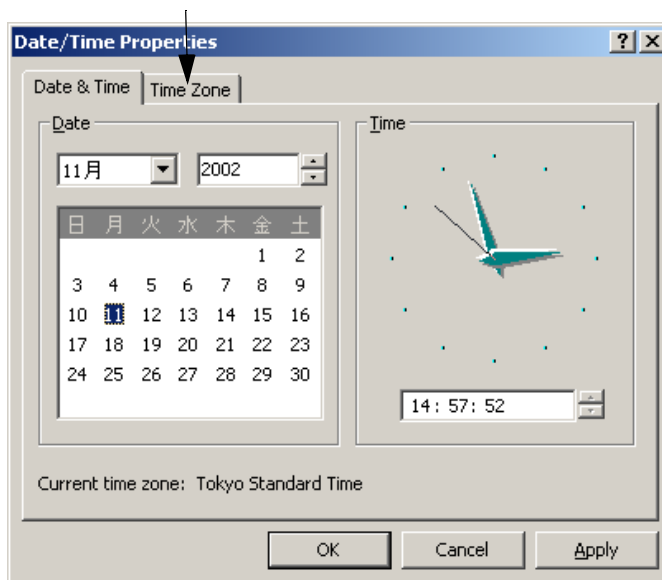


**Figure 8-84 Date and Time**

- 3.) Select the appropriate time zone. Then click on **Apply**.
- 4.) Then click on Date & Time tab.

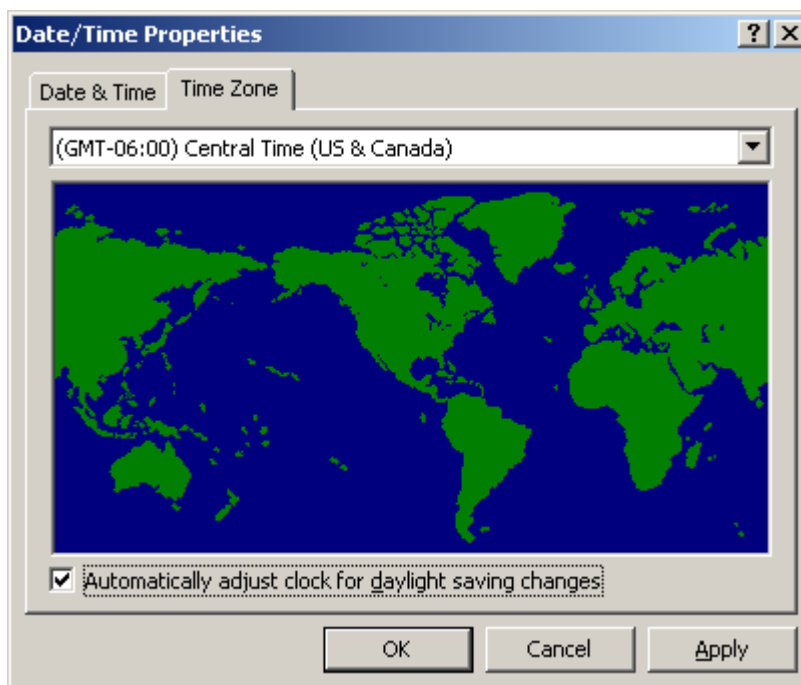


**Figure 8-85 Time Zone**

8-2-8-6 Date and Time Setting (cont'd)

- 5.) Set the current date and time.
- 6.) Click on **Apply**.

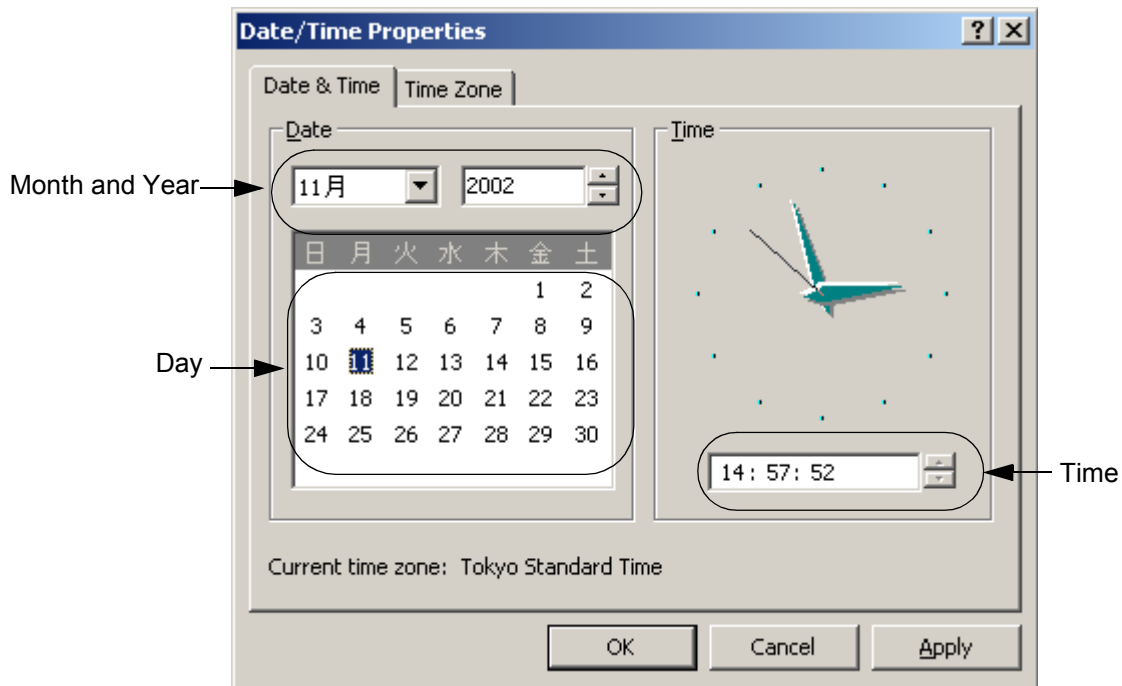


Figure 8-86 Date & Time

- 7.) Click on **OK** to close the Date and Time window.
- 8.) Select **Start > Shutdown > OK** to power OFF the scanner.

## 8-2-9 Installing R8.x.x Application Software

 **NOTICE** You must install BT09 Base image before Application Software installation. If not, Application shows the error message, “Service platform is out of date. You must reghost the C drive and reinstall the software.”

 **NOTICE** If you are attempting to install only application software, you **MUST** first check current Regional Preset Value. Press **Utility > System > About** (Details in 4-2-6 - Archiving and Loading Presets for BT07 (Including R7.5.x)).

### 8-2-9-1 Installing R8.x.x Application Software

1.) Power ON the scanner. The windows desktop appears.

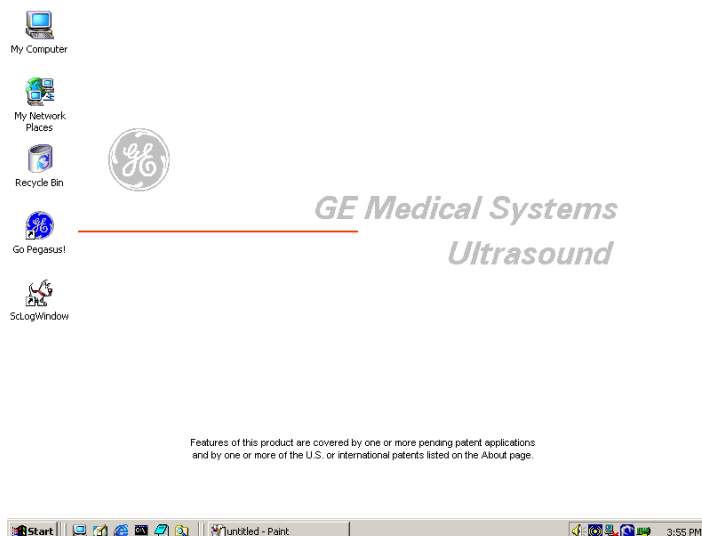


**Figure 8-87 Desktop**

 **NOTICE** At this time, the DVD writing software screen appears, but you can ignore the screen.

2.) Insert the Application Software CD-ROM into the DVD drive.

 **NOTICE** Wait approx. 20 seconds until the disk can be read.

### 8-2-9-1 Installing R8.x.x Application Software (cont'd)

- 3.) Double-click on **LoadSoftware.bat**.

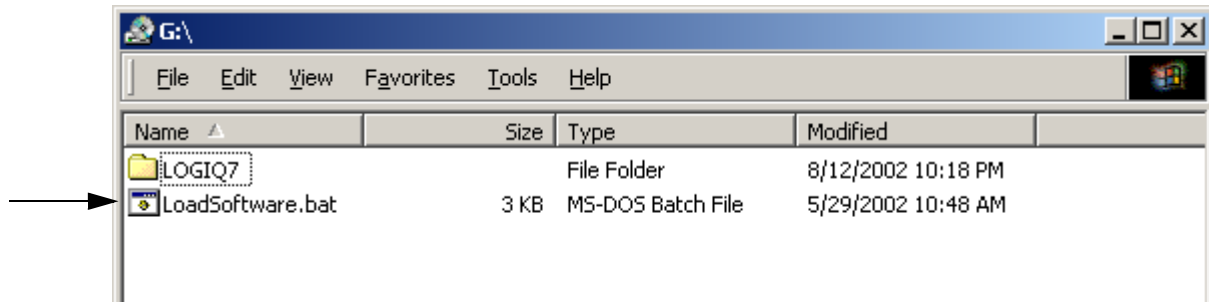


**Figure 8-88 LoadSoftware.bat**

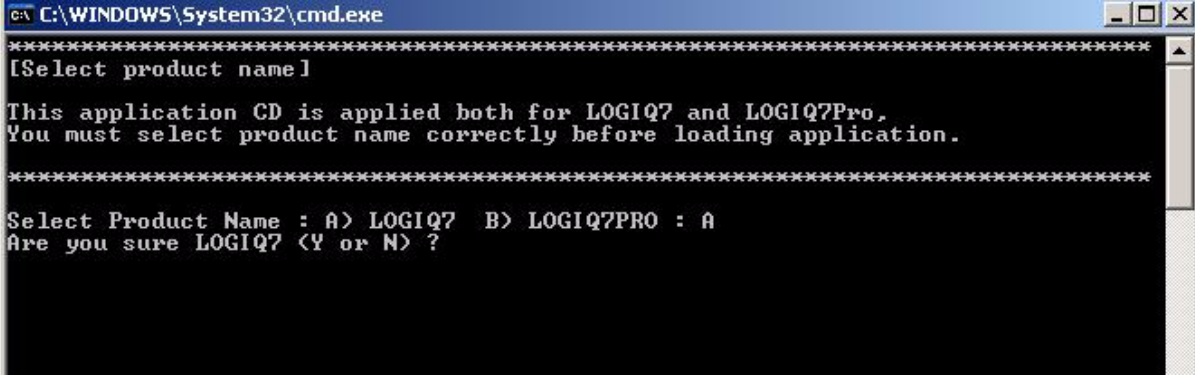
- 4.) The Installation program will start, and the command prompt screen will be shown on the monitor as shown.
- 5.) Select TYPE A - BT09 with BEP4 does not have PRO version available.

 **NOTICE** 1.If wrong application software installed, the system will not work properly.  
2.You will ask confirmation twice as below. If you select wrong system (A or B) , please select "N" at the confirmation.



8-2-9-1 Installing R8.x.x Application Software (cont'd)

6.) Type Y key.



```
C:\WINDOWS\System32\cmd.exe
*****
[Select product name]

This application CD is applied both for LOGIQ7 and LOGIQ7Pro.
You must select product name correctly before loading application.

*****

Select Product Name : A> LOGIQ7  B> LOGIQ7PRO : A
Are you sure LOGIQ7 <Y or N> ?
```

Figure 8-89 Y

NOTE: Press the N key to cancel this procedures and to power OFF the system.

NOTE: When the Information Window appears asking you to select OK, do nothing. This window will disappear automatically.

7.) The installation procedures will start automatically. It will take 10 minutes.



**NOTICE Do not operate with using mouse or keyboard during installation procedures!!! The system shall be restarted automatically during installation.**

8.) After the installation procedures are completed, the system will power OFF automatically.

## 8-2-10 System Settings

After application is successfully installed, various LOGIQ™ 7 system parameters must be properly set.

**Table 8-7 System Settings**

| Item                                  | Method                                                                                                                          | Proper Value                                                                                                     |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------|
| Software Version                      | Utility<br>\_System<br>\_About                                                                                                  | s/w version : R8.x.x<br>Image Part No. : 5305206-3                                                               |
| Regional Preset                       | Utility<br>\_System<br>\_About<br>\_Additional About Information                                                                | For the system other than “NONE” selected as Regional Preset, resetting MUST be required.                        |
| Computer Name                         | Utility<br>\_Connectivity<br>\_TCP/IP<br>\_Computer Name<br>\_Enable DHCP<br>\_IP Address<br>\_Subnet Mask<br>\_Default Gateway | Same as Serial Number<br>OFF<br>restore customer setting<br>restore customer setting<br>restore customer setting |
| Patient Database Check                | Utility<br>\_Connectivity<br>\_DataFlow<br>\_Default Data Flow<br><br>Press Patient (Keyboard or Touch Panel)                   | Local Archive – Int. HD<br><br>(n/a – Automatic)                                                                 |
| LCD Monitor Setting                   | Press 'Toggle Button' for few seconds                                                                                           | (various)                                                                                                        |
| Software Option                       | Utility<br>\_Admin<br>\_System Admin<br>\_HW Number                                                                             | Same as Option Dongle ID                                                                                         |
| VCR                                   | Utility<br>\_Peripherals<br>\_Video Setting<br>\_VCR                                                                            | PAL/NTSC-depends on region<br>(set accordingly)                                                                  |
| Language pre-work (For Japanese Only) | Utility<br>\_Regional Option<br>\_Language (tab)<br>\_Install Files to East Asian Language<br><br>(Reboot)                      | ON / Apply                                                                                                       |



### 8-2-10-1 Peripheral Device Connection/Setup

- 1.) Connect all of the peripheral devices to the scanner.
- 2.) Power ON all of the peripheral devices.
- 3.) Verify that the system boots up with no error. (It will take a few minutes.)
- 4.) Set up customer data saved at 8-2-6 Pre-installation Procedures.

### 8-2-10-2 Confirmation of the software version

- 1.) Touch the **Utility** button on the Touch Panel.

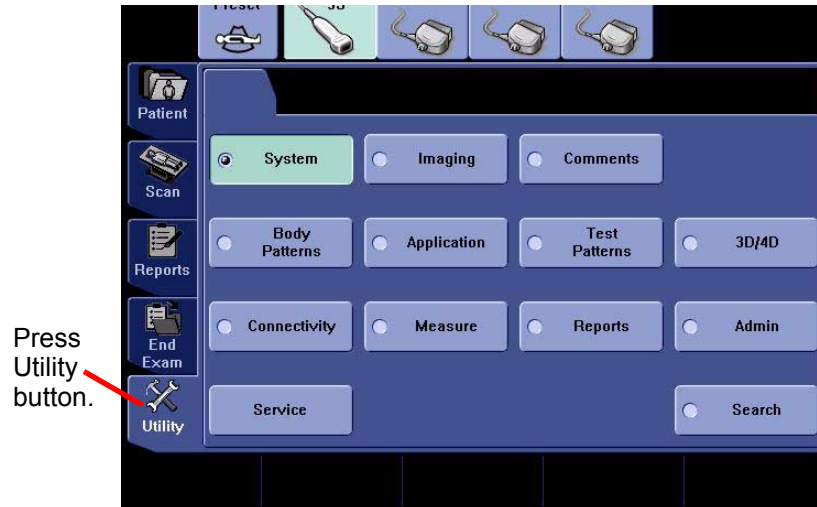


Figure 8-90 Utility

**NOTE:** The Operator Login window appears. Select **adm** (Administrator) for the Operator field. **Adm** (Administrator) will be shown in the Operator field as default. Enter the password which is configured already (or the password might not be necessary). Then click on **Log on**.

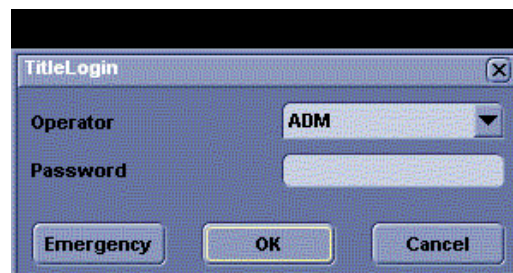
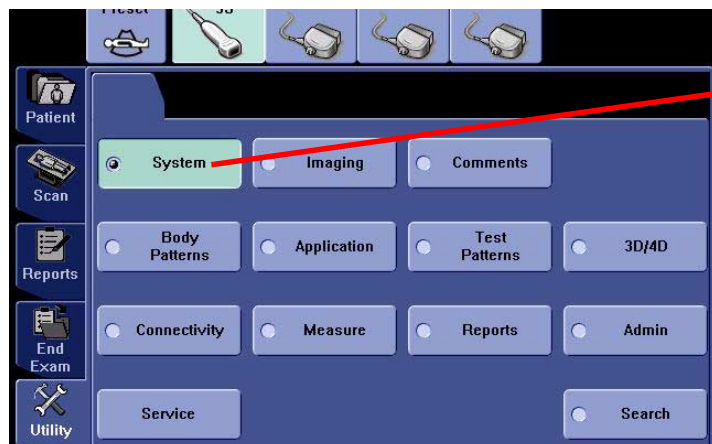


Figure 8-91 Log on

## 8-2-10-2 Confirmation of the software version (cont'd)

- 2.) Touch the **System** button on the Touch Panel.



Press System button.

Figure 8-92 System

- 3.) Click on **About** tab. The software version will be shown on the monitor as shown. Confirm the following:
  - Software Version (**R8.x.x**)
  - Preset Resion (**Americas, Europe, Asia, Japan, or None**)
  - Image Part Number (described on the Base System Software Image DVD)

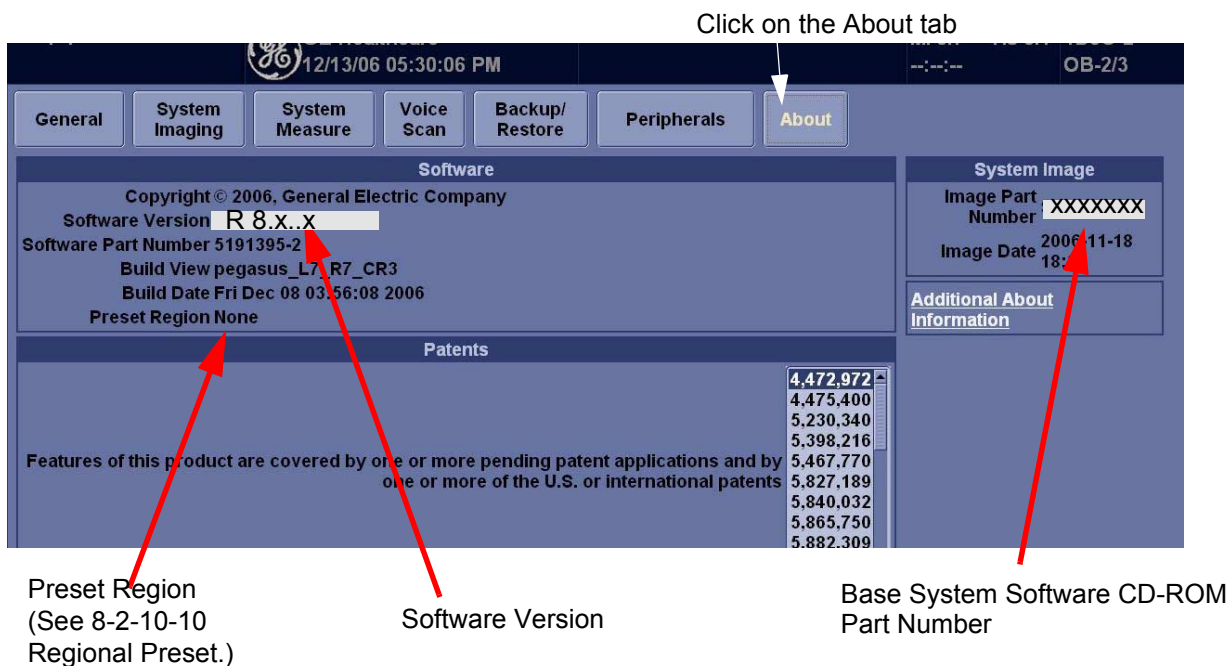


Figure 8-93 About Tab

### 8-2-10-3 Computer Name and Connection Settings

- 1.) Touch **Utility > Connectivity**.
- 2.) Click on **TCP/IP**.
- 3.) Type **Computer Name**.

 **NOTICE** The computer name is unique. Check the scanner serial Number printed on the label located at the rear lower side of the scanner. When 123456YM1 (for example) is printed, **L7-123456YM1** must be entered as a computer name.

- 4.) Verify that **Enable DHCP** has no check mark. If checked, remove the mark.
- 5.) Check if **Computer name, IP Address, Subnet Mask, and Default Gateway** are proper ones which you wrote down in section 8-2-6-4, Saving Connectivity.



Figure 8-94 TCP/IP

 **NOTICE** If the “Save settings” is NOT performed, you can NOT enter the new patient screen!!

- 6.) Click on **OK** for confirmation dialog box.

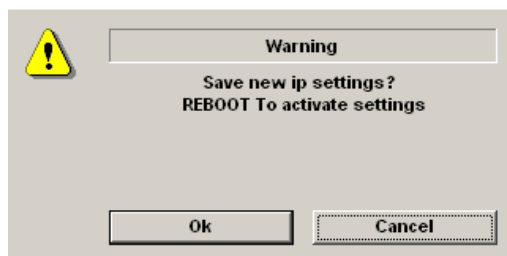


Figure 8-95 OK

### 8-2-10-3 Computer Name and Connection Settings (cont'd)

- 7.) Touch **Scan** on the Touch Panel to return to the scan screen.
- 8.) Shut down the scanner.
- 9.) Power ON the scanner, then press **Patient** key and verify that the following screen appears.

GE Healthcare

Patient ID:  Last Name:  DOB:   
First Name:  Age:   
Middle Name:  Sex: ☐ female ☐ male

ABD OB GYN CARD VAS UR SM P PED

Accession #:   
Exam Description:   
Ref.Physician:   
Operator: ADM   
Images Clear

Patient View

Search key: Patient ID  string:  Clear Hide

| Patient ID | Last Name | First Name | Birthdate | Sex | Last Exam | Img. size |
|------------|-----------|------------|-----------|-----|-----------|-----------|
|------------|-----------|------------|-----------|-----|-----------|-----------|

EZBackup  
EZMove

Dataflow: Local Archive - Int. HD

Exit Review New Exam Delete Lock Show: All 0/0

Figure 8-96 Patient

## 8-2-10-4 Check LCD Monitor Hardware Setting

### *For 19 inch Monitor*

To adjust the brightness:

- 1.) Press the Toggle button (2) or (3) **Once** for brightness adjustment.



**Figure 8-97 19 inch LCD Monitor Adjustment buttons**

- a.) Verify that Brightness is **80 (Dark Room)** or **100 (Bright Room)**.  
If it is not, increase brightness to press the adjustment button (3).  
If it is not, decrease brightness to press the adjustment button (2).
- b.) Press the button (1) Once. The brightness display disappears.

**NOTE:** 19 inch LCD is **ONLY** a brightness adjustment.

## 8-2-10-5 Software Option Check

- 1.) Touch **Utility > Admin.**
- 2.) Click on **System Admin** tab and verify that **HW Number** is the same as the Option Dongle ID.

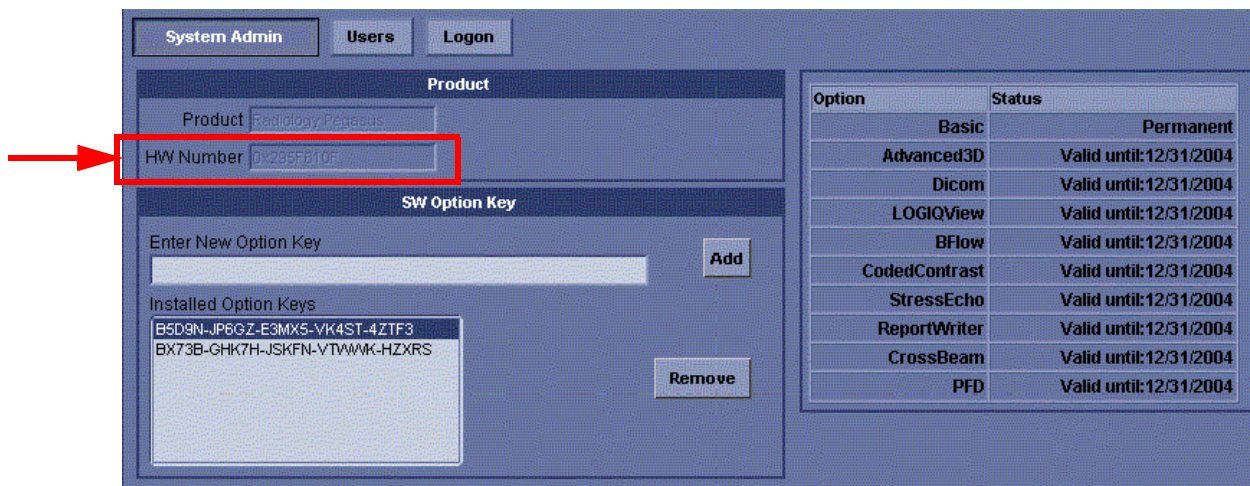


**Figure 8-98 HW Number**



#### 8-2-10-6 VCR Parameters Setting (for the VCR-equipped system ONLY)

- 1.) Touch **Utility > System**.
- 2.) Click on **Peripherals** tab.
- 3.) Set the proper parameters:
  - PAL or NTSC
  - VCR type

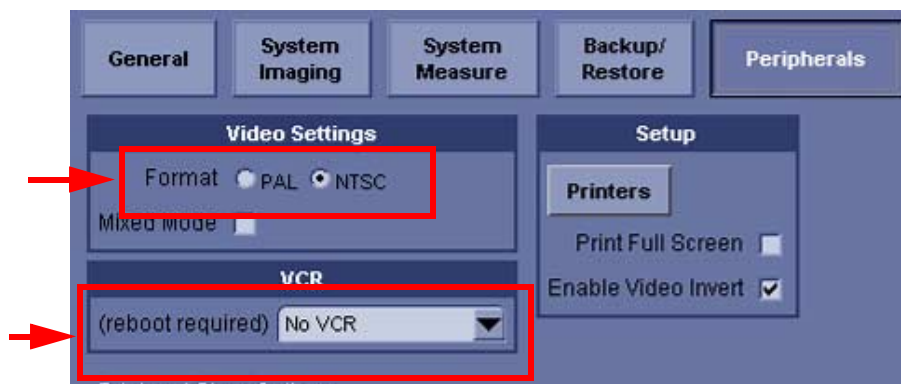


**Figure 8-99 Peripherals**

- 4.) Shut down the scanner, then restart the scanner.
- 5.) Verify that the VCR can be properly operated with no error (remote, play...) .

#### 8-2-10-7 Regional Setup (For the system with language other than English ONLY) For Japanese Languages

You can set up the keyboard for Japanese. If you select Japanese, the following items display or enter by Japanese.

- Patient name
- Exam comment in Patient screen and Worksheet
- Report/Direct Report free text, Insert Text
- Annotation, Annotation Library
- Error/Warning message
- DICOM/Worklist, Query/Retrieve, Image Storage, Printer, MPPS

**8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)**

- 1.) Select **Utility> System> General>Regional Option Menu**,
- 2.) Click on **Languages** tab.
- 3.) Check **Install files for East Asian languages**.
- 4.) Click on **Apply**.
- 5.) The system requires the re-boot automatically, shut down the system.

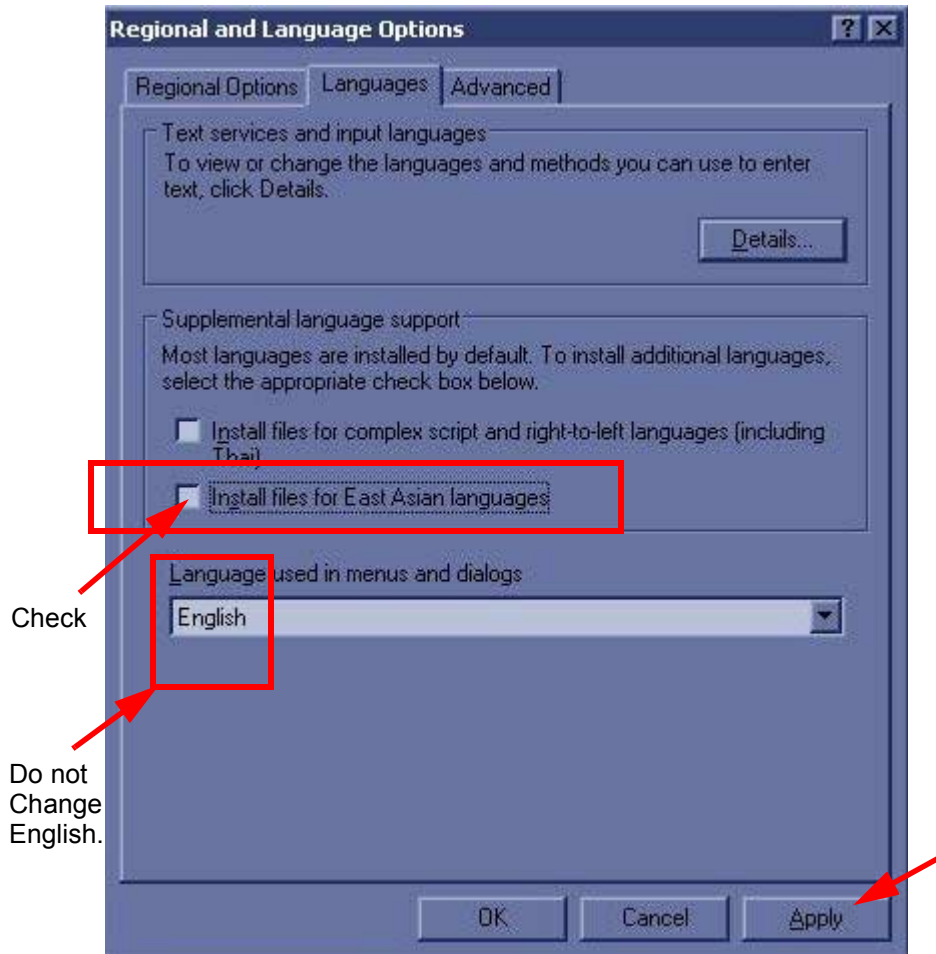


**Figure 8-100 Regional Option**

 **NOTICE** You do not need to change "Language used in menus and dialogs" option. It **should be** English.

8-2-10-7      **Regional Setup (For the system with language other than English ONLY)** (cont'd)

- 6.) In **Utility> System> General**, set the Language as JPN. Save this setting, but do not reboot the system yet.

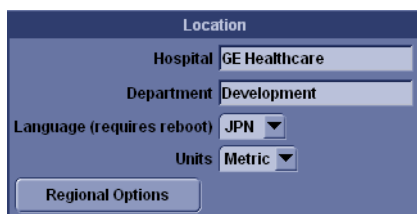


**Figure 8-101 General**

- 7.) Press **Regional Options**, under Standards and Formats select **Japanese**, under Location select **Japan**. Press **Apply**.

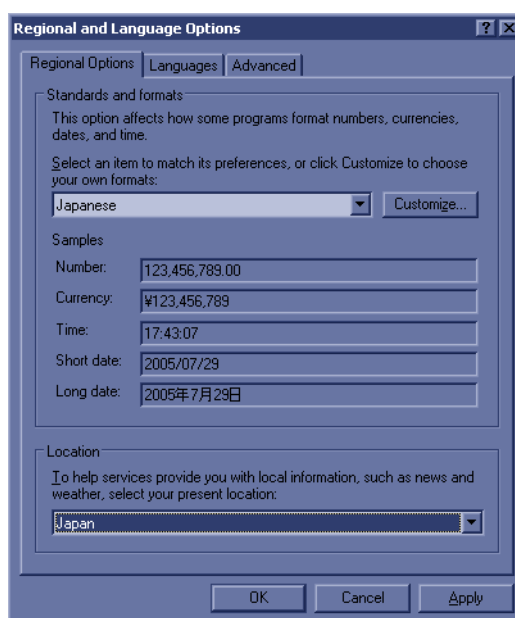


**Figure 8-102 Regional Options**

**8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)**

- 8.) Select the **Language tab**, press **Details**, under Installed Services select the **Japanese keyboard**, under Default input language select **Japanese**, press **Apply**, Press **OK**.

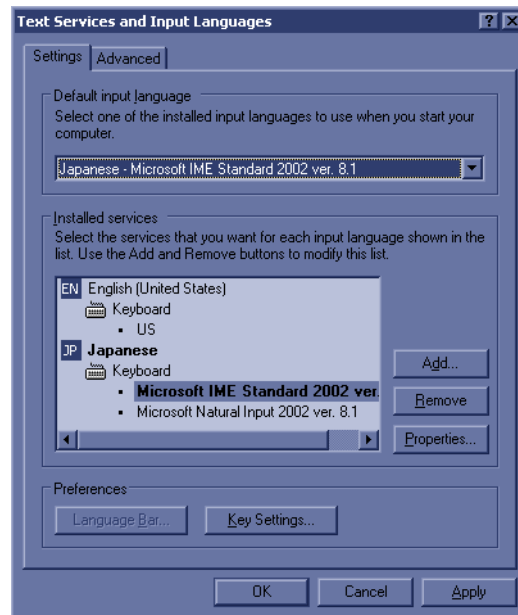


**Figure 8-103 Language tab**

- 9.) Select the **Advanced tab**, then select **Japanese** in the Language for non-Unicode programs pull-down menu. Press **Apply**. Answer **Yes** to use files already loaded on the hard disk, then answer **No** to not reboot the system yet, press **OK**. Press **Save** and Exit the Utility screen.
- 10.) Reboot the system.



**NOTICE** To have the settings take effect, you **MUST** turn off the system and turn it back on.

- 11.) In **Utility--> System--> General**, press **Regional Options**. Select **Language Tab** and press **Details**. **Remove English** under Installed Services and press **Apply** and **OK**.
- 12.) Select **Utility--> System--> About-->Additional Info** menu.

8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)

13.) Select **Automatic Setup for Japanese Language** button. Then IME configuration shall be automatically done.

This configuration shall setup the keyboard assignment (remove 半角かな, etc) in IME.

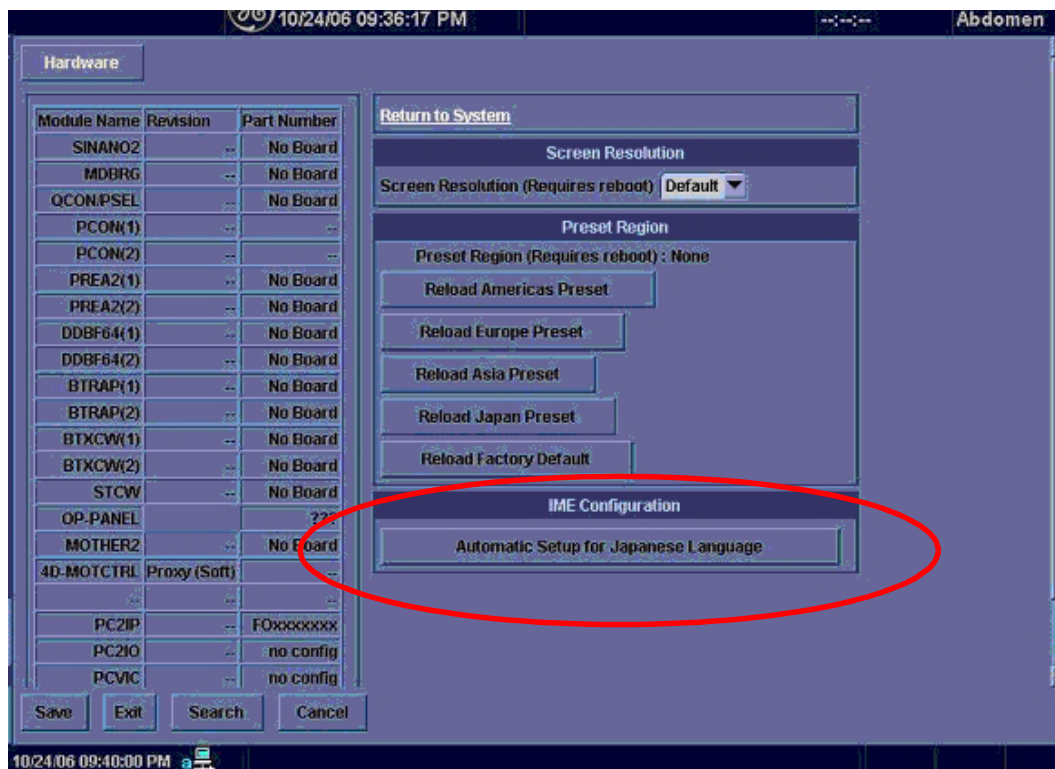


Figure 8-104 Automatic Setup for Japanese Language

14.) Reboot the system.

15.) To type Japanese, press Alt+  (right side of the Escape key) to start IME (Input Method Editor). You can use the following short cut keys.

- F6 key: Hiragana
- F7 key: Katakana
- F9 key: alphameric two-byte character
- F10 key: alphameric one-byte character



**NOTICE** When pressing **F6** Key, the following message is displayed at the status bar.  
“Select the key which the macro is assigned to.”  
You can ignore this message.

**8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)**  
**For Russian or Greek Languages**

- 1.) In **Utility--> System--> General**, set the Language as Russian or Greek. Save this setting, but do not reboot the system yet.



**Figure 8-105 General**

- 2.) Press **Regional Options**, under Standards and Formats select **Russian or Greek**, under Location select **Russia or Greece**. Press **Apply**.

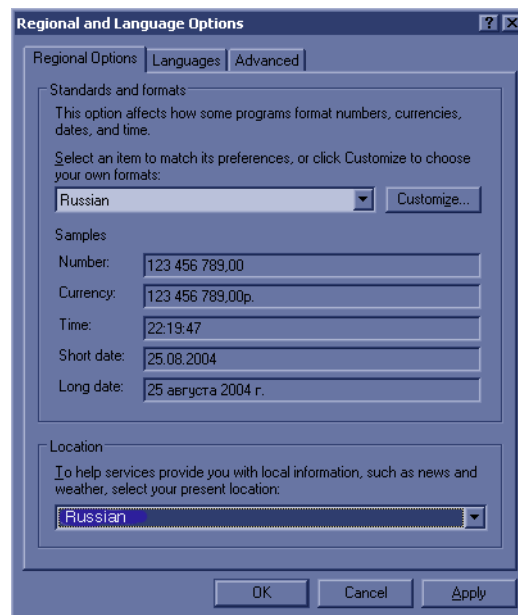


**Figure 8-106 Regional Options**

- 3.) Select the **Language tab**, press **Details**, under Installed Services select the **Russian or Greek keyboard**, under Default input language select **Russian - Russian or Greek - Greek**, press **Apply**, Press **OK**.

**8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)**

- 4.) Select the **Advanced** tab, then select **Russian or Greek** in the Language for non-Unicode programs pull-down menu. Press **Apply**. Answer **Yes** to use files already loaded on the hard disk, then answer **No** to not reboot the system yet, press **OK**. Press **Save** and Exit the Utility screen.

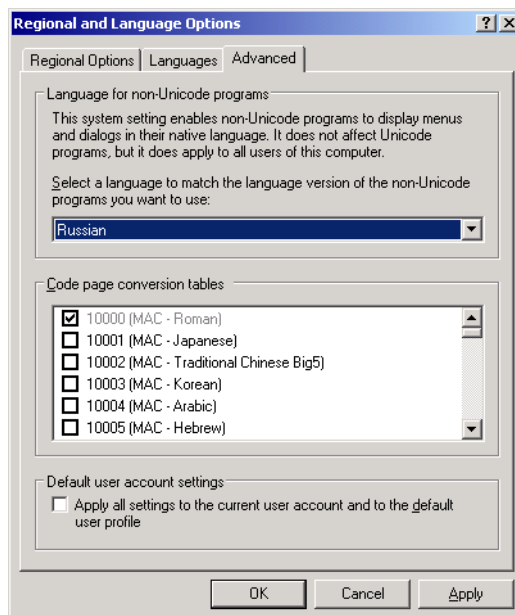


**Figure 8-107 Advanced tab**

- 5.) Reboot the system. When your system restarts, the system appears in the selected language.
- 6.) To switch between the English and Russian (or Greek) keyboard, press **Alt+Shift** to change the keyboard to the Russian or Greek keyboard.
- 7.) Apply the changes by pressing **Apply**. Press **OK** TWICE.



**NOTICE** To have the settings take effect, you **MUST** turn off the system and turn it back on.

8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)

**For non-Russian / Greek Languages**

- 1.) Press **Regional Options**, select the **Language** tab, press **Details**, and confirm default input Language to **English** (United States) International.

 **NOTICE** If the system is used at U.S., press Regional Options > Language tab, press details, change default input Language to **"US"**.

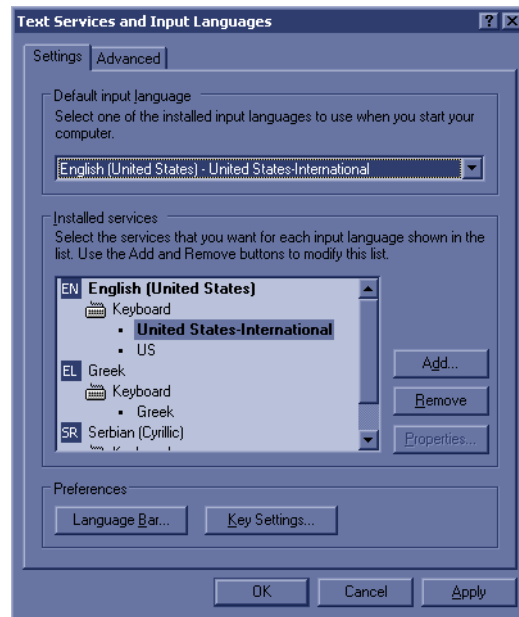


**Figure 8-108 Text Services and Input Languages**



**8-2-10-7 Regional Setup (For the system with language other than English ONLY) (cont'd)**

- 2.) Select the **Advanced** tab, then select the language in the Language for non-Unicode programs pull-down menu. Press **Apply**. Answer **Yes** to use files already loaded on the hard disk, then answer **No** to not reboot the system yet, press **OK**. Press **Save** and Exit the Utility screen.

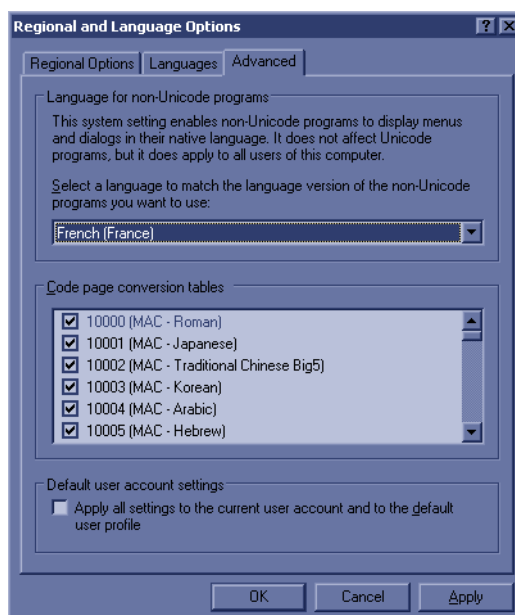


**Figure 8-109 Advanced tab**

- 3.) Reboot the system. When your system restarts, the system appears in the selected language.
- 4.) To type foreign characters, press **Alt+Shift** to change the keyboard to the international keyboard, then press and hold down the **Alt GR+appropriate keyboard key**.

## 8-2-10-8 Printer Registration

- 1.) Verify that the power switches of the printer and scanner are turned ON.
- 2.) Select **Utility > Connectivity > Button**.
- 3.) Select the Printer1 button and select the user defined printer which has been recorded in 8-2-6-7 Printer Registration.
- 4.) Click on >> to add Printflow View.

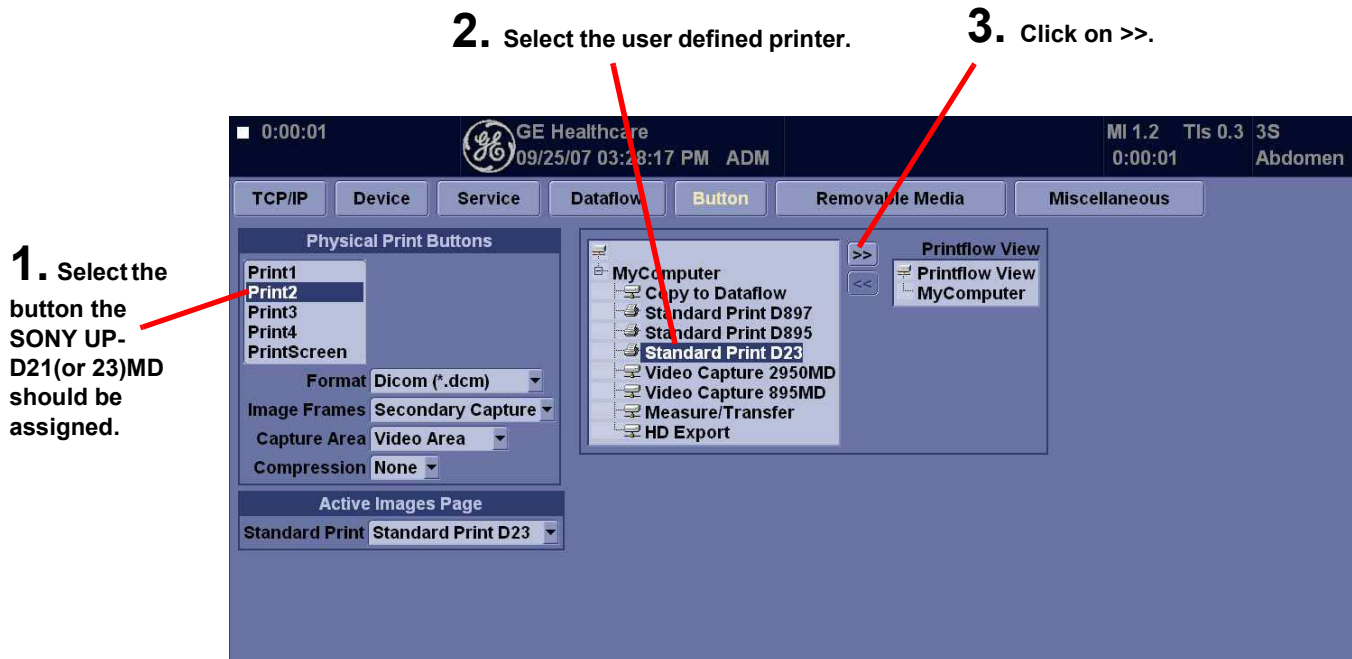


Figure 8-110 Printer Registration

## 8-2-10-8 Printer Registration (cont'd)

- 5.) Verify that the user defined printer is added in Printflow View.(Example shown: UP-D21(or 23)MD)
- 6.) For UP-D50 ONLY:  
When performing 4 divided frame print in the active image screen, select **D50** for Active Image Printer.
- 7.) For UP-D21 or UP-D23:  
When upgrading to BT07, updated printer driver may be loaded and assigned. Before assigning Print Button to Printer, check 'DEVICE' Tab for multiple UP-D21/23 Printer, and check for active printer.
- 8.) Right-click on **Save**.

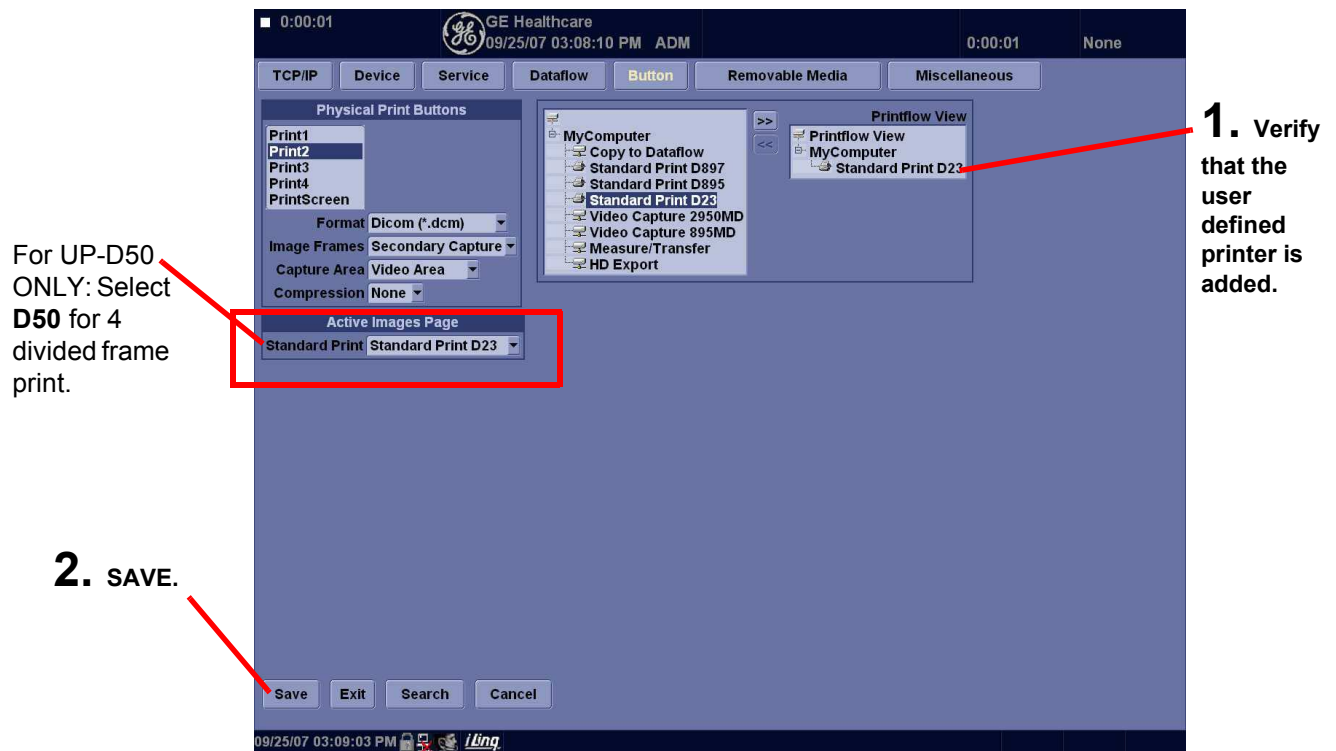


Figure 8-111 Save

### 8-2-10-9 Report Template (only for BT04 system)

Please setup the user template as it is.

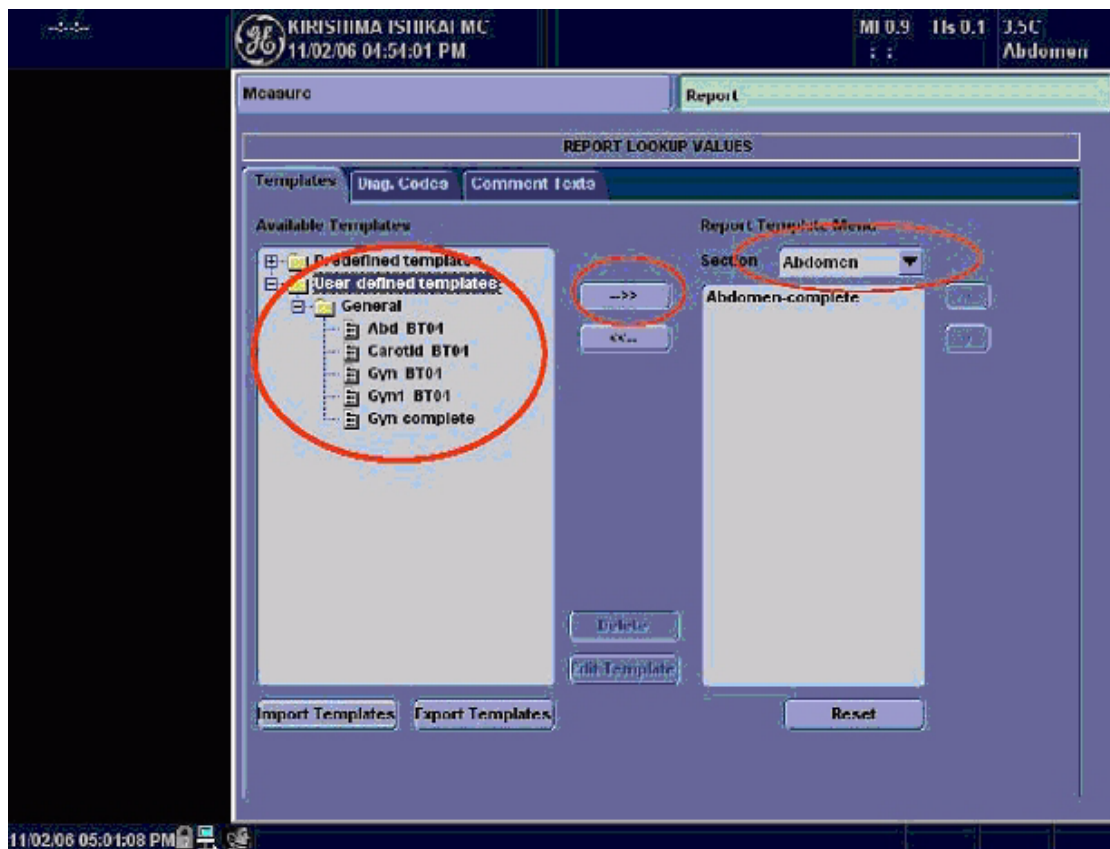


Figure 8-112 Report Template

## 8-2-10-10 Regional Preset



**NOTICE** For the system other than "NONE" selected as Regional Preset, resetting **MUST** be required.

- 9.) Touch **Utility > System**.
- 10.) Click **About** tab.
- 11.) Click **Additional About Information**.
- 12.) Check the region name of **Preset Region (Requires reboot)**:  
If it is None, skip this section.

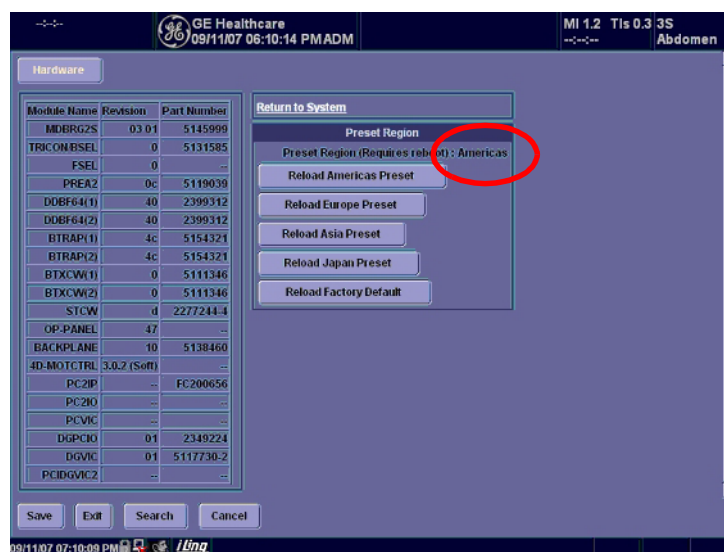


**Figure 8-113 Preset Region**

- 13.) Click **Reload Factory Default** button.
- 14.) Click **OK** on confirmation dialog box.



**Figure 8-114 Reload Factory Default**

This changes Preset Region (Requires reboot) to **None**.

- 8-2-10-10      Regional Preset (cont'd)
- 15.)Click the button **Reload \*\*\*\* Preset** corresponding you noted.

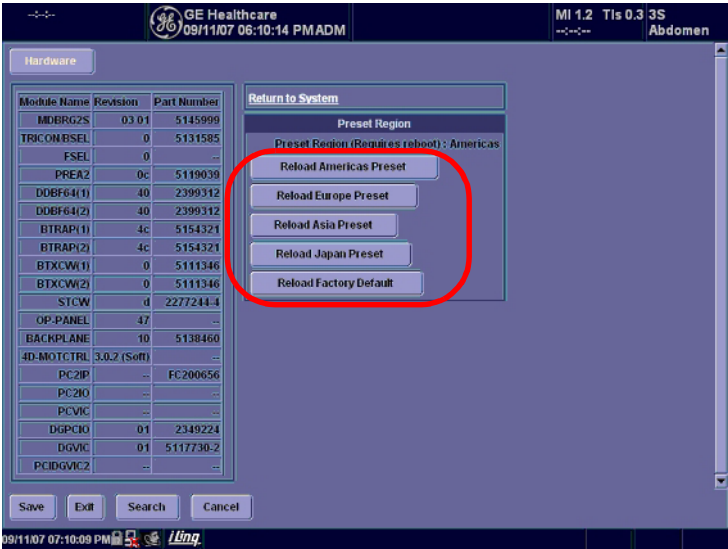


Figure 8-115    Reload buttons

- 16.)Click **OK** on confirmation dialog box.

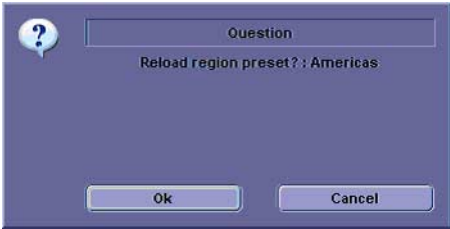


Figure 8-116    OK

## 8-2-10-10 Regional Preset (cont'd)

17.) Check **Preset Region (Requires reboot)**: is right region you selected.

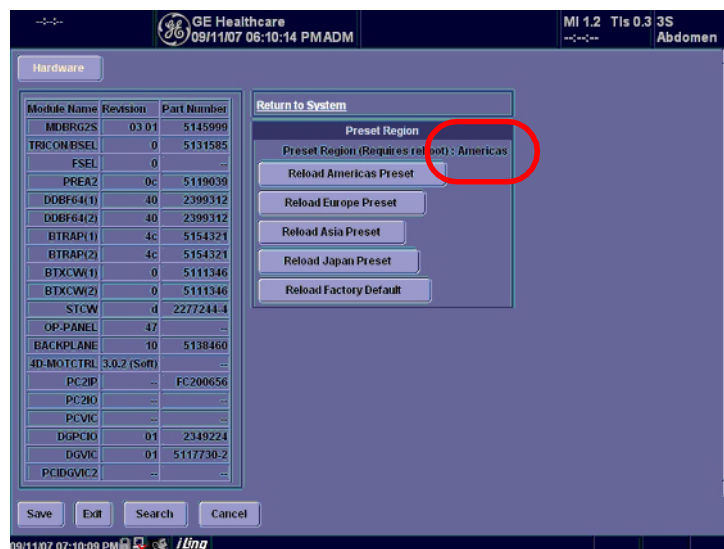


Figure 8-117 Preset Region

## 8-2-10-11 Analog Peripheral

After you update software version to R8.x.x, you may need to adjust peripheral settings.

#### 8-2-10-12 UP-D897 Parameter

- 1.) When system started, Go to **Utility > System >Peripherals**, then hit **Printers** button in the Setup group.
- 2.) Click **SONY UP-D897** in the Printer List, then right click and select **"Properties"**.
- 3.) Select **"General"** tab, then hit **"Printing Preferences ..."**
- 4.) Select **"Layout"** tab, then ...
  - Set **"1920x1280"** into "Paper"
  - Check **off** into "Enlarge to Paper"
  - Set **"Bilinear"** into "Interpolation Method"
  - Set **"Landscape"** into "Orientation"

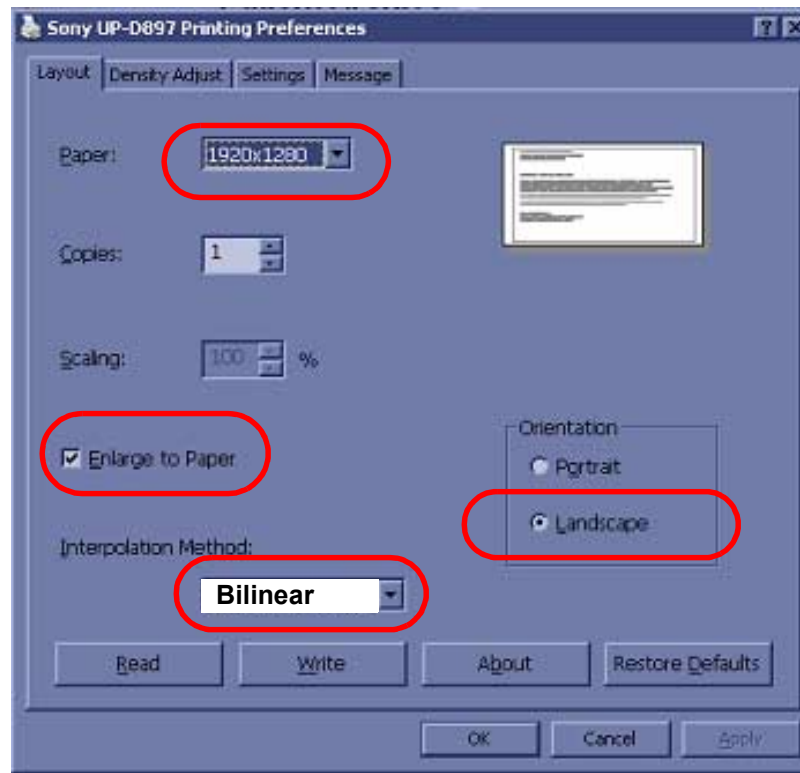


Figure 8-118 Printing Preferences



8-2-10-12 UP-D897 Parameter (cont'd)

- 5.) Select "**Density Adjust**" tab, then ...
- Set "**TONE1**" into "GAMMA"
  - Set 7 into "Sharpness"

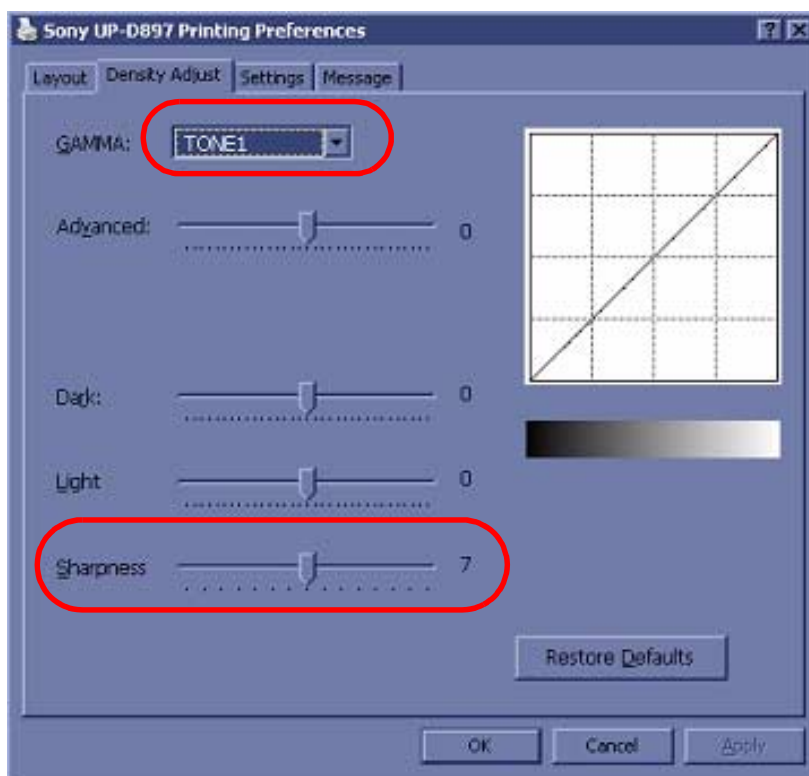


Figure 8-119 Printing Preferences

### 8-2-10-13 Setting Report Printer

- 1.) Press **UTILITY > SYSTEM** in Touch Panel.
- 2.) Click **PERIPHERAL > Printers**.

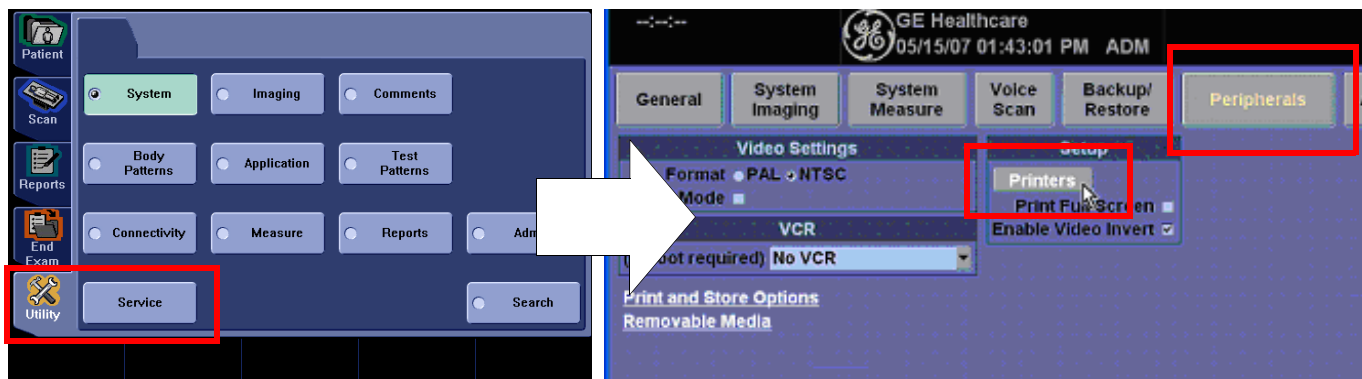


Figure 8-120 Printer Setup

- 3.) Find Printer to be used for REPORT, right-click and select **Set as Default Printer**.

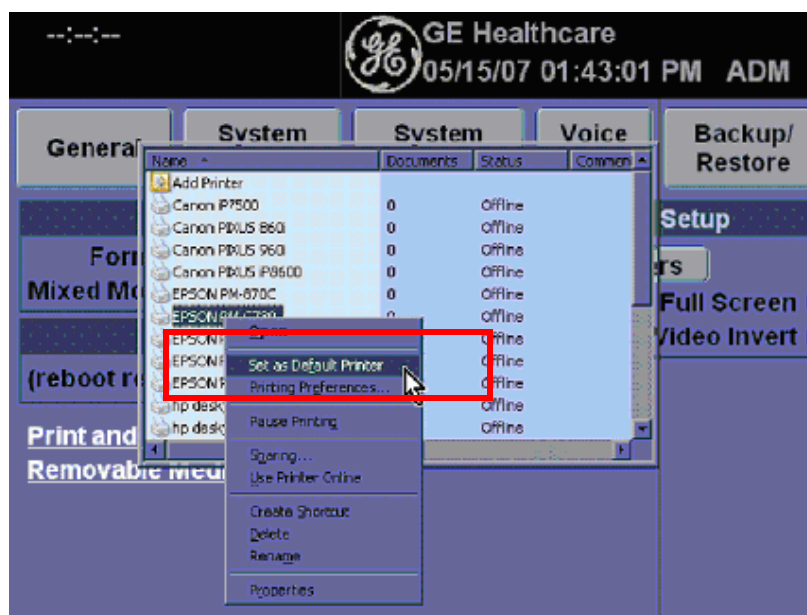


Figure 8-121 Setting Default Printer

## 8-2-11 Functional Check

### 8-2-11-1 Service Platform

- 1.) Click on **Utility > Service**. It will take about ten (10) seconds for activating.

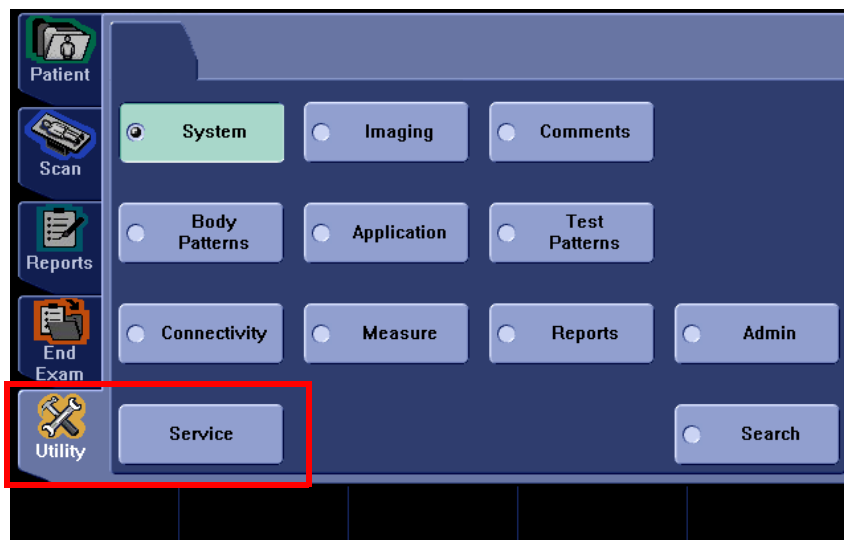


Figure 8-122 Service

**8-2-11-1 Service Platform (cont'd)**

- 2.) Make sure that **CAPS** is OFF (should be dimmed) for password entry performed later.
- 3.) The Service Login window for Service Platform will be shown on the monitor display.

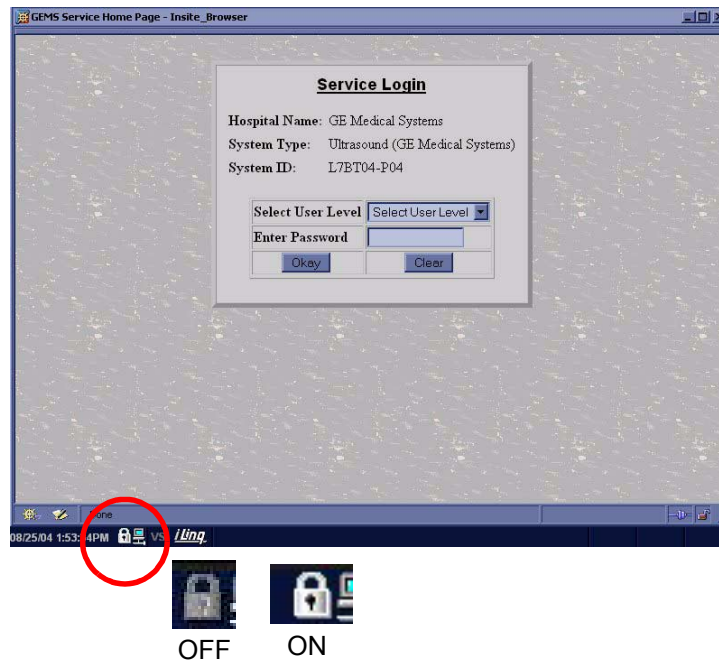


**Figure 8-123 Service Login**

**CAUTION** If the Login window for Service Platform is not displayed on the monitor, the installation of the Service Platform has failed. Reload the application software or Base System Software (OS) + application software. Contact a Technical Support for details.

- 4.) Select **GE Service** at the “Select User Level” field.
- 5.) Enter the password for the Service Platform.
- 6.) Click on **Okay**.



**Figure 8-124 User Level**

## 8-2-11-1 Service Platform (cont'd)

- 7.) Verify that the following screen (Service Platform) is displayed on the monitor.
- 8.) Verify that Service Platform Version is **2.2.0Q**.
- 9.) Click on **x** located at the upper right corner of the service platform screen to close the Service Platform and return to the scan panel.

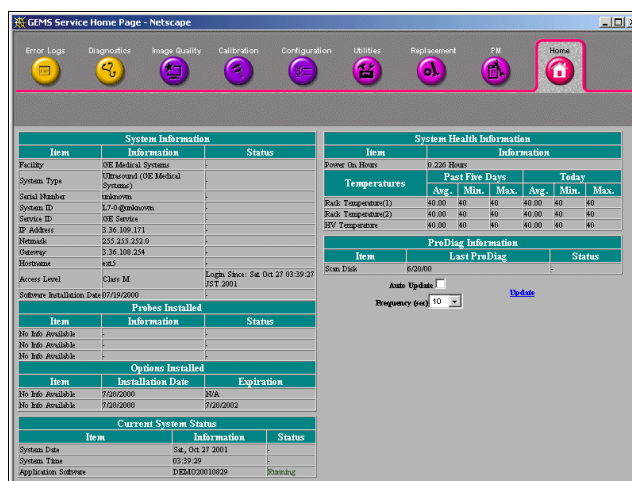


Figure 8-125 Service Platform



**NOTICE** When the service platform is NOT displayed, check if **CAPS** lock is selected. The **CAPS** should not be selected.

## 8-2-11-2 Functional Checks for Probe Recognition

- 1.) Touch **Scan** button on the Touch Panel to return to the scan screen.
- 2.) Connect each probe to ensure that they are recognized.
- 3.) Check every probe in the following modes and ensure that no artifacts or no problems are found in:
  - B-mode
  - Color FLOW
  - Pulsed Doppler
  - M-mode
  - CW (option)
- 4.) Install the removed parts in the reverse order of removal.

## 8-2-11-3 Calibration and adjustment

No calibration or adjustments are needed after this part replacement.

8-2-11-4    **Functional Checks**

Perform the following functional tests to confirm the system is operational before returning the system to the customer. If all are successful, include the following debrief script:

**Table 8-8    Functional Tests**

| See Section | Functional Test   | Debrief Script                                                                                                                        |
|-------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 4-2-2-1     | Power Up          | LOGIQ 7 Proprietary Service Manual, Direction 2286865, Rev 14, Section 8-2. Equipment passed all required tests and is ready for use. |
| 4-2-2-2     | Power Up Sequence |                                                                                                                                       |

# Chapter 9

## Renewal Parts

### Section 9-1 Overview

#### 9-1-1 Purpose of Chapter 9

This chapter gives you an overview of Renewal Parts for LOGIQ™ 7.

**Table 9-1 Contents in Chapter 9**

| Section | Description                                | Page Number |
|---------|--------------------------------------------|-------------|
| 9-1     | Overview                                   | 9-1         |
| 9-2     | List of Abbreviations                      | 9-1         |
| 9-3     | Renewal Parts List For BT09                | 9-2         |
| 9-4     | Renewal Parts List For R7.5.x              | 9-5         |
| 9-5     | Renewal Parts List For BT07                | 9-8         |
| 9-6     | Renewal Parts List For V65x                | 9-13        |
| 9-7     | Renewal Parts List For BT06-2 or later     | 9-17        |
| 9-8     | Renewal Parts List For BT06-2 CONSIP (SOI) | 9-23        |
| 9-9     | Renewal Parts List For BT04 and BT06       | 9-25        |
| 9-10    | Renewal Parts List for BT03 or lower       | 9-57        |

### Section 9-2 List of Abbreviations

- Assy - Assembly
- Ctrl - Control
- FRU 1 - Replacement part available in part hub
- FRU 2 - Replacement part available from the manufacturer (lead time involved)
- Int - Internal
- I/O - Input/Output
- KB - Keyboard
- LCD - Liquid Crystal Display
- MON - Monitor
- PAT. - Patient
- PC - Personal Computer (Back End Processor)

## Section 9-3 Renewal Parts List For BT09

**This section describes the BT09 system FRU.**

### 9-3-1 BT09, 19inch LCD: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-2 Material List**

| Part Name                                                       | Part Number | Quantity |   |   |   |   |   |   |   |   |  | Description |
|-----------------------------------------------------------------|-------------|----------|---|---|---|---|---|---|---|---|--|-------------|
| OPERATOR CONSOLE ASSY                                           | 5309921     | 1        |   |   |   |   |   |   |   |   |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                                           | 5309922     |          | 1 |   |   |   | 1 |   |   |   |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                                           | 5309923     |          |   | 1 |   |   |   |   | 1 |   |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                                           | 5309924     |          |   |   | 1 |   |   |   |   |   |  | 220V, NTSC  |
| LOGIQ7 R8.0.0 Application Software CD                           | 5311031-3   | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| LOGIQ7 Ghost DVD for BECOMP4                                    | 5305206-3   | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| LOGIQ7 BT09 eDoc CD                                             | 5307396-200 | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| LOGIQLEAN MIDDLE                                                | 2369384     | 1        |   |   |   |   |   |   |   |   |  |             |
| MSDS FOR KAO ACOUSTIC GEL                                       | 2384010     | 1        |   |   |   |   |   |   |   |   |  |             |
| GEL AQUASONIC GEL                                               | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| PARKER AQUASONIC100                                             | 2384142     |          | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| CD-R Media 700MB                                                | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| DVD-R 4.7GB 8 x Speed media                                     | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| KEY LABEL2                                                      | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| LOGIQ 7 WEEE instruction                                        | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| WARRANTY CARD                                                   | P9889AH     | 1        |   |   |   |   |   |   |   |   |  |             |
| L7 Tempu-Bunsho for R6.5.X                                      | 5182547     | 1        |   |   |   |   |   |   |   |   |  |             |
| AIUM Safety Pamphlet                                            | 5118349     |          | 1 |   |   |   |   |   |   |   |  |             |
| AIUM Safety Pamphlet License                                    | 5123992     |          | 1 |   |   |   |   |   |   |   |  |             |
| AC CORD 100V JPN                                                | 2371416     | 1        |   |   |   |   |   |   |   |   |  |             |
| AC CORD 100V USA                                                | 2371417     |          | 1 |   |   |   | 1 |   |   |   |  |             |
| AC CORD 200V EU                                                 | 2371418     |          |   | 1 | 1 |   |   |   |   |   |  |             |
| AC CORD 200V CHIN                                               | 2371415-2   |          |   |   |   |   |   |   | 1 |   |  |             |
| P9538UA POWER CABLE TAG                                         | 2304574     | 1        | 1 |   |   |   |   |   |   |   |  |             |
| SFDA LABEL L7                                                   | 5149899     |          |   |   |   |   |   |   | 1 |   |  |             |
| CAUTION TEL LABEL L7                                            | 2290996-3   | 1        | 1 | 1 | 1 | 1 |   |   |   |   |  |             |
| CAUTION TEL LABEL CHINA L7                                      | 2290996-4   |          |   |   |   |   |   |   |   | 1 |  |             |
| P9524QE ETL.ETL-C LABEL                                         | 2135339     |          | 1 | 1 |   |   | 1 | 1 |   |   |  |             |
| SONIC AuthorScript Data SDK Software License                    | 5178485     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| CrossBeam Option                                                | 2394377     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| SRI Option                                                      | 5119471     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| Caution sheet for Power cables - US                             | 5180867     | 1        |   |   |   |   |   |   |   |   |  |             |
| CHINA RoHS EFUP 20 LABEL                                        | 5196197     |          |   |   |   |   |   |   |   | 1 |  |             |
| LOGIQ 7 Certification of Quality Inspection for China           | 5229809     |          |   |   |   |   |   |   |   | 1 |  |             |
| L7 L7P LS6 Addendum for Guidance and manufacturer's declaration | 5197395     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |   |  |             |
| VERMONT HG LABEL                                                | 5241494     | 3        | 3 | 3 | 3 | 3 | 3 |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD JPN (5304556)                           |             |          |   |   |   |   |   |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD USA (5304556-2)                         |             |          |   |   |   |   |   |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD EU (5304556-3)                          |             |          |   |   |   |   |   |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD KOREA (5304556-4)                       |             |          |   |   |   |   |   |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD ASIA120(5304556-5)                      |             |          |   |   |   |   |   |   |   |   |  |             |
| LOGIQ7 V750 STYLE_J LCD ASIA220(5304556-6)                      |             |          |   |   |   |   |   |   |   |   |  |             |



## 9-3-2 BT09 Parts

The following parts are new for BT09 but other parts are common with BT06. For Common Parts not listed here, refer to Section 9-4 - Renewal Parts List For R7.5.x.

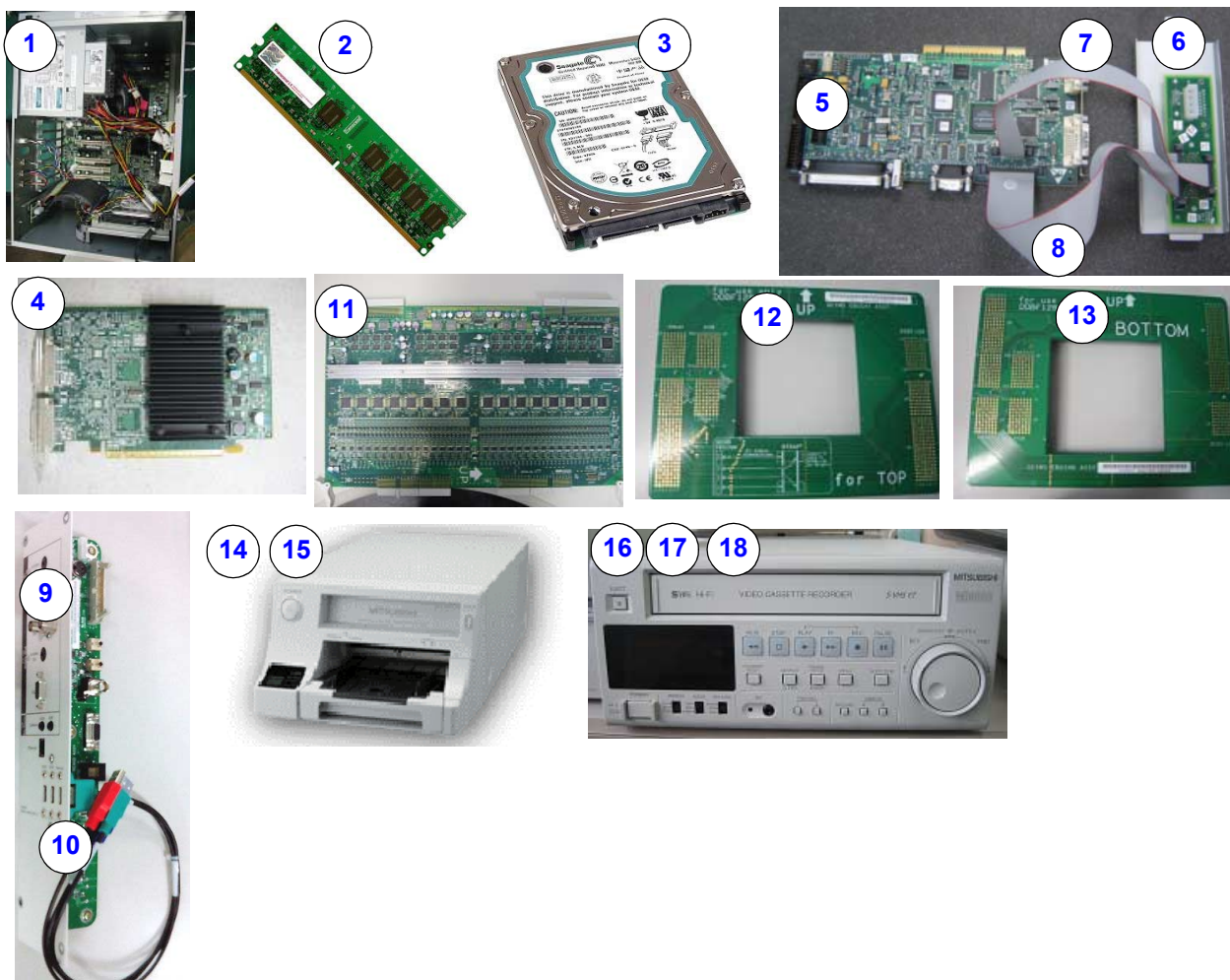


Figure 9-1 BT09 Parts

Table 9-3 BT09 Parts

| Item | Part Name                 | Part Number | Description                                                      | Qty | FRU |
|------|---------------------------|-------------|------------------------------------------------------------------|-----|-----|
| 1    | SVP-BECOMP4-L7            | 5308149     | Device cards and UPS batteries not included                      | 1   | 1   |
| 2    | DDR2 MEMORY4 1GB          | 5306528     | DDR-2 667 (1GBx1)                                                | 1   | 1   |
| 3    | SATA HDD 160GB            | 5306526     | Serial ATA interface (both Signal and Power connectors are SATA) | 1   | 1   |
| 4    | PCI Express Graphic board | 5306525     | Matrox P690 PCI-Express Slot                                     | 1   | 1   |
| -    | SVP BECOMP4 PARTS         | 5316350     | Small parts collection for BEP4                                  | 1   | 1   |
| 5    | PCI-DGVIC2 Assembly       | 5301220-2   | Video/Signal Interface                                           | 1   | 1   |
| 6    | BulkHead for L7 and LS6   | 5257226     | 3 connectors in sheet metal                                      | 1   | 1   |

Table 9-3 BT09 Parts

| Item | Part Name                                        | Part Number | Description                                                                                                       | Qty | FRU |
|------|--------------------------------------------------|-------------|-------------------------------------------------------------------------------------------------------------------|-----|-----|
| 7    | Cable13 for BulkHead                             | 5257231     | Internal 26pin flat cable -between PCI-DGVIC2/<br>Bulkhead                                                        | 1   | 1   |
| 8    | Cable25 for BulkHead                             | 5257233     | Internal 50pin flat cable -between PCI-DGVIC2/<br>Bulkhead                                                        | 1   | 1   |
| 9    | SVP REAN4 PANEL                                  | 5314714     | Metal plate with PCB board                                                                                        | 1   | 1   |
| 10   | SVP REAN4 USB CBL                                | 5314713     | USB Cables with metal plate                                                                                       | 1   | 1   |
| -    | FRU Part LCD CABLE DUCT ASSY L7.<br>No RGB Cable | 5309932     | Main duct cable. This part same as previous duct<br>cable FRU 5117797 but without Analog RGB<br>signal BNC cables | 1   | 1   |
| 11   | DDBF128 ASSY CSL L7                              | 5182379-2   |                                                                                                                   | 1   | 1   |
| 12   | EBUS4T ASSY CSL L7                               | 5182215     |                                                                                                                   | 1   | 1   |
| 13   | EBUS4B ASSY CSL L7                               | 5182757     |                                                                                                                   | 1   | 1   |
| 14   | Mitsubishi CP30DW COLOR PRINTER                  | 5310492     | For market globally                                                                                               | 1   | 1   |
| 15   | Mitsubishi CP30D COLOR PRINTER for<br>Japan      | 5310491     | For use in Japan only                                                                                             | 1   | 1   |
| 16   | VCR MD-3000 JPN NTSC USB Control                 | 5212446     | For use in Japan only                                                                                             | 1   | 1   |
| 17   | VCR MD-3000 EURO PAL USB Control                 | 5199397     | For use in EU (or other areas with PAL system)                                                                    | 1   | 1   |
| 18   | VCR MD-3000 USA NTSC USB Control                 | 5213259     | For use in USA Only (or other areas with NTSC<br>120V In/Out)                                                     | 1   | 1   |
| -    | R8.0.0 Application Software CD                   | 5311031-3   | R800 common software for both upgraded BT09<br>and pure BT09                                                      | 1   | 1   |
| -    | Ghost DVD for BEP4                               | 5305206-3   | Base image (Ghost) for pure BT09 (BEP4 system)<br>only                                                            | 1   | 1   |
| -    | Ghost DVD for BEP3                               | 5191839-3   | Base image (Ghost) for upgraded BT09 (BEP3<br>system)                                                             | 1   | 1   |

## Section 9-4 Renewal Parts List For R7.5.x

**This section describes the R7.5.x system FRU.**

### 9-4-1 R7.5.x, 19inch LCD: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-4 Material List**

| Part Name                                                        | Part Number | Quantity |   |   |   |   |   |   |  |  |  | Description |
|------------------------------------------------------------------|-------------|----------|---|---|---|---|---|---|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                                            | 5244924     | 1        |   |   |   |   |   |   |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                                            | 5244925     |          | 1 |   |   | 1 |   |   |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                                            | 5244926     |          |   | 1 |   |   | 1 |   |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                                            | 5244927     |          |   |   | 1 |   |   |   |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R7.5.1                            | 5252012-4   | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R7.0.0                                | 5191839-2   | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| L7/L7 PRO R7.5.0 eDoc CD                                         | 5257469-200 | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGICLEAN MIDDLE                                                 | 2369384     | 1        |   |   |   |   |   |   |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                                        | 2384010     | 1        |   |   |   |   |   |   |  |  |  |             |
| GEL AQUASONIC GEL                                                | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| PARKER AQUASONIC100                                              | 2384142     |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| CD-R Media 700MB                                                 | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                                      | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| KEY LABEL2                                                       | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGIQ 7 WEEE instruction                                         | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| WARRANTY CARD                                                    | P9889AH     | 1        |   |   |   |   |   |   |  |  |  |             |
| L7 Tempu-Bunsho for R6.5.X                                       | 5182547     | 1        |   |   |   |   |   |   |  |  |  |             |
| AIUM Safety Pamphlet                                             | 5118349     |          | 1 |   |   |   |   |   |  |  |  |             |
| AIUM Safety Pamphlet License                                     | 5123992     |          | 1 |   |   |   |   |   |  |  |  |             |
| AC CORD 100V JPN                                                 | 2371416     | 1        |   |   |   |   |   |   |  |  |  |             |
| AC CORD 100V USA                                                 | 2371417     |          | 1 |   |   |   | 1 |   |  |  |  |             |
| AC CORD 200V EU                                                  | 2371418     |          |   | 1 | 1 |   |   |   |  |  |  |             |
| AC CORD 200V CHIN                                                | 2371415-2   |          |   |   |   |   |   | 1 |  |  |  |             |
| P9538UA POWER CABLE TAG                                          | 2304574     | 1        | 1 |   |   |   |   |   |  |  |  |             |
| SFDA LABEL L7                                                    | 5149899     |          |   |   |   |   | 1 |   |  |  |  |             |
| CAUTION TEL LABEL L7                                             | 2290996-3   | 1        | 1 | 1 | 1 | 1 |   |   |  |  |  |             |
| CAUTION TEL LABEL CHINA L7                                       | 2290996-4   |          |   |   |   |   | 1 |   |  |  |  |             |
| P9524QE ETL.ETL-C LABEL                                          | 2135339     |          | 1 | 1 |   | 1 | 1 |   |  |  |  |             |
| SONIC AuthorScript Data SDK Software License                     | 5178485     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| CrossBeam Option                                                 | 2394377     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| SRI Option                                                       | 5119471     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| Caution sheet for Power cables - US                              | 5180867     | 1        |   |   |   |   |   |   |  |  |  |             |
| CHINA RoHS EFUP 20 LABEL                                         | 5196197     |          |   |   |   |   |   | 1 |  |  |  |             |
| LOGIQ 7 Certification of Quality Inspection for China            | 5229809     |          |   |   |   |   |   | 1 |  |  |  |             |
| L7 L7P L7S6 Addendum for Guidance and manufacturer's declaration | 5197395     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| VERMONT HG LABEL                                                 | 5241494     | 3        | 3 | 3 | 3 | 3 | 3 |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD JPN (5244919)                            |             |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD USA (5244919-2)                          |             |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD EU (5244919-3)                           |             |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD KOREA (5244919-4)                        |             |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD ASIA120(5244919-5)                       |             |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 V750 STYLE_I LCD ASIA220(5244919-6)                       |             |          |   |   |   |   |   |   |  |  |  |             |

## 9-4-2 R7.5.x Parts

The following parts are new for R7.5.x but other parts are common with BT06. For Common Parts not listed here, refer to Section 9-5 - Renewal Parts List For BT07.



Figure 9-1 R7.5.x Parts

Table 9-5 V75x Parts

| Item | Part Name                             | Part Number | Description                                                      | Qty | FRU |
|------|---------------------------------------|-------------|------------------------------------------------------------------|-----|-----|
| -    | LOGIQ7 R7.5.0 Application Software CD | 5252012-3   | Application software in CD. This part never went to circulation. | -   | -   |
| 1    | LOGIQ7 R7.5.1 Application Software CD | 5252012-4   | Application software in CD                                       | 1   | 1   |
| 2    | 19Inch LCD Monitor for LOGIQ          | 5212808     | 19inch LCD Monitor/ Front & Rear Panel                           | 1   | 1   |
| 3    | L9 19 In. LCD Speaker Assembly        | 5199460     | L/R Speakers and Bracket                                         | 1   | 1   |
| 4    | COVER VESA ASSY L7                    | 5248133     | LCD Rear cover & Label                                           | 1   | 1   |
| 5    | 19 LCD LATCH-N-LOK CABLE              | 5240769     | 3pin to Powered USB conversion                                   | 1   | 1   |

Table 9-5 V75x Parts

| Item   | Part Name                            | Part Number | Description                                                                                                        | Qty | FRU |
|--------|--------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------|-----|-----|
| 6      | DVI-HDMI ADAPTOR                     | 5240848     | DVI to HDMI conversion (For Upgraded Version only)                                                                 | 1   | 1   |
| -      | 19inch LCD ARM WITH CABLE ASSY       | 5245143     | Obsolete. Use FRU 5264730 to upgrade this part to -2 if stock remains.                                             | -   | -   |
| 7      | 19inch LCD ARM WITH CABLE ASSY       | 5245143-2   | LCD arm with Cables assy. Improved rotational limiter plate. For Korea console, Arm Joint (12(b)) must be re-used. | 1   | 1   |
| 8      | 19 LCD DVI HDMI CABLE                | 5224943     | Display Cable                                                                                                      | 1   | 1   |
| 9      | 19 LCD MIC SPK CABLE ASSY            | 5224944     | Mic/Spk Cable                                                                                                      | 1   | 1   |
| 10     | 19 LCD POWER CABLE                   | 5224942     | 48V Power Cable                                                                                                    | 1   | 1   |
| 11     | ARM COVER LCD L7                     | 5136256     | Arm plastic cover / top                                                                                            | 1   | 1   |
| 12     | ARM JOINT COVER LCD L7               | 5136257     | Arm plastic cover / joint. Common part between 17" and 19" LCD Monitor arm.                                        | 1   | 1   |
| 12 (b) | FRU ARM JOINT COVER LCD L7 FOR KOREA | 5271234     | Physically the same as 5136257, but caution label in Korean Lanugage.                                              | 1   | 1   |
| 13     | 19inch AC DC ASSY L7                 | 5248134     | 48V Power Supply (Denotes 'Returnable')                                                                            | 1   | 1   |
| 14     | 19 LCD 48V UNIT CABLE                | 5224941     | FCON2->48V Power Supply                                                                                            | 1   | 1   |

## Section 9-5 Renewal Parts List For BT07

**This section describes the BT07 system FRU.**

### 9-5-1 BT07, CRT: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-6 Material List**

| Part Name                                   | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|---------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                       | 5191090     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5191824     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5191341     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5191701     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R7.0.0       | 5191939-4   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R7.0.0           | 5191839-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R7.0.0 eDoc CD                    | 5181486-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                            | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                 | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                  | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                               | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                               | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                            | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                            | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                             | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                           | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT JPN (5192526)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT USA (5192526-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT EU (5192526-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT KOREA (5192526-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT ASIA120 (5192526-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H CRT ASIA220 (5192526-6) |             |          |   |   |   |   |   |  |  |  |  |             |

## 9-5-2 BT07, LCD: Equipment Models Covered in this Chapter (LOGIQ 7)

Table 9-7 Material List

| Part Name                                   | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|---------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                       | 5191499     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5191946     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5191853     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5191441     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R7.0.0       | 5191939-4   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R7.0.0           | 5191839-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R7.0.0 eDoc CD                    | 5181486-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                            | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                 | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                  | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                               | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                               | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                            | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                            | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                             | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                           | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD JPN (5193147)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD USA (5193147-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD EU (5193147-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD KOREA (5193147-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD ASIA120 (5193147-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER7 STYLE_H LCD ASIA220 (5193147-6) |             |          |   |   |   |   |   |  |  |  |  |             |



**9-5-3 BT07 PRO: Equipment Models Covered in this Chapter (LOGIQ 7 PRO)**

**Table 9-8 Material List**

| Part Name                                  | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|--------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
|                                            |             |          |   |   |   |   |   |  |  |  |  |             |
| OPERATOR CONSOLE ASSY                      | 5191006     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5191258     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5191436     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                      | 5191259     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R7.0.0      | 5191939-4   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R7.0.0          | 5191839-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R7.0.0 eDoc CD                   | 5181486-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                           | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                  | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                          | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                        | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                           | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                 | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                   | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                              | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                              | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                            | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                    | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7PRO                           | 5149900     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                           | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                           | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                            | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                          | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H JPN (5193151)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H USA (5193151-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H EU (5193151-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H KOREA (5193151-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H ASIA120 (5193151-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER7 STYLE_H ASIA220 (5193151-6) |             |          |   |   |   |   |   |  |  |  |  |             |



## 9-5-4 BT07 Parts

The following parts are new for BT07, but other parts are common with BT06. For Common Parts not listed here, refer to Section 9-6 - Renewal Parts List For V65x.

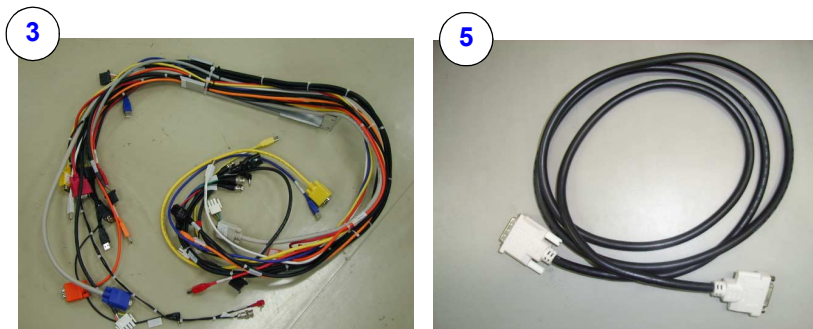


Figure 9-2 BT07 Parts

Table 9-9 V65x Parts

| Item | Part Name                                         | Part Number | Description                                     | Qty | FRU |
|------|---------------------------------------------------|-------------|-------------------------------------------------|-----|-----|
| 1    | LOGIQ7 Base System Software Load Image for R7.0.0 | 5191839-2   | Ghost image in DVD                              | 1   | 1   |
| 2    | LOGIQ7 Application Software R7.0.0                | 5191939-4   | Application software in CD                      | 1   | 1   |
| 3    | FRU_Parts_LCD_CABLE_DUCT_ASSY                     | 5139307-3   | LCDPart / Compatible to BT04                    | 1   | 1   |
| 4    | FRU_Parts.LCD_TOP_BOTTOM_DSUB_CABLE_ASSY          | 5198733     | LCDPart / Compatible to BT04 ; replaces 5125391 | 1   | 1   |
| 5    | DVI_CABLE_TOP_LCD_L7                              | 5189828     | LCDPart / Compatible to BT04                    | 1   | 1   |
|      |                                                   |             |                                                 |     |     |

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## Section 9-6 Renewal Parts List For V65x

**This section describes the V65x system FRU.**

### 9-6-1 V65x, CRT: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-10 Material List**

| Part Name                                     | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|-----------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                         | 5183269     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                         | 5183237     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                         | 5183396     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                         | 5183304     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.5.0         | 5181894     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.5.0             | 5182424     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R6.5.x eDoc CD                      | 5183312-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                              | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                     | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                             | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                           | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                              | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                   | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                    | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                      | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                                 | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                                 | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                               | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                       | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                                 | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                              | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                              | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                               | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                             | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT JPN (5183206)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT USA (5183206-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT EU (5183206-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT KOREA (5183206-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT ASIA120 (5183206-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G CRT ASIA220 (5183206-6) |             |          |   |   |   |   |   |  |  |  |  |             |

**9-6-2 V65x, LCD: Equipment Models Covered in this Chapter (LOGIQ 7)**

**Table 9-11 Material List**

| Part Name                                     | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|-----------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
|                                               |             |          |   |   |   |   |   |  |  |  |  |             |
| OPERATOR CONSOLE ASSY                         | 5183330     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                         | 5183410     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                         | 5183412     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                         | 5183190     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.5.0         | 5181894     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.5.0             | 5182424     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R6.5.x eDoc CD                      | 5183312-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                              | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                     | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                             | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                           | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                              | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                   | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                    | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                      | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                                 | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                                 | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                               | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                       | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                                 | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                              | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                              | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                               | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                             | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD JPN (5183291)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD USA (5183291-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD EU (5183291-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD KOREA (5183291-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD ASIA120 (5183291-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6.5 STYLE_G LCD ASIA220 (5183291-6) |             |          |   |   |   |   |   |  |  |  |  |             |

## 9-6-3 V65x PRO: Equipment Models Covered in this Chapter (LOGIQ 7 PRO)

Table 9-12 Material List

| Part Name                                    | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|----------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                        | 5183352     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                        | 5183136     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                        | 5183125     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                        | 5183515     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.5.0        | 5181894     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.5.0            | 5182424     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7/L7 PRO R6.5.x eDoc CD                     | 5183312-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                             | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                    | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                            | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                          | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                             | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                  | 5160800-2   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                   | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                     | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                                | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                                | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                              | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                      | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7PRO                             | 5149900     |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                             | 2371416     | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                             | 2371417     |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                              | 2371418     |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                            | 2371415-2   |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G JPN (5183556)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G USA (5183556-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G EU (5183556-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G KOREA (5183556-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G ASIA120 (5183556-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6.5 STYLE_G ASIA220 (5183556-6) |             |          |   |   |   |   |   |  |  |  |  |             |

## 9-6-4 V65x Parts

The following parts are new for V65x, but other parts are common with BT06. For Common Parts not listed here, refer to Section 9-9 - Renewal Parts List For BT04 and BT06.

**Table 9-13 V65x Parts**

| Item | Part Name       | Part Number | Description                        | Qty | FRU |
|------|-----------------|-------------|------------------------------------|-----|-----|
| 1    | PRINTER BRACKET | T.B.D.      | Short type, BW printer bay bracket | 1   | 2   |

**NOTE:** For BECOMP3 replacement, the following parts must be reused:

- Extended Memory
- PC2IP3
- UPS
- DGVIC
- Video Card
  - G550 for CRT
  - G450 for LCD
  - SONO64 for LCD
- Video Capture Board

## Section 9-7 Renewal Parts List For BT06-2 or later

**This section describes the BT06-2 or later system FRU.**

### 9-7-1 BT06-2, CRT: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-14 Material List**

| Part Name                                   | Part Number        | Quantity |   |   |   |   |   |  |  |  |  | Description |
|---------------------------------------------|--------------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                       | 5176232            | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5176567            |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5176948            |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5176508            |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.2.0       | 5174576 (Obsolete) | 0        | 0 | 0 | 0 | 0 | 0 |  |  |  |  |             |
| LOGIQ7 Application Software CD R6.2.2       | 5195941            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.2.0           | 5174668-2          | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7 BT06-2 eDoc CD                           | 5177295-200        | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384            | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010            | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD            |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142            |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                            | 5118386            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                 | 5160800-2          | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                  | 2360321            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                               | P9889AH            | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402            | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349            |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992            |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                               | 5149899            |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                            | 2371416            | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                            | 2371417            |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                             | 2371418            |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                           | 2371415-2          |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT JPN (5148046)       |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT USA (5148046-2)     |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT EU (5148046-3)      |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT KOREA (5148046-4)   |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT ASIA120 (5148046-5) |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER6 STYLE_F CRT ASIA220 (5148046-6) |                    |          |   |   |   |   |   |  |  |  |  |             |

**9-7-2 BT06-2, LCD: Equipment Models Covered in this Chapter (LOGIQ 7)**

**Table 9-15 Material List**

| Part Name                                   | Part Number        | Quantity |   |   |   |   |   |   |  |  |  | Description |
|---------------------------------------------|--------------------|----------|---|---|---|---|---|---|--|--|--|-------------|
|                                             |                    |          |   |   |   |   |   |   |  |  |  |             |
| OPERATOR CONSOLE ASSY                       | 5176713            | 1        |   |   |   |   |   |   |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5176888            |          | 1 |   |   | 1 |   |   |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5176300            |          |   | 1 |   |   |   | 1 |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5176380            |          |   |   | 1 |   |   |   |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.2.0       | 5174576 (Obsolete) | 0        | 0 | 0 | 0 | 0 | 0 |   |  |  |  |             |
| LOGIQ7 Application Software CD R6.2.2       | 5195941            | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.2.0           | 5174668-2          | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| L7 BT06-2 eDoc CD                           | 5177295-200        | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384            | 1        |   |   |   |   |   |   |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010            | 1        |   |   |   |   |   |   |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD            |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142            |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| CD-R Media 700MB                            | 5118386            | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                 | 5160800-2          | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| KEY LABEL2                                  | 2360321            | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413            | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |             |
| WARRANTY CARD                               | P9889AH            | 1        |   |   |   |   |   |   |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402            | 1        |   |   |   |   |   |   |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349            |          | 1 |   |   |   |   |   |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992            |          | 1 |   |   |   |   |   |  |  |  |             |
| SFDA LABEL L7                               | 5149899            |          |   |   |   |   |   | 1 |  |  |  |             |
| AC CORD 100V JPN                            | 2371416            | 1        |   |   |   |   |   |   |  |  |  |             |
| AC CORD 100V USA                            | 2371417            |          | 1 |   |   | 1 |   |   |  |  |  |             |
| AC CORD 200V EU                             | 2371418            |          |   | 1 | 1 |   |   |   |  |  |  |             |
| AC CORD 200V CHIN                           | 2371415-2          |          |   |   |   |   |   | 1 |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD JPN (5148051)       |                    |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD USA (5148051-2)     |                    |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD EU (5148051-3)      |                    |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD KOREA (5148051-4)   |                    |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD ASIA120 (5148051-5) |                    |          |   |   |   |   |   |   |  |  |  |             |
| LOGIQ7 VER6 STYLE_F LCD ASIA220 (5148051-6) |                    |          |   |   |   |   |   |   |  |  |  |             |



## 9-7-3 BT06-2 PRO: Equipment Models Covered in this Chapter (LOGIQ 7 PRO)

Table 9-16 Material List

| Part Name                                  | Part Number        | Quantity |   |   |   |   |   |  |  |  |  | Description |
|--------------------------------------------|--------------------|----------|---|---|---|---|---|--|--|--|--|-------------|
|                                            |                    |          |   |   |   |   |   |  |  |  |  |             |
| OPERATOR CONSOLE ASSY                      | 5176619            | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5176454            |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5176439            |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                      | 5176774            |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R6.2.0      | 5174576 (Obsolete) | 0        | 0 | 0 | 0 | 0 | 0 |  |  |  |  |             |
| LOGIQ7 Application Software CD R6.2.2      | 5195941            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R6.2.0          | 5174668-2          | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7 BT06-2 eDoc CD                          | 5177295-200        | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                           | 2369384            | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                  | 2384010            | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                          | U0403BD            |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                        | 2384142            |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                           | 5118386            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R 4.7GB 8 x Speed media                | 5160800-2          | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                 | 2360321            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                   | 5143413            | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                              | P9889AH            | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                              | 5141402            | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                            | 5118349            |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                    | 5123992            |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7PRO                           | 5149900            |          |   |   |   |   | 1 |  |  |  |  |             |
| AC CORD 100V JPN                           | 2371416            | 1        |   |   |   |   |   |  |  |  |  |             |
| AC CORD 100V USA                           | 2371417            |          | 1 |   |   | 1 |   |  |  |  |  |             |
| AC CORD 200V EU                            | 2371418            |          |   | 1 | 1 |   |   |  |  |  |  |             |
| AC CORD 200V CHIN                          | 2371415-2          |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F JPN (5148056)       |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F USA (5148056-2)     |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F EU (5148056-3)      |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F KOREA (5148056-4)   |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F ASIA120 (5148056-5) |                    |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER6 STYLE_F ASIA220 (5148056-6) |                    |          |   |   |   |   |   |  |  |  |  |             |

9-7-4 BT06-2 Parts

The following parts are new for BT06-2, but other parts are common with BT06. Parts not listed here are common with BT06. For BT06-2 Parts, refer to Section 9-9 - Renewal Parts List For BT04 and BT06.

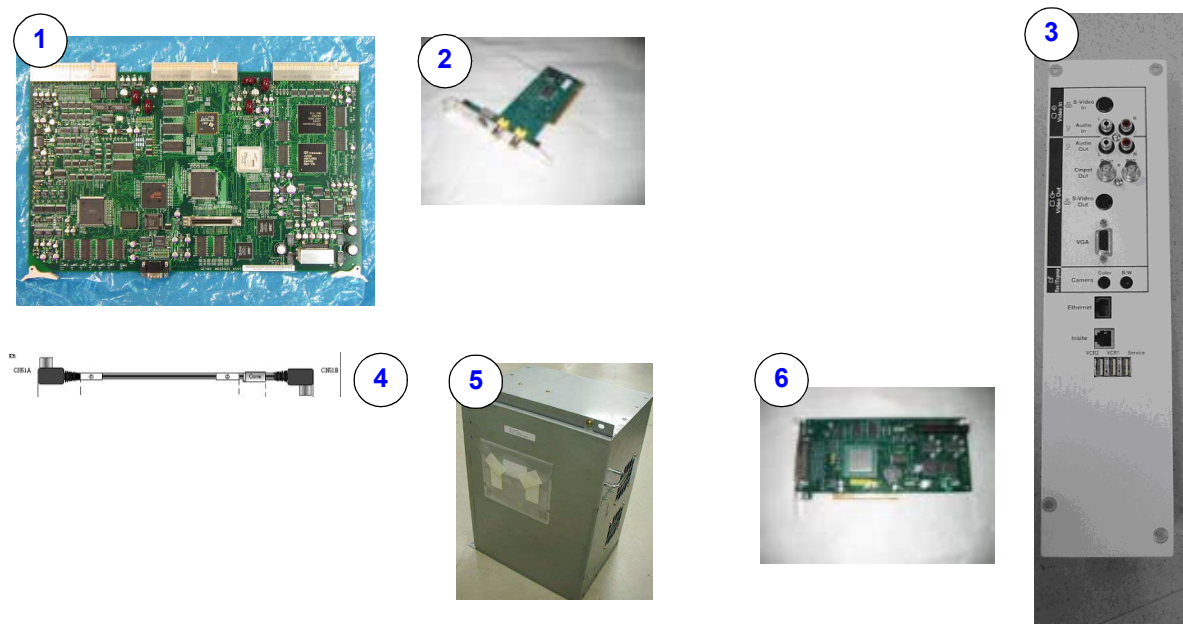


Figure 9-3 BT06-2 Parts

Table 9-17 Monitor

| Item | Part Name           | Part Number               | Description                                                | Qty | FRU |
|------|---------------------|---------------------------|------------------------------------------------------------|-----|-----|
| 1    | MDBRG2S             | 5145999                   |                                                            | 1   | 1   |
| 2    | Capture Board       | 5147460                   |                                                            | 1   | 1   |
| 3    | Rear Panel          | 5174604                   |                                                            | 1   | 1   |
| 4    | YC Cable (S-Video)  | 5169391                   |                                                            | 1   | 1   |
| 5    | BECOMP3             | 5119906-3 or<br>5119906-4 | Refer to 9-9-13 - HDD and Battery.                         | 1   | 1   |
| -    | PC2IP3              | FC200755                  | Obsolete. Acceptable to use the part if remained in stock. | -   | -   |
| 6    | PC2IP3              | FD200033                  | New PC2IP3. Fully compatible to FC200755.                  | 1   | 1   |
| 7    | 4D Motor Controller |                           | Option                                                     | 1   | 1   |

NOTE: Software R6.2.x and later is required to support the hardware listed above.

NOTE: For BECOMP3 replacement, the following parts must be reused:

- Extended Memory
- PC2IP3
- UPS
- DGVIC

**9-7-4 BT06-2 Parts** (cont'd)

- Video Card
  - G550 for CRT
  - G450 for LCD
  - SONO64 for LCD
- Video Capture Board

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## Section 9-8 Renewal Parts List For BT06-2 CONSIP (SOI)

**This section describes the BT06-2 CONSIP (SOI) system FRU.**

The BT06-2 CONSIP (SOI) is delivered to the special ordered customer as simply configured:

- LOGIQ 7PRO (BT06-2, 220V/PAL) with LCD monitor
- Special size of HDD inside the PC box

### 9-8-1 BT06-2 CONSIP: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-18 Material List**

| Part Name                                       | Part Number | Quantity |  |  |  |  |  |  |  |  |  | Description             |
|-------------------------------------------------|-------------|----------|--|--|--|--|--|--|--|--|--|-------------------------|
| OPERATOR CONSOLE ASSY                           | 5179605     | 1        |  |  |  |  |  |  |  |  |  | 220V, PAL, PRO with LCD |
| LOGIQ7 Application Software CD R6.3.0 for Italy | 5177651     | 1        |  |  |  |  |  |  |  |  |  |                         |
| LOGIQ7 Ghost3 CD for BEP3, R6.2.0               | 5174668-2   | 1        |  |  |  |  |  |  |  |  |  |                         |
| GEL AQUASONIC GEL                               | U0403BD     | 1        |  |  |  |  |  |  |  |  |  |                         |
| PARKER AQUASONIC100                             | 2384142     | 1        |  |  |  |  |  |  |  |  |  |                         |
| CD-R Media 700MB                                | 5118386     | 1        |  |  |  |  |  |  |  |  |  |                         |
| DVD-R 4.7GB 8 x Speed media                     | 5160800-2   | 1        |  |  |  |  |  |  |  |  |  |                         |
| KEY LABEL2                                      | 2360321     | 1        |  |  |  |  |  |  |  |  |  |                         |
| LOGIQ 7 WEEE instruction                        | 5143413     | 1        |  |  |  |  |  |  |  |  |  |                         |
| AC CORD 200V EU                                 | 2371418     |          |  |  |  |  |  |  |  |  |  |                         |
| MSDS for PAKER AQUASONIC 100                    | 2384142     | 1        |  |  |  |  |  |  |  |  |  |                         |
| LOGIQ7 VER6 STYLE_F LCD Italy (5179274)         |             |          |  |  |  |  |  |  |  |  |  |                         |
|                                                 |             |          |  |  |  |  |  |  |  |  |  |                         |
|                                                 |             |          |  |  |  |  |  |  |  |  |  |                         |
|                                                 |             |          |  |  |  |  |  |  |  |  |  |                         |
|                                                 |             |          |  |  |  |  |  |  |  |  |  |                         |
|                                                 |             |          |  |  |  |  |  |  |  |  |  |                         |

## 9-8-2 BT06-2 CONSIP Parts

The following parts are unique to BT06-2 CONSIP, but other parts are common with BT06-2. Parts not listed here are common with BT06-2. For BT06-2 CONSIP Parts, refer to Section 9-7 - Renewal Parts List For BT06-2 or later and Section 9-9 - Renewal Parts List For BT04 and BT06.



Figure 9-4 BT06-2 CONSIP Parts

Table 9-19 Monitor

| Item | Part Name         | Part Number | Description                                                                                                        | Qty | FRU |
|------|-------------------|-------------|--------------------------------------------------------------------------------------------------------------------|-----|-----|
| 1    | HDD for L7 CONSIP | 5179643     | HDD 160GB only for CONSIP Console                                                                                  | 1   | 1   |
| 2    | BECOMPSW3SVC      | 5119906-4   | This BECOMP part contains 80GB HDD. FE must either reuse HDD, or order 160GB HDD (5179643) for use with this part. | 1   | 1   |

**NOTE:** Software R6.3.x application with base image is required to support this CONSIP Console.

**NOTE:** For BECOMP3 replacement, the following parts must be reused:

- Extended Memory
- PC2IP3
- UPS
- DGVIC
- Video Card
  - G550 for CRT
  - G450 for LCD
  - SONO64 for LCD
- Video Capture Board
- HDD

## Section 9-9 Renewal Parts List For BT04 and BT06

**This section describes the BT04 and BT06 system FRU.**

### 9-9-1 BT06, CRT: Equipment Models Covered in this Chapter (LOGIQ 7)

**Table 9-20 Material List**

| Part Name                                   | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|---------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                       | 5148047     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5148048     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5148049     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5148050     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R5.0.0       | 5146099     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R5.0.0           | 5146100     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7 BT06 eDoc CD                             | 5120980-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                            | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R Media 4.7GB                           | 5118392     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                  | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                               | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                               | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT JPN (5148046)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT USA (5148046-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT EU (5148046-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT KOREA (5148046-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT ASIA120 (5148046-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E CRT ASIA220 (5148046-6) |             |          |   |   |   |   |   |  |  |  |  |             |

**9-9-2 BT06, LCD: Equipment Models Covered in this Chapter (LOGIQ 7)**

**Table 9-21 Material List**

| Part Name                                   | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|---------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
|                                             |             |          |   |   |   |   |   |  |  |  |  |             |
| OPERATOR CONSOLE ASSY                       | 5148052     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5148053     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                       | 5148054     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                       | 5148055     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R5.0.0       | 5146099     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R5.0.0           | 5146100     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7 BT06 eDoc CD                             | 5120980-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                            | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                   | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                           | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                         | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                            | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R Media 4.7GB                           | 5118392     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                  | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                    | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                               | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                               | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                             | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                     | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7                               | 5149899     |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD JPN (5148051)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD USA (5148051-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD EU (5148051-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD KOREA (5148051-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD ASIA120 (5148051-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7 VER5 STYLE_E LCD ASIA220 (5148051-6) |             |          |   |   |   |   |   |  |  |  |  |             |



## 9-9-3 BT06: Equipment Models Covered in this Chapter (LOGIQ 7 PRO)

Table 9-22 Material List

| Part Name                                  | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|--------------------------------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY                      | 5148057     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5148058     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY                      | 5148059     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY                      | 5148060     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGIQ7 Application Software CD R5.0.0      | 5146099     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ7 Ghost3 CD for BEP3, R5.0.0          | 5146100     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| L7 BT06 eDoc CD                            | 5120980-200 | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGICLEAN MIDDLE                           | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| MSDS FOR KAO ACOUSTIC GEL                  | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL AQUASONIC GEL                          | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100                        | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R Media 700MB                           | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R Media 4.7GB                          | 5118392     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2                                 | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| LOGIQ 7 WEEE instruction                   | 5143413     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD                              | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC                              | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET                            | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET License                    | 5123992     |          | 1 |   |   |   |   |  |  |  |  |             |
| SFDA LABEL L7PRO                           | 5149900     |          |   |   |   |   | 1 |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E JPN (5148056)       |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E USA (5148056-2)     |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E EU (5148056-3)      |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E KOREA (5148056-4)   |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E ASIA120 (5148056-5) |             |          |   |   |   |   |   |  |  |  |  |             |
| LOGIQ7PRO VER5 STYLE_E ASIA220 (5148056-6) |             |          |   |   |   |   |   |  |  |  |  |             |

**9-9-4 BT04: Equipment Models Covered in this Chapter (LOGIQ 7)**

**Table 9-23 Material List**

| Part Name             | Part Number | Quantity |   |   |   |   |   |   |  |  |  | Description               |
|-----------------------|-------------|----------|---|---|---|---|---|---|--|--|--|---------------------------|
| OPERATOR CONSOLE ASSY | 5118054     | 1        |   |   |   |   |   |   |  |  |  | 100V, NTSC                |
| OPERATOR CONSOLE ASSY | 5118056     |          | 1 |   |   | 1 |   |   |  |  |  | 120V, NTSC                |
| OPERATOR CONSOLE ASSY | 5118057     |          |   | 1 |   |   | 1 |   |  |  |  | 220V, PAL                 |
| OPERATOR CONSOLE ASSY | 5118058     |          |   |   | 1 |   |   |   |  |  |  | 220V, NTSC                |
| OPERATOR CONSOLE ASSY | 5118059     |          |   |   |   |   |   | 1 |  |  |  | STYLE D                   |
| TASK LAMP             | 2301853-4   | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                           |
| LOGICLEAN MIDDLE      | 2369384     | 1        |   |   |   |   |   | 1 |  |  |  |                           |
| GEL                   | 2384010     | 1        |   |   |   |   |   | 1 |  |  |  |                           |
| GEL                   | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |                           |
| PARKER AQUASONIC100   | 2384142     |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |                           |
| KEY LABEL2            | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |   |  |  |  |                           |
| WARRANTY CARD         | P9889AH     | 1        |   |   |   |   |   | 1 |  |  |  |                           |
| HIGHLIGHT DOC         | 5141402     | 1        |   |   |   |   |   | 1 |  |  |  |                           |
| SAFETY PAMPHLET       | 5118349     |          | 1 |   |   |   |   |   |  |  |  |                           |
| SDA LABEL             | 2341927     |          |   |   |   |   | 1 |   |  |  |  |                           |
| APPLICATION CD        | 5118352     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                           |
| GHOST CD              | 5118353-3   | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                           |
| DVD-R MEDIA 4.7GB     | 5118392     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                           |
| CD-R MEDIA 700MB      | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                           |
| JAPAN (5118054)       |             |          |   |   |   |   |   |   |  |  |  |                           |
| USA (5118054-2)       |             |          |   |   |   |   |   |   |  |  |  |                           |
| EUROPE (5118054-3)    |             |          |   |   |   |   |   |   |  |  |  |                           |
| KOREA (5118054-4)     |             |          |   |   |   |   |   |   |  |  |  |                           |
| ASIA 120V(5118054-5)  |             |          |   |   |   |   |   |   |  |  |  |                           |
| ASIA 220V(5118054-6)  |             |          |   |   |   |   |   |   |  |  |  | JAPAN STYLE D (5118054-7) |

9-9-5 BT04: Equipment Models Covered in this Chapter (LOGIQ 7 PRO)

Table 9-24 Material List

| Part Name             | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|-----------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY | 5132215     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY | 5132216     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY | 5132217     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY | 5132218     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| LOGICLEAN MIDDLE      | 2369384     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL                   | 2384010     | 1        |   |   |   |   |   |  |  |  |  |             |
| GEL                   | U0403BD     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| PARKER AQUASONIC100   | 2384142     |          | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| KEY LABEL2            | 2360321     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| WARRANTY CARD         | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| HIGHLIGHT DOC         | 5141402     | 1        |   |   |   |   |   |  |  |  |  |             |
| SAFETY PAMPHLET       | 5118349     |          | 1 |   |   |   |   |  |  |  |  |             |
| SDA LABEL             | 2341927     |          |   |   |   |   | 1 |  |  |  |  |             |
| APPLICATION CD        | 5132139     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  | R4.2.0 Pro  |
| GHOST CD              | 5118353-3   | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| DVD-R MEDIA 4.7GB     | 5118392     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| CD-R MEDIA 700MB      | 5118386     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
| JAPAN (5132194)       |             |          |   |   |   |   |   |  |  |  |  |             |
| USA (5132194-2)       |             |          |   |   |   |   |   |  |  |  |  |             |
| EUROPE (5132194-3)    |             |          |   |   |   |   |   |  |  |  |  |             |
| KOREA (5132194-4)     |             |          |   |   |   |   |   |  |  |  |  |             |
| ASIA 120V(5132194-5)  |             |          |   |   |   |   |   |  |  |  |  |             |
| ASIA 220V(5132194-6)  |             |          |   |   |   |   |   |  |  |  |  |             |

## 9-9-6 Monitor

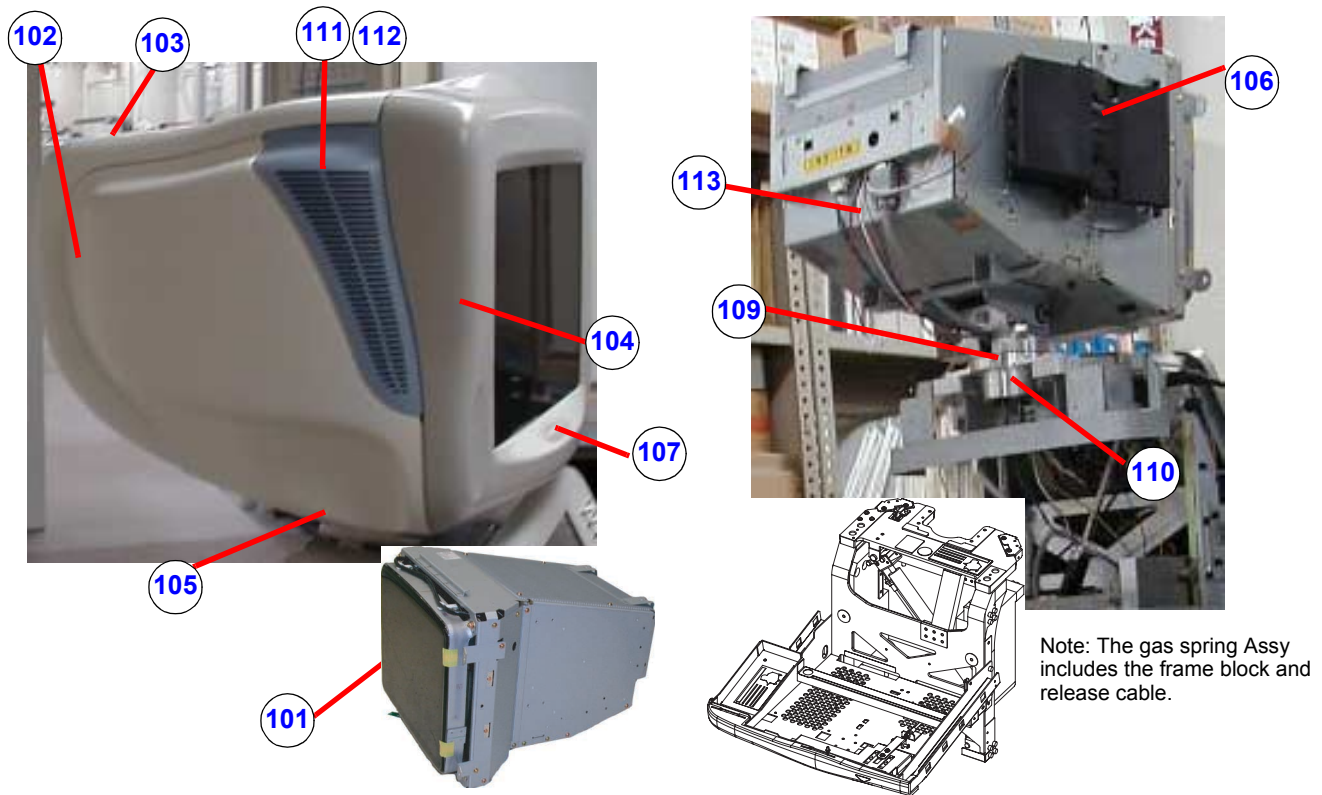


Figure 9-5 Monitor

Table 9-25 Monitor

| Item    | Part Name                       | Part Number | Description                                                        | Qty | FRU |
|---------|---------------------------------|-------------|--------------------------------------------------------------------|-----|-----|
| 101     | CRT MONITOR ASSY                | 2283334-5   | Monitor, not including the following parts (102 ~ 113)             | 1   | 1   |
| 102     | MON-REAR-WSP-ASSY               | 2303930     | Rear cover of monitor use for globally except for China and Korea. | 1   | 2   |
| 102 (b) | FRU MON-REAR-WSP-ASSY FOR CHINA | 5264592     | Physically the same as 2303930, but with Chinese caution Label.    | 1   | 2   |
| 102 (c) | FRU MON-REAR-WSP-ASSY FOR KOREA | 5271314     | Physically the same as 2303930, but with Korean caution Label.     | 1   | 2   |
| 103     | MON-CAP-ASSY                    | 2303932     | cap to cover screws                                                | 1   | 2   |
| 104     | MON-FRONT-ASSY                  | 2303929-3   | front cover of monitor                                             | 1   | 2   |
| 105     | NECK ASSY                       | 2347387     |                                                                    | 1   | 2   |
| 106     | SPEAKER & BRACKET ASSY          | 23866616    |                                                                    | 2   | 2   |
| 107     | USER SW ASSY OF MONITOR         | 2297050     | microphone and switch                                              | 1   | 2   |
| 109     | NECH-BASE-ASSY                  | 2303933     | mechanical                                                         | 1   | 2   |

**Table 9-25 Monitor**

| Item | Part Name       | Part Number | Description                                                                            | Qty | FRU |
|------|-----------------|-------------|----------------------------------------------------------------------------------------|-----|-----|
| 110  | GAS-SPRING-ASSY | 5117495     | Gas spring including release cable and mechanical.<br>Not used for LCD monitor system. | 1   | 2   |
| 111  | Grill, Left     | 2279675     |                                                                                        | 1   | 2   |
| 112  | Grill, Right    | 2279676     |                                                                                        | 1   | 2   |
| 113  | MON-Cable-Assy  | 2304171     | cable                                                                                  | 1   | 2   |

## 9-9-7 Casters and Pedals

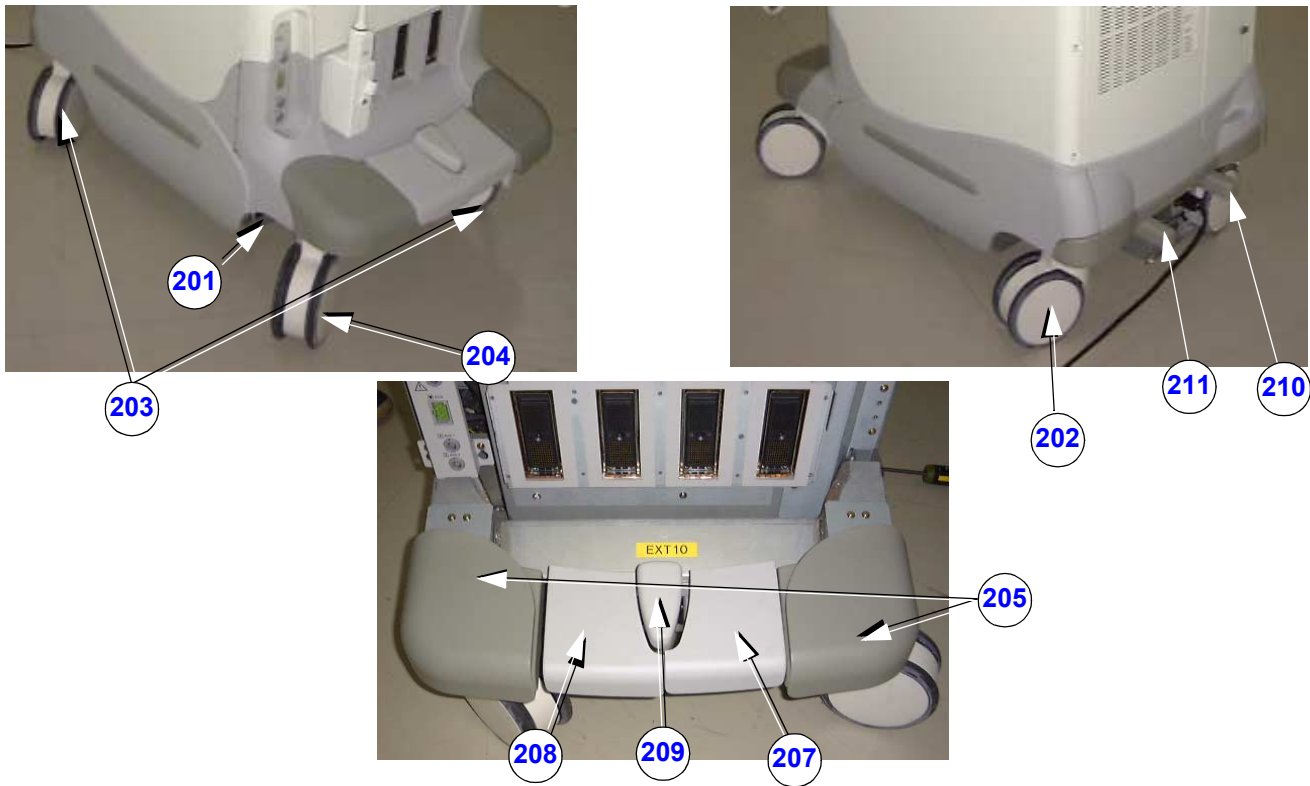


Figure 9-6 Casters and Pedals

Table 9-26 Casters and Pedals

| Item | Part Name         | Part Number | Description                                                         | Qty | FRU |
|------|-------------------|-------------|---------------------------------------------------------------------|-----|-----|
| 201  | CASTER LINK ASSY  | 2304800     | entire brake mechanism                                              | 1   | 2   |
| -    | CASTER SWIVEL     | 2379694-2   | Obsolete. Do not use these parts.                                   | -   | -   |
| 202  | CASTER SWIVEL     | 5233773     | swivel, rear right. Improved rubber type (anti-stain).              | 1   | 2   |
| -    | CASTER LOCK       | 2379695     | Obsolete. Do not use these parts.                                   | -   | -   |
| 203  | CASTER LOCK       | 5233774     | lock, front right and rear left. Improved rubber type (anti-stain). | 2   | 2   |
| -    | CASTER FREE       | 2379693-2   | Obsolete. Do not use these parts.                                   | -   | -   |
| 204  | CASTER FREE       | 5233772     | free, front left. Improved rubber type (anti-stain).                | 1   | 2   |
| 205  | FRONT-BUMPER-ASSY | 2315419     | front bumper, left and right                                        | 1   | 2   |
| 207  | PEDAL-R           | 2291870     | rubber pedal for brake caster lock                                  | 1   | 2   |
| 208  | PEDAL-L           | 2291869     | rubber pedal for brake caster lock                                  | 1   | 2   |
| 209  | PEDAL CENTER      | 2291871     | rubber pedal for brake caster lock                                  | 1   | 2   |
| 210  | PEDAL-REAR-REL    | 2304908     | rear pedal                                                          | 1   | 2   |

**Table 9-26 Casters and Pedals**

| Item | Part Name      | Part Number | Description                                                                                                                          | Qty | FRU |
|------|----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 211  | PEDAL-REAR-SWL | 2304909     | rear pedal                                                                                                                           | 1   | 2   |
| -    | CASTER SET     | 2381035     | Obsolete. Do not use these parts.                                                                                                    | -   | -   |
| -    | CASTER SET     | 2381035-2   | Obsolete. Do not use these parts.                                                                                                    | -   | -   |
| -    | CASTER SET     | 2381035-3   | This part contains one free caster, one swivel lock caster, and two total lock caster with bolts. Improved rubber type (anti-stain). | 1   | 2   |

9-9-8      Plastic Covers





## 9-9-8 Plastic Covers (cont'd)

**Table 9-27 OP Panel and Keys**

| Item    | Part Name                        | Part Numbers | Description                                                                                                                                  | Qty | FRU |
|---------|----------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 251     | KB COVER LEFT                    | 2282547      | upper left cover of keyboard (under monitor)                                                                                                 | 1   | 2   |
| 252     | KB COVER RIGHT                   | 2282548      | upper right cover of keyboard (under monitor)                                                                                                | 1   | 2   |
| 253     | COVER-TOP                        | 2315418      | top cover                                                                                                                                    | 1   | 2   |
| 254     | KB COVER BOTTOM                  | 2282546      | plastic cover under keyboard                                                                                                                 | 1   | 2   |
| 255     | UP/DOWN-KNOB-ASSY                | 2304820      | handle for keyboard up/down, wire                                                                                                            | 1   | 2   |
| 256     | ECG CABLE HOOK                   | 2283028      | hook under keyboard                                                                                                                          | 1   | 2   |
| 257     | FRONT COVER TOP                  | 2304765-2    | upper cover around probe connector                                                                                                           | 1   | 2   |
| 258     | FRONT COVER UNDER                | 2304766-2    | lower cover around probe connector                                                                                                           | 1   | 2   |
| 259     | SIDE COVER L ASSY                | 2304769      | plastic cover, including bracket                                                                                                             | 1   | 2   |
| 260     | SIDE COVER R ASSY                | 2304770      | plastic cover, including bracket                                                                                                             | 1   | 2   |
| 261     | SIDE-POCKET                      | 2291872      | cover of peripheral room with pocket                                                                                                         | 1   | 2   |
| 262     | SIDE-FRIDGE                      | 2303896      | cover of peripheral room without pocket                                                                                                      | 1   | 2   |
| -       | REAR COVER ASSY                  | 2304767-2    | Obsolete. This plastic cover is acceptable to use if stock remains                                                                           | -   | -   |
| 263     | REAR COVER ASSY                  | 5150568-3    | Plastic cover. Physically the same as ?2, but caution marks are of updated color scheme. Exclamation and lightning are in yellow background. | 1   | 2   |
| 263 (b) | FRU REAR COVER ASSY L7 FOR KOREA | 5261040      | Plastic cover. Physically the same as 5150568-3, but with Korean Caution.                                                                    | 1   | 2   |
| -       | REAR COVER ASSY L7 FOR CHINA     | 5191392      | Part for China RoHS compliance. Do NOT use it for other countries.                                                                           | 1   | 2   |
| 264     | REAR DOOR ASSY                   | 2304768      | door for peripherals connector, including latch                                                                                              | 1   | 2   |
| 265     | HANDLE                           | 2309857      | rear handle                                                                                                                                  | 1   | 2   |
| 266     | REAR CONN ASSY                   | 5111714      | rear connector for peripherals                                                                                                               | 1   | 2   |
| 267     | KB BUMPER                        | 2283014      | Operation panel bumper                                                                                                                       | 1   | 2   |
| 268     | KB BLIND REAR Assy               | 2304780      | Lower cover at Neck portion                                                                                                                  | 1   | 2   |
| 270     | KB Rear Assy                     | 2304776      |                                                                                                                                              | 1   | 2   |
| 271     | BK Cover Top                     | 2282549      |                                                                                                                                              | 1   | 2   |

## 9-9-9 Recording Devices

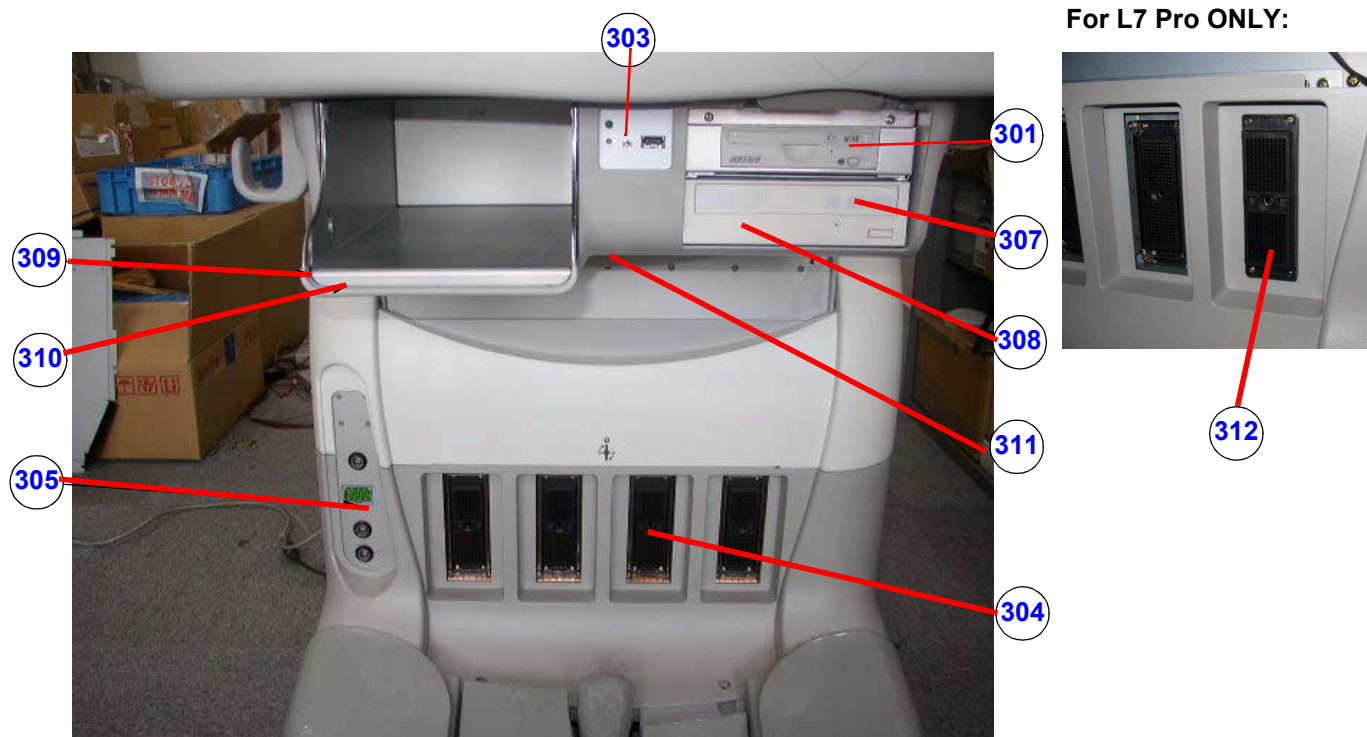


Figure 9-8 Recording Devices

Table 9-28 Recording Devices

| Item | Part Name                 | Part Number | Description                                                | Qty | FRU |
|------|---------------------------|-------------|------------------------------------------------------------|-----|-----|
| 301  | MOD                       | 5113449     | Not supported for the models after V65x.                   | 1   | 1   |
| 303  | FCON2 ASSY                | 5111715-2   | front connector for peripherals (FCON)                     | 1   | 1   |
| 304  | QCON ASSY                 | 2304617-5   | PCON+PSEL+bracket                                          | 1   | 2   |
| 305  | PAT. I/O                  | FA200801    | for ecg                                                    | 1   | 1   |
| -    | DVD unit                  | 2388429-5   | Obsolete. Acceptable to use the part if remained in stock. | -   | -   |
| 307  | DVD unit 6                | 2388429-6   |                                                            | 1   | 1   |
| 308  | Front Device bay Assy     | 5115606     | Without DVD unit                                           | 1   | 2   |
| 309  | B/W printer bracket       | 5115690     |                                                            | 1   | 2   |
| 310  | B/W printer bumper        | 2301001     |                                                            | 1   | 2   |
| 311  | Foot SW bracket Assy      | 5117795     |                                                            | 1   | 2   |
| 312  | DUMMY CONN ASSY CSL L7PRO | 5132196     | For L7Pro ONLY: Including Dummy connector and four screws  | 1   | 2   |

## 9-9-10 Probe Holder

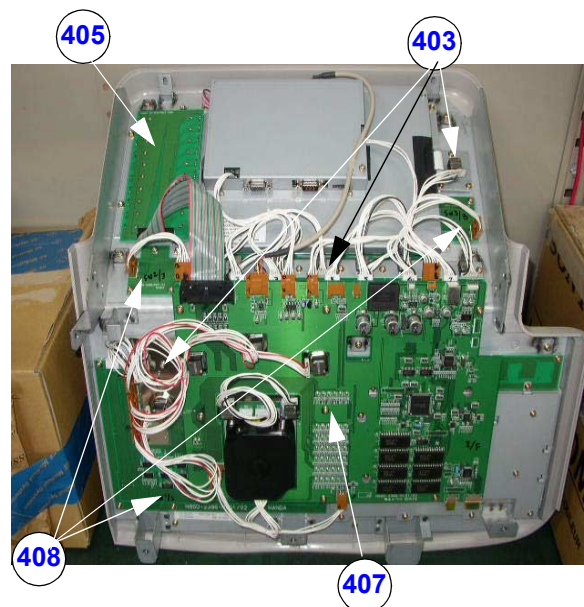


Figure 9-9 Probe Holder

Table 9-29 Probe Holder

| Item | Part Name            | Part Number | Description                | Qty | FRU |
|------|----------------------|-------------|----------------------------|-----|-----|
| 350  | PROBE HOLDER R ASSY  | 2296738     | rubber holder with bracket | 1   | 2   |
| 351  | PROBE HOLDER L1 ASSY | 2296736     | rubber holder with bracket | 1   | 2   |
| 352  | TV HOLDER ASSY       | 2296740     | rubber holder for TV       | 1   | 2   |
| 353  | GEL HOLDER R ASSY    | 2296741     | includes bottom            | 1   | 2   |
|      |                      |             |                            |     |     |

## 9-9-11 OP Panel and Keys



For L7 ONLY:



**Note:** The task lamp is wrapped by heat-shrinkable tape around its lamp portion. Do NOT remove it !!!



Figure 9-10 OP Panel and Keys

## 9-9-11 OP Panel and Keys (cont'd)

**Table 9-30 OP Panel and Keys**

| Item | Part Name            | Part Number | Description                                                                                                                                                                                                             | Qty | FRU |
|------|----------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 401  | KEYBOARD ASSY        | 5138507-2   | whole keyboard, this includes next 7 items (Items 403 ~ 409) (Obsolete, Replaced by 5138507-3)                                                                                                                          | 1   | 1   |
| 401  | SVC KEYBOARD L7      | 5138507-3   | whole keyboard, this includes next 7 items (Items 403 ~ 409)                                                                                                                                                            | 1   | 1   |
| 403  | ROTARY ENCODER ASSY  | 2369826     | OBSOLETE<br>Three rotary encoders with cables. Three groups of encoders with cables and metal stay. In total, there are 14 encoders in this FRU.                                                                        | 1   | 1   |
| 403  | ROTARY ENCODER ASSY  | 2369826-2   | Three rotary encoders with cables. Three groups of encoders with cables and metal stay. In total, there are 14 encoders in this FRU. This version contains two types of LCD brightness adjustment knob and instruction. | 1   | 1   |
| 404  | TRACKBALL ASSY       | 2369823     | trackball, two cables w/o bracket                                                                                                                                                                                       | 1   | 1   |
| 405  | TGC ASSY             | 2369822     | TGC PCB Assy, bracket, cable w/o TGC knobs                                                                                                                                                                              | 1   | 1   |
| 406  | A/N KBD ASSY         | 2369818     | board of a/n key switch                                                                                                                                                                                                 | 1   | 1   |
| 407  | I/F BOARD ASSY       | 2369817     | I/F PCB ASSY, Mic cable, USB cable                                                                                                                                                                                      | 1   | 1   |
| 408  | SW BOARD ASSY        | 2369815     | Three SW PCB Assy, rubber sheets, two cables                                                                                                                                                                            | 1   | 1   |
| 409  | KEY ACCESSORY SET    | 2369816     | A/N keytops, all encoder knobs, all clear key caps, labels (For knob repair, order 2363861 repair kit.)                                                                                                                 | 1   | 2   |
| 410  | TASK LAMP ASSY       | 2301853-4   | L7 Pro does not support the task lamp.                                                                                                                                                                                  | 1   | 1   |
| 411  | LAMP STAY ASSY       | 5117796     | Stay and cable (inside L7)                                                                                                                                                                                              | 1   | 2   |
| 412  | TASK LAMP KNOB       | 2304620     | knob                                                                                                                                                                                                                    | 1   | 2   |
| 413  | LIGHT BULB           | 2357676     | BULB ONLY                                                                                                                                                                                                               | 1   | 1   |
| 414  | CAP                  | 2239428     | CAP for Hole                                                                                                                                                                                                            | 1   | 2   |
| -    | KEY LABEL            | 2360321     | Label for clear key top                                                                                                                                                                                                 | 1   | 2   |
| -    | AN KEY TOP NORWEGIAN | 5125104     | Option                                                                                                                                                                                                                  | 1   | 2   |
| -    | AN KEY TOP SWEDISH   | 5125100     | Option                                                                                                                                                                                                                  | 1   | 2   |
| -    | AN KEY TOP GREEK     | 2375160     | Option                                                                                                                                                                                                                  | 1   | 2   |
| -    | AN KEY TOP RUSSIAN   | 2375159     | Option                                                                                                                                                                                                                  | 1   | 2   |



## 9-9-12 Circuit Board Assemblies

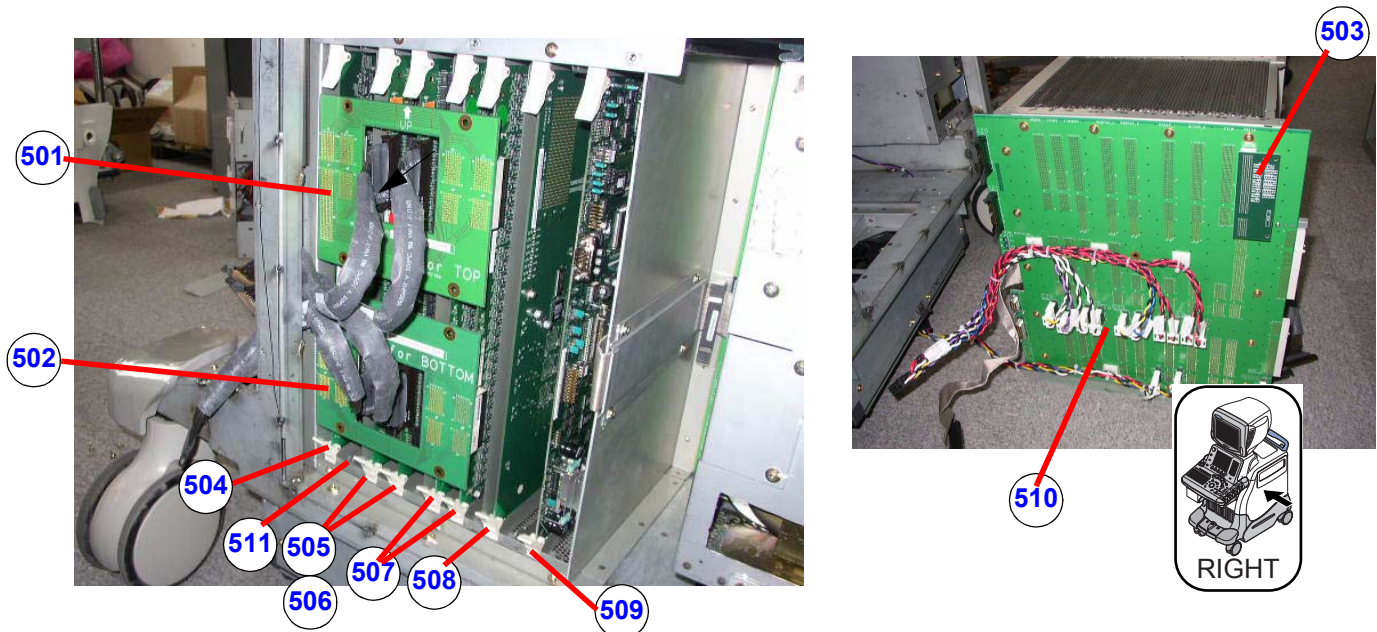


Figure 9-11 Circuit Board Assemblies

Table 9-31 OP Panel and Keys

| Item | Part Name           | Part Number | Description                                                                  | Qty | FRU |
|------|---------------------|-------------|------------------------------------------------------------------------------|-----|-----|
| 501  | EBUS 3T ASSY        | 5111348     | Upper EBUS for BT04, BT06                                                    | 1   | 1   |
| 502  | EBUS 3B ASSY        | 5112465     | Lower EBUS for BT04, BT06                                                    | 1   | 1   |
| 502  | EBUS2 ASSY          | 2399317     | Both Upper and Lower boards, for Upgrade BT04, Upgrade BT06,                 | 2   | 1   |
| 503  | TERMINATOR ASSY     | 2268026     | board                                                                        | 1   | 2   |
| 504  | PREA2F ASSY         | 5119039     | board in nest, slot 1 for BT04, BT06.                                        | 1   | 1   |
| 504  | PREA2H ASSY         | 2393853     | for Upgrade BT04, Upgrade BT06.                                              | 1   | 1   |
| 505  | BTRAPHV Assy        | 5118342-3   | board in nest, slot 3 - 4 for BT04                                           | 1   | 1   |
| 505  | BTRAPP5AHV Assy     | 5154321     | board in nest, slot 3 - 4 for BT06                                           | 1   | 1   |
| 506  | BTxCW ASSY          | 5111346     | Installed on the BTRAP (Option)                                              | 1   | 1   |
| 507  | DDBF64 ASSY         | 2399312     | board in nest, slot 5 - 6                                                    | 1   | 1   |
| 508  | SINANO ASSY         | 2374744     | board in nest, slot 7                                                        | 1   | 1   |
| 509  | MDBRG ASSY          | 2264606-5   | board in nest, slot 9<br>"-5 or later" must be used for 6T probe.            | 1   | 1   |
| 510  | MOTHER2 ASSY CSL L7 | 5111345-2   | board                                                                        | 1   | 1   |
| -    | STCW ASSY           | 2277244-4   | board in nest, slot 2 (option). Obsolete, but acceptable to use if in stock. | -   | -   |

Table 9-31 OP Panel and Keys

| Item | Part Name           | Part Number | Description                                                                 | Qty | FRU |
|------|---------------------|-------------|-----------------------------------------------------------------------------|-----|-----|
| 511  | STCW ASSY           | 2277244-5   | Compatible with -4. Minor change due to delay line EOL and resistor change. | 1   | 1   |
| -    | NEST Board JIG Assy | 2315492     | Tools to remove a board in the NEST Assy                                    | 1   | 2   |

## 9-9-13 HDD and Battery

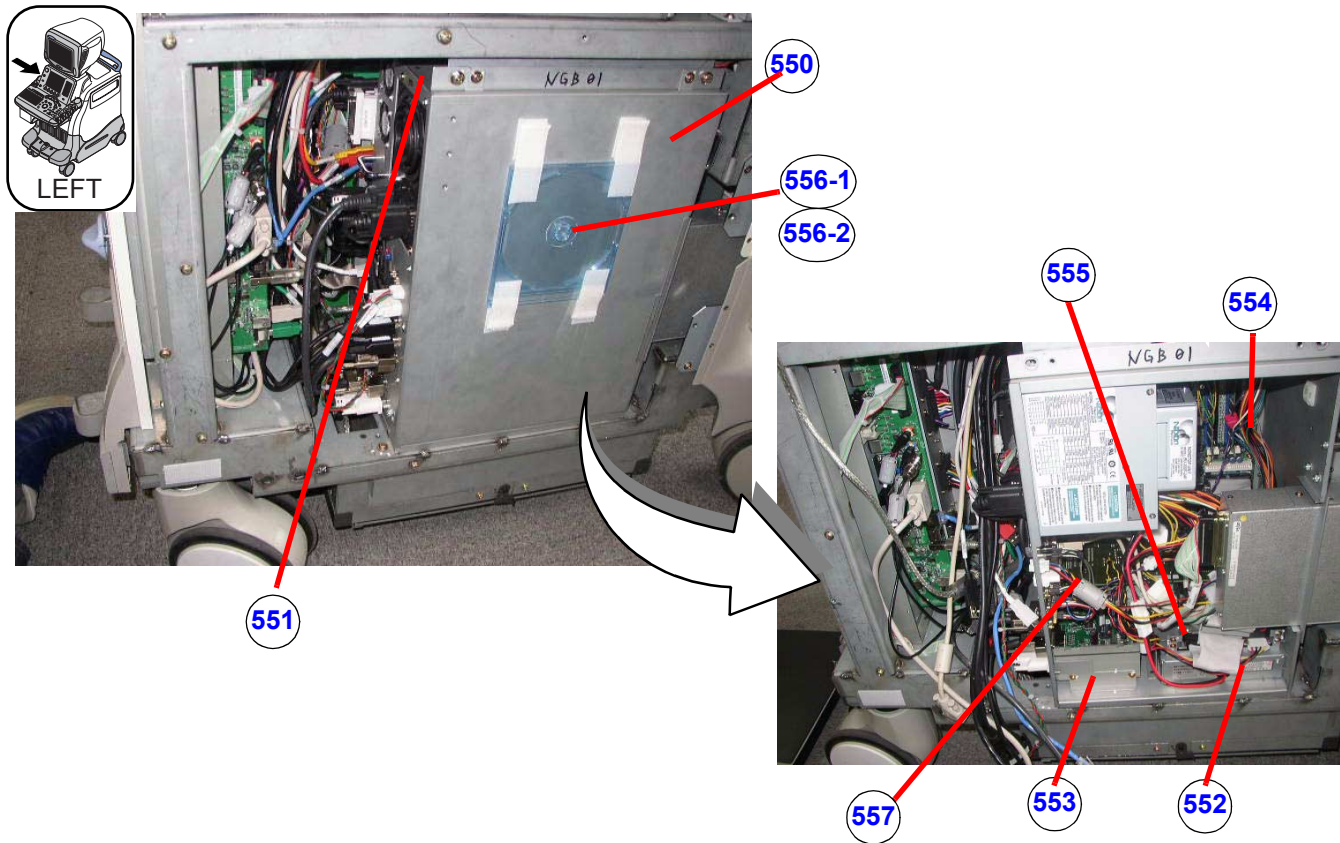


Figure 9-12 HDD and Battery

Table 9-32 HDD and Battery

| Item | Part Name            | Part Number | Description                                                            | Qty | FRU |
|------|----------------------|-------------|------------------------------------------------------------------------|-----|-----|
| 550  | BECOMPSW3 SVC CSL L7 | 5119906-3   | Obsolete, Replaced by 5119906-4. Do NOT use this parts!                | 1   | 1   |
| 550  | BECOMPSW3 SVC        | 5119906-4   | See Reuse Parts List below.                                            | 1   | 1   |
| -    | CPU Battery          | -           | Included on the CPU Board.<br>Type: CR2032, Lifetime: Approx. 10 years | 1   | N   |
| 551  | USB MODEM            | 5120503     | USB modem (Option)                                                     | 1   | 1   |
| 552  | UPS BATTERY PACK     | 2304809-2   | battery of ATX power supply                                            | 1   | 1   |
| 553  | DGPCIO/VIC2-SVC      | 5133526     |                                                                        | 1   | 1   |
| 554  | EXTENDED MEMORY3 L7  | 5118511     | Option.                                                                | -   | 2   |
| 555  | HD L7                | 5118510     | 80GB, Installed in the PC box.                                         | 1   | 1   |



**Table 9-32 HDD and Battery**

| Item  | Part Name            | Part Number | Description                                                                       | Qty | FRU |
|-------|----------------------|-------------|-----------------------------------------------------------------------------------|-----|-----|
| 556-1 | BASE SYSTEM SOFTWARE | -           | Ghost CD. Contact your Online center. Part Number depends on application version. | 1   | 1   |
| 556-2 | APPLICATION SOFTWARE | -           | Ghost CD. Contact your Online center.                                             | 1   | 1   |
| 557   | PC2IP2B              | FC200656    | Only support BECOMP3                                                              | 1   | 1   |
| -     | G550 Video ard AGP   | 2362887     | For CRT Monitor System                                                            | 1   | 1   |
| -     | BECOMP3 Rear Fan     | 5142743     |                                                                                   | 1   | 1   |

***Reuse Parts List***

When replacing the BECOMP SW3 SVC CSL L7, the following parts must be reused.

- Extended Memory
- PC2IP
- UPS
- DGVIC
- Video Card
  - G550 for CRT
  - G450 for LCD
  - SONO64 for LCD

## 9-9-14 Power Units

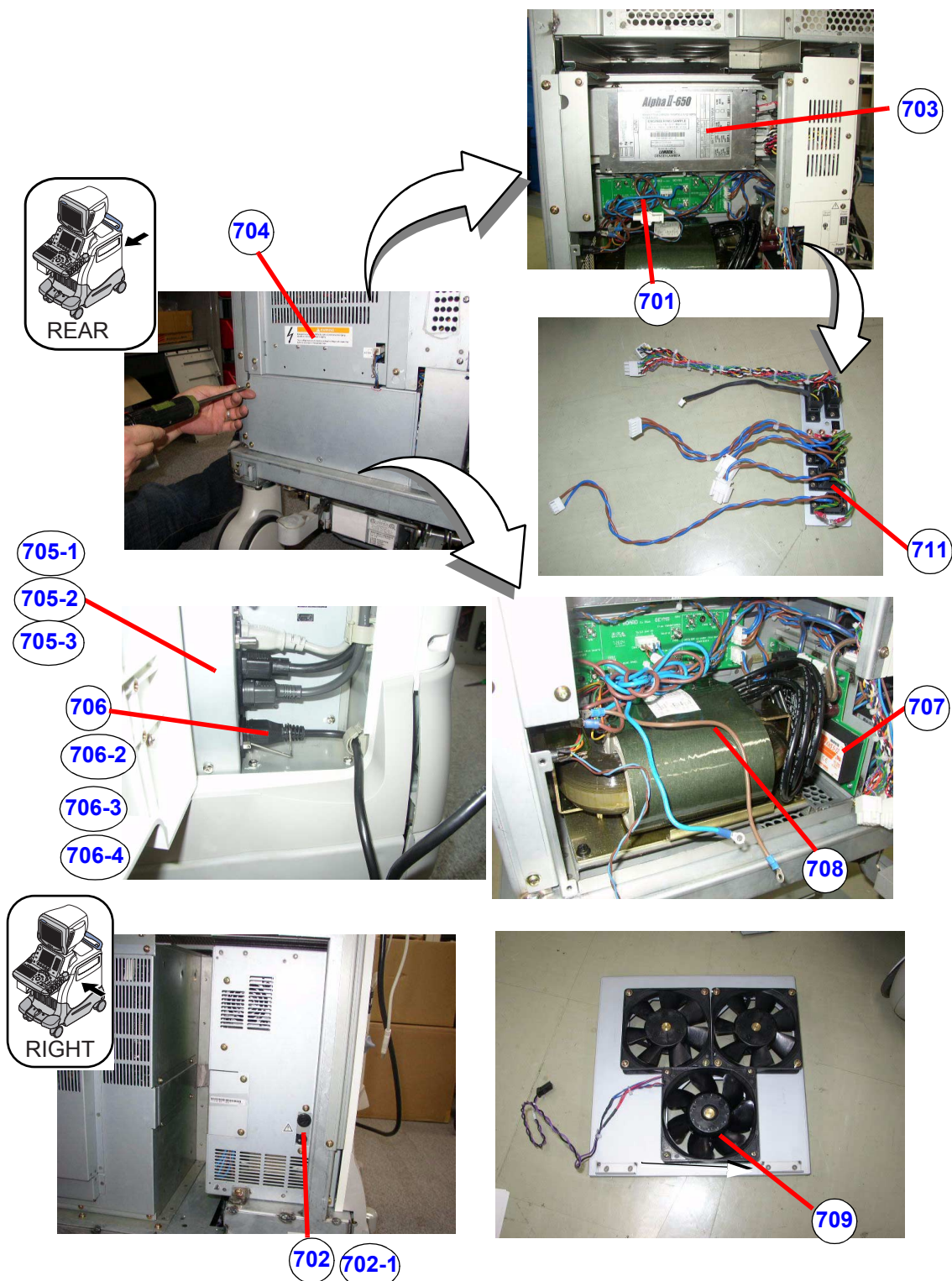


Figure 9-13 Power Units

## 9-9-14 Power Units (cont'd)

**Table 9-33 Power Units**

| Item  | Part Name               | Part Number | Description                                                                                                          | Qty | FRU |
|-------|-------------------------|-------------|----------------------------------------------------------------------------------------------------------------------|-----|-----|
| 701   | SSR ASSY                | 5117726     | SSR + CONNECTOR PCB                                                                                                  | 1   | 1   |
| 702   | FUSE HOLDER ASSY        | 5117727     | Without fuse                                                                                                         | 1   | 1   |
| 702-1 | FUSE                    | 2315585     | F1, 200V, T12V                                                                                                       | 1   | 1   |
| -     | LV -04 UNIT             | 5118824     | Obsolete. Cannot use this part any longer, and the parts in stock have been purged.                                  | -   | -   |
| 703   | LV UNIT ASSY MAIN PS L7 | 5118824-2   | low voltage regulator + Cable                                                                                        | 1   | 1   |
| 704   | HV UNIT                 | 2372387     | high voltage regulator (Half height), including materials used when changing Full height HV unit to the Half height. | 1   | 1   |
| 706   | AC CORD 100V US         | 2371417     | power cable of 100V, with clamp                                                                                      | 1   | 1   |
| 706-2 | AC CORD 100V JPN        | 2371416     | For JAPAN, power cable of 100V, with clamp                                                                           | 1   | 1   |
| 706-3 | AC CORD 200V EU         | 2371418     | power cable of 200V, with clamp                                                                                      | 1   | 1   |
| 706-4 | AC CORD 200V China CCC  | 2371415-2   | applied to Chaina CCC specifications                                                                                 | 1   | 1   |
| 708   | MAIN Transformer        | 2373331-2   | power transformer                                                                                                    | 1   | 1   |
| 707   | NF INLET Assy           | 5117723     | Noise Filter + Inlet PCB                                                                                             | 1   | 1   |
| 705-1 | AC IN-OUT 100V          | 5117724     |                                                                                                                      | 1   | 1   |
| 705-2 | AC IN-OUT 200V          | 5117725     |                                                                                                                      | 1   | 1   |
| 705-3 | AC IN-200V OUT-100V     | 5118052     | For Korea                                                                                                            | 1   | 1   |
| 711   | Connector Assy          | 5117728     |                                                                                                                      | 1   | 1   |
| 709   | CONSOLE FAN ASSY2       | 5117493     | 3 fans for BT04, BT06                                                                                                | 1   | 1   |
| 709   | CONSOLE FAN ASSY A      | 5122614     | For upgrade BT04, upgrade BT06                                                                                       | 1   | 1   |
| -     | AIR FILTER A            | 5112530     | UNDER NEST                                                                                                           | 1   | 2   |
| -     | AIR FILTER B            | 5112531     | UNDER PC BOX                                                                                                         | 1   | 2   |
| -     | AIR FILTER C            | 5115806     | UNDER RATING PLATE                                                                                                   | 1   | 2   |
| -     | SSR-HLV CABLE           | 5119119     | CB107                                                                                                                | 1   | 1   |
| -     | SSR-AC PANEL CABLE      | 5119120     | CB109                                                                                                                | 1   | 1   |
| -     | VOLTAGE SEL CABLE       | 5119121     | CB108                                                                                                                | 1   | 1   |
| -     | FAN CABLE BRAKET ASSY   | 5117491     |                                                                                                                      | 1   | 1   |
| -     | AC Cord UK & Ireland    | 5151455     |                                                                                                                      | 1   | 2   |
| -     | AC Cord Denmark         | 5151457     |                                                                                                                      | 1   | 2   |

**Table 9-33 Power Units**

| Item | Part Name              | Part Number | Description | Qty | FRU |
|------|------------------------|-------------|-------------|-----|-----|
| -    | AC Cord India & Africa | 5151450     |             | 1   | 2   |
| -    | AC Cord Australian     | 5151453     |             | 1   | 1   |
| -    | AC Cord Argentina      | 5151454     |             | 1   | 1   |
| -    | AC Cord Israel         | 5151451     |             | 1   | 1   |
| -    | AC Cord Swiss          | 5151448     |             | 1   | 1   |

## 9-9-15 Options, Peripherals and Cables

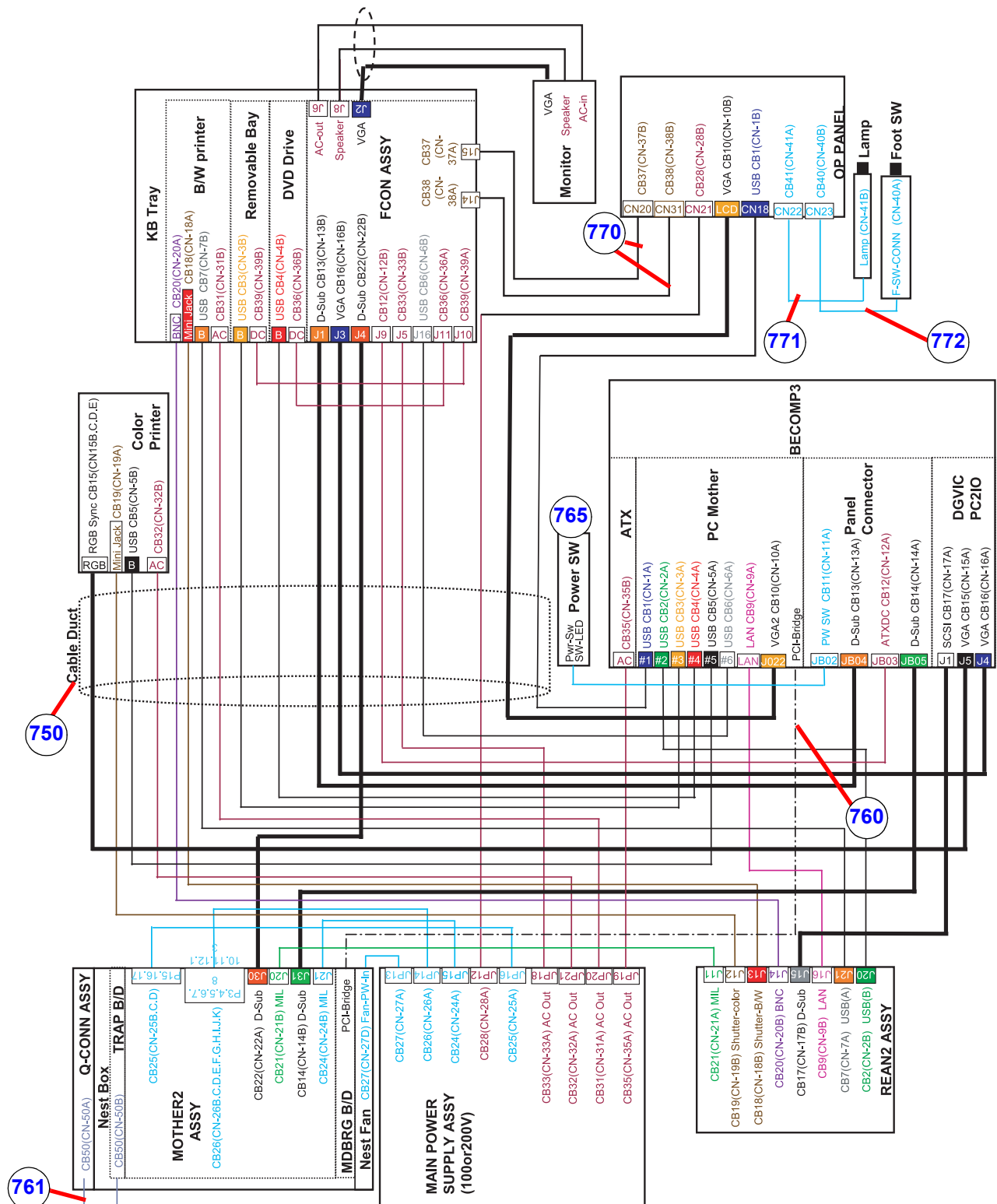


Figure 9-14 Options, Peripherals and Cables 1



## 9-9-15 Options, Peripherals and Cables (cont'd)

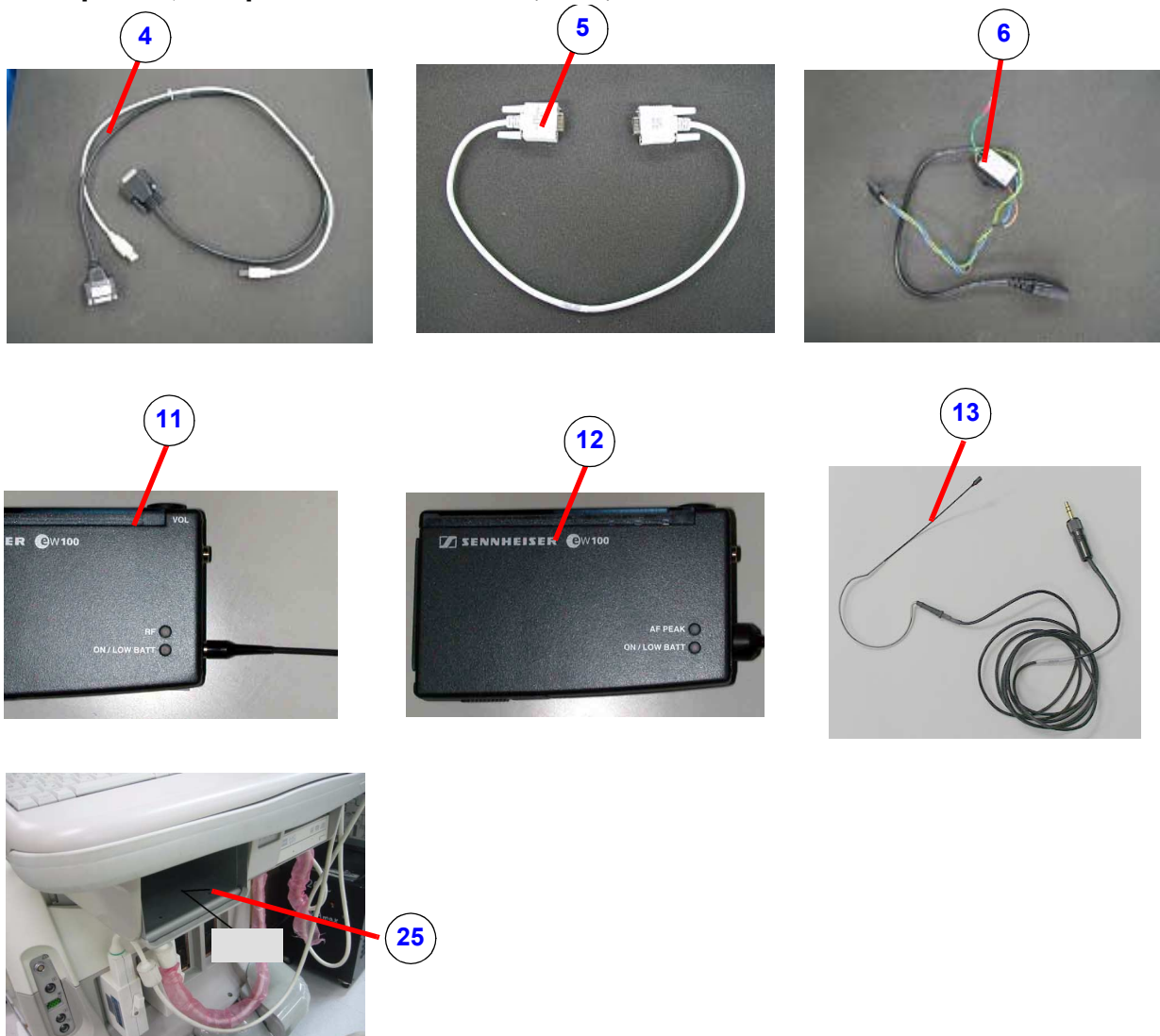


Figure 9-16 Options, Peripherals and Cables 3

Table 9-34 Options, Peripherals and Cables

| Item | Part Name              | Part Number | Description                                                                                                                                                                                                                                                                    | Qty | FRU |
|------|------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| -    | CABLE DUCT ASSY        | 5117797     | Obsolete. Cannot use this part any longer, and the parts in stock have been purged.                                                                                                                                                                                            | -   | -   |
| 750  | CABLE DUCT ASSY CSL L7 | 5117797-2   | Including:<br>USB LAN CABLE ASSY<br>(CB1.CB2.CB3.CB4.CB6.CB9)<br>DSUB CABLE ASSY<br>(CB10.CB13.CB16.CB17.CB22)<br>DEVIDE CABLE ASSY (CB5.CB15.CB19.CB32)<br>BW CABLE ASSY (CB7.CB18.CB20.CB31)<br>AC CABLE ASSY (CB12.CB28.CB33.CB35)<br>Felite core added for noise reduction | 1   | 2   |



**Table 9-34 Options, Peripherals and Cables**

| Item | Part Name                         | Part Number | Description                                                                                                   | Qty | FRU |
|------|-----------------------------------|-------------|---------------------------------------------------------------------------------------------------------------|-----|-----|
| 760  | PCI CABLE                         | 2389075     | MDBRG <-> PC2IP2                                                                                              | 1   | 2   |
| 761  | TX CABLE ASSY                     | 2305111-3   | QCON <-> TRAP                                                                                                 | 1   | 2   |
| 765  | PW SW ASSY                        | 2301858-3   | Power Switch, SW Bracket<br>CB011 (PC2IP BECOMP <-> MDBRG )                                                   | 1   | 2   |
| 770  | FCON Cable Assy                   | 5117485     | CB36 (FCON <-> DVD )<br>CB39 (FCON <-> Removable Bay)<br>CB37 (FCON <-> OP Panel)<br>CB38 (FCON <-> OP Panel) | 1   | 2   |
| 771  | LAMP STAY ASSY                    | 5117796     | Lamp Stay Bracket<br>CB41 (OP Panel <-> Lamp Stay)                                                            | 1   | 2   |
| 772  | FOOT SW Bracket ASSY              | 5117795     | FOOT SWITCH BRACKET<br>CB40 (OP Panel <-> Foot SW Connector)                                                  | 1   | 2   |
| -    | FOOT SWITCH                       | FB200952    | Foot Switch (Option)                                                                                          | 1   | 2   |
| -    | PCG OPTION                        | 2326844     | phono microphone (Option)                                                                                     | 1   | 2   |
| -    | USB SERIALBRIDGE CBL              | 2304621     | Ext. Peripheral <-> L7                                                                                        | 1   | 2   |
| -    | RS232C CABLE ASSY STRAIGHT        | 2305549     | Ext. Peripheral <-> L7                                                                                        | 1   | 2   |
| -    | RS232C CABLE ASSY CROSS           | 2305550-2   | Ext. Peripheral <-> L7                                                                                        | 1   | 2   |
| -    | ECG CBL SHORT                     | 2304616     | Ext. Patient <-> L7                                                                                           | 1   | 2   |
| -    | ECG CBL LONG                      | 2304615     | Ext. Patient <-> L7                                                                                           | 1   | 2   |
| -    | US CABLE FOR PERIPHERAL<br>DEVICE | 2324360     | Ext. Peripheral <-> L7                                                                                        | 1   | 2   |
| -    | Keyboard Knob Repair kit          | 2363861     |                                                                                                               | 1   | 2   |
| -    | Strap with Buckle                 | 5115855     |                                                                                                               | 1   | 2   |
| -    | Foot for Printer                  | 2318441     |                                                                                                               | 1   | 2   |
| -    | USB Conversion Adapter            | 5129258     | B Type to A Type in Device room                                                                               | 1   | 2   |
| -    | PAT, I/O                          | FA200801    |                                                                                                               | 1   | 2   |
| -    | MON-CABLE-ASSY                    | 2304171     |                                                                                                               | 1   | 2   |
|      |                                   |             |                                                                                                               |     |     |
| 4    | 4D-Mother2 Cable CSL L7           | 5138724     | For 4D Option                                                                                                 | 1   | 1   |
| 5    | 4D Box cable Assy CSL L7          | 5138723     | For 4D Option                                                                                                 | 1   | 1   |
| 6    | 4D AC cable CSL L7                | 5147891     | For 4D Option                                                                                                 | 1   | 1   |
| -    | Cable Bracket For 4D ECG          | 5145578     | For 4D Option                                                                                                 | 1   | 1   |
| -    | Cable Bracket For 4D non-ECG      | 5145579     | For 4D Option                                                                                                 | 1   | 1   |
| -    | 4D Motor Controller               | 2372904     | For 4D Option                                                                                                 | 1   | 1   |
| -    | Cable, Bracket to Probe           | 2384183     | For 4D Option                                                                                                 | 1   | 1   |
|      |                                   |             |                                                                                                               |     |     |
| 11   | Wireless Receiver                 | 5115162     | For Voice Scan Option                                                                                         | 1   | 1   |



**Table 9-34 Options, Peripherals and Cables**

| Item | Part Name                                        | Part Number | Description                                                                                                                                                                                            | Qty | FRU |
|------|--------------------------------------------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 12   | Wireless Transmitter                             | 5116453     | For Voice Scan Option                                                                                                                                                                                  | 1   | 1   |
| 13   | Microphone                                       | 2383779     | For Voice Scan Option,<br>Over-the-ear style                                                                                                                                                           | 1   | 1   |
| -    | Rechargeable Battery Pack for<br>Transmitter     | 5116454     | For Voice Scan Option                                                                                                                                                                                  | 1   | 1   |
| -    | Battery recharger station                        | 5116446     | For Voice Scan Option                                                                                                                                                                                  | 1   | 1   |
|      |                                                  |             |                                                                                                                                                                                                        |     |     |
| 22   | LOGIQ7 Ghost CD for BEP3, R6.5.0                 | 5182424     | Ghost (Base Image) CD for R65x                                                                                                                                                                         | 1   | 1   |
| 23   | LOGIQ7 R6.5.0 Application Software<br>CD Release | 5181894     | Initial Release (M3).<br>Related Ghost CD is 5182424.                                                                                                                                                  | 1   | 1   |
| 24   | LOGIQ7 R6.5.1 Application Software<br>CD         | 5181894-2   | Apr . 07 Release (M4) - compatible to 5181894<br>Related Ghost CD is 5182424.                                                                                                                          | 1   | 1   |
| 25   | BW PRINTER SHORT BOX FRU L7                      | 5194980     | For consoles V65x and afterward, Printer Box is<br>"Short" type.<br>Consoles with "Standard" type printer box, if not<br>equipped with BW printer, can be converted to "Short"<br>type using this FRU. | 1   | 1   |
| -    | LQ-MD800P                                        | 5120592     | DVD Recorder, 120V AC (PAL/NTSC compatible)                                                                                                                                                            | 1   | 1   |
| -    | LQ-MD800E                                        | 5120593     | DVD Recorder, 220V AC (PAL/NTSC compatible)                                                                                                                                                            | 1   | 1   |

## 9-9-16 Probes

### 9-9-16-1 Probes (For the country other than Japan)

**Table 9-35 Probes (For the country other than Japan)**

| Item | Part Name           | Part Number | Description                         | Qty | FRU |
|------|---------------------|-------------|-------------------------------------|-----|-----|
| 801  | 3C PROBE (EXP)      | 2286354     |                                     |     | 1   |
| 802  | 3.5C PROBE (EXP)    | 2296158     |                                     |     | 1   |
| 803  | 5C PROBE (EXP)      | 2294516     |                                     |     | 1   |
| 804  | M7CMIH PROBE (EXP)  | 2294514     |                                     |     | 1   |
| 805  | E8C PROBE (EXP)     | 2294641     |                                     |     | 1   |
| 806  | 7L PROBE (EXP)      | 2294521     |                                     |     | 1   |
| 807  | 10L PROBE (EXP)     | 2294523     |                                     |     | 1   |
| 808  | M12LMIH PROBE (EXP) | 2294511     |                                     |     | 1   |
| 809  | 3S PROBE (EXP)      | 2323337     |                                     |     | 1   |
| 810  | 10S PROBE (EXP)     | 2298589     |                                     |     | 1   |
| 811  | I12L PROBE (EXP)    | 2264883     |                                     |     | 1   |
| 812  | P2D PROBE (EXP)     | TE100024    | PPA adapter is separately required. |     | 1   |
| 813  | P6D PROBE (EXP)     | TQ100002    | PPA adapter is separately required. |     | 1   |
| 814  | 8C PROBE (EXP)      | 2348094     |                                     |     | 1   |
| 815  | 3.5CS PROBE (EXP)   | 2051858     |                                     |     | 1   |
| 816  | 6T TEE PROBE (EXP)  | KN100068    |                                     |     | 1   |
| 817  | M3S PROBE (EXP)     | 2295649     |                                     |     | 1   |
| 818  | 7S PROBE (EXP)      | 2347471     |                                     |     | 1   |
| 819  | BE9C PROBE (EXP)    | 2389382     |                                     |     | 1   |
| 820  | PPA adapter         | 2331934-2   |                                     |     | 1   |
| 821  | T739 PROBE (EXP)    | 2259246     |                                     |     | 1   |
| 822  | 4D10L (EXP)         | KTZ156836   | 4D OPTION required.                 |     | 1   |
| 823  | 4D3C_L (EXP)        | KTZ195893   | 4D OPTION required.                 |     | 1   |
| 824  | 12L PROBE (EXP)     | 2295377     |                                     |     | 1   |
| 825  | 4C PROBE (EXP)      | 5123455     |                                     |     | 1   |

9-9-16-2 Probes for Japan

Table 9-36 Probes for Japan

| Item | Part Name           | Part Number | Description         | Qty | FRU |
|------|---------------------|-------------|---------------------|-----|-----|
| 851  | 3C PROBE (JPN)      | 2286353     |                     |     | 1   |
| 852  | 3.5C PROBE (JPN)    | 2348877     |                     |     | 1   |
| 853  | 5C PROBE (JPN)      | 2294515     |                     |     | 1   |
| 854  | M7CMIH PROBE (JPN)  | 2294513     |                     |     | 1   |
| 855  | E8C PROBE (JPN)     | 2294640     |                     |     | 1   |
| 856  | 7L PROBE (JPN)      | 2294520     |                     |     | 1   |
| 857  | 10L PROBE (JPN)     | 2294522     |                     |     | 1   |
| 858  | M12LMIH PROBE (JPN) | 2294510     |                     |     | 1   |
| 859  | 3S PROBE (JPN)      | 2348878     |                     |     | 1   |
| 860  | 10S PROBE (JPN)     | 2309478     |                     |     | 1   |
| 861  | I12L PROBE (JPN)    | 2270556     |                     |     | 1   |
| 862  | 8C PROBE            | 2348093     |                     |     | 1   |
| 863  | 3.5CS PROBE         | 2380854     |                     |     | 1   |
| 864  | 6T TEE PROBE        | 2294534     |                     |     | 1   |
| 865  | M3S PROBE           | 2293726     |                     |     | 1   |
| 866  | 7S PROBE (JPN)      | 2355698     |                     |     | 1   |
| 867  | BE9C PROBE (JPN)    | 2389381     |                     |     | 1   |
| 868  | T739 PROBE (JPN)    | 2259245     |                     |     | 1   |
| 869  | PPA ADAPTER         | 2331934-2   |                     |     | 1   |
| 870  | 4D10L (JPN)         | 5121651     | 4D OPTION required. |     | 1   |
| 871  | 4D3C_L (JPN)        | 5121652     | 4D OPTION required. |     | 1   |
| 872  | 12L PROBE (JPN)     | 2295375     |                     |     | 1   |
| 873  | 4C PROBE (JPN)      | 5131944     |                     |     | 1   |

## 9-9-17 LCD Option

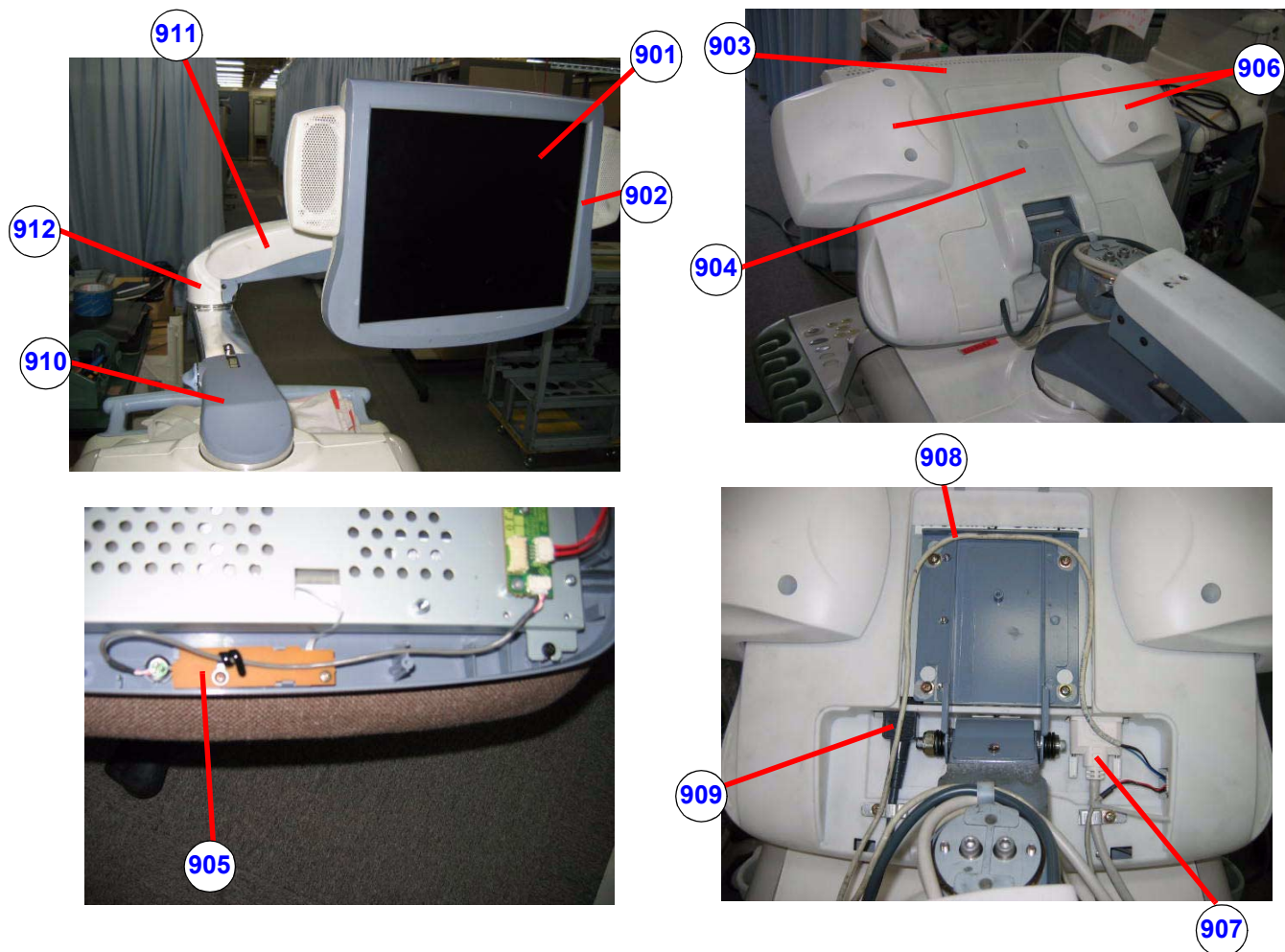


Figure 9-17 LCD Option

## 9-9-17 LCD Option (cont'd)

Table 9-37 LCD Option

| Item    | Part Name                            | Part Number | Description                                                                                                                       | Qty | FRU |
|---------|--------------------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 901     | 17 inch LCD MONITOR ASSY             | 5169935-2   | Monitor, not including the following parts (102, 103, and 105)                                                                    | 1   | 1   |
| 902     | PANEL FRONT LCD L7                   | 5132572     |                                                                                                                                   | 1   | 2   |
| 903     | PANEL REAR LCD L7                    | 5132573     |                                                                                                                                   | 1   | 2   |
| 904     | COVER VESA LCD L7                    | 5132574     | Rear VESA cover of 17" LCD monitor use for globally except for Korea.                                                             | 1   | 2   |
| 904 (b) | FRU VESA COVER L7 17INCH FOR KOREA   | 5265097     | Physically the same as 5132574, but with Korean caution Label.                                                                    | 1   | 2   |
| 905     | SWITCH MIC_ASSY LCD_MONITOR          | 5137744     | Set of SWITCH and MIC                                                                                                             | 1   | 1   |
| 906     | SPEAKER SET (L&R) LCD L7             | 5132576     | Including left and right speakers                                                                                                 | 1   | 1   |
| 907     | LCD D-SUB CABLE ASSY CSL L7          | 5125391     | DVI Cable from BECOMP3 to LCD                                                                                                     | 1   | 1   |
| 908     | MIC_SPK CBL CSL_LCD L7               | 5137743     | MIC and SPEAKER Cable from Front Conn2 to LCD                                                                                     | 1   | 1   |
| 909     | AC CABLE LCD ASSY LOGIQ7             | 5132394     | AC Ccable from FrontConn2 to LCD                                                                                                  | 1   | 1   |
| -       | LCD ARM LCD L7                       | 5132571     | Arm assy includes covers (911 and 912). Obsolete, Replaced by 5132571-2. Do NOT use this parts!                                   | -   | -   |
| -       | LCD ARM LCD L7                       | 5132571-2   | Arm assy includes covers (911 and 912). Obsolete. Use FRU 5264730 to upgrade this part to -4 if stock remains.                    | -   | -   |
| -       | LCD ARM LCD L7                       | 5132571-3   | Arm assy includes covers (911 and 912). Obsolete. Use FRU 5264730 to upgrade this part to -4 if stock remains.                    | -   | -   |
| 910     | LCD ARM LCD L7                       | 5132571-4   | Arm assy includes covers (911 and 912). Improved rotational limiter plate. For Korea console, Arm Joint (912(b)) must be re-used. | 1   | 2   |
| 911     | ARM COVER LCD L7                     | 5136256     |                                                                                                                                   | 1   | 2   |
| 912     | ARM JOINT COVER LCD L7               | 5136257     | Arm plastic cover / joint. Common part between 17" and 19" LCD Monitor arm.                                                       | 1   | 2   |
| 912 (b) | FRU ARM JOINT COVER LCD L7 FOR KOREA | 5271234     | Physically the same as 5136257, but caution label in Korean Lanugage.                                                             | 1   | 2   |
| -       | Monitor Screws LCD L7                | 5137688     | Special screw set used on LCD monitor                                                                                             | 1   | 2   |
| -       | DUAL DVI AGP                         | 5111298     | Video card for LCD monitor in BECOMP3. Obsolete, Replaced by 5111298-2. Do NOT use this parts!                                    | 1   | 1   |
| -       | DUAL DVI AGP                         | 5111298-2   | Video card for LCD monitor in BECOMP3                                                                                             | 1   | 1   |
| -       | PCI VGA                              | 5121039     | Video card for Touch panel in BECOMP3                                                                                             | 1   | 1   |
|         |                                      |             |                                                                                                                                   |     |     |
|         |                                      |             |                                                                                                                                   |     |     |
|         |                                      |             |                                                                                                                                   |     |     |
|         |                                      |             |                                                                                                                                   |     |     |

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## Section 9-10 Renewal Parts List for BT03 or lower

**This section describes the BT03 or lower system FRU.**

### 9-10-1 Equipment Models Covered in this Chapter

**Table 9-38 Material List**

| Part Name             | Part Number | Quantity |   |   |   |   |   |  |  |  |  | Description |
|-----------------------|-------------|----------|---|---|---|---|---|--|--|--|--|-------------|
| OPERATOR CONSOLE ASSY | 2287317     | 1        |   |   |   |   |   |  |  |  |  | 100V, NTSC  |
| OPERATOR CONSOLE ASSY | 2304806     |          | 1 |   |   | 1 |   |  |  |  |  | 120V, NTSC  |
| OPERATOR CONSOLE ASSY | 2304807     |          |   | 1 |   |   | 1 |  |  |  |  | 220V, PAL   |
| OPERATOR CONSOLE ASSY | 2304808     |          |   |   | 1 |   |   |  |  |  |  | 220V, NTSC  |
| OPERATION MANUAL      | 2286866-140 | 1        |   |   |   |   |   |  |  |  |  |             |
| OPERATION MANUAL      | 2286866-100 |          | 1 | 1 | 1 |   |   |  |  |  |  |             |
| ADV. REFERENCE MANUAL | 2291860-140 | 1        |   |   |   |   |   |  |  |  |  |             |
| ADV. REFERENCE MANUAL | 2291860-100 |          | 1 | 1 | 1 |   |   |  |  |  |  |             |
| SERVICE MANUAL        | 2286865     |          | 1 | 1 | 1 |   |   |  |  |  |  |             |
| QUICK GUIDE           | 2291859-140 | 1        |   |   |   |   |   |  |  |  |  |             |
| QUICK GUIDE           | 2291859-100 |          |   | 1 | 1 |   |   |  |  |  |  |             |
| WARRANTY CARD         | P9889AH     | 1        |   |   |   |   |   |  |  |  |  |             |
| TASK LAMP             | 2301853-4   | 1        | 1 | 1 | 1 |   |   |  |  |  |  |             |
| Gel                   | U0403BD     | 1        | 1 | 1 | 1 | 1 | 1 |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
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|                       |             |          |   |   |   |   |   |  |  |  |  |             |
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|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
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|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |
|                       |             |          |   |   |   |   |   |  |  |  |  |             |

## 9-10-1 Equipment Models Covered in this Chapter (cont'd)

Table 9-39 Material List (For Style B/Ver.2)

| Part Name                           | Part Number | Quantity |   |   |   |   |   |   |   |  |  | Description         |
|-------------------------------------|-------------|----------|---|---|---|---|---|---|---|--|--|---------------------|
| OPERATOR CONSOLE ASSY               | 2354857     | 1        |   |   |   |   |   |   |   |  |  | 100V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2354858     |          | 1 |   |   | 1 |   |   |   |  |  | 120V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2354859     |          |   | 1 |   |   | 1 |   |   |  |  | 220V, PAL           |
| OPERATOR CONSOLE ASSY               | 2354860     |          |   |   | 1 |   |   |   |   |  |  | 220V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2355589     |          |   |   |   |   |   | 1 |   |  |  | 100V, NTSC          |
| OPERATION MANUAL                    | 2286866-140 | 1        |   |   |   |   |   | 1 |   |  |  |                     |
| OPERATION MANUAL                    | 2286866-100 |          |   | 1 | 1 | 1 | 1 |   |   |  |  |                     |
| ADV. REFERENCE MANUAL               | 2291860-140 | 1        |   |   |   |   |   |   | 1 |  |  |                     |
| ADV. REFERENCE MANUAL               | 2291860-100 |          |   | 1 | 1 | 1 | 1 |   |   |  |  |                     |
| SERVICE MANUAL                      | 2286865     |          |   | 1 | 1 | 1 | 1 |   |   |  |  |                     |
| QUICK GUIDE                         | 2291859-140 | 1        |   |   |   |   |   |   | 1 |  |  |                     |
| QUICK GUIDE                         | 2291859-100 |          |   | 1 | 1 | 1 | 1 |   |   |  |  |                     |
| WARRANTY CARD                       | P9889AH     | 1        |   |   |   |   |   |   | 1 |  |  |                     |
| TASK LAMP                           | 2301853-4   | 1        | 1 | 1 | 1 |   |   |   |   |  |  |                     |
| Gel                                 | U0403BD     | 1        | 1 | 1 | 1 | 1 | 1 |   |   |  |  |                     |
| B-Flow                              | 2297481     | 1        |   |   |   |   |   | 1 |   |  |  |                     |
| Application Software CD (R2.1.0) or | 2362291     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |   |  |  |                     |
| Application Software CD (R2.1.1) or | 2372267     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |   |  |  |                     |
| Application Software CD (R2.1.3)    | 2384238     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |   |  |  |                     |
| JAPAN (2354838)                     |             |          |   |   |   |   |   |   |   |  |  |                     |
| USA (2354838-2)                     |             |          |   |   |   |   |   |   |   |  |  |                     |
| EUROPE (2354838-3)                  |             |          |   |   |   |   |   |   |   |  |  |                     |
| KOREA (2354838-4)                   |             |          |   |   |   |   |   |   |   |  |  |                     |
| ASIA100 (2354838-5)                 |             |          |   |   |   |   |   |   |   |  |  |                     |
| ASIA220 (2354838-6)                 |             |          |   |   |   |   |   |   |   |  |  | JAPAN-A (2354838-7) |



## 9-10-1 Equipment Models Covered in this Chapter (cont'd)

**Table 9-40 Material List (For Style C/Ver.3)**

| Part Name                           | Part Number | Quantity |   |   |   |   |   |   |  |  |  | Description         |
|-------------------------------------|-------------|----------|---|---|---|---|---|---|--|--|--|---------------------|
| OPERATOR CONSOLE ASSY               | 2389221     | 1        |   |   |   |   |   |   |  |  |  | 100V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2389220     |          | 1 |   |   | 1 |   |   |  |  |  | 120V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2389219     |          |   | 1 |   |   | 1 |   |  |  |  | 220V, PAL           |
| OPERATOR CONSOLE ASSY               | 2389218     |          |   |   | 1 |   |   |   |  |  |  | 220V, NTSC          |
| OPERATOR CONSOLE ASSY               | 2389217     |          |   |   |   |   |   | 1 |  |  |  | 100V, NTSC          |
| OPERATION MANUAL                    | 2286866-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| OPERATION MANUAL                    | 2286866-100 |          |   | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| ADV. REFERENCE MANUAL               | 2291860-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| ADV. REFERENCE MANUAL               | 2291860-100 |          |   | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| SERVICE MANUAL                      | 2286865     |          | 1 | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| QUICK GUIDE                         | 2291859-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| QUICK GUIDE                         | 2291859-100 |          |   | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| WARRANTY CARD                       | P9889AH     | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| RELEASE NOTE                        | 2382150-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| RELEASE NOTE                        | 2382150-100 |          |   | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| QUICK CARD                          | 2318541-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| QUICK CARD                          | 2318541-100 |          |   | 1 | 1 | 1 | 1 |   |  |  |  |                     |
| L7 HILIGHT DOCUMENT                 | 2363423-140 | 1        |   |   |   |   |   | 1 |  |  |  |                     |
| Application Software CD (R3.0.2) or | 2396166     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                     |
| Application Software CD (R3.0.4) or | 2400261     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                     |
| Application Software CD (R3.0.6) or | 2403327     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                     |
| Application Software CD (R3.0.8)    | 5112719     | 1        | 1 | 1 | 1 | 1 | 1 | 1 |  |  |  |                     |
| JAPAN (2389216)                     |             |          |   |   |   |   |   |   |  |  |  |                     |
| USA (2389216-2)                     |             |          |   |   |   |   |   |   |  |  |  |                     |
| EUROPE (2389216-3)                  |             |          |   |   |   |   |   |   |  |  |  |                     |
| KOREA (2389216-4)                   |             |          |   |   |   |   |   |   |  |  |  |                     |
| ASIA100 (2389216-5)                 |             |          |   |   |   |   |   |   |  |  |  |                     |
| ASIA220 (2389216-6)                 |             |          |   |   |   |   |   |   |  |  |  |                     |
|                                     |             |          |   |   |   |   |   |   |  |  |  | JAPAN-A (2389216-7) |

## 9-10-2 Monitor

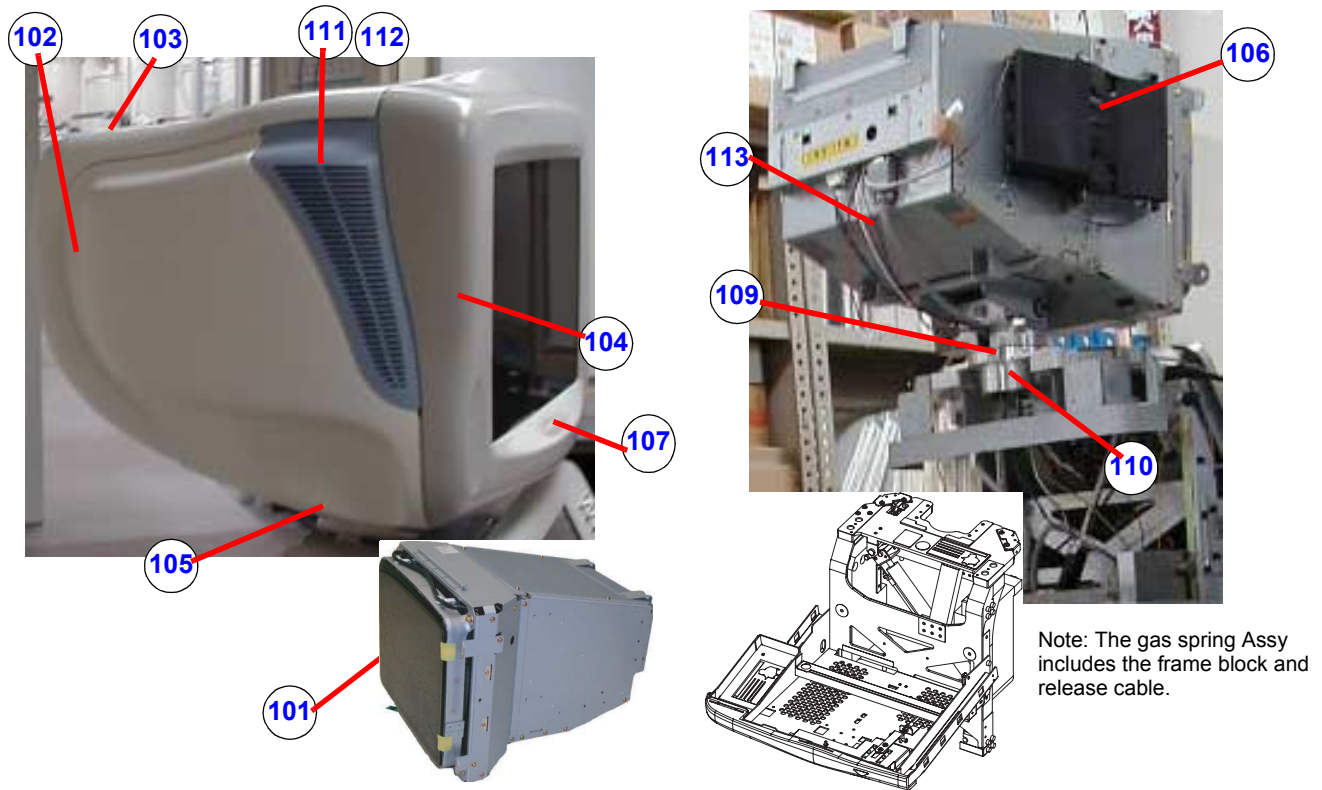


Figure 9-18 Monitor

Table 9-41 Monitor

| Item    | Part Name                       | Part Number        | Description                                                                | Qty | FRU |
|---------|---------------------------------|--------------------|----------------------------------------------------------------------------|-----|-----|
| 101     | CRT MONITOR ASSY                | 2283334-5          | Monitor, not including the following parts (102 ~ 113)                     | 1   | 1   |
| 102     | MON-REAR-WSP-ASSY               | 2303930            | Rear cover of monitor use for globally except for China and Korea.         | 1   | 2   |
| 102 (b) | FRU MON-REAR-WSP-ASSY FOR CHINA | 5264592            | Physically the same as 2303930, but with Chinese caution Label.            | 1   | 2   |
| 102 (c) | FRU MON-REAR-WSP-ASSY FOR KOREA | 5271314            | Physically the same as 2303930, but with Korean caution Label.             | 1   | 2   |
| 103     | MON-CAP-ASSY                    | 2303932            | cap to cover screws                                                        | 1   | 2   |
| 104     | MON-FRONT-ASSY                  | 2303929-3          | front cover of monitor                                                     | 1   | 2   |
| 105     | NECK ASSY                       | 2347387            |                                                                            | 1   | 2   |
| 106     | SPEAKER & BRACKET ASSY          | 2386616 or 2297882 | 2386616 for R3.xx or later software<br>2297882 for R2.xx or lower software | 2   | 2   |
| 107     | USER SW ASSY OF MONITOR         | 2297050            | microphone and switch                                                      | 1   | 2   |
| 109     | NECH-BASE-ASSY                  | 2303933            | mechanical                                                                 | 1   | 2   |
| 110     | GAS-SPRING-ASSY                 | 2304787            | gas spring including release cable and mechanical                          | 1   | 2   |

**Table 9-41 Monitor**

| Item | Part Name      | Part Number | Description | Qty | FRU |
|------|----------------|-------------|-------------|-----|-----|
| 111  | Grill, Left    | 2279675     |             | 1   | 2   |
| 112  | Grill, Right   | 2279676     |             | 1   | 2   |
| 113  | MON-Cable-Assy | 2304171     | cable       | 1   | 2   |

## 9-10-3 Casters and Pedals

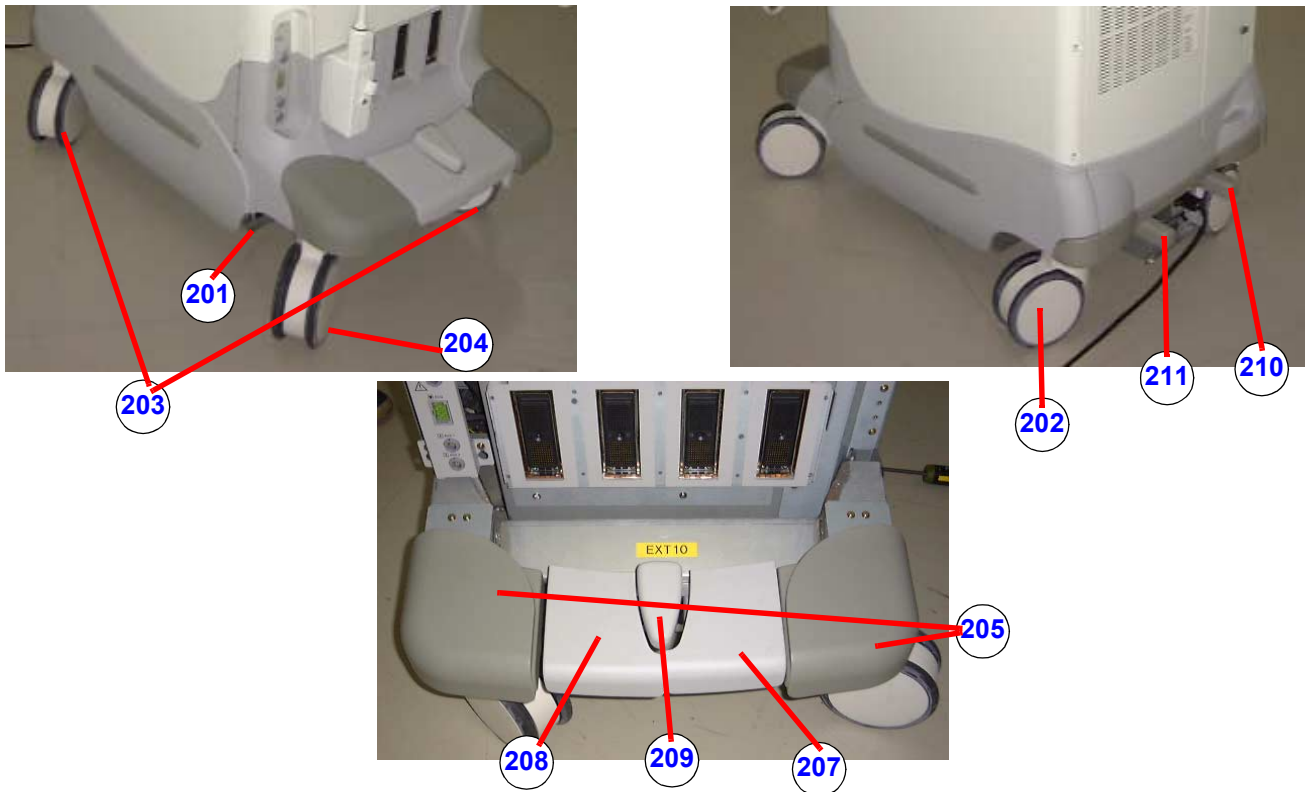


Figure 9-19 Casters and Pedals

Table 9-42 Casters and Pedals

| Item | Part Name         | Part Number          | Description                                                         | Qty | FRU |
|------|-------------------|----------------------|---------------------------------------------------------------------|-----|-----|
| 201  | CASTER LINK ASSY  | 2304800              | entire brake mechanism                                              | 1   | 2   |
| -    | CASTER SWIVEL     | 2379694-2 or 2307311 | Obsolete. Do not use these parts.                                   | -   | -   |
| 202  | CASTER SWIVEL     | 5233773              | swivel, rear right. Improved rubber type (anti-stain).              | 1   | 2   |
| -    | CASTER LOCK       | 2379695 or 2307312   | Obsolete. Do not use these parts.                                   | -   | -   |
| 203  | CASTER LOCK       | 5233774              | lock, front right and rear left. Improved rubber type (anti-stain). | 2   | 2   |
| -    | CASTER FREE       | 2379693-2 or 2307301 | Obsolete. Do not use these parts.                                   | -   | -   |
| 204  | CASTER FREE       | 5233772              | free, front left. Improved rubber type (anti-stain).                | 1   | 2   |
| 205  | FRONT-BUMPER-ASSY | 2315419              | front bumper, left and right                                        | 1   | 2   |
| 207  | PEDAL-R           | 2291870              | rubber pedal for brake caster lock                                  | 1   | 2   |
| 208  | PEDAL-L           | 2291869              | rubber pedal for brake caster lock                                  | 1   | 2   |
| 209  | PEDAL CENTER      | 2291871              | rubber pedal for brake caster lock                                  | 1   | 2   |

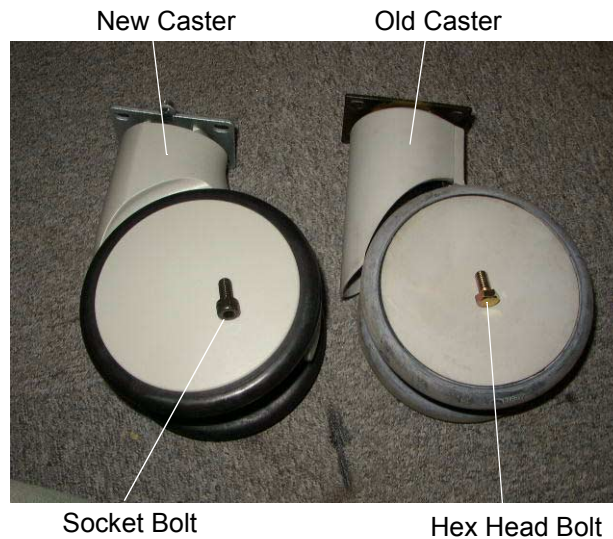
**Table 9-42 Casters and Pedals**

| Item | Part Name      | Part Number | Description                                  | Qty | FRU |
|------|----------------|-------------|----------------------------------------------|-----|-----|
| 210  | PEDAL-REAR-REL | 2304908     | rear pedal                                   | 1   | 2   |
| 211  | PEDAL-REAR-SWL | 2304909     | rear pedal                                   | 1   | 2   |
| -    | CASTER SET     | 2381035     | Obsolete. Do not use these parts.            | -   | -   |
| -    | CASTER SET     | 2381035-2   | Obsolete. Do not use these parts.            | -   | -   |
| -    | CASTER SET     | 2381035-3   | See Note. Improved rubber type (anti-stain). | 1   | 2   |

### 9-10-3 Casters and Pedals (cont'd)

**NOTE:** *The new type of the Caster already has been released. The differences between old and new types of the caster are the shape and attaching hardware as shown.*

- If you replace a caster from the old type to the new one:  
Order **Caster FRU Assy (2381035-x; FRU2)**. This contains 4 casters (One Free Caster, One Swivel Lock Caster, and Two Total Lock Caster) and 16 attaching bolts. This mean that you must replace ALL of the four casters as an assembly when replacing a caster.
- If you replace a caster for the system with a new type of the caster installed:  
Order **Caster (5233772/Free, 5233773/Swivel Lock, or 5233774/Total Lock; FRU2)**. This is only one caster (with no bolt).



## 9-10-4 Plastic Covers

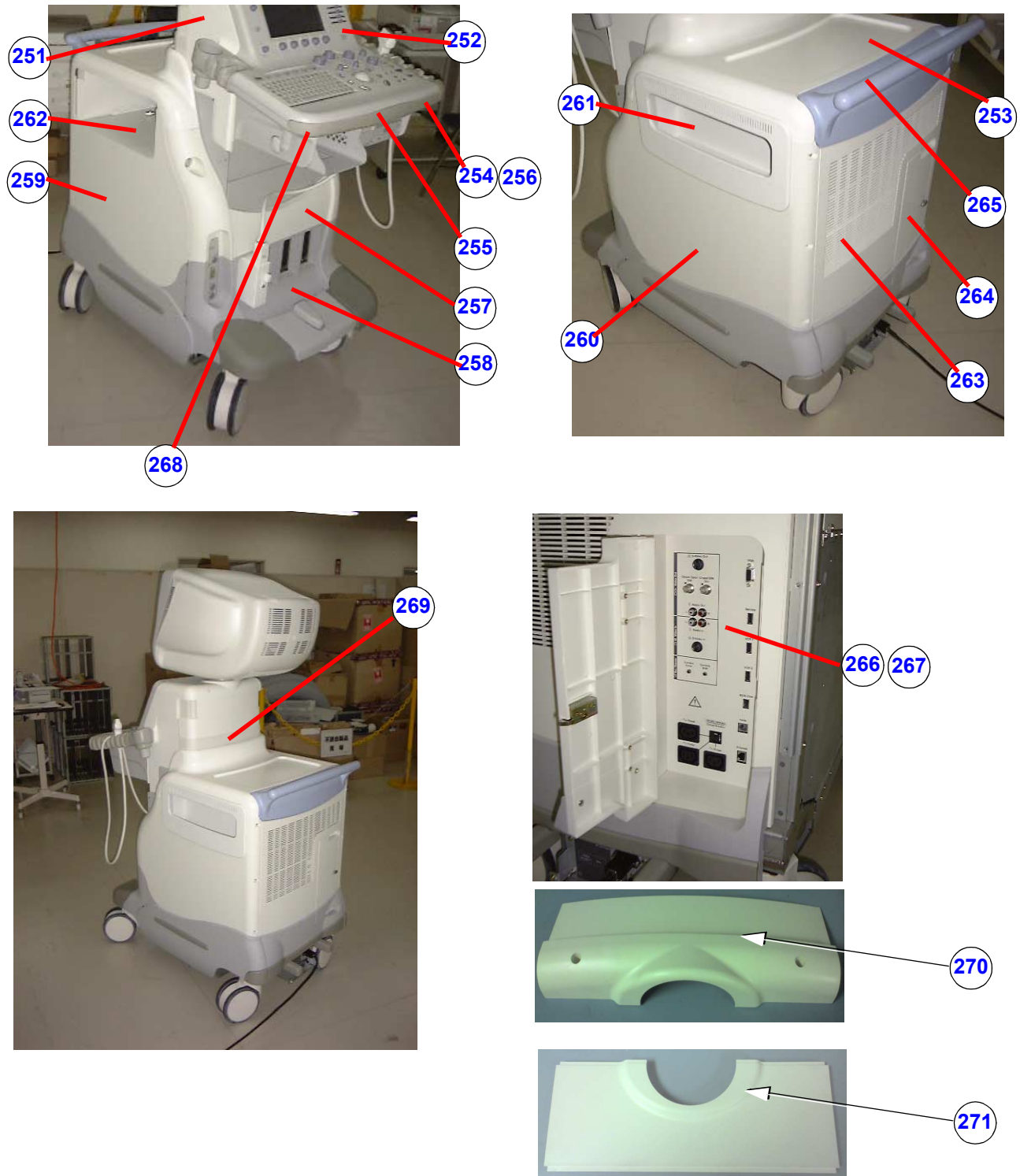


Figure 9-20 OP Panel and Keys



## 9-10-4 Plastic Covers (cont'd)

**Table 9-43 OP Panel and Keys**

| Item | Part Name           | Part Numbers | Description                                     | Qty | FRU |
|------|---------------------|--------------|-------------------------------------------------|-----|-----|
| 251  | KB COVER LEFT       | 2282547      | upper left cover of keyboard (under monitor)    | 1   | 2   |
| 252  | KB COVER RIGHT      | 2282548      | upper right cover of keyboard (under monitor)   | 1   | 2   |
| 253  | COVER-TOP           | 2315418      | top cover                                       | 1   | 2   |
| 254  | KB COVER BOTTOM     | 2282546      | plastic cover under keyboard                    | 1   | 2   |
| 255  | UP/DOWN-KNOB-ASSY   | 2304820      | handle for keyboard up/down, wire               | 1   | 2   |
| 256  | ECG CABLE HOOK      | 2283028      | hook under keyboard                             | 1   | 2   |
| 257  | FRONT COVER TOP     | 2304765-2    | upper cover around probe connector              | 1   | 2   |
| 258  | FRONT COVER UNDER   | 2304766-2    | lower cover around probe connector              | 1   | 2   |
| 259  | SIDE COVER L ASSY   | 2304769      | plastic cover, including bracket                | 1   | 2   |
| 260  | SIDE COVER R ASSY   | 2304770      | plastic cover, including bracket                | 1   | 2   |
| 261  | SIDE-POCKET         | 2291872      | cover of peripheral room with pocket            | 1   | 2   |
| 262  | SIDE-FRIDGE         | 2303896      | cover of peripheral room without pocket         | 1   | 2   |
| 263  | REAR COVER ASSY     | 2304767-2    | plastic cover                                   | 1   | 2   |
| 264  | REAR DOOR ASSY      | 2304768      | door for peripherals connector, including latch | 1   | 2   |
| 265  | HANDLE              | 2309857      | rear handle                                     | 1   | 2   |
| 266  | REAR CONN ASSY      | 2304618      | rear connector for peripherals                  | 1   | 2   |
| 267  | REAR CONN 220V ASSY | 2304622      | rear connector for peripherals                  | 1   | 2   |
| 268  | KB BUMPER           | 2283014      | Operation panel bumper                          | 1   | 2   |
| 269  | KB BLIND REAR Assy  | 2304780      | Lower cover at Neck portion                     | 1   | 2   |
| 270  | KB Rear Assy        | 2304776      |                                                 | 1   | 2   |
| 271  | BK Cover Top        | 2282549      |                                                 | 1   | 2   |



## 9-10-5 Recording Devices

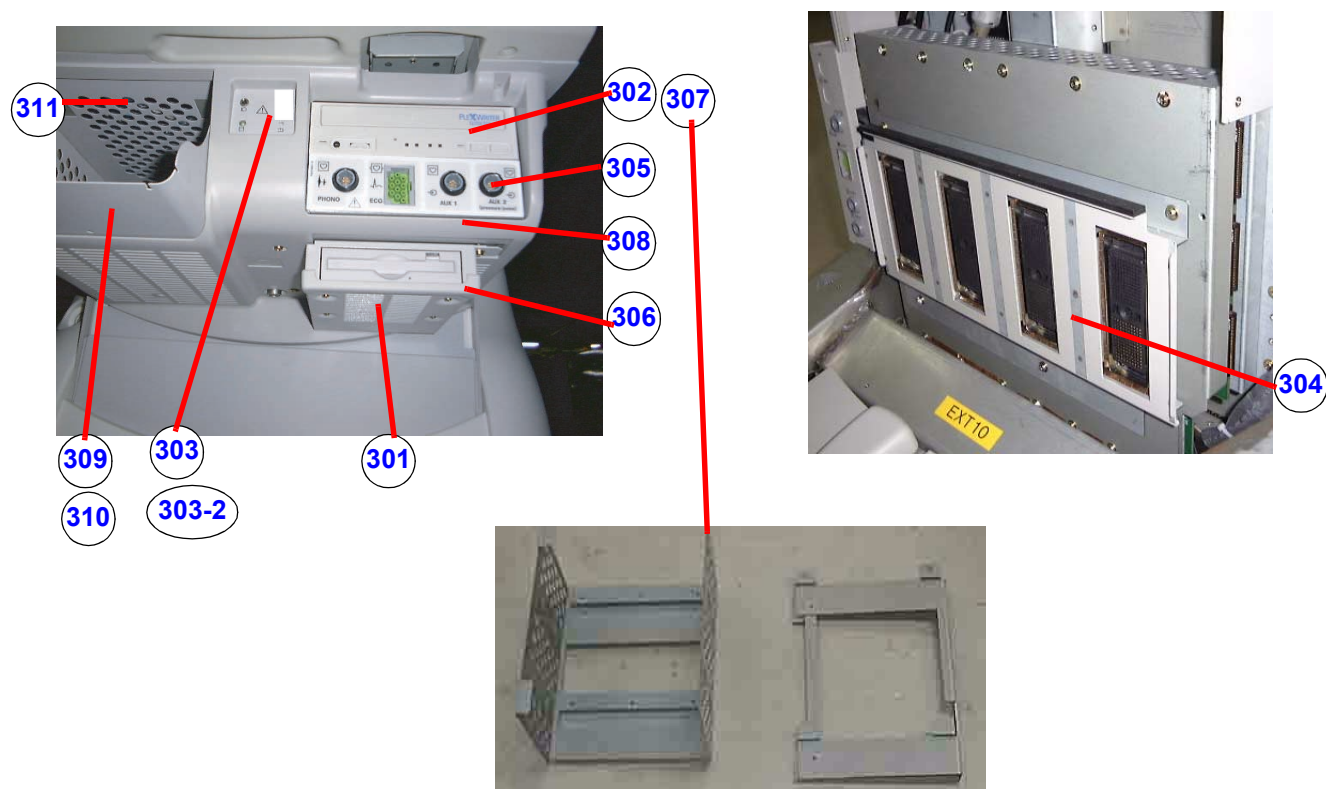


Figure 9-21 Recording Devices

Table 9-44 Recording Devices

| Item  | Part Name          | Part Number          | Description                                                          | Qty | FRU |
|-------|--------------------|----------------------|----------------------------------------------------------------------|-----|-----|
| 301   | MOD Option Kit     | 2355070 or 2307450   | Either 2355070 (1.3GB drive) or 2307450 (230MB drive) are available. | 1   | 1   |
| 302   | CD-RW-SVC          | 2375462 (or 2304918) | cd-r/w drive<br>2375462 includes CD-RW, Ghost CD, and manual.        | 1   | 1   |
| 303   | FRONT-IF-ASSY      | 2324098              | front connector for peripherals                                      | 1   | 1   |
| 303-2 | FRONT CONTROL ASSY | 2302393              | front connector for peripherals                                      | 1   | 2   |
| 304   | QCON ASSY          | 2304617-5            | PCON+PSEL+bracket                                                    | 1   | 2   |
| 305   | PAT. I/O           | FA200801             | for ecg                                                              | 1   | 1   |
| 306   | MOD Fixture Kit    | 2308066              |                                                                      | 1   | 2   |
| -     | DVD unit           | 2388429-5            | Obsolete. Acceptable to use the part if remained in stock.           | -   | -   |

**Table 9-44 Recording Devices**

| Item | Part Name             | Part Number | Description                                                                                                               | Qty | FRU |
|------|-----------------------|-------------|---------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 307  | DVD unit 6            | 2388429-6   | For R3.xx or later software ONLY<br>If the system is upgraded from CD-RW to DVD, order<br>DVD installation kit (2389332). | 1   | 1   |
| 308  | 5 inch bay Assy       | 2389204     | For installation of the DVD unit ONLY                                                                                     | 1   | 2   |
| 309  | B/W PRINTER TRAY ASSY | 2324611     | Including Printer Tray, Inner box, and bumper                                                                             | 1   | 2   |
| 310  | B/W PRINTER TRAY      | 2283002     |                                                                                                                           | 1   | 2   |
| 311  | B/W PRINTER BUMPER    | 2301001     |                                                                                                                           | 1   | 2   |

## 9-10-6 Probe Holder



Figure 9-22 Probe Holder

Table 9-45 Probe Holder

| Item | Part Name            | Part Number | Description                | Qty | FRU |
|------|----------------------|-------------|----------------------------|-----|-----|
| 350  | PROBE HOLDER R ASSY  | 2296738     | rubber holder with bracket | 1   | 2   |
| 351  | PROBE HOLDER L1 ASSY | 2296736     | rubber holder with bracket | 1   | 2   |
| 352  | TV HOLDER ASSY       | 2296740     | rubber holder for TV       | 1   | 2   |
| 353  | GEL HOLDER R ASSY    | 2296741     | includes bottom            | 1   | 2   |
|      |                      |             |                            |     |     |

## 9-10-7 OP Panel and Keys

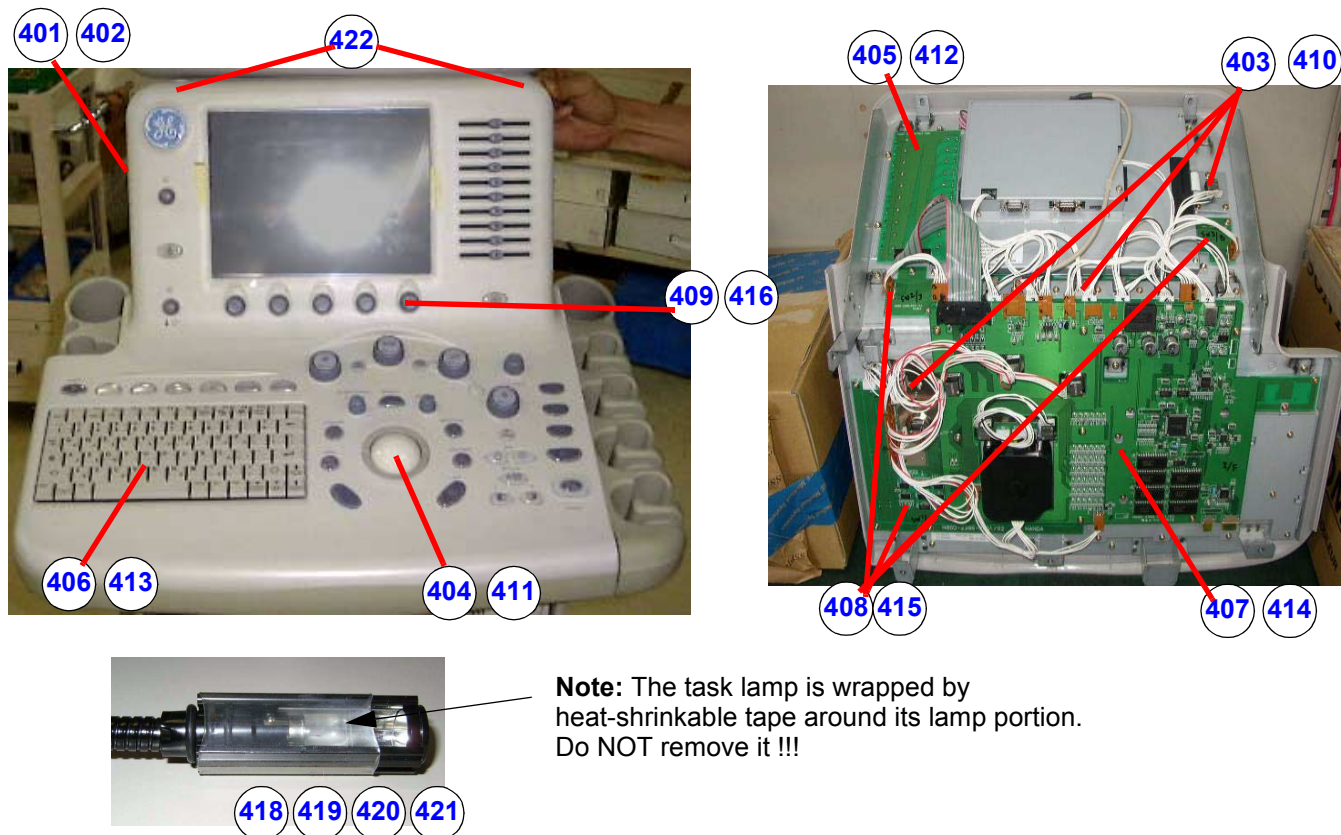


Figure 9-23 OP Panel and Keys

## 9-10-7 OP Panel and Keys (cont'd)

**Table 9-46 OP Panel and Keys**

| Item | Part Name            | Part Number | Description                                                                                                                                                                                                                 | Qty | FRU |
|------|----------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 401  | KEYBOARD ASSY        | 5138507-2   | whole keyboard, (Obsolete, Replaced by 5138507-3)                                                                                                                                                                           | 1   | 1   |
| 401  | SVC KEYBOARD L7      | 5138507-3   | whole keyboard, this includes sub-items marked (a), below                                                                                                                                                                   | 1   | 1   |
| 402  | KEYBOARD ASSY        | 2267259-2   | whole keyboard, this includes sub-items marked (b) below (Parts no longer supplied. Replaced by 5138507-3)                                                                                                                  | 1   | 1   |
| 403  | ROTARY ENCODER ASSY  | 2369826     | OBSOLETE<br>(a) Three rotary encoders with cables. Three groups of encoders with cables and metal stay. In total, there are 14 encoders in this FRU.                                                                        | 1   | 1   |
| 403  | ROTARY ENCODER ASSY  | 2369826-2   | (a) Three rotary encoders with cables. Three groups of encoders with cables and metal stay. In total, there are 14 encoders in this FRU. This version contains two types of LCD brightness adjustment knob and instruction. | 1   | 1   |
| 404  | TRACKBALL ASSY       | 2369823     | (a) trackball, two cables w/o bracket                                                                                                                                                                                       | 1   | 1   |
| 405  | TGC ASSY             | 2369822     | (a) TGC PCB Assy, bracket, cable w/o TGC knobs                                                                                                                                                                              | 1   | 1   |
| 406  | A/N KBD ASSY         | 2369818     | (a) board of a/n key switch                                                                                                                                                                                                 | 1   | 1   |
| 407  | I/F BOARD ASSY       | 2369817     | (a) I/F PCB ASSY, Mic cable, USB cable                                                                                                                                                                                      | 1   | 1   |
| 408  | SW BOARD ASSY        | 2369815     | (a) Three SW PCB Assy, rubber sheets, two cables                                                                                                                                                                            | 1   | 1   |
| 409  | KEY ACCESSORY SET    | 2369816-2   | (a) A/N keytops, all encoder knobs, all clear key caps, labels (For knob repair, order 2363861 repair kit.)                                                                                                                 | 1   | 2   |
| 410  | ROTARY ENCODER ASSY  | 2299448     | (b) Three rotary encoders with cables. Three groups of encoders with cable. In total, there are 14 encoders in this FRU. (FRU for 2267259-2 keyboard)                                                                       | 1   | 1   |
| 411  | TRACKBALL ASSY       | 2299451     | (b) trackball, two cables w/o bracket (FRU for 2267259-2 keyboard)                                                                                                                                                          | 1   | 1   |
| 412  | TGC ASSY             | 2299452     | (b) TGC PCB Assy, bracket, cable w/o TGC knobs (FRU for 2267259-2 keyboard)                                                                                                                                                 | 1   | 1   |
| 413  | A/N KBD ASSY         | 2299453     | (b) board of a/n key switch (FRU for 2267259-2 keyboard)                                                                                                                                                                    | 1   | 1   |
| 414  | I/F BOARD ASSY       | 2306270     | (b) I/F PCB ASSY, Mic cable, USB cable (FRU for 2267259-2 keyboard)<br>This part no longer available. Order new SVC Keyboard 5138507-3 for repair.                                                                          | 1   | 1   |
| 415  | SW BOARD ASSY        | 2306273     | (b) Three SW PCB Assy, rubber sheets, two cables (FRU for 2267259-2 keyboard)                                                                                                                                               | 1   | 1   |
| 416  | KEY ACCESSORY SET    | 2306274     | (b) A/N keytops, all encoder knobs, all clear key caps, labels (For knob repair, order 2363861 repair kit.) (FRU for 2267259-2 keyboard)                                                                                    | 1   | 1   |
| -    | CLEAR KEYCAP & LABEL | 2398354-2   | Clear Cap and Label set                                                                                                                                                                                                     | 1   | 2   |

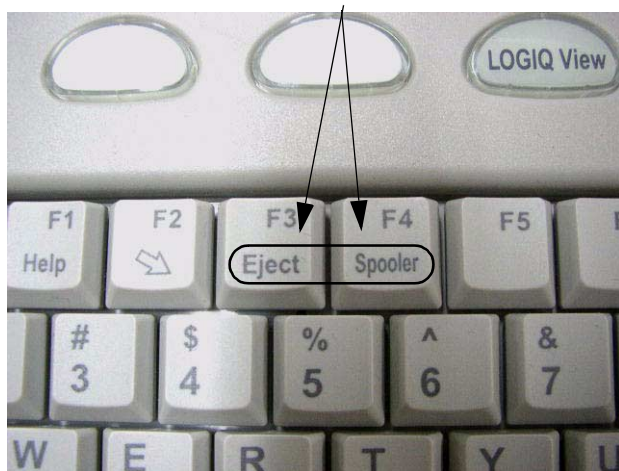


**Table 9-46 OP Panel and Keys**

| Item | Part Name      | Part Number | Description                        | Qty | FRU |
|------|----------------|-------------|------------------------------------|-----|-----|
| 418  | TASK LAMP ASSY | 2301853-4   | task light                         | 1   | 1   |
| 419  | LAMP ASSY      | 2301857     | Lampstay and cable (inside the L7) | 1   | 2   |
| 420  | TASK LAMP KNOB | 2304620     | knob                               | 1   | 2   |
| 421  | LIGHT BULB     | 2357676     | BULB ONLY                          | 1   | 2   |
| 422  | CAP            | 2239428     | CAP FOR SCREW HOLE                 | 1   | 2   |
| -    | AN KEY RUSSIA  | 2375159     | Only for KBD 5138507-3             | 1   | 2   |
| -    | AN KEY GREEK   | 2371160     | Only for KBD 5138507-3             | 1   | 2   |

Note: How to differentiate the keyboards, 2267259-2 and 2344632-xx:

The keyboard 2344632-xx “F3” and “F4” contain  
“Eject” and “Spooler”.



Keyboard 2344632-xx



Keyboard 2267259-2

## 9-10-8 Circuit Board Assemblies

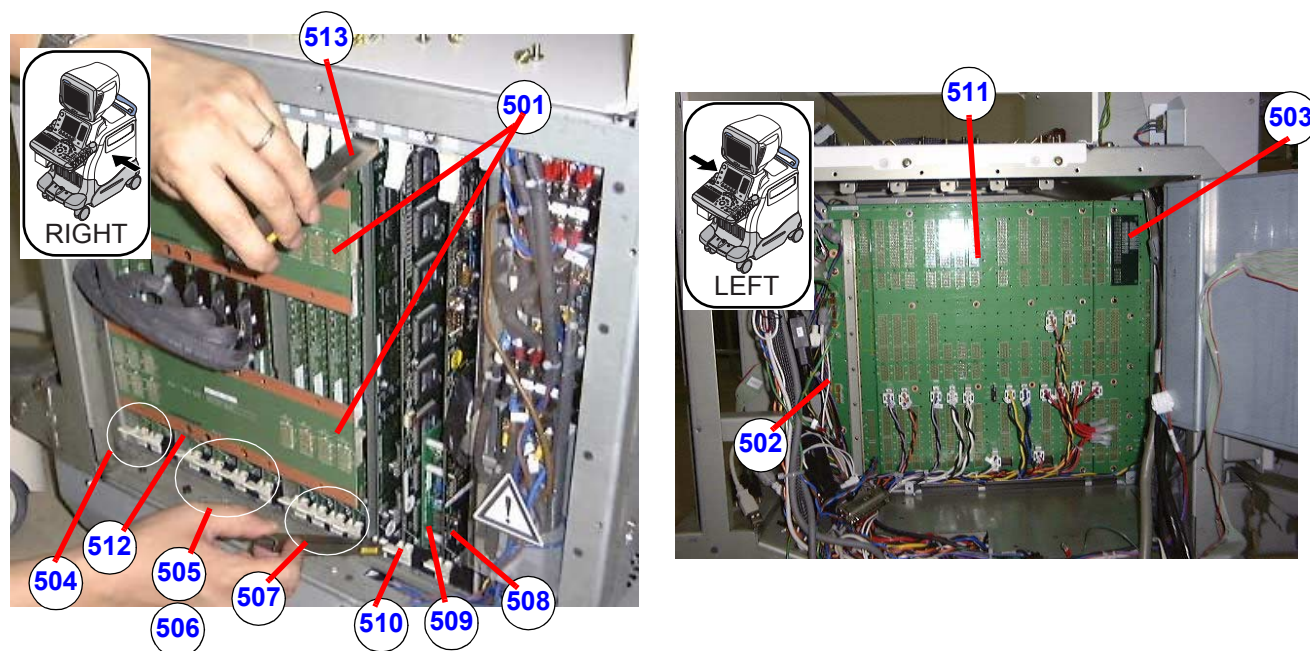


Figure 9-24 Circuit Board Assemblies

Table 9-47 OP Panel and Keys

| Item | Part Name       | Part Number | Description                                                                                                                                                                                                                                | Qty | FRU |
|------|-----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 501  | EBUS ASSY       | 2271702-2   | "-2 or later" board must be used for STCW Option.                                                                                                                                                                                          | 2   | 1   |
| 502  | MDCON ASSY      | 2273295     | board in nest                                                                                                                                                                                                                              | 1   | 1   |
| 503  | TERMINATOR ASSY | 2268026     | board                                                                                                                                                                                                                                      | 1   | 2   |
| 504  | PREA ASSY       | 2264596-2   | board in nest, slot 1 - 2                                                                                                                                                                                                                  | 1   | 1   |
| 505  | TRAP2 Assy      | 2323353-4   | New TRAP board in nest slot 4 - 7. When 2264598 TRAP is discontinued, order this TRAP2 Assy. However, for the board inserted into Slot 5 only, the TRAP2 Assy MUST be installed. If it is not, the STCW option can not be installed later. | 1   | 1   |
| 506  | TRAPCW ASSY     | 2323450-4   | board in nest, slot 4 - 7                                                                                                                                                                                                                  | 1   | 1   |
| 507  | DDBF ASSY       | 2357804     | board in nest, slot 8 - 11<br>Including DDBF Assy 2264600-4 and "-3" conversion kit (ROM + "-3" label + instructions)                                                                                                                      | 1   | 1   |
| 508  | SINANO ASSY     | 2264602-3   | board in nest, slot 12                                                                                                                                                                                                                     | 1   | 1   |
| 509  | PROMP ASSY      | 2264604-2   | board in nest, slot 13<br>"-2 or later" must be used for STCW option.                                                                                                                                                                      | 1   | 1   |
| 510  | MDBRG ASSY      | 2264606-5   | board in nest, slot 15<br>"-5 or later" must be used for 6T probe.                                                                                                                                                                         | 1   | 1   |
| 511  | MOTHER ASSY     | 2264608-3   | board                                                                                                                                                                                                                                      | 1   | 1   |

**Table 9-47 OP Panel and Keys**

| Item | Part Name           | Part Number | Description                                                                  | Qty | FRU |
|------|---------------------|-------------|------------------------------------------------------------------------------|-----|-----|
| -    | STCW ASSY           | 2277244-4   | board in nest, slot 2 (option). Obsolete, but acceptable to use if in stock. | -   | -   |
| 512  | STCW ASSY           | 2277244-5   | Compatible with -4. Minor change due to delay line EOL and resistor change.  | 1   | 1   |
| 513  | NEST Board JIG Assy | 2315492     | Tools to remove a board in the NEST Assy                                     | 1   | 2   |



## 9-10-9 HDD and Battery

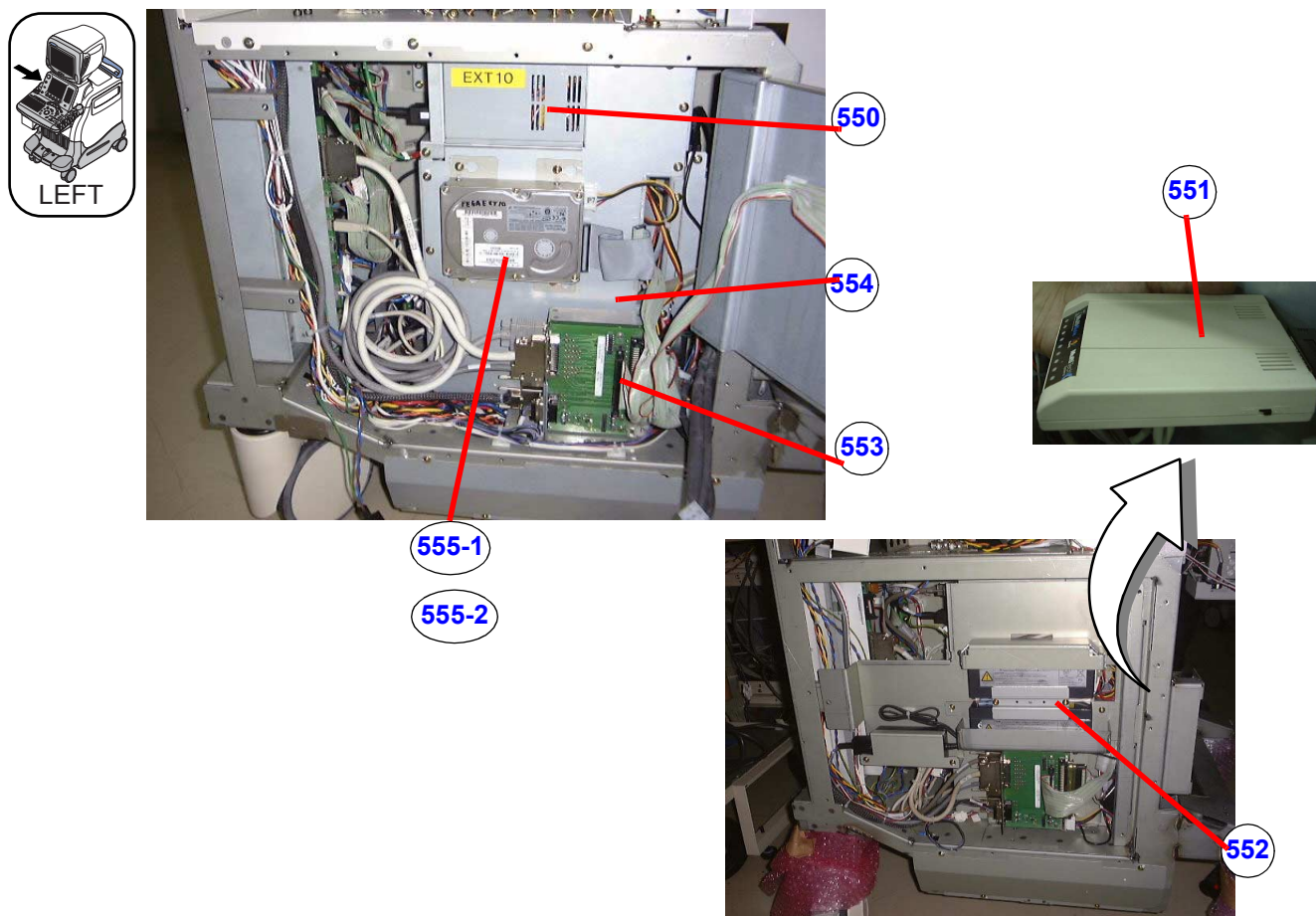


Figure 9-25 HDD and Battery

Table 9-48 HDD and Battery

| Item  | Part Name                                  | Part Number | Description                                                            | Qty | FRU |
|-------|--------------------------------------------|-------------|------------------------------------------------------------------------|-----|-----|
| 550   | BECOMPSW2-SVC                              | 2384945-3   | PC Box. Refer to the table below for proper selection.                 | 1   | 1   |
| -     | BECOMP3 SV Kit for Replacing BEP1/<br>BEP2 | 5136903     | Refer to the table below for contents.                                 | 1   | 1   |
| -     | CPU Battery                                | -           | Included on the CPU Board.<br>Type: CR2032, Lifetime: Approx. 10 years | 1   | N   |
| 551   | GLOBAL MODEM KIT                           | 2245794     | global modem (Option)                                                  | 1   | 1   |
| 552   | UPS BATTERY PACK                           | 2304809-2   | battery of ATX power supply                                            | 1   | 1   |
| 553   | DGPCIO/VIC2-SVC                            | 2384944     | Refer to the table below for proper selection.                         | 1   | 1   |
| 554   | EXTENDED MEMORY2                           | 2373707     | Included in the PC box. For R3.xx (OPTION) or later<br>software        | -   | 2   |
| 555-1 | HDD                                        | 2304904     | 20GB FOR BT01                                                          | 1   | 2   |

**Table 9-48 HDD and Battery**

| Item  | Part Name            | Part Number | Description                                                 | Qty | FRU |
|-------|----------------------|-------------|-------------------------------------------------------------|-----|-----|
| 555-2 | HDD                  | 2304904-3   | 40GB FOR BT02/BT03                                          | 1   | 2   |
| -     | G550 VIDEO CARD AGP  | 2362887     |                                                             | 1   | 2   |
| -     | BASE SYSTEM SOFTWARE | -           | Ghost for BEP2. Contact OLC for proper P/N for your system. | 1   | 2   |
| -     | BASE SYSTEM SOFTWARE | -           | Ghost for BEP1. Contact OLC for proper P/N for your system. | 1   | 2   |
| -     | APPLICATION SOFTWARE | -           | Contact OLC for proper P/N for your system.                 | 1   | 2   |

| <b>BECOMPSW2-SVC (2384945), including:</b> |                                              |                    |       |                                                           |                               |
|--------------------------------------------|----------------------------------------------|--------------------|-------|-----------------------------------------------------------|-------------------------------|
|                                            | Part Name                                    | P/N                | QTY   | For current DGPCIO/VIC (2352289) or PC2IO/VIC (2301854-2) | For new DGPCIO/VIC2 (2372503) |
| 1                                          | BECOMPSW2 Assy (PC Box 2351328-2 + Ghost CD) | 2351329-4 or later | 1     | Used                                                      | Used                          |
| 2                                          | SV PCVIC Bracket - U                         | 2379774            | 1     | Used                                                      | Not used                      |
| 3                                          | SV PCVIC Bracket - L                         | 2379773            | 1     | Used                                                      | Not used                      |
| 4                                          | Screw                                        | N9408HR            | 8     | Used                                                      | 4 screws Used                 |
| 5                                          | DGVIC connector label                        | 2354667            | 1     | Used                                                      | Not used                      |
| 6                                          | Velcro tape                                  | U0032BA            | 30 cm | Used                                                      | Not used                      |
| 7                                          | Heat shrinkable tube                         | 2357134            | 40 cm | Used                                                      | Not used                      |
| 8                                          | Tie-wrap                                     | U0212AC            | 2     | Used                                                      | Not used                      |

| <b>DGPCIO/VIC2-SVC (2384944), including:</b> |                       |         |       |                                            |                            |
|----------------------------------------------|-----------------------|---------|-------|--------------------------------------------|----------------------------|
|                                              | Part Name             | P/N     | QTY   | For current PC Box (2351328 or 2299702-xx) | For new PC Box (2351328-2) |
| 1                                            | DGPCIO/VIC2 Assy      | 2372503 | 1     | Used                                       | Used                       |
| 2                                            | SV DGVIC bracket      | 2379772 | 1     | Used                                       | Not used                   |
| 3                                            | Screw                 | N9408HR | 8     | Used                                       | 4 screws Used              |
| 4                                            | DGVIC connector label | 2354667 | 1     | Used                                       | Not used                   |
| 5                                            | Velcro tape           | U0032BA | 30 cm | Not used                                   | Used                       |

## 9-10-9 HDD and Battery (cont'd)

|                                | DGPCIO/VIC2<br>(2372503) | DGPCIO/VIC<br>(2352289) | PC2IO/VIC<br>(2301854-2) |
|--------------------------------|--------------------------|-------------------------|--------------------------|
| BECOMPSW2 (2351329-4 or later) | OK                       | OK                      | OK                       |
| BECOMPSW2 (2351329-3 or lower) | OK                       | OK                      | OK                       |
| BECOMPSW (2316354-3)           | <b>NG</b>                | <b>NG</b>               | OK                       |

| BEP3 SV kit (5136903), including: |                                        |       |
|-----------------------------------|----------------------------------------|-------|
| Part Number                       | Descriptions                           | QTY   |
| 5114061                           | BECOMP3 ASSY LOGIQ7                    | 1     |
| 5120441                           | BECOMP3 UP KIT CABLE ASSY L7           | 1     |
| 5112352                           | L7 CSL EMC SHILD PL-B                  | 1     |
| 5112353                           | L7 UPG BECOMP3 BASE                    | 1     |
| 5112354                           | L7 UPG BECOMP3 UPR BRKT                | 1     |
| N9510ZX                           | CAP SCREW                              | 3     |
| N9408HR                           | SCREW (for spare)                      | 6     |
| 5122012                           | HDD Extension Cable1                   | 1     |
| 5134920                           | GHOST CD W2K FOR BEP3                  | 1     |
| 5136802                           | installation instruction (This manual) | 1     |
| 2367977                           | DGVIC TRAY2                            | 1     |
| N9306ZX                           | SCREW, HEX SOCKET 3MM, 6MM CAP SCREW   | 2     |
| U0082AG                           | SPACER MALE/FEMALE 3MM 10 STUD         | 2     |
| N9306HR                           | SCREW, TP 3X6                          | 2     |
| U0055AG                           | SPACER                                 | 2     |
| U0032BA                           | MAGIC TAPE (HOOK) (FOR MODEM)          | 1 set |
| U0033BA                           | MAGIC TAPE (LOOP) (FOR MODEM)          | 1 set |



**NOTICE** For BEP3 SV Kit ONLY:

This kit may need additional parts depending on the L7 system:

5168551 (R2.5.1 application CD if the system SW level is R2.4.1 or lower) or R3.0.12 (Use FMI72265 if system SW version is still R3.0.8 or lower level on BT03), FMI 72258 DVD Replacement (If CDRW is mounted on the system), if replacing a BEP1.

## 9-10-10 Power Units

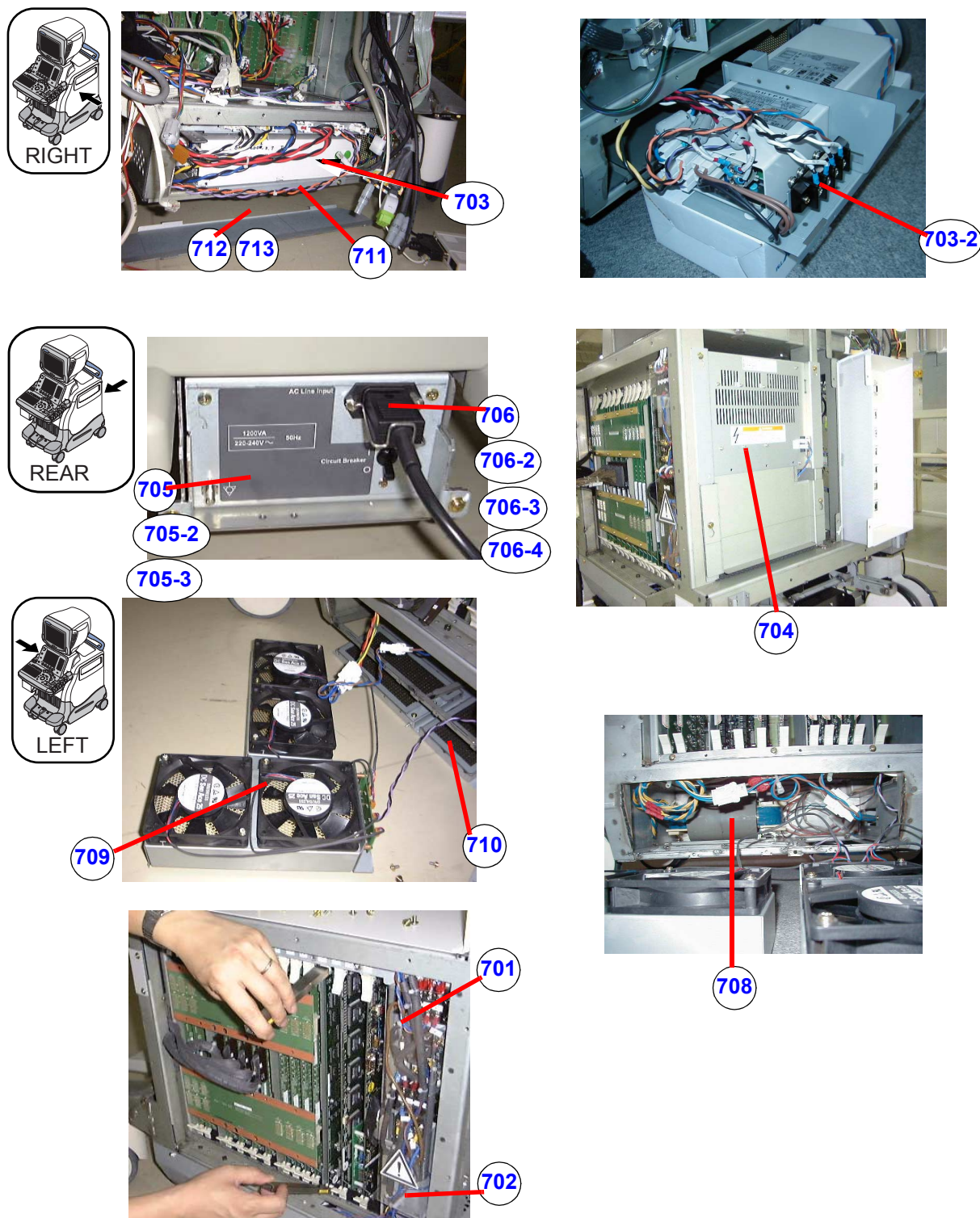


Figure 9-26 Power Units

## 9-10-10 Power Units (cont'd)

**Table 9-49 Power Units**

| Item  | Part Name                     | Part Number | Description                                                                                                          | Qty | FRU |
|-------|-------------------------------|-------------|----------------------------------------------------------------------------------------------------------------------|-----|-----|
| 701   | SSR PANEL                     | 2292209     | including 2 SSRs and fuse                                                                                            | 1   | 1   |
| 702   | FUSE                          | 2315585     | F1, 200V, T12A                                                                                                       | 1   | 1   |
| 703   | LV UNIT                       | 2283531     | low voltage regulator                                                                                                | 1   | 1   |
| 703-2 | LV2 UNIT                      | 2334197     | low voltage regulator                                                                                                | 1   | 1   |
| 704   | HV UNIT                       | 2372387     | high voltage regulator (Half height), including materials used when changing Full height HV unit to the Half height. | 1   | 1   |
| 705   | AC POWER BOX                  | 2384370     | inlet unit for 100V, Including cable                                                                                 | 1   | 1   |
| 705-2 | AC POWER BOX JPN              | 2384371     | For JAPAN, inlet unit for 100V, Including cable                                                                      | 1   | 1   |
| 705-3 | AC POWER BOX 200V             | 2304538-4   | Inlet unit for 200V                                                                                                  | 1   | 1   |
| 706   | AC CORD 100V US               | 2371417     | power cable of 100V, with clamp                                                                                      | 1   | 1   |
| 706-2 | AC CORD 100V JPN              | 2371416     | For JAPAN, power cable of 100V, with clamp                                                                           | 1   | 1   |
| 706-3 | AC CORD 200V EU               | 2371418     | power cable of 200V, with clamp                                                                                      | 1   | 1   |
| 706-4 | AC CORD 200V CHINA with Clamp | 2379693-2   | For China ONLY                                                                                                       | 1   | 1   |
| 708   | MAIN TRANS                    | 2373331-2   | power trans                                                                                                          | 1   | 1   |
| 709   | CONSOLE FAN ASSY              | 2304624     | 4 fans                                                                                                               | 1   | 1   |
| 710   | BOTTOM AIR FILTER             | 2304172     | air filter for console                                                                                               | 1   | 2   |
| 711   | LV FILTER                     | 2291083     | air filter for LV unit                                                                                               | 1   | 2   |
| 712   | MF SIDER COVER R              | 2284345     | side cover of power supply                                                                                           | 1   | 2   |
| 713   | MF SIDE COVER L               | 2284346     | side cover of power supply                                                                                           | 1   | 2   |
| -     | AC Cord UK & Ireland          | 5151455     |                                                                                                                      | 1   | 2   |
| -     | AC Cord Denmark               | 5151457     |                                                                                                                      | 1   | 2   |
| -     | AC Cord India & Africa        | 5151450     |                                                                                                                      | 1   | 2   |
| -     | AC Cord Australian            | 5151453     |                                                                                                                      | 1   | 1   |
| -     | AC Cord Argentina             | 5151454     |                                                                                                                      | 1   | 1   |
| -     | AC Cord Israel                | 5151451     |                                                                                                                      | 1   | 1   |
| -     | AC Cord Swiss                 | 5151448     |                                                                                                                      | 1   | 1   |



## 9-10-11 Options, Peripherals and Cables

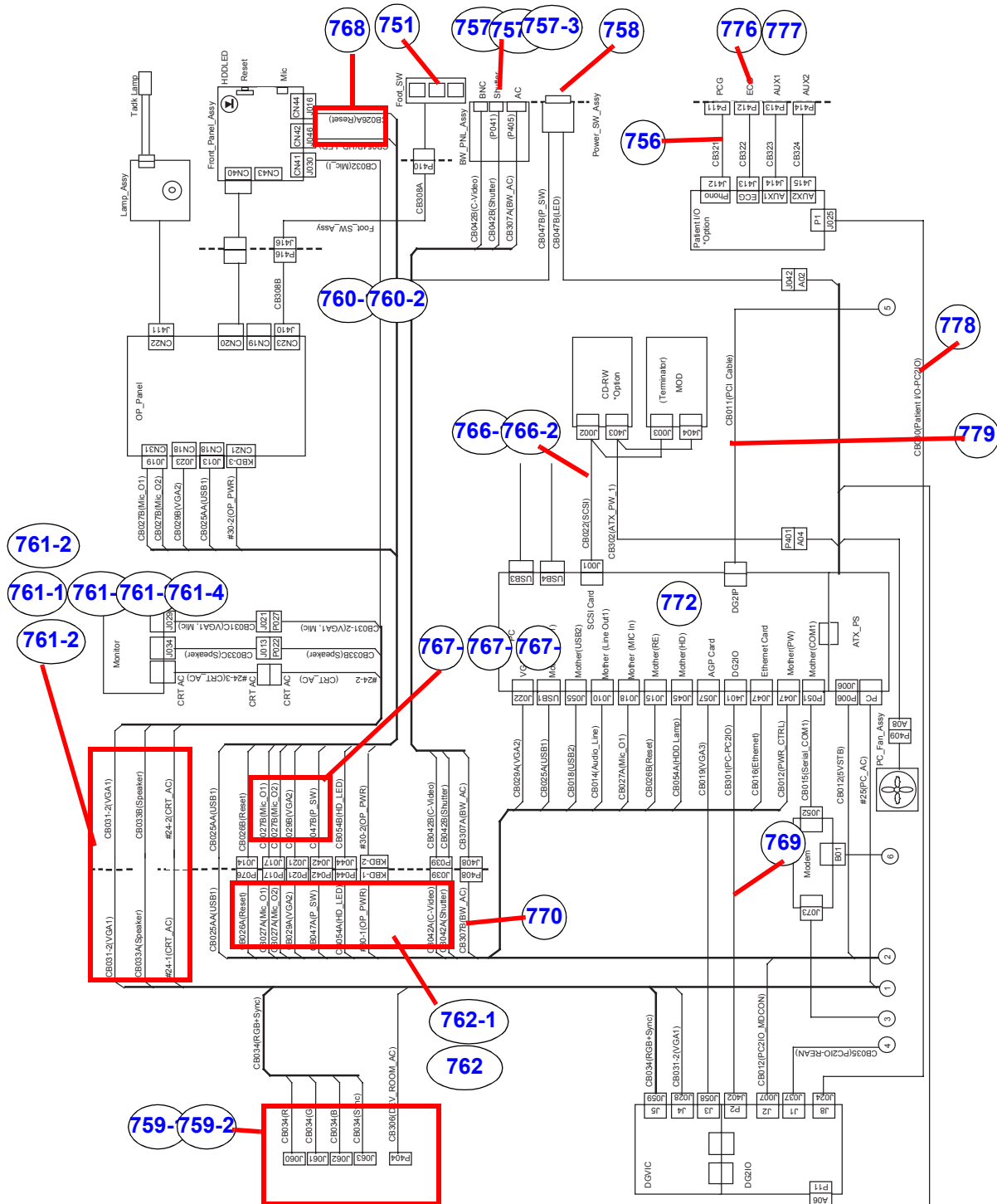
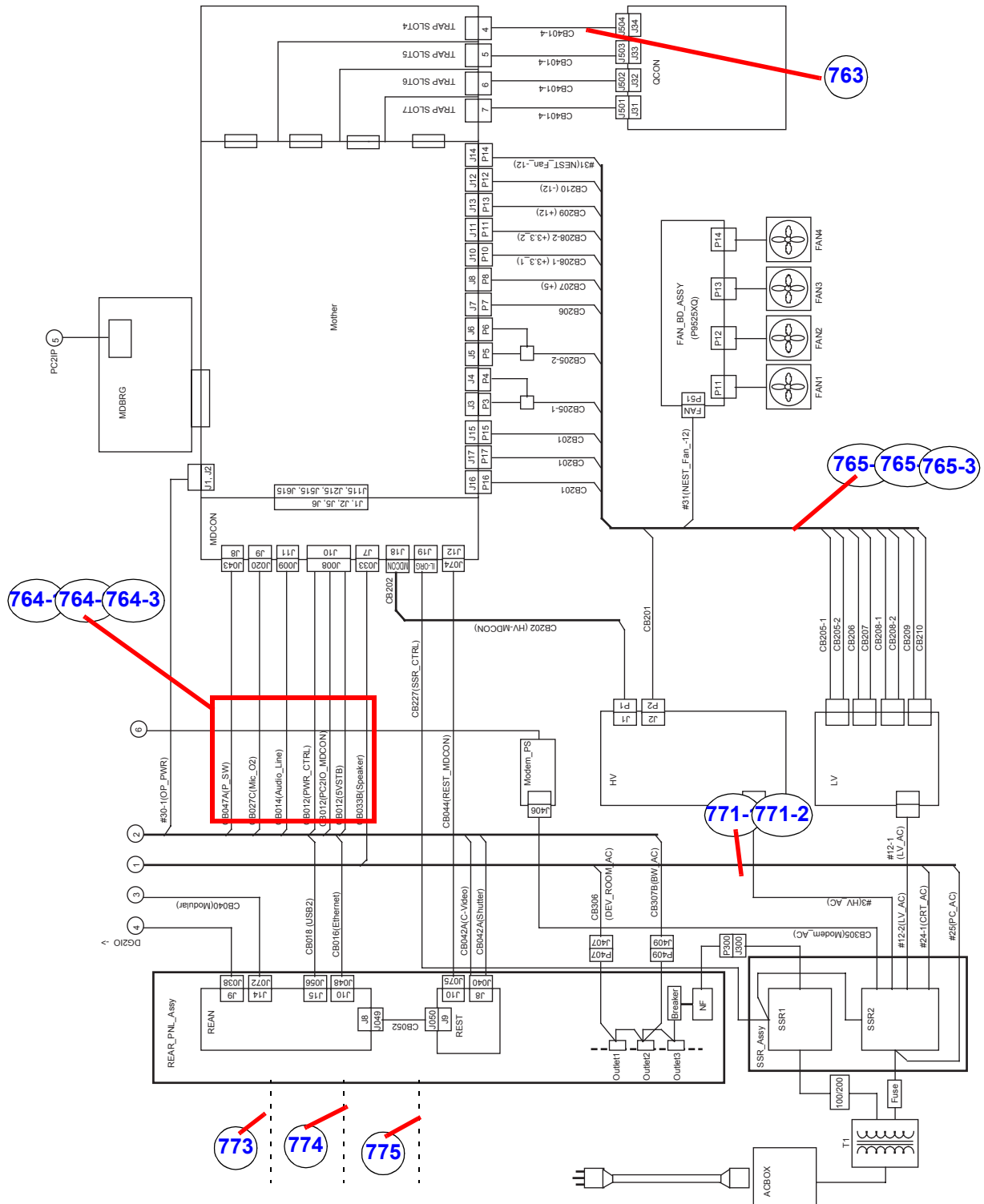


Figure 9-27 Options, Peripherals and Cables 1

## 9-10-11 Options, Peripherals and Cables (cont'd)



## 9-10-11 Options, Peripherals and Cables (cont'd)

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name     | Part Number | Description                                                                                                                                                                                                                                                                      | Qty | FRU |
|-------|---------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 757-1 | BW PNL ASSY   | 2383135     | Front panel of BW Printer for OC 238xxxx(Ver3)<br>BW Printer Conn Plate (USB/BNC/AC)<br>AC CB307B (P405 BW PNL <-> Connector P408)<br>200mm, GND500mm<br>BNC/Shutter CB042B (P041 BW PNL <-> Rear PNL P039) 300mm                                                                | 1   | 2   |
| 757-2 | BW PNL ASSY   | 2354668     | Front panel of BW Printer for OC 235xxxx/238xxxx (Ver2/Ver3)<br>BW Printer Conn Plate (USB/BNC/AC)<br>AC CB307B (P405 BW PNL <-> Connector P408)<br>200mm, GND400mm<br>BNC/Shutter CB042B (P041 BW PNL <-> Rear PNL P039) 300mm<br>USB CB042BB(USB BW PNL <-> BECOMP USB) 2000mm | 1   | 2   |
| 757-3 | BW PNL ASSY   | 2301856     | Front panel of BW Printer for OC 22xxxxx/230xxxx (Ver1)<br>BW Printer Conn Plate (BNC/AC)<br>AC CB307B (P405 BW PNL <-> Connector P408)<br>200mm, GND400mm<br>BNC/Shutter CB042B (P041 BW PNL <-> Rear PNL P039) 300mm                                                           | 1   | 2   |
| 758   | PW SW ASSY    | 2301858-3   | Power Switch<br>SW Bracket<br>SW&Cable CB47B (SW <-> MDCON P042) 290mm                                                                                                                                                                                                           | 1   | 2   |
| 759-1 | DEV ROOM ASSY | 2354669-2   | AC & shutter panel in device room for OC 235xxxx/238xxxx (Ver2/Ver3)<br>Panel (AC/USB/MiniJack)<br>AC CB306 (P404 DEVroom<-> Rear PNL J407)<br>900mm, GND900mm<br>MiniPlug CB042C (P418 DEVroom <-> Rear PNL J417) 200mm<br>USB CB042CC (USB DEVroom <-> BECOMP USB#5) 1000mm    | 1   | 2   |
| 759-2 | DEV ROOM ASSY | 2301859     | AC & shutter panel in device room for OC 22xxxxx/230xxxx (Ver1)<br>Panel (AC/USB/MiniJack)<br>AC CB306 (P404 DEVroom<-> Rear PNL J407)<br>900mm, GND900mm<br>MiniPlug CB042C (P418 DEVroom <-> Rear PNL J417) 200mm                                                              | 1   | 2   |
| 760-1 | FSW CONN ASSY | 2383136     | Connector on front panel for foot switch for 238xxxx(Ver3)<br>Panel<br>CB308A (FSW Conn <-> CB308B P416) 140mm                                                                                                                                                                   | 1   | 2   |
| 760-2 | FSW CONN ASSY | 2301860     | Connector on front panel for foot switch<br>Panel<br>CB308A (FSW Conn <-> CB308B P416) 140mm<br>CB308B (J416 CB308A <-> OP Pannel J410) 600mm                                                                                                                                    | 1   | 2   |



Table 9-50 Options, Peripherals and Cables

| Item  | Part Name               | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Qty | FRU |
|-------|-------------------------|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 761-1 | MONITOR VGA CABLE ASSY  | 2333352-4   | for OC 235xxxx/238xxxx (Ver2/Ver3), including cable, tie-wrap, and screws.<br>CB031A (J4 DGVIC <-> Int-housing lock under monitor CN2) 1820mm<br>CB031B (CN41 Front Pannel <-> Int-housing lock under monitor CN3) 600mm                                                                                                                                                                                                                                                                                                                                                                                                        | 1   | 2   |
| 761-2 | MONITOR VGA CABLE2 ASSY | 2383137     | for OC 238xxxx (Ver3)<br>Speaker CB033A (J7 MDCON <-> Int-housing Lock under monitor P032) 2250mm<br>Video CB034 (J5 DGVIC <-> Color Printer DEVroom R/G/B/Sync) 2500mm<br>GND CB311 (GND Monitor <-> MainFrame GND) 770mm<br>AC CB244-1 (SSR2 <-> Monitor AC) 1850mm<br>BW AC CB307A (J409 Rear AC <-> BW AC Conn CB307B P408(BW PNL ASSY)) 1250mm                                                                                                                                                                                                                                                                             | 1   | 2   |
| 761-3 | MONITOR VGA CABLE2 ASSY | 2359765     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>Speaker CB033A (J7 MDCON <-> Int-housing Lock under monitor P032) 2260mm<br>Video CB034 (J5 DGVIC <-> Color Printer DEVroom R/G/B/Sync) 2500mm<br>GND CB311 (GND Monitor <-> MainFrame GND) 770mm<br>AC CB244-1 (SSR2 <-> Monitor AC) 1850mm                                                                                                                                                                                                                                                                                                                                              | 1   | 2   |
| 761-4 | MONITOR VGA CABLE ASSY  | 2298144     | 2333352 + 2333877 for OC 22xxxxx/230xxxx (Ver1)<br>CB031 2333352-3<br>Speaker CB033 (J7 MDCON <-> Int-housing Lock under monitor P032) 2360mm<br>Video CB034 (J5 DGVIC <-> Color Printer DEVroom R/G/B/Sync) 2500mm<br>GND CB311 (GND Monitor <-> MainFrame GND) 800mm<br>AC CB244-1 (SSR2 <-> Monitor AC) 1850mm                                                                                                                                                                                                                                                                                                               | 1   | 2   |
| 762-1 | OP2 CABLE ASSY          | 2383139     | for OC 238xxxx (Ver3)<br>HDD Lamp CB26A (P076 BECOMP <-> Int-housing lock under KBD J014) 1470mm<br>CB027A (J018 MiniJack BECOMP <-> Int-housing lock under KBD J017) 1730mm<br>CB027C (J020 MDCON <-> Int-housing lock under KBD J017) 1930mm<br>VGA for LCD CB029A (J022 BECOMP D-Sub <-> Int-housing lock under KBD D-Sub P021) 1570mm<br>Video CB042A (J040 RearPNL <-> Int-housing lock under KBD P039) 1970mm<br>Shutter CB042A (J040 RearPNL <-> Int-housing lock under KBD J417) 650mm<br>USB CB025B (USB#1 BECOMP <-> Int-housing lock in KB support J011) 1810mm<br>USB CB042BB (USB#3 BECOMP <-> BW-PNL J420) 1850mm | 1   | 2   |

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name      | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Qty | FRU |
|-------|----------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 761-2 | OP2 CABLE ASSY | 2359766     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>HDD Lamp CB26A (P076 BECOMP <-> Int-housing lock under KBD J014) 1500mm<br>CB027A (J018 MiniJack BECOMP <-> Int-housing lock under KBD J017) 1750mm<br>CB027C (J020 MDCON <-> Int-housing lock under KBD J017) 2000mm<br>VGA for LCD CB029A (J022 BECOMP D-Sub <-> Int-housing lock under KBD P021) 1570mm<br>Video CB042A (J040 RearPNL <-> Int-housing lock under KBD P039) 2100mm<br>Shutter CB042A (J040 RearPNL <-> Int-housing lock under KBD J417) 1600mm                                                                  | 1   | 2   |
| 762   | OP CABLE ASSY  | 2298145     | for OC 22xxxxx/230xxxx (Ver1)<br>USB CB025A (USB BECOMP <-> Int-housing lock under KBD J011) 1700mm<br>HDD Lamp CB26A (P076 BECOMP <-> Int-housing lock under KBD J014) 1500mm<br>CB027A (J018 MiniJack BECOMP <-> Int-housing lock under KBD J017) 1700mm<br>CB027C (J020 MDCON <-> Int-housing lock under KBD J017) 2000mm<br>VGA for LCD CB029A (J022 BECOMP D-Sub <-> Int-housing lock under KBD P021) 1850mm<br>Video CB042A (J040 RearPNL <-> Int-housing lock under KBD P039) 2100mm<br>Shutter CB042A (J040 RearPNL <-> Int-housing lock under KBD J417) 1600mm | 1   | 2   |
| 763   | TX CABLE ASSY  | 2305111-3   | QCON <-> TRAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1   | 2   |
| 764-1 | PC CABLE2 ASSY | 2383140     | for OC 238xxxx (Ver3)<br>CB012 (J10 MDCON <-> Int-housing lock in BECOMP J006) 480mm<br>CB012 (J10 MDCON <-> PC2IO D-Sub J2) 620mm<br>CB014 (J11 MDCON <-> BECOMP Audio mini Jack1 ) 270mm<br>CB016 (Ethernet BECOMP <-> REAN J10) 480mm<br>USB CB018 (USB#2 BECOMP <-> REAN USB Hub) 700mm<br>SCSI CB035 (J1 PC2IO <-> REAN J9) 340mm<br>Modem CB040(J14 REAN <-> Modem Line) 320mm<br>CB044 (J12 MDCON <-> REST J10) 270mm w/ Ferrite Core<br>CB047A (J8 MDCON <-> Int-housing lock J042) 1100mm/100mm                                                                | 1   | 2   |

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name      | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Qty | FRU |
|-------|----------------|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 764-2 | PC CABLE2 ASSY | 2358656     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>CB012 (J10 MDCON <-> Int-housing lock in BECOMP J006) 575mm<br>CB012 (J10 MDCON <-> PC2IO D-Sub J2) 600mm<br>CB014 (J11 MDCON <-> BECOMP Audio mini Jack1 ) 540mm<br>CB015 (RS232 BECOMP <-> Modem RS232 ) 1000mm<br>CB016 (Ethernet BECOMP <-> REAN J10) 400mm<br>USB CB018 (USB#2 BECOMP <-> REAN USB Hub) 1000mm<br>DVI-D CB019A (VGA BECOMP <-> DGVIC J3) 450mm<br>UPS CB020 (RS232 BECOMP <-> UPS RS232) 500mm<br>SCSI CB035 (J1 PC2IO <-> REAN J9) 520mm<br>Modem CB040(J14 REAN <-> Modem Line) 950mm<br>CB044 (J12 MDCON <-> REST J10) 270mm<br>CB047A (J8 MDCON <-> Int-housing lock J042) 1100mm/100mm | 1   | 2   |
| 764-3 | PC CABLE ASSY  | 2298147     | for OC 22xxxxx/230xxxx (Ver1)<br>CB012 (J10 MDCON <-> Int-housing lock in BECOMP J006) 575mm<br>CB012 (J10 MDCON <-> PC2IO D-Sub J2) 710mm<br>CB014 (J11 MDCON <-> BECOMP Audio mini Jack1 ) 640mm<br>CB015 (RS232 BECOMP <-> Modem RS232 ) 1000mm<br>CB016 (Ethernet BECOMP <-> REAN J10) 340mm<br>USB CB018 (USB#2 BECOMP <-> REAN USB Hub) 820mm<br>DVI-D CB019A (VGA BECOMP <-> DGVIC J3) 410mm<br>UPS CB020 (RS232 BECOMP <-> UPS RS232) 500mm<br>SCSI CB035 (J1 PC2IO <-> REAN J9) 570mm<br>Modem CB040(J14 REAN <-> Modem Line) 890mm<br>CB044 (J12 MDCON <-> REST J10) 270mm<br>CB047A (J8 MDCON <-> Int-housing lock J042) 1100mm/100mm       | 1   | 2   |

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name        | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Qty | FRU |
|-------|------------------|-------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 765-1 | POWER CABLE ASSY | 2383142     | for OC 238xxxx (Ver3)<br>CB201 (P2 HV <-> Mother P15, P16, P17) 850mm/<br>690mm/630mm<br>CB202 (P1 HV <-> MDCON J18) w/Ferrite Core<br>480mm<br>CB205-1 (+6V/0V LV <-> Mother P3, P4 ) w/Ferrite<br>Core 850mm/850mm<br>CB205-2 (+6V/0V LV <-> Mother P5, P6 ) w/Ferrite<br>Core 810mm/810mm<br>CB206 (-6V/0V LV <-> Mother P7 ) 700mm<br>CB207 (+5V/0V LV <-> Mother P8 ) 700mm<br>CB208-1A (+3.3V/0V LV <-> Mother P10 ) 680mm<br>CB208-2A (+3.3V/0V LV <-> Mother P11 ) 680mm<br>CB209 (+12V/0V LV <-> Mother P13 ) 700mm<br>CB210 (-12V/0V LV <-> Mother P12 ) 700mm<br>CB230-1 (Int-housing lock in KBD <-> Mother P1, P2<br>) 520mm/540mm<br>CB231 (Cooling FAN <-> Mother P14 ) 800mm | 1   | 2   |
| 765-2 | POWER CABLE ASSY | 2359541     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>CB201 (P2 HV <-> Mother P15, P16, P17) 950mm/<br>790mm/720mm<br>CB202 (P1 HV <-> MDCON J18) 750mm<br>CB205-1 (+6V/0V LV <-> Mother P3, P4 ) 810mm/<br>810mm<br>CB205-2 (+6V/0V LV <-> Mother P5, P6 ) 810mm/<br>810mm<br>CB206 (-6V/0V LV <-> Mother P7 ) 700mm<br>CB207 (+5V/0V LV <-> Mother P8 ) 700mm<br>CB208-1A (+3.3V/0V LV <-> Mother P10 ) 680mm<br>CB208-2A (+3.3V/0V LV <-> Mother P11 ) 680mm<br>CB209 (+12V/0V LV <-> Mother P13 ) 700mm<br>CB210 (-12V/0V LV <-> Mother P12 ) 700mm<br>CB230-1 (KBD1 Int-housing lock in KBD <-> Mother<br>P1, P2 ) 1920mm/1920mm<br>CB231 (Cooling FAN <-> Mother P14 ) 850mm                           | 1   | 2   |

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name        | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Qty | FRU |
|-------|------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 765-3 | POWER CABLE ASSY | 2298148     | for OC 22xxxxx/230xxxx (Ver1)<br>CB201 (P2 HV <-> Mother P15, P16, P17) 950mm/<br>790mm/720mm - non core<br>CB202 (P1 HV <-> MDCON J18) 750mm<br>CB205-1 (+6V/0V LV <-> Mother P3, P4 ) 810mm/<br>810mm<br>CB205-2 (+6V/0V LV <-> Mother P5, P6 ) 810mm/<br>810mm<br>CB206 (-6V/0V LV <-> Mother P7 ) 700mm<br>CB207 (+5V/0V LV <-> Mother P8 ) 700mm<br>CB208-1 (+3.3V/0V LV <-> Mother P10 ) 680mm<br>Contact<br>CB208-2 (+3.3V/0V LV <-> Mother P11 ) 680mm<br>Contact<br>CB209 (+12V/0V LV <-> Mother P13 ) 700mm<br>CB210 (-12V/0V LV <-> Mother P12 ) 700mm<br>CB230-1 (Int-housing lock in KBD <-> Mother P1, P2<br>) 1920mm/1920mm<br>CB231 (Cooling FAN <-> Mother P14 ) 850mm | 1   | 2   |
| 766-1 | BAY CABLE3       | 2361023-2   | CB302A (P401 ATX PS <-> 5 inch Bay J403/J404 )<br>800mm/220mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1   | 2   |
| 766-2 | BAY2 CABLE       | 2401408     | CB022A (P001 BECOMP <-> MOD J002) 1500mm                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1   | 2   |
| 767-1 | OP2 CABLE2 ASSY  | 2383141     | for OC 238xxxx (Ver3)<br>CB027B (CN31 OP PNL <-> Int-housing lock under<br>KBD P017 ) 1090mm<br>CB029B (CN18 LCD <-> Int-housing lock under KBD<br>D-Sub P021) 950mm<br>CB230-2 (CN21 OP PNL <-> Int-housing lock under<br>KBD Power Cable KBD1) 1000mm<br>USB CB025A (CN18 OP PNL <-> Int-housing lock in<br>KB support Assy P011)<br>CB026B (P014 Int-housing lock in KB support assy <-<br>> Int-housing lock under KB TRAY P016+P046)<br>CB308B (CN23 OP PNL <-> Int-housing lock under<br>KB TRAY P416) 690mm<br>GND CB312 (T210 OP PNL <-> Main Frame T211)<br>700mm<br>CB309B (CN22 OP PNL <-> Int-housing lock KB<br>TRAY P407B) 690mm                                          | 1   | 2   |
| 767-2 | OP2 CABLE2 ASSY  | 2359767     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>CB027B (CN31 OP PNL <-> Int-housing lock under<br>KBD P017 ) 1130mm<br>CB029B (CN18 LCD <-> Int-housing lock under KBD<br>P021) 900mm<br>CB230-2 (CN21 OP PNL <-> Int-housing lock under<br>KBD Power Cable KBD1) 1000mm<br>GND CB312 (T210 OP PNL <-> Main Frame T211)<br>700mm                                                                                                                                                                                                                                                                                                                                                                  | 1   | 2   |

Table 9-50 Options, Peripherals and Cables

| Item  | Part Name                           | Part Number | Description                                                                                                                                                                                                                                                                                                                                                                  | Qty | FRU |
|-------|-------------------------------------|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|
| 767-3 | OP CABLE2 ASSY                      | 2302191     | for OC 22xxxxx/230xxxx (Ver1)<br>USB CB025B (CN18 OP PNL <-> Int-housing lock under KBD P011) 1000mm<br>CB027B (CN31 OP PNL <-> Int-housing lock under KBD P017 ) 1000mm<br>CB029B (CN18 LCD <-> Int-housing lock under KBD P021) 900mm<br>CB230-2 (CN21 OP PNL <-> Int-housing lock under KBD Power Cable KBD1) 1000mm<br>GND CB312 (T210 OP PNL <-> Main Frame T211) 700mm | 1   | 2   |
| 768   | OP CABLE3 ASSY                      | 2304610-2   | CB026C (P016+P046 Int-housing lock under KB TRAY <-> Front PNL CN44) 130mm<br>CB026C (P016+P046 Int-housing lock under KB TRAY <-> Front PNL CN42) 130mm<br>CB031B (Int-housing lock under Monitor P030 <-> Front PNL CN41) 620mm                                                                                                                                            | 1   | 2   |
| 769   | PC2IO/IPCABLE ASSY                  | 2304611     | for OC 22xxxxx/230xxxx (Ver1)<br>CB301 (PC2IO <-> PC2IP ) 400mm                                                                                                                                                                                                                                                                                                              | 1   | 2   |
| 770   | SYS AC CABLE ASSY                   | 2304612     | CB307A (J408 Int-housing lock under KBD <-> Rear J409) 1200mm                                                                                                                                                                                                                                                                                                                | 1   | 2   |
| 771-1 | PWR AC CABLE ASSY                   | 2383138     | for OC 238xxxx (Ver3)<br>CB203 (TB3 SSR <-> HV AC in ) 1050mm<br>CB212 ( TB3 SSR <-> LV AC in) 1700mm<br>CB225 (TB2 SSR <-> ATX AC in) 970mm                                                                                                                                                                                                                                 | 1   | 2   |
| 771-2 | PWR AC CABLE ASSY                   | 2304613     | for OC 22xxxxx/230xxxx/235xxxx/238xxxx (Ver1/Ver2/Ver3)<br>CB203 (TB3 SSR <-> HV AC in ) 1050mm<br>CB212 ( TB3 SSR <-> LV AC in) 1700mm<br>CB225 (TB2 SSR <-> ATX AC in) 970mm<br>CB305 (TB3 SSR <-> Modem AC in) 1150mm                                                                                                                                                     | 1   | 2   |
| 772   | PC BOX INTERNALCABLE ASSY           | 2304797     | for OC 235xxxx/238xxxx (Ver2/Ver3)<br>CB101 (J005 BECOMP Mother P-Seq-Jumper <-> Int-housing lock in PC P006) 500mm<br>CB102 (J105/J045 BECOMP Mother (Reset/HDD) <-> Int-housing lock as PC BOX J076) 500mm                                                                                                                                                                 | 1   | 2   |
| -     | USB CABLE                           | 2358659-2   | CB025AA (USB1 BECOMP <-> OP PNL CN18 ) 2600mm                                                                                                                                                                                                                                                                                                                                | 1   | 2   |
| -     | USB DEV CABLE FOR PERIPHERAL DEVICE | 2388600-2   | DVD unit - PC Box<br>CB100 (USB4 BECOMP <-> DVD Drive 5 inch bay USB ) 1250mm                                                                                                                                                                                                                                                                                                | 1   | 2   |
| 778   | ECG INT CABLE ASSY                  | 2360884-2   | CB030A (Patient I/O <-> DGVIC J8 ) 850mm                                                                                                                                                                                                                                                                                                                                     | 1   | 2   |
| 779   | PCI CABLE                           | 2389075     | CB011 (PC2IP BECOMP <-> MDBRG)                                                                                                                                                                                                                                                                                                                                               | 1   | 2   |
| 751   | FOOT SWITCH                         | FB200952    | Foot Switch (Option)                                                                                                                                                                                                                                                                                                                                                         | 1   | 2   |
| 756   | PCG OPTION                          | 2326844     | phono microphone (Option)                                                                                                                                                                                                                                                                                                                                                    | 1   | 2   |
| 773   | USB SERIALBRIDGE CBL                | 2304621     | Ext. Peripheral <-> L7                                                                                                                                                                                                                                                                                                                                                       | 1   | 2   |
| 774   | RS232C CABLE ASSY STRAIGHT          | 2305549     | Ext. Peripheral <-> L7                                                                                                                                                                                                                                                                                                                                                       | 1   | 2   |

**Table 9-50 Options, Peripherals and Cables**

| Item                | Part Name                      | Part Number | Description                                      | Qty | FRU |
|---------------------|--------------------------------|-------------|--------------------------------------------------|-----|-----|
| <a href="#">775</a> | RS232C CABLE ASSY CROSS        | 2305550-2   | Ext. Peripheral <-> L7                           | 1   | 2   |
| <a href="#">776</a> | ECG CBL SHORT                  | 2304616     | Ext. Patient <-> L7                              | 1   | 2   |
| <a href="#">777</a> | ECG CBL LONG                   | 2304615     | Ext. Patient <-> L7                              | 1   | 2   |
| -                   | US CABLE FOR PERIPHERAL DEVICE | 2324360     | Ext. Peripheral <-> L7                           | 1   | 2   |
| -                   | Keyboard Knob Repair kit       | 2363861     |                                                  | 1   | 2   |
| -                   | Strap with Buckle              | 5115855     |                                                  | 1   | 2   |
| -                   | Foot for peripheral            | 2318441     |                                                  | 1   | 2   |
| -                   | MON-CABLE-ASSY                 | 2304171     |                                                  | 1   | 2   |
| -                   | Loopback Connector             | 2116343     | Loopback Connector for Diagnostics (46-330081P3) | 1   | 2   |

## 9-10-12 Probes

### 9-10-12-1 Probes for Country other than JAPAN

**Table 9-51 Probes for Country other than JAPAN**

| Item | Part Name           | Part Number | Description                         | Qty | FRU |
|------|---------------------|-------------|-------------------------------------|-----|-----|
| 801  | 3C PROBE (EXP)      | 2286354     |                                     |     | 1   |
| 802  | 3.5C PROBE (EXP)    | 2050357     |                                     |     | 1   |
| 803  | 5C PROBE (EXP)      | 2294516     |                                     |     | 1   |
| 804  | M7CMIH PROBE (EXP)  | 2294514     |                                     |     | 1   |
| 805  | E8C PROBE (EXP)     | 2294641     |                                     |     | 1   |
| 806  | 7L PROBE (EXP)      | 2294521     |                                     |     | 1   |
| 807  | 10L PROBE (EXP)     | 2294523     |                                     |     | 1   |
| 808  | M12LMIH PROBE (EXP) | 2294511     |                                     |     | 1   |
| 809  | 3S PROBE (EXP)      | 2323337     |                                     |     | 1   |
| 810  | 10S PROBE (EXP)     | 2298589     |                                     |     | 1   |
| 811  | I12L PROBE (EXP)    | 2264883     |                                     |     | 1   |
| 812  | P2D PROBE (EXP)     | TE100024    | PPA adapter is separately required. |     | 1   |
| 813  | P6D PROBE (EXP)     | TQ100002    | PPA adapter is separately required. |     | 1   |
| 814  | 8C PROBE (EXP)      | 2348094     |                                     |     | 1   |
| 815  | 3.5CS PROBE (EXP)   | 2051858     |                                     |     | 1   |
| 816  | 6T TEE PROBE (EXP)  | KN100092    |                                     |     | 1   |
| 817  | M3S PROBE (EXP)     | 2378099     |                                     |     | 1   |
| 818  | PPA ADAPTER         | 2331934-2   |                                     |     | 1   |



9-10-12-2 Probes for Japan

Table 9-52 Probes for Japan

| Item | Part Name           | Part Number | Description | Qty | FRU |
|------|---------------------|-------------|-------------|-----|-----|
| 851  | 3C PROBE (JPN)      | 2286353     |             |     | 1   |
| 852  | 3.5C PROBE (JPN)    | 2348877     |             |     | 1   |
| 853  | 5C PROBE (JPN)      | 2294515     |             |     | 1   |
| 854  | M7CMIH PROBE (JPN)  | 2294513     |             |     | 1   |
| 855  | E8C PROBE (JPN)     | 2294640     |             |     | 1   |
| 856  | 7L PROBE (JPN)      | 2294520     |             |     | 1   |
| 857  | 10L PROBE (JPN)     | 2294522     |             |     | 1   |
| 858  | M12LMIH PROBE (JPN) | 2294510     |             |     | 1   |
| 859  | 3S PROBE (JPN)      | 2348878     |             |     | 1   |
| 860  | 10S PROBE (JPN)     | 2309478     |             |     | 1   |
| 861  | I12L PROBE (JPN)    | 2270556     |             |     | 1   |
| 862  | 8C PROBE            | 2348093     |             |     | 1   |
| 863  | 3.5CS PROBE         | 2380854     |             |     | 1   |
| 864  | 6T TEE PROBE        | 5131947     |             |     | 1   |
| 865  | M3S PROBE           | 2293726     |             |     | 1   |
| 866  | PPA ADAPTER         | 2331934-2   |             |     | 1   |

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# Chapter 10

## Periodic Maintenance

### Section 10-1 Overview

#### 10-1-1 Purpose of Chapter 10

This chapter describes Periodic Maintenance (PM) on the scanner and its peripherals. These PM procedures are intended to maintain the quality of the ultrasound systems performance. Read this chapter completely and familiarize yourself with the procedures before starting a PM.

### CONTENTS IN CHAPTER 10

Table 10-1 Contents in Chapter 10

| Section | Description                                              | Page Number           |
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| 10-1    | <a href="#">Overview</a>                                 | <a href="#">10-1</a>  |
| 10-2    | <a href="#">Why do Periodic Maintenance</a>              | <a href="#">10-2</a>  |
| 10-3    | <a href="#">Periodic Maintenance Schedule</a>            | <a href="#">10-2</a>  |
| 10-4    | <a href="#">Tools Required</a>                           | <a href="#">10-4</a>  |
| 10-5    | <a href="#">System Periodic Maintenance</a>              | <a href="#">10-7</a>  |
| 10-6    | <a href="#">Using a Phantom</a>                          | <a href="#">10-11</a> |
| 10-7    | <a href="#">Electrical Safety Tests</a>                  | <a href="#">10-12</a> |
| 10-1    | <a href="#">When There's Too Much Leakage Current...</a> | <a href="#">10-31</a> |
|         | PM Inspection Certificate                                | 10-29                 |



**CAUTION** Practice good ESD prevention. Wear an anti-static strap when handling electronic parts and even when disconnecting/connecting cables.



**DANGER** THERE ARE SEVERAL PLACES ON THE BACKPLANE, THE AC DISTRIBUTION, AND DC DISTRIBUTION THAT ARE DANGEROUS. BE SURE TO DISCONNECT THE SYSTEM POWER PLUG AND OPEN THE MAIN CIRCUIT BREAKER BEFORE YOU REMOVE ANY PARTS. BE CAUTIOUS WHENEVER POWER IS STILL ON AND COVERS ARE REMOVED.



**CAUTION** Do not pull out or insert circuit boards while power is ON.



**CAUTION** Do not operate this unit unless all board covers and frame panels are securely in place. System performance and cooling require this.



**CAUTION**

## Section 10-2

### Why do Periodic Maintenance

#### 10-2-1 Keeping Records

It is good business practice that ultrasound facilities maintain records of periodic and corrective maintenance. The Ultrasound Periodic Maintenance Inspection Certificate provides the customer with documentation that the ultrasound scanner is maintained on a periodic basis.

A copy of the Ultrasound Periodic Maintenance Inspection Certificate should be kept in the same room or near the scanner.

#### 10-2-2 Quality Assurance

In order to gain accreditation from organizations such as the American College of Radiology (USA), it is the customer's responsibility to have a quality assurance program in place for each scanner. The program must be directed by a medical physicist, the supervising radiologist/physician or appropriate designee.

Routine quality control testing must occur regularly. The same tests are performed during each period so that changes can be monitored over time and effective corrective action can be taken.

Testing results, corrective action and the effects of corrective action must be documented and maintained on the site.

Your GE service representative can help you with establishing, performing and maintaining records for a quality assurance program.

## Section 10-3

### Periodic Maintenance Schedule

#### 10-3-1 How often should PMs be performed?

The Periodic Maintenance Schedule specifies how often your LOGIQ™ 7 should be serviced and what items need attention. It is important you have your LOGIQ™ 7 serviced as scheduled in order to retain its high level of safety, dependability and performance.

Your GE Service Representative knows your LOGIQ™ 7 best and can provide competent, efficient service. Please contact us for further information and to schedule GE Medical Systems Ultrasound to perform this service for you.

The services and intervals shown in the maintenance schedule assumes that you use your LOGIQ™ 7 for an average patient load (10-12 per day) and not used as a primary "mobile unit".

### 10-3-1 How often should PMs be performed? (cont'd)

**Table 10-2 Periodic Maintenance Schedule**

| Service at Indicated Time                        | Daily | Weekly | Monthly | Per Facilities QA Program | Notes                                                                          |
|--------------------------------------------------|-------|--------|---------|---------------------------|--------------------------------------------------------------------------------|
| Clean Probes                                     | •*    |        |         |                           | * or before each use                                                           |
| Clean Probe Holders                              | •     |        |         |                           |                                                                                |
| Clean Air Filter                                 |       | •      |         |                           | more frequently depending on your environment                                  |
| Inspect AC Mains Cable                           |       |        | •       |                           | Mobile Unit Check Weekly                                                       |
| Inspect Cables and Connectors                    |       |        | •       |                           |                                                                                |
| Clean Console                                    |       |        | •       |                           |                                                                                |
| Clean Monitor and Touch Panel                    |       |        | •       |                           |                                                                                |
| Inspect Wheels, Casters, brakes and Swivel Locks |       |        | •       |                           | Mobile Unit Check Daily                                                        |
| Check Control Panel Movement                     |       |        | •       |                           | Mobile Unit Check Daily                                                        |
| Console Leakage Current Checks                   |       |        |         | •                         | also after corrective maintenance or as required by your facilities QA program |
| Peripheral Leakage Current Checks                |       |        |         | •                         | also after corrective maintenance or as required by your facilities QA program |
| Surface Probe Leakage Current Checks             |       |        |         | •                         | also after corrective maintenance or as required by your facilities QA program |
| Endocavity Probe Leakage Current Checks          |       |        |         |                           | also after corrective maintenance or as required by your facilities QA program |
| Transesophageal Probe Leakage Current Checks     |       |        |         |                           | also after corrective maintenance or as required by your facilities QA program |
| Surgical Probe Leakage Current Checks            |       |        |         |                           | also after corrective maintenance or as required by your facilities QA program |
| Measurement Accuracy Checks                      |       |        |         | •                         | also after corrective maintenance or as required by your facilities QA program |
| Probe/Phantom Checks                             |       |        |         | •                         | also after corrective maintenance or as required by your facilities QA program |

## Section 10-4 Tools Required

### 10-4-1 Standard GE Tool Kit

The following is a description of the “Standard” GE tool kit in the USA. Not all tools are required for PMs.

**Table 10-3 Overview of GE-1 Tool Kit Contents**

| Tool ID | Description                         | Tool ID    | Description                        |
|---------|-------------------------------------|------------|------------------------------------|
| 9-45358 | Pliers Retaining Ring               | 9-XL9971MM | Xcelite-hex Blade 1.27mm           |
| 9-4078  | Scribe                              | 9-XL9972MM | Xcelite-hex Blade 1.5mm            |
| 9-44572 | Wrench Open End 3/8 - 7/16          | 9-XL9973MM | Xcelite-hex Blade 2 mm             |
| 9-44579 | Wrench Open End 1/2 - 9/16          | 9-XL9974MM | Xcelite-hex Blade 2.5mm            |
| 9-44579 | Wrench Open End 1/2 - 9/16          | 9-XL9975MM | Xcelite-hex Blade 3mm              |
| 9-45385 | Pliers, Arc Joint 7 inch            | 9-XL9976MM | Xcelite-hex Blade 4mm              |
| 9-45378 | Pliers, Slip Joint                  | 9-XL9977MM | Xcelite-hex Blade 5mm              |
| 9-4518  | Pliers, Long Nose, Miniature        | 9-XL991CM  | Handle                             |
| 9-4518  | Pliers, Long Nose, Miniature        | C2356E     | Screw starter - Kedman Quick Wedge |
| 9-44776 | Ignition Wrench Set, 10 pc.         | BLBO       | Box - 18 Compartment               |
| 9-44601 | Wrench, Adj., 4 inch                | DWL4283T   | Box - 5 Compartment                |
| 9-4151  | Screwdriver, Blade, Stubby          | 9-41322    | Pickup Tool, Claw type             |
| 9-41421 | Screwdriver, Blade, Pocket clip     | 9-6757     | 6 pc Needle File Set               |
| 9-41594 | Screwdriver, Blade 1/8 in. x 4 in.  | 9-9487     | Utility Knife                      |
| 9-41581 | Screwdriver, Blade 3/16 in. x 4 in. | 9-45341    | Pliers Vice Grip 10 inch           |
| 9-39451 | 20' Steel Tape, locking Spring load | 9-3001     | Xacto Pen Knife                    |
| 9-GH807 | Ratchet, Offset, Slotted            | 9-HT62002  | Solder Aid, Fork and Hook          |
| 68-412  | Ratchet, Offset, Phillips           | 9-4099     | Mirror, Round, Telescoping         |
| 9-GH130 | Tapered Reamer                      | 9-GH3001   | Steel Rule Decimal 6 inch          |
| 9-41584 | Screwdriver, slotted 1/4 in.X 6 in. | 9-GH300ME  | Steel Rule Metric 6 inch           |
| 9-4118  | Screwdriver, Phillips #2, Stubby    | 9-XL9920   | Xcelite-hex Blade.050 inch         |
| 9-41293 | Screwdriver, Phillips #0            | 9-XL9921   | Xcelite-hex Blade 1/16 inch        |
| 9-41294 | Screwdriver, Phillips #1            | 9-XL9922   | Xcelite-hex Blade 5/16 inch        |
| 9-41295 | Screwdriver, Phillips #2            | 9-XL9923   | Xcelite-hex Blade 3/32 inch        |
| 9-46677 | Hex Keys, 20 pc., Metric            | 9-XL9924   | Xcelite-hex Blade 1/8 inch         |
| 9-34701 | 1/4 in. Standard.Socket set (19 pc) | 9-XL9925   | Xcelite-hex Blade 5/32 inch        |
| 9-43499 | 1/2 inch Socket 1/4 inch drive      | 9-XL9926   | Xcelite-hex Blade 3/16 inch        |
| 9-4355  | Flex Spinner                        | 9-XL99764  | Xcelite-hex Blade 7/64             |
| 9-43523 | Breaker                             | 9-XL99964  | Xcelite-hex Blade 9/64             |
| 9-43531 | 6 inch Ext.                         | 9-XLM60    | Mini-screwdriver kit               |

**Table 10-3 Overview of GE-1 Tool Kit Contents (Continued)**

| Tool ID   | Description                         | Tool ID    | Description                         |
|-----------|-------------------------------------|------------|-------------------------------------|
| 9-65283   | Case 8.5 in. x 4.5 in. x 2 in. Deep | 9-45072    | Pliers 6 inch Diagonal              |
| 9-46696   | Hex Keys                            | 9-XL100X   | Wire Stripper/Cutter 5 inch - 100X  |
| 9-39829   | Torpedo Level, Magnetic             | 9-XL87CG   | Pliers - very fine needle nose-87CG |
| 9-38461   | Hammer, Ball Peen, 4 oz             | 9-WEWDT-07 | Weller-Soldering-Replacement Tip(1) |
| 9-4280    | Universal Joint 1/4 inch            | 9-WS175-E  | Wiss - Surgical Scissors            |
| 9-WEW60P3 | Weller - Soldering Iron, 3 wire     | KH174      | Hemostat 5 inch Straight            |
| 9-WECT5B6 | Weller - Soldering Iron Tip         | KH175      | Hemostat 5 inch curved              |
| 9-WEWDP12 | Weller - Desoldering Pump           | 9-Z9480121 | Alignment tool (red)                |
| 93383     | Flashlight Mini-Mag Lite (AAA Bat.) |            |                                     |
| 9-GH408   | Tweezers                            |            |                                     |
| 21576     | Brush - Bristle                     |            |                                     |
| 9-4516    | Pliers 4 1/4 inch Diagonal          |            |                                     |

**Table 10-4 Overview of GE-2 Tool Kit Contents**

| GE-2 Sears Kit (#99034) |                                  |         |                                               |
|-------------------------|----------------------------------|---------|-----------------------------------------------|
| Tool ID                 | Description                      | Tool ID | Description                                   |
| 9-45381                 | Pliers, Arc Joint 9 1/2 inch     | 9-44067 | Socket 1 1/16 in. for 1/2 in. drive           |
| 9-45092                 | Pliers, Linesman 8 1/2 inch      | 9-42679 | Socket 10MM Hex for 1/2 in. drive (2273333)   |
| 9-42882                 | Punch, Pin 3/32 inch             | 9-44262 | Extension 10 inch for 1/2 in. drive (2273405) |
| 9-42884                 | Punch, Pin 5/32 inch             | 9-4258  | 3/8 inch to 1/2 inch Adapter                  |
| 9-42886                 | Punch, Pin 1/4 inch              | 9-34374 | 3/8 inch Metric Socket Set - 12 PT            |
| 9-42973                 | Cold Chisel 1/2 inch             | 9-44311 | 16mm Socket 12 pt.                            |
| 9-GH77                  | Center Punch Automatic           | 9-33485 | Metal Socket Tray                             |
| 9-GH890                 | File Handle, Adj.                | 9-33484 | Metal Socket Tray                             |
| 9-31276                 | File, Round, Bastard 8 inch      | 9-33484 | Metal Socket Tray                             |
| 9-31277                 | File, Half Round, Bastard 8 inch | 9-52068 | Tap and Drill Set                             |
| 9-31263                 | File, Flat Mill 8 inch           | 9-52722 | #6 Tap                                        |
| 21045C                  | Close Quarter Saw                | 9-52723 | #8 Tap                                        |
| 9-44604                 | Wrench, Adj 10 inch              |         | High Speed Drill Set                          |
| 9-41587                 | Screwdriver 5/16 inch x 8 inch   |         | #36 Drill                                     |
| 9-41586                 | Screwdriver, Stubby 5/16 inch    |         | #29 Drill                                     |
| 9-GH19512               | Countersink 1/2 inch             | 9-44046 | 3/8 inch Socket Set                           |
| 9-44741                 | 12 PC Combination Wrench Set     |         |                                               |

## 10-4-2 Special Tools, Supplies and Equipment

### 10-4-2-1 Specific Requirements for Periodic Maintenance

See Chapter 7

**Table 10-5 Overview of Requirements for Periodic Maintenance**

| Tool                               | Part Number                                                                       | Comments                                                                                                                                                                                          |
|------------------------------------|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital Volt Meter (DVM)           |                                                                                   |                                                                                                                                                                                                   |
| Electric Safety Analyzer DALE 600  | 46-285652G1                                                                       | For 120V Unit                                                                                                                                                                                     |
| Electric Safety Analyzer DALE 600E | 46-328406G2                                                                       | For 220V Units                                                                                                                                                                                    |
| Leakage Current Ultrasound Kit     | 2113015                                                                           | For 120V and 220V Units                                                                                                                                                                           |
| Anti Static Kit                    | 46-194427P231<br>46-194427P279<br>46-194427P369<br>46-194427P373<br>46-194427P370 | Kit includes anti-static mat, wrist strap and cables for 200 to 240 V system<br>3M #2204 Large adjustable wrist strap<br>3M #2214 Small adjustable wrist strap<br>3M #3051 conductive ground cord |
| Anti Static Vacuum Cleaner         | 46-194427P278<br>46-194427P279                                                    | 120V<br>230V                                                                                                                                                                                      |
| Air Filter                         |                                                                                   | air intake                                                                                                                                                                                        |
| Safety Analyzer                    | 46-285652G1                                                                       | DALE 600 KIT (or equivalent) for electrical tests                                                                                                                                                 |
| SVHS VCR Cassette                  | E7010GG<br>E7010GF                                                                | 60 minute<br>120 minute                                                                                                                                                                           |
| SVHS VCR Head Cleaner              |                                                                                   | See VCR user manual for requirements                                                                                                                                                              |
| 3.5" MOD MEDIA                     | E8381AA<br>E8381AB                                                                | blank 128 M disk (for 230MB MO drive)<br>blank 230 M disk (for 230MB MO drive)<br>blank 640 M disk (for 1.3GB MO drive)<br>blank 1.3 GB disk (for 1.3GB MO drive)                                 |
| 3.5" MOD Media Cleaner             | 2117811                                                                           | cleans the diskettes                                                                                                                                                                              |
| 3.5" MOD Head Cleaner Kit          | 2148392                                                                           | cleans the drive heads                                                                                                                                                                            |
| QIQ Phantom                        | E8370RB                                                                           | RMI Grayscale Target Model 403GS                                                                                                                                                                  |
| CD-R Media cleaner                 |                                                                                   | cleans the diskettes                                                                                                                                                                              |
| B/W Printer Cleaning Sheet         |                                                                                   | See printer user manual for requirements                                                                                                                                                          |
| Color Printer Cleaning Sheet       |                                                                                   | See printer user manual for requirements                                                                                                                                                          |
| Disposable Gloves                  |                                                                                   |                                                                                                                                                                                                   |



## Section 10-5 System Periodic Maintenance

### 10-5-1 Preliminary Checks

The preliminary checks take about 15 minutes to perform. Refer to the system user documentation whenever necessary.

**Table 10-6 System Preliminary Checks**

| Step | Item         | Description                                                                                                                                                              |
|------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Ask & Listen | Ask the customer if they have any problems or questions about the equipment.                                                                                             |
| 2    | Paperwork    | Fill in the top of the Periodic Maintenance (PM) Inspection Certificate. Note all probes and system options.                                                             |
| 3    | Power up     | Turn the system power on and verify that all fans and peripherals turn on. Watch the displays during power up to verify that no warning or error messages are displayed. |
| 4    | Probes       | Verify that the system properly recognizes all probes.                                                                                                                   |
| 5    | Displays     | Verify proper display on the monitor and touch panel.                                                                                                                    |
| 6    | Presets      | Backup all customer presets on an CD-R.                                                                                                                                  |

## 10-5-2 Functional Checks (See Also Chapter 4)

The functional checks take about 60 minutes to perform. Refer to the system user documentation whenever necessary.

### 10-5-2-1 System Checks

**Table 10-7 System Functional Checks**

| ÷ | Step                         | Description                                                                                                                                                                                   |
|---|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|   | B-Mode                       | Verify basic B-Mode (2D) operation. Check the basic system controls that affect this mode of operation.                                                                                       |
|   | CF-Mode                      | Verify basic CF-Mode (Color Flow Mode) operation. Check the basic system controls that affect this mode of operation.                                                                         |
|   | Doppler Modes                | Verify basic Doppler operation (PW and CW if available). Check the basic system controls that affect this mode of operation.                                                                  |
|   | M-Mode                       | Verify basic M-Mode operation. Check the basic system controls that affect this mode of operation.                                                                                            |
|   | *Applicable Software Options | Verify the basic operation of all optional modes such as Multi-Image, 3D, Contrast, Harmonics, Cine, Stress Echo,... etc. Check the basic system controls that affect each options operation. |
|   | Probe Elements               | Perform an Element Test on each probe to verify that all probe elements (and system channels) are functional.                                                                                 |
|   | System Diagnostic            | Perform the Automatic Tests to verify that all boards function according to specifications.                                                                                                   |
|   | Control Panel Test           | Perform the Control Panel Test Procedure to verify that all keyboard controls are OK. This is performed by the internal PC (backend processor) which does a normal keyboard run through.      |
|   | Monitor                      | Verify basic Monitor display functions. Refer to Chapter 3 of the User Manual.                                                                                                                |
|   | Touch Panel                  | Verify basic Touch Panel display functions. Refer to Chapter 3 of the User Manual.                                                                                                            |
|   | Measurements                 | Scan a gray scale phantom and use the measurement controls to verify distance and area calculation accuracy. Refer to the User Manual, Chapter 18, for measurement accuracy specifications.   |

**NOTE:** \* Some software may be considered standard depending upon system model configuration.

### 10-5-2-2 Peripheral/Option Checks

If any peripherals or options are not part of the system configuration, the check can be omitted. Refer to the User Manual for a list of approved peripherals/options.

**Table 10-8 GE Approved Peripheral/Hardware Option Functional Checks**

| Step | Item          | Description                                                                                                            |
|------|---------------|------------------------------------------------------------------------------------------------------------------------|
| 1    | VCR           | Verify record/playback capabilities of the VCR. Clean heads and covers if necessary.                                   |
| 2    | B/W Printer   | Verify hardcopy output of the B/W video page printer. Clean heads and covers if necessary.                             |
| 3    | Color Printer | Verify hardcopy output of the Color video page printer. Clean heads and covers if necessary.                           |
| 4    | DICOM         | Verify that DICOM is functioning properly. Send an image to a DICOM device.                                            |
| 5    | InSite/iLinq  | Verify that InSite is functioning properly. Ensure two-way remote communications. (Warranty & Contract Customers only) |
| 6    | Camera        | Verify hardcopy output of the film camera. Clean as necessary.                                                         |
| 7    | Footswitch    | Verify that the footswitch is functioning as programed. Clean as necessary.                                            |
| 8    | ECG           | Verify basic operation with customer                                                                                   |
| 9    | 3D Probe      |                                                                                                                        |

### 10-5-3 Input Power

#### 10-5-3-1 Mains Cable Inspection

**Table 10-9 Mains Cable Inspection**

| Step | Item        | Description                                                                                                                           |
|------|-------------|---------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Unplug Cord | Disconnect the mains cable from the wall and system.                                                                                  |
| 2    | Inspect     | Inspect it and its connectors for damage of any kinds.                                                                                |
| 3    | Verify      | Verify that the LINE, NEUTRAL and GROUND wires are properly attached to the terminals, and that no strands may cause a short circuit. |
| 4    | Verify      | Inlet connector retainer is functional.                                                                                               |

### 10-5-4 Cleaning

#### 10-5-4-1 General Cleaning

**Table 10-10 General Cleaning**

| Step | Item                    | Description                                                                                                                                                                         |
|------|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Console                 | Use a fluid detergent in warm water on a soft, damp cloth to carefully wipe the entire system. Be careful not to get the cloth too wet so that moisture does not enter the console. |
| 2    | Probe Holder            | Clean probe holders. (they may need to be soaked to remove excess gel).                                                                                                             |
| 3    | Monitor and Touch Panel |                                                                                                                                                                                     |

## 10-5-4-2 Air Filter Cleaning

**Table 10-11 Air Filter Cleaning - frequency varies with your environment**

| Step | Item                | Description                                                                                                                                                                                 |
|------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Remove Filter Cover | Refer to Chapter 8 for air filter location and removal instructions                                                                                                                         |
| 2    | Clean Filter        | The filters can be cleaned in sprinkling water, or they can be dusted with a vacuum cleaner. If the filter is metal wash and/or vacuum. If the filter is fiber or plastic vacuum or replace |
| 3    | Install Filter      | Install the clean filter.                                                                                                                                                                   |

**NOTE:** For your convenience or if the air filter is too dirty, replacement filters are available. Refer to Chapter 9 for the air filter replacement part number.

## 10-5-5 Physical Inspection

**Table 10-12 Physical Checks**

| Step | Item                   | Description                                                                                                                                                                                       |
|------|------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Labeling               | Verify that all system labeling is present and in readable condition. .                                                                                                                           |
| 2    | Scratches & Dents      | Inspect the console for dents, scratches or cracks.                                                                                                                                               |
| 3    | Control Panel          | Inspect keyboard and control panel. Note any damaged or missing items.                                                                                                                            |
| 4    | Control Panel Movement | Verify ease of control panel (Operator I/O Panel) movement in all acceptable directions. Ensure that it latches in position as required.                                                          |
| 5    | Wheels & Brakes        | Check all wheels and casters for wear and verify operation of foot brake, to stop the unit from moving, and release mechanism. Check all wheel locks and wheel swivel locks for proper operation. |
| 6    | Cables & Connectors    | Check all internal cable harnesses and connectors for wear and secure connector seating. Pay special attention to footswitch assembly and probe strain or bend reliefs.                           |
| 7    | Shielding & Covers     | Check to ensure that all EMI shielding, internal covers, air flow panels and screws are in place. Missing covers and hardware could cause EMI/RFI problems while scanning.                        |
| 8    | External I/O           | Check all connectors for damage and verify that the labeling is good.                                                                                                                             |
| 9    | Op Panel Lights        | Check for proper operation of all operator panel and TCG lights.                                                                                                                                  |
| 10   | Monitor Light          | Check for proper operation of any monitor lights and/or                                                                                                                                           |
| 11   | External Microphone    | Check for proper operation of any external microphones by recording an audio test.                                                                                                                |

## 10-5-6 **Optional Diagnostic Checks**

To complete the PM checks, access the diagnostic software as described in Chapters 5 or 7. View the error logs and run desired diagnostics.

### 10-5-6-1 **View the Logs**

- 1.) Review the system error log for any problems.
- 2.) Check the temperature log to see if there are any trends that could cause problems in the future.

## 10-5-7 **Probe Maintenance**

### 10-5-7-1 **Probe Related Checks**

**Table 10-13 Probe Related Checks**

| Step | Item         | Description                                                                                                                                                   |
|------|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1    | Probe Holder | Clean probe holders. (they may need to be soaked to remove excess gel).                                                                                       |
| 2    | Probes       | Thoroughly check the system probe connectors and remove dust from inside the connector sockets if necessary. Visually check for bent, damaged or missing pins |

### 10-5-7-2 **Basic Probe Care**

The system user manuals and various probe handling cards provide a complete description of probe care, maintenance, cleaning and disinfection. Ensure that you are completely familiar with the proper care of GE probes.

Ultrasound probes can be easily damaged by improper handling. See the User Manual and probe care cards for more details. Failure to follow these precautions can result in serious injury and equipment damage. Failure to properly handle or maintain a probe may also void its warranty.

Any evidence of wear indicates the probe cannot be used.

Do a visual check of the probe pins and system sockets before plugging in a probe.

TEE and Interoperative probes often have special considerations and individual probe user manuals. For TEE and Interoperative probes also refer to their separate user manuals.

### 10-5-7-3 **Basic Probe Cleaning**

Refer to the User's Manual for details on probe cleaning.

**NOTE:** *To help protect yourself from blood borne diseases, wear approved disposable gloves. These are made of nitrile derived from vegetable starch to prevent allergic latex reactions.*

**NOTE:** *Failure to follow the prescribed cleaning or disinfection procedures will void the probe's warranty. DO NOT soak or wipe the lens with any product not listed in the User Manual. Doing so could result in irreparable damage to the probe. Follow care instructions that came with the probe.*

**NOTE:** *Disinfect a defective probe before you return it. Be sure to tag the probe as being disinfected.*

## Section 10-6 Using a Phantom

See the Basic User Manual "Customer Maintenance" for information on using a phantom and quality assurance tests.

## Section 10-7 Electrical Safety Tests

### 10-7-1 Safety Test Overview

The electrical safety tests in this section are based on and conform to NFPA 99 (For USA) and IEC 60601-1 Medical Equipment Safety Standards. They are intended for the electrical safety evaluation of cord-connected, electrically operated, patient care equipment. If additional information is needed, refer to the NFPA 99 (For USA) and IEC 60601-1 documents.



**WARNING** ***THE USER MUST ENSURE THAT THE SAFETY INSPECTIONS ARE PERFORMED AT LEAST EVERY 12 MONTHS ACCORDING TO THE REQUIREMENTS OF THE PATIENT SAFETY STANDARD IEC-EN 60601-1. ONLY TRAINED PERSONS ARE ALLOWED TO PERFORM THE SAFETY INSPECTIONS MENTIONED ABOVE.***



**CAUTION** To avoid electrical shock, the unit under test must not be connected to other electrical equipment. Remove all interconnecting cables and wires. The unit under test must not be contacted by users or patients while performing these tests.



**CAUTION** Possible risk of infection. Do not handle soiled or contaminated probes and other components that have been in patient contact. Follow appropriate cleaning and disinfecting procedures before handling the equipment.

Test the system, peripherals and probes for leakage current. Excessive leakage current can cause injury or death in sensitive patients. High leakage current can also indicate degradation of insulation and a potential for electrical failure. Do not use probes or equipment having excessive leakage current.

To minimize the risk that a probe may shock someone the customer should:

- Not use a probe that is cracked or damaged in any way
- Check probe leakage current:
  - \* once a year on surface probes
  - \* twice a year on endocavitary probes
  - \* whenever probe damage is suspected

## 10-7-2 GEMS Leakage Current Limits

The following limits are summarized for NFPA 99 (For USA) and IEC 60601-1 Medical Equipment Safety Standards. These limits are GEMS standards and in some cases are lower than the above standards listed.

**Table 10-14 Chassis Leakage Current Limits—Accessible Metal Surfaces**

| Country | Normal Condition | Open Ground | Reverse Polarity | Open Neutral |
|---------|------------------|-------------|------------------|--------------|
| USA     | N/A              | 0.3 mA      | 0.3 mA           | N/A          |
| Other   | 0.1 mA           | 0.5 mA      | 0.5 mA           | 0.5 mA       |

**Table 10-15 Type BF Applied Part Leakage Current Limits - Non-Conductive (Floating) Surface and Cavity Probes**

| Country | Normal Condition | Open Ground | Reverse Polarity | Open Neutral | *Mains Applied |
|---------|------------------|-------------|------------------|--------------|----------------|
| USA     | 0.05 mA          | 0.05 mA     | 0.05 mA          | 0.05 mA      | N/A            |
| Other   | 0.1 mA           | 0.5 mA      | 0.5 mA           | 0.5 mA       | 5.0 mA         |

**Table 10-16 Type CF Applied Part Leakage Current Limits - Surgical Probes and ECG Connections**

| Country | Normal Condition | Open Ground | Reverse Polarity | Open Neutral | *Mains Applied |
|---------|------------------|-------------|------------------|--------------|----------------|
| USA     | 0.01 mA          | 0.05mA      | 0.05 mA          | N/A          | 0.025 mA       |
| Other   | 0.01 mA          | 0.05 mA     | 0.05 mA          | 0.05 mA      | 0.05 mA        |

**NOTE:** *\*Mains Applied refers to the sink leakage test where mains (supply) voltage is applied to the part to determine the amount of current that will pass (or sink) to ground if a patient contacted mains voltage.*

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 600/600E built by Dale Technology Corporation or equivalent device.

10-7-3      Outlet Test - Wiring Arrangement - USA & Canada

Test all outlets in the area for proper grounding and wiring arrangement by plugging in the neon outlet tester and noting the combination of lights that are illuminated. Any problems found should be reported to the hospital immediately and the receptacle should not be used.

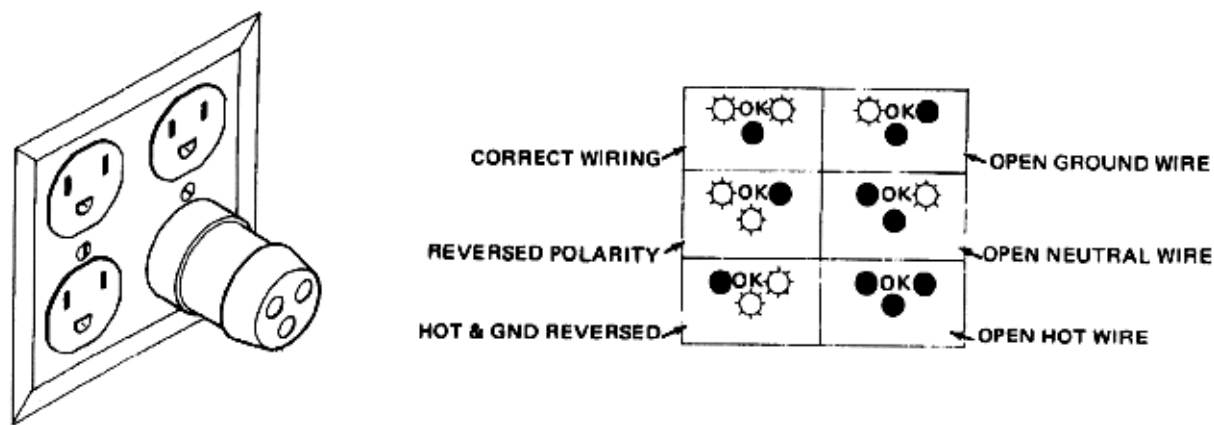


Figure 10-1 Typical Alternate Outlet Tester

The Dale 600 has self-contained lamps designed for testing the outlet wiring arrangement. Plug the Dale 600 into each outlet to be tested comparing the lamp status.

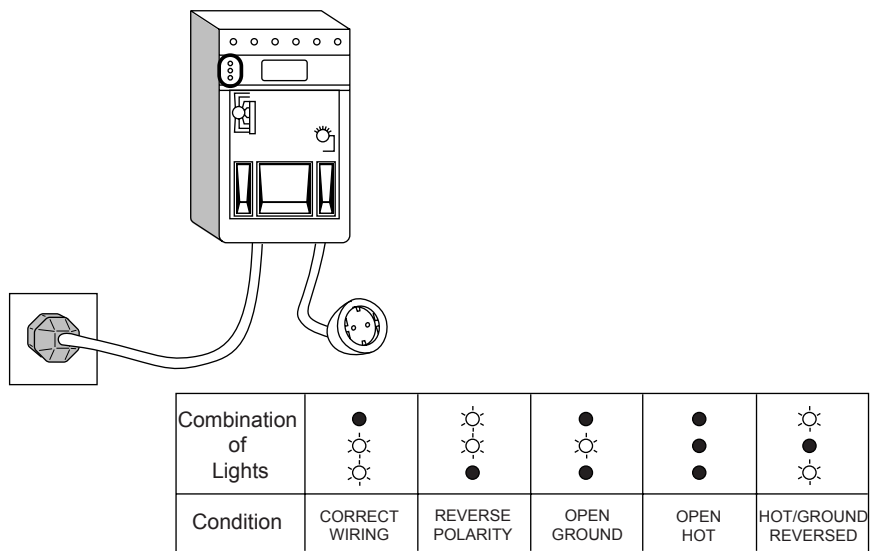


Figure 10-2 Dale 600 Outlet Test

**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.



## 10-7-4 Grounding Continuity



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

Measure the resistance from the third pin of the attachment plug to the exposed metal parts of the case. The ground wire resistance should be less than **0.2 ohms**. Reference the procedure in the IEC 601-1.1.

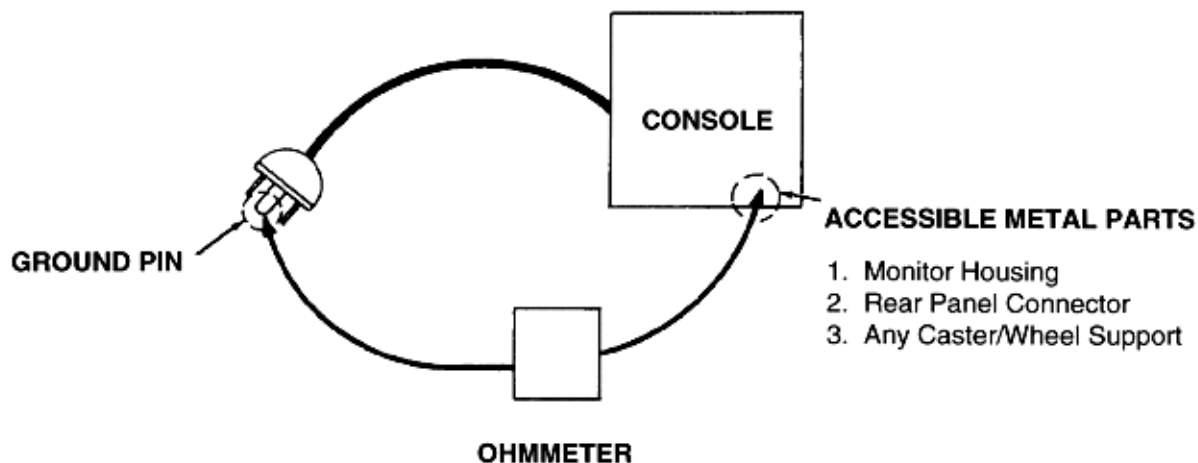


Figure 10-3 Ground Continuity Test

### 10-7-4-1 Meter Procedure

Follow these steps to test the ground wire resistance.

- 1.) Turn the LOGIQ™ 7 unit OFF.
- 2.) Plug the unit into the meter, and the meter into the tested AC wall outlet.
- 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™ 7 unit.
- 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 and record the ground wire resistance.

#### 10-7-4-2 Dale 600 - Ground Continuity

The Dale 600 measures line cord resistance from the third pin of the attachment plug to the meter's Chassis Cable clamp. Test the grounding continuity of the system to all exposed metal parts in accordance with the IEC 601-1.1 procedure as above. Refer to the Dale 600 Instruction Manual for meter self tests and operation. Record measured resistance of the grounding continuity. The ground wire resistance should be less than 0.2 (Use any safety analyzer.)

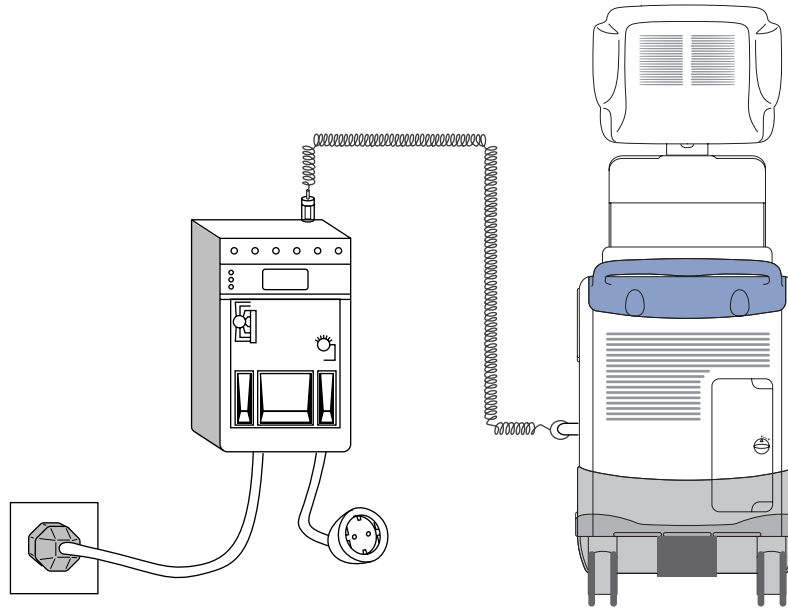


Figure 10-4 Dale 600 Ground Continuity Test

## 10-7-5 Chassis Leakage Current Test

### 10-7-5-1 Definition

This test measures the current that would flow in a grounded person who touched accessible metal parts of the bedside station if the ground wire should break. The test verifies the isolation of the power line from the chassis. The 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.



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



**CAUTION** Equipment damage possibility. Never switch the Polarity and the status of Neutral when the unit is powered ON. Be sure to turn the unit power OFF before switching them using the POLARITY switch and/or the NEUTRAL switch. Otherwise, the unit may be damaged.

### 10-7-5-2 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.

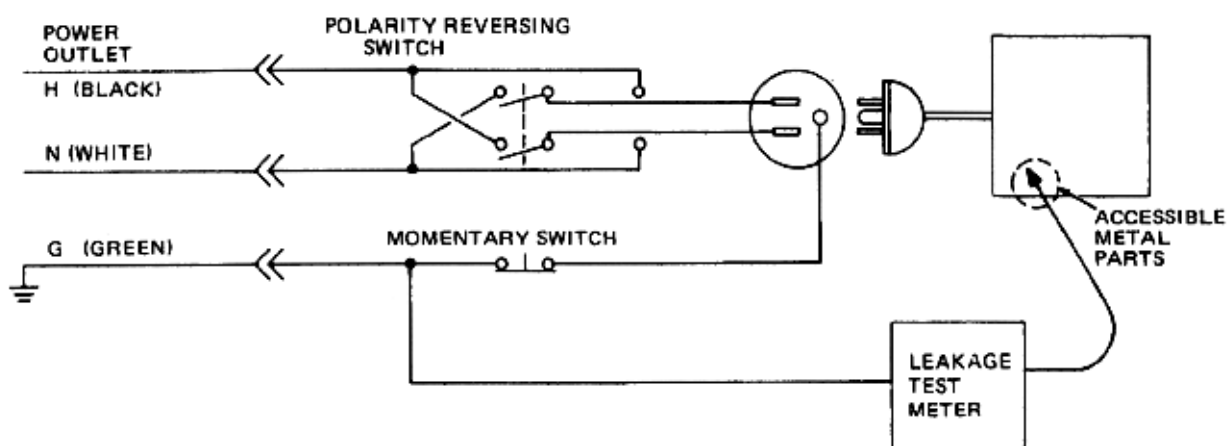


**Figure 10-5 Set Up for Chassis Source Leakage Current,  
IEC 601-1 Clause 19 - Continuous Leakage Currents and  
Patient, Auxiliary Currents**

When using the Microguard or a similar test instrument, its power plug may be inserted into the wall outlet and the equipment under test is plugged into the receptacle on the panel of the meter. This places the meter in the grounding conductor and the current flowing from the case to ground will be indicated in any of the current ranges. The maximum allowable limit for chassis source leakage is shown in Table 10-14.

### 10-7-5-3 Dale 600 Meter Procedure

When measuring system chassis currents with the Dale 600, always use the CHASSIS selection of the external/chassis function switch. This requires the ground clip lead and changing the meters switches in accordance with the IEC 601-1.1. Refer to the Dale 600 Instruction Manual for meter self-test and operation. Record the highest leakage current measured.

Follow these steps to test the unit for leakage current.

- 1.) Turn the LOGIQ™ 7 unit OFF.
- 2.) Plug the unit into the meter, and the meter into the tested AC wall outlet
- 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™ 7.
- 4.) Set the tester's "FUNCTION" switch to CHASSIS position.

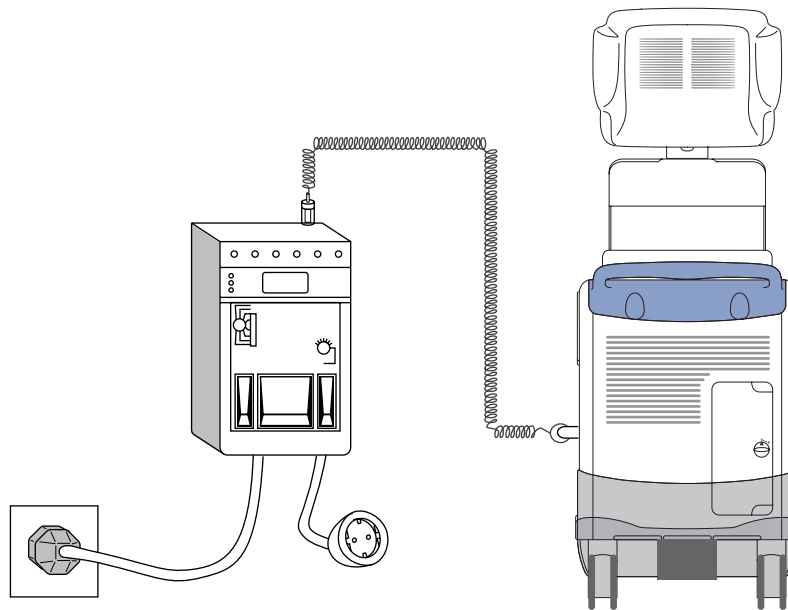


**Figure 10-6 Ground and Chassis Leakage Current Test**

- 5.) Follow the test conditions described for respective test points shown in Table 10-17.

**Table 10-17 Chassis Leakage Current Test Condition**

| TEST | CONDITION                                           |
|------|-----------------------------------------------------|
| 1    | Mounting screw for probe 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.

### 10-7-5-4 Data Sheet for Chassis Source Leakage Current

The test passes when all readings measure less than the value shown in Table 10-14. Record all data on the PM Inspection Certificate.

**Table 10-18 Typical Data Sheet for Chassis Source Leakage Current**

| Unit Power                            | Tester Polarity Switch | Tester Neutral or Ground Switch | Test 1 Probe Connector | Test 2 Wheel | Test 3 CRT | Optional Test 4 | Optional Test 5 |
|---------------------------------------|------------------------|---------------------------------|------------------------|--------------|------------|-----------------|-----------------|
| 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                          |                        |              |            |                 |                 |

### 10-7-6 Isolated Patient Lead (Source) Leakage–Lead to Ground

#### 10-7-6-1 Definition

This test measures the current which would flow to ground from any of the isolated ECG leads. The meter simulates a patient who is connected to the monitoring equipment and is grounded by touching some other grounded surface. Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the ultrasound console Off and On. For each combination the operating controls, such as the lead switch, should be operated to find the worst case condition.



**CAUTION** Equipment damage possibility. Never switch the Polarity when the unit is powered ON. Be sure to turn the unit power OFF before switching the polarity using the POLARITY switch. Otherwise, the unit may be damaged.

### 10-7-6-2 Generic Procedure

Measurements should be made with the ground open and closed, with power line polarity normal and reversed, and with the unit Off and On. For each combination, the operating controls such as the lead switch should be operated to find the worst case condition.

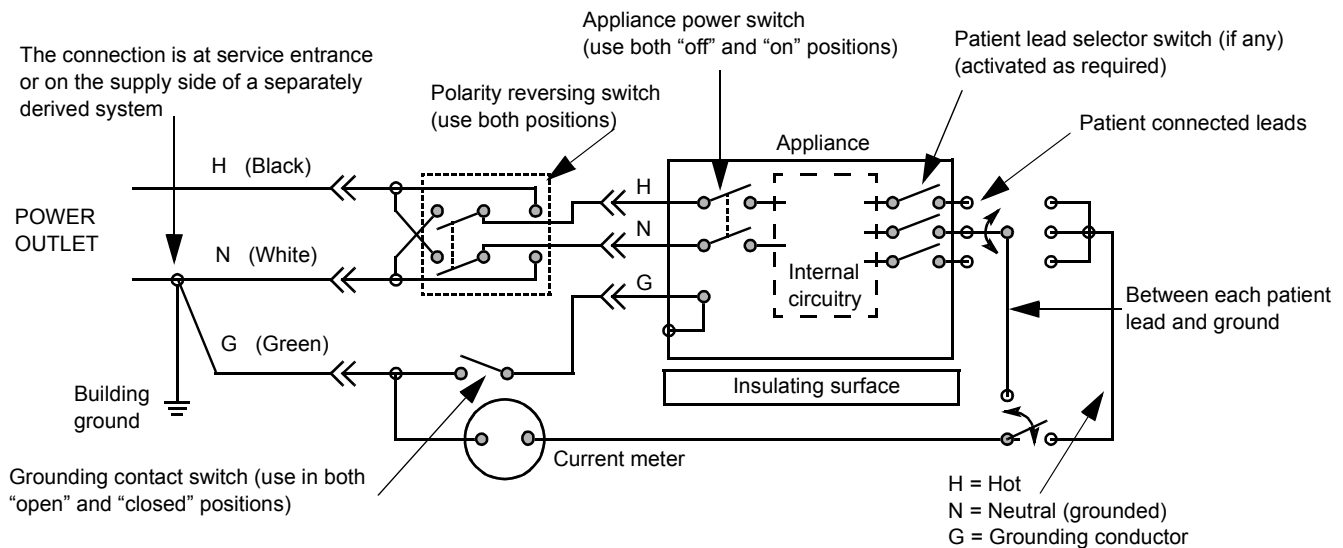


**Figure 10-7 Test Circuit for Measuring Non-Isolated Patient Leads**

### 10-7-6-3 Dale 600 Meter Procedure

The Dale 600 provides five snap type ECG buttons for testing patient leads. Snap on all patient leads to the meter and assure that the ground clip is connected to the system's ground terminal. Select the meter's LEAD-GND function. Select and test each ECG lead positions (except "ALL") of the LEAD selector, testing each to the power condition combinations found in "PATIENT LEAD LEAKAGE" table in the "PM CHECKLIST". Record the highest leakage current measured for each Power selection.

**CAUTION** Line voltage is applied to the ECG leads during this test. To avoid possible electric shock hazard, the system being tested must not be touched by patients, users or anyone while the ISO TEST switch is depressed. When the meter's ground switch is OPEN, don't touch the unit!

Follow these steps to test the ECG module for leakage current.

- 1.) Turn the LOGIQ™ 7 unit OFF.
- 2.) Plug the unit into the meter, and the meter into the tested AC wall outlet.
- 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™ 7 unit.
- 4.) Connect the patient leads to the corresponding snaps located at the upper front of the Dale 600/600E. Lead nomenclature for this test is not important.

10-7-6-3 Dale 600 Meter Procedure (cont'd)

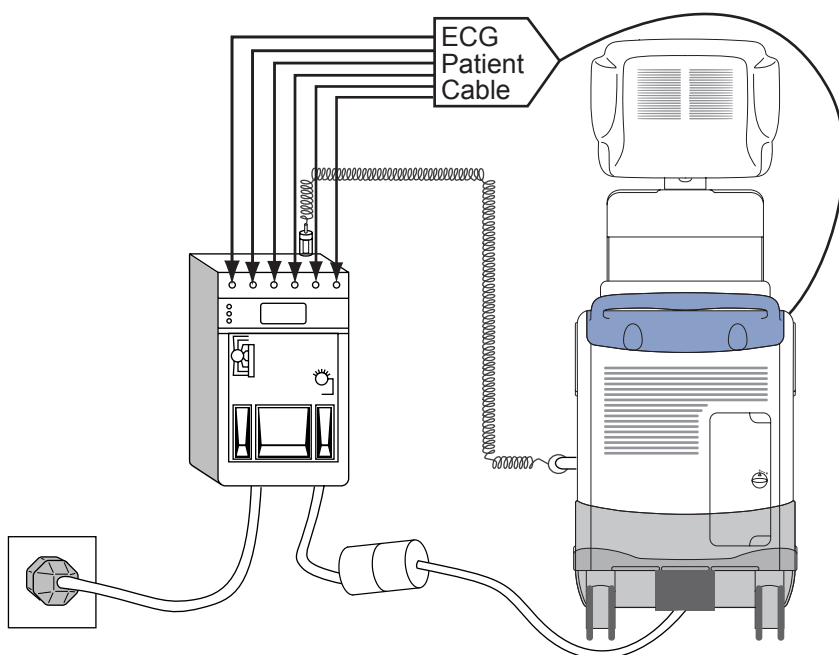


**Figure 10-1 ECG Leakage Current Test**

- 5.) Set the meter's "FUNCTION" switch to LEAD TO GROUND position to measure the patient lead to ground leakage current.
- 6.) Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations.

**Table 10-19 Testing Power Conditions**

| ECG Power | Meter's Polarity Switch | Meter's Neutral Switch |
|-----------|-------------------------|------------------------|
| ON        | NORM                    | CLOSED                 |
| ON        | NORM                    | OPEN                   |
| ON        | REVERSE                 | CLOSED                 |
| ON        | REVERSE                 | OPEN                   |
| OFF       | NORM                    | CLOSED                 |
| OFF       | NORM                    | OPEN                   |
| OFF       | REVERSE                 | CLOSED                 |
| OFF       | REVERSE                 | OPEN                   |

**10-7-6-3 Dale 600 Meter Procedure (cont'd)**

- 7.) Record the patient lead to ground leakage current measured on the data sheet.
- 8.) Set the meter's "FUNCTION" switch to LEAD TO LEAD position to measure the lead to lead leakage current.
- 9.) Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations.
- 10.) Record the lead to lead leakage current measured on the data sheet.
- 11.) Set the meter's "FUNCTION" switch to LEAD ISO position to measure the patient lead isolation current.
- 12.) Select and test each ECG lead positions (except ALL) of the LEAD selector, testing each to the power condition combinations.
- 13.) Depress the rocker switch to ISO TEST and read the isolation current. To apply the voltage to the lead safely, the voltage is only applied when the rocker switch is depressed to ISO TEST.
- 14.) Record the patient lead isolation current measured on the data sheet.

**10-7-7 Isolated Patient Lead (Source) Leakage—Lead to Lead**

Reference the procedure in the IEC 60601-1. When using the Dale 600, switch the meter's function selector to the LEAD-LEAD position. Select and test each of the five ECG lead positions (except ALL) on the LEAD selector, testing each to the power condition combinations found in the table. Record the highest leakage current measured.

**10-7-7-1 Dale 600 Patient Lead Tests**

**NEUTRAL POLARITY**

- 1.) Closed Normal
- 2.) Open Normal
- 3.) Closed Reversed
- 4.) Open Reversed

**10-7-8 Isolated Patient Lead (Sink) Leakage-Isolation Test**

Reference the procedure in the IEC 60601-1. When using the Dale 600, switch the meter's function selector to the LEAD-ISO. Select the ALL position on the lead selector. Depress the rocker switch to ISO TEST to test lead isolation.

 **CAUTION** Line voltage is applied to the ECG leads during this test. To avoid possible electric shock hazard, the system being tested must not be touched by patients, users or anyone while the ISO TEST switch is depressed.

**NOTE:** *It is not necessary to test each lead individually or power condition combinations as required in previous tests.*



### 10-7-8-1 Data Sheet for ECG Leakage Current

The test passes when all readings measure less than the value shown in the table below. Record all data on the PM Inspection Certificate.

**Table 10-20 Maximum Allowance Limit for ECG Leakage Current**

|                                                                                              | AC Power Source | Maximum Allowance Limit |               |
|----------------------------------------------------------------------------------------------|-----------------|-------------------------|---------------|
|                                                                                              |                 | GROUND OPEN             | GROUND CLOSED |
| Patient Lead to Ground Leakage Current Test and<br>Patient Lead to Lead Leakage Current Test | 115V            | 10uA                    | 10uA          |
|                                                                                              | 220/240V        | 500uA                   | 10uA          |

**Table 10-21 Maximum Allowance Limit for ECG Leakage Current**

|                                     | AC Power Source | Maximum Allowance Limit |
|-------------------------------------|-----------------|-------------------------|
| Patient Lead Isolation Current Test | 115V            | 20uA                    |
|                                     | 220/240V        | 5mA                     |

**Table 10-22 Typical Data Sheet for ECG Leakage Current**

| ECG Power | Tester Polarity Switch | Tester Ground Switch | Tester Lead Selector |    |    |    |   |
|-----------|------------------------|----------------------|----------------------|----|----|----|---|
|           |                        |                      | RL                   | RA | LA | LL | C |
| ON        | NORM                   | CLOSED               |                      |    |    |    |   |
| ON        | REVERSE                | CLOSED               |                      |    |    |    |   |
| ON        | NORM                   | OPEN                 |                      |    |    |    |   |
| ON        | REVERSE                | OPEN                 |                      |    |    |    |   |
| OFF       | NORM                   | CLOSED               |                      |    |    |    |   |
| OFF       | REVERSE                | CLOSED               |                      |    |    |    |   |
| OFF       | NORM                   | OPEN                 |                      |    |    |    |   |
| OFF       | REVERSE                | OPEN                 |                      |    |    |    |   |

## 10-7-9 Probe Leakage Current Test

### 10-7-9-1 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.

**NOTE:** *Some leakage current is expected on each probe, depending 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.*  
*It is abnormal if no leakage current is measured. If no leakage current is detected, check the configuration of the test equipment.*

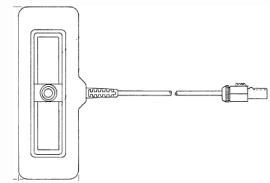
### 10-7-9-2 Test Equipment

**Table 10-23 Test Equipment kits (Chapter 10 LOGIQ™ 7 Proprietary Service Manual)**

| Kit         | Description                                                                  | Contents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------|------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 46-285652G1 | Dale 601 -<br>ULTRASOUND SAFETY<br>ANALYZER FIELD KIT<br>-<br>for 120V unit  | <ul style="list-style-type: none"> <li>• ELECTRICAL SAFETY ANALYZER, DALE, MODEL 601 for 120V unit</li> <li>• Vendor MODEL 600/100 8FT CHASSIS GROUND CABLE</li> <li>• Vendor MODEL 600/102 6FT SALINE BATH GROUND CABLE</li> <li>• Vendor MODEL 600/202 ULTRASOUND PROBE ADAPTER</li> <li>• Vendor MODEL 600/600 SOFT CARRYING CASE</li> <li>• Vendor MODEL 600/900 OPERATORS MANUAL</li> <li>• Vendor MODEL 600/901 LMINATED OPERATORS GUIDE</li> </ul>                                           |
| 46-328406G2 | Dale 601E -<br>ULTRASOUND SAFETY<br>ANALYZER FIELD KIT<br>-<br>for 220V unit | <ul style="list-style-type: none"> <li>• ELECTRICAL SAFETY ANALYZER, DALE, MODEL 601E for 220V unit</li> <li>• Vendor MODEL 600/100 8FT CHASSIS GROUND CABLE</li> <li>• Vendor MODEL 600/101 16FT CHASSIS GROUND CABLE</li> <li>• Vendor MODEL 600/103 8FT CHASSIS GROUND PROBE</li> <li>• Vendor MODEL 600/200 8FT EXTERNAL LEAKAGE GROUND CABLE</li> <li>• #20 WIRE W/MINIGATOR CLIPS, 2 Ft</li> <li>• CARRYING CASE and foam padding</li> <li>• Vendor MODEL 600/900 OPERATORS MANUAL</li> </ul> |
| 2113015     | ULTRASOUND PROBE<br>LEAKAGE ADAPTER KIT                                      | <ul style="list-style-type: none"> <li>• LOGIQ FAMILY PROBE ADAPTER</li> <li>• Vendor MODEL 600/202 ULTRASOUND PROBE ADAPTER</li> <li>• Vendor MODEL 600/203 RADIUS/SONOCHROME PROBE LEAKAGE CURRENT ADAPTER</li> </ul>                                                                                                                                                                                                                                                                             |

10-7-9-2 Test Equipment (cont'd)

Table 10-24 Test Equipment and Accessory Description

| Dale Part number                       | Accessory Name                  | Picture                                                                                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Vendor MODEL<br>600/100<br>46-285647P2 | CHASSIS CABLE                   | <br>Black coil cord with extended length and black grips.                           | Used on DALE601/601E to measure earth resistance and enclosure leakage current. Also used as reference lead for external measurement.                                                                                                                                                                                                                                 |
| Vendor MODEL<br>600/102<br>46-285647P4 | CHASSIS GROUND PROBE            | <br>Black coil cord with needle probe for testing receptacles and for tight spaces. | Also referred to as "Saline Probe" or "Saline Bath Ground Cable". Measures earth resistance and enclosure leakage current. Also used for grounding saline baths for isolation testing of probes. Used on DALE601/601E. This probe may be substituted for the 600/100 Chassis Cable, and used as a probe instead of a clamp.                                           |
| Vendor MODEL<br>600/200<br>46-285647P6 | ISO/EXTERNAL LEAKAGE CABLE      | <br>Black coiled cord with red grips.                                             | Standard auxiliary cable for external measurements of leakage current and voltage gradient between two surfaces. Used on DALE601/601E to measure:<br><ul style="list-style-type: none"> <li>Point-to-Point Leakage Current</li> <li>Probe and Transducer Isolation Current</li> </ul> May only be connected to the female connector of the Analyzer, labeled EXTERNAL |
| Vendor MODEL<br>600/202<br>2107545-2   | ULTRASOUND LOGIQ FAMILY ADAPTER |                                                                                   | Use during M.A.P. or Isolation test (see <a href="#">10-7-9-5 - Meter Procedure Using Probe Adapter to Measure Probe Isolation (Sink) Current</a> )                                                                                                                                                                                                                   |

### 10-7-9-3 Generic Procedure for Leakage Current

Measurements should be made with the ground open and closed, with power line mains 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.

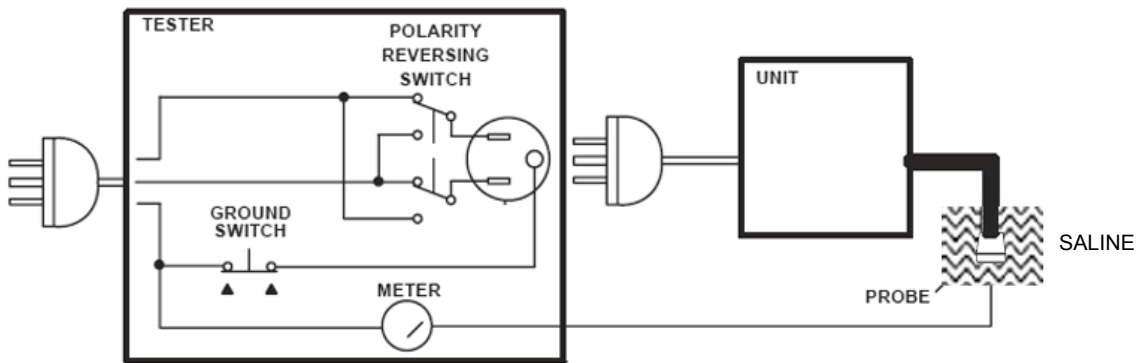


Figure 10-8 Set Up for Probe Leakage Current

### 10-7-9-4 Meter Procedure Using Dale Meter to Measure Leakage Current

The ultrasound probe's imaging area is immersed in a solution along with a grounding probe from the test meter to complete the current path. The solution is a mixture of water and salt. The salt adds free ions to the water, making it conductive. Use a mixture of 1 quart of water with one or more grams of table salt, mixed thoroughly.

Follow these steps to test each probe for leakage current:

- 1.) Turn OFF the LOGIQ™ 7 unit.
- 2.) Plug the unit's mains power cord into the test meter, and plug the test meter into the tested AC wall outlet.
- 3.) Plug the Chassis Ground Probe (saline probe) into the test meter's "CHASSIS" connector.
- 4.) Set the test meter's "FUNCTION" switch to "CHASSIS" (Dale 600) or "ENCLOSURE LEAKAGE" (Dale 601).
- 5.) Connect the probe to be tested to the LOGIQ™ 7 unit.
- 6.) Put the saline probe and the probe's probe face (imaging area of the probe) into the saline bath.



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

- 7.) Power ON the LOGIQ™ 7 unit.
- 8.) After the LOGIQ™ 7 unit has completed the boot process, select the probe to be tested so it is the active probe.
- 9.) Depress the LIFT GROUND rocker switch and record the highest current reading.
- 10.) Follow the test conditions described in Table 10-25 for every probe.

The test passes when all readings measure less than the values shown in Table 10-15 and Table 10-16.

10-7-9-4 Meter Procedure Using Dale Meter to Measure Leakage Current (cont'd)

11.) Keep a record of the results with other hard copies of Planned Maintenance data.



**CAUTION** Equipment damage possibility. Never switch the Polarity or the status of the Neutral when the Ultrasound unit is powered on.

Power off the Ultrasound unit, allow the stored energy to bleed down, and turn the circuit breaker off BEFORE switching the POLARITY switch and/or the NEUTRAL switch on the leakage meter to avoid possible power supply damage.

Table 10-25 Typical Data Sheet For Probe Source Leakage Current

| Probe Tested:                                                                                                                                                                                                                                                |                              |                       |                      |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|-----------------------|----------------------|-------------|
| Unit Power                                                                                                                                                                                                                                                   | Tester Power Polarity Switch | Tester NEUTRAL Switch | Tester GROUND Switch | Measurement |
| <b>Start with System Powered OFF</b>                                                                                                                                                                                                                         |                              |                       |                      |             |
| OFF                                                                                                                                                                                                                                                          | NORMAL                       | OPEN                  | CLOSED               |             |
| OFF                                                                                                                                                                                                                                                          | NORMAL                       | OPEN                  | OPEN                 |             |
| OFF                                                                                                                                                                                                                                                          | NORMAL                       | CLOSED                | CLOSED               |             |
| OFF                                                                                                                                                                                                                                                          | NORMAL                       | CLOSED                | OPEN                 |             |
| <b>Open Neutral first, then attempt Power ON</b>                                                                                                                                                                                                             |                              |                       |                      |             |
| ON                                                                                                                                                                                                                                                           | NORMAL                       | OPEN                  | CLOSED               |             |
| ON                                                                                                                                                                                                                                                           | NORMAL                       | OPEN                  | OPEN                 |             |
| <b>Close Neutral. Power System ON, and wait until Probe under test is active, before continuing</b>                                                                                                                                                          |                              |                       |                      |             |
| ON                                                                                                                                                                                                                                                           | NORMAL                       | CLOSED                | CLOSED               |             |
| ON                                                                                                                                                                                                                                                           | NORMAL                       | CLOSED                | OPEN                 |             |
| <b>Power System OFF using the Shutdown pop-up.<br/>Turn OFF System Circuit Breaker at rear of System or unplug from Meter outlet.<br/>Switch Tester Power Polarity switch to Reversed, then turn System Breaker ON or plug power cord into Meter outlet.</b> |                              |                       |                      |             |
| OFF                                                                                                                                                                                                                                                          | REVERSED                     | OPEN                  | CLOSED               |             |
| OFF                                                                                                                                                                                                                                                          | REVERSED                     | OPEN                  | OPEN                 |             |
| OFF                                                                                                                                                                                                                                                          | REVERSED                     | CLOSED                | CLOSED               |             |
| OFF                                                                                                                                                                                                                                                          | REVERSED                     | CLOSED                | OPEN                 |             |
| <b>Open Neutral first, then attempt Power ON</b>                                                                                                                                                                                                             |                              |                       |                      |             |
| ON                                                                                                                                                                                                                                                           | REVERSED                     | OPEN                  | CLOSED               |             |
| ON                                                                                                                                                                                                                                                           | REVERSED                     | OPEN                  | OPEN                 |             |
| <b>Close Neutral. Power System ON, and wait until Probe under test is active, before continuing</b>                                                                                                                                                          |                              |                       |                      |             |
| ON                                                                                                                                                                                                                                                           | REVERSED                     | CLOSED                | CLOSED               |             |
| ON                                                                                                                                                                                                                                                           | REVERSED                     | CLOSED                | OPEN                 |             |

#### 10-7-9-5 Meter Procedure Using Probe Adapter to Measure Probe Isolation (Sink) Current

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 ultrasound probe's imaging area is immersed in a solution along with a grounding probe from the test meter to complete the current path. The solution is a mixture of water and salt. The salt adds free ions to the water, making it conductive. Use a mixture of 1 quart of water with one or more grams of table salt, mixed thoroughly.

Follow these steps to test each probe for leakage current.

- 1.) Plug the test meter into the tested AC wall outlet.
- 2.) Plug the Chassis Ground Probe (saline probe in diagram) into the test meter's "CHASSIS" connector.
- 3.) Connect the probe to be tested to the LOGIQ Family Probe Adapter.
- 4.) Plug the LOGIQ Family Probe Adapter into the test meter's connector marked "EXTERNAL".

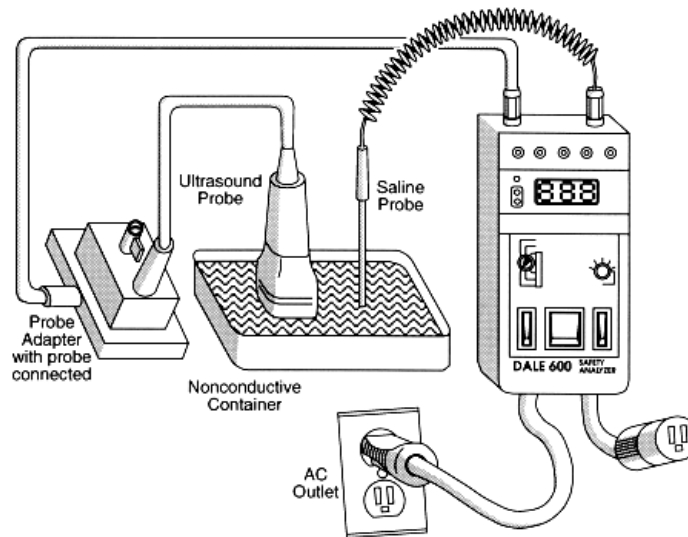


**Figure 10-9 Probe Isolation (Sink) Current Test**

- 5.) Set the meter's "FUNCTION" switch to EXTERNAL position.
- 6.) Put the Chassis Ground Probe and the probe's probe face (imaging area of the probe) into the saline bath.

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

- 7.) Depress the ISO TEST (Dale 600) or Mains on Applied Parts (MAP) (DALE 601) ROCKER SWITCH and record the highest current reading.

**10-7-9-5 Meter Procedure Using Probe Adapter to Measure Probe Isolation (Sink) Current (cont'd)**

- 8.) Test every probe and record in Table 10-26 the test results for every probe.  
The test passes when all readings measure less than the values in Table 10-30.
- 9.) Keep a record of the results with other hard copies of Planned Maintenance data.

**Table 10-26 Probes Tested for Isolation (Sink) Current**

| Probe Tested | ISO/Mains Applied |
|--------------|-------------------|
|              |                   |
|              |                   |
|              |                   |
|              |                   |
|              |                   |
|              |                   |
|              |                   |
|              |                   |

## GE Healthcare Leakage Current Limits for LOGIQ™ 7

The following limits are summarized for NFPA 99 (For USA) and IEC 60601-1 Medical Equipment Safety Standards. Measurement limits per IEC 60601-1 Medical Equipment Safety Standards, Table IV.

**Table 10-27 Chassis Leakage Current Limits—Accessible Metal Surfaces**

| Country | Normal Condition | Open Ground | Reverse Polarity | Open Neutral |
|---------|------------------|-------------|------------------|--------------|
| USA     | 0.1 mA           | 0.3 mA*     | 0.1 mA           | 0.3 mA       |
| Other   | 0.1 mA           | 0.5 mA      | 0.1 mA           | 0.5 mA       |

**Table 10-28 Type BF Applied Part Leakage Current Limits - Non-Conductive (Floating) Surface and Cavity Probes**

| All Countries | Normal Condition | Open Ground | Reverse Polarity | Open Neutral |
|---------------|------------------|-------------|------------------|--------------|
| AC            | 0.1 mA           | 0.5 mA      | 0.1 mA           | 0.5 mA       |
| DC**          | 0.01 mA          | 0.05 mA     | 0.01 mA          | 0.05 mA      |

**Table 10-29 Type CF Applied Part Leakage Current Limits - Surgical Probes and ECG Connections**

| Country | Normal Condition | Open Ground | Reverse Polarity | Open Neutral |
|---------|------------------|-------------|------------------|--------------|
| USA     | 0.01 mA          | 0.05mA      | 0.01 mA          | 0.05 mA      |
| Other   | 0.01 mA          | 0.05 mA     | 0.01mA           | 0.05 mA      |

**Table 10-30 ISO (on Dale 600) and Mains Applied (on Dale 601) Limits\*\*\***

| Probe Type | Measurement |
|------------|-------------|
| BF         | 5 mA        |
| CF         | 0.05 mA     |

**NOTE:** \*Measurement limits per IEC 60601-1 Medical Equipment Safety Standards, Table 19.5DV.1

\*\*Most meters (like Dale 600/601) only measure AC (rms).

\*\*\*ISO (on Dale 600) and Mains Applied (on Dale 601) refer to the sink leakage test where mains (supply) voltage is applied to the part to determine the amount of current that will pass (or sink) to ground if a patient contacted mains voltage.



## Section 10-1 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 and is free of other wiring abnormalities. 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 connector to isolate if the fault lies with the probe or the scanner.

**NOTE:** *Each probe will have some amount of leakage, 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. The maximum allowable leakage current for body surface contact probe differs from inter-cavity probe. Be sure to enter the correct probe type in the appropriate space on the check list.*

If excessive leakage current is slot dependent, inspect the system connector for bent pins, poor connections, and ground continuity.

If the problem remains 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.

### ECG FAILS

Inspect cables for damage or poor connections

## PM INSPECTION CERTIFICATE

|                |            |               |                                   |                       |
|----------------|------------|---------------|-----------------------------------|-----------------------|
| Customer Name: |            | System ID:    | Dispatch Number / Date Performed: | Warranty/Contract/HBS |
| System Type    |            | Model Number: | Serial Number:                    | Manufacture Date:     |
| Probe 1:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 2:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 3:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 4:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 5:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 6:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 7:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 8:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |
| Probe 9:       | Frequency: | Scan Format*: | Model Number:                     | Serial Number:        |

\* Scan Format: Phased Array, Linear Array, Curved Array, Mechanical Array or Other

## FUNCTIONAL CHECKS

| Functional Check (if applicable) | OK? or<br>N/A |
|----------------------------------|---------------|
| B-Mode Function                  |               |
| Doppler Modes Function           |               |
| CF-Mode Function                 |               |
| M-Mode Function                  |               |
| Applicable Software Options      |               |
| Applicable Hardware Options      |               |
| Control Panel                    |               |
| Monitor                          |               |
| Touch Panel                      |               |
| Measurement Accuracy             |               |
| GE Approved Peripherals          |               |

## PHYSICAL INSPECTION AND CLEANING

| Physical Inspection and Cleaning<br>(if applicable) | Inspect | Clean |
|-----------------------------------------------------|---------|-------|
| Console                                             |         |       |
| Monitor                                             |         |       |
| Touch Panel                                         |         |       |
| Air Filter                                          |         |       |
| Probe Holders                                       |         |       |
| External I/O                                        |         |       |
| Wheels, Brakes & Swivel Locks                       |         |       |
| Cables and Connectors                               |         |       |
| GE Approved Peripherals (VCR, CD-R, MOD, Printers)  |         |       |
|                                                     |         |       |
|                                                     |         |       |

## COMMENTS:

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## ELECTRICAL SAFETY

| Electrical Test Performed                    | Max Value Allowed | Value Measured | OK? | Comments |
|----------------------------------------------|-------------------|----------------|-----|----------|
| Outlet (correct ground & wiring config.)     |                   |                |     |          |
| System Ground Continuity                     |                   |                |     |          |
| Chassis Source Leakage Current - Probe       |                   |                |     |          |
| Chassis Source Leakage Current - Wheel       |                   |                |     |          |
| Chassis Source Leakage Current - CRT         |                   |                |     |          |
| Patient Lead Source Leakage (Lead to Ground) |                   |                |     |          |
| Patient Lead Source Leakage (Lead to Lead)   |                   |                |     |          |
| Patient Lead Source Leakage (Isolation)      |                   |                |     |          |
| Peripheral 1 Leakage Current                 |                   |                |     |          |
| Peripheral 1 Ground Continuity               |                   |                |     |          |
| Peripheral 2 Leakage Current                 |                   |                |     |          |
| Peripheral 2 Ground Continuity               |                   |                |     |          |
| Peripheral 3 Leakage Current                 |                   |                |     |          |
| Peripheral 3 Ground Continuity               |                   |                |     |          |

### PROBES

| Probe Number (from previous page) | Max Value Allowed | Max Value Measured | OK? | Comments |
|-----------------------------------|-------------------|--------------------|-----|----------|
| Probe 1:                          |                   |                    |     |          |
| Probe 2:                          |                   |                    |     |          |
| Probe 3:                          |                   |                    |     |          |
| Probe 4:                          |                   |                    |     |          |
| Probe 5:                          |                   |                    |     |          |
| Probe 6:                          |                   |                    |     |          |
| Probe 7:                          |                   |                    |     |          |
| Probe 8:                          |                   |                    |     |          |
| Probe 9:                          |                   |                    |     |          |

Final Check. All system covers are in place. System scans with all probes as expected.

Accepted by: \_\_\_\_\_







## ***GE HEALTHCARE***

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