



Technical Publication

VenueTM Service Manual

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Operating Documentation

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Table of Contents

| | |
|--|--------|
| Overview | 1 - 1 |
| Purpose of Chapter 1 | 1 - 1 |
| Service Manual Overview | 1 - 2 |
| Contents in this Service Manual | 1 - 2 |
| Typical Users of the Basic Service Manual | 1 - 2 |
| Venue™ Models Covered in this Manual | 1 - 3 |
| Product Description | 1 - 4 |
| Important Conventions | 1 - 6 |
| Conventions Used in this Manual | 1 - 6 |
| Standard Hazard Icons | 1 - 7 |
| Safety Considerations | 1 - 8 |
| Introduction | 1 - 8 |
| Human Safety | 1 - 8 |
| Mechanical Safety | 1 - 11 |
| Electrical Safety | 1 - 13 |
| Venue™ Battery Safety | 1 - 17 |
| Patient Data Safety | 1 - 17 |
| Dangerous Procedure Warnings | 1 - 18 |
| Lockout/Tagout (LOTO) Requirements | 1 - 19 |
| Product Labels and Icons | 1 - 20 |
| Universal Product Labels | 1 - 20 |
| Label Descriptions | 1 - 23 |
| Venue™ External Labels Location | 1 - 27 |
| Returning/Shipping Probes and Repair Parts | 1 - 28 |
| EMC, EMI, and ESD | 1 - 29 |
| Electromagnetic Compatibility (EMC) | 1 - 29 |
| Compliance | 1 - 29 |
| Electrostatic Discharge (ESD) Prevention | 1 - 30 |
| General Caution | 1 - 30 |
| Customer Assistance | 1 - 31 |

| | |
|--|--------|
| Contact Information | 1 - 31 |
| Overview | 2 - 1 |
| Purpose of Chapter 2 | 2 - 1 |
| Console Requirements | 2 - 2 |
| Unit Environmental Requirements | 2 - 2 |
| Cooling Requirements | 2 - 2 |
| Lighting Requirements | 2 - 2 |
| Time and Manpower Requirements | 2 - 2 |
| Electrical Requirements | 2 - 3 |
| EMI Limitations | 2 - 4 |
| EMI Prevention/Abatement | 2 - 5 |
| Probe Environmental Requirements | 2 - 5 |
| Time and Manpower Requirements | 2 - 6 |
| Facility Needs | 2 - 7 |
| Purchaser Responsibilities | 2 - 7 |
| Required Facility Needs | 2 - 8 |
| Networking Pre-Installation Requirements | 2 - 12 |
| Connectivity Installation Worksheet | 2 - 13 |
| Overview | 3 - 1 |
| Purpose of Chapter 3 | 3 - 1 |
| Setup Reminders | 3 - 2 |
| Average Setup Time | 3 - 2 |
| Setup Warnings | 3 - 2 |
| Safety Reminders | 3 - 3 |
| Receiving and Unpacking the Equipment | 3 - 4 |
| Warnings for Receiving and Unpacking the Equipment | 3 - 4 |
| Overview | 3 - 4 |
| Unpacking the Shipping Carton | 3 - 7 |
| Unpacking the Shipping Crate | 3 - 12 |
| Physical Inspection | 3 - 17 |
| EMI Protection | 3 - 17 |
| Preparing for Setup | 3 - 18 |
| Verifying Customer Order | 3 - 18 |
| Physical Inspection | 3 - 18 |
| Component Inspection | 3 - 18 |
| EMI Protection | 3 - 21 |

| | |
|--|--------|
| Completing the Setup | 3 - 22 |
| Purpose of this Section | 3 - 22 |
| System Specifications | 3 - 22 |
| Electrical Specifications | 3 - 22 |
| Connections on the I/O Rear Panel | 3 - 23 |
| Connecting Probes | 3 - 24 |
| Power on/Boot up | 3 - 26 |
| Power Shut Down | 3 - 26 |
| Complete Power Down | 3 - 26 |
| Configuration | 3 - 27 |
| Purpose of this Section | 3 - 27 |
| Venue™ Configuration | 3 - 27 |
| Service Screen Setup | 3 - 41 |
| Optional Peripherals/Peripheral Connection | 3 - 42 |
| Software Options Configuration | 3 - 42 |
| Connectivity Overview | 3 - 43 |
| Physical Connection | 3 - 43 |
| Stand-alone Venue™ | 3 - 43 |
| “Sneaker Net” Environment | 3 - 43 |
| Wireless Connection from Venue™ to DICOM Server | 3 - 43 |
| Connectivity Setup | 3 - 44 |
| Introduction | 3 - 44 |
| Select TCP/IP Screen | 3 - 45 |
| Setting Up Non-Broadcasting (Hidden) Wireless Network Connection | 3 - 46 |
| Changing the AE Title and/or Port Number (Port No.) | 3 - 50 |
| Wireless Network Configuration | 3 - 51 |
| Options Setup | 3 - 52 |
| Software Options | 3 - 52 |
| USB Flash Card Setup | 3 - 52 |
| Wireless Network Adapter | 3 - 52 |
| InSite Default Machine Contact Setup | 3 - 53 |
| Time Required | 3 - 53 |
| Preparations | 3 - 53 |
| Setup Procedure | 3 - 53 |
| Paperwork After Setup | 3 - 57 |
| Installation Acceptance Test Criteria | 3 - 57 |

| | |
|---|--------|
| User's Manual(s) | 3 - 57 |
| Product Locator Installation Card | 3 - 57 |
| Overview | 4 - 1 |
| Purpose of Chapter 4 | 4 - 1 |
| General Procedures..... | 4 - 2 |
| Overview | 4 - 2 |
| Power ON/Boot-up | 4 - 3 |
| Power Shutdown | 4 - 6 |
| Logging On to the Venue™ as "ADM" | 4 - 10 |
| Data Management | 4 - 10 |
| Deleting Patient Information | 4 - 11 |
| Cockpit (Monitor) Position Adjustment | 4 - 11 |
| Moving and Transporting the Venue™ Ultrasound Scanner | 4 - 11 |
| Functional Checks | 4 - 14 |
| Overview | 4 - 14 |
| Performance Checks | 4 - 14 |
| 2D Mode (B Mode) Checks | 4 - 14 |
| M Mode Checks | 4 - 15 |
| PW/CW Doppler Mode Checks | 4 - 17 |
| Probe/Connectors Check | 4 - 20 |
| Cineloop Check | 4 - 21 |
| Audio Check | 4 - 22 |
| Peripheral Checks | 4 - 23 |
| Mechanical Functions Checks | 4 - 26 |
| Electrical Tests | 4 - 29 |
| Overview | 5 - 1 |
| Purpose of Chapter 5 | 5 - 1 |
| General Information..... | 5 - 2 |
| Introduction | 5 - 2 |
| Options..... | 5 - 4 |
| Connectivity | 5 - 5 |
| Purpose of this Section | 5 - 5 |
| Stand-alone Venue™ | 5 - 5 |
| Direct Connection from Venue™ to a Review Workstation | 5 - 5 |
| Venue™ and a DICOM Server in a Network | 5 - 5 |
| InSite ExC | 5 - 6 |

| | |
|--|--------|
| Introduction | 5 - 6 |
| InSite ExC Icon | 5 - 6 |
| Initiating a Request for Service (RFS) | 5 - 8 |
| InSite ExC Definitions | 5 - 10 |
| Exiting InSite ExC | 5 - 10 |
| | |
| Cockpit (Monitor) Module | 5 - 11 |
| General | 5 - 11 |
| Auxiliary Display (AD) Module | 5 - 16 |
| Speaker | 5 - 16 |
| | |
| External Input/Output | 5 - 17 |
| | |
| Front End Unit | 5 - 18 |
| General Information | 5 - 18 |
| Front End Interfaces | 5 - 19 |
| Signal Flow | 5 - 19 |
| Front End Power Supply (T-FEPS) | 5 - 20 |
| Front End (T-CFE) Board | 5 - 20 |
| Probe Selection Board (T-PSB) | 5 - 21 |
| | |
| Back End Processor | 5 - 22 |
| Introduction | 5 - 22 |
| Back End Processing (BEP) Module | 5 - 22 |
| BEP Block Diagram | 5 - 24 |
| Back End Interface (BIB) Board | 5 - 25 |
| Solid State Hard Drive | 5 - 25 |
| | |
| System Power Distribution | 5 - 26 |
| Introduction | 5 - 26 |
| AC Distribution | 5 - 26 |
| DC Power Distribution | 5 - 26 |
| System Power Management | 5 - 27 |
| Rechargeable Battery Pack | 5 - 27 |
| | |
| Cooling System | 5 - 29 |
| General Information | 5 - 29 |
| | |
| Peripherals | 5 - 30 |
| Internal Peripheral | 5 - 30 |
| External Peripherals | 5 - 30 |
| | |
| Common Service Desktop | 5 - 31 |
| Purpose of this Section | 5 - 31 |

| | |
|--|--------|
| Contents in this Section | 5 - 31 |
| Introduction | 5 - 31 |
| iLinq Interactive Platform Features | 5 - 31 |
| Common Service Desktop (CSD) | 5 - 32 |
| Overview | 6 - 1 |
| Purpose of Chapter 6 | 6 - 1 |
| Power Supply Adjustments | 6 - 1 |
| Cockpit (Monitor) Adjustments | 6 - 1 |
| Articulated Arm Movement Adjustments | 6 - 2 |
| Arm Movement Adjustment - General Instructions | 6 - 2 |
| Tilt Resistance Adjustments | 6 - 2 |
| Pan (Swivel) Resistance Adjustments: | 6 - 4 |
| Arm Vertical Movement Adjustments: | 6 - 4 |
| Arm Rotate Resistance Adjustments: | 6 - 5 |
| Overview | 7 - 1 |
| Purpose of Chapter 7 | 7 - 1 |
| Service Safety Considerations | 7 - 2 |
| Service Tools | 7 - 3 |
| Visual Guide | 7 - 3 |
| System Diagnostics | 7 - 3 |
| Gathering Troubleshooting Data | 7 - 5 |
| Purpose of this Section | 7 - 5 |
| Contents in this Section | 7 - 5 |
| Collect Vital System Information | 7 - 5 |
| Collect a 'Trouble Image' with Logs | 7 - 5 |
| Noise Troubleshooting | 7 - 9 |
| Purpose of this Section | 7 - 9 |
| Contents in this Section | 7 - 9 |
| Introduction | 7 - 9 |
| Overview of Types of Noise | 7 - 9 |
| Different Power Outlet | 7 - 11 |
| Different System | 7 - 11 |
| Different Location | 7 - 11 |
| Disconnect External Cables | 7 - 11 |

| | |
|---|--------|
| Audio Troubleshooting | 7 - 12 |
| Purpose of this Section | 7 - 12 |
| Audio Troubleshooting Procedure | 7 - 12 |
| Probes not Recognized Troubleshooting | 7 - 16 |
| Purpose of this Section | 7 - 16 |
| Probes not Recognized Procedure | 7 - 16 |
| System does not turn on Troubleshooting | 7 - 17 |
| Purpose of this Section | 7 - 17 |
| BEP BIOS jumper setup | 7 - 17 |
| MPB to BIB connection | 7 - 18 |
| Front End connections | 7 - 19 |
| No Auxiliary Display | 7 - 20 |
| Error: "Abnormal system behavior occurred" | 7 - 21 |
| System Stuck in Stand By Mode | 7 - 22 |
| CFE and FEPs LEDs turn off | 7 - 23 |
| MPB Diagnostics Failure Troubleshooting | 7 - 25 |
| Purpose of this Section | 7 - 25 |
| MPB Diagnostics Procedure Troubleshooting | 7 - 25 |
| Overview | 8 - 1 |
| Purpose of Chapter 8 | 8 - 1 |
| Visual Guide | 8 - 1 |
| Accessories - Replacement Procedures | 8 - 2 |
| Basic Storage Basket/Large Storage Basket Replacement Procedure | 8 - 2 |
| Power Cable Holder Replacement Procedure | 8 - 3 |
| Covers - Replacement Procedures | 8 - 4 |
| Overview of Covers | 8 - 4 |
| Lower Front eTower Cover Replacement Procedure | 8 - 7 |
| Left Side eTower Cover Replacement Procedure | 8 - 8 |
| Right Side eTower Cover Replacement Procedure | 8 - 10 |
| Mid Thermal Baffle Cover Replacement Procedure | 8 - 11 |
| Upper eTower Front Cover Replacement Procedure | 8 - 12 |
| Printer Insert Cover Replacement Procedure | 8 - 14 |
| MPB Door Cover Replacement Procedure | 8 - 16 |
| RS Probe Cover Replacement Procedure | 8 - 18 |
| Riser Thermal Cover Replacement Procedure | 8 - 19 |
| Riser Cover Replacement Procedure | 8 - 20 |

| | |
|---|---------|
| System Modules- Replacement Procedures | 8 - 24 |
| Base Module Replacement Procedure | 8 - 24 |
| Front End Metal Door Replacement | 8 - 27 |
| Full Front End Replacement | 8 - 31 |
| SSD Module Replacement Procedure | 8 - 34 |
| Cockpit (Monitor) Replacement Procedure | 8 - 36 |
| PSU Module Replacement Procedure | 8 - 40 |
| Battery Module Replacement Procedure | 8 - 43 |
| Back End (BE) Module Replacement Procedure | 8 - 45 |
| BEP PCB Replacement Procedure | 8 - 50 |
| MPB Module Replacement Procedure | 8 - 56 |
| T-CFE (cFront End) Module Replacement Procedure | 8 - 60 |
| T-PSB Module Replacement Procedure | 8 - 64 |
| Electronic Boards- Replacement Procedures | 8 - 66 |
| BIB Board Replacement Procedure | 8 - 66 |
| T-CFE Release Arm Replacement Procedure | 8 - 69 |
| Front End Power Supply (T-FEPS) Replacement Procedure | 8 - 71 |
| T-TRx Box Replacement Procedure | 8 - 73 |
| T-TRx Module Replacement Procedure | 8 - 75 |
| Mechanical Parts- Replacement Procedures | 8 - 78 |
| MPB Front Metal Door Replacement Procedure | 8 - 78 |
| MPB Guide L and Guide R Replacement Procedure | 8 - 80 |
| Halo Handle Replacement Procedure | 8 - 83 |
| Articulated Arm Replacement Procedure | 8 - 86 |
| Riser Replacement Procedure | 8 - 91 |
| Casters Replacement Procedure | 8 - 95 |
| Plastic Cable Guide for CFE Replacement Procedure | 8 - 97 |
| MPB Blower (Fan) Replacement Procedure | 8 - 100 |
| IPP Module Replacement Procedure | 8 - 104 |
| Cables - Replacement Procedures | 8 - 108 |
| MPB Rear USB Cable Replacement Procedure | 8 - 108 |
| MPB TO Cockpit Cable Replacement Procedure | 8 - 111 |
| BE to Cockpit Cable Replacement Procedure | 8 - 123 |
| PSU to MPB DC Docking Cable Replacement Procedure | 8 - 133 |
| MPB to BE PWR Cable Replacement Procedure | 8 - 136 |
| ON/OFF Switch Cable Replacement Procedure | 8 - 139 |
| PCIe Cable Replacement Procedure | 8 - 142 |
| MPB to BIB Control Cable Replacement Procedure | 8 - 144 |
| Printer USB Cable Replacement Procedure | 8 - 147 |

| | |
|---|---------|
| BEP Cables Replacement Procedure | 8 - 149 |
| MPB TO T-FEPS - FRU Cable Replacement Procedure | 8 - 157 |
| MPB To Peripherals Harness - FRU Cable Replacement Procedure | 8 - 160 |
| Peripherals Replacement/Installation Procedures | 8 - 164 |
| Printer Replacement/Installation Procedure | 8 - 164 |
| Wi-Fi Adapter Replacement/Installation Procedure | 8 - 170 |
| ECG Installation Procedure for Systems with No Printer Installed | 8 - 173 |
| ECG Installation Procedure for Systems with Printer Installed | 8 - 177 |
| ECG Replacement Procedure | 8 - 182 |
| Operating System and Application Software Loading Procedures..... | 8 - 184 |
| Burning Disk-on-Key Media with SW Downloaded from GE Portal | 8 - 184 |
| Software Update Procedure | 8 - 188 |
| Software Upgrade Procedure from Venue™ R1 to Venue™ R2 | 8 - 193 |
| Software Installation Procedure - General Overview | 8 - 205 |
| Software Installation Procedure | 8 - 207 |
| | 8 - 211 |
| Software Recovery Procedure | 8 - 212 |
| Functional Checks to be Performed after Replacement Procedures | 8 - 216 |
| General Overview | 8 - 216 |
| Table 8-4 on page 8-216Functional Checks Required per Replacement Part Category | |
| 8 - 216 | |
| Overview..... | 9 - 1 |
| Purpose of Chapter 9 | 9 - 1 |
| List of Abbreviations | 9 - 2 |
| Main Assemblies and Sub Assemblies..... | 9 - 3 |
| Renewal Parts Lists and Diagrams | 9 - 4 |
| Mechanical Hardware Parts | 9 - 4 |
| Covers | 9 - 7 |
| System Power Distribution | 9 - 9 |
| Cockpit (Monitor) Parts | 9 - 11 |
| eTower | 9 - 12 |
| Probes | 9 - 15 |
| Software | 9 - 15 |
| System Power Cables | 9 - 16 |
| Accessories | 9 - 17 |
| Optional Peripherals | 9 - 18 |

| | |
|---|---------|
| ECG Parts For Venue R2 Only | 9 - 19 |
| Overview | 10 - 1 |
| Care and Maintenance Inspections | 10 - 1 |
| Purpose of Chapter 10 | 10 - 1 |
| Warnings | 10 - 2 |
| Why Do Maintenance?..... | 10 - 3 |
| Keeping Records | 10 - 3 |
| Quality Assurance | 10 - 3 |
| Maintenance Task Schedule | 10 - 3 |
| Tools Required..... | 10 - 5 |
| Tools Required for Servicing the Venue™ | 10 - 5 |
| System Maintenance | 10 - 6 |
| Preliminary Checks | 10 - 6 |
| Functional Checks | 10 - 7 |
| Physical Inspection | 10 - 9 |
| Cleaning | 10 - 10 |
| Probe Maintenance | 10 - 12 |
| Probe Related Checks | 10 - 12 |
| Probe Handling | 10 - 12 |
| Basic Probe Care | 10 - 13 |
| Probe Cleaning | 10 - 13 |
| Returning and Shipping of Defective Probes | 10 - 14 |
| Electrical Safety Tests | 10 - 15 |
| Overview | 10 - 15 |
| Safety Test Overview | 10 - 15 |
| Outlet Test - Wiring Arrangement - USA and Canada | 10 - 17 |
| Grounding Continuity | 10 - 18 |

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Important Precautions

TRANSLATION POLICY

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.

**WARNING
(EN)**

CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.

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

**AVERTISSEMENT
(FR)**

DIESES KUNDENDIENST-HANDBUCH EXISTIERT NUR IN ENGLISCHER SPRACHE.

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

**WARNUNG
(DE)**

ESTE MANUAL DE SERVICIO SÓ EXISTE EN INGLÉS.

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

**AVISO
(ES)****ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.**

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

**ATENÇÃO
(PT-Br)****ESTE MANUAL DE ASSISTÊNCIA ESTÁ DISPONÍVEL APENAS EM INGLÊS.**

- SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEHC, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.
- NÃO TENTE EFECTUAR REPARAÇÕES NO EQUIPAMENTO SEM TER CONSULTADO E COMPREENDIDO PREVIAMENTE ESTE MANUAL.
- A INOBSERVÂNCIA DESTE AVISO PODE RESULTAR EM FERIMENTOS NO TÉCNICO DE ASSISTÊNCIA, OPERADOR OU PACIENTE EM CONSEQUÊNCIA DE CHOQUE ELÉTRICO, PERIGOS DE ORIGEM MECÂNICA, BEM COMO DE OUTROS TIPOS.

**AVISO
(PT-pt)****IL PRESENTE MANUALE DI MANUTENZIONE È DISPONIBILE SOLTANTO IN INGLESE.**

- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEHC 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.

**AVVERTENZA
(IT)**

KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.**HOIATUS
(ET)**

- KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÖLKETEENUSE OSUTAMISE EEST.
- ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.
- KÄESOLEVA HOIATUSE EIRAMINE VÕIB PÖHJUSTADA TEENUSEOSUTAJA, OPERAATORI VÕI PATSIENDI VIGASTAMIIST ELEKTRILÖÖGI, MEHAANILISE VÕI MUU OHU TAGAJÄRJEL.

TÄMÄ HUOLTO-OHJE ON SAATAVILLA VAIN ENGLANNIKSI.**VAROITUS
(FI)**

- 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.

ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.**ΠΡΟΕΙΔΟΠΟΙΗΣΗ
(EL)**

- 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 ΗΛΕΚΤΡΟΠΛΗΕΙΑ, ΜΗΧΑΝΙΚΟΥΣ ή ΆΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.

EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHETŐ EL.**FIGYELMEZTETÉS
(HU)**

- 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 ÁRAMÜTÉS, MECHANIKAI VAGY EGYÉB VESZÉLYHELYZET MIATTI SÉRÜLÉSÉT EREDMÉNYEZHETI.

ÞESSI ÞJÓNUSTUHANDBÓK ER EINGÖNGU FÁANLEG Á ENSKU.

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

VIÐVÖRUN
(IS)**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, OBLUŽNÉHO PERSONÁLU NEBO PACIENTŮ VLIVEM ELEKTRICKÉHOP PROUDU, RESPEKTIVE VLIVEM K RIZIKU MECHANICKÉHO POŠKOZENÍ NEBO JINÉMU RIZIKU.

VÝSTRAHA
(CS)**DENNE SERVICEMANUAL FINDES KUN PÅ ENGELSK.**

- HVIS EN KUNDEN TEKNIKER HAR BRUG FOR ET ANDET SPROG END ENGELSK, ER DET KUNDENS ANSVAR AT SØRGE FOR OVERSÆTTELSE.
- FORSØG 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.

ADVARSEL
(DA)**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.

WAARSCHUWING
(NL)

ŠĪ APKALPES ROKASGRĀMATA IR PIEEJAMA TIKAI ANGLŪ VALODĀ.

- JA KLIENTA APKALPES SNIEDZĒJAM NEPIECIEŠAMA INFORMĀCIJA CITĀ VALODĀ, NEVIS ANGLŪ, KLIENTA PIENĀKUMS IR NODROŠINĀT TULKOŠANU.
- NEVEICET APRĪKOJUMA APKALPI BEZ APKALPES ROKASGRĀMATAS IZLASIŠANAS UN SAPRAŠANAS.
- ŠĪ BRĪDINĀJUMA NEIEVĒROŠANA VAR RADĪT ELEKTRISKĀS STRĀVAS TRIECIENA, MEHĀNISMU VAI CITU RISKU IZRAISĪTU TRAUMU APKALPES SNIEDZĒJAM, OPERATORAM VAI PACIENTAM.

**BRĪDINĀJUMS
(LV)****ŠIS EKSPLOATAVIMO VADOVAS YRA IŠLEISTAS TIK ANGLŪ KALBA.**

- JEI KLIENTO PASLAUGŪ TEIKĒJUI REIKIA VADODO KITA KALBA – NE ANGLŪ, VERTIMU PASIRŪPINTI TURI KLIENTAS.
- NEMĒGINKITE ATLIKTI ĪRANGOS TECHNINĒS PRIEŽIŪROS DARBŪ, NEBENT VADOVAUTUMĒTĒS ŠIUO EKSPLOATAVIMO VADOVU IR JĮ SUPRASTUMĒTE
- NEPAISANT ŠIO PERSPĒJIMO, PASLAUGŪ TEIKĒJAS, OPERATORIUS AR PACIENTAS GALI BŪTI SUŽEISTAS DĒL ELEKTROS SMŪGIO, MECHANINIŲ AR KITŲ PAVOJŲ.

**ISPĒJIMAS
(LT)****DENNE SERVICEHÅNDBOKEN FINNES BARE PÅ ENGELSK.**

- HVIS KUNDENS SERVICELEVERANDØR TRENGER ET ANNEN SPRÅK, ER DET KUNDENS ANSVAR Å SØRGE FOR OVERSETTELSE.
- IKKE FORSØK Å REPARERE UTSTYRET UTEN AT DENNE SERVICEHÅNDBOKEN ER LEST OG FORSTÅTT.
- MANGLENDE HENSYN TIL DENNE ADVARSELEN KAN FØRE TIL AT SERVICELEVERANDØREN, OPERATØREN ELLER PASIENTEN SKADES PÅ GRUNN AV ELEKTRISK STØT, MEKANISKE ELLER ANDRE FARER.

**ADVARSEL
(NO)****NINIEJSZY PODRĘCZNIK SERWISOWY DOSTĘPNY JEST JEDYNIE W JĘZYKU ANGIELSKIM.**

- JEŚLI FIRMA ŚWIADCZĄCA KLIENTOWI USŁUGI SERWISOWE WYMAGA UDOSTĘPNIENIA PODRĘCZNIKA W JĘZYKU INNYM NIŻ ANGIELSKI, OBOWIĄZEK ZAPEWNENIA STOSOWEGO TŁUMACZENIA SPOCZYWA NA KLIENCIE.
- NIE PRÓBOWAĆ 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.

**OSTRZEŻENIE
(PL)**

ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.

- **DACĂ UN FURNIZOR DE SERVICII PENTRU CLIENȚI NECESITĂ O ALTĂ LIMBĂ DECÂT CEA ENGLEZĂ, ESTE DE DATORIA CLIENTULUI SĂ FURNIZEZE O TRADUCERE.**
- **NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECÂT ULTERIOR CONSULTĂRII ȘI ÎNTELEGERII 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.**

**ATENȚIE
(RO)**

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.**
- **НЕСОБЛЮДЕНИЕ УКАЗАННЫХ ТРЕБОВАНИЙ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ТЕХОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЗЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.**

**ОСТОРОЖНО!
(RU)**

ТОВА СЕРВИЗНО РЪКОВОДСТВО Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК.

- **АКО ДОСТАВЧИКЪТ НА СЕРВИЗНИ УСЛУГИ НА КЛИЕНТ СЕ НУЖДАЕ ОТ ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ПРЕДОСТАВИ ПРЕВОДАЧЕСКА УСЛУГА.**
- **НЕ СЕ ОПИТВАЙТЕ ДА ИЗВЪРШВАТЕ СЕРВИЗНО ОБСЛУЖВАНЕ НА ТОВА ОБОРУДВАНЕ, ОСВЕН ВСЛУЧАЙ, ЧЕ СЕРВИЗНОТО РЪКОВОДСТВО Е ПРОЧЕТЕНО И СЕ РАЗБИРА.**
- **НЕСПАЗВАНЕТО НА ТОВА ПРЕДУПРЕЖДЕНИЕ МОЖЕ ДА ДОВЕДЕДО НАРАНЯВАНЕ НА ДОСТАВЧИКА НА СЕРВИЗНИ УСЛУГИ, НА ОПЕРАТОРА ИЛИ ПАЦИЕНТА ВСЛЕДСТВИЕНА ТОКОВ УДАР, МЕХАНИЧНИ ИЛИ ДРУГИ РИСКОВЕ.**

**ПРЕДУПРЕЖДЕНИЕ
(BG)**

OVAJ PRIRUČNIK ZA SERVISIRANJE DOSTUPAN JE SAMO NA ENGLESKOM JEZIKU.

- **AKO KLIJENTOV SERVISER ZAHTEVA JEZIK KOJI NIJE ENGLESKI, ODGOVORNOST JE NA KLIJENTU DA PRUŽI USLUGE PREVOĐENJA.**
- **NEMOJTE POKUŠAVATI DA SERVISIRATE OPREMU AKO NISTE PROČITALI I RAZUMELI PRIRUČNIK ZA SERVISIRANJE.**
- **AKO NE POŠTUJETE OVO UPOZORENJE, MOŽE DOĆI DO POVREĐIVANJA SERVISERA, OPERATERA ILI PACIJENTA UZROKOVANOG ELEKTRIČNIM UDAROM, MEHANIČKIM I DRUGIM OPASNOSTIMA.**

**УПОЗОРЕЊЕ
(SR)**

TA SERVISNI PRIROČNIK JE NA VOLJO SAMO V ANGLEŠČINI.

- ČE PONUDNIK SERVISNIH STORITEV ZA STRANKO POTREBUJE NAVODILA V DRUGEM JEZIKU, JE ZA PREVOD ODGOVORNA STRANKA SAMA.
- NE POSKUŠAJTE SERVISIRATI OPREME, NE DA BI PREJ PREBRALI IN RAZUMELI SERVISNI PRIROČNIK.
- ČE TEGA OPORIZILA NE UPOŠTEVATE, OBSTAJA NEVARNOST ELEKTRIČNEGA UDARA, MEHANSKIH ALI DRUGIH NEVARNOSTI IN POSLEDIČNIH POŠKODB PONUDNIKA SERVISNIH STORITEV, UPORABNIKA OPREME ALI PACIENTA.

**OPOZORILO
(SL)****OVAJ SERVISNI PRIRUČNIK DOSTUPAN JE SAMO NA ENGLESKOM JEZIKU.**

- AKO KLIJENTOV SERVISER ZAHTJEVA JEZIK KOJI NIJE ENGLESKI, ODGOVORNOST KLIJENTA JE PRUŽITI USLUGE PREVOĐENJA.
- NEMOJTE POKUŠAVATI SERVISIRATI OPREMU AKO NISTE PROČITALI I RAZUMJELI SERVISNI PRIRUČNIK.
- AKO NE POŠTUJETE OVO UPOZORENJE, MOŽE DOĆI DO OZLJEDE SERVISERA, OPERATERA ILI PACIJENTA PROUZROČENE STRUJNIM UDAROM, MEHANIČKIM I DRUGIM OPASNOSTIMA.

**UPOZORENJE
(HR)****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.

**UPOZORNENIE
(SK)****DEN HÄR SERVICEHANDBOKEN FINNS BARA TILLGÄNLIG PÅ ENGELSKA.**

- OM EN KUNDS SERVICETEKNIKER HAR BEHOV AV ETT ANNAT SPRÅK ÄN ENGELSKA ANSVARAR KUNDEN FÖR ATT TILLHANDAHÄLLA 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.

**VARNING
(SV)**

BU SERVİS KILAVUZU YALNIZCA İNGİLİZCE OLARAK SAĞLANMIŞTIR.

- EĞER MÜŞTERİ TEKNİSYENİ KILAVUZUN İNGİLİZCE DİŞINDAKİ BİR 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 TÜRDEN KAZALAR SONUCUNDA TEKNİSYENİN, OPERATÖRÜN YA DA HASTANIN YARALANMASINA YOL AÇABİLİR.

DİKKAT
(TR)

このサービススマニュアルには英語版しかありません。

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(JA)

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- 未確實遵守本警告，可能導致服務提供者、操作者或病患遭受電擊、機械危險或其他傷害。

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(繁體中文)
Traditional Chinese

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(ZH-CN)

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경고
(KO)

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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 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.

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If there are any omissions, errors or suggestions for improving this documentation, please contact the GE Global Documentation Group with specific information listing the system type, manual title, part number or direction number, revision number, page number and suggestion details.

Mail the information to:

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GE Medical Systems
Ultrasound & Primary Care Diagnostics LLC
9900 Innovation Drive
Wauwatosa, WI 53226
USA

GE employees should use TrackWise to report service documentation issues. These issues will then be in the internal problem reporting tool and communicated to the writer.

SERVICE SAFETY CONSIDERATIONS

 **DANGER DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.**

 **WARNING Use all Personal Protection Equipment (PPE) such as gloves, safety shoes, safety glasses, and kneeling pad, to reduce the risk of injury.**

For a complete review of all safety requirements, see the Chapter 1 [Safety Considerations](#) section in the Service Manual.

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Revision History

| Revision | Date | Reason for change |
|----------|------------------|--|
| 1 | 25 MAY 2017 | Initial Release |
| 2 | 26 OCTOBER 2017 | Typos and corrections |
| 3 | 11 FEBURARY 2018 | Support R2 configuration |
| 4 | 16 JULY 2018 | Added Kisyu codes, ECG support and Upgrade from R1 to R2 procedure |
| 5 | 10 APRIL 2019 | Added R2.5 DOK |
| 6 | 6 JUNE 2019 | Added troubleshooting instructions |

List of Effected Pages (LOEP)

| Pages | Revision | Pages | Revision | Pages | Revision |
|--------------|---|-------|---|-------|----------|
| 7-43 to 7-60 | Add Troubleshooting instructions (noise; audio; Un-recognized probes; system does not turn on; MPB diagnostics) | 1-15 | Add warning: do not used unapproved peripherals | | |

Chapter 1

Introduction

Section 1-1

Overview

1-1-1 Purpose of Chapter 1

This chapter describes important issues related to safely servicing the Venue™ ultrasound scanner. The service provider must read and understand all the information presented here before installing or servicing a unit.

Section 1-2

Service Manual Overview

This manual provides setup and service information for the Venue™ ultrasound scanner. The ten chapters it contains are outlined in [Table 1-1](#) below.

In the beginning of the manual, before Chapter 1, you will find the language policy for GE service documentation, legal information, a revision overview and the Table of Contents (TOC).

An Index has not been included.

1-2-1 **Contents in this Service Manual**

The service manual is divided into ten chapters.

In the beginning of the manual, before chapter 1, you will find the language policy for GE service documentation, legal information, a revision overview and the Table of Contents (TOC).

An Index has not been included.

Table 1-1 Contents in this Service Manual

| CHP NUMBER | TITLE | DESCRIPTION |
|------------|--|--|
| Chapter 1 | Introduction | Contains a content summary and warnings. |
| Chapter 2 | Site Preparations | Contains pre-setup requirements for the Venue™ ultrasound scanner. |
| Chapter 3 | System Setup | Contains setup procedure with an setup checklist. |
| Chapter 4 | General Procedures and Functional Checks | Contains functional checks that must be performed as part of the setup, or as required during servicing and periodic maintenance. |
| Chapter 5 | Venue™ Components and Function (Theory) | Contains block diagrams and functional explanations of the electronic circuits. |
| Chapter 6 | Service Adjustments | Contains instructions on how to make any available service adjustments to the Venue™ ultrasound scanner. |
| Chapter 7 | Diagnostics/Troubleshooting | Provides instructions for setting up and running diagnostic, troubleshooting and other related routines for the Venue™ ultrasound scanner. |
| Chapter 8 | Replacement Procedures | Provides removal and installation procedures for replacement of all Field Replaceable Units (FRUs). |
| Chapter 9 | Renewal Parts | Contains a complete list of field replaceable parts for the Venue™ ultrasound scanner. |
| Chapter 10 | Care and Maintenance | Provides periodic maintenance procedures for the Venue™ ultrasound scanner. |

NOTE: *The illustrations provided in this service manual are for illustration purposes only and are subject to change without notice.*

1-2-2 **Typical Users of the Basic Service Manual**

This manual is intended for the following categories of users:

- Service personnel (setup, maintenance, etc.).
- Hospital's service personnel
- Architectural planners/installation planners (some parts of [Chapter 2 -Site Preparations](#)).

1-2-3 Venue™ Models Covered in this Manual

The Venue™ models documented in this manual are shown in [Table 1-2](#) below.

Table 1-2 Venue™ Models

| PSI Group | Cat No. | Description | PSI Code | GP Code | Kisyu Code |
|-----------------------------|----------|------------------------------|----------|---------|------------|
| Venue™ R1 | H45051VN | Venue™ ultrasound scanner | UVENUA | 24422A | EXB0 |
| Venue™ R2 | H45281VN | Venue™ R2 ultrasound scanner | UVENUD | 24422B | EXB0 |
| Venue™ R1 to R2 upgrade kit | H45281SW | Venue R1 to R2 Upgrade Kit | UVENUE | 24501A | EXB1 |

NOTE: *When not specified otherwise, the contents in this manual apply to all Venue™ models.*

1-2-4 Product Description

1-2-4-1 Overview of the Venue™ Ultrasound Scanner

The Venue™ is a console, phased, linear array ultrasound imaging scanner. Weighing only 63 Kgs (139 lbs), each system is extremely versatile and, depending upon the installed software, can be used for a variety of applications.

The system provides image generation in 2D, Color Doppler, M-Mode, Color M-Mode and PW.

The fully digital architecture of the Venue™ system allows optimal usage of all scanning modes and probe types throughout the full spectrum of operating frequencies.

Signal flows from the Probe Connector Panel to the Front End, and then over to the Back End Processor and finally to the cockpit and peripherals.

System configuration is stored on the Venue™ .

All necessary software is loaded from the hard drive on power up.

1-2-4-2 How to Turn the Scanner ON and OFF

- To turn the scanner ON see: [Power on/Boot up](#) on page 3 - 26
- To turn the scanner OFF see: [Power Shut Down](#) on page 3 - 26

1-2-4-3 How to Check for Hardware/Software Version and Installed Options

- To verify the hardware versions on the boards:
Refer to HW Version tab.
- To check the software versions on local software on the boards:
Refer to Software Version.
- To check for installed options:
Refer to [Options Setup](#) on page 3 - 52.

1-2-4-4 Purpose of Operator Manual(s)

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

Section 1-3

Important Conventions

1-3-1 Conventions Used in this Manual

1-3-1-1 Model Designations

This manual covers the Venue™ ultrasound units listed in [Table 1-2](#) on page 1-3

1-3-1-2 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.

1-3-1-3 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 to personal are labeled in one of three ways:

- DANGER
- WARNING
- CAUTION

When a hazard is present that can cause property damage, but has absolutely no personal injury risk, a NOTICE is used.

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

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

NOTE: *Notes are used to provide important information about an item or a procedure.*

NOTE: *Be sure to read the notes; the information contained in a note can often save you time or effort.*

1-3-2 Standard Hazard Icons

Important information will always be preceded by either the exclamation point (!) contained within a triangle, or the symbols for “Danger”, “Warning” or “Caution”, as seen throughout this chapter and manual. 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.

Refer to the User Manual for a complete list of icons used on the Ultrasound System; not all icons may be listed in the table below.

Other hazard icons make you aware of specific procedures that should be followed.

Be sure to read the notes; the information contained in a note can often save you time or effort.

NOTE: *The Venue™ system has no unintended or motorized moving parts that could cause pinching; all moving parts are mechanically operated by the user.
Pay attention to move such parts carefully (e.g. articulated arm).*

Section 1-4 Safety Considerations

1-4-1 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.

1-4-2 Human Safety

- Operating personnel must not remove the Ultrasound system covers.
- Servicing should be performed by authorized personnel only.

NOTE: Local laws may restrict this device for sale or use by or on the order of a physician.

 DANGER



DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING AND TESTING.

 **WARNING IF THE COVERS ARE REMOVED FROM AN OPERATING ULTRASOUND SYSTEM, SOME METAL SURFACES MAY BE WARM ENOUGH TO POSE A POTENTIAL HEAT HAZARD IF TOUCHED, EVEN WHILE IN SHUTDOWN MODE.**

 **WARNING BECAUSE OF THE LIMITED ACCESS TO CABINETS AND EQUIPMENT IN THE FIELD, PLACING PEOPLE IN AWKWARD POSITIONS, GE HAS LIMITED THE LIFTING WEIGHT FOR ONE PERSON IN THE FIELD TO 16 KG (35 LBS). ANYTHING OVER 16 KG (35 LBS) REQUIRES 2 PEOPLE.**

 WARNING



FOR CONSOLE ULTRASOUND SYSTEMS AND FOR ULTRASOUND SYSTEMS MOUNTED ON A DOCKING/ISOLATION CART, HAVE TWO PEOPLE AVAILABLE TO DELIVER AND UNPACK THE ULTRASOUND SYSTEM.

ATTEMPTS TO MOVE THE ULTRASOUND SYSTEM CONSIDERABLE DISTANCES OR ON AN INCLINE BY ONE PERSON COULD RESULT IN INJURY OR DAMAGE OR BOTH.

 **WARNING USE ALL PERSONAL PROTECTION EQUIPMENT (PPE) SUCH AS GLOVES, SAFETY SHOES, SAFETY GLASSES, AND KNEELING PAD, TO REDUCE THE RISK OF INJURY.**

 **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 INTRODUCING ADDITIONAL HAZARDS, ONLY
INSTALL GE APPROVED PARTS. DO NOT PERFORM ANY UNAUTHORIZED
MODIFICATION OF THE EQUIPMENT.**



**WARNING FOR CONSOLE ULTRASOUND SYSTEMS AND FOR ULTRASOUND SYSTEMS
MOUNTED ON A CART, WHEN THE TOP CONSOLE IS IN ITS LOCKED POSITION, THE
GAS SHOCK IS COMPRESSED AND STORES MECHANICAL ENERGY. DURING
NORMAL OPERATION THE TOP CONSOLE, THE WEIGHT OF THE MONITOR AND THE
MECHANICAL FORCE OF THE GAS SHOCK ARE IN BALANCE. TAKE CARE IF/WHEN
YOU ACTIVATE THIS GAS SHOCK.**

**PERSONAL INJURY CAN OCCUR AFTER THE PANEL IS REMOVED AND THE SHOCK
PRESSURE IS RELEASED. TAKE CARE WHEN YOU REPAIR THE ELEVATION
ASSEMBLY.**



**WARNING RISK OF ELECTRICAL SHOCK, ULTRASOUND SYSTEM MUST BE TURNED OFF AND
DISCONNECTED FROM POWER SOURCE. CORD MUST BE CONTROLLED AT ALL
TIMES.**

**WAIT FOR AT LEAST 30 SECONDS FOR CAPACITORS TO DISCHARGE AS THERE ARE
NO TEST POINTS TO VERIFY ISOLATION. THE LIGHT ON THE OP PANEL ON/OFF
BUTTON WILL TURN OFF.**

**ULTRASOUND SYSTEM COMPONENTS MAY BE ENERGIZED. ALWAYS REFER TO THE
ULTRASOUND SYSTEM'S SERVICE MANUAL FOR LOTO WARNINGS AND CAUTIONS.
CAPACITORS ON ULTRASOUND SYSTEMS WITH THE SHEARWAVE OPTION CAN
TAKE UP TO 5 MINUTES TO DISCHARGE.**



**WARNING FOR CONSOLE ULTRASOUND SYSTEMS AND FOR ULTRASOUND SYSTEMS
MOUNTED ON A CART, USE EXTREME CAUTION AS LONG AS THE ULTRASOUND
SYSTEM IS UN-STABLE, NOT RESTING ON ALL FOUR CASTERS..**



**WARNING FOR CONSOLE ULTRASOUND SYSTEMS AND FOR ULTRASOUND SYSTEMS
MOUNTED ON A CART, TILTING THE CONSOLE REQUIRES TWO PEOPLE IN ORDER
TO AVOID INJURY TO SERVICE PERSONNEL AND DAMAGE TO THE EQUIPMENT..**



**WARNING USE ALL PERSONAL PROTECTION EQUIPMENT (PPE) SUCH AS GLOVES, SAFETY
SHOES, SAFETY GLASSES, AND KNEELING PADS, TO REDUCE THE RISK OF INJURY.**



**WARNING BEWARE OF POSSIBLE SHARP EDGES ON ALL MECHANICAL PARTS. IF SHARP
EDGES ARE ENCOUNTERED, THE APPROPRIATE PPE SHOULD BE USED TO
REDUCE THE RISK OF INJURY.**



WARNING WEAR ALL PPE INCLUDING GLOVES AS INDICATED IN THE CHEMICAL MSDS.

 CAUTION USE PROTECTIVE GLASSES DURING DRILLING, FILING AND DURING ALL OTHER WORK WHERE EYES NEED PROTECTION.



 CAUTION USE SAFETY SHOES WHEN DOING WORK WHERE THERE IS ANY CHANCE OF FOOT DAMAGE.



 CAUTION USE PROTECTIVE GLOVES WHEN DRILLING AND CUTTING.



1-4-3 Mechanical Safety

- ⚠ WARNING** **PRIOR TO ELEVATING SCANNER, VERIFY THAT THE MONITOR IS LOCKED IN ITS LOWEST POSITION. VERIFY THAT THE FRONT BRAKE IS LOCKED AND THE SCANNER IS UNABLE TO SWIVEL. VERIFY THAT THE REAR BRAKES ARE IN THE LOCKED POSITION.**
- ⚠ DANGER** **WHENEVER THE UNIT IS TO BE MOVED ALONG ANY INCLINE, USE EXTREME CAUTION. MAKE SURE THAT THE VENUE™ SCANNER AND ALL PERIPHERALS ARE SECURELY MOUNTED IN PLACE BEFORE ATTEMPTING TO MOVE IT.**
- ⚠ DANGER** **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.**
- ⚠ DANGER** **NEVER USE A PROBE THAT HAS FALLEN TO THE FLOOR. EVEN IF IT LOOKS OK, IT MAY BE DAMAGED.**
- ⚠ CAUTION** **ULTRASOUND SYSTEM WEIGHTS CAN BE SIGNIFICANT, PLUS THE WEIGHT OF INSTALLED PERIPHERALS, 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.**
- 
- USE THE HANDLE TO MOVE THE ULTRASOUND SYSTEM.
 - BE SURE THE PATHWAY IS CLEAR. LIMIT MOVEMENT TO A SLOW CAREFUL WALK.
 - DO NOT LET THE ULTRASOUND SYSTEM STRIKE WALLS OR DOOR FRAME.
 - USE TWO PEOPLE WHEN MOVING ON INCLINES OR LIFTING MORE THAN 16 KG (35 LBS).
- ⚠ WARNING** **THE SYSTEM SHOULD ONLY BE MOVED WITH THE COCKPIT IN ITS CENTERED AND LOCKED POSITION (IF EXISTS).**
- ⚠ 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.**
- ⚠ CAUTION** **TO AVOID INJURY WHEN YOU MOVE THE COCKPIT AND THE ARM, DO NOT PUT YOUR FINGER, HAND, OR OBJECT ON THE JOINT OF THE COCKPIT OR THE ARM.**
- ⚠ CAUTION** **ENSURE THAT NO-ONE TOUCHES THE CONSOLE ARM/FROGLEG WHEN MOVING THE OPERATOR PANEL.**
- ⚠ CAUTION** **KEEP THE HEAT VENTING HOLES ON THE MONITOR UNOBSTRUCTED TO AVOID OVERHEATING OF THE MONITOR.**
- ⚠ CAUTION** **DO NOT TRANSPORT THE VENUE™ SYSTEM IN A VEHICLE WITHOUT LOCKING THE CASTERS (WHEELS)**

⚠ NOTICE SPECIAL CARE SHOULD BE TAKEN WHEN TRANSPORTING THE ULTRASOUND SYSTEM IN A VEHICLE:

- BEFORE TRANSPORTING, PLACE THE ULTRASOUND SYSTEM IN ITS SPECIAL STORAGE CASE.
- ENSURE THAT THE ULTRASOUND SYSTEM IS FIRMLY SECURED WHILE INSIDE THE VEHICLE.
- SECURE ULTRASOUND SYSTEM WITH STRAPS OR AS DIRECTED OTHERWISE TO PREVENT MOTION DURING TRANSPORT.
- PREVENT VIBRATION DAMAGE BY DRIVING CAUTIOUSLY. AVOID UNPAVED ROADS, EXCESSIVE SPEEDS, AND ERRATIC STOPS OR STARTS.

⚠ WARNING EQUIPMENT DAMAGE COULD RESULT IF SPECIAL CARE IS NOT TAKEN WHEN TRANSPORTING THE VENUE™ SYSTEM IN A VEHICLE.

ALWAYS:

- Eject any media from the media storage devices USB Flash Drive or other.
- Ensure that the cockpit is in locked position.
- Ensure that the Venue™ system is well prepared and packed in its original packaging before transporting. Special care must be taken to correctly position the packing material, using all screws and brackets.

For further information, refer to *Chapter 3 -System Setup*.

- Place the probes in their carrying case.
- Secure the system in an full down position and lock the wheels (brake).
- Ensure that the Venue™ system is firmly secured while inside the vehicle.
- Secure the system with straps or as directed otherwise to prevent motion during transport.
- Prevent vibration damage by driving cautiously. Avoid unpaved roads, excessive speeds, and erratic stops or starts.

⚠ CAUTION BE CAREFUL NOT TO PINCH ANY OF THE CABLES.

1-4-4 Electrical Safety

To minimize shock hazard, the equipment must be connected to a well grounded power source. The system is equipped with a three-conductor AC power cable. This must be plugged into an approved electrical outlet with safety grounding.

To ensure proper grounding, connect this equipment to a receptacle marked "HOSPITAL ONLY" OR "HOSPITAL GRADE".

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 must meet international electrical standards.

**⚠ WARNING CONNECTING A VENUE™ SCANNER TO INCORRECT POWER LEVEL WILL DESTROY THE SYSTEM!!
CONNECT THE SYSTEM ONLY IN ACCORDANCE WITH THE VOLTAGE INDICATED ON THE PRODUCT LABEL.**

**⚠ WARNING SAFE PRACTICES:
FOLLOW THESE GUIDELINES TO MINIMIZE SHOCK HAZARDS WHENEVER YOU ARE USING THE ULTRASOUND SYSTEM:**

- TO MINIMIZE SHOCK HAZARD, THE EQUIPMENT CHASSIS MUST BE CONNECTED TO AN ELECTRICAL GROUND.
- THE ULTRASOUND SYSTEM IS EQUIPPED WITH A THREE-CONDUCTOR AC POWER CABLE. THIS MUST BE PLUGGED INTO AN APPROVED ELECTRICAL OUTLET WITH SAFETY GROUND.
- THE POWER OUTLET USED FOR THIS EQUIPMENT SHOULD NOT BE SHARED WITH OTHER TYPES OF EQUIPMENT.
- BOTH THE ULTRASOUND SYSTEM POWER CABLE AND THE POWER CONNECTOR MUST MEET INTERNATIONAL ELECTRICAL STANDARDS.

1-4-4-1 Probes

All the probes for the Venue™ ultrasound unit are designed and manufactured to provide trouble-free, reliable service. To ensure this, correct handling of probes is important and the following points should be noted:

- Do not drop a probe or strike it against a hard surface, as this may damage the transducer elements, acoustic lens, or housing.
- Do not use a cracked or damaged probe. In this event, call your field service representative immediately to obtain a replacement.
- Avoid pulling, pinching or kinking the probe cable, since a damaged cable may compromise the electrical safety of the probe.
- To avoid the risk of a probe accidentally falling, do not allow the probe cables to become entangled, or to be caught in the system's wheels.

Follow these guidelines before connecting a probe to the scanner:

- Inspect the probe prior to each use for damage or degradation to the:
 - housing
 - cable strain relief
 - lens
 - seal
 - connector pins
 - locking mechanism
- Do not use a damaged or defective probe.
- Never immerse the probe connector or adapter into any liquid.

NOTE: *For detailed information on handling endocavity probes, refer to the appropriate supplementary instructions for each probe. In addition, refer to the Venue™ User Manual for detailed probe handling instructions.*

1-4-4-2 Peripherals**1-4-4-2-1 Safety and Environmental Guidelines**

⚠ WARNING *Do not attempt to use different peripherals & accessories (brand and model connected via USB ports) other than approved and provided by GE Healthcare! The Ultrasound system is extremely sensitive and complex medical system. Any unauthorized peripherals may cause failure or damage!*

⚠ WARNING *Environmental Dangers*

ALL DEVICES MEETING IEC60950 MUST BE KEPT OUTSIDE THE PATIENT ENVIRONMENT AS DEFINED IN IEC60601-1-1, UNLESS THE DEVICES, ACCORDING TO IEC60601-1-1, ARE EQUIPPED WITH THE FOLLOWING:

A) ADDITIONAL FIXED EARTH PROTECTION

OR:

B) AN EXTRA ISOLATING TRANSFORMER

⚠ WARNING *Commercial devices such as laser cameras, printers, VCRs and external monitors, usually exceed allowable leakage current limits and, when plugged into separate AC outlets, are in violation of patient safety standards. Suitable electrical isolation of such external AC outlets, or the provision of extra protective earth for the device, is required in order to meet UL60601-1 and IEC60601-1-1 standards for electrical leakage.*

- **Patient Vicinity UL 60601-1**

Sub clause 2.12.20DV - D2 Addition

An area in which patients are normally cared for, the patient vicinity is the space with surfaces likely to be in contact with the patient or attendant who can touch the patient. This encloses a space within the room of 1.83 m (6 ft.) beyond the perimeter of the bed (examination table, dental chair, treatment booth, and the like) in its intended location, and extending vertically 2.29 m (7.5 ft.) above the floor.

- **Patient Environment IEC 60601-1-1**

Sub clause 2.204

Such an area is an environment in which medical diagnosis, monitoring or treatment is carried out. It is very difficult to attach unique dimensions to the PATIENT ENVIRONMENT. In practice a distance of 2,5 m (8.2 ft.) above the floor on which the medical personnel stand and a horizontal distance of 1,5 m (4.9 ft.) have justified themselves as indicative of the dimensions of the Patient

Environment. The patient environment/vicinity is depicted as a dashed line in this procedure - see the example in [Figure 1-1](#).

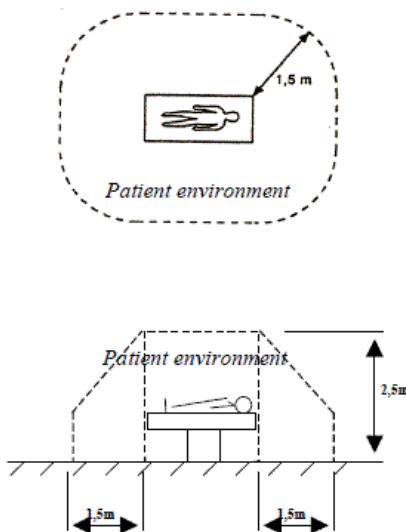
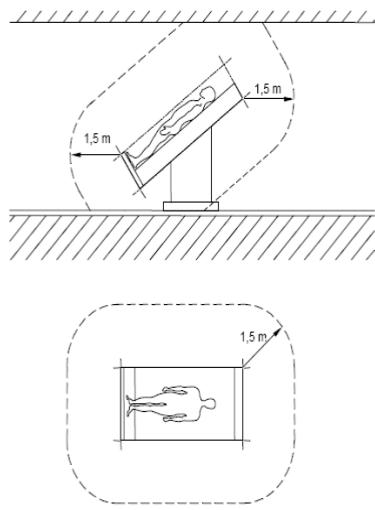


Figure 1-1 Patient Safety Environment

- **Patient Environment EN 60601-1**

Sub clause 3.79 - Patient Environment

It is difficult for this standard to define dimensions for the volume in which diagnosis, monitoring or treatment occurs. The dimensions for the PATIENT ENVIRONMENT given in [Figure 1-2](#) have been justified in practice.



NOTE The dimensions in the figure show minimum extent of the PATIENT ENVIRONMENT in a free surrounding.
IEC 2431/05

Figure 1-2 Example of Patient Environment

1-4-5 **Venue™ Battery Safety**

NOTE: *The Venue™ ultrasound scanner is supplied with two packs of lithium ion batteries in the battery bay.*

The lithium ion batteries provide power for scanning, safely shutting down the system or placing it in *Standby* mode, when an AC power source is interrupted or the AC power cable is disconnected from the wall outlet. Lithium ion batteries last longer than conventional batteries and do not require replacement as often. In *Working* mode, you can expect 4 hours of battery life with fully-charged batteries.

Used batteries should not be placed with common household waste products. Contact local authorities for the location of a chemical waste collection program nearest you.

NOTE: *Regulations vary for different countries. Dispose of a used battery in accordance with local regulations.*

CAUTION **USE ONLY BATTERIES APPROVED BY GE AS SUITABLE FOR USE WITH THE VENUE™ ULTRASOUND SCANNER**

WARNING **The Venue™ battery is an approved UL device.**

DO NOT ATTEMPT TO DIS-ASSEMBLE OR ALTER THE BATTERY!

Always observe the following precautions:

- Do not short-circuit the battery by directly connecting the negative terminals with metal objects.
- Do not heat the battery or discard it in a fire.
- Do not expose the battery to temperatures over 60° C (140° F). Keep the battery away from fire and other heat sources.
- Do not leave the battery in direct sunlight.
- Do not pierce the battery with a sharp object, hit it, or step on it.
- Do not use a damaged battery.
- Do not apply solder to a battery.
- Do not connect the battery to an electrical power outlet.

CAUTION **TO PREVENT THE BATTERY BURSTING, IGNITING, OR FUMES FROM THE BATTERY CAUSING EQUIPMENT DAMAGE, ALWAYS OBSERVE THE FOLLOWING PRECAUTIONS:**

- Do not immerse the battery in water or allow it to get wet.
- Do not place the battery into a microwave oven or pressurized container.
- If the battery leaks or emits an odor, remove it from all possible flammable sources.
- If the battery emits an odor or heat, is deformed or discolored, or in a way appears abnormal during use, or system storage, **immediately remove it and stop using it.**
- If you have any questions about the battery, consult your local GE representative.

1-4-6 **Patient Data Safety**

WARNING **WHILE THE SOFTWARE INSTALL PROCEDURE IS DESIGNED TO PRESERVE DATA, YOU SHOULD SAVE ANY PATIENT DATA, IMAGES, SYSTEM SETUPS TO A USB FLASH DRIVE, EXTERNAL HDD, NETWORK STORAGE OR HARDCOPY BEFORE DOING A SOFTWARE UPGRADE.**

Section 1-5

Dangerous Procedure Warnings

Warnings, such as the examples below, precede potentially dangerous procedures throughout 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 AND TESTING.

 !

WARNING *IF THE COVERS ARE REMOVED FROM AN OPERATING VENUE™ SYSTEM, SOME METAL SURFACES MAY BE WARM ENOUGH TO POSE A POTENTIAL HEAT HAZARD IF TOUCHED, EVEN WHILE IN SHUT DOWN MODE.*

 ! 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.



EQUIPMENT IS NOT SUITABLE FOR USE IN THE PRESENCE OF A FLAMMABLE ANAESTHETIC MIXTURE WITH AIR OR WITH OXYGEN OR NITROUS OXIDE.

 ! DANGER

DO NOT SUBSTITUTE PARTS OR MODIFY EQUIPMENT

BECAUSE OF THE DANGER OF INTRODUCING ADDITIONAL HAZARDS, ONLY INSTALL GE APPROVED PARTS. DO NOT PERFORM ANY UNAUTHORIZED MODIFICATION OF THE EQUIPMENT.

Section 1-6

Lockout/Tagout (LOTO) Requirements

Follow OSHA Lockout/Tagout requirements (USA) or local Lockout/Tagout requirements by ensuring you are in total control of the AC power plug at all times during the service process. This will protect service personnel from injuries caused by unexpected energizing or start-up of equipment during service, repair, or maintenance.

To apply Lockout/Tagout (LOTO):

- 1.) Plan and prepare for shutdown.
- 2.) Shutdown the equipment.
- 3.) Isolate the equipment.
- 4.) Apply Lockout/Tagout Devices.
- 5.) Control all stored and residual energy.
- 6.) Verify isolation.

All potentially hazardous stored or residual energy is relieved.

| | |
|--|--|
|  WARNING  | <p>ENERGY CONTROL AND POWER LOCKOUT FOR VENUE™. WHEN SERVICING PARTS OF THE SYSTEM WHERE THERE IS EXPOSURE TO VOLTAGE GREATER THAN 30 VOLTS:</p> <ol style="list-style-type: none">1) Follow LOCK OUT/TAG OUT procedures2) TURN OFF THE BREAKER.3.) UNPLUG THE SYSTEM.4.) MAINTAIN CONTROL OF THE SYSTEM POWER PLUG.5.) WAIT FOR AT LEAST 30 SECONDS FOR CAPACITORS TO DISCHARGE AS THERE ARE NO TEST POINTS TO VERIFY ISOLATION. THE AMBER LIGHT ON THE OP PANEL ON/OFF BUTTON WILL TURN OFF.6.) BEWARE THAT THE MAIN POWER SUPPLY AND BACK END PROCESSOR MAY BE ENERGIZED EVEN IF THE POWER IS TURNED OFF WHEN THE CORD IS STILL PLUGGED INTO THE AC OUTLET7.) Remove/disconnect the battery if present <p><i>Ultrasound System components may be energized.</i> <i>Capacitors on Ultrasound Systems with the Shearwave Option can take up to 5 minutes to discharge.</i></p> |
|--|--|

Section 1-7

Product Labels and Icons

The Venue™ ultrasound scanner comes equipped with product labels and icons. These represent pertinent information regarding the operation of the unit.

1-7-1 Universal Product Labels

NOTE: *The following diagrams illustrate the labels found on the Venue™ ultrasound unit. For an explanation of label icons and symbols, refer to [Table 1-3 on page 1-23](#).*

A system Rating Label (examples shown in [Figure 1-3](#) and [Figure 1-4](#), below) is located at the rear of the system. This indicates the ultrasound unit's basic power compliance. In addition, a General Label ([Figure 1-6](#) and [Figure 1-7](#), below) provides details regarding regulatory compliance - as well as warnings and cautions.

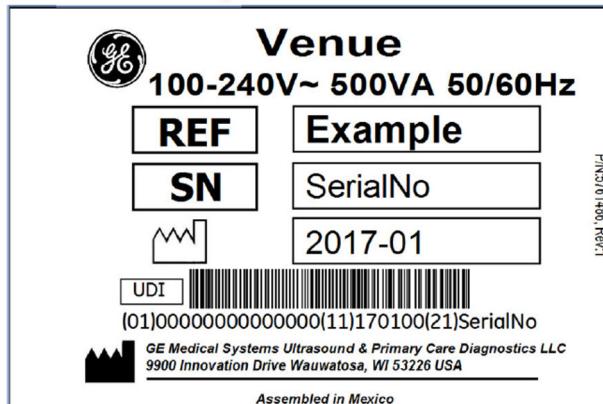


Figure 1-3 Rating Label - Venue™ (100-240V) International - R1



Figure 1-4 Rating Label - Venue™ (100-240V) International - R2

NOTE: *The Serial Number format for Venue R1 is XXXXXXVENUE.
For Venue R2: VEBXXXXXX.
For Venue R1 upgraded to R2: VEAXXXXXX.*

When Upgrading the software from R1 to R2, an electronic label will be displayed under the **About** tab in the **Config** screen.

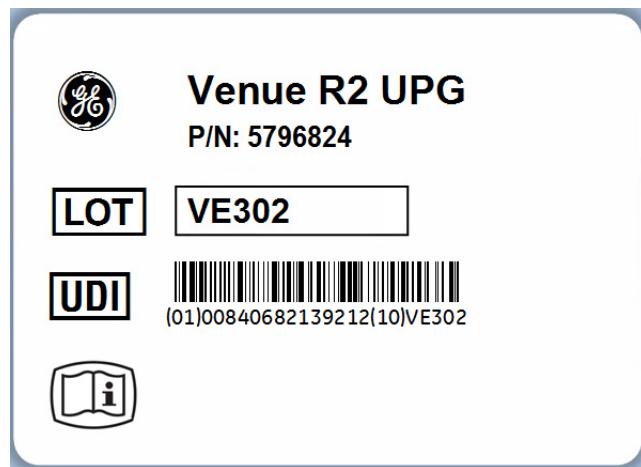


Figure 1-5 Electronic label (eLabel) for R1 to R2 upgrade

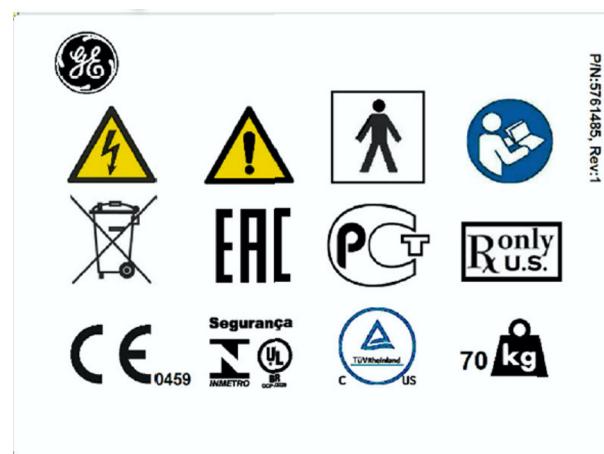


Figure 1-6 General Label - International (R1)

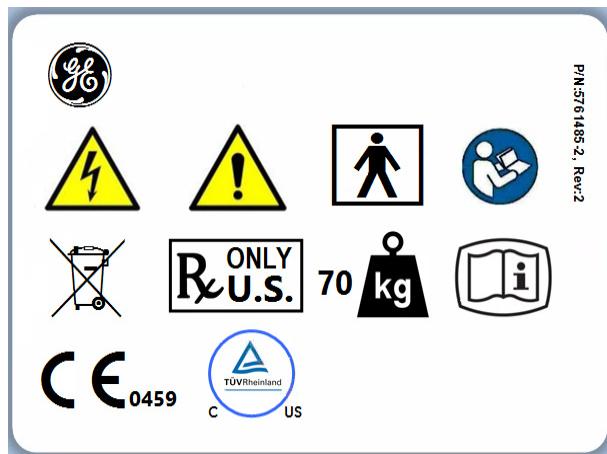


Figure 1-7 General Label - International (R2)



Figure 1-8 Venue Warning Label

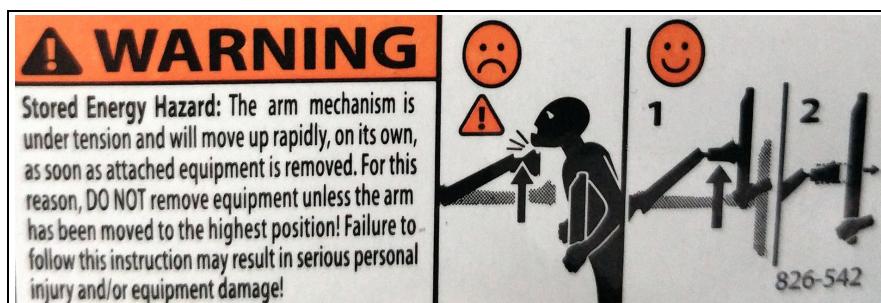


Figure 1-9 Stored Energy Hazard Label

1-7-2 Label Descriptions

The following table shows the labels and symbols that may be found on the Venue™ ultrasound unit, and provides a description of each label's purpose and location.

Table 1-3 Label Icons and Symbols - Description and Location

| Label Name | Description | Location |
|------------|--|-----------------------------------|
| | Equipment Type BF (man in the box symbol) IEC 878-02-03 indicates B Type equipment having a floating applied part. Provides additional safety precautions such as double insulation or reinforced insulation, because there is no provision for protective earthing or reliance upon installation conditions. | Probe connectors and rating plate |
| | ATTENTION- General warning sign Attention - Consult accompanying documents: alerts the user to refer to the user documentation when complete information cannot be provided on the label. | Various |
| | WARNING - Dangerous voltage (the lightning flash with arrowhead in equilateral triangle) is used to indicate electric shock hazards. | Various. |
| | CE mark of conformity | Rear of the system. |
| | Read the Service Manual. Intended to alert the user to refer to the operator manual or other instructions when complete information cannot be provided on the label. | Rear of the system. |
| | Waste Electrical and Electronic Equipment (WEEE) Disposal 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 of the system. |
| | Prescription Device Label United States only | |
| | Indicates compliance with TÜV safety standards IEC 60601-1 3.1 edition Medical Electrical Equipment, part 1 General Requirement for Safety. (USA and Canada). | Rating Plate |

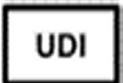
Table 1-3 Label Icons and Symbols - Description and Location (Continued)

| Label Name | Description | Location |
|---|---|--|
|  | Model number | Rating Plate Probes |
|  | Serial number | Rating Plate Probes |
|  | The Month and Year of manufacture | Rating Plate Probes |
|  | Manufacturer's name and address | Rating Plate Probes Rear panel |
|  | Authorized European Representative address | |
|  | Indicates weight of the Venue™ ultrasound scanner. | Various |
|  | CAUTION - Do not push the unit sideways when the caster wheel brakes are in the locked position. Instability may occur. | Rating Plate |
|  | DO NOT place objects on the surface of the rear of the LCD Panel while folded. | Rating Plate |
|  | "Equipotentiality" Indicates the terminal to be used for connecting equipotential conductors when interconnecting (grounding) with other equipment. | Peripherals. |
|  | Alternating current | Various |
|  | "Protective Earth" indicates the protective earth (grounding) terminal | Inside of AC adapter with system Console |

Table 1-3 Label Icons and Symbols - Description and Location (Continued)

| Label Name | Description | Location |
|--|--|--|
|  | <p>“ON” indicates the power on position of the power switch.</p> <p>CAUTION: This Power switch DOES NOT ISOLATE Mains Supply.</p> | See the Console Overview section in the User Manual, for location information. |
|  | Warning, crushing hazard: hand | Rating Plate |
|  | How to lock Operator Panel and Monitor prior to transport | |
|  | <p>This symbol indicates that this electrical and electronic product does not contain any hazardous substances above the maximum concentration value established by the Chinese standard GB/T 26572, and can be recycled after being discarded, and should not be casually discarded</p> | Bottom |
|   | <p>This symbol indicates the product contains hazardous materials in excess of the limits established by the Chinese standard GB/T 26572 Requirements of concentration limits for certain restricted substances in electrical and electronic products.</p> <p>The number in the symbol is the Environment-friendly Use Period (EFUP), which indicates the period during which the hazardous substances contained in electrical and electronic products will not leak or mutate under normal operating conditions so that the use of such electrical and electronic products will not result in any severe environment pollution, any bodily injury or damage to any assets. The unit of the period is “Year”</p> | China Rating Plate |
|  | GOST - R Mark | Rear of the system. |
|  | EAC mark | Rear of the system. |

Table 1-3 Label Icons and Symbols - Description and Location (Continued)

| Label Name | Description | Location |
|---|--|---|
|  | Brazil InMetro Symbol | (Pending Approval) |
|  | GE Logo | |
|  | Type CF Defib-Proof Applied Part (heart in the box with paddle) symbol is in accordance with IEC 60878-02-06. | on ECG module, near ECG patient cable connector |
|  | This device is delivered with Electronic Instructions for Use (eIFU). This electronic IFU can be downloaded from the Internet. A paper copy Instructions for Use can be ordered at no additional cost. | Rating plate or e-Label. |
| Type/Class Label | Used to indicate the degree of safety or protection. | Rear Panel. |
| Assembled in X | Purpose: identify the customs country of origin of the material (x is a country name) Note: When the Assembled in X statement is not shown on the label, this indicates that the Customs country of origin is the same as the country of the legal manufacturer. | |
|  | Every system has a unique marking for identification, the Unique Device Identification (UDI) Label. The UDI label consists of a series of alpha-numeric characters and barcode which uniquely identify the Venue system as a medical device manufactured by General Electric. Scan or enter the UDI information into the patient health record as required by country-specific laws. | Rating plate |
|  | Batch code. Indicates the manufacturer's batch code so that the batch or lot can be identified. | Rating plate or e-Label |
| P/N | Part Number | Rating plate or e-Label |
|  | Type CF Defib-Proof Applied Part (heart in the box with paddle) | on ECG module, near ECG patient cable connector |

1-7-3 **Venue™ External Labels Location**

In addition to the labels described in the previous section, an additional label may be found on the Venue™ ultrasound unit, as described in the following section.

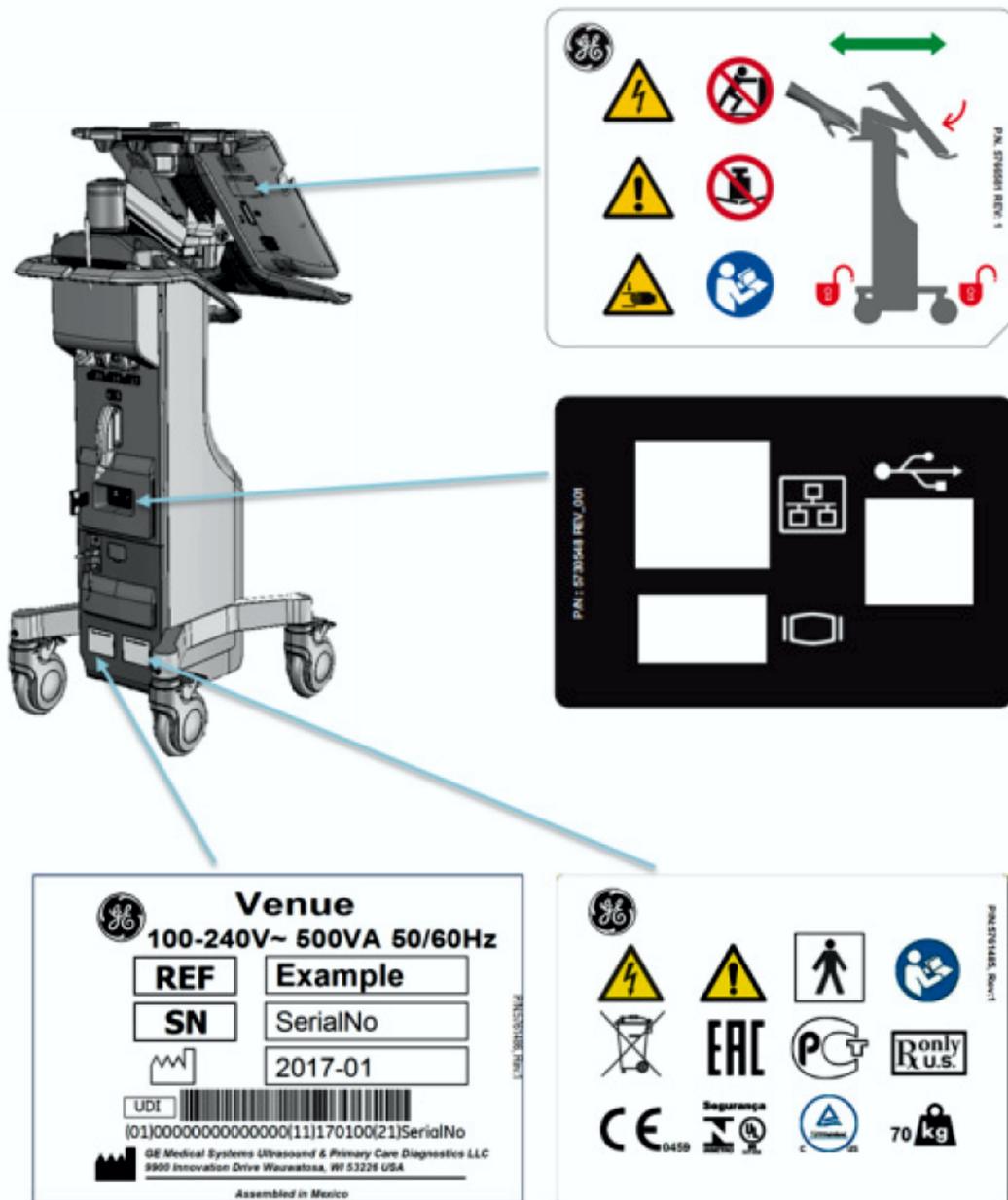


Figure 1-1 Venue™ System - Configuration of Main Hardware Components

Section 1-8 Returning/Shipping Probes and Repair Parts

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

GE policy states that body fluids must be properly removed from any part or equipment prior to shipment. GE 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.*

NOTE: *The USER/SERVICE staff should dispose of all the waste properly, per federal, state, and local waste disposal regulations*

The Venue™ ultrasound scanner is not meant to be used for long-term storage of patient data or images. The user is responsible for the data on the Venue™ and a regular backup is highly recommended.

If the Venue™ is sent for repair, ensure that any patient information is backed up and erased from the Venue™ before shipping. It is always possible during system failure and repair to lose patient data. GE is not responsible for the loss of this data.

If PHI (Patient Healthcare Information) data needs to be sent to GE employees for service purposes, GE will ascertain agreement from the customer. Patient information shall only be transferred by approved service processes, tools and devices restricting access, protecting or encrypting data where required, and providing traceability in the form of paper or electronic documents at each stage of the procedure while maintaining compliance with cross-border restrictions of patient information transfers.

Section 1-9 EMC, EMI, and ESD

1-9-1 Electromagnetic Compatibility (EMC)

Electromagnetic 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 to interference from its environment, or when the device produces unacceptable levels of emission. This interference is often referred to as radio-frequency or electromagnetic interference (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.

NOTE: *The Venue™ ultrasound scanner needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in the accompanying documents (supplied with the system).*

NOTE: *Portable and mobile RF communications equipment can affect the Venue™ ultrasound scanner.*

⚠ WARNING THE USE OF ACCESSORIES, TRANSDUCERS AND CABLES OTHER THAN THOSE SPECIFIED, WITH THE EXCEPTION OF TRANSDUCERS AND CABLES SOLD BY THE MANUFACTURER OF THE Venue™ AS REPLACEMENT PARTS FOR INTERNAL COMPONENTS, MAY RESULT IN INCREASED EMISSIONS OR DECREASED IMMUNITY OF THE Venue™ .

⚠ WARNING THE Venue™ SHOULD NOT BE USED ADJACENT TO OR STACKED WITH OTHER EQUIPMENT AND THAT IF ADJACENT OR STACKED USE IS NECESSARY, THE Venue™ SHOULD BE OBSERVED TO VERIFY NORMAL OPERATION IN THE CONFIGURATION IN WHICH IT WILL BE USED.

1-9-2 Compliance

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

NOTE: *For applicable standards refer to the Safety Chapter in the Venue™ User Manual.*

NOTE: *For EMC Guidance and Manufacturer's Declarations, refer to the tables provided in [Electrostatic Discharge \(ESD\) Prevention](#) on page 1 - 30.*

NOTE: *For CE Compliance, it is critical that all covers, screws, shielding, gaskets, mesh and clamps are in good condition and 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.*

1-9-3 Electrostatic Discharge (ESD) Prevention

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



ALWAYS CONNECT YOURSELF, VIA AN ARM-WRIST STRAP CONNECTED TO THE CAGE ASSEMBLY OR ANY GROUND SCREW WHENEVER YOU OPEN THE SYSTEM FOR MAINTENANCE.

FOLLOW GENERAL GUIDELINES FOR HANDLING OF ELECTROSTATIC SENSITIVE EQUIPMENT.

 **WARNING** **RISK OF ELECTRICAL SHOCK, SYSTEM MUST BE TURNED OFF. AVOID ALL CONTACT WITH ELECTRICAL CONTACTS, CONDUCTORS AND COMPONENTS. ALWAYS USE NON-CONDUCTIVE HANDLES DESIGNED FOR THE REMOVAL AND REPLACEMENT OF ESD SENSITIVE PARTS. ALL PARTS THAT HAVE THE POTENTIAL FOR STORING ENERGY MUST BE DISCHARGED OR ISOLATED BEFORE MAKING CONTACT.**

 **WARNING** **IF THE COVERS ARE REMOVED FROM AN OPERATING Venue™, SOME METAL SURFACES MAY BE WARM ENOUGH TO POSE A POTENTIAL HEAT HAZARD IF TOUCHED, EVEN WHILE IN SHUTDOWN MODE.**

1-9-4 General Caution

 **CAUTION** Any changes to accessories, peripheral units or any other part of the system must be approved by the manufacturer. Ignoring this advice may compromise the regulatory approvals obtained for the product.

Section 1-10 Customer Assistance

1-10-1 Contact Information

If this equipment does not operate as indicated in this *Service Manual* or in the *Venue™ User Manual*, or if you require additional assistance, please contact the local distributor or appropriate support resource, as listed below.

Prepare the following information before you call:

- Ultrasound System ID and/or serial number.
- Software version.
- Date and time of occurrence.
- Sequence of events leading to issue.
- Is the issue reproduceable?
- Imaging mode, probe, preset/application.
- Media brand, speed, capacity, type.

NOTE: Save secondary image capture, cine loop, 4D multi-volume loop. *Restart the application before resuming clinical scanning.*

Table 1-4 Phone Numbers for Customer Assistance 1 of 2

| LOCATION | PHONE NUMBER | |
|--|---|--|
| USA GE Ultrasound Service Engineering 9900 Innovation Drive Wauwatosa, WI 53226 | USCAN Service: On-site Service Parts OLC Application Support | 1-800-437-1171 1-800-558-2040 1-800-321-7937 or 1-262-524-5300 1-800-682-5327 or 1-262-524-5698 |
| Canada | OLC - USCAN | 1-800-321-7937 1-800-668-0732 |
| Latin America | LATAM Service Application Support | +1-262-524-5300 +1-262-524-5698 |
| EMEA Ultrasound Europe GE Ultraschall Deutschland GmbH Beethovenstraße 239 Postfach 11 05 60, D-42655 Solingen Germany | OLC - EMEA Support Phone Support Fax | +49 (0)212 2802 - 652 +49 (0)212 2802 - 431 |
| APAC | Online Services Ultrasound Asia ANZ Service Support Australia Japan Korea Singapore | 1800 647 855 +(61) 1-800-659-465 +(81) 42-648-2940 +(82) 2-1544-6119 +(65) 6277-3444 |

Table 1-4 Phone Numbers for Customer Assistance (Continued) 2 of 2

| LOCATION | PHONE NUMBER | |
|--|--------------|--|
| China | Phone | +(86) 800-810-8188 +(86) 400-812-8188 +(86) 10-6788-2652 |
| India Wipro GE Healthcare Pvt. Ltd. 4, Kadugodi Industrial Area Bangalore - 560 067 India | Phone | +(91) 1-800-425-8025 +(91) 1-800-425-7255 +(91) 1-800-102-7750 |

Table 1-5 Phone and Fax Numbers for Manufacturer

| MANUFACTURER | PHONE NUMBER | FAX NUMBER |
|--|------------------|------------------|
| GE Ultrasound Service Engineering 9900 Innovation Drive Wauwatosa, WI 53226 | (1) 800-437-1171 | (1) 414-721-3865 |

Chapter 2

Site Preparations

Section 2-1

Overview

2-1-1 Purpose of Chapter 2

This chapter provides the information required to plan and prepare for the setup of a Venue™ ultrasound unit. Included are descriptions of the electrical and facility requirements that must be met by the purchaser. A worksheet is provided at the end of this chapter (see [Figure 2-3](#) on page 2-13) to help ensure that all the required network information is available, prior to setup.

Section 2-2 Console Requirements

2-2-1 Unit Environmental Requirements

Table 2-2 Environmental Requirements

| Requirement | Temperature | Relative Humidity (non-condensing) | Air Pressure |
|-------------|---------------------------|------------------------------------|----------------|
| Operational | +10 — +40°C (50 — 104°F) | 30 — 85% | 700 — 1060 hPa |
| Storage | -20 — +60°C (-4 — 140°F) | 10 — 70% | 700 — 1060 hPa |
| Transport | -20 — +60°C (-4 — 140°F)) | 10 — 70% | 700— 1060 hPa |

NOTE: The Venue™ system may be operated at an altitude of up to 3000 meters (9842 ft).

CAUTION **IF THE SYSTEM HAS BEEN IN STORAGE OR HAS BEEN TRANSPORTED, PLEASE SEE THE ACCLIMATION REQUIREMENTS BEFORE POWERING ON AND/OR USING THE SYSTEM.**
Refer to the *Setup Warnings* section on page 3-2.

NOTE: After a long period of storage, or after transportation of the system with the monitor in the folded-down position (transportation mode), it is highly recommended to place the monitor in the upright position - and to leave it in this position for a period of longer than 1 hour before use. This will enable it to properly adjust to the environmental conditions.

2-2-2 Cooling Requirements

The cooling requirement for the Venue™ ultrasound unit environment is 2000 BTU/hr. This figure does not include the cooling required for lights, people, or other equipment in the room.

NOTE: Each person in the room places an additional 300 BTU/hr demand on the environmental cooling.

2-2-3 Lighting Requirements

Bright light is needed for Ultrasound 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 dimmers can be a source of EMI which could degrade image quality. These controls should be selected to minimize possible interference.

2-2-4 Time and Manpower Requirements.

CAUTION  **Two people are required to unpack the Venue™ ultrasound unit; at least two people must be available to roll the system down the wheeling ramp. Attempts to move the system considerable distances (or on an incline) by one person alone, could result in personal injury, and/or damage to the system.**

2-2-5 Electrical Requirements

NOTE: GE 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 Ultrasound system.

Sites with a mains power system with defined Neutral and Live:

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.

NOTE: 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.

2-2-5-1 Venue™ Power Requirements

Electrical specifications for the Venue™ system are as follows:

Table 2-3 Electrical Requirements

| Input Voltage | Tolerances | Op. Current | Frequency |
|--------------------|------------|-------------|-----------|
| 100V AC to 240V AC | ±10% | 500VA | 50-60 Hz |

2-2-5-2 Inrush Current

Inrush current is not a factor for consideration, due to the inrush current limiting properties of the power supplies.

| Voltage | Inrush Current (Console Only) |
|---------|----------------------------------|
| 100 V | 4.5 A |
| 240 V | 2.3 A |

2-2-5-3 Site Power Outlets

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

2-2-5-4 Mains Power Plug

The Venue™ portable ultrasound scanner is supplied with an AC power cable, as standard. In the event that the unit arrives without a power cable, or a power cable fitted with an incorrect plug, contact your GE dealer. When necessary, the installation engineer will supply the appropriate power plug to meet the applicable local regulations.

2-2-5 Power Stability Requirements

- **Voltage drop-out**

Max 10 msec

- **Power Transients**

The Venue™ is fully compliant with the following standard:
EN/IEC 60601-1-2 sections 36.202.1j, 7a(2).

2-2-6 EMI Limitations

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

NOTE: *Possible EMI sources should be identified before the unit is installed, and should not be on the same line as the ultrasound system. A dedicated line should be used for the ultrasound system.*

Electrical and electronic equipment may produce EMI unintentionally as the result of a defect. Some of these sources include:

- medical lasers
- scanners
- cauterizing guns
- computers
- monitors
- fans
- gel warmers
- microwave ovens
- light dimmers
- mobile phones
- in-house wireless phones (DECT phones)
- wireless computer keyboard and mouse
- air conditioning system
- High Frequency (HF) surgery equipment
- general AC/DC adapters

The presence of a broadcast station or broadcast van may also cause interference.

2-2-7 EMI Prevention/Abatement

The following table lists recommendations for preventing EMI:

Table 2-4 EMI Prevention/ Abatement

| EMI Rule | Details |
|--|---|
| Ground the Ultrasound system. | Poor grounding is the most likely reason an ultrasound unit will have noisy images. Check the grounding of the power cord and power outlet. |
| Be aware of Radio Frequency sources. | <ul style="list-style-type: none"> Keep the unit at least 5m (16.4 ft) 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. |
| Reinstall all screws, Radio Frequency gaskets, covers, cores | <ul style="list-style-type: none"> After you finish repairing or updating the Ultrasound system, reinstall all covers and tighten all screws. Any cable with an external connection requires a magnet wrap at each end. Install all covers. Loose or missing covers or Radio Frequency gaskets allow radio frequencies to interfere with the ultrasound signals. |
| Replace broken RF gaskets. | If more than 20% or a pair of the fingers on an Radio Frequency gasket are broken, replace the gasket. Do not turn on the Ultrasound system until any loose metallic part is removed. |
| Do not place labels where RF gaskets touch metal. | Where applicable, never place a label where Radio Frequency gaskets meet the Ultrasound system. Otherwise, the gap created will permit Radio Frequency 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 causes image artifacts. |
| Properly route peripheral cables. | Where applicable, do not allow cables to lie across the top of the Card Rack 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. |

2-2-8 Probe Environmental Requirements

Table 2-5 Probe Operation and Storage Temperatures

| Electronics | |
|------------------|-------------------------|
| Operation | 10 — 40°C (50 — 104°F) |
| Storage | -20 — 50°C (-4 — 122°F) |

NOTE: System and electronic probes are designed for storage temperatures of -20° to +50° C. When exposed to large temperature variations, the probes should be kept at room temperature for a minimum of **10 hours** before use.

2-2-9 Time and Manpower Requirements

Site preparation takes time. Begin site preparation checks as soon as possible, if possible, six weeks before delivery, to allow enough time to make any changes.

! WARNING FOR CONSOLE ULTRASOUND SYSTEMS AND FOR ULTRASOUND SYSTEMS MOUNTED ON A DOCKING/ISOLATION CART, HAVE TWO PEOPLE AVAILABLE TO DELIVER AND UNPACK THE ULTRASOUND SYSTEM.

! CAUTION Attempts to move the Ultrasound system considerable distances or on an incline by one person, could result in injury or damage or both.



Section 2-3 Facility Needs

2-3-1 Purchaser Responsibilities

The work and materials required to prepare the site are the responsibility of the purchaser. purchaser. Delay, confusion, and waste of manpower can be avoided by completing pre-installation work before delivery. Use the Pre-setup Check List (provided in [Table 2-6](#) on page 2-15) to verify that all the required steps have been completed.

Purchaser responsibilities include:

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

Note: *All electrical installations 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, calibrations, and testing must also be performed by qualified personnel. The products involved (and the accompanying electrical installations) are highly sophisticated and special engineering competence is required. All electrical work on these products 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 Ultrasound 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 (preferably prior to the purchase).

The ultrasound suite must be clean prior to delivery of the Ultrasound system. 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 Ultrasound system reliability.

To avoid delays during setup, the individual or team who will perform the setup should be notified at the earliest possible date (preferably prior to setup), of the existence of any of the following variances:

- Use of any non-listed product(s).
- Use of any customer provided product(s).
- Placement of an approved product further from the system than the interface kit allows.

The prepared site must be clean prior to delivery of the system. Carpeting is not recommended because it collects dust and creates static. Potential sources of EMI should also be investigated before delivery. Dirt, static, and EMI can negatively impact system reliability.

2-3-2 Required Facility Needs

The following are mandatory site requirements. Additional (optional) recommendations, as well as a recommended ultrasound room layout, are provided in section [2-3-3 - Networking Pre-Installation Requirements](#) (see below).

- A dedicated "hospital-grade" single branch power outlet of adequate amperage (see [Table 2-3 on page 2-3](#)) that meets all local and national codes and is located less than 2.5 m (8.2 ft) from the unit's proposed location. Refer to the [Electrical Requirements](#) section on page 2-3.
- A door opening of at least 76 cm (30 in) wide.
- The proposed location for the unit is at least 0.5 m (1.5 ft) from the walls, to enable 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 Venue™ system to connect cables.
- Power outlets for other medical equipment.
- Power outlets for test equipment within 1 m (3.2 ft) of the ultrasound unit.
- Clean and protected space to store probes (in their cases or on a rack).
- Material to safely clean probes (done using a plastic container, never metal).
- In the case of a network option:
 - An active network outlet in the vicinity of the ultrasound unit.
 - A network cable of appropriate length (regular Pin-to-Pin network cable).
 - An IT administrator who will assist in configuring the unit to work with your local network. A fixed IP address may be required when using DICOM. Refer to the form provided in [Figure 2-3](#) on page 2-13 for network details that are required.

NOTE: *All relevant preliminary network outlets installations at the prepared site must be performed by authorized contractors. The purchaser of GE equipment must utilize only qualified personnel to perform servicing of the equipment.*

2-3-2-1 Suggested Minimal Floor Plan

NOTE: GE 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 Ultrasound system.

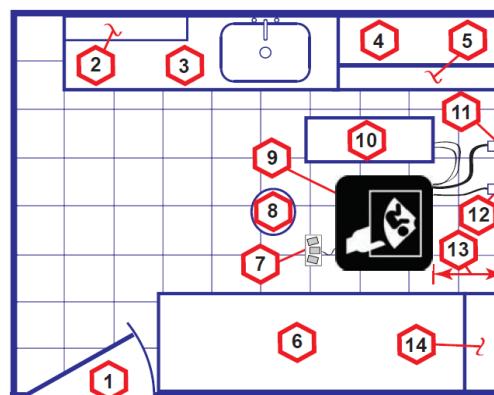
The Ultrasound system will function on voltages from 100-240 Volts and 50 or 60 Hz. However, if using 220 volt power in North America, then a center tapped power source is required.

Sites with a mains power system with defined Neutral and Live:

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.



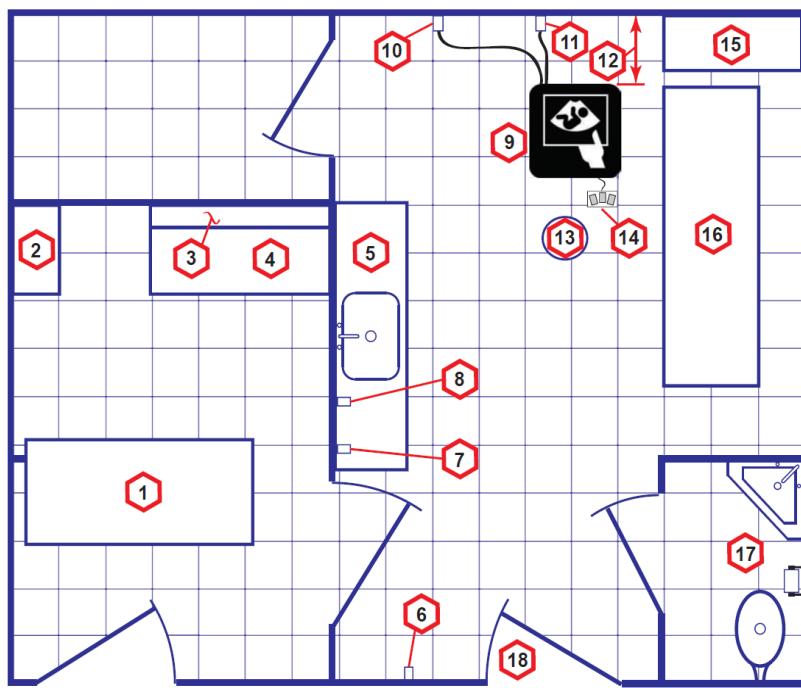
Scale:

Each square equals one square foot (app. 31 x 31 cm)

- | | |
|---|--|
| 1. Door – at least 762 mm (30 inches) | 8. Stool |
| 2. Film Viewer | 9. Ultrasound system |
| 3. Counter Top, Sink with hot and cold water and Supplies Storage | 10. External Peripherals |
| 4. Linen Supply | 11. Dedicated Power Outlet - Circuit Breaker protected and easily accessible |
| 5. Probes/Supplies | 12. Network Interface |
| 6. Examination Table – 1930 x 610 mm (76 x 24 inches) | 13. 457 mm (18 inches) distance of Ultrasound system from wall or objects |
| 7. Footswitch | 14. GE Cabinet for Software and Manuals |

Figure 2-1 Minimal floor plan, 2.5 m x 3 m (8 by 10 foot)

2-3-2-2 Recommended Floor Plan

**Scale:**

Each square equals one square foot (app. 31 x 31 cm)

- | | |
|--|--|
| 1. Secretaries or Doctors Desk | 10. Dedicated Power Outlet - Circuit Breaker protected and easily accessible |
| 2. File Cabinet | 11. Network Interface |
| 3. Film Viewer | 12. 457 mm (18 inches) distance of Ultrasound system from wall or objects |
| 4. Counter Top | 13. Stool |
| 5. Counter Top and Sink with hot and cold water | 14. Footswitch |
| 6. Overhead Lights Dimmer - Dual Level Lighting (bright and dim) | 15. Storage for Linens and Equipment |
| 7. Emergency Oxygen | 16. Examination Table – 1930 x 610 mm (76 x 24 inches) |
| 8. Suction Line | 17. Lavatory and Dressing Room |
| 9. Ultrasound system | 18. Door – at least 762 mm (30 inches) |

Figure 2-2 Recommended floor plan, 4.27 x 5.18 m (14 x 17 foot)

2-3-2-3 Desirable features

- 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

2-3-3 Networking Pre-Installation Requirements

2-3-3-1 Stand-alone Unit (without Network Connection)

None.

2-3-3-2 Unit Connected to Hospital's Network

Supported networks:

- Wireless LAN (Wi-Fi)
- 10/100/1000 Mbps Ethernet

2-3-3-3 Purpose of the 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 DICOM servers for storage and to workstations for viewing images. As an added benefit, transferring images in this manner enables viewing to be done on reviewing station, while scanning continues.

2-3-3-4 DICOM Option Pre-Installation Requirements

To configure the Venue™ ultrasound unit to work with other network connections, the network administrator must provide the required information, which should include the following:

- **Details:** DICOM network details for the Venue™ unit, including the host name, local port, IP address, AE title and network subnet mask.
- **Routing Information:** IP addresses for the default gateway and other routers in use at the site.
- **DICOM Application Information:** Details of the DICOM devices in use at the site, including the DICOM host name, AE title and IP addresses.

Section 2-4

Connectivity Installation Worksheet

| Site System Information | | | | | | | | | | | | | |
|--|---|----------------------|---|----------------------|----------------------|------------------|----------------------|-------------|---|--------------|---|------------------|---|
| Site: | <input type="text"/> | Floor: | <input type="text"/> | Comments: | | | | | | | | | |
| Dept: | <input type="text"/> | Room: | <input type="text"/> | | | | | | | | | | |
| Venue™ SN: | <input type="text"/> | Type: | <input type="text"/> | REV: | <input type="text"/> | | | | | | | | |
| CONTACT INFORMATION | | | | | | | | | | | | | |
| Name | <input type="text"/> | Title | <input type="text"/> | Phone | <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"/> | | <input type="text"/> | | | | | | | | |
| TCP/IP Settings | | | | | | | | | | | | | |
| Scanner IP Settings <table border="1"> <tr> <td>Name - AE Title:</td> <td><input type="text"/></td> </tr> <tr> <td>IP Address:</td> <td><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></td> </tr> <tr> <td>Subnet Mask:</td> <td><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></td> </tr> <tr> <td>Default Gateway:</td> <td><input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></td> </tr> </table> | | | | | | Name - AE Title: | <input type="text"/> | IP Address: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | Subnet Mask: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | Default Gateway: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> |
| Name - AE Title: | <input type="text"/> | | | | | | | | | | | | |
| IP Address: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | | | | | | | | | | | | |
| Subnet Mask: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | | | | | | | | | | | | |
| Default Gateway: | <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> | | | | | | | | | | | | |
| Services (Destination Devices) | | | | | | | | | | | | | |
| Device Type | Manufacturer | Name | IP Address | Port | AE Title | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 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"/> | <input type="text"/> | | | | | | | | |
| 7 <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"/> | | | | | | | | |
| 8 <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"/> | | | | | | | | |
| 9 <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"/> | | | | | | | | |
| 10 <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"/> | | | | | | | | |
| 11 <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"/> | | | | | | | | |
| 12 <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"/> | | | | | | | | |

Figure 2-3 Connectivity Installation Worksheet

| Venue™ | | | | | | | | | |
|--------------------------------------|--------------------------|----------------------|----------------------|-----------------------------|------------------------|------------------------|------------------------|------------------------|----------------------|
| Host Name | <input type="text"/> | Local Port | <input type="text"/> | IP Address | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | <input type="text"/> | |
| AE Title | <input type="text"/> | | Net Mask | | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | <input type="text"/> | |
| ROUTING INFORMATION | | | | GATEWAY IP Addresses | | | | | |
| | Destination IP Addresses | | | | Default | | | | |
| 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"/> |
| 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"/> |
| 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"/> |
| 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"/> . | | |
| Store 2 | <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"/> . | | |
| Store 4 | <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"/> . | | |
| Store 6 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | | |
| Work list | <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"/> . | | |
| MPPS | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | <input type="text"/> . | | |

Figure 2-4 Worksheet for DICOM Network Information

Table 2-6 Venue™ Pre-Setup Check List

| Action | Yes | No |
|---|-----|----|
| Schedule at least 2 hours for setup of the system. | | |
| Notify setup team of the existence of any variances from the basic setup. | | |
| Make sure system and probes have been subject to acclimation period. | | |
| Environmental cooling is sufficient. | | |
| Lighting is adjustable to adapt to varying operational conditions of the scanner. | | |
| Electrical facilities meet system requirements. | | |
| EMI precautions have been taken and all possible sources of interference have been removed. | | |
| Mandatory site requirements have been met. | | |
| If a network is used, IP address has been set for the system and a dedicated network outlet is available. | | |

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Chapter 3

System Setup

Section 3-1 Overview

3-1-1 Purpose of Chapter 3

This chapter provides instructions for setting up the Venue™ ultrasound unit. Before beginning the setup process, an appropriate site must be prepared, as described in *Section 2-3 - Facility Needs*. Once the site has been prepared, setup can proceed as described in this chapter.

Included in this chapter are guidelines for transporting the unit to a new site, as well as procedures that describe how to receive and unpack the equipment, and (if necessary) how to file a damage or loss claim. Instructions for checking and testing the unit, probes, and external peripherals for electrical safety are also provided.

NOTE: A Venue™ is ready for use only if the tests and checks described in *Chapter 3 -System Setup* (this chapter) and *Chapter 4 -General Procedures and Functional Checks* of this Service Manual meet the expected results.

Section 3-2

Setup Reminders

3-2-1 Average Setup Time

The Venue™ setup and functional checkout will take approximately one hour; Venue™ consoles with optional equipment may take slightly longer.

Once the site has been prepared, the average installation time required is shown in [Table 3-8](#) below.

Table 3-8 Average Setup Time

| Description | Average Setup Time | Comments |
|-----------------------------|--------------------|--|
| Unpacking the scanner | 10 minutes | |
| Setting up the scanner | 10 minutes | Time may vary, according to the required configuration |
| DICOM Option (connectivity) | 10 minutes | Time may vary, according to the required configuration |
| Installing InSite | 10 minutes | |

3-2-2 Setup Warnings

- 1.) The Venue™ ultrasound scanner weighs 63 Kgs (139 lbs), without add-ons/peripherals. Two people are always required to unpack the system.
- 2.) There are no operator-serviceable components. To prevent shock, do not remove any covers or panels. If problems or malfunctions occur, unplug the power cord. Only qualified service personnel should carry out servicing and troubleshooting.

NOTE: *For information on shipping carton labels, refer to [Figure 3-5](#) on page 3-5 and [Figure 3-6](#) on page 3-5.*

3-2-2-1 System Acclimation Time

When unpacking the Ultrasound system, allow the temperature of the Ultrasound system to stabilize before powering up. The following table describes guidelines for reaching operational temperatures from storage or transport temperatures.

 **CAUTION** **If the Ultrasound system is very cold or hot, do not turn on its power until it has had a chance to acclimate to its operating environment.**

Following transport, the Venue™ system may be very cold, or hot. Allow time for the system to acclimate before being switched ON. Acclimation requires 1 hour for each 2.5°C increment, when the temperature of the system is below 10°C or above 40°C.

 **CAUTION** **Turning the system ON after arrival at the site - without allowing time for acclimation - may cause system damage!**

6

Table 3-9 Venue™ System Acclimation Time

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

3-2-3 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!

WARNING TWO PEOPLE ARE REQUIRED TO UNPACK THE SYSTEM AS IT IS HEAVY. TWO PEOPLE ARE ALWAYS REQUIRED WHENEVER A PART WEIGHING 16KG (35 LB.) OR MORE MUST BE LIFTED.

CAUTION TO PREVENT ELECTRICAL SHOCK, CONNECT THE UNIT TO A PROPERLY GROUNDED POWER OUTLET.

DO NOT USE A THREE-PRONG TO TWO-PRONG ADAPTER, AS THIS DEFEATS SAFETY GROUNDING.

CAUTION DO NOT WEAR THE ESD WRIST STRAP WHEN YOU WORK ON LIVE CIRCUITS WHERE MORE THAN 30 V PEAK IS PRESENT.

CAUTION DO NOT OPERATE THE UNIT UNLESS ALL BOARD COVERS AND FRAME PANELS ARE SECURELY IN PLACE, TO ENSURE OPTIMAL SYSTEM PERFORMANCE AND COOLING. (WHEN COVERS ARE REMOVED, EMI MAY BE PRESENT).

WARNING

**ACOUSTIC OUTPUT HAZARD**

ALTHOUGH THE ULTRASOUND ENERGY TRANSMITTED FROM THE Venue™ PORTABLE ULTRASOUND SCANNER IS WITHIN AIUM/NEMA STANDARDS AND FDA LIMITATIONS, AVOID UNNECESSARY EXPOSURE. ULTRASOUND ENERGY CAN PRODUCE HEAT AND MECHANICAL DAMAGE.

NOTE: The Venue™ User Manual should be fully read and understood before operating the unit. Keep the manual near the unit for reference.

Section 3-3 Receiving and Unpacking the Equipment

3-3-1 Warnings for Receiving and Unpacking the Equipment

 **CAUTION** Two people are needed to unpack the Ultrasound system because of its weight. Attempts to move the Ultrasound system considerable distances or on an incline by one person could result in injury or damage or both.

Two people are required whenever a part weighing 16 KG (35 LBS) or more must be lifted

 **CAUTION** Remember to use relevant personal protecting equipment (PPE) during packing and unpacking. Check with your local EHS representative.

3-3-2 Overview

 **CAUTION** Please read this section fully before unpacking the Venue™ ultrasound unit.

The Venue™ ultrasound unit, together with the peripherals, probes, cables, and accessories, are shipped from the factory in a single shipping carton or wooden crate mounted on a raised wooden base - see [Figure 3-5](#) on page 3-5.



Figure 3-5 Shipping Carton- Venue™

Table 3-10 Shipping Carton - Dimensions and Weights

| Description | Height | Width | Depth | Weight ^a |
|--|------------------|-----------------|---------------------|---------------------|
| Venue™ scanner with peripherals and accessories | 160 cm 63 ins | 79 cm 31 ins | 77.5 cm 30.5 ins | 121 kgs 267 lbs |

a. Weight is approximate and will vary depending upon the supplied peripherals



Figure 3-6 Additional Labels on Shipping Carton



Figure 3-7 Shipping Packages

3-3-3 Unpacking the Shipping Carton

After completing a visual inspection of the shipping carton, proceed to the unpacking instructions below, as appropriate.

NOTE: *When using utility a knife to cut the nylon wrap take extra care not to scratch the system or any peripheral.*

- 1.) Cut the securing strips.
- 2.) Remove the nylon wrap from the lower part of the package to gain access to the accessories boxes.

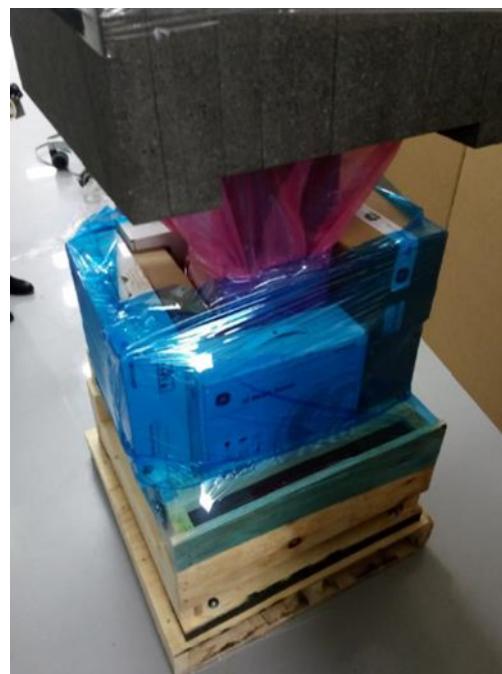


Figure 3-8 Removing Nylon Wrap

- 3.) Remove the accessories boxes.

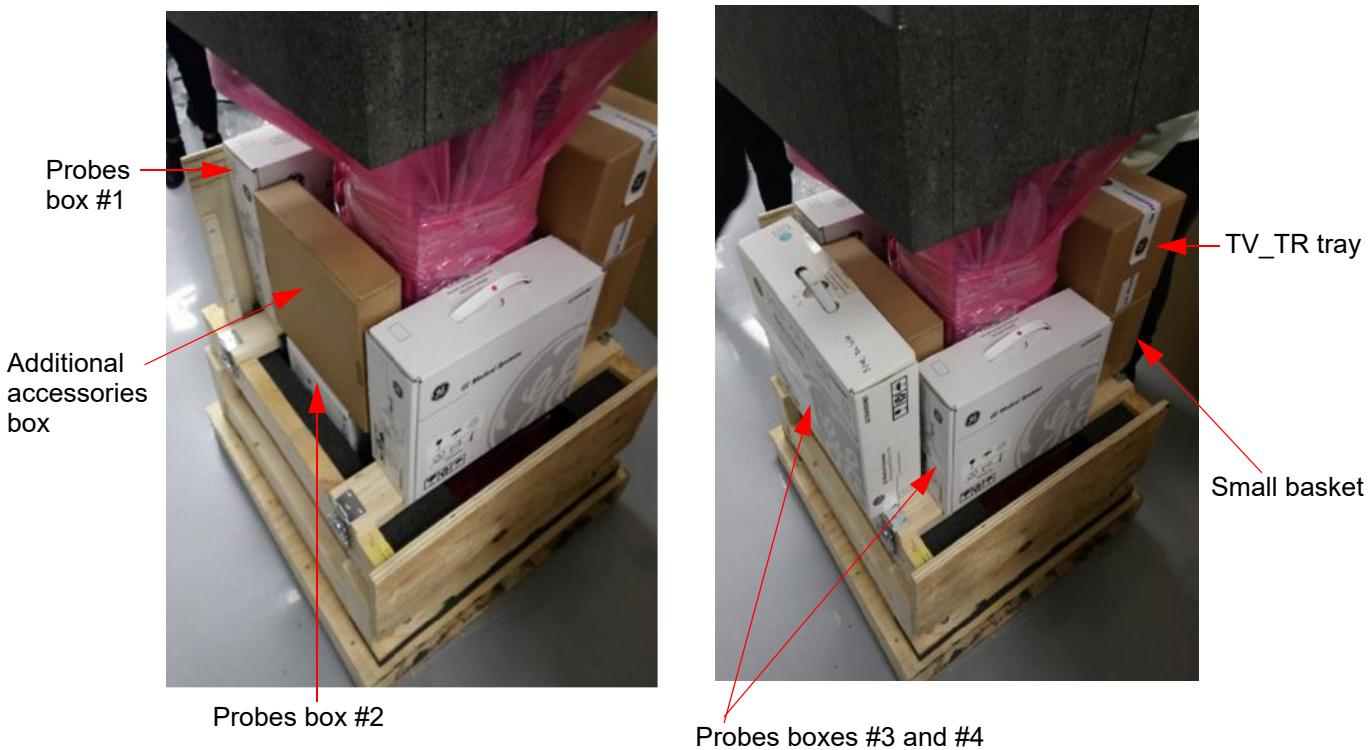


Figure 3-9 Removing Accessories Boxes

- 4.) Remove the protective foams from the top of the system.



Figure 3-10 Removing Protective Foams

-
- 5.) Remove the wooden ramps and then remove the nylon wrap from the system.



Figure 3-11 Removing Nylon Wrap from the System

- 6.) Unlock the four butterfly locks and remove the two wooden brackets.

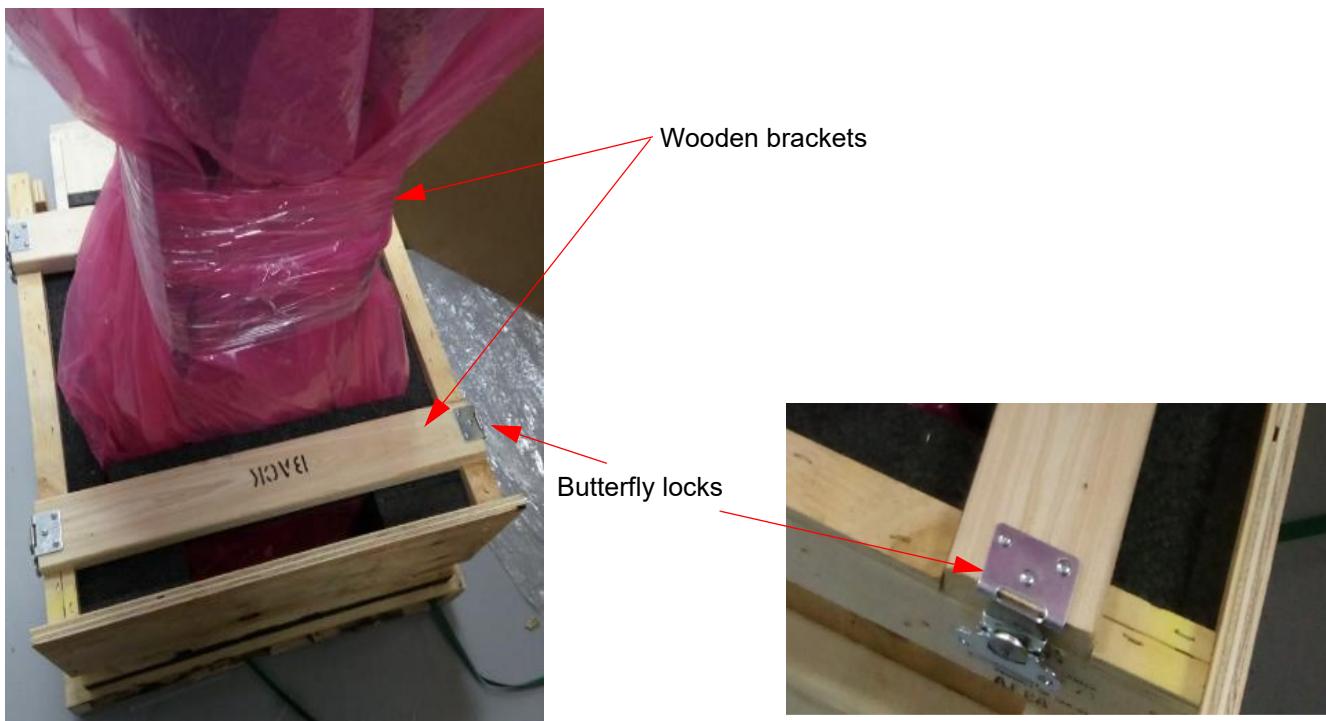


Figure 3-12 Removing Wooden Brackets

- 7.) Remove the silica gel bags.



Figure 3-13 Removing Silica Gel Bags

- 8.) Press down on the front locking brake to unlock the wheel. Repeat for the back wheel.
- 9.) Carefully roll the scanner *forwards* down the unloading ramp to remove it completely from the shipping carton.



Figure 3-14 Removing Silica Gel Bags

- 10.) Make sure the system is standing firmly on the floor before applying the locking brake.
- 11.) Before commencing the installation procedure, follow the instructions for [Physical Inspection](#) on page 3 - 17.
- 12.) Remove the packing slip (shipping consignment note) detailing the contents of the shipping carton and keep close to hand ready to mark the check list - refer to [Physical Inspection](#) on page 3 - 18.

3-3-4 Unpacking the Shipping Crate

- 1.) Remove the locking pin from the safety latches.



Figure 3-15 Removing Locking Pin

- 2.) Remove the locks and open the four safety latches located on both sides of the crate.

CAUTION WHEN USING SHARP TOOLS TO OPEN PACKING MATERIALS, TAKE CARE TO AVOID CUTTING OR DAMAGING ANY OF THE CONTENTS.



Figure 3-16 Opening the Safety Latches

- 3.) The shipping crate contains the following items:

- Venue system
- Power cord
- Manuals
- Accessories

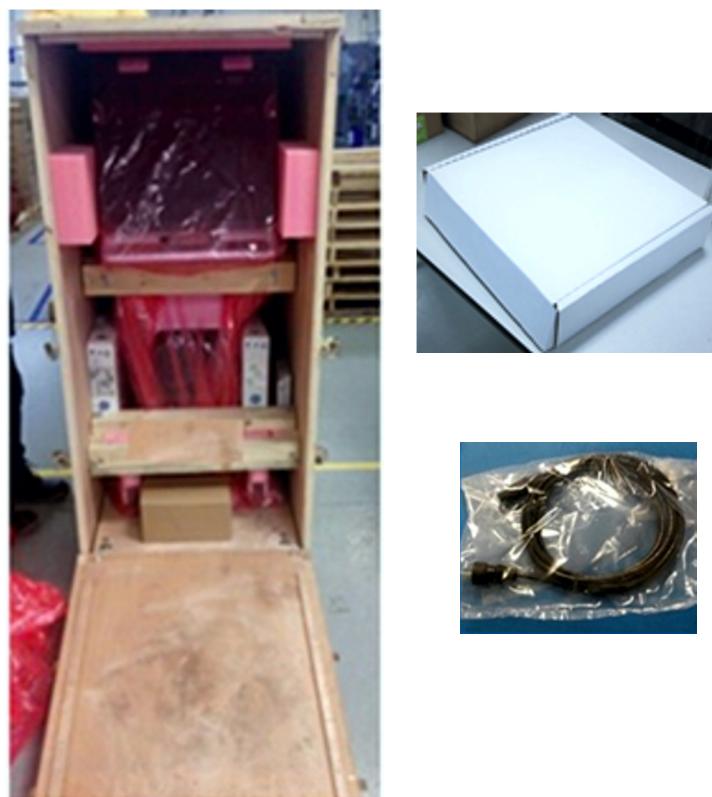


Figure 3-17 Shipping Crate Contents

- 4.) Lay the front wooden crate door (ramp) and secure it with the 2 metal pins located inside the crate.



Figure 3-18 Wooden crate ramp

- 5.) Remove the silica gel bags.

-
- 6.) Remove the anti-static foams.



Figure 3-19 Removing the Anti Static Foams

- 7.) Remove the wooden planks to gain access to the system.



Figure 3-20 Removing the Wooden Planks

- 8.) Remove the plastic bags from the system.



Figure 3-21 Removing Plastic Bags

- 9.) Release the caster locking on the front and rear casters.
- 10.) Carefully roll the scanner *forwards* down the unloading ramp to remove it completely from the shipping crate.

3-3-5 Physical Inspection

3-3-5-1 System Voltage Settings

⚠ WARNING CONNECTING A VENUE™ SCANNER TO INCORRECT VOLTAGE LEVEL WILL MOST LIKELY DESTROY IT.

CONNECT THE SYSTEM ONLY IN ACCORDANCE WITH THE VOLTAGE INDICATED ON THE PRODUCT LABEL.

3-3-6 EMI Protection

The Venue™ Ultrasound 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

Preparing for Setup

3-4-1 Verifying 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.

3-4-2 Physical Inspection

Verify that the Venue™ arrived intact (visual inspection).

If the Venue™ has been damaged, please refer to [DAMAGE IN TRANSPORTATION](#) on page x in the beginning of this manual.

3-4-3 Component Inspection

After verifying that all the required parts are included in the shipping crate, inspect the system components using the checklist supplied below. In addition, ensure that all the labels described in [Chapter 1 - Introduction](#) are present, accurate and in good condition, and enter the serial number printed on the main label into the system installation details card, as described in [Paperwork After Setup](#) on page 3-57.

3-4-3-1 Damage Inspection Checklist

Visually inspect the contents of the shipping carton for damage. If any parts are damaged or missing, contact an authorized GE Service Representative.

A *Damage Inspection Checklist* for the Venue™ ultrasound scanner is provided in [Table 3-11](#) below.

Table 3-11 Damage Inspection Checklist - Venue™ Systems

| ✓ | Step | Item | Recommended Procedure |
|---|------|------------------------------|---|
| | 1 | Console | Verify that the system is switched OFF and unplugged. Clean the console. |
| | 2 | Probes | Check all probes for wear and tear on the lens, cable, and connector. Look for bent or damaged pins on the connector and in the connector socket on the unit. Verify that the EMI fingers around the probe connector socket housing are intact. Check the probe locking mechanism and probe switch. |
| | 3 | Cockpit (Monitor) | Clean the Cockpit (monitor) by gently wiping with a dry, soft, lint-free non-abrasive folded cloth. Inspect the screen surface for scratches and raster burn. |
| | 4 | Fans | Turn on the system and verify that the system's cooling fans are operating. |
| | 5 | Rear Panel | Check the rear panel connectors for bent pins, loose connections and loose or missing hardware. Screw all the cable connectors tightly to the connector sockets on the panel. Verify that the labeling is in good condition. |
| | 6 | Covers | Check that there are no dents or scratches and that no internal parts are exposed. |
| | 7 | Peripherals | Check and clean the peripherals in accordance with the manufacturer's directions. To prevent EMI or system overheating, dress the peripheral cables inside the peripheral cover. |
| | 8 | Power Cord | Check the power cord for cuts, loose hardware, tire marks, exposed insulation, or any deterioration. Verify continuity. |
| | 9 | Casters | Visually check the casters for damages and for proper movement. |
| | 10 | Swivel and Full Lock Castors | Check that the swivel and full lock castors can roll and swivel, and can be placed in the locked position by pressing the foot brake (lower lever) <i>down</i> on each. Ensure that the wheels are locked, unable to swivel <i>left</i> or <i>right</i> , and that there is no movement <i>forwards</i> or <i>backwards</i> . |

3-4-3-2 Front View of the Venue™ Ultrasound Unit

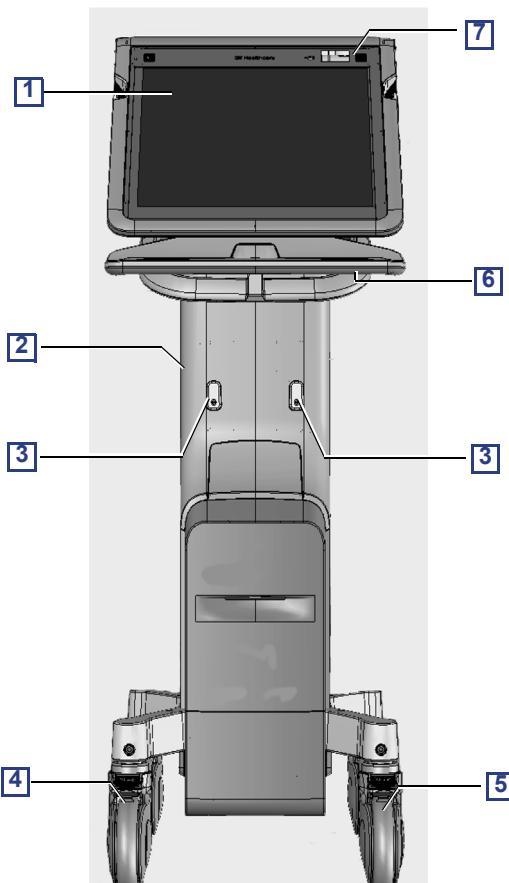


Figure 3-22 Front View of the Venue™ Ultrasound Scanner

| # | Item |
|---|--|
| 1 | Cockpit (monitor): Tilts <i>up</i> and <i>down</i> and swivels <i>left</i> and <i>right</i> . |
| 2 | eTower: |
| 3 | Basket holders |
| 4 | Caster: (1x front) with free movement and no locking. |
| 5 | Swivel and full lock caster: (1x front) |
| 6 | Front Handle |
| 7 | Auxiliary monitor |

3-4-3-3 Rear View of the Venue™ Ultrasound Unit

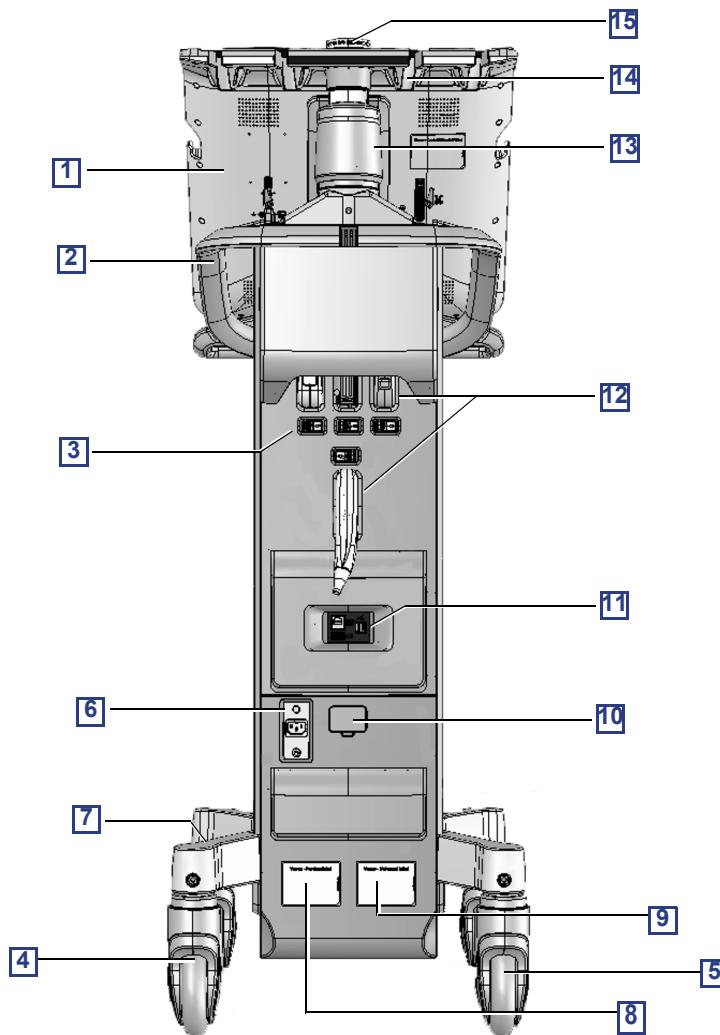


Figure 3-23 Venue™ Rear View

| # | Item | # | Item |
|---|--|----|---|
| 1 | Cockpit (monitor) - rear | 9 | System Label - General Label International |
| 2 | Rear handle: used to pull/push the scanner and place it in the desired position. | 10 | On/Off Switch Cover |
| 3 | Probe locking levers | 11 | Interface Panel: Provides ports for LAN, Insulated USB and Dual USB (see Figure 3-24). |
| 4 | Caster: (1x back) with free movement and no locking. | 12 | Probe Connectors - for 4 RS probes |
| 5 | Swivel and full lock caster: (1x back) | 13 | Articulated Arm |
| 6 | Power inlet connector | 14 | Probe holders |
| 7 | System Base | 15 | Gel Cup Holder: Provides convenient storage for US Gel bottle. |
| 8 | System Label - Rating Plate | | |

3-4-3-4 Peripheral/Accessory Interface Panel

Figure 3-24 shows a view of the Venue™ ultrasound unit rear panel showing external peripheral/accessory connectors.

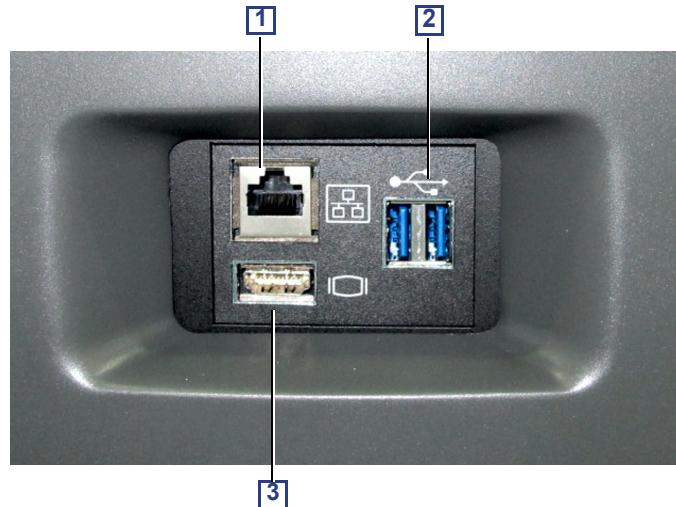


Figure 3-24 View of the Venue™ Peripheral/Accessory Interface Panel

- 1 Ethernet LAN connector — 1000 Base-TX Ethernet IEEE 802.3 (3kV insulation)
- 2 Dual USB 3.0 connector (not insulated)
- 3 HDMI connector (not insulated)

3-4-4 EMI Protection

The Venue™ 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 Venue™ from image artifacts caused by this interference. For this reason, it is imperative that all covers and hardware are installed and secured before the Venue™ is put into operation.

See [EMI Limitations](#) on page 2 - 4 for more information about EMI protection.

Section 3-5 Completing the Setup

3-5-1 Purpose of this Section

This section describes how to complete the setup of the Venue™.

3-5-2 System Specifications

3-5-2-1 System Requirements Verification

- Verify that the site meets the requirements listed in Chapter 2.
(See: [Facility Needs](#) on page 2 - 7.)
- Verify that the specifications below do not conflict with any on-site conditions.

3-5-2-2 Physical Dimensions

Table 3-12 Physical Dimensions of Venue™ with Monitor and Peripherals in Transportation Position

| Height | Width | Depth | Unit |
|--------|-------|-------|--------|
| 131 | 48 | 72.5 | cm |
| 51.57 | 18.89 | 28.54 | Inches |

3-5-2-3 Mass with Monitor and Peripherals

Table 3-13 Mass of Venue™ with Cockpit (monitor), without Probes and Peripherals

| Model | Mass [KG] | Mass [LBS] |
|--------|-----------|------------|
| Venue™ | 63 | 139 |

3-5-2-4 Acoustic Noise Level

Less than 55 dB(A) at 20 degrees Celsius, measured in the operators head position, 20 cm in front of the keyboard's right corner, at 1.30 m above the floor, and in a distance of 1 meter at all four sides, 1 meter above the floor.

3-5-3 Electrical Specifications



WARNING

Connecting a Venue™ to the wrong voltage level will most likely destroy it.

3-5-3-1 Verification of the Venue™ Voltage Setting

Verify that the mains voltage specified for the Venue™ is available on-site.

The voltage setting for the Venue™ is found on a label near the Mains Power Circuit Breaker on the rear of the Venue™ .

3-5-3-2 Electrical Specifications for the Venue™

In the table below, the electrical specifications for Venue™ includes monitor and on board peripherals.

Table 3-14 Electrical Specifications for all Venue™ Models

| | | |
|-------------------|-------------|------|
| Voltage | 100-240 VAC | ±10% |
| Power Consumption | 500 VA | |
| Frequency | 50-60 Hz | |

The current drain will vary depending on the mains voltage.

- At 240 VAC the current may be up to 2.08 A.
- At 100 VAC the current may be up to 5 A.

3-5-4 Connections on the I/O Rear Panel

NOTE:

Accessory equipment connected to the analog and digital interfaces must be certified according to the respective IEC standards (e.g. IEC60950 for data processing equipment and IEC60601-1 for medical equipment). Furthermore, all complete configurations shall comply with the valid version of the system standard IEC60601-1-1. Everybody who connects additional equipment to the signal input part or signal output part of Venue™, configures a medical system, and is therefore responsible that the Ultrasound system complies with the requirements of the valid version of IEC60601-1-1. If in doubt, consult the technical service department or your local representative for GE.

3-5-4-1 Connect Ethernet

Connect the network cable to the Ethernet connector on the External I/O.

The connector is located on the rear side of Venue™ .

3-5-4-2 Connect USB Flash Card

Insert the USB Flash Card in one of the USB ports on the Venue™ .

3-5-5 Connecting Probes

3-5-5-1 Introduction to Connecting Probes

Probes can be connected or changed any time, as described below, regardless of whether the system is powered ON or OFF.

The Venue™ has four RS connectors.

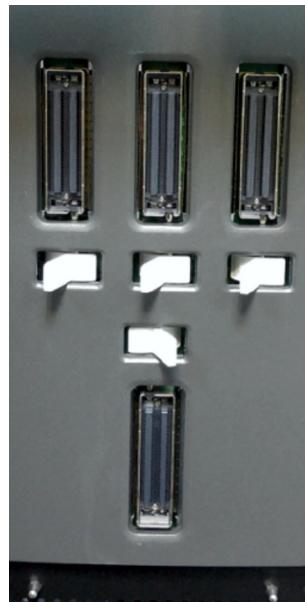


Figure 3-25 Probe Connectors on Venue™ Front End Door

CAUTION **HANDLE THE PROBE GENTLY WHILE CONNECTING AND DISCONNECTING.
DO NOT TOUCH THE PATIENT AND ANY OF THE CONNECTORS ON THE ULTRASOUND UNIT
SIMULTANEOUSLY, INCLUDING ULTRASOUND PROBE CONNECTORS.**

3-5-5-2 Connect a Probe

NOTE: It is not necessary to turn OFF power to connect or disconnect a probe.

! **CAUTION** Do not allow the probe head to hang freely. Excessive impact to the probe will result in irreparable damage.

! **CAUTION** To prevent probe connector pins damage, or PCB board damage, do not use excessive force when connecting the probes.

! **CAUTION** Keep the probe cables away from the wheels.
Do not bend the probe cables.
Do not cross cables between probes.

There are 4 probe connectors on the rear panel of the system, numbered 1 through 4. Each connector is comprised of a probe-socket (6) and a locking latch (5).

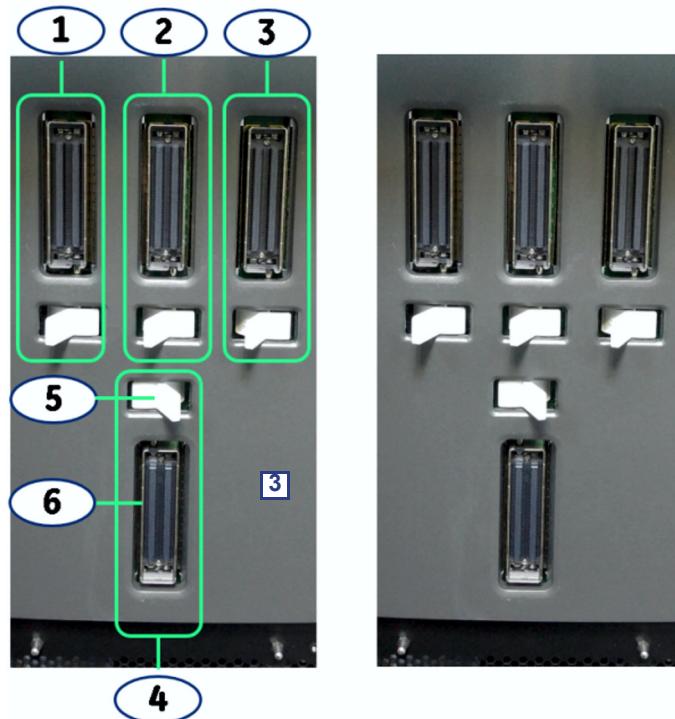


Figure 3-26 **Venue™ Probe Connectors**

- 1) Before connecting the probe:
 - a.) Do a visual check of the probe pins and system sockets.
 - b.) Remove any dust or foam rests from the probe pins.
 - c.) Verify the probe and the probe cable for any visual damage.

To connect a probe to one of the upper sockets 1, 2, or 3:

- 1) Hold the probe connector vertically with the cable pointing upward.
- 2.) Prior to inserting the probe, ensure that the connector locking handle is positioned to the left.
- 3) Align the connector with the probe port and carefully push into place.
- 4) Push the connector locking handle to the right to secure the probe connector.
- 5) Carefully position the probe cord so it is free to move and is not resting on the floor.

To connect a probe to one of the lower socket 4

- 1) Hold the probe connector vertically with the cable pointing downward.
- 2.) Prior to inserting the probe, ensure that the connector locking handle is positioned to the right
- 3) Align the connector with the probe port and carefully push into place.
- 4) Push the connector locking handle to the left to secure the probe connector.
- 5) Carefully position the probe cord so it is free to move and is not resting on the floor.

3-5-5-3**Disconnect Probes**

Follow these steps to disconnect the RS probes, as applicable:

- 1) Move the connector locking lever to the *left* to unlock the connector (For lower socket 4, move the connector locking lever to the *right*)
- 2) Carefully remove the connector from the port.
- 3) Ensure that the probe head is clean before placing the probe in its storage case.

For cleaning instructions, see the *User Manual*.

3-5-6**Power on/Boot up**

For procedure, see: [Power ON/Boot-up](#) on page 4 - 3.

3-5-7**Power Shut Down**

For procedure, see: [Power Shutdown](#) on page 4 - 6.

3-5-8**Complete Power Down**

For procedure, see: [Complete Power Down](#) on page 3 - 26.

Section 3-6 Configuration

3-6-1 Purpose of this Section

This section describes how to configure the Venue™ .

3-6-2 Venue™ Configuration

3-6-2-1 EZ Config - Setup Wizard

The Venue™ Configuration Wizard enables the user to easily configure the system, after SW installation.

- 1.) After the system reboots, the Venue™ setup wizard welcome screen appears:
- 2.) Select the interface language and tap **OK** to proceed.

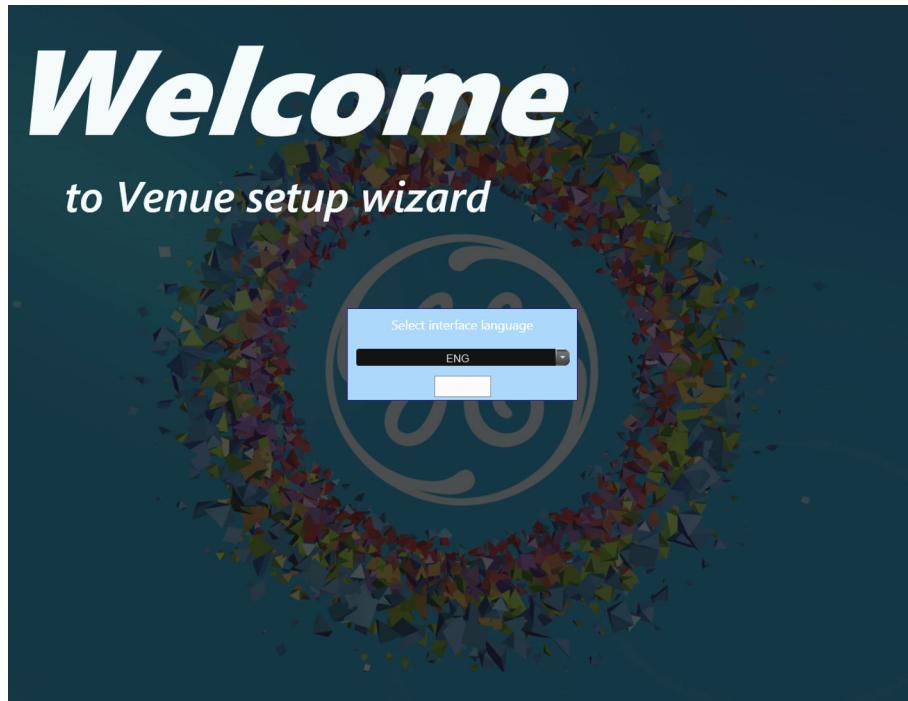


Figure 3-27 Venue™ EZ Config- Welcome Screen

- 3.) Tap **Run wizard** to continue the installation.



Figure 3-28 Venue™ Installation Wizard - Run Wizard

The settings screen appears. The **Local** tab opens by default.

- 4.) Wait while system initializes the setup wizard.

Note: For software version 302.x.x the initialization duration might take up to 15 minutes, due to automatic firmware updates.

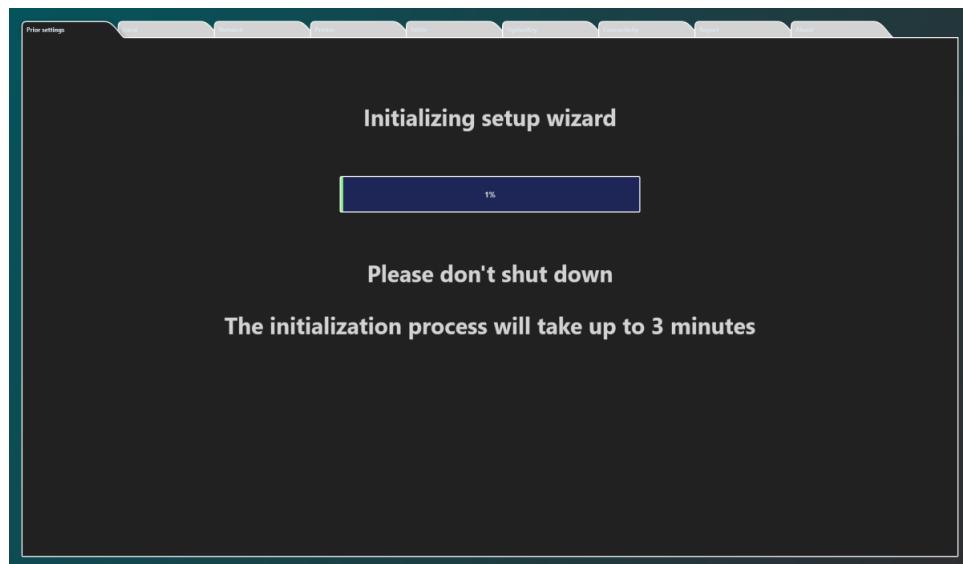


Figure 3-29 Venue™ Setup Wizard - Initialization

- 5.) On the **Local** tab, enter the required details and tap **Save**. Then, proceed to the next tab.

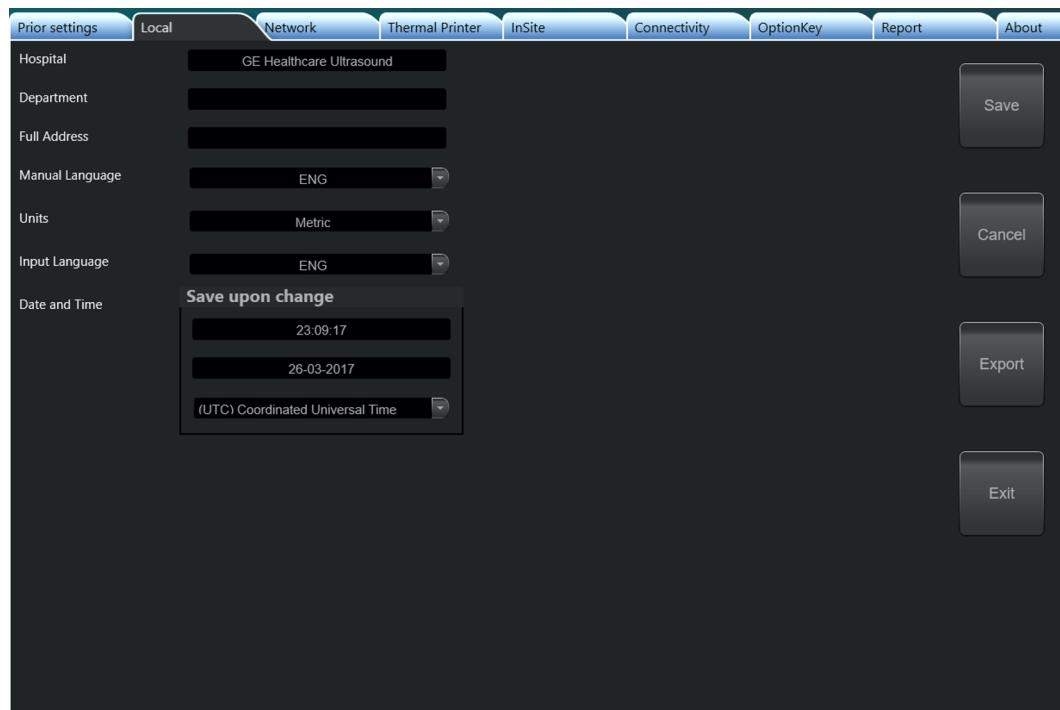


Figure 3-30 Venue™ Installation Wizard - Local Tab

- 6.) On the **Network** tab, define the required settings and tap **Save**. Then, proceed to the next tab.

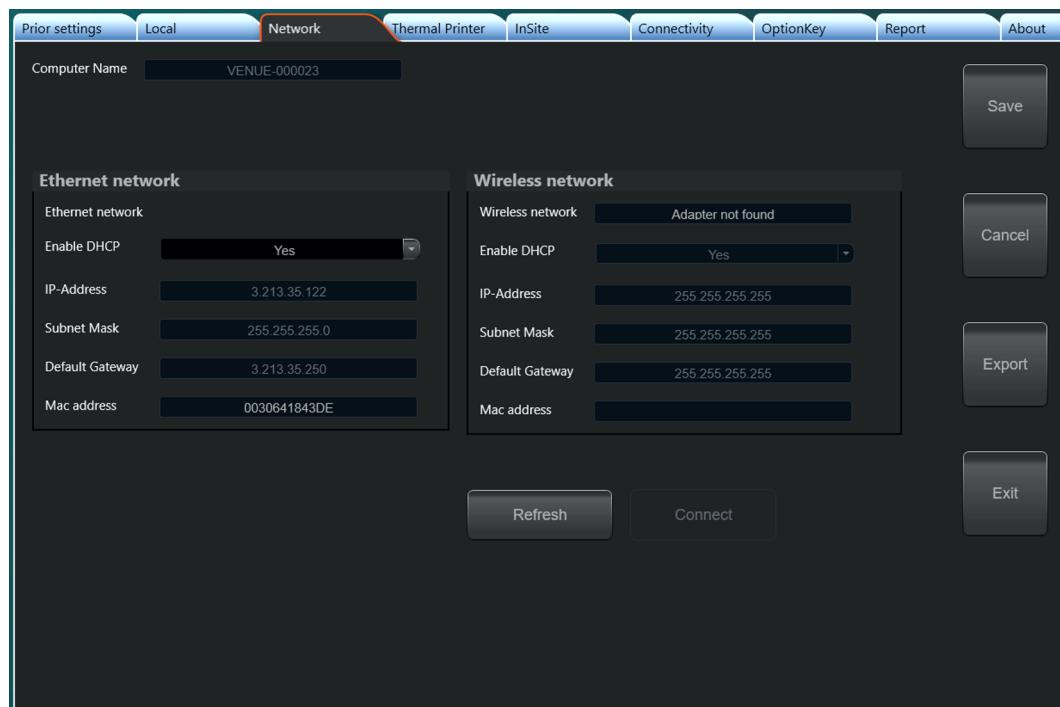


Figure 3-31 Venue™ Installation Wizard - Network Tab

- 7.) On the **Thermal Printer** tab, configure the printer and tap **Save**. Then, proceed to the next tab. If

the printer is already configured, skip this step and proceed to the next one.

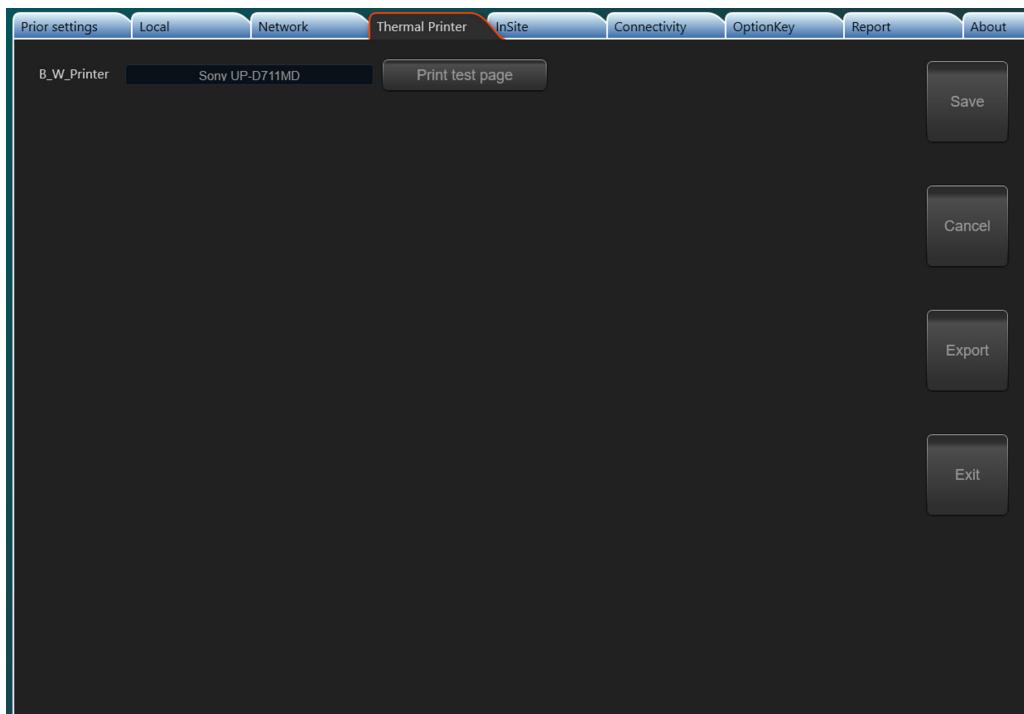


Figure 3-32 Venue™ Installation Wizard - Thermal Printer Tab

- 8.) On the **InSite** tab, define the required settings and tap Submit Changes. Make sure you fill all mandatory fields (highlighted in bold). Then, proceed to the next tab.

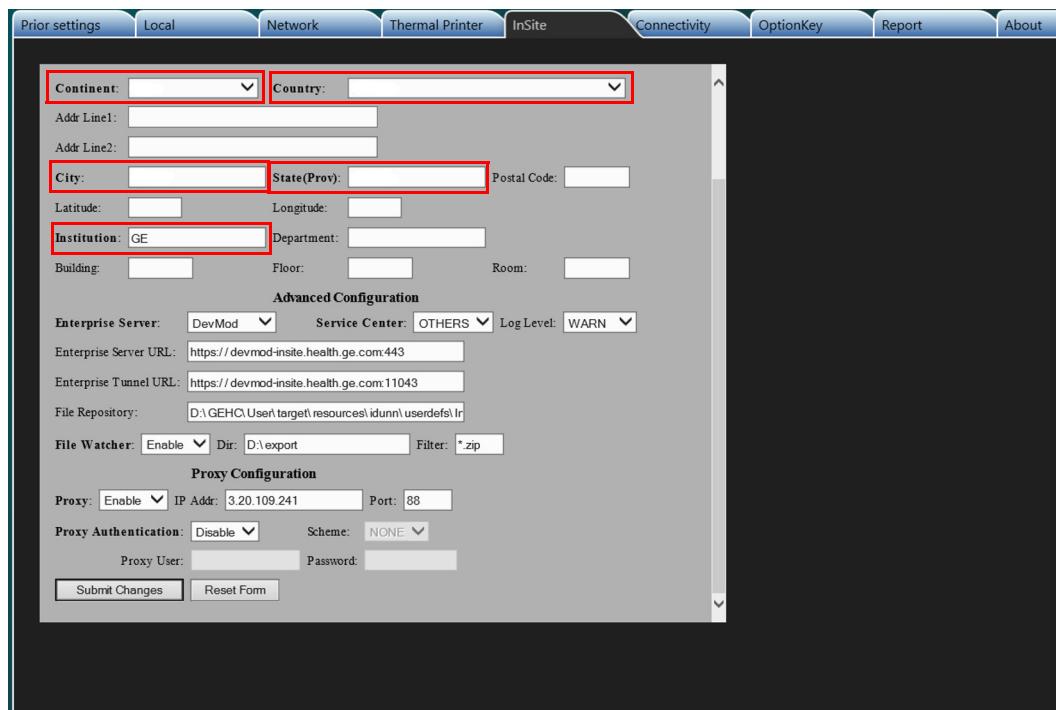


Figure 3-33 Venue™ Installation Wizard - InSite Tab

- 9.) On the **Connectivity** tab, enable the required settings in the Connectivity items list, by moving the **On/Off sliders** to On. Then, select each Connectivity item to define its properties. Tap **Apply** and then **Save**. Then, proceed to the next tab.



Figure 3-34 **Venue™ Installation Wizard - Connectivity Tab**

- 10.) On the **OptionKey** tab, enter the key string to enable the purchased options and tap **Save**. Then, proceed to the next tab.

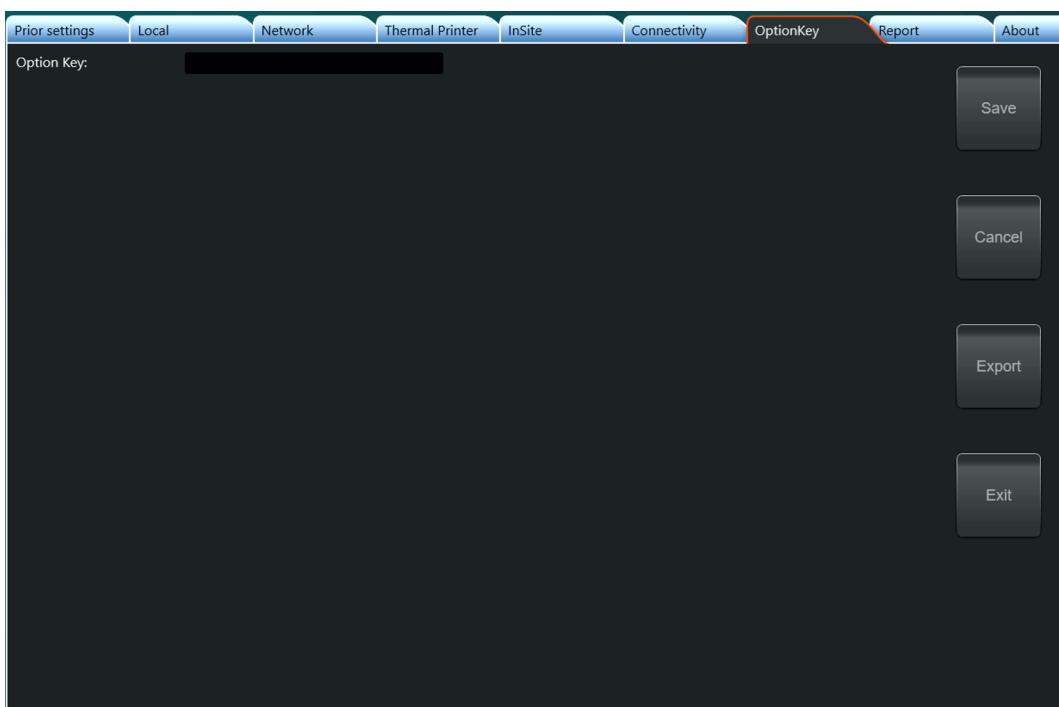


Figure 3-35 **Venue™ Installation Wizard - OptionKey Tab**

- 11.) On the **Reports tab**, view the defined settings and tap **Save As** to save the report. Save the report on USB flash memory. Then, proceed to the next tab.

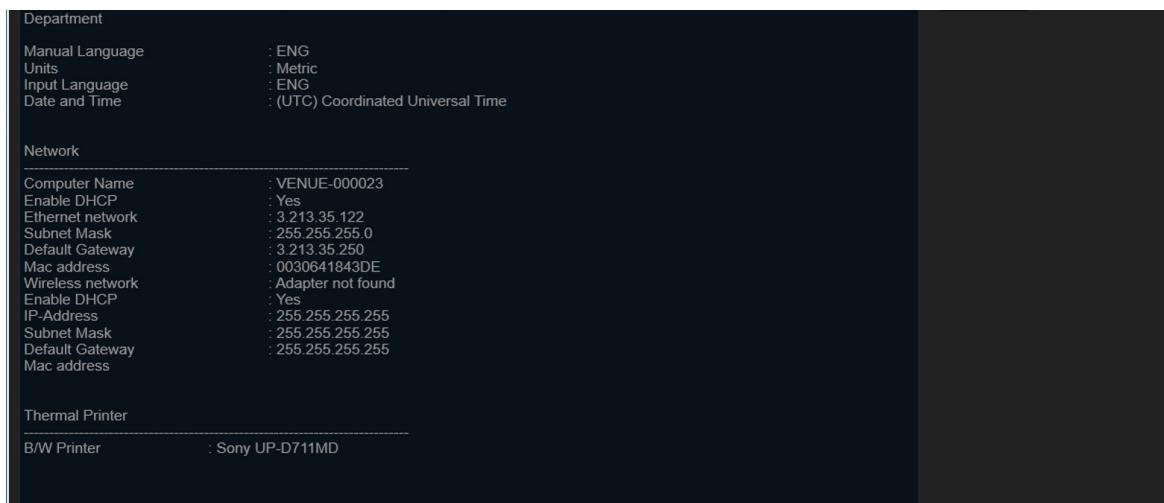


Figure 3-36 **Venue™ Installation Wizard - Report Tab**

- 12.) On the **About tab**, view all settings defined on each tab, and click **Save** to save the entire set of defined settings. Then click **Exit**, to exit the Setup Wizard.

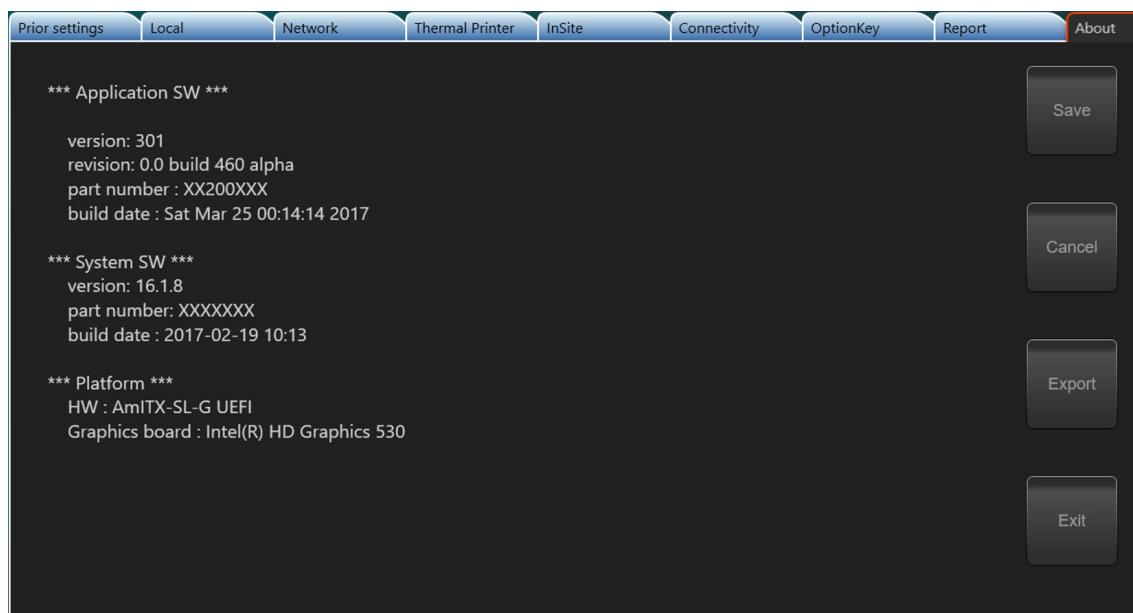


Figure 3-37 **Venue™ Installation Wizard - About Tab**

NOTE: To reinitialize the EZ Config wizard, access the Service tab under the System Configuration menu (refer to [Open Service Screen](#) on page 3 - 41).

3-6-2-2 Accessing System Configuration Settings

All settings configured by the EZ Config wizard can be modified via System Configuration Settings. To access these settings, perform the following steps:

- 1) On the Home screen tap: **Settings >> Config.**

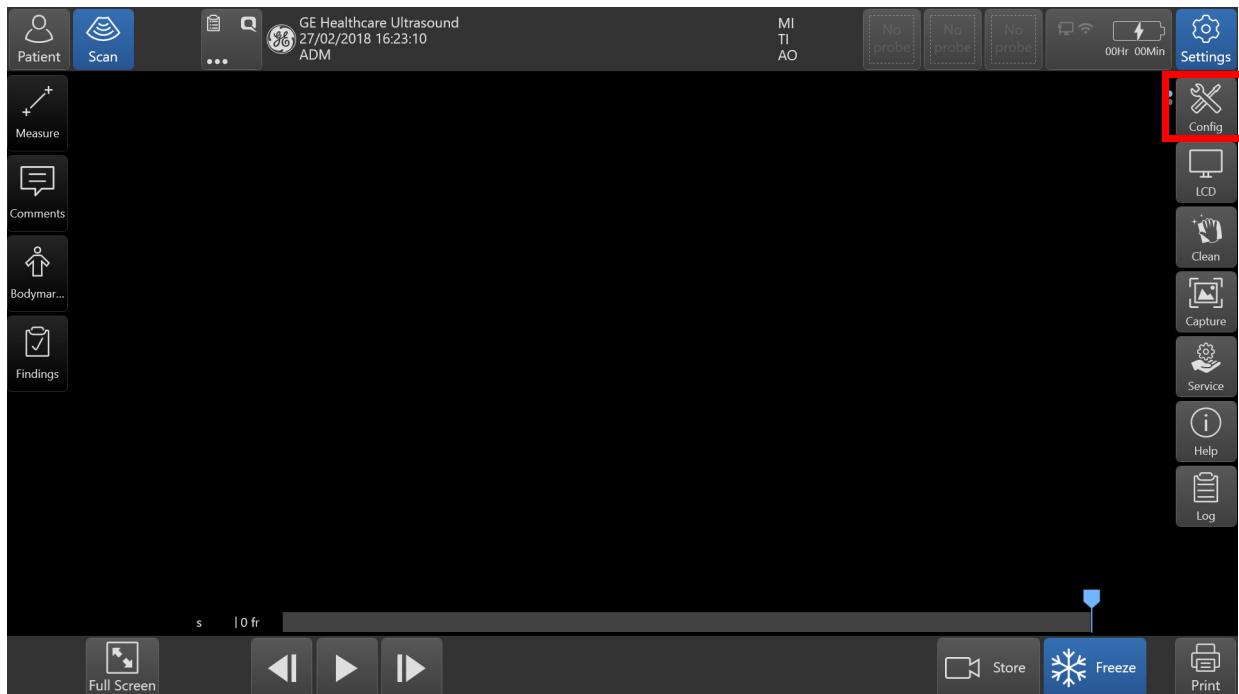


Figure 3-38 Home Screen - Settings Menu

- 2) Log on as **ADM**.

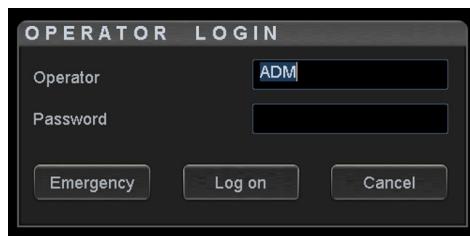


Figure 3-39 Operator Login

- 3) From the Config side menu, select **System >>Settings**

The **System Settings** screen is displayed.

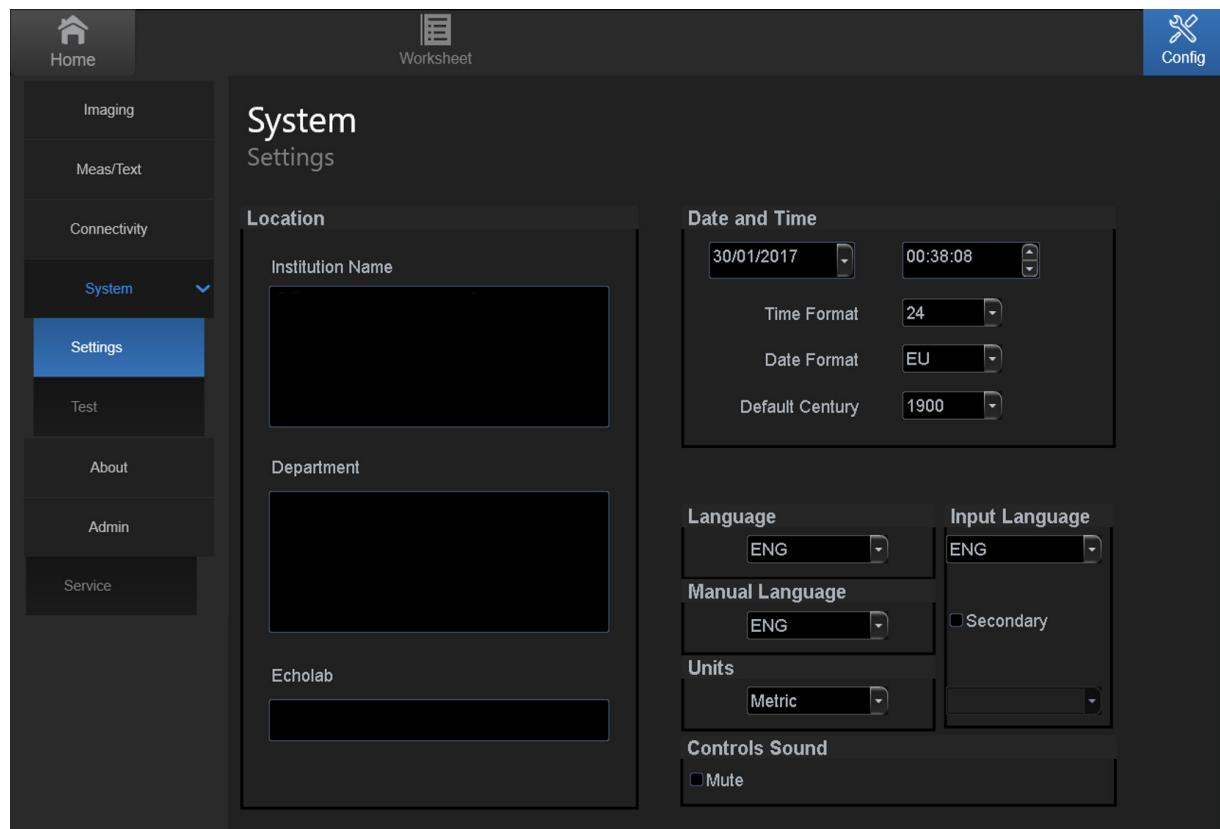


Figure 3-40 System Settings

3-6-2-3 Enter Location

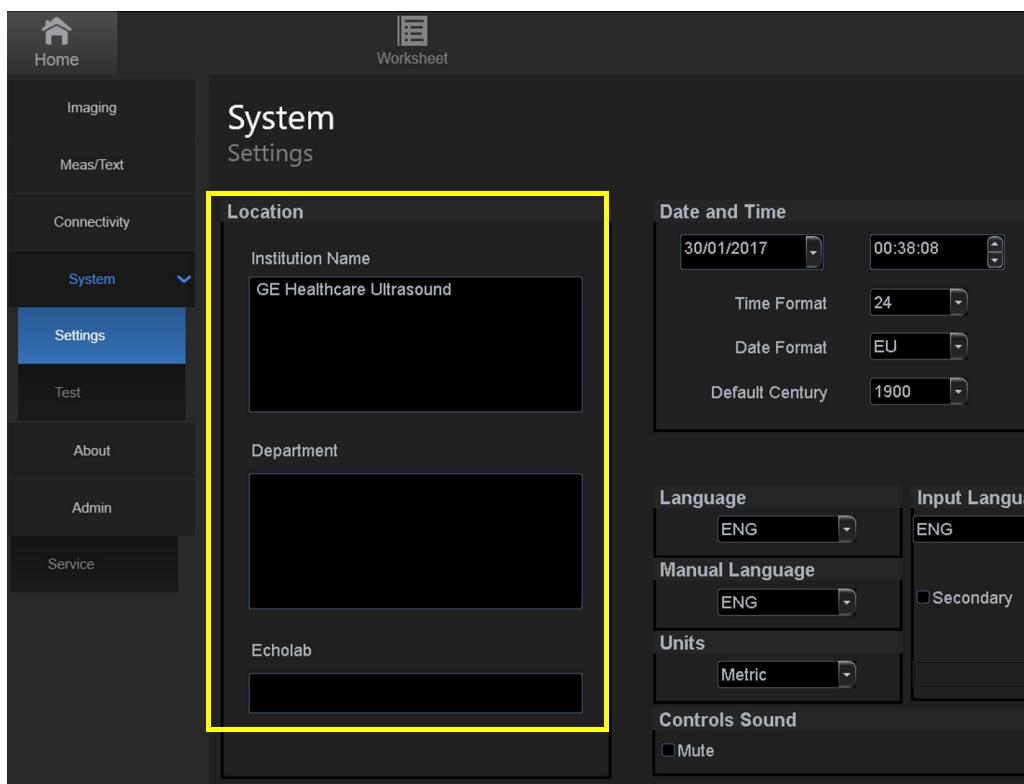
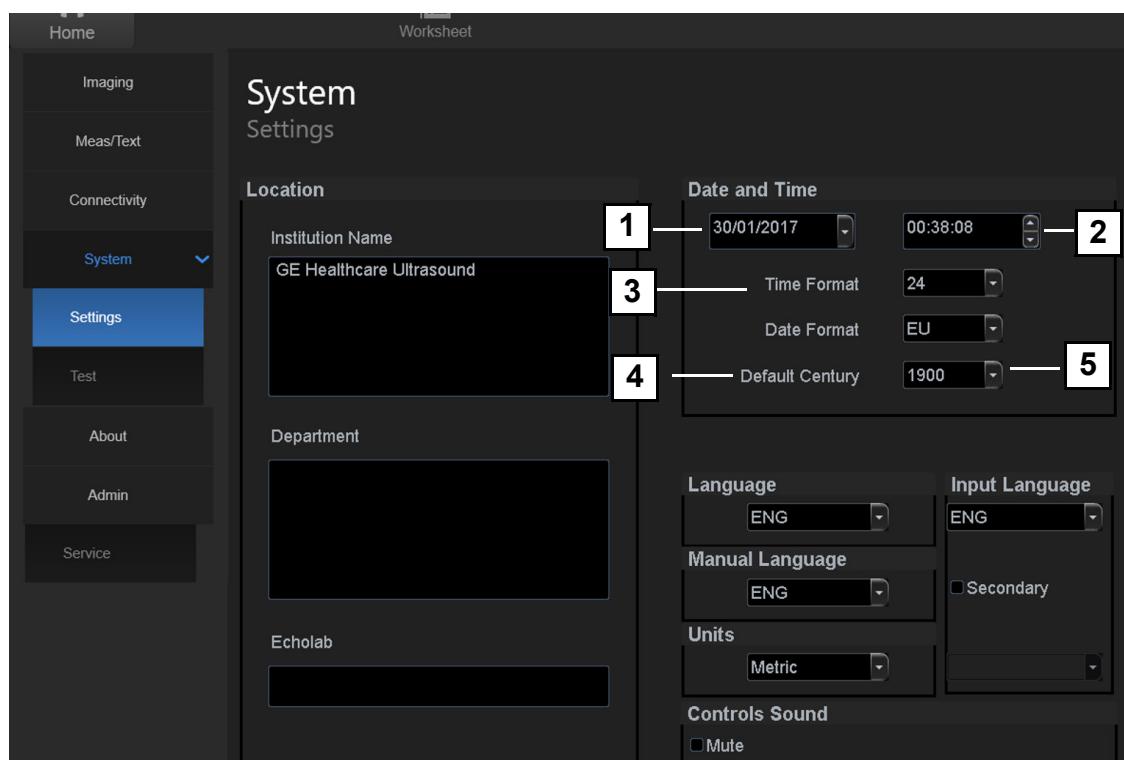


Figure 3-41 Enter Location

Table 3-15 Enter Location

| STEP | TASK | EXPECTED RESULT(S) |
|------|---|---|
| 1. | Select the Hospital field and type the name of the hospital (max 64 characters). | After restart: <ul style="list-style-type: none">The 24 first characters of this name are displayed on the scanning screen's title bar.All 64 are displayed on the image properties on saved images. |
| 2. | Select the Department field and type the name of the department (max 64 characters). | After restart: <ul style="list-style-type: none">This name will be displayed on the image properties on saved images |
| 3. | Select the Echolab field and type the name. | After restart: <ul style="list-style-type: none">This name will be displayed on the image properties on saved images |

3-6-2-4 Adjust Date and Time

1. Date
2. Time
3. Time Format

4. Date Format
5. Default Century

Figure 3-42 Date and Time Adjustments

Table 3-16 Date and Time Adjustments

| STEP | TASK | EXPECTED RESULT(S) |
|-------------|--|--|
| 1. | <ul style="list-style-type: none"> Open the System (Configuration) Window, Select Settings, if needed. | The Settings window is displayed. |
| 2. | Select the preferred Date Format , see (d) in Figure 3-19. <ul style="list-style-type: none"> DD = Date (two digits) MM = Month (two digits) YYYY = Year (four digits) | <ul style="list-style-type: none"> EU: the European/International “DD.MM.YYYY” format is used US: the American “MM.DD.YYYY” format is used |
| 3. | Select the preferred Time Format , see (3) in the figure. | <ul style="list-style-type: none"> 24: the 24 hour format is used 12: the 12 AM/PM hour format is used |
| 4. | Adjust the date , see (1) in the figure. | New date is displayed |
| 5. | Adjust the time , see (2) in the figure. | New time is displayed |
| 6. | Select Default Century (1900, 2000 or None), see (5) in the figure. | <ul style="list-style-type: none"> 1900: <ul style="list-style-type: none"> the number 19 is automatically displayed when entering the year in the patient date of birth. To edit century, press BACKSPACE twice. 2000: <ul style="list-style-type: none"> the number 20 is automatically displayed when entering the year in the patient date of birth. To edit century, press BACKSPACE twice. None: <ul style="list-style-type: none"> the four digits have to be typed when entering the year in the patient date of birth. The selected setting will be used as soon as the unit has been restarted. |

3-6-2-5 Select Language for User Interface and Online Manuals

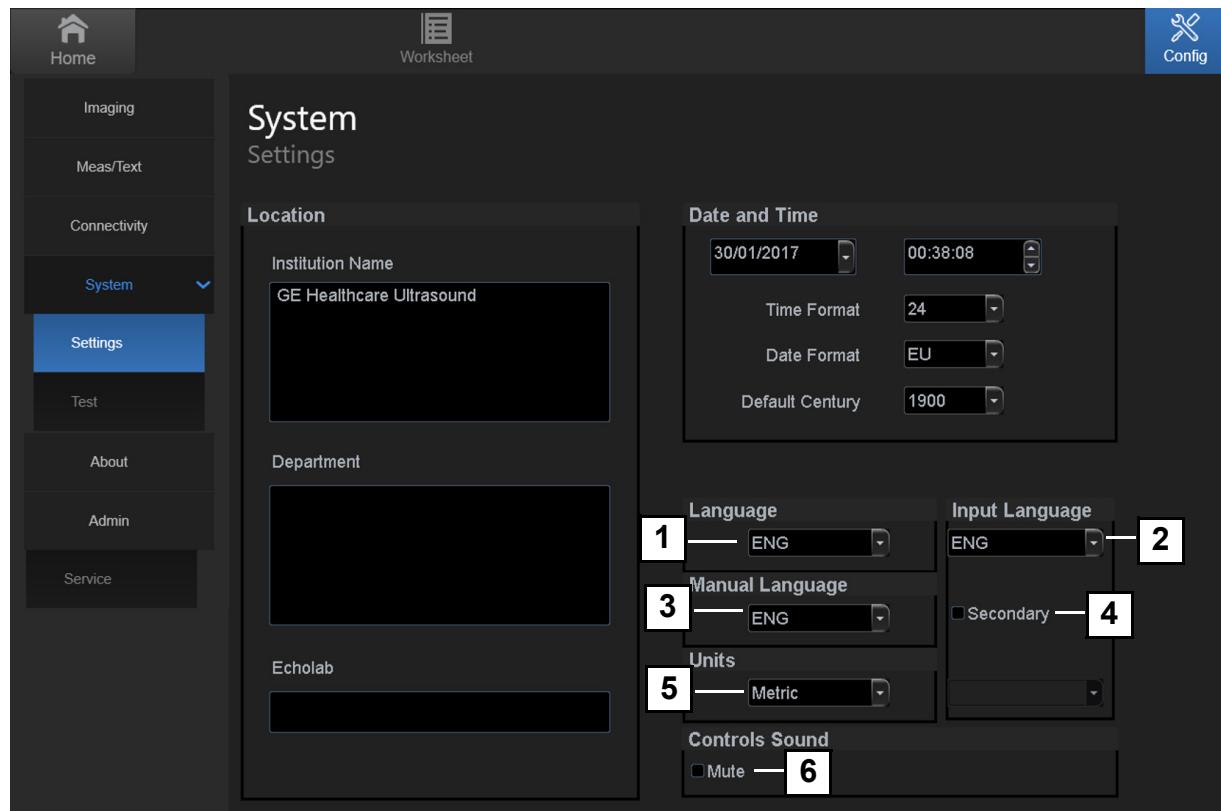
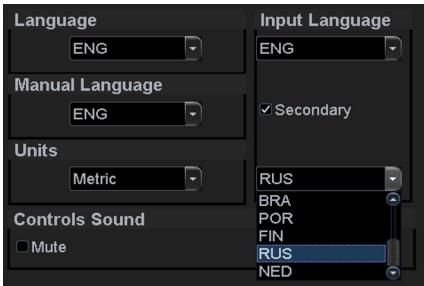


Figure 3-43 Select Language, Units and Controls Sound

Table 3-17 Select Language for User Interface and Online Manuals

| STEP | TASK | EXPECTED RESULT(S) |
|-------------|---|--|
| 1. | From the Settings screen, select the preferred User Interface language from the Language pulldown menu (1). | The selected language will be used as soon as the unit has been restarted. |
| 2. | Use the Input Language pulldown menu (2) to select the preferred language for the character set. | The selected language for character set will be used as soon as the unit has been restarted. |
| 3. | Use the Manual Language pulldown menu (3) to select the preferred language for the online manual. | The selected language will be used as soon as the unit has been restarted. |
| 4. | Select the Secondary check box to enable the multi language keyboard characters support. Then, from the pulldown menu, select the required language. | The selected language will be used as soon as the unit has been restarted.  |
| 5. | See Table 3-18 on page 3-40 | See Table 3-18 on page 3-40 |
| 6. | See Table 3-18 on page 3-40 | See Table 3-18 on page 3-40 |

3-6-2-6 Select Units of Measure and Controls Sound**Table 3-18 Select Units of Measure and Controls Sound**

| STEP | TASK | EXPECTED RESULT(S) |
|-------------|--|---|
| 1. | In the Settings window, use the Units pull down menu (3 in Figure 3-43 on page 3-39) to select Metric or US Units. | The selected units (Metric or US) will be used for measurements as soon as the unit has been restarted. |
| 2. | Select the Mute check box if you wish to mute the controls sound (4 in Figure 3-43 on page 3-39.) | The controls sound will be muted. |

3-6-3 Service Screen Setup

Re-initiate EZ-Config Wizard 3-41

3-6-3-1 Open Service Screen

- 1) Log on as ADM.
- 2) From the Config side menu, select Service to view the Service Screen.

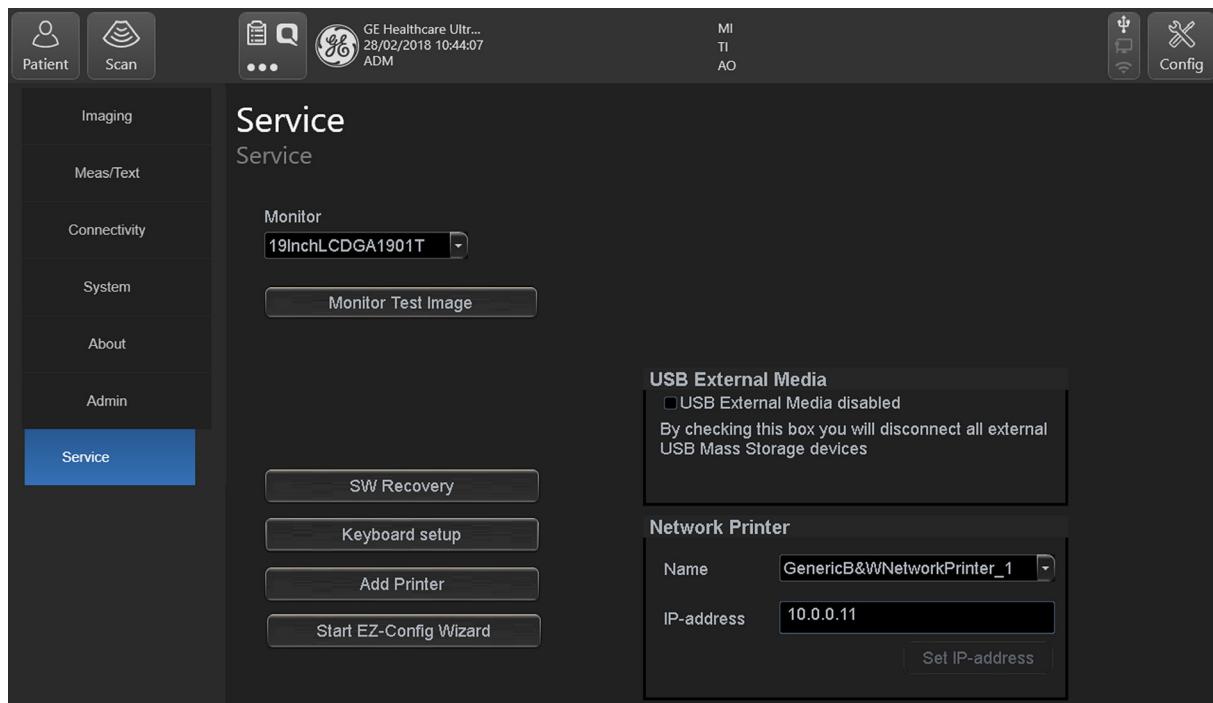


Figure 3-44 Service Screen

3-6-3-1-1 SW Recovery

In cases of abnormal system behavior, as a part of troubleshooting process, it is recommended to reload the system software. To reload the software without affecting patient data, tap the SW Recovery button on the Service screen and follow the displayed instructions (SW installation media is not required for this process).

3-6-3-1-2 Re-initiate EZ-Config Wizard

The EZ-Config wizard can be initiated on demand. To re-initiate the EZ-Config wizard, tap the Start EZ-Config Wizard button on the Service screen.

3-6-4 Optional Peripherals/Peripheral Connection

3-6-4-1

3-6-4-2 Approved Internal Peripherals

This list covers the internal peripherals available for Venue™ :

- Monochrome (Black and White) Digital Sony UP_D711MD printer
- ECG Module

3-6-4-3 Approved External Peripherals

One of the external units listed below, may be connected to the USB port on the rear of the Venue™ :

3-6-4-4 External Peripherals for Connection to USB

- External Data Storage: USB Flash Card
- Barcode reader
- Wi-Fi USB adapter

3-6-5 Software Options Configuration

3-6-5-1 Software Option Introduction

A Software Option Key, an alphanumeric text string, enables a software option or a combination of software options.

The Software Option Key is specific for each unit.

NOTE: *There may be more than one Software Option Key in use, depending on the installed options.*

3-6-5-2 To Install a Software Option

Follow these steps to install the Software Option Key:

- 1) Log on as **adm**.
- 2) Select **Admin** (lower part of window).
- 3) Select the **System Admin** tab.
- 4) Select **New** to open the **New Key** dialog where you type the SW Option Key.



CAUTION

Incorrect Software Option Key entry will result in loss of Ultrasound system options. If Software Option Key is incorrect, please contact your local GE Service Representative or the Online Center.

- 5) Type the Software Option Key.
You must include the dashes (-) as they are part of the Software Option Key.
- 6) Press **Save** to save the new setting.
- 7) Restart to save and activate the settings and adjustments you have done so far.

3-6-5-3 Remote Check and Configurations

Contact the Online Center for InSite checkout.

Section 3-7 Connectivity Overview

3-7-1 Physical Connection

There are several possible connection methods, as outlined below.

3-7-2 Stand-alone Venue™

No network connection needed.

3-7-3 “Sneaker Net” Environment

No network connection needed.

Use removable media to move data from the Venue™ to another unit.

3-7-4 Wireless Connection from Venue™ to DICOM Server

Wireless network adapter must be connected to the Venue™ system in order to enable wireless network connection.

Section 3-8 Connectivity Setup

NOTE: If connected to a stand-alone network (Peer-to-Peer network with a Venue™ scanner, and an optional network printer), you should use default delivery settings.

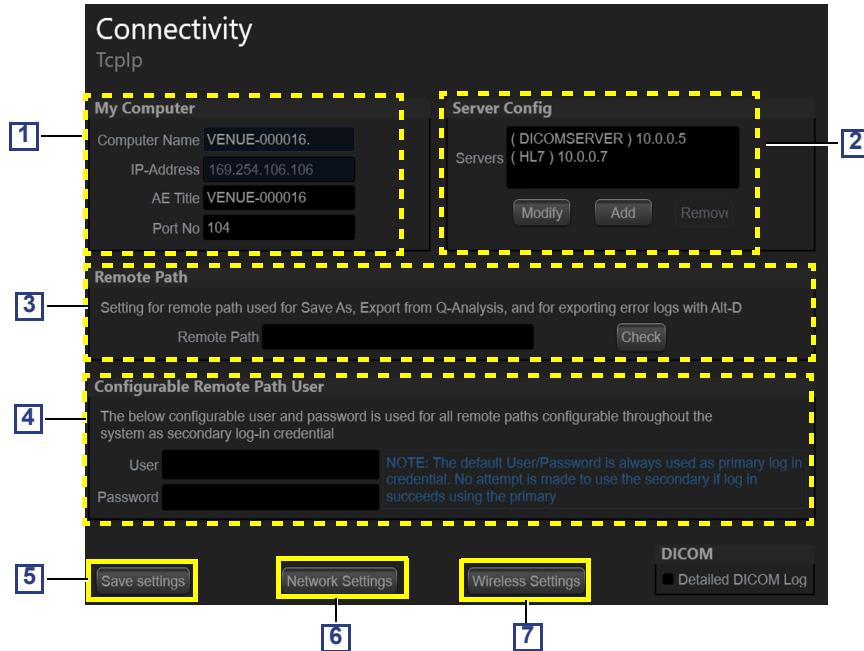
3-8-1 Introduction

To be able to use the network functions when connected to a hospital network, the Venue™ must have a proper network address.

- Before you can set up the Venue™, you need to collect some information.
- The Worksheet (see sample [Connectivity Installation Worksheet](#) on page 2 - 13) can be used for gathering this information.
- Typical source for this information is the network administrator.

3-8-2 Select TCP/IP Screen

1. Log on as *adm*.
 2. Tap: Settings >> Config >> Connectivity >> TCP/IP.
- The resulting screen gives you an overview of many of the network settings for Venue™ .



1. **My Computer:**
 - **Computer Name:**
For Venue™ , this name is on the form: VENUEX-00NNNN, where "00NNNN" is a number (NNNN is the scanner's serial number).
 - **AE Title:**
Venue™
 - **Port No:**
Default port number: 104
2. **Server Config:**
 - **Servers:**
List of servers
 - **Buttons:**
Use the buttons to Add, Modify or Remove servers.
3. **Remote Path**
Used for Save As, Export from Q-Analysis, and for exporting Error Logs with Alt-D.
4. **Configurable Remote Path User:**
Add Secondary Log-in Credential.
5. **Save Settings:**
Select **Save Settings** to archive any changes you have done to the TCP/IP settings.
6. **Network Settings:**
Use **Network Settings** if you need to change Venue™ 's IP settings or turn DHCP on or off.
7. **Wireless Settings:** select to start the Wireless Network Setup Wizard.

Figure 3-45 TCP/IP Overview Screen for Venue™

3-8-3 Setting Up Non-Broadcasting (Hidden) Wireless Network Connection

- 1.) Log on as adm.
- 2.) Tap: **Settings >> Config >> Connectivity >> TCPIP.**
- 3.) Tap the **Network Settings** button.
The **Network Connections** window opens.
- 4.) Open the **Control Panel** and go to **Network and Internet -> Network and Sharing Center**.
- 5.) Click or tap the following link: **Set up a new connection or network.**

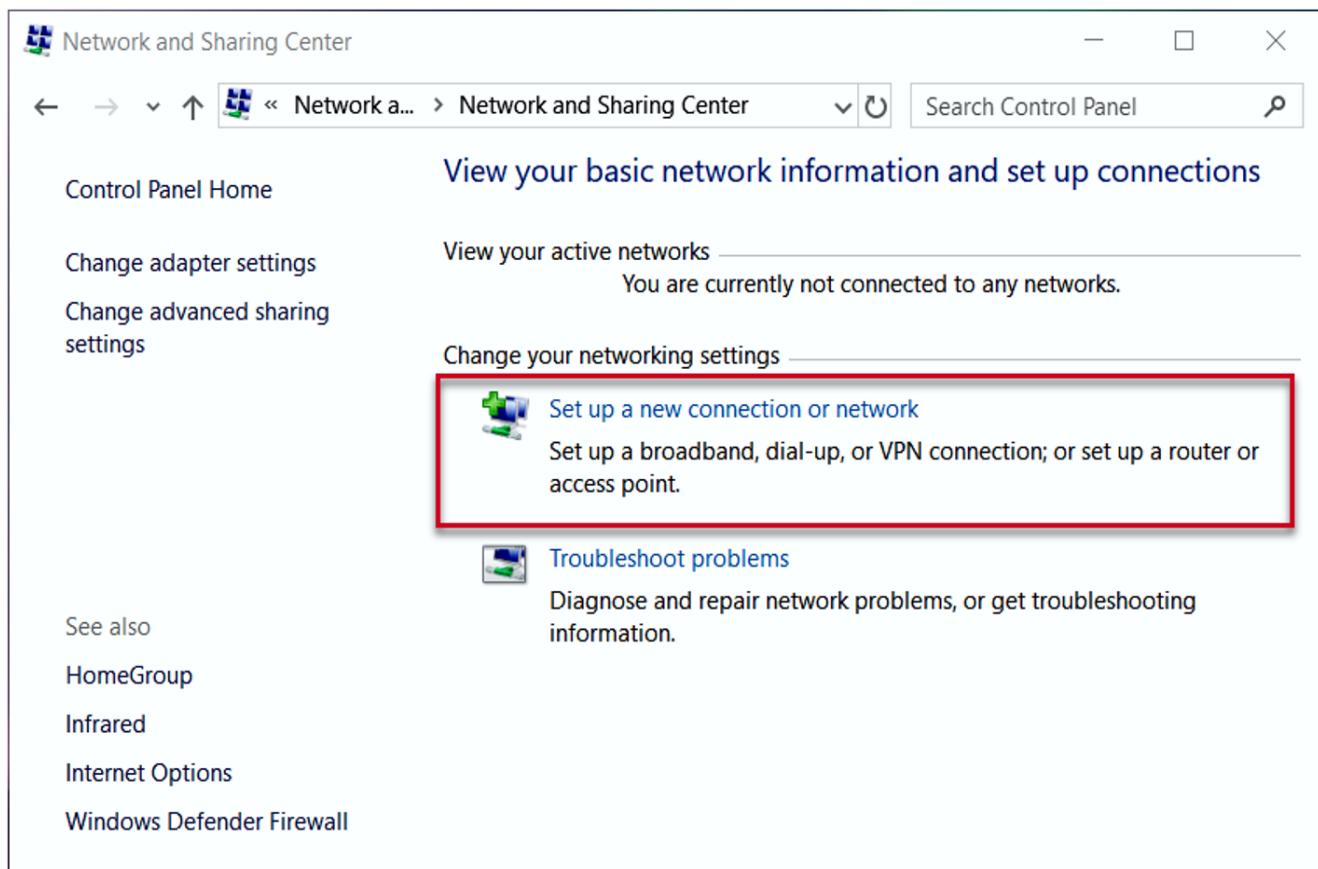


Figure 3-46 Set Up a New Connection or Network

The **Set Up a Connection or Network** wizard is started.

- 6.) Select **Manually connect to a wireless network** and click or tap **Next**.

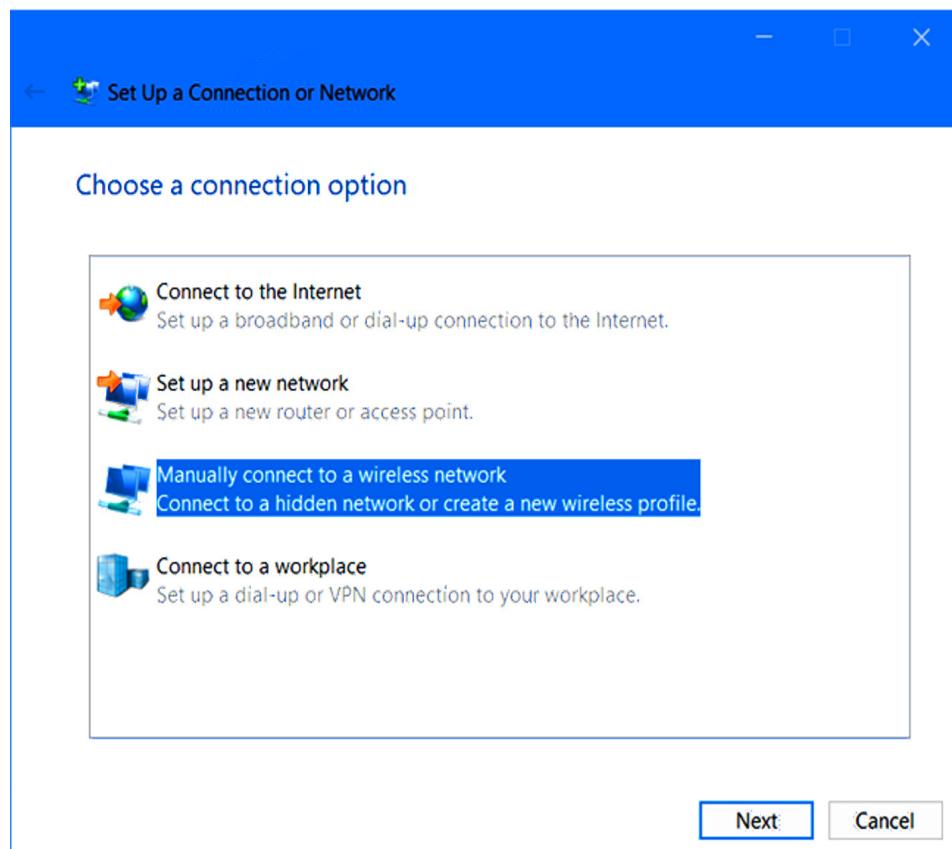


Figure 3-47 Choosing a Connection Option

- 7.) Enter the security information for your WiFi network in the appropriate fields, as follows:
- In the **Network name** field, enter the SSID or the name of the network.
 - In the **Security type** field, select the type of security used by the hidden wireless network. Some routers may name this authentication method. Depending on the security type you select, Windows 10 may or may not ask you to also specify an encryption type.
 - In the **Security key** field, enter the password used by the hidden WiFi.
 - If you do not want others to see the password you type, select the **Hide characters** check box.
 - To connect to this network automatically, select the **Start this connection automatically** check box.

- 8.) Click **Next** to proceed.

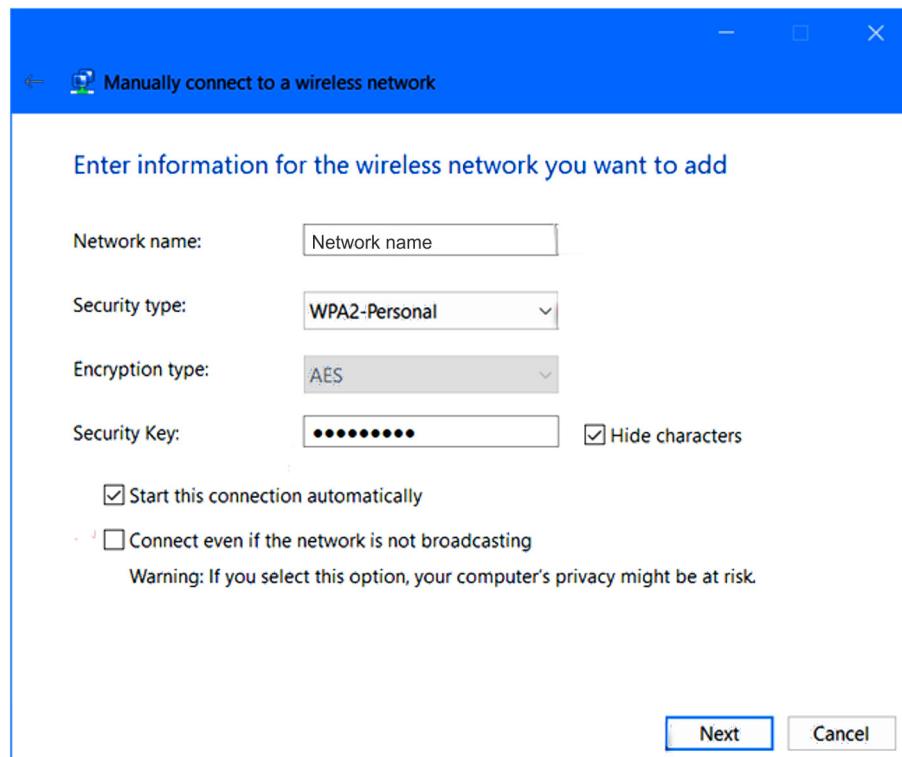


Figure 3-48 Entering Security Information

- 9.) If you check the box that says "Connect even if the network is not broadcasting," Windows 10 searches for the hidden network every time it is not connected to a network, even if the hidden network is not in your area. This may put your privacy at risk because skilled professionals can intercept this search for the hidden network.

NOTE: *If you select the **Connect even if the network is not broadcasting** check box, Windows 10 searches for the hidden network every time it is not connected to a network, even if the hidden network is not in your area. This may put your privacy at risk because skilled professionals can intercept this search for the hidden network.*

- 10.) Windows 10 notifies you that it has successfully added the wireless network. Click or tap **Close** to

complete the setup.

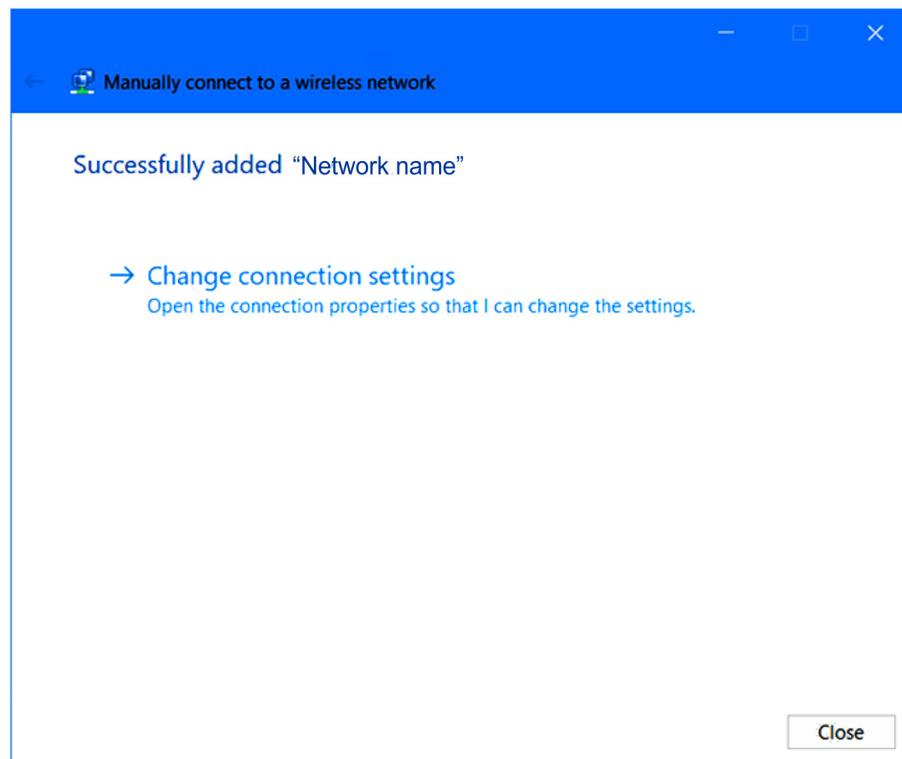


Figure 3-49 Entering Security Information

If you are in the range of the hidden WiFi, your Windows 10 device automatically connects to it.

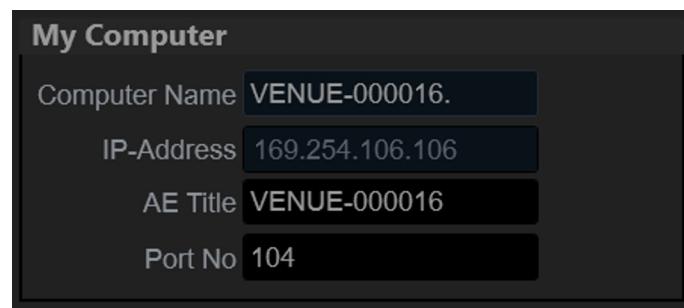
3-8-4 Changing the AE Title and/or Port Number (Port No.)

Figure 3-50 AE Title and Port No.

- 1) To change **AE Title** and/or **Port No.**, edit the respective fields.
- 2) Select **Save settings** to store your changes.
- 3) Reboot Venue™ to activate the settings, or continue with other Tcpip set-up tasks.
- 4.)

3-8-5 Wireless Network Configuration

The following procedure is used to configure the Venue™ for a wireless network environment. This procedure is required for **every** new wireless network.

NOTE: *The WiFi configuration is available only if wireless adapter is connected to the system. Do not use any type of wireless network adaptor other than a GE-approved adaptor.*

- 1.) From the **Connectivity** menu, select **TcpIp**, and then tap **Wireless Settings**.
- 2.) In the **Wifi Configuration** window, view the list of available wireless networks.

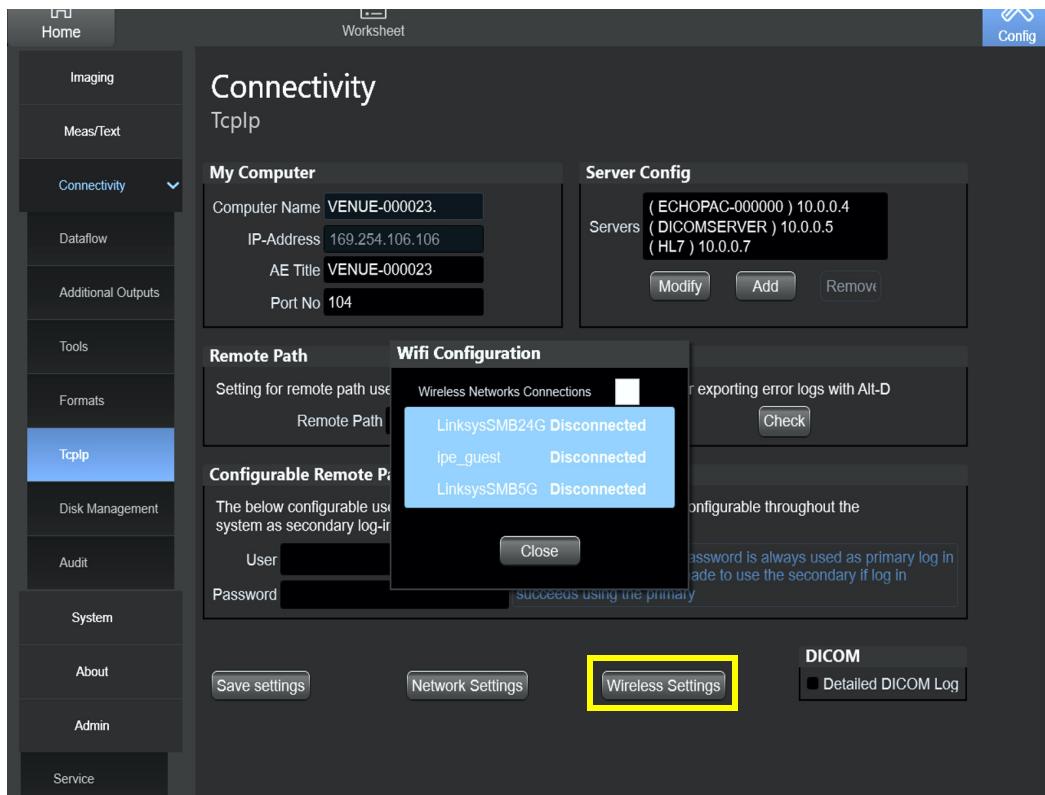


Figure 3-51 Wireless Setting

Section 3-9 Options Setup

3-9-1 Software Options

Most of the options for Venue™ are activated by installing a password (alphanumeric text string).

For installation instructions, see: [Software Options Configuration](#) on page 3 - 42.

3-9-2 USB Flash Card Setup

There is no special setup procedure for use of a USB Flash Card.

3-9-3 Wireless Network Adapter

The Wireless Network adaptor should be connected to the USB port located on the rear side of the cockpit (monitor).

NOTE: *It is possible to connect the Wireless Network adapter both when the system is powered ON, and after it is powered OFF.*

All software drivers for the Wireless Network are pre-installed for the designated Wireless Network adaptor only.

 **NOTICE** **IMPORTANT** During Stand-by mode, it is NOT recommended to introduce or remove USB devices; this may cause the system to lock-up during the boot-up procedure.

 **WARNING** **DO NOT ATTEMPT TO USE A DIFFERENT TYPE OF WIRELESS NETWORK ADAPTOR.**
THE ULTRASOUND SYSTEM IS AN EXTREMELY SENSITIVE AND COMPLEX MEDICAL SYSTEM. ANY UNAUTHORIZED PERIPHERALS MAY CAUSE SYSTEM FAILURE OR DAMAGE!

Section 3-10 InSite Default Machine Contact Setup

3-10-1 Time Required

5 min

3-10-2 Preparations

No dongle or service password needed.

3-10-3 Setup Procedure

- 1.) On the main screen, tap **Settings >> Service >> InSite**.

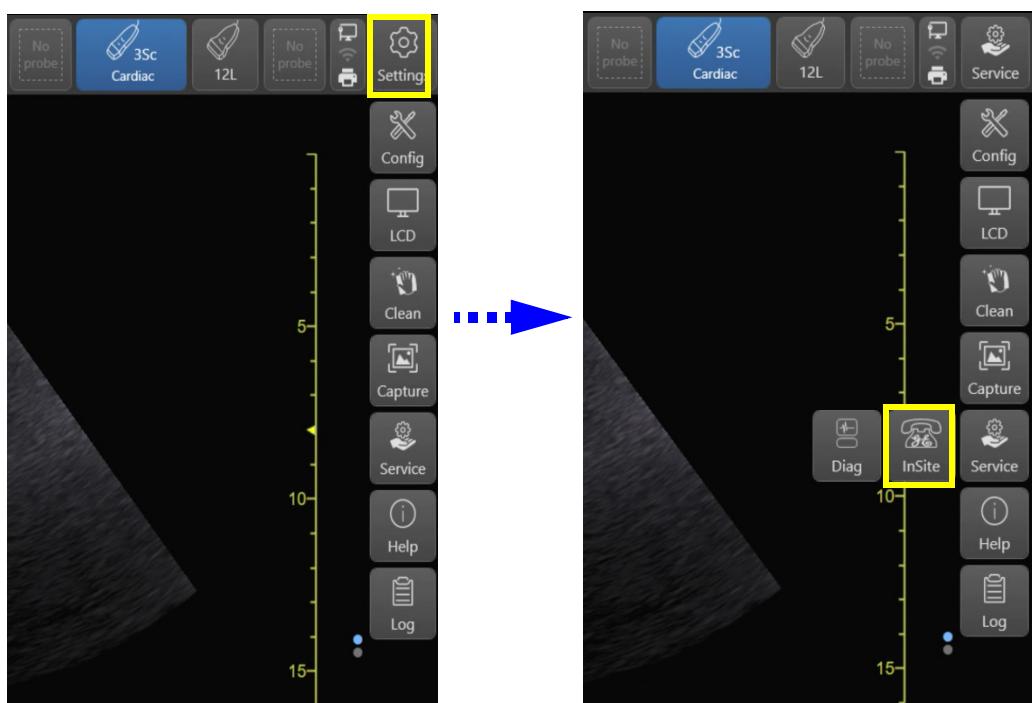


Figure 3-52 Accessing InSite SW

- 2.) From the InSite ExC menu, select **Request for Service**.

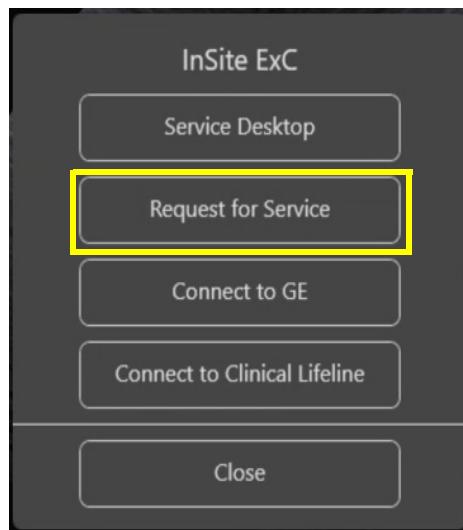


Figure 3-53 InSite ExC Main Menu - Request for Service

- 3.) In the **Contact GE - Service Browser** window, open the **Users** tab.

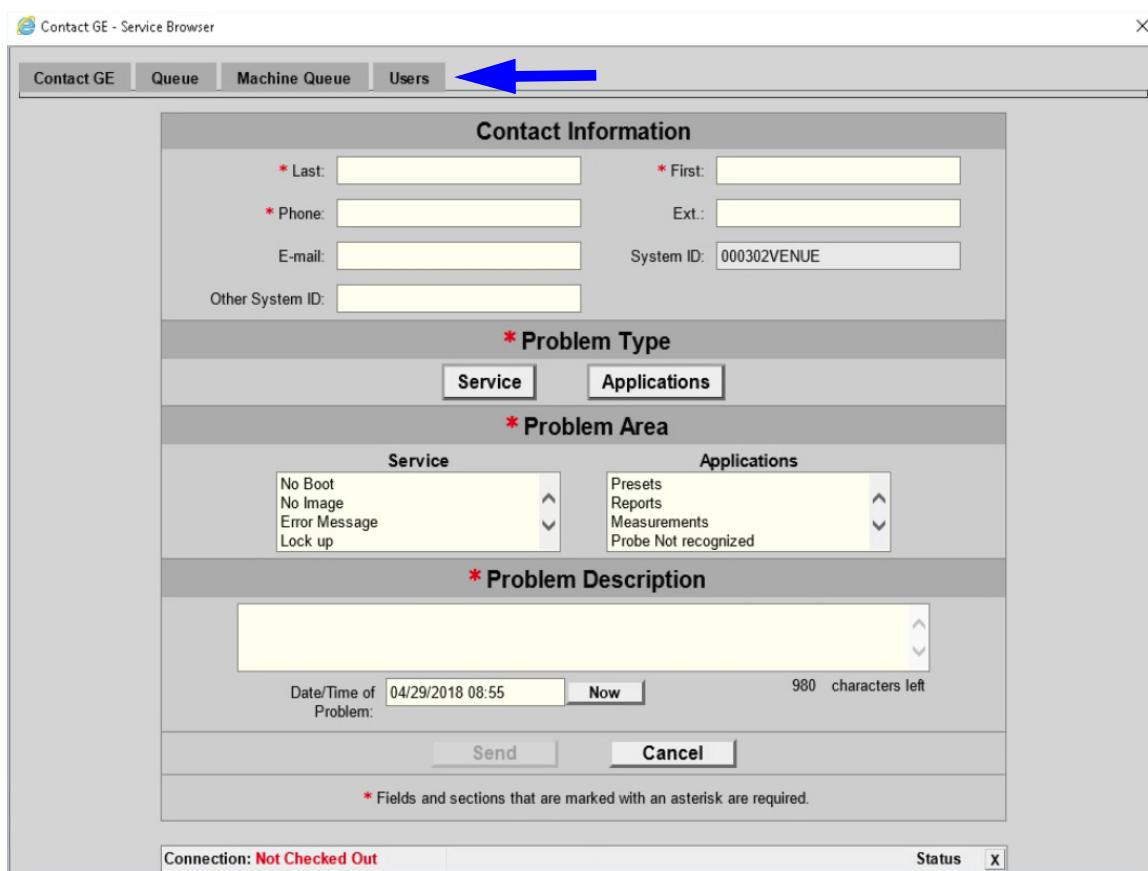


Figure 3-54 Contact GE Service Browser Window - Users Tab

4.) Tap Add User.

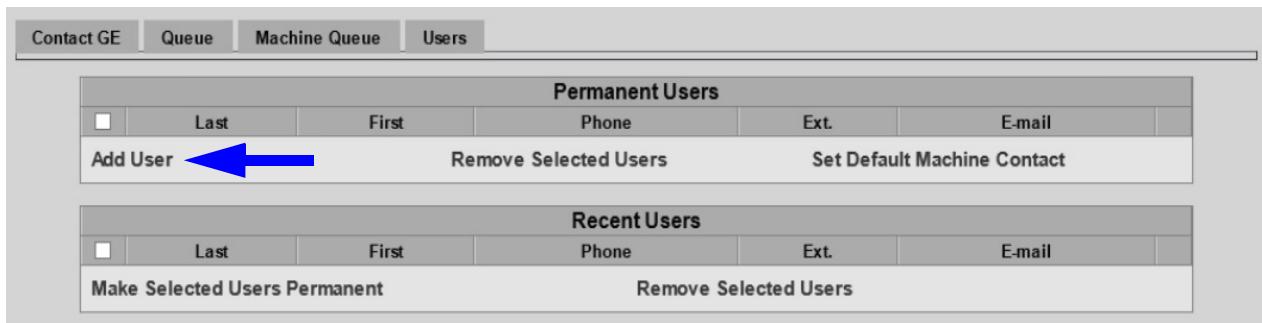


Figure 3-55 Users Tab - Add User

5.) Enter person's contact information. Red asterisk indicates required field. Then, tap Add User.

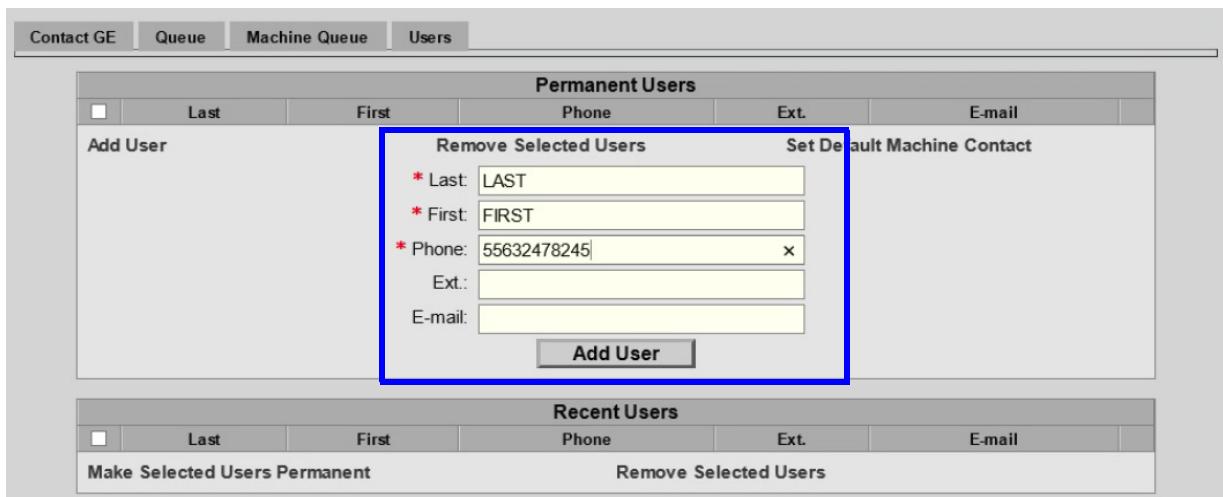


Figure 3-56 Users Tab - Adding User

6.) Select the check box for the person who will be the Default Contact. Tap Set Default Machine Contact.

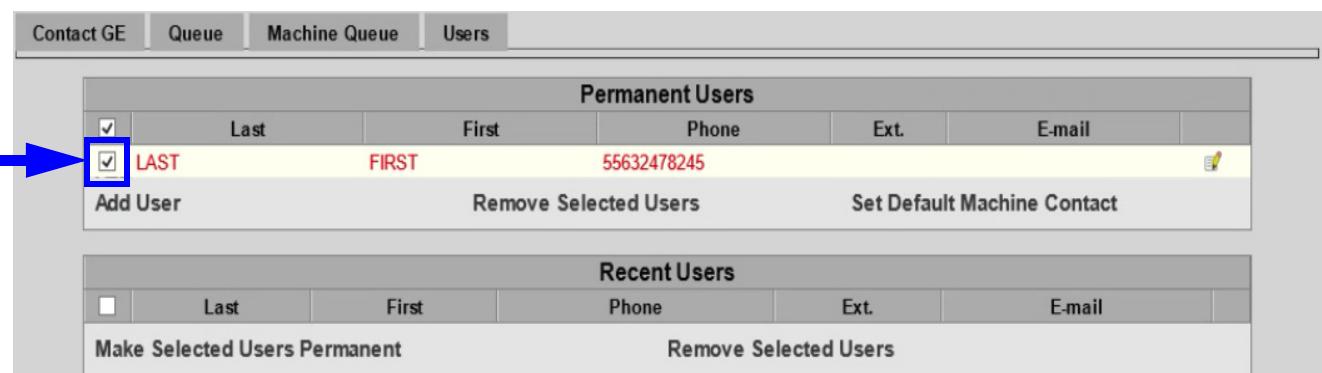


Figure 3-57 Users Tab - Selecting Default Machine Contact

7.) Tap Set Default Machine Contact.



Figure 3-58 Users Tab - Default Machine Contact Selected

8.) The Default Machine Contact will be indicated in red text. The setup is complete.



Figure 3-59 Users Tab - Setup Complete

Section 3-11

Paperwork After Setup

NOTE: During and after setup, the documentation (i.e. storage media with documentation, User Manuals, Installation Manuals, etc.) for the Venue™ and the peripherals must be kept as part of the original Ultrasound system documentation. This ensures that all relevant safety and user information is available during the operation and service of the complete Ultrasound system.

3-11-1 Installation Acceptance Test Criteria

A Venue™ is ready for use after the system has been configured successfully in accordance with the information provided in [Chapter 3 -System Setup](#) (this chapter).

3-11-2 User's Manual(s)

Check that the correct User Manual(s) or storage media with User Manuals, per software (SW) revision and language, for the system is included.

3-11-3 Product Locator Installation Card

NOTE: The Product Locator Installation Card shown may not be the same as the provided Product Locator card.

From the factory, a sheet with five Product Locator cards for transportation and one for Installation are included.

| | | | | | | | | | | | | | | | |
|---|--------------|---|-----------------|---|--|--|--------|-----|--------------|----------|--------------|--|-----------------|--|--|
|  <small>Mailing Address</small> | | GE Medical Systems Product Locator File P.O Box 414 Milwaukee, WI 53201-0414 | | GEMS-E Product Locator Administration BP 34 78533 Buc Cedex, FRANCE | | Yokogawa Medical Systems Ltd. GEMSA Service Administration 4-7-127 Asahigaoka Hino-shi Tokyo 191, JAPAN | | | | | | | | | |
| | | DESCRIPTION | FDA | MODEL | | REV | SERIAL | | | | | | | | |
| | | | | <table border="1" style="width: 100%;"> <tr> <td>OCP</td> <td>B5</td> <td>ORD</td> <td></td> </tr> <tr> <td>DISTRICT</td> <td colspan="2">CUSTOMER NO.</td> <td>DATE (MO-DA-YR)</td> </tr> </table> | | OCP | B5 | ORD | | DISTRICT | CUSTOMER NO. | | DATE (MO-DA-YR) | <small>DESTINATION NAME AND ADDRESS</small> <hr/> <hr/> <hr/> <hr/> <hr/> | |
| OCP | B5 | ORD | | | | | | | | | | | | | |
| DISTRICT | CUSTOMER NO. | | DATE (MO-DA-YR) | | | | | | | | | | | | |
| | | | | | | ZIP CODE | | | | | | | | | |
| SHIPMENT | | | | | | | | | | | | | | | |
|  <small>Mailing Address</small> | | GE Medical Systems Product Locator File P.O Box 414 Milwaukee, WI 53201-0414 | | GEMS-E Product Locator Administration BP 34 78533 Buc Cedex, FRANCE | | Yokogawa Medical Systems Ltd. GEMSA Service Administration 4-7-127 Asahigaoka Hino-shi Tokyo 191, JAPAN | | | | | | | | | |
| | | DESCRIPTION | FDA | MODEL | | REV | SERIAL | | | | | | | | |
| | | | | <table border="1" style="width: 100%;"> <tr> <td>OCP</td> <td>B5</td> <td>ORD</td> <td>EMPLOYEE NO.</td> </tr> <tr> <td>DISTRICT</td> <td colspan="2">ROOM</td> <td>DATE (MO-DA-YR)</td> </tr> </table> | | OCP | B5 | ORD | EMPLOYEE NO. | DISTRICT | ROOM | | DATE (MO-DA-YR) | <small>CUSTOMER N°</small> <small>DESTINATION NAME AND ADDRESS</small> <hr/> <hr/> <hr/> <hr/> <hr/> | |
| OCP | B5 | ORD | EMPLOYEE NO. | | | | | | | | | | | | |
| DISTRICT | ROOM | | DATE (MO-DA-YR) | | | | | | | | | | | | |
| | | | | | | ZIP CODE | | | | | | | | | |
| INSTALLATION | | | | | | | | | | | | | | | |

Figure 3-60 Product Locator Installation Card (Example)

Chapter 4

General Procedures and Functional Checks

Section 4-1

Overview

4-1-1 Purpose of Chapter 4

This chapter includes the General Procedures, and the Functional Checks.

General Procedures is a collection of commonly-used procedures that are available by cross references from other parts of this manual.

Functional Checks is a collection of procedures for quickly checking major functions of the Venue™ scanner and diagnostic instructions using the built-in service software. These checks can be a great asset in determining whether the Venue™ is working as it should.

Section 4-2 General Procedures



CAUTION

Ultrasound system requires all covers.

Operate this Ultrasound system only when all board covers and frame panels are securely in place. The covers are required for safe operation, good Ultrasound system performance and cooling purposes.



WARNING



Energy Control and Power Lockout for Venue™ .

When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:

1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.
6. Remove/disconnect the battery, if present.

Ultrasound System components may be energized.

4-2-1

Overview

Some procedures are used more often than others. The intention of this section is to keep the most used procedures in one place.

4-2-2 Power ON/Boot-up

4-2-2-1 Warnings

-  **DANGER**  **ALWAYS CONNECT THE ULTRASOUND SYSTEM TO A FIXED POWER SOCKET WHICH HAS THE PROTECTIVE GROUNDING CONNECTOR.**
-  **DANGER**  **NEVER USE A THREE-TO-TWO PRONG ADAPTER; THIS DEFEATS THE SAFETY GROUND.**
-  **DANGER**  **ENSURE THAT THE POWER CORD AND PLUG ARE INTACT AND THAT THE POWER PLUG IS THE PROPER HOSPITAL-GRADE TYPE (WHERE REQUIRED).**
-  **CAUTION** **THE ULTRASOUND 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.
-  **CAUTION** **USE ONLY POWER SUPPLY CORDS, CABLES AND PLUGS PROVIDED BY OR DESIGNATED BY GE.**

NOTE: *When turning on a system from standby mode, it takes a few seconds before it responds. Do not push the On/off button again during this period. A second push will initiate a full shutdown. Do not cycle the Power ON/OFF switch ON-OFF-ON in less than five (5) seconds.*
When turning OFF the Power ON/OFF switch, the Ultrasound system should de-energize completely before turning the switch ON

NOTE: *Before performing Power ON or system reboot, disconnect any USB mass storage device from the system (unless a Software Installation procedure is required and the appropriate software installation storage device is connected).*

4-2-2-2 Connecting AC (Mains) Power to the Venue™ Ultrasound Unit

Connecting the Venue™ ultrasound unit involves preliminary checks of the power cord, voltage level and compliance with electrical safety requirements.

- 1) Ensure that the wall outlet is of appropriate type.
- 2) Uncoil the power cable, allowing sufficient slack so that the unit can be moved slightly.
- 3) Verify that the power cable is without any visible scratches or any sign of damage.
- 4) Verify that the on-site mains voltage is within the limits indicated on the rating label on the rear of the Venue™ ultrasound scanner.

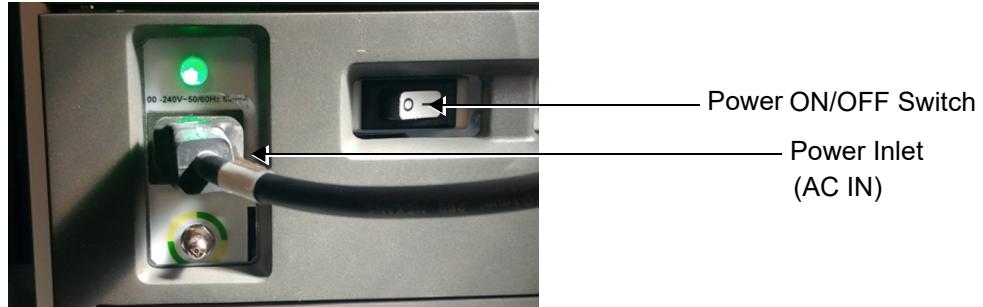


Figure 4-1 Power ON/OFF Switch and Power (AC IN) Socket - Rear Panel

- 5.) Connect the AC Power Cable female plug to the Power Inlet (AC IN) at the rear of the unit - see [Figure 4-1](#).
- 6.) Screw the plastic cable clamp (into the hole provided in the support column - centrally located at the rear of the system).
- 7.) Connect the other end of the AC Power Cable (male plug) to a hospital-grade mains power outlet with the proper rated voltage.

NOTE: *The System should be connected to mains few hours to fully charge the batteries before battery operation.*

NOTE: *The LED on the Input Power Panel (IPP) is illuminated green, indicating that the system is connected to mains. The AC power indicator on the cockpit (monitor) is illuminated green.*

The unit is ready for Power On/Boot Up.

4-2-2-3 Switch ON the AC Power to Venue™

- 1) Turn ON the Power ON/OFF switch located behind the silicon cap on the MPB door.

After the Rear ON\OFF switch is switched to ON, wait about 15 sec for initial System SOM readiness.

- 2) Press the system **On/Off** touch button([Figure 4-2](#)) on the cockpit (monitor) to boot up the unit.



Figure 4-2 On/Off Button on Cockpit (monitor)

During normal boot-up, you may observe that:

- a.) The unit's ventilation fans start on full speed, but slow down after the application is loaded.
- b.) The Back-End Processor and the rest of the scanner starts with the sequence listed in the next steps:
 - 1.) Back-End Processor is turned ON and starts to load the software.
 - 2.) The Start Screen is displayed on the monitor.
 - 3.) A start-up progress bar indicating the time used for software loading, is displayed.
 - 4.) The software initiates and sets up the Front-End electronics and the rest of the scanner.
 - 5.) As soon as the software has been loaded, either a 2D screen is displayed on the screen, indicating that a probe has been connected, or a No Mode screen is displayed, indicating that no probe has been connected.

NOTE: *Total time for start-up is approximately 1 minute.*

4-2-3 Power Shutdown

After pressing the On/Off button on the cockpit, the SYSTEM - EXIT dialog window will be displayed.



Figure 4-3 Exit Dialog Window

The SYSTEM - EXIT menu, gives you these choices:

- **Exit**

(Only available when logged in as GE Service with Service Dongle)

Select this button when you want to exit to the Windows Desktop.

NOTE: If you need to restart Venue™ when logged on to the Windows Desktop, ensure that you do a complete power down (Shut Down). This is required to power up the Front End Processor.

- **Shutdown**

Use this button to shut down the system. The entire system will shut down.

If the Shutdown button is greyed out or the system cannot be shutdown normally:

- **Venue R1 systems** running software version 301.x.x:

Press and hold the ON/OFF button for 8 seconds.



Figure 4-4 On/Off Button on Cockpit (monitor)

- **For Venue R2 systems** running software version 302.x.x:
 - Set the power switch, located on the rear lower part of the system, to the OFF position.
 - Wait for 10 seconds and re-set the power switch to the ON position.
- Wait for about 15 Sec before the System is operational.



Figure 4-5 Power ON/OFF Switch and Power (AC IN) Socket - Rear Panel

- Cancel
Use this button to exit from the System-Exit menu and return to the previous operation.

For Venue R2 systems running software version 302.x.x, the physical On/Off button functionality can be disabled in the **Config** screen.

In order to disable/enable the functionality of the On/Off physical button, open **Settings -> Config -> Imaging -> Global Settings** and check or uncheck the Disable physical power button box.

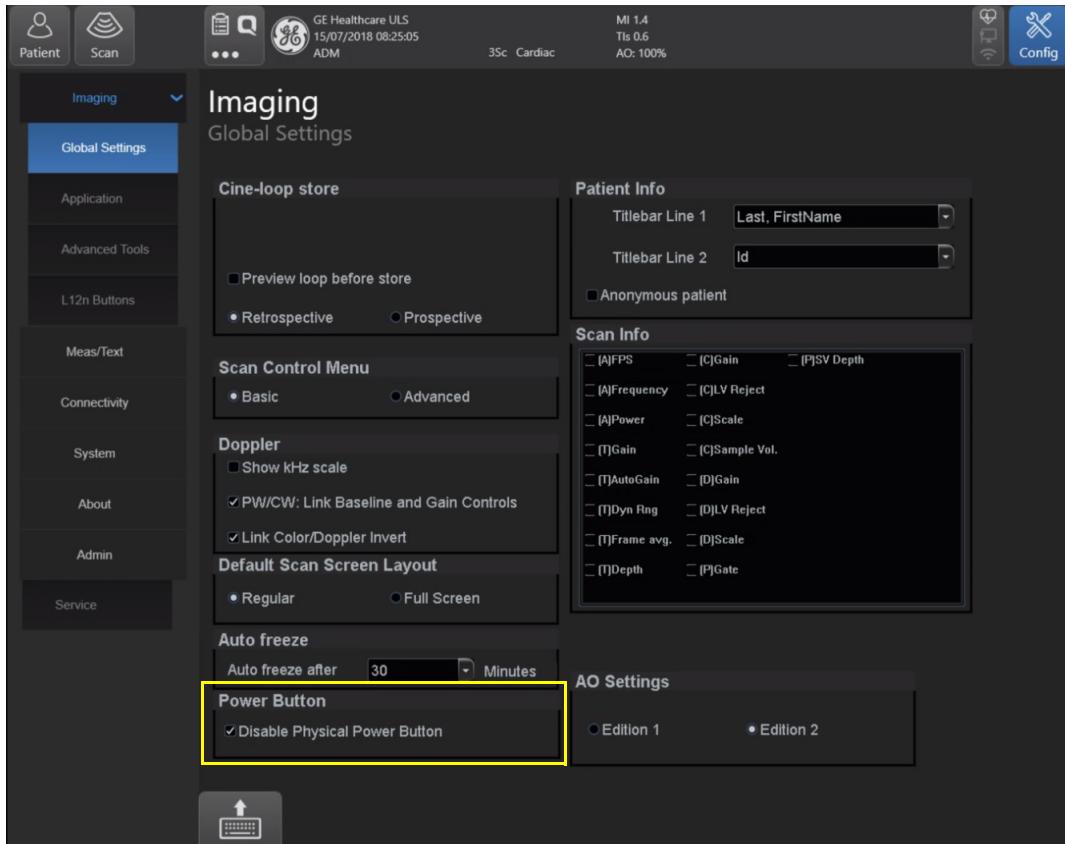


Figure 4-6 Disable Physical Power Button in Config Screen

When the physical power button functionality is disabled, pressing the physical On/Off button on the cockpit, will trigger the following message:

Physical power button is disabled in config. Use power button in settings menu.

Figure 4-7 Physical power button disabled message

To switch off the system tap **Settings -> Off**. This action will trigger the display of the **System Exit** window.

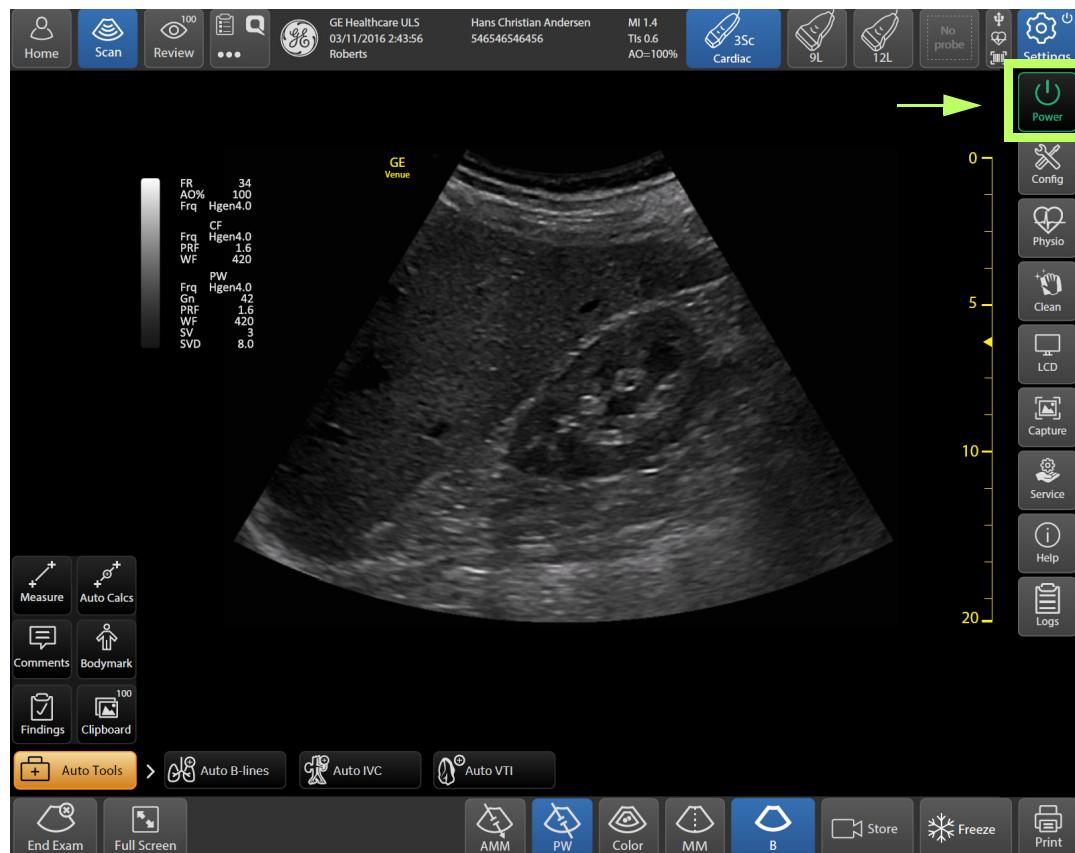


Figure 4-8 Software Off Button

4-2-4 Logging On to the Venue™ as “ADM”

4-2-4-1 Select Config via the Cockpit (Monitor)

1) Select **Settings**. 

2) Then select **Config** 

*This will bring up the **Operator Login** dialog where you can log on to Venue™ .*

4-2-4-2 The Login dialog

The first time someone log in to Venue™ , the Operator field will be blank.

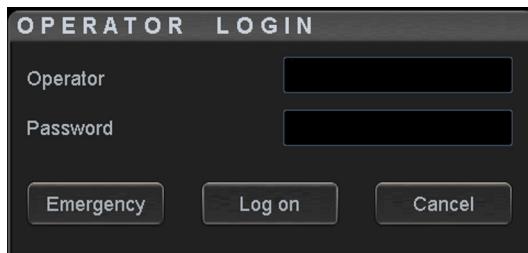


Figure 4-9 Operator Login

As default, two users are defined on Venue™ ; USR and ADM.

- If you log on as **USR**, you will have a restricted access to the setup menus.
Example: To select a printer.

As default, no password has been set for **USR**. Just type the name **USR** and select **Login**.

- If you log on as **ADM**, you will have access to all setup menus and service adjustments on the Venue™ system.
Example: Adjust network and connectivity settings.

NOTE: *It is possible for the administrator (ADM) to establish new users and set unique passwords for each user, including a new password for ADM. If the login as ADM fails, contact the responsible person in the hospital to get access.*

The **Emergency** button stores data for the duration of the current examination only.

The **Cancel** button is used to cancel the login.

4-2-5 Data Management

For information, refer to the latest revision of the *Venue™ User Manual*.

4-2-6 Deleting Patient Information

**WARNING**

Before you dispose of the hard drive, make sure you remove ALL PATIENT DATA from the hard drive, given that the hard drive is still functional. In some countries, you may be required to delete all software from the disk before returning the hard drive to the parts warehouse. Follow your local policies.

**WARNING**

All patient information (images, reports and data base) must be backed up before deleting it from the internal hard drive.

Ensure that **All Patient Information** has been deleted before:

- shipping/returning the ultrasound system
- you dispose of the hard drive

Wipe the SSD partitions as described here:

- 1) Reload the system software from the software media.
- 2) Select: **Format SSD and Install.**

4-2-7 Cockpit (Monitor) Position Adjustment

The Cockpit (monitor) position can be adjusted for easy viewing.

NOTE: *Before adjusting the cockpit (monitor) position, lock the front swivel and full lock caster located on the system front left side (user right side).*

**CAUTION**

To avoid injury or damage, make sure nothing is within the range of motion before moving the cockpit and monitor arm. This includes both objects and people.

4-2-7-1 To Adjust the Cockpit (Monitor) Position

By holding the cockpit (monitor) handle, the up/down and left/right position of the cockpit can be adjusted.

To tilt the cockpit (monitor), use the lever handle and adjust the cockpit (monitor) to the desired angle.

4-2-8 Moving and Transporting the Venue™ Ultrasound Scanner

4-2-8-1 The Casters (Wheels) Control

The pedals located between the left front and right back wheels of the Venue™ control the swivel and brake on the wheels.

Examine the wheels frequently for defects to avoid breaking or jamming.

**CAUTION**

Unlock the brakes on the front and back wheels when preparing to transport the unit.

Lock the brakes on the front and back wheels, if parking the system on an incline. Avoid ramp steeper than 10 degrees.

4-2-8-2 To Prepare the Venue™ to be Moved

- 1) Make sure the cockpit (monitor) is centered and in its down position.
- 2) Remove the plug from the wall.
- 3) Disconnect all cables linking the unit to any off-board peripheral devices and network.
- 4) Secure the unit's power cable.
- 5) Place all probes in the probe holders. Ensure that the probe cables do not protrude from the unit or interfere with the wheels.
- 6) Ensure that no loose items are left on the unit.
- 7) Unlock the casters.

Related information:

- [Cockpit \(Monitor\) Position Adjustment](#) on page 4 - 11
- [Power Shutdown](#) on page 4 - 6

4-2-8-3 To Ensure Safety while Moving the Venue™

- 1) Ensure that the cockpit (monitor) is in its down position.
- 2.) Proceed cautiously when crossing door or elevator thresholds. Grasp the back handle bar and push. Do not attempt to move the unit using cables or probe connectors. Take extra care while moving the unit on inclines.
- 3) Ensure that the unit does not strike the walls or door frames.
- 4) Ensure that the pathway is clear.
- 5) Move the unit slowly and carefully.

**CAUTION****Avoid ramps that are steeper than 10 degrees.**

- 6) Use two or more persons to move the unit over long distances or on inclines.

Related information:

- [Cockpit \(Monitor\) Position Adjustment](#) on page 4 - 11

4-2-8-4 Transporting the Venue™ by Vehicle

Take extra care when transporting the Venue™ by vehicle. In addition to the precautions listed earlier, follow the steps below.

- Center the cockpit (monitor) and move it to its down position.
- Disconnect all probes and secure them in their boxes.
- Ensure that the transporting vehicle is appropriate for the unit's weight.
- Park the vehicle on a level surface for loading and unloading.
- Secure the Venue™ while it is on the lift, to prevent rolling and do not attempt to hold it in place by hand.
- Cushion the Venue™ and strap the lower part so that it does not break loose.
- Ensure that the Venue™ is secured inside the vehicle. Secure it with straps to the two hooks under the system to prevent movement while in transit.
- Drive cautiously to prevent vibration damage.

Related information:

- [To Ensure Safety while Moving the Venue™](#) on page 4 - 13
- [Cockpit \(Monitor\) Position Adjustment](#) on page 4 - 11

4-2-8-5 At the New Location

- When the Venue™ is in place at a new location, lock the wheel brakes.

Section 4-3

Functional Checks

4-3-1 Overview

The functional checks for Venue™ are described in this section.

Functional checks are used to verify that the Venue™ operates as intended.

The functional checks may also be used during troubleshooting.

4-3-2 Performance Checks

4-3-2-1 Test Phantoms

The use of test phantoms is only recommended if required by your facility's (customer's) QA program.

4-3-3 2D Mode (B Mode) Checks

4-3-3-1 Introduction

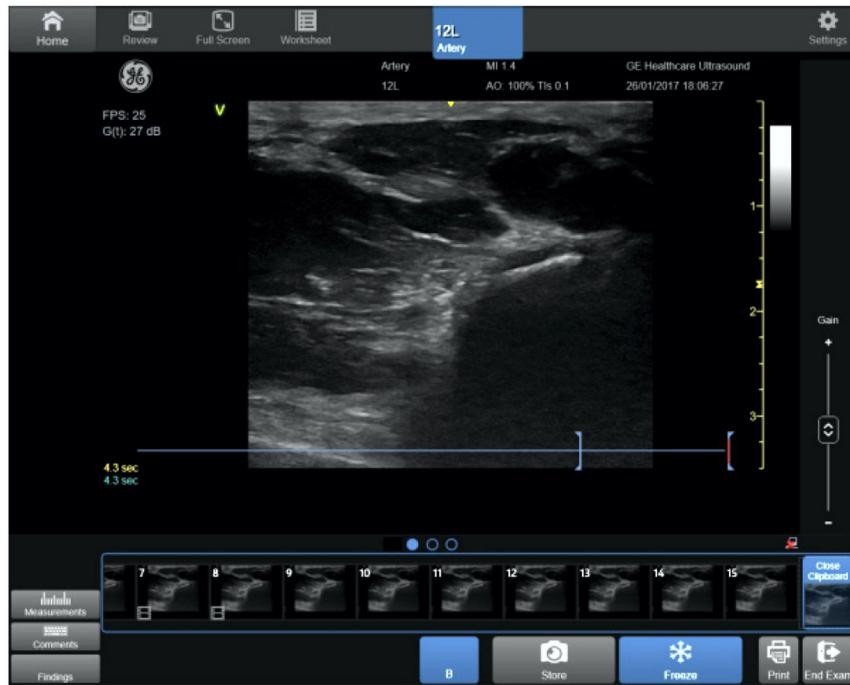
The 2D Mode is the system's default mode.

4-3-3-2 Preparations

- 1) Connect one of the probes.
- 2) Turn ON the Venue™ .

The 2D Mode window is displayed (default mode).

Figure 4-10 The 2D Screen (Cardiac)



4-3-3-3 Adjust the 2D Mode Controls



WARNING

Always use the minimum power required to obtain acceptable images in accordance with applicable guidelines and policies.

The following controls can be adjusted to optimize the 2D Mode display:

- Swipe to page 2 on the Touch panel and press either **Soft** or **Sharp** Auto Tissue setting.
 - **Soft**: optimizes the radial and lateral uniformity and brightness of the tissue continuously in real-time.
The mention "Soft" is displayed on the upper right corner of the image area
 - **Sharp**: further enhances the image display by optimizing the gray scale curve.
The mention "Sharp" is displayed on the upper right corner of the image area

The Auto Tissue setting (Soft or Sharp) can be turned on/off by pressing **Auto** on the Control panel. The last used setting is then applied.

The Auto Tissue settings are only available in live scanning and cannot be turned off when the image is stored.

- If available, press **Virtual Apex** (probe dependent) to improve near field imaging, allowing increased visibility up to the width of the full probe aperture close to the surface.
- Use the **Gain** and **TGC** controls to optimize the overall image.
Gain increases or decreases the amount of echo information displayed. TGC compensates for depth-related attenuation in the image.
- Use the **Depth** control to adjust the range to be imaged.
- Use the **Modes** to toggle between the scanning system's main modes.
- Use the **Frequency** control (move to lower frequency) to increase penetration.
- Press to activate the **Needle** Visualization mode. Gain, Angle and Tilt can be activated. The needle function only applies to linear probes and the C1-5-RS convex probe.
- Use **Split** to split the screen into two, allowing to see different, independent views on each half.
- Use the **Reject** control to reduce noise in the image.
- Use the **DDP** control to optimize imaging in the blood flow regions and make a cleaner, less noisy image.
- Use **UD Clarity** (Cardiac) or **UD Speckle reduce** (non-cardiac) to reduce image speckle. Extra care must be taken to select the optimal Speckle reduction level, as too much filtering of speckle can mask or obscure desired image detail.
- Adjust **Octave** to toggle between fundamental and Harmonic mode.
- Press **Color maps** and select a grey map from the menu on screen.

4-3-4 M Mode Checks

4-3-4-1 M-Mode Overview

This unit has three types of M-Mode:

- Conventional M-Mode (MM): displays a distance/time plot of a cursor line in the axial plane of the 2D-image.
- Anatomical M-Mode (AMM): displays a distance/time plot from a cursor line, which is independent from the axial plane. AMM is available in greyscale, color, TVI, Tissue Tracking, Strain rate and Strain modes.

- Curved Anatomical M-Mode (CAMM): displays a distance/time plot from a free-drawn cursor line. CAMM is available in greyscale, color, TVI, Tissue Tracking, Strain rate and Strain modes. Conventional M-Mode can be combined with Color Mode.

4-3-4-2 Preparations

- 1) Connect one of the probes, to any of the probe connectors.
- 2) Turn ON the scanner.
The 2D Mode window is displayed (default mode).
- 3) Press **MM** on the Operator panel to bring up an M-Mode picture on the screen.
- 4) Position the cursor over the required area of the image.

4-3-4-3 Using M-Mode

4-3-4-3-1 Conventional M-Mode

- 1) To access M-Mode from any other scan mode, press **MM** on the control panel.
- 2) Position the cursor over the required area of the image.
- 3) Press **Freeze**.
- 4) Scroll through the data acquired.

4-3-4-3-2 Anatomical M-Mode

- 1) In M-Mode or 2D-Mode Freeze, press **AMM** on the Touch panel.

NOTE: *Anatomical M-Mode can also be used with previously acquired digitally stored 2D images. More than one heart cycle should be stored if performing M-Mode in post processing.*

- 2) Position the cursor over the required area of the image.
- 3) Rotate the solid cursor line to the desired direction.

4-3-4-3-3 Curved Anatomical M-Mode

- 1) In M-Mode, press **Curved AMM**.
- 2) Position the starting point of the time motion curve.
- 3) Press **Select** to anchor the starting point of the time motion curve.
- 4) Position the next point of the time motion curve.
- 5) Press **Select** to anchor the point of the time motion curve.
- 6) Repeat step 4 and step 5 up to draw a complete time motion curve.

NOTE: *The time motion curve can be edited by following the curve back to the desired point and redraw.*

- 7) On the last point, press **Select** twice to terminate the curve.

NOTE: *To edit the time motion curve, select a point, move it to a new position and press **Select**.*

4-3-4-4 Optimizing M-Mode

The use of preset gives optimum performance with minimum adjustment. If necessary, the following controls can be adjusted to further optimize the M-Mode display:

- Adjust **Horizontal sweep** to optimize the display resolution.

- Adjust **Gain** and **TGC** controls to adjust the range to be imaged.
- Use the **Frequency** (move to higher frequencies) or the **Frame rate** control (move to lower frame rate) to increase resolution in image.
- Adjust **Dynamic range** to optimize the useful range of incoming echoes to the available greyscale.
- Adjust **Compress** to further optimize the display.
- Adjust **Reject** to reduce noise while taking care not to eliminate significant low-level diagnostic information.

4-3-4-5 Using Color Mode

4-3-4-5-1 Color 2D

- 1) From an optimized 2D image, press **Color**.
- 2) Position the ROI frame over the area to be examined.
- 3) Press **Select**. The instruction **Size** should be highlighted.
- 4) Adjust the dimension of the ROI.

4-3-4-5-2 Color M-Mode

- 1) From M-Mode press **Color**.
- 2) Position the color area in the M-Mode display.
- 3) Press **Select**. The instruction **Size** should be highlighted.
- 4) Adjust the dimension of the color area.

4-3-5 PW/CW Doppler Mode Checks

4-3-5-1 Introduction

PW and CW Doppler modes are used to measure velocity (most often in blood).

Doppler mode can be done with a special pencil probe or with an ordinary probe. By using an ordinary probe, you can first bring up a 2D picture for navigation purpose and then add PW/CW Doppler.

4-3-5-2 PW and CW Doppler Overview

Related information:

Refer to the *Venue™ User Manual*.

4-3-5-3 Using PW/CW Doppler Modes

4-3-5-3-1 Alternative 1

- 1) Press **PW** or **CW**. A scanning screen is displayed with a Doppler cursor on the 2D mode image and a Doppler spectrum in the lower part of the screen.
- 2) Position the Doppler cursor line and in PW the sample volume location over the area of interest.
- 3) In PW, adjust the **Sample Volume**.

NOTE: *Sample Volume adjustment may affect the Scale, Frame rate and LV rej. settings.*

4-3-5-4 Optimizing PW/CW Doppler Modes

The use of preset gives optimum performance with minimum adjustment. If necessary, the following controls can be adjusted to further optimize the PW/CW modes display:

- Adjust the **Active mode gain** to set the gain in the spectral Doppler area.
- Adjust **Low velocity reject** to reduce unwanted low velocity blood flow and tissue movement.
- In PW mode, adjust **Sample volume** to low setting for better resolution, or higher setting to more easily locate the disturbed flows. Adjustment of the Sample volume may affect the PRF (Nyquist limit) settings.
- Adjust the **Compress** setting to balance the effect of stronger and weaker echoes and obtain the desired intensity display.
- Adjust **Frequency** to optimize flow display. Higher setting will improve resolution and the lower setting will increase the depth penetration.
- Adjust **Frame rate** to a higher setting to improve motion detection, or to a lower setting to improve resolution.

NOTE: *Frequency and Frame rate settings may affect the Low Velocity Reject.*

- Adjust **Power** to obtain an acceptable image using the lowest setting possible. This is particularly important in CW mode, as the energy duty cycle is 100% (constant).

NOTE: *The Doppler Power setting affects only Doppler operating modes.*



CAUTION

Use all noise reduction controls with care. Excessive application may obscure low level diagnostic information.

Adjust the following settings to further optimize the display of the image.

- Use the **Horizontal sweep** to optimize the sweep speed.
- To view signal detail, adjust **Scale** to enlarge the vertical spectral Doppler trace. Velocity range directly controls the pulse repetition frequency, which is responsible for the setting of the Nyquist limit (the ability to detect maximum velocity without aliasing).
- Use **Invert** to reverse the vertical component of the spectral Doppler area of the display.

- Use **Quick angle** and **Angle correction** to steer the ultrasound beam to the blood flow to be measured (Not typically required during cardiac studies).
- Adjust **LPRF** (PW Doppler mode only) to toggle between high and low Pulse Repetition Frequency (PRF). When the Doppler PRF is raised beyond a certain limit, more than one Doppler gate is displayed on the screen.
- Press **Auto** on the Control panel to activate Automatic Spectrum Optimization (ASO). ASO is used to automatically adjust baseline and scale of the PW/CW spectrum to optimize the spectral display. It will avoid the display of a folded spectrum and stretch the spectrum vertically as large as possible. ASO optimization is not continuous but performed instantaneously each time **Auto** is pressed.

4-3-6 Probe/Connectors Check

NOTE: *Probes can be connected at any time, whether the unit is ON or OFF*



CAUTION

Take the following precautions with the probe cables:

- Keep away from the wheels.
- Do not bend.
- Do not cross cables between probes.

Table 4-19 Probe and Connectors Checks

| Step | Task | Expected Result(s) |
|------|---|--|
| 1 | Press Probe on the Operator Panel. | A list of the connected probes will pop up on the screen. |
| 2 | Select the desired probe. | An application menu for the desired probe is listed on the screen. |
| 3 | <ul style="list-style-type: none"> • Browse to the desired application. • Press Select to launch the application. • To change application without changing the current probe, press Appl. on the Operator Panel. | The selected application starts. |
| 4 | Verify no missing channels. | All channels are functioning. |
| 5 | Verify there's no EMI/RFI or artifacts specific to the probe. | No EMI/RFI or artifacts. |
| 6 | Check the probe in each active connector slot. | It will display pictorial data each time. |
| 7 | Do a leakage test on the probe. | It passes the test. |
| 8 | Repeat this procedure for all available probes. | |

Related information:

- [Electrical Safety Tests](#) on page 10 - 15

4-3-7 Cineloop Check

4-3-7-1 Introduction

A cineloop is a sequence of images recorded over a certain time frame. When frozen, the System automatically displays the cineloop boundary markers on either side of the last detected heart cycle.

4-3-7-2 Preparation

- 1) Connect one of the probes to the scanner.
- 2) Turn ON the scanner. The 2D Mode window is displayed (default mode).

4-3-7-3 Using Cineloop

4-3-7-3-1 Selection of a Cineloop

- 1) Press **Freeze**.
- 2) Press **2D Freeze**.
The selected heart beat is played back.
- 3) Press **2D Freeze** to freeze the cineloop.
- 4) Scroll through the acquisition and find the sequence of interest.
- 5) Adjust **Cycle select** to move from heart beat to heart beat and select the heart cycle of interest.
- 6) Adjust **Num cycles** to increase or decrease the number of heart beats to be played back.
- 7) In Freeze, press **Set left** or **Set right** to set the corresponding cineloop boundary to the current frame.
- 8) Adjust **Left marker** and **Right marker** to trim or expand the cineloop boundaries.
- 9) Press **2D Freeze** to run the cineloop and **Img. Store** to store the cineloop or **Freeze** to return to live scanning.

NOTE: *Cineloop storage can be configured to store heart cycles with additional time before and after the R-wave and to display a preview before storage.*

4-3-7-3-2 Adjustment of Cineloop Playback

- Adjust **Speed** to increase or decrease the speed of the cineloop playback.

4-3-8 Audio Check

4-3-8-1 Introduction

- The system default settings is to play audible feedback while pressing any action key (i.e. storing an image, changing mode, typing text etc.). This functionality can be disabled in the Config screen under system settings tab.

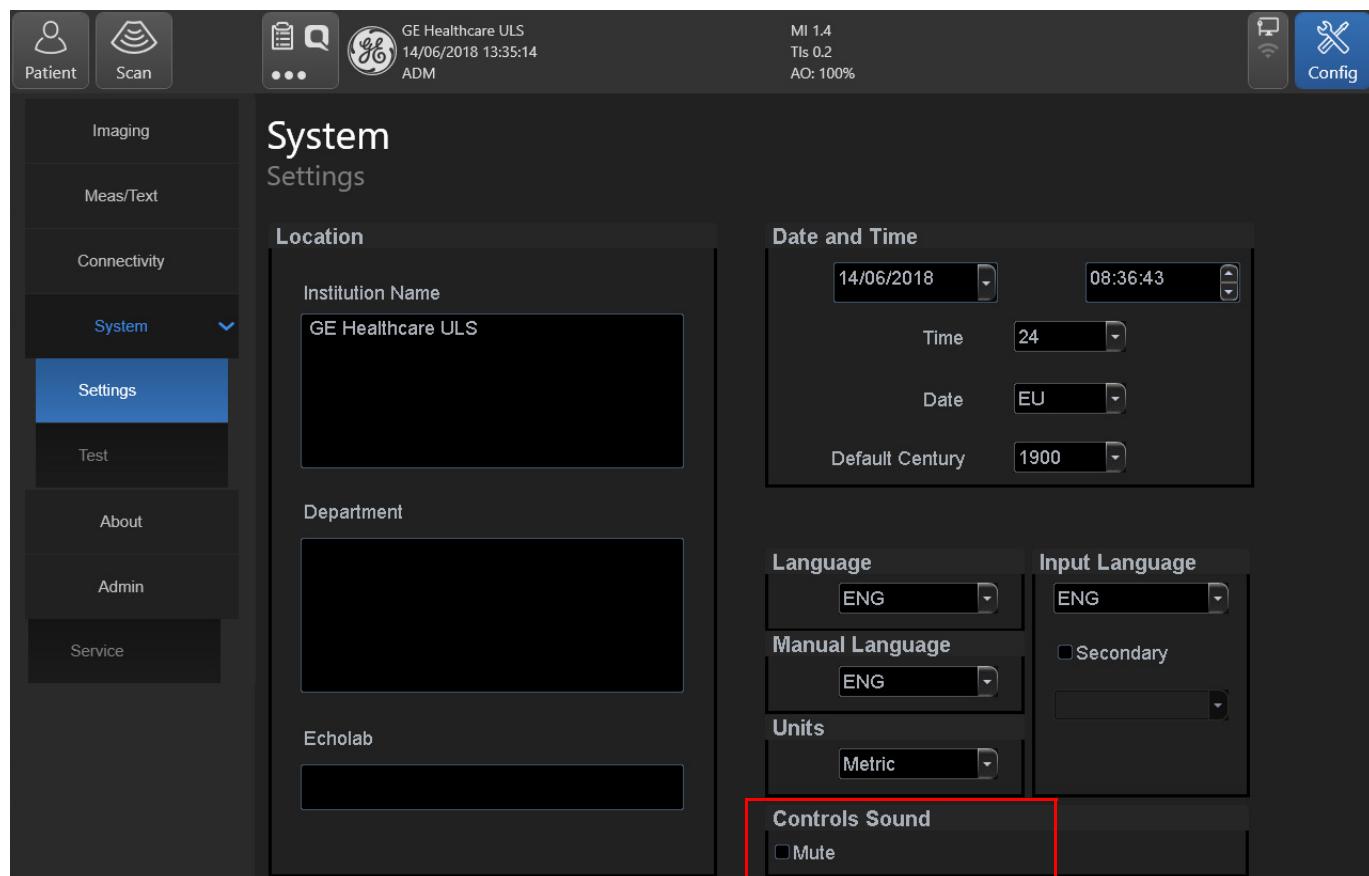


Figure 4-11 UDI label attached to Software installation media Label

4-3-9 Peripheral Checks

4-3-9-1 Printer Checks

The internal printer is controlled from the **Print** button on the Venue™'s application main screen.

Table 4-20 outlines the steps for performing Printer checks.

Table 4-20 Printer Checks

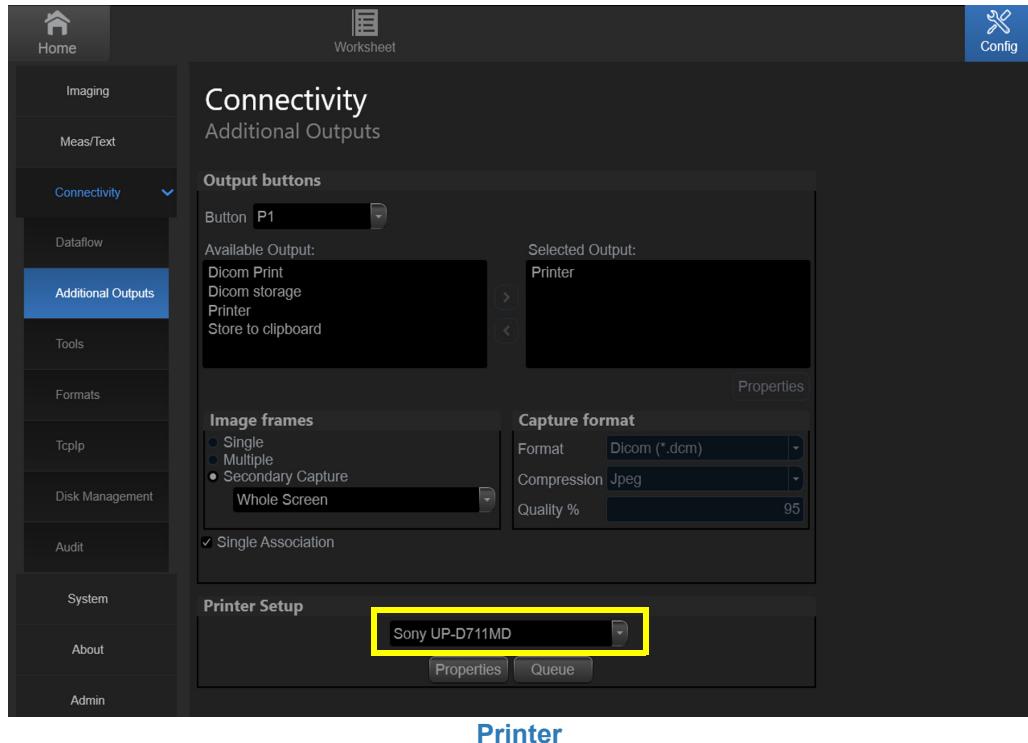
| Step | Task | Expected Result(s) |
|------|--|---|
| 1 | When scanning in 2D Color Mode, press Freeze to stop image acquisition. | Image scanning stops with the last picture on the screen. |
| 2 | Press the Print button | The image displayed on the screen is printed on the assigned printer. |
| 3 | Check if the print quality on the pictures from both printers are of expected quality. | |

4-3-9-2 Windows Print Test Page

This checks that the printer is correctly installed and hooked up at the Windows level.

- 1) On the Venue™ application main screen, tap: **Settings > Config > Connectivity > Additional Outputs**.

Figure 4-12 In the **Printer Setup** section, verify that the selected printer is **Sony UP-D711MD**.**Verifying Selected**



2.) Tap on **Queue**.

Figure 4-13 In the **Sony UP-D711MD** window, select **Printer > Properties**.**Printer Window**

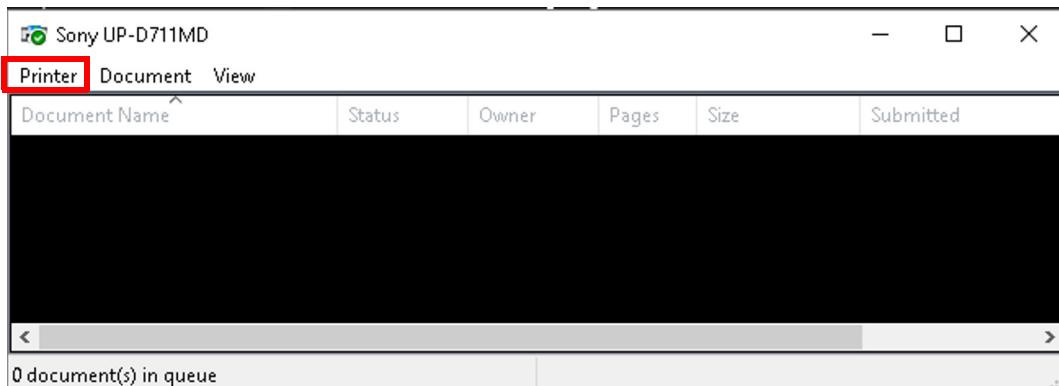


Figure 4-14 In the **Sony UP-D711MD Properties** window, tap **Print Test Page** (this will send a print to the printer bypassing all of the Scanner software).**Printing Test Page**

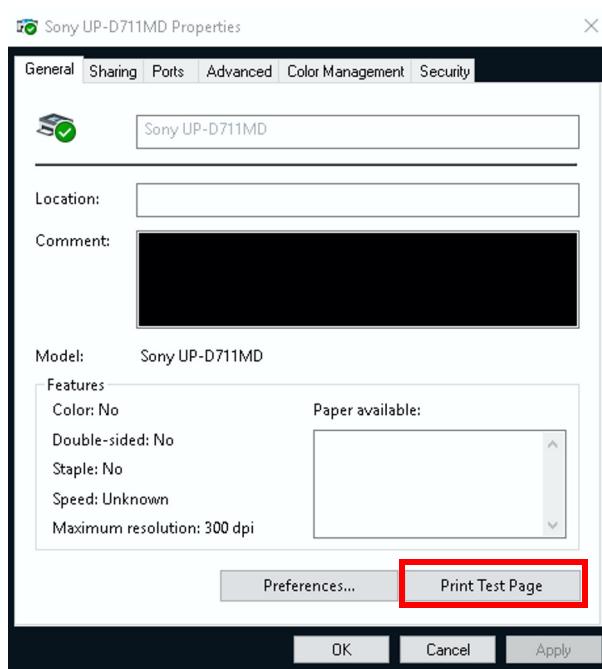
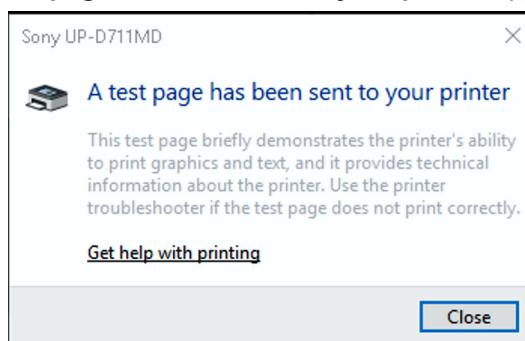


Figure 4-15 The message **A test page has been sent to your printer** appears.**Sony Printer Notification**

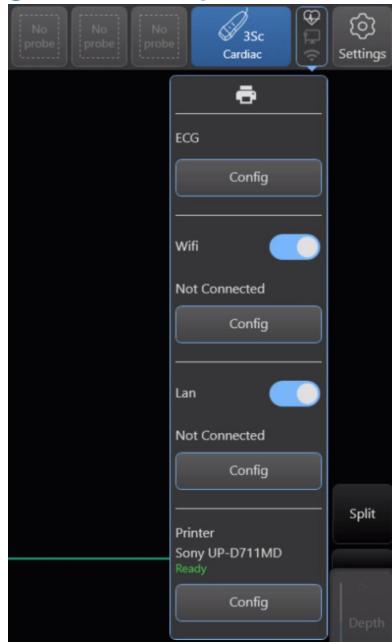


NOTE: For the Sony small-format printers, you will see an incomplete Test Page printed out. This is normal.

4-3-9-3 ECG Checks

The system automatically detects the ECG module once connected. The indication for the user will be displayed in the Peripherals status area.

Figure 4-16 Peripheral Status Area



In order to check the functionality of the ECG device, the ECG leads need to be connected to person body or to an ECG simulator.

4-3-10 Mechanical Functions Checks

4-3-10-1 Monitor Articulated Arm Movement Check

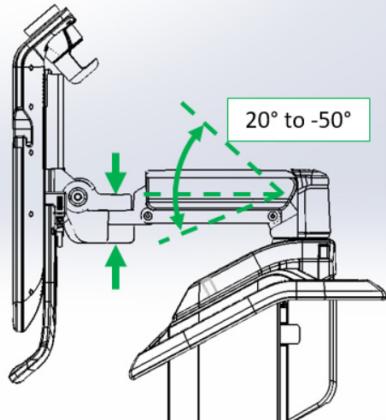
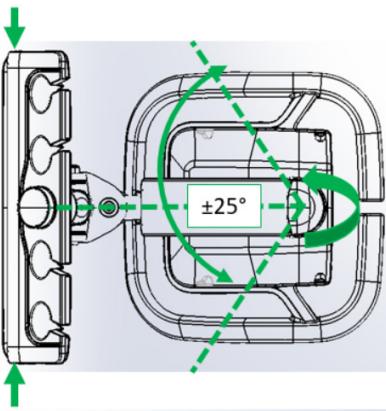
| Step | Task | Expected Result(s) | Illustration |
|------|--|---|--|
| 1 | Pull down the tilt and locking black handle (it is located under the cockpit on the front of the Venue™ system). | The <i>up and down</i> movement locking mechanism is released, allowing the arm to be raised or lowered. | |
| 2 | Hold the cockpit handle and raise the cockpit <i>upwards</i> , then <i>downwards</i> and make sure it is able to reach its maximum lowest and maximum highest positions. | <p>Ensure that you do not apply too much force to move the cockpit and that the movement is smooth.</p> <p>During the movement up and down, make sure the image displayed on the monitor does not present any disturbance.</p> |  |
| 3 | Move down the cockpit to its maximum lowest position, until it is locked in place. | Make sure the arm is locked and no movement is observed when moderate force is applied to the cockpit (<i>upwards</i> and <i>downwards</i>). | |
| 4 | Check the swivel as follows: Hold the cockpit monitor and move it to its maximum left and then to its maximum right positions. | <p>Ensure that you do not apply too much force to move the cockpit and that the movement is smooth.</p> <p>During the movement left and right, make sure the image displayed on the monitor does not present any disturbance.</p> |  |

Table 4-21 Monitor Articulated Arm Movement Check

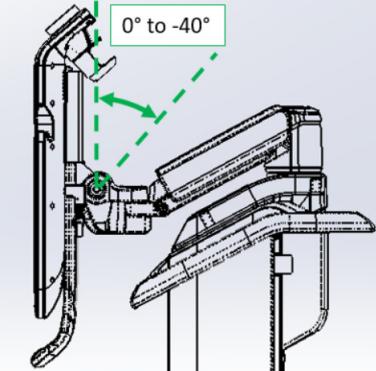
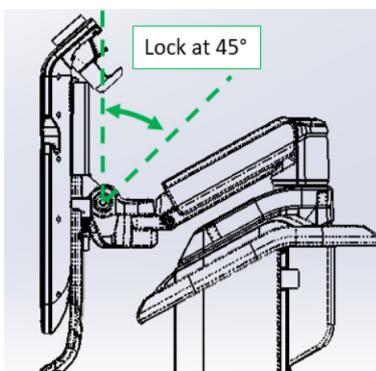
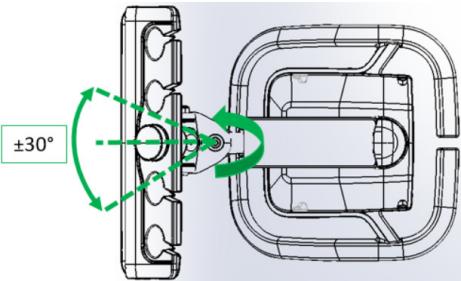
| Step | Task | Expected Result(s) | Illustration |
|------|---|--|--|
| 5 | Check the arm tilt as follows: Tilt the cockpit up to 40° | Ensure that you do not apply too much force to move the cockpit and that the movement is smooth. During the tilt movement, make sure the image displayed on the monitor does not present any disturbance. |  |
| 6 | Tilt the cockpit by 45° Pull down the tilt and locking black handle (it is located under the cockpit on the front of the Venue™ system) to release the tilt locking mechanism. | Make sure the locking mechanism is locked when reaching 45°. The tilt locking mechanism is released. |  |
| 7 | Check the arm pan as follows: Hold the cockpit monitor and move it to its maximum pan left and then to its maximum pan right positions. | Ensure that you do not apply too much force to move the cockpit and that the movement is smooth. During the pan movement left and right, make sure the image displayed on the monitor does not present any disturbance. |  |

Table 4-21 Monitor Articulated Arm Movement Check

4-3-10-2 Swivel and Full Lock Casters Function Check

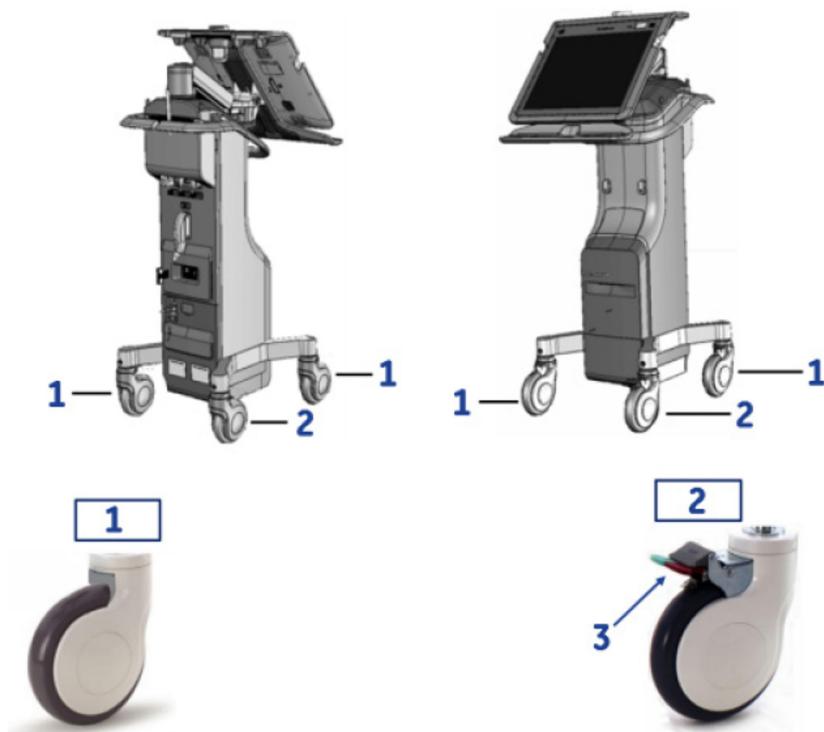


Table 4-22 Brakes and Swivel Function Check

| Step | Task | Expected Result(s) |
|------|--|---|
| | Red lever - full lock Green lever - swivel lock Grey lever - full unlock | |
| 1 | Push down on the upper grey lever to unlock the brake and swivel on the casters. Push and pull the unit <i>right, left, backwards and forwards</i> . | Ensure that the wheels move freely in all directions. Check the wheels for wear and tear, and replace if necessary. |
| 2 | Press the foot brake (red lever) <i>down</i> on each caster wheel to lock the swivel and full lock wheels in position. Push and pull the unit <i>right, left, backwards and forwards</i> . | Ensure that the wheels are locked and there is no movement in any direction. |

4-3-11 Electrical Tests

4-3-11-1 Ground Continuity Test

- 1.) Using multimeter, ensure there is a ground continuity between the ground prong of the IPP power connector and the arm ground cable connection.

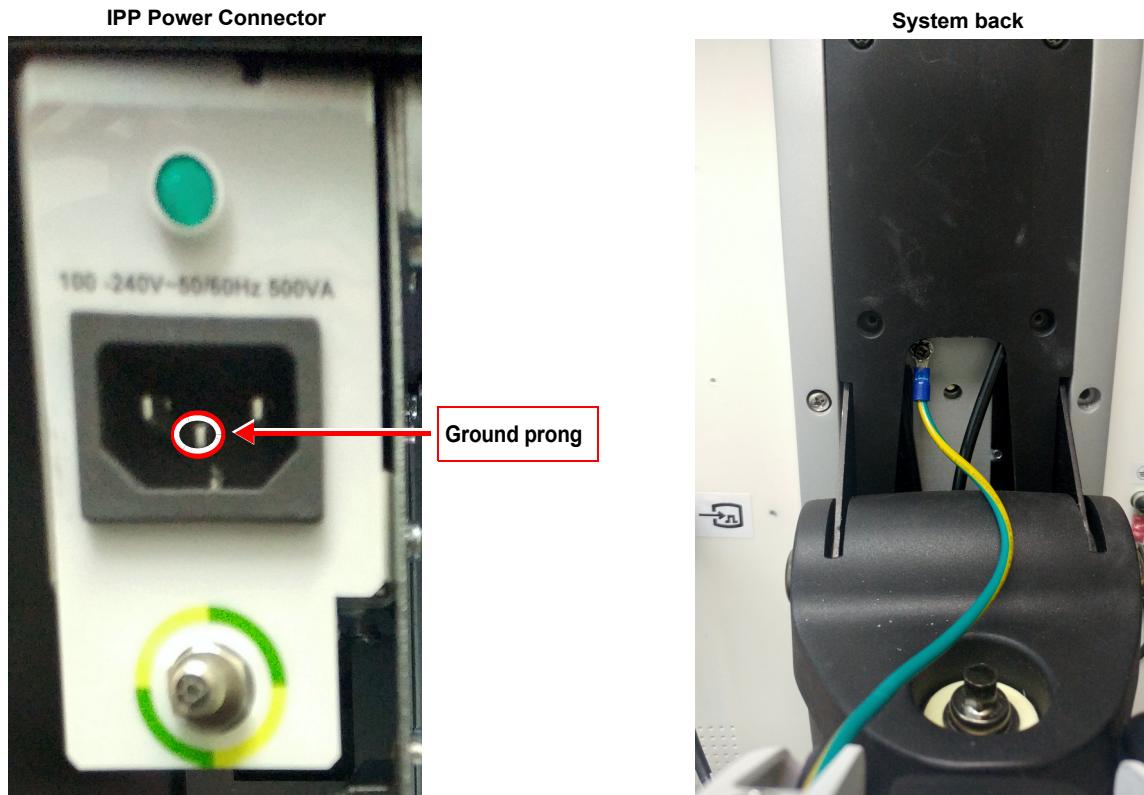


Figure 4-17 Ground Continuity test

Chapter 5

Venue™ Components and Function (Theory)

Section 5-1

Overview

5-1-1 Purpose of Chapter 5

This chapter explains Venue™ system concepts, component arrangement, and sub-system functions. It also describes the power distribution system, the cabling system and probes.

Section 5-2 General Information

5-2-1 Introduction

The Venue™ system is a compact ultrasound scanner that can be used with both phased array and linear array ultrasound probes.

Weighing less than 70 kg (154.3 lb), the Venue™ ultrasound scanner is extremely versatile and - depending upon the installed software - can be used for various imaging modes. These include:

- 2D Gray Scale and 2D Color Flow imaging
- M-Mode Gray Scale imaging
- Color M-Mode
- Doppler
- Different combinations of the above modes

The Venue™ system main hardware components are configured as illustrated in [Figure 5-1](#).

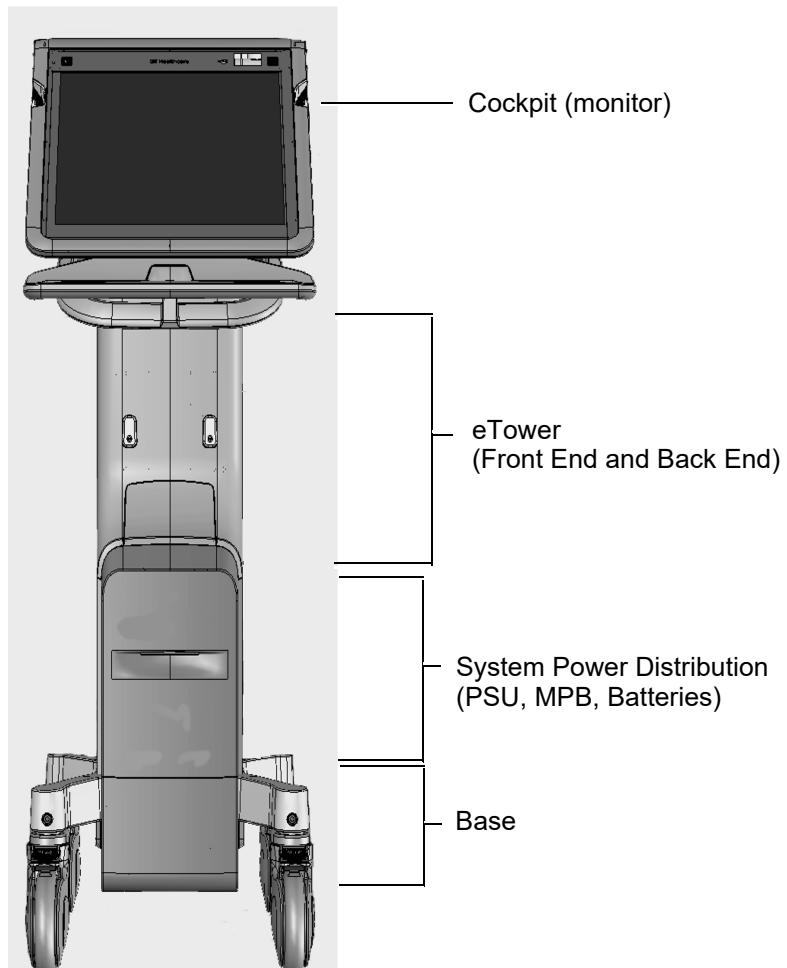


Figure 5-1 **Venue™ System - Configuration of Main Hardware Components**

NOTE: For a detailed description of Venue™ system operating modes, refer to the [Venue™ User Manual](#).

The Venue™ ultrasound scanner has a software beam-forming system.

Signal flow from the Probe Connector Panel, to the Front End (FE) Electronics, and to the Back End Unit, are finally displayed on the cockpit (monitor).

5-2-1-1 **System Configuration and Software**

System configuration is stored on a hard disk drive inside the Back End Unit.

At power up, all necessary software is loaded from the hard disk.

5-2-1-2 **Electronics**

The Venue™ system internal electronics are divided into three:

- [Front End Unit](#) - see page 5 - 18
- [Back End Processor](#) - see page 5 - 22
- [System Power Distribution](#) - see page 5 - 26

Venue™ system internal electronics comprise an eTower that contains both the Front End Unit and the Back End Unit. The Interconnecting signals between the two sections are routed internally via PCIe cable. All the interconnections to the cockpit (monitor) and peripherals (data signals) are via the Back End. All power signals are via the Main Power Board (MPB).

The design of the Venue™ ultrasound scanner comprises three main sections (illustrated in [Figure 5-2](#)):

- Cockpit (monitor) - comprises user interface section
- eTower - includes scanner electronic cards and assemblies

- Power Distribution - includes power supply unit and batteries compartment

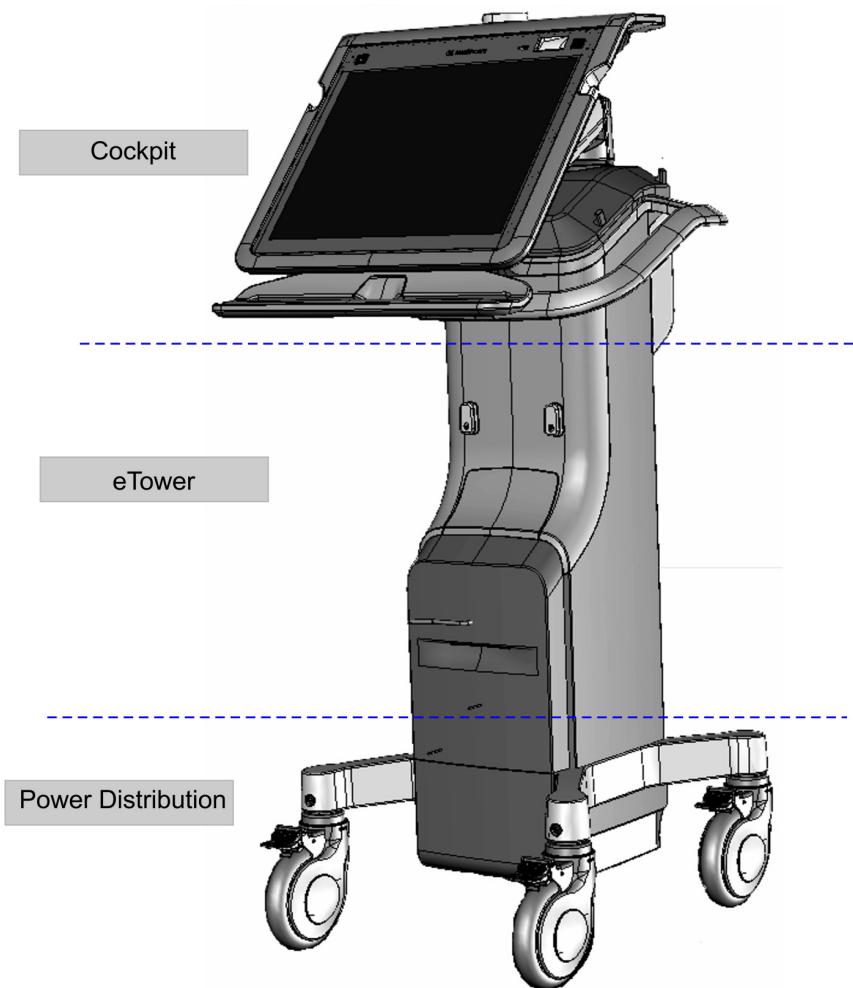


Figure 5-2 Venue™ Ultrasound Scanner - System Design

Section 5-3 Options

- For a list of the available options, see [Optional Peripherals](#) on page 9 - 18.
- For descriptions of the options, see the *User Manual*.
- For Installation instructions, see: [Options Setup](#) on page 3 - 52.
- For configuration, see: [Options Setup](#) on page 3 - 52.

Section 5-4 Connectivity

5-4-1 Purpose of this Section

This section describes communication and connection options between the Venue™ ultrasound scanner and other devices in the Hospital Information System.

5-4-2 Stand-alone Venue™

In this case, images will most likely be reviewed from a removable media. If digital images are stored, they should be saved directly to the removal media.

5-4-3 Direct Connection from Venue™ to a Review Workstation

In this case, the data is transferred from the Venue™ to a dedicated review workstation over an Ethernet connection.

The connection may be done in one of these ways:

- Connection via a Local Area Network (LAN) - set up for this special use only
- Connection via the hospital network (Local Area Network - LAN or Wide Area Network - WAN)

The database on the review station is used as the master and images are stored directly to the review station's storage.

In this configuration the ultrasound scanner is just an intermediate acquisition unit which after completion of a study, will not contain any patient information, measurements or images. The acquisition can be done online or offline.

5-4-4 Venue™ and a DICOM Server in a Network

In this case, the Venue™ is configured to work with a DICOM server in a network environment. Usually, this will be the hospital network.

Images are first saved on the local image buffer on the Venue™.

At the end of the examination the images are sent to the DICOM server via a DICOM spooler.

This scenario requires that Venue™ is configured to be connected to the DICOM server.

Section 5-5 InSite ExC

5-5-1 Introduction

InSite ExC is your direct link with a GE Online Service Engineer or Applications Support Engineer, or a Request for Service via the InSite ExC link at the bottom of the display screen.

5-5-2 InSite ExC Icon

The InSite ExC icon is located under the Service Settings.



Figure 5-3 InSite ExC Icon

Clicking on the icon brings up the InSite ExC menu.

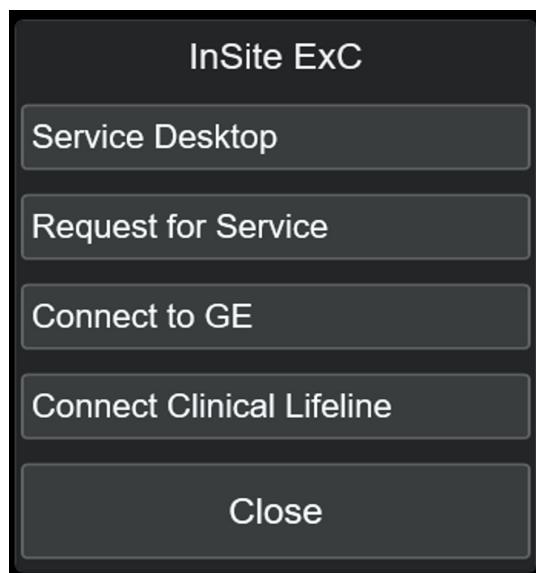


Figure 5-4 InSite ExC Menu

Menu Choices:

- **Service Desktop**

Opens the Common Service Desktop on the Venue™.

- **Request For Service**

Generates a request for service (RFS). Allows the customer to generate a Service or Apps request.

- **Connect to GE**

Increase polling rate. Click this icon to increase the contact Poll Rate from 15 minutes to 15 seconds. The increased polling rate continues for 15 minutes.

- **Connect Clinical Lifeline**

Changes the polling rate the same way as “Connect to GE” and in addition:

- Switches to disruptive mode
- Starts Virtual Console Observation (does not provide access to Windows Desktop.)
- When clicked again, turns off the disruptive mode and turns off the VCO.

5-5-3 Initiating a Request for Service (RFS)

To initiate an RFS,

- 1) Open the InSite Menu.
- 2) Tap '**Request For Service**'. This opens of the RFS screen which sends a service dispatch directly to GE Service after you fill in the following information:
 - Items with a red asterisk
 - Problem type
 - Problem area
 - Problem description
 - Send
- 3) After you have completed filling in all of this information, press **Send** to initiate the Request for Service.

Figure 5-5 Request for Service Contact Information

After you press Send, the following pop-up appears:



Figure 5-6 Request for Service Confirmation

All requests for service are listed on the Queue for your review.

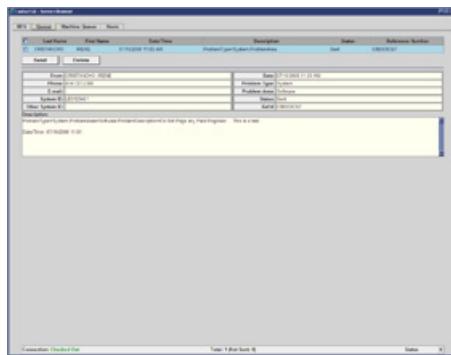


Figure 5-7 Request for Service Queue

The Venue™ system automatically submits a Request for Service once a software update package was downloaded successfully (Applicable for software version 302.X.X only).

All RFS requests can be monitored under the Machine Queue tab.

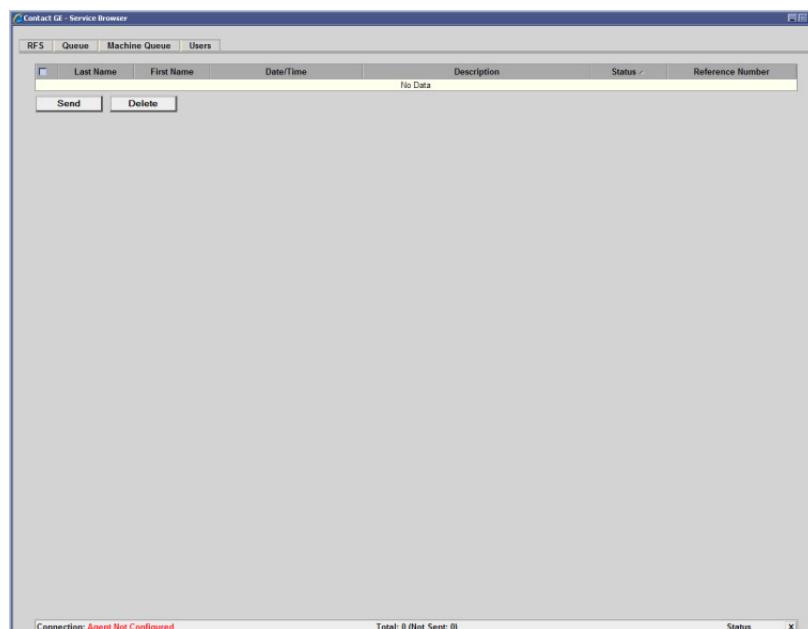


Figure 5-8 Machine Queue

In addition, you can use the Users screen to identify your institution's point of contact for service dispatches.

5-5-4**InSite ExC Definitions**

Here are definitions for the different InSite ExC states:

Virtual Console Observation (VCO). Allows Technical Support to control Venue™ functionality remotely.

Disruptive. Allows GE's Technical Support person to connect to your system via VCO, to run diagnostics directly on your Venue™ system, and to collect system logs. When the system is in Disruptive Mode, the icons are red. There are two disruptive states. If you see a telephone with a clock, then the system is in Disruptive, Not Connected Mode. If you see a telephone with GE, then the system is in Disruptive, Connected Mode.

Non-Disruptive. Allows GE's Technical support person to look around on your system, but cannot perform any service-related functions, depending on whether InSite has connected or not connected. There are two Non-Disruptive states. If you see a black and white icon, InSite ExC is activated, but not open for Technical Support access. If you see a yellow icon, InSite ExC is activated and the Technical Support person can look around on your system, but cannot perform any service-related functions.

Connected. InSite ExC is connected.

Not Connected. InSite ExC is not connected.

NOTE: *When Disruptive mode has been activated or a diagnostic has been run, the message, "Due to Service testing reboot required," appears in red at the bottom of the display. It is recommended that you reboot the system before use. Make sure you disable disruptive mode before rebooting or the message will not be cleared.*

5-5-5**Exiting InSite ExC**

To exit InSite ExC,

- 1) Select Connect To GE.
- 2) The GE Technical Support person then exits Disruptive Mode and VCO.
- 3) Reboot your Venue™ system.

Section 5-6 Cockpit (Monitor) Module

5-6-1 General

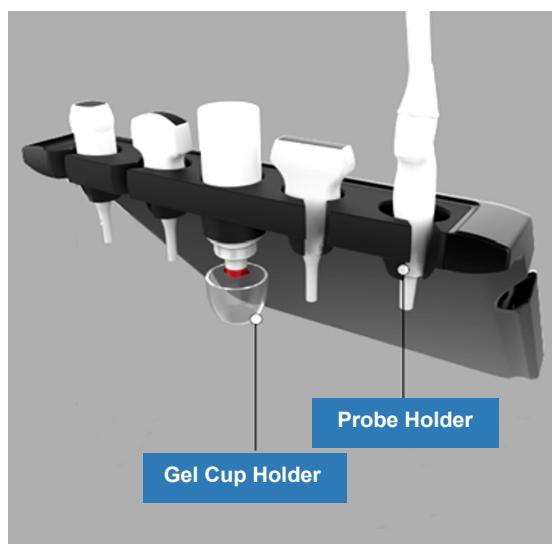
The cockpit (monitor) supports the following operating systems: Windows 10.IoT 64 bit.

The cockpit (monitor) module contains the following elements:

- Four probe holders and gel cup holder
- Power ON/OFF touch button
- SLEEP mode indicator
- AC Power LED Indicator
- Speaker
- Auxiliary display
- Mechanical Interface to Arm module
- Light Sensors (x2)
- LCD display 19" 5:4 1280x1024 pixels
- Touch module - multi touch surface.

5-6-1-1 Probe Holders

The cockpit (monitor) contains four probe holders and one Gel Cup holder.



5-6-1-2 Power On/Off Touch Button

The On/Off touch button is located in the upper right corner of the cockpit (monitor) to prevent accidental activation.



Figure 5-9 Power On/Off Touch button

The system On/Off button has two colors for power status indication:

- Green: indicates system power on
- Orange: indicates system power off.

The On/Off touch button is sensitive to:

- A bare finger
- A Latex gloved hand
- A Latex gloved hand with ultrasound gel.

5-6-1-3 Sleep Mode Indicator

The Sleep Mode indicator is located in the upper left corner of the cockpit (monitor) to prevent accidental activation.



Figure 5-10 Sleep Mode Indicator

The system Sleep Mode button has one color for sleep status indication:

- No color: Sleep mode is not activated
- Orange: Sleep mode is activated.

The Sleep Mode touch button is sensitive to:

- A bare finger
- A Latex gloved hand
- A Latex gloved hand with ultrasound gel.

5-6-1-4 AC Power LED Indicator

The AC Power LED indicator is located on the top bar of the cockpit (monitor).

When the scanner is connected, the AC Power LED indicator turns green.



Figure 5-11 AC Power LED Indicator

5-6-1-5 Cockpit (Monitor) LED Indicators States

Table 5-2 Cockpit (Monitor) LED Indicator Possible States

| System State | LED Indicators |
|--|----------------|
| No Power ▫ AC main power switch is off or power cord is disconnected ▫ batteries are drained or disconnected. | |
| System is Off ▫ AC main power switch is on and power cord is connected | |
| System is Off ▫ AC main power switch is off or power cord is disconnected | |
| System is On (on AC) ▫ AC main power switch is on and power cord is connected | |
| System is On (on Batteries) ▫ AC main power switch is off or power cord is disconnected | |
| System is in Standby (on AC) ▫ AC main power switch is on and power cord is connected | |
| System is in Standby (on Batteries)) ▫ AC main power switch is off or power cord is disconnected | |

5-6-1-6 LCD Display

The LCD display is a 19" LCD screen.

It comprises the following main components:

- LCD Panel
- LCD Controller
- Multi-Touch Surface
- Multi-Touch Controller
- Glass Layer

The Touch Screen supports the following functionality:

- Active on touch
- Activate on release
- Drag-and-drop
- Double-click
- Right-click

User interaction with the Touch Panel is by way of touching (tapping) the screen with one finger, or swiping (sliding multiple fingers across the surface of the screen). The touch panel display is sensitive to finger and latex gloved hand. In addition to facilitating quick selection of the applicable controls, these actions enable smooth scrolling, browsing and scaling of the display, as required.

To facilitate comfortable positioning for the operator, the height of the Main Display can be adjusted as required. For optimal viewing, the screen angle is adjustable; tilting may be between +0° and -50°

At the tilt of 45°, the tilt mechanism is automatically locked and the cockpit can be tilted by additional 5° only. To release the tilt locking mechanism, pull down the tilt and locking handle, located at the front of the Venue™ system, under the cockpit.

In order to optimize the display settings, a light-sensing device (ambient light sensors) located on the Cockpit (monitor) front is used for measuring the ambient light. This data is processed by the main CPU which adapts the display setting, accordingly.

5-6-1-7 Monitor - LCD Display Characteristics

Table 5-3 Touch Screen- LCD Display Characteristics

| Item | Value |
|----------------|----------------------------|
| Size | 19 inch wide |
| Resolution | 1280 x 1024 pixels (WSXGA) |
| Number of Bits | Min 8 bits per color |

5-6-1-8 Monitor - LCD Display Optical Characteristics**Table 5-4 Touch Screen - LCD Display Optical Characteristics**

| Item | Value |
|--------------------------|--------------------------------|
| Contrast Ratio | Min 600 |
| Horizontal Viewing Angle | Min 170 degrees @ CR ≥ 10 |
| Vertical Viewing Angle | Min 170 degrees @ CR ≥ 10 |

5-6-1-9 LCD Controller and Touch Module Configuration Interface**5-6-1-9-1 Input Video Interface**

A Display Port standard receptacle connector is used for carrying video signals and preparatory none video signals.

5-6-2 Auxiliary Display (AD) Module

The purpose of the Auxiliary display is to show indication to the user of remaining scanning time when the system operates on batteries only.

The AD module is a graphic Active Matrix Liquid Crystal Display (AMLCD) located on the top right corner of the cockpit (monitor).

When the system is on standby or running, there is a battery readout screen on the upper right corner of the display. The battery status display indicates the operational time remaining in hours and minutes. It also shows a progress bar indicating the relative amount of remaining charge, and a background color which depends on the remaining scanning time.



Figure 5-13 Auxiliary Display

5-6-2-1 Battery Status Indication

When the battery is charging:

- If the AC power cable is plugged-in, the AC mains power indicator is lit green and the battery is being charged, until reaching full charge.

The background color of the battery status display changes according to the remaining operational time as follows:

- Green:** remaining operation time is more than 90 minutes.
- Yellow:** remaining operation time is between 30 and 90.
- Red:** remaining operation time is less than 30 minutes.

When using battery and less than 10 minutes of operational time remains, a message appears on screen to remind the user to plug the AC cable to mains.

When using battery and less than 2 minutes of operational time remains, the system will initiate the "End Exam" phase, if required, to archive the current exam, and then the system will turn off.

5-6-3 Speaker

The Venue™ cockpit (monitor) includes one speaker (with self-contained amplifier) for delivering Doppler Audio signals to the user.

The speaker is rated for at least 2 watts RMS acoustic output.

Section 5-7 External Input/Output

The Venue™ ultrasound scanner has a connection panel (located at the rear of the eTower) that can host the connections illustrated below.

[Figure 5-14](#) shows a view of the Venue™ ultrasound unit interface panel showing external peripheral/accessory connectors.

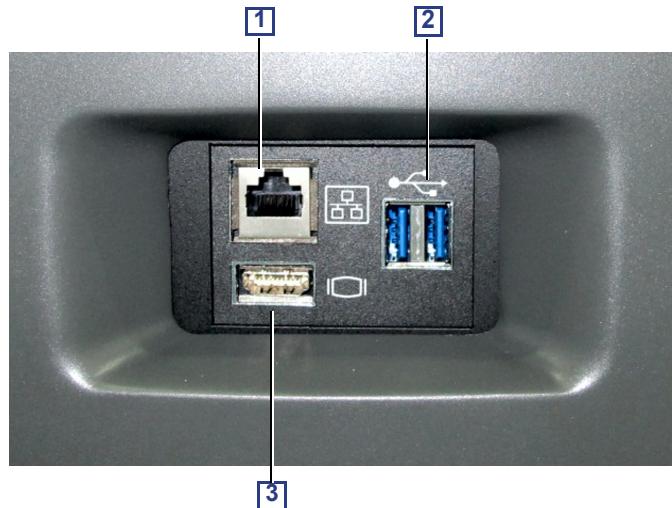


Figure 5-14 View of the Venue™ Peripheral/Accessory Interface Panel

- 1 Ethernet LAN connector — 1000 Base-TX Ethernet IEEE 802.3 (3kV insulation)
- 2 Dual USB 3.0 connector (not insulated)
- 3 HDMI connector (not insulated)

NOTE: *Non insulated I/O can be populated either by certified medical devices or a self powered device (powered by the system, not by external AC). All other devices should be connected to the system by means of additional insulation.*

Section 5-8

Front End Unit

5-8-1 General Information

The Venue™ Front End Unit is designed to support the cSound SW beam-forming architecture for 128 channels.

The Front End Unit, located in the door of the Electronic Cage (see [Figure 5-15](#)), comprises the following modules:

- **Front End Power Supply (T-FEPS)**
See [Front End Power Supply \(T-FEPS\)](#) on page 5 - 20
- **Control Front End (T-CFE) Module** - includes four Transmit and Receive Modules (TRX32)
See [Front End \(T-CFE\) Board](#) on page 5 - 20 and [Back End Processor](#) on page 5-22.
- **Probe Selector Module (T-PSB)**
For interconnection of probes - see [Probe Selection Board \(T-PSB\)](#) on page 5-21

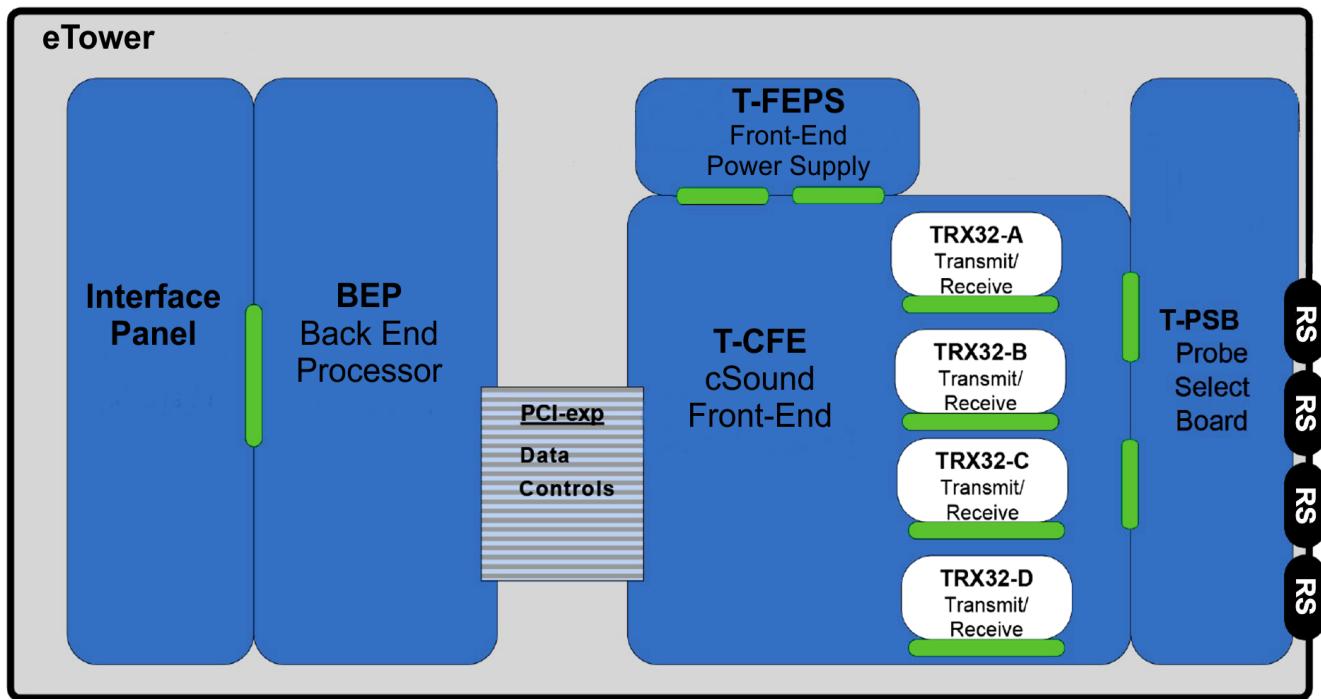


Figure 5-15 Front End Unit - Location of Components in Electronic Cage Assembly

WARNING **WHEN OPENING AND CLOSING THE ELECTRONIC CAGE ASSEMBLY, TAKE CARE NOT TO DAMAGE THE CABLES CONNECTED TO THE BEP.**

5-8-2 Front End Interfaces

The Front End is connected to the Back End via the following Interfaces:

A High Speed Data and Control Cable that comprises:

- PCI-e channel for Setup and communication between the BEP and the DSP located on the T-CFE Module via the PCI Bridge.
- PCI-e channel for Acquired Data Transfer between T-CFE and BEP.
- Control Signals between the BEP and T-CFE for power management and Status Monitoring.
- Power Cable connected between the MPB to the Front End Power Supply (T-FEPS).

The Front End Modules are connected via the following Interfaces:

- The four TRX32 Modules are connected to the T-CFE via DIMM connectors located on the T-CFE Module.
- Communication between the T-CFE and the TRX32 modules is done via LVDS channels and control signals.
- The 128 Transmit and Receive System channels from the 4xTRX32 modules are routed to the PSB via the T-CFE Module.
- The PSB is connected to the T-CFE via 3 connectors

The Interface between the T-CFE and the PSB modules consists of the following:

- Dedicated I2C channel for Board ID (VPD)
- Control Signals
- I2C channel for Probe ID Reading and PSB Debug Information.
- LVDS channels for Matrix Probe Setup and Status Reading
- PSB DC Supply
- Probe Low Voltage and High Voltage Supply

5-8-3 Signal Flow

The TRX32 Boards in the Front End transmit pulses, routed through the Probe Selection Board (PSB) to ultrasound probes.

Ultrasound echoes returned from a body structure are received by the probes and routed via the PSB Board to the TRX32 boards. The TRX32 boards amplify these signals. Then the signals are A/D converted. The digitized signal is transferred via the PCIe 8x Bus to the Back End Processor for software beamforming and further signal processing.

The Back End Processor receives input commands from the User Interface (Operator Panel), handles the communication with the rest of the system, and delivers signals (digital video) to the LCD screen and the Touch Screen. It also provides output to an optional, internal printer. The communication to the network (Ethernet) is also handled by the Back End Processor.

5-8-4 Front End Power Supply (T-FEPS)

The T-FEPS Module comprises the following sections:

- Low Voltage Power Supply (LVPS)
- High Voltage Power Supply (HVPS)

5-8-5 Front End (T-CFE) Board

The function of the T-CFE interface is to transmit/receive all the channels data signals to/from the four TRX32 boards assembled on the T-CFE board. In addition, it contains all the control and status lines required for HV MUX Setup, Probe selection and reading Probe status and information.

5-8-5-1 T-TRX32 Boards (Transmitter/Receiver)

5-8-5-1-1 General Description

The Venue™ system has 128 Receive/Transmit channels divided into 4 boards, each containing 32 Tx/Rx channels. Each board includes 8 transmit chips delivering high-voltage, high-power pulses to the Ultrasound Probe.

5-8-6 Probe Selection Board (T-PSB)

The Probe Selection Board (T-PSB) enables acquisition and processing of signals from and to probes connected to the front panel.

The main purpose of the T-PSB is to select the active probe and transfer the probe data to the T-CFE Board. The PSB provides a mechanical and electrical interface for 4 RS probes.

The T-PSB supports the following:

- Probes with up to 128 elements, directly.
- 192 element probes, using on-board HV multiplexers.

The PSB receives all the required control lines from the T-CFE board. The analog receive/ transmit lines are routed to the T-CFE board using two dedicated connectors. A third connector is used for power and control.

5-8-6-1 T-PSB Default Mode

After Venue™ system power-up, the T-PSB automatically enters default mode. In this mode, the following states are applicable:

- No connector is selected.
- High voltage supplies to all probes are disconnected.

Section 5-9 Back End Processor

5-9-1 Introduction

The Back End Processor (BEP), which supports the operation of the Venue™ ultrasound unit and is the main controller for the system, comprises the following modules:

- Back End Processing (BEP) Module
- Solid State Hard Drive (SSD))

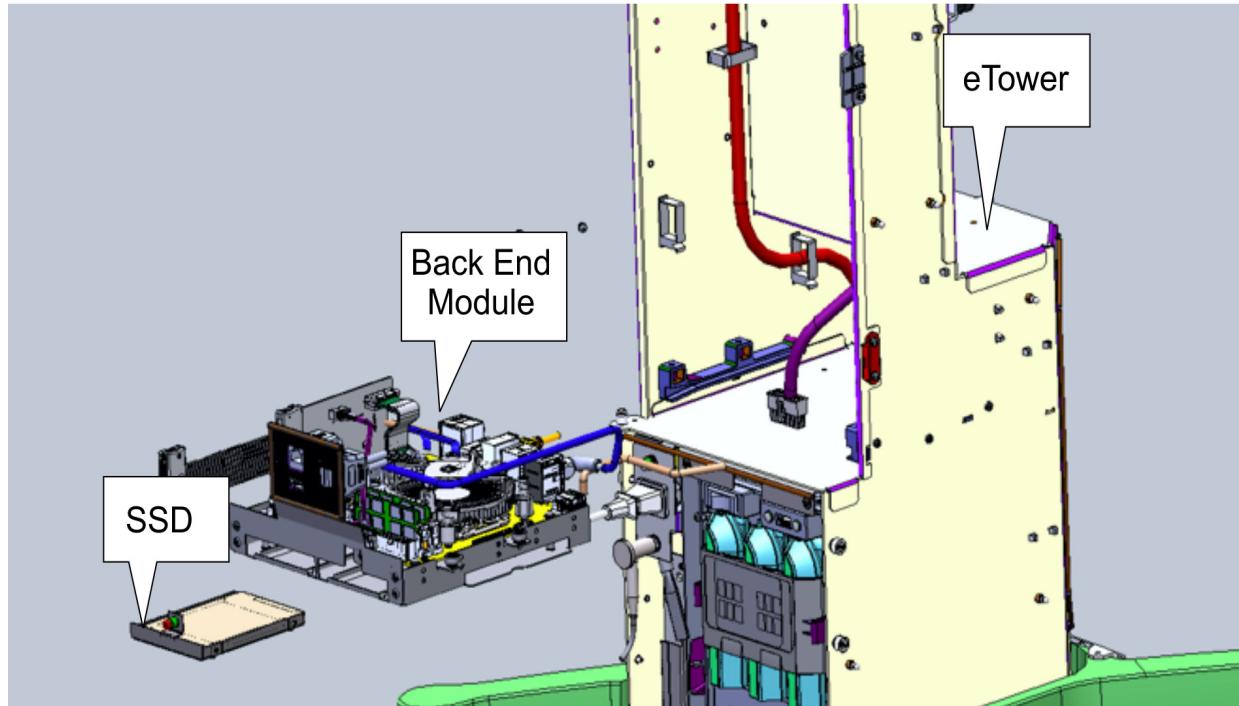


Figure 5-16 BEP Interfaces

5-9-2 Back End Processing (BEP) Module

The Main BEP module is the System Computer responsible for operating the Venue™ Scanner application under a Windows 10 operating system.

The BEP board contains the following Interfaces:

- Expansion: PCI Express x16
- USB: USB 2.0 & USB 3.0
- Video: Digital video outputs
- Audio: Digital audio output and analog audio input/output.
- SSD/HDD: SATA3 interface
- SDRAM Memory: DDR3/DDR4: 2xSODIMM
- LAN: 2x 10/100/1000Mbits/s LAN

For information on cables connected to the BEP Module, see [Figure 8-35](#)



Figure 5-17 BEP Board Interfaces

BEP-to-Front End (T-CFE) Interface is via the **Data and Control Cable** that contains the following:

- PCI-e channels
- Control and Status signals between the BEP and the Front End.

BEP Interface Panel- this panel allows external connections of multiple interfaces by extension cables that connects the internal ports to the IP panel.

- The BEP Interface Panel is located on the rear side of the Venue™ ultrasound scanner, and contains the following connectors:
 - HDMI port - supports connection of external monitor
 - 2 USB 3.0 ports - support for external USB devices such as Bar-code reader etc.
 - RJ45 - Ethernet port: supports wired network connection.

5-9-3 BEP Block Diagram

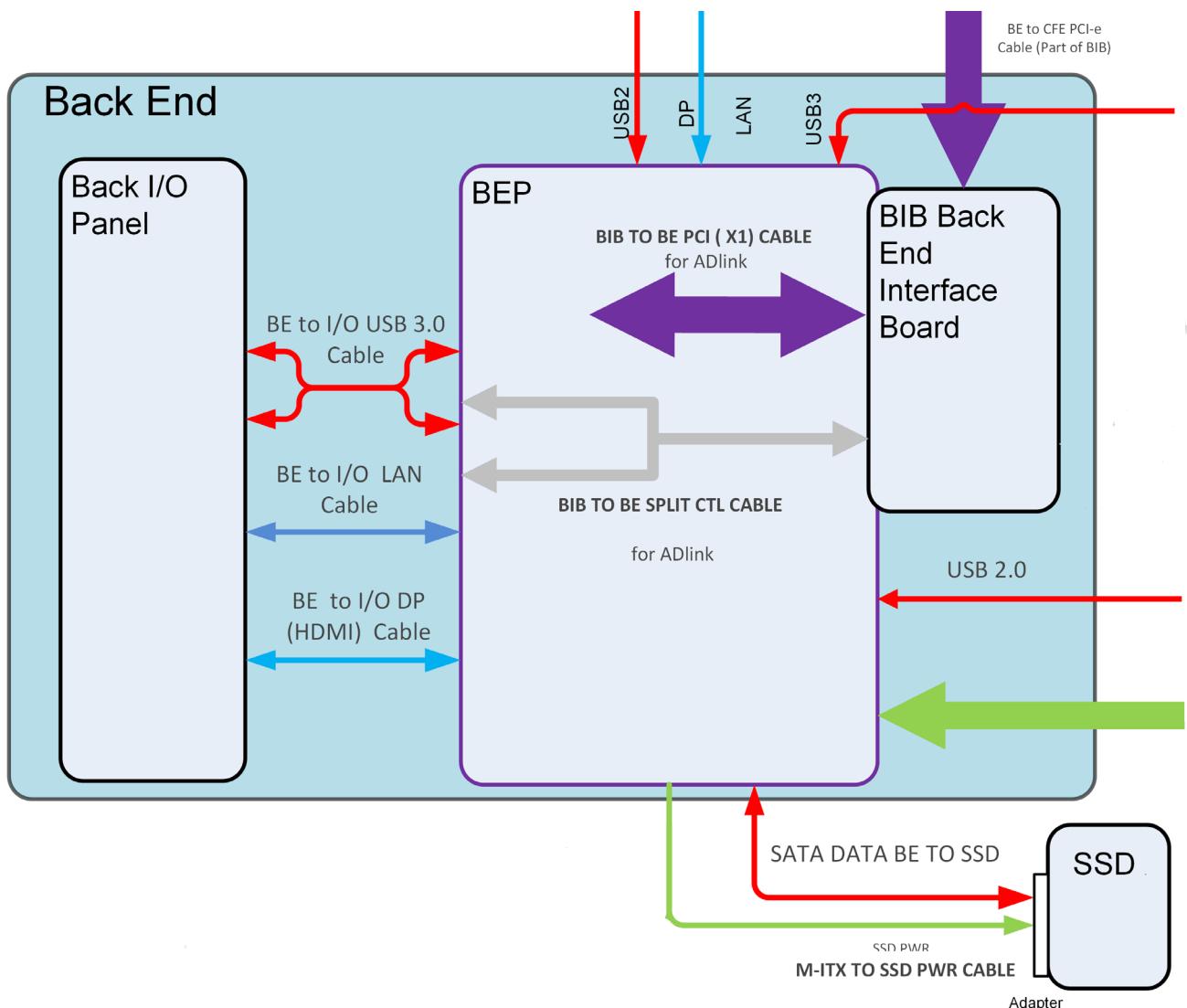


Figure 5-18 BEP Block Diagram

5-9-4 Back End Interface (BIB) Board

The purpose of the Back End Board (BIB) module is to unify communications from all the boards in the system and redirect them to their relevant destinations.

The Back End Board (BIB) module, responsible for the scanner Interfaces, comprises three main Interfaces:

- Back End (mITX standard)- via the Docking Interface
- Csound Front End (CFE) Board
- Main Power Board (MPB)

5-9-5 Solid State Hard Drive

The Hard Disk is the main storage device of the Venue™ ultrasound unit. The Hard Disk, which is controlled by the CPU via signals from the SATA Bus.

Section 5-10

System Power Distribution

5-10-1 Introduction

The Venue™ system power distribution consists of the following modules:

- An Isolated AC/DC Power supply to all System modules (18v/400W) called the PSU Unit.
- Optional Battery Packs that supplies Power to the system when AC power line is not present or in the event of AC power failure (12-16.8V).
- Input filter unit, IPP, before PSU, for filtering AC line noises.

5-10-2 AC Distribution

The PSU module converts the AC power line (100-240V AC) to 18V DC @ 400 W. this module is the main power supply for the Venue™ ultrasound scanner:

5-10-3 DC Power Distribution

The main DC Power supplied from the PSU (AC/DC) is distributed by the MPB to the following system modules:

- Back End Module.
- Front End Power Supply (T-FEPS).
- Cockpit (Monitor)
- Battery charging
- Peripherals

5-10-4 System Power Management

The System Power Management is responsible for operating the system in different power states, in accordance with the power condition and User request.

System Power Management comprises the following:

- The PSU Module, responsible for the following functions:
 - Convert 100 - 240V AC to Isolated 18V DC power supply
- The MPB module is responsible for the following:
 - Battery Charger controlled by the SOM
 - Automatic Switching from AC power line (18V DC after conversion by PSU) and battery power (12v-16.8v)
- The Embedded Controller (SOM), is responsible for the following functions:
 - Control the power-up and wake-up sequences
 - Battery Monitoring and Battery Charger control
 - Interface to the PSU
 - Interface to the T-CFE Power sequencing and Monitoring Device
 - Back End Thermal Management

5-10-5 Rechargeable Battery Pack

The battery pack consists of Li-Ion cells, protection and fuel gauge electronics, and connectors.

The battery module consists of 3 batteries bound together by plastic brackets. All battery packs are electrically isolated.

- The main functions of the battery fuel gauge are:
 - Charge and discharge operation
 - Battery pack fuel gauging (PIC16F886)
 - Resettable primary protection (over voltage, under voltage, and discharge over current).
 - Non resettable secondary protection (over voltage and FET over-temperature).

5-10-5-1 Battery - General Safety Guidelines

The lithium ion rechargeable battery packs provides power to the Venue™ system whenever an AC power source is not available.

Venue™ ultrasound scanner is supplied with two battery packs installed in the battery bay as standard. Each battery pack includes three lithium ion batteries bounded in plastic enclosure.

The Venue™ has built-in charger functionality and switches automatically from battery operation to AC operation and *vice versa*.

When shutting down the system, leave the main power cable connected to keep the battery fully charged.

NOTE: *Before removing or inserting the Battery, perform system shut-down and disconnect the AC power cable from the Venue™ ultrasound scanner.*

NOTE: *The lithium ion technology used in the system's battery is significantly less hazardous to the environment than the lithium metal technology used in some other batteries.*

NOTE: *The battery is designed to be replaced every 2 years.*

CAUTION **THE BATTERY IS DESIGNED TO WORK WITH VENUE™ SYSTEMS ONLY.
ONLY USE THE BATTERIES AUTHORIZED BY GE.**

- Do **not** disassemble or alter it. Charge the batteries only when the ambient temperature is between 0 °C and 40 °C (32 °F and 104 °F) and discharge the batteries between -20 °C and 50 °C (-4 °F and 122 °F).
- Do **not** short-circuit the battery by directly connecting the battery terminals with metal objects.
- Do **not** heat the battery or incinerate.
- Do **not** expose the battery to temperature over 60 °C (140 °F). Keep it away from fire and other heat sources.
- Do **not** charge the battery near a heat source, e.g. fire or heaters.
- Do **not** leave the battery in direct sunlight.
- Do **not** pierce the battery with a sharp object, hit it, or step on it.
- Do **not** use a damaged battery. Do not solder a battery.
- Do **not** connect the battery to an electrical outlet.
- Do **not** immerse the battery in water or allow it to get wet.
- Do **not** put the battery into a microwave oven or pressurized container. If the battery leaks or emits an odor, remove it from all possible flammable sources.
- If the battery emits an odor or heat, is deformed or discolored, or in a way appears abnormal during use, recharging or storage, immediately remove it and stop using it.
- If you have any questions about the battery, consult GE or your local representative.

Recommended storage conditions of battery pack:

Short term (less than one month): 0 °C (32 °F) to 50 °C (122 °F)

Long term (more than three months): -20 °C (-4 °F) to 20 °C (68 °F).

Section 5-11 Cooling System

5-11-1 General Information

The Venue™ system has 3 fans for system cooling:

- Back End Fan - located on the Back End module.
- T-CFE Fan - located on the top of the Front End module.
- MPB Blower (Fan) - located on the rear side of the system behind the MPB module.

All fans are controlled and have variable speed.

The cooling requirement for the Venue™ ultrasound scanner with monitor and on board peripherals, is up to 2000 BTU/h. This figure does not include cooling needed for lights, people, or other equipment in the room.

NOTE: *Each person in the room places an additional 300 BTU/h demand on the cooling system.*

Section 5-12 Peripherals

5-12-1 Internal Peripheral

5-12-1-1 Black & White Digital Graphic Printer

The B/W Printer, available as an option. The printer is mounted at the front side of the Venue™ ultrasound scanner.

5-12-1-2 ECG Module

The ECG module, available as an option. The module is responsible for the acquisition of the ECG analog signal inputs.

 **CAUTION USE ONLY APPROVED, DEFIBRILLATION-PROOF ECG PATIENT CABLES, SEE [Table 9-20](#).**

5-12-2 External Peripherals

5-12-2-1 Wi-Fi Adapter

The Wi-Fi adapter allows the user to connect the system to network wireless.

The Wi-Fi adapter is connected at the back side of the cockpit (monitor) via a L shape USB adapter.

5-12-2-2 Bar-code reader

The bar code reader allows the user scanning patient ID from a printed bar code label and scanning needle type bar code.

The bar code reader is connected to the Venue system via a USB port located on the rear.

Section 5-13 Common Service Desktop

5-13-1 Purpose of this Section

This section describes the Common Service Desktop, as implemented on the Venue™.

5-13-2 Contents in this Section

| | |
|--|------|
| Introduction | 5-31 |
| iLinq Interactive Platform Features..... | 5-31 |
| Common Service Desktop (CSD)..... | 5-32 |

5-13-3 Introduction

The Service Platform contains a set of software modules that are common to many of GE's 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 Service Platform will increase service productivity and reduce training and service costs.

5-13-4 iLinq Interactive Platform Features

Many of the services of the Common Service Desktop come from its integration with *iLinq*. The following sections contain a brief introduction of *iLinq*'s features.

5-13-4-1 Service Desktop

The Service Platform and other Service software use the *iLinq* web server and the Internet Explorer browser.

5-13-4-2 Request for Service

NOTE: *This feature that allow the customer to contact the GE OnLine Center are available for Warranty and Contract customers only.*

This feature provides basic connectivity between the scanner and the OnLine Center (OLC).

5-13-4-3 Configuration

This feature provides basic connectivity between the scanner and the OnLine Center (OLC).

5-13-4-4 Connect to GE

NOTE: *This feature enables the customer to contact the GE OnLine Center is available for Warranty and Contract customers only.*

Allows the customer to generate a Service or Apps request. Prior to using this feature, a default RFS User must be configured.

5-13-4-5 Connect Clinical Lifeline

The main application is displayed in the form of HTML pages whenever the browser starts. This is the entry point for any user to start any *iLinq* application.

5-13-5 Common Service Desktop (CSD)

5-13-5-1 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 Service Interface.

5-13-5-2 Service Login

Select the phone icon in the status bar at the bottom of the scan display screen.

This icon links the user or the field engineer (FE) to the service login screen.

NOTE: *The Figure below is an example from an engineering system.*

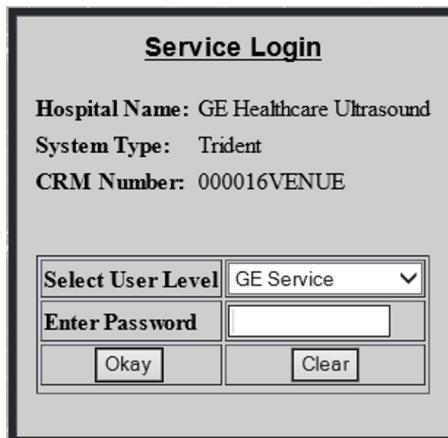


Figure 5-19 Service Login Screen (Example)

5-13-5-3 Access / Security

The service interface has different access and security user levels. Each user is only granted access to the tools that are authorized for their use.

NOTE: *A Service Dongle (part number 066E0703) is necessary for use by GE Service when performing proprietary level diagnostics. OnLine Center access to the scanner requires the password and they must have 'Disruptive' permission and customer input to run diagnostics.*

Table 5-6 Access Authorization

| User Level | Access authorization |
|------------------|--|
| Operator | <ul style="list-style-type: none"> Enable/Disable Disruptive Mode |
| Administrator | |
| External Service | |
| GE Service | <ul style="list-style-type: none"> Knowledge of a service level password. A physical Service Key (Dongle) required |

NOTE: *For a GE Field Engineer, the password changes at specific intervals. Access with the password is tied to the service key.*

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

Related information:

- [Data Management](#) on page 4 - 10
- See *Chapter 7 -Diagnostics/Troubleshooting* for more information.

Chapter 6

Service Adjustments

Section 6-1 Overview

6-1-1 Purpose of Chapter 6

This chapter explains that there are no service adjustments required on a Venue™.

Section 6-2 Power Supply Adjustments

There are no adjustments on the power supply.

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 one (or more) of the units connected to that specific power outlet.

When an error occurs, the power will be turned OFF immediately.

Section 6-3 Cockpit (Monitor) Adjustments

There are no adjustments required on the Cockpit (monitor).

Section 6-4 Articulated Arm Movement Adjustments

6-4-1 Arm Movement Adjustment - General Instructions

- 1.) The cockpit adjustment movement resistance may be increased/decreased in the following axes (red arrow shows location of the controlling screw per axis):

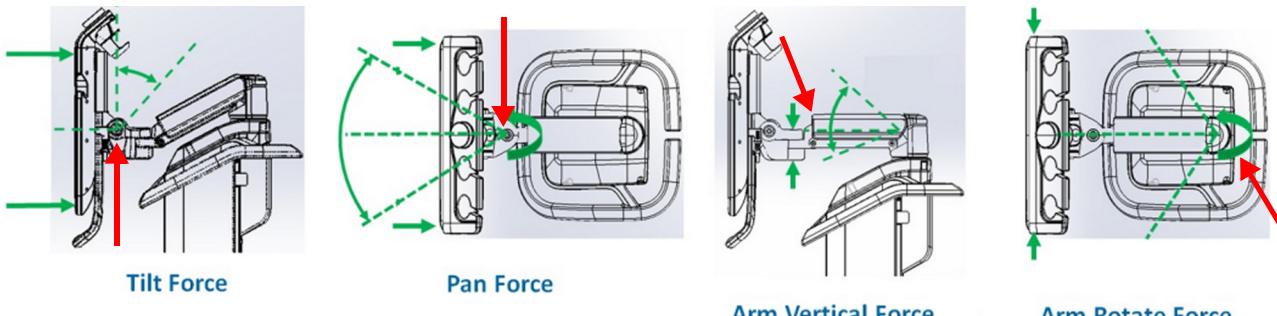


Figure 6-20 Optional Movement Resistances Adjustments

6-4-2 Tilt Resistance Adjustments

- 1.) At the back of the cockpit, disconnect the Wi-Fi dongle if exists: release four screws and remove the transparent cover and the Wi-Fi dongle



Figure 6-21 Wi-Fi Cover and Dongle Removal

- 2.) Remove the cockpit rear cover if exists: disconnect four screws using appropriate Phillips screwdriver.



Figure 6-22 Cockpit Rear Cover Removal

3.) Using 8mm Allen key and 19mm open wrench release/tighten the Allen screw.



Figure 6-23 Tilt Movement Adjustment

NOTE: Ensure there is no tilt autonomic movement.

6-4-3 Pan (Swivel) Resistance Adjustments:

- 1.) Tighten/Release the 8mm socket at the back of ..

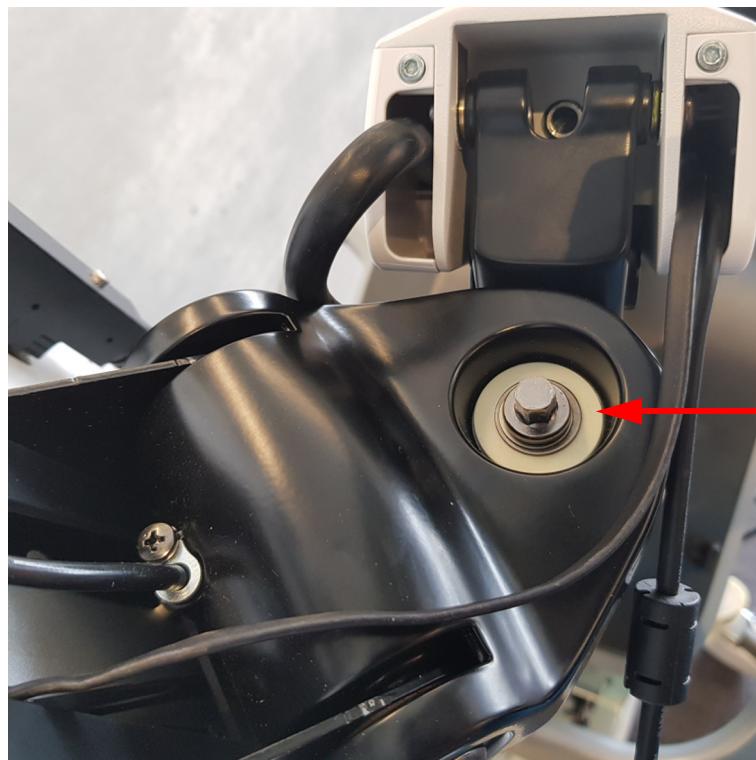


Figure 6-24 Pan Movement Adjustment

NOTE: Ensure there is no pan (swivel) autonomic movement.

6-4-4 Arm Vertical Movement Adjustments:

- 1.) Move the cockpit to one side, until the Allen screw inside the arm is accessible.



Figure 6-25 Arm Vertical Movement Adjustment

- 2.) Using a 5mm Allen key tighten/release the Allen screw.

NOTE: Ensure there is no arm autonomic movement.

6-4-5 Arm Rotate Resistance Adjustments:

- 1.) At the back of the system, release the nut under the riser cover,

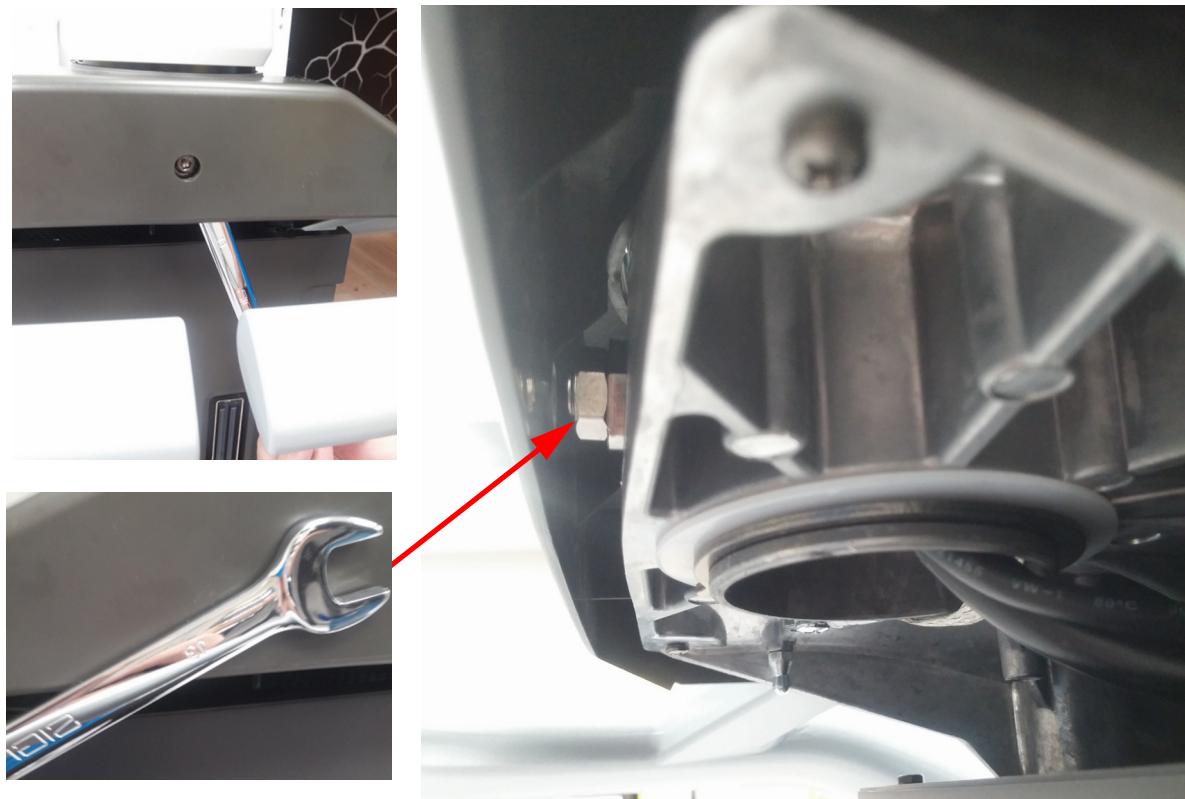


Figure 6-26 Arm Rotate Movement Adjustment

- 2.) Tighten or release the 4mm Allen screw to adjust the required arm movement resistance

NOTE: Ensure there is no arm autonomic movement.

Chapter 7

Diagnostics/Troubleshooting

Section 7-1 Overview

7-1-1 Purpose of Chapter 7

This chapter 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.

Section 7-2

Service Safety Considerations



DANGEROUS VOLTAGES, CAPABLE OF CAUSING DEATH, ARE PRESENT IN THIS EQUIPMENT. USE EXTREME CAUTION WHEN HANDLING, TESTING AND ADJUSTING.



If the covers are removed from an operating Venue™ , some metal surfaces may be warm enough to pose a potential heat hazard if touched, even while in shutdown mode.



Use all Personal Protection Equipment (PPE) such as gloves, safety shoes, safety glasses, and kneeling pad, to reduce the risk of injury.

Section 7-3 Service Tools

7-3-1 Visual Guide

The Venue Companion is a Windows based application that provides visual guides for customer replaceable units (CRU). This application is distributed as part of the software installation media.

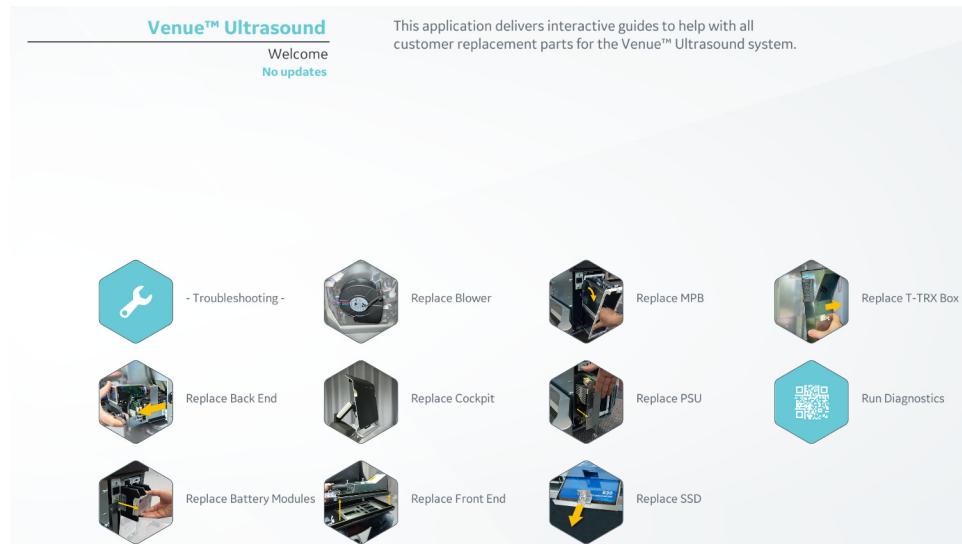


Figure 7-27 Venue Companion Application

7-3-2 System Diagnostics

The following steps are different for R1 and R2 configuration:

For R1 systems with software version 301.X.X:

- Press and hold ON/OFF & Standby buttons simultaneously



Figure 7-28 Venue™ R1 Systems - Accessing Diagnostics Screen

For R2 systems with software version 302.X.X:

- On the Home screen tap: **Settings** >> **Service** >> **Diag.**

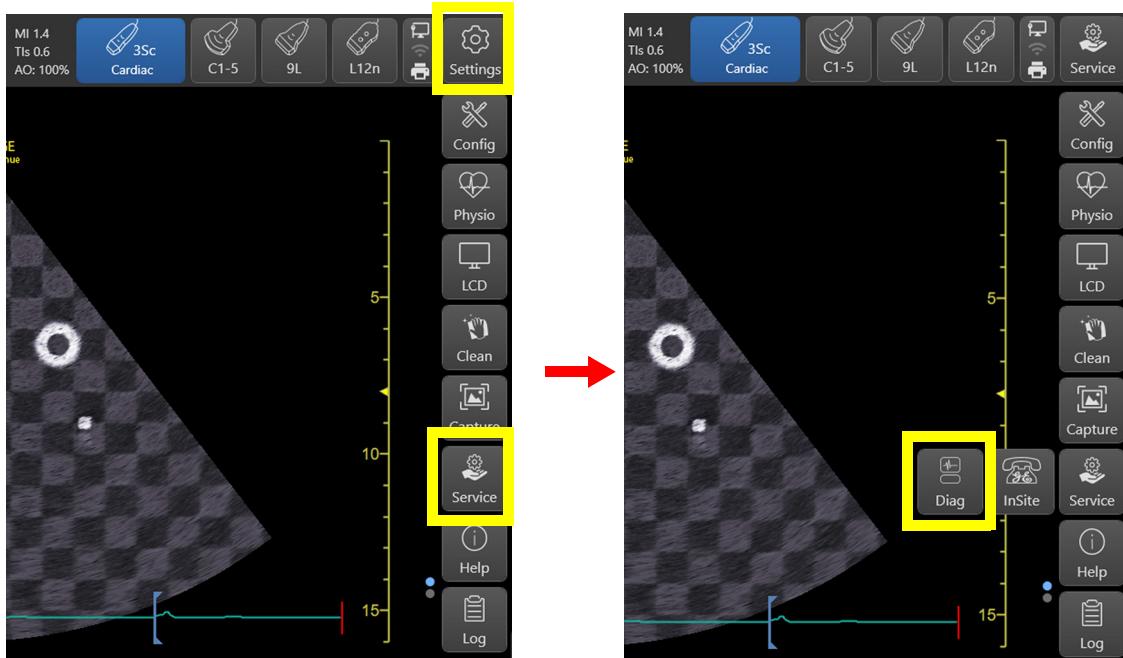


Figure 7-29

Section 7-4 Gathering Troubleshooting Data

7-4-1 Purpose of this Section

Trouble images and system data (logs) can be acquired at the device or through remote diagnostics (InSite). These data can be used to perform service at the device, or can be sent back to the manufacturer for analysis.

7-4-2 Contents in this Section

- [Collect Vital System Information](#)
- [Collect a 'Trouble Image' with Logs](#)

7-4-3 Collect Vital System Information

The following information is necessary in order to properly analyze data or images being reported as a malfunction or being returned to the manufacturer:

Product Name = Venue™

Select Config (F2) > About screen.

- Applications Software
 - Application Software revision
 - Software medium's part number
- System Software
 - System Software revision
 - Software medium's part number

7-4-4 Collect a 'Trouble Image' with Logs

For R1 systems with software version 301.X.X:

If the system should malfunction, press the **Alt+Logs** (Alt+D for external keyboard) keys simultaneously. This will collect a screen capture of the monitor, system presets and several log files in a date and time stamped ".zip" file.

NOTE: *This function may also be used to make a Print Screen (screen dump).*

The Alt+Log function is available at all times the virtual keyboard is displayed.

When Alt+Log is pressed, a menu box appears that allows for;

- a place to enter a description of the issue
- a check box to indicate a System lockup
- a choice to Export to a pre-formatted removable media or save to the Export directory D: drive (for remote viewing through InSite).

For R2 systems with software version 302.X.X

On the Home screen tap: **Settings >> Log >> Logs.**

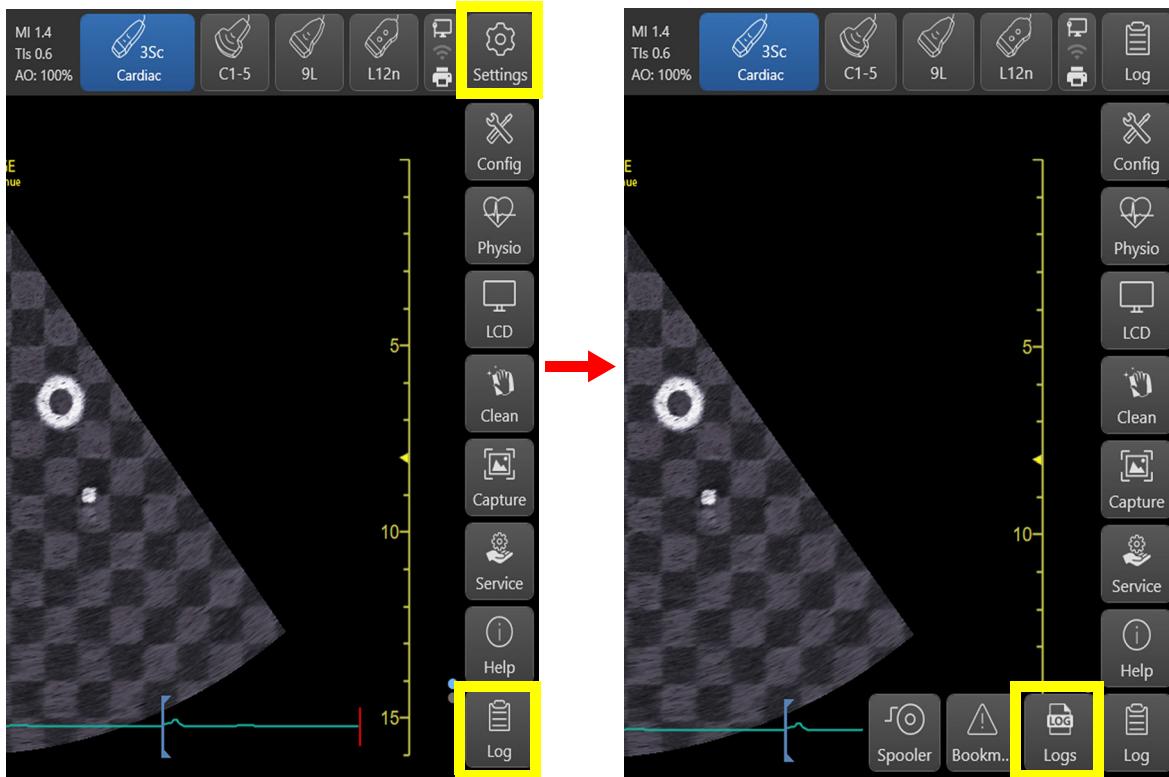


Figure 7-30 Venue™ R2 Systems - Accessing Diagnostics Screen

NOTE: You **MUST** select one of the available devices as the destination device if it is to be different than the default Export directory on the hard drive.

The screen capture is a bitmap which eliminates the possibility of artifacts from compression.



- | | |
|---|--|
| 1. Type description of issue here | 5. Progress bar |
| 2. Select if you've had a system lockup (after restart) | 6. See: Advanced Log Options . |
| 3. Select where to store the report | 7. See: Advanced Log Options . |
| 4. Select this button when ready to Save and Export | 8. Exit |

Figure 7-31 System Problem Reporting (ALT+D dialog box)

7-4-4-1 Advanced Log Options

- **Extensive Log** enables the creation of a log file containing additional information for the selected functionality.
- **Options** enables creation of a log file based on a selected bookmark or for a user configurable time frame. Different type of information can be selected to be part of the log file.

The disk drive installed in the Venue™ system is based on Solid State technology (SSD) and does not need to be defragmented.

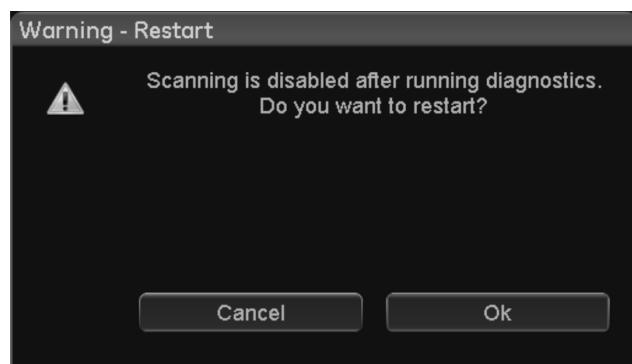
7-4-4-2

Figure 7-32 Exiting Service Diagnostic Tests

Section 7-5

Noise Troubleshooting

7-5-1 Purpose of this Section

In this section you will find Noise troubleshooting procedures and hints.

7-5-2 Contents in this Section

| | |
|----------------------------------|------|
| Introduction | 7-43 |
| Overview of Types of Noise | 7-43 |
| Different Power Outlet | 7-45 |
| Different System. | 7-45 |
| Different Location | 7-45 |
| Disconnect External Cables | 7-45 |

7-5-3 Introduction

Before you start troubleshooting the noise, you should read the following subsections:

- [EMI Limitations](#)
- [EMI Prevention/Abatement](#)
- [Overview of Types of Noise](#) - see below

When talking to the customer, try to gather as much information as possible about the conditions when the noise appear:

Is the noise present...

- ... all the time?
- ... after some time of use? (After how long time?)
- ... at special times of the day (or night)? When?
- ... at all locations in the hospital, or only in one room/area?
- ... from time to time, no special pattern of time is observed?

7-5-4 Overview of Types of Noise

There are different types of noise. Use the information next to classify the noise and possible cause.

7-5-4-1 Noise Picked Up from the Air

Electromagnetic Interference (EMI) from radio frequencies, magnetic fields, and transients in the air.

If picked up by a probe cable, the noise will be coherent - "penlight noise" pointing down in the picture - due to the fact that the noise is received on all channels.

- Is it a problem on one probe only?
Try another probe.
- Is it a problem on one of the probe connectors only?
Move the scanner to another location and verify any changes.

7-5-4-2 Noise Received via the External Cables

Electromagnetic Interference (EMI) from radio frequencies, magnetic fields, and transients in the wiring. The noise can enter the system via the mains power cable, probe cable(s) or any other external connected cable(s).

To troubleshoot this type of noise, disconnect cables that are not needed for the basic use of the scanner. Check for any change in the noise each time a cable has been disconnected from the Venue™ .

- Network cable
- Cables to any external peripherals
- Other cables connected to the Patient I/O

Verify if the noise change or disappear when the cables are removed.

Often, this type of noise is due to grounding problems in the mains power system or that the scanner is sharing a power line with other equipment.

7-5-4-3 Intermittent Noise

- Is there any equipment that is turned on and off near the scanner?
- Is the noise present all around the clock or only at special occasions?

7-5-4-4 Self-generated Noise Generated inside the Ultrasound system)

Example: Color Noise in the near field.

- Self generated noise will not change if you touch the scanner or the probe.
- Self generated noise may be due to either:
 - heat problems
 - hardware problems
 - software problems

7-5-4-5 Heat Problems

Heat problems are usually starting when the Venue™ has been ON for some time.

If the Venue™ has been used for scanning for some time before the noise appears, it may be due to either heat problems or some software related issues. By doing a restart you may learn some more about the cause.

Select **Ctrl+Alt+R** to restart the back end processor without power-cycling the unit.

- If the noise is present after the restart, the cause is most likely due to heat problems.
- If the noise is gone after the restart, it may be due to either the setup/adjustments or a software failure.

Possible causes for heat problems:

- Room temperatures outside the allowed temperature limits.
- Fans are worn-out.
- Hardware problems.

7-5-4-6 Hardware Problems

A hardware issue will typically be an error/malfunction on a card.

7-5-4-7 Software Problems

Check if a newer software version is available. A software update may include noise fixes. If needed, update the software.

7-5-5 Different Power Outlet

Connect the unit to another power outlet and verify if the noise changes or disappear.

NOTE: *GE 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 Ultrasound system.*

The Venue™ will function on voltages from 100-240 Volts and 50 or 60 Hz. However, if using 220 volt power in North America, then a center tapped power source is required.

Sites with a mains power system with defined Neutral and Live:

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.

7-5-6 Different System

Try another Venue™ scanner at the same location and look for the same noise. If the noise is present on the new system too, the noise is most likely from an external source/equipment.

7-5-7 Different Location

Move the scanner to another location and verify if the noise changes or disappear. This may help you to locate an external noise source.

Try to move the scanner to:

- another location inside the room
- another room
- another floor

7-5-8 Disconnect External Cables

Disconnect all external cables (network and all unused probes), and verify if the noise disappears.

Section 7-6 Audio Troubleshooting

7-6-1 Purpose of this Section

In this section you will find Audio troubleshooting procedures and hints, to be used if there is no Doppler or system sound.

7-6-2 Audio Troubleshooting Procedure

1.) In the application:

- 1.) Enter config ->system ->settings
- 2.) Make sure that the mute control sounds is not checked

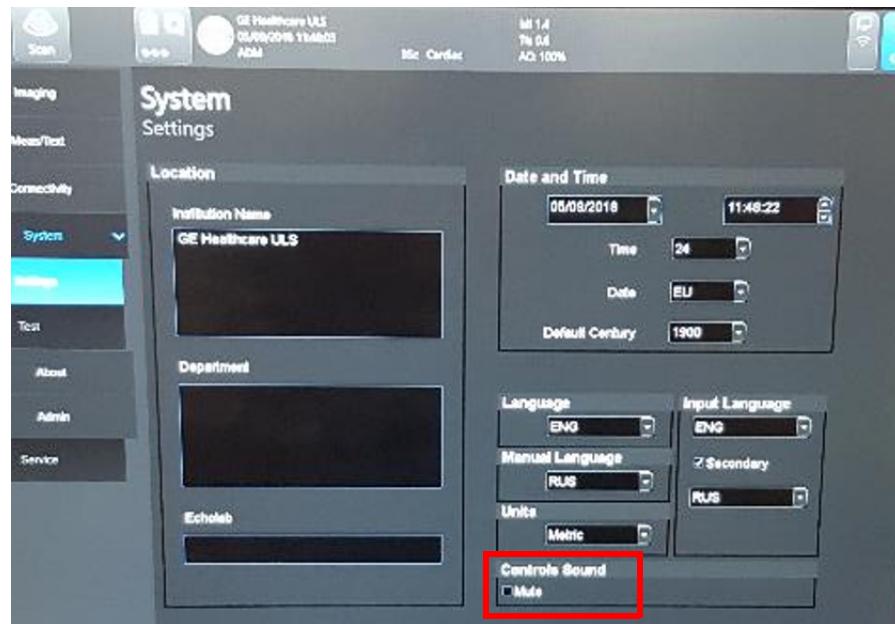


Figure 7-33 Verify Mute Control is NOT Checked

- 3.) Enter CW mode and select volume menu (right side) – increase the volume

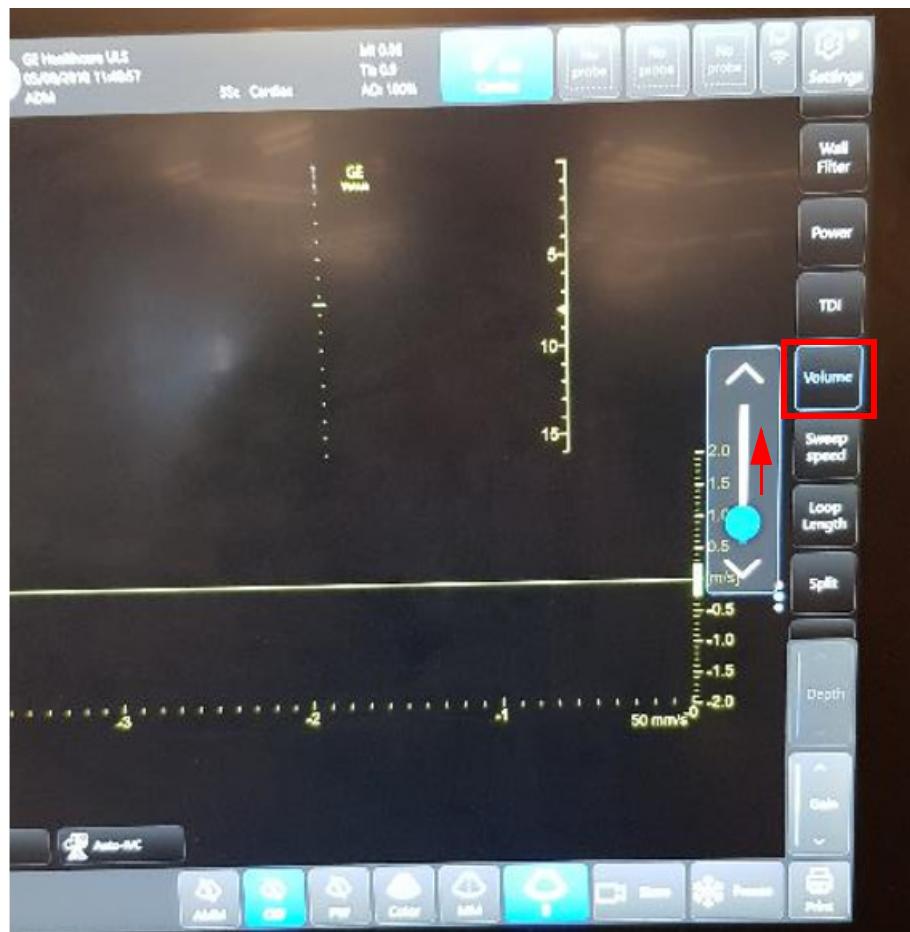


Figure 7-34 Increase the volume

- 4.) Exit to windows

2.) In the windows screen:

- 1.) Tap the speaker icon – move the slider to 100% - make sure it is not muted

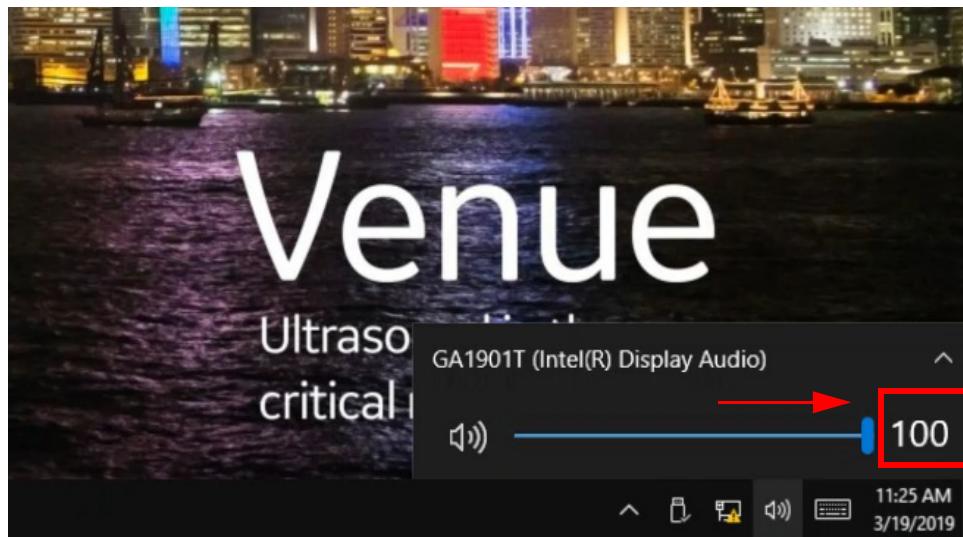


Figure 7-35 Increase the Windows volume

- 2.) Tap and hold the speaker icon and select playback devices, make sure the default device is as seen below.

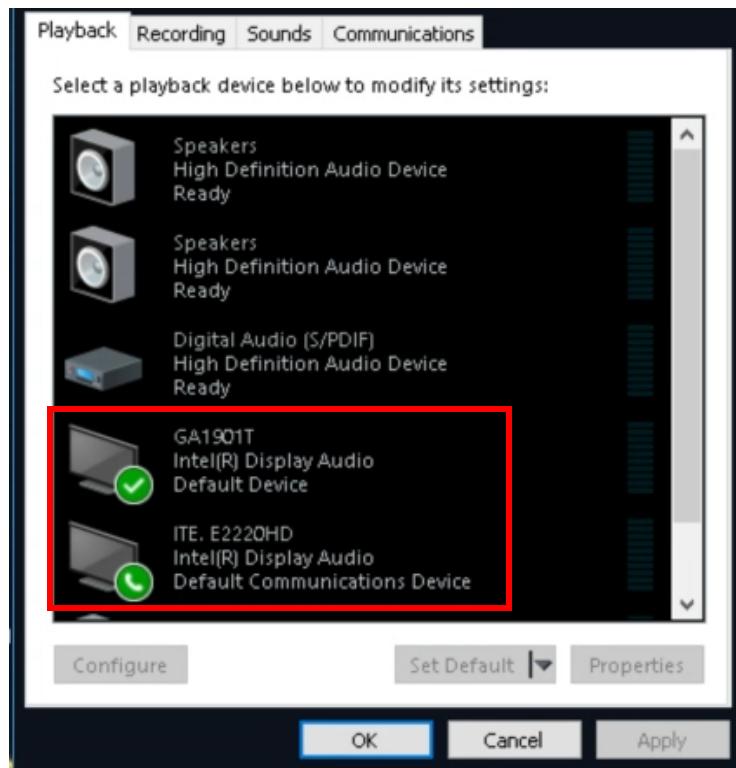


Figure 7-36 Verify selected playback device

- 3.) Tap and hold the default device and select test

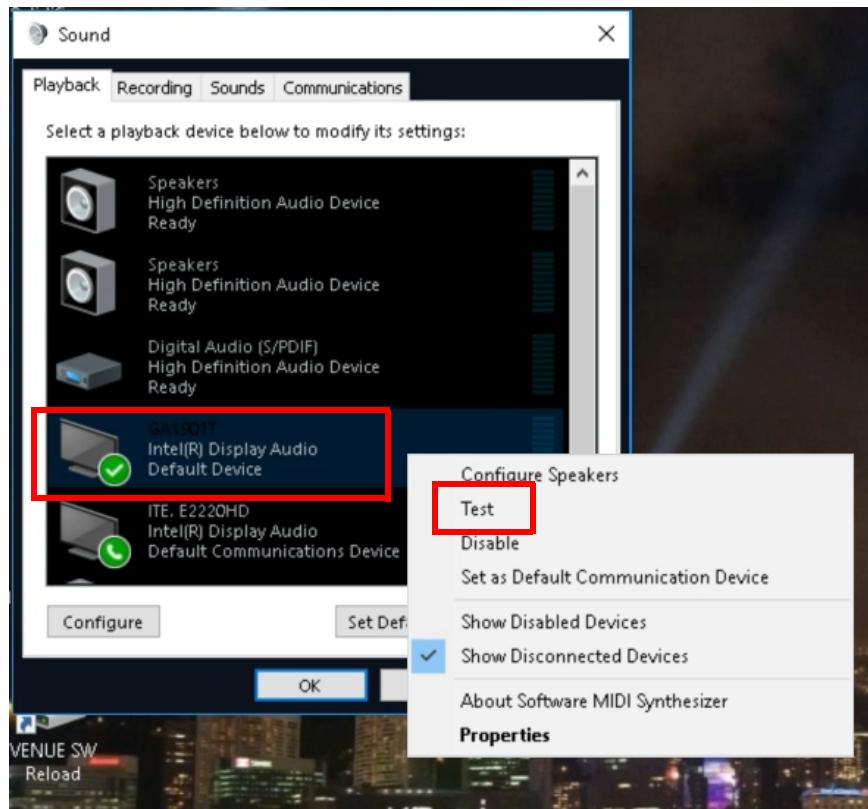


Figure 7-37 Select Test

- 4.) While the system is turned on – disconnect and reconnect the cockpit black connector

Section 7-7

Probes not Recognized Troubleshooting

7-7-1 Purpose of this Section

If the system does not recognize any of the connected probes, perform the following procedure.

7-7-2 Probes not Recognized Procedure

- 1.) Reseat the PSB, TCFE and TRX boards according to Venue service manual
- 2.) If the issue is not resolved, this may be a probe issue. In this case, perform the following steps for each of the probes individually:
 - 1.) disconnect all probes except one probe and restart the system
 - 2.) If the issue persists, continue checking this probe on all the other ports to decide if it is a probe issue or a PSB issue
- 3.) If the system still does not recognize any of the probes, replace PSB module (P/N S5726584)

Section 7-8

System does not turn on Troubleshooting

7-8-1 Purpose of this Section

This section manages the most common scenarios where the system does not startup.

7-8-2 Contents in this Section

| | |
|--|------|
| Cockpit ON/OFF Button turns orange -->BEP BIOS Jumper Setup | 7-52 |
| BEP Fan does not Spin (ON/OFF button is Orange)-->MPB to BIB Connection..... | 7-53 |
| Application error: "Abnormal...behaviour"-->Front End Connections..... | 7-54 |
| No Auxiliary Display | 7-56 |
| System Stuck in Stand By Mode--> verify T_CFE Board Revision | 7-57 |

7-8-3 Cockpit ON/OFF Button turns orange -->BEP BIOS Jumper Setup

Symptom: The system does not turn ON (cockpit on/off button turns green for a few seconds and then turns orange).

Suggested solution: Reset BEP BIOS jumper

- 1.) Reset BIOS by changing the jumper position as shown in the picture: move from the 2 outer pins to the 2 inner pins

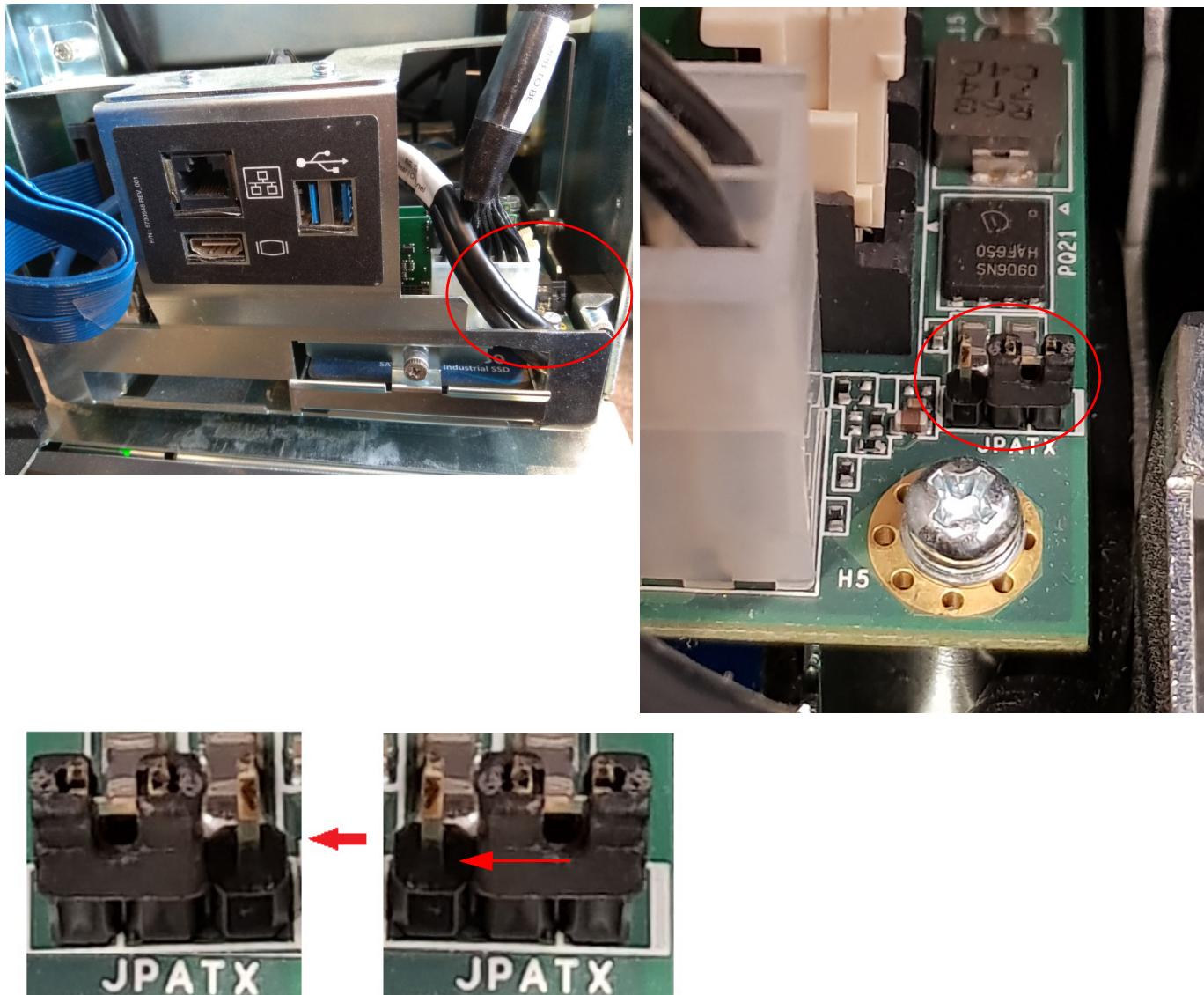


Figure 7-38 Change Jumper Position to Reset BIOS

- 2.) Turn on the system and then off again
- 3.) Reset the jumper to its original position

7-8-4 BEP Fan does not Spin (ON/OFF button is Orange)-->MPB to BIB Connection

Symptom: T-CFE and T-FEPs LEDs turn On and then off; BEP fan does not spin,

The On/Off button on the cockpit turns green for a second and then turns orange)

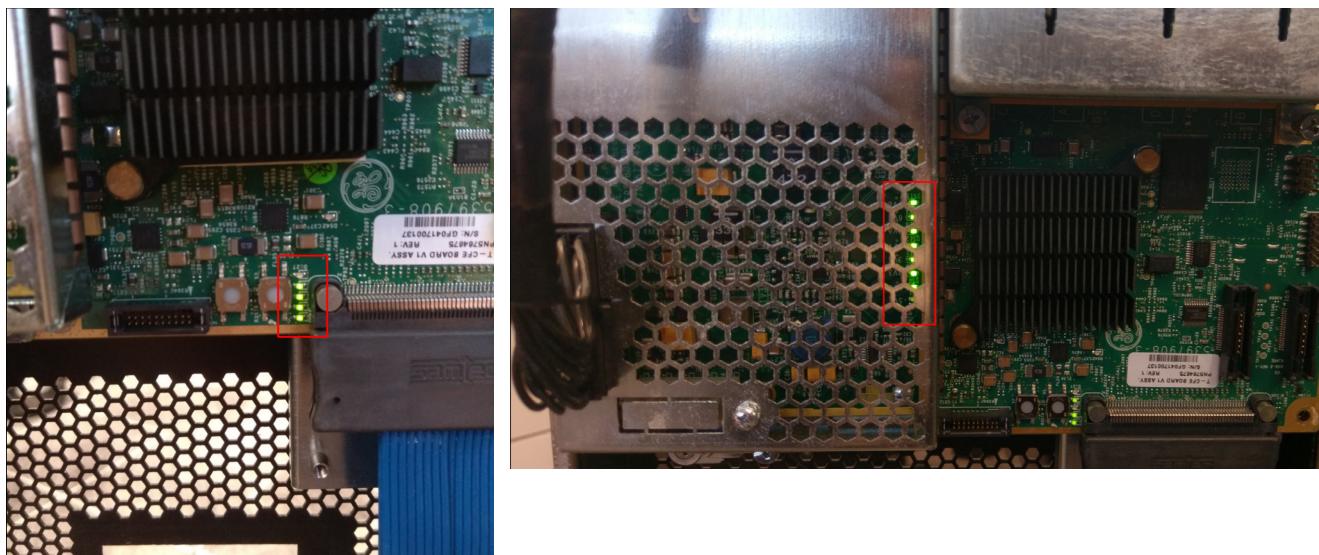


Figure 7-39 T-CFE LEDs; T-FEPs LEDs

Suggested solution: Reset MPB to BIB connection

- 1.) Verify BEP jumper is in place
- 2.) Reseat MPB to BIB cable

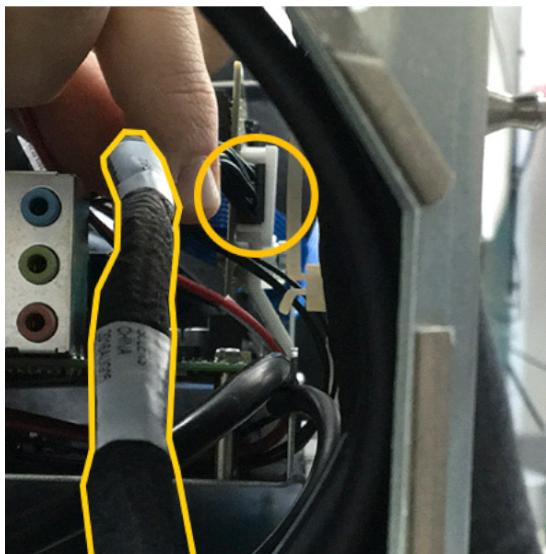


Figure 7-40 MPB to BIB cable Reseat

- 3.) Check BIB connector for bent pins
- 4.) Replace BIB board

7-8-5 Application error: "Abnormal...behaviour"-->Front End Connections

Symptom: Auxiliary Display works (LEDs on). The application starts with an Error: "Abnormal system behavior occurred"

Suggested solution: Reset front end connections

- 1.) Inspect the BIB (blue) cable, if damaged - replace the BIB board.
- 2.) Reset the BIB (blue) cable on the T-CFE side (disconnect and re-connect).



Figure 7-41 Reset BIB cable

- 3.) Inspect and re-connect MPB to T-FEPS power cable. Replace if damaged.

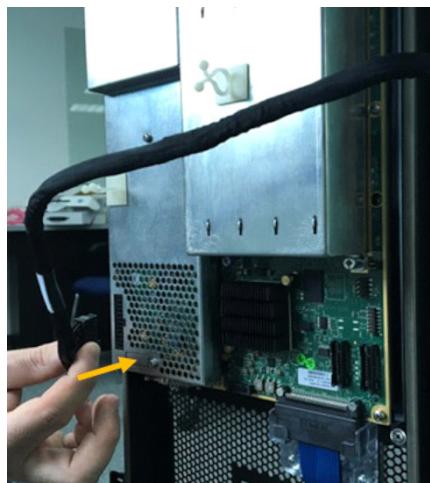


Figure 7-42 Reset T-FEPS power cable

- 4.) Check power cable to Frontend; If damaged - replace power cable
- 5.) Reseat all 4 T-TRX boards.
- 6.) Reload software
- 7.) Replace T-CFE board.

7-8-6 No Auxiliary Display

Symptom: No Auxiliary Display (LEDs are off) when turning on the system

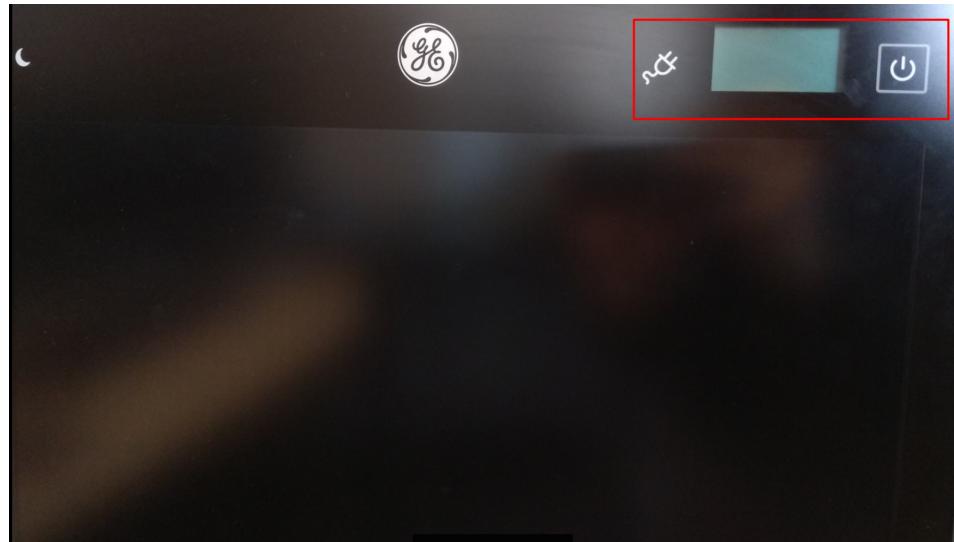


Figure 7-43 No auxiliary display

Suggested solution: Reset front end connections

- 1.) If fans are spinning:
 - a.) Reset cockpit cables
 - b.) Reset MPB
 - c.) Replace cockpit
- 2.) If fans are NOT spinning
 - a.) Turn off the switch located at the rear part of the system for 30 seconds and turn on again
 - b.) Reset cockpit cables
 - c.) Reset MPB
 - d.) Replace MPB

7-8-7 System Stuck in Stand By Mode--> verify T_CFE Board Revision

Symptom: System Stuck in Stand By Mode

Suggested solution: verify T_CFE board revision

- 1.) Verify T-CFE board (P/N 5764675_X) revision (X) is 5 or higher (the label is found under the black metal bracket on the back side of CFE board)

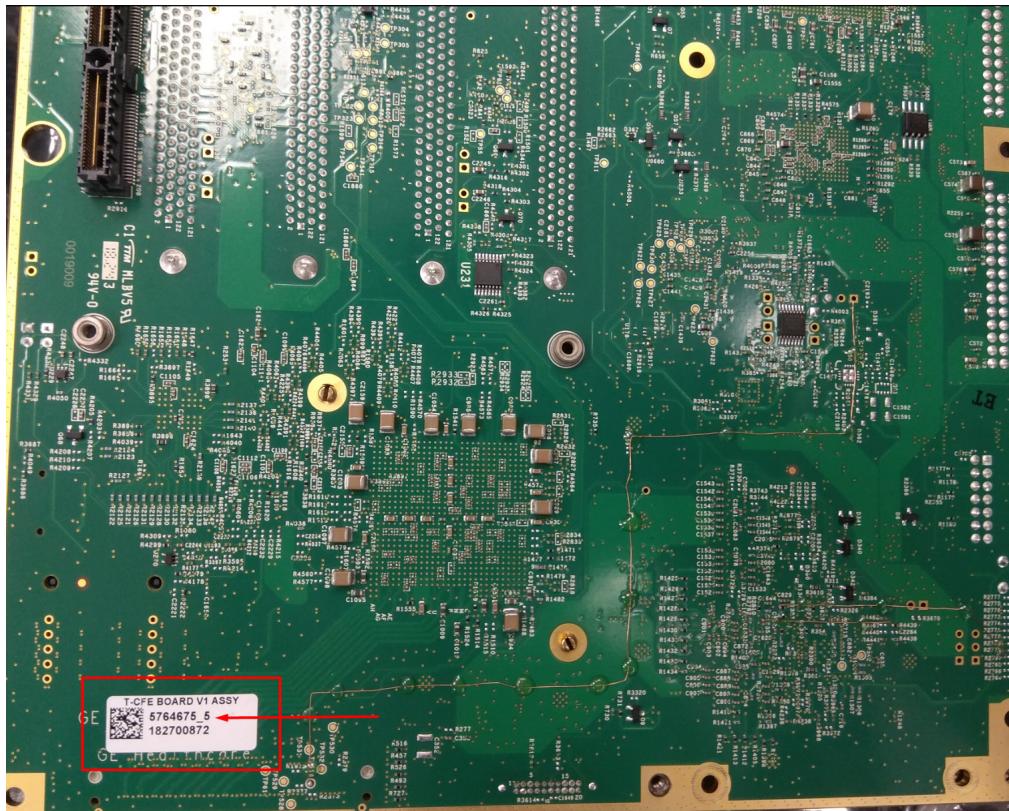


Figure 7-44 CFE board revision 5

- 2.) If needed, install R2 302.40.0 SW version (or higher)

Section 7-9

MPB Diagnostics Failure Troubleshooting

7-9-1 Purpose of this Section

MPB diagnostics test fails if remaining scan time is less than 20 minutes. To identify if there is a real failure of the MPB, perform the following procedure.

7-9-2 MPB Diagnostics Procedure Troubleshooting

- 3.) When running MPB Diagnostics, if the following screen appears, indicating the remaining scan time is less than 20 secRun diagnostic test again with fully charged batteries.

Note: This message will be displayed only in service-level diagnostics (with service dongle). When running user-level diagnostics, MPB failure message will be displayed in the diagnostics result

Chapter 8

Replacement Procedures

Section 8-1 Overview

8-1-1 Purpose of Chapter 8

This chapter provides replacement procedures for Venue™ system parts, as outlined below.

NOTE: *The illustrations provided in this chapter are for illustration purposes only and are subject to change without notice.*

8-1-2 Visual Guide

The Venue Companion is a Windows based application that provides visual guides for customer replaceable units (CRU). This application is distributed as part of the software installation media.



Figure 8-45 Venue Companion Application

Section 8-2 Accessories - Replacement Procedures

8-2-1 Basic Storage Basket/Large Storage Basket Replacement Procedure

8-2-1-1 Tools

None

FRU Part # Refer to [Table 9-18](#) on page 9-17.

8-2-1-2 Time Required

5 min

8-2-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-2-1-4 Basic Storage Basket/Large Storage Basket Removal Procedure

- 1) Pull the basket upwards and remove it as shown below:.

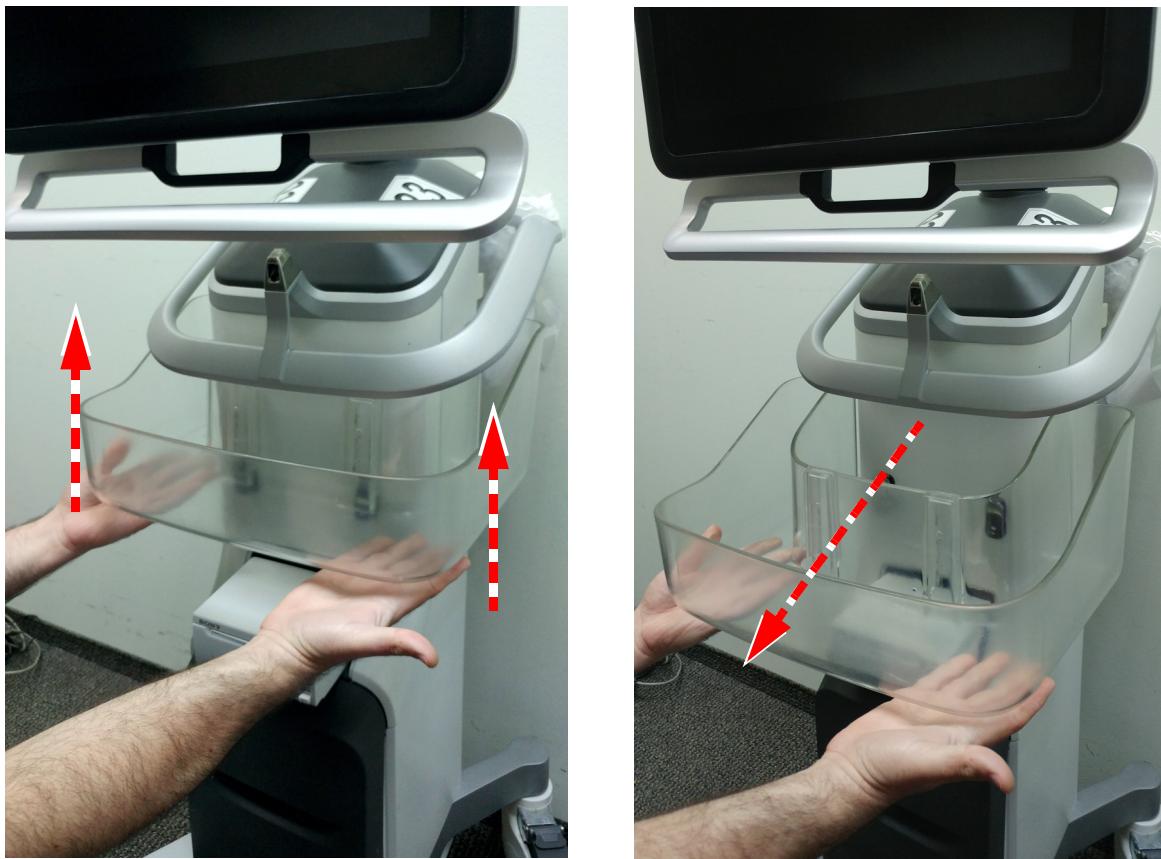


Figure 8-46 Removing the Basic/Large Storage Basket

8-2-1-5 Basic Storage Basket/Large Storage Basket Installation Procedure

- 1.) Install the new Basic Storage Basket/Large Storage Basket.

8-2-2 Power Cable Holder Replacement Procedure

8-2-2-1 Tools

None

FRU Part # Refer to [Table 9-18](#) on page 9-17.

8-2-2-2 Time Required

5 min

8-2-2-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-2-2-4 Power Cable Holder Removal Procedure

- 1) Move the Power Cable Holder to the center of the Halo Handle and remove the Power Cable Holder by pushing it upwards.

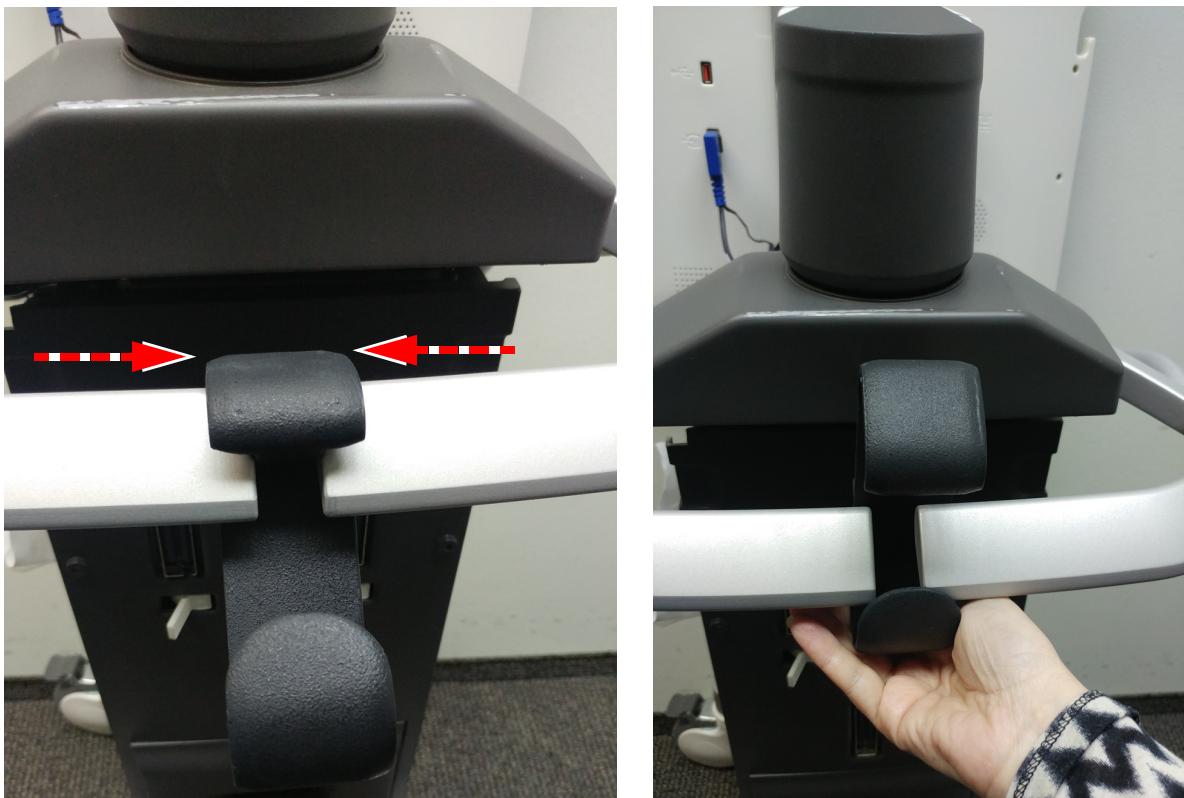


Figure 8-47 Removing the Power Cable Holder

8-2-2-5 Power Cable Holder Installation Procedure

- 1.) Install the new Power Cable Holder.

Section 8-3 Covers - Replacement Procedures

8-3-1 Overview of Covers

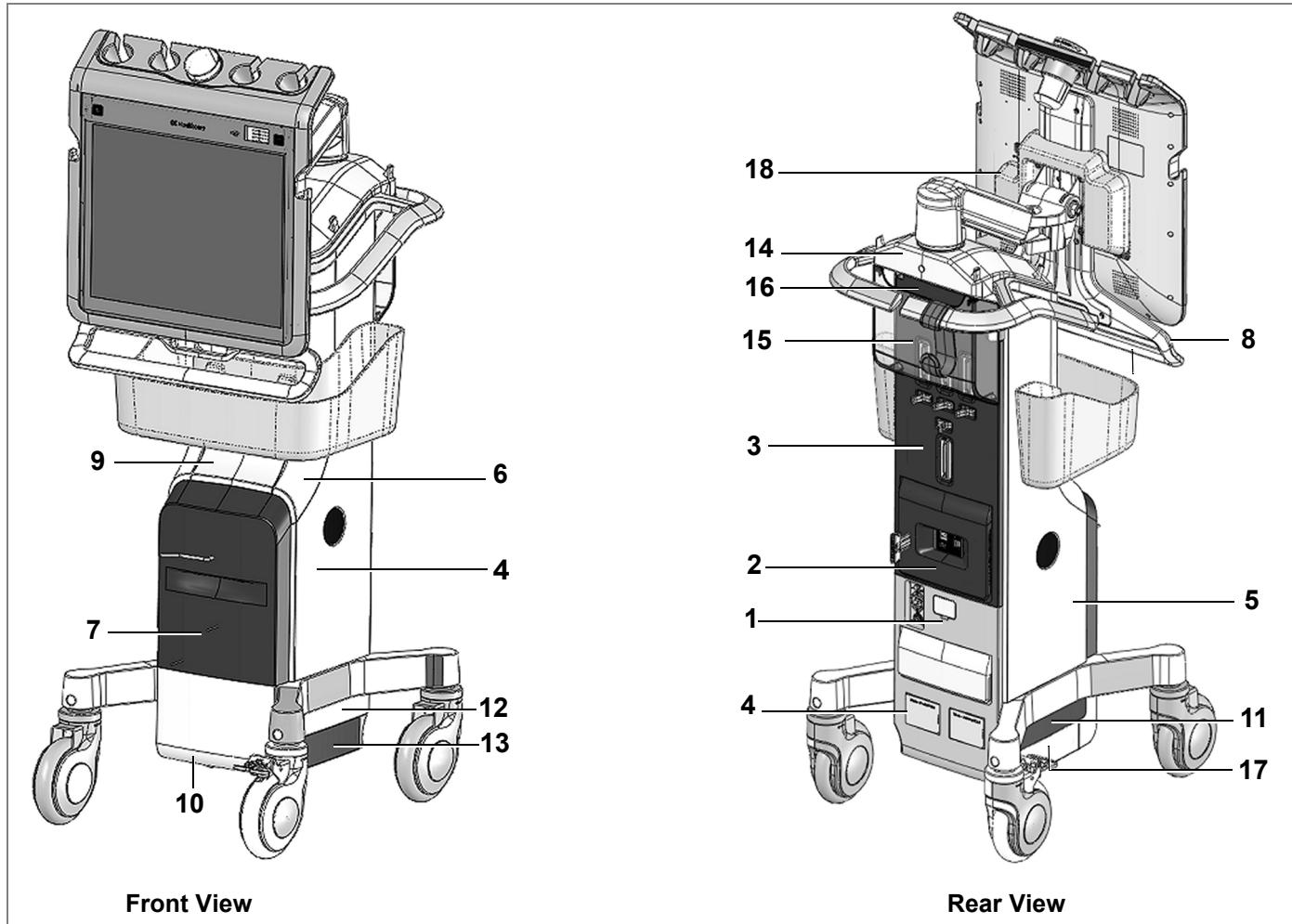


Figure 8-1 Venue™ Ultrasound Unit

Table 8-2 Venue™ Ultrasound Unit Covers

| Label | Item | Label | Item |
|-------|---------------------------------|-------|---------------------------------|
| 1 | Cover: MPB Door | 10 | Cover: Front Base FRU |
| 2 | Cover: Mid Thermal Baffle - FRU | 11 | Cover: Left Side Base- FRU |
| 3 | Cover: Scanner Door- FRU | 12 | Cover: Right Side Base - FRU |
| 4 | Cover: Right Side eTower - FRU | 13 | Cover: Right Base Bottom - FRU |
| 5 | Cover: Left Side eTower - FRU | 14 | Cover: Riser - FRU |
| 6 | Cover: Upper eTower Front - FRU | 15 | Cover: RS Probe Connector - FRU |
| 7 | Cover: Lower Front eTower - FRU | 16 | Cover: Riser Thermal - FRU |

Table 8-2 Venue™ Ultrasound Unit Covers

| Label | Item | Label | Item |
|-------|-----------------------------|-------|----------------------------------|
| 8 | Halo Handle - FRU | 17 | Cover: Left Base Bottom - FRU |
| 9 | Cover: Printer Insert - FRU | 18 | Cover: Cockpit Rear Cables - CRU |

8-3-1-1 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

**DANGER**

**ELECTRICAL HAZARDS EXIST AT SEVERAL POINTS IN THE SYSTEM.
FAMILIARIZE YOURSELF WITH ALL HAZARDOUS VOLTAGES AND
HIGH CURRENT LEVELS BEFORE REMOVING ANY OF THE COVERS.**

**DANGER**

**DO NOT WEAR THE ESD WRIST BAND STRAP WHEN REMOVING
PARTS FROM THE POWER SUPPLY UNIT. BEFORE REMOVING ANY
PART OF THE POWER UNIT, TURN THE POWER OFF AND
DISCONNECT THE POWER CORD.**



CAUTION BEFORE REMOVING CIRCUIT BOARDS, TURN THE POWER OFF AND WEAR THE ESD WRIST BAND STRAP.

8-3-1-2 Preparation for Cover Installation

Replacement covers for the Venue™ are supplied with the required securing screws and ball stud/ball stud receptacles. Before installing a replacement cover, it is necessary to fit these in the appropriate positions. Refer to the illustrations provided in the specific Cover Replacement procedure.

8-3-2 Lower Front eTower Cover Replacement Procedure

8-3-2-1 Tools

None

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-2-2 Time Required

5 min

8-3-2-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

8-3-2-4 Lower Front eTower Cover Removal Procedure

- 1) Gripping the recess at the center of the cover, pull the lower front eTower cover out towards you to remove it from the system.



Figure 8-2 Removing the Lower Front eTower

8-3-2-5 Lower Front eTower Cover Installation Procedure

- 1.) Holding the recess with one hand, push the top of the cover *upwards* and *inwards* with the other hand, until clicks into place.

8-3-3 Left Side eTower Cover Replacement Procedure

8-3-3-1 Tools

None

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-3-2 Time Required

5 min

8-3-3-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

8-3-3-4 Left Side eTower Cover Removal Procedure

1) Remove all accessories



- [Accessories - Replacement Procedures](#)

2) Remove the RS Probe Cover.:



- [RS Probe Cover Removal Procedure](#)

3) Grip the rubber holder and pull the cover toward you to remove it from the system.



Figure 8-3 Removing the Left Side eTower Cover

8-3-3-5 Left Side eTower Cover Installation Procedure

- 1) Return the left side eTower cover and make sure the eTower pins go inside the dedicated holes on the inner side of the cover

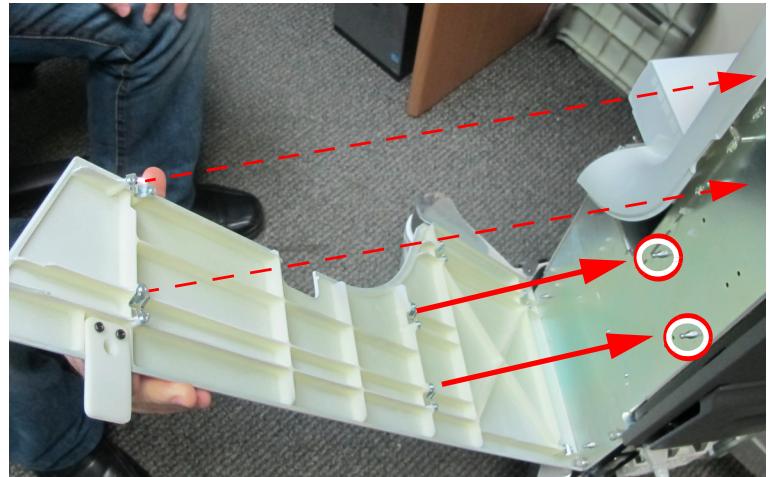


Figure 8-4 Installing the Left Side eTower Cover

- 2) Install the RS Probe Cover.



- [RS Probe Cover Installation Procedure](#)

- 3.) Install all accessories.



- [Accessories - Replacement Procedures](#)

Functionality
Checks



Perform the checks listed in [Lower Front eTower Cover Replacement Procedure](#) on page 8-216

8-3-4 Right Side eTower Cover Replacement Procedure

8-3-4-1 Tools

None

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-4-2 Time Required

5 min

8-3-4-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

8-3-4-4 Right Side eTower Cover Removal Procedure

1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

2) The right side eTower cover removal procedure is identical to the left side eTower cover removal procedure.:.



- [Left Side eTower Cover Removal Procedure](#)

8-3-4-5 Right Side eTower Cover Installation Procedure

1) The right side eTower cover installation procedure is identical to the left side eTower cover installation procedure.:.



- [Left Side eTower Cover Installation Procedure](#)

2) Install all accessories.



- [Accessories - Replacement Procedures](#)



Perform the checks listed in [Right Side eTower Cover Replacement Procedure](#) on page 8-216

8-3-5 Mid Thermal Baffle Cover Replacement Procedure

8-3-5-1 Tools

None

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-5-2 Time Required

5 min

8-3-5-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

8-3-5-4 Mid Thermal Baffle Cover Removal Procedure

- 1) Grip the cover at its bottom and pull the cover toward you to remove it from the system.



Figure 8-5 Removing the Mid Baffle Thermal Cover

8-3-5-5 Mid Thermal Baffle Cover Installation Procedure

- 1.) Reinstall the cover.



Perform the checks listed in [Mid Thermal Baffle Cover Replacement Procedure](#) on page 8-216

8-3-6 Upper eTower Front Cover Replacement Procedure

8-3-6-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-6-2 Time Required

5 min

8-3-6-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-3-6-4 Upper eTower Front Cover Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe Cover, Lower Front eTower cover, Right Side eTower Cover and Left Side eTower Cover:.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)

- 3) Remove the Upper eTower Cover.

- 4.) Release the two Phillips screws and remove the Printer Insert Cover or Printer Frame Cover (depending on system configuration) to separate it from the Upper eTower Front Cover.

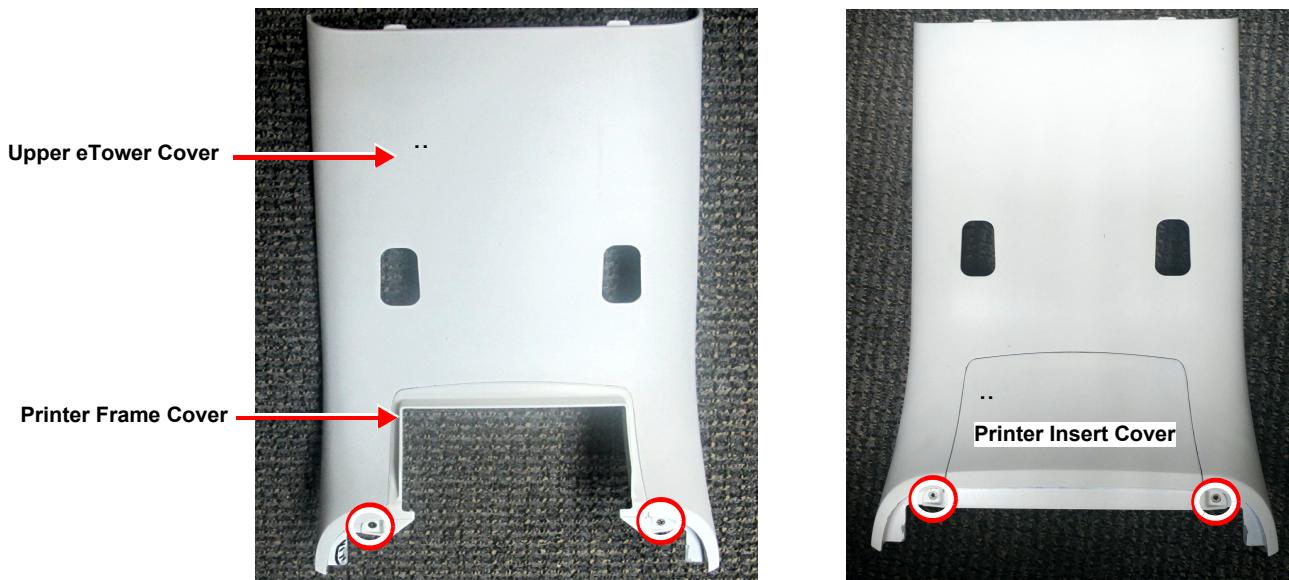


Figure 8-6 Removing Upper eTower Front Cover

Section 8-3 - Covers - Replacement Procedures

8-3-6-5 Upper eTower Front Cover Installation Procedure

- 1.) Install the Printer Insert Cover or Printer Frame Cover (depending on system configuration) on the Upper eTower Cover and secure with two Phillips screws.
- 2.) Install the Upper eTower Cover on the scanner.
- 3.) Refit the following covers: Lower Front eTower cover, Right Side eTower Cover and the Left Side eTower Cover and RS Probe Cover.



- [Right Side eTower Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 4.) Install all accessories.



- [Accessories - Replacement Procedures](#)

Functionality
Checks



Perform the checks listed in [Upper eTower Front Cover Replacement Procedure](#) on page 8-216

8-3-7 Printer Insert Cover Replacement Procedure

8-3-7-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-7-2 Time Required

5 min

8-3-7-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-3-7-4 Printer Insert Cover Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the Upper eTower Front Cover.



- [Upper eTower Front Cover Removal Procedure](#)

- 3.) Release the two Phillips screws and remove the Printer Insert Cover.

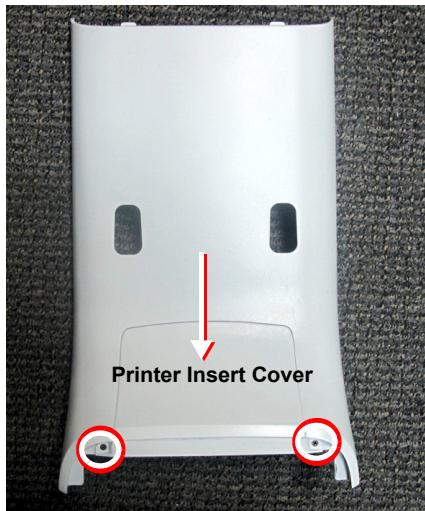


Figure 8-7 Removing Printer Insert Cover

8-3-7-5 Printer Insert Cover Installation Procedure

- 1.) Install the Printer Insert Cover on the Upper eTower Cover and secure with two Phillips screws.
- 2.) Install the Upper eTower Cover on the scanner.



- [Upper eTower Front Cover Installation Procedure](#)

3.) Install all accessories.



- [Accessories - Replacement Procedures](#)

Functionality
Checks



Perform the checks listed in [Printer Insert Cover Replacement Procedure](#) on page 8-216

8-3-8 MPB Door Cover Replacement Procedure

8-3-8-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-8-2 Time Required

5 min

8-3-8-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

8-3-8-4 MPB Door Cover Removal Procedure

1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

2) Remove the following covers: Lower Front eTower cover, RS probe cover, Right Side eTower Cover and the Left Side eTower Cover:.



- [Lower Front eTower Cover Removal Procedure](#)
- [RS Probe Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)

3.) Loosen the four captive screws (two on each side), grip the MPB Door Cover at the bottom and pull toward you to remove it.



Figure 8-8 Removing MPB Door Cover

8-3-8-5 MPB Door Cover Installation Procedure

- 1.) Install the MPB Cover on the scanner.
- 2.) Refit the following covers: Lower Front eTower cover, Right Side eTower Cover and the Left Side eTower Cover.
 - Right Side eTower Cover Installation Procedure
 - Left Side eTower Cover Installation Procedure
 - Lower Front eTower Cover Installation Procedure
 - RS Probe Cover Installation Procedure
- 3.) Install all accessories.
 - Accessories - Replacement Procedures

Functionality
Checks

Perform the checks listed in *MPB Door Cover Replacement Procedure* on page 8-216

8-3-9 RS Probe Cover Replacement Procedure

8-3-9-1 Tools

None

FRU Part # Refer to [Table 9-8](#) on page 9-7.

8-3-9-2 Time Required

1 min

8-3-9-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-3-9-4 RS Probe Cover Removal Procedure

- 1.) Grip the RS Probe Cover on the recess on its bottom and gently pull it toward you to disconnect it from the holding magnets.
- 2.) Slide the cover down to remove it.

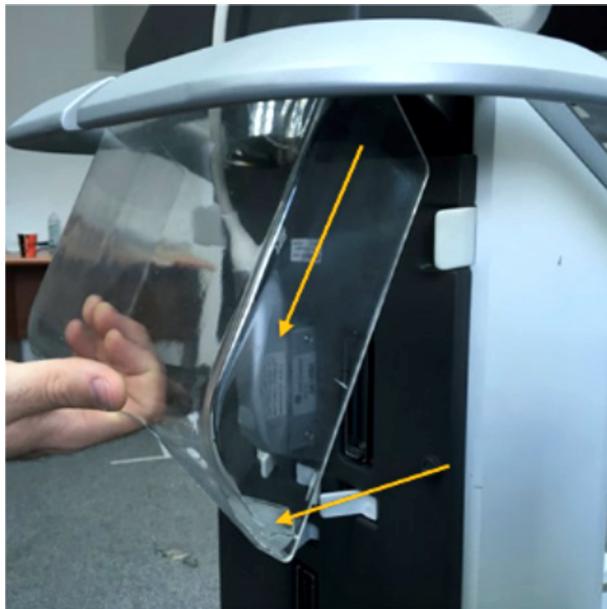


Figure 8-9 Removing RS Probe Cover

8-3-9-5 RS Probe Cover Installation Procedure

- 1.) Slide the RS Probe Cover upward and align it in order to insert the pins into the riser assembly.
- 2.) Gently push the cover in order to fix the cover in its place with holding magnets.



Perform the checks listed in [RS Probe Cover Replacement Procedure](#) on page 8-216

8-3-10 Riser Thermal Cover Replacement Procedure

8-3-10-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-9](#) on page 9-8.

8-3-10-2 Time Required

5 min

8-3-10-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-3-10-4 Riser Thermal Cover Removal Procedure

1.) Remove the following covers: Lower Front eTower, Right Side and Left Side eTower covers:



- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

2.) Open the door.

3.) Hold the cover and pull it down.

4.) Remove the cover.



Figure 8-10 Removing Riser Thermal Cover

8-3-10-5 Riser Thermal Cover Installation Procedure

Attach the Riser Thermal Cover to scanner and secure with two Phillips screws.



Perform the checks listed in [Riser Thermal Cover Replacement Procedure](#) on page 8-216

8-3-11 Riser Cover Replacement Procedure

8-3-11-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to *Table 9-9* on page 9-8.

8-3-11-2 Time Required

5 min

8-3-11-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#)

Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-3-11-4 Riser Cover Removal Procedure

1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

2.) Remove the following covers: Lower Front eTower, RS Probe Cover, Right Side and Left Side eTower covers, Upper Front eTower, and Riser Thermal Cover.



- [Lower Front eTower Cover Removal Procedure](#)
- [RS Probe Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [Riser Thermal Cover Removal Procedure](#)

3.) Remove cockpit (monitor).



- [Cockpit \(Monitor\) Removal Procedure](#)

4.) Remove Scanner Arm.



- [Arm Removal Procedure](#)

5.) Loosen and remove four screws securing the riser cover to the riser (access screws from underneath).

- 6.) Remove the riser cover.



Figure 8-11 Removing Riser Cover

Note: Ensure the pressure pin is not dropped (if exists)



Figure 8-12 Pressure Pin

8-3-11-5 Riser Cover Installation Procedure

- 1.) Install the rubber cap on the riser cover.



Figure 8-13 Installing Riser Cover Rubber Cap

- 2.) Install four rubber cable guides (two short guides on the back side and two long guides in the front side) on the riser cover. Use a flat screwdriver to gently affix the rubber guide in place, if required

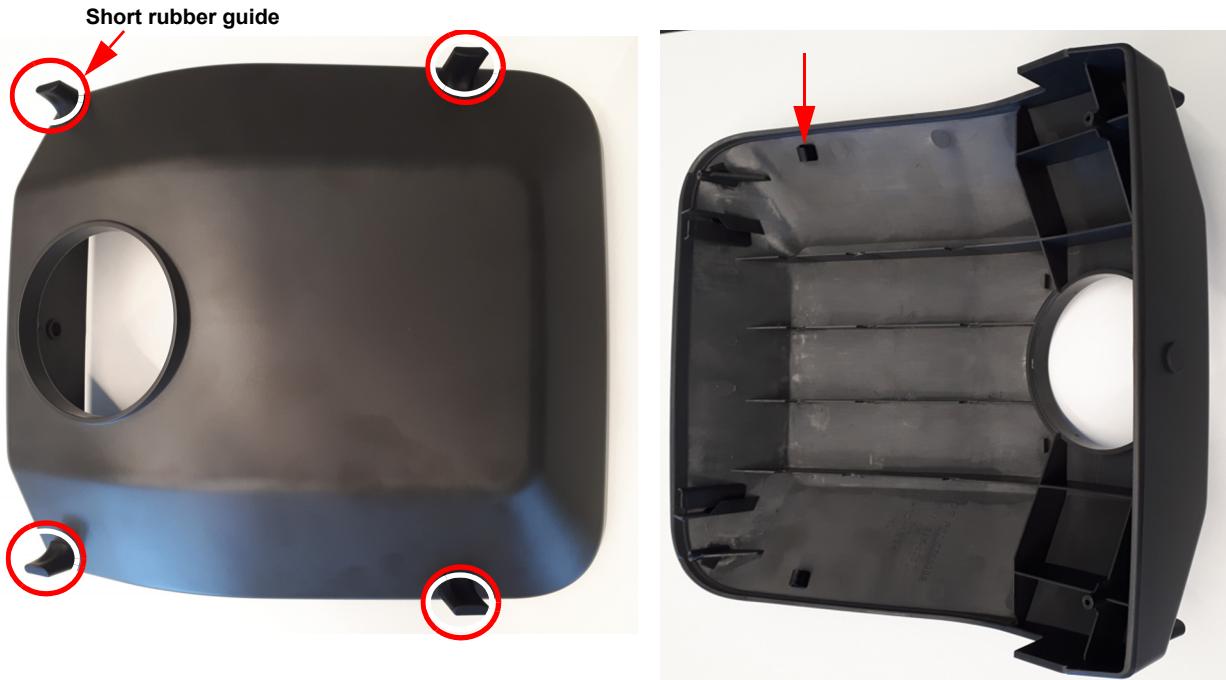


Figure 8-14 Installing Rubber Cable Guides

- 3.) Install new riser cover on riser and secure the four securing screws

4.) Install Scanner Arm.



- [Arm Installation Procedure](#)

5.) Install cockpit (monitor).



- [Cockpit \(Monitor\) Installation Procedure](#)

6.) Refit the following covers: Lower Front eTower, Right Side and Left Side eTower covers, Front Base Cover and Riser Thermal Cover



- [Lower Front eTower Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [Riser Thermal Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

7.) Install all accessories.



- [Accessories - Replacement Procedures](#)



Perform the checks listed in [*Riser Cover Replacement Procedure*](#) on page 8-216

Section 8-4 System Modules- Replacement Procedures

8-4-1 Base Module Replacement Procedure

8-4-1-1 Tools

LOCTITE® 243™

Allen key 4mm.

FRU Part # Refer to [Table 9-6](#) on page 9-5.

8-4-1-2 Time Required

10 min

8-4-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-1-4 Base Module Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the cockpit (monitor).



- [Cockpit \(Monitor\) Removal Procedure](#)

- 3.) Remove the following covers: Lower Front eTower, RS Probe cover, Right Side and Left Side eTower covers, and Front Base Cover



- [Lower Front eTower Cover Removal Procedure](#)
- [RS Probe Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Front Base Cover Removal Procedure](#)

- 4.) Position the system on its side to gain access to the system base.

- 5.) Unscrew the four base mounting screws.

6.) Remove the base module.



Four screws that hold Base Module



Base Module Removed

Figure 8-15 Removing the Base Module

7.) Remove the four caster wheels.



- Casters Removal Procedure

8-4-1-5 Base Module Installation Procedure

- 1.) Install the caster wheels.
- 2.) Install the Base Module. Mount the eTower on the base according to the position of the emboss metal sheets that assist to properly position the eTower on the base



Location nipples on the Base Module

Figure 8-16 Installing the Base Module

- 3.) Apply LOCTITE® 243™ on the Base Module mounting screws and tighten them.
- 4.) Refit the following covers: Right Side and Left Side eTower covers., Lower Front eTowe and Front Base Cover
 - Front Base Cover Installation Procedure
 - Left Side eTower Cover Installation Procedure
 - Right Side eTower Cover Installation Procedure
 - Lower Front eTower Cover Installation Procedure
- 5.) Install the cockpit (monitor).
 - Cockpit (Monitor) Installation Procedure
- 6.) Install all accessories.
 - Accessories - Replacement Procedures



Perform the checks listed in [Base Module Replacement Procedure](#) on page 8-216

8-4-2 Front End Metal Door Replacement

8-4-2-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-7](#) on page 9-6.

8-4-2-2 Time Required

5 min

8-4-2-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-2-4 Front End Metal Door Removal

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, and Mid Thermal Baffle Cover.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Mid Thermal Baffle Cover Removal Procedure](#)

- 3) Remove full front end.



- [Full Front End Removal](#)

- 4.) Remove the riser thermal cover.



- [Riser Thermal Cover Removal Procedure](#)

- 5.) Leave the door open by approximately 30 degrees, to make enough space for the FE door to be removed.

- 6.) Slightly lift and slide the door upwards until completely removed.

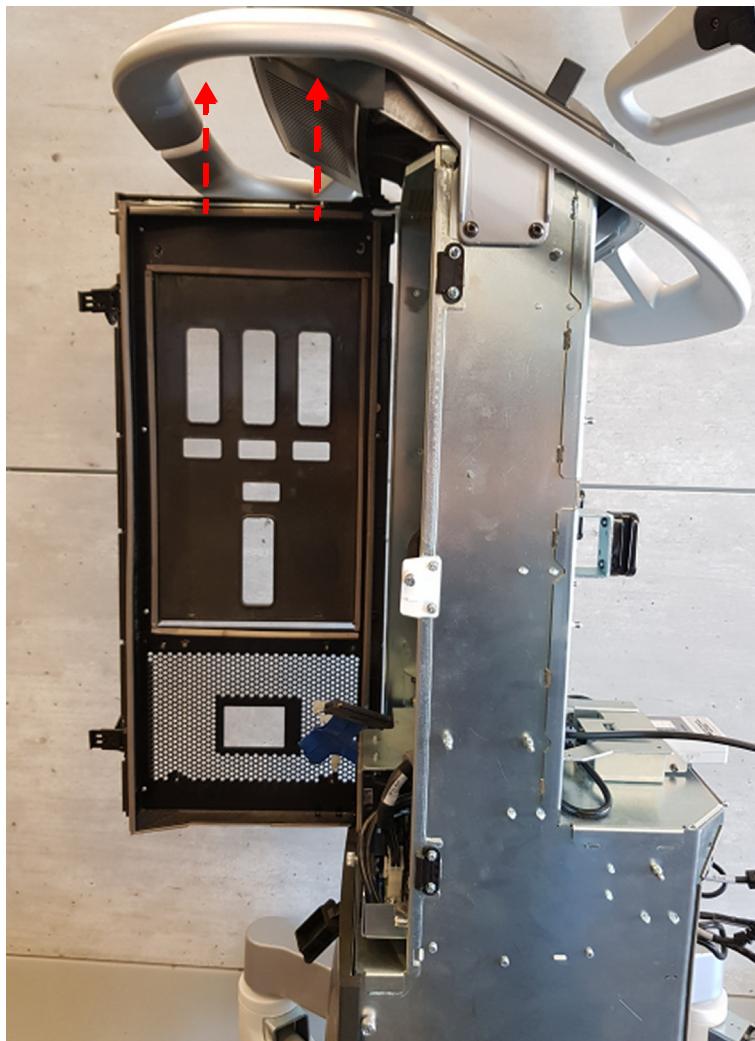


Figure 8-17 Removing the FE Door

- 7.) Remove the eight holding screws to separate the front end metal door from the scanner door cover

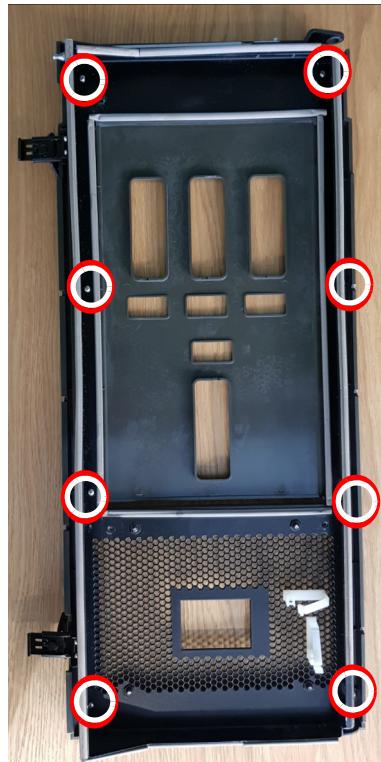


Figure 8-18 Separating the scanner door cover from FE Door

8-4-2-5 Front End Metal Door Installation

- 1.) Install the new FE Door assembly.
- 2.) Install the riser thermal cover.



- [Riser Thermal Cover Installation Procedure](#)

- 3.) Secure the Full FE Module to the FE Door with four screws (previously removed).
- 4.) Mount the FE Door assembly on the scanner.
- 5.) Reconnect the following cables:
 - PCIe cable
 - MPB TO T-FEPS Cable and secure it to the CFE module and to the T-FEPS module with cable clips.
 - Fan cable
- 6.) Close the FE door and close the two fastening latches on the left side of the Front End door assembly.
- 7.) Tighten the captive screw.
- 8.) Refit the following covers: Mid Thermal Baffle Cover, Lower Front eTower, left side eTower, right side eTower and RS Probe Cover.



- [Mid Thermal Baffle Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 9.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 10.) Turn ON power to the system.



Functionality Checks Perform the checks listed in [Front End Metal Door Replacement](#) on page 8-216

8-4-3 Full Front End Replacement

8-4-3-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-12](#) on page 9-12.

8-4-3-2 Time Required

5 min

8-4-3-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-3-4 Full Front End Removal

- 1) Remove all accessories.
 - [Accessories - Replacement Procedures](#)
- 2) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.
 - [RS Probe Cover Removal Procedure](#)
 - [Lower Front eTower Cover Removal Procedure](#)
 - [Left Side eTower Cover Removal Procedure](#)
 - [Right Side eTower Cover Removal Procedure](#)
- 3.) Open the two fastening latches on the left side of the FE door assembly and loosen the captive screw. Then, carefully open the door.

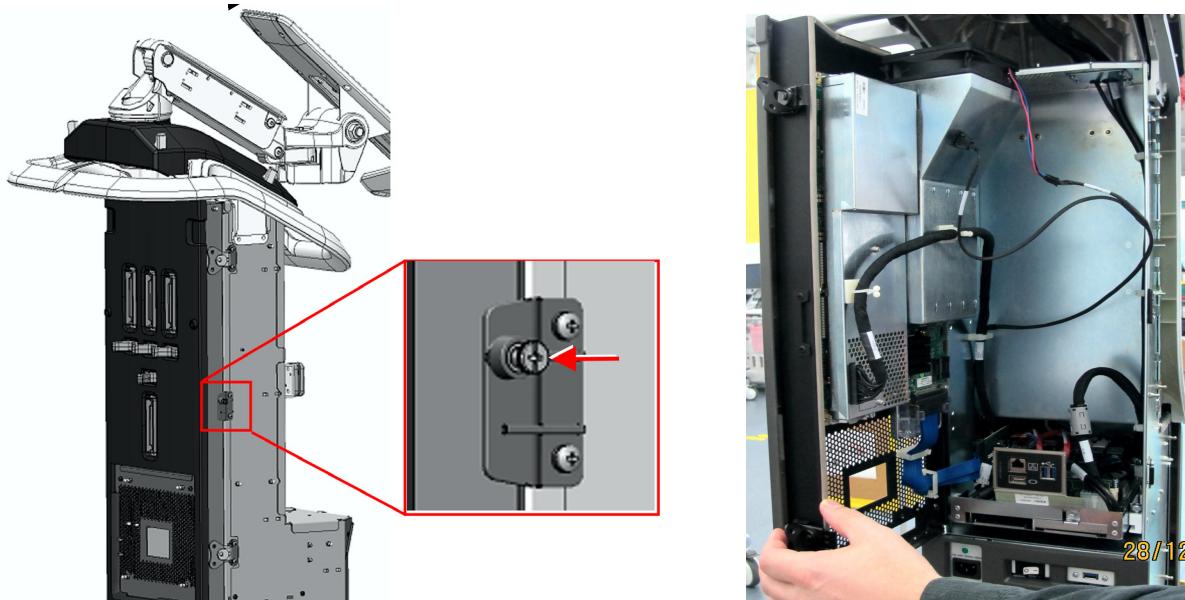


Figure 8-19 Opening FE Door

- 4.) Disconnect the following cables:
 - MPB to T-FEPS
 - BIB to T-CFE (Blue cable)
 - Fan cable
- 5.) While supporting the FE module with one hand, unscrew the four Phillips screws and remove the full FE module.

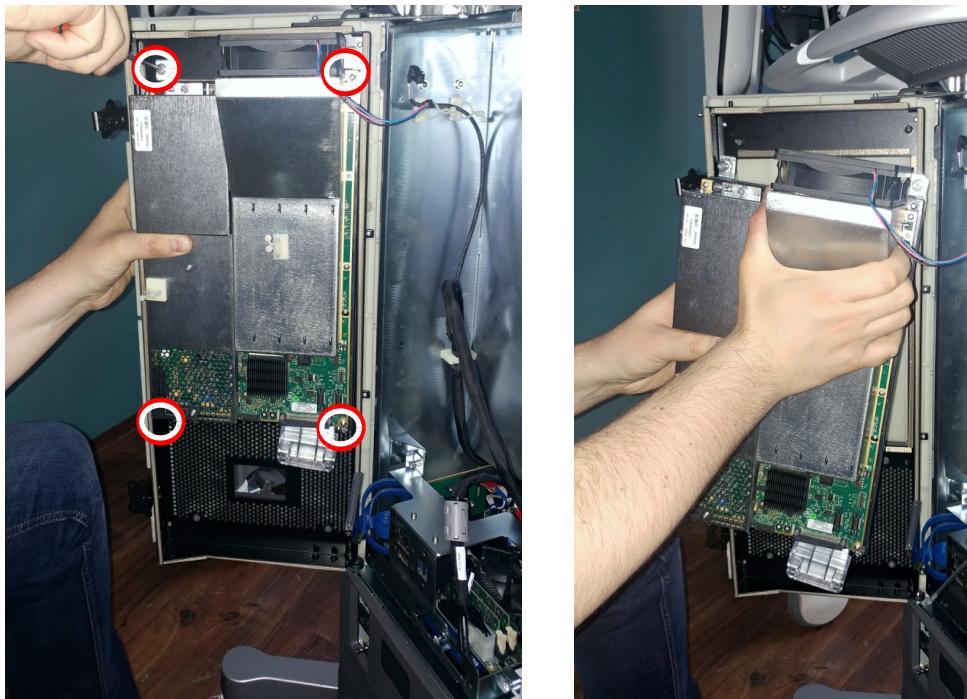


Figure 8-20 Removing the Full FE Module from the FE Door

8-4-3-5 Full Front End Installation

- 1.) Install the new FE assembly.
- 2.) Secure the Full FE Module to the FE Door with four captive screws.

NOTE: *It is recommended to secure the upper left captive screw first.*

- 3.) Mount the FE Door assembly on the scanner.
- 4.) Reconnect the following cables:
 - PCIe cable
 - MPB TO T-FEPS Cable and secure it to the CFE module and to the T-FEPS module with cable clips.
 - Fan cable
- 5.) Close the FE door and close the two fastening latches on the left side of the Front End door assembly ([Figure 8-19](#)).
- 6.) Tighten the captive screw.
- 7.) Refit the following covers: Lower Front eTower, left side eTower, right side eTower and RS Probe Cover.
 - [Left Side eTower Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 8.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 9.) Turn ON power to the system
- 10.) Perform [Software Update Procedure](#) to make sure the FW is updated



Perform the checks listed in [Full Front End Replacement](#) on page 8-217

8-4-4 SSD Module Replacement Procedure

8-4-4-1 Tools

Phillips screwdriver

FRU Part # Refer to [Table 9-13](#) on page 9-13.

8-4-4-2 Time Required

15 min

8-4-4-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-4-4 SSD Module Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Open the two fastening latches on the left side of the Front End door assembly and loosen the captive screw. Then, open the Front End door.

- 4.) Fix the FE door with door support.

- 5.) Release the SSD Module captive screw and extract the SSD Module.



Figure 8-21 Removing the SSD Module B

8-4-4-5 SSD Module Installation Procedure

- 1) Insert the SSD module into its slot and tighten the captive screw.
- 2) Close the FE door and close the two fastening latches on the left side of the Front End door assembly.
- 3.) Tighten the captive screw.
- 4.) Refit the following covers: Lower Front eTower, left side eTower, right side eTower and RS Probe Cover.
 - [Left Side eTower Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Removal Procedure](#)
- 5.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 6.) Turn ON power to the system.



Perform the checks listed in [SSD Module Replacement Procedure](#) on page 8-217

8-4-5 Cockpit (Monitor) Replacement Procedure

8-4-5-1 Tools

Appropriate Phillips screwdriver
Flat-head screwdriver

FRU Part # Refer to [Table 9-11](#) on page 9-11.

8-4-5-2 Time Required

15 min

8-4-5-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-5-4 Cockpit (Monitor) Removal Procedure

- 1.) On the back of the cockpit, release four screws and remove the transparent Wi-Fi dongle cover.
 - Disconnect the Wi-Fi dongle.



Figure 8-22 Wi-Fi Cover and Dongle Removal

- 2.) Remove four Phillips screws securing the cockpit (monitor) to the arm.

- 3.) Remove the cockpit rear cables cover, if exists (see below).

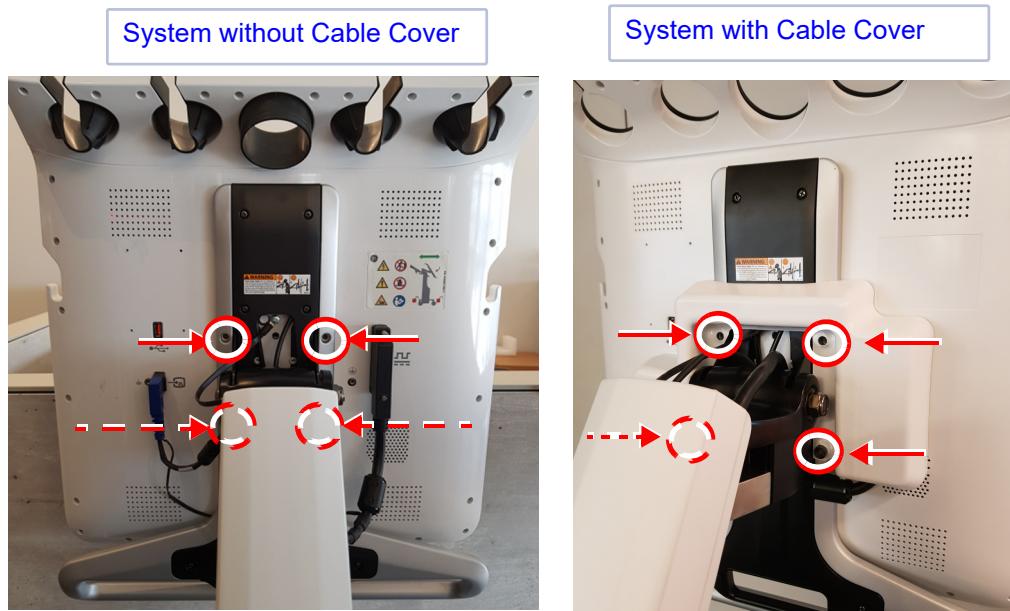


Figure 8-23 Cockpit (Monitor) Securing Screws and Cockpit Rear Cover Removal

- 4.) Disconnect the following cables connected to cockpit (monitor):

- BE TO COCKPIT CABLE
- MPB TO COCKPIT CABLE (use flat-head screwdriver)



Figure 8-24 Cockpit (Monitor) Cables

- Ground cables (x2))

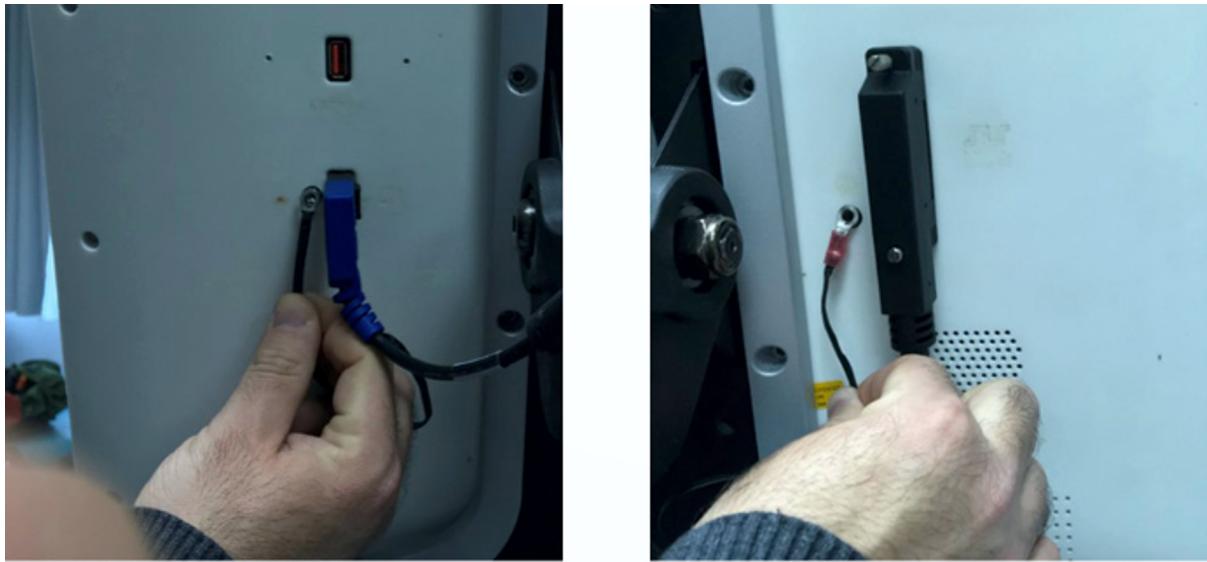


Figure 8-25 Cockpit Ground Cables Removal

- 5.) Remove the Gel Holder.



CAUTION Raise the Articulated Arm to its up position to prevent the unintentional injury to personnel from the stored mechanical energy.

- 6.) Hold the cockpit (monitor) on its top, insert a screwdriver into the dedicated hole and press to release the securing spring. The click is sounded, indicating the securing spring is released.



Figure 8-26 Cockpit (Monitor) Securing Screws

- 7.) Lift and remove the cockpit (monitor).

8-4-5-5 Cockpit (Monitor) Installation Procedure

- 1.) Mount the cockpit (monitor) on the mounting hooks and secure with four Phillips screws.

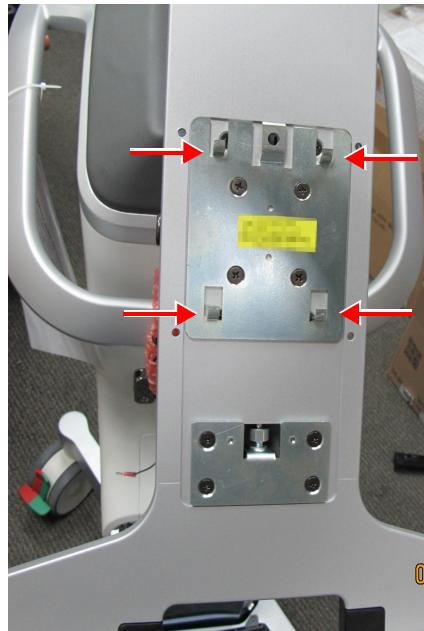


Figure 8-27 Installing Cockpit (Monitor)

- 2.) Reconnect the cockpit (monitor) cables:

- BE TO COCKPIT CABLE
- MPB TO COCKPIT CABLE
- Ground cables (x2)
- Rear cable cover (if exists)

- 3.) Reinstall the Gel Holder.



Perform the checks listed in *Cockpit (Monitor) Replacement Procedure* on page 8-217

8-4-6 PSU Module Replacement Procedure

8-4-6-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to *Table 9-10* on page 9-10.

8-4-6-2 Time Required

15 min

8-4-6-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-6-4 PSU Module Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower cover, Right Side eTower Cover and the Left Side eTower Cover:.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)

- 3.) Remove the MPB door.



- [MPB Door Cover Removal Procedure](#)

- 4.) Remove the two battery packs



- [Battery Module Removal Procedure](#)

- 5.) Release the captive screw at the bottom of the PSU and pull the PSU out gently.

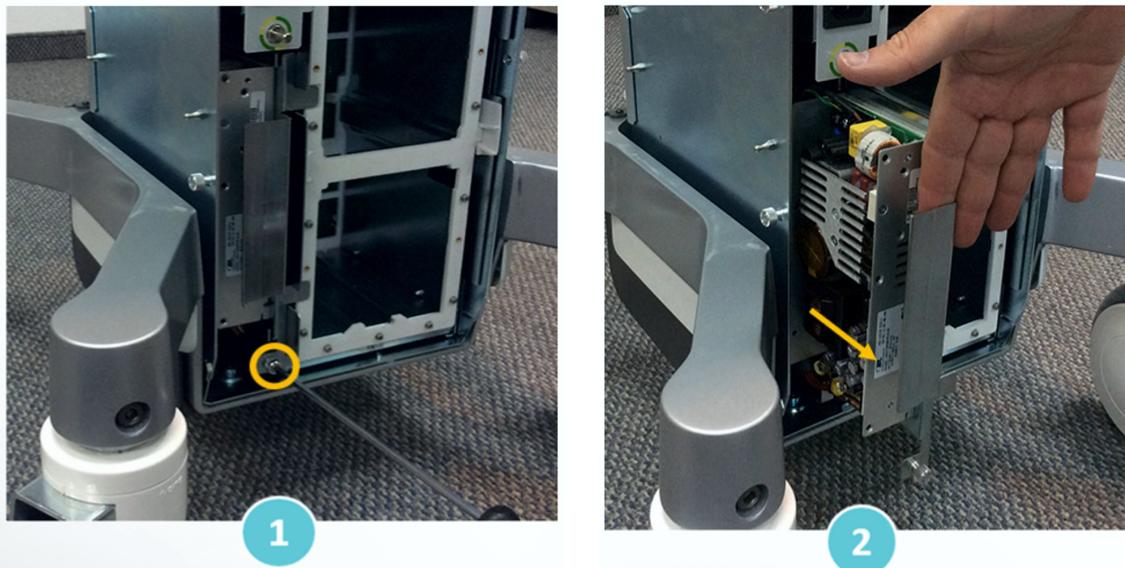


Figure 8-28 Removing the PSU Module

8-4-6-5 PSU Module Installation Procedure

- 1.) Slide the new PSU into position.
- 2.) Secure the captive screw at the bottom of the PSU.

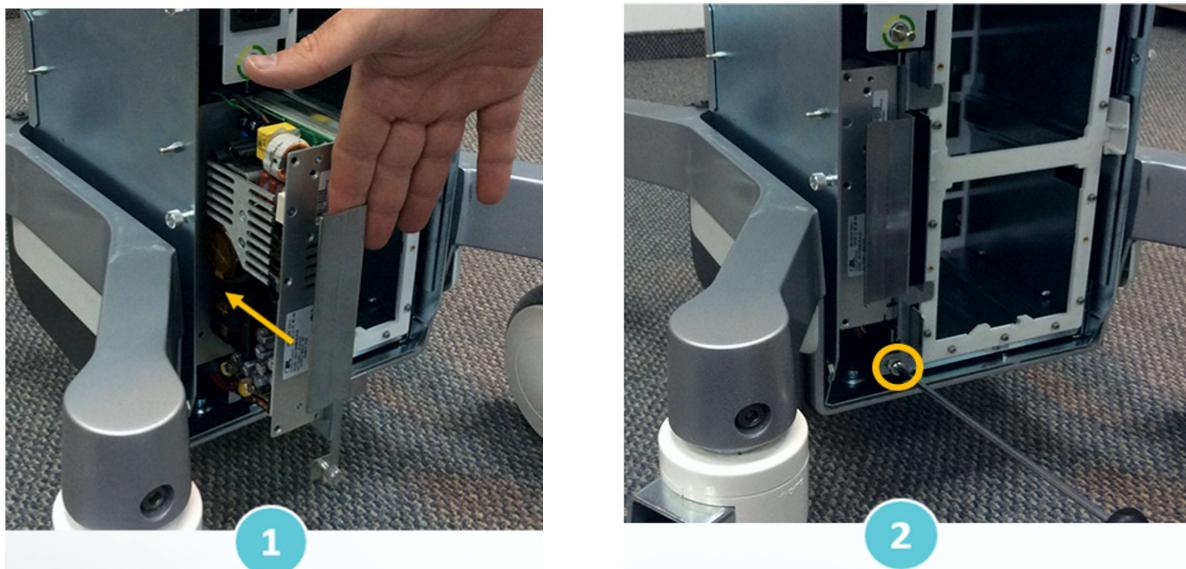


Figure 8-29 Installing the PSU Module

- 3.) Install the two battery packs



- Battery Module Installation Procedure

4.) Install the MPB Door



- [MPB Door Cover Installation Procedure](#)

5.) Refit the following covers: Lower Front eTower cover, Right Side eTower Cover, Left Side eTower Cover, and RS Probe Cover.



- [Right Side eTower Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

Functionality
Checks



Perform the checks listed in [PSU Module Replacement Procedure](#) on page 8-217

8-4-7 Battery Module Replacement Procedure

8-4-7-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-10](#) on page 9-10.

8-4-7-2 Time Required

15 min

8-4-7-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-7-4 Battery Module Removal Procedure

- 1) Remove all accessories.
 - [Accessories - Replacement Procedures](#)
- 2) Remove the following covers: RS Probe Cover, Lower Front eTower cover, Right Side eTower Cover, Left Side eTower Cover and MPB Door Cover:.
 - [RS Probe Cover Removal Procedure](#)
 - [Lower Front eTower Cover Removal Procedure](#)
 - [Right Side eTower Cover Removal Procedure](#)
 - [Left Side eTower Cover Removal Procedure](#)
 - [MPB Door Cover Removal Procedure](#)
- 3.) Release the two captive screws securing each battery pack.
- 4.) Pull out the top and bottom battery packs.

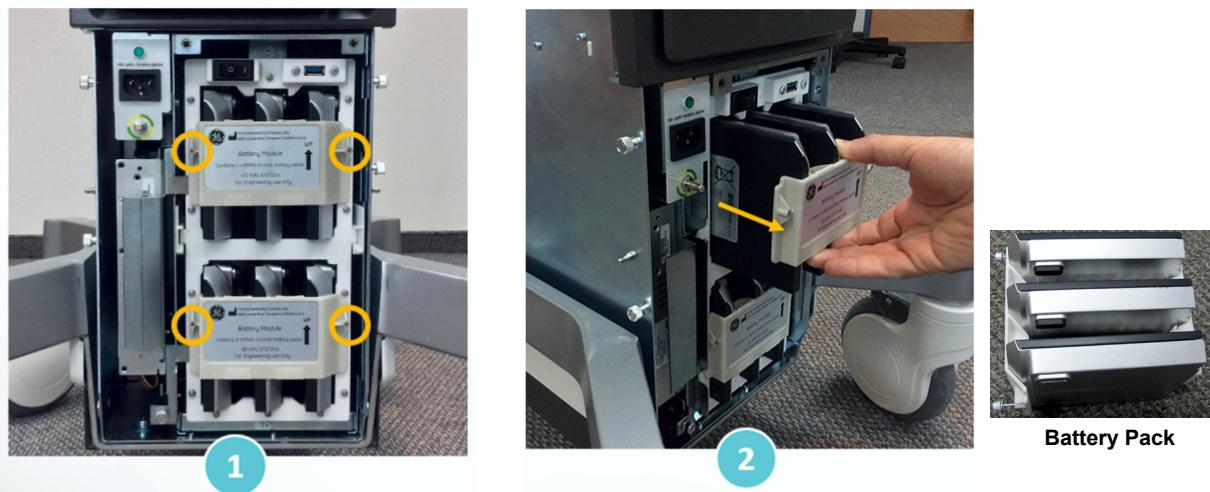


Figure 8-30 Removing the Battery Pack

8-4-7-5 Battery Module Installation Procedure

- 1.) Return the batteries into the scanner in the direction shown by the arrow on the label. *See the figure above.*
- 2.) Tighten the two mounting screws for each battery.
- 3) Refit the following covers: Lower Front eTower cover, Right Side eTower Cover, Left Side eTower Cover, MPB Door Cover and RS Probe Cover.
 - [MPB Door Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 4.) Install all accessories.
 - [Accessories - Replacement Procedures](#)



Functionality Checks  Perform the checks listed in [Battery Module Replacement Procedure](#) on page 8-217

8-4-8 Back End (BE) Module Replacement Procedure

8-4-8-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-13](#) on page 9-13.

8-4-8-2 Time Required

15 min

8-4-8-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-8-4 BE Module Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: Lower Front eTower cover, Left Side eTower cover, and Right Side eTower cover.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)

- 3) Remove the SSD module.



- [SSD Module Removal Procedure](#)

- 4) Remove MPB Front Metal Door.



- [MPB Front Metal Door Removal Procedure](#)

- 5.) Open the two fastening latches on the left side of the FE door assembly and loosen the captive screw. Then, carefully open the door.

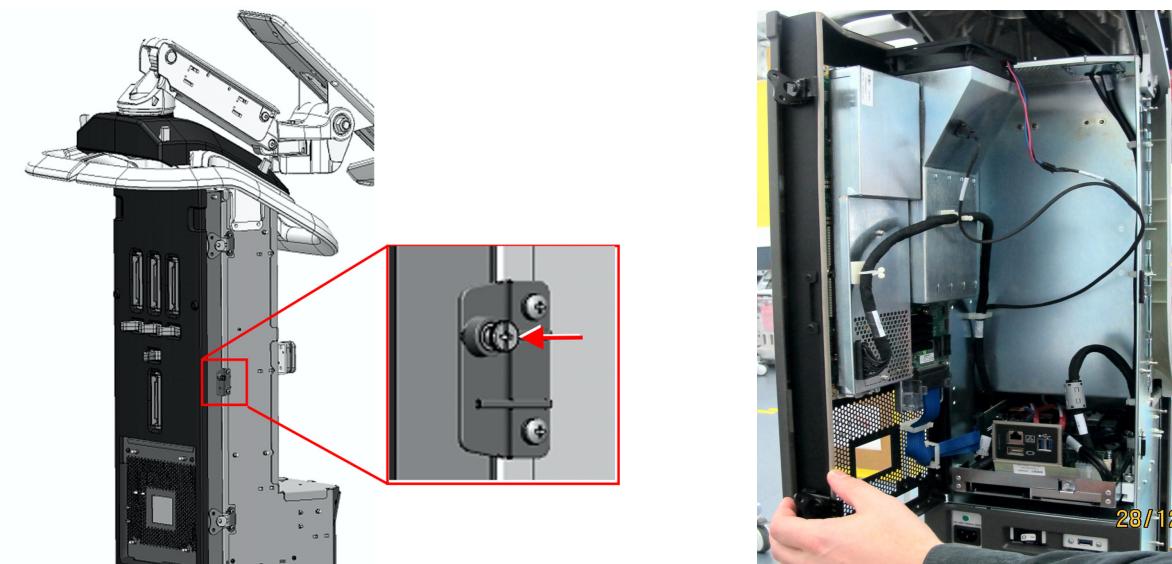


Figure 8-31 Opening Scanner Door

- 6) Secure the door with door support.
- 7.) Disconnect the following cables connected to the BE module:
 - MPB to BIB
 - MPB to BEP (white USB cable)
 - Cockpit to BEP split cable (green and black)
 - Printer cable (yellow)
 - ECG USB cable.



Figure 8-32 Disconnecting Cables Connected to BE Module

- 8.) Disconnect the MPB to BE power cable.

9.) Disconnect the BIB blue cable from the CFE plastic cable guide. Disconnect the MPB to BIB cable.

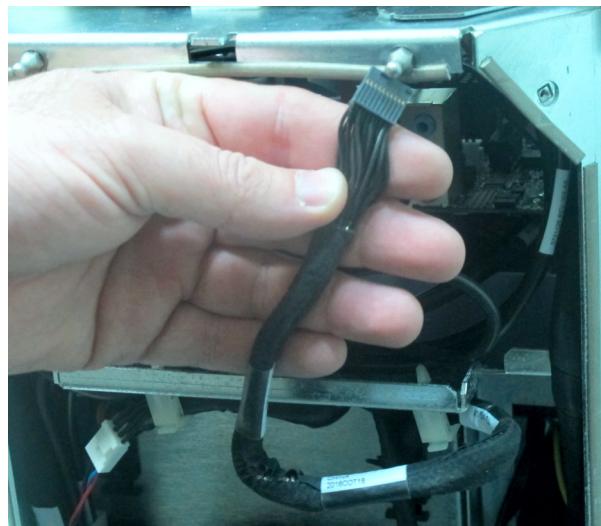


Figure 8-33 Disconnecting MPB to BE Power Cable

10.) Loosen the two captive screws on both sides of the BE module.

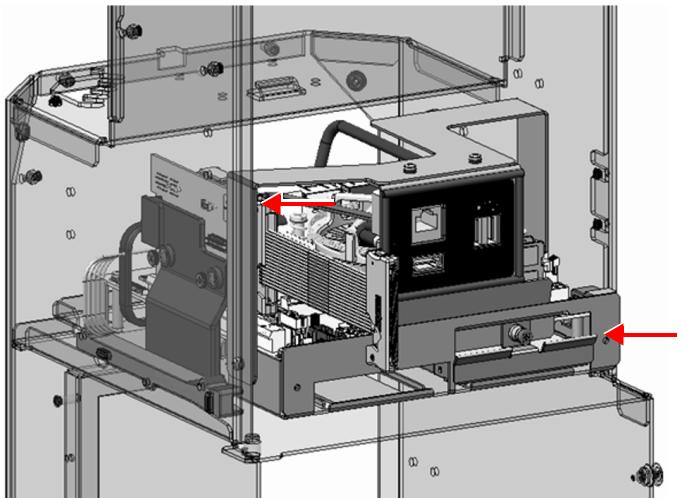


Figure 8-34 Removing Back End Module

11.) Gently slide out the BE module.

8-4-8-5 BE Module Installation Procedure

- 1) Hold the SSD cables and slide in the BE module half way into the eTower.
- 2) Connect the MPB to BIB cable.
- 3.) Fully insert the BE module into the eTower and secure the two captive screws.
- 4.) Reconnect the following cables:
 - MPB to BIB
 - MPB to BEP (white)
 - Cockpit to BEP split cable (green and black)
 - Printer cable (yellow)

Use the following diagram for reference:

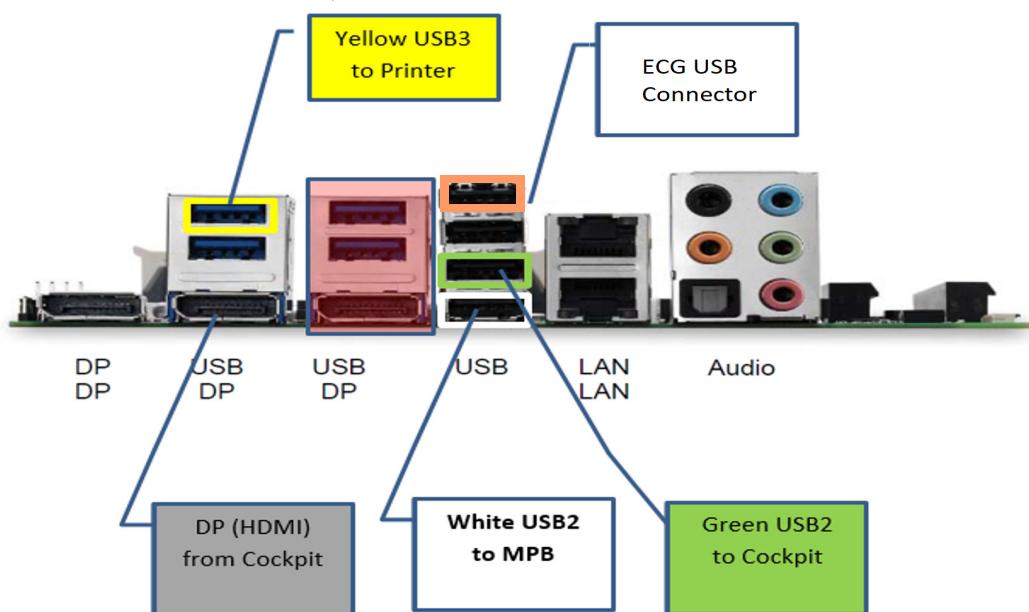


Figure 8-35 BE Cable Connection Diagram

- 5.) Reconnect the BIB blue cable to the CFE plastic cable guide.
 - 6.) Reconnect the MPB to BE power cable.
 - 7) Install the SSD module.
- • [SSD Module Installation Procedure](#)
- 8) Close the FE door and close the two fastening latches on the left side of the Front End door assembly.
 - 9.) Tighten the captive screw.
 - 10) Install the MPB Front Metal Door.
- • [MPB Front Metal Door Installation Procedure](#)
- 11.) Refit the following covers: left side eTower, right side eTower, and RS Probe Cover.



- Left Side eTower Cover Installation Procedure
- Right Side eTower Cover Installation Procedure
- Lower Front eTower Cover Installation Procedure
- RS Probe Cover Installation Procedure

12.) Install all accessories.



- Accessories - Replacement Procedures

13.) Turn ON power to the system.

Functionality Checks



Perform the checks listed in *Back End (BE) Module Replacement Procedure* on page 8-217

8-4-9 BEP PCB Replacement Procedure

8-4-9-1 Tools

- Appropriate Phillips screwdriver

8-4-9-2 Time Required

15 min

8-4-9-3 Preparations

- Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- Make sure the On/Off power switch is set to Off.
- Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-9-4 BEP PCB Removal Procedure

- Remove all accessories.



- [Accessories - Replacement Procedures](#)

- Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)

- Perform BE module removal procedure.



- [BE Module Removal Procedure](#)

- Remove omega bracket: release 5 screws connecting the omega bracket:

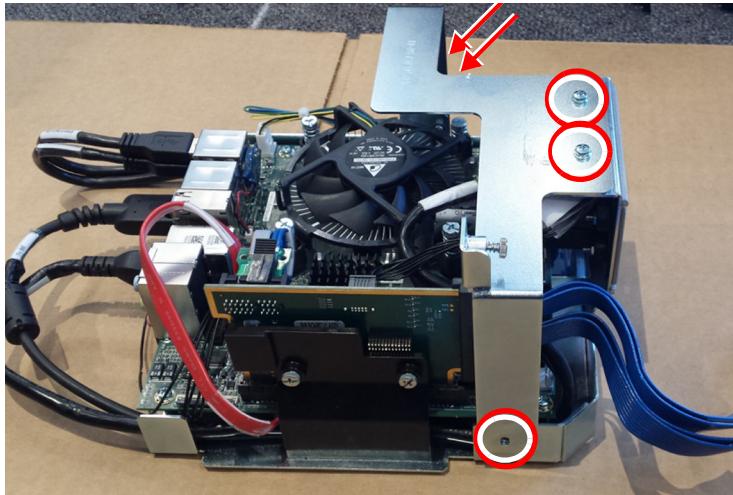


Figure 8-36 BE Omega Bracket Removal

- Remove the supporting bracket using an appropriate Phillips screwdriver:

- Release two captive screws
- Release two screws at the bottom of the bracket

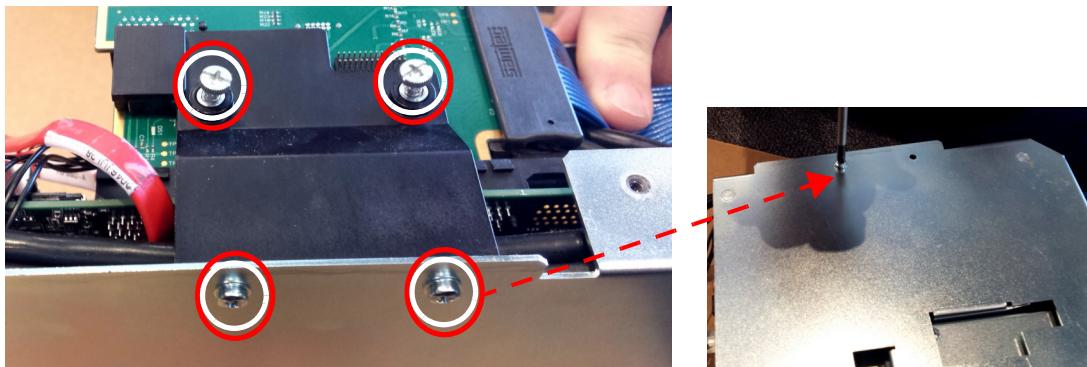


Figure 8-37 Removing BE Supporting Bracket

6.) Release the following cable connectors:

- SATA DATA BE TO SSD A (red cable): press the latch and pull the cable connector out
- SSD PWR cable: Gently pull the connector towards you

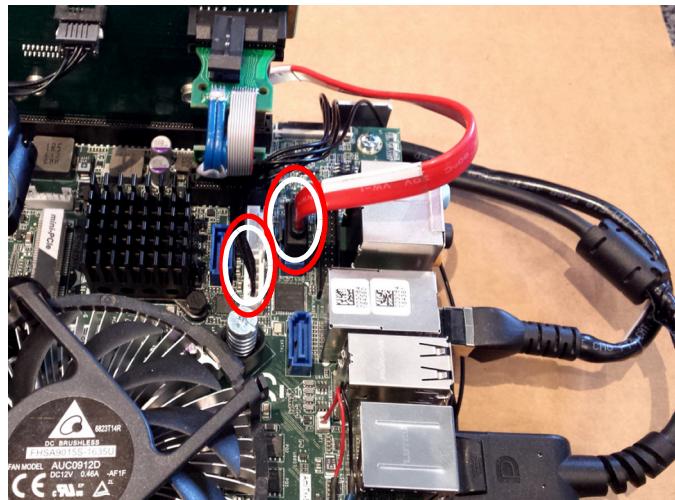


Figure 8-38 Disconnect SATA DATA and SSD PWR Cables

7.) Disconnect the following cables at the back of the BE:

- Two USB connectors
- Network cable

- Display port

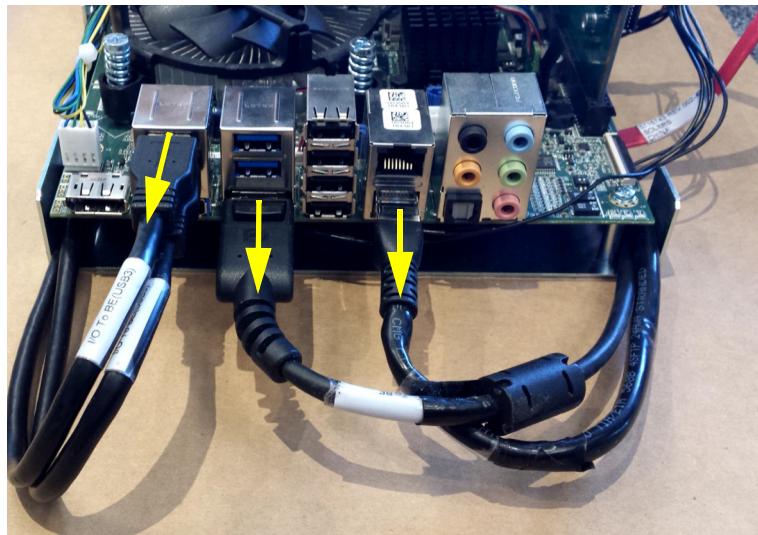


Figure 8-39 Disconnect BE Cables from BE Back

8.) Remove the BEP PCB:

- Release four screws in the BEP PCB corners using Phillips screwdriver

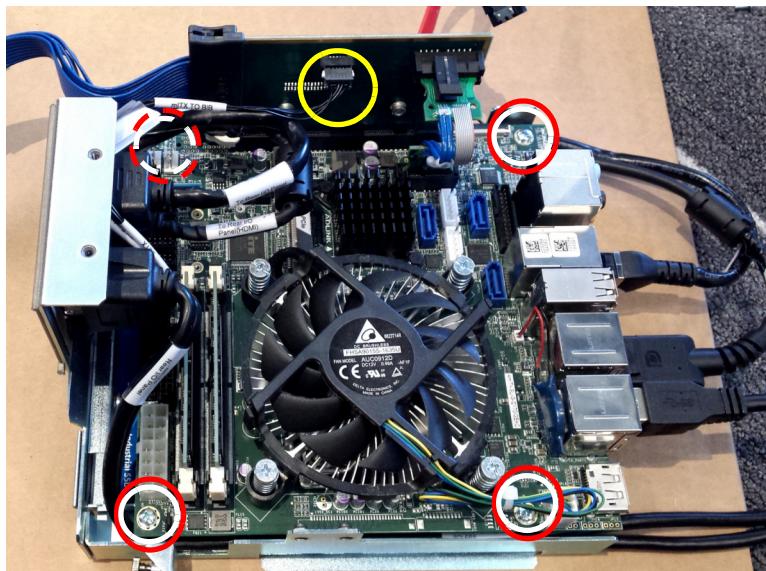


Figure 8-40 Remove BEP PCB

Note: If the MiTx to BIB cable is preventing easy removal of the BEP PCB, disconnect the MiTx to BIB cable connector latch (see yellow circle in the above figure).

- Gently take out the BEP PCB
- 9.) The BEP PCB is released.

8-4-9-5 BEP PCB Installation Procedure

- 1.) Reconnect the BEP PCB using four screws in the PCB corners using Phillips screwdriver

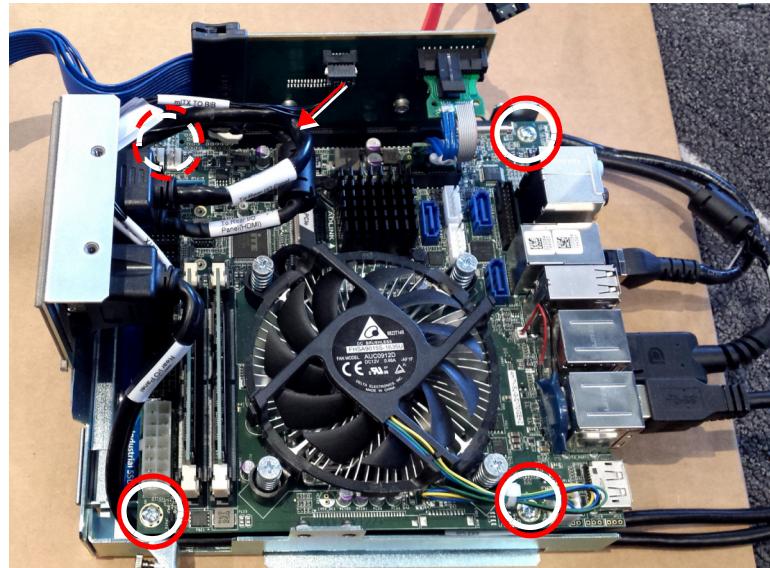


Figure 8-41 Reconnect BEP PCB

- 2.) Reconnect the following cables at the back of the BE:

- Two USB connectors
- Network cable
- Display port



Figure 8-42 Reconnect BE Cables from BE Back

- 3.) Reconnect the following cable connectors:

- SATA DATA BE TO SSD A (red cable)

- SSD PWR cable

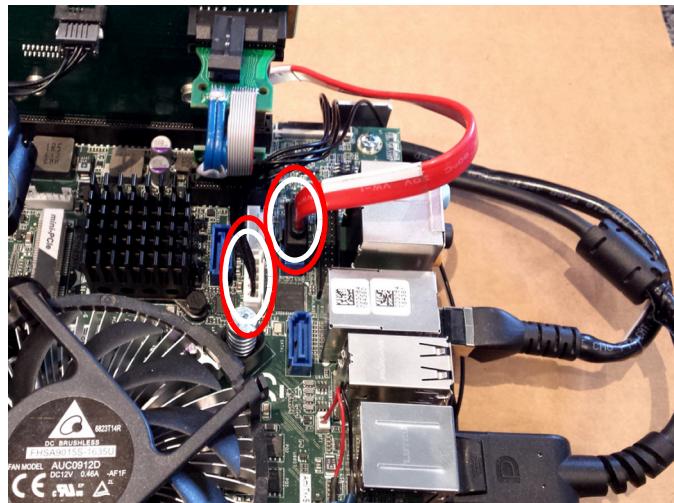


Figure 8-43 Reconnect SATA DATA and SSD PWR Cables

- 4.) Reconnect the supporting bracket using an appropriate Phillips screwdriver:
 - Two captive screws
 - Two screws at the bottom of the bracket

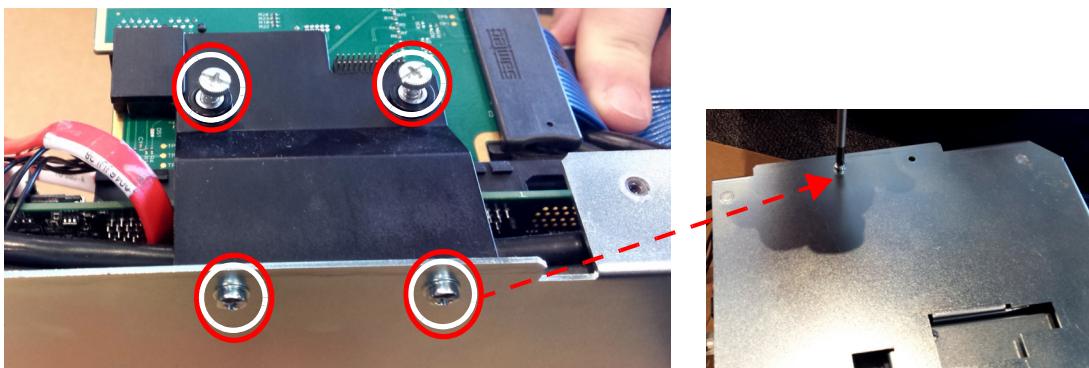


Figure 8-44 Reconnecting BE Supporting Bracket

5.) Reconnect omega bracket: attach 5 screws connecting the omega bracket

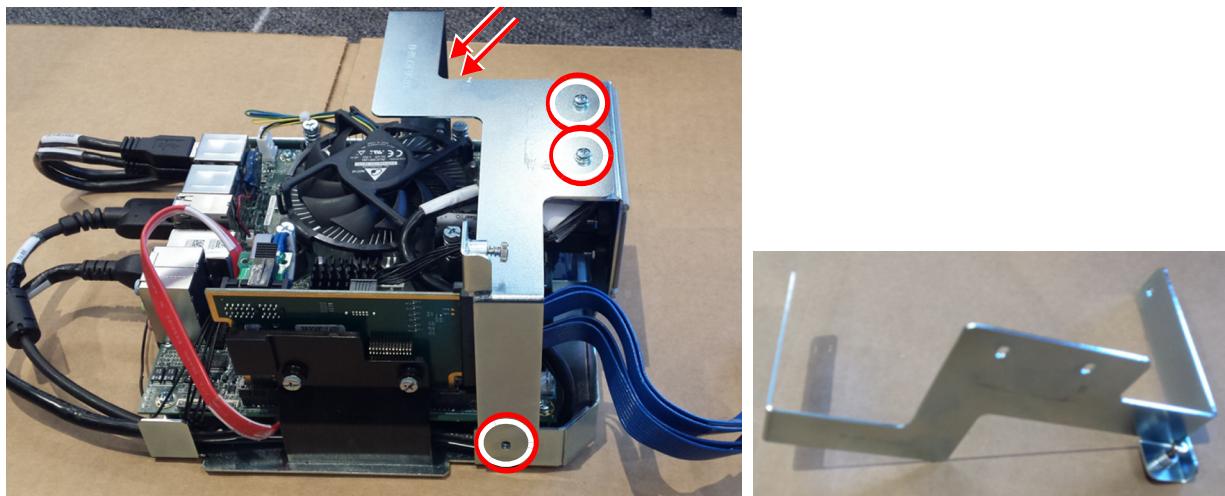


Figure 8-45 BE Omega Bracket Repositioning

6.) Install the MPB module.



- [MPB Module Installation Procedure](#)

7.) Install MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

8.) Refit the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [Upper eTower Front Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

9.) Install all accessories.



- [Accessories - Replacement Procedures](#)

10.) Turn ON power to the system.



Perform the checks listed in [Back End \(BE\) Module Replacement Procedure](#) on page 8-217

8-4-10 MPB Module Replacement Procedure

8-4-10-1 Tools

- Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-10](#) on page 9-10.

8-4-10-2 Time Required

15 min

8-4-10-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-10-4 MPB Module Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe cover, Lower Front eTower cover, Right Side eTower cover, Left Side eTower cover and MPB Door Cover.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [MPB Door Cover Removal Procedure](#)

- 3.) Remove the Battery Packs.



- [Battery Module Removal Procedure](#)

- 4.) Remove the PSU module.



- [PSU Module Removal Procedure](#)

- 5.) Release the captive screw at the top center of the MPB.

- 6.) Release the captive screw at the bottom center of the MPB.

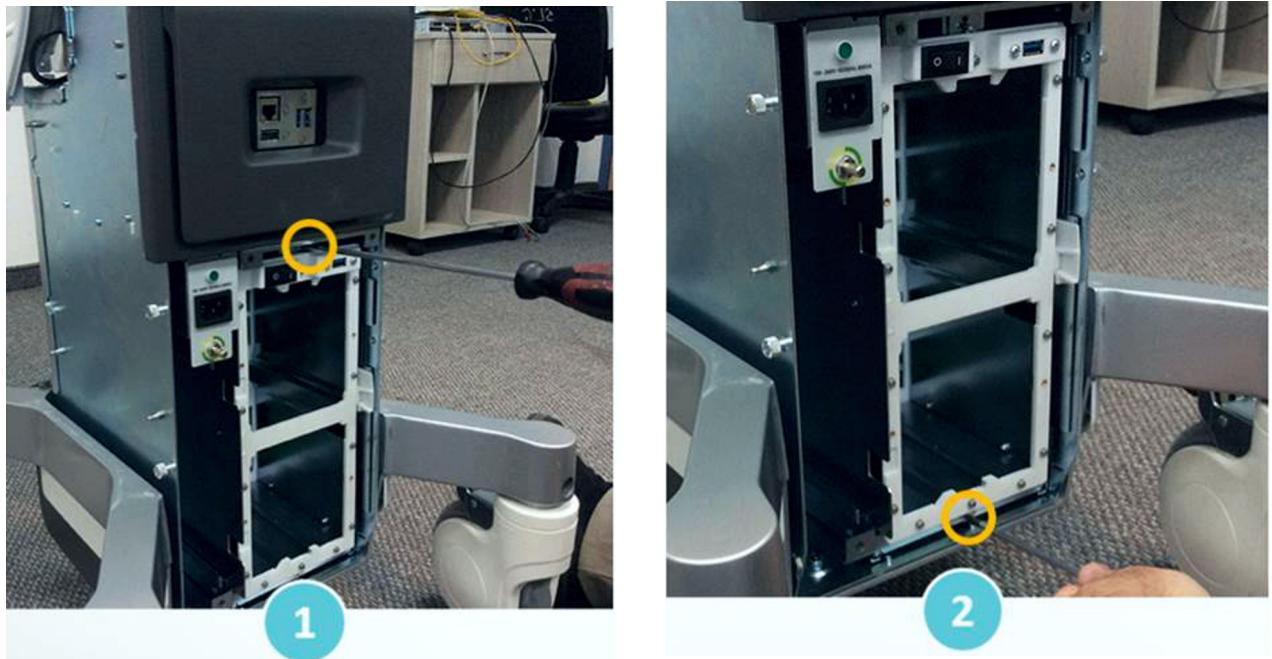


Figure 8-46 MPB Module - Mounting Screws

- 7.) Pull the MPB halfway out.
8.) Tilt the top toward you and pull the MPB out all the way.



Figure 8-47 MPB Module - Removal

8-4-10-5 MPB Module Installation Procedure

- 1.) Insert the MPB module as follows:
 - a.) Insert the MPB module so that it goes under the Top Receptical Box. To do that, the MPB Module must be inserted in angled position and not at 90°.
 - b.) Make sure all cable connectors are floating.
 - c.) Position the MPB Module at 90° and slide into the rails until the docking of the MPB module.

- 2.) Tighten the two mounting screws to secure the MPB module.
- 3.) Return the PSU module.



- [PSU Module Installation Procedure](#)

- 4.) Return the battery packs.



- [Battery Module Installation Procedure](#)

- 5.) Refit the following covers: MPB Door Cover, Lower Front eTower cover, Right Side and Left Side eTower covers, and RS Probe cover



- [MPB Door Cover Installation Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 7.) Turn ON power to the system.

8.) Check PM_FW ,.

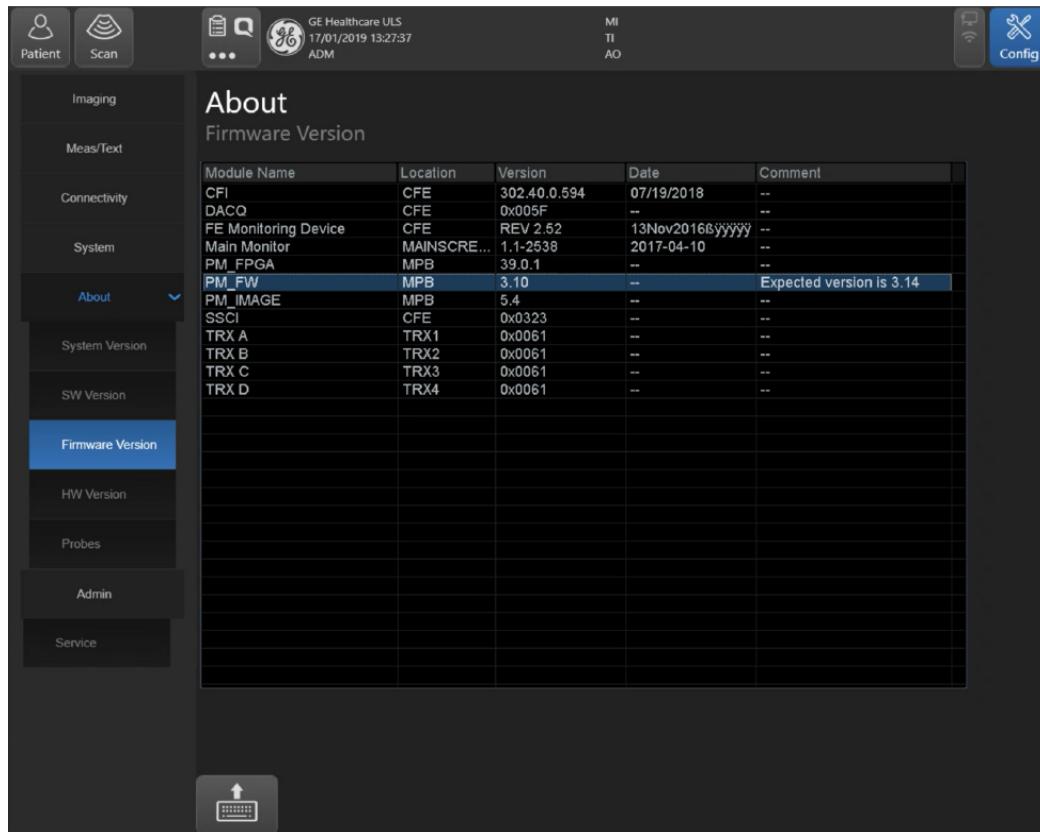


Figure 8-48 Check if PM_FW is up to date

- 9.) If PM_FW is not up to date (the Comment section states "expected version is 3.xx"):perform software reload
 10.)



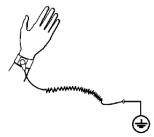
Perform the checks listed in [MPB Module Replacement Procedure](#) on page 8-217

8-4-11 T-CFE (cFront End) Module Replacement Procedure

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



8-4-11-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-12](#) on page 9-12.

8-4-11-2 Time Required

15 minutes

8-4-11-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-11-4 T-CFE Module Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Open and remove the full Front End door assembly and place it on a stable surface:



- [Full Front End Removal](#)

- 4.) Remove the T-FEPS module.



- [Front End Power Supply Removal Procedure](#)

- 5.) Loosen and remove the two retaining screws and remove the TRx box.



Figure 8-49 Removing TRx Box

- 6.) Remove the T-TRx 32 modules.



- [T-TRx Module Removal Procedure](#)

- 7.) Loosen and remove the six screws.

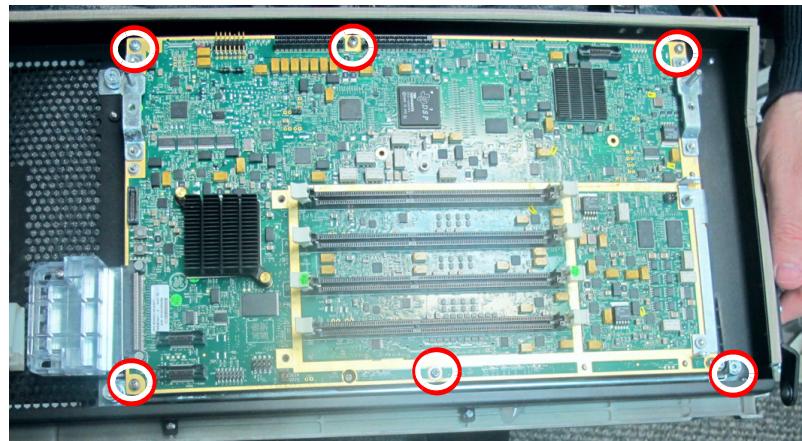


Figure 8-50 Removing TRx Box

- 8.) Separate the T-CFE board by pulling the handle upwards, and using the CFE Release Arm.



Figure 8-51 Separating the T-CFE Board

8-4-11-5 T-CFE Module Installation Procedure

- 1.) Fit the new T-CFE module and fasten with six screws.
- 2.) Install the T-TRx 32 modules.



- [TRx Module Installation Procedure](#)

- 3.) Attach the TTRX BOX and secure with two screws (previously removed).
- 4.) Install the T-FEPS module.



- [Front End Power Supply \(T-FEPS\) Installation Procedure](#)

- 5) Install the full Front End assembly.



- [Full Front End Installation](#)

- 6.) Refit the following covers: Lower Front eTower, Left side eTower, Right Side eTower, and RS Probe Cover.



- [Right Side eTower Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

7.) Install all accessories.



- [Accessories - Replacement Procedures](#)

8.) Turn ON power to the system.



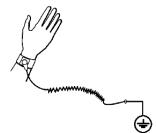
Perform the checks listed in [*T-CFE \(cFront End\) Module Replacement Procedure*](#) on page 8-217

8-4-12 T-PSB Module Replacement Procedure

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



8-4-12-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-10](#) on page 9-10.

8-4-12-2 Time Required

15 minutes

8-4-12-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-4-12-4 T-PSB Module Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Remove the T-FEPS module.



- [Front End Power Supply Removal Procedure](#)

- 4.) Open and remove the full Front End assembly and place it on your laps in order not to damage the probe locker levers.:



- [Full Front End Removal](#)

- 5.) Remove the T-CFE module.



- [T-CFE Module Removal Procedure](#)

The T-PSB module is now separated from other parts.

6.) Remove the PCIe plastic cable guide and attach it to the new T-PSB module.



- Plastic Cable Guide for CFE Removal Procedure

8-4-12-5 T-PSB Module Installation Procedure

1.) Fit the T-PSB module and fasten with four screws.

2.) Install the T-CFE module.



- T-CFE Module Installation Procedure

3.) Install the T-FEPS module.



- Front End Power Supply (T-FEPS) Installation Procedure

4.) Install the full Front End assembly:



- Full Front End Installation

5.) Refit the following covers: Lower Front eTower, Left side eTower, Right Side eTower, and RS Probe Cover::



- Right Side eTower Cover Installation Procedure
- Left Side eTower Cover Installation Procedure
- Lower Front eTower Cover Installation Procedure
- RS Probe Cover Installation Procedure

6.) Install all accessories.



- Accessories - Replacement Procedures

7.) Turn ON power to the system.



Perform the checks listed in *T-PSB Module Replacement Procedure* on page 8-217

Section 8-5 Electronic Boards- Replacement Procedures

8-5-1 BIB Board Replacement Procedure

8-5-1-1 Tools

Appropriate Phillips Screwdriver.

FRU Part # Refer to *Table 9-13* on page 9-13.

8-5-1-2 Time Required

15 min

8-5-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-5-1-4 BIB Board Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Remove the Back End Module.



- [BE Module Removal Procedure](#)

- 4.) Remove the supporting bracket using an appropriate Phillips screwdriver:

- Release two captive screws

- Release two screws at the bottom of the bracket

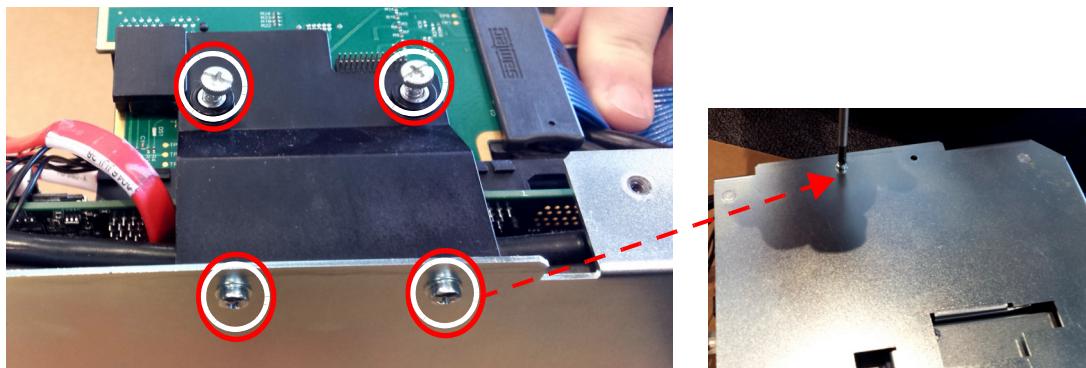


Figure 8-52 Removing BE Supporting Bracket

5.) Disconnect BIB TO BE SPLIT CABLE connector that connects the BIB board to the BE module.

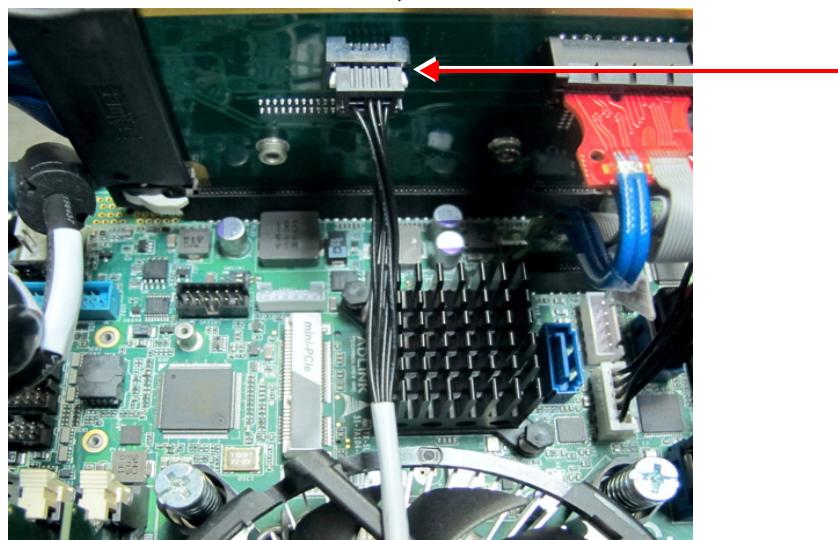


Figure 8-53 Removing BIB Board - Disconnecting BIB TO BE SPLIT CABLE Connector

6.) Disconnect the PCIe cable connector that connects the BIB board to the BE module.



Figure 8-54 Removing BIB Board - Disconnecting PCIe Cable Connector

- 7.) Remove the BIB Board.



Figure 8-55 Removing BIB Board

8-5-1-5 BIB Board Installation Procedure

- 1.) Install the BIB Board on the BE module.
- 2.) Connect the cable connector (previously disconnected).
- 3.) Tighten two screws to secure the BIB board to the BE module.
- 4.) Install the BE module.



- [BE Module Installation Procedure](#)

- 5.) Close the FE door and close the two fastening latches on the left side of the Front End door assembly.
- 6.) Tighten the captive screw.
- 7.) Refit the following covers: Lower Front eTower, Left side eTower, Right Side eTower, and RS Probe cover:
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 8.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 9.) Turn ON power to the system.



Functionality Checks Perform the checks listed in [BIB Board Replacement Procedure](#) on page 8-217

8-5-2 T-CFE Release Arm Replacement Procedure

8-5-2-1 Tools

Appropriate Phillips screwdriver.

8-5-2-2 Time Required

15 minutes

8-5-2-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-5-2-4 CFE Board Release Arm Removal Procedure

The lever-shaped CFE Release Arm is located on the PSB Board.

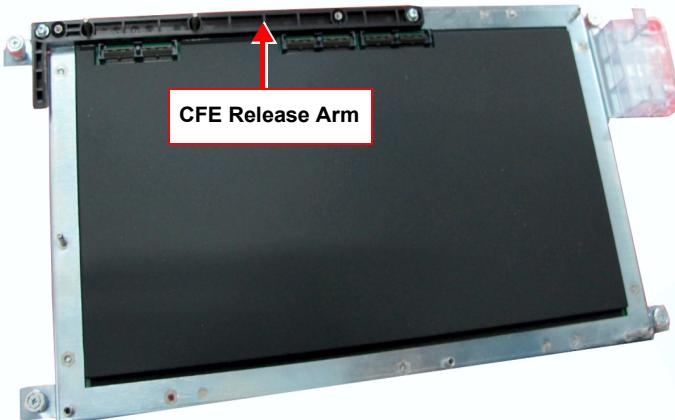


Figure 8-56 Location of CFE Release Arm

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3) Remove the T-CFE Module:



- [T-CFE Module Removal Procedure](#)

- 4.) Unscrew the two lever holding screws and remove the CFE Release Arm (Lever) from the PSB Board.



Figure 8-57 Removing CFE Release Arm

8-5-2-5 T-CFE Release Arm Installation Procedure

- 1) Install a new T-CFE Release Lever in position on the PSB board.
- 2) Refit the T-CFE Board.
- 3.) Insert and tighten the 6 T-CFE Board retaining screw shown in [Figure 8-57](#), above.
- 4.) Install the T-FEPS module:
 - [Front End Power Supply Removal Procedure](#)
- 5) Install the Front End door assembly:
 - [Front End Metal Door Replacement](#)
- 6.) Refit the following covers: Lower Front eTower, Left side eTower, and Right Side eTower.:
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Removal Procedure](#)
- 7.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 8.) Turn ON power to the system.



Perform the checks listed in [T-CFE Release Arm Replacement Procedure](#) on page 8-217

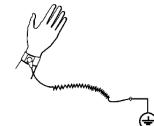
8-5-3 Front End Power Supply (T-FEPS) Replacement Procedure

NOTE: The Front End Power Supply (T-FEPS) is also referred to as the HVPS (High Voltage Power Supply).

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



8-5-3-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-12](#) on page 9-12.

8-5-3-2 Time Required

15 minutes

8-5-3-3 Preparation

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-5-3-4 Front End Power Supply Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Open the two fastening latches on the left side of the FE door assembly and carefully open the door.

- 4.) Disconnect the MPB TO T-FEPS Cable.

- 5.) Loosen the 2 retaining screws that secure the T- FEPS to the Scanner door assembly.

- 6.) Using both hands, carefully pull the T-FEPS *towards you* and remove it from the T-CFE.



Figure 8-58 Removing the T-FEPS Metal Cover

8-5-3-5 Front End Power Supply (T-FEPS) Installation Procedure

- 1.) Return a new T-FEPS to its position on the Front End door assembly.
- 2.) Follow the T-FEPS removal procedure step 4, in reverse order.
- 3.) Reconnect the cables (previously disconnected).
- 4.) Close the Front End door and fasten securely with the two latches:
- 5.) Refit the following covers: Lower Front eTower, Left side eTower, and Right Side eTower:
 - Right Side eTower Cover Installation Procedure
 - Left Side eTower Cover Installation Procedure
 - Lower Front eTower Cover Installation Procedure
 - RS Probe Cover Installation Procedure
- 6.) Install all accessories.
 - Accessories - Replacement Procedures
- 7.) Turn ON power to the system.



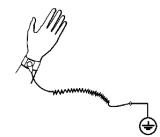
Functionality Checks
Perform the checks listed in [Front End Power Supply \(T-FEPS\) Replacement Procedure](#) on page 8-217

8-5-4 T-TRx Box Replacement Procedure

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



8-5-4-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-12](#) on page 9-12.

8-5-4-2 Time Required

15 minutes

8-5-4-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-5-4-4 T-TRx Box Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Installation Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Open the two fastening latches on the left side of the FE door assembly and loosen the captive screw. Then, carefully open the door.

- 4.) Disconnect the MPB TO T-FEPS Cable.

- 5.) Disconnect the fan cable.

- 6.) Loosen the 2 screws that secure the metal cover of the TRx32 Box, and carefully pull the T-TRx box towards you.



Figure 8-59 Removing the T-TRX Box

8-5-4-5 T-TRX Box Installation Procedure

- 1.) Close the T-CFE metal cover and fasten the retaining screws.
- 2.) Reconnect the cables (previously disconnected).
- 3.) Close the Front End door and fasten securely with the two latches:
- 4.) Refit the following covers: Lower Front eTower, Left side eTower, Right Side eTower and RS Probe Cover:::
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 5.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 6.) Turn ON power to the system.



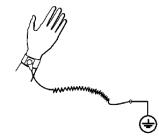
Perform the checks listed in [T-TRx Box Replacement Procedure](#) on page 8-217

8-5-5 T-TRx Module Replacement Procedure

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



8-5-5-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-12](#) on page 9-12.

8-5-5-2 Time Required

15 minutes

8-5-5-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-5-5-4 T-TRx Module Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, and Right Side eTower.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Open the two fastening latches on the left side of the FE door assembly and loosen the captive screw. Then, carefully open the door.

- 4.) Remove the T-TRx Box.



- [T-TRx Box Removal Procedure](#)

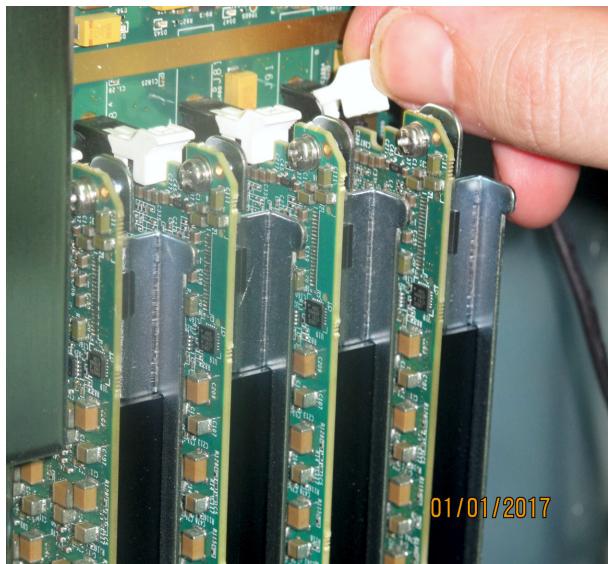
- 5.) Secure the door by clipping the door with door support.

- 6.) Disconnect the following cables from the FE assembly:

- Fan cable
- MPB to T-FEPS cable

- 7.) Loosen the 2 screws that secure the T-TRx Box and remove the T-TRx box.

The four T-TRx modules are each secured in position on the T-CFE Board by way of a white plastic holder at each end of the T-TRx module. These are opened by gently pulling them outwards to tilt the holder away from the edge of the module, as shown in [Figure 8-60](#).



[Figure 8-60 TRx Module Secured with Plastic Holders](#)

- 8.) Open each white plastic holder located on either end of the first TRx Module to release the module then slide the module *towards you* to remove it.



[Figure 8-61 Removing a TRx Module](#)

- 9.) Repeat Steps 4 - 6 to remove each of the remaining TRx Modules.

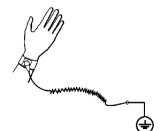
8-5-5-5 TRx Module Installation Procedure

NOTE: This procedure applies to replacement of one or more of the defective modules (TRX32).

CAUTION



When performing these procedures, take precautions to avoid damage of electrostatic-sensitive components. Always have the ESD wrist strap connected either to the DIB chassis or to the GND plug at the rear of the scanner, and to your hand.



- 1) Gently slide a new TRx Module into the retaining grooves located on the T-CFE Board, pressing the board firmly downwards until it is in position as shown in [Figure 8-60](#).

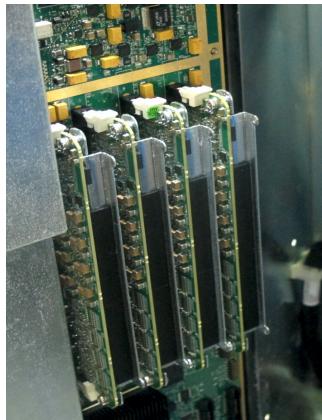


Figure 8-62 TRx Grooves and Holders on the T-CFE Board

- 2) Ensure that the TRx Module is firmly seated, then press the TRx Module firmly allowing the white plastic holder clips to close at each end.
- 3.) Repeat Step 1 and Step 2 for each of the other TRx module.
- 4.) Close the TRx box and fasten the retaining screws.
- 5.) Reconnect the cables (previously disconnected).
- 6.) Close the Front End door, fasten securely with the two latches and tighten the captive screw:
- 7.) Refit the following covers: Lower Front eTower, Left side eTower, Right Side eTower, and RS Probe Cover:::
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 8) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 9.) Turn ON power to the system.



Perform the checks listed in [T-TRx Module Replacement Procedure](#) on page 8-217

Section 8-6 Mechanical Parts- Replacement Procedures

8-6-1 MPB Front Metal Door Replacement Procedure

8-6-1-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-9](#) on page 9-8.

8-6-1-2 Time Required

5 min

8-6-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-1-4 MPB Front Metal Door Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the Lower Front eTower cover.



- [Lower Front eTower Cover Removal Procedure](#)

- 3.) Release four captive screws and remove the MPB Front Metal Door.



Figure 8-63 Removing MPB Front Metal Door

8-6-1-5 MPB Front Metal Door Installation Procedure

- 1.) Install the new MPB Front Metal Cover and tighten the four captive screws.
- 2.) Refit the Lower Front eTower cover



- [Lower Front eTower Cover Removal Procedure](#)

3.) Install all accessories.



- [Accessories - Replacement Procedures](#)

4.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [MPB Front Metal Door Replacement Procedure](#) on page 8-217

8-6-2 MPB Guide L and Guide R Replacement Procedure

NOTE: *The procedure below is the same whether replacing MPB Guide L or MPB Guide R that are mirrored items attached to the Receptacle Box side walls.*

8-6-2-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-5](#) on page 9-4.

8-6-2-2 Time Required

15 min

8-6-2-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-2-4 MPB Guide L/R Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe cover, Lower Front eTower, Side Covers, MPB Power Door



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Door Cover Removal Procedure](#)

- 3.) Remove the MPB Module.



- [MPB Module Removal Procedure](#)

- 4.) Unscrew the two mounting screws that hold the Guide L/R.

5.) Remove the Guide.

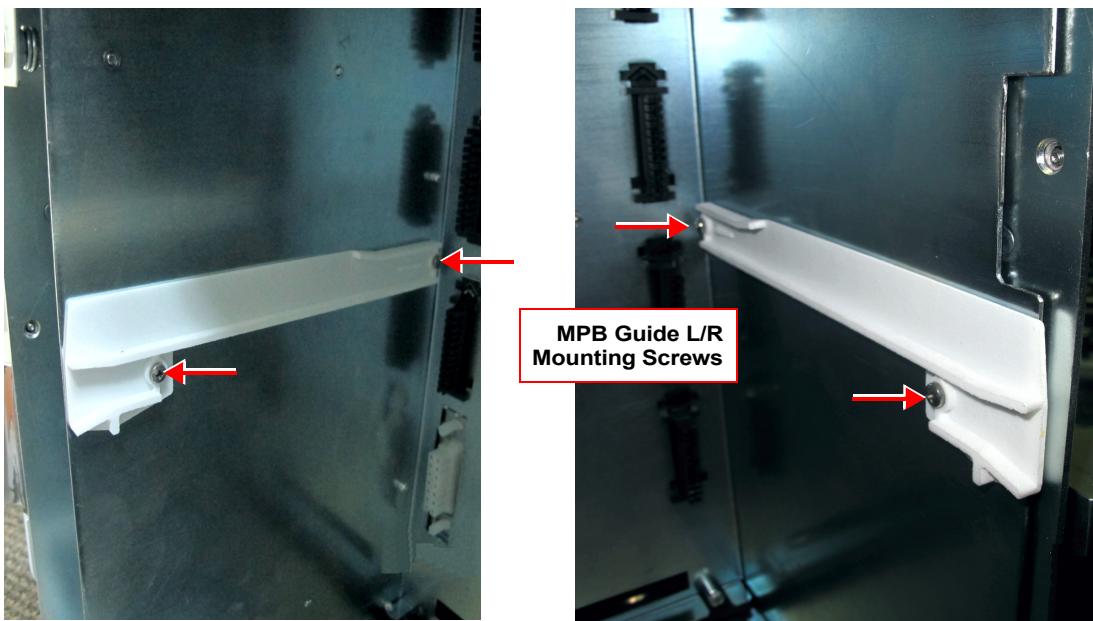


Figure 8-64 MPB Guide L/R- Mounting Screws

8-6-2-5 MPB Guide L/R Installation Procedure

- 1.) Attach the MP Guide L/R.
- 2.) Tighten the two mounting screws to secure the guide to the receptical box.



Figure 8-65 MPB Guide L/R- Mounting Screws

- 3.) Install the MPB Module.



- MPB Module Installation Procedure

- 4.) Refit the following covers: MPB Door Cover, Left and Right Side eTower Covers, Lower Front eTower Cover, and RS Probe cover



- [MPB Door Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 5.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 6.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [MPB Guide L and Guide R Replacement Procedure](#) on page 8-217

8-6-3 Halo Handle Replacement Procedure

8-6-3-1 Tools

LOCTITE® 243™

Allen key 3 mm.

FRU Part # Refer to [Table 9-6](#) on page 9-5.

8-6-3-2 Time Required

30 min

8-6-3-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-3-4 Halo Handle Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove cockpit (monitor).



- [Cockpit \(Monitor\) Removal Procedure](#)

- 3.) Remove the arm.



- [Arm Removal Procedure](#)

- 4.) Remove the Riser Thermal Cover.



- [Riser Thermal Cover Removal Procedure](#)

- 5.) Remove the Riser Cover.



- [Riser Cover Removal Procedure](#)

- 6.) Remove the Halo Handle mounting screws: four (x4) front screws and four (x4) side screws (two from each side).



Halo Handle Side Screws



Halo Handle Front Screws

Figure 8-66 Removing the Halo Handle - Mounting Screws

- 7.) Lift the handle upwards and remove it.



Lift and Remove the Halo Handle



Halo Handle Removed

Figure 8-67 Removing the Halo Handle

8-6-3-5 Halo Handle Installation Procedure

- 1.) Mount the Halo Handle on the eTower.
- 2.) Apply LOCTITE® 243™ on the Halo Handle mounting screws and tighten them.
- 3.) Install the Riser Cover.



- [Riser Cover Installation Procedure](#)

4.) Install the Riser Thermal Cover.



- [Riser Thermal Cover Installation Procedure](#)

5.) Install the articulated arm.



- [Arm Installation Procedure](#)

6.) Install the cockpit (monitor).



- [Cockpit \(Monitor\) Installation Procedure](#)

7.) Install all accessories.



- [Accessories - Replacement Procedures](#)

8.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [Halo Handle Replacement Procedure](#) on page 8-218

8-6-4 Articulated Arm Replacement Procedure

8-6-4-1 Tools

- Allen key 2.5 mm.
- Snap ring (circlip) pliers

FRU Part # Refer to [Table 9-6](#) on page 9-5.

8-6-4-2 Time Required

- 10 min

8-6-4-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-4-4 Arm Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)
- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower cover, Left Side eTower cover, Right Side eTower cover and Riser Thermal Cover.
 - [RS Probe Cover Removal Procedure](#)
 - [Lower Front eTower Cover Removal Procedure](#)
 - [Right Side eTower Cover Removal Procedure](#)
 - [Left Side eTower Cover Removal Procedure](#)
 - [Riser Thermal Cover Removal Procedure](#)

- 3.) Remove cockpit (monitor).



- [Cockpit \(Monitor\) Removal Procedure](#)

- 4.) Carefully raise the arm to its up position.

- 5.) Remove the arm base cover.



Figure 8-68 Removing Arm Base Cover

- 6.) If the cables are routed through the arm axis, refer to [MPB TO Cockpit Cable Removal Procedure](#) and to [BE to Cockpit Cable Removal Procedure](#)
- 7.) Using Allen key screwdriver, remove the two securing screws of the arm side cover.
- 8.) Slide the arm side cover upwards and remove it.
- 9.) Perform steps 4-5 for the other arm side cover.

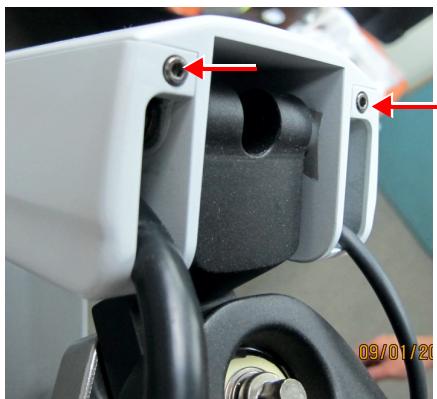


Figure 8-69 Removing Arm Side Covers

10.) Pull out the cockpit (monitor) cables routed inside the riser.

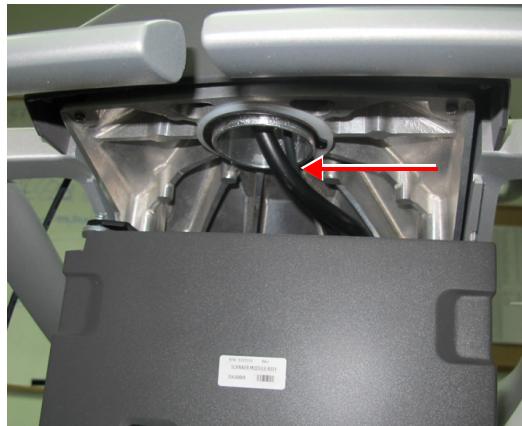


Figure 8-70 Removing Cockpit (Monitor) Cables

11.) Disconnect the ground cable from the riser



Figure 8-71 Removing Ground Cable

12.) Using Forged Steel Ring Pliers, remove the C-clip and then the Teflon ring.

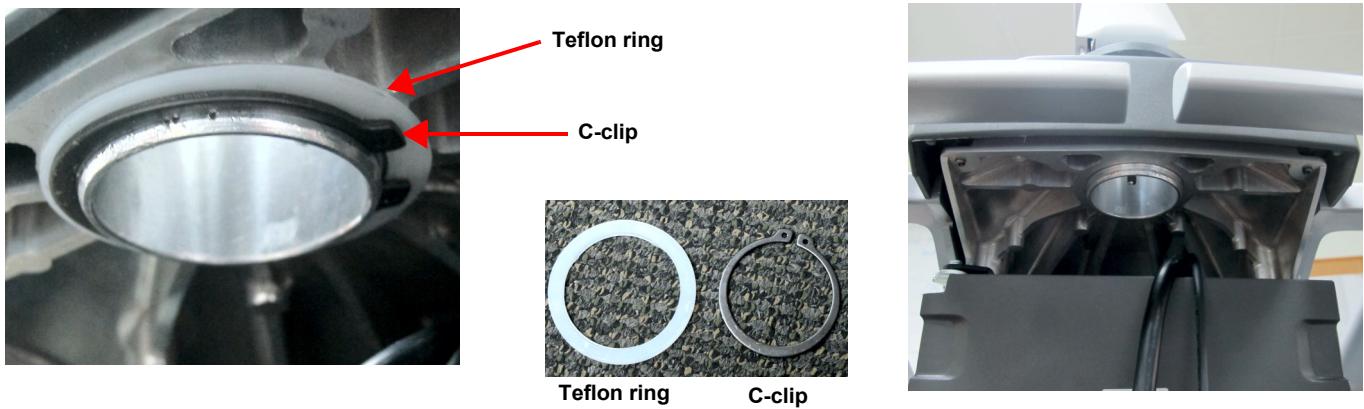


Figure 8-72 Removing Teflon Ring and C-clip

13.) Remove the articulated arm.



Figure 8-73 Removing Scanner Arm

Note: Ensure the pressure pin is not dropped (if exists)



Figure 8-74 Pressure Pin

8-6-4-5 Arm Installation Procedure

- 1.) Install the new arm on the riser.
- 2.) Install the Teflon ring and then the C-clip.
- 3.) Route the cockpit (monitor) cables through the riser opening, refer to [MPB TO Cockpit Cable Installation Procedure](#) and [BE to Cockpit Cable Installation Procedure](#)
- 4.) Route each cockpit (monitor) cable through the arm side and install the arm side covers.
- 5.) Re-connect the ground cable to the riser
- 6.) Secure each side cover with two securing screws.
- 7.) Install the arm base cover.
- 8.) Install the following covers: Lower Front eTower cover, Left Side eTower cover, Right Side eTower cover, Riser Thermal Cover and RS Probe Cover.



- Riser Thermal Cover Removal Procedure
- Left Side eTower Cover Removal Procedure
- Right Side eTower Cover Removal Procedure
- Lower Front eTower Cover Removal Procedure
- RS Probe Cover Installation Procedure

9.) Install the cockpit (monitor).



- Cockpit (Monitor) Installation Procedure

10.) Install all accessories.



- Accessories - Replacement Procedures

11.) Turn ON power to the system.



Functionality Checks Perform the checks listed in *Articulated Arm Replacement Procedure* on page 8-218

8-6-5 Riser Replacement Procedure

8-6-5-1 Tools

- Allen key 2.5 mm.
- LOCTITE® 243™
- Forged Steel Ring Pliers

FRU Part # Refer to [Table 9-5](#) on page 9-4.

8-6-5-2 Time Required

10 min

8-6-5-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-5-4 Riser Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove cockpit (monitor).



- [Cockpit \(Monitor\) Removal Procedure](#)

- 3.) Remove the following covers: RS Probe cover, Lower Front eTower cover, Left Side eTower cover, Right Side eTower cover, Riser Thermal Cover and Upper Front eTower Cover.



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [Riser Thermal Cover Removal Procedure](#)

- 4.) Remove scanner arm.



- [Arm Removal Procedure](#)

- 5.) Loosen and remove four screws securing the riser cover to the riser.

- 6.) Remove the riser cover.



Figure 8-75 Removing Riser Cover

- 7.) Remove the Teflon sliding top ring.



Figure 8-76 Removing Teflon Sliding Top Ring

Note: Ensure the pressure pin is not dropped (if exists)



Figure 8-77 Pressure Pin

- 8.) Remove four securing screws and remove the riser.



Figure 8-78 Removing Riser

8-6-5-5 Riser Installation Procedure

- 1.) Install new riser on the eTower.
- 2.) Apply LOCTITE® 243™ on the riser securing screws and tighten the screws.
- 3.) Install the Teflon sliding top ring.

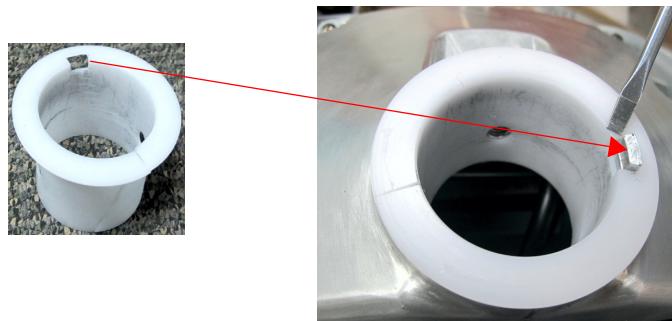


Figure 8-79 Installing Teflon Sliding Top Ring

- 4.) Remove the masking tape holding the pressure pin; ensure the pin is not dropped



Figure 8-80 Pressure Pin

- 5.) Install the riser cover and secure with four screws.
- 6.) Install scanner arm.



- [Arm Installation Procedure](#)

- 7.) Refit the following covers: Lower Front eTower cover, Left Side eTower cover, Right Side eTower cover, Riser Thermal Cover, Upper Front eTower Cover and RS Probe cover.



- [Upper eTower Front Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Riser Thermal Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 8.) Install the cockpit (monitor).



- [Cockpit \(Monitor\) Installation Procedure](#)

- 9.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 10.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [Riser Replacement Procedure](#) on page 8-218

8-6-6 Casters Replacement Procedure

NOTE: The procedure below is the same whether replacing a No Lock Caster or a Directional and Brake Lock Caster

NOTE: Make sure to install each type in its correct location. See [Figure 8-82](#).

8-6-6-1 Tools

- Allen key 6mm
- LOCTITE® 243™

FRU Part # Refer to [Table 9-7](#) on page 9-6.

8-6-6-2 Time Required

15 min

8-6-6-3 Preparations

Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).

Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-6-4 Casters Removal Procedure

- 1) Using a 6mm Allen key, loosen and remove the screw that secures the wheel shaft in the wheel securing socket.
- 2) Lift the chassis sufficiently to allow the wheel to drop down out of the wheel securing socket.
- 3.) Remove the wheel.



Figure 8-81 Removing the Caster Wheels

8-6-6-5 Casters Installation Procedure

- 1) Carefully lift the chassis sufficiently to allow insertion of the replacement wheel shaft into the wheel securing socket.

Note: When installing the swivel lock wheel, lock the swivel before installing it to determine the installation direction.

- 2) Push the wheel shaft all the way up into the socket, then gently lower the chassis to the ground.
- 3.) Apply LOCTITE® 243™ on the Allen screw.

- 4.) Return and fasten the Allen screw, making sure the screw is tightened sufficiently to secure the wheel on the chassis. ***Do not over-tighten the screw!***

NOTE: When installing wheels, make sure you install the correct type of the wheel. The wheels position is crossover.



Figure 8-82 Wheels Position in the System

- 5.) Carefully position the system on the ground.



Perform the checks listed in [Casters Replacement Procedure](#) on page 8-218

8-6-7 Plastic Cable Guide for CFE Replacement Procedure

8-6-7-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-5](#) on page 9-4.

8-6-7-2 Time Required

15 min

8-6-7-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-7-4 Plastic Cable Guide for CFE Removal Procedure

- 1) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2) Remove the following covers: RS Probe cover, Lower Front eTower, Left side eTower, Right Side eTower, Riser Thermal Cover



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Riser Thermal Cover Removal Procedure](#)

- 3.) Open the two fastening latches on the left side of the FE door assembly, loosen the captive screw and carefully open the door. See [Figure 8-19](#).

- 4.) Secure the door by clipping the door with door support- [Figure 8-19](#).

- 5.) Remove the BIB cable from the Plastic Cable Guide for CFE as follows:

- Release the two screws.

- Gently pull down the Plastic Cable Guide for CFE and disconnect the cable connector:

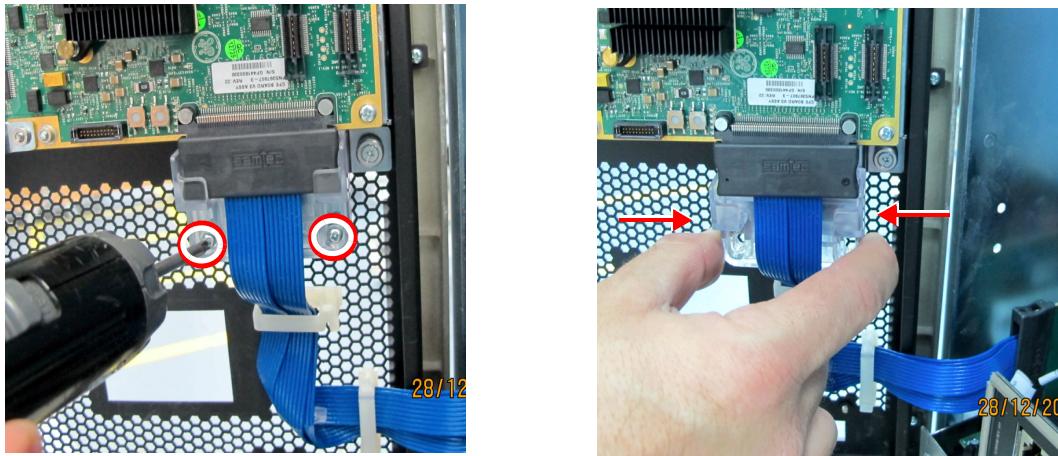


Figure 8-83 Disconnecting the PCIe Cable

- 6.) Loosen and remove the two screws securing the cable guide to CFE board and remove it.



Figure 8-84 Removing Plastic Cable Guide for CFE

8-6-7-5 Plastic Cable Guide for CFE Installation Procedure

- 1.) Install the new Plastic Cable Guide for CFE and slightly tighten the two screws to secure the cable guide in its place.
- 2.) Reconnect the BIB cable to the Plastic Cable Guide for CFE.
- 3.) Return the FE door support to its place.
- 4.) Close the FE door and close the two fastening latches on the left side of the Front End door assembly.
- 5.) Tighten the captive screw.
- 6.) Refit the following covers: Lower Front eTower, left side eTower, Right side eTower and RS Probe cover.
 - [Left Side eTower Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 7.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 8.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [Plastic Cable Guide for CFE Replacement Procedure](#) on page 8-218

8-6-8 MPB Blower (Fan) Replacement Procedure

8-6-8-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-7](#) on page 9-6.

8-6-8-2 Time Required

10 min

8-6-8-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-8-4 MPB Blower (Fan) Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3) Remove MPB Front Metal Door.



- [MPB Front Metal Door Removal Procedure](#)

- 4.) Disconnect MPB to BIB Control Cable from the fan cable connector.

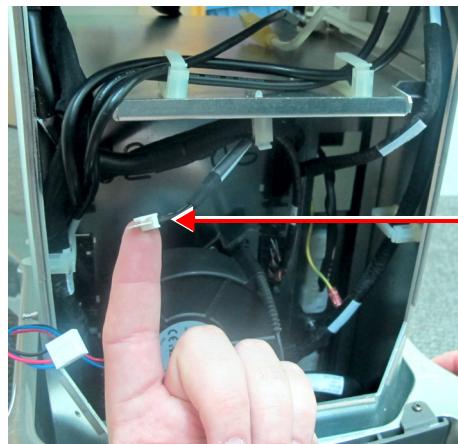


Figure 8-85 Disconnecting Fan Cable Connector

- 5.) Loosen the elastic spring slings that hold the fan and carefully remove the MPB fan.

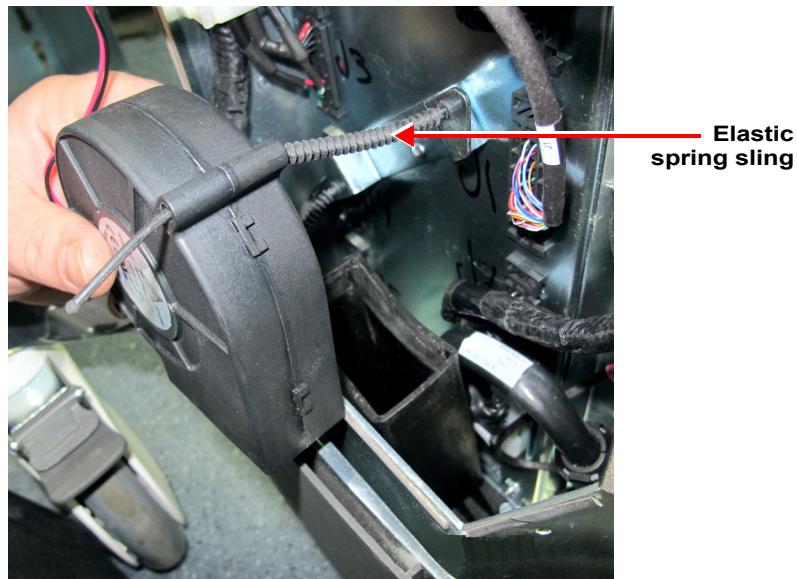


Figure 8-86 Removing the MPB Fan

8-6-8-5 MPB Fan Installation Procedure

- 1.) Carefully insert the new MPB fan into the fan sleeve.
- 2.) Tighten the elastic spring slings to secure the fan in its place.

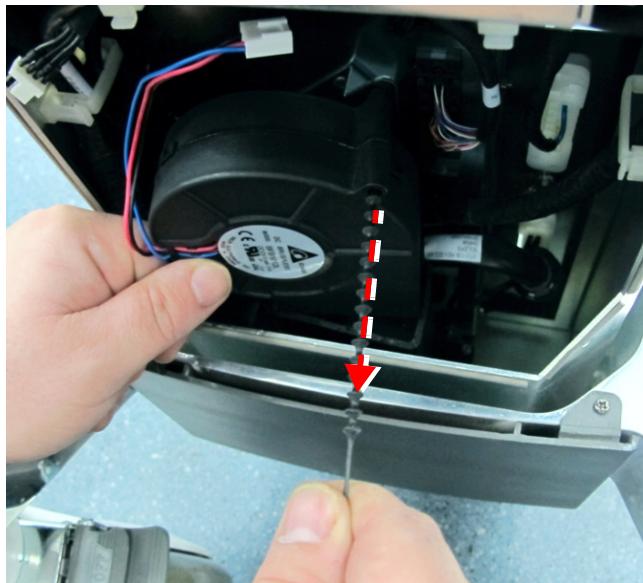


Figure 8-87 Tightening Elastic Spring Slings

- 3.) Reconnect the MPB to BIB Control Cable to the fan cable connector.



Figure 8-88 Installing the MPB Fan

- 4) Install the MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

5.) Install the following covers: Lower Front eTower, Left side eTower, Right Side eTower and RS Probe cover.



- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)

6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

7.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [MPB Blower \(Fan\) Replacement Procedure](#) on page 8-218

8-6-9 IPP Module Replacement Procedure

8-6-9-1 Tools

- Appropriate open-end wrench
- Multimeter
- Nose pliers
- Appropriate short Phillips screwdriver

FRU Part # Refer to [Table 9-10](#) on page 9-10.

8-6-9-2 Time Required

10 min

8-6-9-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-6-9-4 IPP Module Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe cover, Lower Front eTower, Left side eTower, Right Side eTower, and MPB Front Metal Door



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)

- 3.) Remove the MPB Power Door.



- [MPB Door Cover Removal Procedure](#)

- 4.) Remove battery modules.



- [Battery Module Removal Procedure](#)

- 5.) Remove the PSU module.



- [PSU Module Removal Procedure](#)

- 6.) Remove the MPB module.



- [MPB Module Removal Procedure](#)

- 7.) Remove the three screws that hold the IPP metal frame.



Figure 8-89 Removing IPP Holding Screws

- 8.) Using the nose pliers (or flat head screwdriver) squeeze the white plastic connector holders and push them out to remove the power connector.

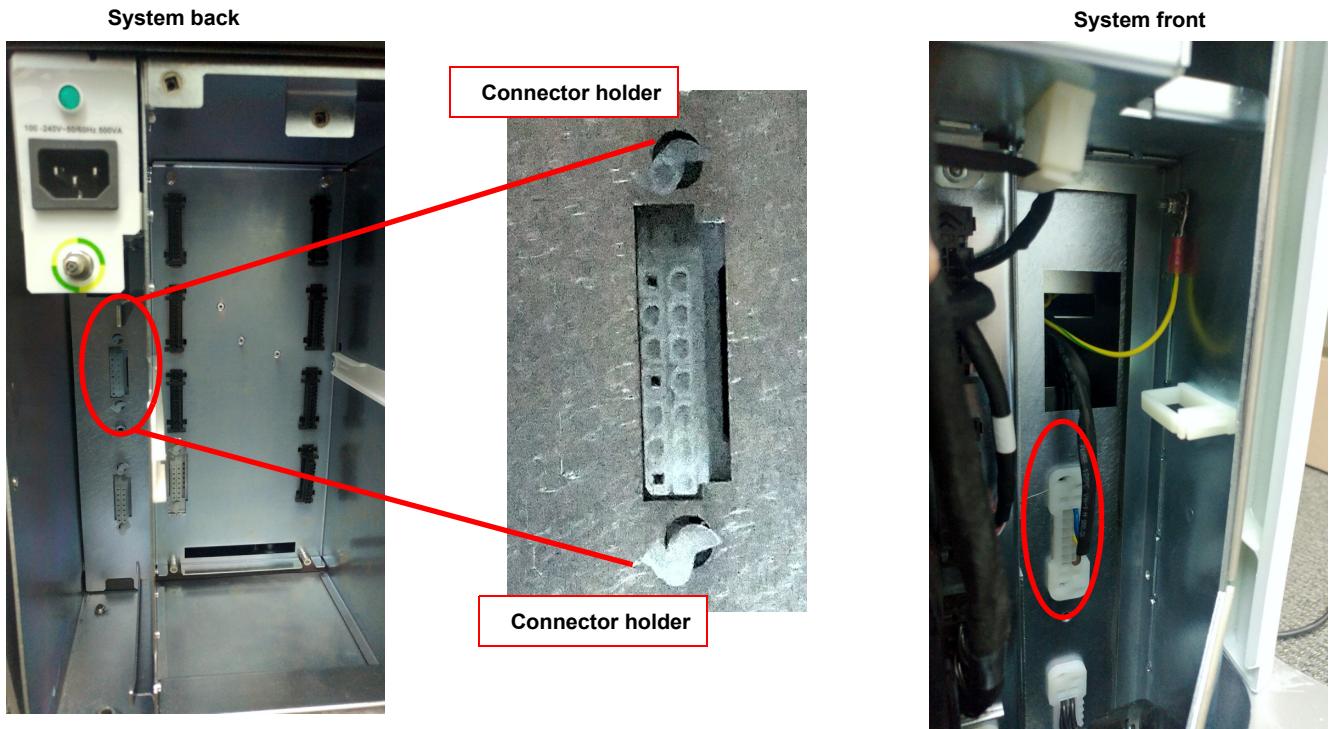


Figure 8-90 Removing Power Connector

- 9.) Using the open-end wrench, disconnect the ground cable.

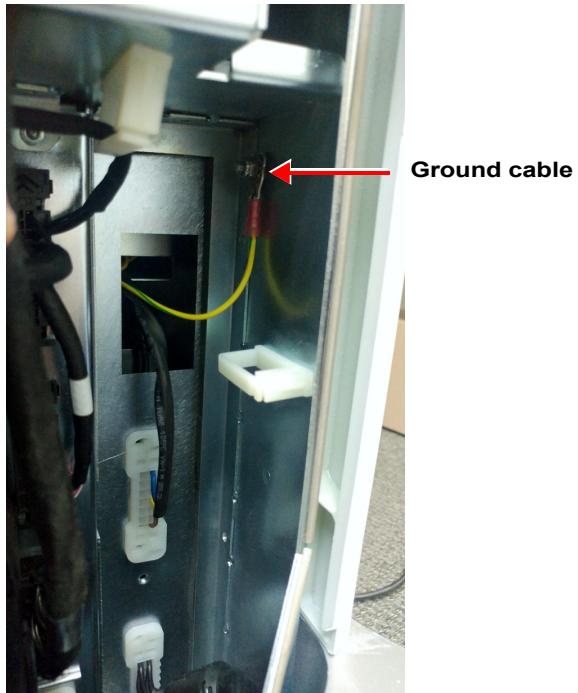


Figure 8-91 Disconnecting Ground Cable

- 10.) Remove the IPP module.

8-6-9-5 IPP Module Installation Procedure

- 1.) Attach the new IPP module on the MPB receptical and secure with three screws.
- 2.) Connect the power connector from the front of the system. Make sure the connector orientation is correct.
- 3.) Connect the ground cable.
- 4.) Install the MPB module.
 - [MPB Module Installation Procedure](#)
- 5.) Install the PSU module.
 - [PSU Module Installation Procedure](#)
- 6.) Install the Battery modules.
 - [Battery Module Installation Procedure](#)
- 7.) Install the MPB Power Door.
 - [MPB Door Cover Installation Procedure](#)
- 8.) Refit the following covers: MPB Front Metal Door, Left side eTower, Right Side eTower, Lower Front eTower, and RS Probe cover.
 - [MPB Front Metal Door Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
 - [RS Probe Cover Installation Procedure](#)
- 9.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 10.) Turn ON power to the system.



Functionality Checks Perform the checks listed in [IPP Module Replacement Procedure](#) on page 8-218

Section 8-7 Cables - Replacement Procedures

8-7-1 MPB Rear USB Cable Replacement Procedure

8-7-1-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-1-2 Time Required

10 min

8-7-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-1-4 MPB Rear USB Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3) Remove MPB Front Metal Door.



- [MPB Front Metal Door Removal Procedure](#)

- 4.) Remove the battery packs to gain access to the MPB module.



- [Battery Module Removal Procedure](#)

- 5.) Remove the PSU module.



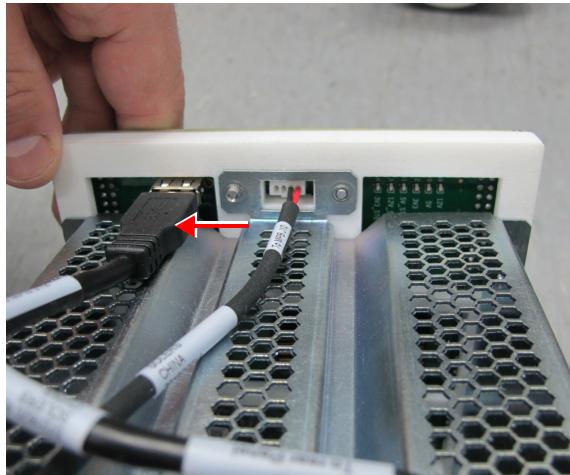
- [PSU Module Removal Procedure](#)

- 6.) Unscrew the two mounting screws and remove the MPB module.



- [MPB Module Removal Procedure](#)

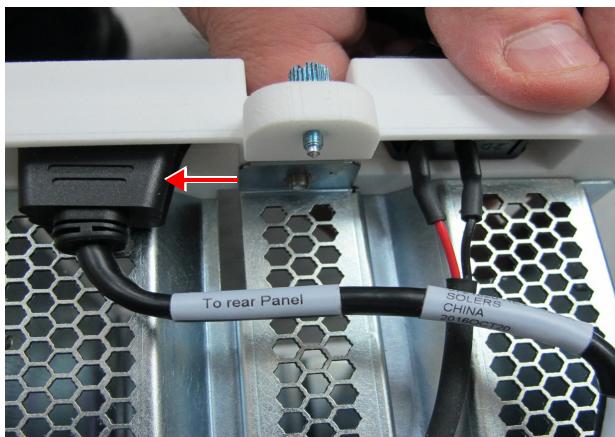
- 7.) Place the MPB module on a flat surface and disconnect the MPB Rear USB Cable connector to the MPB J12 Connector.



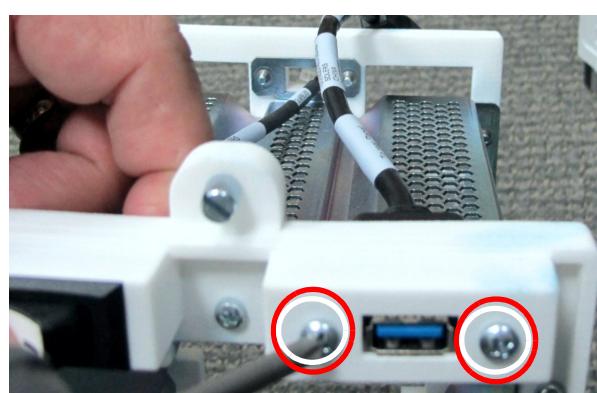
MPB to Rear USB Cable - To MPB J12 Connector

Figure 8-92 Disconnecting MPB Rear USB Cable - To MPB J12 Connector

- 8.) Using Phillips screwdriver, disconnect the two screws that hold the cable connector to the rear panel and remove the cable.



MPB to Rear USB Cable - To Rear Panel Connector (side 1)



MPB to Rear USB Cable - To Rear Panel Connector (side 2)

Figure 8-93 Disconnecting MPB Rear USB Cable - To Rear Panel Connector

8-7-1-5 MPB Rear USB Cable Installation Procedure

- 1.) Connect the MPB to Rear USB Cable to the rear panel connector and tighten the two screws (previously removed).
- 2.) Connect the USB cable connector to the MPB J12 connector.
- 3.) Install the MPB module and tighten the two mounting screws.



- [MPB Module Installation Procedure](#)

4.) Install the PSU module.



- [PSU Module Installation Procedure](#)

5.) Install the battery pack units.



- [Battery Module Installation Procedure](#)

6.) Install MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

7.) Refit the following covers: Lower Front eTower, left side eTower, Right side eTower and RS Probe cover.



- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

8.) Install all accessories.



- [Accessories - Replacement Procedures](#)

9.) Turn ON power to the system.



Perform the checks listed in [MPB Rear USB Cable Replacement Procedure](#) on page 8-218

8-7-2 MPB TO Cockpit Cable Replacement Procedure

8-7-2-1 Tools

- Appropriate Phillips screwdriver
- Flat-head screwdriver

8-7-2-2 Time Required

15 min

8-7-2-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-2-4 MPB TO Cockpit Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, Right Side eTower, and Riser Thermal covers,,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Door Cover Removal Procedure](#)
- [Riser Thermal Cover Removal Procedure](#)

- 3) Perform MPB removal procedure.



- [MPB Module Removal Procedure](#)

- 4.) For systems with rear cockpit cable cover installed, perform the following steps:



- a.) Disconnect the Wi-Fi adapter.

- [Wi-Fi Adapter Removal Procedure](#)

- b.) Release the four Phillips screws and remove the rear cable cover.



Figure 8-94 Removing Rear Cable Cover

- 5.) Disconnect the MPB TO COCKPIT CABLE from the monitor:
- Disconnect the cable connector (use flat-head screwdriver).
 - Release Ground cable (use Phillips screwdriver).

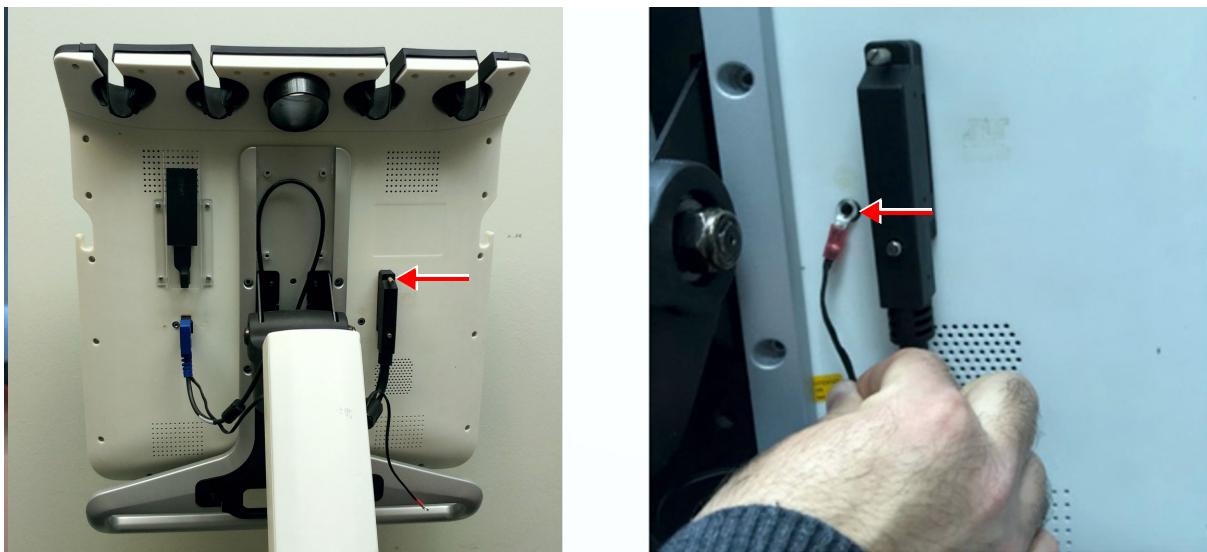


Figure 8-95 MPB TO COCKPIT Cable and Cockpit Ground Cables Removal

- 6.) Gently pull out the MPB to Cockpit cable from the axis tilt.
- 7.) Release the MPB to Cockpit cable from the arm:
 - a.) Carefully raise the arm to its up position
 - b.) Remove the arm base cover



Figure 8-96 Removing Arm Base Cover

- c.) Using Phillips screwdriver, remove the two securing screws of the arm side cover.
- d.) Slide the right-side arm side cover upwards and remove it.

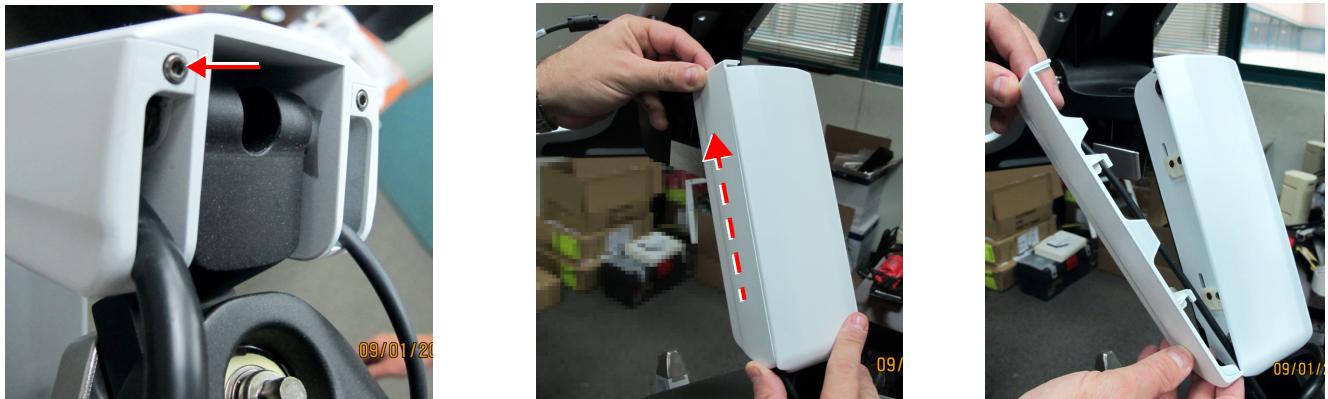


Figure 8-97 Removing Arm Side Covers

- 8.) Cut the tie wraps securing the MPB TO COCKPIT cable to the arm right side, and release the cable from the arm.



Figure 8-98 Arm Side Cable: Removing Tie Wraps

- 9.) Route the cable and its connector downwards through the arm hole.



Figure 8-99 Route Cable Through Arm Hole

- 10.) Release plastic clips that hold the cable using a flat screwdriver:

- Three clips in the Front End
- Two clips between the connectors and the MPB receptacle side.

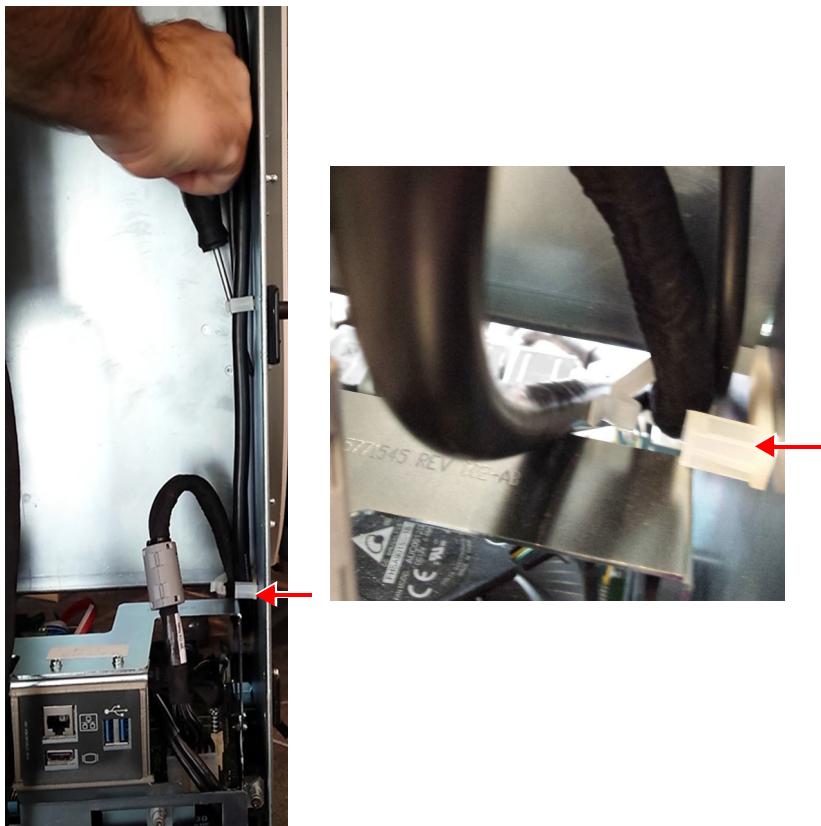


Figure 8-100 Plastic Clips Holding the Cable

11.) Disconnect J1 and J2 connectors by sliding the connectors upwards from the MPB receptacle side.

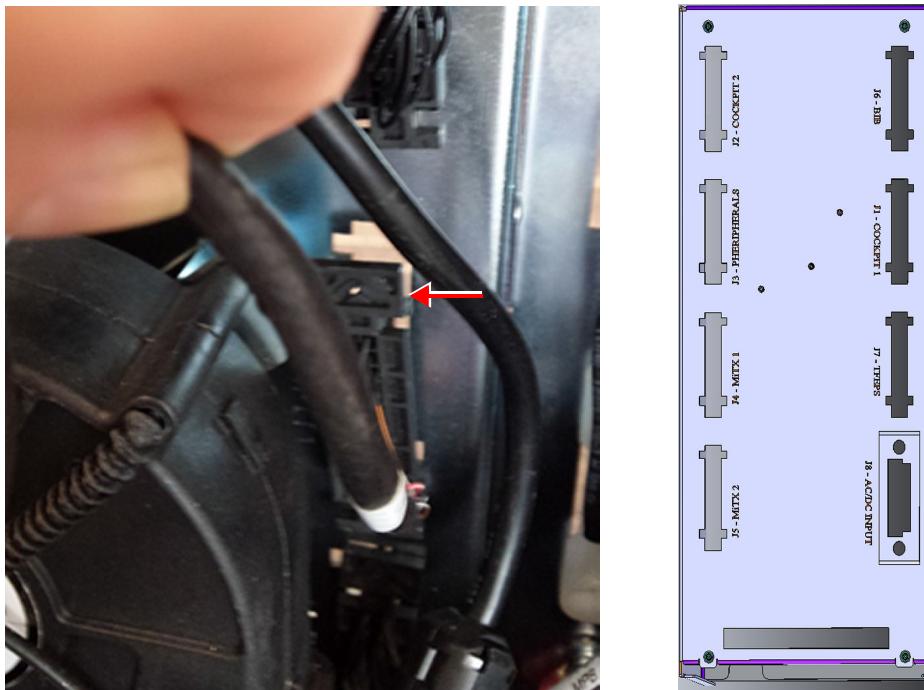


Figure 8-101 Disconnecting J1, J2 connectors

12.) Gently slide the MPB TO COCKPIT cable upwards, ensuring not to pull and cause damage to the other cables.

13.) Open cable cover door:

- Open the captive screw of the cable cover door using a Phillips screwdriver.
- Slide the cable cover door towards you, to free the cable
- Slide the cable connectors upwards and gently route them- one after the other - through the door, with the rubber grommet.

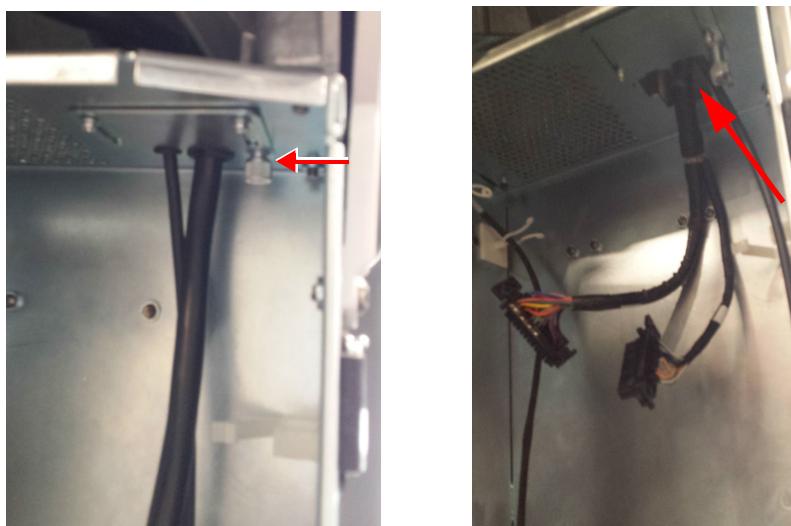


Figure 8-102 Disconnecting MPB TO COCKPIT CABLE

14.) Pull the MPB TO COCKPIT CABLE.

The cable is released.

8-7-2-5 MPB TO Cockpit Cable Installation Procedure

- 1.) Remove ferrite clip from MPB to Cockpit cable.



Figure 8-103 Removing Ferrite from Cable

- 2.) Route the MPB to Cockpit cable through the articulated arm, so that the length of the exposed cable toward the cockpit is minimum 44 cm. Do not use tie wraps to secure cable in place.

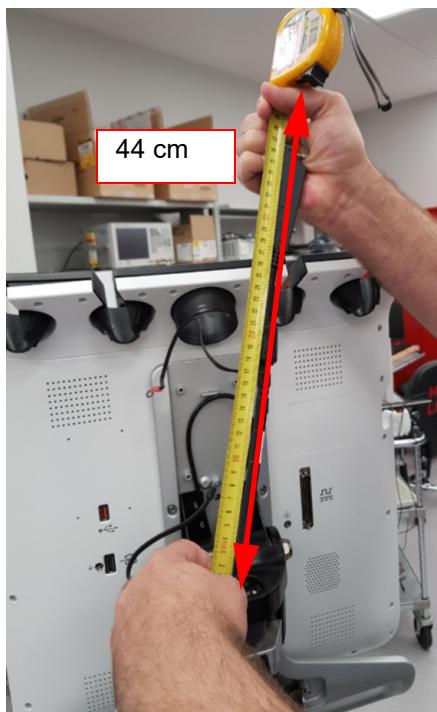


Figure 8-104 Routing MPB to Cockpit Cable - Measuring 44 cm

- 3.) Remove the lower and then the upper cockpit covers.

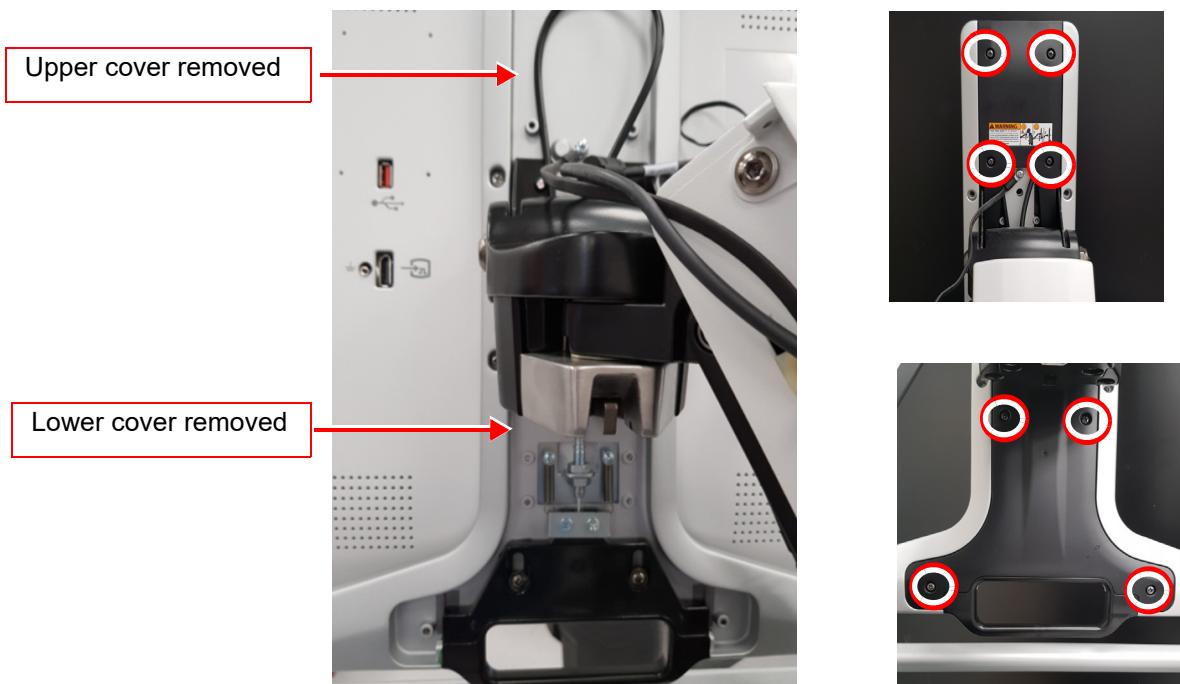


Figure 8-105 Removing Upper and Lower Cockpit Covers

- 4.) Apply moderate force and route the MPB to Cockpit cable through the tilt axis, keeping the routed cable on the most left, and the connector facing to the right. Make sure it is routed above the tilt release cable wire.

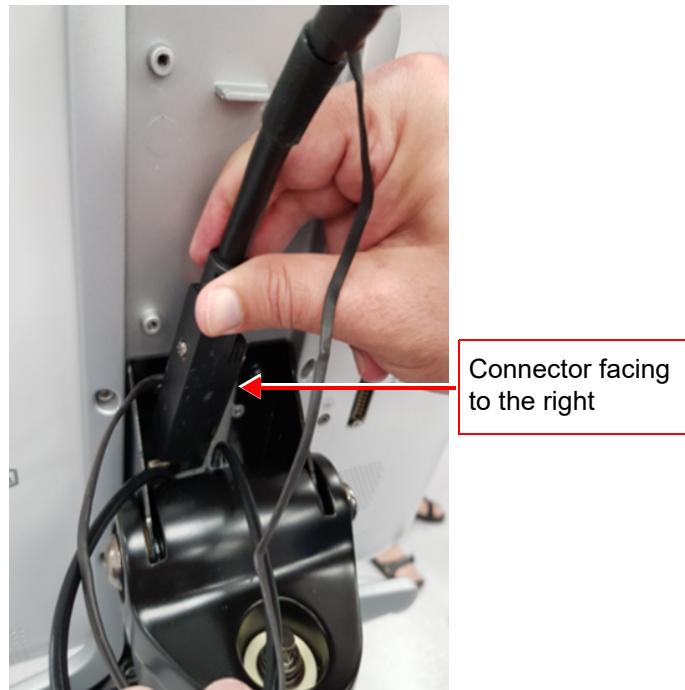


Figure 8-106 Routing the MPB to Cockpit Cable through Tilt Axis

- 5.) Reattach ferrite to the MPB to Cockpit cable, approximately 3 cm below the cable connector.



Figure 8-107 Attaching Ferrite to MPB to Cockpit Cable

- 6.) Connect the MPB to Cockpit cable to the cockpit, and fasten the flat screws.

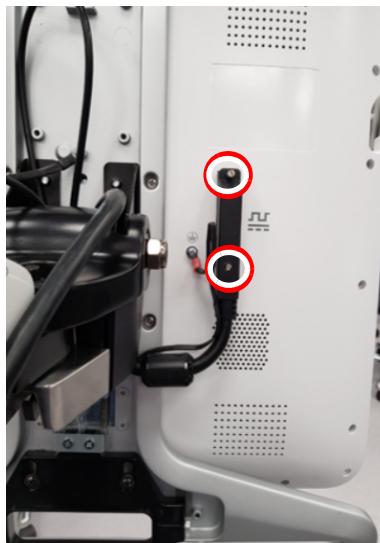


Figure 8-108 Connecting the MPB to Cockpit Cable to Cockpit

- 7.) Reconnect the ground cable.
- 8.) Make sure the MPB to Cockpit cable is routed under the pin that is located on the rear side of the

monitor, as shown below.

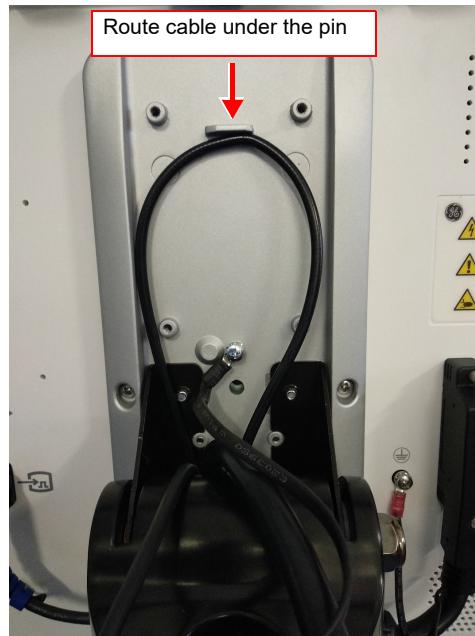


Figure 8-109 Routing the MPB to Cockpit Cable under the Pin

- 9.) Refit the cockpit upper and then the lower covers.
- 10.) Route the MPB to Cockpit cable through the cable cover door and the arm hole.



Figure 8-110 Routing the MPB TO COCKPIT CABLE

- 11.) Connect the MPB TO COCKPIT CABLE to the monitor:

- Connect the cable connector (use flat-head screwdriver).
- Connect Ground cable (use Phillips screwdriver).

12.) Measure 30 cm of cable between the connector and the arm.



Figure 8-111 Measuring 30 cm of the Cable

13.) Secure cable to arm using tie wraps.



Figure 8-112 Securing the Cable to Arm

14.) Gently slide the MPB TO COCKPIT cable through the MPB receptacle side, towards the front.

15.) Reconnect J1 and J2 connectors ensuring the connectors' arrow is pointing upwards.



Figure 8-113 Reconnecting J1 and J2 Connectors

16.) Secure the cable to the plastic clips:

- Three in the front end

- Two between the connectors and the MPB receptacle side.

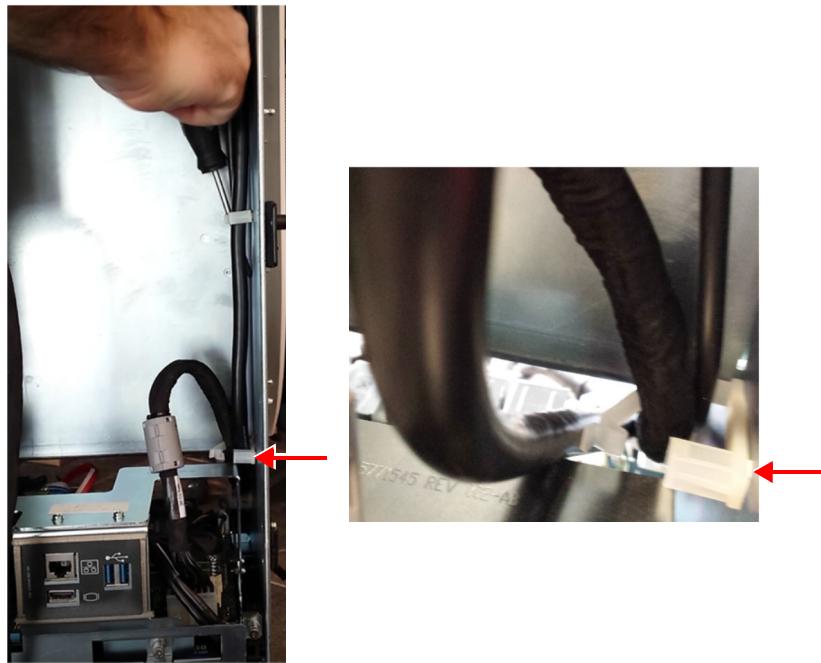


Figure 8-114 Plastic Clips Holding the Cable

17.) Close the cable cover door:

- Slide the cable cover door towards the system, and fix the rubber grommet in its position
- Close the captive screw of the cable cover door using a Phillips screwdriver.



Figure 8-115 Closing Cable Cover Door

18.) Install the arm side cover.

19.) Secure side cover with two securing screws.

20.) Install the arm base cover.

21.)Install the MPB module.



- [MPB Module Installation Procedure](#)

22.)Refit the following covers: Riser Thermal, Left Side eTower, Right Side eTower, Lower Front eTower, and RS Probe cover.



- [Riser Thermal Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

23.)Install the rear cockpit cable cover if exists.

24.)Connect the Wi-Fi dongle if exists.



- [Wi-Fi Adapter Installation Procedure \(For Systems with No Existing Wi-Fi Adapter\)](#)

25.)Install all accessories.



- [Accessories - Replacement Procedures](#)

26.)Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [Articulated Arm Replacement Procedure](#) on page 8-218

8-7-3 BE to Cockpit Cable Replacement Procedure

8-7-3-1 Tools

- Appropriate Phillips screwdriver
- Flat screwdriver
- 2.5 mm Allen key.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-3-2 Time Required

15 min

8-7-3-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-3-4 BE to Cockpit Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe, Lower Front eTower, Left side eTower, Right Side eTower, Riser Thermal, and MPB Door cover,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [Riser Thermal Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)

- 3.) Disconnect the BE TO COCKPIT CABLE from the monitor:

- Disconnect the cable connector (use flat-head screwdriver)
- Release Ground cable (use Phillips screwdriver).



Figure 8-116 Cockpit (Monitor) Cable and Cockpit Ground Cables Removal

4.) For systems with rear cockpit cable cover installed, perform the following steps:

a.) Disconnect the Wi-Fi adapter.



• [Wi-Fi Adapter Removal Procedure](#)

b.) Release the four Phillips screws and remove the rear cable cover.



Figure 8-117 Removing Rear Cable Cover

c.) Gently pull out the BE to Cockpit cable from the axis tilt.

5.) Release the BE to Cockpit cable from the arm:

a.) Carefully raise the arm to its up position.

b.) Remove the arm base cover.



Figure 8-118 Removing Arm Base Cover

- c.) Using Allen key, remove the two securing screws of the arm side cover.
- d.) Slide the left-side arm side cover upwards and remove it.

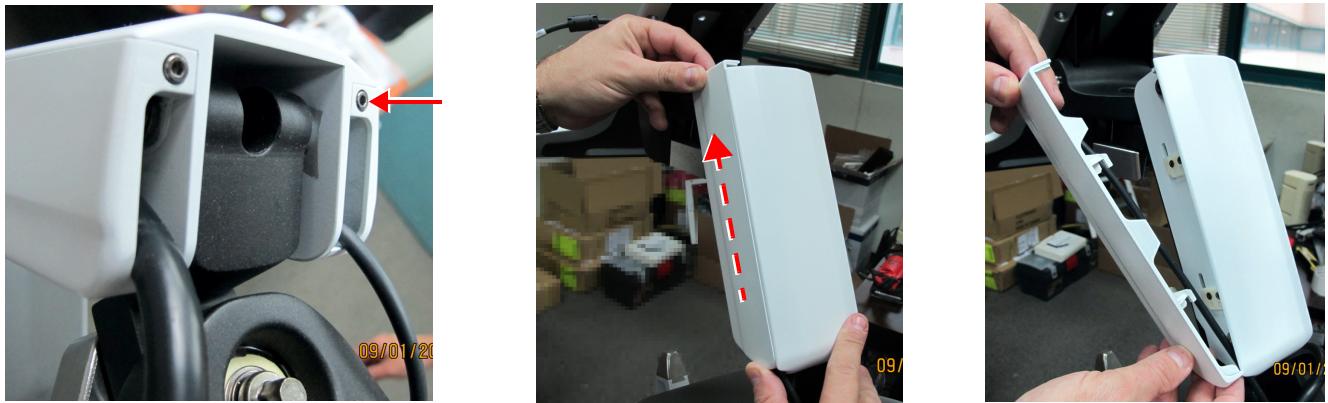


Figure 8-119 Removing Arm Side Covers

- 6.) Cut the tie wraps securing the BE to cockpit cable to the arm left side, and release the cable from the arm.

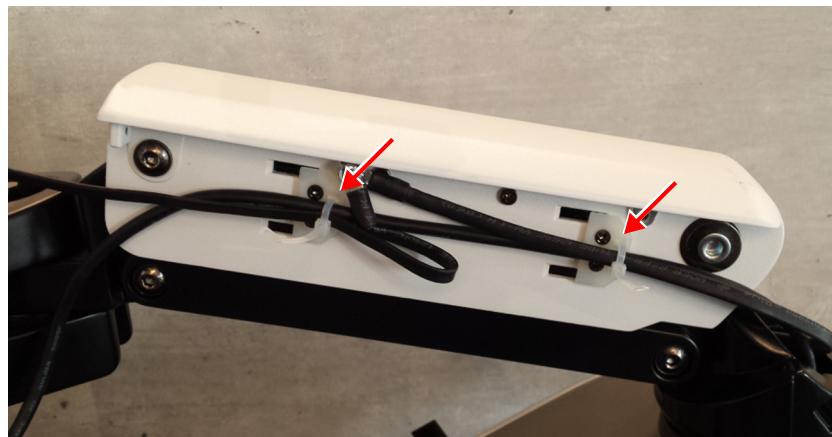


Figure 8-120 Arm Side Cable: Removing Tie Wraps

- 7.) Route the cable and its connector downwards through the arm hole.



Figure 8-121 Route Cable Through Arm Hole

- 8.) Release the plastic clips that hold the cable using a flat screwdriver:
- Three in the front end
 - One between the connectors and the MPB receptacle side.

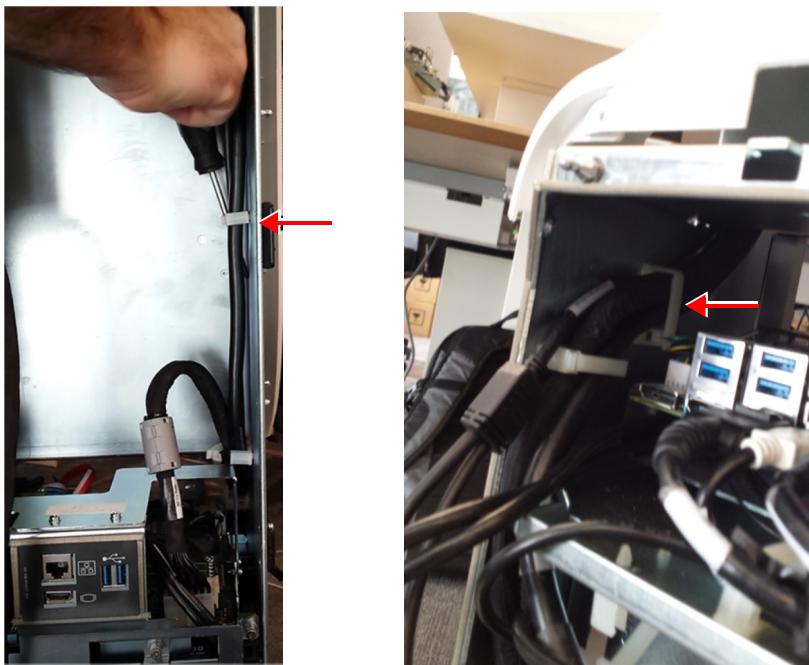


Figure 8-122 Plastic Clips Holding the Cable

- 9.) Disconnect the Cockpit to BEP split cable connected to BE module (green USB connector and black display port connector).

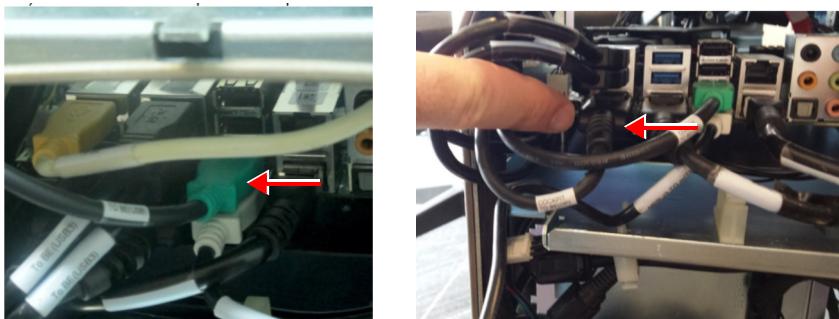


Figure 8-123 Disconnecting Cables Connected to BE Module

- 10.) Open cable cover door:
- a.) Open the captive screw of the cable cover door using a Phillips screwdriver.
 - b.) Slide the cable cover door towards you, to free the cable
 - c.) Slide the cable connectors upwards and gently route them- one after the other - through the

door, with the rubber grommet.

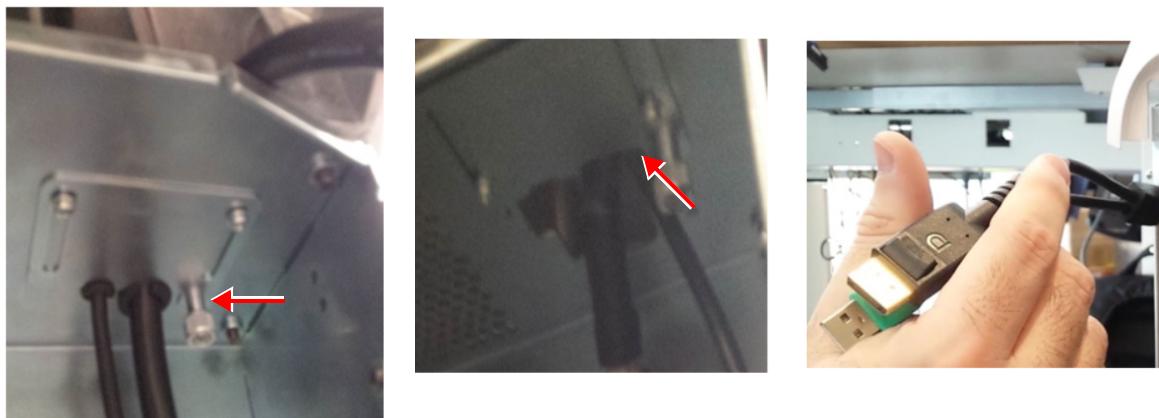


Figure 8-124 Releasing the BE to Cockpit Cable

The cable is released.

8-7-3-5 BE to Cockpit Cable Installation Procedure

- 1.) Route BE to Cockpit Cable through arm, so that the cable length that remains exposed to the cockpit direction is minimum 35cm.



Figure 8-125 Routing BE to Cockpit Cable - Measuring 35 cm

- 2.) Remove the lower and then the upper cockpit covers.

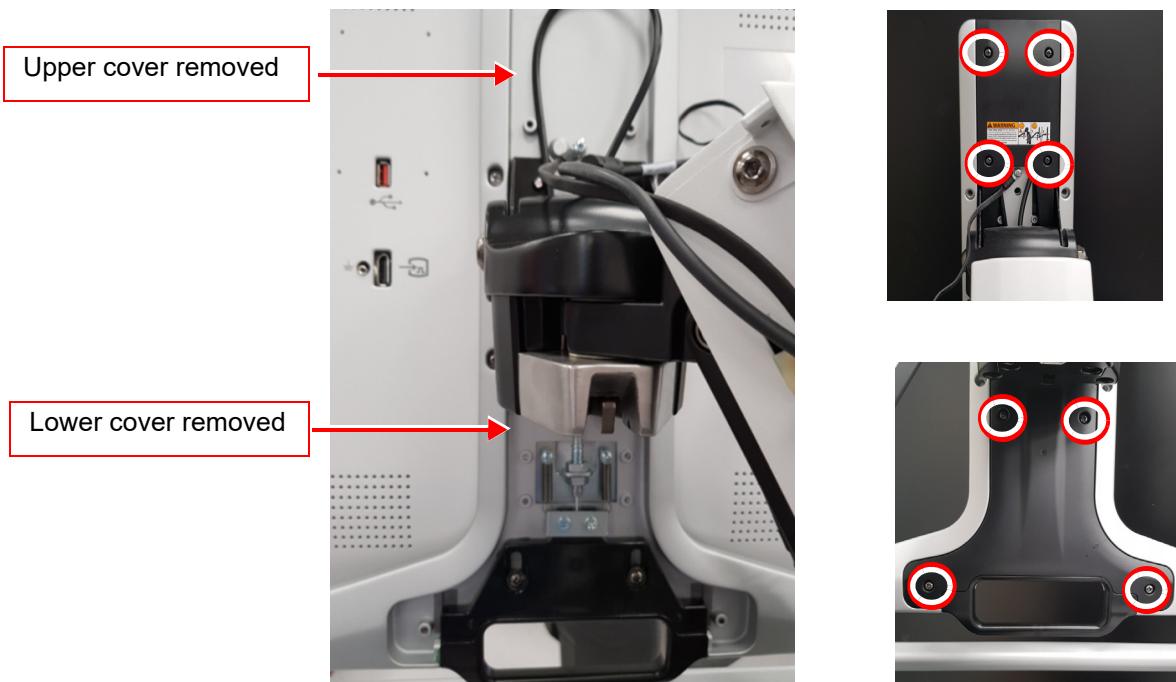


Figure 8-126 Removing Upper and Lower Cockpit Covers

- 3.) Route the BE to Cockpit cable trough cockpit tilt axis. For easier routing, make sure the cable is aligned to the left.



Figure 8-127 Routing BE to Cockpit Cable through Tilt Axis

- 4.) Connect the BE to Cockpit cable DP connector to the cockpit.

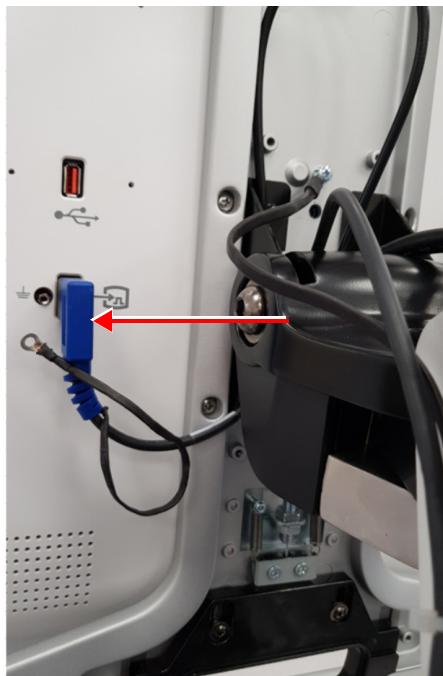


Figure 8-128 Connecting BE to Cockpit Cable to the Cockpit

- 5.) Reconnect the ground cable.
- 6.) Refit the cockpit upper and then the lower covers.

- 7.) Route the BE TO COCKPIT cable through the cable cover door and the arm hole.

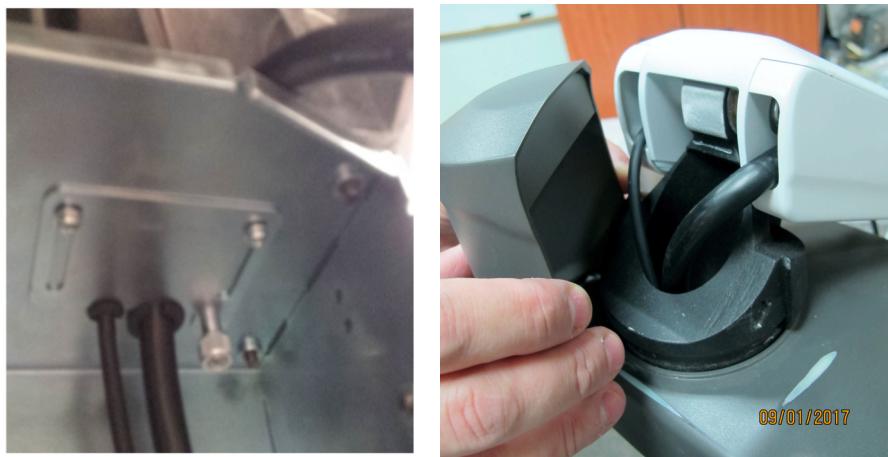


Figure 8-129 Route Cable Through Arm Hole

- 8.) Connect the BE TO COCKPIT CABLE to the monitor

- Connect the cable connector (use flat-head screwdriver)
- Connect Ground cable (use Phillips screwdriver).

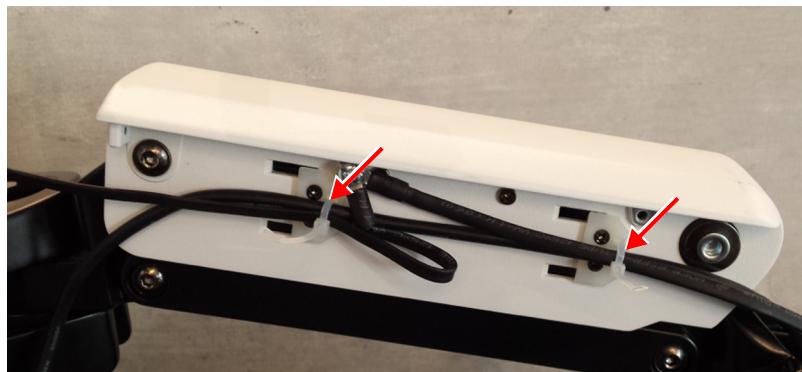


Figure 8-130 Securing Cable to Arm

- 9.) Gently slide the BE TO COCKPIT cable through the MPB receptacle side, towards the front.

- 10.) Reconnect the Cockpit to BEP split cable connected to BE module (green and black). Ensure the cables are connected to the correct locations (see cable diagram below).

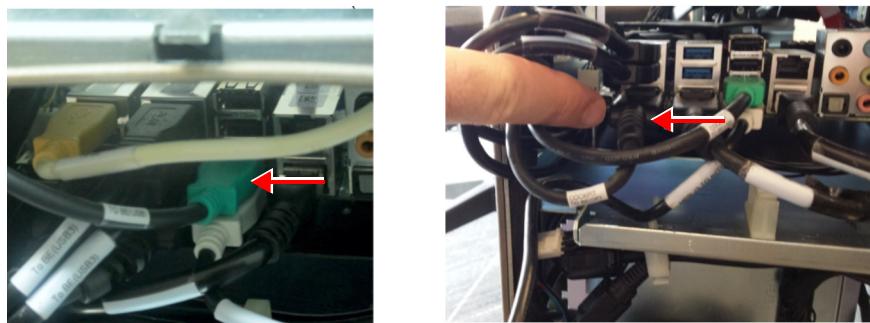


Figure 8-131 Reconnecting the BR Module Cables

- 11.) Secure the cable to the plastic clips.

- Three in the front end
- One between the connectors and the MPB receptacle side.

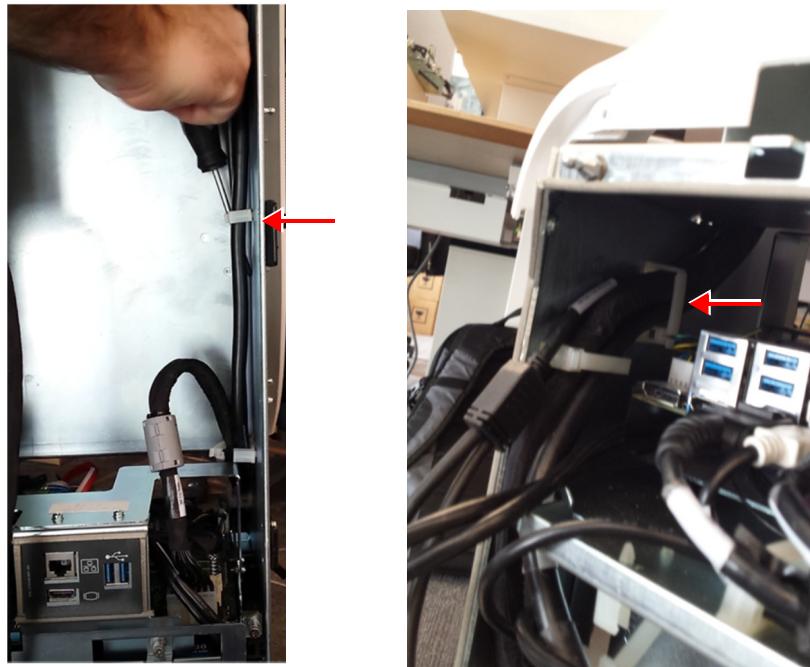


Figure 8-132 Plastic Clips Holding the Cable

12.) Close the cable cover door:

- Slide the cable cover door towards the system, and fix the rubber grommet in its position
- Close the captive screw of the cable cover door using a Phillips screwdriver.



Figure 8-133 Closing Cable Cover Door

13.) Install the arm side cover.

14.) Secure side cover with two securing screws.

15.) Install the arm base cover.

16.) Refit the following covers: Left Side eTower, Riser Thermal, Right Side eTower, Lower Front

eTower, and RS Probe cover.



- Riser Thermal Cover Installation Procedure
- Left Side eTower Cover Installation Procedure
- Right Side eTower Cover Installation Procedure
- Lower Front eTower Cover Installation Procedure
- RS Probe Cover Installation Procedure

17.)Install the rear cockpit cable cover if exists.

18.)Connect the Wi-Fi dongle if exists.



- Wi-Fi Adapter Installation Procedure (For Systems with No Existing Wi-Fi Adapter)

19.)Install all accessories.



- Accessories - Replacement Procedures

20.)Turn ON power to the system.



Perform the checks listed in [Articulated Arm Replacement Procedure](#) on page 8-218

8-7-4 PSU to MPB DC Docking Cable Replacement Procedure

8-7-4-1 Tools

- Appropriate Phillips screwdriver
- Flat screwdriver.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-4-2 Time Required

15 min

8-7-4-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-4-4 PSU to MPB DC Docking Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the MPB module.



- [MPB Module Removal Procedure](#)

- 3.) Remove the fan.



- [MPB Blower \(Fan\) Removal Procedure](#)

- 4.) Disconnect J8 to lower PSU connectors (see connectors' diagram below):

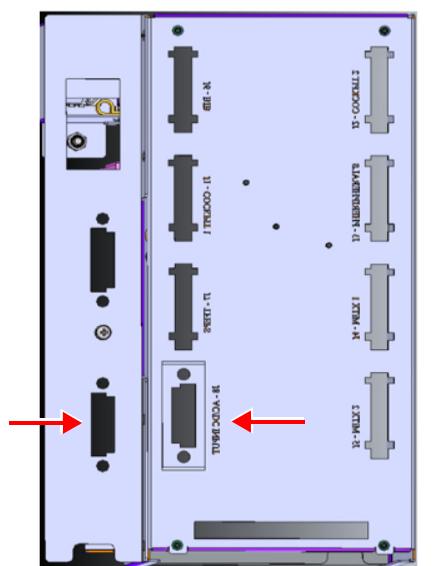


Figure 8-134 Connectors Diagram

- a.) On each side of each connector, use a flat screwdriver to push one of the plastic flaps towards the hole, and then push the other flap through the hole to release the connector.

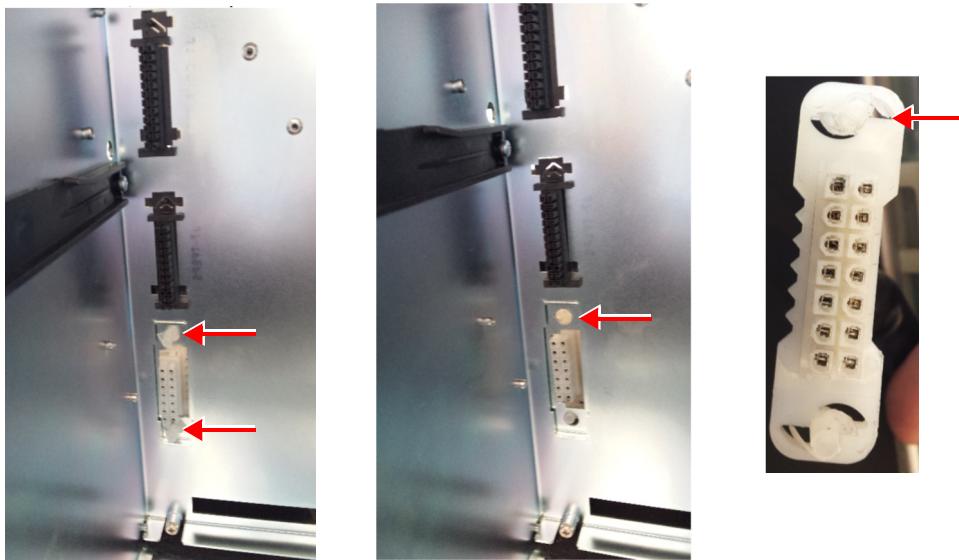


Figure 8-135 Releasing the Connector

- b.) From the front side, release both cable edges, by pulling the rubber towards you.

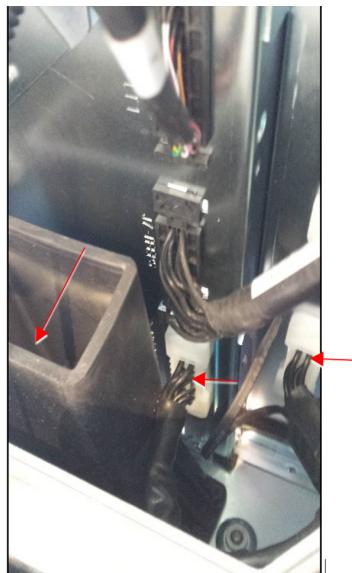


Figure 8-136 Releasing the Cable Edges

- c.) Release the ground cable using an appropriate Phillips screwdriver.



Figure 8-137 Releasing the Ground Cable

- 5.) The cable is released.

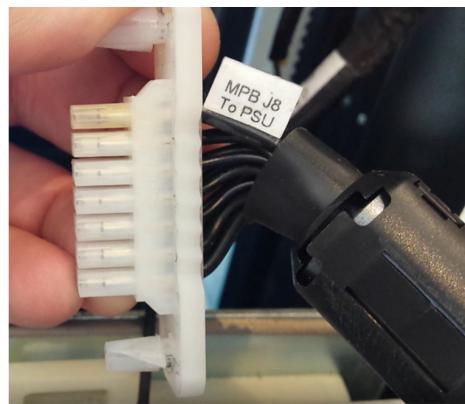


Figure 8-138 Released Cable

8-7-4-5 PSU to MPB DC Docking Cable Installation Procedure

- 1.) Connect the J8 and lower PSU connectors:
 - From the front end, position the cable connectors in the J8 and lower PSU connectors, ensuring the orientation is appropriate, by checking the plastic marks are pointing to the correct direction.
 - Push the connectors' plastic hinges through the designated holes, until both hinges are fully inside.
 - Connect the ground cable using an appropriate Phillips screwdriver.
- 2.) Perform Fan installation procedure.
 - • [MPB Fan Installation Procedure](#)
- 3.) perform MPB installation procedure.
 - • [MPB Module Installation Procedure](#)
- 4.) Turn ON power to the system



Perform the checks listed in [ON/OFF Switch Cable Replacement Procedure](#) on page 8-218

8-7-5 MPB to BE PWR Cable Replacement Procedure

8-7-5-1 Tools

Appropriate Phillips screwdriver

Flat screwdriver.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-5-2 Time Required

15 min

8-7-5-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-5-4 MPB to BE PWR Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe cover, Lower Front eTower, Side Covers, MPB Power Door



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Door Cover Removal Procedure](#)

- 3.) Remove the MPB Module.



- [MPB Module Removal Procedure](#)

- 4.) Disconnect the two lower cable connectors J4, J5 by sliding them upwards (see J-connectors map that follows).



Figure 8-139 Disconnecting Two Lower Connectors

- 5.) Release the cable from the two plastic cable clips.



Figure 8-140 Releasing Cable from Plastic Cable Clips

The cable is released.

8-7-5-5 MPB TO BE PWR Cable Installation Procedure

- 1.) Connect the cable using the two plastic cable clips
- 2.) Connect the two lower cable connectors by sliding them downwards
- 3.) Install the MPB module.



- [MPB Module Installation Procedure](#)

4.) Install the MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

5.) Refit the following covers: MPB Door Cover, Left and Right Side eTower Covers, Lower Front eTower Cover, and RS Probe cover



- [MPB Door Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

7.) Turn ON power to the system.



Perform the checks listed in [MPB to BIB Control Cable Replacement Procedure](#) on page 8-218

8-7-6 ON/OFF Switch Cable Replacement Procedure

8-7-6-1 Tools

Flat screwdriver.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-6-2 Time Required

10 min

8-7-6-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-6-4 ON/OFF Switch Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Remove the battery packs to gain access to the MPB module.



- [Battery Module Removal Procedure](#)

- 4.) Unscrew the two mounting screws and remove the MPB module.

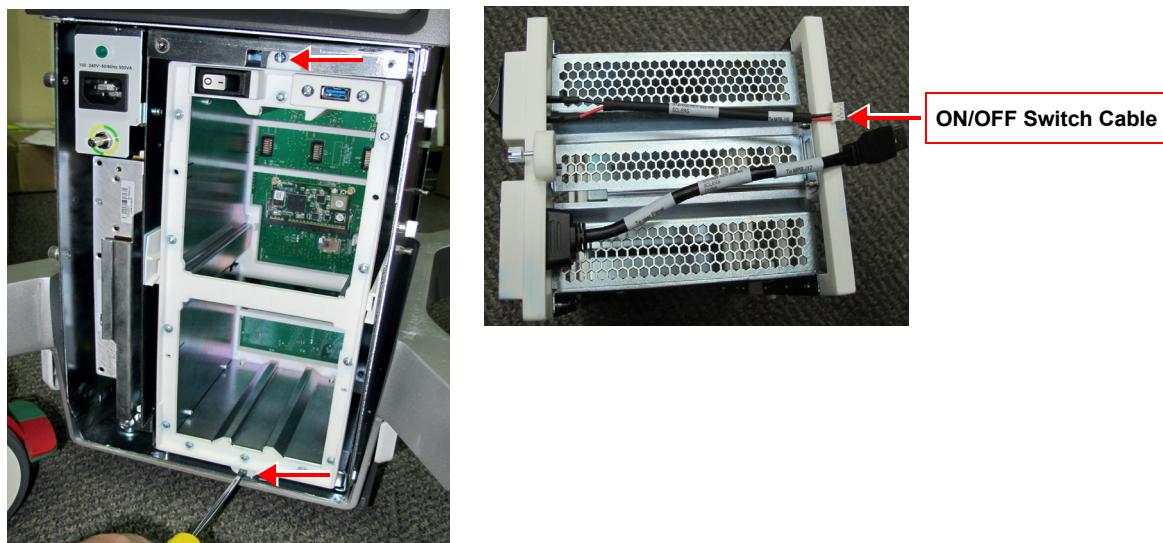


Figure 8-141 Accessing ON/OFF Switch Cable

- 5.) Place the MPB module on a flat surface and disconnect the following cable connectors:
- Disconnect the ON/OFF Switch cable connector from the MPB J10 connector.

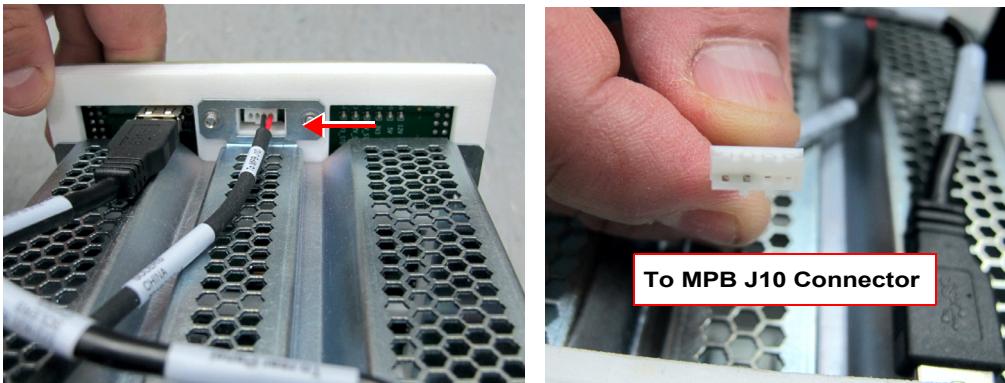


Figure 8-142 ON/OFF Switch Cable - To MPB J10 Connector

- Disconnect the ON/OFF Switch cable connector with the ON/OFF switch from the MPB module by pressing the securing clips on both sides of the connector.

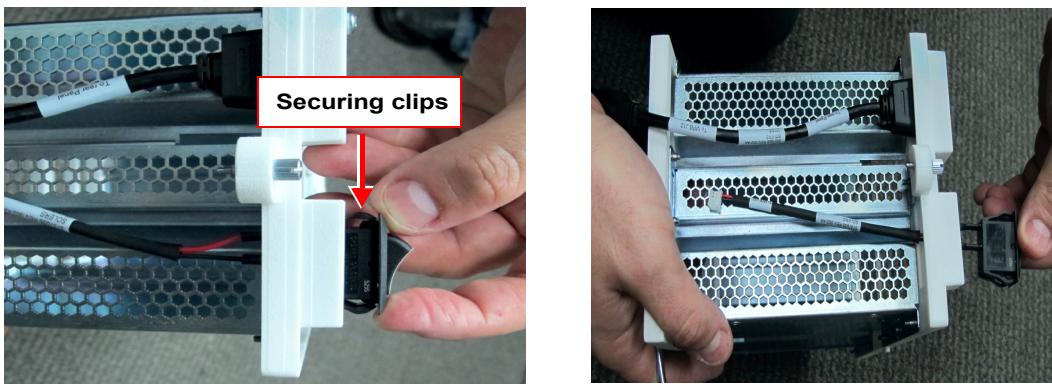


Figure 8-143 ON/OFF Switch Cable with ON/OFF Switch - Connection to MPB Module

- 6.) Remove the ON/OFF Switch Cable.

8-7-6-5 ON/OFF Switch Cable Installation Procedure

- 1.) Connect the ON/OFF Switch cable connector to the MPB J10 connector.
- 2.) Connect the other ON/OFF Switch cable connector to the MPB module by pressing the securing clips on both sides of the connector.
- 3.) Install the MPB module and tighten the two mounting screws.
- 4.) Install the battery pack units.



- [Battery Module Installation Procedure](#)

5.) Refit the following covers: Lower Front eTower, left side eTower, Right side eTower and RS Probe cover.



- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

7.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [ON/OFF Switch Cable Replacement Procedure](#) on page 8-218

8-7-7 PCIe Cable Replacement Procedure

8-7-7-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to [Table 9-14](#) on page 9-14.

8-7-7-2 Time Required

10 min

8-7-7-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-7-4 PCIe Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower.



- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Remove the BE module.



- [BE Module Removal Procedure](#)

- 4.) Disconnect one side of the PCIe cable from the BIB board and the other side from the BE module.

- 5.) Remove the PCIe cable.

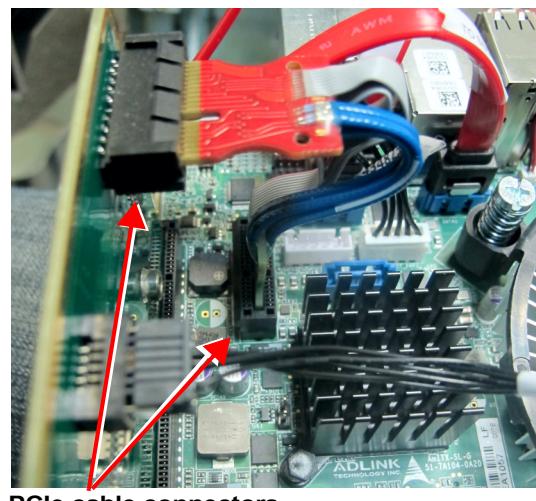
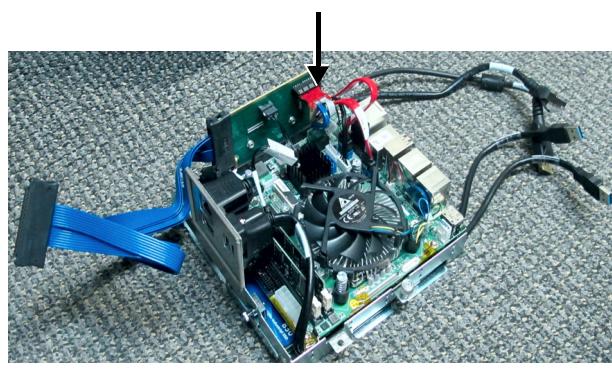


Figure 8-144 Disconnecting PCIe Cable

8-7-7-5 PCIe Cable Installation Procedure

- 1.) Connect the new PCIe cable to the BIB board and to the BE module.
- 2.) Install the BE module.



- [BE Module Installation Procedure](#)



- 3.) Refit the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,
 - [Right Side eTower Cover Installation Procedure](#)
 - [Left Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)



- 4.) Install all accessories.
 - [Accessories - Replacement Procedures](#)



- 5.) Turn ON power to the system.

Functionality
Checks



Perform the checks listed in [PCIe Cable Replacement Procedure](#) on page 8-218

8-7-8 MPB to BIB Control Cable Replacement Procedure

8-7-8-1 Tools

Appropriate Phillips screwdriver.

FRU Part # Refer to *Table 9-14* on page 9-14.

8-7-8-2 Time Required

10 min

8-7-8-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-8-4 MPB to BIB Control Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower.



- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3) Remove MPB Front Metal Door.



- [MPB Front Metal Door Removal Procedure](#)

- 4.) Remove the MPB module.



- [MPB Module Removal Procedure](#)

- 5.) Disconnect the cable from the BIB board.



Figure 8-145 Disconnecting MPB to BIB Cable

- 6.) Disconnect MPB to BIB Control Cable from the fan cable connector.

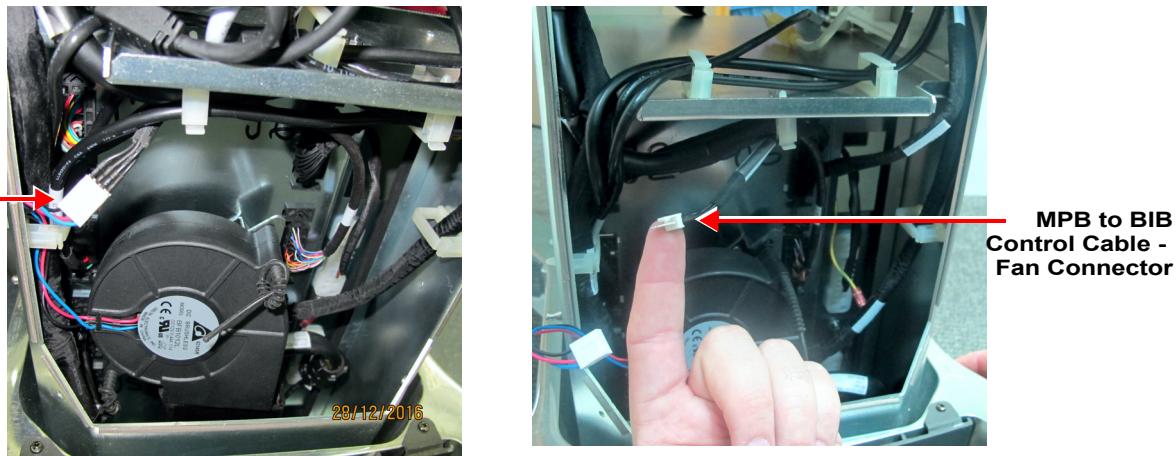


Figure 8-146 Disconnecting Fan Cable Connector

- 7.) Release plastic clips that hold the cable.

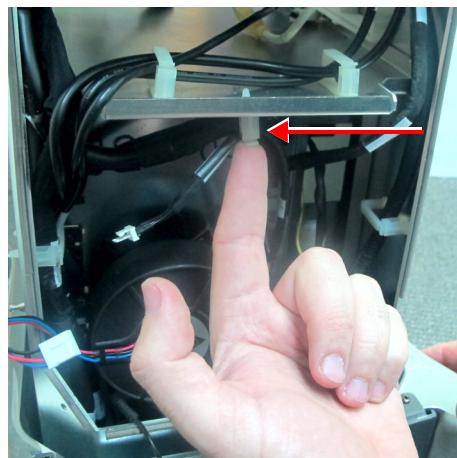


Figure 8-147 Releasing MPB to BIB Control Cable from Plastic Clips

- 8.) Slide up and disconnect the other side of the MPB to BIB Control Cable from the J6 connector.

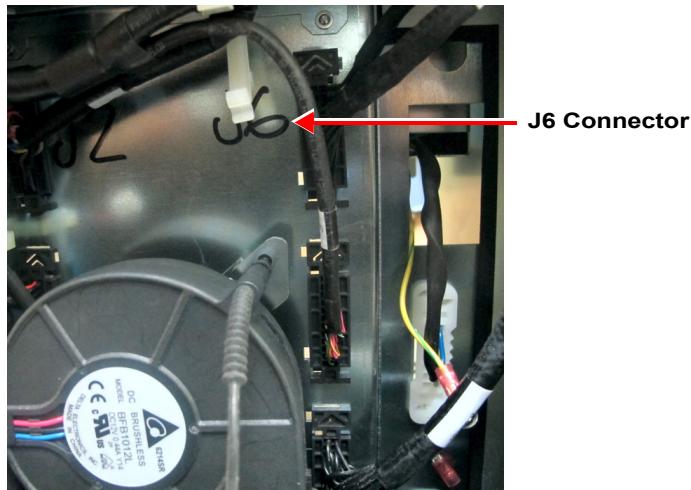


Figure 8-148 Disconnecting MPB to BIB Control Cable from J6 Connector

- 9.) Remove the MPB to BIB Control cable.

8-7-8-5 MPB to BIB Control Cable Installation Procedure

- 1.) Connect one side of the MPB to BIB Control Cable to the J6 connector. Make sure the arrow on the cable connector is facing up.
- 2.) Connect the other side of the MPB to BIB Control Cable to the blower cable connector.
- 3.) Secure the cable with plastic clips.
- 4.) Install the MPB module.



- [MPB Module Installation Procedure](#)

- 5.) Install the MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

- 6.) Install the following covers: Lower Front eTower, Left side eTower, Right Side eTower and RS Probe cover.



- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)

- 7.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 8.) Turn ON power to the system.



Perform the checks listed in [MPB to BIB Control Cable Replacement Procedure](#) on page 8-218

8-7-9 Printer USB Cable Replacement Procedure

8-7-9-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-19](#) on page 9-18.

8-7-9-2 Time Required

5 min

8-7-9-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-9-4 Printer USB Cable Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [RS Probe Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

- 3.) Remove the MPB Front Metal Door



- [MPB Front Metal Door Removal Procedure](#)

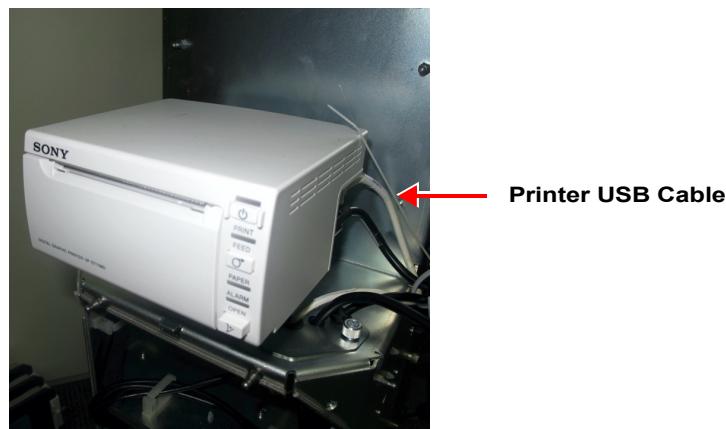


Figure 8-149 Printer Insert Cover Removed

- 4.) Loosen the Phillips screw and remove the Peripheral Cable Cover.



Figure 8-150 Disconnecting the Printer Cable

- 5.) Disconnect the printer cable (yellow USB connector) from the Back End assembly.

8-7-9-5

Printer USB Cable Installation Procedure

- 1.) Connect the new printer cable to the Back End assembly.
- 2.) Route the printer cable through the dedicated cable opening in the eTower.
- 3.) Attach the Peripheral Cable Cover and secure with Phillips captive screw.

NOTE: Make sure the Peripheral Cable Cover is properly aligned and affixed.

- 4.) Install MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)
- 5.) Refit the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [Upper eTower Front Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

- 6.) Install all accessories.



- [Accessories - Replacement Procedures](#)

- 7.) Turn ON power to the system.



Functionality Checks
Perform the checks listed in [Printer USB Cable Replacement Procedure](#) on page 8-218

8-7-10 BEP Cables Replacement Procedure

8-7-10-1 Tools

- Appropriate Phillips screwdriver
- Flat-head screwdriver
- Socket Wrench

8-7-10-2 Time Required

15 min

8-7-10-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-10-4 BEP Cables Removal Procedure

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: Lower Front eTower, Left side eTower, and Right Side eTower,



- [RS Probe Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)

- 3.) Perform BE module removal procedure.



- [BE Module Removal Procedure](#)

- 4.) Remove omega bracket: release 5 screws connecting the omega bracket:

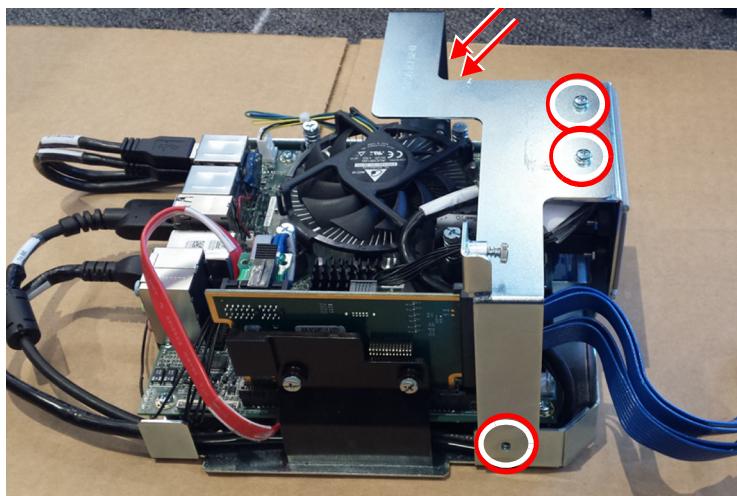


Figure 8-151 BE Omega Bracket Removal

- 5.) Remove the supporting bracket using an appropriate Phillips screwdriver:
- Release two captive screws
 - Release two screws at the bottom of the bracket

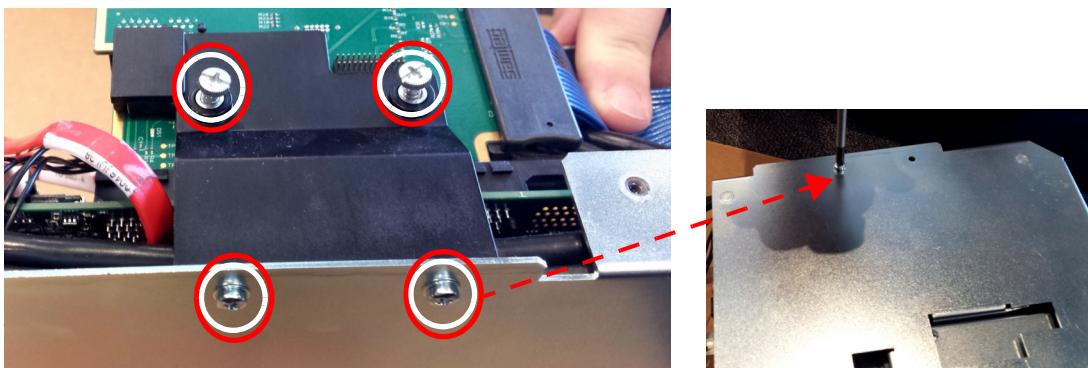


Figure 8-152 Removing BE Supporting Bracket

- 6.) Release the following cable connectors:
- SATA DATA BE TO SSD A (red cable): press the latch and pull the cable connector out
 - SSD PWR cable: Gently pull the connector towards you

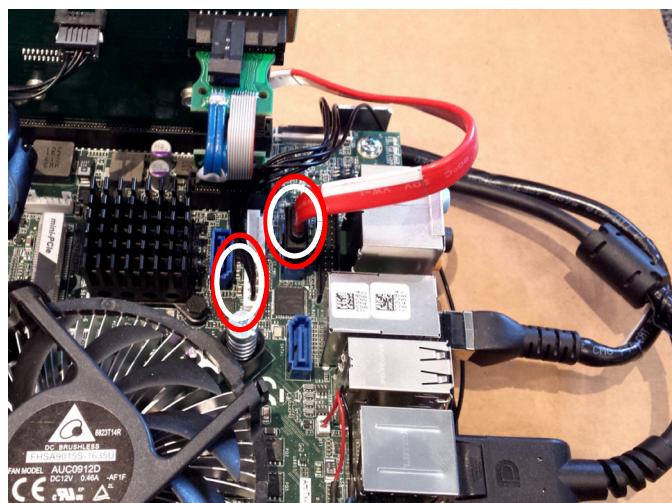


Figure 8-153 Disconnect SATA DATA and SSD PWR Cables

- 7.) Disconnect the following cables at the back of the BE:
- Two USB connectors
 - Network cable

- Display port

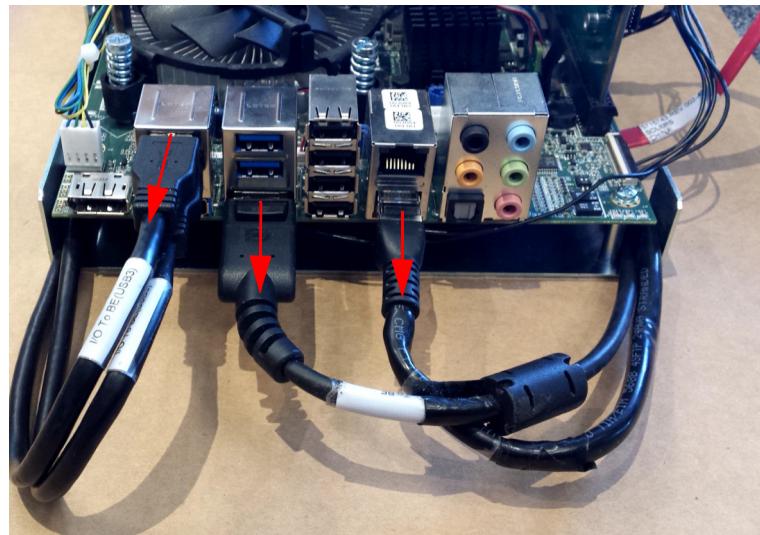


Figure 8-154 Disconnect BE Cables from BE Back

8.) Remove the PCB:

- Release four screws in the PCB corners using Phillips screwdriver

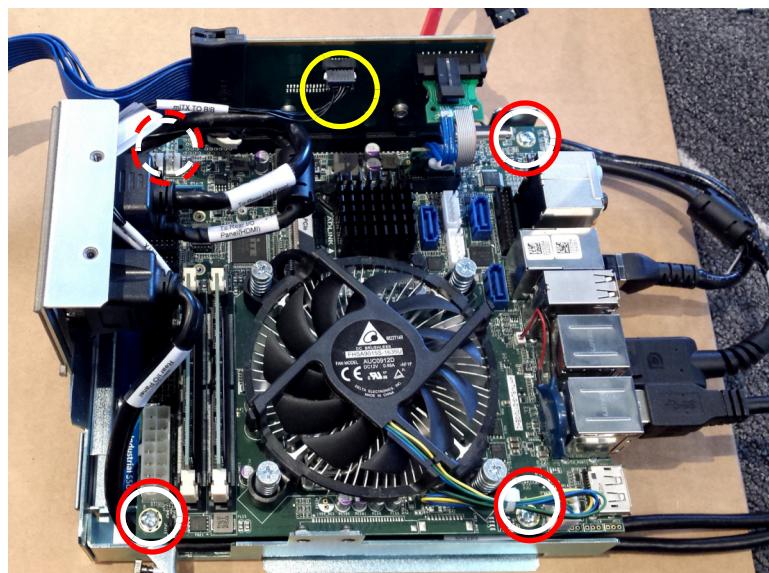


Figure 8-155 Remove PCB

Note: If the MiTx to BIB cable is preventing easy removal of the PCB, disconnect the MiTx to BIB cable connector latch (see yellow circle in the above figure).

- Gently take out the PCB.

9.) The cables are now exposed and easy to access. Disconnect the relevant cable that is being replaced:

- USB split cable (use socket wrench 5.5mm)
- HDMI cable (use socket wrench 5.5mm)
- Network cable (use socket wrench 5.5mm)

- SATA PWR cable
- SATA DATA (BE to SSD) cable

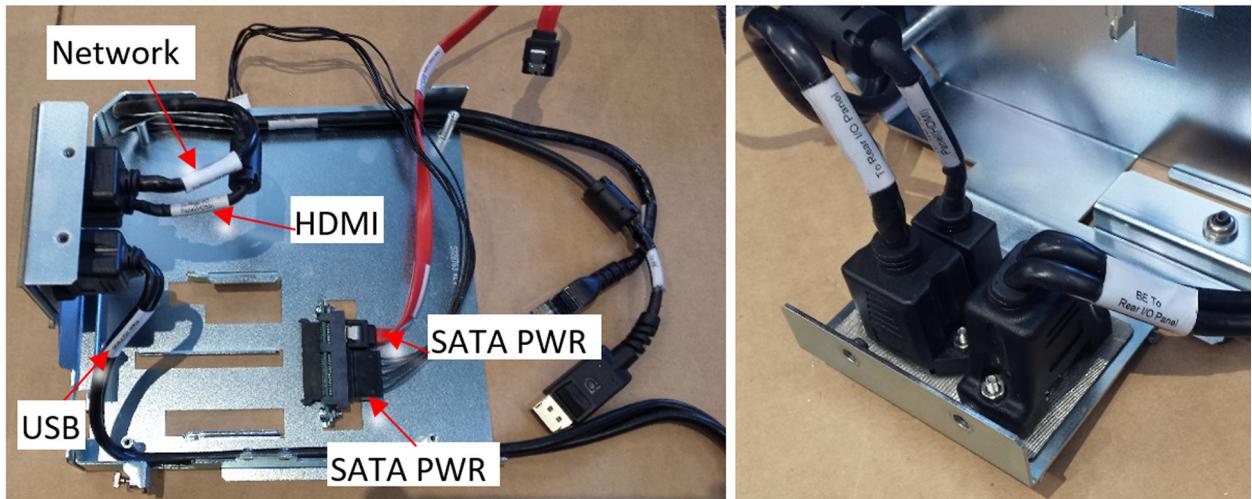


Figure 8-156 Remove PCB

- MiTx to BiB cable: release one connector on the BiB and pull upwards two connectors on the BEP PCB

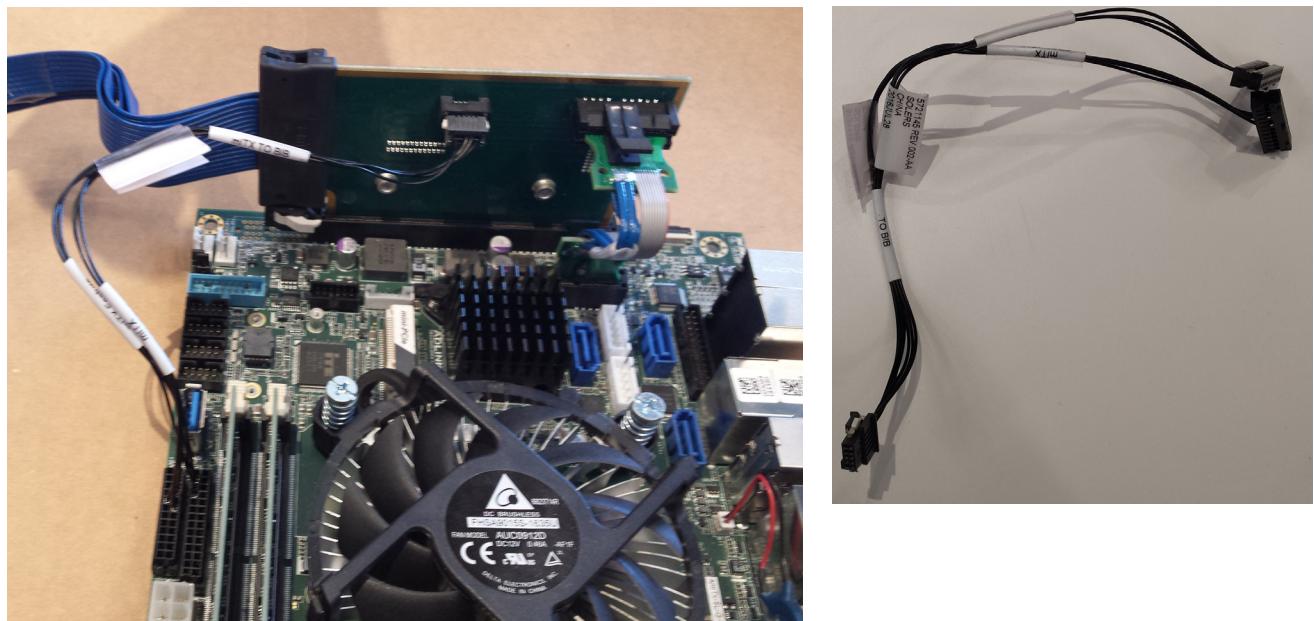


Figure 8-157 MiTx to BiB Cable Removal

8-7-10-5 BEP Cables Installation Procedure

- 1.) Reconnect the cable(s) that was/were removed:
 - USB split cable
 - HDMI cable
 - Network cable
 - SATA PWR cable

2.) Route the cables on the BEP bottom bracket as shown below

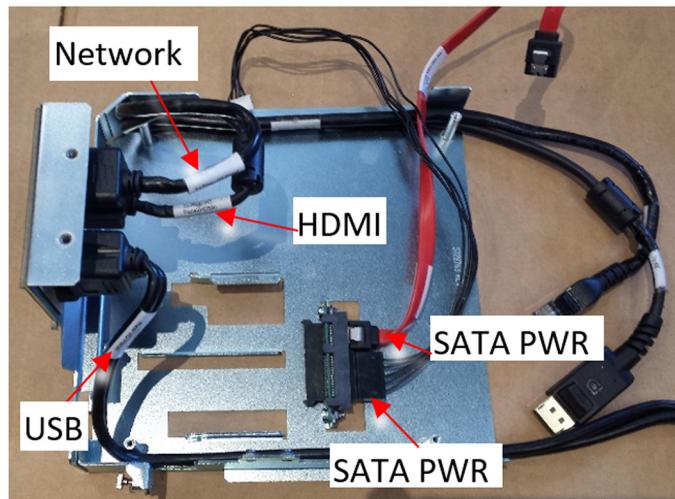


Figure 8-158 Route cables on BEP Bottom Bracket

3.) Reconnect the PCB using four screws in the PCB corners using Phillips screwdriver

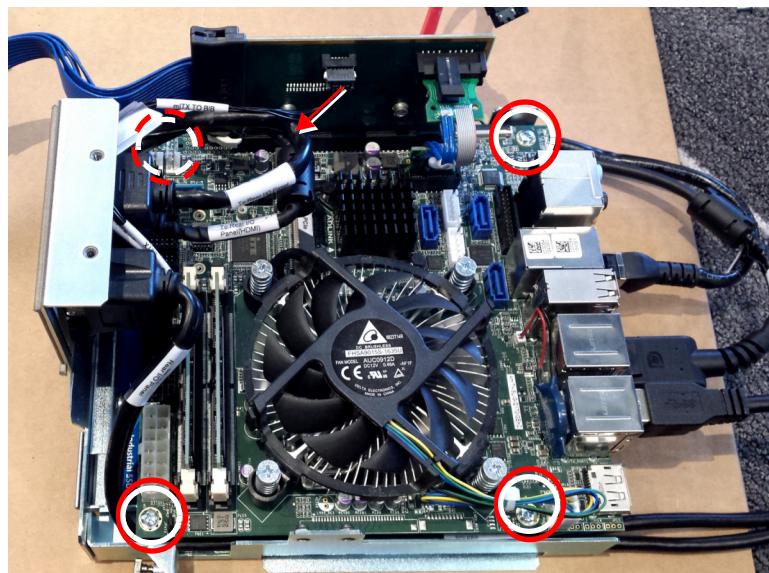


Figure 8-159 Reconnect PCB

4.) Reconnect the following cables at the back of the BE:

- Two USB connectors
- Network cable

- Display port

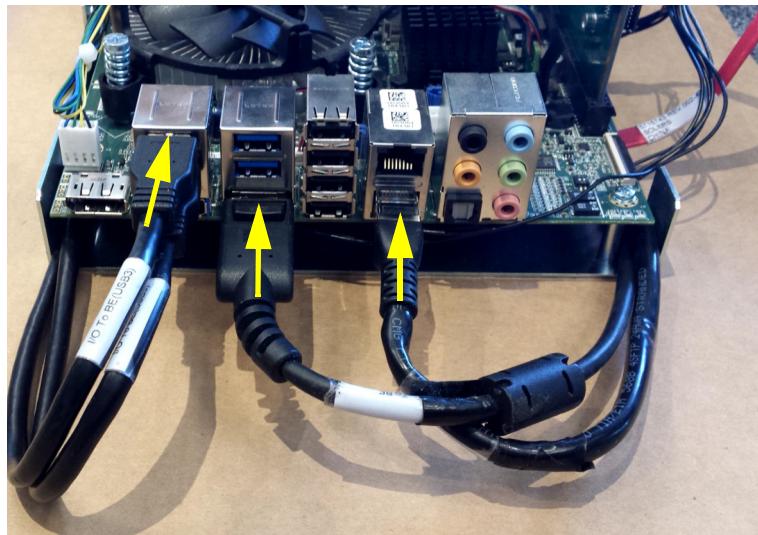


Figure 8-160 Reconnect BE Cables from BE Back

- 5.) Reconnect the following cable connectors:
 - SATA DATA BE TO SSD A (red cable)
 - SSD PWR cable

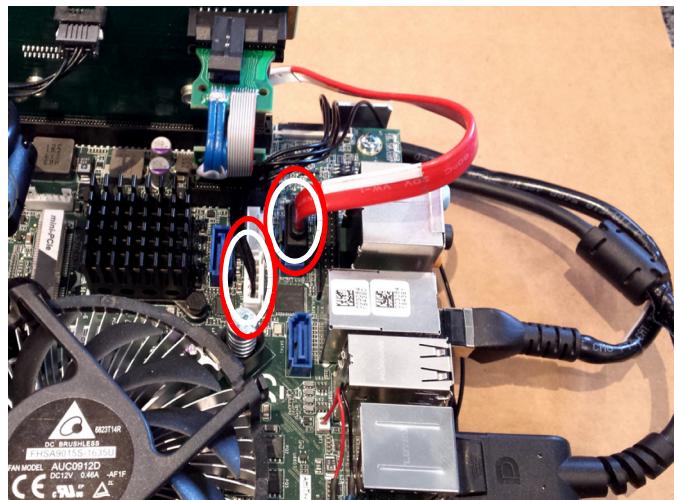


Figure 8-161 Reconnect SATA DATA and SSD PWR Cables

- 6.) Reconnect the supporting bracket using an appropriate Phillips screwdriver:
 - Two captive screws

- Two screws at the bottom of the bracket

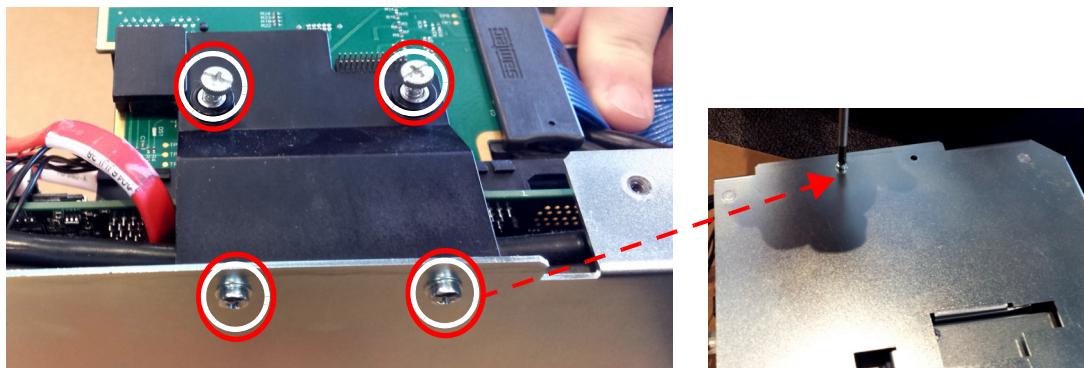


Figure 8-162 Reconnecting BE Supporting Bracket

- 7.) Reconnect omega bracket: attach 5 screws connecting the omega bracket

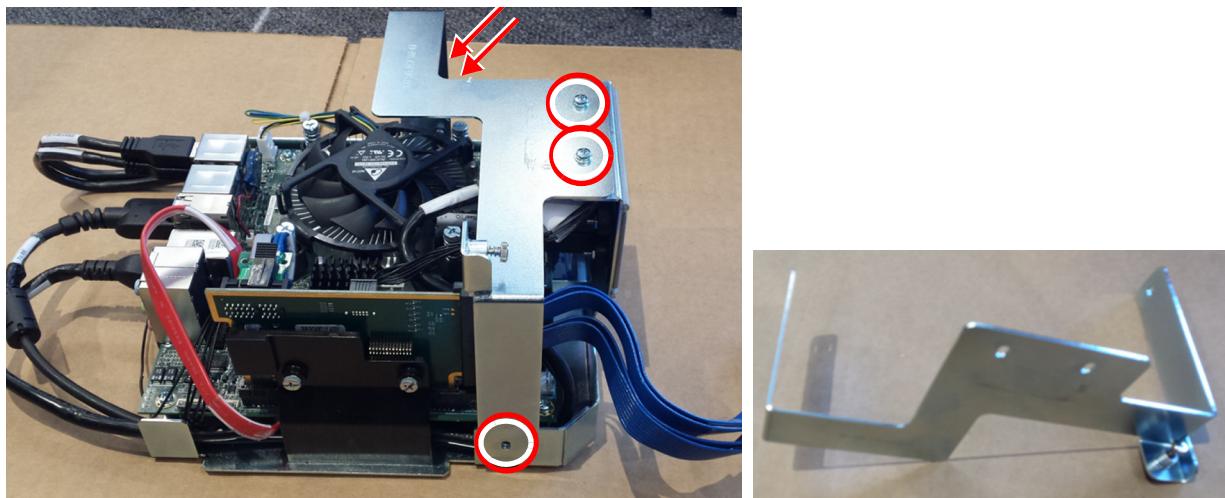


Figure 8-163 BE Omega Bracket Repositioning

- 8.) Install the MPB module.



- [MPB Module Installation Procedure](#)

- 9.) Install MPB Front Metal Door.



- [MPB Front Metal Door Installation Procedure](#)

- 10.) Refit the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [Upper eTower Front Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

11.) Install all accessories.



- [Accessories - Replacement Procedures](#)

12.) Turn ON power to the system.



Functionality Checks
Perform the checks listed in [*Back End \(BE\) Module Replacement Procedure*](#) on page 8-217

8-7-11 MPB TO T-FEPS - FRU Cable Replacement Procedure

8-7-11-1 Tools

- Appropriate Phillips screwdriver
- Flat-head screwdriver

8-7-11-2 Time Required

15 min

8-7-11-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-11-4 MPB TO T-FEPS Cable Removal Procedure

- 1.) Perform MPB removal procedure.



- [MPB Module Removal Procedure](#)

- 2.) Disconnect the following cables connected to BE module:
 - MPB to BIB
 - MPB to BEP (white)
 - Cockpit to BEP split cable (green and black)
 - Printer cable (yellow)



Figure 8-164 Disconnecting Cables Connected to BE Module

- 3.) Disconnect the MPB TO T-FEPS cable edge

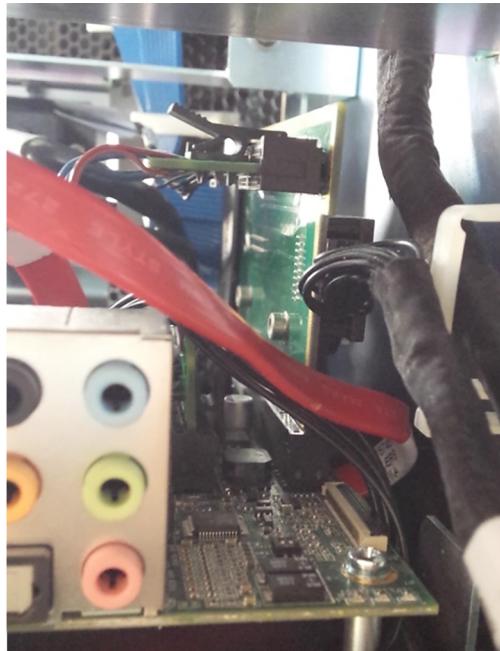


Figure 8-165 Disconnecting MPB to T-FEPS Cable Edge

- 4.) Disconnect the two lower cable connectors by sliding them upwards
- 5.) The cable is released.

8-7-11-5 MPB TO T-FEPS Cable Installation Procedure

- 1.) Connect the two lower cable connectors by sliding them downwards
- 2.) Connect the MPB TO T-FEPS cable edge
- 3.) Connect the following cables to BE module:
 - MPB to BIB
 - MPB to BEP (white)
 - Cockpit to BEP split cable (green and black)
 - Printer cable (yellow)
- 4.) Install the MPB module.
 - [MPB Module Installation Procedure](#)
- 5.) Install the MPB Front Metal Door.
 - [MPB Front Metal Door Installation Procedure](#)
- 6.) Install the following covers: Lower Front eTower, Left side eTower, Right Side eTower and RS Probe cover.
 - [Left Side eTower Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)

7.) Install all accessories.



- [Accessories - Replacement Procedures](#)

8.) Turn ON power to the system



Functionality Checks
Perform the checks listed in [*Front End Power Supply \(T-FEPS\) Replacement Procedure*](#) on page 8-217

8-7-12 MPB To Peripherals Harness - FRU Cable Replacement Procedure

8-7-12-1 Tools

- Appropriate Phillips screwdriver
- Flat-head screwdriver

8-7-12-2 Time Required

15 min

8-7-12-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-7-12-4 MPB To Peripherals Harness - FRU Cable Removal Procedure

- 1.) Perform MPB removal procedure.



- [MPB Module Removal Procedure](#)
- 2.) Release the cable from the plastic cable clips using a screwdriver

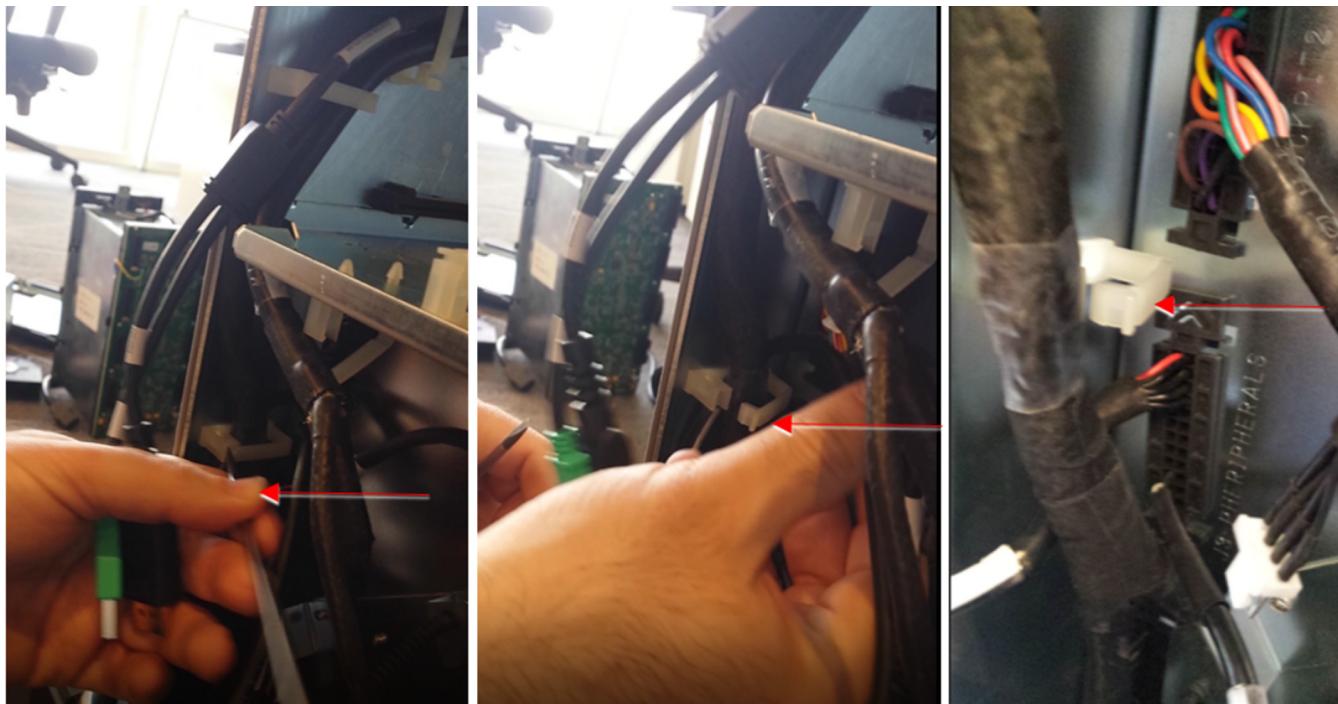


Figure 8-166 Disconnecting Cable Clips

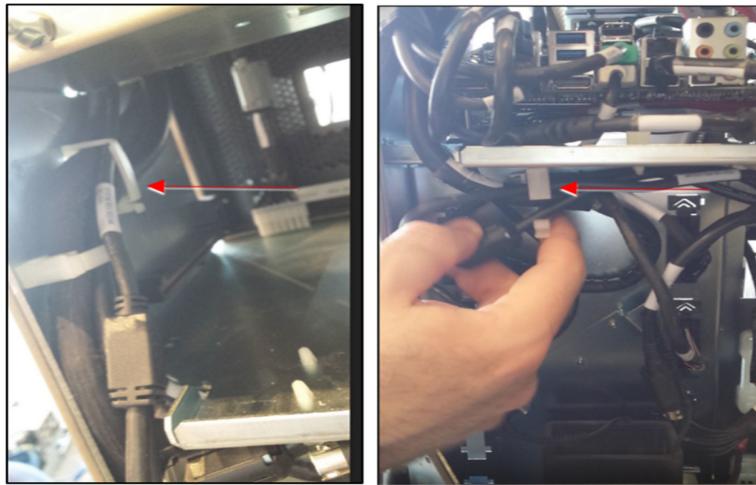


Figure 8-167 Disconnecting Cable Clips

3.) Release the cable from the upper plastic cable clips



Figure 8-168 Release Cable from Upper Plastic Cable Clips

4.) If a printer is used:

- Release the printer plastic cable clips routed upwards.
- Loosen the Phillips screw and remove the Peripheral Cable Cover.

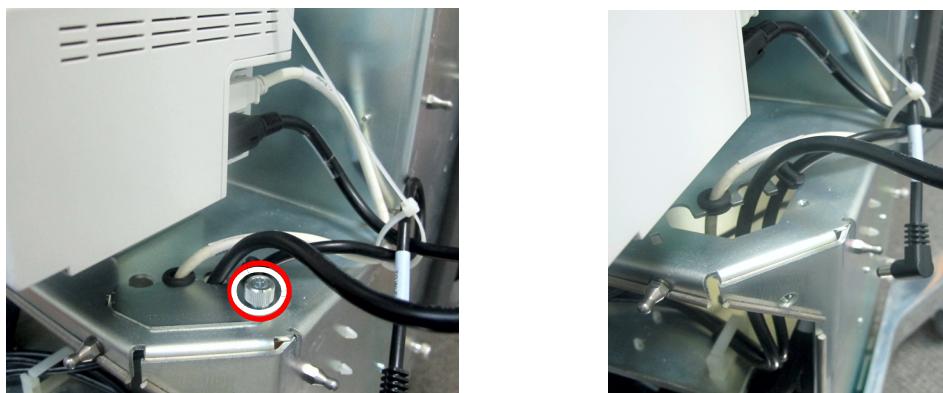


Figure 8-169 Disconnecting the Printer Cable

- Disconnect the printer cable (yellow USB connector) from the Back End assembly.

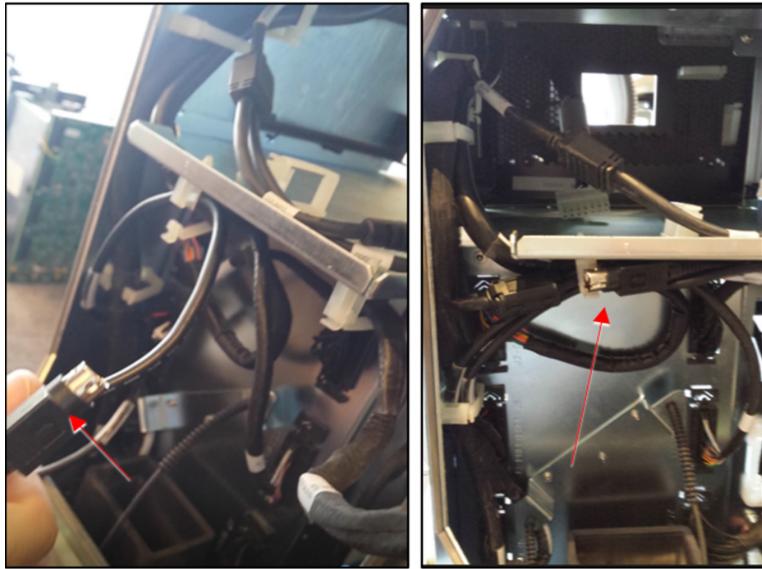


Figure 8-170 Release Cable according to Configuration

- 5.) Disconnect the MPB to BEP (white) cable connected to BE module.



Figure 8-171 Disconnecting Cables Connected to BE Module

- 6.) Release the J3 peripherals connector



Figure 8-172 Release Cable from J3 Connector

- 7.) The cable is released.

8-7-12-5 MPB To Peripherals Harness - FRU Cable Installation Procedure

- 1.) Connect the cable to J3 connector
- 2.) Route the cable according to the configuration (if printer is used - route the cable upwards)
- 3.) Connect the cable to the plastic cable clips
- 4.) Install the MPB module.
 - [MPB Module Installation Procedure](#)
- 5.) Install the MPB Front Metal Door.
 - [MPB Front Metal Door Installation Procedure](#)
- 6.) Install the following covers: Lower Front eTower, Left side eTower, Right Side eTower and RS Probe cover.
 - [Left Side eTower Cover Installation Procedure](#)
 - [Right Side eTower Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)
- 7.) Install all accessories.
 - [Accessories - Replacement Procedures](#)
- 8.) Turn ON power to the system.



Functionality Checks
Perform the checks listed in [MPB to BIB Control Cable Replacement Procedure](#) on page 8-218

Section 8-8 Peripherals Replacement/Installation Procedures

8-8-1 Printer Replacement/Installation Procedure

8-8-1-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-19](#) on page 9-18.

8-8-1-2 Time Required

10 min

8-8-1-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-8-1-4 Printer Removal Procedure

NOTE: *Perform these steps only for Venue™ systems with printer already installed on them. For systems with no previously installed printer, skip this section and proceed to section [Printer Installation Procedure \(For Systems with No Existing Printer\)](#)*

- 1.) Remove all accessories.



- [Accessories - Replacement Procedures](#)

- 2.) Remove the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [RS Probe Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [Lower Front eTower Cover Removal Procedure](#)
- [Left Side eTower Cover Removal Procedure](#)
- [Right Side eTower Cover Removal Procedure](#)

8-8-1-5 Printer Installation Procedure (For Systems with No Existing Printer)

1.) Remove the Printer Insert Cover from the Upper eTower Cover.



- [Printer Insert Cover Removal Procedure](#)

2.) Install the Printer Frame Cover and secure with two Phillips screws.

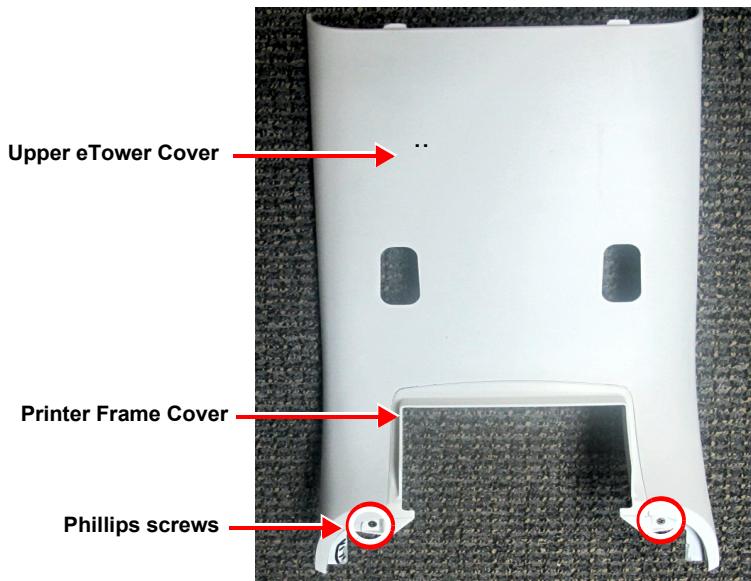


Figure 8-173 Installing Printer Frame Cover

3.) Remove the metal bracket. Use Phillips screwdriver.

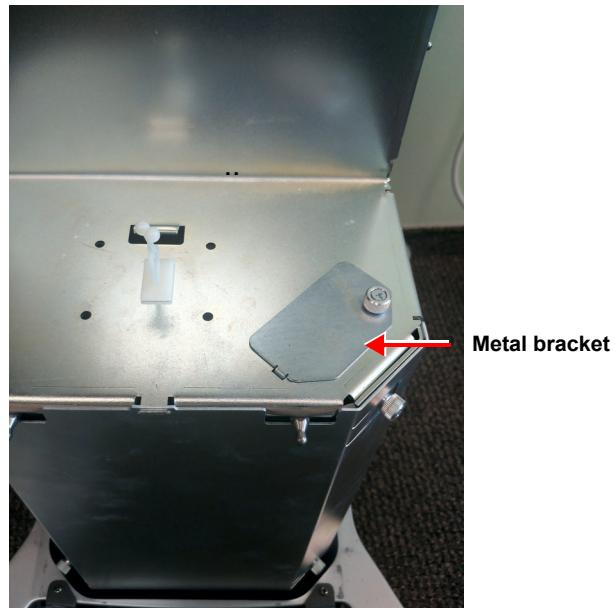


Figure 8-174 Removing Metal Bracket

4.) Remove the MPB Front Metal Door.



- MPB Front Metal Door Removal Procedure

5.) Unclip the white plastic cable holder and release the two printer cables: Printer Power Cable and Printer USB Cable

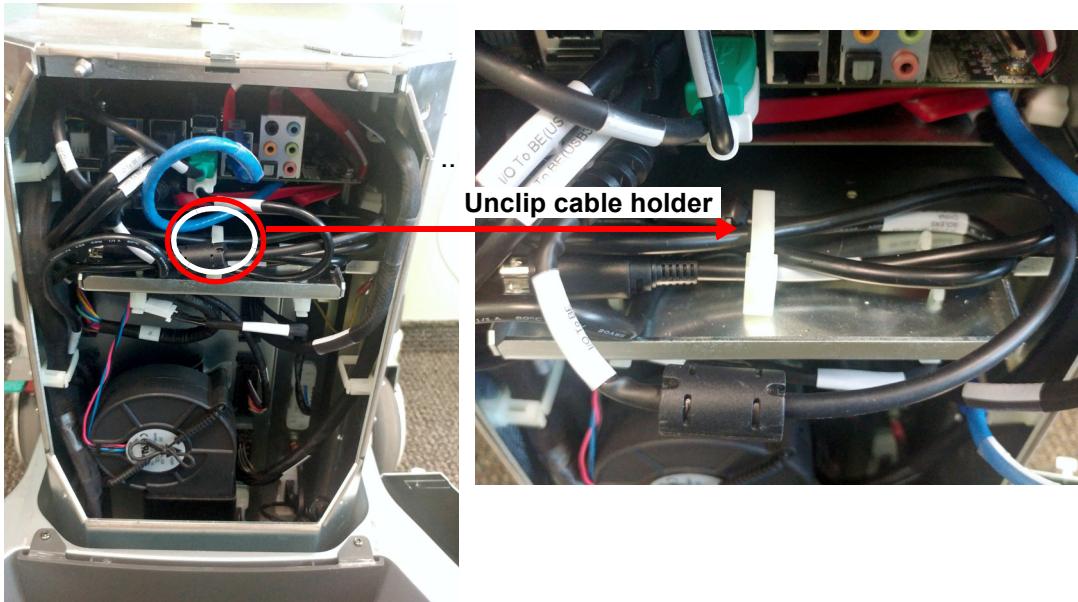


Figure 8-175 Releasing Printer Cables

6.) Attach bracket to the Printer and tighten the four Phillips screws (the bracket and the screws are supplied with the printer kit).

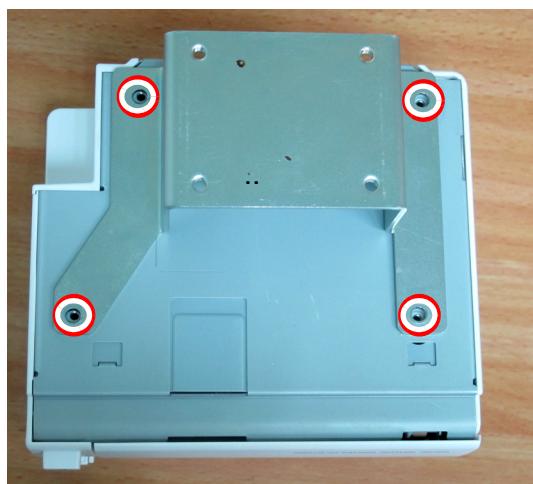


Figure 8-176 Attaching Bracket to Printer

- 7.) Insert the Printer Power Cable and Printer USB cable through the dedicated opening.

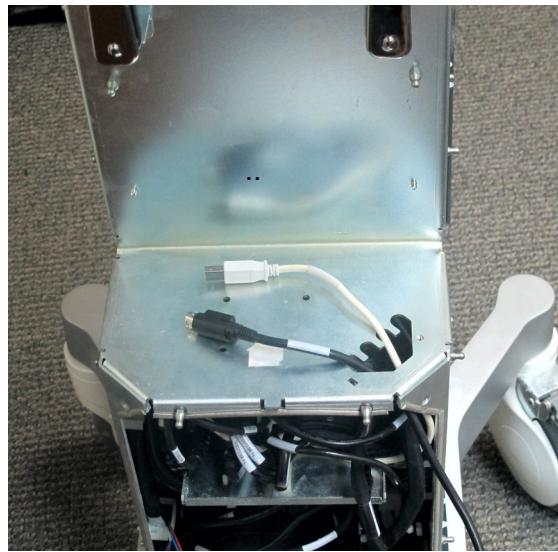


Figure 8-177 Printer Cables Routed Through Dedicated Opening

- 8.) Connect the Printer USB Cable and Printer Power Cables to the Printer.



Figure 8-178 Connecting Printer Cables

- 9.) Attach the Printer to the eTower and secure with two bottom screws.

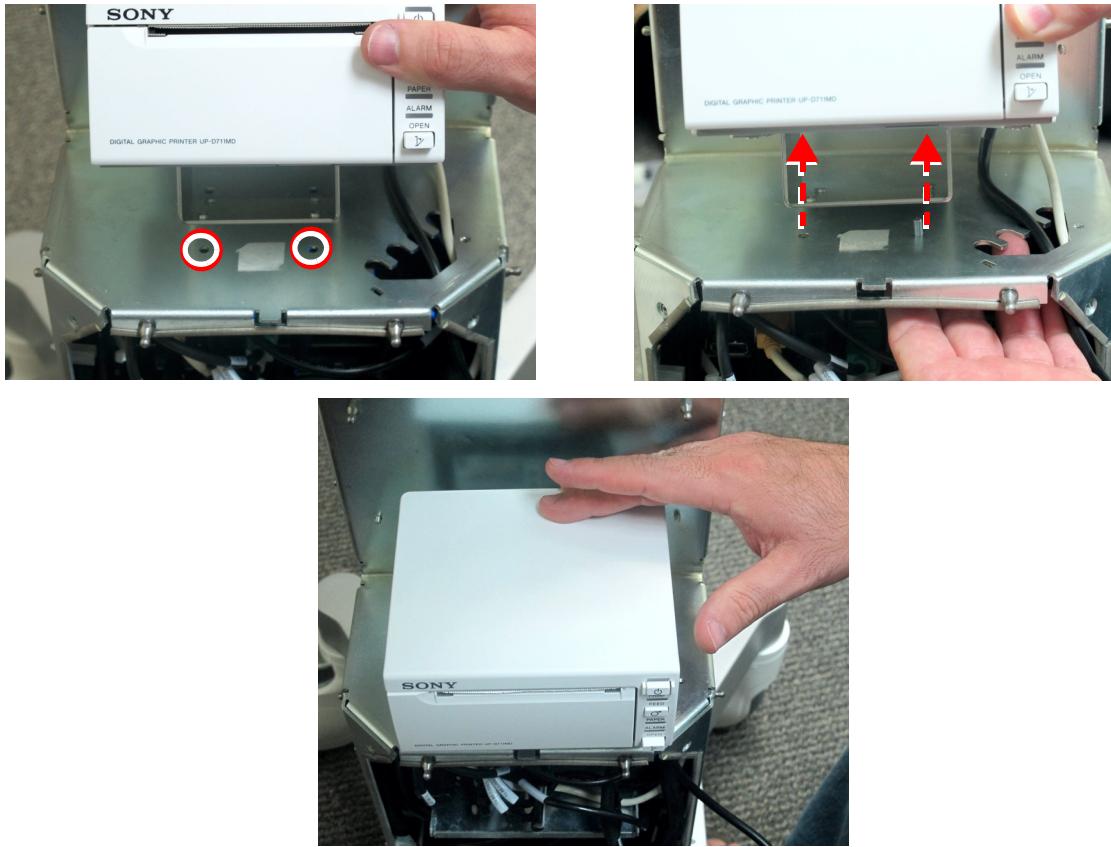


Figure 8-179 Attaching Printer to the eTower

- 10.) Attach the metal cable cover and secure the Phillips screw.

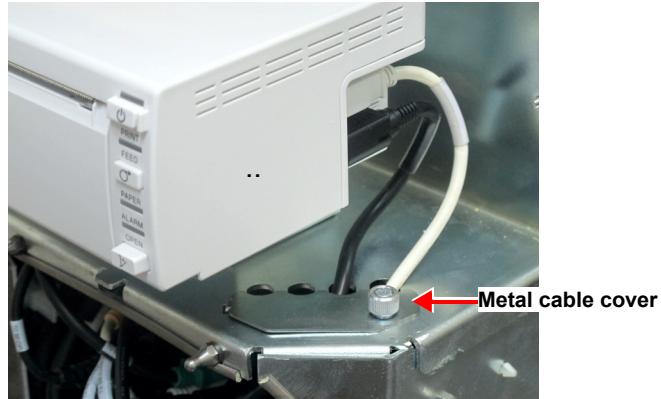


Figure 8-180 Attaching Metal Cable Cover

- 11) Install MPB Front Metal Door.



- MPB Front Metal Door Installation Procedure

12.) Refit the following covers: RS Probe Cover, Lower Front eTower, Left side eTower, Right Side eTower, Upper eTower Front Cover.



- [Upper eTower Front Cover Installation Procedure](#)
- [Left Side eTower Cover Installation Procedure](#)
- [Right Side eTower Cover Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [RS Probe Cover Installation Procedure](#)

13.) Install all accessories.



- [Accessories - Replacement Procedures](#)

14.) Turn ON power to the system.



Functionality Checks Perform the checks listed in [Printer USB Cable Replacement Procedure](#) on page 8-218

8-8-1-6 **Printer Installation Procedure (For Systems with Existing Printer)**

1.) Perform Steps 8 - 14 of the section [Printer Installation Procedure \(For Systems with No Existing Printer\)](#).

8-8-2 Wi-Fi Adapter Replacement/Installation Procedure

8-8-2-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-19](#) on page 9-18.

8-8-2-2 Time Required

15 min

8-8-2-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-8-2-4 Wi-Fi Adapter Removal Procedure

NOTE: Perform these steps only for Venue™ systems with Wi-Fi adapter already installed on them. For systems with no previously installed Wi-Fi adapter skip this section and proceed to section [Wi-Fi Adapter Installation Procedure \(For Systems with No Existing Wi-Fi Adapter\)](#)

- 1.) On the back of the cockpit, release four screws and remove the transparent Wi-Fi dongle cover.
- 2.) Disconnect the Wi-Fi dongle.



Figure 8-181 Wi-Fi Cover and Dongle Removal

8-8-2-5 Wi-Fi Adapter Installation Procedure (For Systems with No Existing Wi-Fi Adapter)

- 1.) Attach the L-shape USB adapter to the Wi-Fi dongle.

NOTE: Perform this step only for Venue™ systems with no previously installed Wi-Fi adapter. For systems with existing Wi-Fi adapter, skip this step and proceed to Step 2.

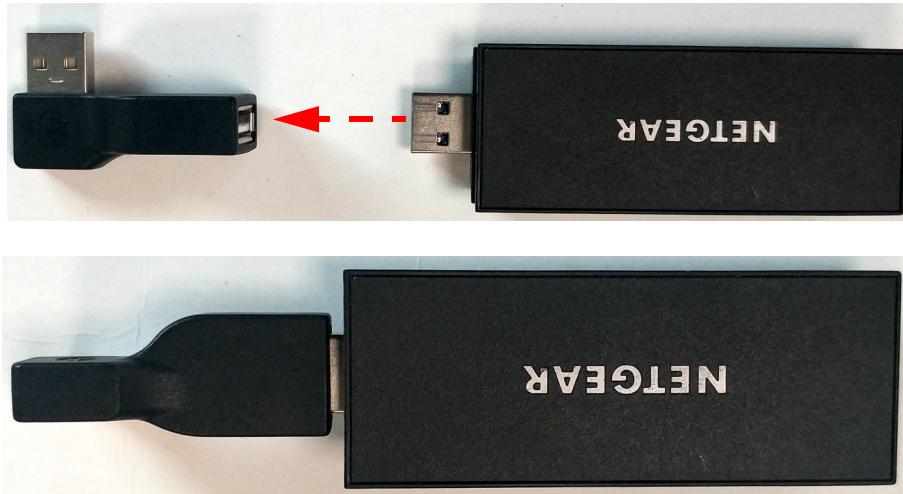


Figure 8-182 Attaching L-shape USB Adapter to Wi-Fi Dongle

- 2.) Connect the L-shape USB adapter to the back of the Cockpit.
- 3.) Attach the transparent Wi-Fi dongle cover and secure with four screws.

8-8-2-6 Barcode Replacement Procedure

- 1.) Connect the Barcode to the system.

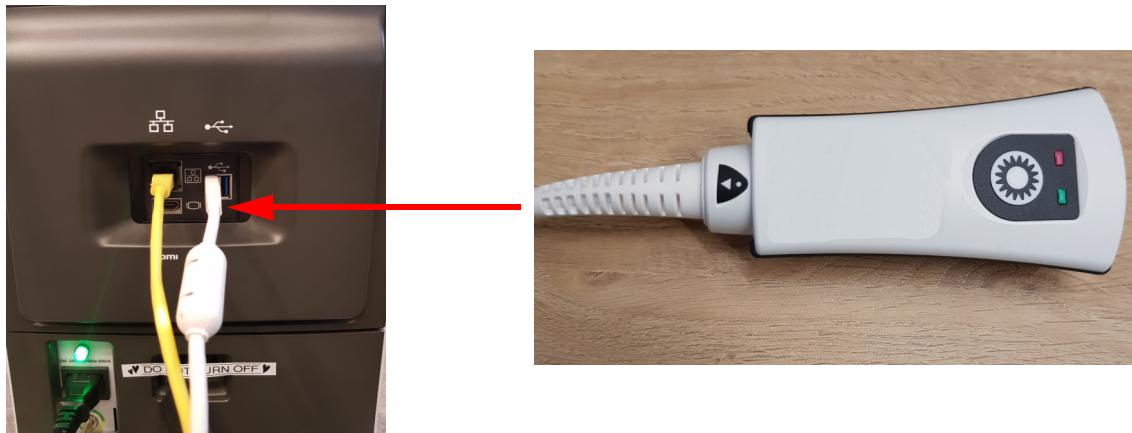


Figure 8-183 Attaching L-shape USB Adapter to Wi-Fi Dongle

- 2.) Wait for a few minutes for the system to accept the Barcode.
- 3.) Restart the system

Note: The barcode device is detected by the system as a COM Port under windows device manager:..

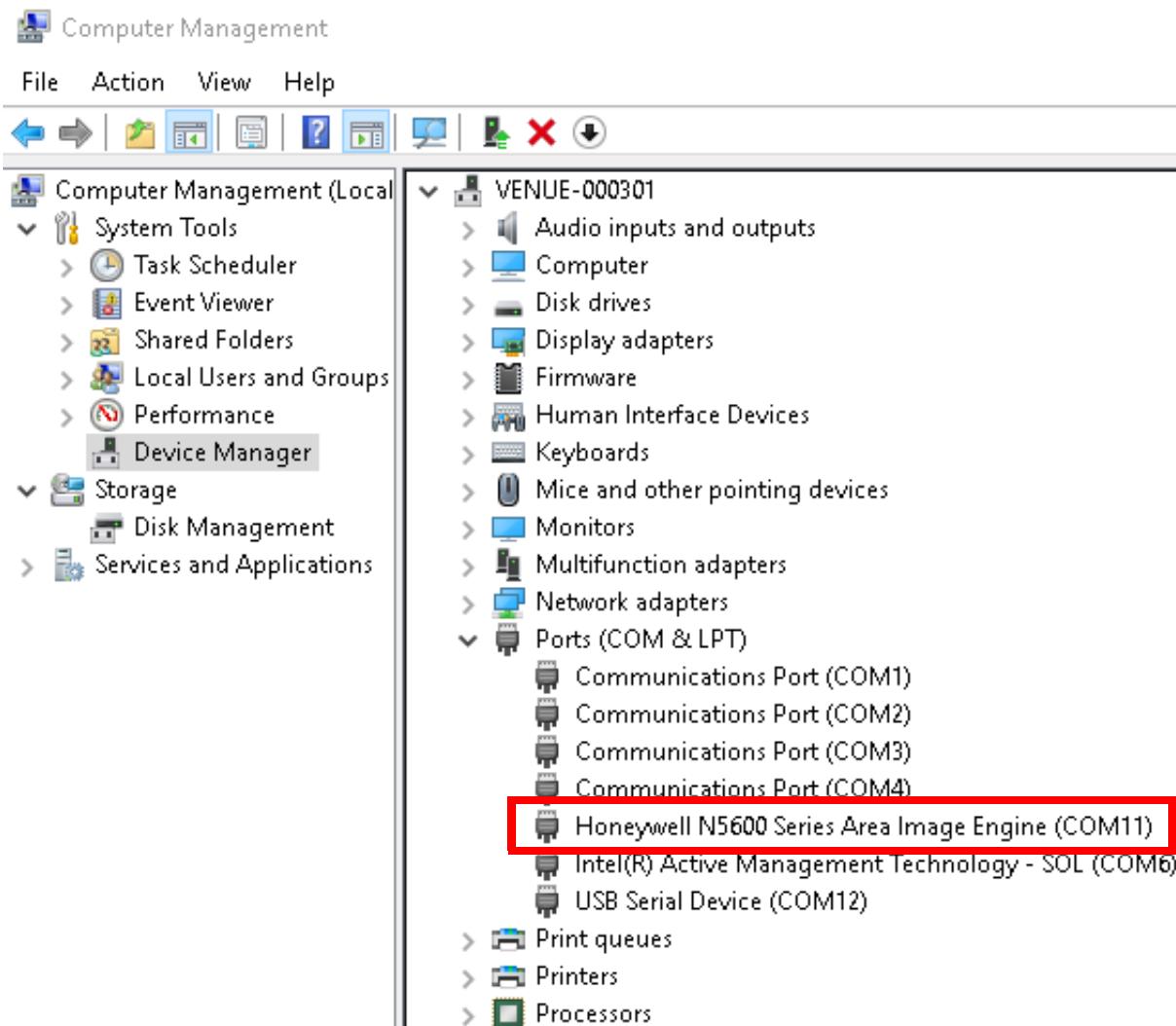


Figure 8-184 Barcode detection in Device manager

8-8-3 ECG Installation Procedure for Systems with No Printer Installed

8-8-3-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-20](#) on page 9-19.

8-8-3-2 Time Required

15 min

8-8-3-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-8-3-4 ECG Installation

- 1.) Remove the following covers: Lower Front eTower, Upper Front eTower, and MPB Front Metal Door, Printer Insert Cover.



- [Lower Front eTower Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)
- [Printer Insert Cover Removal Procedure](#)

- 2.) Replace the printer insert cover with the one provided in the ECG installation kit.

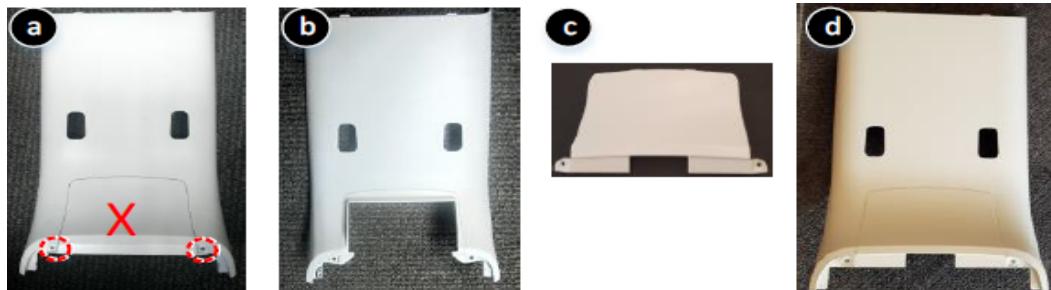


Figure 8-185 Replacing Printer Insert Cover

- 3.) Attach ECG Bracket to printer bracket with 2 screws and 2 washers (verify correct orientation).

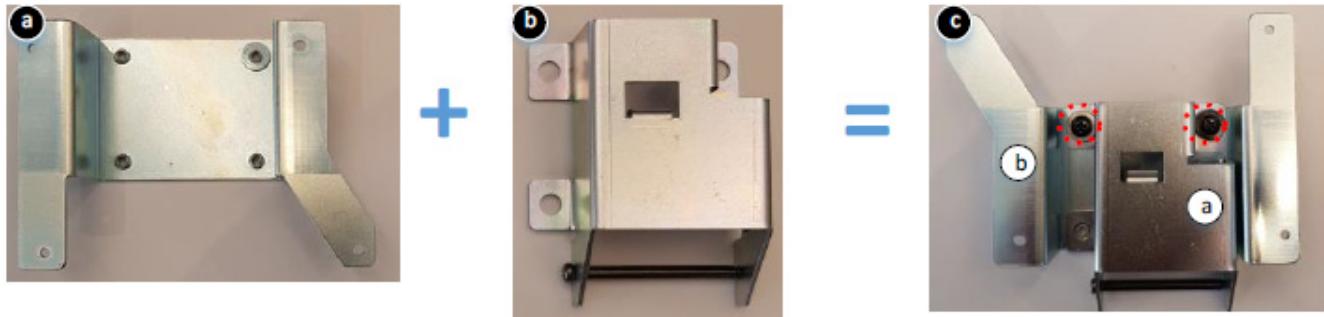


Figure 8-186 Attaching ECG Bracket to Printer Bracket

- 4.) Using two Thumb screws, install the bracket on the eTower.

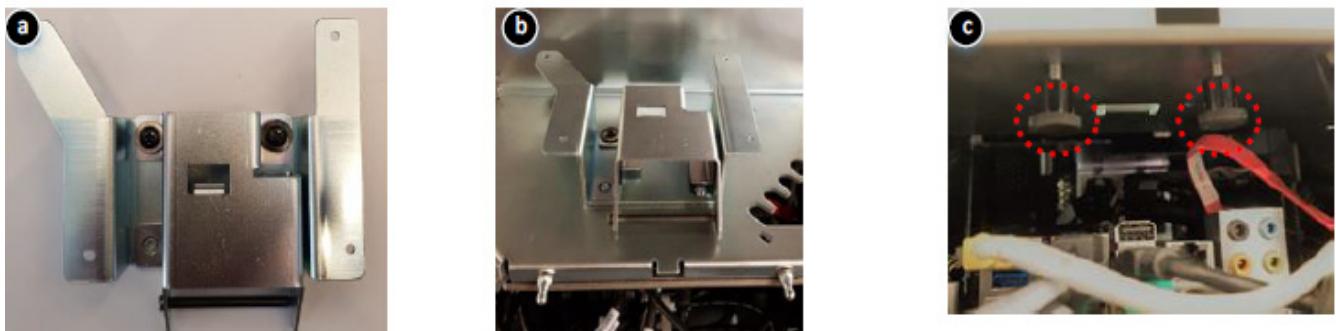


Figure 8-187 Installing Bracket on the eTower

- 5.) Connect the ECG USB cable to the USB 2.0 port on the BEP above the Green connector.

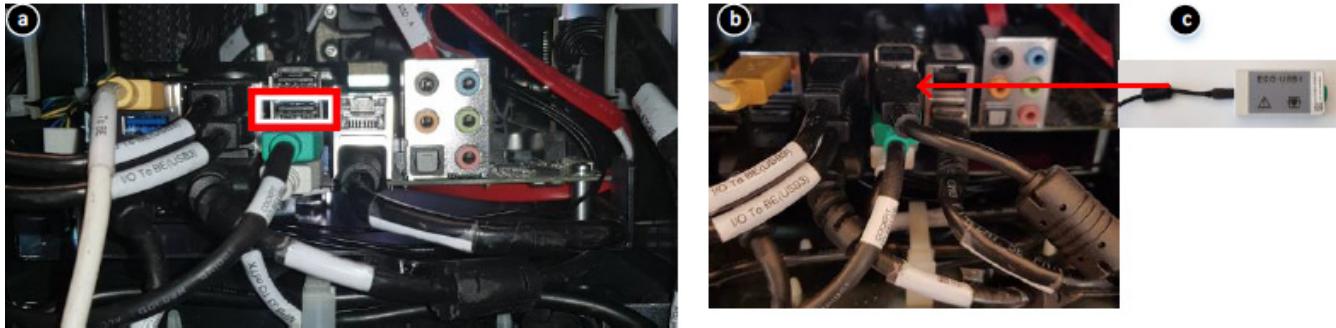


Figure 8-188 Connecting ECG USB Cable

- 6.) Route the ECG USB cable through the dedicated opening in the eTower.

- 7.) Attach grommet to the ECG USB cable.

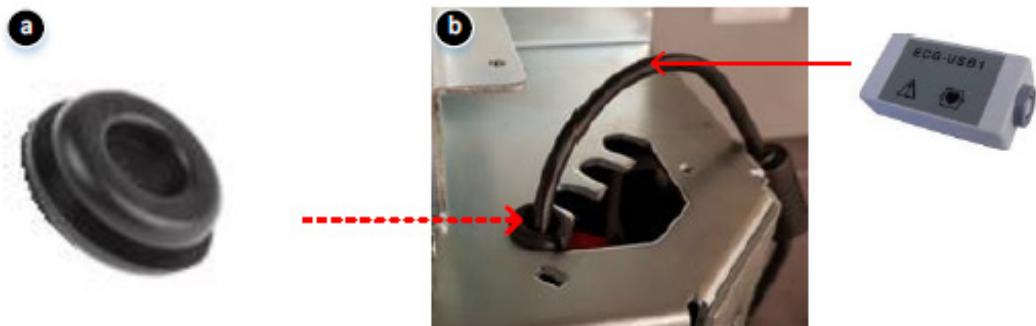


Figure 8-189 Attaching Grommet to the ECG USB Cable

- 8.) Fold the excessive cable and use the cable clips to hold it.
9.) Attach the metal bracket to close the cable opening.

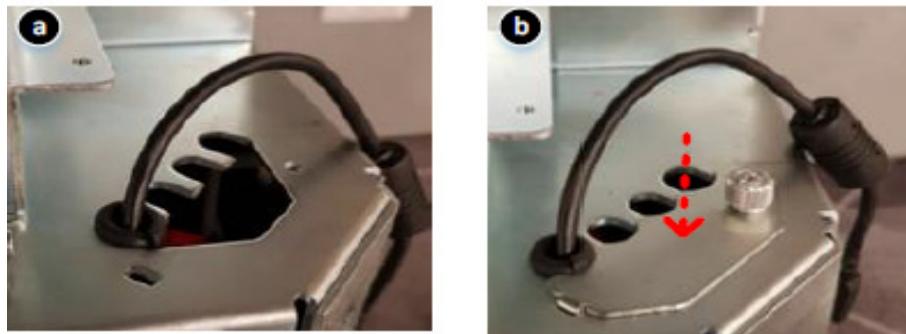


Figure 8-190 Attaching Metal Bracket

- 10.) Route the USB cable as shown below and connect the ECG USB cable to the ECG.

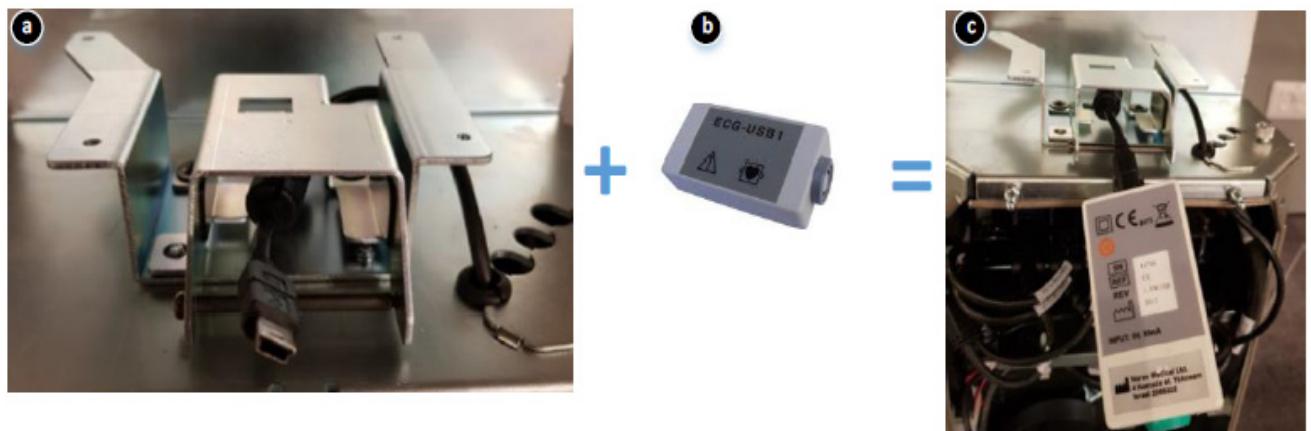


Figure 8-191 Connecting ECG to ECG USB Cable

11.) Mount the ECG module and tighten the screw to fix the ECG module in place.

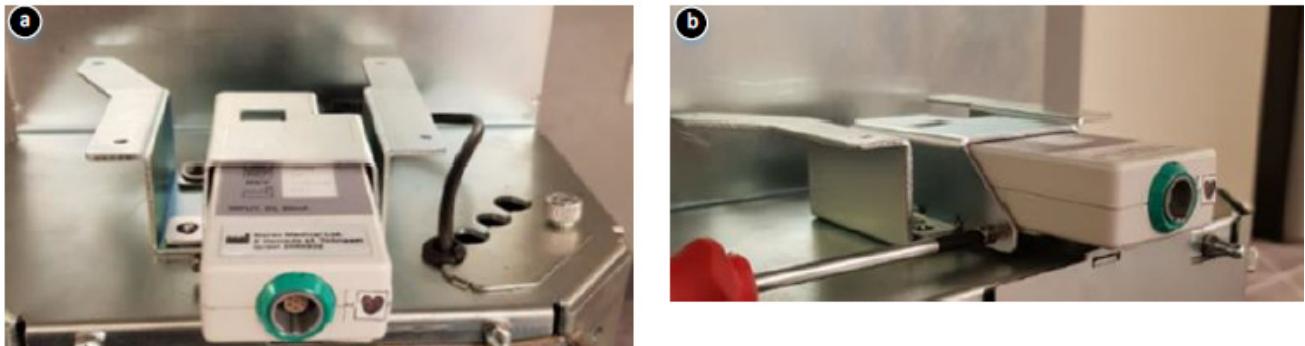


Figure 8-192 Fixing ECG Module

12.) Install the following covers: MPB Front Metal Door, Upper Front eTower, Lower Front eTower with cutout for ECG.



- [MPB Front Metal Door Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [Upper eTower Front Cover Installation Procedure](#)

8-8-4 ECG Installation Procedure for Systems with Printer Installed

8-8-4-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-20](#) on page 9-19.

8-8-4-2 Time Required

15 min

8-8-4-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-8-4-4 ECG Installation

- 1.) Remove the following covers: Lower Front eTower, Upper Front eTower, and MPB Front Metal Door.



- [Lower Front eTower Cover Removal Procedure](#)
- [Upper eTower Front Cover Removal Procedure](#)
- [MPB Front Metal Door Removal Procedure](#)

- 2.) Disconnect printer USB and Power cables.

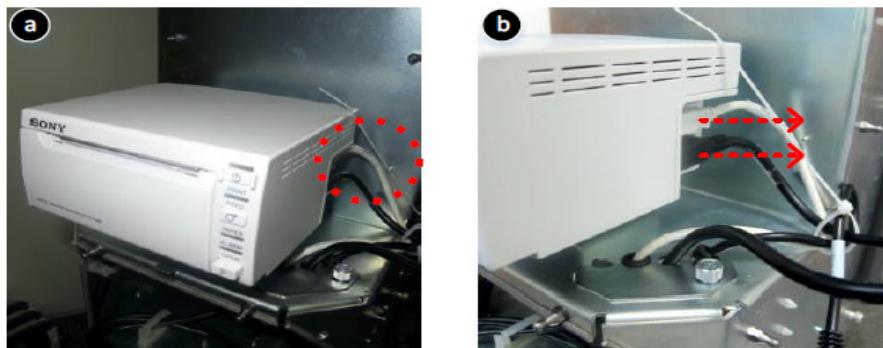


Figure 8-193 Disconnecting Printer Cables

- 3.) Unscrew the two thumbscrews holding the printer bracket and remove the printer with the bracket.

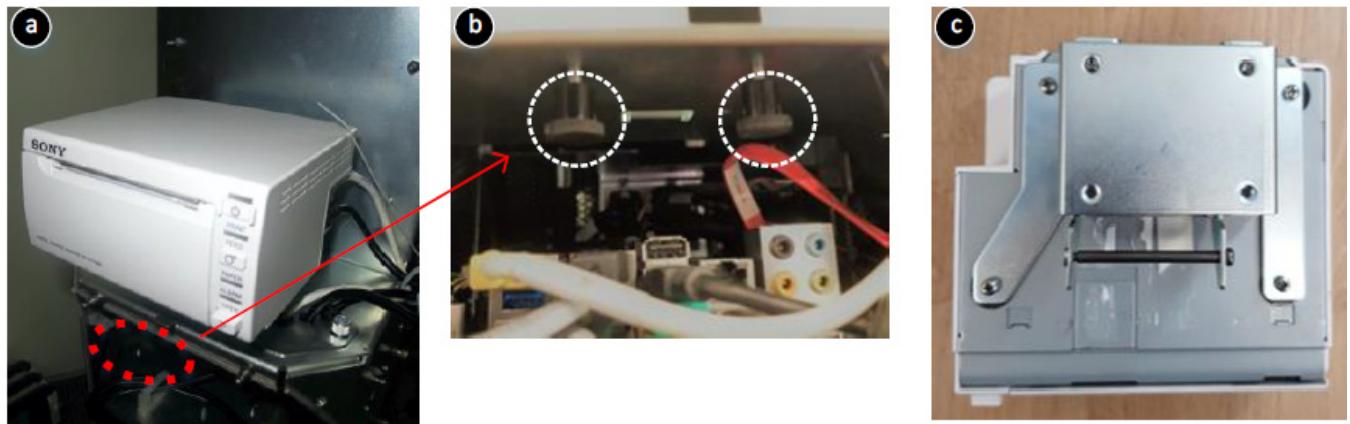


Figure 8-194 Disconnecting Printer

- 4.) Remove four screws connecting the printer to the bracket.

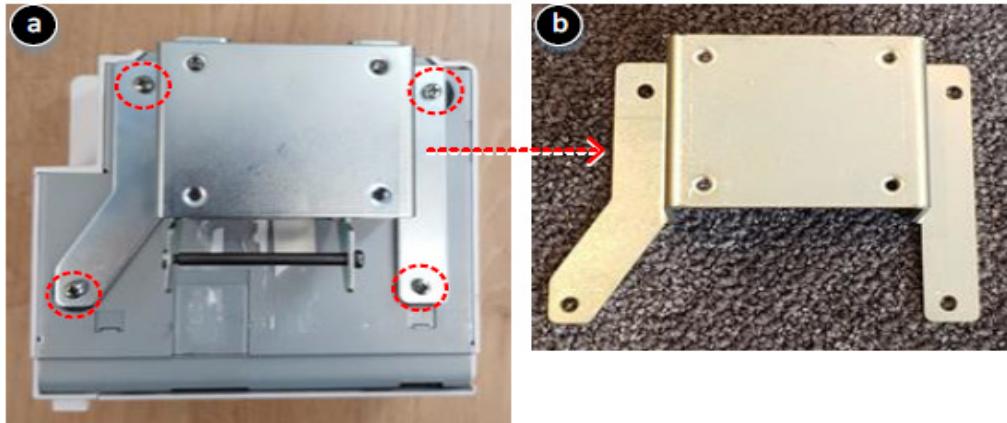


Figure 8-195 Disconnecting Printer

- 5.) Attach the ECG bracket to the printer bracket with 2 screws and 2 washers (verify correct orientation).

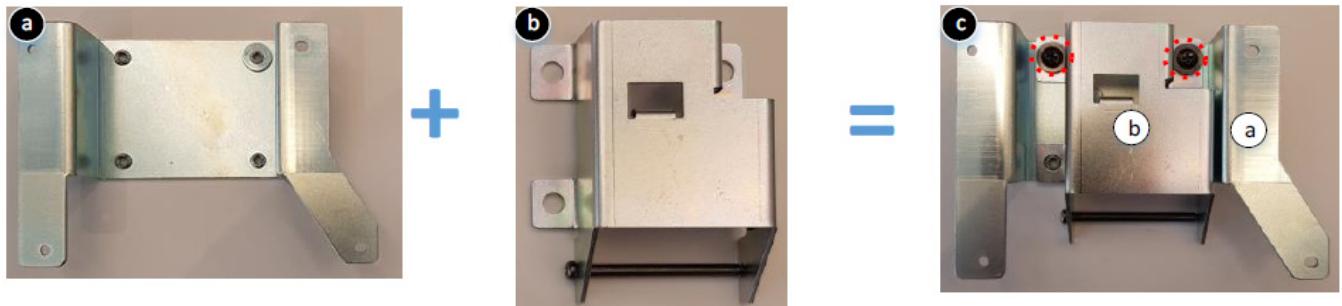


Figure 8-196 Attaching ECG Bracket to Printer

- 6.) Attach the bracket to the printer using four screws.

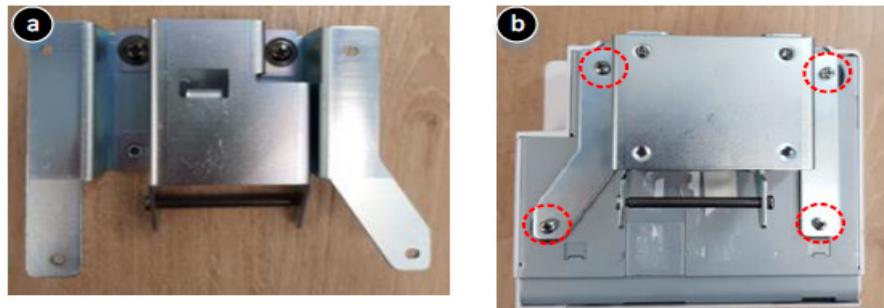


Figure 8-197 Attaching Bracket to Printer

- 7.) Connect ECG USB cable to the USB 2.0 port on the BEP on top of the green connector.

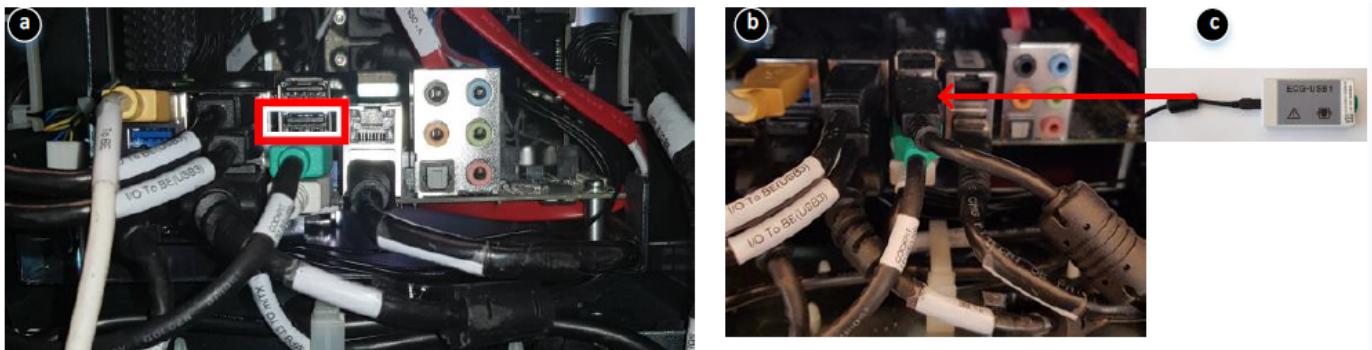


Figure 8-198 Connecting ECG USB Cable

- 8.) Route the USB cable through the dedicated opening in the eTower and affix it along with the printer USB cable.

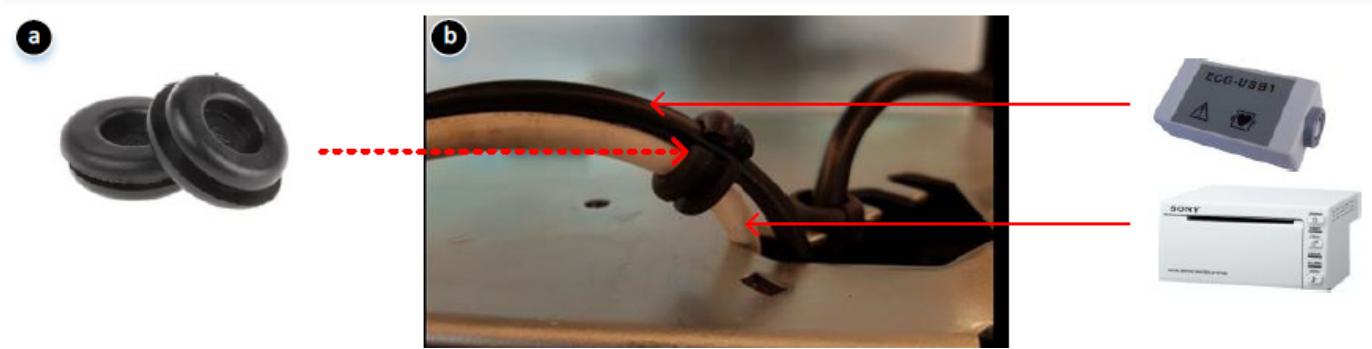


Figure 8-199 Connecting ECG USB Cable

9.) Install the metal bracket.

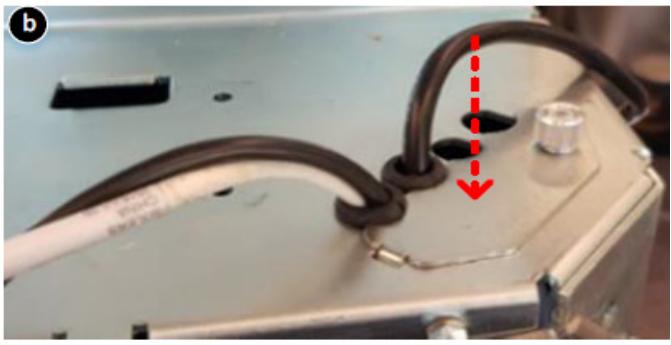


Figure 8-200 Installing Metal Bracket

10.) Connect the USB cable and power cable to the printer and the USB cable to the ECG module.

11.).Using two Thumb screws, install the bracket on the eTower.

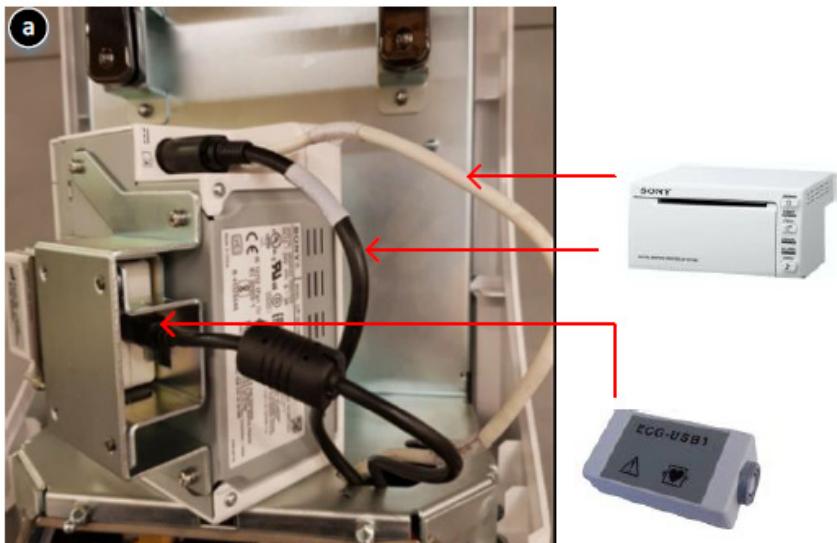


Figure 8-201 Connecting Printer and ECG Cables

12.)Tighten the screw to fix the ECG module in place.



Figure 8-202 Connecting Printer and ECG Cables

13.) Fold the excessive cable and use the cable clips to hold it.

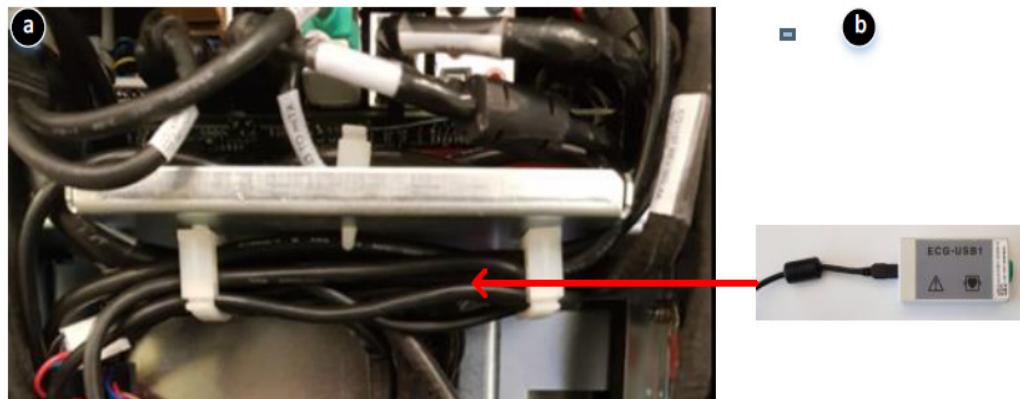


Figure 8-203 Connecting Printer and ECG Cables

14.) Install the following covers: MPB Front Metal Door, Upper Front eTower, Lower Front eTower with cutout for ECG.



- [MPB Front Metal Door Installation Procedure](#)
- [Lower Front eTower Cover Installation Procedure](#)
- [Upper eTower Front Cover Installation Procedure](#)

8-8-5 ECG Replacement Procedure

8-8-5-1 Tools

Appropriate Phillips screwdriver

FRU Part # Refer to [Table 9-20](#) on page 9-19.

8-8-5-2 Time Required

15 min

8-8-5-3 Preparations

- 1.) Shut down the Venue™ ultrasound unit, as described in [Power Shut Down](#).
- 2.) Make sure the On/Off power switch is set to Off.
- 3.) Make sure the system is standing securely on a level surface, with the wheels in the locked position.

8-8-5-4 ECG Removal Procedure

- 1.) Remove the following covers: Lower Front eTower, and Upper Front eTower.
 - [Lower Front eTower Cover Removal Procedure](#)
 - [Upper eTower Front Cover Removal Procedure](#)
- 2.) Release the screw that secures the ECG module in place.



Figure 8-204 Releasing ECG Securing Screw

- 3.) Gently pull out the ECG module.



Figure 8-205 Pulling Out ECG

- 4.) Disconnect the USB cable and remove the ECG.



Figure 8-206 Removing ECG

8-8-5-5 ECG Installation Procedure

- 1.) Connect ECG to the USB cable.
- 2.) Insert the ECG module all the way in.
- 3.) Tighten the ECG securing screw.
- 4.) Install the following covers: Upper Front eTower, Lower Front eTower.
 - [Upper eTower Front Cover Installation Procedure](#)
 - [Lower Front eTower Cover Installation Procedure](#)



Section 8-9

Operating System and Application Software Loading Procedures

8-9-1 Burning Disk-on-Key Media with SW Downloaded from GE Portal

8-9-1-1 ImageUSB System Requirements

! NOTICE Burning of the disk-on-key media (Mem stick) is performed using ImageUSB utility downloaded from the GE portal.

Table 8-3 ImageUSB System Requirements

| Requirement | Description |
|------------------|---|
| Operating System | Windows XP SP3, Windows Server 2003, Windows Vista, Windows Server 2008, Windows 7, Windows 8, and Windows 10 |
| Memory (RAM) | 256 MB or more. |
| Hard Disk Space | 3 MB of free space for installation, plus additional space required to store an image file. |

! NOTICE The minimum required size of the disk-on-key to be used must be 32GB.

- 1.) Browse to the downloaded file location and run the **ImageUSB.exe** file.
- 2.) If the Windows **User Account Control** dialog box appears, click **Yes** to allow the program to make changes to your computer.
- 3.) The **ImageUSB by PassMark Software** main window appears.

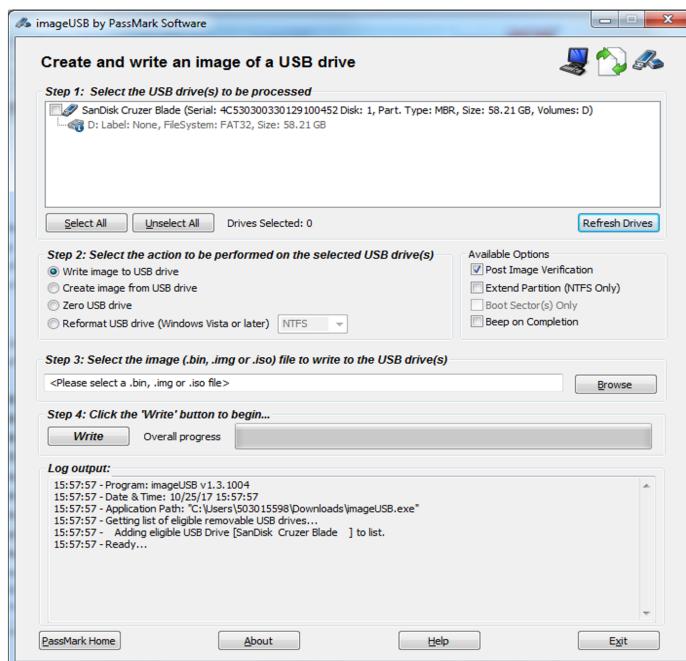


Figure 8-207 Disk-on-Key Burn Process - ImageUSB Main Window

- 4.) In the **Step 1** section, select the correct target USB.

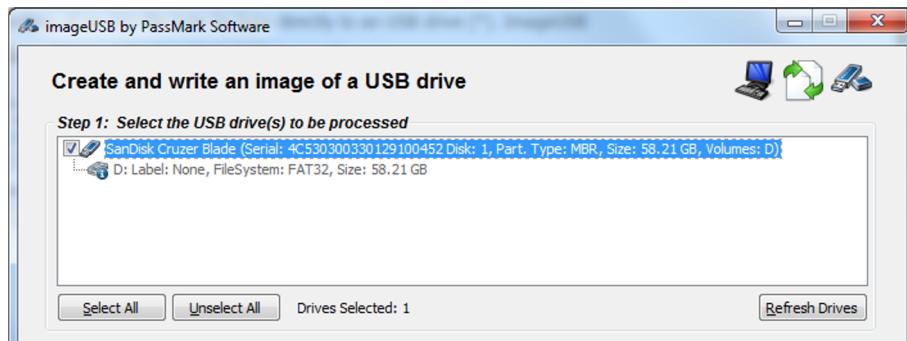


Figure 8-208 Disk-on-Key Burn Process - Select Target USB

- 5.) In the **Step 2** section, select the **Write image to USB drive** check box.



Figure 8-209 Disk-on-Key Burn Process - Write Image to USB Drive

- 6.) In the **Step 3** section, click **Browse** and select the image-file (in BIN format) downloaded from the GE Portal.



Figure 8-210 Disk-on-Key Burn Process - Write Image to USB Drive

- 7.) In the **Step 4** section, click **Write** to start the burning process.



Figure 8-211 Disk-on-Key Burn Process - Write Image to USB Drive

- 8.) Click **Yes** in the dialog boxes that appear to continue the burning process.

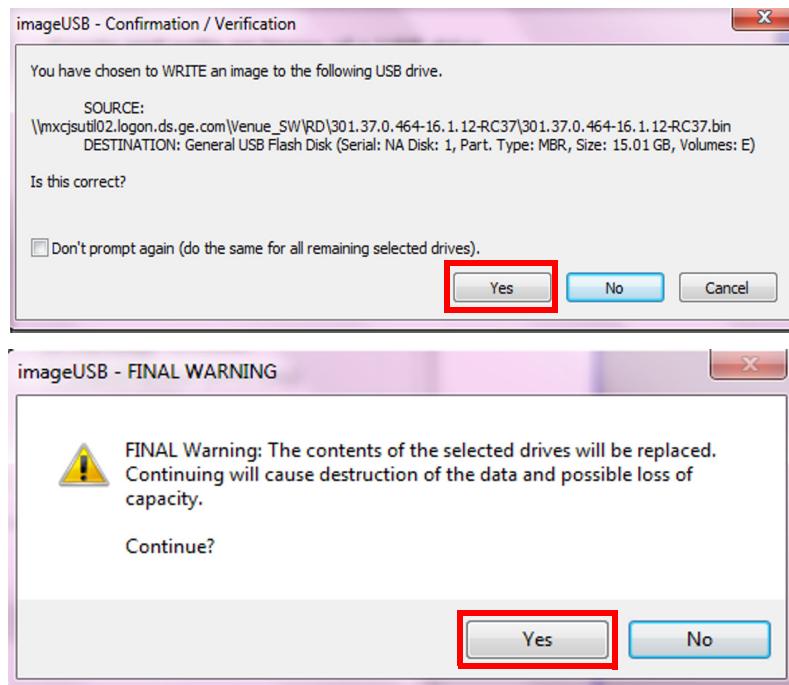


Figure 8-212 Disk-on-Key Burn Process - Confirmation and Warning Messages

- 9.) View the burning progress in the **Overall progress** status bar.



Figure 8-213 Disk-on-Key Burn Process - Progress Status Bar

- 10.) If the software burning process is successfully completed, the **Imaging Completed** message appears. Click **OK** to close the notification window.



Figure 8-214 Disk-on-Key Burn Process - Imaging Completed Message

11.) If the burning process fails, a notification window appears. Click **OK** to close the window.



Figure 8-215 Disk-on-Key Burn Process - Imaging Failed Message

Repeat steps 3 - 9 using different USB media.

12.) Exit the **ImageUSB** utility.

13.) Proceed with the *Software Update Procedure* section, page 8-188.

8-9-2 Software Update Procedure

NOTE: *Images in this procedure are for reference only. There may be differences or variations, in accordance with different software versions.*

- 1.) Disconnect all probes.
- 2.) Plug the Software Installation Media into the USB port located on the Interface Panel of the Venue™.
- 3.) Turn on the system.
The opening screen is displayed.
- 4.) Select **Update Venue SW** to install software without affecting user data.

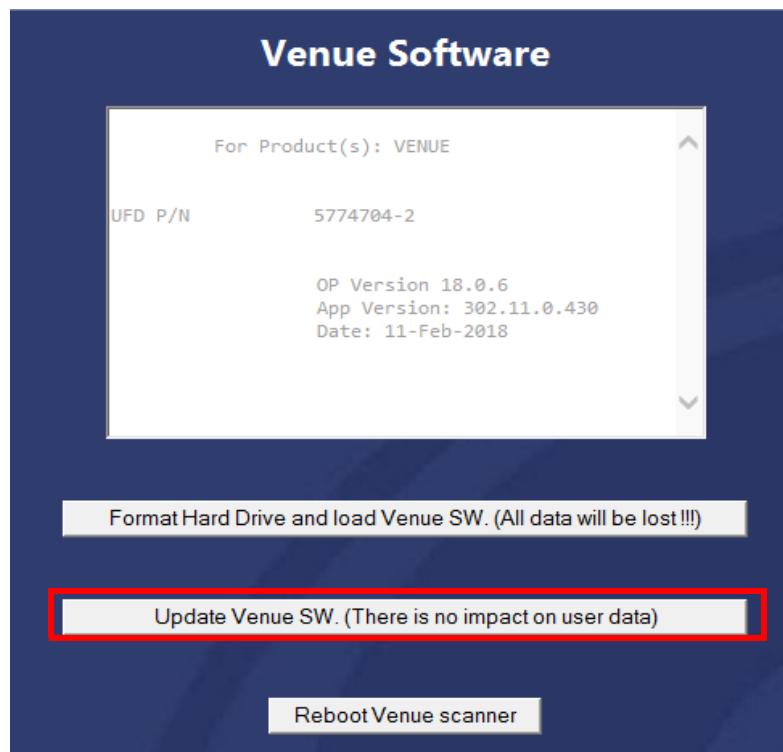


Figure 8-216 Venue™ Software - Installation Options

For R1 software version 301.X.X, the following **Warning** message appears:

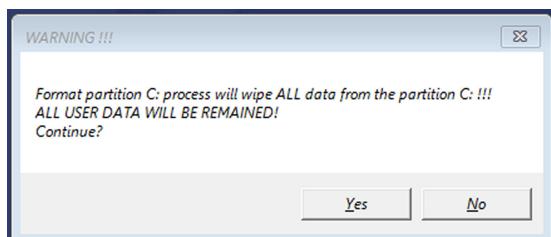


Figure 8-217 Venue™ Partition C - Warning Message R1

For R2 software version 302.X.X, the following **Warning** message appears:

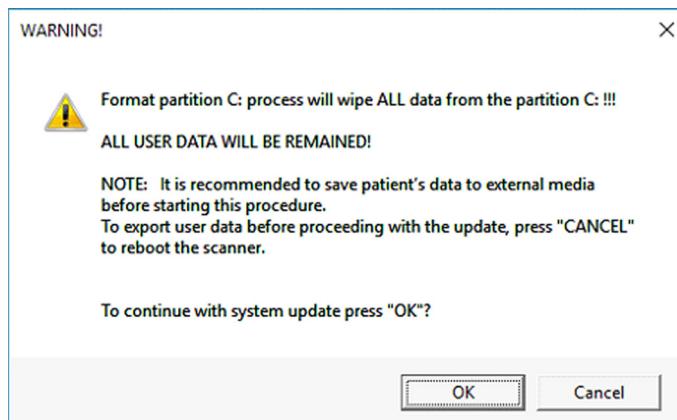


Figure 8-218 Venue™ Partition C - Warning Message R2

- 5.) Click **Yes** in the Warning message box.
- 6.) Automatic installation process runs. At the end of the process, the following message appears:



Figure 8-219 Venue™ Software - Installation Options

- 7.) Click Reboot Venue Scanner. Wait until the INFORMATION dialog box appears:



Figure 8-220 Venue™ Installation Process- Information Dialog Box

- 8.) Disconnect the SW installation media and tap **OK** in the message box.
9.) In the Confirmation dialog box that appears, tap **Yes** to continue the reboot.:.



Figure 8-221 Venue™ Installation Process- Confirmation Dialog Box

- 10.)Tap **Yes** to continue the reboot.
11.)After the system reboots, the Venue™ setup wizard welcome screen appears:
12.)Select the interface language and tap **OK** to proceed.

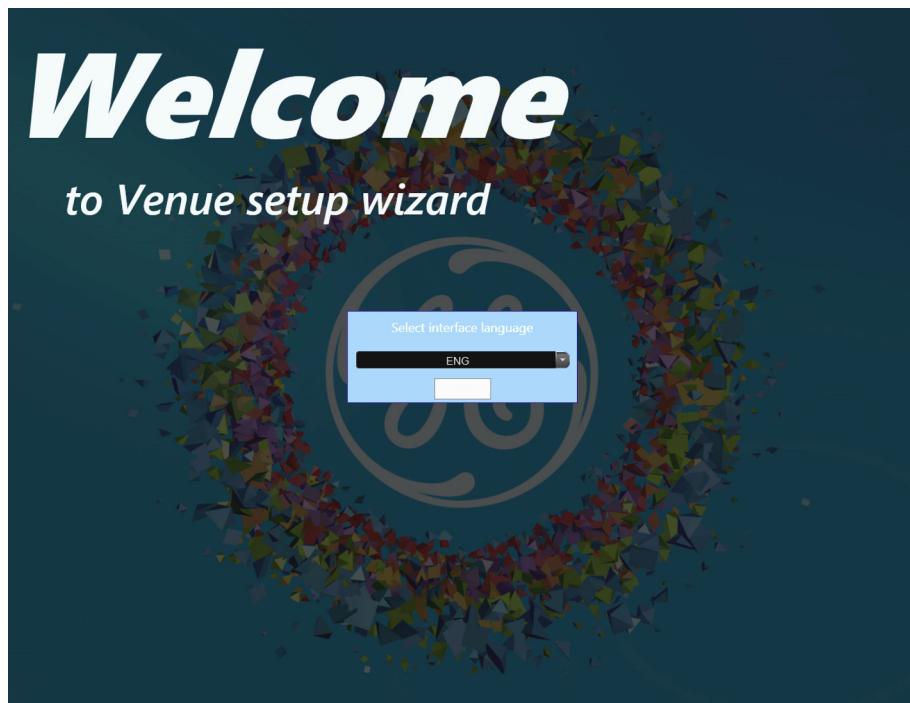


Figure 8-222 Venue™ Installation Wizard - Welcome Screen

13.) Tap **Run wizard** to continue the installation.



Figure 8-223 Venue™ Installation Wizard - Run Wizard

14.) Enter the system serial number and tap OK to confirm.

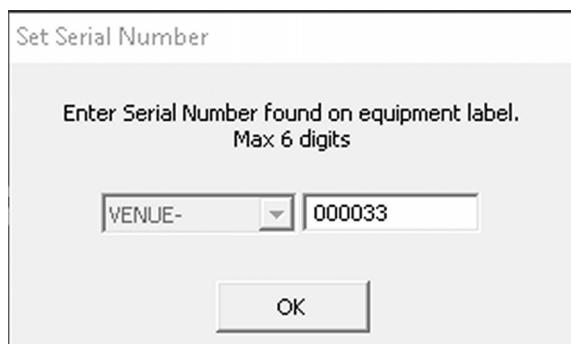


Figure 8-224 Venue™ Installation Process- Set Serial Number

15.) Tap **OK** to confirm the serial number.

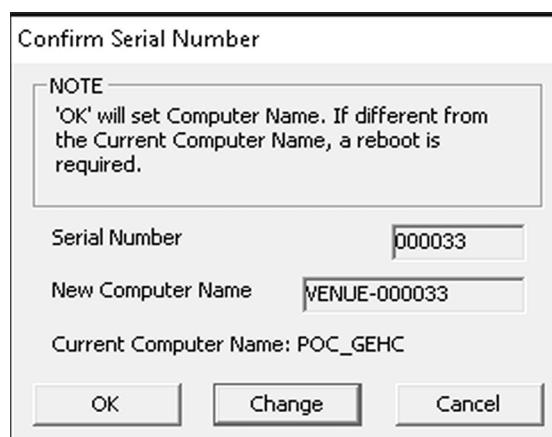


Figure 8-225 Venue™ Installation Process- Confirm Serial Number

- 16.) The settings screen appears. The **Local** tab opens by default.
- 17.) Continue with the EZ Config installation as specified in [Section 3-6-2-1](#) on page 3-27.



Perform the checks listed in [*Operating System and Application Software Installation Procedure*](#) on page 8-219

8-9-2-1 **Reformatting Disk-on-Key**

The purpose of this procedure is to allow the user to format the disk-on-key and to regain the initial storage capacity of the media used for burning software downloaded from GE portal.

- 1.) On your PC, insert the Disk-on-Key media into any available USB port.
- 2.) Browse to the folder that contains the files downloaded from GE portal.
- 3.) Run the **RevertFlashDisk.cmd** command.

NOTE: If the **Windows Protected Your PC** window pops up, click **More Info** and then click **Run Anyway**.

If prompted to allow apps to make changes to device, click **Yes**.

- 4.) Wait until the formatting is complete. The process may take about 3 minutes.

8-9-3 Software Upgrade Procedure from Venue™ R1 to Venue™ R2

WARNING WHILE THE SOFTWARE UPGRADE PROCEDURE IS DESIGNED TO PRESERVE DATA, YOU SHOULD SAVE ANY PATIENT DATA, IMAGES, SYSTEM SETUPS TO A BACKUP MEDIA BEFORE PERFORMING A SOFTWARE INSTALLATION.

IT IS RECOMMENDED TO WRITE DOWN THE TCP/IP ADDRESS AND THE WIRELESS NETWORK SETTINGS (IF EXIST) AS THESE SETTINGS WILL BE LOST DURING THE UPGRADE PROCEDURE.

NOTE: Images in this procedure are for reference only. There may be differences or variations, in accordance with different software versions.

NOTICE IMPORTANT Before starting the upgrade procedure, make sure you received a new Activation String in the upgrade kit.

8-9-3-1 Backup of System Configuration

Perform backup of all system configuration parameters as follows:

- 1.) Log in to the system as ADM (administrator).

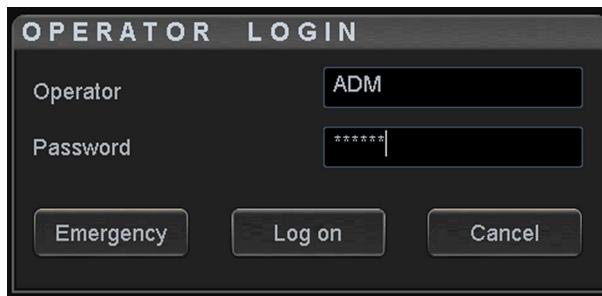


Figure 8-226 Logging In as ADM

- 2.) Tap **Settings** and select **Config**.
- 3.) On the **Connectivity** tab, select **Dataflow** and make sure the **USB Storage** option is enabled.

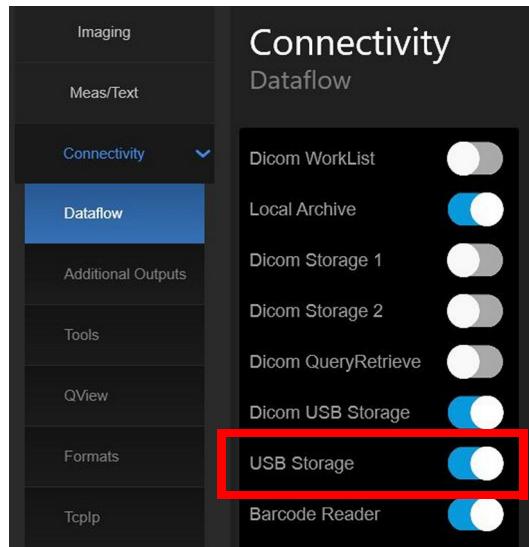


Figure 8-227 Backup Options Tab

- 4.) Connect USB memstick to any available USB port in the system.
- 5.) From the side menu, select **Admin** and then **Backup**.

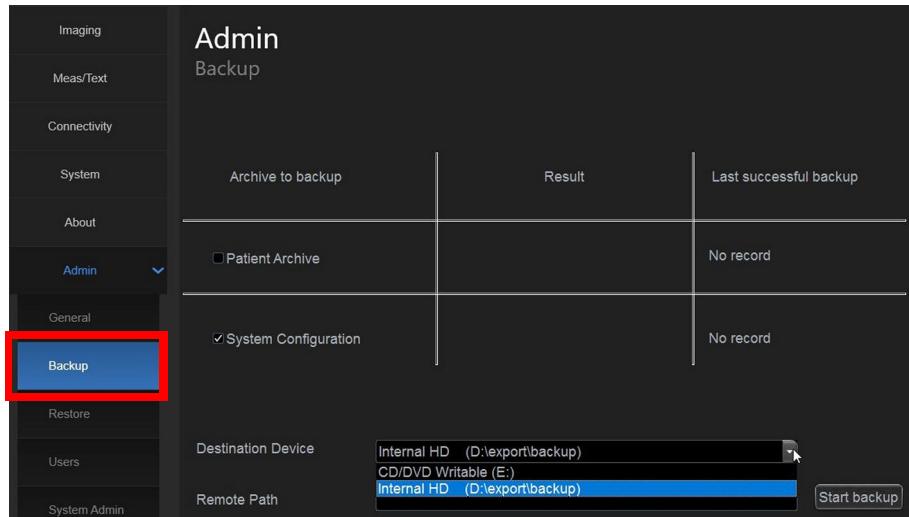


Figure 8-228 Backup Options Tab

- 6.) Select the **System Configuration** checkbox.
- 7.) Select **USB HD/Memstick** media as a Destination Device.
- 8.) Tap **Start Backup**.

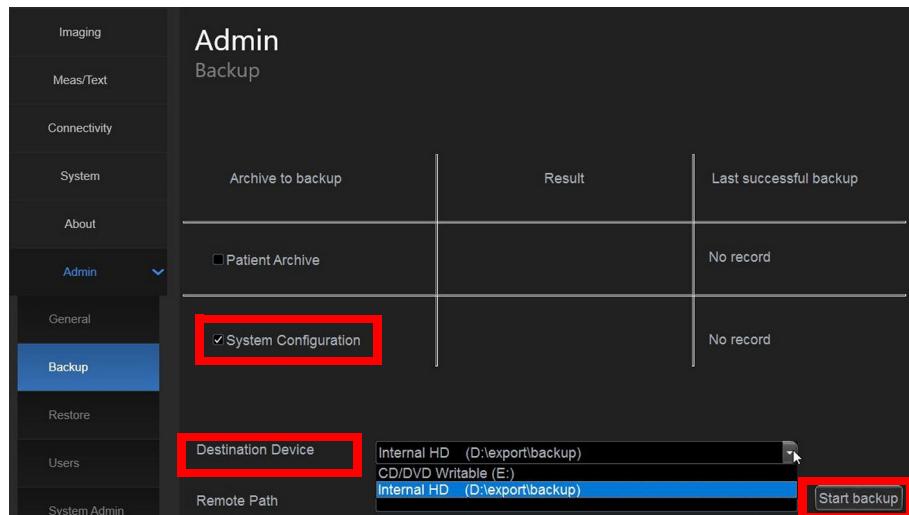


Figure 8-229 Backup Options to Select

After the backup is complete, the following message appears:

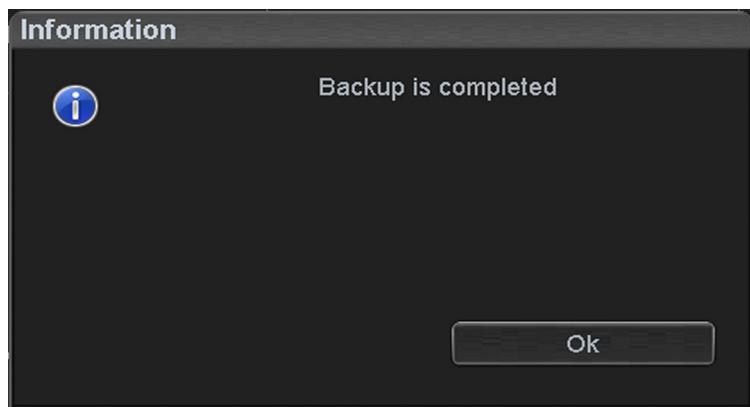


Figure 8-230 Backup Complete Message

- 9.) Eject the USB memstick when prompted.

8-9-3-2 Backup of Patient Exams

- 1.) Connect an external USB 3.0 hard drive with at least 100GB of free space.
- 2.) Tap the **Home button** and select **Archive Management**.

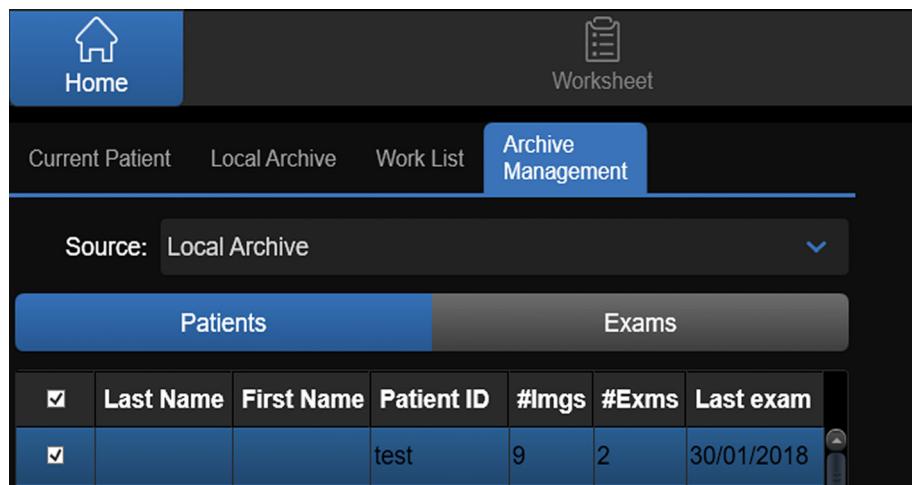


Figure 8-231 Archive Management Tab

- 3.) Select the **Select All** checkbox to select all patients for backup.

| | Last Name | First Name | Patient ID | #Imgs | #Exms | Last exam |
|-------------------------------------|-----------|------------|------------|-------|-------|------------|
| <input checked="" type="checkbox"/> | | | test | 9 | 2 | 30/01/2018 |
| <input checked="" type="checkbox"/> | | | 63692_1886 | 1 | 2 | 30/01/2018 |
| <input checked="" type="checkbox"/> | | | 63633_4059 | 1 | 2 | 30/01/2018 |
| | | | | | | |

Figure 8-232 Select All Patients for Backup

- 4.) Tap **Send Selected**.



Figure 8-233 Send Selected Button

- 5.) In the **Copy** window, select **USB Storage** and click **OK**.

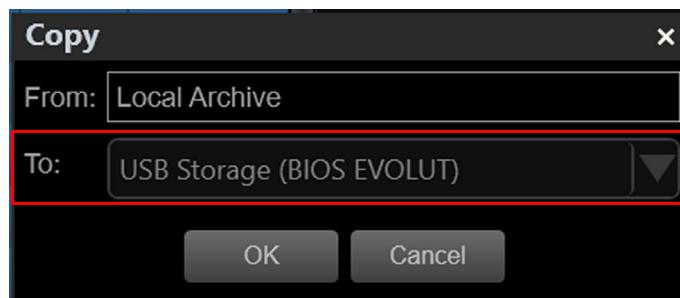


Figure 8-234 Copy Window

! NOTICE IMPORTANT Make sure the selected option is USB Storage and not DICOM USB.

The selected data is copied. The backup process is indicated on the progress bar that appears.

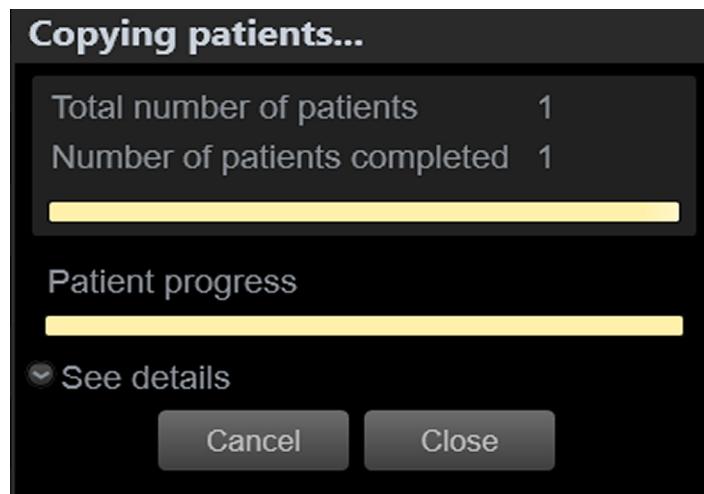


Figure 8-235 Copying Patients Dialog

- 6.) After the backup is complete, proceed to Software Upgrade Procedure.

8-9-3-3 Software Upgrade Procedure

- 1.) Disconnect all probes.
- 2.) Plug the Venue R2 Software Installation Media into the USB port located on the Interface Panel of the Venue™.
- 3.) Turn on the system.
The opening screen is displayed.
- 4.) Select **Upgrade Venue SW** to install software without affecting user data.

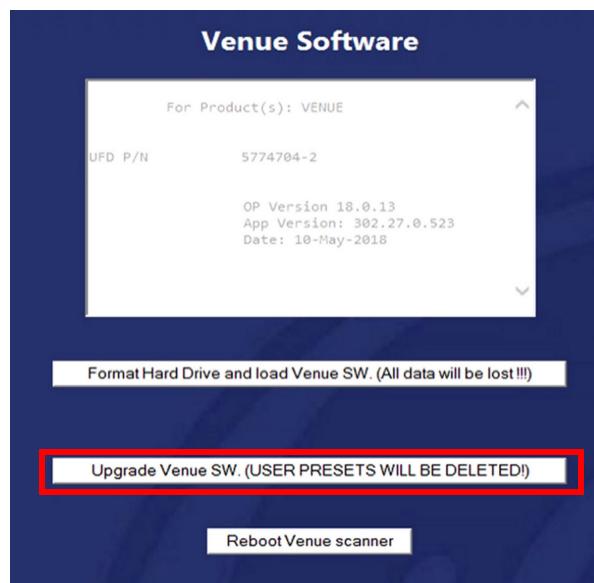


Figure 8-236 Venue™ Software - Installation Options

The **Warning** message appears:

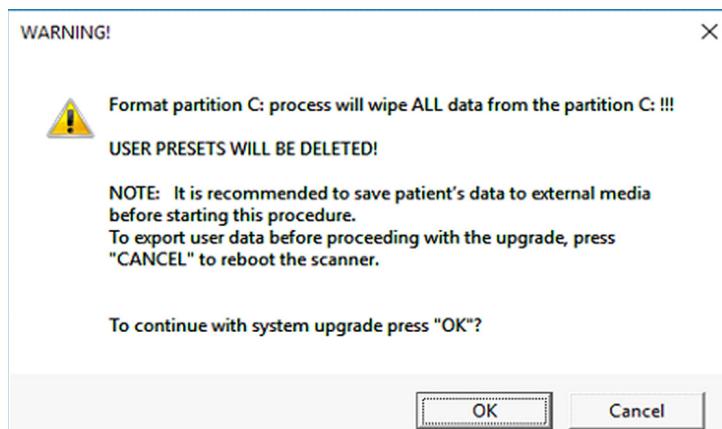


Figure 8-237 Venue™ Partition C - Warning Message



NOTICE IMPORTANT Venue R1 user presets are not compatible with R2 software. The backed up presets can only be used if reverting back to R1 software version. Do not try to import these presets to R2 software.

- 5.) Click **Yes** in the Warning message box.
- 6.) Automatic installation process runs. At the end of the process, the following message appears:
- 7.) Click Reboot Venue Scanner. Wait until the INFORMATION dialog box appears:



Figure 8-238 Venue™ Installation Process- Information Dialog Box

- 8.) Disconnect the SW installation media and tap **OK** in the message box.
- 9.) In the Confirmation dialog box that appears, tap **Yes** to continue the reboot.:.



Figure 8-239 Venue™ Installation Process- Confirmation Dialog Box

- 10.) Tap **Yes** to continue the reboot.
- 11.) After the system reboots, the Venue™ setup wizard welcome screen appears:

12.)Select the interface language and tap **OK** to proceed.

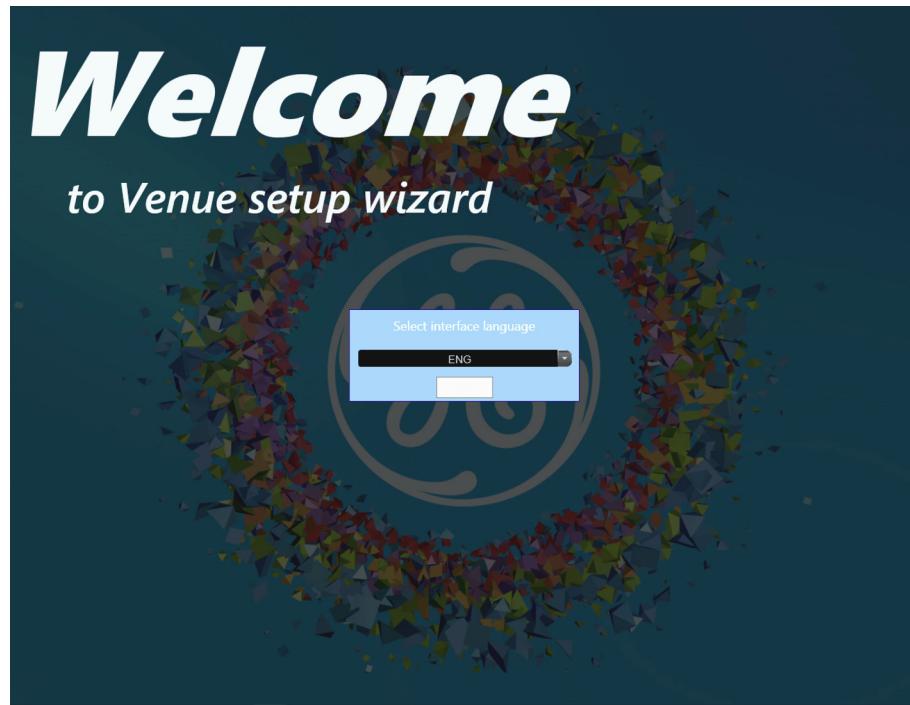


Figure 8-240 Venue™ Installation Wizard - Welcome Screen

13.)Tap **Run wizard** to continue the installation.



Figure 8-241 Venue™ Installation Wizard - Run Wizard

14.)The settings screen appears. The **Local** tab opens by default.

NOTE: Due to FPGAs programming as part of the initialization process, it might take up to 15 minutes before the **Local** tab is displayed.

Note: In case of firmware update errors, the following messages may appear :

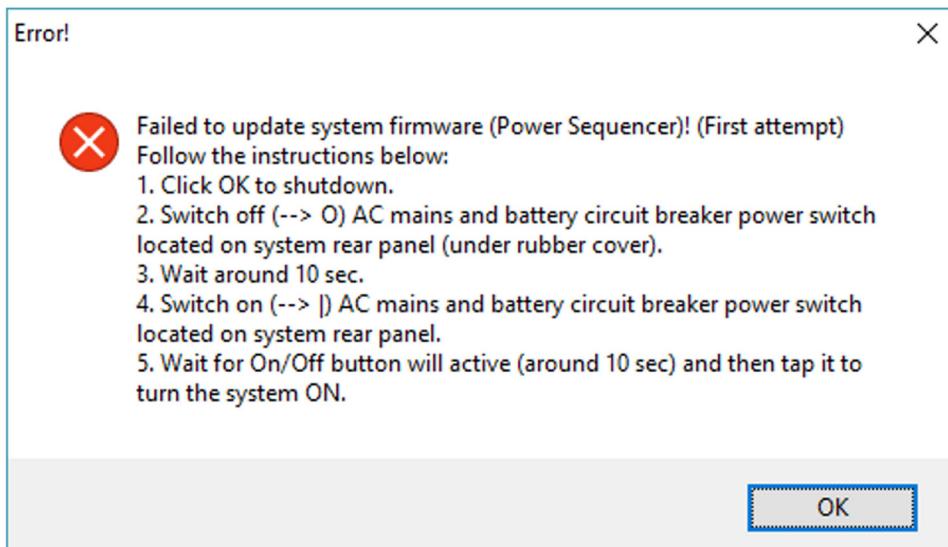


Figure 8-242 **Venue™ Setup Wizard - Firmware Update Errors**

- Follow the procedure displayed in the window
- If the following errors appear, proceed with T-CFE replacement:

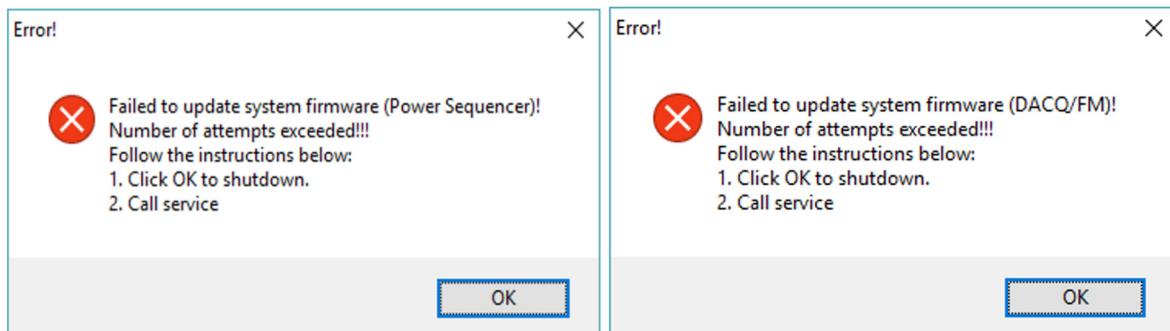


Figure 8-243 **Venue™ Setup Wizard - Firmware Update Errors**

- 15.) Type in the option key and configure the network settings
- 16.) Continue with the EZ Config installation as specified in Section [3-6-2-1](#).
- 17.) Open: **Config screen >> Imaging >> Advanced Tools** and make sure the Auto zone increment

check box is **NOT** selected.

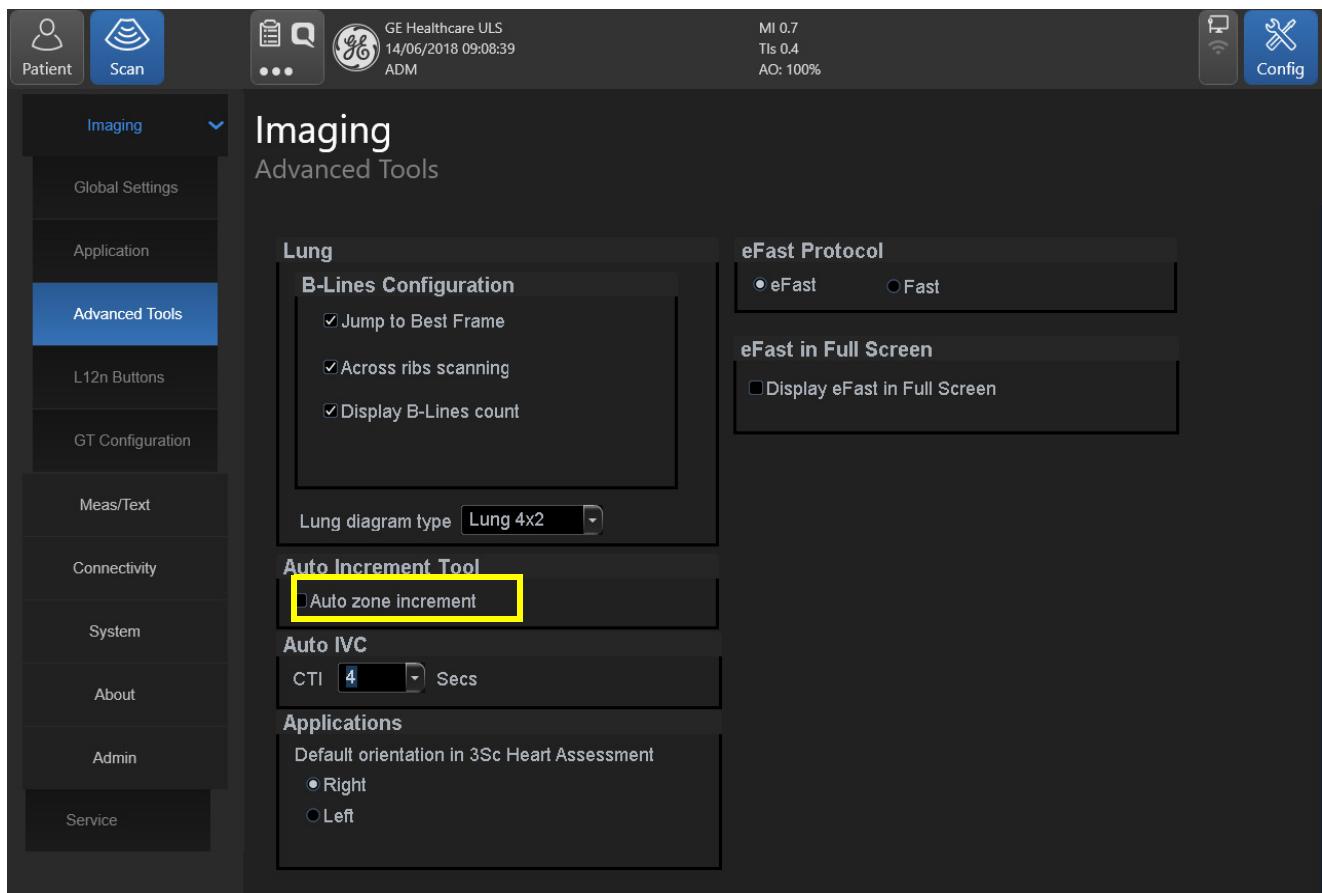


Figure 8-244 Auto zone increment check box



Perform the checks listed in *Operating System and Application Software Installation Procedure* on page 8-219

18.) Verify that an e-label is displayed in Config screen under the About tab as shown below:

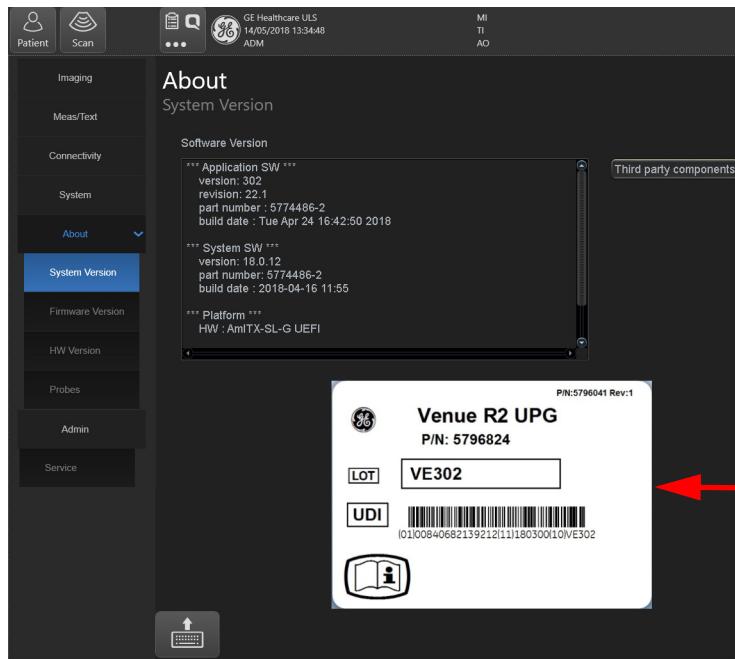


Figure 8-245 Venue™ Upgrade Label

19.) Scan the UDI code with GE UDI Scanner application and make sure the CRM system is updated correctly. see [Figure 8-246](#)

NOTE: *This step is applicable only for upgrades that were obtained electronically (eDelivery).*

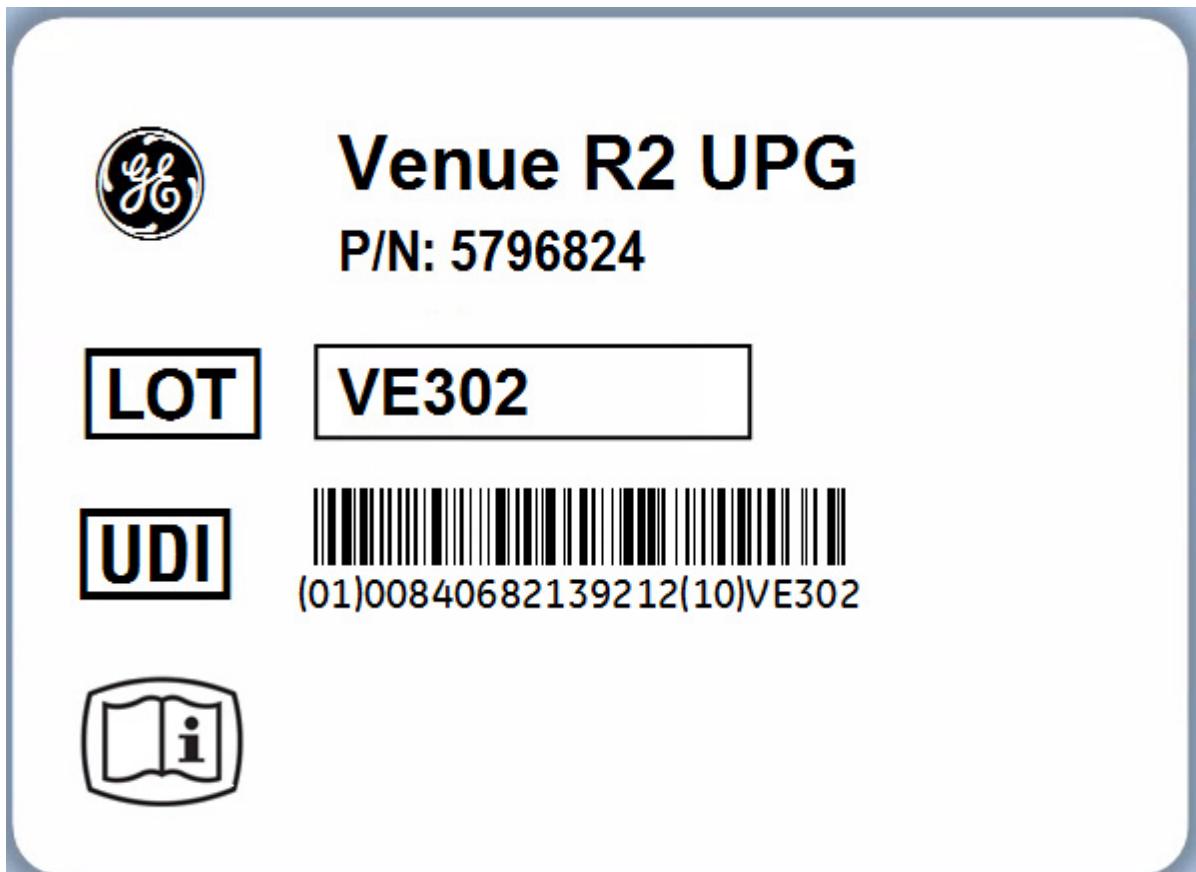


Figure 8-246 Venue™ Upgrade UDI Label

20.) In case the purchased upgrade kit was delivered as a physical media, scan the UDI label that is attached to the installation media. Refer to [Figure 8-247](#) as reference only. always use the actual label.

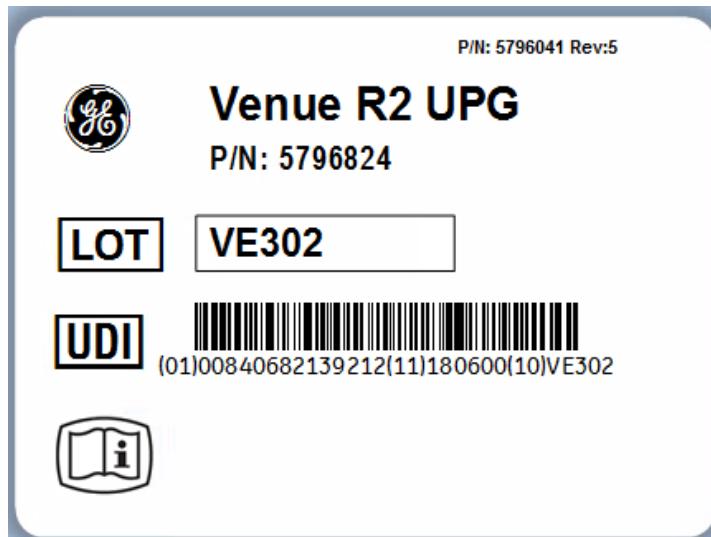


Figure 8-247 Example of UDI label attached to Software installation media Label

8-9-4 Software Installation Procedure - General Overview

The Venue™ ultrasound scanner software loading options provide the ability to install the Windows operating system and the Venue™ application software.

The complete installation procedure can be performed using the Touch Screen only. An on-screen (virtual) keyboard is available whenever text input is required. I

⚠️ WARNING DO NOT ATTEMPT TO INSTALL SOFTWARE THAT WAS NOT DESIGNATED FOR YOUR VENUE™ UNIT. ATTEMPTING TO INSTALL UN-APPROVED SOFTWARE WILL CAUSE IRREVERSIBLE DAMAGE TO HARDWARE AND SOFTWARE!

⚠️ NOTICE IMPORTANT Since neither the System Serial Number or the Computer Name can be changed after the software installation procedure is completed, it is important to make sure that when prompted, the correct information is inserted during the installation procedure.

When installing the Windows operating system software, after replacement of the SSD module, it is necessary to format the hard disk.

Be aware that this will perform a full format of the Hard Disk and **all patient data will be lost**.

Normally, the Venue™ system is supplied with the software already installed. In some cases, it is necessary to re-install the software.

⚠️ WARNING WHILE THE SOFTWARE INSTALLATION PROCEDURE IS DESIGNED TO PRESERVE DATA, YOU SHOULD SAVE ANY PATIENT DATA, IMAGES, SYSTEM SETUPS TO BACKUP MEDIA BEFORE DOING A SOFTWARE INSTALLATION.

NOTE: After performing a software installation, all logs are deleted. It is recommended that these should be recorded should they be needed in the future.

⚠️ NOTICE IMPORTANT Before performing any Venue™ software installation procedure, it is mandatory to backup the Archive.

If you are upgrading the system software from a previous version, it is necessary to contact your local OTR department to receive an appropriate software password. Make sure you specify the system serial number located on the Venue™ unit.

8-9-4-1 Preparation for Software Installation Procedures

NOTE: Make sure that the required Software Option keys are available prior to commencing the installation process. Do not use the Software Option keys from a previous system version.

⚠️ CAUTION THIS PROCESS FORMATS THE HARD DRIVE (WHEN SELECTION OF THIS OPTION IS APPLICABLE) - MAKE SURE TO SAVE ALL THE REQUIRED PRESETS, SETTINGS AND PATIENT DATA!

⚠️ WARNING REMOVE ALL EXTERNAL DEVICES SUCH AS PRINTERS AND USB CONNECTIONS BEFORE STARTING THE UPGRADE PROCEDURE.

At the site, perform the following steps before you start the upgrade procedure:

- 1.) Perform Disk Management for all database records and select the "Copy" option (for instructions, refer to the Venue™ User Manual on your Document Media).

NOTE: It is recommended that Disk Management be executed using the "move" option to a network repository.

- 2.) Perform a full back-up for Patient Archive and System Configuration
(for instructions, refer to the Venue™ User Manual on your Document Media).
- 3.) Write down the following settings as it will be necessary to restore them at the end of the process:
 - TCP/IP address
 - Network printer (if present)
 - Wireless network settings (if present)
 - InSite ExC settings
- 4.) When done, continue to [Table 8-4](#) on page 8-216.

8-9-4-2 Operating System and/or Application Software Installation Procedure

NOTE: *A minimum of 1 hour is required to install both the Windows operating system and the Venue™ application software. This excludes preparation time, backup etc. and performing functional checks following the installation procedures.*

Throughout the installation processes, the Venue™ system will be unavailable for scanning.

Section [Section 8-9](#) on page 8-184 provides step-by-step instructions for installation of Windows operating system software and Venue™ ultrasound scanner software application. However, these procedures may be performed separately, as required.

Follow the installation instructions below, as appropriate:

- Windows operating system and Venue™ s/w application:
- Windows operating system ONLY:
- Venue™ software application ONLY:

NOTE: *It is necessary to perform the recommended Functionality Checks after completion of the installation procedures, when installing the following:*

- Windows operating system and Venue™ s/w application
- Venue™ software application ONLY

8-9-5 Software Installation Procedure

NOTE: *Images in this procedure are for reference only. There may be differences or variations, in accordance with different software versions.*

- 1.) Disconnect all probes.
- 2.) Plug the Software Installation Media into the USB port located on the Interface Panel of the Venue™.
- 3.) Turn on the system.
The opening screen is displayed.
- 4.) For new installation (after SSD replacement), tap **Format SSD and Install**.

If patient information is stored on the SSD, perform one of the following:

Select **Update SW** to install software without affecting user data.

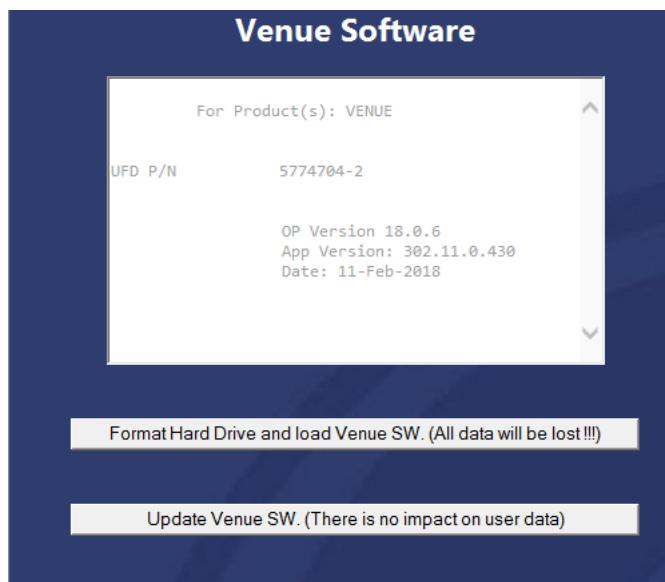


Figure 8-248 Venue™ Software - Installation Options

The **Warning** message appears:

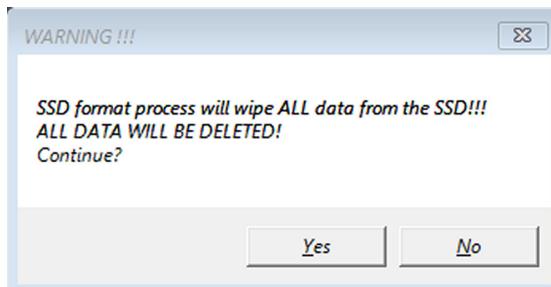


Figure 8-249 Venue™ SSD Format- Warning Message

- 5.) Click **Yes** in the Warning message box.
- 6.) Automatic installation process runs. At the end of the process, the following message appears:

- 7.) Select Exit and Reboot. Wait until the INFORMATION dialog box appears:



Figure 8-250 Venue™ Installation Process- Information Dialog Box

- 8.) Disconnect the SW installation media and tap **OK** in the message box.
9.) In the Confirmation dialog box that appears, tap **Yes** to continue the reboot.:



Figure 8-251 Venue™ Installation Process- Confirmation Dialog Box

- 10.)Tap **Yes** to continue the reboot.
11.)After the system reboots, the Venue™ setup wizard welcome screen appears.:
12.)Select the interface language and tap **OK** to proceed.

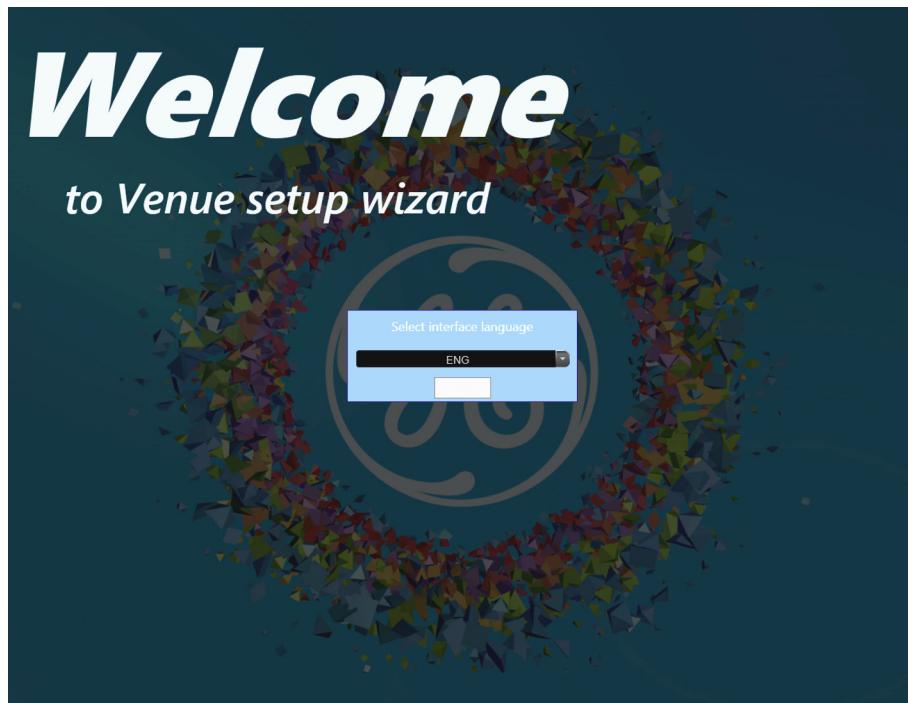


Figure 8-252 Venue™ Installation Wizard - Welcome Screen

13.) Tap **Run wizard** to continue the installation.



Figure 8-253 Venue™ Installation Wizard - Run Wizard

14.) Enter the system serial number and tap OK to confirm.

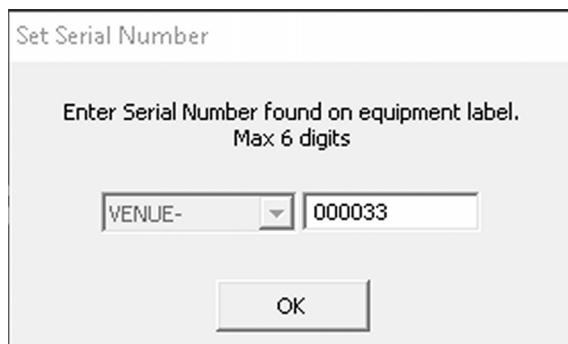


Figure 8-254 Venue™ Installation Process- Set Serial Number

15.) Tap **OK** to confirm the serial number.

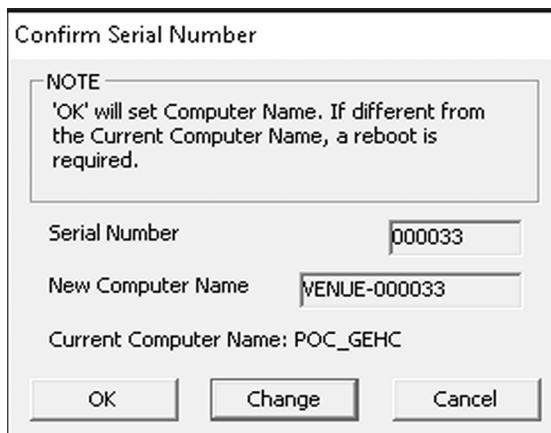


Figure 8-255 Venue™ Installation Process- Confirm Serial Number

16.) The settings screen appears. The **Local** tab opens by default.

17.) Continue with the EZ Config installation as specified in [Section 3-6-2-1](#) on page 3-27.



Perform the checks listed in [Operating System and Application Software Installation Procedure](#) on page 8-219

8-9-6

NOTE: *The downgrade procedure is only applicable for R1 systems in which the R2 upgrade procedure failed.*

8-9-7 Software Recovery Procedure

NOTE: *Images in this procedure are for reference only. There may be differences or variations, in accordance with different software versions.*

The software recovery procedure allows the user to reload the operating system and the application (Drive C:\ partition) without affecting any user information or PHI data.

This procedure can be initiated from the configuration screen under the **Service** tab.

- 1.) Boot the system into the application screen and open the Config menu.
- 2.) Open the **Service** tab.

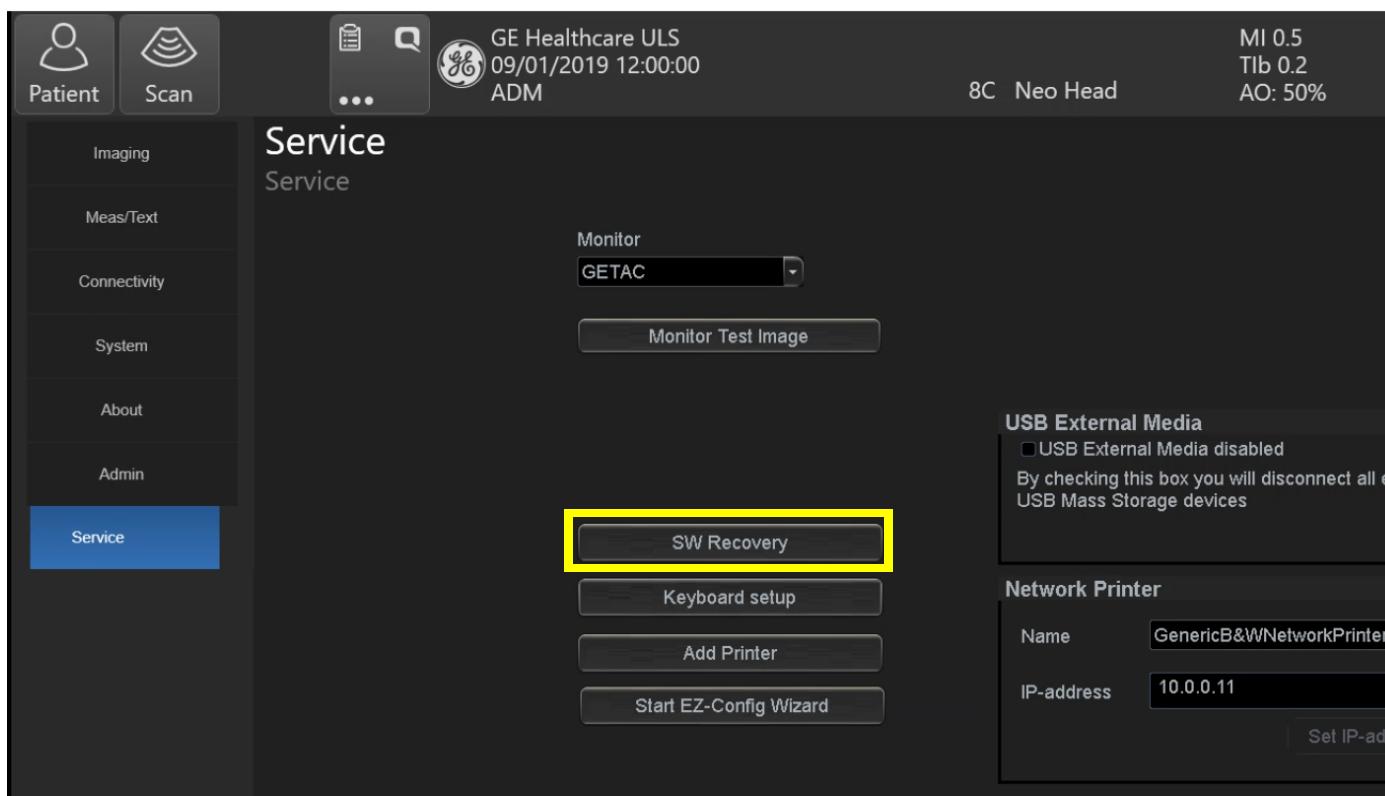


Figure 8-256 Service Tab

- 3.) Select **SW Recovery**.

- 4.) A pop up window will be displayed, notifying the user about the next steps..



Figure 8-257 Information window

- 5.) Select **OK**. Windows recovery options will be displayed.
6.) Select **Troubleshoot**.

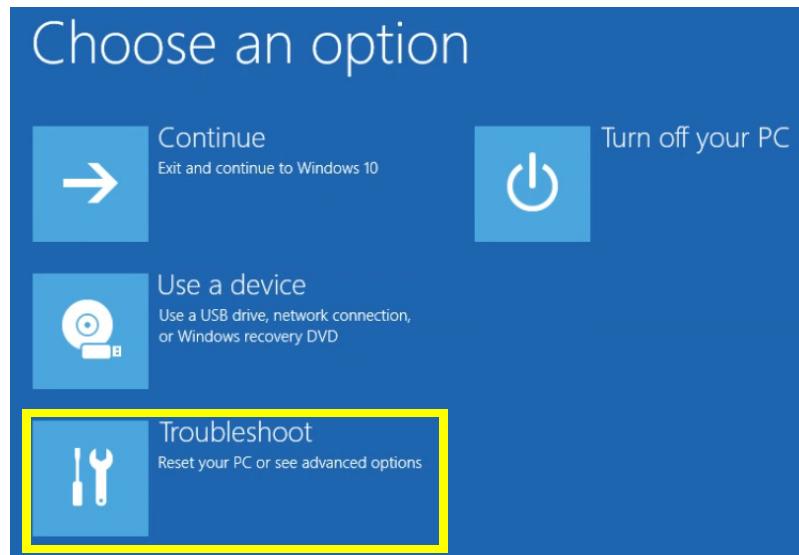


Figure 8-258 Recovery Options

- 7.) select **Venue SW reload**.

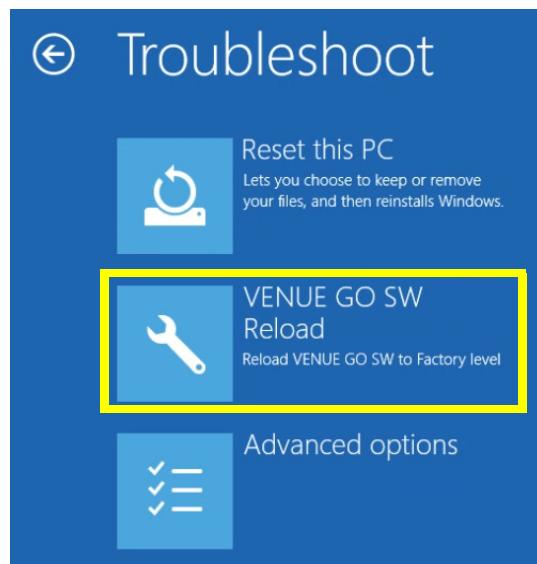


Figure 8-259 Troubleshoot Window

- 8.) The system will reboot automatically and the **Venue SW reload** window will be displayed.

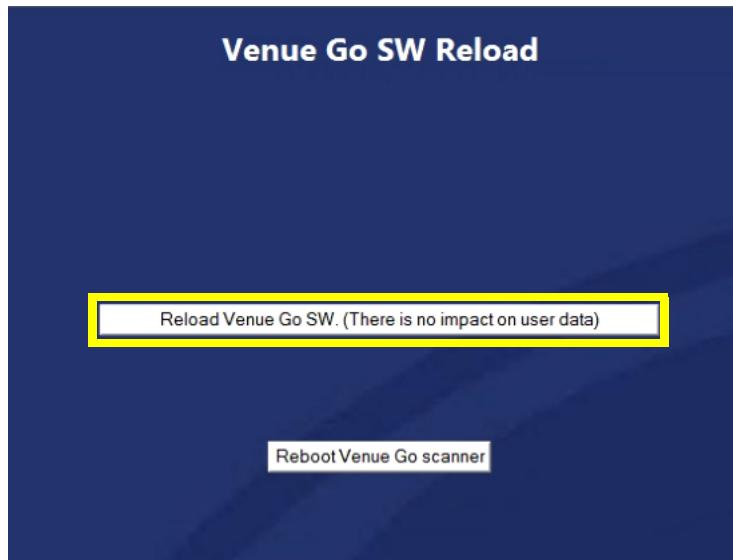


Figure 8-260 Venue SW Reload

- 9.) Select **Reload Venue SW**. The software reload process will start.
- 10.) Once the process is complete, The **Venue SW reload window** will be displayed again.
- 11.) Select **Reboot Venue Scanner**.
- 12.) The system will reboot.

13.) Continue with Venue GO EZ Config Setup Wizard:



- EZ Config - Setup Wizard

Functionality
Checks



Perform the checks listed in *Operating System and Application Software Installation Procedure* on page 8-219

Section 8-10

Functional Checks to be Performed after Replacement Procedures

8-10-1 General Overview

Table 8-4 below lists the Functional Checks to be performed after each Replacement Procedure. For easy reference, these are grouped in accordance with the various categories of Venue™ replacement parts.

! NOTICE **IMPORTANT - AFTER PERFORMING A REPLACEMENT PROCEDURE, ALWAYS REPORT TO THE GE SERVICE SYSTEM, AS DESCRIBED BELOW.**

8-10-2 Functional Checks Required per Replacement Part Category

Table 8-4 lists the Functional Checks to be performed after each type of Replacement Procedure. For quick reference, these are grouped in accordance with the various Venue™ part categories

Table 8-4 Replacement Procedures - Functional Checks Required

| Repl. Part Category | Replacement Procedure | Functional Checks Required |
|---------------------|--|---|
| Covers | Lower Front eTower Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Left Side eTower Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Right Side eTower Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Mid Thermal Baffle Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Upper eTower Front Cover Replacement Procedure | <ul style="list-style-type: none"> Mechanical Functions Checks |
| | Front Base Cover Replacement Procedure | <ul style="list-style-type: none"> Mechanical Functions Checks |
| | Upper eTower Front Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Printer Insert Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | MPB Door Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | RS Probe Cover Replacement Procedure | <ul style="list-style-type: none"> No functional checks are required |
| | Riser Thermal Cover Replacement Procedure | <ul style="list-style-type: none"> Perform 7-3-3 -System Diagnostics Select Full System Diagnostics without JIG. |
| | Riser Cover Replacement Procedure | <ul style="list-style-type: none"> Perform 7-3-3 -System Diagnostics Select Full System Diagnostics without JIG. Mechanical Functions Checks Ground Continuity Test |
| System Modules | Base Module Replacement Procedure | <ul style="list-style-type: none"> Perform 7-3-3 -System Diagnostics Select Full System Diagnostics without JIG. Mechanical Functions Checks |
| | Front End Metal Door Replacement | <ul style="list-style-type: none"> Perform 7-3-3 -System Diagnostics Select Full System Diagnostics without JIG. |

Table 8-4 Replacement Procedures - Functional Checks Required (Continued)

| Repl. Part Category | Replacement Procedure | Functional Checks Required |
|--------------------------|---|---|
| | Full Front End Replacement | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | SSD Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | Cockpit (Monitor) Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | PSU Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | Battery Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | Back End (BE) Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | MPB Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | T-CFE (cFront End) Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | T-PSB Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | | |
| Electronic Boards | BIB Board Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | SSD Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | BIB Board Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | T-CFE Release Arm Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | Front End Power Supply (T-FEPS) Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | T-TRx Box Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | T-TRx Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | | |
| Mechanical Parts | MPB Front Metal Door Replacement Procedure | <ul style="list-style-type: none"> • No functional checks are required |
| | MPB Guide L and Guide R Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |

Table 8-4 Replacement Procedures - Functional Checks Required (Continued)

| Repl. Part Category | Replacement Procedure | Functional Checks Required |
|---------------------|---|--|
| | Halo Handle Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. • Mechanical Functions Checks • Ground Continuity Test |
| | Articulated Arm Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. • Mechanical Functions Checks • Ground Continuity Test |
| | Riser Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. • Mechanical Functions Checks • Ground Continuity Test |
| | Casters Replacement Procedure | <ul style="list-style-type: none"> • Mechanical Functions Checks |
| | Plastic Cable Guide for CFE Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | MPB Blower (Fan) Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | IPP Module Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. • Ground Continuity Test |
| <hr/> | | |
| Cables | MPB Rear USB Cable Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | ON/OFF Switch Cable Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | PCIe Cable Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | MPB to BIB Control Cable Replacement Procedure | <ul style="list-style-type: none"> • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |
| | Printer USB Cable Replacement Procedure | <ul style="list-style-type: none"> • No functional checks are required |
| <hr/> | | |

Table 8-4 Replacement Procedures - Functional Checks Required (Continued)

| Repl. Part Category | Replacement Procedure | Functional Checks Required |
|---|---|---|
| Operating System and/or Application Software Loading | Operating System and Application Software Installation Procedure <i>OR</i> Application Software (only) Installation Procedure Note: The above procedures are described in Software Installation Procedure . | <ul style="list-style-type: none"> • Power on/Boot up • Power Shut Down • Probe/Connectors Check • 2D Mode (B Mode) Checks • M Mode Checks • PW/CW Doppler Mode Checks • Audio Check • Peripheral Checks • Perform 7-3-3 -System Diagnostics • Select Full System Diagnostics without JIG. |

Chapter 9

Renewal Parts

Section 9-1 Overview

9-1-1 Purpose of Chapter 9

This chapter gives you an overview of replacement parts for the Venue™ ultrasound scanner.

NOTE: *In the detailed Parts lists, illustrations are accompanied by FRU names, corresponding Part Numbers and a compatibility matrix.*

This Repl Proc icon  indicates refer to the instructions in [Chapter 8 - Replacement Procedures](#).

NOTE: *The illustrations provided in this chapter are for illustration purposes only and are subject to change without notice.*

Section 9-2

List of Abbreviations

- **Assy** - Assembly
- **T-BEP** - Back End Processor
- **T-CFE** Control Front End
- **CRU** Customer-replaceable Unit
- **Ctrl** - Control
- **T-FEPS** Front End Power Supply
- **LCD** - Liquid Crystal Display
- **Int** - Internal
- **I/O** - Input/Output
- **T-PSB** Probe Selection Board
- **TS** - Touch Screen

Section 9-3 Main Assemblies and Sub Assemblies

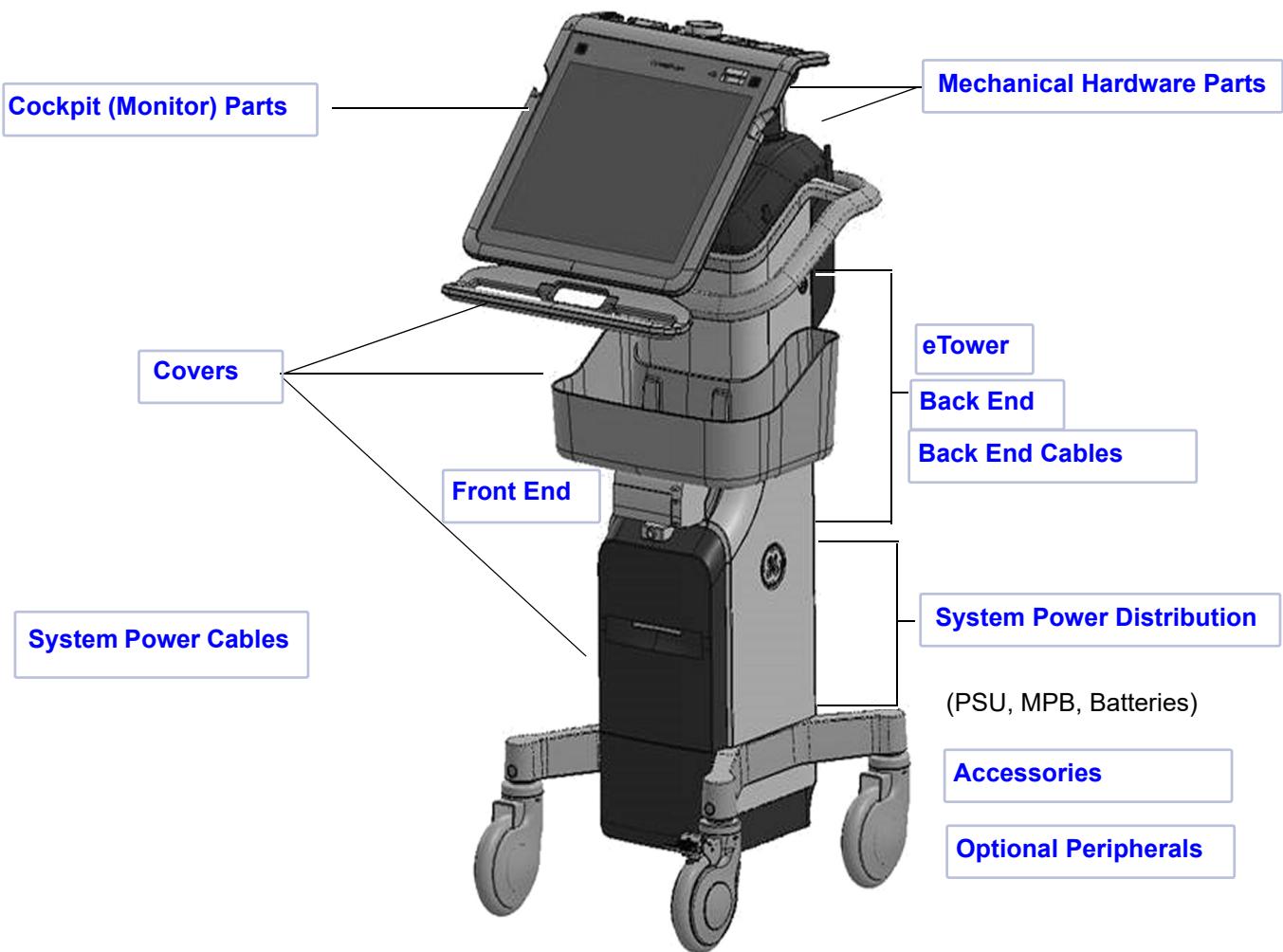


Figure 9-1 Venue™ System View

Section 9-4

Renewal Parts Lists and Diagrams

9-4-1 Mechanical Hardware Parts

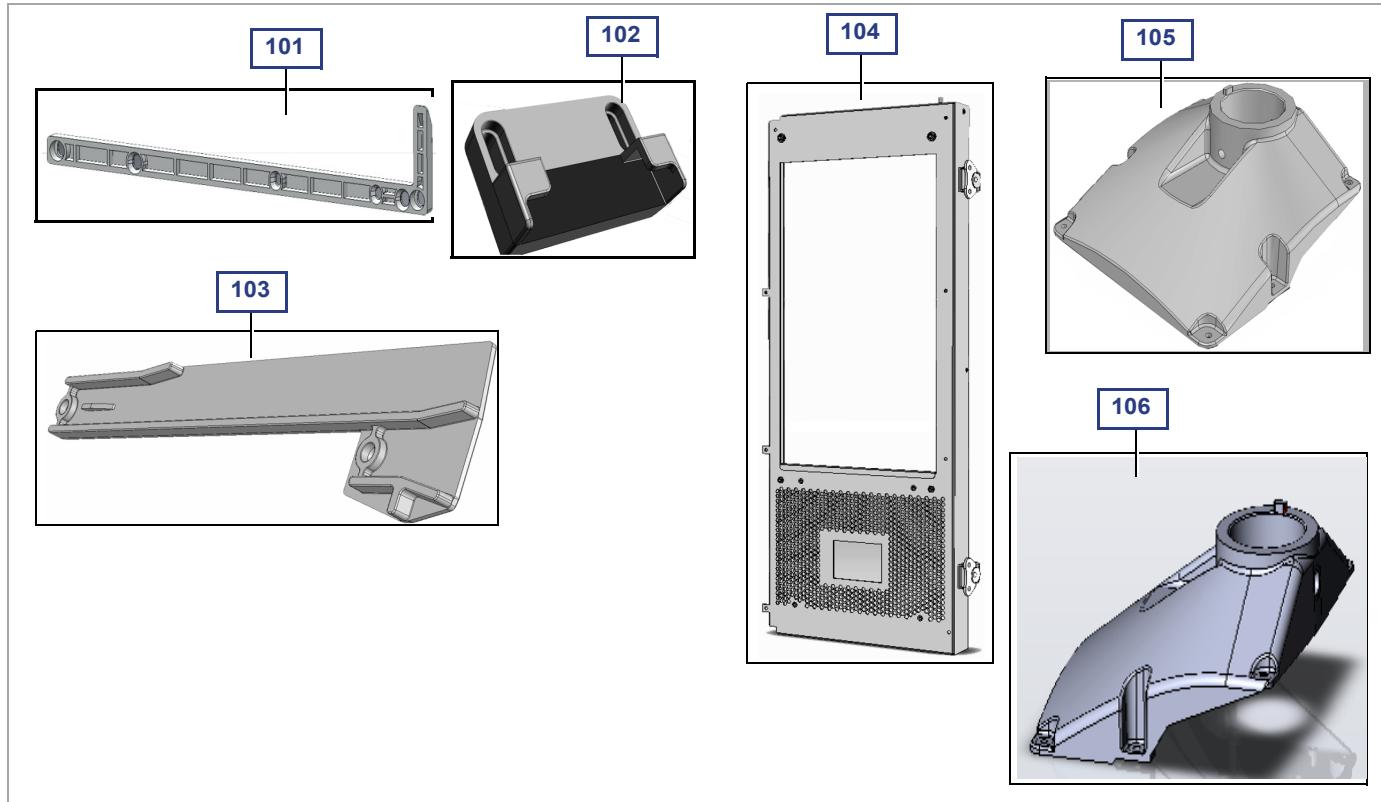


Figure 9-2 Mechanical Hardware Parts - Diagram 1

Table 9-5 Mechanical Hardware Parts - Diagram 1

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part | Not Compatible With | Rep I Pro |
|------|--|-------------|--------------------|-------------------------|---------------------|-----------|
| 101 | CFE RELEASE ARM | S5430823 | | | | |
| 102 | Plastic Cable Guide for CFE FRU | S5432232 | | | | |
| 103 | MPB GUIDES L and R FRU | S5737527 | | | | |
| 104 | FRONT END METAL DOOR- FRU | S5731310 | | | | |
| 105 | Riser - FRU | S5759997 | | | | |
| 106 | Mechanical - RISER with Friction Adj. hole FRU | S5759997-1 | | | | |

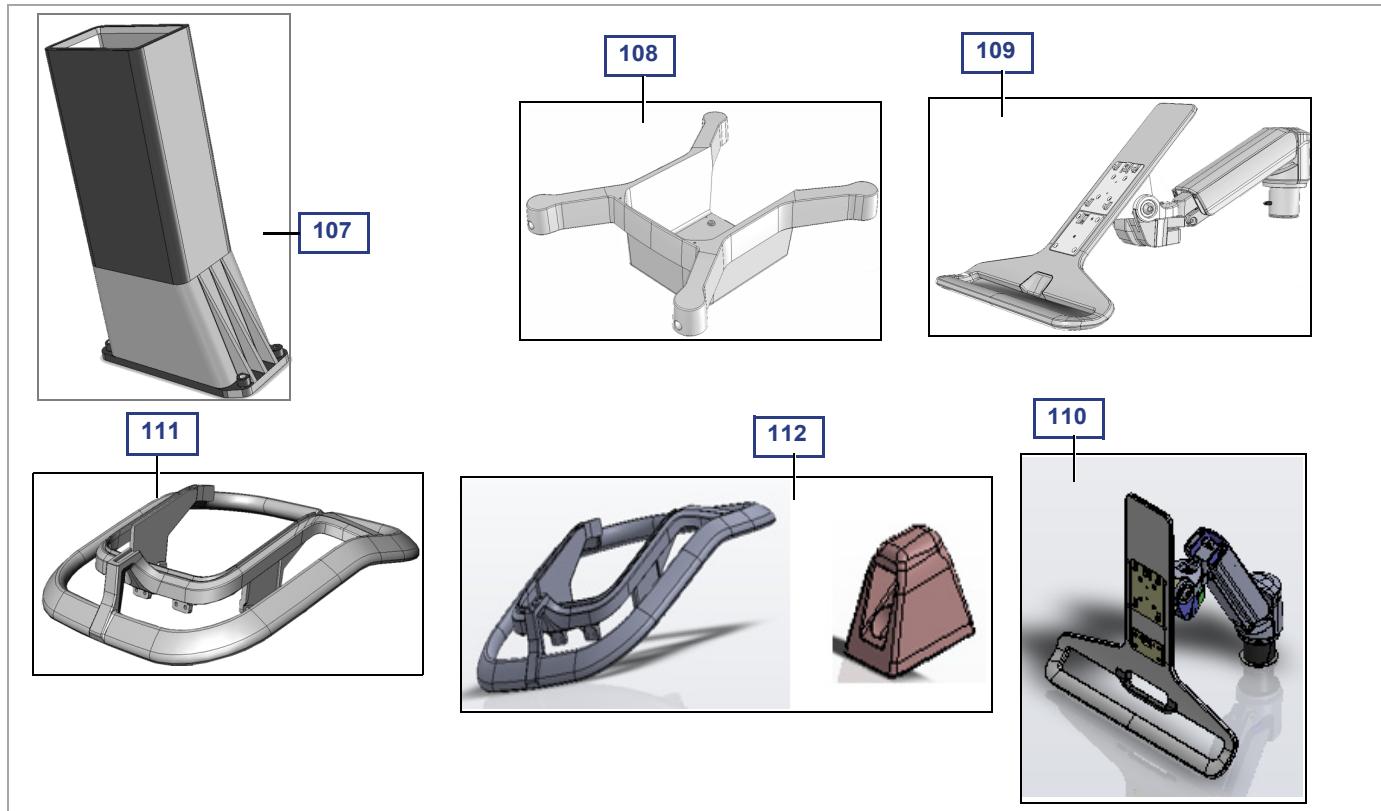


Figure 9-3 Mechanical Hardware Parts - Diagram 2

Table 9-6 Mechanical Hardware Parts - Diagram 2

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|---|--------------|--------------------|---------------------------|---------------------|---|
| 107 | MPB FAN SLEEVE FRU | S5755990 | | | | |
| 108 | Base Module - FRU | S5759996 | | | |  |
| 109 | Articular Arm Module - FRU | S5759998 | | | S5759999-1 |  |
| 110 | Articular Arm Module with Locking - FRU Applicable only for systems with serial number > 140 | S5759998-1 | | | S5759999 |  |
| 111 | Halo Handle - FRU | S5759999 | | | S5759998-1 |  |
| 112 | Halo Handle with Locking - FRU Applicable only for systems with serial number > 140 | S5759999 - 1 | | | S5759998 |  |

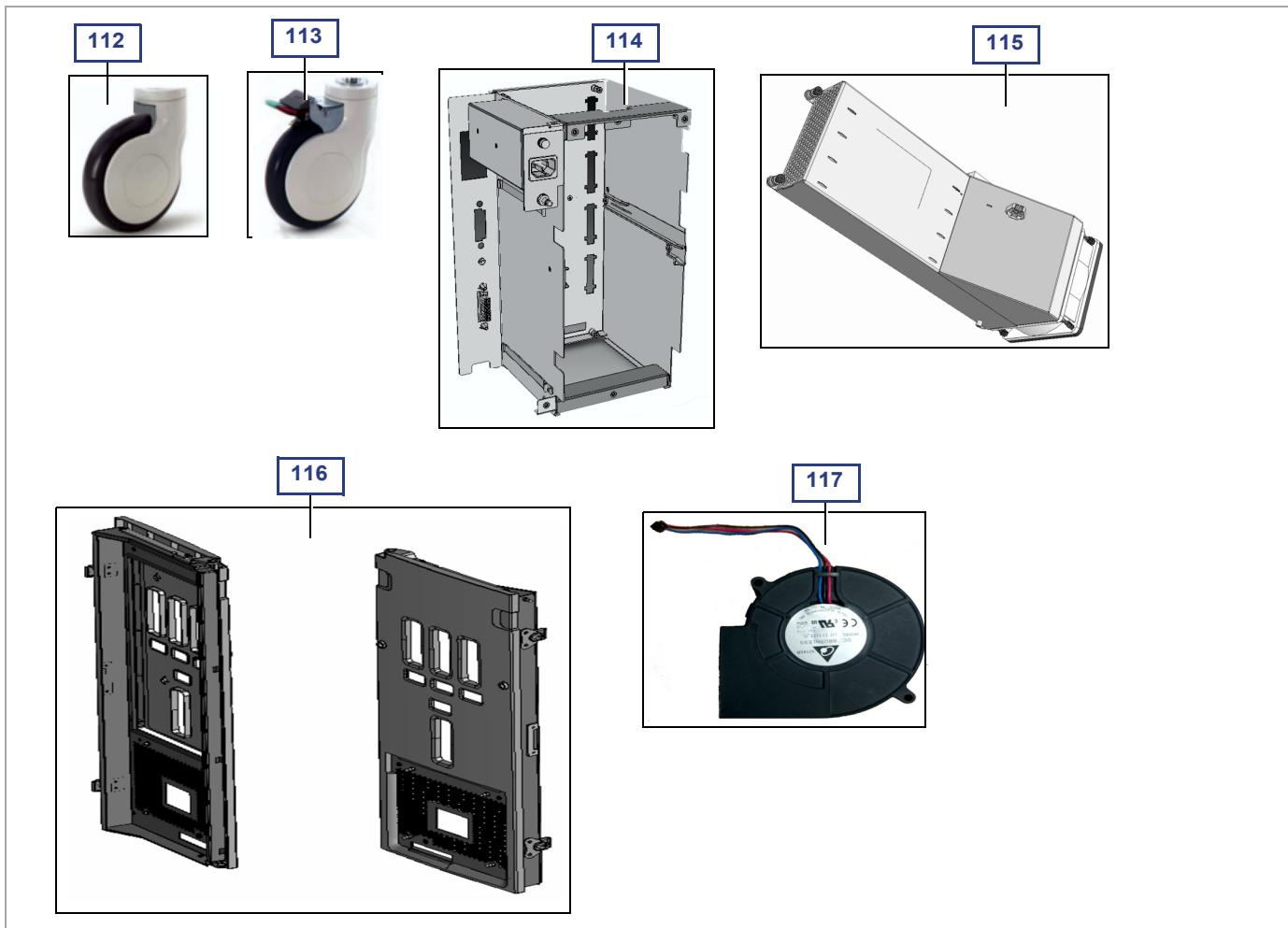


Figure 9-4 Mechanical Hardware Parts - Diagram 3

Table 9-7 Mechanical Hardware Parts - Diagram 3

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|-----------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 112 | NO LOCK CASTOR | S5755602-1 | | | | |
| 113 | DIRECTIONAL and BRAKE LOCK CASTOR | S5755602 | | | | |
| 114 | Module - MPB RECEPTACLE - FRU | S5730133 | | | | |
| 115 | T-TRX BOX Assy- CRU | S5730759 | | | | |
| 116 | FE DOOR ASSY | S5730539 | | | | |
| 117 | MPB BLOWER CRU | S5755992 | | | | |

9-4-2 Covers

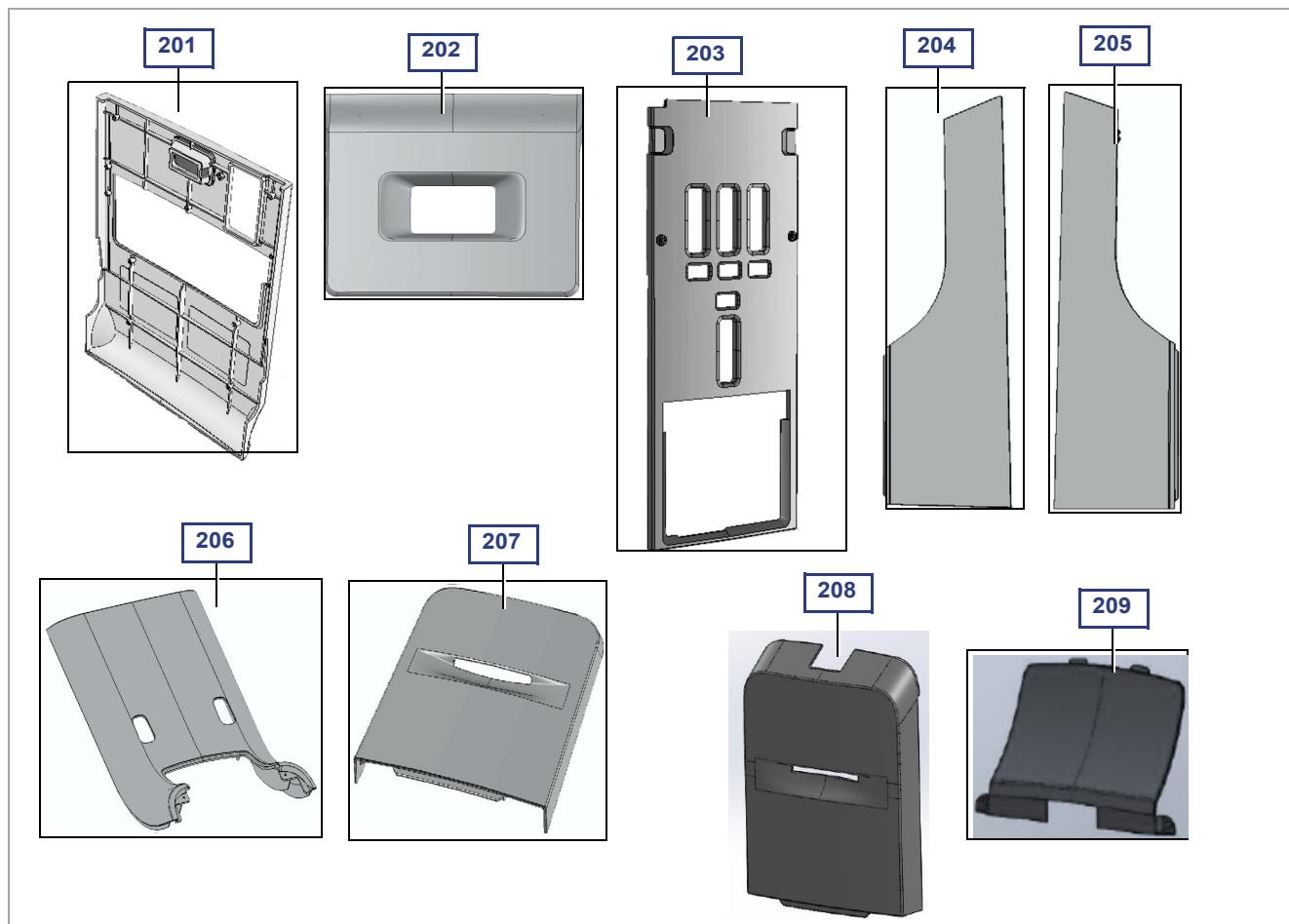


Figure 9-5 Covers - Diagram 1

Table 9-8 Covers - Diagram 1

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc | CRU |
|------|-------------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|-----|
| 201 | Cover: MPB Door | S5759973 | | | | RP | |
| 202 | Cover: Mid Thermal Baffle - FRU | S5759974 | | | | RP | |
| 203 | Cover: Scanner Door- FRU | S5759978 | | | | | |
| 204 | Cover: Right Side eTower - FRU | S5759982 | | | | RP | |
| 205 | Cover: Left Side eTower - FRU | S5759983 | | | | RP | |
| 206 | Cover: Upper eTower Front - FRU | S5759985 | | | | RP | |
| 207 | Cover: Lower Front eTower - FRU | S5759986 | | | | RP | |
| 208 | Cover: Lower Front with ECG Support | S5759986-2 | | | | RP | |
| 209 | Cover: Printer Insert - FRU | S5759987 | | | | RP | |

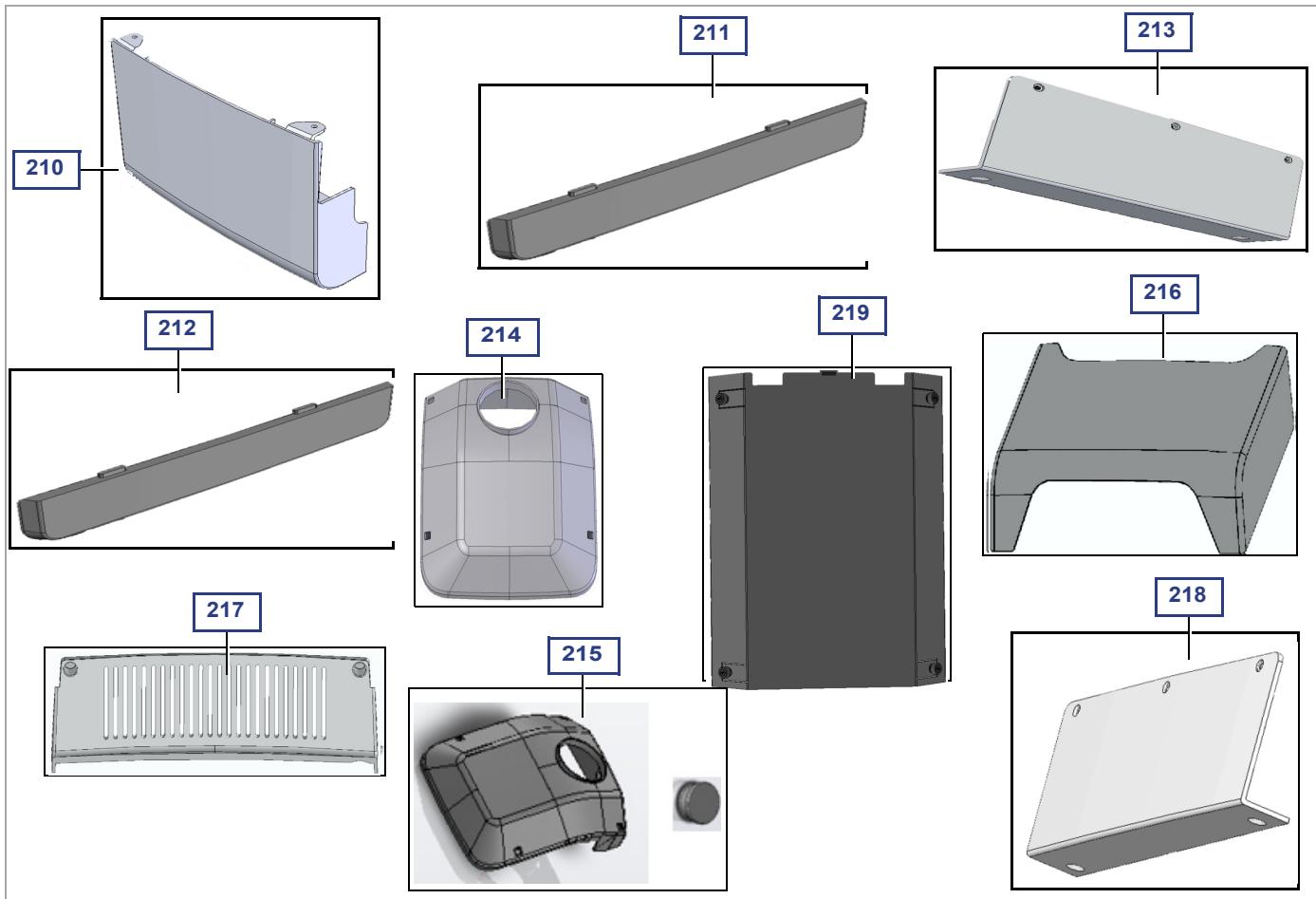


Figure 9-6 Covers - Diagram 2

Table 9-9 Covers - Diagram 2

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc | CRU |
|------|--|-------------|--------------------|---------------------------|---------------------|-----------|-----|
| 210 | Cover: Front Base FRU | S5759988 | | | | | |
| 211 | Cover: Left Side Base- FRU | S5759989 | | | | | |
| 212 | Cover: Right Side Base - FRU | S5759990 | | | | | |
| 213 | Cover: Right Base Bottom - FRU | S5759991 | | | | RP | |
| 214 | Cover: Riser - FRU | S5759992 | | | | RP | |
| 215 | Cover: Riser with Friction Adj. Hole FRU | S5759992-1 | | | | RP | |
| 216 | Cover: RS Probe Connector - FRU | S5759993 | | | | RP | |
| 217 | Cover: Riser Thermal - FRU | S5759994 | | | | RP | |
| 218 | Cover: Left Base Bottom - FRU | S5759995 | | | | RP | |
| 219 | MPB Front Metal door FRU | S5731685 | | | | RP | |

9-4-3 System Power Distribution

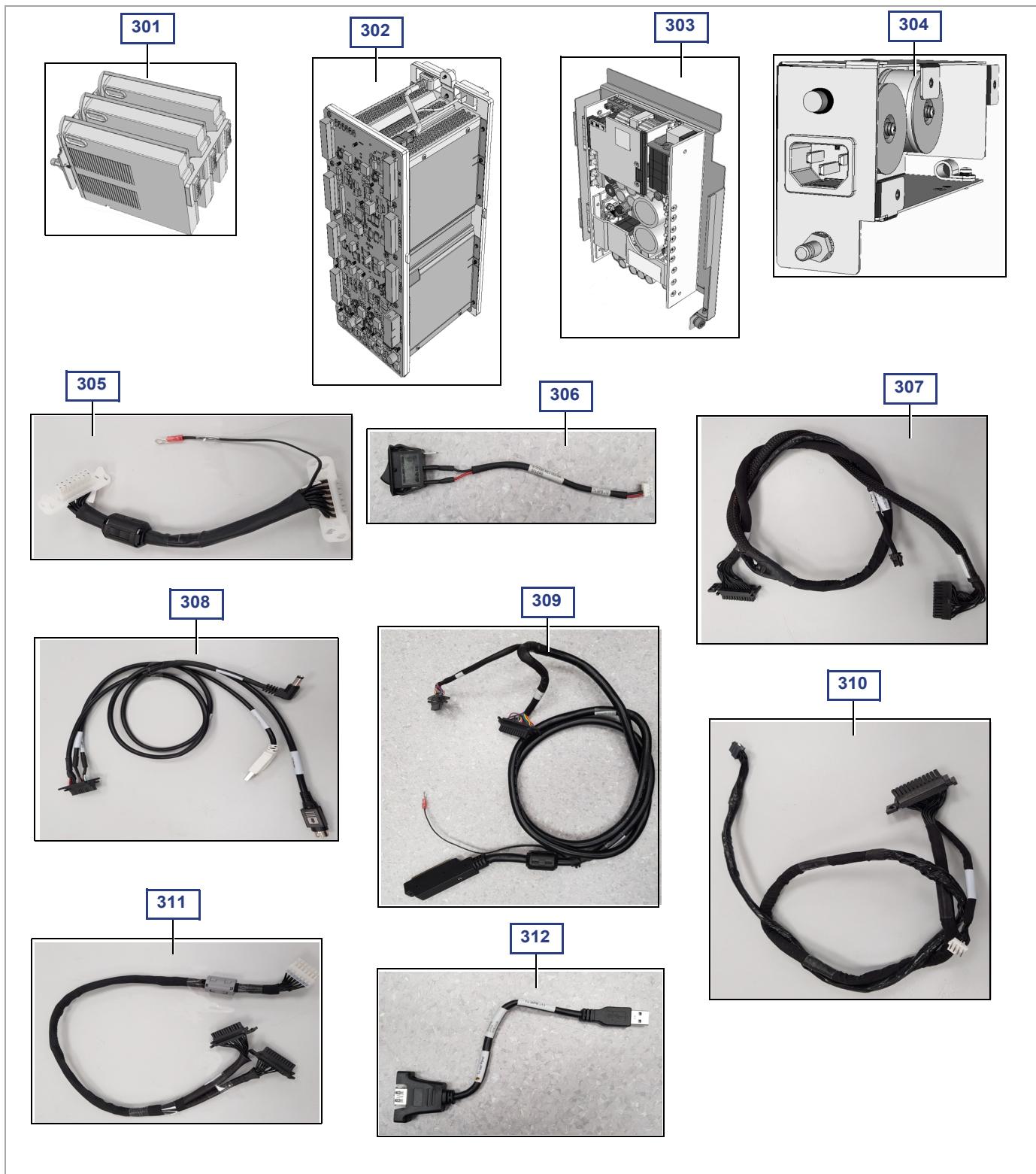
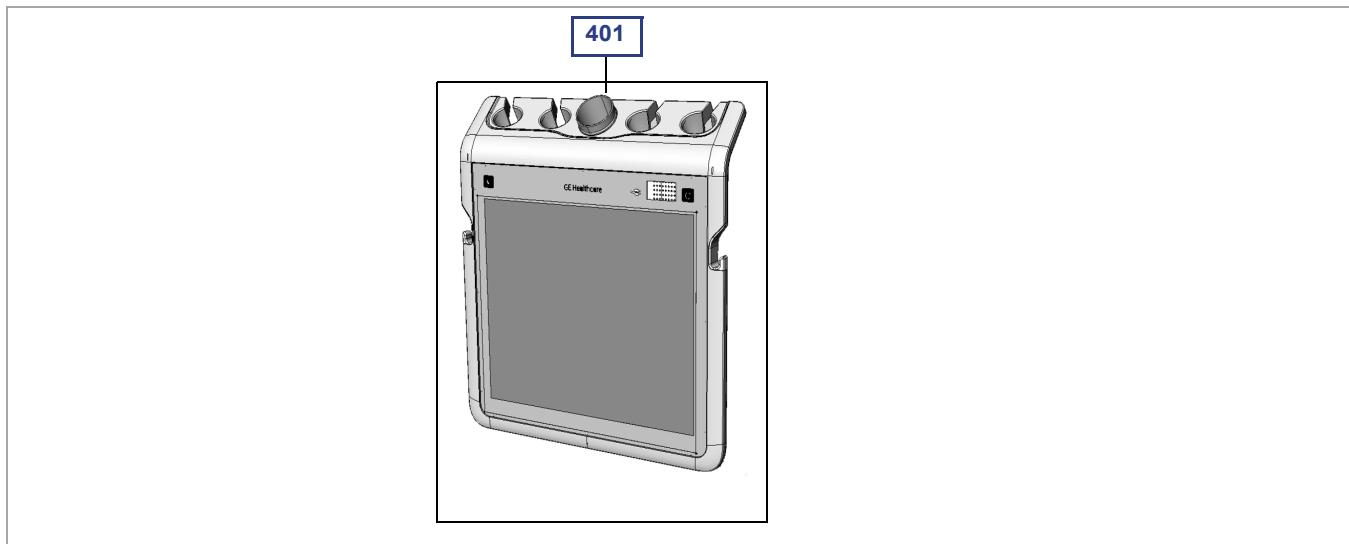


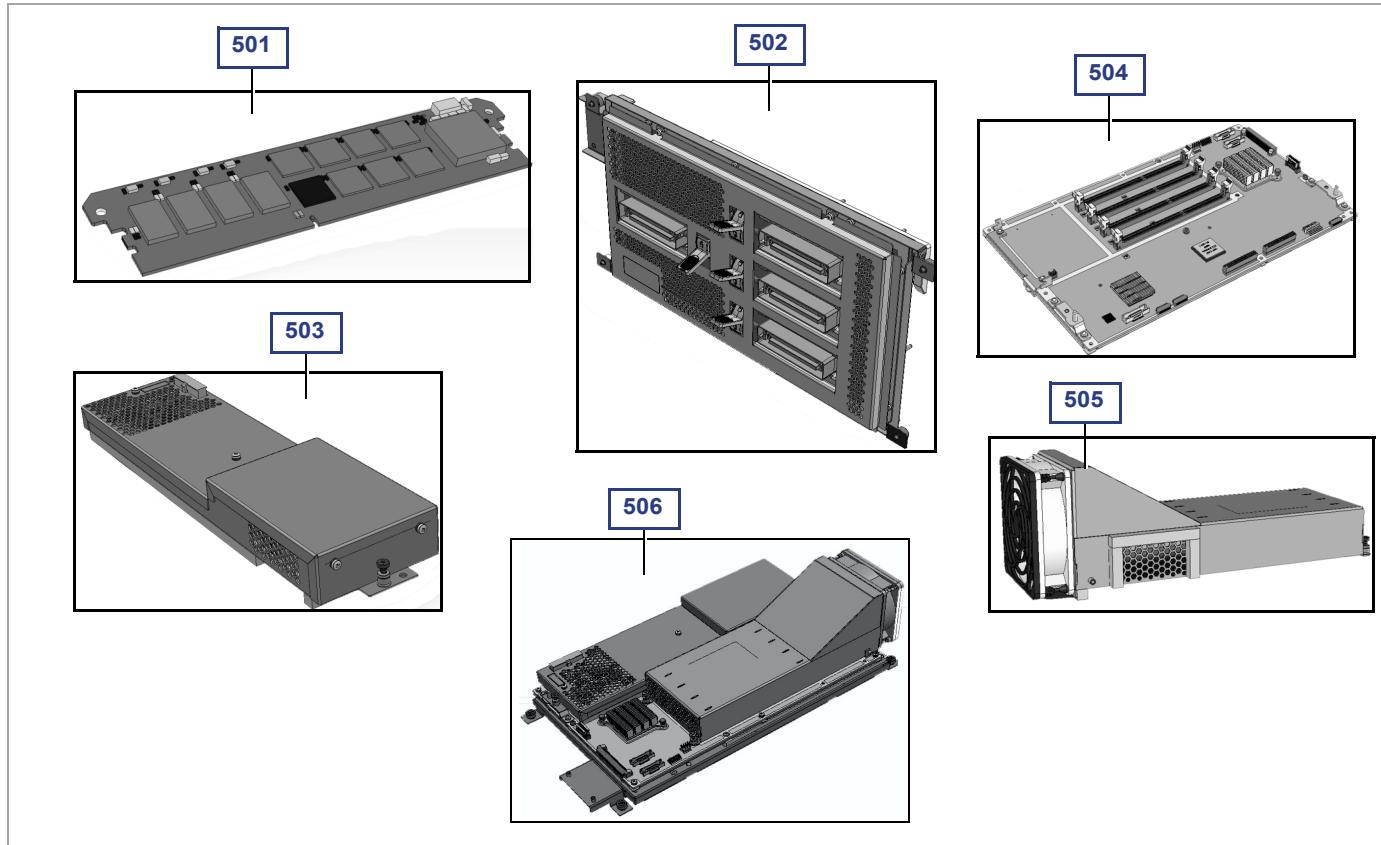
Figure 9-7 Power Parts

Table 9-10 Power Parts

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|---|-------------|--------------------|---------------------------|---------------------|---|
| 301 | BATTERY MODULE ASSY | S5737214 | 5737214 | 5737214 | |  |
| 302 | MODULE - MPB MAIN POWER BOARD- CRU | S5731214 | | | |  |
| 303 | AC-DC PS - CRU | S5730963-1 | | | |  |
| 304 | MODULE IPP - FRU | S5730761 | | | |  |
| 305 | Cable: PSU to MPB DC Docking - FRU | S5721128 | | | | |
| 306 | Cable: ON-OFF switch - FRU | S5737035 | | | |  |
| 307 | Cable: MPB TO T-FEPS - FRU | S5721141 | | | | |
| 308 | Cable: MPB To peripherals harness - FRU | S5721126 | | | | |
| 309 | Cable: MPB TO COCKPIT - FRU | S5721144 | | | |  |
| 310 | Cable: MPB TO BIB CONTROL - FRU | S5721137 | | | |  |
| 311 | Cable: MPB TO BE PWR - FRU | S5721129 | | | | |
| 312 | Cable: MPB REAR USB - FRU | S5721620 | | | | |

9-4-4 Cockpit (Monitor) Parts**Figure 9-8 Cockpit (Monitor) Parts****Table 9-11 Cockpit (Monitor) Parts**

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc | CRU |
|------|--------------------|-------------|--------------------|---------------------------|---------------------|-----------|-----|
| 401 | MODULE COCKPIT CRU | S5737034 | | | | RP | |

9-4-5 eTower**9-4-5-1 Front End****Figure 9-9 Electronic Cards and Assemblies****Table 9-12 Front End Components**

| Item | Part Name | Part Number | Can | Can Be | Not | Repl | |
|------|---|-------------|---------|----------|------------|------|---|
| | | | Replace | Replaced | Compatible | | |
| 501 | Module: T-TRX FRU | S5764764 | | | | RP | |
| 502 | Module: T-PSB Probe Selection Board - FRU | S5726584 | | | | RP | |
| 503 | Module: T-FEPS Front End Power Supply - FRU | S5721459 | | | | RP | ? |
| 504 | Module,T-CFE cSound Front End - FRU | S5730757 | | | | RP | |
| 505 | T-TRX BOX Assy- CRU | S5730759 | | | | RP | |
| 506 | FULL FE MODULE - CRU | S5721151 | | | | RP | |

9-4-5-2 Back End

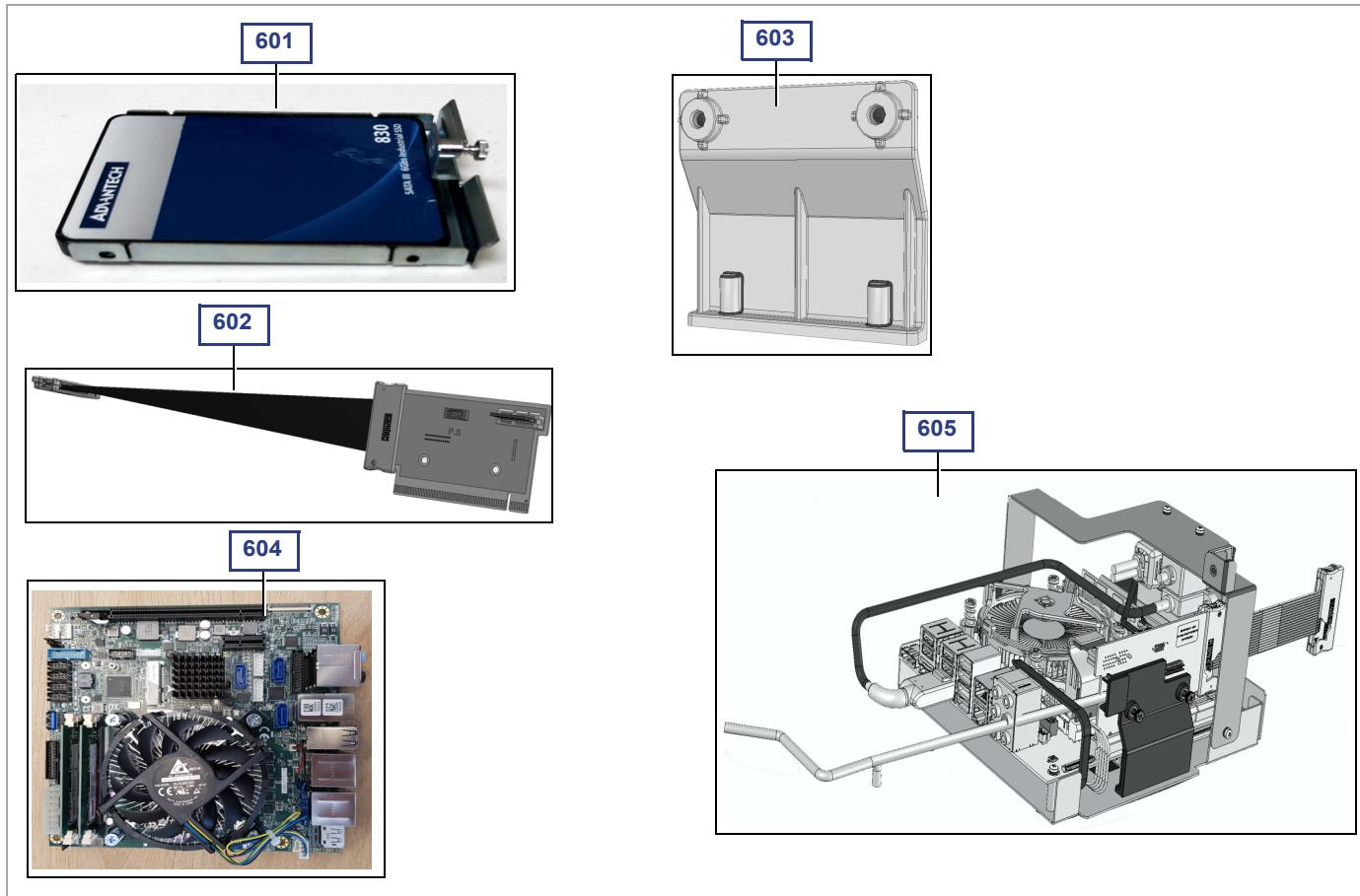


Figure 9-10 Back End

Table 9-13 Back End

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|-------------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 601 | SSD MODULE - FRU | S5728757 | | | | |
| 602 | Module- BIB BackEnd Interface - FRU | S5727393 | | | | |
| 603 | BIB PLASTIC BRACKET | S5728756 | | | | |
| 604 | MODULE - BEP PCB - FRU | S5729618 | | | | |
| 605 | BACK END ASSY - CRU | S5728755 | | | | |

9-4-5-3 Back End Cables



Figure 9-11 Back End Cables

Table 9-14 Back End Cables

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|------------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 701 | Cable: MITX TO SSD PWR - FRU | S5721127 | | | | |
| 702 | Cable: BIB TO BE SPLIT CABLE - FRU | S5721145 | | | | |
| 703 | Cable: BE TO IO USB3 - FRU | S5715745 | | | | |
| 704 | Cable: BE TO IO LAN - FRU | S5715747 | | | | |
| 705 | Cable: BE TO IO DP HDMI - FRU | S5715746 | | | | |
| 706 | Cable: BE to Cockpit - FRU | S5715748 | | | | |
| 707 | Cable: Printer USB - FRU | S5721142 | | | | |
| 708 | Cable: PCIe - FRU | S5715744 | | | | |
| 709 | Cable: SATA DATA BE TO SSD A - FRU | S5715743 | | | | |

9-4-6 Probes

Table 9-15 Probes

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With |
|------|--------------------|-------------|--------------------|---------------------------|---------------------|
| 801 | Probe: 3Sc- RS | 5433833 | 47237516 | 47237516 | |
| 802 | Probe: 8C - RS | 5499508 | | | |
| 803 | Probe: L12n - RS | 5505771 | | | |
| 804 | Probe: 12L - RS | 5499501 | | | |
| 805 | Probe: E8C-RS | 5499516 | | | |
| 806 | Probe: 9L-RS | 5499511 | | | |
| 807 | Probe: C1 - 5 - RS | 5499608 | | | |
| 808 | Probe: 6Tc- RS | KN100106 | | | |
| 809 | Probe: 6S-RS | 47236956 | | | |
| 810 | Probe: L4-12t-RS | 5435010 | | | |
| 811 | Probe: L8-18i-RS | 5499609 | | | |

9-4-7 Software

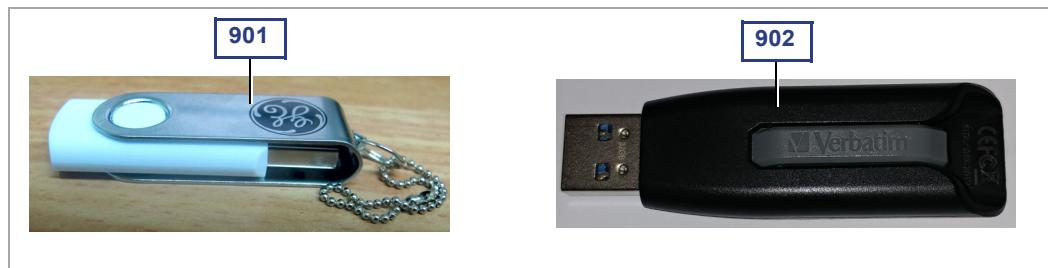


Figure 9-13 Software

Table 9-16 Software

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|-----------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 901 | Venue™ DOK SW media - FRU | S5768186 | | | | RP |
| 902 | Venue™ R2 SW Media | S5768186 -2 | | | | RP |
| 903 | Venue R2 R2.5 SW spare part | S5818955 | | | | RP |

9-4-8 System Power Cables



Figure 9-14 System Power Cables

Table 9-17 System Power Cables

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With |
|------|-------------------------|-------------|--------------------|---------------------------|---------------------|
| 1001 | Power Cable Australia | R2415383-7 | | | |
| 1002 | Power Cable Britain | R2415383-4 | | | |
| 1003 | Power Cable China | R2415383-6 | | | |
| 1004 | Power Cable Denmark | 5439668 | | | |
| 1005 | Power Cable Europe | R2418616 | | | |
| 1006 | Power Cable Israel | R2415383-1 | | | |
| 1007 | Power Cable Japan | R2415383-5 | | | |
| 1008 | Power Cable Switzerland | R2415383-8 | | | |
| 1009 | Power Cable USA/Canada | R2269460-2 | | | |
| 1010 | Power Cable Brazil | 5405959 | | | |
| 1011 | Power Cable INDIA | R2421019 | | | |

9-4-9 Accessories

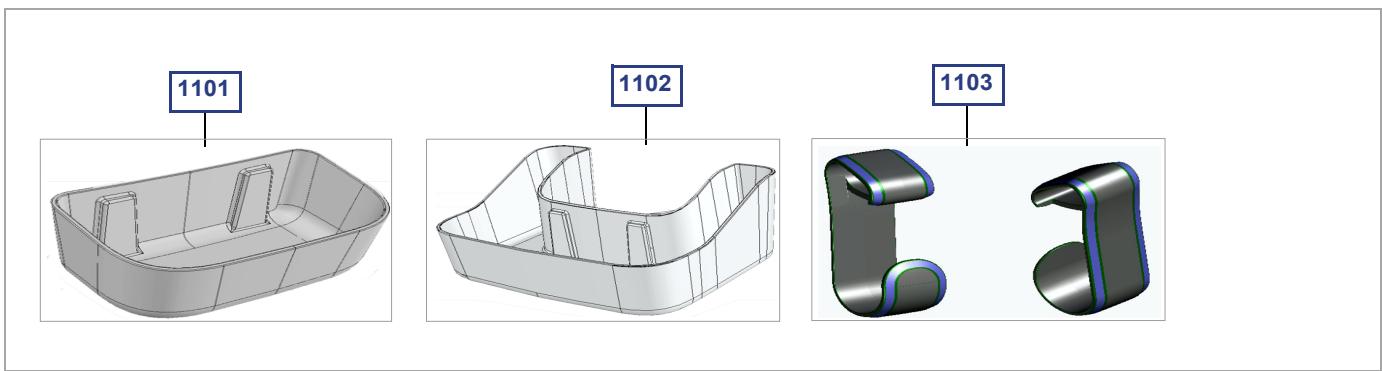


Figure 9-15 Accessories

Table 9-18 Accessories

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|----------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 1101 | Venue Basic Storage Basket - FRU | S5767134 | | | | |
| 1102 | Venue Large Storage Basket - FRU | S5767133 | | | | |
| 1103 | Venue Power Cable Holder - FRU | S5766312 | | | | |

9-4-10 Optional Peripherals



Figure 9-16 Optional Peripherals

Table 9-19 Optional Peripherals

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|--------------------------------|-------------|--------------------|---------------------------|---------------------|-----------|
| 1201 | Printer UP-D711MD Kit | 5449734 | | | | RP |
| 1202 | Printer Support Kit Spare Part | S5767756 | | | | RP |
| 1203 | USB Barcode Reader - FRU | S5767381 | | | | |
| 1204 | Wi-Fi adapter | 5728576 | | | | RP |
| 1205 | Wi-Fi Support Kit | S5767760 | | | | RP |

9-4-11 ECG Parts For Venue R2 Only

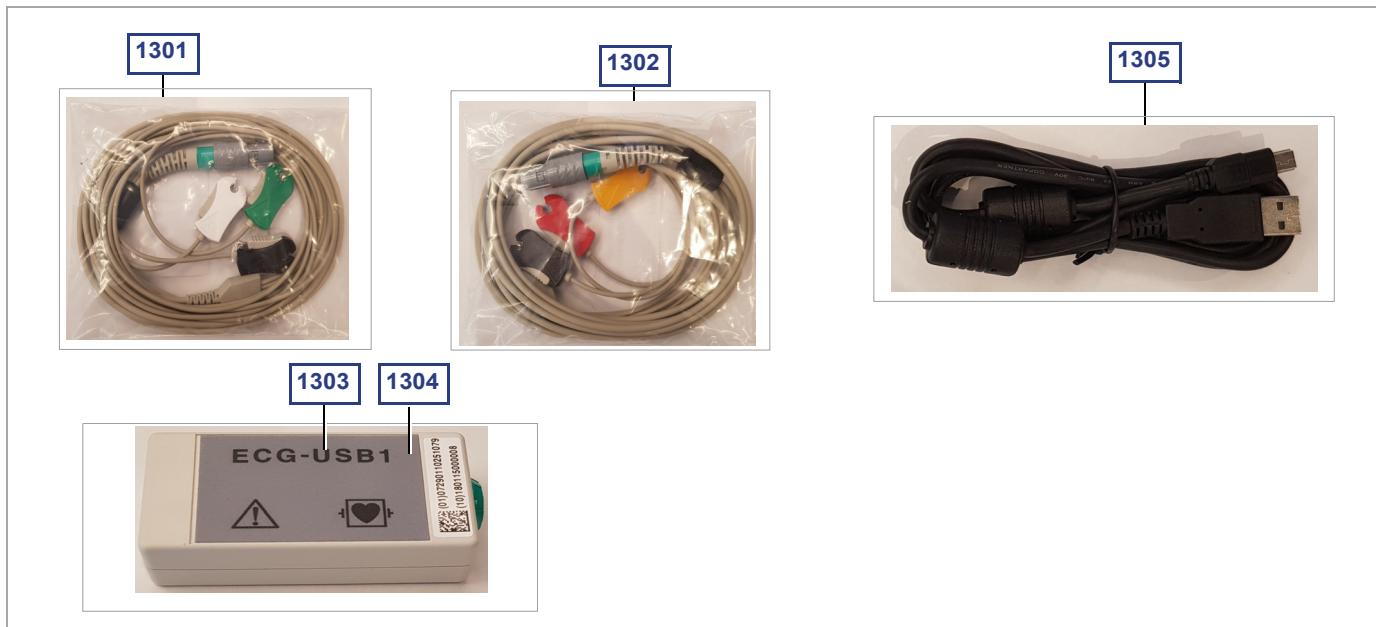


Figure 9-17 ECG Parts

Table 9-20 ECG Parts

| Item | Part Name | Part Number | Can Replace Part # | Can Be Replaced by Part # | Not Compatible With | Repl Proc |
|------|---|-------------|--------------------|---------------------------|---------------------|-----------|
| 1301 | ECG Detachable cable AHA Type USA | 5146056 | | | | |
| 1302 | ECG detachable cable IEC type EURO and ASIA | 5146739 | | | | |
| 1303 | ECG module | 5129487 | | | | RP |
| 1304 | Norav German Version ECG Module | 5800116 | | | | RP |
| 1305 | USB Cable for ECG (1.5m length) | 5146055 | | | | |



CAUTION USE ONLY APPROVED, DEFIBRILLATION-PROOF ECG PATIENT CABLES.

Chapter 10

Care and Maintenance

Section 10-1 Overview

10-1-1 Care and Maintenance Inspections

It has been determined by engineering that your Venue™ System does not have any high wear components that fail with use, therefore no Care and Maintenance inspections are mandatory. However, some customers' Quality Assurance Programs may require additional tasks and or inspections at a different frequency than listed in this manual.

10-1-2 Purpose of Chapter 10

This chapter describes the Care and Maintenance procedures for the Venue™ ultrasound scanner and its peripherals. These procedures are intended to **maintain the quality** of the Ultrasound **system's performance**.

Read this chapter completely and familiarize yourself with the procedures before performing a task.

Table 10-1 Contents in Chapter 10

| 10-1 | Overview | 10-1 |
|------|-------------------------|-------|
| 10-2 | Warnings | 10-2 |
| 10-3 | Why Do Maintenance? | 10-3 |
| 10-4 | Tools Required | 10-5 |
| 10-5 | System Maintenance | 10-6 |
| 10-6 | Electrical Safety Tests | 10-15 |

Section 10-2

Warnings

 DANGER



THERE ARE SEVERAL PLACES INSIDE THE CAGE, THE BATTERY, THE AC DISTRIBUTION BOX, AND THE DISTRIBUTION INTERFACE BOARD (DIB) THAT COULD BE DANGEROUS. BE SURE TO DISCONNECT THE SYSTEM POWER PLUG AND TO TURN OFF THE POWER ON/OFF SWITCH BEFORE YOU REMOVE ANY PARTS. PROCEED WITH CAUTION WHENEVER POWER IS ON AND COVERS ARE REMOVED.

 DANGER



DO NOT PULL OUT OR INSERT CIRCUIT BOARDS WHILE MAINS POWER TO THE SYSTEM IS ON.

 CAUTION

PRACTICE GOOD ESD PREVENTION. WEAR AN ANTI-STATIC STRAP WHEN HANDLING ELECTRONIC PARTS AND WHEN DISCONNECTING/CONNECTING CABLES.

 CAUTION

DO NOT OPERATE THIS ULTRASOUND SYSTEM UNLESS ALL BOARD COVERS AND FRAME PANELS ARE SECURELY IN PLACE. SYSTEM PERFORMANCE AND COOLING REQUIRE THIS.

 CAUTION

TO ENSURE MUTUAL PROTECTION AND SAFETY OF GE SERVICE PERSONNEL AND OUR CUSTOMERS, ALL EQUIPMENT AND WORK AREAS MUST BE CLEAN AND FREE OF ANY HAZARDOUS CONTAMINANTS BEFORE A SERVICE ENGINEER STARTS A REPAIR. THIS INCLUDES, BUT IS NOT LIMITED TO, DECONTAMINATION AND/OR STERILIZATION, DEPENDING ON THE APPLICATION OR USE OF THE MEDICAL DEVICE.

Section 10-3

Why Do Maintenance?

10-3-1 Keeping Records

It is good business practice that ultrasound facilities maintain records of all corrective maintenance and periodic maintenance on Ultrasound systems where it is applicable. The Ultrasound Equipment Quality Check form provides the customer with documentation that the Ultrasound system is maintained on a periodic basis.

A copy of the *Ultrasound Equipment Quality Check* form should be kept in the same room as the Venue™ ultrasound scanner, or nearby.

10-3-2 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 Ultrasound scanner. The program must be directed by a medical physicist, the supervising radiologist/physician or appropriate designee.

Routine Quality Control testing of the system must be conducted 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 site.

Your GE Service Representative can help you with establishing, performing and maintaining records for a Quality Assurance program. Contact GE for coverage and/or price for service.

10-3-3 Maintenance Task Schedule

How often should care & maintenance tasks be performed?

The [Customer Care & Maintenance Task Schedule](#) (provided in [Table 10-2 on page 10-4](#)) specifies how often the Venue™ ultrasound scanner should be serviced, and outlines items requiring special attention.

NOTE: *It is the customer's responsibility to ensure the Care and Maintenance procedures are performed on the Venue™ ultrasound scanner as scheduled in order to retain the high levels of safety, dependability, and system performance.*

Your GE Service Representative has an in-depth knowledge of your Venue™ ultrasound scanning system and can best provide competent, efficient service. Contact GE for coverage information and/or price for service.

The service procedures and recommended intervals shown in the [Customer Care & Maintenance Task Schedule](#) assumes that you use your Venue™ scanner for an average patient load (10-12 patients per day) and that you do not use it as a primary mobile Ultrasound system which is transported between diagnostic facilities.

NOTE: *If conditions exist which exceed typical usage and patient load, it is strongly recommended to increase the care and maintenance frequencies.*

Please refer to the Customer Care Schedule in the service manual for the Ultrasound System unit for the correct maintenance care schedule.

Table 10-2 Customer Care & Maintenance Task Schedule

| Service at Indicated Time | Daily | Weekly | Monthly | Per Facility's QA Program | Notes |
|--|-------|--------|---------|---------------------------|--|
| Clean Probes | •* | | | | * or before each use |
| Clean Probe Holders | • | | | | |
| Inspect AC Mains Cable | | | • | | Mobile Ultrasound system: Check Weekly |
| Inspect Cables and Connectors | | | • | | |
| Clean Console | | | • | | |
| Clean Cockpit | | | • | | |
| Inspect Wheels, Casters, Brakes and Swivel Locks | | | • | | Mobile Unit: Check Daily |
| Check Articulated Arm Movement | | | • | | Mobile Unit: Check Daily |
| Functional Checks | | | | • | Also after corrective maintenance. |
| Safety Test | | | | •* | * twice a year |

Section 10-4

Tools Required

10-4-1 Tools Required for Servicing the Venue™

The following tools (TORX bits or drivers) are needed to service the ultrasound scanner. Screw diameter and standard torque values are also included. If the torque is not indicated with the procedure, hand-tighten the screws/nuts.

Table 10-3 Tools Used for Servicing the Venue™

| Item No. | Tool | Size | Torque | Comments |
|----------|---|--------------|---|---------------------------|
| 1. | Bit # TX-10 | M2.5 | <ul style="list-style-type: none"> • Use Torque specified in procedure. • If the torque is not indicated with the procedure, hand-tighten the screws/nuts. • 90 degree "L" are suggested. • A full set of 90 degree "L"TORX wrenches are recommended. | |
| 2. | Bit # TX-15 | M3 | | |
| 3. | Bit # TX-20 | M4 | | |
| 4. | Bit # TX-25 | M5 | | |
| 5. | Bit # TX-30 | M6 | | |
| 6. | Bit # TX-45 | M10 | | |
| 7. | Socket Set (must include 7mm socket) | | | |
| 8. | Side cutter (diagonal) | 5 or 6 inch | | |
| 9. | Flat Blade Driver | 3.2 mm | | |
| 10. | Flat Blade Driver | 4 mm | | |
| 11. | Flat Blade Driver | 6 mm | | |
| 12. | Phillips Driver | PH1 | | |
| 13. | Phillips Driver | PH2 | | |
| 14. | Phillips Driver | PH3 | | |
| 15. | Hex Key | 1.5 mm | | (Unbrako Key / Allen Key) |
| 16. | Hex Key | 2 mm | | (Unbrako Key / Allen Key) |
| 17. | Hex Key | 2.5 mm | | (Unbrako Key / Allen Key) |
| 18. | Hex Key | 3 mm | | (Unbrako Key / Allen Key) |
| 19. | Hex Key | 4 mm | | (Unbrako Key / Allen Key) |
| 20. | Hex Key | 5 mm | | (Unbrako Key / Allen Key) |
| 21. | Hex Key | 6 mm | | (Unbrako Key / Allen Key) |
| 22. | Hex Key | 8 mm | | (Unbrako Key / Allen Key) |
| 23. | Hex Key | 10 mm | | (Unbrako Key / Allen Key) |
| 24. | Hex Key | M12 | Rear Casters: 130 Nm | (Unbrako Key / Allen Key) |
| 25. | Nut Driver | 5 mm | | |
| 26. | Nut Driver | 3/16 inch | | |
| 27. | Torque Wrench | Up to 130 Nm | Heavy mechanical parts may need a specific torque. Each procedure will indicate the torque needed. | |

Section 10-5

System Maintenance

10-5-1 Preliminary Checks

The preliminary checks take approximately 15 minutes to perform. Refer to the *Venue™ User Manual* whenever necessary.

Table 10-4 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 EQC inspection form. Record all probes and Ultrasound system options. |
| 3. | Power-up | <ul style="list-style-type: none"> • Turn the Ultrasound 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. • Where applicable, confirm that the battery is charged. If no AC Input present, use the internal battery. |
| 4. | Probes | Verify that the Ultrasound system properly recognizes all probes. |
| 5. | Displays | Verify proper display on the Monitor and Touch Screen. |
| 6. | Review Error Logs | Where applicable, Error Logs can be reviewed via system diagnostics. |
| 7. | Presets | Back-up all Customer Presets onto appropriate media. |
| 8. | Image Archive | Back up the Image Archive onto appropriate media. |

10-5-2 Functional Checks

NOTE: Refer also to [Chapter 4 - General Procedures and Functional Checks](#), for additional details about the functional checks described in this section.

The functional checks take approximately 60 minutes to perform. Refer to the [Venue™ User Manual](#) whenever necessary.

10-5-2-1 System Checks

Table 10-5 System Functional Checks

| Step | Item (or Mode) | Description |
|----------|-----------------------------|--|
| 1 | B-Mode | Verify basic B-Mode (2D) operation. Check the basic Ultrasound system controls that affect this mode of operation. |
| 2 | CF-Mode | Verify basic CF-Mode (Color Flow Mode) operation. Check the basic Ultrasound system controls that affect this mode of operation. |
| 3 | Doppler Modes | Verify basic Doppler operation (PW and CW if available). Check the basic Ultrasound system controls that affect this mode of operation. |
| 4 | M-Mode | Verify basic M-Mode operation. Check the basic Ultrasound system controls that affect this mode of operation. |
| 5 | Basic Measurements | Check Distance and Tissue Depth Measurement. |
| 6 | Applicable Software Options | Verify the basic operation of all optional modes such as Contrast. Check the basic Ultrasound system controls that affect each option's operation. |
| 7 | Monitor | Verify basic monitor display functions. |
| 8 | Peripherals | See: Peripheral/Option Checks on page 10 - 8. |

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 *Venue™ User Manual* for a list of approved peripherals/options.

Table 10-6 GE Approved Peripheral/Hardware Option Functional Checks

| Step | Item | Description |
|------|-------------|--|
| 1 | Media | Verify media drive(s) read/write properly. |
| 2 | B/W Printer | Verify hardcopy output of the B/W video page printer. Clean heads and covers if necessary. |
| 3 | DICOM | Verify that DICOM is functioning properly. Send an image to a DICOM device. |
| 4 | ECG | Verify basic operation with customer. |

10-5-2-3 Mains Cable Inspection**Table 10-7 Mains Cable Inspection, As Appropriate**

| Step | Item | Description |
|------|-------------|---|
| 1 | Unplug Cord | Disconnect the mains cable from the wall outlet and from the Ultrasound system. |
| 2 | Inspect | Inspect the mains cable and its connectors for any damage. |
| 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 | Verify that the Inlet connector retainer is functional. |

10-5-3 Physical Inspection

Table 10-8 Physical Checks

| Step | Item | Description |
|------|------------------------------------|--|
| 1 | Labeling | Verify that all Ultrasound system labeling is present and in readable condition. |
| 2 | Scratches & Dents | Inspect the exterior for dents, scratches or cracks. |
| 3 | Covers | Where applicable, verify all covers are secured in place and are properly aligned with other covers. Replace any covers that are damaged. |
| 4 | Input Power | Refer to: Mains Cable Inspection on page 10 - 8. |
| 5 | External I/O | Check all connectors for damage. |
| 6 | Wheels and Brakes | <ul style="list-style-type: none"> • Where applicable, check all wheels and casters for wear and verify operation of foot brake, to stop the Ultrasound system from moving, and release mechanism. • Where applicable, check all wheel locks and wheel swiveling for proper operation. |
| 11 | Cables and Connectors | Check all internal cable harnesses and connectors for wear and secure connector seating. Pay special attention to probe strain or bend reliefs. |
| 12 | Shielding and 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. |
| 13 | Probe Holders | Where applicable, inspect the Probe Holders for cracks or damage. |
| 14 | Power and System Status Indicators | Check for proper operation of all Power and System Status Indicators. |
| 15 | Battery | Where applicable, check that the battery is not damaged, does not leak, does not emit an odor, and is not deformed or discolored. Observe all warnings and cautions for battery handling, recharging, storing, and/or disposal. |

10-5-4 Cleaning

10-5-4-1 General Cleaning

Frequent and diligent cleaning of the Venue™ ultrasound unit reduces the risk of spreading infection from person to person, and also helps to maintain a clean working environment.



CAUTION WHEN PERFORMING CLEANING PROCEDURES, TO PREVENT THE RISK OF SYSTEM DAMAGE, ALWAYS OBSERVE THE FOLLOWING PRECAUTIONS:

- Use only cleaning materials and solutions as recommended in the procedures described in the Venue™ User Manual.
- Do not use any solutions or products not listed in the Venue™ User Manual.
- Never use thinner, benzene, ethanol or methanol alcohol, abrasive cleaners, or other strong solvents. Only use isopropyl alcohol, when instructed to do so.
- Do not spray any liquid directly onto the Venue™ covers.
- Do not allow any liquid to drip or seep into the system.
- DO NOT scratch or press on the panel with any sharp objects, such as pencils or pens, as this may result in damage to the panel.
- Make sure not to spill or spray any liquid on the controls, into the Venue™ cabinet, or in the probe connection receptacle.
- Prior to cleaning, turn OFF power to the Venue™ and disconnect the mains cable.

NOTE: Refer to the Venue™ User Manual for cleaning instructions

10-5-4-2 Cleaning the Touch Panel Display

- 1.) To allow cleaning of the touch panel display without affecting the system operation, tap **Settings**, and then tap **Clean**.

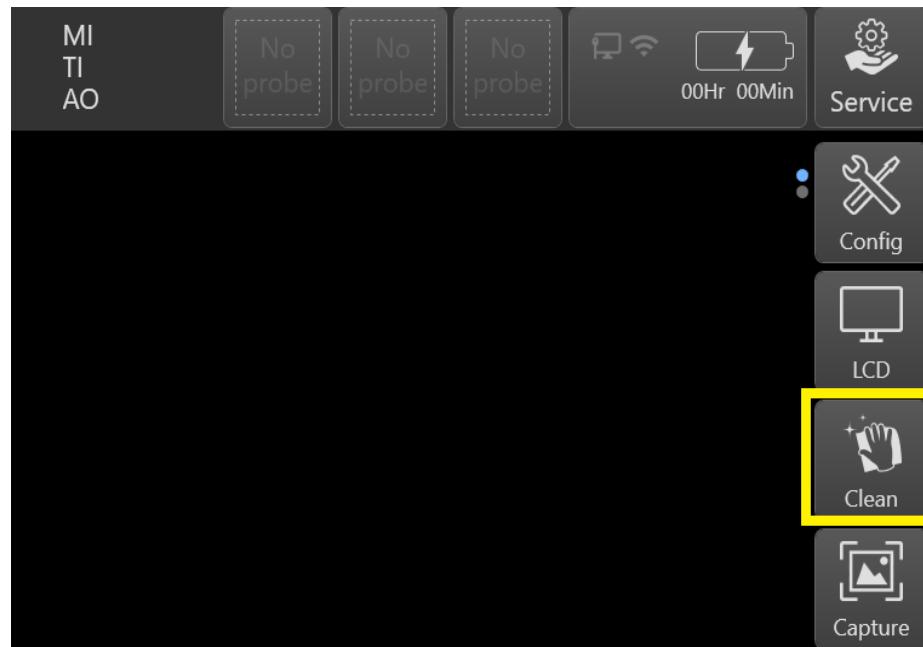


Figure 10-261 Settings Menu - Clean Button

The screen turns black, allowing you to use a soft cloth with glass cleaning solution to clean the panel.

- 2.) Tap together, with two hands the two buttons appearing above the pointing hand symbol to return to normal operation.

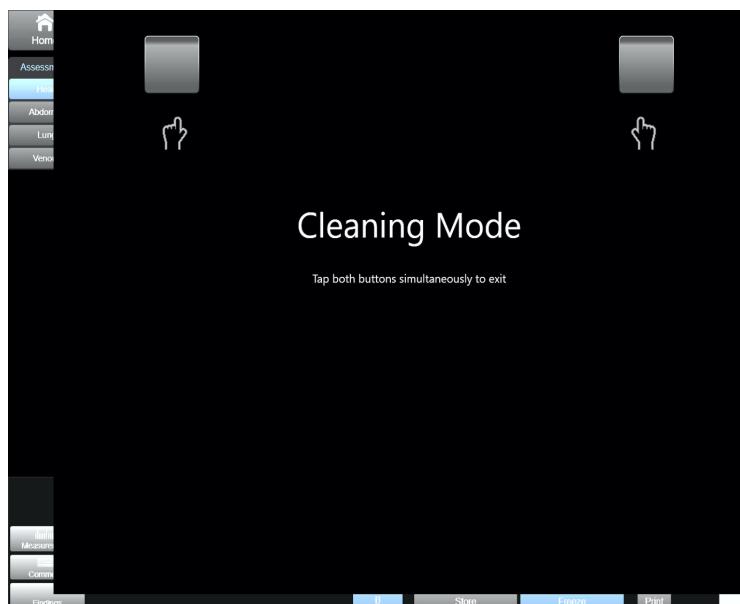


Figure 10-262 Cleaning Mode

10-5-5 Probe Maintenance

Refer to the *Venue™* User Manual, or the probe's User Manual/Probe Care Card for probe maintenance, checks, cleaning, and disinfecting instructions.

 **CAUTION** TO HELP PROTECT YOURSELF FROM BLOOD-BORNE DISEASES WHEN CLEANING AND HANDLING PROBES, WEAR APPROVED, NON-ALLERGIC DISPOSABLE GLOVES. THESE ARE MADE OF NITRILE DERIVED FROM VEGETABLE STARCH TO PREVENT ALLERGIC LATEX REACTIONS.

 **CAUTION** FAILURE TO FOLLOW THE PRESCRIBED CLEANING OR DISINFECTION PROCEDURES WILL VOID THE PROBE'S WARRANTY.
DO NOT SOAK THE PROBE OR WIPE THE PROBE LENS WITH ANY PRODUCT NOT LISTED IN THE *Venue™* USER MANUAL. DOING SO COULD RESULT IN IRREPARABLE DAMAGE TO THE PROBE.
FOLLOW THE CARE INSTRUCTIONS SUPPLIED WITH THE PROBE.

 **WARNING** *DISINFECT A DEFECTIVE PROBE BEFORE YOU RETURN IT. BE SURE TO TAG THE PROBE AS BEING DISINFECTED.*

 **CAUTION** TRANSESOPHAGEAL AND INTRAOPERATIVE PROBES REQUIRE A SPECIAL HANDLING. REFER TO THE USER DOCUMENTATION ENCLOSED WITH THESE PROBES.

NOTE: *GE does not substantiate the effectiveness of recommended disinfectant products. Questions regarding efficacy, instructions for use, and proper handling should be directed to the disinfectant manufacturer. GE publishes a list of material-compatible disinfectants (see below and also refer to the GE website at http://www3.gehealthcare.com/en/Products/Categories/Ultrasound/Ultrasound_Probes. DO NOT use non-GE-approved disinfectants or products that have not been evaluated by GE for material compatibility. Damages linked to the use of disapproved chemicals are not covered under product warranty or service contract.).*

10-5-6 Probe Related Checks

Table 10-9 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 Ultrasound system probe connectors and remove dust from inside the connector sockets if necessary. Visually check for bent, damaged or missing pins. |
| 3 | Probes | Verify that the Ultrasound system properly recognizes all probes. |

10-5-7 Probe Handling

All *Venue™* probes are designed and manufactured to provide trouble-free, reliable service. To ensure this, the correct handling of probes is important and the following points should be noted:

- Do not drop a probe or strike it against a hard surface, as this may damage the probe elements and the acoustic lens, or may crack the housing.

- Do not use a cracked or damaged probe. Any evidence of wear indicates the probe must *not* be used. Call your field service representative immediately for a replacement.
- Perform a visual check of the probe pins and system sockets before plugging in a probe
- Avoid pulling, pinching or kinking the probe cable, since a damaged cable may compromise the electrical safety of the probe.
- To avoid the risk of a probe accidentally falling, do not allow the probe cables to become entangled with, or to be caught in the wheels of the system.
- Protect the probe when moving the unit.
- Use a soft cloth and warm, soapy water to clean the probe.

Note: For detailed information on handling Endocavity probes, refer to the appropriate supplementary instructions for each probe.

10-5-8 Basic Probe Care

The *Venue™ User Manual* and the individual probe manufacturers' 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.

NOTE: *The most recent, up-to-date information on probes and probe care is available at: http://www.gehealthcare.com/usen/ultrasound/products/probe_care.html*

**⚠ WARNING ANY EVIDENCE OF WEAR ON A PROBE INDICATES THAT IT MUST NOT BE USED.
IMPROPER HANDLING MAY EASILY DAMAGE ULTRASOUND PROBES.**

SEE THE *Venue™ USER MANUAL* AND ALSO REFER TO THE PROBE MANUFACTURER'S HANDLING INSTRUCTIONS, 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.

Always perform a visual check of the probe pins and system sockets before plugging in a probe.

When handling probes, always observe the precautions listed in **Probe Handling** on page 10 - 12.

The Interoperative probes often have special usage considerations; always refer to the individual probe manufacturers' handling instructions/user manual.

10-5-9 Probe Cleaning

10-5-9-1 Basic Probe Cleaning

NOTE: *For details on general probe cleaning, refer to the information provided in the *Venue™ User Manual*.*

NOTE: *For specific probe cleaning instructions, refer to the individual probe *Users Manual* (or care card supplied with the probe).*

⚠ CAUTION TO HELP PROTECT YOURSELF FROM BLOOD-BORNE DISEASES WHEN CLEANING AND HANDLING PROBES, WEAR APPROVED, NON-ALLERGIC DISPOSABLE GLOVES.

10-5-10 Returning and Shipping of Defective Probes

 **WARNING** *ALWAYS DISINFECT A DEFECTIVE PROBE BEFORE RETURNING IT TO THE MANUFACTURER. BE SURE TO TAG THE PROBE AS BEING DISINFECTED.*

 **CAUTION** *TO HELP PROTECT YOURSELF FROM BLOOD-BORNE DISEASES WHEN CLEANING AND HANDLING PROBES, WEAR APPROVED, NON-ALLERGIC DISPOSABLE GLOVES.*

Equipment being returned must be properly clean and free of blood and other potentially infectious contaminants.

GE policy states that body fluids must be properly removed from any part or equipment prior to shipment. GE employees, as well as customers, are responsible for ensuring that parts/equipment have been properly decontaminated prior to shipment. Under no circumstances should a part or equipment be shipped before being visibly clean and properly disinfected.

The purpose of the regulation is to protect employees in the transportation industry, as well as the persons who will receive and/or open the 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.*

Section 10-6

Electrical Safety Tests

10-6-1 Overview

The following topics and measurements are covered in this subsection:

- [Safety Test Overview](#) - see below
- [Outlet Test - Wiring Arrangement - USA and Canada](#) on page 10 - 17
- [Grounding Continuity](#) on page 10 - 18

10-6-2 Safety Test Overview



DANGER TO AVOID ELECTRICAL SHOCK, THE ULTRASOUND SYSTEM UNDER TEST **MUST NOT** BE CONNECTED TO OTHER ELECTRICAL EQUIPMENT. REMOVE ALL INTERCONNECTING CABLES AND WIRES. THE ULTRASOUND SYSTEM UNDER TEST MUST NOT BE CONTACTED BY USERS OR PATIENTS WHILE PERFORMING THESE TESTS.



WARNING

Energy Control and Power Lockout for Venue™ .



When servicing parts of the Ultrasound system where there is exposure to voltage greater than 30 volts:

1. Follow LOCK OUT/TAG OUT procedures.
2. Turn off the breaker.
3. Unplug the Ultrasound system.
4. Maintain control of the Ultrasound system power plug.
5. Wait for at least 30 seconds for capacitors to discharge as there are no test points to verify isolation.
6. Remove/disconnect the battery if present.

Ultrasound System components may be energized.

Capacitors on Ultrasound Systems with the Shearwave Option can take up to 5 minutes to discharge.



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.

NOTE:

For all instructions in the “Electrical safety tests” section, in the event of using a UPS (uninterrupted power supply) the terms outlet, wall outlet, AC wall outlet and power outlet refer to the AC power outlet of the UPS. In case of further available AC (or DC) power outlets at the same used UPS, these must remain unused i.e. not connected to any other devices.

The electrical safety tests in this section are based on IEC60601 standard including national deviations for Health Care Facilities and IEC 62353 Medical electrical equipment – Recurrent test and test after repair of medical electrical equipment. These standards provide guidance on evaluating electrical safety of medical devices which are placed into service and are intended for use in care and maintenance or testing following service or repair activities. They differ somewhat from the standards that are used for design verification and manufacturing tests (e.g., IEC 60601-1 including national deviations) which require a controlled test environment and can place unnecessary stress on the Ultrasound system.

These tests may refer to specific safety analyzer equipment as an example. Always refer to the safety analyzer's user manual that will be used to perform the tests.

Prior to initiating any electrical test, the Ultrasound system must be visually inspected. Perform the following visual checks:

- Check for missing or loose enclosure covers that could allow access to internal live parts.
- Examine the mains cord, mains plug and appliance inlet for damaged insulation and adequacy of strain relief and cable clamps.
- Locate and examine all associated transducers. Inspect the cables and strain relief at each end. Inspect the transducer enclosure and lens for cracks, holes and similar defects.

 **WARNING** Users must ensure that safety inspections are performed whenever damage is suspected and on a regular basis in accordance with local authorities and facility procedures.

DO NOT use the Venue™ or individual probes which fail any portion of the safety test.

 **WARNING** To minimize risk of electric shock, only trained persons are allowed to perform the electrical safety inspections and tests.

 **CAUTION** Compare all safety-test results with safety-test results of previously performed safety tests (e.g. last year etc). In case of unexplainable abrupt changes of safety-test results consult experienced authorized service personnel or GE for further analysis.

 **CAUTION** To avoid electrical shock, the Ultrasound system under test MUST NOT be connected to other electrical equipment.

Remove all interconnecting cables and wires. The Ultrasound system under test must not be contacted by users or patients while performing these tests.

10-6-3 Outlet Test - Wiring Arrangement - USA and 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.

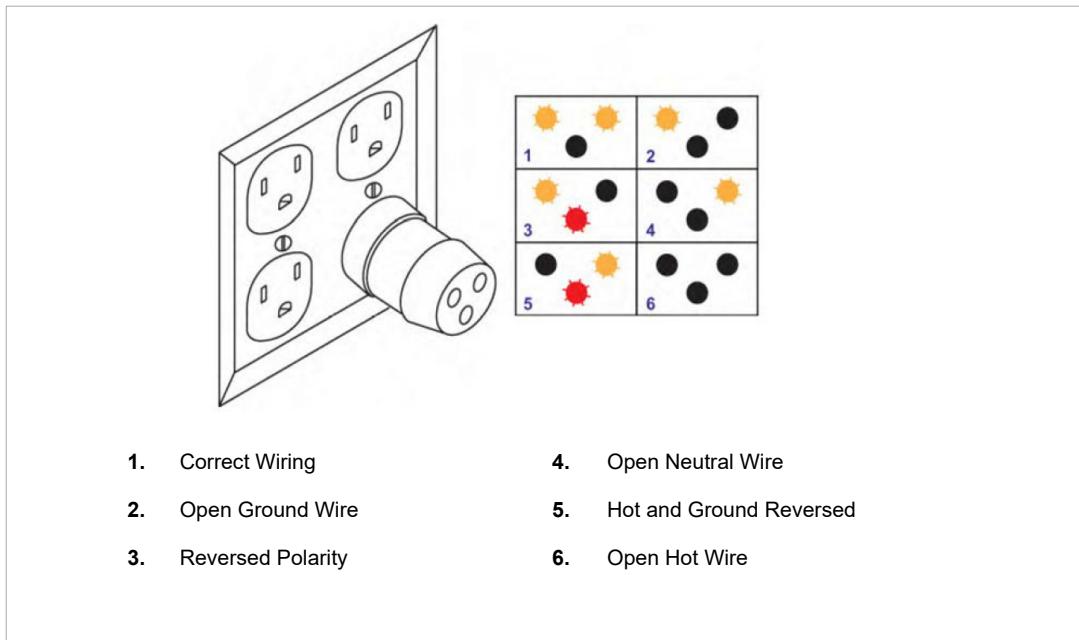


Figure 10-263 Typical Alternate Outlet Test

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.

10-6-4 Grounding Continuity



DANGER ELECTRIC SHOCK HAZARD!

THE PATIENT OR OPERATOR MUST NOT COME INTO CONTACT WITH 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 IEC60601-1.

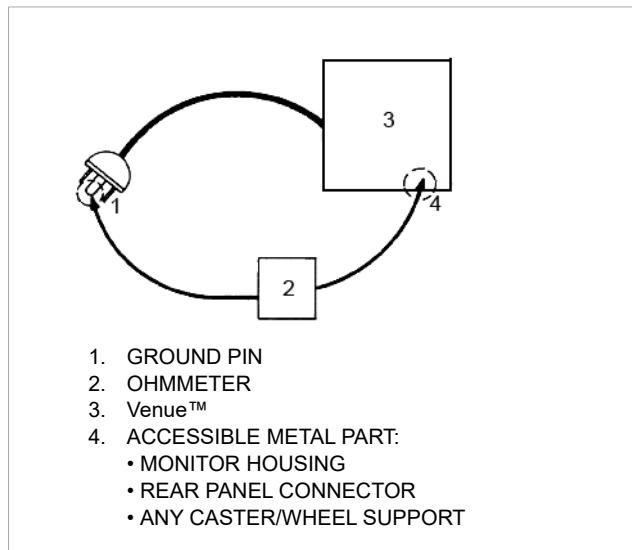


Figure 10-264 Ground Continuity Test

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