



GE Medical Systems

Technical Publications

Direction 2241392

Revision 6

Signa® *OpenSpeed* System Installation

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Operating Documentation

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have notation “**damage in shipment**” written on **all** copies of the freight or express bill **before** delivery is accepted or “signed for” by a General Electric representative or a hospital receiving agent. Whether noted or concealed, damage **MUST** be reported to the carrier **immediately** upon discovery, or in any event, within **14** days after receipt, and the contents and containers held for inspection by the carrier. A transportation company will not pay a claim for damage if an inspection is not requested within this **14** day period.

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- Contact your local service coordinator for more information on this process.

Rev. 08/15/2003



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WARNING

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

AVERTISSEMENT

- CE MANUEL DE MAINTENANCE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENTION SUR LES ÉQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ÉTÉ CONSULTÉ ET COMPRIS.
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WARNUNG

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

AVISO

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

ATENÇÃO

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

AVVERTENZA

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

警告

- ・このサービスマニュアルには英語版しかありません。
- ・GEMS以外でサービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。
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注意:

- 本维修手册仅存有英文本。
- 非 GEMS 公司的维修员要求非英文本的维修手册时，客户需自行负责翻译。
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- 忽略本注意事项会对维修员，操作员或病人造成触电，机械伤害或其他伤害。

REVISION HISTORY

REV	DATE	PRIMARY REASON FOR CHANGE
A	Jun 30, 2000 . . .	Preliminary release
B	Aug 1, 2000 . . .	Preliminary release
C	Sep 8, 2000 . . .	Preliminary release
D	Oct 13, 2000 . . .	Preliminary release
0	Oct 18, 2000 . . .	Initial Release
1	Feb 28, 2001 . . .	Updated the "Damage in Transportation" page. Overview Tab, Section 1 – Revised calibration procedures. Section 2 – Revised all the cable tables and cable maps, incorporating several CQA's. Tab 1 – Added washer to Body Helix connector at Pen Panel. Tab 6 – Revised routing of gradient cable runs 762, 763, and 764 in Power Cabinet. Also added note for tightening nut on connection lugs. Tab 8 – Revised fiber optic connection to Bit3 module. Tab 13 – Added information on attaching Serial Converter power cord to J8 on Power Distribution Box. Revised keyboard cable installation with new clamp and screws.
2	Mar 28, 2001 . . .	Overview Tab, Section 1 – Added Vibration Functional Check in the installation flowchart. Section 2 – Added TCU power cord note at MDP. Updated magnet monitor area of cable map and other minor corrections. Tab 2 – Updated the entire Magnet Enclosure section to include new cable routing and RF body coil installation. Remove 22853801DW and GC1REA6.DOC. Tab 13 – Updated Operator Workspace by removing Runs 792 and 809.
3	Jun 19, 2001 . . .	Overview Tab, Section 1 – Added to RETURN SHIPPING MATERIAL instruction the wooden RF Body Coil shipping boxes & installation materials, and Table Dollies. This information was also added to Section 3–1 in the Overview tab. Section 2 – Added to all cable tables the following information: Cable Type, Voltage Rating, Actual Voltage, Temp Rating, and Flame Rating. Corrected minor errors on cable map. Tab 3 – Added Patient Table Installation instructions for style "B" table, PT11NA1A.doc. Tab 6 – Added Warning note to make sure gradient cables are connected correctly. This resolves SPR MRlge66031.
4	Dec 27, 2001 . . .	Overview Tab, Section 1 – Updated catalog info. Added ECMT–2 procedure to flowchart. Also added block for vibration testing. Section 3 – Added info on attaching multilingual attention labels to phantoms. Tab 1 Updated Times LMR900 connector installation procedure. Tab 2 – Emphasized cleaning of the surface for installation of the RF Body Coil. Tab 3 – Included the updated version of PT11NA1.doc. Added PT21NA1.doc instructions for new swing table installation. Tab 4 – Revised the illustration to reflect longer wave guides. Tab 13 – Updated OW installation for new SCIM/Keyboard.
5	Feb 3, 2003 . . .	Overview Tab, Section 1 – Updated notes in tables 1–6 and 1–7. Updated Facility Option catalogs in section 1–7. In flow chart, corrected Magnet Monitor direction number, updated link to PDU E–Stop & Off Check procedure, added Max Power RF Out Set Up and Cal, added EPI Option procedure, and added procedure for filling out CTIQ checklist. Section 2 – In table 2–2, added short cable connecting to Run 749, deleted Runs 486 and 776. In cable maps, corrected Run 229 connection at Power cabinet, added short cable connecting to Run 749. Tab 1 – Updated Direction 2254920 by adding N–type connector part numbers. Tab 2 – Added Magnet I/F module DIP switch settings, revised dynamic disable cable connection procedures, changed connection point of Run 955, added flexible hose connection at rear of magnet for RF body coil cooling, added note for alternate shipping container for RF body coil ducts, and corrected various part numbers changed by PCN. TAB 3 – Replaced table install update instructions with latest revision. TAB 4 – Corrected top Penetration Panel cover part number. TAB 13 Updated OW install instructions by changing SCSI expansion box DIP switch settings (MRlge64023).
6	Dec 16, 2005 . . .	Overview Tab, Section 1 – Corrected Direction number reference for RF Body Coil install. Removed HSS and vibration test procedures from flow chart.

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SECTION 1 – GETTING STARTED

1-1 SIGNA OpenSpeed SYSTEM CONFIGURATION

This manual provides instructions to install a new Magnetic Resonance (MR) system 0.7T Signa® OpenSpeed System. Additional options are installed according to the applicable option installation manual delivered with the option.

1-2 SITE READY CHECK

Pre-installation work must be completed before equipment is delivered to avoid delays and confusion. Refer to *Direction 2241391, Signa OpenSpeed Pre-installation*, Preinstallation Checklist tab.

Tools and test equipment to install and calibrate the Signa OpenSpeed system are listed in *Direction 2241391, Signa OpenSpeed Pre-installation*, Section 10, TOOLS AND TEST EQUIPMENT.



FERROUS MATERIAL HAZARD! THE CRIMP TOOL AND OTHER TOOLS AND PARTS REQUIRED FOR THIS INSTALLATION CONTAIN FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME DANGEROUS PROJECTILES. KEEP ALL FERROUS TOOLS AT LEAST 10 FEET AWAY FROM THE MAGNET.

Service installation tools used in this manual that may not be included in above reference lists include:

- 46-301450G1 Fiber Optic Cable Connector Repair kit
- 2134776 Gradient Cable Termination kit

1-3 PRODUCT DELIVERY INSTRUCTIONS AND PACKING

The “Shipping Document” lists catalog numbers delivered. Review and confirm that the order is delivered complete. Check impact on installation schedule if Catalogs and/or packing boxes are missing and/or noted as shipped short.

Labels that are attached to the outside of packing boxes summarize box contents. The labels are color coded for different installation areas as follows:

- Green – Equipment Room
- Purple – Operator’s Room
- Orange – Magnet Room
- Yellow – Post-installation (Phantoms, Coils).

“Product Delivery Instructions” (PDI) specify box contents, part numbers, and shipping procedure. The PDI is numbered according to the catalog number (for example, PDI – M1000PM is for the Fixed Site Installation Kit). Lists of items included with each box are detailed by separate checklists, or a separate sheet that provides a summary of the box contents. Refer to PDI and packing lists for information specific to your shipment.

A set of service and operator manuals is delivered with the Fixed Site Kit. Refer to checklists packed with “Technical Publication” boxes for a list of delivered documents.

1-4 PRODUCT LOCATOR

The Global Install Base Database (also known as Product Locator System) tracks shipment, trans-shipment, and field location of the serialized models. There are now two methods for submitting Product Locator information.

1. At this time, for **U.S. ONLY**, the preferred method of submitting information is the *FE Site Verification Web Site* at:
<http://gein2.med.ge.com/gib>

The FE Site Verification consists of three components that are available on the web from the main menu. They are:

- Install/deinstall product locator model and serial numbers
- Add/modify ship to address information
- Update CARES FE data for primary/secondary FEs

To obtain a copy of the FE training tutorial for using this website, a downloadable copy is available at the following:
Product Locator Support Central Page – <http://supportcentral.ge.com/15563>

2. One “Shipping Card” is filled out and submitted when shipped (extra cards are supplied for trans-shipments between storage and distribution points), and the “Installation Card” and extra shipment cards are attached.

Verify that serial and model number on each rating plate matches installation card numbers before removing installation card. Note that there may be one or more shipment cards and bar code labels with the installation card. These shipment cards are used to trace the transfer of serialized units between various inventory storage and distribution points until the product reaches its final installation destination. Process just the installation card and discard any extra shipment cards and labels.

1-5 BASIC SYSTEM

The following tables list the major equipment which comprise the Signa *OpenSpeed* system. Illustration 1-4 shows the major equipment of the Signa *OpenSpeed* system.

Note

The Pre-install Kit must be delivered and equipment installed at site prior to Magnet delivery to site. See Table 1-1 information.

TABLE 1-1
PRE-INSTALL KIT (SELECT ONE)

CATALOG	DESCRIPTION
M2060PJ	●Slab on Grade Site compatible 0.7T Open Magnet floor preparation kit See Note 1
M2060PP	●Suspension foundation site compatible 0.7T Open Magnet mounting plate, epoxy, and mounting hardware See Note 2
Note 1 Installation of Magnet Floor Preparation Kit 2 weeks prior to Magnet delivery is required. 2 Installation of Magnet Mounting Plate 2 weeks prior to Magnet delivery is required. Magnet Mounting Plate must be installed by the customer/contractor in site floor and epoxy cured prior to 0.7T Magnet delivery. At least 3 days needed to allow for the epoxy to cure.	

TABLE 1-2
0.7T SIGNA *OpenSpeed* SYSTEM ELECTRONICS MAJOR EQUIPMENT

CATALOG	DESCRIPTION
M2000AB System with Phased Array	<ul style="list-style-type: none"> ●Power Cabinet containing the RF Amplifier, RF Power Monitor, power supplies for the Magnet Enclosure system components, Gradient Amplifiers, and Power Distribution Unit module with unregulated transformer (200/208/380/400/415/480Volt, 50/60 Hz) with power filter. ●System Cabinet consisting of Integrated Systems Electronics subsystem and Universal Combined Exciter/Receiver (UCERD). ●Operator Workspace equipment: Octane II Computer, Workspace Cabinet, Mouse and Mouse Pad, LCD panel, and chair. Note, refer to Tables 1-10, 1-11, and 1-12 for catalog choices required to complete Operator Workspace equipment. ●Pneumatic Patient Alert System. ●Standard Surface Coils including CTL coil, shoulder coil, 1 large body flex coil, and 1 medium body flex coil. ●Patient accessories such as: a phantom kit, patient log book, table pads, head cushion and sponges, chin and forehead straps, body wedges, knee cushions, and security/restraint straps. ●Gating accessories which include: patient cardiac leads, peripheral gating probe, and respiratory bellows.

TABLE 1-3
SITE COLLECTOR KIT (REQUIRE ONE)

CATALOG	DESCRIPTION
M2043PS	<ul style="list-style-type: none"> ●Penetration Panel Covers. ●Fixed Site system interconnect cables ●Fixed Site Power Distribution Unit cables ●Patient Comfort Compressor ●SPT Phantom Set with Shipping/Storage Cart
M2043PR	<ul style="list-style-type: none"> ●Penetration Panel Covers. ●Relocatable Mobile Site system interconnect cables ●Relocatable Mobile Site Power Distribution Unit cables ●Patient Comfort Compressor ●SPT Phantom Set with Shipping/Storage Cart

1–5 BASIC SYSTEM (Continued)

TABLE 1–4
MAGNET SUBSYSTEM

CATALOG See Note 1	DESCRIPTION
M2060LA	<ul style="list-style-type: none"> ● Slab On Grade Site compatible 0.7T Active Shield Open Magnet Configuration with Gradient Coil and Enclosure. The following equipment is shipped with the magnet: <ul style="list-style-type: none"> – Magnet Mounting Kit used with Floor Preparation Kit (See Table 1 – 1) – Magnet Rundown Unit – Magnet Monitor and UPS for Magnet Monitor – Patient Swing Table installation kit (swing rails & rear wheel floor plate) – Penetration Panel with Magnet Temperature Control Unit and Penetration Panel Covers.
M2060LB	<ul style="list-style-type: none"> ● Suspension Foundation site compatible 0.7T Active Shield Open Magnet Configuration with Gradient Coil and Enclosure. The following equipment is shipped with the magnet: <ul style="list-style-type: none"> – Magnet Mounting Kit for use with magnet mounting plate (See Table 1 – 1) – Magnet Rundown Unit – Magnet Monitor and UPS for Magnet Monitor – Patient Swing Table installation kit (swing rails & rear wheel floor plate) – Penetration Panel with Magnet Temperature Control Unit and Penetration Panel Covers.
M2060LC	<ul style="list-style-type: none"> ● Relocatable Mobile with Suspension Foundation compatible 0.7T Active Shield Open Magnet Configuration with Gradient Coil and Enclosure. See Note 2 The following equipment is shipped with the magnet: <ul style="list-style-type: none"> – Magnet Mounting Kit for use with magnet mounting plate (See Table 1 – 1) – Magnet Rundown Unit – Magnet Monitor and UPS for Magnet Monitor with Relocatable Mobile length cables – Patient Swing Table installation kit (swing rails & rear wheel floor plate) – Penetration Panel with Magnet Temperature Control Unit and Penetration Panel Covers.
M2060LD	<ul style="list-style-type: none"> ● Seismic Slab On Grade Site compatible 0.7T Active Shield Open Magnet Configuration with Gradient Coil and Enclosure. The following equipment is shipped with the magnet: <ul style="list-style-type: none"> – Magnet Seismic Mounting Kit for use with magnet mounting plate (See Table 1 – 1) – Magnet Rundown Unit – Magnet Monitor and UPS for Magnet Monitor – Patient Swing Table installation kit (swing rails & rear wheel floor plate) – Penetration Panel with Magnet Temperature Control Unit and Penetration Panel Covers.
<p>Note 1 A Magnet Air Transport Crate (M2060SC) is required if shipped by air, air transport crate is not required within continental USA.</p>	
<p>Note 2 For Relocatable Mobile: Contact the Van Manufacturer for site pre–installation, refer to Section 1–14, VAN MANUFACTURER CONTACT INFORMATION.</p>	

TABLE 1–5
PATIENT SWING TABLE

CATALOG	DESCRIPTION
M2000TL	<ul style="list-style-type: none"> ● Patient Swing Table for Signa OpenSpeed System (not detachable) Note, the Patient Swing Table operators in one of three positions: 0°, –25°, or +25°.

1–5 BASIC SYSTEM (Continued)

TABLE 1–6
SHIELD/CRYO COOLER COMPRESSOR

CATALOG See Notes 1 & 2	DESCRIPTION
M2060JW	<ul style="list-style-type: none"> ●Contains 2 Water Cooled High Voltage Shield/Cryo Cooler Compressors (380/400/415 VAC 50 Hz or 460/480 VAC 60Hz) with power cords for installation in System Cooling Cabinet.
<p>Note</p> <ol style="list-style-type: none"> 1 The 0.7T Magnet utilizes two Shield/Cryo Cooler Compressors: one unit functions as a Cryo Cooler Compressor (MS5) in two–stage operation and the other unit (MS8) functions as a Shield Cooler Compressor in single–stage operation. 2 The Shield & Cryo Cooler Compressors are not part of the Magnet Catalog but are required at magnet delivery. Refer to Table 1–7 for installation timing requirements. 	

TABLE 1–7
SYSTEM COOLING SUBSYSTEM (ONE REQUIRED)

CATALOG See Notes 1, 2, 3 & 4	DESCRIPTION
M2085KC	<ul style="list-style-type: none"> ●High Voltage System Cooling subsystem air cooled configuration ●Main Disconnect Panel (MDP) for Signa OpenSpeed Systems: 480Y/277 VAC, 400Y/230 VAC, 50/60 Hz, Surface mounted enclosure with 2 remote emergency off pushbuttons.
M2085KE	<ul style="list-style-type: none"> ●High Voltage System Cooling subsystem air cooled configuration with Remote Condenser Unit See Note 5. ●Main Disconnect Panel (MDP) for Signa OpenSpeed Systems: 480Y/277 VAC, 400Y/230 VAC, 50/60 Hz, Surface mounted enclosure with 2 remote emergency off pushbuttons.
M2085KG	<ul style="list-style-type: none"> ●High Voltage System Cooling subsystem water cooled configuration See Note 6 ●Main Disconnect Panel (MDP) for Signa OpenSpeed Systems: 480Y/277 VAC, 400Y/230 VAC, 50/60 Hz, Surface mounted enclosure with 2 remote emergency off pushbuttons.
<p>Note</p> <ol style="list-style-type: none"> 1 These catalogs include the System Cooling Cabinet (SCC), the System Cooling Auxiliary Cabinet(SCC2), and the Main Disconnect Panel (MDP). The MDP contains input power control circuits for the following equipment: <ul style="list-style-type: none"> – Power Distribution Unit (PDU) which distributes power to system electronics – System Cooling Cabinet subsystem with circuit auto restart – Magnet Temperature Control Unit (TCU), Magnet Monitor, Modem for Magnet Monitor, and UPS for Magnet Monitor with circuit auto restart. 2 The system Main Disconnect Panel (MDP) & System Cooling Cabinet (SCC) configurations require high voltage for input voltage. A step–up transformer is required if the site input voltage for the system is 200 V or 208V, refer to Table 1–13 offerings. 3 The MDP and System Cooling Cabinet equipment (Shield & Cryo Cooler Compressor Cabinets) must be installed by the customer/contractor at site with power available prior to 0.7T Magnet delivery. 4 Backup temporary water cooling is recommended for the Cryo Cooler Compressor in the System Cooling Cabinet (all configurations), refer to Section 4 in Direction 2241391, OpenSpeed Pre–Installation, Cryo Cooler Compressor Backup Temporary Water Cooling Requirement. 5 These catalogs include the System Cooling Cabinet, the System Cooling Auxiliary Cabinet, and the Remote Condenser Unit (RCU). The RCU is designed to be located external to the building. Refer to Section 2 in Direction 2241391, OpenSpeed Pre–Installation, System Cooling Cabinet & System Cooling Auxiliary Cabinet for additional information. 6 The water cooled configuration System Cooling Cabinets require customer supplied water for cooling. Refer to Section 4 in Direction 2241391, OpenSpeed Pre–Installation, Water Cooled System Cooling Cabinet Configuration Requirements for water cooling specifications. 	

1–5 BASIC SYSTEM (Continued)

TABLE 1–8
0.7T INTEGRATED BODY COIL

CATALOG	DESCRIPTION
M2085BH	●Signa OpenSpeed integrated transmit/receive Body Coil Assembly

TABLE 1–9
HEAD COIL

CATALOG	DESCRIPTION
M2087HA	●0.7T Head Coil

TABLE 1–10
OPERATOR WORKSPACE MONITOR

CATALOG	DESCRIPTION
M1000NZ	●LCD Color Monitor

TABLE 1–11
OPERATOR WORKSPACE TABLE

CATALOG	DESCRIPTION
M1000MW	●Table for Operator Workspace See Note 1
Note 1 OW Table is an integral part of the regulatory approved system. OW Table provides mounting for several assemblies (e.g. OW Interface Module, OW Power Distribution Box, Modem, DASM) and cable routing for OW interconnects.	

TABLE 1–12
COUNTRY KITS (ONE REQUIRED)

CATALOG	DESCRIPTION
M1000MN	●English Keyboard
M1000MP	●French Keyboard
M1000MR	●German Keyboard
M1000MS	●Scandinavian Keyboard
M1000NH	●Italian Keyboard
M1000NJ	●Portuguese Keyboard
M1000NK	●Spanish Keyboard

1–5 BASIC SYSTEM (Continued)

TABLE 1–13
LOW VOLTAGE (200 or 208 VOLTS) STEP UP TRANSFORMER OPTIONS

CATALOG See Note 1	DESCRIPTION
R4500AS	●150 KVA 208 to 480Y277 Volt, 60 Hz transformer
R4500BD	●150 KVA 200 to 400Y230 Volt, 50/60 Hz transformer
Note 1 A step-up transformer is required if the site input voltage for the system is 200 V or 208V. The system Main Disconnect Panel (MDP) & System Cooling Cabinet (SCC) configurations require high voltage for input voltage.	

TABLE 1–14
RECON PROCESSOR (ONE REQUIRED)

CATALOG	DESCRIPTION
M3000RA	●ReFlex100 – Hex Power PC Processor with four 128 MB Bulk Acquisition Memory (BAM) boards (512 MB)
M3000RB	●ReFlex50 – Dual Power PC Processor with four 128 MB Bulk Acquisition Memory (BAM) boards (512 MB)
M3000RC	●ReFlex50 – Dual Power PC Processor with two 128 MB Bulk Acquisition Memory (BAM) boards (256 MB)
Note 1 BAM memory is now included with the ReFlex Array Processor and is not ordered separately.	

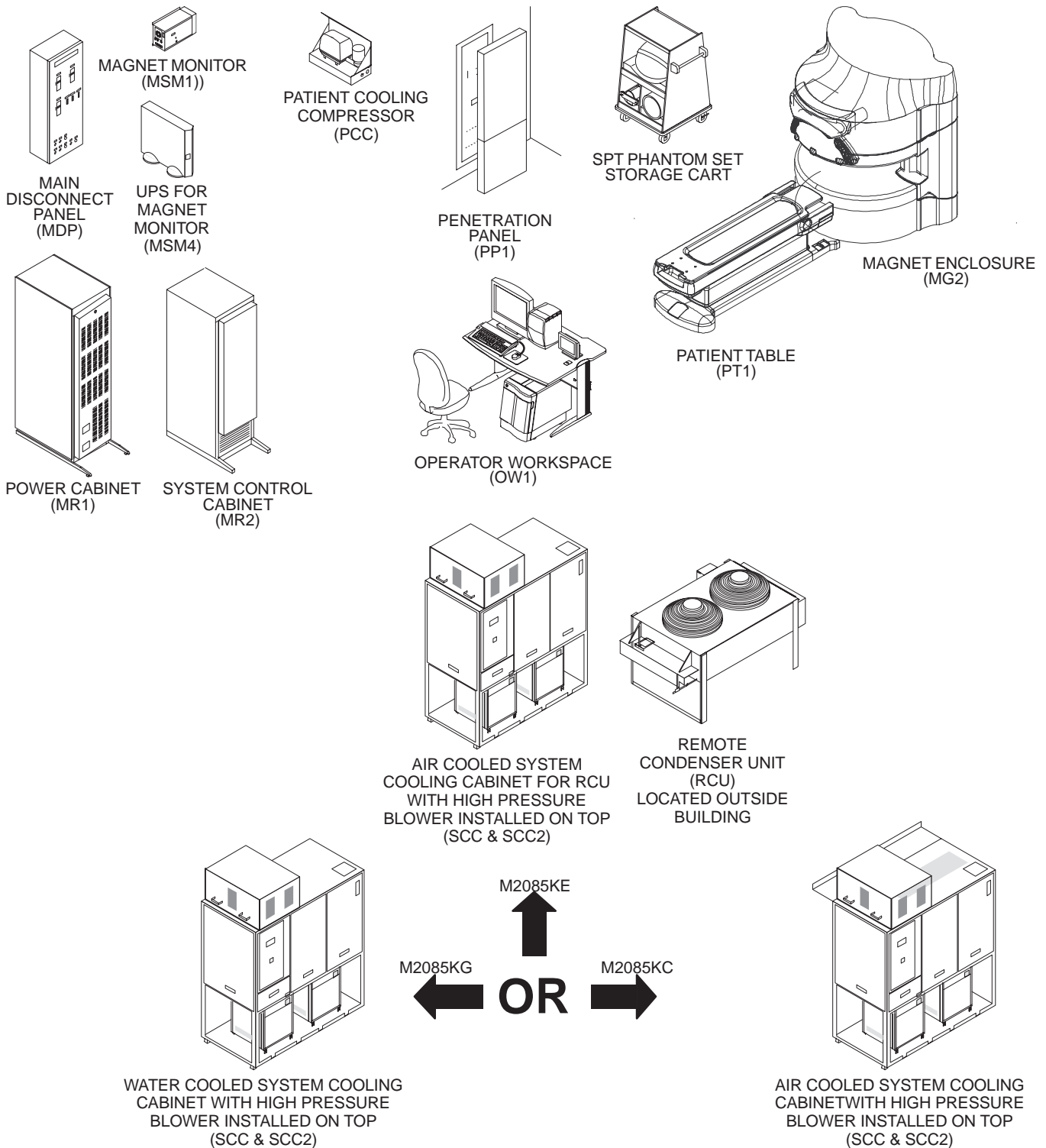
TABLE 1–15
FILMING INTERFACE (SEE NOTE 1 IN TABLE)

CATALOG	DESCRIPTION
M1000MJ	●Analog DASM
M1000MK	●Digital DASM
Note 1 Must choose one Filming DASM Board unless DICOM Print will be used exclusively for software filming to DICOM print peripheral devices.	

TABLE 1–16
IIP GLOBAL MODEM (REQUIRED)

CATALOG	DESCRIPTION
M1000NW	●MR InSite Interactive Platform Global Modem; An external InSite modem is required to be available during system installation and warranty time.

1-5 Basic System (Continued)



SIGNA OpenSpeed SYSTEM MAJOR EQUIPMENT

ILLUSTRATION 1-4

1-6 SYSTEM OPTIONS

This section lists options for the Signa OpenSpeed system which have site preparation impact.

- FuncTool LX (M1033JK)
- Navigator Software Package (M1090FT)
- FuncTool Software Package (M1033JZ)
- Flow Analysis (M1090PR)
- Wrist Array Coil (M2087WR)
- VCR Interface Kit for Octane Computer (M1090TZ)
- Remote Keyboard Option for use with Operator Workspace PC LCD:
 - English (E6901A)
 - German (E6901AA)
 - Spanish (E6901AB)
 - Italian (E6901AC)
 - French (E6901AD)
 - Scandinavian (E6901AE)
- Bar Code Reader (M1090PM) for use in conjunction with HIS/RIS software option.
- Other hard copy devices and patient accessories.
- Various GE Medical Systems Group service contracts.
- Refer to the vendor pre-installation guides for the optional cameras and hard copy imagers.

1-7 FACILITY OPTIONS

- Direct current (DC) lighting controller for the magnet room:
 - E4503AD 20 Amp Maximum Constant Lighting Level System, surface/semi-flush mount
 - E4503AF 20 Amp Maximum Variable Lighting Level System, surface/semi-flush mount
 - E4503AW 28 Amp Maximum Constant Lighting Level System, surface/semi-flush mount
 - E4503AY 28 Amp Maximum Variable Lighting Level System, surface/semi-flush mount.50 Hz designs are available by special order.

Note

DC powered lighting is required in the Magnet Room.

- Signa System Seismic Anchorage Service (R4390JA) for system electronics.

Note

Magnet Seismic anchoring is the customer's responsibility to coordinate magnet mounting methods with the RF shielded room vendor to prevent RF leaks and secondary grounding problems. Refer to Section DIRECTION 2241391, MAGNET MOUNTING REQUIREMENTS INSIDE RF SHIELDED ROOM for details.

- Oxygen Monitor Kit (M1060KM) which includes Oxygen Monitor and Remote Oxygen Monitor Module.

Note

The Oxygen Monitor does not bear a CE monogram and therefore may not be acceptable in all European countries.

1-8 INSTALLATION PROCEDURE

1-8-1 Installation Flow

Note

All on-site construction must be completed before equipment is delivered and installation starts. Attempting to install the system while construction is being completed will impact installation efficiency and further delay site completion. Making sure that all preinstallation and construction work is completed before equipment is delivered will usually result in an earlier turnover date.

The flow chart in Illustration 1-2 should be followed for an orderly and efficient installation of the Signa *OpenSpeed* system. Note that many procedures may be performed in parallel and may be performed in any order according to the specific situation of each site.

Note

The flow chart references the Tab number and the PIP (Pictorial Installation Procedure) Direction number for the procedure. PIP Directions are similar to cable maps in that they are to be removed from this binder and used at the location where hardware installation is being performed. The PIP Direction may be returned to the binder for future reference upon completion of the installation. Other Directions and installation drawings delivered with kits are also referenced by the flowchart..

This installation flowchart has been developed assuming that all Signa *OpenSpeed* equipment has been delivered together. Ensure that every part required is available before starting.

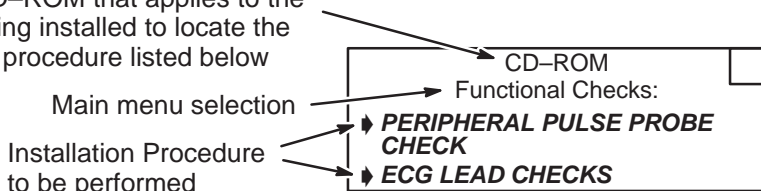
The general installation flow is as follows:

- Hardware installation per applicable Pictorial Installation Procedure (PIP) Direction
- Power-up and other pre-software load checks (this can be done while Magnet is being ramped)
- Software load from cold (this can be done while Magnet is being ramped)
- Function checks, Set-up and Calibration, and other activity requiring software running that can be done while magnet field is stabilizing
- Mechanical shim of Magnet
- System calibrations
- System performance checks
- Cover replacement
- Final sign-off and records
- Customer turn over.

1-8-2 Installation Flowchart Explanation

Shown below are three examples of the flow chart Installation Procedures and an explanation of the areas within the procedures.

Use the CD-ROM that applies to the System being installed to locate the installation procedure listed below

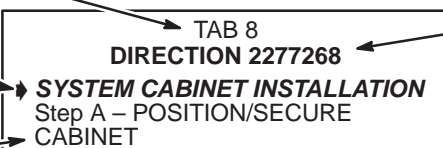


Use the correct Magnet Manual that applies to the System being installed to locate the installation procedure listed below



Tab within this manual (Direction 2196821) where the Direction listed below is located

Installation Procedure to be performed



Direction within the Tab where the Installation Procedure listed below is located

LEGEND FOR FOLLOWING INSTALLATION FLOWCHART

	INDICATES MILESTONE COMPLETION GOAL IN DAYS
	INDICATES AND OPTIONAL PATH DEPENDING ON SYSTEM CONFIGURATION
	INDICATES GE PROPRIETARY PROCEDURE
	INDICATES AN ADDITIONAL PROPRIETARY TEST OR ALTERNATIVE PROPRIETARY CALIBRATION PROCEDURE AVAILABLE FOR GE USE OR TO CUSTOMERS WITH AN ADVANCED SERVICE PACKAGE LIMITED LICENSE.
	AFTER GRADIENT SHIM (OR LV SHIM) IT MAY BE NECESSARY TO REPAIR THE MAGNET.
NOTE 1: STANDARD CORRELATED NOISE CHECK NOT REQUIRED IF PROPRIETARY SPT FULL TEST MODE PROCEDURE PERFORMED EARLIER DURING INSTALLATION (HOWEVER, MULTICOIL AND FAST RECEIVER OPTION CORRELATED NOISE CHECKS IN PROCEDURE STILL REQUIRED).	
NOTE 2: IF TROUBLESHOOTING NECESSARY.	
NOTE 3:	
NOTE 4: A "saveINFO" SHOULD BE DONE BEFORE SPT IS RUN. IF YOU HAVE THE EPI OPTION, IT IS NECESSARY TO "saveINFO" AGAIN. IN THIS WAY, ANY DATA COLLECTED FOR CALIBRATION WILL NOT BE LOST IF A PROBLEM OCCURS.	
NOTE 5: VALUES OF LVSHIM ARE DEPENDENT UPON EDDY CURRENT COMPENSATION.	
NOTE 6: VALUES OF EDDY CURRENT COMPENSATION ARE INDEPENDENT OF MAGNET SHIM.	
NOTE 7: OVERNIGHT DIAGS MAY BE RUN AT END OF ANY DAY TO DETECT POSSIBLE ERRORS.	

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MARK OFF PERFORMED ITEMS

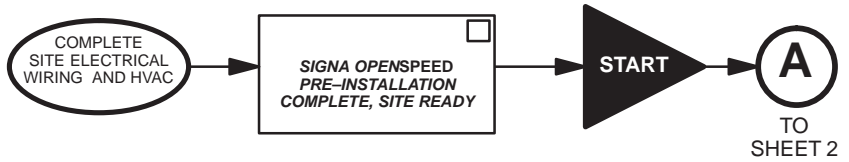
IMPORTANT: PER ISO 9001 REQUIREMENTS

PRE-INSTALLATION

NOTE:
Estimate IS AVERAGE MAN HOURS.

Estimate	##	Hours
Actual		Hours

TASK TIME SPENT –
THIS IS A DESIGN WITH SIX SIGMA PRODUCT (DFSS). WE NEED TO COLLECT DATA TO HELP ANALYZE THE PROCEDURES FOR IMPROVEMENT. PLEASE FILL IN THE ACTUAL HOURS SPENT ON A PROCEDURE.



* **MAGNET MANUAL USED:**
DIR 2243897 – GE 0.7T OpenSpeed Magnet Delivery/Installation Manual.
DIR 2231934 – GE 0.7T OpenSpeed Magnet & Cryogenics Subsystem.

SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1–5 (SHEET 1 OF 12)

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ITEMS**

**IMPORTANT: PER ISO
9001 REQUIREMENTS**

MAGNET MECHANICAL INSTALLATION

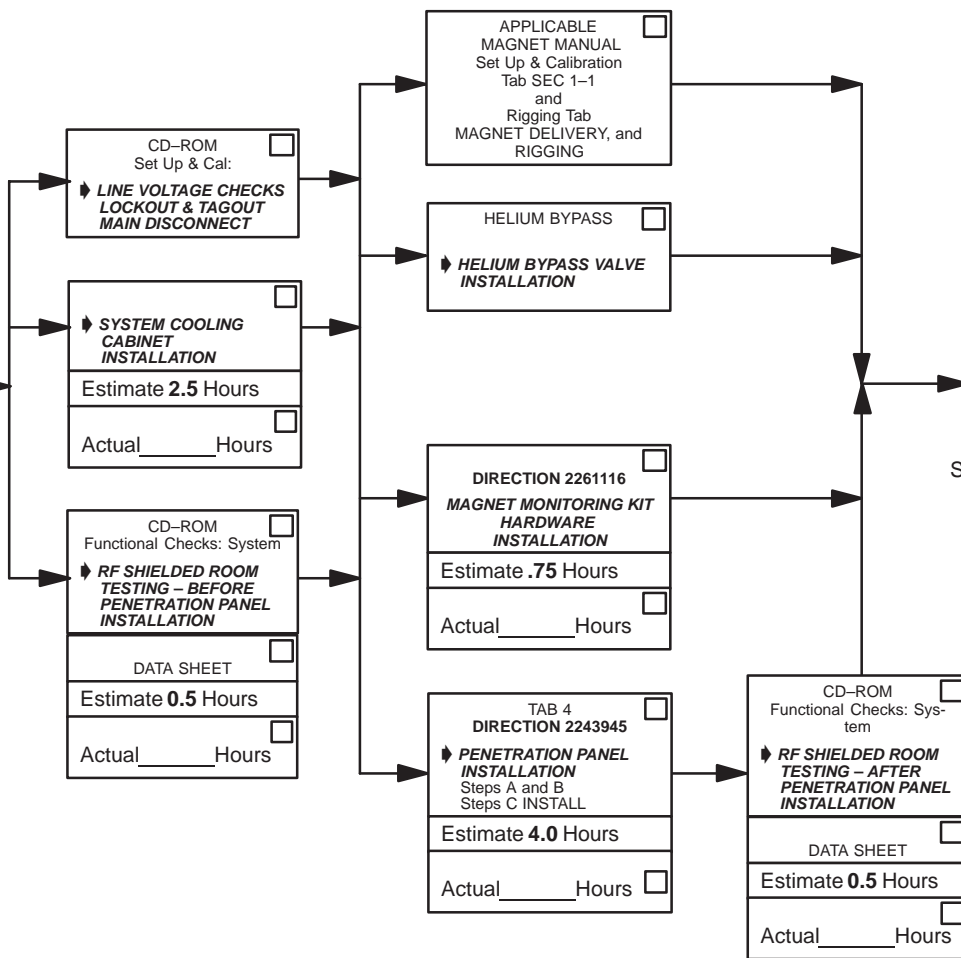
STEP 1

Estimated average elapsed
time: **8.0 hours**

Actual elapsed time: _____

Complete

FROM
SHEET 1



TO
SHEET 3

SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1-5 (SHEET 2 OF 12)

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PERFORMED
ITEMS**

**IMPORTANT: PER ISO
9001 REQUIREMENTS**

SYSTEM MECHANICAL INSTALLATION

STEP 2

Estimated average elapsed
time: **8.0 hours**

Actual elapsed time: _____

Complete

FROM
SHEET 2

B

PT1ina1.DOC	<input type="checkbox"/>
SEC 2 and 3 INSTALL SWING TABLE RACE (WEAR PLATE)	
Estimate 4.0 Hours	
Actual _____ Hours	<input type="checkbox"/>

INSTALL FINISH FLOORING IN MAGNET ROOM
(TO BE COMPLETED BY CUSTOMER CONTRACTOR)

C

TO
SHEET 4

SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1-5 (SHEET 3 OF 12)

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PERFORMED
ITEMS

IMPORTANT: PER ISO 9001 REQUIREMENTS

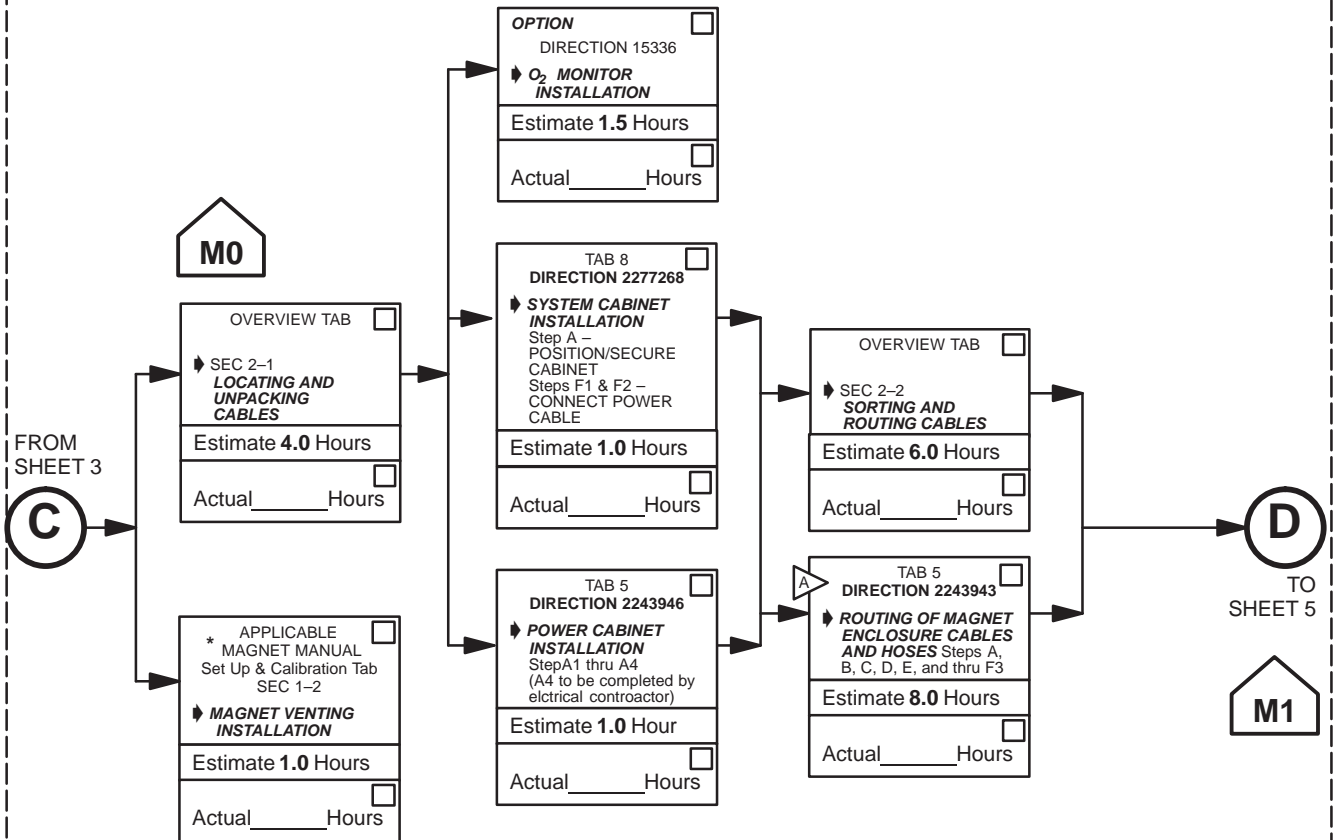
SYSTEM MECHANICAL INSTALLATION

STEP 3

Estimated average elapsed time: **8.0 hours**

Actual elapsed time: _____

Complete



A GRADIENT CHILLER MUST BE INSTALLED AND RUNNING PRIOR TO MAGNET RAMPING

SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 4 OF 12)

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ITEMS

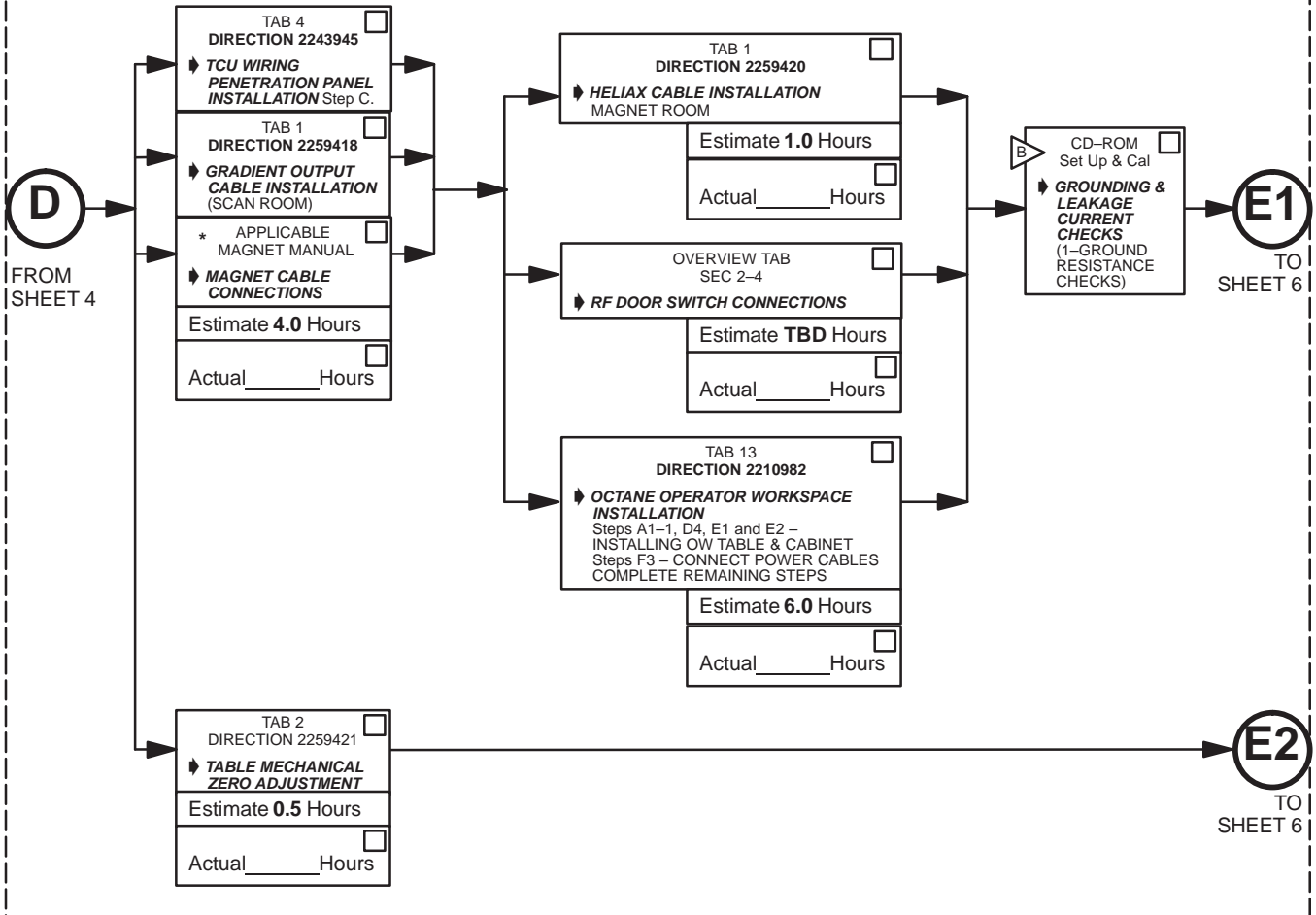
IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM MECHANICAL INSTALLATION (CONTINUED)

Complete

STEP 4
 Estimated average elapsed time: **4.0 hours**
 Actual elapsed time: _____

B **HARD WIRED SIGNAL CABLES ARE NOT TO BE CONNECTED TO SUBSYSTEM CABINETS PRIOR TO THIS CHECK. FIBER OPTIC CABLES MAY BE CONNECTED AND NOT IMPACT THIS CHECK.**



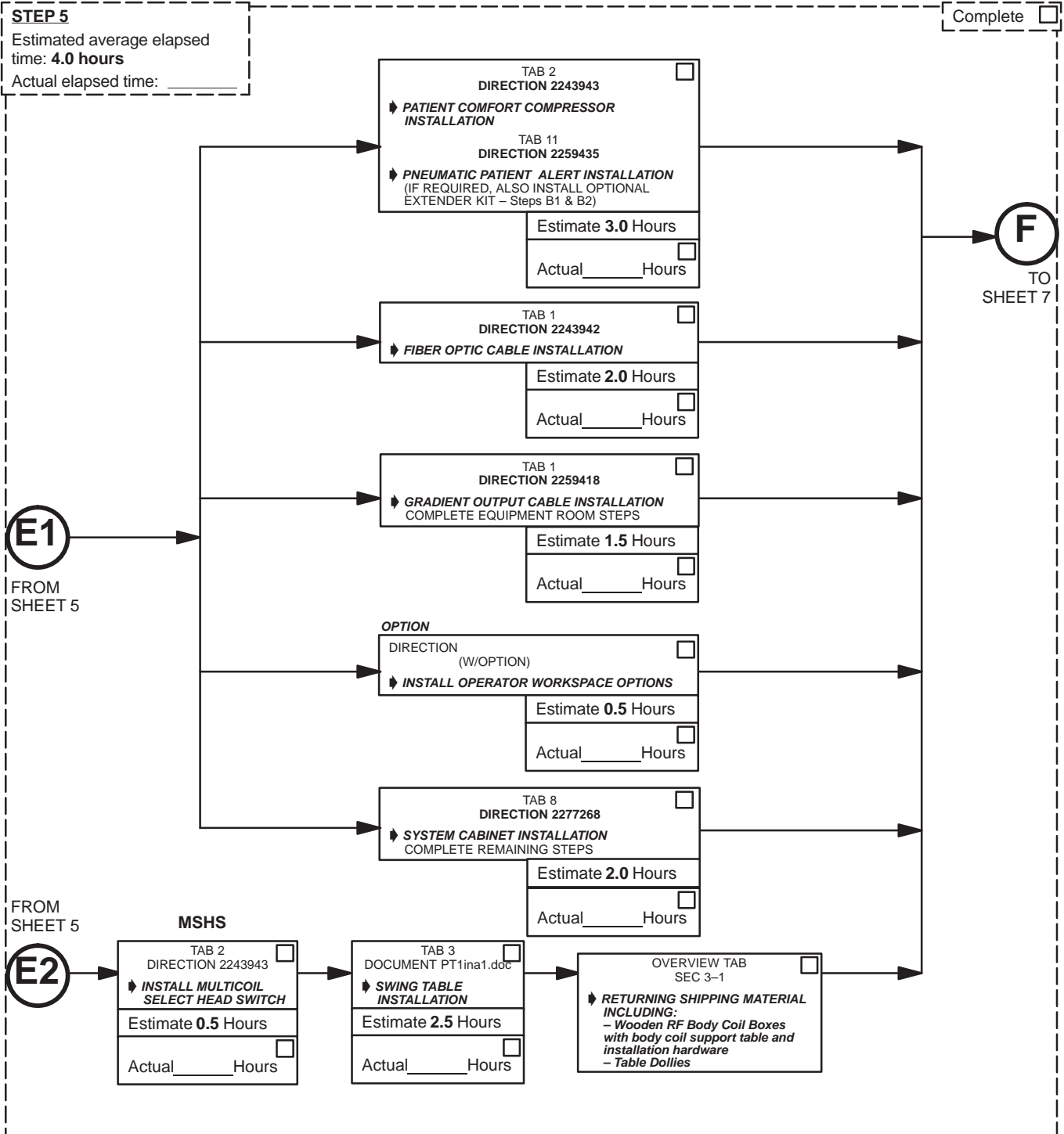
SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 5 OF 12)

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ITEMS

IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM MECHANICAL INSTALLATION (CONTINUED)



SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 6 OF 12)

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ITEMS

IMPORTANT: PER ISO
9001 REQUIREMENTS

SYSTEM PREPARATION FOR CALIBRATION

STEP 6

Estimated average elapsed
time: **2.0 hours**

Actual elapsed time: _____

Complete

FROM
SHEET 6

F

IF NECESSARY,
RESOLVE SHIPMENT
SHORTAGES AND
OMISSIONS BY
MECHANICAL
SUPPLIER

CHECK MECHANICAL
FLOWCHART
TO INSURE ALL
STEPS ARE
COMPLETE

INSURE ALL RATING
PLATES ARE INSTALLED

RECHECK ALL WIRING
CONNECTIONS USING
CABLE MAP
CORRECT FOR WIRING
ERRORS IF NECESSARY

HANDOFF REVIEW WITH
MECHANICAL INSTALLATION
VENDOR

Estimate TBD Hours
Actual _____ Hours

READY FOR POWER UP

G
TO
SHEET 8

M2

SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1-5 (SHEET 7 OF 12)

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IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM CALIBRATION

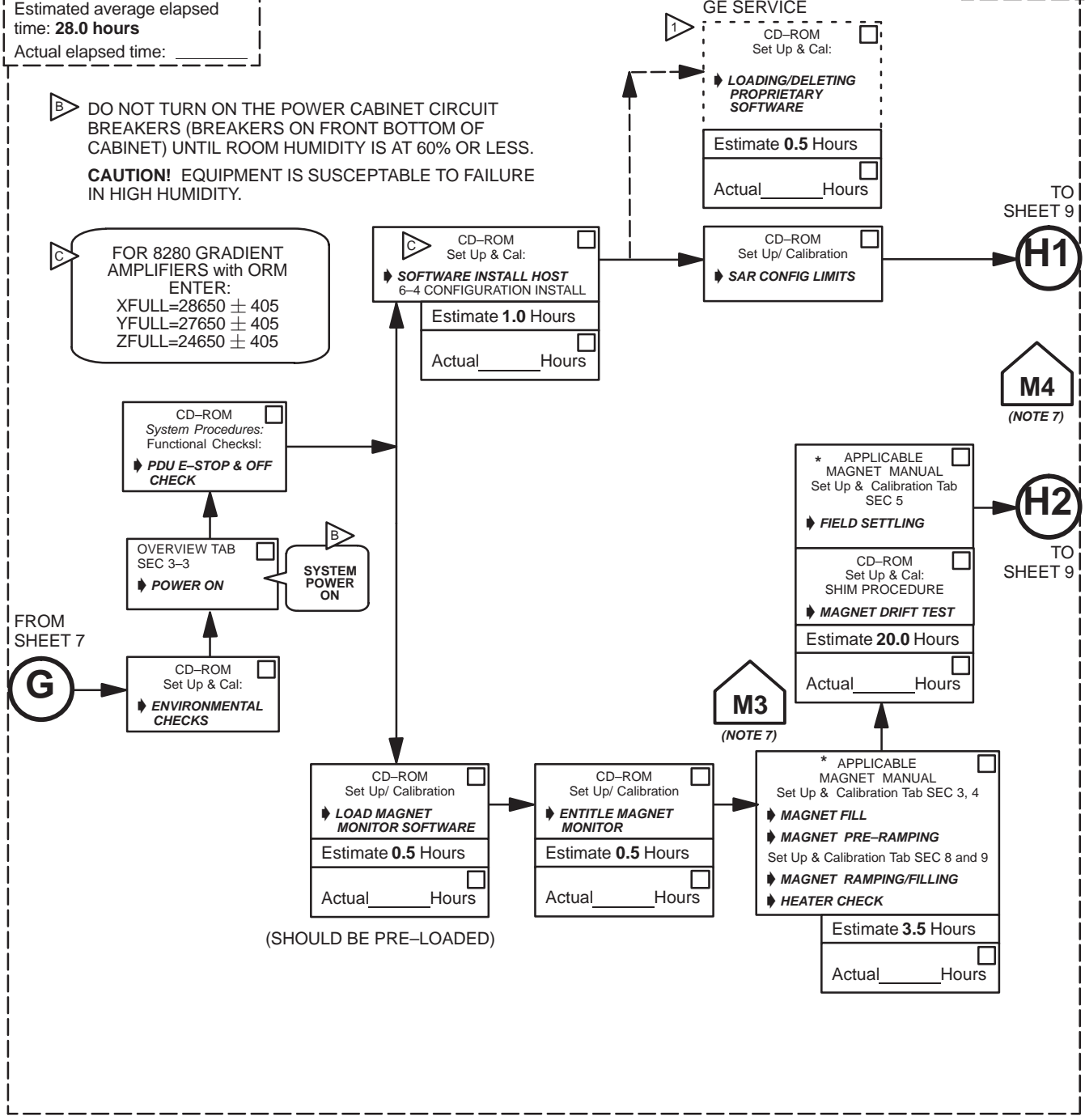
STEP 7

Estimated average elapsed time: **28.0 hours**
Actual elapsed time: _____

DO NOT TURN ON THE POWER CABINET CIRCUIT BREAKERS (BREAKERS ON FRONT BOTTOM OF CABINET) UNTIL ROOM HUMIDITY IS AT 60% OR LESS.
CAUTION! EQUIPMENT IS SUSCEPTABLE TO FAILURE IN HIGH HUMIDITY.

FOR 8280 GRADIENT AMPLIFIERS with ORM ENTER:
XFULL=28650 ± 405
YFULL=27650 ± 405
ZFULL=24650 ± 405

Complete



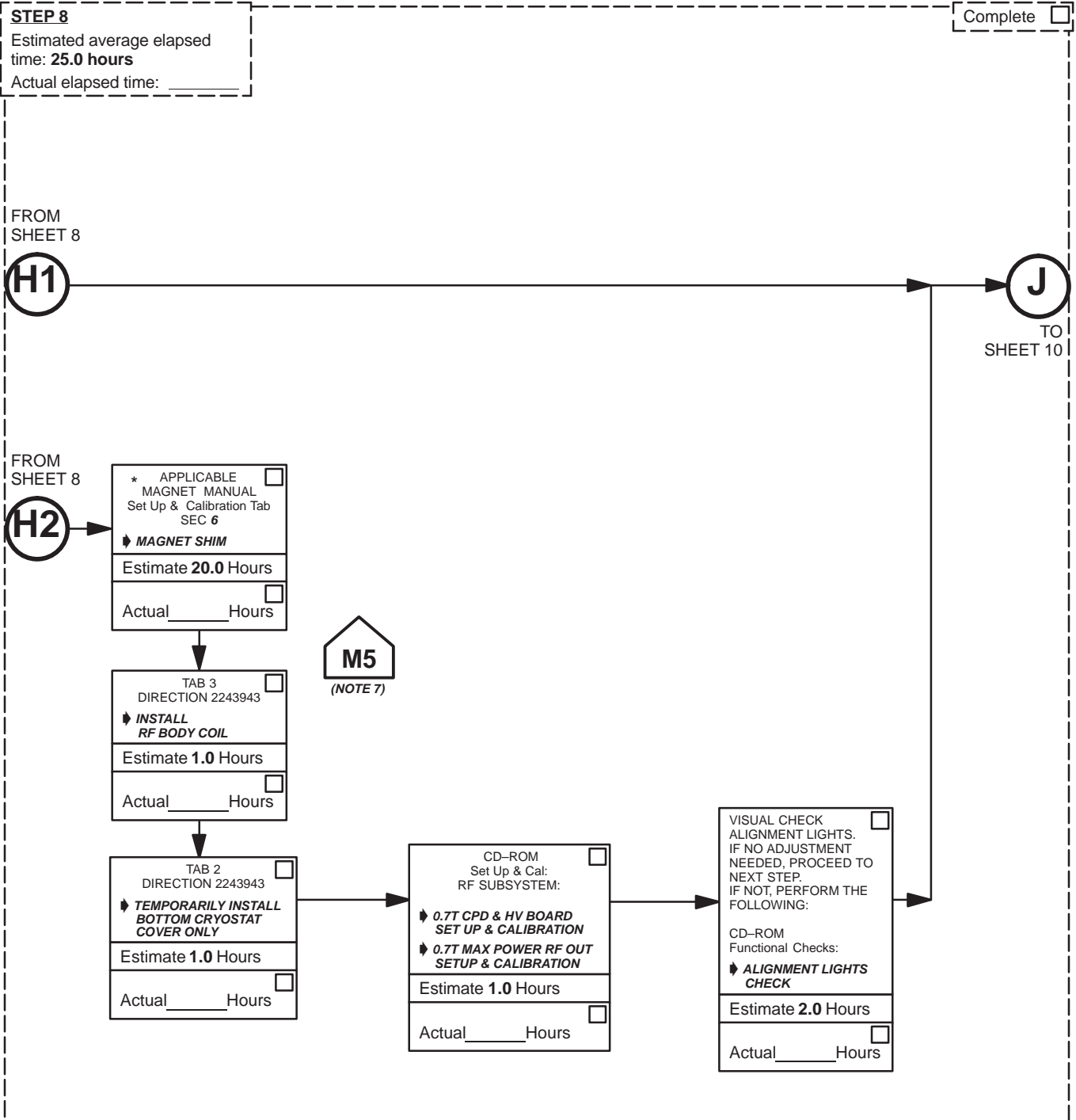
SIGNA OPENSPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1-5 (SHEET 8 OF 12)

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PERFORMED
ITEMS

IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM CALIBRATION (CONTINUED)



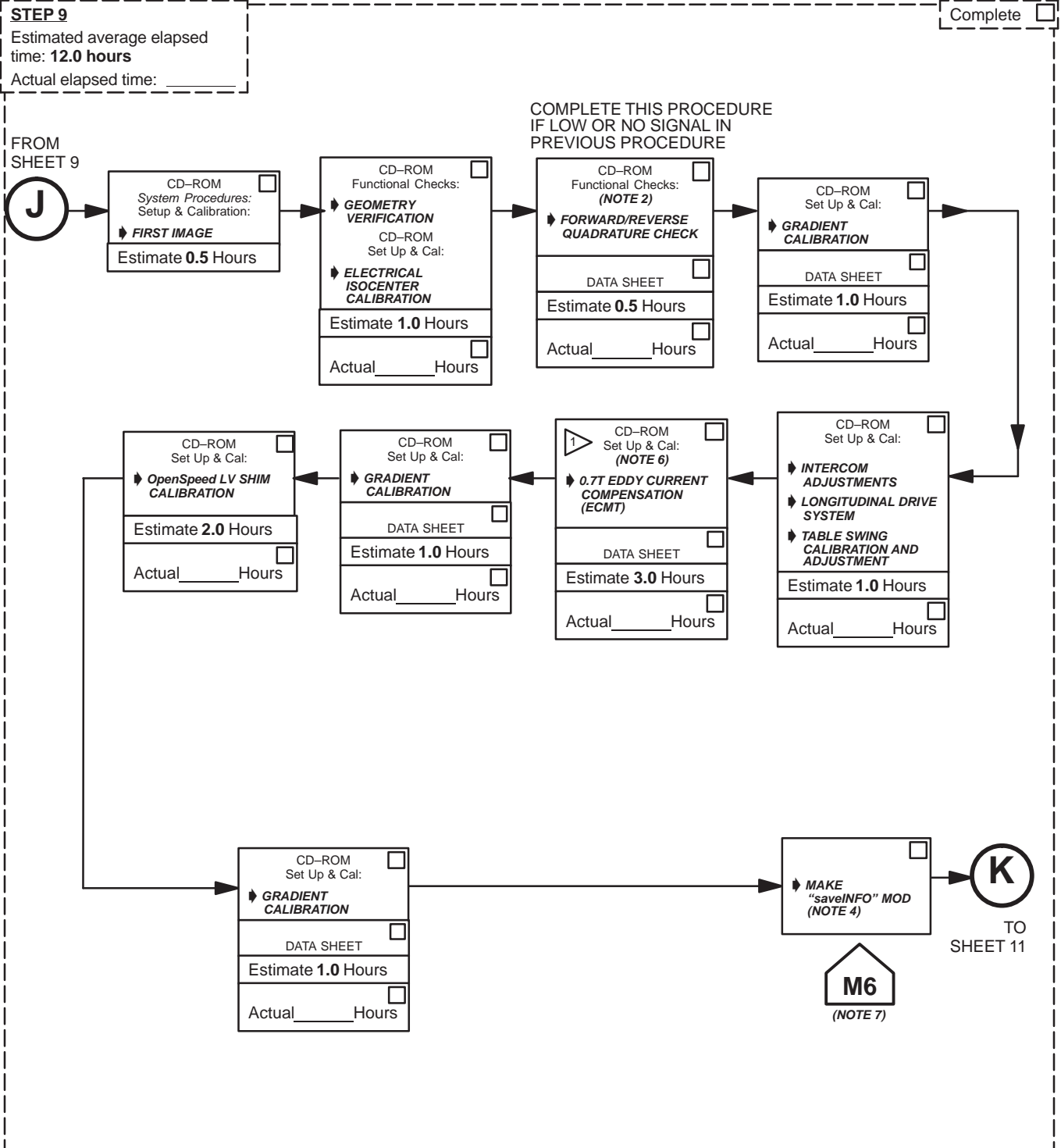
SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 9 OF 12)

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PERFORMED
ITEMS

**IMPORTANT: PER ISO
9001 REQUIREMENTS**

SYSTEM CALIBRATION (CONTINUED)



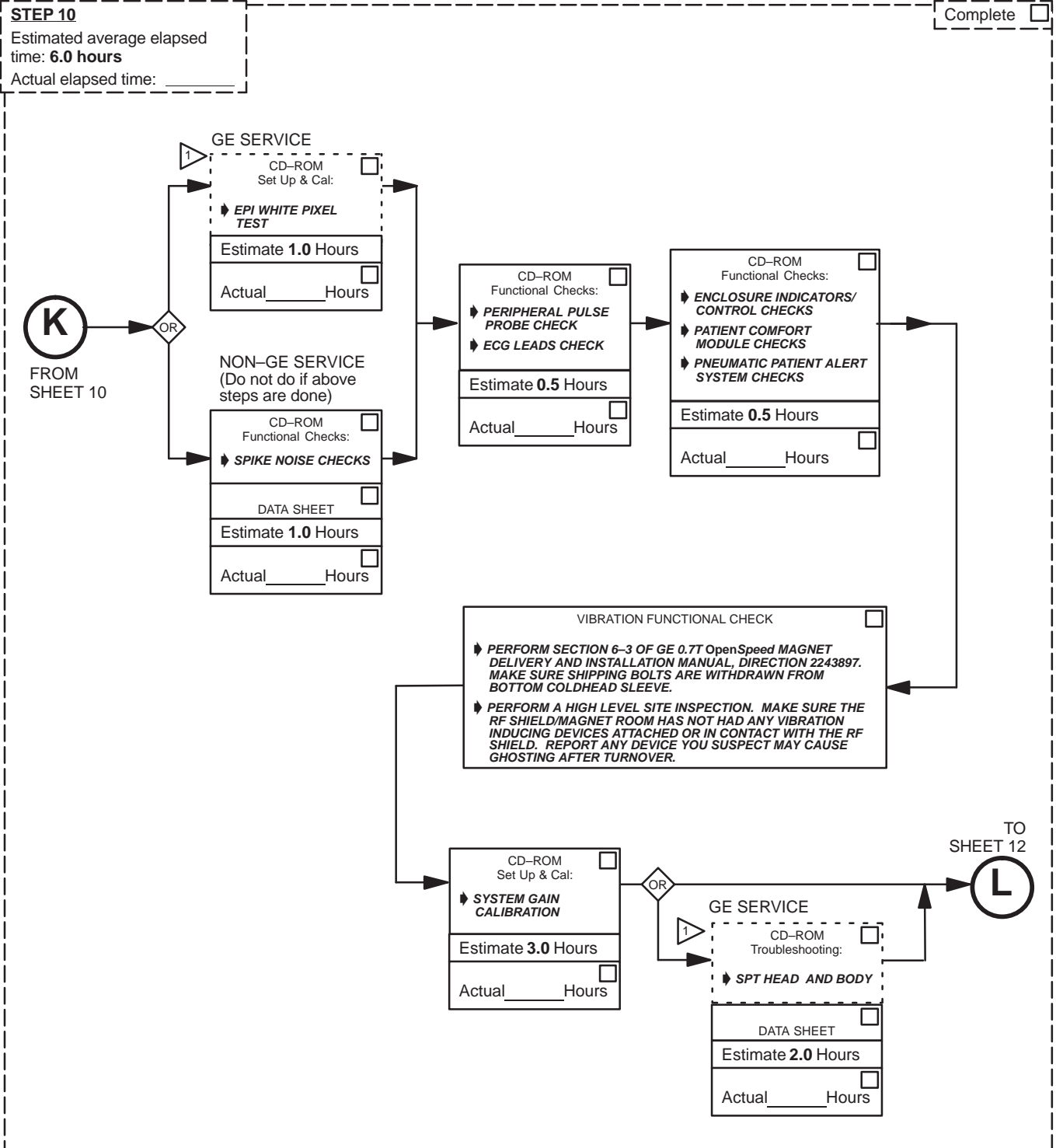
SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
ILLUSTRATION 1-5 (SHEET 10 OF 12)

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MARK OFF PERFORMED ITEMS

IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM CALIBRATION (CONTINUED)



SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 11 OF 12)

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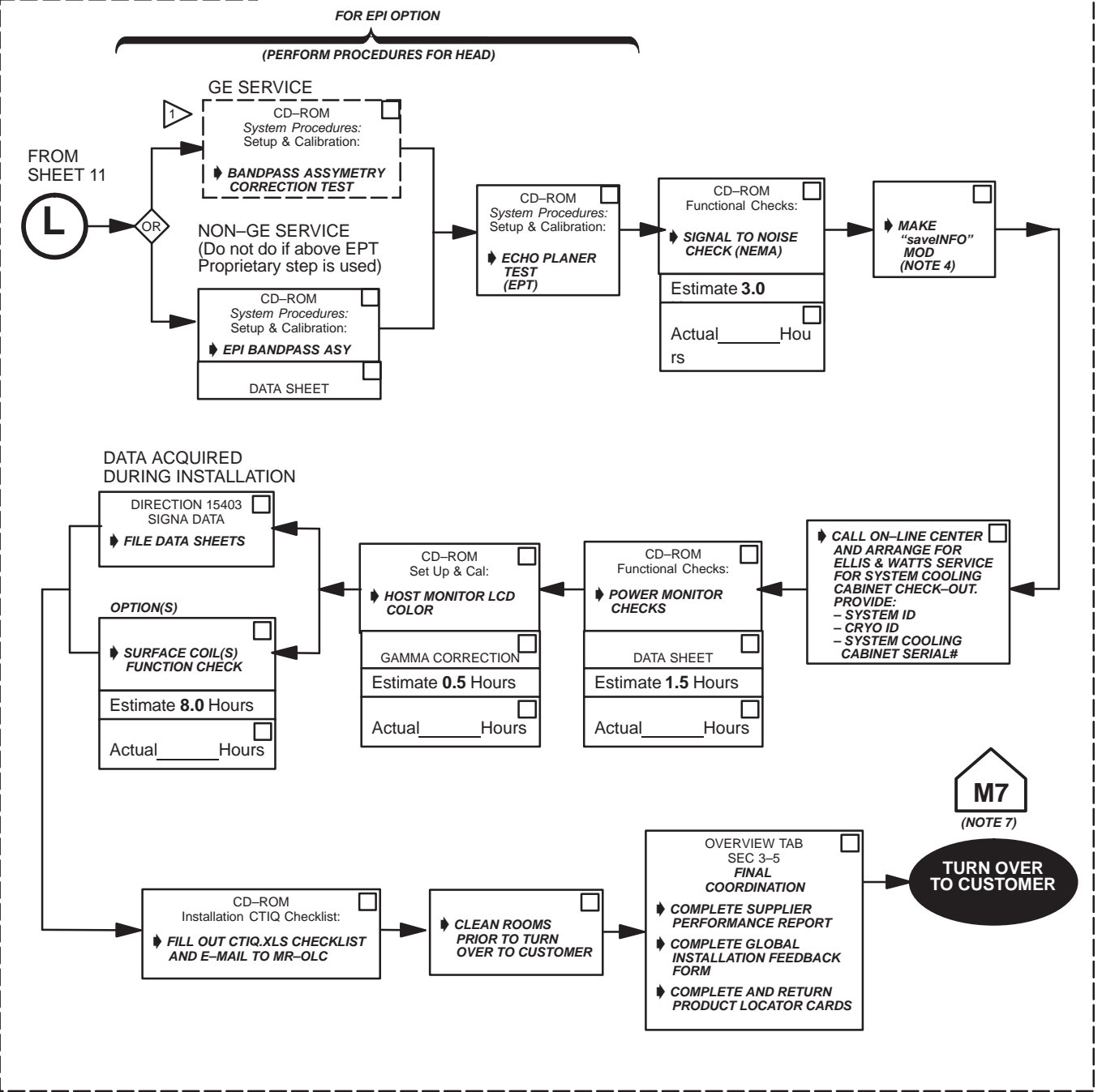
MARK OFF
PERFORMED
ITEMS

IMPORTANT: PER ISO 9001 REQUIREMENTS

SYSTEM CALIBRATION (CONTINUED)

Complete

STEP 11
 Estimated average elapsed time: **14.0 hours**
 Actual elapsed time: _____



SIGNA OPEN SPEED SYSTEM INSTALLATION FLOW CHART
 ILLUSTRATION 1-5 (SHEET 12 OF 12)

SECTION 2 – SYSTEM CABLES

2-1 LOCATING AND UNPACKING CABLES

This section assumes the Signa OpenSpeed, Fixed-site Kit, and options are delivered complete with all cables present.

Cables shipment containers have color coded labels which identify the cable routing areas:

- Green – Equipment Room
- Purple – Operator’s Room
- Orange – Magnet Room



Ty-wraps must be cut flush with no protruding sharp edges or points. Failure to do so can result in numerous laceration hazards when servicing the equipment.

The table below provides definitions for the following cable tables.

COLUMN HEADING	DESCRIPTION	SPECIAL NOTES
RUN	The run number as seen on the delivered cable	The vendor cable may not have run numbers.
“FROM” & “TO”	Labels the destination of the cable	
DESCRIPTION	Could include information on length, number of conductors, type of cable, and end plug type	Total length of cable delivered to site, type of cable specifies power from data.
CABLE TYPE	Type designation for the cable	
VOLTAGE RATING	The highest voltage that may be continuously applied to a wire	Specific to the core cable manufacturer given.
ACTUAL VOLTAGE	Nominal for continuous; maximum for variable voltage	If voltage varies during use, the maximum is given.
TEMP RATING	Maximum temperature insulating material may be used without loss of basic properties	Specific to the core cable manufacturer given.
FLAME RATING	Measure of material's ability to support combustion	Specific to the core cable manufacturer given.
REMARKS	Describe the cable's use in the MR system	

2-1 LOCATING AND UNPACKING CABLES (continued)

1. Unpack and move power and ground cable boxes to the PDU area where they will be routed. Move Runs 040 and 044 into Magnet Room. Power and ground cables are listed in Table 2-1.

TABLE 2-1
PDU POWER AND GROUND CABLES

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
030	PD1 or MR1 PD1	MR2 A12	35 ft Power (5-#8)	SO	600	208Y	75	FT-4	System Cabinet Power
037	PD1 GND	MR2 A12 GND	36 ft Ground Wire (#10)	SO	600	0	105	VW-1	MR2 "permanent" (UL) ground
040	MSI	RF COM GND	69 ft Ground Wire (#10)	SO	600	208Y	105	VW-1	Magnet Ground Cable
044	PP1 GND	MR1 A7 GND	31 ft Ground Wire (#10)	SO	600	0	105	VW-1	RF/Pen Cabinet Separate ground
047	PD1 A2	OW1 A2 A5 J1	66 ft Power (4-#10)	SO	600	208Y	75	VW-1	Operator Workspace Cabinet Power
048	PD1 GND	OW1 A2 A5 GND	51 ft Ground Wire (#10/1)	SO	600	0	105	VW-1	Operator Workspace Cabinet ground
049	OW1 A1 A1	OW1 A2 A5 J2	12 ft Power (4-#12)	STO	600	120	90	VW-1	Operator Workspace Table to OW Cabinet
907	MDP	PP1 A18 J1	40 ft Power (3-#10)	SO	600	120	90	FT-4	TCU Power
937	MDP	SCC1	50 ft Power (4-#12)	SO	600	480Y	85	VW-1	System Cooling Cab Power
938	SCC2	SCC1	50 ft Power (4-#12)	SO	600	480Y	85	VW-1	RF Coil Cooling Cab Power
939	MDP UPS	MsM4	6 ft Power (5-#15)	SO	600	120	85	VW-1	MDP to UPS for power out
N/A	MDP (Modem)	MSM4	Power (3-#14)	SJT	300	120	75	VW-1	MDP to UPS
N/A	MDP (UPS)	MSM3	Power (3-#18)	SVT	300	<30	80	VW-1	Modem to MDP
N/A	MDP (Mag Mon)	MSM1	Power (3-#18)	SVT	300	<30	80	VW-1	Monitor to MDP
N/A	PD1 MAG/SHIM OUTLET	MAG/SHIM POWER SUPPLY	50 ft Power (5-#8) With 30A Plug and Receptacle			480Y			Cable for Compact PDU to GE Magnet Power Supply or SC Shim Supply Power (Serv Tool)

2-1 LOCATING AND UNPACKING CABLES (continued)

2. Unpack and move fixed site magnet room interconnect cables to magnet room. Refer to Table 2-2.

TABLE 2-2
MAGNET ROOM RUNS (NOT CUT TO LENGTH)

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
030	PD1 or MR1 PD1	MR2 A12	35 ft Power (5-#8)	SO	600	208Y	75	FT-4	System Cabinet Power
297	PP1 J18	EO1	90 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Emergency off switch
715	PP1 J14	MG2 A33 J1	65 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	SRI Power
716	PP1 J89	MG2 A11 A1 J2	65 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	PAC Power
749	MG2 A33 J10	TO TEMP SENSR	35 ft 3 cond w/ 9-Sub D	CI3	300	<30	105	FT-4	Bore Temperature Sensor
	MAGNT COVER	TO RUN 749	3 ft 3 cond w/ 9-Sub D	CI3	300	<30	105	FT-4	Bore Temperature Sensor
841	PP1 J51	PT1 J5	40 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Coil I/F Electronics
842	PP1 J15	MG2 A39 J7	60 FT. 25 pin Sub-D	CI3	300	<30	80	FT-4	Bore Light
843	PP1 J20	MG2 A40 J6	65 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Patient Alignment Lights
844	PP1 A18 J4	MS1 A6 HTR	65 ft. 16 pin MIL-C	CI3	300	120	80	VW-1	TCU Heater
846	PP1 A18 J3	MS1 AT RTD	65 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	TCU RTD
848	MG2 A11 J4	MG2 A4 J5	16 ft. 25 pin Sub-D/rt angle	CI3	300	<30	80	FT-4	Operator Display to PAC II
849	MG2 A33 J4	MG2 A39 J1	3 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	SRI to SRI Splitter
850	MG2 A33 J7	MG2 A39 J3	3 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	SRI to SRI Splitter
851	MG2 A33 J8	MG2 A39 J2	3 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	SRI to SRI Splitter
852	MG2 A12 A15 J1	MG3 A3 J7	11.5 ft. BNC	CMX	1900 VRMS	336	80	VW-1	RF Cable (top)
853	MG2 A12 A15 J2	MG3 A3 J9	11.5 ft. BNC	CMX	1900 VRMS	336	80	VW-1	RF Cable (top)
854	MG2 A12 A14 J1	MG3 A3 J8	11.5 ft. BNC	CMX	1900 VRMS	336	80	VW-1	RF Cable (bottom)
855	MG2 A12 A14 J2	MG3 A3 J10	11.5 ft. BNC	CMX	1900 VRMS	336	80	VW-1	RF Cable (bottom)
856	MG2 A40 J7	MG2 A39 J8	3 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Magnet I/F to SRI Splitter
858	PT1 J15	MG2 A39 J4	20 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	DRI Power
859	PT1 J14	MG2 A33 J3	20 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Dock Limit
860	PT1 J13	MG2 A33 J2	20 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Long. Drive Encoder/Limit Swtch
861	MG2 A4 J4	MG2 A33 J5/J6/J9 MG2 A39 J10/J11	20 ft. 80 pin Amplimit to 5-37 pin Sub-D	CI2	300	<30	80	VW-1	Main SRI/SRI Splitter to Display Panel
862	MG2 A4 J1	MG2 A5 J1	2 ft. 26 pin Rt. angle	CI2	300	<30	80	VW-1	Operator Display to Rt. Op Cntrl
863	MG2 A4 J2	MG2 A5 J2	2 ft. 26 pin Rt. angle	CI2	300	<30	80	VW-1	Operator Display to Lt. Op Cntrl
864	MG2 A15 A2	MG2 A39 J6	15 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Bore Light (left)
865	MG2 A15 A1	MG2 A39 J5	15 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Bore Light (right)
866	PT1 J12	MG2 A40 J3	20 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Magnet I/F to Patient Table
869	MG2 A14 A2	MG3 A2 J8	10.5 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Speaker
870	MG2 A14 A1	MG3 A2 J7	10.5 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Microphone
871	MG2 A40 J8	LASER -25,0,+25	8.4 ft. 9 pin/6 mate/lck	CI3	300	<30	80	FT-4	Alignment Lights

2-1 LOCATING AND UNPACKING CABLES (continued)

TABLE 2-2 (CONTINUED)
MAGNET ROOM RUNS (NOT CUT TO LENGTH)

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
873	MG3 A2 J6	MG2 A40 J1	3 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	Patient Intercom
874	MG2 A40 J5	MG2 A40 A1,A2,A3	16 ft. 15 pin Sub-D	CMG	300	<30	80	FT-4	Pinch Switch
875	MG3 A4 J6	PT1 J1	13.67 ft. BNC	CMX	1900 VRMS	<30	60	VW-1	MC2 Receive
876	MG3 A4 J7	PT1 J2	13.67 ft. BNC	CMX	1900 VRMS	<30	60	VW-1	MC3 Receive
877	MG3 A4 J8	PT1 J3	13.67 ft. BNC	CMX	1900 VRMS	<30	60	VW-1	MC4 Receive
878	MG3 A4 J5	PT1 J4	13.67 ft. BNC	CMX	1900 VRMS	<30	60	VW-1	MC1 Receive
879	MG3 A4 J3	PT1 J5	13.67 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Coil I/F Electronics
880	MG3 A4 J9	PT1 J9	13.67 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Coil I/F Electronics
881	MG3 A4 J6	PT1 J15	13.67 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Coil I/F Electronics
882	MG3 A5 J4	PT1 J14	15 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Limit Switch and Encoders
883	MG3 A5 J6	PT1 J13	15 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Limit Switch and Encoders
884	MG3 A5 J1	PT1 J11	15 ft. 25 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Verical Motor Drive
885	MG3 A5 J5	PT1 J12	15 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Limit Switch and Encoders
886	MG3 A7	PT1 J8	17 ft. 9 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Longitudinal Drive Motor Power
891	MG3 A4 J1	PT1 J6	13.67 ft. BNC	CI2	1900 VRMS	<30	80	VW-1	Coil I/F Electronics
892	MG3 A4 J10	PT1 J7	13.67 ft. BNC	CI2	1900 VRMS	<30	80	VW-1	Coil I/F Electronics
893	MG3 A3 J2	MG3 A3 A5 INPUT	6.6 Inch BNC		1900 VRMS	<30	80	VW-1	Splitter to Preamp Cable
897	MG2 A4 J3	MG2 A33 J4	20 ft. 37 pin Sub-D/26 pin	CI3	300	<30	80	FT-4	Operator Display to SRI
905	MG3 A4 J4	PT1 J10	13.67 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Coil I/F Electronics
906	PP1 J47	PT1 J11	40 ft. 25 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Vertical Drive Motor Power
920	PP1 J12	MG2 A40 J2	60 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	Patient Intercom
921	PP1 J11	PT1 J8	45 ft. 9 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Longitudinal Drive Motor Power
922	PP1 J80	PT1 J1	40 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	MC2 Receive
923	PP1 J81	PT1 J2	40 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	MC3 Receive
924	PP1 J82	PT1 J3	40 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	MC4 Receive
925	PP1 J7	PT1 J4	40 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	MC1 Receive
926	PP1 A15 J78	PT1 J9	40 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Multi-coil Switching
927	PP1 A16 J77	PT1 J10	40 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Multi-coil Bias
934	PP1 J8	MG3 A3 A5 OUT	65 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	Body Coil Receive
943	TO RUN 944	TABLE PIVOT SW	4.6 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Table Pivot Switch

2-1 LOCATING AND UNPACKING CABLES (continued)

TABLE 2-2 (CONTINUED)
MAGNET ROOM RUNS (NOT CUT TO LENGTH)

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
944	MG2 A40 J4	TO RUN 943	25 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	Interface to Table Pivot Switch
945	PP1 A11 J72	MG2 A12 A15 J3	50 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	Dynamic Disable (body coil top)
946	PP1 A11 J73	MG2 A12 A15 J4	50 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	Dynamic Disable (body coil top)
947	PP1 A11 J75	MG2 A12 A14 J3	50 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	Dynamic Disable (bdy coil (btm))
948	PP1 A11 J76	MG2 A12 A14 J4	50 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	Dynamic Disable (bdy coil bttm)
953	PP1 J13	MS1 A6 J1	65 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Heater/RTD Distribution I/F
954	PP1 J53	PIF J4	50 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Puck I/F
955	PP1 J100	MS1 A6 J2	65 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Heater/RTD Distribution I/F
959	PP1 J58	PIF J1	50 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	Puck I/F
960	PP1 J59	PIF J3	50 ft. BNC	CMX	1900 VRMS	<30	80	VW-1	Puck I/F

2-1 LOCATING AND UNPACKING CABLES (continued)

- Unpack and move equipment room system cables into routing location (cabinets, Operator Console, Operator Workstation, PDU). Refer to Table 2-3.

TABLE 2-3
EQUIPMENT ROOM RUNS

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
229	MR2 A11 J1	MR1 A7 J3	20 ft. RG223/U Coax	CMX	1900 VRMS	<30	80	VW-1	Exciter RF output
231	MR2 A11 J2	PP1 J8	40 ft. RG223/U Coax	CMX	1900 VRMS	<30	80	VW-1	Body Coil receive
296	FACILITY DISCNCT	PP1 J18	45 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Emergency off switch
457	OM1	PP1 J17	9 pin Sub-D	CI3	300	<30	80	FT-4	Optional O2 Monitor cable
487	PP1-A15-J78	MR1-A7-J20	40 ft.15 Sub-D	CI3	300	<30	80	FT-4	Multi-coil Switching
488	PP1-J80	MR2-A11-J8	40 ft. BNC	CMX	300	<30	80	VW-1	MC2 Receive
489	PP1-J81	MR2-A11-J9	40 ft. BNC	CMX	300	<30	80	VW-1	MC3 Receive
490	PP1-J82	MR2-A11-J10	40 ft. BNC	CMX	300	<30	80	VW-1	MC4 Receive
701	MR2 A11 J15	RF Door switch	70 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	RF Door switch
702	MR2 A11 J18	MR1 A7 J5	20 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Unblank/EFB
703	MR2 A11 J23	PD1 A14 A1 J2/ MR1 PD1 J2	40 ft. 15 pin Sub-D	CI3	300	<30	80	FT-4	PDU Status
706	MR2 A11 J14	PD1 A14 A1 J3/ MR1 PD1 J3	40 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Remote PDU
726	PP1-A16-J77	MR1-A7-J18	30 ft. 15 Sub-D	CI3	300	<30	80	FT-4	Multi-coil Bias
745	MR1 A23 J4	TO RUN 935	5 ft. N	STO	4000 VDC	950	120	VW-1	0.7T Body Coil Transmit
768	MR1 A7 J31	PP1 J20	30 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	Patient Alignment Light power
769	MR1 A7 J34	PP1 J15	30 ft 25 pin Sub-D	CI3	300	<30	80	FT-4	Bore Light power
770	MR1 A7 J41	PP1 J11	30 ft. 9 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Long Drive Motor power
771	MR1 A7 J36	PP1 J47	30 ft. 25 pin Sub-D	CI3	300	38.5 VDC	80	FT-4	Dock Power
772	MR1 A7 J40	PP1 J14	30 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	SRI Power
773	MR1 A7 J35	PP1 A17 J1	30 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	PAC & Fiber Optic I/F Power
774	MR2 A11 J25	MR1 A7 J32	20 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	Hydraulic Manifold Interface
775	MR1 A7 J42	PP1 A11 J92	30 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	100V Dynamic Disable
777	MR1 A7 J43	PP1 A11 J94	30 ft. MHV Coax	CI2	1900 VRMS	1000 VDC	80	VW-1	100V Dynamic Disable
788	OW1 A1 A4 J7	PP1 J12	40 ft. Data (25-#22)	CI3	300	<30	80	FT-4	Intercom
789	OW1 A1 A4 J18	MR2 A11 J26	51 ft. Data (9-#22)	CI3	300	<30	80	FT-4	E-stop
791	OW1 A16 PORT1	MR2 A11 J30	51 ft. Data (25-#22)	CI3	300	<30	80	FT-4	TNF monitoring (Octane)
797	OW1 A2 A1 PC	OW1 A3 LCD		CI3	300	<30	80	FT-4	LCD Display
798	OW1 A2 A3 HOST	OW1 A6	10.5 ft. Data (3-#24)	ci3	300	<30	80	ft-4	Color Monitor cable

2-1 LOCATING AND UNPACKING CABLES (continued)

TABLE 2-3 (CONT'D)
EQUIPMENT ROOM RUNS

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
805	OW1 A1 A4 J6	OW1 A7	3.3 ft SCSI Data	CI3	300	<30	80	FT-4	Keyboard cable
807	OW1 A2 A3 HOST	OW1 A5	9.8 ft. 50 pin SCSI	CI3	300	<30	80	FT-4	DASM SCSI cable
810	OW1 A1 A2 J8	OW1 A15 KBD,MS	8.9 ft. Data (25-#22)	CI3	300	<30	80	UL-1581	Keyboard/Mouse cable (Octane)
811	OW1 A2 A4	OW1 A15	12 ft. Ethernet: cat 5	CI3	300	<30	80	FT-4	Communication
812	OW1 A15	OW1 A13	12 ft. 9 pin/12 pin Sub-D	CM	300	<30	80	UL-1581	Modem
813	OW1 A2 A1 COM2	OW1 A415 PORT7	12 ft. 9 pin Sub-D (4-#22)	CI3	600	<30	105	VW-1	Communication
814	OW1 A2 A1 KBD,MS	OW1 A1 A4 J9	8.9 ft. PS2, PS@, 9 pin Sub-D:25 pin Sub-D	CI3	300	<30	80	FT-4	Keyboard/Mouse cable (PC)
815	OW1 A16	OW1 A15 SCSI	6.0 ft. 68:50 pin SCSI	CI3	300	<30	80	FT-4	SCSI Cable (Octane)
817	OW1 A2 A5 J3	OW1 A1 A2 J17	8 ft. 9 pin Sub-D (9-#@2)	CI3	300	<30	80	FT-4	Workspace I/F Module
818	OW1 A16 J6,7,8	MR2 A11 J30	70 ft. 25 pin:3-25 pin Sub-D's	CI3	300	<30	80	FT-4	TNF monitoring
819	OW1 A2 A7 SCSI	OW1 A15	11.8 ft. 68:50 pin SCSI	CI3	300	<30	80	FT-4	SCSI Cable
821	OW1 A15 MON-ITOR	OW1 A6	10.5 ft. Sub-D combo: 3 BNC's	CI3	300	<30	80	FT-4	Color Monitor cable
837	OW1 A17 J4	PP1 A18 J2	65 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Serial Converter to TCU
838	OW1 A17 J3	PP1 J51	65 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Serial Converter to Pen Panel
910	OW1 A17 J2	OW1 A16 PORT 3	6 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	TCU Serial Coverter
911	OW1 A17 J1	OW1 A16 PORT 5	6 ft. 25 pin Sub-D	CI3	300	<30	80	FT-4	Coil ID
929	MR2 A11 J5	PP1 J7	40 ft. BNC RG223/ U Coax	CMX	1900 VRMS	<30	80	VW-1	Head & Surface Coil Receive
930	MR1 A7 J37	PCC CONTROL	30 ft. 3/18 AWG	SO	300	120	80	FT-4	Patient Comfort Compressor
931	MR1 A7 J47	PCC	30 ft. 3/18 AWG	SO	300	120	80	FT-4	Patient Comfort Compressor
932	MR1 A24 NC	TO RUN 887	5 ft. N-type RG214/ U Coax	CMX	5000 VRMS	212	80	VW-1	0.7T Head Coil Transmit
933	MR1 A24 NO	TO RUN 888	5 ft. N-type RG214/ U Coax	CMX	5000 VRMS	212	80	VW-1	0.7T Head Coil Transmit
949	MR2 A11 J35	PP1 J35	45 ft. 37 pin Sub-D	CI3	300	<30	80	FT-4	
950	MR2 A11 J33	PP1 J33	45 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	
951	MR2 A11 J34	PP1 J100	45 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	
952	MR2 A11 J39	MS5 BV J1	45 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	Helium Bypass
956	MR2 A11 J32	OW1 A16 PORT 4	60 ft. 9 pin Sub-D	CI3	300	<30	80	FT-4	
957	MR2 A11 J38	PP1 J58	45 ft. BNC RG223/ U Coax	CMX	1900 VRMS	<30	80	VW-1	
958	MR2 A11 J37	PP1 J59	45 ft. BNC RG223/ U Coax	CMX	1900 VRMS	<30	80	VW-1	

2-1 LOCATING AND UNPACKING CABLES (continued)

4. Unpack and move fiber optic cables into routing location. Refer to Table 2-4.

TABLE 2-4
FIBER OPTIC CABLES DELIVERED WITH FIXED-SITE KIT

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
708	MR2 A11 J16	MR1 A7 TX	1/2 in. fiber optic conduit	N/A	N/A	0	85	N/A	Single simplex plastic fiber optic cable
709	MR3 A11 J2	MR1 A7 RX	3/4 in. fiber optic conduit	N/A	N/A	0	85	N/A	Single simplex plastic fiber optic cable
710	MR2 A11 J17	MR3 A11 J1	3/4 in. fiber optic conduit	N/A	N/A	0	85	N/A	Four glass fiber optic cables and one plastic fiber optic cable
711/ 712	MR2 A11 J13	PP1-J91	3/4 in. fiber optic conduit	N/A	N/A	0	85	N/A	Two duplex fiber optic cables and one simplex fiber optic cable
711 /712	PP1-J91	MG2 A33 and MG2 A11 A1	3/4 in. fiber optic conduit	N/A	N/A	0	85	N/A	One duplex fiber optic cables and one simplex fiber optic cable and One duplex plastic fiber optic cable for PAC-II
836	MR2 A11 J30 BIT3	OW1 A15 BIT3	3/8 in. jacketed cable	N/A	N/A	0	85	N/A	Two fiber optic cables with two spares

5. Unpack and move interconnect cables which are cut to length to the applicable room. Refer to Table 2-5.

TABLE 2-5
EQUIPMENT ROOM AND MAGNET ROOM CABLES CUT TO LENGTH

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
746	PP1 J44	MG3 A3 J1	55 ft 1/2" Heliac (HN)	STO	4000 VDC	950	120	VW-1	1.0T Body Coil Transmit
762	MR3 CABI/F J3	PP1 A7 1, 2	2 Conductor #2	STO	1000	600	90	FT-4	X Gradient output
762	MG3 A32 1/2	PP1 A7 1, 2	2 Conductor #2	STO	1000	600	90	FT-4	X Gradient output
763	MR3 CABI/F J4	PP1 A7 3, 4	2 Conductor #2	STO	1000	600	90	FT-4	Y Gradient output
763	MG3 A32 3/4	PP1 A7 3, 4	2 Conductor #2	STO	1000	600	90	FT-4	Y Gradient output
764	MR3 CABI/F J5	PP1 A7 5, 6	2 Conductor #2	STO	1000	600	90	FT-4	Z Gradient output
764	MG3 A32 5/6	PP1 A7 5, 6	2 Conductor #2	STO	1000	600	90	FT-4	Z Gradient output
887	PP1 J4	TO RUN 932	50 ft. 3/8 in. Heliac (N)	STO	2500 VDC	212	85	VW-1	0.7T Head Coil Transmit
888	PP1 J83	TO RUN 933	50 ft. 3/8 in. Heliac (N)	STO	2500 VDC	212	85	VW-1	0.7T Head RF Transmit
889	PP1 J4	PT1 J6	50 ft. 3/8 in. Heliac (N)	STO	2500 VDC	212	85	VW-1	0.7T Head Coil Transmit
890	PP1 J83	PT1 J7	50 ft. 3/8 in. Heliac (N)	STO	2500 VDC	212	85	VW-1	0.7T Head RF Transmit
935	PP1 J44	TO RUN 745	55 ft. 1/2 in. Heliac (HN)	STO	4000 VDC	671	75	VW-1	0.7T Body Coil Transmit

2-1 LOCATING AND UNPACKING CABLES (continued)

- 6. Unpack magnet room cables from the GE Magnet accessory box(s) and move them into the magnet or equipment room for routing. The shield cooler runs should have been installed previously when magnet was delivered.
 - a. For magnet and equipment room standard runs delivered with GE Magnet, refer to Table 2-6.

TABLE 2-6
GE MAGNET CABLES

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
601	MS8	MS1	Power Cable (#4/0)	SO	600	208	80	VW-1	Ramp cables, Power Assembly Positive 4/0
602	MS8	MS1	Power Cable (#4/0)	SO	600	208	80	VW-1	Ramp cables, Power Assembly Negative 4/0
603	MS7	MS1 A3 A1	Power Cable (#4/0)	SO	600	208	80	VW-1	Ramp and Shim Cable Assembly
604	MS7 or MS8	MS1 A3 A1	Data Cable (12-#22)	CI3	150	60 VDC	80	FT-4	Switch Heaters
605	MS1	MR2 A8	Data Cable (4-#22)	CI3	300	<30	105	FT-4	Instrumentation Cable, 80 feet
606	MS4	MS1 A3 A1	Data Cable (4-#22)	CI3	300	<30	105	FT-4	Emergency Run Down Unit
608	MS1	MR2 A8	Data Cable (4-#22)	CI3	300	<30	105	FT-4	Instrumentation Cable, 15 feet
609	MS7 OR MS8	PDU	Power Cable (5-#16)	SO	300	208Y	105	FT-4	Feeder Cables
621	MS5 A1	MS1 A2	7/8" Gas Flex Line	STO	N/A	N/A	85	VW-1	Supply Flexible Gas Line (PP1 J60 or J61)
622	MS5 A1	MS1 A2	7/8" Gas Flex Line	STO	N/A	N/A	85	VW-1	Return Flexible Gas Line (PP1 J60 or J61)
623	MS5 A1	PP1 F1, F2, F3, F4	Power Cable (4-#18)	SO	600	200	105	VW-1	Compressor to Pen Panel Cable (equipment room)
624	MS1 A2	PP1 F1, F2, F3, F4	Power Cable (4-#18)	SO	600	200	105	VW-1	Cold Head Control Cable
625	MS8 A1	MS1 A2	65.6 ft. 7/8" Gas flex line	STO	N/A	N/A		VW-1	Supply Flexible Gas Line (PP1 J60 or J61)
626	MS8 A1	MS1 A2	65.6 ft. 7/8" Gas flex line	STO	N/A	N/A		VW-1	Return Flexible Gas Line (PP1 J60 or J61)
627	MS8 A1	PP1 F5 F6, F7, F8	49 ft. Power (4-#18)	SO	600	200	105	VW-1	Coocompressor to Pen Panel (equipment room)
628	MS1 A1 A2	PP1 F5 F6, F7, F8	49 ft. Power (4-#18)	SO	600	200	105	VW-1	Cold Head Control Cable

2-1 LOCATING AND UNPACKING CABLES (continued)

- 7. Verify magnet monitoring cables for GE Magnet are delivered (or if previously installed, remain in place). Refer to Table 2-7.

TABLE 2-7
MAGNET MONITORING CABLES DELIVERED WITH MAGNET

RUN	"FROM"	"TO"	DESCRIPTION	CABLE TYPE	VOLTAGE RATING	ACTUAL VOLTAGE	TEMP RATING	FLAME RATING	REMARKS
823	MSM1 A1 J10	MR2 A11 J24	60 ft. Data 15 pin Sub-D (15-#22)	CI3	300	<30	80	FT-4	Monitor to System Cabinet I/F
824	PP1 J10	FJ1	60 ft. Data 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Monitor Sensor I/F to Penetration Panel
825	PP1 J48	MSM1 A1 J8	60 ft. Data 25 pin Sub-D (25-#22)	CI3	300	<30	80	FT-4	Magnet Monitor connector to Penetration Panel
826	MSM1 A1 J9	FJ3	60 ft. Data 15 pin Sub-D (15-#22)	CI3	300	<30	80	FT-4	Monitor to Compressor I/F
827	FJ3	MS5 A5 A1 J1 / FJ4	3 ft. Data 15 pin Sub-D to 9 pin Sub-D & 4 lead plug (8-#22) & (4-#22)	CI3	300	<30	80	FT-4	Compressor I/F
829	PP1 J48	MS1 FJ2	60 ft. Data 25 pin Sub-D (25-#22)	CI3	300	<30	80	FT-4	Penetration Panel to Magnet I/F
830	MS1 FJ2	MS1 A2 J2/ MS1 A5 A2 J1/ MG3 TB1	18 ft. Data 25 pin to 15 & 9 pin Sub-D's 3cond/3cond/25cond	CI3	300	<30	80	FT-4	Magnet I/F
832	MS1 A2 J1	MS1 SLEEVE/ MS1 COLDHEAD	1.5 ft. Data 15 pin Sub-D: 2x 10 pin circular (8-#22)	CM	300	<30	80	FT-4	Buffer Amp to Cooling Sleeves
833	FJ4	MS5 A1 A6 JR	8.2 ft. Data 9 pin to 15 pin Sub-D (6-#24)	CM	300	<30	80	FT-4	Compressor to Compressor I/F
913	PP1 J10	MS1 A3 A1 P302-1	60 ft. Data 25 pin to 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Penetration Panel to Sensor
914	PP1 J62	FJ5	60 ft. Data 25 pin Sub-D (25-#22)	CI3	300	<30	80	FT-4	Monitor Sensor I/F to Penetration Panel
915	MSM1 A2 J1	FJ6	60 ft. Data 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Monitor Sensor I/F to Remote Alarm Box
916	FJ1	MSM1 A1 J7	9 pin to 25 pin Sub-D Data (8-#24)	CI3	300	<30	80	FT-4	Monitor Sensor I/F to Pen Panel & Remote Alarm Box
919	PP1 J10	MA1 A3 A1 P403	60 ft. Data Sub-D (9-#22)	CI3	300	<30	80	FT-4	Penetration Panel to Upper He Level Sensor
940	MSM3 RS232	MSM1 J1	6 ft. Data 25 pin to 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Monitor to Modem
941	MSM1 J11	SCC J1	50 ft. Data 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Monitor to Systems Cooling Cabinet
942	MSM1 J5	OW1 A2 A4 PORT7	80 ft. Cat 5 Ethernet	CI3	300	<30	80	FT-4	Monitor to Operator Workstation
N/A	MSM1 J3	UPS SERIAL I/F	Data 9 pin Sub-D (9-#22)	CI3	300	<30	80	FT-4	Monitor to UPS
N/A	MR2 A11 J24	MR2 IPG J9/ MR2 PDU J5							System Cabinet I/F

- 8. Unpack additional equipment room cables for Signa Options:
 - a. Refer to the service/installation manual shipped with options.
 - b. Refer to *Direction 2151387, Signa Horizon Spectroscopy Subsystem*, for 1.5T Spectroscopy (M1040JB) equipment room cables.

2-2 SORTING AND ROUTING CABLES

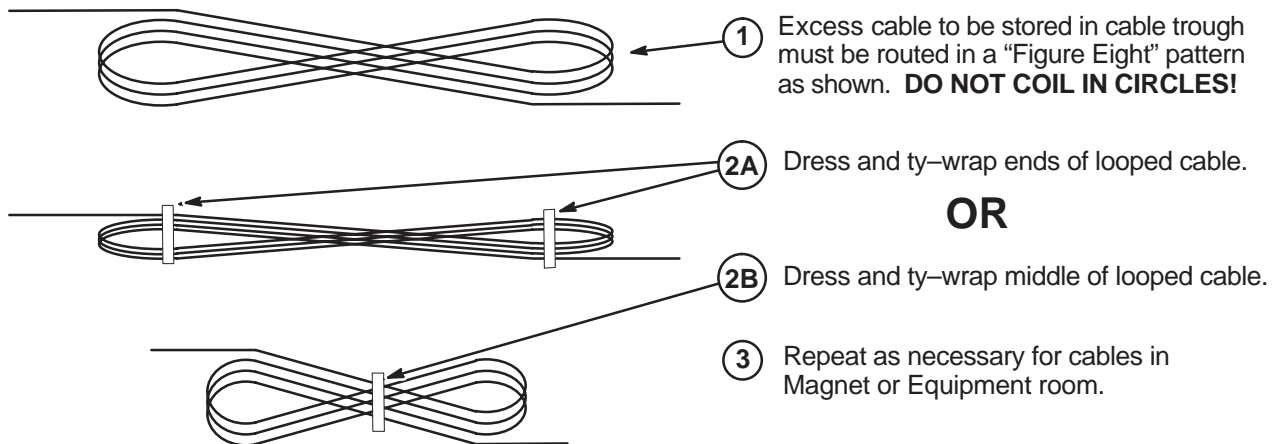
System power, ground, and interconnect cables are color coded at each end by destination per colors shown on Cable Map.

- Sort cables by destination. Normally, it is best to sort cables originating from the farthest cabinet or component from the PDU first. This will make it easier to pull cables through the troughs.

Note

Carefully review architectural drawings to insure that all ducts are properly installed and that all signal and power cables are accounted for before starting to route cable runs.

- Unroll coiled cables along the intended route to insure that they will lay freely without twists or kinks. Route cables in accordance with the applicable System Interconnect Diagram.
- Plan for storage location of coiled cable excess length if cables are to remain at delivered length. See Illustration. Some cables are usually cut to length such as gradient cables, power cables, Heliac, and Fiber-optic cables.



PROPER STORAGE OF EXCESS CABLES

ILLUSTRATION 2-1

- Place cables in provided troughs, conduit, or ducts. Leave sufficient slack for later connection when cabinets are in final position according to site architectural plans. Route cables inside exam room to Rear Pedestal area with sufficient length remaining to complete routing and connecting within Magnet Enclosure.

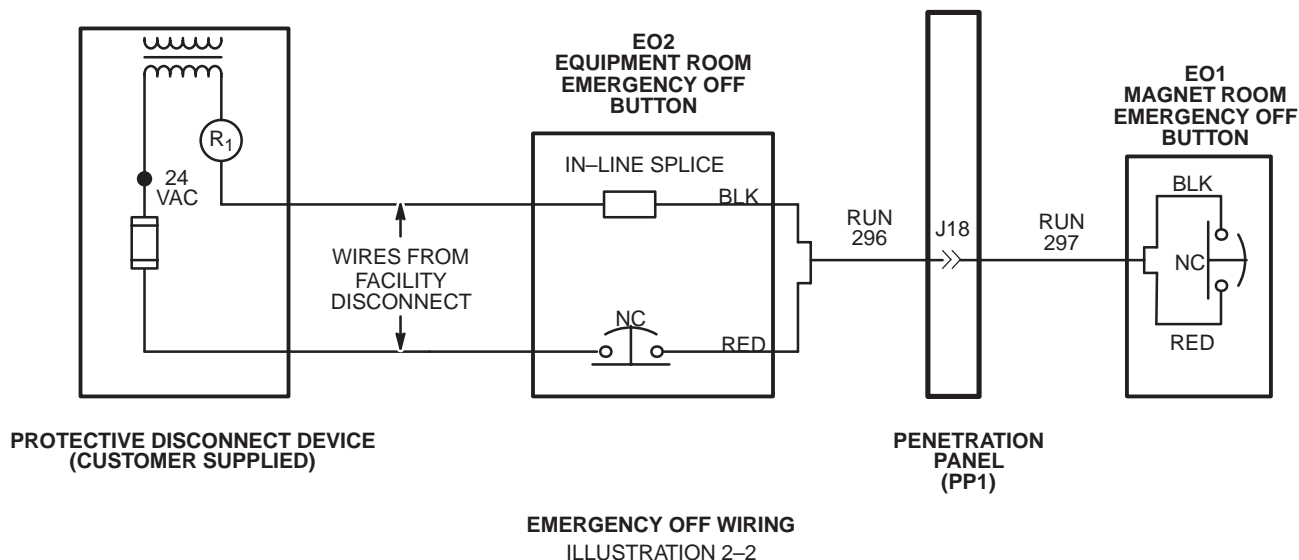
2-3 EMERGENCY OFF CONNECTIONS

Run 296 is routed to EO2 (Equipment Room Emergency Off) and connected to EO2 and wire from Facility Disconnect. Run 297 is routed from Penetration Panel to EO1 (Magnet Room Emergency Off Button). Refer to *Direction 2241391, Signa OpenSpeed Pre-Installation*, Section 5-3-1, Protective Disconnect Device, for detailed wiring diagram.

1. Complete routing of Run 296 to EO2 (Equipment Room Emergency Off) location, and trim cable to length. Locate red and black pair of wires and prepare ends for applicable terminals.

Aside: In Illustration 2-2, black and red wires are used for connections in Runs 295 and 297. Actually any pair of wires on these runs could be used so long as both ends are consistent with one another. Runs 296 and 297 are actually nine wire cables.

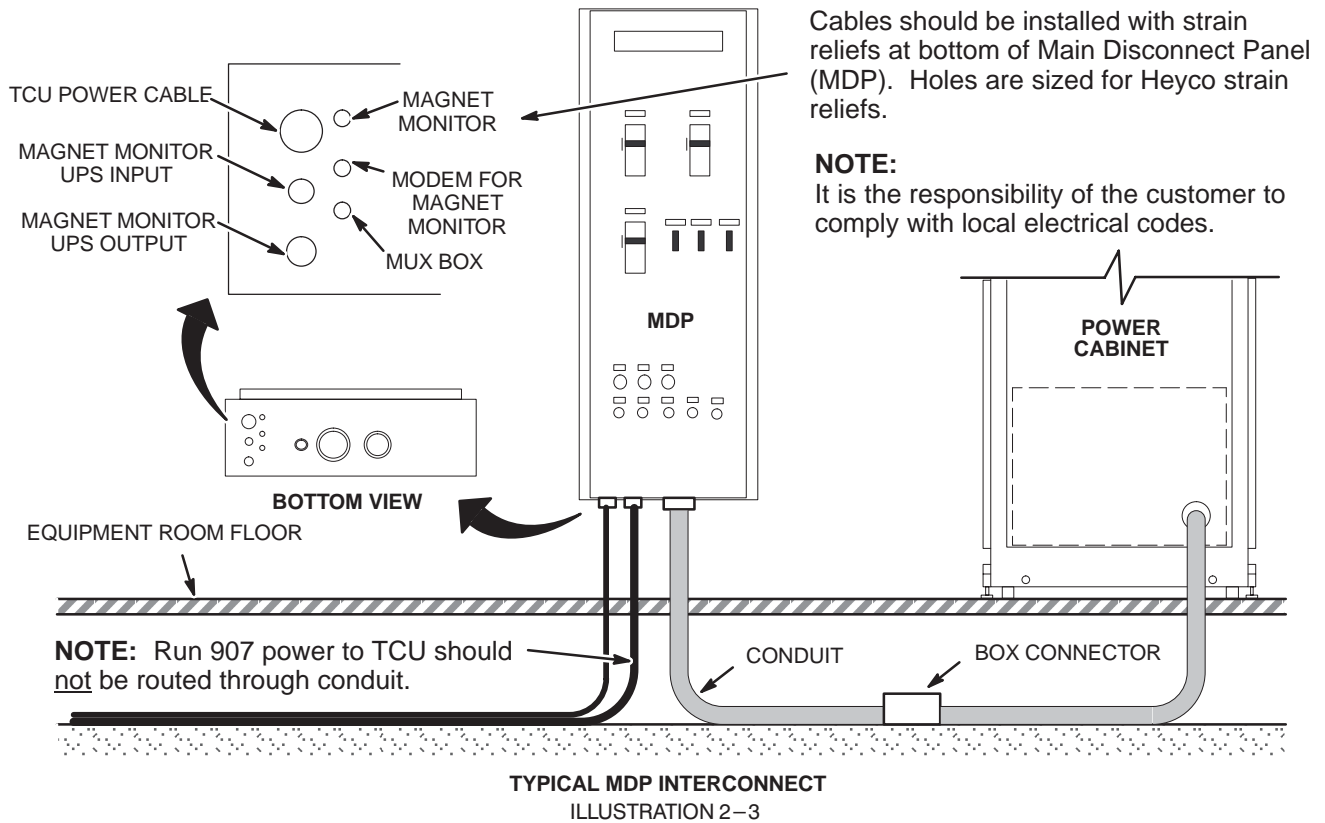
2. At equipment room room "Emergency Off" (EO2) location, terminate red wire at end of Run 296 with local supplied terminal and connect to customer supplied Equipment Room Emergency Off Button (EO2). See Illustration 2-2.
3. Terminate customer supplied wire (from fuse in Protective Disconnect Device) with local supplied applicable terminal and connect to customer supplied Emergency Off Button (EO2). See Illustration 2-2.
4. Terminate customer supplied wire from R1 in Protective Disconnect Device with local supplied push-on terminal.
5. Terminate black wire at end of Run 296 with local supplied "push-on" terminal.
6. Connect black wire from end of Run 296 to customer supplied wire from protective disconnect device with local supplied in-line splice. See Illustration 2-2.
7. Complete routing of Run 297 to EO1 (Magnet Room Emergency Off) location, and trim cable to length. Locate red and black pair of wires and prepare ends for applicable terminals.
8. Terminate red and black wires at end of Run 297 with local supplied terminals and connect to customer supplied Magnet Room Emergency Off Button (EO1). See Illustration 2-2.



2-4 RUN 701 (RF DOOR SWITCH) CONNECTIONS

1. Route Run #701 (from System Cabinet) to RF Door Switch. This 100 ft cable has a 9-pin subminiature "D" plug on one end. The other end is cut off with the black and red leads from pair #1 dressed for connecting to a switch. Should it be desired to cut off excess length, make sure that the black and red leads have continuity to pins 1 and 6 on the 9 pin subminiature D plug.
2. Connect black lead on Run #701 to RF Door Switch COM (common) contact.
3. If RF door switch is normally open, proceed to step 4. If normally closed, proceed to step 5.
4. Connect red lead on Run #701 to RF Door Switch N.O. (normally open) contact.
5. If RF door switch is not normally open, connect red lead on Run #701 to RF Door Switch N.C. (normally closed) contact.

2-5 MAIN DISCONNECT PANEL CONNECTIONS



2-6 CABLE INTERCONNECTION DOCUMENTATION

Fold-out System Interconnect Cable Maps are provided at the end of this section. The cable maps illustrate the Signa System interconnect for all supplied cables and interface with customer supplied wiring.

Tape map in a convenient location to check off routed cable. Upon completion of connecting cables, return fold-out map to the binder for future reference. For installers convenience, the Penetration Panel, and the cables connected to it, is provided on both the equipment room and magnet room cable interconnects.

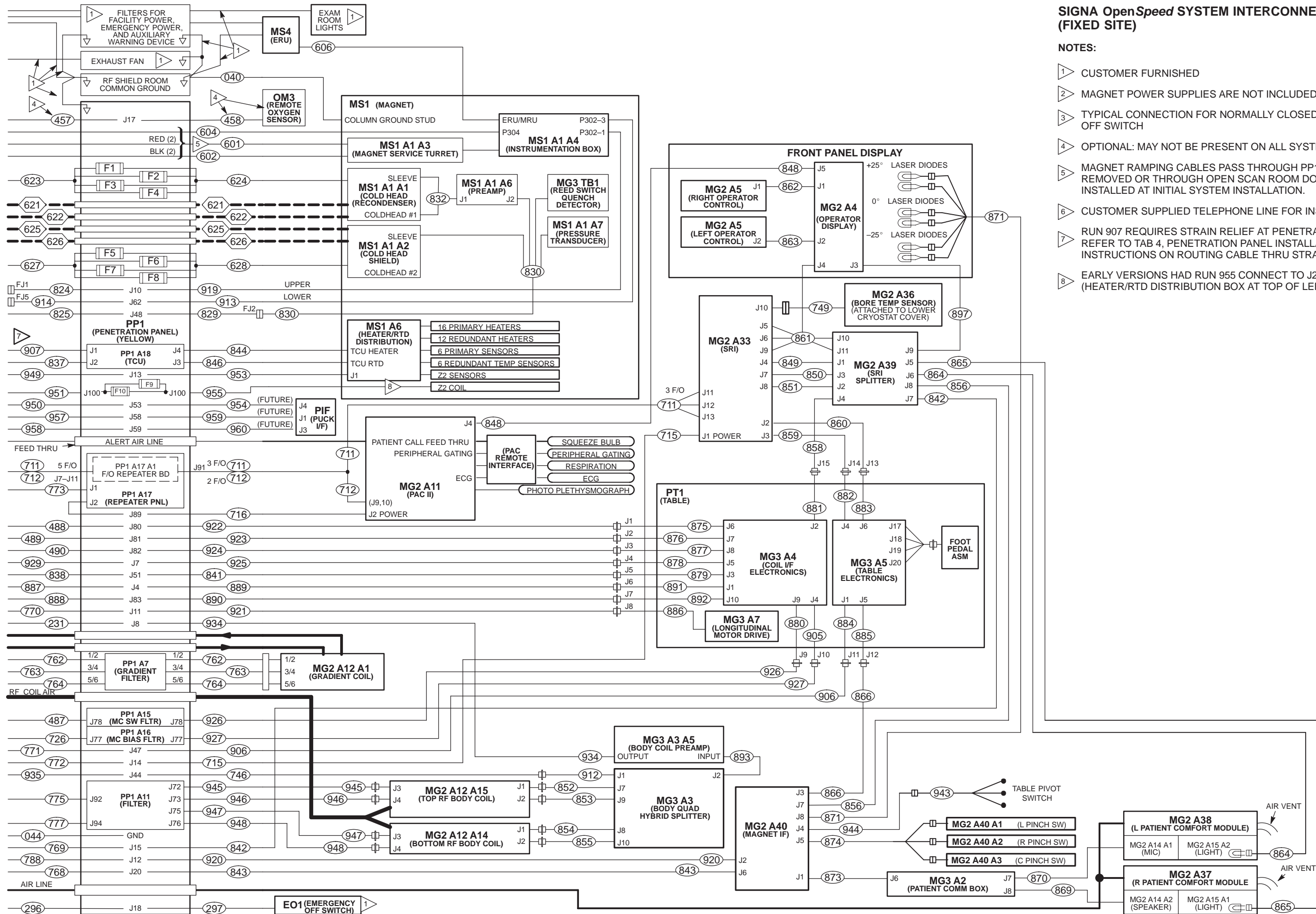
- Procedures for connections made at the Magnet Enclosure, Operator Workspace, cabinets, etc. are detailed in the respective installation section within this manual.
- Interconnect details for magnet subsystem is covered in the applicable magnet subsystem manual.
- Instructions for connections for optional laser cameras are supplied with option.
- Connection procedures for other options are covered in the installation manual shipped with the option.

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**SIGNA OpenSpeed SYSTEM INTERCONNECT – 0.7T
(FIXED SITE)**

NOTES:

- 1 CUSTOMER FURNISHED
- 2 MAGNET POWER SUPPLIES ARE NOT INCLUDED WITH SYSTEM
- 3 TYPICAL CONNECTION FOR NORMALLY CLOSED EMERGENCY OFF SWITCH
- 4 OPTIONAL: MAY NOT BE PRESENT ON ALL SYSTEMS.
- 5 MAGNET RAMPING CABLES PASS THROUGH PP1 WITH PLATE REMOVED OR THROUGH OPEN SCAN ROOM DOOR. NOT INSTALLED AT INITIAL SYSTEM INSTALLATION.
- 6 CUSTOMER SUPPLIED TELEPHONE LINE FOR INSITE MODEM.
- 7 RUN 907 REQUIRES STRAIN RELIEF AT PENETRATION PANEL. REFER TO TAB 4, PENETRATION PANEL INSTALLATION, FOR INSTRUCTIONS ON ROUTING CABLE THRU STRAIN RELIEF.
- 8 EARLY VERSIONS HAD RUN 955 CONNECT TO J2 ON MS1 A6 (HEATER/RTD DISTRIBUTION BOX AT TOP OF LEFT COLUMN).



SECTION 3 – SYSTEM START UP

3-1 RETURNING SHIPPING MATERIAL

The shipping material must be returned **as soon as possible**.

- It is required that the large wooden RF Body Coil shipping containers, the Body Coil Insertion Tool (support table), and the four Coil Lifting Studs and Wingnuts used to install the RF Body Coils be returned.
- The dollies used for shipping the Patient Table also must be returned. Place these inside the above RF Body Coil shipping containers with the Insertion Tool and Coil Lifting Studs/Wingnuts.

Prompt return is required so that production shipments can continue with these labor saving dollies and carts. These can be included with the "Return pile", Recycling Operation will route them to appropriate location.

3-2 PHANTOMS AND SERVICE KITS

1. Locate Phantom Kit (Loader with Head TLT sphere, Loader with Body TLT Sphere, Surface Coil Sphere with holder, and Gafidy2 Phantom Holder Base Plate), ECMT Kit, and SPT Phantom Cart Kit.
2. Unpack the phantoms carefully to reduce risk of damage, breakage, or chemical spill.
3. Locate the multilingual (provided in eight languages) phantom attention labels shipped with each of the phantoms.



Three types of multilingual phantom attention labels are provided and each type must be applied to the correct phantom. The directions at the top of each label sheet describe which phantoms that can receive that label.

4. Read the directions provided at the top of each of the multilingual attention label sheets and apply the appropriate language attention label for the site to each of the phantoms that should receive that type of label.
 - a. Each phantom will receive the correct type of attention label written in the appropriate language for that site.
 - b. Note that the LVshim phantom assembly will receive 3 labels, one for each phantom component.
5. Place service phantoms into SPT Phantom Cart or service storage cabinet to be organized and ready to be used during applicable checks and calibrations. The DQA Phantom is to be stored in a customer designated location.
6. Locate TPS RF I/F Kit (if applicable) and Signa Spares Kit. Place kits into service storage cabinet for ready use.

3-3 POWER ON

1. Notify field service and other installation personnel that are working at the site that the PDU main disconnect locks and tags will be removed so PDU power can be turned on.
2. Restore power to the PDU from main disconnect.

3-3 POWER ON (continued)

3. Refer to the CD-ROM, Set-Up & Calibration, and perform the following:
 - PDU Voltage Checks Compact
 - Startup Checks Compact
 - Transformer Taps Compact
4. Press the FULL ON button on the PDU front control panel.
5. Except for the Gradient power modules, switch all cabinet circuit breakers to ON. The gradient power module circuit breakers should remain OFF until room humidity stabilizes under 60%.

3-4 CALIBRATION AND SYSTEM CHECKS

Refer to Installation Flow Chart to perform:

- Software load and Configuration file edit.
- Functional checks
- Set-up and calibration
- System performance checks

3-5 FINAL COORDINATION

1. Complete assembly of PPG cable and probe head.
2. Consult with customer as to location of PPG Cable.
3. Consult with customer as to location of Operator Alert squeeze bulb. Verify squeeze bulb will operate alarm.
4. Replace cabinet covers that have not been previously replaced.
5. Replace Magnet Enclosure covers that have not been previously installed.
6. Record and enter applicable data into applicable site configuration files and records.
7. Process product locator installation cards for all serialized components added to the system to include product locator card supplied with the upgrade serial number rating plate. Return to:

Product Locator File
P.O. Box 414, W-523
Milwaukee, WI 53201-0414

Note

Failure to fill out and return Product Locator Cards may result in failure of your site to receive future FMI's.

8. Process the **Supplier Performance Report** located in Common Forms. A reference copy of the form is provided on the next page.
9. Store the delivered site's set of service tools and spares kit in service cabinet at site.
10. Locate surface coil ("quick disconnect") adapters and any optional surface coils and positioning accessories and place on Patient Table. Be sure only the correct polarity (normal or reverse **but not both**) head coil adapter is left at site.

3-5 FINAL COORDINATION (continued)

11. Locate Box "To be opened by Applications Specialist" and set aside for later visit by Applications Specialist.
12. Leave the site's set of Manuals and CD-ROM at site. Organize and set up reference cabinet for the Manuals.
13. Locate Material Safety Data Sheets (MSDS) packed with phantoms and gradient coil coolant. They must be retained on site. Customer is to be informed that material with MSDS was brought into site and customer should know/decide where MSDS should be retained at site.
14. Verify that coordination of application support for instruction of site users has been made before returning system to the users. Turn site over to applications who will instruct users.

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GE Medical Systems Field Service

SUPPLIER PERFORMANCE REPORT

Send completed forms to the 4 addresses at the end of this form.

Supplier Name: _____ Date: _____

Work Performed / Evaluated: _____

Commodity / Item Purchased: _____

GE Customer Name: _____

FDO Number: _____ Test Equipment Bar-code No; _____

GEMS Evaluator Name: _____

Please rate suppliers as 1 to 5 on each of the 15 questions below:

1 = Unacceptable 2 = Poor 3 = Average 4 = Excellent 5 = Outstanding

There are 5 groups with three related questions in each group. Groups can be rated either as a group or 3 separate questions.

Any rating below 3 triggers a discrepancy review with the supplier.

Corrective actions will be faster and more effective when you provide examples and/or detail information.

Supplier schedules well and:

1	starts on time?	1	2	3	4	5
2	finishes on time?	1	2	3	4	5
3	avoids disruptions?	1	2	3	4	5

Supplier is flexible and:

4	responds to GEMS/customer requests?	1	2	3	4	5
5	cooperates with changes in schedule?	1	2	3	4	5
6	deals with unexpected problems?	1	2	3	4	5

Supplier tools and equipment are:

7	appropriate for contracted work?	1	2	3	4	5
8	adequate for contracted work?	1	2	3	4	5
9	calibrated and in good working order?	1	2	3	4	5

Supplier meets GEMS quality standards with employees who:

10	are trained, skilled and technically competent?	1	2	3	4	5
11	always keep job sites clean and free of debris?	1	2	3	4	5
12	ensure both function and appearance are as expected?	1	2	3	4	5

Supplier employees enhance GEMS image by their:

13	appearance?	1	2	3	4	5
14	behavior?	1	2	3	4	5
15	attitude?	1	2	3	4	5

Examples / Details: _____

Any rating below 3 triggers a discrepancy review with the supplier.

SEND COMPLETED FORMS TO:

1. Senior Operations Specialist for your LCT
2. The contractor who performed the work
3. ISS (already in default distribution)
4. Sourcing Supplier Quality (already in default distribution)

SYSTEM INSTALLATION INSTRUCTIONS

1-1 Tab 1, System, contains installation instructions for the following:

- *DIRECTION 2254920* – Signa OpenSpeed Helix Cable Installation
- *DIRECTION 2259418* – Signa OpenSpeed Gradient Cable Installation
- *DIRECTION 2243942* – Signa OpenSpeed Fiber Optic Cable Installation
- *DIRECTION 2243944* – Signa OpenSpeed System Power Cable Installation

OpenSpeed HELIAX CABLE INSTALLATION

INSTALLATION STEPS SUMMARY

- A – Routing, Cutting, Terminating Heliax Cables
- B – Connecting Runs 745, 746, 887, 888, 889, 890, 932, 933, and 935



Do not subject 0.6 inch diameter heliax cable to a bend radius less than 1.5 inches (138mm). Do not subject 7/8 inch diameter heliax cable to a bend radius less than 3 inches (75mm). This cable will be permanently damaged if it is kinked by a bend radius less than the specified minimum.

A – ROUTING, CUTTING, TERMINATING HELIAX CABLES

Note: Runs 746 & 935 (2263075), 887 & 889 (2263076), and 888 & 890 (2263076–2) are created during installation from three 100 foot cables. Six additional labels and six N-type plug connectors are provided, one for each of the above runs. These labels are attached after length is decided and cables are installed.

Cables 2263076 and 2263076–2 are supplied with N-Type connectors, Times Microwave part number 3190–355.

Cable 2263075 is supplied with N-Type connectors, Times Microwave part number 3190–331.

- ① Route cables and mark at length for cut-off. Refer to cable map for cable destinations.
- ② Instructions for cutting cable and installing connector should be provided with each cable kit. As a backup, copies of Times Microwaves connector installation instructions are provided on the following pages which are subject to change without notice. If possible, always use the instructions provided with cables.

OpenSpeed HELIAX CABLE INSTALLATION

□ B – CONNECTING RUNS 745, 746, 887, 888, 889, 890, 890, 932, 933, AND 935

- ⑤ At the Penetration Panel:
- Connect Run 887 to J4 and attach label "Run 887 PP1-J4".
 - Connect Run 888 to J83 and attach label "Run 888 PP1-J83".
 - Connect Run 935 to J44 and attach label "Run 935 PP1-J44".

- ④ At J44, install Plate (2207166) using 3 screws (46-208939P18) with washers (46-221449P6). Install UG-30 N Adaptor (46-221865P1). Place M16 washer (2109878-5) on adapter before installing nut. **Make sure nut holding adapter is on the same side of Pen Panel as of above plate (2207166), and not inside hole on Penetration Panel.** Install UG-27B right angle N Adaptor (46-221865P3) on each side on Pen Panel.

- ⑥ At the Magnet Room side of the Penetration Panel:
- Connect Run 889 to J4 and attach label "Run 889 PP1-J4".
 - Connect Run 890 to J83 and attach label "Run 890 PP1-J83".
 - Connect Run 746 to J44 and attach label "Run 746 PP1-J44".

- ⑦ Route Run 746 to Hybrid Splitter on top of Magnet and connect to Run 912. Run 912 should be connected to J1 on Hybrid Splitter using the UG-27B right angle N Adaptor.

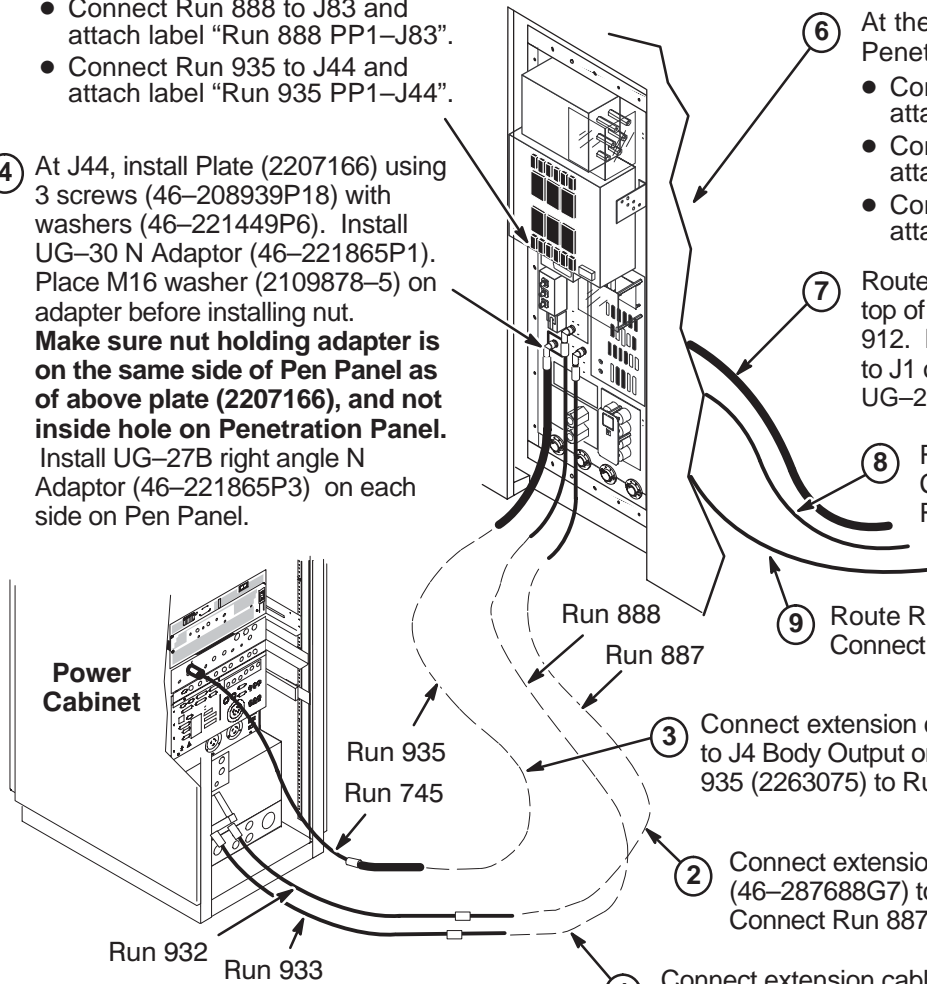
- ⑧ Route Run 890 to rear of magnet. Connect to J7 of Patient Table Run 890.

- ⑨ Route Run 889 to rear of magnet. Connect to J6 of Patient Table Run 891.

- ③ Connect extension cable Run 745 (46-287668G5) to J4 Body Output on RFI Module. Connect Run 935 (2263075) to Run 745.

- ② Connect extension cable Run 932 (46-287688G7) to N. O. on the R/L Switch. Connect Run 887 (2263076) to Run 932.

- ① Connect extension cable Run 933 (46-287688G8) to N. O. on the R/L Switch. Connect Run 888 (2263076-2) to Run 933.



Connector Installation instructions for a
N-MALE Clamp-on for LMR-600

Connector part number:

3190-355

EZ-600-NMC

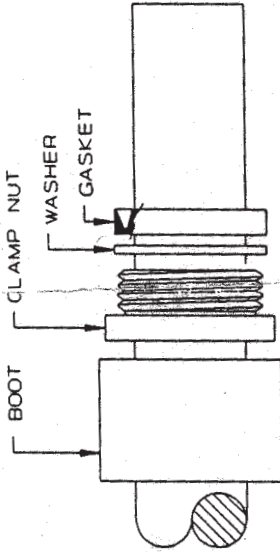
ADDS : 0.900"

REV. A DATE: 2-14-97

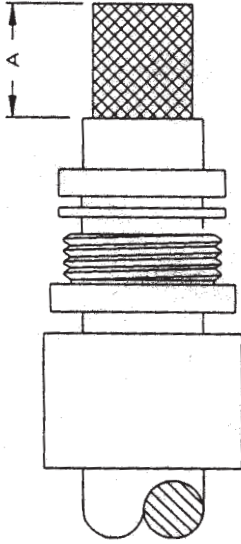
ENG: JP App: JP

CDC CHANGES: 18800

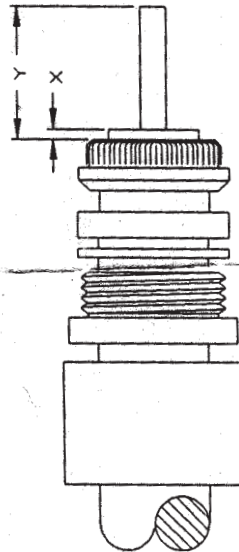
STEP 1. Flush cut end of cable using a fine saw blade. Cut cable so that end remains round and face of cable is perpendicular to its length. Slide on: Shrink boot, Clamp nut, Washer, Gasket.



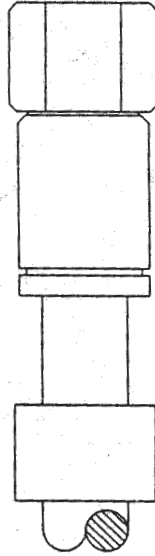
STEP 2. Expose Braid. $A = 0.500"$ Cut thru cable jacket. Do not nick the cable braids.



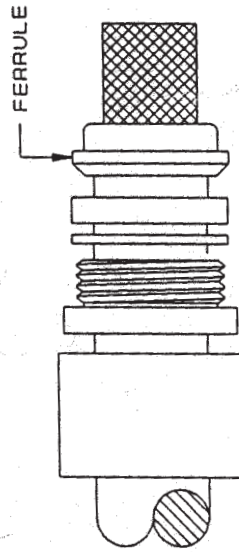
STEP 4. Flare out braids & fold them back onto ferrule. Trim braids to shoulder as shown. Trim core back to this dimension: $X = 0.030"$ MAX. Check conductor length dimension: $Y = 0.420" \pm .030"$ Chamfer end of conductor. $0.030"$ min.



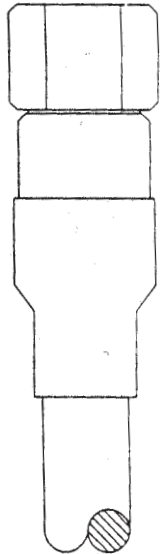
STEP 5. Install connector body onto cable. Check for proper pin height. Apply Loctite 242 (blue) to Clamp nut threads. Thread Clamp nut into Conn body. Torque to 50 in-lbs. Check pin height.



STEP 3. Slide on the Ferrule. Make sure all braids come up thru the Ferrule as shown on the drawing.



STEP 6. Install strain relief boot. Position boot onto connector body. Apply hot air until boot is smoothly seated onto both cable and connector. Use only adhesive lined shrink boot.



EZ-900-NMC-2 Connector Installation Procedure on LMR-900-DB

(It is highly recommended that the ST-900C strip tool be used when prepping the cable for the two-piece connector. This will allow for a square cut of the perfect length every time)

1. Flush cut the cable squarely.



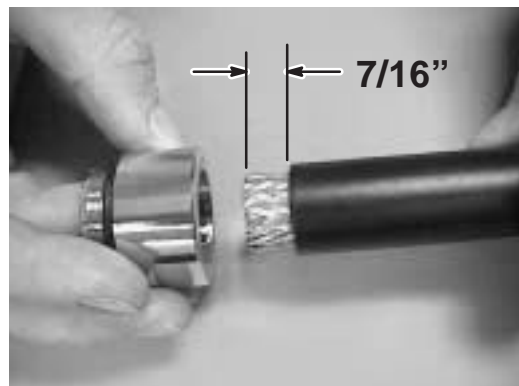
2. Cut the corner of the lubricant packet and apply the lubricant liberally to the O-ring in the aft section of the connector.



3. Strip the cable end using the ST-900/1200C prep/strip tool by inserting the cable into the proper end of the tool and rotating the tool. (Be sure there is no jacket material stuck in the tool before beginning this operation)



4. Slide the aft section of the connector over the braid without disturbing it. Be sure that the axis of the connector is in line with the axis of the cable



5. Use the palm of your hand to snap the aft end of the connector over the jacket.



6. At this point you should see from 1/8"–3/16" of braid protruding beyond the gland washer. The braid should then be spread across the face of the connector.



7. Insert the spring finger pin of the forward section of the connector into the center conductor. Spin the forward section of the connector clockwise while pushing it against the cable and holding the aft section firm.



8. Using 1 1/4" open end wrenches, torque the sections together to the point that the O-ring between the sections is compressed.



INSTALLATION STEPS SUMMARY

- A – Cut cables to length and route in Equipment and Magnet Rooms
- B – Connect Cables at Penetration Panel
- C – Terminate Runs 762, 763, and 764 for Power Cabinet Gradients
- D – Terminate Runs 762, 763, and 764 in Magnet Room

WARNING!

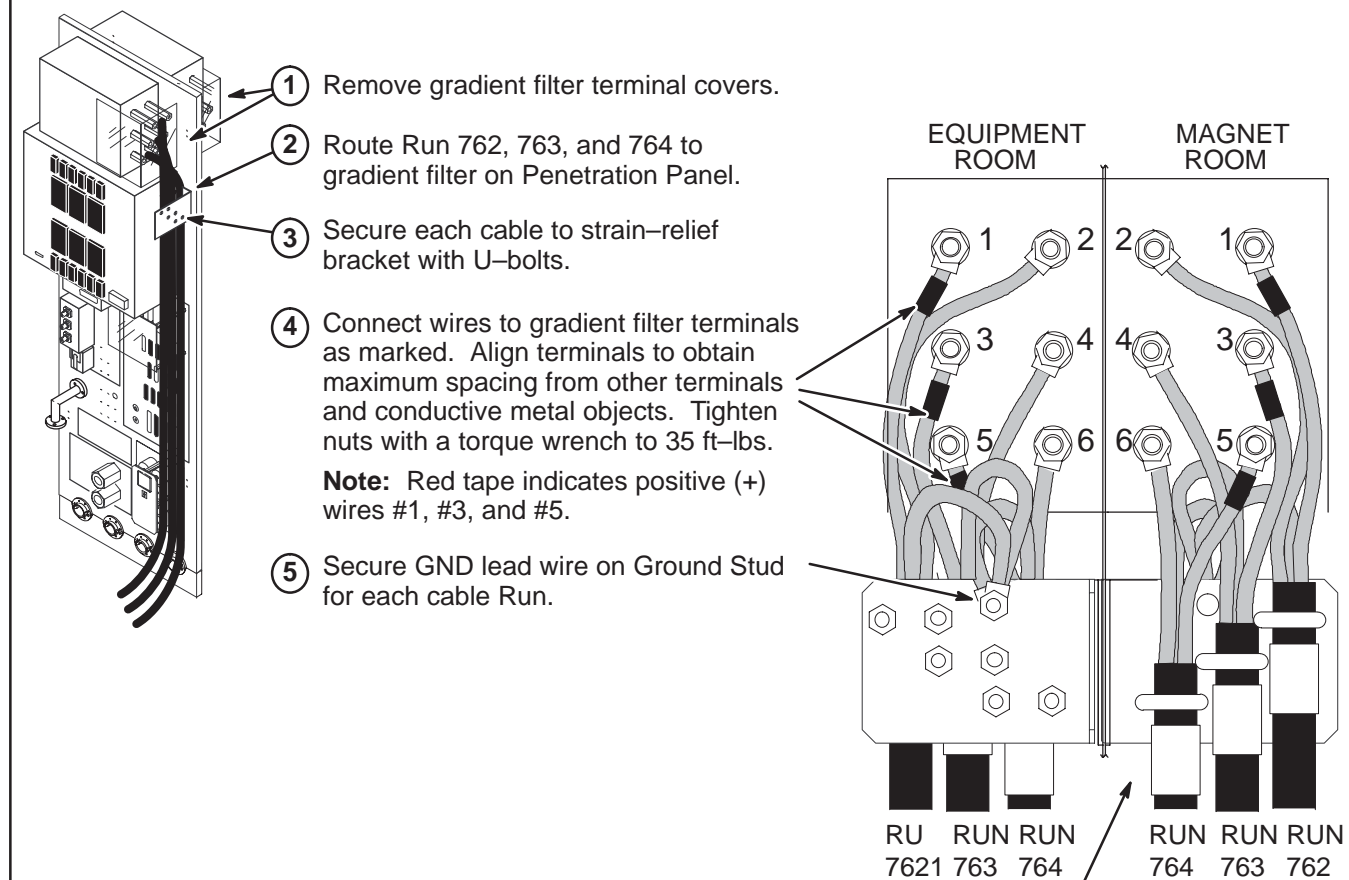
FERROUS MATERIAL HAZARD! THE RATCHETING CRIMP TOOL, 46-306755G1, REQUIRED FOR THIS PROCEDURE CONTAINS FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME A DANGEROUS PROJECTILE. KEEP ALL FERROUS TOOLS AT LEAST 10 FEET AWAY FROM THE MAGNET.

IF MAGNET IS AT FULL FIELD – CUT GRADIENT CABLE TO LENGTH AND REMOVE FROM MAGNET ROOM TO PERFORM CABLE TERMINATION PROCEDURES.

A – CUT CABLES TO LENGTH AND ROUTE IN EQUIPMENT AND MAGNET ROOMS

- 1 Verify that 100 ft. (30.5 M) length of supplied Run 762, 763, and 764 cable is sufficient to route from Power Cabinet to Penetration Panel and Penetration Panel to Magnet Gradient Cable Terminal Block. This cable has identical ring terminals at each end. **These ring terminals are to be connected to both sides of the Penetration Panel Gradient Filter.**
- 2 Unroll each cable. Measure length from each end for magnet room and equipment room routes. Verify sufficient slack is allowed for termination and connection and then mark location to cut cables to length.
- 3 Cut cables to length for magnet room and equipment room.
- 4 Label cut ends with applicable run number. Locate furnished bag of parts and attach terminals, shrink tubing, and lables to each cable which was cut to length. See Procedures C and D.
- 5 Route Run 762, 763, and 764 from magnet room side of Penetration Panel to Power cabinet. See Procedures C for connection to Penetration Panel.
- 6 See TAB 5 for connection of Runs 762, 763, and 764 to Power cabinet.
- 7 Route Run 762, 763, and 764 from equipment room side of Penetration Panel to Magnet Gradient Cable Terminal Block. See Procedures D for connection to Penetration Panel.
- 8 See TAB 2 for connection of Runs 762, 763, and 764 to Magnet Gradient Cable Terminal Block.

B – CONNECT CABLES AT PENETRATION PANEL



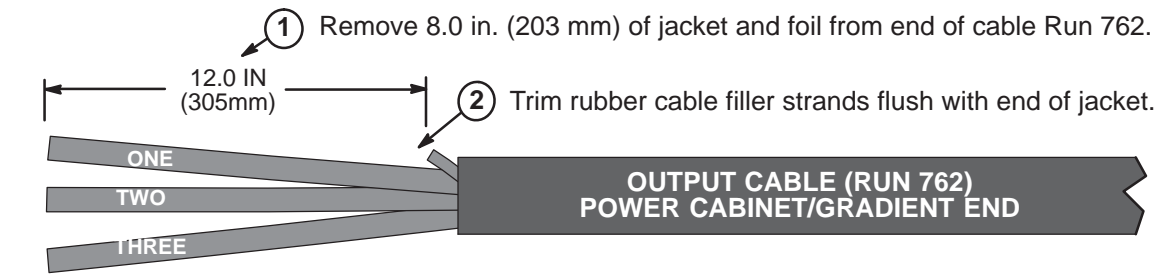
- 1 Remove gradient filter terminal covers.
- 2 Route Run 762, 763, and 764 to gradient filter on Penetration Panel.
- 3 Secure each cable to strain-relief bracket with U-bolts.
- 4 Connect wires to gradient filter terminals as marked. Align terminals to obtain maximum spacing from other terminals and conductive metal objects. Tighten nuts with a torque wrench to 35 ft-lbs.
Note: Red tape indicates positive (+) wires #1, #3, and #5.
- 5 Secure GND lead wire on Ground Stud for each cable Run.

- 6 Repeat procedure and connect cables to Gradient Filter on other side of Penetration Panel.
- 7 Replace gradient filter terminal covers.

TOOLS REQUIRED: 2135776 – Cable Crimper/Stripper Kit

C – TERMINATE RUNS 762, 763, AND 764 FOR POWER CABINET GRADIENTS

Note: The following steps are required to terminate the end of the cable that was cut in Step A3. The other end of the cable is connected to the Penetration Panel.



③ Strip 0.68 in. (17mm) of insulation from end of "THREE" wire.



④ Crimp a furnished T&B #G2-14 terminal on GND wire end using a Ratcheting Crimper with #2 die.



⑤ Wrap red tape around wire "ONE".

⑥ Place furnished "RUN 762" label on cable.

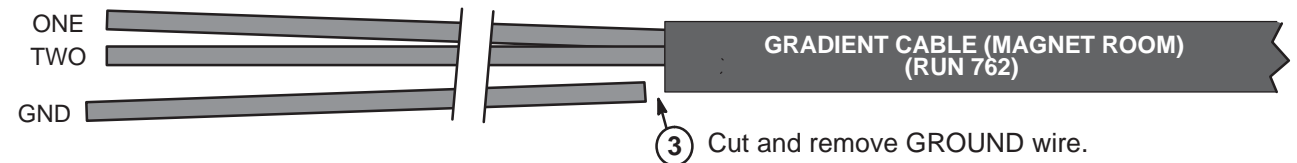
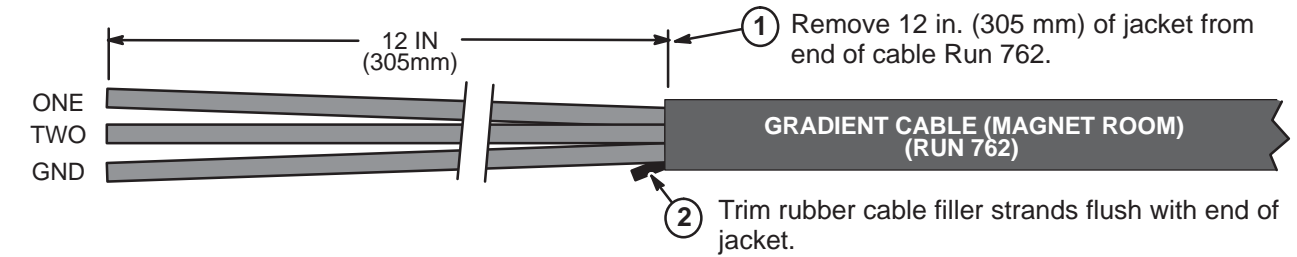


⑦ Place furnished "X+" label on wire "ONE". Place furnished "X-" label on wire "TWO". Place furnished "GND" label on wire "THREE".

⑧ Repeat above process for Runs 763 (Y+, Y-) and 764 (Z+, Z-). **Note: Red tape, Y+ (RUN 763) and Z+ (RUN 764) labels are attached to wire "ONE".**

D – TERMINATE RUNS 762, 763, AND 764 FOR MAGNET ROOM

Note: The following steps are required to terminate the end of the cable that was cut in Step A3. The other end of the cable is connected to the Penetration Panel.



④ Strip 0.68 in. (17 mm) of insulation from end of each wire and crimp a furnished T&B #G2-38 terminal on each wire end using a Ratcheting Crimper with #2 die.

⑤ Wrap red tape (from Pen Panel end of cable) around wire "ONE".



⑥ Place furnished "X+" label on wire "ONE". Place furnished "X-" label on wire "TWO".

⑦ Place furnished "Run 762" label on cable.

⑧ Repeat above process for Runs 763 and 764. **Note: Red tape, Y+ (RUN 763) and Z+ (RUN 764) labels are attached to wire "ONE".**

INSTALLATION STEPS SUMMARY

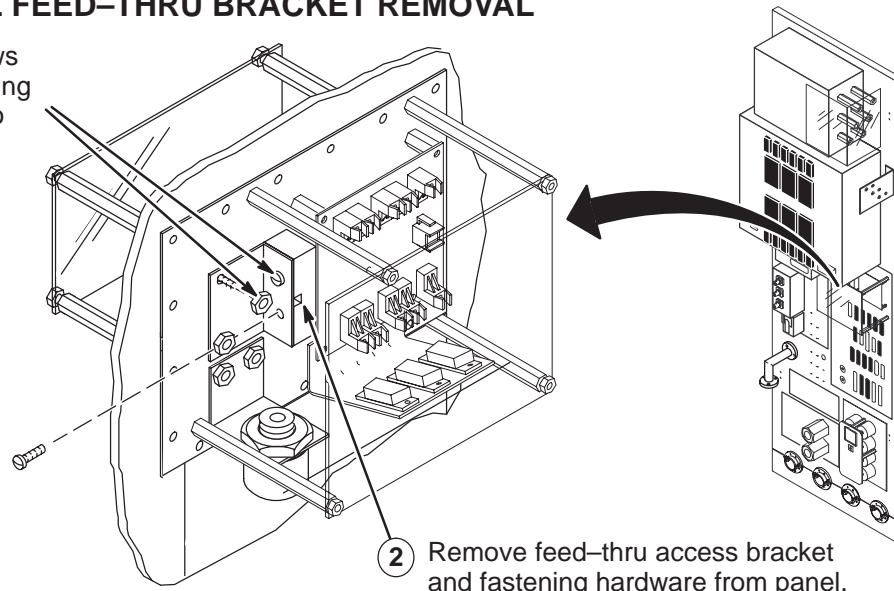
- A1 – Repeater Panel Feed-thru Bracket Removal
- A2 – Routing Run 711/712 in Magnet Room
- A3 – Connecting Magnet Room Run 711/712 to Repeater Panel
- A4 – Route/Connect Equipment Room Run 711/712 to Repeater Panel
- A5 – Route/Connect Fiber Optic Equipment Room Runs 708, 710, 711/712, and 836

CAUTION

Fiber optic cables are easily damaged! Handle fiber optic cables very carefully. Failure to do so may cause intermittent problems difficult to isolate. Do not bend fiber optic cables to radius smaller than two inches.

A1 – REPEATER PANEL FEED-THRU BRACKET REMOVAL

- 1 Unfasten two #10-32 screws and two #10-32 nuts securing feed-thru access bracket to J91 feed-thru block.



- 2 Remove feed-thru access bracket and fastening hardware from panel.

A2 – ROUTING RUN 711/712 IN MAGNET ROOM

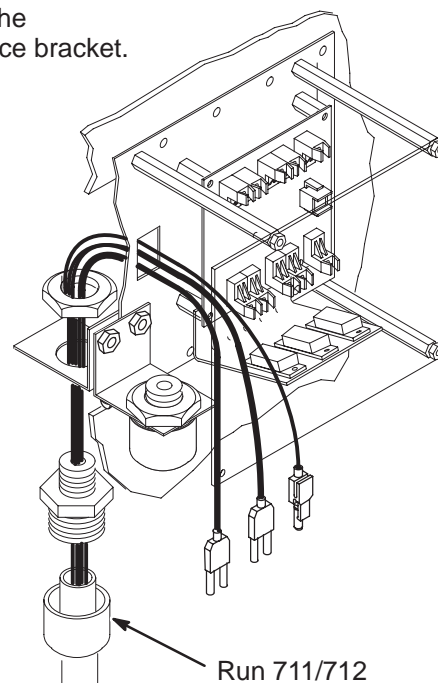
- 1 Move Run 711/712 (46-328079G9) to the Magnet Room side of the Penetration Panel. The "PP1-J91" end will be attached to interface bracket.

Note: If Run 711/712 excess conduit is a problem in the magnet room, excess may be cutoff and ends terminated with the Fiber Optic Connector Repair Kit per page 2.

- 2 Attach Run 711/712 to access bracket. Refer to Direction 2123149 (packed with bag of FO Conduit connectors) for connection installation.
- 3 Route ends of individual fiber-optic Runs through J91 opening to the Repeater Board (PP1 A17 A1)
- 4 Route Run 711/712 to Magnet Enclosure Rear Pedestal and underneath magnet.

Note: For the next two steps, refer to Magnet Enclosure Installation (Tab 2) for connecting Run 711 to SRI Module and Run 712 to PAC-II.

- 5 Route Run 711/712 to the front right side of the magnet (SRI location).
- 6 Route Run 712 into the magnet enclosure front cover, across the top and down the right side to the PAC-II.

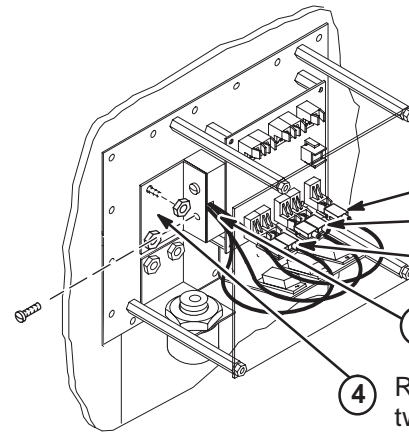


Run 711/712

A3 – CONNECTING MAGNET ROOM RUN 711/712 TO REPEATER PANEL

Note: Take care to maintain the minimum 2 inch bend radius.

- 1 Adjust route of individual fiber optic runs to maintain large radius.
- 2 Connect Runs 712-1, 711-1, and 711-2 as shown.



- Run 711-2 (J5)
- Run 711-1 (J3, J4)
- Run 712-1 (J1, J2)

- 3 Gather fiber optic runs and route through wave guide notch in feed-thru block.
- 4 Replace feed-thru access bracket and fasten with two #10-32 screws and two #10-32 nuts removed in step A1.

A4 – ROUTE/CONNECT EQUIPMENT ROOM RUN 711/712 TO REPEATER PANEL

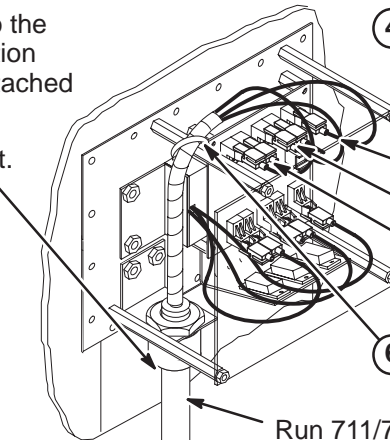
- 1 Move Run 711/712 (46-328078G5) to the Equipment Room side of the Penetration Panel. The "PP1-A17" end will be attached to interface bracket.

- 2 Attach Run 711/712 to access bracket. Refer to Direction 2123149 (packed with bag of FO Conduit connectors) for connector installation instructions.

- 3 Route other end of Run 711/712 to System Cabinet. Refer to Direction 2170004 (Tab 8) for connecting fiber optics in System Cabinet.

- 4 Adjust route of individual fiber optic runs to maintain large radius.

- 5 Connect Runs 712-1, 711-1, and 711-2 as shown.



- Run 711-2 (J11)
- Run 711-1 (J9, J10)
- Run 712-1 (J7, J8)

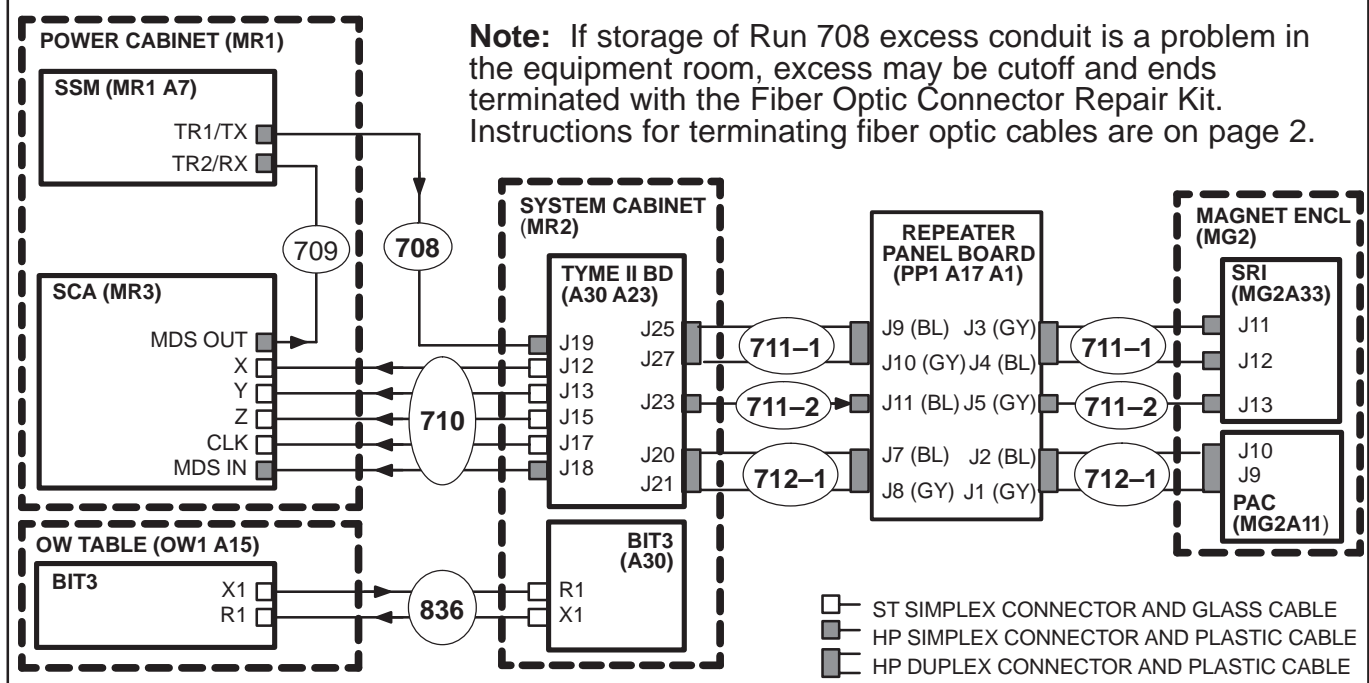
- 6 Adjust position of protective spiral wrap and secure with tie-wrap.

Run 711/712

A5 – ROUTE/CONNECT F/O EQUIPMENT ROOM RUNS 708, 710, 711/712 & 836

- 1 Unroll coiled fiber optic conduits for Runs 708, 709, and 710 along intended route. Connection of Runs is shown in diagram below. Plan for storage of excess Run 710 conduit as it cannot be reterminated.

Note: If storage of Run 708 excess conduit is a problem in the equipment room, excess may be cutoff and ends terminated with the Fiber Optic Connector Repair Kit. Instructions for terminating fiber optic cables are on page 2.



INSTALLATION STEPS SUMMARY

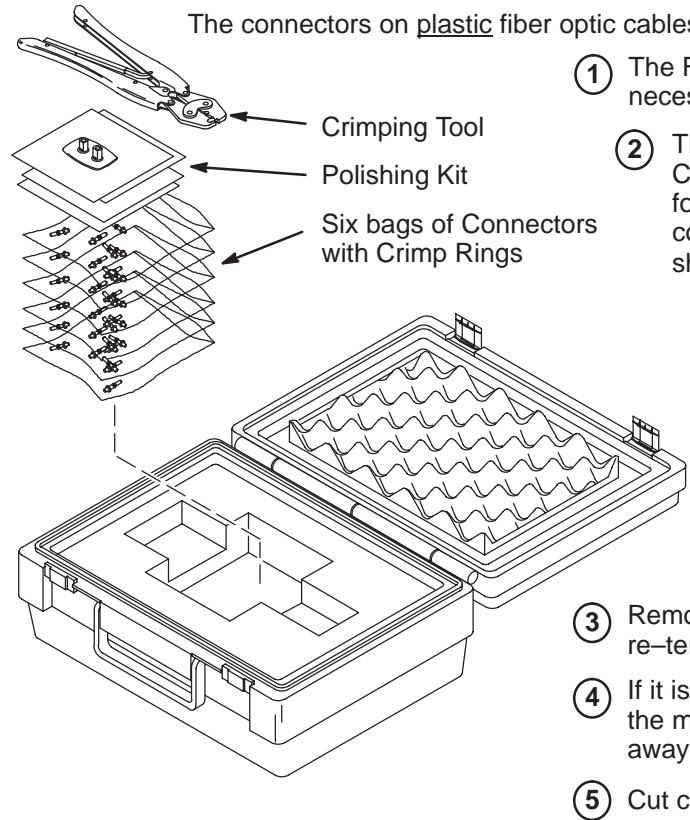
- B1 – Fiber Optic Cable Termination Kit
- B2 – Stripping Fiber Optic Outer Jacket
- B3 – Crimping Connector to Fiber Optic Cable
- B4 – Trimming Excess Fiber Optic from Connector
- B5 – Polishing Fiber Optic End

WARNING!

FERROUS MATERIAL HAZARD! CRIMP TOOL AND OTHER TOOLS REQUIRED FOR THIS PROCEDURE CONTAIN FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME DANGEROUS PROJECTILES. KEEP ALL FERROUS TOOLS AT LEAST 10 FEET AWAY FROM THE MAGNET.

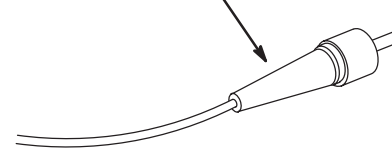
B1 – FIBER OPTIC CABLE TERMINATION KIT

The connectors on plastic fiber optic cables can be replaced if damaged or cut off to shorten.



- ① The Fiber Optic Repair Kit, 46-301450G1, contains all the necessary materials to replace a damaged connector.
- ② The "Spares Kit", delivered with the Shipping Collector, contains a 46-320119P1 Termination Kit for Fiber Optic Cables. This kit consists of consumables such as terminals and polishing sheets used to terminate cables during installation.

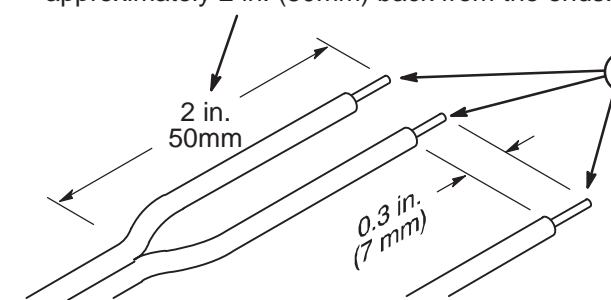
Note: The connectors on glass fiber optic cables **cannot** be replaced using the F/O Repair Kit. At this time, there is no kit available to repair glass fiber optic cable connectors.



- ③ Remove the end of fiber optic cable to be re-terminated from magnet room if possible.
- ④ If it is not possible to remove the end to be repaired from the magnet room, the cable must be at least 10 feet away from the magnet before it can be worked on.
- ⑤ Cut cable to desired length.

B2 – STRIPPING FIBER OPTIC OUTER JACKET

- ① For Duplex Cables, separate the two fibers approximately 2 in. (50mm) back from the ends.



Note: The separated duplex cable must be stripped to equal lengths on each side of the cable. This allows proper seating of the cable into the connector.

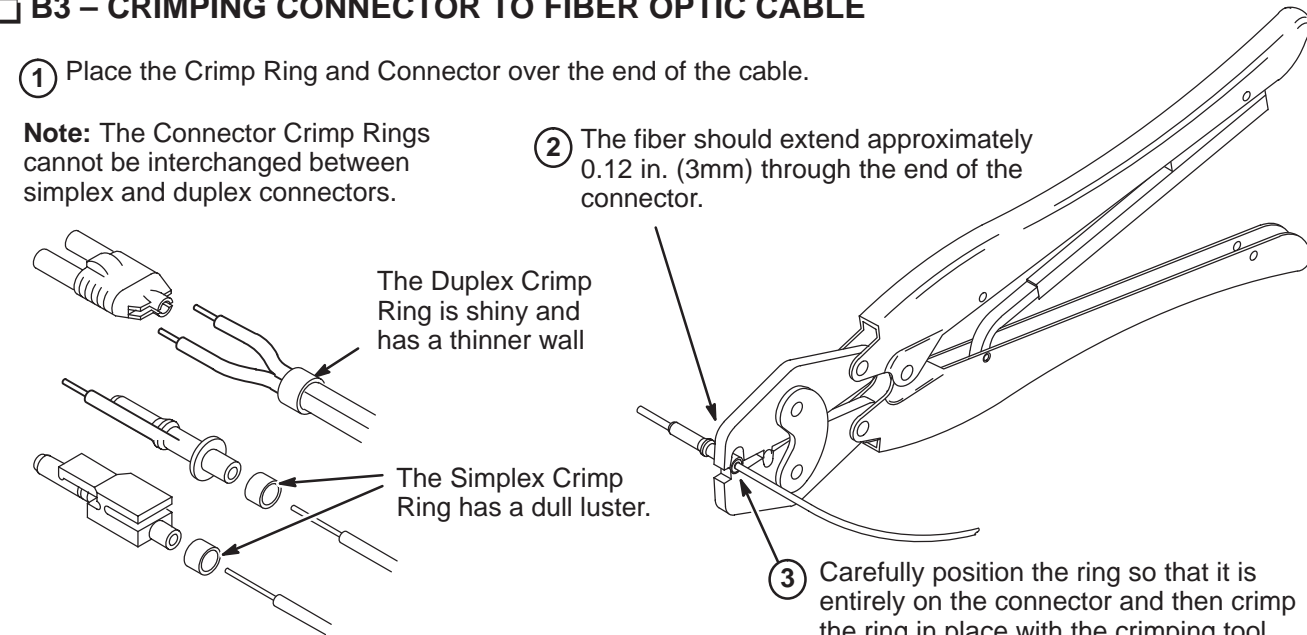
- ② Strip off approximately 0.3 in. (7 mm) of the outer jacket with the 16 gauge wire strippers. Excess webbing on duplex cable may have to be trimmed to allow the connector to slide over the cable.

B3 – CRIMPING CONNECTOR TO FIBER OPTIC CABLE

- ① Place the Crimp Ring and Connector over the end of the cable.

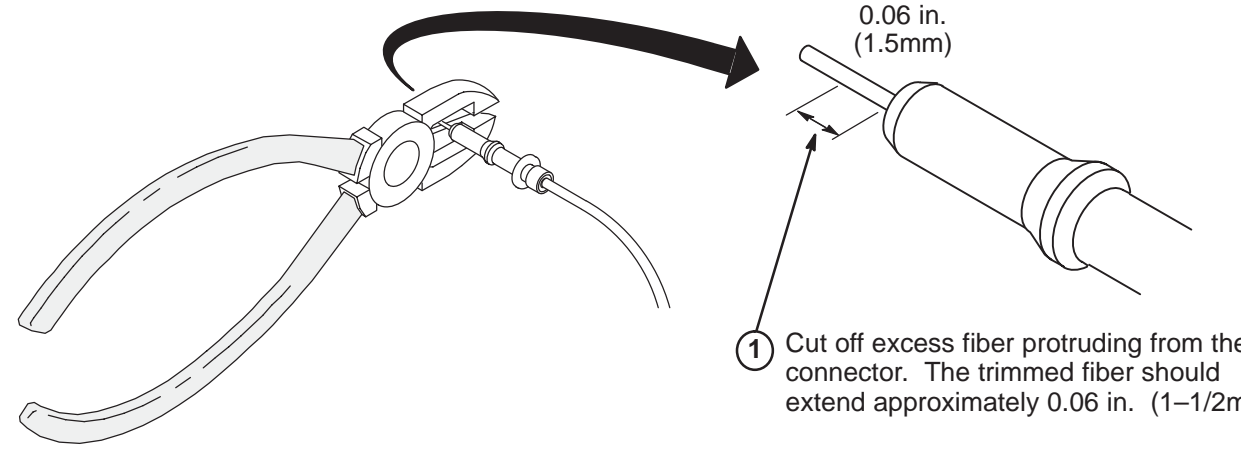
Note: The Connector Crimp Rings cannot be interchanged between simplex and duplex connectors.

- ② The fiber should extend approximately 0.12 in. (3mm) through the end of the connector.



- ③ Carefully position the ring so that it is entirely on the connector and then crimp the ring in place with the crimping tool.

B4 – TRIMMING EXCESS FIBER FROM CONNECTOR



- ① Cut off excess fiber protruding from the connector. The trimmed fiber should extend approximately 0.06 in. (1-1/2mm).

B5 – POLISHING FIBER OPTIC END

- ① Insert the connector fully into the polishing fixture with the trimmed fiber end protruding from the bottom of the fixture.
- ② Place the 600 grit abrasive paper on a flat smooth surface. Pressing down on the indicator, polish the fiber and the connector using a figure eight motion until the connector is flush with the end of the polishing fixture.
- ③ Wipe the connector and fixture with a clean cloth or tissue.
- ④ Place the flush connector and polishing fixture on the dull side of the 3 micron pink lapping film and continue to polish the fiber and connector for approximately 25 strokes.
- ⑤ The fiber end should be flat, smooth and clean. The cable end can now be connected.

Note: The four dots on the bottom of the polishing fixture are wear indicators. Replace the polishing fixture when any dot is no longer visible.

INSTALLATION STEPS SUMMARY

- A – System Power Cable Installation
- B – Power Cable Re-termination
- C – Power Cable Pre-connect checks
- D – Power Cable Connections Details

A – SYSTEM POWER CABLE INSTALLATION

- Verify that all power and ground cables for Signa OpenSpeed System are present. Refer to Section 2-1, LOCATING AND UNPACKING CABLES.
- Lengths of PDU Power cables for:

Run 030, System Cabinet	35.5 ft. (10.8M)
Run 047, Operator Workspace Computer	66.5 ft. (20.2M)

If insufficient room exists to store excess cables:
Plan for storage location if cables are not being cut to length. Proceed to Step A3

If insufficient room exists to store excess cables:
They can be cut shorter and re-terminated at the PDU. Complete Step B and C. Then proceed to step A3.
- Route all power cables per applicable System Interconnect Diagram. Unroll cables to lay without twists or kinks from cabinet to PDU through provided troughs, conduit, or ducts.

B – POWER CABLE RE-TERMINATION

- Cut power and ground cables to length as necessary. Leave sufficient slack for later connection when cabinets are in final position according to site architectural plans.
- Cut and trim insulation for connection of power and ground cable conductors to connectors at PDU (TB10-J).
- Transfer color code tape, run-number labels, and applicable wire marking labels as each cable is cut to size.

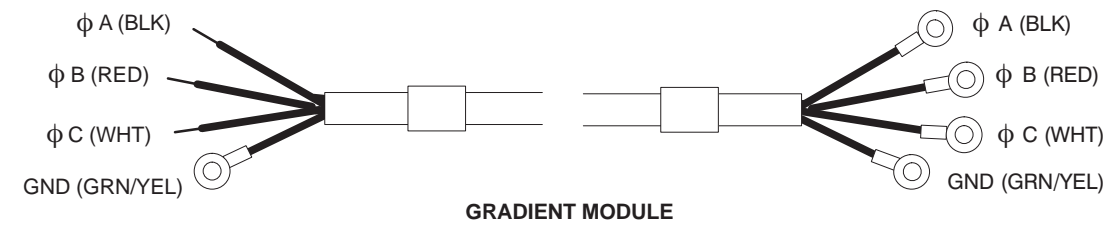
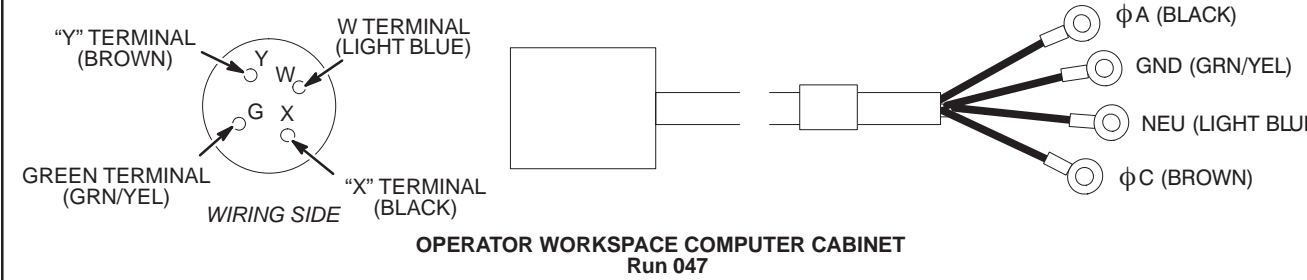
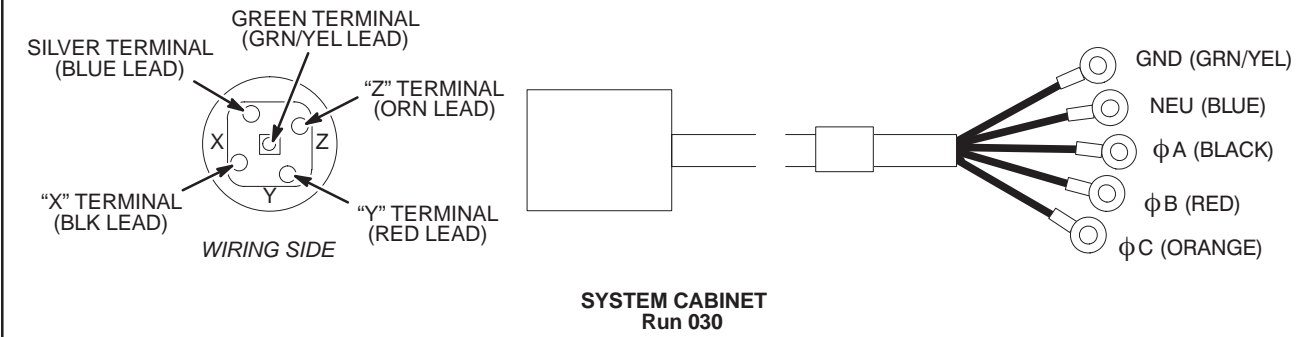
C – POWER CABLE PRE-CONNECT CHECKS

Checks for opens, shorts, and crossed connections are made for field re-terminated power cables prior to connection to PDU and cabinets. This does not provide ground resistance checks for cabinets. Ground resistance checks are in MR CD-ROM, Set Up and Calibration: System, GROUNDING AND LEAKAGE CURRENT CHECKS.

- Use the ohmmeter and the cable plug connector illustration to check each power cable for the following:
 - Open circuit between cable neutral and cable ground.
 - Open circuit between cable neutral and each line on the cable.
 - Open circuit between cable ground and each line on the cable.
 - Less than 1 ohm between cable neutral and the light blue (or white) conductor.
 - Less than 1 ohm between cable ground and the green/yellow conductor.
- Any out-of-spec conditions must be immediately corrected. See Procedure D for plug connection details. After all power cables have been satisfactorily checked out, proceed to step A3.

D – POWER CABLE CONNECTION DETAILS

Note
After performing cable pre-connect checks, **avoid potential problems by taping up exposed SGD Gradient Cabinet cables** or immediately install SGD Gradient Cabinet and connect terminals to power modules before PDU power is turned on.



LIST OF EFFECTIVE PAGES

PAGE	REV	PAGE	REV
1	3	9	2
2	2	10	2
3	2	11	3
4	3	12	2
5	3	13	2
6	3	14	3
7	3	15	3
8	3	16	2

GENERAL ENCLOSURE NOTES:

- Front, rear, left, and right, as used in this section, are defined as follows: the patient entrance end of the magnet is the front; the opposite end is the rear; left and right are in respect to a person's left and right while facing the patient entrance end of the magnet.

WARNING!

FERROUS MATERIAL HAZARD! THE CRIMP TOOL, AND OTHER TOOLS AND PARTS REQUIRED FOR THIS INSTALLATION CONTAIN FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME DANGEROUS PROJECTILES.

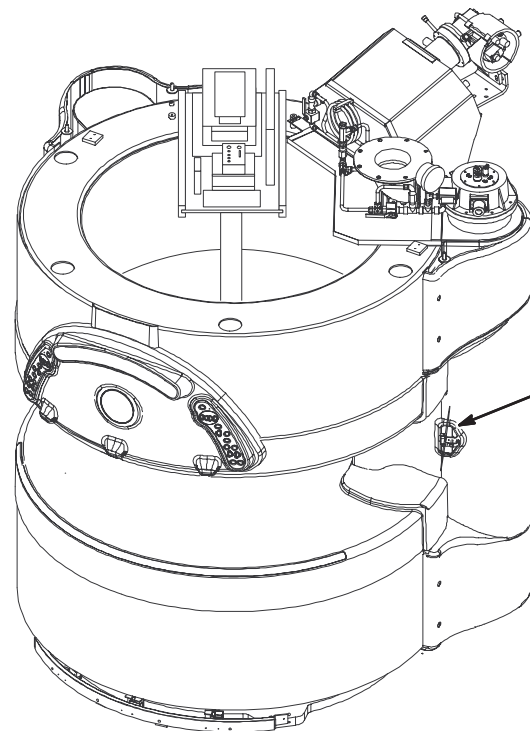
IF MAGNET IS AT FULL FIELD – KEEP ALL FERROUS TOOLS AT LEAST 10 FEET AWAY FROM THE MAGNET.

INSTALLATION PROCEDURES SUMMARY

- A1 – Determine PAC Remote Interface Location
- A2 – Remove Patient Comfort Modules
- A3 – Remove Side Covers

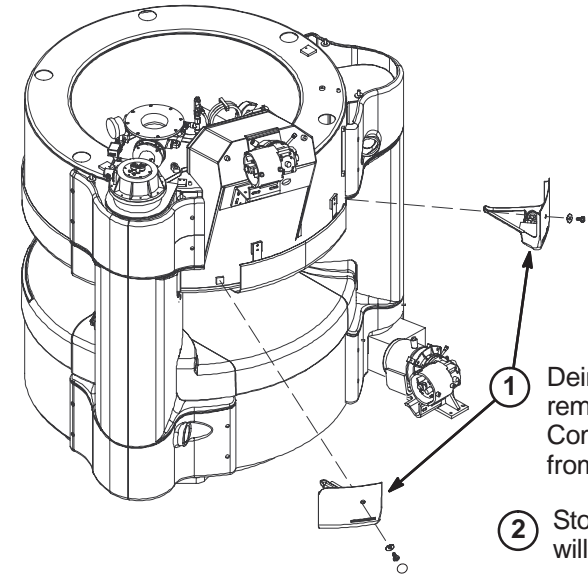
A1 – DETERMINE PAC REMOTE INTERFACE LOCATION

The magnet will arrive on site as shown below. This view does not show any of the cables that have been installed and connected to the modules and subassemblies.



- 1 Consult with customer to determine which side of magnet PAC Remote Interface Assembly should be located.

A2 – REMOVE PATIENT COMFORT MODULES



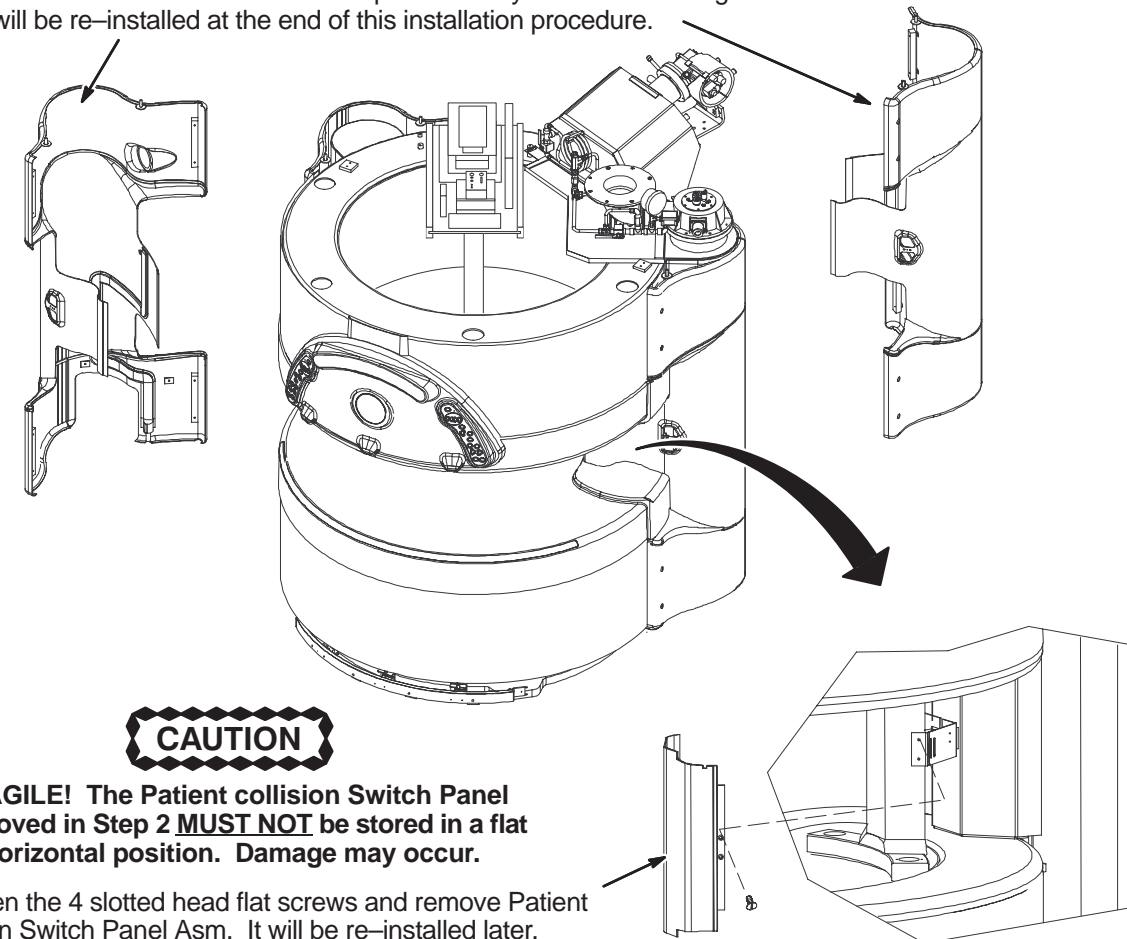
Note: Patient Comfort Modules should arrive on site individually packaged, not installed on the magnet. If installed on magnet, complete following steps 1 and 2.

- 1 Deinstall the left and right Patient Comfort Modules by carefully removing hole plug and then the screw and washer. Slide the Comfort Module towards you about 1 inch (25mm) and lift away from side mounting screw.
- 2 Store modules in safe place so they will not be damaged. They will be re-installed at the end of this installation procedure.

A3 – REMOVE SIDE COVERS

Note: Side Covers should arrive on site individually packaged, not installed on the magnet. If installed on magnet, complete following step 1.

- 1 Unfasten the 8 screws for each side cover and carefully remove the left and right Side Covers. Store covers in safe place so they will not be damaged. They will be re-installed at the end of this installation procedure.



CAUTION

FRAGILE! The Patient collision Switch Panel removed in Step 2 **MUST NOT** be stored in a flat or horizontal position. Damage may occur.

- 2 Unfasten the 4 slotted head flat screws and remove Patient Collision Switch Panel Asm. It will be re-installed later.
- 3 Repeat above step for left side Panel Asm.

INSTALLATION PROCEDURES SUMMARY

- ☐ B1 – Installation of Table Rail, Rear Wheel Wear Plate, and Table
- ☐ B2 – Install MSHS (Mousehouse) Assembly
- ☐ B3 – Preparing to Install Patient Table Support Table
- ☐ B4 – Route/Connect Table Cables

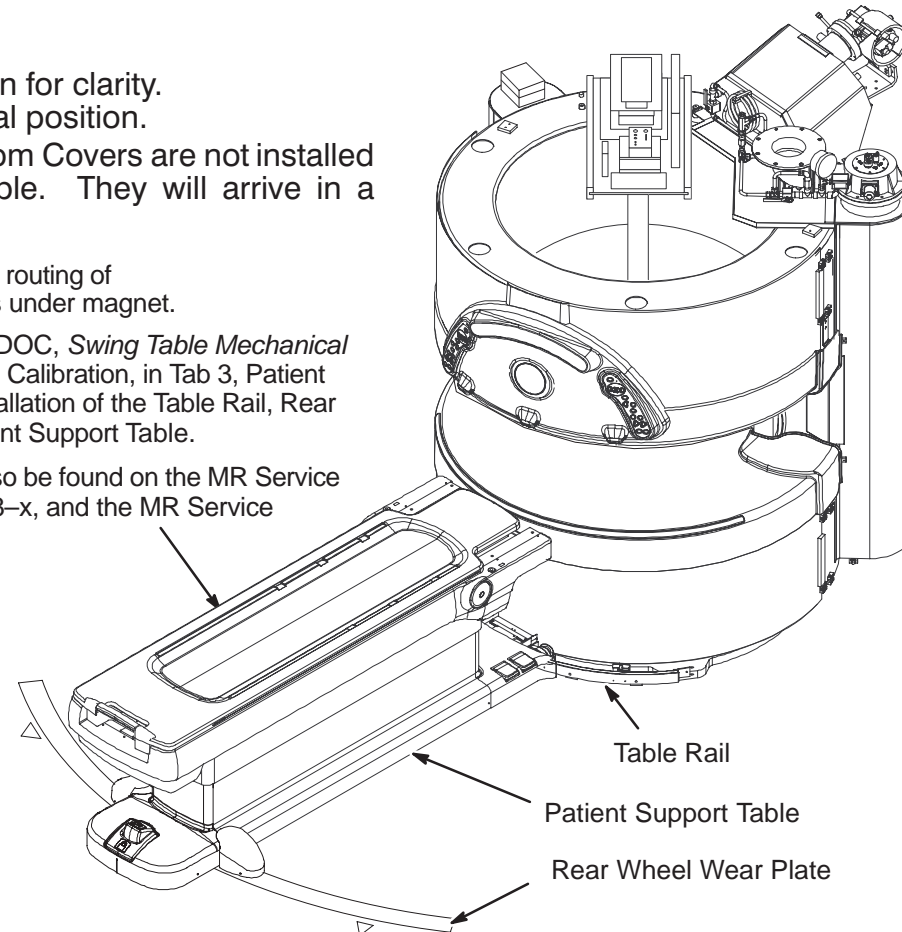
☐ B1 – INSTALLATION OF TABLE RAIL, REAR WHEEL WEAR PLATE, AND TABLE

Notes:

1. In this view:
 - Cables are not shown for clarity.
 - Table is shown in final position.
2. Left and right side Bottom Covers are not installed during shipment of table. They will arrive in a separate box.

- ① Refer to Steps **B3** and **B4** for routing of Patient Support Table cables under magnet.
- ② Refer to document PT2ina1.DOC, *Swing Table Mechanical Center & Alignment, Setup & Calibration*, in Tab 3, Patient Table, for instructions on installation of the Table Rail, Rear Wheel Wear Plate, and Patient Support Table.

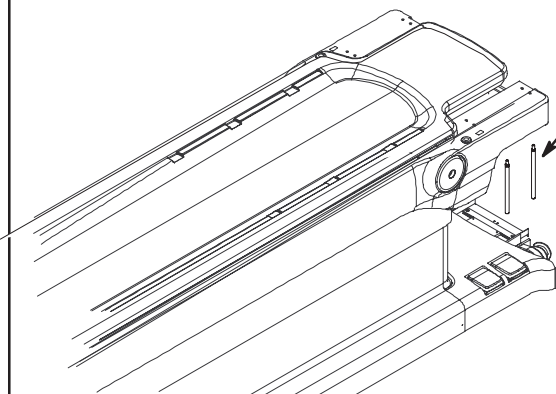
Note: This document can also be found on the MR Service Methods CD-ROM, 2250758-x, and the MR Service Engineering Web Site.



☐ B2 – INSTALL MSHS (MOUSEHOUSE) ASSEMBLY

CAUTION

Two people may be required to mount MSHS Assembly



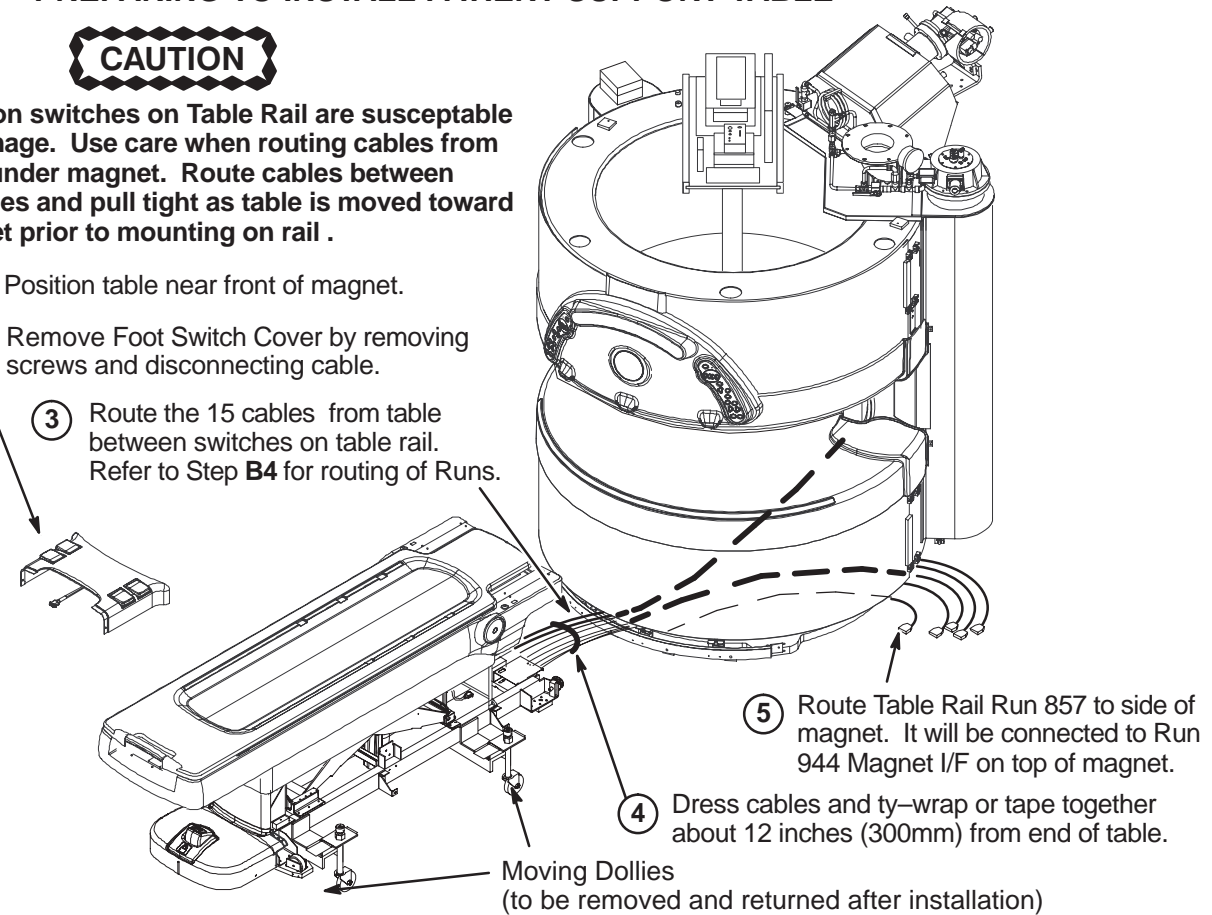
- ① Apply Anti-seize lubricant (2119594) to threads of four Mounting Studs (2254924) and install to underside of table. Two on each side. **DO NOT TIGHTEN.** Leave about 1/8 inch (4mm) of thread exposed.
- ② Place MSHS Assembly under studs.
- ③ Connect cables from underside of table top to MSHS Assembly as marked.
- ④ Lift MSHS Asm over studs and slide into place at top of studs.
- ⑤ Tighten Mounting Studs.

☐ B3 – PREPARING TO INSTALL PATIENT SUPPORT TABLE

CAUTION

Position switches on Table Rail are susceptible to damage. Use care when routing cables from table under magnet. Route cables between switches and pull tight as table is moved toward magnet prior to mounting on rail.

- ① Position table near front of magnet.
- ② Remove Foot Switch Cover by removing screws and disconnecting cable.
- ③ Route the 15 cables from table between switches on table rail. Refer to Step **B4** for routing of Runs.



☐ B4 – ROUTE/CONNECT TABLE CABLES

- ① Route Runs 875, 876, 877, 878, 879, 880, 884, 886, 891, 892, and 905 under magnet to cable trough at rear of magnet. These cables will connect to 841, 889, 890, 906, 921, 922, 923, 924, 925, 926, and 927 which are routed from the Penetration Panel. Refer to Cable Map in Section 2 of Overview tab for proper connections.

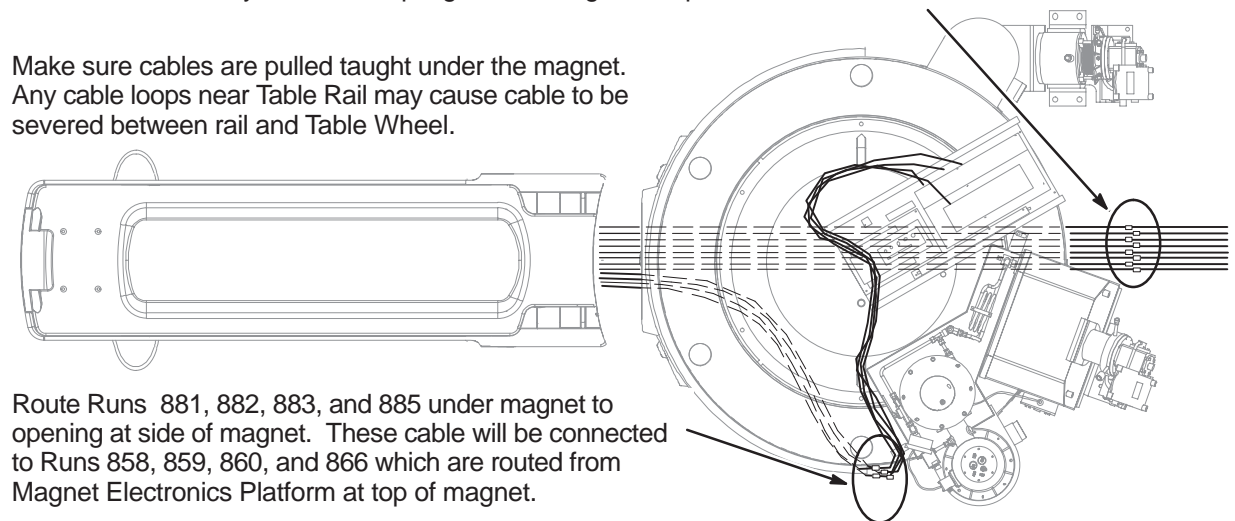
For Runs 875, 876, 877, and 878 use BNC female-female adapter (46-208990P1) to connect to cables. For Runs 891 and 891 use N-N female-female adapter (46-221865P1) to connect to cables.

Note: On some early tables a 15-pin gender changer is required for two of the other cables.

- ② Make sure cables are pulled taught under the magnet. Any cable loops near Table Rail may cause cable to be severed between rail and Table Wheel.

- ③ Route Runs 881, 882, 883, and 885 under magnet to opening at side of magnet. These cable will be connected to Runs 858, 859, 860, and 866 which are routed from Magnet Electronics Platform at top of magnet.

- ④ After connecting to required cables, **cover each cable connection with supplied velcro connection wraps.**



INSTALLATION PROCEDURES SUMMARY

- ☐ C1 – Recommended Cable Routing on Left Side of Magnet
- ☐ C2 – Recommended Cable Routing on Right Side of Magnet

☐ C1 – RECOMMENDED CABLE ROUTING ON LEFT SIDE OF MAGNET

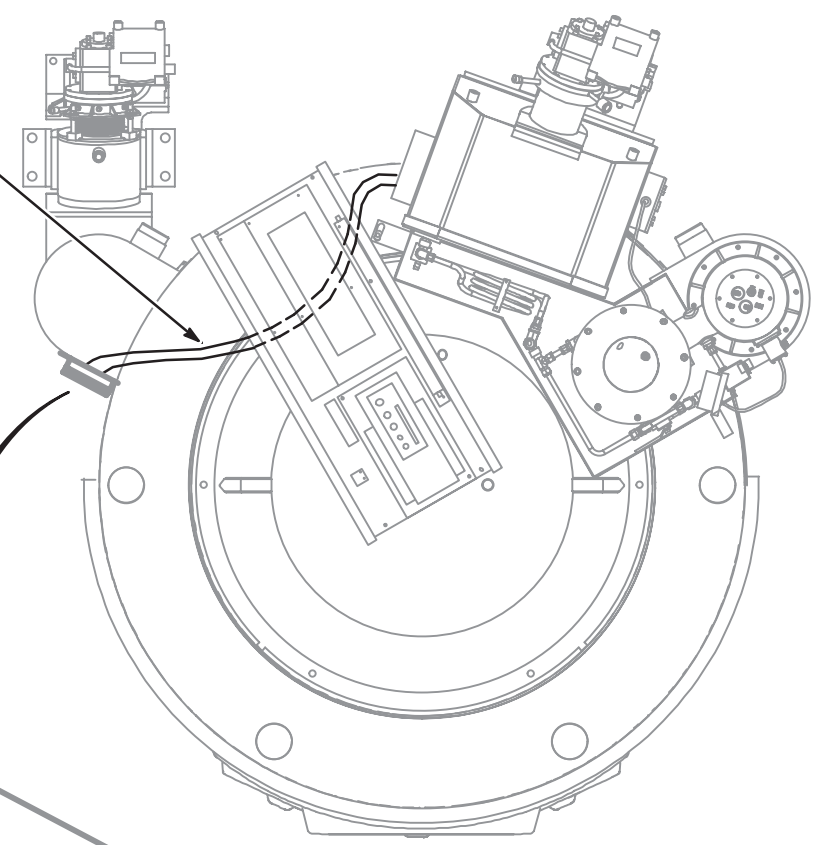
① Route previously connected magnet cables, Runs 913 and 919, across top of magnet and down front side of left column.

② For left post, route cables as shown. Ty-wrap cables thru anchors attached to plate. See Procedures G2 thru G4.

Cooling Hoses

③ Route and ty-wrap to plate:
All cables going from "top to floor".
[Runs 844, 846, 913, 919, 953, & 955]

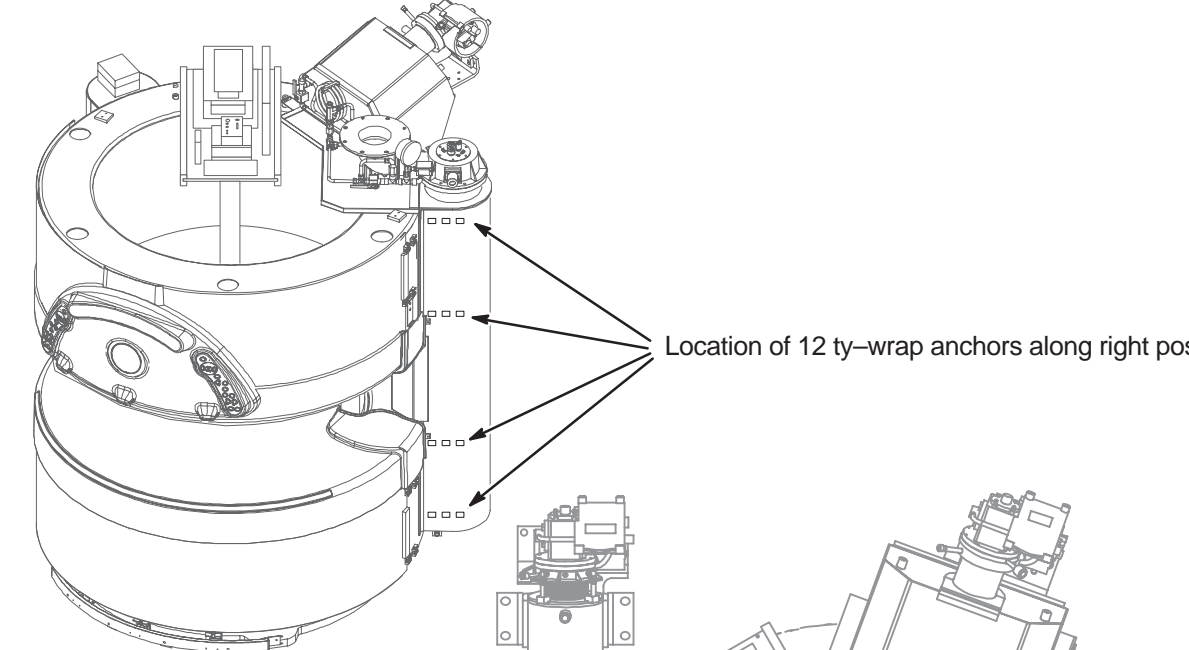
All cables going to "Lower Cryostat Cover".
[Runs 749 & 874 (A1 & A3)]



CAUTION

Cables routed along post on side of magnet **MUST NOT** have any twists. Cables must be straight and parallel to each other.

☐ C2 – RECOMMENDED CABLE ROUTING ON RIGHT SIDE OF MAGNET



Location of 12 ty-wrap anchors along right post.

CAUTION

Cables routed along post on side of magnet **MUST NOT** have any twists. Cables must be straight and parallel to each other.

① For right post, route and bundle cables as shown. Ty-wrap bundles thru anchors attached to magnet.

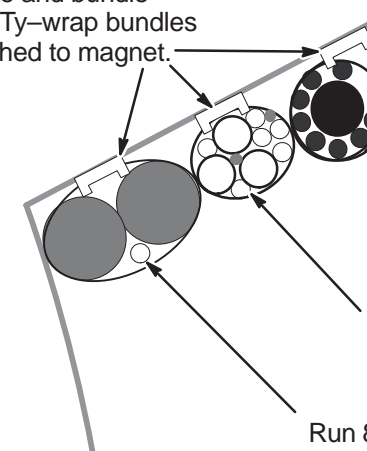
Fiber Optic cable [Run 711/712] and 606 routed from "top to floor level". Ty-wrap around RF cables and thru anchor on post.

RF cables [Runs 852, 853, 854, & 855], body heliax [Run 746] & one pinch sensor cable [Run 874 (A2)] going "from top to table level" bundled together.

Also, RF cables from "bottom to table level" [Runs 945, 946, 947, & 948]

All cables going "from top to floor level" bundled together. [Runs 715, 716, 842, 843, 858, 859, 860, 866, 920, 934, and 944.

Run 830 and Helium lines bundled in the corner.

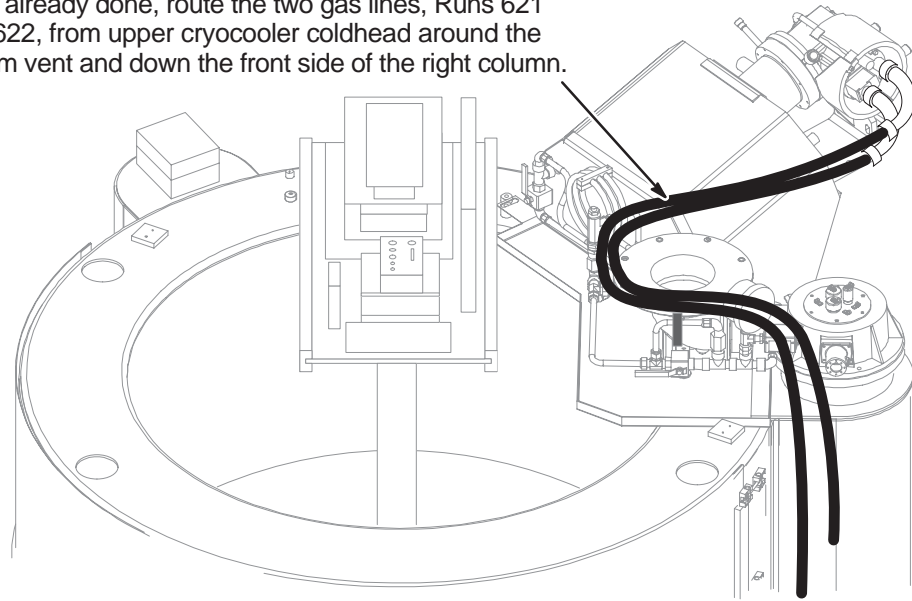


INSTALLATION PROCEDURES SUMMARY

- D1 – Gas Line Routing
- D2 – Gas Line Connection at Cold Head
- D3 – Route and Secure Gas Lines to Cold Magnet
- D4 – Install Elbows for Gas Lines on Lower Coldhead

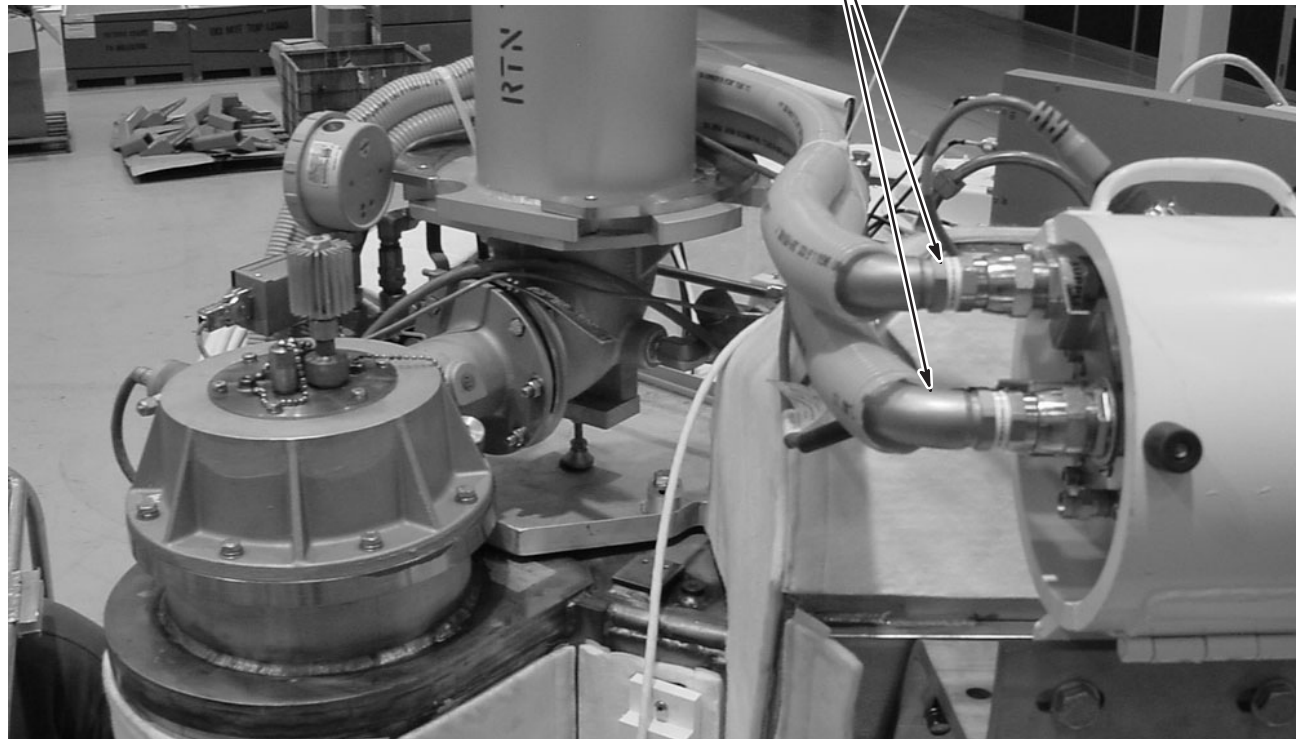
D1 – GAS LINE ROUTING

- 1 If not already done, route the two gas lines, Runs 621 and 622, from upper cryocooler coldhead around the helium vent and down the front side of the right column.



D2 – GAS LINE CONNECTION AT COLD HEAD

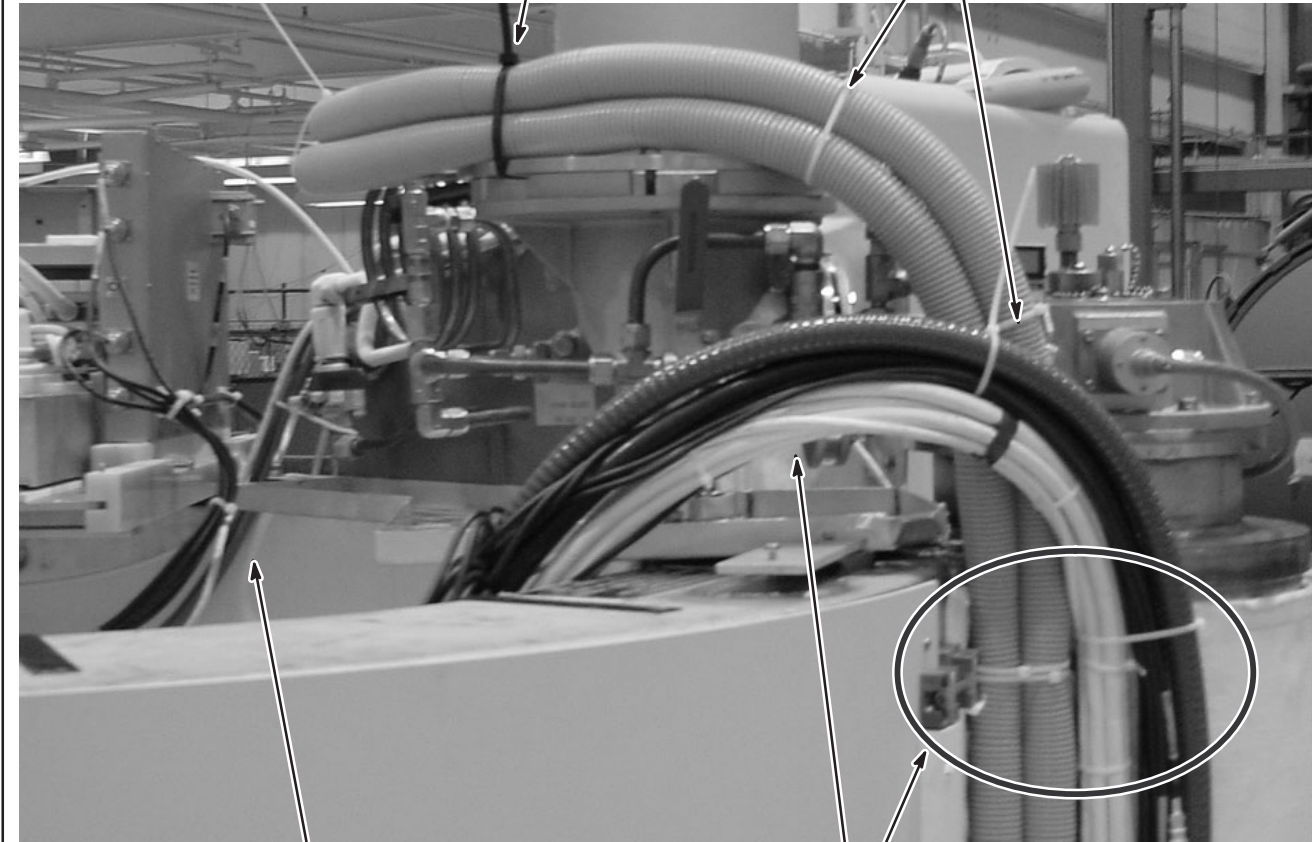
Ninety degree gas line elbows.



D3 – ROUTE AND SECURE GAS LINES TO MAGNET

- 1 Route the two gas lines and ty-wrap to flange as shown

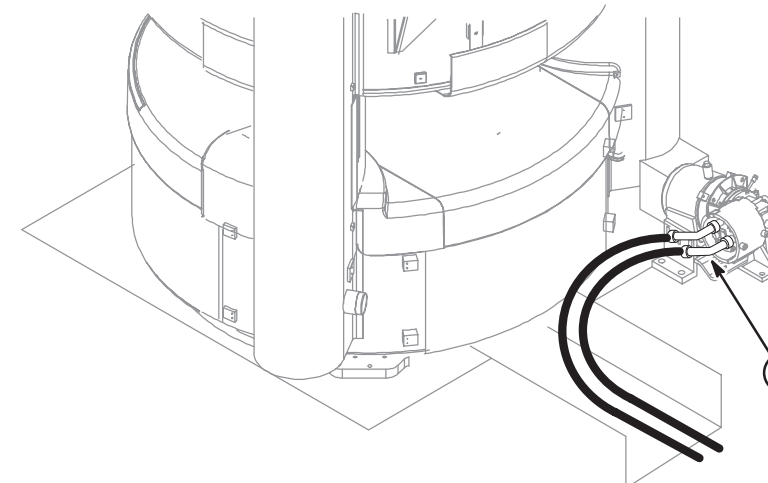
- 2 Ty-wrap gas lines together at 12 inch (300mm) intervals.



Note cable routing of RF cables to this area.

Note cable routing from top of magnet and attachment to top of right column using ty-wraps.

D4 – INSTALL ELBOWS FOR GAS LINES ON LOWER COLDHEAD



- 1 Install 90 degree elbows on Lower Shieldcooler Coldhead. Attach gas lines and route through opening in magnet plate at rear of magnet and into cable trough.

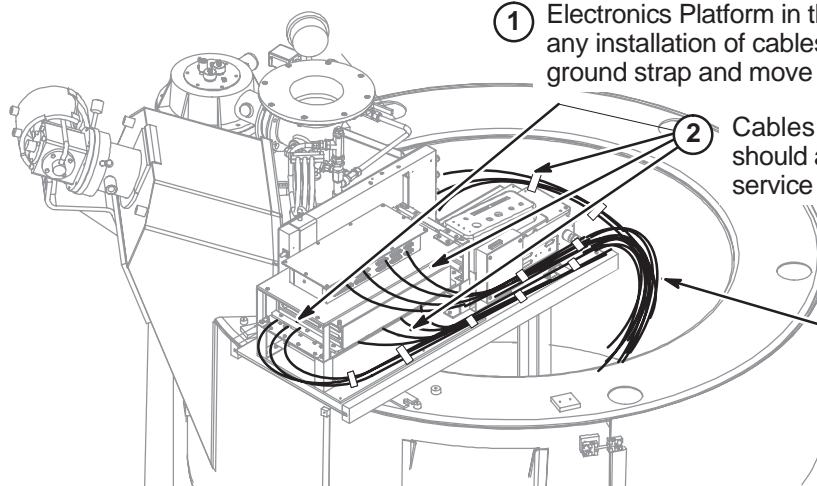
INSTALLATION PROCEDURES SUMMARY

- E1 – Bundling of Electronics Platform Module Cables
- E2 – Route Runs 864, 865, 874, and Magnet Ground Cable
- E3 – Magnet I/F Module DIP Switch Settings
- E4 – Route Cable Runs on Right Side of Magnet

E1 – BUNDLING OF ELECTRONICS PLATFORM MODULE CABLES

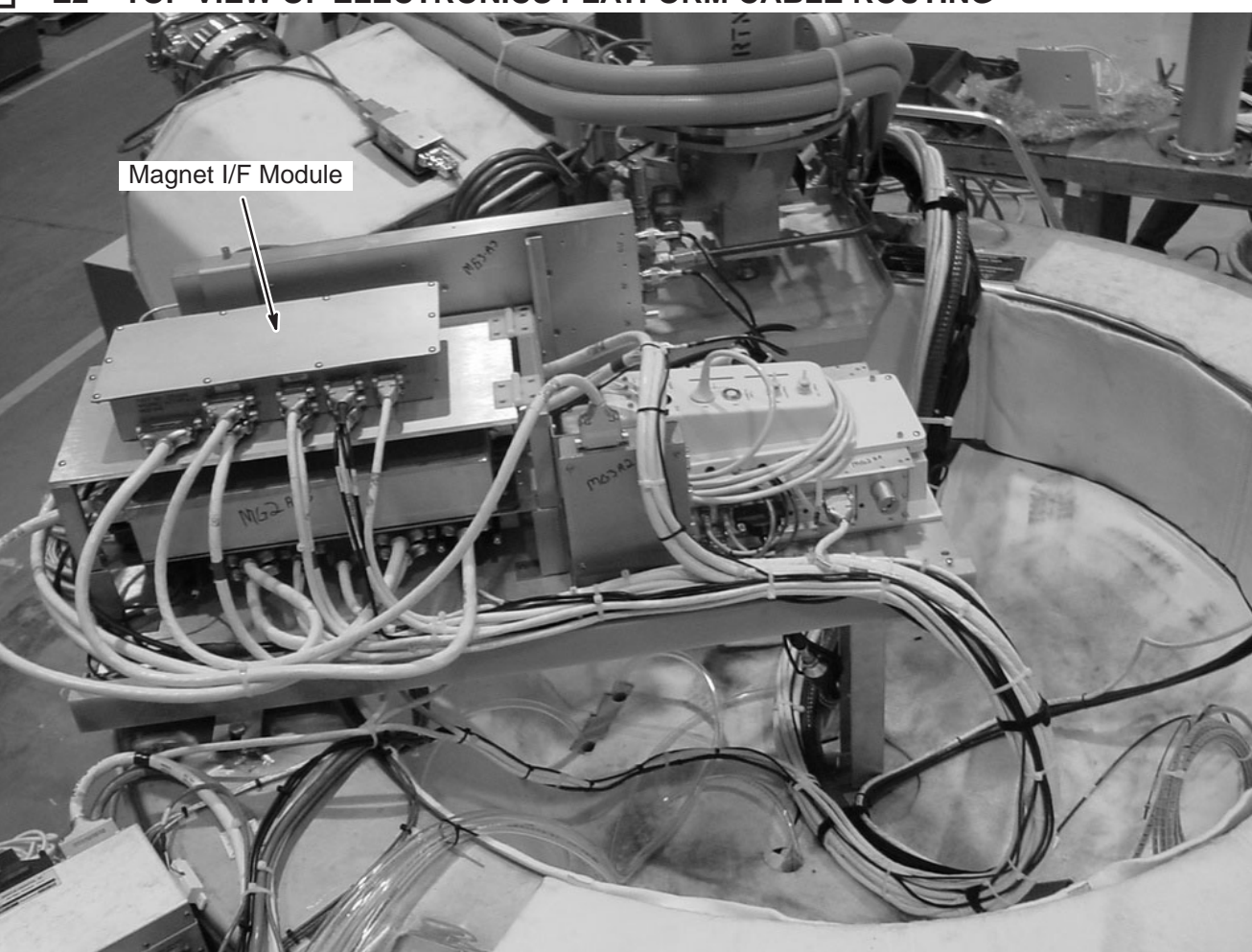
1 Electronics Platform in this view is shown in operating position. For any installation of cables, remove locking screws and disconnect ground strap and move Platform backward to service position.

2 Cables connected to the electronics platform should arrive on site bundled and routed with a service loop as shown in Procedure E2 below.



Service Loop

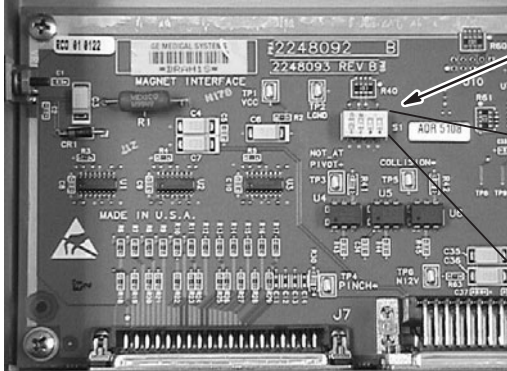
E2 – TOP VIEW OF ELECTRONICS PLATFORM CABLE ROUTING



Magnet I/F Module

E3 – MAGNET I/F MODULE DIP SWITCH SETTINGS

1 Open up the Magnet I/F module and make sure that all 4 switches of the Quad-in-Line switch are set in the OFF Position.



	1	2	3	4
ON	1	1	1	1
	0	0	0	0

E4 – CABLE RUNS ON RIGHT SIDE OF MAGNET

CAUTION

Cables connected to Magnet Electronics Platform must have a service loop of approximately 3 feet (915mm) to allow enough slack for servicibility when Platform is moved to service position.

1 Remove locking screws and ground strap and slide Electronics Platform backward to servicing position.

2 Route Runs 852, 853, 854, 855, and 934 to this side of Magnet Electronics Platform. See Procedures F1 thru F4.

3 Route Run 746 (body heliax) to this area and connect to Run 912, which is connected to Splitter. Because of limited bend radius of Run 746, this cable will not be part of service loop. Make sure Run 912 has enough slack to create its own service loop. See Procedures F1 thru F4.

4 Cable bundle is routed around Magnet Electronics Platform support column and tywrapped in place.

5 All cables that connect to the Magnet Electronics Platform and route along the side of the magnet must be dressed and ty-wrapped as shown after routing is complete. See Procedures

Note: See Procedure F3 for connection of cables in Steps 6 thru 9 below.

6 Route Runs 852 and 853 from Splitter to top RF Body coil Area.

7 Route Runs 945 and 946 from Penetration Panel to top RF Body coil Area.

8 Route Runs 854 and 855 from Splitter to top RF Body coil Area.

9 Route Runs 947 and 948 from Penetration Panel to top RF Body coil Area.

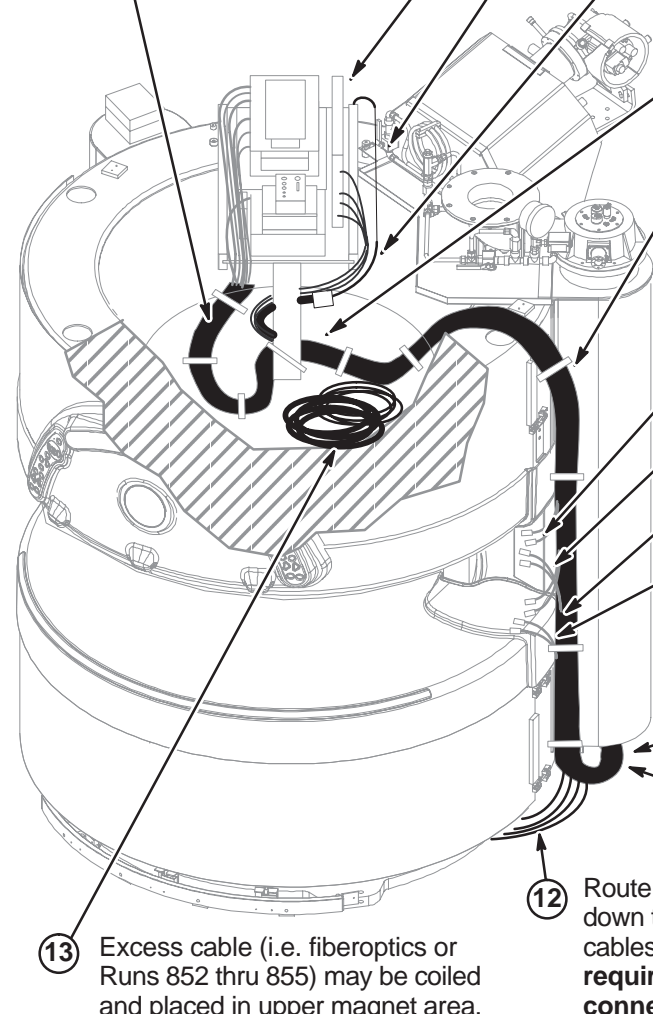
Note: Apply cable wraps (2236130-2) around BNC Runs 852, 853, 854, and 855 connections. Cut to fit if necessary.

10 Route Runs 711/712 from Penetration Panel and Run 606 from ERU to top of magnet.

11 Route Runs 842, 843, and 920 from top of magnet, down the side to cable trough opening in Magnet Mounting Plate.

12 Route Runs 858, 859, 860, 866, and 944 from top of magnet, down the side to bottom of magnet. These will be connected to cables coming from table and table rail. **After connecting to required cables, cover each cable connection with supplied connection wraps (2236130-4) and store under magnet.**

13 Excess cable (i.e. fiberoptics or Runs 852 thru 855) may be coiled and placed in upper magnet area.



INSTALLATION PROCEDURES SUMMARY

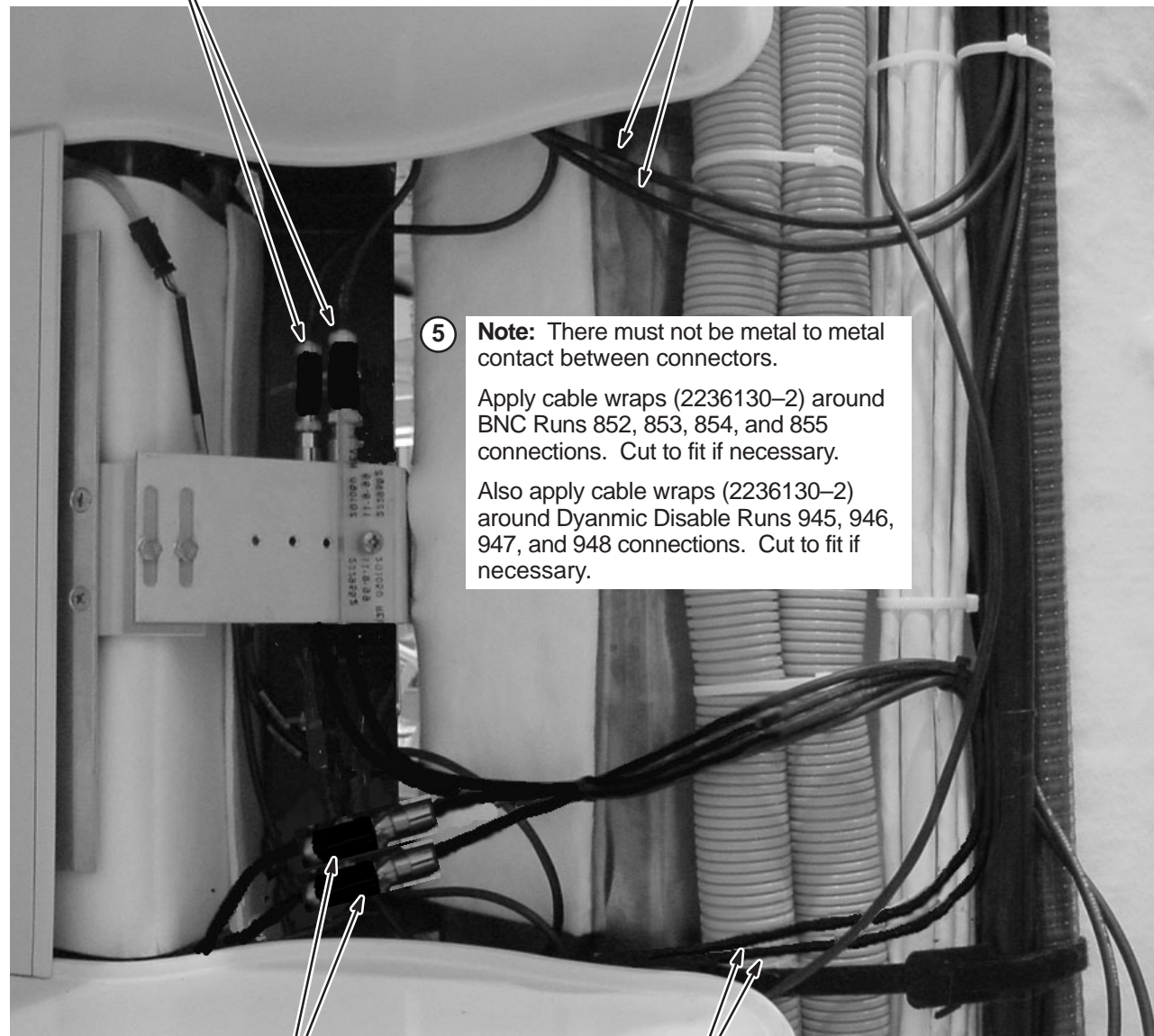
- F3 – RF Body Coil Cables Installation on Magnet Enclosure
- F4 – Connection of RF Cables at Upper and Lower RF Body Coils
- F3 – Route/Connect RF Cable Bundle to Top of Magnet
- F4 – Route/Connect Runs 921 and 934 to Hybrid Splitter

F1 – RF BODY COIL CABLES INSTALLATION ON MAGNET ENCLOSURE

- 1 Refer to Tab 1, Direction 2254920, OpenSpeed Heliac Cable Installation, for cutting and terminating Run 746.
- 2 Route and connect RF cables as indicated in procedures F2 thru F4.

F2 – CONNECTION OF RF CABLES AT UPPER AND LOWER RF BODY COILS

- 2 Route Runs 945 and 946 from Penetration Panel to upper RF Body Coil Dynamic Disable cables. Connect Run 945 to J3 and Run 946 to J4.
- 1 Route Runs 852 and 853 from Splitter and connect Run 852 to J1 and Run 853 to J2 Upper RF Body coil cables.

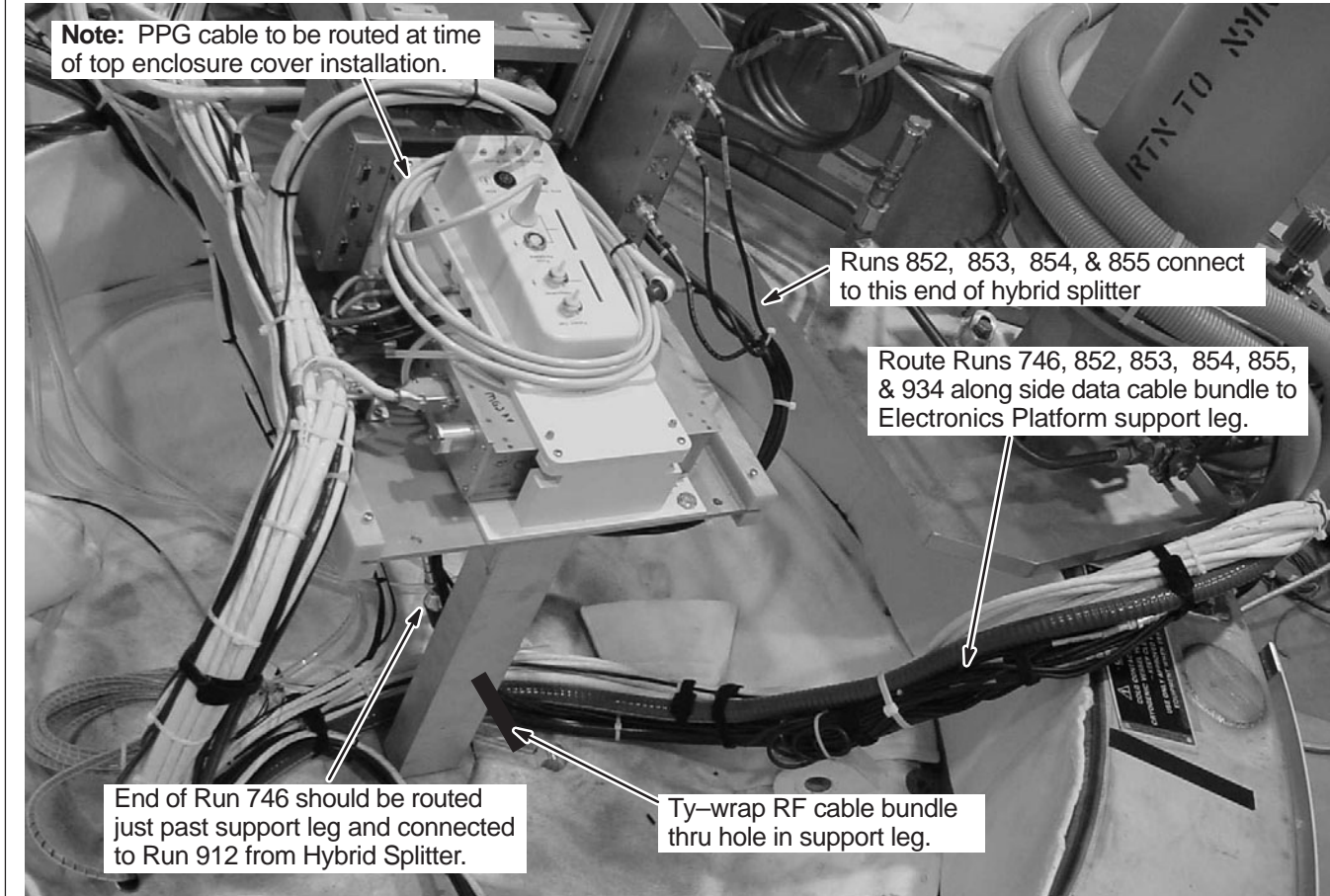


5 **Note:** There must not be metal to metal contact between connectors.
Apply cable wraps (2236130-2) around BNC Runs 852, 853, 854, and 855 connections. Cut to fit if necessary.
Also apply cable wraps (2236130-2) around Dyanmic Disable Runs 945, 946, 947, and 948 connections. Cut to fit if necessary.

- 3 Route Runs 947 and 948 from Penetration Panel to lower RF Body Coil Dynamic Disable cables. Connect Run 947 to J3 and Run 948 to J4.

- 4 Route Runs 854 and 855 from Splitter and connect Run 854 to J1 and Run 855 to J2 Lower RF Body coil cables.

F3 – ROUTE/CONNECT RF CABLE BUNDLE TO TOP OF MAGNET



Note: PPG cable to be routed at time of top enclosure cover installation.

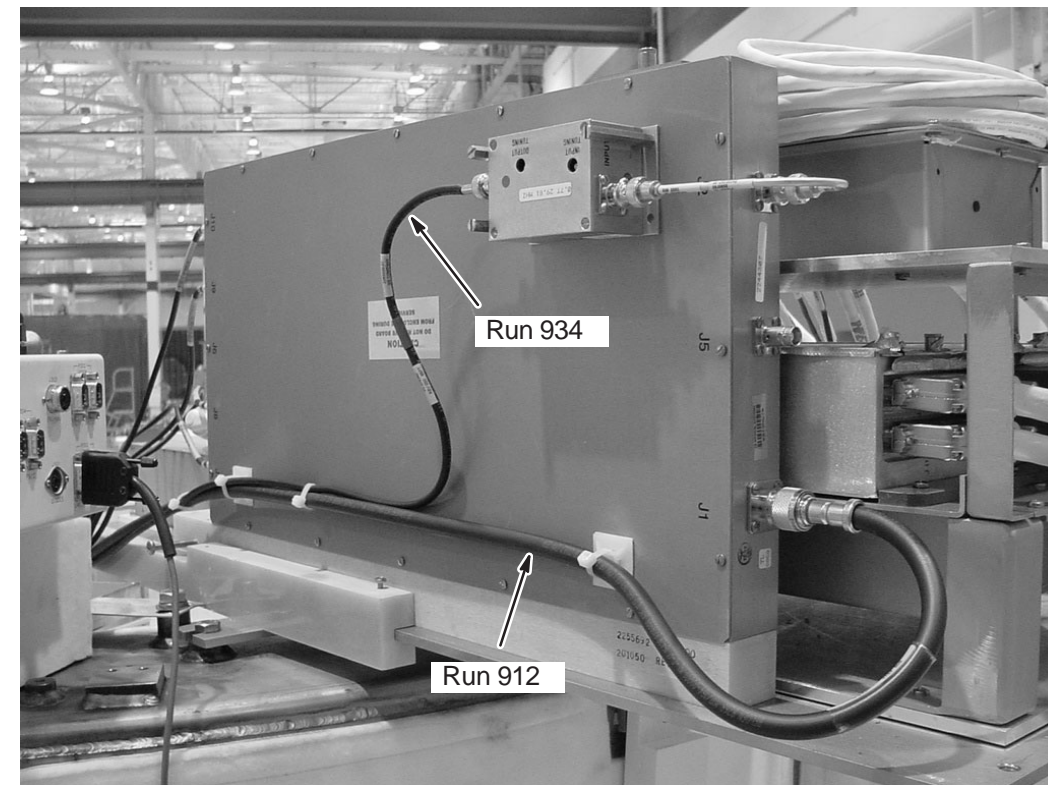
Runs 852, 853, 854, & 855 connect to this end of hybrid splitter

Route Runs 746, 852, 853, 854, 855, & 934 along side data cable bundle to Electronics Platform support leg.

End of Run 746 should be routed just past support leg and connected to Run 912 from Hybrid Splitter.

Ty-wrap RF cable bundle thru hole in support leg.

F4 – ROUTE/CONNECT RUNS 912 AND 934 TO HYBRID SPLITTER



Run 934

Run 912

INSTALLATION PROCEDURES SUMMARY

- ☐ G1 – Route/Connect Runs 762, 763, and 764
- ☐ G2 – Route Connect Runs 844, 846, 953, and 955 to Heater/RTD Module
- ☐ G3 – Routing of Cables and Hoses at Top of Left Column
- ☐ G4 – Routing of Cables and Hoses on Left Column

G1 – ROUTE/CONNECT RUNS 762, 763, AND 764

1 Route Runs 762, 763, and 764 through opening in Magnet Mounting Plate to left column. Refer to Tab 1, System, Direction 2259418, for instructions on terminating gradient cables.

2 Remove lower phenolic cover on interconnect block.

3 Route and connect gradient cables as marked.
CAUTION! Early production magnets had the X- and X+ connectons switched. Connection studs should be marked.

4 Position ring terminals flush side to flush side.

5 Tape cables together as shown with electrical tape, approximately 100mm (4 in.) apart, all the way back to cable jacket.

6 Attach Terminal Block Cover.

Gradient Lug from Gradient Coil

Incoming Power Cable Lug

3	4	5	6	2	1
Y+	Y-	Z+	Z-	X-	X+
Run 763	Run 764	Run 762			

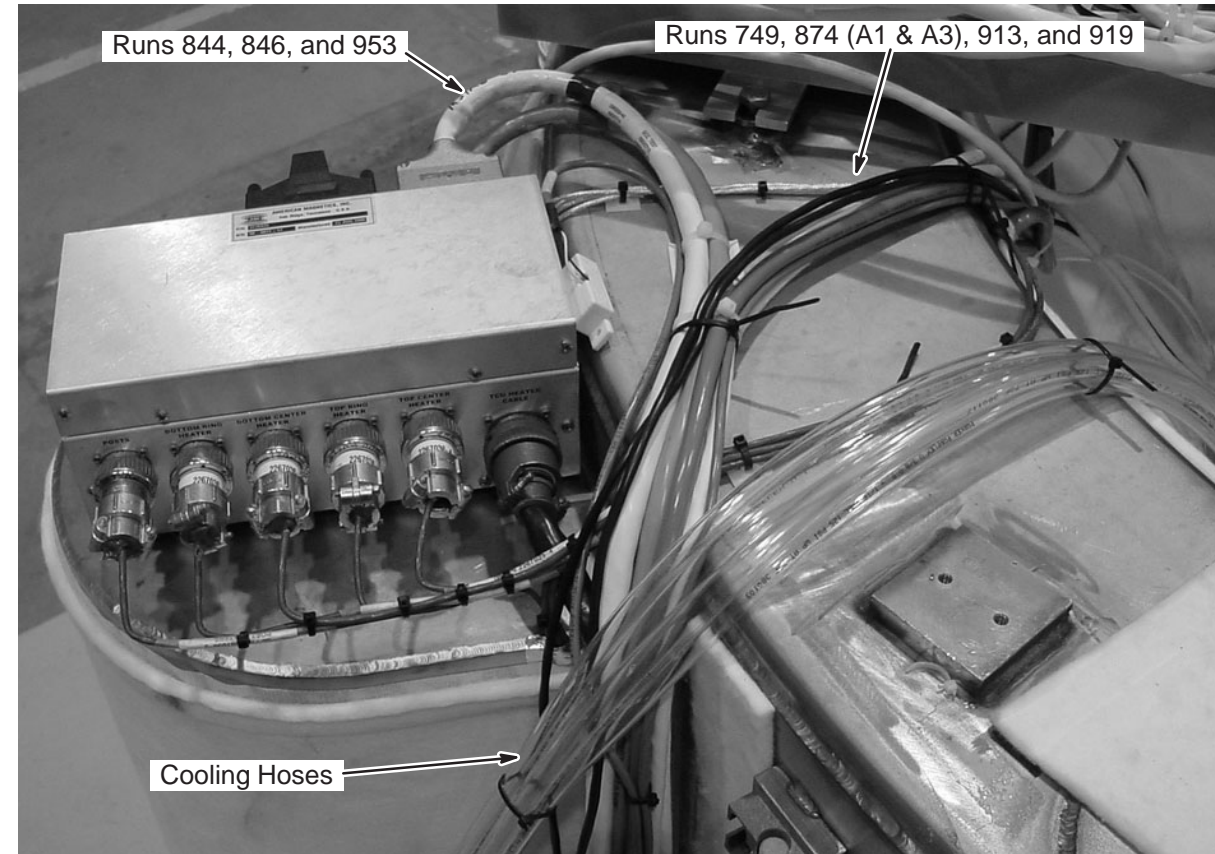
G2 – ROUTE/CONNECT RUNS 844, 846, 953, and 955 TO HEATER/RTD MODULE

1 Route Runs 844, 846, 953, and 955 (see NOTE below) from Heater/RTD Distribution module (MS1 A6) at top of left column. Route along front of column to Penetration Panel and connect as marked.

NOTE: Run 955 is in the process of changing its connection point from the Heater/RTD module to connecting directly to the terminal block located on the front of the left column. See Procedure G4 if cable 2280887 (Z2 COMP COIL) is not installed from Heater/RTD module to terminal block at front of left column.

2 The four clear tubing cooling hoses from the upper gradient coil should have been previously routed on left side of gradient cable terminal block. It will be connected to cooling hoses in cable trough at back of magnet. See procedures G3 & G4.

G3 – ROUTING OF CABLES AND HOSES AT TOP OF LEFT COLUMN



G4 – ROUTING OF CABLES & HOSES ON LEFT COLUMN

1 Route cables on front of plate and ty-wrap in position at top and bottom of plate. Cables must be straight, not twisted.

2 Route Run 955 to terminal block. Connect the two sets of soldered wires by loosening screws, inserting wires, and re-tightening screws as indicated.

3 Runs 749 and 874 (A1 & A3) are routed to this area of lower cryostat for connection to Lower Cryostat cover and Left & Center Pinch Sensor.

4 Route cables to destinations as marked.

RED, WHT, & GRN wires

BLK, GRN/BLK, & BLU wires

Cooling Hoses

INSTALLATION PROCEDURES SUMMARY

- ☐ H1 – Proper Storage of Cables in Cable Trough
- ☐ H2 – Install Patient Air Compressor and Hoses
- ☐ H3 – Route Runs 864, 865, and Magnet Ground Cable
- ☐ H4 – Route/Connect RF Body Coil Air Cooling Hose

H1 – PROPER STORAGE OF CABLES IN CABLE TROUGH

- 1 Excess cable to be stored in cable trough must be routed in a "Figure Eight" pattern as shown. **DO NOT COIL IN CIRCLES!**
- 2 Dress and ty-wrap looped cable:
For larger loops, one at each end.
For smaller loops, one in the middle.
- 3 Repeat as necessary for cables in Magnet or Equipment room.

H2 – INSTALL PATIENT AIR COMPRESSOR AND HOSES

- 1 Install Patient Air Compressor (2248343) in equipment room. Consult room layout plan for proper location.
- 2 Route and connect Runs 930 and 931 to Power Cabinet as marked.
- 3 Locate clear polyurethane braided Hose (2259693-4). Route from Compressor to Penetration Panel. Cut to length, slide on to hose barb, and connect with hose clamp (2259696).
- 4 Attach braided Hose (2259693-4) to other side of Penetration Panel and connect with hose clamp (2259696).
- 5 Route hose through cable trough to rear of magnet as shown. Cut to length and attach to nylon barbed T-fitting (2282094).
- 6 From the remaining braided hose, cut two pieces to a length of about 40 inches (1000mm) each. Attach to each side of the T-fitting and route to left and right columns. These will be attached to an elbow at the bottom of Side Covers in a later procedure.

Note: The Side Covers should have an elbow at the bottom for the hoses to attach. Some of the early manufactured covers did not have this. If so, obtain locally a plastic elbow and attach to bottom of cover using a short piece of hose.

H3 – ROUTE RUNS 864, 865, AND MAGNET GROUND CABLE

- 1 Route Run 864 from SRI Splitter to area of left Patient Comfort Module which will be installed later.
- 2 Route Run 865 from SRI Splitter to area of right Patient Comfort Module which will be installed later.
- 3 Route/connect Run 040, Magnet Ground Cable, from RF screen room common ground to stud under right column.

H4 – ROUTE/CONNECT RF BODY COIL AIR COOLING HOSE

CAUTION
The 90 degree elbows used for installing the cooling hose will cause back pressure and reduce the air flow. Do not install more than is necessary.

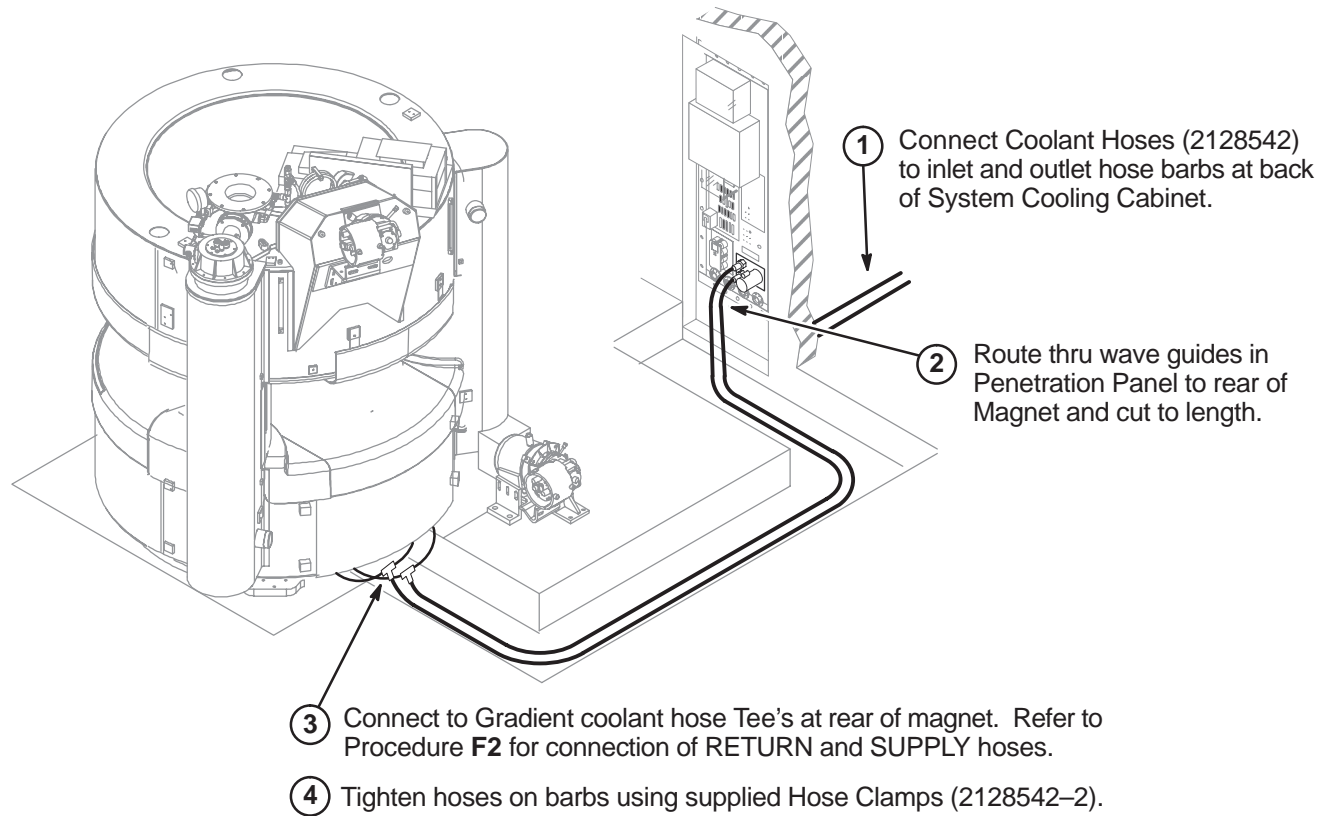
Note: The 2 inch hose, 90° elbows, and clamps are provided by supplier of RF Body Cooling Cabinet.

- 1 Locate RF cooling hose, straight connector, elbows, and hose clamps.
- 2 Cut a length of hose long enough to fit thru wave guide on Penetration Panel and enough surface area to install elbows with hose clamps on each side.
- 3 If necessary install another elbow at floor level of cable trough. Cut another short piece of hose and connect between elbows.
- 4 Route hose from Penetration Panel to RF Cooling Cabinet. Cut to length and attach with hose clamps.
- 5 Route hose from Penetration Panel to rear of magnet. Cut to length.
- 6 Install Input Elbow Adapter (2276266). This piece is part of 2279600 which is shipped within the RF Body Coil wooden box container.
- 7A Cut a short length of hose and connect to 90° elbow. Connect hose routed from Pen Panel to other end of elbow.
- 7B If supplied, connect the 18 inch flexible hose to the Elbow Adapter. Insert 90° elbow into flexible hose and into hose routed from Pen Panel. attach with supplied hose clamps.

INSTALLATION PROCEDURES SUMMARY

- ☐ J1 – Route/Connect RF Body Coil Air Cooling Hose
- ☐ J2 – Gradient Coil Cooling Circuit and Parts

J1 – ROUTE/CONNECT GRADIENT COIL COOLANT HOSES



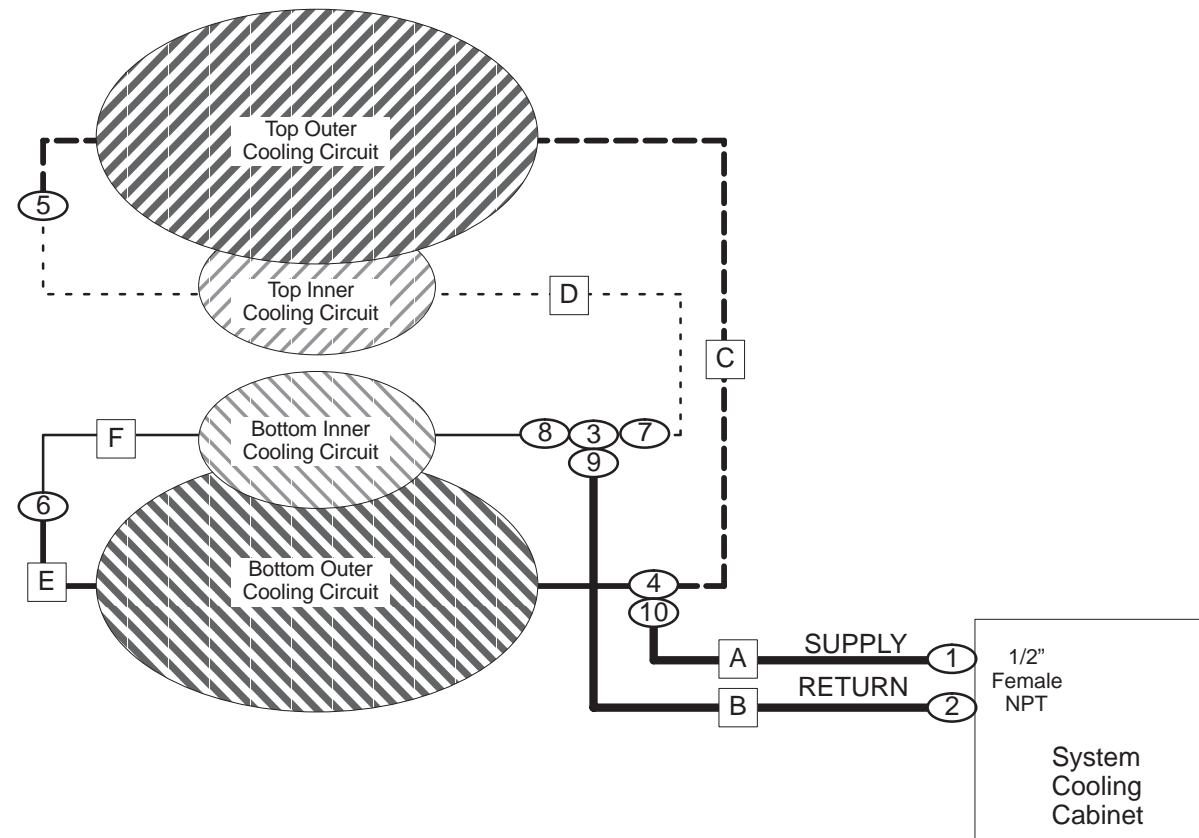
J2 – GRADIENT COIL COOLING CIRCUIT AND PARTS

GRADIENT COOLING HOSES

- A — B — 3/4 inch OD black rubber tube, 50 ft length each
- E — 1/2 inch OD black polyurethane tube, 40 ft length
- - - C - - - 1/2 inch OD clear polyurethane tube, 40 ft length
- F — 3/8 inch OD black polyurethane tube, 25 ft length
- - - D - - - 3/8 inch OD clear polyurethane tube, 25 ft length

GRADIENT COOLING CONNECTORS

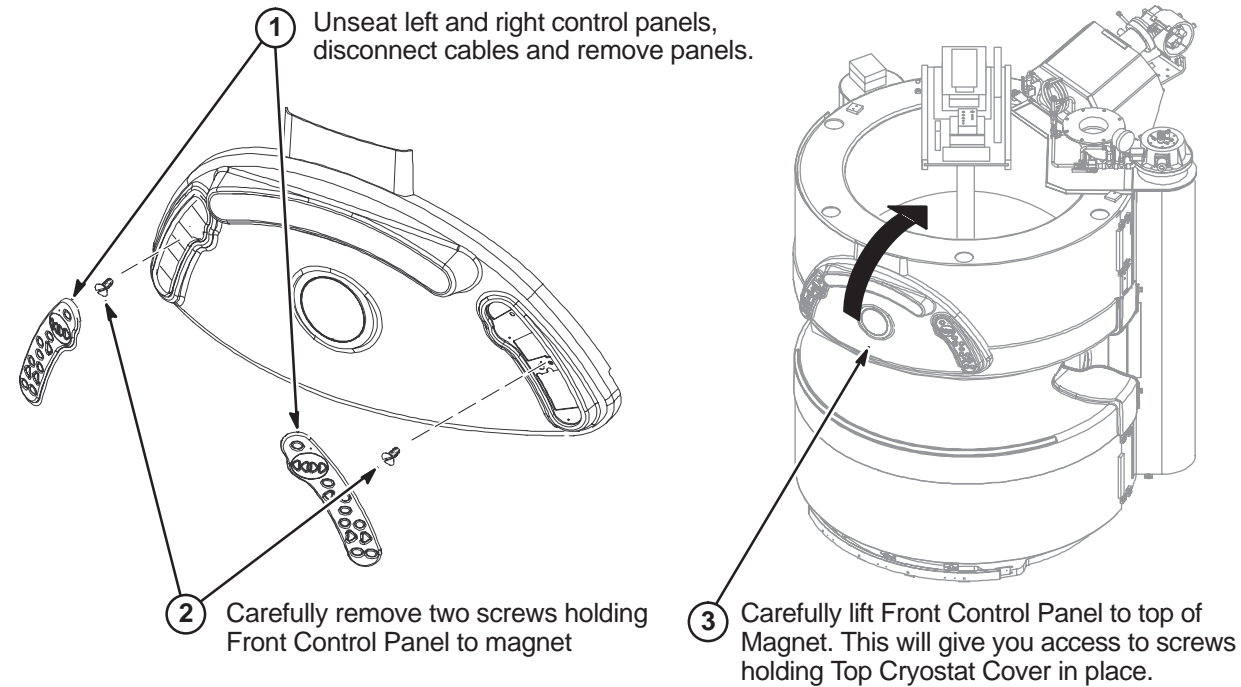
- ① ② 1/2 inch ID tube barb supplied with chiller
 - ③ ④ 1/2 inch to 1/2 inch tee union 2262660
 - ⑤ ⑥ 1/2 inch to 3/8 inch tee connector 2262660-2
 - ⑦ ⑧ 1/2 inch to 3/8 inch tube to stem reducer 2262660-3
 - ⑨ ⑩ 1/2 inch tube to barb connector 2262660-4
 - 1/2 inch tube support (4 required) 2262660-5
 - 3/8 inch tube support (4 required) 2262660-6
- } Supports are inserted into end of tube to provide secure connection.



INSTALLATION PROCEDURES SUMMARY

- K1 – Removing Front Control Panel
- K2 – Removing Upper Cryostat Cover
- K3 – Removing Lower Cryostat Cover
- K4 – Magnet Shim

K1 – REMOVING FRONT CONTROL PANEL

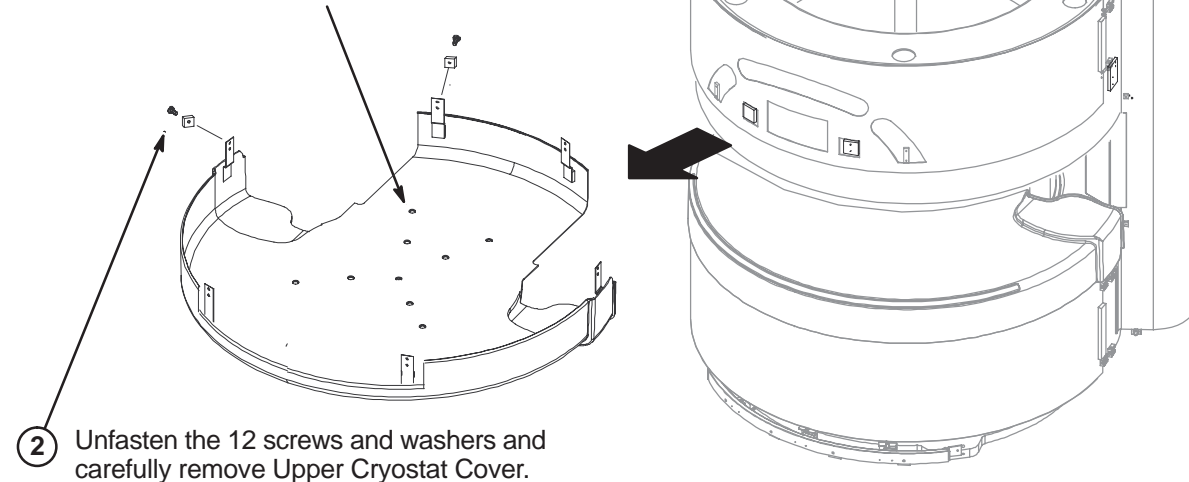


K2 – REMOVING UPPER CRYOSTAT COVER

CAUTION

At least two people are required to remove the Upper Cryostat Cover. Use care when moving and storing cover.

- 1 If installed, unfasten the 8 screws and that hold the Upper Cryostat Cover to the RF Body coil.



K3 – REMOVING LOWER CRYOSTAT COVER

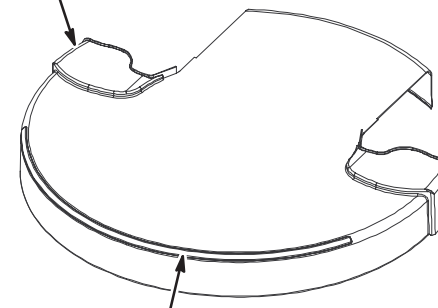
CAUTION

At least two people are required to remove the Lower Cryostat Cover. Use care when moving and storing cover.

CAUTION

Any cables (Runs 749 and 874) connected to the Lower Cryostat Cover must be disconnected before removal of cover.

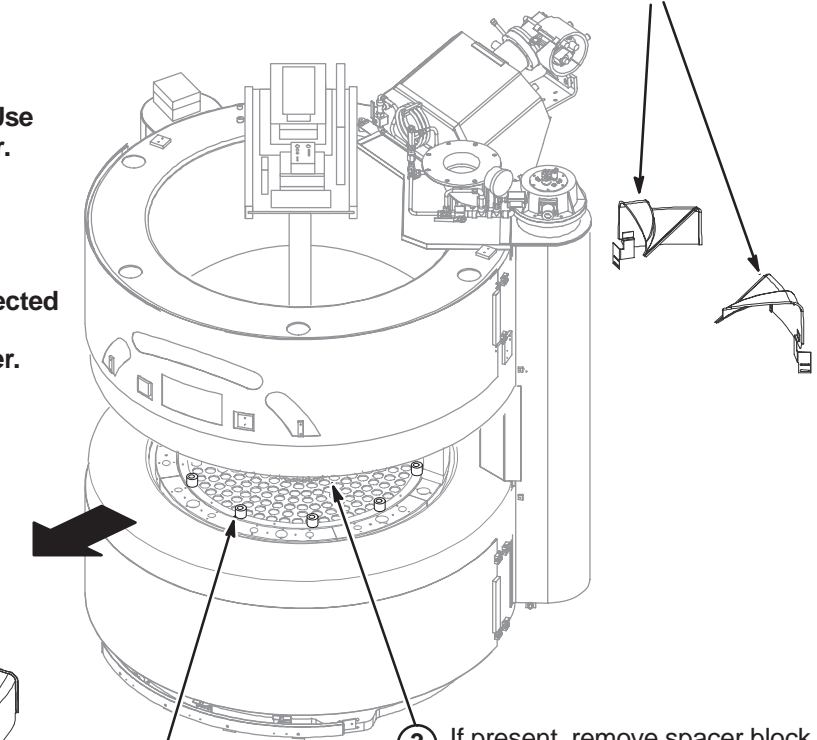
- 2 Lift and carefully remove Lower Cryostat Cover.



CAUTION

Do not stand cover on edge to avoid damage to pinch sensor.

- 1 Unfasten screws and remove left and right Wedge Covers



- 4 Unfasten and save (8) M10 x 35 flat head screws that hold spacers in place. These screws will be used for installing RF Body Coil. Remove spacers around outer ring and discard.

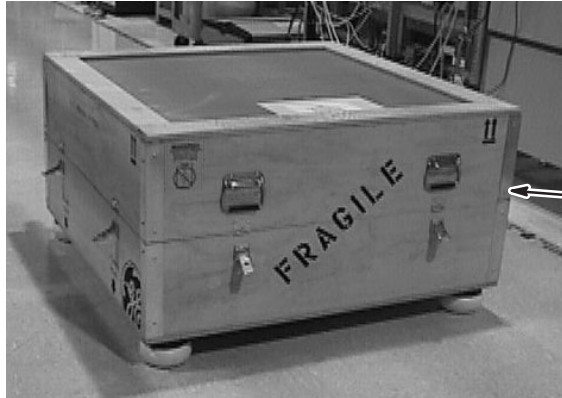
K4 – MAGNET SHIM

- 1 Refer to Direction 2231934, *GE 0.7T OpenSpeed Magnet & Cryogens Subsystem*, for instructions on shimming magnet.

INSTALLATION PROCEDURES SUMMARY

- ☐ L1 – Unpacking Upper and Lower RF Body Coil Shipping Containers
- ☐ L2 – Install Lower RF Body Coil

L1 – UNPACKING UPPER AND LOWER RF BODY COIL SHIPPING CONTAINERS



CAUTION
At least two people are required to unpack shipping containers and install Upper and Lower RF Body Coils.

1 Both Upper and Lower RF Body Coils are packed in rectangular shipping containers. The RF body coil is removed from this container.

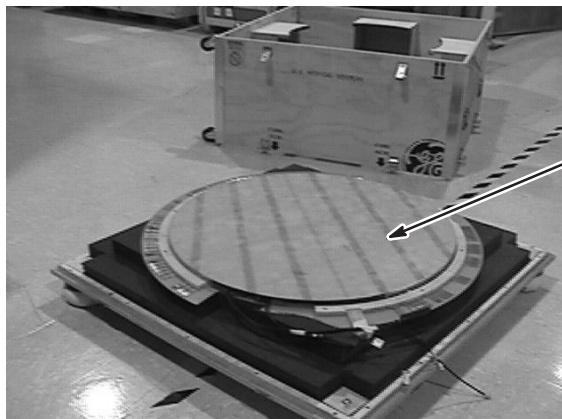
Included in the Upper RF Body Coil container is:

- A padding assembly that is an insertion tool for the Upper RF Body Coil to help you install the Upper RF Body Coil.
- Four coil lifting studs and wingnuts.
- Input and exhaust ducts to be attached to the Upper and Lower RF Body Coils.
NOTE: These ducts may be packaged separately in another box of M2085BH.

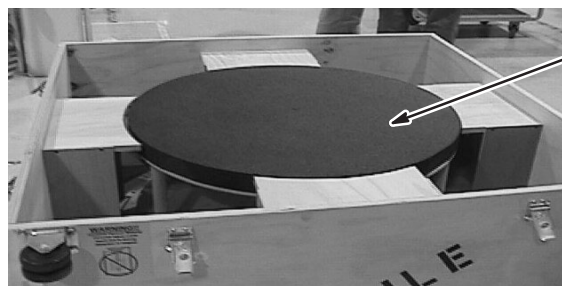


2 Unpack the Lower RF Body Coil.

3 Install Lower RF Body Coil. See procedure L2.



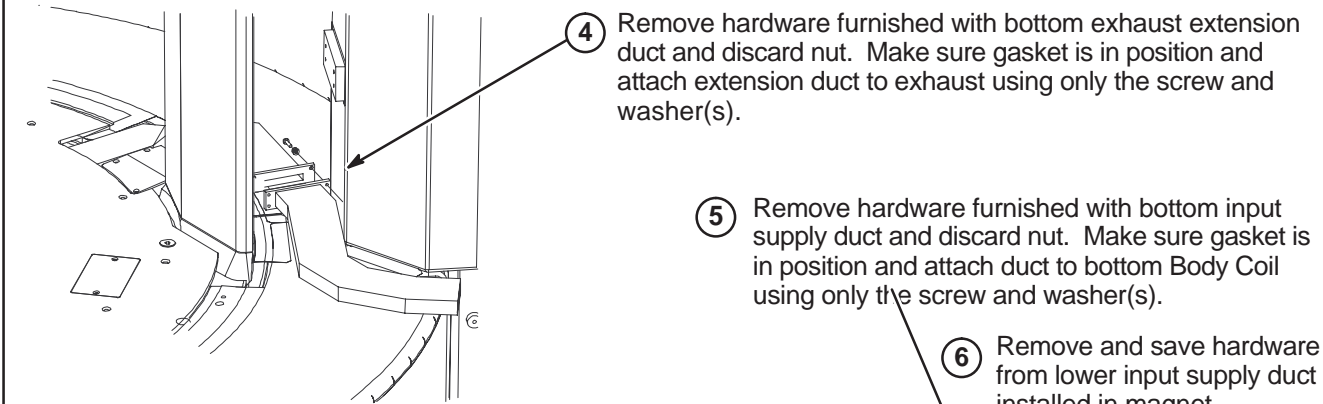
4 Unpack and set aside the upper RF Body Coil on its shipping platform.



5 Remove Body Coil Insertion Tool and coil lifting stud assemblies.

6 Install Upper Rf Body Coil. See Procedures M1, M2, & M3.

L2 – INSTALL LOWER RF BODY COIL



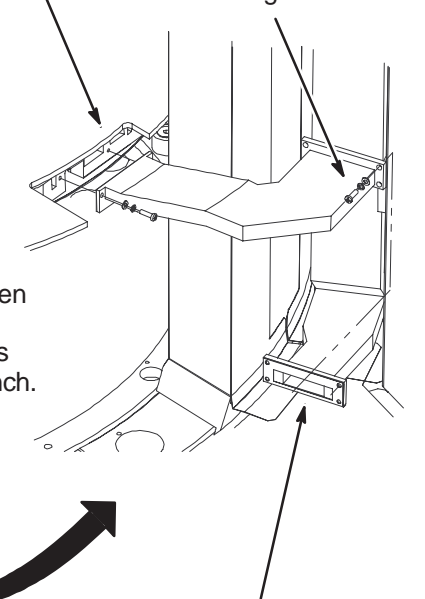
View from Rear of Magnet

7 Center RF Body Coil over gradient coil. Align (8) 20mm countersunk holes with M10 holes in outer gradient ring. Carefully remove spacers and lower Body Coil onto gradient coil.

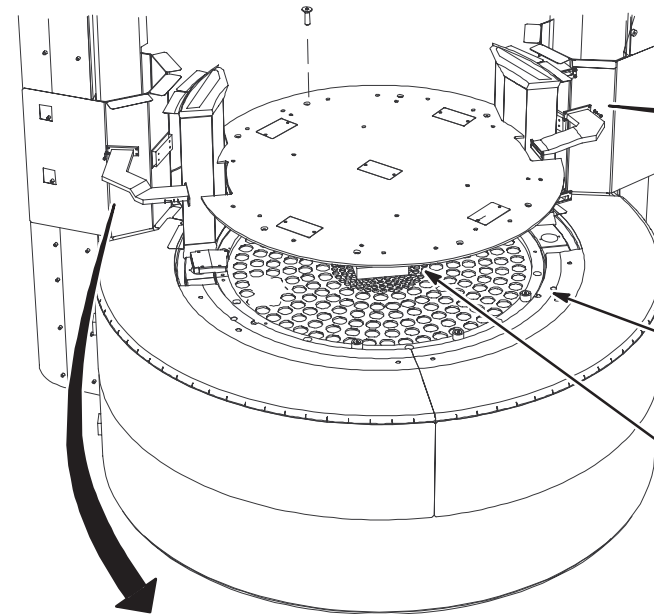
8 Insert each of the (8) M10 x 35 flat head screws that were previously removed into respective countersunk holes in Body Coil. Thread fasteners into holes using long end of allen wrench.

9 Alternating screws in a crisscross pattern, tighten screws to a snug tight condition using the short end of the allen wrench. Snug tight is defined as the full effort of a person using an ordinary wrench.

10 Return to the first screw following the same pattern and tighten each screw an additional 1/4 turn.



11 After RF Body Coil is fastened to gradient coil, attach bottom input duct to input supply duct. Make sure gasket is in position.



1 **IMPORTANT!** Prior to installation of RF Body Coils, use scouring pad to clean all around tinned area of top and bottom extended shield.

2 Using existing spacer block or other spacer material, move bottom Body Coil into position above gradient coil. It must be centered over gradient coil before input or exhaust ducts are installed.

CAUTION

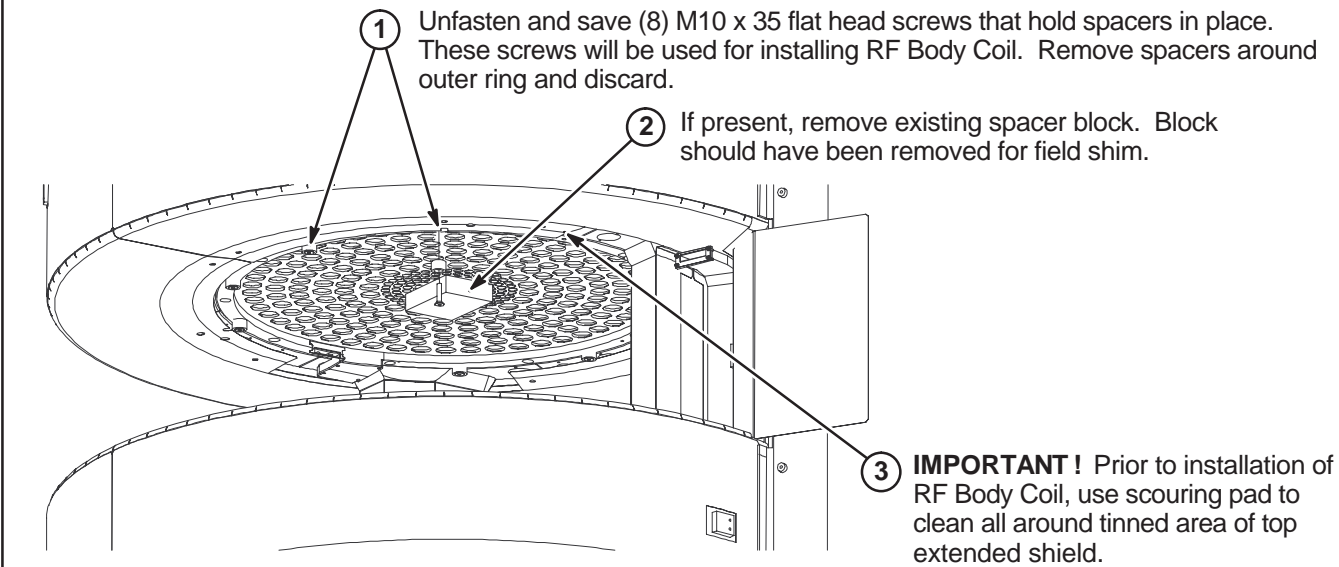
Flanges on both input and exhaust ducts will interfere with posts if installed prior to positioning Body Coil over gradient coil. This would prevent coil from being installed without damaging body coil and/or ducts

3 Remove hardware furnished with bottom exhaust duct and discard nut. Make sure gasket is in position and attach duct to bottom Body Coil using only the screw and washer(s).

INSTALLATION PROCEDURES SUMMARY

- ☐ M1 – Preparation for Installation of Upper RF Body Coil
- ☐ M2 – Position Upper RF Body Coil
- ☐ M3 – Installing Upper RF Body Coil

M1 – PREPARATION FOR INSTALLATION OF UPPER RF BODY COIL

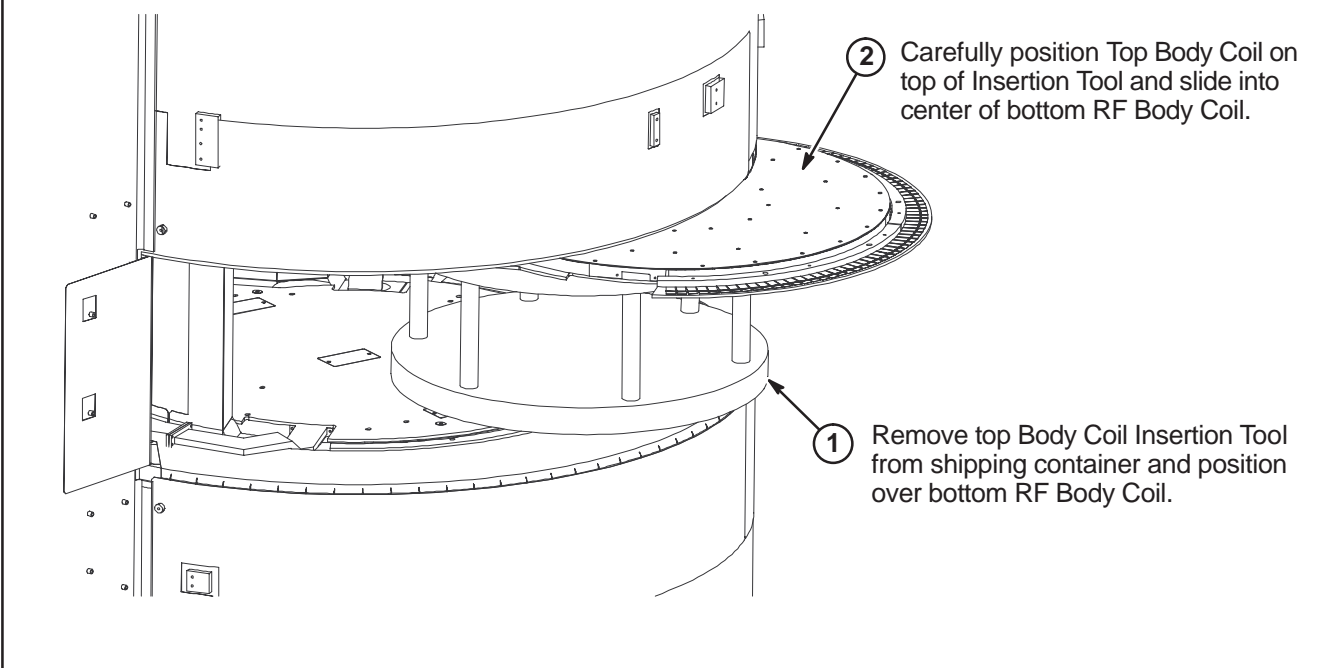


1 Unfasten and save (8) M10 x 35 flat head screws that hold spacers in place. These screws will be used for installing RF Body Coil. Remove spacers around outer ring and discard.

2 If present, remove existing spacer block. Block should have been removed for field shim.

3 **IMPORTANT!** Prior to installation of RF Body Coil, use scouring pad to clean all around tinned area of top extended shield.

M2 – POSITION UPPER RF BODY COIL



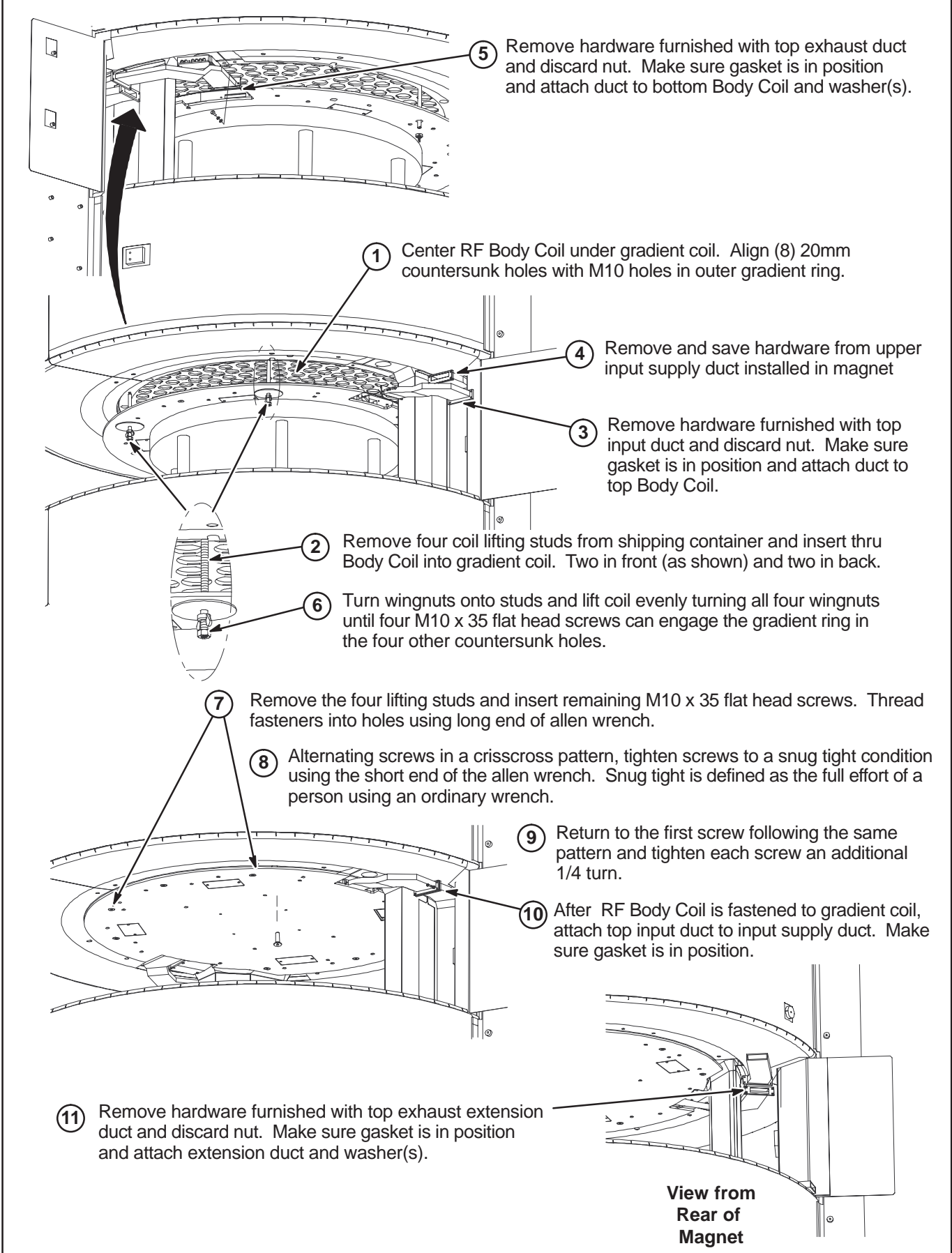
1 Remove top Body Coil Insertion Tool from shipping container and position over bottom RF Body Coil.

2 Carefully position Top Body Coil on top of Insertion Tool and slide into center of bottom RF Body Coil.

CAUTION

Flanges on both input and exhaust ducts will interfere with posts if installed prior to positioning Body Coil over gradient coil. This would prevent coil from being installed without damaging body coil and/or ducts

M3 – INSTALLING UPPER RF BODY COIL



1 Center RF Body Coil under gradient coil. Align (8) 20mm countersunk holes with M10 holes in outer gradient ring.

2 Remove four coil lifting studs from shipping container and insert thru Body Coil into gradient coil. Two in front (as shown) and two in back.

3 Remove hardware furnished with top input duct and discard nut. Make sure gasket is in position and attach duct to top Body Coil.

4 Remove and save hardware from upper input supply duct installed in magnet

5 Remove hardware furnished with top exhaust duct and discard nut. Make sure gasket is in position and attach duct to bottom Body Coil and washer(s).

6 Turn wingnuts onto studs and lift coil evenly turning all four wingnuts until four M10 x 35 flat head screws can engage the gradient ring in the four other countersunk holes.

7 Remove the four lifting studs and insert remaining M10 x 35 flat head screws. Thread fasteners into holes using long end of allen wrench.

8 Alternating screws in a crisscross pattern, tighten screws to a snug tight condition using the short end of the allen wrench. Snug tight is defined as the full effort of a person using an ordinary wrench.

9 Return to the first screw following the same pattern and tighten each screw an additional 1/4 turn.

10 After RF Body Coil is fastened to gradient coil, attach top input duct to input supply duct. Make sure gasket is in position.

11 Remove hardware furnished with top exhaust extension duct and discard nut. Make sure gasket is in position and attach extension duct and washer(s).

View from Rear of Magnet

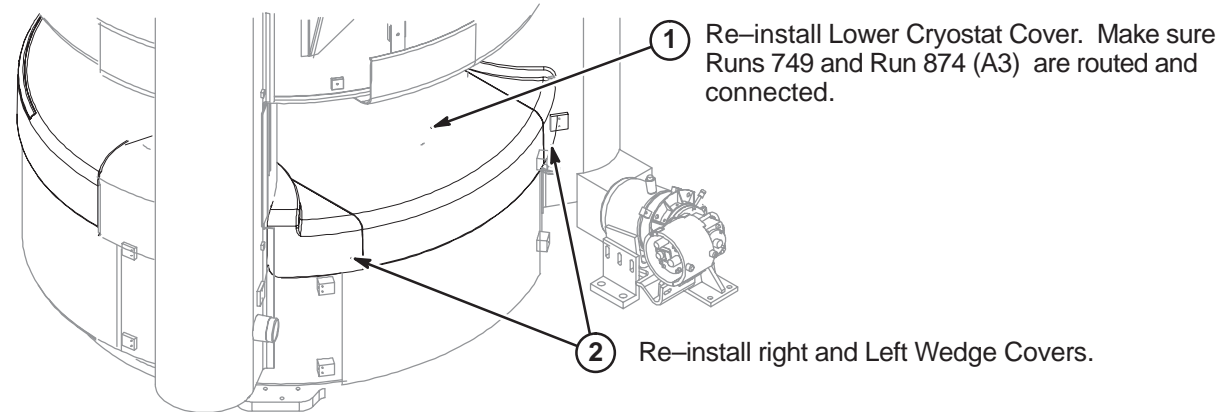
INSTALLATION PROCEDURES SUMMARY

- N1 – Install Lower Cryostat Cover and Wedge Covers
- N2 – Installing Upper Cryostat Cover
- N3 – Positioning Upper Cryostat Cover
- N4 – Installing Front Control Panel
- N5 – Installing Left & Right Patient Collision Switch Panels

N1 – INSTALL LOWER CRYOSTAT COVER AND WEDGE COVERS

CAUTION

At least two people are required to install the Lower Cryostat Cover. Use care when moving and storing cover.

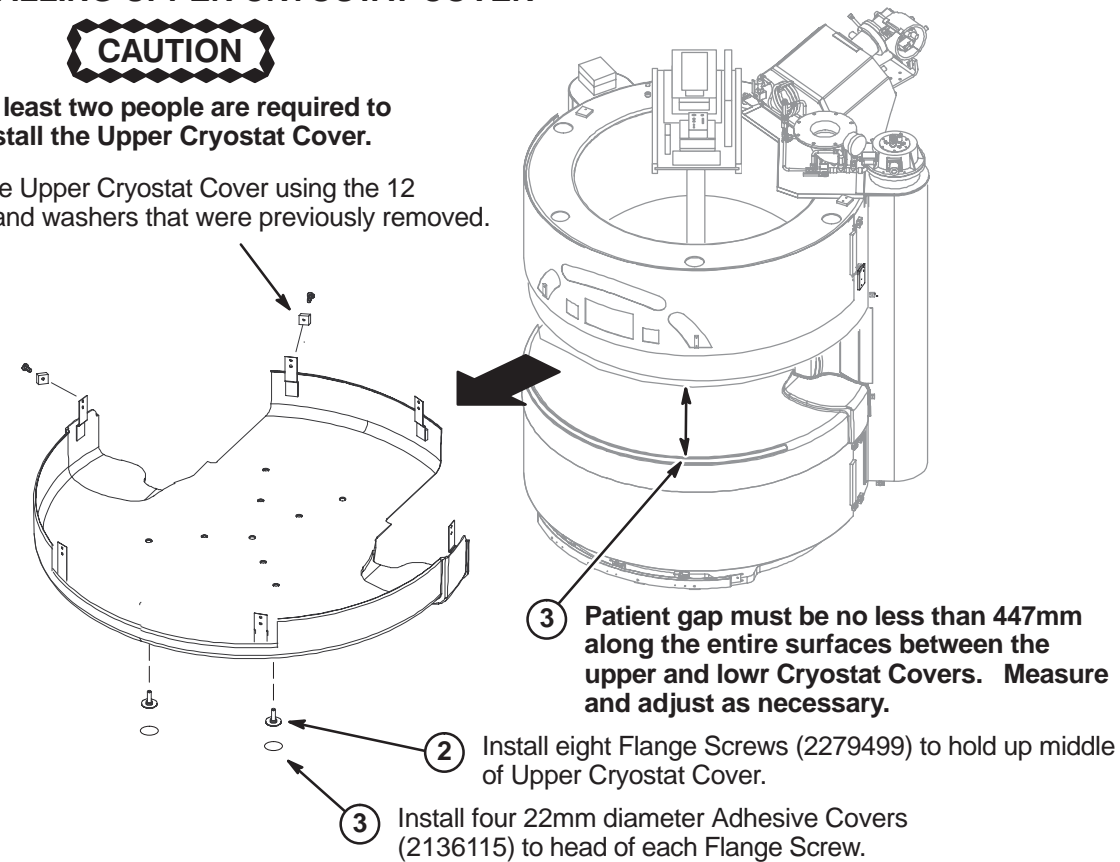


N2 – INSTALLING UPPER CRYOSTAT COVER

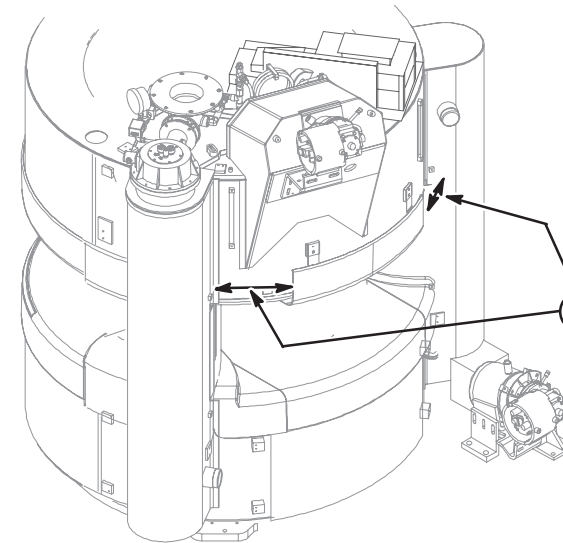
CAUTION

At least two people are required to install the Upper Cryostat Cover.

- 1 Install the Upper Cryostat Cover using the 12 screws and washers that were previously removed.



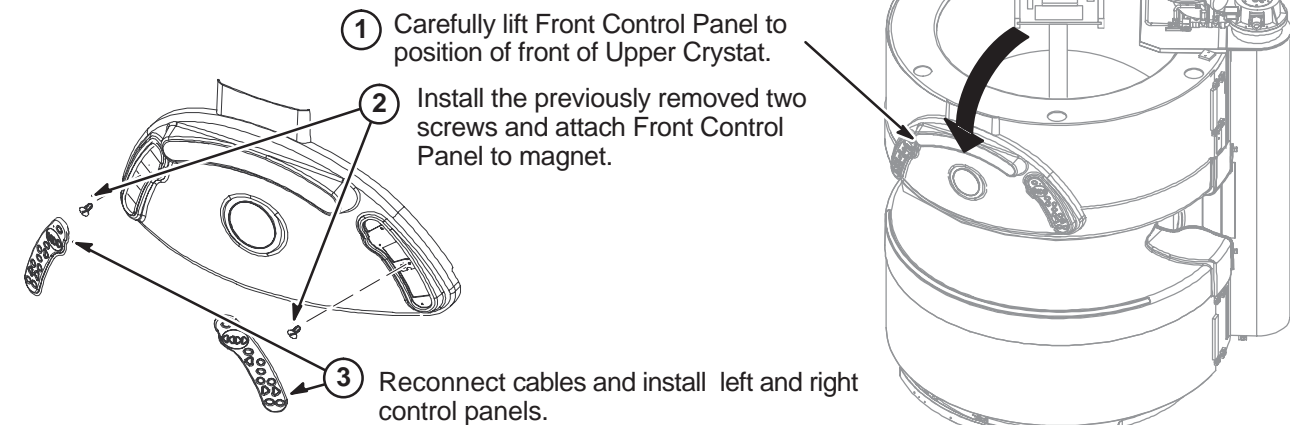
N3 – POSITIONING UPPER CRYOSTAT COVER



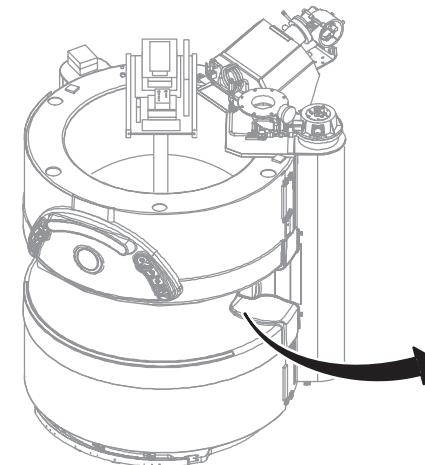
N4 – INSTALLING FRONT CONTROL PANEL

CAUTION

At least two people are required to install the Front Cover Panel.



N5 – INSTALLING LEFT & RIGHT PATIENT COLLISION SWITCH PANELS



INSTALLATION PROCEDURES SUMMARY

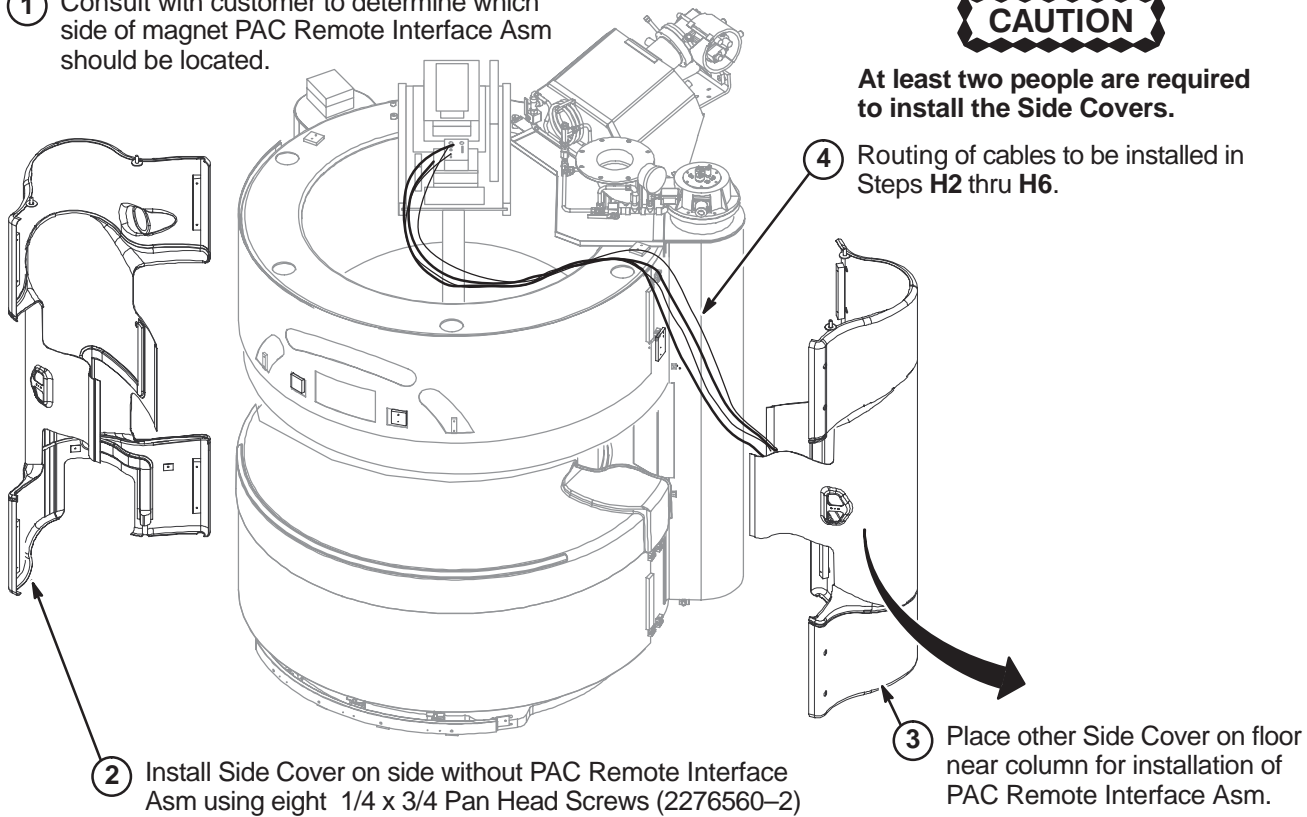
- P1 – Install Side Covers
- P2 – Prepare Cables and Tubes for Routing
- P3 – Position Remote PAC Interface Mounting Clip
- P4 – Route Remote PAC Interface Cables and Tubes
- P5 – Installing Remote PAC Interface
- P6 – Install PAC Hanger Bar

P1 – INSTALL SIDE COVERS

- 1 Consult with customer to determine which side of magnet PAC Remote Interface Asm should be located.

CAUTION

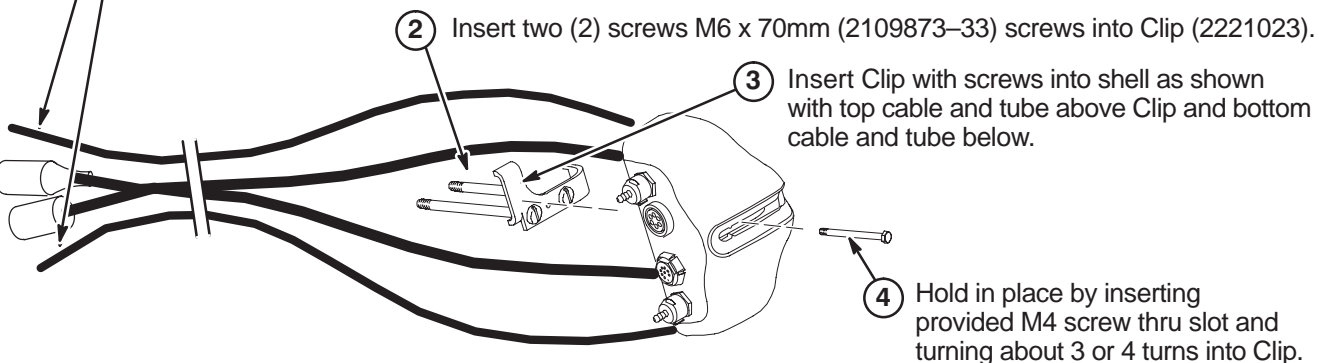
At least two people are required to install the Side Covers.



P2 – PREPARE CABLES AND TUBES FOR ROUTING

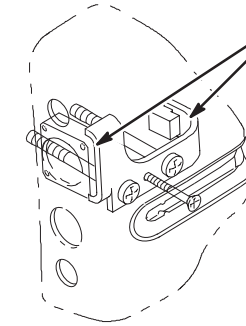
- 1 Apply tape around end of pneumatic tubes and mark "TOP" to the opposite end of the tube connected to the top connector in the Remote PAC Interface Assembly and "BOTTOM" to the tube connected to the lower connector.

Note: Top two cables will be routed over top of bracket and bottom two cables will be routed under bracket.



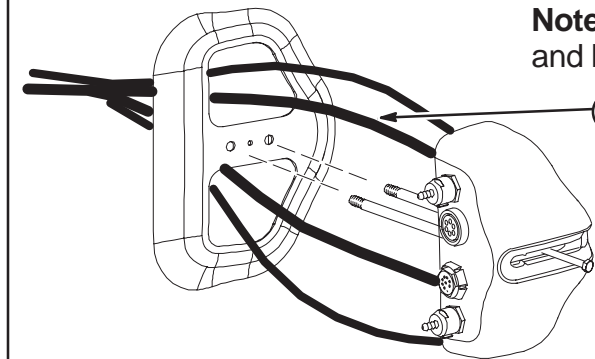
P3 – POSITION REMOTE PAC INTERFACE MOUNTING CLIP

- 1 Make sure each side of clip is mounted behind housing blocks.



P4 – ROUTE REMOTE PAC INTERFACE CABLES AND TUBES

Note: Top two cables will be routed thru top opening and bottom two cables will be routed thru lower opening.

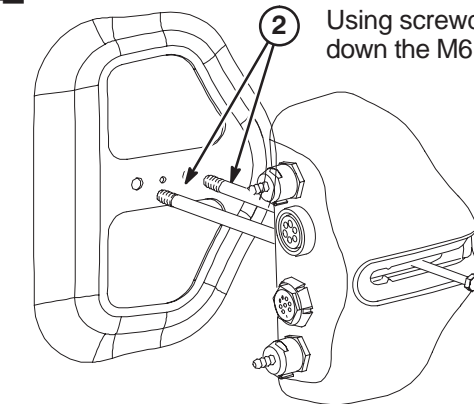


- 1 Insert ECG Cable first. Route this thru pre-mounted foam tube (if available) located on inside of Arc cover.
- 2 Route Peripheral Pulse cable and tubes next.

P5 – INSTALLING REMOTE PAC INTERFACE

- 2 Using screwdriver thru housing slot, tighten down the M6 screws to lock housing in place

Note: Routed cables and tubes not shown for clarity.

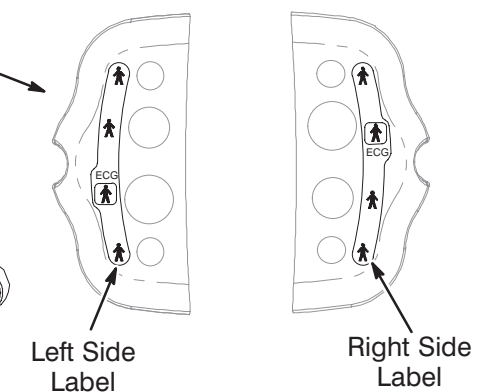


- 1 Use M4 screw thru slot to lift and guide small end of Clamp over block inside housing.
 - 3 Remove M4 screw and save for use at later time since it would be required if Remote PAC Interface Assembly would need to be removed at any time in the future.
- OR**
Turn the M4 screw inward until there is clearance for sliding the PAC Hanger Bar in T5 into place.

P6 – INSTALL PAC HANGER BAR

- 1 Depending on left or right side installation of the PAC Remote Interface Asm on the magnet enclosure, attach the appropriate label that is provided with the kit.
- 2 Attach cables as indicated below.

Respiration
ECG
Peripheral Gating
Patient Call

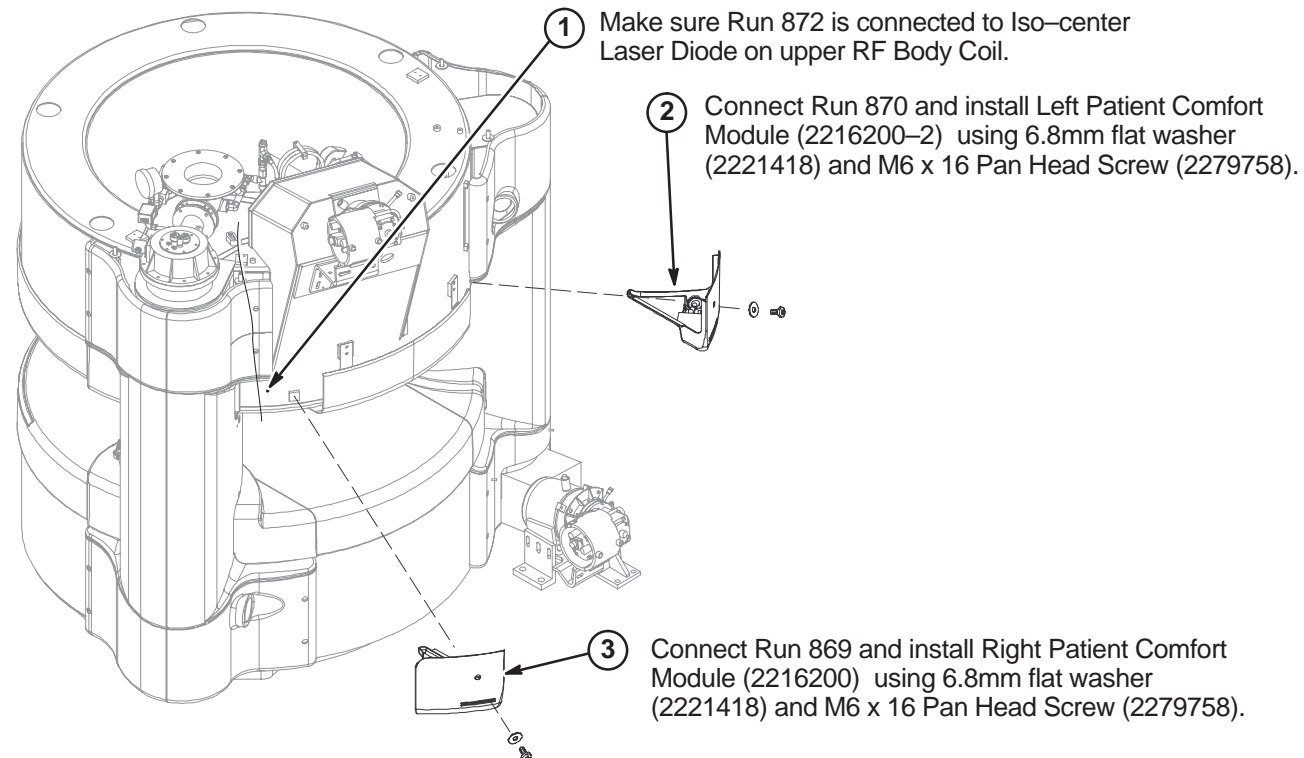


- 3 Slide PAC Hanger Bar (2221023) into position.

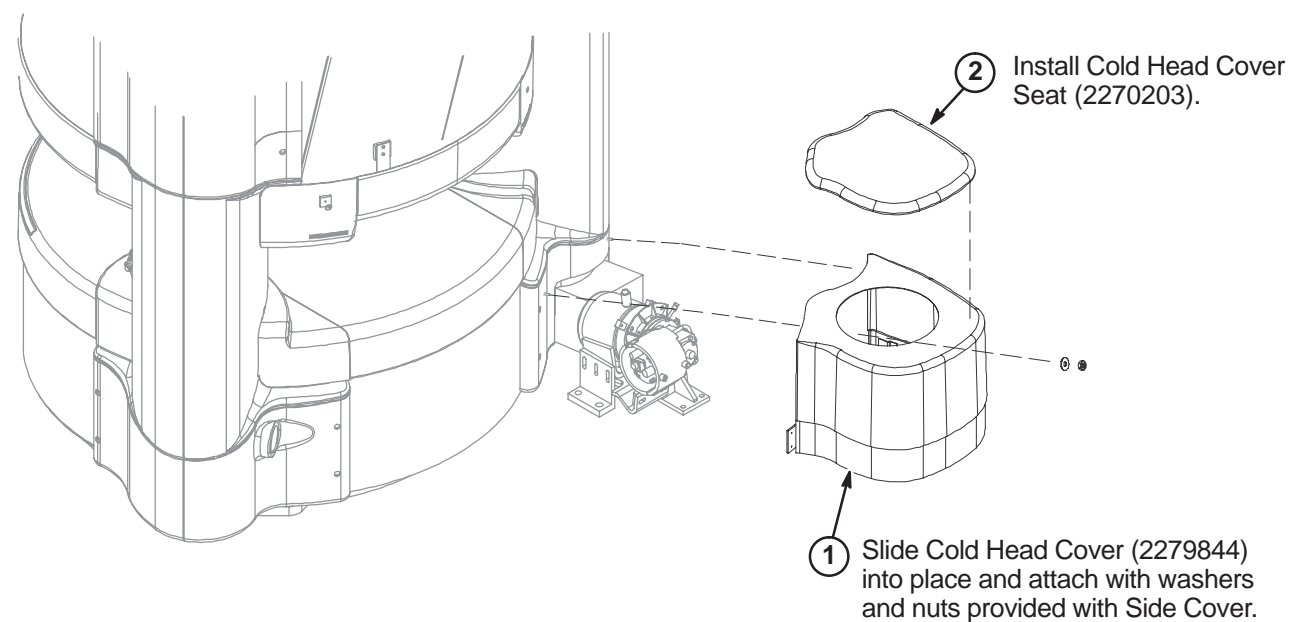
INSTALLATION PROCEDURES SUMMARY

- ☐ Q1 – Install Left and Right Patient Comfort Modules
- ☐ Q1 – Installing Lower Cold Head Covers
- ☐ Q3 – Installing Skirt Asm
- ☐ Q4 – Installing Magnet Top Covers

Q1 – INSTALL LEFT AND RIGHT PATIENT COMFORT MODULES

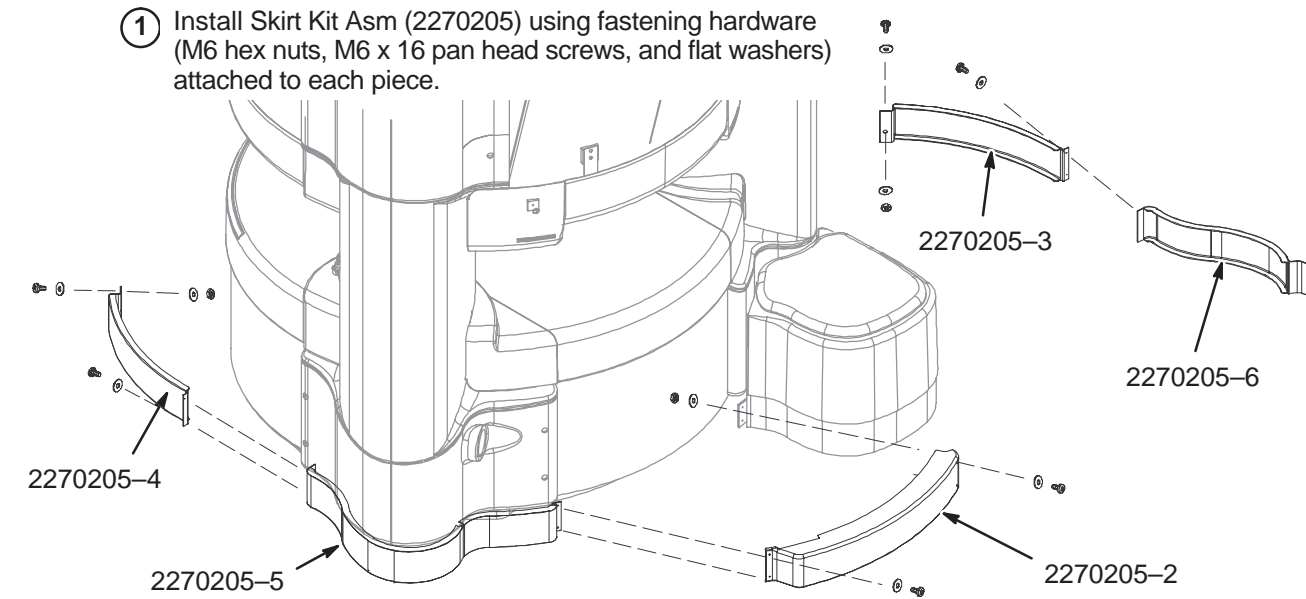


Q2 – INSTALLING LOWER COLD HEAD COVERS



Q3 – INSTALLING SKIRT ASM

- 1 Install Skirt Kit Asm (2270205) using fastening hardware (M6 hex nuts, M6 x 16 pan head screws, and flat washers) attached to each piece.

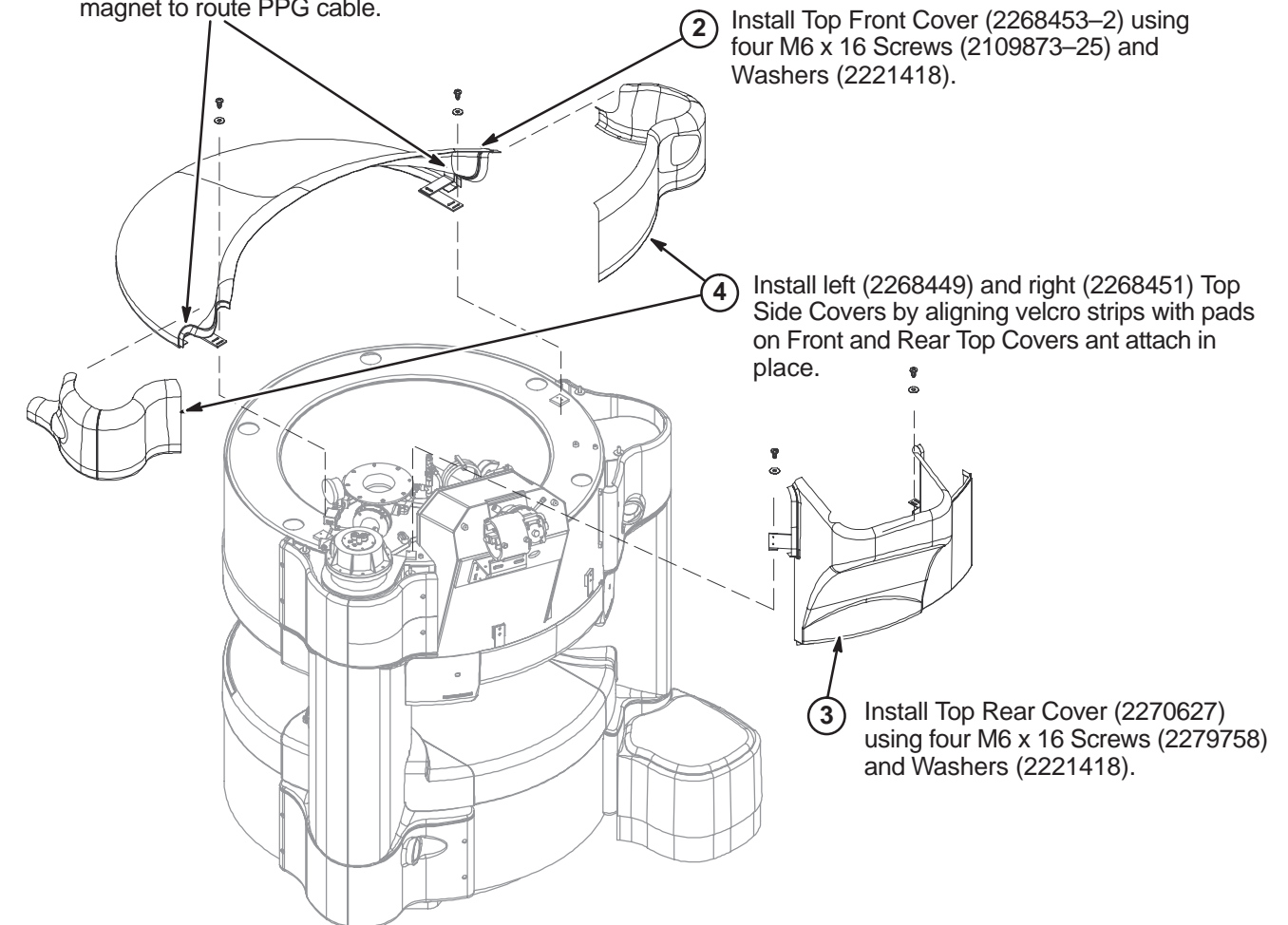


Q4 – INSTALLING MAGNET TOP COVERS

- 1 Notches are provided on either side of Top Front Cover for routing of PPG cable from PAC assembly. Consult with customer to determine which side of magnet to route PPG cable.

CAUTION

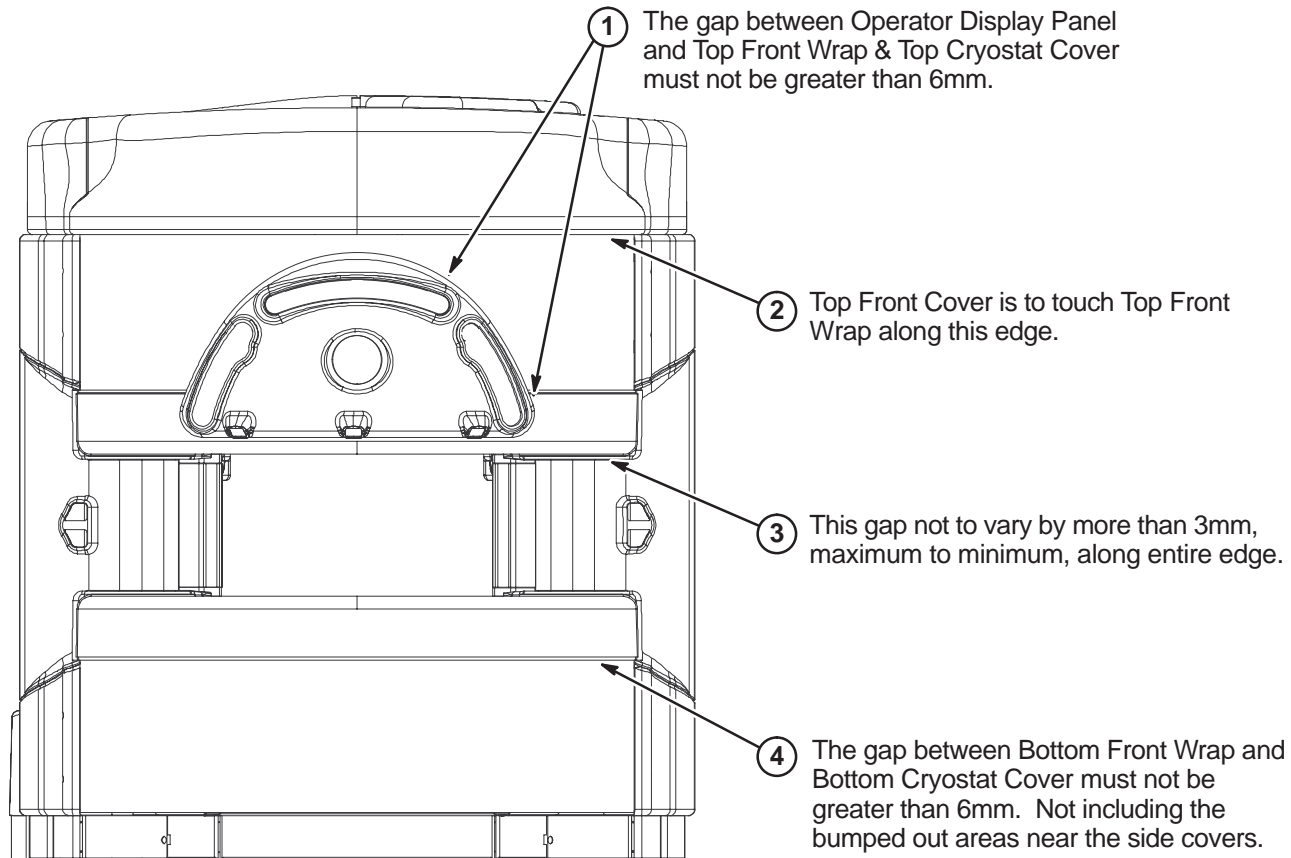
At least two people are required to install the Top Front and Rear Covers.



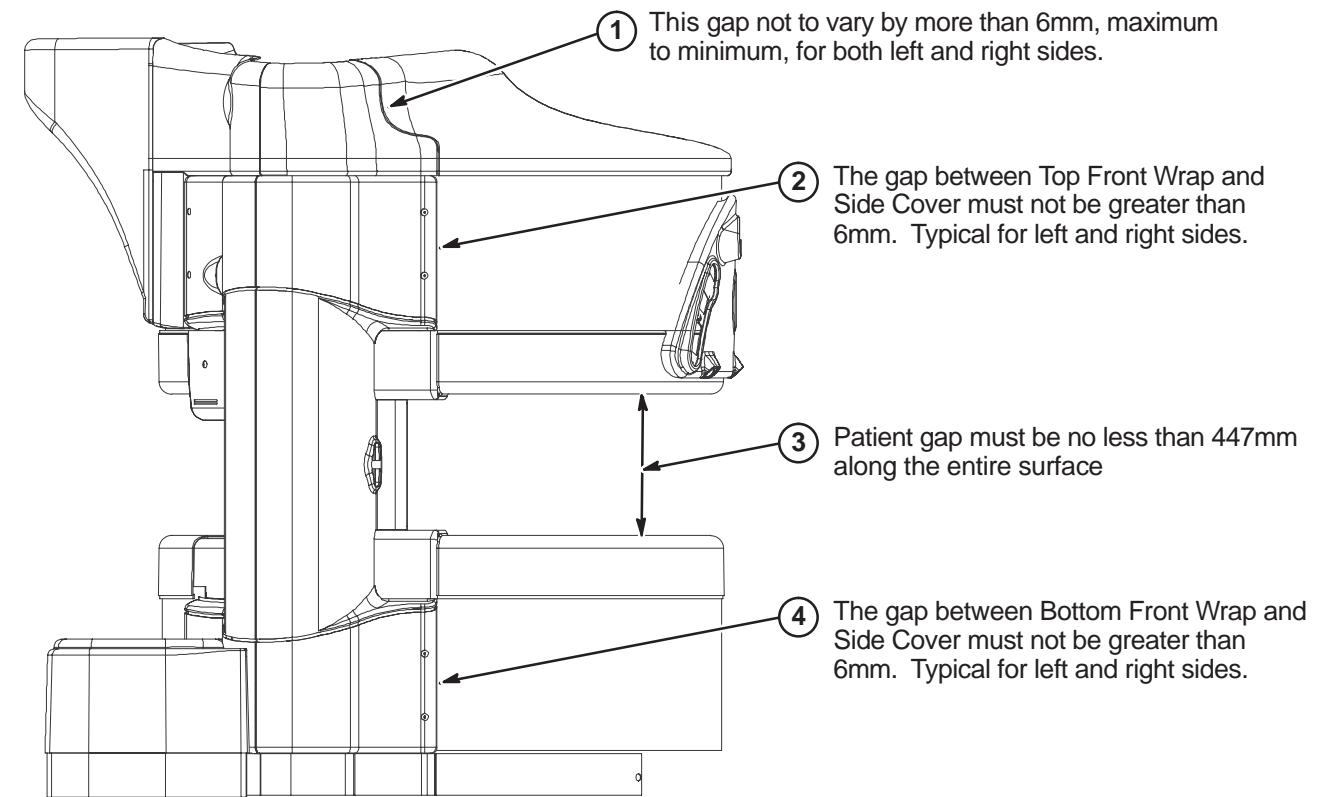
INSTALLATION PROCEDURES SUMMARY

- R1 – Front View Cover Gap Specifications
- R2 – Side View Cover Gap Specifications
- R3 – Rear View Cover Gap Specifications

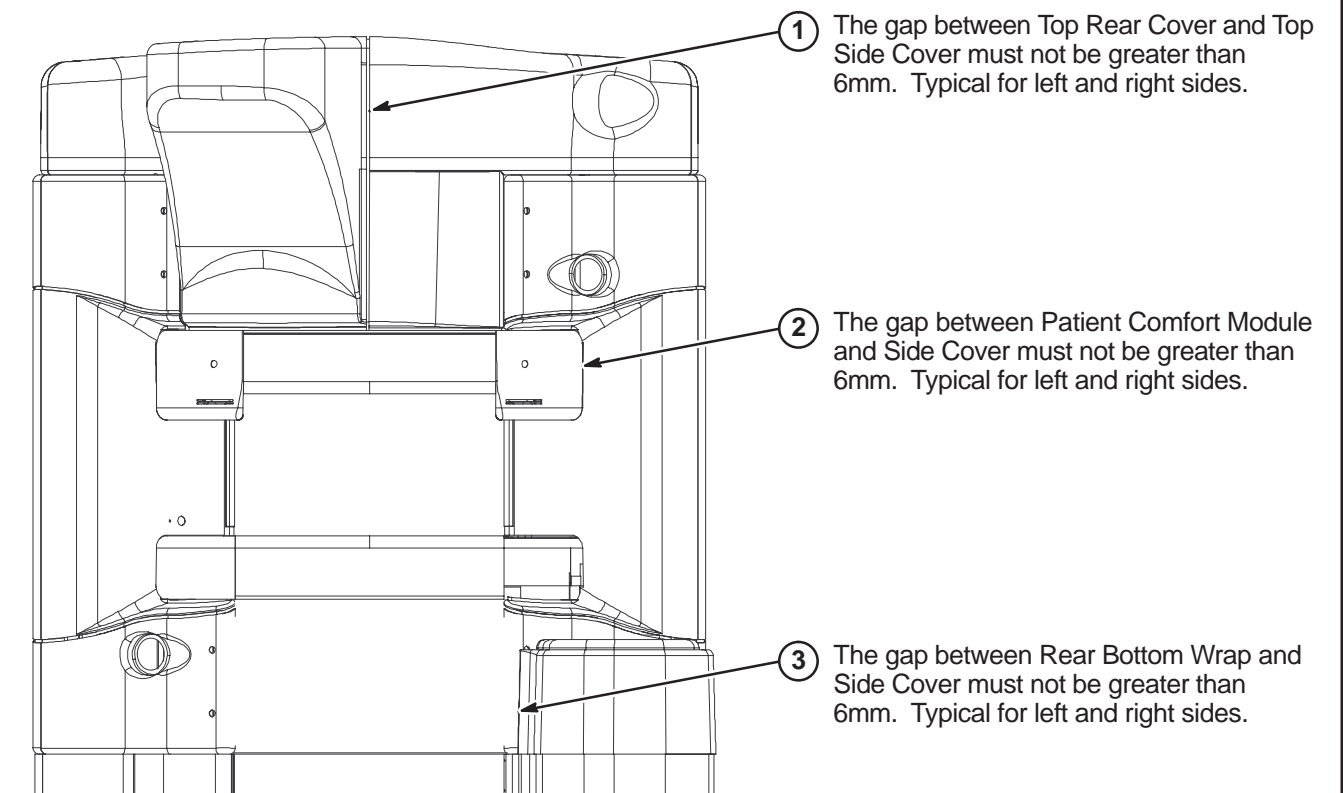
R1 – FRONT VIEW COVER GAP SPECIFICATIONS



R2 – SIDE VIEW COVER GAP SPECIFICATIONS



R3 – REAR VIEW COVER GAP SPECIFICATIONS



PATIENT TABLE INSTALLATION INSTRUCTIONS

1-1 Tab 5, System, contains installation instructions for the following:

- *PT1INA1.DOC* – Swing Table Install & Mechanical Center Alignment
- *PT2INA1.DOC* – Swing Table Style “B” Install & Mechanical Center Alignment
- *PT2INA2.DOC* – Swing Table Style “B” Wear Plate Installation

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1- FUNCTION AND PURPOSE

1-1 Function

The Swing Table as its name implies can be moved to a minus (-)25 degree position and a plus (+)25 degree position.

1-2 Purpose

This swinging action and the ability of the table to move laterally, left to right, allows the customer to center the anatomy of interest at ISO center thereby improving the Image Quality of the region of interest. These three positions, Plus 25 degrees, Minus 25 degrees and Zero, are designed to maintain clearance with the magnet support posts during normal scanning.

1-3 Limitations

The Signa® *OpenSpeed™* swing table system has three positions that can be used to position the patient for optimization of the scan. The table must be in one of these three fixed positions to enable scan. There is no accommodation for positional scanning between these 3 fixed points. Optimum image quality is attained at the zero center position of the Swing Table.



SWING TABLE
ILLUSTRATION 1-1

2- REQUIRED TOOLS

- 24 in. (60cm) Non-ferrous Carpenters Square or equivalent measuring device that provides a 90-degree reference angle.
- Non-ferrous Plumb Bob with 15 ft. (4m) of string.
- Approximately 60 in.(15cm) length of string
- Non-ferrous metric hexagon wrench set
- Drill motor with a 3/8 inch (8.0mm) chuck
- 3/8th inch drill bit (8.0mm)
- Adhesive tape (Masking Tape)
- 300ml tube construction adhesive or equivalent floor tile adhesive.
- Fiberglass tape measure or equivalent non-ferrous ruler.
- Razor blade knife.
- Denatured alcohol
- 1/8 inch (3.0mm) drill bit
- 7/16 inch drill bit (11.0mm)

Note:
This procedure covers the original " Style A" table.

3- ESTIMATE OF MAGNET MECHANICAL CENTER

3-1 Locating Magnet Mechanical Center reference point

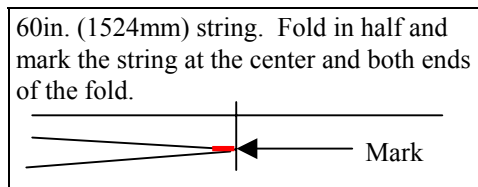
The Reference points established with the following procedure are accurate enough to place the Swing Table, Rail and the Wearplate correctly. The simplicity of using string and plumb bob eliminates complicated fixtures. Though string and non-ferrous flexible rulers can stretch, this should not significantly affect the calculations of the reference points. To increase clarity, the reference points discussed in each step are colored red in the electronic version.

3-2 Creating the String Gage and finding Physical Center.

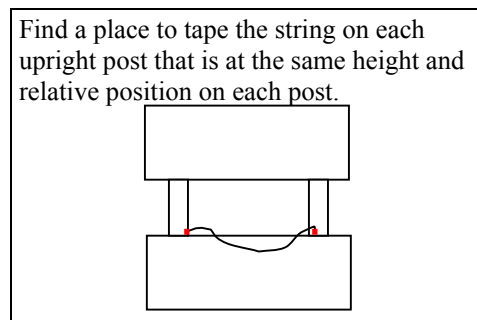
To correctly align the table to the magnet you must find 3 reliable points to measure from. These 3 points will define the Mechanical Center of the cryostat/Cover with relationship to the table and are critical to the placement of the Swing Table Rail and the Wearplate that the table rear wheels rides on.

Note:
The length of the string is not as important as the division mark you place on it.

1. Take the 60 inches (15cm) length of string and fold it in half.
2. Mark the exact center point (where the fold is) on the string and Identical marks on each side of the string. (See Illustration 3-1).
3. Find a smooth surface on the front of the Left Magnet downpost and tape one end of the string to the post just covering the mark on the end of the string. (See Illustration 3-2)
4. Find a smooth surface on the front of the Right Magnet downpost and tape one end of the string just covering the mark on the end of the string. Insure that the tape positions are in the same spot on each upright post. (See Illustration 3-2)



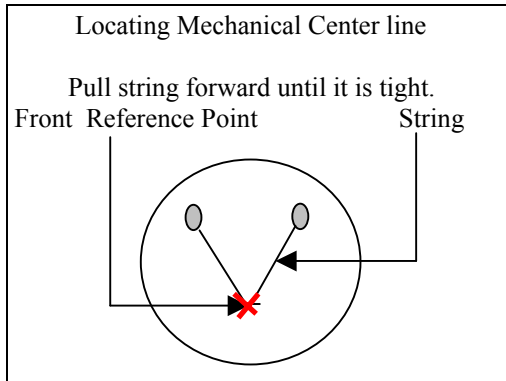
CENTER MARK ON STRING
ILLUSTRATION 3-1



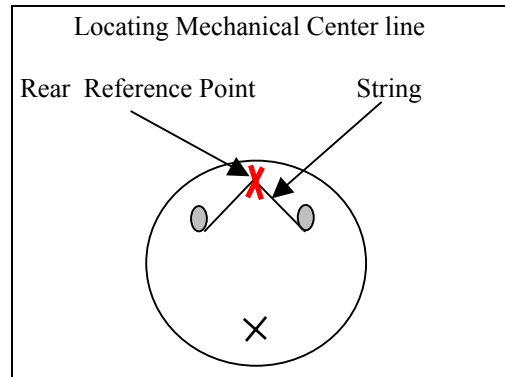
PLACEMENT OF STRING ON DOWNPOSTS
ILLUSTRATION 3-2

5. Pull the string tight to the front of the magnet and place a mark on the magnet cover directly beneath the mark you placed on the string (At the string fold) (see Illustrations 3-4, 3-5)

- Pull the string tight to the rear of the magnet and mark the rear reference point on the magnet. (see Illustrations 3-4, 3-5)

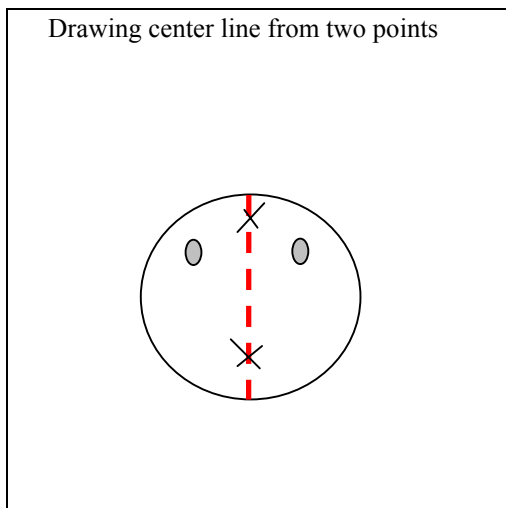


ESTABLISHING FRONT REFERENCE POINT
ILLUSTRATION 3-4

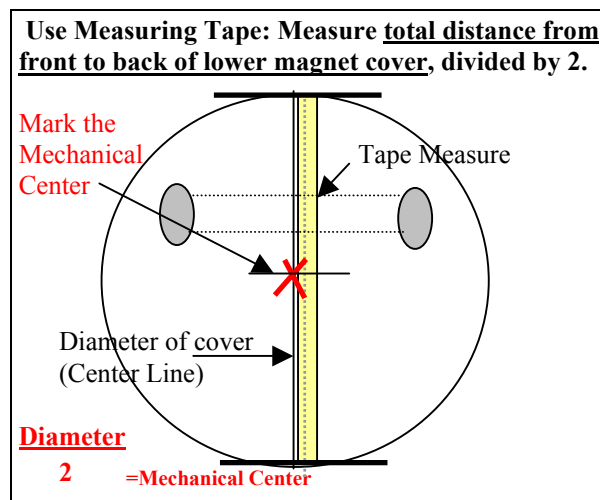


ESTABLISHING REAR REFERENCE POINT
ILLUSTRATION 3-5

- Using the two marks created in Illustrations 3-4 and 3-5, draw a straight line connecting them. To check your references, look at this line carefully. It should be parallel to the inside surface of the downposts and should project out of the front of the magnet. This line represents the exact center of the cradle and its travel through the downpost.
- Measure between the downposts at the front of the downpost and at the rear of the downposts. The Line you have created should be an equal distance between the downposts and square to it. (See Illustration 3-7)



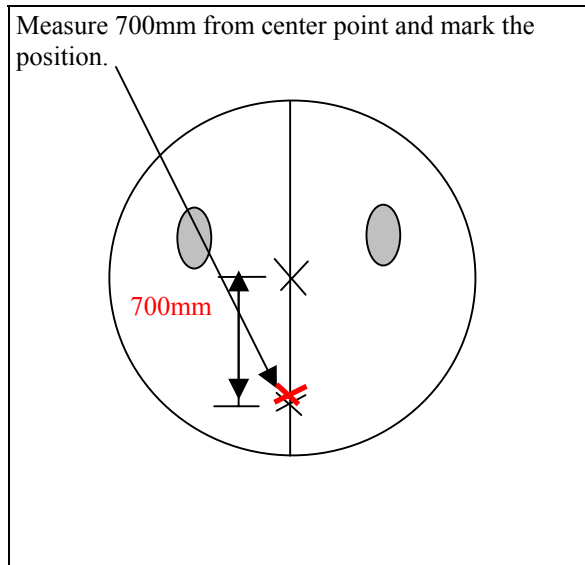
ESTABLISHING LONGITUDINAL LINE
ILLUSTRATION 3-6



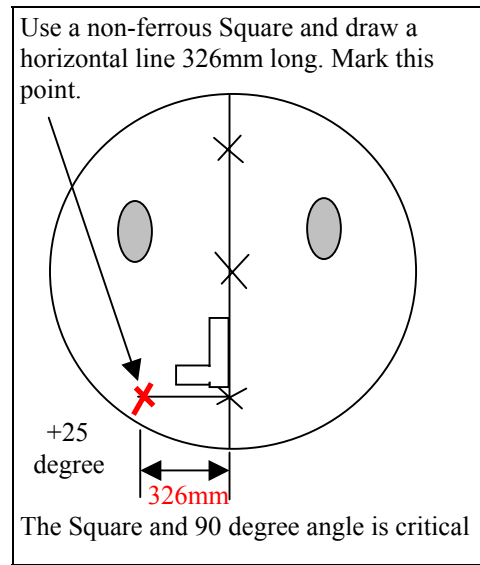
ESTABLISHING DIAMETER /MECHANICAL CENTER
ILLUSTRATION 3-7

- Measure along the line and determine the largest total distance of the circumference of the magnet cover. Divide that value by 2 and mark your Physical Center Point. (See Illustration 3-7).

- 10. Look at the Physical Center point created. Visually it should be very close to the center of the magnet cover. If the mark does not look like it is in the center of the lower magnet, recheck your work.
- 11. Create a mark on the lower magnet cover for the +/- 25 degree angle positions. Use Illustrations 3-8, 3-9 and 3-10 as your guide. You must use metric measurements only.



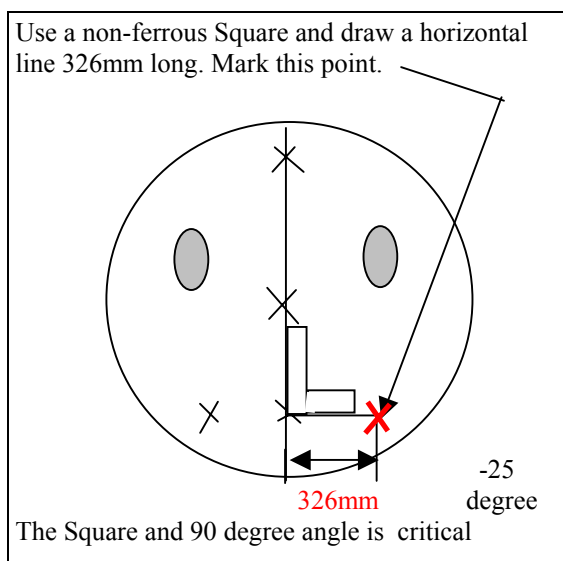
ESTABLISH ZERO DEGREE REFERENCE
ILLUSTRATION 3-8



ESTABLISH + 25 DEGREE REFERENCE
ILLUSTRATION 3-9

Note:

Using a Square insures an accurate projection for the +/- 25 degree position marks. Small errors here will translate into very large errors at the back of the table.



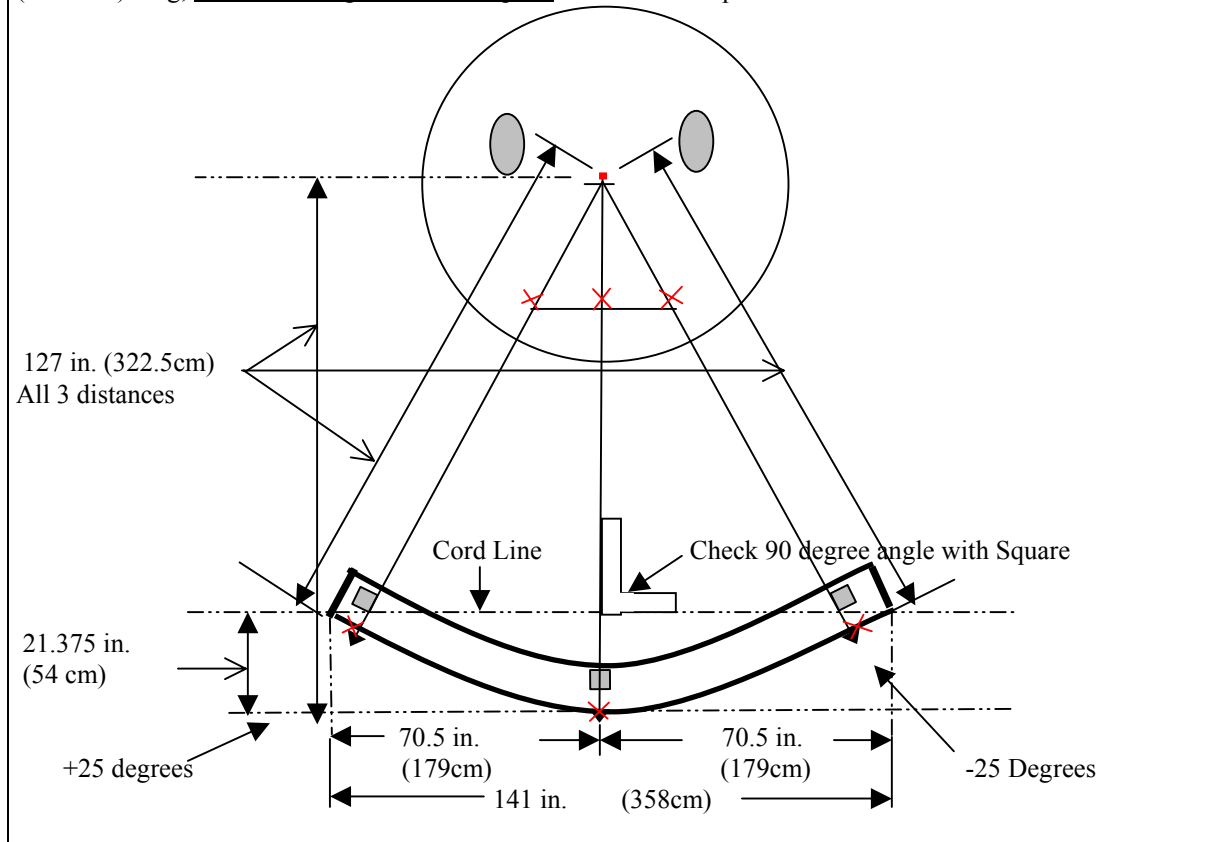
ESTABLISHING -25 DEGREE POSITION
ILLUSTRATION 3-10

12. Transfer the 3 marks you have made to the floor using a plumb bob and string. Mark these positions on the floor. (See illustration 3-11)



TRANSFERRING MARKS TO FLOOR
ILLUSTRATION 3-11

Use the plumb bob to transfer the Zero Reference point to the floor. Also use the string and plumb bob to project 3 straight lines from the Magnet Center reference Point. Make sure that you establish a straight line between all of the reference marks for Zero, -25 and +25 degree positions. The projected lines should all be 127 in. (322.5cm) long, to the back edge of the Wearplate. Mark those 3 positions on the floor.



LOCATING THE WEARPLATE
ILLUSTRATION 3-12

13. Use a ruler or tape measure. Measure along the black arrows indicated in Illustration 1-12. The distance between the Estimated Mechanical Center Point and the rear of the Wearplate should be 127 inches (322.5cm). Make sure you measure all three points.
14. To be sure that the skew of the Wearplate is correct, draw a chord line on the floor. Place a square on the chord line and insure that this line is 90 degrees to the Zero Reference line.

Important!

Failure to measure these 3 points correctly will result in an incorrect Wearplate installation. Correcting for possible skew in the Wearplate position is critical.

3-3 Wearplate Installation

1. Clean the Wearplate/Race and floor with denatured alcohol and place it in position. Outline the plate with a marker pen then, using adhesive tape (masking tape), tape the Wearplate in position to the floor. Cut the adhesive tape (masking tape) along the edge of the plate with a razor knife leaving an imprint of the Wearplate on the floor with the tape. The adhesive tape (masking tape) outline will be your guide to apply the glue and protect the surrounding floor from excess glue on the edge.



2. Glue the Wearplate into position. Apply enough glue to spread out a thin layer over the entire marked area. (See Illustration 1-3) Press the Wearplate in position. Recommendation: Allow glue to set for at least 24 hours before placing the table on it.

GLUING THE WEARPLATE TO THE FLOOR
ILLUSTRATION 3-13

4- INSTALLING THE SWING TABLE WEARPLATE

4-1 Wearplate Installation

The Swing table rides on the front rail and the Wearplate at the rear. The location of the plate is critical. Once the front rail is positioned correctly. You can locate the wearplate for installation on the floor. The wearplate should be installed before the finished floor is installed and the table is in place. It is approximately 0.125 inches (3mm) thick. The finished floor should be put in after the wearplate so it is flush with the finished flooring material.

4-2 Installation Of The Finished Flooring

After the Wearplate glue has cured (recommendation: allow glue to set for at least 24 hours before placing the table on it.) The flooring contractor can install the finished floor. The finished floor should be installed before physically installing the swing table.

5- MECHANICALLY INSTALLING AND CENTERING THE SWING TABLE RAIL

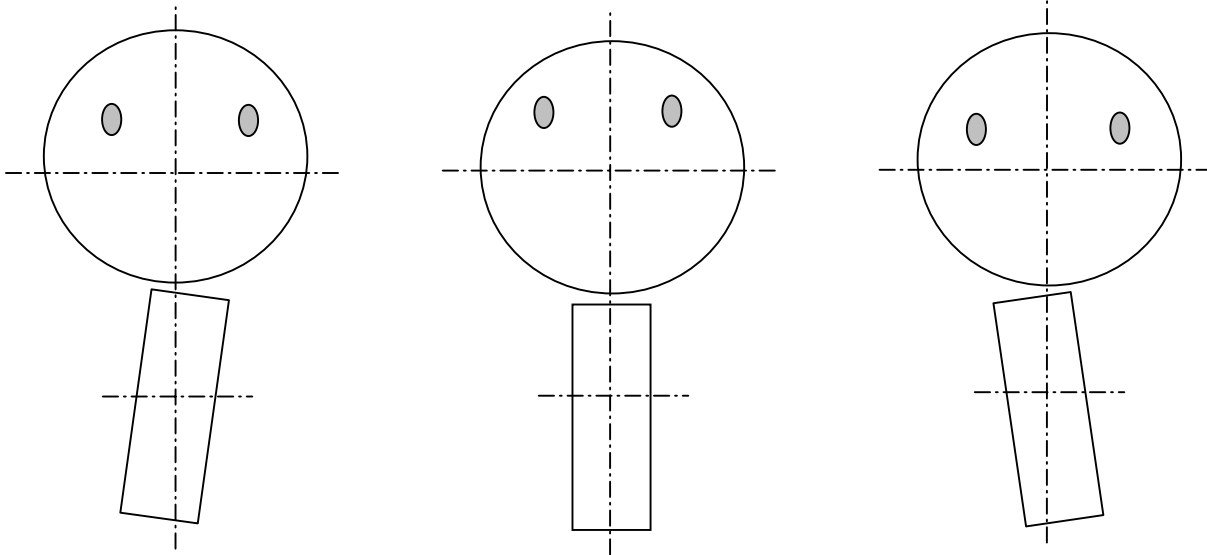
5-1 Positioning the Table Rail with relationship to the Magnet

The swing table Rail must be mechanically installed and adjusted to insure that the table will swing properly and clear the magnet at all three positions. Failure to correctly perform this procedure will result in a lack of image quality and possible physical interference with the magnet support posts while using the lateral function of the swing table. It is essential that this procedure be completed prior to installing the Enclosure and adjusting the laser align lights.

Incorrect Table Placement

CORRECT Table Placement

Incorrect Table Placement



RAIL ALIGNMENT AFFECTS TABLE SWING MOTION
ILLUSTRATION 5-1

5-2 Adjustments

The only adjustments you have to make sure the swing table swings clear of the front of the magnet, are slight changes in the position of the rail support that the front of the table rides on.

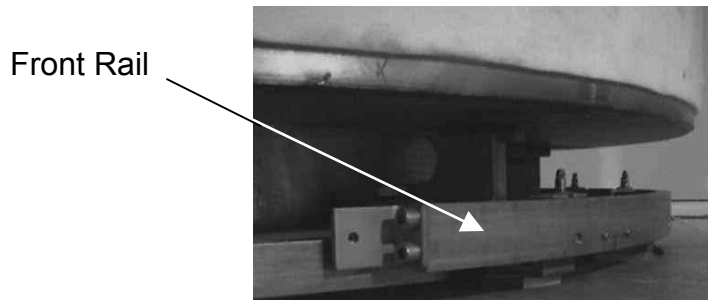


TABLE FRONT RAIL
ILLUSTRATION 5-2

5-3 Installing The Table Rail

The Table Rail mounting holes are oversized on purpose to provide adjustment of the Table Rail position relative to the magnet cryostat. In the following steps you will make several measurements to insure that final placement of the rail and its arc follow the same arc on the magnet cryostat.

1. Remove the table position switches from the Front Rail.

Note:

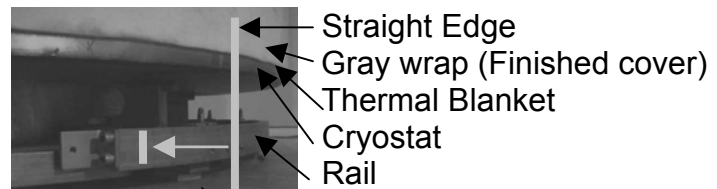
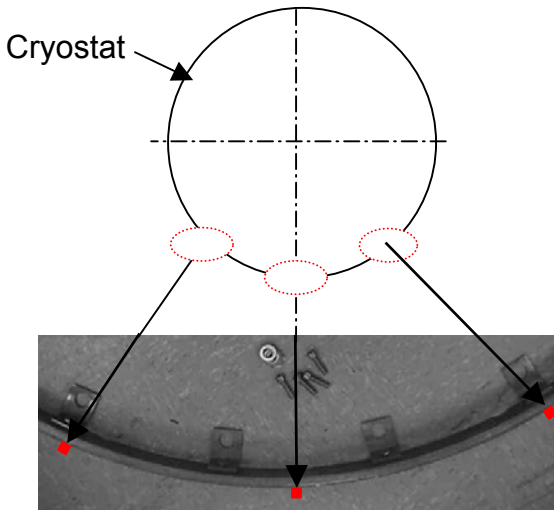
The table position switches may be damaged during install of the table. Remove the 3 switches from the front rail. Adjust them to their minimum height limit and set them aside.

Note:

The number of shims used should be the same at all sites. However, due to the variation of baseplate installation you may need to adjust the height of the Table Rail by adding or removing these shims at a later time.

2. Once the magnet is in place install the Table Rail to the front mounts on the magnet baseplate with the 4 bolts, washers and shims provided. Place an equal amount of shims under each bolt position. Hand tighten at this time.

It is important that the position of the Table Rail follows the same arc as the lower cryostat. The approximate distance that is indicated in illustration 5-3 is relative. (Actual specification not yet established.) Use the marks transferred from section 3. Step 7. (Zero, -25 + 25 degree marks on floor) as the reference point, for each measurement below.



O. D.	Target Position	Rail Pushed back Min. Value	Rail Pulled Forward Max. Value
With Blanket & gray wrap (As shown)	36.4mm 1-7/16 in	26.574mm 1-1/16 in	45.03mm 1-3/4 in
If you cannot attain these values see the Swing Table Troubleshooting Guide .			

STRAIGHT EDGE AND MEASUREMENT POINTS
Illustration 5-3

DISTANCES TO O.D. OF RAIL
Table 1-2

3. Using a measuring tape or rule, measure from the straight edge to the rail on both the left and right sides. Adjust the rail achieving equal distances on both sides and center points. Finish this process by tightening down the rail bolts.

6- INSTALLING THE SWING TABLE ON THE FRONT RAIL

6-1 Mounting the Table on the Front Rail

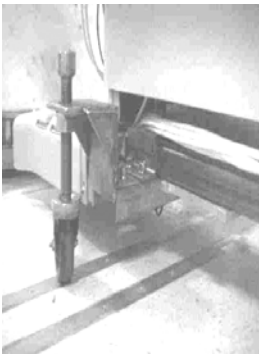
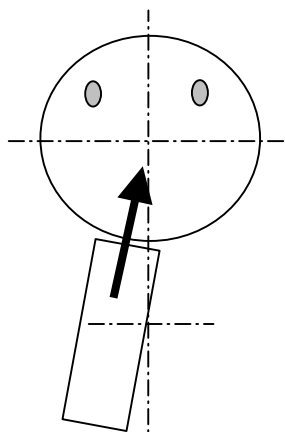


TABLE DOLLIES
ILLUSTRATION 5-4

1. Move the table into position using the shipping dollies attached.
2. Make sure the Table Position Switches have been removed. Also make sure they have been adjusted to their minimum height limit at this time.
3. Position the table at approximately 15 degrees off center. Carefully slide the cables under the magnet and retrieve them from the back of the magnet. Make sure they are pulled all the way through and temporarily tie wrap them together.

Note:

The Swing Table weighs approximately 750 lbs. If the cables are not pulled through and temporarily tie wrapped, they could get caught in the Table Rail and severed by the table swing motion.



CORRECT TABLE POSITION FOR TABLE INSTALLATION
ILLUSTRATION 5-5

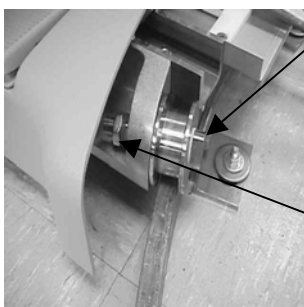


TABLE RAIL WHEEL
ILLUSTRATION 5-6

4. Remove the Rail Wheels from the front of the table and slowly slide the table under the magnet between the table Rail and the magnet itself. Use the shipping dollies to adjust for height clearance.
5. Once the table is in position, replace the table rail wheels and bolt them tight. Use the second safety lock nut to lock the bolt in position.

6. Using the shipping dollies, slowly drop the table into position.

7. Remove the dollies from the table.

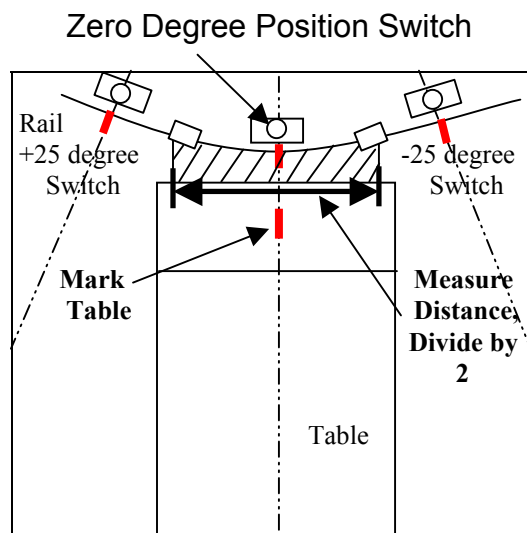
8. Remove the temporary tie wraps and connect the table cables to the mating cables at the rear of the magnet.
9. Locate the Position switches removed earlier. Make sure these 3 switches are adjusted to their minimum height limit before re-installing.
10. Mount all three of the position switches to the Table Front Rail. The exact switch location will be adjusted later. Connect the position switches to their respective cables. To prevent these cables from being cut by the table roller wheels and Front Rail, use ty-wraps or any other means to secure them out of the way. Failure to do this may cause damage to the cables.
11. Table Dolly Disposal
 - All United States Installs Only:
The table transport dollies should be returned as soon as possible. Shipping address:
MID-CONTINENT ENGINEERING, INC.
405- 35TH AVE NE
MINNEAPOLIS MN 55418-1126
INCLUDE REFERENCE TO: purchase order #P09878
 - All International Installs:
You may keep the dollies for future use as a service tool or dispose of locally.

7- INSTALLING THE WEARPLATE BRAKE LOCK PLATES

7-1 Centering the Swing table and adjusting the Zero degree position switch.

The center position switch is temporarily set at this time to allow for a test of the system during the Power Up procedure. This adjustment will be repeated when power is applied and the exact table swing positions are known.

1. Use the marks transferred from section 3. Step 7. (Zero, -25 + 25 degree marks on floor) as the reference point. It is important that the table be physically centered in the front of the magnet before adjusting the Zero degree Switch assembly on the table rail.



2. Using the measuring tape, measure the distance across the front of the table.
3. Divide that measurement by 2 and mark the table centerline.
4. Swing the table until the Center mark on the floor and the Center mark on the table line up.
5. Temporarily lock the table in position using the Table Brake at the rear of the table.
6. Temporarily adjust the Zero position switch.
This may require several movements of the table and switch. The switch will click at its proper location.

ALIGNING TABLE & MAGNET MECHANICAL CENTER
ILLUSTRATION 7-1

8- PLACEMENT OF THE TABLE BRAKE LOCK PLATES IN THE TABLE WEARPLATE.



Failure to insure that the cradle clears the Magnet Downposts at the -25 and + 25 degree positions, with the table laterally adjusted to 120mm before permanent placement of the Position Lock Plates will result in incorrect table positions.

Note:

This section requires power to the table for the first time. For Troubleshooting problems and Error Codes see the [\[Swing Table Troubleshooting Procedure\]](#).

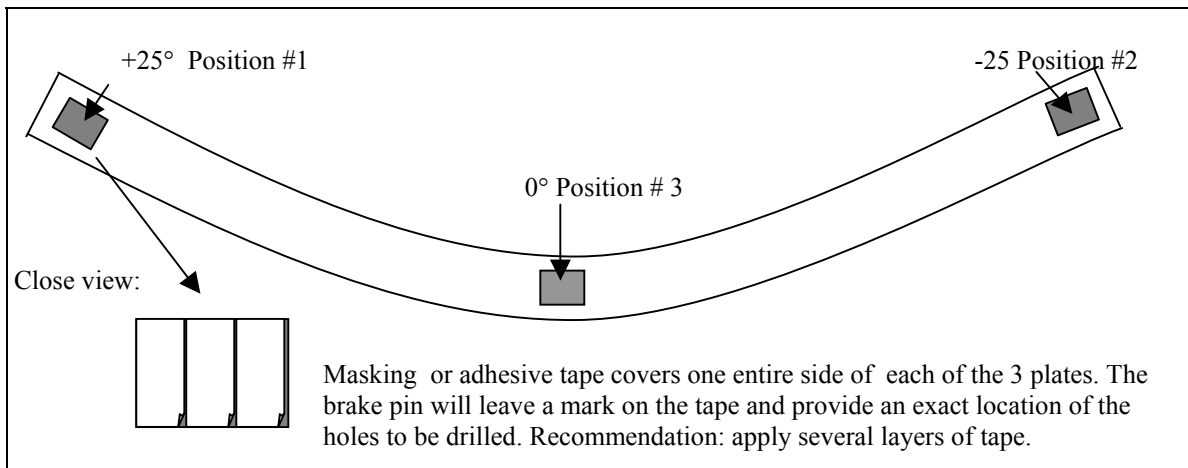
8-1 Marking the Table Brake Lock plates

Note:

The Cradle will need to be moved into the magnet for the next section. The system and Table must have power to perform the following steps.

1. The 3 plates needed in this section came with the Table Wearplate. Find them, and apply masking or adhesive tape across each of the plates, covering one side completely. The masking tape is essential. It will provide an exact indentation for the drilling of the Table Brake Locking Plate for each location. Place them in the 3 slots with tape facing up.

- Mark the -25 degree position as #1.
- Mark the +25 Degree position as #2.
- Mark the Zero degree position as #3.



MARKING THE TABLE POSITION LOCK PLATES
ILLUSTRATION 8-1

2. Move the table so it does not interfere with any of the Brake Lock Plate locations. Place a Table Brake Lock Plate into each of the three locations. These Locking Plates will now become unique to the position.
 - Mark the +25 degree position as #1.
 - Mark the -25 Degree position as #2.
 - Mark the Zero degree position as #3.
3. Use a pen or metal scribe, mark an Orientation Line on each plate as it relates to its position in the slot. (See illustration 8-2)
4. Move the Swing Table to the -25 Degree Position.
5. Use the hand crank. Drive the cradle laterally to -120 mm position. Drive the table into the magnet. Insure that there is sufficient clearance between the Magnet Downposts and the cradle. If not, swing the table until there is no interference between the cradle and the Magnet Downposts.

Note:

It is critical that the cradle longitudinal movement does not interfere with the Magnet Downposts prior to marking the Table Brake lock Plates. Failures to insure sufficient clearance exists for the cradle at both -25 and +25 degree positions before marking the plates, will result in cradle longitudinal drive interference problems later.

6. Apply the brake. This will make a mark on the masking or adhesive tape, where the brake engaged. DO NOT RELEASE THE BRAKE UNTIL STEP 7 HAS BEEN DONE!

Adjustment of the -25 Degree Rail Switch at the front of the table:

7. At this time with the brake engaged, adjust the -25 degree switch at the front of the table behind the rail. Adjust the switch to the left or right until it just activates. This may require several movements of the switch. Listen for the click. Also, notice that the error [8888] will disappear from the magnet display. The error code will only disappear when its correct position switch is engaged, the brake is ON and the lateral position of the table is at the -120mm position.
8. Release the brake and move the table. The Brake Lock Plate should have a mark caused by the brake, on the masking or adhesive tape. Make sure the Brake Lock Plate and the slot it is placed in, are marked with the same number (1), and Orientation mark. You must insure each Brake Lock plate goes back in the correct slot.
9. Move the Swing Table to the +25 Degree Position.
10. Use the hand crank. Drive the cradle laterally +120mm position. Drive the table into the magnet. Insure that there is sufficient clearance between the Magnet Downposts and the cradle. If not, swing the table until there is no interference between the cradle and the Magnet Downposts.

11. Apply the brake. This will make a mark on the masking tape where the brake is engaged. **DO NOT RELEASE THE BRAKE UNTIL STEP 12 HAS BEEN DONE!**

Rough adjustment of the +25 Degree Rail Switch at the front of the table:

12. At this time with the brake engaged, adjust the +25 degree switch at the front of the table behind the rail. Adjust the switch to the left or right until it just activates. This may require several movements of the switch. Listen for the click. Also, notice that the error [8888] will disappear from the magnet display. The error code will only disappear when its correct position switch is engaged, the brake is ON and the lateral position of the table is at the +120mm position.
13. Release the brake and move the table. The Brake Lock Plate should have a mark caused by the brake, on the masking tape. Make sure the Brake Lock Plate and the slot it is placed in, are marked with the same number (2), and Orientation mark.
14. Swing the table to the Zero degree position. Using the hand crank, move the cradle until the lateral indicator reads Zero (0) mm. As a check, drive the cradle between the downposts. The cradle should move between the downposts with relative equal distances on both sides. Drive the cradle back to its Home position on the table.
15. Apply the brake. The error [8888] should disappear on the magnet display. The error code will only disappear if the correct position switch is engaged, the brake is ON and the lateral position of the table is at the +120mm position.
16. Release the brake and move the table. The Brake Lock Plate should have a mark caused by the brake, on the masking tape. Make sure the Brake Lock Plate and the slot it is placed in are marked with the same number (3), and Orientation mark.

8-2 Drilling the Table Brake Lock Plates

At present, the plates are made out of stainless steel, and require an 11mm hole drilled at the mark determined in the last section. Stainless steel is difficult to drill. Insure you clamp the plate down so it will not spin or cause injury. For accuracy and safety this must be done in 3 steps:

1. Using a 3.0 mm drill bit, (1/8th inch) drill the first pilot hole.
2. Change to the 8.0 mm, (3/8th inch) drill bit and enlarge the pilot hole.
3. Change to an 11.0 mm (7/16th inch) drill bit and enlarge the hole to its finished size.

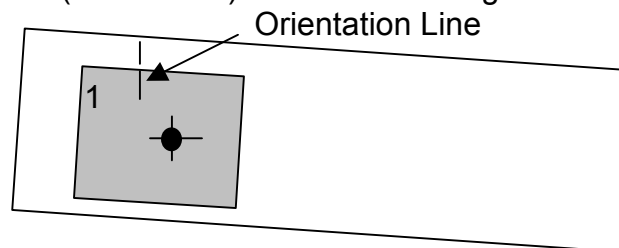


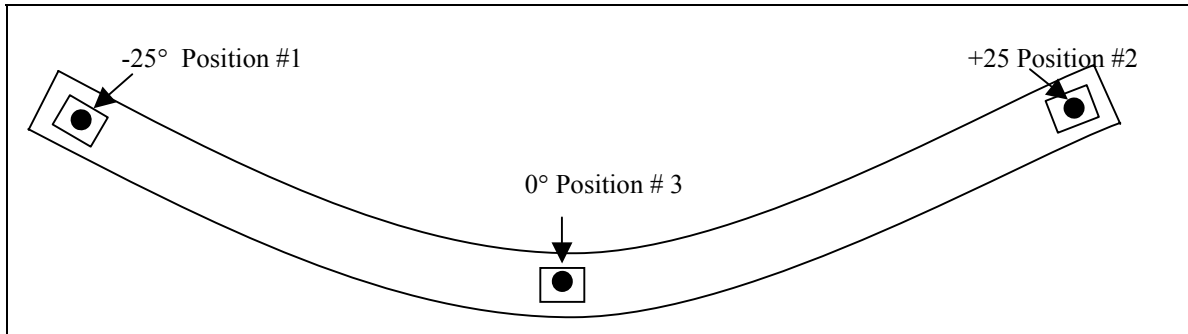
TABLE BRAKE LOCK PLATE
ILLUSTRATION 8-2

Note:

The holes may not be in the center of the plate.

8-3 Gluing the Table Lock Plates into Position

1. All three plates should be drilled and marked with their proper orientation and numbered position. Using a flooring adhesive or construction glue, glue each plate into position. Allow 24 hours to dry.



GLUE THE TABLE BRAKE LOCK PLATES INTO POSITION
ILLUSTRATION 8-3

8-4 Position Switch Adjustment Check

Note

The following adjustments need to be done only if the Table Position Switches have been moved or replaced.

1. With the table at the Zero degree position, lock the brake into its proper hole, and adjust the cradle laterally to Zero (0)mm. With the switch not adjusted properly you will get a [8888] error condition on the magnet display.

Zero degree position switch.



1. If necessary, loosen the mount on the zero degree position switch. With a non-ferrous hexagon wrench.
2. Adjust the switch to the left or right until it clicks, closing the circuit. (If the system is powered up, the Magnet Display and laser alignment system will activate and the error condition [8888] will disappear). Tighten the screws. If it does not you may have a combination problem refer to the [Swing Table Troubleshooting](#) procedure for additional help.
3. Repeat steps 1 and 2 for the -25 degree and +25 Switch degree positions.

ZERO DEGREE CENTER POSITION
ILLUSTRATION 8-4

4. Check all three positions, by swinging the table and locking it into all three positions. Insure that the Magnet Display and the Laser alignment lights activate at each position and no error condition is displayed. If they do not, repeat the Position Switch adjustment procedure until this is corrected, or refer to the [Swing Table Troubleshooting](#) procedure for additional help finding the problem.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	Aug. 1, 2000	D. Hofstetter	Initial version.
B	Aug. 18, 2000	D.Hofstetter	Modified Illustrations and added clearer language.
C	Sept. 18, 2000	D.Hofstetter	Modified sequence and added metric measurements.
D	Oct. 6, 2000	D.Hofstetter	Added measurements for wearplate. Added Mid-Continent address.
0	Oct 19, 2000	D. Hofstetter	Corrected measurements. Removed " symbols.
1	Feb 21, 2001	D. Hofstetter	Red Color tagged marks and moved the installation of the table position switches to a time after the table is physically installed. Added table 1-2. This table gives dimensions between the front table rail and the cryostat. Also added reference to table shipping dollies disposal for International Installations. Corrected measurement conversions from inch to cm.
2	Oct 9, 2002	D. Hofstetter	Corrected references to the +/- Positions.

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1- FUNCTION AND PURPOSE

1-1 Function

The Swing Table as its name implies can be moved to a minus (-)25 degree position and a plus 25 degree position.

1-2 Purpose

Table swing action allows the customer to center the anatomy of interest at ISO center thereby improving the Image Quality of the region of interest. There are three scan positions, Plus 25 degrees, Minus 25 degrees and Zero.

1-3 Limitations

The Signa® *OpenSpeed™* swing table system has three positions that can be used to optimize scanning. The table must be in one of these three fixed positions to enable scan.

There are two styles. They can be differentiated by the rear wheel position. This procedure covers the installation of STYLE B.



STYLE "A" WHEEL CONFIGURATION

STYLE "B" WHEEL CONFIGURATION

ILLUSTRATION 1-1

Note

This procedure covers Style B.

2- REQUIRED TOOLS

- 24 in. (60cm) Non-ferrous Carpenters Square or equivalent measuring device that provides a 90-degree reference angle.
- Non-ferrous Plumb Bob with 15 ft. (4m) of string.
- Approximately 60 in.(15cm) length of string
- Non-ferrous metric hexagon wrench set
- Drill motor with a 3/8 inch (8.0mm) chuck
- 3/8th inch drill bit (8.0mm)
- Adhesive tape (Masking Tape)
- 300ml tube construction adhesive or equivalent floor tile adhesive.
- Fiberglass tape measure or equivalent non-ferrous ruler.
- Razor blade knife.
- Denatured alcohol
- 1/8 inch (3.0mm) drill bit
- 7/16 inch drill bit (11.0mm)

3- WEARPLATE INSTALLATION- STRING METHOD

Note

This section should only be performed if the Table Template is NOT available on site. If a table template is available on site, skip to section 4 of this procedure.

3-1 Locating Magnet Mechanical Center reference point

The Reference points established with the following procedure are accurate enough to place the Swing Table, Rail and the Wearplate correctly. The simplicity of using string and plumb bob eliminates complicated fixtures. Though string and non-ferrous flexible rulers can stretch, this should not significantly affect the calculations of the reference points. To increase clarity, the reference points discussed in each step are colored red in the electronic version.

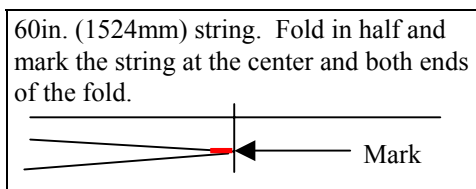
3-2 Creating the String Gage and finding Physical Center.

To correctly align the table to the magnet you must find 3 reliable points to measure from. These 3 points will define the Mechanical Center of the cryostat/Cover with relationship to the table and are critical to the placement of the Swing Table Rail and the Wearplate that the table rear wheels rides on.

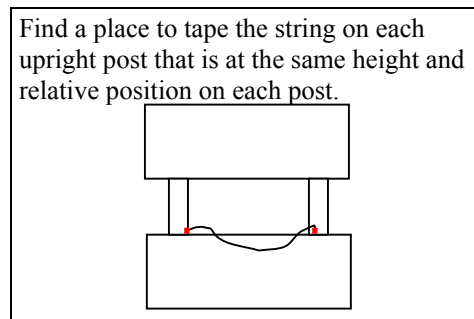
Note:

The length of the string is not as important as the division mark you place on it.

1. Take the 60 inches (1524mm) length of string and fold it in half.
2. Mark the exact center point (where the fold is) on the string and identical marks on each side of the string. (See Illustration 3-1).
3. Find a smooth surface on the front of the Left Magnet upright post and tape one end of the string to the post just covering the mark on the end of the string. (See Illustration 3-2)
4. Find a smooth surface on the front of the Right Magnet downpost and tape one end of the string just covering the mark on the end of the string. Make sure that the tape positions are in the same spot on each upright post. (See Illustration 3-2)



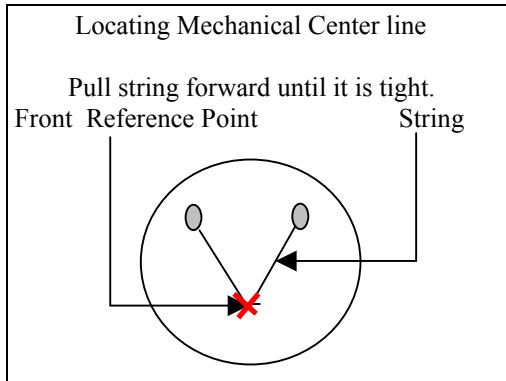
CENTER MARK ON STRING
ILLUSTRATION 3-1



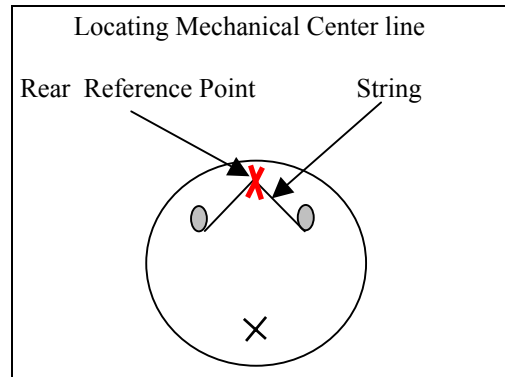
PLACEMENT OF STRING ON DOWNPOSTS
ILLUSTRATION 3-2

5. Pull the string tight to the front of the magnet and place a mark on the magnet cover directly beneath the mark you placed on the string (At the string fold) (see Illustrations 3-4, 3-5)

- Pull the string tight to the rear of the magnet and mark the rear reference point on the magnet. (see Illustrations 3-4, 3-5)

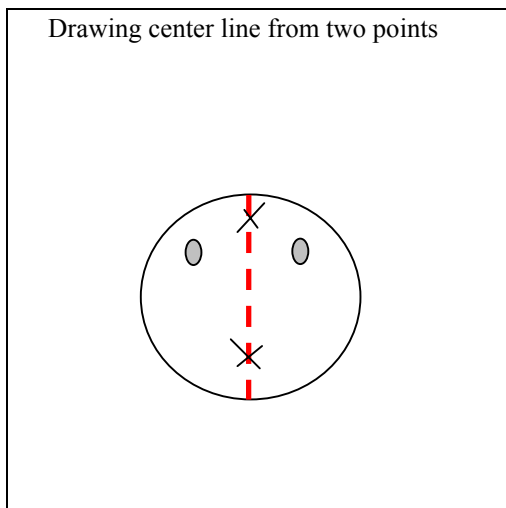


ESTABLISHING FRONT REFERENCE POINT
ILLUSTRATION 3-4

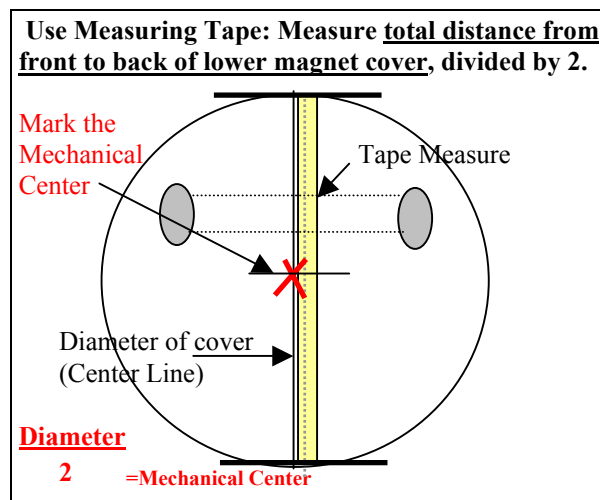


ESTABLISHING REAR REFERENCE POINT
ILLUSTRATION 3-5

- Using the two marks created in Illustrations 3-4 and 3-5, draw a straight line connecting them. To check your references, look at this line carefully. It should be parallel to the inside surface of the downposts and should project out of the front of the magnet. This line represents the exact center of the cradle and its travel through the downpost.
- Measure between the downposts at the front of the downpost and at the rear of the downposts. The Line you have created should be an equal distance between the downposts and square to it. (See Illustration 3-7)



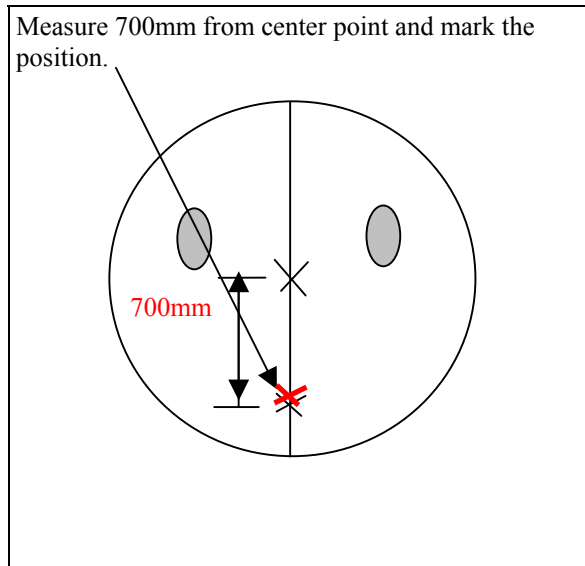
ESTABLISHING LONGITUDINAL LINE
ILLUSTRATION 3-6



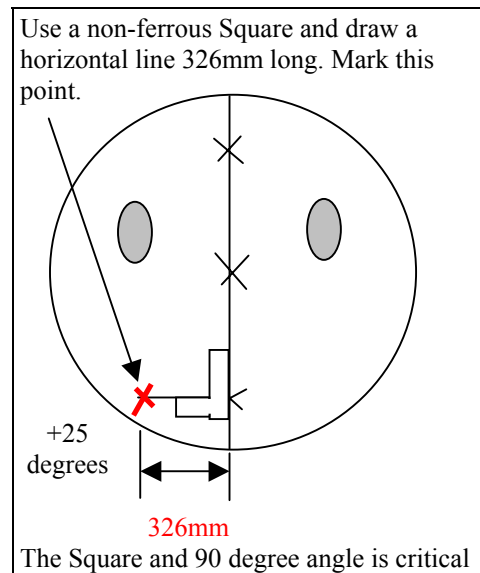
ESTABLISHING DIAMETER /MECHANICAL CENTER
ILLUSTRATION 3-7

- Measure along the line and determine the largest total distance of the circumference of the magnet cover. Divide that value by 2 and mark your Physical Center Point. (See Illustration 3-7).

10. Look at the Physical Center point created. Visually it should be very close to the center of the magnet cover. If the mark does not look like it is in the center of the lower magnet face, recheck your work.
11. Create a mark on the lower magnet cover for the +/- 25 degree angle positions. Use Illustrations 3-8, 3-9 and 3-10 as your guide. You must use metric measurements only.



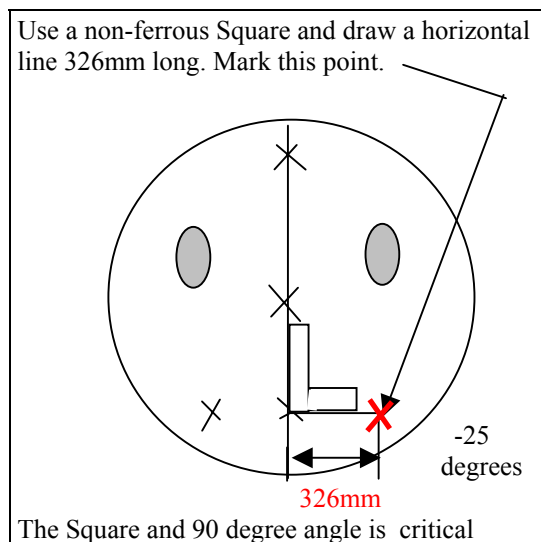
ESTABLISH ZERO DEGREE REFERENCE
ILLUSTRATION 3-8



ESTABLISH +25 DEGREE REFERENCE
ILLUSTRATION 3-9

Note:

Make sure projection for the +/- 25 degree position marks are accurate by using a Square. Small errors here will translate into very large errors at the back of the table.



ESTABLISHING -25 DEGREE POSITION
ILLUSTRATION 3-10

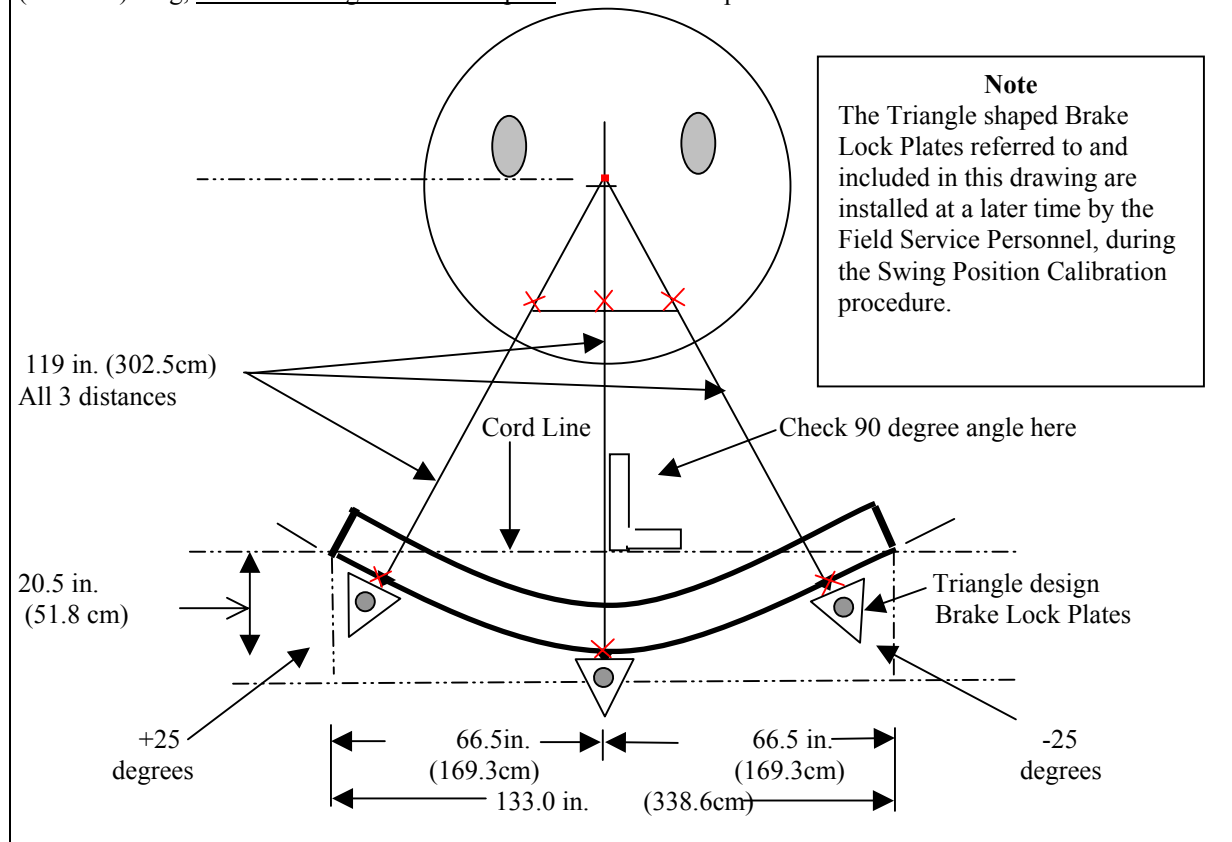
12. Transfer the 3 marks you have made to the floor using a plumb bob and string. Mark these positions on the floor. (See illustration 3-11)



TRANSFERING MARKS TO FLOOR

ILLUSTRATION 3-11

Use the plumb bob to transfer the Zero Reference point to the floor. Also use the string and plumb bob to project 3 straight lines from the Magnet Center reference Point. Make sure that you establish a straight line between all of the reference marks for Zero, -25 and +25 degree positions. The projected lines should all be 119.0 in. (302.5cm) long, to the back edge of the Wearplate. Mark those 3 positions on the floor.



LOCATING THE WEARPLATE
ILLUSTRATION 3-12

13. Use a ruler or tape measure. Measure along the black arrows indicated in Illustration 3-12. The distance between the Estimated Mechanical Center Point and the rear of the Wearplate should be 119.0 inches (302.5cm). Make sure you measure all three points.
14. Make sure that the skew of the Wearplate is correct, draw a chord line on the floor. Place a square on the chord line and make sure that this line is 90 degrees to the Zero Reference line.

Important!

Failure to measure these 3 points correctly will result in an incorrect Wearplate installation. Correcting for possible skew in the Wearplate position is critical.

4- WEARPLATE INSTALLATION - USING THE TABLE TEMPLATE

Note

Use this section to install the Table Wearplate. If you do not have a Table Template, use the measurement methods described in Section 3 of this procedure to install the Table wearplate.

4-1 Identifying Wearplate Style

1. Determine which wearplate style you have:
 - "A" style is the original style with 3 rectangle cutouts in the Wearplate itself.
 - "B" style is the new one with 3 triangle plates and NO rectangle cutouts in the wearplate at all.
2. Open the template and align the 4 marks at the top of the template with the 4 holes that will be used to mount the table front rail. (These are marked as E Holes on magnet template)
 - a. Plateless Installs:
 1. These 4 holes will be pre-drilled in the floor, and are located directly under the front part of the magnet.
 - b. Steel Plate Installs:

Some sites may have a stainless steel magnet mounting plate on the floor.

 1. These 4 holes will be pre-drilled in the steel plate, and will be located directly under the front part of the magnet.

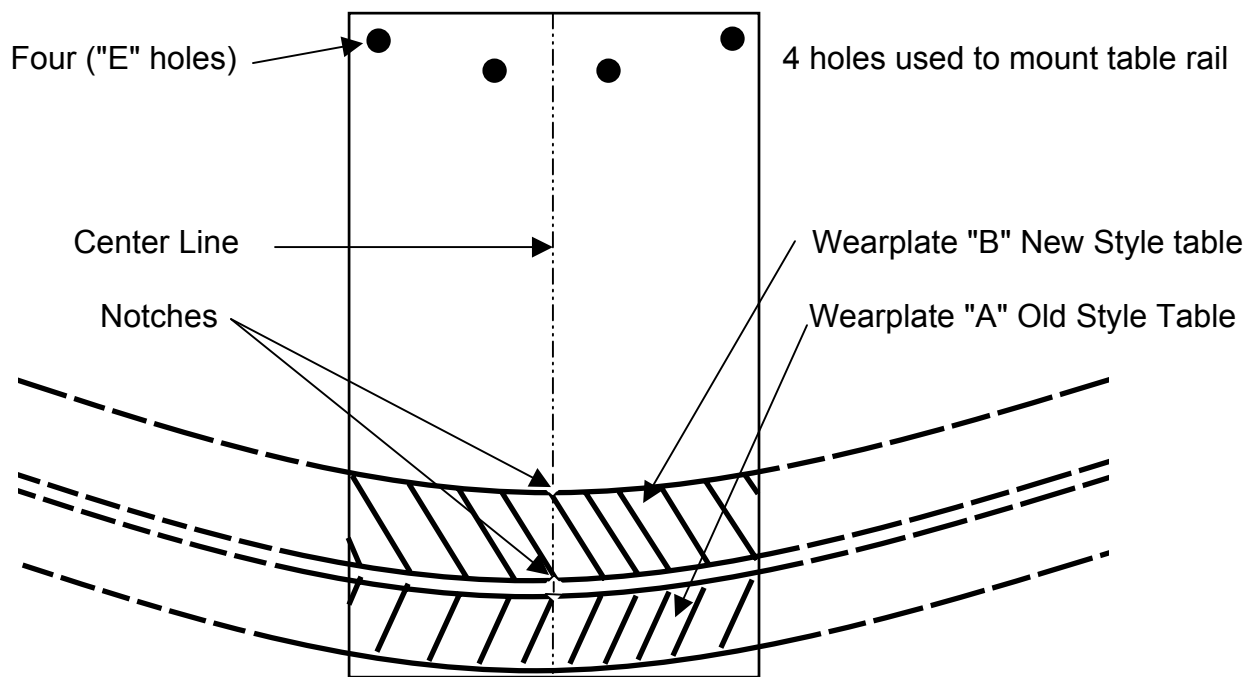


TABLE TEMPLATE (2298110-2)
ILLUSTRATION 4-1

1. Line up the curvature of the wearplate with the corresponding imprint on the template.

- a. For the "A" style wearplate there is enough curvature on the template to provide proper left/right centering and should eliminate any skew problems with the wearplate. Make sure you place the wearplate carefully within the lines on the template.
- b. For the "B" style wearplate there are 2 small notches that are the centerline of the wearplate (Refer to illustration 4-1). Line these two notches up with the center reference line on the template to correctly align the wearplate left/right and eliminate possible skew. Make sure you place the wearplate carefully within the lines on the template.

4-2 Checking Table Wearplate Skew

This has proven to be a "Non issue" as long as you use the template for either the "A" or "B" style cable.

1. You can check this if necessary, with the measurement procedure in Section 3.

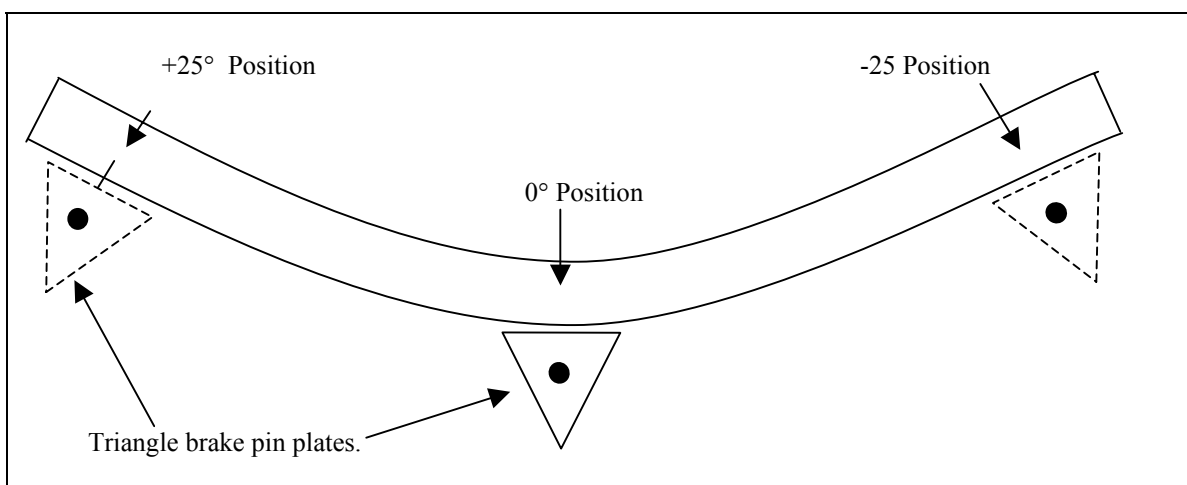
Note

Actual installation and location of the three triangle shaped brake lock plates will be done during calibration of the swing table positions later.

2. The 3 pre-drilled triangle shaped Brake lock Plates will be needed later in the installation process. Set them aside. **DO NOT LOSE THEM.** Illustration 4-2 has been provided here, to give you an understanding of where these brake lock plates will be eventually installed.

Note

Do not install these three triangle brake lock plates at this time. Their proper location is critical to valid swing positions and will be installed during the [Swing Position Switch & Brake Plate Calibration Procedure](#).



EVENTUAL POSITION OF THE TABLE BRAKE LOCK PLATES
ILLUSTRATION 4-2

4-3 Wearplate Installation

The Swing Table rides on the Front Rail and the Wearplate at the rear of the table. The location of the wearplate is critical. When using the template to install the wearplate, line up the Centerline it provides with the small grooves on the wearplate.

The Wearplate should be mounted in a manner that would put its top surface flush with the finished floor. Flooring material must be removed (If present) or installed flush to the wearplate. The wearplate is 0.125 inches (3mm) thick.

1. Clean the Wearplate and floor with denatured alcohol and place it in position. Outline the plate with a marker pen then, using adhesive tape (masking tape), tape the Wearplate in position to the floor. Cut the adhesive tape (masking tape) along the edge of the plate with a razor knife leaving an imprint of the Wearplate on the floor with the tape. The adhesive tape (masking tape) outline will be your guide to apply the glue and protect the surrounding floor from excess glue on the edge.



2. Glue the Wearplate into position. Apply enough glue to spread out a thin layer over the entire marked area. (See Illustration 4-3) Press the Wearplate in position. Add weights if necessary. Recommendation: Allow glue to set for at least 24 hours before placing the table on it.

GLUING THE WEARPLATE/RACE TO THE FLOOR
ILLUSTRATION 4-3

4-4 Installation of The Finished Flooring

After the glue has cured (recommendation: allow glue to set for at least 24 hours before placing the table on it.) The flooring contractor can install the finished floor, providing the material can be cut away for the final installation of the Triangle shaped Brake lock Plates. (See Illustration 4-2). These three triangle shaped Brake lock Plates must be installed later to properly calibrate the three swing positions. This is done by GE Field Personnel. Refer to [Swing Position Calibration](#) procedure. The finished floor under the table must be installed before physically installing the swing table, and the magnet is ramped to minimize working in a magnetic field.

5- MECHANICALLY INSTALLING AND CENTERING THE SWING TABLE RAIL

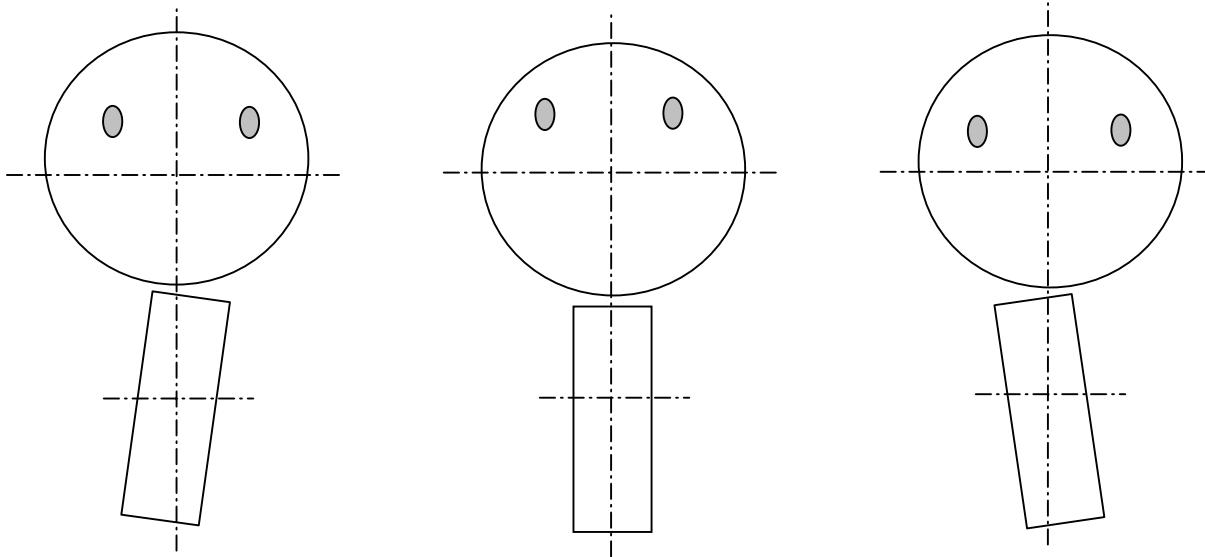
5-1 Positioning the Table Rail with relationship to the Magnet

The swing table Rail must be mechanically installed and adjusted to insure that the table will swing properly and clear the magnet at all three positions.

Incorrect Table Placement

CORRECT Table Placement

Incorrect Table Placement



RAIL ALIGNMENT AFFECTS TABLE SWING MOTION
ILLUSTRATION 5-1

5-2 Adjustments

The only adjustments you have to insure the table swings clear of the front of the magnet, are slight changes in the position of the rail support that the front of the table rides on.

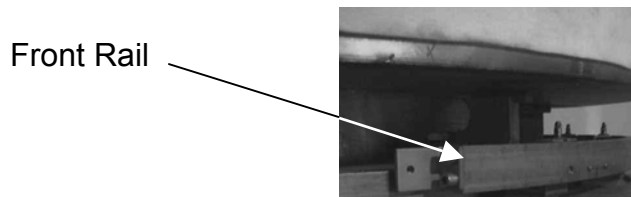


TABLE FRONT RAIL
ILLUSTRATION 5-2

5-3 Installing The Table Rail

The Table Rail mounting holes are oversized on purpose to provide adjustment of the Table Rail position relative to the magnet cryostat. In the following steps you will make several measurements to insure that final placement of the rail and its arc follow the same arc on the magnet cryostat.

1. Remove the table position switches from the Front Rail.

Note:

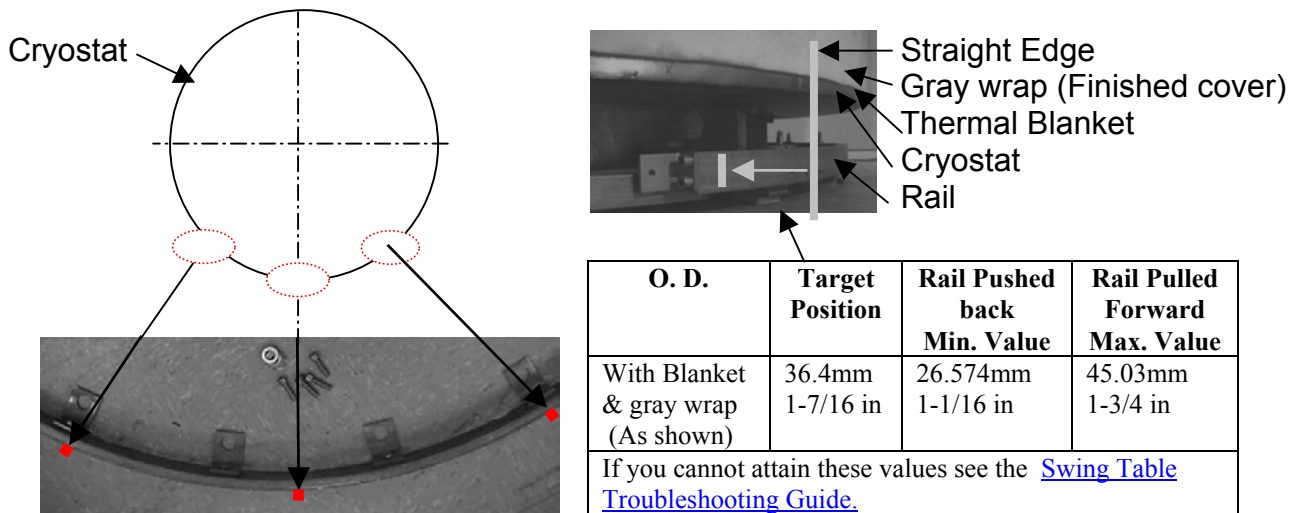
The table position switches may be damaged during install of the table. Remove the 3 switches from the front rail. Adjust them to their minimum height limit and set them aside.

Note:

The number of shims used should be the same at all sites. However, due to the variation of baseplate installation you may need to adjust the height of the Table Rail by adding or removing these shims at a later time.

- Once the magnet is in place install the Table Rail to the front mounts on the magnet baseplate with the 4 bolts, washers and shims provided. Place an equal amount of shims under each bolt position. Hand tighten at this time.

It is important that the position of the Table Rail follows the same arc as the lower cryostat. The approximate distance that is indicated in illustration 5-3 is relative. (Actual specification not yet established.)



O. D.	Target Position	Rail Pushed back Min. Value	Rail Pulled Forward Max. Value
With Blanket & gray wrap (As shown)	36.4mm 1-7/16 in	26.574mm 1-1/16 in	45.03mm 1-3/4 in
If you cannot attain these values see the Swing Table Troubleshooting Guide .			

STRAIT EDGE AND MEASUREMENT POINTS
Illustration 5-3

DISTANCES TO O.D. OF RAIL
Table 1-2

- Using a measuring tape or rule, measure from the straight edge to the rail on both the left and right sides. Adjust the rail achieving equal distances on both sides and center points. Finish this process by tightening down the rail bolts.

6- INSTALLING THE SWING TABLE ON THE FRONT RAIL.

6-1 Mounting the Table on the Front Rail

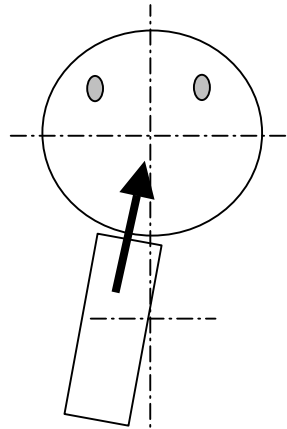


TABLE DOLLIES
ILLUSTRATION 5-4

- Move the table into position using the shipping dollies attached.
- Make sure the Table Position Switches have been removed. Also make sure they have been adjusted to their minimum height limit at this time.
- Position the table at approximately 15 degrees off center. Carefully slide the cables under the magnet and retrieve them from the back of the magnet. Make sure they are pulled all the way through and temporarily ties wrap them together.

Note:

The Swing Table weighs approximately 850 lbs. If the cables are not pulled through and temporarily tie wrapped, they could get caught in the Table Rail and severed by the table swing motion.



CORRECT TABLE POSITION FOR TABLE INSTALLATION
ILLUSTRATION 5-5

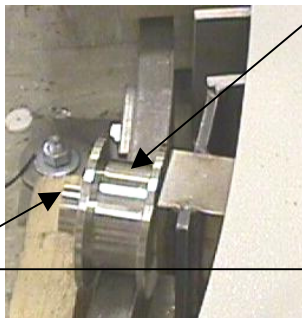


TABLE RAIL WHEEL
ILLUSTRATION 5-6

4. Remove the Rail Wheels from the front of the table and slowly slide the table under the magnet between the table Rail and the magnet itself. Use the shipping dollies to adjust for height clearance.

5. Once the table is in position, replace the table rail wheels and bolt them tight. Use the second safety lock nut to lock the bolt in position.

6. Using the shipping dollies, slowly drop the table into position.

7. Remove the dollies from the table.

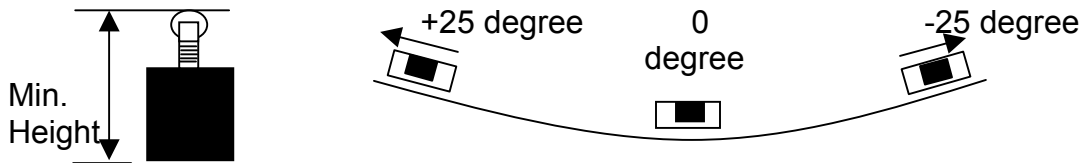
8. Remove the temporary tie wraps and connect the table cables to the mating cables at the rear of the magnet.

6-2 Re-installing The Three Table Position Switches

1. Make sure the roller mechanisms on all 3 position switches have been adjusted to their minimum height limit before reinstalling these switches. (See illustration 6-1)

2. Mount all three of the position switches to the Table Front Rail. The exact switch location will be adjusted later. Connect the position switches to their respective cables. To prevent these cables from being cut by the table roller wheels and Front Rail, use ty-wraps or any other means to secure them out of the way. Failure to do this may cause damage to the cables.

3. Adjust the +25 degree switch and -25 degree switch to their extreme outside positions. (See illustration 1-6) bellow.



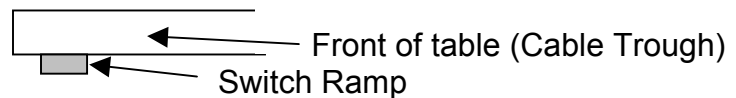
POSITION SWITCH ADJUSTED TO EXTREME OUTSIDE LIMIT OF ITS LATERAL ADJUSTMENT
ILLUSTRATION 6-1

6-3 Testing/Checking the Table Swing Function for the First Time

Note

Two people are required for this test. Failure to observe the table movement at the front of the magnet may cause severed cables and or damage to the table rail assembly.

1. One person should slowly swing the table to the left, while the other observes the movement of the table wheels on its mounting rail. Swing the table until the switch assembly is directly under the ramp that would contact the roller on the top of the switch. Watch for any interference with position switch cables.



SWITCH ACTUATOR RAMP
ILLUSTRATION 6-2

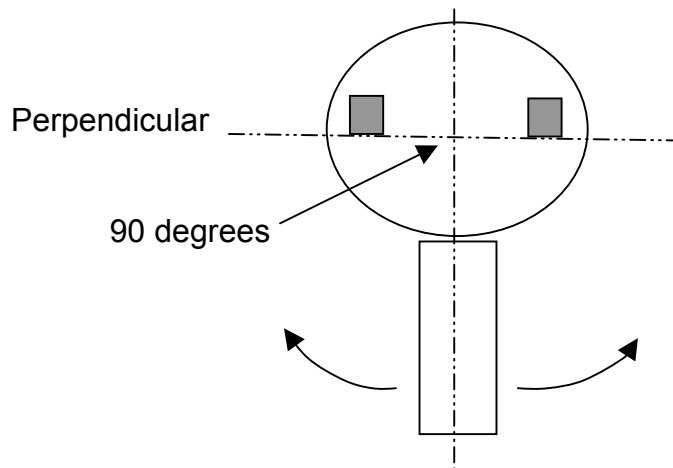
2. Make sure nothing interferes with the travel of the table front wheels. Repeat this test/check of the table swinging motion by swinging the table to the right.
3. Return the table to the Zero (0) degree position, and lock the table in this position with the brake pedal.

7- ROUGH ADJUSTMENT OF ZERO(0) +25 AND -25 DEGREE POSITION SWITCHES

7-1 Centering the Swing Table and Adjusting the Zero Degree Position Switch.

The center position switch is temporarily set at this time to allow for a test of the system during the Power Up procedure. This adjustment will be repeated and refined when power is applied and the exact table swing positions are known.

1. Adjust the table to make it as perpendicular as possible to the downposts. (See illustration 7-1) Ensure the table brake is set. (Recommendation: Use a nonferrous straight edge across the downposts. Use a Square to establish a 90-degree angle and project that line to the back of the table. Adjust the table left/Right accordingly).



PERPENDICULAR LINES
ILLUSTRATION 7-1

Note

The Position switches must be adjusted so that they are actuated when their rollers come in contact with the Switch Ramp on the underside of the front of the table. If these switches are adjusted too high, they can be damaged when the table swings over them.

2. Temporarily adjust the Zero position switch. You will need to adjust the left/right position of the switch and the height of the roller so that it actuates when rolling across the switch ramp. Refer to illustration 6-1 for a view of the switch ramp. This is located under the front of the table under the cable trough. This may require several movements of the table and switch. The switch will click at its proper location.

7-2 Adjusting the +25 Degree Position Switch

This adjustment will be fined tuned at a later time in the calibration process.

Note

The Position switches must be adjusted so that they are actuated when their rollers come in contact with the Switch Ramp on the underside of the front of the table. If these switches are adjusted too high, they can be damaged when the table swings over them.

1. Swing the table to the +25 degree position. Approximate this position by using the switch installed in Section 6. (Refer to illustration 6-1) Move the table so the switch ramp is directly over the roller of the switch.
2. Temporarily adjust the +25 degree position switch. You will need to adjust the left/right position of the switch and the height of the roller so that it actuates when rolling across the switch ramp. Refer to illustration 6-1 for a view of the switch ramp. This is located under the front of the table under the cable trough. This may require several movements of the table and switch. The switch will click at it proper location.

7-3 Adjusting the -25 Degree Position Switch

This adjustment will be fined tuned at a later time in the calibration process.

Note

The Position switches must be adjusted so that they are actuated when their rollers come in contact with the Switch Ramp on the underside of the front of the table. If these switches are adjusted too high, they can be damaged when the table swings over them.

3. Swing the table to the -25 degree position. Approximate this position by using the switch installed in Section 6. (Refer to illustration 6-1) Move the table so the switch ramp is directly over the roller of the switch.
4. Temporarily adjust the -25 degree position switch. You will need to adjust the left/right position of the switch and the height of the roller so that it actuates when rolling across the switch ramp. Refer to illustration 6-1 for a view of the switch ramp. This is located under the front of the table under the cable trough. This may require several movements of the table and switch. The switch will click at it proper location.
5. At this point, all three switches should be installed and actuating when the table is moved through all three locations.

8- TABLE DOLLY DISPOSAL

All United States Installs Only:

The table transport dollies should be returned as soon as possible. Shipping address:

MID-CONTINENT ENGINEERING,INC.

405- 35TH AVE NE

MINNEAPOLIS MN 55418-1126

INCLUDE REFERENCE TO: purchase order #P09878

- All International Installs:
You may keep the dollies for future use as a service tool or dispose of locally.

REVISION HISTORY

REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
A	Sep 11, 2001	D. Hofstetter	Table Style B Initial version.
0	Dec 7, 2001	D. Hofstetter	Removed the Brake Lock Plate installation since it is now done separately and is covered in the Swing Position Calibration procedure. (pt2sca2.doc/pdf)
1	Oct 9, 2002	D. Hofstetter	Fixed references to +/- positions.

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1- FUNCTION AND PURPOSE

1-1 Function

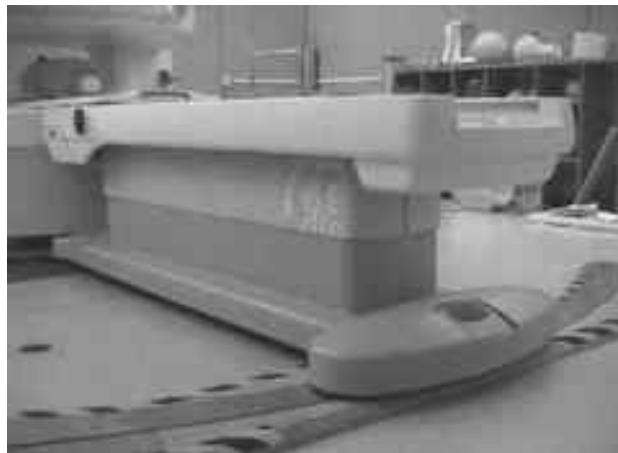
The Swing Table as its name implies can be moved to a minus (-)25 degree position and a plus 25 degree position.

1-2 Purpose

This swinging action and the ability of the table to move laterally, left to right, allows the customer to center the anatomy of interest at ISO center thereby improving the Image Quality of the region of interest. These three positions, Plus 25 degrees, Minus 25 degrees and Zero, are designed to maintain clearance with the magnet support posts during normal scanning.

1-3 Limitations

The Signa® *OpenSpeed™* swing table system has three positions that can be used to position the patient for optimization of the scan. The table must be in one of these three fixed positions to enable scan. There is no accommodation for positional scanning between these 3 fixed points. Optimum image quality is attained at the zero center position of the Swing Table.



SWING TABLE
ILLUSTRATION 1-1

2- REQUIRED TOOLS

- 24 in. (60cm) Non-ferrous Carpenters Square or equivalent measuring device that provides a 90-degree reference angle.
- Non-ferrous Plumb Bob with 15 ft. (4m) of string.
- Approximately 60 in.(15cm) length of string
- Non-ferrous metric hexagon wrench set
- Drill motor with a 3/8 inch (8.0mm) chuck
- 3/8th inch drill bit (8.0mm)
- Adhesive tape (Masking Tape)
- 300ml tube construction adhesive or equivalent floor tile adhesive.
- Fiberglass tape measure or equivalent non-ferrous ruler.
- Razor blade knife.
- Denatured alcohol
- 1/8 inch (3.0mm) drill bit
- 7/16 inch drill bit (11.0mm)

3- WEARPLATE INSTALLATION - USING THE TABLE TEMPLATE

Note

Use this section to install the Table Wearplate. If you do not have a Table Template. Use the measurement methods described in Section 4 of this procedure to install the Table wearplate.

3-1 Identifying Wearplate Style

1. Determine which wearplate style you have:
 - "A" style is the original style with 3 rectangle cutouts in the wear plate itself.
 - "B" style is the new one with 3 triangle plates and NO rectangle cutouts in the wearplate at all.
2. Open the template and align the 4 marks at the top of the template with the 4 holes that will be used to mount the table front rail. (These are marked as E Holes on magnet template)
 - a. Plateless Installs:
 1. These 4 holes will be pre-drilled in the floor, and are located directly under the front part of the magnet.
 - b. Steel Plate Installs:

Some sites may have a stainless steel magnet mounting plate on the floor.

 1. These 4 holes will be pre-drilled in the steel plate, and will be located directly under the front part of the magnet.

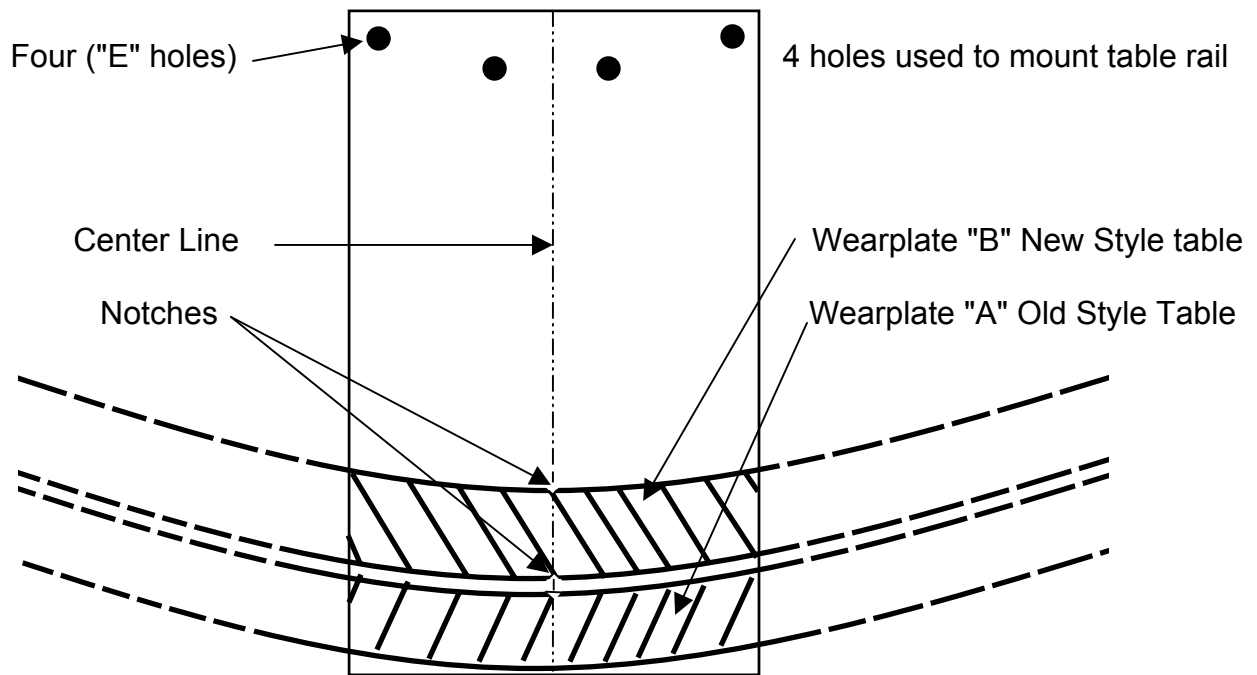


TABLE TEMPLATE (2298110-2)
ILLUSTRATION 3-1

1. Line up the curvature of the wearplate with the corresponding imprint on the template.

- a. For the "A" style wearplate there is enough curvature on the template to provide proper left/right centering and should eliminate any skew problems with the wearplate. Make sure you place the wearplate carefully within the lines on the template.
- b. For the "B" style wearplate there are 2 small notches that are the centerline of the wearplate (Refer to illustration 3-1). Line these two notches up with the center reference line on the template to correctly align the wearplate left/right and eliminate possible skew. Make sure you place the wearplate carefully within the lines on the template.

3-2 Checking Table Wearplate Skew

This has proven to be a "Non issue" as long as you use the template for either the "A" or "B" style cable.

- 1. You can check this if necessary, with the measurement procedure in Section 4.

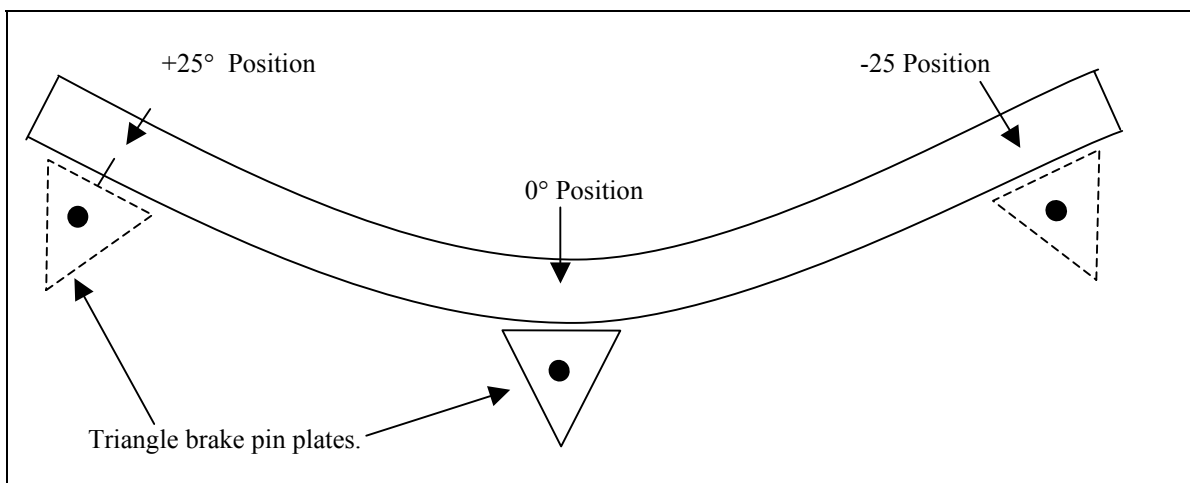
Note

Actual installation and location of the three triangle shaped brake lock plates will be done during calibration of the swing table positions later.

- 2. The 3 pre-drilled triangle plates will be needed later in the installation process. Set them aside. **DO NOT LOSE THEM.** Illustration 3-2 has been provided here, to give you an understanding of where these brake lock plates will be eventually installed.

Note

Do not install these three triangle brake lock plates at this time. Their proper location is critical to valid swing positions and will be installed during the Swing Position Calibration Procedure.



EVENTUAL POSITION OF THE TABLE BRAKE LOCK PLATES
ILLUSTRATION 3-2

4- WEARPLATE INSTALLATION - USING THE STRING METHOD

4-1 Locating Magnet Mechanical Center reference point

The Reference points established with the following procedure are accurate enough to place the Swing Table, Rail and the Wear plate correctly. The simplicity of using string and plumb bob eliminates complicated fixtures. Though string and non-ferrous flexible rulers can stretch, this should not significantly affect the calculations of the reference points. To increase clarity, the reference points discussed in each step are colored red in the electronic version.

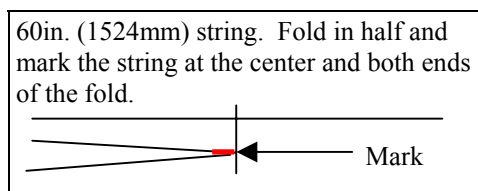
4-2 Creating the String Gage and finding Physical Center.

To correctly align the table to the magnet you must find 3 reliable points to measure from. These 3 points will define the Mechanical Center of the cryostat/Cover with relationship to the table and are critical to the placement of the Swing Table Rail and the Wear Plate that the table rear wheels ride on.

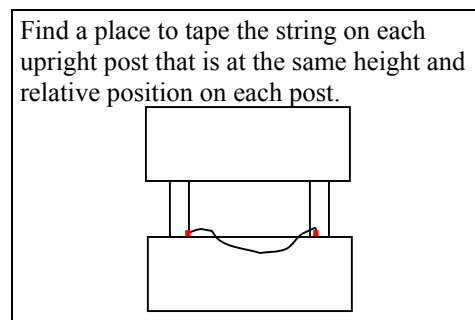
Note:

The length of the string is not as important as the division mark you place on it.

1. Take the 60 inches (15cm) length of string and fold it in half.
2. Mark the exact center point (where the fold is) on the string and Identical marks on each side of the string. (See Illustration 4-1).
3. Find a smooth surface on the front of the Left Magnet upright post and tape one end of the string to the post just covering the mark on the end of the string. (See Illustration 4-2)
4. Find a smooth surface on the front of the Right Magnet upright post and tape one end of the string just covering the mark on the end of the string. Insure that the tape positions are in the same spot on each upright post. (See Illustration 4-2)

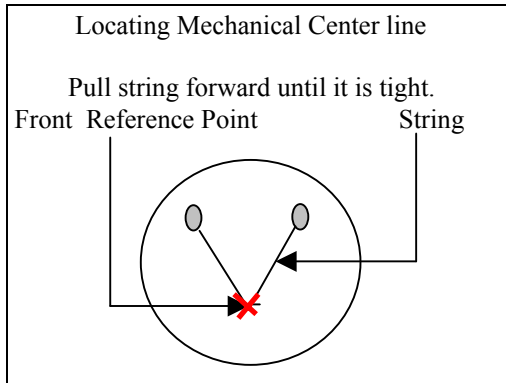


CENTER MARK ON STRING
ILLUSTRATION 4-1

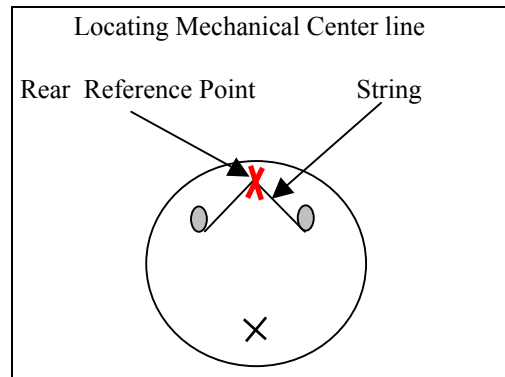


PLACEMENT OF STRING ON DOWNPOSTS
ILLUSTRATION 4-2

5. Pull the string tight to the front of the magnet and place a mark on the magnet cover directly beneath the mark you placed on the string (At the string fold) (see Illustrations 4-4, 4-5)
6. Pull the string tight to the rear of the magnet and mark the rear reference point on the magnet. (see Illustrations 4-4, 4-5)

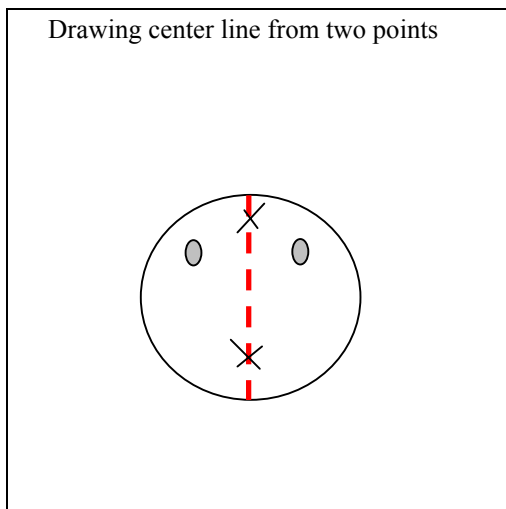


ESTABLISHING FRONT REFERENCE POINT
ILLUSTRATION 4-4

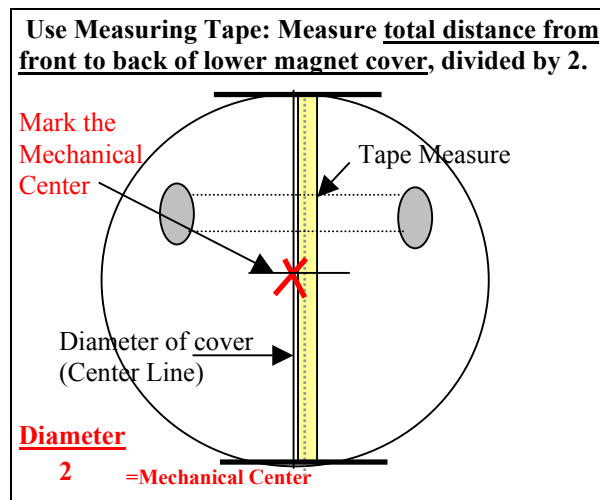


ESTABLISHING REAR REFERENCE POINT
ILLUSTRATION 4-5

7. Using the two marks created in Illustrations 4-4 and 4-5, draw a straight line connecting them. To check your references, look at this line carefully. It should be parallel to the inside surface of the downposts and should project out of the front of the magnet. This line represents the exact center of the cradle and its travel through the downpost.
8. Measure between the downposts at the front of the downpost and at the rear of the downposts. The Line you have created should be an equal distance between the downposts and square to it. (See Illustration 4-7 : : : : :)



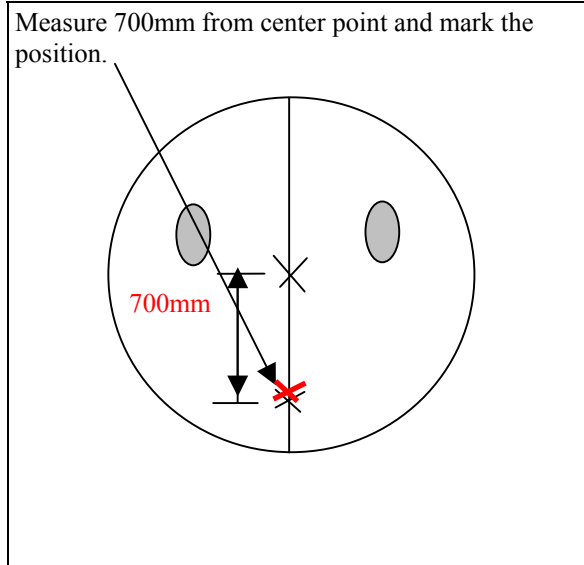
ESTABLISHING LONGITUDINAL LINE
ILLUSTRATION 4-6



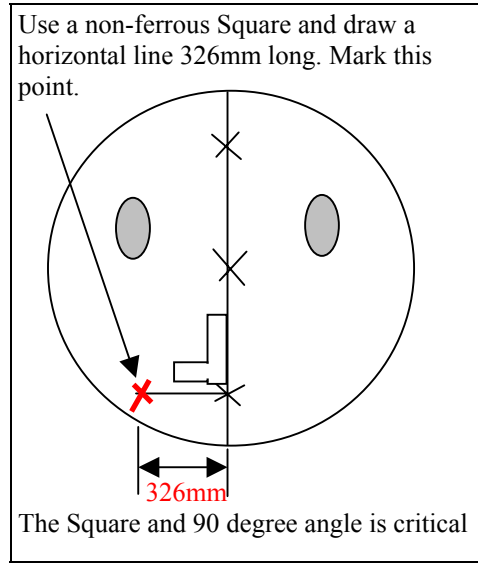
ESTABLISHING DIAMETER /MECHANICAL CENTER
ILLUSTRATION 4-7

9. Measure along the line and determine the largest total distance of the circumference of the magnet cover. Divide that value by 2 and mark your Physical Center Point. (See Illustration 4-7).
10. Look at the Physical Center point created. Visually it should be very close to the center of the magnet cover. If the mark does not look like it is in the center of the lower magnet, recheck your work.
11. Create a mark on the lower magnet cover for the +/- 25 degree angle positions. Use

Illustrations 4-8, 4-9 and 4-10 as your guide. You must use metric measurements only.



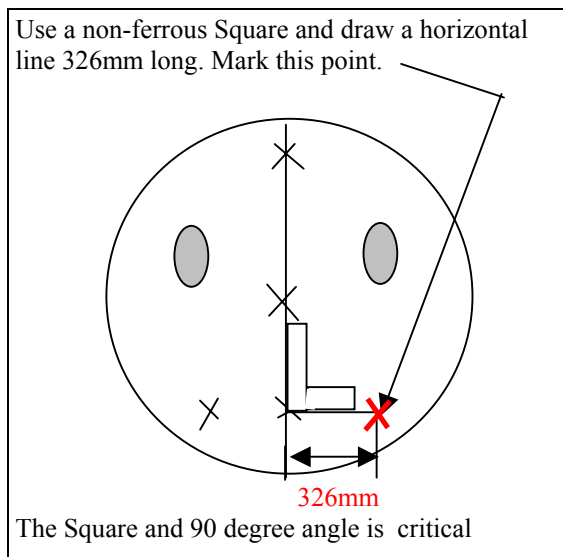
ESTABLISH ZERO DEGREE REFERENCE
ILLUSTRATION 4-8



ESTABLISH +25 DEGREE REFERENCE
ILLUSTRATION 4-9

Note:

Using a Square insures an accurate projection for the +/- 25 degree position marks. Small errors here will translate into very large errors at the back of the table.



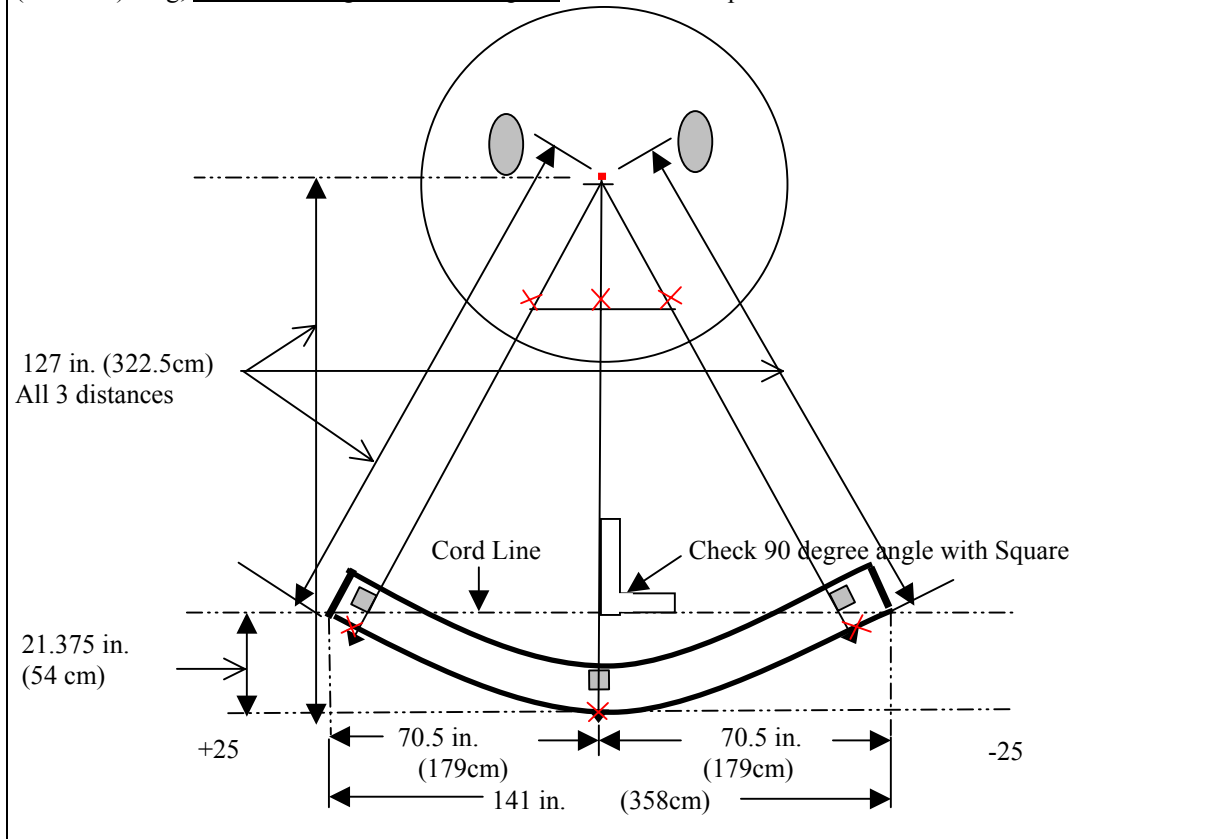
ESTABLISHING -25 DEGREE POSITION
ILLUSTRATION 4-10

- Transfer the 3 marks you have made to the floor using a plumb bob and string. Mark these positions on the floor.



TRANSFERRING MARKS TO FLOOR
ILLUSTRATION 4-11

Use the plumb bob to transfer the Zero Reference point to the floor. Also use the string and plumb bob to project 3 straight lines from the Magnet Center reference Point. Make sure that you establish a straight line between all of the reference marks for Zero, -25 and +25 degree positions. The projected lines should all be 127 in. (322.5cm) long, to the back edge of the Wear plate. Mark those 3 positions on the floor.



LOCATING THE WEAR PLATE
ILLUSTRATION 4-12

13. Use a ruler or tape measure. Measure along the black arrows indicated in Illustration 4-12. The distance between the Estimated Mechanical Center Point and the rear of the Wear plate/Race should be 127 inches (322.5cm). Make sure you measure all three points.
14. To insure that the skew of the Wear plate/Race is correct, draw a chord line on the floor. Place a square on the chord line and insure that this line is 90 degrees to the Zero Reference line.

Important!

Failure to measure these 3 points correctly will result in an incorrect Wear plate installation. Correcting for possible skew in the Wear plate position is critical.

3-3 Wear Plate/ Race Installation

1. Clean the Wear plate/Race and floor with denatured alcohol and place it in position. Outline the plate with a marker pen then, using adhesive tape (masking tape), tape the Wear plate/Race in position to the floor. Cut the adhesive tape (masking tape) along the edge of the plate with a razor knife leaving an imprint of the Wear plate/Race on the floor with the tape. The adhesive tape (masking tape) outline will be your guide to apply the glue and protect the surrounding floor from excess glue on the edge.



2. Glue the Wear plate/Race into position. Apply enough glue to spread out a thin layer over the entire marked area. (See Illustration 4-13) Press the Wear plate/Race in position. Recommendation: Allow glue to set for at least 24 hours before placing the table on it.

GLUING THE WEAR PLATE/RACE TO THE FLOOR
ILLUSTRATION 4-13

5- INSTALLING THE SWING TABLE RACE (WEAR PLATE)

5-1 Wear plate Installation

The Swing table rides on the front rail and the Wear plate/Race at the rear. The location of the plate is critical. Once the front rail is positioned correctly. You can locate the race for installation on the floor. The race should be installed before the finished floor is installed and the table is in place. It is approximately 0.125 inches (3mm) thick. The finished floor should be put in after the race is located properly and glued down.

5-2 Installation Of The Finished Flooring

After the wear plate/race glue has cured (recommendation: allow glue to set for at least 24 hours before placing the table on it.) The flooring contractor can install the finished floor. The finished floor should be installed before physically installing the swing table.

REVISION HISTORY

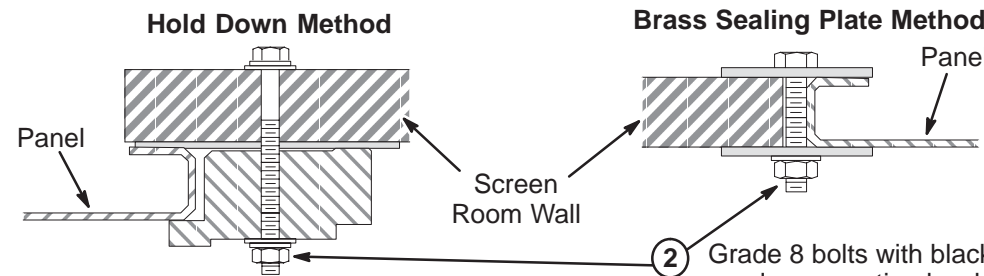
REV	DATE	AUTHOR	PRIMARY REASONS FOR CHANGE
0	Nov 13, 2001	D. Hofstetter	Initial version. A direct copy of the procedure for the PT1INA2.DOC Procedure for the new table design.
1	Jan 26, 2002	D. Hofstetter	Updated with color and corrected errors related to Inch and Metric conversions.
2	Mar 4, 2002	D. Hofstetter	Added Section that allows for Installing the Wearplate with Template.
3	Oct 9, 2002	D. Hofstetter	Fixed references to +/- positions.

INSTALLATION STEPS SUMMARY

- A – Remove Blank Panel/Prepare Screen Room Opening Surface
- B – Install Penetration Panel
- C – Connect Cables to Penetration Panel
- D – Install Penetration Panel Stand-Off Hardware
- E – Install Penetration Panel Covers

A – REMOVE BLANK PANEL/PREPARE SCREEN ROOM OPENING SURFACE

- 1 If still in place, remove vendor supplied blank panel. Save mounting hardware of either method shown below for installation of Penetration Panel.



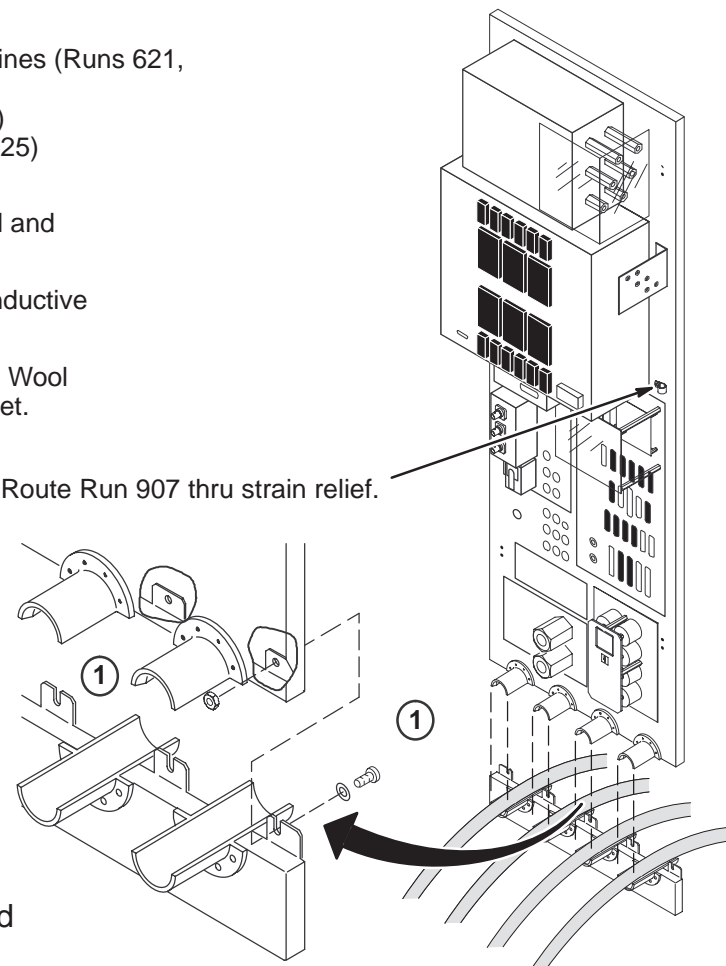
- 2 Grade 8 bolts with black oxide coating should be used as mounting hardware. Tighten to torque of 20 lb-ft (1.5 to 2 turns after lock washer flattens).

- 3 To insure good conductivity, use a fine sandpaper or scouring pad to clean surface of screen room wall which will be in contact with Penetration Panel. **Do not sand surface of Penetration Panel as it is coated.**

B – INSTALL PENETRATION PANEL

- 1 Assemble Penetration Panel around helium lines (Runs 621, 622, 625, and 626) using:
 - (5) #10-32 Nylock Lock Nuts (46-208937P6)
 - (5) 0.2 ID, 0.5 OD Flat Washers (1000904P425)
 - (5) #10-32 x 3/8 Screws (46-208560P82)
- 2 Install Penetration Panel using same method and hardware for mounting of blank panel above.
- 3 Seal all joints with copper foil tape with a conductive adhesive (3M #1181) for RF-tight integrity.
- 4 Fill inside of J60 and J61 guides with Bronze Wool (46-318068P1) that was supplied with magnet.

- 5 Route Run 907 thru strain relief.



Note: Fastening hardware is furnished with Penetration Panel

C – CONNECT CABLES TO PENETRATION PANEL

- 1 Connect Cables to Penetration Panel as designated.

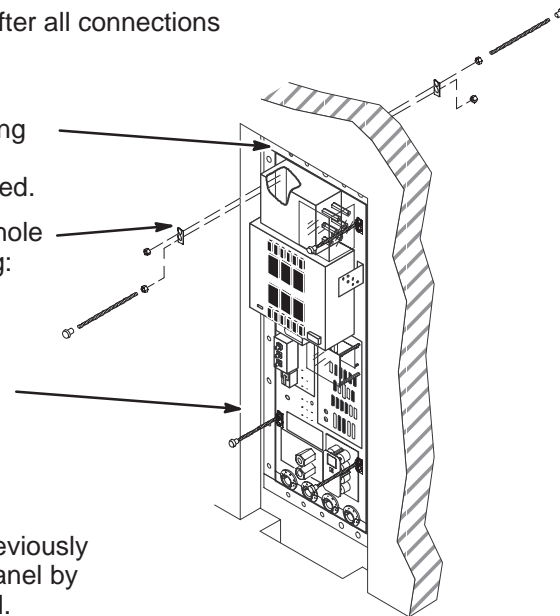
Note: Refer to Overview: Section 2 – System Cables for Cable Map and Run descriptions and designator information located at end of each cable.

D – INSTALL PENETRATION PANEL STAND-OFF HARDWARE

Note: The Penetration Panel Floor plate that is supplied with the cover kit is to be installed prior to routing and connecting cables to Penetration Panel. Refer to Installation Drawing furnished with the Covert Kit.

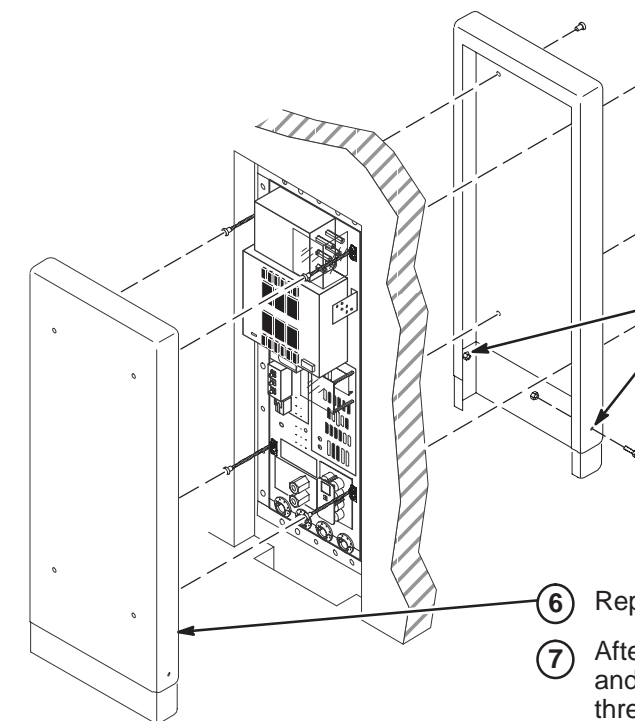
Note: The Penetration Panel Cover can be installed only after all connections and System installation has been completed.

- 1 Verify that cover will enclose finished wall opening. The distance from the top of Penetration Panel to wall opening must be less than 4-1/2 inches (114mm). If not, new mounting stud holes in Penetration Panel may be required.
- 2 Place (8) Reinforcing Plates (46-301211P1) over each hole pair on both sides of Penetration Panel and attach using:
 - (16) 5/16-18 x 9/16 Brass Nut (46-208935P9)
 - (8) 5/16-18 x 18 inch Threaded Rod (46-301213P2)
 - (8) 5/16-18 x 1 inch Barrel Nut (46-301212P1)
- 3 Measure distance from face of Pen Panel to equipment room wall surface. Add six inches (152mm) to obtain length threaded rod should extend from panel.
- 4 Repeat step 3 procedure for exam room cover.
- 5 Adjust threaded rods with attached barrel nuts to the previously calculated dimensions from steps 3 and 4. Secure to panel by tightening brass nuts on both sides of Penetration Panel.



E – INSTALL PENETRATION PANEL COVERS

- 1 Remove all barrel nuts.
- 2 In the Magnet room, temporarily install Top (46-306963P1) and Bottom (46-306964P1) Cover assembly on threaded rods and secure with four barrel nuts.
- 3 Adjust position of bottom cover section and mark two lower fastener holes.
- 4 Remove covers and drill hole in lower cover at each mark.
- 5 Attach top and bottom covers with furnished 10-32 nuts and screws.
- 6 Repeat procedure for Equipment room cover.
- 7 After all installation procedures are completed in Magnet and Equipment rooms, install assembled covers on threaded rods and secure with four barrel nuts.



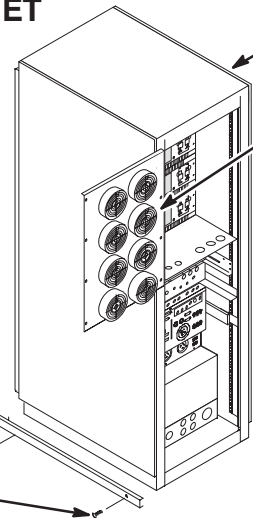
INSTALLATION STEPS SUMMARY

- ☐ A1 – Position/Anchor Power Cabinet
- ☐ A2 – Front View with Module Designators
- ☐ A3 – Input Voltage and Circuit Breaker DIP Switch Settings
- ☐ A4 – Facility Power and Ground Connection
- ☐ A5 – Route Power Cables Thru PDU Interface Panel

A1 – POSITION/ANCHOR POWER CABINET

Note: Comply with UL requirements by either installing anti tip legs or securing the cabinet to the floor with local supplied brackets and floor anchors.

If anchoring is required by local seismic code, secure to floor using floor anchors. Refer to local codes for seismic installation details.



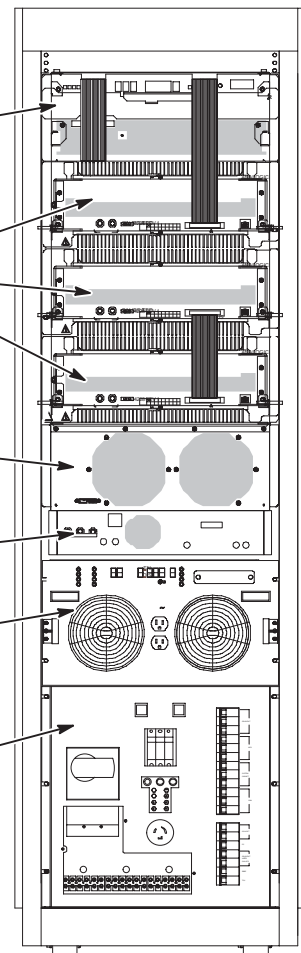
- 1 Move new Power Cabinet to final position.
- 2 Open rear door panel.
- 3 Remove anti-tip bars from inside of cabinet.

5 Adjust leveling pads to level cabinet.

4 Attach bars to cabinet.

A2 – FRONT VIEW WITH MODULE DESIGNATORS

- SYSTEM CONTROL ASSEMBLY (MR3)
- GRADIENT AMPLIFIERS (MR3)
- RF AMPLIFIER (MR1)
- RF INTERFACE (MR1 A23)
- SYSTEM SUPPORT MODULE (MR1 A7)
- POWER DISTRIBUTION UNIT (PD1)



DANGER!!

LETHAL VOLTAGES ARE PRESENT WITHIN THE PDU. MAKE SURE THAT POWER AT THE MAIN DISCONNECT IS OFF, LOCKED, AND TAGGED BEFORE PROCEEDING.

R/L SWITCH (IN BACK) (MR1 A24)

A2 – INPUT VOLTAGE AND CIRCUIT BREAKER DIP SWITCH SETTINGS

Refer to Direction 2266541, *Phoenix PDU Module in 0.7T Power Cabinet*, Section 3, Installation and Operation, for instructions on Input Voltage Selection and Circuit Breaker Dip Switch Settings.

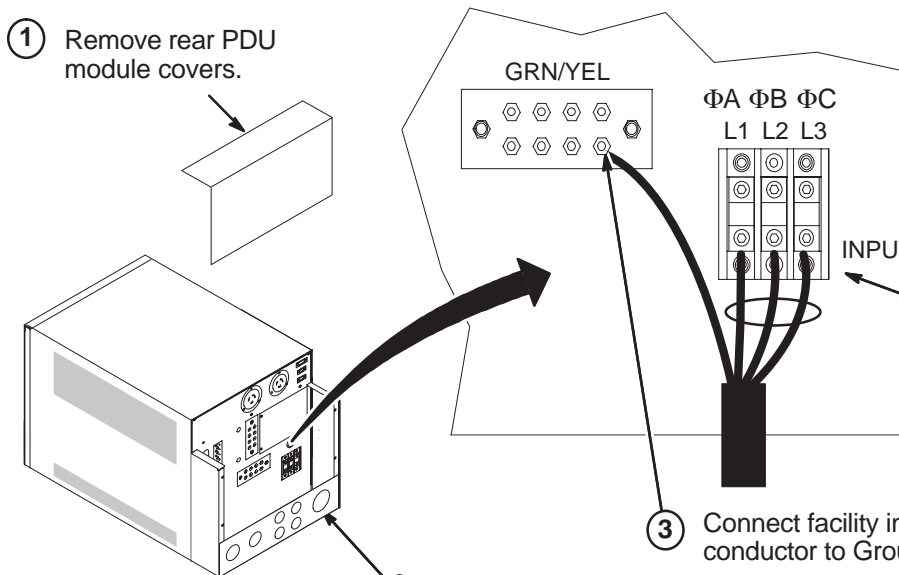
A copy of the manual should be shipped with the cabinet. It can also be found on the MR Service Methods CD-ROM shipped with the system or the MR Service Engineering Web Site.

A4 – FACILITY POWER AND GROUND CONNECTION

WARNING!

IF 3 PHASE WYE WITH NEUTRAL AND GROUND (5 WIRE SYSTEM) INPUT IS USED THE NEUTRAL MUST BE TERMINATED INSIDE THE MAIN DISCONNECT PANEL AND NOT BROUGHT TO THE POWER CABINET.

1 Remove rear PDU module covers.



5 Connect RF screen ground conductor to Ground Bus Bar.

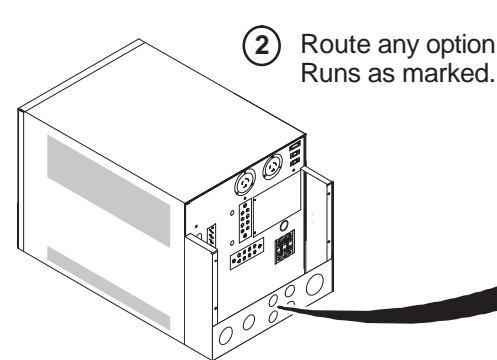
4 Install L1–L3 conductors to terminal block

3 Connect facility input dedicated ground conductor to Ground (GRN/YEL) Bus Bar.

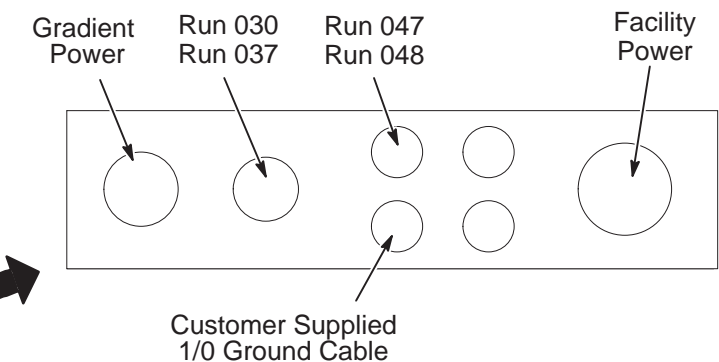
2 Route facility input power cables to terminal block.

A5 – ROUTE POWER CABLES THRU PDU INTERFACE PANEL

1 Route Runs thru interface panel as marked. The GRN/YEL ground wires (Runs 037 and 048) **MUST** be routed with their respective power cable Runs thru the same port.



2 Route any option Runs as marked.



Customer Supplied 1/0 Ground Cable

INSTALLATION STEPS SUMMARY

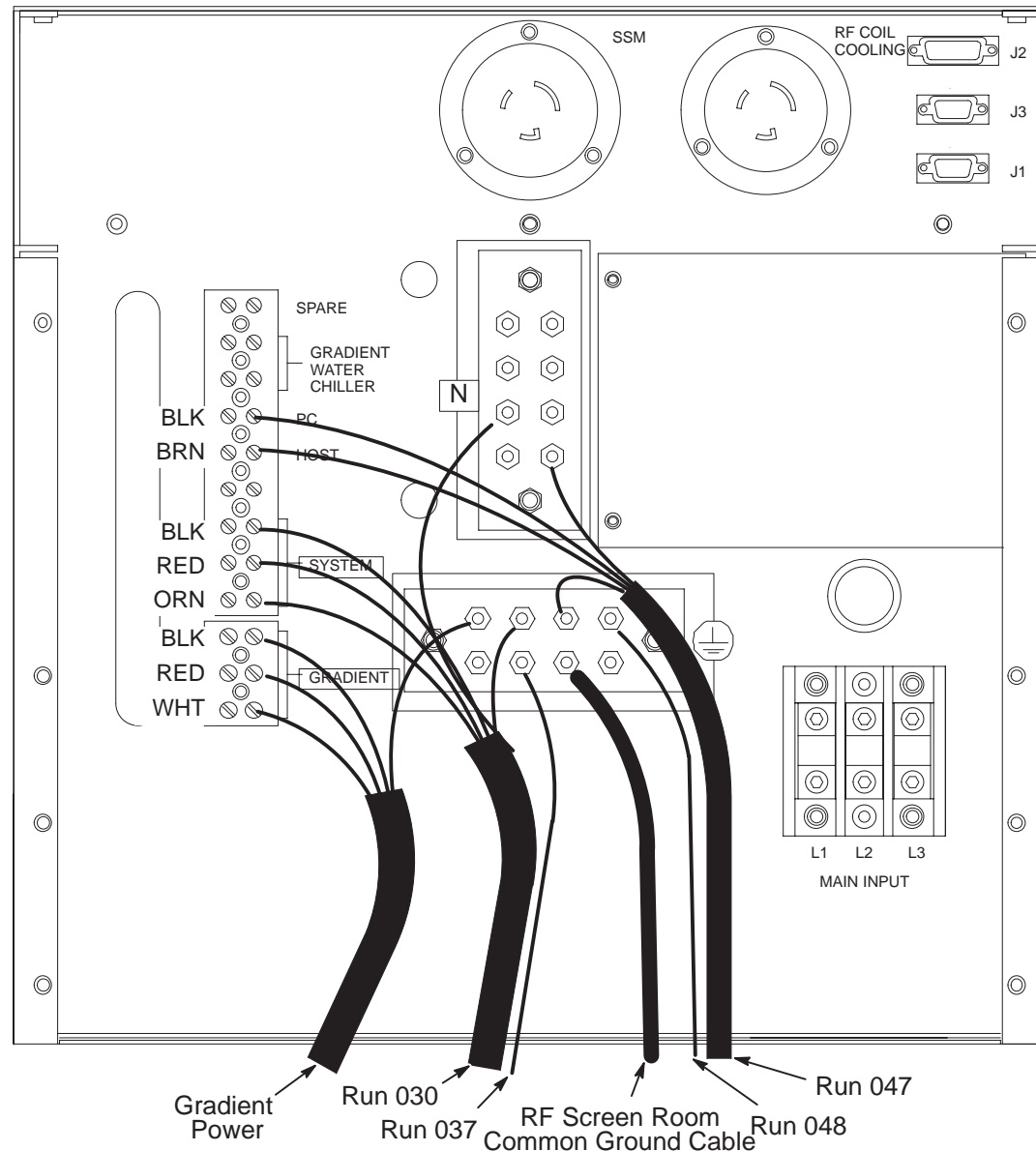
- ☐ B1 – Connect Power Cables to PDU Module
- ☐ B2 – Route/Connect Runs 703 and 706 to PDU Module
- ☐ B3 – Connect Runs 762, 763, and 764 Output Gradient Cables

B1 – CONNECT POWER CABLES TO PDU MODULE

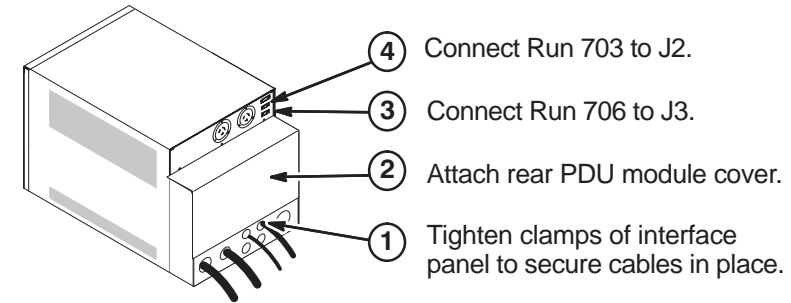
- 1 Route/connect power cables to pressure connectors on back of PDU module as shown in Table.
- 2 Trim and connect ground wire cables (Runs 037 and 048) to ground bus connectors.

CONNECT TO	RUN	PHASE	DESTINATION
1,2,3		φ A, B, C	Gradient Amplifier 3φ, Neutral, Ground
16,17,18	030	φ A, B, C	System Cabinet 3φ, Neutral, Ground
25,31	047	φ C,A	Operator Workspace Single φ, Neutral, Ground
GROUND	037		System Cabinet Ground Wire
GROUND	048		Operator Workspace Ground Wire
GROUND			Customer Supplied 1/0 Ground Cable

COLOR CODE: for remainder of cables:
 3φ= Black, Red, Orange Neutral = Light blue Gnd = Grn/Yel
 Single φ = Brown, Black
 Other 3-phase cable Phase Coding: Black = Phase A; Red = Phase B; Orn= Phase C



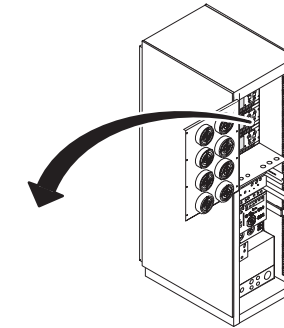
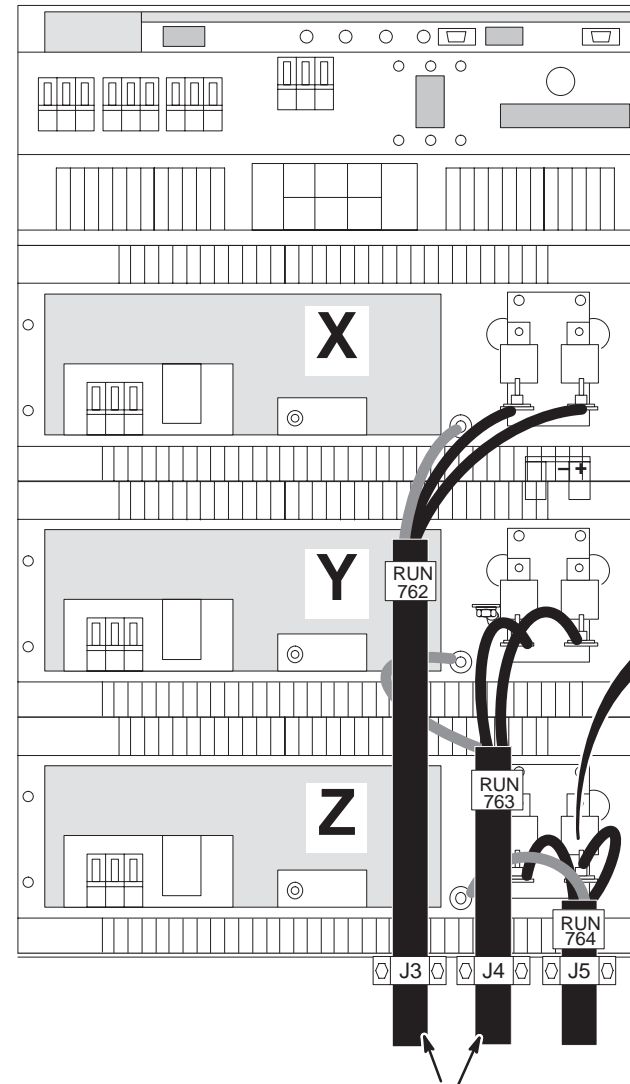
B2 – ROUTE/CONNECT RUNS 703 AND 706 TO PDU MODULE



B3 – CONNECT RUNS 762, 763, & 764 OUTPUT GRADIENT CABLES

NOTE: Output cables (Runs 762, 763, and 764) were previously routed, cut to length, and terminated.

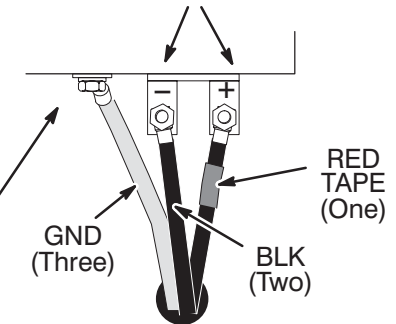
- 1 Loosen screws on J5 clamp at bottom of shelf below. Insert ends of Run 764 gradient output cable into Cabinet Interface J5. (Runs 762 will insert into J3, and Run 763 into J4)



CAUTION

DO NOT OVER TIGHTEN nuts when connecting gradient output cables to gradient amp output lugs in step 2 below. **STUDS CAN BREAK OFF.**

- 2 Connect gradient output cables with red-taped (+) #1 wires to + output terminals and black (-) #2 wires to - output terminals of the Z Amplifier. Tighten to torque of 44 in-lbs/5.0 N-m. (or hand tighten, then one full turn with a wrench)



- 3 Connect the GND leads of each run to the Ground stud located on the back of amplifier.

WARNING!

MAKE SURE GRADIENT CABLES ARE CONNECTED CORRECTLY. FAILURE TO DO SO WILL DESTROY GRADIENT AMPLIFIER.

- 5 Repeat steps 1, 2, 3, and 4 for connection of Runs 762 and 763 to X and Y Amplifiers.

- 4 Tighten clamp block to secure output power cable to I/F panel.

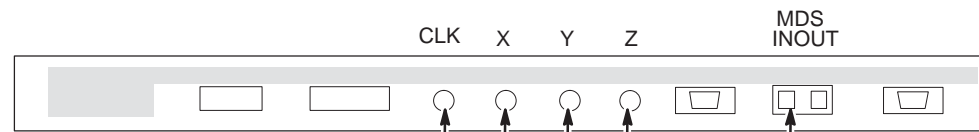
INSTALLATION STEPS SUMMARY

- C1 – Route/Connect Fiber Optics and Run 229
- C2 – System Support Module Cable Connections
- C3 – Connect Runs 887, 888, and 935 to RF Interface (RFI) Module
- C4 – Attach InSite Cabinet Magnets

C1 – ROUTE/CONNECT FIBER OPTICS AND RUN 229

CAUTION

Handle fiber optic cables carefully. Do not bend fiber optic cables to radius smaller than two inches. Avoid scratching connector ends. Keep connectors protected until ready to connect. Routing of fiber optic cables must be done with care to prevent damage to optical fibers.



8 Connect fiber optics to SCA module according to labels.

7 Route fiber optic Runs 710 along side of cabinet to System Control Assembly module.

6 Attach Runs 710 to opening in shelf below Gradients.

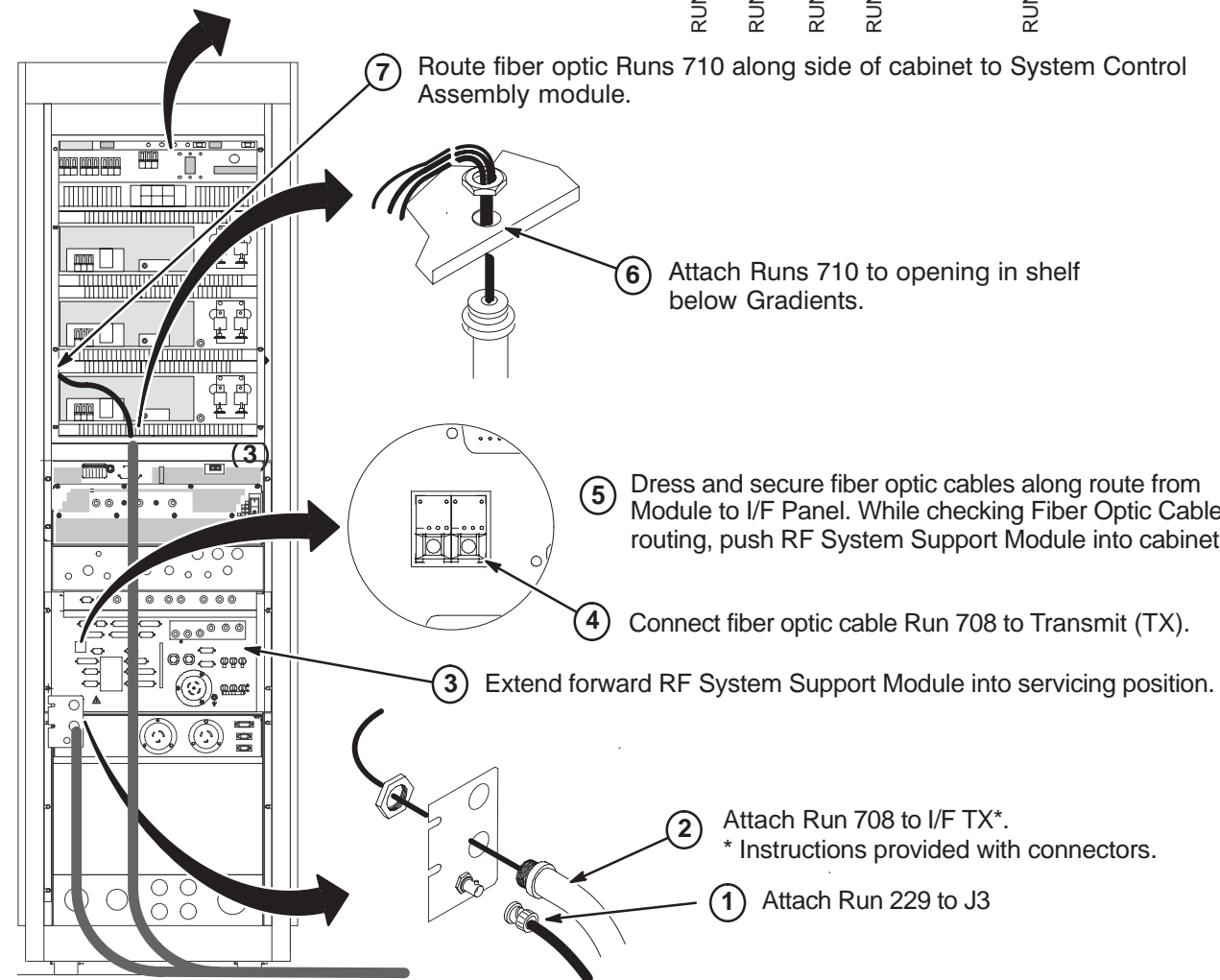
5 Dress and secure fiber optic cables along route from Module to I/F Panel. While checking Fiber Optic Cable routing, push RF System Support Module into cabinet.

4 Connect fiber optic cable Run 708 to Transmit (TX).

3 Extend forward RF System Support Module into servicing position.

2 Attach Run 708 to I/F TX*.
* Instructions provided with connectors.

1 Attach Run 229 to J3



C2 – SYSTEM SUPPORT MODULE CABLE CONNECTIONS

CAUTION

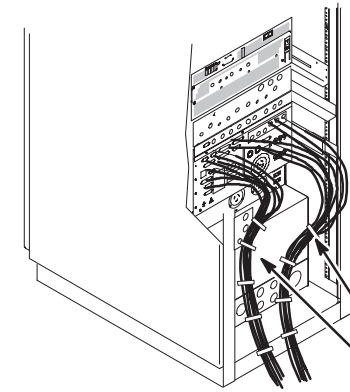
All cables connected to System Support Module Interface Panel must have a service loop of approximately 2 feet (610mm) to allow enough slack for serviceability when Module is moved completely forward.

1 Connect cables to System Support Module.

Note:

If needed, refer to Overview: Section 2 – System Cables, for Run descriptions and designator information located at end of each cable.

2 Dress and secure cables connected to System Support Module. Verify sufficient slack by moving Module completely forward and back again. Adjust as necessary.



C3 – CONNECT RUNS 887, 888 and 935 TO RF INTERFACE (RFI) MODULE

1 Connect extension cable Run 745 (46–287668G5) to J4 Body Output on RFI Module using HN–N adapter (46–221865P16)

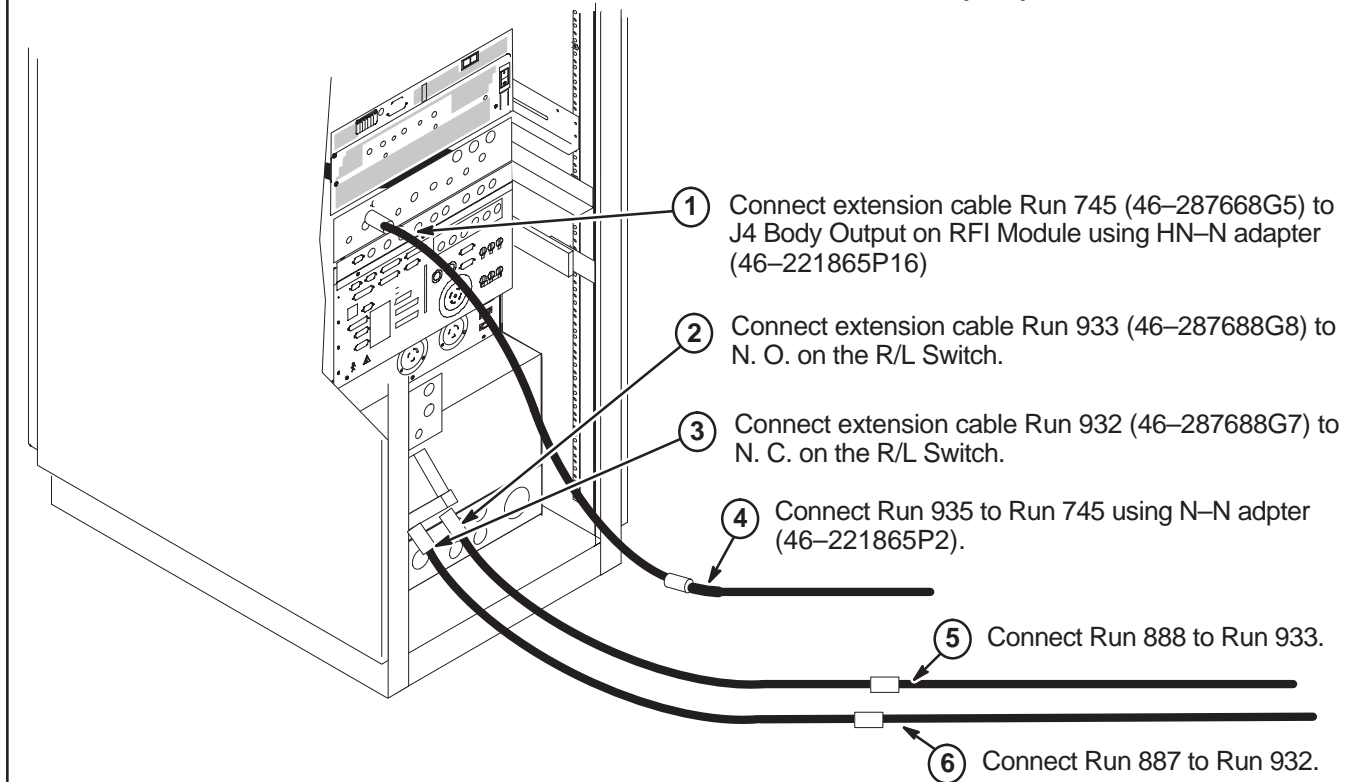
2 Connect extension cable Run 933 (46–287688G8) to N. O. on the R/L Switch.

3 Connect extension cable Run 932 (46–287688G7) to N. C. on the R/L Switch.

4 Connect Run 935 to Run 745 using N–N adpter (46–221865P2).

5 Connect Run 888 to Run 933.

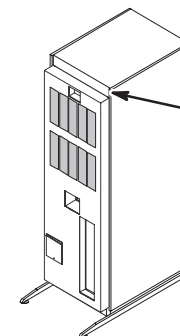
6 Connect Run 887 to Run 932.



C4 – ATTACH INSITE CABINET MAGNET

1 Attach all front and rear covers.

2 From the OpenSpeed InSite Kit (46–301708G5), locate the “Power (GRFD)” cabinet magnet (46–320095P15). Attach to front of cabinet as shown.

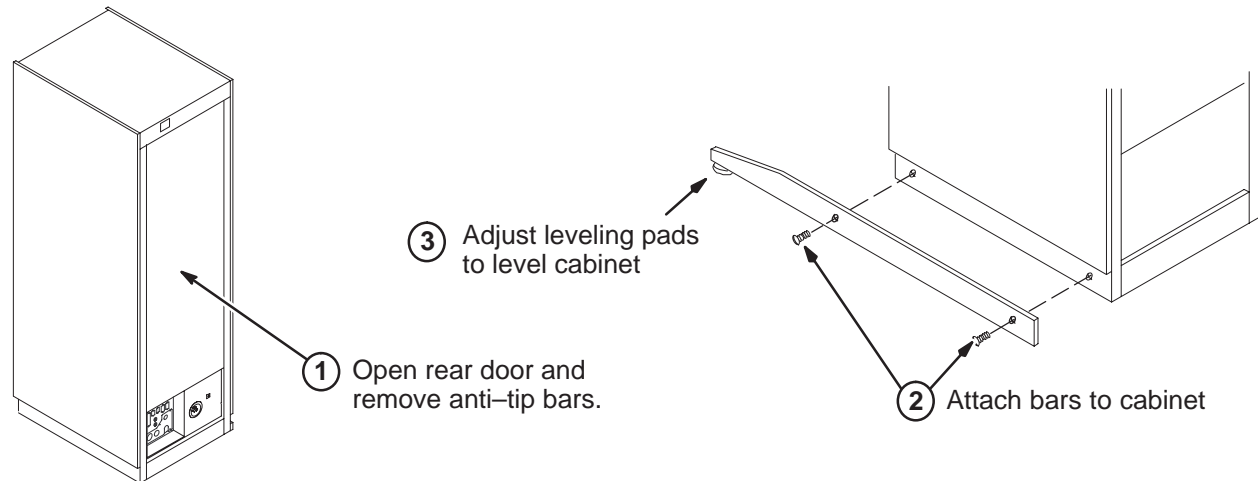


INSTALLATION STEPS SUMMARY

- A – Position/Secure System Cabinet
- B – Install Magnet Monitoring Cables
- C – Connect Fiber Optic Runs 708, 710, 711/712, and 836 to I/F Panel
- D – Route/Connect Fiber Optic Runs 836 to BIT3 Module
- E – Route/Connect Fiber Optic Runs 708, 710, and 711/712 to Tyme II
- F – Connect Power, Ground, and Data Cables
- G – Install InSite “SYSTEMS” Cabinet Magnet

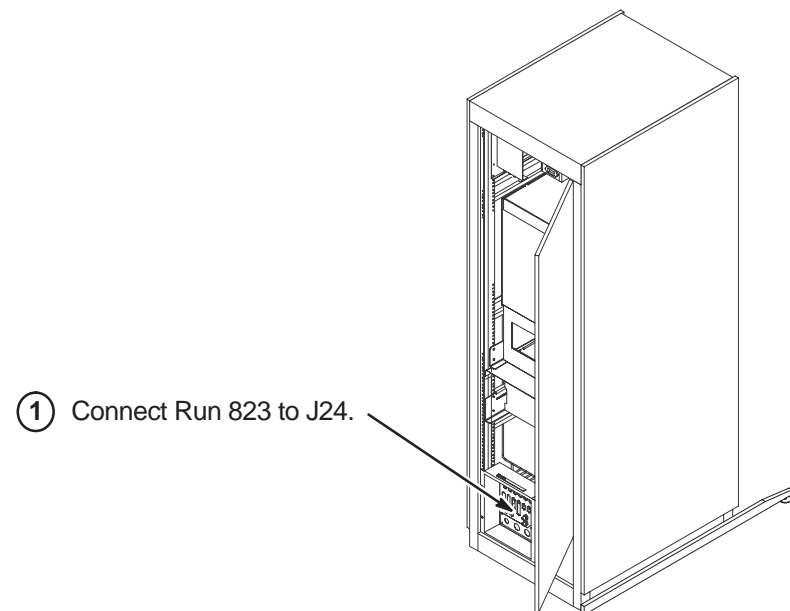
A – POSITION/SECURE SYSTEM CABINET

Comply with UL requirements by either installing anti tip legs (see illustration below) or securing the cabinet to the floor with local supplied brackets and floor anchors.



B – INSTALL MAGNET MONITORING CABLES

Note: Refer to Direction 2261116, *OpenSpeed Magnet Monitor Hardware Installation Manual*, for instructions on connecting cables in the System Cabinet. This manual should be found in the box containing the parts for Magnet Monitoring.

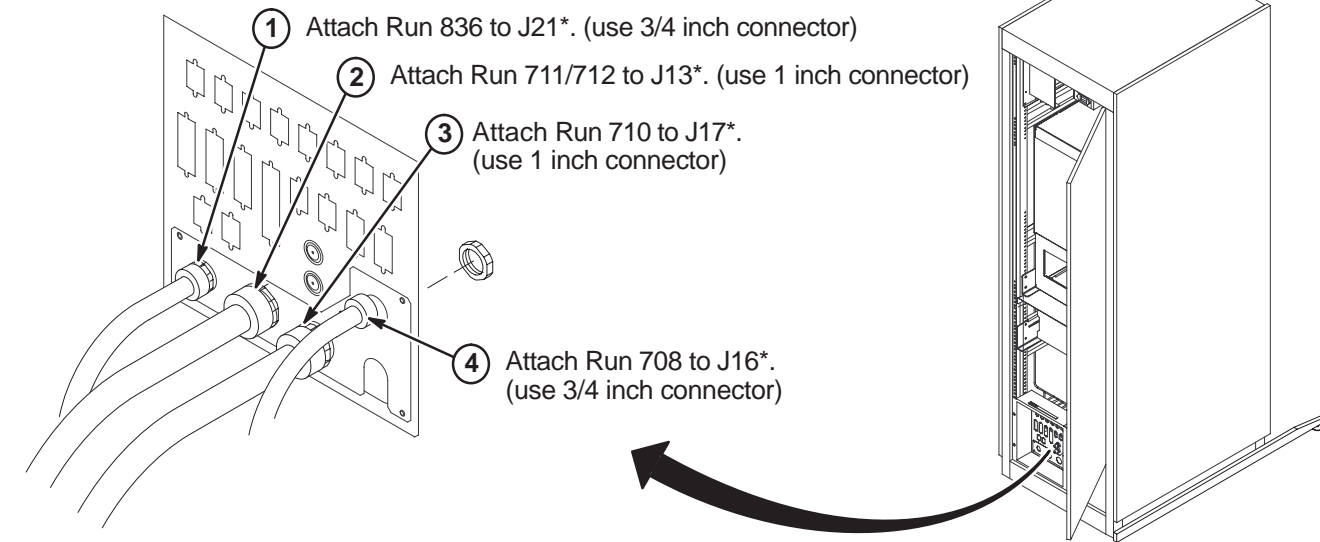


C – CONNECT FIBER OPTIC RUNS 708, 710, 711/712, AND 836 TO I/F PANEL

CAUTION

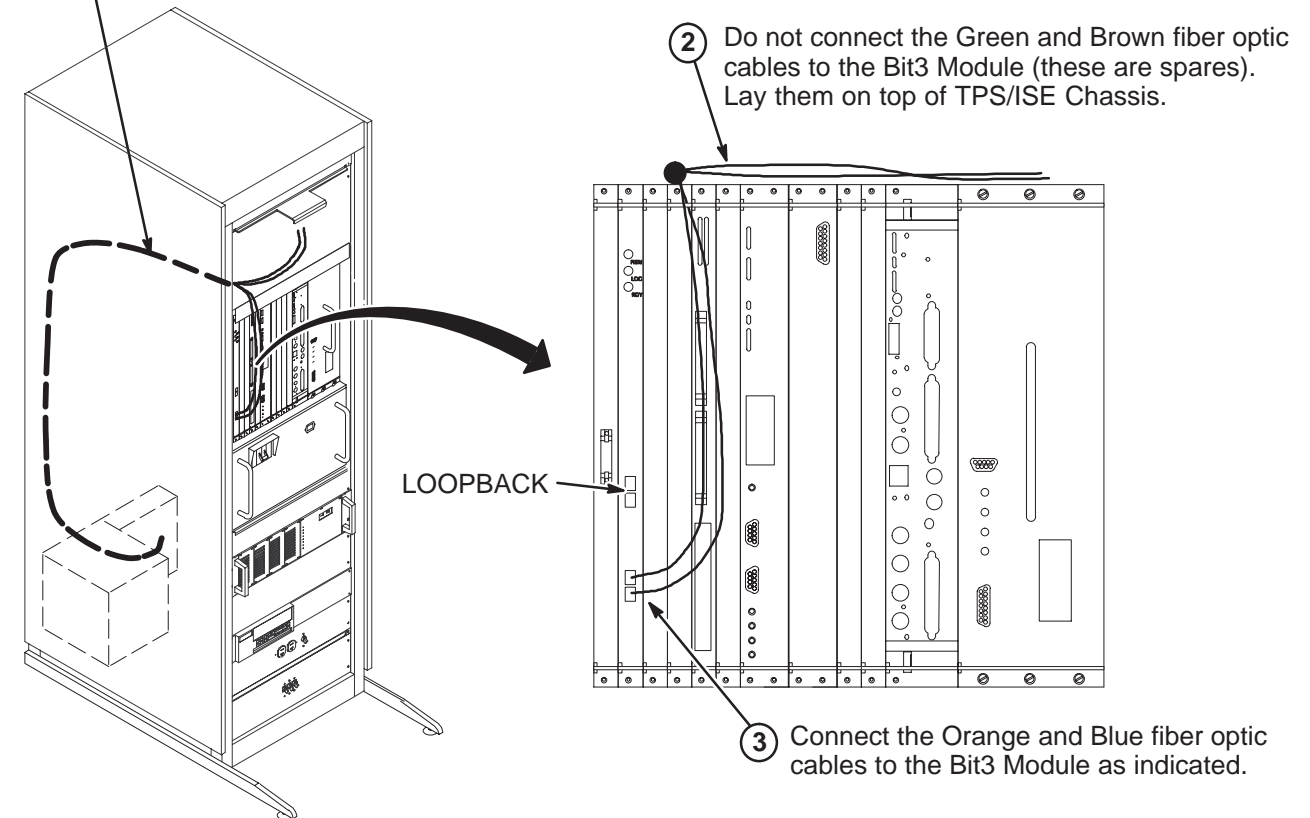
Handle fiber optic cables carefully. Do not bend fiber optic cables to radius smaller than two inches (50mm). Avoid scratching connector ends. Keep connectors protected until ready to connect.

* Instructions provided with connectors.



D – ROUTE/CONNECT FIBER OPTIC RUN 836 TO BIT3 MODULE

- ① Route Run 836 fiber optic cables from cabinet I/F J21 to front of Bit3 module (MR2 A11 A30). Secure cable to side of cabinet. Do not bend fiber optic cables to radius smaller than two inches (50mm).



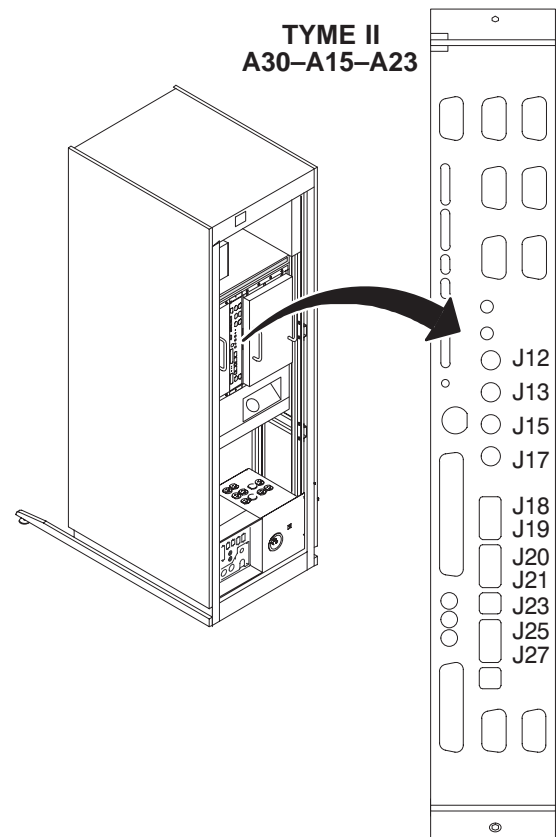
E – ROUTE/CONNECT FIBER OPTIC RUNS 708, 710, AND 711/712 TO TYME II

CAUTION

Handle fiber optic cables carefully. Do not bend fiber optic cables to radius smaller than two inches. Avoid scratching connector ends. Keep connectors protected until ready to connect. Do not coil naked outside of cabinet, or store fiber optic cables in bottom of cabinet.

Note:
Runs 708, 710, 711, and 712 are used for both Horizon 5.x and 8.x. The fiber optic connections to the TYME board are different for 5.x and 8.x. The labels on the cables include both the 5.x and 8.x connections.

The table below indicates the connection labels as they should be marked on this end of the fiber optic cables. **Use only the 8.x connections.**



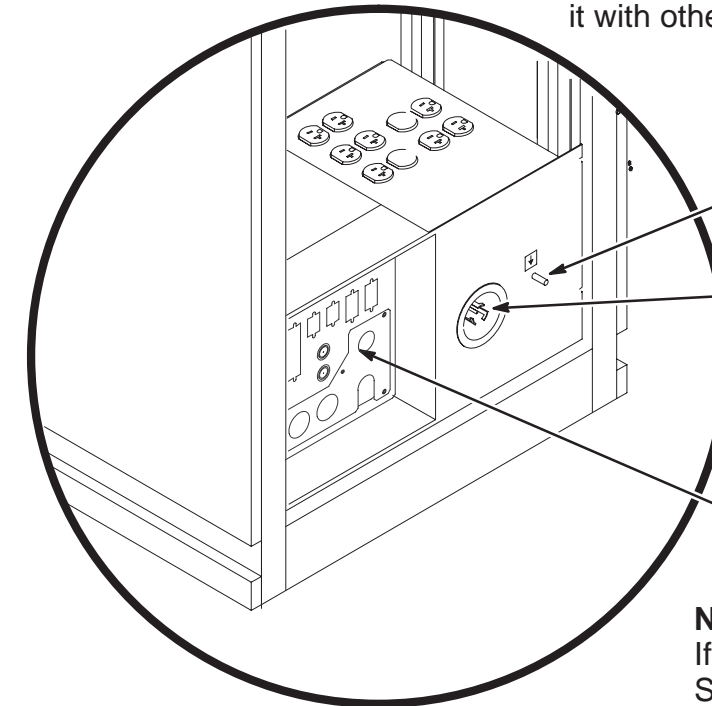
RUN #	5.x	8.x
708-1	J5	J19
710-1	J13	J12
710-2	J15	J13
710-3	J17	J15
710-4	J14	J17
710-5	J4	J18
711-1	J6,J7	J25,J27
711-2	J8	J23
712-1	J9,J10	J20,J21

- ① Route/Connect as marked Run 710 fiber optic cables to J12, J13, J15, J17 and J18 on the TYME II Board.
- ② Route/Connect as marked Run 708 fiber optic cable to J19 on the TYME II Board.
- ③ Route/Connect as marked Run 711/712 fiber optic cables to J20, J21, J23, J25, and J27 on the TYME II Board.

Note:
Use tie-wraps to secure fiber optic cables to ISE Chassis cables.

F – CONNECT POWER, GROUND, AND DATA CABLES

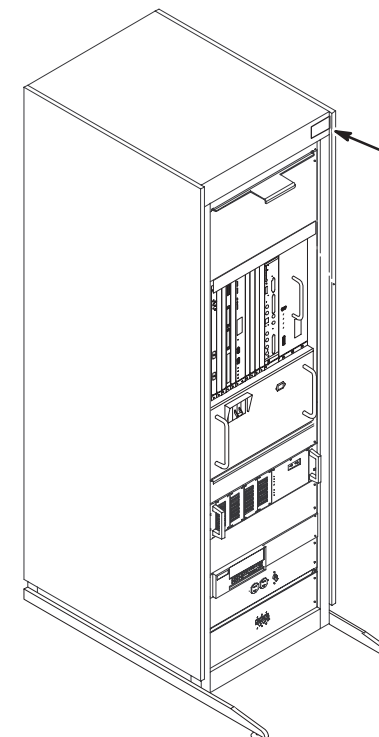
Note:
Locate CERD Test Cable, 2168505 (it is packed with the Operator Workspace cable kit, 2154392). Store it with other test cables or in the System Cabinet.



- ① Connect Run 037 GND cable to ground stud.
- ② Connect Run 030 cable plug to "J1". Be sure to push and turn plug for secure connection.
- ③ Perform Ground Resistance Checks before connecting remaining cabinet cables.
- ④ Connect remaining cabinet cables as marked.

Note:
If needed, refer to Overview: Section 2 – System Cables, for Cable Map an Run descriptions and designator information located at end of each cable.

G – INSTALL INSITE "SYSTEMS" CABINET MAGNET



- ① From the OpenSpeed Insite Kit (46-301708G5), locate the "Systems" cabinet magnet (46-320095P5) and attach to front of cabinet as shown.

INSTALLATION STEPS SUMMARY

- A1 – Preinstallation Planning
- A2 – Squeeze Bulb Hanger Installation
- A3 – Squeeze Bulb Installation
- A4 – Magnet Room Routing of Tubing & Wave Guide Installation
- A5 – Determining Need of Extender Box

A1 – PREINSTALLATION PLANNING

The customer and users should be involved in the following decisions:

Routing of Pneumatic Tubing:

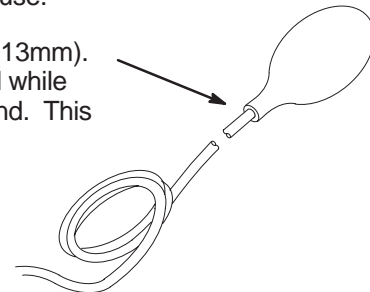
Location of Control Box



Do not substitute other types of tubing for the pneumatic tubing supplied with this Installation Kit. Substitution of other types of tubing may cause a control box malfunction.

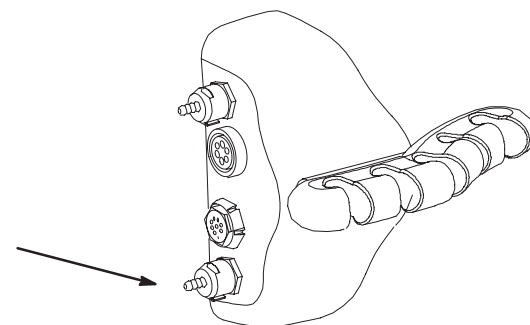
A2 – SQUEEZE BULB INSTALLATION

- 2 Before cutting pneumatic tubing from roll, verify that when the squeeze bulb is held by a patient being scanned, the tubing length can be routed to the "CALL" connector on the Remote PAC Interface Assembly without getting in the way of operator or patient during use.
- 1 Insert end of Pneumatic Tubing into Squeeze Bulb approximately 1/2 inch (13mm). For ease of pneumatic tubing insertion, pinch pneumatic tubing in one hand while squeezing squeeze bulb and pushing pneumatic tubing in with the other hand. This will create a positive pressure and expand squeeze bulb opening.



A3 – CONNECT TUBE TO REMOTE PAC INTERFACE ASSEMBLY

- 1 Connect end of tubing to "CALL" connection on Remote PAC Interface Assembly .



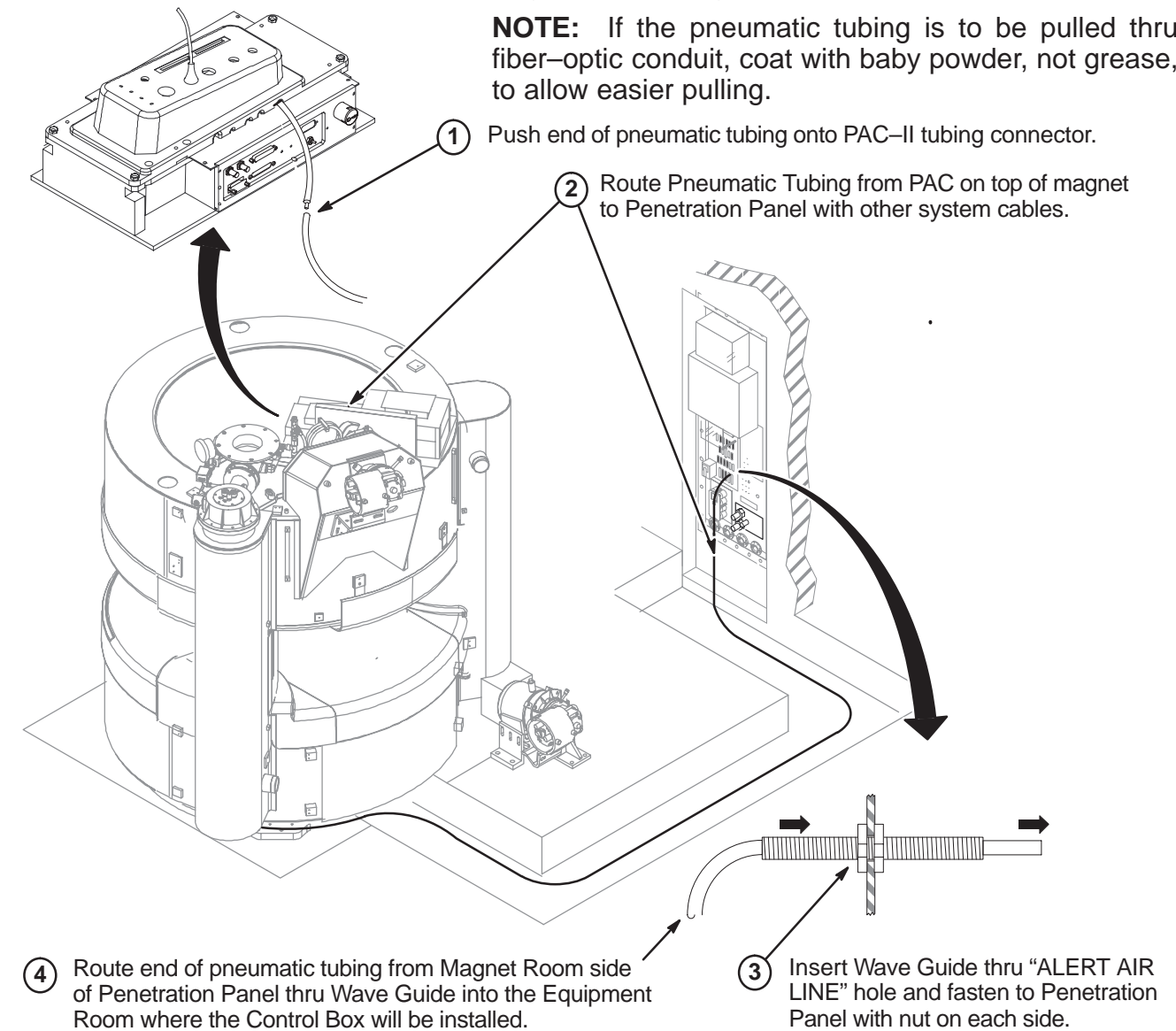
A4 – MAGNET ROOM ROUTING OF TUBING & WAVE GUIDE INSTALLATION



Make sure that pneumatic tubing is not routed where it can be stepped on, pinched, or have an object set on it. The control box alarm will not work if pneumatic tubing is pinched.

NOTE: Also, make sure that the pneumatic tubing can be routed from the PAC connector to the Penetration panel without being pinched along the route by other cables.

NOTE: If the pneumatic tubing is to be pulled thru fiber-optic conduit, coat with baby powder, not grease, to allow easier pulling.



A5 – DETERMINING NEED OF EXTENDER BOX

Note: If installation requires greater than 115 feet of pneumatic tubing between the squeeze bulb (hanging on Magnet Enclosure) and control box (near Operator's Console), Extender Kit, 46-317758P2, must be ordered.

If the pneumatic tubing is long enough to reach control box:
The extender is not needed. Proceed to Step B3, CONTROL BOX INSTALLATION.

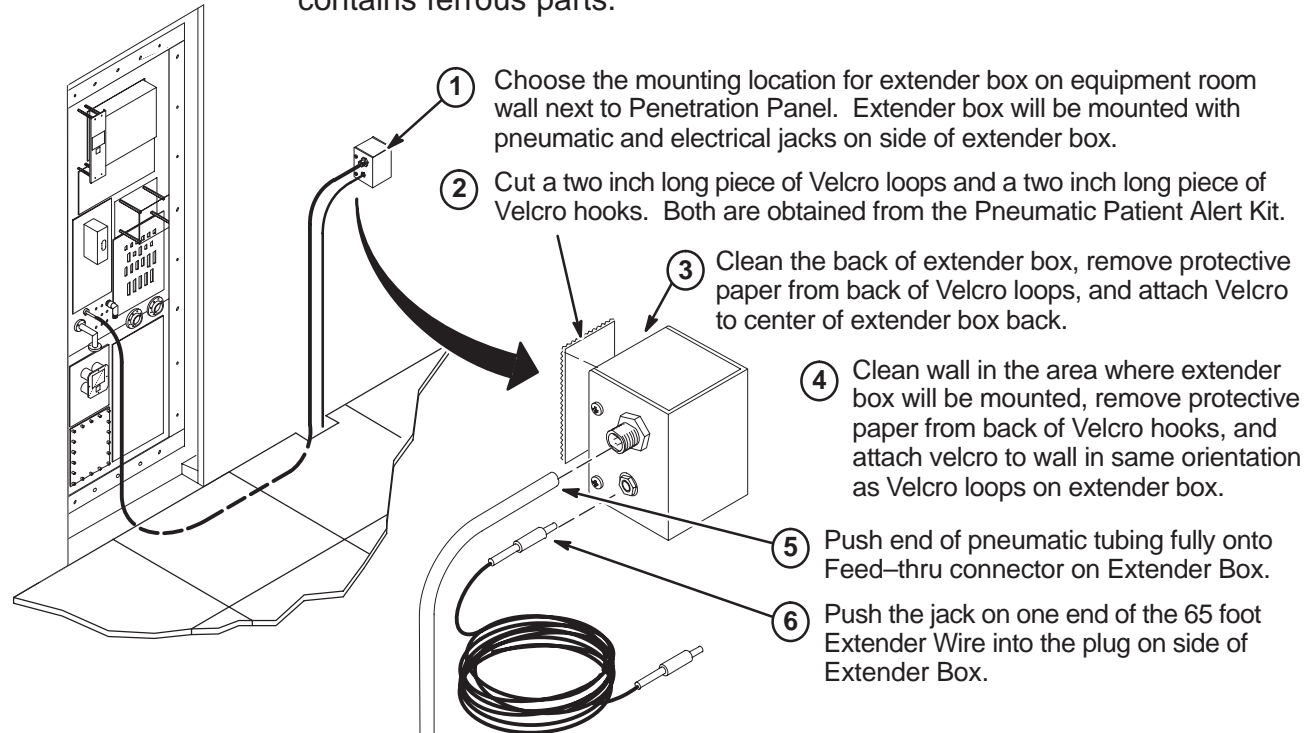
If the pneumatic tubing is not long enough to reach control box:
The extender is needed. Proceed to Step B1, INSTALLATION OF EXTENDER KIT.

INSTALLATION STEPS SUMMARY

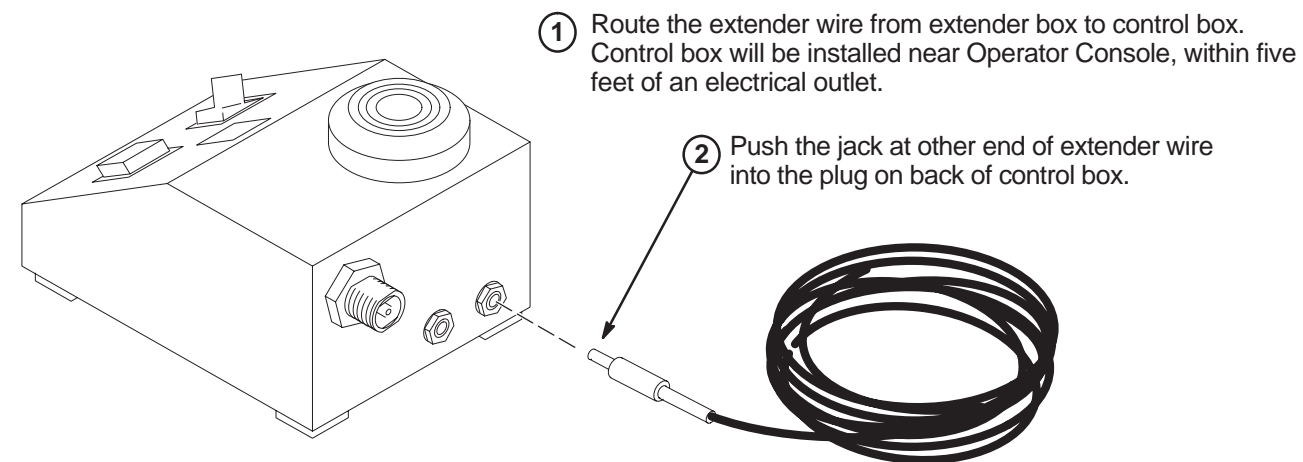
- B1 – Installation of Extender Kit (46–317758P2)
- B2 – Connection of Extender Wire to Control Box
- B3 – Control Box Installation
- B4 – Control Box Installation on Wall or Under Shelf
- B5 – Control Box Mounted with Velcro

B1 – INSTALLATION OF EXTENDER KIT (46–317758P2)

Note: Do not mount Extender Box in Magnet Room because the box contains ferrous parts.



B2 – CONNECTION OF EXTENDER WIRE TO CONTROL BOX



B3 – CONTROL BOX INSTALLATION

Consult with the operator in choosing the mounting orientation for the control box. Some key factors to consider are ease of use by operator, remaining within sight of operator, and remaining within five feet of an electrical outlet. Choose one of the following control box locations:

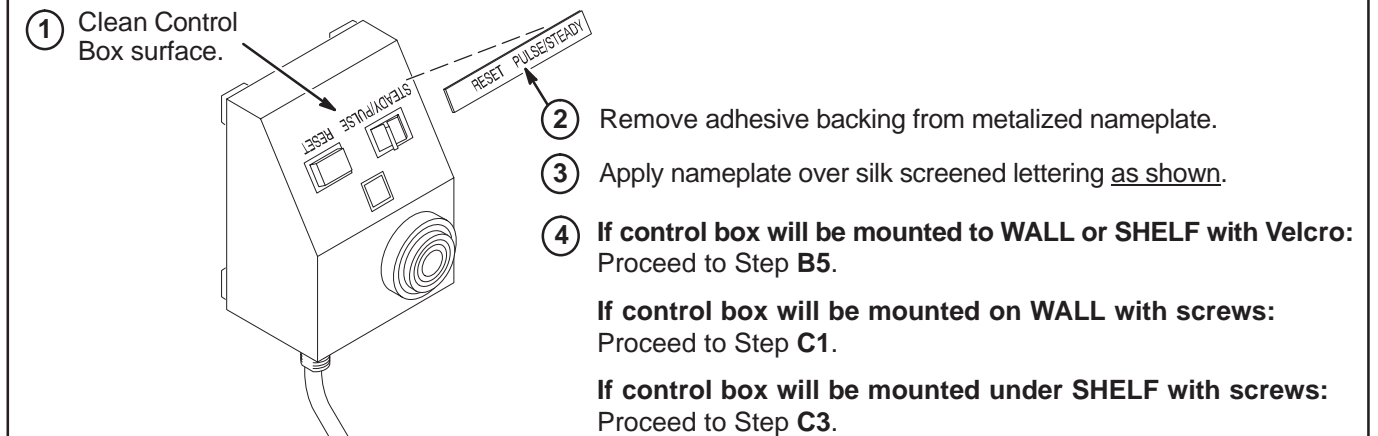
Mount control box on a wall or other vertical surface per Step **B4**, CONTROL BOX INSTALLATION ON WALL OR UNDER SHELF.

Mount control box under shelf per Step **B4**, CONTROL BOX INSTALLATION ON WALL OR UNDER SHELF.

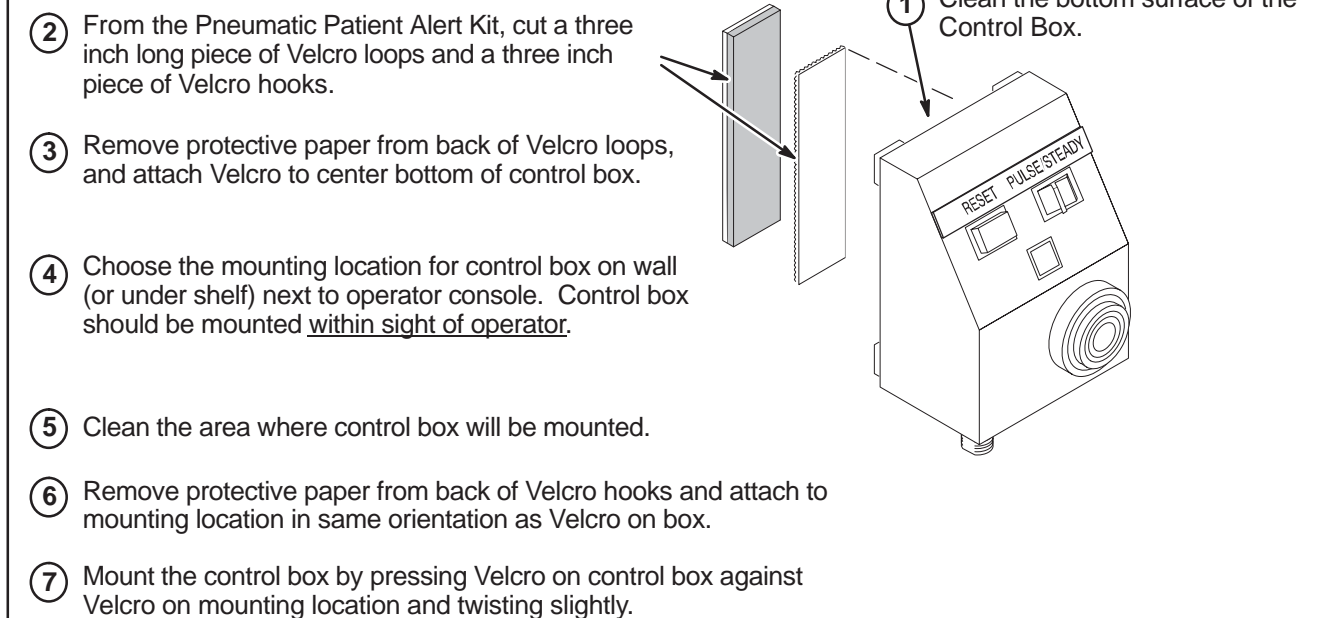
Place Control Box on a counter top, desk top, or other horizontal surface. Set the Control Box near Operator Console and within five feet of electrical outlet. Control Box should be placed within sight of operator. Proceed to Step **C5**, FINAL CONNECTIONS TO CONTROL BOX.

Note: The installer must provide additional mounting hardware if supplied screws or adhesive backed Velcro are not adequate for installation of the control box.

B4 – CONTROL BOX INSTALLATION ON WALL OR UNDER SHELF



B5 – CONTROL BOX MOUNTED WITH VELCRO

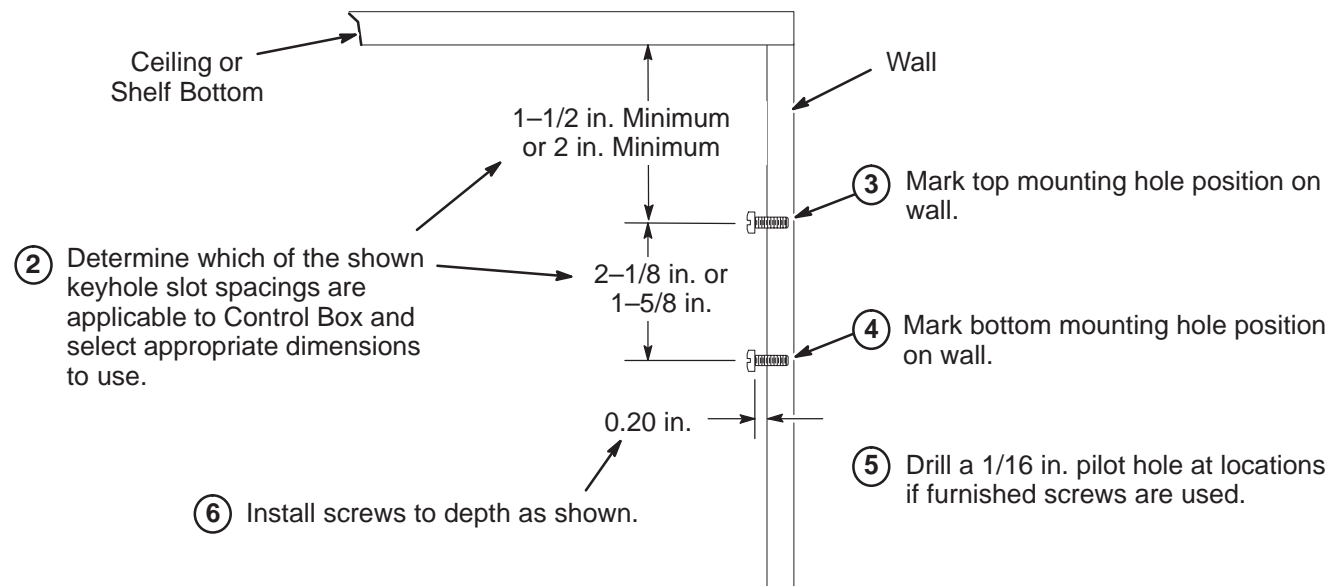


INSTALLATION STEPS SUMMARY

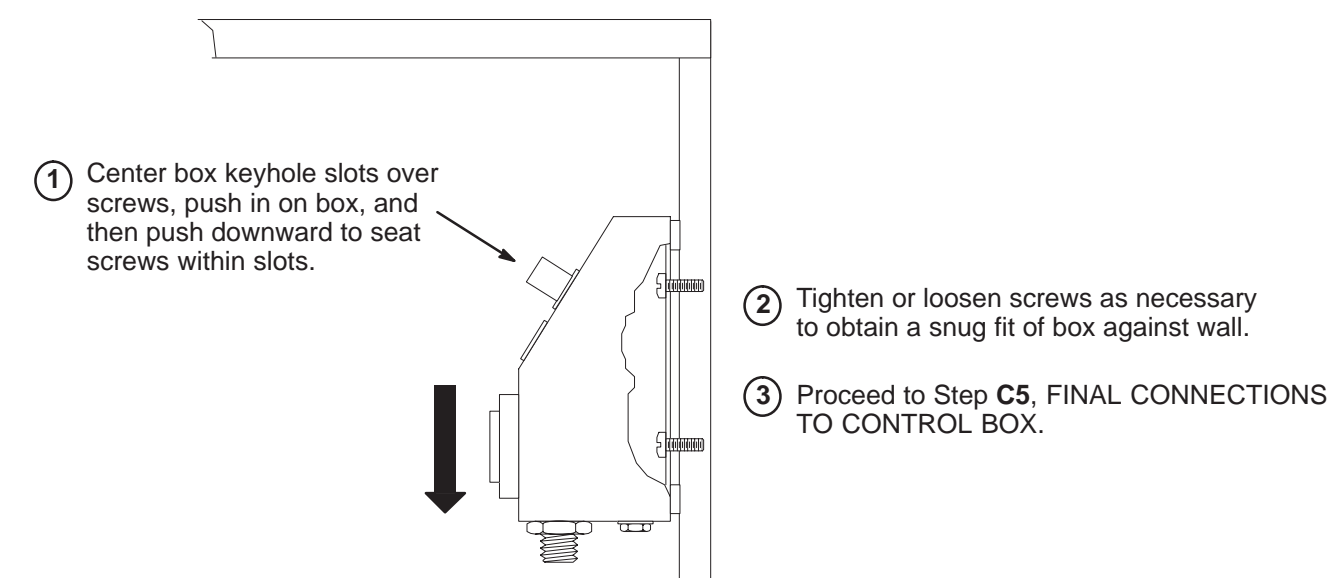
- C1 – Installing Mounting Screws in Vertical Surface
- C2 – Installing Control Box on Vertical Surface
- C3 – Installing Mounting Screws Under Shelf
- C4 – Installing Control Box Under Shelf
- C5 – Final Connections to Control Box

C1 – INSTALLING MOUNTING SCREWS IN VERTICAL SURFACE

- 1 Choose the mounting area near the Operator Console and install mounting screws (item 9). Control box should be mounted within sight of operator.



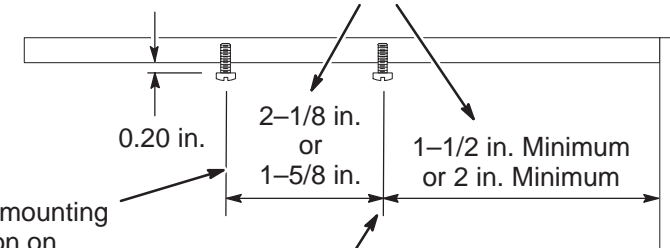
C2 – INSTALLING CONTROL BOX ON VERTICAL SURFACE



C3 – INSTALLING MOUNTING SCREWS UNDER SHELF

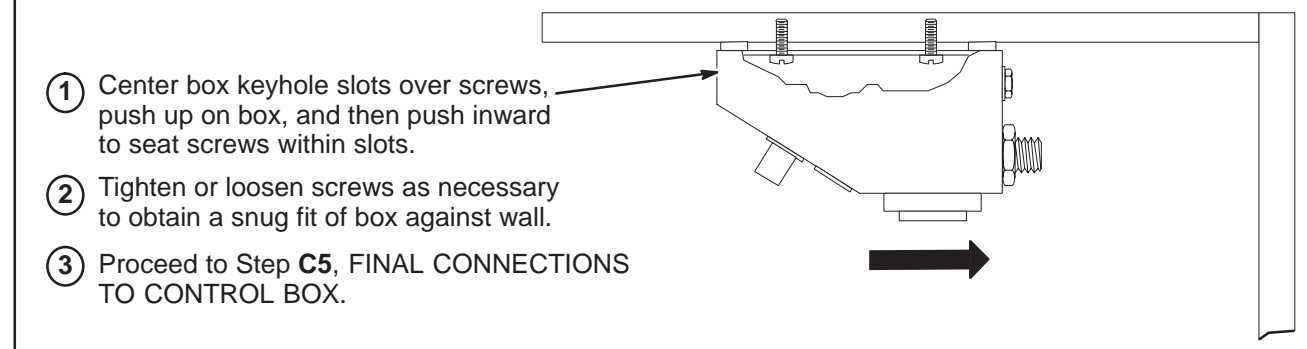
- 1 Choose the mounting area near the Operator Console and install mounting screws (item 9). Control box should be mounted within sight of operator.

- 2 Determine which of the shown keyhole slot spacings are applicable to Control Box and select appropriate dimensions to use.



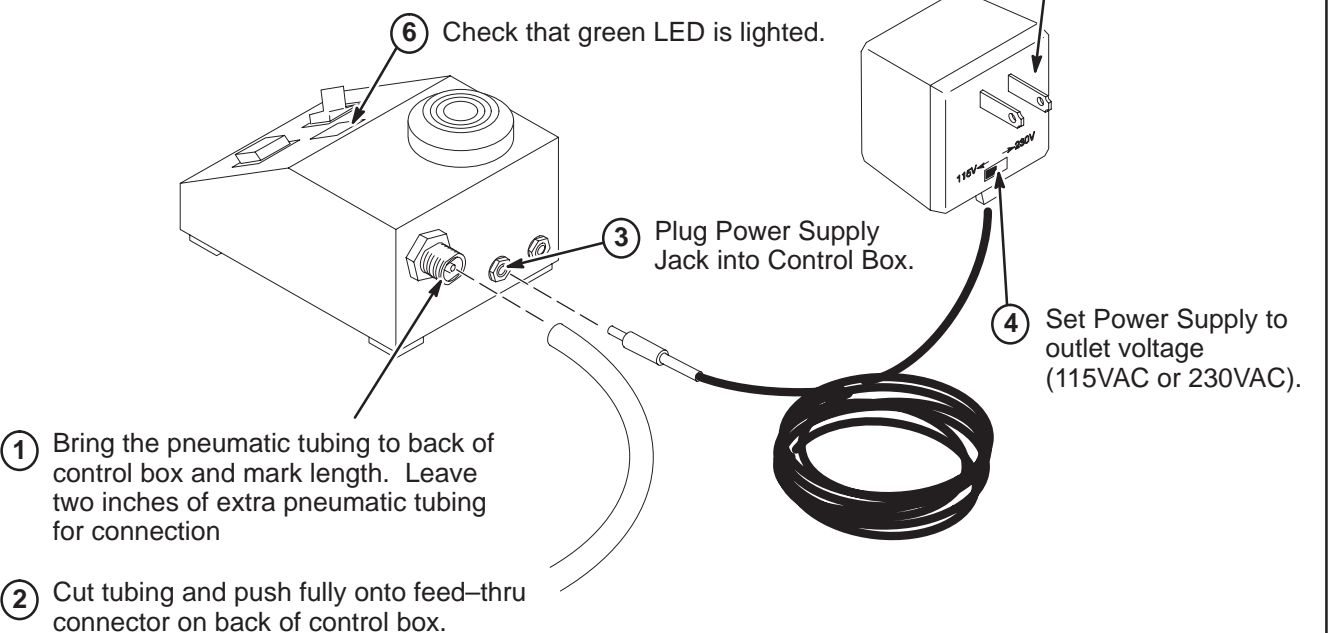
- 3 Mark front mounting hole position on underside of shelf.
- 4 Mark rear mounting hole position on underside of shelf.
- 5 Drill a 1/16 in. pilot hole at locations if furnished screws are used.

C4 – INSTALLING CONTROL BOX UNDER SHELF



C5 – FINAL CONNECTIONS TO CONTROL BOX

Note: Steps 1 and 2 are not needed if Extender Box (46-317758P2) has been installed.



INSTALLATION STEPS SUMMARY

- ☐ A1 – Operator Workspace Table Anchor Installation
- ☐ A2 – Securing Operator Workspace Table to Floor
- ☐ A3 – Attach Workspace Interface Module (2141978 series) to Table
- ☐ A4 – Attach Power Distribution Box (46-307830G1) to Table

Note: The CERD Spike Noise Test Cable (2168505) is part of the 8.x Octane Operator Workspace Cable collector (2154392-2). Remove this cable from the collector and place it in the TPS RF Service Interface Kit (46-301927G1).

☐ A1 – OPERATOR WORKSPACE TABLE ANCHOR INSTALLATION

TOP VIEW

- ① Refer to room layout plan and consult with Site customer for exact location of Operator Workspace Table (2135998-2).
- ② Remove and discard the two (2) cover plugs. Locate and mark on floor the two hole locations at the front of the table legs.
- ③ Move table to prepare for installing the floor anchors in Steps 4 and 5.
- ④ At each hole marked in Step 2, drill a .38 inch hole and insert 1/4-20 x .375 diameter anchor (2168253).
- ⑤ Secure anchor in place with supplied Setting Tool (2168781).

☐ A2 – SECURING OPERATOR WORKSPACE TABLE TO FLOOR

- ⑥ Repeat anchoring process below for other leg.
- ⑤ Install black nylon Plug (2168254).
- ④ Depending upon depth of previously installed anchor, install either the 1-3/4 inch long or the 2 inch long 1/4 x 20 Hex Socket Cap Screw.
- ③ Insert one Lock Washer (2168252) on top of Flat Washer(s).
- ② Insert as many Flat Washers (2168251) as required (3 provided for each leg) for securing table to floor.
- ① Insert Bushing (2151454) in table leg hole.

☐ A3 – ATTACH WORKSPACE INTERFACE MODULE (2141978 series) TO TABLE

- ① Unfasten four (4) screws from under side of table top.
- ② Turn (2) two knobs on front of Module.
- ③ Slide cover off Module.
- ④ Attach cover to bottom side of table using (4) screws previously removed.
- ⑤ Slide Module into cover.

☐ A4 – ATTACH POWER DISTRIBUTION BOX (46-307830G1) TO TABLE

- ① Loosen, do not remove, (4) screws from under side of table top.
- ② Position Power Distribution Box below table.
- ③ Swing Box down from mounting cover.
- ④ Move to under side of table and slide mounting cover onto four previously loosened screws.
- ⑤ Tighten four screws.

INSTALLATION STEPS SUMMARY

- B1 – Attach Modem to Table (May be replaced by ethernet connection)
- B2 – Attach DASM to Table
- B3 – Attach Serial Expansion Box Asm to Underside of Table Top
- B4 – Attach Serial Converter to Underside of Table Top (MGD & OpenSpeed only)

B1 – ATTACH MODEM TO TABLE (May be replaced by ethernet connection)

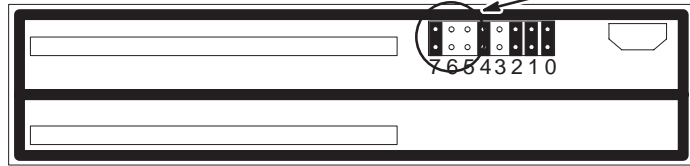
Note: Modem may be replaced by Ethernet cable for connection to InSite (See Procedure E4).

- 1 Attach to back plate of table.
- 2 Connect Run 812 (2188746) to Modem. Other end to be connected to Operator Workspace Cabinet SER 1 later.
- 3 Modem Power Adapter to be supplied by District office and connected to Power Distribution Box J7.

B2 – ATTACH DASM TO TABLE

Note: The Analog and Digital DASMs are shipped with the jumper set to SCSI ID=0. This is the correct ID for an AW, but incorrect for Signa Horizon LX (SCSI ID=3).

- 1 Unfasten DASM cover screw and remove cover.
- 2 For SCSI ID = 3, set Configuration Jumper J2 as follows:
5=OFF, 6=OFF, 7=ON
Note: A jumper in the OFF position enables the SCSI ID bit.
- 3 Re-attach DASM cover.



Note: Consult with Site customer for preference of DASM location. This procedure installs DASM in the cable trough. Customer may prefer DASM on top of table.

CAUTION: Longer SCSI cables cannot be substituted.

-
- 4 Unfasten DASM Bracket from back plate. Use only for 46-269566P3 or 2143388-2. Not used for 2251040 or 2251043.
 - 5 Install DASM (Analog, 46-269566P3, or Digital, 2143388-2) in cable trough and fasten in place with DASM Bracket.
OR
Install DASM (Analog, 2251040, or Digital, 2251043) in cable trough. Refer to installation instructions that are shipped with DASM.
 - 6 Route and connect DASM cables and accessories according to instructions provided with DASM Module and Cable Map in Overview Tab of this manual.
 - 7 Connect power cable to Power Distribution Box J2.

B3 – ATTACH SERIAL EXPANSION BOX ASM TO UNDERSIDE OF TABLE TOP

- 1 Loosen, do not remove, (4) screws from under side of table top.
- 2 Position Serial Expansion Box Asm (2204796) below table.
- 3 Move to under side of table and slide mounting cover onto four previously loosened screws.
- 4 Tighten four screws.

B4 – ATTACH SERIAL CONVERTER TO BOTTOM OF TABLE (MGD & OpenSpeed)

- 1 Cut supplied velcro strip into two pieces and attach to module.
- 2 Attach Serial Converter Module to underside of table top.
- 3A **FOR OpenSpeed:** Connect to module Runs 837 (J4), 838 (J3), 910 (J2), and 911 (J1).
OR
3B **FOR MGD: If provided,** connect to module Runs 838 (J3) and 911 (J1). (future feature)
- 4 Connect Power cable to Power Distribution Box J8.

INSTALLATION STEPS SUMMARY

- C1 – Install Keyboard on Table
- OR
- C2 – Install SCIM/Keyboard Data Cable on Table
- C3 – Install SCIM/Keyboard on Table
- C4 – Install Flat Screen Color Monitor on Table

NOTE:
Consult with Site customer for exact location of Color Monitor on Operator Workspace Table.

C1 – INSTALL KEYBOARD ON TABLE

- 1 Consult with Site customer for exact location of Keyboard and Color Monitor on Operator Workspace (OW) Table.
 - 2 Remove cable grommet from side of table where Monitor and Keyboard are to be located.
 - 3 Connect Run 805 to I/F Module. Route cable under table, thru cable access hole, and to area where Keyboard will be located.
 - 4 Locate Lightning Cable Cover Kit (2160157). From this kit attach (2) two Round Cable Clamps (2290671) to under side of table top. Attach with two Pan Head Screws (2290672). Secure cable within clamps.
 - 5 Place Keyboard (2114561-XX) on table and connect to Run 805.
 - 6 Place cable grommet around Run 805 and insert in cable access hole.
-

OR

C2 – INSTALL SCIM/KEYBOARD DATA CABLE ON TABLE

- 1 Consult with Site customer for exact location of Keyboard and Color Monitor on Operator Workspace (OW) Table.
 - 2 Remove cable grommet from side of table where Monitor and Keyboard are to be located.
 - 3 Connect Data Cable (Run 805), obtained from SCIM Kit (2307175), to I/F Module. Route cable under table, thru cable access hole, and to area where Keyboard will be located.
 - 4 Locate Lightning Cable Cover Kit (2160157). From this kit attach (2) two Round Cable Clamps (2290671) to under side of table top. Attach with two Pan Head Screws (2290672). Secure cable within clamps.
 - 5 Place cable grommet around Data Cable (Run 805) and insert in cable access hole.
-

C3 – INSTALL SCIM/KEYBOARD ON TABLE

NOTE: Refer to Installation document OW1INA3.DOC on Service Methods CD-ROM or MR Service Engineering web site for installation information on language labels and keyboard mounting.

- 1 Connect Data Cable to bottom side of SCIM Module.
 - 2 Connect Keyboard and Mouse cables to bottom side of SCIM Module as marked.
 - 3 Place Keyboard on table in front of SCIM Module.
-

C4 – INSTALL FLAT SCREEN COLOR MONITOR ON TABLE

- 1 Place LCD Monitor on table in back of SCIM.
- NOTE:** For fastening monitor to surface, refer to installation drawing 2204493DDW.
- 2 Connect power cable to Power Distribution Box J1.
-

INSTALLATION STEPS SUMMARY

- D1 – Install LCD Display on Table and Position Octane Computer
- D2 – Connect Table Component Cables
- D3 – Serial Expansion Box Set Up
- D4 – SGI Octane Computer Cables Connections

D2 – CONNECT TABLE COMPONENT CABLES

1 Place LCD Display (2138599) on table. Connect power cable to Power Distribution Box J5.

2 Place Octane Computer on table.
NOTE: Refer to Procedure **D4** for Run connections to SGI Octane Computer.

3 Connect Run 798/821 (2150533-2) to R IN, B IN, G IN on Monitor and route/connect to MONITOR on the Octane Computer module.

4 Connect the following cables from the OW I/F Module (OW A1 A4) for later connection to Operator Workspace Cabinet:

RUN #	CONNECTION	PART #
805	J6	2114561-38
810	J8	2141980-2
814	J9	2196990
817	J17	46-328000G958

Connect the following cables to OW I/F Module. These cables will be routed to the System Cabinet and Penetration Panel:

RUN #	CONNECTION	PART #
789	J18	46-317068G938
788	J7	46-328000G937

5 Connect Run 797 (2138599-2) to LCD Display. Other end is connected later to PC in the Operator Workspace Cabinet.

NOTE: Refer to Procedure **D3** for Run connections and DIP switch settings.

D3 – SERIAL EXPANSION BOX SET UP FOR MGD (10.x)

1 Connect the following cables to the SCSI Expansion Box (OW A16).

Connect the power cord to Power Distribution Box J3.

2 Set SCSI ID switches on side of module as shown. (Addr = 4)
Termination Enabled
NOTE: If DASM not installed, move switch setting to disabled

Run 1046 from System cabinet to Ports 1, 6, 7, and 8.

Run 807 (2163886) from DASM. (Terminator shown)

Run 911 from Serial Converter J1 to Port 5. (Future)

Run 815 (2198983) from Octane computer

D3 – SERIAL EXPANSION BOX SET UP (9.x)

1 Connect the following cables to the SCSI Expansion Box (OW A16).

Connect the power cord to Power Distribution Box J3.

2 Set SCSI ID switches on side of module as shown. (Addr = 4)
Termination Enabled
NOTE: If DASM not installed, move switch setting to disabled

Run 1004 from TAC Cabinet J27 to Port 2. (TwinSpeed option only)

Run 910 from Serial Converter J2 to Port 3. (OpenSpeed only)

Run 791 from System cabinet to Port 1.

Run 818 (2198993) from System cabinet to Ports 6, 7, and 8.

Run 807 (2163886) from DASM. (Terminator shown)

Run 911 from Serial Converter J1 to Port 5. (OpenSpeed only)

Run 815 (2198983) from Octane computer

D4 – SGI OCTANE COMPUTER CABLES CONNECTIONS

1 Install fiber optic Strain Relief Bracket (2245994) to back of Octane Computer using existing screws.

2 Route and connect Bit3 Fiber Optic cable Run 836 (2241052) to bracket.

3 Connect Run 836 (or Run 1044, MGD) orange and blue fiber optic cables as indicated in Step 5 below.

4 Spare Fiber Optic cable and Loopback Assembly (2241052-6).

5 Connect the following cables to the SGI Octane Computer (OW A15) as marked.

Run 798 or 821 (2150533-2) OR Run 799 or 820 (2150533)

Run 1031 (MGD)

Run 819

Run 811 (2153396-3)

Run 810 (2141980-2)

Run 813 (2188747)

Run 812 (2188746)

Run 836 (2241052) OR Run 1044 (MGD)

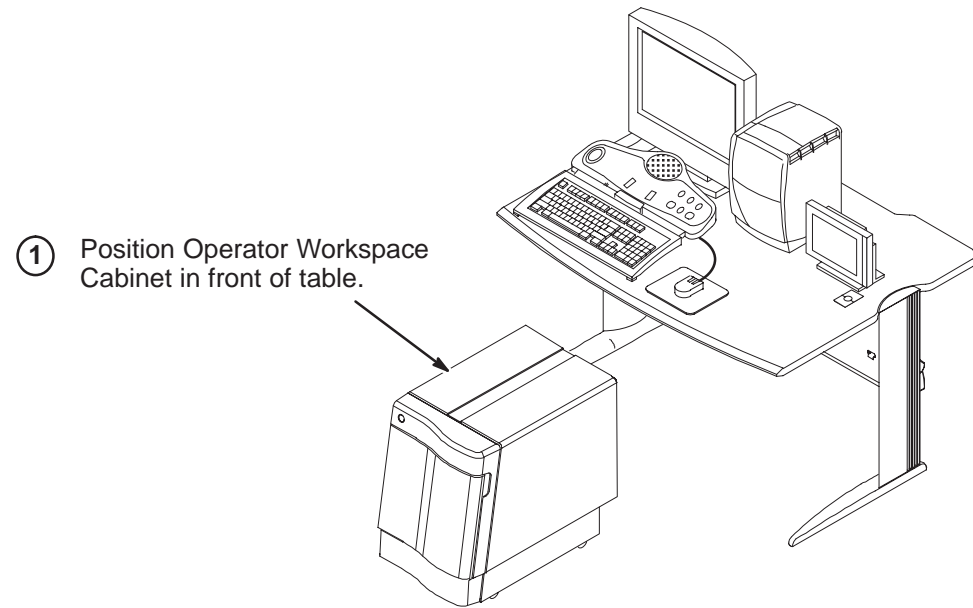
Run 815 (2198983)

Connect power cable to Power distribution Box J4.

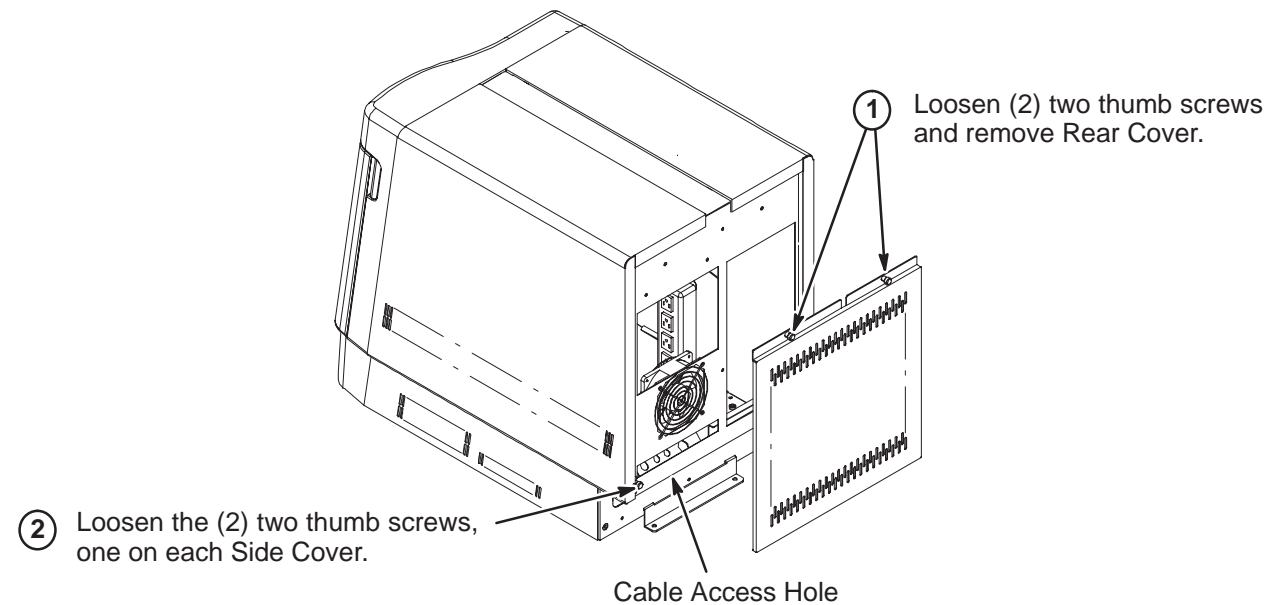
INSTALLATION STEPS SUMMARY

- E1 – Locate Operator Workspace Cabinet in Front of Table
- E2 – Remove Operator Workspace Cabinet Rear Cover
- E3 – Remove Operator Workspace Cabinet Front And Side Covers
- E4 – Connect Ethernet Cables
- E5 – Route/Connect Runs 792, 797, 813, and 814 to PC Module

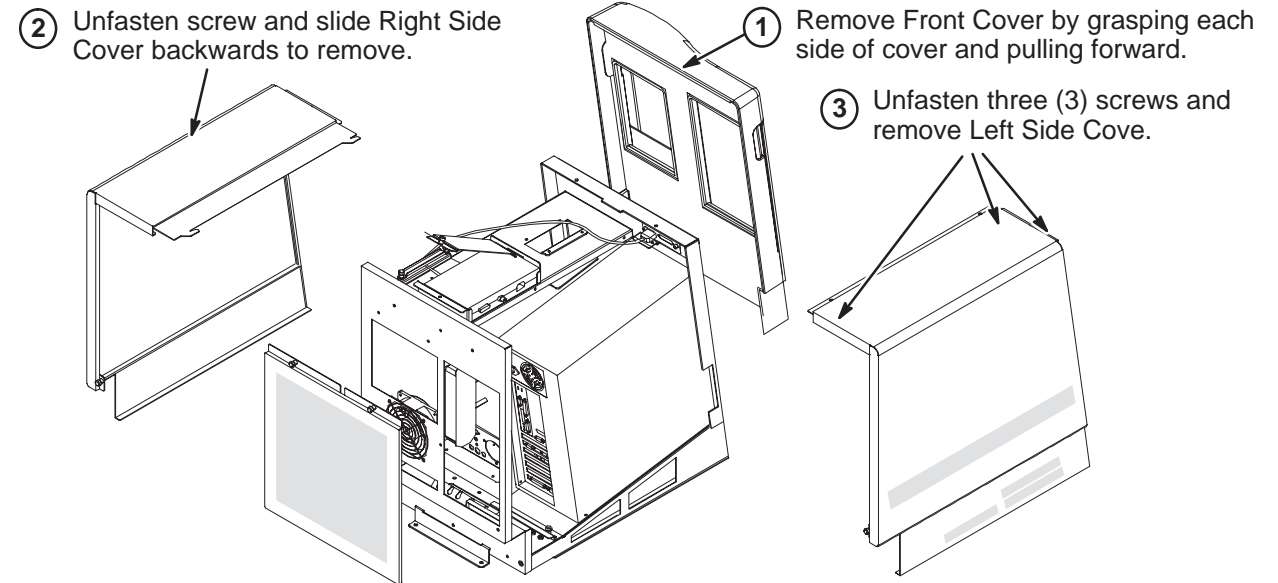
E1 – LOCATE OPERATOR WORKSPACE CABINET IN FRONT OF TABLE



E2 – REMOVE OPERATOR WORKSPACE CABINET REAR COVER

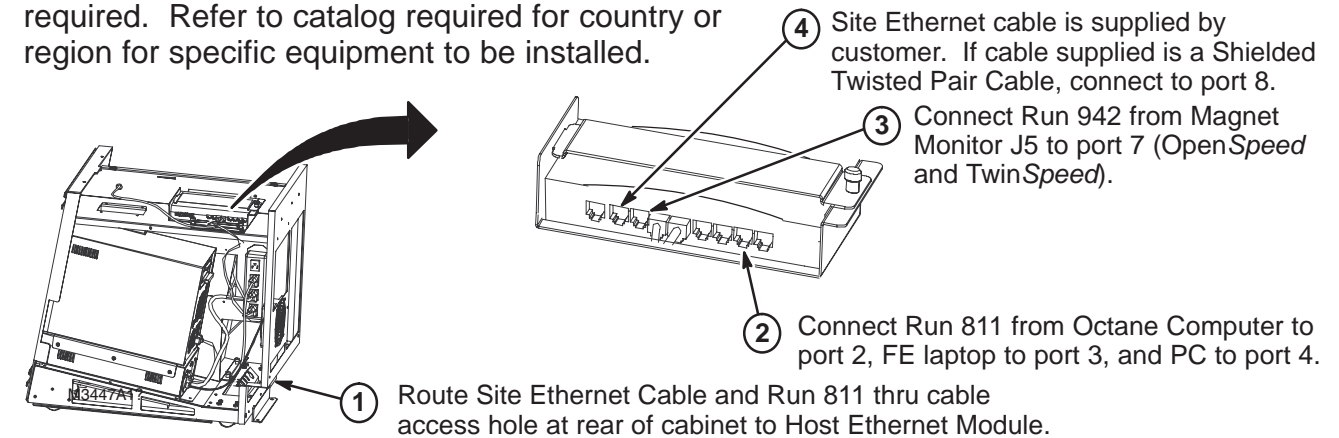


E3 – REMOVE OPERATOR WORKSPACE CABINET FRONT AND SIDE COVERS



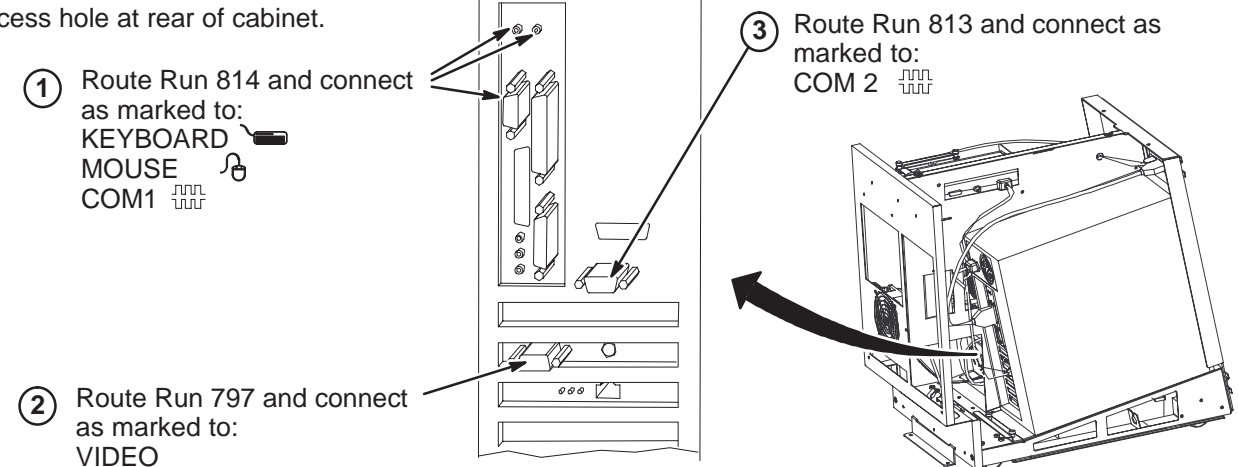
E4 – CONNECT ETHERNET CABLES

Note: Site Ethernet cable for InSite connection is supplied by customer. For Europe, connection to ISDN router is required. Refer to catalog required for country or region for specific equipment to be installed.



E5 – ROUTE/CONNECT RUNS 792, 797, 813, AND 814 TO PC MODULE

Note: Route cables thru access hole at rear of cabinet.



PROCEDURES F1 THRU F5 ARE USED ONLY WHEN UPGRADING FROM 5.x PLATFORMS, **DO NOT PERFORM PROCEDURES F1 THRU F5 FOR NEW OCTANE INSTALLATIONS**

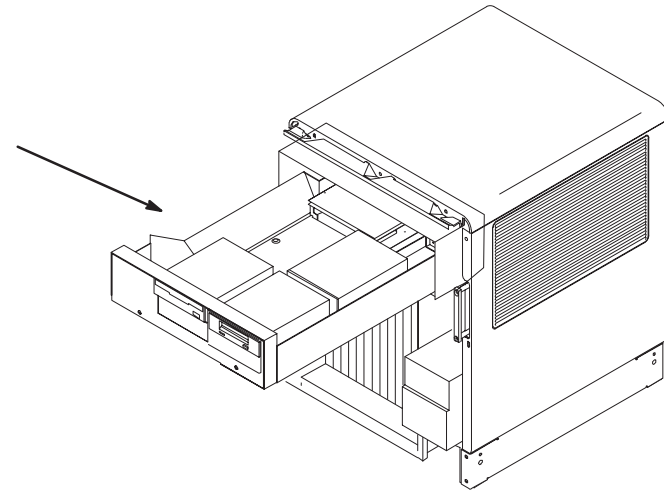
INSTALLATION STEPS SUMMARY

- F1 – Removal of DAT and MOD Drives from Genesis Computer
- F2 – Remove SCSI Expansion Box
- F3 – DAT Drive Settings
- F4 – MOD Drive Settings
- F5 – Install DAT and MOD Drives (Legacy Media) in SCSI Expansion Box

F1 – REMOVAL OF DAT AND MOD DRIVES FROM GENESIS COMPUTER

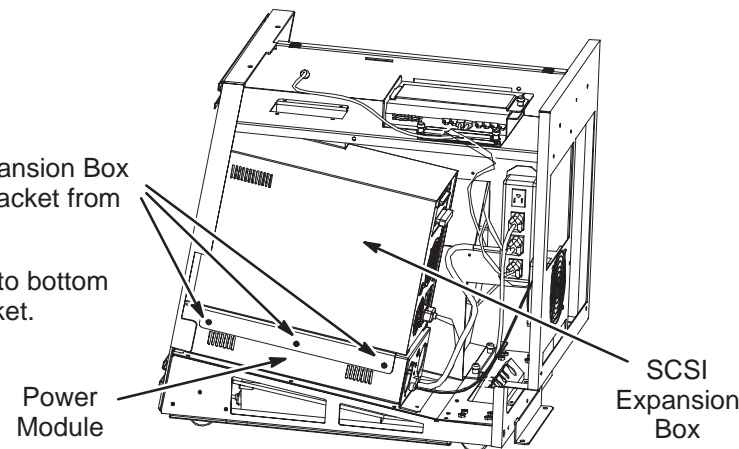
UPGRADE FROM 5.x OPTIONS:

For transferring Legacy Media DAT and MOD Drives from Genesis Computer – refer to Tab 13, Directions 2174955 and 2174956, steps **A1** thru **A4** only for removal of existing drives.



F2 – REMOVE SCSI EXPANSION BOX

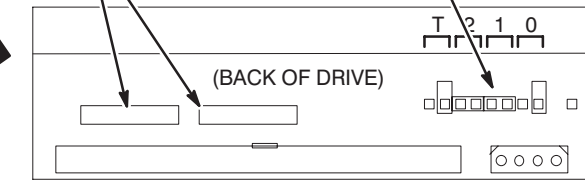
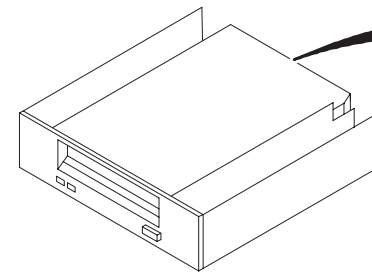
- 1 Unfasten three (3) screws from SCSI Expansion Box mounting bracket and remove Box and bracket from power module.
- 2 Unfasten six (6) screws that hold bracket to bottom of SCSI Expansion Box and remove bracket.
- 3 Remove SCSI Expansion Box cover.



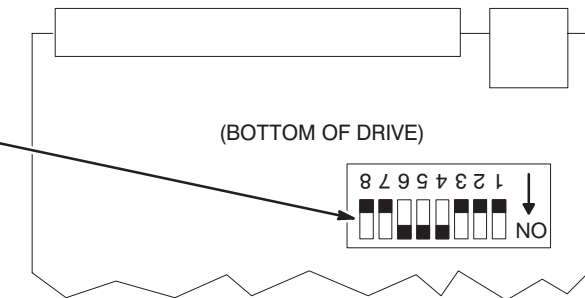
F3 – DAT DRIVE SETTINGS

1 Confirm that SCSI Bus Resistor Terminator Packs are not installed. If present – remove them.

2 For Octane, set SCSI ID = 6



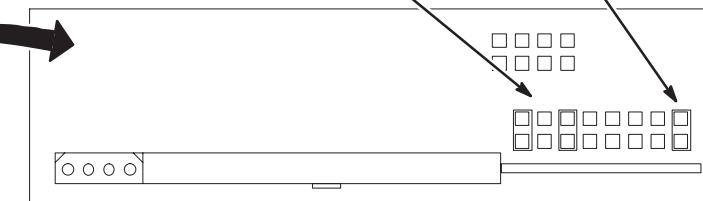
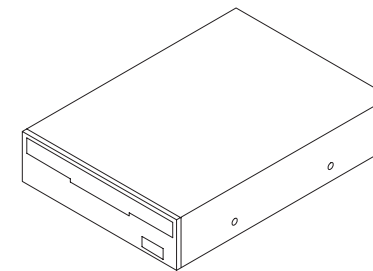
3 Set the switches on the bottom of the drive as shown. This sets the drive to NOT perform "data disconnects" when there is no data available. This is required because of the odd byte count record packing done on GEMS tapes and SGI's inability to handle odd byte "save pointer" SCSI requests.



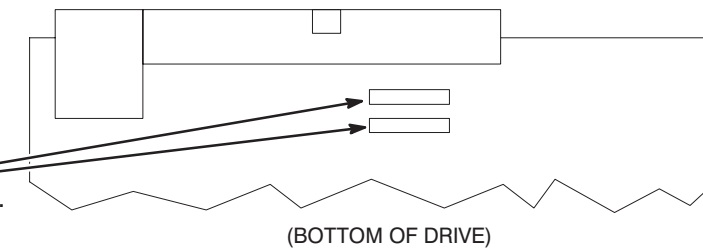
F4 – MOD DRIVE SETTINGS

2 For Octane, SCSI ID = 5

3 Make sure jumper is installed on pins at position 8 for SCSI Optical Disk.

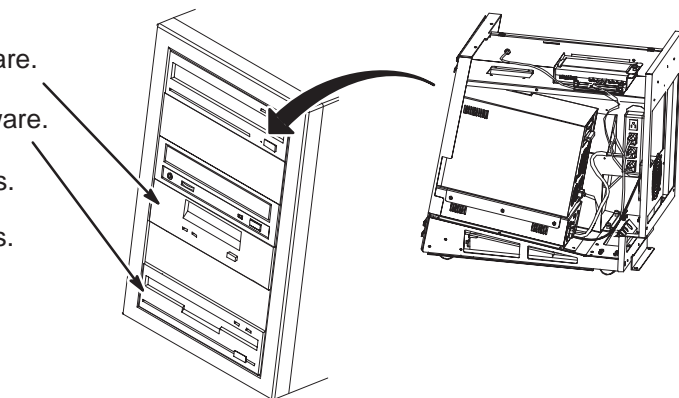


1 Confirm that SCSI Bus Resistor Terminator Packs are not installed. If present – remove them.



F5 – INSTALL DAT AND MOD DRIVES (LEGACY MEDIA) IN SCSI EXPANSION BOX

- 1 Install DAT Drive in slot 4 with existing hardware.
- 2 Install MOD Drive in slot 6 with existing hardware.
- 3 Connect power cords to DAT and MOD Drives.
- 4 Connect ribbon cable to DAT and MOD Drives.
- 5 Install SCSI Expansion Box cover. Reattach bracket to bottom of Box. Reattach bracket and Box assembly to power module.

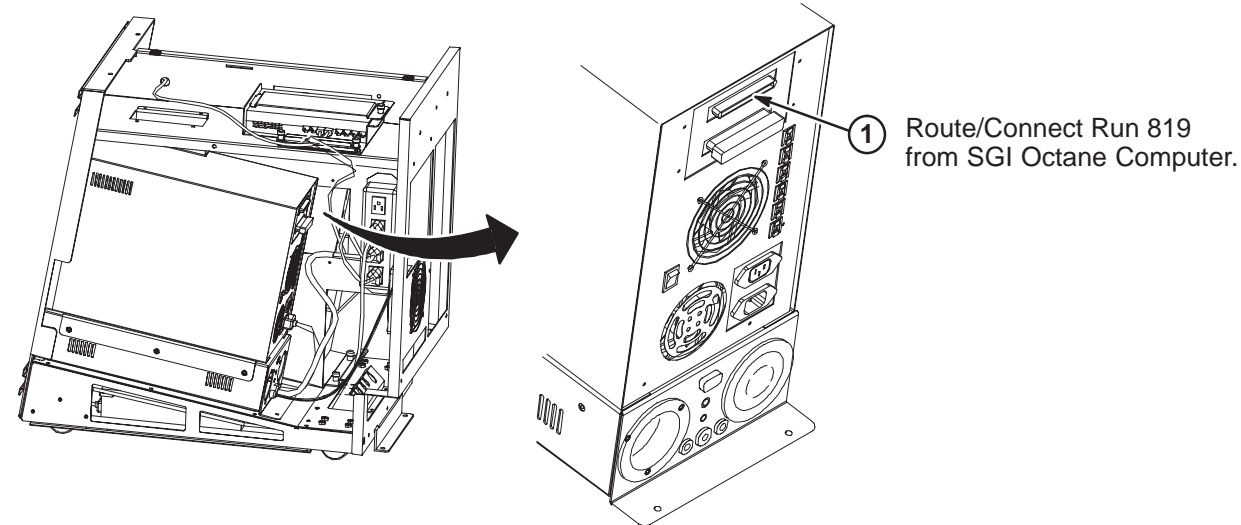


INSTALLATION STEPS SUMMARY

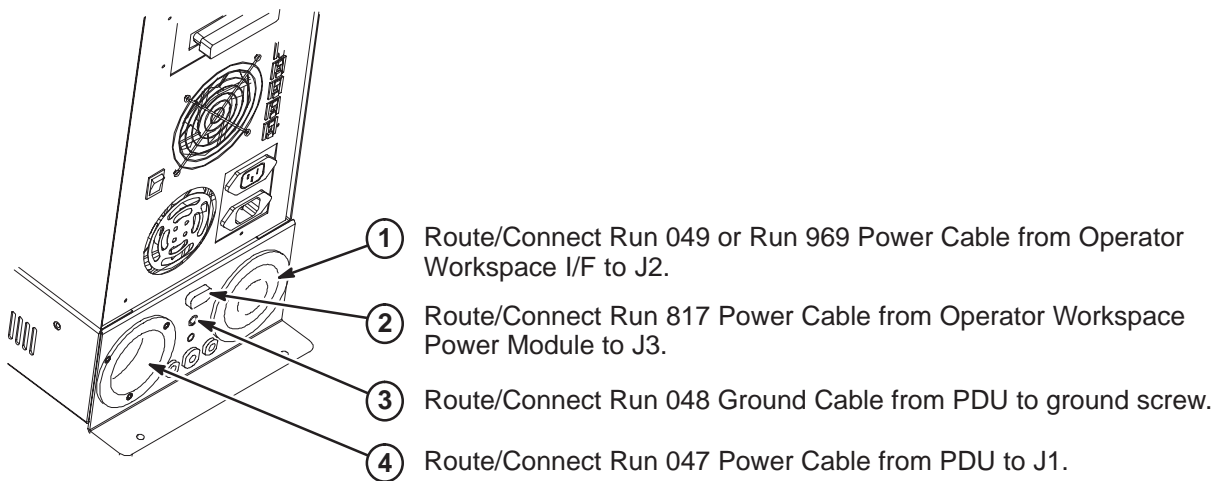
- ☐ **G1 – Route/Connect Run 819 to SCSI Expansion Box**
- ☐ **G2 – Route/Connect Runs 047, 048, 049/969, and 817 to Power Module**
- ☐ **G3 – Align Operator Workspace Cabinet Cables & Attach InSite “Computer” Magnet**
- ☐ **G4 – Bundle Operator Workspace Cabinet Cables**

G1 – ROUTE/CONNECT RUN 819 TO SCSI EXPANSION BOX

Note: Route all cables from SGI Octane Computer thru cable access hole at rear of cabinet.

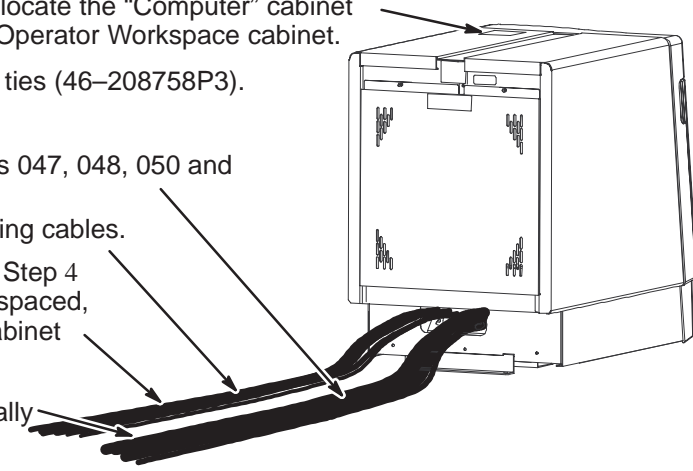


G2 – ROUTE/CONNECT RUNS 047, 048, 049/969, AND 817 TO POWER MODULE



G3 – ALIGN CABINET CABLES & ATTACH InSite “COMPUTER” MAGNET

- 1 Install Operator Workspace Cabinet right and left Side covers, Front cover and Rear cover.
- 2 From the 8.0 LX InSite Kit (46-301708G14), locate the “Computer” cabinet magnet (46-320095P1) and attach to top of Operator Workspace cabinet.
- 3 Locate the twenty (20) seven inch long cable ties (46-208758P3).
- 4 Separate cables into two bundles; The first bundle will include power cable Runs 047, 048, 050 and fiber optic cable Run 790. The second bundle will include all the remaining cables.
- 5 Align the cables of the first bundle created in Step 4 and attach ten (10) of the cable ties, equally spaced, around the cable bundle between the OW Cabinet and the OW Table.
- 6 Attach the remaining ten (10) cable ties, equally spaced, around the second cable bundle.



G4 – BUNDLE OPERATOR WORKSPACE CABINET CABLES

- 1 For each tie-wrapped bundle, place Cable Cover (46-307782P1) underneath.
- 2 Attach mating VelcroT to outside surface of Operator Workspace cabinet.
- 3 Wrap Cable Cover around bundle attaching the VelcroT hooks and loops.
- 4 Attach cable bundle Clamp (46-307873P1) to center of Cable Cover.
- 5 Carefully roll OW Cabinet into final position. Make sure cable bundles are unobstructed and slide easily. Attach to mating Velcro on cabinet.
- 6 Repeat Step 5 as often as necessary.

