GE Healthcare

Signa HDe to Optima MR360
System Upgrade

OPERATING DOCUMENTATION

5410639-1EN
Revision 3


WARNING
STRONG MAGNETIC FIELD
NO PACEMAKERS
NO METALLIC IMPLANTS
NO NEUROSTIMULATORS
Persons with pacemakers, neurostimulators, or metallic implants must not enter this area.
Serious injury may result.
5116163

Important Information

LANGUAGE

ПРЕДУПРЕЖДЕНИЕ (BG)

Това упътване за работа е налично само на английски език.

- Ако доставчикът на услугата на клиента изиска друг език, задължение на клиента е да осигури превод.
- Не използвайте оборудването, преди да сте се консултирали и разбрали упътването за работа.
- Неспазването на това предупреждение може да доведе до нараняване на доставчика на услугата, оператора или пациента в резултат на токов удар, механична или друга опасност.

警告 (ZH-CN)

本维修手册仅提供英文版本。

- 如果客户的维修服务人员需要非英文版本，则客户需自行提供翻译服务。
- 未详细阅读和完全理解本维修手册之前，不得进行维修。
- 忽略本警告可能对维修服务人员、操作人员或患者造成电击、机械伤害或其他形式的伤 害。

警告 (ZH-HK)

本服務手冊僅提供英文版本。

- 倘若客戶的服務供應商需要英文以外之服務手冊，客戶有責任提供翻譯服務。
- 除非已參閱本服務手冊及明白其內容，否則切勿嘗試維修設備。
- 不遵從本警告或會令服務供應商、網絡供應商或病人受到觸電、機械性或其他的危險。

警告 (ZH-TW)

本維修手冊僅有英文版。

- 若客戶的維修廠商需要英文版以外的語言，應由客戶自行提供翻譯服務。
- 請勿試圖維修本設備，除非 您已查閱並瞭解本維修手冊。
- 若未留意本警告，可能導致維修廠商、操作員或病患因觸電、機械或其他危險而受傷。

UPOZORENJE (HR)

Ovaj servisni priručnik dostupan je na engleskom jeziku.

- Ako davatelj usluge klijenta treba neki drugi jezik, klijent je dužan osigurati prijevod.
- Ne pokušavajte servisirati opremu ako niste u potpunosti pročitali i razumjeli ovaj servisni priručnik.
- Zanemarite li ovo upozorenje, može doći do ozljede davatelja usluge, operatera ili pacijenta uslijed strujnog udara, mehaničkih ili drugih rizika.

VÝSTRAHA (CS)

Tento provozní návod existuje pouze v anglickém jazyce.

- V případě, že externí služba zákazníkům potřebuje návod v jiném jazyce, je zajištění překladu do odpovídajícího jazyka úkolem zákazníka.
- Nesnažte se o údržbu tohoto zařízení, aniž byste si přečetli tento provozní návod a pochopili jeho obsah.
- V případě nedodržování této výstrahy může dojít k poranění pracovníka prodejního servisu, obslužného personálu nebo pacientů vlivem elektrického proudu, respektive vlivem mechanických či jiných rizik.

ADVARSEL (DA)

Denne servicemanual findes kun på engelsk.

- Hvis en kundes tekniker har brug for et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelse.
- Forsøg ikke at servicere udstyret uden at læse og forstå denne servicemanual.
- Manglende overholdelse af denne advarsel kan medføre skade på grund af elektrisk stød, mekanisk eller anden fare for teknikeren, operatøren eller patienten.

WAARSCHUWING (NL)

Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar.

- Als het onderhoudspersoneel een andere taal vereist, dan is de klant verantwoordelijk voor de vertaling ervan.
- Probeer de apparatuur niet te onderhouden alvorens deze onderhoudshandleiding werd geraadpleegd en begrepen is.
- Indien deze waarschuwing niet wordt opgevolgd, zou het onderhoudspersoneel, de operator of een patiënt gewond kunnen raken als gevolg van een elektrische schok, mechanische of andere gevaren.

WARNING (EN)

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.

HOIATUS (ET)

See teenindusjuhend on saadaval ainult inglise keeles.

- Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest.
- Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist.
- Käesoleva hoiatuse eiramine võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärjel.

VAROITUS (FI)

Tämä huolto-ohje on saatavilla vain englanniksi.

- Jos asiakkaan huoltohenkilöstö vaatii muuta kuin englanninkielistä materiaalia, tarvittavan käännöksen hankkiminen on asiakkaan vastuulla.
- Älä yritä korjata laitteistoa ennen kuin olet varmasti lukenut ja ymmärtänyt tämän huolto-ohjeen.
- Mikäli tätä varoitusta ei noudateta, seurauksena voi olla huoltohenkilöstön, laitteiston käyttäjän tai potilaan vahingoittuminen sähköiskun, mekaanisen vian tai muun vaaratilanteen vuoksi.

ATTENTION (FR)

Ce manuel d’installation et de maintenance est disponible uniquement en anglais.

- Si le technicien d'un client a besoin de ce manuel dans une langue autre que l'anglais, il incombe au client de le faire traduire.
- Ne pas tenter d'intervenir sur les équipements tant que ce manuel d’installation et de maintenance n'a pas été consulté et compris.
- Le non-respect de cet avertissement peut entraîner chez le technicien, l'opérateur ou le patient des blessures dues à des dangers électriques, mécaniques ou autres.

WARNUNG (DE)

Diese Serviceanleitung 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 diese Anlage zu warten, ohne diese Serviceanleitung gelesen und verstanden zu haben.
- Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des Bedieners oder des Patienten durch Stromschläge, mechanische oder sonstige Gefahren kommen.

ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)

Το παρόν εγχειρίδιο σέρβις διατίθεται μόνο στα αγγλικά.

- Εάν ο τεχνικός σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει τις υπηρεσίες μετάφρασης.
- Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό αν δεν έχετε συμβουλευτεί και κατανοήσει το παρόν εγχειρίδιο σέρβις.
- Αν δεν προσέξετε την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στον τεχνικό σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.

FIGYELMEZTETÉS (HU)

Ezen karbantartási kézikönyv kizárólag angol nyelven érhető el.

- Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészíttetése.
- Ne próbálja elkezdeni használni a berendezést, amíg a karbantartási kézikönyvben leírtakat nem értelmezték.
- Ezen figyelmeztetés figyelmen kívül hagyása a szolgáltató, működtető vagy a beteg áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.

AÐVÖRUN (IS)

Þessi þjónustuhandbók er aðeins fáanleg á ensku.

- Ef að þjónustuveitandi viðskiptamanns þarfnast annas tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálaþjónustu.
- Reynið ekki að afgreiða tækið nema að þessi þjónustuhandbók hefur verið skoðuð og skilin.
- Brot á sinna þessari aðvörun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklings frá raflosti, vélrænu eða öðrum áhættum.

AVVERTENZA (IT)

Il presente manuale di manutenzione è disponibile soltanto in lingua inglese.

- Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è tenuto a provvedere direttamente alla traduzione.
- Procedere alla manutenzione dell'apparecchiatura solo dopo aver consultato il presente manuale ed averne compreso il contenuto.
- Il mancato rispetto della presente avvertenza potrebbe causare lesioni all'addetto alla manutenzione, all'operatore o ai pazienti provocate da scosse elettriche, urti meccanici o altri rischi.

警告 (JA)

このサービスマニュアルには英語版しかありません。

- サービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。
- このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないでください。
- この警告に従わない場合、サービスを担当される方、操作員あるいは患者 さんが、感電や機械的又はその他の危険により負傷する可能性があります。

경고 (KO)

본 서비스 매뉴얼은 영어로만 이용하실 수 있습니다.

- 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다.
- 본 서비스 매뉴얼을 참조하여 숙지하지 않은 이상 해당 장비를 수리하려고 시도하지 마십시오.
- 본 경고 사항에 유의하지 않으면 전기 쇼크, 기계적 위험, 또는 기타 위험으로 인해 서비스 제공자, 사용자 또는 환자에게 부상을 입힐 수 있습니다.

BRĪDINĀJUMS (LV)

Šī apkopes rokasgrāmata ir pieejama tikai angļu valodā.

- Ja klienta apkopes sniedzējam nepieciešama informācija citā valodā, klienta pienākums ir nodrošināt tulkojumu.
- Neveiciet aprīkojuma apkopi bez apkopes rokasgrāmatas izlasīšanas un saprašanas.
- Šī brīdinājuma neievērošanas rezultātā var rasties elektriskās strāvas trieciena, mehānisku vai citu faktoru izraisītu traumu risks apkopes sniedzējam, operatoram vai pacientam.

ĮSPĖJIMAS (LT)

Šis eksploatavimo vadovas yra tik anglų kalba.

- Jei kliento paslaugų tiekėjas reikalauja vadovo kita kalba – ne anglų, suteikti vertimo paslaugas privalo klientas.
- Nemėginkite atlikti įrangos techninės priežiūros, jei neperskaitėte ar nesupratote šio eksploatavimo vadovo.
- Jei nepaisysite šio įspėjimo, galimi paslaugų tiekėjo, operatoriaus ar paciento sužalojimai dėl elektros šoko, mechaninių ar kitų pavojų.

ADVARSEL (NO)

Denne servicehåndboken finnes bare på engelsk.

- Hvis kundens serviceleverandør har bruk for et annet språk, er det kundens ansvar å sørge for oversettelse.
- Ikke forsøk å reparere utstyret uten at denne servicehåndboken er lest og forstått.
- Manglende hensyn til denne advarselen kan føre til at serviceleverandøren, operatøren eller pasienten skades på grunn av elektrisk støt, mekaniske eller andre farer.

OSTRZEŻENIE (PL)

Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim.

- Jeśli serwisant klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta.
- Nie próbować serwisować urządzenia bez zapoznania się z niniejszym podręcznikiem serwisowym i zrozumienia go.
- Niezastosowanie się do tego ostrzeżenia może doprowadzić do obrażeń serwisanta, operatora lub pacjenta w wyniku porażenia prądem elektrycznym, zagrożenia mechanicznego bądź innego.

ATENÇÃO (PT-BR)

Este manual de assistência técnica encontra-se disponível unicamente em inglês.

- Se outro serviço de assistência técnica solicitar a tradução deste manual, caberá ao cliente fornecer os serviços de tradução.
- Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica.
- A não observância deste aviso pode ocasionar ferimentos no técnico, operador ou paciente decorrentes de choques elétricos, mecânicos ou outros.

ATENÇÃO (PT-PT)

Este manual de assistência técnica só se encontra disponível em inglês.

- Se qualquer outro serviço de assistência técnica solicitar este manual noutro idioma, é da responsabilidade do cliente fornecer os serviços de tradução.
- Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica.
- O não cumprimento deste aviso pode colocar em perigo a segurança do técnico, do operador ou do paciente devido a choques eléctricos, mecânicos ou outros.

ATENŢIE (RO)

Acest manual de service este disponibil doar în limba engleză.

- Dacă un furnizor de servicii pentru clienți necesită o altă limbă decât cea engleză, este de datoria clientului să furnizeze o traducere.
- Nu încercați să reparați echipamentul decât ulterior consultării și înțelegerii acestui manual de service.
- Ignorarea acestui avertisment ar putea duce la rănirea depanatorului, operatorului sau pacientului în urma pericolelor de electrocutare, mecanice sau de altă natură.

ОСТОРОЖНО! (RU)

Данное руководство по техническому обслуживанию представлено только на английском языке.

- Если сервисному персоналу клиента необходимо руководство не на английском, а на каком-то другом языке, клиенту следует самостоятельно обеспечить перевод.
- Перед техническим обслуживанием оборудования обязательно обратитесь к данному руководству и поймите изложенные в нем сведения.
- Несоблюдение требований данного предупреждения может привести к тому, что специалист по техобслуживанию, оператор или пациент получит удар электрическим током, механическую травму или другое повреждение.

UPOZORENJE (SR)

Ovo servisno uputstvo je dostupno samo na engleskom jeziku.

- Ako klijentov serviser zahteva neki drugi jezik, klijent je dužan da obezbedi prevodilačke usluge.
- Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo.
- Zanemarivanje ovog upozorenja može dovesti do povređivanja servisera, rukovaoca ili pacijenta usled strujnog udara ili mehaničkih i drugih opasnosti.

UPOZORNENIE (SK)

Tento návod na obsluhu je k dispozícii len v angličtine.

- Ak zákazníkov poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka.
- Nepokúšajte sa o obsluhu zariadenia, kým si neprečítate návod na obluhu a neporozumiete mu.
- Zanedbanie tohto upozornenia môže spôsobiť zranenie poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, mechanické alebo iné ohrozenie.

ATENCION (ES)

Este manual de servicio sólo existe en inglés.

- Si el encargado de mantenimiento de un cliente necesita un idioma que no sea el inglés, el cliente deberá encargarse de la traducción del manual.
- 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.

VARNING (SV)

Den här servicehandboken finns bara tillgänglig på engelska.

- Om en kunds servicetekniker har behov av ett annat språk än engelska, ansvarar kunden för att tillhandahålla översättningstjänster.
- Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken.
- Om du inte tar hänsyn till den här varningen kan det resultera i skador på servicetekniker, operatören eller patienten till följd av elektriska stötar, mekaniska faror eller andra faror.

OPOZORILO (SL)

Ta servisni priročnik je na voljo samo v angleškem jeziku.

- Če ponudnik storitve stranke potrebuje priročnik v drugem jeziku, mora stranka zagotoviti prevod.
- Ne poskušajte servisirati opreme, če tega priročnika niste v celoti prebrali in razumeli.
- Če tega opozorila ne upoštevate, se lahko zaradi električnega udara, mehanskih ali drugih nevarnosti poškoduje ponudnik storitev, operater ali bolnik.

DİKKAT (TR)

Bu servis kılavuzunun sadece ingilizcesi mevcuttur.

- Eğer müşteri teknisyeni bu kılavuzu ingilizce dışında bir başka lisandan talep ederse, bunu tercüme ettirmek müşteriye düşer.
- Servis kılavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz.
- Bu uyarıya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.

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Revision History

Revision	Date	Description
1	Dec 17, 2010	Initial Release
2	Jan 24, 2011	Updated per GEHmr04766 and GEHmr04768 found in Service Process Validation.
3	Dec 6, 2011	Added GE Log install and note.

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Table of Contents

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Chapter 1 Getting Started

1 Getting Started

1.1 Introduction

This publication documents the mechanical installation information for upgrading a Signa HDe system with Equipment Room to Optima MR360 system with Equipment Room (Detachable Table Configuration).

⚠WARNING

FERROUS MATERIAL HAZARD!
DELIVERY EQUIPMENT 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 OUTSIDE OF 200G LINE.

1.2 Site Ready Check For Mechanical Installation

Before equipment is delivered, the following must be checked and completed to avoid delays and confusion.

- Perform SPT and EPT and check that the test results are passed for all items.
- Check Shim Current Value and record it for the calibration after system installation.
- Check Center Frequency and record it for the calibration after system installation.
- Check that Liquid He level is over 75%. If not, refill Liquid He.
- If MDP type is E45033AT or E4502SP, need to replace it to MDP (M3088TM) prior to System Installation.
- Power Line/Breaker for Lytron BRM Chiller is required for upgrade. Refer to *Direction 5338503-1EN, Optima MR360/Brivo MR355 1.5T Pre-installation* for specification.
- Confirm that MRU is connected to the Magnet.
- Confirm the following information which is required after upgrade.
  - Imager
  - Network

1.3 PRE–DELIVERY FDO CHECKS

Before the shipment is made, Be sure that FDO review has been completed by consultation with the Upgrade Specialist.

The “Shipping Document” lists catalog numbers delivered. **Review and confirm that 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. PDI (Product Delivery Instructions) specify box contents, part numbers, and shipping procedure. The PDI is numbered according to the catalog number. Lists of items included with each box are detailed by separate checklists, or a separate sheet that provides a summary of that 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 UPGRADE SCHEDULE CONSIDERATIONS

The upgrade procedure includes De-installation of HDe system and installation of Optima MR360. Be sure that all planned activity is considered. Also verify Application Specialist is scheduled at the end of the installation to instruct users. Additional time must also be scheduled to instruct users following completion of upgrade.

1.5 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.

File a report with

- Call 1-800-548-3366 and use option 8.
- Contact your local service coordinator for more information on this process.

1.6 DISCARDED MATERIAL POLICY

The equipment or material being removed by the upgrade have a potential value for service of the installed base. The disposition of such must be controlled by GE. Disposition of the removed material is per GE Medical Systems Policy and Procedures.

1.6.1 Disposed Material

Regulations governing the disposal of this equipment or material vary from location to location and from country to country. In order to insure compliance with all local, state, or national environment, health, and safety regulations, dispose of all items in the per local GEMS policy and procedures and other applicable published guidance. Contact GEMS Recycling Center for assistance.

1.7 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.

1.8 Required Tools

⚠WARNING

FERROUS MATERIAL HAZARD!
THE CRIMP TOOL, AND OTHER TOOLS AND PARTS REQUIRED FOR THIS INSTALLATION THAT CONTAIN FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME DANGEROUS PROJECTILES.
KEEP ALL FERROUS TOOLS OUTSIDE OF 200G LINE.

Tools to de-install HDe system and install the Optima MR360 system are listed below:

Table 1-1: Installation Equipment

Item	GE Part Number	Description
1		Ramp for removing cabinets from pallets for International shipments (See Note 1)
2		Wrecking bar

Item	GE Part Number	Description
3		Claw hammer, 3/4 lb
4	46-271138G1	Restricted Access Control Kit. Contains two plastic warning signs for posting at site during installation and service activity.
5		4 foot or equivalent carpenter level
6	2319156	Aluminum platform ladder, 47.5 inches (1206.5mm) (See Note 1)
7	2134776	Gradient Cable Crimper/Stripper Kit (Note 2) consisting of:
		2134586 Cable stripping tool
		2134586-2 Stripping tool replacement blade
		2134587 Cable slicer
		46-282853P1 Ratcheting crimper
		2135839 1/2 inch terminals
		2135839-2 3/8 inch terminals
8	46-320273G3 or G4	Non-Magnetic Tool Kit - Universal (See Note 2)
		Both metric and inch Non-Magnetic Tool Kits needed. May substitute both of the following kits:
		46-320273G1 Non-Magnetic Tool Kit - Metric
		46-320273G2 Non-Magnetic Tool Kit - Inch
9	46-301450G1	Fiber optic connector repair kit (See Note 2)
10	2384858	Times Microwave LMR 1200 Stripping Tool (See Note 1)
11	2352193	Times Microwave LMR 600 Stripping Tool (See Note 1)
12	5111565	Times Microwave cutting Tool (See Note 1)
13	46-198094P1	Wrist grounding strap
14		Volt Meter
15		Extension cords, with ground conductor
16		Power strip, grounded type, with minimum of five outlets
17		Plastic or aluminum flashlight
18		Assorted crimp tools.
19		Non-magnetic level
20		Non-magnetic tape rule, 12 ft
21		Assorted drill bits
22		Inspection mirror
23		Hobby and utility knives
Note	**1**	**Supplied as part of Signa.**
	2	**Supplied by GE until turnover of system to customer, then available as part of a GE Cryogen and/or Service Contract.**

1.9 De-installed components and Installed Components

1.9.1 Components to be de-installed

- **Components to be de-installed**
  - OW
  - Water Cooled Shield Cooler Compressor (400V site)
  - MCS
  - BRM Chiller
  - System Cabinet
  - Detachable Patient Table
  - Magnet Enclosure EXCEPT the followings
    - BRM
    - RF Body Coil
    - Front and Rear End Bell
    - Front and Rear Trim Ring
    - Rear Cover
    - Center Display Panel
  - PAC and SRI with Tray
  - Rear Pedestal
- **Components to be reused**
  - Magnet with BRM
  - Following Magnet Enclosures
    - Front and Rear End Bell
    - Front and Rear Trim Ring
    - Rear Cover
    - Center Display Panel
  - Dock
  - Dock Frame and Control Box on Dock Frame
  - Blower Box

- Penetration Panel
- Magnet Monitor
- Air Cooled Shield Cooler Compressor (200V site)
- Mesh Shield
- Flex Line from Cold Head to Shield Cooler Compressor
- Bore Light with Fiber Cable

Illustration 1-1: De-Install Components

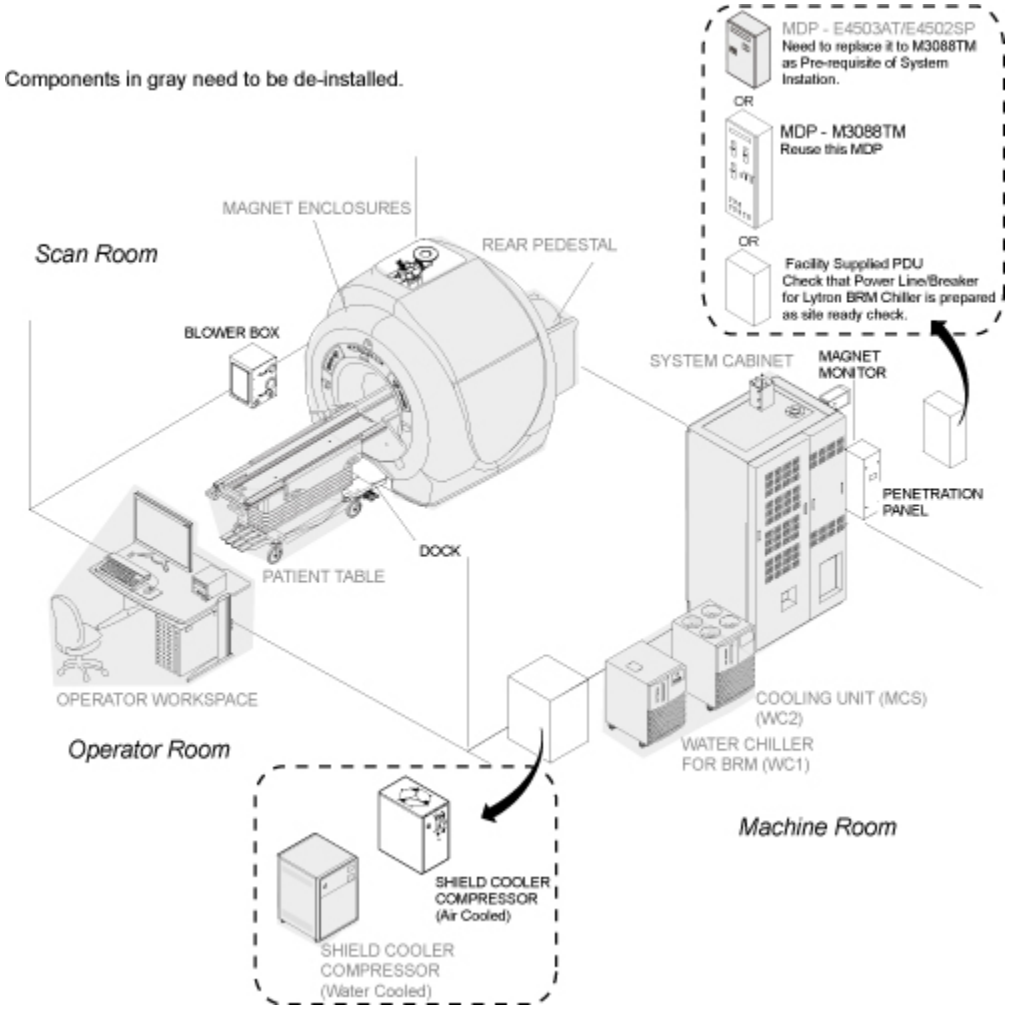


Illustration 1-2: Remaining Components around Magnet (Front View)

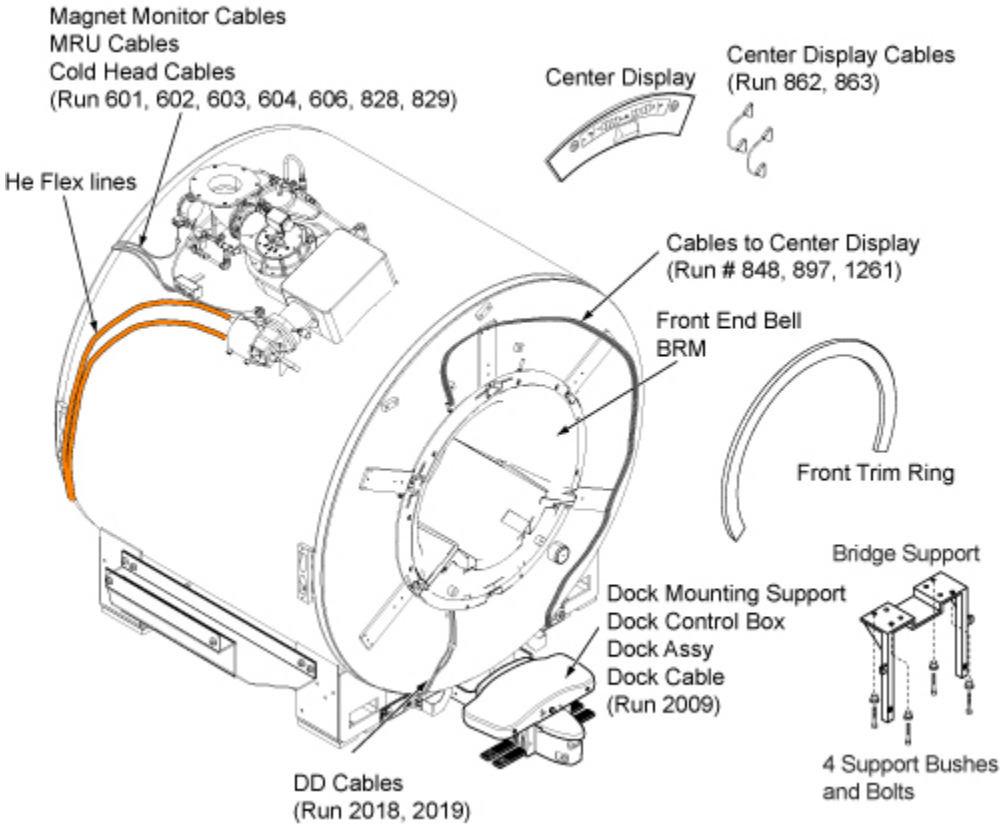
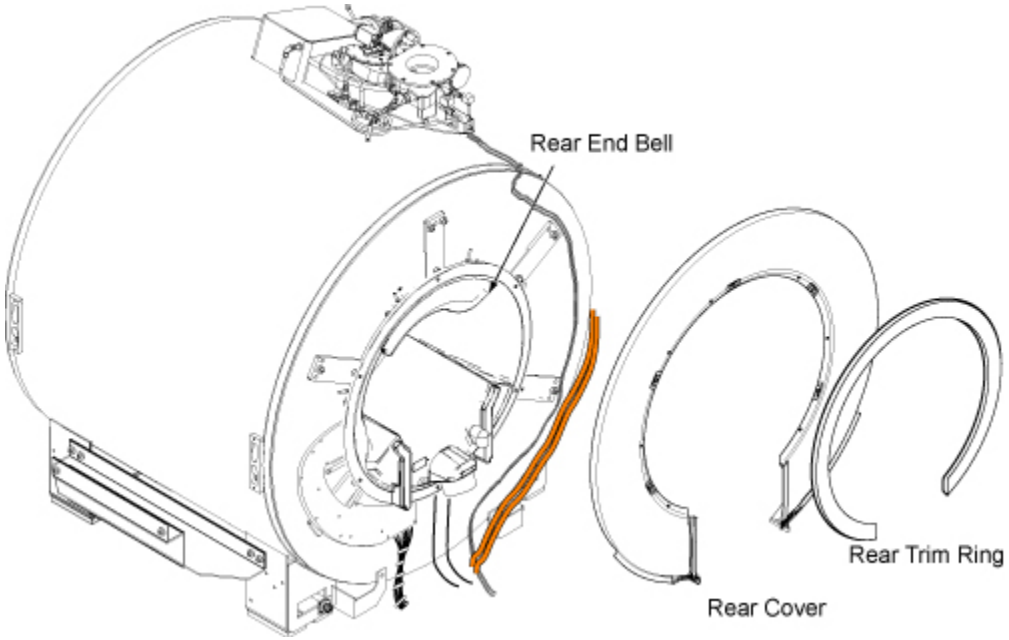
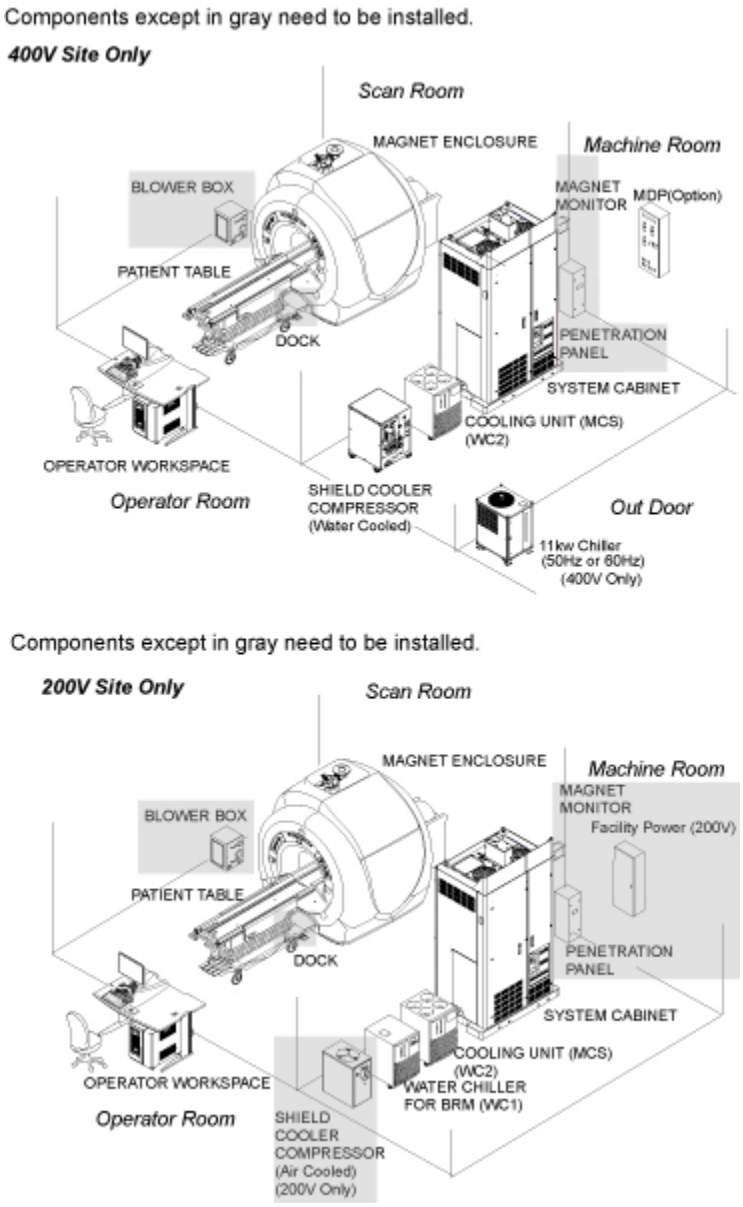


Illustration 1-3: Remaining Components around Magnet (Rear View)



1.9.2 Components to be installed

Illustration 1-4: Components to be installed



1.10 System Options

Purchased options may also be installed concurrently with the system upgrade. Flow charts provide steering to the Option Installation Direction that is delivered with the system.

Refer to manual shipped with the option for installation of Surface Coil, Advantage Window, Camera Options, and Hardware & Software options.

1.11 Facility Options

- MR Signa Main Disconnect Panel (M3088TM)

- Signa System Seismic Anchorage Service (R4390JA).

1.12 Product Delivery Instructions

The “Shipping Document” lists catalog numbers delivered. Review and confirm that 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 category coded is as follows:

- A - Accessory Group
- B - Blower Group
- C - Operator WorkSpace Group
- M - Magnet Group
- O - Post-installation Group (Phantoms, Coils)
- R - Rear Pedestal Group
- S - System Calibration Group
- Opt - Option Group (Chiller, Compressor, etc)
- Opt_C - Option Coil

“Product Delivery Instructions” (PDI) specify box contents, part numbers, and shipping procedure. The PDI is numbered according to the catalog number (for example, PDI -M3333TA 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 summery of that 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.

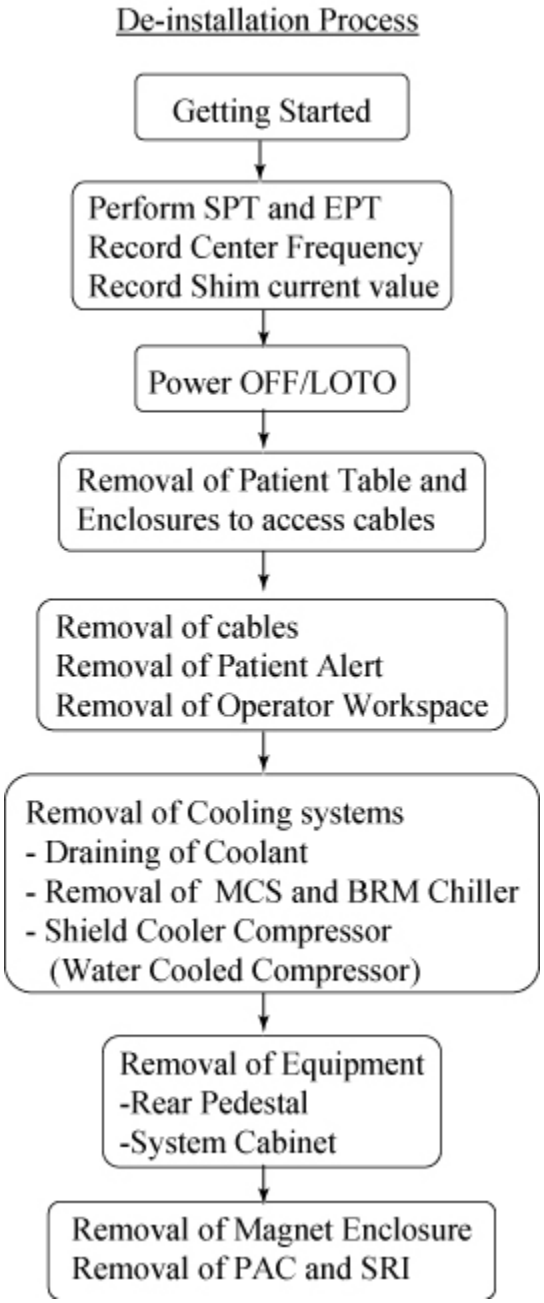
1.13 Upgrade Procedure

The flow chart should be followed for an orderly and efficient upgrade from Signa HDe to Optima MR360 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.

This upgrade flowchart has been developed assuming that all Optima MR360 equipment has been delivered together. Make sure that every part required is available before starting.

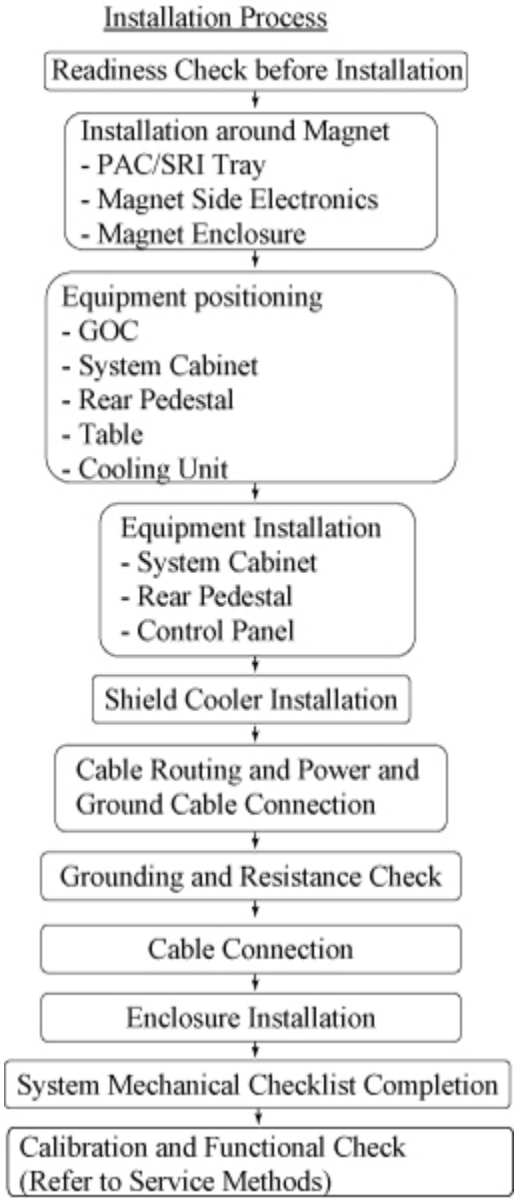
1.13.1 De-Installation Procedure

Illustration 1-5: De-Installation



1.13.2 Optima MR360 System Mechanical Installation

Illustration 1-6: Installation



1.13.3 Labor Hours

This section provides the standard labor hours for the upgrade.

Labor Hours for De-Installation

Table 1-2: Labor Hours for De-Installation

Procedure	Personnel	Hours	Labor Hours
Preparation	1	2	2
Cover removal	1	1	1
Cable removal	2	1.5	3
Removal of Cooling Unit	1	1.5	1.5
Removal of Equipment	2	2	4
Removal of Magnet Enclosure	2	1.5	3
PAC & SRI removal	1	1	1
Total		10.5	15.5

Labor Hours for Installation

Table 1-3: Labor Hours for Installation

Procedure	Personnel	Hours	Labor Hours
Preparation	1	1	1
PAC & SRI Installation	2	1.5	3
Magnet Side Kit Installation including Cable Routing	2	1.5	3
Magnet Enclosure Installation	2	1	2
Equipment Positioning	2	2	4
System Cabinet Installation	1	1	1
Left and Right Control Panel Installation	1	0.5	0.5
Rear Pedestal LPCA Installation	1	1	1
Cooling System Installation	1	2	2
Cable Routing and Power/Ground Line Connection	1	1	1
Cable Installation	1	2	2
Enclosure Installation	1	1	1
Calibration	2	16	32
Total		31.5	53.5

1.14 MCAT Information for Upgrade

The followings are MCAT information of the Upgrade from HDe to Optima MR360.

- M50002FZ HDe to SV upgrade kit
- M5000AM Magnet Cover Upgrade kit
- M50002FY Magnet magnet-side Upgrade kit

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Chapter 2 De-Installation

1 System Check before De-Installation

1.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	0 min	2 hours	0 min

1.2 Preliminary Requirements

1.2.1 Tools and Test Equipment

1.2.2 Safety

⚠WARNING

POISON HAZARD
1.0T AND 1.5T PHANTOMS CONTAINS NICKEL, A SUSPECT CARCINOGEN
DISPOSE OF AS A HAZARDOUS WASTE ACCORDING TO STATE AND FEDERAL REGULATIONS

1.3 Procedure

1.3.1 SPT and EPT

1. Perform SPT according to HDe Service Methods. (Troubleshooting / Image Quality Troubleshooting Tools / System Performance Test (SPT)).
2. Verify that all results are passed.
3. Perform EPT according to HDe Service Methods. (Adjust/Cals / System Level Procedures / Echo Planar Test (EPT)).
4. Verify that all results are passed.

1.3.2 Center Frequency Value Check

Note: Center frequency value will be used to restore after upgrade at First Scan procedure.

1. Setup head coil with DQA phantom, landmark, and set patient protocols for any head scan.
2. At the scan screen, click [Auto Prescan].
3. Record the Center Frequency Value displayed above [Auto Prescan] button.

Illustration 2-1: Center Frequency Value

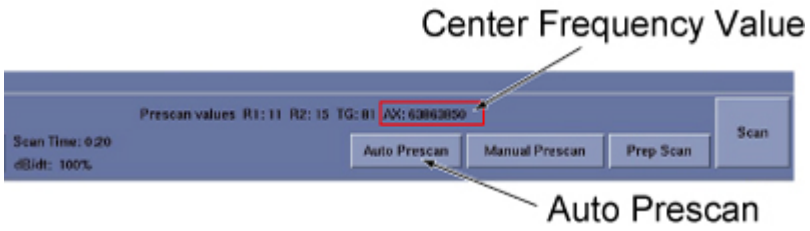


Table 2-1: Data Sheet

Center Frequency	

1.3.3 Shim Current Value Check

Note: Shim current value will be used to restore after upgrade at Rough Shim procedure.

1. Check the last shim current value and record it.

    1. Open “Service Browser”, select “Calibration” Tab, select “LV shim”, and start tool.

        NOTE: If Service Key is installed to PC, Invoke “LV Shim” from ICW (Install And Calibration Wizard).

    2. Record the shim current value.

Illustration 2-2: Shim Current Value

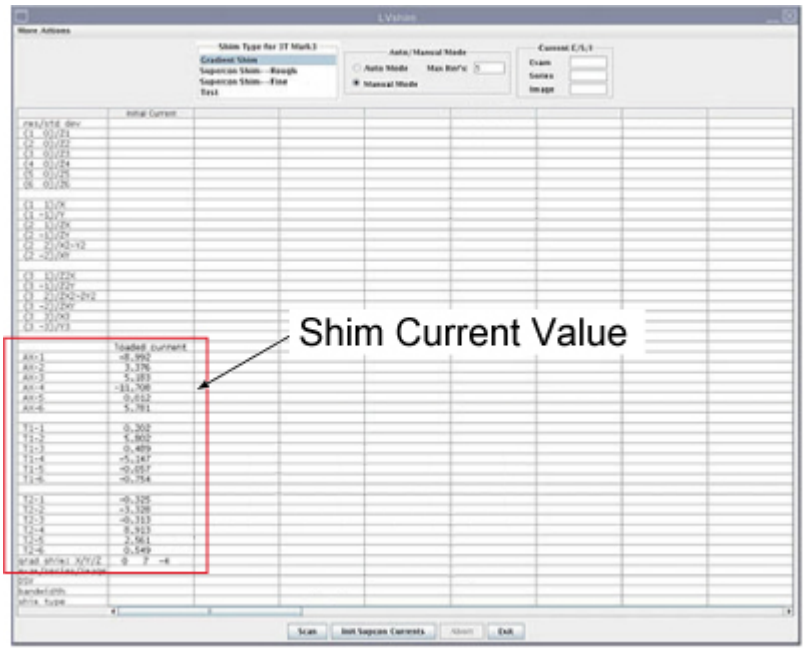


Table 2-2: Data Sheet

AX-1	
AX-2	
AX-3	
AX-4	
AX-5	
AX-6	
T1-1	
T1-2	
T1-3	
T1-4	
T1-5	
T1-6	
T2-1	
T2-2	
T2-3	
T2-4	
T2-5	
T2-6	

1.4 Finalization

No finalization steps.

2 Lockout / Tagout for MDP(Main Disconnect Panel) or Facility PDU

2.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	0 min	10 mins	0 min

2.2 Preliminary Requirements

2.2.1 Tools and Test Equipment

Item	Qty	Effectivity	Part#	Manufacturer
Personal Lock	1	-	46-194427P320	-
Lockout/Tog out Multiple locking device	1	-	46-194427P313	-
Brass Master Padlock	1	-	46-194427P230	-
Red warning tag	2	-	46-194427P322	-
Line cold plug cover	1	-	46-194427P231	-
Thick, Long Neck Flat Bladed Screwdriver	1	-	-	-
Multimeter For Reading Voltage	1	-	-	-

2.2.2 Safety

DANGER

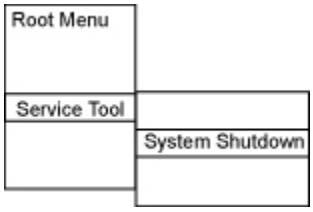
POSSIBLE SERIOUS INJURY OR DEATH
ELECTRICAL SHOCK HAZARD
REMOVE POWER FROM THE MDP/FACILITY PDU BEFORE ATTEMPTING TO REMOVE ANY COMPONENTS FROM THE SYSTEM

2.3 Procedure

2.3.1 Power Down for System Cabinet

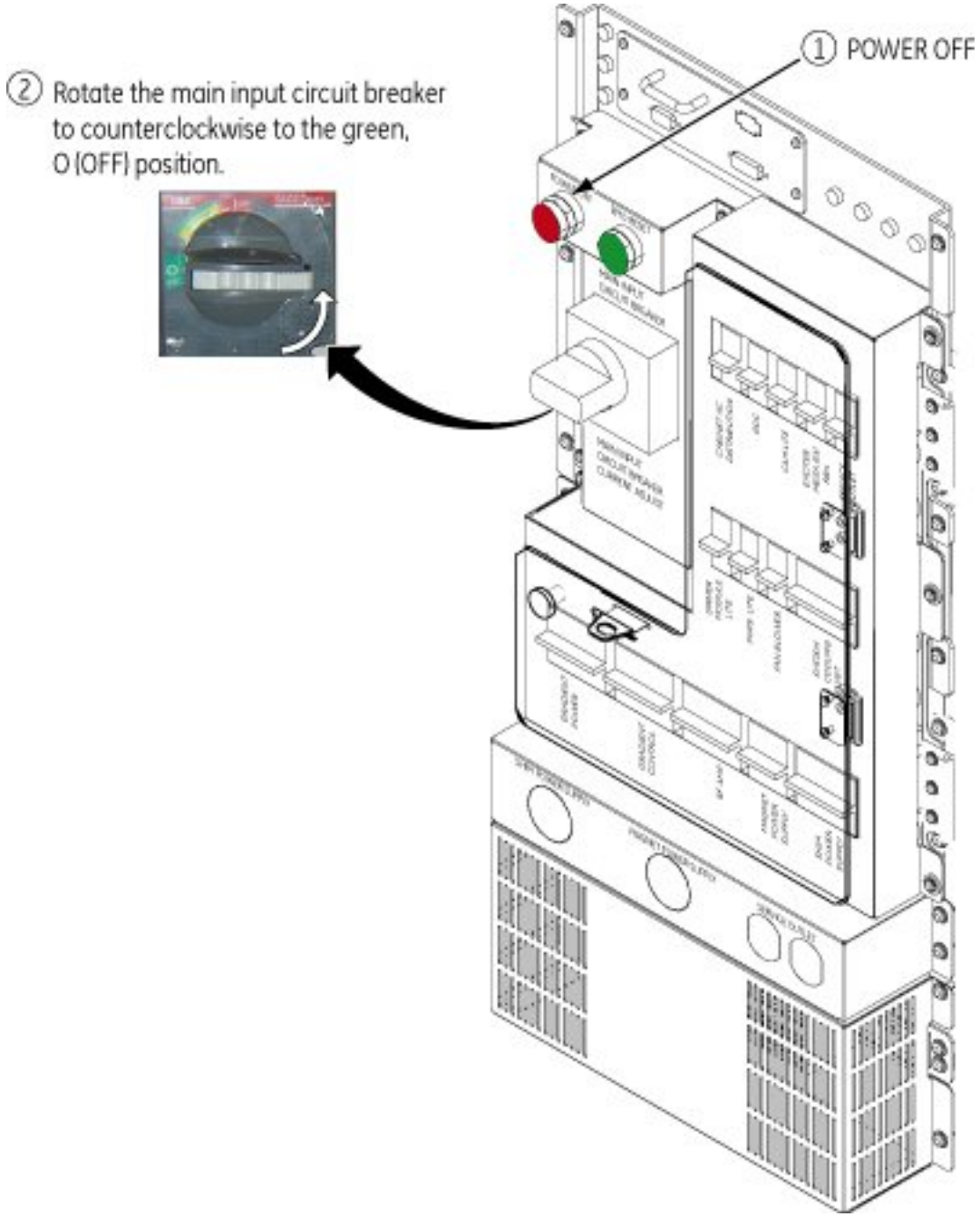
1. Before shutdown the system, move the LPCA in so that it is located on the Rear Pedestal.
2. At the background of desktop, right click and select 'Service Tool / System Shutdown' to shutdown the system.

Illustration 2-3: System Shutdown



3. Select [OK] to confirm the shutdown.
4. Wait for the system to indicate on the monitor that it is safe to power off the computer before proceeding. (This usually takes about 90 seconds before this message is seen.)
5. Turn the PDU Main Breaker of System Cabinet OFF.
    1. At the front panel of the PDU, press the Power Off button.
    2. Rotate the larger main breaker labeled INPUT counter-clockwise to the green, OFF (O) position.

Illustration 2-4: MAIN INPUT BREAKER IN THE OFF POSITION



2.3.2 Lockout / Tagout for MDP(Main Disconnect Panel) or Facility PDU

1. Turn OFF the Main Breaker of MDP or Facility PDU.
2. Lock Out/Tag Out the PDU breaker on the MDP or Facility PDU.
3. Wait five minutes for dissipation of stored energy.

4. Rotate the larger main breaker labeled INPUT counter-clockwise to the green, ON (I) position for dissipation of stored energy.
5. Check the AC Voltage between ΦA-B, ΦB-C, and ΦC-A (Primary) and verify that the voltage is under 1VAC.
6. Rotate the larger main breaker labeled INPUT counter-clockwise to the green, OFF (O) position.

2.4 Finalization

No finalization steps.

3 Cover Removal

3.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	60 mins	Not Applicable

3.2 Preliminary Requirements

3.2.1 Safety

⚠WARNING

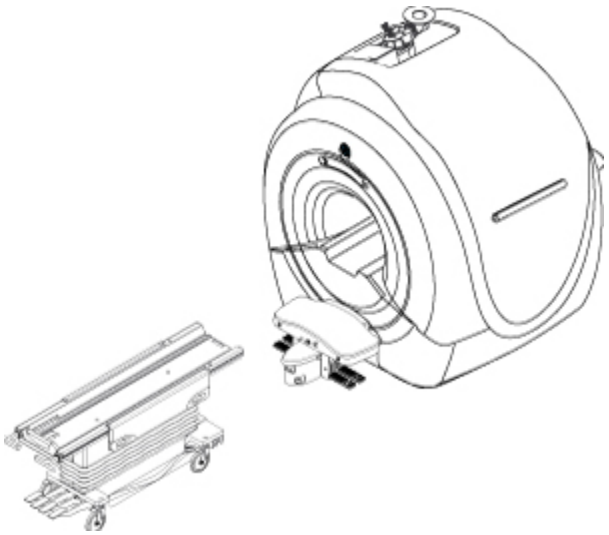
FERROUS MATERIAL HAZARD!
DELIVERY EQUIPMENT AND OTHER TOOLS AND PARTS REQUIRED FOR THIS INSTALLATION CONTAIN FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME DANGEROUS PROJECTILES.
KEEP ALL FERROUS TOOLS OUTSIDE OF 200G LINE.

3.3 Procedure

3.3.1 Move Detachable Table

1. Move Detachable Table from Magnet Room.

Illustration 2-5: Move Detachable Table

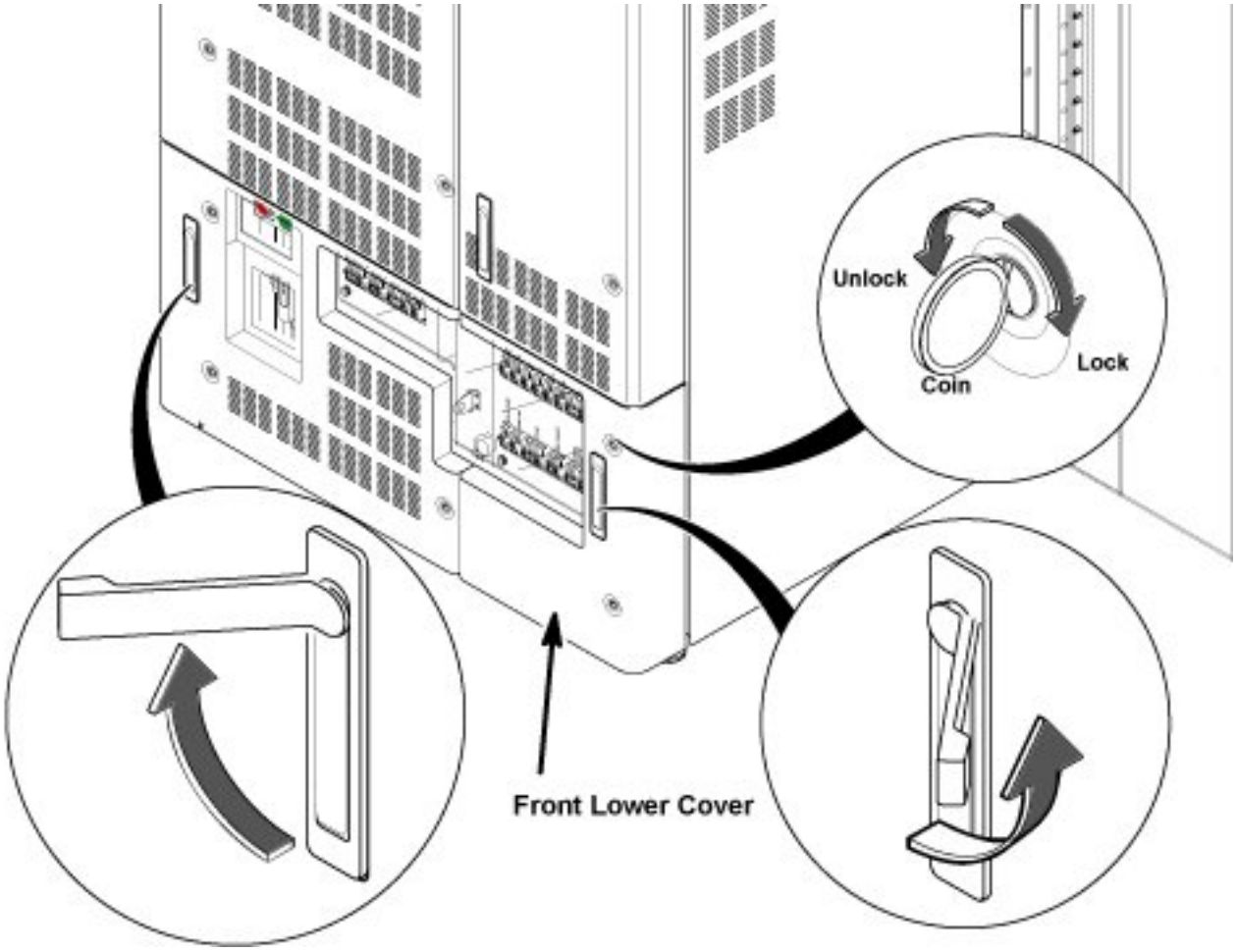


3.3.2 Removal of System Cabinet Base Cover

This procedure is required if the hoses are routed at front side and they are covered by cabinet base cover.

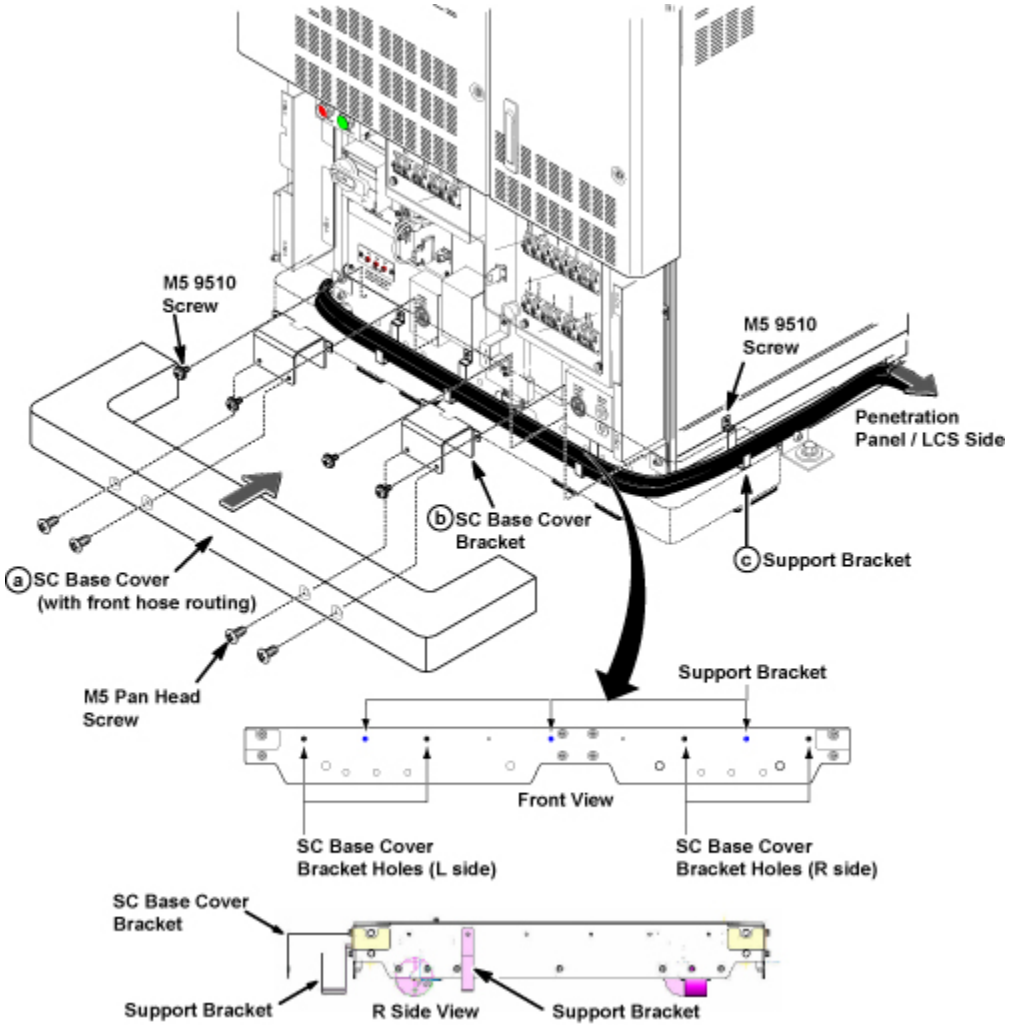
1. Remove front lower cover from Cabinet.

Illustration 2-6: Remove Front Lower Cover



2. Remove SC Base Cover by loosening 4 pan head screws.
3. Remove 2 SC Base Cover Brackets by loosening four M5 9510 screws from front bottom side of system cabinet.
4. Remove the hoses from support brackets.
5. Remove 4 support brackets to front and R side bottom of system cabinet.

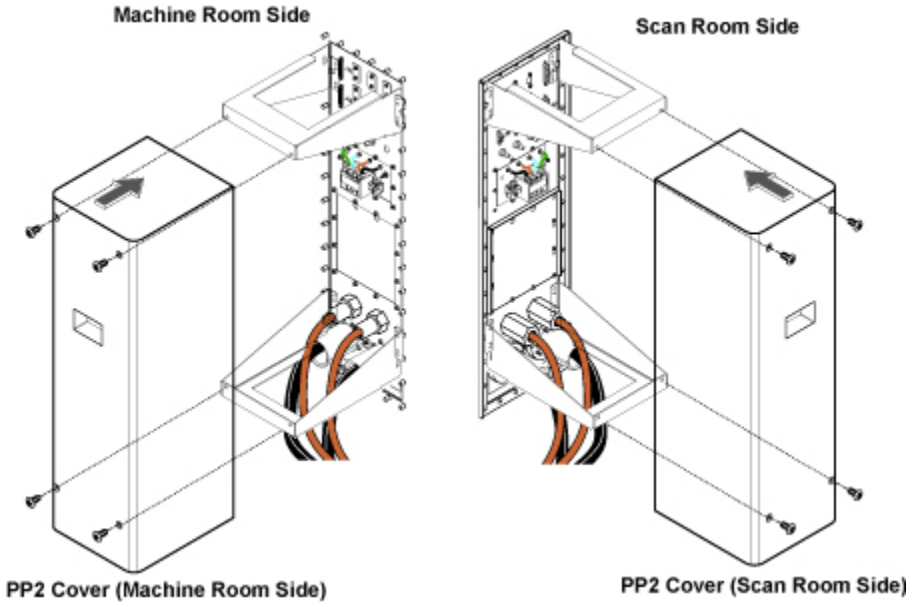
Illustration 2-7: System Cabinet Base Cover Removal



3.3.3 Removal of Penetration Panel Covers

1. Remove Penetration Panel Covers. Refer to Illustration 2-8.

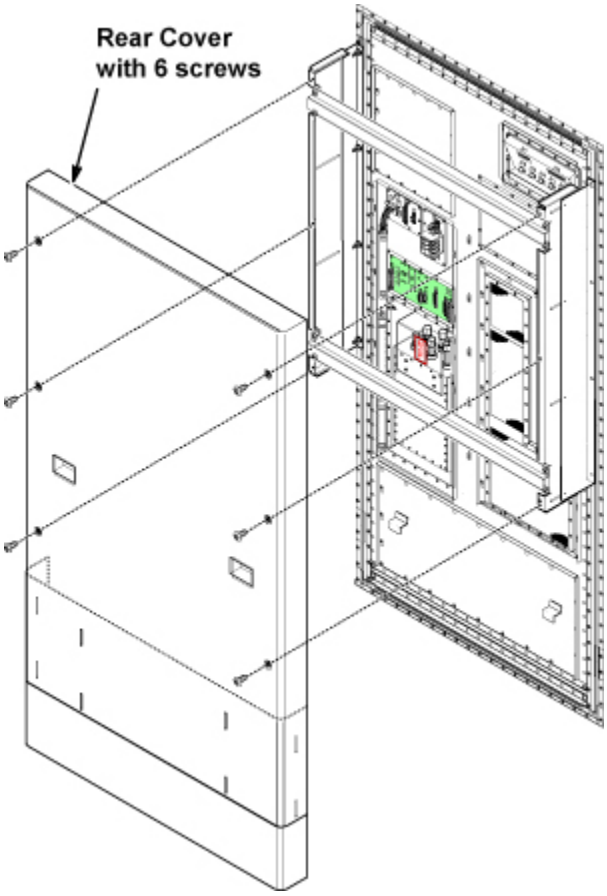
Illustration 2-8: Penetration Panel Covers



3.3.4 Removal of System Cabinet Cover at Magnet Room Side

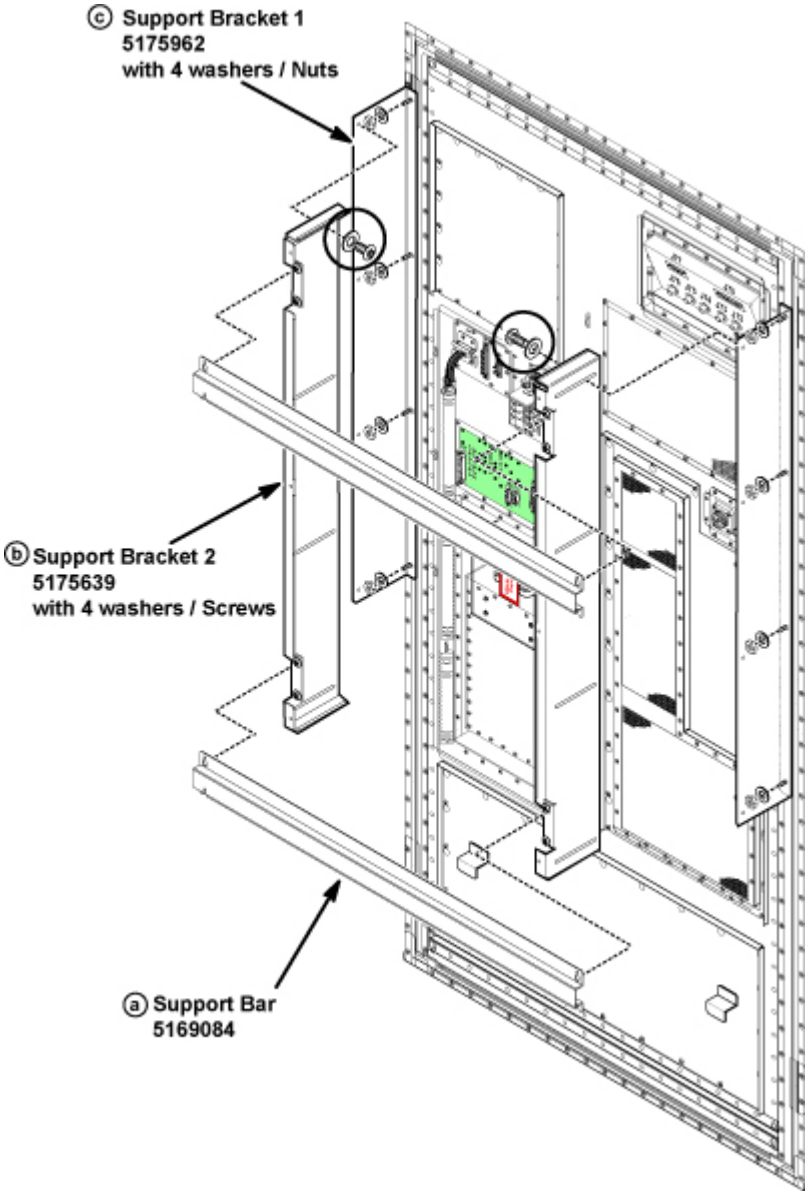
1. Remove the rear cover from support bracket 2 by removing 6 screws.

Illustration 2-9: Remove rear covers



2. Remove the two support bars from support brackets 2 by removing 8 washers / screws.
3. Remove the two support brackets 2 from support brackets 1 by removing 8 washers/screws.
4. Remove the two support brackets 1 and studs of mesh shield by removing 8 washers / nuts.

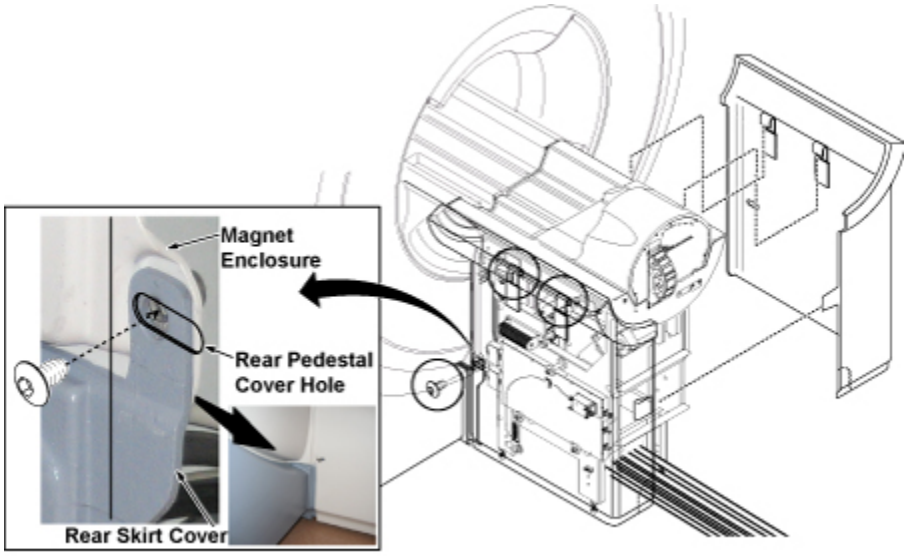
Illustration 2-10: Remove brackets



3.3.5 Removal of Rear Pedestal Covers

1. Remove the Rear Pedestal Covers.

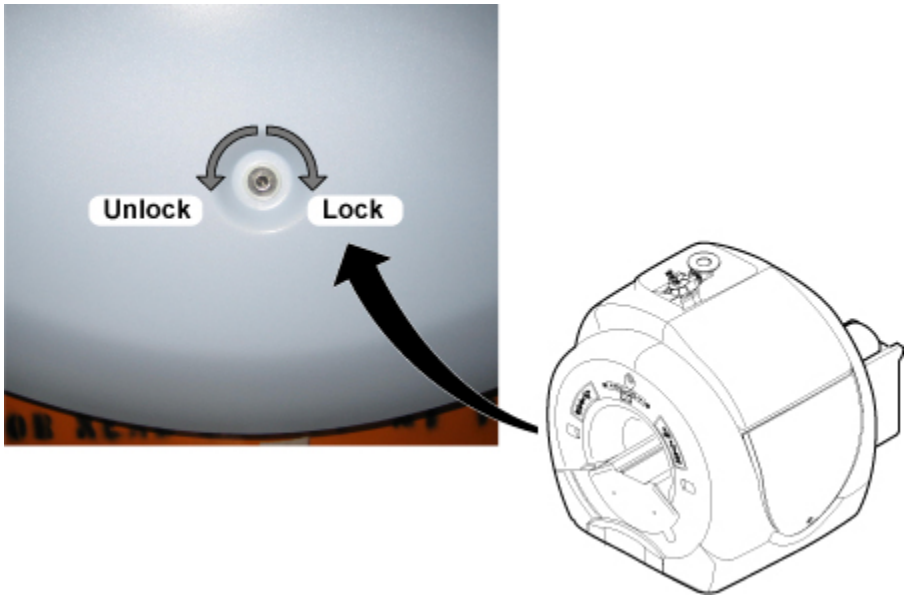
Illustration 2-11: Rear Pedestal Covers



3.3.6 Removal of Top Cover and Left Side Cover

1. Unlock the side cover by rotating the lock screw.

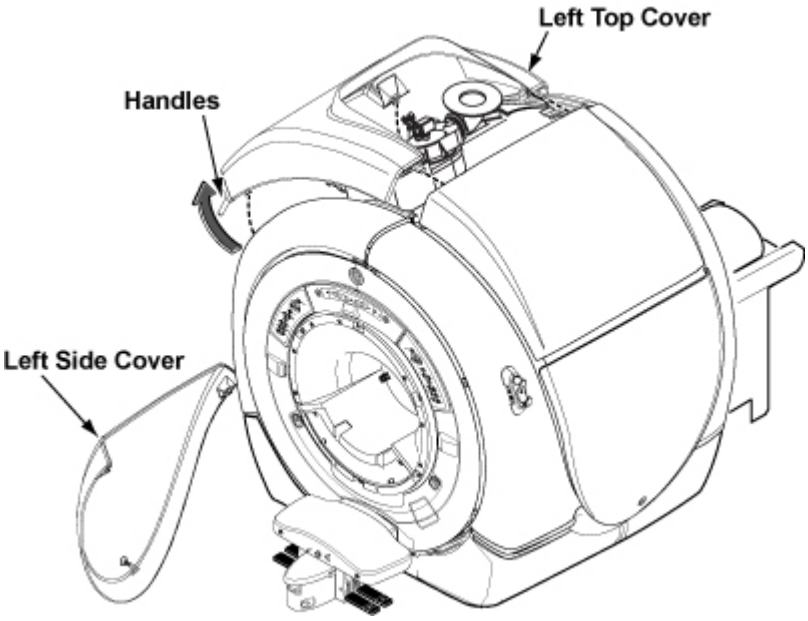
Illustration 2-12: Unlock Left Side Cover



2. Remove the left side cover from the holes of arc cover.

3. Hold the handles by hands and remove the Left Top Cover by removing the hook from the upper oval on the arc cover.

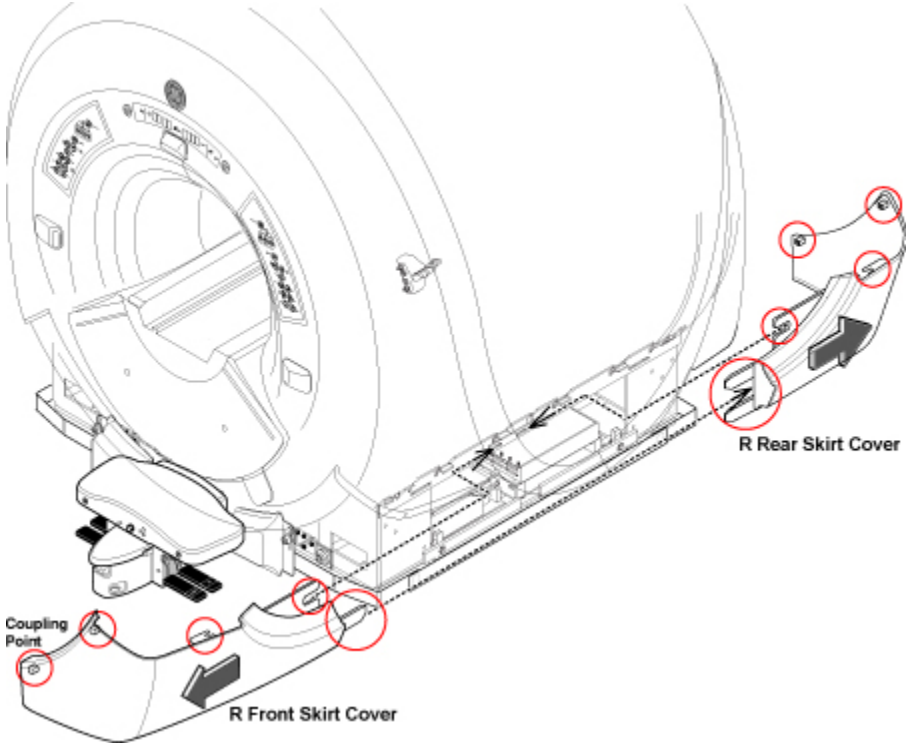
Illustration 2-13: Left Side Cover and Top Cover Removal



3.3.7 Removal of Magnet Skirt Covers

1. Remove Magnet Skirt Covers. Refer to Illustration 2-14.

Illustration 2-14: Magnet Skirt Covers

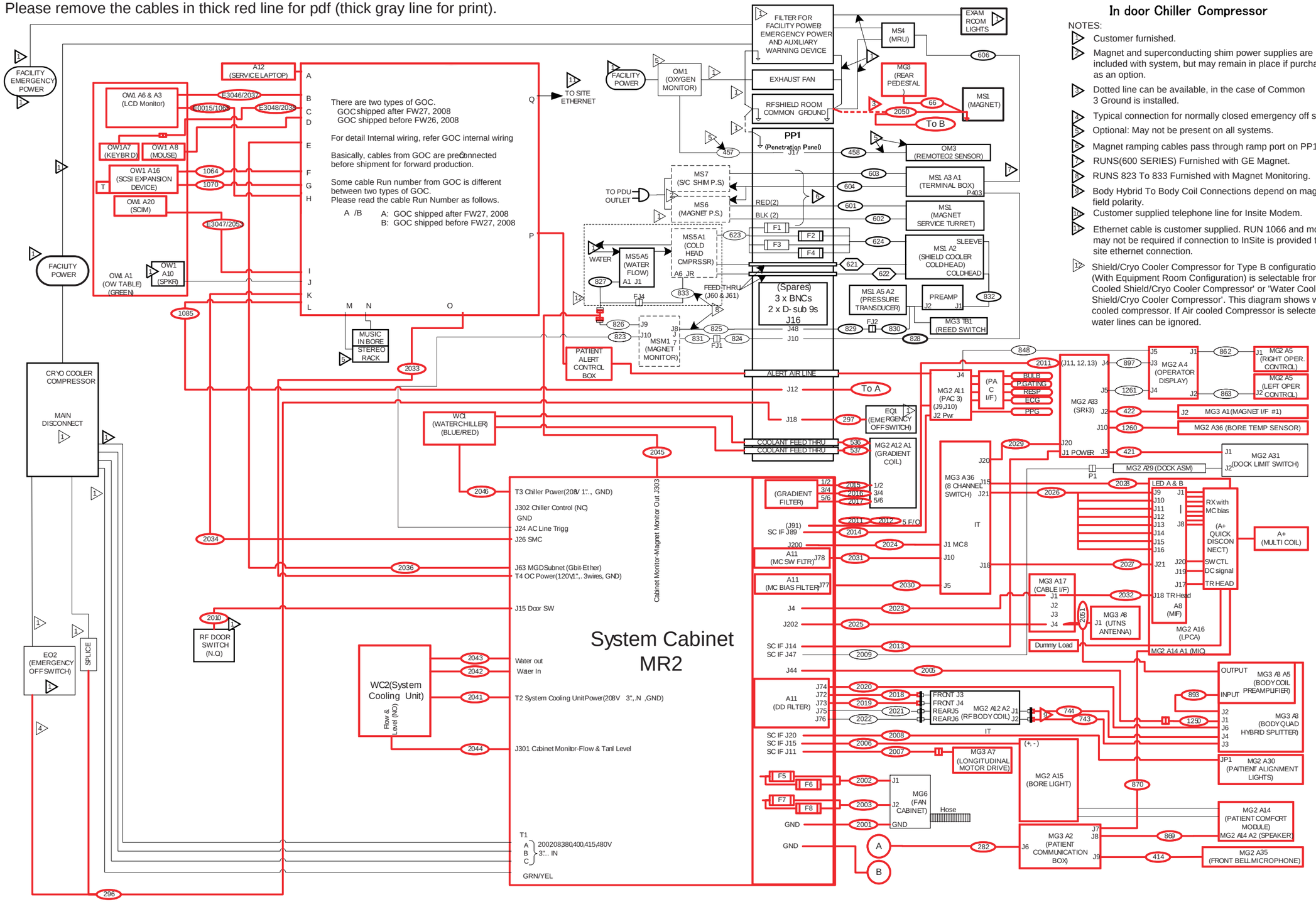


3.4 Finalization

No finalization steps.

4. HDe Cable Interconnect

Please remove the cables in thick red line for pdf (thick gray line for print).



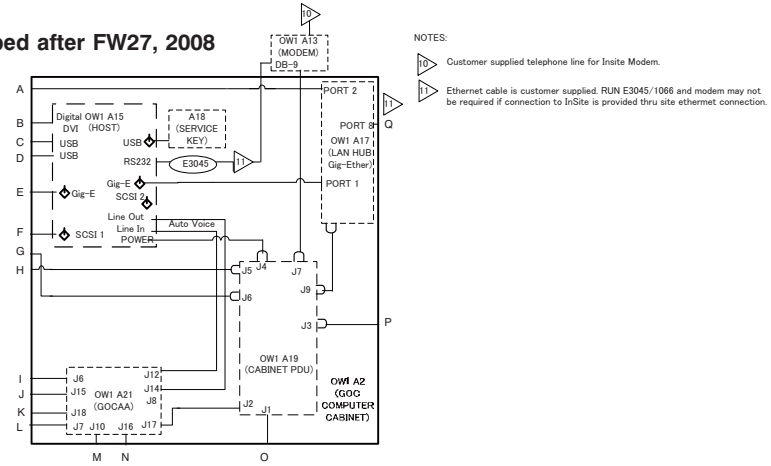
SYSTEM INTERCONNECT
In door Chiller Compressor

NOTES:

1. Customer furnished.
2. Magnet and superconducting shim power supplies are not included with system, but may remain in place if purchased as an option.
3. Dotted line can be available, in the case of Common 3 Ground is installed.
4. Typical connection for normally closed emergency off switch
5. Optional: May not be present on all systems.
6. Magnet ramping cables pass through ramp port on PP1 plate.
7. RUNS(600 SERIES) Furnished with GE Magnet.
8. RUNS 823 To 833 Furnished with Magnet Monitoring.
9. Body Hybrid To Body Coil Connections depend on magnet field polarity.
10. Customer supplied telephone line for Insite Modem.
11. Ethernet cable is customer supplied. RUN 1066 and modem may not be required if connection to InSite is provided thru site ethernet connection.
12. Shield/Cryo Cooler Compressor for Type B configuration (With Equipment Room Configuration) is selectable from 'Air Cooled Shield/Cryo Cooler Compressor' or 'Water Cooled Shield/Cryo Cooler Compressor'. This diagram shows water cooled compressor. If Air cooled Compressor is selected, water lines can be ignored.

GOC INTERNAL WIRING

Shipped after FW27, 2008

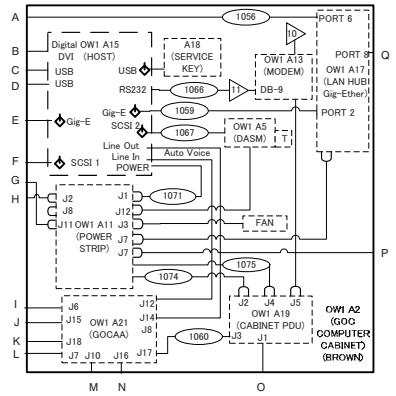


NOTES:

10 Customer supplied telephone line for Insite Modem.

11 Ethernet cable is customer supplied. RUN E3045/1066 and modem may not be required if connection to InSite is provided thru site ethermet connection.

Shipped before FW26, 2008



5 Cable Removal

5.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	90 mins	Not Applicable

5.2 Preliminary Requirements

5.2.1 Safety

⚠WARNING

FERROUS MATERIAL HAZARD!
DELIVERY EQUIPMENT 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 OUTSIDE OF 200G LINE.

NOTE: The following Cables will be remained after this procedure.

- MRU Cables
- O2 Sensor Cables
- Cold Head Cables
- Flex Tubes from Cold Head to Compressor
- Cables for Magnet Center Display Panel

5.3 Procedure

5.3.1 Magnet Room

5.3.1.1 Cable Interconnect Maps

The cables to be removed are shown in thick red line (in thick gray line for paper manual). The following table is the cable list to be removed.

Table 2-3: cable list to be removed

Run No.	From	To	Check
66	MG3	MS1	
282	PP1 J12	MG3 A2 J6	
296	FACILITY DISCNCT	PP1 J18	
297	PP1 J18	EO1	
414	MG3 A35	MG3 A2 J9	
421	MG2 A33 J1	MG3 A31 J1	

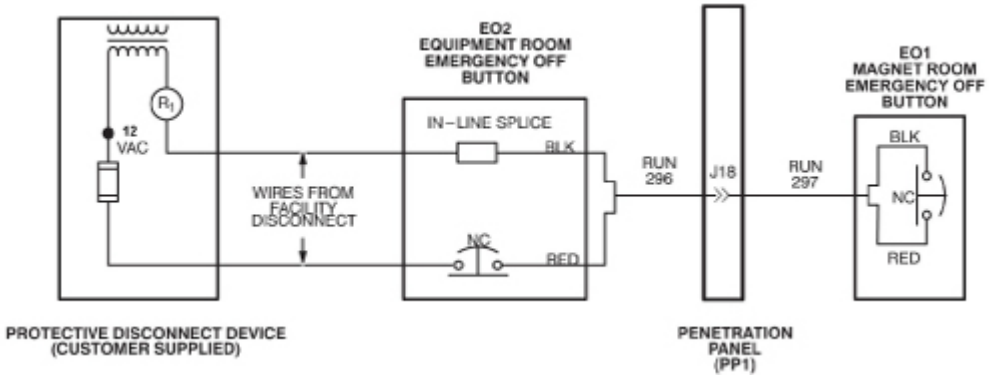
422	MG2 A33 J2	MG3 A1 J4	
536	WC1	MG2 A12 A1	
537	WC1	MG2 A12 A1	
743	MG2 A12 A1 J2	MG3 A3 A1 J3	
744	MG2 A12 A1 J1	MG3 A3 A1 J4	
869	MG2 A14 A2	MG3 A2 J8	
870	MG2 A14 A1	MG3 A2 J7	
893	MG3 A3 A5 IN	MG3 A3 J2	
1064	OW1 A15 SCSI1	OW1 A16 SCSI tower	
1070	OW1 A11 J11	OW1 A16 SCSI tower power	
1085	OW1 A21 J7	PP1 J12	
1250	MG3-A3-J1	Run 257	
1260	MG2 A33 J10	MG2 A36	
2001	MR2 GND	MG6 GND	
2002	MR2 F5, F6	MG6 J1	
2003	MR2 F7, F8	MG6 J2	
2005	MR2 J44	MG3 A3 A1 J1	
2006	MR2 J15	MG2 A15	
2007	MR2 J11	MG3 A7	
2008	MR2 J20	MG2 A 30	
2010	MR2 J15	RF Door switch	
2011/2012	MR2 A11 J91	MG2 A33	
2013	MR2 J14	MG2 A33 J1	
2014	MR2 J89	MG2 A11 A1 J2	
2015	MG3 A32 1/2	MR2 1, 2	
2016	MG3 A32 3/4	MR2 3, 4	
2017	MG3 A32 5/6	MR2 5, 6	
2018	MR2 A11 J72	MG2 A12 A2 J3	
2019	MR2 A11 J73	MG2 A12 A2 J4	
2020	MR2 A11 J74	MG2 A3 A3 J6	
2023	MR2-J4	MG3-PEDI/F-J1	
2024	MG3-16CHSW-J1	MR2-J200	
2025	MG3-PEDI/F-J4	MR2-J202	
2026	MG3-8CHSW-J21	MG2-LPCA-J1-8	
2027	MG3-8CHSW-J18	MG2-LPCA-J21	
2028	MG3-8CHSW-J15	MG2-LPCA-J20	
2029	MG3-8CHSW-J20	MG2-SRI-J20	
2030	MR2-J77	MG3-16CHSW-J5	

2031	MR2-J78	MG3-16CHSW-J10	
2032	MG2-A16-J18	MG3-A17-J1	
2033	OW1 A19 J1	MR2 T***	
2034	MR2-J26	OW1-A21-J18	
2036	OW A15 ETH SLOT 2	MR2 J63-2	
2041	WC2	MR2 T2	
2042	WC2	MR2 T***	
2043	WC2	MR2 T***	
2044	WC2	MR2 J301	
2045	MSM1	MR2 J303	
2046	WC1	MR2 T3	
2050	MS1	MR2-GND	
2051	MG3-A3-A5	MG3-A17-J4	
E0015 or 1065	OW1 A11 J2	OW1 A6 Main LCD Power	
E3046 or 2037	LCD Monitor	GOC	
E3047 or 2053	SCIM	GOC	
E3048 or 2038	Mouse	GOC	

5.3.1.2 Remove Emergency Off Connections

1. Remove Run297 red and black wires from customer supplied Magnet Room Emergency Off Button (EO1).
2. Remove RUN297 from J18 of Penetration Panel.
3. Remove black wire of Run 296 from local supplied in-line splice.
4. Remove red wire of Run 296 from customer supplied Equipment Room Emergency Off Button (EO2).
5. Remove RUN296 from J18 of Penetration Panlel.

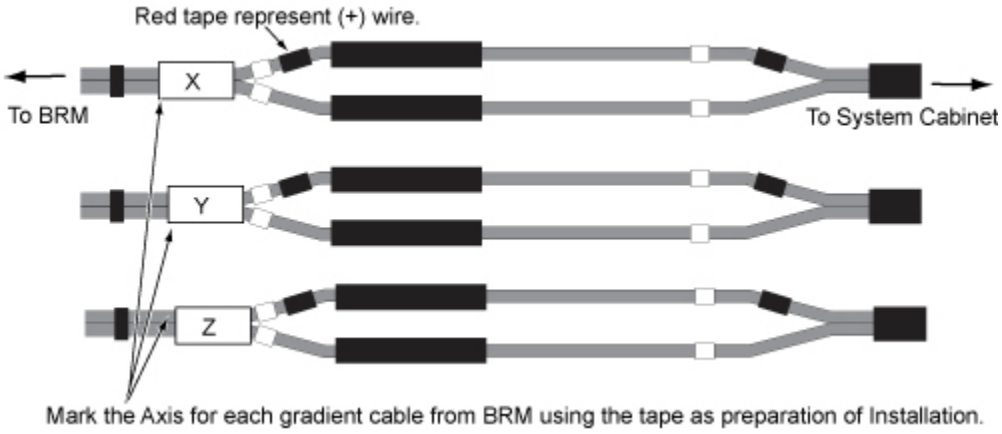
Illustration 2-15: Remove Emergency Off Connections



5.3.1.3 Gradient Cable Removal

1. Before cutting the Gradient cable, mark the axis on each Gradient cable from BRM as preparation of Installation.

Illustration 2-16: Mark the axis on each Gradient cable



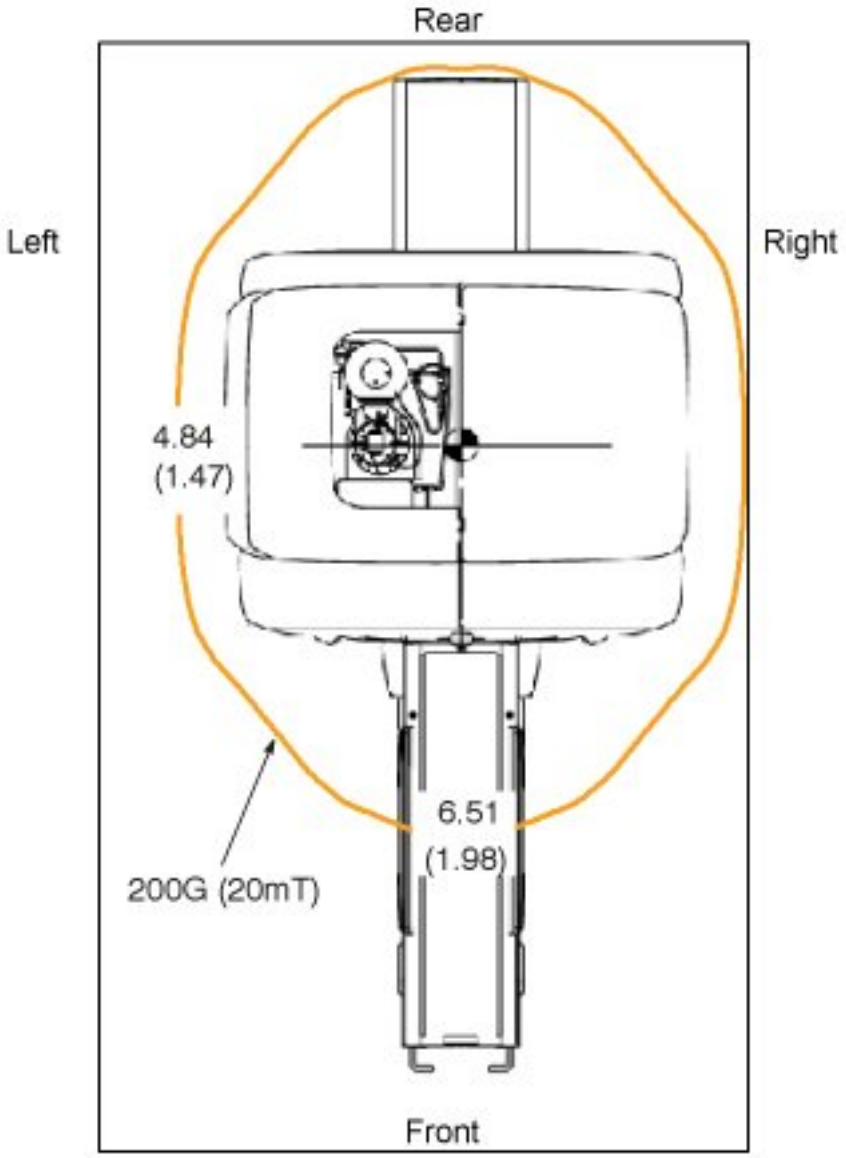
⚠WARNING

PERSONAL INJURY AND EQUIPMENT DAMAGE
STRONG MAGNETIC FIELD!
WHEN SERVICING ANY MAGNETIC EQUIPMENT, IT IS CRITICALLY IMPORTANT THAT THE SERVICE ENGINEER CONSCIOUSLY PLAN THE PATH TO BE TAKEN WHEN MOVING HIGHLY FERROUS DEVICES IN THE MAGNET ENVIRONMENT. THE MAGNETIC FIELD IN THIS PATH MUST NOT EXCEED 200 GAUSS AND THE PATH SHOULD BE AS FAR FROM THE MAGNET AS PRACTICAL.
SAFETY REQUIREMENTS

- THE STATIC MAGNETIC FIELD IN ANY PORTION OF THE SERVICE PATH MUST NOT EXCEED 200 GAUSS.
- TWO (2) MR SAFETY TRAINED PERSONNEL MUST BE PRESENT AT ALL TIMES WHEN SERVICING HIGHLY FERROUS DEVICES IN THE AREAS OF MAGNETIC FIELDS.

WHEN PLANNING A SERVICE PATH, IT IS CRITICAL THAT THE PATH BE CLEAR AND SUFFICIENTLY WIDE. ENSURE THAT THERE ARE NO TRIP HAZARDS, OBSTACLES, CLUTTER, SLIPPERY SURFACES OR OTHER ITEMS EVEN PARTIALLY RESTRICTING THE PATH. IF THERE ARE PORTABLE OBSTACLES IN A PATH, REMOVE THEM FROM THE AREA AND REPLACE THEM AFTER THE SERVICE ACTION IS COMPLETED. IT IS REQUIRED TO WALK THE PATH PRIOR TO BEGINNING SERVICE TO ENSURE THAT THERE IS SUFFICIENT SPACE THROUGH WHICH TO PASS FOR YOURSELF AND THE OBJECT BEING SERVICED.

ILLUSTRATION 2-17: 200G LINE



ALL DIMENSIONS ARE IN FEETS.
ALL BRACKETED ( ) DIMENSIONS ARE IN METERS.

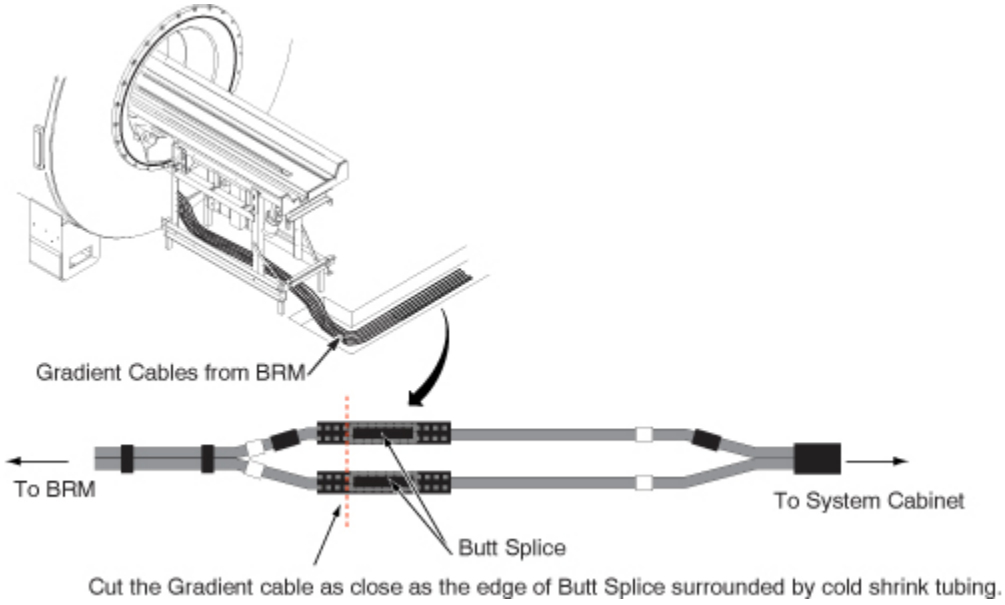
⚠WARNING

FERROUS MATERIAL HAZARD !!
THE GRADIENT CABLE CUTTING TOOL REQUIRED FOR THIS PROCEDURE CONTAINS FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME A DANGEROUS PROJECTILE.
DO NOT PLACE ANY PART OF BODY IN BETWEEN MAGNET AND GRADIENT CABLE CUTTING TOOL.
KEEP THE GRADIENT CABLE CUTTING TOOL LOWER THAN MAGNET BORE WHEN CARRYING IT.

2. With two persons, carefully carry the gradient cable cutting tool to the location to cut the cable where is outside 200G line as far from the magnet as practical.

3. Cut the Gradient cables (X, Y, and Z) from BRM as close as the edge of butt splice surrounded by cold shrink tubing. See Illustration 2-18.

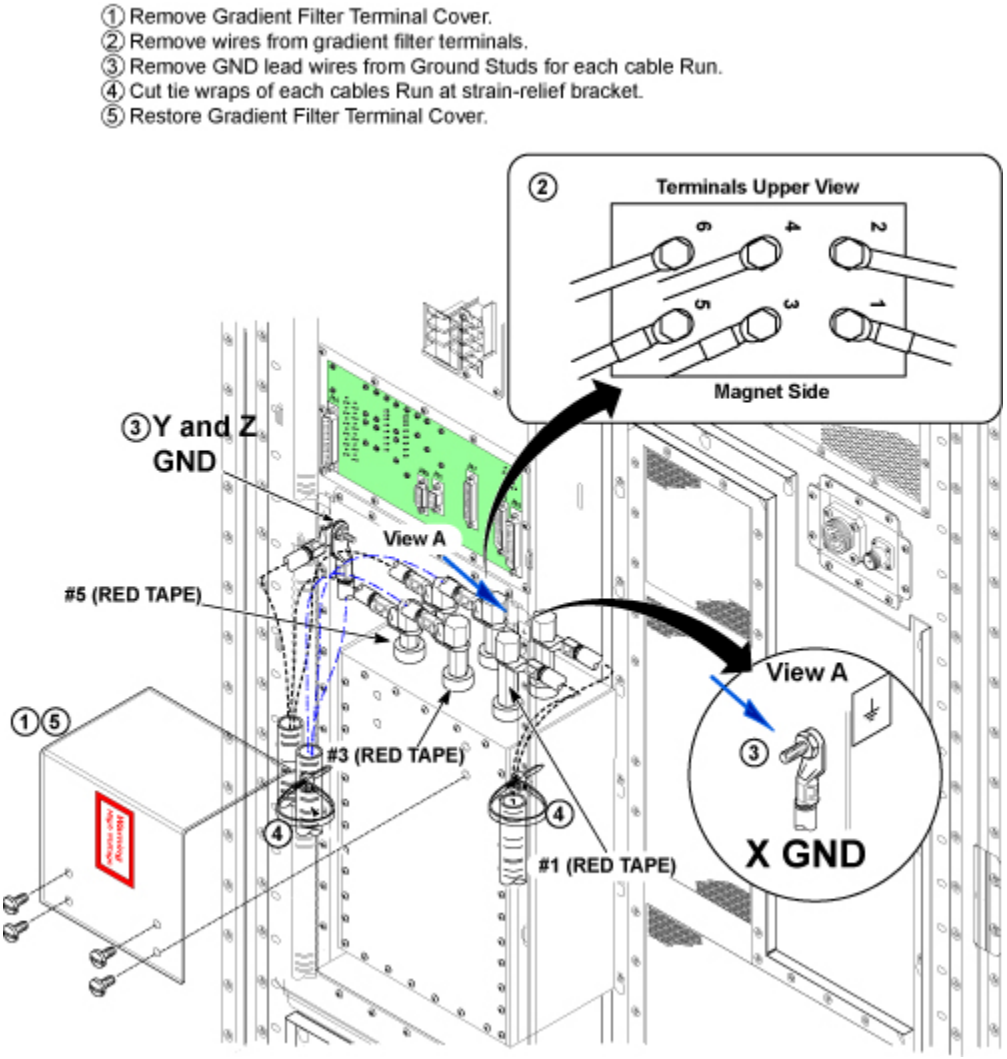
Illustration 2-18: Cut Gradient cables



4. With two persons, carefully carry the gradient cable cutting tool outside of Magnet Room.

5. Remove Gradient Cables from Gradient Filter.

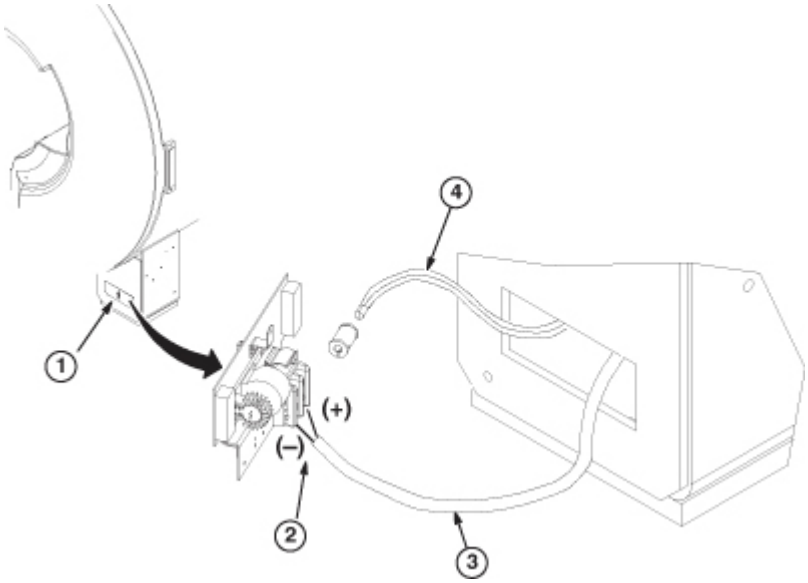
Illustration 2-19: Remove Gradient Cables from Gradient Filter



5.3.1.4 De-Installation Of Bore Lamp Assembly

1. Remove the Bore Lamp assembly from opening in rear leg by peel the Velcro tape.
2. Disconnect the (+) and (-) wires of Run 300 from the terminal strip.
3. Disconnect Run 300 from J15 on Penetration Panel and remove the cable.
4. Remove fiber bundle from the bore light assy.

Illustration 2-20: De-installation Of Bore Lamp Assembly

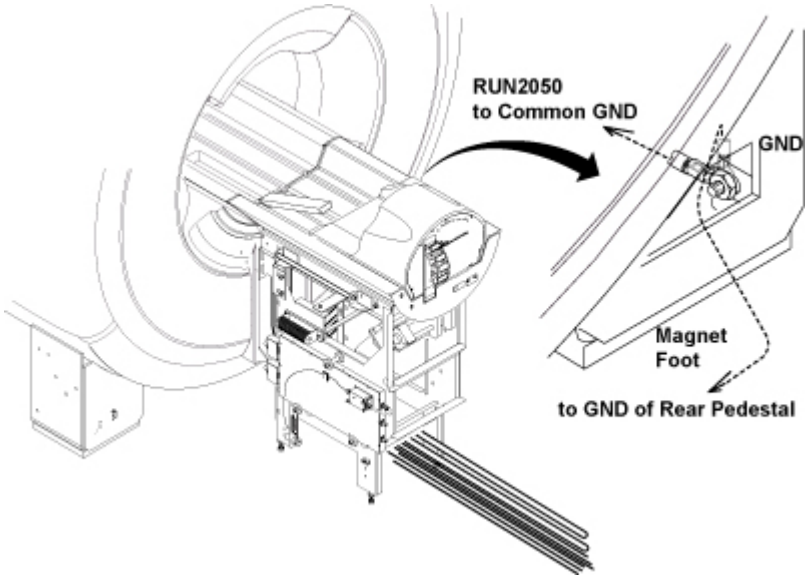


NOTE: Fiber optic cable coming from Magnet Bore Light will remain for installation.

5.3.1.5 Disconnect Magnet Ground, Run 2050

1. Disconnect RUN 2050 from magnet leg.

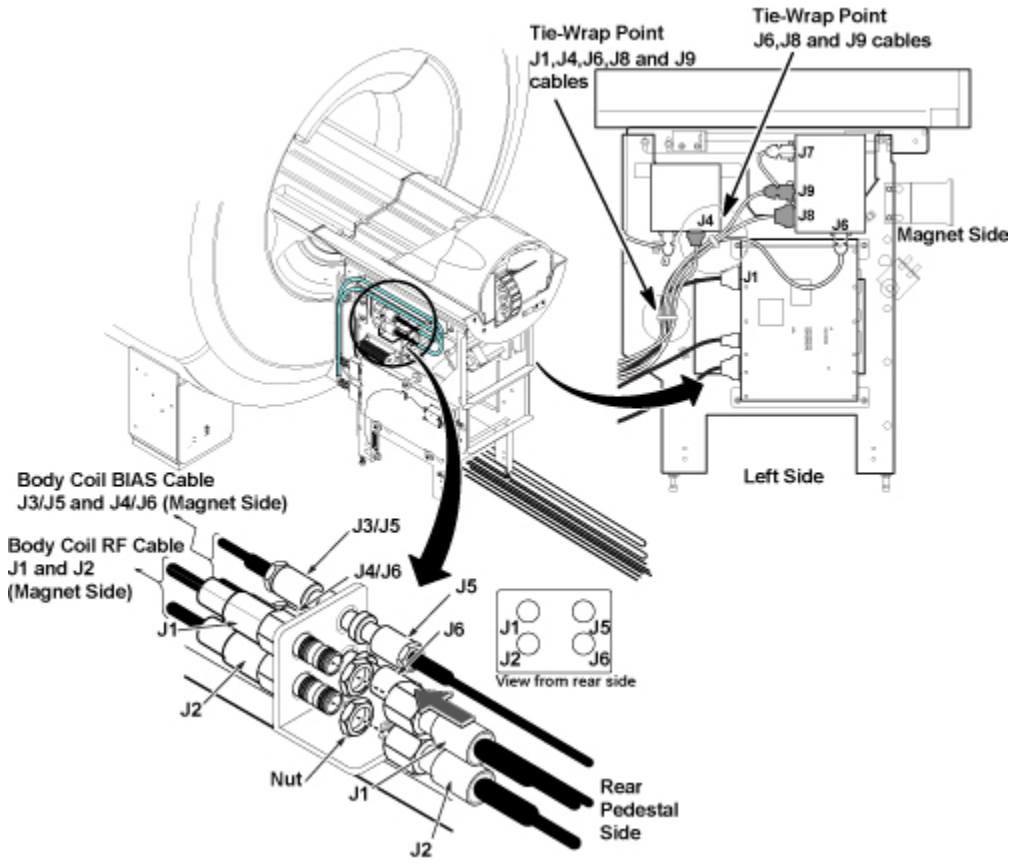
Illustration 2-21: Magnet Ground



5.3.1.6 Disconnect Cables At Rear Pedestal

1. Disconnect J4,J8 and J9 cables with two tie-wraps as illustration.
2. Disconnect rear pedestal cables and Body Coil RF/BIAS cables to connector bracket on right side of rear pedestal.

Illustration 2-22: Rear Pedestal Cable Wiring on right side



3. Disconnect the hoses from Magnet for easy removal of Rear Pedestal.

   NOTE: Hoses will be reused. Please do not dispose.

5.3.1.7 Disconnect Fiber Optic Cables

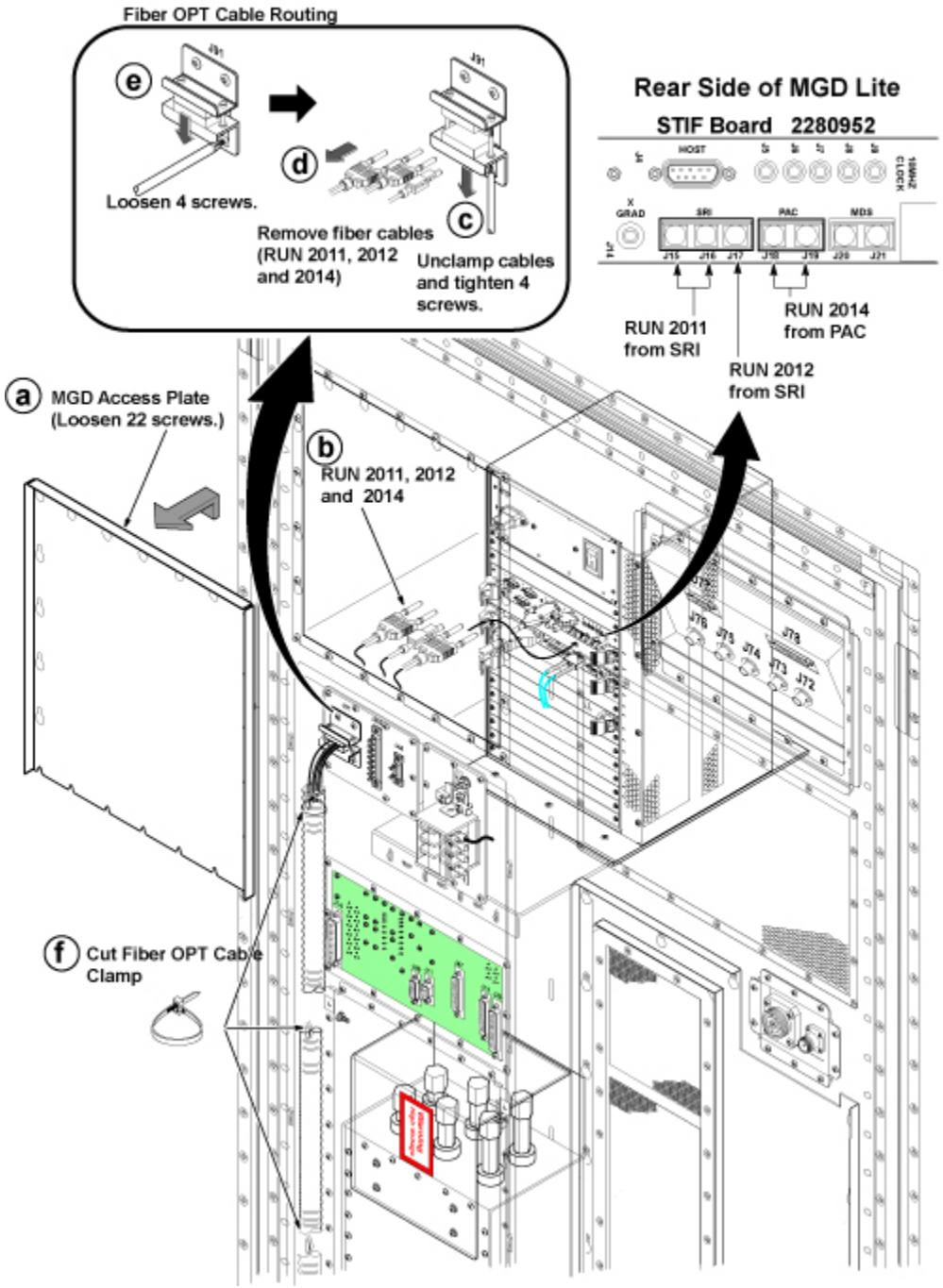
NOTICE

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.

1. Remove MGD Access Plate from System Cabinet Rear Side.
2. Disconnect Fiber cables (Run2014, 2011/2012) from STIF Board.

   NOTE: The following illustration is for the Cabinet with MGD. For the cabinet with CAM Lite, STIF board location is slightly different.

Illustration 2-23: Removal of Opt cable

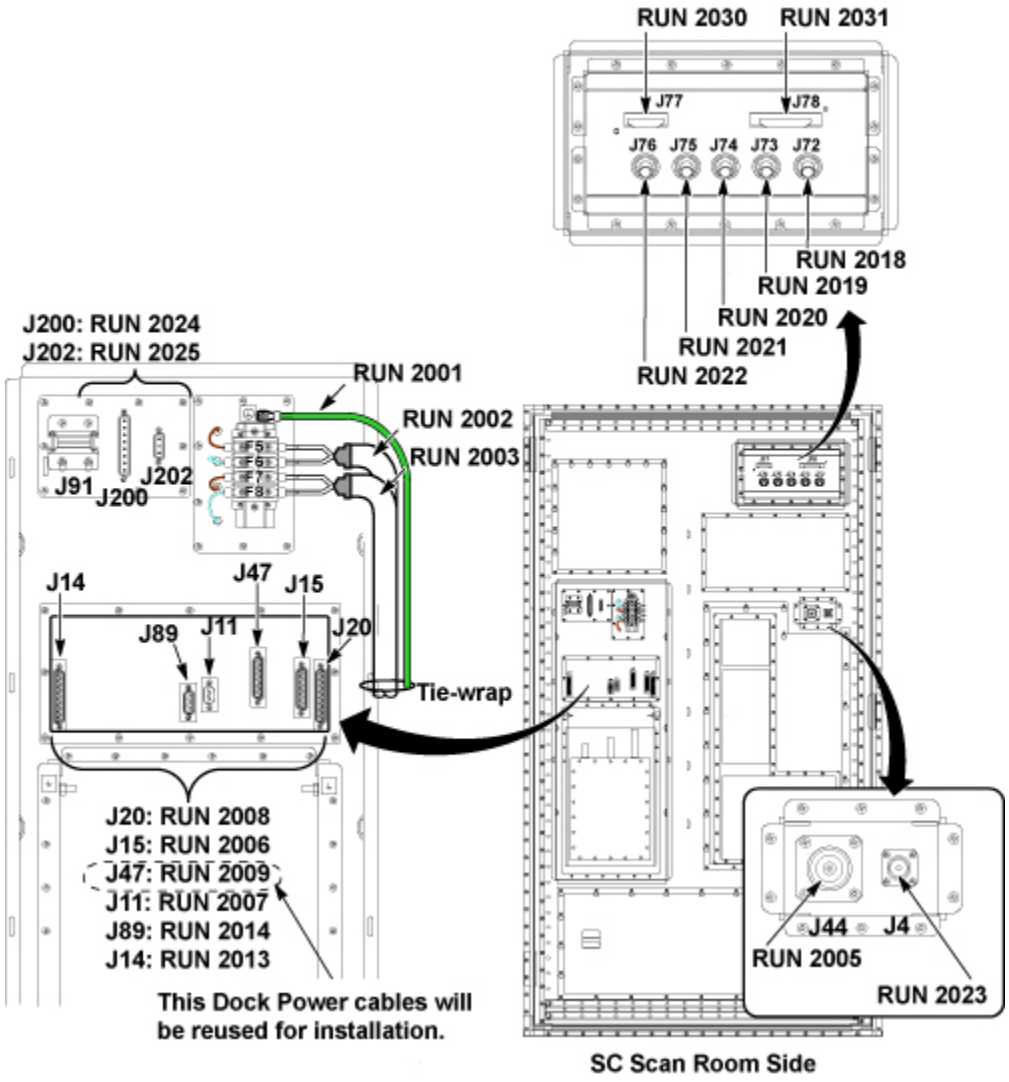


3. Remove Fiber cables (Run2014, 2011/2012) through opening.
4. Restore MGD Access Plate.

5.3.1.8 Disconnect System Cabinet and Penetration Panel Cables

1. Disconnect the cables from System Cabinet and Penetration Panel by referring to cable map.

Illustration 2-24: Removal of System Cabinet cables



NOTICE

DD cable (Run 2021,2022) for connected to front body coil will be remained for installation.
Dock Power Cable (Run 2009) will be remained for installation.

Please keep them at site. Please do not dispose.

2. Keep DD cable (Run 2021,2022) and Dock Power Cable (Run 2009). Please do not dispose.

5.3.2 Equipment Room

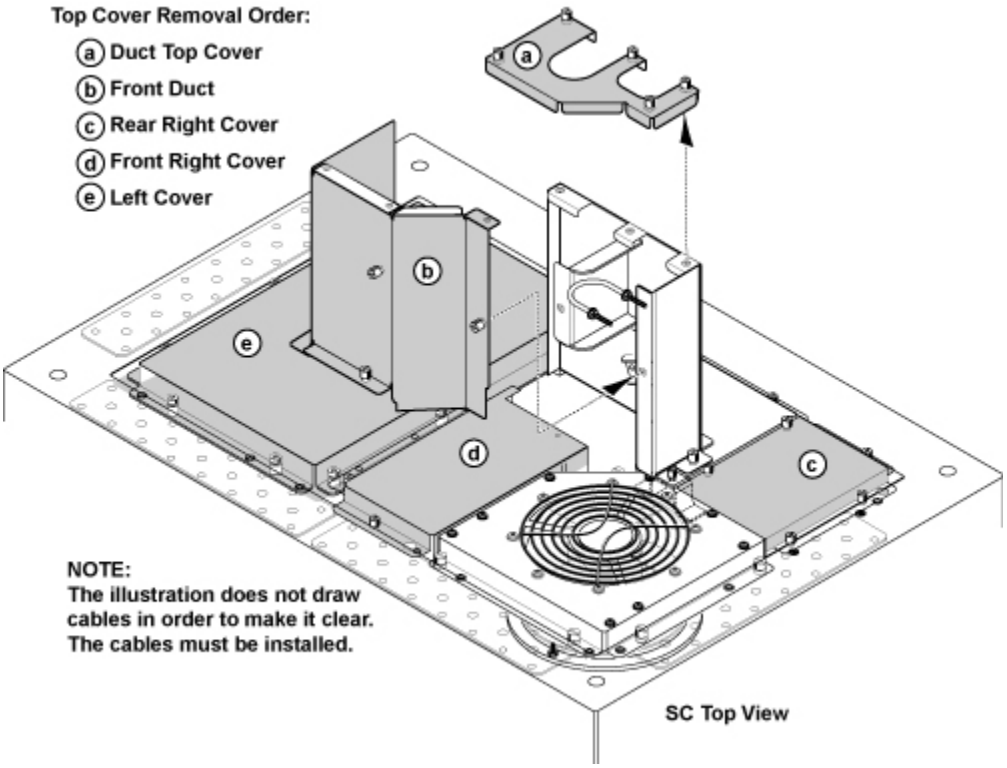
5.3.2.1 Disconnect Run 2010 - RF Door Switch

1. Disconnect leads on Run #2010 from RF Door Switch contact.
2. The other end of Run 2010 is located at System Cabinet Top. This cable will be removed later.

5.3.2.2 System Cabinet Cable Removal

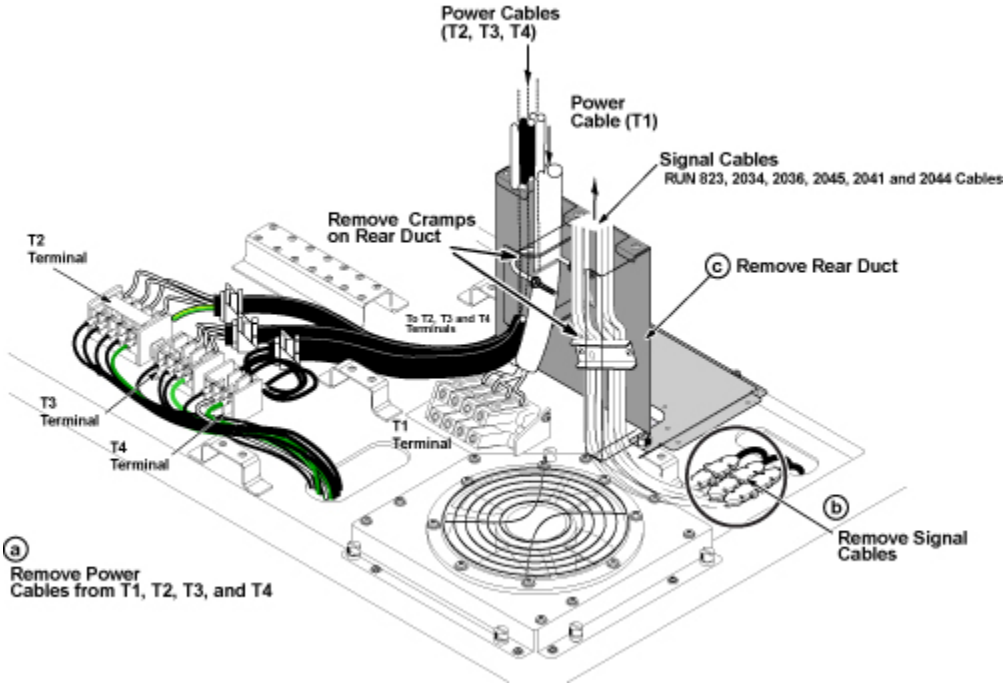
1. Remove duct covers and top covers with Phillips screw driver.

Illustration 2-25: Remove duct covers



2. Remove Clamp for Power Cables and Signal Cables from rear duct.
3. Disconnect the signal cables and power cables from the System Cabinet top area.

Illustration 2-26: Disconnect cables

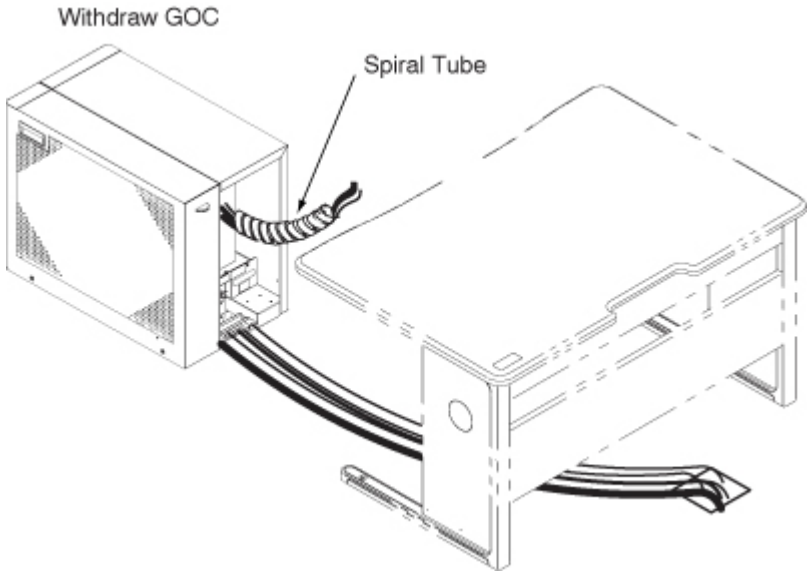


4. Restore Top covers except duct covers.

5.3.2.3 Disconnect GOC Cables

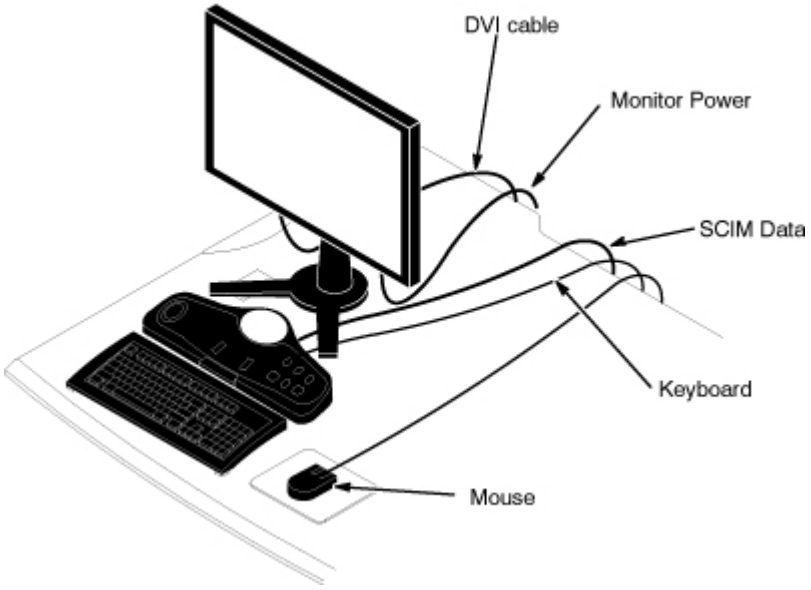
1. Withdraw the GOC for the removal of cables.
2. If cables are bound by spiral tube, remove it.

Illustration 2-27: Withdraw GOC



3. Disconnect cables from LCD Monitor and SCIM.

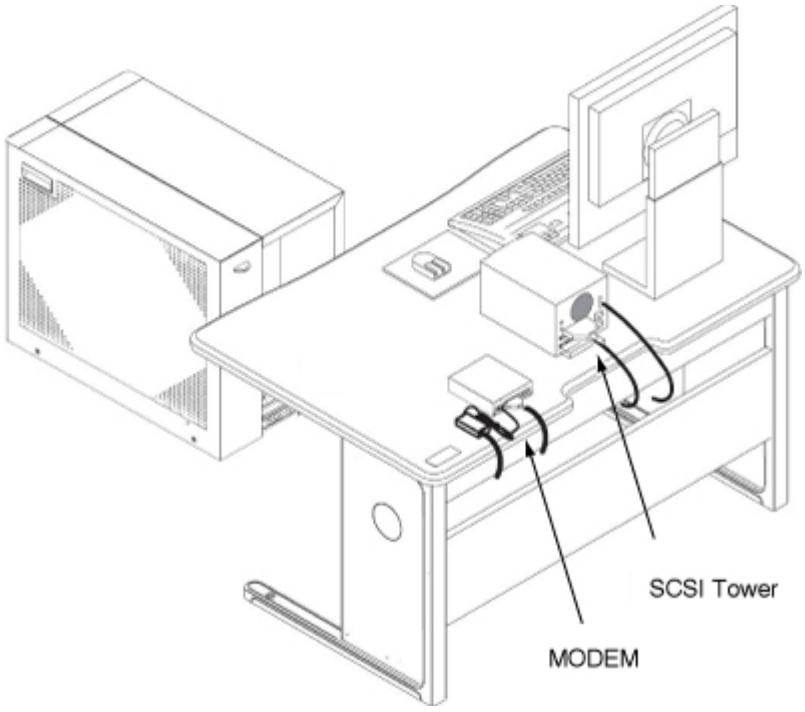
Illustration 2-28: Remove Monitor and SCIM



4. If there is MODEM, remove data cable and power cable from MODEM. Remove customer supplied telephone line.

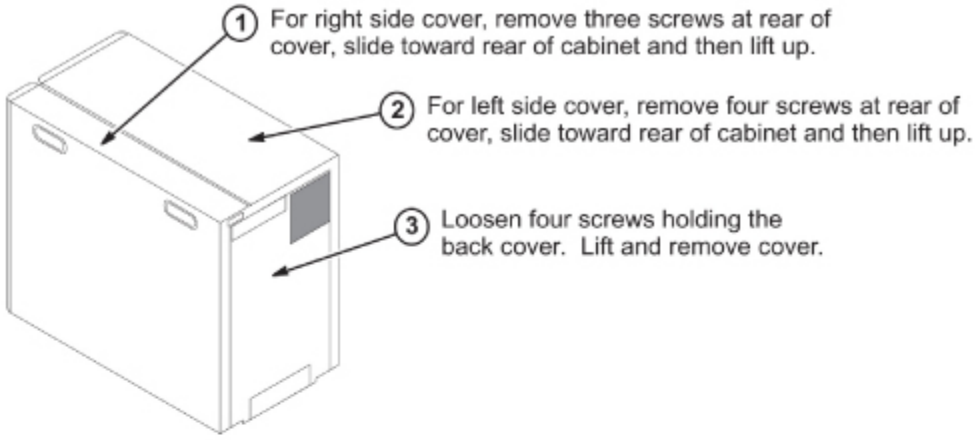
5. If there is SCSI Tower, remove Runs 1064 and 1070 from SCSI Tower.

Illustration 2-29: Remove SCSI TOWER and Modem (Option)

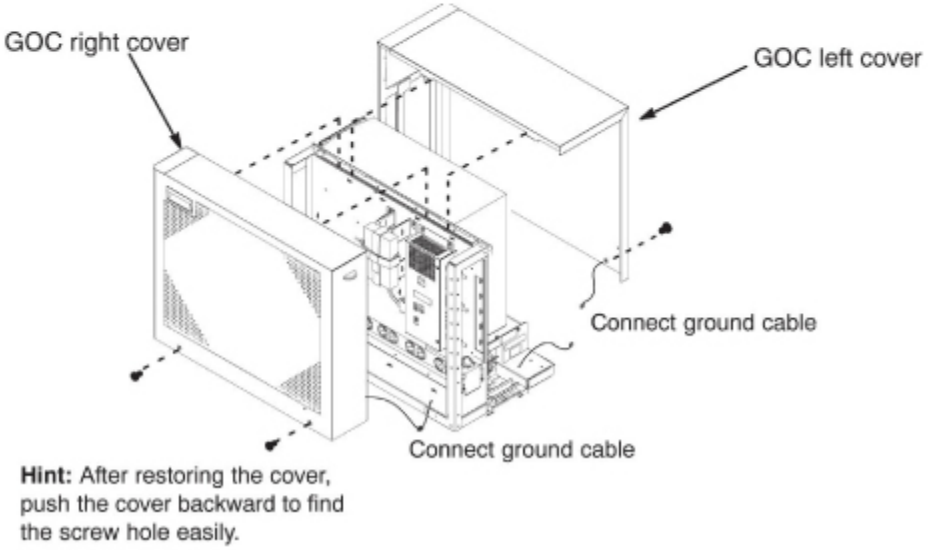


6. Remove covers to access the cable connection points.

Illustration 2-30: Remove GOC COVERS



GOC shipped before FW26, 2008

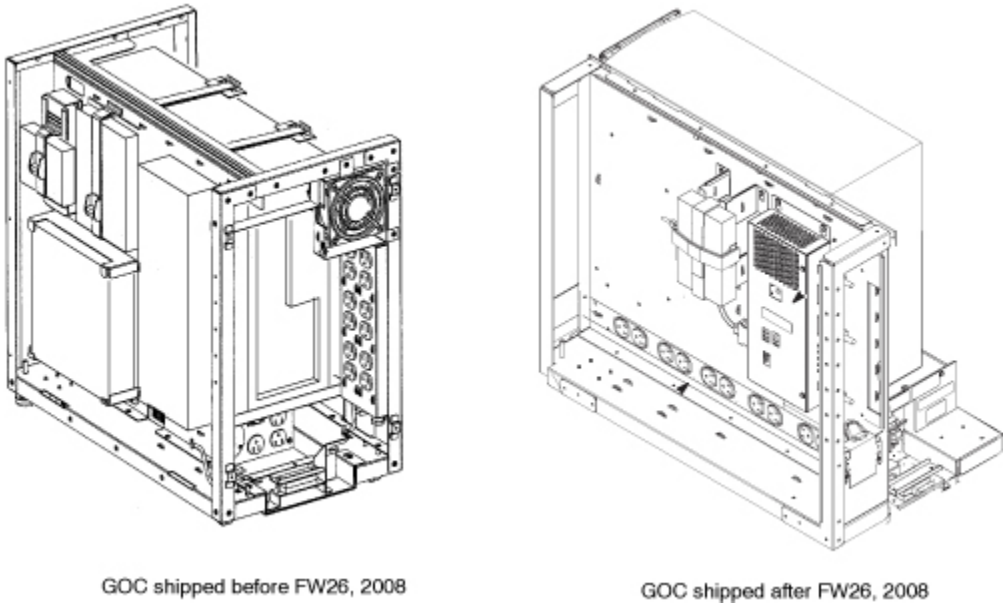


GOC shipped after FW26, 2008

7. Loosen Clamp to remove cables.

8. Disconnect Cables to separate from GOC. (Runs 2033, 1085, 2034, 2036, power cord for the Patient Alert system, Ethernet Cable to site Ethernet, and any other option cables)

Illustration 2-31: Disconnect Cables



GOC shipped before FW26, 2008

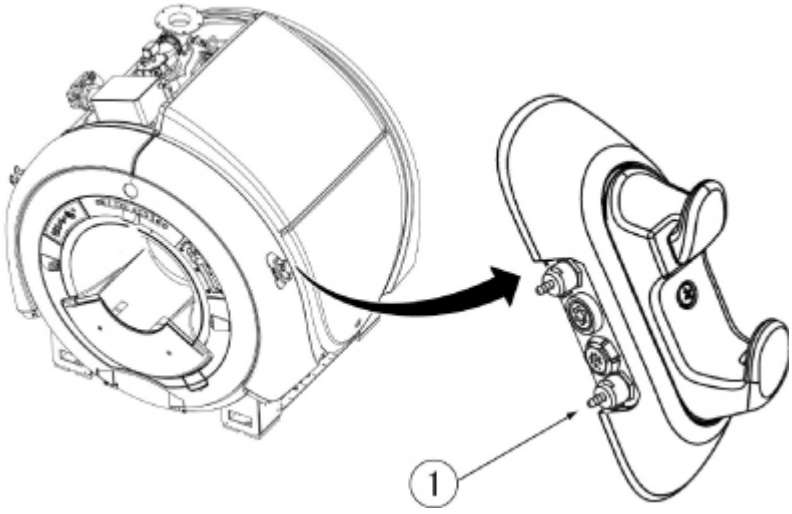
GOC shipped after FW26, 2008

9. Install covers that were removed in earlier procedure.
10. Carry out the OW related parts from Operator Room.

5.3.2.4 Disconnect Patient Alert Cables

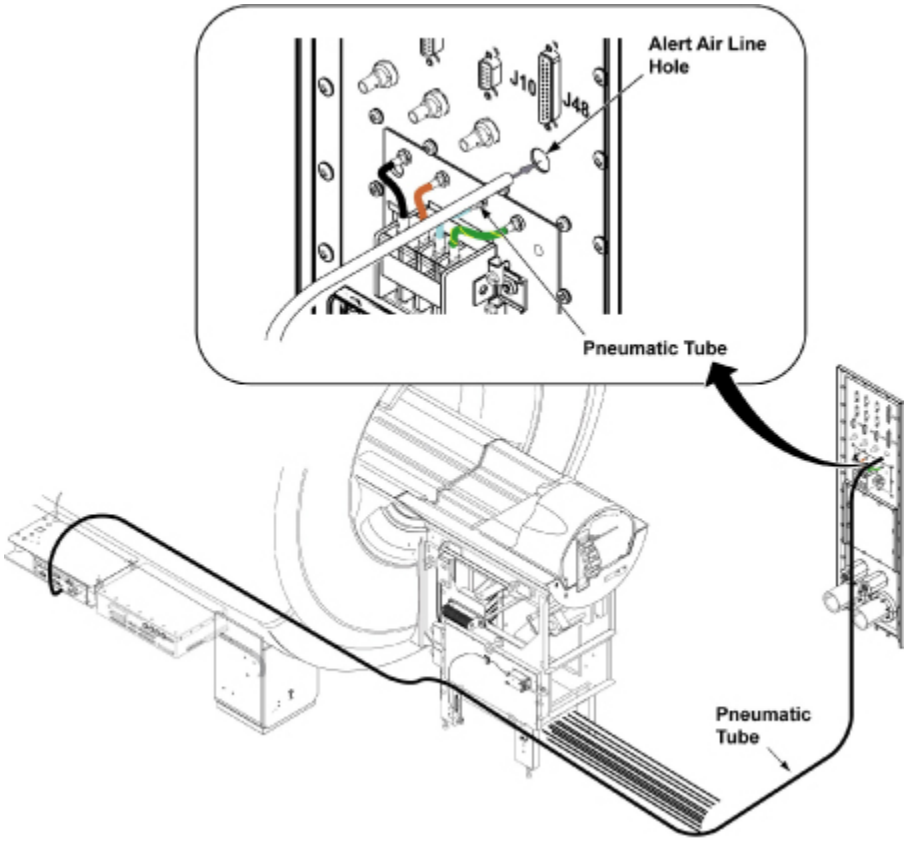
1. Remove the end of tubing to ”CALL” connection from Remote PAC Interface Assembly.

Illustration 2-32: Remove the end of pneumatic tubing from PAC-II tubing connector



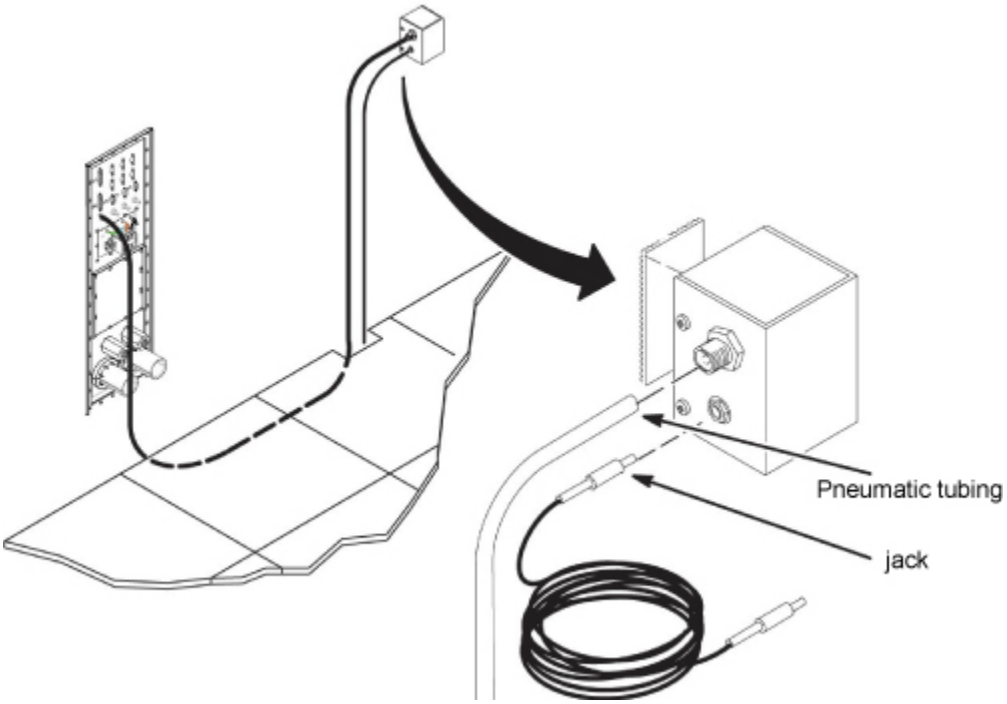
2. Remove the end of pneumatic tubing from PAC-II tubing connector.
3. Remove Pneumatic Tubing through Penetration Panel to Machine room side.

Illustration 2-33: Remove Tube to Remote PAC Interface Assembly



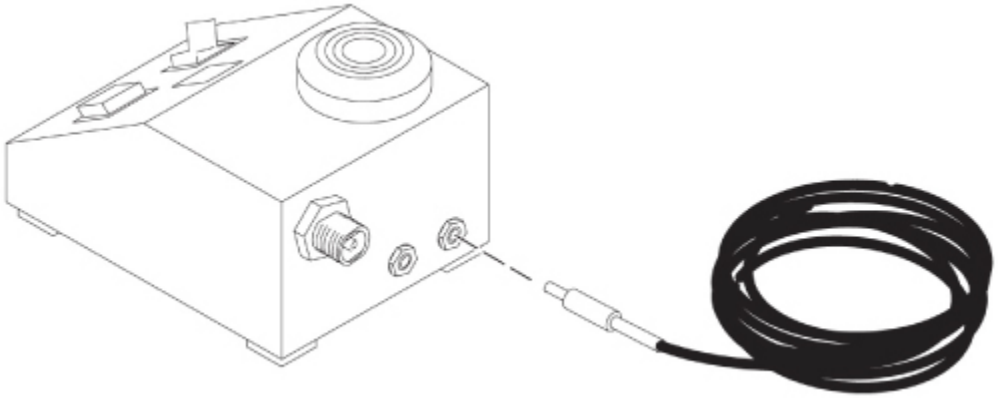
4. Remove end of pneumatic tubing from connector on Extender Box.
5. Remove the jack on one end of the 65 foot Extender Wire from the plug on side of Extender Box.

Illustration 2-34: Extender Box



6. Remove the jack at other end of extender wire from the plug on back of control box.

Illustration 2-35: Control Box



7. Remove Extender Box and Control Box.

5.4 Finalization

No finalization steps.

6 Removal of Cooling System

6.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	90 mins	15 mins

6.2 Preliminary Requirements

6.2.1 Tools and Test Equipment

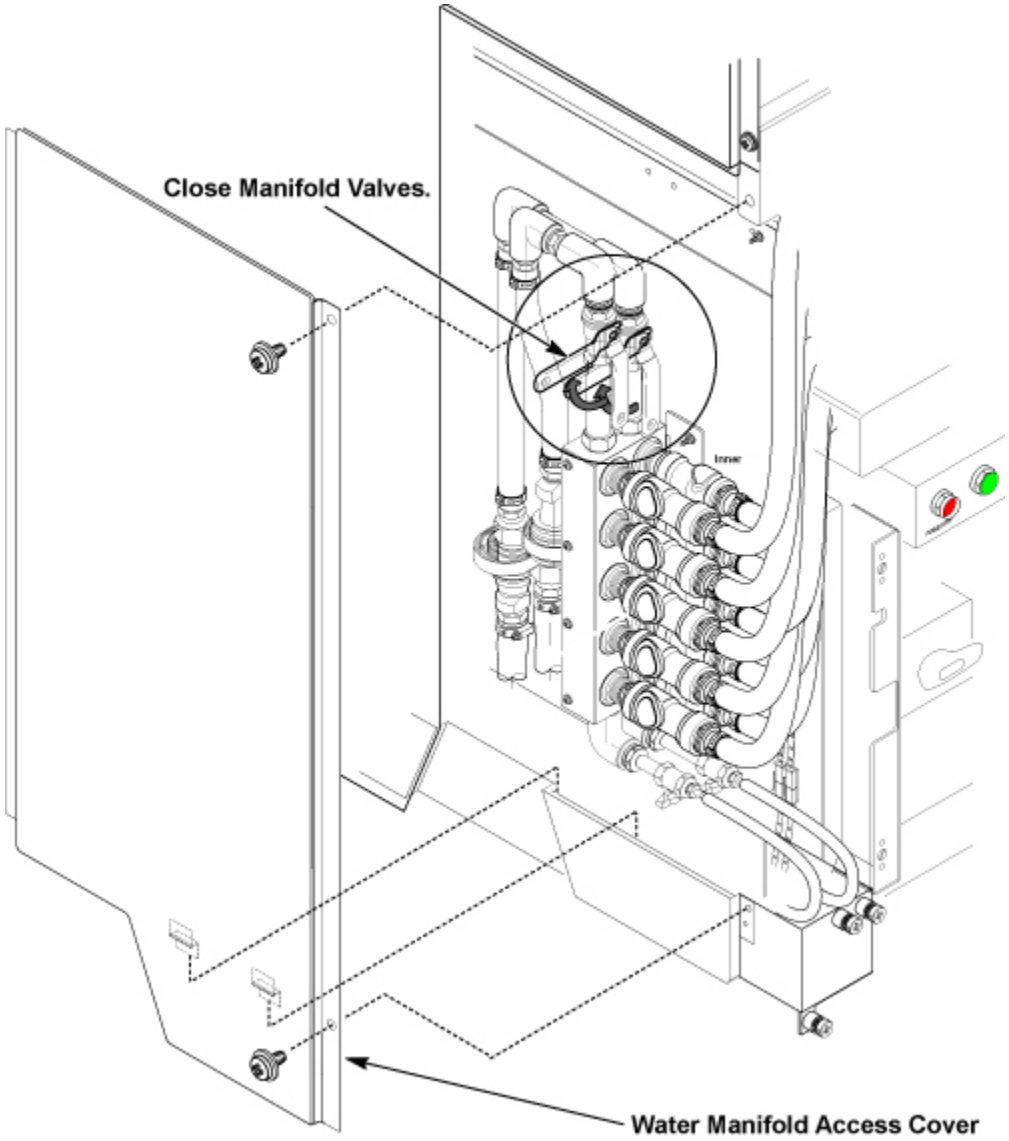
Item	Qty	Effectivity	Part#	Manufacturer
Standard Tool	1	-	-	-
Miniature ratchets for MCS site. (It is required for cable wiring in MCS)	1	-	-	-
20L Draining Tank	2	-	-	-
5L Draining Tank	1	-	-	-
Plastic draining tank. (Stored under water manifold at System Cabinet left side.)	1	-	-	-
Water Hand Pump	1	-	-	-
150MM FUNNEL	1	-	-	-
WATER HOSE SET (500 mm Hose)	2	-	-	-
HOSE BAND 1	2	-	-	-
Tie Wraps(20cm or longer) to fold and bind the hose of LCS/MCS to prevent from draining.	4	-	-	-
Unused newspaper or cloth to trap the drained coolant.	1	-	-	-

6.3 Procedure

6.3.1 MCS Removal

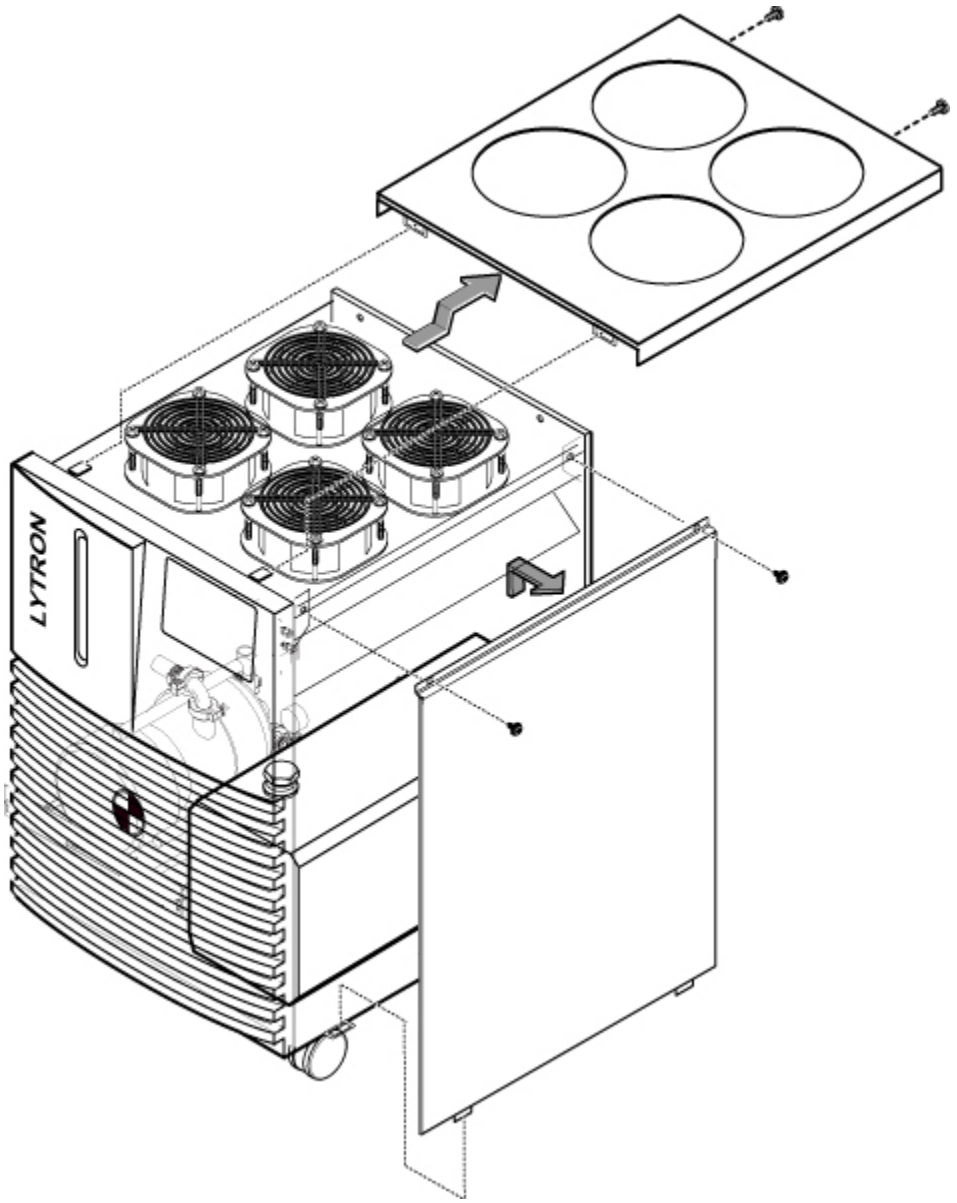
1. Remove the water manifold access cover of SC.
2. Close the IN/OUT valves of water manifold.

Illustration 2-36: Water Manifold Access Cover and IN/OUT Valves



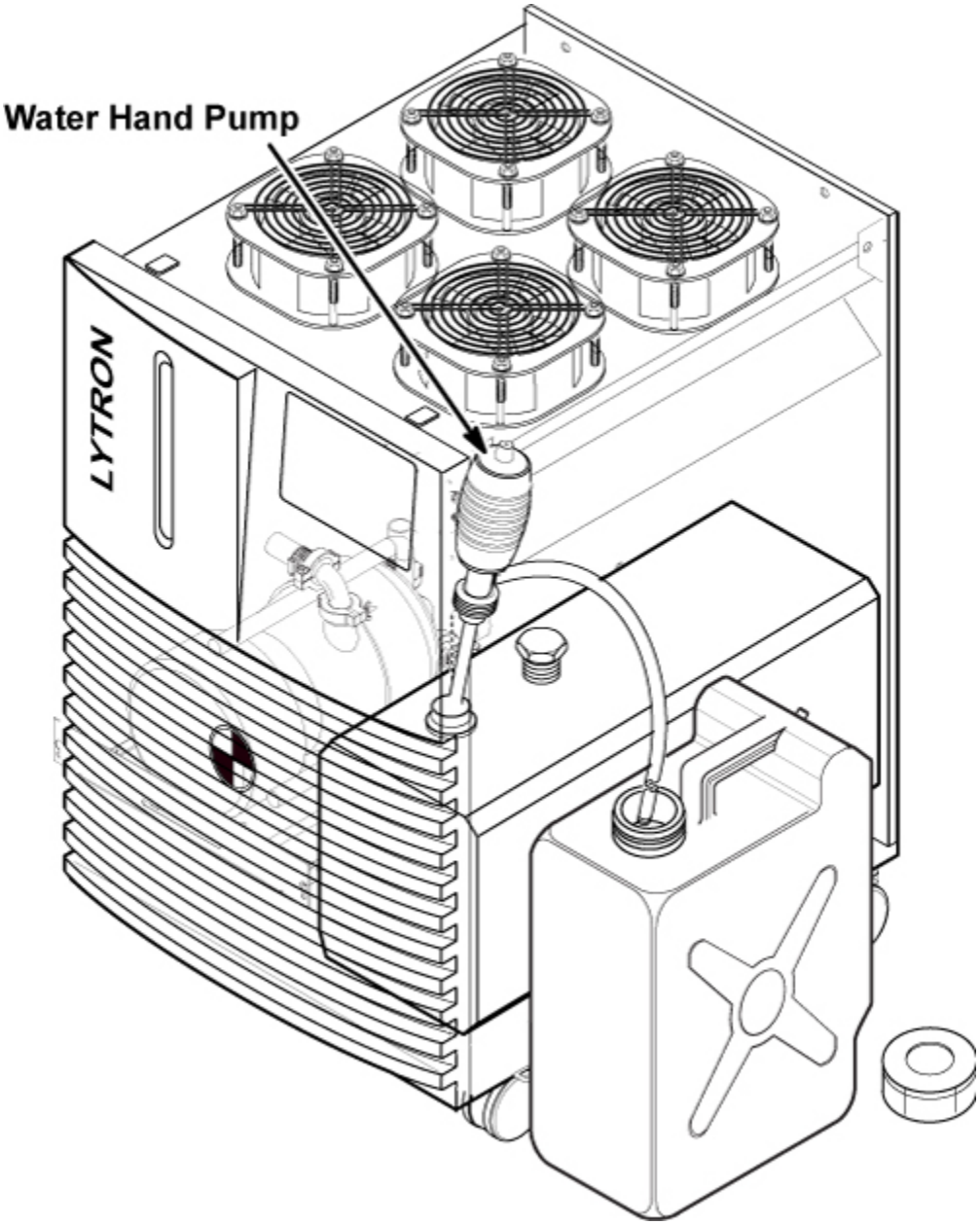
3. Remove top cover of MCS by removing 2 screws.
4. Remove R side cover of MCS by removing 2 screws.

Illustration 2-37: Cover Removal of MCS



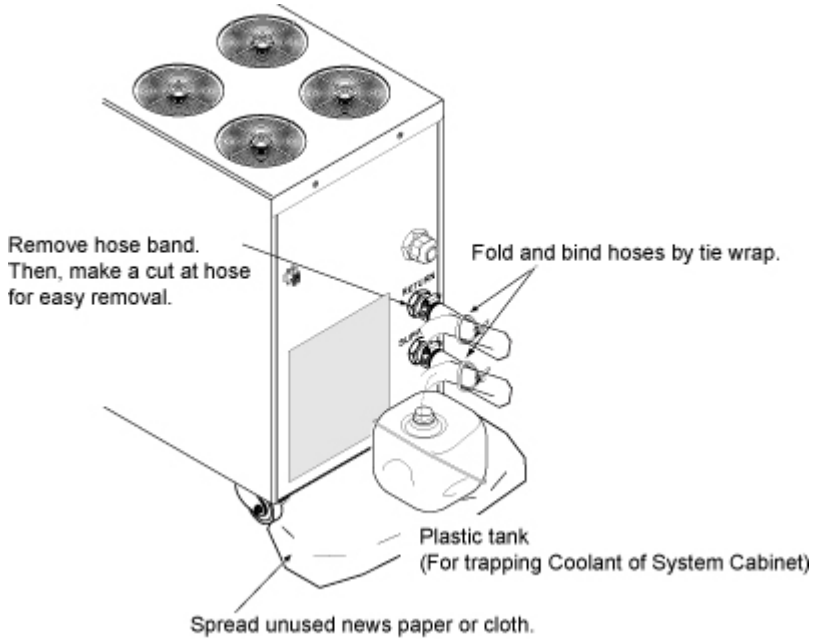
5. Disconnect the power and signal cables from MCS.
6. Set the water hand pump to MCS tank and draining tank.
7. Drain the all coolant from MCS tank.

Illustration 2-38: Setting of Coolant Draining



8. Before removing the hoses from MCS, fold and bind each hose to prevent from draining. Spread unused news paper for cloth on the floor.

Illustration 2-39: BIND EACH HOSE



9. Disconnect hoses from MCS rear panel.

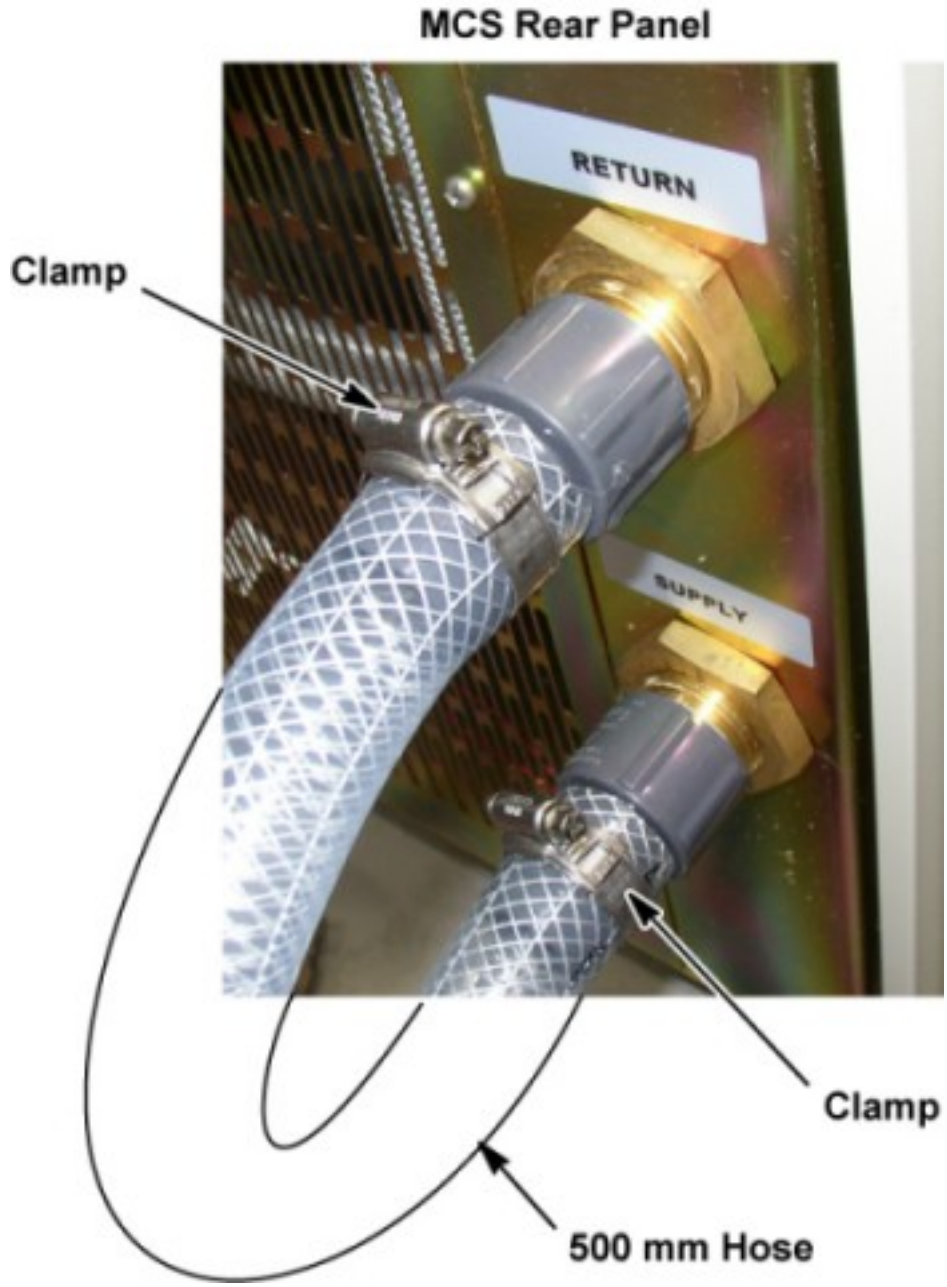
NOTE: When removing the hose easily, make a cut at the hose opening.

Illustration 2-40: Removal of hose

NOTE: Be careful the coolant does not spill to floor. If needed, use funnel and 5L tank.

10. Connect 500 mm hose to inlet and outlet of MCS with clamps.

Illustration 2-41: Hose Setting of MCS Rear Panel



11. Restore the tank cap and covers of MCS.

6.3.2 BRM Chiller Removal

1. Disconnect the power and signal cables from BRM Chiller rear panel.
2. Remove water filler cover on top of the unit to access the reservoir.
3. Drain all coolant.

4. Disconnect hoses from BRM Chiller rear panel.

6.3.3 Shield Cooler Compressor Removal (F50 and CSW-71D)

NOTE: For Air Cooled Compressor (CSA-71A), it will be remained and resused.

NOTE: The Flex Lines from Cold head will be reused.

1. Shut Down the Cold Head/Compressor Power and Perform LOTO.
2. Remove the Shield Cooler Compressor / Chiller for water cooled Shield Cooler Compressor by referring to the Vendor Manual.

6.4 Finalization

No finalization steps.

7 Removal of Equipment

7.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	120 mins	Not Applicable

7.2 Preliminary Requirements

7.2.1 Safety

⚠WARNING

PERSONAL INJURY AND EQUIPMENT DAMAGE
STRONG MAGNETIC FIELD!
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SAFETY REQUIREMENTS

- THE STATIC MAGNETIC FIELD IN ANY PORTION OF THE SERVICE PATH MUST NOT EXCEED 200 GAUSS.
- TWO (2) MR SAFETY TRAINED PERSONNEL MUST BE PRESENT AT ALL TIMES WHEN SERVICING HIGHLY FERROUS DEVICES IN THE AREAS OF MAGNETIC FIELDS.

WHEN PLANNING A SERVICE PATH, IT IS CRITICAL THAT THE PATH BE CLEAR AND SUFFICIENTLY WIDE. ENSURE THAT THERE ARE NO TRIP HAZARDS, OBSTACLES, CLUTTER, SLIPPERY SURFACES OR OTHER ITEMS EVEN PARTIALLY RESTRICTING THE PATH. IF THERE ARE PORTABLE OBSTACLES IN A PATH, REMOVE THEM FROM THE AREA AND REPLACE THEM AFTER THE SERVICE ACTION IS COMPLETED. IT IS REQUIRED TO WALK THE PATH PRIOR TO BEGINNING SERVICE TO ENSURE THAT THERE IS SUFFICIENT SPACE THROUGH WHICH TO PASS FOR YOURSELF AND THE OBJECT BEING SERVICED.

7.3 Procedure

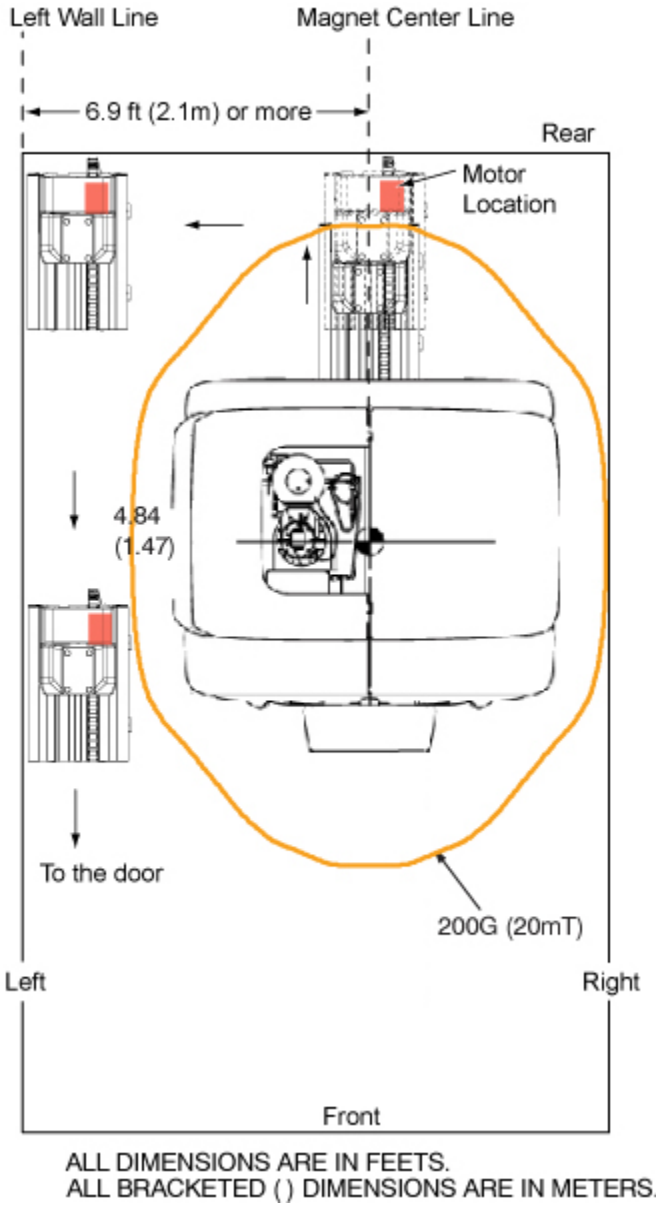
7.3.1 Room Size Check for Rear Pedestal Removal

⚠WARNING

STRONG MAGNETIC FIELD
MOTOR ASSY IN REAR PEDESTAL CONTAINS FERROUS MATERIAL.
IT IS CRITICALLY IMPORTANT THAT THE SERVICE ENGINEER CONSCIOUSLY PLAN THE PATH TO BE TAKEN WHEN MOVING HIGHLY FERROUS DEVICES IN THE MAGNET ENVIRONMENT. THE MAGNETIC FIELD IN THIS PATH MUST NOT EXCEED 200 GAUSS AND THE PATH SHOULD BE AS FAR FROM THE MAGNET AS PRACTICAL.

1. Check the distance between left wall and the center line of the Magnet.
2. If the distance is 6.9ft (2.1m) or more, please move the Rear Pedestal without removing the motor assy. When moving the Rear Pedestal, do not exceed the 200G Line as Illustration 2-42. For the Rear Pedestal removal, refer to Section 7.3.3.

Illustration 2-42: Room Size Check



3. If the distance is less than 6.9ft (2.1m), motor assy remove the motor assy before removing the Rear Pedestal. In this case, refer to Section 7.3.2.

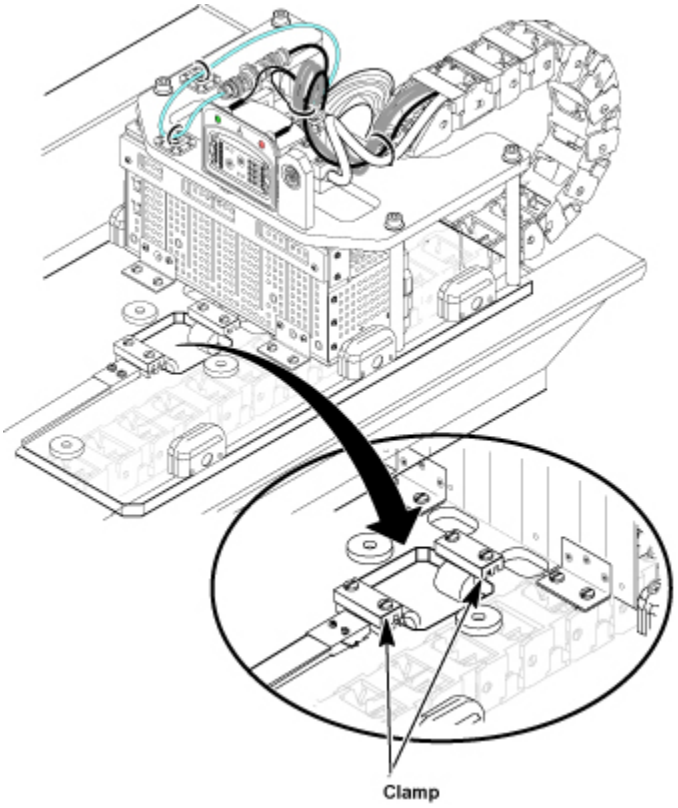
7.3.2 Motor Drive Removal

NOTE: Please perform this section if the distance between left wall the magnet center line is less than 6.9ft (2.1m)

1. Remove all covers from Rear Pedestal.
2. Remove cover of Bridge end.
3. Remove the LPCA cover.

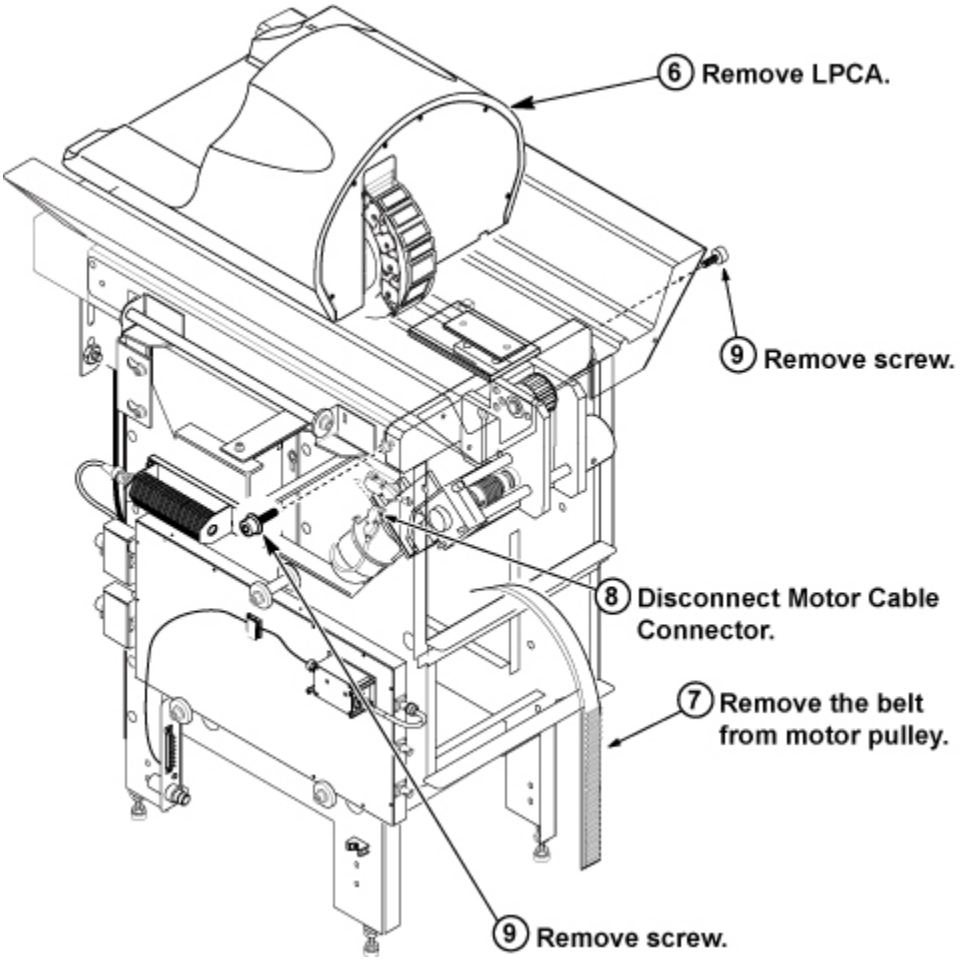
4. Release Drive Belt tension by flipping lever under Rear Pedestal.
5. Remove belt fixture plates.

Illustration 2-43: Remove Drive Belt



6. Remove the LPCA from the Rear pedestal, push the LPCA to magnet side.
7. Remove the Belt from Motor Assy.
8. Disconnect motor cable connectors.
9. Remove 2 cap screws from both side of rear pedestal.

Illustration 2-44: Fixing Screw of Drive Motor Assy



10. Cut the tie wrap and disconnect J3 connector from Encoder Box. See Illustration 2-47.

⚠CAUTION

FERROUS MATERIAL HAZARD !!
LONGITUDINAL DRIVE MOTOR CONTAINS FERROUS MATERIAL. HOLDING THIS ASSEMBLY TOO CLOSE TO THE MAGNET BORE WILL FORCIBLY ATTRACT IT TO THE MAGNET. TO PREVENT POSSIBLE BODILY INJURY OR MATERIAL DAMAGE, REMOVE LONGITUDINAL DRIVE MOTOR ASSY TOWARD THE REAR WALL BELOW THE ORIGINAL MOTOR ASSY LEVEL AS Illustration 2-45 AT REAR OF THE MAGNET. CARRY THE ASSY OUTSIDE OF 200G LINE ALONG THE WALL TO THE EXIT AS Illustration 2-46.

Illustration 2-45: REMOVAL AT REAR OF THE MAGNET

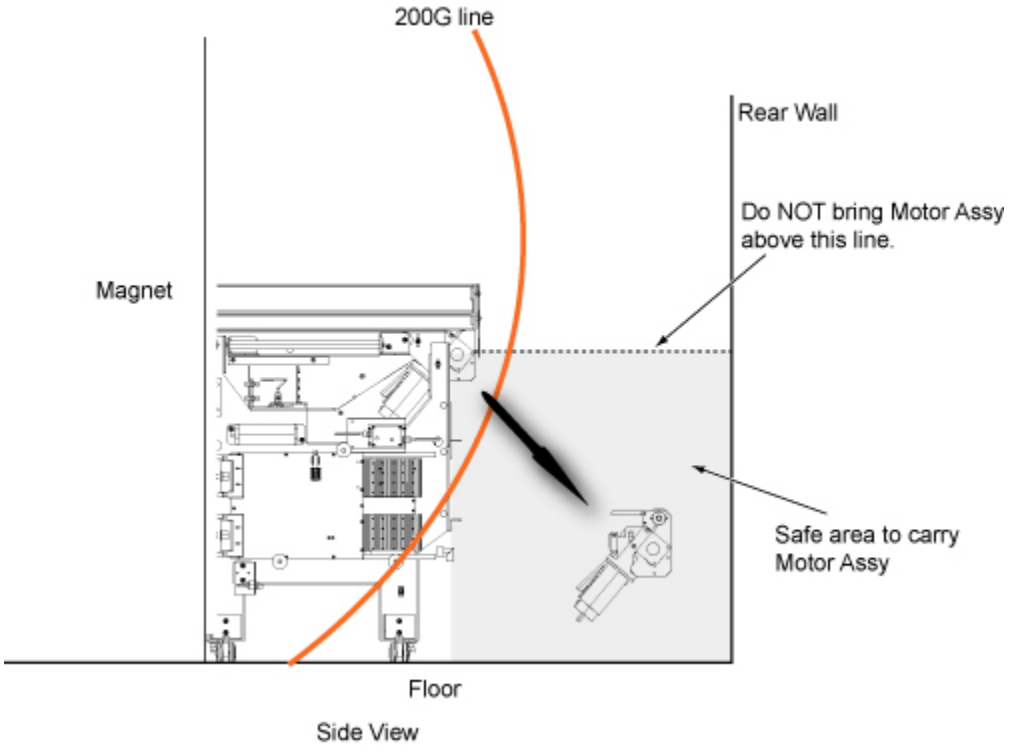
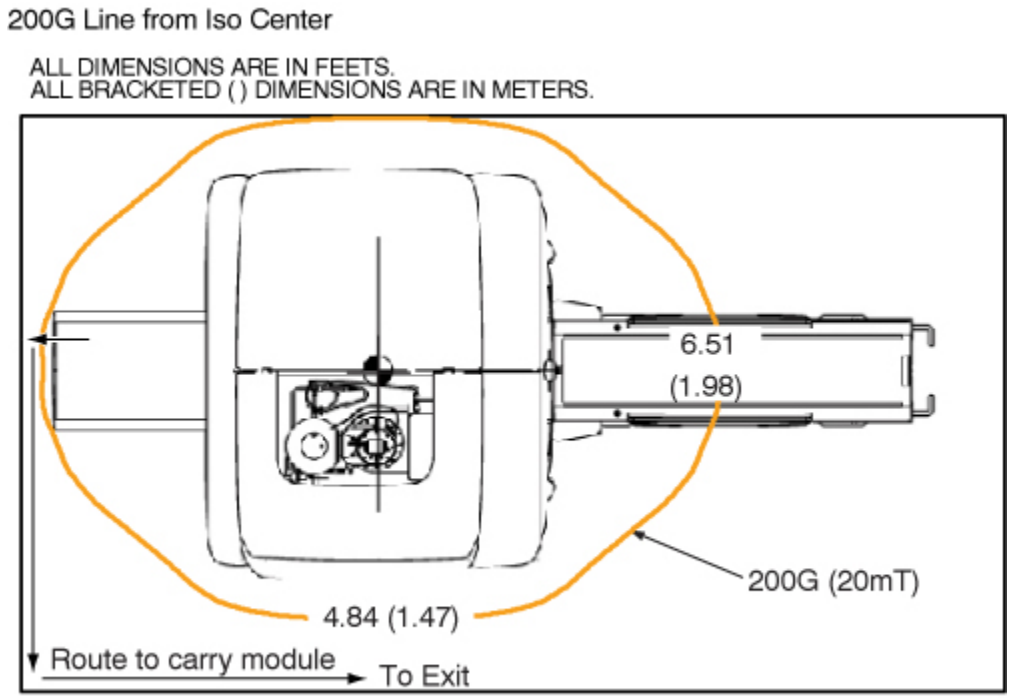


Illustration 2-46: 200G LINE AND ROUTE TO CARRY MODULE



Top View

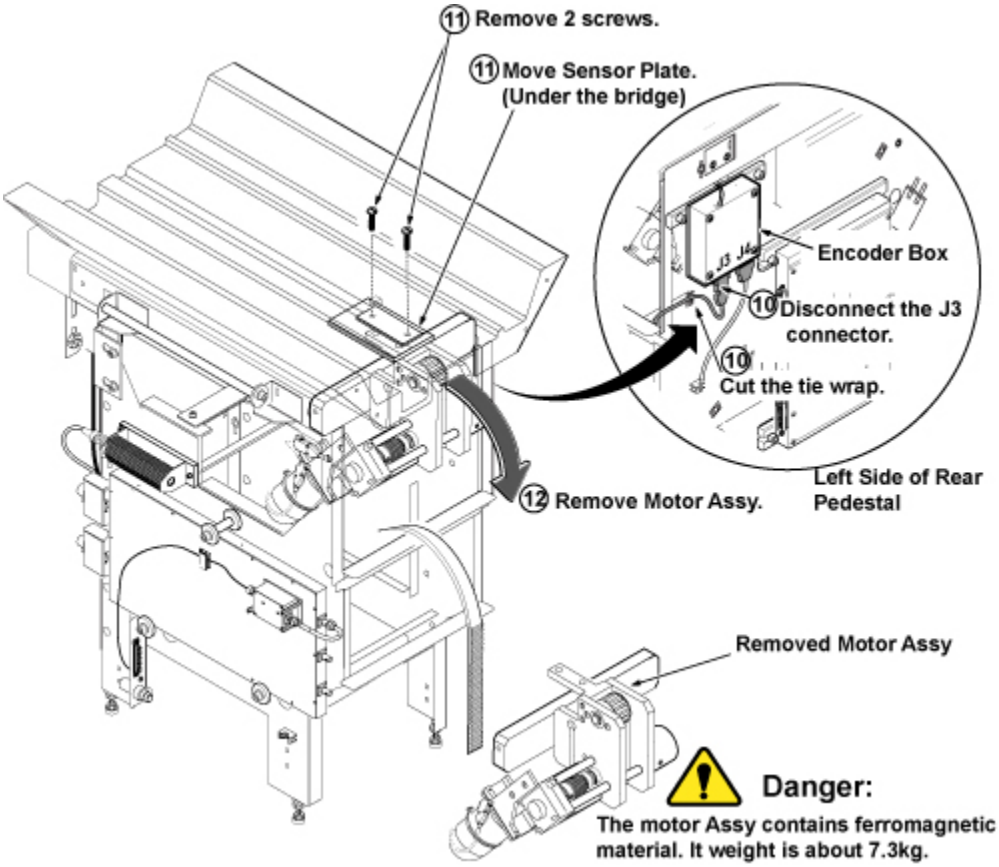
⚠CAUTION

POSSIBLE PERSONAL INJURY!
DO NOT PLACE ANY PART OF THE HUMAN BODY IN THE PATH BETWEEN THE MOTOR ASSY AND THE MAGNET.

11. Hold the sensor plate below the bridge and remove the 2 screws on the bridge. See Illustration 2-47.

12. Carefully slide motor assy to the rear direction and remove it toward the rear wall below the original motor assy level.

Illustration 2-47: Motor Assy Removal



13. With two people holding the motor assembly, exit the magnet room by walking as close to the wall on the coldhead side of the magnet as possible.

NOTICE

Once Motor assy is removed, LPCA becomes free from Rear Pedestal. Please move the LPCA from Magnet room before Rear Pedestal Removal.

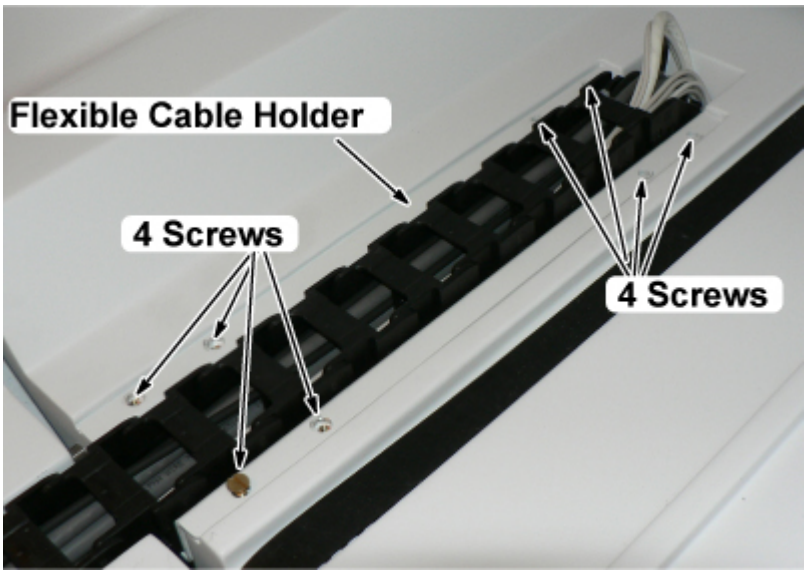
14. Remove the LPCA from Magnet Room.

7.3.3 Rear Pedestal Removal

1. Remove all covers from Rear Pedestal.
2. Remove cover of Bridge end.
3. Remove the LPCA cover.
4. Disconnect all connectors connecting the magnet and rear pedestal.
5. Release Drive Belt tension by flipping lever under Rear Pedestal.
6. Remove the belt from the pulleys of rear pedestal. Refer to Illustration 2-43.

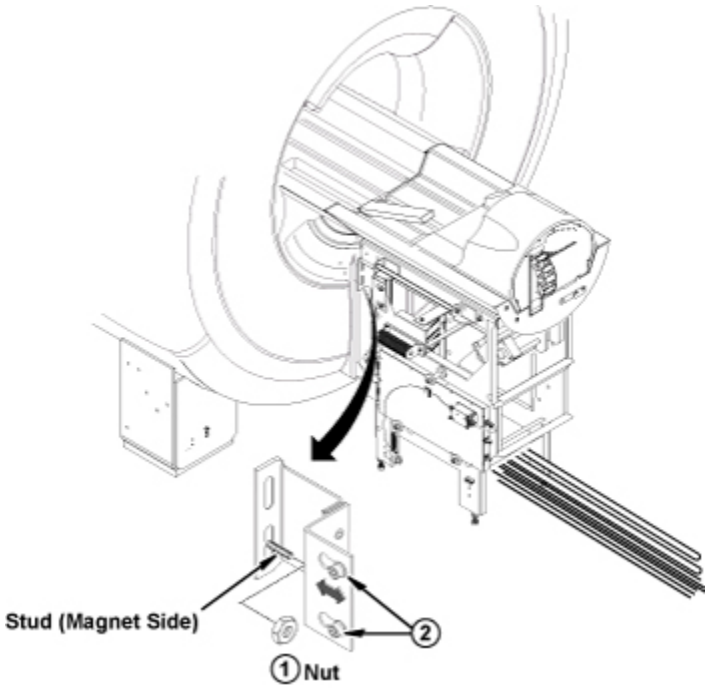
7. Remove 8 screws which connects flexible cable holder and front split bridge.

Illustration 2-48: Flexible Cable Holder



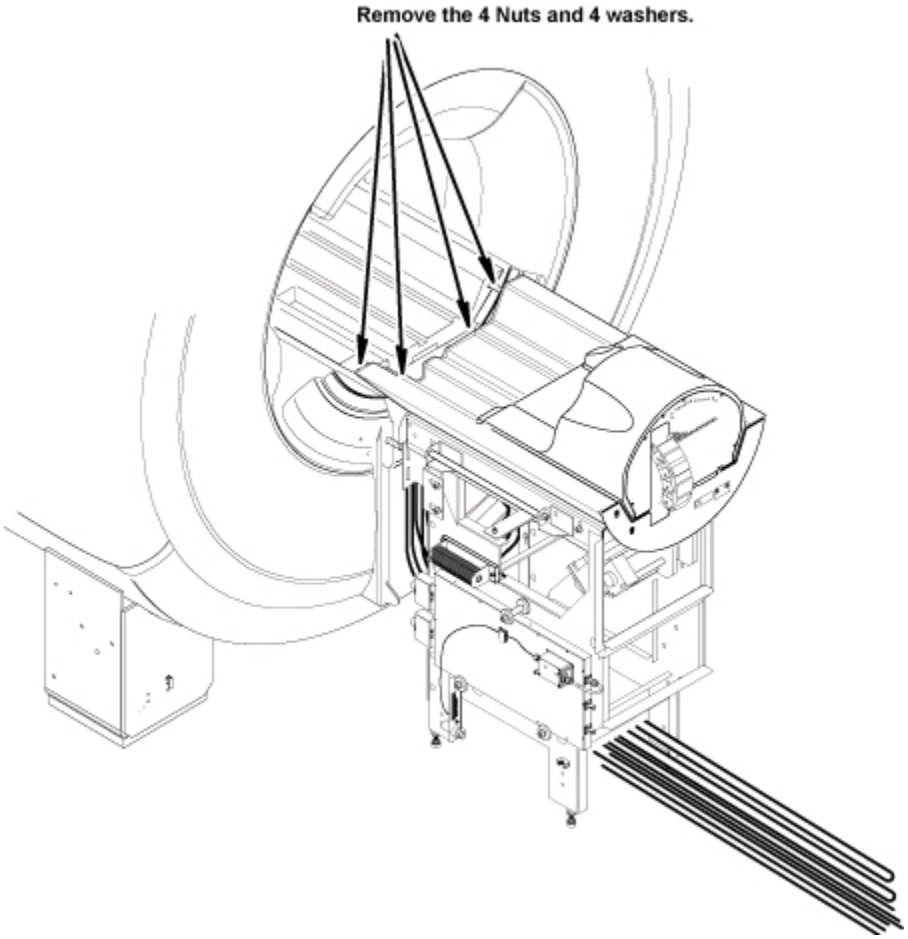
8. Remove nuts from Support Studs from both sides which connects Front and Rear Split Bridge.

Illustration 2-49: Remove Front and Rear Split Bridge



9. Remove four nuts and washers which connects Front and Rear Split Bridge.
10. Move the Rear Pedestal outside of magnet room.

Illustration 2-50: Remove Rear Pedestal

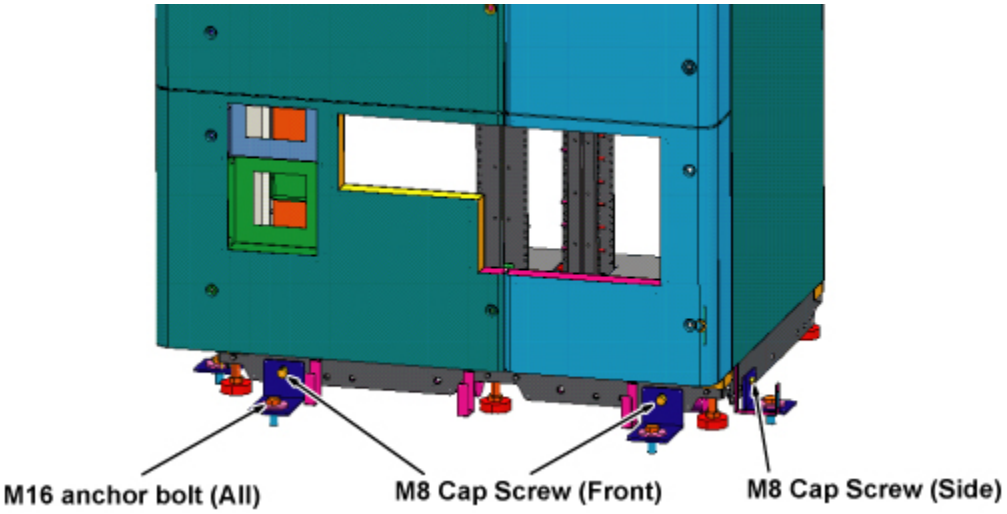


7.3.4 System Cabinet Removal

7.3.4.1 Remove anchor from System Cabinet

1. Remove anchor bolts of System Cabinet from the floor.
2. Remove anchor brackets at the bottom of System Cabinet.

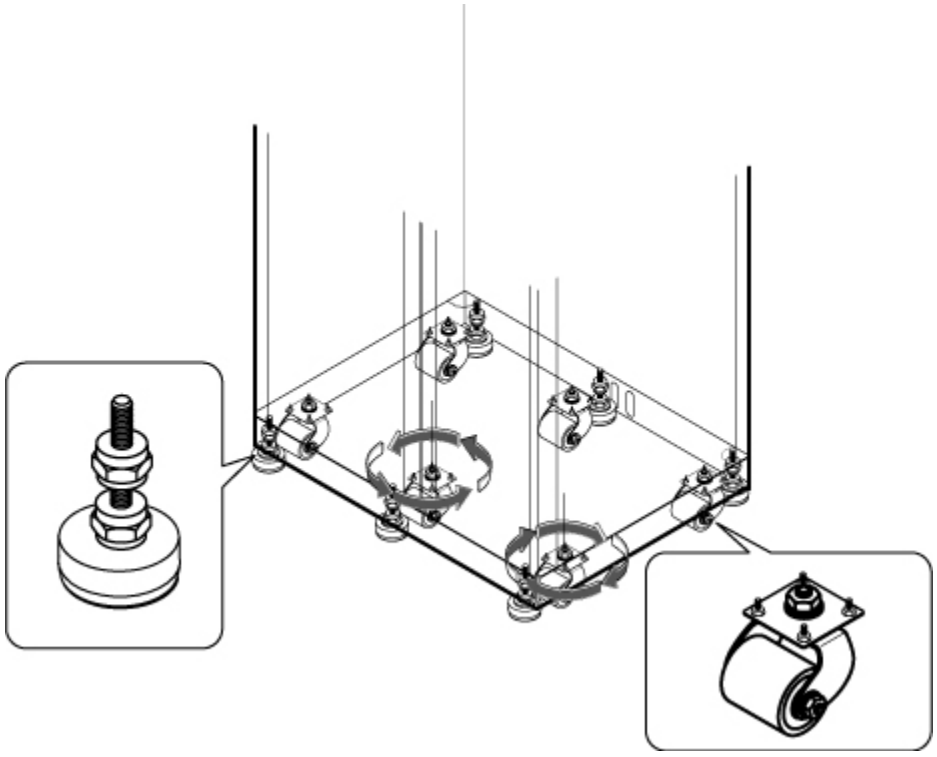
Illustration 2-51: Remove Anchor from System Cabinet



7.3.4.2 Remove System Cabinet

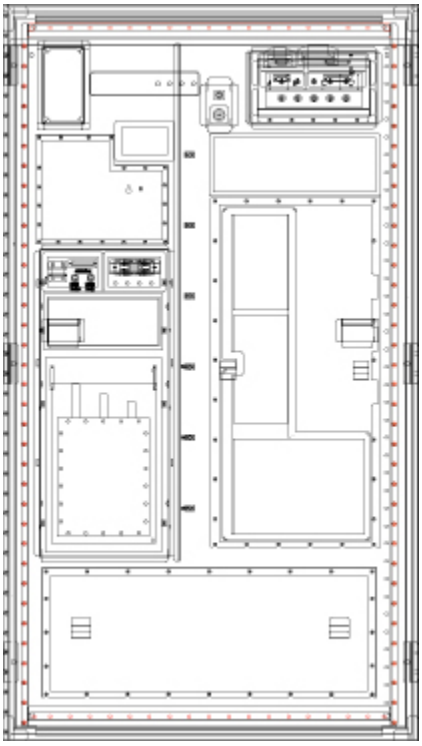
1. Rotate the adjusters to the upmost position.

Illustration 2-52: Adjuster



2. Remove the screws and washers which are connecting System Cabinet and Mesh Shield. (108 fixing screws)

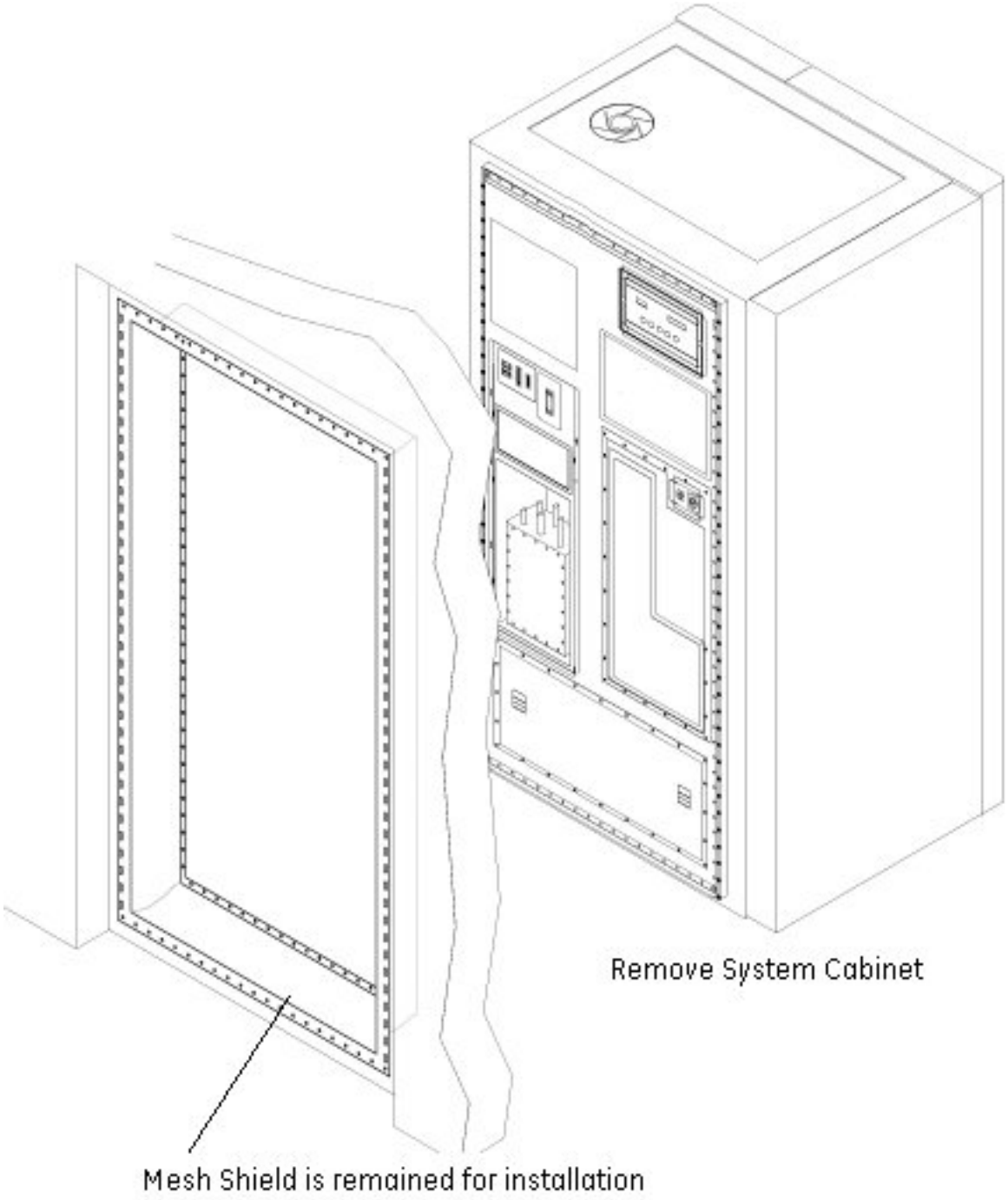
Illustration 2-53: System Cabinet (View from Magnet Room)



NOTE: Mesh Shield remains for installation. Even though mesh shield will be shipped with the installation kit, it is recommended to leave the mesh shield not to damage the screw holes on the wall.

3. Move the System Cabinet slowly.

Illustration 2-54: System Cabinet (View from Magnet Room)



7.4 Finalization

No finalization steps.

8 Removal of Magnet Enclosure

8.1 Personnel Requirements

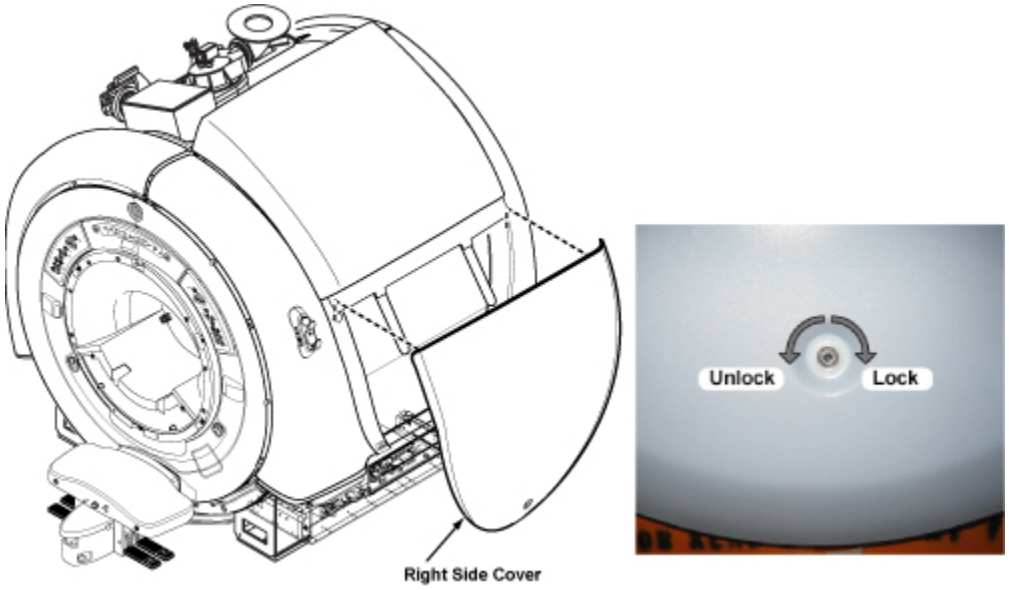
Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	90 mins	Not Applicable

8.2 Procedure

8.2.1 Right Side Cover

1. Unlock the lock screw with non-ferrous wrench to counterclockwise.
2. Remove the right side cover by grabbing sides of lower cover and lift upwards until the cover is released from the upper cover.

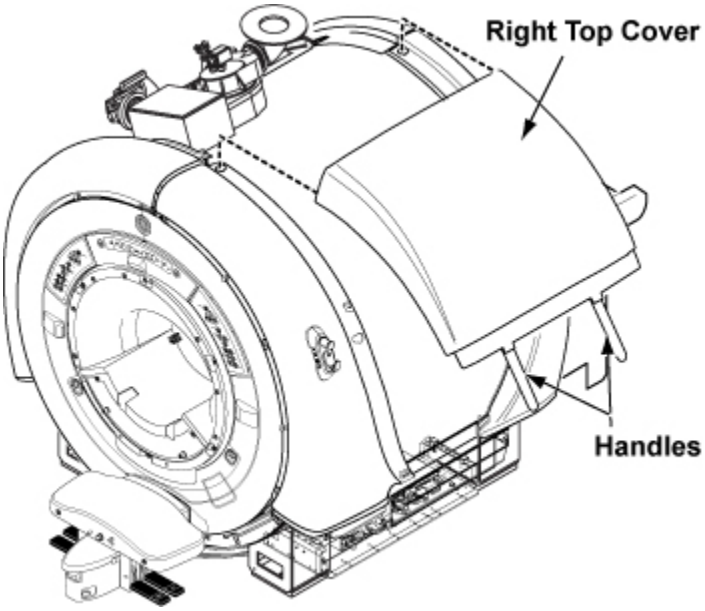
Illustration 2-55: Removing Right Side Cover



8.2.2 Right Top Cover

1. Grab the two handles of the right top cover firmly and push the cover to upward and then pull out away from the enclosure.

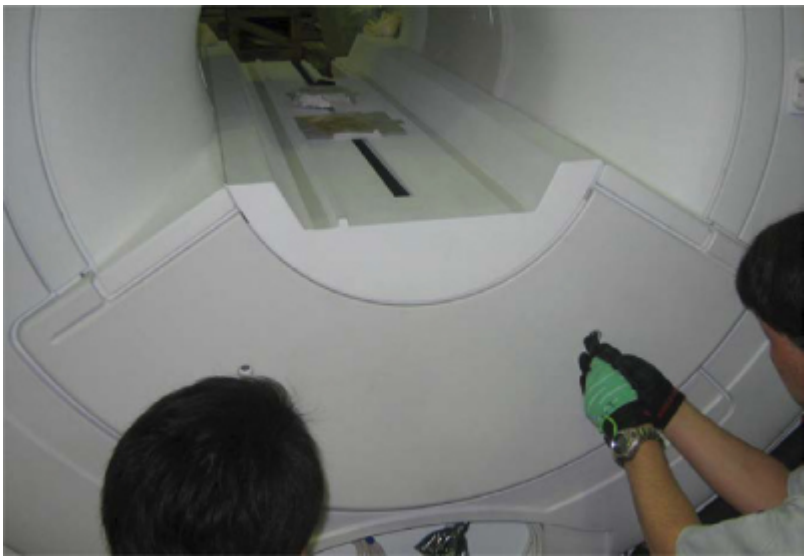
Illustration 2-56: Removing Right Top Cover



8.2.3 Bridge Cover

1. Remove the bridge cover by removing two M10 bolts.

Illustration 2-57: Removing Bridge Cover



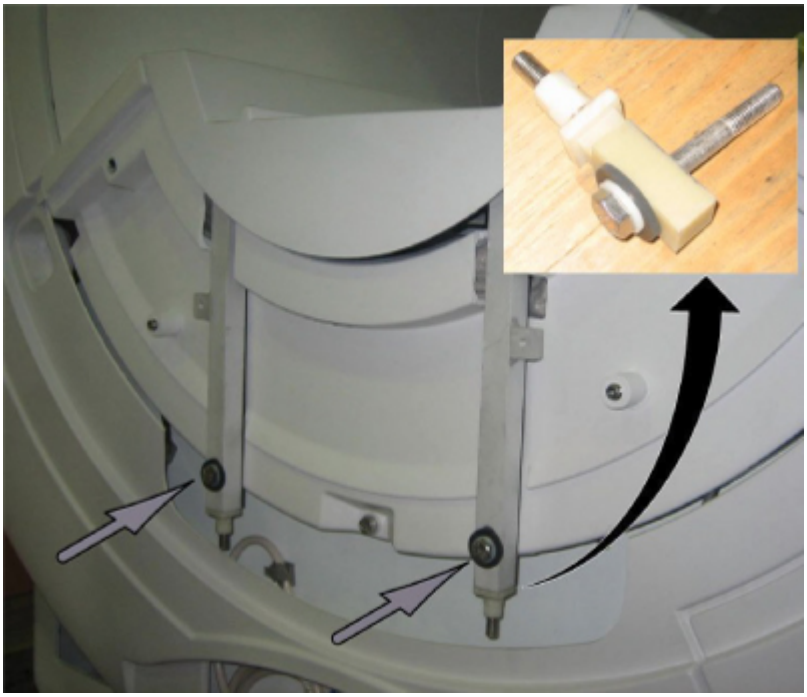
2. Restore two bolts to the magnet side.

Illustration 2-58: Restoring Two Bolts

8.2.4 Bridge Assembly

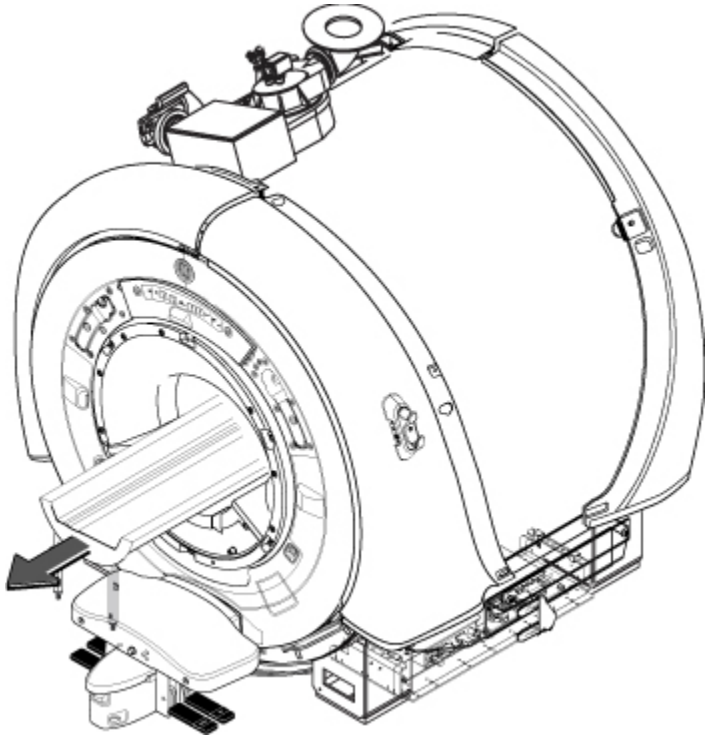
1. Remove the two bolts. When removing the bolts, hold the adjuster by hand.

Illustration 2-59: Removing Two Bolts



2. Slide the bridge out from magnet by two persons. Care should be taken to ensure the drive belt comes along with the bridge.

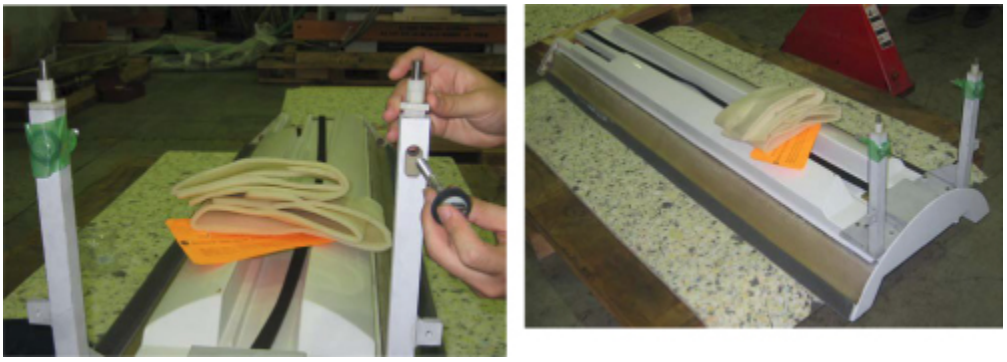
Illustration 2-60: Sliding Bridge



3. Fix the removed bolt and adjuster to the bridge support by tape.

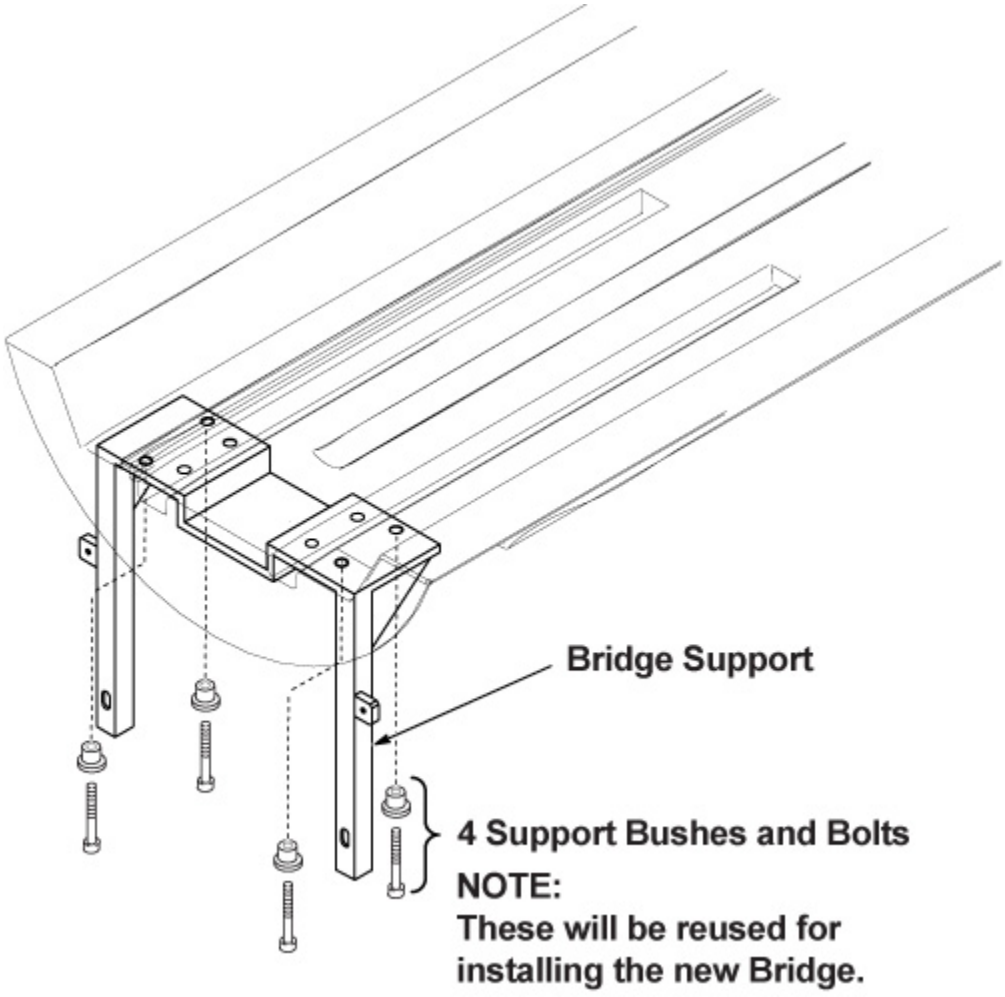
   NOTE: Bridge Support will be reused for Installation.

Illustration 2-61: Fixing Bolts and Adjuster



4. Lay bridge on its top and remove the four (4) M5 Allen bolts that attach the Bridge support.

Illustration 2-62: Bridge Bracket Bolt Locations



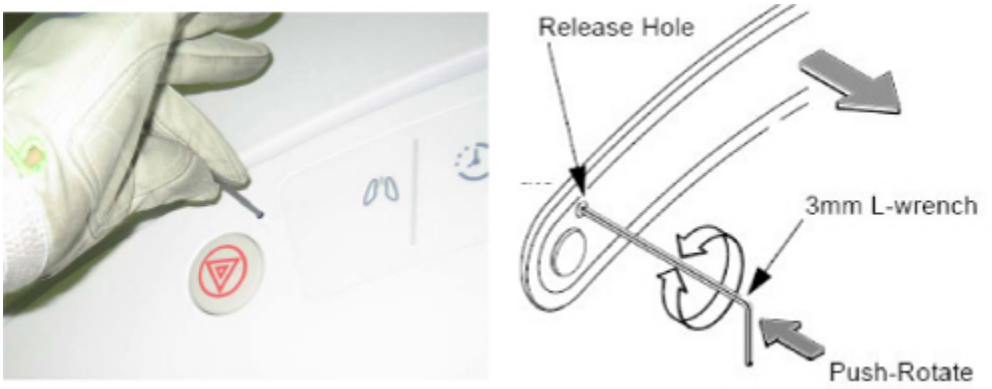
8.2.5 Center Panel (This part will be reused)

NOTE: Center Display panel will be reused for installation.

NOTE: All the cables connected to center display will be remained for installation. (Run 848, 862, 863, 897, 1261)

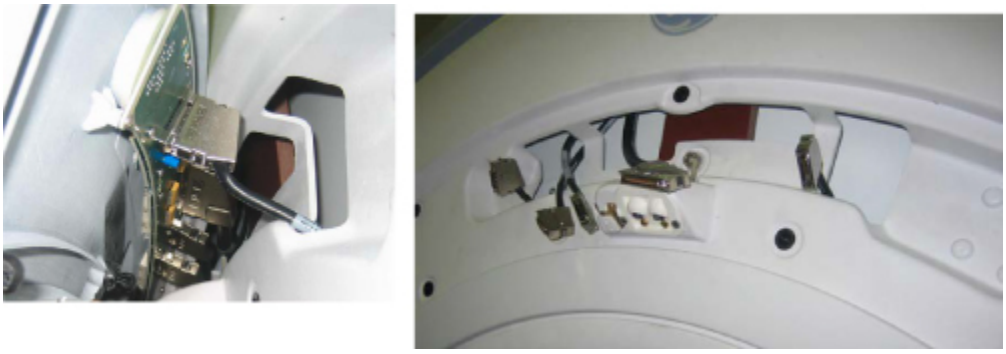
1. Insert non ferrous 3mm L-wrench to release hole of panel. Then, push and rotate non ferrous 3mm L-wrench. The panel lock will be released.

Illustration 2-63: Release Panel Lock



2. Remove the panel and disconnect the 5 connectors.

Illustration 2-64: Remove Panel and Connectors

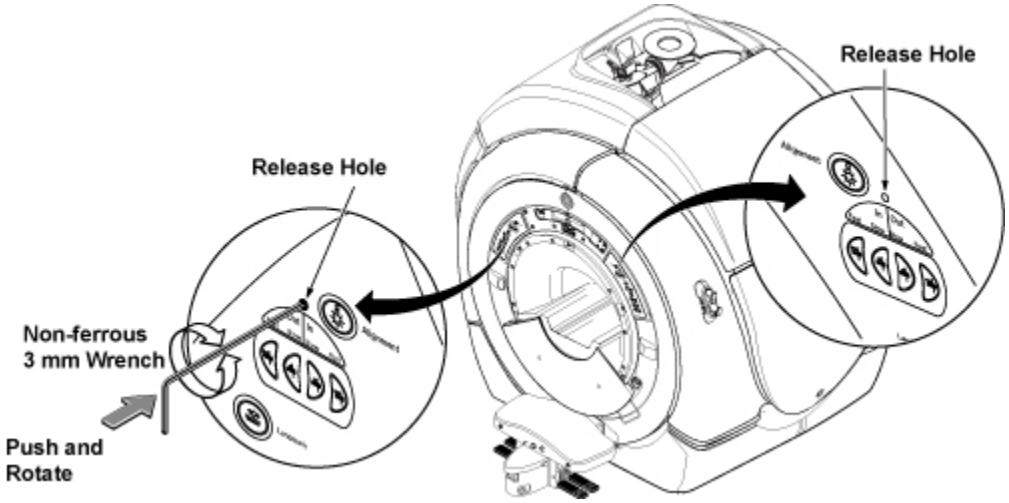


3. Center display panel will be re-used. Please keep it for installation.

8.2.6 Side Control Panels

1. Insert non ferrous 3mm L-wrench to release hole of panel. Then, push and rotate non ferrous 3mm L-wrench. The panel lock will be released.

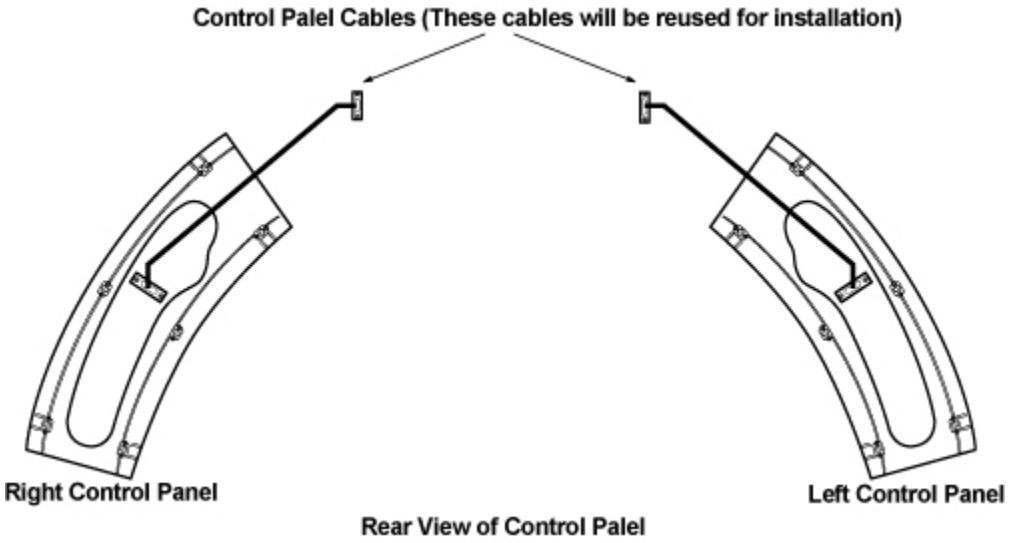
Illustration 2-65: Release Panel Lock



NOTE: The control panel cables will be remained for installation. (Run 862, 863)

2. Remove the control panels and disconnect the 1 connector respectively.

Illustration 2-66: Remove Control Panel and Connectors



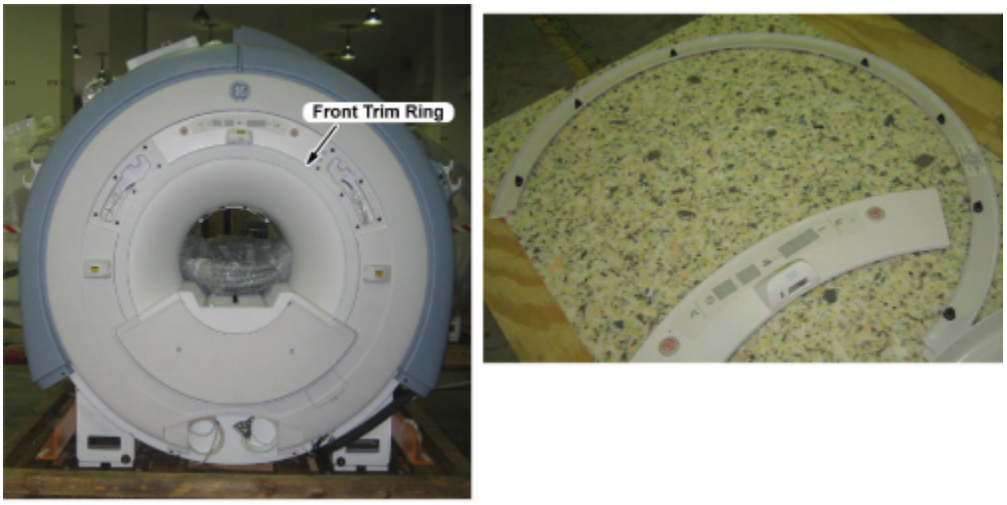
3. Keep control panel cables (Run 862, 863) at site for installation.

8.2.7 Front Trim Ring (This part will be reused)

NOTE: Front Trim Ring will be reused for installation.

1. Remove the front trim ring. The front trim ring is fixed by 7 poppers to enclosure.

Illustration 2-67: Removing Front Trim Ring



2. Front Trim Ring will be re-used. Please keep it for installation.

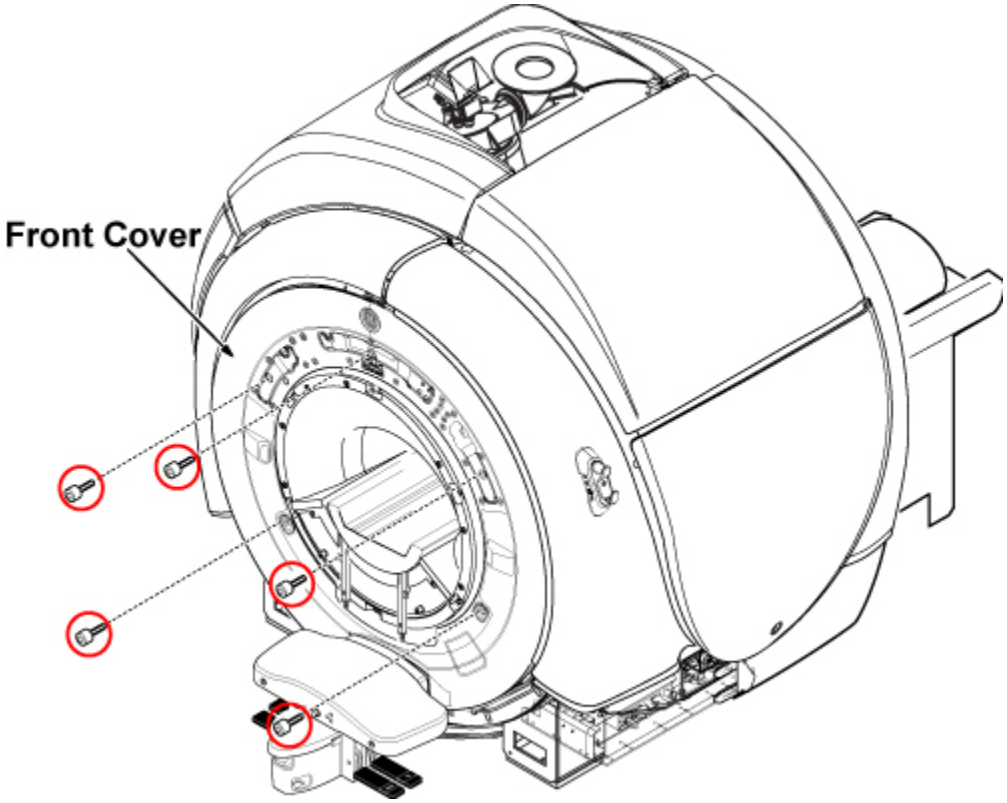
8.2.8 Front Cover

1. Remove 2 screws fixing MIC. Restore two screws to the MIC after removing the front cover.

Illustration 2-68: MIC Fixing Screws

2. Remove 5 bolts fixing front cover. Do not remove the front cover from the magnet now.

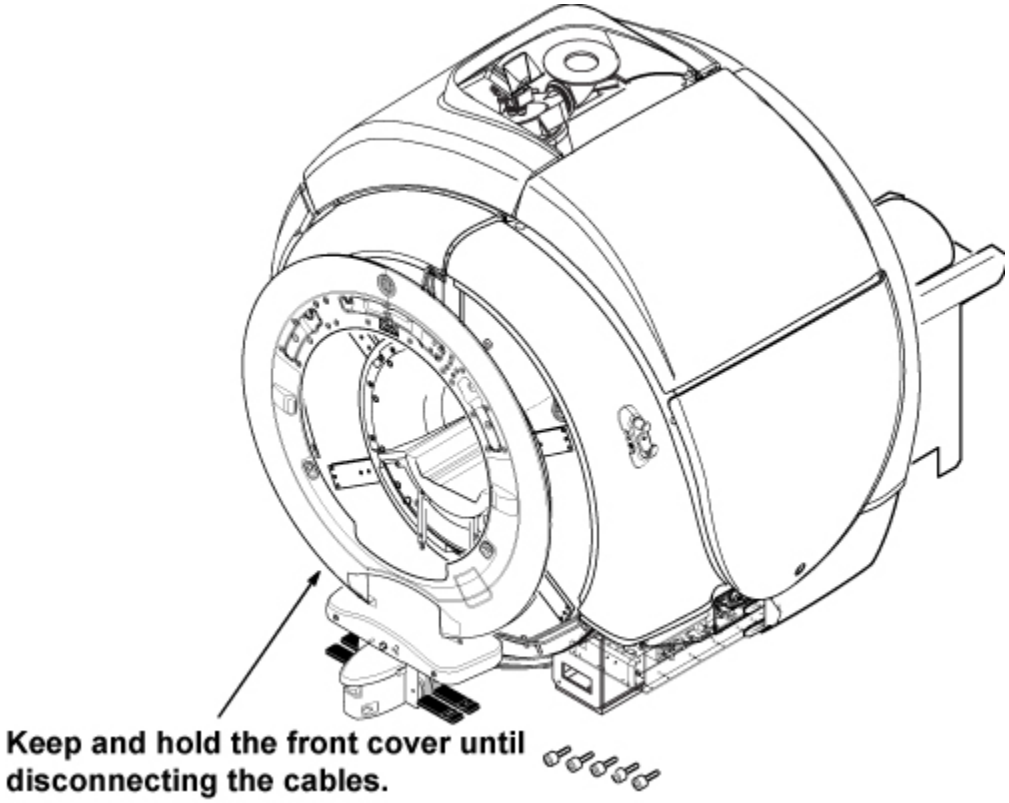
Illustration 2-69: Front Cover Fixing Bolts



3. Remove and hold front cover to access cables of cover backside.

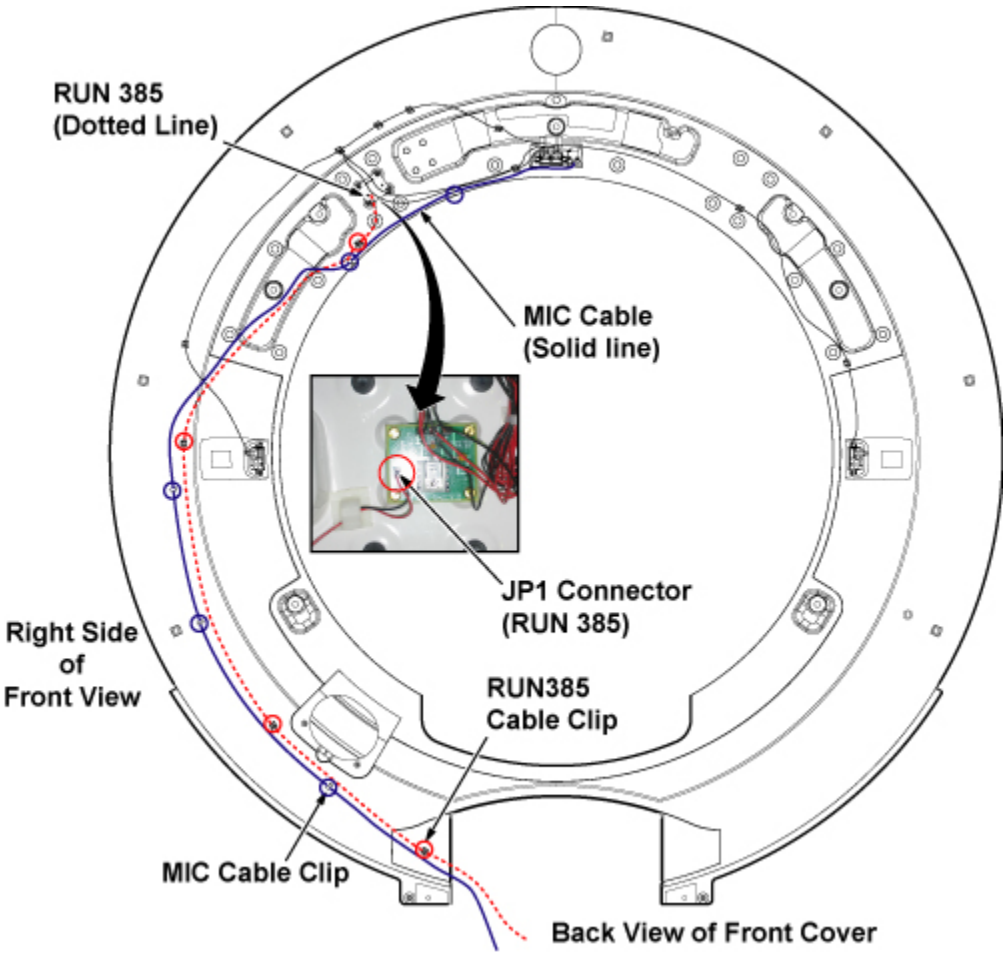
NOTE: The front cover is secured by 5 bolts and 7 poppers.

Illustration 2-70: Holding Front Cover



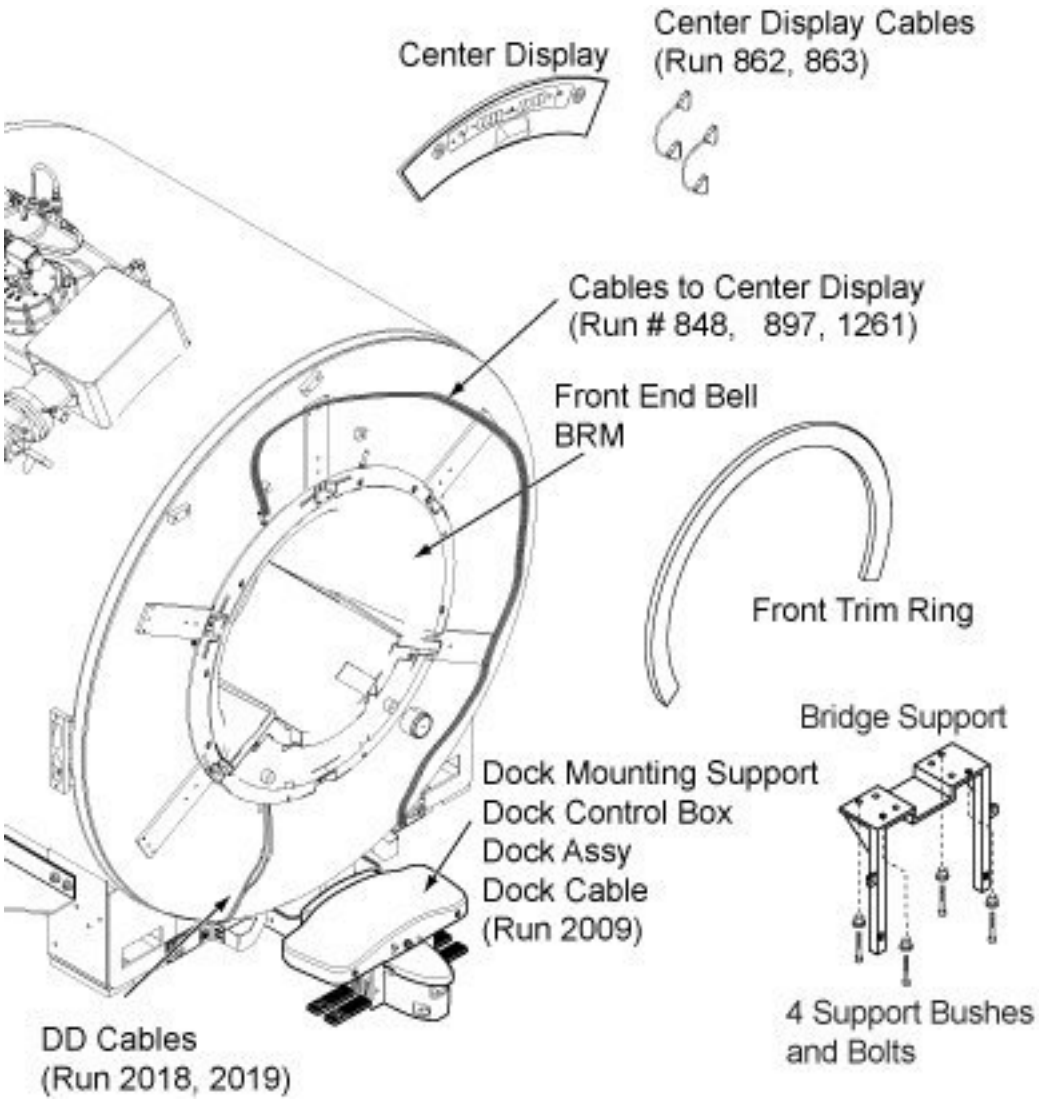
4. Disconnect JP1 of RUN 385 from the board of cover backside.
5. Remove MIC cable and RUN385 from the cable clips of front cover back side.

Illustration 2-71: Front Cover Back View



NOTE: Note that the following parts will be reused for installation.

Illustration 2-72: Reused parts at Magnet Front



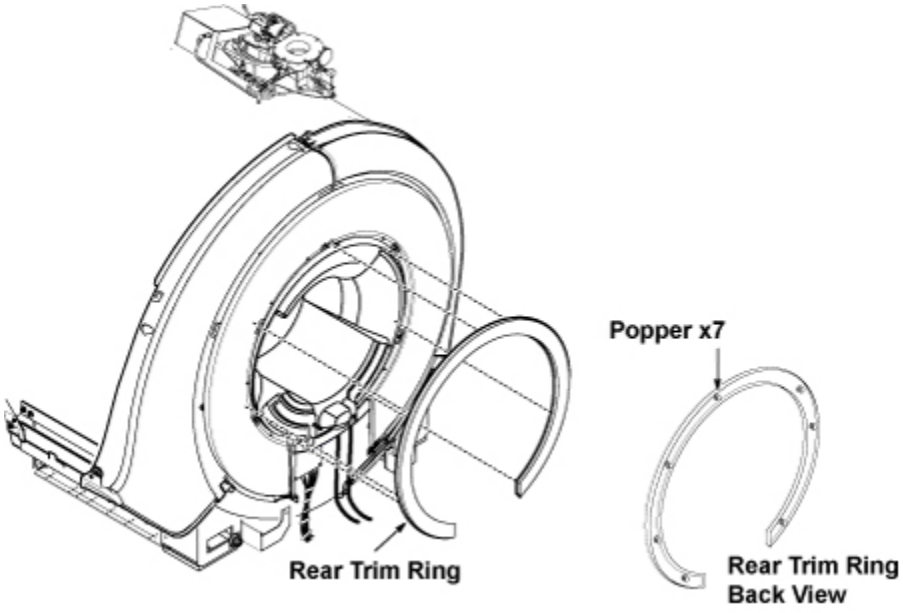
6. Remove front cover from the magnet.

8.2.9 Rear Trim Ring (This part will be reused)

NOTE: Rear Trim Ring will be reused for installation.

1. Remove the rear trim ring. The rear trim ring is fixed by 7 poppers to enclosure.

Illustration 2-73: Removing Rear Trim Ring



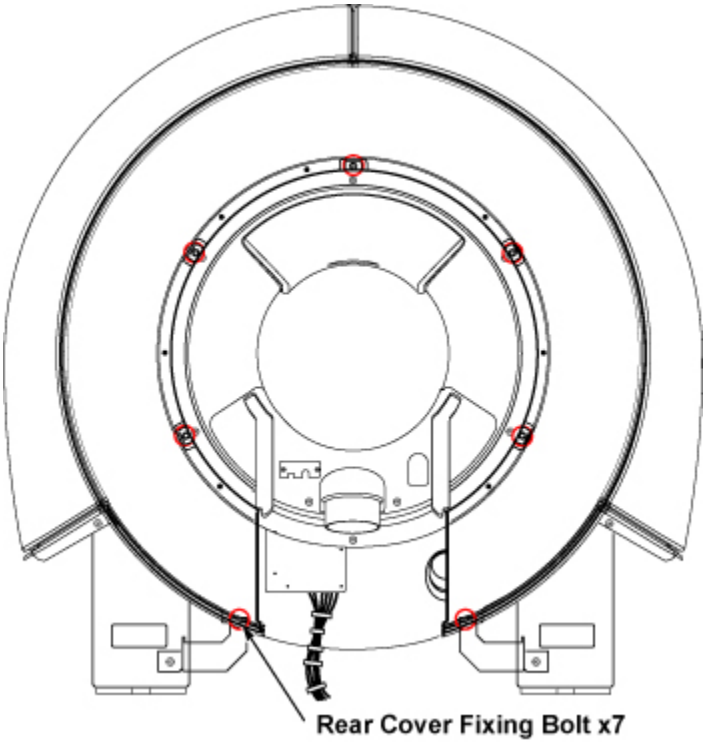
2. Rear Trim Ring will be re-used. Please keep it for installation.

8.2.10 Rear Cover (This part will be reused)

NOTE: Rear Cover will be reused for installation.

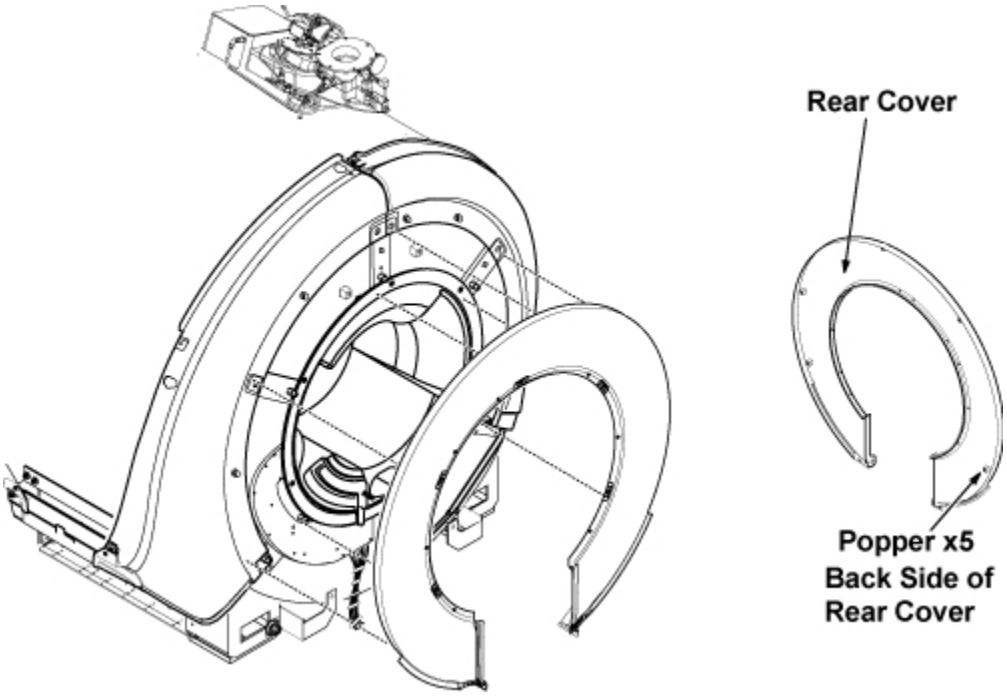
1. Remove 7 bolts that are securing rear cover to the enclosure.

Illustration 2-74: Remove Rear Cover Securing Bolts



2. Remove Rear Cover.

Illustration 2-75: Remove Rear Cover

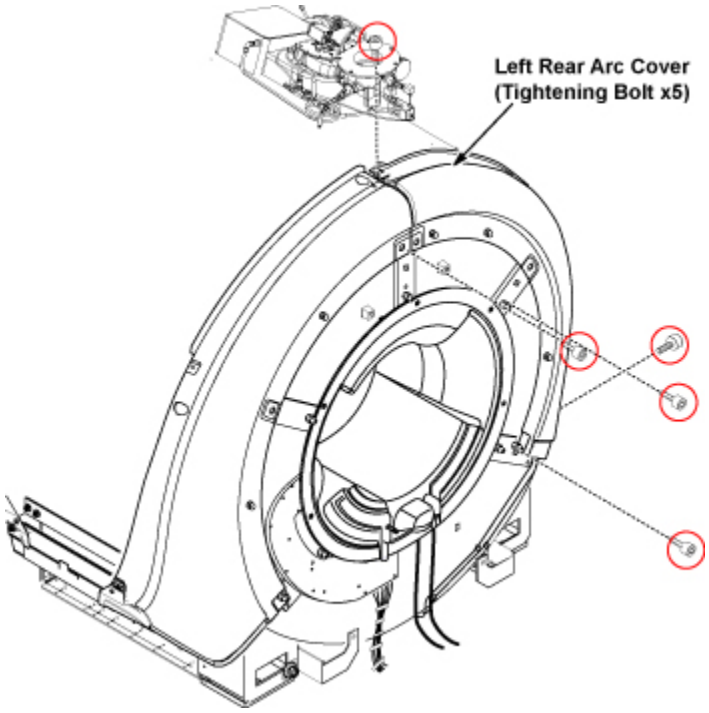


3. Rear Cover will be re-used. Please keep it for installation.

8.2.11 Rear Left Arc Cover

1. Remove 5 bolts and remove the left rear arc cover from the magnet.

Illustration 2-76: Removing Left Rear Arc Cover



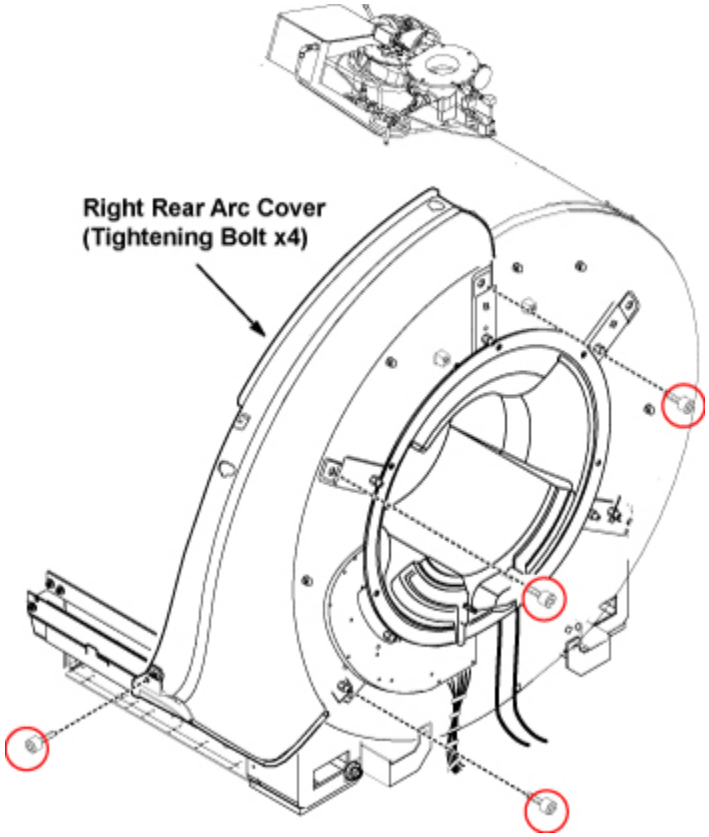
NOTE: Arc cover bolts will be reused for installation. Please keep them at site and do not dispose. It is recommended to restore four screws on the magnet and attach the top screw on the Magnet by tape.

2. Keep these 5 bolts at site for Installation. Please do not dispose.

8.2.12 Rear Right Arc Cover

1. Remove 4 bolts and remove the right rear arc cover from the magnet.

Illustration 2-77: Removing Right Rear Arc Cover



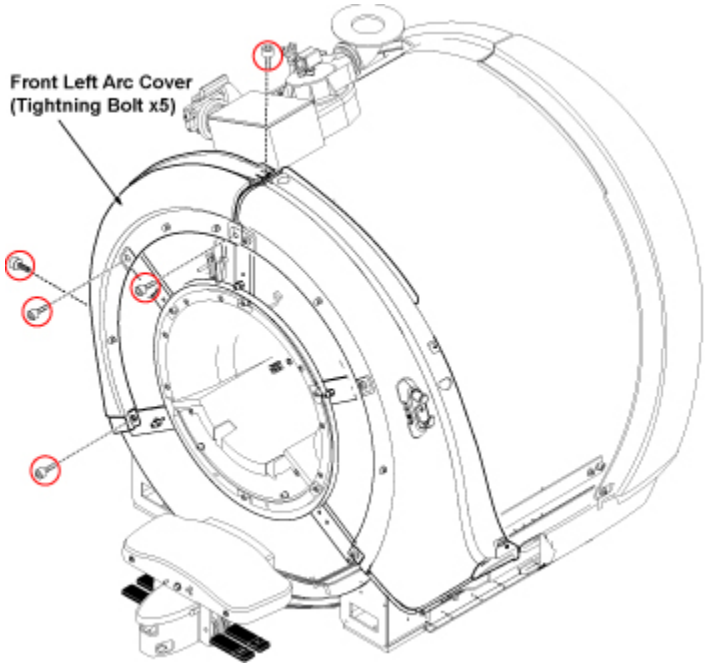
NOTE: Arc cover bolts will be reused for installation. Please keep them at site and do not dispose. It is recommended to restore four screws on the magnet.

2. Keep these four bolts at site for installation. Please do not dispose.

8.2.13 Front Left Arc Cover

1. Remove 5 bolts and remove the left front arc cover from the magnet.

Illustration 2-78: Removing Left Front Arc Cover



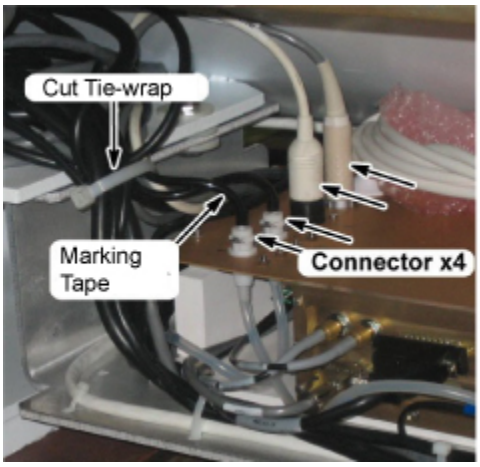
NOTE: Arc cover bolts will be reused for installation. Please keep them at site and do not dispose. It is recommended to restore four screws on the magnet and attach the top screw on the Magnet by tape.

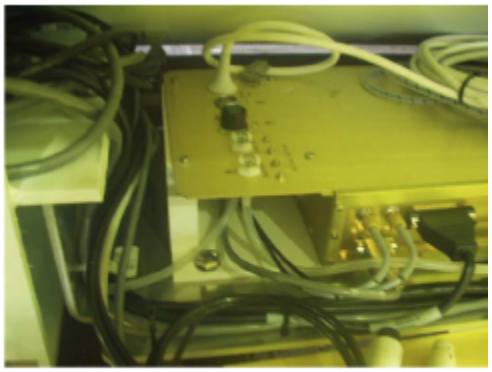
2. Keep these five bolts at site for Installation. Please do not dispose.

8.2.14 Front Right Arc Cover

1. Cut the tie-wrap, and disconnect the 4 connectors on PAC I/F unit.

Illustration 2-79: Tie-wrap and Connectors



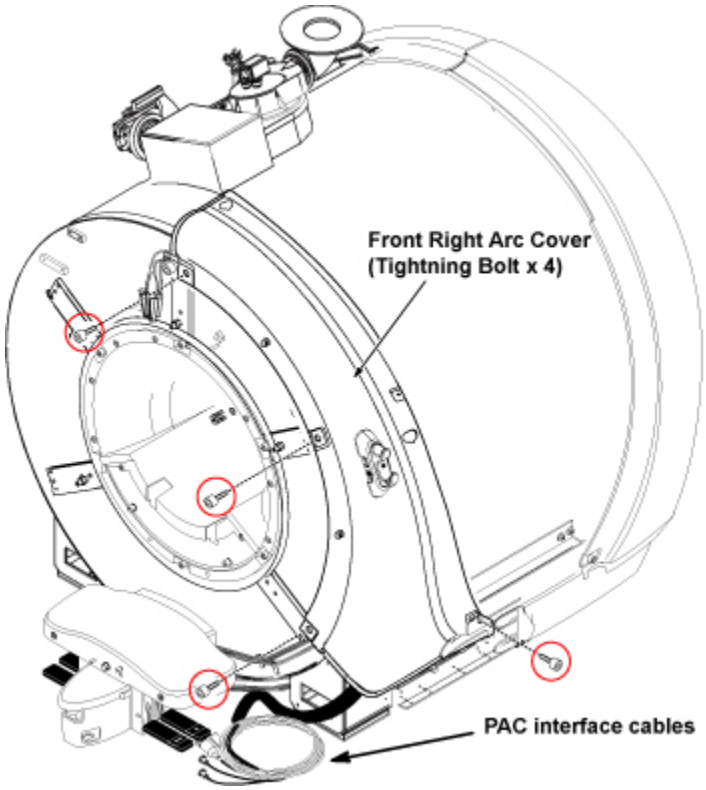


2. Withdraw PAC interface cables through the lower opening of the magnet.

Illustration 2-80: Withdrawing PAC Interface Cables

3. Remove the front right arc cover by removing four bolts.

Illustration 2-81: Removing Front Right Arc Cover



NOTE: Arc cover bolts will be reused for installation. Please keep them at site and do not dispose. It is recommended to restore four screws on the magnet.

4. Keep these four bolts at site for installation. Please do not dispose.

5. Fix the cable to the front right arc cover by tape.

8.3 Finalization

No finalization steps.

9 PAC and SRI Tray Removal

9.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	60 mins	Not Applicable

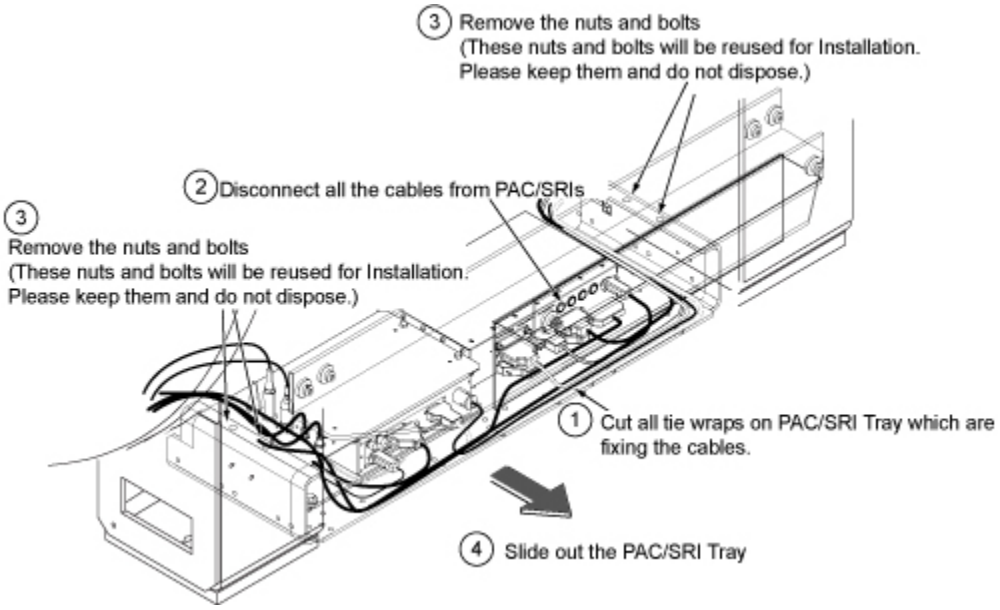
9.2 Procedure

1. Cut all tie wraps on PAC/SRI Tray which are fixing the cables.
2. Disconnect all the cables from PAC/SRI.

NOTE: The nuts and bolts fixing PAC/SRI Tray to the Magnet will be reused for installation. Please keep them and do not dispose. It is recommended to restore the bolts and nuts after removal of Tray.

3. Remove the nuts and bolts which are fixing PAC/SRI Tray to the Magnet.
4. Slide out the PAC/SRI Tray by two person. Be careful not to scratch the floor.

Illustration 2-82: PAC and SRI Tray Removal



5. Carefully, move the assembly outside of magnet room.
6. Remove remaining PAC/SRI cables from Magnet to the outside of Magnet room.
7. The remaining components around the Magnet will be as Illustration 2-83, Illustration 2-84 and Table 2-4.

Illustration 2-83: Remaining components around the Magnet (Front View)

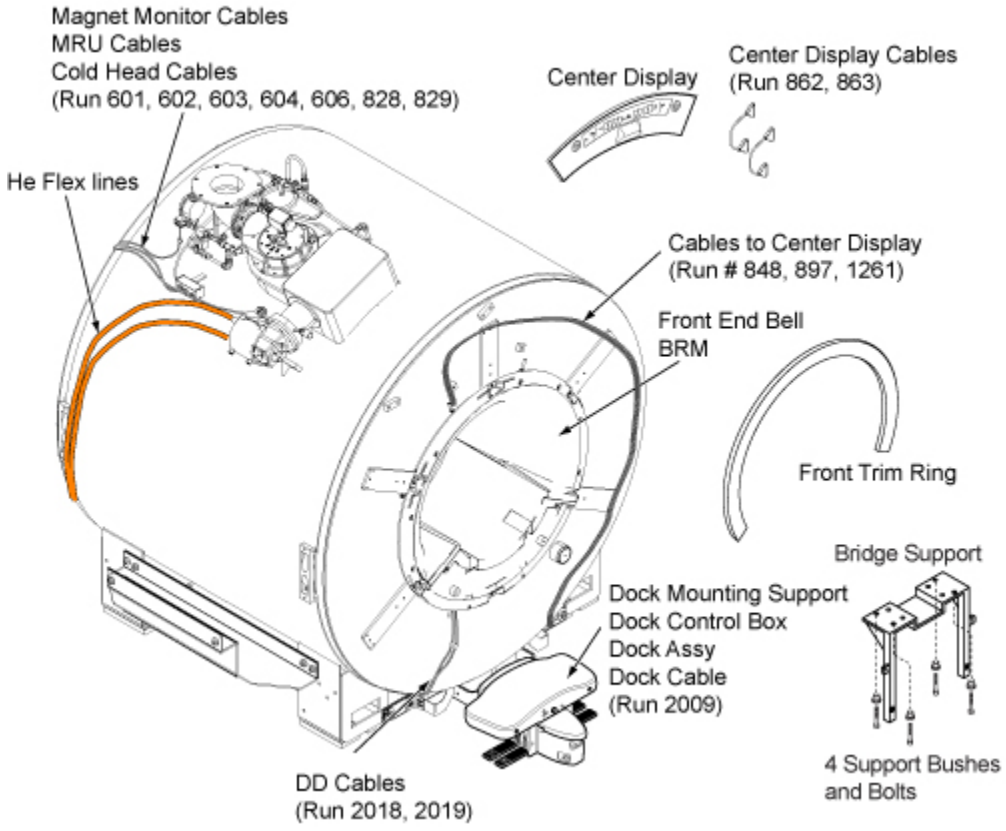


Illustration 2-84: Remaining components around the Magnet (Rear View)

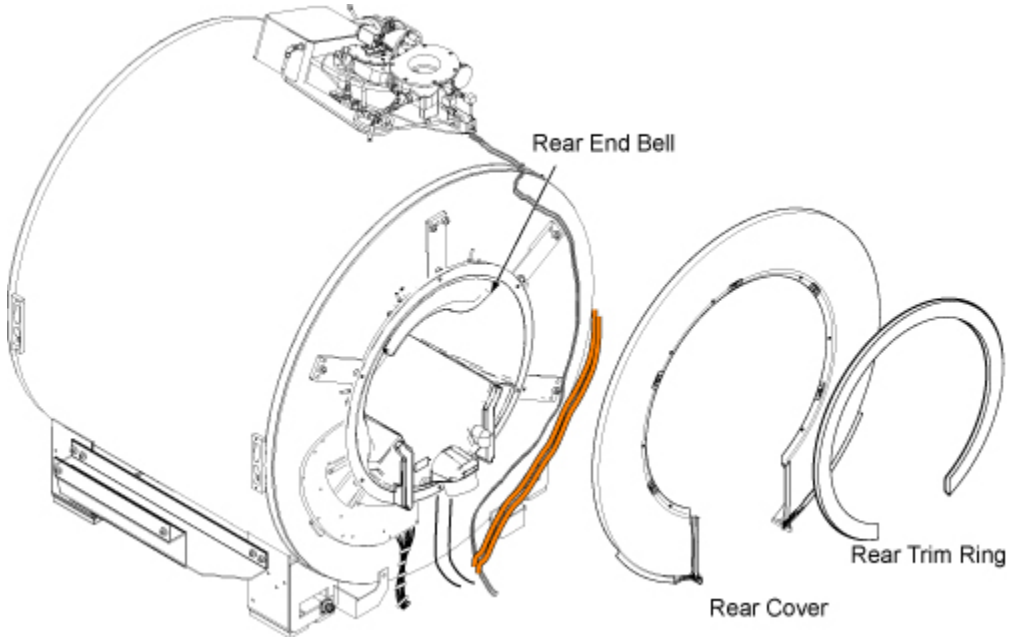


Table 2-4: List of Remaining Screws, Bolts, Nuts

List of Remaining Screws, Bolts, Nuts
Arc Cover screws (9 screws for Front Arc Cover and 9 screws for Rear Arc Cover)
Bolts and nuts for PAC/SRI Tray (4 bolts and 4 nuts)

9.3 Finalization

No finalization steps.

10 Check List After De-Installation

Check that the following components are remained for Installation.

Magnet including the followings

□ BRM

□ RF Body Coil

□ Front End Bell

□ Rear End Bell

□ Bore Light fixed in Magnet Bore with Fiber optic cables

Cables remaining on Magnet

□ Magnet Monitor, MRU, Cold Head Cables (RUN601, 602, 630, 604, 606, 828, 829)

□ Cables to Center Display Panel (Run848, 1897, 1261)

□ Dock Cable (Run2009)

□ DD Cable for front BRM (Run2018, 2019)

Other Cables

□ Cables between Center Display Panel and Control Panel (Run 862, 836)

□ Flex Line from Cold Head to Shield Cooler Compressor

Following Magnet Enclosures

□ Front Trim Ring

□ Rear Trim Ring

□ Rear Cover

□ Center Display Panel

Dock and Bridge Support

□ Dock

□ Dock Frame and Control Box on Dock Frame

□ Bridge Support with 4 support bushes and bolts

Others

- ☐ Blower Box
- ☐ Penetration Panel
- ☐ Magnet Monitor
- ☐ Air Cooled Shield Cooler Compressor (200V site)
- ☐ Mesh Shield

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Chapter 3 Installation

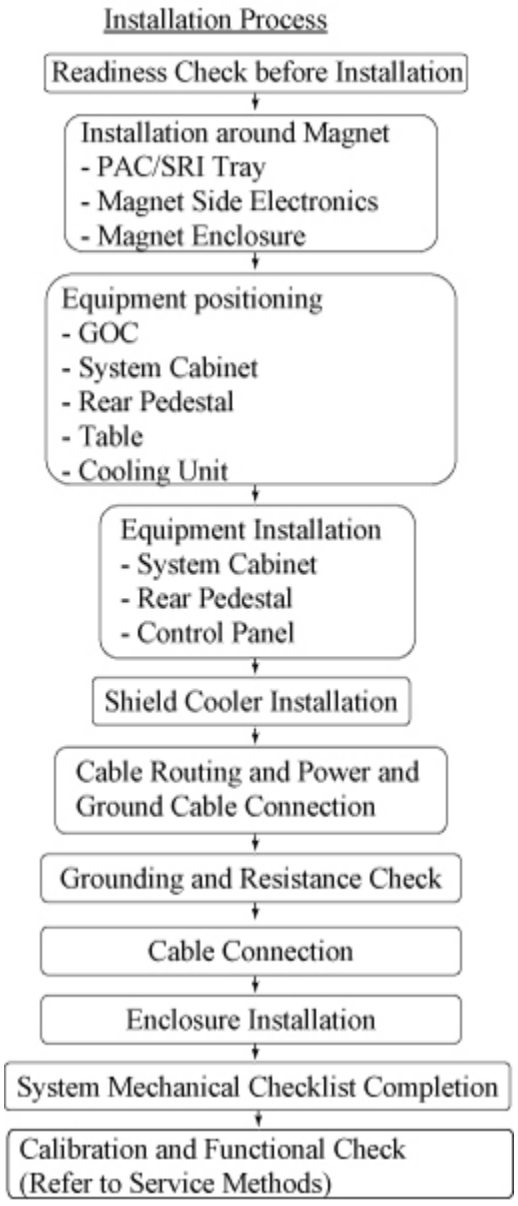
1 Readiness Check before Installation

Please check the followings before Installation

- Check the de-installation flow chart to make sure all steps are completed.
- Check that all parts listed in Chapter 2, Check List After Removal are remained.
- Power Line/Breaker for Lytron BRM Chiller exists. Refer to *Direction 5338503-1EN, Optima MR360/Brivo MR355 1.5T Pre-installation* for specification.
- If MDP type was E45033AT or E4502SP, replaced it to MDP (M3088TM) prior to System Installation.
- De-installed components were disposed per Chapter 1, Section 1.6, DISCARDED MATERIAL POLICY.
- Liquid He level is over 75%. If not, refill Liquid He.

Illustration 3-1 shows the flow chart for mechanical installation process.

Illustration 3-1: Mechanical Installation Flow Chart



2 PAC and SRI Installation

2.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	90 mins	Not Applicable

2.2 Preliminary Requirements

2.2.1 Safety

⚠WARNING

STRONG MAGNETIC FIELD !
FERROUS MATERIALS CAN BECOME DANGEROUS PROJECTILES IN THE PRESENCE OF THE MAGNETIC FIELD PRODUCED BY THE SIGNA MAGNET. DO NOT BRING ANY FERROMAGNETIC TOOLS OR EQUIPMENT INTO THE MAGNET ROOM.

2.3 Procedure

NOTICE

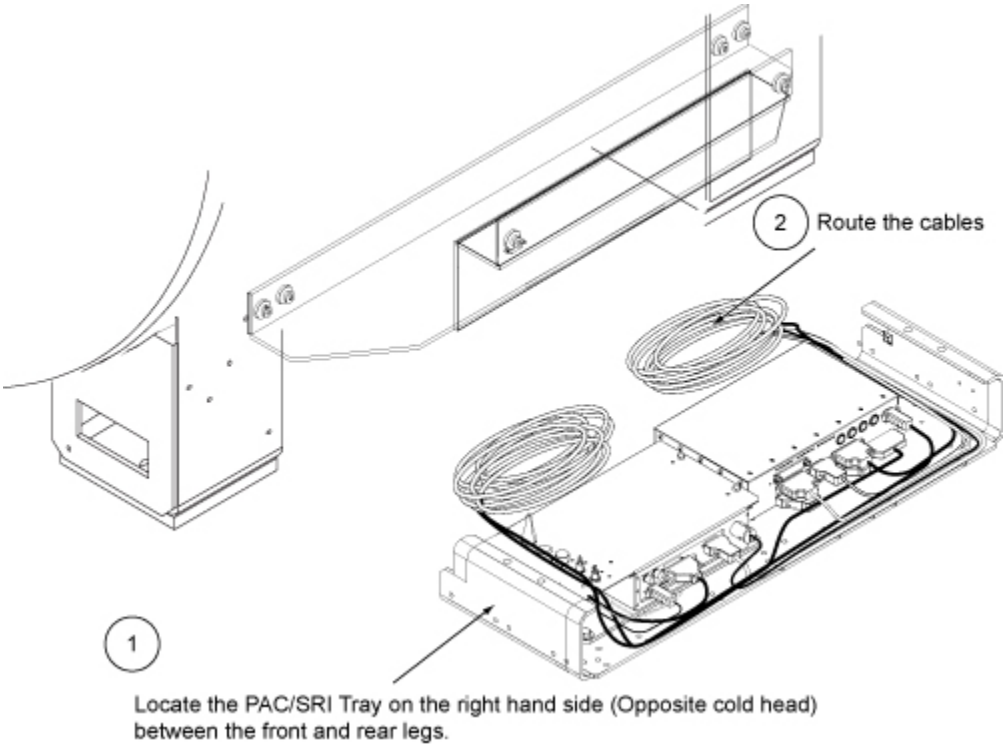
Some of connectors may contains weak ferrous materials. Be careful when carrying the assy.

1. With two persons, carefully move the PAC/SRI Tray and locate it on the right hand side (Opposite cold head) between the front and rear legs.

2. Route the cables under the magnet

   - Feed Run M3518 underneath the magnet feet to the other side of Magnet to connect it to the Mega Switch J20.
   - Feed Run 421, 442, 1260 underneath the magnet feet to Magnet front.
   - Feed rest of the cables underneath the magnet feet at the rear & position them for further assembly.

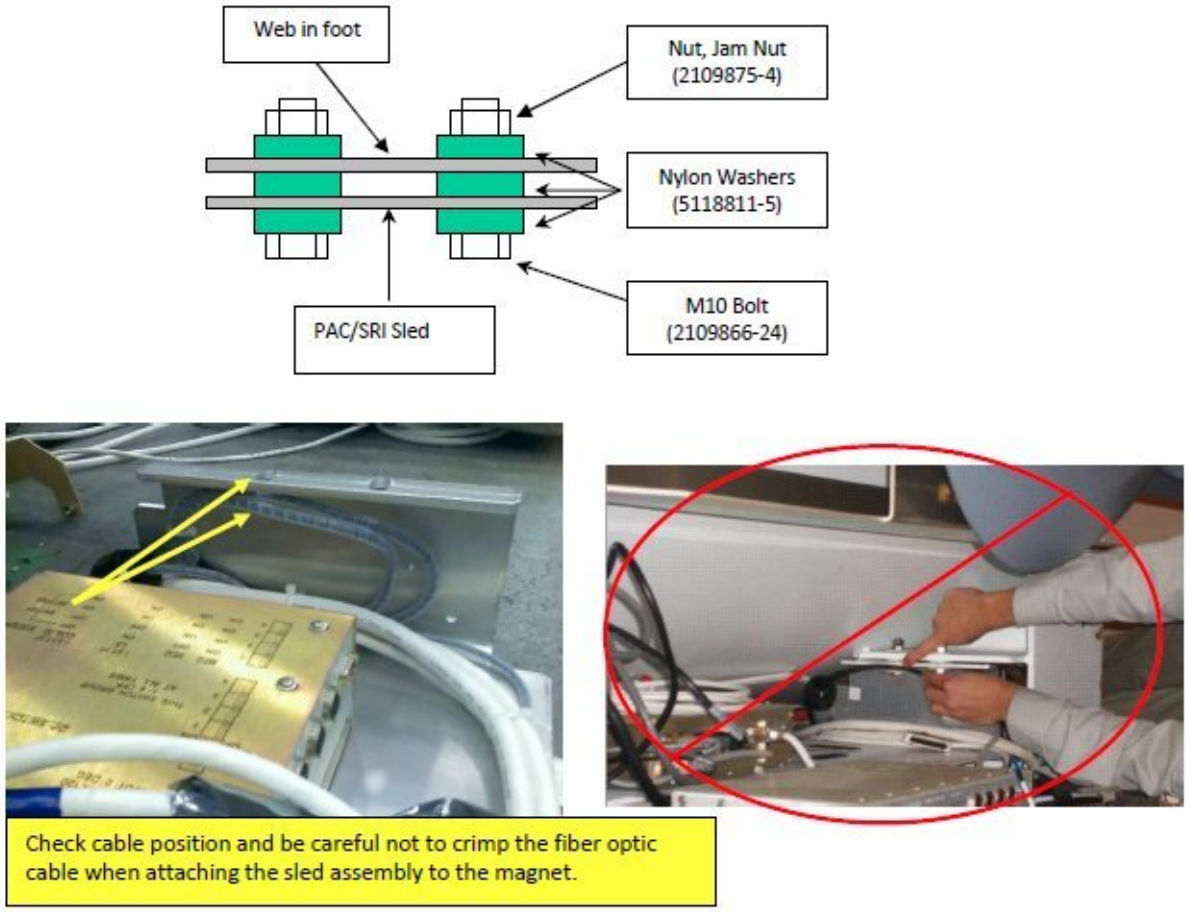
Illustration 3-2: PAC and SRI Tray



3. Install an M10 bolt, nut & three nylon washers as shown at each of the four locations of the support for the PAC/SRI sled. Use an M10 jam nut to secure the assembly.

   NOTE: When installing the sled assy, check the cable routing, particularly the fiber optic cable on the right side of the sled. Use caution not to get this cable caught between the sled and the hardware to attach the sled to the magnet.

Illustration 3-3: Tray Installation



4. Connect the following Magnet Center Panel cables to PAC/SRI.
    - RUN848 to J4 of PAC
    - RUN897 to J4 of SRI
    - RUN1261 to J5 of SRI
5. Route cables and bundle together using tie-wraps as Illustration 3-4.

Illustration 3-4: PAC/SRI cable routing

2.4 Finalization

No finalization steps.

3 Magnet Side Kit Installation including Cable Routing

3.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	90 mins	Not Applicable

3.2 Preliminary Requirements

3.2.1 Safety

⚠WARNING

STRONG MAGNETIC FIELD !
FERROUS MATERIALS CAN BECOME DANGEROUS PROJECTILES IN THE PRESENCE OF THE MAGNETIC FIELD PRODUCED BY THE SIGNA MAGNET. DO NOT BRING ANY FERROMAGNETIC TOOLS OR EQUIPMENT INTO THE MAGNET ROOM.

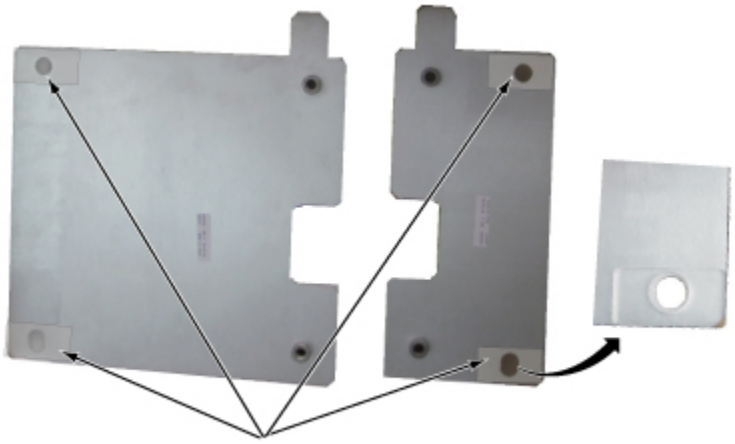
NOTE: Do not lose the part packed in pink bag during unpacking, and it's located at the edge of the box.

Illustration 3-5: Pink Bag

3.3 Procedure

1. With the magnet side kit inside original packaging. Remove packaging to reveal the contents.
2. Check that isolation pads are attached on the back side of side brackets.

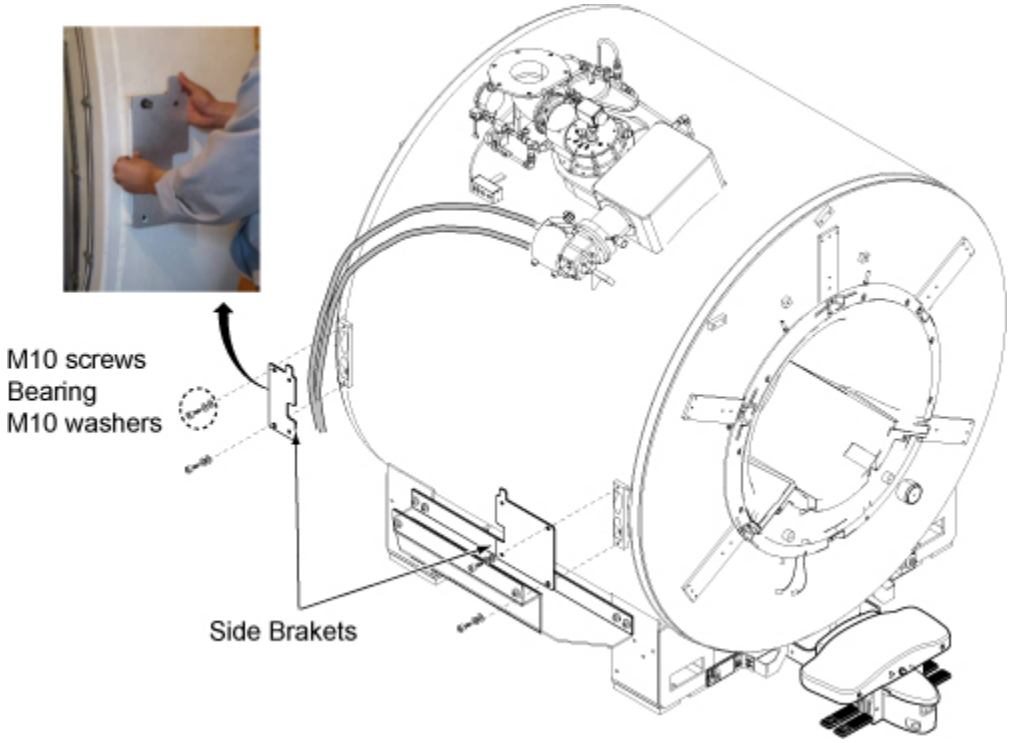
Illustration 3-6: Isolation pads



Check that the isolation pads are attached on back side of side brackets.

3. Secure brackets on the magnet as Illustration 3-7 with M10- 1.5x25 SHCS, bearing and M10 washers provided with the kit.

Illustration 3-7: Install the Front and Rear side brackets



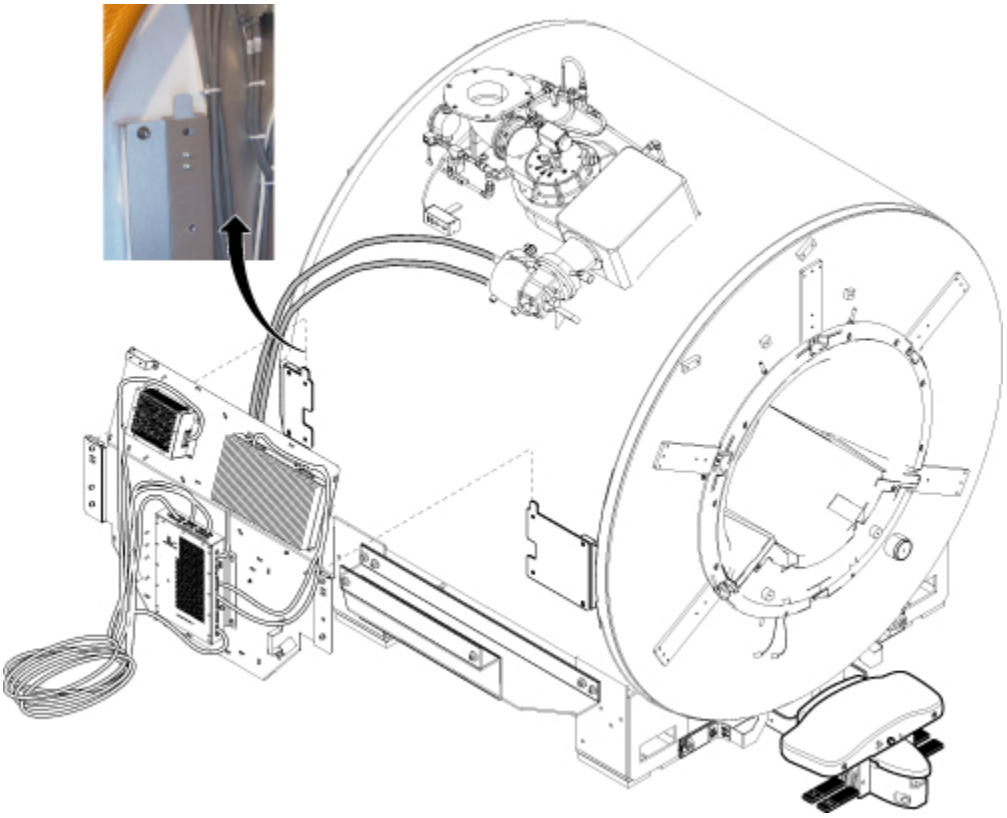
NOTICE

Some of connectors may contains weak ferrous materials. Be careful when carrying the assy.

4. With the two person, lift and move the side electronics assembly to the previously installed side brackets along the room wall facing the electronics side to the wall to avoid the attraction of the large aluminium sheet by induced eddy current.

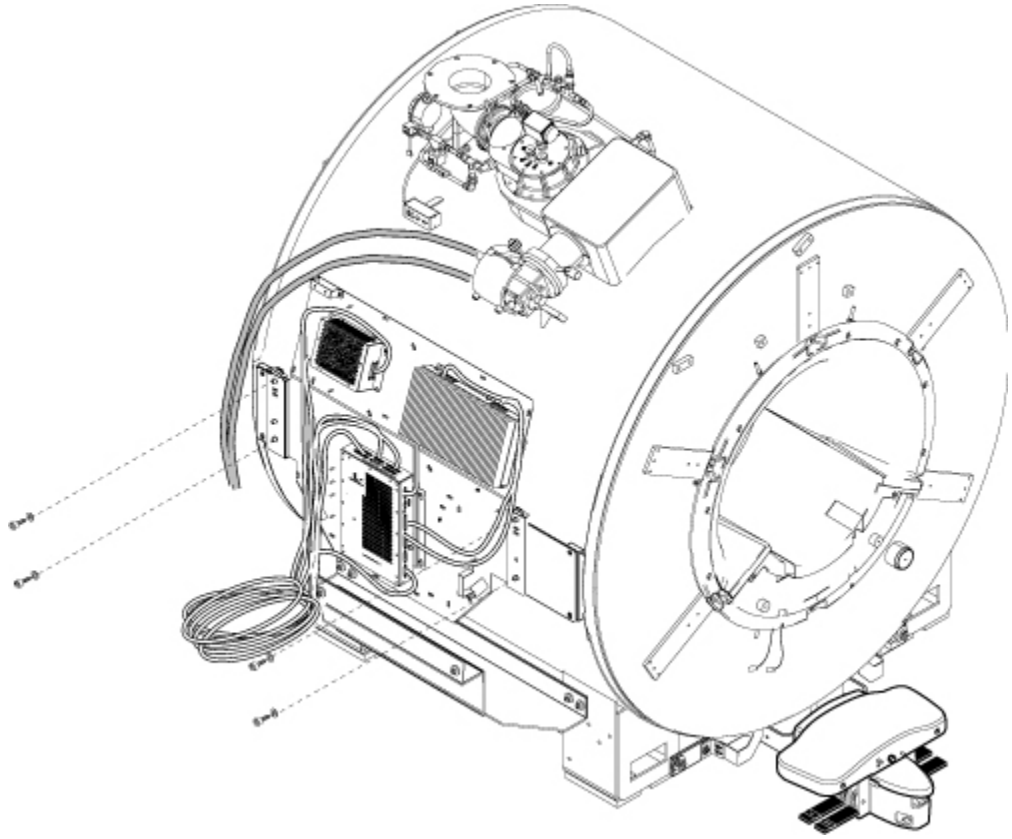
5. Hook the electronics assembly into the projections of side brackets.

Illustration 3-8: Hook electronics assembly



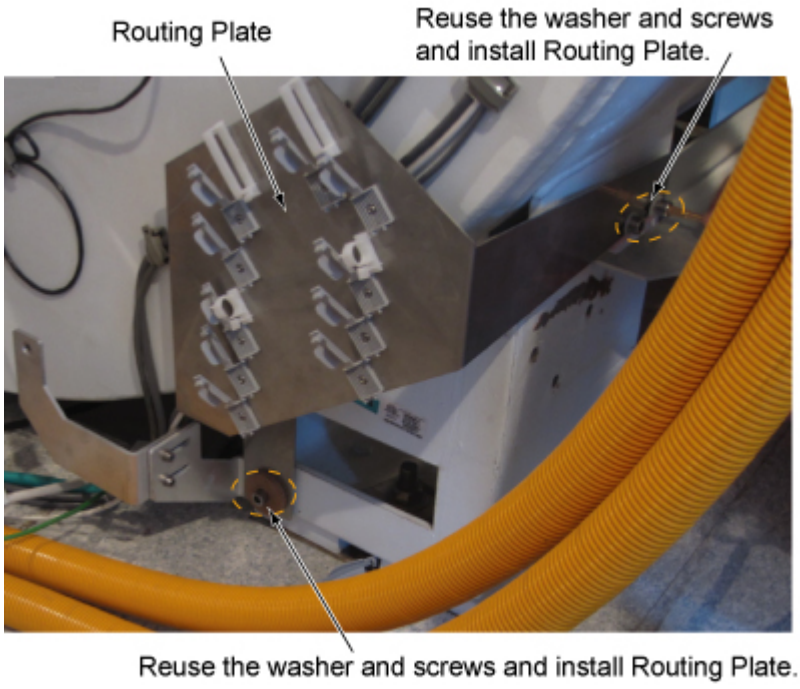
6. Secure the electronics assembly to the brackets with M10- 1.5x25 SHCS and M10 SS Washers provided with the kit.

Illustration 3-9: Install Magnet Side Kit



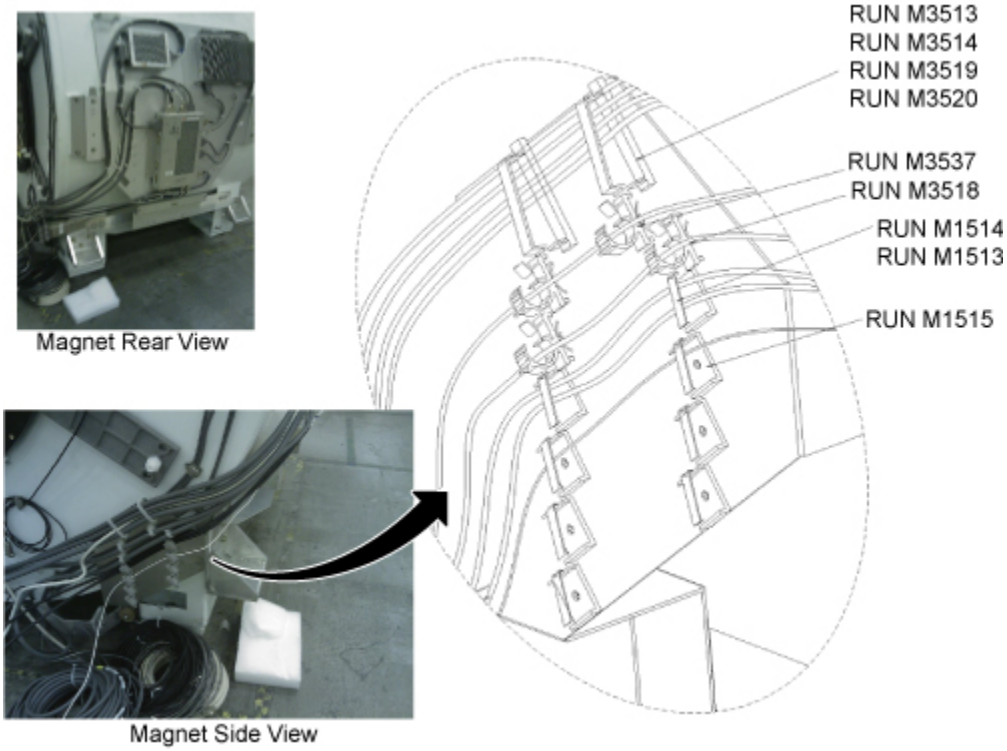
7. Install the Routing Plate per Illustration 3-10 at the Magnet Rear Foot (Electronics assembly side).

Illustration 3-10: Routing Plate



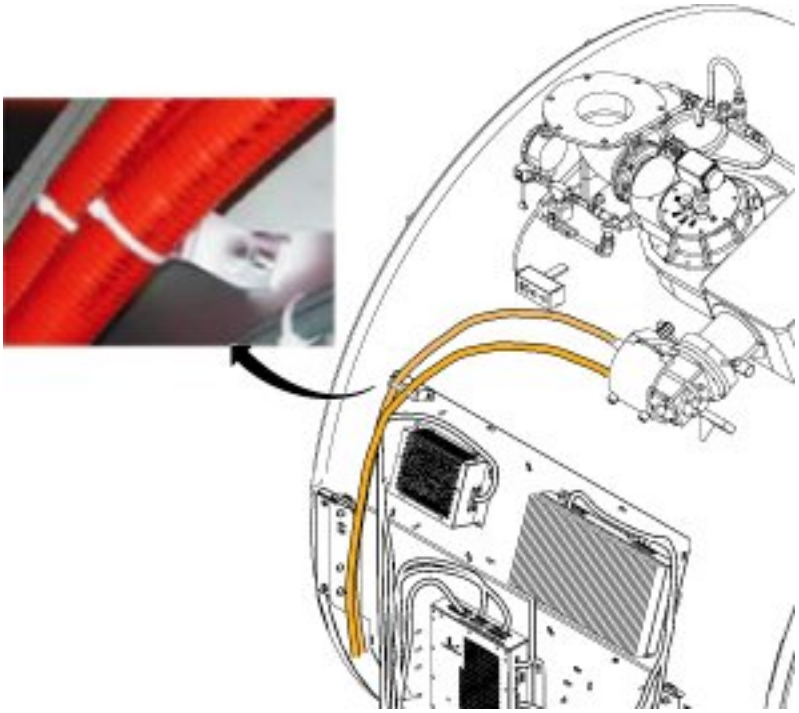
8. Route cables and secure to the routing plate assembly as shown below.

Illustration 3-11: Cable Routing



9. Fix the Helium Flex Lines by tie wrap as Illustration 3-12.

Illustration 3-12: Helium Flex Line



3.4 Finalization

No finalization steps.

4 Magnet Enclosure Installation

4.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2		60 mins	

4.2 Preliminary Requirements

4.2.1 Safety

⚠WARNING

STRONG MAGNETIC FIELD !
FERROUS MATERIALS CAN BECOME DANGEROUS PROJECTILES IN THE PRESENCE OF THE MAGNETIC FIELD PRODUCED BY THE SIGNA MAGNET. DO NOT BRING ANY FERROMAGNETIC TOOLS OR EQUIPMENT INTO THE MAGNET ROOM.

NOTICE

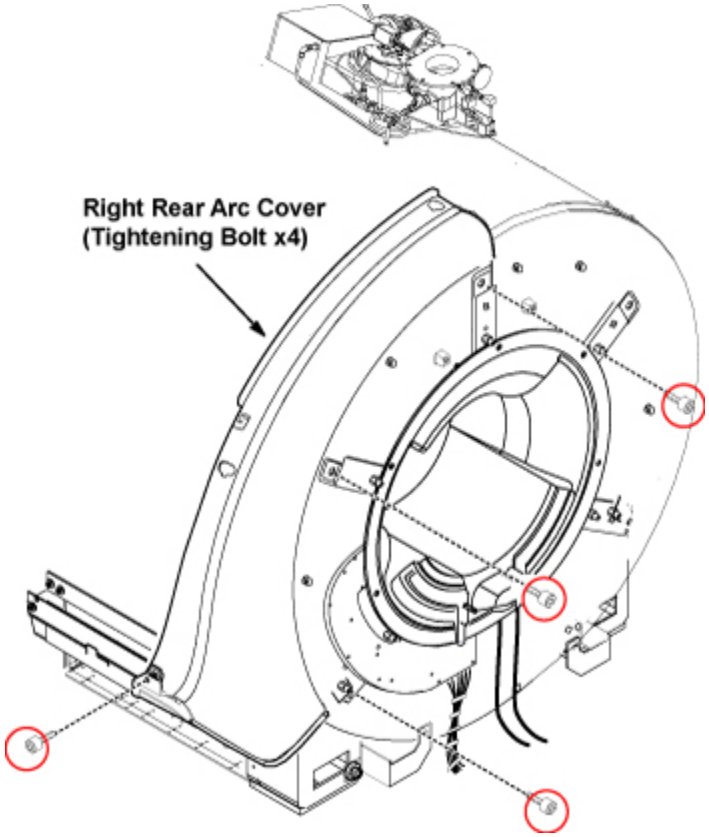
When handling the cover, wear the gloves.

4.3 Procedure

4.3.1 Rear Right Arc Cover

1. Remove the 4 bolts of rear right arc cover from the magnet.
2. Install the rear right arc cover with 4 bolts.

Illustration 3-13: Rear Right Arc Cover



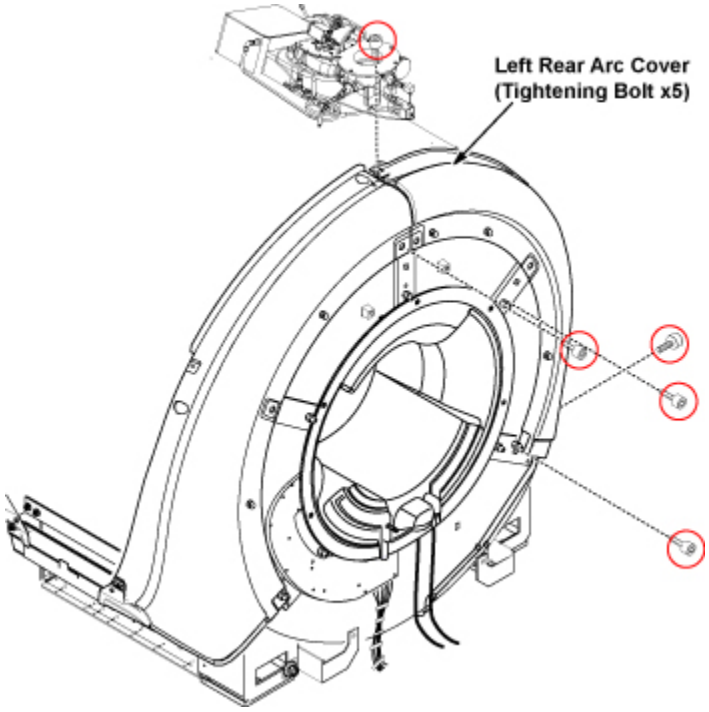
3. If needed, adjust clearance between foot and magnet surface. The foot must be contacted to the magnet surface.

Illustration 3-14: Adjust clearance

4.3.2 Rear Left Arc Cover

1. Remove the 4 bolts of rear left arc cover from the magnet.
2. Remove the bolt from the rear right arc cover.
3. Install the rear left arc cover with 5 bolts.

Illustration 3-15: Rear Left Arc Cover



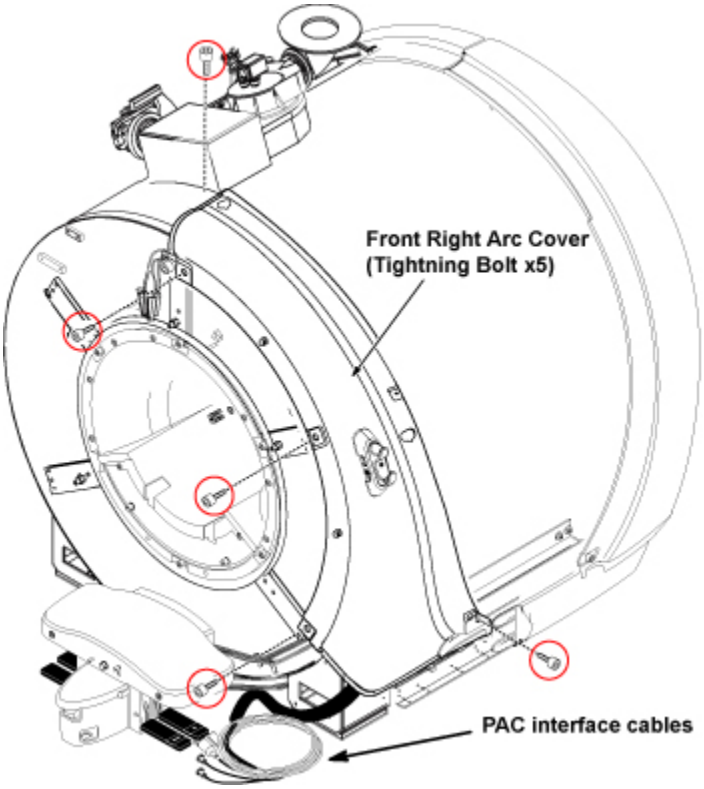
4. If needed, adjust clearance between foot and the magnet surface. The foot must be contacted to the magnet surface.

Illustration 3-16: Adjust clearance

4.3.3 Front Right Arc Cover

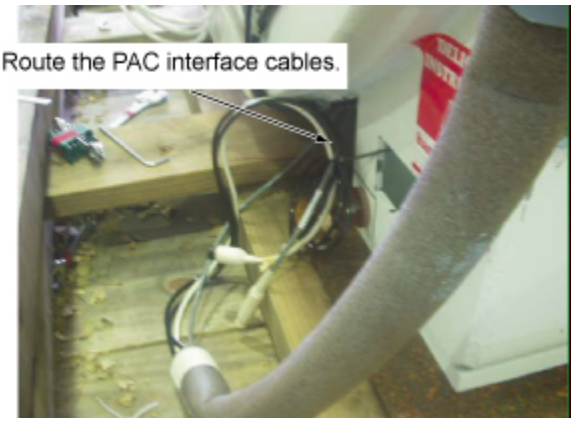
1. Remove the 4 bolts of front right arc cover from the magnet.
2. Install the front right arc cover with 4 bolts.

Illustration 3-17: Front Right Arc Cover



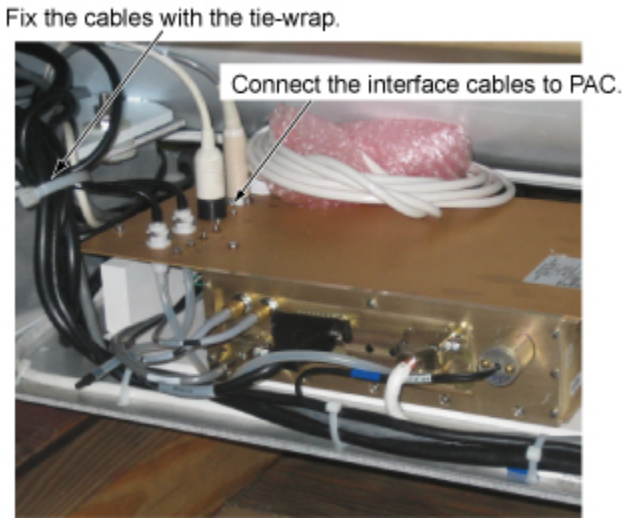
3. Route the PAC interface cables from front right under side to PAC unit.

Illustration 3-18: Route the PAC interface cables



4. Connect the PAC interface cables to PAC unit.

Illustration 3-19: Connect the cables to PAC unit



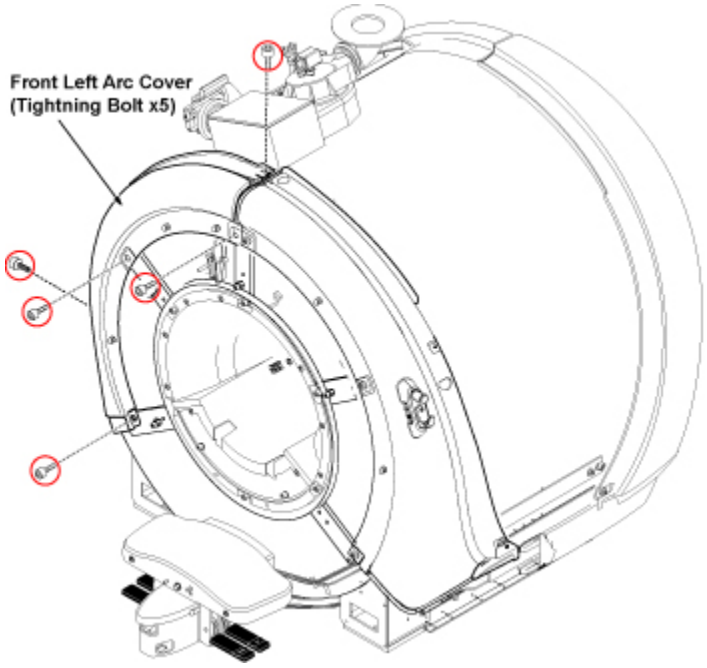
5. If needed, adjust clearance between foot and magnet surface. The foot must be contacted to the magnet surface.

Illustration 3-20: Adjust clearance

4.3.4 Front Left Arc Cover

1. Remove the 4 bolts of front left arc cover from the magnet.
2. Remove the bolt from the front right arc cover.
3. Install the front right arc cover with 5 bolts.

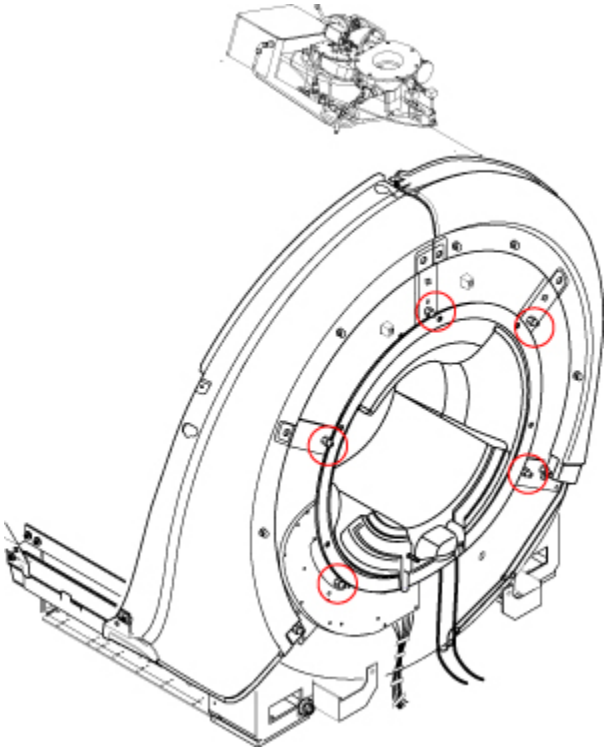
Illustration 3-21: Front Left Arc Cover



4.3.5 Rear Cover

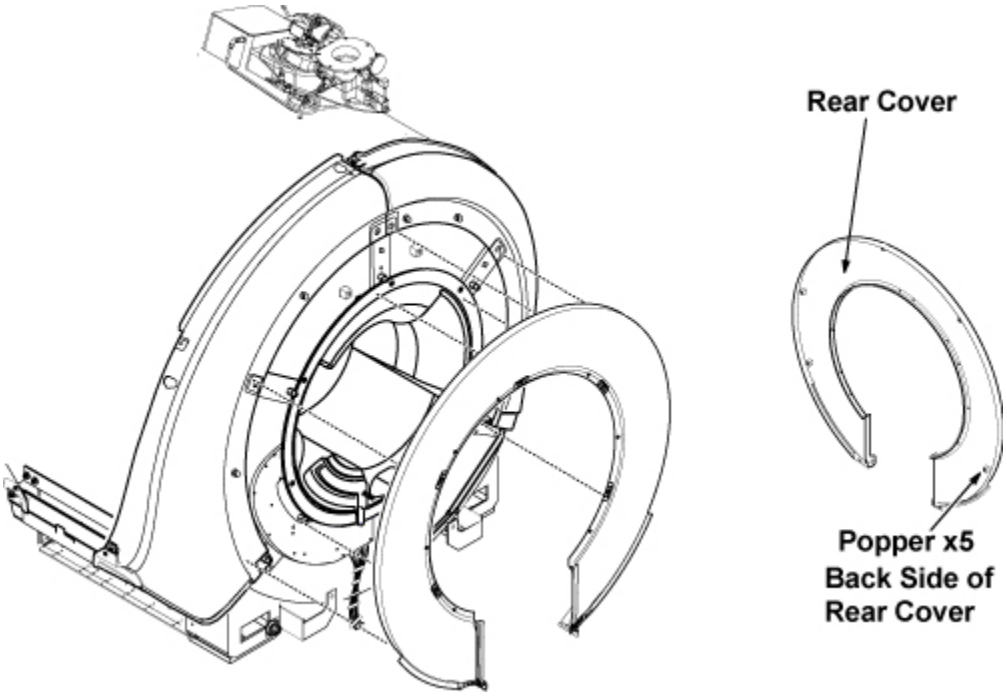
1. Remove 7 bolts of rear cover from the magnet rear side.

Illustration 3-22: Remove 7 bolts



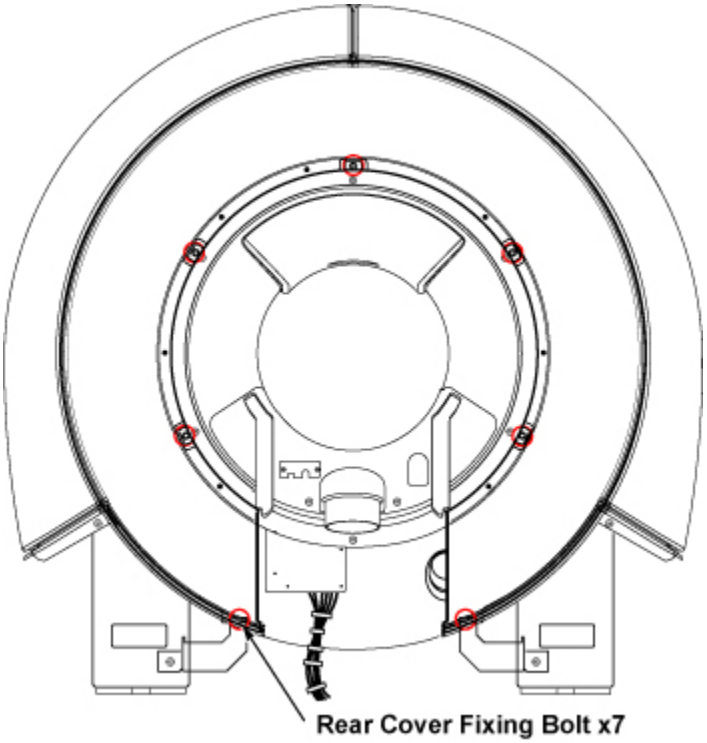
2. Fix the rear cover by 5 poppers.

Illustration 3-23: Rear Cover1



3. Install the rear cover with 7 bolts.

Illustration 3-24: Rear Cover2

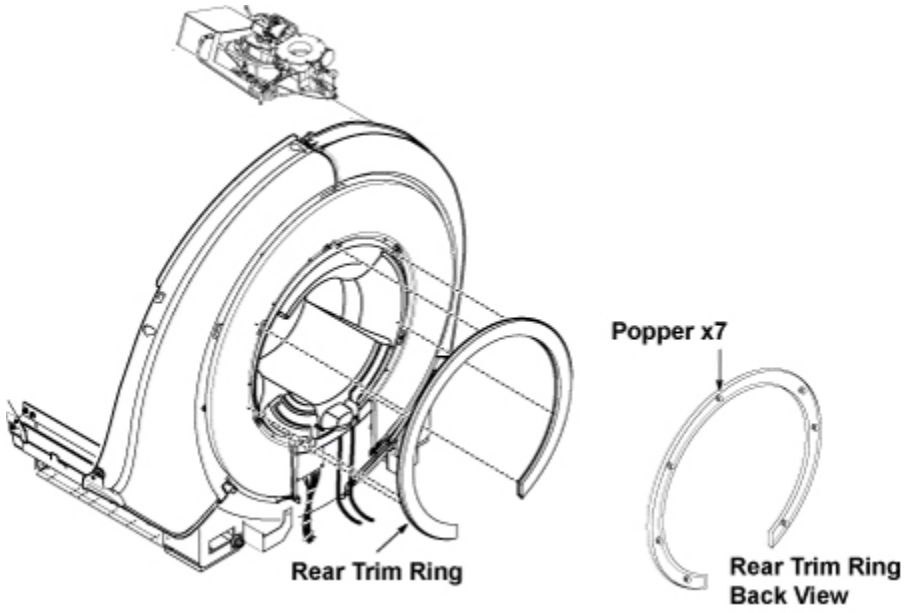


4. Remove Alignment Tapes.

4.3.6 Rear Trim Ring

1. Install rear trim ring to the magnet rear side. Rear trim ring is fixed by 7 poppers.

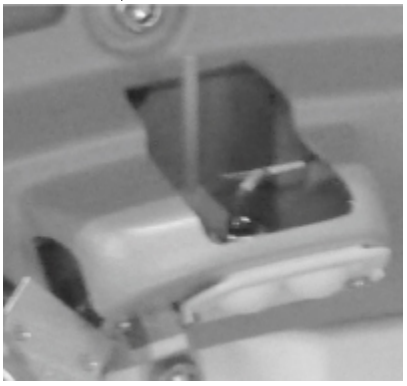
Illustration 3-25: Rear Trim Ring



4.3.7 Front Cover

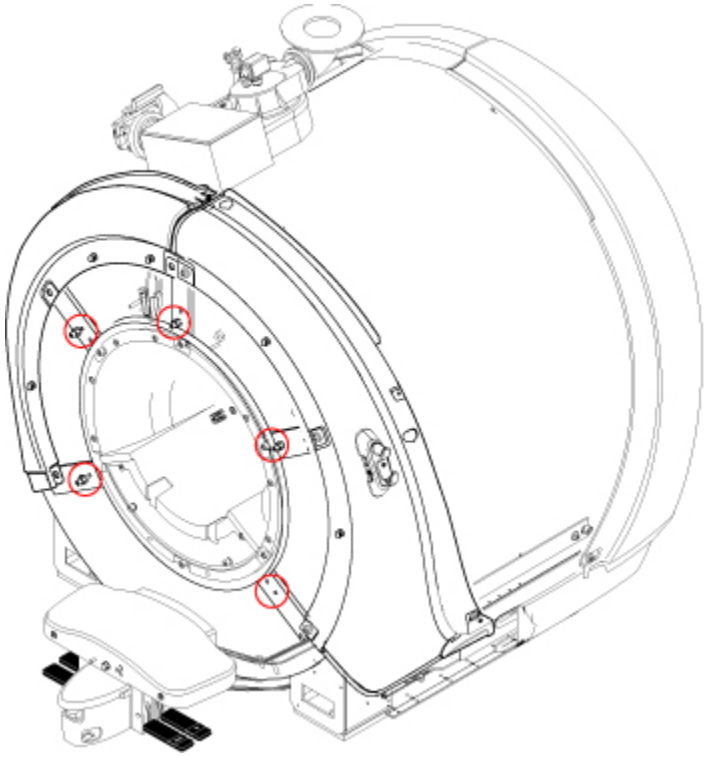
NOTICE

When the installing the front cover, do not touch the laser light adjuster.



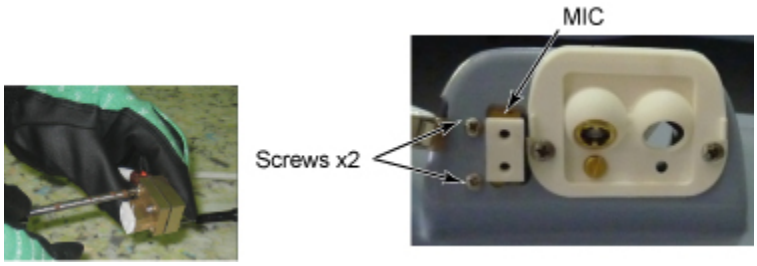
1. Remove the fixing tapes of each cable from the front cover and the magnet front side.
2. Remove the 5 bolts of front cover from the magnet front side.

Illustration 3-26: Remove the 5 bolts



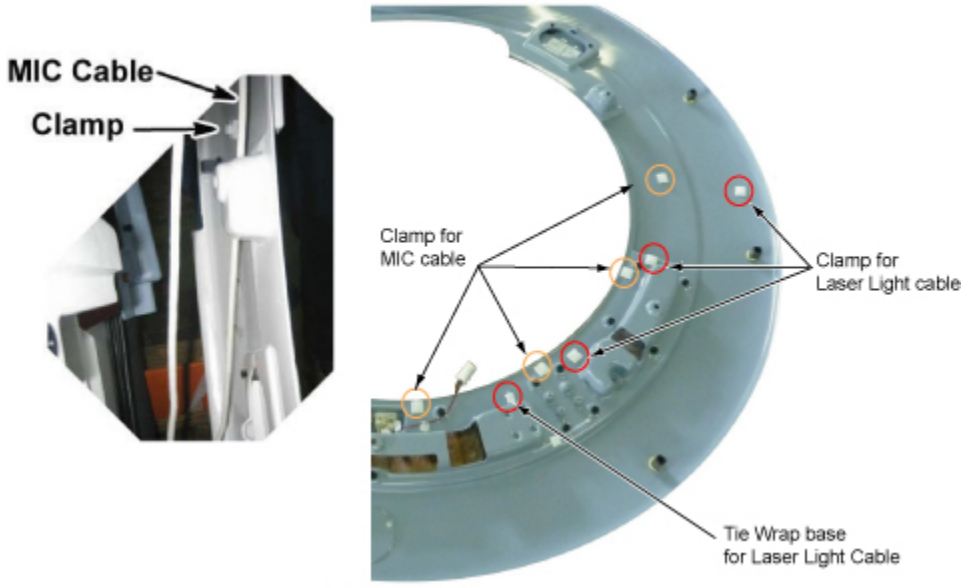
3. Carry the front cover to near the magnet front side.
4. Remove the 2 screws from the MIC, and install the MIC to front cover reverse side.

Illustration 3-27: Remove the 2 screws from the MIC



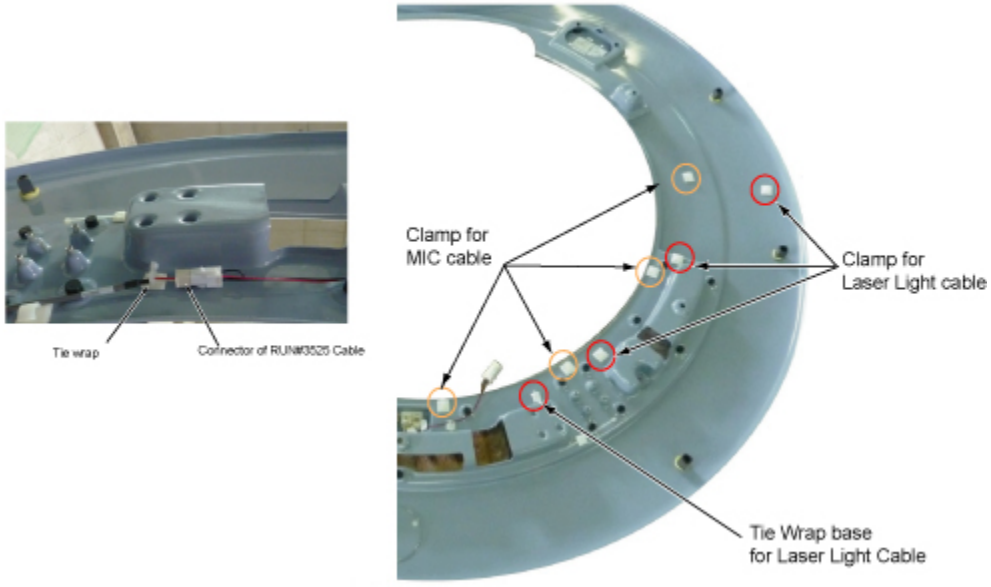
5. Fix the MIC cable to 6 cover clamps of cover reverse side.

Illustration 3-28: Fix the MIC cable to 6 cover clamps



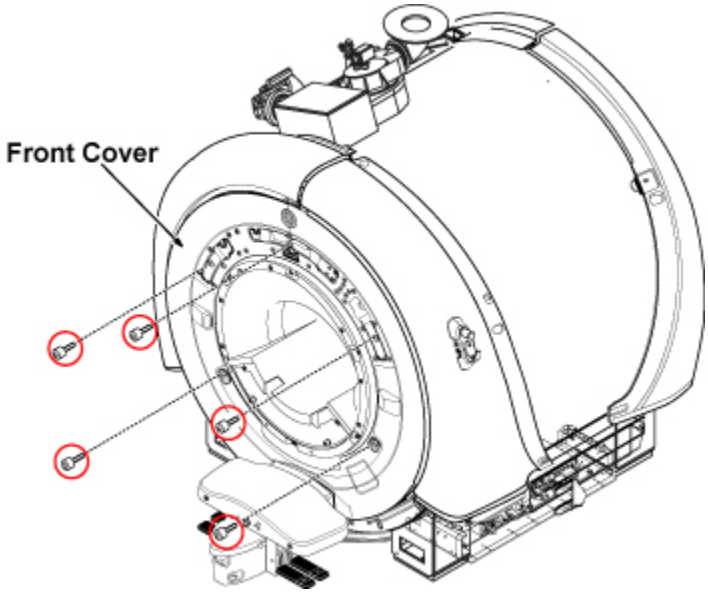
6. Connect the RUN#M3525(5338129) connector to the laser right cable and fix it by tie wrap. Then, fix the cable at 3 clamps.

Illustration 3-29: Connect the RUN#M3525(5338129)



7. Be careful to the cable, and install the front cover to the magnet front side with 5 bolts and 7 poppers.

Illustration 3-30: Install the front cover



4.3.8 Install the GE logo on the Front Cover

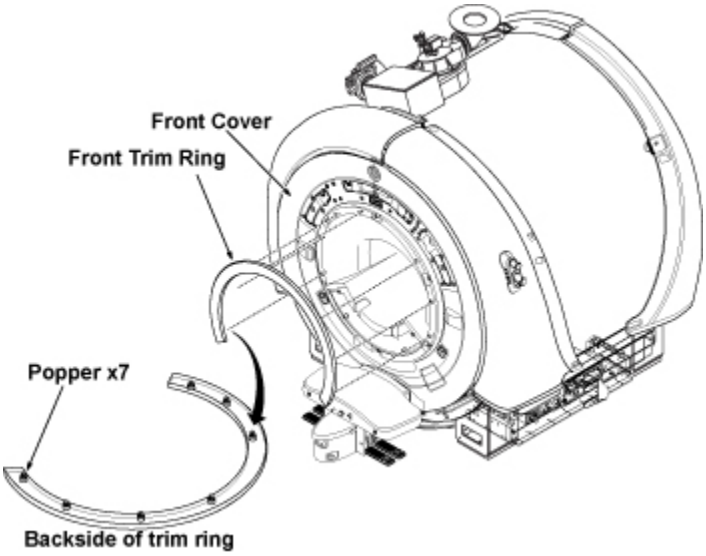
1. Remove the adhesive backing and position it in the recessed area of the cover.
2. After installation, remove the protective cover from the front of the logo.
3. Verify that the emblem is properly aligned so that the GE is centered.

Illustration 3-31: Install the GE log

4.3.9 Front Trim Ring

1. Install front trim ring to the magnet rear side. Front trim ring is fixed by 7 poppers.

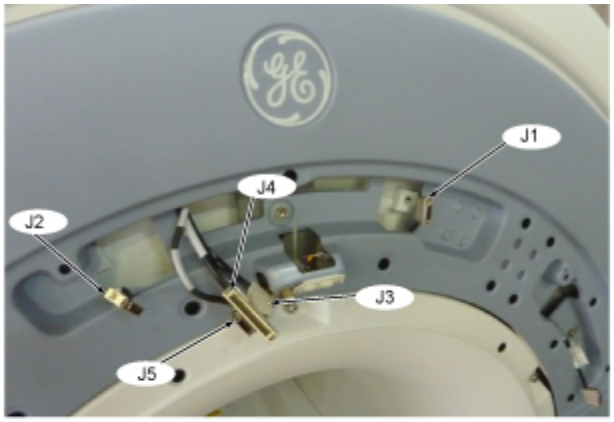
Illustration 3-32: Front Trim Ring

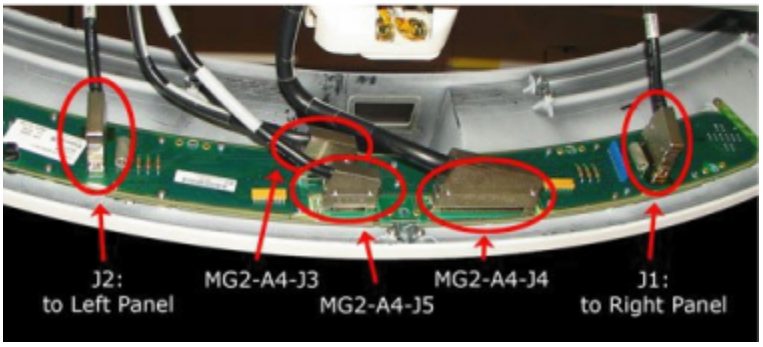


4.3.10 Center Display Panel

1. Route the cables of center display panel to the holes of front cover.
2. Connect 5 connectors to the center panel board.

Illustration 3-33: Connect 5 connectors to the center panel





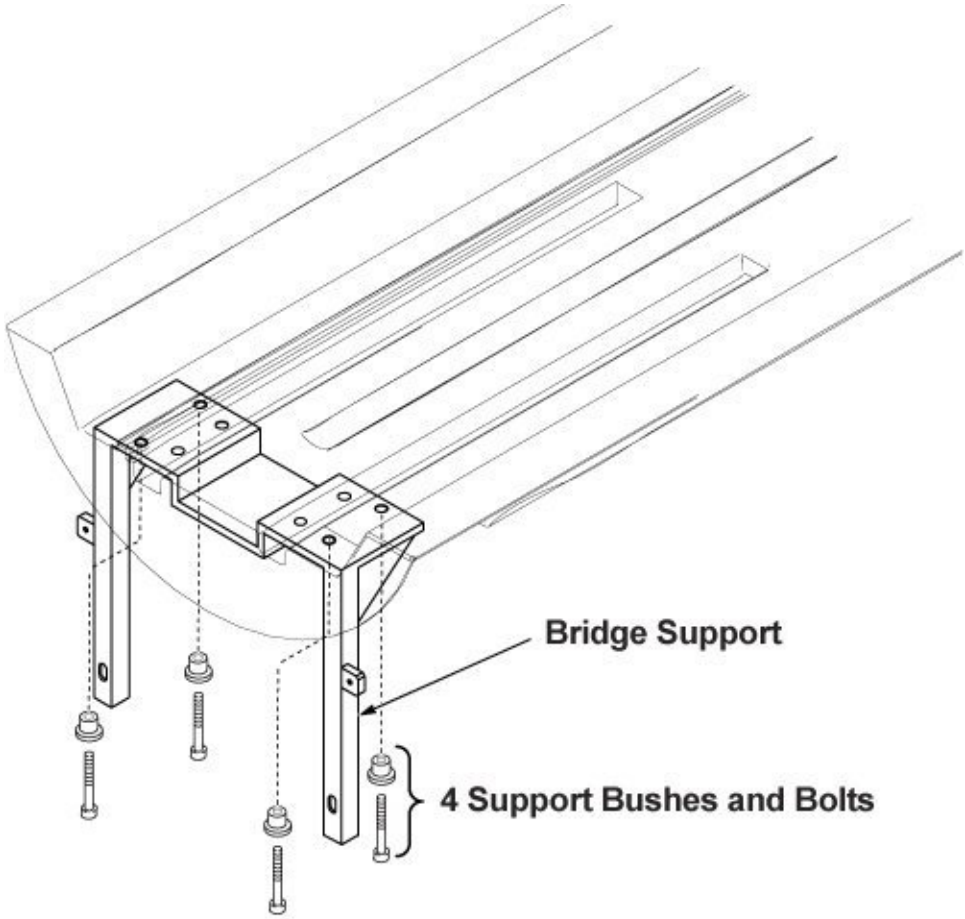
3. Attach center display panel by aligning and pushing panel to the front cover.

Illustration 3-34: Center Display Panel

4.3.11 Bridge Assembly

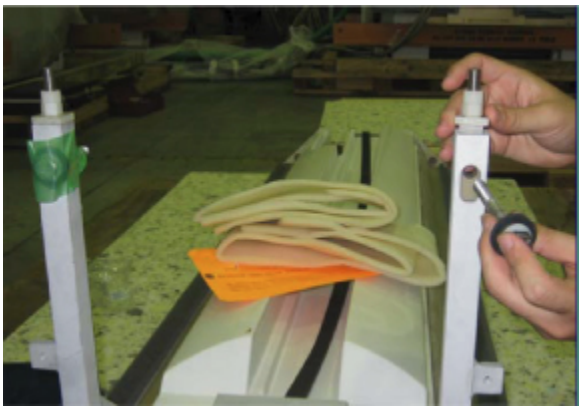
1. Lay bridge and install the Bridge Support with four(4) M5 Allen bolts.

Illustration 3-35: Bridge Support



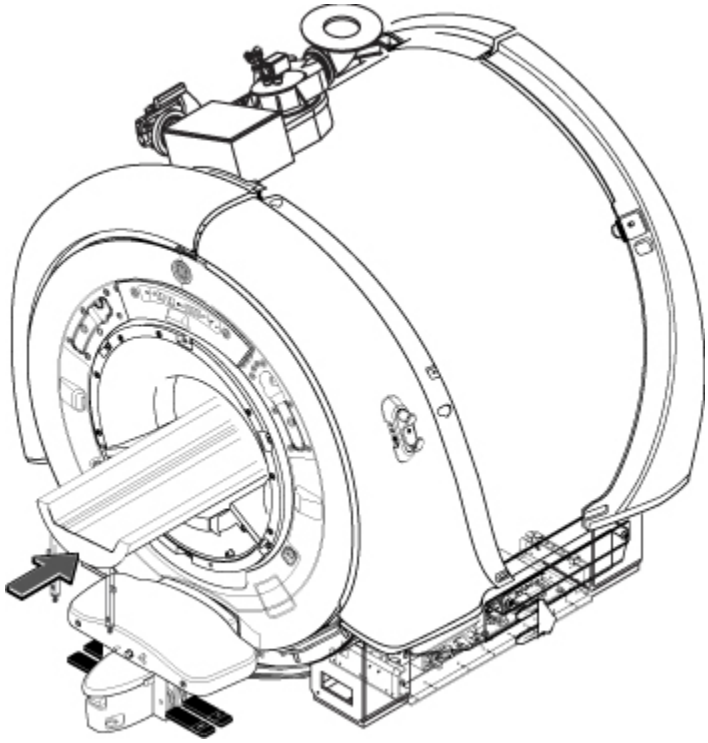
2. Remove the 2 bolts and adjuster from the bridge supports.

Illustration 3-36: Remove the 2 bolts and adjuster



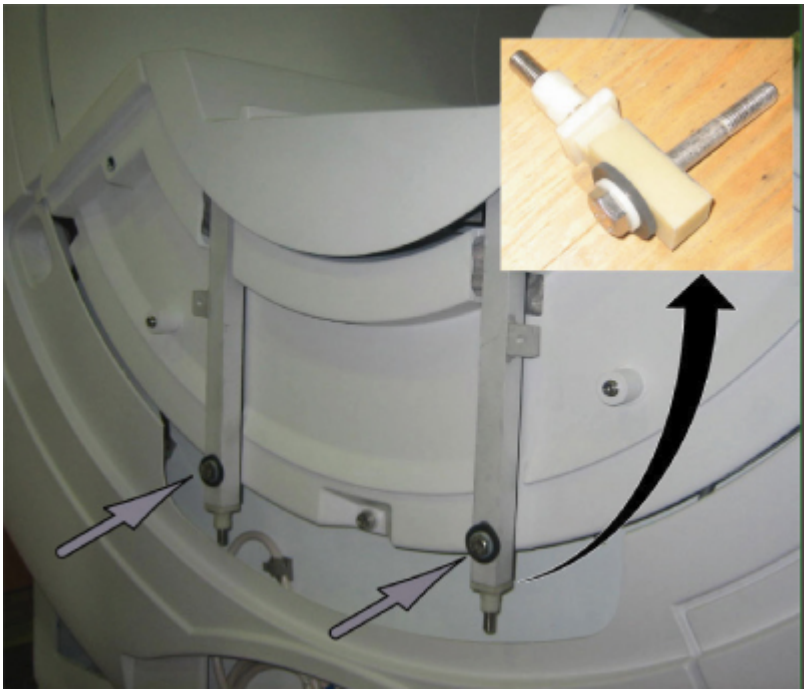
3. Install the bridge into the magnet bore by two persons.

Illustration 3-37: Install the bridge into the magnet



4. Fix the bridge support with 2 adjusters and bolts.

Illustration 3-38: Fix the bridge support



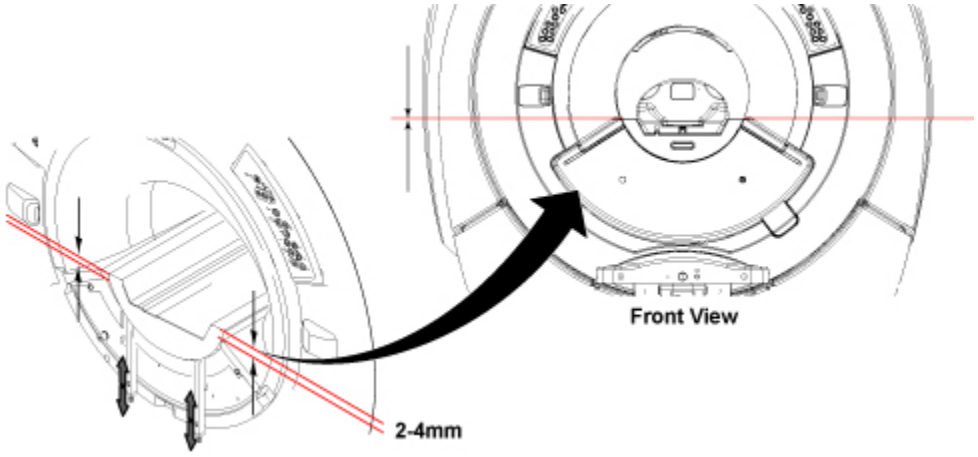
4.3.12 Bridge Cover

1. Remove the 2 bolts of bridge cover from the magnet front side.

Illustration 3-39: Remove the 2 bolts of bridge cover

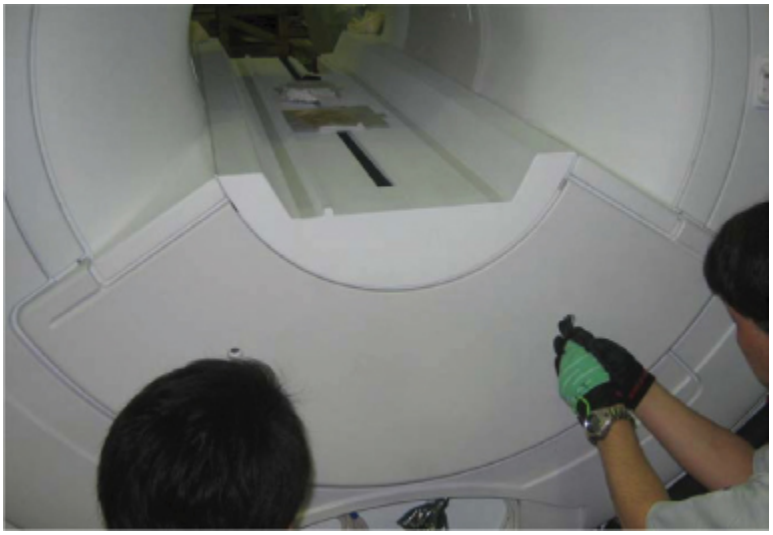
2. Adjust the lower nuts so the edge of the bridge adjacent to the end bell is 2-4 mm above the flat surface of the end bell.

Illustration 3-40: Adjust Bridge Support



3. Install the bridge cover to the magnet front side.

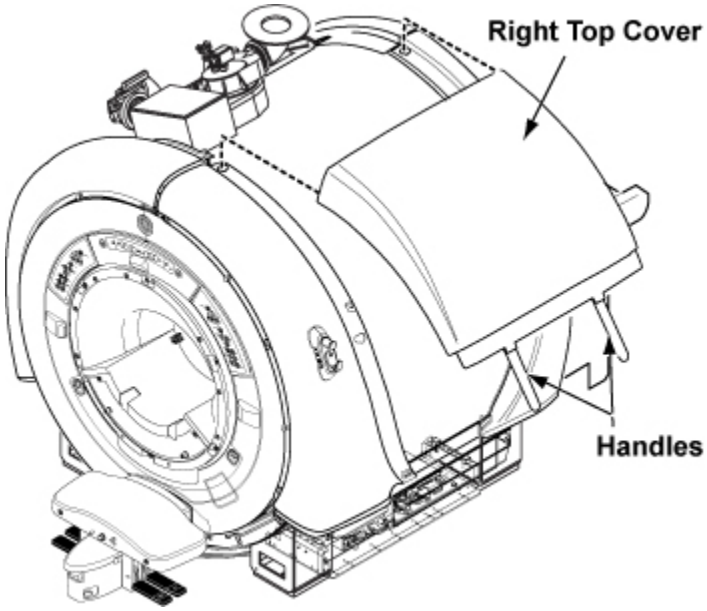
Illustration 3-41: Install the bridge cover



4.3.13 Right Top Cover

1. Install the right top cover to the upper holes of front and rear arc covers.

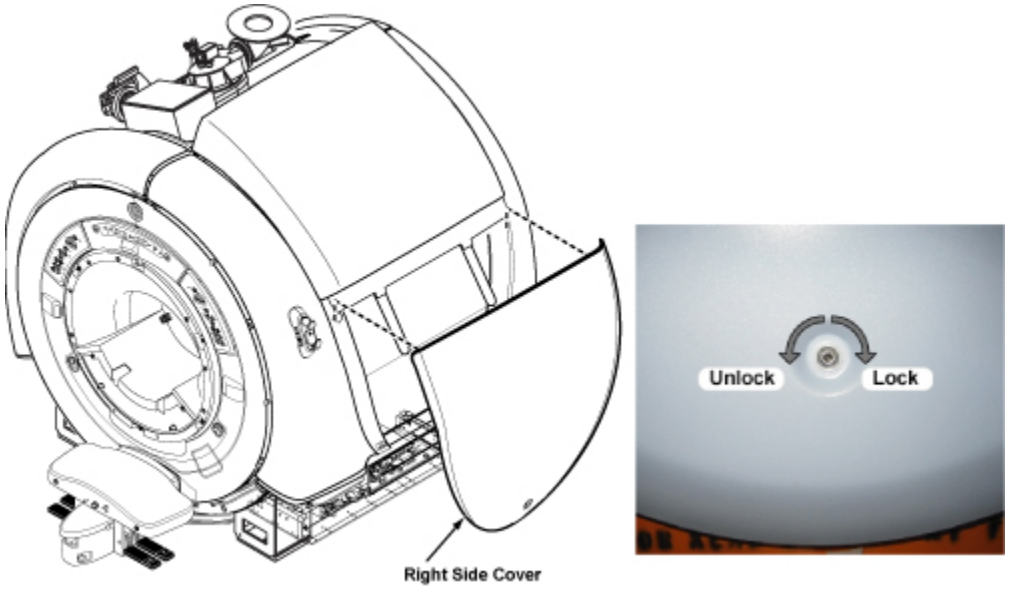
Illustration 3-42: Right Top Cover



4.3.14 Right Side Cover

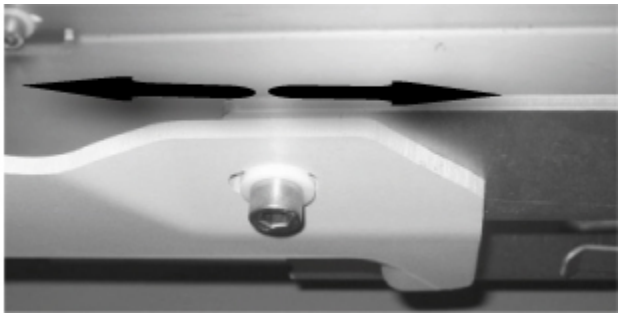
1. Install the right side cover to the holes of arc cover.
2. Lock the cover with lock screw.

Illustration 3-43: Right Side Cover



3. Check the cover clearance. If needed, adjust the clearance of side cover and arc covers with bolts of front and rear arc covers.

Illustration 3-44: Adjust the clearance



4.4 Finalization

No finalization steps.

5 Equipment Positioning

5.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
2	Not Applicable	120 mins	Not Applicable

5.2 Preliminary Requirements

5.2.1 Safety

⚠WARNING

PERSONAL INJURY AND EQUIPMENT DAMAGE
STRONG MAGNETIC FIELD!
WHEN SERVICING ANY MAGNETIC EQUIPMENT, IT IS CRITICALLY IMPORTANT THAT THE SERVICE ENGINEER CONSCIOUSLY PLAN THE PATH TO BE TAKEN WHEN MOVING HIGHLY FERROUS DEVICES IN THE MAGNET ENVIRONMENT. THE MAGNETIC FIELD IN THIS PATH MUST NOT EXCEED 200 GAUSS AND THE PATH SHOULD BE AS FAR FROM THE MAGNET AS PRACTICAL.
SAFETY REQUIREMENTS

- **THE STATIC MAGNETIC FIELD IN ANY PORTION OF THE SERVICE PATH MUST NOT EXCEED 200 GAUSS.**
- **TWO (2) MR SAFETY TRAINED PERSONNEL MUST BE PRESENT AT ALL TIMES WHEN SERVICING HIGHLY FERROUS DEVICES IN THE AREAS OF MAGNETIC FIELDS.**

WHEN PLANNING A SERVICE PATH, IT IS CRITICAL THAT THE PATH BE CLEAR AND SUFFICIENTLY WIDE. ENSURE THAT THERE ARE NO TRIP HAZARDS, OBSTACLES, CLUTTER, SLIPPERY SURFACES OR OTHER ITEMS EVEN PARTIALLY RESTRICTING THE PATH. IF THERE ARE PORTABLE OBSTACLES IN A PATH, REMOVE THEM FROM THE AREA AND REPLACE THEM AFTER THE SERVICE ACTION IS COMPLETED. IT IS REQUIRED TO WALK THE PATH PRIOR TO BEGINNING SERVICE TO ENSURE THAT THERE IS SUFFICIENT SPACE THROUGH WHICH TO PASS FOR YOURSELF AND THE OBJECT BEING SERVICED.

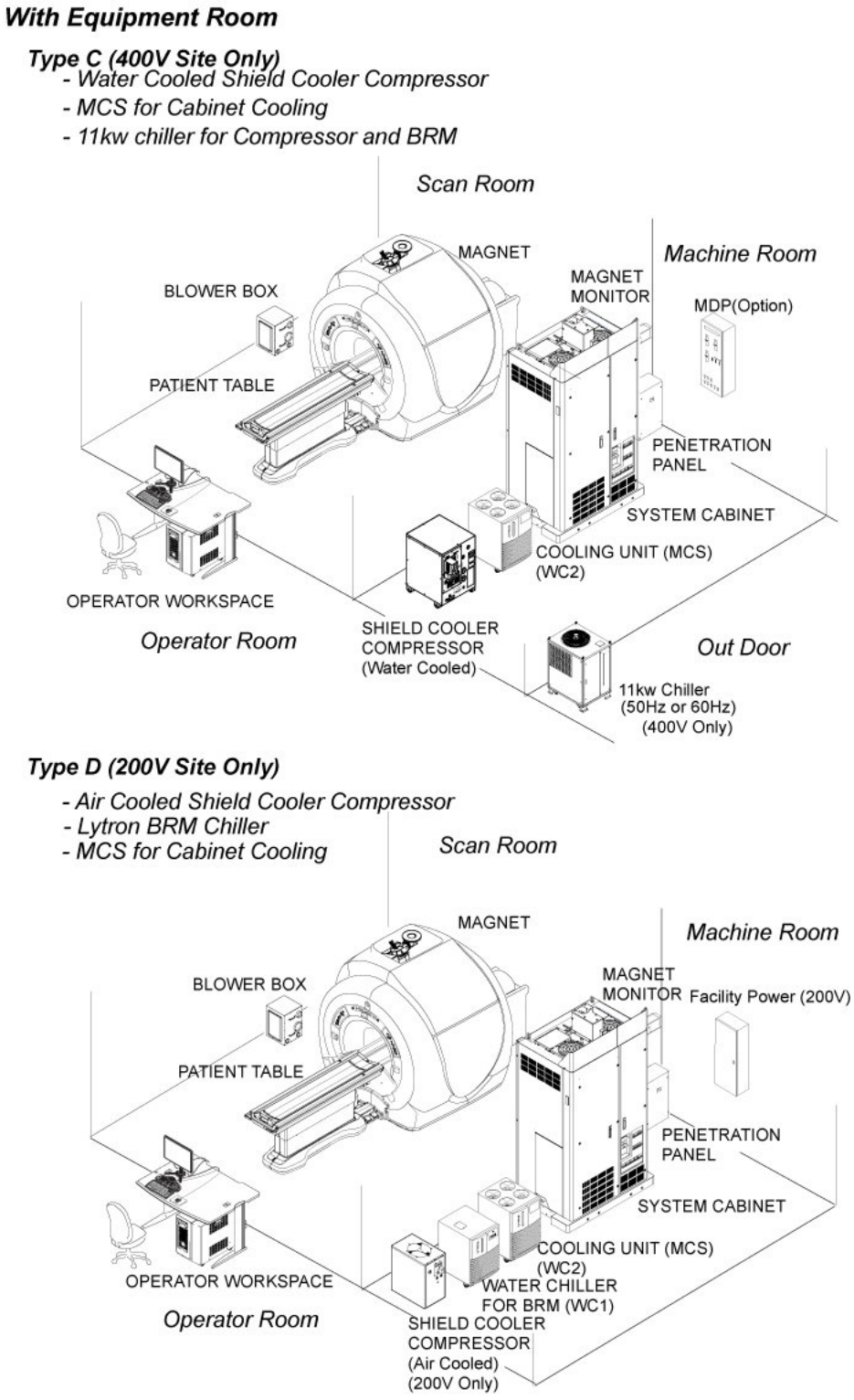
5.3 Procedure

5.3.1 Equipment Positioning Overview

1. Place the each equipment according to the room layout plan. Refer to the following illustration as reference.

   NOTE: To keep the Installation space, Table, Blower Box, Rear pedestal can be placed at the proper location before cable routing.

Illustration 3-45: System Configuration with Equipment Room



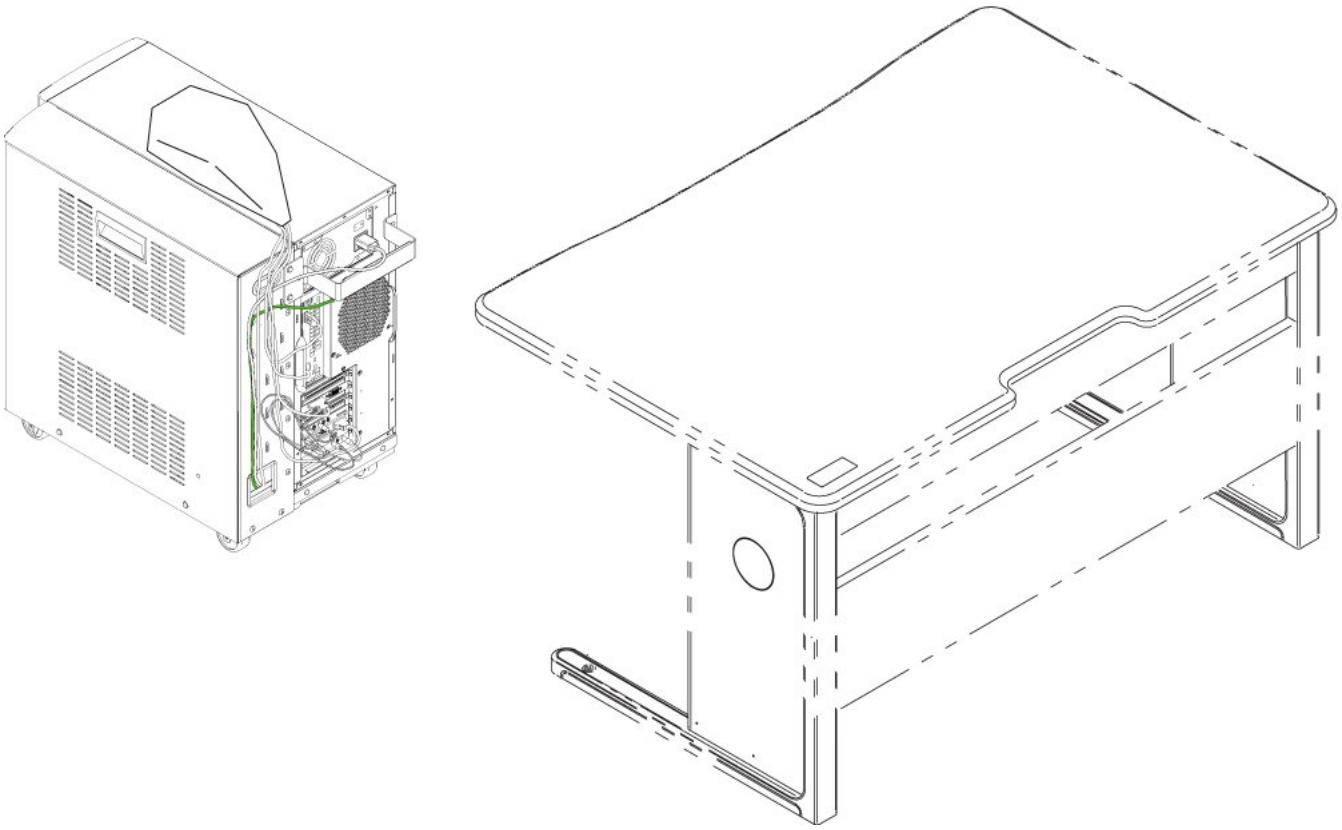
Type C (400V Config) applies to the site with 380, 400, and 480 VAC power source.

5.3.2 Simple OC

5.3.2.1 Simple OC positioning

1. Consult with Site customer for exact location of Operator Workspace Table and Simple Operator Cabinet (Simple OC). The location of Simple OC could be underneath the left or right side of the Operator Workspace table, or on the outside left or right side of the table.

Illustration 3-46: Position Computer Cabinet



5.3.2.2 OW Table Anchoring

NOTICE

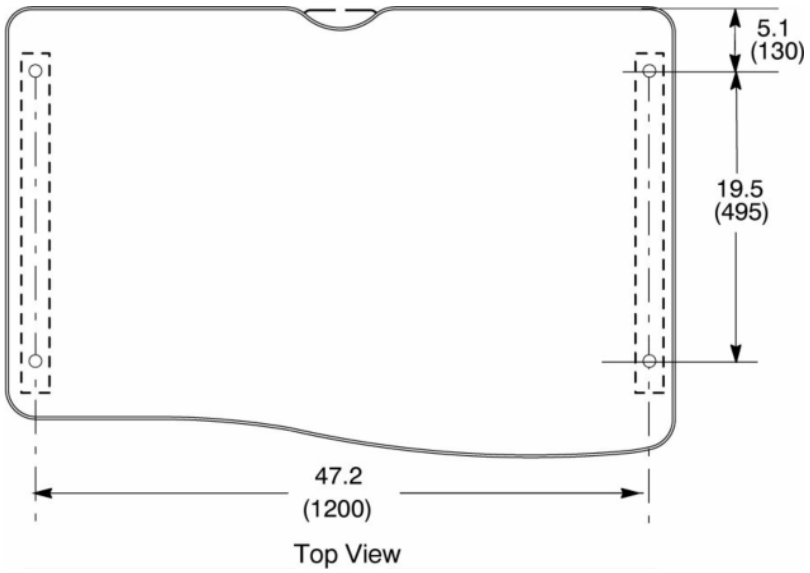
Two anchors are sufficient for the OW Table anchoring. If using two anchors, select diagonal anchor holes.

NOTICE

This procedure can be performed anytime during mechanical installation.

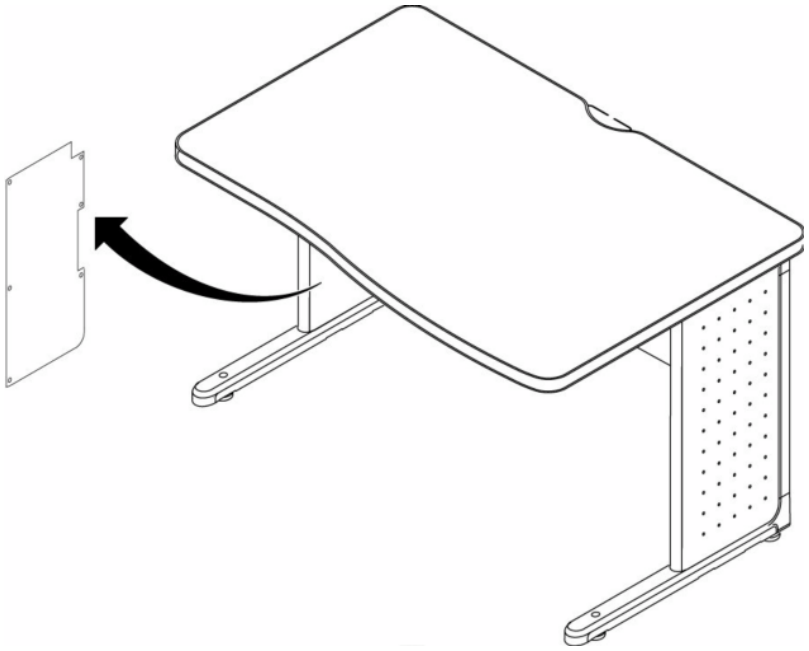
1. Drill a holes and insert anchors.

Illustration 3-47: Anchor Location



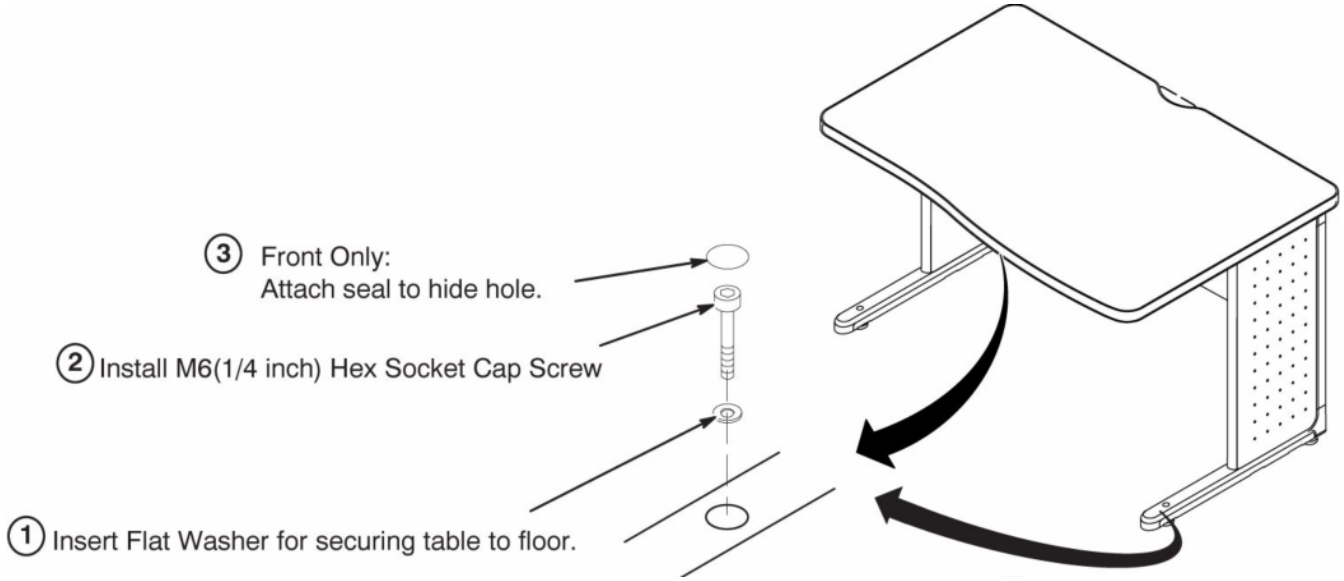
2. Remove inner cover for Table rear anchoring.

Illustration 3-48: Inner cover



3. Secure OW Table with Anchor Bolts. Refer to Illustration 3-49.

Illustration 3-49: Secure OW Table with Anchor Bolts



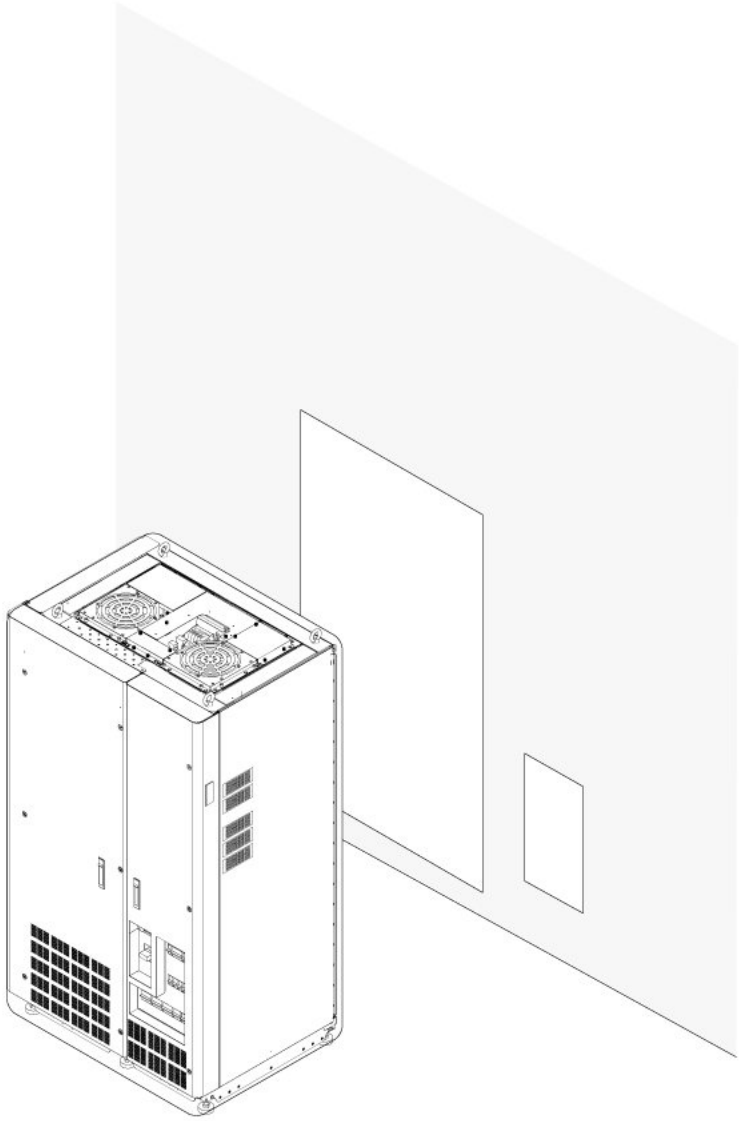
5.3.3 System Cabinet

⚠CAUTION

The weight of System Cabinet (900kg) requires at least four people to move the System Cabinet at the position.

1. Locate the System Cabinet at the in front of the wall opening for the system cabinet. The system cabinet has 6 casters which can rotate freely.

Illustration 3-50: System Cabinet Positioning



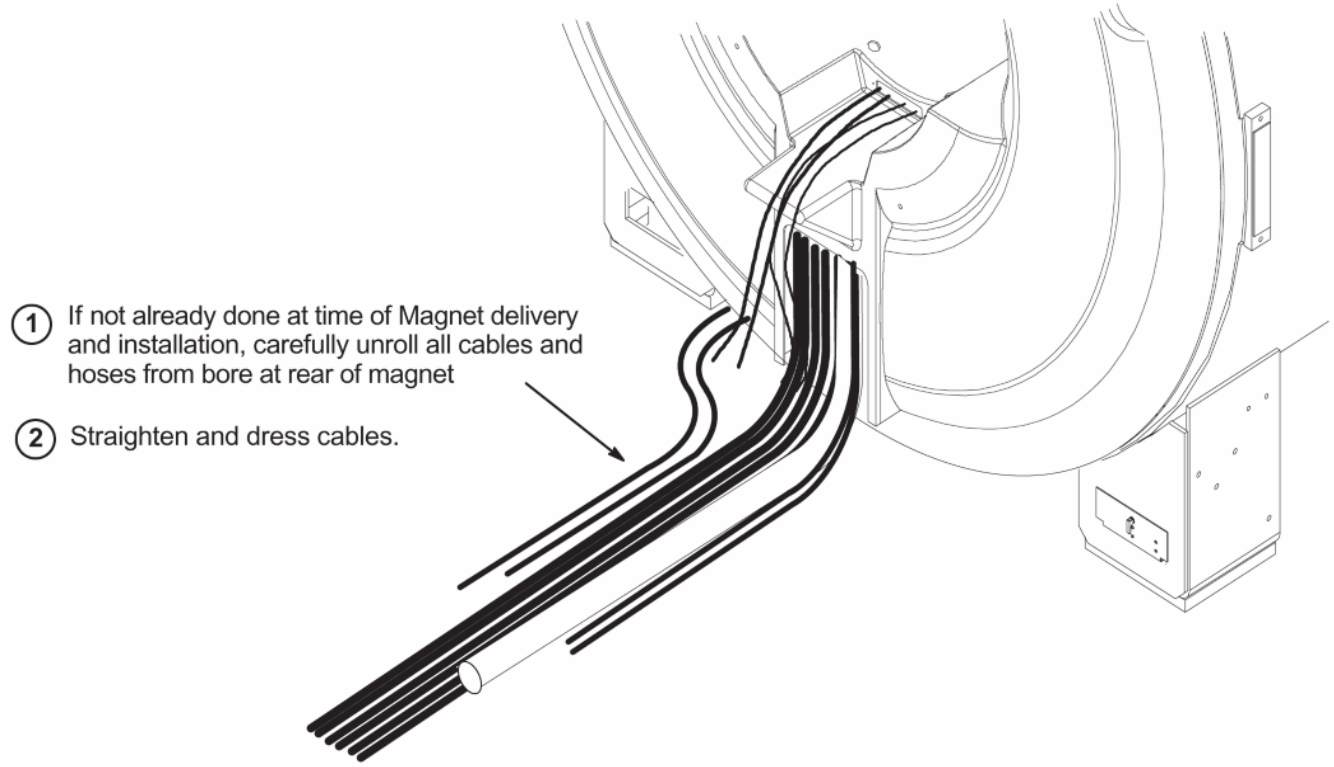
5.3.4 Rear Pedestal Positioning

This procedure can be performed later. But, it must be performed before Rear Pedestal/LPCA Installation

5.3.4.1 Cable Alignment before installing Rear pedestal

1. Straighten and dress cables.

Illustration 3-51: Align Cables At Rear Of Magnet



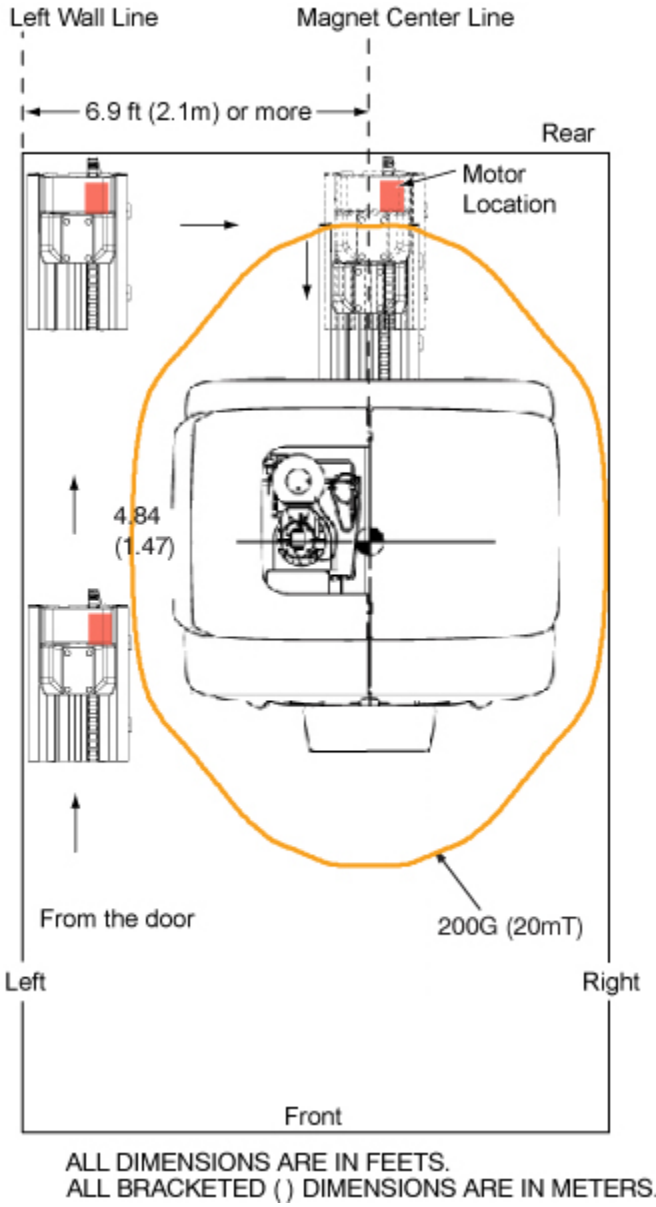
5.3.4.2 Room Size Check for Rear Pedestal Removal

⚠WARNING

STRONG MAGNETIC FIELD
INTERIM DRIVE ASSY IN REAR PEDESTAL CONTAINS FERROUS MATERIAL. IT IS CRITICALLY IMPORTANT THAT THE SERVICE ENGINEER CONSCIOUSLY PLAN THE PATH TO BE TAKEN WHEN MOVING HIGHLY FERROUS DEVICES IN THE MAGNET ENVIRONMENT. THE MAGNETIC FIELD IN THIS PATH MUST NOT EXCEED 200 GAUSS AND THE PATH SHOULD BE AS FAR FROM THE MAGNET AS PRACTICAL.

1. Check the distance between left wall and the center line of the Magnet.
2. If the distance is 6.9ft (2.1m) or more, please move the Rear Pedestal without removing the motor assy. When moving the Rear Pedestal, do not exceed the 200G Line as Illustration 3-52. Go to Section 5.3.4.3.

Illustration 3-52: Room Size Check



3. If the distance is less than 6.9ft (2.1m), motor assy remove the interim drive assy before positioning the Rear Pedestal.

    a. Remove the motor assy outside of Magnet room according to 'Interim Drive Assy Replacement' in the following Service Methods.

        - 5364191-2EN Optima MR360 / Brivo MR355 1.5T Class M Service Methods Rev3 or higher
        - 5341911-2EN Optima MR360 1.5T Class A Service Methods Rev3 or higher

    b. Position the Rear Pedestal according to Section 5.3.4.3.

NOTICE

When restoring the interim drive assy to rear pedestal, read the manual carefully for proper operation in the Magnet Room.

c. Restore the Interim Drive Assy by reverse order of removal.

5.3.4.3 Rear Pedestal Positioning

NOTICE

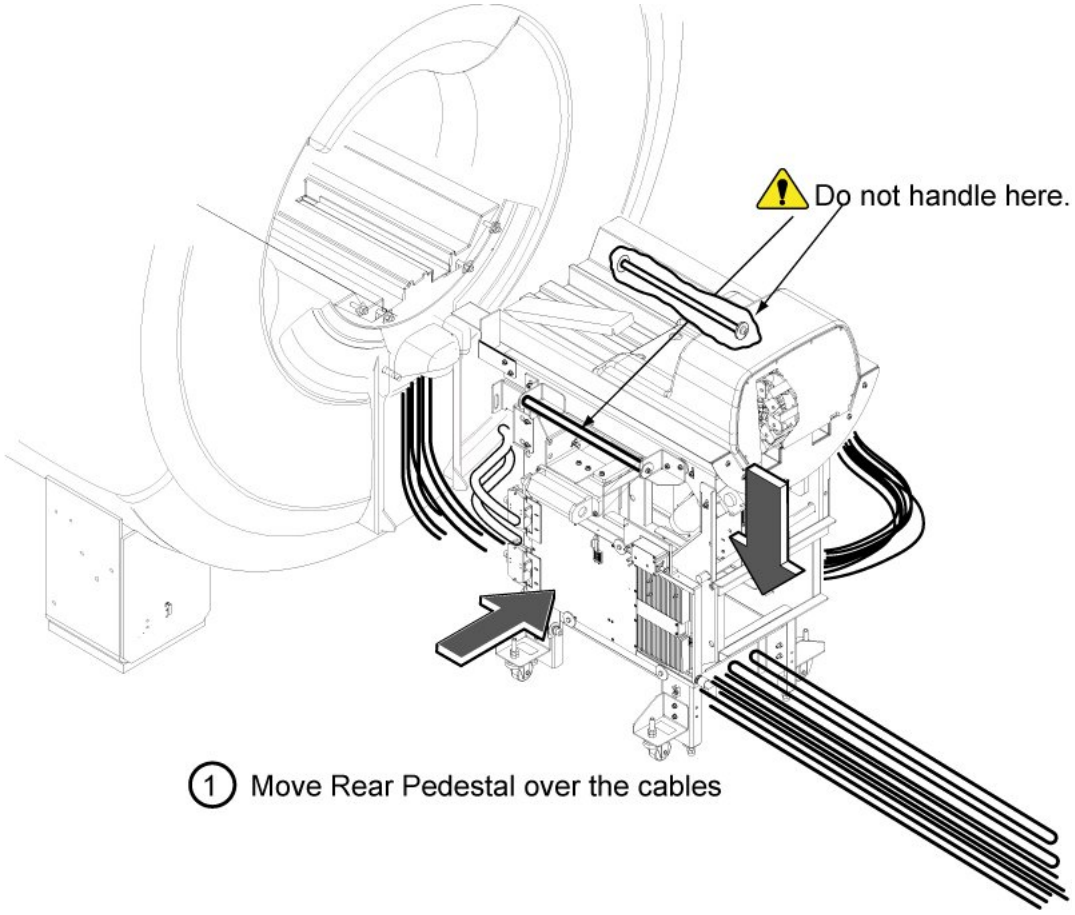
The weight of the Rear Pedestal requires at least Two people.

NOTICE

Some of connectors may contains weak ferrous materials. Be careful when carrying the assy.

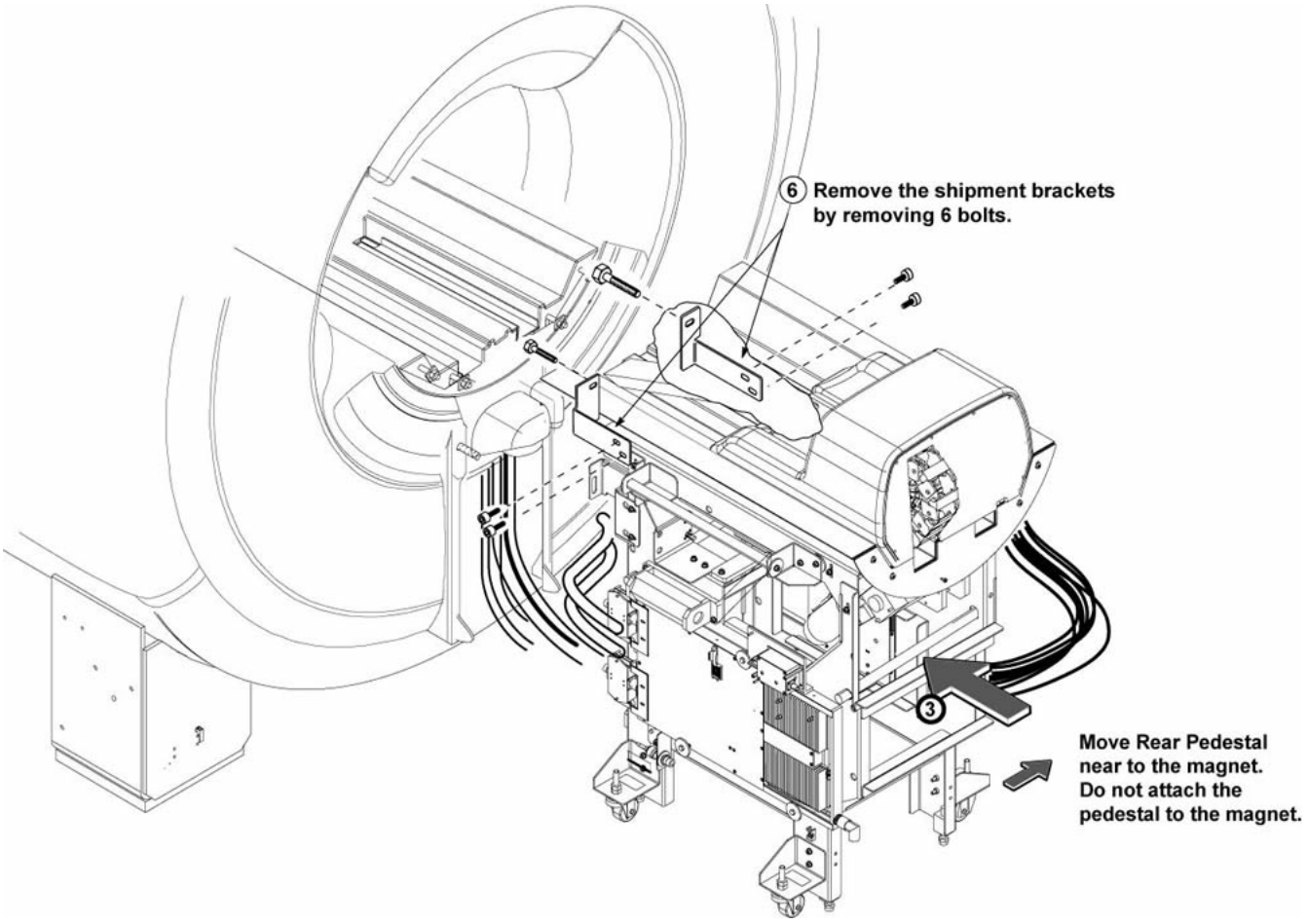
1. Move the Rear Pedestal to the rear of Magnet.
2. Carry Rear Pedestal with two person and move it so that the cables from magnet run through the Rear Pedestal.

Illustration 3-53: Rear Pedestal



3. Move the Rear Pedestal near to the magnet. Do not attach the pedestal to the magnet.
4. Rotate the adjusters so that they reach to the floor.
5. Remove the shipment brackets by removing 6 bolts.

Illustration 3-54: Rear Pedestal positioning



5.3.5 Anchoring for MCS

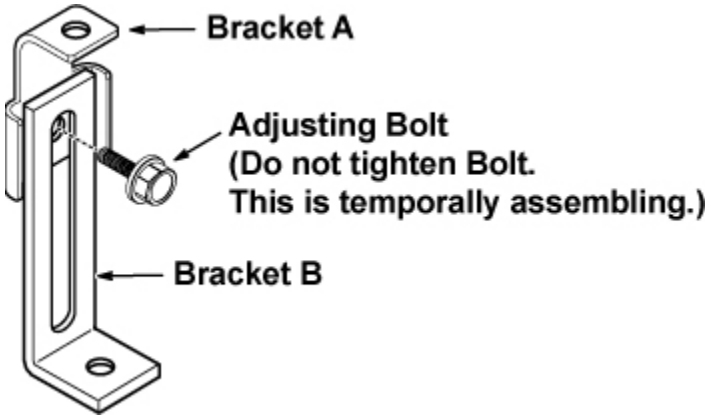
1. Consult with Site customer for exact location of Cooling Systems and position them.

NOTE: This procedure can be performed anytime during mechanical installation.

NOTE: The anchor bracket kit is packaged for MCS. The anchor bracket kit does not include anchor bolt or nut to fix floor side. Use the anchor bolt or nut according to site condition.

2. Assemble the 4 brackets A and B using attached bolts. Do not tighten the bolt. This is temporary assembling.

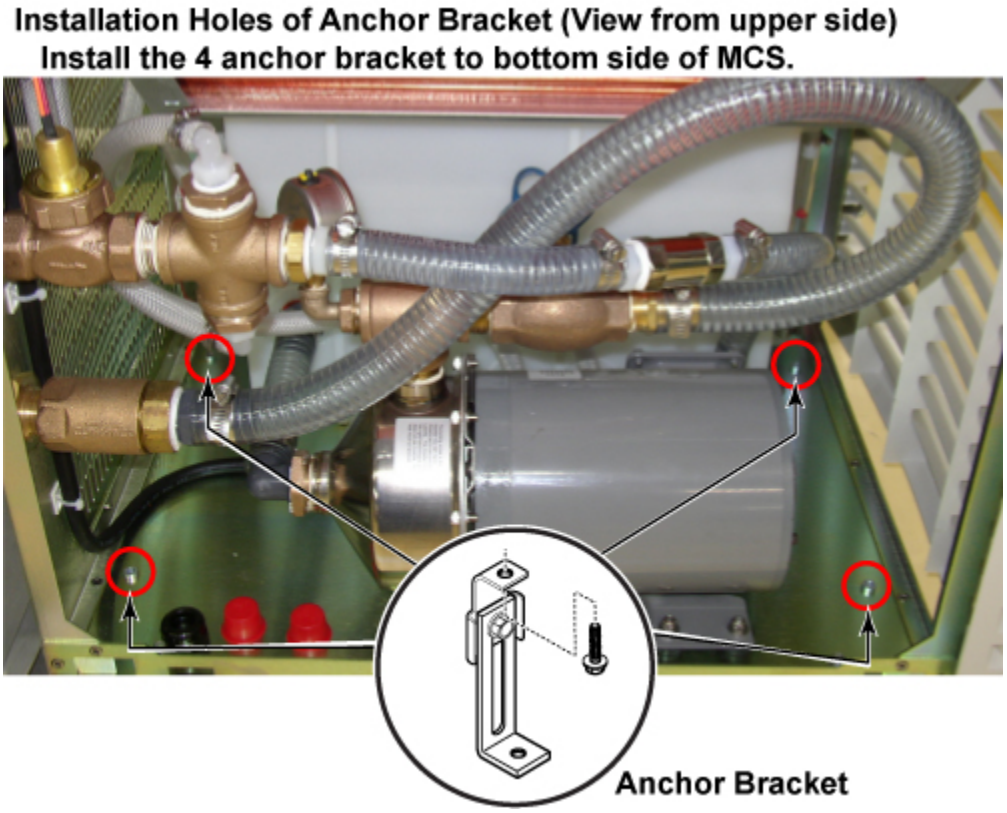
Illustration 3-55: Bracket A and B



3. Install the 4 assembled brackets to holes of bottom side of MCS with 4 attached bolts.

NOTE: The illustration removing the side cover to clarify. The side cover removal is not need.

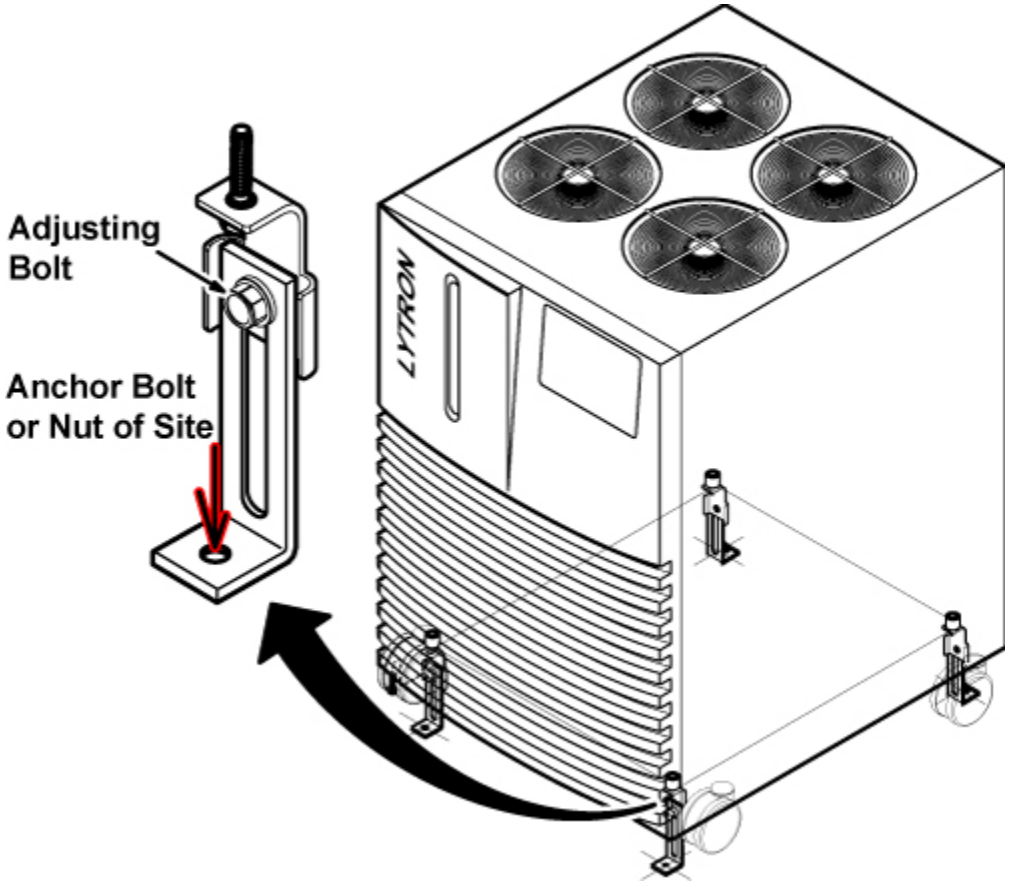
Illustration 3-56: Brackets Installation for MCS Bottom Side



4. Tighten the 4 adjusting bolts.

5. Fix the 4 anchor brackets using 4 anchor bolts or nuts according to site condition.

Illustration 3-57: Fixing Anchors



5.4 Finalization

No finalization steps.

6 System Cabinet Installation

6.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	60 mins	Not Applicable

6.2 Preliminary Requirements

6.2.1 Tools and Test Equipment

Item	Qty	Effectivity	Part#	Manufacturer
Precision levels	1	-	-	-

6.2.2 Required Conditions

Condition	Reference	Effectivity
Anchor Holes for System Cabinet are drilled.	-	-

6.3 Procedure

6.3.1 Prerequisite before installing system Cabinet

1. Anchor Holes for System Cabinet must be drilled by pre-installation vendor. See illustrationIllustration 3-63 for the anchor location.

6.3.2 Install System Cabinet

1. Move the System Cabinet to satisfy the following conditions.
    - System Cabinet is parallel to the wall.
    - Screw holes of System Cabinet is aligned to the hole of Mesh Shield frame.

Illustration 3-58: System Cabinet positioning

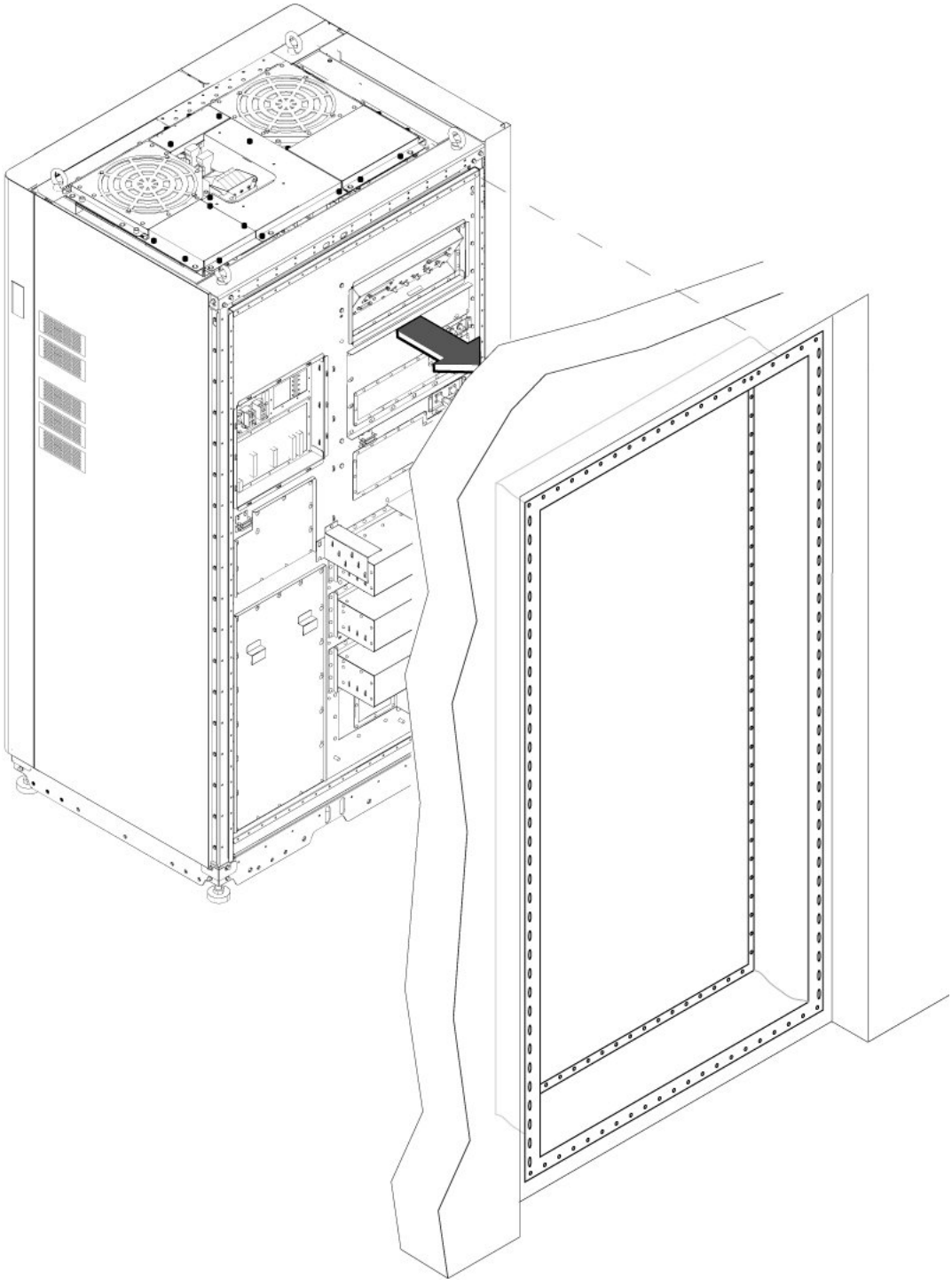
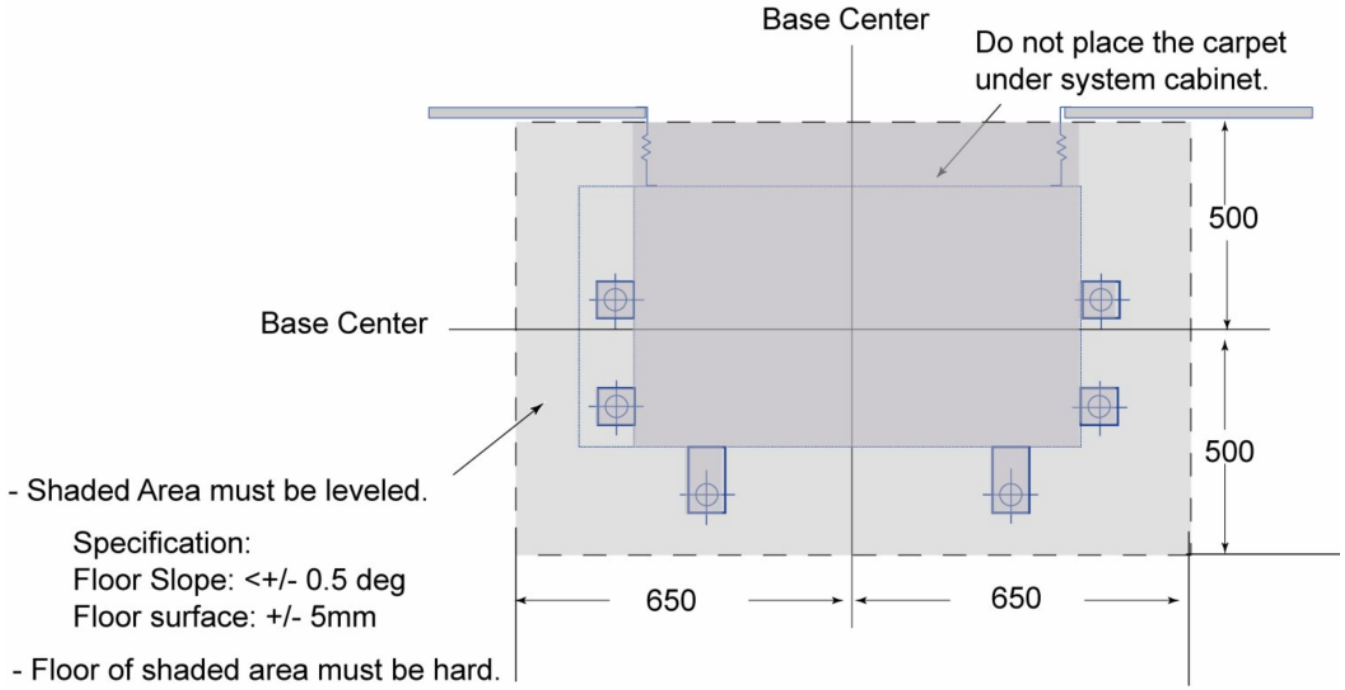
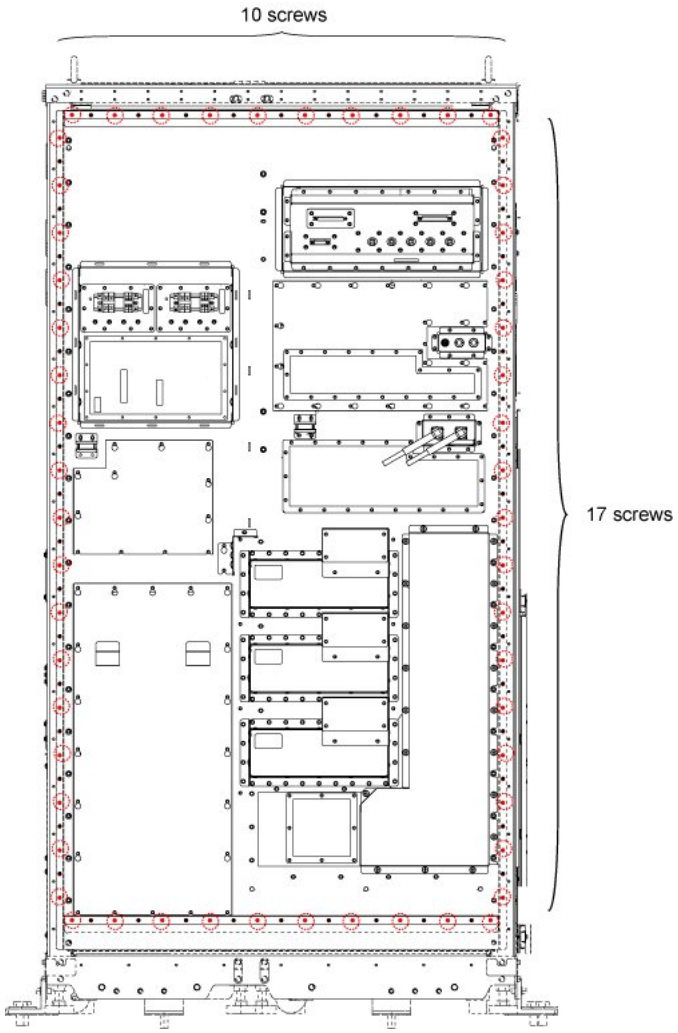


Illustration 3-59: System Cabinet Top View



2. Fix the System Cabinet with washer and screws at every two hole pitch. Do not install screw in every hole. (54 fixing screws.)

Illustration 3-60: System Cabinet (View from Magnet Room)



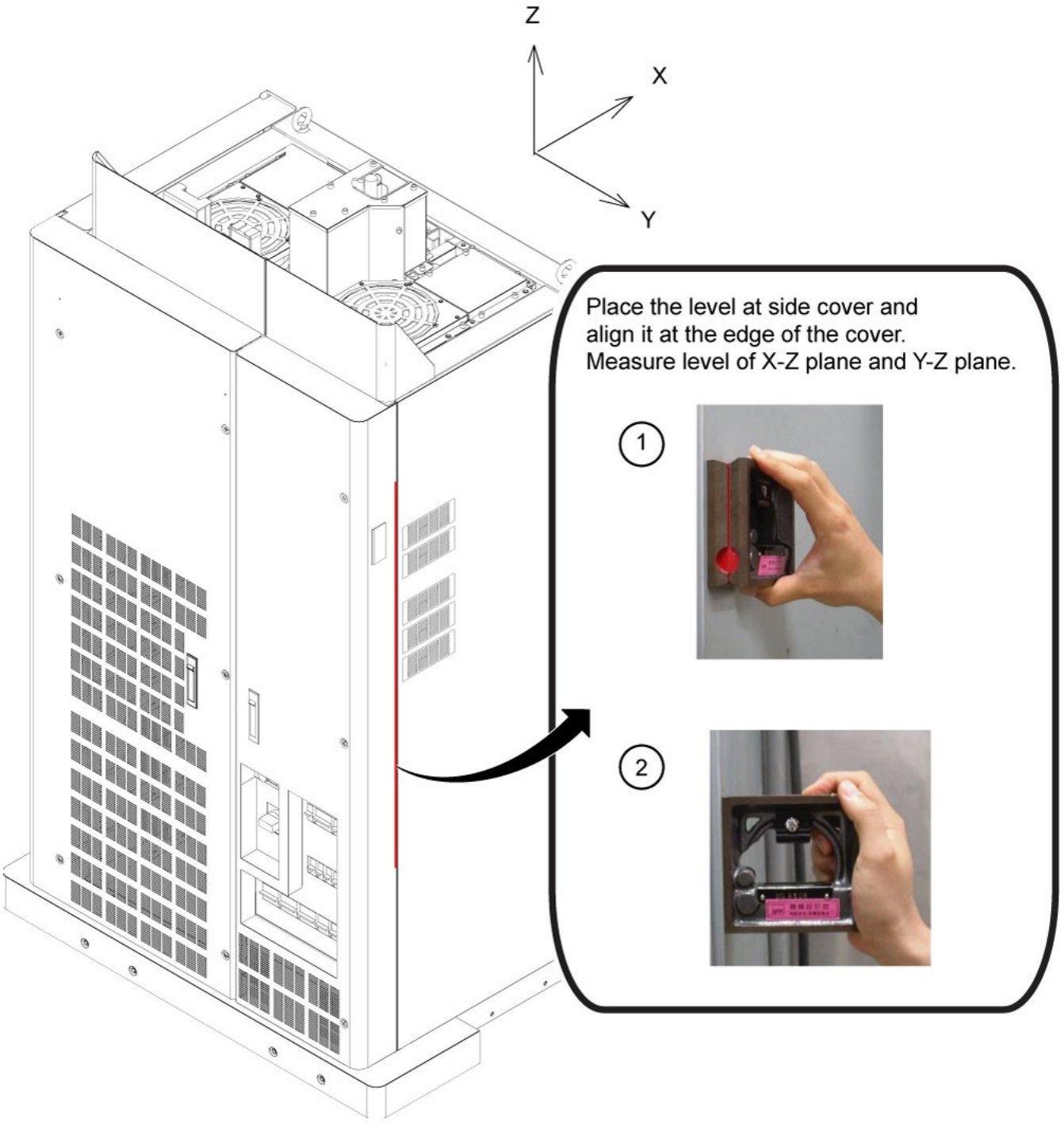
3. Lower the adjusters so that they reach to the floor.

6.3.3 Cabinet Level Check

1. Check that the System Cabinet is leveled. **Specification:** <+/-0.5deg

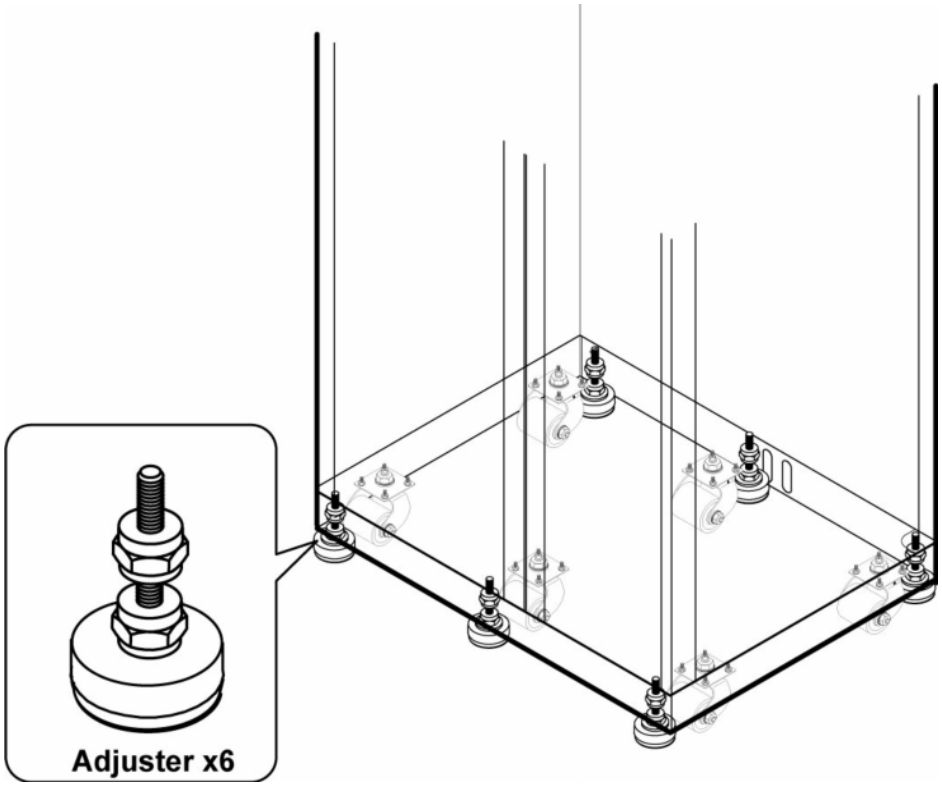
NOTE: Use precision levels('Block Type' or 'Square Frame Type') 150mm or longer. Specification of precision levels: JIS B7510 (A Grade, Sensitivity 1~3) or equivalent.

Illustration 3-61: Cabinet Level Check



2. If System cabinet is not leveled, adjust the cabinet using adjuster.

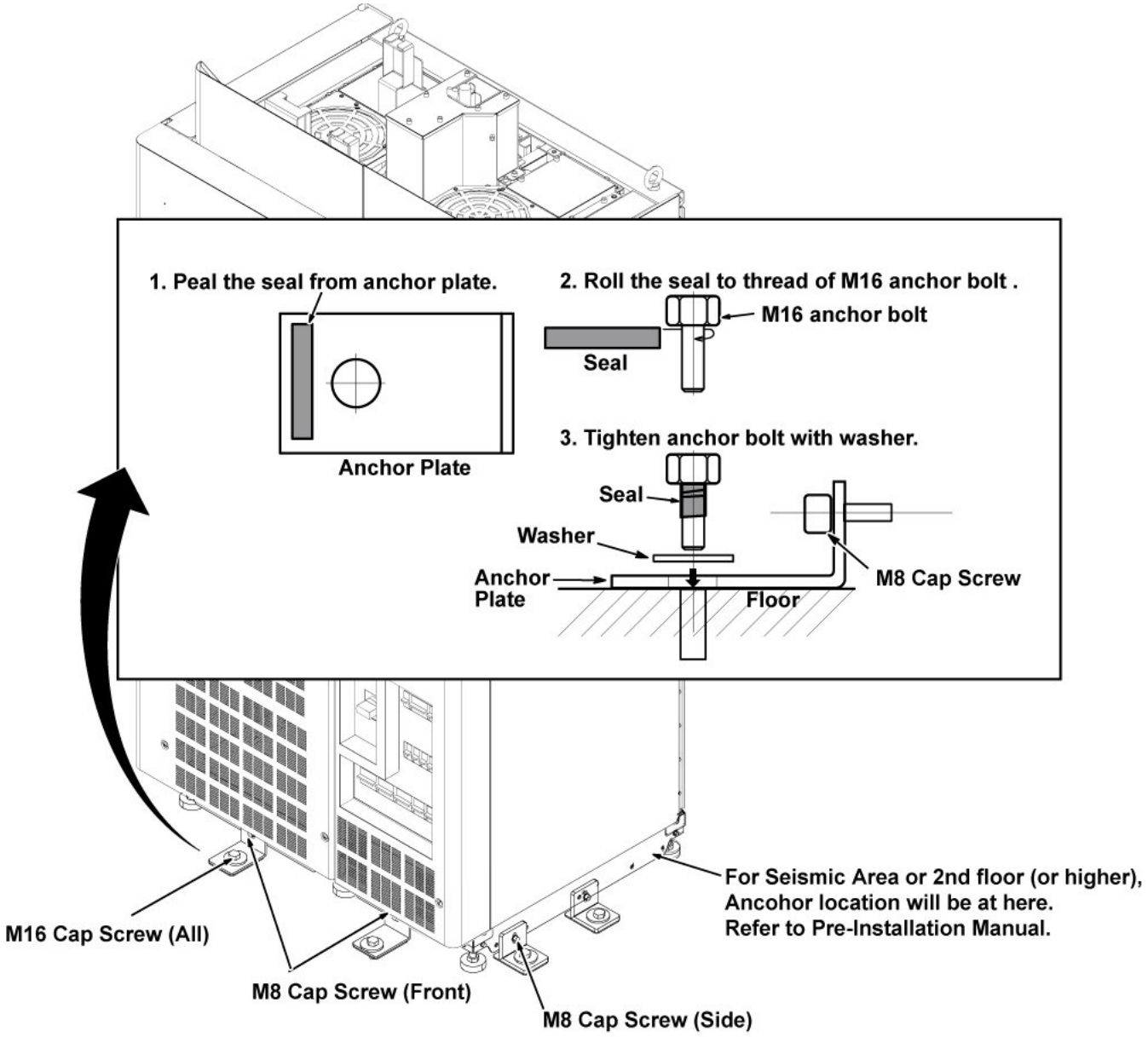
Illustration 3-62: Adjuster



6.3.4 Anchor System Cabinet

1. Roll the insulation seal to thread of anchor bolt (x6) for noise prevention.
2. Fix the anchor bracket at the bottom of System Cabinet.
3. Fix the System Cabinet to the floor with anchor bolts.

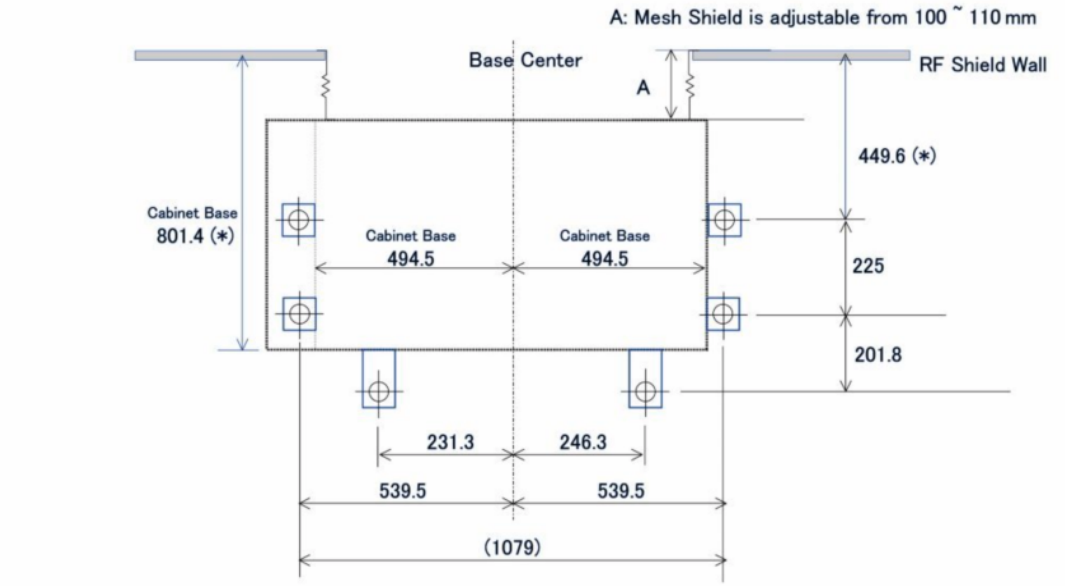
Illustration 3-63: System Cabinet Anchoring



GE supplied parts: L-Angle Plates, M8 cap screws(for side and front), Washer
Vendor supplied parts: M16 anchor bolts

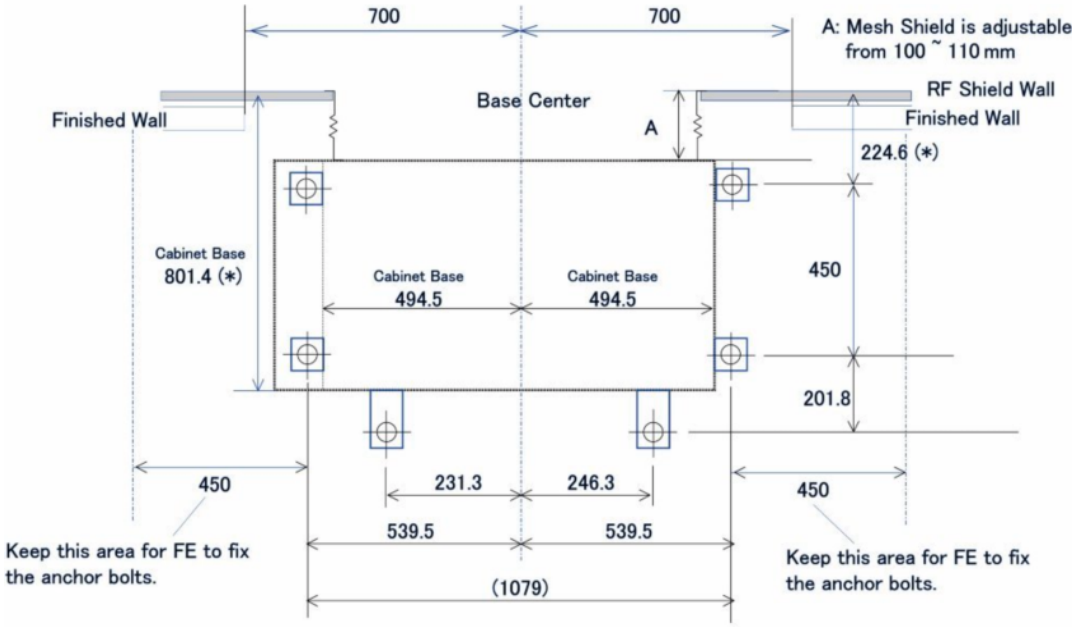
Illustration 3-64: Anchor Location

Anchor Location (For non-seismic area or for seismic area (1st floor or lower))



Note: The value (*) is a recommended value.
This value is flexible within specification of Mesh Shield (A).

Anchor Location (For Seismic Area and 2nd Floor or higher)



Note: The value (*) is a recommended value.
This value is flexible within specification of Mesh Shield (A).

6.4 Finalization

No finalization steps.

7 Left and Right Control Panel Installation

7.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	30 mins	Not Applicable

7.2 Overview

This procedure describes how to install Left and Right Control Panel to the Magnet Front Cover.

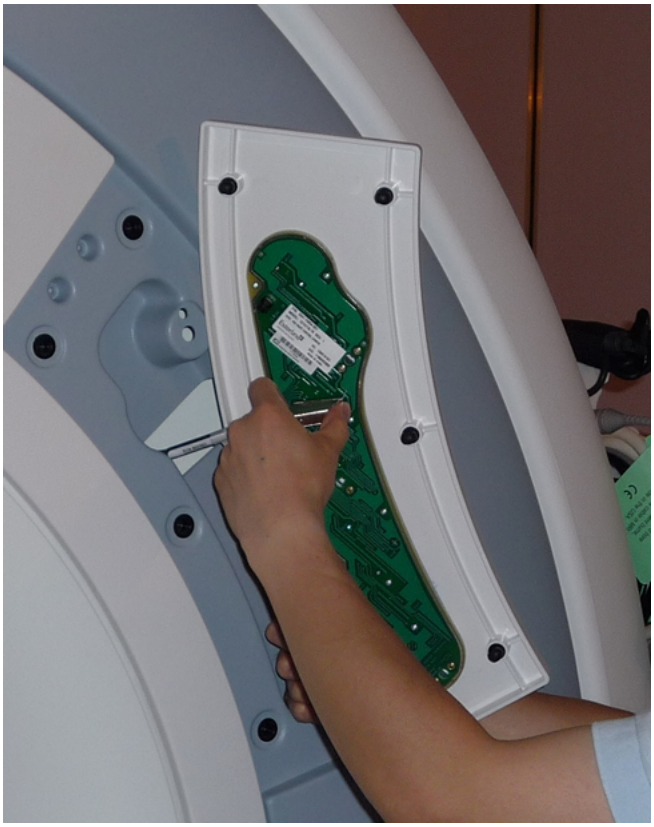
NOTE: Left and Right Control Panel is not shipped with Magnet since the overlay of the assy is translated into the local language.

Illustration 3-65: Overview

7.3 Procedure

1. Connect the Control Panel Cable to the right Control Panel.

Illustration 3-66: Right Control Panel Cable Connection



2. Attach Right Control Panel by aligning and pushing panel to the front cover.

Illustration 3-67: Right Control Panel Attachment

3. Repeat the same Procedure to the left Control Panel.

7.4 Finalization

No finalization steps.

8 Rear Pedestal/LPCA Installation

8.1 Personnel Requirements

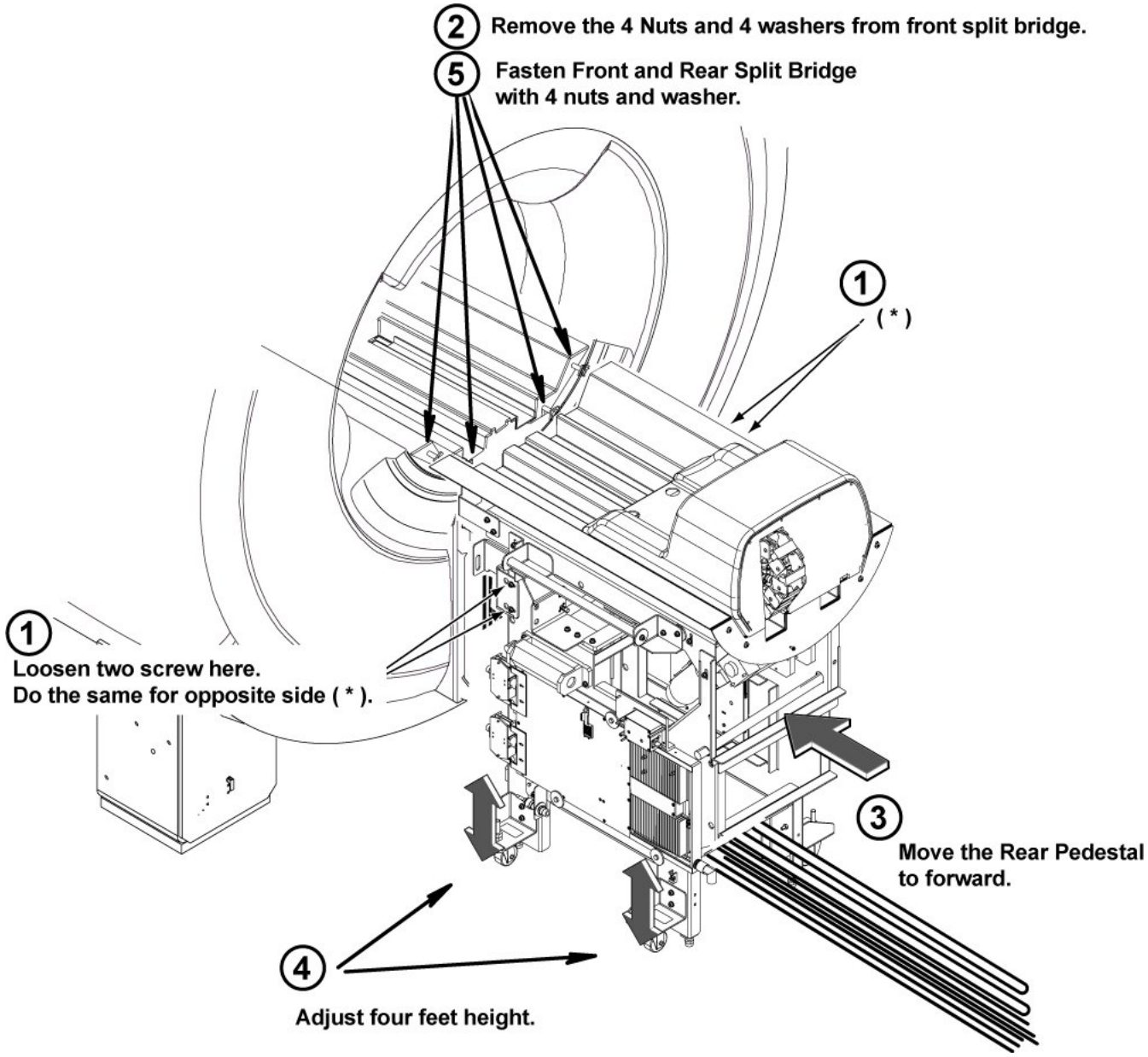
Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	60 mins	Not Applicable

8.2 Procedure

8.2.1 Fasten Front and Rear Split Bridge

1. Loosen 2 screws from both of connector brackets so that the brackets moves horizontally.
2. Remove four 10M hex nuts (2109877-3) and washers (2228717-2) from end of Bridge in magnet. These will be used for attaching the Rear Split Bridge.
3. Move Rear Pedestal forward and engage front split bridge studs.
4. Adjust the Rear Pedestal height on each side to level the Rear Split Bridge with the Front Split Bridge.
5. Fasten Front and Rear Split Bridge with four nuts and washers that were removed from end of Front Split Bridge.

Illustration 3-68: Position Rear Pedestal

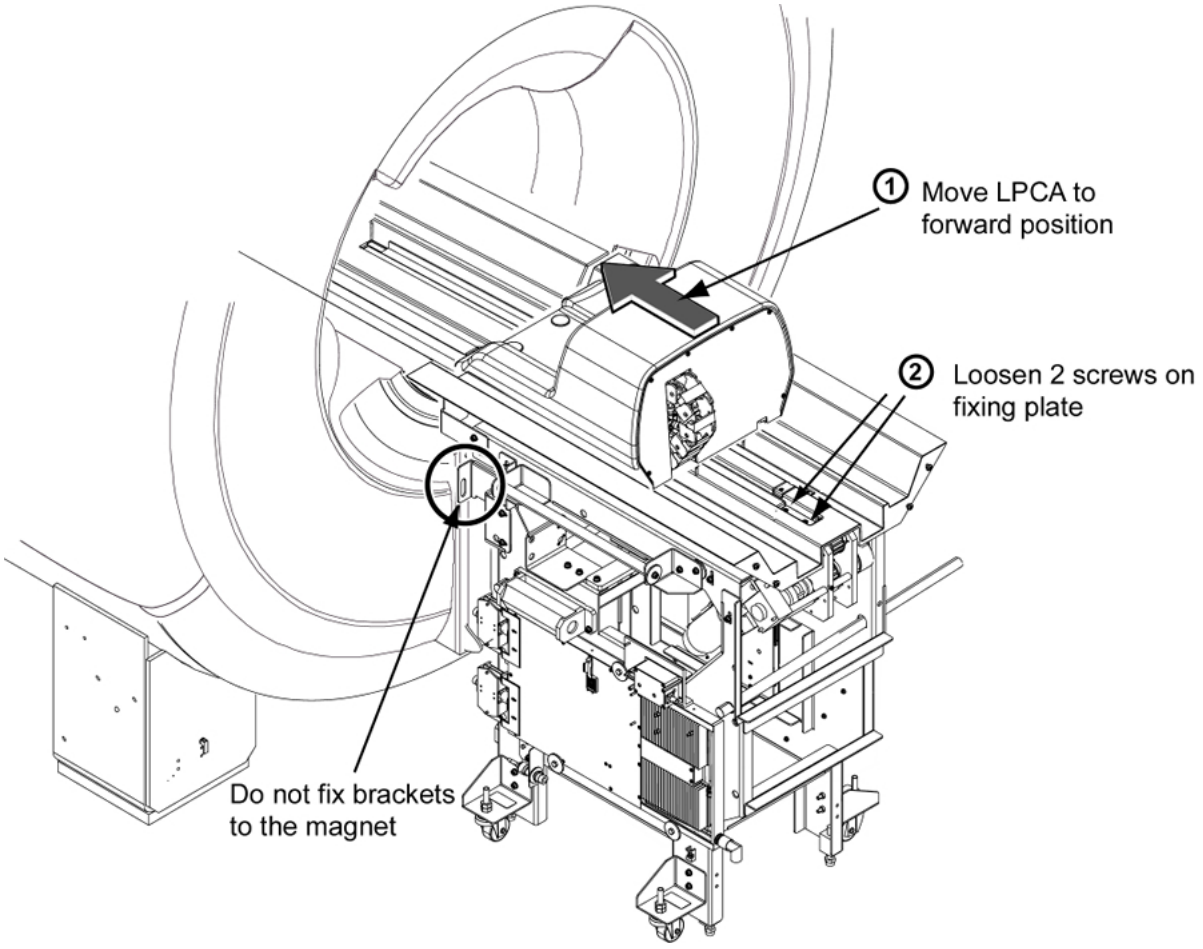


8.2.2 Position Adjustment of Rear Split Bridge

NOTE: This adjustment should be done correctly to prevent home sensor flag from interfering with sensor mounting. Do not fix front brackets of rear pedestal to the magnet.

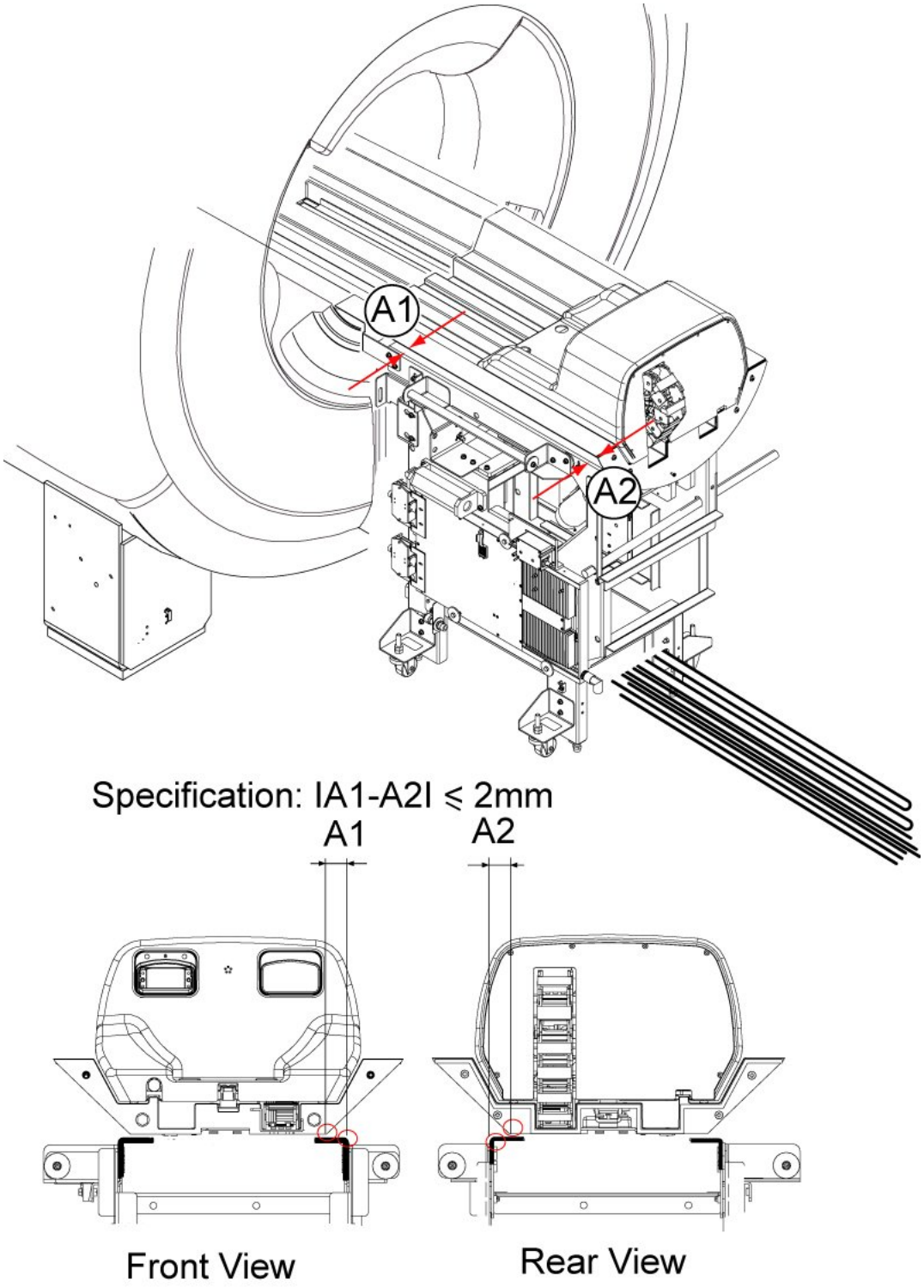
1. Move LPCA to forward.
2. Loosen 2 screws on fixing plate of rear split bridge.

Illustration 3-69: Fixing Screws of Rear Split Bridge



3. Adjust rear split bridge position using plastic measuring tool as illustration.

Illustration 3-70: Adjustment Specification

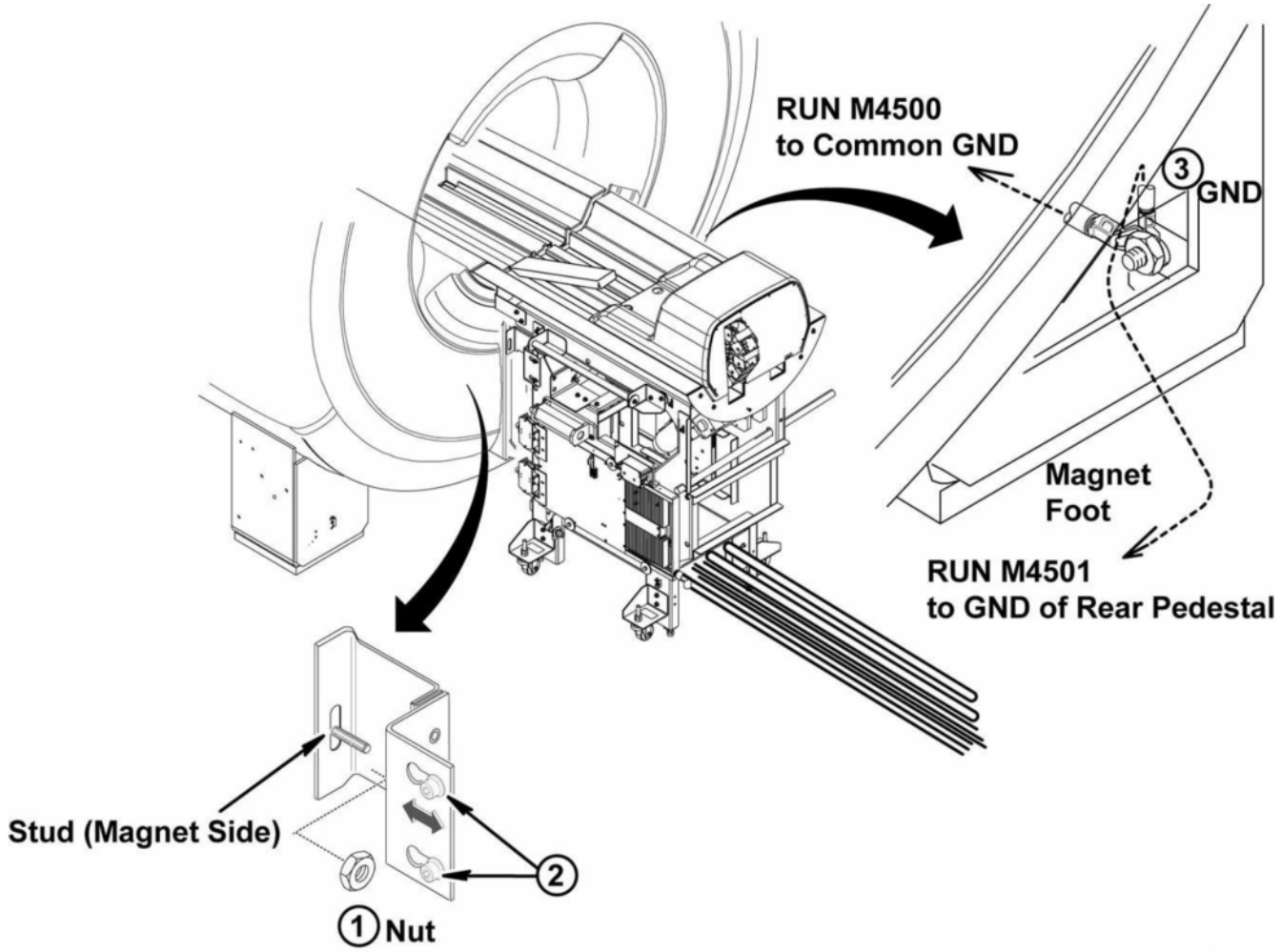


8.2.3 Connect Front and Rear Split Bridge

NOTE: Tongue to Bridge alignment is critical to smooth belt tracking and operation. Make sure Tongue is square to Bridge and Rear Pedestal.

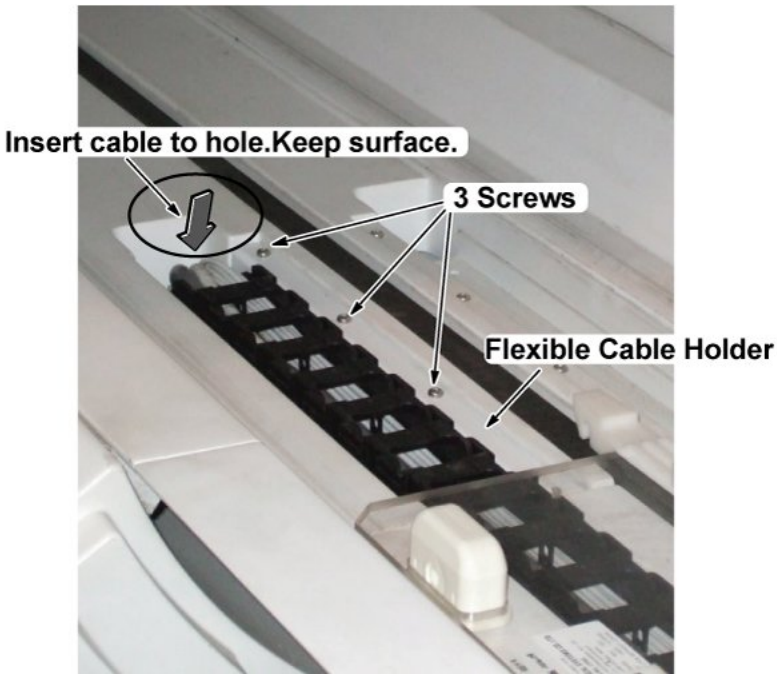
1. Center Rear Pedestal on Rear Endbell and attach to Support Studs using Nut on each stud.
2. Adjustment of Rear Pedestal location can be made at this slotted hole location when connecting the Split Bridge.
3. Route Ground cable from Rear Pedestal under magnet and connect to same Ground Stud as Magnet ground.

Illustration 3-71: Connect Front and Rear Split Bridge



4. Install flexible cable holder to front split bridge with 3 screws.

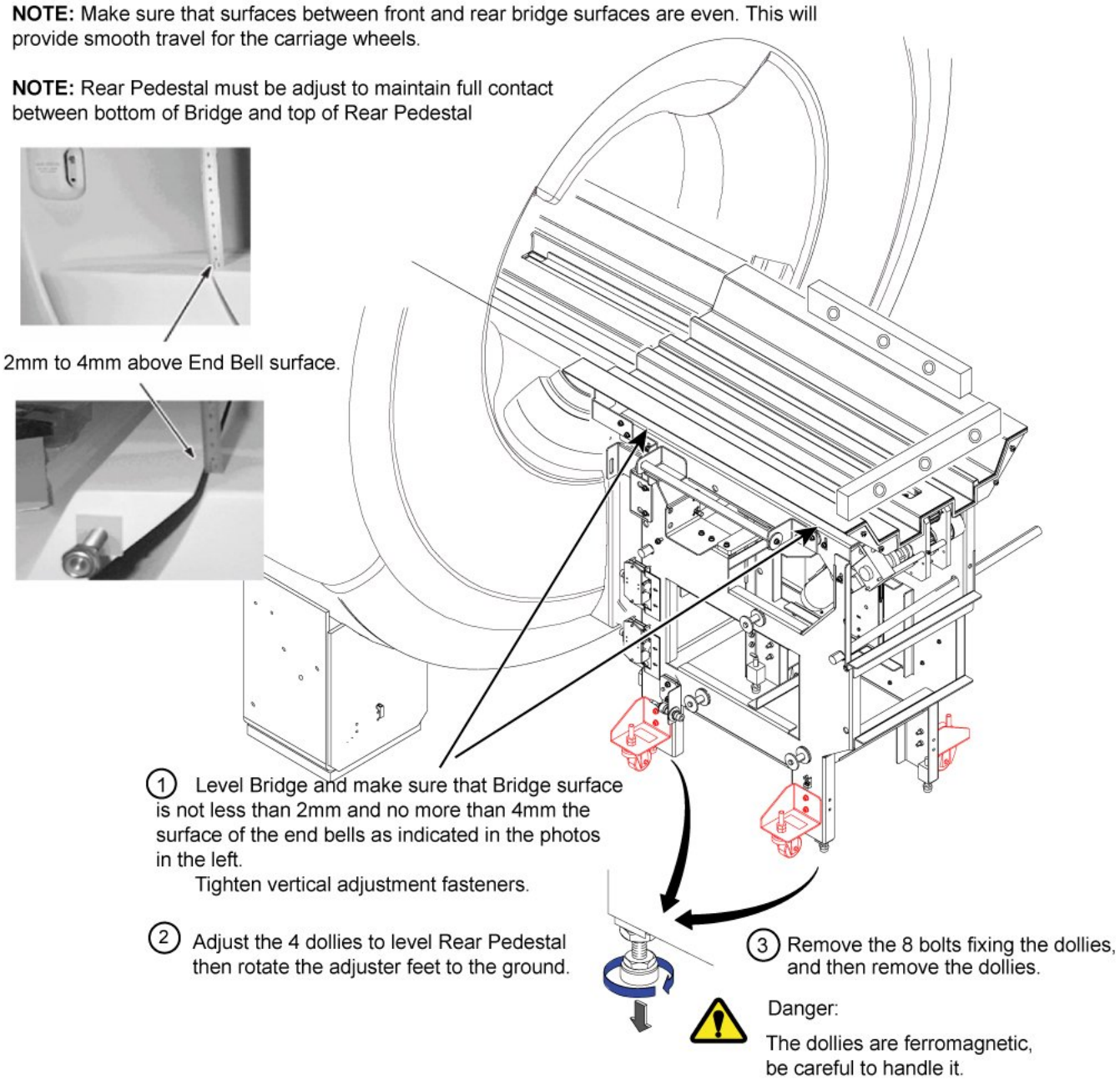
Illustration 3-72: Flexible Cable Holder



8.2.4 Leveling Of Bridge

1. Level Bridge according to the following illustration.

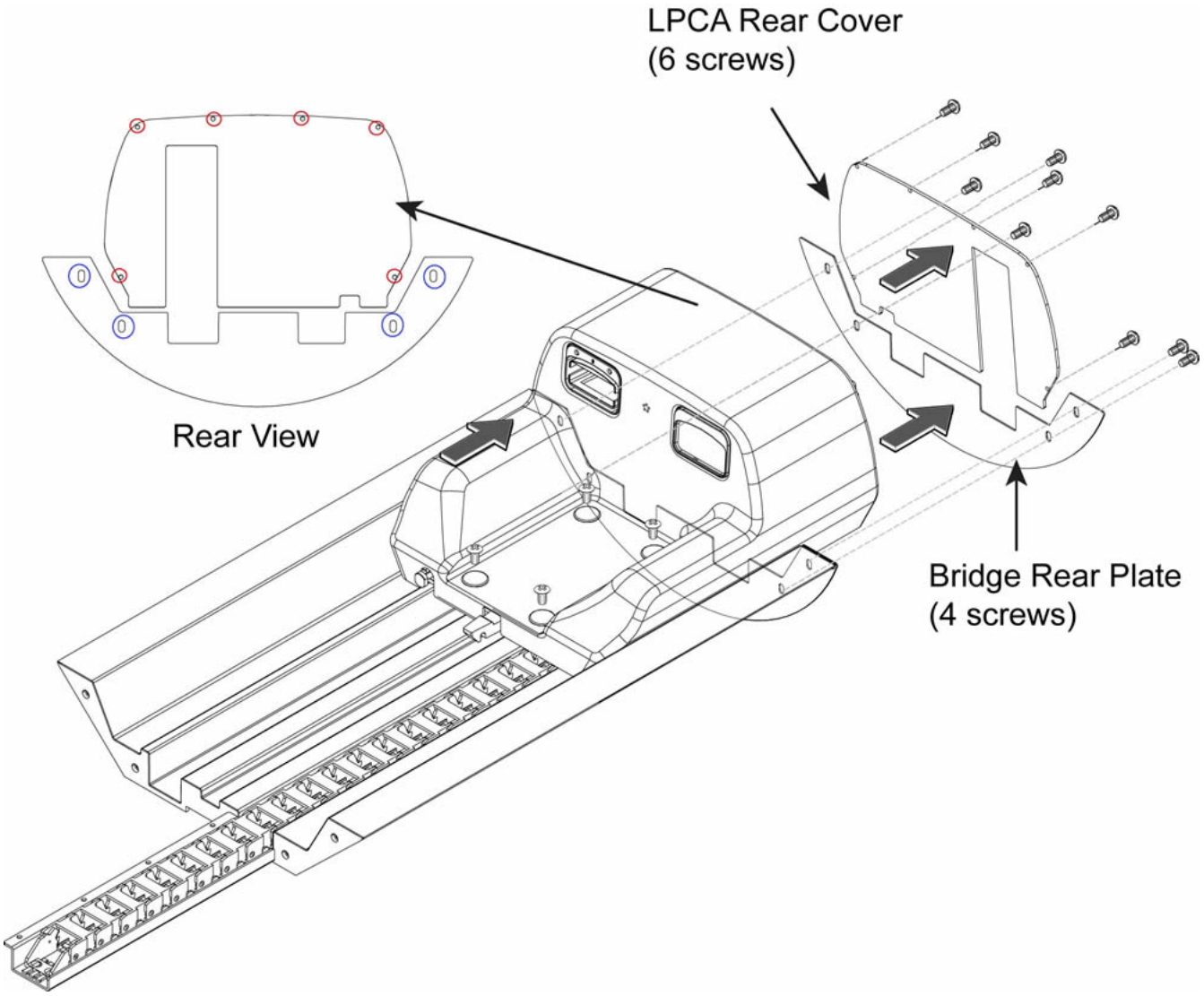
Illustration 3-73: Leveling Of Bridge



8.2.5 Installation Of Drive Belt

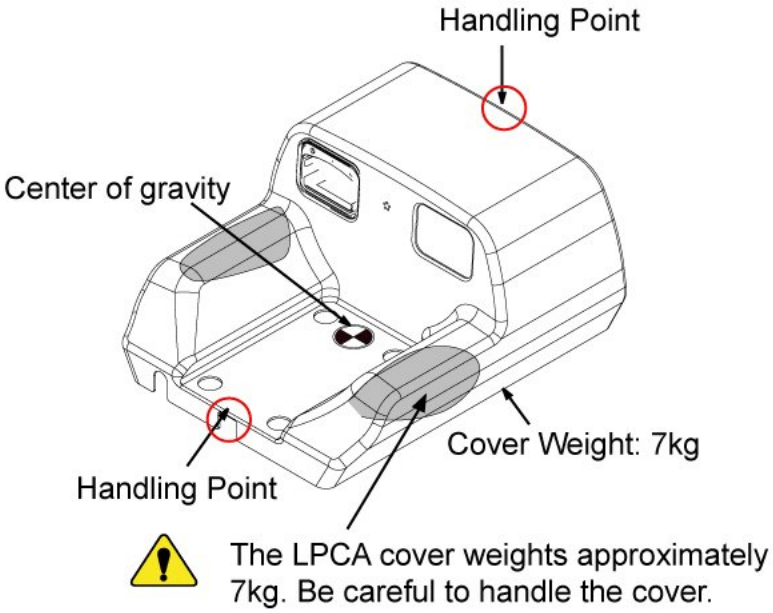
1. Remove LPCA Rear Cover and Bridge Rear Plate.

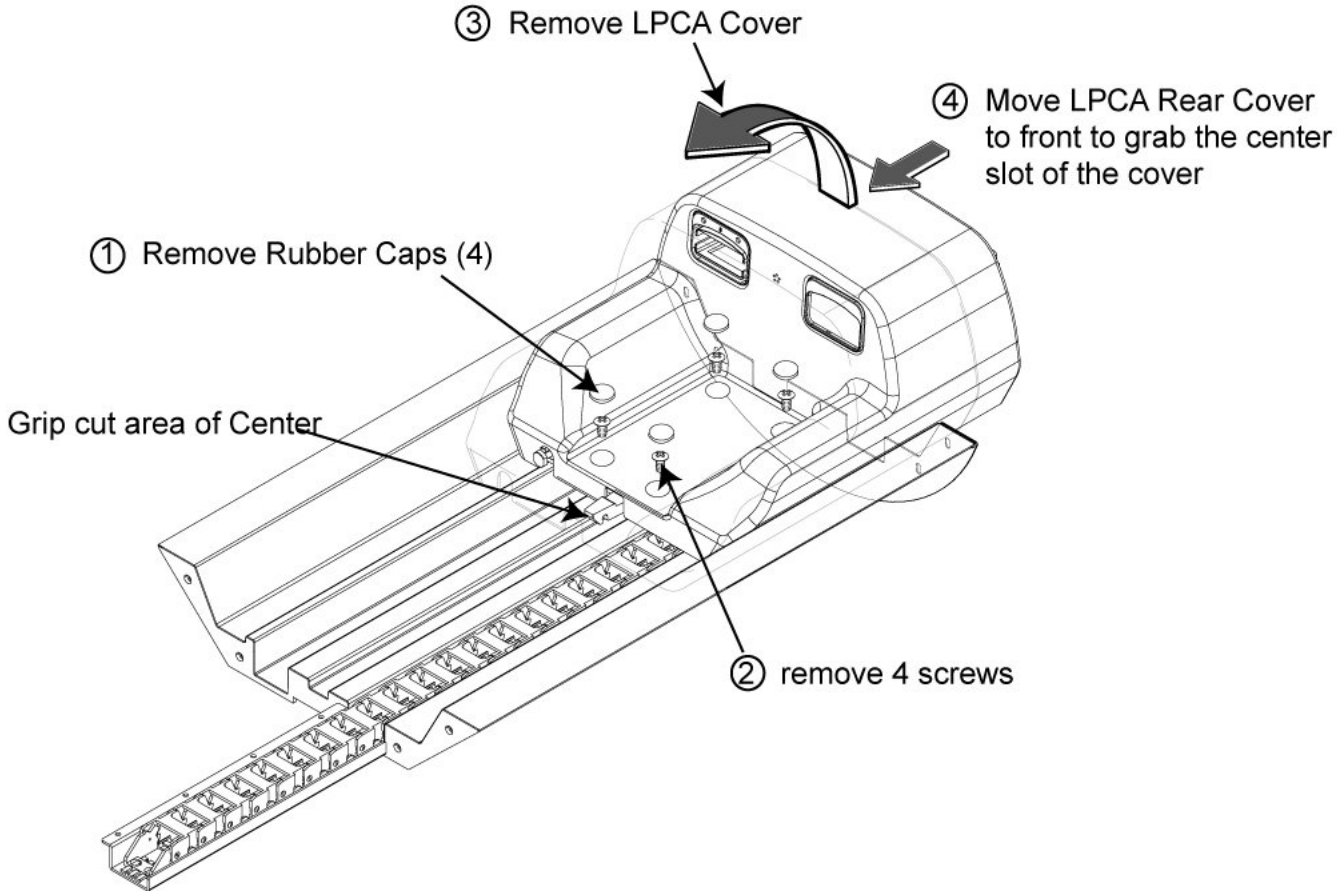
Illustration 3-74: LPCA Rear Cover and Bridge Rear Plate



2. Remove 4 rubber caps.
3. Remove 4 screws from LPCA rear cover.
4. Move LPCA cover to the front to grab the center slot of the cover.
5. Remove LPCA Cover as illustration.

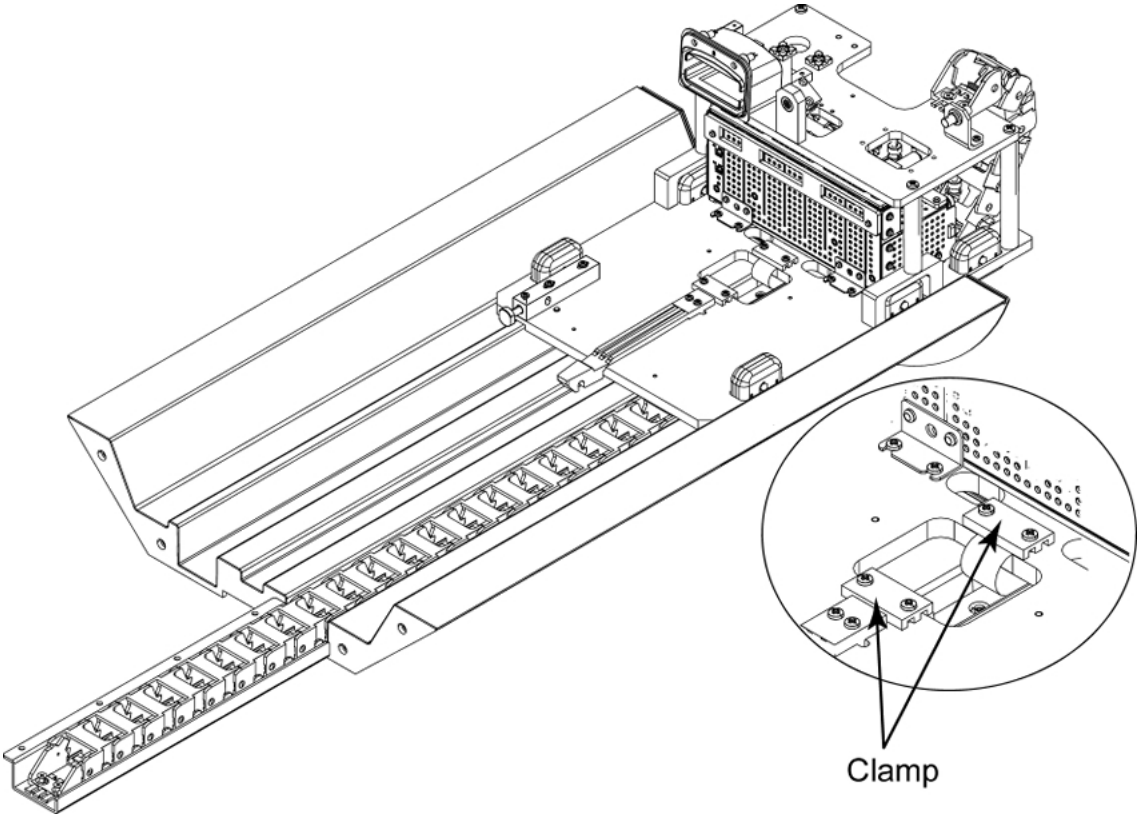
Illustration 3-75: Remove LPCA Top Cover





6. Route and Attach Drive Belt

Illustration 3-76: Route and Attach Drive Belt



NOTE: Check to verify that belt is not caught around spacers near rear pulley.

7. Check Belt tension by closing Tension Arm. (See Note)

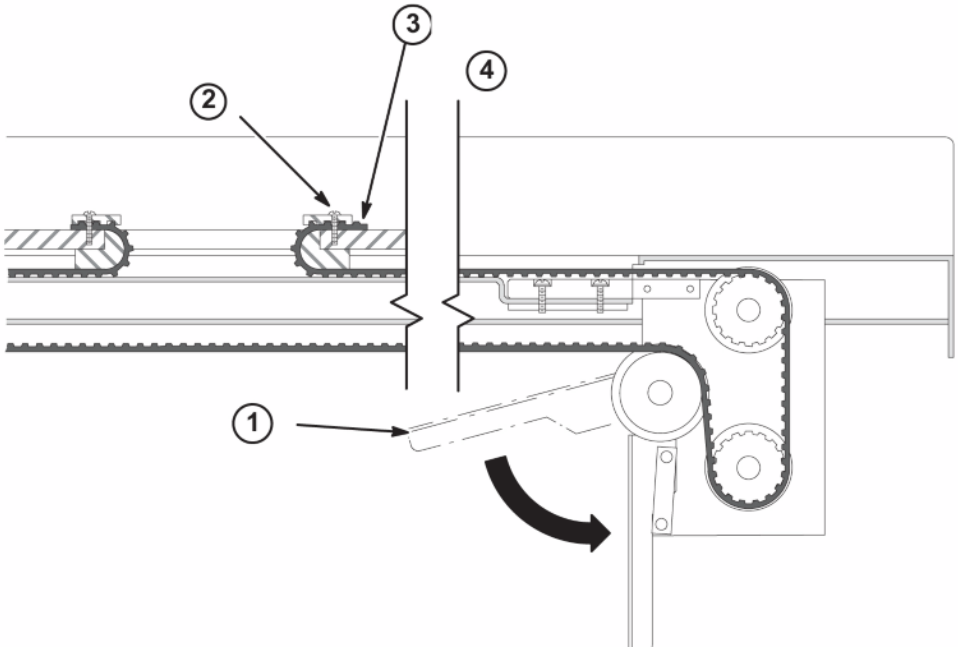
   NOTE: Tension Arm should lock crisply into position without excessive force (which could cause later problems). If adjustment is necessary go to step 8. If not, go to step 9.

8. (IF NECESSARY): Loosen Clamp and adjust position of Belt one tooth at a time until desired tension is obtained.

9. Tighten Clamps and trim excess Belt length.

10. Fasten Carriage Cover to Carriage with four screws.

Illustration 3-77: Final Adjustment of Drive Belt

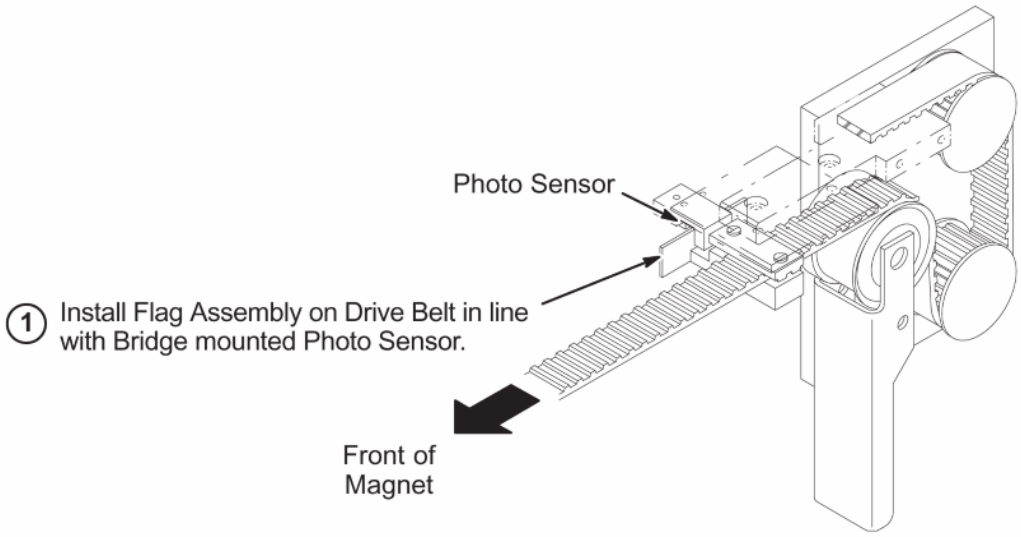


11. Installation of Sensor Flag

NOTE: Function of the Flag is to interrupt the reflected limit switch sensor beam when the Carriage is in home position all the way forward in the bore.

NOTE: The following Step is needed if flag was removed during routing of drive belt.

Illustration 3-78: Installation of Sensor Flag



12. Restore of LPCA Covers.

8.3 Finalization

No finalization steps.

9 Cooling System Installation

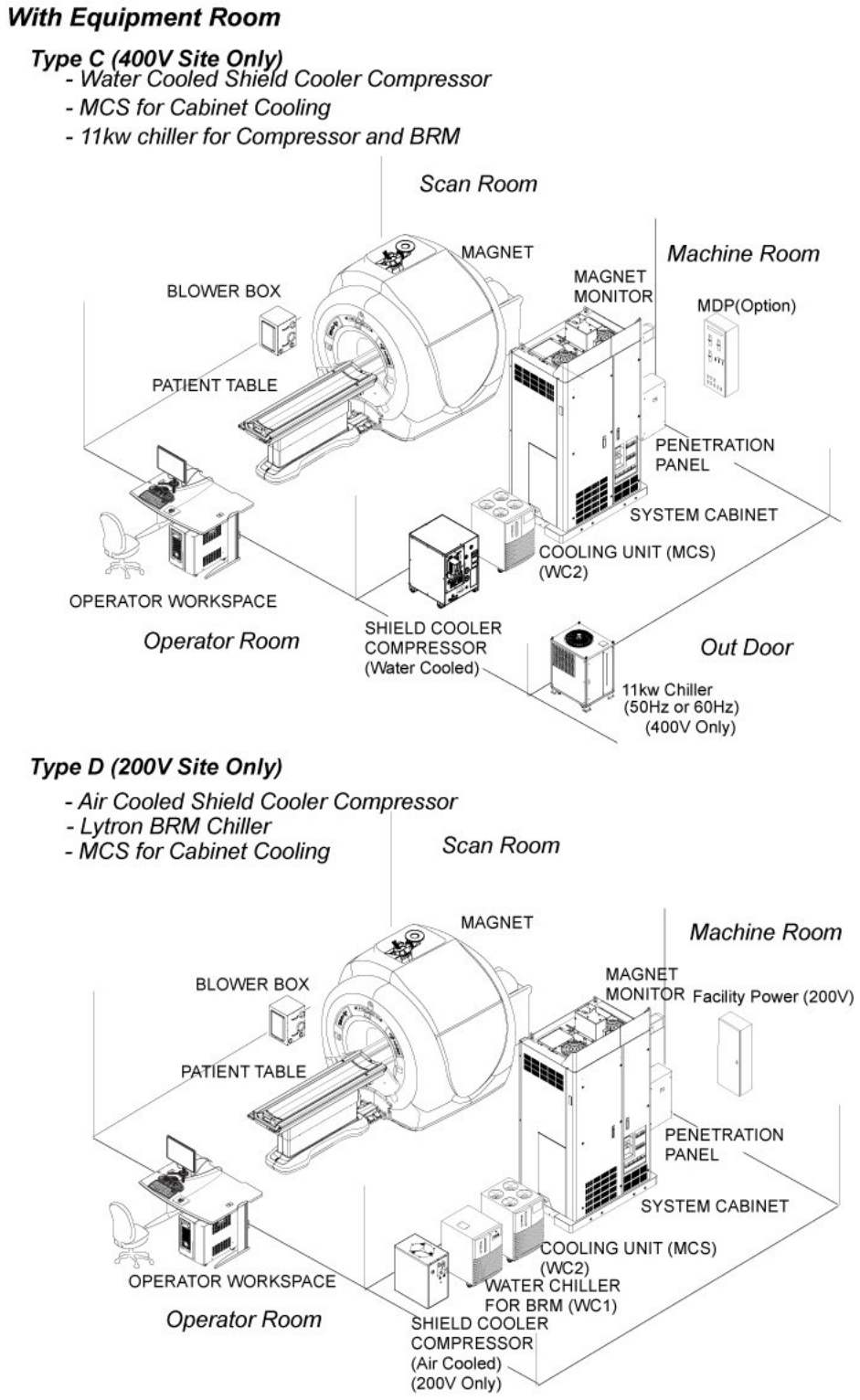
9.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	120 mins	Not Applicable

9.2 Overview

For Upgrade, there are following two cooling system configurations.

Illustration 3-79: System Configuration with Equipment Room



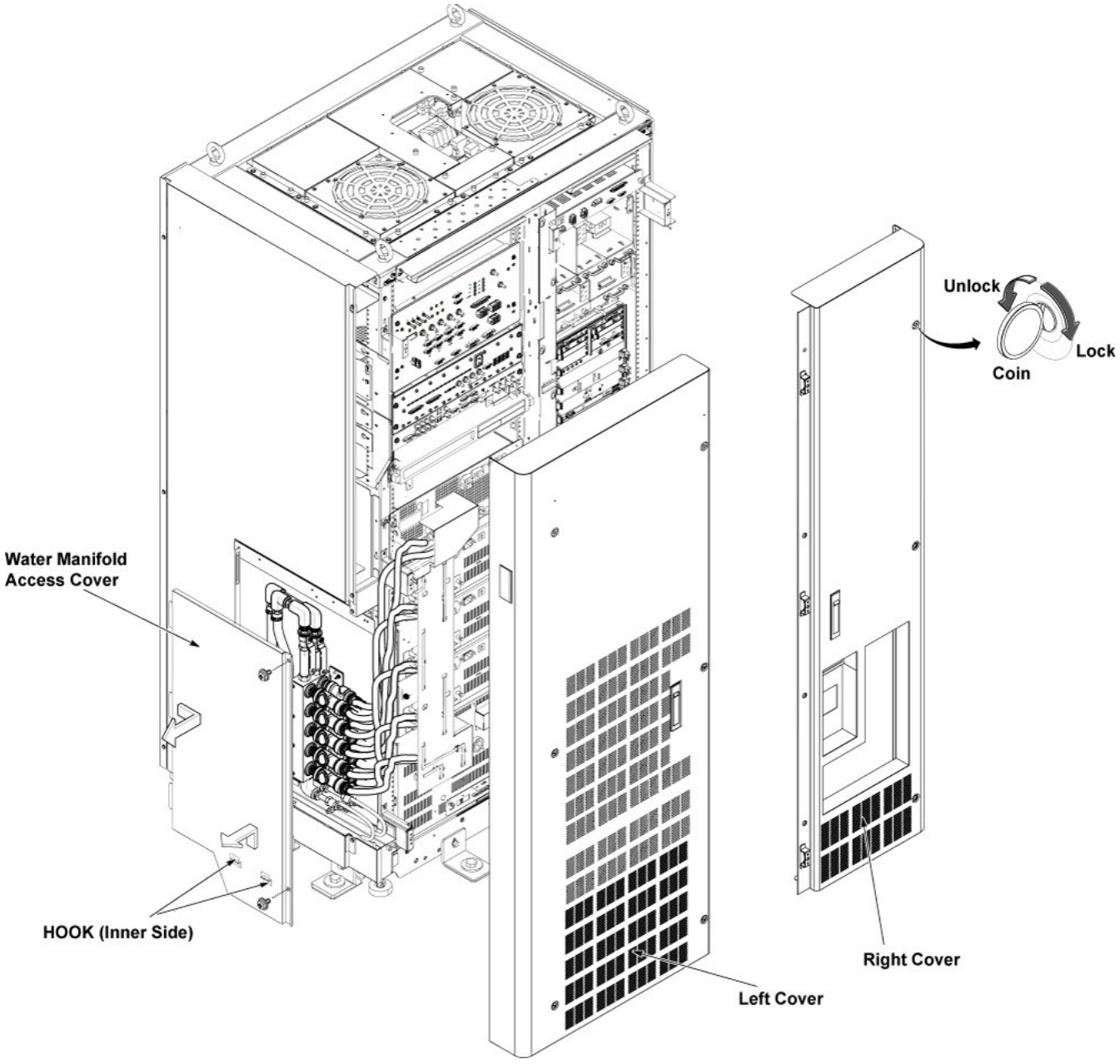
NOTE: Type C (400V Config) applies to the site with 380, 400, and 480 VAC power source.

9.3 Procedure

9.3.1 Hose Setting of System Cabinet

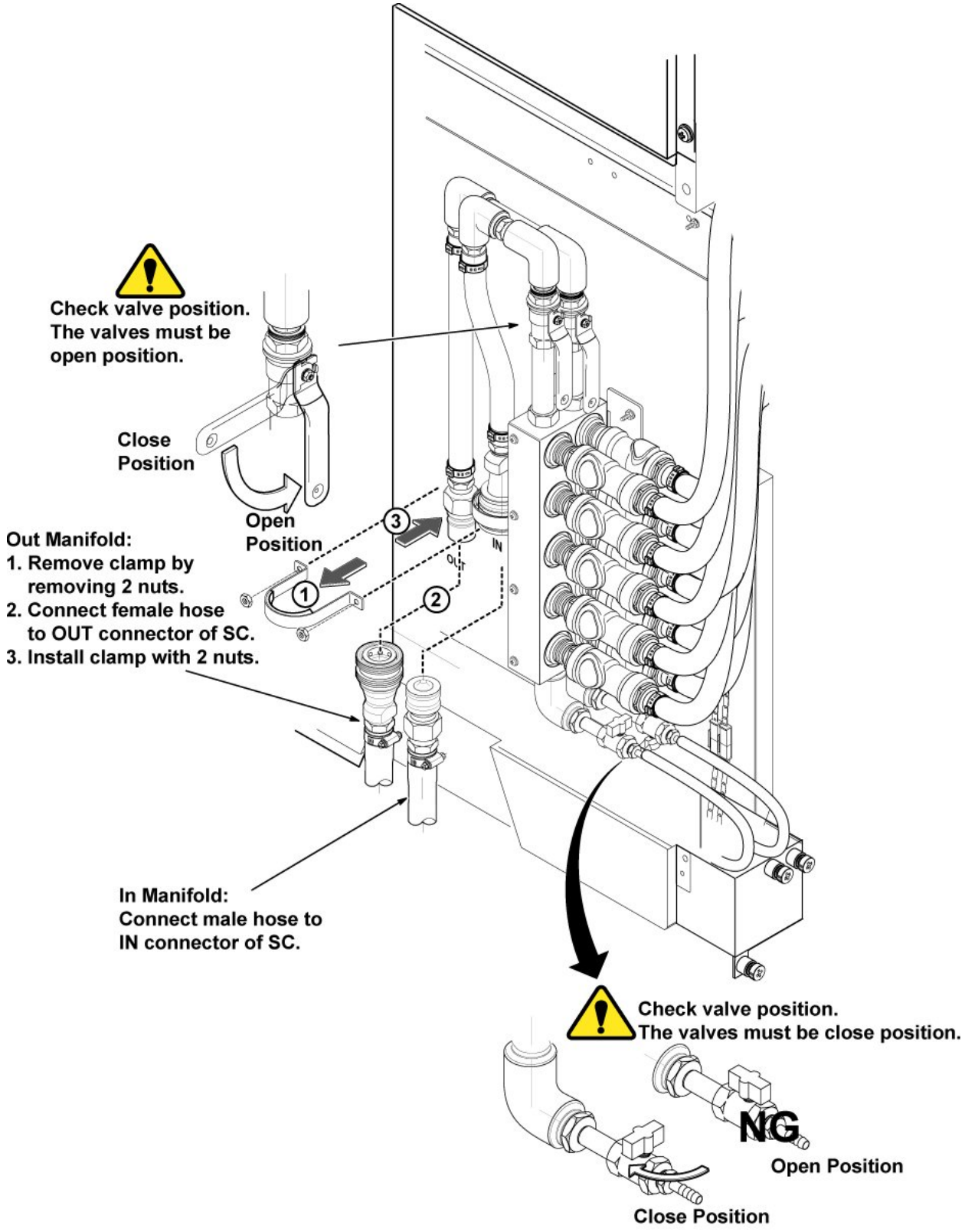
1. Remove Right and Left Front Covers from system cabinet.
2. Remove Water Manifold Access Cover by removing 2 screws.

Illustration 3-80: Front Bottom Cover Removal



3. Connect Hoses to SC Water Manifold

Illustration 3-81: Water Manifold



4. Push in manifold with water plumbing
5. Fix the main fold front screws
6. Restore all the water pipe.

9.3.2 About Hose Routing

1. According to the site condition, decide the hose routing. SeeIllustration 3-82 and Illustration 3-83.

Illustration 3-82: Rear Hose Routing

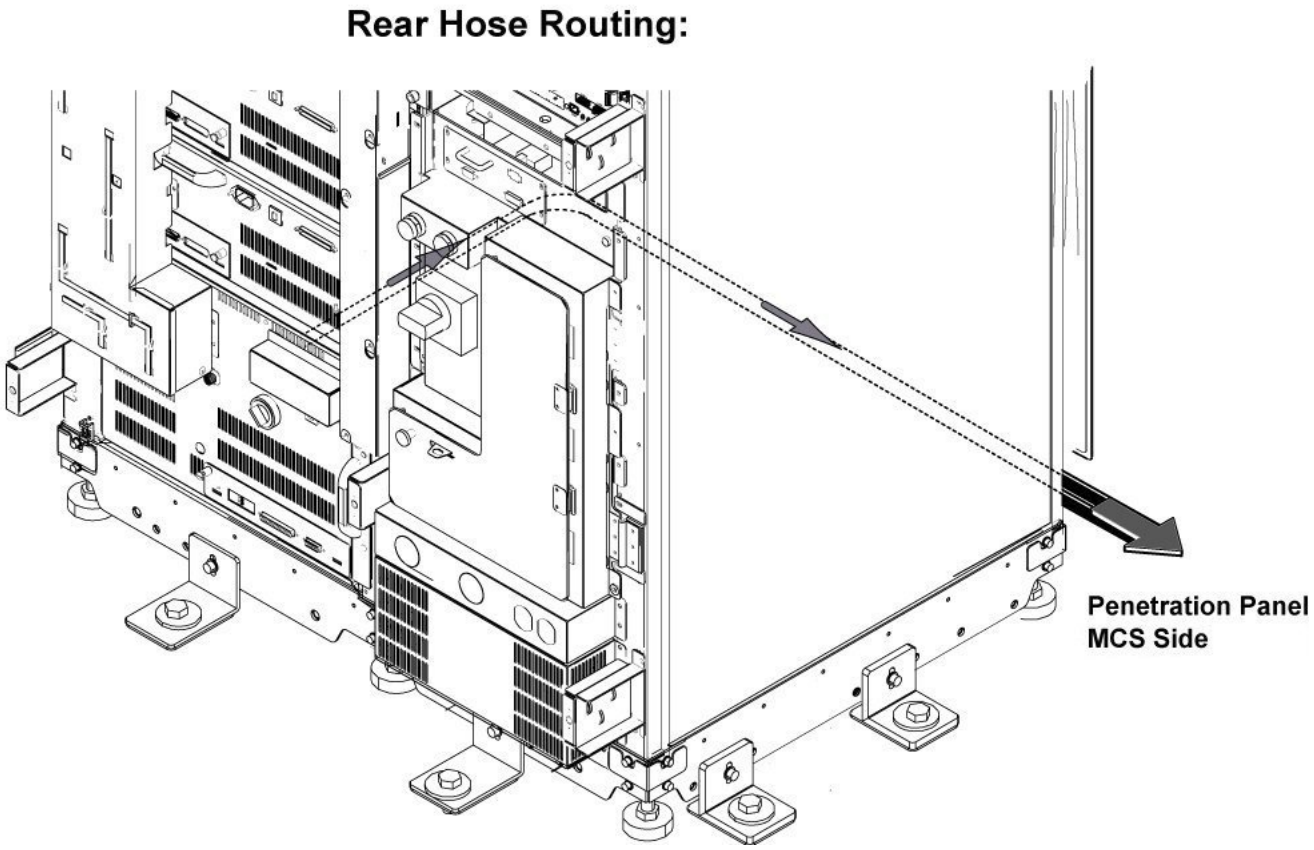
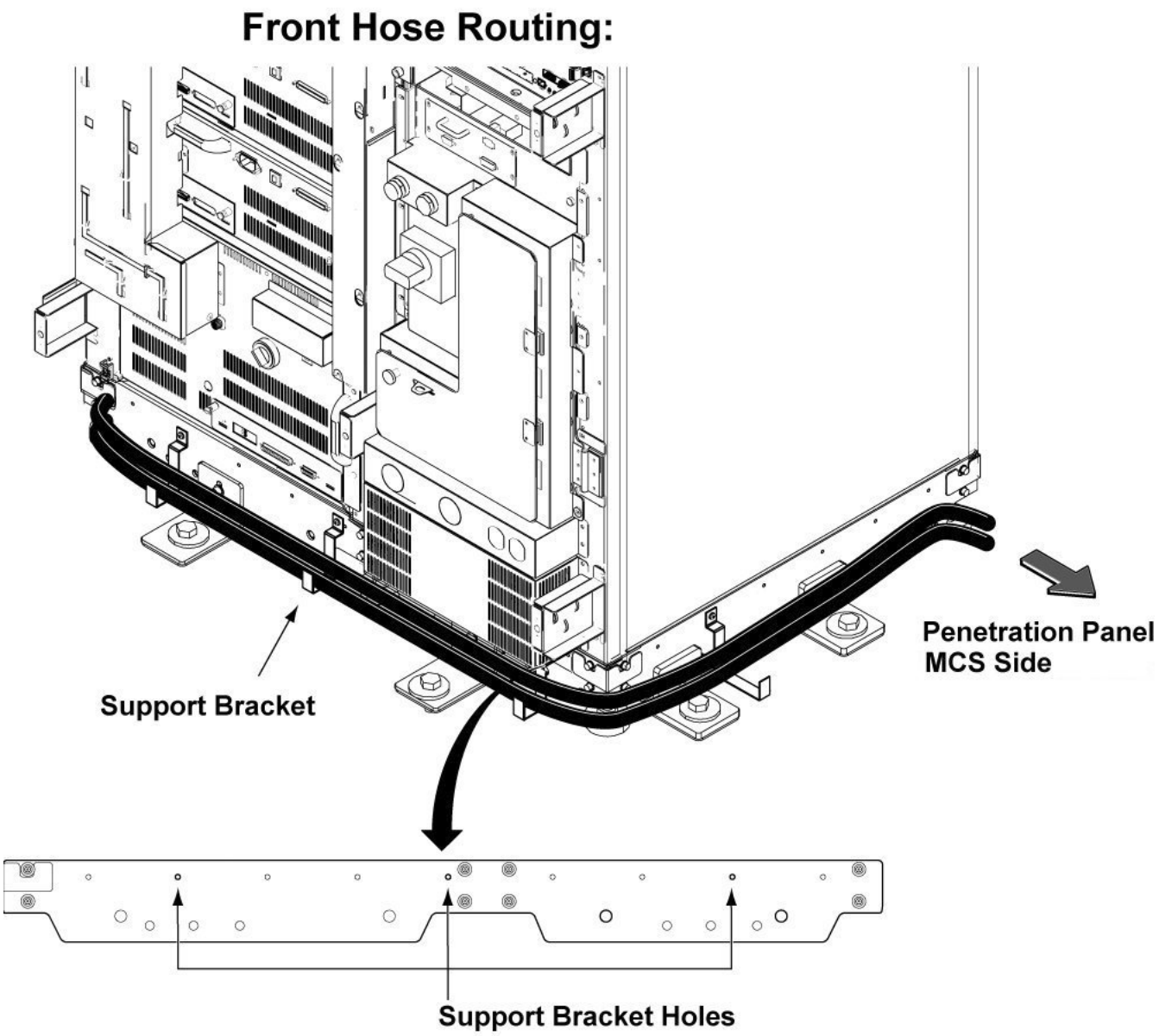


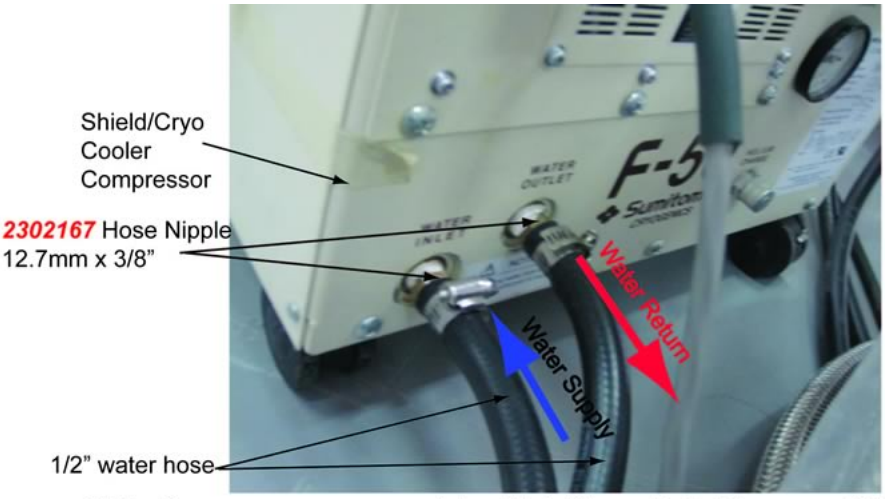
Illustration 3-83: Front Hose Routing



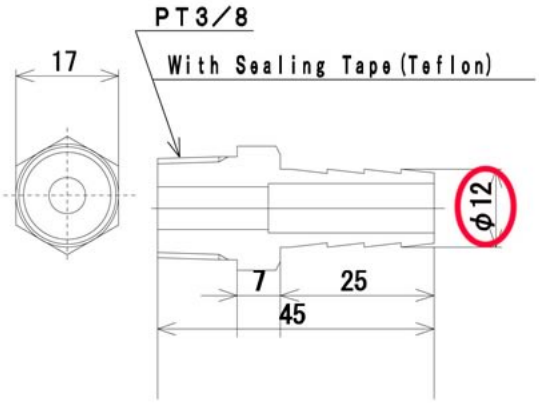
9.3.3 Hose Connection

Connect the hose according to the each configuration. Cryogen compressor supply two kind of hose nipple. There are two steps between the connection of 1/2" hose to cryogen compressor: 3/8" side of hose nipple to cryogen compressor; 12.7mm side of hose nipple to 1/2" water hose.

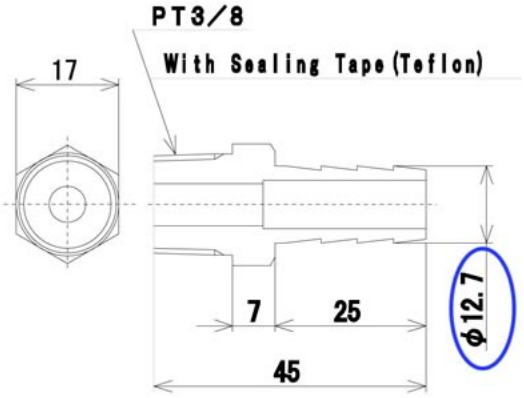
Illustration 3-84: Hose Nipple



Note: Cryogen compressor supply two kind of hose nipple. Please use 12.7mm x 3/8" hose nipple for 1/2" water hose connection to cryogen compressor.



2205309 HOSE NIPPLE OD:12.0 mm X 3/8”
Material: Brass

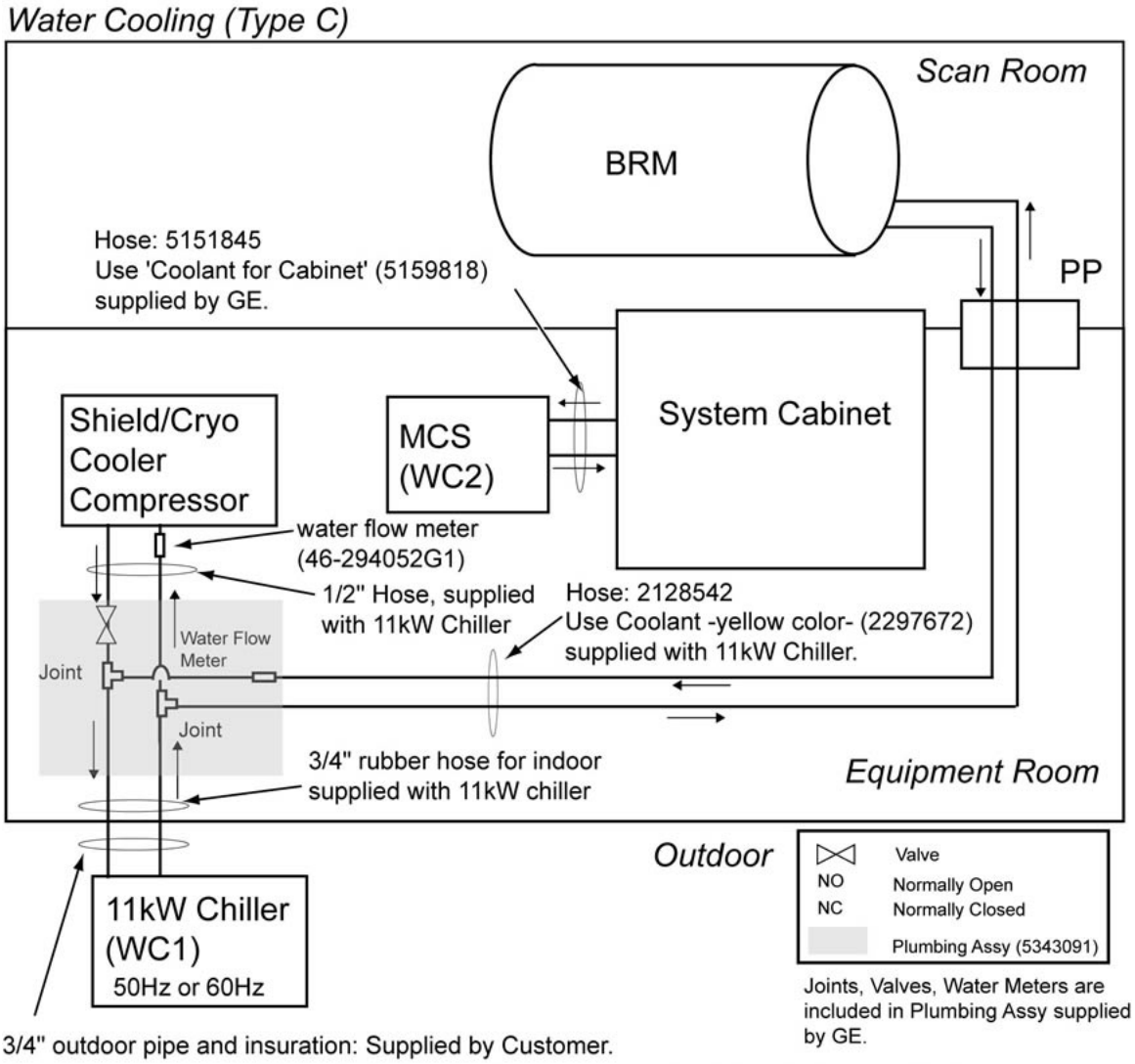


2302167 HOSE NIPPLE OD:12.7 mm X 3/8”
Material: Brass

9.3.3.1 Hose connection for Type C

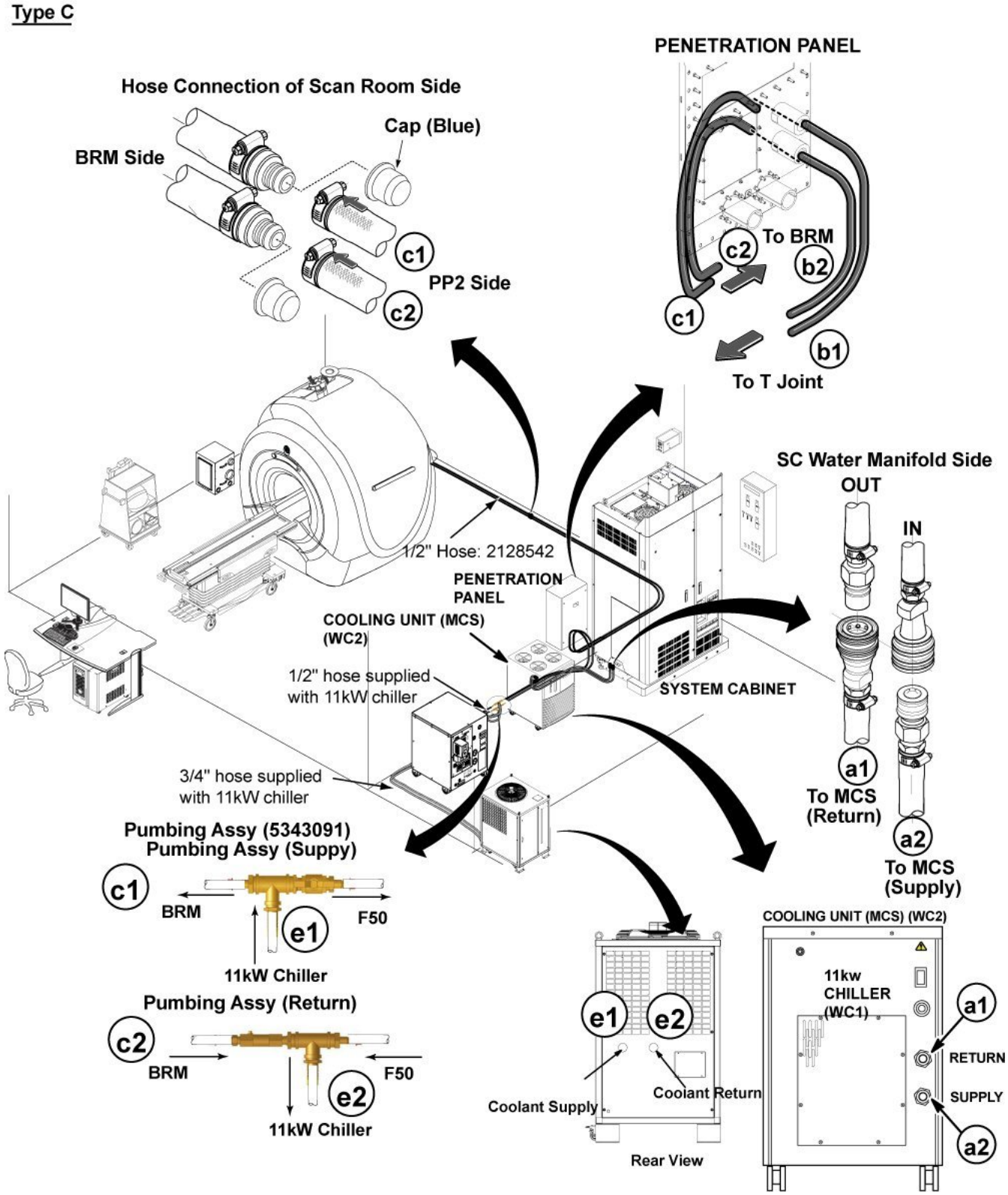
1. The following is the diagram of Water Chiller for Type C. Check that the required hoses and plumbing assy are prepared.

Illustration 3-85: Diagram (Type C)



2. Connect the hoses according to the following illustration.

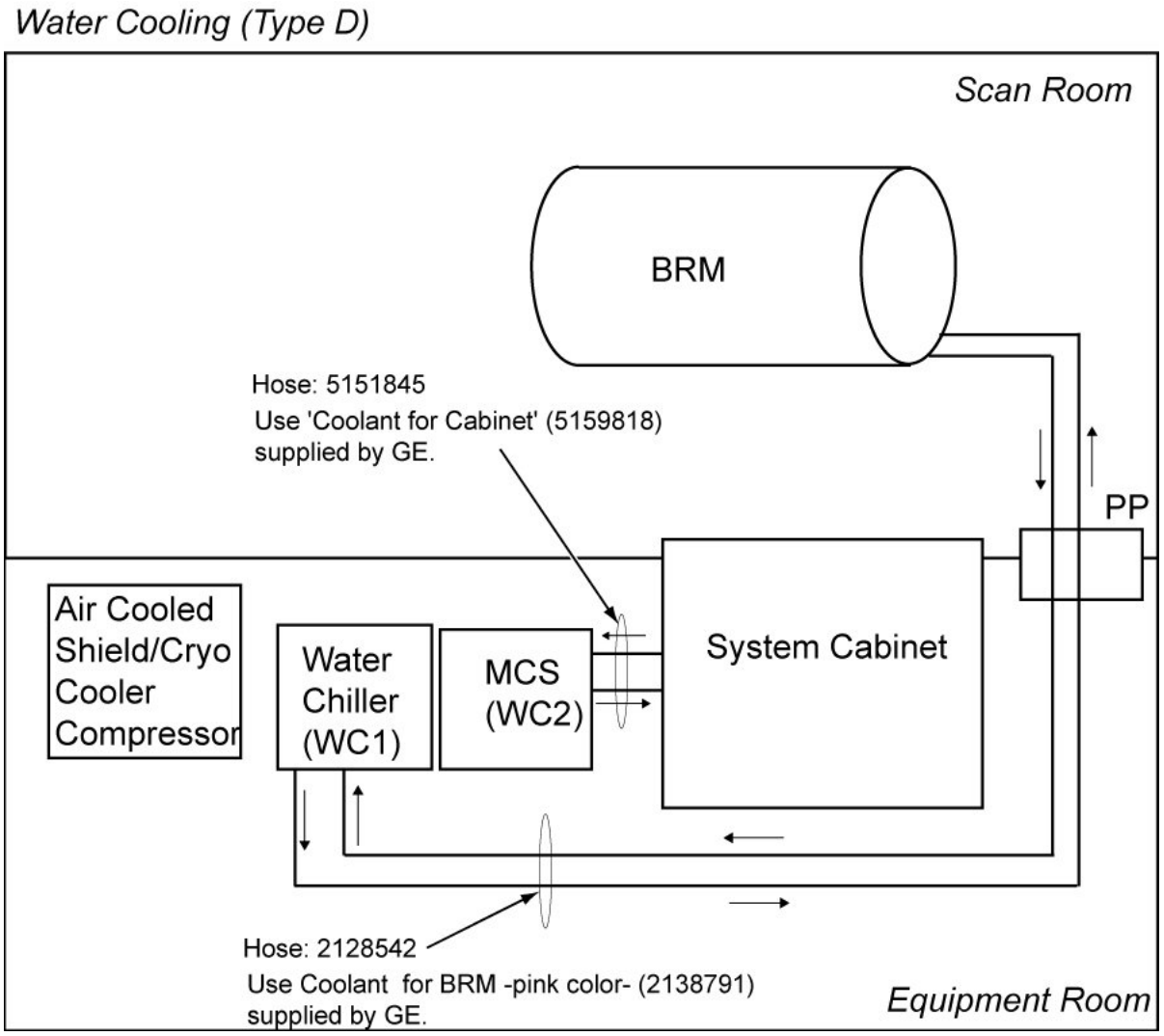
Illustration 3-86: Hose connection for type C



9.3.3.2 Hose connection for Type D

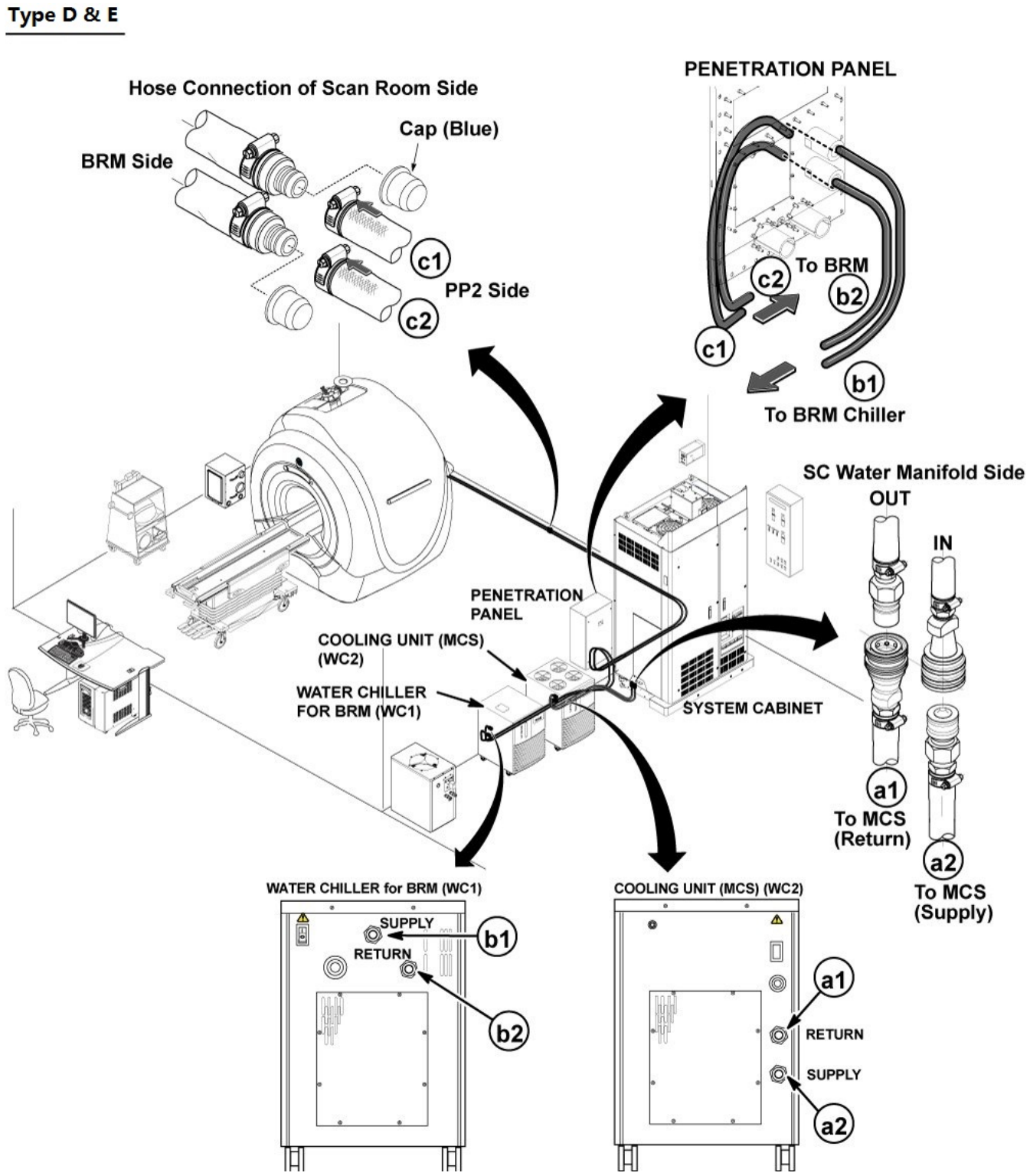
1. The following is the diagram of Water Chiller for Type D. Check that the required hoses and plumbing assy are prepared.

Illustration 3-87: Diagram (Type D)



2. Connect the hoses according to the following illustrations.

Illustration 3-88: Hose connection for type D



9.3.4 Power Cable Connection of MCS

1. Connect Power Cable.

a. Open MCS Top cover.

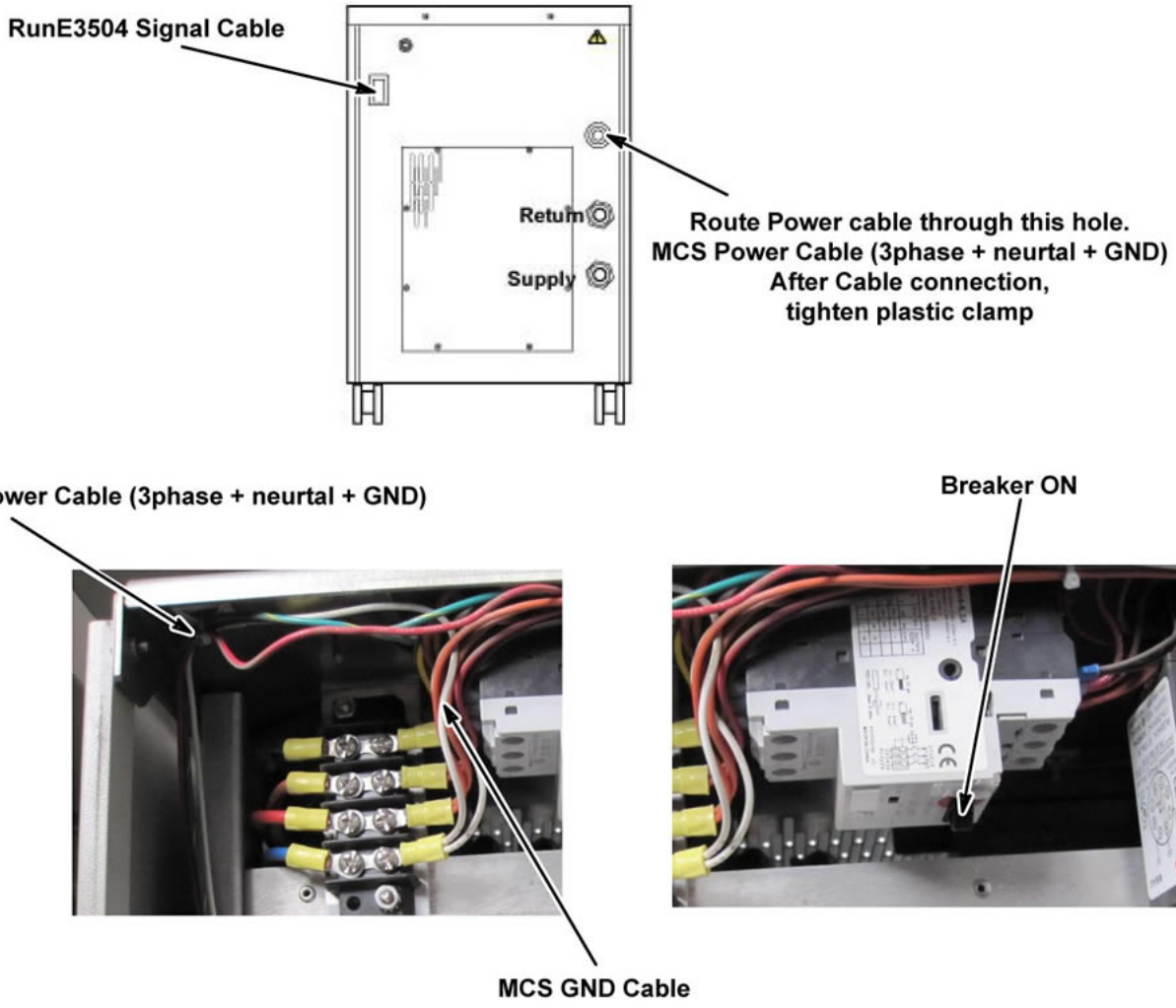
b. Route the cable through rear panel.

c. Connect 3 phase, neutral, and Ground cable (E0503)

d. After cable connection, tighten plastic clamp at the rear panel.

e. Connect Run E3504 signal cable.

Illustration 3-89: Cable Connection for MCS



9.3.5 Power Cable Connection for BRM chiller

1. Route the cable (E0507) between BRM chiller and facility power/MDP.
2. Connect the cable (E0507) with facility power or MDP.
3. Connect the cable (E0507) with BRM chiller.

9.4 Finalization

No finalization steps.

10 Cable Routing and Power/Ground Line Connection

10.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	60 mins	Not Applicable

10.2 Preliminary Requirements

10.2.1 Safety

DANGER

MAKE SURE ALL POWER TO CABINET IS OFF, LOCKED, & TAGGED BEFORE CONNECTING WIRES.

NOTICE

If 3 phase WYE with neutral and ground (5 wire system) input is used the neutral must be terminated inside the main disconnect control and not brought to the System cabinet.

10.3 Procedure

10.3.1 System Cabinet PDU Input voltage selection

1. Remove the System Cabinet PDU bottom cover.
2. Before connecting the input power cables, determine the nominal value of the input voltage. The PDU allows for nominal input voltage of 200, 208, 380, 400, 415, and 480 VAC (Three phase). For each three phases, be sure the wire is connected to the proper terminal for actual input voltage at the site and that the terminal screw is tight to make a good connection. For Removal and Installation of cable, refer to Illustration 3-91.

Illustration 3-90: Terminal

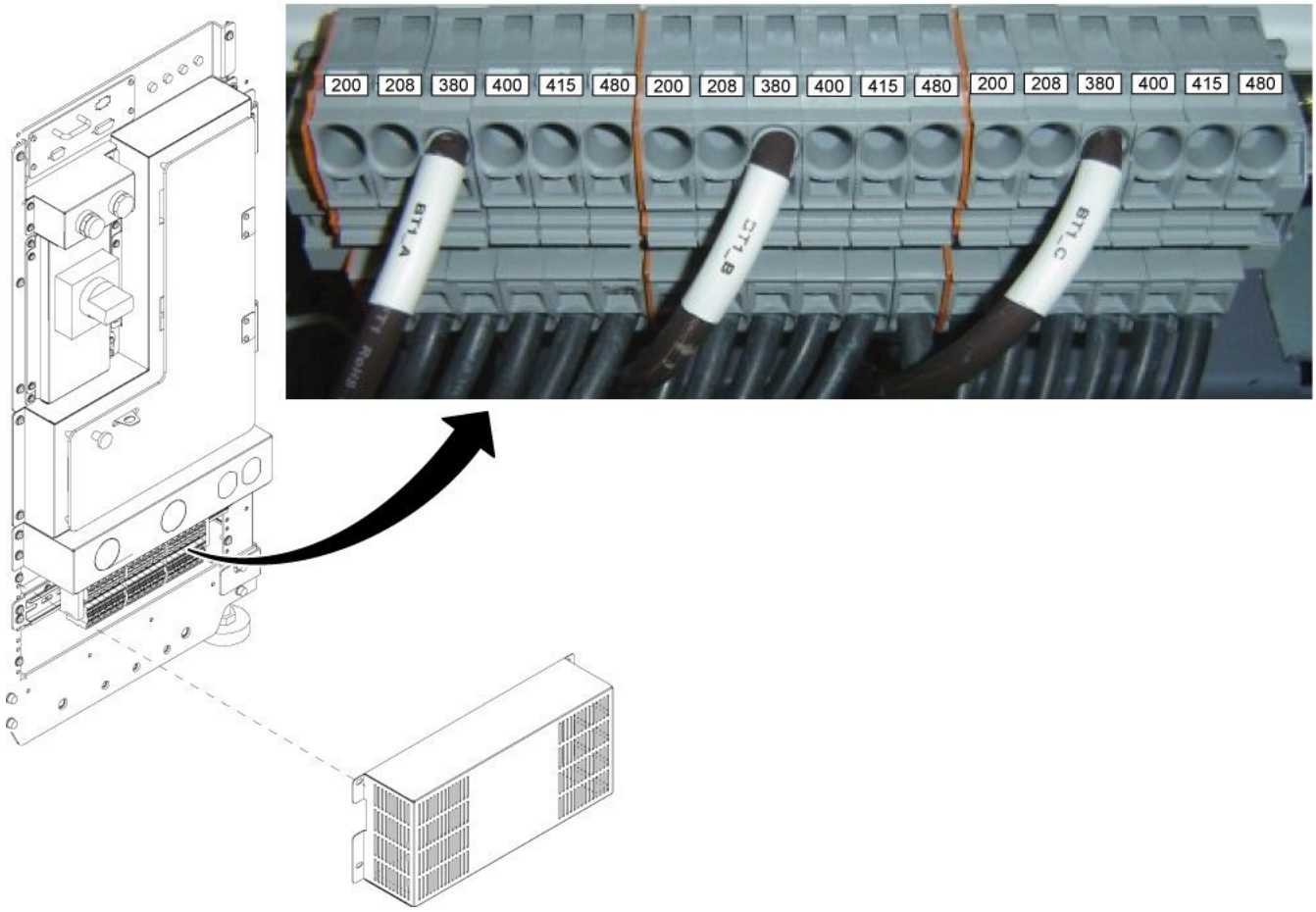
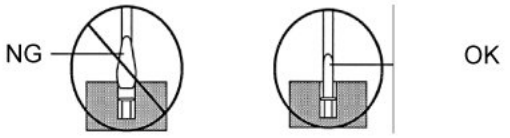


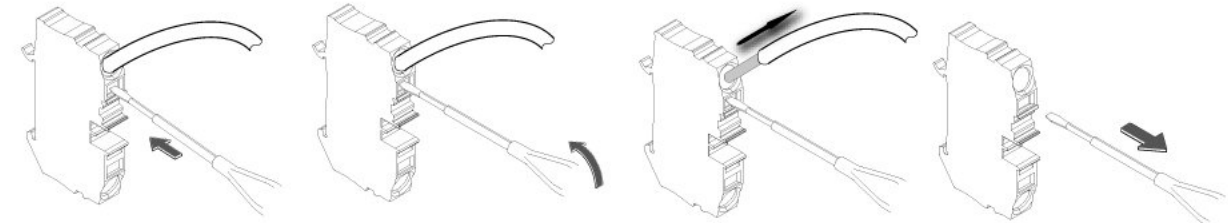
Illustration 3-91: How to remove/install terminal cable

Note

Use the flat head screw driver so that it's blade can be touched the hole edge to fix the cable securely.



Remove Cable



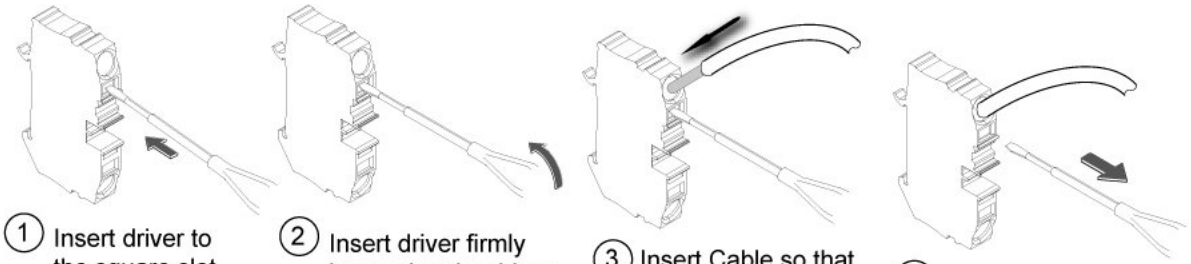
① Insert driver to the square slot.

② Insert driver firmly by moving the driver angle up to make it vertical to the termnial.

③ Remove the cable from terminal.

④ Remove driver.

Insert Cable



① Insert driver to the square slot.

② Insert driver firmly by moving the driver angle up to make it vertical to the termnial.

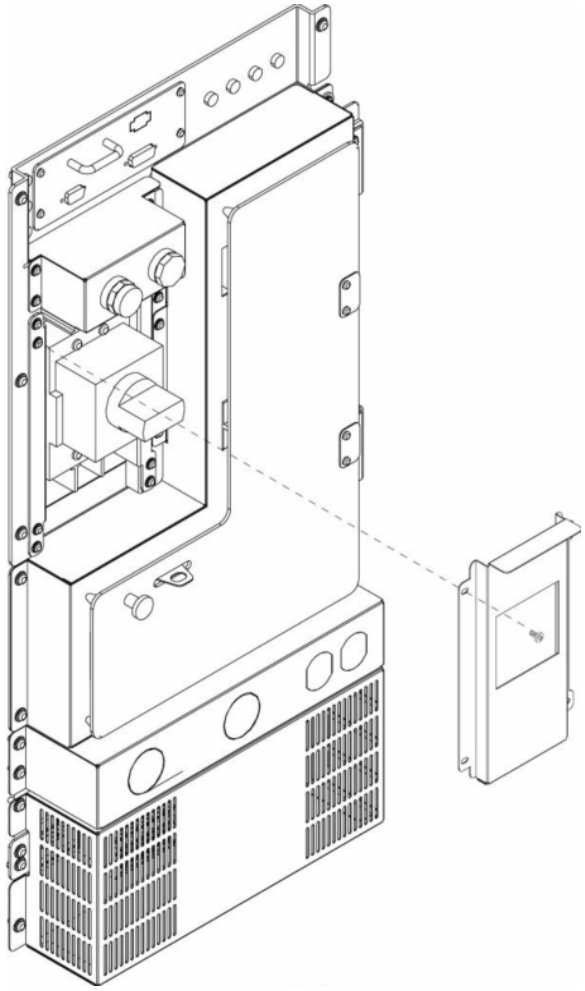
③ Insert Cable so that it reaches to the end of hole.

④ Remove the driver.

Pull the cable a little to confirm that cable is firmly installed.

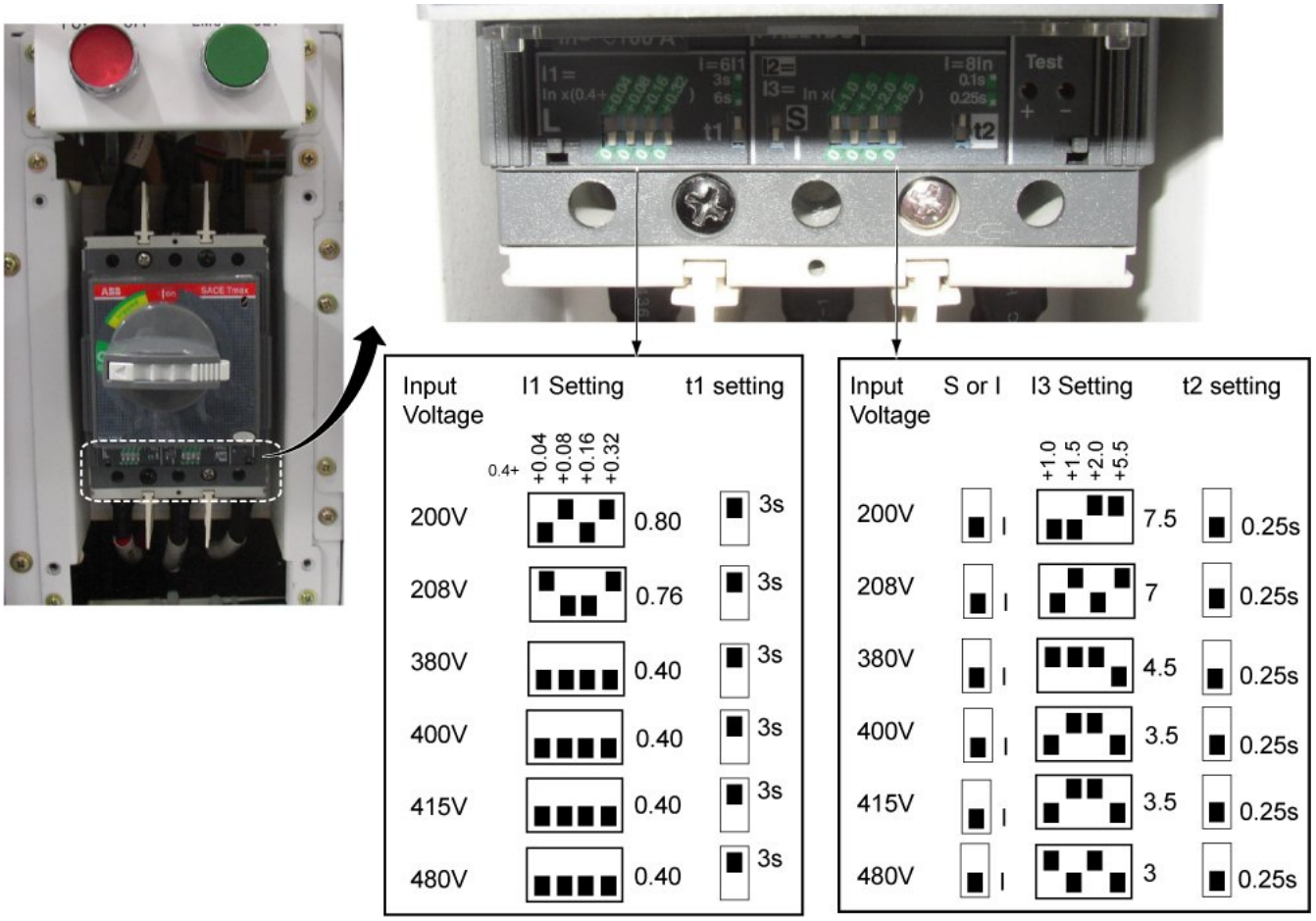
3. Restore the System Cabinet PDU bottom cover.
4. Remove the cover of the main breaker.

Illustration 3-92: Cover for Overload and short circuit trip dip SW



5. Set the Overload and short circuit trip dip SW to the correct value corresponding to the input voltage.

Illustration 3-93: DIP SW



6. Restore Cover.

10.3.2 Sorting And Routing Cables

⚠CAUTION

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.

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

1. 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.

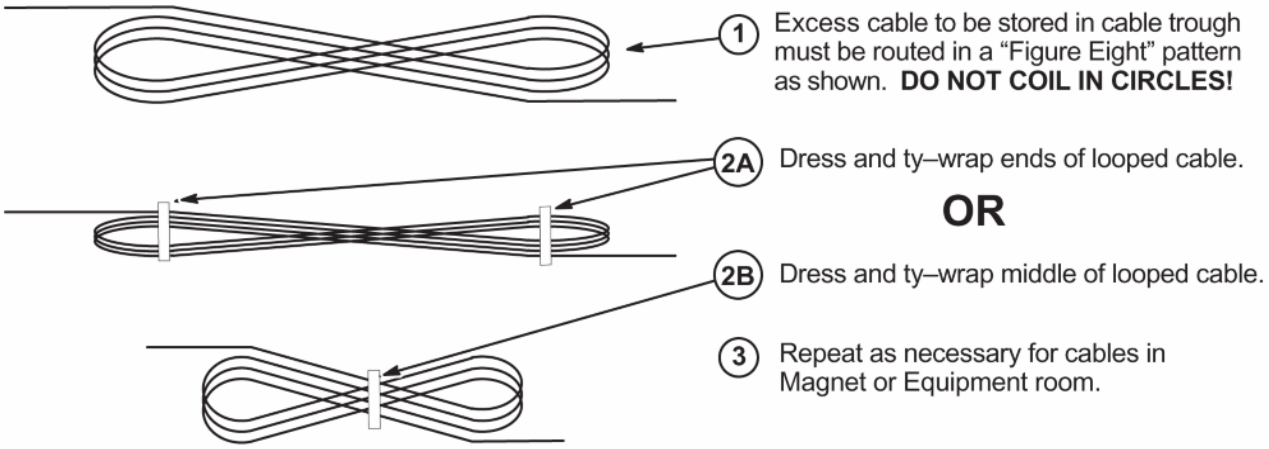
   NOTE: Carefully review architectural drawings to insure that all ducts are properly installed and that all signal and power cables are accounted for before starting to route cable runs.

2. 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.

3. Plan for storage location of coiled cable excess length if cables are to remain at delivered length. See Illustration 3-95. Some cables are usually cut to length such as gradient cables, power cables, Head and Body RF, and Fiber-optic cables.

4. 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.

Illustration 3-95: Proper Storage Of Excess Cables

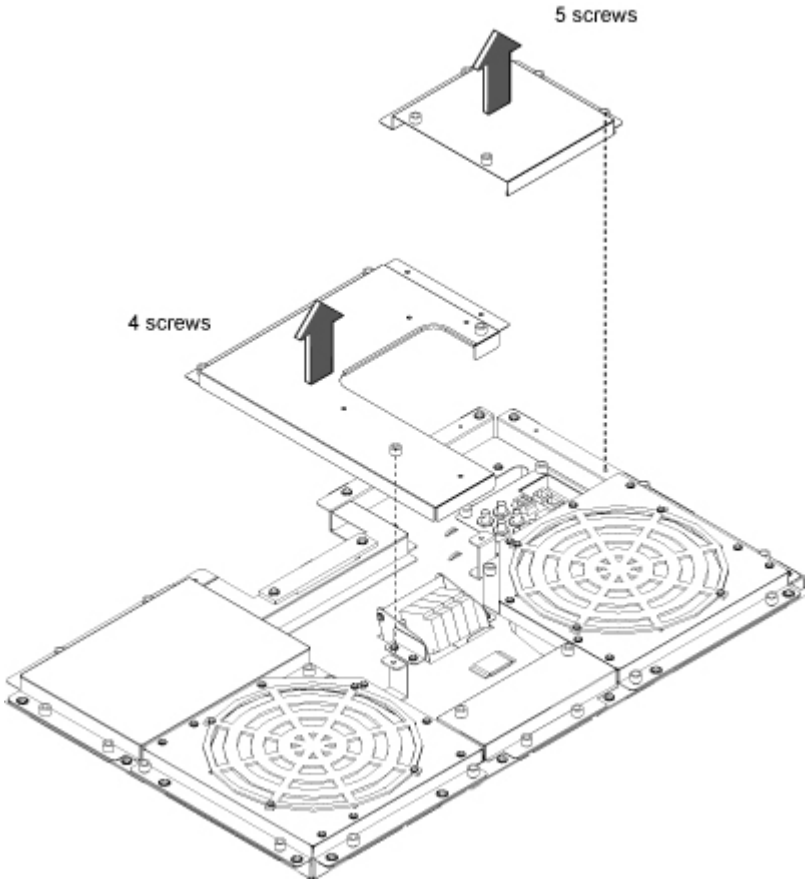


10.3.3 Power and Ground Cable Connection

10.3.3.1 System Cabinet Power Cable Connection

1. Remove System Cabinet Top covers. There is cable duct of two types. Refer to Illustration 3-96.

Illustration 3-96: Top Cover Removal for A type



NOTICE

Just connect Power and Ground Cable only. Ground resistance check will be performed.

NOTICE

Regarding the main Power cable, strip the cable covering material according to the Illustration 3-97

2. Route facility input power cable and ground wire to the SC Top Area.Route power cables and Ground Cable to the SC Top Area.

   - Terminal 1: Facility Power and Ground
   - Terminal 2: RUN E0501 for MCS or LCS.

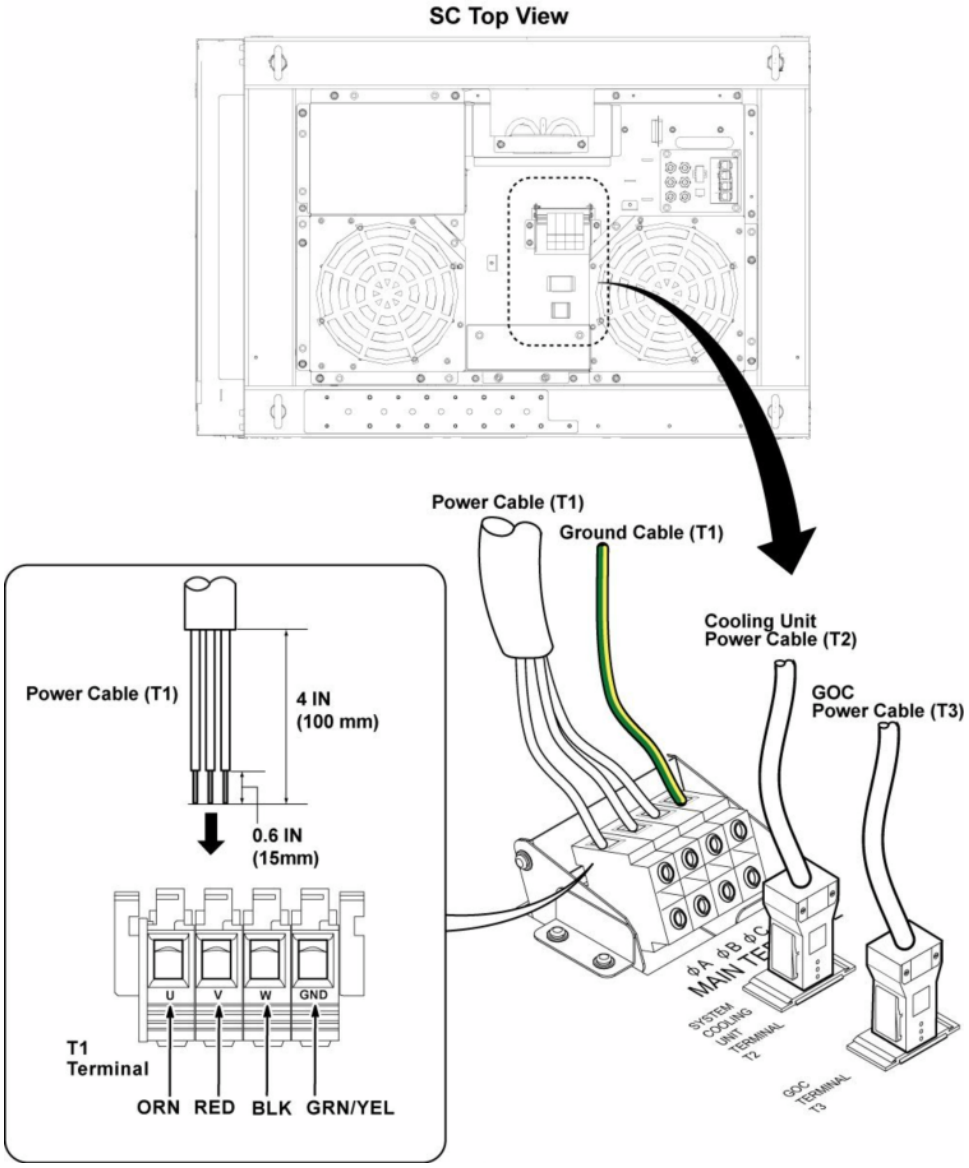
     For 11KW Chiller or Lytron BRM Chiller, terminal is not prepared on System Cabinet.

     Power is connected from MDP or Facility PDU.
   - Terminal 3: RUN E0500 for Simple OC.

3. Connect T1, T2, T3 and T4 cables according to the following Illustration.

NOTE: Top Covers will be restored after Signal cable wiring. Leave the top covers removed during ground resistance check.

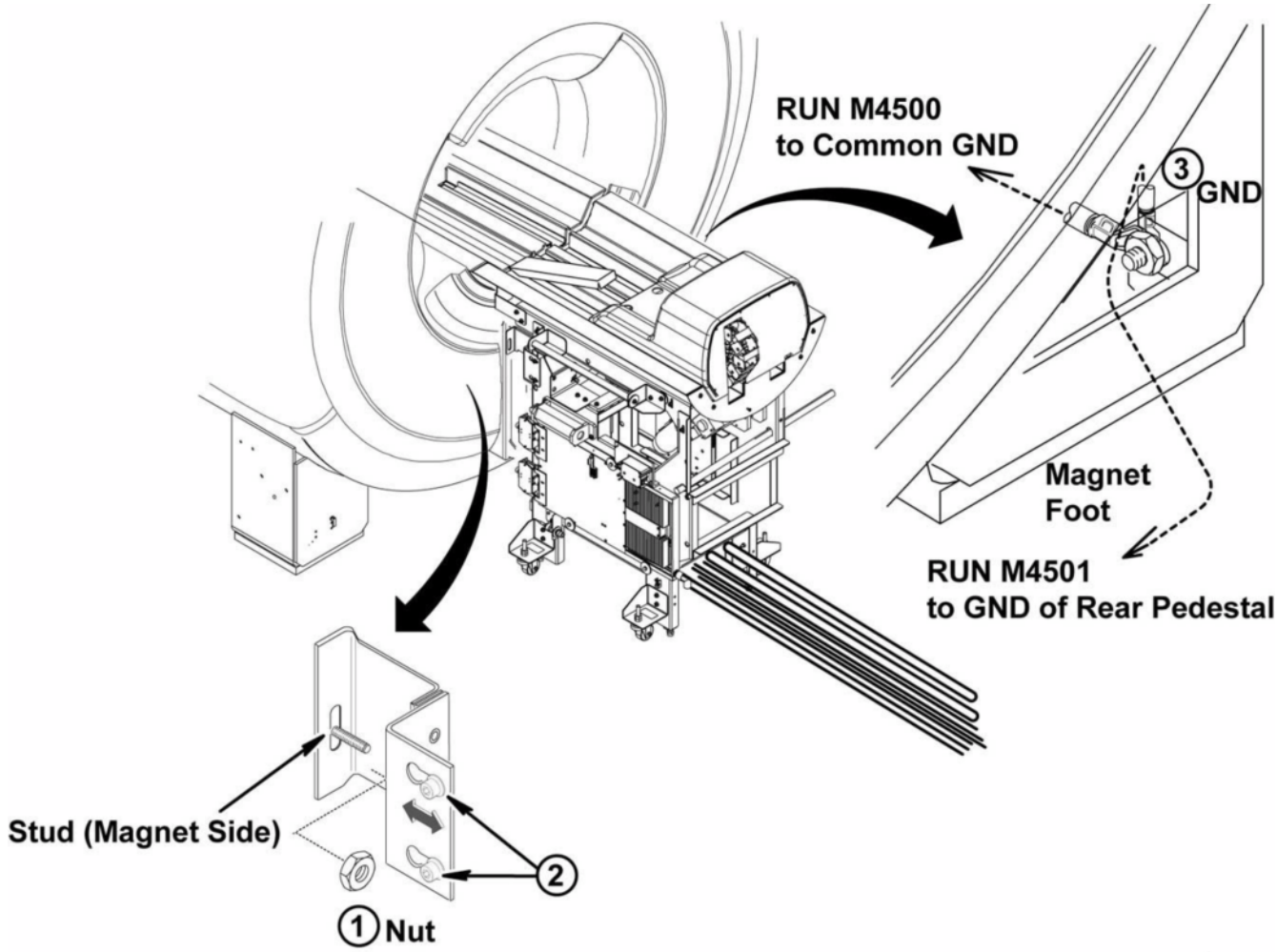
Illustration 3-97: Power Cable and Ground Cable Connection



10.3.3.2 Connection Of Magnet Ground, Run M4500, M4501 and M4503

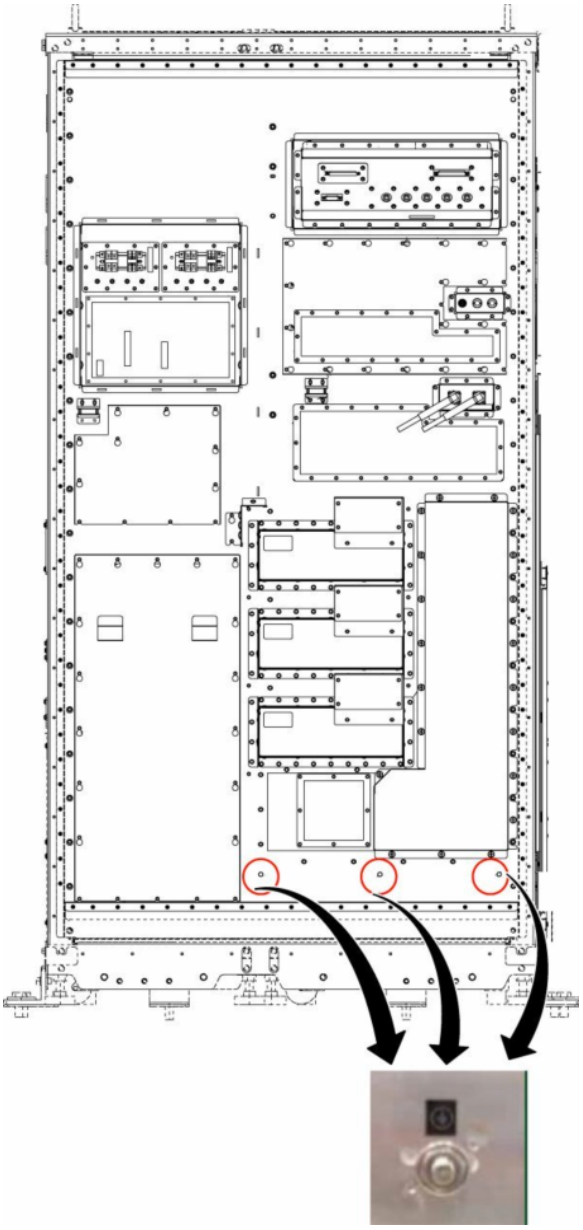
1. Check that the Magnet ground cables , Run M4500, M4501 and M4503, were connected to the opposite side rear left leg.

Illustration 3-98: Connect Front and Rear Split Bridge



2. The other end of Run 2050 is connected to the Ground stud of System Cabinet (Scan Room Side). Select one of three ground studs.

Illustration 3-99: Ground studs location



10.4 Finalization

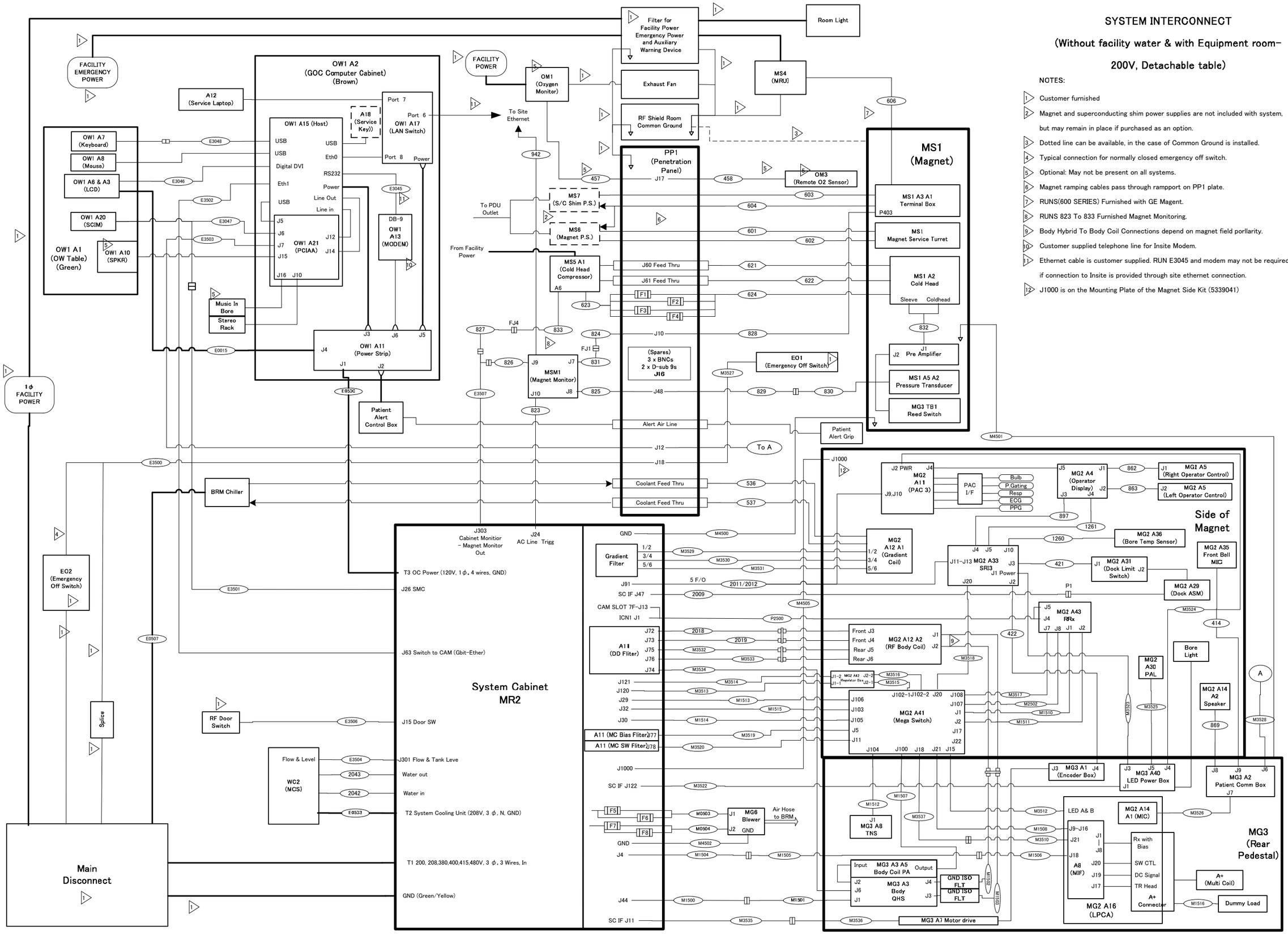
No finalization steps.

SYSTEM INTERCONNECT

(Without facility water & with Equipment room–200V, Detachable table)

NOTES:

1. Customer furnished
2. Magnet and superconducting shim power supplies are not included with system, but may remain in place if purchased as an option.
3. Dotted line can be available, in the case of Common Ground is installed.
4. Typical connection for normally closed emergency off switch.
5. Optional: May not be present on all systems.
6. Magnet ramping cables pass through rampport on PP1 plate.
7. RUNS(600 SERIES) Furnished with GE Magent.
8. RUNS 823 To 833 Furnished Magnet Monitoring.
9. Body Hybrid To Body Coil Connections depend on magnet field porllarity.
10. Customer supplied telephone line for Insite Modem.
11. Ethernet cable is customer supplied. RUN E3045 and modem may not be required if connection to Insite is provided through site ethernet connection.
12. J1000 is on the Mounting Plate of the Magnet Side Kit (5339041)

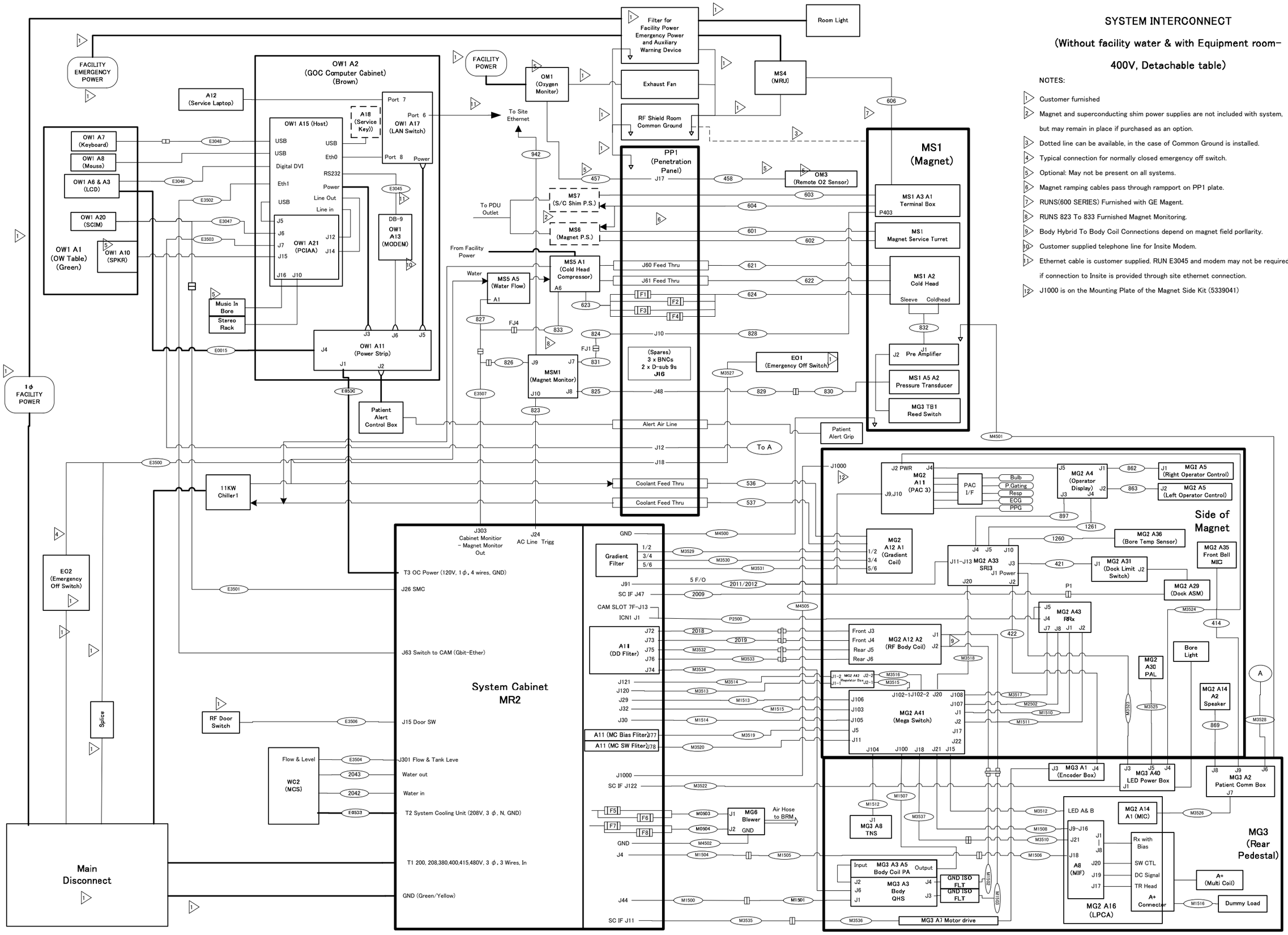


SYSTEM INTERCONNECT

(Without facility water & with Equipment room–400V, Detachable table)

NOTES:

1. Customer furnished
2. Magnet and superconducting shim power supplies are not included with system, but may remain in place if purchased as an option.
3. Dotted line can be available, in the case of Common Ground is installed.
4. Typical connection for normally closed emergency off switch.
5. Optional: May not be present on all systems.
6. Magnet ramping cables pass through rampport on PP1 plate.
7. RUNS(600 SERIES) Furnished with GE Magent.
8. RUNS 823 To 833 Furnished Magnet Monitoring.
9. Body Hybrid To Body Coil Connections depend on magnet field porllarity.
10. Customer supplied telephone line for Insite Modem.
11. Ethernet cable is customer supplied. RUN E3045 and modem may not be required if connection to Insite is provided through site ethernet connection.
12. J1000 is on the Mounting Plate of the Magnet Side Kit (5339041)



11 Cable Installation

11.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	Not Applicable	120 mins	Not Applicable

11.2 Preliminary Requirements

11.2.1 Safety

DANGER

MAKE SURE ALL POWER TO CABINET IS OFF, LOCKED, & TAGGED BEFORE CONNECTING WIRES.

11.3 Procedure

11.3.1 Cable Interconnect

The cable maps illustrate the Optima MR360 1.5T system interconnect for all supplied cables and interface with customer supplied wiring.

- Interconnects for additional cables supplied with other options are illustrated in the installation manual shipped with the option.
  - 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.
- Interconnect details for magnet subsystem are covered in the applicable magnet subsystem manual.

11.3.2 Cable Interconnect Maps

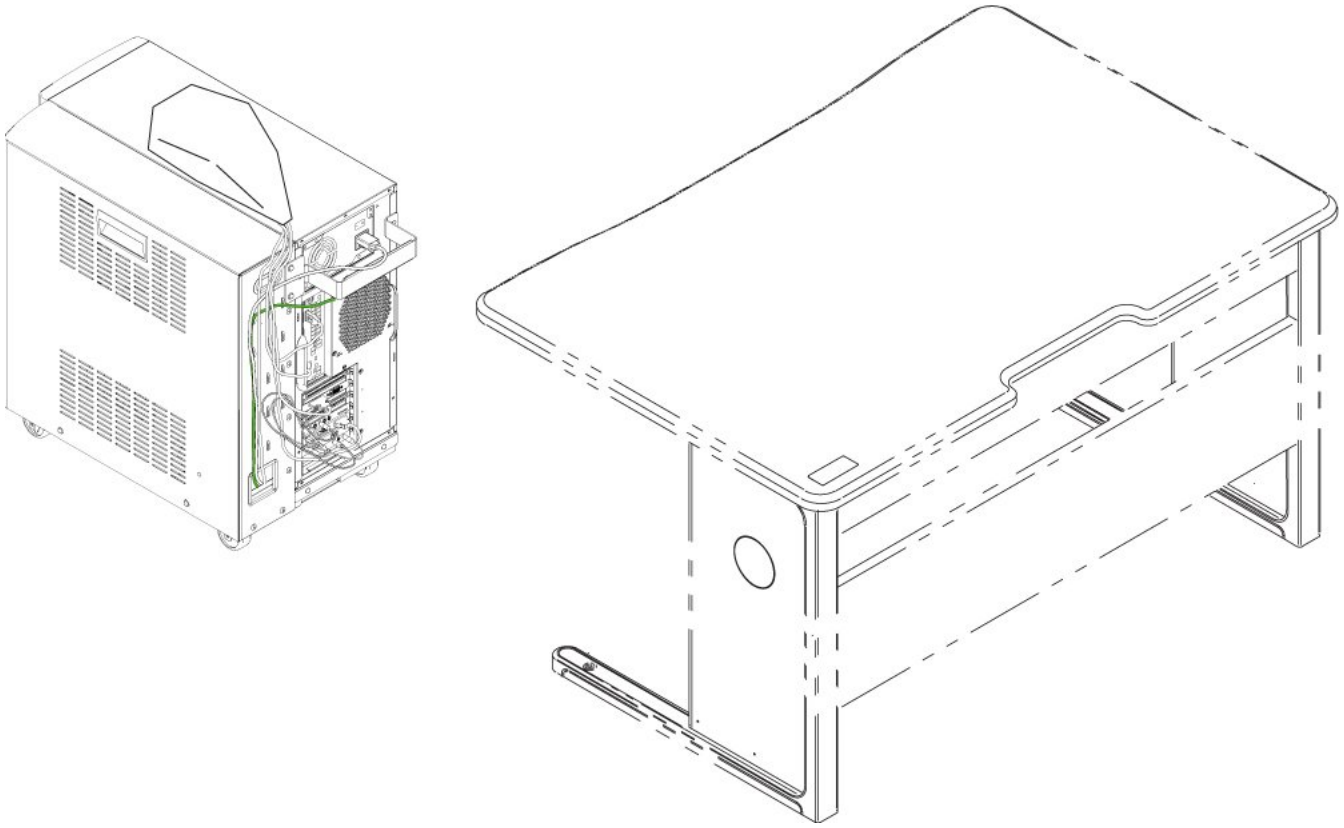
Signa Optima MR360/Brivo MR355 System Interconnect Cable Maps are provided in the previous two pages.

11.3.3 Simple OC Cable Installation

11.3.3.1 POSITION COMPUTER CABINET

Consult with Site customer for exact location of Simple Operator Console (Simple OC). The location could be underneath the left or right side of the Operator Workspace table, or on the outside left or right side of the table.

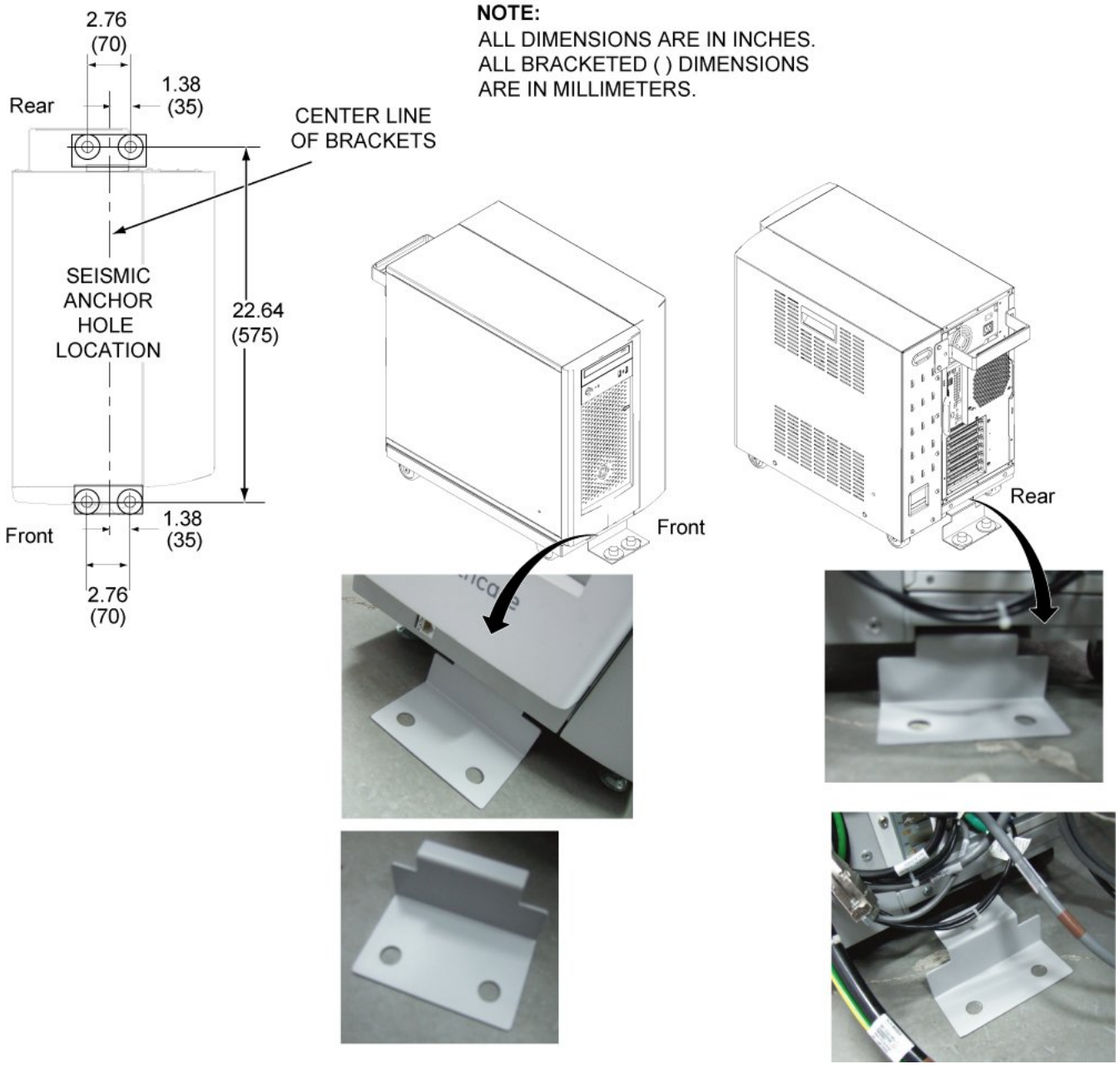
Illustration 3-100: POSITION COMPUTER CABINET



11.3.3.2 SEISMIC ANCHORING (IF REQUIRED)

Simple OC Seismic Mount kit is shipped with Simple OC. Find kit inside of plastic bag. If seismic anchoring is required, refer to site architectural drawings for fastener type details or applicable Pre–installation manual. Illustration below indicates hole location for installing brackets.

Illustration 3-101: SEISMIC ANCHORING (IF REQUIRED)



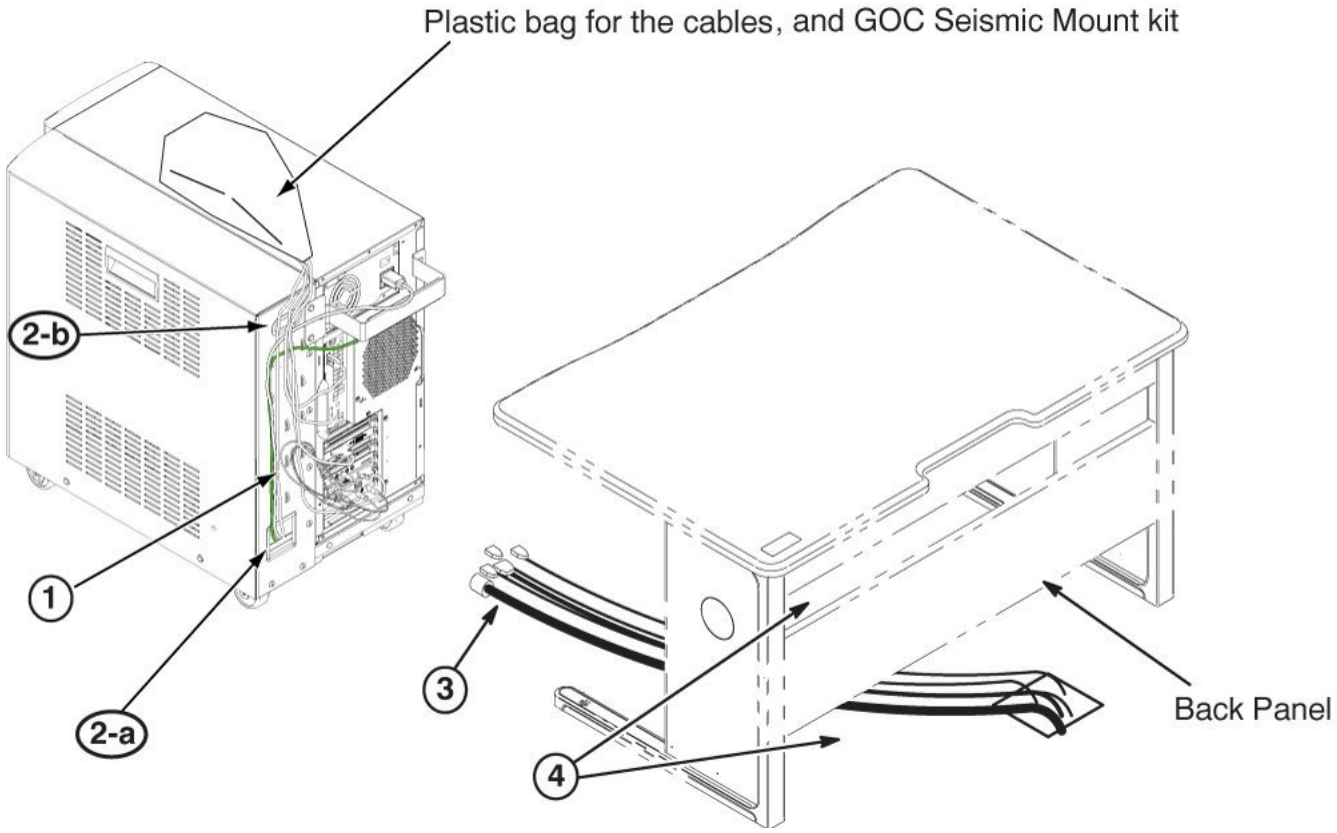
11.3.3.3 COMPUTER CABINET CABLE ROUTING AND CONNECTIONS

- One power cord
- One video output cable
- Keyboard output cable
- SCIM output cable

These cables are already connected to the computer and routed thru the opening located at the top of the rear of the Simple OC cabinet as shown in the illustration below. The remainder of the cables to be connected to designated modules within the Simple OC Cabinet will have to be routed thru the lower opening.

1. Runs E3046, E3047, E3048 and E0015 are pre–connected to computer and are routed at top of opening. (These cables are inside of plastic bag)
2. Runs E0500, power cord for the Patient Alert system will be routed thru lower opening.
3. Route all cables before connecting any cables. Refer to cable map for connection information.
4. If Simple OC Cabinet is to be located under OW Table, the cable coming out of the top opening of the cabinet will be routed above the Back Panel. The cables coming out of the lower opening will be routed below the Back Panel.

Illustration 3-102: COMPUTER CABINET CABLE ROUTING AND CONNECTIONS

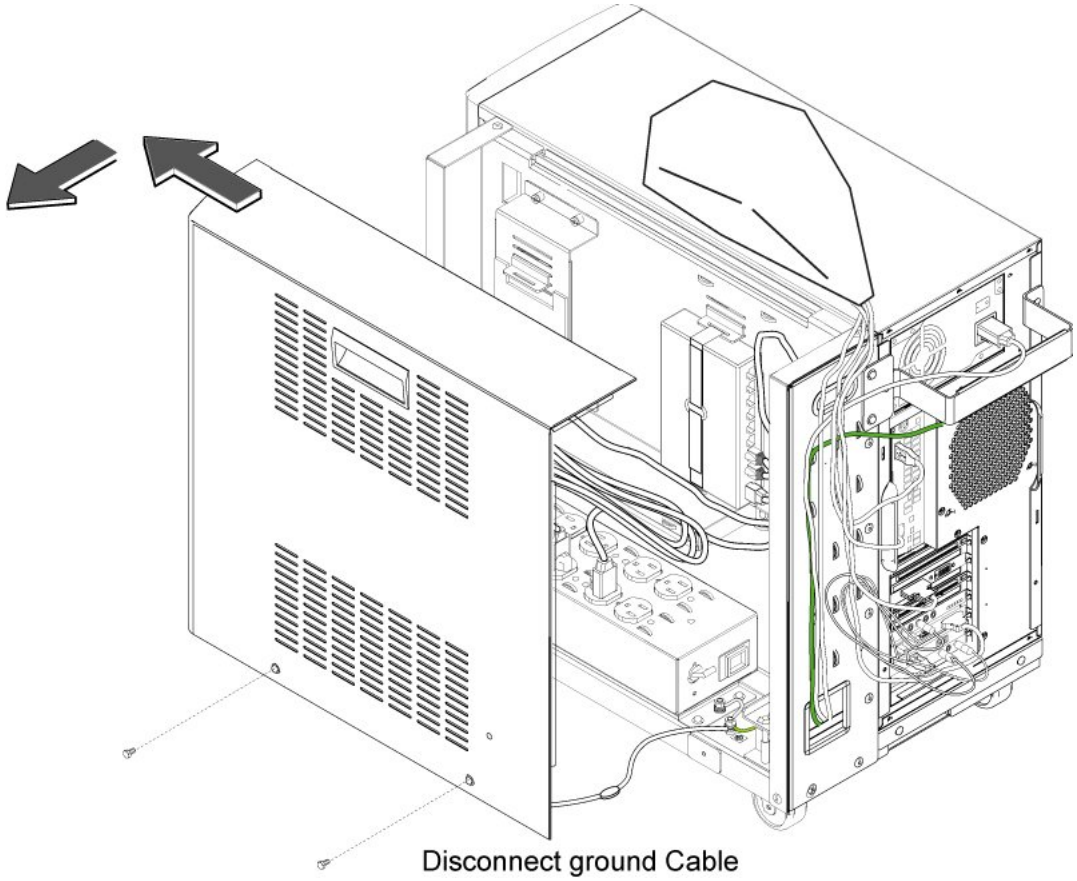


11.3.3.4 Simple OC CABINET COVER REMOVAL

The Computer Cabinet covers need to be removed to access the cable connection points.

1. Remove two screws of right side cover and lift up. Disconnect Ground cable connector and move the cover.

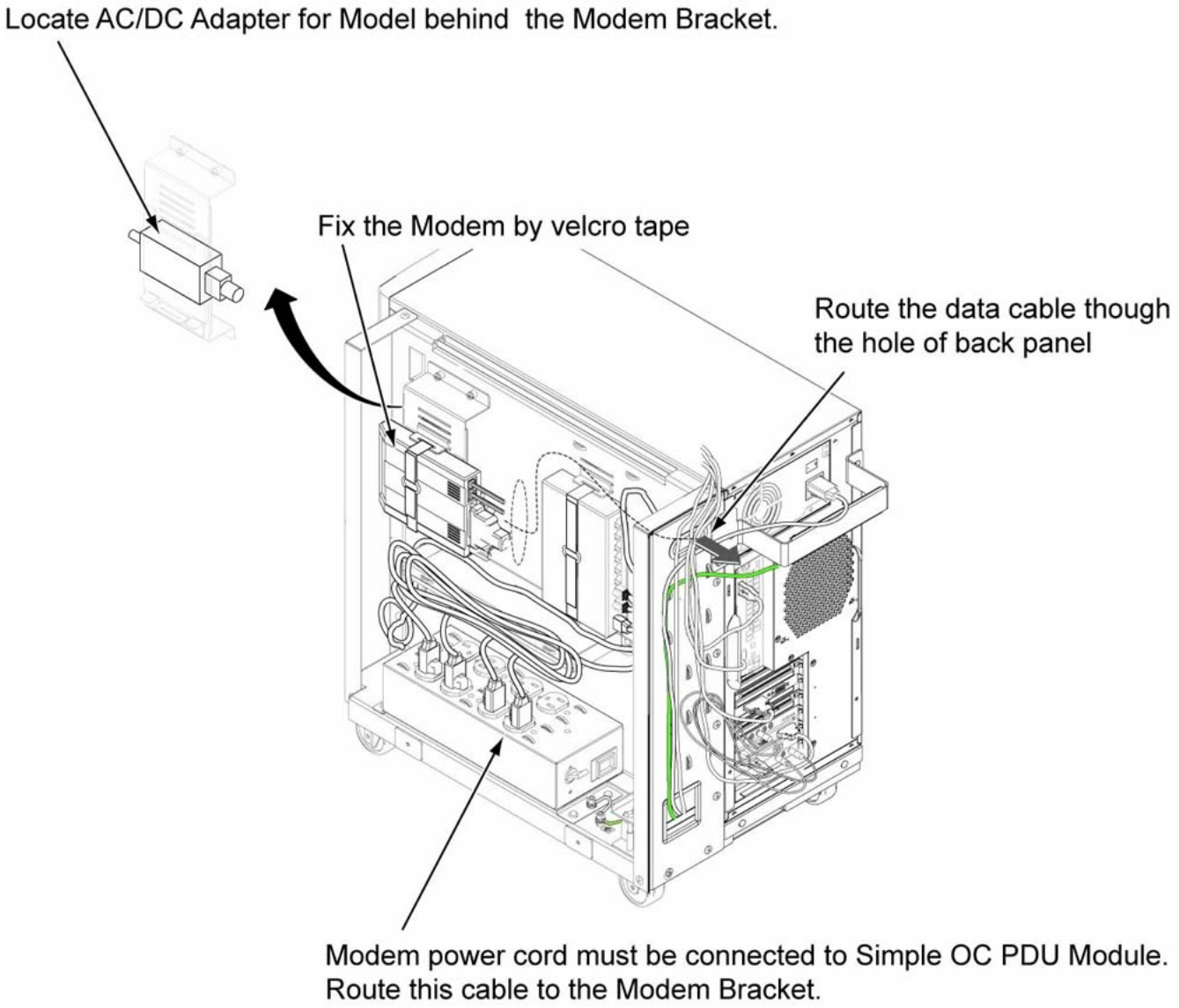
Illustration 3-103: Simple OC CABINET COVER REMOVAL



11.3.3.5 INSTALL MODEM TO Simple OC CABINET (If Applicable)

Modem will be placed on Operator Table or GOC later.

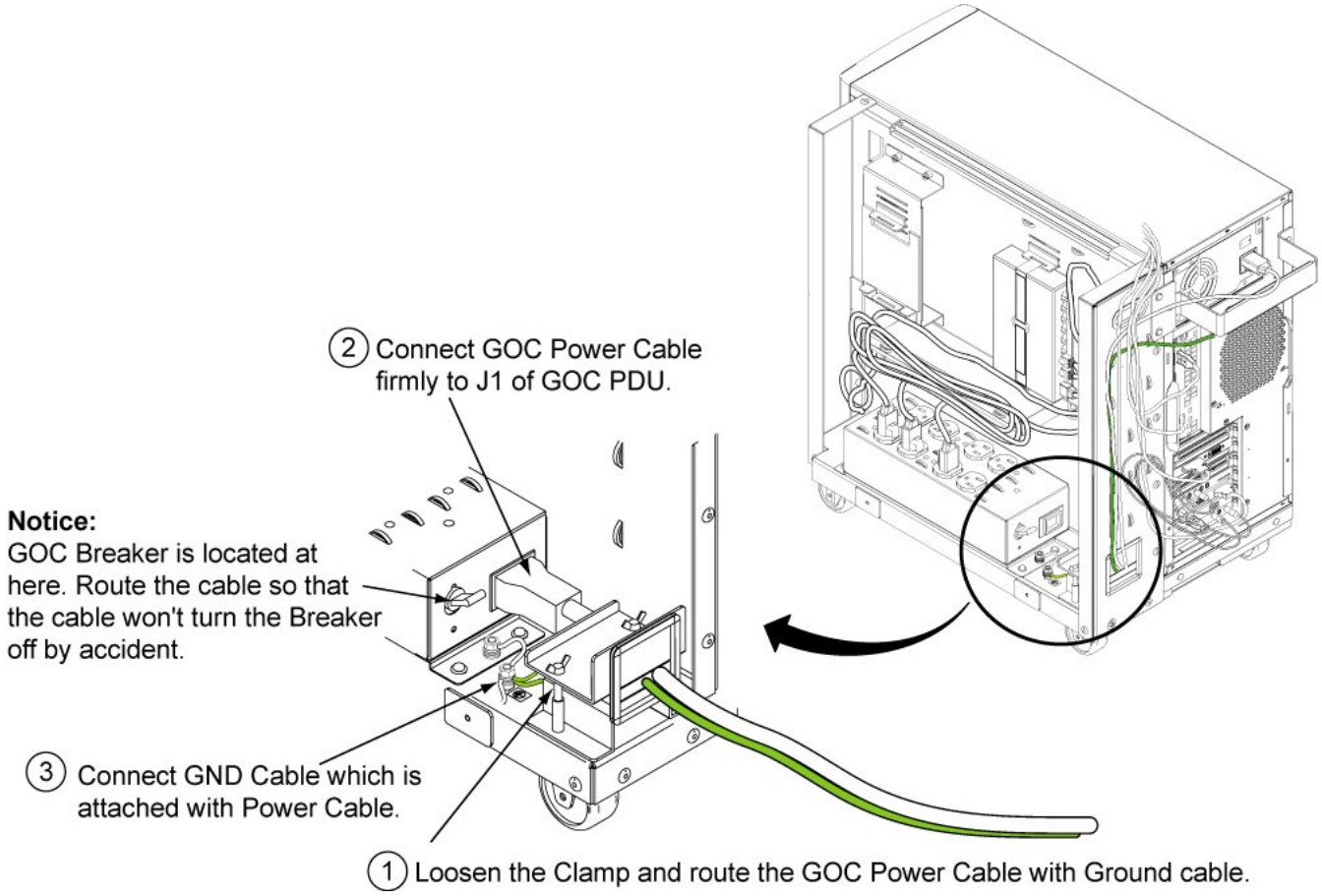
Illustration 3-104: INSTALL MODEM CABLE TO Simple OC CABINET (If Applicable)



11.3.3.6 ROUTE CABLES FOR LOWER OPENING

- For PC wiring, refer to Section 11.3.3.7.
- Refer to cable map for information on cables to be connected thru lower opening.

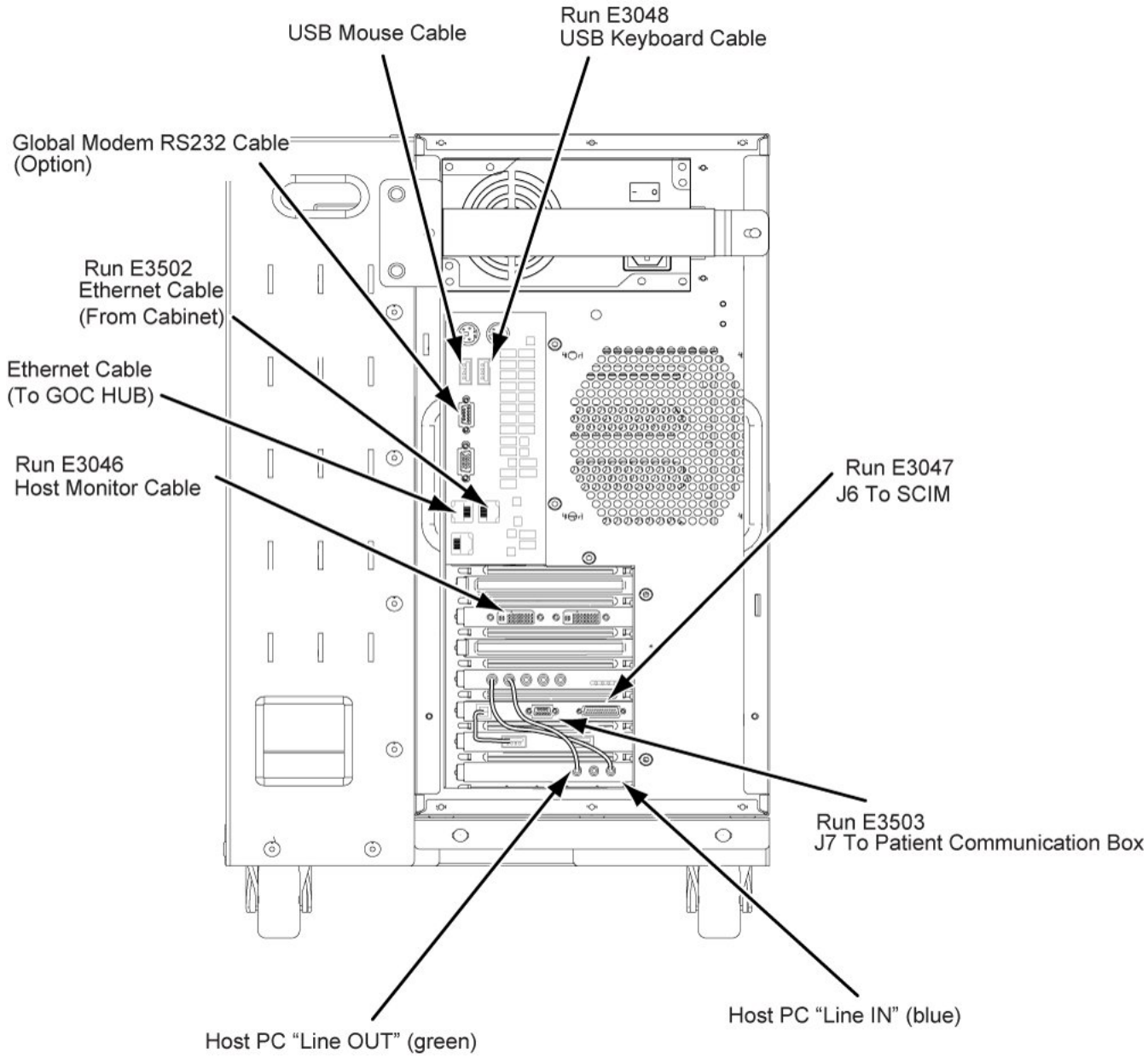
Illustration 3-105: ROUTE CABLES FOR LOWER OPENING



11.3.3.7 LINUX PC CABLE CONNECTIONS

The connection points of cables routed to the Simple OC PC are described in Illustration 3-106. All cables shown are preconnected except for Run 2036 and Mouse USB cable.

Illustration 3-106: LINUX PC CABLE CONNECTIONS

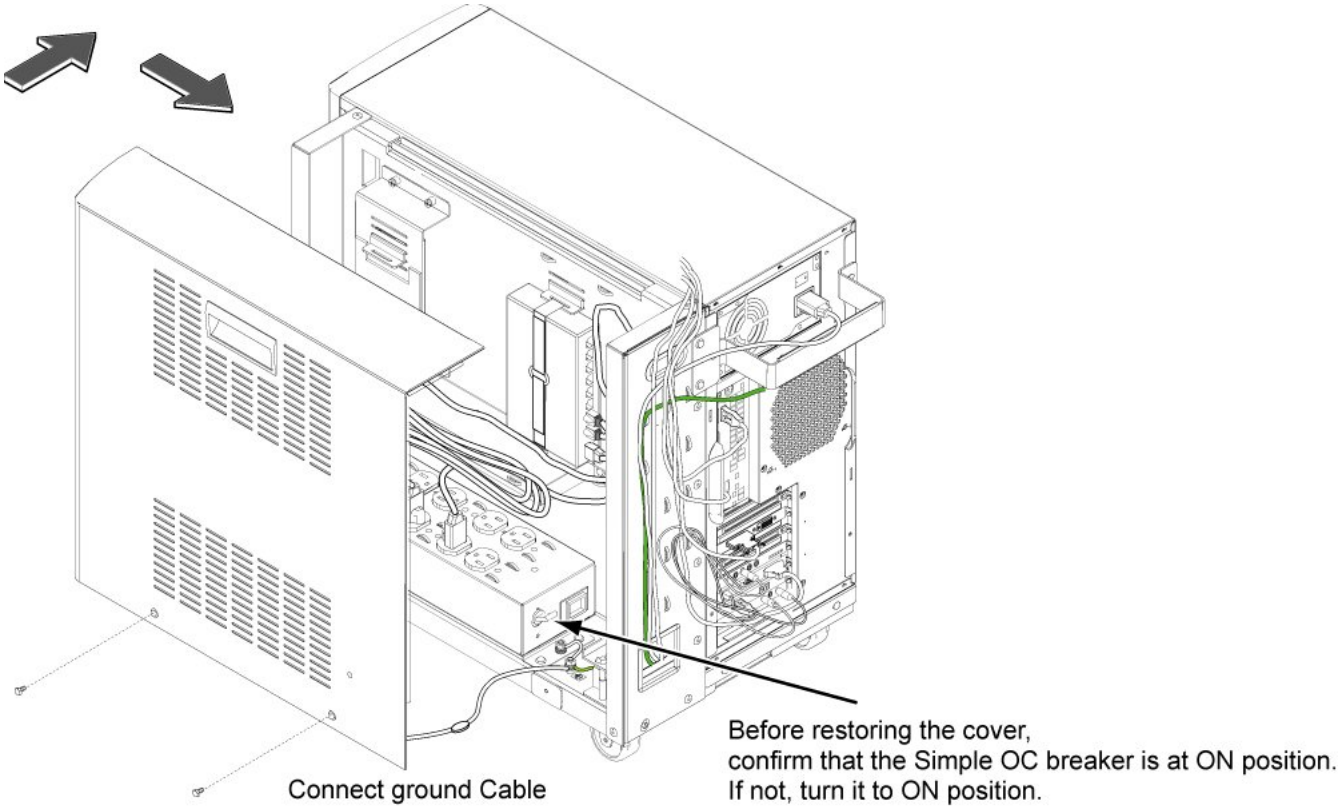


11.3.3.8 RESTORE Simple OC COVERS

1. Before restoring the cover, confirm that the Simple OC breaker is at ON position. If not, turn it to ON position.

2. Connect Ground cables and install both side covers by inserting tabs at top of covers into slots . Install screws that were removed in earlier procedure.

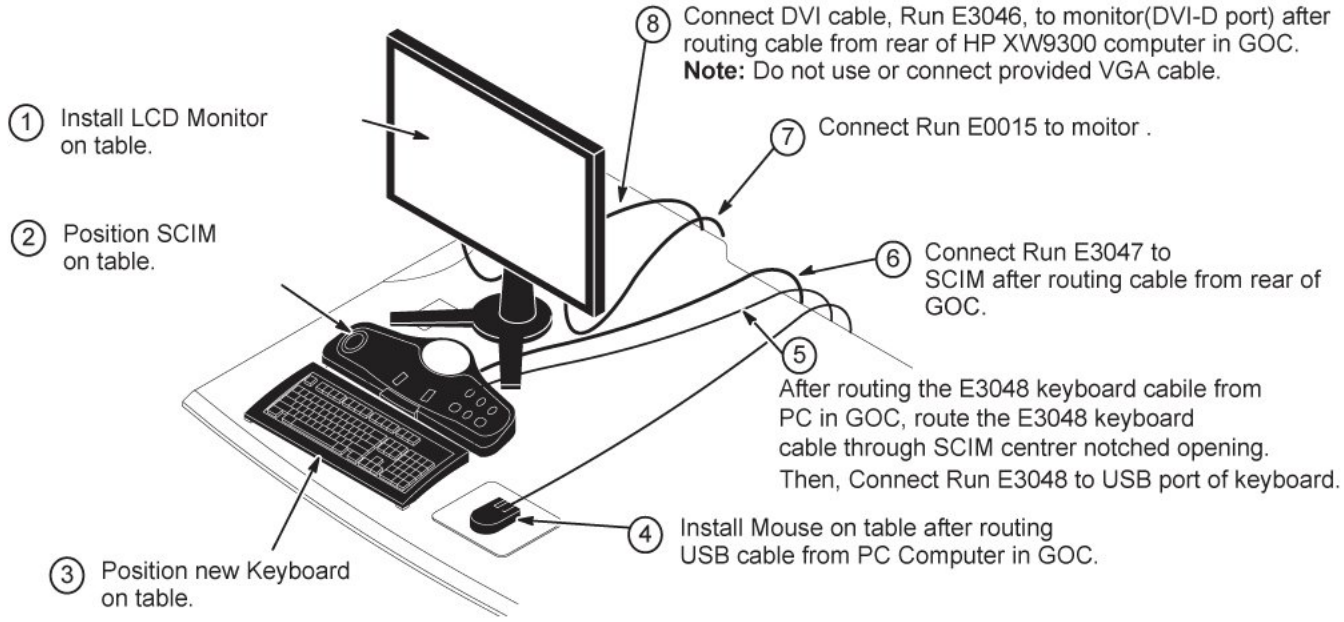
Illustration 3-107: RESTORE Simple OC COVERS



11.3.3.9 INSTALL MONITOR AND SCIM & KEYBOARD CABLES

The Scan–Control Intercom Module (SCIM) is the current keyboard on all Signa systems. Consult with Site customer for exact location of SCIM/Keyboard and Monitor on Operator Workspace (OW) Table.

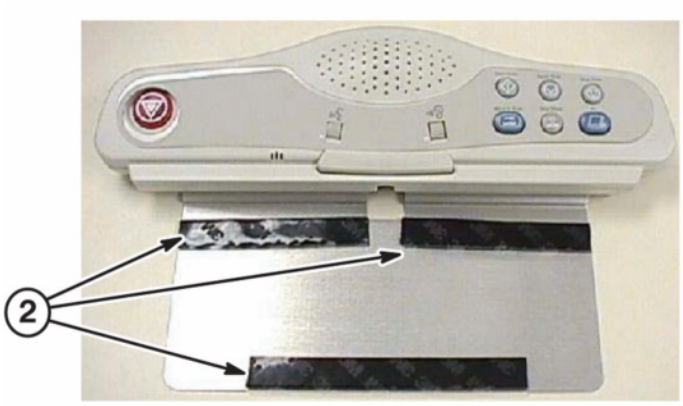
Illustration 3-108: INSTALL MONITOR AND SCIM & KEYBOARD CABLES

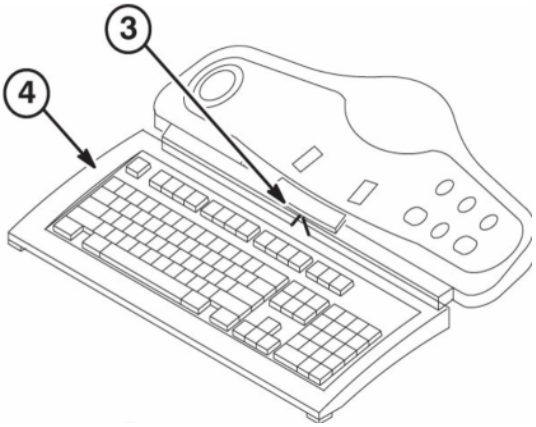


11.3.3.10 INSTALL SCIM/KEYBOARD

1. Place keyboard in front of SCIM, pull the keyboard forward, flip it, and place on top of the SCIM up side down.
2. Remove the plastic strips from the velcro located on SCIM plate, exposing the adhesive surface (see Illustration 3-109).
3. Guide the cable back into the center notched opening until all the cable is under the SCIM base.
4. Place the keyboard tight against the SCIM, Center it as best as possible, and drop into place. The Velcro pads will now be sticking to the bottom of the keyboard.

Illustration 3-109: INSTALL SCIM/KEYBOARD



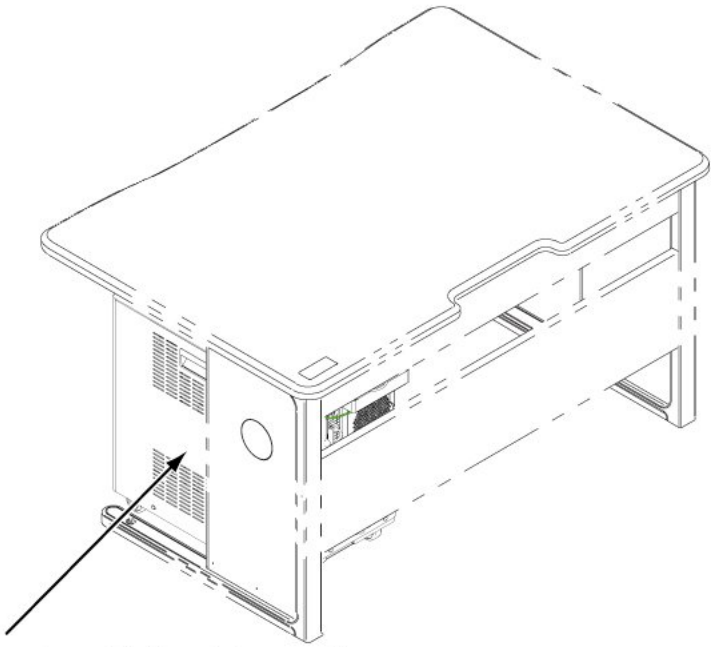


11.3.3.11 FINAL POSITIONING OF Simple OC CABINET

Complete positioning of Simple OC Cabinet.

1. Place cabinet in final position as determined by customer.

Illustration 3-110: FINAL POSITIONING OF Simple OC CABINET



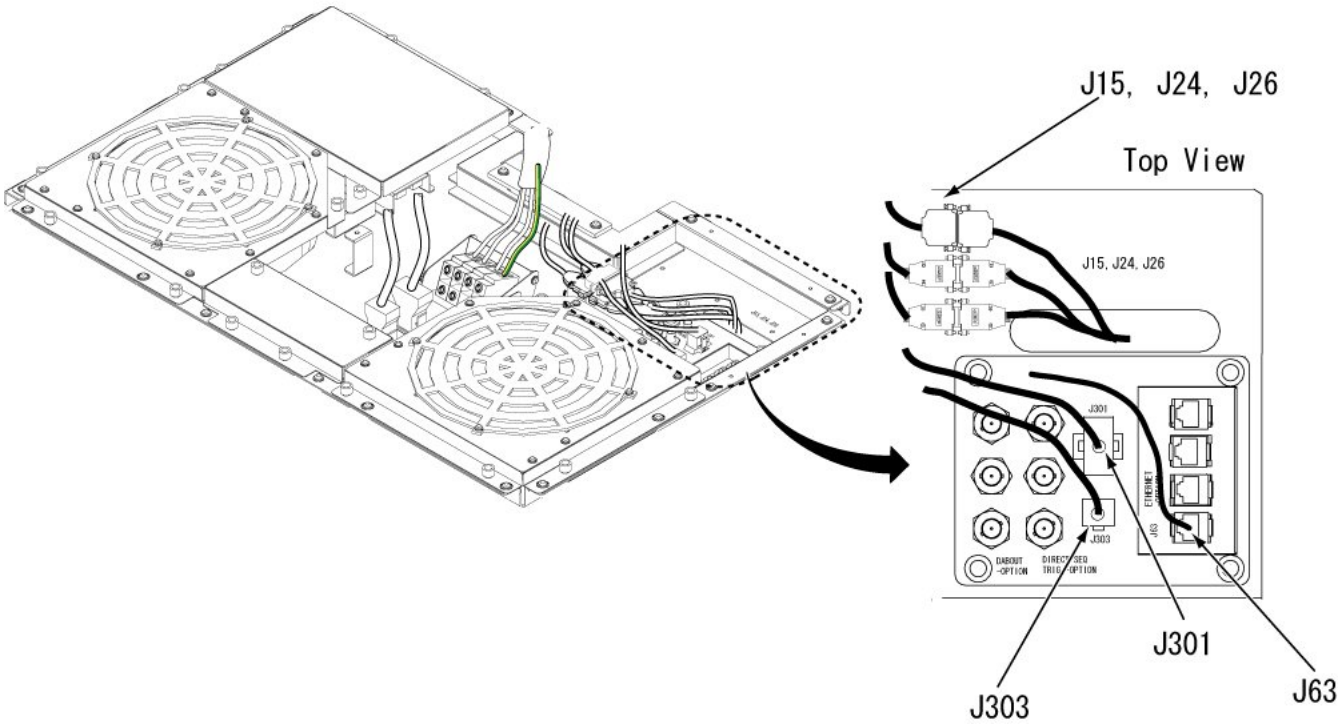
11.3.4 Equipment Room Cable Installation

11.3.4.1 System Cabinet Cable Installation (Equipment Room)

1. Route signal cables to the System Cabinet top area.
2. Connect the signal cables to the System Cabinet top area.

Illustration 3-111: Signal Cable connection

SC J#	RUN #	Cable Description
J15	E3506	Door SW
J24	823	AC Line Trigg
J26	E3501	SMC
J63-1	E3502	MGD Subnet (Gbit-Ether)
J301	E3504	Cabinet Monitor-Flow & Tank Level
J303	E3507	Cabinet Monitor-Magnet Monitor Out



3. Install rear center cover to SC Top. There is cable duct of two types. Refer to Illustration 3-112 or Illustration 3-113.
4. Install Rear Duct to rear center cover.
5. Clamp and route Power Cables and Signal Cables to Cable Cramps of rear duct.

Illustration 3-112: Cable Duct Installation

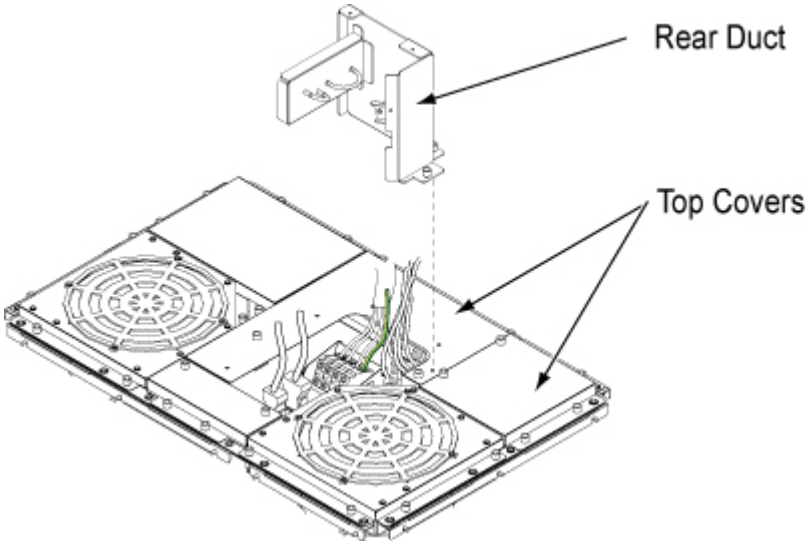
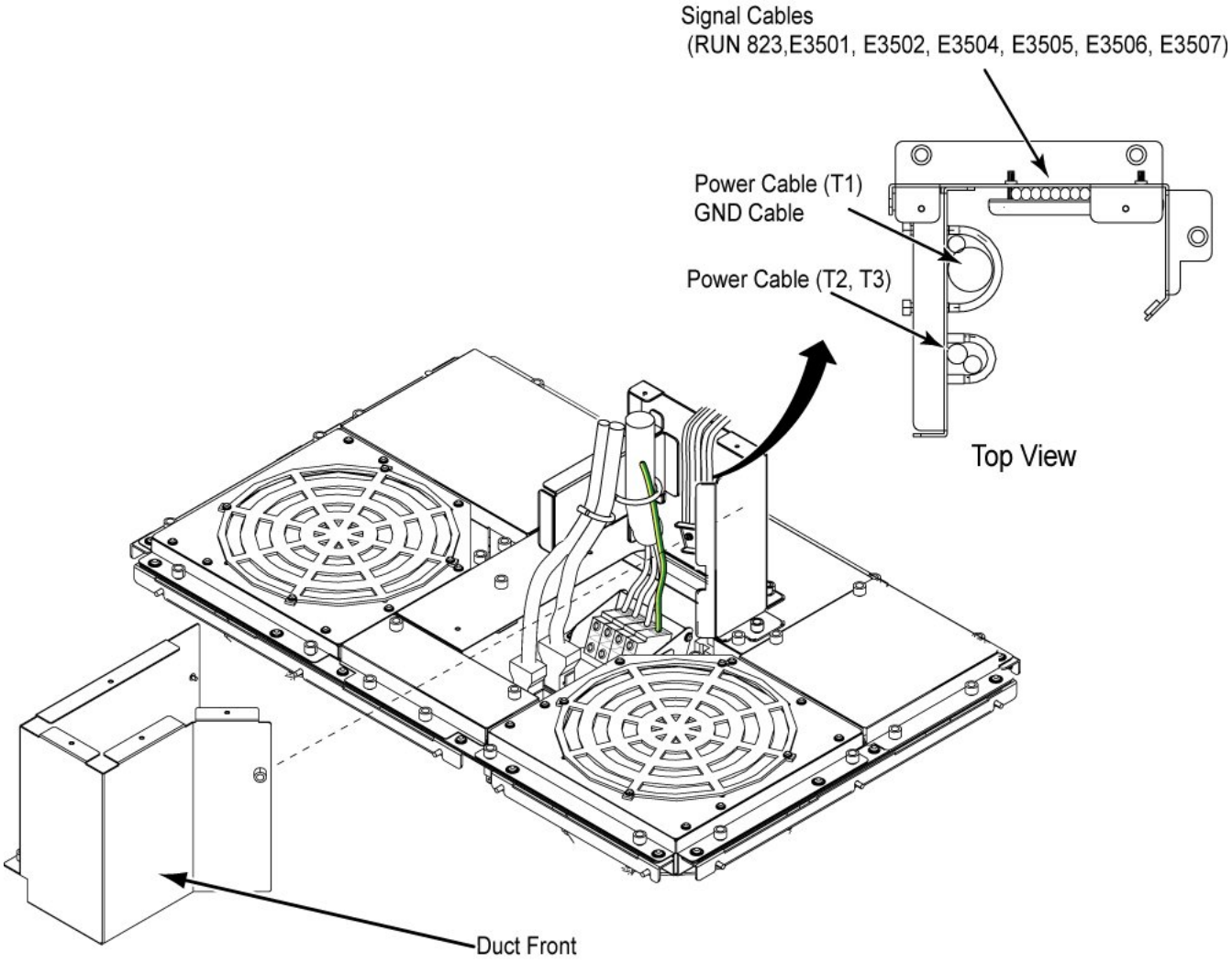
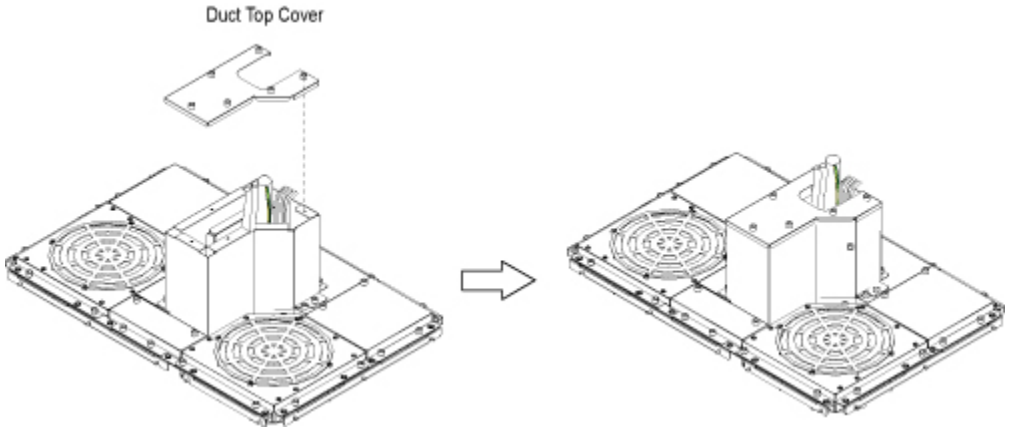


Illustration 3-113: Cable Duct Installation



6. Restore all Duct and Top Covers.
7. Tighten screws of top covers and duct covers with Phillips screw driver. Refer to Illustration 3-114.

Illustration 3-114: Top covers



11.3.4.2 Installation Of Magnet Monitoring Cables (Equipment Room)

1. Refer to Direction 2230681, 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.

11.3.4.3 Install Run M3506 - RF Door Switch (Equipment Room)

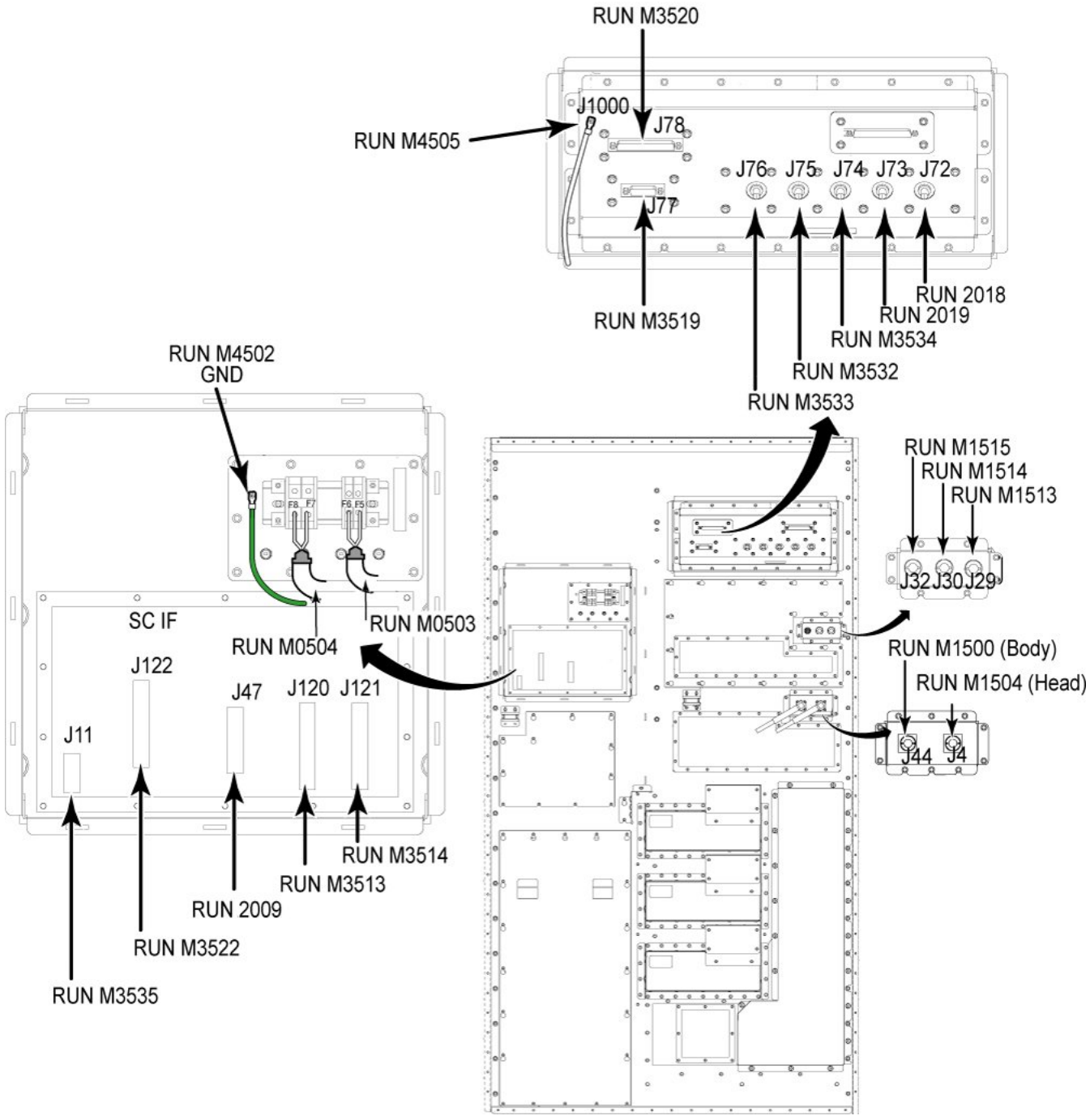
1. Route Run M3506 from System Cabinet Top to RF Door Switch. Refer to site engineering drawings for cable routing path.
2. Connect black lead on Run #M3506 to RF Door Switch COM (common) contact.
3. If RF door switch is normally open, proceed to step 4. If normally closed, proceed to step 5.
4. Connect red lead on Run #M3506 to RF Door Switch N.O. (normally open) contact.
5. If RF door switch is not normally open, connect red lead on Run #M3506 to RF Door Switch N.C. (normally closed) contact.

11.3.5 Magnet Room Cable Installation

11.3.5.1 Installation of System Cabinet Cables

1. Install the cables to system Cabinet by referring to cable map.

Illustration 3-115: System Cabinet Wiring



11.3.5.2 Installation of Penetration Panel Cables

1. Install the cables to system Cabinet by referring to cable map.

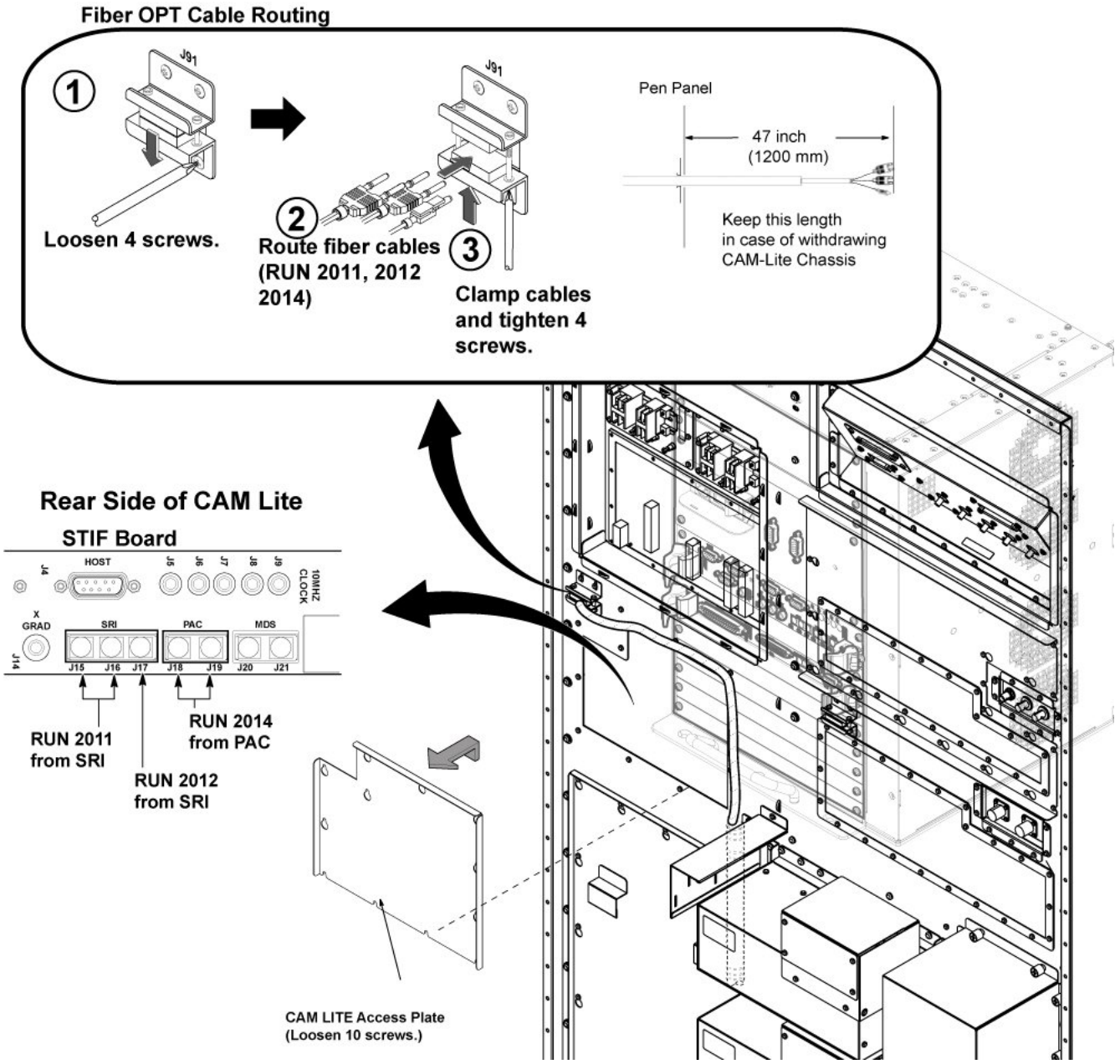
11.3.5.3 Installation Of Fiber Optic Cables

NOTICE

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.

1. Remove CAM Lite Access Plate from System Cabinet Rear Side.
2. Route Fiber cables (Run2014, 2011/2012) through opening.
3. Connect Fiber cables (Run2014, 2011/2012) to STIF Board.

Illustration 3-116: Opt cable connection 1



4. Restore CAM Lite Access Plate.
5. Remove ICN Access Plate from System Cabinet Rear Side.
6. Route Fiber cables (Run P2500) through opening.
7. Connect Fiber cable (Run P2500) to J1 of ICN.
8. Route the other Fiber cable (Run P2500) through Duct and connect it to J13 of IRF3.

Illustration 3-117: Opt cable connection 2

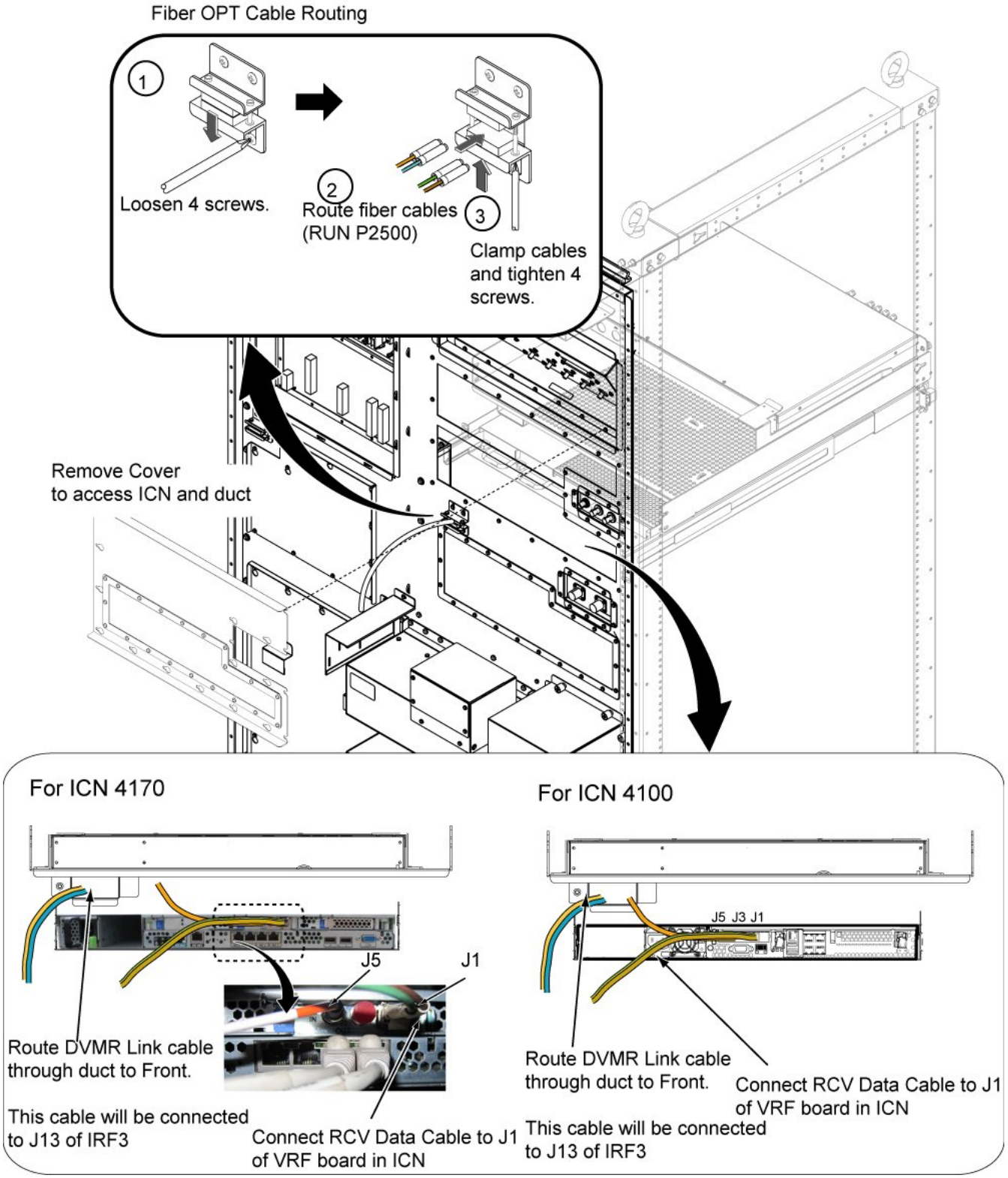
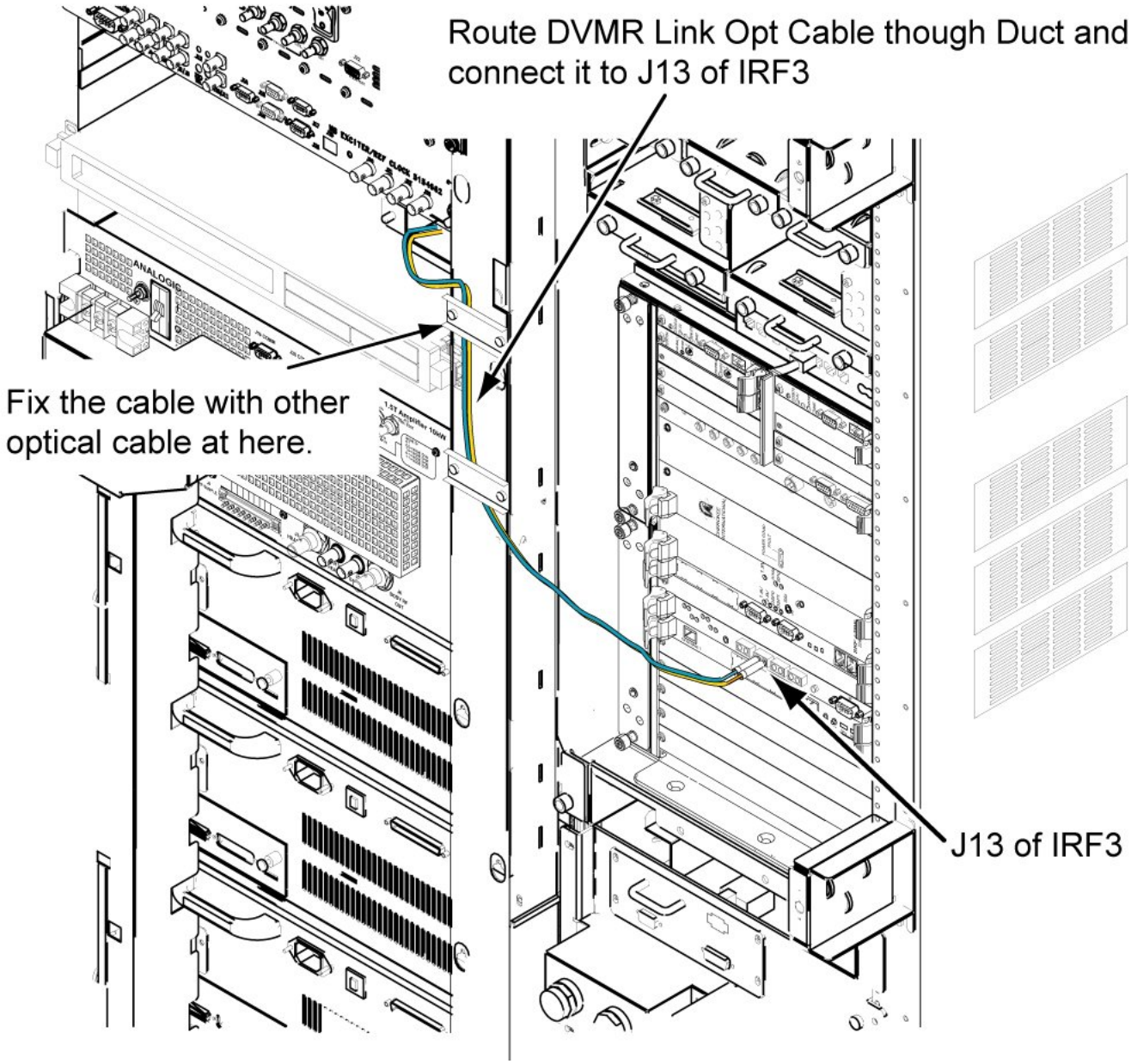


Illustration 3-118: Opt cable connection 3

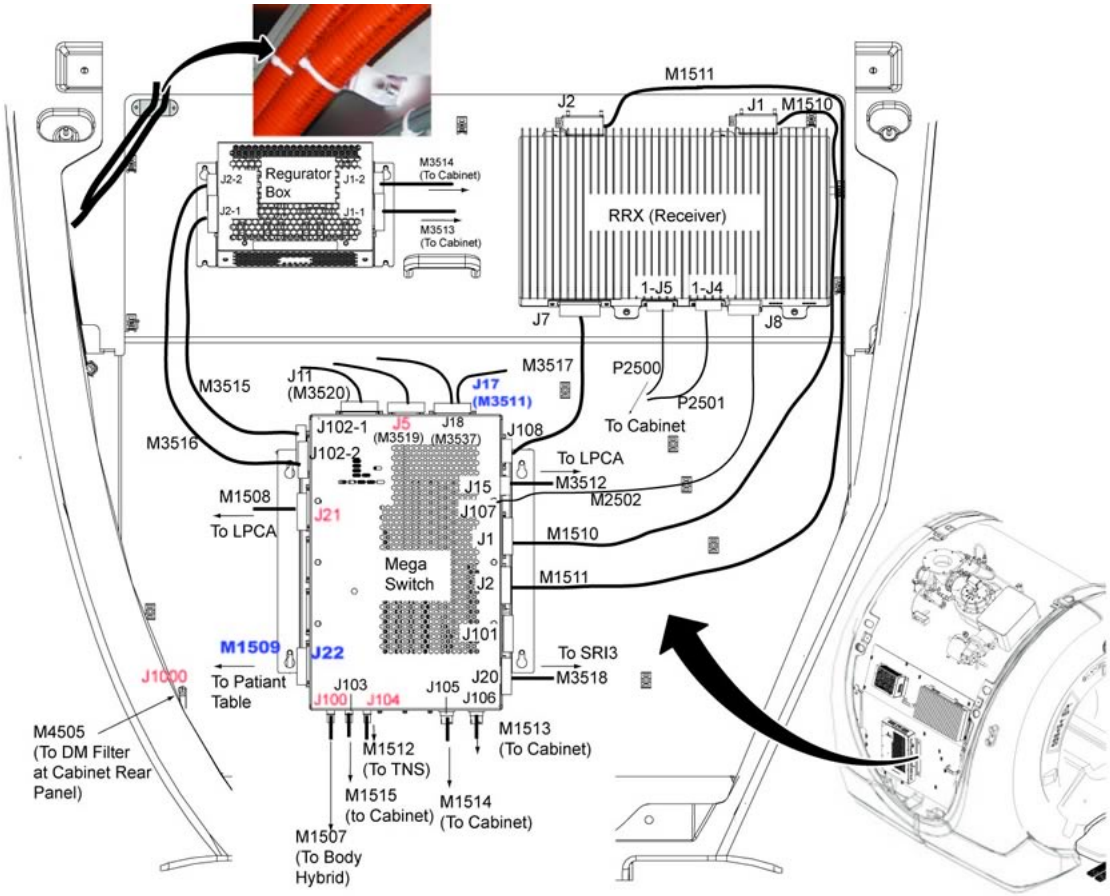


9. Restore CAM Lite Access Plate.

11.3.5.4 Magnet side electronics cable wiring

1. Connect the cables to the modules (Regulator Box, RRX, and Mega Switch) on Magnet Side Plate.

Illustration 3-119: Magnet side electronics cable wiring



The cables J5, J21, J100, J104, J1000 (Highilighted in Red at MegaSW) are routed to the Magnet Rear Routing Plate.

Magnet Rear View

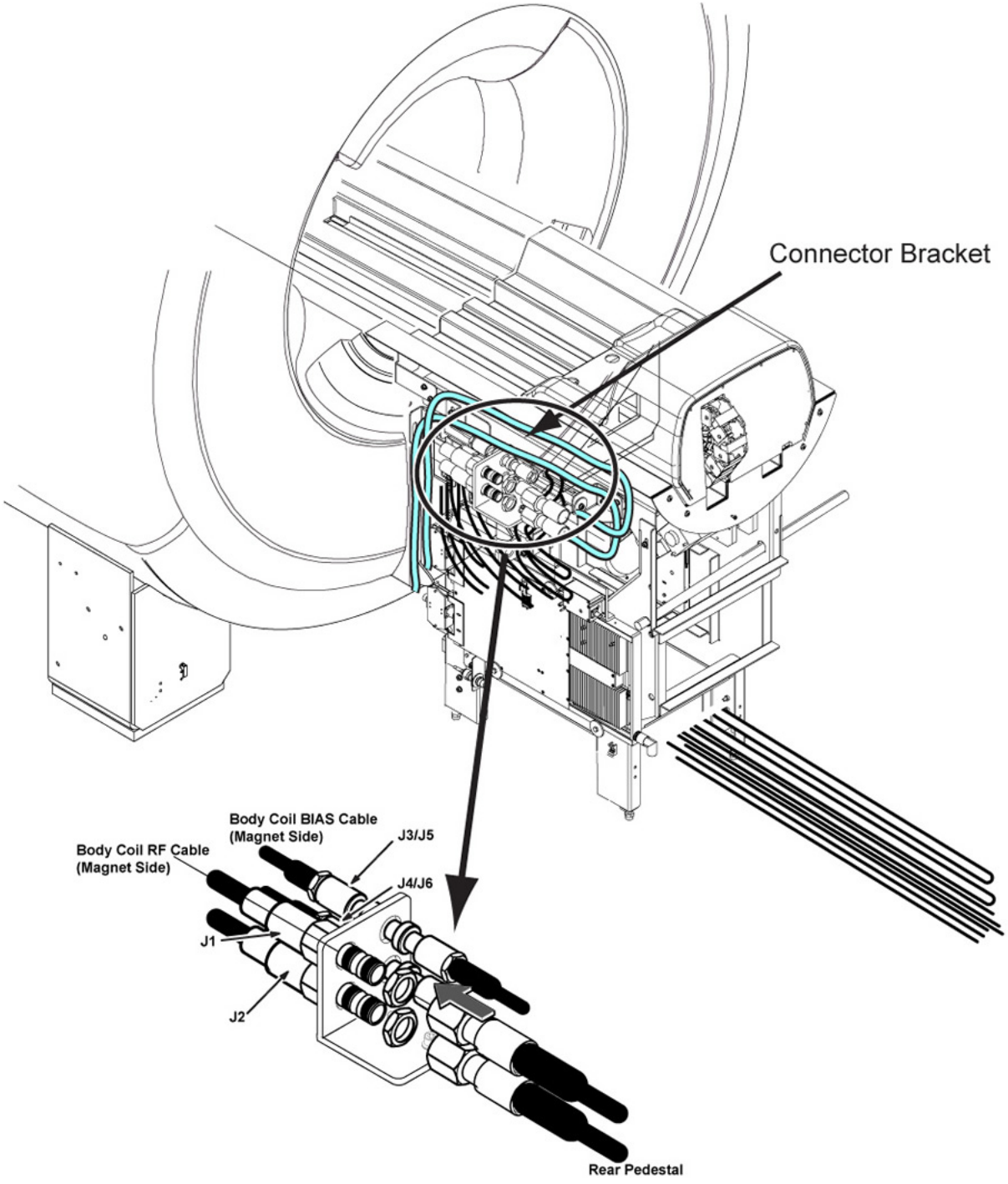
The cables J17 and J22 (Highlighted in Blue at MegaSW) will be routed to the Magnet Front.

Magnet Front View

11.3.5.5 Connect Cables At Rear Pedestal

1. Connect rear pedestal cables and Body Coil RF/BIAS cables to connector bracket on right side of rear pedestal.

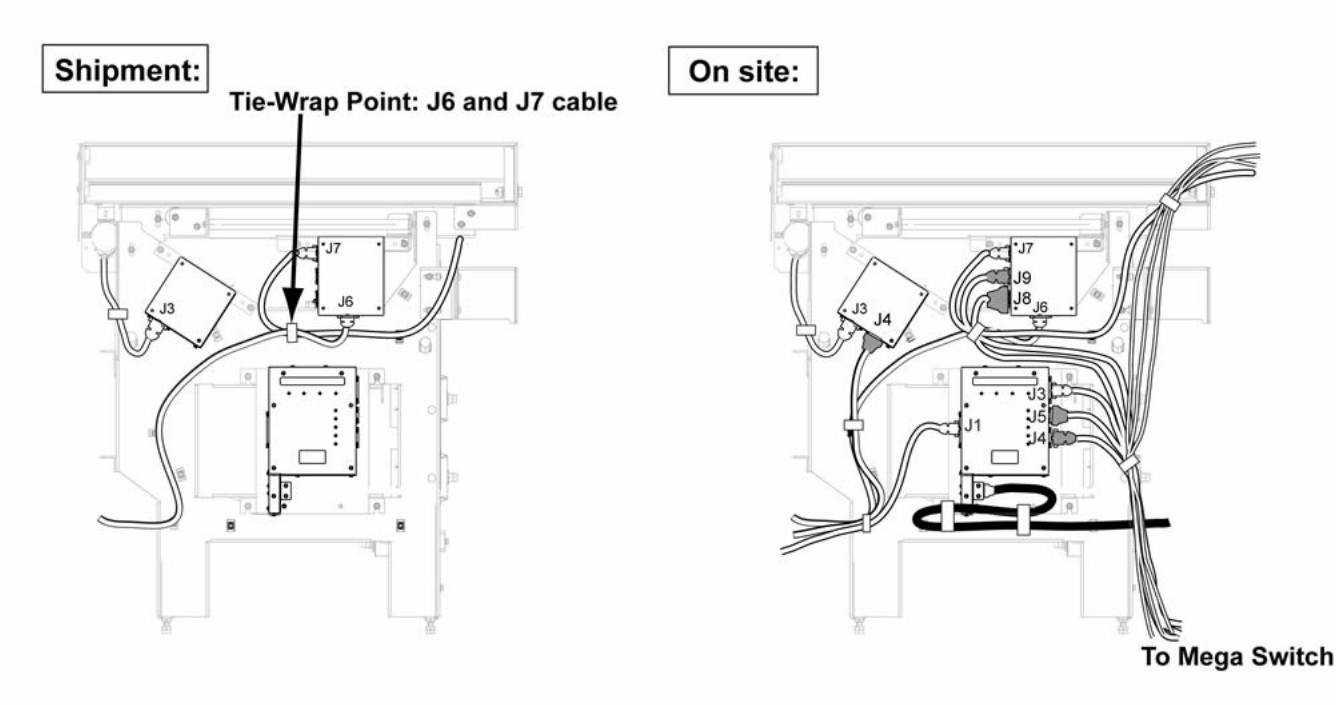
Illustration 3-120: Rear Pedestal Cable Wiring on right side



2. Cut the two tie-wraps of J7 and J6 cables on left side of rear pedestal.
3. Reconnect all cables illustration.
4. Connect Bore light fiber bundle to the LED power box.

5. Connect other cables of rear pedestal. Refer to system interconnect.

Illustration 3-121: Rear Pedestal Cable Wiring on left side

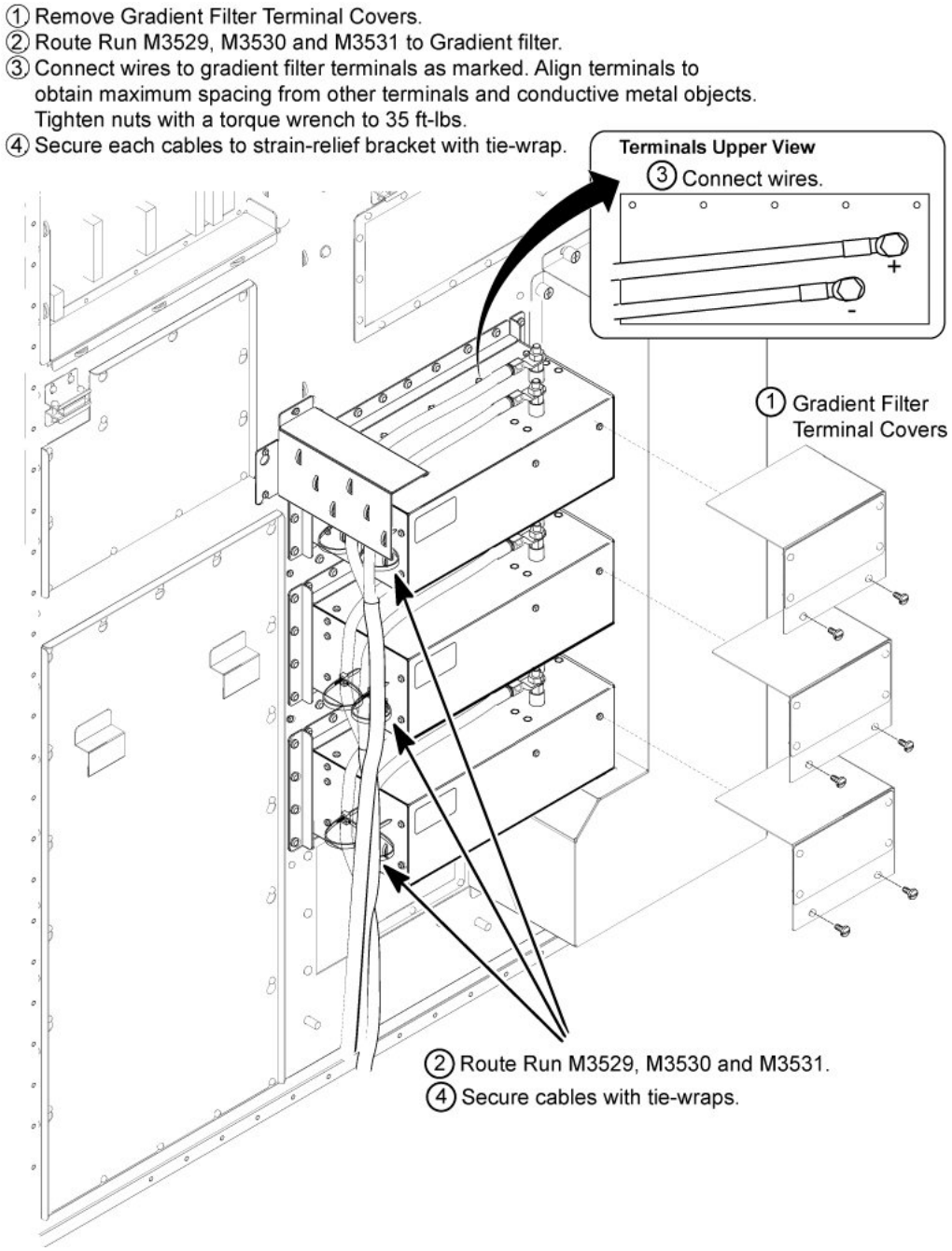


11.3.5.6 Gradient Cable Installation

Three cables have been delivered to site. All have two lead wires with terminals at each end. The leads on this cable end are connected to Magnet room side of the Gradient Filter on the Penetration Panel. This procedure cuts the cables to length and connects them to the cable leads from the BRM. Verify that 50 ft. (15 M) length of supplied Run M3529, M3530, and M3531 cable is sufficient to route from Penetration Panel to BRM Cables at rear of magnet. Each cable has identical terminations at each end for connection to both sides of the Penetration Panel Gradient Filter.

1. Connect Gradient Cables To Magnet Room Side Of System Cabinet

Illustration 3-122: Connect Gradient Cables To Magnet Room Side Of Penetration Panel

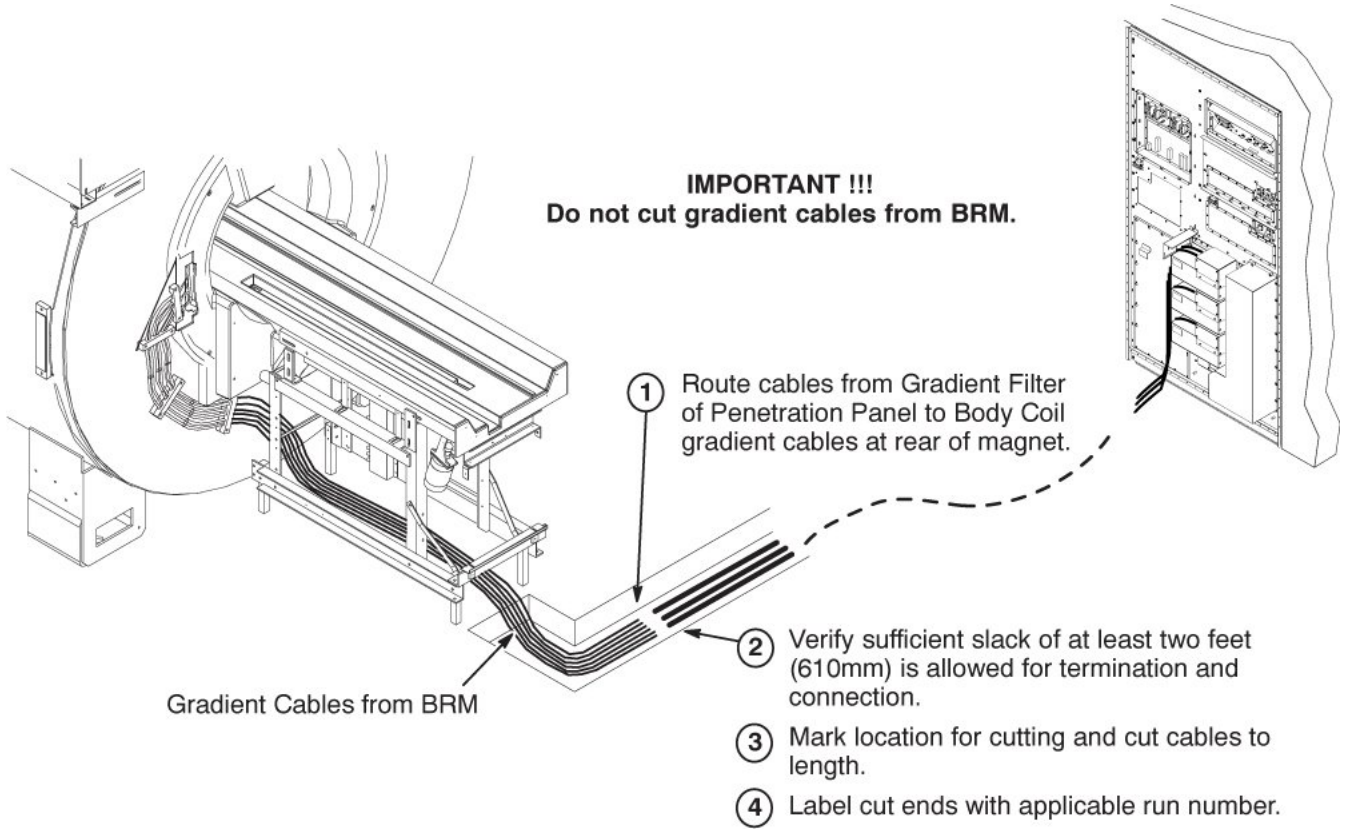


NOTICE

Do not cut gradient cables from BRM.

2. Route Runs M3529, M3530, and M3531 To Rear Pedestal Area

Illustration 3-123: Route Runs M3529, M3530, and M3531 To Rear Pedestal Area



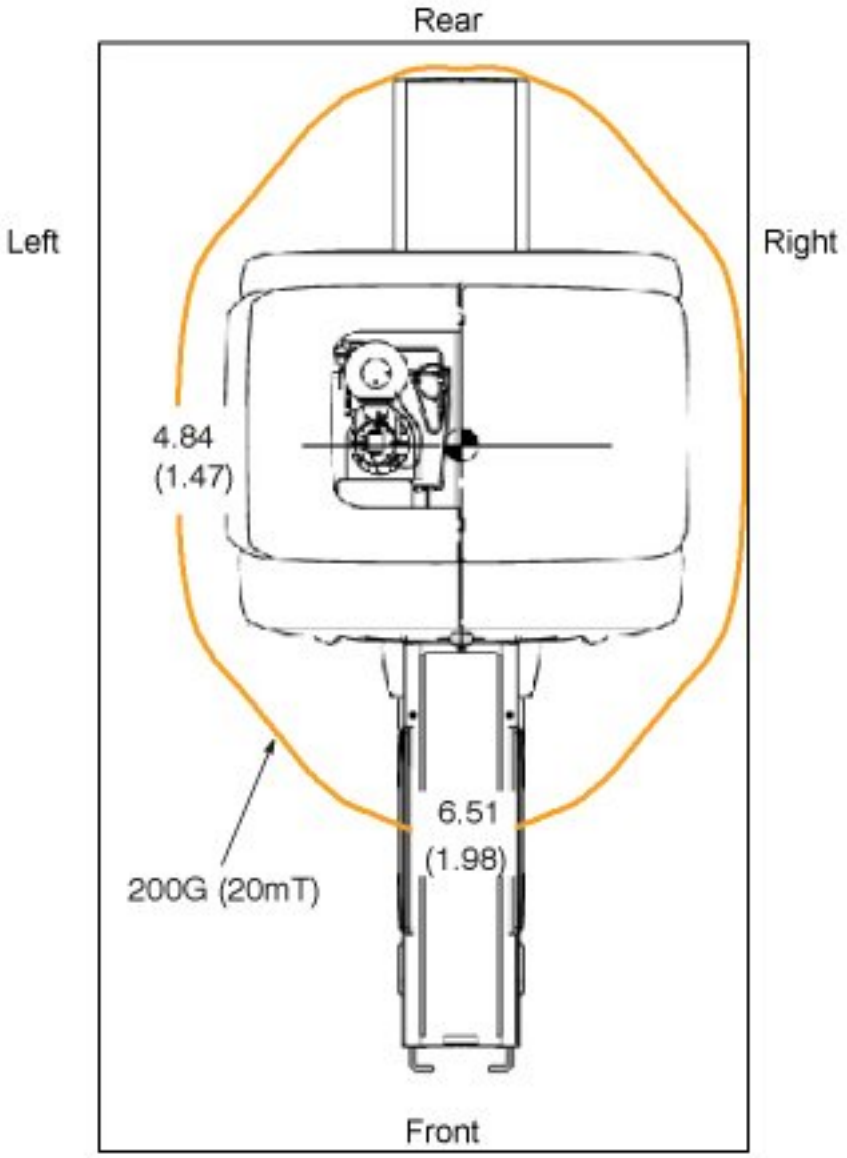
⚠WARNING

PERSONAL INJURY AND EQUIPMENT DAMAGE
STRONG MAGNETIC FIELD!
WHEN SERVICING ANY MAGNETIC EQUIPMENT, IT IS CRITICALLY IMPORTANT THAT THE SERVICE ENGINEER CONSCIOUSLY PLAN THE PATH TO BE TAKEN WHEN MOVING HIGHLY FERROUS DEVICES IN THE MAGNET ENVIRONMENT. THE MAGNETIC FIELD IN THIS PATH MUST NOT EXCEED 200 GAUSS AND THE PATH SHOULD BE AS FAR FROM THE MAGNET AS PRACTICAL.
SAFETY REQUIREMENTS

- THE STATIC MAGNETIC FIELD IN ANY PORTION OF THE SERVICE PATH MUST NOT EXCEED 200 GAUSS.
- TWO (2) MR SAFETY TRAINED PERSONNEL MUST BE PRESENT AT ALL TIMES WHEN SERVICING HIGHLY FERROUS DEVICES IN THE AREAS OF MAGNETIC FIELDS.

WHEN PLANNING A SERVICE PATH, IT IS CRITICAL THAT THE PATH BE CLEAR AND SUFFICIENTLY WIDE. ENSURE THAT THERE ARE NO TRIP HAZARDS, OBSTACLES, CLUTTER, SLIPPERY SURFACES OR OTHER ITEMS EVEN PARTIALLY RESTRICTING THE PATH. IF THERE ARE PORTABLE OBSTACLES IN A PATH, REMOVE THEM FROM THE AREA AND REPLACE THEM AFTER THE SERVICE ACTION IS COMPLETED. IT IS REQUIRED TO WALK THE PATH PRIOR TO BEGINNING SERVICE TO ENSURE THAT THERE IS SUFFICIENT SPACE THROUGH WHICH TO PASS FOR YOURSELF AND THE OBJECT BEING SERVICED.

ILLUSTRATION 3-124: 200G LINE

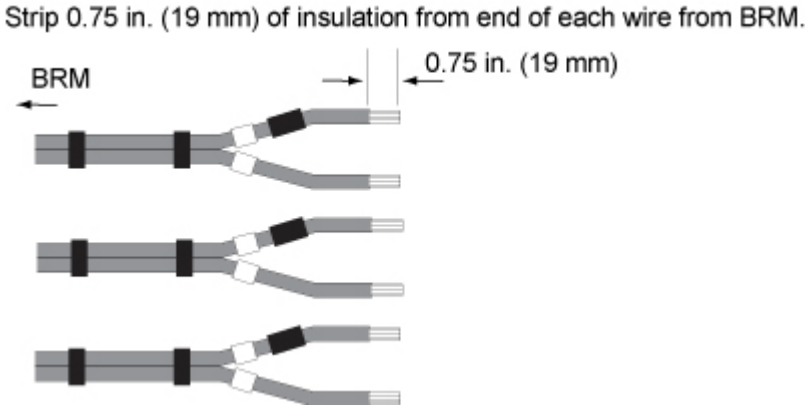


⚠WARNING

FERROUS MATERIAL HAZARD!
THE RATCHETING CRIMP TOOL REQUIRED FOR THIS PROCEDURE CONTAINS FERROUS MATERIAL AND WILL BE STRONGLY ATTRACTED TO MAGNET AND MAY BECOME A DANGEROUS PROJECTILE.
KEEP ALL FERROUS TOOLS OUTSIDE OF 200G LINE. IF MAGNET IS AT FULL FIELD - CUT GRADIENT CABLE TO LENGTH AND REMOVE FROM MAGNET ROOM TO PERFORM CABLE TERMINATION PROCEDURES.

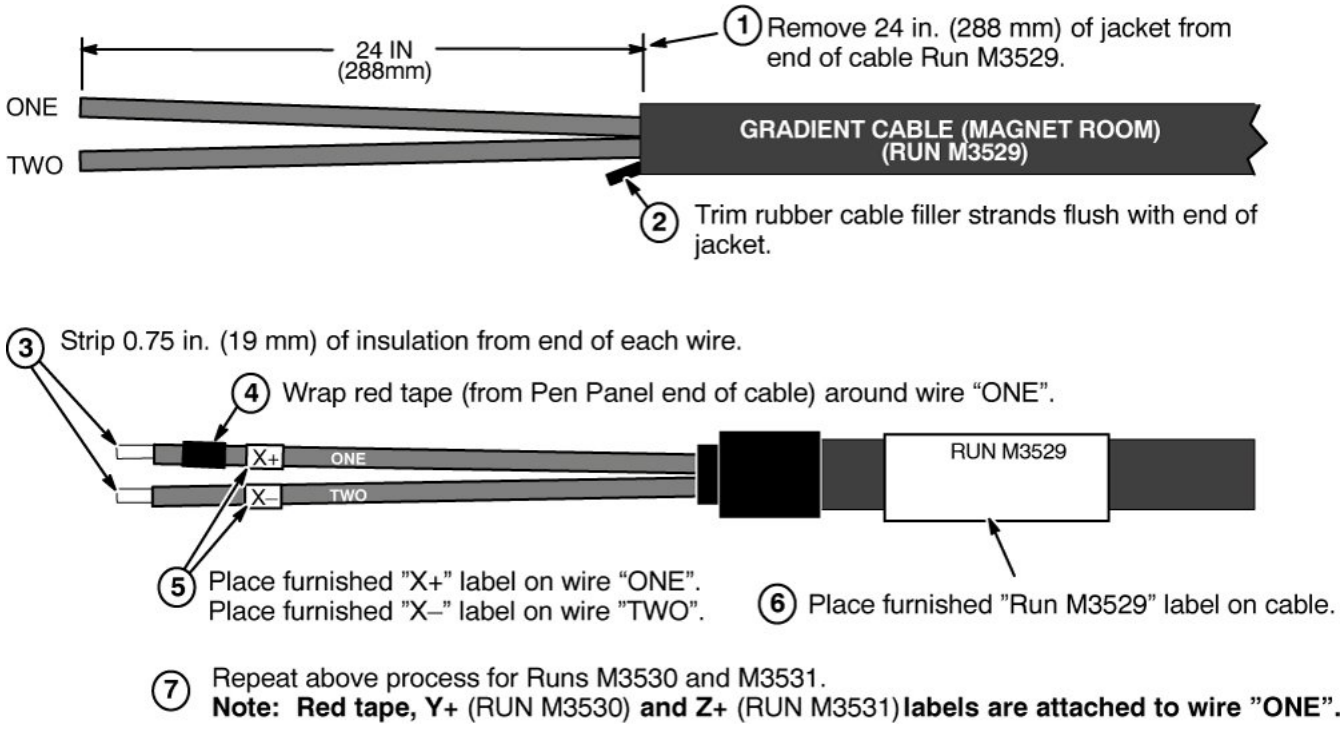
3. Strip 0.75 inch (19mm) of the gradient cables coming from BRM

Illustration 3-125: Strip Cables from BRM



4. Terminate Runs M3529, M3530, and M3531 for Magnet Room.

Illustration 3-126: Terminate Runs M3529, M3530, and M3531 For Magnet Room

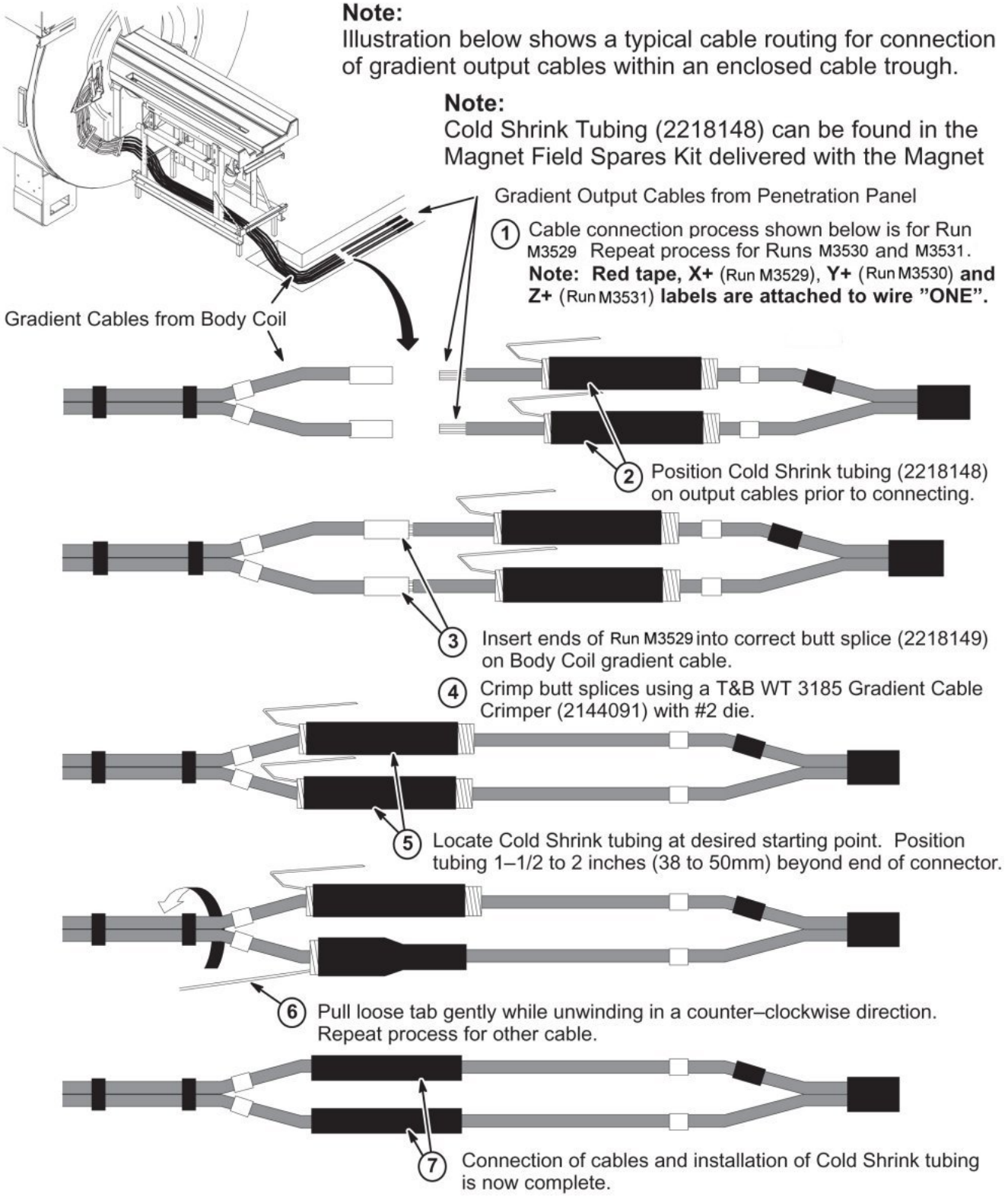


NOTICE

Please check carefully for the axis of the cable and the positive / negative of the cable.

5. Connection Of Gradient Cables from BRM To Runs M3529, M3530, and M3531

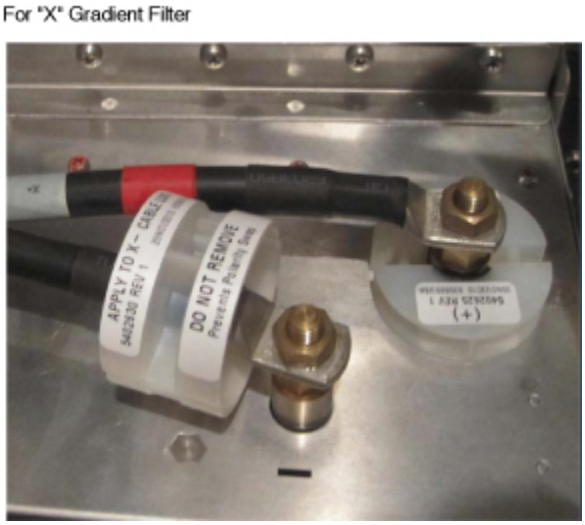
Illustration 3-127: Connection Of Body Coil Gradient Cables To Runs M3529, M3530, and M3531



11.3.5.7 Gradient Cable Ratchet Installation

Install ratchet assembly 5402625 to the X, Y and Z positive studs and 5402630 to the X negative cable at the gradient filters. This will create a mechanical interference that prevents cables from being connected to the wrong terminals (see illustration below). Crossed cables (polarity swap) at the X filter could result in the image being flipped along the X axis, which could result in an improper diagnosis.

Illustration 3-128: Ratchet for X Gradient Filter



NOTICE

Before installing the ratchets, verify that the Gradient cable wiring at Gradient filter were correctly performed.

NOTE: During this installation, do not remove any cables unless wrong connection is found. If necessary, loosen the nuts to allow you to rotate the cable but do not remove any of the nuts. Follow these steps to attach a ratchet assembly 5402625 to the positive stud on each of the three filters: X, Y, and Z.

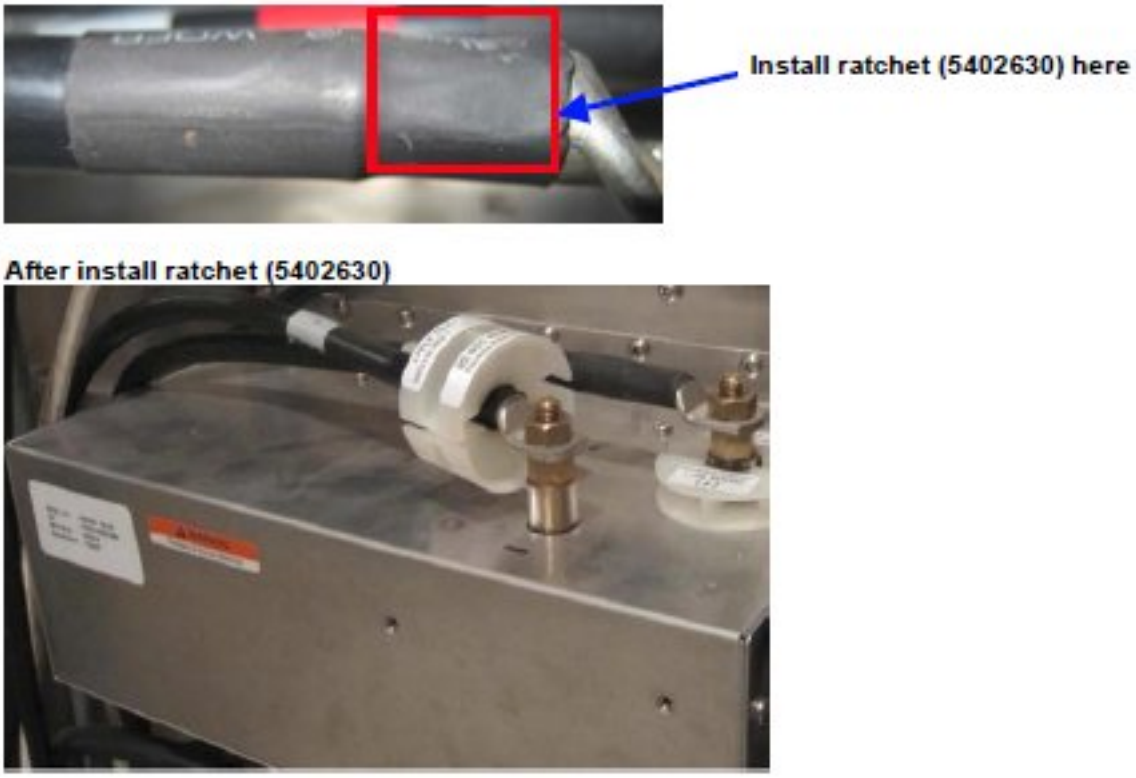
NOTE: The two sides of the ratchet assembly are held together by a gear rack and ratchet that works much like a cable tie-wrap. Once you connect the two sides of the assembly and engage the ratchets, you cannot reverse direction and pull the assembly apart. Do not engage the ratchet of 5402625 until the assembly is in place around the positive studs.

1. Verify that the plastic safety covers for Gradient Filters are removed.
2. Take one side of a negative (-) cable ratchet (P/N 5402630) and peel off the tape backing from adhesive and attach the ratchet to the X-cable lug.(This step is needed for X filter only) The X filter is located at the top among the three gradient filters.

   NOTE: Make sure to install ratchet (5402630) as near as possible to the cable connector.
3. Peel off the tape backing from the other side of the ratchet (P/N 5402630), and connect it to the one attached to the cable lug.

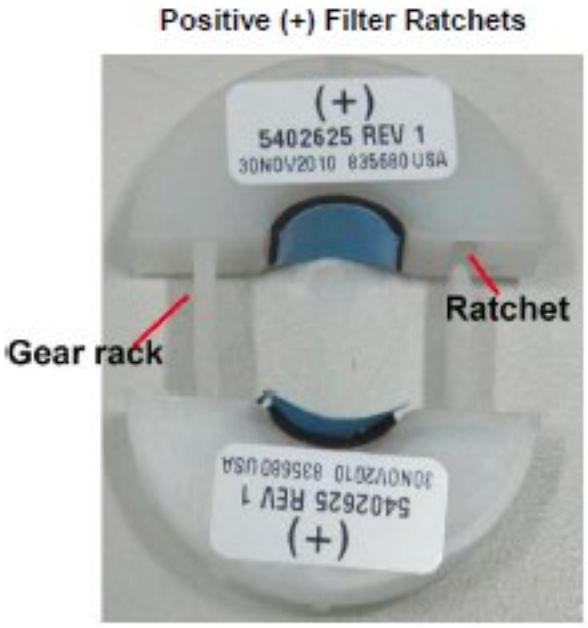
4. Squeeze the two pieces together so that the unit is snug to the cable lug.

Illustration 3-129: Ratchet (5402630)



5. Take one side of a positive (+) filter ratchet 5402625 and remove the tape backing from the adhesive strip.

Illustration 3-130: Ratchet (5402625) mechanism

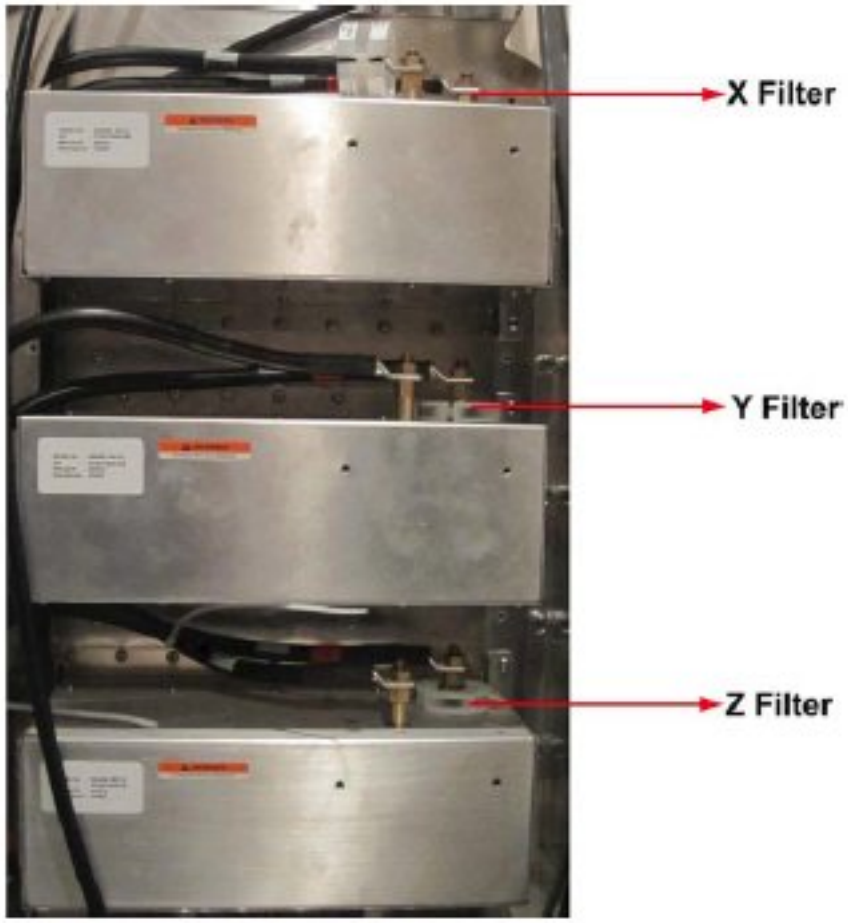


6. Attach this positive (+) ratchet to the X (+) positive stud (#1) on the gradient filter on Magnet Room Side.
7. Peel off the tape backing from the second ratchet, and connect it to the one attached to the stud. Be sure to leave enough room for wrench access as shown below.

Illustration 3-131: Ratchet (5402625) installation for X G-Filter

8. Squeeze the two pieces together so that the unit is snug to the stud.
9. Attach a pair of ratchet 5402625 to Y and Z filter's positive cable studs.

Illustration 3-132: Ratchet (5402625) installation for Y and Z G-Filter



10. Restore the plastic safety covers for Gradient Filters.

11.3.5.8 Installation Of Air Hose From Rear Of Magnet To Blower Box

Install Blower Cabinet (2241999) according to Site Design (architectural) specifications.

⚠WARNING

RF SHIELD INTEGRITY MUST BE MAINTAINED FOR MOUNTING BLOWER BOX WITHIN THE MAGNET ROOM

NOTICE

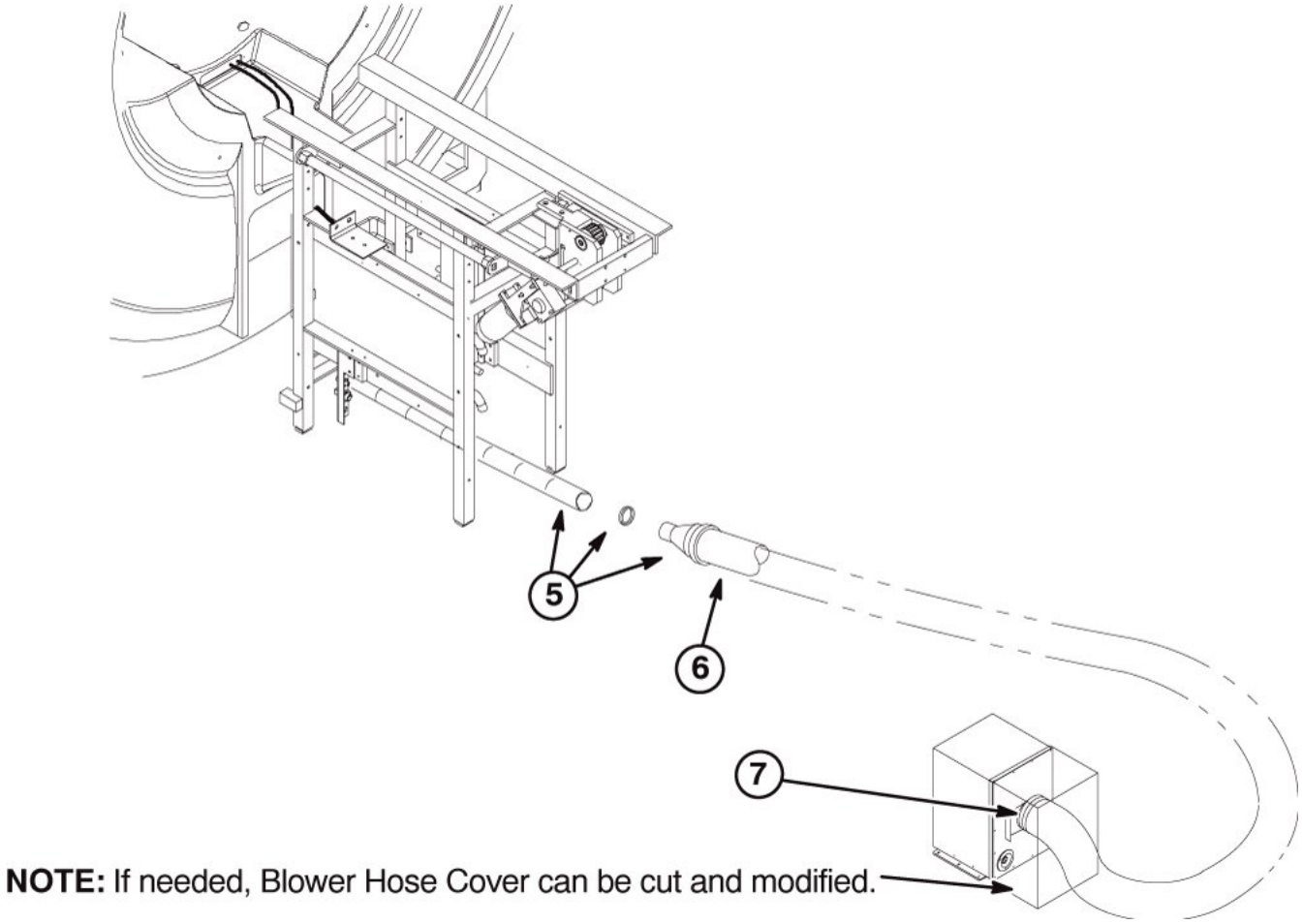
Location of cabinet and type of fastener used for securing Blower Box outside of minimum service area should be specified in the Site Design document. If proper mounting area is not specified, contact the Project Manager of Installation (PMI).

NOTICE

The Blower Box contains ferrous material. The proper mounting of the Blower Box is critical to safety. It MUST be mounted per these instructions.

1. Check for correct installation of the anchors:
    - Confirm that the anchors are physically secured to the building structure through expansion anchors.
    - Confirm there are at least four (4) anchors.
    - If any or the anchors appears wobbly or loose, stop the installation and contact the PMI to fix anchoring.
2. Connect 2 inch air hose from Rear End Bell to Reducer (2175143) with 2 inch clamp (46-208765P28). Do not cut or reduce the length of the 2 inch hose.
3. Connect 4 inch air hose (46-282666P11) to reducer with 4 inch clamp (46-208765P34). If necessary, the 4 inch hose may need to be cut to reduce length.
4. Route 4 inch hose to Blower Cabinet. Trim to appropriate length and attach to vent opening with 4 inch Hose Clamp (46-208765P34).

Illustration 3-133: Installation Of Air Hose From Rear Of Magnet To Blower Box



11.3.5.9 Emergency Off Connections

Run M3500 is routed to EO2 (Equipment Room Emergency Off) and connected to EO2 and wire from Facility Disconnect. Run M3527 is routed from Penetration Panel to EO1 (Magnet Room Emergency Off Button).

1. Complete routing of Run M3500 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.

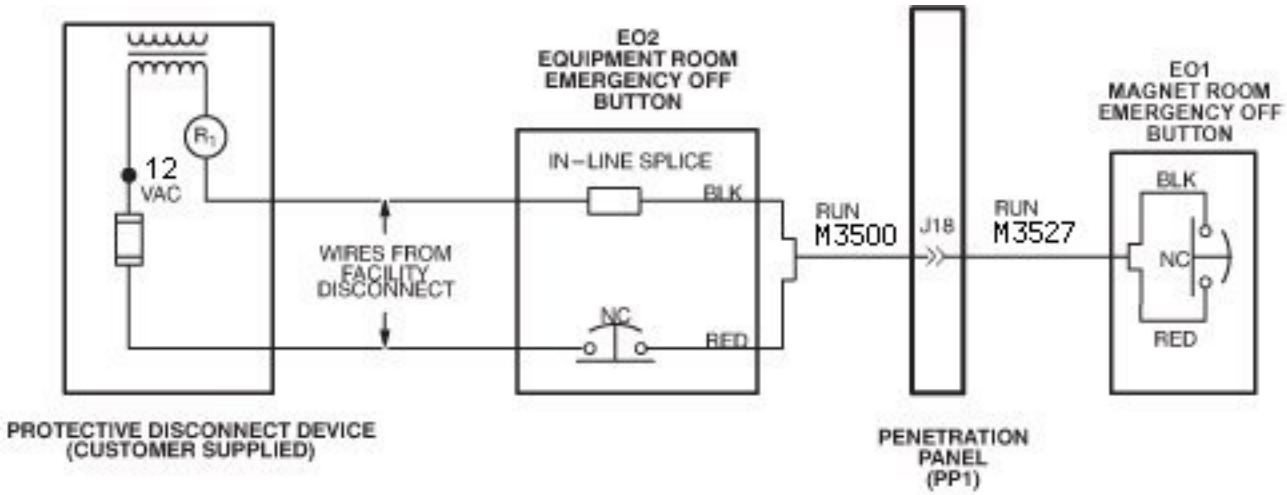
   NOTE: In Illustration below, black and red wires are used for connections in Runs M3500 and M3527. Actually any pair of wires on these runs could be used so long as both ends are consistent with one another. Runs M3500 and M3527 are actually nine wire cables.

2. At equipment room “Emergency Off” (EO2) location, terminate red wire at end of Run M3500 with local supplied terminal and connect to customer supplied Equipment Room Emergency Off Button (EO2).

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).

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 M3500 with local supplied “push-on” terminal.
6. Connect black wire from end of Run M3500 to customer supplied wire from protective disconnect device with local supplied in-line splice.
7. Complete routing of Run M3527 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 M3527 with local supplied terminals and connect to customer supplied Magnet Room Emergency Off Button (EO1).

Illustration 3-134: Emergency Off Connections



11.3.6 Pneumatic Patient Alert

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

- Routing of Pneumatic Tubing
- Location of Control Box

11.3.6.1 Squeeze Bulb Installation

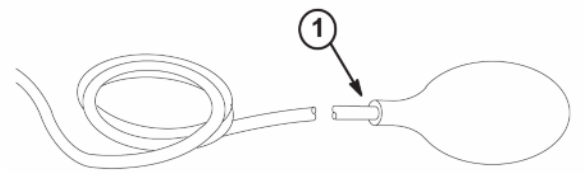
NOTICE

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.

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.

2. Before cutting pneumatic tubing from roll to length required, 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.

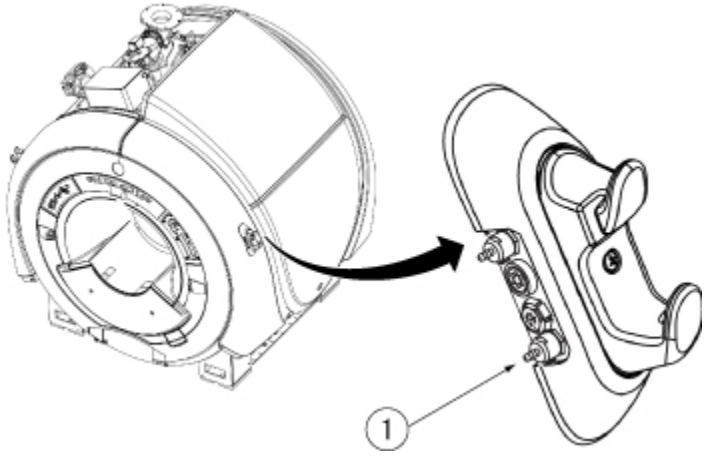
Illustration 3-135: Squeeze Bulb Installation



11.3.6.2 Connect Tube To Remote PAC Interface Assembly

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

Illustration 3-136: Connect Tube to Remote PAC Interface Assembly



11.3.6.3 Magnet Room Routing Of Tubing & Wave Guide Installation

NOTICE

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

1. Push end of pneumatic tubing onto PAC-II tubing connector.

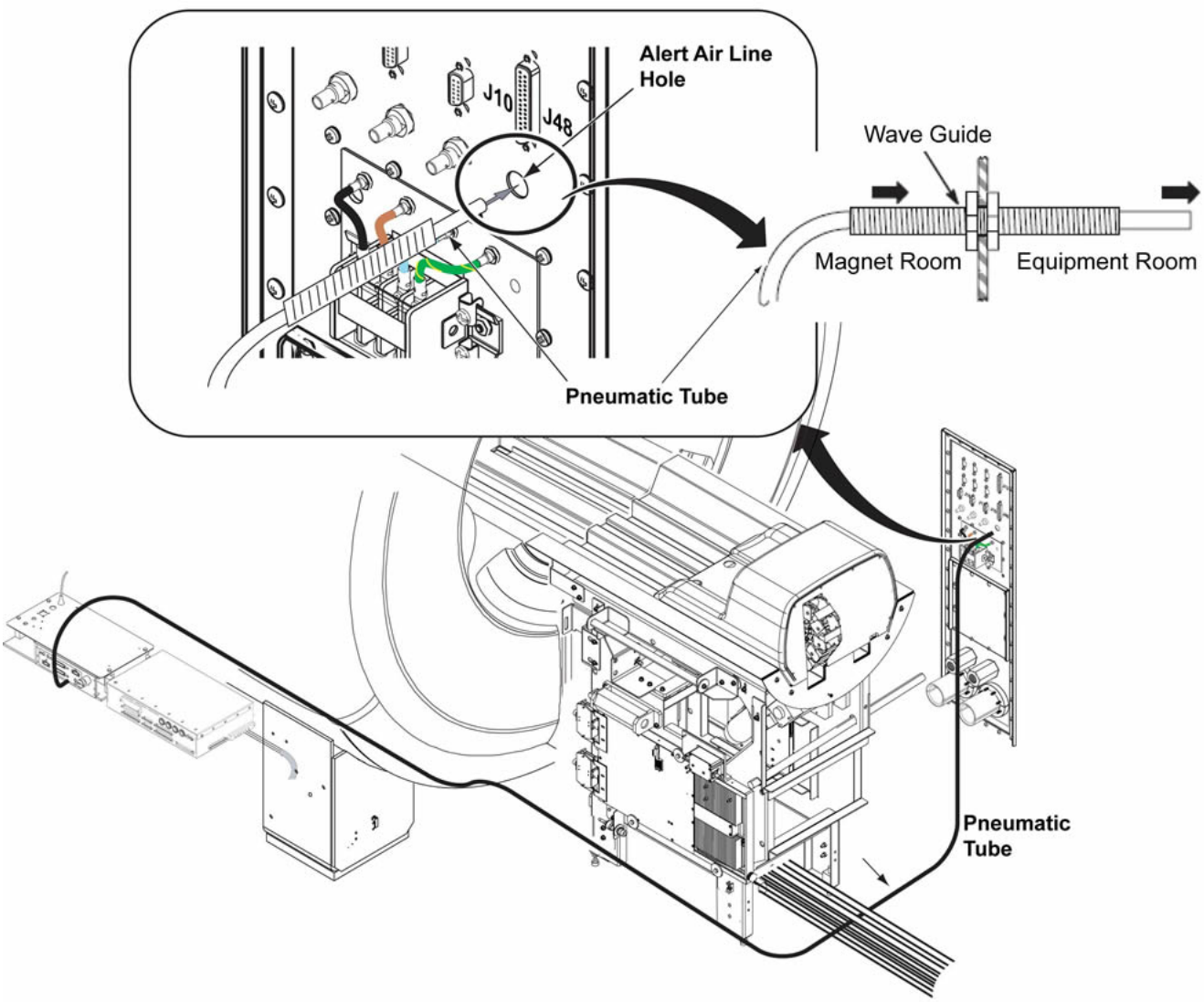
NOTE: If the pneumatic tubing is to be pulled thru fiber-optic conduit, coat with baby powder, not grease, to allow easier pulling.

2. Route Pneumatic Tubing from Rear Pedestal to Penetration Panel with other system cables.

3. Insert Wave Guide thru “ALERT AIR LINE” hole.

4. Route end of pneumatic tubing from Magnet Room side of Penetration Panel thru Wave Guide into the Equipment Room where the Control Box will be installed.

Illustration 3-137: Magnet Room Routing Of Tubing & Wave Guide Installation



11.3.6.4 Determining Need Of Extender Box

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 Section 11.3.6.6, CONTROL BOX INSTALLATION.
- If the pneumatic tubing is not long enough to reach control box: The extender is needed. Proceed to Section 11.3.6.5, INSTALLATION OF EXTENDER KIT.

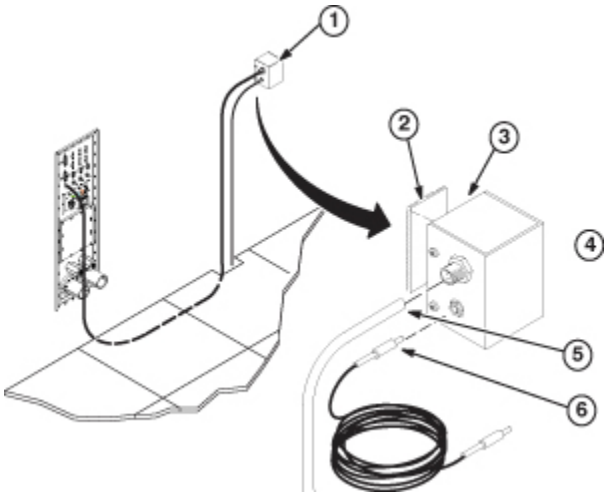
11.3.6.5 Installation Of Extender Kit (46-317758P2)

⚠CAUTION

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

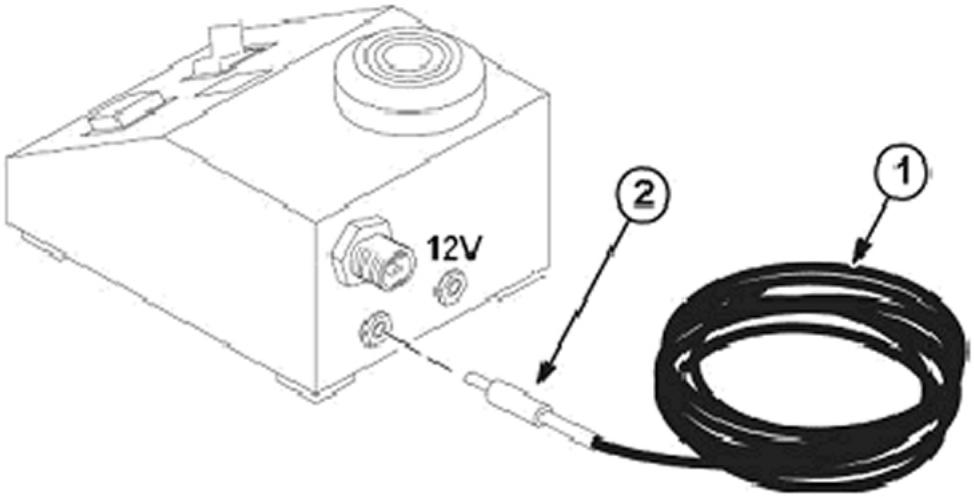
1. Choose the mounting location for extender box on equipment room wall next to Penetration Panel. Extender box will be mounted with pneumatic and electrical jacks on side of extender box.
2. Cut a two inch long piece of Velcro loops and a two inch long piece of Velcro hooks. Both are obtained from the Pneumatic Patient Alert Kit.
3. Clean the back of extender box, remove protective paper from back of Velcro loops, and attach Velcro to center of extender box back.
4. Clean wall in the area where extender box will be mounted, remove protective paper from back of Velcro hooks, and attach Velcro to wall in same orientation as Velcro loops on extender box.
5. Push end of pneumatic tubing fully onto Feed-thru connector on Extender Box.
6. Push the jack on one end of the 65 foot Extender Wire into the plug on side of Extender Box.

Illustration 3-138: Install Extender Box



7. Route the extender wire from extender box to control box. Control box will be installed near Operator Console, within five feet of an electrical outlet.
8. Push the jack at other end of extender wire into the plug on back of control box.

Illustration 3-139: Connection Of Extender Wire To Control Box



11.3.6.6 Control Box Installation Options

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:

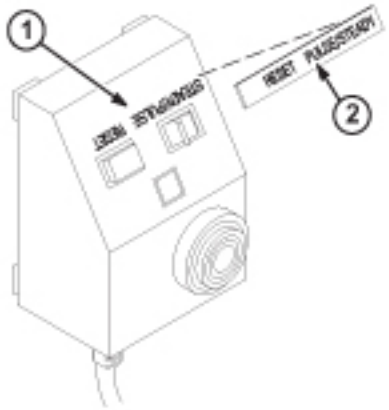
NOTE: The installer must provide additional mounting hardware if supplied screws or adhesive backed Velcro are not adequate for installation of the control box.

1. Mount control box on a wall or other vertical surface per Section 11.3.6.7, CONTROL BOX INSTALLATION ON WALL OR UNDER SHELF.
2. Mount control box under shelf per Procedure Section 11.3.6.7, CONTROL BOX INSTALLATION ON WALL OR UNDER SHELF.
3. 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 Section 11.3.6.11, FINAL CONNECTIONS TO CONTROL BOX.

11.3.6.7 Control Box Installation On Wall Or Under Shelf

1. Clean Control Box surface.
2. Remove adhesive backing from metallized nameplate and apply over silk screened lettering as shown.
3. Select one of the following for installation of Control Box:
   - If control box will be mounted to WALL or SHELF with Velcro, go to Section 11.3.6.8
   - If control box will be mounted to WALL with screws, go to Section 11.3.6.9
   - If control box will be mounted to SHELF with screws, go to Section 11.3.6.10

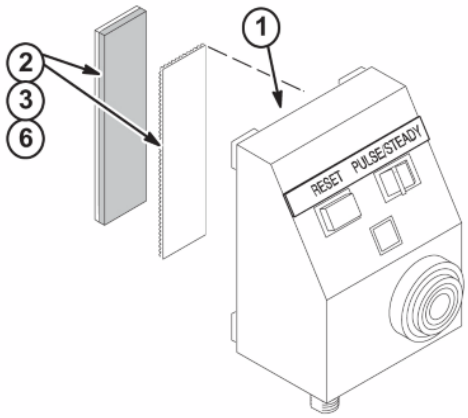
Illustration 3-140: Control Box Installation On Wall Or Under Shelf



11.3.6.8 Control Box Mounted With Velcro

1. Clean the bottom surface of the Control Box.
2. From the Pneumatic Patient Alert Kit, cut a three inch long piece of Velcro loops and a three inch piece of Velcro hooks.
3. Remove protective paper from back of Velcro loops, and attach Velcro to center bottom of control box.
4. Choose the mounting location for control box on wall (or under shelf) next to operator console. Control box should be mounted within sight of operator.
5. Clean the area where control box will be mounted.
6. Remove protective paper from back of Velcro hooks and attach to mounting location in same orientation as Velcro on box.
7. Mount the control box by pressing Velcro on control box against Velcro on mounting location and twisting slightly.
8. Proceed to Section 11.3.6.11, FINAL CONNECTIONS TO CONTROL BOX.

Illustration 3-141: Control Box Mounted With Velcro

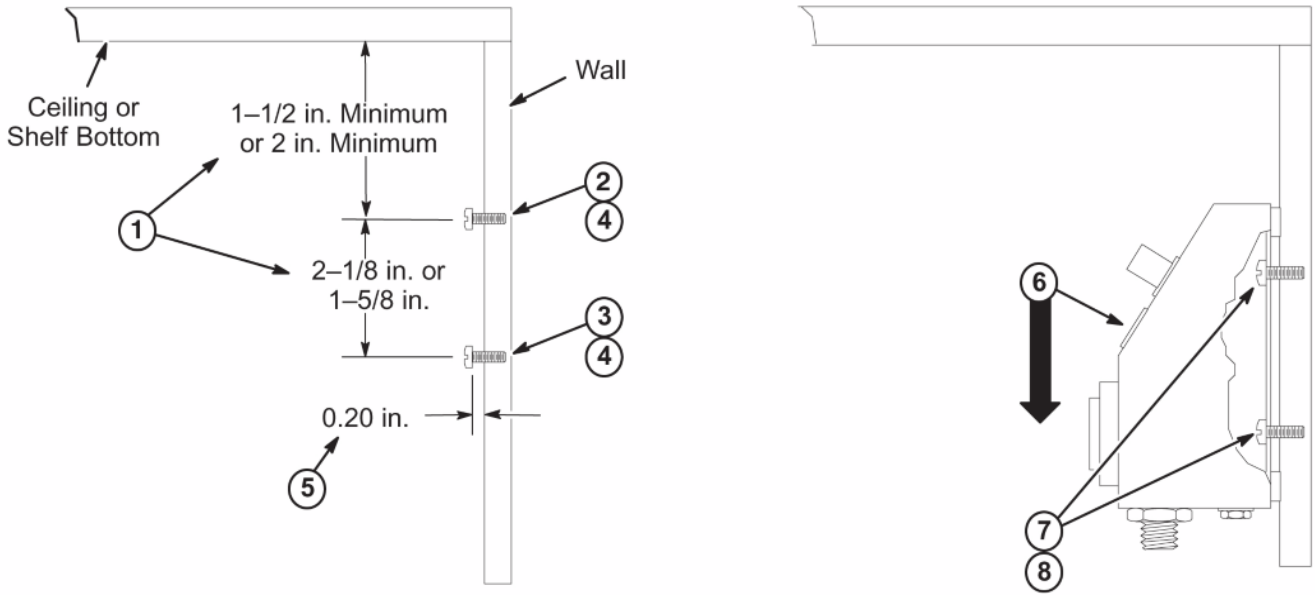


11.3.6.9 Installing Control Box With Mounting Screws On Vertical Surface

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

1. Determine which of the shown keyhole slot spacings are applicable to Control Box and select appropriate dimensions to use.
2. Mark top mounting hole position on wall.
3. Mark bottom mounting hole position on wall.
4. Drill a 1/16 in. pilot hole at locations if furnished screws are used.
5. Drill a 1/16 in. pilot hole at locations if furnished screws are used.
6. Center box keyhole slots over screws, push in on box, and then push downward to seat screws within slots.
7. Tighten or loosen screws as necessary to obtain a snug fit of box against wall.
8. Proceed to Section 11.3.6.11, FINAL CONNECTIONS TO CONTROL BOX.

Illustration 3-142: Installing Control Box With Mounting Screws On Vertical Surface

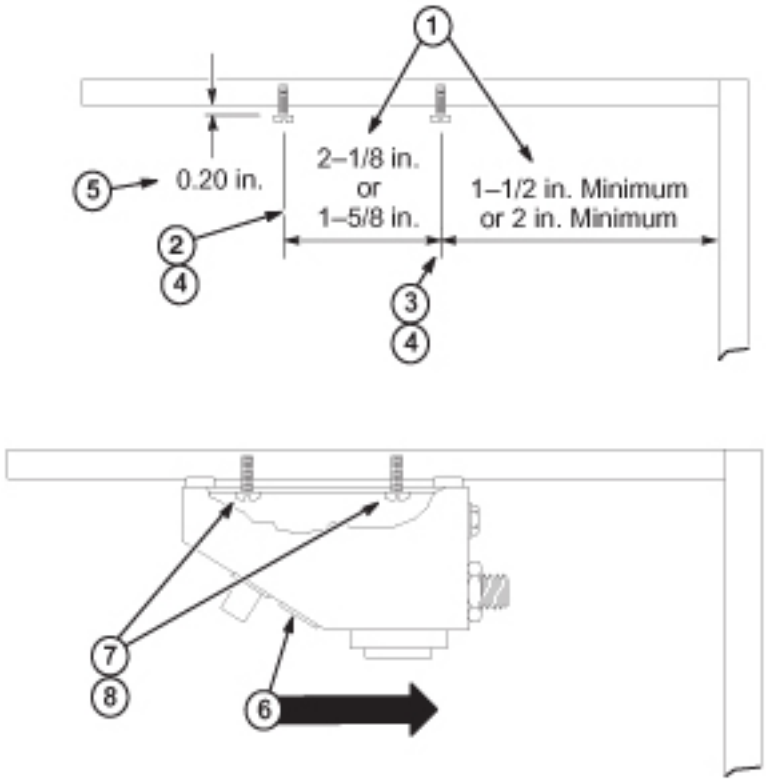


11.3.6.10 Installing Control Box With Mounting Screws Under Shelf

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

1. Determine which of the shown keyhole slot spacings are applicable to Control Box and select appropriate dimensions to use.
2. Mark front mounting hole position on underside of shelf.
3. Mark rear mounting hole position on underside of shelf.
4. Drill a 1/16 in. pilot hole at locations if furnished screws are used.
5. Install screws to depth as shown.
6. Center box keyhole slots over screws, push in on box, and then push inward to seat screws within slots.
7. Tighten or loosen screws as necessary to obtain a snug fit of box against wall.
8. Proceed to Section 11.3.6.11, FINAL CONNECTIONS TO CONTROL BOX.

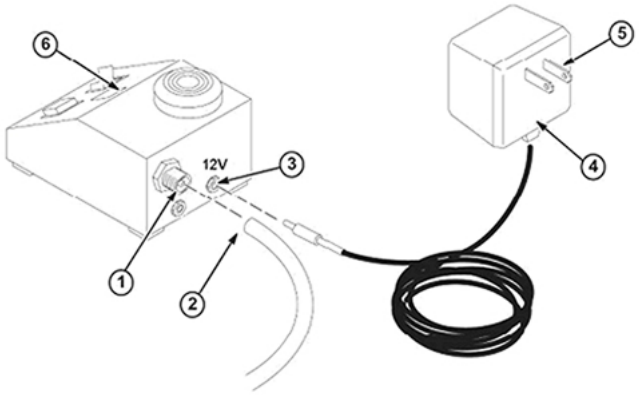
Illustration 3-143: Installing Control Box With Mounting Screws Under Shelf



11.3.6.11 Final Connections To Control Box

1. Bring the pneumatic tubing to back of control box and mark length. Leave two inches of extra pneumatic tubing for connection.
2. Cut tubing and push fully onto feed-thru connector on back of control box.
3. Plug Power Supply Jack into Control Box.
4. Two AC Adapters (115VAC or 230VAC) are provided in the Pneumatic Patient Alert Kit. Choose one of them to use.
5. Plug Power Supply into AC outlet (115VAC or 230VAC) according to the selected AC Adapter.
6. Check that green LED is on.

Illustration 3-144: Final Connections To Control Box



11.4 Finalization

No finalization steps.

12 Enclosure Installation

12.1 Personnel Requirements

Personnel Requirements	Preliminary Reqs	Procedure	Finalization
1	0 min	60 mins	0 min

12.2 Preliminary Requirements

12.2.1 Safety

⚠WARNING

STRONG MAGNETIC FIELD !
FERROUS MATERIALS CAN BECOME DANGEROUS PROJECTILES IN THE PRESENCE OF THE MAGNETIC FIELD PRODUCED BY THE SIGNA MAGNET. DO NOT BRING ANY FERROMAGNETIC TOOLS OR EQUIPMENT INTO THE MAGNET ROOM.

NOTICE

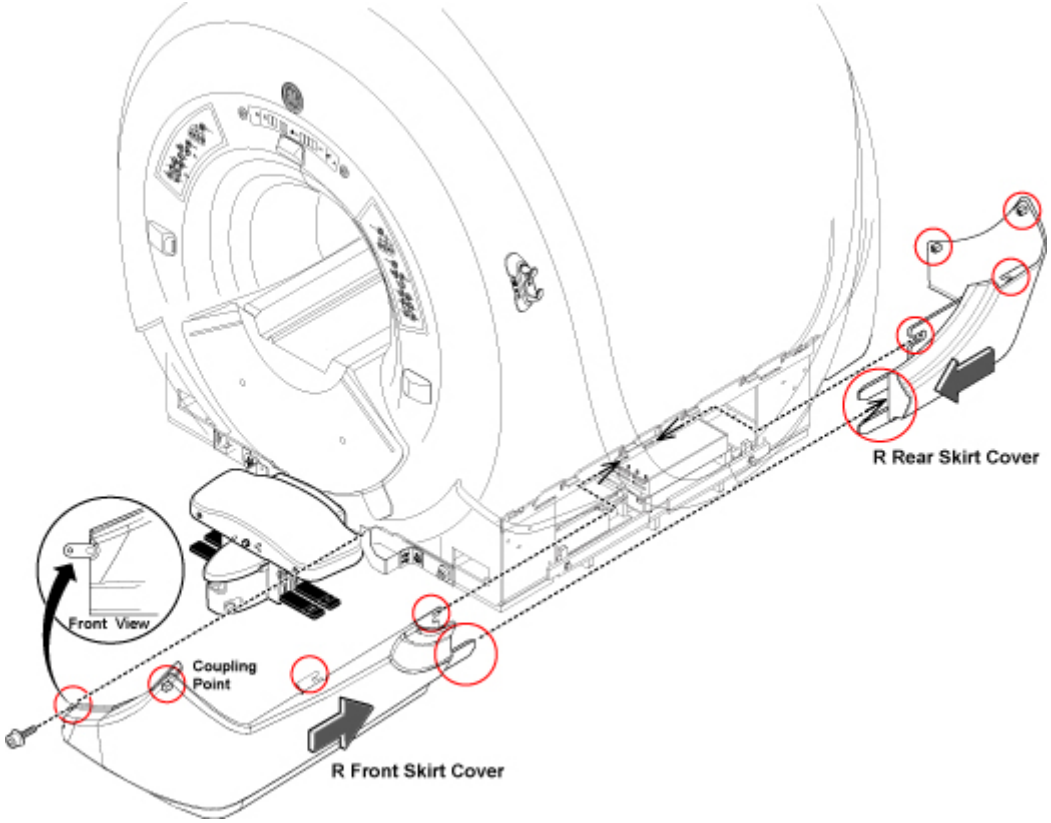
When handling the cover, wear the gloves.

12.3 Procedure

12.3.1 Magnet Skirt Covers

1. Install Magnet Skirt Covers. Refer to Illustration 3-145.

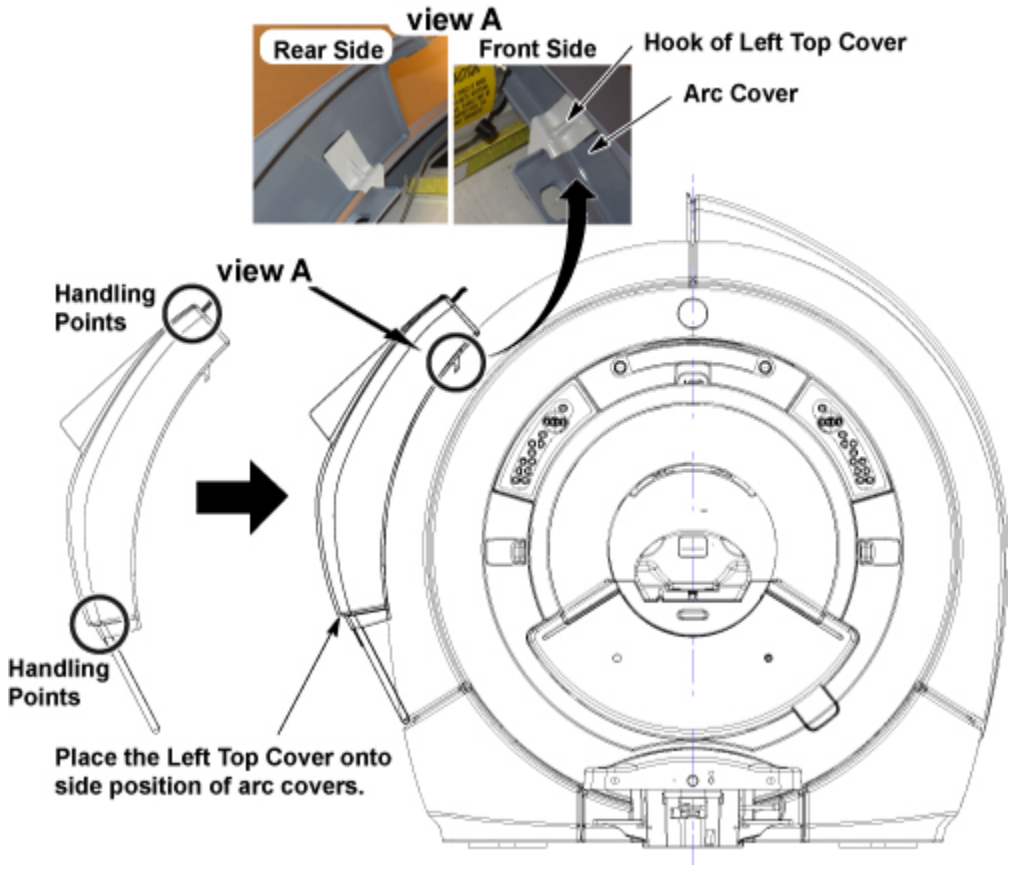
Illustration 3-145: Magnet Skirt Covers



12.3.2 Install Top Cover and Left Side Cover

1. Place the hooks of left top cover to side holes of arc cover.

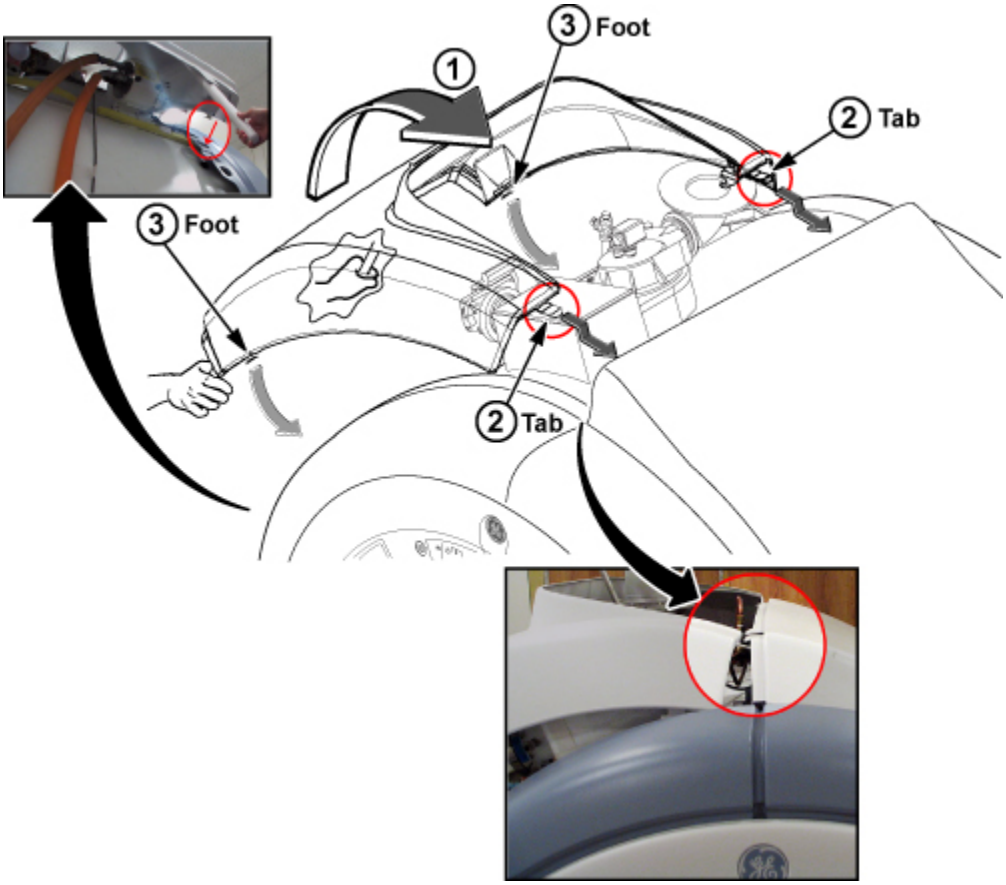
Illustration 3-146: Left Top Cover Installation 1



2. Hold the handles away from the enclosure to ensure that the alignment tabs get properly slotted under the right side's slot.

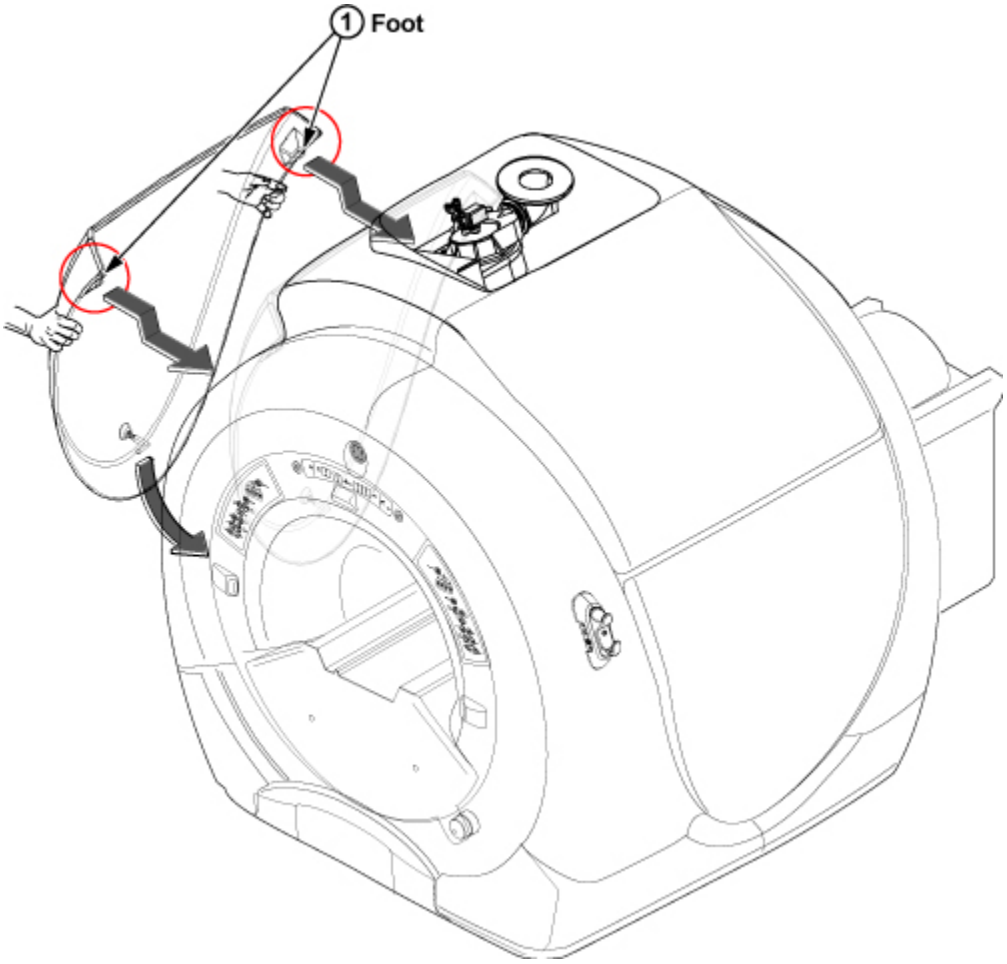
3. Set the round foot on the enclosure-side of the cover into the upper oval on the arc cover. Snap into place.

Illustration 3-147: Left Top Cover Installation 2



4. Install the left side cover to the holes of arc cover.

Illustration 3-148: Left Side Cover Installation



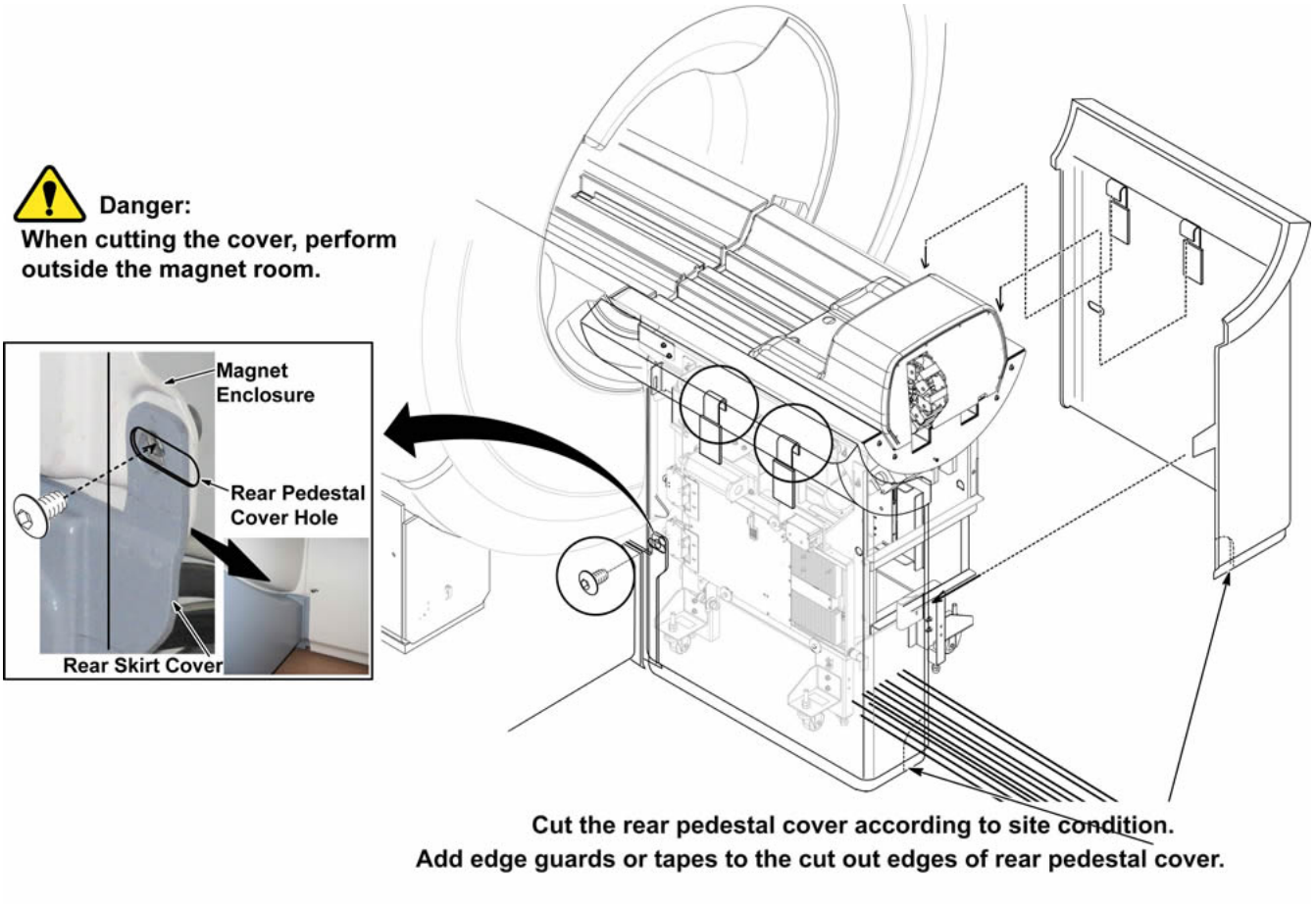
5. Lock the side cover by rotating the lock screw.

Illustration 3-149: Lock Left Side Cover

12.3.3 Install Rear Pedestal Covers

1. Install Rear Pedestal Covers. Refer to Illustration 3-150.

Illustration 3-150: Rear Pedestal Covers



2. If necessary, cut off the Rear pedestal cover outside of Magnet Room according to the site condition and re-install cover. Refer to Illustration 3-151, Illustration 3-152, Illustration 3-153.

Illustration 3-151: Rear pedestal cover cut off area 1

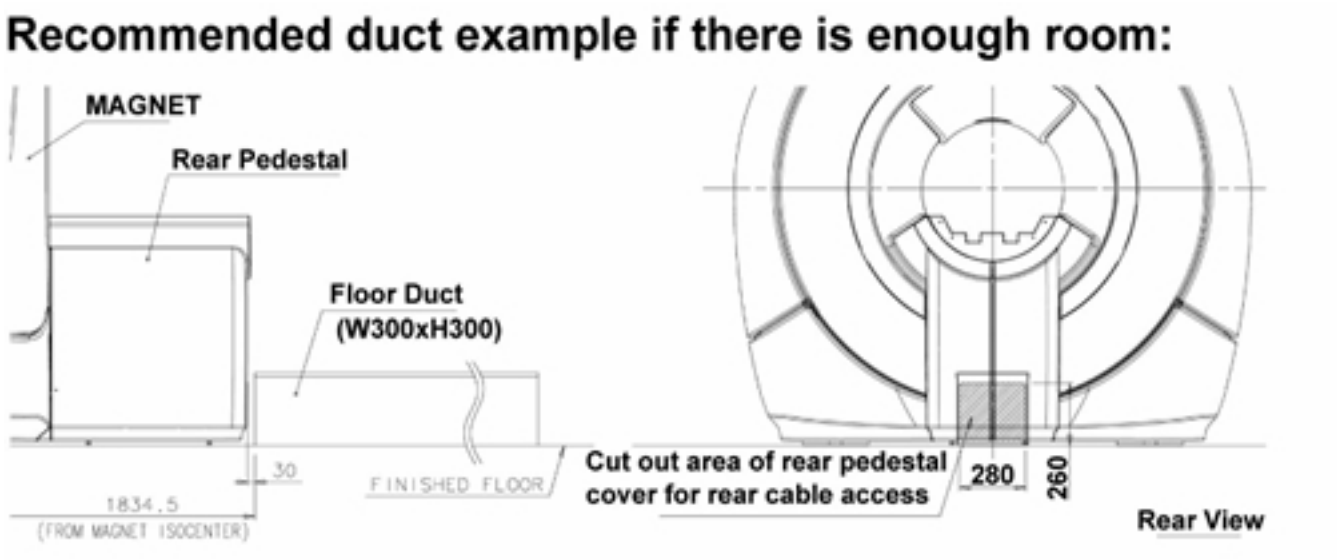


Illustration 3-152: Rear pedestal cover cut off area 2

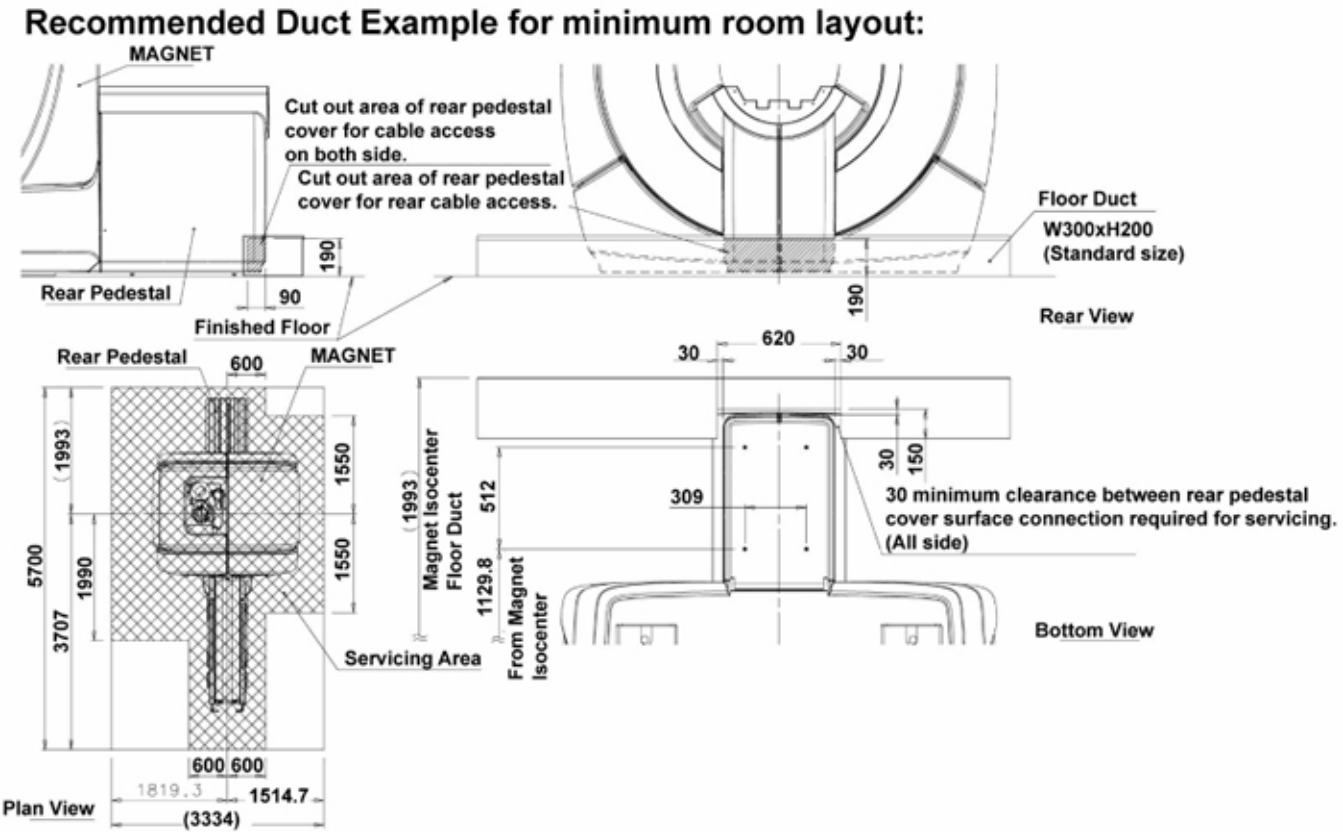
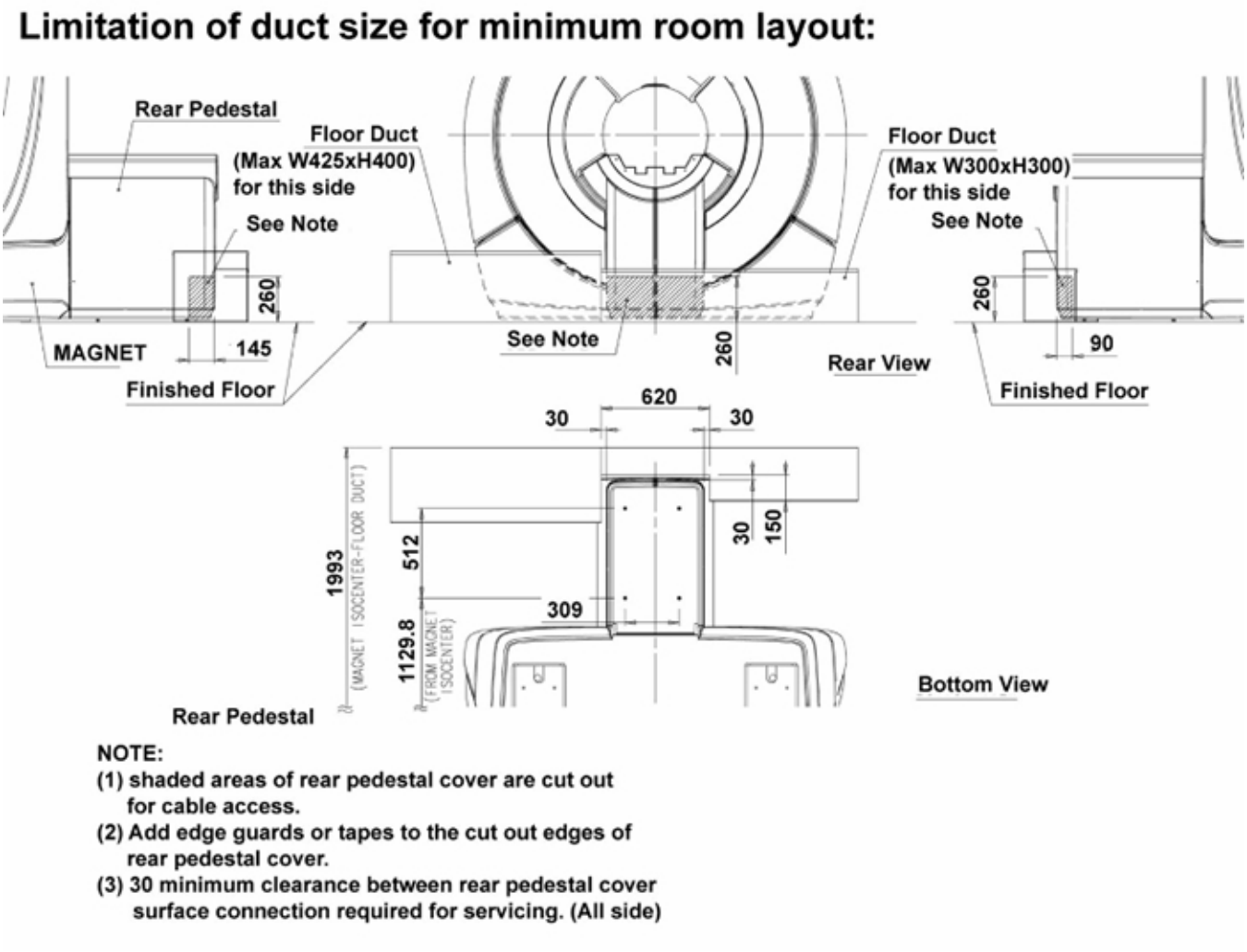


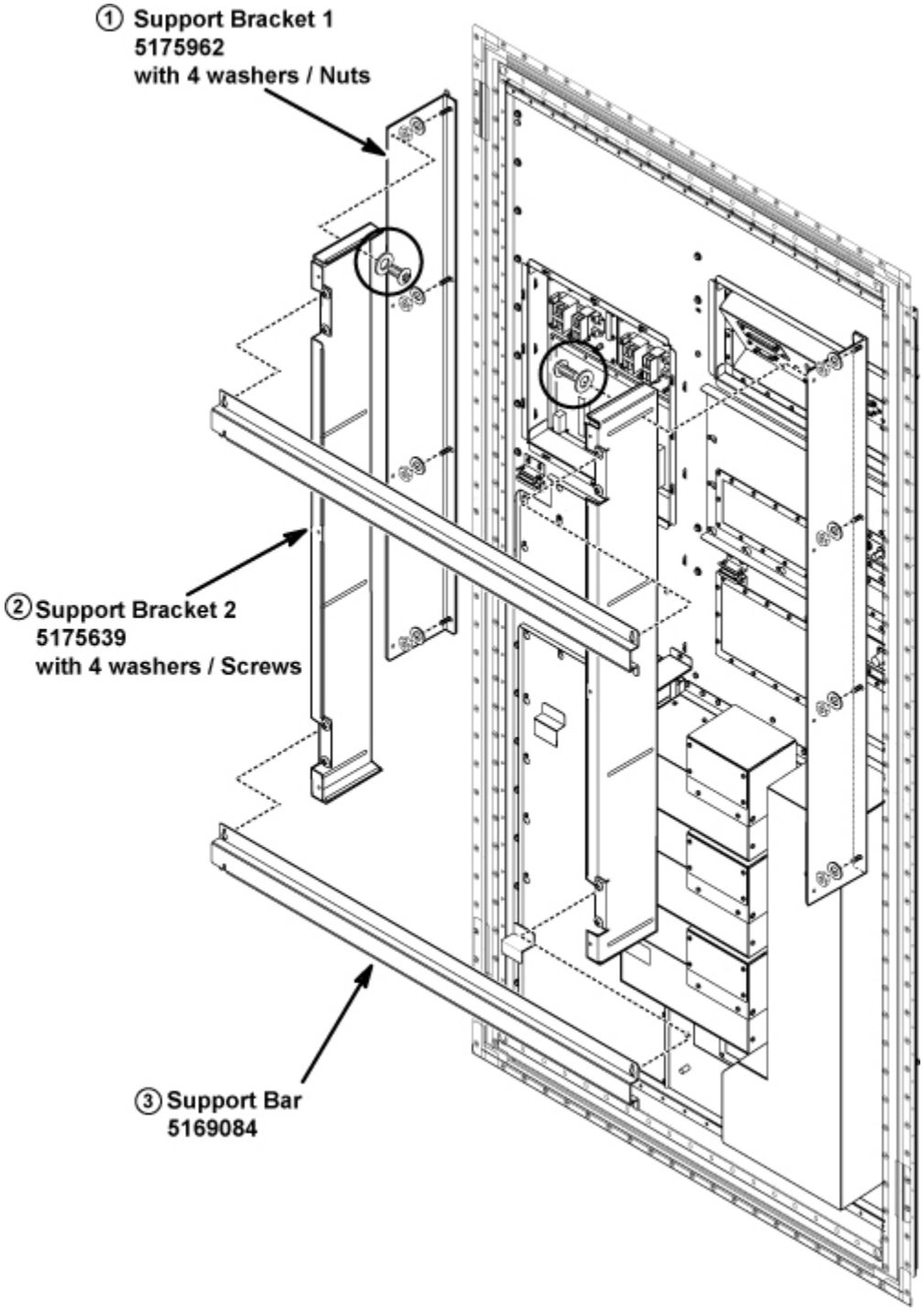
Illustration 3-153: Rear pedestal cover cut off area 3



12.3.4 Install System Cabinet Cover at Magnet Room Side

1. Instal the two support brackets 1 to studs of mesh shield with 8 washers / nuts.
2. Install the two support brackets 2 to support brackets 1 with 8 washers / screws.
3. Install the two support bars to support brackets 2 with 8 washers / screws.

Illustration 3-154: Install bracket 1



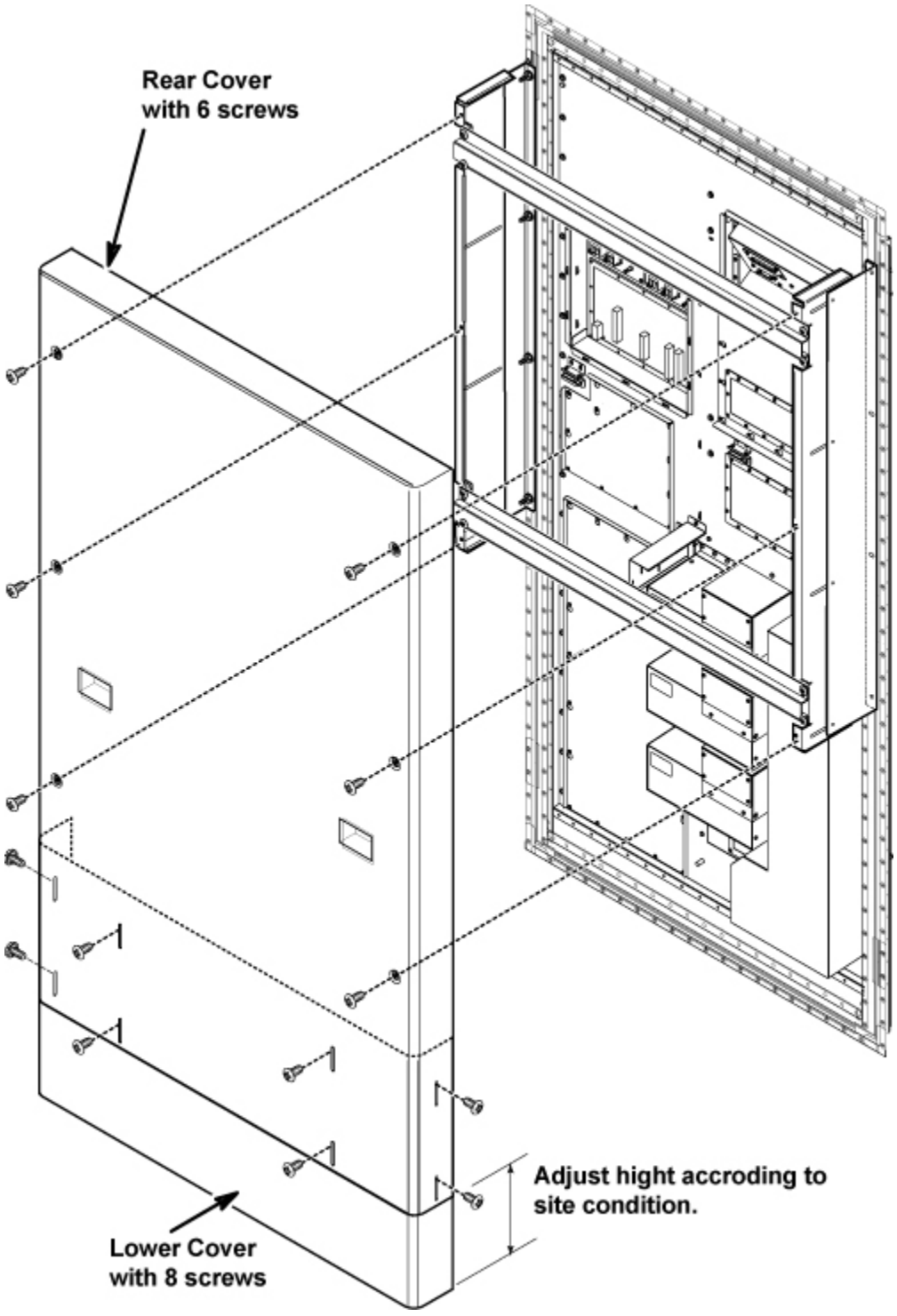
4. Adjust bracket 2 lengths according to site condition, and tighten the screws of bracket 2.

   NOTE: All the length adjustment of bracket 2 must be done similarly.

5. Instal the lower cover to rear cover with 8 washers / screws according to site condition.

6. Install the rear cover to support bracket 2 with 6 screws.
7. Adjust the lower cover height according to the site condition.

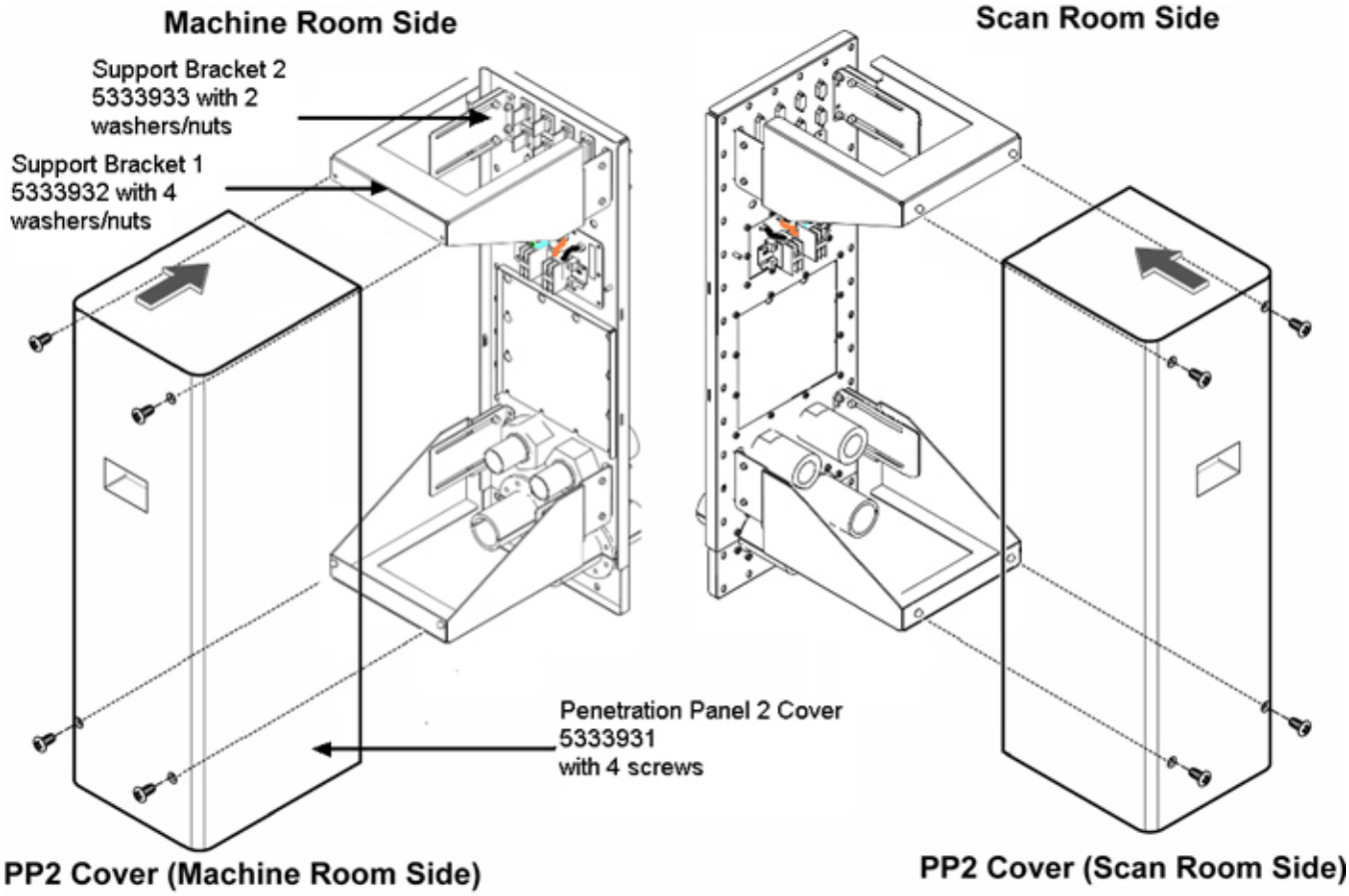
Illustration 3-155: Install rear covers



12.3.4.1 Install Penetration Panel Covers

1. Install the 4 Support Bracket 2 to studs of RF shield with 8 washers and nuts.
2. Install the two Support Bracket 1 to Support Bracket 2 with 8 washers and nuts.
3. Install the Penetration Panel 2 Cover to the Support Bracket 1 with 4 screws.

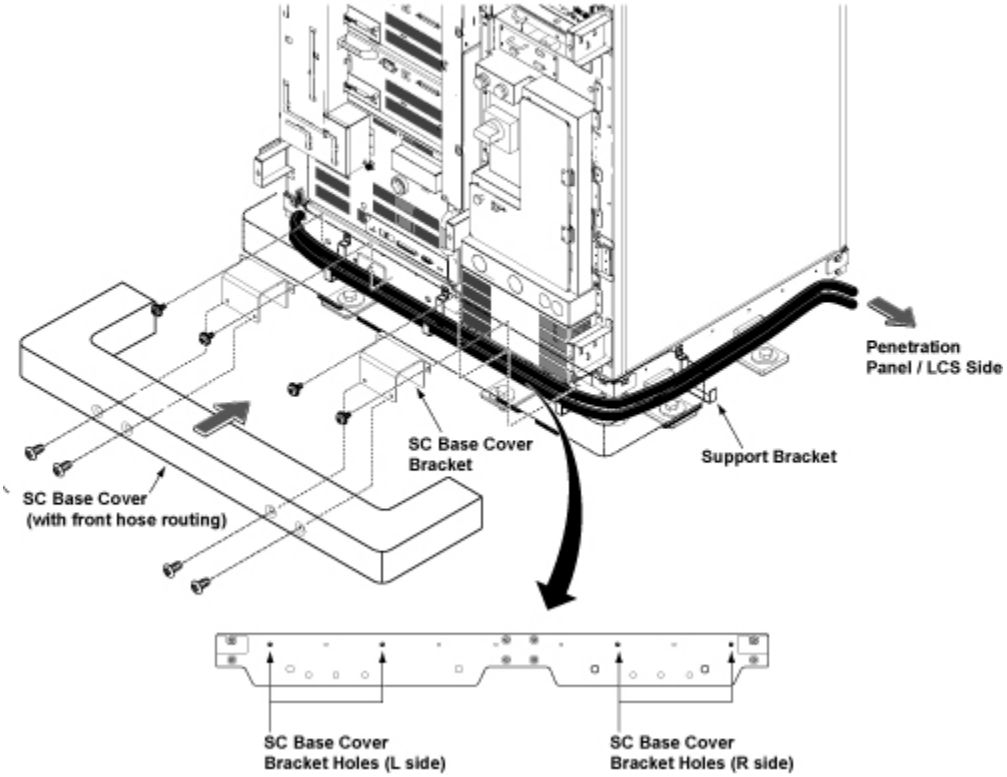
Illustration 3-156: Penetration Panel Covers



12.3.4.2 Install System Cabinet Base Cover

1. Install 4 support brackets to front and R side bottom of system cabinet.
2. Route the hoses in support brackets.
3. Install 2 SC Base Cover Brackets with four M5 screws to front bottom side of system cabinet.
4. Install SC Base Cover with 4 pan head screws.

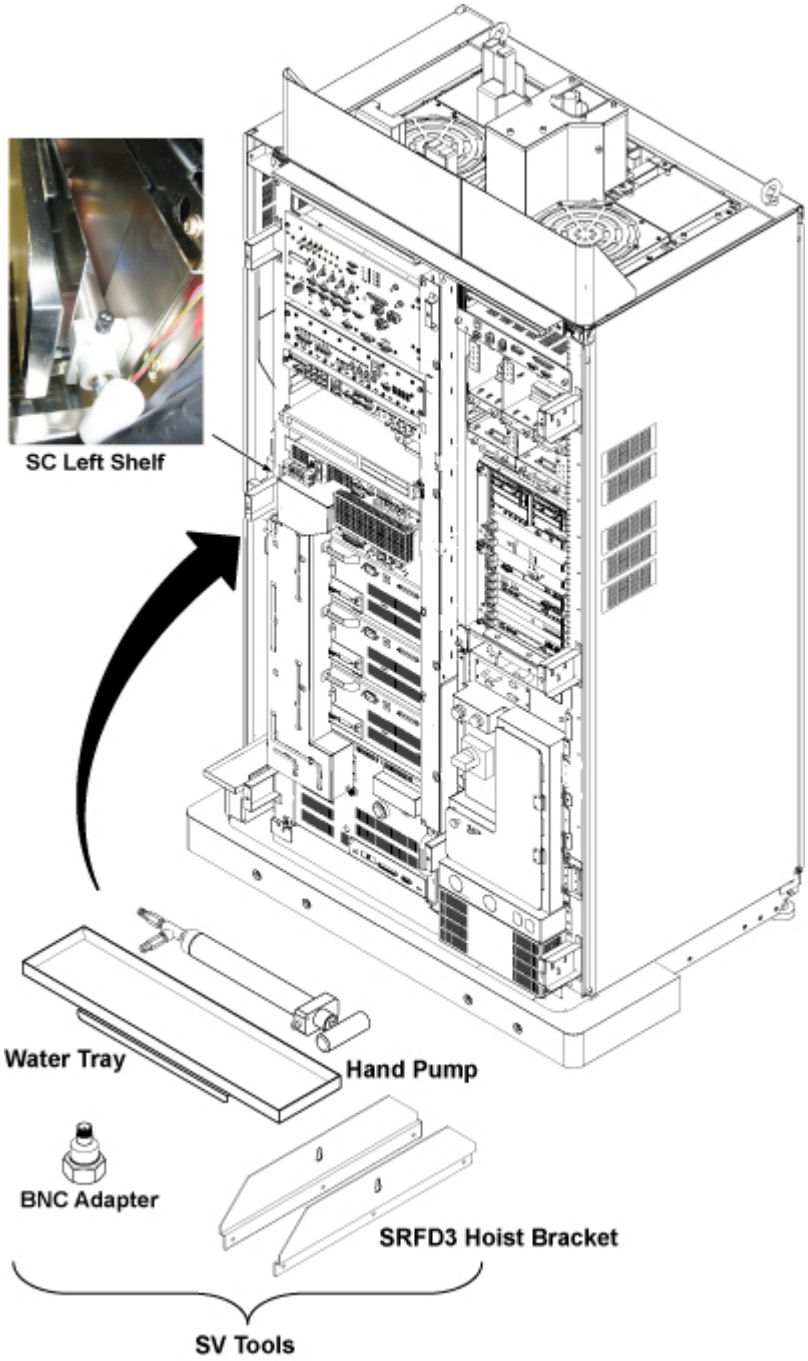
Illustration 3-157: System Cabinet Base Cover



12.3.4.3 SV Tool setting at SC left shelf

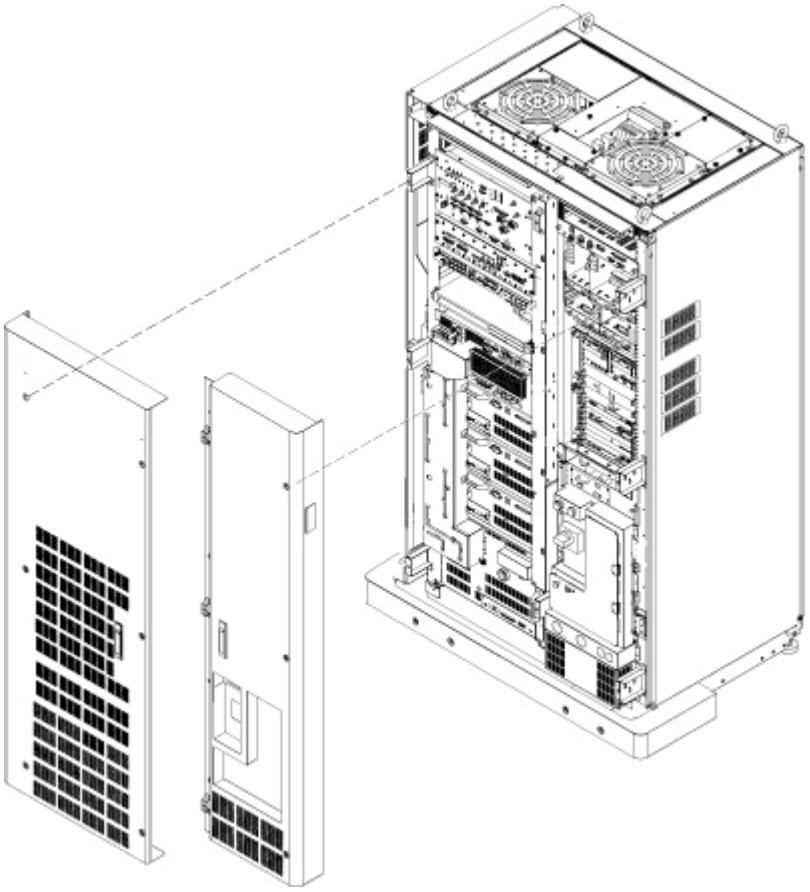
1. Store the SV tools in the shelf.

Illustration 3-158: SV Tool setting at SC left shelf



2. Restore Cabinet Left and Right Front Covers.

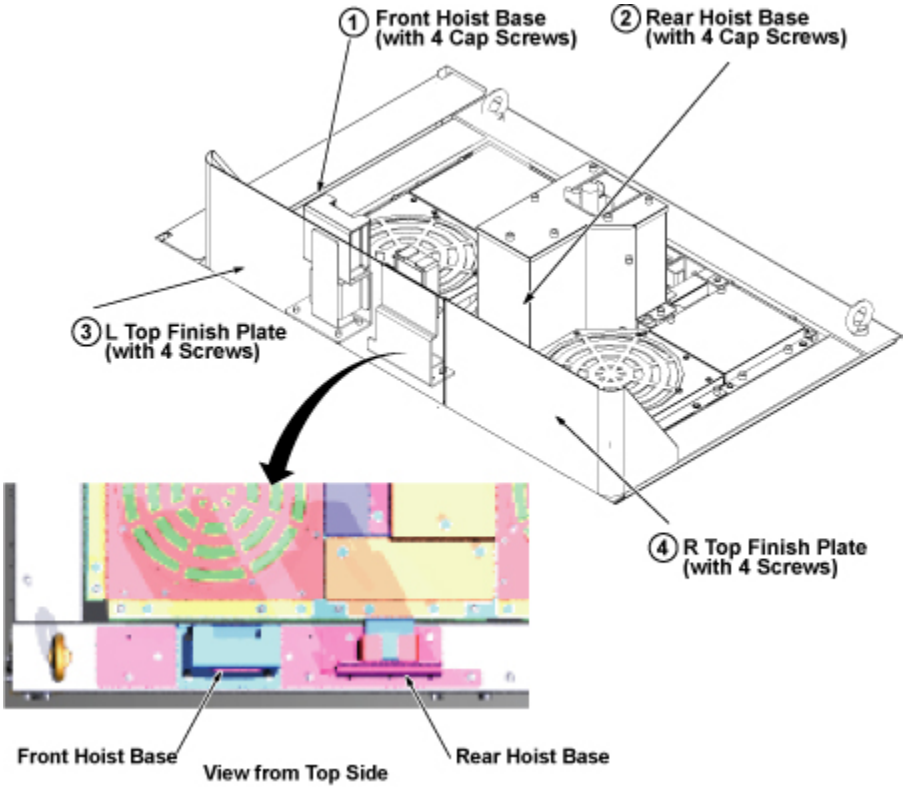
Illustration 3-159: Restore Cover



12.3.4.4 Hoist Bracket Setting and Blind Cover Installation

1. Install Hoist Bracket and Blind Cover.

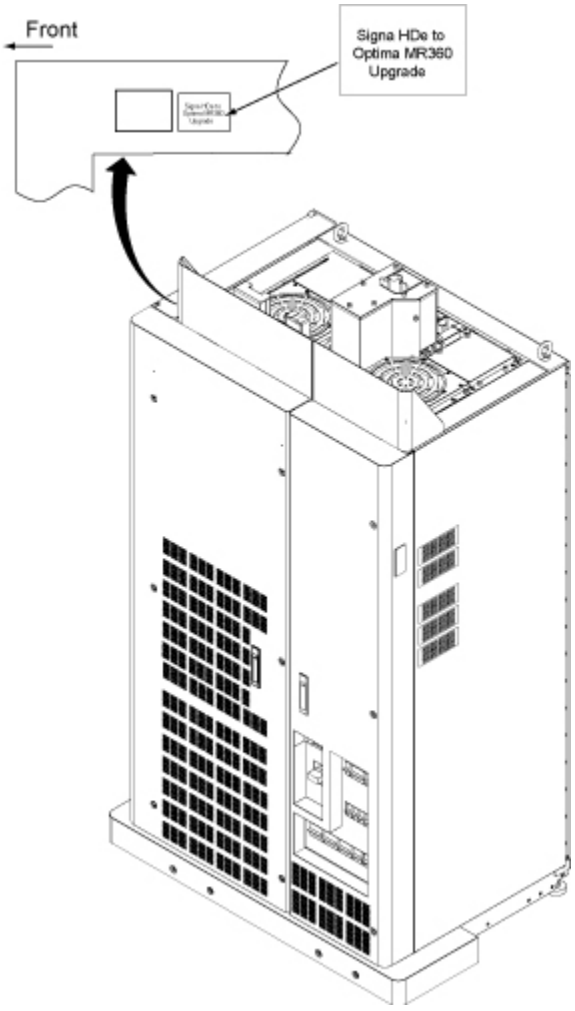
Illustration 3-160: Hoist Bracket Setting and Blind Cover Installation



12.3.4.5 Attachment of Upgrade Label

1. Attach Upgrade label on the following location of System Cabinet.

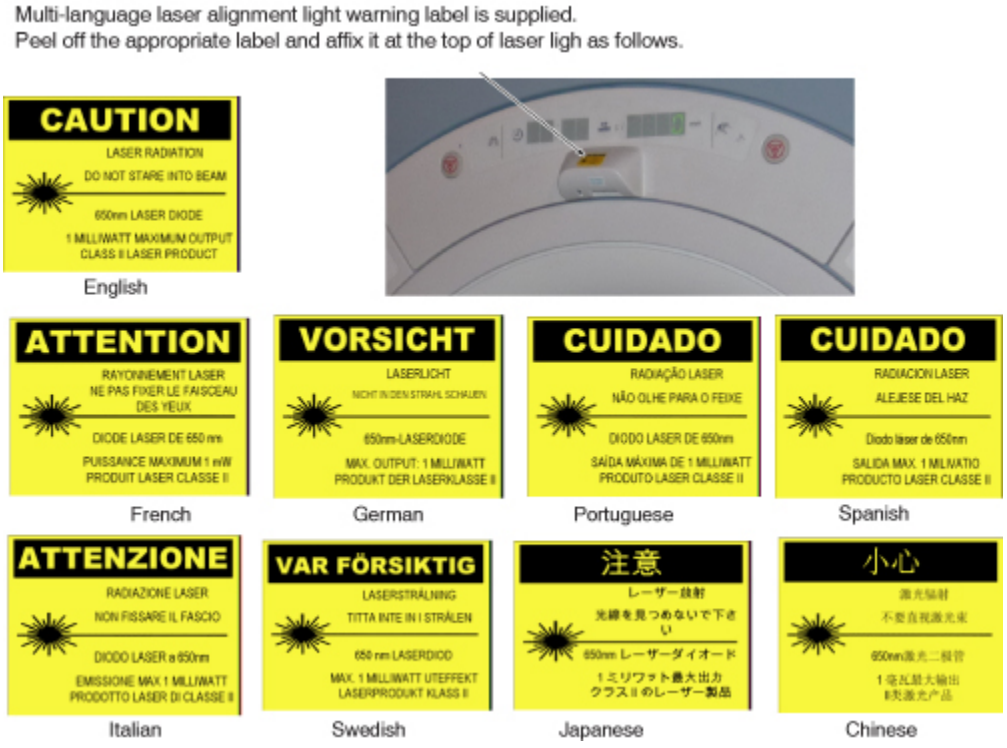
Illustration 3-161: Upgrade Label



12.3.4.6 Attachment of Laser Alignment Light Warning Labels

1. Multi-language laser alignment light warning label is supplied with the system. Peel off the appropriate label and affix it as Illustration 3-162.

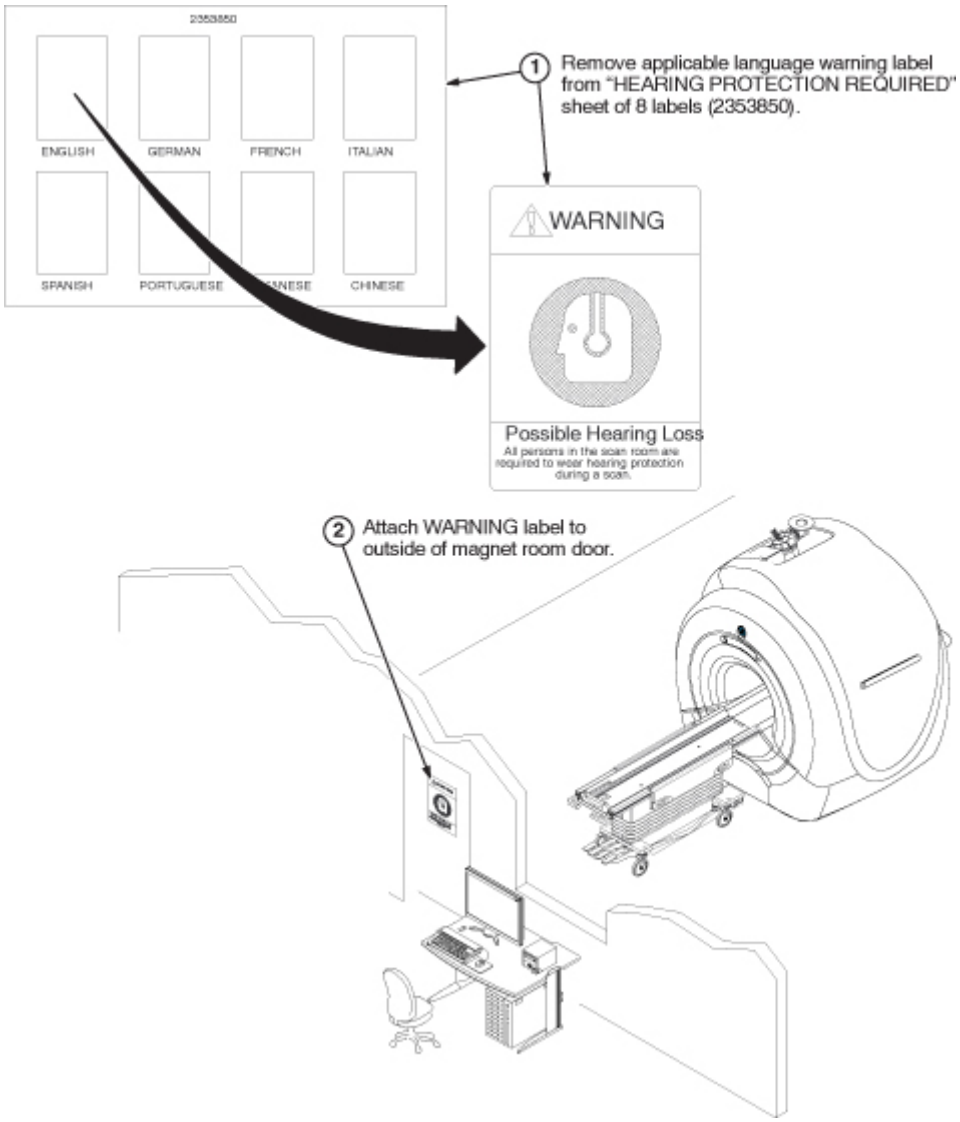
Illustration 3-162: Install Laser Alignment Light Warning Labels



12.3.4.7 Installation Of Hearing Loss Warning Sign

1. Attach Hearing Loss Warning Sign label outside of magnet room door.

Illustration 3-163: Installation Of Hearing Loss Warning Sign



12.4 Finalization

No finalization steps.

13 Product Locator Card

Please find each locator card and update GIB for each component.

NOTICE

It is important to update GIB to receive the future FMI. Without GIB update, your site will not receive future FMI.

NOTICE

For Mechanical Installer, please do not trow the locator card away. It contains important information.

- FE can access eGIB from the FEMC or use the following URL to verify and update their site :

  http://gib.gehealthcare.com/gib

- European pole: If FE unable to access eGIB, send an e-mail to **FMI, GIB European Connectors (GE Healthcare)** and include main system ID, model and serial number to have database updated.

13.1 Necessary components to register in GIB

NOTE: Please register components information properly for this upgrade as follows.

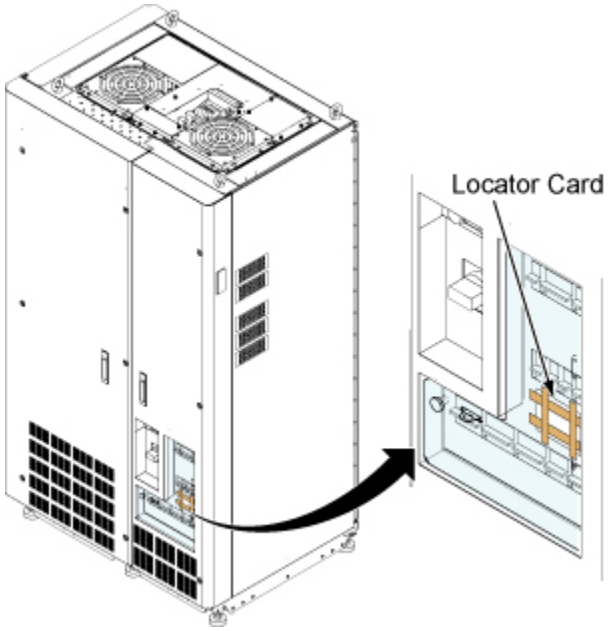
1. If new system id is registered, transfer the following reused parts information to new system id and add new components information to new system id.
2. If using the existing system id, remove the de-installed components information and add new components information.

13.1.1 Common components for all Optima MR360 system

13.1.1.1 Locator card attached on System Cabinet

Product Locator Card is attached on System Cabinet Front Breaker Panel.

Illustration 3-164: Product Locator on System Cabinet



In the sheet, the following Locator information is included.

- 5337894-10: ICN
- 6613300: Host Computer
- 5341380: OC
- 5323286: Cabinet
- 2341973: Head Coil
- 5341541: XFA
- 5341543: XFD-PS
- 5330100: Rear Pedestal

13.1.1.2 Magnet

Please register following information in GIB.

- 2394952: MM3 (Reused part. Transfer information if new system id is assigned.)
- 2226300: LCC Magnet (Reused part. Transfer information if new system id is assigned.)
- 2214149-2: BRM Coil (Reused part. Transfer information if new system id is assigned.)
- 2397571-2: 1.5T Short RF Coil (Reused part. Transfer information if new system id is assigned.)
- 2218465-3: Cold head ASM (Reused part. Transfer information if new system id is assigned.)

- 5337137-3: Mega SW
- 5180313: MRU (Reused part. Transfer information if new system id is assigned.)

13.1.2 Table Option

One locator information for the Table according to system configuration is necessary.

- 5146012: Standard table
- 5146014: Lite Table

13.1.3 Coil / Phantom Option

Register coil locator information according to site coil.

- 2415366: 1.5T 8CH BODY (HD PLUG)
- 5154817: 1.5T 4CH TORSO ARRAY
- 5160986: 1.5T HD 8ch Wrist
- 5147135-2: 1.5T 8CHNVArray
- 2415375: 1.5T 8CH CTL
- 5146634-2: 1.5T8CH High Res Brain Array
- 2401500: 1.5T HD 8Ch VIBRANT Breast Array
- 5145567-2: 1.5T HD 4Ch Breast Array
- 5308342-2: 1.5T HD Foot Ankle Array
- 5147225-2: 1.5T HD QUAD Extremity Coil
- 2320288: 1.5T HD Single Channel Surface Coils (GPFLEX)
- 2127316: 1.5T HD Single Channel Surface Coils (5GP)
- 2127315: 1.5T HD Single Channel Surface Coils (3INCH)
- 5114356-2: 1.5T HD Knee Array by MRI Devices
- 2415364: 1.5T HD 3Ch Shoulder Array by GE
- 5308343-2: 1.5T HD 8ch Shoulder Array by NeoCoil
- 5145565-2: 1.5T HD 4Ch Wrist Array
- 46-287900G3: Head SNR Phantom

13.1.4 Cooling Option

- 5344803: 6KW LYTRON MCS

- 2222564-30: 4KW GRADIENT CHILLER
- 5332778: 11kw CHILLER - 50Hz
- 5346827: 11kw CHILLER - 60Hz

14 System Mechanical Checklist Completion

14.1 Mechanical Installation Completion

The following steps need to be reviewed and completed by GE Field Engineer, especially if the system was installed by non-GE personel.

- Check mechanical flowchart to make sure all steps are complete
- Resolve shipment shortages
- Resolve omissions by mechanical contractors
- Make sure all rating plates are installed
- Recheck all wiring connections using cable map
- Correct for wiring errors if necessary
- Complete Section 14.1.1.
- Complete Section 14.1.2.

14.1.1 Returning Shipping Material

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

14.1.2 Final Mechanical Installation Steps

1. Complete assembly of PPG cable and probe head.
2. Make sure all Cabinet, Magnet Enclosure, and Rear Pedestal covers have been installed.
3. Make sure Patient Transport is in position at front of Magnet.

14.2 GE Field Engineer Responsibilities

14.2.1 Phantoms And Service Kits

1. Locate Phantom Kit and SPT Phantom Cart Kit.
2. Unpack the phantoms carefully to reduce risk of damage, breakage, or chemical spill.
3. Locate the multilingual attention labels. Refer to 'Multi-Language Label Installation Instructions' .
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.
    - Each phantom will receive the correct type of attention label written in the appropriate language for that site.

- 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.

14.2.2 Final GE Field Engineer Installation Steps

1. Record and enter applicable data into applicable site configuration files and records.
2. Complete Product Locator information for all installed serialized components, new or updated, via either:
   - (U.S. Only) FE Site Verification Web Site OR
   - Process and return product locator installation cards for all serialized components to:

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

   Refer to Getting Started,Section 8 for details on submitting Product Locator information.

   NOTE: Failure to fill out and return Product Locator Cards may result in failure of your site to receive future FMI's.
3. Process the Supplier Performance Report located in Common Forms and Section 14.2.3 (reference copy).
4. Store the delivered site's set of service tools and spares kit in service cabinet at site.
5. Locate surface coil ("quick disconnect") adapters and any optional surface coils and positioning accessories and place on Patient Transport. Be sure only the correct polarity (normal or reverse but not both) head coil adapter is left at site.
6. Locate Box "To be opened by Applications Specialist" and set aside for later visit by Applications Specialist.
7. Leave the site's set of Manuals and CD-ROM at site. Organize and set up reference cabinet for the Manuals.
8. 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.
9. Verify that coordination of application support for instruction of site users on the appropriate Software Release has been made before returning system to the users. Turn site over to applications who will instruct users.

14.2.3 Supplier Performance Report

Illustration 3-165: Supplier Performance Report

GE Medical Systems Field Service

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)

15 MR System Cable Specifications

Table 3-1: MR System Cable Specifications

Group	Run#	From	To	Length(mm)	AWG	Connector Type	
						From	To
A	M4502	MR2	MG6	15000	10	Ring tongue	Ring tongue
	M0503	MR2	MG6	15000	8	Ring tongue	Hubbell-F
	M0504	MR2	MG6	15000	8	Ring tongue	Hubbell-F
B	E3506	MR2	RF-Door-switch	30480	22	D-sub 9-F	N/A
C	M1500 (Note1	MR2	MG3-A3	10000	LMR-600FR	N-type-M Right Angle	N-type-M
	M1504 (Note2)	MR2	MG3-PED-IF	10000	LMR-400FR	N-type-M Right Angle	N-type-M
	M3535	MR2	MG3-A7	15090	22	D-sub 9-M	D-sub 9-F
	M3534	MR2-A11	MG3-A3	15088	RGU 58C	MHV Coaxial -M	MHV Coaxial -M
	M3522	MR2	MG3-A40	15000	22	D-Sub37-M	D-Sub37-M
D	E0500	MR2	OW1-A11	26060	10	APP-4	APP-4
	E3501	MR2	Run_E3047	26365	22	D-Sub9-F	D-Sub9-M
	E3502	MR2	OW1-A15	27584	24	RJ-45	RF-45
E	E3503	PP1	OW1-A21	27280	24	D-Sub25-F	D-Sub15-M
F	828	PP1	MS1-A3-A1	18440	22	D-sub 9-M	D-sub 9-F
	624	PP1	MS1-A2	15000	18	Ring tongue	Plug (4 pin)
G	458	PP1	OM3	27400	22	D-sub 9M	Ring
H	M1515	MR2	MG2-A41	18500	LMR-400FR	BNC-Plug	BNC-Plug
	M1514	MR2	MG2-A41	18500	BELDEN, 9207	Twinax-M	Twinax-M
	M1513	MR2	MG2-A41	18500	BELDEN, 9207	Twinax-M	Twinax-M
	M3519	MR2-A11	MG2-A41	18500	22	D-Sub15-F	D-Sub15-M
	M3521	MR2-A11	MG2-A41	18500	22	D-Sub37-F	D-Sub37-M
	M3520	MR2-A11	MG2-A41	18500	22	D-Sub37-F	D-Sub37-M
I	2009	MR2	MG2-A29	16916	20	D-sub25-F	D-sub25-F
	2011/2012	MR2-CAM	MG2-A33	17210	N/A	HFBR Duplex Simplex	HFBR Duplex Simplex
	P2500	MR2-ICN, CAM	MG2-A43	17000	POF	LC Duplex	LC Duplex
	M3513	MR2	MG2-A42	20000	22	D-Sub37-M	D-Sub37-M
	M3514	MR2	MG2-A42	20000	22	D-Sub37-M	D-Sub37-M

	M3532	MR2-A11	MG2-A12-A2	16002	RGU 58C	MHV Coaxial -M	MHV Coaxial -M
	M3533	MR2-A11	MG2-A12-A2	16002	RGU 58C	MHV Coaxial -M	MHV Coaxial -M
	M3531	MR2	MG2-A12-A1	15000	2	N/A	Ring tongue
	M3530	MR2	MG2-A12-A1	15000	2	N/A	Ring tongue
	M3529	MR2	MG2-A12-A1	15000	2	N/A	Ring tongue
	2018	MR2-A11	MG2-A12-A2	17831	20	MHV Coaxial -M	MHV Coaxial -M
	2019	MR2-A11	MG2-A12-A2	17831	20	MHV Coaxial -M	MHV Coaxial -M
J	M3528	PP1	MG3-A2	15000	22	D-Sub25-M	D-Sub25-M
K		MR2	RUN_826	25000	22	Mini MateN-M	D-sub 15-M
	E3507	RUN_827		500	22	D-sub 15-F	
	823	MR2	MSM1	18288.0	22	D-sub 15-F	D-sub 15-M
L	827	FJ3	FJ4	914.4	22	D-sub15-M	Circular Connector
			MS5-A5	914.4	22		D-sub9-F
M	E0503	MR2	WC2	10000		APP-6	Ring tongue
	E3504	MR2	WC2	10000	22	MateN-6-M	MateN-6-M
	E0501	MR2	WC2	10000	14	APP-6	Ring tongue
N	457	PP1	OM1	30632	22	D-sub9-F	U Shape
O	824TR	PP1	FJ1	24384	22	D-sub 9-F	D-sub 9-M
	623	PP1	MS5-A1	15000	18	Ring tongue	Plug (4pin)
P	E3500	PP1	FACILITY DISCONNECT	19812	22	D-sub 9-F	Stripped Wire
Q	M3527	PP1	EMERGENCY OFF SW	27432	22	D-sub 9-M	Stripped Wire
R	M4500	MS1	RF-COM-GRND	20000	1/0	Ring tongue	Stripped wire
S	942	MSM1	Site Ethernet	24384	26	RJ45	RJ45
U	606	MS4	MS1-A3-A1	30480	22	Circular Connector	DIN Connector
V	825TR	PP1	MSM1-A1	24384	22	D-sub 25-F	D-sub 25-F
	826	FJ3	MSM1-A1	18440	22	D-sub 15-M	D-sub 15-F

Note

1. 6611055 (M1501) can be used as 5m extension cable.
2. 6611057 (M1505) can be used as 5m extension cable

16 Calibration and Functional Check after System Installation

For Calibration and Functional Check after system installation, please follow “Install and Calibration Wizard for Signa Brivo MR355/Optima MR360” in 5364191-2EN - Optima MR360 / Brivo MR355 1.5T Service Methods Rev3 or higher.

- Please enter Center Frequency Value at First Image Check procedure. Center Frequency was recorded before de-installation.
- Please enter Shim Current value at LC Shim Rough procedure. Shim Current value was recorded before de-installation

NOTICE

Never perform 'Restore Info' using the 'Save Info Data Disk of HDe' .

Illustration 3-166: Calibration Flow Chart 1

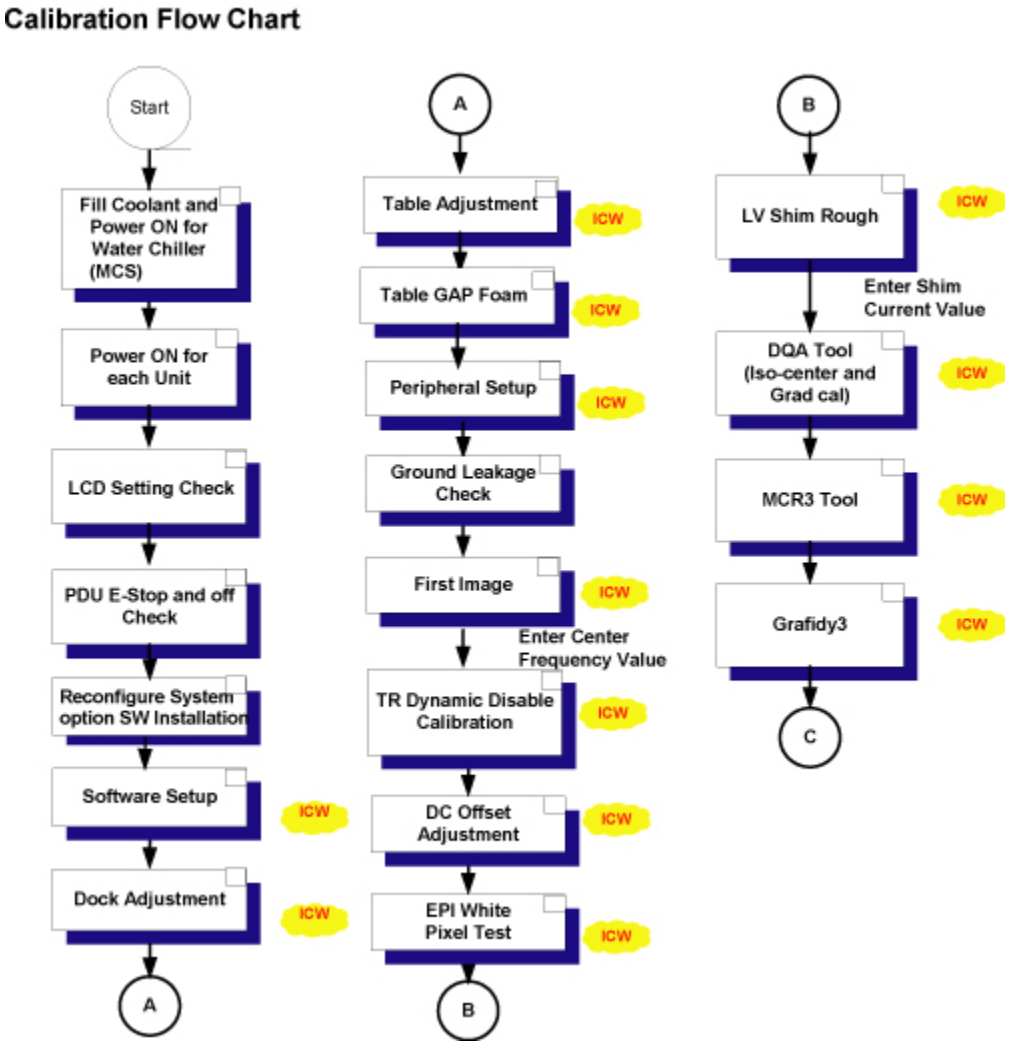
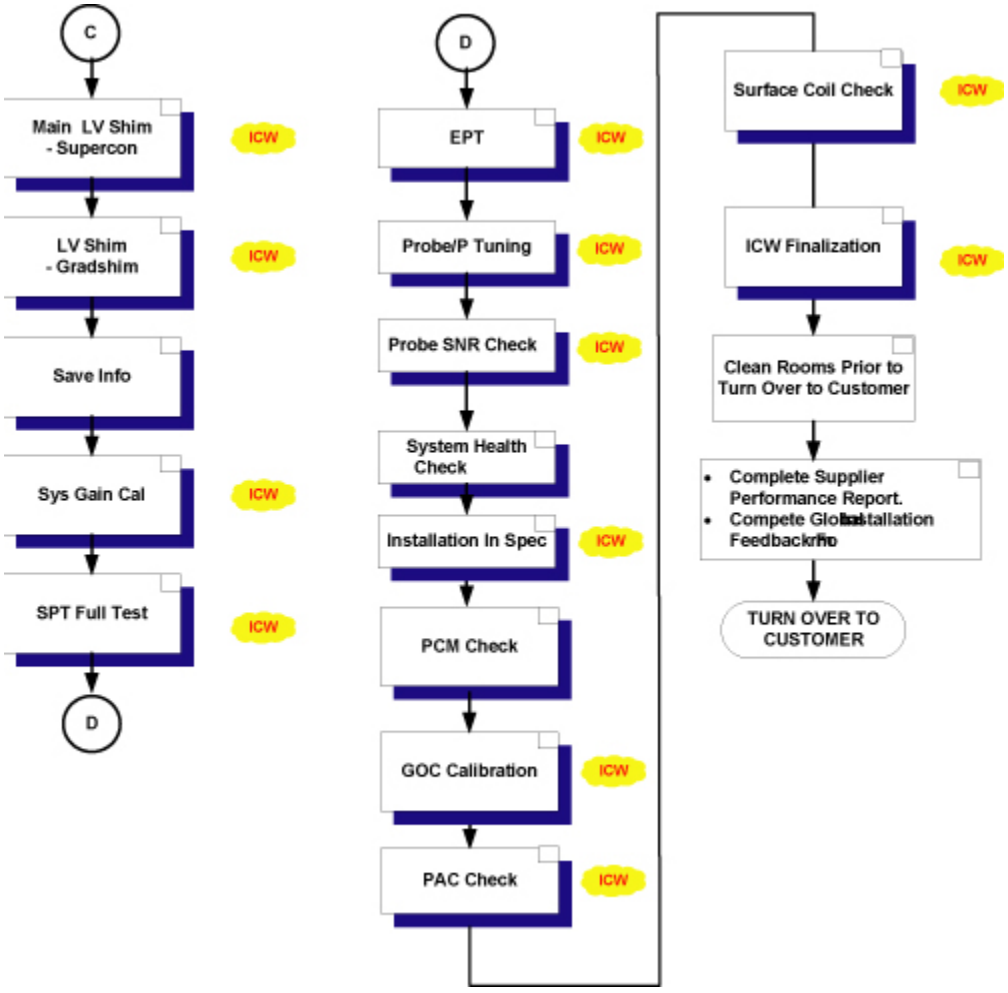


Illustration 3-167: Calibration Flow Chart 2



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GE Medical Systems, a General Electric Company, going to market as GE Healthcare.

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