



SIGNA Pioneer, SIGNA Hero/Performer/Pilot, and SIGNA Voyager Systems

Pre-Magnet Delivery System Installation

5728068-1EN
Revision 5

Language Policy

DOC0371395 - Global Language Procedure

ПРЕДУПРЕЖ ДЕНИЕ (BG)	<p>Това упътване за работа е налично само на английски език.</p> <ul style="list-style-type: none"> 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)	<p>本维修手册仅提供英文版本。</p> <ul style="list-style-type: none"> 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)	<p>本服務手冊僅提供英文版本。</p> <ul style="list-style-type: none"> 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、機械性或其他形式的危險。
警告 (ZH-TW)	<p>本維修手冊僅有英文版。</p> <ul style="list-style-type: none"> 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)	<p>Ovaj servisni priručnik dostupan je na engleskom jeziku.</p> <ul style="list-style-type: none"> 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)	<p>Tento provozní návod existuje pouze v anglickém jazyce.</p> <ul style="list-style-type: none"> 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)	<p>Denne servicemanual findes kun på engelsk.</p> <ul style="list-style-type: none"> 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)	<p>Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar.</p> <ul style="list-style-type: none"> 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)	<p>This service manual is available in English only.</p> <ul style="list-style-type: none"> 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)	<p>See teenindusjuhend on saadaval ainult inglise keeles.</p> <ul style="list-style-type: none"> 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)	<p>Tämä huolto-ohje on saatavilla vain englanniksi.</p> <ul style="list-style-type: none"> 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)	<p>Ce manuel d'installation et de maintenance est disponible uniquement en anglais.</p> <ul style="list-style-type: none"> 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)	<p>Diese Serviceanleitung existiert nur in englischer Sprache.</p> <ul style="list-style-type: none"> 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)	<p>Το παρόν εγχειρίδιο σέρβις διατίθεται στα αγγλικά μόνο.</p> <ul style="list-style-type: none"> Εάν το άτομο παροχής σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει υπηρεσίες μετάφρασης. Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό εκτός εάν έχετε συμβουλευτεί και έχετε κατανοήσει το παρόν εγχειρίδιο σέρβις. Εάν δεν λάβετε υπόψη την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στο άτομο παροχής σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.
FIGYELMEZTETÉS (HU)	<p>Ezen karbantartási kézikönyv kizárólag angol nyelven érhető el.</p> <ul style="list-style-type: none"> Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése. Ne próbálja elkezdni 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)	<p>Þessi þjónustuhandbók er aðeins fánleg á ensku.</p> <ul style="list-style-type: none"> Ef að þjónustuveitandi viðskiptamanns þarfnast annas tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálþjónustu. 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)	<p>Il presente manuale di manutenzione è disponibile soltanto in lingua inglese.</p> <ul style="list-style-type: none"> 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)	<p>このサービスマニュアルには英語版しかありません。</p> <ul style="list-style-type: none"> 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)	<p>본 서비스 매뉴얼은 영어로만 이용하실 수 있습니다.</p> <ul style="list-style-type: none"> 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)	<p>Šī apkopes rokasgrāmata ir pieejama tikai angļu valodā.</p> <ul style="list-style-type: none"> 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 triecienu, mehānisku vai citu faktoru izraisītu traumu risks apkopes sniedzējam, operatoram vai pacientam.

ĮSPĖJIMAS (LT)	<p>Šis eksploataavimo vadovas yra tik anglų kalba.</p> <ul style="list-style-type: none"> • 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 eksploataavimo vadovo. • Jei nepaisysite šio įspėjimo, galimi paslaugų tiekėjo, operatoriaus ar paciento sužalojimai dėl elektros šoko, mechaninių ar kitų pavojų.
ADVARSEL (NO)	<p>Denne servicehåndboken finnes bare på engelsk.</p> <ul style="list-style-type: none"> • 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)	<p>Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim.</p> <ul style="list-style-type: none"> • 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)	<p>Este manual de assistência técnica encontra-se disponível unicamente em inglês.</p> <ul style="list-style-type: none"> • 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)	<p>Este manual de assistência técnica só se encontra disponível em inglês.</p> <ul style="list-style-type: none"> • Se qualquer outro serviço de assistência técnica solicitar este manual noutra 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.
ATENȚIE (RO)	<p>Acest manual de service este disponibil doar în limba engleză.</p> <ul style="list-style-type: none"> • 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)	<p>Данное руководство по техническому обслуживанию представлено только на английском языке.</p> <ul style="list-style-type: none"> • 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)	<p>Ovo servisno uputstvo je dostupno samo na engleskom jeziku.</p> <ul style="list-style-type: none"> • 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)	<p>Tento návod na obsluhu je k dispozícii len v angličtine.</p> <ul style="list-style-type: none"> • Ak zákazníkovi poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka. • Nepokúšajte sa o obsluhu zariadenia, kým si neprečítate návod na obsluhu a neporozumiete mu. • Zanedbanie tohto upozornenia môže spôsobiť zranenie poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, mechanické alebo iné ohrozenie.
ATENCIÓN (ES)	<p>Este manual de servicio sólo existe en inglés.</p> <ul style="list-style-type: none"> • 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)	<p>Den här servicehandboken finns bara tillgänglig på engelska.</p> <ul style="list-style-type: none"> • Om en kunds servicetekniker har behov av ett annat språk än engelska, ansvarar kunden för att tillhandahålla översättningstjänster. • Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken. • Om du inte tar hänsyn till den här varningen kan det resultera i skador på serviceteknikern, operatören eller patienten till följd av elektriska stötar, mekaniska faror eller andra faror.
OPOZORILO (SL)	<p>Ta servisni priročnik je na voljo samo v angleškem jeziku.</p> <ul style="list-style-type: none"> • 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)	<p>Bu servis kılavuzunun sadece ingilizcesi mevcuttur.</p> <ul style="list-style-type: none"> • 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.

ЗАСТЕРЕЖЕННЯ (УК)	<p>Даний посібник з експлуатації доступний тільки англійською мовою.</p> <ul style="list-style-type: none">• Якщо постачальник послуг клієнта спілкується іноземною мовою, тоді клієнт зобов'язаний забезпечити переклад.• Заборонено проводити огляд обладнання без попереднього звертання до даного посібника з експлуатації і розуміння інформації, поданої у ньому.• Недотримання цього застереження може завдати шкоди здоров'ю постачальника послуг, оператора або пацієнта через ураження електричним струмом, механічну травму або інше ушкодження.
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Chapter 1 Getting started

1.1 Preparing the site

Prepare the site so that it is ready to provide power to the magnet when the magnet arrives.

Table 1-1 Tools and test equipment

Item	Quantity	Part number
Restricted Access Control Kit (contains two plastic warning signs for posting at site during installation and service activity)	1 Kit	46-271138G1
Nonmagnetic Titanium Service Tool Kit, Large Set	1 Kit	5112581
Nonmagnetic Titanium Service Tool Kit, Small Set	1 Kit	5113258
Digital Voltmeter (DVM) with Jumper Leads	1	-
Extension Cords, with Ground Conductor	1	-
Power Strip, Grounded Type, with Minimum of Five Outlets	1	-
Plastic or Aluminum Flashlight	1	-
Nonmagnetic Level	1	-
Nonmagnetic Tape Rule, 12 ft	1	-
Assorted Drill Bits	Varied	-
Inspection Mirror	1	-
Hobby and Utility Knives	1	-

Table 1-2 Required conditions

Condition
Before equipment is delivered, you must complete pre-installation work to avoid delays and confusion. Refer to the <i>Direction 5680003-1EN</i> , <i>SIGNA Pioneer 3.0T Pre-installation</i> , <i>Direction 5680008-1EN</i> , <i>SIGNA Voyager 1.5T Pre-installation</i> , or <i>SIGNA™ Hero / SIGNA™ Performer / SIGNA™ Pilot Preinstallation Manual (5852803-1EN)</i> .

Table 1-3 Safety

Safety
<p>Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:</p> <ul style="list-style-type: none"> • Have read and understood all hazard conditions and safety requirements in the latest revision of the GE HealthCare <i>MR Service Safety Manual</i> (5452735). • Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses). • Comply with all site-specific training and workplace safety requirements. <p>If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.</p>

Introduction

This manual provides instructions for positioning or installing the following components of the SIGNA Pioneer, SIGNA Hero/Performer/Pilot, and SIGNA Voyager system before delivery and installation of the magnet.



IMPORTANT

Pre-magnet delivery items depend on the region. Do installation only for the items shipped before magnet delivery.

- Main disconnect panel (optional)
- Cable concealment cover frame
- Integrated Cooling Cabinet (ICC) and Integrated System Cabinet (ISC) RF mesh shield - Standard on the wall configuration
- RF Penetration Wall Frame - Remote off the wall configuration
- Integrated Cooling Cabinet (ICC)

System options

There is one system option that impacts site preparation: oxygen monitor.

Facility options

The following facility options impact site preparation:

- Main disconnect panel
- SIGNA System Seismic Anchorage Service (R43900JE).

NOTE

Magnet seismic anchoring is the customer's responsibility to coordinate magnet mounting methods with the RF shielded room vendor to prevent RF leaks and secondary grounding problems.

1.2 System Components

1.2.1 Magnet Room

1. 3.0T Magnet and Magnet Enclosure (MAG) and Vibroacoustic Damping Kit

2. Patient Table (PT)
3. Magnet Rundown Unit (MRU)

**NOTE**

An optional remote MRU may be located outside the Magnet Room.

1.2.2 Equipment Room

1. Main Disconnect Panel (MDP) (may be customer-supplied in exempt regions)
2. Integrated System Cabinet (ISC)
3. Integrated Cooling Cabinet (ICC)
4. Penetration Panel (PP) for Remote (Off the wall) Siting only
5. Magnet Monitor (MON)
6. Optional: Magnetic Resonance Elastography (MRE)

1.2.3 Control Room

1. Operator Workspace equipment (OW)
2. Pneumatic Patient Alert System (PA1)
3. Optional:
 - Oxygen Monitor (OXY)
 - Physiological Acquisition Transceiver (PAT) Charging Station

1.2.4 Accessories

1. Patient accessories, including RF coils, phantoms, cushions, sponges, straps, and wedges
2. Gating accessories, including patient cardiac leads, peripheral gating probe, and respiratory bellows

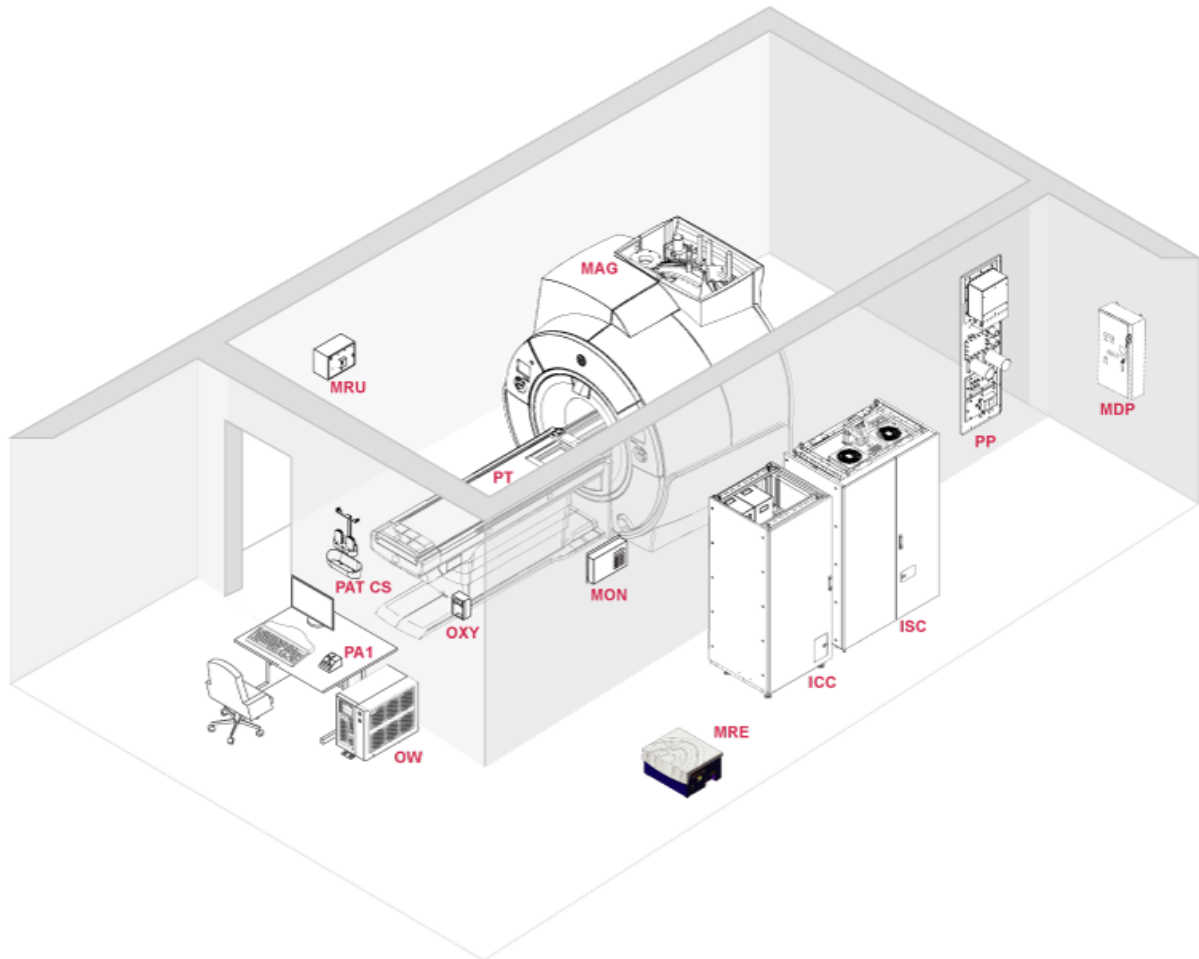
1.2.5 System Overview

Figure 1-1 System overview for Standard (On the Wall) Siting configuration (example)



NOTE

MRE, PAT Charging Station and OXY shown above are optional components of the system.

Figure 1-2 System overview for Remote (Off the wall) siting configuration (example)**NOTE**

The remote (Off the wall) siting configuration allows the ISC and ICC cabinets to be located away from the wall adjacent to the Magnet Room, either elsewhere in the equipment room, or in a separate room not adjacent to the Magnet Room.

**NOTE**

MRE, PAT Charging Station and OXY shown above are optional components of the system.

1.3 Doing an inspection of the product delivery

Make sure that the product order that was delivered is complete and unpack the Integrated Cooling Cabinet (ICC).

Prerequisites

Table 1-4 Safety

Safety
<p>Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:</p> <ul style="list-style-type: none"> • Have read and understood all hazard conditions and safety requirements in the latest revision of the GE HealthCare <i>MR Service Safety Manual</i> (5452735). • Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses). • Comply with all site-specific training and workplace safety requirements. <p>If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.</p>

Procedure

1. Examine all packages closely at delivery. If damage is apparent, do the following:
 - 1.1. Make sure the notation *damage in shipment* is written on all copies of the freight or express bill before delivery is accepted or signed for by a GE HealthCare representative or a hospital receiving agent.
 - 1.2. Whether noted or concealed, you must report damage to the carrier immediately upon discovery, or in any event, within 14 days after receipt, and hold the contents and containers 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.
 - 1.3. Call Global Parts at 1-800-548-3366 (option 6) to file a report of the damage.



NOTE

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

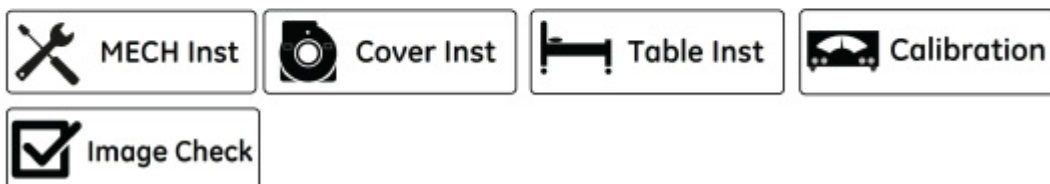
2. Make sure that all catalog numbers listed as delivered on the shipping document have been delivered.
3. If any catalogs and/or packing boxes are missing or noted as shipped short, identify the impact on the installation schedule.
4. Make sure each packing box is in the correct location based on the *Where Label* that is attached to the outside of the box.

Figure 1-3 Packing box labels

Where Label



When Label



**NOTE**

The *When Label* identifies when to use the box.

5. If you are not sure about the contents of a box, refer to Product Delivery Instructions (PDIs) and packing lists to make sure the shipment is correct.

**NOTE**

PDIs specify box contents, part numbers, and shipping procedures, and are identified by catalog number. Lists of items included with each box are detailed in separate packing lists.

6. To move the ICC from the wooden crate box, do one of the following:

**NOTE**

The ICC weighs 770 lbs (349 kg).

- Use the side panel of the crate as a ramp.



- Ask the rigger to lift the ICC using four eye-bolts on the top of the ICC. The eye-bolts are included in the ICC crate box.

Result

Once out of the crate, the ICC has casters so you can move the ICC more easily in the customer facility.

7. Set aside any equipment not used for the pre-magnet delivery system installation for the Mechanical Installer. The Mechanical Installer will use them in the system mechanical installation.
8. If the ICC has shipped, find the product locator card attached to the ICC Top Asm TJ (5491928-12).
 - 8.1. At this time, for U.S. ONLY, the preferred method of submitting information is the FE Site Verification Web Site. The FE Site Verification consists of three components that are available on the web from the main menu. They are:
 - 8.1.1. Install/deinstall product locator model and serial numbers

- 8.1.2. Add/modify ship to address information
- 8.1.3. Update CARES FE data for primary/secondary FEs
- 8.2. 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.

**NOTE**

Make sure that the serial and model number on each rating plate matches the installation card numbers before removing the 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.

1.4 Pre-magnet delivery system installation workflow

Reference this installation workflow when installing components pre-magnet delivery and to make sure all necessary site installations are complete prior to system mechanical installation.

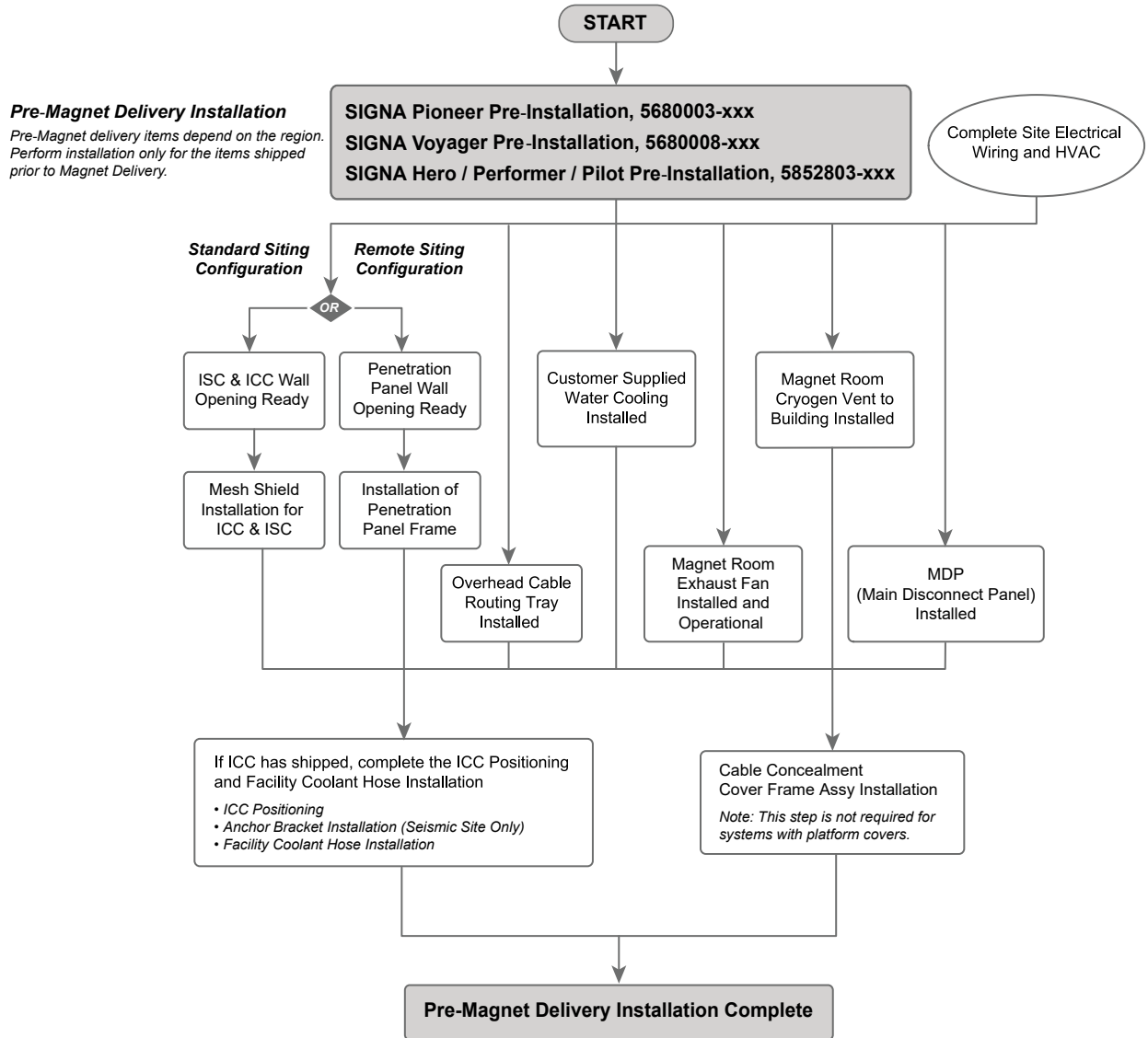
Required conditions

All on-site construction must be complete before equipment is delivered and installation begins. Attempting to install the system while construction is being completed will impact installation efficiency and further delay site completion. Make sure that all pre-installation and construction work is completed before equipment is delivered to help make sure of an earlier turnover date.

Follow the workflow below to make sure of an orderly and efficient system installation. 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 flowchart assumes that all system equipment was delivered together. Make sure that every part required is available before proceeding to the mechanical installation.

Figure 1-4 Site installations required prior to system mechanical installation




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Chapter 2 Installing components

2.1 Installing the Main Disconnect Panel (MDP)

Mount the Main Disconnect Panel (MDP) and connect it to a facility power source.

Prerequisites

Personnel requirements	
	<p>IMPORTANT GE Field Engineers cannot install, service, or repair the MDP. Only a licensed electrician is qualified to complete these tasks. Refer to the MR Service Safety Manual (5452735) for further safety information.</p> <p>To service the MDP, the customer must provide a qualified electrician or other appropriate facility personnel who meets the electrical safety codes for their area.</p>
Safety	
<p>Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:</p> <ul style="list-style-type: none"> • Have read and understood all hazard conditions and safety requirements in the latest revision of the GE HealthCare <i>MR Service Safety Manual</i> (5452735). • Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses). • Comply with all site-specific training and workplace safety requirements. <p>If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.</p>	

Procedure

1. Have a customer electrician mount the Main Disconnect Panel (MDP) and connect it to a facility power source. Refer to architectural site layout drawings for specifications and mounting locations.
2. Have a customer electrician connect the power cables from the MDP to the customer supplied 3-pole 30A circuit breaker, which is required for the cryocooler circuit.



NOTE

See the MDP manual for detailed information.

2.2 Doing a check that pen panel frame is installed - Remote off the wall configuration

Make sure that the third-party vendor for the scan room has installed the penetration wall frame.

Prerequisites

Personnel requirements			
Required persons	Preliminary requirements	Procedure	Finalization
1	-	60 minutes	-

Required conditions
Penetration wall is prepared for the penetration wall frame per the <i>Pre-installation Manual</i> .

Safety
<p>Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:</p> <ul style="list-style-type: none"> • Have read and understood all hazard conditions and safety requirements in the latest revision of the GE HealthCare <i>MR Service Safety Manual</i> (5452735). • Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses). • Comply with all site-specific training and workplace safety requirements. <p>If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.</p>



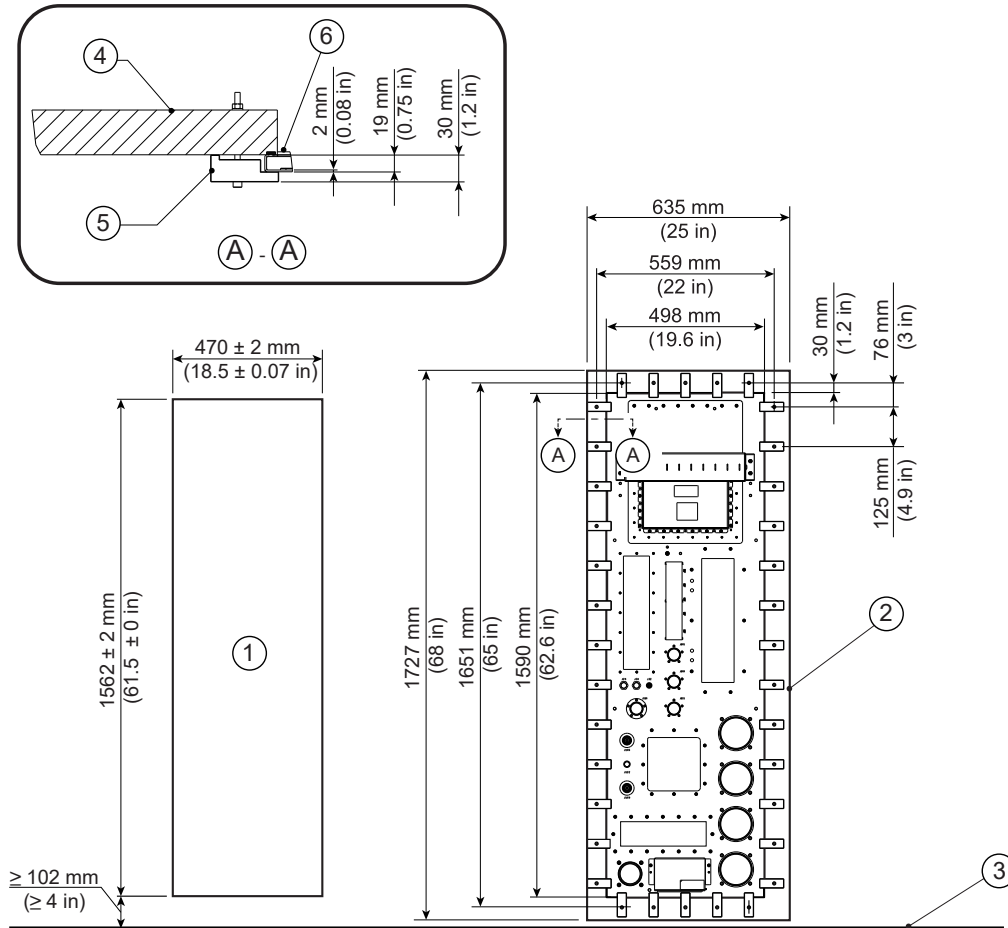
NOTE

Make sure that the third-party vendor for the scan room has installed the penetration wall frame, and that it is mounted from the equipment room. Refer to architectural site layout drawings for specifications and mounting locations.

Procedure

1. Confirm that the Penetration panel wall opening is ready as shown in the following illustration.

Figure 2-1 Wall Opening Detail (Equipment Room Side)



Item	Description	Item	Description
1	Wall opening	4	RF Shield Magnet Room
2	Clearance required around opening for mounting Penetration Panel	5	Mounting block
3	Finished floor on Equipment Room side of RF Shield	6	Penetration Panel

2.3 Installing the mesh shield for the Integrated Cooling Cabinet (ICC) and Integrated System Cabinet (ISC) - Standard on the wall configuration

Install mesh shields in the RF shield openings in the wall between the equipment room and magnet room.

Prerequisites

Personnel requirements



NOTE

The RF vendor is responsible for installing the mesh shield.

Required conditions

Penetration wall is prepared for the ICC and ISC per the *Pre-installation Manual*.

Table 2-1 Safety

Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:

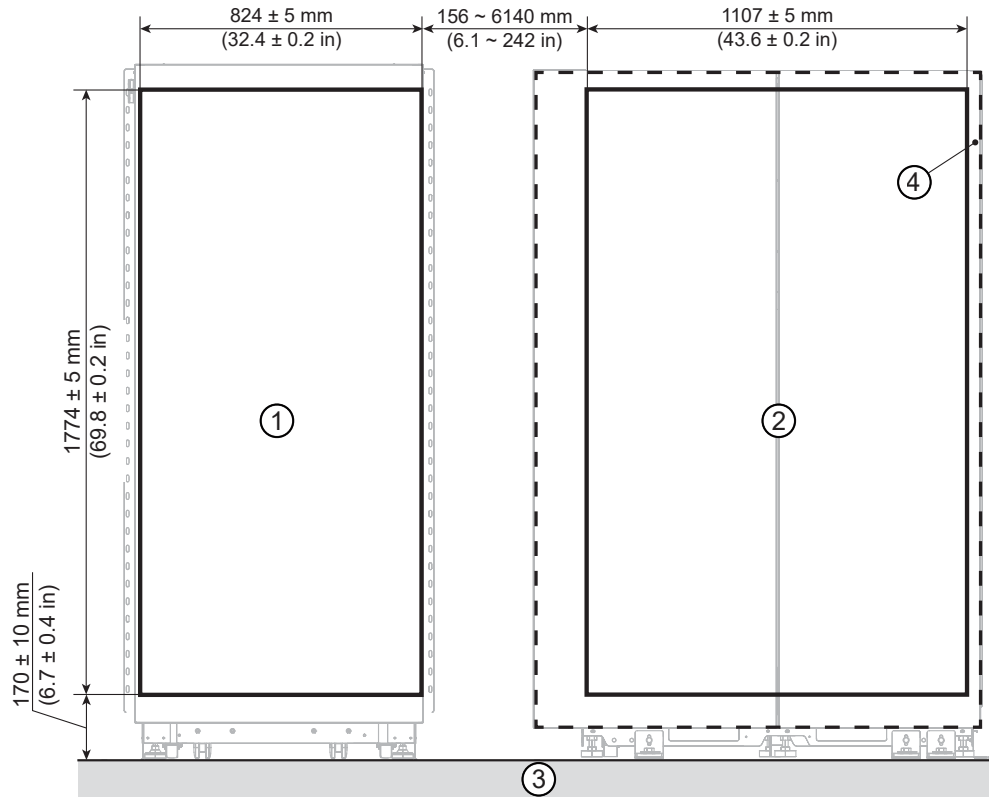
- Have read and understood all hazard conditions and safety requirements in the latest revision of the GE HealthCare *MR Service Safety Manual* (5452735).
- Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses).
- Comply with all site-specific training and workplace safety requirements.

If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.

Procedure

1. Confirm that the ISC and ICC wall openings are ready as shown in the following illustration.

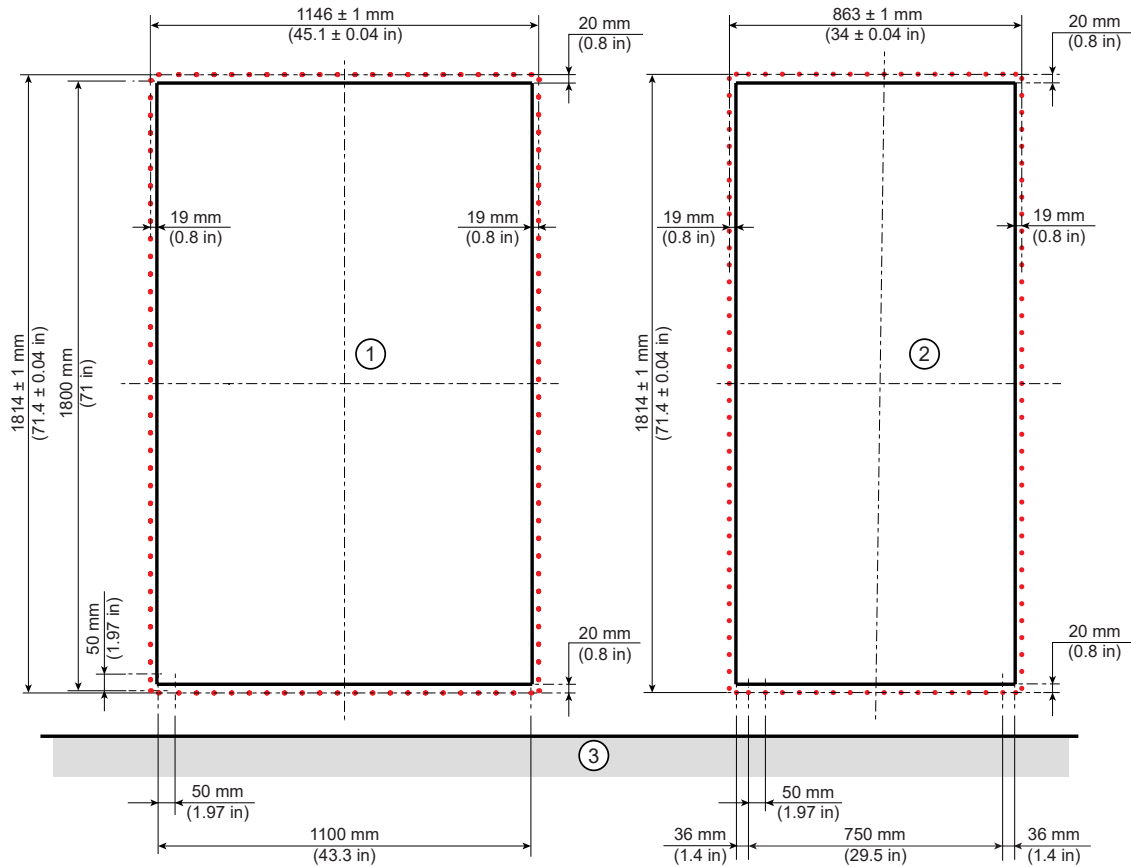
Figure 2-2 Wall Opening Detail (Equipment Room Side)



Item	Description	Item	Description
1	ICC Opening	3	View from Equipment Room
2	ISC Opening	4	ISC Outline

2. Mark the four corner screw positions of the ISC mesh shield for alignment.

Figure 2-3 Screw Locations for Mesh Shield and Penetration Panel (Magnet Room Side)



Item	Description	Item	Description
1	ISC Opening	3	View from Magnet Room
2	ICC Opening	-	-

3. Attach the four corners of the ISC mesh shield to the wall opening using M5 screws.

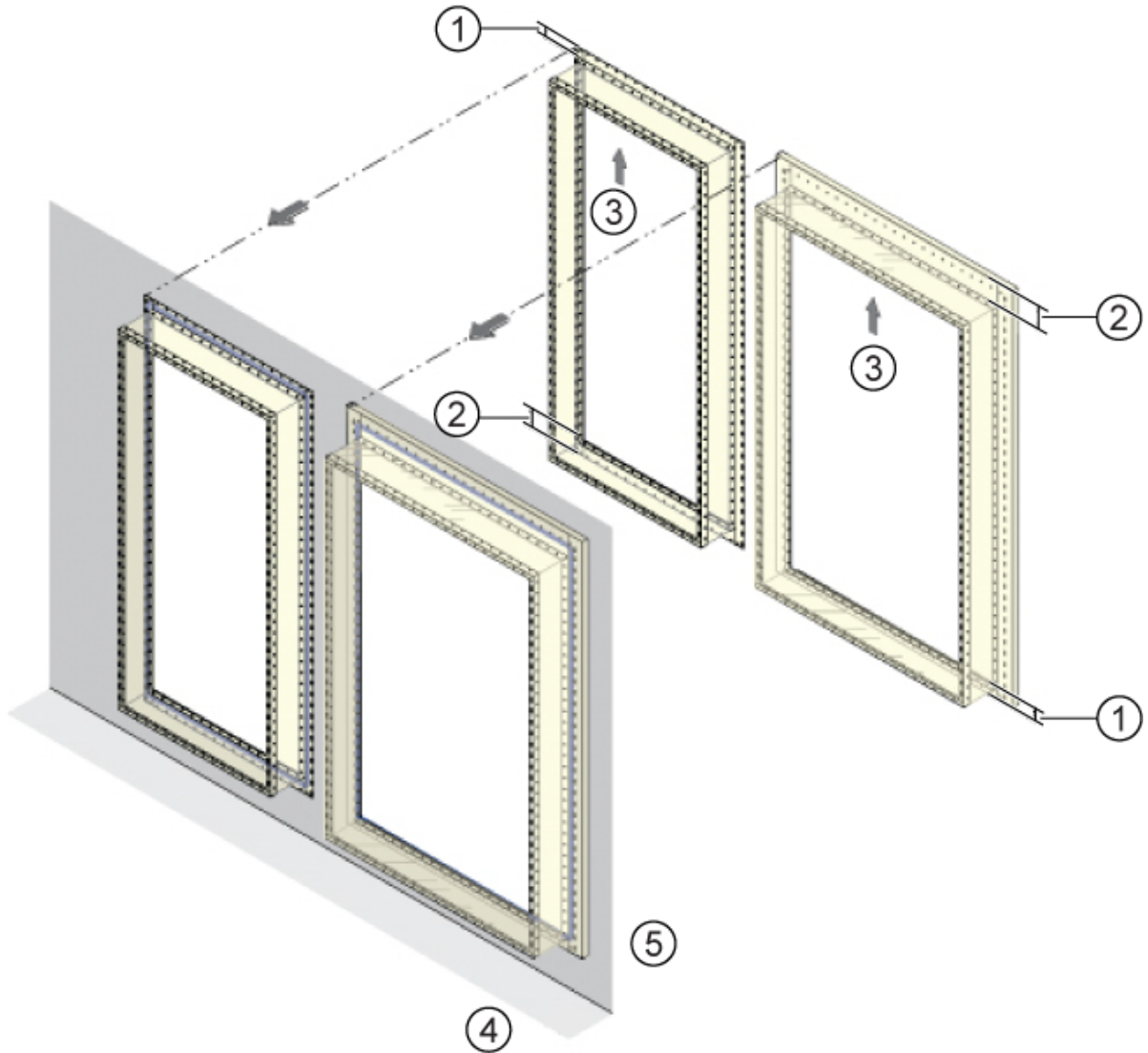
! IMPORTANT M5 screws are used to fix mesh shields to the RF shield from the magnet room side. It is the RF vendor's responsibility to prepare the 230 M5 screws (120 pieces for the ISC and 110 pieces for the ICC) according to the site condition.

- For wooden RF shield wall: 230 M5 wood screws
- For RF shield wall that has holes for screws: 230 M5 screws and 230 M5 nuts

! IMPORTANT If the head of the screw is too small for the slot in the mesh shield frame, insert a washer with the screw.

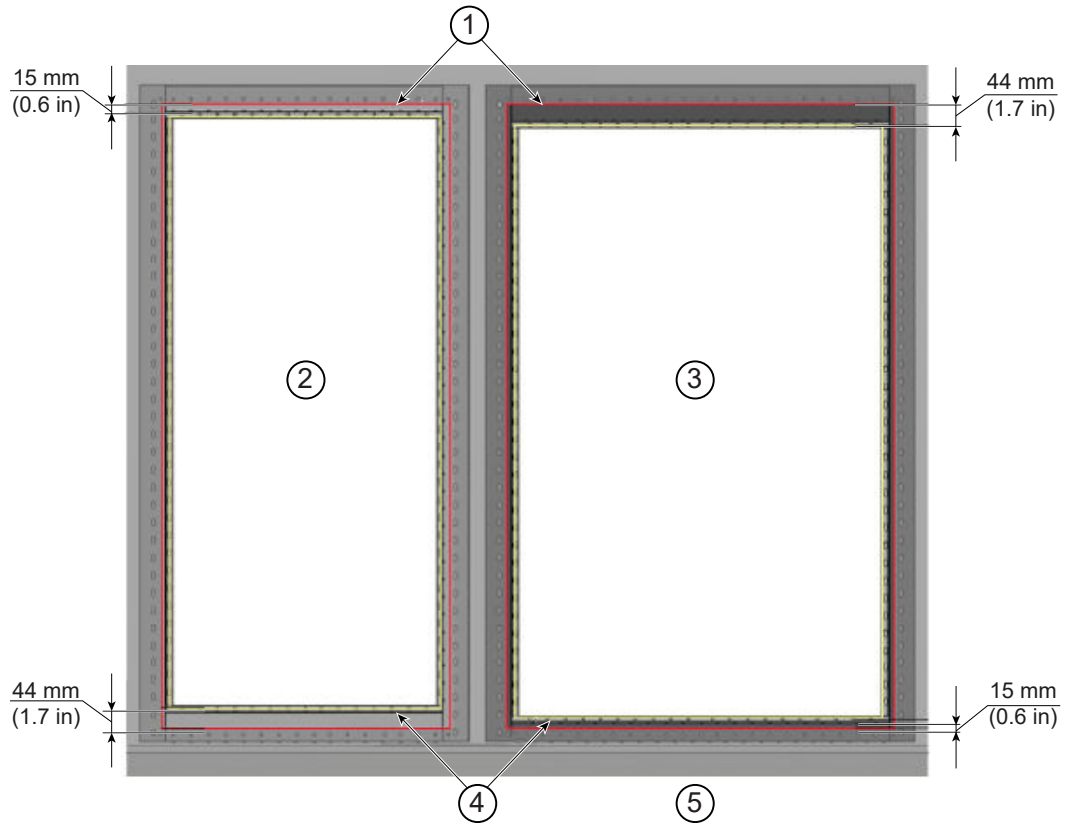
- Align and center the mesh shield position. Make sure the up/down direction of the mesh shield is correct as shown below.

Figure 2-4 Aligning the mesh shield



Item	Description	Item	Description
1	Short	4	Equipment Room
2	Long	5	Magnet Room
3	Up	-	-

Figure 2-5 Relationship of wall opening and mesh shield (view from equipment room)

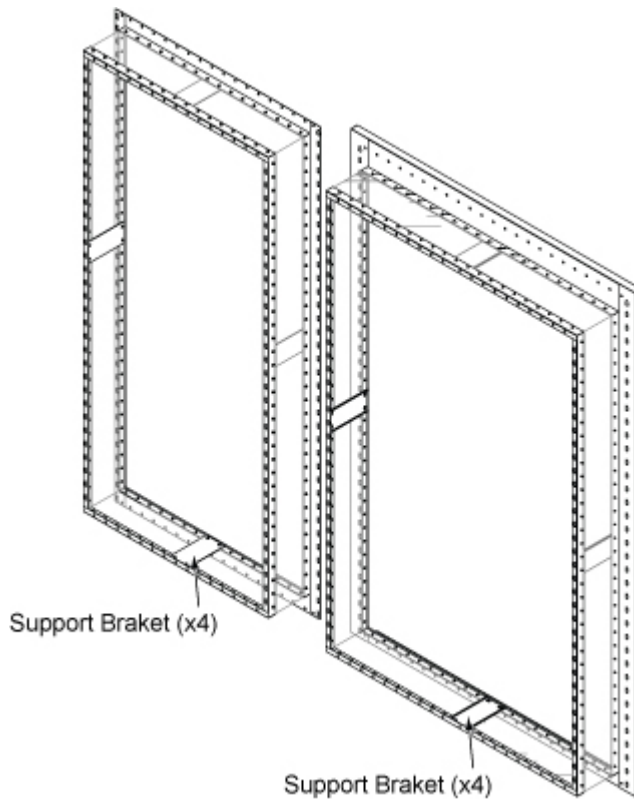


Item	Description	Item	Description
1	RF Shield cut out outline	4	Mesh Shield cabinet connection frame
2	ICC Opening	5	View from Equipment Room
3	ISC Opening	-	-

5. Use the remaining M5 screws allocated for the ISC mesh shield to finish attaching the shield to the wall opening.

- Remove the four shipping support brackets from the mesh shield.

Figure 2-6 Shipping support brackets




- Do this procedure again for the ICC mesh shield.

2.4 Installing the cable concealment cover frame assembly for classic enclosures

Install the cable concealment cover frame assembly onto the ceiling before magnet installation.

Prerequisites

Personnel requirements			
 NOTE The customer is responsible for the finished ceiling.			
Replacement parts			
Item	Quantity	Part number	Manufacturer
Cable concealment cover frame assembly	1	5599521	-
Required conditions			
GE Healthcare highly recommends that the cable concealment cover frame assembly is installed before magnet installation.			
This procedure must be completed before the magnet is ramped up.			

Required conditions
The vent pipe is installed per the <i>Pre-installation Manual</i> .
The ceiling opening is prepared per the <i>Pre-Installation Manual</i> .
The frame fasten area of the ceiling is enforced to sustain the 66-lb (30-kg) kit weight.

Table 2-2 Safety

<p>Before working in any GE HealthCare MR suite or doing any GE HealthCare service procedure, you must:</p> <ul style="list-style-type: none">• Have read and understood all hazard conditions and safety requirements in the latest revision of the GE Health-Care <i>MR Service Safety Manual</i> (5452735).• Have successfully completed all relevant GE HealthCare Environmental Health and Safety (EHS) courses (or for non-GE HealthCare employees, equivalent workplace training courses).• Comply with all site-specific training and workplace safety requirements. <p>If you have any safety concerns at any time, do not begin work or immediately stop work and move to a safe location. Immediately contact your supervisor or site safety officer for instructions on how to proceed.</p>



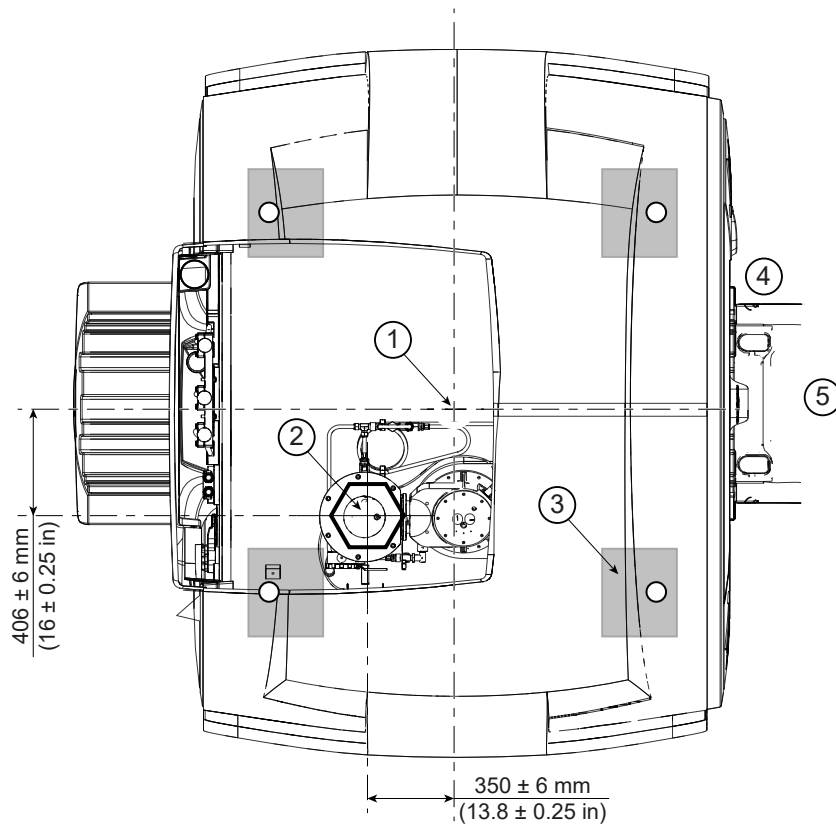
NOTE

This procedure is intended for Voyager and Pioneer systems with classic enclosures.

Procedure

1. Make sure that the vent pipe is installed at the correct distance from the magnet isocenter.

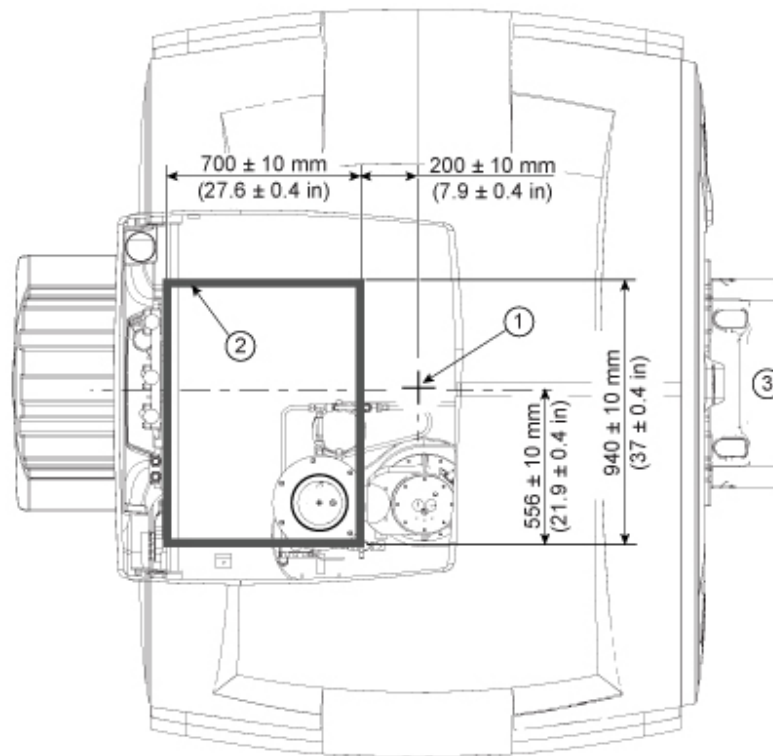
Figure 2-7 Vent pipe location (top view of magnet)



Item	Description	Item	Description
1	Magnet Geometric Isocenter	4	Magnet Front
2	Vent Opening (203 mm (8 in.)) OD	5	Patient table
3	Magnet Foot	-	-

2. Make sure that the ceiling is open using the following dimensions measured from the magnet isocenter.

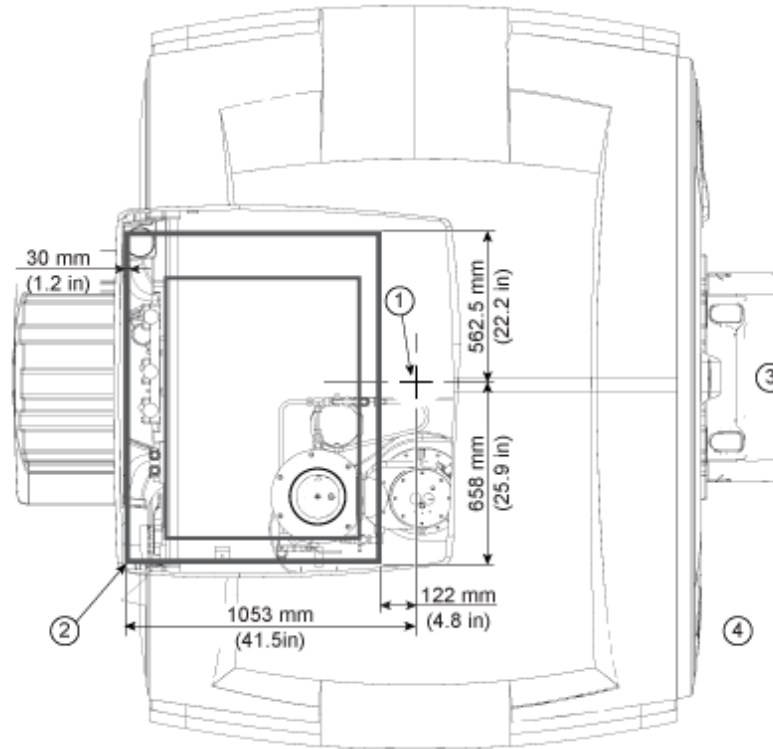
Figure 2-8 Cable concealment kit ceiling opening dimensions (top view of magnet) for Classic Enclosures



Item	Description	Item	Description
1	Magnet isocenter	3	Patient table
2	Ceiling opening outline	-	-

3. Make sure that the cable concealment kit frame fasten area of the ceiling (highlighted in gray in the following figure) is enforced to sustain the kit (frame and covers) weight of 66 lbs (30 kg).

Figure 2-9 Cable concealment kit frame fasten area dimensions (top view of magnet) for Classic Enclosures

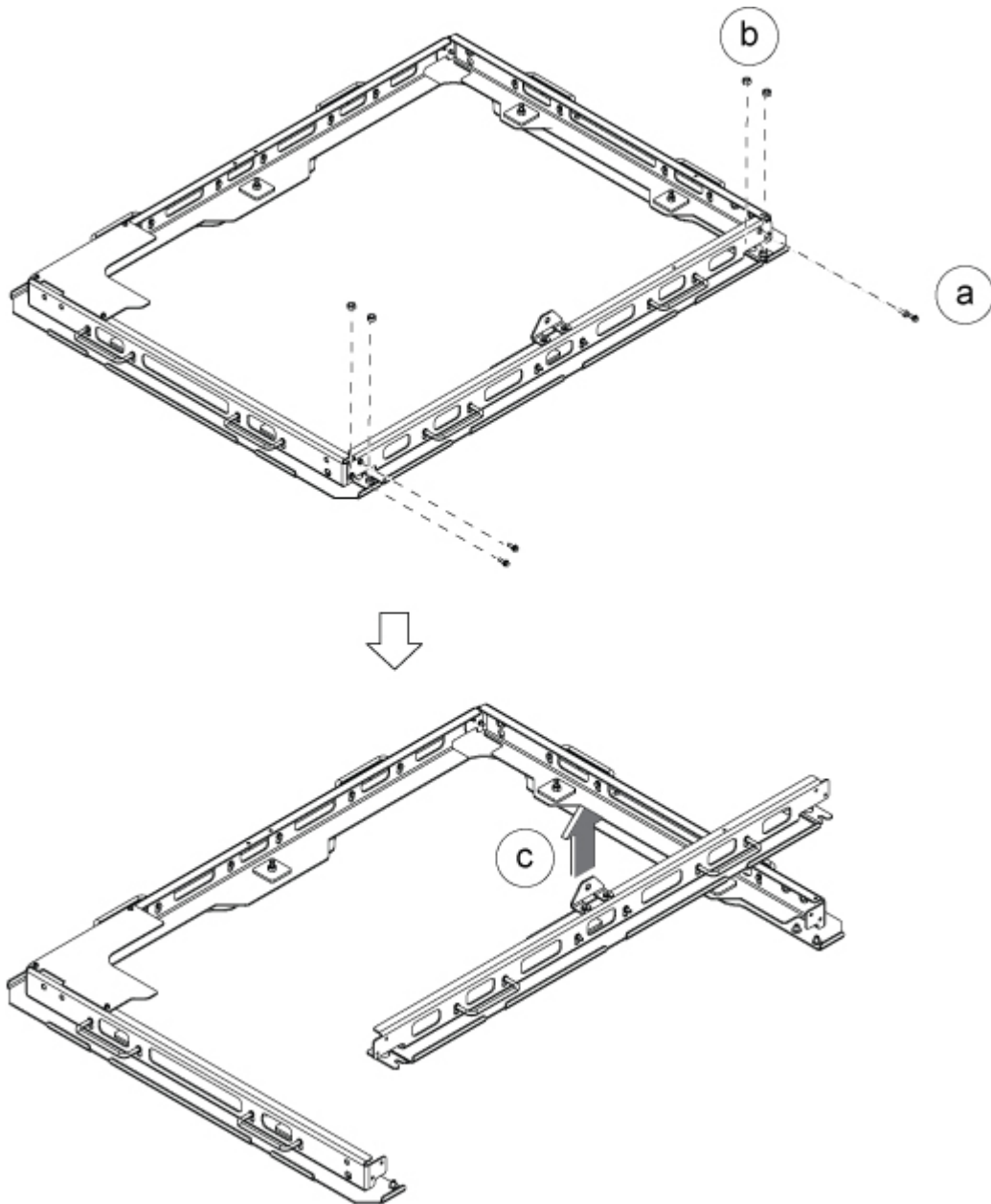


Item	Description	Item	Description
1	Magnet isocenter	3	Patient table
2	Concealment Cover Frame Fasten area	4	Magnet front

4. If the magnet is already installed, complete the following substeps to remove the rear side of the frame assembly and relocate the entire frame.

4.1. Remove four screws.

Figure 2-10 Removing the rear side of the frame assembly

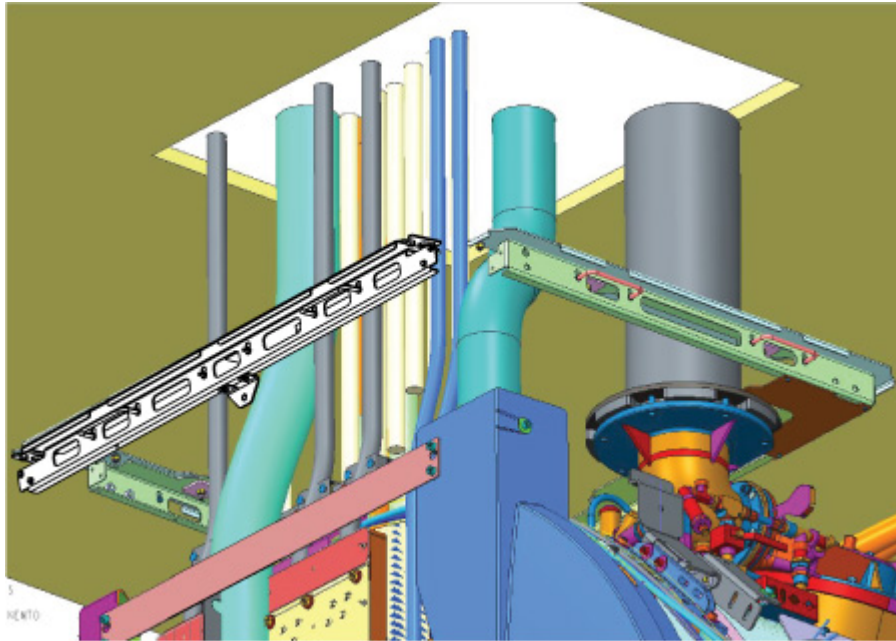


4.2. Remove four nuts and washers.

4.3. Remove the rear frame and rear frame base.

- 4.4. Move the frame assembly to the magnet rear top area, and reassemble it using the four screws and four nuts.

Figure 2-11 Reassembling the frame assembly to the magnet rear top area

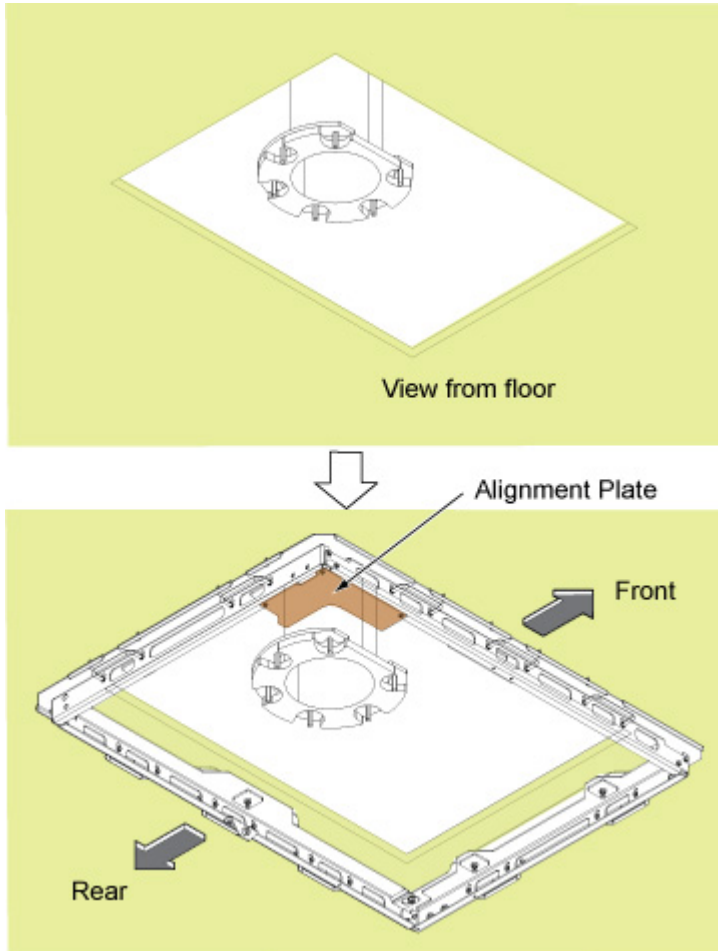


5. Align the cable concealment cover frame assembly with the vent pipe using the alignment plate.

NOTE

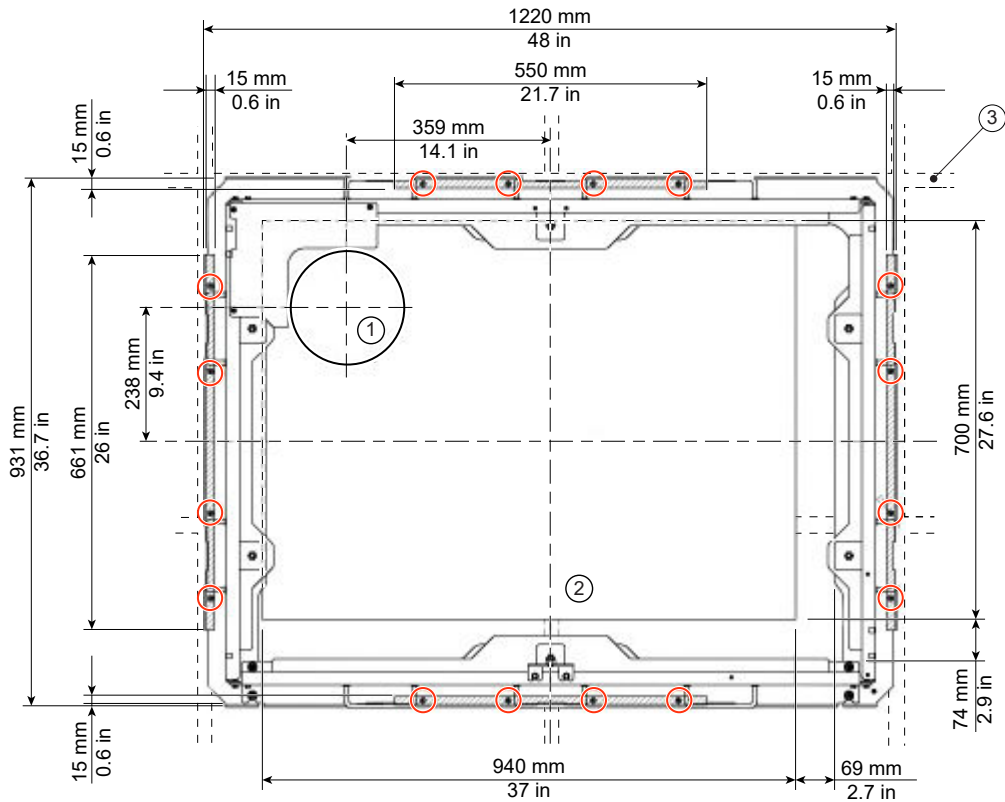
The cable concealment cover frame assembly is 20 lbs (9 kg). The total weight of the frame and cover is about 66 lbs (30 kg).

Figure 2-12 Aligning the cable concealment cover frame assembly



- Fix the frame with self-tapping screws or rivets in at least the 16 locations shown below (4 per each side in the hatching area).

Figure 2-13 Fixing the frame (view from the floor)



Item	Description	Item	Description
1	Vent pipe	3	Ceiling grid
2	Ceiling opening area	-	-

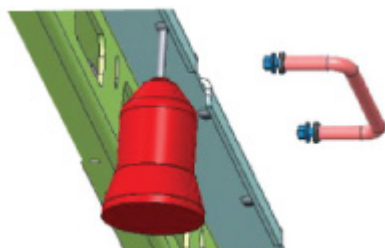
NOTE

Do not tap the self-tapping screws or rivets anywhere but where shown, or the adjustable frame will be fixed and you will not be able to adjust the concealment cover position later.

NOTE

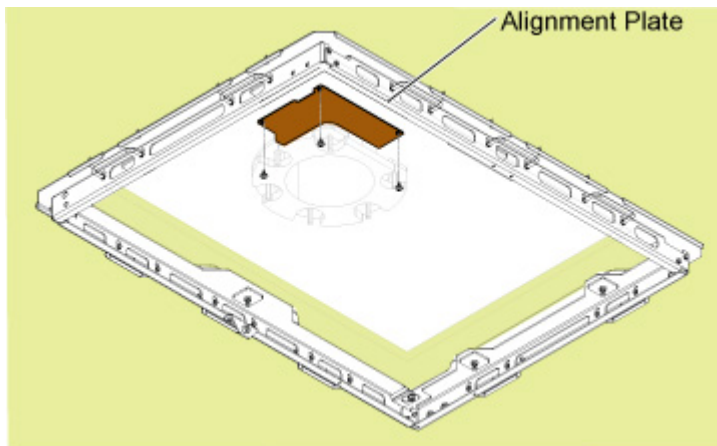
Remove the handle if necessary when fixing the frame.

Figure 2-14 Removing the handle



7. Remove the alignment plate from the frame.

Figure 2-15 Removing the alignment plate



2.5 Doing a check that the ceiling is finished for platform enclosures

Personnel requirements



NOTE

The customer is responsible for the finished ceiling.

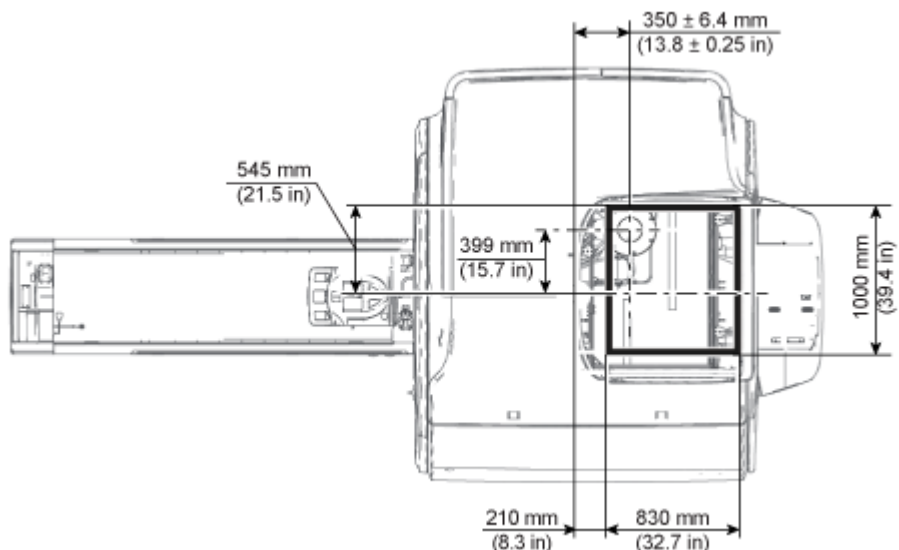


NOTE

This procedure is intended for Voyager and Hero/Performer/Pilot systems with platform enclosures.

1. The customer is responsible for the finished ceiling.
2. The finished ceiling grid must be nonferrous.
3. Ceiling preparation should be completed prior to magnet delivery. See the following images for ceiling opening dimensions.

Figure 2-16 Hero/Performer/Pilot and Voyager cable concealment kit ceiling opening dimensions (top view)



2.6 Positioning the Integrated Cooling Cabinet (ICC) and installing the facility coolant hose

Put the ICC into position and install the facility coolant hose in preparation for the magnet installation.

Prerequisites

Personnel requirements			
Required persons	Preliminary requirements	Procedure	Finalization
1	-	60 minutes	-

Required conditions
The floor under the ICC is leveled per the <i>Pre-installation Manual</i> .
For seismic areas, anchor holes for the ICC have been drilled by a pre-installation vendor. Refer to the <i>Pre-installation Manual</i> for the anchor locations.

Table 2-3 Safety

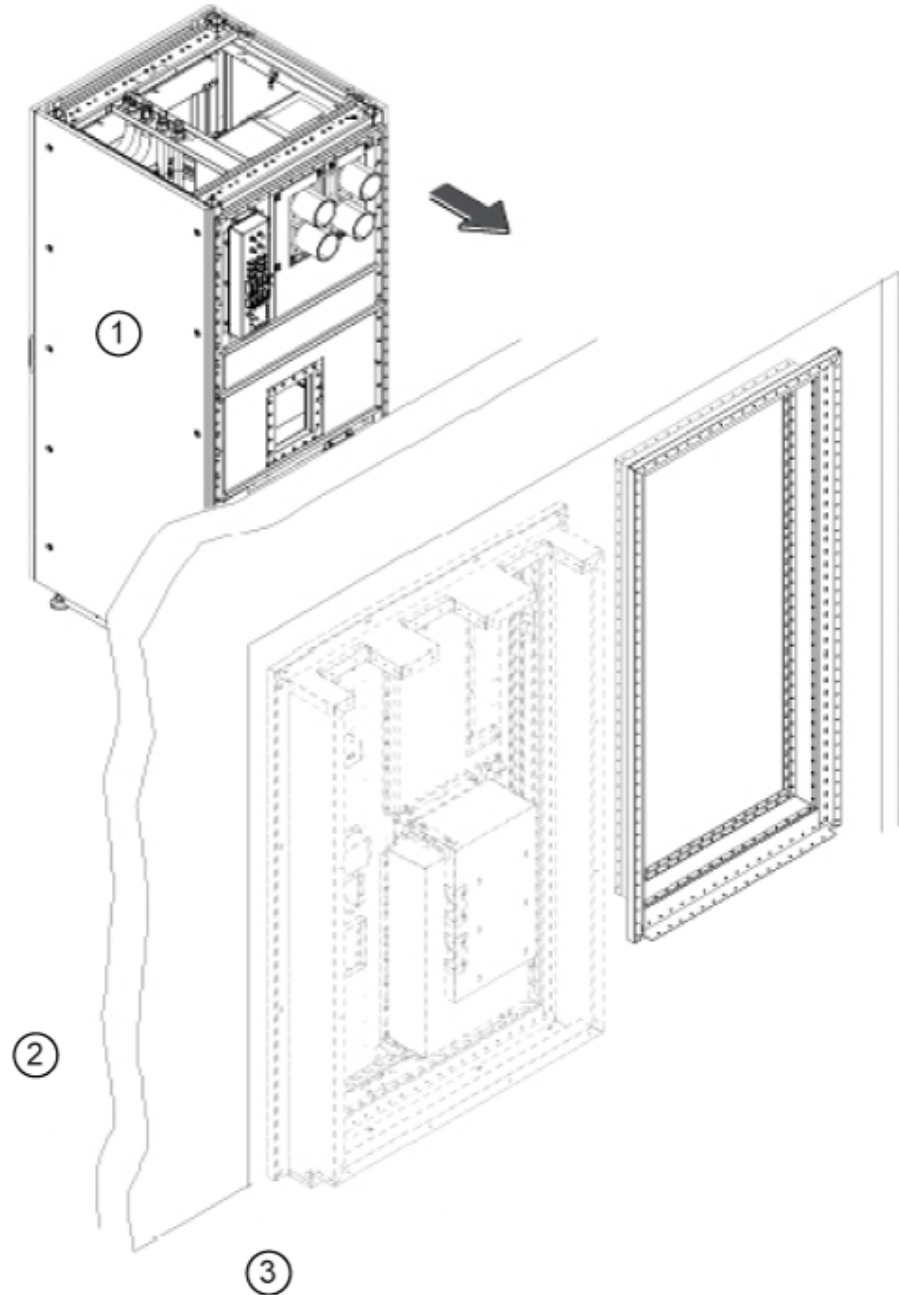
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--

Procedure

1. If the site is a seismic site, first attach the ICC right side anchor bracket.

2. Move the ICC to satisfy the following conditions:
 - If you are installing the ICC in a standard on the wall configuration:
 - ICC is parallel to the wall.
 - Screw holes of the ICC are aligned to the holes of the mesh shield frame.

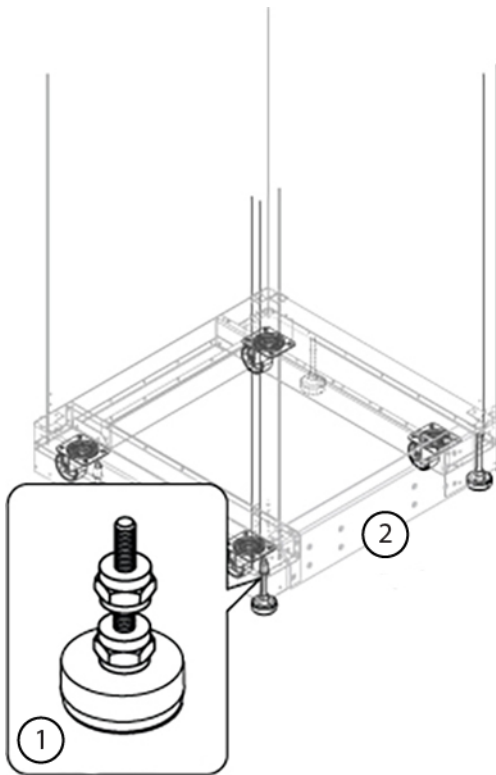
Figure 2-17 Putting the ICC into position



Item	Description
1	ICC
2	Equipment Room
3	Magnet Room

- If you are installing the ICC in a remote off the wall configuration, put the ICC in the location shown in the site design plan.
3. Lower the adjusters on the ICC so that they reach to the floor.

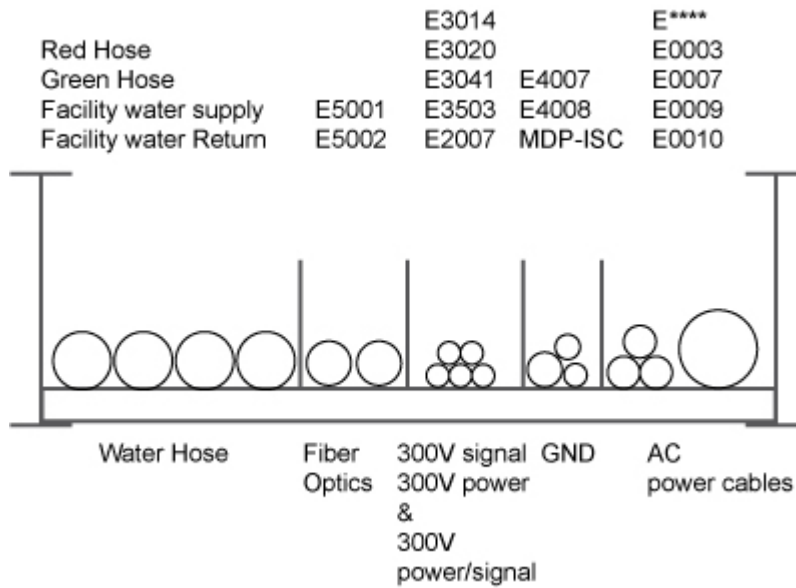
Figure 2-18 ICC adjusters



Item	Description
1	Adjuster
2	Front of ICC

- Before routing the hoses, make sure the hose alignment on the equipment room cable tray matches the figure below.

Figure 2-19 Equipment room cable tray cross section view



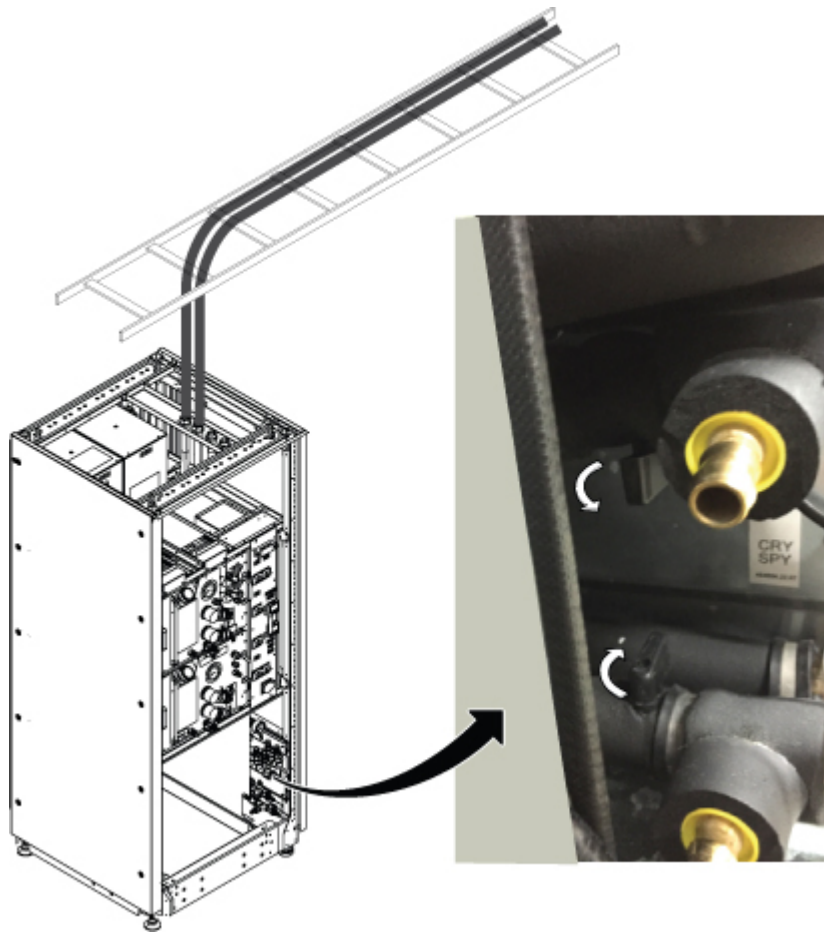
- Open the ICC front door.

NOTE

You will need a 10 mm Allen wrench to open the ICC front door.

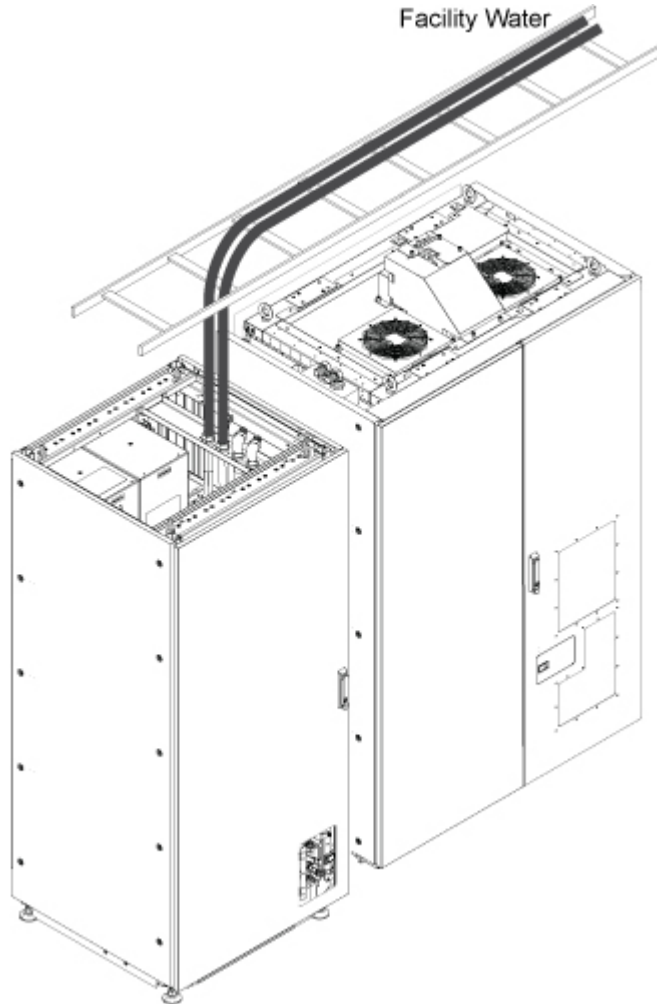
6. Close the FPU cryocooler valves.

Figure 2-20 FPU cryocooler valves



7. Have a customer plumber route the facility water hose on the tray and connect it to the hose joint on the ICC.

Figure 2-21 Routing the facility water hose

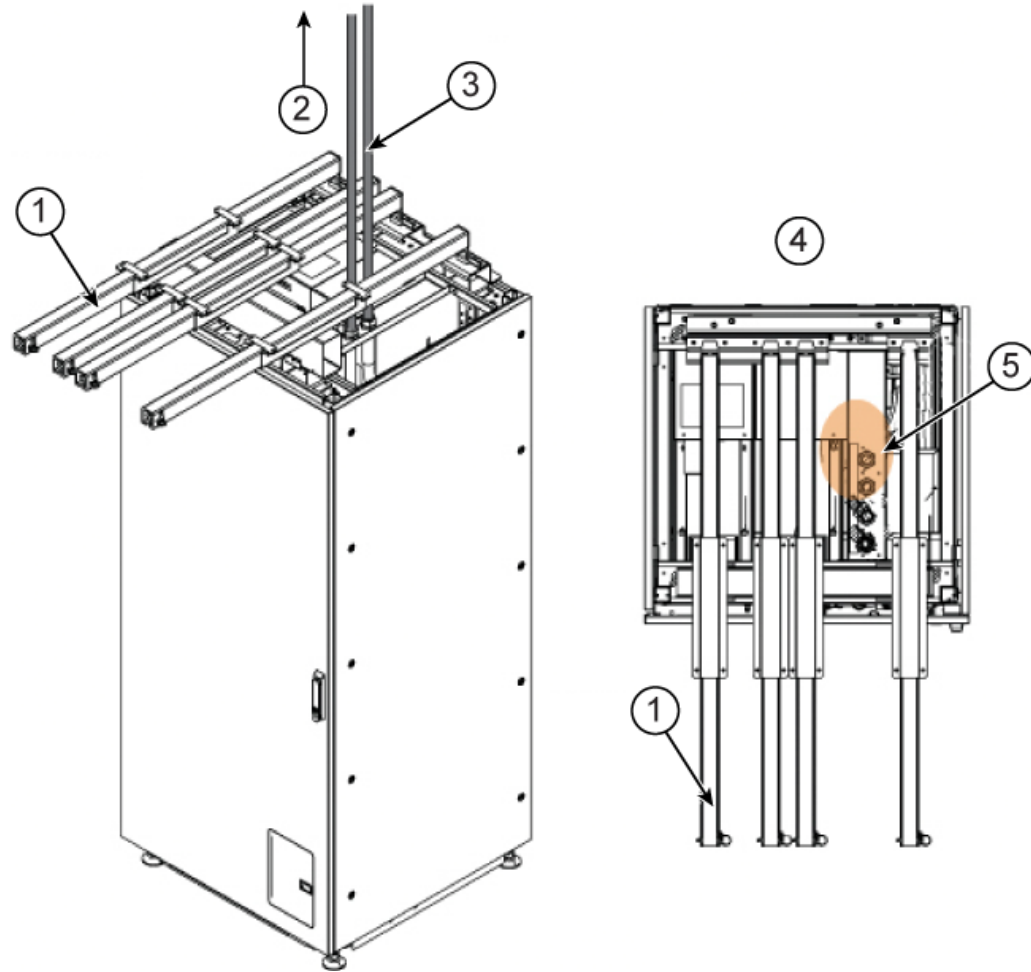


8. Use the supplied swivel elbow joint hose barb (5723573), or swivel joint hose barb (5723574), for the facility plumbing interface connections.
 - 8.1. The "from" facility connection should be a 1-inch hose (green in color) with swivel joint.

8.2. The "to" facility connection should be a 1-inch hose (red in color) with swivel joint.

! **IMPORTANT** Make sure the hose route does not obstruct the hoist location, which will be used for FRU replacement, as shown in the illustration below.

Figure 2-22 Hose routing above ICC

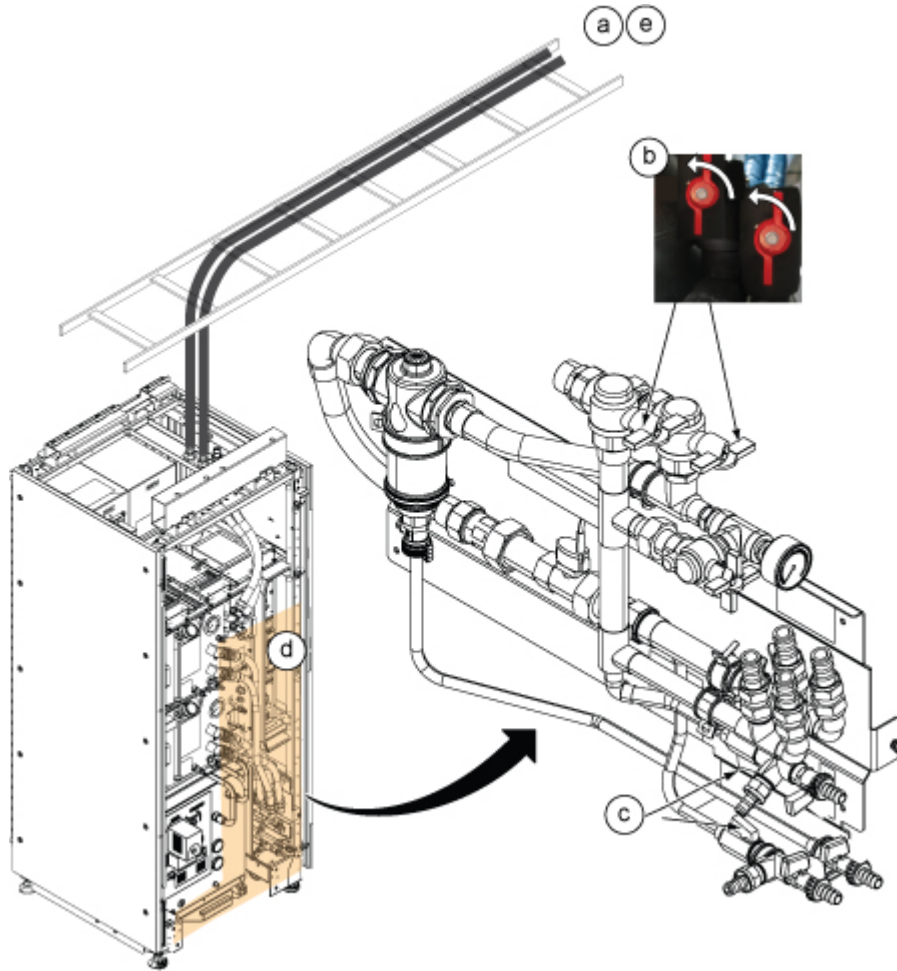


Item	Description	Item	Description
1	Hoist setup location	4	ICC top view
2	To cable tray	5	Routing area
3	Facility water hoses	-	-

9. Open the valves in the following order.
 - 9.1. Slightly open facility water valves.
 - 9.1.1. Open the Return valve.
 - 9.1.2. Slightly open the Supply valve.
 - 9.2. Open shutoff valves for FPU.
 - 9.3. Open valves for F50.
 - 9.4. Check that there is no water leakage at water connectors.

- 9.5. Open the Supply and Return valves of the facility water as it was. If the facility flow meter exists, adjust the water flow as recorded.

Figure 2-23 Opening valves



10. If coolant flow rate is out of specification, adjust the FPU bypass valve until the customer-supplied flow meter reading is between 50 liters/min and 80 liters/min (between 13.2 gal/min and 21.1 gal/min).

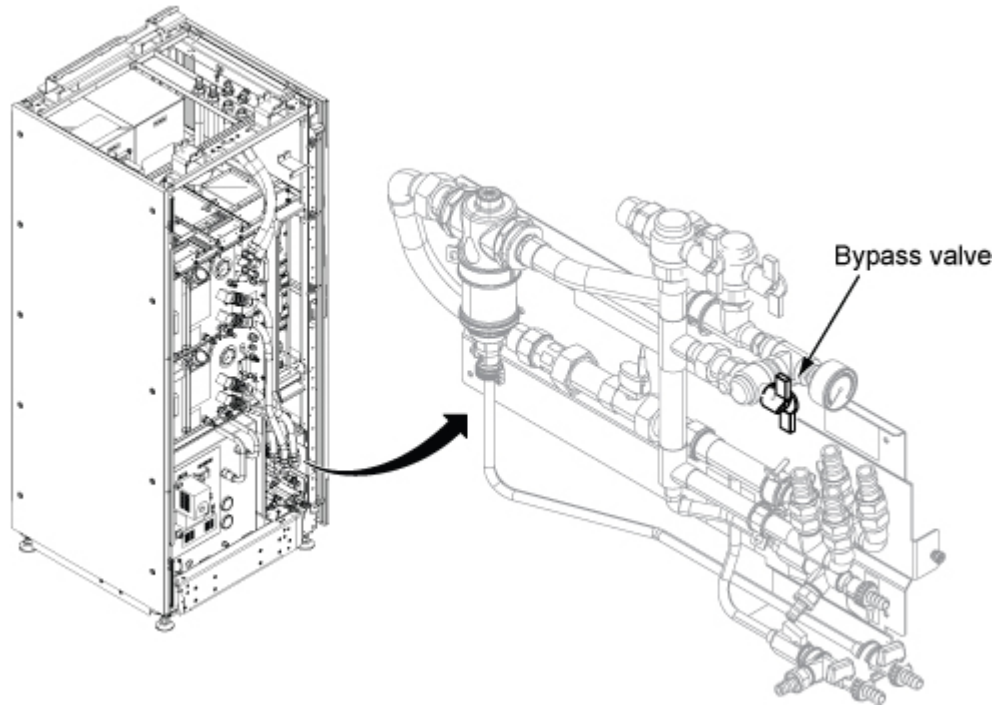
NOTE

The typical value of water flow is 60 liters/min (15.8 gal/min).

- 10.1. **To increase Facility Water Flow :** Turn the bypass valve to clockwise. Maximum water flow when bypass valve is at vertical position.

10.2. **To reduce Facility Water Flow :** Turn the bypass valve to counter clockwise. Minimum water flow when bypass valve is at horizontal position.

Figure 2-24 FPU bypass valve



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Chapter 3 Completing the installation

3.1 Making sure the pre-magnet delivery installation is complete

Do a final check that the installation is finished to make sure that the site is ready for the magnet delivery.

About this task

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

Procedure

1. Make sure all steps in the flowchart are complete.
2. Resolve any shipment shortages.
3. Resolve any omissions made by the mechanical contractors.
4. Make sure all rating plates are installed.

3.2 Completing the GE HealthCare Field Engineer responsibilities

Clean up and organize the site after the system installation.

Procedure

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, using one of the following methods:
 - **(U.S. Only)** FE Site Verification website
 - 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



NOTE

Failure to fill out and return product locator cards may result in failure of your site to receive future FMIs.

3. Store the delivered site's set of service tools and spare kit in the service cabinet at the site.
4. Set up and organize a reference cabinet for the service manuals. Leave all service manuals on-site.
5. Locate any Material Safety Data Sheets (MSDS). They must be retained on-site. Inform the customer that material with MSDS was brought on-site, as the customer should know/decide where on-site the MSDS should be retained.

6. Make sure that the entire site is clean from any install debris before handing it over to the customer for clinical scanning. Also inform customer to follow the instructions given in the Operator Manual for cleaning and disinfection prior to starting the clinical scanning.

Revision History

Revision	Date	Description
Controlled document for English is posted as DOC2643116.		
5.0	November, 2024	<ul style="list-style-type: none"> • Updated manual name to <i>SIGNA Pioneer, SIGNA Hero/ Performer/Pilot, and SIGNA Voyager Systems</i>. • Updated all GE references to GE HealthCare. • In section 1.1, Preparing the site, added Performer and Pilot to all Hero references, and fixed a misspelling of <i>Penetration</i>. • In section 1.2.2, Equipment Room, changed (<i>may be customer-supplied in some regions</i>) to (<i>may be customer-supplied in exempt regions</i>). • In section 1.4, Pre-magnet delivery system installation workflow, <i>Figure 1-4 Site installations required prior to system mechanical installation</i>, changed <i>SIGNA Hero</i> to <i>SIGNA Hero/Performer/Pilot</i>. • In section 2.2, Doing a check that pen panel frame is installed - Remote off the wall configuration, <i>Figure 2-1 Wall Opening Detail (Equipment Room Side)</i>, several dimensions were updated: 30.5 mm was changed to 30 mm, and 4 in was changed to ≥ 4 in. • In section 2.3, Installing the mesh shield for the Integrated Cooling Cabinet (ICC) and Integrated System Cabinet (ISC) - Standard on the wall configuration, <i>Figure 2-3 Screw Locations for Mesh Shield and Penetration Panel (Magnet Room Side)</i>, the image and dimensions were revised. • In section 2.4, Installing the cable concealment cover frame assembly for classic enclosures, the image for <i>Figure 2-9 Cable concealment kit frame fasten area dimensions (top view of magnet) for Classic Enclosures</i> is no longer missing. • In section 2.5, Doing a check that the ceiling is finished for platform enclosures: <ul style="list-style-type: none"> ◦ Added Performer and Pilot to all Hero references. ◦ Added steps 1 and 2. • In section 2.6, Positioning the Integrated Cooling Cabinet (ICC) and installing the facility coolant hose, updated <i>Figure 2-18 ICC adjusters</i> to have callouts.
4.0	March, 2023	<ul style="list-style-type: none"> • In section 1.1, Preparing the site, Tools and test equipment table, the tool kit parts listed under the heading "Nonmagnetic Tool Kit, Inch/Metric¹" (and the associated footnote) were replaced with 5112581 and 5113258. • In section 2.6, Positioning the Integrated Cooling Cabinet (ICC) and installing the facility coolant hose, added step 8 on facility plumbing interface connections.

Revision	Date	Description
3.0	October, 2021	<ul style="list-style-type: none">• Added a note for Voyager system• Updated manual name to <i>SIGNA Pioneer, SIGNA Voyager, SIGNA Hero</i>• Updated for ISC/ICC Remote Configuration option
2.0	Apr 28, 2016	<ul style="list-style-type: none">• Update manual name to <i>SIGNA Pioneer, SIGNA Voyager</i>• Update illustration 1–4
1.0	Dec 21, 2015	Initial release



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