



GE Medical Systems

Technical Publications

**Direction 2260326-100
Revision 19**

Proteus XR/a System Pre-Installation Manual

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Service Documentation

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**Direction 2260326-100
Revision 19****Proteus XR/a System
Pre-Installation Manual****IMPORTANT! . . . X-RAY PROTECTION**

X-ray equipment if not properly used may cause injury. Accordingly, the instructions herein contained should be thoroughly read and understood by everyone who will use the equipment before you attempt to place this equipment in operation. The General Electric Company, Medical Systems Group, will be glad to assist and cooperate in placing this equipment in use.

Although this apparatus incorporates a high degree of protection against x-radiation other than the useful beam, no practical design of equipment can provide complete protection. Nor can any practical design compel

the operator to take adequate precautions to prevent the possibility of any persons carelessly exposing themselves or others to radiation.

It is important that everyone having anything to do with x-radiation be properly trained and fully acquainted with the recommendations of the National Council on Radiation Protection and Measurements as published in NCRP Reports available from NCRP Publications, 7910 Woodmont Avenue, Room 1016, Bethesda, Maryland 20814, and of the International Commission on Radiation Protection, and take adequate steps to protect against injury.

The equipment is sold with the understanding that the General Electric Company, Medical Systems Group, its agents, and representatives have no responsibility for injury or damage which may result from improper use of the equipment.

Various protective material and devices are available. It is urged that such materials or devices be used.

CAUTION: United States Federal law restricts this device to use by or on the order of a physician.

If you have any comments, suggestions or corrections to the information in this document, please write them down, include the document title and document number, and send them to:

GENERAL ELECTRIC COMPANY MEDICAL SYSTEMS
 MANAGER - INFORMATION INTEGRATION,
 AMERICAS W-622
 P.O. BOX 414
 MILWAUKEE, WI 53201-0414

CERTIFIED ELECTRICAL CONTRACTOR STATEMENT



All electrical installations that are preliminary to positioning of the equipment at the site prepared for the equipment shall be performed by licensed electrical contractors. In addition, electrical feeds into the Power Distribution Unit shall be performed by licensed electrical contractors. Other connections between pieces of electrical equipment, calibrations, and testing shall be performed by

qualified GE Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products

will comply with the requirements of the applicable electrical codes.

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

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.

Call Traffic and Transportation, Milwaukee, WI (414) 827-3449/

8*285-3449 **immediately** after damage is found. At this time be ready to supply name of carrier, delivery date, consignee name, freight or express bill number, item damaged and extent of damage.

Complete instructions regarding claim procedure are found in Section "S" of the Policy & Procedure Bulletins.

REGULATORY REQUIREMENTS

This product conforms with the requirements of Council Directive 93/42/EEC concerning medical devices when it bears the following CE marking of conformity:



Electromagnetic Compatibility (EMC)

This product conforms with IEC 60601-1-2:2001+A1:2004 EMC standard for medical devices.

Note: This equipment generates, uses, and can radiate radio frequency energy. The equipment may cause or subject to radio frequency interference with other medical and non-medical devices and radio communications. To provide reasonable protection against such interference, the Proteus XR/a System (32, 50, 65, 80kW) complies with emissions limits for a Group 1, Class A Medical Devices and has applicable immunity level as stated in IEC 60601-1-2:2001+A1:2004.

However, there is no guarantee that interference will not occur in a particular installation. Special precautions and other information regarding EMC provided in the accompanying documents of this equipment shall be observed during installation and operation of this equipment.

Note: If this equipment is found to cause interference (which may be determined by switching the equipment on and off), the user (or qualified service personnel) should attempt to correct the problem by one or more of the following measure(s):

- Reorient or relocate the affected device(s).
- Increase the separating space between the equipment and the affected device.
- Power the equipment from a source different from that of the affected device.
- Consult the point of purchase or service representative for further suggestions.

WARNING

Use of accessories, transducers, cables and other parts other than those specified by the manufacturer of this equipment may result in increased emissions or decreased immunity of the equipment. The manufacturer is not responsible for any interference caused either by the use of interconnect cables other than those recommended, or by unauthorized changes or modifications to this equipment. Unauthorized changes or modifications could void the user's authority to operate the equipment.

Note: To comply with the regulations applicable to an electromagnetic interface for a Group 1, Class A Medical Device, and to minimize interference risks, the following requirements shall apply:

- All interconnect cables to peripheral devices must be shielded and properly grounded. Use of cables not properly shielded and grounded may result in the equipment causing radio frequency interference in violation of the European Union Medical Device directive and FCC regulations.

- All of those recommended guidance regarding electromagnetic environment shall be followed.

Note: Do not use devices which intentionally transmit RF signals (Cellular Phones, Transceivers, or Radio Controlled Products) in the vicinity of this equipment as it may cause performance outside the published specifications. Keep the power to these type devices turned off when near the equipment.
The medical staff in charge of this equipment is required to instruct technicians, patients, and others.

Guidance and manufacturer’s declaration – Electromagnetic Emissions

The Proteus XR/a system is suitable for use in the specified electromagnetic environment. The purchaser or user of the Proteus XR/a system should assure that it is used in an electromagnetic environment as described below:		
Emissions Test	Compliance	Electromagnetic Environment
RF Emissions CISPR11	Group1	The Proteus XR/a system uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF Emissions CISPR11	Class A	The Proteus XR/a system is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Not applicable	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Not applicable	

Guidance and manufacturer’s declaration - Electromagnetic Immunity (1)

The Proteus XR/a system is suitable for use in the specified electromagnetic environment. The purchaser or user of the Proteus XR/a system should assure that it is used in an electromagnetic environment as described below:			
Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment
Electrostatic discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors are wood, concrete, or ceramic tile, or floors are covered with synthetic material and the relative humidity is at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality is that of a typical commercial and/or hospital environment
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality is that of a typical commercial and/or hospital environment.
Voltage dips, short	< 5 % U _T	0 % U _T for 5	Mains power quality is that of a typical commercial and/or hospital environment.

interruptions and voltage variations on power supply input lines IEC 61000-4-11	(> 95 % dip in U_T) for 0.5 cycle 40 % U_T (60 % dip in U_T) for 5 cycles 70 % U_T (30 % dip in U_T) < 5 % U_T (> 95 % dip in U_T) for 5 s	sec	If the user of the Proteus XR/a system requires continued operation during power mains interruptions, it is recommended that the Proteus XR/a system be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields are at levels characteristic of a typical location in a typical commercial and/or hospital environment.
Note: These are guidelines. Actual conditions may vary.			

Guidance and manufacturer’s declaration - Electromagnetic Immunity (2)

The **Proteus XR/a system** is suitable for use in the specified electromagnetic environment. The purchaser or user of the **Proteus XR/a system** should assure that it is used in an electromagnetic environment as described below:

Immunity Test	IEC 60601-1-2 Test Level	Compliance Level	Electromagnetic Environment
Conducted RF IEC 61000-4-6	3 V 150 kHz to 80 MHz	[$V_{1\alpha}$] 3 V	Portable and mobile RF communications equipment are used no closer to any part of the [EQUIPMENT and/or SYSTEM], including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter. Recommended separation distance $d = 1.2\sqrt{P}$
Radiated RF IEC 61000-4-3	3 V/m 80 kHz to 800 MHz	[$E_{1\alpha}$] 3 V/m	$d = 1.2\sqrt{P}$ 80 MHz to 800 MHz $d = 2.3\sqrt{P}$ 800 MHz to 2,5 GHz Note: P is the power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters, as

		<p>determined by an electromagnetic site survey,* are less than the compliance level in each frequency range.**</p> <p>Interference may occur in the vicinity of equipment marked with the following symbol:</p> 
<p>NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.</p>		
<p>*Field strengths from fixed transmitters, such as base stations for cellular telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be estimated accurately. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be performed. If the measured field strength exceeds the RF compliance level above, observe the Proteus XR/a system to verify normal operation in each use location. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the [EQUIPMENT and/or SYSTEM]. **Over the frequency range 150 kHz to 80 MHz, field strengths are less than 3 V/m. The Recommended Separation Distances are listed in the next table. Note: These are guidelines. Actual conditions may vary.</p>		

Recommended Separation Distances for Portable and Mobile RF Communications Equipment and the **Proteus XR/a system**

Frequency of Transmitter	150KHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2,5 GHz
Equation	$d = 1.2\sqrt{P}$	$d = 1.2\sqrt{P}$	$d = 2.3\sqrt{P}$
Rated Power of Transmitter (W)	DISTANCE (meters)	DISTANCE (meters)	DISTANCE (meters)
0.01	0.12	0.12	0.23
0.1	0.38	0.38	0.73
1	1.2	1.2	2.3
10	3.8	3.8	7.3
100	12	12	23
<p>For transmitters rated at a power not listed above, the DISTANCE can be estimated using the equation in the corresponding column, where P is the power rating of the transmitter in watts (W) according to the transmitter manufacturer.</p> <p>Note: These are guidelines. Actual conditions may vary.</p>			

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ПРЕДУПРЕЖДЕНИЕ

(BG)

- ТОВА УПЪТВАНЕ ЗА РАБОТА Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК.
- АКО ДОСТАВЧИКЪТ НА УСЛУГАТА НА КЛИЕНТА ИЗИСКА ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, 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 ПАЦИЕНТ В РЕЗУЛТАТ НА ТОКОВ УДАР ИЛИ МЕХАНИЧНА ИЛИ ДРУГА ОПАСНОСТ.

警告

(ZH-CN)

- 本维修手册仅提供英文版本。
- 如果维修服务提供商需要非英文版本，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人员，操作员或患者造成触电、机械伤害或其他形式的伤害。

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 V LIVEM ELEKTRICKÉHO PROUDU, RESPEKTIVE V LIVEM 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 medmindre denne servicemanual har været konsulteret og er forstået.
- MANGLENDE OVERHOLDELSE AF DENNE ADVARSEL KAN MEDFØRE SKADE PÅ GRUND AF ELEKTRISK, 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 VOORDAT DEZE ONDERHOUDSHANDLEIDING WERD GERAADPLEEGD EN BEGREPEN IS.
- INDIEN DEZE WAARSCHUWING NIET WORDT OPGEVOLGD, ZOU HET ONDERHOUDSPERSONEEL, DE OPERATOR OF EEN PATIËNT GEWOND KUNNEN RAKEN ALS GEVOLG VAN EEN ELEKTRISCHE SCHOK, MECHANISCHE OF ANDERE GEVAREN.

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, OR FROM MECHANICAL OR OTHER HAZARDS.

HOIATUS

(ET)

- KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.
- KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÖLKETEENUSE OSUTAMISE EEST.
- ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.
- KÄESOLEVA HOIATUSE EIRAMINE VÕIB 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 DE SERVICE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENIR SUR LES EQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ETE CONSULTE 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 ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.
- ΕΑΝ ΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ ΕΝΟΣ ΠΕΛΑΤΗ ΑΠΑΙΤΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΓΛΩΣΣΑ ΕΚΤΟΣ ΤΩΝ ΑΓΓΛΙΚΩΝ, ΑΠΟΤΕΛΕΙ ΕΥΘΥΝΗ ΤΟΥ ΠΕΛΑΤΗ ΝΑ ΠΑΡΕΧΕΙ ΥΠΗΡΕΣΙΕΣ ΜΕΤΑΦΡΑΣΗΣ.
- ΜΗΝ ΕΠΙΧΕΙΡΗΣΕΤΕ ΤΗΝ ΕΚΤΕΛΕΣΗ ΕΡΓΑΣΙΩΝ ΣΕΡΒΙΣ ΣΤΟΝ ΕΞΟΠΛΙΣΜΟ ΕΚΤΟΣ ΕΑΝ ΕΧΕΤΕ ΣΥΜΒΟΥΛΕΥΤΕΙ ΚΑΙ ΕΧΕΤΕ ΚΑΤΑΝΟΗΣΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ.
- ΕΑΝ ΔΕ ΛΑΒΕΤΕ ΥΠΟΨΗ ΤΗΝ ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΑΥΤΗ, ΕΝΔΕΧΕΤΑΙ ΝΑ ΠΡΟΚΛΗΘΕΙ ΤΡΑΥΜΑΤΙΣΜΟΣ ΣΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ, ΣΤΟ ΧΕΙΡΙΣΤΗ Ή ΣΤΟΝ ΑΣΘΕΝΗ ΑΠΟ ΗΛΕΚΤΡΟΠΛΗΞΙΑ, ΜΗΧΑΝΙΚΟΥΣ Ή ΑΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.

FIGYELMEZTETÉS

(HU)

- EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHTŐ EL.
- HA A VEVŐ SZOLGÁLTATÓJA ANGOLTÓL ELTÉRŐ NYELVRE TART IGÉNYT, AKKOR A VEVŐ FELELŐSSÉGE A FORDÍTÁS ELKÉSZÍTETÉSE.
- 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 EINGÖNGU FÁANLEG Á ENSKU.
- EF AÐ ÞJÓNUSTUVEITANDI VIÐSKIPTAMANNS ÞARFNAST ANNAS TUNGUMÁLS EN ENSKU, ER ÞAÐ SKYLDA VIÐSKIPTAMANNS AÐ SKAFFA TUNGUMÁLAPJÓNUSTU.
- 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 E DISPONIBILE SOLTANTO IN INGLESE.
- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE E TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.
- SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO
- IL NON RISPETTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

警告

(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 지침서는 영어로만 이용하실 수 있습니다.
- 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다.
- 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오.
- 이 경고에 유의하지 않으면 전기 쇼크, 기계상의 혹은 다른 위험으로부터 서비스 제공자, 운영자 혹은 환자에게 위해를 가할 수 있습니다.

BRĪDINĀJUMS

(LV)

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

ĮSPĖJIMAS

(LT)

- ŠIS EKSPLOATAVIMO VADOVAS YRA PRIEINAMAS TIK ANGLŪ KALBA.
- JEI KLIENTO PASLAUGŲ TIEKĒJAS REIKALAUJA VADOVO KITA KALBA – NE ANGLŪ, NUMATYTI VERTIMO PASLAUGAS YRA KLIENTO ATSAKOMYBĖ.
- NEMĒGINKITE ATLIKTI ĮRANGOS TECHNINĖS PRIEŽIŪROS, NEBENT ATSIŽVELGĖTE Į ŠĮ EKSPLOATAVIMO VADOVĄ IR JĮ SUPRATOTE.
- JEI NEATKREIPSITE DĖMESIO Į ŠĮ PERSPĖJIMĄ, GALIMI SUŽALOJIMAI DĖL ELEKTROS ŠOKO,
- MECHANINIŲ AR KITŲ PAVOJŲ PASLAUGŲ TIEKĖJUI, OPERATORIUI AR PACIENTUI.

ADVARSEL

(NO)

- DENNE SERVICEHÅNDBOKEN FINNES BARE PÅ ENGELSK.
- HVIS KUNDENS SERVICELEVERANDØR TRENGER 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 JEDYNIEM W JĘZYKU ANGIELSKIM.
- JEŚLI DOSTAWCA USŁUG KLIENTA WYMAGA JĘZYKA INNEGO NIŻ ANGIELSKI, ZAPEWNIENIE USŁUGI TŁUMACZENIA JEST OBOWIĄZKIEM KLIENTA.
- NIE PRÓBOWAĆ SERWISOWAĆ WYPOSAŻENIA BEZ ZAPOZNANIA SIĘ I ZROZUMIENIA NINIEJSZEGO PODRĘCZNIKA SERWISOWEGO.
- NIEZASTOSOWANIE SIĘ DO TEGO OSTRZEŻENIA MOŻE SPOWODOWAĆ URAZY DOSTAWCY USŁUG, OPERATORA LUB PACJENTA W WYNIKU PORAŻENIA ELEKTRYCZNEGO, ZAGROŻENIA MECHANICZNEGO BĄDŹ INNEGO.

ATENÇÃO

(PT-BR)

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

ATENÇÃO

(PT-PT)

- ESTE MANUAL DE ASSISTÊNCIA TÉCNICA SÓ SE ENCONTRA DISPONÍVEL EM INGLÊS.
- SE QUALQUER OUTRO SERVIÇO DE ASSISTÊNCIA TÉCNICA, QUE NÃO A GEMS, SOLICITAR ESTES MANUAIS NOUTRO IDIOMA, É DA RESPONSABILIDADE DO CLIENTE FORNECER OS SERVIÇOS DE TRADUÇÃO.
- NÃO TENDE 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 ELÉTRICOS, MECÂNICOS OU OUTROS.

ATENȚIE

(RO)

- ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.
- DACĂ UN FURNIZOR DE SERVICII PENTRU CLIENȚI NECESITĂ O ALTĂ LIMBĂ DECĂT CEA ENGLEZĂ, ESTE DE DATORIA CLIENTULUI SĂ FURNIZEZE O TRADUCERE.
- NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECĂT 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 ОБСЛУЖИВАНИЮ ПРЕДЛАГАЕТСЯ 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 ОБСЛУЖИВАНИЕМ ОБОРУДОВАНИЯ ОБЯЗАТЕЛЬНО ОБРАТИТЕСЬ К ДАННОМУ РУКОВОДСТВУ И ПОЙМИТЕ ИЗЛОЖЕННЫЕ В НЕМ СВЕДЕНИЯ.
- НЕСОБЛЮДЕНИЕ ТРЕБОВАНИЙ ДАННОГО ПРЕДУПРЕЖДЕНИЯ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЭЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.

UPOZORENJE

(SR)

- OVO SERVISNO UPUTSTVO JE DOSTUPNO SAMO NA ENGLISKOM 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 SKÔR, AKO SI NEPREČÍTATE NÁVOD NA OBLUHU A NEPOROZUMIETE MU.
- ZANEDBANIE TOHTO UPOZORNENIA MÔŽE VYÚSTIŤ DO ZRANENIA POSKYTOVATEĽA SLUŽIEB, OBSLUHUJÚCEJ OSOBY ALEBO PACIENTA ELEKTRICKÝM PRÚDOM, DO MECHANICKÉHO ALEBO INÉHO NEBEZPEČENSTVA.

ATENCION

(ES)

- ESTE MANUAL DE SERVICIO SOLO EXISTE EN INGLES.
- SI ALGUN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLES, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCION
- NO SE DEBERA DAR SERVICIO TECNICO 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 SERVICETEKNIKERN, OPERATÖREN ELLER PATIENTEN TILL FÖLJD AV ELEKTRISKA STÖTAR, MEKANISKA FAROR ELLER ANDRA FAROR.

DİKKAT

(TR)

- BU SERVİS KILAVUZUNUN SADECE İNGİLİZCESİ MEVCUTTUR.
- EĞER MÜŞTERİ TEKNİSYENİ BU KILAVUZU İNGİLİZCE DIŞINDA BİR BAŞKA LİSANDAN TALEP EDERSE, BUNU TERCÜME ETTİRMEK MÜŞTERİYE DÜŞER.
- SERVİS KILAVUZUNU OKUYUP ANLAMADAN EKİPMANLARA MÜDAHALE ETMEYİNİZ.
- BU UYARIYA UYULMAMASI, ELEKTRİK, MEKANİK VEYA DİĞER TEHLİKELERDEN DOLAYI TEKNİSYEN, OPERATÖR VEYA HASTANIN YARALANMASINA YOL AÇABİLİR.

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REVISION HISTORY

REVISION	DATE OF ISSUE	REASON FOR CHANGE
1	1, 20, 2000	First release
2	7, 14, 2000	Update electrical connection chapter
3	9, 24, 2000	Update table bottom plate anchor hole size and page 6-2
4	2, 21, 2001	Add a new wall stand Update ROOM LAYOUTS
5	5,28,2001	Update wall breaker parameters Update dimensions on wall stand
6	9,30,2001	Update the data sheet
7	11,21,2001	Update interconnection cable information
8	5,14,2003	Add MX100 X-ray tube, SG100 tilting Wall Stand, phase out Rad21 X-ray tube
9	3.23,2004	Add OTS Suspension
10	10.29,2004	Update regulatory requirements Add Eclipse Proteus Collimator and SG120 Wall Stand
11	5.20,2005	Update Jedi Generator Parameters
12	9.1,2005	Add Notice about CCC Certification.
13	2.15.2006	Add Reciprocating Bucky and AID Ion Chamber Remove SG100 Wall Stand
14	3.5.2007	Correct table dimensions and PDU location.
15	2.20,2008	Add WYE Notice.
16	08.05.2009	Update the WS part number to 600-0301 Update Table weight/occupied area to 230kg/m ²
18	08.19.2011	Revise EMC standard version
19	08.24.2016	Update the Rev number to keep conform

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A revision bar at the left margin highlights changes in a revised page.

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CHAPTER 1 INTRODUCTION

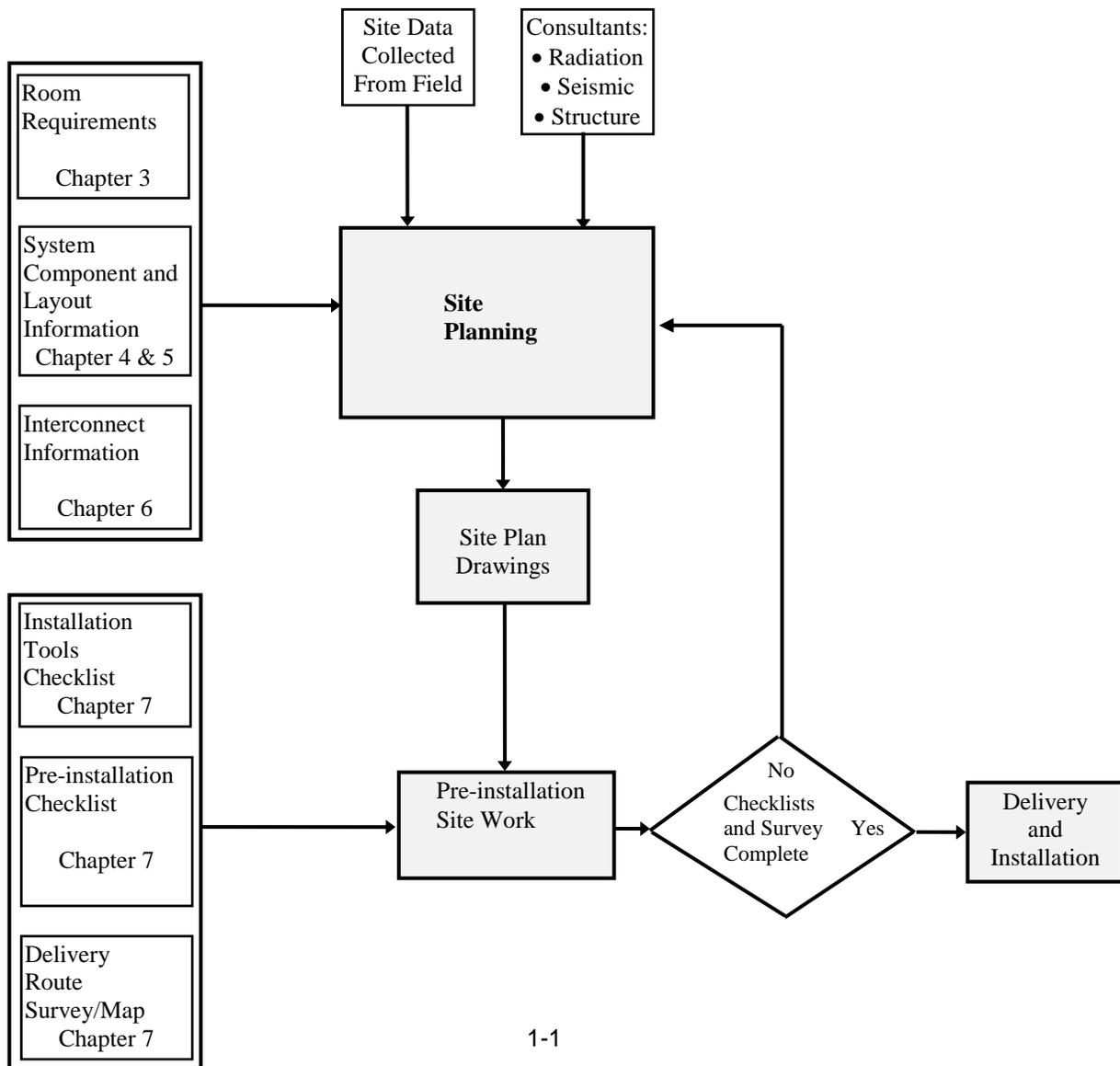
SECTION 1 PURPOSE AND SCOPE OF THIS MANUAL

This document is intended as a guide and information resource for planning and properly preparing a site for the installation of Proteus XR/a systems.

Pre-installation Process

Complete the checklist in Chapter 7 of this manual. They are an important part of the pre-installation process. The checklists summarize required preparations and verify the completion of the pre-installation procedures.

The following is a graphic outline of information flow in the pre-installation process.



SECTION 2 DESCRIPTION OF SYSTEM

Illustration 1-1
BASIC CONFIGURATION



The Proteus XR/a System is divided in to basic components:

- | | |
|---|-------------------------------|
| 1. System Console | 7. X-ray Tube |
| 2. Elevating Table | 8. Proteus XR/a Collimator |
| 3. Overhead Tube Suspension | 9. Eclipse Proteus Collimator |
| 4. Wall Stand (GPCP No.:
600-0301) (optional) | 10. Tomography (optional) |
| 5. SG120 Wall Stand (GPCP No.:
2402562) (optional) | 11. Printer (optional) |
| 6. Generator Cabinet | |

SECTION 3 RESPONSIBILITY OF PURCHASER/CUSTOMER

To ensure the installation of a Proteus XR/a System meets the purchaser or Customer expectations, it is important to determine who will take responsibility for various items in the course of the system installation process. To aid you in determining these responsibilities, review the following checklists with the customer and assign responsibilities as appropriate:

- **Tools and Equipment Table** (Chapter 7, Section 3 of this document)
- **Pre-Installation Checklist** (Chapter 7, Section 5 of this document)

Contract Changes

Be sure to inform the customer that the cost of any alterations or modifications not specified in the sales contract is the responsibility of the customer.

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CHAPTER 2 SYSTEM COMPATIBILITY

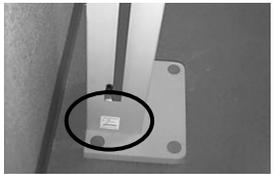
SECTION 1 PROTEUS XR/A SYSTEM COMPATIBILITIES

Table 2-1
PROTEUS XR/a SYSTEM IDENTIFICATION AND COMPLIANCE PLATES

Item	Component	Model Number	Plate Type
	Typical		
1	System console	2259976	Identification and Compliance
2	Elevating Table	2259988	Identification and Compliance
3	XT radiographic suspension (2/3m)	S3918MD/S3918K	Identification and Compliance
4	Wall Stand	600-0301	Identification and Compliance
5	X-ray Tube (Rad14)	2259981	Identification and Compliance
6	Three Phase Cabinet	2259973	Identification and Compliance
7	32, 50kW Jedi Generator	2244165-2	Identification and Compliance
8	Proteus XR/a Auto Collimator	2260181	Identification and Compliance
9	Eclipse Proteus Collimator	2379827	Identification and Compliance
10	MEDYS Bucky (R/H)	2189553-2	Identification and Compliance
11	MEDYS Bucky (L/H)	2189553	Identification and Compliance
12	Ion Chamber	845027G045	Identification and Compliance
13	Reciprocating Bucky (L/H)	5159516-1	Identification and Compliance
14	Reciprocating Bucky (R/H)	5159516-2	Identification and Compliance
15	AID Ion Chamber with 24 meter cable	5167409-2	Identification and Compliance
	Optional		
1	XT radiographic suspension (3m)	S3918ME/S3918LC	Identification and Compliance
2	Linear Tomography	S3918KA	Identification and Compliance
3	Stationary Grid Cabinet	2260170	Identification and Compliance
4	Manual Collimator	2259989	Identification and Compliance
5	65, 80kW Jedi Generator	2268970	Identification and Compliance
6	X-ray Tube (MX 100)	D2301R	Identification and Compliance
7	SG120 Wall Stand	2402562	Identification and Compliance

SECTION 2 PROTEUS XR/A COMPONENT PLATES LOCATION

Table 2-2
PROTEUS XR/a SYSTEM IDENTIFICATION AND COMPLIANCE PLATES

DESIGNATION	System console	Wall Stand	OTS radiographic suspension (2/3 m)	Cabinet
PART NUMBER	2259976	600-0301	S3918MD/S3918K	2259973
LOCATION of Name Plate				

DESIGNATION	X-ray Tube (RAD-14)	X-ray Tube (MX100)	Bucky (L/H)	Jedi Generator
PART NUMBER	2259981	D2301R	2189553 or 5159516-1	2268970 or 2244165-2
LOCATION of Name Plate				

DESIGNATION	Auto Collimator	Eclipse Proteus Collimator	Warning label for Inhibition button	SG120 Wall Stand
PART NUMBER	2259298-54	2379827	5339135	2402562
LOCATION of Name Plate				

CHAPTER 3 PHYSICAL REQUIREMENTS OF ROOM

SECTION 1 ENVIRONMENTAL REQUIREMENTS/LIMITATIONS

1-1 Room climate

Relative humidity and temperature.

See Table 3-1. To obtain relative humidity and temperature requirements for components

Table 3-1
CLIMATE REQUIREMENT (BY COMPONENT) - RELATIVE HUMIDITY AND TEMPERATURE

PRODUCT OR COMPONENT	RELATIVE HUMIDITY (Non-condensing)				TEMPERATURE			
	IN-USE		STORAGE		IN-USE		STORAGE	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Elevating table	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
XT-OTS	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
Generator	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
PDU	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
System Console	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
Tomography Option	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
X-ray Tube (Rad 14)	10%	75%	5%	95%	+10°C	40 °C	-20 °C	+70 °C
X-ray Tube (MX 100)	10%	80%	5%	95%	0°C	40°C	-40°C	+80°C
SG 120 Wallstand	20%	85%	10%	95%	+10°C	40 °C	-20 °C	+70 °C

Altitude and Atmospheric Pressure

See Table 3-2.

Table 3-2
ALTITUDE AND ATMOSPHERIC PRESSURE

PRODUCT OR COMPONENT	ALTITUDE				ATMOSPHERIC PRESSURE			
	IN-USE		STORAGE		IN-USE		STORAGE	
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
Elevating table	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
XT OTS	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
Generator	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
PDU	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
System Console	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
Tomography Option	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
X-ray Tube (Rad 14)	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3048 m (10000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
X-ray Tube (MX 100)	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	6096 m (20000 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa
SG120 Wall Stand	-30.5 m (-100 ft.)	2440 m (8005 ft.)	-30.5 m (-100 ft.)	3000 m (9842 ft.)	650 hPa	1060 hPa	500 hPa	1060 hPa

1-2 Equipment Heat output (Dissipation)

See Table 3-3.

Table 3-3
HEAT OUTPUTS (BY COMPONENT)

PRODUCT OR COMPONENT	MAXIMUM HEAT OUTPUT (BTU/hr)	MAXIMUM HEAT OUTPUT (WATTS)
	IN-USE	IN-USE
Table Assembly	1500	500
Generator	2036	597
PDU	500	145
Console	180	60
X-ray Tube (Rad 14)	2288	671
X-ray Tube (MX 100)	3600KHU/hr	740

1-3 Radiation Protection

Because X-ray equipment produces radiation, special precautions may need to be taken or special site modifications may be required. The General Electric Company does not make recommendations regarding radiation protection. It is the purchaser's responsibility to consult a radiation physicist for advice on radiation protection in X-ray rooms.

SECTION 2 STRUCTURAL REQUIREMENTS

2-1 Room Size

See Chapter 5, Room Layouts, for recommended and minimum Proteus XR/a system room dimensions.

2-2 Door Size Requirements

Minimum door sizes also apply to hallway and elevator. See chapter 7, Planning Aids, for additional details.

Door Height

The minimum door height is 2.0 m (78.75 in).

Door Width

The minimum door width is 1.0 m (39.4 in).

2-3 Floor Requirements

The preferred method of installing the Table is using provided floor anchors instead. The provided floor anchors can be used in all seismic zones.

Floor Requirements when using provided Floor Anchors

The floor bearing the Proteus XR/a system must be concrete and the thickness of the floor is at least **150mm (5.9 in.)**.

The Table Assembly is placed on the floor, which must accept the weight and the weight/area defined in Table 4-1.

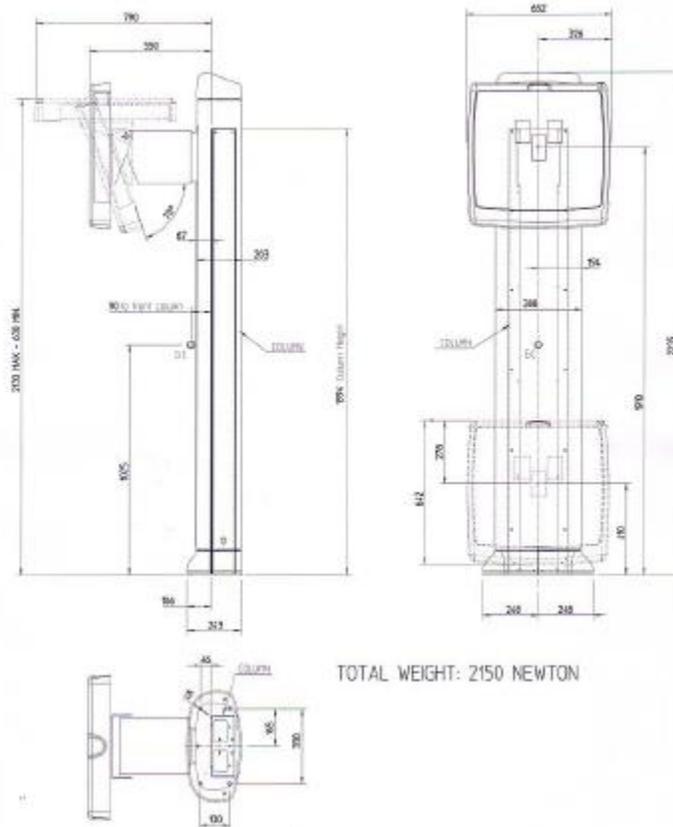
- The weight of the complete table is 200 kg.
- The ground surface must be rather horizontal.
- The bearing surface of the base plate is 0.86 m².

The Proteus XR/a Table system must be fixed on the floor.

Note:

The Following contents are only used for SG120 Wall Stand.

- The vertical bucky stand is placed on the floor, which must accept the weight and the area defined by the equipment (see Fig below).



- The maximum weight of the complete bucky stand is 220 kg.
- The ground surface under the bucky stand must be flat and horizontal (± 0.5 cm/m).
- The floor area where the vertical stand is to be installed should have been prepared before the installation. Floor preparation requires drilling anchor holes and possible routing of the cables. An installation kit and a drill template are supplied with SG120 options.



2-4 Wall requirements

The Wall Stand (GPCP No. 600-0301) should be securely fastened to the wall to prevent tipping.

For Wall Stand (GPCP No. 600-0301) fixation, the wall should be concrete or bricks and the thickness is at least **100mm(3.9in.)**

For SG120 Wall Stand (GPCP No.: 2402562), not applicable.

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CHAPTER 4 PHYSICAL CHARACTERISTICS

SECTION 1 DIMENSION DRAWINGS

Refer to this section for dimensional drawings for the components of the Proteus XR/a system. These components include:

- Table Assembly
- Wall Stand (GPCP No. 600-0301)
- Generator Cabinet
- Console
- OTS Suspension

1-1 Proteus XR/a Generator Cabinet

- Refer to Illustration 4-1.

1-2 Proteus XR/a Elevating Table

Side View

- Refer to Illustration 4-2.

Top View

- Refer to Illustration 4-3.

Bottom Plate

- Refer to Illustration 4-4.

1-3 Proteus XR/a Wall Stand

- Refer to Illustration 4-5.

1-4 Proteus XR/a System Console

- Refer to Illustration 4-6.

Proteus XR/a System Console Bracket Mounting

- Refer to Illustration 4-7.

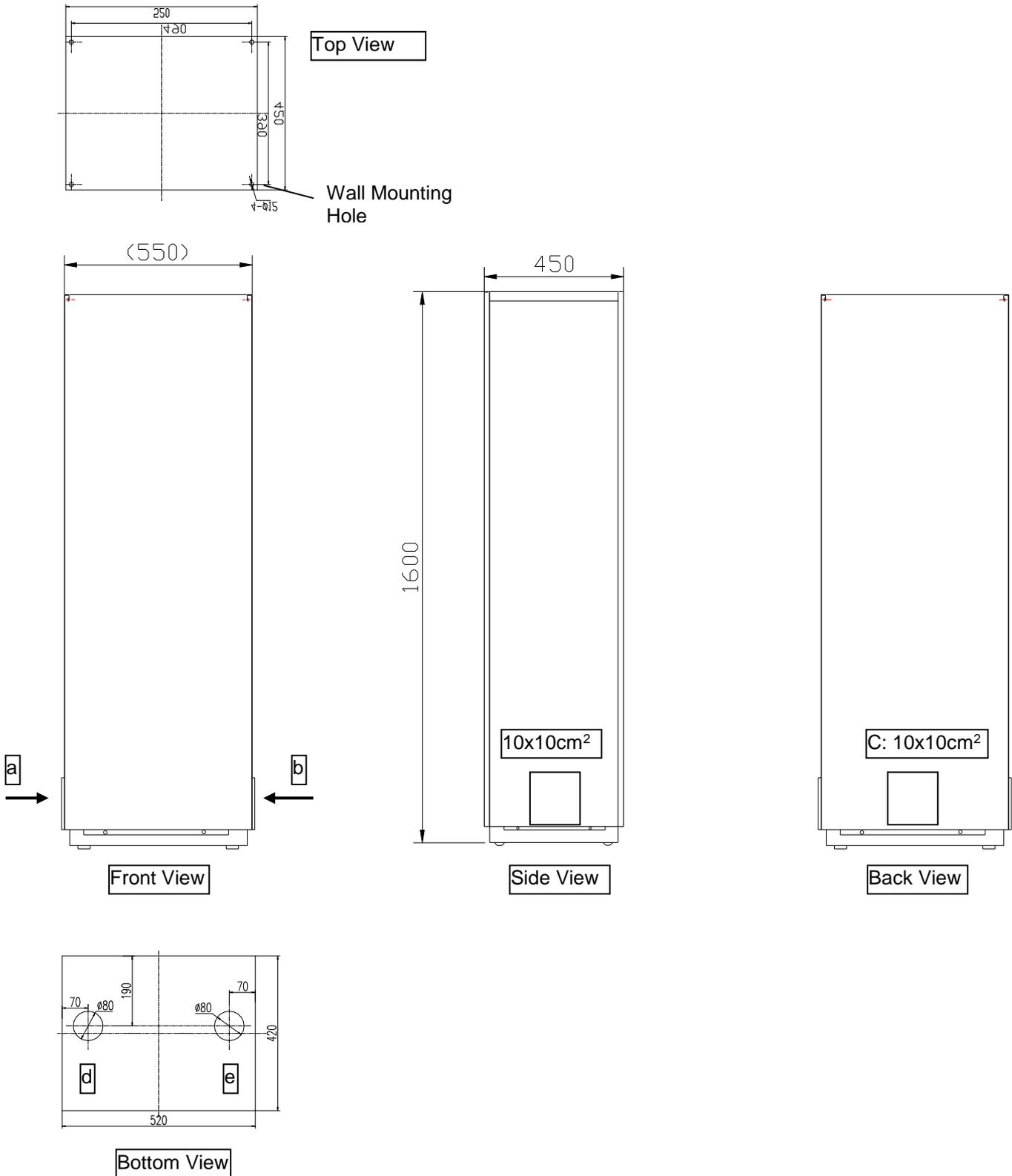
1-5 Proteus XR/a System Console Pedestal Mounting

- Refer to Illustration 4-8.

1-6 Proteus XR/a OTS Suspension

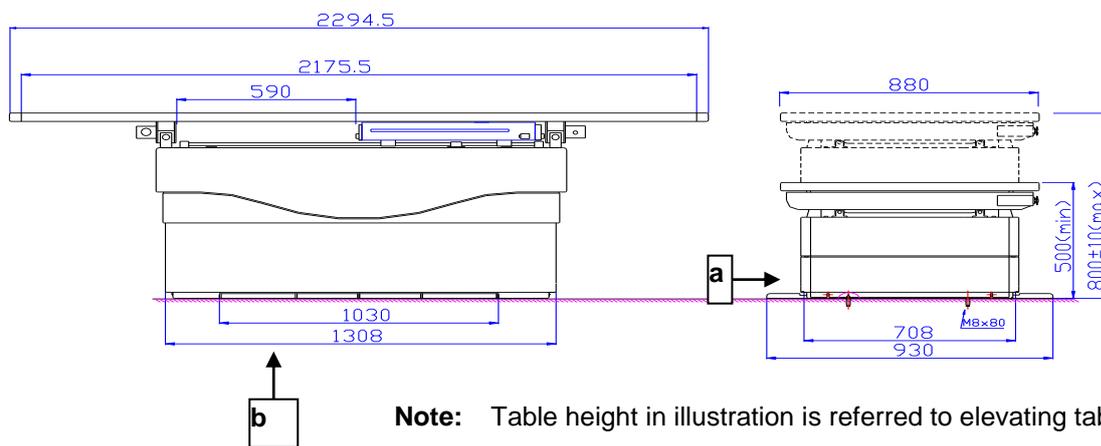
- Refer to Illustration 4-9.
All Dimensions Minimum (3-Meter Bridge)
- Refer to Illustration 4-10.
All Dimensions Minimum (2-Meter Bridge)
- Refer to Illustration 4-11.
End View
- Refer to Illustration 4-12.
Side View
- Refer to Illustration 4-13.

Illustration 4-1
GENERATOR CABINET



Note: a, b, c, d, e are cable entrances.

Illustration 4-2
PROTEUS XR/A TABLE - SIDE VIEW



Note: Table height in illustration is referred to elevating table.

Illustration 4-3
PROTEUS XR/A TABLE - TOP VIEW

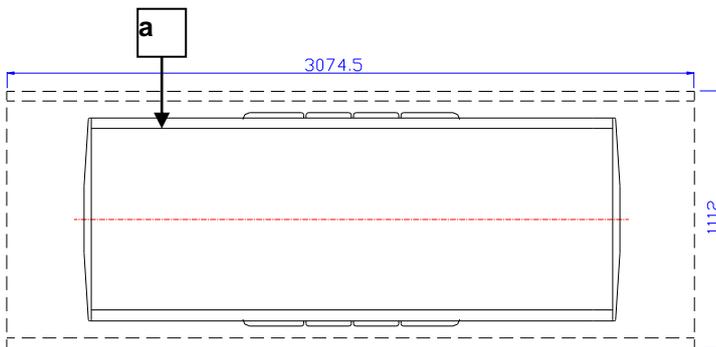
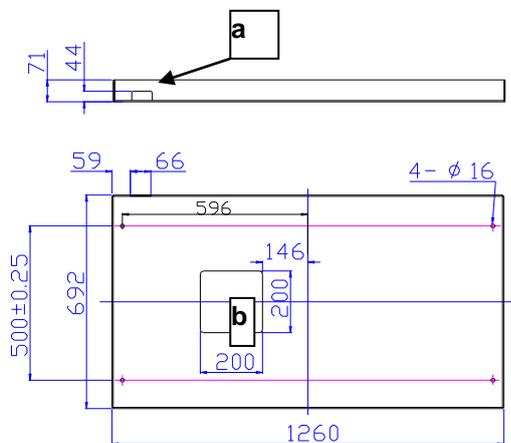
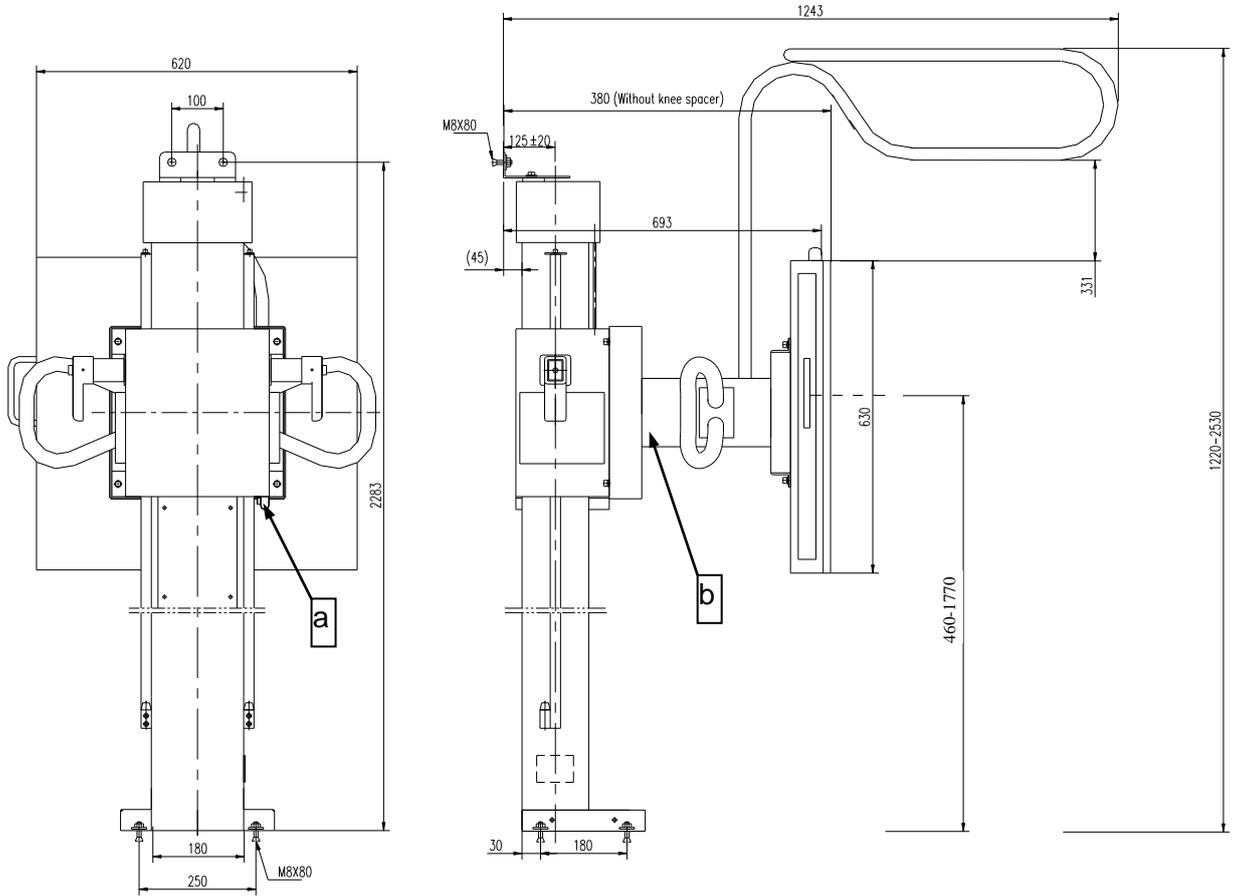


Illustration 4-4
PROTEUS XR/A TABLE BOTTOM PLATE



Note: a, b are cable entrances.

Illustration 4-5
PROTEUS XR/A WALL STAND



Note: a is cable entrance; b is knee spacer

Illustration 4-6
CONSOLE DIMENSIONS

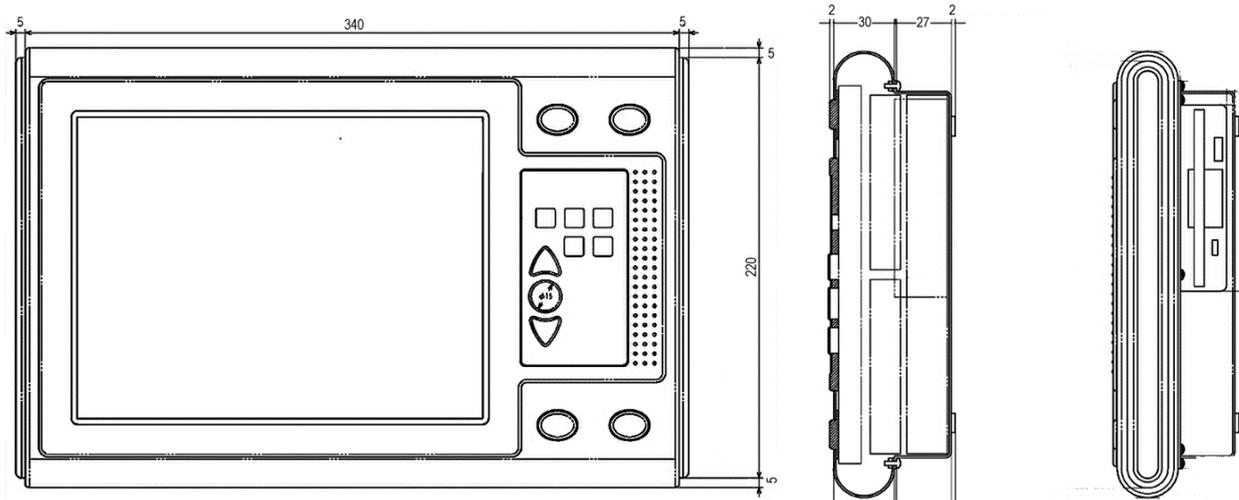


Illustration 4-7
CONSOLE BRACKET MOUNTING

WALL MOUNT

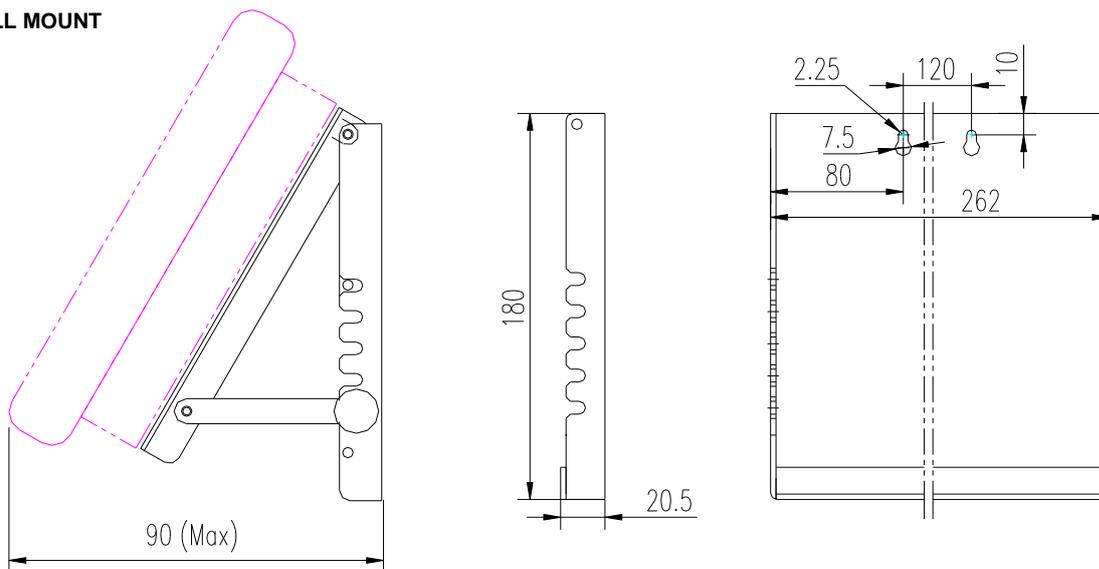


TABLE MOUNT

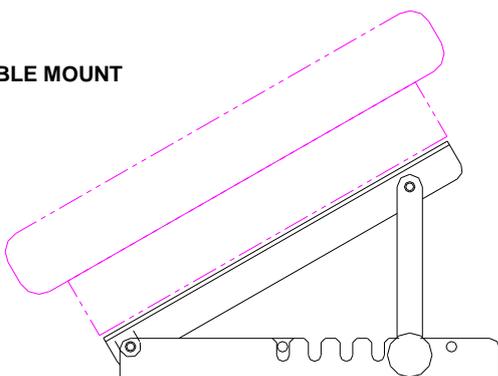
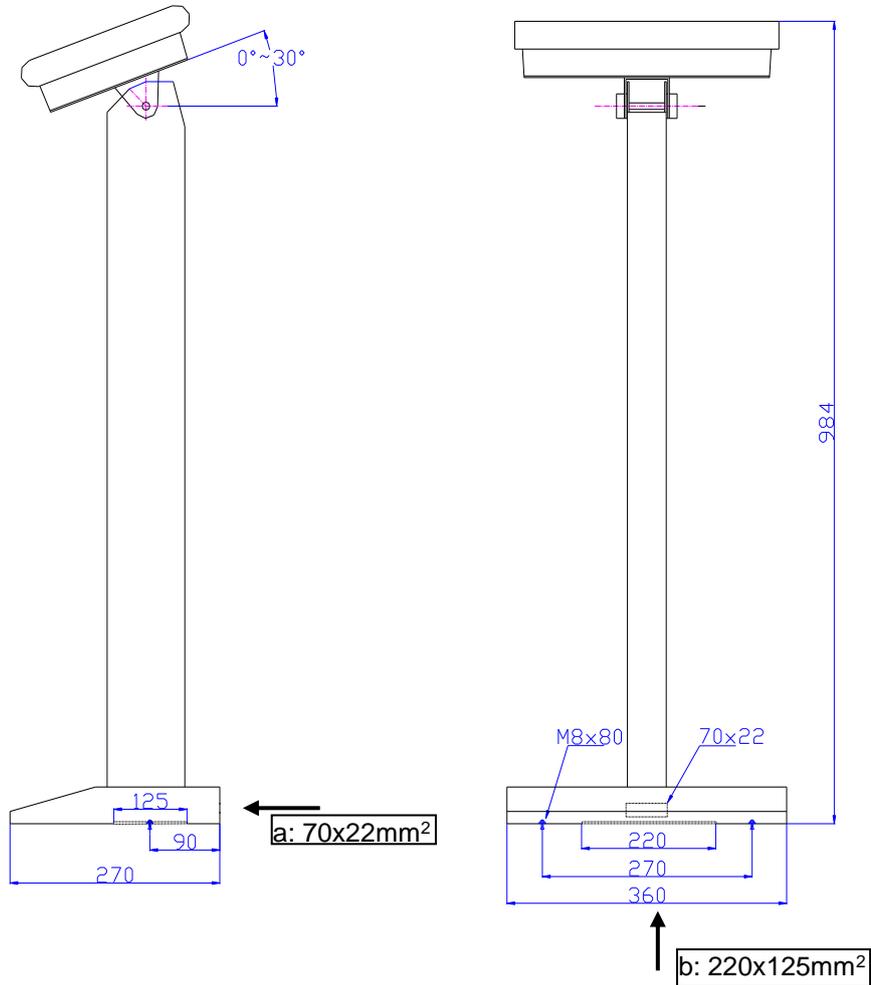


Illustration 4-8
CONSOLE PEDESTAL MOUNTING



Note: a, b are cable entrances.

Note: For the dimensions of SG120 Wall Stand (GPCP No.: 2402562), refer to SG120 Wall Stand Pre-installation Manual (P/N: S0012533).

Illustration 4-9
OTS RAD SUSPENSION

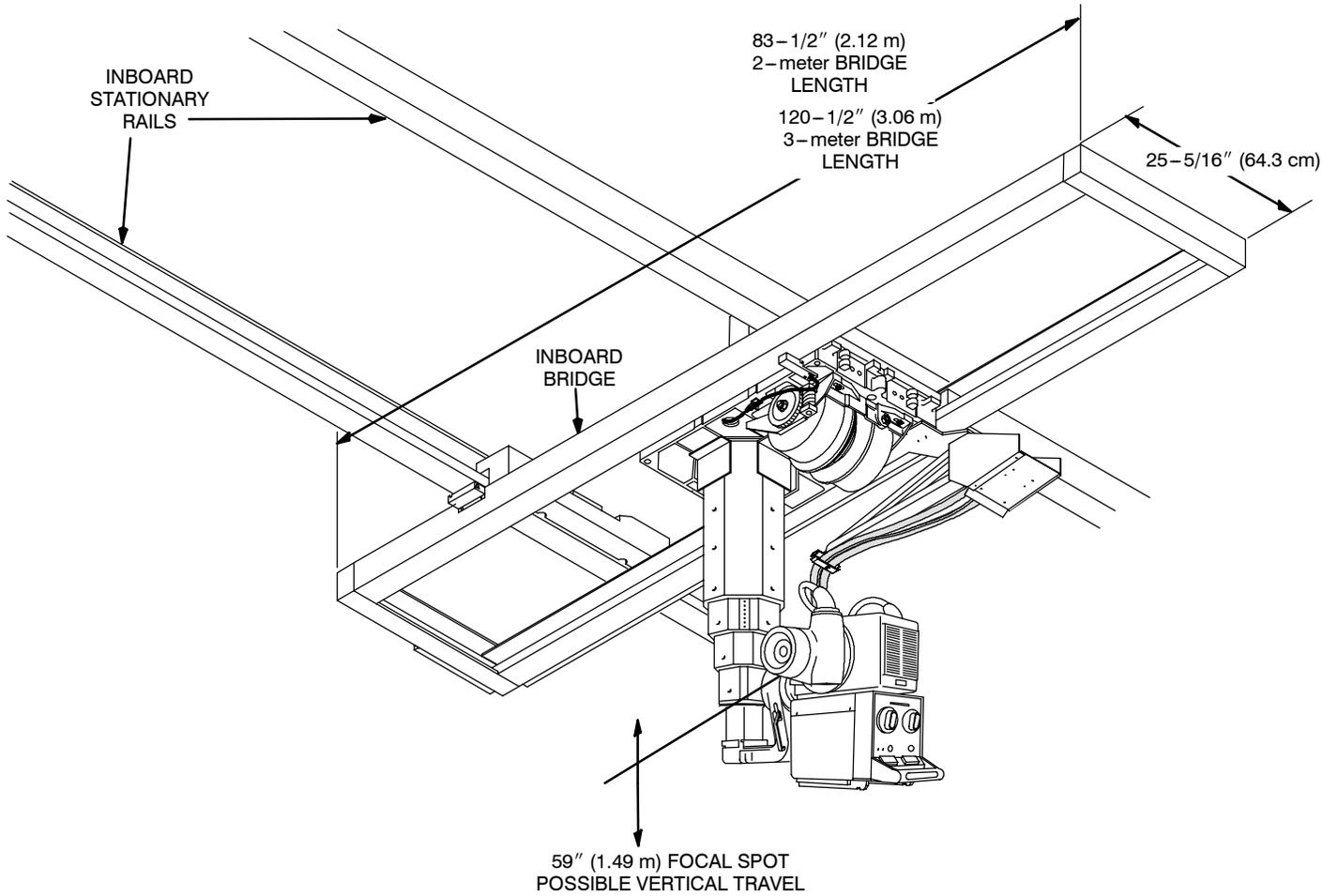
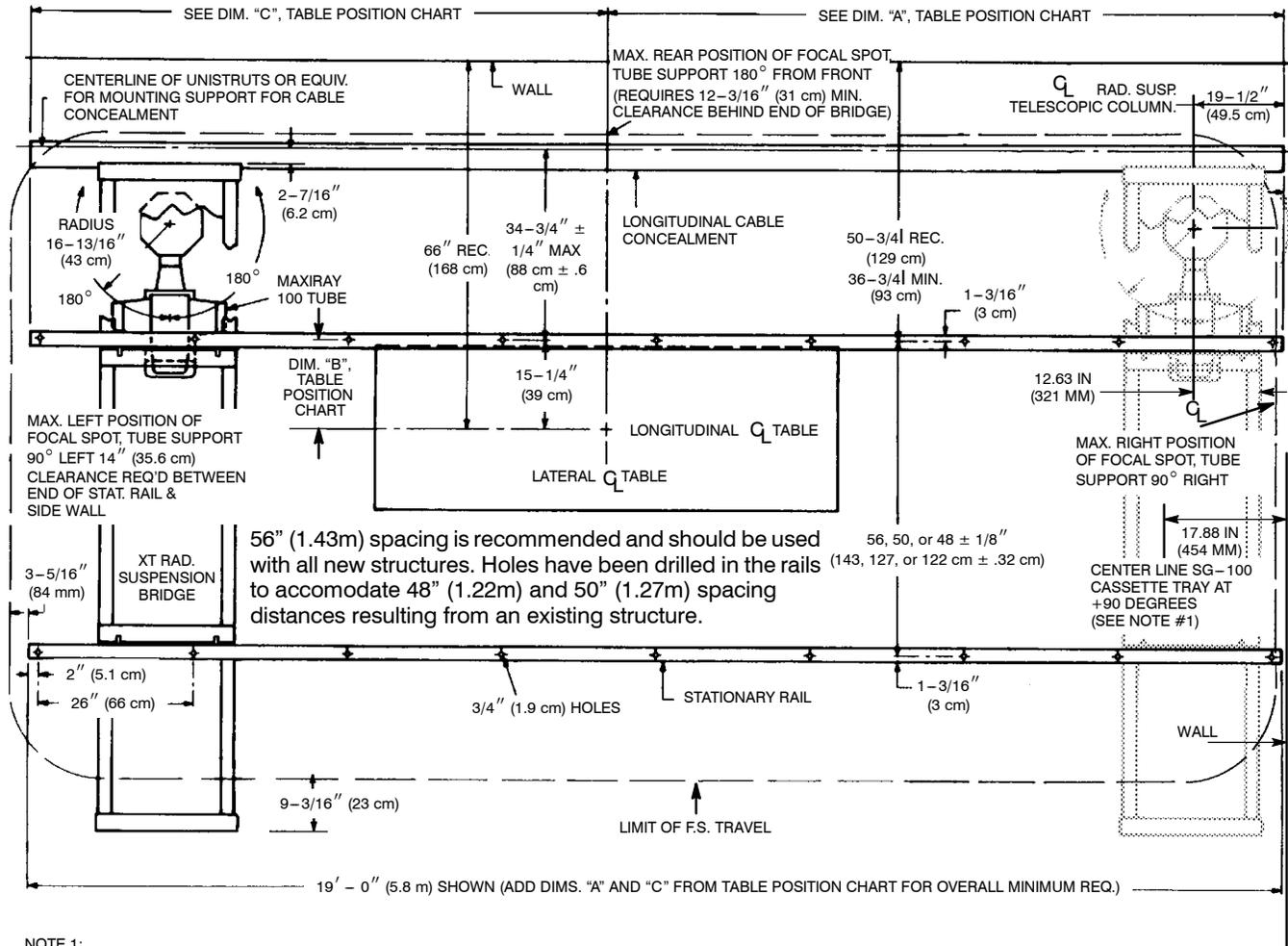


ILLUSTRATION 4-10
OTS SUSPENSION 3-METER BRIDGE PLAN VIEW - (ALL DIMENSIONS MINIMUM)

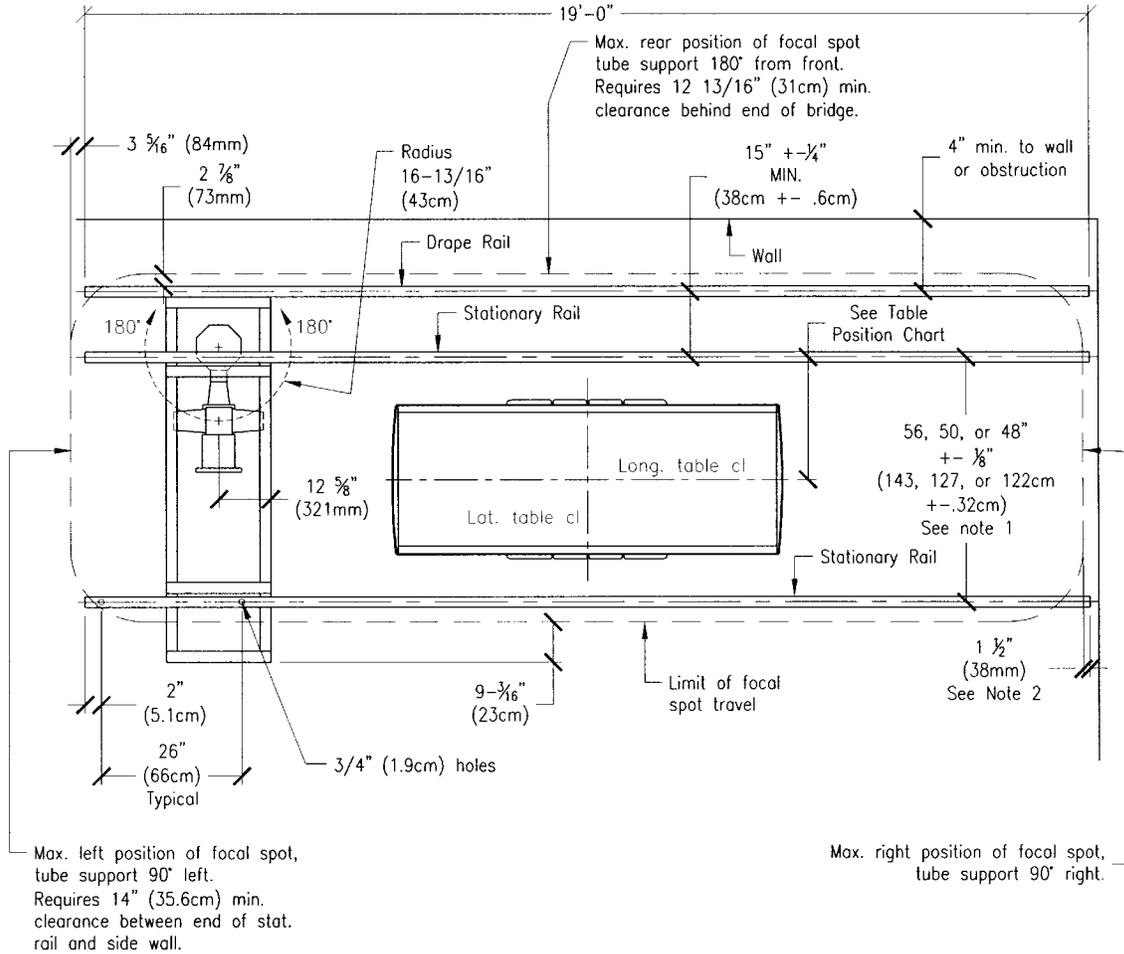


NOTE 1:
IF INSTALLING AN SG100 VERTICAL WALL STAND, THE WALL STAND MAY NEED TO BE SPACED FROM THE WALL/MOUNTING SURFACE SO THAT THE X-RAY TUBE FOCAL SPOT MAY BE CENTERED OVER THE CASSETTE TRAY WHEN IT IS ROTATED +90 DEGREES (HORIZONTAL, FACING UP). THIS NOTE PERTAINS TO BOTH THE HEAD AND FOOT ENDS OF THE ROOM IF THE VERTICAL WALL STAND IS INSTALLED AT EITHER END.

Note: For the 3-meter bridge, the bridge length is 10'-1/2" (3.06 m) long to reduce the number of bridge shorting requirements. The bridge width is 25" (63.5 cm). The bridge end caps are 25-5/16" (64.3 cm) wide excluding two 1/4" (6.4 mm) high fastener heads.

ILLUSTRATION 4-11
OTS SUSPENSION 2-METER BRIDGE PLAN VIEW - (ALL DIMENSIONS MINIMUM)

OTS Suspension, 2-Meter bridge plan view - (PROTEUS APPLICATION ONLY)



Note 1: 56" (1.43m) spacing is recommended and should be used with all new structures. Holes have been drilled in the bridge rails at 48" (1.22m) and 50" (1.27m) to accommodate existing structures.

Note 2: If Tomo-Link is to be installed, this dimension changes to 15" (3.81cm) from the end of the stationary rail because a bumper is installed to prevent the Tomo-Link drive unit on the bridge from colliding with the drive belt anchor on the rear stationary rail.

Table Position Chart

Technique Condition	Rear stat. rail to table cl dim.
Crosstable rear to front (focal spot to table cl)	34" (864mm)
Crosstable front to rear (focal spot to table cl)	8" (203mm)
Note: Table must be located a minimum of 41" (1041mm) from the back wall or obstruction so the technician can stand behind the table and operate the controls.	

Note: For the 2-meter bridge, the bridge length is 7'-0" (2.12 m) long to reduce the number of bridge shorting requirements. The bridge width is 25" (63.5 cm). The bridge end caps are 25-5/16" (64.3 cm) wide excluding two 1/4" (6.4 mm) high fastenerheads.

ILLUSTRATION 4-12
OTS SUSPENSION FOOT END VIEW

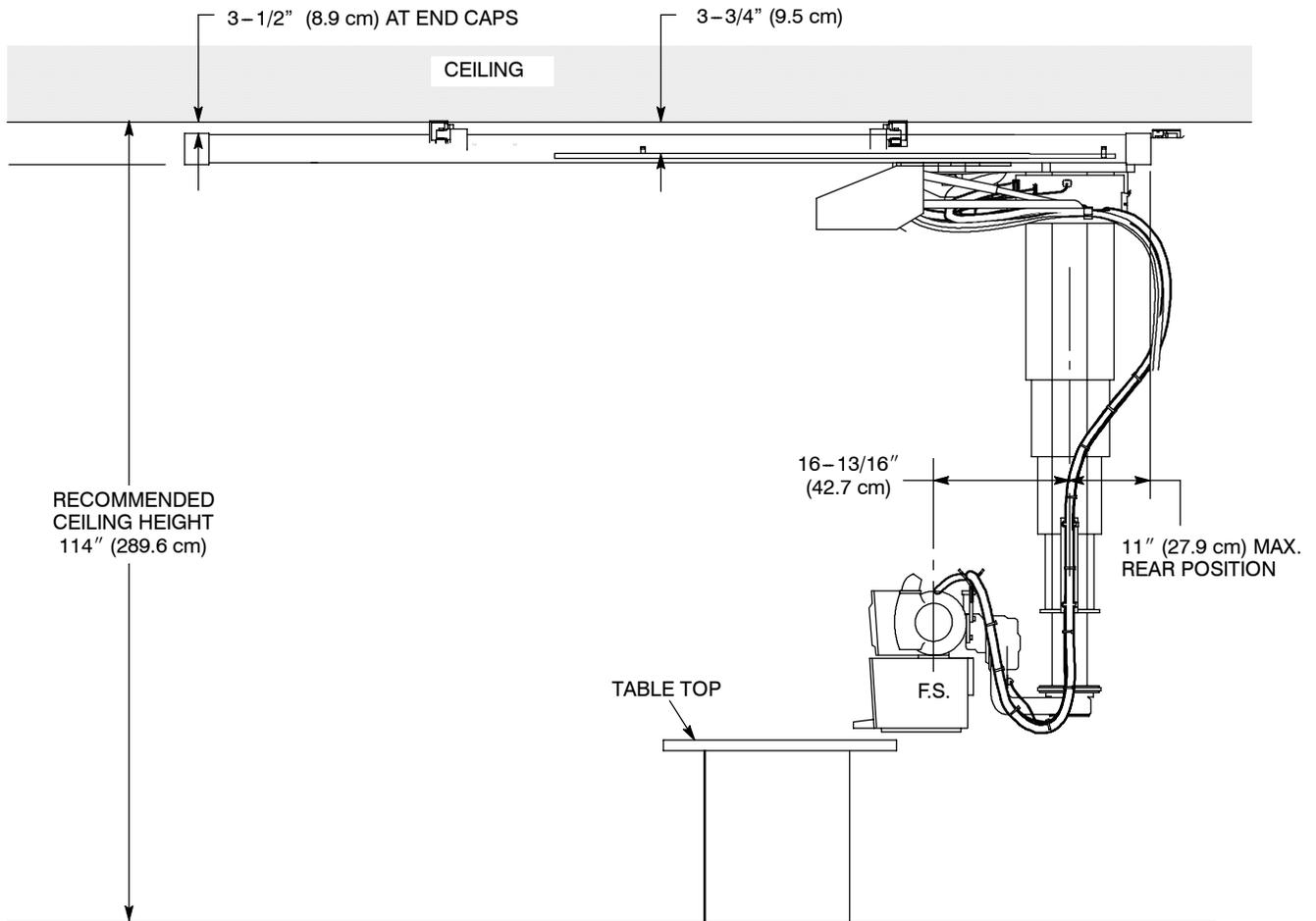
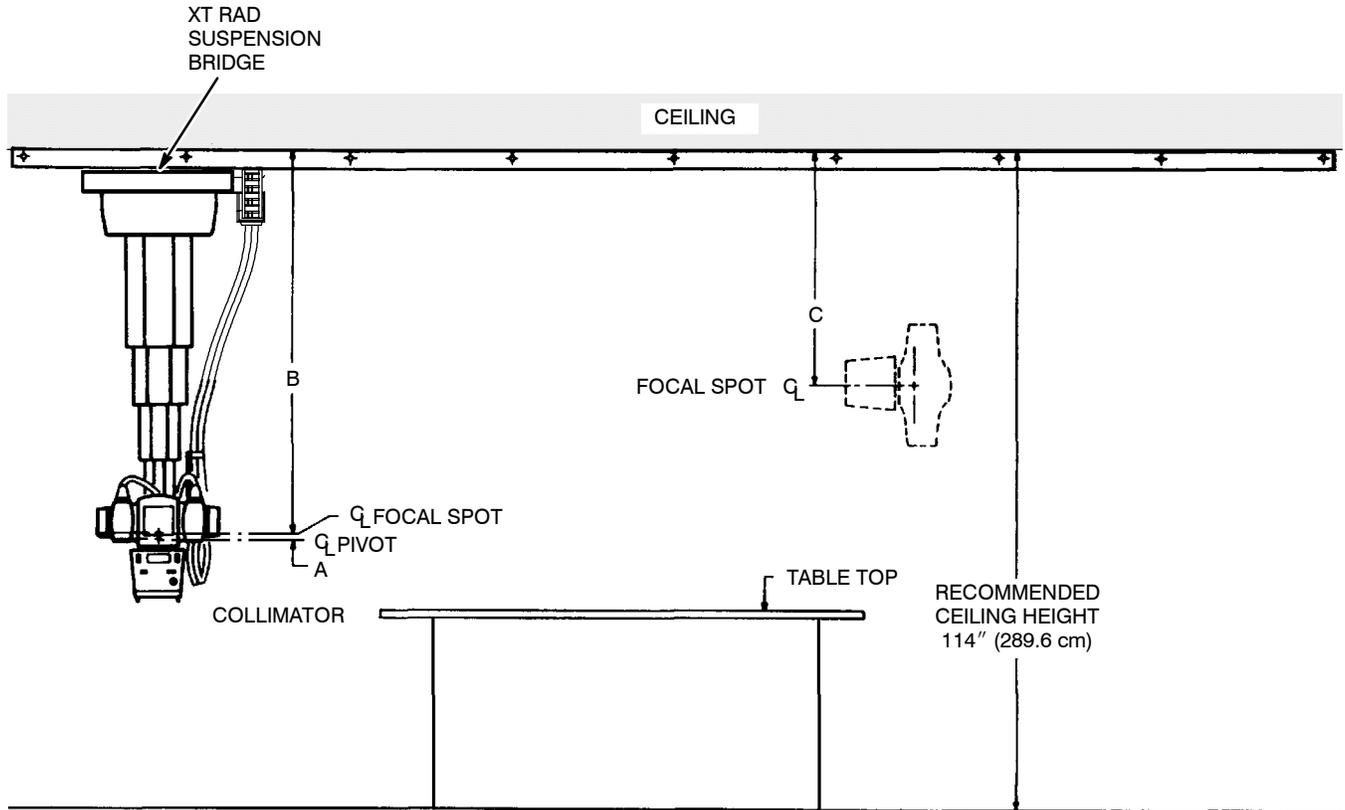


ILLUSTRATION 4-13
OTS SUSPENSION SIDE VIEW



The following table lists major layout factors and concerns which need to be considered. Carefully check room layouts for adequate radiographic coverage, necessary clearances and provision for related equipment. Good judgement is required to avoid compromising important features. There must be ample maneuvering space allowed for the hospital cart and for personnel around the table. Also, the number of bridges on the same set of stationary rails determines overall travel capability for any one of them.

OTS SUSPENSION LAYOUT FACTORS

FACTORS TO BE CONSIDERED	PERTINENT INFORMATION
Vertical operating range of OTS Suspension	<p>Generally, a 9i-6l (2.9 m) stationary rail height is recommended. At 9i-6l (2.9 m) The OTS Suspension has these vertical limits (With Maxiray 100 Tube Unit):</p> <p>Max. Source-to-Image Distance - 85-15/16l (2.18 m) Min. P/urce-to-%Image Distance - 26-15/16l (68.4 cm)</p>
Table top extension towards ceiling	At lower stationary rail heights, table top extension with the table vertical should be curtailed to avoid collision with the suspension bridges.
<p>Distance between center lines of ceiling mounting bolt holes in stationary rails.</p> <p>56l (1.43m) spacing is recommended and should be used with all new structures. Holes have been drilled in the rails to accomodate 48l (1.22m) and 50" (1.27m) spacing distances resulting from an existing structure.</p>	<p>56l (1.4 3m), or 50" (1.27m), or 48" (1.22m)</p> <p>Adjustment is provided to permit a $\pm 1/4l$ (± 6 mm) variation of this span; however, this tolerance does not have anything to do with degree of parallelism of the stationary rails, which must be held to $\pm 1/8l$ (± 3 mm)</p>
Minimum Overall Room Dimension, Front-to-back, Without Modifying Basic Structure	124-1/4l (3.2 m)
36l (91.4 cm) focal spot to table center line distance for cross table radiography, rear to front	50l (1.27 m) minimum required from longitudinal center line of table to center line of support rail for cable drape or concealment.
When using 3-1/2l X 3-1/2l (8.9 cm X 8.9 cm) Posts (Cat. #B2054FH) and structural steel channel to support stationary rail	Allow for width of channel between wall and stationary rail. Overall length must include stationary rail length plus columns at each end. Minimum recommended channel size 2l x 8l x 11.5 Lb/Ft. (5.1 cm x 20.3 cm x 17.1 Kg/m).
Clearance for longitudinal shift top excursion. Allow clearance for film changer or cart work at head end of the table.	Preferably, there should be walking space between the end of the extended table top and any obstruction.
Clearance at end of stationary rail for RAD tube unit 90_ from front.	14l (35.6 cm) Clearance required between end of stationary rail and side wall. (Requirements decrease if cable covers are used).
Number of bridges on the same set of stationary rails.	Each bridge adds 25-1/2l (64.8 cm) to the overall length requirement. Also, each bumper used between these bridges will add 1l (25 mm).
Heat from overhead spotlights.	Caution should be taken to avoid excessive heat form overhead spotlights. Damage can occur to ceiling-mounted components and wiring if high wattage bulbs are used. Recommend low wattage bulbs no higher than 75 watts and use dimmer controls. Do not mount lights directly above areas where ceiling mounted accessories will be parked.

SECTION 2 MOUNTING REQUIREMENTS

2-1 Floor Loading and Recommended Mounting Methods

See Table 4-1

Table 4-1
PROTEUS XR/a SYSTEM FLOOR LOADING, WEIGHTS, AND MOUNTING METHODS

PRODUCT OR COMPONENT	NET WEIGHT kg	DIMENSIONS millimetres			LOAD BEARING AREA m ²	WEIGHT/OCCUPIED AREA (kg/m ²)	MOUNTING METHOD
		Length	Width	Height			
Generator Cabinet	150	550	450	1600	0.17	882	Place on floor
Table Assembly	200	2200	880	500-800	0.87	230	Mount on floor
Wall Stand (GPCP NO.: 600-0301)	100	300	240	2166	0.072	1389	Both floor and Wall Mount
Console (with pedestal)	30	360	270	984	0.1	300	Pedestal Mount
Console	2.5	350	230	60	0.08	31.3	Wall Mount
SG120 Wall Stand (GPCP NO.: 2402562)	220	687~927	652~915	2235	0.85	258.8	Floor Mount
OTS Suspension	316.1						* Ceiling Mount

* Stationary rails are designed for top (ceiling) mounting. Rails can be ordered and are supplied in 4" (10.2cm) increments between 134" (3.4m) and 222" (5.64m), plus a 228" (5.79m) length totaling 24 different sizes. The choice of length depends on room size, configuration and the possible presence of obstructions.

Complete details of room dimensions must be known when planning an installation. Work with the architect or building engineer and obtain approval from the customer before proceeding with the layout plan. Methods of support that will permit attachment to structural steel or through bolts in concrete construction should be favored. Do not use anchors in direct tension.

Each rail has mounting holes on 26" (66cm) centers with the first hole located 2" (5.1cm) from the rail end. The last hole is located either 2" (5.1cm) or 4" (10.2cm) from the other end with a variable of less than 26" (66cm) between it and the second last hole.

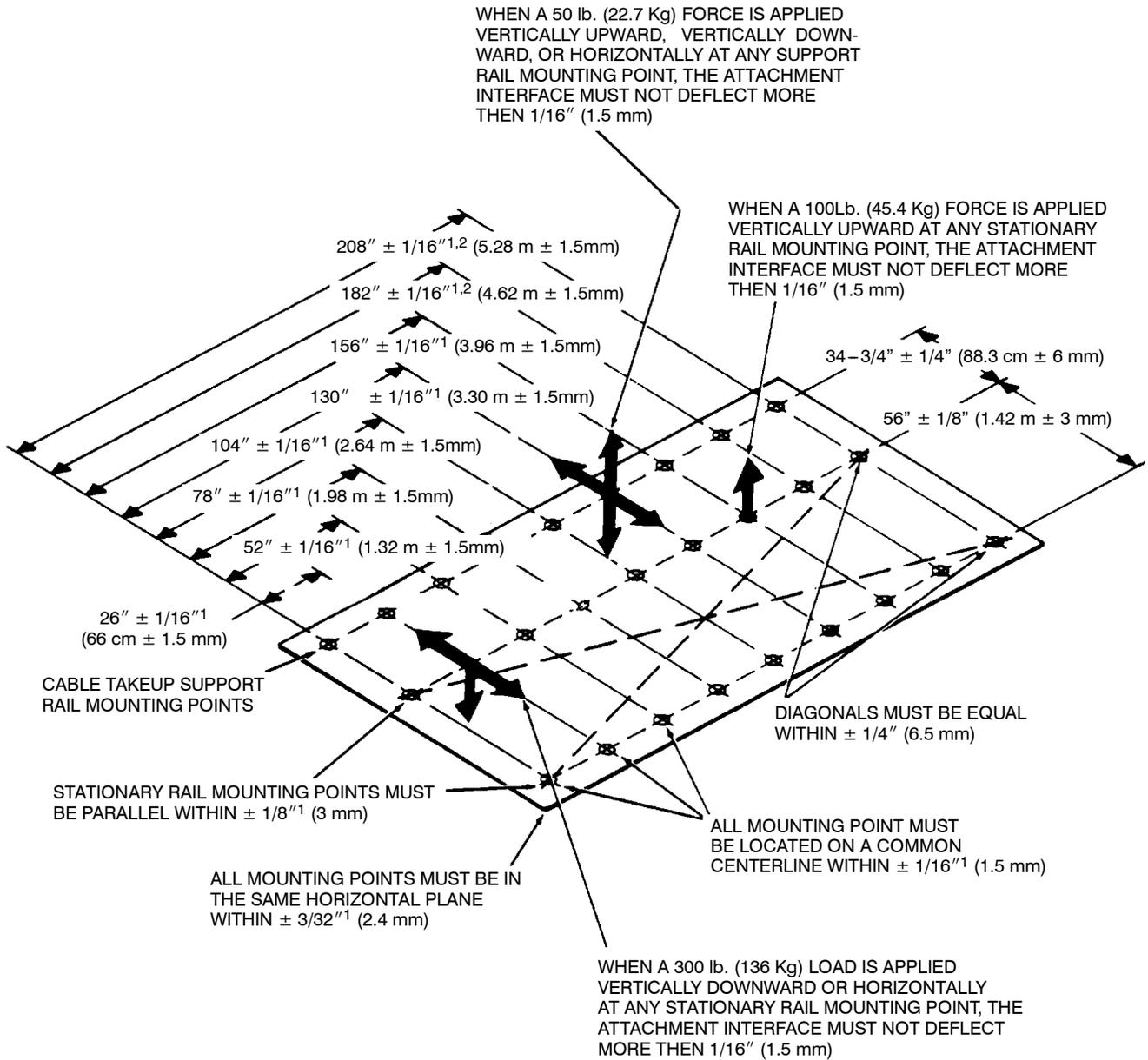


Rails are mounted on 1/2" (12.7mm) bolts. Maximum load per bolt is 350 lbs. (159kg); however, each mounting bolt must not "pull-out" or otherwise fail under a vertically downward "dead" load of 1,4000 lbs. (636kg).

Referring to the OTS layout drawings, the ± 1/8" (3mm) requirement for parallelism of the stationary rail is critical. Therefore, great care must be exercised in locating the mounting points. Illustrations 4-14 and 4-15 outline requirements that the stationary rail mounting interface must meet.

For low ceiling height, the stationary rails may be mounted directly to the ceiling slab or to flush – mounted Unistrut or similar structure. For higher rooms in which a false ceiling is to be used, the stationary rails may be attached to rigid vertical members hung from the ceiling slab. A supplementary channel may be secured to the bottom of the vertical members to facilitate provision for mounting holes. A Unistrut system or equivalent is a convenient type of support to employ. Refer to Illustration 4-15.

Illustration 4-14
SPECIFICATIONS FOR A TYPICAL 17i-10i (5.44 M)
STATIONARY RAIL MOUNTING INTERFACE
(BOTH RAILS CEILING MOUNTED)



- NOTES: 1. NONE CUMULATIVE ERROR.
2. SPACE BETWEEN LAST 2 HOLES MAY BE LESS THAN 26" (66 cm).

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CHAPTER 5 ROOM LAYOUTS

SECTION 1 ROOM LAYOUT CONSIDERATIONS

1-1 Radiation Production

Because X-Ray equipment produces radiation, you may need to take special precautions or make special site modifications. The General Electric Company does not make recommendations regarding radiation protection. It is the purchaser's responsibility to consult a radiation physicist for advisement on radiation protection in X-Ray rooms.

1-2 Service Access

Allow appropriate space for service access of equipment. Consult component pre-installation directions for clearance information.

1-3 Clinical Access

Make sure that you plan the room with the following clinical access requirements:

- Provide easy access to the patient table. Stretchers and other mobile hospital equipment must reach the table quickly.
- Clinicians at the patient table must be able to communicate with assistants in the control area.
- Operators in the control area must have easy access to the control console. However, position the controls (including hand switches) so the operator cannot take exposures while looking around or standing outside the control booth's lead glass window.
- Consult customer on the number and location of non-electrical lines (air, oxygen, vacuum, water, etc.) in the vascular room.

Note: *The generally accepted practice is to load the patient laterally. In case of room layout designed for longitudinal patient loading, some modifications must be brought to the table.*

1-4 Peripheral Equipment

Consult hospital personnel regarding additional space requirements for the following types of hospital equipment:

- storage cabinets,
- sinks,
- oxygen stations,
- injectors
- heart monitoring equipment,
- crash cart.

SECTION 2 ROOM LAYOUT DRAWING

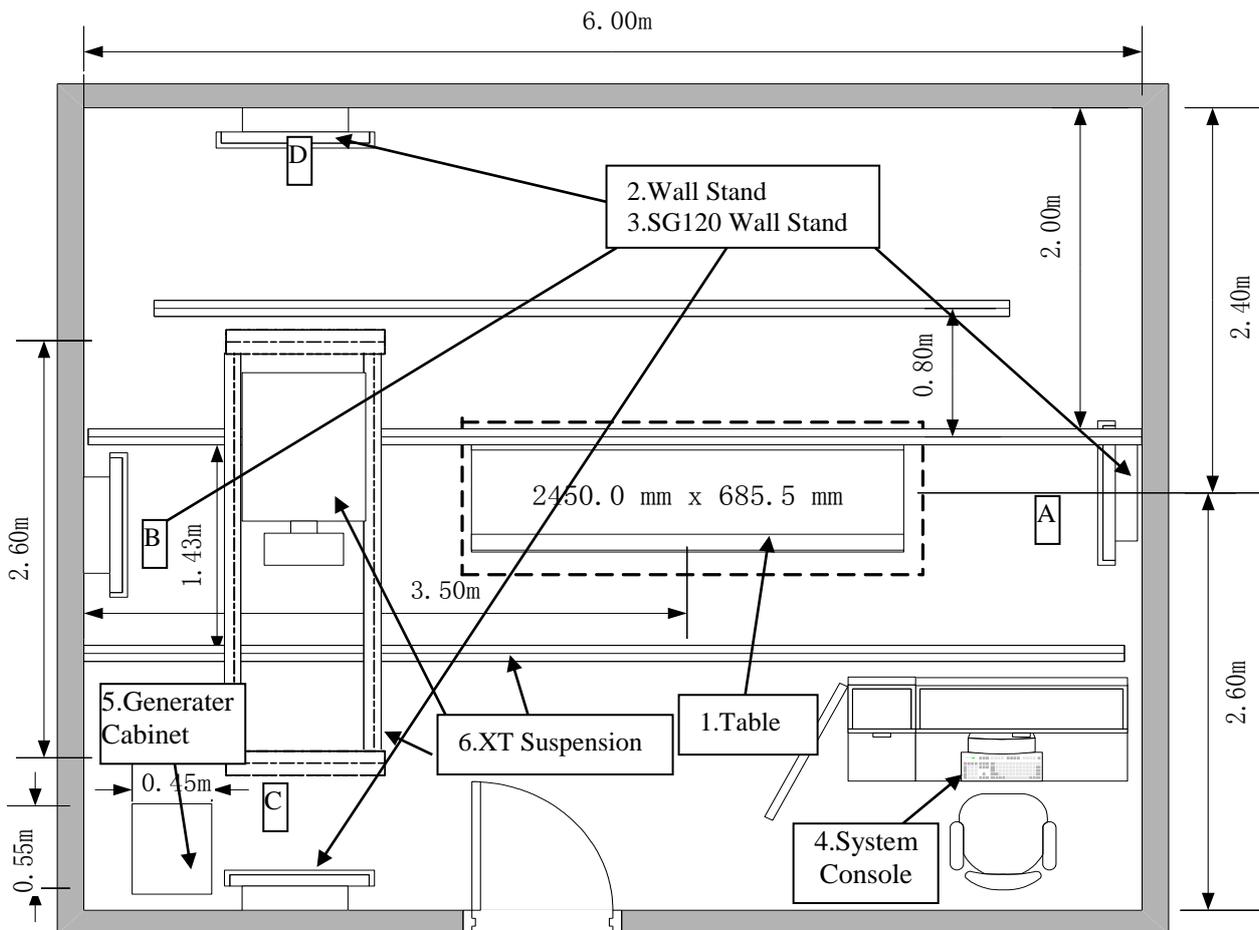
See Illustration 5-1, for recommended room layout for a Proteus XR/a system.

Illustration 5-1

RECOMMENDED ROOM LAYOUT FOR PROTEUS XR/A

- 1 - Table
- 2 - Wall Stand (GPCP No.: 600-0301)
- 3 - SG120 Wall Stand (GPCP No. 2402562)
- 4 - System Console
- 5 - Generator Cabinet
- 6 - XT Suspension

Note: *The positions where the Wall Stand (GPCP No. 600-0301), or SG120 Wall Stand (GPCP No. 2402562) can be mounted at are selectable (head, foot, front, back; center, offset. comparing the position of Table). Choose the position of Wall Stand, and SG120 Wall Stand according to the practical situation on site.*



Note: *When taking exposure with the Wall Stand or SG120 Wall Stand, if the Wall Stand or SG120 Wall Stand locating to the foot of the Table (A), because of the X-ray tube Anode position is lower than the Wall Stand or SG120 Wall Stand locating to the head of Table (B) in taking exposure, the heat dissipation performance of the tube is distinctively better than the Wall Stand or SG120 Wall Stand locating to the head of Table (B). (Refers to the illustration on the page before.)*

It is recommended that the Wall Stand or SG120 Wall Stand to be located to the foot of the Table for the better tube heat dissipation performance than to the head of the Table.

If the Wall Stand or SG120 Wall Stand is located to the side of the Table (C or D), take in consideration of the feasibility and convenience for the OPERATOR to permit the X-ray tube to be angulated anticlockwise (See also Proteus XR/a Operator Manual, direction 2259724-100). When angulated anticlockwise, the position of the X-ray tube Anode is lower than angulated clockwise, so the heat dissipation performance of the tube is distinctively better than angulated clockwise.

Note: *The direction of wall stand must be the same as shown in illustration 5-1, Service Manual, Direction 2260326-100. Any other direction will result in conflict with system functions and will not conform to HHS requirements for Automatic Collimation Systems. Do NOT attempt to make any field modifications to support non-standard placement of the wall stand. If the customer request to have the wall stand 90 degrees to the table, a system with MANUAL collimation should be ordered as this configuration is allowable with a MANUAL Collimator (Not a Automatic Collimator used in Manual mode).*

Table 5-1
PROTEUS XR/a SYSTEM RECOMMENDED AND MINIMUM ROOM SIZE DIMENSION

	LENGTH	WIDTH	CEILING
Recommended	6100	4500	2900
Minimum	4500	4000	2500

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CHAPTER 6 ELECTRICAL CONNECTION

SECTION 1 CABLE CHANNELING

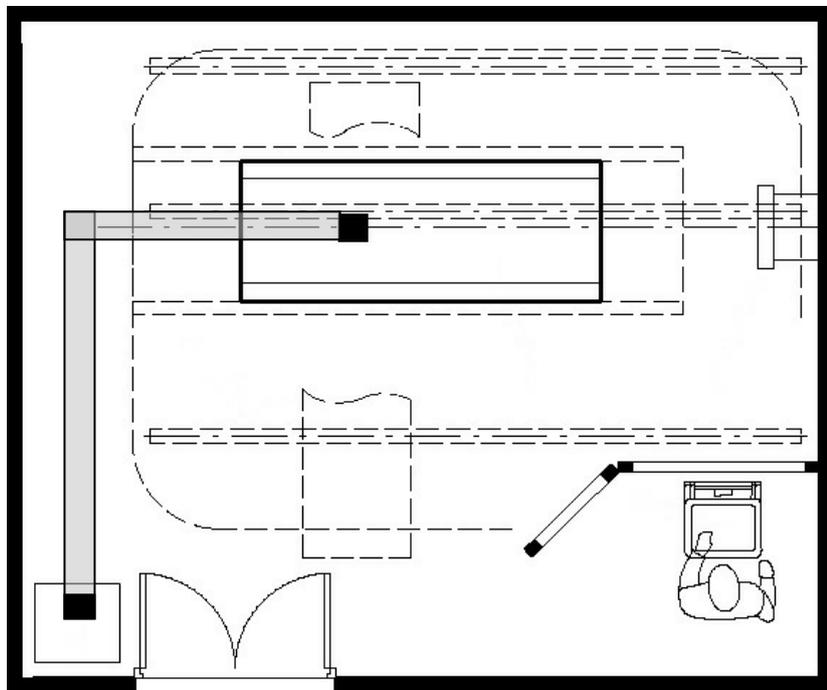
1-1 Conduit

Conduit has some important restrictions when used with modularised X-ray systems. The primary consideration is that the majority of cables used are pre-terminated, which greatly simplifies interconnection, but makes cable-pulling difficult because of the added dimensions of the connectors. Conduit must be large enough to pass the cable and connector through with all other cables already in the conduit. Also consider the possibility of additional cables being added as the system is developed.

The use of conduit is recommended for cables running overhead between rooms, especially when a diagonal run provides the shortest cable path.

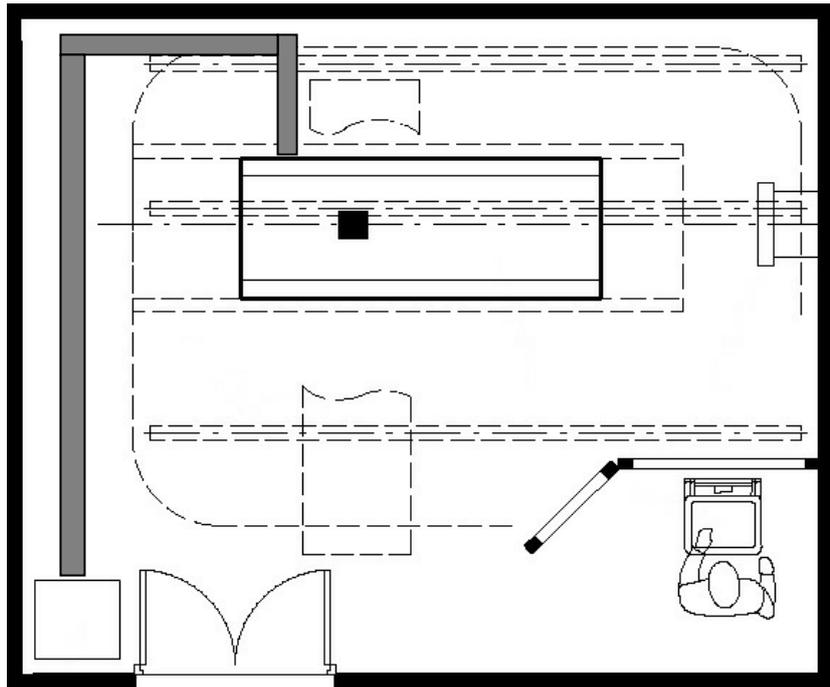
1-2 Floor Duct

Floor duct has advantages when use with a single room or two adjacent rooms. Floor duct combines a neat, functional appearance with accessibility and room for expansion. The disadvantage is the amount of work required to install it, which is generally prohibitive in old installations. For the same reason, it is impractical to attempt to add on to existing floor duct systems.



1-3 Raceway

Raceway is very practical to use in existing structures, since it is surface-mounted. There is no problem with pre-terminated cables, since the entire raceway system can be opened. Raceway systems are relatively easy to expand, as compared to other means of routing cables. Equipment cabinets have been designed for extensive interfacing with raceway.



SECTION 2 POWER REQUIREMENTS

NOTICE

In China, all cables used to provide system power and ground must be CCC certified.

NOTICE

Potential for Equipment Damage.

Only WYE connected power source are currently permitted, due to current system (generator) design.

All components of the Proteus XR/a System obtain power from the Power Distribution Unit (PDU) in the generator.

All electrical wiring/connections must be installed by a qualified electrician and conform to national and local codes.

See Table 6-1 for Jedi Generator.

2-1 Jedi Generator Parameters

Table 6-1
PROTEUS XR/a POWER SPECIFICATIONS - JEDI GENERATOR

PARAMETER	JEDI GENERATOR																														
Input Voltage	380/400/415/440/460/480VAC three phase and Ground without neutral																														
Required Power Source	WYE Distribution																														
Daily Voltage Variations	+/-10% (in this range, the generator shall operate without any derating in accuracy)																														
Line Impedance Specification	IEC Specification																														
Line Impedance	The apparent line impedance guaranteed by the customer should be equal or less than the values indicated below, according to the voltage value and the commercial power of the generator <table border="1"> <thead> <tr> <th>Voltage range(V) (3 phase)</th> <th colspan="4">line impedance (Ohms)</th> </tr> <tr> <td></td> <th>32KW</th> <th>50KW</th> <th>65KW</th> <th>80KW</th> </tr> </thead> <tbody> <tr> <td>380</td> <td>0.25</td> <td>0.15</td> <td>0.12</td> <td>0.09</td> </tr> <tr> <td>415</td> <td>0.30</td> <td>0.18</td> <td>0.14</td> <td>0.11</td> </tr> <tr> <td>440</td> <td>0.34</td> <td>0.20</td> <td>0.15</td> <td>0.125</td> </tr> <tr> <td>480</td> <td>0.40</td> <td>0.24</td> <td>0.18</td> <td>0.15</td> </tr> </tbody> </table>	Voltage range(V) (3 phase)	line impedance (Ohms)					32KW	50KW	65KW	80KW	380	0.25	0.15	0.12	0.09	415	0.30	0.18	0.14	0.11	440	0.34	0.20	0.15	0.125	480	0.40	0.24	0.18	0.15
Voltage range(V) (3 phase)	line impedance (Ohms)																														
	32KW	50KW	65KW	80KW																											
380	0.25	0.15	0.12	0.09																											
415	0.30	0.18	0.14	0.11																											
440	0.34	0.20	0.15	0.125																											
480	0.40	0.24	0.18	0.15																											
HV cable type	IB EEC: 22mm cable de Lyon (<=150pF/m) USA: 22mm DSI (<=165pF/m) EEC: 16mm Claymount (<=165pF/m) HV cable connector =Federal standard																														
Ground Wire	Same as power cable																														
Inrush Current	1000A																														
Normal Frequency	50/60Hz																														
Daily Frequency Variation	+/-6%																														

2-2 Power Supply Recommendations

PDU Power Supply cable and grounding cable are supplied by the customer. Wire size for various lengths of the Power Supply cable are shown in following tables.

Note: For routing power cables, supplied cables should be as flexible as possible.

Table 6-2
MINIMUM WIRE SIZE

PARAMETER	THREE PHASE GENERATOR - 32KW											
Input Voltage	380VAC		400 VAC		415 VAC		440 VAC		460 VAC		480 VAC	
Wire Size												
Length												
15 m (50 ft.)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)
30 m (100 ft.)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)
46 m (150 ft.)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)
60 m (200 ft.)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)

Table 6-3
KVA load characteristics 32kW

Phase	3	3	3	3	3	3
Nominal line Voltage(Vac)	380	400	420	440	460	480
Voltage range(Vac)	+/-10%	+/-10%	+/-10%	+/-10%	+/-10%	+/-10%
Momentary current(Amp) line	70	66	63	60	58	55
Continuous current(Amp) line	7	6.7	6.2	6	5.7	5.5
Power demand(kVA)	46	46	46	46	46	46
Frequency	47 /53Hz and 57/63Hz					

Table 6-4
MINIMUM WIRE SIZE

PARAMETER	THREE PHASE GENERATOR - 50KW											
Input Voltage	380VAC		400 VAC		415 VAC		440 VAC		460 VAC		480 VAC	
Wire Size												
Length												
15 m (50 ft.)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)	10 mm2	(#8 AWG)
30 m (100 ft.)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)	16 mm2	(#6 AWG)
46 m (150 ft.)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)	22 mm2	(#5 AWG)
60 m (200 ft.)	30 mm2	(#3 AWG)	30 mm2	(#3 AWG)	30 mm2	(#3 AWG)	30 mm2	(#3 AWG)	30 mm2	(#3 AWG)	30 mm2	(#3 AWG)

Table 6-5
KVA load characteristics 50kW

Phase	3	3	3	3	3	3
Nominal line Voltage(Vac)	380	400	420	440	460	480
Voltage range(Vac)	+/-10%	+/-10%	+/-10%	+/-10%	+/-10%	+/-10%
Momentary current(Amp) line	110	105	100	95	92	88
Continuous current(Amp) line	7	6.7	6.2	6	5.7	5.5
Power demand(kVA)	70	70	70	70	70	70
Frequency	47 /53Hz and 57/63Hz					

Table 6-6
MINIMUM WIRE SIZE

PARAMATER	THREE PHASE GENERATOR - 65KW											
Input Voltage	380VAC		400 VAC		415 VAC		440 VAC		460 VAC		480 VAC	
Wire Size												
Length												
15 m (50 ft.)	16 mm ²	(#6 AWG)	16 mm ²	(#6 AWG)	16 mm ²	(#6 AWG)	16 mm ²	(#6 AWG)	16 mm ²	(#6 AWG)	16 mm ²	(#6 AWG)
30 m (100 ft.)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)
46 m (150 ft.)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)
60 m (200 ft.)	44 mm ²	(#1 AWG)	44 mm ²	(#1 AWG)	44 mm ²	(#1 AWG)	44 mm ²	(#1 AWG)	44 mm ²	(#1 AWG)	44 mm ²	(#1 AWG)

Table 6-7
KVA load characteristics 65kW

Phase		3	3	3	3	3
Nominal line Voltage(Vac)		380	400	420	440	480
Voltage range(Vac)		+/-10%	+/-10%	+/-10%	+/-10%	+/-10%
Momentary current(Amp)	line	147	140	133	127	117
Continuous current(Amp)	line	7	6.7	6.2	6	5.5
Power demand(kVA)		97	97	97	97	97
Frequency		47 /53Hz and 57/63Hz				

Table 6-8
MINIMUM WIRE SIZE

PARAMATER	THREE PHASE GENERATOR - 80KW											
Input Voltage	380VAC		400 VAC		415 VAC		440 VAC		460 VAC		480 VAC	
Wire Size												
Length												
15 m (50 ft.)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)	22 mm ²	(#5 AWG)
30 m (100 ft.)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)	30 mm ²	(#3 AWG)
46 m (150 ft.)	43 mm ²	(#1 AWG)	43 mm ²	(#1 AWG)	43 mm ²	(#1 AWG)	43 mm ²	(#1 AWG)	43 mm ²	(#1 AWG)	43 mm ²	(#1 AWG)
60 m (200 ft.)	54 mm ²	(#0 AWG)	54 mm ²	(#0 AWG)	54 mm ²	(#0 AWG)	54 mm ²	(#0 AWG)	54 mm ²	(#0 AWG)	54 mm ²	(#0 AWG)

Table 6-9
KVA load characteristics 80kW

Phase		3	3	3	3	3
Nominal line Voltage(Vac)		380	400	420	440	480
Voltage range(Vac)		+/-10%	+/-10%	+/-10%	+/-10%	+/-10%
Momentary current(Amp)	line	190	180	170	163	150
Continuous current(Amp)	line	7	6.7	6.2	6	5.5
Power demand(kVA)		125	125	125	125	125
Frequency		47 /53Hz and 57/63Hz				

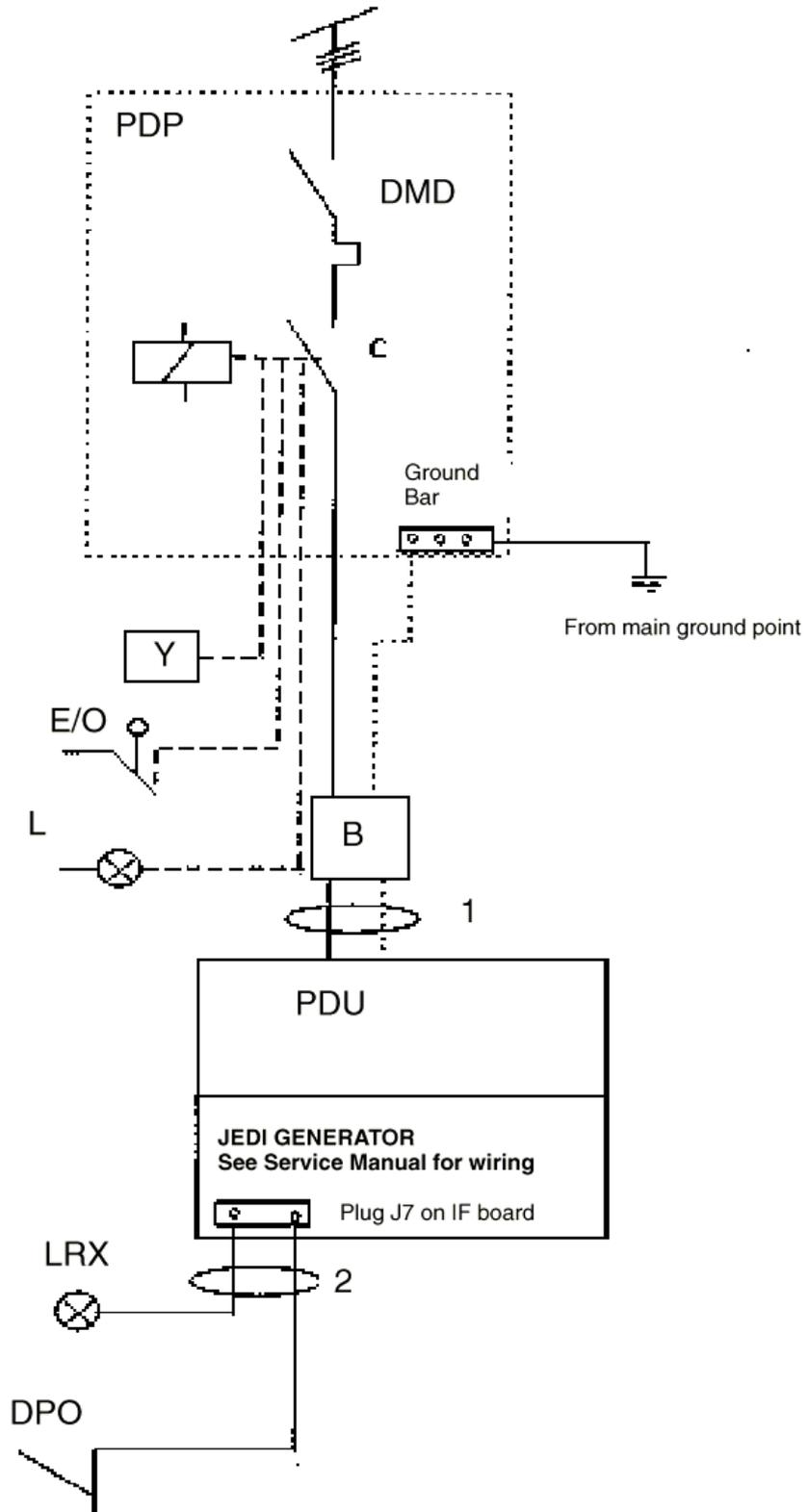
Table 6-10
Wall Breaker Parameter (Theoretical Current Values)

Power Parameter	32kW				50kW				65kW				80kW											
	380V		400V		415V		440V		460V		480V		380V		400V		415V		440V		460V		480V	
380V	95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V		95A/600V	
400V	90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V		90A/600V	
415V	85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V		85A/600V	
440V	82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V		82A/600V	
460V	78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V		78A/600V	
480V	75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V		75A/600V	

SECTION 3 INTERCONNECT AND GROUND

Room Power supply installed at customer expense:

Illustration 6-1
DOOR LIGHT AND LOCK



Legend of illustration:

1. Feeder wire and grounding cable are to be provided by customer (See Table 6-2, Table 6-3, Table 6-4 and Table 6-5).
2. Cable are to be provided by customer.

PDP Power Distribution Panel for powering X-ray equipment (not supplied by GEMS).

DMD Thermomagnetic differential circuit breaker (See table 6-10)

C Main contactor

Y Contactor Remote control ON/OFF impulse buttons, lockable on OFF, with indicator lamps (Red=ON, Green=OFF), located near access door, 1.5m above the floor. (provided by the customer).

B Inlet for power supply cable on plinth in connecting box (depending of length between PDP and Table).

E/O Emergency Off button located near access door, 1.5m above the floor (provided by the customer).

L Red continuous glowing or flashing presence indicator lamp located above the access door, near LRX (provided by customer).

LRX Yellow X-ray emission indicator lamp above the room access door (provided by the customer). The system provides a relay in normally open position and closed during prep and exposure.
Ratings: 240Vac-3Amps.

The power supply and wiring for the lamp are provided by the customer. (for wiring see Jedi Service Manual, I/F board RAD Electrical schematic).

DPO Open-door detector (In accordance with local norms or making rules), I/F board RAD Electrical schematics.



The main circuit breaker is supplied by the customer and must be sized in accordance to the local regulation. If PDP is equipped with a differential calibrated to 30mA, the latter must be at least with class A (for pulse waveform current).

**For instance with a 3 phase 380Vac electrical network the circuit breaker must be sized as follow:
Thermal circuit breaker=50Amp with a magnetic breaker at 1000A +/-20%
(Ten times the momentary line current).**

Illustration 6-2
CABLE CHART

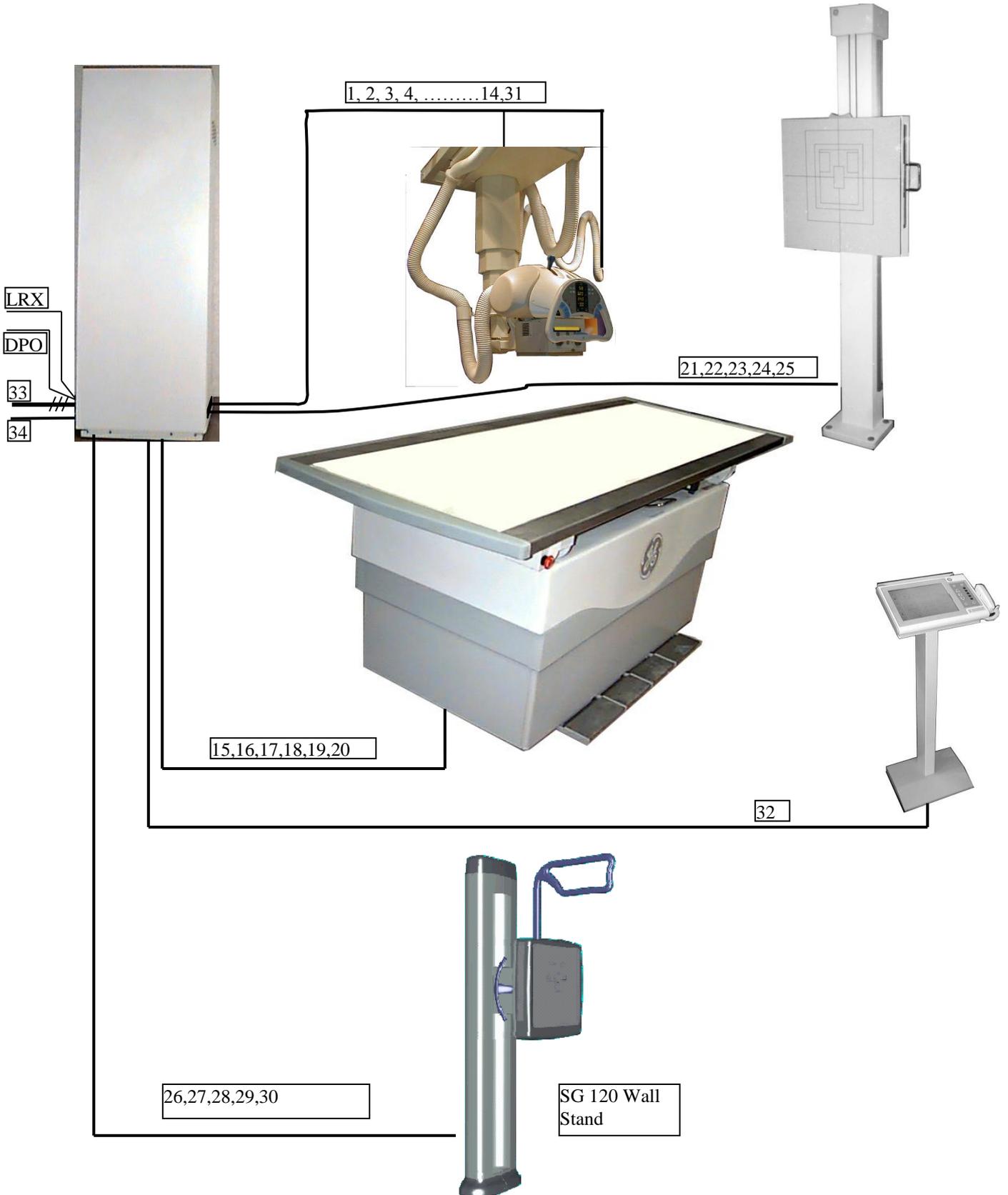


Table 6-11
PROTEUS XR/a SYSTEM CABLES

Item Number	Cable Name	GPCP Number	Actual Volts	UL Style Number	Cable Length	Cable Diameter	Plug size			
			V		Meters	mm	One End mm		Other End mm	
1	OTS power cable (2m)	2258387	120vac	UL2964	20	6	XT J100	27x20x30	Round terminal	15x27x27
1-1	OTS power cable (3m)	2258387-2	120vac	UL2464	24	6	XT J100	27x20x30	Round terminal	15x27x27
2	OTS Grounding Cable	46-315243G3	OVDC	UL1028	20	7	OTS GND	6x10x6	SYS GND	BARE
3	OTS SID & tomo I/O Cable (2m)	2258388	5vdc	UL2919	20	8	XT J101	70x20x55	I/F J111	55x17x50
3-1	OTS SID & tomo I/O Cable (3m)	2258388-2	5vdc	UL2919	24	8	XT J101	70x20x55	I/F J111	55x17x50
4	OTS CAN Cable (2m)	2258389	5vdc	UL2691	20	9	XT CN3	30x17x50	I/F J116	30x17x50
4-1	OTS CAN Cable (3m)	2258389-2	5vdc	UL2691	24	9	XT CN3	30x17x50	I/F J116	30x17x50
5	Rotor control Cable (2m)	2258386	120VA C	UL2463	20	8	Jedi	BARE	Tube	Round terminal
5-1	Rotor control Cable (3m)	2258386-2	120VA C	UL2463	24	8	Jedi	BARE	Tube	Round terminal
5-2	Rotor control Cable (2m) for MX100	2380062					Jedi		Tube	
5-3	Rotor control Cable (3m) for MX100	2380062-2					Jedi		Tube	
6	Thermal SW Cable (2m)	2258384	24VDC	UL2464	20	5	Jedi	BARE	Tube	Round terminal
6-1	Thermal SW Cable (3m)	2258384-2	24VDC	UL2464	24	5	Jedi	BARE	Tube	Round terminal
6-2	Thermal SW Cable (2m) for MX100	2380063					Jedi		Tube	
6-3	Thermal SW Cable (3m) for MX100	2380063-2					Jedi		Tube	
7	HV Cable	2269002-3	75KV	GHVC	20m	20	Tube	φ65x140	Jedi	φ65x140
7-1	HV Cable	2269002	75KV	GHVC	24m	20	Tube	φ65x140	Jedi	φ65x140
8	Collimator power & CAN Cable	2258383	24vdc	UL2464	4	8	XT CN1	φ30x50	Collimator	φ30x50
9	OTS Console Power & CAN Cable	2259867	5Vdc	UL2464	4	9	XT CN1	35x15x35	OCS console	52x16x52
10	OTS Console Locks Power Cable	2258381	21vd	UL2919	4	8	XT J1	70x20x55	OCS console	40x12x45
11	OTS Long SID Switch Cable (2m)	46-329249G3	5VDC	UL2343		8		25x7x25		20x15x25
11-1	OTS Long SID Switch Cable (3m)	46-329249G4	5VDC	UL2343		8		25x7x25		20x15x25
12	Ground Lead 15.5 Foot	46-216211G16	OVDC	UL1015		6		RING TERM		RING TERM
13	OTS I/F PCB To PWR Supply Cable	2268131	24vac	UL2464		8		-----		-----
14	OTS Angulation Lock Cable	46-329256G3	24vdc	UL STYLE SJT		6	OTS	14x30x28	ANG LOCK	SPADE
15	Table height sensing Cable	2259298-56	12VDC	UL2464	20	8	I/F J110		Table	
16	AEC(1)				24	8	Jedi	32x12x60	Ion chamber	
17	Table cassette size sensing Cable	2259298-58	12VDC	UL2464	20	10	I/F J113	30x16x45	Cassette tray	30x16x45
18	Table bucky control Cable	2259298-63	110VA C	UL2464	20	8	Jedi	40x12x30	Bucky	25x10x30
19	Table power Cable	2259298-57	240VA C	UL2464	20	12	PDU	Round terminal	Table	30x30x30
20	Table grounding Cable	2259298-66		UL1431	20	7	PDU	bare	Table	bare

21	AEC(2)				24	8	Jedi	32x12x60	Ion chamber	
22	Wall stand (GPCP No. 600-0301) cassette size sensing Cable	2259298-58	12VDC	UL2464	20	10	I/F J112	30x16x45	Bucky	25x10x30
23	Wall stand (GPCP No. 600-0301) bucky control Cable	2259298-63	110VAC	UL2464	20	8	Jedi	40x12x30	Bucky	25x10x30
24	Wall stand (GPCP No. 600-0301) power Cable	2259298-65	24VAC	UL2464	20	6	PDU	Round terminal	Wall stand (GPCP No. 600-0301)	25x15x27
25	Wall stand (GPCP No. 600-0301) grounding Cable	2259298-73		UL1431	20	7	PDU	bare	Wall stand (GPCP No. 600-0301)	bare
26	SG120 Wall Stand (GPCP No. 2402562) Auto tray cable	2145644-2	5VDC		18		Jedi		SG120 Wall Stand (GPCP No. 2402562)	
27	SG120 Wall Stand (GPCP No. 2402562) Bucky cable	2145641-2	220VAC		18		Jedi		SG120 Wall Stand (GPCP No. 2402562)	
28	SG120 Wall Stand (GPCP No. 2402562) Ground Cable	2140362-2	0VDC		18		Cabinet Ground		SG120 Wall Stand (GPCP No. 2402562)	
29	SG120 Wall Stand (GPCP No. 2402562) Ion Chamber cable	2145642-2	110VAC		18		Jedi		SG120 Wall Stand (GPCP No. 2402562)	
30	SG120 Wall Stand (GPCP No. 2402562) Power Supply cable	2410108-2	220VAC		18		PDU		SG120 Wall Stand (GPCP No. 2402562)	
31	RAD21 X-ray Tube fan power cable (from tube fan to cabinet)	2365706	300VAC	UL2464	24	2xA WG20	Power unit	AMP 35077 7-1	Tube terminal strip	Round terminal
31-1	Tube fan power cable for MX100 tube	2378816	110VAC		24		Power unit		Tube terminal strip	
32	Console Cable	2259298-60		UL2464	20	8	I/F J119	40x16x40	Console	40x16x40
33	PDU power Cable									
34	PDU ground Cable									

CHAPTER 7 ADDITIONAL PLANNING AIDS

SECTION 1 PRODUCT SHIPPING INFORMATION

See Table 7-1.

Illustration 7-1
SHIPPING CARTON

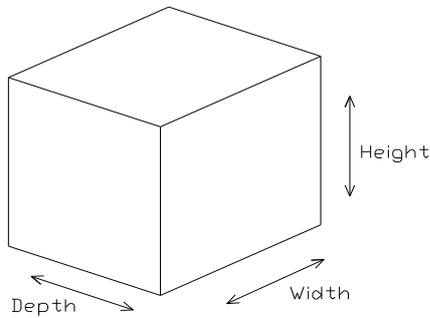


Table 7-1
PROTEUS XR/a PACKING

BOX CONTENTS	DIMENSIONS Millimeters			N.W. Kilogram	G.W. Kilogram
	Height	Width	Depth		
Table	1065	1100	2410	200	350
Cabinet	1950	800	800	150	200
Wall Stand (Optional)	1080/745	800	2520	100	250
SG 120 Wall Stand (Optional)	940	890	2410	220	300
Accessory	1270	1100	1220	50	120

SECTION 2 PREPARATIONS REQUIRED IN ADVANCE OF EQUIPMENT DELIVERY

- Familiarization with site room dimensions.
- Room lighting, floor finish , and ceiling and wall painting.
- Installation of power supply when table is not powered by the generator.
- Installation of junction boxes of proper size including covers and fittings at locations required per current installation plan.
- Installation and labeling of a disconnect switch.
- Equipment delivery route checked to ensure delivery without door removal.

SECTION 3 TOOLS AND TEST EQUIPMENT

In addition to the standard service tools, this section provides a summary of the items, tools and test equipment needed to install and adjust the PROTEUS XR/a Table. If the exact tool listed below is not available, use the nearest equivalent.

Table 7-2
TOOLS AND TEST EQUIPMENT

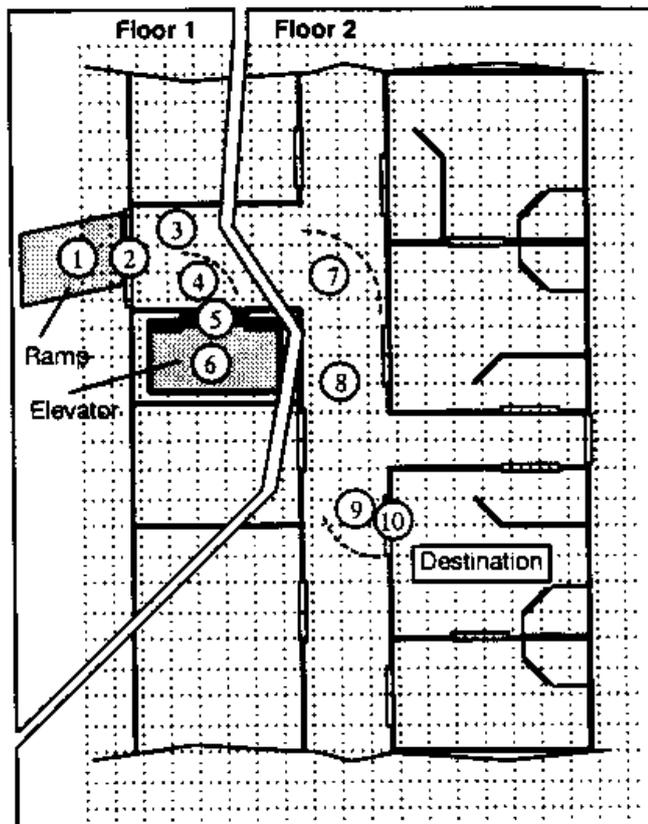
DESCRIPTION	USED FOR	SOURCE	RECEIVED (Date)
Electric hammer drill with bits	Pre-Installation	GE Service Engineer	j __/__/__
Digital multimeter	Calibration and Functional Checks	GE Service Engineer	j __/__/__
4 Ft. Level. (or two standard levels)	Installation	GE Service Engineer	j __/__/__

SECTION 4 ROUTE SURVEY

4-1 Step One - Sketch

Begin preparing Route Survey by sketching the area of the hospital or clinic which will receive the equipment. Include all areas on the delivery route from outside of building to destination. See sample sketch below.

Reference Numbers Numbers in circles refer to Route Survey data. The Route Survey is a form on which site data is listed (step2).



4-2 Step Two - Survey

Data concerning the intended delivery route is recorded on the Route Survey on the following pages. Record all loading capacities, corridor widths, door openings, turning radii, flooring materials, elevator sizes, obstructions and so on.

4-3 Step Three - Check

Verify equipment can be transported via the route specified in step 1. Compare Route Survey compiled in step 2 to equipment specifications in this and other applicable pre-installation directions.

SECTION 5 PRE-INSTALLATION CHECKLIST

Equipment Delivery Date _____ Salesman _____

Customer _____ FDO # _____ Room # _____

Equipment _____

RESPONSIBILITY

GE PURCH. OTHER COMPLEE

PHYSICAL REQUIREMENTS OF SITE

1. Is room size adequate for intended equipment configuration?	_____	_____	_____	_____
2. Is floor strong enough for intended equipment and mounting methods- have seismic codes been considered?	_____	_____	_____	_____
3. Does delivery route accommodate all intended equipment?	_____	_____	_____	_____
4. Has radiation physicist been consulted?	_____	_____	_____	_____
5. Have necessary alterations been made to circumvent obstructions?	_____	_____	_____	_____
6. Are modifications to room construction finished?	_____	_____	_____	_____
7. Have supports, platforms, suspensions, ceiling materials been provided?	_____	_____	_____	_____
8. Are support structures installed for floor, ceiling, and wall mounted equipment?	_____	_____	_____	_____
9. Has floor been modified for cable ducts?	_____	_____	_____	_____
10. If drop-in ceiling is not used, is access panel provided (3x2 ft. minimum)?	_____	_____	_____	_____
11. Is electrical service in place- at the ratings specified in pre-installation documentation?	_____	_____	_____	_____
12. Is power available to operate power tools?	_____	_____	_____	_____
13. Are non-electrical lines (air, water, oxygen, vacuum) installed?	_____	_____	_____	_____

RESPONSIBILITY

GE PURCH. OTHER COMPLEE

INTERCONNECTION

- | | | | | |
|--|-------|-------|-------|-------|
| 1. Have signal cable, power and grounding plans been produced? | _____ | _____ | _____ | _____ |
| 2. Has the necessary interconnection hardware such as junction boxes, conduit or raceways, and fittings been provided? | _____ | _____ | _____ | _____ |
| 3. Has the interconnection hardware been installed? | _____ | _____ | _____ | _____ |
| 4. Is flexible, stranded wire provided for Proteus XR/a power connection? | _____ | _____ | _____ | _____ |
| 5. Are Proteus XR/a feeder power cables pulled, with appropriate, lengths available at disconnect box? | _____ | _____ | _____ | _____ |
| 6. Are interconnecting cables continuity checked, and labelled? | _____ | _____ | _____ | _____ |
| 7. Are HV cable lengths verified (25' standard)? | _____ | _____ | _____ | _____ |
| 8. Is interface information available for equipment? | _____ | _____ | _____ | _____ |

GENERAL

- | | | | | |
|---|-------|-------|-------|-------|
| 1. Are ceiling, walls, and floor clear of all obstructions? | _____ | _____ | _____ | _____ |
| 2. Are walls finished? | _____ | _____ | _____ | _____ |
| 3. Is finish floor installed? | _____ | _____ | _____ | _____ |
| 4. Are room lights installed? | _____ | _____ | _____ | _____ |
| 5. Has dust-creating work been complete? | _____ | _____ | _____ | _____ |
| 6. Is old equipment in room removed? | _____ | _____ | _____ | _____ |
| 7. Are component positions clearly marked on floor? | _____ | _____ | _____ | _____ |
| 8. Is space available to store equipment? | _____ | _____ | _____ | _____ |
| 9. Is lock in door, of locked room available? | _____ | _____ | _____ | _____ |

Comments: _____

Inspection Dates: _____

Approvals: _____

Sales: _____

Date: _____

SERVICE: _____

DATE: _____



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