

GE Healthcare

DST
Site Planning Guide

OPERATING DOCUMENTATION



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Revision 6

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IMPORTANT PRECAUTIONS

LANGUAGE

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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 proitali 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.

<p>ADVARSEL (DA)</p>	<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.
<p>WAARSCHUWING (NL)</p>	<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.
<p>WARNING (EN)</p>	<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.
<p>HOIATUS (ET)</p>	<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.
<p>VAROITUS (FI)</p>	<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.
<p>ATTENTION (FR)</p>	<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.

<p>WARNUNG (DE)</p>	<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.
<p>ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)</p>	<p>Το παρόν εγχειρίδιο σέρβις διατίθεται μόνο στα αγγλικά.</p> <ul style="list-style-type: none"> • Εάν ο τεχνικός σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει τις υπηρεσίες μετάφρασης. • Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό αν δεν έχετε συμβουλευτεί και κατανοήσει το παρόν εγχειρίδιο σέρβις. • Αν δεν προσέξετε την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στον τεχνικό σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.
<p>FIGYELMEZTETÉS (HU)</p>	<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 elkészíttetése. • 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.
<p>AÐVÖRUN (IS)</p>	<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.
<p>AVVERTENZA (IT)</p>	<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.
<p>警告 (JA)</p>	<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。

<p>경고 (KO)</p>	<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 .
<p>BRDINJUMS (LV)</p>	<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 trieciena, mehānisku vai citu faktoru izraisītu traumu risks apkopes sniedzējam, operatoram vai pacientam.
<p>ĮSPĖJIMAS (LT)</p>	<p>Šis eksploatavimo 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 eksploatavimo vadovo. • Jei nepaisysite šio įspėjimo, galimi paslaugų tiekėjo, operatoriaus ar paciento sužalojimai dėl elektros šoko, mechaninių ar kitų pavojų.
<p>ADVARSEL (NO)</p>	<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.
<p>OSTRZEŻENIE (PL)</p>	<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.
<p>ATENÇÃO (PT-BR)</p>	<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.

<p>ATENÇÃO (PT-PT)</p>	<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 língua, 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.
<p>ATENȚIE (RO)</p>	<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.
<p>ОСТОРОЖНО! (RU)</p>	<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.
<p>UPOZORENJE (SR)</p>	<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 pokušajte da opravite uređaj ako niste proitali i razumeli ovo servisno uputstvo. • Zanemarivanje ovog upozorenja može dovesti do povređivanja serviser, rukovaoca ili pacijenta usled strujnog udara ili mehaničkih i drugih opasnosti.
<p>UPOZORNENIE (SK)</p>	<p>Tento návod na obsluhu je k dispozícii len v angličtine.</p> <ul style="list-style-type: none"> • Ak zákazník 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.
<p>ATENCION (ES)</p>	<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)	Den här servicehandboken finns bara tillgänglig på engelska. . <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)	Ta servisni priročnik je na voljo samo v angleškem jeziku. <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.

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent, have the notation "Damage in Shipment" 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. 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.

To file a report:

Call 1-800-548-3366, and use option 6.

Fill out a report on <http://3.28.216.127/sctq/InstallFulfill/IFHome.htm>

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

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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 Healthcare 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 Healthcare will use its own specially trained field engineers. All of GE Healthcare's electrical work on these products will comply with the requirements of the applicable electrical codes.

The purchaser of GE Healthcare 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.

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 anyone 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 materials and devices are available. It is urged that such materials or devices be used.

OMISSIONS & ERRORS

Customers, please contact your GE Healthcare Sales or Service representatives.

GE personnel, please use the current problem reporting process to report all omissions, errors, and defects in this publication.

Revision History

Revision	Date	Reason for change
0	03/14/03	Initial release.
1	04/11/03	Technical corrections.
2	05/19/03	Updated floor loading equipment parameters
3	06/21/04	Update to accommodate H16 CT Gantry and M5 design changes; remove options chapter; update drawings; make final HII log changes
4	01/17/05	Updated the floor loading table, Table 5-1, and added illustration of the individual pad loads in Chapter 5.
5	17 Nov 2009	Updated Language Warnings, Chapt 3 Table 3-2 added DST w/Gold Seal LightSpeed subsystem info, Add Fig 3-5 NGPDU-2 & Fig 3-8 GOC4 Console, Chapt 5 added Fig 5-11 NGPDU-2 & Fig 5-13 GOC4 Console, Chapt 6 added Fig 6-9 GOC4 Console, Chapt 7 Sec 7-4 added "for DST w/ Gold Seal LightSpeed consult..." statement, Chapt 8 added Table 8-4 DST w/Gold Seal Standard Cable Connections, CH 6: Updated Table 6-3 for CR 13255445, FCTge51303: Updated Table 2-1, Table 5-1, and Figure 5-10 to remove incorrect seismic information
6	24 Aug 2010	Language, Omissions & Errors Updates, Chapt 3 added Fig 3-3, updated Table Dimensions(P5050RT) to Table 3-2, Chapt 5 added DLS Table to Table 5- added Fig 5-6, Chapt 6 added DLS Table to Table 6-4, Chapt 9 Sec 9-2.5 added note after step 3.

Table of Contents

Precautions.....	3
Revision History.....	11
Chapter 1 Introduction	17
Section 1-1: Site Planning Scope.....	17
Section 1-2: Site Readiness.....	17
Section 1-3: Purchaser’s Responsibilities	18
Section 1-4: Site Preparation Prior to Equipment Delivery	18
Section 1-5: Manual Conventions	19
1-5.1 Safety & Hazard Information.....	19
1-5-1.1 Safety Definitions.....	19
1-5-1.2 Graphical Representation	20
Chapter 2 System Catalog	21
Section 2-1: Option Catalog Numbers	21
Section 2-2: Base Scanner System.....	22
2-2.1 Application.....	22
2-2.2 Configuration.....	22
Chapter 3 Room Planning	23
Section 3-1: Recommended Layouts.....	23
Section 3-2: Common Dimensions and Clearances.....	26
3-2.1 System Service Access Clearances.....	26
3-2.2 Options.....	26
3-2.3 System Clearances During Normal Operation	26
3-2.4 Typical Room Dimensions	26
3-2.5 Injector Control.....	26
3-2.6 Storage Cabinet	27
Section 3-3: Component Dimensions	28
3-3.1 DST Gantry and Patient Table	29
3-3.2 Power Distribution Unit.....	30
3-3.3 NGPDU-2 DST w/ Gold Seal LightSpeed	31
3-3.4 Uninterruptible Power Supply.....	32
3-3.5 Operator’s Console	33
3-3.6 GOC4 Operator’s Console	34
Section 3-4: Structural Requirements	35
3-4.1 Suggested Ceiling Heights.....	35
3-4.2 DST Gantry and Patient Table Mounting Requirements.....	35
3-4.3 Minimum Floor Thickness	36
3-4.4 Floor Anchors.....	36
3-4-4.1 Non-Concrete Floors.....	36

Table of Contents

3-4.5	Floor Strength	36
3-4.6	Floor Levelness	36
3-4.7	Floor Vibration	37
3-4-7.1	Steady State Vibration	37
3-4-7.2	Transient Vibration	37
3-4-7.3	Equipment Location	37
3-4.8	Walls: Scan Window	37
Section 3-5: Network Connections		38
Section 3-6: Radiation Protection		38
3-6.1	X-Ray Radiation Protection	38
3-6.2	Dose Rate from Radioactive Rod Source	43
3-6-2.1	Radioactive Source Pin	43
3-6-2.2	Dose Rates with Pin Source Stored	44
3-6-2.3	Dose Rates with Pin Source in Use	44
3-6-2.4	Gamma Ray Protection	44
3-6-2.5	Protection of Equipment	45
3-6-2.6	Protection of Personnel	45
3-6-2.7	Barriers Partitions and Shielding	45
3-6-2.8	Sources of Radiation	46
Chapter 4	Environmental Conditions	49
Section 4-1: Temperature and Humidity Specifications		49
Section 4-2: Temperature and Humidity Monitoring		49
Section 4-3: Cooling Requirements		50
4-3.1	HVC Vent, Thermostat and Temperature Sensor Placement	51
Section 4-4: Altitude		51
Section 4-5: Electro-Magnetic Interference (EMI)		52
4-5.1	DST Gantry	52
4-5.2	Color Monitor (LCD as an Option)	52
4-5.3	Console / Computer Equipment	52
4-5.4	Magnetic Media	52
4-5.5	PDU	52
4-5.6	UPS	52
4-5.7	EMI Reduction	52
4-5.8	Equipment EMI Envelopes	53
Chapter 5	Floor Loading and Weights	55
Section 5-1: Floor Loads		55
Section 5-2: Mounting Data, Including Seismic		57
5-2.1	Seismic Information	58

Table of Contents

Chapter 6	Delivery Data.....	71
	Section 6-1: Van Delivery.....	71
	Section 6-2: Delivery/Shipping Considerations.....	71
	Section 6-3: Site Environmental Considerations.....	72
	6-3.1 Dust/Dirt Contamination.....	72
	6-3.2 Chemical Contamination.....	72
	Section 6-4: Crated Deliveries.....	73
	Section 6-5: Storage Requirements.....	73
	Section 6-6: DST Gantry Considerations.....	74
	6-6.1 Door Openings.....	78
	6-6.2 Elevator Requirements.....	78
	6-6.3 Dollies.....	78
	6-6-3.1 North American Installations.....	78
	6-6-3.2 International Installations.....	78
	Section 6-7: Operator Console Considerations.....	79
Chapter 7	Power Requirements.....	83
	Section 7-1: Introduction.....	83
	Section 7-2: System Input Power.....	83
	7-2.1 Facility Source.....	83
	7-2.2 Main Disconnect Control.....	84
	7-2.3 Configuration.....	84
	7-2.4 PDU Rating.....	84
	7-2.5 Regulation.....	84
	7-2.6 Phase Imbalance.....	85
	7-2.7 Sags, Surges & Transients.....	85
	7-2.8 Microcuts.....	85
	7-2.9 Grounding.....	85
	Section 7-3: Recommended Power Distribution System.....	85
	Section 7-4: Uninterruptable Power Supplies (UPS).....	87
	Section 7-5: Power Audit.....	87
	Section 7-6: Ground System.....	88
Chapter 8	Interconnection Data.....	89
	Section 8-1: Introduction.....	89
	Section 8-2: Component Designators.....	90
	Section 8-3: Interconnect Runs, Wiring and Cables.....	91
	8-3.1 GEMS Supplied Cables.....	91
	8-3-1.1 Standard Length Run (Long) Cables.....	95

Table of Contents

8-3-1.2	DST w/ Gold Seal LightSpeed Standard Length Run (Long) Cables	97
8-3.2	Contractor (Customer) Supplied	99
Section 8-4: Contractor Supplied Components		101
Section 8-5: UPS Interconnect		102
Section 8-6: Typical Customer Supplied Wiring.....		103
8-6.1	Primary Power Disconnect.....	103
8-6.2	Scan Room Warning Light & Door Interlock	104
Chapter 9	Site Readiness Review	105
Section 9-1: Overview		105
Section 9-2: Site Ready for Installation		105
9-2.1	Dust/Dirt Contamination	105
9-2.2	Chemical Contamination	105
9-2.3	Walls, Ceiling, and Floor	105
9-2.4	Phone Line	105
9-2.5	Establish the Room Layout	106
Section 9-3: Site Readiness Checklists.....		108

Chapter 1 Introduction

This manual contains Discovery ST system physical and electrical information for use as a reference during the facility design and construction process. This chapter contains an introduction to the contents of this manual, as well as a description of the conventions used within this manual.

Section 1-1: Site Planning Scope

The site planning process includes the preparation of the facility for the installation of the GE Healthcare Discovery See and Treat (DST) scanner. The purchaser has the responsibility to arrange and pay for this work. Site Planning work includes:

- Installation of electrical conduit, junction boxes, ducts, outlets, and line safety switches.
- Installation of the AWG stranded copper interconnection wiring. The electrical contractor shall ring out and tag all wires at both ends. Color-coded wires are recommended for easier identification. Wires shall be continuous without splices. Ground wires must conform to local codes.
- Any site construction or renovation.
- Product alterations and modifications not specifically included in the sales contract.

All work must conform to local building and safety codes. Unless specifically mentioned, GE Healthcare does not provide or install wires, conduits, junction boxes, and ducts as illustrated in this publication.

Prior to construction or approval, all Discovery ST site plans, preliminary concepts and final working drawings must be reviewed by the GE Healthcare Headquarters Architectural Planning group.

For complete information regarding your site-specific room layout, contact your local GE Healthcare sales representative.

Section 1-2: Site Readiness

The following list contains the minimum site requirements for the installation of the DST.

- Finished walls, ceiling, floors & millwork
- Active phone line and network connections
- Power available to A1, w/provision for LOTO



NOTICE

An improperly prepared site (i.e., one that is in a state of construction) can result in *increased installation time*.

A DST scanner installed in a dirty environment is more prone to contamination, which can result in *decreased reliability* and *increased scanner downtime*.

Section 1-3: Purchaser's Responsibilities

The purchaser has the responsibility to plan and prepare a site for equipment installation. To avoid delay, confusion, and waste of personnel resources, complete the following tasks before the scheduled system delivery date:

- Procure required materials.
- Install required material.
- Complete all alterations and modifications that are not specifically included in the sales contract.

Section 1-4: Site Preparation Prior to Equipment Delivery

The purchaser has the responsibility to complete the following tasks, to prepare the site for equipment delivery:

- Determine room dimensions and verify entry doors are large enough to bring the DST components on their dollies into the scan room.
- Install table/gantry floor duct, per site drawing requirements
- Install junction boxes of correct size with covers at locations shown in installation plan.
- Install conduit, duct, and raceway, as specified in the construction drawings.
- Install power supply of correct voltage output and adequate KVA rating.
- Install local disconnects, including proper over-current protection.
- Install "Unistrut" or other suitable support work for mounting equipment on walls or from ceiling.
- Broadband: To take maximum advantage of the GE Service remote diagnostic and services capabilities, a network connection (CAT 5) with internet access is preferred. This allows GE Healthcare to better provide service and even perform proactive maintenance on your GE system. For more information on how GE Healthcare can provide a secure connection using your facility's internet connection, please inquire through your local GE Healthcare Service or Sales representative.

If a LAN connection is not available at your site, a voice grade analog telephone line will allow GE to connect to your system, however some capabilities may be limited due to bandwidth restrictions.
- Telephone: Supply 2 voice-grade telephone lines. One line must be a direct number from outside the facility – do not route this line through a telephone switchboard. Telephone line operating charges are paid by customer.
- Complete the Site Readiness Check List on [page 108](#).

Section 1-5: Manual Conventions

This manual contains Discovery ST system information for use as a reference during the facility design and construction process. This chapter describes the conventions used in this document. Please read this chapter first.

1-5.1 Safety & Hazard Information

1-5-1.1 Safety Definitions

This manual uses the following conventions to identify potential safety hazards, and highlight important information.



DANGER DANGER IDENTIFIES HAZARDOUS CONDITIONS OR ACTIONS THAT COULD CAUSE SERIOUS INJURY OR DEATH.



WARNING A WARNING IDENTIFIES HAZARDOUS CONDITIONS OR ACTIONS THAT COULD CAUSE SEVERE INJURIES.



CAUTION A Caution identifies hazardous conditions or actions may cause minor personal injury, damage the hardware, or corrupt the software or databases.



NOTICE A notice contains information that saves time by pointing out the potential for pilot errors. Notices may also contain important reminders and non hazardous warnings.

Note: Notes contain "nice to know" information.

1-5-1.2 Graphical Representation

This manual uses the following graphic icon designators, in addition to the exclamation point inside the triangle  to warn of safety hazards.

ELECTRICAL	MECHANICAL	RADIATION
		
LASER	HEAT	PINCH
 LASER LIGHT		

These icons represent procedures to follow.

AVOID STATIC ELECTRICITY	TAG AND LOCK OUT	WEAR EYE PROTECTION
		 EYE PROTECTION

Chapter 2 System Catalog

Section 2-1: Option Catalog Numbers

The following is a list of system options requiring site planning work for the Discovery ST system. *For a complete list of system options, contact your local GE Healthcare Sales representative or visit us at www.gehealthcare.com.*

Table 2-1: System Options Catalog (Part Numbers)

Catalog Number	Option Description
Uninterruptible Power Supply P5051PS	Powerware 9330G 10KVA UPS
International Dolly Set CT - B7850LD PET - P5050ZZ	For International customers, if dollies are required.
Remote Color Monitors B7710WM B7530RC	Ultra LCD monitor. Remote 20 inch diagonal color monitor.
SmartScore Option B7850KC	EKG Monitor and Recording Device
Performance Network Kits K9000L	6 Node, 10/100 Mbit Auto Sensing
Switched Network Kit B7500PM	ConnectPro Option provides a direct interface to HIS/RIS
Bar Code Reader B7540RB	Discovery ST Bar Code Reader

Section 2-2: Base Scanner System

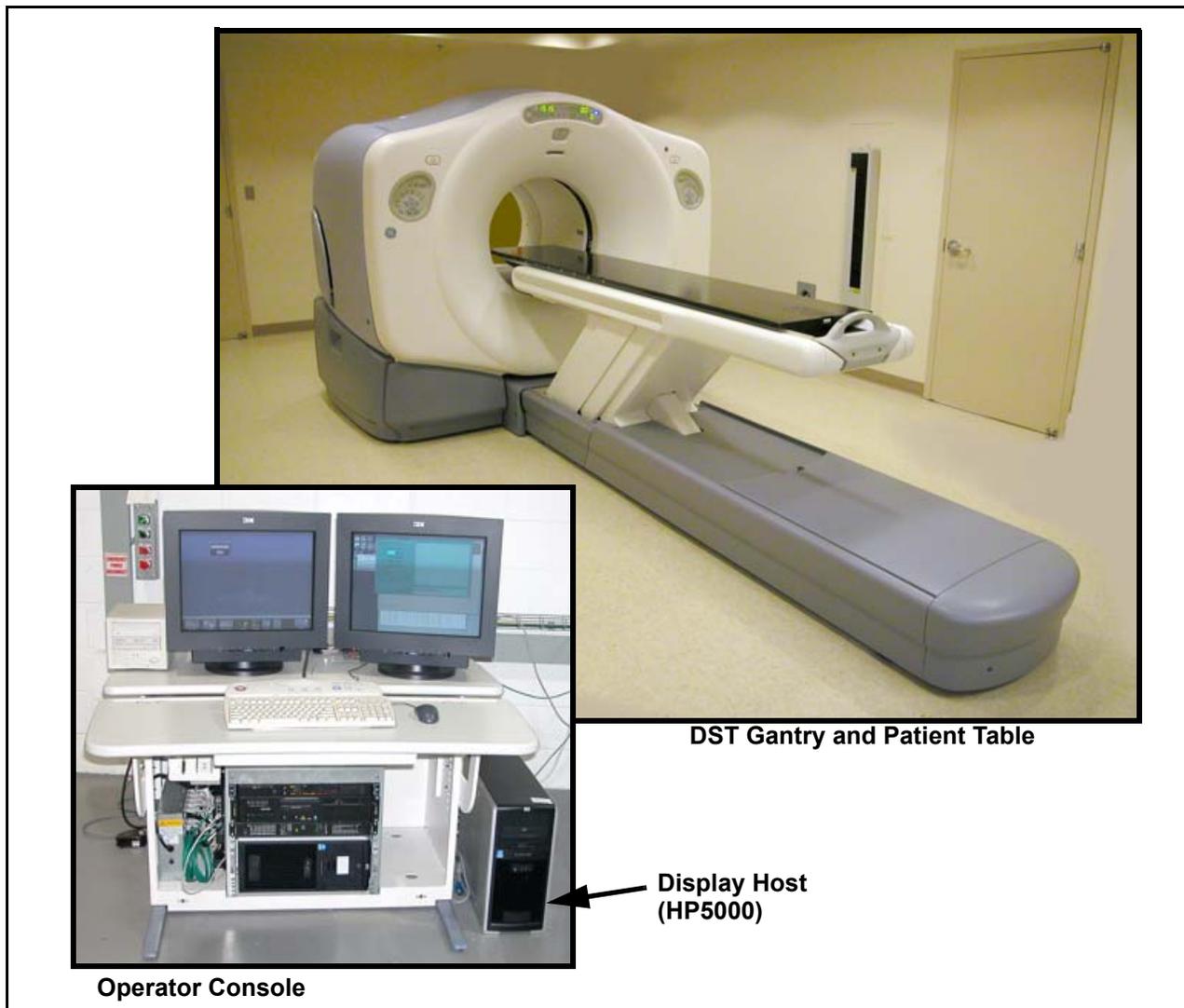
2-2.1 Application

The Discovery ST scanner system includes hardware and software to support patient data acquisition and image analysis for whole-body positron emission tomography and computed tomography. The purchaser has the option to buy a DST system with a 4 slice, 8 slice or 16 slice CT Gantry.

2-2.2 Configuration

Refer to [Figure 2-1](#). The DST Gantry and Patient Table reside in the scan room. During normal operation, the technologist controls all scan and analysis functions from the Operator Console, located in an adjoining space with a full view of the patient.

Figure 2-1: Discovery ST (See and Treat) System



Chapter 3 Room Planning

Section 3-1: Recommended Layouts



NOTICE The illustrations in this section contain typical room layouts that maximize the use of space while accommodating minimum traffic and service clearance requirements. Please contact the local GE Healthcare representative to discuss your unique facility conditions and requirements.

Figure 3-1 shows a typical PET-CT scan suite floor plan. Section 3-3 contains the individual component dimensions, and Figure 3-2 shows the minimum recommended service clearances around the DST Gantry and Patient Table.

Note: Cable length is an important consideration in room layout. The Discovery ST system ships with a Long Cable set (2346968 cable collector). A set of shorter cables are available, if needed.
Other room arrangements are possible.

Figure 3-1: Typical Room Layout

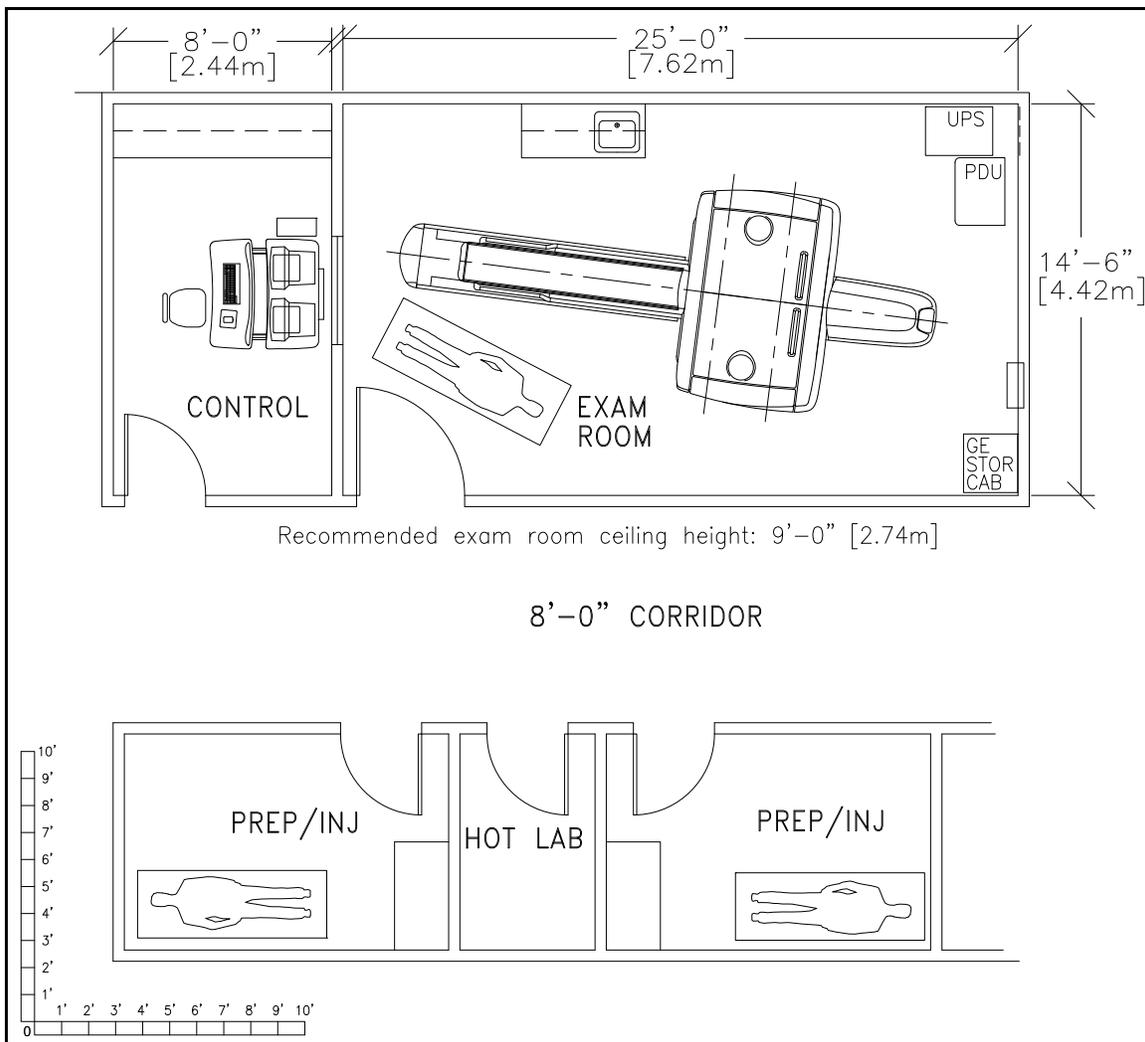
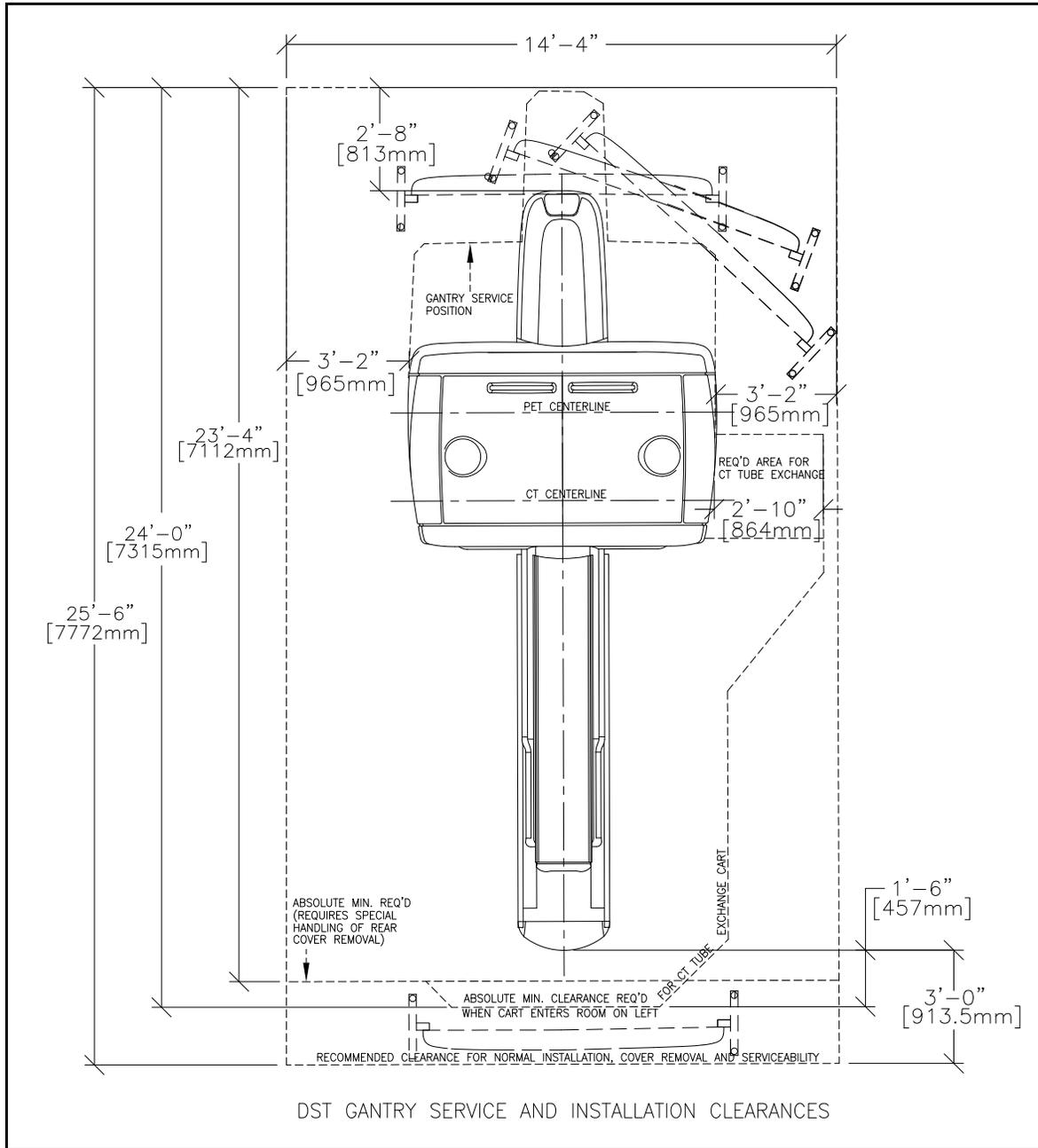


Figure 3-2: DST Gantry and Patient Table Clearances



Section 3-2: Common Dimensions and Clearances

3-2.1 System Service Access Clearances

Refer to [Figure 3-1](#) and [Figure 3-2](#).

- Back cover and trailer cover removal (rear clearance): 32.0" (813.5mm)
- Front/Back cover removal (side clearance): 36.0" (913.5mm)
- Gantry service side to obstruction: 36.0" (913.5mm)
- Area around the PDU: 36.0" (913.5mm)
- Area around the A1 breaker box: 42.0" (1067mm)
- Area between the table down foot end to obstruction: 36.0" (913.5mm)
- Front DST Gantry cover removal (with Table in place): 36.0" (913.5mm)

3-2.2 Options

Ceiling Pedestal mount lowest point to floor Injector or Monitor: 96.0" (2438.5mm)

3-2.3 System Clearances During Normal Operation

- Finished ceiling to floor: 108.0" (2743mm)
- Table max extension head end with extender from Center Line: 80.0" (2030.0mm)
- Table extension head end with extender to obstruction: 6.0" (152.0mm)
- Table in lowest position w/cradle at home position to Center Line: 126.5" (3209.0mm)
- Back of Console to wall: 6.0" (152.0mm)
- Back of Console Host Cabinet to wall: 6.0" (152.0mm)
- Back of Optional Storage Cabinet to wall: 6.0" (152.0mm)
- Back of PDU to wall: 6.0" (152.0mm)

3-2.4 Typical Room Dimensions

- Scan Room: 25' X 14' 6" (7.62 m X 4.42 m)
- Control Room: 8' X 14' 6" (2.44 m X 4.42 m)

Additional dimensions are available in [Figure 3-4](#) through [Figure 3-9](#) of this document.

Ask your local General Electric Installation Specialist to provide a copy of the site-specific room dimensions.

3-2.5 Injector Control

Provide a suitable work area for the injector control within reach of the operator console. The technologist should have full view of the patient while using the injector.

3-2.6 Storage Cabinet

Refer to [Figure 3-1](#). GE Healthcare provides a storage cabinet to store all supplied service equipment listed in [Table 3-1](#). Position this 30 lb. storage cabinet (24" D x 26" W x 42" H) in the scan room suite area, for easy service access.

Table 3-1: Typical Storage Cabinet Contents.

Item	Size	Weight (total)
QA Phantom (water filled)	20 x 15 cm	12 lb
20CM Phantom	20 x 7 cm	13 lb
48CM Phantom	48 x 7 cm	25 lb
Flood Phantom		
Alignment Phantom (VQC) P/N 2310032		
Phantom Holder	25 x 25 cm	8 lb
FE Box (Purple)	30 x 38 x 30 cm	15 lb
Rear Cover Dollies (Hang behind cabinet)	158 x 82 cm	25 lb
Front Cover Dollies (store power room, when available)	85 x 20 cm and 85 x 15 cm	35 lb
Install Support Kit (box)	30 x 30 x 38 cm	20 lb
Tube Hoist Kit	77 x 8 cm and 38 x 15 cm	20 lb

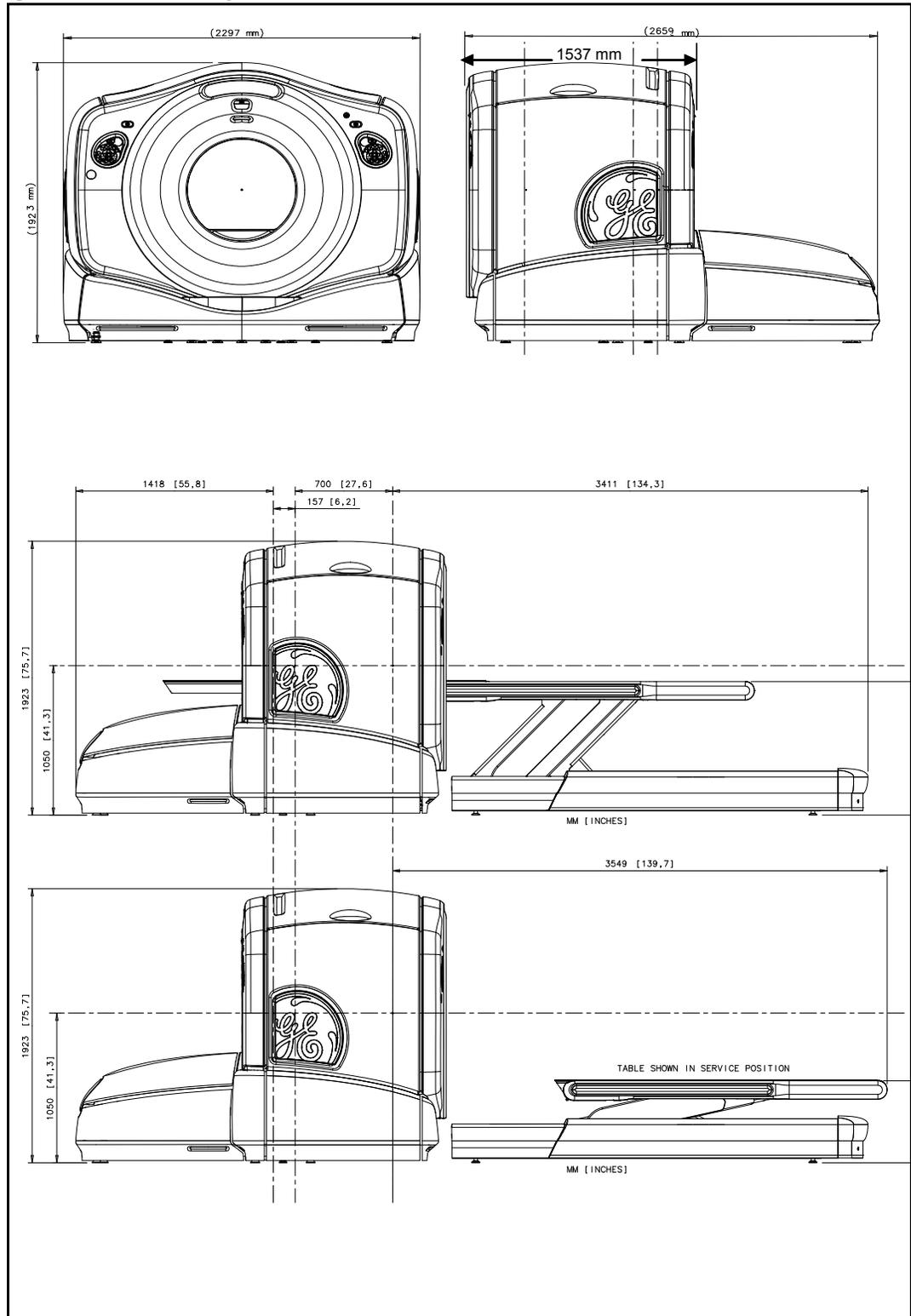
Section 3-3: Component Dimensions

Table 3-2: Discovery ST Subsystem Dimensions

Description	Model/Catalog Number	Width		Depth		Height	
		Inch	mm	Inch	mm	Inch	mm
PET-CT Gantry	S9100LA (4 Slice) S9101LA (8 Slice) S9102LA (16 Slice)	91.9	2297	106.4	2659	76.9	1923
Table (at max elevation; 25mm below DST Gantry ISO center)	P5050RT	29	740	110	2800	42.5	1080
	P5050TT	27	685	122	3100	42.5	1080
Power Distribution Unit (PDU) NGPDU-2	P5050RD B78752AB	30	762	22	559	50	1270
Operator's Console/Computer GOC4 Operator's Console/ Computer (4 Slice) GOC4 Operator's Console/ Computer (8 Slice) GOC4 Operator's Console/ Computer (16 Slice)	B7858CC	48	1219	39	991	33.5	851
	P5052RW						
	P5052RT						
	P5052RS						
DST STD Monitor 2pc/Kit	B77858LC	413	16.25	203	8	406	16
Powerware 9330 UPS	P5051PS (Option)	39	990	31	790	45	1140
A1 Disconnect	P5050RB (part of the system catalog)						

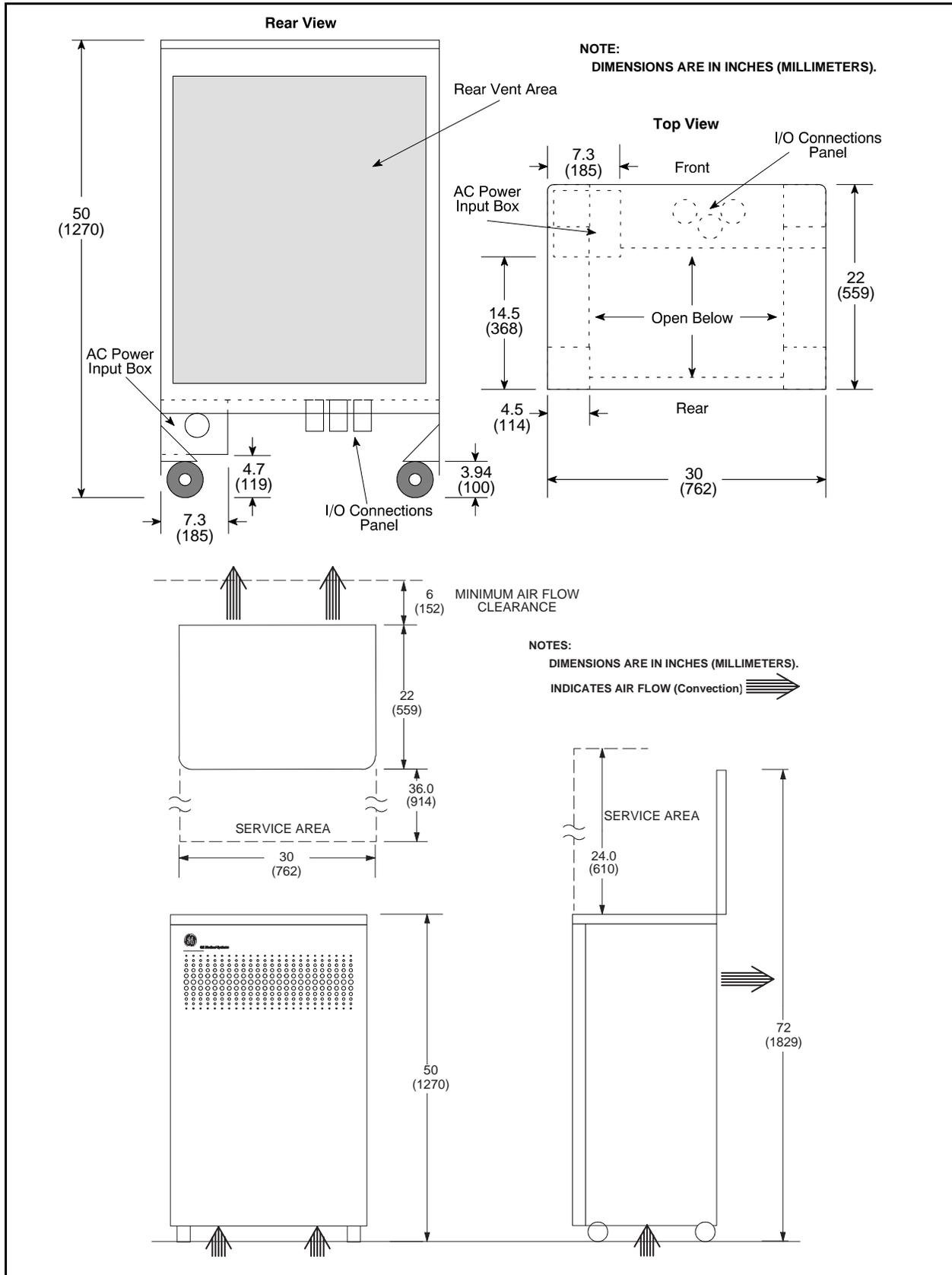
3-3.1 DST Gantry and Patient Table

Figure 3-4: DST Gantry and Patient Table Dimensions



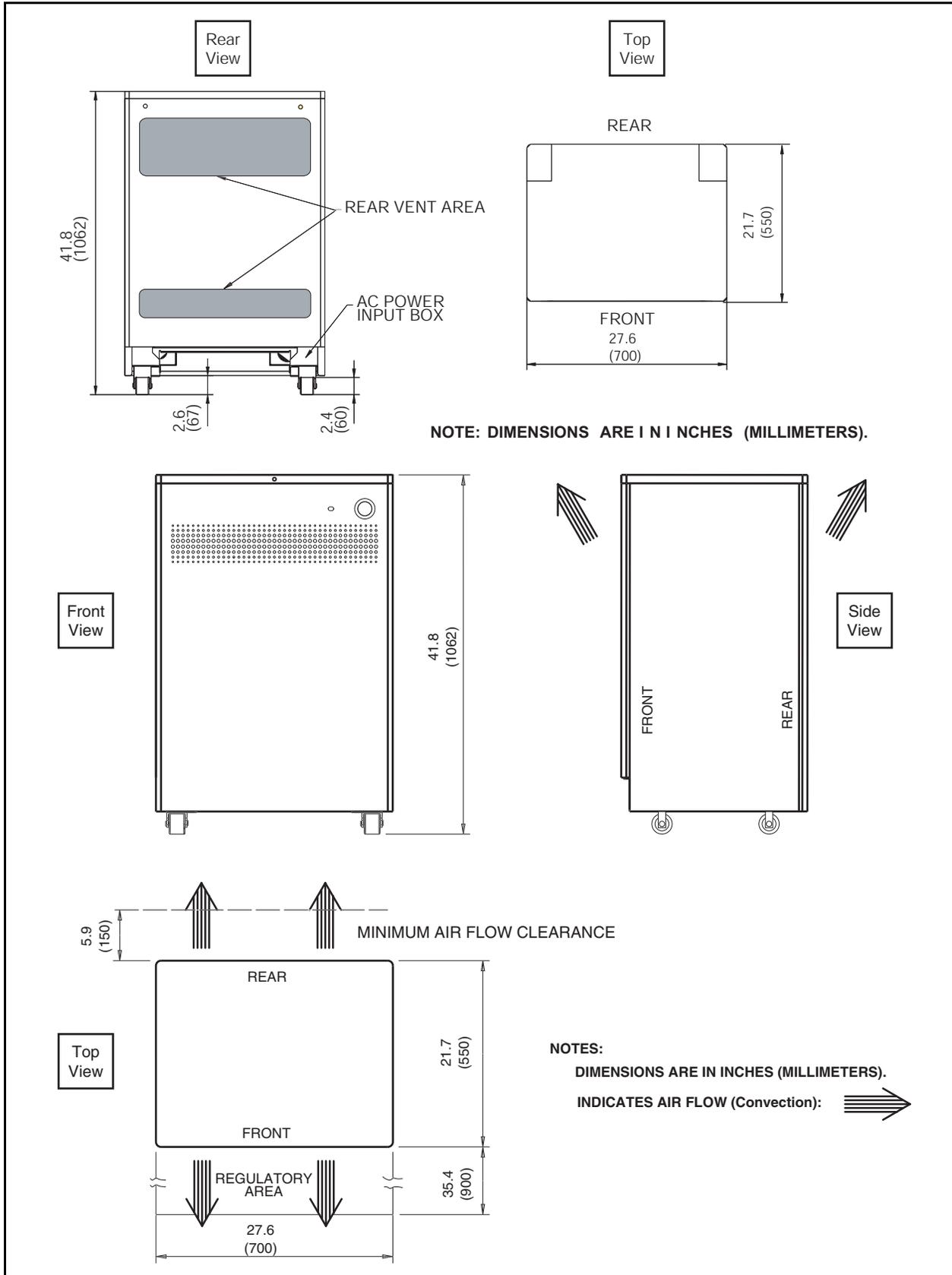
3-3.2 Power Distribution Unit

Figure 3-5: DST Power Distribution Unit (PDU)



3-3.3 NGPDU-2 DST w/ Gold Seal LightSpeed

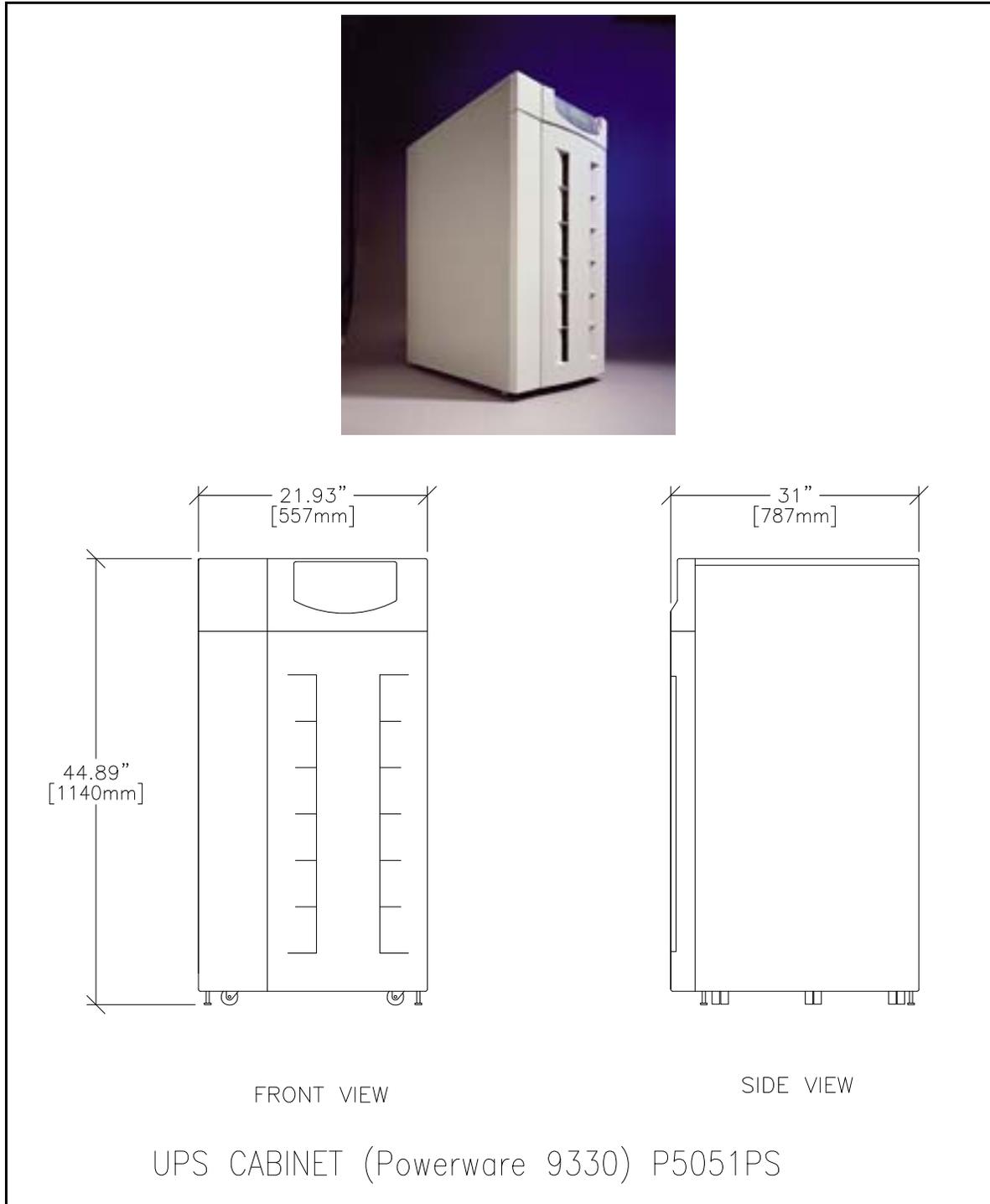
Figure 3-6: NGPDU-2



3-3.4 Uninterruptible Power Supply

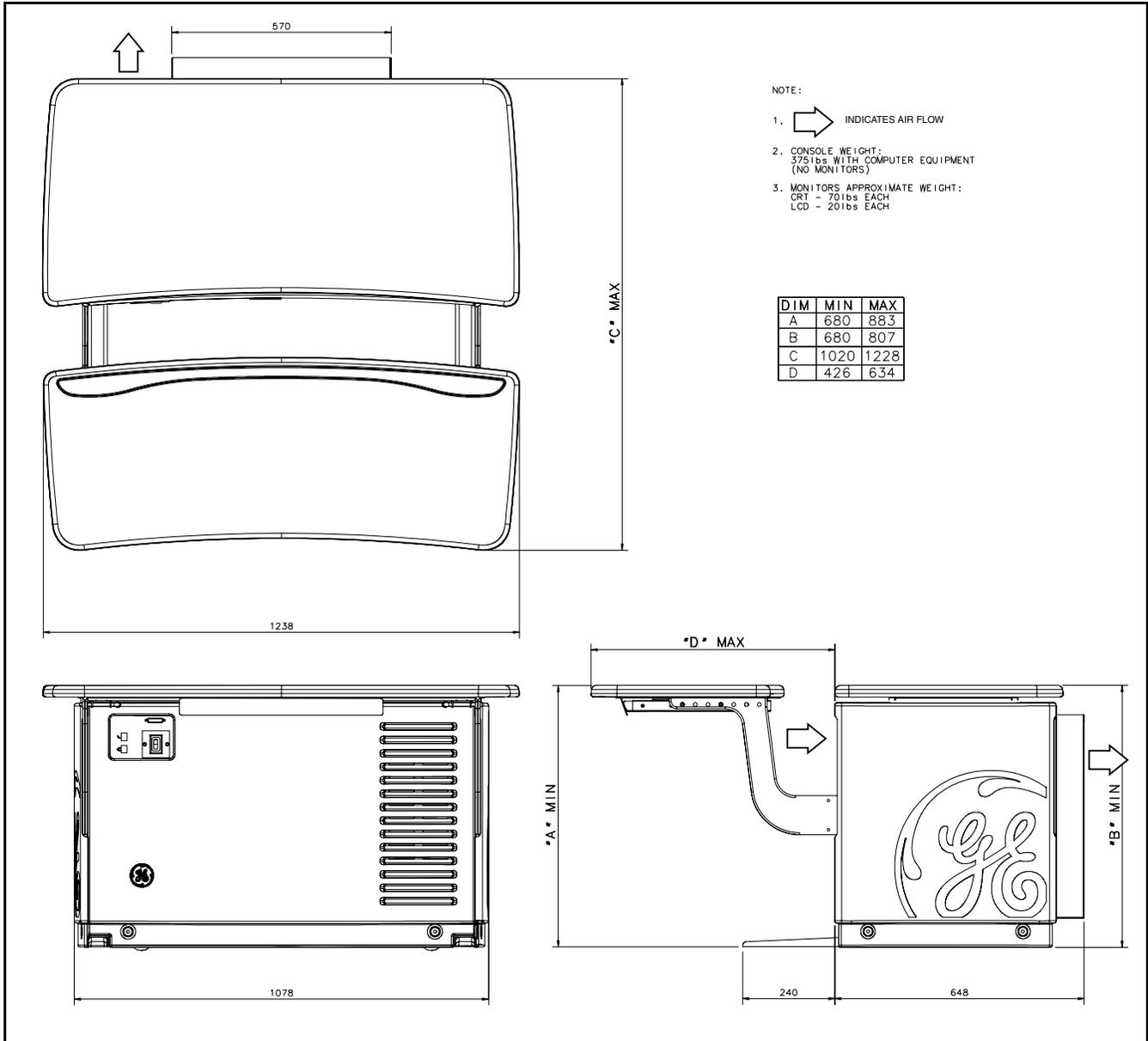
The Powerware 9330 UPS has been selected for use with the Discovery ST scanner. For more information on this product, see the OEM's website at www.powerware.com.

Figure 3-7: Powerware 9330 UPS



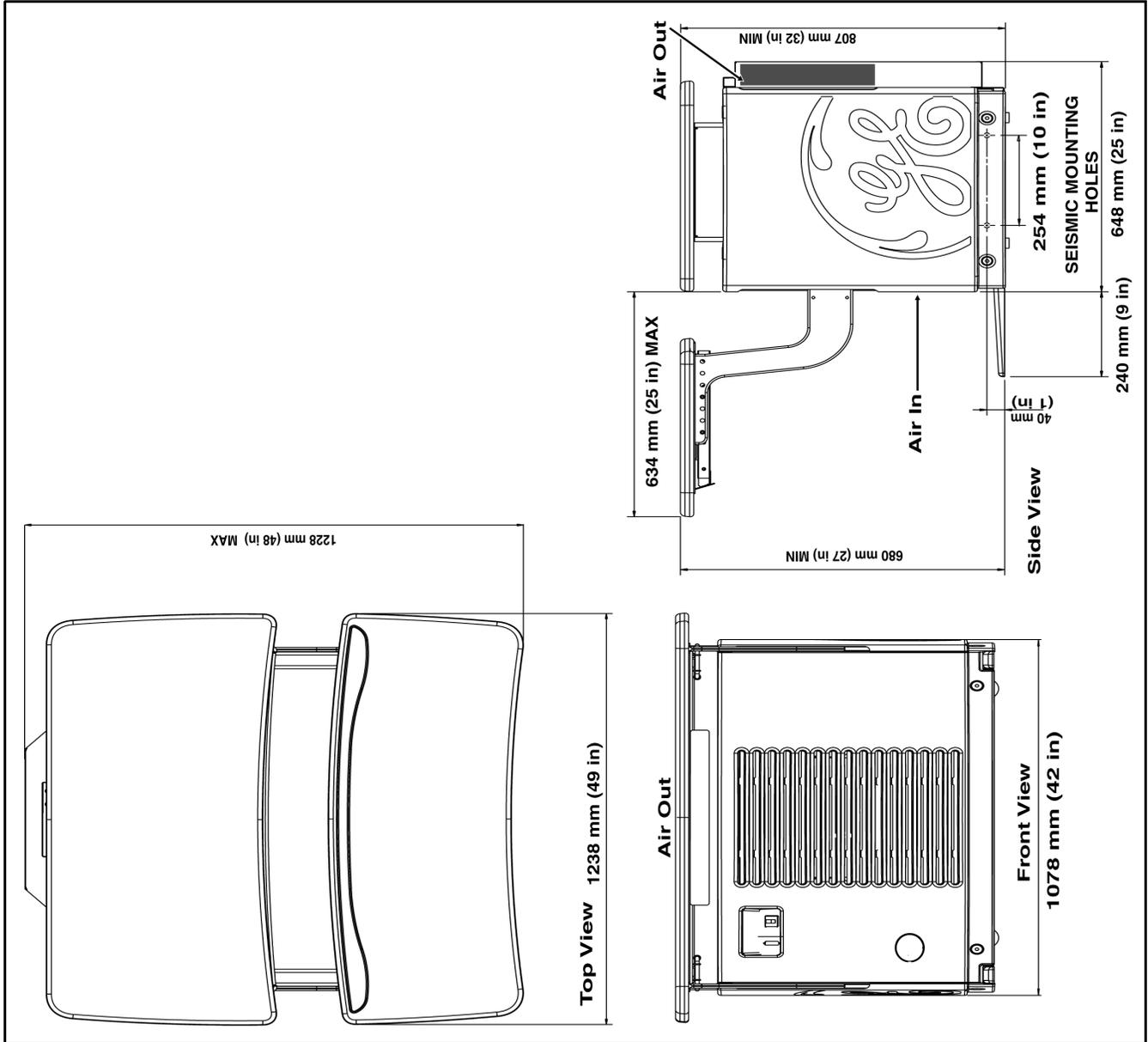
3-3.5 Operator's Console

Figure 3-8: GRE Operator Console Dimensions



3-3.6 GOC4 Operator's Console

Figure 3-9: GOC4 Operator Console Dimensions



Section 3-4: Structural Requirements

3-4.1 Suggested Ceiling Heights

- Minimum acceptable ceiling height: 96in (2286mm)
- Recommended ceiling height: 108" (2743mm)

3-4.2 DST Gantry and Patient Table Mounting Requirements



NOTICE It is the purchaser's responsibility to provide an approved support structure and mounting method that accommodates the facility floor type and site seismic requirements. GE Healthcare is not responsible for any failure of the support structure or method of anchoring. GE Healthcare is not responsible for methods other than those listed.

Table and gantry mounting dimensions are shown in [Figure 3-5](#). Refer to Chapter 5 for additional details of floor loading, component weights, and Gantry and Table installation and anchoring.

Anchor gantry and table to floor by a means that will maintain their relative alignment and meet applicable building and other local codes, including seismic structural mounting requirements.

Floor structure must be capable of withstanding the occupied weight of table and gantry, and the individual contact area loading of these components. Refer to [Table 3-3](#) for each of the three (3) major components of the Discovery ST system.

Table 3-3: Floor Loading Specifications

Component	Floor Loading Kgf/sq meter (lbf/sq ft)	Effective floor Load Area * Sq meters (sq feet)	Maximum Foot Pad Pressure ** MPa (psi)
CT Gantry	1185 (243)	1.34 (14.4)	1.5 (212)
PET Gantry	6180 (1266)	0.34 (3.7) ***	1.9 (280)
Table (1.7 meter)	832 (170)	1.10 (11.8)	1.53 (222)
* Area bounded by outermost footpads (not stabilizers).			
** Assumed floor pad area of 4.123 sq inches.			
*** Area bounded by four (4) front foot pads while gantry is in operating position.			

3-4.3 Minimum Floor Thickness

Any installation on a floor with a rating less than the values listed in [Table 3-3](#) should be braced to bring it up to this requirement. Localized bracing to support the concentrated loads at the floor contact sections should also be provided.

Support areas of the patient table and gantry must rest on at least 5 inches of solid concrete, not resilient tile or carpeting which will slowly yield over a period of time and disturb alignment of table to gantry.

Factors that could cause misalignment between gantry and table due to floor sag should be considered. The cradle can potentially carry a 450 lb (205 kilogram) patient. Center of gravity changes as the cradle cantilevers.

Take into consideration all other moving weights such as gurneys or personal equipment. Refer to Chapter 5 for gantry and table mounting details.

3-4.4 Floor Anchors

A qualified person must verify that the site and method of anchoring are adequate to support loads and maintain table-to-gantry alignment.

Location of supporting beams and columns may dictate position of table-to-gantry assembly. Use of flush floor duct or conduit in the floor may significantly effect floor strength.

The method and placement of anchoring through bolts must not reduce the structural strength of floor.

The floor anchors provided in the installation kit are designed to be used *only* on concrete floors that meet the 5" concrete floor requirements. All other anchoring methods on floor types, other than the 5" concrete minimum, must be verified at the customer's expense, by their structural engineering contractor, that the anchors they chose will meet the stated GE minimum load requirements.

3-4-4.1 Non-Concrete Floors

If you plan to install the Discovery ST system on a type of floor that fails to meet the 5" concrete floor requirements, the customer, at their expense shall provide acceptable anchoring and mounting methods that meet all the structural specifications listed in [Section 3-4](#) of this Site Planning Guide.

3-4.5 Floor Strength

Concrete floors must have a minimum strength of $f'c = 2000$ psi (1.4×10^7 MPa) at 28 days for mounting floor anchors. It is the responsibility of each customer to have appropriate tests performed to determine and measure concrete strength. Your GE Healthcare Service representative can assist you.

Consult GE Healthcare Installation Support Services for further details.

3-4.6 Floor Levelness

The Discovery ST Room floor levelness requirement is important for accurate patient positioning. Floor levelness in the Scan Room must not be greater than 0.3125 (8mm) between

depression and high spots over any 120 in. (3048 mm) distance within the area of the gantry and the area around the table (Refer to [Figure 3-1](#) or [Figure 3-2](#)).

No part of floor surface within the table and gantry, nor the two interface areas between the table and gantry, should be higher than the support area for table and gantry.

3-4.7 Floor Vibration

The Discovery ST equipment may be sensitive to vibration in the frequency range of 0.5 to 20 Hz depending on the amplitude of the vibration. It is the customer's responsibility to contract a vibration consultant or qualified engineer to implement design modifications to meet the specific limits. However, it is ultimately the customer/architect/engineer responsibility to design the site solution.

3-4-7.1 Steady State Vibration

The maximum steady state vibration transmitted through the floor should not exceed 10^{-3} m/s² rms maximum single frequency above ambient baseline from 0.5 to 80 Hz (measured in any 1 hour during a normal operating period).

3-4-7.2 Transient Vibration

The behavioral characteristics must be such that any measurable transient disturbance must also be minimized to less than 0.01 m/s² peak-to-peak.

3-4-7.3 Equipment Location

To minimize the interference, the Discovery ST equipment should be placed on a solid floor, located as far as possible from the following vibration sources:

- Parking lots
- Roadways
- Subways
- Trains
- Hallways
- Elevators
- Heliports
- Hospital power plants containing pumps, motors, air handling equipment and air conditioning units

3-4.8 Walls: Scan Window



NOTICE The operator must be able to observe the patient from the Operator Console during normal system operation.

Refer to [Figure 3-1](#). The recommended patient viewing window dimensions are 48 in. wide by 42 in. high (1219 mm x 1067 mm). The location of the window depends upon the location and orientation of the Operator Console and workspace.

Section 3-5: Network Connections

The Discovery ST system connects to the network through the Operator Console. A patch cable (not to exceed 10 feet) connects the console to a wall box. The system requires two IP addresses for the PET-CT host computer and Display host computer (Xeleris).

Section 3-6: Radiation Protection

Protective measures must be considered for the following:

- X-Ray radiation from the CT equipment (see [Figure 3-6.1](#))
- Gamma radiation from the PET radioactive rod source in the gantry (see Section 5.2)

Scanner-room shielding requirements should be reviewed by a qualified radiological health physicist taking into consideration equipment placement, weekly projected work-loads, and materials used for construction of walls, floors, ceiling, doors, and windows.

3-6.1 X-Ray Radiation Protection

The main X-Ray beam is collimated within the transaxial slice of the patient. During CT scanning there will be radiation in the Scan Room resulting from scattered radiation from the patient, and leakage from the X-Ray housing. The scatter depends on the shape and size of the patient. The example plots shown in [Figure 3-11](#) depicts measurable radiation levels within the scan room while scanning a 32 cm CTDI phantom (body) and [Figure 3-10](#) shows the measurable radiation levels during a 20 cm water phantom (head) scan with the technique shown.

Note: All measurements have an accuracy of $\pm 20\%$ because of measurement equipment, technique, and system-to-system variation.

Note: These measurements were taken without the PET gantry. The addition of the PET gantry minimally reduces the dose from the back of the CT gantry, but the dose around the front (table side) remains unchanged.

Figure 3-10: Typical Scatter Survey (Head Filter)

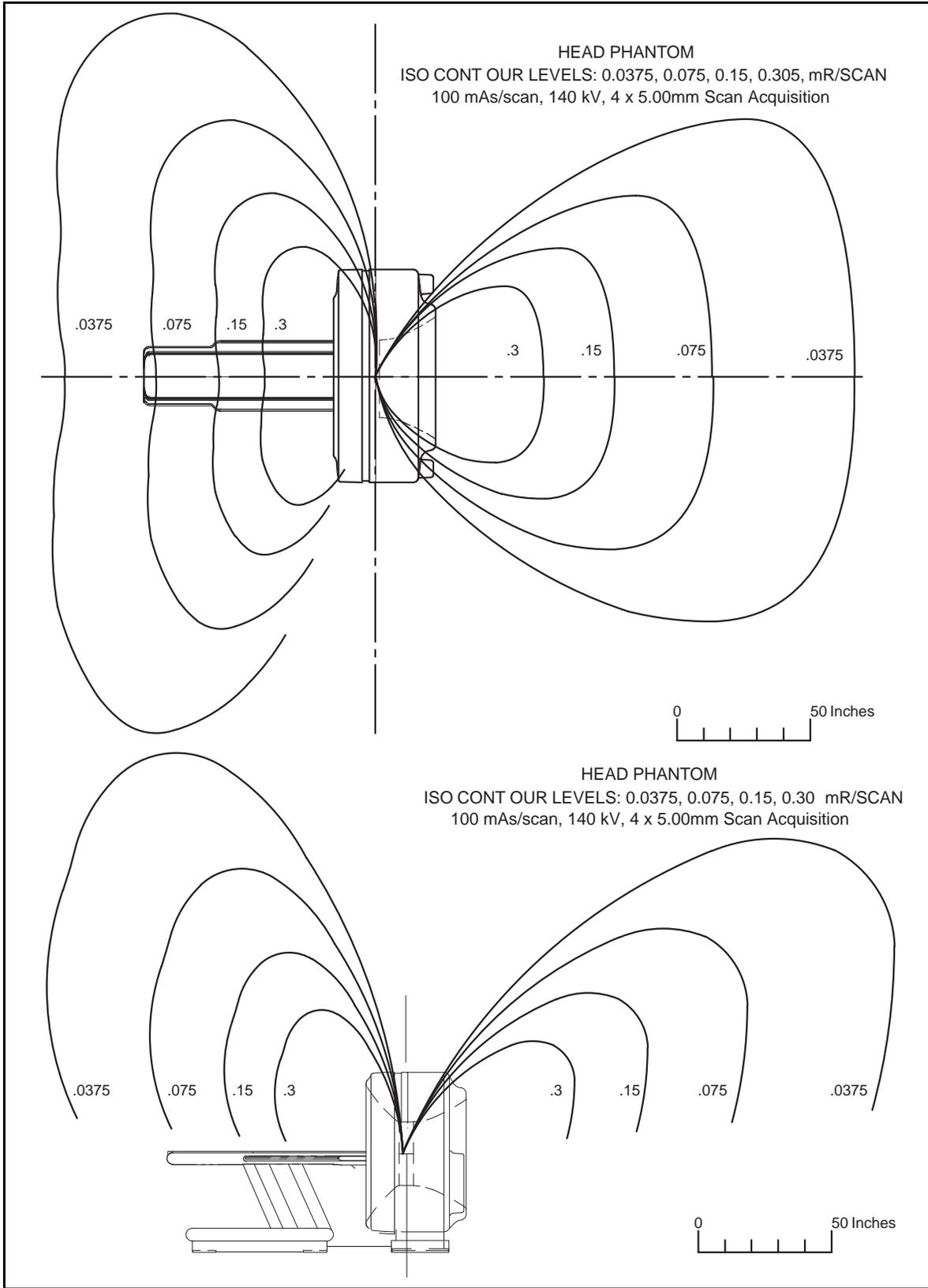
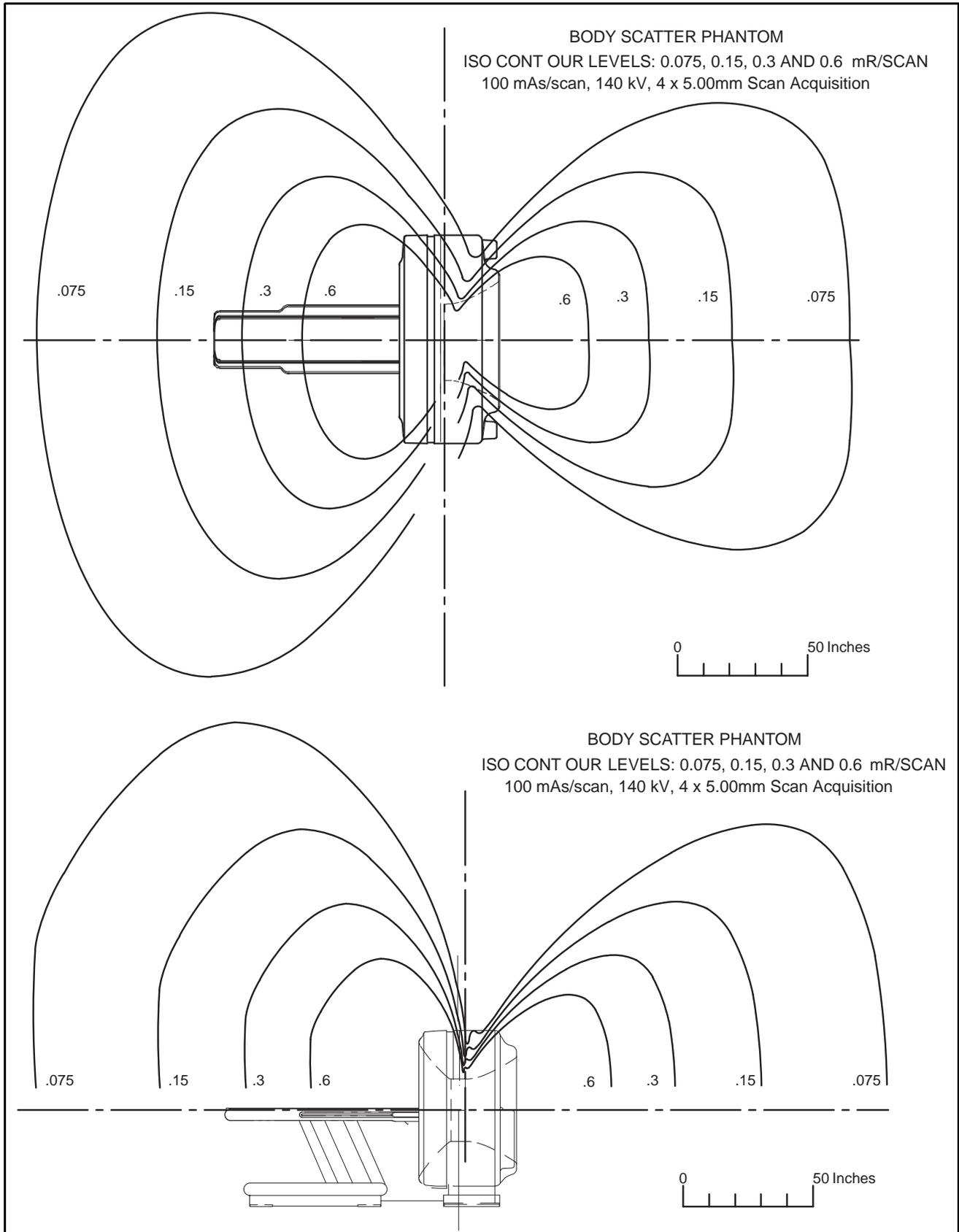


Figure 3-11: Typical Scatter Survey (Body Filter)



Use the correction factors of Axial Imaging shown in [Table 3-4](#) to adjust exposure levels to the usual scan technique at your site

Table 3-4: Shielding Requirements Scaling - Axial Imaging

Changed Parameter	Multiplication Factor
mAs	new mAs/100
80 kV	0.21
120 kV	0.71
140 kV	1.0
4 x 3.75mm images	0.82
4 x 2.5mm images	0.59
4 x 1.25mm images	0.40
1 x 1.25mm images	0.20
2 x 0.625mm images	0.10

Axial # scan seconds = (# images * gantry 360_rotation time)/4 (for 5mm images or less).

Use the correction factors of Helical Imaging shown in [Table 3-5](#) to adjust exposure levels to the scan technique at your site

Table 3-5: Shielding Requirements Scaling - Helical Imaging

Changed Parameter	Multiplication Factor
mAs	new mAs/100
80 kV	0.21
120 kV	0.71
140 kV	1.0
15mm table travel/rotation (10/7.5/5mm image thickness @ premium IQ mode)	1
11.25m table travel/rotation (7.5/5/3.75mm image thickness @ premium IQ mode)	0.82
7.5mm table travel/rotation (5/3.75/2.5mm image thickness @ premium IQ mode)	0.59
3.75mm table travel/rotation (2.5/1.25mm image thickness @ premium IQ mode)	0.40
30mm table travel/rotation (10/7.5/5mm image thickness @ standard IQ mode)	1
22.5mm table travel/rotation (7.5/5mm image thickness @ standard IQ mode)	0.82
15mm table travel/rotation (5/3.75/2.5mm image thickness @ standard IQ mode)	0.59
7.5mm table travel/rotation (2.5/1.25mm image thickness @ standard IQ mode)	0.40

Helical # scan seconds = ((# images* image thickness/table advance per rotation) + 1) * gantry 360_ rotation time).

Note: Premium Image Quality (IQ) mode requires 50-70% the mAs of standard IQ mode for comparable LCD and noise (dependent on image thickness and table advance per rotation).

Values, in mR per scan, apply to both 50 Hz and 60 Hz operation.

3-6.2 Dose Rate from Radioactive Rod Source

The DST PET-CT uses one radioactive pin source during calibration and the Daily QA Check. During normal operation, the source pin remains in storage in a shielded container inside the PET trailer. The system automatically withdraws the source from its container before each use, and is automatically returns to the container after each use.

The dose rates described in this document are estimates, based on measurements taken under specific measurement conditions, described in detail for each measurement. Since the measurement conditions vary at every scanner installation (due to differing room geometries, the presence of other equipment or shielding material, etc.), use these measurements as guidelines *only*.

3-6-2.1 Radioactive Source Pin

PET images are generated by measuring radiation resulting from electron positron annihilation events within the patient. No external radiation source is required to generate this data. The pin radiation source is never used during a patient scan.

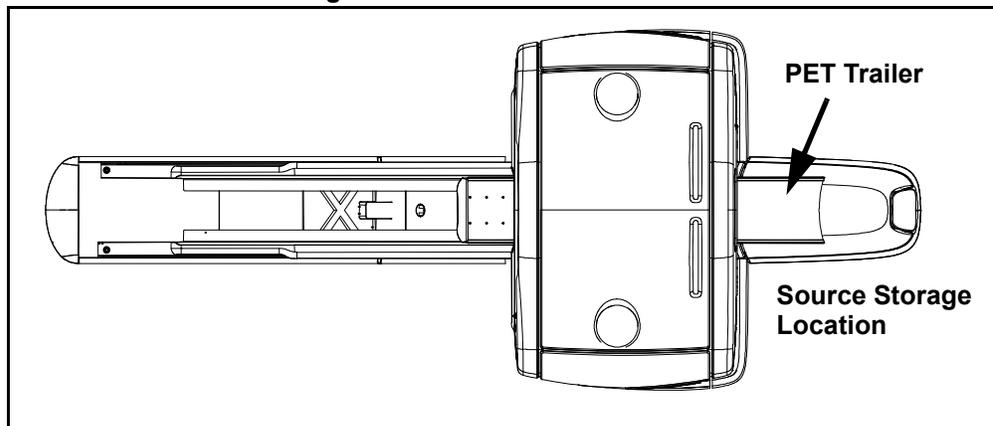
The system uses the source pin to:

- 1.) Calibrate the scanner detectors and electronics.
- 2.) Assess the relative performance of the scanner's detector channels, so differences in individual detector efficiency can be accommodated during reconstruction.

The PET scanner uses a radioactive source pin that contains Ge^{68} , an isotope with a half-life of 287 days. The normalization source pin is referred to as "low activity pin." The pin has an initial activity level of 3mCi.

Refer to [Figure 3-12](#). During normal system operation, the source pin resides in a lead storage container, located inside the PET Trailer, at the rear of the DST gantry.

Figure 3-12: Source Pin Storage Location



When the pin is in use, it is located inside the gantry near the wall of the patient port. Depending on the task the pin is performing, it may be held in a fixed location or rotated around the circumference of the patient port at a speed of up to 20 revolutions per minute (one revolution per three seconds). The pin is transferred from the storage container to its position near the patient port, and returned to the storage container after use, by a mechanical system under software control. Radiation indicators are displayed on both the gantry control panels and the operator's keypad when the pin source leaves the storage container.

3-6-2.2 Dose Rates with Pin Source Stored

When the pin is stored in the lead container, and no other sources are present in the scanner room, the maximum dose rates on Discovery ST are directly over the source loader. The DST uses one pin with an activity level of 3 mCi or less. The exposure rate at the cover is specified to equal 2mR/hr or less.

3-6-2.3 Dose Rates with Pin Source in Use

The dose rates were measured in the following conditions:

- 1.) Pin source rotating around the patient port.
- 2.) Patient table lowered to its lower limit (55 cm above the floor).
- 3.) All measurements were taken at a height equal the center of the patient port.

The results of these experiments, measured along the central axis of the scanner, are summarized in [Table 3-6](#) (distances are measured from the frontmost imaging slice; positive distance is in the direction towards the scanner table).

3-6-2.4 Gamma Ray Protection

A number of radioactive substances, of various levels of stability are used by the PET unit of the Discovery ST system. This material is necessary in imaging procedures. Before the suite is operational, unstable material may be on the premises. It is very important to recognize that clear and significant hazards from ionizing radiation may exist at the site, as it is undergoing preparation. Other equipment may be in place and operational at this time. This may include such equipment as X-ray systems and CT scanners (other than the CT Gantry within the Discovery ST). Calibration source may be on the site at some time during the preparation process, as well as after the PET imager has been put into operation. A cyclotron may be operational at the site. Definite steps should be taken to insure the safety of workers, patients, and visitors, during all phases of the construction, installation and operation of the facility.

Note: By the time the site is ready to have radioactive material brought in, the licensing process must be complete. The site must be properly licensed before receiving radioactive material.

3-6-2.5 Protection of Equipment

It is important that background radiation be kept to a minimum. The coincidence detection used in a PET system allows a moderate amount of external singles events. The DST system has been found to have less than 1% deadtime if the external field is below 1 mR/hr from a single source. Because area background can be more general than a single source, a lower limit is appropriate. If the area dose rate is maintained to less than 0.2 mR/hr (due to 511 or lower energy gamma rays) at the covers, detector deadtime should not exceed 1%.

Radioactive sources must be stored in approved shielded containers. It is recommended that any radioactive source not specifically designed to be housed in the gantry lead pig be stored in a separate room (hot lab) adjacent to, and accessible from, the Scan Room. This hot lab should be near the cyclotron (if used). Doses should be prepared in the same area.

Consideration should be given to the placement of the gantry in relation to existing X-ray, Magnetic Resonance, or Nuclear diagnostic equipment. Magnetic interference above 1.0 gauss, at the surface of PET components, can adversely affect the image quality. Good shielding techniques must be implemented in order to avoid this type of interference.

Some procedures involve the use of radioactive water. This will result in the patient exhaling radioactive carbon dioxide. This carbon dioxide must be contained in order to avoid adversely affecting the image quality. Some PET procedures require the use of radioactive gases. This too can result in compromising image quality if not properly controlled.

3-6-2.6 Protection of Personnel

The escape of radioactive gases, if not properly confined, can cause unnecessary exposure to clinical staff. All sources must be properly stored in appropriate enclosures to provide adequate protection to all in the suite.

3-6-2.7 Barriers Partitions and Shielding

Appropriate barriers such as walls, lead-shielded glass, lead shields etc. must be installed to protect staff from unnecessary exposure to radiation. A qualified radiological health physicist must be consulted in the design of walls and safety barriers to assure proper attenuation.

Keep in mind that patients become significant sources of radioactivity. Consideration should be given to maximize the distance between the patient and operator during the uptake and acquisition phases of scan procedures.

3-6-2.8 Sources of Radiation

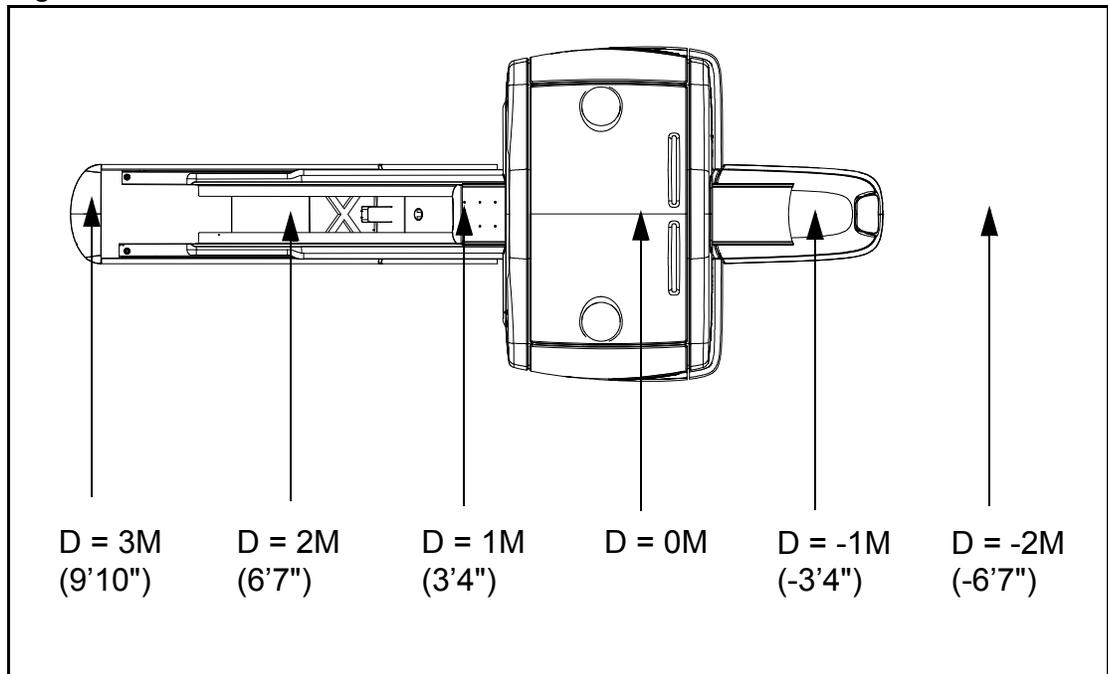
A number of common radio nuclides will be used in the Discovery ST system. These radio nuclides will either be produced at the site, or brought to the site from an outside source. In either case, these devices have relatively short half-life (2 min. to 110 min. maximum) and as such decay to benign levels fairly quickly. Typical positron emitting isotopes include: Carbon-11, Nitrogen-13, Oxygen-15, and Fluorine-18.

Table 3-6 shows the dose rate at various distances. The measurements have been taken at various locations around the equipment. These were measured without the CT gantry. Use the illustration in Figure 3-13 to understand the data in table Table 3-6

Table 3-6: Dose Rate at Specified Distances.

Distances	-2m	-1m	Front Slice	+1m	+2m	+3m
Dose rate per mCi mR/hr/mCi	0.13	0.77	3.20	0.40	0.11	0.04

Figure 3-13: Distance Measurement Location



Notes and Comments:

Chapter 4 Environmental Conditions

Ratings and duty cycles of PET-CT subsystems apply if site environment meets the standards of this section. Maintain the environmental conditions listed below at all times; including, for example, overnight, weekends and holidays. If air conditioning is not working, shut down the Discovery ST system. When the system is shut down for major repair, air conditioning may be shut down also.

Section 4-1: Temperature and Humidity Specifications

Ambient Temperature: (Fahrenheit and Celsius)

- **All Areas:** Maintain relative humidity of 30% – 60% (non-condensing) during normal operation.
 - The maximum temperature rate of change is 5° F/hr (3° C/hr).
 - The maximum relative humidity rate of change is 5% RH/hr.
- **Scan Room:**
 - For patient comfort, maintain a temperature of 65° – 75° F (18° – 24° C).
 - When the scan room is unoccupied, table and gantry temperature limitations are 60° – 75° F (15° – 24° C).
- **Control Room** (including Console/Computer): Maintain 60° – 75° F (15° – 24° C).
- **Equipment Room:** If a separate equipment room is used to house the PDU, the allowable temperature range is 60° – 75° F (15° – 24° C).
- **Media Storage:** Store media (cartridges) in long-term storage in same temperature range as host computer.
 - Store media in the host computer environment for one-half hour before use.

Section 4-2: Temperature and Humidity Monitoring

Position the computer subsystems in an area that meets the environmental specifications listed in [Section 4-1](#).

First, assess your environment's heat and humidity. If necessary, temporarily install a temperature and humidity recorder close to the designated gantry installation area. Record the readings before installation, and again after installation, to verify the true temperature and humidity conditions for your environment.

Consider your HVAC needs and redundancy. You may wish to consider an air conditioner with two compressor units rather than one. A backup (redundant) air conditioner permits PET-CT system operation during an extended repair of the primary air conditioner.

Section 4-3: Cooling Requirements

Use [Table 4-1](#) to assist in planning the site cooling requirements. The DST Gantry generates more than half the total system heat output. For best results, locate a wall air conditioning vent *at floor level* beside and behind gantry to meet the gantry cooling needs while maintaining patient comfort levels.

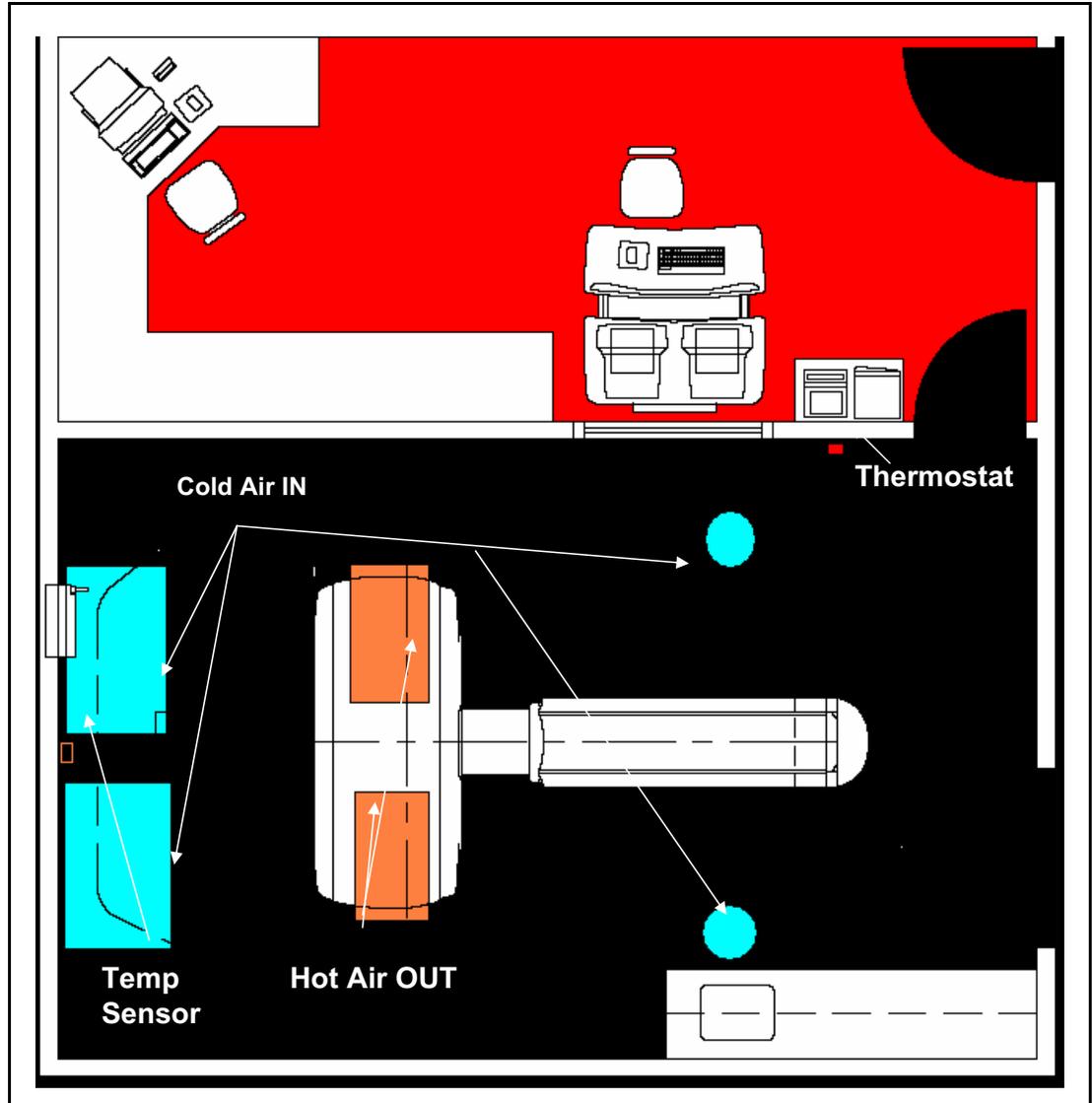
Table 4-1: Cooling Requirement Worksheet

Room =>	Suite	
System Component	Btu/hr	Watt
Scanner System		
1.) PET-CT Gantry minimum (See NOTE 1)	24,400	7150
PET-CT Gantry recommended (See NOTE 1)	31,000	9120
PET-CT Gantry growth (See NOTE 1)	41,000	12000
2.) Table	1000	290
3.) Power Distribution Unit	3400	1000
4.) Operator Console/computer with two monitors	12,342	3630
SYSTEM TOTAL (MINIMUM)	52,400	8800
SYSTEM TOTAL (RECOMMENDED)	59,000	10,550
SYSTEM TOTAL (GROWTH) (See NOTE 1)	69,000	12,600
Selected Options		
Powerware UPS	2500	732
Remote Color Monitor	1178	345
TV camera	34	10
TV monitor	300	88
Room Total (See Note 2)		
> With 75 scan rotations per patient, minimum gantry cooling accommodates up to three patients per hour. Recommended cooling accommodate up to four patients per hour. Use growth BTU/hr. to size cooling for future, more powerful X-ray tubes.		
> Cooling requirements do not include cooling for room lighting, personnel or non PET-CT equipment.		

Please refer to [Figure 3-4](#) and [Figure 3-7](#), in [Chapter 3, Section 3-2](#), for component air flow requirements.

4-3.1 HVC Vent, Thermostat and Temperature Sensor Placement

Figure 4-1: Typical HVC Vent, Thermostat and Temperature Sensor Placement



Section 4-4: Altitude

System operating altitude is from mean sea level to 10,000 ft. (3050 meters).

Section 4-5: Electro-Magnetic Interference (EMI)

4-5.1 DST Gantry

Refer to [Figure 4-2](#). Position the gantry in ambient static magnetic fields of less than 10^{-4} tesla (1,000 milligauss) to guarantee specified imaging performance. Ambient AC magnetic fields must be below 10^{-6} tesla (10 milligauss) peak.

4-5.2 Color Monitor (LCD as an Option)

Refer to [Figure 4-2](#). Locate color monitors in ambient static magnetic fields of less than 5×10^{-5} tesla (500 milligauss) to guarantee color purity and display geometry.

4-5.3 Console / Computer Equipment

Refer to [Figure 4-2](#). Locate computer equipment in ambient static magnetic fields of less than 10^{-3} tesla (10,000 milligauss) to guarantee data integrity.

4-5.4 Magnetic Media

Locate magnetic media in ambient static magnetic fields of less than 10^{-3} tesla (10,000 milligauss).

4-5.5 PDU

Refer to [Figure 4-2](#). The PDU produces an electromagnetic field that radiates outward from its cabinet in all directions. Do not place sensitive electronics (e.g., console or computer equipment) within one meter (1m) of the Power Distribution Unit, in any direction (including above or below).

4-5.6 UPS

The Uninterruptable Power Supply (UPS) provides a consistent power supply to various electrical components of the system. Also, it continues to provide electrical power to components during a site-wide power outage so components can be safely shut down.

Refer to [Figure 4-2](#). Do not place sensitive electronics (e.g., console or computer equipment) within one meter (1m) in any direction of the UPS.

4-5.7 EMI Reduction

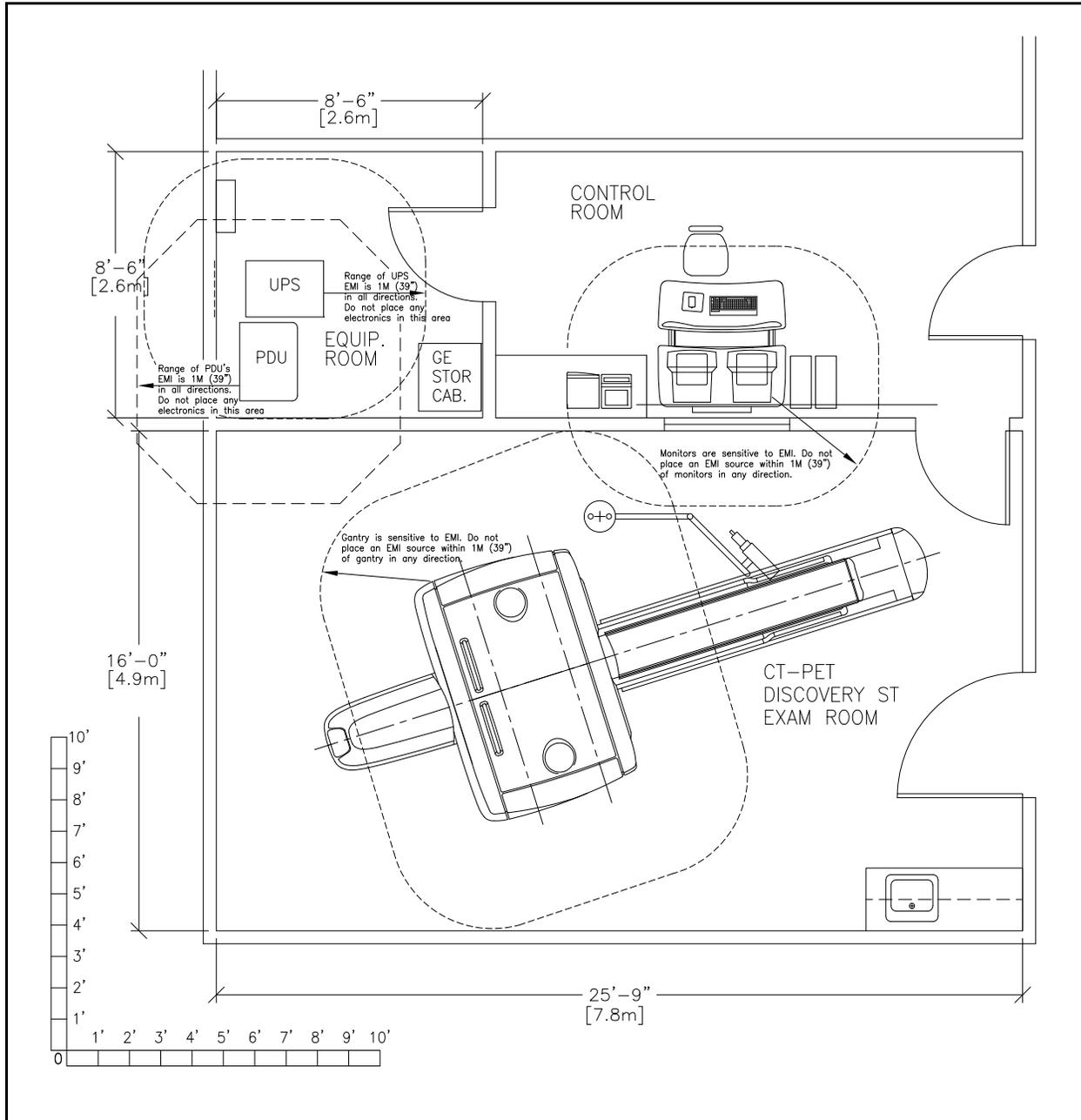
If you know or suspect the presence of excessive EMI fields, consult GE Healthcare Sales & Service for recommendations. Consider the following to reduce EMI:

- External field strength decreases rapidly with distance from source of magnetic field.
- External leakage magnetic field of a three-phase transformer is much less than that of a bank of three single phase transformers of equivalent power rating.
- Large electric motors are a source of substantial EMI.
- High-powered radio signals are a source of EMI.

Maintain good shielding of cables and cabinets.

4-5.8 Equipment EMI Envelopes

Figure 4-2: Typical Room Layout showing approximate EMI requirements



Notes and Comments:

Chapter 5 Floor Loading and Weights

Section 5-1: Floor Loads

The Discovery ST system has a total floor load of approximately 12,153 lbs (5325 kg). About 10,691 lbs (4862 kg), including patient (400 lbs [181 kg]), is concentrated in the DST Gantry - Patient Table.

Table 5-1 shows PET-CT components with size and weight, floor loading and normal mounting requirements.

Table 5-1: DST System Floor Loads

Item	Net Weight lb(kg)	Overall W X D inch (mm)	Weight/Area lb/sq. ft. (kg/m ²)	Load Pattern in. (mm)	Normal Method Of Mounting In. (mm) (GE Supplied) ¹
CT Gantry	~4050 (~1850)	86.6 x 39.4 (2200 x 1000)	300 (1460)	Rectangular base plate 24 x 81 (610 x 2057) with four round pads, each 2.5 (63.5) in contact with floor. Individual pad loadings are: 910 lb, 960 lb, 1040 lb, and 1090 lb (see Figure 5-1).	1/2" (12.7mm) diameter x 10" (254mm) long per P/N 2106573-2 at four leveling pads into concrete floor.
PET Gantry	4631 (2101)	41.5 x 64.5 (1050 x 1635)	1266 (6180)	While in the imaging position, the effect PET load area is 19.2 x 24 (480 x 708) with 7 pads each 2.5 (63.5) as well as 2 pads that do not get anchored (support only)	Hilti Kwik-Bolt II 1/2in (12.7mm) diameter by 8in (203mm) long per P/ N 2106573 at seven leveling pads into concrete floor.
Patient Table					
P5050TT	2010 (912) Includes 400 (181) Patient	27 x 122 (685 x 3100)	170 (832)	Rectangular base 89 x 25 (2270 x 627) with six round pads, each 2.5 (63.5) in contact with the floor.	Hilti Kwik-Bolt II 1/2in (12.7mm) diameter by 8in (203mm) long per P/ N 2106573 at four leveling pads into concrete floor.
P5050RT	1950 (886) Includes 450 (205) Patient	29.73 x 109.65 (628 x 2785)	100 (490)	Rectangular base 99 x 23 (2475x563) with four round pads, wach 2.5 (63.5) in contact with the floor.	Hilti Kwil-Bolt II 1/2in (12.7mm) diameter by 8in (203mm) long per P/ N 2106573 at three leveling pads into concrete floor.

Notes:

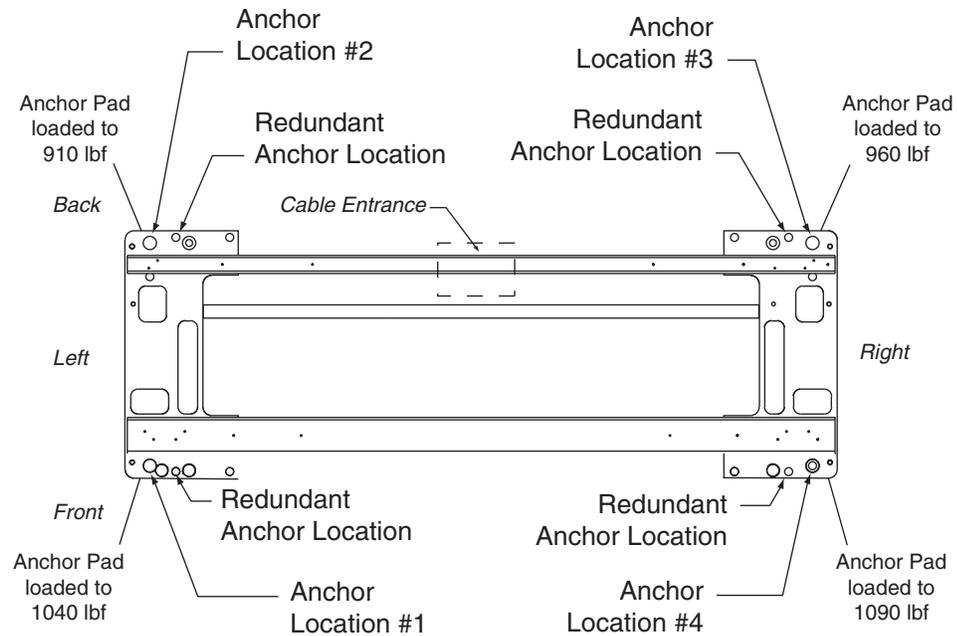
1.) Use the GE Supplied mounting hardware ONLY IF you are anchoring the system to 5" concrete floors.

Item	Net Weight lb(kg)	Overall W X D inch (mm)	Weight/Area lb/sq. ft. (kg/m ²)	Load Pattern in. (mm)	Normal Method Of Mounting In. (mm) (GE Supplied) ¹
Power Distribution Unit (PDU)	800 (363)	30 x 22 (762 x 559)	180 (82)	Four Casters or support area of 30 x 22 (762 x 559).	Casters are for positioning and service. Set on floor. May be anchored to floor with angle brackets in seismic zones.
Operator Console/ Display Host	662 (300) 46 (20.8)	48 x 39 (1219 x 991) 7.5 x 19.6 (450 x 500)	50 (23)	Four Casters or Leveling Feet support area of 46 x 19 (1168 x 483).	Use built-in casters to position console Seismic bracket on skid

Notes:

1.) Use the GE Supplied mounting hardware ONLY IF you are anchoring the system to 5" concrete floors.

Figure 5-1 Pad Loadings

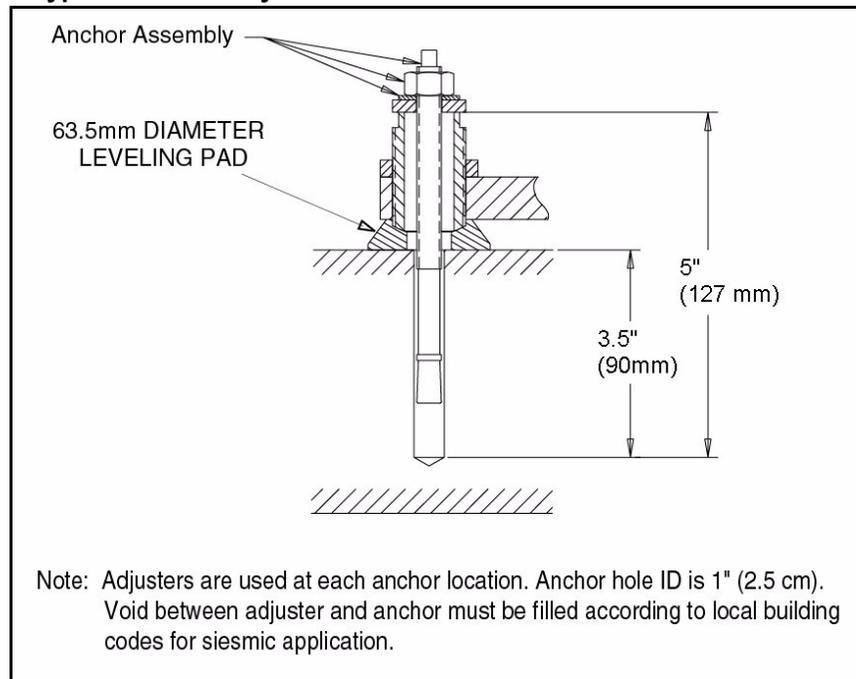


Note: Adjusters are used at each anchor location. Anchor hole ID is 1" (2.5 cm). Void between adjuster and anchor must be filled according to local building codes for seismic application.

Section 5-2: Mounting Data, Including Seismic

Standard mounting meets seismic requirements. See [Figure 5-2](#) However, customer is responsible for seismic mounting. Refer to all applicable codes in your area.

Figure 5-2: Typical DST Gantry and Table Floor Anchor



The following pages show center-of-gravity information for system components:

- Gantry: [Figure 5-7](#) and [Figure 5-8](#)
- Table: [Figure 5-10](#)
- Power Distribution Unit: [Figure 5-11](#)
- Operator's Console/Computer: [Figure 5-13](#)

Floor mounting hole locations for components that don't have templates are also in this section.

5-2.1 Seismic Information

Figure 5-3: Seismic Anchorage - Page 1 of 3

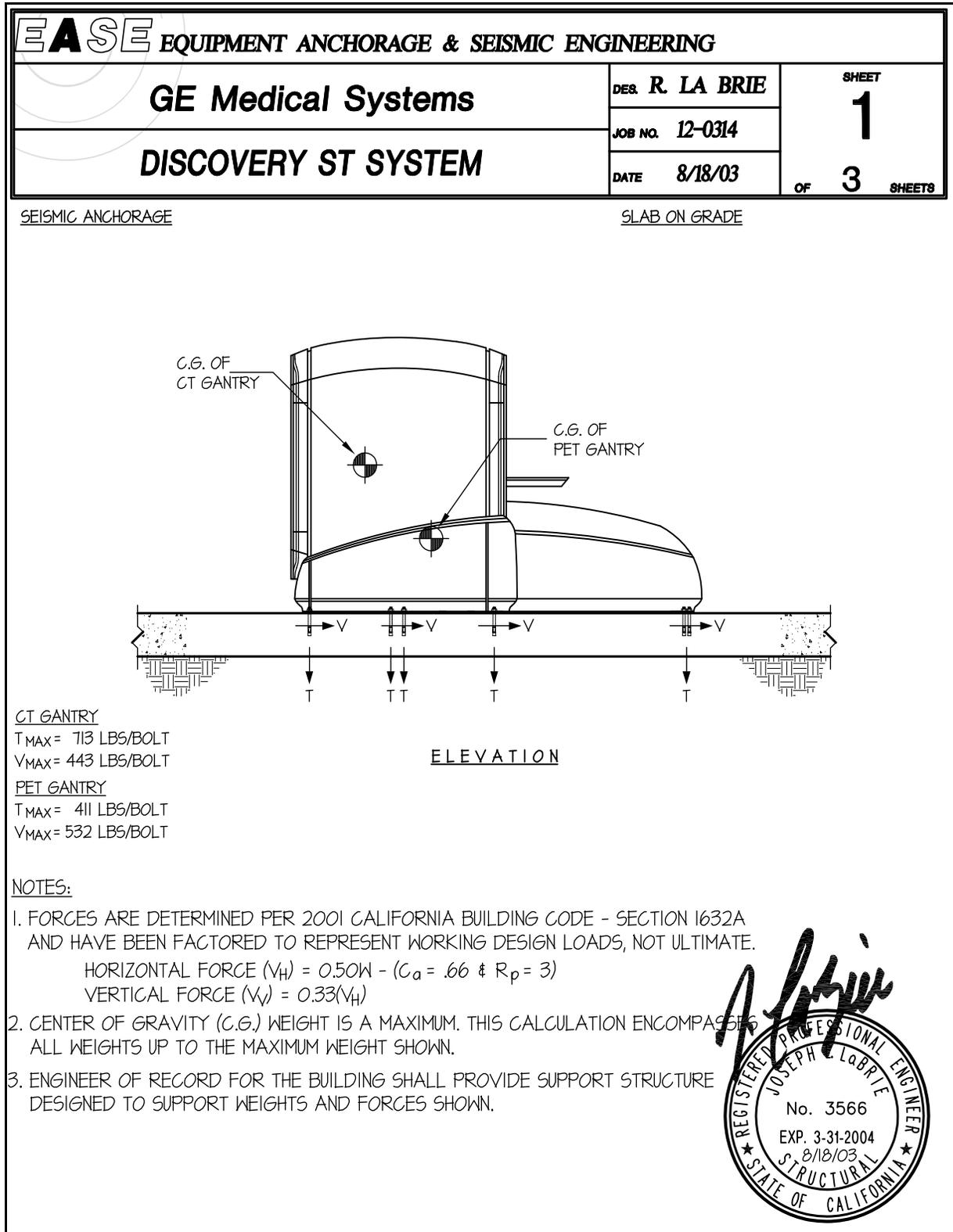


Figure 5-4: Seismic Anchorage - Page 2 of 3

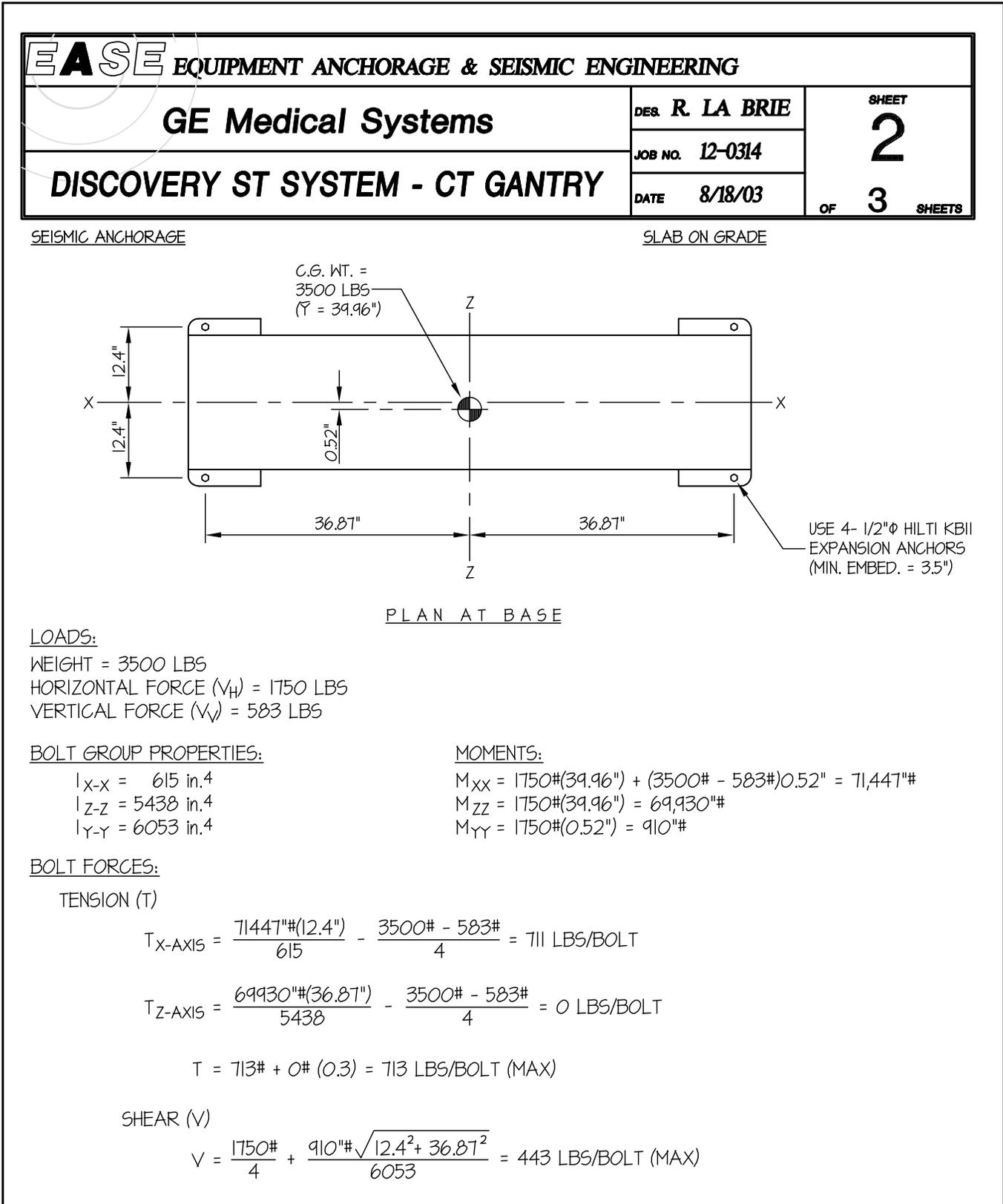


Figure 5-5: Seismic Anchorage - Page 3 of 3

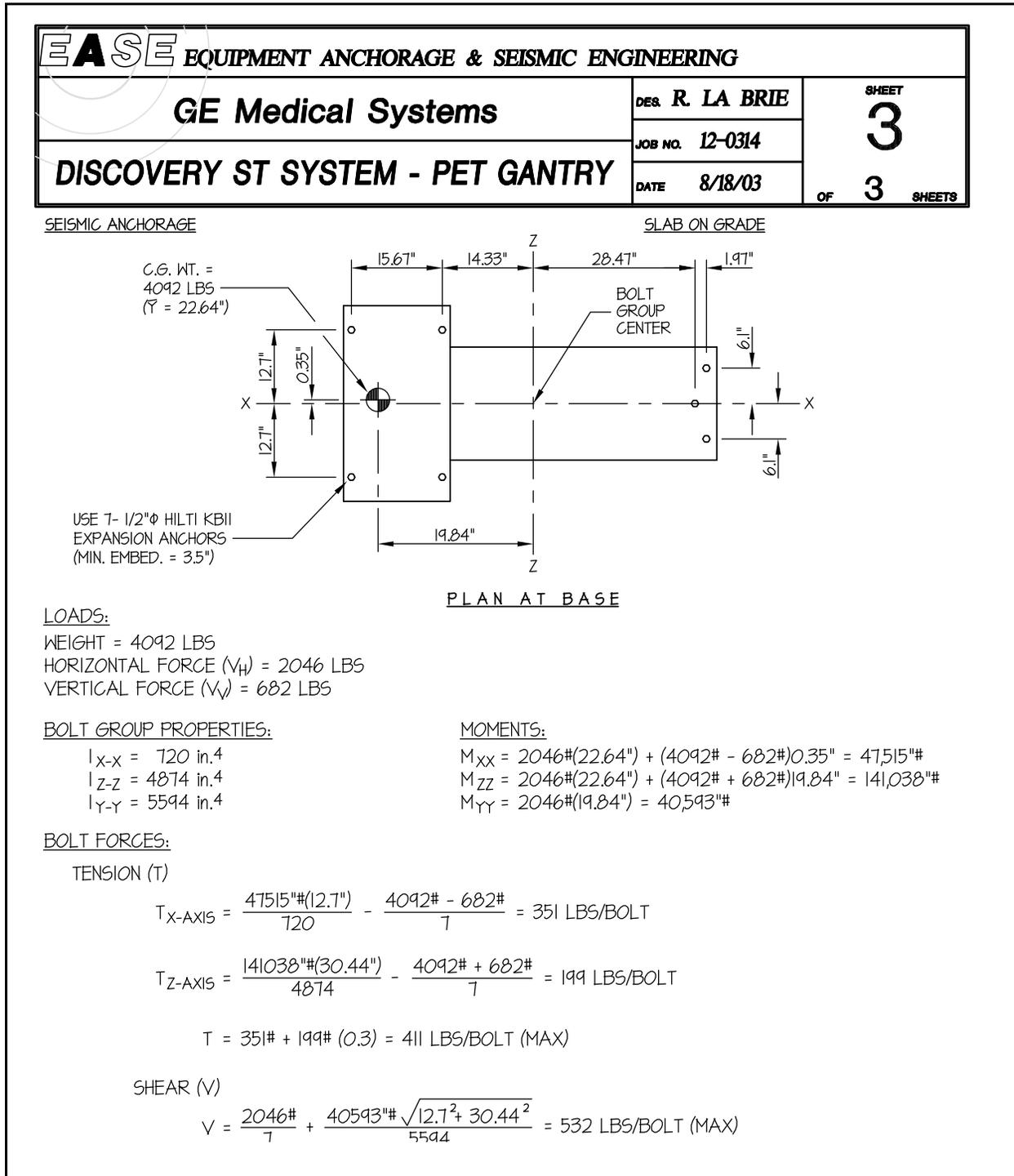


Figure 5-6: Patient table Discovery ST (2338513)

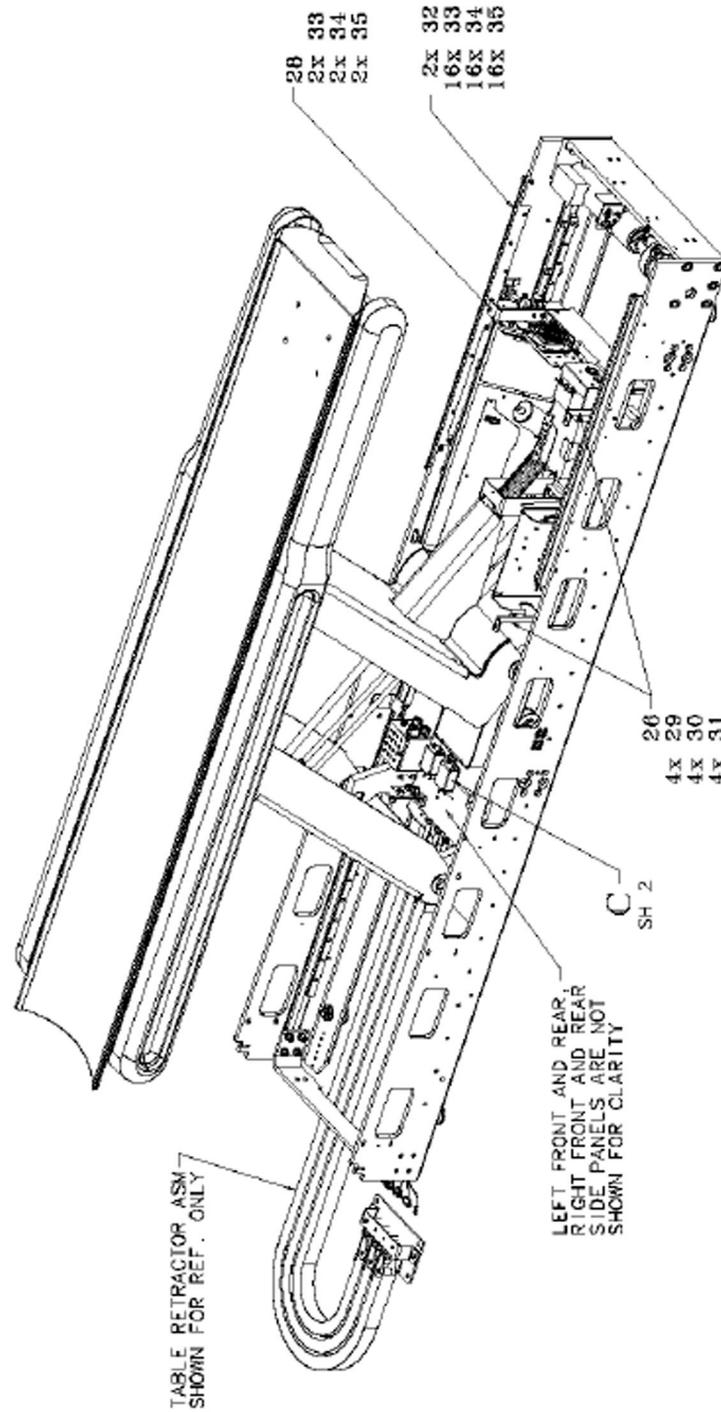


Figure 5-8: Gantry - PET/CT Center of Gravity Locations Entire Gantry (SK4092003, Sheet 3, Rev 1

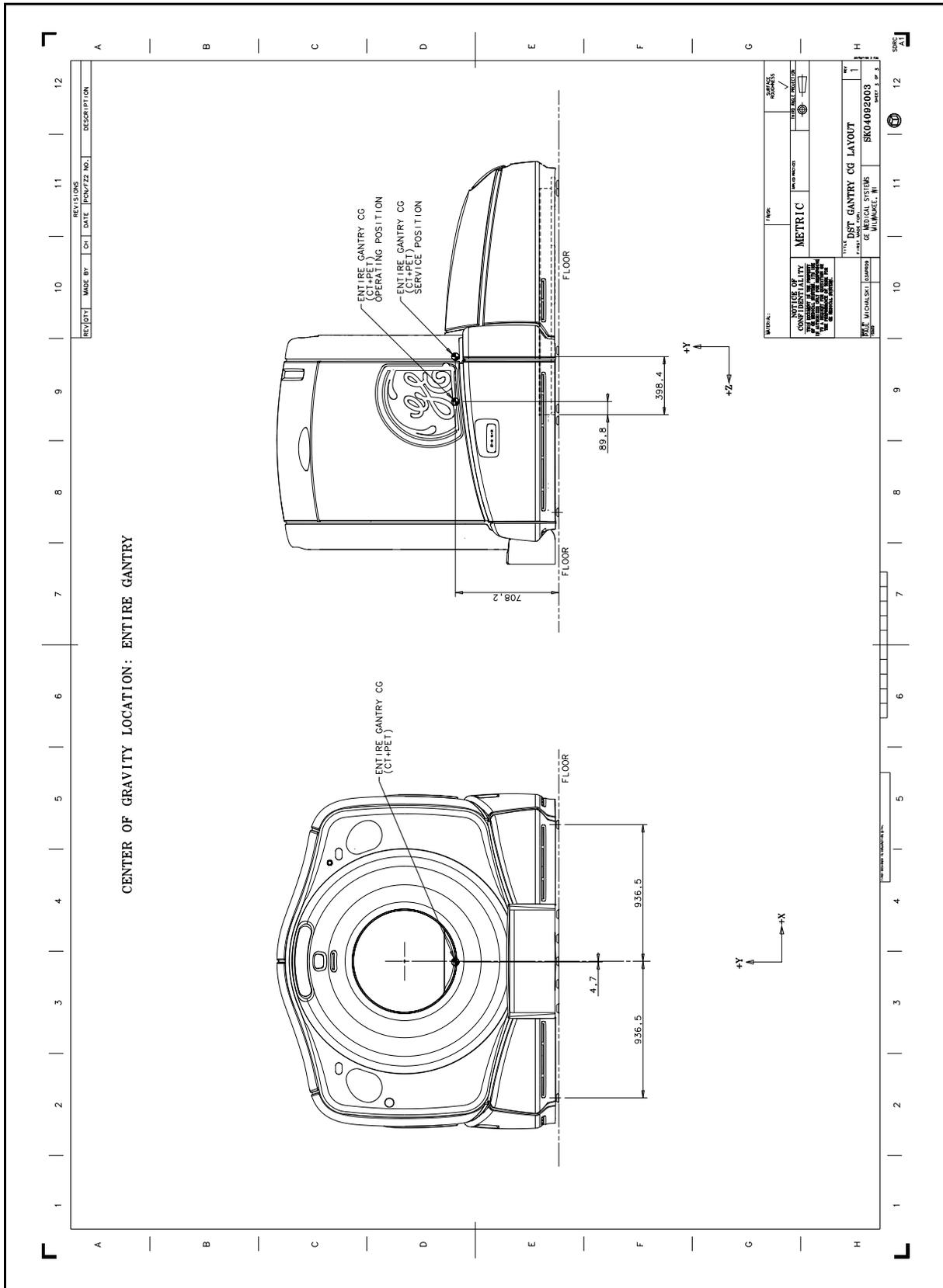


Figure 5-10: DST Patient Table Center of Gravity Location, Drawing 2371600CG

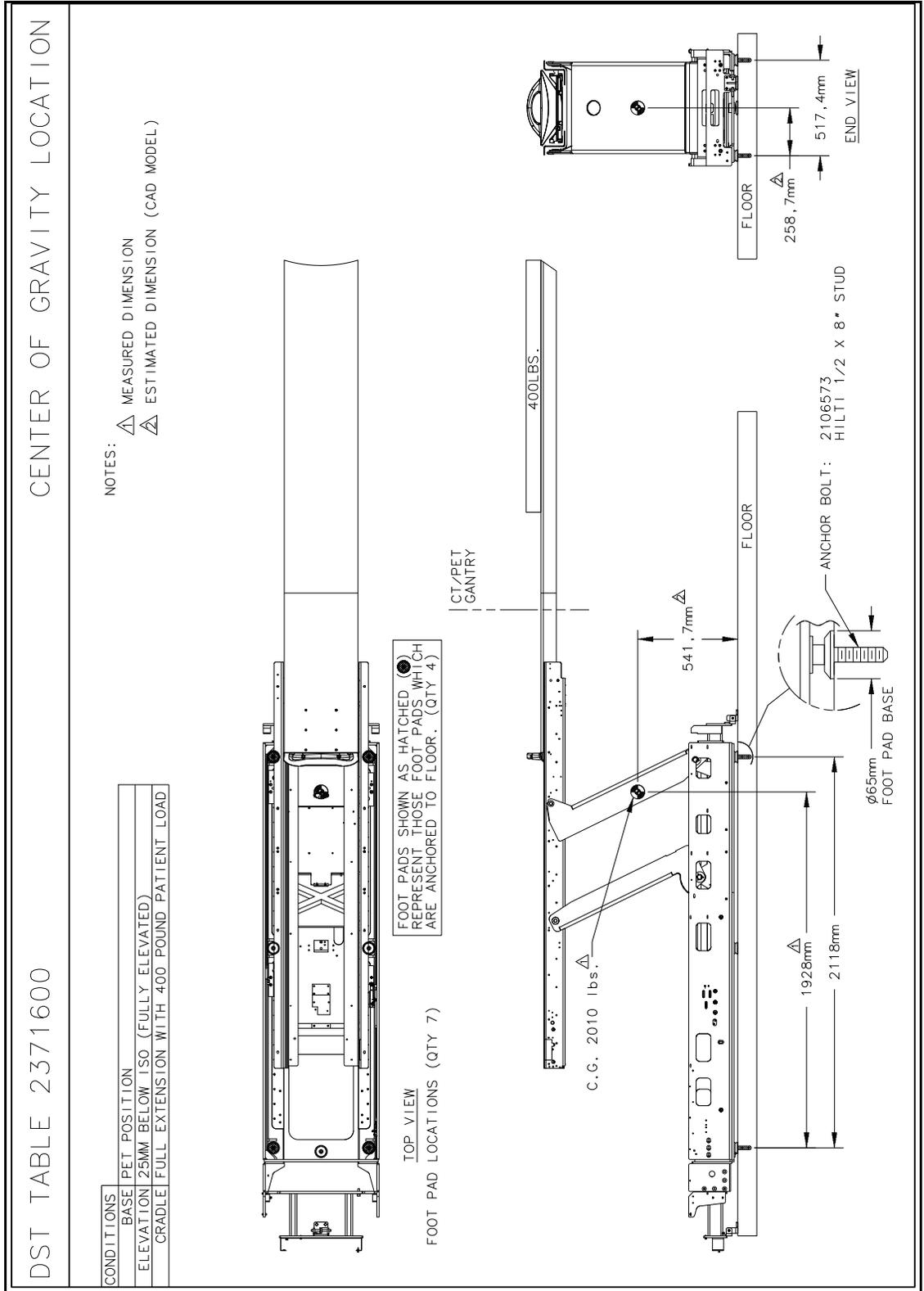
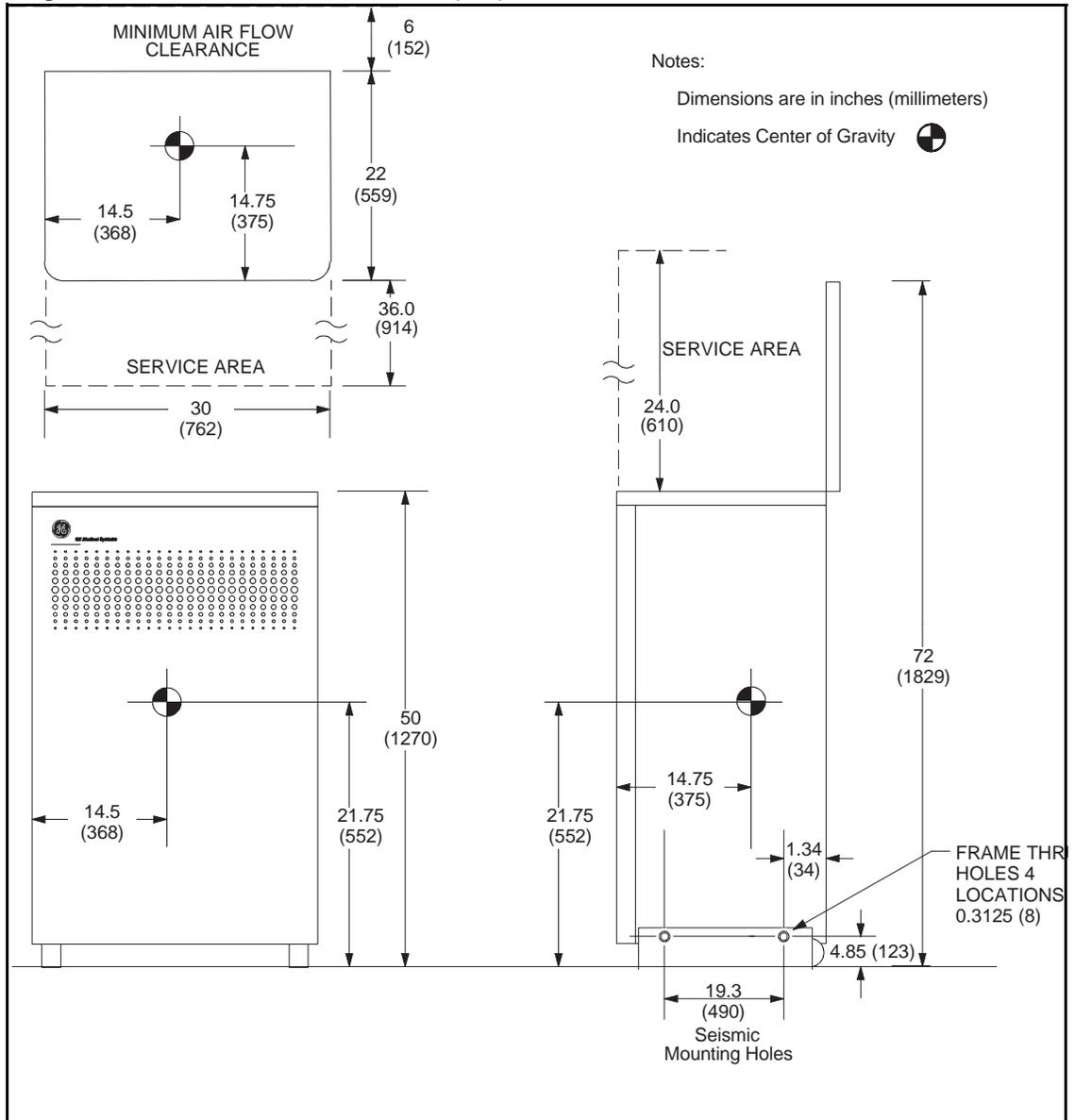


Figure 5-11: Power Distribution Unit (PM)



Note: Mounting brackets are shipped with the Power Distribution Unit.

Figure 5-12: NGPDU-2

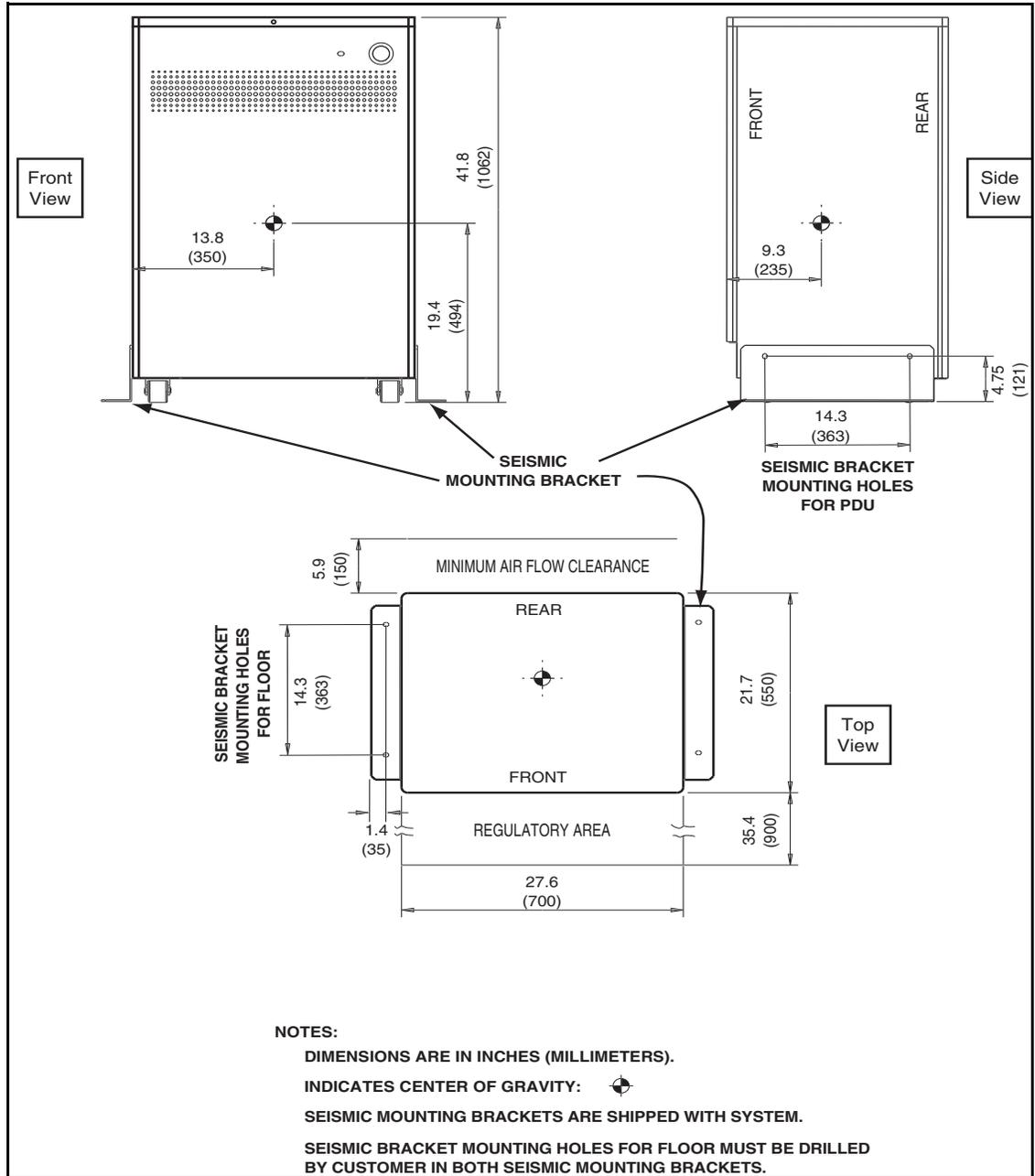


Figure 5-13: Operator's Console / Computer (GRE)

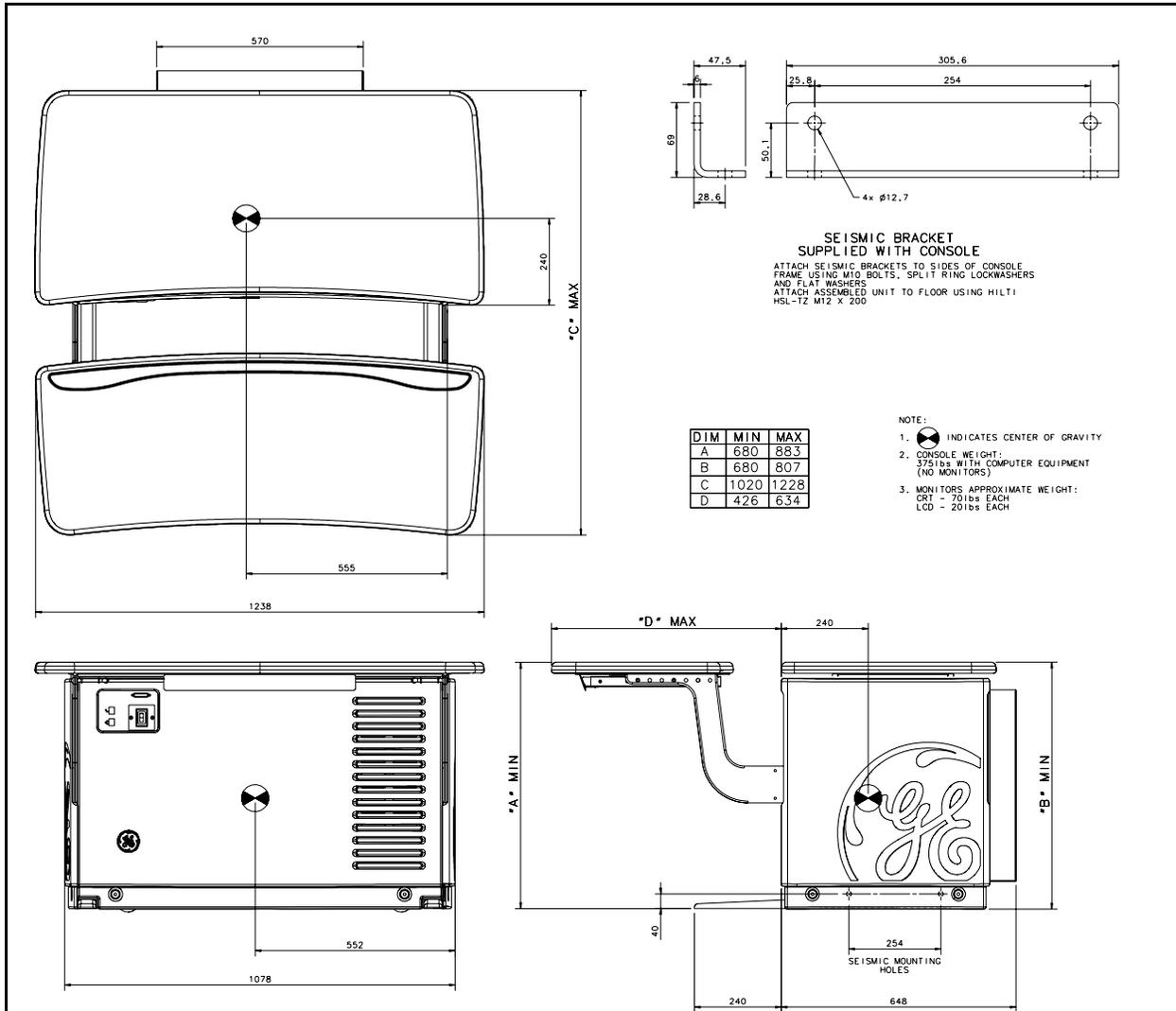


Figure 5-14: Display Host Computer

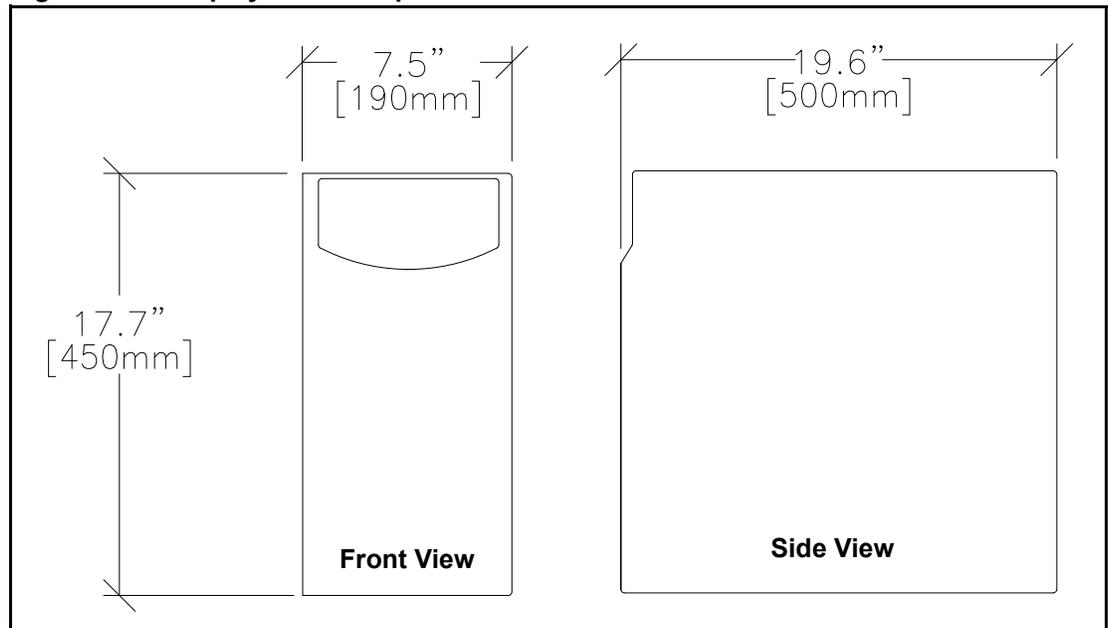


Figure 5-15: GOC4 Operator's Console

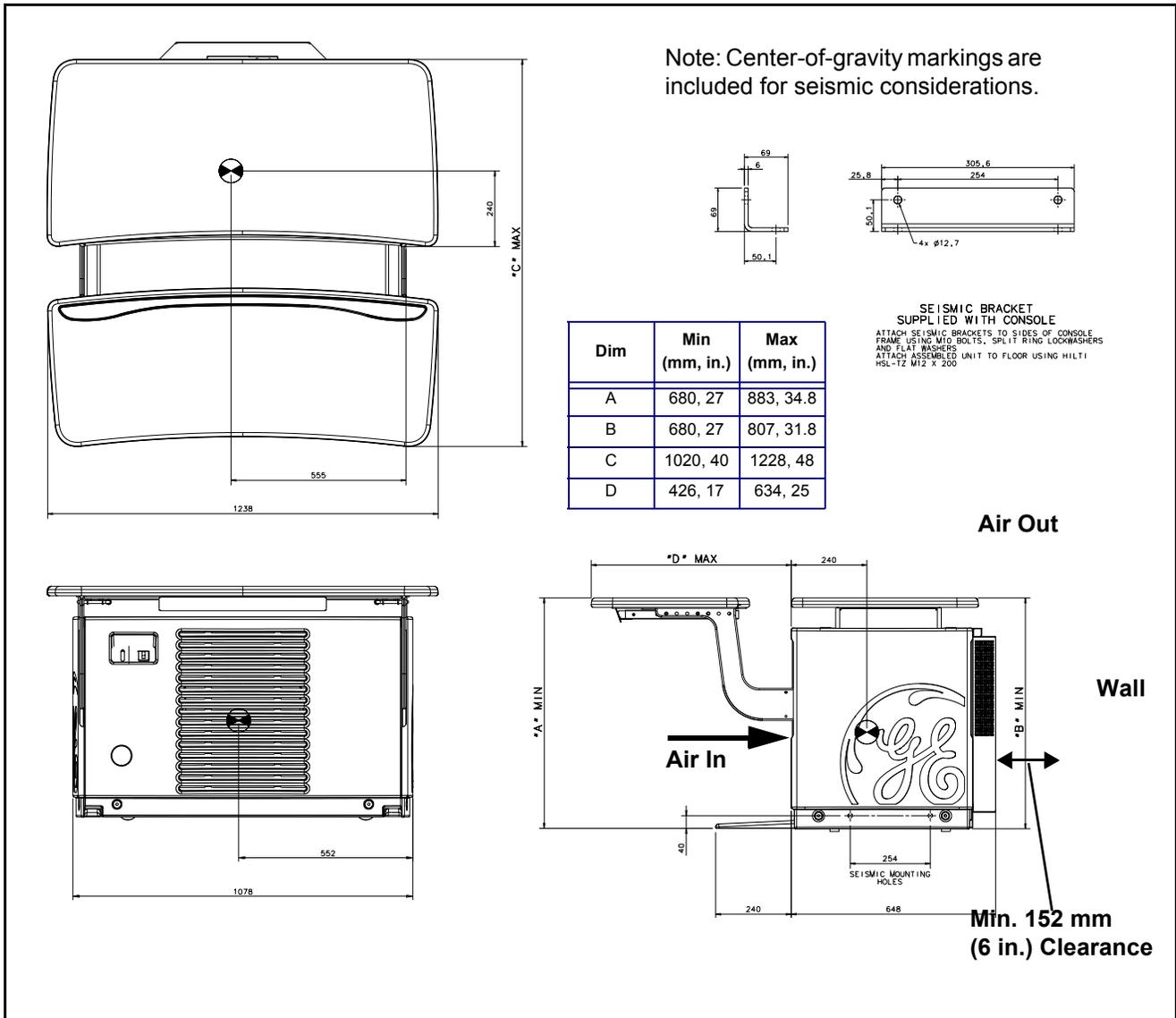
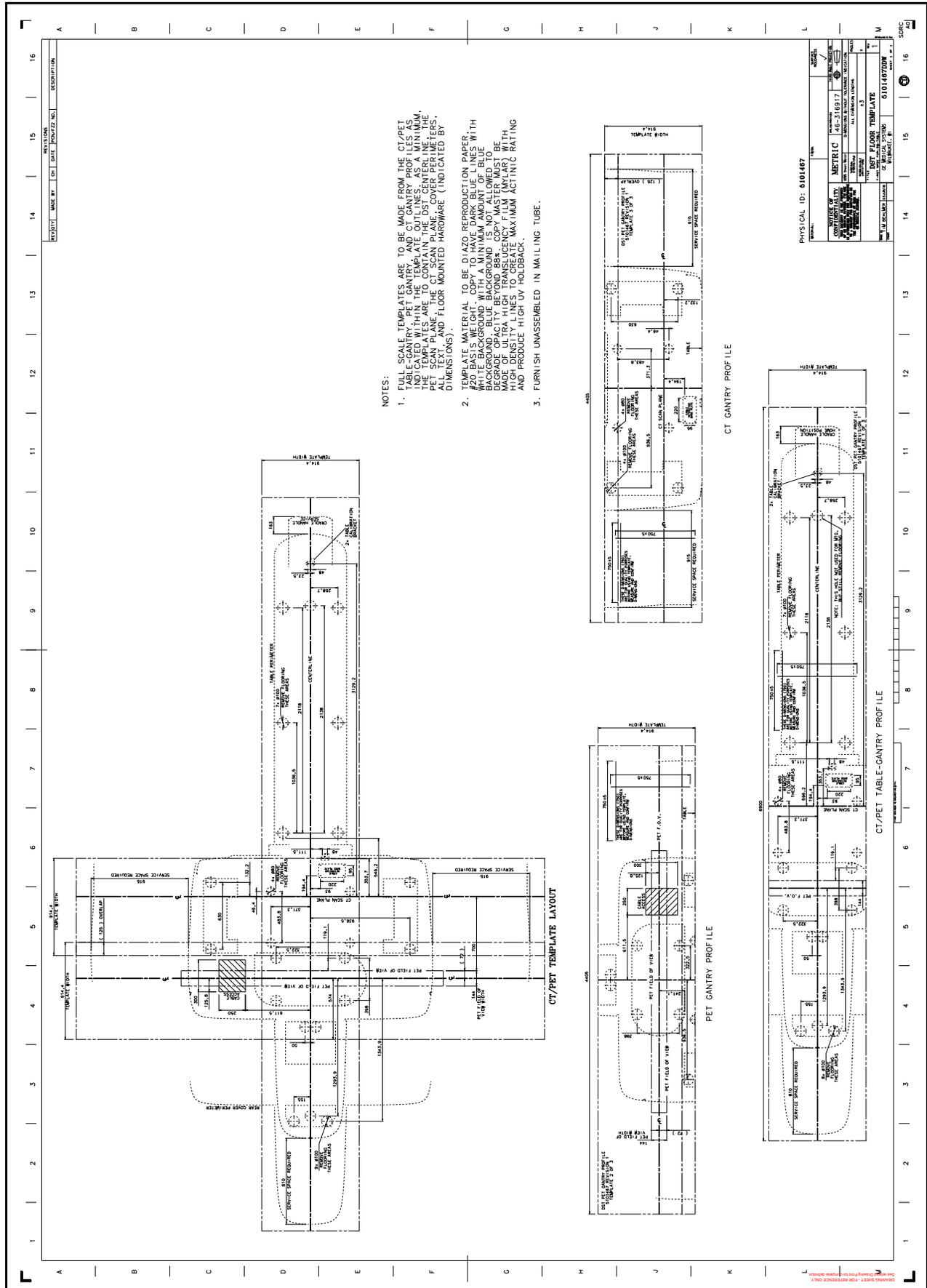


Figure 5-16: Gantry/Table Mounting Dimensions:



Chapter 6 Delivery Data

 **WARNING** SOME ASSEMBLIES ARE TOP-HEAVY. BE CAREFUL NOT TO TIP.

Section 6-1: Van Delivery

The Discovery ST system is packed for van shipment with minimum tear-down of components. It consists of approximately 20 shipping containers which include dollies, skids and boxes without skids.

Section 6-2: Delivery/Shipping Considerations

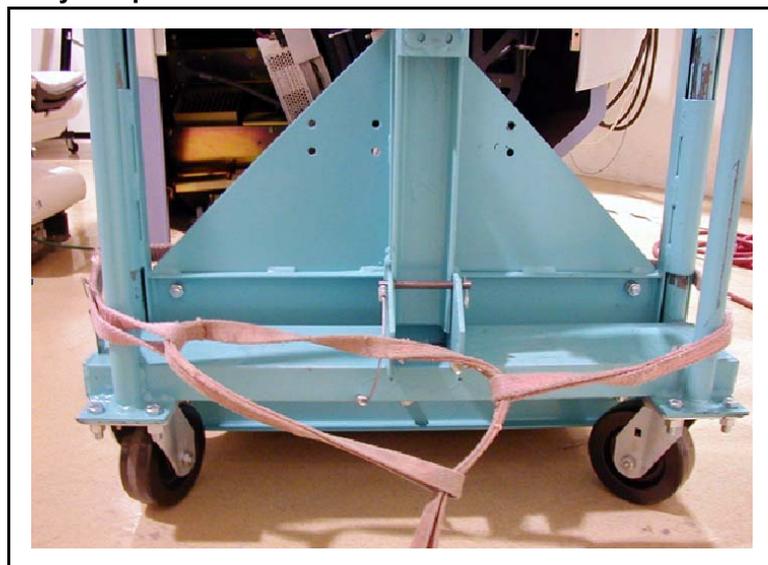
The Discovery ST system is not designed to tolerate excessive mishandling, including dropping, shock, vibration, tipping or hoisting.

The Gantry, Console, Table and PDU must NEVER be dropped. A drop from a height greater than one half inch ($\frac{1}{2}$ ") may induce structural damage to the frame or other major components. Damage resulting from a drop, such as a bent frame, or misalignment, may not be obvious until late in the system installation.

Arrange for Dock to Dock shipment to minimize the chances of damage during delivery. Other delivery methods are acceptable, provided the system is not dropped or mishandled. For example, the system may be transferred from the delivery van to the hospital by a flat-bed roll back truck, or by rolling the subsystems on their dollies across SMOOTH sidewalks or other paved surfaces.

Refer to [Figure 6-1](#). When moving Gantry off of a flat-bed truck, attach the straps to the lowest possible point on the dolly. Lower the Gantry at the slowest reasonable rate.

Figure 6-1: Gantry Strap Location



The Discovery ST System—including the DST Gantry components, Operator Console, Patient Table and PDU—is not designed to tolerate any excessive shock or vibration that may occur during unloading. For example, rolling the Console across a “washboard” style ramp may vibrate components, causing loosened or broken connections, etc. Damage resulting from shock or vibration to the monitors, DVD-ROM, hard-drives or system computers, may not be evident until late in the installation, during the system tests.

All system components must remain upright at all times, and must not be tipped. Do not tip or hoist the DST Gantry components. Move the DST Gantry component by rolling them on their shipping dollies. During transit through hallways, doorways, elevators, etc., do not tip or lift the DST Gantry components.

Section 6-3: Site Environmental Considerations

6-3.1 Dust/Dirt Contamination

The Discovery ST systems (consisting of: Console, PDU, Table and Gantry) are highly susceptible to airborne contaminants, especially concrete and drywall dust. Due to the possibility of contamination, these systems should NEVER be installed in a construction site. Any site with unfinished floors, walls or ceilings is considered a construction site, and is not suitable for system installation.

6-3.2 Chemical Contamination

Wet film processors must never be installed in the same room as the scanner, due to the possibility of chemical contamination of Discovery ST components. Such chemicals can contribute to increased equipment failures, increased system downtime, and decreased reliability. Film processor equipment installation must meet the manufacturer’s requirements (e.g. ventilation specifications) and all applicable national and local codes. Also, consideration should be given to the location of this equipment and chemical fumes relative to human contact as it relates to locating this equipment and chemicals in the control room.

Section 6-4: Crated Deliveries

The Discovery ST system components, including the operator console chair, is packed for air shipment in 6 packages. Total weight of the basic system is 11,869 lbs (5384 kg). It is shipped in wooden crates

Note: The information in [Table 6-1](#) is *estimated*, due to lack of experiential shipping information as of the release date of this document.

Table 6-1: Estimated Crated Delivery Sizes and Weights

Crate #	Height IN (CM)	Width IN (CM)	Depth IN (CM)	Weight LB (KG)
1	87 (221.5)	57.5 (145.5)	97.75 (248)	4533 (2056)
2	80 (203)	38.5 (97.5)	103 (262)	1481 (672)
3	60 (158)	37 (94)	40.5 (103)	953 (432)
4	51 (130)	57.5 (146)	63 (159.5)	992 (450)
5	62 (157.5)	52.75 (134)	53 (134.5)	656 (298)
6	68.5 (174)	53 (134.5)	53 (134.5)	3254 (1476)

Section 6-5: Storage Requirements

If the Discovery ST system is to be stored before installation, store in a warehouse. Protect from weather, dirt and dust. Storage temperature should not exceed -20° to +100° F (-30° to +50° C). Maintain relative humidity (non-condensing) between 0 and 80%. Do not store Discovery ST systems for more than 90 days.

Section 6-6: DST Gantry Considerations

The following DST Gantry components ship on individual sets of dollies:

- The 4, 8 or 16 slice CT Gantry: [Figure 6-2](#)
- The PET Base
- The PET Image Ring
- The PET Trailer

Figure 6-2:CT Gantry with Shipping Dollies and Side Rails



The CT Gantry ships with the DST Front and Rear covers attached to its front and rear cover brackets. During installation, the rear cover is transferred to the PET Gantry, and the rear cover brackets are removed from the CT Gantry. The assembly is mounted between two dollies. Refer to [Figure 6-2](#). Two side rails are bolted to the dollies to stabilize dollies and protect gantry. The dolly elevating casters lift gantry off its base and roll it into position.

Refer to [Table 6-2](#). The minimum hallway and door size for the CT Gantry with covers and dollies attached, but side rails removed, is 42 inches (107 cm).

Table 6-2: CT Gantry and Dollies Dimensions, with and without Side Rails

Configuration	Length IN (CM)	Width IN (CM)	Height IN (CM)
Dollies On, Side Rails On	114 (290)	51 (129)	79 (200)
Dollies On, Side Rails Removed	114 (290)	42 (107)	79 (200)

The PET Gantry consists of the PET Base (Figure 6-3), PET Image Ring (Figure 6-4) and PET Trailer (Figure 6-5). Refer to Figure 6-3. The PET Base dollies have a center stabilizing frame, to protect the exposed base components.

Table 6-3: PET Gantry Dimensions, with and without Dollies

Configuration	Length in (mm)	Width in (mm)	Height in (mm)	Weight lb (kg)
PET Base with Dollies	88.5 (2248)	41.5 (1054)	43.5 (1105)	1430 (649)
PET Base without dollies	64.5 (1639)	41.5 (1054)	10.5 (267)	1070 (485)
PET Image Ring with Dollies	110 (2794)	44 (1118)	73.5 (1867)	2935 (1331)
PET Image Ring without Dollies	81.5 (2070)	36 (914)	73.5 (1867)	2210 (1002)
PET Trailer without Dollies	71.5 (1816)	32.75 (832)	55.5 (1410)	730 (331)
PET Source Ring and Trailer with Dollies	96 (2439)	44 (1118)	55.5 (1410)	1415 (642)

Figure 6-3: PET Gantry Base with Shipping Dollies

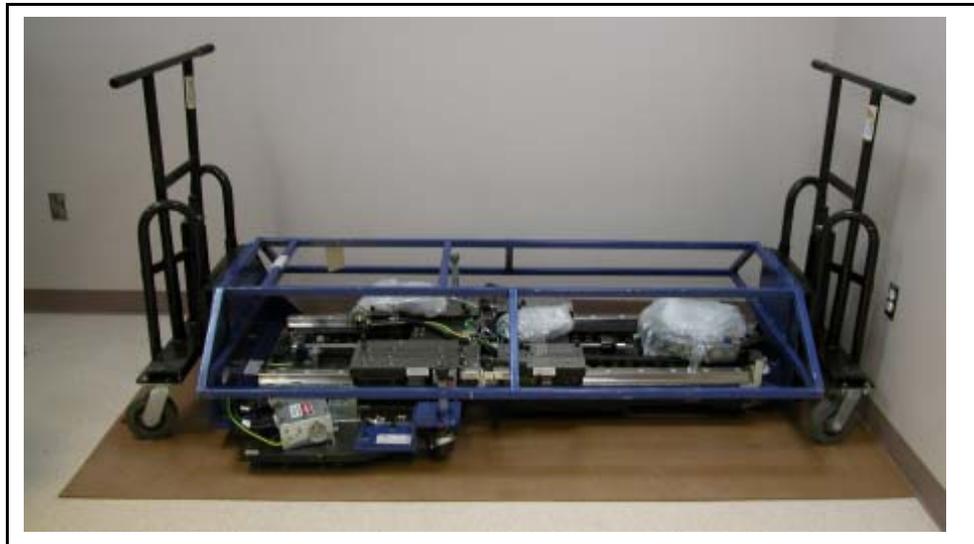
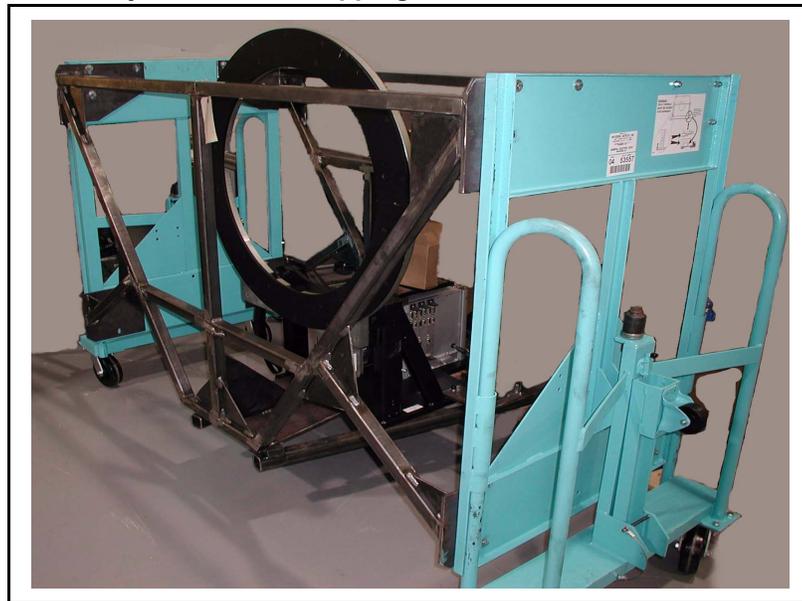


Figure 6-4:PET Gantry Image Ring with Shipping Dollies and Side Rails



Figure 6-5:PET Gantry Trailer with Shipping Dollies and Side Rails

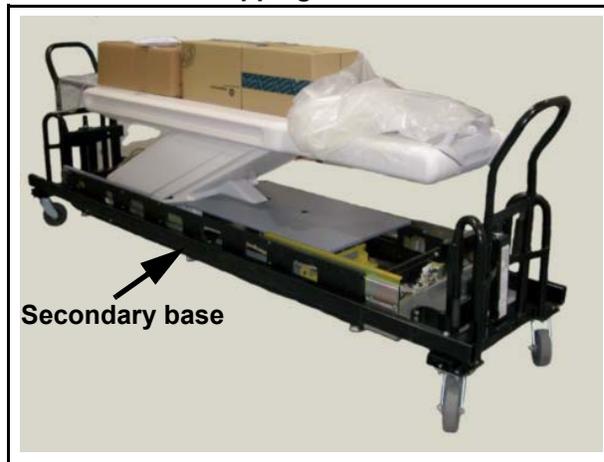


The DST Patient table consists of a CT Patient Table mounted to a secondary base. The Patient Table travels along this secondary base to reach the CT and PET gantry scan locations. Once the entire Patient Table moves into the CT or PET position, the cradle positions the patient within the corresponding scan field of view.

Refer to [Figure 6-6](#). The secondary base covers ship separately. The dimensions in [Table 6-3](#) do not include shipping crates or packaging materials.

Refer to [Figure 6-6](#). The DST Patient Table ships to domestic (North American) installations on a set of dollies with stabilizing side rails.

Figure 6-6: DST Patient Table with Shipping Dollies



Refer to [Figure 6-7](#). The DST Patient Table ships to international sites in a crate. The installation team uncrates the table and attaches the dollies at the site.

Figure 6-7: DST Patient Table on Shipping Pallet



Table 6-4: Size of Table & Dollies

Model	Configuration	Length in (mm)	Width in (mm)	Shipping Height in (cm)	Weight lb (kg)
P5050TT	Dollies On	128 (3251)	30.0 (762)	42 (1067) nominal	1916 (869)
	Dollies Off	110 (2534)	24.7 (627)	41 (1041) nominal	1610 (730)
P5050RT	Dollies On	122 (3100)	37.4 (950)	44.5 (1130) nominal	1323 (600)
	Dollies Off	110 (2794)	37.4 (950)	44.5 (1130) nominal	

6-6.1 Door Openings

Clear door openings for moving equipment into building must be 42 X 82 in. (1067 X 2083 mm) minimum, if there is an 8 ft. (2439 mm) corridor width.

6-6.2 Elevator Requirements

Remember to take the size and capacity of any elevators into consideration when plotting the delivery route through the facility to the installation site. You may have to partially disassemble a dolly in order to fit one of the components into an elevator. For best results, arrange for the use of a surgical elevator, if available.

Contact a representative of elevator manufacturer if a component weight exceeds the elevator capacity.



NOTICE For alternative lifting arrangements and instructions, contact GE Healthcare Installation Support Services.

6-6.3 Dollies

Typically, the Table, and DST Gantry components ship on dollies to domestic installations. The GRE Console ships on a pallet. The installation team has the responsibility to arrange for removal of the dollies from the installation site.

6-6-3.1 North American Installations

When you finish with the dollies, use the shipping document, located in Box #1, to return the dollies to GE Healthcare in Milwaukee, Wisconsin, USA.

6-6-3.2 International Installations

The following Dollies sets can be purchased for international shipments, for use at the customer site. After the system has been removed from the crates, dollies shipped with international shipments remain in the destination country, for local use. Do NOT return any dollies used during installations that take place outside the Americas.

- The International PET-CT Shipping Dolly set, catalog number, P5050ZZ, consists of the following subsystem dolly kits:
 - PET Base dolly: P/N 2312734
 - PET Trailer dolly: P/N 2372735
 - PET Image Ring dolly: P/N2372736
 - CT Gantry dollies: P/N 2282714
 - Table dollies: P/N 5101469



NOTICE If this is a CT to DST upgrade, to take place outside the Americas, order the International CT to DST Upgrade dolly kit, catalog number P5050ZY.

Section 6-7: Operator Console Considerations

The Operator Console ships on a pallet. The PAs remove the keyboard table from the console when they pack it for shipment. The keyboard table ships in the box with the console.

The Operator Console shipping dimensions are 55" (140 mm) long, 39" (99 mm) wide, and 41" (104 mm) high.

- The width changes to 25.5" (65 mm) when the skid is removed.

Two additional boxes ship with the Operator Console:

- The first box shipping dimensions are 71" (180 mm) long, 26.5" (67 mm) wide, and 11" (28 mm) high.
- The second box shipping dimensions are 61" (55 mm) long, 22" (55 mm) wide, and 11" (28 mm) high.

Figure 6-8: DST Operator Console and Display Host

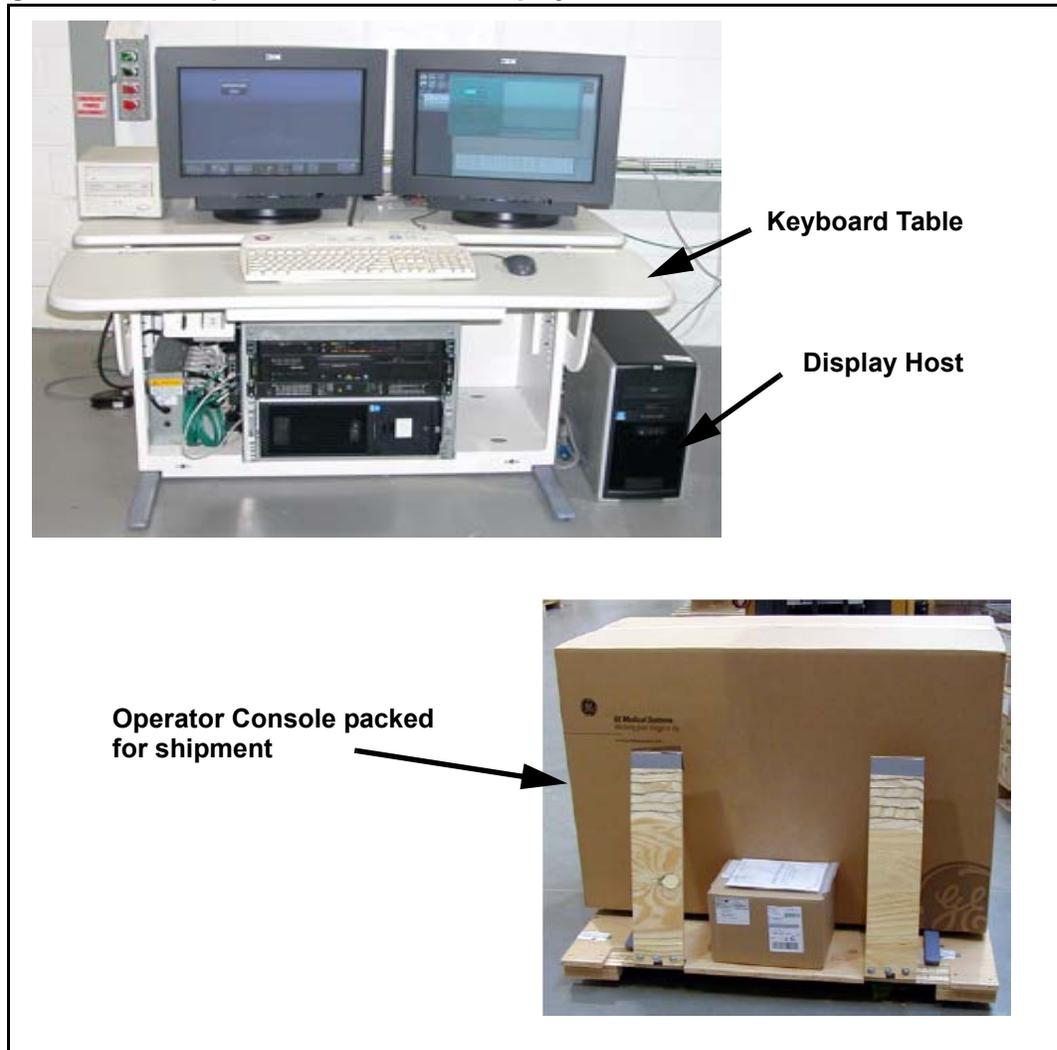
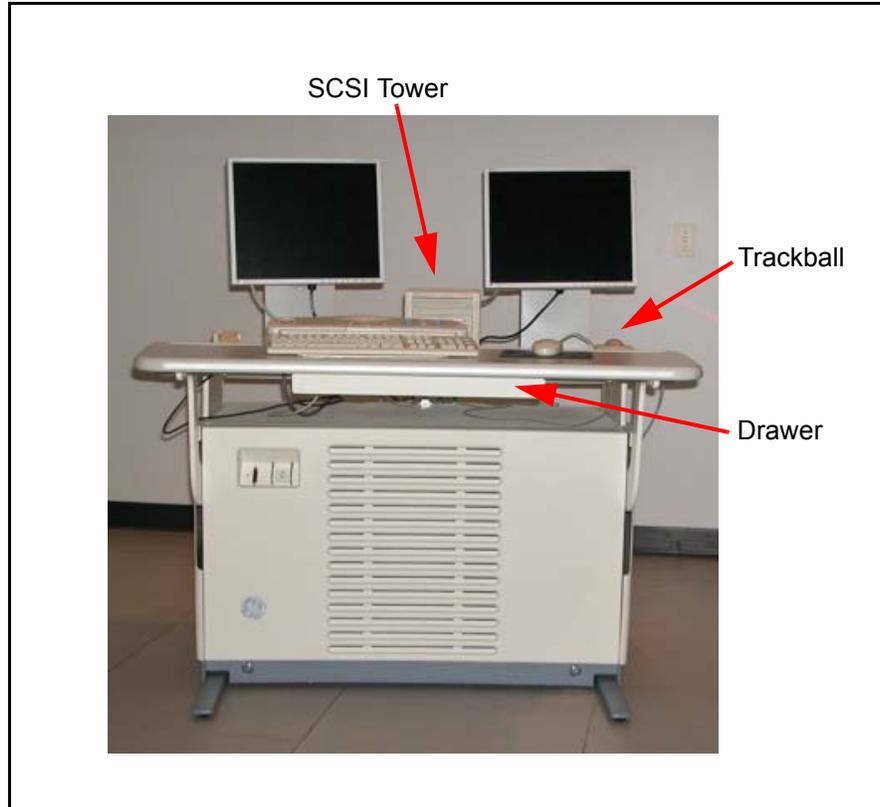


Figure 6-9: GOC4 Operator Console



Notes and Comments:

Chapter 7 Power Requirements

Section 7-1: Introduction

The Power Distribution Unit (PDU) supplied with the Discovery ST systems transforms and distributes power to all system components. The PDU is the only power entry point required to operate the system.

Power wiring between the facility main distribution panel and the PDU should be kept as short as possible. This minimizes voltage regulation effects.

Carefully consider advantages and disadvantages of conduits, floor ducts and surface raceways for running cables. Make cable passageways large enough to install any cable with all other cables already installed.

When routing power cables, all three phase wires and ground must be run in the same conduit or raceway duct-work. Power cables should be routed separately from system control cables (for example, use a separate trough in duct).

Section 7-2: System Input Power

7-2.1 Facility Source

Power to the system should be supplied by a dedicated feeder from the nearest Main Distribution Panel (MDP). A protective disconnect device must be provided in the power line supplying the PDU in accordance with National Electric Code and applicable local codes.

Note:
Lockout/tagout
provision
required

The disconnect device must be located within forty feet of the PDU, visible to PDU service personnel, and must have provision for tagout / lockout. It is identified as "A1" in the interconnection schematic diagrams. The GE part number for the 100 AMP disconnect is P5050RB. Although the Disconnect is included with the system catalog, you may arrange to have this item delivered during the site construction phase.

The rating of the disconnect device depends on the nominal line voltage. It must provide over-current protection and have a low voltage release, with multi-point remote control capability. Refer to [Section 7-3 - page 85](#), for minimum rated capacity requirements and suggested device.

7-2.2 Main Disconnect Control

Customer-supplied emergency off buttons are to be mounted in the PET-CT Room near each exit 60 in. (1424 mm) from the floor and connected to the protective disconnect device in order to disable the power to all Discovery ST system equipment in emergency situations. This button is to be clearly labeled “Emergency Off” and visible to personnel in the PET-CT Room. It is important that the button be labeled “off” and not “stop” since there exists an “Emergency Stop” button in the Discovery ST system that disables output power to the Discovery ST system equipment in the patient area of the PET-CT system. An additional emergency button should be mounted in the computer/equipment room near the exit door.

The main disconnect controller (MDC) must be lockable to meet OSHA requirements for power Lockout/Tagout requirements. The MDC also contains the emergency buttons, the contacts for an interlock to the air-conditioning units in the computer/equipment room, and the interlocks for the UPS interface circuitry.

The Main Disconnect Control Panel must be approved by UL or another nationally recognized testing organization listed and labeled in accordance with 1999 National Electrical Code (NEC) Article 110-2.

7-2.3 Configuration

The Discovery ST systems are designed to operate on three-phase, **four-wire** wye power. A ground referenced wye source produces the lowest leakage currents and is preferred. However, the neutral wire does not need to be run to the system, i.e., four-wire connection. (A dummy terminal is provided for ‘parking’ the neutral wire in the event a five-wire service is already installed at the site.)

7-2.4 PDU Rating

Table 7-1: Rating Table for PDU (P5050RD)

Specification	Acceptable Range
Voltage	380 to 480 VAC (see note, below)
Capacity	90 KVA momentary 20 KVA average
Frequency	50 or 60 Hz (47 to 53 or 57 to 63 Hz)

Note: The absolute range of line voltage at the input to the PDU must remain within one of the ranges shown in [Figure 7-2](#) at all times.

7-2.5 Regulation

The size of the facility transformer and feeder wires determine load regulation presented to the system. Total load regulation as measured at the PDU input terminals must not exceed 6%.

7-2.6 Phase Imbalance

The difference between the highest line-to-line voltage and lowest line-to-line voltage must not exceed 2% of the lowest line-to-line voltage.

7-2.7 Sags, Surges & Transients

Sags and surges of the power line must not exceed the absolute range limits shown in [Figure 7-2](#).

Limit maximum transient voltage to 1500V peak.

7-2.8 Microcuts

The Discovery ST systems are generally unaffected by microcuts.

7-2.9 Grounding

The ground to the PET-CT system shall originate at the system power source, (i.e., transformer or first access point of power into a facility) and be continuous to the PET-CT system power disconnect in the room. **A dedicated 1/0 (55mm²) or larger insulated copper ground wire must be run with the phase wires from the main distribution panel to the PDU.** These grounds can be spliced with “High Compression Fittings” and should be terminated at each distribution panel it passes through. When the ground is broken for a connection to a panel, it shall be connected into an approved non-insulated grounding block with the incoming and outgoing ground in this same grounding block, which is then connected to the steel panel, never using the steel or other material of the panel as the block.

The resistance between the PDU ground and the facility earth ground must not exceed 0.5 ohm. In addition, the total resistance between the PDU ground and **earth must not exceed 2 ohms.** Resistance between any two grounded devices must not exceed 0.1 ohm to ensure equal potential ground system within the PET-CT Room.

Section 7-3: Recommended Power Distribution System

A single-unit installation where the distribution transformer and feeder are dedicated to the Discovery ST system is recommended. In this case, the minimum recommended transformer size is 112.5 KVA, rated 3.2% regulation at unity power factor. The minimum recommended feeder size and over-current protection device ampacity based on line voltage is shown in [Figure 7-2](#).

- Maximum power demand = 90 kVa @ 0.85 PF at a technic of 140 kV, 380 mA.
- Average (continuous) power demand at maximum duty cycle = 20 kVa.
- Maximum allowable total source regulation = 6%

Table 7-2: Facility Power Requirements.

Catalog >	P5050RD (Discovery ST PDU)					
Nominal Line Voltage (VAC)	380	400	420	440	460	480
Voltage Range (VAC) +/- 8%	350-410	368-432	386-454	405-475	423-497	442-518
Average Line Current (A)	30	29	27	26	25	24
Momentary Line Current (A) @ Nominal Line Voltage	137	130	124	118	113	108
Maximum Line Current (A) @ Low Line Voltage	149	141	135	128	123	117
Primary Disconnect Device (A1) Over-current Protection (A) ⁶	110	110	110	110	110	110
Feeder Length (MDP to A1) ¹						
0-100 ft (0-30.5 m)	2 (35) ³	2 (35) ³	2 (35) ³	2 (35) ³	2 (35) ³	2 (35) ³
100-250 ft (30.5-76 m)	1 (45) ³	2 (35) ³	2 (35) ³	2 (35) ³	2 (35) ³	2 (35) ³
251-300 ft (77-91 m)	2/0 (70) ³	1/0 (55) ³	1/0 (55) ³	1 (45) ³	1 (45) ³	2 (35) ³
301-350 ft (92-106 m)	3/0 (85) ³	2/0 (70) ³	2/0 (70) ³	1/0 (55) ³	1/0 (55) ³	1 (45) ³
351-400 ft (107-122 m)	3/0 (85) ³	3/0 (85) ³	2/0 (70) ³	2/0 (70) ³	1/0 (55) ³	1/0 (55) ³
Sub-Feeder Length (A1 to PDU) 0-40 ft (0-12 m)	1 (45) ²	2 (35) ²	2 (35) ²	3 (30) ²	3 (30) ²	3 (30) ²
Notes:						
1.) The feeder table above is based on the use of copper wire, rated 75C and run in steel conduit. Wire size is in AWG (mm ²). Ampacity is determined in accordance with the National Electric Code (NFPA 70), Table 310-16 (1999).						
2.) The wire size shown is the minimum allowable for the specified over-current protection rating.						
3.) The feeder is sized to contribute 2.4% maximum regulation.						
4.) A minimum 1/0 (55 mm ²) ground wire is required.						
5.) A neutral wire is not required and, if present, is not used.						
6.) The Primary Disconnect (A1) must have provision for tagout/lockout.						

- If the Discovery ST system must be powered from an existing distribution transformer and secondary feeder, such as the equipment distribution panel of an X-ray department, installation with other X-Ray equipment which use rapid film changers should be avoided. These changers use a large number of high powered, closely spaced exposures which may coincide with a PET-CT scan and produce image artifacts.

In all cases, qualified personnel must verify that the transformer and feeder, at point of take-off, plus the run to Discovery ST meets all the requirements.

Power Systems for X-Ray Rooms, Direction 46-013833, is available for additional information on power requirements for X-ray systems.

Section 7-4: Uninterruptable Power Supplies (UPS)

Uninterruptable Power Supplies (UPS) are recommended for areas or sites with known power issues. Consult your local power provider for power quality data in your area. UPS is standard equipment on all mobile units. Filter and surge protectors are not needed with Discovery ST systems. For use with Discovery ST Systems, the PowerWare 9330 UPS (catalog number P5051PS) is recommended. For DST w/ Gold Seal LightSpeed, consult with your sales person.

Section 7-5: Power Audit

A site power audit is required for the Discovery ST family of products. This site power audit can be arranged with the GE Power Quality team, or through your sales person.

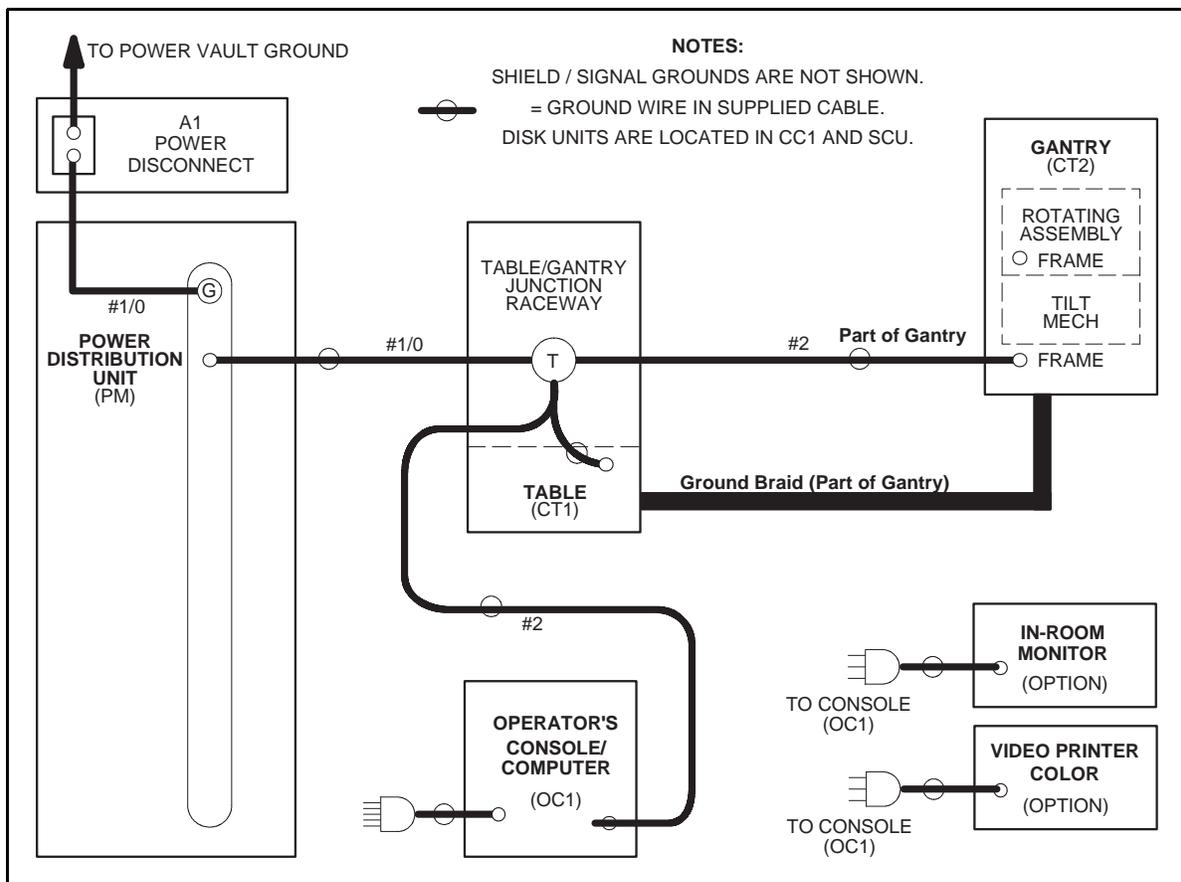
Section 7-6: Ground System

The Discovery ST uses an equal potential grounding system. The required ground system is shown in Figure 7-1. There are three primary grounding points:

- A system power ground point located in the PM (Power Module).
- A reference ground point located between gantry and table base. All exposed metal surfaces in patient vicinity are grounded to the reference ground point
- A patient ground point located at the front of the table base.

For additional information, refer to Electrical Safety Equipment, Direction **46-014505**.

Figure 7-1: System Ground Map



Chapter 8 Interconnection Data

Section 8-1: Introduction

Figure 8-3 shows interconnection runs for a 50/60 Hz system.

Table 8-1 shows component designators for supplied equipment and options and wall power outlets.

Table 8-5 lists customer-installed wiring and supplied cables. Actual length of each run is less than the length of supplied cables to allow for routing inside equipment. Cable diameters and sizes of connectors are provided to aid in sizing conduit and access plates.

Table 8-3 and Table 8-5 list details for connection to Discovery ST equipment, using standard (short) length and non-standard (long) length cables, respectively. Details are listed for the following types of runs as appropriate:

• Flush-floor duct	
• Computer floor	• Through-floor duct
• Through-wall bushing	• Wall duct
• Junction box	• Conduit

Need for additional junction boxes is minimized by use of either a cable raceway system or a raised computer floor. Discovery ST use prefabricated cables with large plugs. Therefore, conduit or pipe is not recommended for cable runs.

Section 8-2: Component Designators

Table 8-1: Component Designators

Designator	Applies To	Source
A1	Primary power disconnect	Contractor supplied
CT1	Patient table	System
CTPT CT2 PT1	Gantry - CT - PET	System
ITL	InSite telephone lines	Contractor supplied
LP	Line printer	Option
OC1	Operator's console/computer	System
OC2	PET Host Computer Cabinet	System
PM	Power distribution unit	System
SEO	System emergency off	Contractor supplied
SM	Slave monitor	Option
WL	"X-Ray on" warning light	Contractor supplied
DS	Door Interlock Switch	Contractor supplied
XCVR	Ethernet transceiver	System

Section 8-3: Interconnect Runs, Wiring and Cables

8-3.1 GEMS Supplied Cables

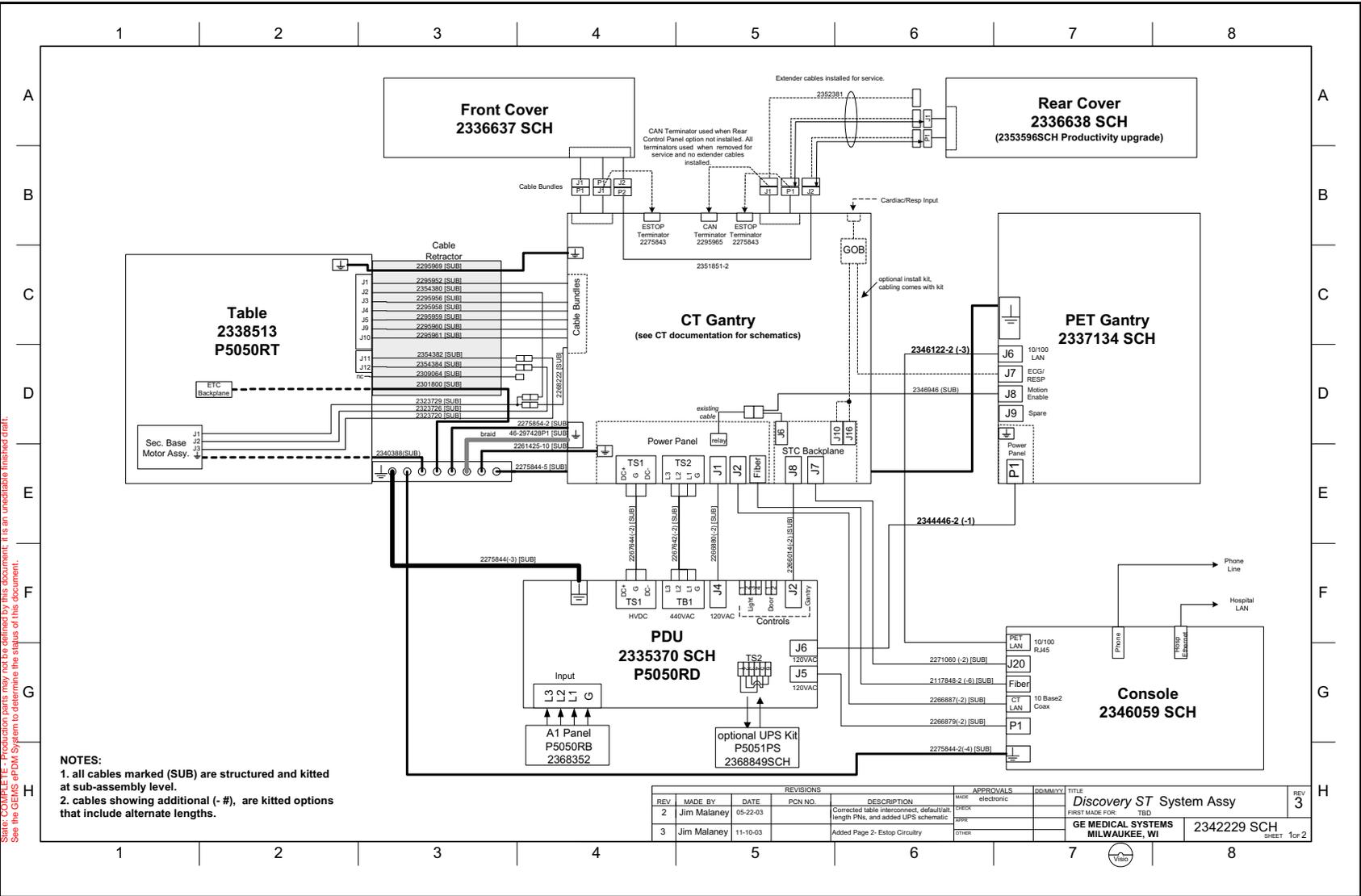
Table 8-2 Short Length Run (Optional) Cables

Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information							Pull Size mm (Inches)	
	ft	m			UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (inch)	# of Cond		Size AWG
1	43 (35)	13.2 (10.67)	2275844-3	Ground - PDU to CT1	1284	VW-1 (FT-1)	600	0	105	15.5 (.608)	1	1/0	15.8 (0.62) Dia
	43 (35)	13.2 (10.67)	2267642-2	HVDC - PDU to CT2	2587	FT-4	600	± 350 VDC	90	19.0 (.751)	2	6	19.8 (0.78) Dia
	40 (35)	12.3 (10.67)	2266880-2	Power - PDU to CT2	2587	FT-4	600	208Y/120	90	13.8 (.542)	5	8	56.4 (2.22) Dia
	42 (35)	12.9 (10.67)	2267644-2	HVDC - PDU to CT2	Flexible Motor Supply Cable	FT-4 TC	1000	440Y/254	90	15.3 (.604)	4	12	16.8 (.66) Dia
	43 (35)	13.2 (10.67)	2344446-2	Power - PDU to PT-1	2587	FT-4	600	208Y/120	90	13.8 (.542)	5	8	56.4 (2.22) Dia
2	55 (50)	16.9 (15.24)	2266879-2	Power - PDU to OC1	2587	FT-4	600	208Y/120	90	12.3 (.483)	4	10	56.4 (2.22) Dia
	58 (50)	17.8 (15.24)	2275844-4	Ground - PDU to OC1	1283	VW-1 (FT-1)	600	0	105	11.9 (.467)	1	2	12.2 (.48) Dia
3	43 (35)	13.2 (10.67)	2266014-2	Signal - PDU to Gantry STC	UL	FT-4	300	<30VDC	80	13.3 (.525)	37	22	20 x 75 (.78 x 2.95) 20 x 51 (.79 x 2.01)

Section 8-3 - : Interconnect Runs, Wiring and Cables

Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information								Pull Size mm (Inches)
					UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (Inch)	# of Cond	Size AWG	
	ft	m											
4	58 (50)	17.8 (15.24)	2271060-2	Signal - Console to Gantry STC (CT2)	UL	FT-4	300	<30VDC	80	11.2 (.440)	25	22	17 x 58 (.68 x 2.30) 19 x 51 (.75 x 2.01)
	55 (50)	16.7 (15.24)	2266887-3	Signal - LAN Console to CT2	UL (RG-223/U)	FT-4	1900	<30VDC		5.9 (.234)	1	19	15 (.59) Dia
	55 (50)	16.9 (15.24)	2117848-6	Fiber Optic - Console to CT2			NA	NA			1	NA	10 (.39) Dia
	55 (50)	16.9 (15.24)	2215028-10	Signal - LAN Console to PT-1	CAT 5	FT-4	1900	<30VDC		5.9 (.234)	1	19	15 (.59) Dia

Figure 8-1: System Interconnect Diagram 2342229 SCH REV3



8-3-1.1 Standard Length Run (Long) Cables

Table 8-3: Standard (Long) Length Cables (Supplied by GE Healthcare)

Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information								Pull Size mm (Inches)
					UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (inch)	# of Cond	Size AWG	
	ft	m											
1	63 (55)	19.3 (16.76)	2275844	Ground - PDU to CT1	1284	VW-1 (FT-1)	600	0	105	15.5 (.608)	1	1/0	15.8 (0.62) Dia
	63 (55)	19.3 (16.76)	2267642	HVDC - PDU to CT2	2587	FT-4	600	± 350 VDC	90	19.0 (.751)	2	6	19.8 (0.78) Dia
	60 (55)	18.5 (16.76)	2266880	Power - PDU to CT2	2587	FT-4	600	208Y/120	90	13.8 (.542)	5	8	56.4 (2.22) Dia
	62.5 (55)	19.0 (16.76)	2267644	HVDC - PDU to CT2	Flexible Motor Supply Cable	FT-4 TC	1000	440Y/254	90	15.3 (.604)	4	12	16.8 (.66) Dia
	60 (55)	18.5 (16.76)	2344446	Power - PDU to PT-1	2587	FT-4	600	208Y/120	90	13.8 (.542)	5	8	56.4 (2.22) Dia
2	80 (75)	24.5 (22.86)	2266879	Power - PDU to OC1	2587	FT-4	600	208Y/120	90	12.3 (.483)	4	10	56.4 (2.22) Dia
	83 (75)	25.5 (22.86)	2275844	Ground - PDU to OC1	1283	VW-1 (FT-1)	600	0	105	11.9 (.467)	1	2	12.2 (.48) Dia
3	63 (55)	19.3 (16.76)	2266014	Signal - PDU to Gantry STC	UL	FT-4	300	<30VDC	80	13.3 (.525)	37	22	20 x 75 (.78 x 2.95) 20 x 51 (.79 x 2.01)

Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information								Pull Size mm (Inches)
	ft	m			UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (inch)	# of Cond	Size AWG	
4	83 (75)	25.5 (22.86)	2271060	Signal - Console to Gantry STC (CT2)	UL	FT-4	300	<30VDC	80	11.2 (.440)	25	22	17 x 58 (.68 x 2.30) 19 x 51 (.75 x 2.01)
	80 (75)	24.3 (22.86)	2266887	Signal - LAN Console to CT2	UL (RG-223/ U)	FT-4	1900	<30VDC		5.9 (.234)	1	19	15 (.59) Dia
	80 (75)	24.3 (22.86)	2117848	Fiber Optic - Console to CT2			NA	NA			1	NA	10 (.39) Dia
	80 (75)	24.3 (22.86)	2215028-10	Signal - LAN Console to PT-1	CAT 5	FT-4	1900	<30VDC		5.9 (.234)	1	19	15 (.59) Dia

8-3-1.2 DST w/ Gold Seal LightSpeed Standard Length Run (Long) Cables

Table 8-4: Standard (Long) Length Cables (Supplied by GE Healthcare)

Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information								Pull Size mm (Inches)
	ft	m			UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (inch)	# of Cond	Size AWG	
1	43 (35)	13.2 (10.67)	2371450	PDU to Raceway Ground	1284	VW-1 (FT-1)	600	0	105	15.5 (0.608)	1	1/0	15.8 (0.62) Dia
	28 (20)	8.5 (6.1)	2343529	HVDC - PDU to Gantry	2587	FT-4	600	± 350 VDC	90	19.0 (0.751)	3	(2)4 1(8)	22 (0.87) Dia
	28 (20)	8.5 (6.1)	2343528	Power - PDU to Gantry 120VAC	2587	FT-4	600	208Y/120	90	13.8 (0.542)	5	8	56.4 (2.22) Dia
	28 (20)	8.5 (6.1)	2343530	HVDC - PDU to Gantry	Flexible Motor Supply Cable	FT-4	600	440Y/254	90	15.3 (0.604)	4	14	11.2 (0.44) Dia
			5124157-2	Power - PDU to PT-1									
2	65 (60)	19.8 (18.3)	2343531	Power - PDU to Console	2587	FT-4	600	208Y/120	90	12.3 (0.483)	4	10	56.4 (2.22) Dia
3	63 (55)	19.3 (16.76)	2266014	Signal - PDU to Gantry STC	UL	FT-4	300	<30VDC	80	13.3 (.525)	37	22	20 x 75 (.78 x 2.95) 20 x 51 (.79 x 2.01)

Section 8-3 - : Interconnect Runs, Wiring and Cables

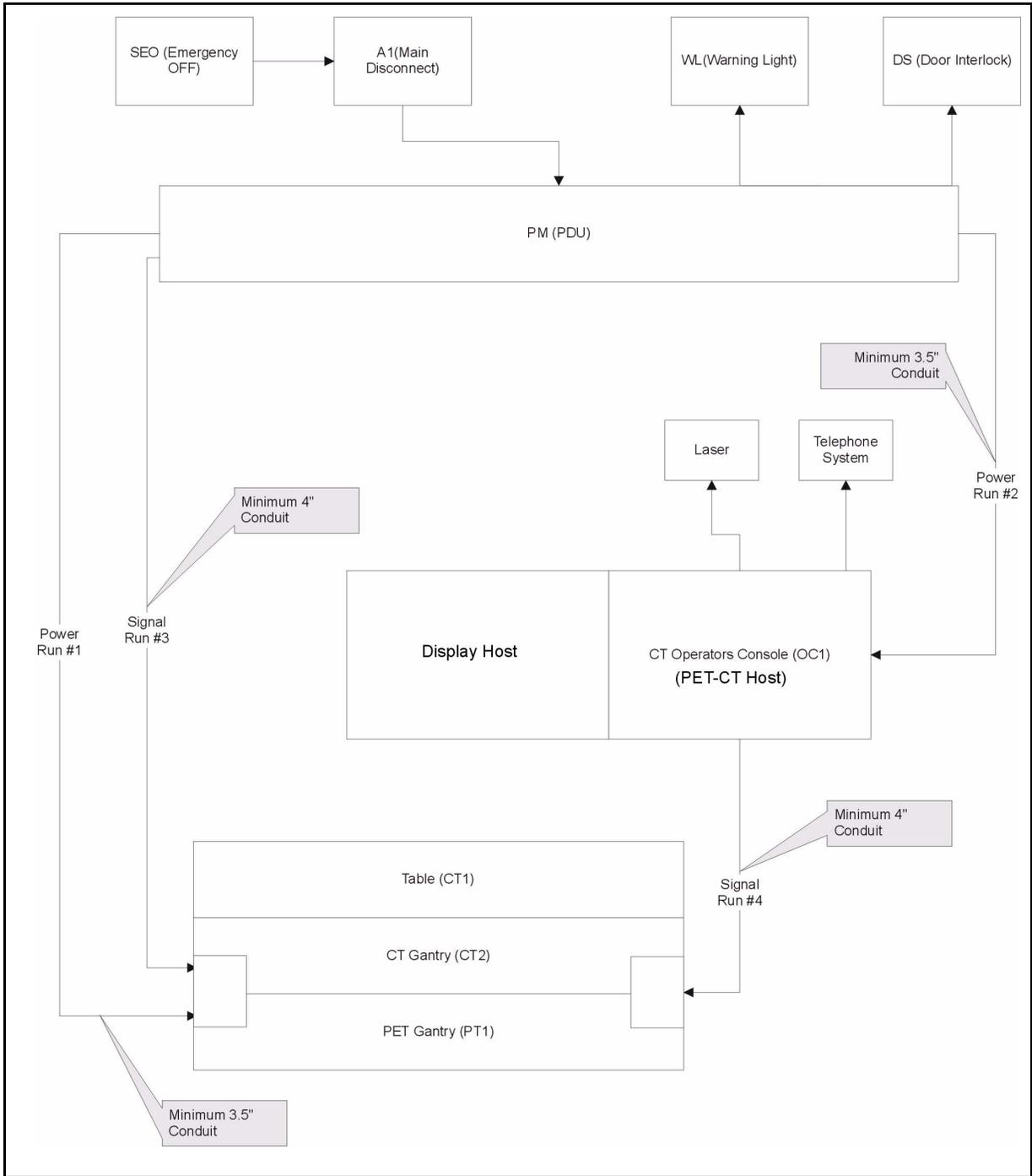
Run #	Length, Actual (Usable)		Part #	Description	UL Cable Information								Pull Size mm (Inches)
	ft	m			UL Style	Flammability Rating	Voltage Rating	Voltage Actual	Temp. Rating (C)	Dia. mm (inch)	# of Cond	Size AWG	
4			2371450-3	Console to Raceway Ground									
	83 (75)	25.5 (22.86)	2271060	Signal - Console to Gantry STC (CT2)	UL	FT-4	300	<30VDC	80	11.2 (.440)	25	22	17 x 58 (.68 x 2.30) 19 x 51 (.75 x 2.01)
	80 (75)	24.3 (22.86)	2266887	Signal - LAN Console to CT2	UL (RG-223/U)	FT-4	1900	<30VDC		5.9 (.234)	1	19	15 (.59) Dia
	80 (75)	24.3 (22.86)	2117848-2	Fiber Optic			NA	NA			1	NA	10 (.39) Dia
			5212250	Respiratory - Gantry to Console room									
	80 (75)	24.3 (22.86)	2373436-2	Gantry to Console LAN	UL (RG-223/U)	FT-4	1900	<30VDC		5.9 (0.234)	1	19	15 (0.59) Dia
	100 (25)	30.8 (7.62)	5199717	Signal - Cable-Gantry to RPM unit	UL	FT-4	300	<15VDC		5.9 (0.234)	4	22	15 (0.59) Dia

8-3.2 Contractor (Customer) Supplied

Table 8-5: Connections to Runs 1, 2, 3, 8 and 9 (Supplied by Contractor)

Customer Installed Wiring		Description	Cables Supplied			Plug Pulling Dimensions		Wire & Cable Pigtails ft. (m)	
Qty	Size AWG (mm ²)		Part No	Length ft. (m)	DIA. in (mm)	From	To	From	To
RUN NO. 1 FROM PRIMARY POWER SOURCE TO FACILITY DISCONNECT (POWER SOURCE - A1)									
Maximum Run Length *									
3	*	POWER						3 (1)	3(1)
1	1/0 (50)	GROUND						3 (1)	3 (1)
1	*	NEUTRAL						3 (1)	3 (1)
RUN NO. 2 FROM FACILITY DISCONNECT TO POWER MODULE (A1 - PM) MAXIMUM RUN LENGTH *									
3	*	POWER						3 (1)	3(1)
1	1/0 (50)	GROUND						3 (1)	3 (1)
1	*	NEUTRAL						3 (1)	3 (1)
RUN NO. 3 FROM FACILITY DISCONNECT TO SYSTEM EMERGENCY OFF (A1 - SEO)									
2	14 (2)	POWER						6 (2)	6 (2)
1	14 (2)	GROUND						6 (2)	6 (2)
RUN NO. 8 POWER MODULE TO WARNING LIGHT CONTROL (PM - WL)									
2	14 (2)	WARNING LIGHT 24 VOLT CONTROL A3J2-1,2,3,4							
RUN NO. 9 POWER MODULE TO SCAN ROOM DOOR INTERLOCK (PM - DOOR SWITCH)									
2	14 (2)	SCAN ROOM DOOR INTER LOCK A3J6-1,2							
*	REFER TO FOR AWG (MM2) WIRE SIZES.								

Figure 8-3: Cable Interconnect Runs



Section 8-4: Contractor Supplied Components

Reference	Associated Equipment	Material/labor Supplied By Customer Contractor	Use Vendor / Cat No. GE Catalog
A1 (50-60 Hz)	Main Disconnect Control (MDC)	480VAC, Surface or Flush Mount, On/Off Control	Main Disconnect Control, 480VAC, Surface Mount with Flush Mount Kit included, two remote Push Button Switches. (Catalog No. P5050RB)
ITL	In-suite Broadband/ Telephone Lines (Recommended) Voice Grade Analog Telephone Lines (Alternative)	<p>Broadband: To take maximum advantage of the GE Service remote diagnostic and services capabilities, a network connection (CAT 5) with internet access is preferred. This allows GE Healthcare to better provide service and even perform proactive maintenance on your GE system. For additional remote diagnostic and services information, please contact the GE Healthcare Service or Sales representative.</p> <p>Telephone: If an on site LAN connection is not available, a voice grade analog telephone line will allow GE to connect to your system through a dedicated modem, with some limited capabilities due to bandwidth restrictions.</p> <p>Supply two voice-grade telephone lines, one for the scan room and one for the dedicated modem. The dedicated modem line must be a direct number from outside the facility – do not route this line through a telephone switchboard. Telephone line operating charges are paid by the customer.</p>	
	System Components	Reference the system installation drawings supplied by the local area GE Healthcare Installation Support team	

Section 8-5: UPS Interconnect

Figure 8-4: Typical PowerWare UPS

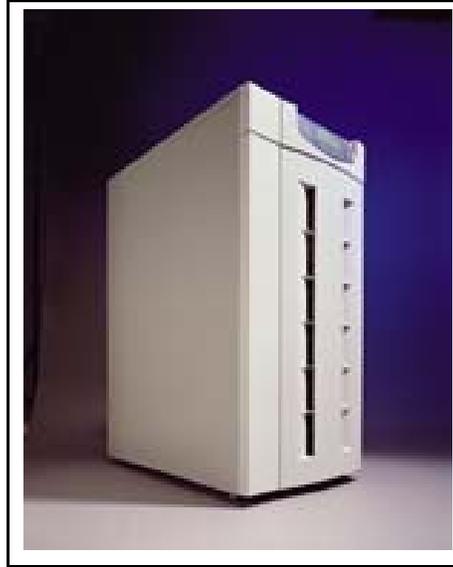


Figure 8-5: Typical UPS Interconnect

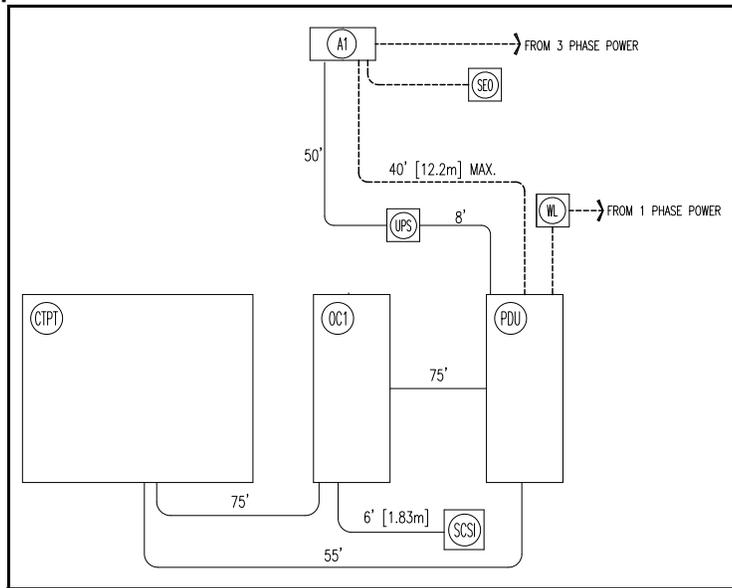


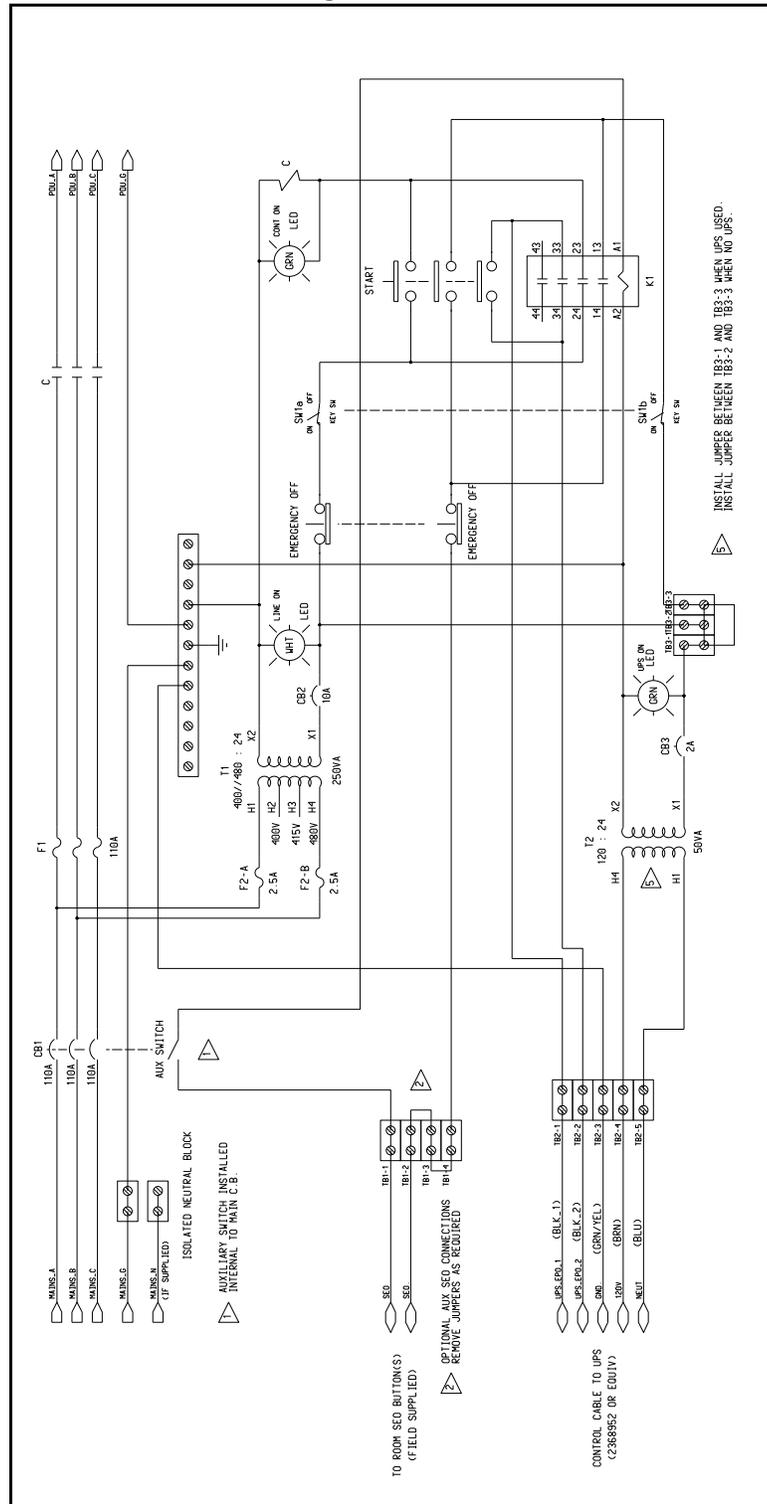
Table 8-6: PowerWare UPS Part Numbers

UPS		Options	
Part Num	Description	Part Num	Description
P5051PS	Powerware 9330 Un-interruptible Power Supply for Discovery ST system.		

Section 8-6: Typical Customer Supplied Wiring

8-6.1 Primary Power Disconnect

Figure 8-6: Primary Power Disconnect (A1) –
 Fusible Disconnect and Magnetic Contactor



8-6.2 Scan Room Warning Light & Door Interlock

Figure 8-7: Typical Customer Supplied Scan Room – Warning Light Connection

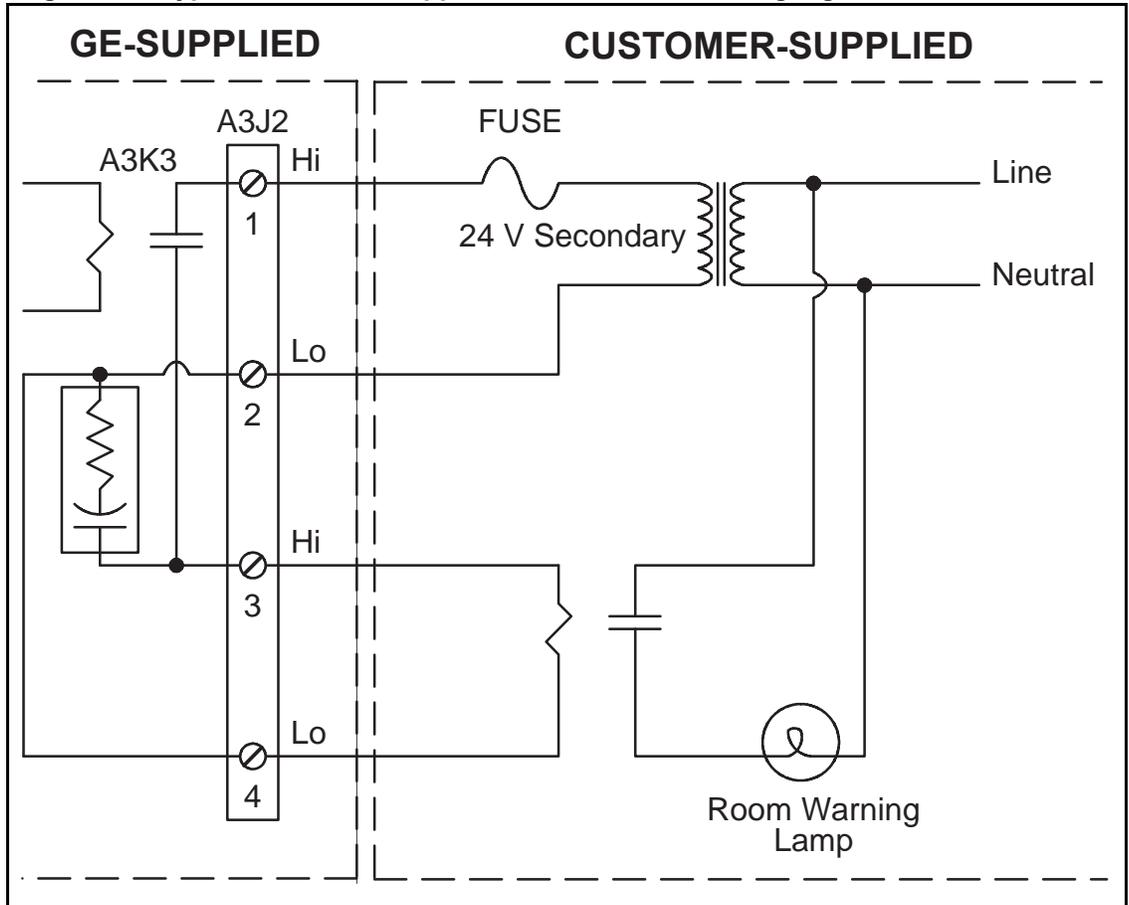
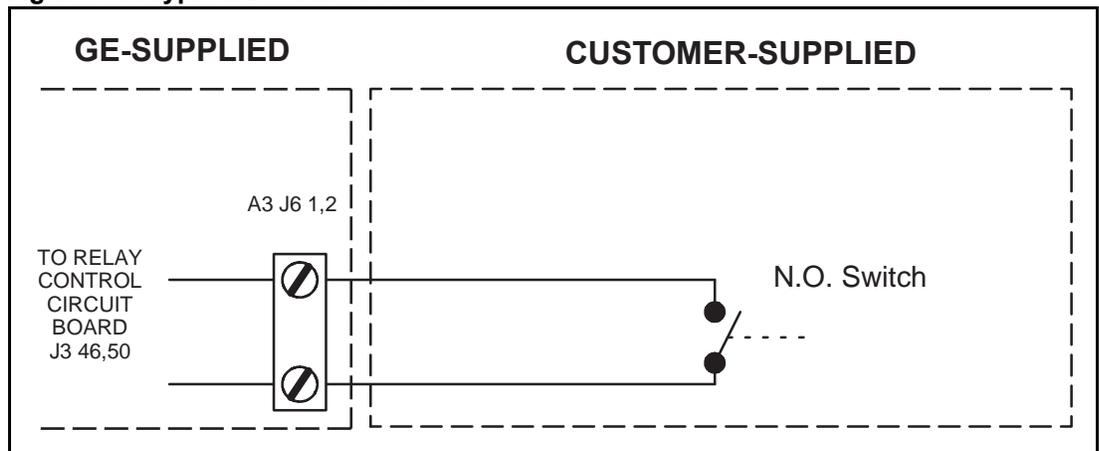


Figure 8-8: Typical Door Interlock



Chapter 9 Site Readiness Review

Section 9-1: Overview

For best results, complete all site readiness requirements *before* the scheduled delivery date of the DST system.

Section 9-2: Site Ready for Installation

Site-specific items must be verified before the installation can begin:

9-2.1 Dust/Dirt Contamination

The Discovery ST system components are highly susceptible to airborne contaminants, especially concrete and drywall dust. To prevent contamination, NEVER install the DST in a construction site. Any site with unfinished floors, walls or ceilings is considered a construction site, and is not suitable for system installation.

9-2.2 Chemical Contamination

To prevent chemical contamination of the DST components, NEVER install a wet film processor in the same room as the DST Gantry. Film processor chemicals can contribute to increased equipment failures, increased system downtime, and decreased reliability. Film processor equipment installation must meet the manufacturer's requirements (e.g. ventilation specifications) and all applicable national and local codes. If you plan to place the wet film processor in the control room, remember to provide adequate ventilation.

9-2.3 Walls, Ceiling, and Floor

All walls, ceiling, and flooring must be completed before installation can begin.

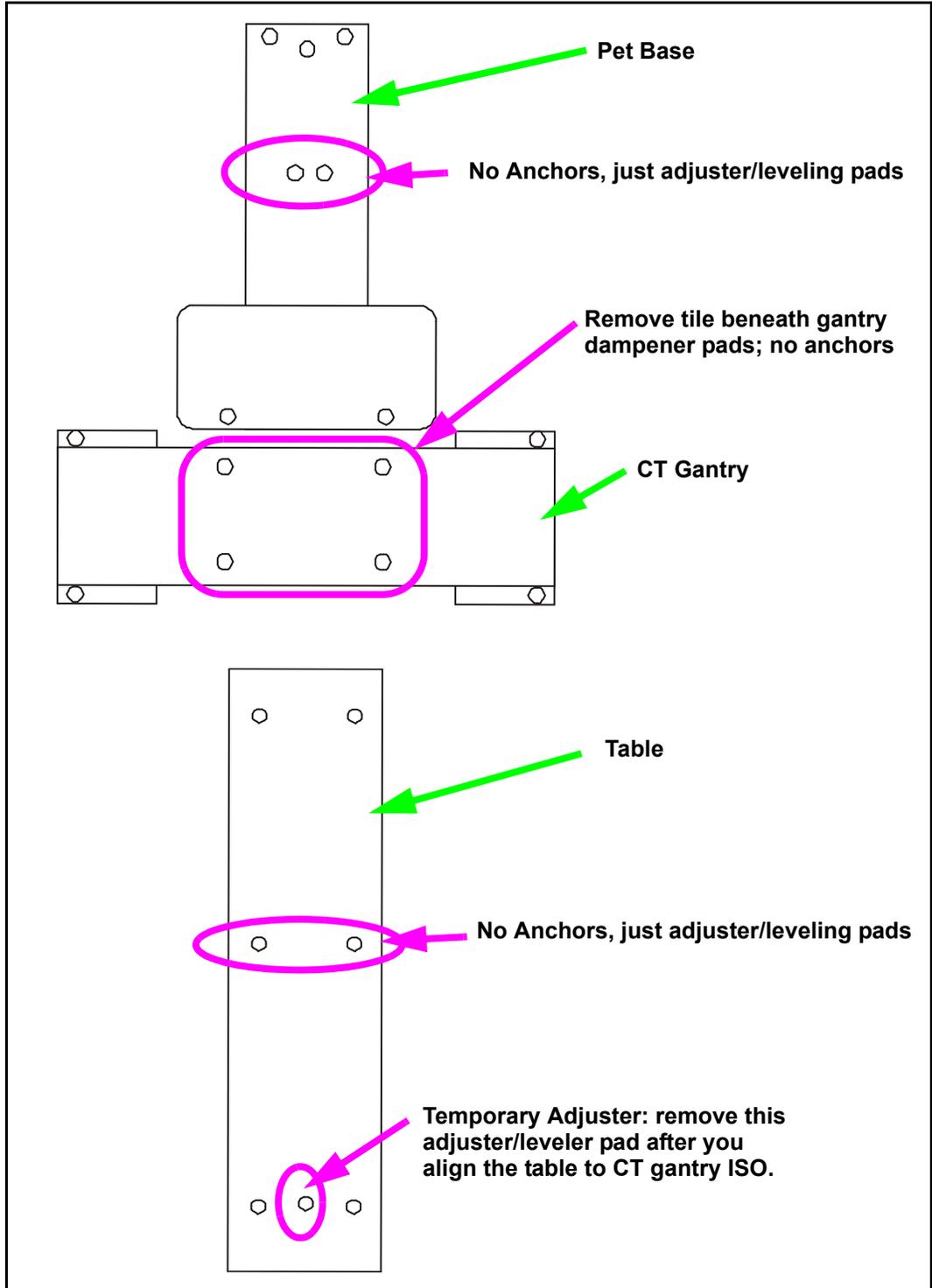
9-2.4 Phone Line

Phone line(s) must be installed and operational.

9-2.5 Establish the Room Layout

The PET-CT Gantry and Patient Table have a total of 22 adjuster/leveler locations.

Figure 9-1: DST System Leveler Pad Locations



Refer to [Figure 9-1](#). Use the DST system template to establish the room layout. Observe all operating and service clearances when you orient the DST Table and Gantry in the scan room. During installation, the mechanical installation specialist uses the supplied template to mark the anchor locations on the scan room floor. When you position the system in the scan room, make sure all the designated anchor locations clear any structural interferences in the floor, without resorting to the auxiliary holes.

Clean the area. Free the mounting surface of any material that may interfere with the positioning and leveling of the system.

- 1.) Lay out the floor templates, according to the site drawing specifications.
- 2.) Lay out the Gantry template first.
- 3.) Place the table template over the top of the Gantry template.

Note: Make sure correct table template is being used.

- 4.) Align the scan and table centerlines and secure the templates to the floor.
 - Make sure there are no potential clearance issues.
- 5.) Refer to [Figure 9-1](#). Check the level of the floor across the templates.
 - During installation, the mechanical installation specialist will remove any resilient floor material from the 22 DST Gantry and Table locations.

Section 9-3: Site Readiness Checklists

Table 9-1: Schedule Date Commitments

GE Y N	Cust Y N	Dates
	<input type="checkbox"/> <input type="checkbox"/>	Project schedule verified with contractor, facilities department, and GE?
	<input type="checkbox"/> <input type="checkbox"/>	Can you meet the committed site ready date?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Construction completion date matches delivery date?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Power & Ground survey complete, date _____ Hospital contact _____
	<input type="checkbox"/> <input type="checkbox"/>	Delivery date is scheduled for: _____
	<input type="checkbox"/> <input type="checkbox"/>	First Use date is scheduled for: _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Does the delivery and / or installation date need to be adjusted?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Applications dates: On Site scheduled for: _____, Education Center Training: _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Have all required Radioactive Material Licenses and approvals been obtained for the equipment and facility?

Table 9-2: Site Readiness

GE Y N	CUST Y N	General / Site Requirements <i>Must be completed 5 weeks before scheduled delivery date</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Final drawings distributed to the contractors and reviewed with GE?
	<input type="checkbox"/> <input type="checkbox"/>	Have any additional requirements or questions of the install been discussed with GE?
	<input type="checkbox"/> <input type="checkbox"/>	Final print(s) "signed off" that approve equipment layout / orientation?
	<input type="checkbox"/> <input type="checkbox"/>	Person assigned to review and verify that all installation requirements are met?
	<input type="checkbox"/> <input type="checkbox"/>	Have the specific site requirements been discussed with the contractor? Refer to the GE final drawings specifications. (See Table 9-3 , below)
	<input type="checkbox"/> <input type="checkbox"/>	Has the responsibility of cabling, installing, interfacing accessories not on the order been discussed? (<i>Refer to service price pages for GE's support of 3rd party accessories</i>)
	<input type="checkbox"/> <input type="checkbox"/>	All 3 rd party vendors identified, notified and scheduled? (i.e., Netcom, 3M, Kodak, Medrad, etc.)
	<input type="checkbox"/> <input type="checkbox"/>	Will existing network, modem, and camera cable drops reach new locations / requirements?
	<input type="checkbox"/> <input type="checkbox"/>	Has a radiological health physicist's review of shielding requirements been obtained?

Table 9-3: Specific Site Requirements

Requirements?	
• Air Conditioning	• Structural
• Electrical	• Other site
<u>All work</u> by contractors must be completed before the scheduled DST system delivery date	

Table 9-4: Equipment Compatibility

GE Y N	Cust Y N	Equipment <i>Must be completed 5 weeks before scheduled delivery date</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Order reviewed for completeness and compatibility with existing equipment.
	<input type="checkbox"/> <input type="checkbox"/>	Accessories on the order verified for compatibility (i.e. cable lengths, laser cameras)
	<input type="checkbox"/> <input type="checkbox"/>	Interfaces to existing and/or new accessories ordered and planned for accordingly.
	<input type="checkbox"/> <input type="checkbox"/>	Have the following peripheral locations been included in the site drawings? EKG monitor ___ Injector control ___ Laser camera ___ UPS ___ 2 nd Monitor ___

GE Y N	Cust Y N	Equipment <i>Must be completed 5 weeks before scheduled delivery date</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Will GE Healthcare provide additional services, per contract negotiations?
	<input type="checkbox"/> <input type="checkbox"/>	Remote monitors ____ AWW relocation ____ Wall mounted accessories ____

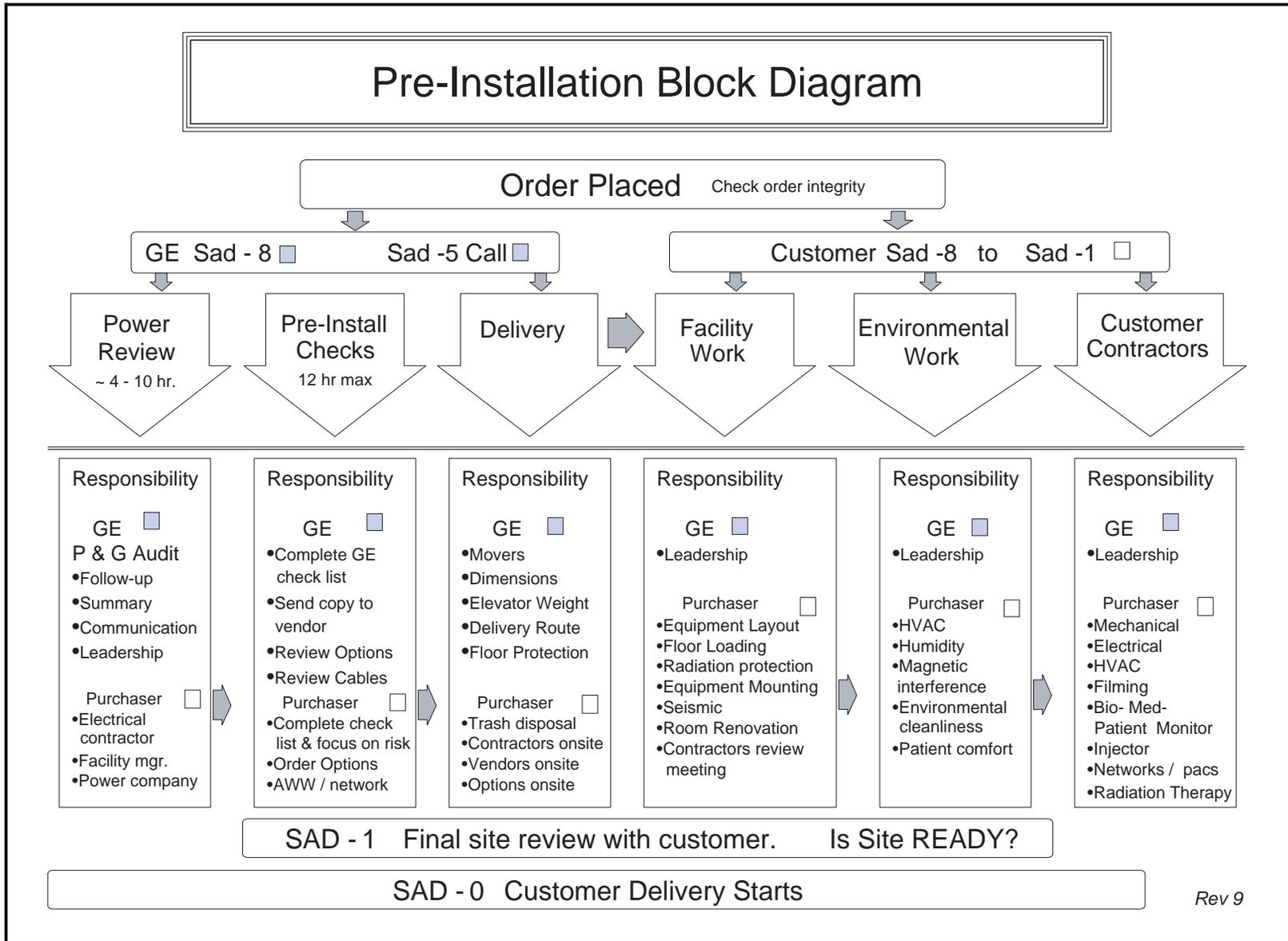
Table 9-5: Mandatory Network Connections:

GE Y N	Cust Y N	Mandatory Network Installation and Setup <i>Must be completed 5 weeks before scheduled delivery date</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Have IP addresses and Host Names been obtained? ____ Will a network camera be used? ____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Optional: PET-CT service telephone line identified and installed for the InSite <i>(Electrical, mechanical, etc.)</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Mandatory: Network installed? ____ Network jacks installed and tested?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Mandatory: Network options ordered ____ HIS RIS option ____ DICOM print ____ AWW ____
	<input type="checkbox"/> <input type="checkbox"/>	Mandatory: Test network connections.

Table 9-6: Miscellaneous Tasks

GE Y N	Cust Y N	Other <i>Must be completed before the scheduled delivery date</i>
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Arrangements made in the schedule to allow for remodeling, if required. (i.e., wall, floor, or ceiling repair work, painting, other cosmetic finishes)
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Have arrangements been made to clean the floor <i>after</i> equipment removal and <i>prior</i> to the installation of the new equipment?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Is de-installation required? No__ Yes __ PET-CT removal date _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Is there a trade-in of existing equipment? _____ GoldSeal _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Delivery route identified, and verified with the proper hospital personal? _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Appropriate arrangements made with traffic for delivery?
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Will acceptance testing or Bio-Medical testing be required? _____ Date: _____
<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	Trash bins available for the removal of papers/ boxes/ etc. during the installation.

Figure 9-2: Site Readiness Process



Notes and Comments

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