

GE Healthcare

Optima XR200amx/XR220amx Wireless Handswitch Installation



Direction 5498227-1EN
Revision 2

ATTENTION

LES APPAREILS A RAYONS X SONT DANGEREUX A LA FOIS POUR LE PATIENT ET POUR LE MANIPULATEUR SI LES MESURES DE PROTECTION NE SONT PAS STRICTEMENT APPLIQUEES

Bien que cet appareil soit construit selon les normes de sécurité les plus severes, la source de rayonnement X représente un danger lorsque le manipulateur est non qualifié ou non averti. Une exposition excessive au rayonnement X entraîne des dommages à l'organisme. Par conséquent, toutes les précautions doivent être prises pour éviter que les personnes non autorisées ou non qualifiées utilisent cet appareil créant ainsi un danger pour les autres et pour elles-mêmes. Avant chaque manipulation, les personnes qualifiées et autorisées à se servir de cet appareil doivent se renseigner sur les mesures de protection établies par la Commission Internationale sur la Protection Radiologique, Annales 26: Recommandations de la Commission Internationale sur la Protection Radiologique et les normes nationales en vigueur.

WARNING

X-RAY EQUIPMENT IS DANGEROUS TO BOTH PATIENT AND OPERATOR UNLESS MEASURES OF PROTECTION ARE STRICTLY OBSERVED.

Though this equipment is built to the highest standards of electrical and mechanical safety, the useful x-ray beam becomes a source of danger in the hands of the unauthorized or unqualified operator. Excessive exposure to x-radiation causes damage to human tissue.

Therefore, adequate precautions must be taken to prevent unauthorized or unqualified persons from operating this equipment or exposing themselves or others to its radiation.

Before operation, persons qualified and authorized to operate this equipment should be familiar with the Recommendations of the International Commission on Radiological Protection (ICRP), contained in Annals Number 26 of the ICRP, and with applicable national standards.

ATENCION

LOS APARATOS DE RAYOS X SON PELIGROSOS PARA EL PACIENTE Y EL MANIPULADOR CUANDO LAS NORMAS DE PROTECCION NO ESTAN OBSERVADAS

Aunque este aparato está construido según las normas de seguridad más estrictas, la radiación X constituye un peligro al ser manipulado por personas no autorizadas o incompetentes. Una exposición excesiva a la radiación X puede causar daños al organismo.

Por consiguiente, se deberán tomar todas las precauciones necesarias para evitar que las personas incompetentes o no autorizadas utilicen este aparato, lo que sería un peligro para los demás y para si mismas.

Antes de efectuar las manipulaciones, las personas habilitadas y competentes en el uso de este aparato, deberán informarse sobre las normas de protección fijadas por la Comisión Internacional de la Protección Radiológica, Anales No 26: Recomendaciones de la Comisión Internacional sobre la Protección Radiológica y normas nacionales.

ACHTUNG

RÖNTGENAPPARATE SIND EINE GEFAHR FÜR PATIENTEN SOWIE BEDIENUNGSPERSONAL, WENN DIE GELTENDEN SICHERHEITSVORKEHRUNGEN NICHT GENAU BEACHTET WERDEN

Dieser Apparat entspricht in seiner Bauweise strengsten elektrischen und mechanischen Sicherheitsnormen, doch in den Händen unbefugter oder unqualifizierter Personen wird er zu einer Gefahrenquelle.

Übermäßige Röntgenbestrahlung ist für den menschlichen Organismus schädlich.

Deswegen sind hinreichende Vorsichtsmaßnahmen erforderlich, um zu verhindern, daß unbefugte oder unqualifizierte Personen solche Geräte bedienen oder sich selbst und andere Personen deren Bestrahlung aussetzen können.

Vor Inbetriebnahme dieses Apparats sollte sich das qualifizierte und befugte Bedienungspersonal mit den geltenden Kriterien für den gefahrlosen Strahleneinsatz durch sorgfältiges Studium des Hefts Nr. 26 der Internationalen Kommission für Strahlenschutz (ICRP) vertraut machen: Empfehlungen der Internationalen Kommission für Strahlenschutz und anderer nationaler Normenbehörden.

Important information

WARNING (EN)	This service manual is available in English only. <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.
ПРЕДУПРЕЖДЕНИЕ (BG)	Това упътване за работа е налично само на английски език. <ul style="list-style-type: none">Ако доставчикът на услугата на клиента изиска друг език, задължение на клиента е да осигури превод.Не използвайте оборудването, преди да сте се консултирали и разбрали упътването за работа.Неспазването на това предупреждение може да доведе до нараняване на доставчика на услугата, оператора или пациента в резултат на токов удар, механична или друга опасност.
警告 (ZH-CN)	本维修手册仅提供英文版本。 <ul style="list-style-type: none">如果客户的维修服务人员需要非英文版本，则客户需自行提供翻译服务。未详细阅读和完全理解本维修手册之前，不得进行维修。忽略本警告可能对维修服务人员、操作人员或患者造成电击、机械伤害或其他形式的伤害。
警告 (ZH-HK)	本服務手冊僅提供英文版本。 <ul style="list-style-type: none">倘若客戶的服務供應商需要英文以外之服務手冊，客戶有責任提供翻譯服務。除非已參閱本服務手冊及明白其內容，否則切勿嘗試維修設備。不遵從本警告或會令服務供應商、網絡供應商或病人受到觸電、機械性或其他的危險。
警告 (ZH-TW)	本維修手冊僅有英文版。 <ul style="list-style-type: none">若客戶的維修廠商需要英文版以外的語言，應由客戶自行提供翻譯服務。請勿試圖維修本設備，除非您已查閱並瞭解本維修手冊。若未留意本警告，可能導致維修廠商、操作員或病患因觸電、機械或其他危險而受傷。
UPOZORENJE (HR)	Ovaj servisni priručnik dostupan je na engleskom jeziku. <ul style="list-style-type: none">Ako davatelj usluge klijenta treba neki drugi jezik, klijent je dužan osigurati prijevod.Ne pokušavajte servisirati opremu ako niste u potpunosti pročitali i razumjeli ovaj servisni priručnik.zanemarite li ovo upozorenje, može doći do ozljede davatelja usluge, operatera ili pacijenta uslijed strujnog udara, mehaničkih ili drugih rizika.
VÝSTRAHA (CS)	Tento provozní návod existuje pouze v anglickém jazyce. <ul style="list-style-type: none">V případě, že externí služba zákazníkům potřebuje návod v jiném jazyce, je zajištění překladu do odpovídajícího jazyka úkolem zákazníka.Nesnažte se o údržbu tohoto zařízení, aniž byste si přečetli tento provozní návod a pochopili jeho obsah.V případě nedodržování této výstrahy může dojít k poranění pracovníka prodejního servisu, obslužného personálu nebo pacientů vlivem elektrického proudu, respektive vlivem mechanických či jiných rizik.
ADVARSEL (DA)	Denne servicemanual findes kun på engelsk. <ul style="list-style-type: none">Hvis en kundes tekniker har brug for et andet sprog end engelsk, er det kundens ansvar at sørge for oversættelse.Forsøg ikke at servicere udstyret uden at læse og forstå denne servicemanual.Manglende overholdelse af denne advarsel kan medføre skade på grund af elektrisk stød, mekanisk eller anden fare for teknikeren, operatøren eller patienten.

WAARSCHUWING (NL)	<p>Deze onderhoudshandleiding is enkel in het Engels verkrijgbaar.</p> <ul style="list-style-type: none"> Als het onderhoudspersoneel een andere taal vereist, dan is de klant verantwoordelijk voor de vertaling ervan. Probeer de apparatuur niet te onderhouden alvorens deze onderhoudshandleiding werd geraadpleegd en begrepen is. Indien deze waarschuwing niet wordt opgevolgd, zou het onderhoudspersoneel, de operator of een patiënt gewond kunnen raken als gevolg van een elektrische schok, mechanische of andere gevaren.
HOIATUS (ET)	<p>See teenindusjuhend on saadaval ainult inglise keeles</p> <ul style="list-style-type: none"> Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest. Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist. Käesoleva hoiatuse eiramise võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärvel.
VAROITUS (FI)	<p>Tämä huolto-ohje on saatavilla vain englanniksi.</p> <ul style="list-style-type: none"> Jos asiakkaan huoltohenkilöstö vaatii muuta kuin englanninkielistä materiaalia, tarvittavan käännyksen hankkiminen on asiakkaan vastuulla. Älä yritä korjata laitteistoa ennen kuin olet varmasti lukenuut ja ymmärtänyt tämän huolto-ohjeen. Mikäli tästä varoitusta ei noudateta, seurauksena voi olla huoltohenkilöstön, laitteiston käyttäjän tai potilaan vahingoittuminen sähköiskun, mekaanisen vian tai muun vaaratilanteen vuoksi.
ATTENTION (FR)	<p>Ce manuel d'installation et de maintenance est disponible uniquement en anglais.</p> <ul style="list-style-type: none"> Si le technicien d'un client a besoin de ce manuel dans une langue autre que l'anglais, il incombe au client de le faire traduire. Ne pas tenter d'intervenir sur les équipements tant que ce manuel d'installation et de maintenance n'a pas été consulté et compris. Le non-respect de cet avertissement peut entraîner chez le technicien, l'opérateur ou le patient des blessures dues à des dangers électriques, mécaniques ou autres.
WARNUNG (DE)	<p>Diese Serviceanleitung existiert nur in englischer Sprache.</p> <ul style="list-style-type: none"> Falls ein fremder Kundendienst eine andere Sprache benötigt, ist es Aufgabe des Kunden für eine entsprechende Übersetzung zu sorgen. Versuchen Sie nicht diese Anlage zu warten, ohne diese Serviceanleitung gelesen und verstanden zu haben. Wird diese Warnung nicht beachtet, so kann es zu Verletzungen des Kundendiensttechnikers, des Bedieners oder des Patienten durch Stromschläge, mechanische oder sonstige Gefahren kommen.
ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)	<p>To 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.
FIGYELMEZTETÉS (HU)	<p>Ezen karbantartási kézikönyv kizárolag angol nyelven érhető el.</p> <ul style="list-style-type: none"> Ha a vevő szolgáltatója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése. Ne próbálja elkezdeni használni a berendezést, amíg a karbantartási kézikönyvben leírtakat nem értelmeztek. Ezen figyelmeztetés figyelmen kívül hagyása a szolgáltató, működtető vagy a beteg áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.
AÐVÓRUN (IS)	<p>Pessi þjónustuhandbók er aðeins fáanleg á ensku.</p> <ul style="list-style-type: none"> Ef að þjónustuveitandi viðskiptamanns barfnast 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 aðvórun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklings frá raflosti, vélraenu eða öðrum áhættum.

AVVERTENZA (IT)	<p>Il presente manuale di manutenzione è disponibile soltanto in lingua inglese.</p> <ul style="list-style-type: none"> Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è tenuto a provvedere direttamente alla traduzione. Procedere alla manutenzione dell'apparecchiatura solo dopo aver consultato il presente manuale ed averne compreso il contenuto. Il mancato rispetto della presente avvertenza potrebbe causare lesioni all'addetto alla manutenzione, all'operatore o ai pazienti provocate da scosse elettriche, urti meccanici o altri rischi.
警告 (JA)	<p>このサービスマニュアルには英語版しかありません。</p> <ul style="list-style-type: none"> サービスを担当される業者が英語以外の言語を要求される場合、翻訳作業はその業者の責任で行うものとさせていただきます。 このサービスマニュアルを熟読し理解せずに、装置のサービスを行わないでください。 この警告に従わない場合、サービスを担当される方、操作員あるいは患者さんが、感電や機械的又はその他の危険により負傷する可能性があります。
경고 (KO)	<p>본 서비스 매뉴얼은 영어로만 이용하실 수 있습니다.</p> <ul style="list-style-type: none"> 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다. 본 서비스 매뉴얼을 참조하여 숙지하지 않은 이상 해당 장비를 수리하려고 시도하지 마십시오. 본 경고 사항에 유의하지 않으면 전기 쇼크, 기계적 위험, 또는 기타 위험으로 인해 서비스 제공자, 사용자 또는 환자에게 부상을 입힐 수 있습니다.
BRĪDINĀJUMS (LV)	<p>Šī apkopes rokasgrāmata ir pieejama tikai angļu valodā.</p> <ul style="list-style-type: none"> Ja klienta apkopes sniedzējam nepieciešama informācija citā valodā, klienta pienākums ir nodrošināt tulkojumu. Neveiciet aprīkojuma apkopi bez apkopes rokasgrāmatas izlasīšanas un saprašanas. Šī brīdinājuma neievērošanas rezultātā var rasties elektriskās strāvas trieciena, mehānisku vai citu faktoru izraisītu traumu risks apkopes sniedzējam, operatoram vai pacientam.
ISPĒJIMAS (LT)	<p>Šis ekspluatavimo 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. Neméginkite atlikti įrangos techninės priežiūros, jei neperskaitėte ar nesupratote šio ekspluatavimo vadovo. Jei nepaisysite šio išpėjimo, galimi paslaugų tiekėjo, operatoriaus ar paciento sužalojimai dėl elektros šoko, mechaninių ar kitų pavojų.
ADVARSEL (NO)	<p>Denne servicehåndboken finnes bare på engelsk.</p> <ul style="list-style-type: none"> Hvis kundens serviceleverandør har bruk for et annet språk, er det kundens ansvar å sørge for oversettelse. Ikke forsøk å reparere utstyret uten at denne servicehåndboken er lest og forstått. Manglende hensyn til denne advarselen kan føre til at serviceleverandøren, operatøren eller pasienten skades på grunn av elektrisk støt, mekaniske eller andre farer.
OSTRZEŻENIE (PL)	<p>Niniejszy podręcznik serwisowy dostępny jest jedynie w języku angielskim.</p> <ul style="list-style-type: none"> Jeśli serwisant klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta. Nie próbować serwisować urządzenia bez zapoznania się z niniejszym podręcznikiem serwisowym i zrozumienia go. Niezastosowanie się do tego ostrzeżenia może doprowadzić do obrażeń serwisanta, operatora lub pacjenta w wyniku porażenia prądem elektrycznym, zagrożenia mechanicznego bądź innego.
AVISO (PT-BR)	<p>Este manual de assistência técnica encontra-se disponível unicamente em inglês.</p> <ul style="list-style-type: none"> Se outro serviço de assistência técnica solicitar a tradução deste manual, caberá ao cliente fornecer os serviços de tradução. Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica. A não observância deste aviso pode ocasionar ferimentos no técnico, operador ou paciente decorrentes de choques elétricos, mecânicos ou outros.
ATENÇÃO (PT-PT)	<p>Este manual de assistência técnica só se encontra disponível em inglês.</p> <ul style="list-style-type: none"> Se qualquer outro serviço de assistência técnica solicitar este manual noutro idioma, é da responsabilidade do cliente fornecer os serviços de tradução. Não tente reparar o equipamento sem ter consultado e compreendido este manual de assistência técnica. O não cumprimento deste aviso pode colocar em perigo a segurança do técnico, do operador ou do paciente devido a choques eléctricos, mecânicos ou outros.

ATENȚIE (RO)	<p>Acest manual de service este disponibil doar în limba engleză.</p> <ul style="list-style-type: none"> Dacă un furnizor de servicii pentru clienți necesită o altă limbă decât cea engleză, este de datoria clientului să furnizeze o traducere. Nu încercați să reparați echipamentul decât ulterior consultării și înțelegerea acestui manual de service. Ignorarea acestui avertisment ar putea duce la rănirea depanatorului, operatorului sau pacientului în urma pericolelor de electrocutare, mecanice sau de altă natură.
ОСТОРОЖНО! (RU)	<p>Данное руководство по техническому обслуживанию представлено только на английском языке.</p> <ul style="list-style-type: none"> Если сервисному персоналу клиента необходимо руководство не на английском, а на каком-то другом языке, клиенту следует самостоятельно обеспечить перевод. Перед техническим обслуживанием оборудования обязательно обратитесь к данному руководству и поймите изложенные в нем сведения. Несоблюдение требований данного предупреждения может привести к тому, что специалист по техобслуживанию, оператор или пациент получит удар электрическим током, механическую травму или другое повреждение
UPOZORENJE (SR)	<p>Ovo servisno uputstvo je dostupno samo na engleskom jeziku.</p> <ul style="list-style-type: none"> Ako klijentov serviser zahteva neki drugi jezik, klijent je dužan da obezbedi prevodilačke usluge. Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo. Zanemarivanje ovog upozorenja može dovesti do povređivanja servisera, rukovaoca ili pacijenta usled strujnog udara ili mehaničkih i drugih opasnosti.
UPOZORNENIE (SK)	<p>Tento návod na obsluhu je k dispozícii len v angličtine.</p> <ul style="list-style-type: none"> Ak zákazníkov poskytovateľ služieb vyžaduje iný jazyk ako angličtinu, poskytnutie prekladateľských služieb je zodpovednosťou zákazníka. Nepokúšajte sa o obsluhu zariadenia, kým si neprečítate návod na obľahu a neporozumiete mu. Zanedbanie tohto upozornenia môže spôsobiť zranenie poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, mechanické alebo iné ohrozenie.
ATENCION (ES)	<p>Este manual de servicio sólo existe en inglés.</p> <ul style="list-style-type: none"> Si el encargado de mantenimiento de un cliente necesita un idioma que no sea el inglés, el cliente deberá encargarse de la traducción del manual. No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio. La no observancia del presente aviso puede dar lugar a que el proveedor de servicios, el operador o el paciente sufran lesiones provocadas por causas eléctricas, mecánicas o de otra naturaleza.
WARNING (SV)	<p>Den här servicehandboken finns bara tillgänglig på engelska..</p> <ul style="list-style-type: none"> Om en kunds servicetekniker har behov av ett annat språk än engelska, ansvarar kunden för att tillhandahålla översättningstjänster. Försök inte utföra service på utrustningen om du inte har läst och förstår den här servicehandboken. Om du inte tar hänsyn till den här varningen kan det resultera i skador på serviceteknikern, operatören eller patienten till följd av elektriska stötar, mekaniska faror eller andra faror.
OPOZORILO (SL)	<p>Ta servisni priročnik je na voljo samo v angleškem jeziku.</p> <ul style="list-style-type: none"> Če ponudnik storitve stranke potrebuje priročnik v drugem jeziku, mora stranka zagotoviti prevod. Ne poskušajte servisirati opreme, če tega priročnika niste v celoti prebrali in razumeli. Če tega opozorila ne upoštevate, se lahko zaradi električnega udara, mehanskih ali drugih nevarnosti poškoduje ponudnik storitev, operater ali bolnik.
DIKKAT (TR)	<p>Bu servis kılavuzunun sadece İngilizcesi mevcuttur.</p> <ul style="list-style-type: none"> Eğer müşteri teknisyeni bu kılavuzu İngilizce dışında bir başka lisandan talep ederse, bunu tercüme ettmek müşteriye düşer. Servis kılavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz. Bu uyarıya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.

Legal notes

TRADEMARKS

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Important precautions

DAMAGE IN TRANSPORTATION

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

To file a report, call 1-800-548-3366. Select the option for "Install Support Services for FOA and MIS." Contact your local service coordinator for more information on this process.

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

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

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. GE Healthcare 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 (NCRP) 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 GE Healthcare, 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.

LITHIUM BATTERY CAUTIONARY STATEMENT



DANGER - Risk of Explosion

Danger of explosion if battery is incorrectly replaced.

Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.



ATTENTION - Danger d'Explosion

Il y a danger d'explosion s'il y a replacement incorrect de la batterie. Remplacer uniquement avec une batterie du même type ou d'un type recommandé par le constructeur. Mettre au rebut les batteries usagées conformément aux instructions du fabricant.

TECHNICAL MANUAL UPDATES

When operating or servicing GE Healthcare products, please contact your GE representative for the latest revision of product documentation. Product documentation may also be available on-line at the GE Healthcare support documentation library.

OMISSIONS AND ERRORS

Customers, please contact your GE Healthcare sales or service representatives.

GE personnel, please use the GE Healthcare complaint handling process to report all omissions, errors, and defects in this publication.

Revision history

Revision	Date	Reason for change
1	24MAR2014	Initial release of document.
2	25APR2014	Validation update: Swapped and edited steps 3 and 4 in Chapter 2.

Preface Publication Conventions

Standardized conventions for representing information is a uniform way of communicating information to a reader in a consistent manner. Conventions are used so that the reader can easily recognize the actions or decisions that must be made. There are a number of character and paragraph styles used in this publication to accomplish this task. Please become familiar with them before proceeding forward.

It is important that you read and understand hazard statements, and not just ignore them.

Safety & Hazard Information

Proper product safety labeling allows a person to safely use or service a product. The format and style for safety communications reflected in this publication represents the harmonization of IEC/ISO 3864 and ANSI Z535 standards.

Within this publication, different paragraph and character styles are used to indicate potential hazards. Paragraph prefixes, such as hazard, caution, danger and warning, are used to identify important safety information. Text (Hazard) styles are applied to the paragraph contents that are applicable to each specific safety statement.

Hazard Messages

Any action that will, could or potentially cause personal injury will be preceded by the safety alert symbol and an appropriate signal word. The safety alert symbol is the triangle with an exclamation mark within it. It is always used next to the signal word to indicate the severity of the hazard. Together, they are used to indicate a hazard exists.

Signal words describe the severity of possible human injuries that may be encountered. The alert symbol and signal word are placed immediately before any paragraph they affect. Safety information includes:

- 1.) Signal Word - The seriousness level of the hazard.
- 2.) Symbol or Pictorial - The consequence of interaction with the hazard.
- 3.) Word Message:
 - a.) The nature of the hazard (i.e. the type of hazard)
 - b.) How to avoid the hazard.

The safety alert symbol is not used when an action can only cause equipment damage.

Text Format of Signal Words

DANGER - INDICATES AN IMMINENTLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY. THIS SIGNAL WORD IS LIMITED TO THE MOST EXTREME SITUATIONS.

WARNING - INDICATES A POTENTIALLY HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, COULD RESULT IN DEATH OR SERIOUS INJURY.

Caution - Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE - Indicates information or a company policy that relates directly or indirectly to the safety of personnel or protection of property. This signal word is associated directly with a hazard or hazardous situation and is used in place of 'DANGER,' 'WARNING,' or 'CAUTION.' It can include:

- **Destruction of a disk drive**
- **Potential for internal mechanical damage, such as to a X-ray tube**

Symbols and Pictorials Used

The following Symbols and Pictorials are be used in this publication. These graphical icons (symbols) may be used to make you aware of specific types of hazards that could possibly cause harm.

NOTICE	CAUTION	WARNING	DANGER	
 keep_up	 magnetic	 biohazard	 compressgas	 ppe-hearing
 fragile	 impact	 corrosive	 heavyobject	 ppe-2people
 static_elec	 heat	 general	 laser	 ppe-respiratory
 keep_dry	 pinch	 radiation	 poisongas	 ppe-loto
 general	 explosive	 electrical	 flammable	 ppe-eye
 torque	 crush/mechanical	 tipping	 Read Manual	 ppe-gloves
 ce	 instuction	 poisonmatl	 entanglement	 instuction

Publication Conventions

General Paragraph and Character Styles

Prefixes are used to highlight important non-safety related information. Paragraph prefixes (such as Purpose, Example, Comment or Note) are used to identify important but non-safety related information. Text styles are also applied to text within each paragraph modified by the specific prefix.

EXAMPLES OF PREFIXES USED FOR GENERAL INFORMATION:

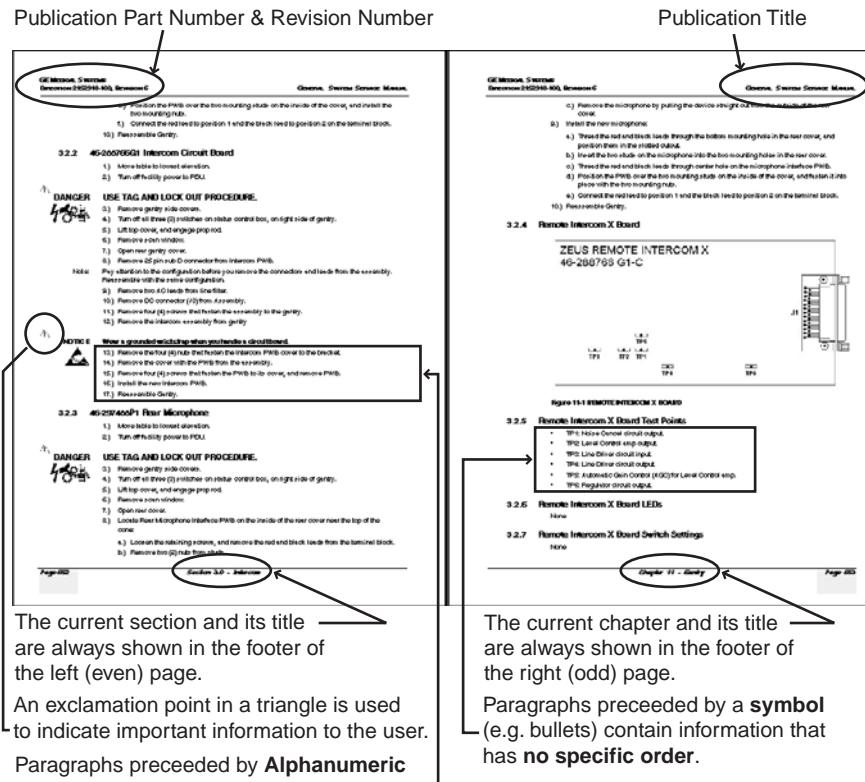
Purpose: Introduces and provides meaning as to the information contained within the chapter, section or subsection (such as used at the beginning this chapter, for example).

Note: Conveys information that should be considered important to the reader.

Example: Used to make the reader aware that the paragraph(s) that follow are examples of information possibly stated previously.

Comment: Represents “additional” information that may or may not be relevant to your situation.

Page Layout



Headers and footers in this publication are designed to allow you to quickly identify your location. The document part number and revision number appears in every header on every page. Odd numbered page footers indicate the current chapter, its title and current page number. Even page footers show the current section and its title, as well as the current page number.

Computer Screen Output/Input Text Character Styles

Within this publication, mono-spaced character styles (fonts) are used to indicate computer text that's either screen input and output. Mono-spaced fonts, such courier, are used to indicated text direction. When you type at your keyboard, you are generating computer input. Occasionally you will see the math operator "greater-than" and "less-than" symbols used to indicate the start and finish of variable output. When reading text generated by the computer, you are reading it as computer generated output. In addition to direction, characters are italicized (e.g. *italics*) to indicate information specific to your system or site.

Example: Fixed Output	This paragraph's font represents computer generated screen "fixed" output. Its output is fixed from the sense that it does not vary from application to application. It is the most commonly used style used to indicate filenames, paths and text that do not change from system to system. The character style used is a fixed width such as courier.
Example: Variable Output	<i>This paragraph's font represents computer screen output that is "variable". It is used to represent output that varies from application to application or system to system. Variable output is sometimes found placed between greater-than and less-than operators for clarification. For example: <variable_output> or <3.45.120.3>. In both cases, the < and > operators are not part of the actual input.</i>
Example: Fixed Input	<i>This paragraph's font represents fixed input. It is computer input that is typed-in via the keyboard. Typed input that does not vary from application to application or system to system. Fixed text the user is required to supply as input. For example: cd /usr/3p</i>
Example: Variable Input	<i>This paragraph's font represents computer input that can vary from application to application or system to system. With variable text, the user is required to supply system dependent input or information. Variable input sometimes is placed between greater-than and less-than operators. For example: <variable_input>. In these cases, the (<>) operators would be dropped prior to input. For example: ypcat hosts grep <3.45.120.3> would be typed into the computer as:</i> <i>ypcat hosts grep 3.45.120.3</i> <i>without the greater-than and less-than operators.</i>

Buttons, Switches and Keyboard Inputs (Hard & Soft Keys)

Different character styles are used to indicate actions requiring the reader to press either a hard or soft button, switch or key. Physical hardware, such as buttons and switches, are called hard keys because they are hard wired or mechanical in nature. A keyboard or on/off switch would be a hard key. Software or computer generated buttons are called soft keys because they are software generated. Software driven menu buttons are an example of such keys. Soft and hard keys are represented differently in this publication.

Example: Hard Keys	A power switch ON/OFF or a keyboard key like ENTER is indicated by applying a character style that uses both over and under-lined bold text that is bold. This is a hard key.
Example: Soft Keys	Whereas the computer MENU button that you would click with your mouse or touch with your hand uses over and under-lined regular text. This is a soft key.

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Chapter 1 Safety

Section 1.1 Energy sources

Table 1-1

Energy source	Yes/No	Location of energy isolating means	Magnitude of energy
Electrical	Yes	AC power plug	120 VAC/60Hz 220 VAC/50Hz
Electrical	Yes	Circuit breaker	156VDC
Electrical (batteries)	Yes	Battery board connector J1	156VDC
Pneumatic	No	n/a	n/a
Hydraulic	No	n/a	n/a
Gas/water/steam	No	n/a	n/a
Chemical	No	n/a	n/a
Mechanical motion	No	n/a	n/a
Gravity	No	n/a	n/a
Rear suspension spring	No	n/a	n/a
Column spring	Yes	Scroll lock at top of column	610 N-m (5400 in-lbs)
Thermal	No	n/a	n/a
Stored energy (generator capacitors)	Yes	Time discharge and DVM verification	15kW generator: 2200J 30kW generator: 8800J
Air under pressure	No	n/a	n/a
Oil under pressure	No	n/a	n/a
Water under pressure	No	n/a	n/a
Gas under pressure	No	n/a	n/a
Steam	No	n/a	n/a
Other	No	n/a	n/a

Type of equipment and/or method selected to dissipate or isolate stored energy:

- Allow three minutes for stored energy to dissipate. Stored energy is indicated by safety lamps on the generator Aux boxes.
- After waiting period, verify dissipation with volt meter.

Type of equipment and/or method used to ensure disconnections:

- One lock and tag for each electrical power source
- Multiple locking device

Section 1.2 Lock Out/Tag Out (LOTO) procedure for electrical power

Name of equipment: Optima XR200amx/Optima XR220amx

Number of locks: 3

Title of employees authorized to perform LOTO: Those trained in LOTO

Title of affected employees and how to notify: Hospital personnel, notified by verbal communication

1.2.1 Preparing for LOTO

1. Have this equipment on hand:

- Safety glasses
- Voltage meter
- LOTO kit 5421892, contains (see [Figure 1-1](#)):
 - * 3 brass padlocks and identification labels
 - * 3 LOTO tag packages (25 tags per package)
 - * 1 electrical plug lockout device 110V - for AC power plug
 - * 2 electrical plug lockout devices 160VDC - for battery connectors
 - * 1 nylon carry bag



Figure 1-1 LOTO kit contents

2. Locate the AC power plug (E1), system circuit breaker (E2), and battery connectors (E3). See Figure 1-2.

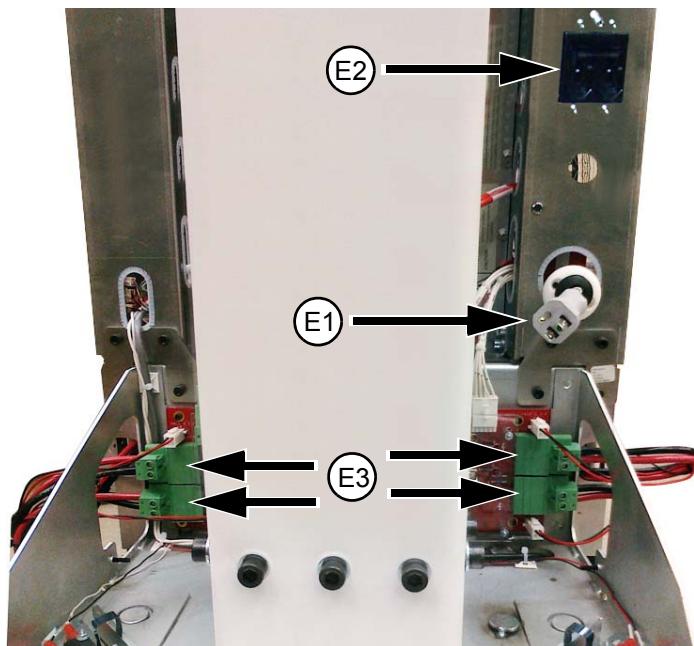


Figure 1-2 Electrical energy lockout locations

1.2.2 Performing LOTO

1. Notify all affected personnel working in the area that LOTO is being performed.
2. Exit all system software.
3. Turn off the Optima XR200amx/Optima XR220amx system by pressing the power button and holding it for several seconds until the power button light ring turns blue, indicating that the system is shutting down.
4. When the power light ring begins to blink blue, indicating that the system is in standby, switch the circuit breaker (E2) to the OFF position. See [Figure 1-3](#).



Figure 1-3 Circuit breaker (E2) in OFF position

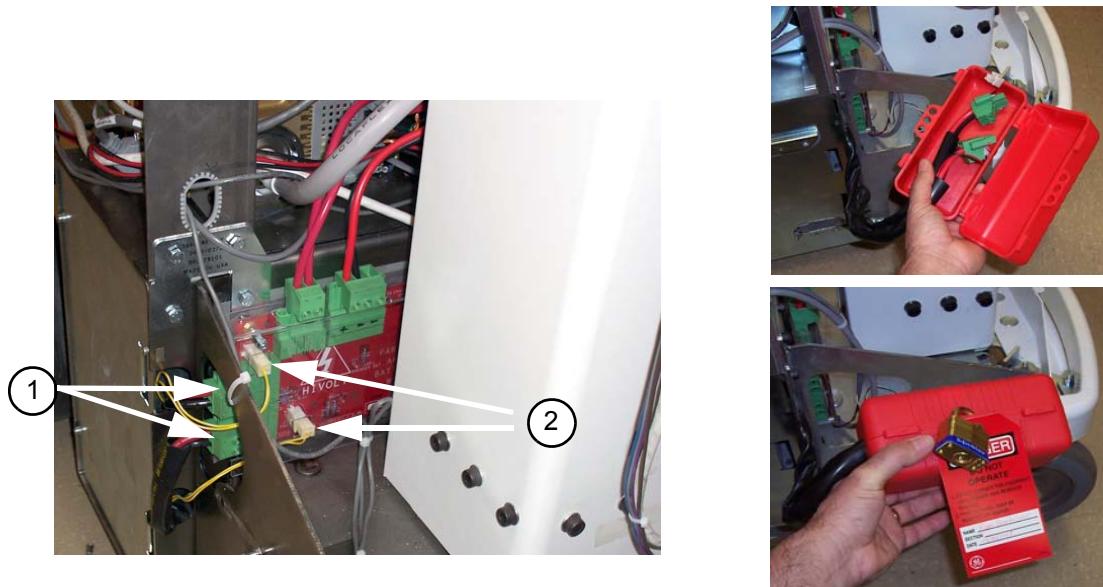
5. Unplug the power cord from the wall outlet.
6. Apply an approved AC power plug locking device to the AC power plug (E1), then apply your personal red lock and tag. See [Figure 1-4](#).



Figure 1-4 AC power plug with locking device applied

7. Wait three minutes for discharge of stored energy.

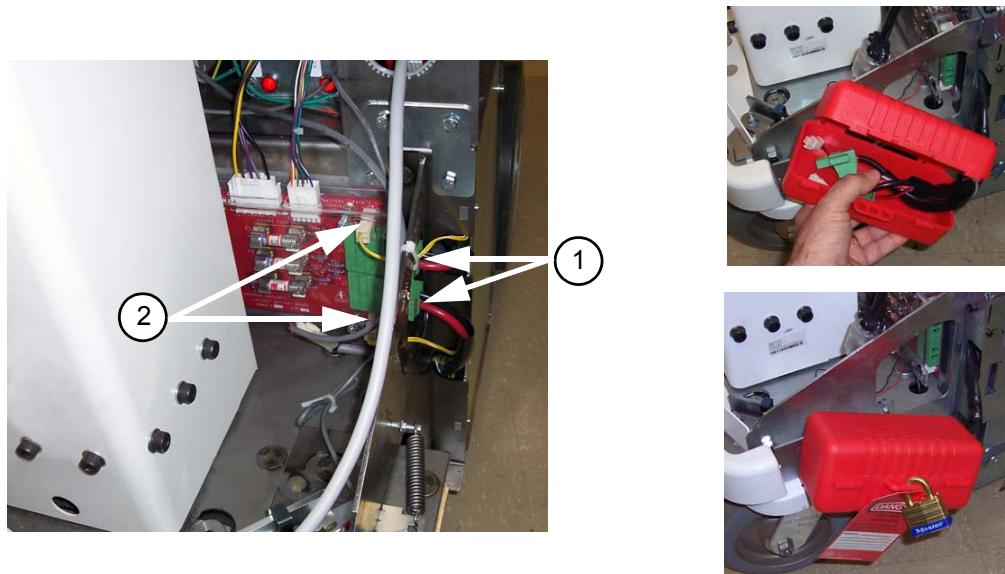
8. Disconnect the two green battery power connectors J3 and J4 and the two sense connectors J13 and J14 from the Cricket board. Apply a locking device, then apply your personal red lock and tag. See [Figure 1-5](#).



Item	Description
1	Battery power connectors (J3, J4)
2	Battery sense connectors (J13, J14)

Figure 1-5 Battery connectors J3/J4/J13/J14 and locking device

9. Disconnect the two green battery power connectors J1 and J2 and the two sense connectors J11 and J12 from the Cricket board. Apply a locking device, then apply your personal red lock and tag. See [Figure 1-6](#).

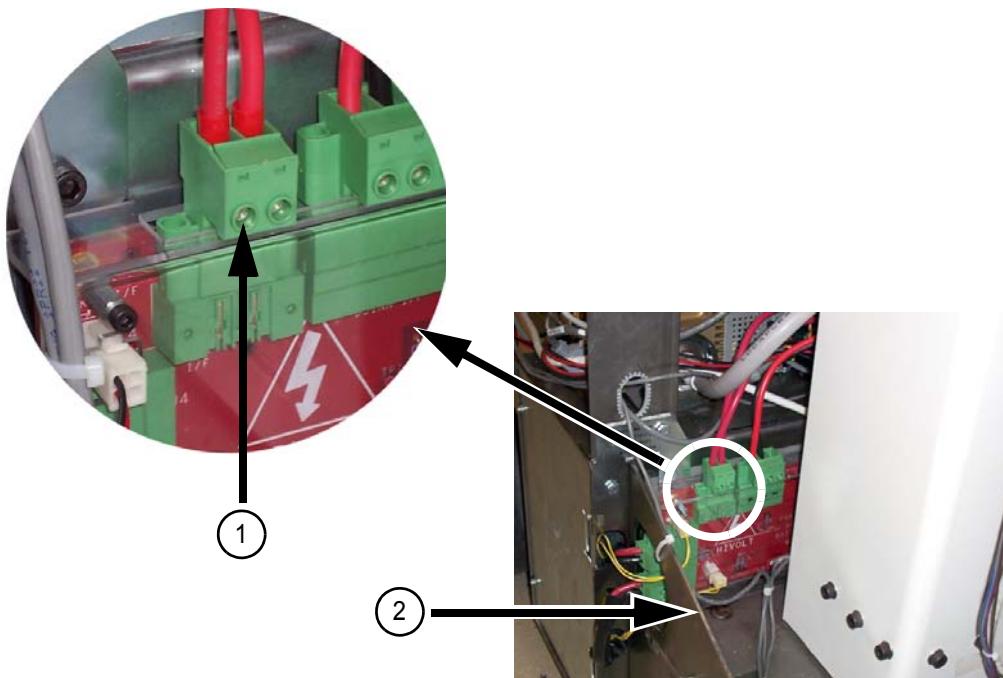


Item	Description
1	Battery power connectors (J1, J2)
2	Battery sense connectors (J11, J12)

Figure 1-6 Battery connectors J1/J2/J11/J12 and locking device

10. Press the power button and verify that the system does not turn on.
11. Verify that the voltage meter is working properly by testing it on a known live voltage source (such as a wall outlet).

12. See [Figure 1-7](#). Verify that electrical power has been removed from the system by applying the DC voltmeter (+) lead to connector J5 pin 1 (Item 1, left-side screw terminal) on the Cricket board and the meter (-) lead to chassis ground (Item 2).



Item	Description
1	Connect DC voltmeter (+) to J5 pin 1 (left-side screw terminal)
2	Connect DC voltmeter (-) to chassis ground

Figure 1-7 Cricket board test points

WARNING



ELECTRICAL SHOCK HAZARD
IF THE SYSTEM CANNOT BE LOCKED OUT, OR IF THE SYSTEM FAILS
VERIFICATION, CONTACT YOUR SUPERVISOR.

13. Perform the necessary service or repair.

1.2.3 Returning system to service

1. Notify affected personnel that LOTO devices are being removed and equipment is being re-energized.
2. Verify that the area is safe to re-energize the equipment.
3. Verify that any safety guards or devices have been reinstalled, and replace all guards and covers as necessary.
4. Remove tools and all non-essential equipment.
5. Verify that all personnel are clear and in a safe position.
6. Verify that all controls and switches are in the off or neutral position.
7. Remove locks and tags as appropriate.

8. Re-energize equipment and follow safe startup procedures.
9. Notify affected persons that energy has been restored.

Section 1.3 Electrostatic discharge (ESD)

A sudden discharge of static electricity from your finger or other conductor can destroy static sensitive devices or microcircuitry. Often the spark is neither felt nor heard, but damage occurs. An electronic device exposed to electrostatic discharge (ESD) might not appear to be affected at all and can work perfectly throughout a normal cycle. The device can function normally for a while, but it has been degraded in the internal layers, reducing its life expectancy.

Networks built into many integrated circuits provide some protection, but in many cases, the discharge contains enough power to alter device parameters or melt silicon junctions.

1.3.1 Important ESD considerations when working on a mobile system

NOTICE



Static Discharge Risk to Components

If you are using a static mat or wrist strap, be sure to connect the mat and strap to machine ground, not earth ground. This is necessary to isolate yourself from earth ground and equalize your potential with the machine.

ESD damage prevention includes these steps:

1. Perform LOTO.
2. Verify that the AC plug is not connected to an energy source/outlet.
3. Connect ground mat and wrist strap assembly to frame connection point of the mobile unit.

1.3.2 Generating static

The following table shows that different activities generate different amounts of static electricity, and that static electricity increases as humidity decreases.

Table 1-2

Event	Relative humidity		
	55%	40%	10%
Walking across carpet	7,500 V	15,000 V	35,000 V
Walking across vinyl floor	3,000 V	5,000 V	12,000 V
Motions of bench worker	400 V	800 V	6,000 V
Removing bubble pack from PCB	7,000 V	20,000 V	26,500 V
Packing PCBs in foam-lined box	5,000 V	11,000 V	21,000 V

Many electronic components are sensitive to ESD. Circuitry design and structure determine the degree of sensitivity. The following packaging and grounding precautions are necessary to prevent damage to electric components and accessories.

- Transport products in static-safe containers to avoid hand contact.

- Protect all electrostatic parts and assemblies with conductive or approved containers or packaging.
- Keep electrostatic sensitive parts in their containers until they arrive at static-free stations.
- Place items on a grounded surface before removing them from their container.
- When handling or touching a sensitive component or assembly, ground yourself by touching the chassis.
- Avoid contact with pins, leads, or circuitry.
- Place reusable electrostatic-sensitive parts from assemblies in protective packaging or conductive foam.

1.3.3 Personal grounding methods and equipment

WARNING



ELECTRICAL SHOCK HAZARD

This section defines a workzone that is not connected to the system under service. The mobile system is a battery powered unit that can deliver lethal current. Ensure you are not providing an earth ground path when practicing ESD procedures.

Use the following equipment to prevent static electricity damage to equipment:

- Wrist straps are flexible straps with a maximum of one-megohm +/- 10% resistance in the ground cords. To provide a proper ground, wear the strap against bare skin. The ground cord must connect snugly into the banana plug connector on the grounding mat or workstation.
- Heel, toe, and boot straps can be used at standing workstations and are compatible with most types of shoes or boots. On conductive floors or dissipative floor mats, use them on both feet with a maximum of one-megohm +/- 10% resistance between the operator and ground.

1.3.3.1 Static shielding protection levels

Table 1-3

Method	Voltage
Antistatic plastic	1,500
Carbon-loaded plastic	7,500
Metalized laminate	15,000

1.3.4 Grounding the work area

WARNING



ELECTRICAL SHOCK HAZARD

This section defines a workzone that is not connected to the system under service. The mobile system is a battery powered unit that can deliver lethal current. Ensure you are not providing an earth ground path when practicing ESD procedures.

To prevent static damage of components and parts in the work area:

- Cover the work surface with approved static-dissipative material. Provide a wrist strap connected to the work surface and properly grounded tools and equipment.
- Use static-dissipative mats, foot straps, or air ionizers to give added protection.
- Handle electrostatic sensitive components, parts, and assemblies by case or PCB laminate.
- Handle components only at static-free work areas.
- Turn off power and input signals before inserting and removing connectors or test equipment.
- Use static-safe fixtures when fixtures must directly contact dissipative surfaces.
- Keep work area free of non-conductive materials, like plastic assembly aids and Styrofoam.

1.3.5 Recommended materials and equipment

⚠ WARNING



ELECTRICAL SHOCK HAZARD

This section defines a workzone that is not connected to the system under service. The mobile system is a battery powered unit that can deliver lethal current. Ensure you are not providing an earth ground path when practicing ESD procedures.

Materials and equipment that are recommended for use in preventing static electricity include:

- Anti-static tape, smocks, aprons, or sleeve protectors
- Conductive bins, foam, tabletop workstations with ground cord of one-megohm +/-10% resistance, and other assembly or soldering aids
- Static-dissipative table or floor mats with hard tie to ground
- ESD field service kits
- Static awareness labels
- Wrist straps and footwear straps providing one-megohm +/-10% resistance
- Material handling packages:
 - Conductive plastic bags, plastic tubes and tote boxes
 - Opaque shielding bags
 - Transparent metalized shielding bags and shielding tubes

Chapter 2 Installation procedure

Contact a GE service representative to install the wireless handswitch.

Leave the wired handswitch on the system as a backup.

1. Remove both side covers and the top cover. See System manual 5336122-1EN, Chapter 8, Section 8.1.2 - Top cover removal.
2. Identify the components of the kit shown below ([Table 2-1](#), [Figure 2-1](#), [Figure 2-2](#)):

Table 2-1 Wireless handswitch kit 5503600

Part Number	Description
5503600:	Wireless Handswitch kit, contains the following items:
5503601	Wireless Handswitch Collector (see Figure 2-1): PCB Module (with cable) Spare transmitter Remote Finder/Transmitter Cradle Receiver (with cable)
5486733	Receiver Mount (see Figure 2-2)
5497064	Self-tapping Screw, KA35 X 10mm, Phillips Pan Head (not shown)
5497362	Drill Bit, 0.5 inch with 0.375 inch shank (not shown)
5497364	Drill Bit, #22 (not shown)
5498227-1EN	Wireless Handswitch Installation Manual (this document)
46-302200P7	Rating Plate (not shown)

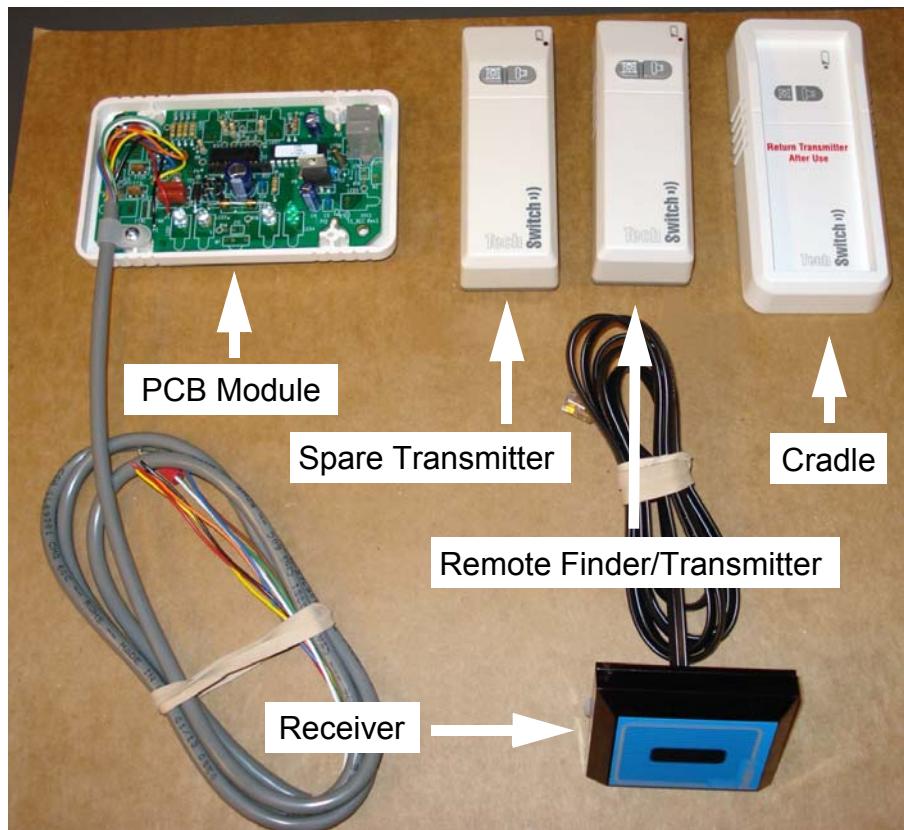


Figure 2-1 Wireless Handswitch Collector - 5503601

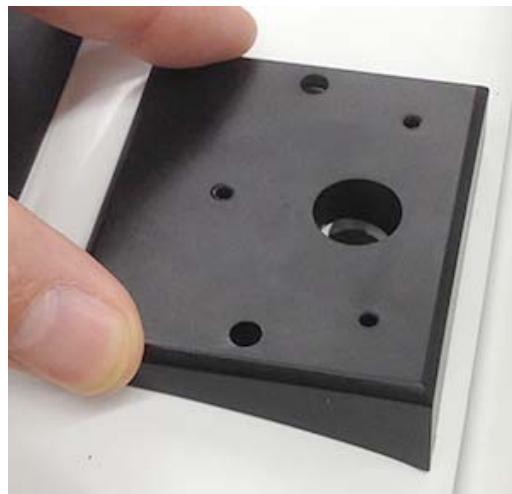


Figure 2-2 Receiver mount

3. Remove the existing nut and washer located behind where the PCB Module is to be placed, then attach the ground wire from the PCB Module to the system chassis stud and re-install the washer and nut. See [Figure 2-3](#).

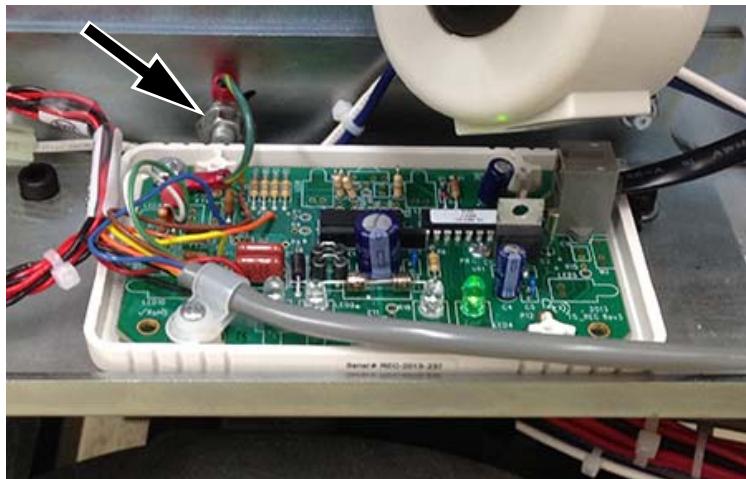


Figure 2-3 Attach ground wire

4. Mount the PCB Module in the bottom of the Thorax as shown below ([Figure 2-4](#)) by removing the adhesive liner and applying pressure to activate the adhesive.

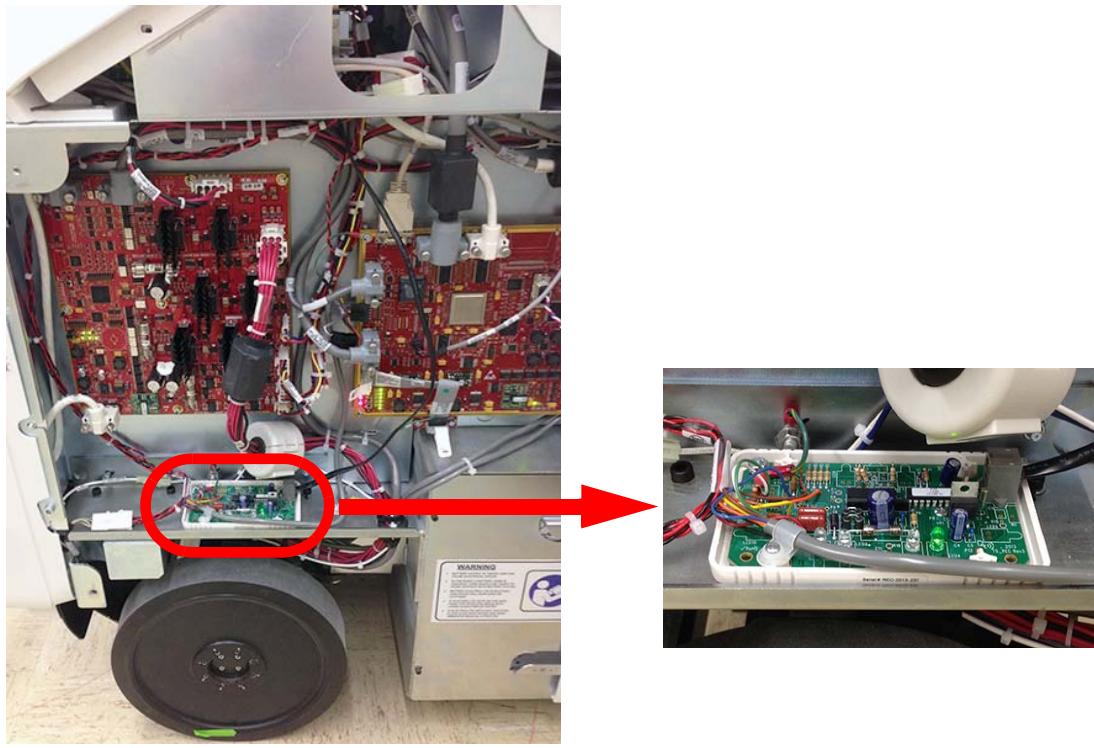


Figure 2-4 Mount PCB module in bottom of Thorax

5. Route the cable attached to the PCB Module up along the main cable bundle between the Spyder and Locust boards. See [Figure 2-5](#).

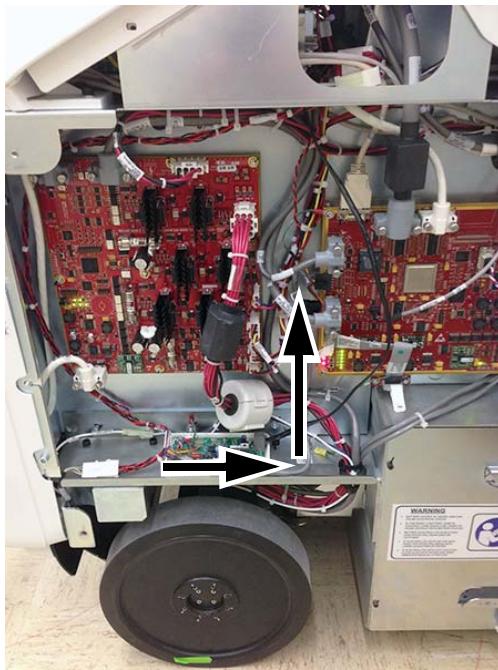


Figure 2-5 Route cable

6. Disconnect the J5 plug from the Spyder board and plug into End C of the main cable from the PCB Module.
Plug End B of the main cable into Spyder J5.
See [Figure 2-6](#) to see how connections appear after re-wiring is complete.

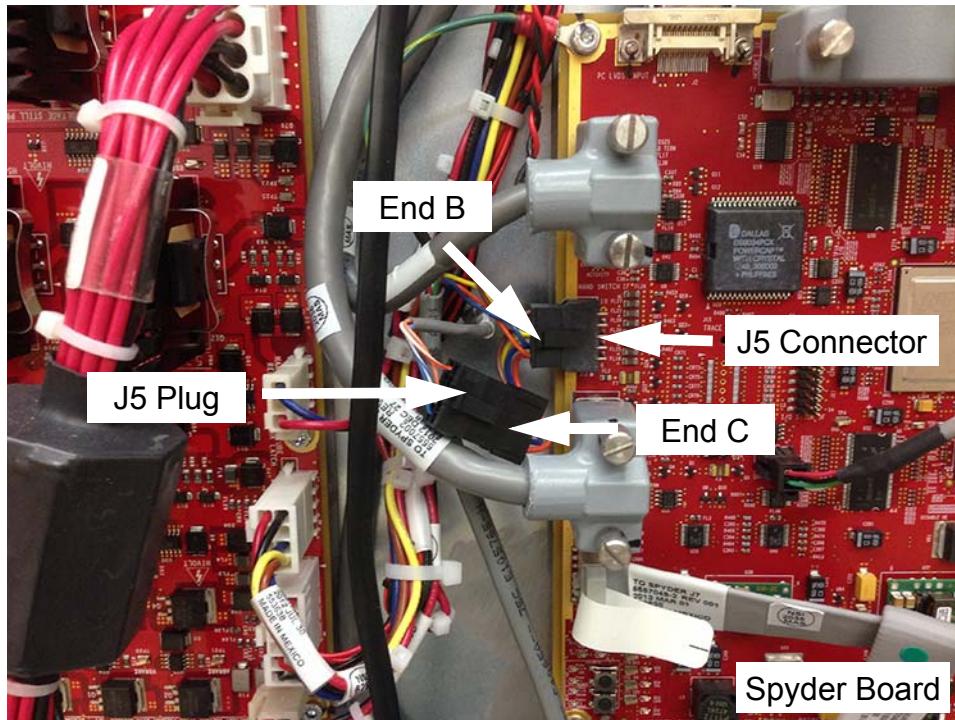


Figure 2-6 Cable connection to Spyder board

7. Remove the top-left mounting fastener on the Spyder board and mount the ground terminal, End D, of the main cable underneath the head of the fastener. See [Figure 2-7](#).

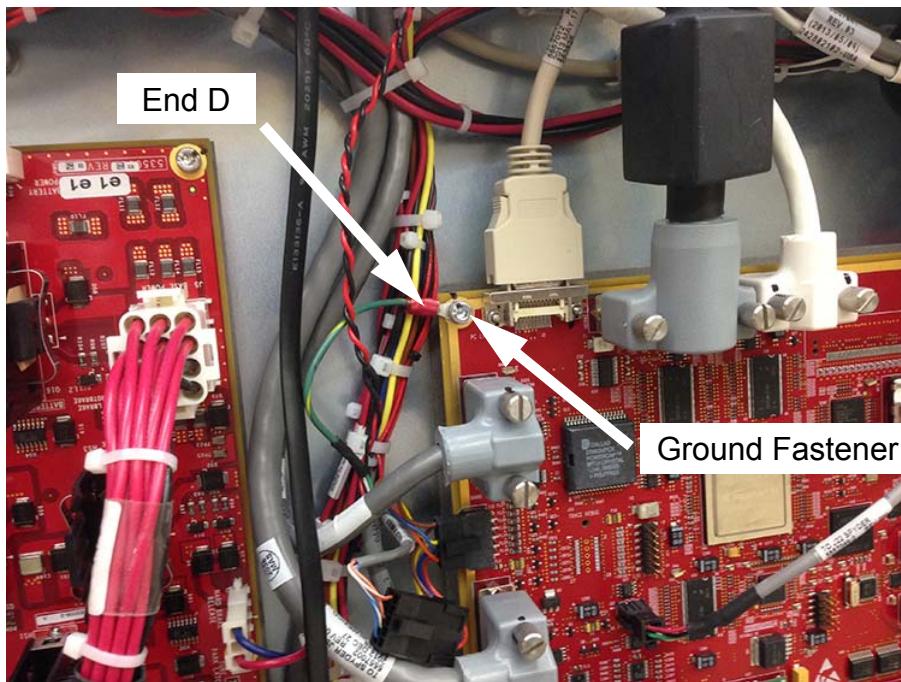


Figure 2-7 Ground connection

8. Continue routing the main cable (twisted black and red wires) up through the Thorax ([Figure 2-8](#)) to the LVLE2 and plug End A of the main cable into J6 on the LVLE2 ([Figure 2-9](#)).

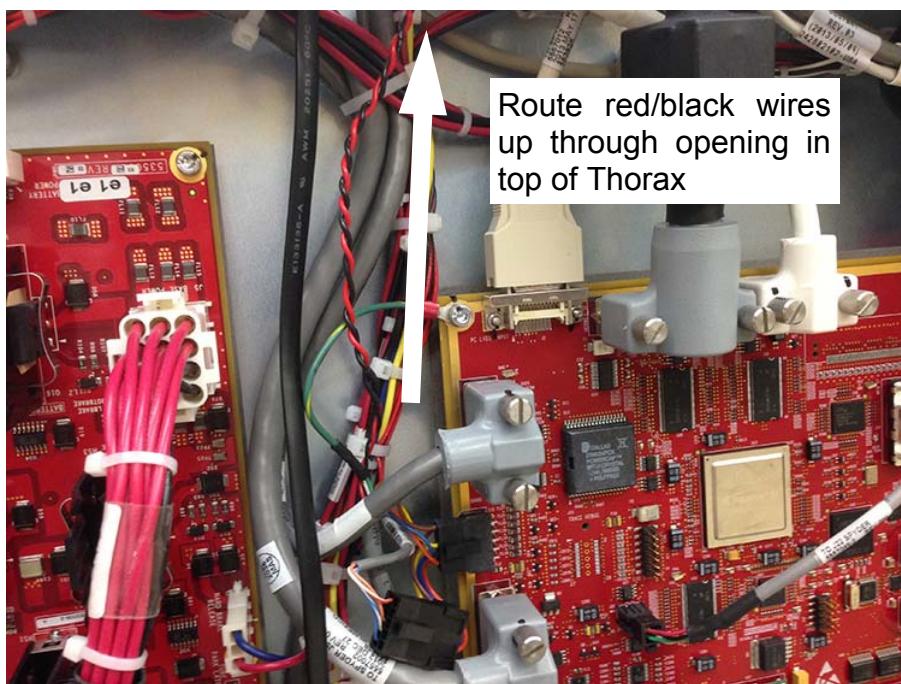


Figure 2-8 Route red/black wires

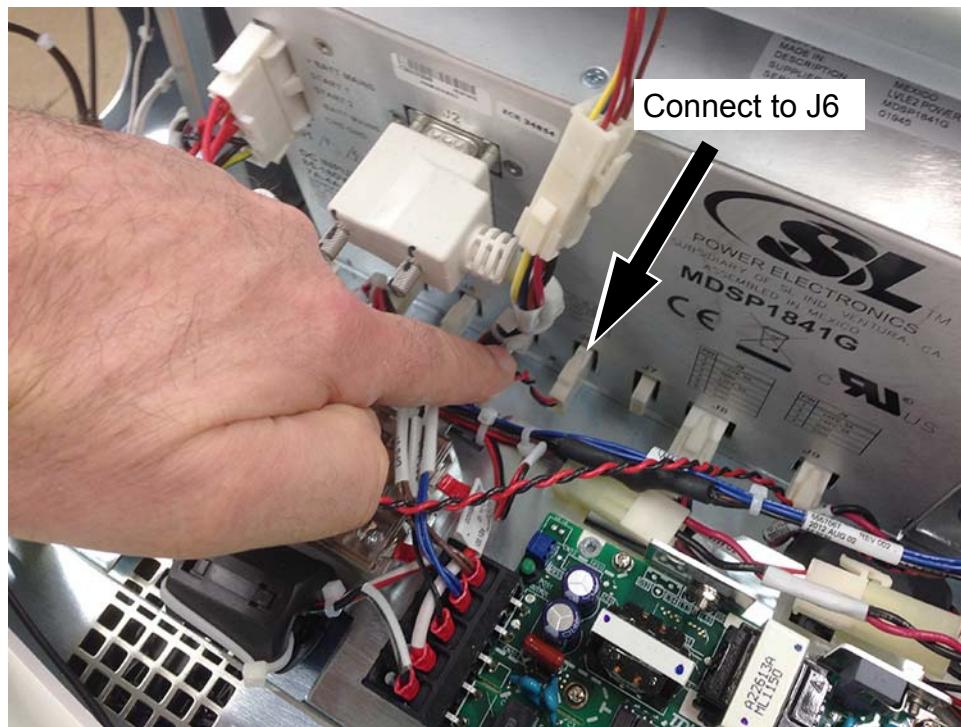


Figure 2-9 Connect cable to LVLE2 J6

9. Position the Receiver Mount on the top cover. The mount is curved and will fit the contour of the top cover when it is located in the proper position. See [Figure 2-10](#) for approximate location.



Figure 2-10 Receiver mount location

10. While holding the Receiver Mount securely in position, mark the locations for the 3 mounting holes and the cable access hole. See [Figure 2-11](#).

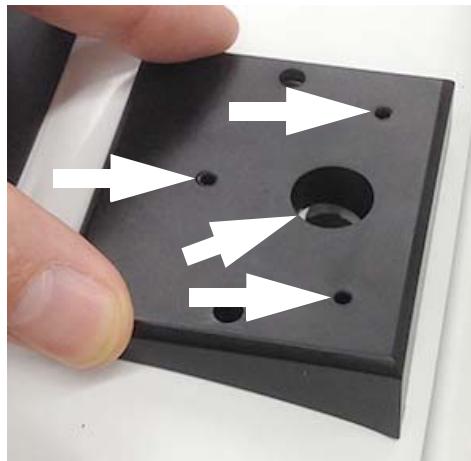


Figure 2-11 Mark holes

11. Drill the holes in the top cover using the drill bits provided in the kit. See [Figure 2-12](#).



Figure 2-12 Drill holes

12. Temporarily remove the two nylon nuts from the standoffs on the Receiver. Run the cable of the Receiver through the $\frac{1}{2}$ " diameter hole in the Receiver Mount, then place the Receiver onto the Receiver Mount and reinstall the nylon nuts to secure it to the mount. Do not over-tighten the plastic nuts. See [Figure 2-13](#).



Figure 2-13 Assemble receiver and receiver mount

13. Use a pair of cutters to remove the excessive length of the standoffs so that they are flush with the surface of the Receiver Mount. See [Figure 2-14](#).

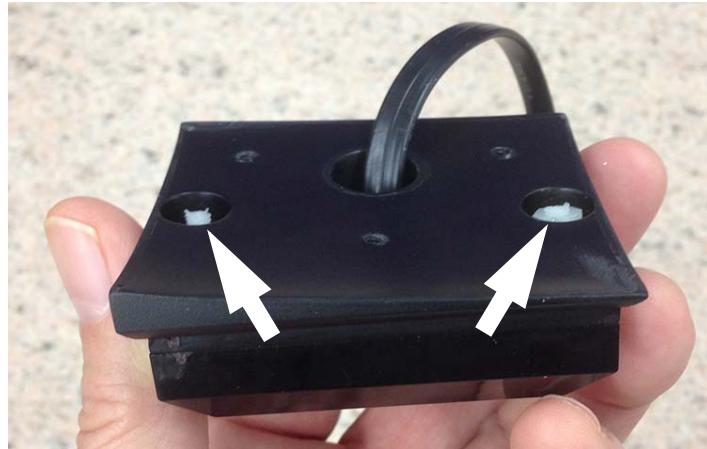


Figure 2-14 Trim standoffs

14. Run the cable of the Receiver through the $\frac{1}{2}$ " diameter hole in the top cover.
15. Attach the Receiver/Mount assembly to the top cover using the 3 self-tapping screws provided in the kit. See [Figure 2-15](#). Do not over-tighten the screws.

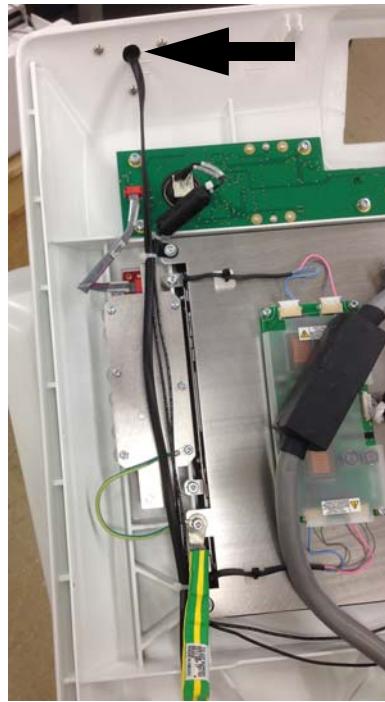


Figure 2-15 Attach Receiver/Mount assembly to top cover

16. Route the cable along the power switch cable of the top cover. See [Figure 2-16](#). Zip tie the cables as necessary.

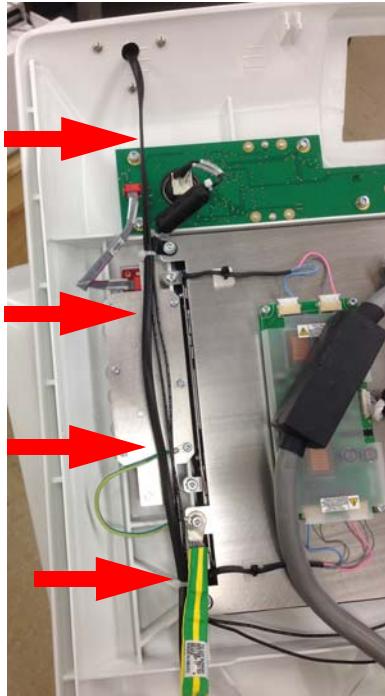


Figure 2-16 Route the cable

17. Continue routing the cable along the side of the PC and down through the hole in the sheet metal of the Thorax and between the Locust and Spyder boards. Plug the cable into the connector on the PCB Module. See [Figure 2-17](#). Zip tie the cables as necessary.

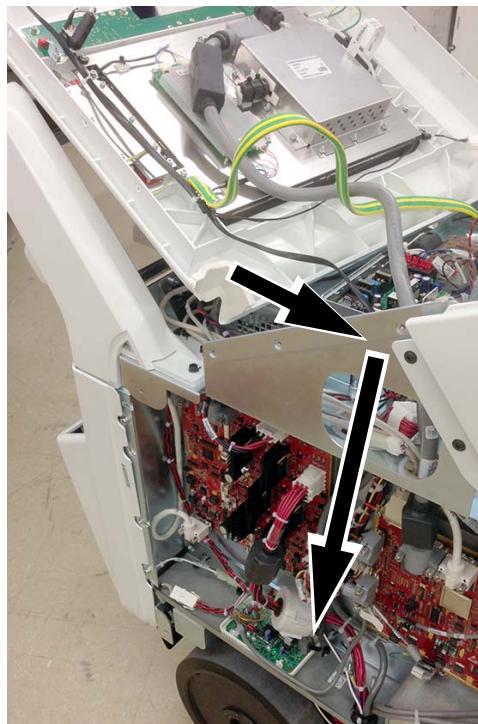


Figure 2-17 Route cable to PCB Module

18. Re-install the top cover and the side covers.
19. Mount the cradle (in the customer's desired location) by removing the adhesive liner and applying pressure to activate the adhesive.
20. Power up the system.
21. Press the collimator light button on the wireless handswitch.
If the collimator light on the system goes on, the wireless handswitch is ready for use.
22. Confirm that the system will take exposures using the wireless handswitch.
23. Apply the rating plate:
 - a. Apply the rating plate label to front cover, next to the power cord area. See [Figure 2-18](#).

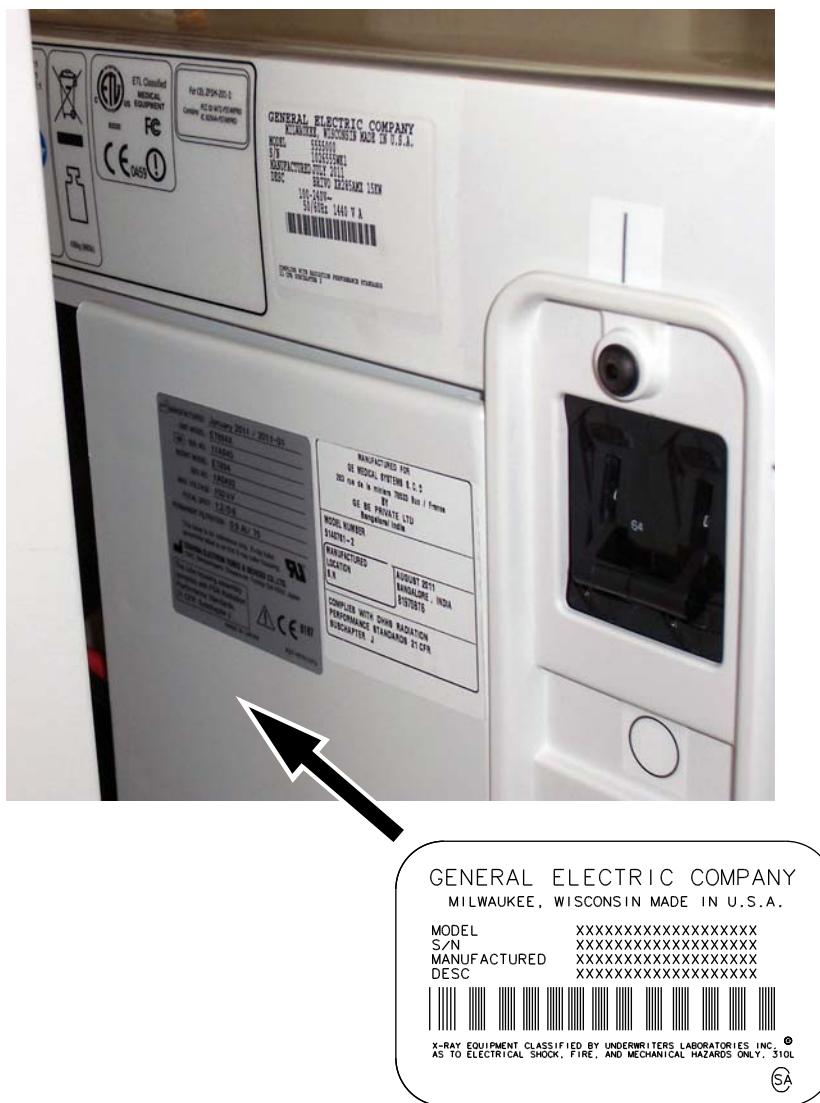


Figure 2-18 Apply rating plate

- b. Fill out and submit the product locator card(s).

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