

Nemoto Kyorindo

Dual Shot Alpha FRU Procedures



OPERATING DOCUMENTATION

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IMPORTANT PRECAUTIONS

LANGUAGE

ПРЕДУПРЕЖДЕНИЕ

(BG)

- ТОВА УПЪТВАНЕ ЗА РАБОТА Е НАЛИЧНО САМО НА АНГЛИЙСКИ ЕЗИК.
- АКО ДОСТАВЧИКЪТ НА УСЛУГАТА НА КЛИЕНТА ИЗИСКА ЕЗИК, РАЗЛИЧЕН ОТ АНГЛИЙСКИ, ЗАДЪЛЖЕНИЕ НА КЛИЕНТА Е ДА ОСИГУРИ ПРЕВОД.
- НЕ ИЗПОЛЗВАЙТЕ ОБОРУДВАНЕТО ПРЕДИ ДА СТЕ СЕ КОНСУЛТИРАЛИ И РАЗБРАЛИ УПЪТВАНЕТО ЗА РАБОТА.
- НЕСПАЗВАНЕТО НА ТОВА ПРЕДУПРЕЖДЕНИЕ МОЖЕ ДА ДОВЕДЕ ДО НАРАНЯВАНЕ НА ДОСТАВЧИКА НА УСЛУГАТА, ОПЕРАТОРА ИЛИ ПАЦИЕНТ В РЕЗУЛТАТ НА ТОКОВ УДАР ИЛИ МЕХАНИЧНА ИЛИ ДРУГА ОПАСНОСТ.

警告

(ZH-CN)

- 本维修手册仅提供英文版本。
- 如果维修服务提供商需要非英文版本，客户需自行提供翻译服务。
- 未详细阅读和完全理解本维修手册之前，不得进行维修。
- 忽略本警告可能对维修人员，操作员或患者造成触电、机械伤害或其他形式的伤害。

VÝSTRAHA

(CS)

- TENTO PROVOZNÍ NÁVOD EXISTUJE POUZE V ANGLICKÉM JAZYCE.
- V PŘÍPADĚ, ŽE EXTERNÍ SLUŽBA ZÁKAZNÍKŮM POTŘEBUJE NÁVOD V JINÉM JAZYCE, JE ZAJIŠTĚNÍ PŘEKLADU DO ODPOVÍDAJÍCÍHO JAZYKA ÚKOLEM ZÁKAZNÍKA.
- NESNAŽTE SE O ÚDRŽBU TOHOTO ZAŘÍZENÍ, ANIŽ BYSTE SI PŘEČETLI TENTO PROVOZNÍ NÁVOD A POCHOPILI JEHO OBSAH.
- V PŘÍPADĚ NEDODRŽOVÁNÍ TÉTO VÝSTRAHY MŮŽE DOJÍT K PORANĚNÍ PRACOVNÍKA PRODEJNÍHO SERVISU, OBSLUŽNÉHO PERSONÁLU NEBO PACIENTŮ VLIVEM ELEKTRICKÉHO PROUDU, RESPEKTIVE VLIVEM MECHANICKÝCH ČI JINÝCH RIZIK.

ADVARSEL

(DA)

- DENNE SERVICEMANUAL FINDES KUN PÅ ENGELSK.
- HVIS EN KUNDES TEKNIKER HAR BRUG FOR ET ANDET SPROG END ENGELSK, ER DET KUNDENS ANSVAR AT SØRGE FOR OVERSÆTTELSE.
- FORSØG IKKE AT SERVICERE Udstyret medmindre denne servicemanual har været konsulteret og er forstået.
- MANGLENDE OVERHOLDELSE AF DENNE ADVARSEL KAN MEDFØRE SKADE PÅ GRUND AF ELEKTRISK, MEKANISK ELLER ANDEN FARE FOR TEKNIKEREN, OPERATØREN ELLER PATIENTEN.

WAARSCHUWING

(NL)

- DEZE ONDERHOUDSHANDLEIDING IS ENKEL IN HET ENGELS VERKRIJGBAAR.
- ALS HET ONDERHOUDSPERSONEEL EEN ANDERE TAAL VEREIST, DAN IS DE KLANT VERANTWOORDELIJK VOOR DE VERTALING ERVAN.
- PROBEER DE APPARATUUR NIET TE ONDERHOUDEN VOORDAT DEZE ONDERHOUDSHANDLEIDING WERD GERAADPLEEGD EN BEGREPEN IS.
- INDIEN DEZE WAARSCHUWING NIET WORDT OPGEVOLGD, ZOU HET ONDERHOUDSPERSONEEL, DE OPERATOR OF EEN PATIËNT GEWOND KUNNEN RAKEN ALS GEVOLG VAN EEN ELEKTRISCHE SCHOK, MECHANISCHE OF ANDERE GEVAREN.
- THIS SERVICE MANUAL IS AVAILABLE IN ENGLISH ONLY.

WARNING

(EN)

- IF A CUSTOMER'S SERVICE PROVIDER REQUIRES A LANGUAGE OTHER THAN ENGLISH, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE TRANSLATION SERVICES.
- DO NOT ATTEMPT TO SERVICE THE EQUIPMENT UNLESS THIS SERVICE MANUAL HAS BEEN CONSULTED AND IS UNDERSTOOD.
- FAILURE TO HEED THIS WARNING MAY RESULT IN INJURY TO THE SERVICE PROVIDER, OPERATOR, OR PATIENT FROM ELECTRIC SHOCK, OR FROM MECHANICAL OR OTHER HAZARDS.

HOIATUS

(ET)

- KÄESOLEV TEENINDUSJUHEND ON SAADAVAL AINULT INGLISE KEELES.
- KUI KLIENDITEENINDUSE OSUTAJA NÕUAB JUHENDIT INGLISE KEELEST ERINEVAS KEELES, VASTUTAB KLIENT TÖLKETEENUSE OSUTAMISE EEST.
- ÄRGE ÜRITAGE SEADMEID TEENINDADA ENNE EELNEVALT KÄESOLEVA TEENINDUSJUHENDIGA TUTVUMIST JA SELLEST ARU SAAMIST.

VAROITUS

(FI)

- KÄESOLEVA HOIATUSE EIRAMINE VÕIB PÕHJUSTADA TEENUSEOSUTAJA, OPERAATORI VÕI PATSIENDI VIGASTAMIST ELEKTRILÖÖGI, MEHAANILISE VÕI MUU OHU TAGAJÄRJEL.
- TÄMÄ HUOLTO-OHJE ON SAATAVILLA VAIN ENGLANNIKSI.
- JOS ASIAKKAAN HUOLTOHENKILÖSTÖ VAATII MUUTA KUIN ENGLANNINKIELISTÄ MATERIAALIA, TARVITTAVAN KÄÄNNÖKSEN HANKKIMINEN ON ASIAKKAAN VASTUULLA.
- ÄLÄ YRITÄ KORJATA LAITTEISTOA ENNEN KUIN OLET VARMASTI LUKENUT JA YMMÄRTÄNYT TÄMÄN HUOLTO-OHJEEN.
- MIKÄLI TÄTÄ VAROITUSTA EI NOUDATETA, SEURAUKSENA VOI OLLA HUOLTOHENKILÖSTÖN, LAITTEISTON KÄYTTÄJÄN TAI POTILAAN VAHINGOITTUMINEN SÄHKÖISKUN, MEKAANISEN VIAN TAI MUUN VAARATILANTEEN VUOKSI.

ATTENTION

(FR)

- CE MANUEL DE SERVICE N'EST DISPONIBLE QU'EN ANGLAIS.
- SI LE TECHNICIEN DU CLIENT A BESOIN DE CE MANUEL DANS UNE AUTRE LANGUE QUE L'ANGLAIS, C'EST AU CLIENT QU'IL INCOMBE DE LE FAIRE TRADUIRE.
- NE PAS TENTER D'INTERVENIR SUR LES EQUIPEMENTS TANT QUE LE MANUEL SERVICE N'A PAS ETE CONSULTE ET COMPRIS
- LE NON-RESPECT DE CET AVERTISSEMENT PEUT ENTRAÎNER CHEZ LE TECHNICIEN, L'OPÉRATEUR OU LE PATIENT DES BLESSURES DUES À DES DANGERS ÉLECTRIQUES, MÉCANIQUES OU AUTRES.

WARNUNG

(DE)

- DIESE SERVICEANLEITUNG EXISTIERT NUR IN ENGLISCHER SPRACHE.
- FALLS EIN FREMDER KUNDENDIENST EINE ANDERE SPRACHE BENÖTIGT, IST ES AUFGABE DES KUNDEN FÜR EINE ENTSPRECHENDE ÜBERSETZUNG ZU SORGEN.
- VERSUCHEN SIE NICHT DIESE ANLAGE ZU WARTEN, OHNE DIESE SERVICEANLEITUNG GELESEN UND VERSTANDEN ZU HABEN.
- WIRD DIESE WARNUNG NICHT BEACHTET, SO KANN ES ZU VERLETZUNGEN DES KUNDENDIENSTTECHNIKERS, DES BEDIENERS ODER DES PATIENTEN DURCH STROMSCHLÄGE, MECHANISCHE ODER SONSTIGE GEFAHREN KOMMEN.

ΠΡΟΕΙΔΟΠΟΙΗΣΗ

(EL)

- ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ ΔΙΑΤΙΘΕΤΑΙ ΣΤΑ ΑΓΓΛΙΚΑ ΜΟΝΟ.
- ΕΑΝ ΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ ΕΝΟΣ ΠΕΛΑΤΗ ΑΠΑΙΤΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕ ΓΛΩΣΣΑ ΕΚΤΟΣ ΤΩΝ ΑΓΓΛΙΚΩΝ, ΑΠΟΤΕΛΕΙ ΕΥΘΥΝΗ ΤΟΥ ΠΕΛΑΤΗ ΝΑ ΠΑΡΕΧΕΙ ΥΠΗΡΕΣΙΕΣ ΜΕΤΑΦΡΑΣΗΣ.
- ΜΗΝ ΕΠΙΧΕΙΡΗΣΕΤΕ ΤΗΝ ΕΚΤΕΛΕΣΗ ΕΡΓΑΣΙΩΝ ΣΕΡΒΙΣ ΣΤΟΝ ΕΞΟΠΛΙΣΜΟ ΕΚΤΟΣ ΕΑΝ ΕΧΕΤΕ ΣΥΜΒΟΥΛΕΥΤΕΙ ΚΑΙ ΕΧΕΤΕ ΚΑΤΑΝΟΗΣΕΙ ΤΟ ΠΑΡΟΝ ΕΓΧΕΙΡΙΔΙΟ ΣΕΡΒΙΣ.
- ΕΑΝ ΔΕ ΛΑΒΕΤΕ ΥΠΟΨΗ ΤΗΝ ΠΡΟΕΙΔΟΠΟΙΗΣΗ ΑΥΤΗ, ΕΝΔΕΧΕΤΑΙ ΝΑ ΠΡΟΚΛΗΘΕΙ ΤΡΑΥΜΑΤΙΣΜΟΣ ΣΤΟ ΑΤΟΜΟ ΠΑΡΟΧΗΣ ΣΕΡΒΙΣ, ΣΤΟ ΧΕΙΡΙΣΤΗ Ή ΣΤΟΝ ΑΣΘΕΝΗ ΑΠΟ ΗΛΕΚΤΡΟΠΛΗΘΙΑ, ΜΗΧΑΝΙΚΟΥΣ Ή ΑΛΛΟΥΣ ΚΙΝΔΥΝΟΥΣ.

FIGYELMEZTETÉS

(HU)

- EZEN KARBANTARTÁSI KÉZIKÖNYV KIZÁRÓLAG ANGOL NYELVEN ÉRHEŐ EL.
- HA A VEVŐ SZOLGÁLTATÓJA ANGOLTÓL ELTÉRŐ NYELVRE TART IGÉNYT, AKKOR A VEVŐ FELELŐSSÉGE A FORDÍTÁS ELKÉSZÍTTETÉSE.
- NE PRÓBÁLJA ELKEZDENI HASZNÁLNI A BERENDEZÉST, AMÍG A KARBANTARTÁSI KÉZIKÖNYVBEN LEÍRTAKAT NEM ÉRTELMEZTÉK.
- EZEN FIGYELMEZTETÉS FIGYELMEN KÍVÜL HAGYÁSA A SZOLGÁLTATÓ, MŰKÖDTETŐ VAGY A BETEG ÁRAMÚTÉS, MECHANIKAI VAGY EGYÉB VESZÉLYHELYZET MIATTI SÉRÜLÉSÉT EREDMÉNYEZHETI.

ADVÖRUN

(IS)

- ÞESSI ÞJÓNUSTUHANDBÓK ER EINGÖNGU FÁANLEG Á ENSKU.
- EF AÐ ÞJÓNUSTUVEITANDI VIÐSKIPTAMANNS ÞARFNAST ANNAS TUNGUMÁLS EN ENSKU, ER ÞAÐ SKYLDA VIÐSKIPTAMANNS AÐ SKAFFA TUNGUMÁLAPJÓNUSTU.
- REYNIÐ EKKI AÐ AFGREIÐA TÆKIÐ NEMA AÐ ÞESSI ÞJÓNUSTUHANDBÓK HEFUR VERIÐ SKOÐUÐ OG SKILIN.
- BROT Á SINNA ÞESSARI AÐVÖRUN GETUR LEITT TIL MEIÐSLA Á ÞJÓNUSTUVEITANDA, STJÓRNANDA EÐA SJÚKLINGS FRÁ RAFLOSTI, VÉLRÆNU EÐA ÖÐRUM ÁHÆTTUM.

AVVERTENZA

(IT)

- IL PRESENTE MANUALE DI MANUTENZIONE E DISPONIBILE SOLTANTO IN INGLESE.
- SE UN ADDETTO ALLA MANUTENZIONE ESTERNO ALLA GEMS RICHIEDE IL MANUALE IN UNA LINGUA DIVERSA, IL CLIENTE E TENUTO A PROVVEDERE DIRETTAMENTE ALLA TRADUZIONE.
- SI PROCEDA ALLA MANUTENZIONE DELL'APPARECCHIATURA SOLO DOPO AVER CONSULTATO IL PRESENTE MANUALE ED AVERNE COMPRESO IL CONTENUTO
- IL NON RISPETTO DELLA PRESENTE AVVERTENZA POTREBBE FAR COMPIERE OPERAZIONI DA CUI DERIVINO LESIONI ALL'ADDETTO ALLA MANUTENZIONE, ALL'UTILIZZATORE ED AL PAZIENTE PER FOLGORAZIONE ELETTRICA, PER URTI MECCANICI OD ALTRI RISCHI.

警告

(JA)

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

(LV)

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

ĮSPĖJIMAS

(LT)

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

ADVARSEL

(NO)

- DENNE SERVICEHÅNDBOKEN FINNES BARE PÅ ENGELSK.
- HVIS KUNDENS SERVICELEVERANDØR TRENGER ET ANNET SPRÅK, ER DET KUNDENS ANSVAR Å SØRGE FOR OVERSETTELSE.
- IKKE FORSØK Å REPARERE UTSTYRET UTEN AT DENNE SERVICEHÅNDBOKEN ER LEST OG FORSTÅTT.
- MANGLENDE HENSYN TIL DENNE ADVARSELEN KAN FØRE TIL AT SERVICELEVERANDØREN, OPERATØREN ELLER PASIENTEN SKADES PÅ GRUNN AV ELEKTRISK STØT, MEKANISKE ELLER ANDRE FARER.

OSTRZEŻENIE

(PL)

- NINIEJSZY PODRĘCZNIK SERWISOWY DOSTĘPNY JEST JEDYNIEM W JĘZYKU ANGIELSKIM.
- JEŚLI DOSTAWCA USŁUG KLIENTA WYMAGA JĘZYKA INNEGO NIŻ ANGIELSKI, ZAPEWNIENIE USŁUGI TŁUMACZENIA JEST OBOWIĄZKIEM KLIENTA.
- NIE PRÓBOWAĆ SERWISOWAĆ WYPOSAŻENIA BEZ ZAPOZNANIA SIĘ I ZROZUMIENIA NINIEJSZEGO PODRĘCZNIKA SERWISOWEGO.
- NIEZASTOSOWANIE SIĘ DO TEGO OSTRZEŻENIA MOŻE SPOWODOWAĆ URAZY DOSTAWCY USŁUG, OPERATORA LUB PACJENTA W WYNIKU PORAŻENIA ELEKTRYCZNEGO, ZAGROŻENIA MECHANICZNEGO BĄDŹ INNEGO.

ATENÇÃO

(PT)

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

ATENȚIE

(RO)

- ACEST MANUAL DE SERVICE ESTE DISPONIBIL NUMAI ÎN LIMBA ENGLEZĂ.
- DACĂ UN FURNIZOR DE SERVICII PENTRU CLIENȚI NECESITĂ O ALTĂ LIMBĂ DECÂT CEA ENGLEZĂ, ESTE DE DATORIA CLIENTULUI SĂ FURNIZEZE O TRADUCERE.
- NU ÎNCERCAȚI SĂ REPARAȚI ECHIPAMENTUL DECÂT ULTERIOR CONSULTĂRII ȘI ÎNȚELEGERII ACESTUI MANUAL DE SERVICE.
- IGNORAREA ACESTUI AVERTISMENT AR PUTEA DUCE LA RĂNIREA DEPANATORULUI, OPERATORULUI SAU PACIENTULUI ÎN URMA PERICOLELOR DE ELECTROCUTARE, MECANICE SAU DE ALTĂ NATURĂ.

ОСТОРОЖНО!

(RU)

- ДАННОЕ РУКОВОДСТВО ПО ОБСЛУЖИВАНИЮ ПРЕДЛАГАЕТСЯ ТОЛЬКО НА АНГЛИЙСКОМ ЯЗЫКЕ.
- ЕСЛИ СЕРВИСНОМУ ПЕРСОНАЛУ КЛИЕНТА НЕОБХОДИМО РУКОВОДСТВО НЕ НА АНГЛИЙСКОМ, А НА КАКОМ-ТО ДРУГОМ ЯЗЫКЕ, КЛИЕНТУ СЛЕДУЕТ САМОСТОЯТЕЛЬНО ОБЕСПЕЧИТЬ ПЕРЕВОД.
- ПЕРЕД ОБСЛУЖИВАНИЕМ ОБОРУДОВАНИЯ ОБЯЗАТЕЛЬНО ОБРАТИТЕСЬ К ДАННОМУ РУКОВОДСТВУ И ПОЙМИТЕ ИЗЛОЖЕННЫЕ В НЕМ СВЕДЕНИЯ.
- НЕСОБЛЮДЕНИЕ ТРЕБОВАНИЙ ДАННОГО ПРЕДУПРЕЖДЕНИЯ МОЖЕТ ПРИВЕСТИ К ТОМУ, ЧТО СПЕЦИАЛИСТ ПО ОБСЛУЖИВАНИЮ, ОПЕРАТОР ИЛИ ПАЦИЕНТ ПОЛУЧАТ УДАР ЭЛЕКТРИЧЕСКИМ ТОКОМ, МЕХАНИЧЕСКУЮ ТРАВМУ ИЛИ ДРУГОЕ ПОВРЕЖДЕНИЕ.

UPOZORNENIE

(SK)

- TENTO NÁVOD NA OBSLUHU JE K DISPOZÍCII LEN V ANGLIČTINE.
- AK ZÁKAZNÍKOV POSKYTOVATEĽ SLUŽIEB VYŽADUJE INÝ JAZYK AKO ANGLIČTINU, POSKYTNUTIE PREKLADATEĽSKÝCH SLUŽIEB JE ZODPOVEDNOSŤOU ZÁKAZNÍKA.
- NEPOKÚŠAJTE SA O OBSLUHU ZARIADENIA SKÔR, AKO SI NEPREČÍTATE NÁVOD NA OBLUHU A NEPOROZUMIETE MU.
- ZANEDBANIE TOHTO UPOZORNENIA MÔŽE VYÚSTIŤ DO ZRANENIA POSKYTOVATEĽA SLUŽIEB, OBSLUHUJÚCEJ OSOBY ALEBO PACIENTA ELEKTRICKÝM PRÚDOM, DO MECHANICKÉHO ALEBO INÉHO NEBEZPEČENSTVA.

ATENCIÓN

(ES)

- ESTE MANUAL DE SERVICIO SOLO EXISTE EN INGLES.
- SI ALGUN PROVEEDOR DE SERVICIOS AJENO A GEMS SOLICITA UN IDIOMA QUE NO SEA EL INGLES, ES RESPONSABILIDAD DEL CLIENTE OFRECER UN SERVICIO DE TRADUCCION
- NO SE DEBERA DAR SERVICIO TECNICO AL EQUIPO, SIN HABER CONSULTADO Y COMPRENDIDO ESTE MANUAL DE SERVICIO
- LA NO OBSERVANCIA DEL PRESENTE AVISO PUEDE DAR LUGAR A QUE EL PROVEEDOR DE SERVICIOS, EL OPERADOR O EL PACIENTE SUFRAN LESIONES PROVOCADAS POR CAUSAS ELÉCTRICAS, MECÁNICAS O DE OTRA NATURALEZA.

VARNING

(SV)

- DEN HÄR SERVICEHANDBOKEN FINNS BARA TILLGÄNGLIG PÅ ENGELSKA.
- OM EN KUNDS SERVICETEKNIKER HAR BEHOV AV ETT ANNAT SPRÅK ÄN ENGELSKA ANSVARAR KUNDEN FÖR ATT TILLHANDAHÅLLA ÖVERSÄTTNINGSTJÄNSTER.
- FÖRSÖK INTE UTFÖRA SERVICE PÅ UTRUSTNINGEN OM DU INTE HAR LÄST OCH FÖRSTÅR DEN HÄR SERVICEHANDBOKEN.
- OM DU INTE TAR HÄNSYN TILL DEN HÄR VARNINGEN KAN DET RESULTERA I SKADOR PÅ SERVICETEKNIKERN, OPERATÖREN ELLER PATIENTEN TILL FÖLJD AV ELEKTRISKA STÖTAR, MEKANISKA FAROR ELLER ANDRA FAROR.

DİKKAT (TR)

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

DAMAGE IN TRANSPORTATION

All packages should be closely examined at time of delivery. If damage is apparent write "Damage In Shipment" on ALL copies of the freight or express bill BEFORE delivery is accepted or "signed for" by a General Electric representative or 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 8.
- Fill out a report on <http://us44hdd21/sctg/InstallFulfill/InstallFulfillment.htm>
- 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 Medical personnel. The products involved (and the accompanying electrical installations) are highly sophisticated, and special engineering competence is required. In performing all electrical work on these products, GE will use its own specially trained field engineers. All of GE's electrical work on these products will comply with the requirements of the applicable electrical codes.

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

OMISSIONS & ERRORS

Customers, please contact your GE Sales or Service representatives.

GE personnel, please use the GE Healthcare iTrak Process to report all omissions, errors, and defects in this publication.

REVISION HISTORY

Rev	Date	Author	Reason For Change
1	March 5, 2008	J. Knipfer	Initial version.
2	March 8, 2008	J. Knipfer	Synchronized versions with file server version. (Nemoto internal change)
3	March 9, 2008	J. Knipfer	Implemented GEHC requested changes.
4	April 21, 2008	J. Knipfer	Final version with all GEHC recommended changes.
5	May 7, 2008	J. Knipfer	Converted document to a Nemoto controlled document per GEHC
6	Nov. 8, 2008	J. Knipfer	Added Console cable to parts list and FRU replacement. Corrected view of 5267785 and 5266661 to match component Clarified description of Powerhead FRU to remove arm. Added FROM FRUs and Powerhead FRU Kit
7	Dec. 1, 2008	J. Knipfer	Added necessary FRU for the release of NCOM option
8	Jan. 16, 2009	J. Knipfer	Add blank page to end and update TOC.

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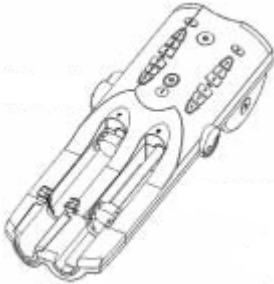
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1 - REPLACEMENT PARTS IDENTIFICATION

Powerhead

Part Number: 5268012 Standard
Note: To be replaced by 5328203



Console

Part Number: 5272762 Standard (obsolete)
5328196 NCOM Class 1 (USA)
5328197 NCOM Class 4 (non-USA)



Power Supply

Part Number: 5272264



Compact Flash Card

Part Number: 5263146



Handswitch

Part Number: 5266661



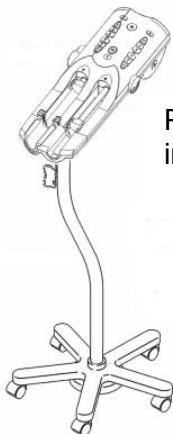
Powerhead Extension Cable

Part Number: 5262694 and 5268016



Floor Stand

Part Number: 5267340



Powerhead not included.

Powerhead Ceiling Mount Arm

Part Number: 5267785



Power Cable
Part Number: 5273017



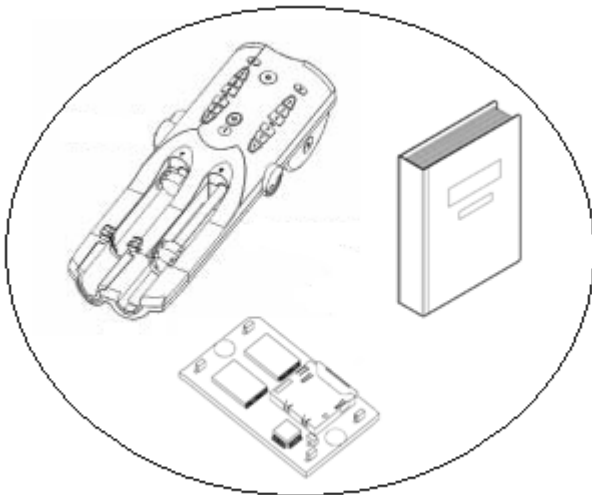
Fuse Kit
Part Number: 5272637

- Main Power Fuses:
 - 2 pieces of a Cartridge type, 5A, 250V
- Heater Fuses
 - 2 pieces of a Type HM, 0.5A, 250V
- Motor Fuses
 - 2 pieces of a Type HM, 3.2A, 250V

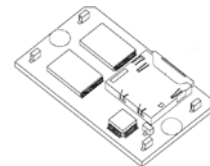
Console Cable
Part Number: 5272730



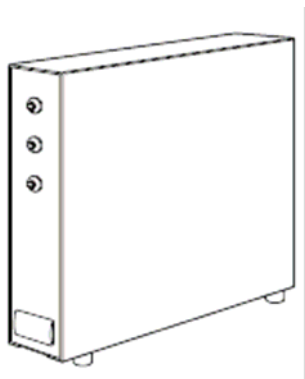
Powerhead Kits
Part Number: 5328203 Standard Version
5328198 NCOM Version



Console FROMs
Part Number: 5328204–System Version 1.0
5328205–System Version 1.5
5328206–System Version 2.1
5328207–System Version 2.2
5328208–System Version 2.3
5328200–System Version 3.0 NCOM



NCOM Hub
Part Number: 5328201



NCOM Serial Cable
Part Number: 5328202



2- POWERHEAD REPLACEMENT PROCEDURE

2-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	30mins	30mins	45mins

2-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Powerhead.

2-3 Preliminary Requirements

2-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
Service Kit	1	-	5308826	-
<ul style="list-style-type: none"> • (1) 200ml Graduated Cylinder • (1) 10ml Graduated Cylinder • (1) Stopwatch • (1) Pressure gauge • (1) 23g Needle • (1) 100ml PET Syringe • (1) 200ml PET Syringe • (1) Tubing set and stopcock 				
3mm Allen Wrench	1	-	-	Any
8mm Allen Wrench	1	-	-	Any
#2 Philips Screwdriver	1	-	-	Any
12mm Nut Driver or Socket	1	-	-	Any

2-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
200ml Syringe	1	-	E8004RF	-
100ml Syringe	1	-	E8004RG	-

2-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Powerhead	1	-	5268012	-

2-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

2-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. Disconnect Powerhead cable from:

- a. If a Powerhead extension cable is being used, disconnect Powerhead cable from Powerhead Extension cable.

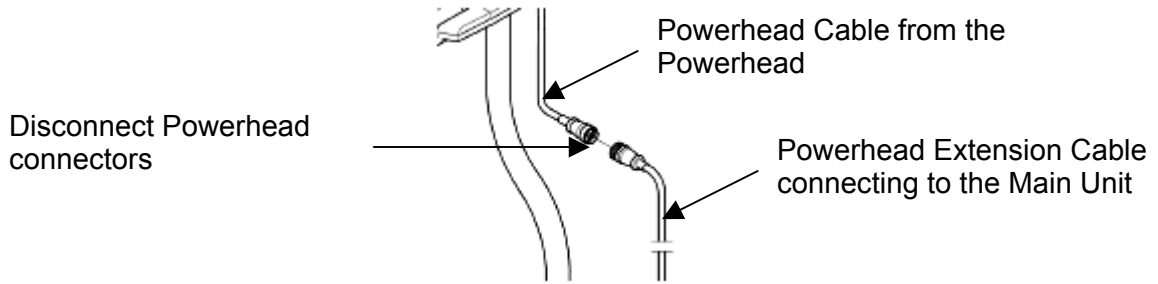


Illustration 2-4-1

- b. If the Powerhead is directly connected to Main Unit, disconnect Powerhead cable from rear of Main Unit.

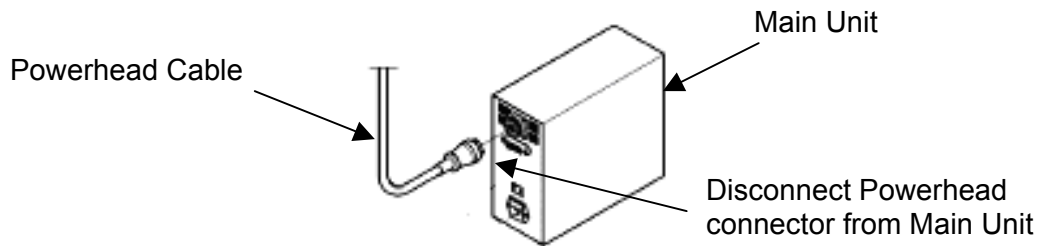


Illustration 2-4-2

- 4. The next step is to remove the Powerhead from the Remote Stand or from the Powerhead Ceiling Mount Arm. The process is the same regardless of which mounting system is being utilized. Follow Illustration 2-4-3 to correctly remove the Powerhead from the mounting system.

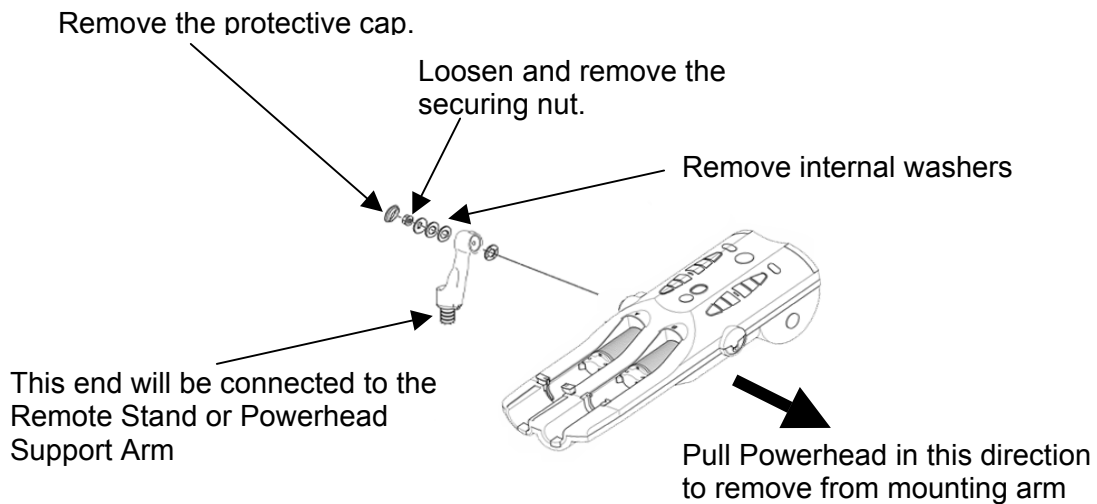


Illustration 2-4-3

5. Support the Powerhead and pull in the direction indicated in Illustration 2-4-3 to remove.
6. Align the replacement Powerhead with the Powerhead arm inserting threaded post into arm.
7. Replace washers, then thread securing nut onto threaded post. Only hand-tighten at this point.
8. Position the Powerhead syringe compartments upward, then insert and tighten the rotation locking set screw into the bottom of the Powerhead arm.
9. After tightening the rotation locking set screw, use a 12mm socket type tool to tighten the securing nut. Tighten the nut slowly while simultaneously checking to make certain the friction is sufficient to hold the Powerhead in any position. The securing nut will maintain its position once completed.

2-5 Finalization

Once the Dual Shot Alpha Powerhead has been replaced, perform the following to ensure proper operation.

1. Turn on the Main Unit power using the switch located on its rear panel.
2. Turn on the system power by pressing the power-on button on the console. The power on sequence will begin.
 - a. Verify that all Powerhead indicator lights illuminate briefly when power is first applied.
 - b. Verify the Console display switch's to a main injection programming screen.
3. After the main injection screen appears, the system is ready for operation. Using the diagram below and Table 2-1 verify the flow rate for of the Powerhead forward and reverse buttons using a stopwatch.

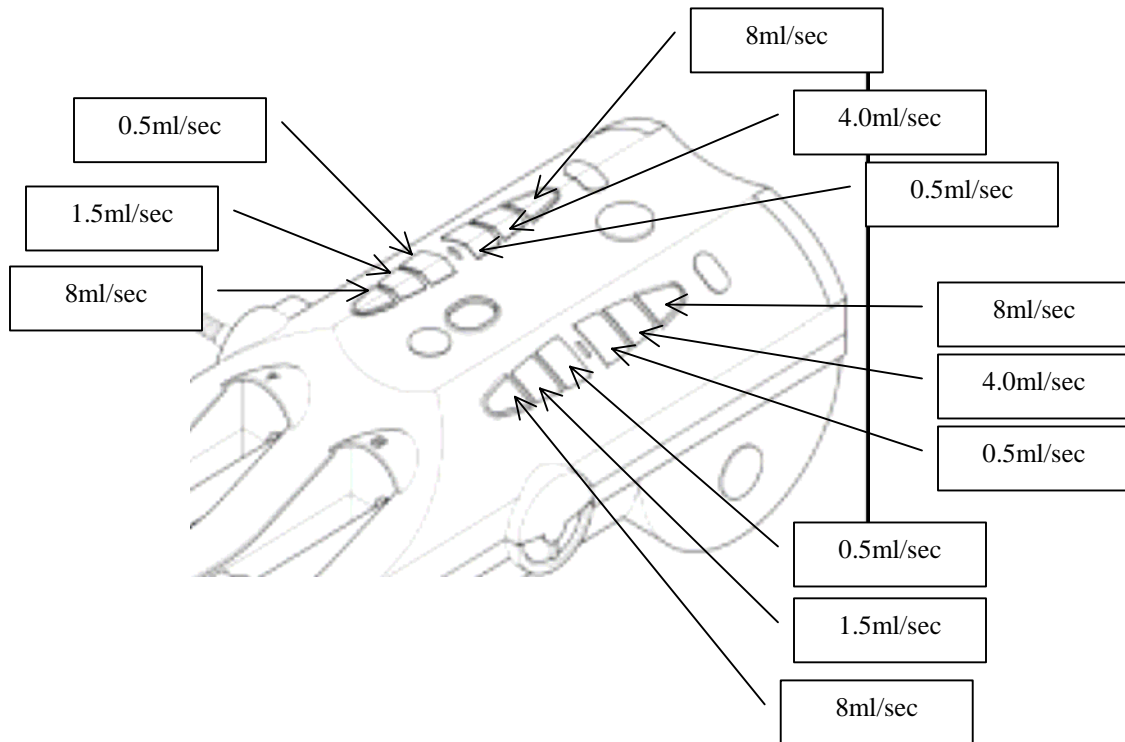


Table 2-1: Flow Rate to Time Values

Syringe Size	Direction	Side	Flow Rate	Movement Amount	Time Range
200mL	Forward	A	0.5mL/sec	10mL	20 seconds + 2seconds
	Reverse	A	8.0mL/sec	80mL	10 seconds + 1second
100mL	Forward	B	1.5mL/sec	15mL	10 seconds + 1second
	Reverse	B	4.0mL/sec	40mL	10 seconds + 1second

4. Verify movement occurs with the remaining forward and reverse buttons.
 - a. Verify there are no abnormal sounds, e.g. clinking, grinding etc.
5. Verify the syringe clamps on the A-side open and close freely.
6. Verify a 100mL syringe can be inserted and locks into position on the B-side.
7. Remove the syringes from the injector and fully retract the Powerhead rams. Program an injection of 1mL / sec with a volume of 60mL on the A-side. Press Check and start the injection. Simultaneously press start on the stopwatch. Verify the actual injection time is between 59 and 61 seconds.
8. Select an injection protocol that is an A then B type. Program the A-side for 1mL/sec with a volume of 5mL. Program the B-side with an injection of 1mL/sec and a volume of 60mL. Press Check and start the injection. When the A-side is completed, press the stopwatch start simultaneously with the starting of the B-side ram. Verify the injection time is between 59 and 61 seconds for the B-side injection.
9. Fully retract both Powerhead rams. Select an injection mode for A-side injections only. Program the A-side flow rate for 1mL/sec. Install the syringe indicated and perform the injections in Table 2-2 and Table 2-3. Using the graduated cylinder, verify the delivered volumes are within the Allowable Range.

Table 2-2: 200mL Syringe (A-side)

Volume	Allowable Range
2mL	0.8 – 3.2 mL
120mL	117– 123 mL

Table 2-3: 100mL Syringe (A-side)

Volume	Allowable Range
2 mL	0.8 – 3.2 mL
90 mL	87 – 93 mL

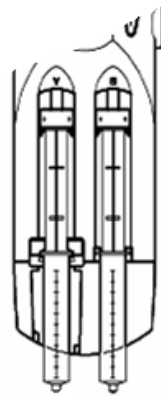
10. Fully retract the A-side ram and configure an injection protocol of A-B type. Program the A-side for 1mL / sec with a volume of 1mL. Program the B-side to 1mL/sec with the various volumes specified in Table 2-4. Perform the injection and verify the delivered volumes are within the Allowable Range.

Table 2-4: 100mL Syringe (B-side)

Volume	Allowable Range
2mL	0.8 – 3.2 mL
120mL	117– 123 mL

Note 1

All volume measurements must be measured without needles, catheters and extension tubing. Volume measurements should be performed directly from syringe tip into the graduated cylinder. Point syringe tips down to inject into graduated cylinder.



Position the Powerhead in this manner to inject directly into the graduated cylinders.

Note 2

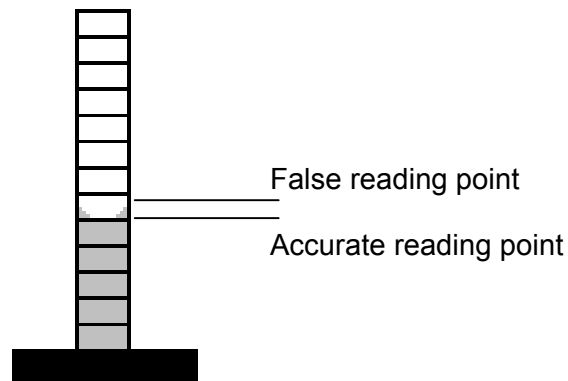
The Allowable Range specified in Table 2-2 through Table 2-4 includes tolerances associated with the measuring equipment.

Note 3

During the A-side and B-side injections the Console will display a warning message stating low pressure. This is expected and the normal operation of the system.

Note 4

When measuring with the graduated cylinder the volume reading must be taken from the bottom of the meniscus. Reference the diagram below. (For example, assuming each mark on the cylinder shown below is 1 ml, the correct reading is 5ml).



11. Install a water filled 200ml syringe in the A-side and a 100ml water filled syringe in the B-side. Program the injections listed in Table 2-5 and Table 2-6 below and verify the injection times are within the allowable range. Perform the injections on the A-side without a 100mL adapter installed. A needle may be required to build sufficient pressure to disable Low Pressure warnings.

Note 1

Do not pressure limit these injections as it will result in inaccurate measurements.

Note 2

If the Ramp Up feature is turn on, set to 2 seconds. If it is turned off, the default setting is automatically 2 seconds. The Allowable Range reflects the impact of the Ramp Up feature.

Table 2-5: Flow Rate Check (200mL A-side)

Flow Rate	Volume	Time Expected	Allowable Range
2 ml/sec (w/needle)	20 mL	11 seconds	10.3 – 11.9 seconds
8 ml/sec (w/o needle)	40 mL	6 seconds	5.5 – 6.6 seconds

Table 2-6: Flow Rate Check (200mL B-side*)

Flow Rate	Volume	Time Expected	Allowable Range
2 ml/sec (w/ needle)	20 mL	10 seconds	9.1 – 11.1 seconds
8 ml/sec (w/o needle)	40 mL	5 seconds	4.5 – 5.6 seconds

* The Ramp Up time on B-side is always 0 seconds.

- Fully retract both Powerhead rams. Install the 100mL adapter into side A. Install a water filled 100mL syringe in the A side. Set the pressure limit to 300PSI. Program an A-side only injection with 4mL/sec flow rate and 100mL volume. Press Check and start the injection. The A-side injection will execute. Record the A-side injection.

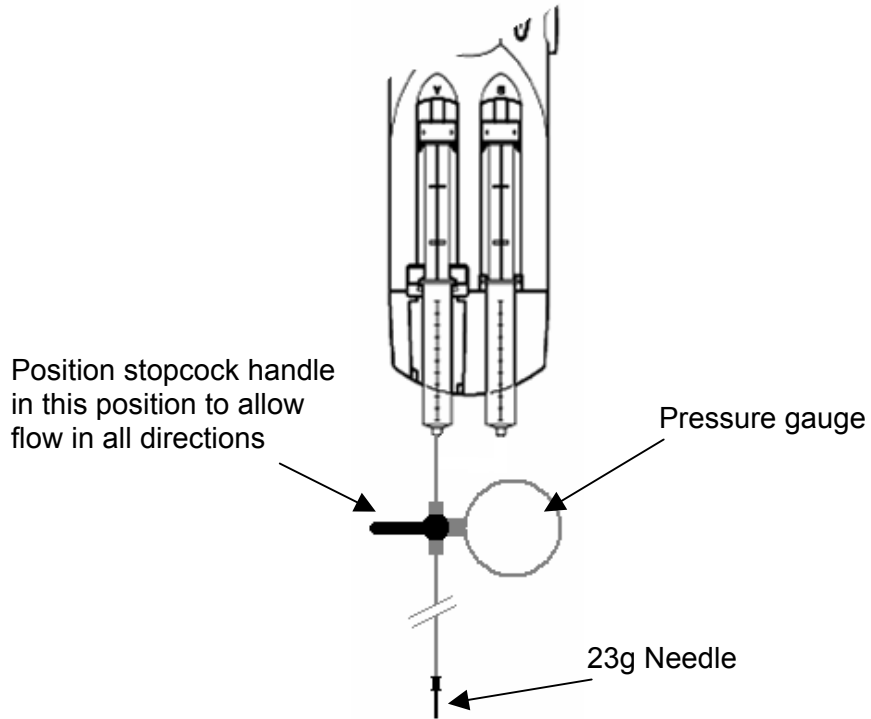
Remove the syringe and pressure measurement equipment from the A-side. Disconnect the syringe from the pressure measurement equipment and refill. Install syringe and reconnect the pressure equipment onto the B-side. Program the following A then B injection:

A-side: Flow Rate: 1ml/sec Volume: 1ml
 B-side: Flow Rate: 4ml/sec Volume: 100ml

Set the pressure limit to 300psi, press Check and start the injection. Record the B-side pressure. Verify the pressure is within the allowable range of 270 – 330PSI for the A-side and B-side.

Pressure Measurement Setup

Example of A-side pressure measurement equipment connection.



Note

If the pressure reading in the gauge is unstable, use the estimated average value.

3- CONSOLE REPLACEMENT PROCEDURE (STANDARD VERSION)

3-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	20mins	10mins	10mins

3-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Console.

3-3 Preliminary Requirements

3-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
Small Flat Screwdriver	1	-	-	-

3-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

3-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Console	1	-	5272762	-

3-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

3-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. Disconnect power cable and Handswitch cable by pulling cable from connection points.

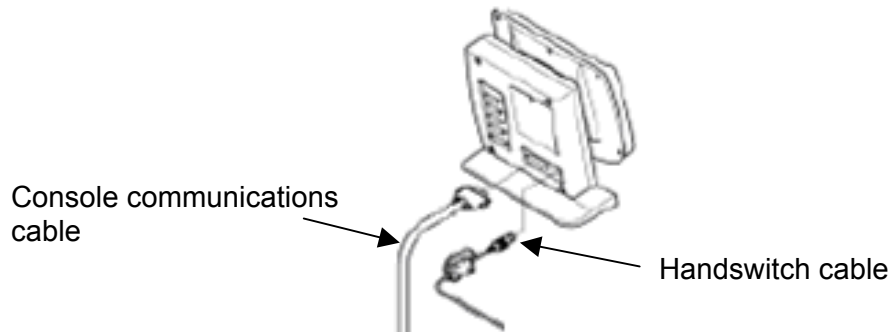


Illustration 3-4-1

4. Use the small screwdriver to loosen thumbscrews from communications cable, then disconnect by pulling from connection point.
5. Remove the CF Card from the failed Console. Reference the Compact Flash (CF) Card Replacement Procedure if necessary for removal instructions.
6. Remove the Console “FROM” from the failed console. Reference Section 16, Console “FROM” Replacement if necessary for details of Console “FROM” removal.
7. Set the replacement Console.
8. Install the removed CF Card into the replacement Console. Reference the Compact Flash (CF) Card Replacement Procedure if necessary for installation instructions.
9. Install the removed or new replacement “FROM” into Console. Refer to the Console “FROM” Replacement Procedure in Section 16 if necessary. To determine proper replacement “FROM” refer to Table 16-1 for software version compatibilities.
10. Reconnect communications cable by firmly pushing into D-type connector. Tighten thumb screws.
11. Reconnect Handswitch cable and power cable.

3-5 Finalization

1. Turn on the Main Unit power using the switch located on its rear panel.
2. Turn on the system power by pressing the power-on button on the console. The power on sequence will begin.
3. Press the CH button on the Console front panel then select an A→B injection protocol, reference Illustration 3-5-1.

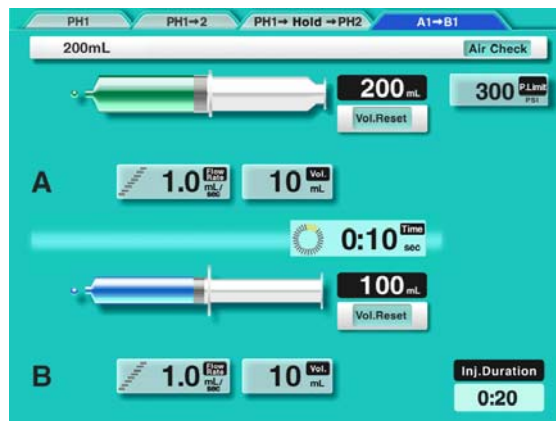


Illustration 3-5-1

4. Program the values shown in Illustration 3-5-1.
5. Retract the Powerhead rams then press the Check button on the Powerhead.
6. Start the injection and verify the injection running screen appears, reference Illustration 3-5-2.

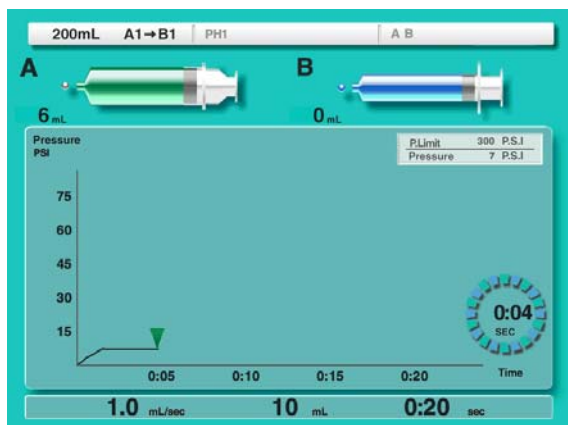


Illustration 3-5-2

4- MAIN UNIT REPLACEMENT PROCEDURE

4-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	20mins	10mins	10mins

4-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Main Unit.

4-3 Preliminary Requirements

4-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
Small Flat Screwdriver	1	-	-	-

4-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

4-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Main Unit	1	-	5272264	-

4-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

4-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF button on rear panel of Main Unit.
3. Disconnect power cable by pulling cable from connection point.
4. Use the small screwdriver to loosen thumbscrews from communications cable, then disconnect by pulling from connection point.
5. Disconnect Powerhead cable.

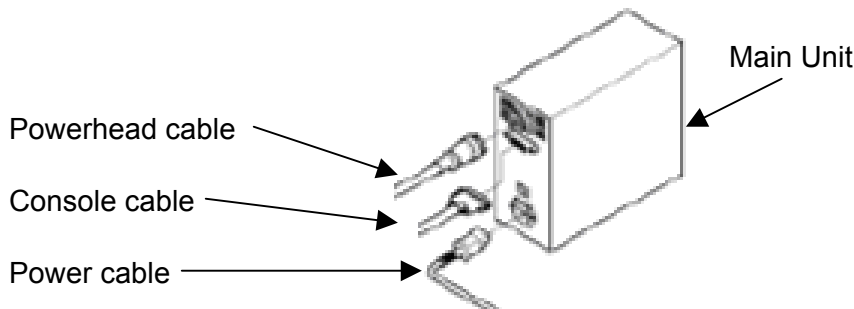


Illustration 4-4-1

6. Set the replacement Main Unit.
7. Reconnect the Powerhead cable, communications cable, then power cable.

4-5 Finalization

1. Turn on the Main Unit power using the switch located on its rear panel.
2. Turn on the system power by pressing the power-on button on the console. Verify the power on sequence successfully completes.
3. Press the CH button on the Console front panel then select an A→B injection protocol, reference Illustration 4-5-1.

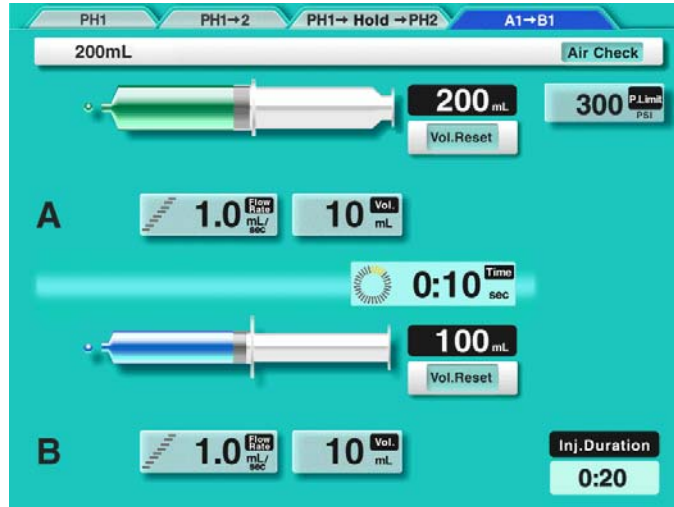


Illustration 4-5-1

4. Program the values shown in Illustration 4-5-1.
5. Retract the Powerhead rams then press the Check button on the Powerhead.
6. Start the injection and verify the injection running screen appears, reference Illustration 4-5-2.

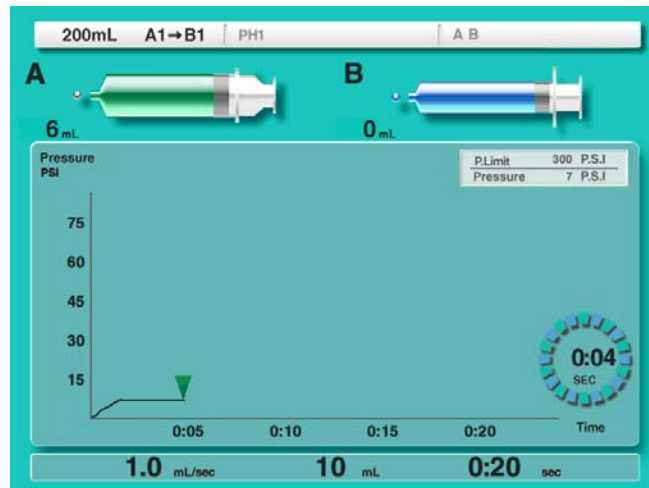


Illustration 4-5-2

5- COMPACT FLASH (CF) REPLACEMENT PROCEDURE

5-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	10mins	10mins	10mins

5-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Compact Flash memory card.

5-3 Preliminary Requirements

5-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

5-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

5-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
CF Card	1	-	5263146	-

5-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

5-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. The Compact Flash (CF) Card list located on the right-hand side of Console. Locate the Eject button, indicated by the arrow in Illustration 5-4-1.

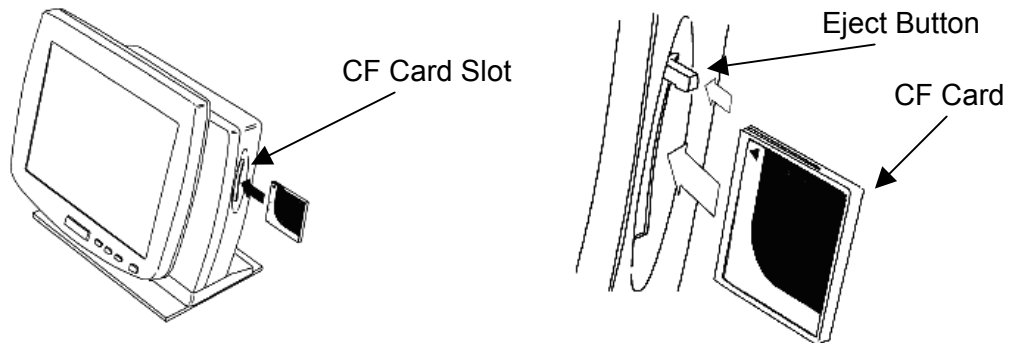


Illustration 5-4-1

3. Press the Eject once to allow it to extend. Press again to eject the CF Card.
4. After the defective CF Card is removed, press the Eject once more to return it to the hidden position.
5. Align the replacement CF Card, and push firmly into the slot. Make certain it is fully inserted into the CF Card slot.

5-5 Finalization

1. Turn on the system power by pressing the power-on button on the console. Verify the power on sequence successfully completes.
2. If necessary, press the CH button on the Console front panel to access the anatomical programming mode, reference Illustration 5-5-1.

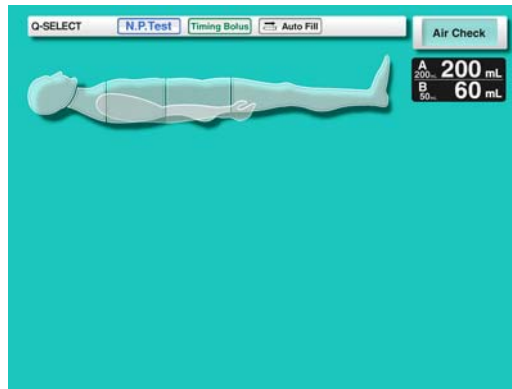


Illustration 5-5-1

3. Press the LIST button on the Console front panel. The screen pop-up window shown in Illustration 5-5-2 will be shown.

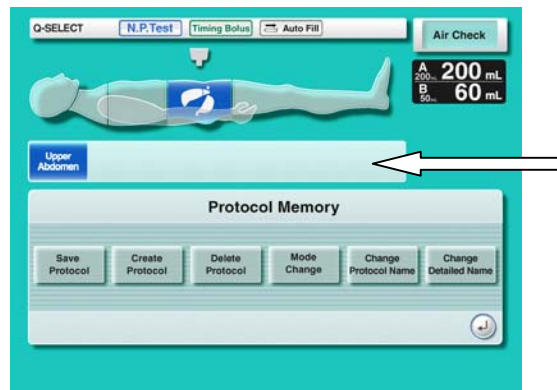


Illustration 5-5-2

5. Select the Create Protocol key and follow the screen prompts to create the protocol.
6. When complete, a protocol format will be displayed on the main screen. Enter any desired injection values.
7. When an injection protocol has been entered, press the LIST button again and select the Save Protocol function. Follow the screen prompts to save the protocol.
8. Verify the injection protocol is displayed in the Detailed Area (reference arrow in Illustration 5-5-2) protocol list.
9. Press the newly created protocol button in the Detailed Area and verify the injection is displayed correctly.

6- HANDSWITCH REPLACEMENT PROCEDURE

6-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	10mins	5mins	10mins

6-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Handswitch.

6-3 Preliminary Requirements

6-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

6-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

6-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Handswitch	1	-	5266661	

6-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

6-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Disconnect the Handswitch from the rear of the Console by pulling from the connection point.
3. Reconnect replacement Handswitch by aligning connector and pushing firmly into place.

6-5 Finalization

1. Turn on power using ON/OFF button on front panel of Console.
2. Select or program an injection with a flow rate less than 1.5ml/sec. Reference the example below.

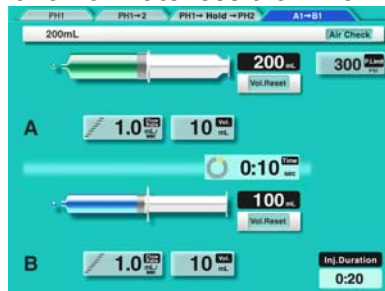


Illustration 6-5-1

3. Press the Check button on the Powerhead.
4. Press the Start button on the Handswitch and verify the injection starts, and the Handswitch display begins to count up.

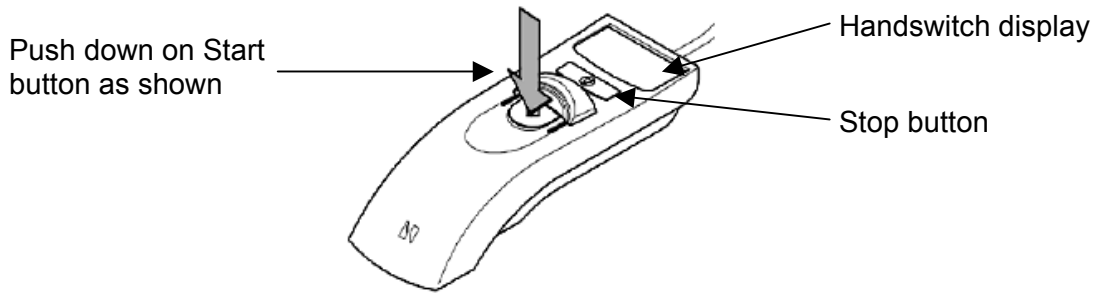


Illustration 6-5-2

5. While the injection is running, press the Stop button on the Handswitch and verify the injection is stopped. Reference the diagram above for the Stop button location.
6. After the injection stops, verify the Handswitch display continues to count upward.

7- POWERHEAD EXTENSION CABLE (15M) REPLACEMENT PROCEDURE

7-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	20mins	10mins	15mins

7-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Powerhead Extension Cable.

7-3 Preliminary Requirements

7-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

Note

Depending on site, cable may be routed through conduit, above ceiling or below floor. Check site layout to determine the Tools required for cable removal and installation.

7-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

7-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Powerhead Cable	1	-	5262694	-

7-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

7-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. In a counter-clockwise direction loosen the Powerhead cable connector from the Main Unit then pull from its connection point.
4. In a counter-clockwise direction loosen the Powerhead Extension cable connector from the Powerhead cable then pull apart.
5. Remove extension cable and install replacement cable.
6. Align and push the Powerhead connector into the Powerhead Extension cable connector. Then in a clockwise direction, securely tighten the connector.
7. Align and push the Powerhead Extension cable into the Powerhead connector on the Main Unit. Then in a clockwise direction, securely tighten the connector.

7-5 Finalization

1. Turn on power using ON/OFF switch on the rear panel of the Main Unit.
2. Turn on power using ON/OFF button on the front panel of the Console.

2. Select or program an injection with a flow rate less than 1.5ml/sec with a volume of 90ml.

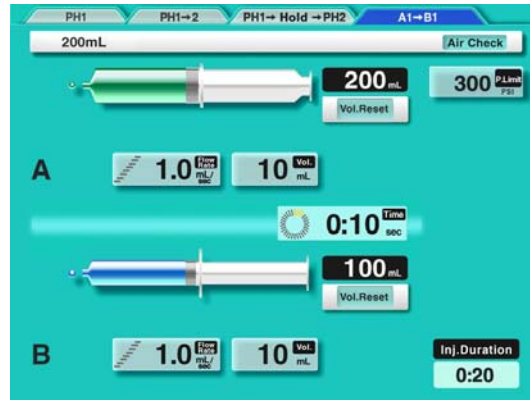


Illustration 7-5-1

3. Press the Check button on the Powerhead.
4. Press the Start button on the Powerhead.
5. During the injection, manually apply pressure to the Powerhead ram at the point the syringe pushrod normally contacts. Verify the pressure curve on the injector displays the change in pressure on the pressure graph.

Push on this location to verify a reading appears on the pressure curve.

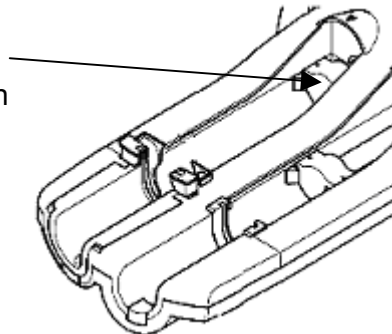


Illustration 7-5-2

6. Repeat for the A-side and B-side.
7. Stop the injection.

8- POWERHEAD EXTENSION CABLE (20M) REPLACEMENT PROCEDURE

8-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	20mins	10mins	15mins

8-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Powerhead Extension Cable.

8-3 Preliminary Requirements

8-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

Note

Depending on site, cable may be routed through conduit, above ceiling or below floor. Check site layout to determine the Tools required for cable removal and installation.

8-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

8-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Powerhead Cable	1	-	5268016	-

8-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

8-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. In a counter-clockwise direction loosen the Powerhead cable connector from the Main Unit then pull from its connection point. Reference Illustration 8-4-1.

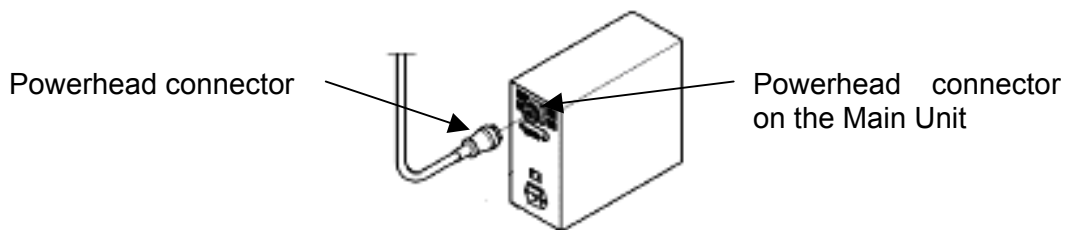


Illustration 8-4-1

4. In a counter-clockwise direction loosen the Powerhead Extension cable connector from the Powerhead cable then pull apart. Reference Illustration 8-4-2.

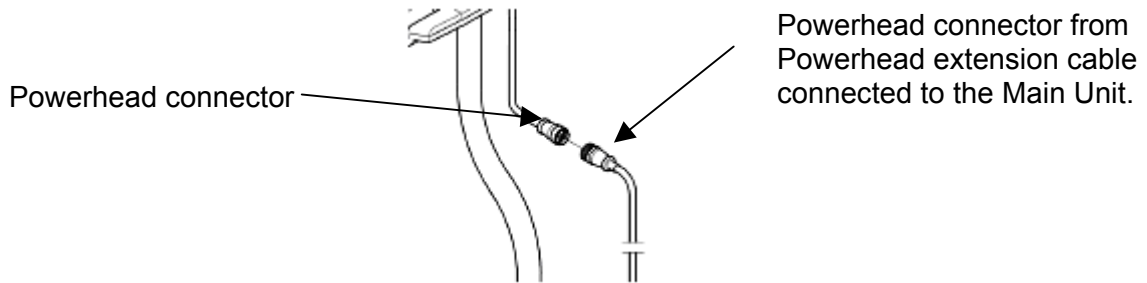


Illustration 8-4-2

5. Remove extension cable and install replacement cable.
6. Align and push the Powerhead connector into the Powerhead Extension cable connector. Then in a clockwise direction, securely tighten the connector.
7. Align and push the Powerhead Extension cable into the Powerhead connector on the Main Unit. Then in a clockwise direction, securely tighten the connector.

8-5 Finalization

1. Turn on power using ON/OFF switch on the rear panel of the Main Unit.
2. Turn on power using ON/OFF button on the front panel of the Console.
2. Select or program an injection with a flow rate less than 1.5ml/sec with a volume of 90ml. Reference Illustration 7-5-1.
3. Press the Check button on the Powerhead.
4. Press the Start button on the Powerhead.
5. During the injection, manually apply pressure to the Powerhead ram at the point the syringe pushrod normally contacts. Reference Illustration 7-5-2. Verify the pressure curve on the injector displays the change in pressure on the pressure graph.
6. Repeat for the A-side and B-side.
7. Stop the injection.

9- FLOOR STAND REPLACEMENT PROCEDURE

9-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	30mins	45mins	10mins

9-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Floor Stand.

9-3 Preliminary Requirements

9-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
#2 Philips Screwdriver	1	-	-	-
3mm Allen Wrench	1	-	-	-
8mm Allen Wrench	1	-	-	-

9-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

9-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Floor Stand	1	-	5267340	-

9-3-4 Safety

No general safety information.

9-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Remove the three 3mm Allen screws that secure the Powerhead Arm to the Floor Stand.

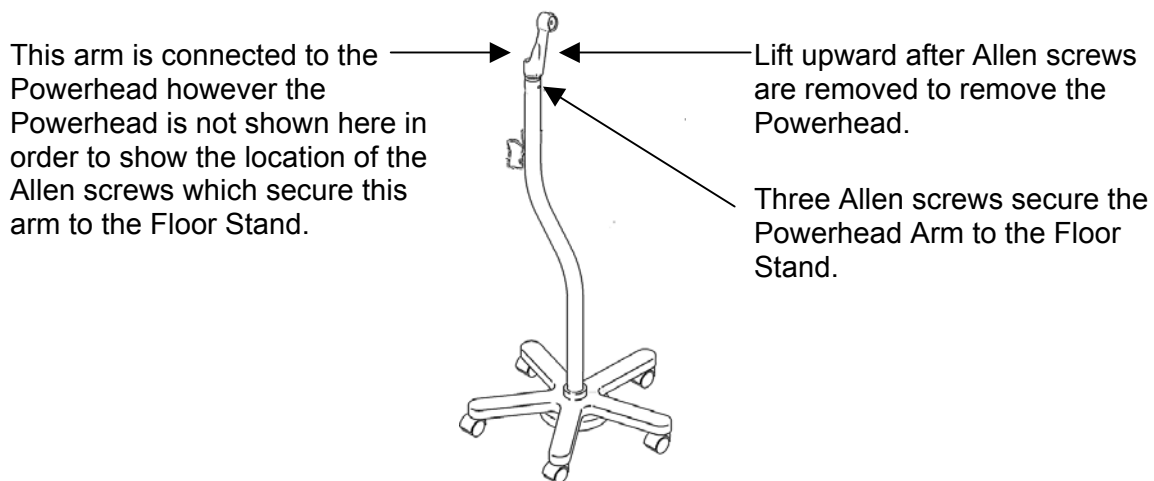


Illustration 9-4-1

3. Support the Powerhead and lift up to remove Powerhead from Floor Stand.
4. Assembly the replacement Floor Stand in accordance with its assembly instructions.

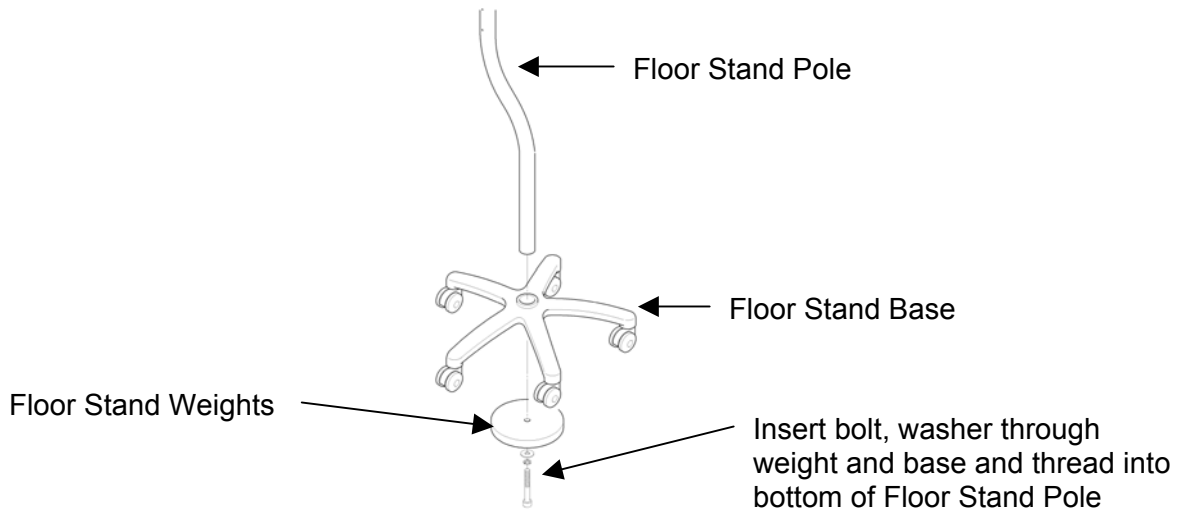


Illustration 9-4-2

5. Position the Powerhead above the Floor Stand and lower the Powerhead support arm onto the Floor Stand.
6. Re-install the three 3mm Allen screws to secure the Powerhead to the Floor Stand. Be sure to position the Powerhead in a position that prevents it contacting the pole of the Floor Stand when rotating.

9-5 Finalization

1. Rotate Powerhead between its maximum limits and verify it does not contact the Floor Stand.
2. Turn on power using ON/OFF button on front panel of Console and use as prescribed.

10- CEILING MOUNTING UNIT REPLACEMENT PROCEDURE

10-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
2		60 mins	10 mins

10-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Ceiling Mounting Unit.

10-3 Preliminary Requirements

10-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
2mm Allen wrench	1	-	Supplied	Mavig
5mm Allen wrench	1	-	-	-
Torque screwdriver (25Nm)	1	-	-	-
Block Level	1	-	-	-
Flat Blade Screwdriver	1	-	-	-

10-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
Loctite 221	1	-	-	Loctite

10-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Ceiling Mount	1	-	5267785	-

10-3-4 Safety

The manufacturer's (Mavig) Installation Manual is supplied with each replacement part. Follow the manufacturer guidance and safety precautions specified.

10-4 Procedure

The manufacturer's (Mavig) Installation Manual is supplied with each replacement part. Follow the manufacturer's instructions for this procedure.

10-5 Finalization

The manufacturer's (Mavig) Installation Manual is supplied with each replacement part. Follow the manufacturer's instructions for this procedure.

11- POWER CABLE REPLACEMENT PROCEDURE

11-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	10mins	10mins	10mins

11-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Power Cable.

11-3 Preliminary Requirements

11-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

11-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

11-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Power Cable	1	-	5273017	-

11-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

11-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off main power using ON/OFF switch on rear of Main Unit.
3. Disconnect power cable by pulling from the connector located on the rear of the Main Unit or the Console depending upon which is being replaced.
4. Connect replacement cable by firmly pushing into the IEC style connector first, then by reconnecting to main utility power.

11-5 Finalization

1. Turn on main power using ON/OFF switch on rear of Main Unit.
2. Turn on power using ON/OFF button on front panel of Console.
3. Verify Console successfully completes the power up diagnostic test and presents the main user screen.

12- SYSTEM FUSES REPLACEMENT PROCEDURE

12-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	15mins	45mins	10mins

12-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha internal and external fuses.

12-3 Preliminary Requirements

12-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
#2 Philips Screwdriver	1	-	-	-
Small Flat Screwdriver	1	-	-	-

12-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

12-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Fuse Kit	1	-	5272637	-

12-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

12-4 Procedure

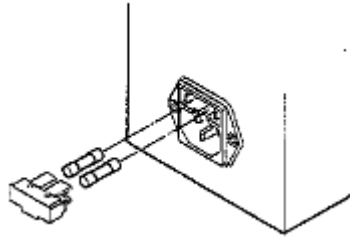
1. All fuses are located at the Main Unit.
2. Turn off power using the ON/OFF button on the front of the Console.
3. Turn off power using the ON/OFF switch on the rear of the Main Unit then disconnect the power cable from the Main Unit.

If the problem was no power, then replace the Main Power fuses using steps 4 through 7. If there was main power but the no heater or motor power replace the internal fuses using steps 8 through 14.

MAIN POWER FUSE REPLACEMENT

4. Using the small flat screwdriver, apply a slight pressure outwards on the fuse cover. The fuse cover and fuses will come out together as show in Illustration 12-4-1.

Illustration 12-4-1



5. Inspect fuses and if blown, replace with Main Power fuse provided in Fuse Kit.
6. Align fuses and fuse cover and firmly push until they are locked into place.
7. Go to Finalization or replacement of internal fuses.

INTERNAL FUSE REPLACEMENT

8. Use a Philips screwdriver remove the screws from the Main Unit cover and remove.

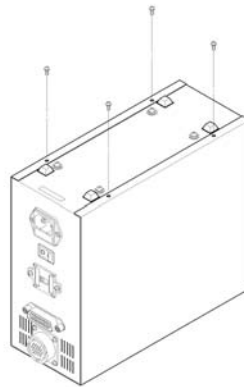


Illustration 12-4-2

9. Upon removal of the cover, the printed circuit board shown in Illustration 12-4-3 will be visible.

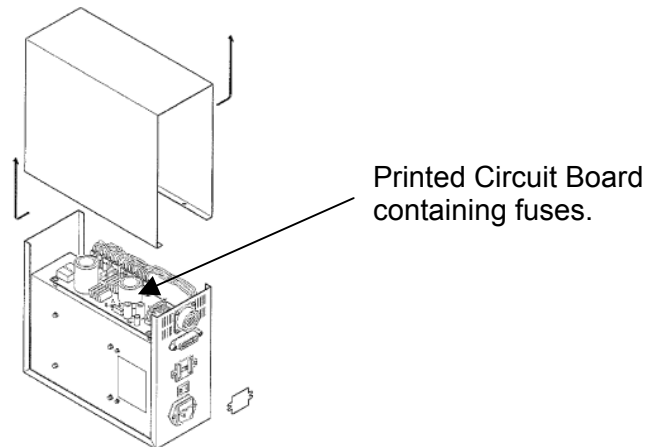


Illustration 12-4-3

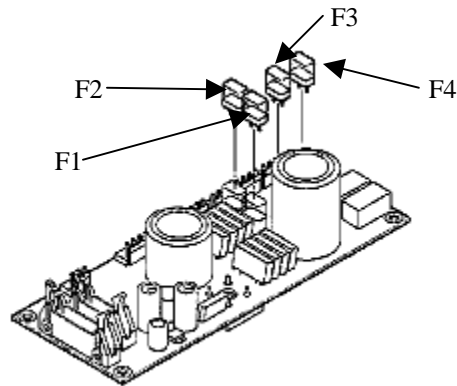


Illustration 12-4-4

10. To replace the Heater fuses, replace fuses F1 and F2 identified in Illustration 12-4-4. There is a fuse identification label on the printed circuit board.
11. There are no special tools required to remove a fuse, simply pull upward on the fuse body and it will release from the fuse socket.
12. To replace the Motor fuses, replace fuses F3 and F4 identified in Illustration 12-4-4, which are also identified on the printed circuit board.
13. To install a fuse, align the two pins on the fuse with the fuse socket on the printed circuit board and firmly push into place until it is fully seated.
14. After the fuses have been replaced, reinstall the Main Unit protective cover, making certain to install all cover screws.

12-5 Finalization

1. Reconnect the main power cable to the rear of the Main Unit.
2. Turn on main power using the ON/OFF switch located on the rear of the Main Unit.
3. Turn on the system power by pressing the power-on button on the Console. Verify the power on sequence successfully completes.
3. Press the CH button on the Console front panel then select an A→B injection protocol, reference Illustration 12-5-1.

13- POWERHEAD KITS REPLACEMENT

13-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	30mins	30mins	45mins

13-2 Overview

The Section 13 is for reference only since the replacement of the Powerhead Kits can be performed via execution of the replacement procedures for each individual FRU.

13-3 Preliminary Requirements

13-3-1 Tools and Test Equipment

Reference Tools and Test Equipment in Section 2, POWERHEAD REPLACEMENT PROCEDURE.
Reference Tools and Test Equipment in Section 16, CONSOLE "FROM" REPLACEMENT.

13-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
200ml Syringe	1	-	E8004RF	-
100ml Syringe	1	-	E8004RG	-

13-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Standard Version	1	-	5328203	-
or NCOM Version	1	-	5328198	-

13-3-4 Safety

Reference Safety in Section 2, POWERHEAD REPLACEMENT PROCEDURE, Section 2-3-4.
Reference Safety in Section 16, CONSOLE "FROM" REPLACEMENT, Section 16-3-4.

13-4 Procedure

1. Perform Procedure 2-4 of Section 2, POWERHEAD REPLACEMENT PROCEDURE.
2. Perform Procedure 16-4 of Section 16, CONSOLE "FROM" REPLACEMENT.

13-5 Finalization

1. Perform Finalization 2-5 of Section 2, POWERHEAD REPLACEMENT PROCEDURE.
2. Perform Finalization 16-5 of Section 16, CONSOLE "FROM" REPLACEMENT.

14- NCOM HUB REPLACEMENT

14-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	30mins	30mins	30mins

14-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha NCOM Hub.

14-3 Preliminary Requirements

14-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
None Required				

14-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None Required				

14-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
NCOM Hub	1	-	5328201	-

14-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

14-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. Turn off CT Gantry 120VAC power using Service Panel Switch.
4. Disconnect the NCOM Serial Cable coming from the injector Console by loosening the thumb screws of the D-shell connector. Reference Illustration 14-4-1.
5. Disconnect the NCOM cable coming from the CT scanner by loosening the thumb screws of the D-shell connector. Reference Illustration 14-4-1.

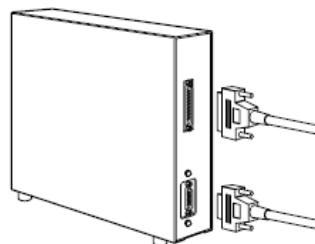


Illustration 14-4-1

6. Replace defective NCOM Hub with replacement unit.
7. Reconnect NCOM Serial Cable and NCOM scanner cable to the replacement NCOM Hub.
8. Make certain to securely tighten the D-shell connectors using the thumb screws.

14-5 Finalization

1. Turn on CT Gantry 120VAC power using the Service Panel Switch.
2. Turn on power using the ON/OFF switch on the rear panel of Main Unit, then pressing the ON/OFF switch on the Console front panel.
3. Press the CH button on the Console front panel to select the Q-SELECT mode of operation. Reference Illustration 14-5-1.

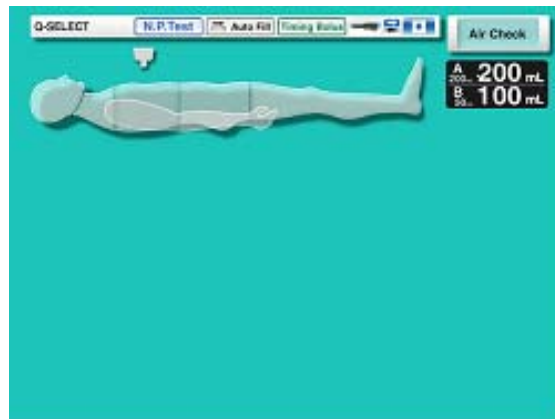
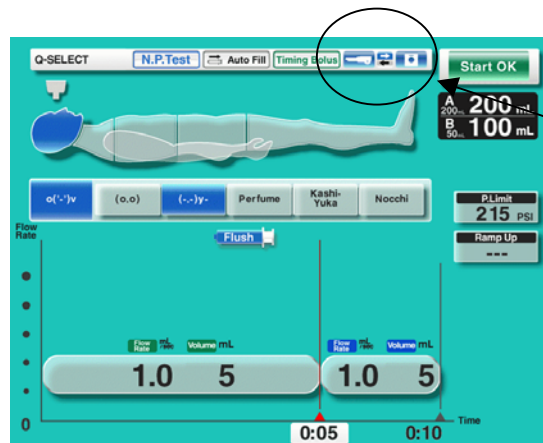


Illustration 14-5-1

4. Select a protocol that contains both an A-side and B-side injection. Program the values shown in Illustration 14-5-2.



Verify Powerhead and Scanner are highlighted blue and that only the top arrow is in blue.

Illustration 14-5-2

Note 1

If the scanner icon is not highlighting in blue, reference the scanner operation and service documentation for details of operation.

5. Retract the Powerhead rams then press the Air Check button on the Powerhead.
6. Perform the injection test synchronized with the CT scanning according to CT scanner documentation. Reference the Illustration 14-5-3 for injector injection in process screen.

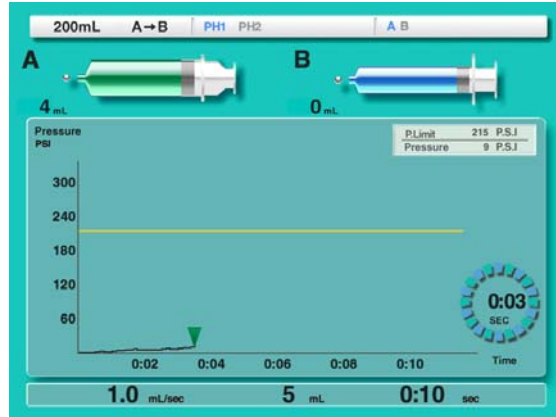


Illustration 14-5-3

15- CONSOLE REPLACEMENT PROCEDURE (NCOM VERSION)

15-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	20mins	10mins	10mins

15-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Console NCOM Version.

15-3 Preliminary Requirements

15-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
Small Flat Screwdriver	1	-	-	-

15-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

15-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Console (Class 1)	1	-	5328196	-
or				
Console (Class 4)	1	-	5328197	-

15-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

15-4 Procedure

1. Turn off power using ON/OFF button on front panel of Console.
2. Turn off power using ON/OFF switch on rear panel of Main Unit.
3. Disconnect power cable and Handswitch cable by pulling cable from connection points.

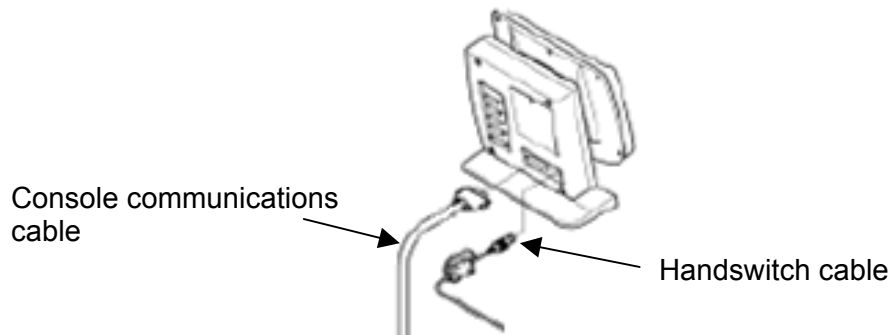


Illustration 15-4-1

4. Use the small screwdriver to loosen thumbscrews from communications cable, then disconnect by pulling from connection point.
5. The NCOM Serial Cable must also be disconnected from the rear of the Console. Using the thumbscrew on D-Shell connector, loosen and remove the NCOM Serial Cable.

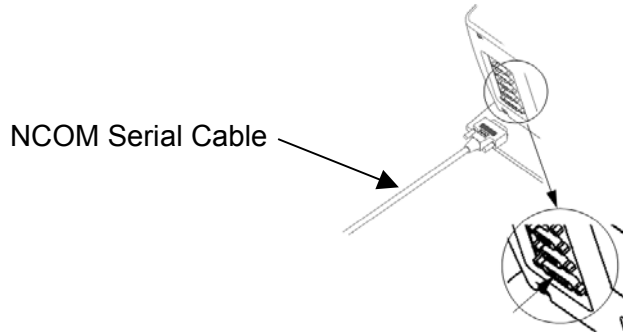


Illustration 15-4-2

6. Remove the CF Card from the failed Console. Reference the Compact Flash (CF) Card Replacement Procedure if necessary for removal instructions.
7. Remove the Console "FROM" from the failed console. Reference Section 16, Console "FROM" Replacement if necessary for details of Console "FROM" removal.
8. Set the replacement Console.
9. Install the removed CF Card into the replacement Console. Reference the Compact Flash (CF) Card Replacement Procedure if necessary for installation instructions.
10. Install the removed or new replacement "FROM" into Console. Refer to the Console "FROM" Replacement Procedure in Section 16 if necessary. To determine proper replacement "FROM" refer to Table 16-1 for software version compatibilities.
11. Reconnect communications cable and NCOM Serial Cable by firmly pushing into D-type connector. Tighten thumb screws.
12. Reconnect Handswitch cable and power cable.

15-5 Finalization

1. Turn on the Main Unit power using the switch located on its rear panel.
2. Turn on the system power by pressing the power-on button on the console. The power on sequence will begin.
3. Press the CH button on the Console front panel to select the Q-Select mode, which appears as shown in Illustration 15-5-1.

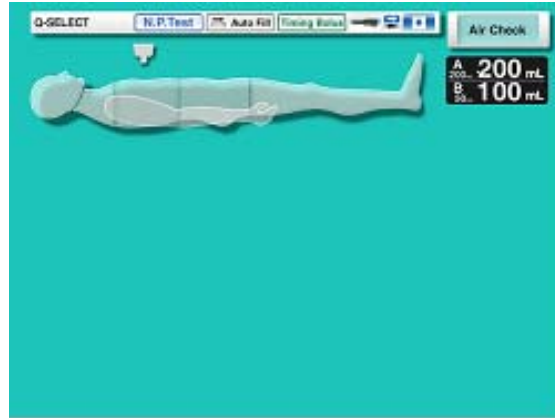
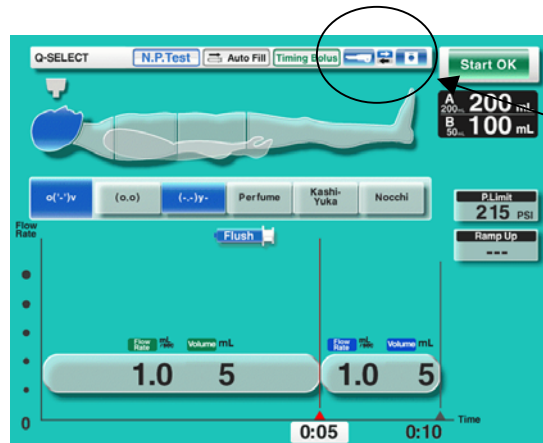


Illustration 15-5-1

4. Select a protocol that contains both an A-side and B-side injection. Program the values shown in Illustration 15-5-2.



Verify Powerhead and Scanner are highlighted blue and that only the top arrow is in blue.

Illustration 15-5-2

5. Retract the Powerhead rams then press the Air Check button on the Powerhead.
6. Start the injection and verify the injection running screen appears, reference Illustration 15-5-3.

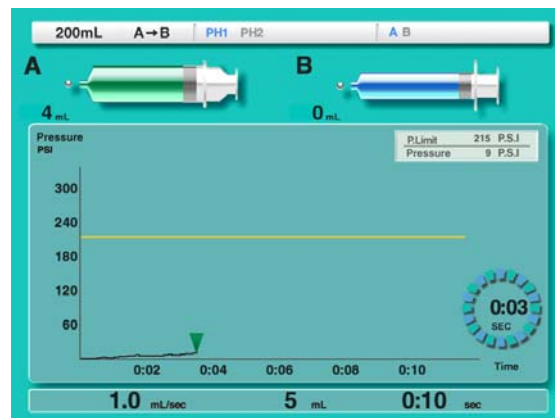


Illustration 15-5-3

16- CONSOLE “FROM” REPLACEMENT

16-1 Personnel Requirements

Required Persons	Preliminary Requirements	Procedure	Finalization
1	15mins	15mins	10mins

16-2 Overview

The following procedure describes the replacement and checkout process for the Dual Shot Alpha Console FROM. The FROM contains the software to operate the Console.

Note The Console FROM must maintain compatibility with the Powerhead software. Reference the Table 16-1 for system versions and Powerhead software versions.

16-3 Preliminary Requirements

16-3-1 Tools and Test Equipment

Item	Qty	Effectivity	Part #	Manufacturer
#2 Philips Screwdriver	1	-	-	Any
Stylus, non-conductive	1	-	wooden toothpick	Any

16-3-2 Consumables

Item	Qty	Effectivity	Part #	Manufacturer
None	-	-	-	-

16-3-3 Replacement Parts

Item	Qty	Effectivity	Part #	Manufacturer
Version 1.0	1	-	5328204	Nemoto
Version 1.5	1	-	5328205	Nemoto
Version 2.1	1	-	5328206	Nemoto
Version 2.2	1	-	5328207	Nemoto
Version 2.3	1	-	5328208	Nemoto
Version 3.0	1	-	5328200	Nemoto

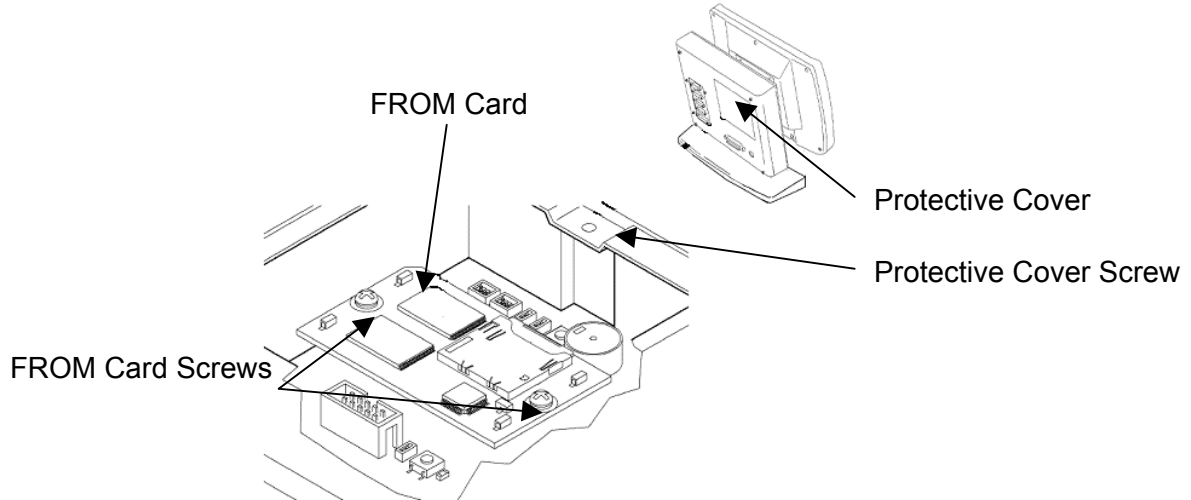
16-3-4 Safety

Make certain to disconnect AC power from the device before disconnecting and connecting cables to avoid the risk associated with electrical shock.

16-4 Procedure

1. Determine software version required. The software version can be determined in two different ways.
 - A. If the unit can be powered-up, then power-on and watch for the Console software version to be displayed in the upper-left hand corner. The Console software will be displayed first, and then the Powerhead version will be displayed below the Console version. Record the software version for the Console.
 - B. The other method requires removing the rear access panel from the Console. Continue with the following steps to remove the access panel.

2. Turn off power using the ON/OFF button on the front of the Console.
3. Turn off power using the ON/OFF switch on the rear of the Main Unit then disconnect the power cable from the Main Unit.
4. Using the Philips screwdriver remove the rear Protective Panel from the Console. Reference the figures below for details.



5. After removing the Protective Cover the FROM will be clearly visible, including the revision of FROM card installed.
6. Using Table 16-1 verify the Console FROM version required.

FROM / SW Version	Powerhead SW Version (ref)	System Version Ref.
B382A-3.11.00-012	V4.2.1	Version 1.0
B382A-3.12.00-012	V4.2.2	Version 1.5
B382A-3.14.00-012	V4.4.0	Version 2.1
B382A-3.15.00-012	V4.4.0	Version 2.2
B382A-3.15.01-012	V4.4.0	Version 2.3
B382A-3.15.01-012-028G	V4.4.0-822G	Version 3.0

Table 16-1

7. After the FROM version is identified and the replace is ready to be performed complete the following.
8. Remove the Protective Panel if not already removed using step 4. After the Protective Panel is removed, use a Philips screwdriver to remove the FROM screws.
9. With the FROM Card Screws removed, grasp the FROM Card and rocking very slightly while pulling outward, remove the FROM card.
10. Remove the FROM Card from the FRU Kit and install in a reverse manner. Be sure to align the connectors on the FROM Card with the Console main circuit board.
11. Push the FROM Card in the connector until it is firmly seated. Insert the FROM Card Screws.
12. To make the FROM Card work properly, switch 2-2 must be in the ON position. Refer to Figure 16-1 for switch location and identification.

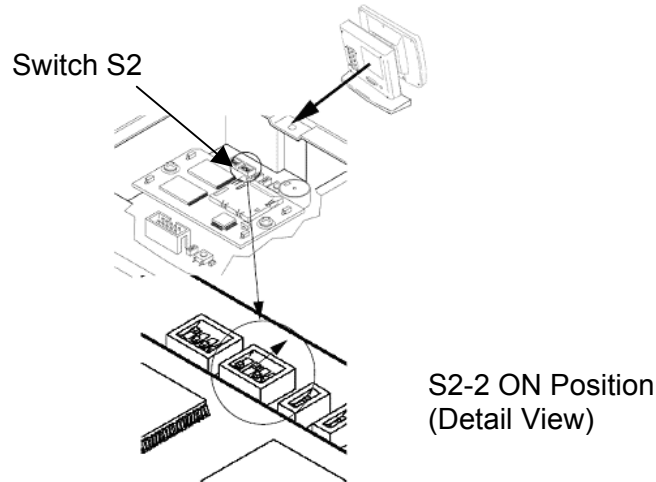


Figure 16-1

13. Do not re-install the Protective Panel until the Finalization is completed. Access to the internal DIP switches is required during the Finalization.

16-5 Finalization

1. Set Switch S1 position 4 to the ON position. Reference Figure 16-2.
2. Reconnect the main power cable to the rear of the Main Unit.
3. Turn on main power using the ON/OFF switch located on the rear of the Main Unit.
4. Turn on the system power by pressing the power-on button on the Console.

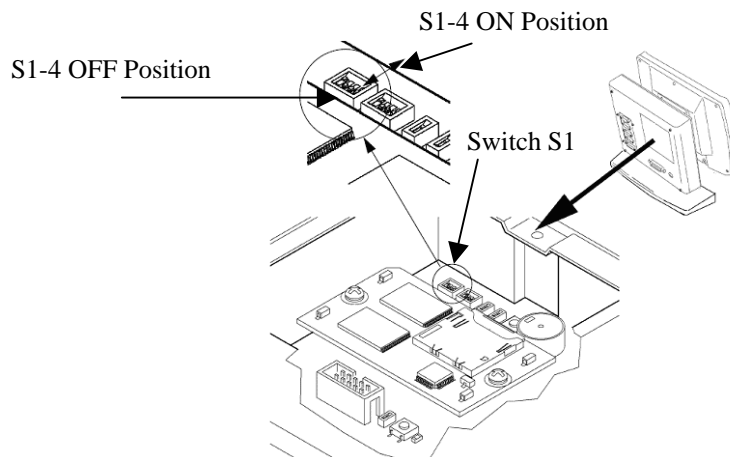


Figure 16-2

5. Wait for the power-on sequence to complete.
6. Turn OFF power using the ON/OFF switch on the Console.
7. Set S1 position 4 to the OFF position. RE-apply power and wait for the main screen to appear.
8. Verify operation by executing several test injections.
9. Install Protective Cover. System is ready for use.

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