

GE Healthcare

KISS™ / KISS™ Multilead Electrode Application System Service Manual

22745010 Revision H



English
© 1996 - 2017 General Electric Company.
All Rights Reserved.

Publication Information

The information in this manual applies only to KISS /KISS Multilead . It does not apply to earlier product versions. Due to continuing product innovation, specifications in this manual are subject to change without notice.

KISS, CASE and MAC are trademarks owned by GE Medical Systems *Information Technologies*, Inc., a General Electric Company going to market as GE Healthcare. All other trademarks contained herein are the property of their respective owners.

The document part number and revision are at the bottom of each page. The revision identifies the document's update level. The revision history of this document is summarized in the following table.

Revision	Date	Comments
-	September 1996	Initial release.
A	January 2004	ECO 07578
B	April 2006	ECO 082331
C	July 2009	ECO 096124
D	June 2010	TM symbol for KISS added, changes on pages 3, 4, 21, 22, 28,
E	April 2011	changes on pages 20 and 29, new section 3.5.4
F	March 2014	Update of section 3.3.4 and chapter 6
G	August 2014	- Update of chapters 5 and 7 due to new RoHS-compliant AC suction pump - Removal of KISS-3 from FSM
H	January 2017	Added information for the O-Rings.

To access other GE Healthcare Diagnostic Cardiology manuals, go to the Common Documentation Library (CDL), located at http://www.gehealthcare.com/user/service/biomed_tech_selfservice/services_user_doc/products/support.html, and click **Cardiology**.

To access Original Equipment Manufacturer (OEM) manuals, go to the device manufacturer's Web site.

CAUTION:

During repairs/service interventions, observe the protective measures against damage due to ESD.

Manual Purpose

This manual supplies technical information for service representative and technical personnel so they can maintain the equipment to the assembly level. Use it as a guide for maintenance and electrical repairs considered field repairable. Where necessary the manual identifies additional sources of relevant information and or technical assistance.

See the operator manual for the instructions necessary to operate the equipment safely in accordance with its function and intended use.

Intended Audience

This manual is intended for the person who uses, maintains, or troubleshoots this equipment.

Safety Information

Responsibility of the Manufacturer

GE Healthcare is responsible for the effects of safety, reliability, and performance only if:

- Assembly operations, extensions, readjustments, modifications, or repairs are carried out by persons authorized by GE Healthcare.
- The electrical installation of the relevant room complies with the requirements of the appropriate regulations.
- The equipment is used in accordance with the instructions for use.
- The country of manufacture appears on the device label.

General

This device is not intended for home use.

Contact GE Healthcare for information before connecting any devices to the equipment that are not recommended in this manual.

Parts and accessories used must meet the requirements of the applicable IEC 601 series safety standards, and/or the system configuration must meet the requirements of the IEC 60601-1-1 medical electrical systems standard.

Periodically, and whenever the integrity of the device is in doubt, test all functions.

The use of ACCESSORY equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Consideration relating to the choice shall include:

- use of the accessory in the PATIENT VICINITY; and
- evidence that the safety certification of the ACCESSORY has been performed in accordance to the appropriate IEC 60601-1 and/or IEC 60601-1-1 harmonized national standard.

The authorized representative for GE Medical Systems Information Technologies Inc. in Europe is :



GE Medical Systems Information Technologies GmbH

Munzinger Strasse 5

79111 Freiburg

GERMANY

Phone +49-761 4543 0

Fax +49-761 4543 233

Warnings, Cautions, and Notes

The terms danger, warning, and caution are used throughout this manual to point out hazards and to designate a degree or level of seriousness. Familiarize yourself with their definitions and significance.

Hazard is defined as a source of potential injury to a person.

DANGER

Indicates an imminent hazard which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potential hazard or unsafe practice which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potential hazard or unsafe practice which, if not avoided, could result in minor personal injury or product/property damage.

NOTE

Provides application tips or other useful information to assure that you get the most from your equipment.

Service Requirements

Follow the service requirements listed below.

- Refer equipment servicing to GE Healthcare's authorized service personnel only.
- Any unauthorized attempt to repair equipment under warranty voids that warranty.
- It is the user's responsibility to report the need for service to GE Healthcare or to one of their authorized agents.
- Failure on the part of the responsible individual, hospital, or institution using this equipment to implement a satisfactory maintenance schedule may cause undue equipment failure and possible health hazards.
- Regular maintenance, irrespective of usage, is essential to ensure that the equipment will always be functional when required.

Service Manual Language Information

WARNING (EN)	This service manual is available in English only. • If a customer's service provider requires a language other than English, it is the customer's responsibility to provide translation services. • Do not attempt to service the equipment unless this service manual has been consulted and is understood. • Failure to heed this warning may result in injury to the service provider, operator, or patient, from electric shock, mechanical or other hazards.
ПРЕДУПРЕЖДЕНИЕ (BG)	Това упътване за работа е налично само на английски език. • 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 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。
警告 (ZH-TW)	本維修手冊只提供英文版。 • 如果客戶的維修人員有英語以外的其他語言版本需求，則由該客戶負責提供翻譯服務。 • 除非您已詳閱本維修手冊並了解其內容，否則切勿嘗試對本設備進行維修。 • 不重視本警告可能導致維修人員、操作人員或病患因電擊、機械因素或其他因素而受到傷害。
UPOZORENJE (HR)	Ove upute za servisiranje dostupne su samo na engleskom jeziku. • Ukoliko korisnički servis zahtijeva neki drugi jezik, korisnikova je odgovornost osigurati odgovarajući prijevod. • Nemojte pokušavati servisirati opremu ukoliko niste konzultirali i razumjeli ove upute. • Nepoštivanje ovog upozorenja može rezultirati ozljedama servisnog osoblja, korisnika ili pacijenta prouzročenim električnim udarom te mehaničkim ili nekim drugim opasnostima.
VAROVÁNÍ (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 varování může dojít k poranění pracovníka prodejního servisu, obslužného personálu nebo pacientů vlivem elektrického proudu, respektive vlivem mechanických či jiných rizik.

Service Manual Language Information (cont'd.)

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 service manual is alleen in het Engels verkrijgbaar. • Indien het onderhoudspersoneel een andere taal nodig heeft, dan is de klant verantwoordelijk voor de vertaling ervan. • Probeer de apparatuur niet te onderhouden voordat deze service manual geraadpleegd en begrepen is. • Indien deze waarschuwing niet wordt opgevolgd, zou het onderhoudspersoneel, de gebruiker of een patiënt gewond kunnen raken als gevolg van een elektrische schok, mechanische of andere gevaren.
HOIATUS (ET)	Käesolev teenindusjuhend on saadaval ainult inglise keeles. • Kui klienditeeninduse osutaja nõuab juhendit inglise keelest erinevas keeles, vastutab klient tõlketeenuse osutamise eest. • Ärge üritage seadmeid teenindada enne eelnevalt käesoleva teenindusjuhendiga tutvumist ja sellest aru saamist. • Käesoleva hoiatuse eiramine võib põhjustada teenuseosutaja, operaatori või patsiendi vigastamist elektrilöögi, mehaanilise või muu ohu tagajärjel.
VAROITUS (FI)	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 technique n'est disponible qu'en anglais. • Si un service technique client souhaite obtenir ce manuel dans une autre langue que l'anglais, il devra prendre en charge la traduction et la responsabilité du contenu. • Ne pas tenter d'intervenir sur les équipements tant que le manuel technique 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.

Service Manual Language Information (cont'd.)

WARNUNG (DE)	Diese Serviceanleitung ist nur in englischer Sprache verfügbar. - Falls der Kundendienst eine andere Sprache benötigt, muss er für eine entsprechende Übersetzung sorgen. - Keine Wartung durchführen, ohne diese Serviceanleitung gelesen und verstanden zu haben. - Bei Zuwiderhandlung kann es zu Verletzungen des Kundendiensttechnikers, des Anwenders oder des Patienten durch Stromschläge, mechanische oder sonstige Gefahren kommen.
ΠΡΟΕΙΔΟΠΟΙΗΣΗ (EL)	Το παρόν εγχειρίδιο σέρβις διατίθεται στα αγγλικά μόνο. - Εάν το άτομο παροχής σέρβις ενός πελάτη απαιτεί το παρόν εγχειρίδιο σε γλώσσα εκτός των αγγλικών, αποτελεί ευθύνη του πελάτη να παρέχει υπηρεσίες μετάφρασης. - Μην επιχειρήσετε την εκτέλεση εργασιών σέρβις στον εξοπλισμό εκτός εάν έχετε συμβουλευτεί και έχετε κατανοήσει το παρόν εγχειρίδιο σέρβις. - Εάν δεν λάβετε υπόψη την προειδοποίηση αυτή, ενδέχεται να προκληθεί τραυματισμός στο άτομο παροχής σέρβις, στο χειριστή ή στον ασθενή από ηλεκτροπληξία, μηχανικούς ή άλλους κινδύνους.
FIGYELMEZTETÉS (HU)	Ez a szerviz kézikönyv kizárólag angol nyelven érhető el. - Ha a vevő szerviz ellátója angoltól eltérő nyelvre tart igényt, akkor a vevő felelőssége a fordítás elkészítése. - Ne próbálja elkezdni használni a berendezést, amíg a szerviz kézikönyvben leírtakat nem értelmezték és értették meg. - Ezen figyelmeztetés figyelmen kívül hagyása a szerviz ellátó, a működtető vagy a páciens áramütés, mechanikai vagy egyéb veszélyhelyzet miatti sérülését eredményezheti.
AÐVÖRUN (IS)	Þessi þjónustuhandbók er eingöngu fáanleg á ensku. - Ef að þjónustuveitandi viðskiptamanns þarfnast annars tungumáls en ensku, er það skylda viðskiptamanns að skaffa tungumálþjónustu. - Reynið ekki að afgreiða tækið nema þessi þjónustuhandbók hefur verið skoðuð og skilin. - Brot á að sinna þessari aðvörun getur leitt til meiðsla á þjónustuveitanda, stjórnanda eða sjúklingi frá raflosti, vélrænum eða öðrum áhættum.
PERINGATAN (ID)	Manual servis ini hanya tersedia dalam bahasa Inggris. - Jika penyedia jasa servis pelanggan memerlukan bahasa lain selain dari Bahasa Inggris, merupakan tanggung jawab dari penyedia jasa servis tersebut untuk menyediakan terjemahannya. - Jangan mencoba melakukan servis terhadap perlengkapan kecuali telah membaca dan memahami manual servis ini. - Mengabaikan peringatan ini bisa mengakibatkan cedera pada penyedia servis, operator, atau pasien, karena terkena kejut listrik, bahaya mekanis atau bahaya lainnya.

Service Manual Language Information (cont'd.)

AVVERTENZA (IT)	Il presente manuale di manutenzione è disponibile soltanto in Inglese. - Se un addetto alla manutenzione richiede il manuale in una lingua diversa, il cliente è 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、十分に理解をした上で装置のサービスを行ってください。 - 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が、感電や機械的又はその他の危険により負傷する可能性があります。
경고 (KO)	본 서비스 지침서는 영어로만 이용하실 수 있습니다. - 고객의 서비스 제공자가 영어 이외의 언어를 요구할 경우, 번역 서비스를 제공하는 것은 고객의 책임입니다. - 본 서비스 지침서를 참고했고 이해하지 않는 한은 해당 장비를 수리하려고 시도하지 마십시오. - 이 경고에 유의하지 않으면 전기 쇼크, 기계상의 혹은 다른 위험으로부터 서비스 제공자, 운전자 혹은 환자에게 위험을 가할 수 있습니다.
ЕСКЕРТУ (KK)	Бұл қызмет көрсету бойынша нұсқаулығы тек ағылшын тілінде қолжетімді. - Тұтынушының қызмет провайдері ағылшын тілінен басқа тілдегі нұсқаны талап етсе, аудару бойынша қызметтерімен қамтамасыз ету тұтынушы жауапкершілігінде болуы тиіс. - Бұл қызмет көрсету бойынша нұсқаулығын назарға алып, түсінбегенше, жабдыққа қызмет көрсетуден бас тартыңыз. - Бұл ескертуді елемей қызмет провайдері, оператор немесе емделушінің электр шоғынан, механикалық немесе басқа қауіптер нәтижесінде жарақат алуына әкелуі мүмкін.
BRĪDINĀJUMS (LV)	Šī apkalpotāju rokasgrāmata ir pieejama tikai angļu valodā. - Ja apkalpošanas sniedzējam nepieciešama informācija citā, nevis angļu, valodā, klienta pienākums ir nodrošināt tās tulkošanu. - Neveiciet aprīkojuma apkopi, neizlasot un nesaprotot apkalpotāju rokasgrāmatu. - Šī brīdinājuma neievērošana var radīt elektriskās strāvas trieciena, mehānisku vai citu risku izraisītu traumu apkopes sniedzējam, operatoram vai pacientam.
ĮSPĖJIMAS (LT)	Šis eksploataavimo vadovas yra prieinamas tik anglų kalba. - Jei kliento paslaugų tiekėjas reikalauja vadovo kita kalba - ne anglų, numatyti vertimo paslaugas yra kliento atsakomybė. - Nemėginkite atlikti įrangos techninės priežiūros, nebent atsižvelgėte į šį eksploataavimo vadovą ir jį supratote. - Jei neatkreipsite dėmesio į šį perspėjimą, galimi sužalojimai dėl elektros šoko, mechaninių ar kitų paslaugų tiekėjui, operatoriui ar pacientui.

Service Manual Language Information (cont'd.)

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 jedynie w języku angielskim. • Jeśli dostawca usług klienta wymaga języka innego niż angielski, zapewnienie usługi tłumaczenia jest obowiązkiem klienta. • Nie należy 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.
AVISO (PT-BR)	Este manual de assistência técnica só se encontra disponível em inglês. • Se o serviço de assistência técnica do cliente não for GE, e precisar de outro idioma, será 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 por em perigo a segurança do técnico, operador ou paciente devido a choques elétricos, mecânicos ou outros.
AVISO (PT-PT)	Este manual técnico só se encontra disponível em inglês. • Se a assistência técnica do cliente solicitar estes manuais noutro idioma, é da responsabilidade do cliente fornecer os serviços de tradução. • Não tente reparar o equipamento sem ter consultado e compreendido este manual técnico. • O não cumprimento deste aviso pode provocar lesões ao técnico, ao utilizador ou ao paciente devido a choques eléctricos, mecânicos ou outros.
AVERTISMENT (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.
ПРЕДУПРЕЖДЕНИЕ (RU)	Настоящее 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 обеспечить перевод самостоятельно. • Прежде чем приступать к обслуживанию оборудования, обязательно обратитесь к настоящему руководству и внимательно изучите изложенные в нем сведения. • Несоблюдение требований данного предупреждения может привести к тому, что специалисты по обслуживанию, операторы или пациенты получат удар электрическим током, механическую травму или другое повреждение.

Service Manual Language Information (cont'd.)

UPOZORENJE (SR)	Ovo servisno uputstvo je dostupno samo na engleskom jeziku. - Ako klijentov serviser zahteva neki drugi jezik, klijent je dužan da obezbedi prevodilačke usluge. - Ne pokušavajte da opravite uređaj ako niste pročitali i razumeli ovo servisno uputstvo. - Zanemarivanje ovog upozorenja može dovesti do povređivanja serviser, rukovaoca ili pacijenta usled strujnog udara, ili mehaničkih i drugih opasnosti.
VAROVANIE (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 obsluhu a neporozumiete mu. - Zanedbanie tohto varovania môže vyústiť do zranenia poskytovateľa služieb, obsluhujúcej osoby alebo pacienta elektrickým prúdom, mechanickým alebo iným nebezpečenstvom.
OPOZORILO (SL)	Ta servisni priročnik je na voljo samo v angleškem jeziku. - 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.
ADVERTENCIA (ES)	Este manual de servicio sólo existe en inglés. - Si el encargado de mantenimiento de un cliente necesita un idioma que no sea el inglés, el cliente deberá encargarse de la traducción del manual. - No se deberá dar servicio técnico al equipo, sin haber consultado y comprendido este manual de servicio. - La no observancia del presente aviso puede dar lugar a que el proveedor de servicios, el operador o el paciente sufran lesiones provocadas por causas eléctricas, mecánicas o de otra naturaleza.
VARNING (SV)	Den här servicehandboken finns bara tillgänglig på engelska. - 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.
UYARI (TR)	Bu servis kılavuzunun sadece İngilizcesi mevcuttur. - Eğer müşteri teknisyeni bu kılavuzu İngilizce dışında bir başka lisandan talep ederse, bunu tercüme ettirmek müşteriye düşer. - Servis kılavuzunu okuyup anlamadan ekipmanlara müdahale etmeyiniz. - Bu uyarıya uyulmaması, elektrik, mekanik veya diğer tehlikelerden dolayı teknisyen, operatör veya hastanın yaralanmasına yol açabilir.

Service Manual Language Information (cont'd.)

ЗАСТЕРЕЖЕННЯ (UK)	Дане керівництво з сервісного обслуговування постачається виключно англійською мовою. • Якщо сервісний інженер потребує керівництво іншою мовою, користувач зобов'язаний забезпечити послуги перекладача. • Не намагайтеся здійснювати технічне обслуговування даного обладнання, якщо ви не читали, або не зрозуміли інформацію, надану в керівництві з сервісного обслуговування. • Недотримання цього застереження може призвести до травмування сервісного інженера, користувача даного обладнання або пацієнта внаслідок електричного шоку, механічного ушкодження або з інших причин невірної обслуговування обладнання.
CẢNH BÁO (VI)	Tài Liệu Hướng Dẫn Sửa Chữa chỉ có bản tiếng Anh. • Nếu các đơn vị cung cấp dịch vụ cho khách hàng yêu cầu một ngôn ngữ nào khác tiếng Anh, thì khách hàng sẽ có trách nhiệm cung cấp các dịch vụ dịch thuật. • Không được sửa chữa thiết bị trừ khi đã tham khảo và hiểu Tài liệu Hướng dẫn Sửa chữa. • Không tuân thủ những cảnh báo này có thể dẫn đến các tổn thương cho người thực hiện sửa chữa, người vận hành hay bệnh nhân, do sốc điện, các rủi ro về cơ khí hay các rủi ro khác.

Contents

1	Functional Description	
	General Information.....	13
2	Operating Controls and System Components	
	KISS™	15
	KISS™ Multilead.....	17
3	Testing instructions for KISS™ and KISS™ Multilead	
	Visual Check.....	19
	System Function Check.....	19
	Equipment Check for Leaks in the Complete System, Pump, Distributor, Electrode Leads and Suction Cups.....	20
	Testing Requirements.....	20
	Complete System Test.....	21
	Electrode Lead Valve Leak.....	21
	Pump Leakage.....	22
	Pump Leakage Test with Pumps Requiring Positive Pressure to Start.....	22
	Pump Leakage Test with Pumps Requiring Negative Pressure to Start.....	23
	Electrode Leakage.....	23
	Testing Electrical Function (KISS™).....	24
	Testing Electrical Function (KISS™ Multilead).....	25
	KISS™ - Disassembly, Assembly.....	25
	Disassembling and Assembling the Controller and the End Piece on the Distributor.....	25
	Disassembling the Trunk Cable and the PCB.....	26
	Assembling the PCB and the Trunk Cable.....	26
	Assembling the Controller.....	27
	KISS™ Multilead - Disassembling, Assembly.....	27
	Disassembling and Assembling the Controller.....	27
	Disassembling the Connector PCB and the Connector Housings.....	27
	Air Tube and Input PCB.....	28
	Exchange of the KISS Multilead Air Tube.....	29
	KISS™/KISS™ Multilead O-Ring Replacement.....	34
4	Maintenance, Cleaning and Troubleshooting (KISS™/KISS™ Multilead)	
	Maintenance	37

	Cleaning and Disinfecting the Instrument Surfaces	37
	Cleaning and Disinfecting the Patient and Leadwires	37
	Cleaning Electrodes and Electrode Care	38
	Replacing Leadwires	38
	Troubleshooting	39
5	Spare Parts List (KISS™/KISS™ Multilead)	
		41
6	Testing Instructions for KISS™ and KISS™ Multilead	
	1. Test Plate (p/n 30344490)	45
	2. Y-Adapter (p/n 30344489)	45
	3. Adapter Extension with Syringe (p/n 2081397-001)	45
	4. Dummy Plug for KISS™ (p/n 30344488)	46
7	Specifications	
	KISS™-10, KISS™-12	47
	Environment.....	48
	KISS™ Multilead.....	48
	Environment.....	49
	External Suction Pump with Power Supply.....	49
A	Schematics	
	Assembly Drawings.....	51

Functional Description

General Information

The GE Healthcare Electrode Application System KISS™ is used to assist in the application of ECG electrodes for the acquisition of resting and exercise ECGs. The system is optimally suited from an ergonomic viewpoint.

A number of different KISS™ versions are available:

- KISS™-10 (Standard) and KISS™-12 (Standard + Nehb).
- KISS™ Multilead (KISS™ for CAM-14 Acquisition Module): 10-lead (default) and optional electrode extension kits for FRANK, NEHB and A1..A4

The electrode leads are conducted to a common trunk cable via a central electrode distributor. Integrated in the electrodes - and trunk cable - is the pneumatic tubing connector.

A number of instrument versions are available to match the ECG recorder and acquisition module used.

An option for the electrode application system KISS™ comprises a pole with an extendible swivel arm adjustable in length and height for installation on a GE Healthcare instrument cart. With the brackets provided in the accessory kit, the system can be mounted to a wall or on an instrument table.

An electrically operated suction pump, installed in the ECG recorder / stress system or in a system power supply unit generates a constant negative pressure, the negative pressure controller in the distributor enabling controlled adjustment.

The negative pressure can be adjusted within a range of 80 to 220 mbar in accordance with the required application.

The suction pump only operates when negative pressure must be created after attaching the electrodes or when a loss in pressure for electrodes already attached has to be compensated for. This permits the use of a quiet, low Watt rating pump.

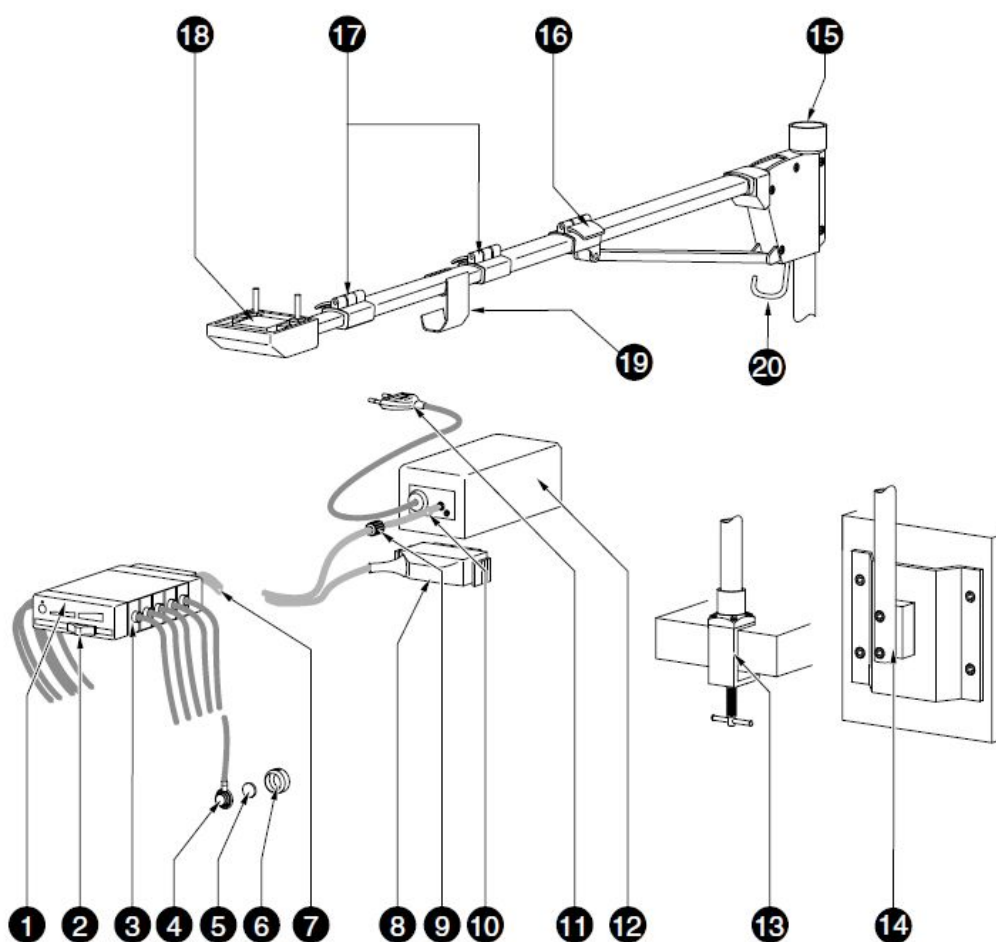
The power supply unit supplies the suction pump with mains voltages from 110V to 240 V.

The silver/silver chloride electrodes are attached by suction by pressing briefly on the suction cup at the application site. A valve opens in the electrode lead, enabling the generation of negative pressure.

2

Operating Controls and System Components

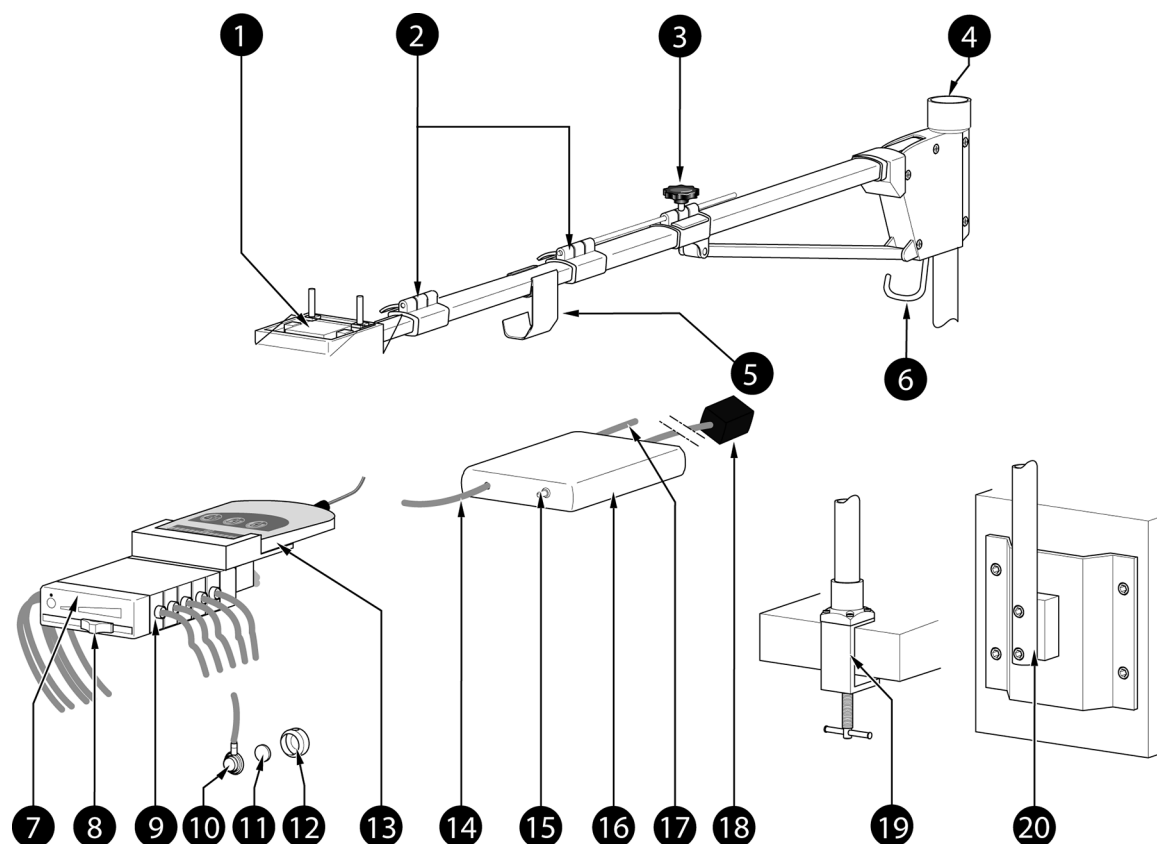
KISS™



Application System KISS™ and pole

Item	Description	Item	Description
1	Electrode distributor	11	Power connector for pump module
2	Negative pressure control	12	Pump module
3	Electrode leads with valve	13	Screw clamp for fixation of pole to table top
4	Silver silver chloride electrode	14	Wall-mount facility for pole
5	Filter disk => electrode	15	Pole top with retaining screw, accommodates contact spray bottle
6	Suction cup => electrode	16	Locking catch to adjust the height of the swivel arm
7	Electrocardiograph and pump connecting cable (trunk cable)	17	Locking catch to adjust the length of the swivel arm
8	Connector for electrocardiograph	18	Bracket for electrode distributor
9	Luer-Lock connector for suction pump	19	Electrode lead hanger
10	Extension tube	20	Power cord hanger

KISS™ Multilead



KISS™ Multilead and pole

Item	Description	Item	Description
1	Bracket for electrode distributor	11	Filter disk => electrode
2	Locking catch to adjust the length of the swivel arm	12	Suction cup => electrode
3	Locking catch to adjust the height of the swivel arm	13	CAM14 acquisition module
4	Pole top with retaining screw, accommodates contact spray bottle	14	Signal lead to CAM 14 acquisition module
5	Electrode lead hanger	15	Suction pump connector
6	Power cord hanger	16	CAM USB A/T KISS™ interface
7	Electrode distributor	17	Connects to the USB port of the PC
8	Negative pressure control	18	AC power adapter
9	Electrode leads with valve (A1 - A4 optional)	19	Screw clamp for fixation of pole to table top
10	Silver chloride electrode	20	Wall-mount facility for pole

3

Testing instructions for KISS™ and KISS™ Multilead

Visual Check

Check the application system for external intactness:

- The distributor housing is undamaged.
- The power supply unit with the integrated suction pump is undamaged.
- The trunk cable and the electrode leads are intact. No cracks, kinks or deformations.
- The suction cups have no cracks.
- Surfaces of all silver/silver chloride electrodes are undamaged, i.e., unscratched, unsoiled.

Remove electrode leads from the electrodes. Remove electrodes from the suction cups:

- No soiling by electrode gel, hair, etc.
- Moist electrode filter disks must be replaced. Electrode nozzles intact.

For instruments with an extension arm:

Check instrument arm and electrode distributor housing are undamaged and sliding components lock securely.

System Function Check

1. Set negative pressure regulator on the electrode distributor to CENTER.
2. Switch on ECG recorder or connect up power supply unit.
3. Press suction cups gently onto a smooth even surface and release the cup.
The suction pump starts up and generates the negative pressure.

The electrodes must adhere securely.

4. Changing the pressure with the regulator results  in a visible effect on the suction cups.

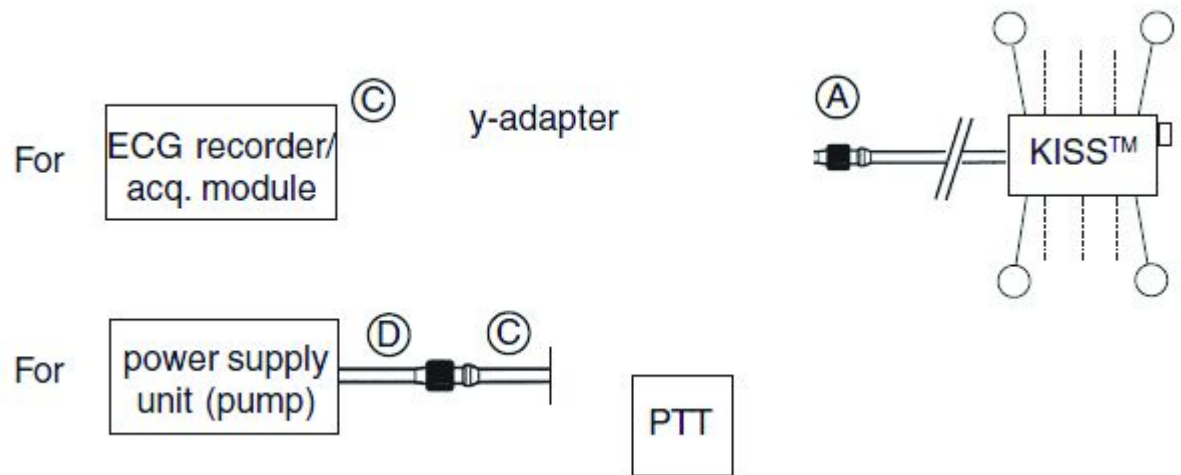
Negative pressure regulator in position  (left), the electrodes should drop off.

Equipment Check for Leaks in the Complete System, Pump, Distributor, Electrode Leads and Suction Cups

Testing Requirements

- Pneumatic Transducer Tester PTT, e.g., X-Caliber (shown in mmHg)
- Ohmmeter/Multimeter
- Test plate for connection of a suction electrode
see ["1. Test Plate \(p/n 30344490\)" on page 45](#)
- Y-adapter (for connection negative pressure tubing <-> PTT)
see ["2. Y-Adapter \(p/n 30344489\)" on page 45](#)
- Dummy plug for distributor
see ["4. Dummy Plug for KISS™ \(p/n 30344488\)" on page 46](#)

Complete System Test



1. Start up the pump by attaching an electrode.
 - a. Then remove the electrode.
 - b. Measure the negative pressure after about 10 seconds: the reading must be between 225 and 265 mmHg (300 and 350 mbar).
2. Then switch off the negative-pressure pump.
The drop in negative pressure must not exceed 2 mmHg/s (2.66 mbar/s).
3. Attach electrodes to a smooth flat surface and repeat above test.
The drop in negative pressure must not exceed max. 4 mmHg/s (5.3 mbar/s).

If these test value limits are not observed, i.e., the drop in negative pressure proceeds too quickly, the system should be tested for "leaks".

Electrode Lead Valve Leak

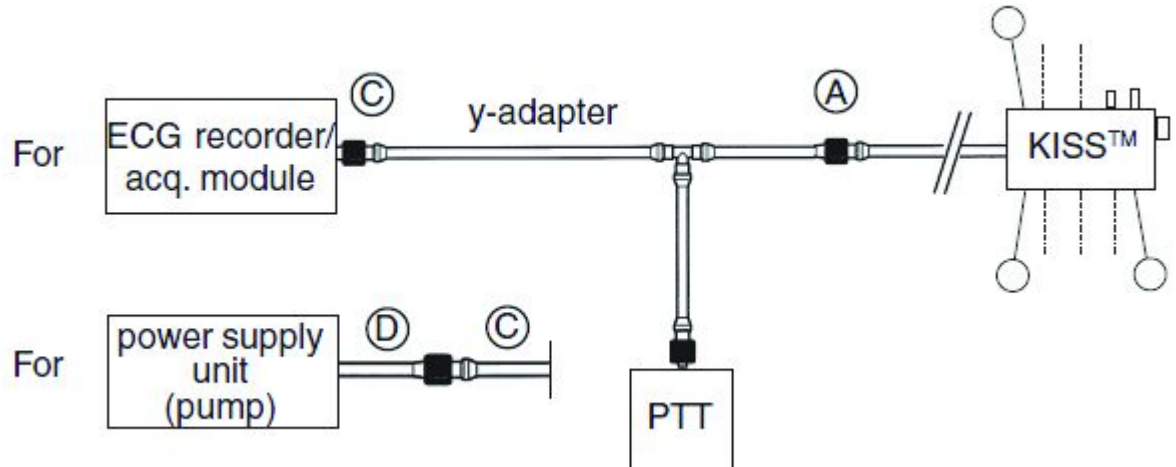
All electrodes must be connected to the distributor.

In order to test the electrodes for leaks, proceed as follows:

- Replace an electrode by a dummy plug (part no. 303 444 88).
- Carry out the test as described in ["Complete System Test" on page 21](#) in steps 1 and 2.

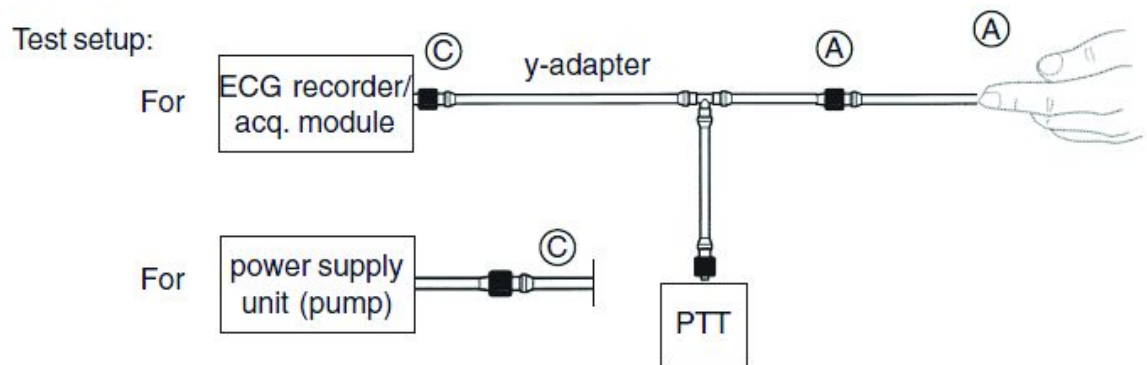
If the leak is still present, replace the next electrode with a dummy plug and test again. Repeat the above test until the defective electrode is identified. If all electrodes are replaced with dummy plugs and the system still leaks, there must be a leak in the distributor or the pump.

For pump leaks, proceed as described in “[Pump Leakage](#)” on page 22. If the distributor leaks, the entire distributor should be replaced (see [Chapter 5 “Spare Parts List \(KISS™/KISS™ Multilead\)”](#) on page 41).



Pump Leakage

Pump Leakage Test with Pumps Requiring Positive Pressure to Start



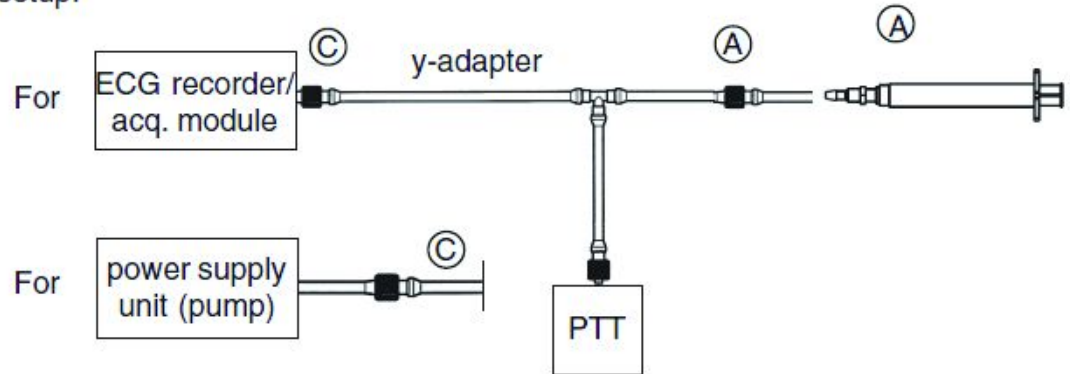
Start the pump by blowing against the suction pipe still open and then closing the pipe with your finger as shown in the test setup (within 3s). Then switch off the negative pressure pump (ECG recorder or power supply unit): The drop in negative pressure must not exceed max. 1 mmHg/s (1.33 mbar/s).

If this value is not observed, the pump must be replaced (ECG recorder/acquisition module (acq. module) or the power supply unit).

If the reading is correct, there must be a leak in the distributor or regulator. The distributor incl. regulator should be replaced. See “[KISS™ - Disassembly, Assembly](#)” on page 25.

Pump Leakage Test with Pumps Requiring Negative Pressure to Start

Test setup:



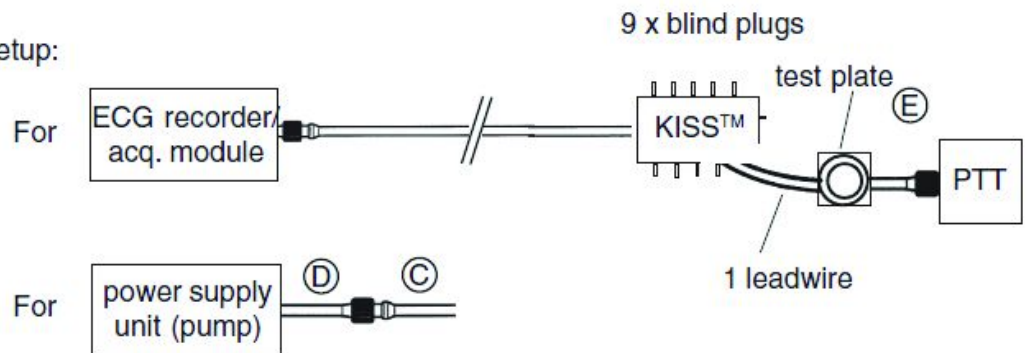
Start the pump by pulling gently on the syringe piston. Then switch off the negative pressure pump (ECG recorder or power supply unit): The drop in negative pressure must not exceed max. 1 mmHg/s (1.33 mbar/s).

If this value is not observed, the pump must be replaced (ECG recorder/acquisition module (acq. module) or the power supply unit).

If the reading is correct, there must be a leak in the distributor or regulator. The distributor incl. regulator should be replaced. See "KISS™ - Disassembly, Assembly" on page 25.

Electrode Leakage

Test setup:



Start the pump by pressing the electrode to the test plate (part no. 303 444 90)

Negative pressure adjusted to maximum: max.150...195 mmHg (200...270 mbar)

Negative pressure adjusted to minimum: min. 37... 60 mm Hg (50...80 mbar)

Each electrode plus lead is tested in sequence.

(This can be always be conducted at the same distributor slot).

If these values are not observed, there is leakage at the electrode body/suction cup interface or at the plug-in connection to the electrode lead.

Remedy: Replace electrode; see [See Chapter 5. "Spare Parts List \(KISS™/KISS™ Multilead\)"](#) on page 41.

Testing Electrical Function (KISS™)

Resistance between the leadwire connector and the KISS™ electrode connector. The measured resistance must be $10\text{ kohm} \pm 1\text{ kohm}$.

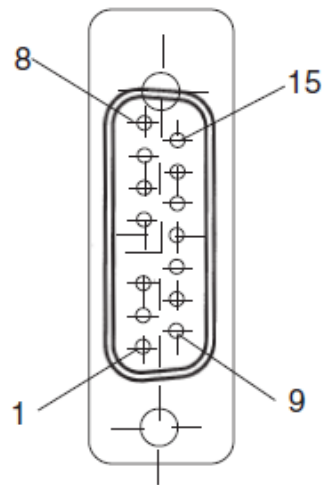
CAUTION:

It is prudent to make this measurement without electrodes as the silver-silver chloride electrodes must not come into contact with other metals.

Pin assignment for ECG units with IEC plug:

R=9, L=10, F=11, N=14, C1=12, C2=1, C3=2, C4=3, C5=4, C6=5, shield=6

leadwire connector



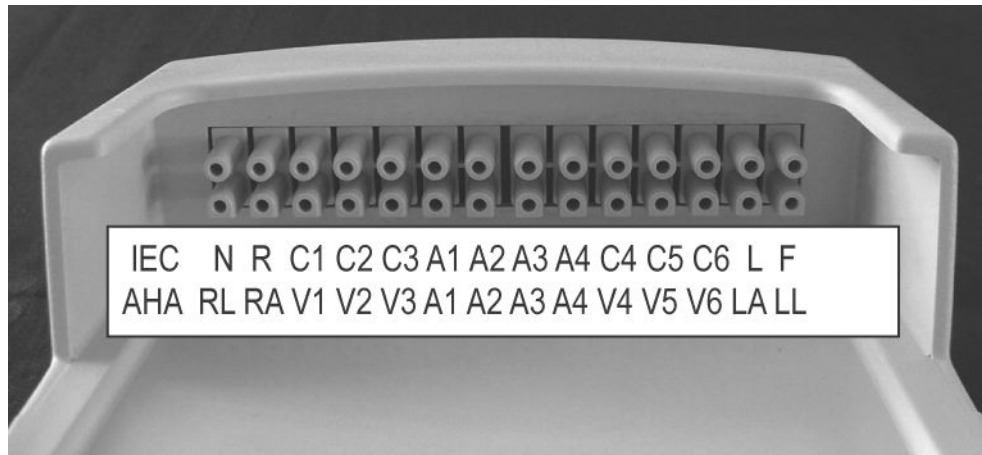
		pin assignment		
electrode label	socket	trunk	connector reference number	
IEC	AHA	shell	cable	
F	LL	7	green	11
L	LA	12	yellow	10
C 6	V 6	10	blue	5
C 5	V 5	11	neutral	4
C 4	V 4	5	gray	3
C 3	V 3	3	gray	2
C 2	V 2	1	white	1
C 1	V 1	2	brown	12
R	RA	4	red	9
Nst		13	pink	13
Nax		9	purple	15
N	RL	14	black	14
		6	shield	6
		solder lug		
only for version 223 414 02			bridge	7
				8

Testing Electrical Function (KISS™ Multilead)

Resistance between the leadwire connector and the KISS™ electrode connector. The measured resistance must be $10\text{ kohm} \pm 1\text{ kohm}$.

CAUTION:

It is prudent to make this measurement without electrodes as the silver-silver chloride electrodes must not come into contact with other metals.



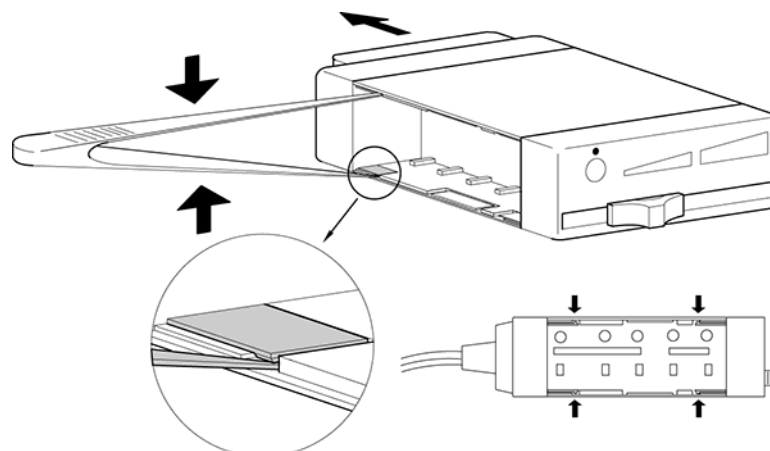
Leadwire connector (KISS™ Multilead)

KISS™ - Disassembly, Assembly

Disassembling and Assembling the Controller and the End Piece on the Distributor

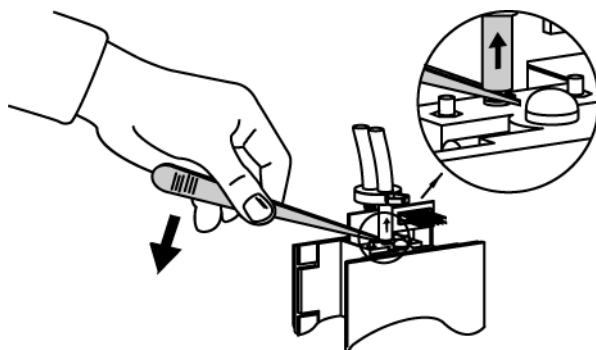
Remove all electrode leads on the distributor. There are 4 spring catches to be opened for each lead.

First of all lift up 2 spring catches on one side with a pair of pointed tweezers (Caution: Do not overstretch!) and lift component slightly, then lift up the next 2 spring catches on the other side and remove component (controller or end piece).



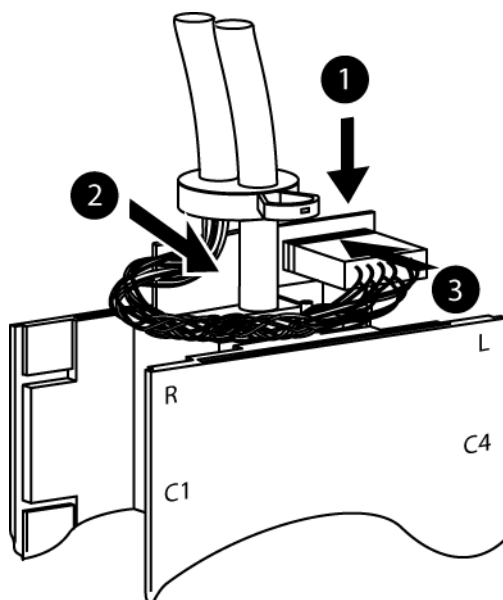
Disassembling the Trunk Cable and the PCB

- First carry out “Disassembling and Assembling the Controller and the End Piece on the Distributor” on page 25.
- Disconnect plug from PCB.
- Position a pair of tweezers under the end of the tubing and ease the tubing off the extension tube. **Do not** pull on the tubing as the extension tube could break off!
- Remove PCB.



Assembling the PCB and the Trunk Cable

1. Plug PCB into the distributor.
2. With nozzle retracted push on the trunk cable as far as it will go.
3. Twist lead ends two turns to the left. Plug lead plugs into PCB (observe coding!)



4. Slide on nozzle.
 5. Slide on end piece until all 4 spring catches lock in (Caution: Avoid pinching wires!)
- Final, check by pulling gently on the end piece.

Assembling the Controller

Slide on controller until all spring catches lock in.

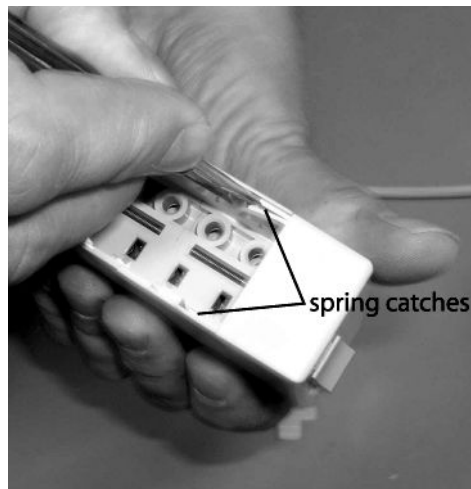
Final, check by pulling gently on the controller.

KISS™ Multilead - Disassembling, Assembly

Disassembling and Assembling the Controller

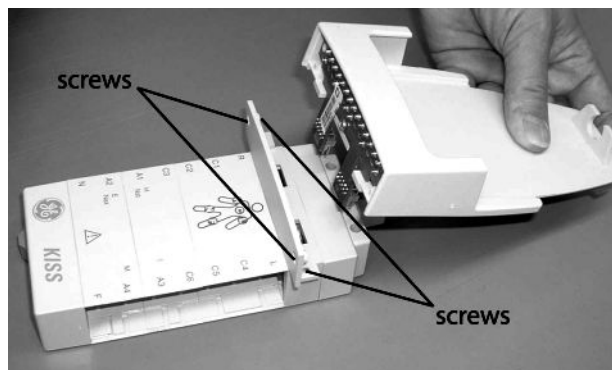
Remove all electrode leads on the distributor. There are 4 spring catches to be opened for each lead.

First of all lift up 2 spring catches on one side with a pair of pointed tweezers (Caution: Do not overstretch!) and lift component slightly, then lift up the next 2 spring catches on the other side and remove component (controller).

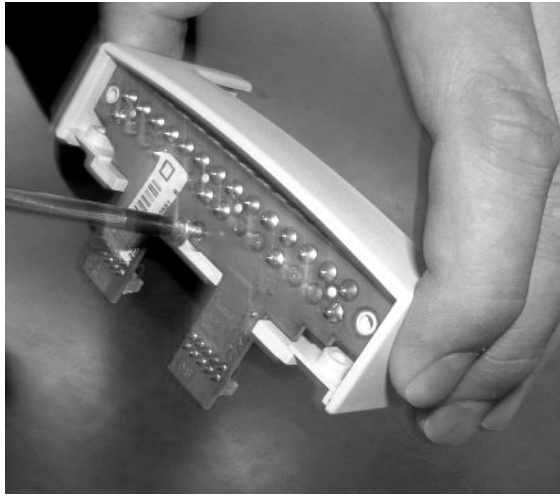


Disassembling the Connector PCB and the Connector Housings

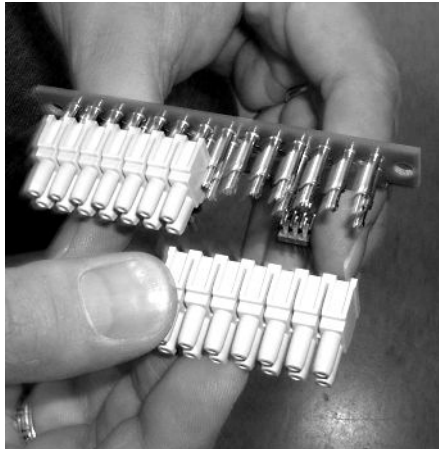
- Remove the CAM-14 mounting unit: To do so, loosen the four screws and carefully lift off the CAM-14 mounting unit.



- Loosen the fixation screw of the connector PCB and remove connector PCB.

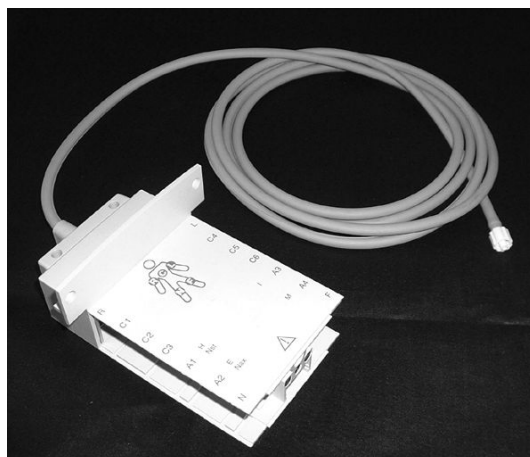


- You can remove the connector housings by pulling them carefully off the contact pins.



Air Tube and Input PCB

The distributor block is available as a spare part (without regulator). The regulator must be ordered separately, if needed.



If this component is to be replaced, a device label must be ordered at techsupport.gemsit@med.ge.com using the existing Cat. No. and S/N.

Exchange of the KISS Multilead Air Tube

- Remove all electrode leads from the distributor block and loosen the screws as shown on figure 1 and figure 2.

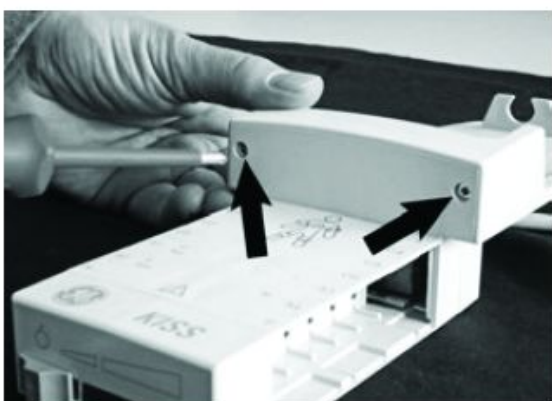


Figure 1

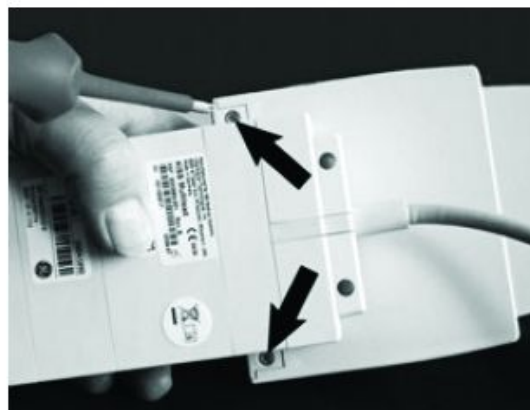


Figure 2

- Carefully lift off the CAM-14 mounting unit.

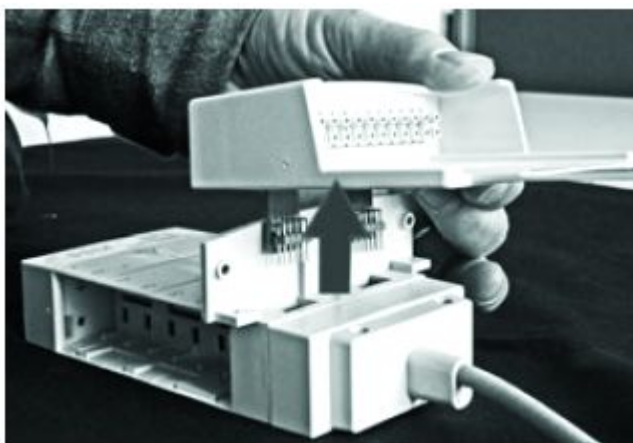


Figure 3

- Pull the locking plates (A) on both sides of the distributor block by using a suitable tool (see figure 4).

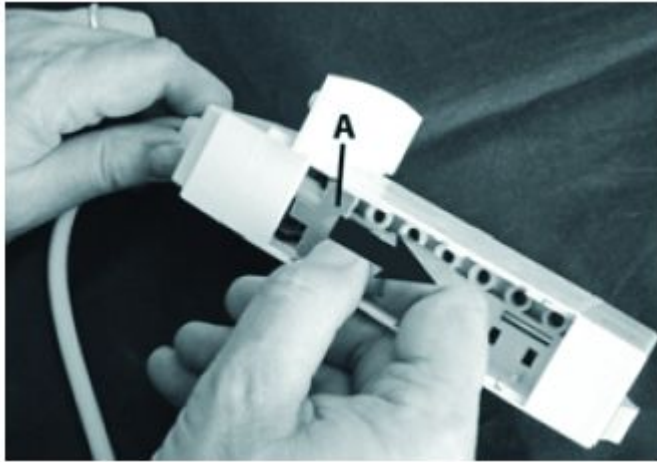


Figure 4

- Lift the two spring catches on both sides (see figure 5). CAUTION: Do NOT overstretch!



Figure 5

- Remove the cover from the distributor block (see figure 6).

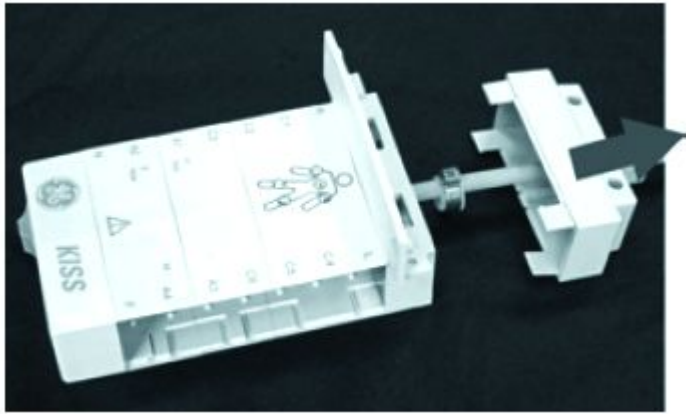
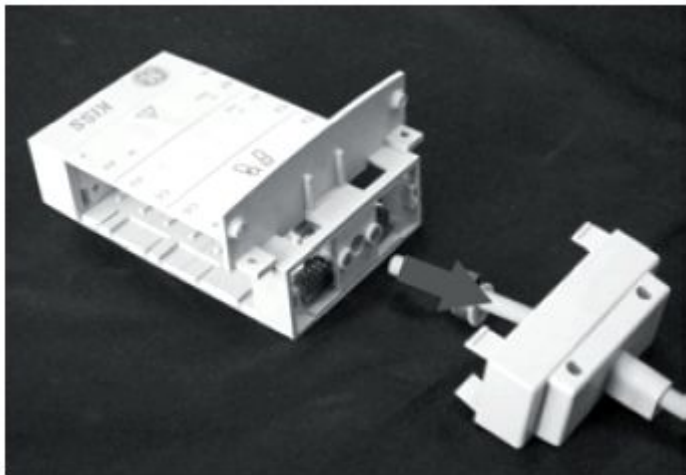
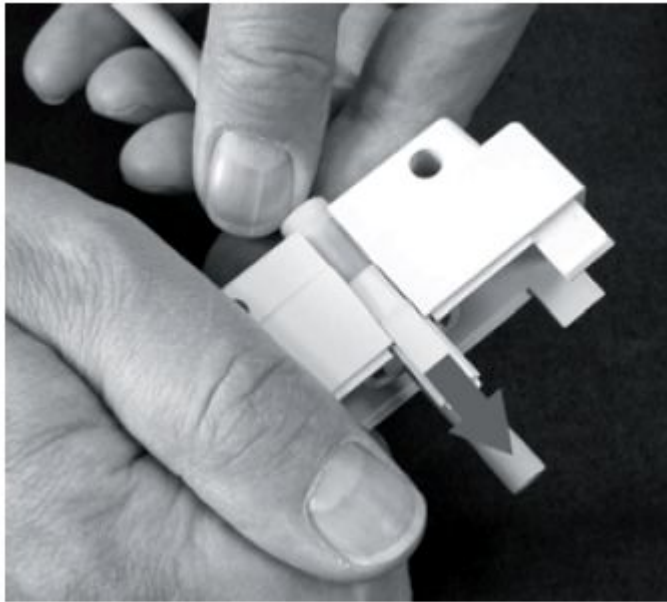


Figure 6

- Pull off the air tube from the distributor block (see figure 7).



- Slide the air tube off the cover as shown in figure 8.



- Insert the new air tube in the cover as shown in figure 9.

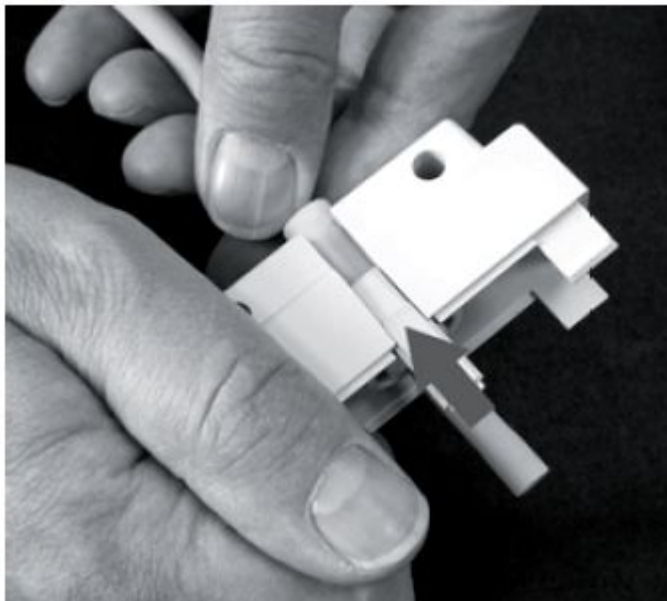


Figure 9

- Widen the end of the air tube (see A on figure 10) by using a suitable tool so that it fits over the nozzle of the tube connector. Push the air tube over the nozzle. Assemble the cover and the distributor block. Ensure that the spring catches click into place.

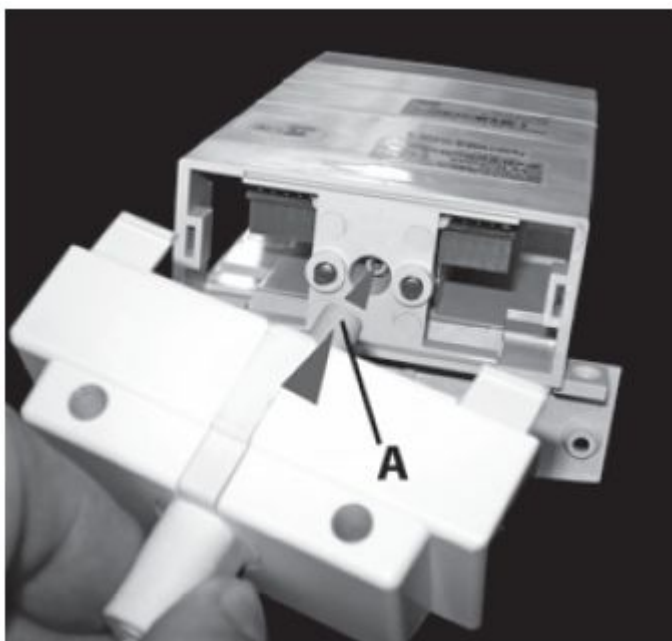


Figure 10

- Slide the two locking plates (A) into the distributor block (see figure 11). Carefully connect the CAM-14 mounting unit (see figure 3) to the distributor block and tighten the four screws (see figure 1 and figure 2). Connect all electrode leads to the distributor.

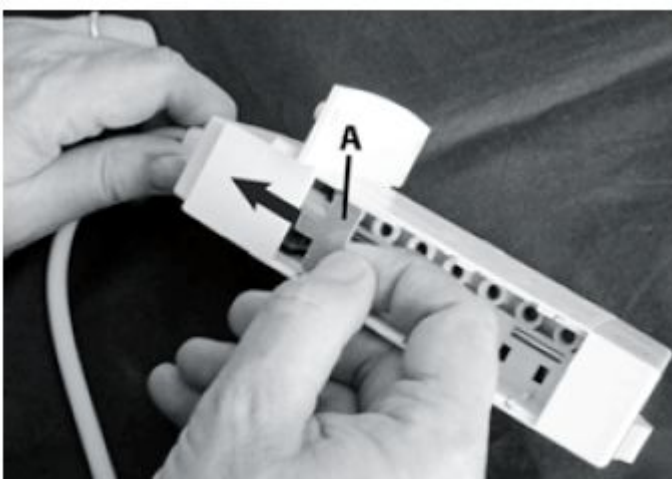


Figure 11

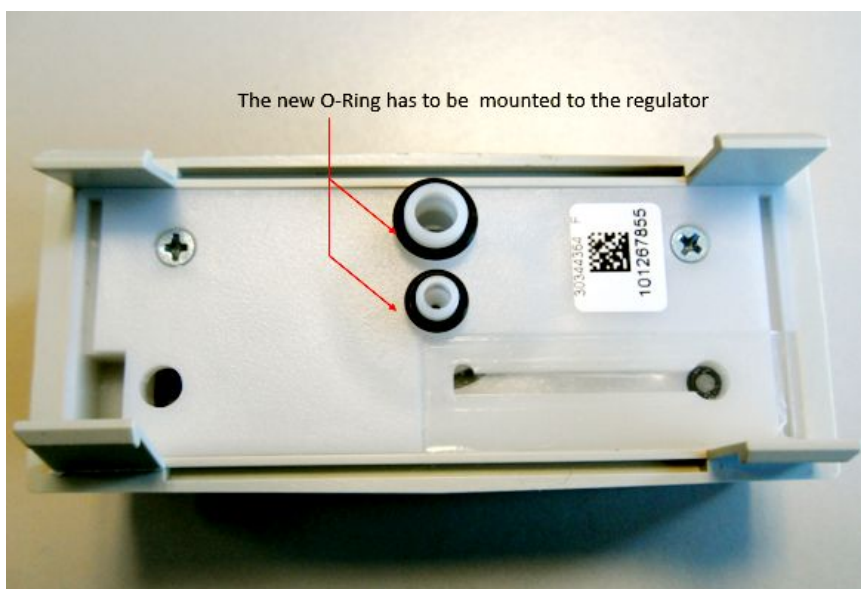
KISS™/KISS™ Multilead O-Ring Replacement

Remove all electrode leads on the distributor. There are 4 spring catches to be opened.

- Lift up two spring catches on one side with a pair of pointed tweezers (Caution: Do no overstretch!), insert pointed tweezers, carefully press down on the spring catch to unlock it and lift component slightly. Then repeat procedure on the two spring catches on the other side, and remove the regulator (controller).

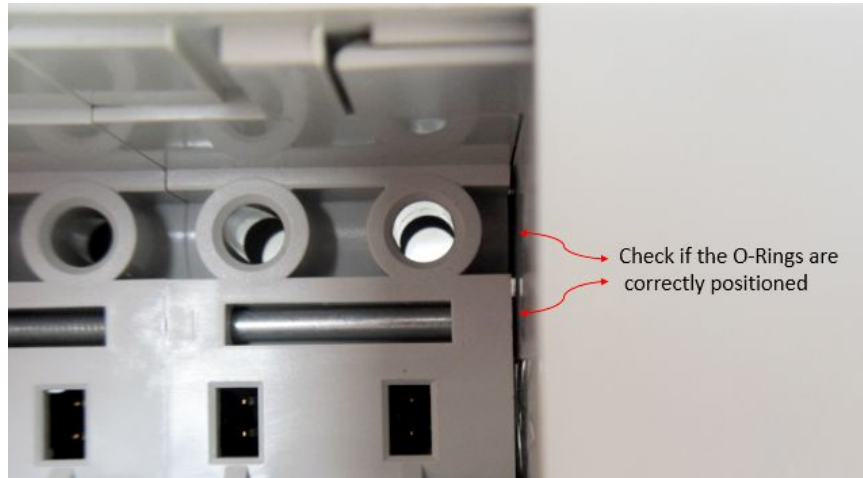


- Remove the old O-Ring, and mount the new O-Rings to the regulator (controller).



- Slide regulator in parallel position to the distribution block, for the four spring catches to snap into position.

- Confirm that the O-Rings are correctly positioned.



- Perform the following tests:
 - ["Visual Check" on page 19](#)
 - ["System Function Check" on page 19](#)
 - ["Electrode Lead Valve Leak" on page 21](#)
 - ["Cleaning and Disinfecting the Instrument Surfaces" on page 37](#)

Maintenance, Cleaning and Troubleshooting (KISS™/KISS™ Multilead)

Maintenance

The application system and negative pressure pump do not require any maintenance.

Cleaning and Disinfecting the Instrument Surfaces

WARNING:

SHOCK HAZARD - Disconnect the instrument from the ECG recorder or the mains plug of the power supply unit before cleaning and disinfecting the instrument surface and/or maintenance!

Use a moist cloth to wipe the pole and the CAM-USB A/T KISS™ interface clean. Do not allow liquid to enter the equipment. When the surface is very soiled, use a mild soap solution or detergent. Never use abrasive cleaners.

All disinfectants containing alcohol can be used. Following are some products found in the list of disinfectants issued by DGHM (German Society for Hygiene and Microbiology): Funktiosept A, Mucocit-B or Meliseptol.

Cleaning and Disinfecting the Patient and Leadwires

Disconnect the cables from the system before cleaning and disinfecting them.

When disconnecting the plug-in connectors always pull on the plug and not the cables.

Clean the cables with a cloth moistened with soap water. Use a disinfectant for disinfection of the leadwires and cables.

CAUTION:

EQUIPMENT DAMAGE - Under no circumstances should leadwires be immersed in the cleaning solution or disinfectant. Even if the system were not under negative pressure, the liquid would enter the system, spoiling the filter disks and clogging the pneumatic system.

Cleaning Electrodes and Electrode Care

For a thorough cleaning the electrode cable (3) can be disconnected from the electrode (4). When doing this it is practical to disconnect the cable plug.

The suction cup (6) can now be removed from the electrode. This permits access to the filter disk (5), which can be replaced.

- The surface of electrodes with minor contamination can be cleaned with a cloth moistened with water and detergent.

CAUTION:

EQUIPMENT DAMAGE - Do not scrape electrodes with metal objects. The silver-silver chloride structure could be damaged by this and lose its stabilizing effect on the electrode interface.

- To disinfect the electrodes, wipe them down with a cloth moistened with 80% alcohol. All disinfectants containing alcohol can be used for disinfection.

CAUTION:

EQUIPMENT DAMAGE - After use do not immerse the electrodes into the cleaning solution. The liquid entering the negative pressure system would soak and hence spoil the filter disk.

- Observe the information given in the KISS™ Multilead Operator Manual.

For a system in frequent use replace the filter disks once a week!

Replacing Leadwires

The leadwires are subject to wear and tear and, therefore, they can be replaced. The leadwires are available without the electrodes as spare parts (for Catalog Nos. see [Chapter 5 "Spare Parts List \(KISS™/KISS™ Multilead\)" on page 41](#)).

The leadwires are plugged into the distributor head for easy replacement. When removing the lead pull on the plug. When plugging in a new lead do not use force; the pneumatic and electrical plug-in connectors could become damaged.

Troubleshooting

Possible error:	Electrodes do not become attached by suction, insufficient suction, or electrodes fall off
Causes:	No or insufficient negative pressure due to: • Kink in negative pressure tubing • Negative pressure tubing connection to pump interrupted • Filter disk (5) soiled • Power supply interrupted • Leak in negative pressure system • Broken or failed regulator O-Ring
Remedies:	Remove kink in negative pressure tubing, establish connection to pump, replace filter disk, replace regulator O-Rings, connect power supply. Instrumentation test as in “Equipment Check for Leaks in the Complete System, Pump, Distributor, Electrode Leads and Suction Cups” on page 20 to identify leak.
Possible error:	ECG leads yield poor recording
Cause:	Electrode leads, trunk cable shielding, or plugs interrupted
Remedy:	Measure resistance as in “Testing Electrical Function (KISS™)” on page 24 .

Spare Parts List (KISS™/KISS™ Multilead)

Single Leadwires for KISS™ and KISS™ Multilead

303 443 65	Leadwire C1
303 443 66	Leadwire C2
303 443 67	Leadwire C3
303 443 68	Leadwire C4
303 443 69	Leadwire C5
303 443 70	Leadwire C6
303 443 71	Leadwire F
303 443 72	Leadwire L
303 443 73	Leadwire R
303 443 74	Leadwire N
303 443 75	Leadwire Nst
303 443 76	Leadwire Nax
2022862-001	Leadwire I
2022862-003	Leadwire E
2022862-004	Leadwire M
2022862-005	Leadwire H
2022862-006	Leadwire A1
2022862-007	Leadwire A2
2022862-008	Leadwire A3
2022862-009	Leadwire A4

Leadwire Sets for KISS™

384 015 90	Leadwire Set (10-fold)
384 015 91	Leadwire Set (12-fold)

Leadwire Sets for KISS™ Multilead

2024037-001	Leadwire Set Standard
2024038-001	Upgrade Leadwire Set Frank

Leadwire Sets for KISS™ Multilead (cont'd.)

2024039-001	Upgrade Leadwire Set Nehb
2024040-001	Upgrade Leadwire Set A1 - A4
217 328 01	Suction electrode for KISS™/KISS™ Multilead

Regulators for KISS™/KISS™ Multilead

303 443 64	International, with GE logo
303 444 86	OEM version without logo
303 445 19	Version for Zimmer
303 445 49	Version for HP

O-Rings for KISS™ / KISS™ Multilead

2100929-001	FRU O-Ring KISS
-------------	-----------------

Distributor Block for KISS™

303 444 53	Exchange 10-fold distributor block with regulator, trunk cable and GE Healthcare connector
303 444 61	Exchange 12-fold distributor block with regulator, trunk cable and GE Healthcare connector
303 444 60	Exchange 10-fold distributor block with regulator without trunk cable
303 444 62	Exchange 12-fold distributor block with regulator without trunk cable

Trunk Cables for KISS™

223 414 01	Trunk cable for 10-lead KISS™, standard (CardioSmart and Corina)
223 414 02	Trunk cable for 12-lead KISS™, standard (CardioSmart and Corina)
223 414 03	Trunk cable for 10-lead KISS™, universal (non-GE ECG devices)
223 414 09	Trunk cable, 12-lead KISS™, Schwarzer
223 414 10	Trunk cable, 10-lead KISS™ (MicroSmart / MAC™ 1200 / MAC™ 1100)
223 414 15	Trunk cable, 12-lead KISS™ (MicroSmart / MAC™ 1200 / MAC™ 1100)

Trunk Cables for KISS™ (cont'd.)

223 414 13	Trunk cable, 10-lead KISS™ (CASE™ 8000)
223 414 14	Trunk cable, 10-lead KISS™ (MAC™ 5000)

Distributor Block Parts for KISS™ Multilead

2028718-001	Distributor block for KISS™ Multilead
303 444 27	Blind plug
2056303-001	FRU ASSY TUBE AIR KISS MULTILEAD

Miscellaneous Adapters for KISS™ with Universal Connector

223 361 10	for MAC™ 1100 / 1200 and MAC™ 500 (MicroSmart)
223 361 18	for AM4 and AM5

Miscellaneous Items for CAM-14 Holder

2022307-001	CAM-14 holder
2022298-001	PCB Connector
2022309-001	Connector housing

Luer Lock Connector

929 166 55	Nut cap
929 166 56	Nipple plug

Power Supply (Pump) for KISS™

2080819-001	Set External Suction pump 100 - 240 V
-------------	---------------------------------------

Holder for KISS™ System

303 441 91	Telescope arm
504 657 02	Stay (21)
432 521 33	Joint telescope arm (18)
432 523 06	Brake
432 523 46	Case Shell right (15)
432 523 47	Case Shell left (15)
504 658 55	Hook (20)
432 523 07	Cable Holder (19)

Testing Instructions for KISS™ and KISS™ Multilead

Acquisition module

tube, 20 cm

(C)

PVC tube, 100 cm

tube, 20 cm

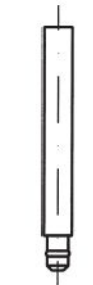
(D) Power supply
Pump direct

tube, 20 cm

(B)

syringe with Luer adapter

4. Dummy Plug for KISS™ (p/n 30344488)



Model 1



Model 2

NOTE:

Model 1 was replaced with model 2.

Specifications

KISS™-10, KISS™-12

Electrode application system for acquiring ECG signals from a patient

Electrode distributor

for 10 or 12 plug-in electrode leads

Electrodes

silver-silver chloride electrodes, with connectors

Defibrillation protection

by means of integrated current and voltage limitation

Signal connector

15-pin connection, IEC pin configuration

1 = C2

2 = C3

3 = C4 = Nap

4 = C5

5 = C6

6 = shield

7 = bridge to 8 (only with 12 electrodes)

8 = bridge to 7 (only with 12 electrodes)

9 = R

10 = L

11 = F

12 = C1

13 = Nst

14 = N

15 = Nax

Negative pressure adjustment for pump module

continuously adjustable between 80 and 220 mbar;

in position  negative pressure < 30 mbar

Mechanical data

swivel arm length	75 to 125 cm (extendible)
vertical swivel range	45°
horizontal swivel range	360°
length of patient cable from electrode distributor to ECG device approx.	250 cm
length of electrode leads	limbs 140 cm chest 120 cm
length of negative pressure tube connected to separate pump or ECG device:	250 cm

Environment

Operation

- temperature between +10 to +40 °C
- relative humidity between 25 and 95%, non-condensing
- atmospheric pressure between 700 and 1060 hPa

Storage and transport

- KISS w/o pump:
temperature between -30°C and +70°C
- KISS with pump and KISS pump:
temperature between -30°C and +60°C
- relative humidity between 10 and 95%, non-condensing
- atmospheric pressure between 500 and 1060 hPa

Weight

electrode distributor with 12 electrodes approx. 800 g

KISS™ Multilead

Electrode application system for CAM-14 acquisition module to acquire ECG signals from a patient

Electrode distributor

for max.14 leads

Electrodes

silver-silver chloride electrodes, with connectors

Defibrillation protection

by means of integrated current and voltage limitation

Signal connector

Connector to a CAM-14 Acquisition Module

Negative pressure adjustment for pump module

continuously adjustable between 80 and 220 mbar; in position  negative pressure < 30 mbar

Mechanical data

swivel arm length	75 to 125 cm (extendible)
vertical swivel range	45°
horizontal swivel range	360°
length of electrode leads	limbs 140 cm chest 120 cm

length of negative pressure tube connected to separate pump or ECG Device:
270 cm

Environment

Operation

- temperature between +10°C and +40°C
- relative humidity between 25 and 95%, non-condensing
- atmospheric pressure between 700 and 1060 hPa

Storage and transport

- temperature between -30°C and +70°C
- relative humidity between 10 and 95%, non-condensing
- atmospheric pressure between 500 and 1060 hPa

Weight

electrode distributor with 14 electrodes approx. 950 g

External Suction Pump with Power Supply

Power supply

from the power line; design in compliance with IEC 60601-1/EN 60601, protection class II; for rated line voltages from 100 to 240 VAC, 50 to 60 Hz (without switchover)

input operating voltage range	100 to 240 VAC
input current	700 mA-350 mA
output voltage	12 V
output current	2.5 A

Specifications

Dimensions (pump module)

- length 130 mm
- width 65 mm
- height 70 mm

Weight

pump module approx.

410 g, incl. power supply: 680 g



Schematics

Assembly Drawings

216 121 01/08

Electrode Application System KISS™ 10

216 122 01

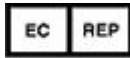
Electrode Application System KISS™ 12

2022865-001

Electrode Application System KISS™ Multilead



GE Medical Systems
Information Technologies, Inc.
8200 West Tower Avenue
Milwaukee, WI 53223 USA
Tel: +1 414 355 5000
+1 800 558 7044 (US Only)



GE Medical Systems
Information Technologies GmbH
Munzinger Straße 5
79111 Freiburg Germany
Tel: +49 761 45 43 -0
Fax: +49 761 45 43 -233

Asia Headquarters

GE Medical Systems
Information Technologies, Inc.
Asia; GE (China) Co., Ltd.
1 Huatuo Road
Zhangjiang Hi-tech Park Pudong
Shanghai, People's Republic of China 201203
Tel: +86 21 3877 7888
Fax: +86 21 3877 7402

GE Medical Systems *Information Technologies*, Inc., a General Electric Company, going to market as GE Healthcare.

www.gehealthcare.com

