ARJOHUNTLEIGH GETINGE GROUP

Sara LiteTM Maintenance and Repair Manual



CE

...with people in mind

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General Information

A. ArjoHuntleigh strongly advises that only ArjoHuntleigh designated parts, which are designed for the purpose, should be used on equipment and other ArjoHuntleigh supplied appliances to avoid injuries attributable to the use of inadequate parts. ArjoHuntleigh's conditions of sale make specific provision confirming no liability in such circumstances. Our policy is one of continuous development, and we therefore reserve the right to change specifications without notice.

B. Unauthorized modifications on any ArjoHuntleigh equipment may affect its safety and are in breach of any warranty on it. ArjoHuntleigh will not be held responsible for any accidents, incidents or lack of performance that occur as a result of unauthorized modifications to its products.

C. If the terms listed below are used in the text, their meaning is as follows:

DANGER

Means: Electrical hazard warning, failure to understand and obey may result in electrical shock.

WARNING

Means: Failure to understand and obey may result in injury to you or to others.

CAUTION

Means: Failure to follow these instructions may cause damage to all or parts of the system or equipment.

NOTE

Means: This is important for the correct use of this system or equipment.

D. Dangerous substances. If using hazardous substances, be sure about how to handle these and refer to applicable information. If in doubt, refer to local authorities for health and safety requirements.

Introduction

The Sara Lite is a mobile raising aid with a safe working load (SWL) of 175 kg (385 lb). It is intended to be used to raise patients to a standing position, and to transfer them over short distances (e.g. from a bed to a wheelchair, or from a wheelchair to a toilet).

NOTE: The SWL will depend on the lift's configuration and attachments. Always refer to the maximum SWL of the lowest rated attachment.

Each Sara Lite is supplied with two 24VDC rechargeable batteries and a charging unit.

Features

The features of the Sara Lite mobile patient lift include:

- Immediate stop/reset switch
- Overload circuit
- Overload current limit protection in the PCB
- Upper limit switch
- Lower limit switch/anti-crush
- Control panel on the unit
- Emergency lowering device handle
- Audible and visible low-battery warning

The raising and lowering mechanism is comprised of an electromechanical linear actuator powered by a 24VDC motor.

The leg opening and closing mechanism is comprised of a 24VDC motor and a single-ended actuator (legs open simultaneously).

WARNING: Service must be carried out by qualified personnel, using correct tools and knowledge of procedures. Failure to meet these requirements could result in personal injuries and/or unsafe equipment.

Risk Assessment Checklist for Engineers

WARNING: IF IN DOUBT, CONTACT YOUR LOCAL ArjoHuntleigh REPRESENTATIVE. DO NOT TAKE UNNECESSARY RISKS.

The following assessment MUST be made before carrying out servicing, repair work or installations:

- Make sure the work area is adequately sized, suitably lit and at a reasonable temperature.
- The floor surfaces must be free from clutter, unevenness and non-slip.
- Use good engineering and manual handling practices to keep risk of injury at its lowest level.
- Tools and equipment must be kept in good condition.
- Wear protective clothing and eye protection when necessary.
- You should be adequately trained to perform the task.
- Do not manually lift items that could cause personal injuries, i.e., that are too heavy, hot or sharp.
- You must comply with all local site safety rules, report any incident or accident to the site safety supervisor or equivalent. Use the ArjoHuntleigh reporting procedure.
- If necessary, use hard surface wipes (alcohol impregnated) to decontaminate a machine before carrying out any work.

NOTE: The above wipes should be of the type that has proven bactericidal action for disinfecting hard surfaces against MRSA & E.COLI.

- Load tests must only be applied as instructed in the relevant procedure.
- If it is necessary to work from a platform (i.e. scaffold, ladders etc.) to perform a service or installation task, make sure the platform is secure and suitable for the task.

DANGER – Electrical Shock can kill.

- Do not perform maintenance tasks on equipment with 'live' electrical connections.
- Isolate the power supply before removing plugs, sockets or disconnecting cables.
- Be alert at all times to the dangers of working on electrical equipment that operates on mains supply voltage. Where possible, visually inspect electrical cables, plugs, etc. for damage or deterioration before working on the equipment.
- Dispose of all waste in appropriate containers.

Suggested Tools

- Standard tool kit.
- 2 x 20 kg weights (ST219).
- Socket Allen key: 4 mm (ST82) 5 mm (ST274) 6 mm (ST55) 8 mm (ST87).
- Sling clip gauge (ST331).
- Load test equipment
- Threadlocker

Recommended Spares

- Casters
- Fuses
- Handsets



Fig. 1

Threadlocker Application

Refer to the manufacturer's instructions found on the container before use, in addition to the following information:

The procedure for correctly applying Loctite 242 and Loctite 243 (Blue color) threadlocking is as follows:

• Clean both of the joint faces with Loctite 7063 cleaner or a lint-free cloth moistened with acetone or another suitable solvent.

NOTE: Because Loctite 243 is oil-tolerant, it is not necessary to meet the same standard of oil-free cleanliness as for Loctite 242.

- Apply Loctite 243 sparingly but sufficiently enough to fill all engaged threads. (This product performs best in thin bond gaps [0.05 mm]).
- Install the threaded components and, where known, torque to the applicable torque value. If the torque value is not known, tighten to a firm fixing.
- Clean off any unwanted adhesive.
- Allow the Loctite 243 to cure before subjecting to load.

NOTE: The cure time will depend on the materials used, the ambient temperature and the bond line gap.

• Where the cure speed is unacceptably long, or large gaps are present, Loctite Activator 'N' or 'T' can be applied to the surface to reduce cure time.

For general Loctite specifications and application details, refer to Loctite manufacture's instructions.

Torque, Lubrication and Threadlocker Data

Thread retaining: Apply Loctite 243 when no threadlocking patch has been pre-applied. When replacing a part with pre-applied threadlocking, the part should be replaced by a new part using pre-applied threadlocking.



Fig. 2



Fig. 3

Preventive Maintenance Schedule

The Sara Lite is subject to wear and tear and the following actions must be performed when specified to ensure that the product remains within its original manufacturing specifications.

WARNING: The points on this checklist are the minimum the manufacturer recommends. In some cases, more frequent inspections should be carried out. Continuing to use this equipment without conducting regular inspections or continuing to use this equipment when a fault is found will seriously compromise the safety of both the user and the patient. Local regulations and standards may be higher than those of the manufacturer. The preventive maintenance specified in this manual can prevent accidents.

WARNING: Service must be carried out by qualified personnel, using correct tools and with a knowledge of procedures. Failure to meet these requirements could result in personal injuries and/ or unsafe equipment.

		FR			
	TO BE INSPECTED BY A QUALIFIED TECHNICIAN		Every month	Every year	Callout
•	Inspect all weld sites for cracking or separation on lift.			X	-
•	Actuator's attachments:				
	With shoulder bolts : Ensure that the shoulder bolts at both actuator ends are well secured by the locknut stovers with Loctite and that the pivot bushings are in place and in good condition.With Clevis pins : Ensure that the clevis pins at both actuator ends are well secured by the split rings and that the pivot bushings are in place and in good condition.			X	1-2
•	Make sure that all nuts and locknuts of the base open/close mechanism are securely fastened and the ball joints are in good condition.			X	3-10
•	Check both mast bolts to ensure that they are tight.			X	11-12
•	Verify if the pivot bolts on legs are tight.			X	13-14
•	Check that the casters are securely tightened.			X	15-18
•	Lubricate pivot points if necessary.			X	-
•	Check the function of the emergency lowering device by applying weight to the lift and activating the lowering device.			X	19
•	Ensure that the legs are parallel to each other with the help of a square and by measuring the diagonals as per service procedure 10. Make sure that the legs are perpendicular at 90 degrees to the base.			X	20-21
•	Verify that the boom is not abnormally loose in relation to the mast.			X	-
•	Run both actuators to ensure that the limit stops are functioning.			X	-
•	Press the emergency stop button and make sure that all electrical power is cut off and that the green power light is off.			X	22
•	Check all functions of the handset - ensure that the hand control touch pad membrane is intact.			X	23
•	Check for the proper function of each auxiliary switch located on the control box.			X	24
•	Verify that the batteries are in good condition and that they are not leaking.			X	25
•	Verify all cables.			X	26-27
•	Verify the actuator's anti-crush system.			X	-

If the product does not work as intended, immediately contact your local ArjoHuntleigh representative for support.

Technician Inspections



Fig. 4



Fig. 5

Troubleshooting

Lift Trouble	Resolution				
	Check the red emergency stop button on the control box.				
Hand control does not respond	• Check the connector on hand control wire.				
	• Check if the battery pack is installed correctly and fully charged. Test with a new, fully-charged battery pack.				
LIP and DOWN buttons on control box do	Check the red emergency stop button on the control box.				
not respond	Check if the battery pack is installed correctly and fully charged. Test with a new, fully-charged battery pack.				
	Check the red emergency stop button on control box.				
Actuator does not respond	• Check if the battery pack is installed correctly and fully charged. Test with a new, fully-charged battery pack.				
	• Check if the hand control is connected.				
	• Check if the actuator is connected to the control box.				
Audible "beep" is heard from the control box	• Batteries are low. Replace with a fully charged battery pack.				
Actuator "stalls" during lift	• Batteries are low. Replace with a fully charged battery pack. Make sure you are not exceeding the lifting capacity.				
Charger Trouble	Resolution				
"Power on" light on charger is not lit	Check if the charger is plugged into a wall outlet.				
Charger is plugged in, but "Power on" light is not lit	Check there is power to the wall outlet.*				
Battery Trouble	Resolution				
Battery pack is properly seated but no lights are visible.	Call for service (charger may be faulty).				
Yellow indicator light does not go off after several hours of charging time.	• Internal batteries need replacing. Call ArjoHuntleigh for replacement.				
Battery pack indicates it is fully charged when in the charger, but when placed in the lift, will only do a few lifts.	Replace battery pack.**				

(*) Some wall outlets are controlled by wall/light switches. Ensure power to wall outlet continues after wall/light switch is turned off.

(**) Generally with low amperage, the actuator will make a humming noise, indicating insufficient battery power.

Service Procedures



Fig. 6

Service Procedure 1 - Check for Updates

- Check if there are any field correction bulletins, safety notices or technical bulletins that have been published since the last service was performed. These replace the previously used Technical Advice Notices (TAN) with status A (i.e. safety issue, requiring some form of recall) or B (non-safety issue).
- This verification must be done to keep the product up to date according to safety and product improvements. Bulletins and notices can be generated as a result of an engineering change note, a safety incident report, a change to form/fit, etc.

		ARJO HUNTLEIGI
TECHNICAL	DIULETIN	GETINGE GROU
TECHNICAL	BULLETIN	
	Date	March 23, 2005
	First	Alaria Manteck
	Subject	CARENDO
	Product Group	60
	Dissevent number	AR58 29, 2005 - 007
	15.924	ARSE 292005
	Case No	205
CARENDO - bad noise, c	orrosion on bear	ings
aluminum, which is stative again	nst corrosion in the p	rs -range e-a, out nigh acro or
analysis contain the environment samples obvious that the Caren The corrosion is not safety critic noise and will of course make a described below has been mad <u>Product improvemental corros</u> 2004 all bearings had originally a su phosphalising to prevent corros 2004 all bearings are pre-treate which gives an active protection all bearings are grease in produ- inglemented in production with Greasing of the bearings is also (PMS) in the last edition (Nover	tmay cause the aiu do sometimes can b al in any aspect but bad impression and e. ctive actions unface treatment with ion, this process has d using the new tech against contosion. F ction using Shell Ca the new chassis in N included in the Prev riber 2004) of the Op	Electro-coating including Ferro- been enhanced. From November been enhanced. From November nology with Zink-phosphatising urther more to prevent comosion saide RLS2. This greesing is lovember 2004, SEE0448434. entive Maintanance Schedule erating and Product Care

Fig. 7

Service Procedure 2 - Checking the Battery and Charger Checking the Battery

ArjoHuntleigh has added a fuse in the battery NDA0100-20.

There is no visual difference between the former and the new battery version other than the labeling (see following pictures for more details on the former battery labeling and the new battery labeling).

Only a battery tester with current less than 20A, such as battery tester part number 8662950 (refer to TAN SEE201204 and see Fig. 9 on next page), must be used for the battery including the fuse to prevent this component from blowing and making battery unusable.

The battery tester 8662950 can also be used on the battery without fuse.

The battery tester will load the battery with a high current for a short time. This will show the battery condition on a meter.

Battery Test

Battery without fuse - former labeling

With former battery tester.

- 1) The battery to be tested must be charged for at least 12 hours before the test.
- Connect the tester to the battery. DO NOT operate the test switch! When the tester is connected, turn the test switch right or left for 1-2 seconds and take a quick reading on the meter.
- 3) The meter will show the battery's condition.
- 4) If the battery is OK, place the tested battery back into the charger.

NOTE: The battery power tester will become hot and there is a potential risk of fire.

- Make sure the battery power tester is kept away from flammable material during test and for several minutes AFTER the test.
- Beware NOT TO TOUCH the metal casing for several minutes AFTER the test.

Battery with fuse - new labeling

With battery tester (refer to SEE201204).

- 1) The battery to be tested must be charged for at least 12 hours before the test.
- Connect the tester to the battery. DO NOT operate the test switch! When the tester is connected, press and hold the button for 1-2 seconds and take a quick reading on the meter.
- 3) The meter will show the battery's condition.
- 4) If the battery is OK, place the tested battery back into the charger.

Check the battery charger (NDA8200)

- 1) Inspect charger and cable for damage.
- 2) Test charger for its operational condition as follows:
 - Measure charger output voltage (directly on output socket prongs).
 - ☑ Charger status indicator LED should be GREEN.
 - ☑ Voltage reading should be between 27.04 V and 28.16 V.
 - Add an 80 ohms resistance (10W min) between both charger output prongs and measure voltage at resistor.
 - Status indicator LED on charger should be YELLOW.
 - ☑ Voltage reading should be between 28.71 V and 29.29 V.
 - Measure charger maximum output current by connecting ammeter directly on output socket prongs.
 - ☑ Light indicator on charger should be OFF.
 - ☑ Current reading should be between 1.3A and 1.7A.

Charger must be replaced if any test result is not within specifications stated above.

Fig. 10

Service Procedure 3 - Checking for Corrosion and Damage

This verification will help preserve the safety and performance of the product.

Floor Lift Paint

If the paint is damaged (scratches/marks), add paint in matching color to prevent further corrosion.

NOTE: Before applying the paint the surface must be clean and dry.

Service Procedure 4 - Full Feature Test

Function	Activation/ Validation	Actions	Criteria for approval		
Lift up/down	Buttons	Full stroke up and down.	No abnormal noises; unit reaches up/ down points as per specifications (see user manual).		
Legs open/close	Buttons	Full opening and closing.	No abnormal noises; legs open fully on each side (see user manual).		
Rotation and swiveling of casters	Manual	Move on short distance, rotating the lifter.	No pulling, no abnormal noises or vibrations.		
Braked caster	Manual	Engage the brake on each rear caster.	Easy engagement/disengagement; lift immobile when brakes are engaged.		
Handset	Buttons	Press each button.	All lift functions working.		
Control box panel	Buttons	Press each button.	All functions working normally.		
Emergency lowering device	Manual	Use emergency lowering device (see user manual).	Boom must lower as per user manual. [*]		

*. In order to have the emergency lowering device to work properly, a load that pushes down on the boom must be applied

Service Procedure 5 - Verifying the Anti-Crush System

- 1) Place an object beneath the boom (e.g. place Sara Lite boom over a table).
- 2) Press the "down" button on the unit's control panel.
- 3) The actuator should stop operating and the downward motion should cease immediately when the boom makes contact with the object.
- 4) If the motion does not stop, remove the lift from service until necessary repairs are performed (see service procedure 16).
- 5) Repeat the procedure using the "down" button on the handset.
- 6) When repairs are done, perform the anti-crush system test again to make sure it is in proper working condition.

WARNING: If the anti-crush device does not work properly this can cause pinching or crushing which can lead to death or serious injuries. If lift components are disassembled in order to maintain anti-crush system proper operation, it is essential that all parts are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedure 6 - Replacing the Front Wheel

Before assembling the caster wheel ③, make sure you have all the items as illustrated below. Insert the M10 cap screw ①, into the M10 flat washer ②, then into the caster ③, the top cap ④ and the top sleeve ⑤.

Mount the new front caster wheel assembly along with the new M10 cap screw. Make sure that the cap screw is properly aligned to prevent any damage to the threads. Use a torque wrench to tighten the M10 cap screw to between 35-40 Nm (26-30 lb•ft).

WARNING: If the front wheel is disassembled, it is essential that all components are reinstalled correctly. If not, consequences may include disengagement, which can lead to death or serious injuries.

Service Procedure 7 - Replacing the Back Wheel

- 1) Position the Sara Lite base in order to get access to the back wheels.
- 2) Remove the caster by unscrewing flat head socket screw, holding the stem by the hexagonal section (see Fig. 13).

3) Install the new caster and star washer with threadlocker. Fasten the flat head socket screw in the caster stem, holding it by its hexagonal section (see Fig. 3 for torque and threadlocker information).

NOTE: Ensure proper tightening of the caster by torquing the female caster stem with the appropriate wrench.

- 4) Check that the caster spins freely over the stem.
- 5) Verify that the brake is working properly (i.e. easy engagement/disengagement, and the wheels do not rotate when the brakes are engaged).

WARNING: Failing to torque the assembly while holding the flathead socket screw and fastening the hexagonal section of the stem may result in the loosening of the caster. The consequences may include disengagement, which can lead to death or serious injury. (See Fig. 3 for torque and threadlocking information.)

Fig. 14

Service Procedure 8 - Replacing the Leg Actuator

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Remove the battery pack.
- 3) Remove the footrestkneepad assembly.
- 4) Remove the base cover and disconnect the leg actuator from the power supply. The connector is located on the left side of the lift (see Fig. 15).

Fig. 15

- 5) Remove cotter pins from pivots at both ends of leg actuator, and dispose of them.
- 6) Remove the nylon washers; keep them for later on.
- 7) Unscrew the left tie rod end kit from the left leg and remove from bracket; dispose of the nylon nut.
- 8) Unscrew the shifter plate shoulder bolt. You will need enough clearance to allow removal of the actuator (see Fig. 16).
- 9) Clean the shoulder bolt's threaded end of any threadlocker compound.

Service Procedures

- 10) Put the new leg actuator in place. Insert the shoulder bolt with threadlocker through the shifter plate and nylon washer and fasten to the base.
- 11) Put back the flat washers and the actuator on its pivots and insert new cotter pins to secure the assembly. The cotter pins must be installed according to Fig. 17.
- 12) Fasten the left tie rod end onto the leg. Put the flat washer over the bracket, pass the tie rod end kit through the bracket hole and fasten with new nylon nut.
- 13) Connect the actuator. Connect the cable to the leg actuator cable. Make sure the cable does not interfere with the installation of the base cover.
- 14) Verify if the legs are properly adjusted after installation as per service procedure 10.
- 15) Fully open and close the legs using the handset commands. The legs must move freely.
- 16) Perform a safe working load test as per service procedure 22.
- 17) Reinstall the base cover and the footrest/kneepad.

WARNING: Whenever the leg actuator is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedures

Service Procedure 9 - Replacing the Legs

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Remove the base cover and unscrew the tie rod end from the leg to be replaced and remove from bracket (see Fig. 16). Dispose of the nylon nut.
- 3) Unscrew the leg pivot bolt and remove leg (see Fig. 18). Dispose of the nylon nut.

- 4) Put the new leg in place and fasten the leg pivot bolt and Stover nut.
- 5) Reinstall the tie rod end using a new nylon nut.
- 6) Put the base cover in place.
- 7) Leg opening must be verified /adjusted after installation.
- 8) Fully open and close the legs. The legs must move freely.
- 9) Perform a safe working load test as per service procedure 21.

WARNING: If one or both legs are disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedure 10 - Adjusting the Legs

Check if the legs are square with the base. If not, perform the following procedure:

- 1) Using a heat gun, carefully heat the area between the tie rods and the nuts so as to liquefy any loctite that had been applied there previously. Avoid directly heating the actuator and cables.
- 2) Release the tie rod by loosening the nuts at each end (left-handed/right-handed).
- 3) Completely remove the tie rod and clean it thoroughly. This will ensure that the next application of loctite will adhere properly, thus facilitating leg adjustment later on.
- 4) Reinstall the tie rod, ensuring that the tie rod ends are both only slightly threaded onto it (one thread or two).
- 5) With a square, adjust the legs so that they are square relative to the base. Minimize any looseness in the legs by pushing them inwards. Then rotate the tie rod to the desired position. Make sure that the remaining thread on the tie rods are as equal as possible on each side to prevent any disengagement.

6) Verify the adjustment by measuring the diagonal dimensions in Fig. 19.

7) Apply threadlocker to the threaded section, between the tie rod end and the jam nut, at both ends. Lock the rod by torquing the jamnut at each end. Note: One jam-nut is left-handed. See Fig. 3 for torque and threadlocker information.

Service Procedure 11 - Replacing the Base Assembly

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Disassemble the footrest/kneepad assembly as per service procedure 19.
- 3) Remove the base cover and unplug the leg actuator jack. Unhook the actuator cable from the clamps.
- 4) Unscrew both fasteners holding the mast to the base assembly, and separate the mast from the base assembly.
- 5) Lock the casters on the new base assembly to make sure the lift stays stable during the assembly of the boom and mast assembly.
- 6) Reassemble the mast/mast actuator and boom on the new base assembly and fasten both screws according to torque, lubrication and threadlocker information (see Fig. 2).
- 7) Plug the leg actuator jack in the corresponding socket and clip the cable back into the clamps.
- 8) Check and adjust the legs (if necessary) as per service procedure 10.
- 9) Install the old base cover on the new base assembly. Make sure that the velcro pads on the new base assembly coincide with those under the cover.
- 10) Reinstall the footrest/kneepad assembly in place as per service procedure 19.
- 11) Perform a full feature test as per service procedure 4.
- 12) Perform a safe working load test as per service procedure 21.

WARNING: If the base assembly is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedure 12 - Replacing the Mast

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Remove the battery pack.
- 3) Disassemble the boom as per service procedure 17.
- 4) Disassemble the actuator from the mast as per service procedure 16.
- 5) Remove the footrest/kneepad assembly as per service procedure 19.
- 6) Remove base cover and disconnect the mast section from power supply. The connector is located under the base cover on the left side of the lift (see Fig. 15).

Service Procedures

- 7) Unscrew the two bolts at the lower end of the mast (see Fig. 20).
- 8) Remove the handle from the previous mast and install it on the new mast, following the steps outlined in service procedure 13.
- Remove the control box and the power base wire harness from the previous mast and install it on the new mast (refer to Fig. 2 for torque value).
- Slide the new mast over the post and secure with two bolts and two lock washers. Tighten securely according to torque value and threadlocker information provided in Fig. 2. Make sure the wire is

Fig. 20

in the slot of the base unit. Caution: Do not squeeze the cable (see Fig. 21). Once the mast is installed on the base, leave about 23 cm (9 in) of cable.

- 11) Reassemble boom actuator and boom assembly.
- 12) Install the footrest and kneepad assembly.
- 13) Replace the base cover.
- 14) Perform a full feature test as per service procedure 4.
- 15) Perform a safe working load test as per service procedure 21.

WARNING: Whenever the mast is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedure 13 - Replacing the Handle

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Unscrew the two bolts at the lower end of the handle on each side of the mast and the one at the top (see Fig. 22).

- 3) Install the handset cable clamp as per Fig. 22.
- 4) Install the new handle. Fasten the bolt at the top and the two bolts at the lower end of the handle on each side of the mast.

WARNING: Whenever the handle is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injury.

Service Procedure 14 - Replacing Control Box Components 14.1) How to Open the Control box

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Remove the battery pack.
- Unscrew the two fasteners (Phillips #2) at the lower end of control box cover (see Fig. 23).

Fig. 23

4) Push down and away to disengage the control box cover for maintenance (see Fig. 24).

Fig. 24

14.2) Replacing the Circuit Board

CAUTION: Use appropriate ESD protection when manipulating the PCB.

For Old Circuit Boards

- 1) Remove control box cover as per service procedure 14.1.
- 2) Unplug J1 and J3 connectors (see Fig. 25).
- The circuit board is held in place by two strips of double sided adhesive acrylic foam tape. Using a short flat head screw driver, gently remove the main circuit board (see Fig. 25).
 - Remove old tape remaining and clean surfaces.
 - Apply two new tape strips on back of the circuit board.
- 4) Replace the new main PCB circuit in place as shown on Fig. 25, securely fastening the two screws and bars on each side.
- 5) Plug J1 and J3 connectors.
- 6) Adjust the circuit board as per service procedure 14.3
- 7) Install the control box cover.
- 8) Install the battery pack and test all features controlled by this device to confirm that it works properly, as per service procedure 4.

For New Circuit Boards

CAUTION: Use appropriate ESD protection when manipulating the PCB.

- 1) Remove control box cover as per service procedure 14.1.
- 2) Unplug J1 and J2 connectors (see Fig. 26).
- 3) Using long nose pliers, remove the cirucit board from the plastic standoffs holding it in place.
- 4) Replace the new main PCB circuit in place as shown on Fig. 26, pushing it onto the plastic standoffs.
- 5) Plug J1 and J2 connectors.
- 6) Adjust the circuit board as per service procedure 14.3
- 7) Install the control box cover.
- 8) Install the battery pack and test all features controlled by this device to confirm that it works properly, as per service procedure 4.

Fig. 26

14.3) Adjusting the circuit board

For Old Circuit Boards

1) For the main PCB replacement, the safe working load test should be performed with weights because the potentiometer for the boom might have to be adjusted. It is not possible to use the load test equipment because of the test straps that restrain the legs and prevent them from moving freely.

To be done after circuit board replacement.

- 2) Safe working load: By actuating the handset, make sure that the lift raises the safe working load on its entire stroke (175 kg / 385 lb). If not, adjust the current limiter with the potentiometer VR1 (see Fig. 27). Keep the safe working load raised for the next step. Turn the potentiometer clockwise to increase the force.
- 3) **Opening and closing the legs:** The safe working load hoisted, open and close the legs completely with the handset. If they do not function correctly, adjust the current limiter

with the potentiometer VR2 (see Fig. 27). Turn the potentiometer clockwise to increase the force or counterclockwise to decrease it.

CAUTION: Respect the 10% duty cycle of the actuator to prevent breakage.

4) Safe working load X 1.5: Using the buttons of the control panel make sure that the hoist <u>does</u> <u>not lift</u> 1.5 X its safe working load (175kg / 385lb). If it does, adjust the current limiter with the potentiometer VR1. Turn the potentiometer counterclockwise to decrease the force.

NOTE: If the potentiometer value was lowered, a safe working load test must be performed, as per service procedure 21.

- 5) **Emergency stop:** When completing a full stroke, press the emergency stop button (red). The actuator must stop immediately. Press the "on" button (green) to reactivate the hoist and finish its course.
- 6) Check that hourmeter and battery charge indicator are working properly.

WARNING: If any component of the electrical system is disassembled, it is essential that all parts are reinstalled correctly. If not, this could result in battery heating which could lead to, hazardous product leakage, fire and explosion. Exposure to those risks could lead to death or serious injury.

For New Circuit Boards

1) For the main PCB replacement, the safe working load test should be performed with weights because the potentiometer of the boom actuator might have to be adjusted. It is not possible to use the load test equipment because of the test straps that restrain the legs and prevent them from moving freely.

To be performed after circuit board replacement:

- 2) Safe working load: By actuating the handset, make sure that the lift raises the safe working load on its entire stroke (175 kg / 385 lb). If not, adjust the current limiter with the potentiometer RV1 (see Fig. 28). Keep the safe working load raised for the next step. Turn the potentiometer clockwise to increase the force.
- 3) **Opening and closing the legs:** With the safe working load already hoisted, open and close the legs completely with the handset.

CAUTION: Respect the 10%duty cycle of the actuator to prevent breakage.

4) Safe working load X 1.5: Using the buttons of the control panel make sure that the hoist <u>does</u> <u>not lift</u> 1.5 x its safe working load (175kg / 385lb). If it does, adjust the current limiter with the potentiometer RV1. Turn the potentiometer counterclockwise to decrease the force.

NOTE: If the potentiometer value was lowered, a safe working load test must be performed, as per service procedure 21.

- 5) **Emergency stop:** When completing a full stroke, press the emergency stop button (red). The actuator must stop immediately. Press the "on" button (green) to reactivate the hoist and finish its course.
- 6) Check that hour meter and battery charge indicator are working properly.

WARNING: If any component of the electrical system is disassembled, it is essential that all parts are reinstalled correctly. If not, this could result in battery heating which could lead to, hazardous product leakage, fire and explosion. Exposure to those risks could lead to death or serious injury.

14.4) How to Close the Control Box

- 1) Insert the top end of the cover under the switch panel (see Fig. 24).
- 2) Carefully place the wires. Be sure not to pinch any wires behind a screw or the edge of the control box.
- Fasten both screws (Phillips #2) near the bottom end. Do not forget to insert the nylon washers between the control box cover and the control box body before fastening (see Fig. 29).
- 4) Put back the battery pack and test all features controlled by this device to confirm that they work properly, as per service procedure 4.

WARNING: If any component of the electrical system is disassembled, it is essential that all parts are reinstalled correctly. If not, this could result in battery heating which could lead to, hazardous product leakage, fire and explosion. Exposure to those risks could lead to death or serious injury.

Fuse Change

Locate the fuse holder and open it by simultaneously pushing and twisting the two parts. If the fuse is blown, replace it by an equivalent 8 A fuse (UL or CSA approved).

Service Procedure 15 - Replacing the Battery Discharge Indicator PCB and hourmeter.

- 1) Remove control box cover as per service procedure 14.1.
- 2) Unplug J5 and J7 connectors.
- 3) Unscrew both nuts holding the battery discharge indicator PCB using a 5 mm socket, and remove device.
- 4) Put a new battery discharge indicator PCB in place as shown in , fastening the two nuts and flat washers securely. Do not over-tighten the nuts that hold the circuit, as it could damage the board. Screw in the cover. Be careful not to damage circuit board during installation.
- 5) Plug J5 and J7 connectors.
- 6) Install control box cover as per service procedure 14.4.
- 7) PInstall the battery and test battery discharge indicator and hourmeter to confirm that it works properly.

LEDs must light sequentially when the lift power is on and a function is activated. Make sure that all LEDs are working. The sequence can be repeated by pressing the emergency stop button.

Fig. 30

WARNING: If any component of the electrical system is disassembled, it is essential that all parts are reinstalled correctly. If not, this could result in the battery heating up, which could lead to hazardous product leakage, fire and explosion. Exposure to those risks could lead to death or serious injuries.

Service Procedure 16 - Replacing the Boom Actuator

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Disconnect the actuator from the power supply. The connector is located under the base cover, on the left side of the lift (see Fig. 15).
- 3) Disassemble the actuator from the mast by removing the clevis pin split ring assembly and pushing out the pin (see Fig. 31), or with shoulder screw model, remove the shoulder screw, washer and nut.

Fig. 31

- 4) Disengage the actuator from the boom by removing the clevis pin split ring assembly and pushing out the pin (see Fig. 31), or with shoulder screw model, remove the shoulder screw, washer and nut.
- 5) Replace the actuator. Assemble the actuator to the boom and the mast with the split ring and clevis pin, or with shoulder screw model, install the shoulder screw, washer and nut, and reconnect to power supply.
- 6) Put back the base cover in place.
- 7) Perform a full feature test as per service procedure 4.
- 8) Perform a safe working load test as per service procedure 21 and test the emergency lowering system with safe working load.

WARNING: Whenever the boom actuator is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in disengagement, which can lead to death or serious injuries.

Service Procedure 17 - Replacing the Boom

- 1) Lock the rear casters to make sure the lift stays stable during maintenance.
- 2) Disassemble the actuator from the boom by removing the clevis pin split ring assembly and pushing out the pin (see Fig. 31), or with shoulder screw model, remove the shoulder screw, washer and nut. Refer to service procedure 16.
- 3) Remove the bolt caps, the cotter pin (to be disposed of), unscrew the castle nut and push out the shoulder bolt.
- 4) Install the new boom in position at the top of the mast and secure it with the shoulder bolt fastening assembly. Tighten according to the corresponding torque level in Fig. 2 do not overtighten. The anti-crush system will always be activated if too tight. Install the new cotter pin (see Fig. 32). Install the bolt caps.

- 5) Connect the actuator to the boom. Insert the clevis pin and secure it with the split ring, or with shoulder screw model, install the shoulder screw, washer and nut.
- 6) Perform a full feature test as per service procedure 4.
- 7) Perform a safe working load test as per service procedure 21.
- 8) Perform the anti-crush system test as per service procedure 5.

WARNING: Whenever the boom is disassembled, it is essential that all components are reinstalled correctly. If not, the consequence may result in a disengagement, which can lead to death or serious injury.

Service Procedure 18 - Replacing the Kneepad Cushion

- 1) Remove both M8 x 16 screws holding the kneepad (700.26075) to the assembly with a 5 mm Allen key.
- Assemble new kneepad with both M8 x 16 screws and lock washers (see torque specification on Fig. 2)

Service Procedure 19 - Replacing the Footstep and the Footrest Replacing the Footstep

1) Lift the plastic footstep (700.26073) to remove it from its support and replace it with a new one.

Replacing the Footrest

- 1) Remove plastic footstep.
- 2) Remove kneepad as explained in service procedure 18.
- 3) Remove the M10 black plastic cap.
- 4) Unscrew the zinc M10 locknut and M10 x 60 screw holding the assembly through the mast (dispose of the locknut).
- 5) Unscrew the flanged locknut holding the assembly to the PEM on the front side of the mast and dispose it.
- 6) Put the new footrest metal assembly in place and fasten it in place with new locknut and former M10 x 60 bolt through mast and put back black plastic caps on both sides.
- 7) Fasten new flanged locknut on PEM in front.
- 8) Reinstall kneepad and plastic footstep as mentioned above.

Service Procedure 20 - Replacing the Handset

- 1) Remove the battery pack.
- 2) Unplug the handset from the socket located on the left side of the control box (see Fig. 33).

- 3) Remove the top screw of the handle with a 4 mm Allen key and slide out the wire from the cable clip (see Fig. 34).
- 4) Install the new handset and attach the cable to the mast with the cable clip (see Fig. 22).
- 5) Replace the battery pack.
- 6) Test if the handset is working properly as per service procedure 4.

Service Procedure 21 - Safe Working Load Test (Local Requirement)

Load Testing - Lifting Capacity

- Determine the safe working load (SWL) for the floor lift by locating the safe working load label found near the top end of the mast (see Fig. 35).
- 2) Prepare a load kit with the weight corresponding to the SWL and attach it to the floor lift's boom hooks.
- 3) Press on the slow speed "UP" button on the handset to raise the load kit. The floor lift must be able to raise the load throughout the actuator's entire stroke.
- 4) If the unit cannot raise the load as described in step 3, the circuit must be calibrated as per service procedure 14.3.

Fig. 35

Load Testing - Limiting the Capacity

CAUTION: Respect the 10% duty cycle of the actuator to prevent breakage.

- 1) Prepare a load kit with 263 kg (corresponding to 1.5 x SWL of 175 kg) and attach it to the floor lift's boom hooks.
- 2) Press on the "UP" button to raise the load kit. The floor lift must not be able to raise the load (the unit may raise the load for about 2.5 cm [1 in] before the current limiter activates and cuts the power off).
- 3) If the unit is able to raise the load (1.5 x SWL), the adjustment made on the potentiometer must be refined as per service procedure 14.3.
- 4) Once the load testing limiting capacity test has been performed, try the first lifting capacity load test again, to make sure that the calibration has been performed accurately.

Service Procedure 22 - Verifying the Slings

1) Visually check all slings presented with the hoist:

- Visually check the stitching, seams and the fabric must be in good condition.
- Visually check the condition of all plastic support clips, look for cracks on the cold shut line and any deformation that would be attributed to incorrect laundry processes.
- The procedure detailed in the text that follows only applies to the plastic clips on ArjoHuntleigh manufactured slings.

Sling Clip Gauge ST331

- 2) Refer to Fig. 36 and insert the machined diameter of the Sling Clip Gauge ST331 into the large diameter of the keyhole slot in the plastic clip.
- 3) Allow the weight of the gauge to rest against the sling clip and attempt to pass the gauge pin through the slot into the smaller diameter. Do not force the gauge through the slot.
- 4) The gauge must not pass through the narrow (mouth) section of the plastic sling clip. If the gauge does pass through the slot the sling clip is defective:
 - Attach one of the "DEFECTIVE DO NOT USE" bands, Part No.SIDC2000, securely to the sling. Sign and date the band with a indelible marker pen. (NOTE This is a UK band. It can be ordered outside UK as an example and should to be changed to a country specific layout).

- Record the identity serial number from the DO NOT USE band on your service report sheet and make a note of the failure.
- Use the indelible marker pen to discreetly write the identity serial number from the DO NOT USE band in a corner of the sling.
- Inform the customer of your findings and the actions taken and advise that the sling be withdrawn from service and replaced with a new or serviceable sling.

NOTE: The use of this gauge is the only approved method of checking the serviceability of the ArjoHuntleigh plastic sling clip and no other method should be used.

- 5) Check that the Safe Working Load (SWL) label is legible if necessary mark the SWL with an indelible marker pen.
- 6) If in doubt about the condition of the sling recommend that the sling should be removed from service.
- 7) If satisfied with the condition of the sling identify in accordance with one of the following:
 - Slings that have a serial number label should be signed and dated with an indelible pen and the information recorded on the Service Report paperwork.

OR

• Slings without a serial number label mark the date and Engineers number discreetly in a corner of the sling with an indelible marker pen.

Service Procedure 23 - Replacing the Control Box

- 1) Open control box as per service procedure 14.1.
- 2) Remove main circuit board as per service procedure 14.2
- 3) Remove on/off and up/down switches as per service procedure 24.
- 4) Remove battery discharge indicator/hour meter as per service procedure 15.
- 5) Discard old control box and fasten new one in place with the M6 x 18 screws, lock washers and 5 mm allen key.
- 6) Reinstall, on/off and up/down switches, battery discharge indicator/hour meter and main circuit board.
- 7) Close the control box and replace the battery, then test all reinstalled components to make sure they all work properly according to relevant service procedure previously mentioned (service procedure 14, 15 and 25).

Preventive Maintenance Documents

Service Procedure 24 - Replacing the On/Off Switch

- 1) Open the control box.
- 2) Depress the tabs on both sides of the switch to release it from the casing and pull it out off the control box.
- 3) Put the replacement switch in place.
- 4) Connect the wires to the switch.
- 5) Fix the bezel on top of the new switch with Loctite instant adhesive. The higher side of the bezel must be placed over the green button (see Fig. 37).

Product Name :	Sara Lite
Product Serial Number :	
Date of purchase :	
Warranty Period :	
Distributed By :	
Owner Checklist :	
 Ensure the lift is service Contact an authorised I the device. 	ed regularly as the Monthly Inspection Details. Distributor or Service Agent immediately if there are any problems with the operation of
Ensure the logbook is c	ompleted and signed.

- Record any repairs required. Withdraw the patient lifter from service if inspection reveals that user safety is jeopardised in any way from use of the patient lifter. •

TO BE COMPLETED AFTER EACH SERVICE OR INSPECTION

Service Type:	Periodic insp	ection	Minor	Major	
Condition report :					
Action taken :					
Date :		Inspected by	:		
				<u> </u>	
		Prin	ted		Signature

Preventive Maintenance Documents

Service Type:	Periodic inspection	Minor	Major		
Condition report :					
Action taken :					
Date :	Inspecte	d by:			
		Drivata d		Circoturo	
		Printed		Signature	
Service Type:	Periodic inspection	Minor	Major		
Condition report :					
Action taken :					
Date :	Inspecte	d by:			
		Printed		Signature	
	Devie dia inanastian	Minor	Major		
Service Type:	Periodic inspection	IVIIIIOI	Major		
Action taken :					
Date ·	Inspecte	d hv:			
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Service Type	Periodic inspection	Minor	Major		
Condition report :					
Action taken :					
Date :	Inspecte	d by:			
		Printed		Signature	
		1 milliou		Olghataro	

Preventive Maintenance Documents

Sara Lite Yearly F	Preventive Ma	aint	er	ance Checklist	
1. Identification					
Serial number:	Number of cycles on cou	unter: Service call		Service call:	
2. Maintenance					
Note: The items and corresponding service intervals in this preventive maintenance checklist are based on information found in the "Sara Lite Maintenance and Repair Manual". This checklist is directed to qualified personnel only. Actual maintenance items and intervals must be in accordance to all applicable local codes/regulations.					
Items to be Ins	pected	Sta Pass	tus Fai	Comment / Action Taken	
Inspect all weld sites for cracking	g or separation on lift.				
Ensure that the actuator's clevis pins are v both ends and that the pivot bushings are	well secured by the split ring at in place and in good condition.				
Make sure that all nuts and locknuts of th are securely fastened and the ball joi	e base open/close mechanism nts are in good condition.				
Check both mast bolts to ensur	re that they are tight.				
Verify if the pivot bolts on	legs are tight.				
Check that the casters are se	ecurely tightened.				
Lubricate pivot points i	f necessary.				
Check the function of the emergency le weight to the lift and activating	owering device by applying the lowering device.				
Ensure that the legs are parallel to each other and that the legs are perpendicular to the base by measuring the diagonals as per SP10.					
Verify that the boom is not abnormally loose in relation with the mast.					
Run both actuators to ensure that the limit stops are functioning.					
Press the emergency stop button electrical power is cut off and that th	and make sure that all e green power light is off.				
Check all functions of the har the hand control touch pad m	ndset - ensure that nembrane is intact.				
Check for proper functioning of each auxiliary switch located on the control box.					
Verify that the batteries are in good condition and that they are not leaking.					
Verify all cables to make sure the insulation is free of cuts or cracks.					
Verify the actuator's anti-crush system.					
3. SWL Test	3. SWL Test			Comment / Action Taken	
Able to lift SV	Able to lift SWL				
Not able to lift 1.5 X SWL					

Performed by______ Signature:_____ Date:_____

AUSTRALIA

ArjoHuntleigh Pty Ltd 78, Forsyth street O'Connor AU-6163 Western Australia Tel: +61 89337 4111 Free: +1 800 072 040 Fax: + 61 89337 9077

BELGIQUE / BELGIË

ArjoHuntleigh NV/SA Evenbroekveld 16 **BE-9420 ERPE-MERE** Tél/Tel: +32 (0) 53 60 73 80 Fax: +32 (0) 53 60 73 81 E-mail: info@arjohuntleigh.be

BRASIL

Maquet do Brasil Equipamentos Médicos Ltda Rua Tenente Alberto Spicciati, 200 Barra Funda, 01140-130 SÃO PAULO, SP - BRASIL Fone: +55 (11) 2608-7400 Fax: +55 (11) 2608-7410

CANADA

ArjoHuntleigh 90 Matheson Boulevard West Suite 300 CA-MISSISSAUGA, ON, L5R 3R3 Tel/Tél: +1 905 238 7880 Free: +1 800 665 4831 Institutional Free: +1 800 868 0441 Home Care Fax: +1 905 238 7881 E-mail: info.canada@arjohuntleigh.com

ČESKÁ REPUBLIKA

ArjoHuntleigh s.r.o. Hlinky 118 CZ-603 00 BRNO Tel: +420 549 254 252 Fax: +420 541 213 550

DANMARK

ArjoHuntleigh A/S Vassingerødvej 52 DK-3540 LYNGE Tel: +45 49 13 84 86 Fax: +45 49 13 84 87 E-mail: dk_kundeservice@arjohuntleigh.com

DEUTSCHLAND

ArjoHuntleigh GmbH Peter-Sander-Strasse 10 DE-55252 MAINZ-KASTEL Tel: +49 (0) 6134 186 0 Fax: +49 (0) 6134 186 160 E-mail: info-de@arjohuntleigh.com

ΕΛΛΑΔΑ

C. Psimitis Co Ltd Dimitriou Andr 59 **GR-16121 KAISARIANI ATTIKIS** Τηλ: 21 0724 36 68 Φάξ: 21 0721 55 53

ESPAÑA

ArioHuntleigh Ibérica S.L. Ctra. de Rubí, 88 1ª planta - A1 08173 Sant Cugat del Vallés ES- BARCELONA 08173 Tel: +34 93 583 11 20 Fax: +34 93 583 11 22 E-mail: info.es@arjohuntleigh.com

FRANCE

ArioHuntleigh SAS 2 Avenue Alcide de Gasperi CS 70133 FR-59436 RONCQ CEDEX Tél: +33 (0) 3 20 28 13 13 Fax: +33 (0) 3 20 28 13 14 E-mail: info.france@arjohuntleigh.com

HONG KONG

ArjoHuntleigh (Hong Kong) Ltd 1510-17, 15/F, Tower 2 Kowloon Commerce Centre 51 Kwai Cheong Road Kwai Chung HONG KONG Tel: +852 2207 6363 Fax: +852 2207 6368

INTERNATIONAL

ArjoHuntleigh International Ltd. ArjoHuntleigh House Houghton Hall Park Houghton Regis UK-DUNSTABLE LU5 5XF Tel: +44 (0) 1582 745 800 Fax: +44 (0) 1582 745 866 E-mail:

international@arjohuntleigh.com

ITALIA

ArjoHuntleigh S.p.A. Via di Tor Vergata 432 IT-00133 ROMA Tel: +39 (0) 6 87426211 Fax: +39 (0) 6 87426222 E-mail: Italy.promo@arjohuntleigh.com

NEDERLAND

ArjoHuntleigh Nederland BV Biezenwei 21 **4004 MB TIEL** Postbus 6116 4000 HC TIEL Tel: +31 (0) 344 64 08 00 Fax: +31 (0) 344 64 08 85 E-mail: info.nl@arjohuntleigh.com

NEW ZEALAND

ArjoHuntleigh Ltd 41 Vestey Drive Mount Wellington NZ-AUCKLAND 1060 Tel: +64 (0) 9 573 5344 Free Call: 0800 000 151 Fax: +64 (0) 9 573 5384 E-mail: nz.info@ArjoHuntleigh.com

NORGE

ArioHuntleigh Norway AS Olaf Helsets vei 5 N-0694 OSLO Tel: +47 22 08 00 50 Faks: +47 22 08 00 51 E-mail: no.kundeservice@arjohuntleigh.com

ÖSTERREICH

ArjoHuntleigh GmbH Dörrstrasse 85 AT-6020 INNSBRUCK Tel: +43 (0) 512 204 160 0 Fax: +43 (0) 512 204 160 75

POLSKA

ArjoHuntleigh Polska Sp. z o.o. ul. Ks Piotra Wawrzyniaka 2 PL-62-052 KOMORNIKI (Poznan) Tel: +48 61 662 15 50 Fax: +48 61 662 15 90 E-mail: arjo@arjohuntleigh.com

PORTUGAL

ArjoHuntleigh em Portugal: MAQUET Portugal, Lda. (Distribudor Exclusivo) Rua Poeta Bocage n.º 2 - 2G PT-1600-233 Lisboa Tel: +351 214 189 815 Fax: +351 214 177 413 E-mail: Portugal@arjohuntleigh.com

SUISSE / SCHWEIZ

ArjoHuntleigh AG Fabrikstrasse 8 Postfach CH-4614 HÄGENDORF Tél/Tel: +41 (0) 61 337 97 77 Fax: +41 (0) 61 311 97 42

SUOMI

Oy Vestek AB Martinkuja 4 FI-02270 ESPOO Puh: +358 9 8870 120 E-mail: info@vestek.fi

SVERIGE

ARJO Scandinavia AB Hans Michelsensgatan 10 SE-211 20 MALMÖ Tel: +46 (0) 10 494 7760 Fax: +46 (0) 10 494 7761 E-mail: kundservice@arjohuntleigh.com

UNITED KINGDOM

ArjoHuntleigh UK ArjoHuntleigh House Houghton Hall Park Houghton Regis **UK-DUNSTABLE LU5 5XF** Tel: +44 (0) 1582 745 700 Fax: +44 (0) 1582 745 745 E-mail: sales.admin@arjohuntleigh.com

USA

ArjoHuntleigh Inc. 2349 W Lake Street Suite 250 US-Addison, IL 60101 Tel: +1 630 307 2756 Free: +1 800 323 1245 Institutional Free: +1 800 868 0441 Home Care Fax: +1 630 307 6195 E-mail: us.info@arjohuntleigh.com

www.arjohuntleigh.com

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www.ArjoHuntleigh.com

ArjoHuntleigh AB Hans Michelsensgatan 10 211 20 Malmö SWEDEN