



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Service manual



Registered at Medical Products Agency, Sweden, as a MD Class 1 product, MDD 93/42EEC.

TR reserves the right to make design changes and/or improvements without notice.



Always study this manual carefully before operating the Shower Trolley.

Operating instructions and recommended maintenance procedures are explained in the following pages.

If you have any questions regarding the operation or maintenance of your Shower Trolley and cannot find the answer in this manual, please contact us.

Only qualified staff who are trained and certified and who can understand all operating and safety procedures may operate and service this equipment.

The Trolley is designed for years of trouble free operation, with proper use and maintenance.

Head office

TR Equipment AB, Sweden
Phone: +46 140 38 50 60
info@trequipment.se
www.trequipment.com

Group Subsidiaries

TR Group Inc, US, Phone: +1 (800) 752 6900
TR Equipment Ltd, UK, Phone: +44 (0) 844 335 8386
TRanspoRehaMed GmbH, Germany, Phone: +49 (0) 212 645850-0



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Table of Content

Spare Part Lists	3
TR 4000 Atlas	3
TR 4200 Atlas Junior	6
Technical Information	9
New hand control for TR 4000 Atlas/TR 4200 Atlas Junior	9
Trouble Shooting instructions	10
Trouble shooting and instructions TR 4000 Atlas/TR 4200 Atlas Junior	10
Service Instructions	12
Instruction how to change the lifting column	12
Instruction how to change the stretcher	13
Instruction how to change a siderail	15
Central foot operated brake and straight steering castors	16
Central control for castor locking and straight steering Atlas (Jr)	18
Instruction for replacement of castors on foot end	23
Instruction for replacement of castors on head end	26
Instruction how to change to the Linak female connector	28

W



TR EQUIPMENT



TR 4000/4200

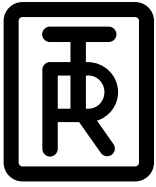
Shower trolleys

*Hygiene Equipment
Designed for People*

Spare parts list - TR 4000 Atlas



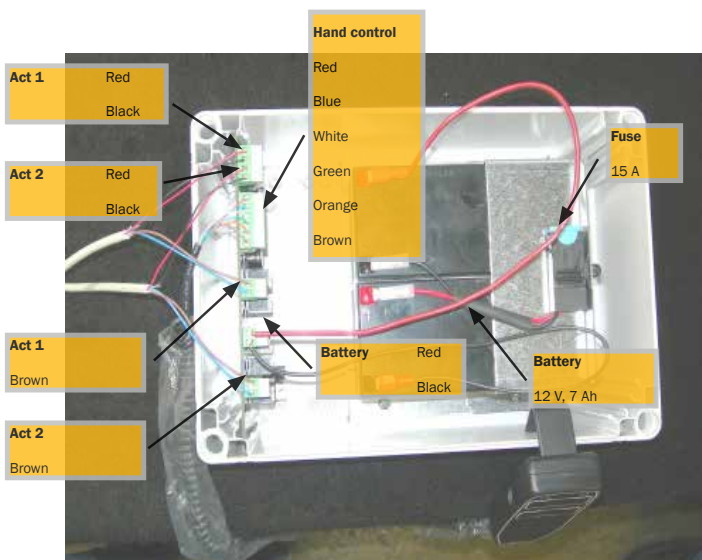
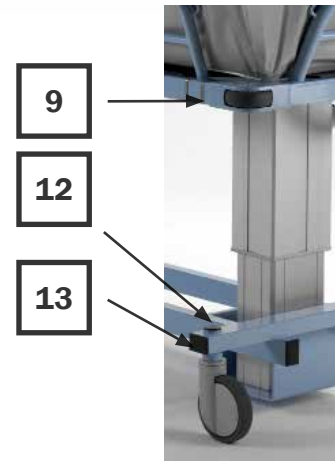
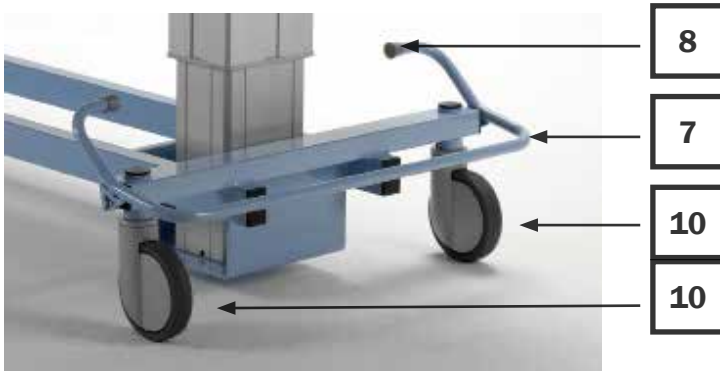
TR EQUIPMENT



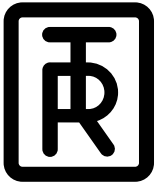
TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People



TR EQUIPMENT



TR 4000/4200

Shower trolleys

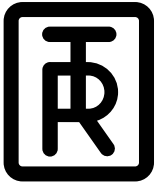
Hygiene Equipment
Designed for People

When ordering spare parts please specify model and serial number, see label on the shower trolley.

Position	Art No	Description
1	7329504	Mattress
2	829392	Drain
3	829391	Drainplug
4	820818-4224	Flexidrain hose
5	7329936	PVC plate L=815
5	7329936-02	PVC plate L=1225
6	819089	Support column
7	3329982	Lever for brake and steering
8	3430052	Plug
9	850133	Rubber bumper wheels
10	850132	Castor with brake (red 6)
11	850131	Castor with straight steering (green 4)
12	850281	Plug round
13	850575	Plug square
	819030	Battery
	819356-2	Circuit board
	819090-02	Hand control
	819141	DC-Jack (for charger)
	3230018	Side Rail
	3429979	Lever lock
	850450	Fork M8*32 F2
	0541225	Battery charger
	819141	US plug type A
	819140	Euro plug type C
	819142	UK plug type G
	819097	Linak female connector for handcontrol
	819170	Electric Enclosure
	7429971	Aluminium Joint Head
	3429978	Link arm Atlas
	7429679	Cable for fuse holder
	819148	Power port 24V Magcode (mounted in chassi)
	819149	Power clip 24V Magcode (connector mounted on charger)
	819150	Port cover Magcode
	0541226	Battery charger Magcode, On TR 4000 from serial no: 1403-21856



TR EQUIPMENT



TR 4000/4200

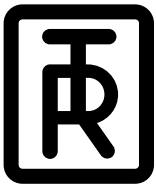
Shower trolleys

*Hygiene Equipment
Designed for People*

Spare part list - TR 4200 Atlas Junior



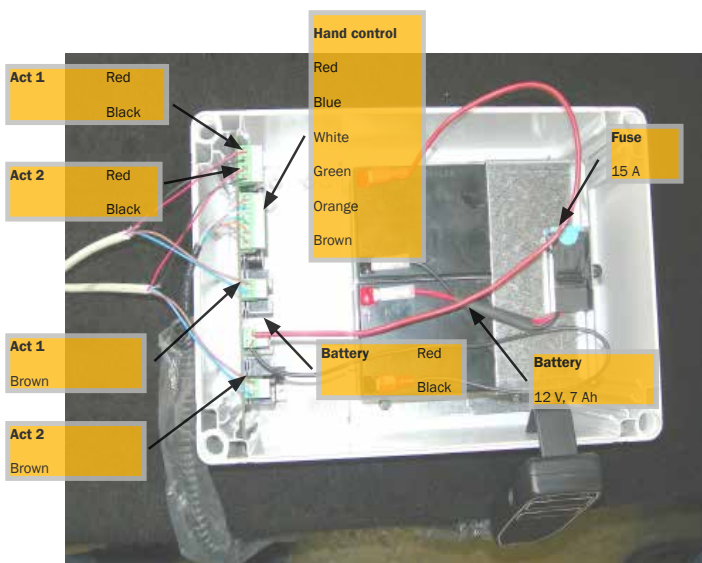
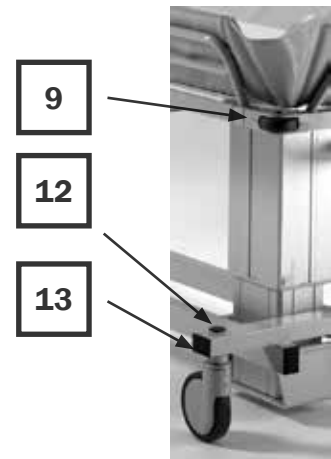
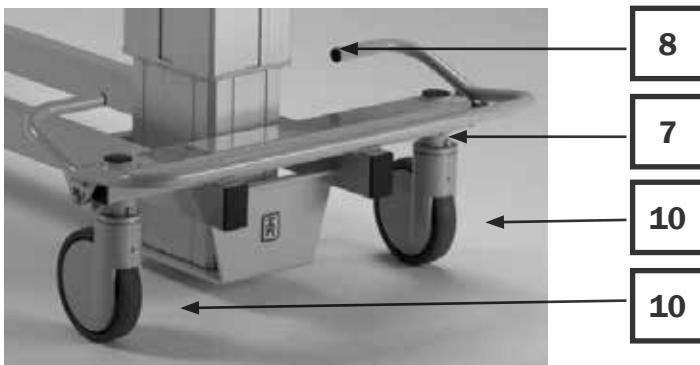
TR EQUIPMENT



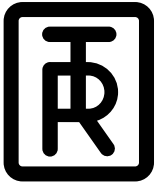
TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People



TR EQUIPMENT



TR 4000/4200

Shower trolleys

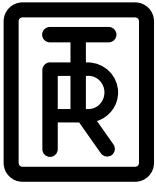
Hygiene Equipment
Designed for People

When ordering spare parts please specify model and serial number, see label on the shower trolley.

Position	Art No	Description
1	7329913	Mattress
2	829392	Drain
3	829391	Drainplug
4	820818-4224	Flexidrain hose
5	7330244	PVC plate
6	819089	Support column
7	3329982-02	Lever for brake and steering
8	3430052	Plug
9	850133-75	Rubber bumper wheels. Before serial no: 1310-21494
10	850132	Castor with brake (red 6)
11	850131	Castor with straight steering (green 4)
12	850281	Plug round
13	850575	Plug square
	819030	Battery
	819356-2	Circuit board
	819090-02	Hand control
	7419488	Pillow
	819434	DC-Jack (for charger)
	3230247	Side Rail, before serial no: 1310-21494
	3429979	Lever Lock
	850450	Fork M8*32 F2
	0541225	Battery charger
	819141	US plug type A
	819140	Euro plug type C
	819142	UK plug type G
	819097	Linak female connector for handcontrol
	819170	Electric Enclosure
	7429679	Cable for fuse holder
	3429978	Link arm Atlas
	7430318	Aluminium Joint Head
	0521051	Side Rail Locking Atlas Jr.
	819148	Power port 24V Magcode (mounted in chassi)
	819149	Power clip 24V Magcode (connector mounted on charger)
	819150	Port cover Magcode
	850133	Rubber bumper wheel. From serial no: 1310-21494
	3232388	Side Rail, From serial no: 1310-21494
	0541226	Battery charger on TR 4200 from serial no: 1401-21695



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Technical Information

New hand control for TR 4000 Atlas / 4200 Atlas Junior

October 2009

New hand control art no. 819090-02 without charging inlet.

Please, note that Atlas and Atlas Junior trolleys with serial number lower than **0910-18179** need to be updated.

Updating:

The hand control shall be connected to a Linak female connector

Please see separate instruction "Change to Linak female connector for hand control"

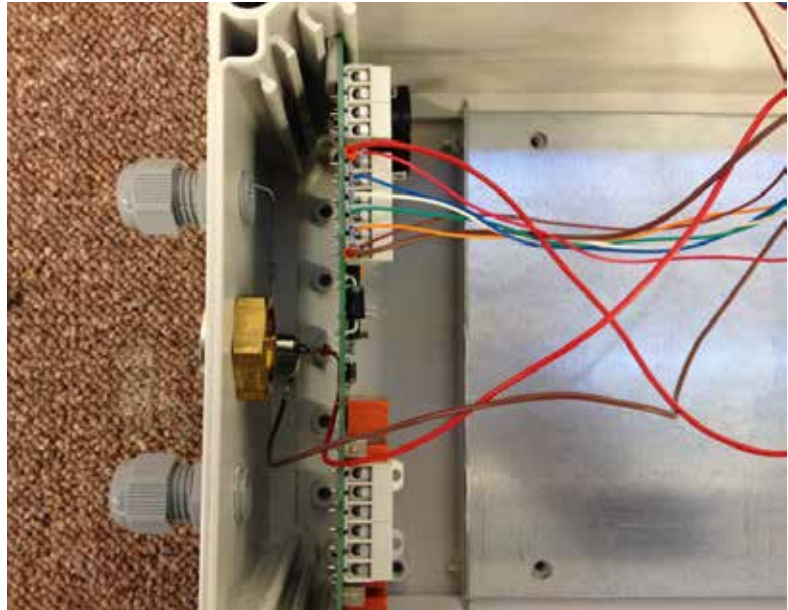
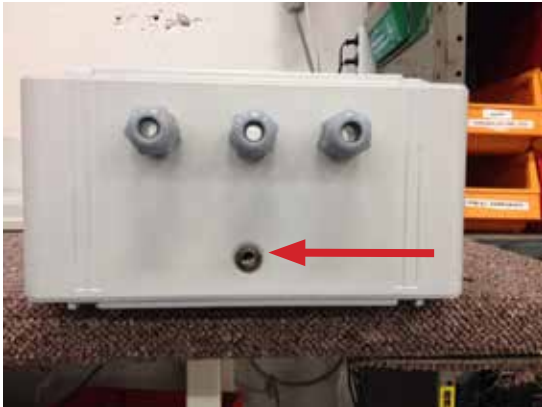
The battery charger shall be connected to a DC jack, placed in the plastic enclosure.

Drill an 11mm hole in the plastic enclosure and mount the DC jack in the hole. Connect the red and brown wires to the circuit board, see photo below.

819434

DC jack

Connect the red and brown charger wires as diagram



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Trouble shooting

Testing:

1. If the trolley is not even (horizontal) it needs to be calibrated, see "Calibration of the actuators" below.
2. If the trolley doesn't move up or down. Make sure you have voltage from the charger, see "Charging" below.
3. Lift the mattress and the white shelf. Remove the two lids of the control box and make sure that the fuse is OK and that there are no wires loose or any bad connections, see wire diagram in the spare parts list.
4. Measure the batteries. They shall give at least 12,5 V each.
5. Does the handcontrol work, see "Audible sounds" below.
6. If the handcontrol is broken it needs to be changed. The new handcontrol (without charging inlet) is plugged directly into the controlbox as well as the charging inlet, see separate instruction "New handcontrol" how to update.
7. If the trolley doesn't work at all, the circuit board may need replacing.
8. If one of the actuators needs to be changed, see "Changing the actuator" separate info.
9. Central foot operated brake and straight steering castors, see separate info.
10. If the side rails or the stretcher have to be changed, see separate info.

Charging:

1. Be sure of that the trolley is properly charged. Press the up button on the hand control. A long and a short audible tone sound when the battery is low and needs to be charged. Charge over night if needed.
2. Use only the 24V battery charger delivered by TR. First connect the battery charger to the hand control input on the old trolleys and in the control box on later and updated models. Then plug the battery charger to the mains.
3. When the battery charger is properly connected, an indicator on the battery charger shall lit yellow. The indicator shows the charging cycles.
Yellow is charging
Green indicates that the trolley is fully charged
Normal charging time is max 8 hours when flat batteries. The trolley can never be overcharged.
4. If the indicator is not lit yellow, recheck the connections. Measure the battery charger, it shall give 28 V.
5. If the indicator doesn't change to lit green, test and change the fuse (15 A) inside the control box.
6. When the charging is completed, disconnect the charger from the mains before you disconnect the charger from the trolley.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*

Audible sounds when pressing the handcontrol:

Short tone:

This tone informs that the stretcher is level when tilting and stops. Proceed tilting by pressing once more on the handcontrol.

A long and a short tone:

When this tone sounds the trolley needs to be charged.

A long and two short tones:

When this tone sounds the stretcher shall be calibrated to level, see "Calibrating the actuators" below.

Calibrating the actuators:

Both the actuators runs at the same speed and need to be calibrated when a long and two short audible tones sounds. Use the handcontrol to calibrate the actuators.

1. Press the UP symbol and raise the stretcher about 20 cm.
2. Press the DOWN symbol until the stretcher stops in its lowest position.
3. Press the DOWN symbol once more to make sure that both actuators are in their lowest positions.

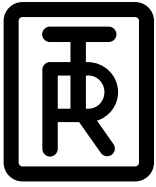
Two short audible tones sound when both actuators are in their lowest position.

4. Press the DOWN symbol once more and the actuators are now calibrated. The stretcher is level and the trolley is calibrated and ready for use.

Note: Calibration must also be performed after each power failure, for example after changing the batteries or of the fuse.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*

Service Instructions

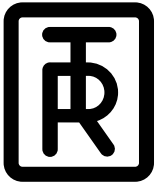
Instruction how to change the lifting column

1. Remove the pillow, mattress, drainage hose and the white plastic shelves.
2. Unscrew the metal and plastic lids of the central control.
3. Disconnect the actuator wires on the circuit board and cut the cable ties.
4. Lift off the stretcher by unscrewing the four hexagon 8 screws.
5. Unscrew the four 12 mm Allen-key screws on the top of the actuator.
6. Prop up one end of the trolley so that you can access the bottom of the mentioned column. Unscrew the four TORX T40 screws underneath. It is advised that it is best to use an angled tool to do this as these are particularly tight.

The actuator can now be changed.



TR EQUIPMENT



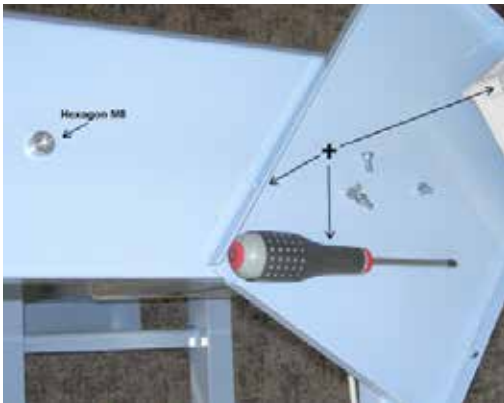
TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Instruction how to change the stretcher

1. Prepare by removing the pillow, mattress, drainage hose and the white plastic shelves.
2. Unscrew the metal cover protecting the electronic box, use a Philips screwdriver.
7. Remove the complete plastic box use a long TORX 25 screw driver and a spanner for the nuts.



3. Unscrew the plastic lid on the electronic box, use the same Philips screwdriver.
4. Remove the fuse between the batteries.
5. Cut the cable ties from the actuators, underside the stretcher.



6. Remove the two wires to the actuators on the circuit board. Keep the wires to the handcontrol.



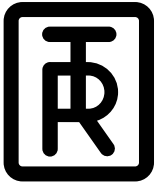
8. Remove the 4 pcs Hexagon 8 mm screws holding the stretcher.



Two persons needed to lift the stretcher.
Assemble and add new cable ties for the actuator wires.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Instruction how to change a siderail

When changing one or both siderails we recommend you to start changing at one short end of the trolley and make it ready with the new siderail, before you go on with the other end.
Remove the pillow, mattress, drainage hose and the white plastic shelves.

1. Remove the screws holding the rubber bumper wheels, you may need to pry open the corner 1-2 mm to pull out the wheel. Protect the paint from scratches.
2. When a bumper wheel is removed you can see inside two hexagon screws holding both the fixed endrail and the siderail. Remove these screws by using a long hexagon 6 mm Allen Key.
3. The screws, two square washers, one pin and an aluminium part will fall out (see photo) on each side of the endrail. Put the endrail on the stretcher and let the existing siderail(s) rest on the stretcher.
4. Assemble the new siderail(s) and the endrail at this end of the stretcher before you go on working at the other end. Mount the new siderail with its "latch" towards the stretcher (see photo)



Side Rail Locking Set for TR 4200

(Part no. 0521051, includes 4 pcs. of springs and 4 pcs. of the black slide blocks)

When assembling the locking sets we recommend you to completely finish one corner at a time.

First remove the pillow, mattress, drainage hose and the white PVC plate.

1. Remove the screws holding the rubber bumper wheel, you may need to pry open the corner 1-2 mm to pull out the wheel. Protect the paint from scratches.
2. When a bumper wheel is removed you can see two hexagon screws inside. These hold both the fixed endrail and the siderail. Remove these screws by using a long hexagon 6 mm Allen Key.
3. Two square washers, one pin and an aluminum part will fall out (see photo above) when you remove the screws.
4. Now assemble the spring and the black slide block on the aluminum part according to the below photos.
5. When this is done you can re-assemble the siderail and the rubber bumper wheel.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Central foot operated brake and straight steering castors

At operating end	Part No.
A Rod Pipe	3429977
B Threaded rod	831960-8050
C Fork with lock	850450
D Link arm (gear)	3429978
E Rod hexagon long Rod footend short	3429974-03 3429974-04
F Castor red, brake	850132
G Castor green, straight steering	850131
H O-ring	829106
I Lever lock	3429979
J Lever for brake and steering	3329982-02

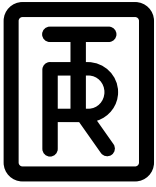
Note, see photos:

- ABC Adjust the total length of the rod incl the forks, to the same length as on the existing rod on to your trolley.
- D The castors are in neutral when the link arm is placed in 90 degrees to the fork (C)
- E The hexagon rod shall have one sharp end pointing upwards to keep the castors in neutral position. The lever lock (I) shall be placed on the rod with one threaded hole pointing down.
- F Two castors with brakes is mounted on the same rod hexagon as the lever (J)
- G One castor with brake and one with straight steering at the foot end rod.
- Before the castors are mounted and locked with screw (831120-6012) they have to be adjusted to their neutral position (not in braked or straight steered position) Mount all the castors with the labels (red/green) pointing in the same direction.
- I Turn Lever lock with one threaded hole pointing down when assembling the lever for brake and straight steering.

At the foot end use parts A,B,C,D,E (short) and mount yhe G castor.



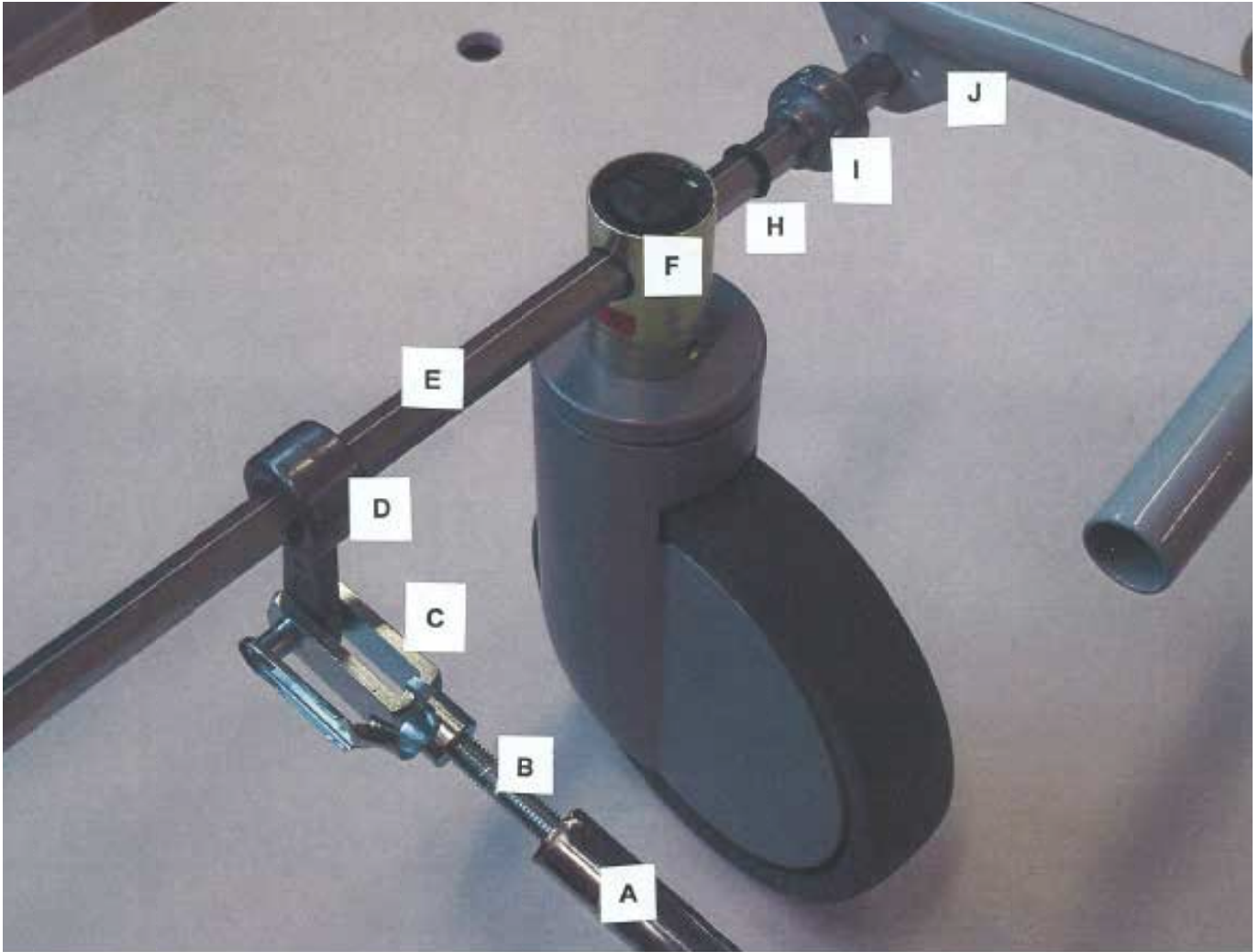
TR EQUIPMENT



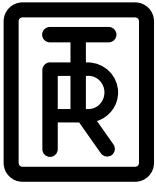
TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Assembly instructions central control for castor locking and straight steering ATLAS (Jr)

To disassemble the system follow these instructions in reverse.

1. Turn the Atlas upside down.
2. Start to disassemble. When all the parts are removed follow the below points.

This instruction is explained when Atlas Jr. is placed upside down and you are standing on the short side with the foot control right in front of you.



1. Mount the castors. The castors have small labels on them. Red=Brake castor (11.) and Green=Straight steering (10.). The labels on all castors must be pointing to the right. Put two castors with red labels on the left side and 1 castor with red label lower right corner. The last castor with green label is then placed in the upper right corner. Then fix all castors with screw M6x12 (8.) and use Loctite 270. (Tool = Allen key no. 5)



2. Use the tool and set all four castors in neutral position. Middle notch.



3. Take the hexagon rods and push them in halfway through



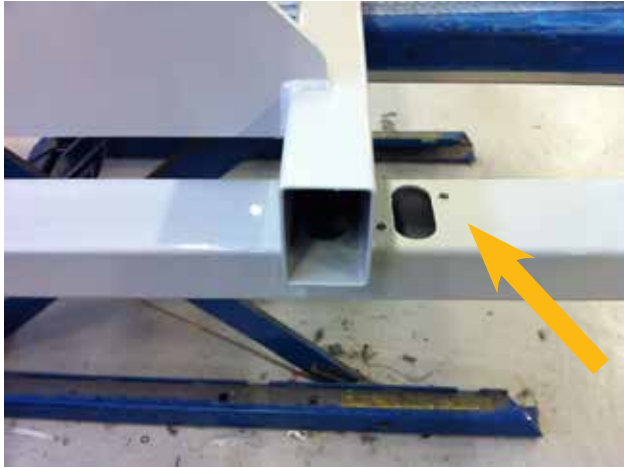
TR EQUIPMENT



TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*



- the pipe.
4. Place the axis control (4.) in the correct position on both sides, but do not fix with screws.

5. Push in the long round castor control rod. With the link arm (1.) and fork (14.) mounted on it. On the head end side the set screw on the link arm must be facing upwards and on the foot end side the set screw must be facing downwards.

Total length of this control rod should be approx.. 161,5 cm.

6. Push in the hexagon rods through the castors, link arm and axis control.

7. Now test the functions of the castors with brake and straight steering. First test the straight steering by using the tool on the hex rod. Push the tool downwards. The castor with the green label should then be locked and can not spin around sideways. All the other three castors should be able to spin around sideways.

Now push the tool upwards one notch and you should be in neutral. All four castors should be able to spin around and roll.

Now push the tool upwards one more notch to test the brake. Then all four castors should be totally locked in position and



TR EQUIPMENT



TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*

not able to roll.

8. If the brake function doesn't work, then the castor control rod is too short. So then you will have to pull out the hexagon rods on both sides and pull out the link arm (1.) to adjust so that the total length of the castor control rod will be longer. Turn the link arm counterclockwise two to three full turns. Then push in the castor control rod again and also push the hexagon rods back in place and test the brake function again. (The length of the control rod is quite sensitive so this adjustment might have to be done a couple of times to get it right.)

If the tool double clicks or gets stuck between brake function and neutral, then the castor control rod is too long. Then do the same procedure as above but turn the link arm clockwise instead to get a shorter total length.

Then test again to see that everything works ok.

9. When all the castors are working ok. then use the tool to put them in neutral again.

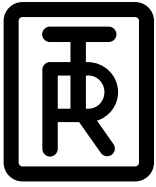
10. Now start working on the head end side (where the foot control is placed). Mount the slotted end caps (3.) on both sides as photo.

11. Push on the o-rings (7.) on both sides.

12. Push on the lever lock (2.). See photo. Note that this lever lock must be mounted as photo so that the holes on the foot control will fit.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

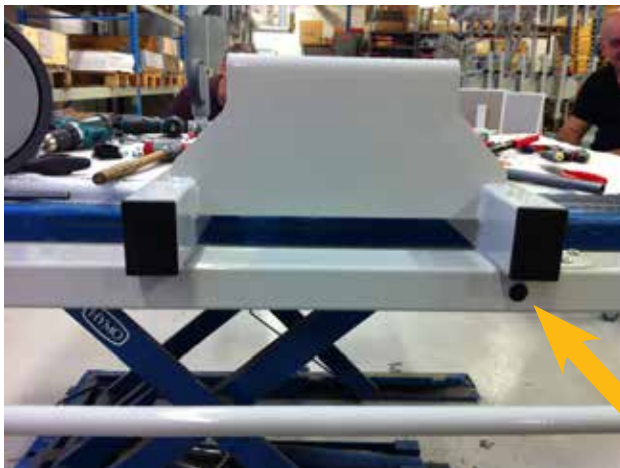
Hygiene Equipment
Designed for People



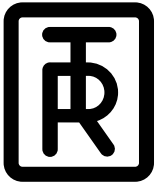
13. Now mount the foot control. (The hex rod should protrude equally on both sides.)
Then fix the foot control to the lever lock (2.) on both sides using 6 pcs. of screw M4x12 (9.). Fasten with Loctite 270 and use Torx T20.

14. Then also fasten the below screws with Loctite 270.

- Axis control with 2 pcs. of screw M5x12 (16.) (Use a Phillips screwdriver)
- Set screw on the lever locks (2.) on both sides. (Use Allen key no. 3)
- Set screw on the Link arm (1.) (Use Allen key no. 3)



TR EQUIPMENT



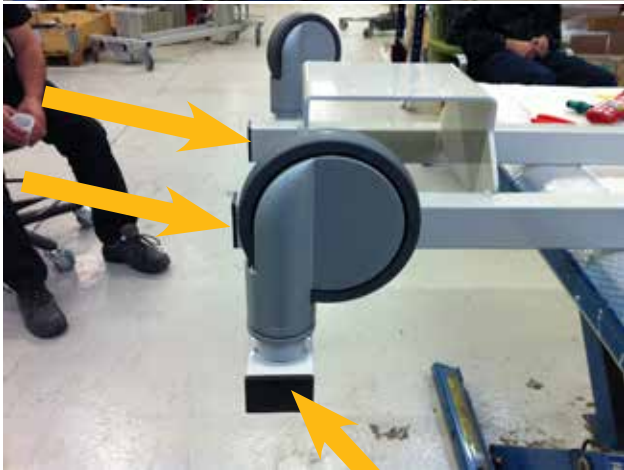
TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People



15. Mount end caps (15.) in the longitudinal tubes and the small round cover cap (12.)



16. Now start working on the foot end side. (The hex rod should protrude equally on both sides.) Mount 4 pcs. of end caps (15.) as photo.

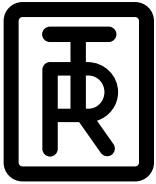
17. Fasten the set screw on the Link arm (1.) using Loctite 270 with an Allen key no. 3 and then mount the small round cover cap (12.)



18. Turn the Atlas trolley back so that it stands on it's castors again. Then finally mount the 4 pcs. of round end caps (13.) in the holes over the castors. Put some silicone on the end cap to seal it better.



TR EQUIPMENT



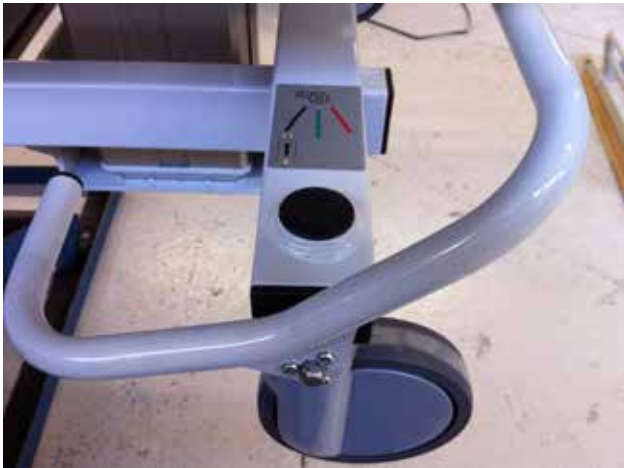
TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Instruction for replacement of castors on Foot End

First lift up the trolley and put it down on something so that the castors can move freely.



1. Put the foot control in straight steering position.
2. Remove the 2 pcs. of end caps 60x40 (15.) on both sides.
3. Remove the small round cover cap (12.)
4. Loosen the set screw on the link arm (1.). This set screw is positioned behind the small round cover cap (12.) on the photo left.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

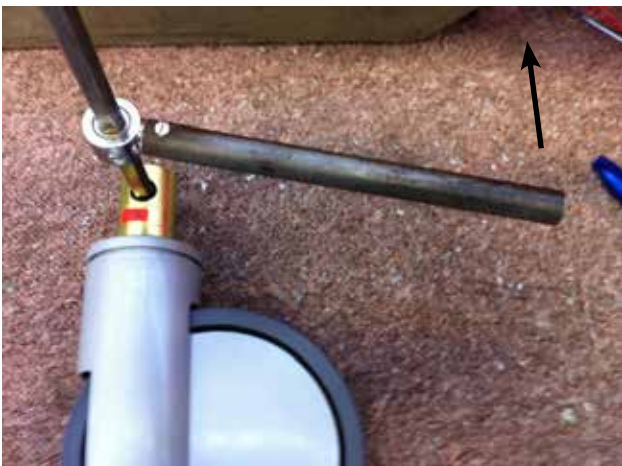
5. Then carefully push the hex rod into the pipe approx. 10 cm by using the hex rod that you use with the hex tool. Now the hex rod should have gone through the castor.



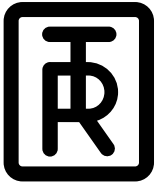
6. Remove the bad castor by unscrewing the M6x12 screw (8.). The castor will then fall out.



7. Now take the new castor and before mounting it you have to set it in straight steering pos. Use the tool and the hex rod to do this. Make sure that the label is pointing in the same direction as on the castor that was removed and that the color of the label is the same as the one on the removed castor. Push the tool upwards to the end position where you have the straight steering pos.
8. Now mount the new castor and fasten it with screw M6x12 (8.) using Loctite 270.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People



9. Then carefully push the hex rod back to it's original position from the opposite side.



10. Fasten the set screw again with Loctite 270.



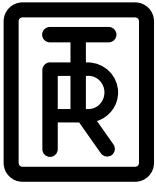
11. If you must change both castors on the foot end, then follow steps 1-9 to change castor no. 2, before you Loctite the set screw in step 10.

12.

13. Finally mount the 2 pcs. of end caps 40x60 (15.) and the small round cover cap (12.) back into position.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

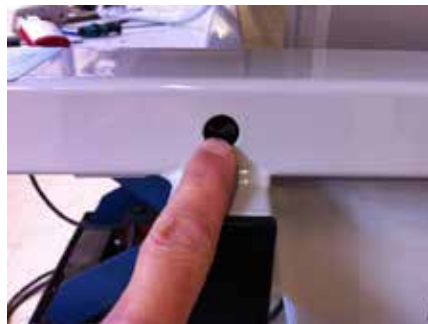
Instruction for replacement of castors on Head End

First lift up the trolley and put it down on something so that the castors can move freely.



1. Put the foot control in straight steering position.

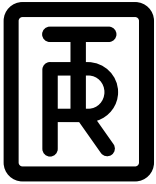
2. Loosen and remove the 3 pcs. of set screws. One on each lever lock (2.) and one on the link arm (1.).
3. Then carefully push the hex rod into the pipe approx.



14 cm by using the hex rod that you use with the hex tool. Now the hex rod should have gone through the castor.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

*Hygiene Equipment
Designed for People*



4. Remove the bad castor by unscrewing the M6x12 screw (8.).
The castor will then fall out.



5. Now take the new castor and before mounting it you have to set it in straight steering pos. Use the tool and the hex rod to do this. Make sure that the label is pointing in the same direction as on the castor that was removed. Push the tool upwards to the end position where you have the straight steering pos.



6. Now fasten the new castor with screw M6x12 (8.) using Loctite 270.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

Instruction how to change to the Linak female connector.

First remove the mattress and plastic plates. Then remove the metal lid over the plastic enclosure and open the enclosure.

1. Photo shows how the plastic enclosure can look like before you start working on them.

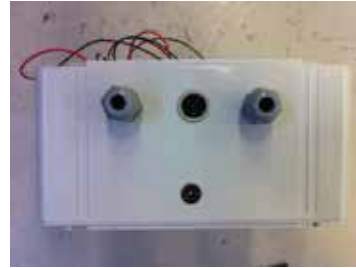
Enclosure 1



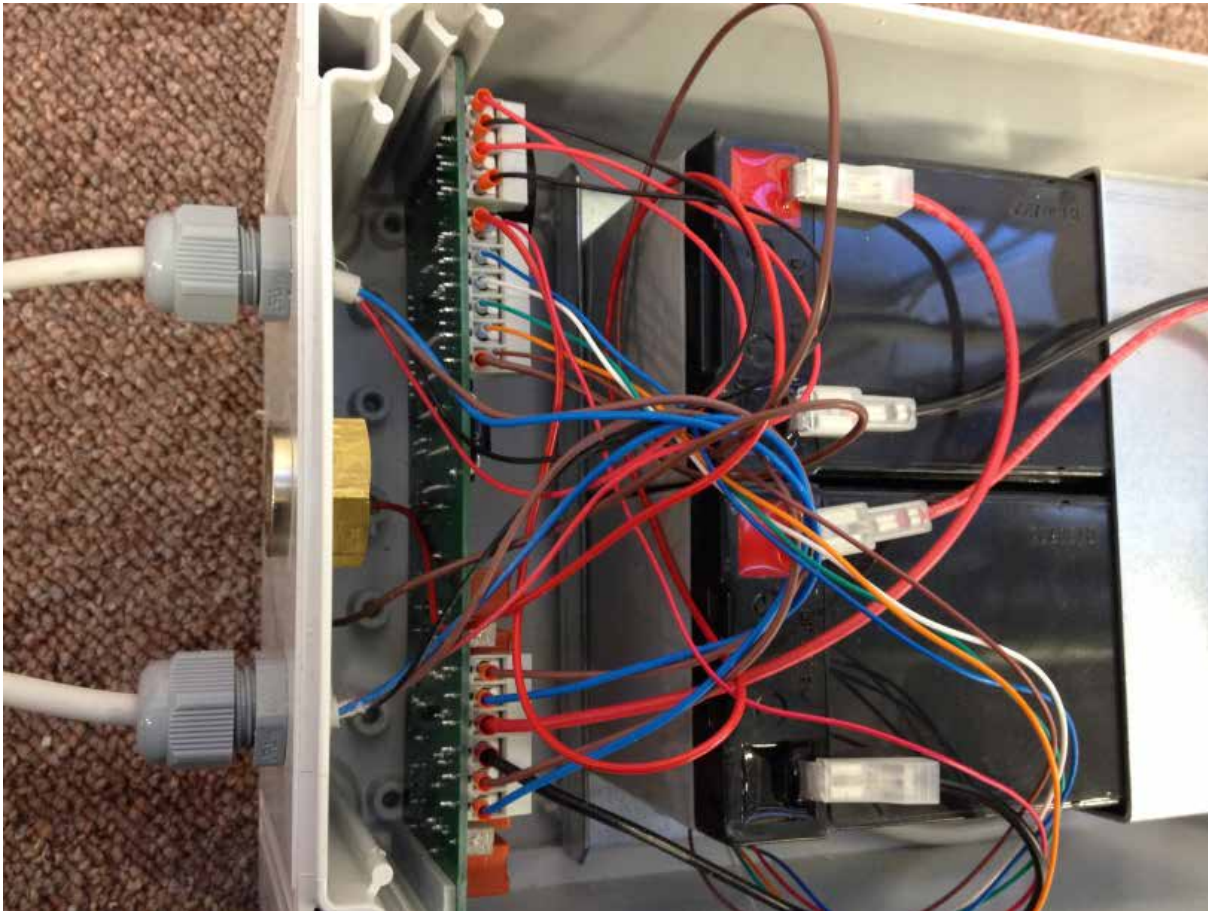
Enclosure 2



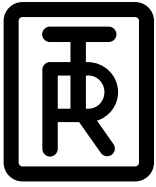
Enclosure 3



2. Open the lid of the enclosure and disconnect all the wires on the circuit board.
Remove the circuit board from the enclosure so that it won't get damaged in the following work.



TR EQUIPMENT



TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

3. If you have Enclosure 1 or 2, the next step is that you remove the middle cable gland (just unscrew it and remove). And if you have Enclosure 3 you should remove the old female connector as below.

Unscrew the nut that holds the connector in place inside the enclosure. See photo. Then just push out the connector.



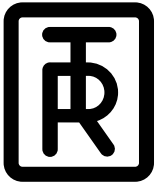
4. Now take a 21 mm drill and enlarge the hole where the cable gland or old connector was placed.



5. This hole now needs to be sealed. Take the metal plug and put it in the 21 mm hole and then fasten it with the brass nut from the inside of the enclosure.



TR EQUIPMENT

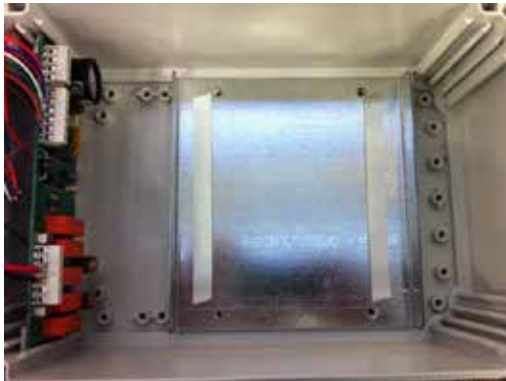


TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

6. Unscrew the 4 pcs. of screws in the bottom of the enclosure that holds the battery pack and take out the complete battery pack and the bottom steel plate.



7. Make a new 25 mm hole in the enclosure on the opposite side of where the cable gland or old female connector was placed. Countersink the hole so that the new Linak connector fits.



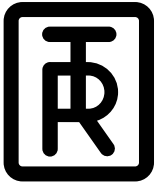
8. Put the Linak connector in the new hole and take a 3,5 mm drill and drill the two holes for the screws.



9. Remove the Linak connector again and put silicone on the collar of the connector all the way around.



TR EQUIPMENT



TR 4000/4200

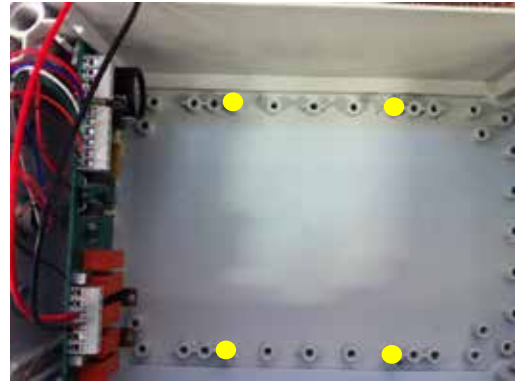
Shower trolleys

Hygiene Equipment
Designed for People

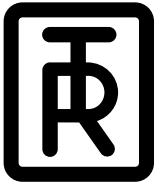
10. Then mount the connector as photo with screws, washers and nuts.



11. Take the steel plate and put it in place. Use the four holes as marked in the photo. (The steel plate is moved a little bit towards the circuit board compared to original position, just to make room for the new Linak connector.) Then assemble the complete battery pack and fix it all with the four screws.



TR EQUIPMENT

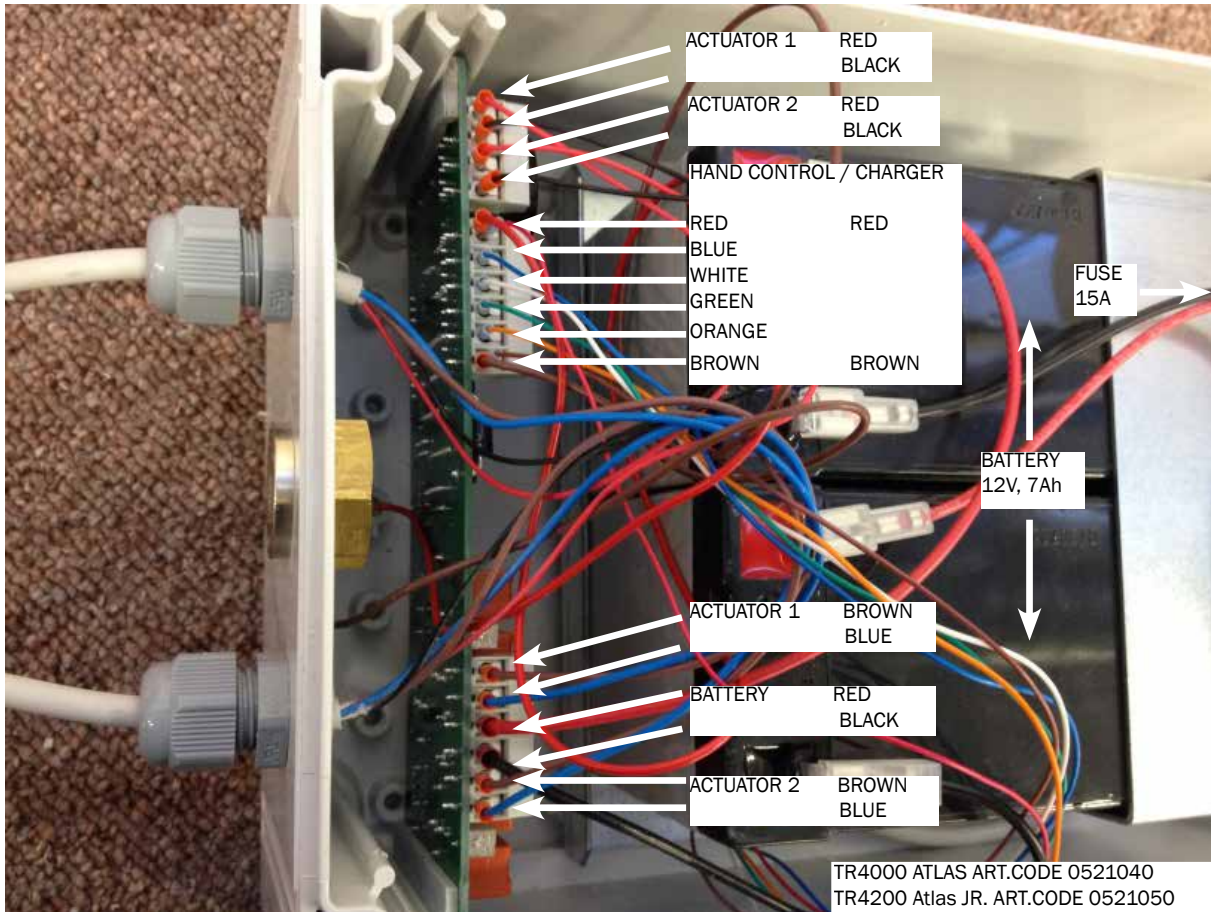


TR 4000/4200

Shower trolleys

Hygiene Equipment
Designed for People

12. Connect the wires from the new Linak connector to the circuit board as photo under box "Handcontrol/Charger". Do not forget the charger cables. Actuator 1 = the actuator positioned at the head end/ Actuator 2 = the actuator positioned at the foot end.



You are now finished , so just put the plastic lid back on the enclosure and put back the metal lid over the enclosure.



TR EQUIPMENT