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Ceiling Track Lift
Service Manual

RTB-400-70
RTB-415-70
RTB-600-70
RTB-615-70
RTB-1015-70

SM 003
Revision: A
Revision Date: 1/28/2008

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Cleaning & Disinfecting

WARNING
Gloves and protective clothing should always be worn when carrying out cleaning procedures.

All surfaces can be cleaned by wiping with a disposable cloth moistened with hand hot water and a neutral detergent. Rinse using clean water, dry with paper towels.

When used by a patient known or suspected of having an infection this piece of equipment should be disinfected. After washing, wipe over with NaDCC at 1,000 ppm of available chlorine (or other chlorine releasing agent). Alternatively wipe over with a 70% Isopropyl Alcohol wipe.

CAUTIONS
DO NOT use Hypocarbonate or Phenol based cleaning agents
DO NOT use any volatile liquids such as thinners or petroleum
DO NOT use abrasive compounds or pads.
Tests show undiluted Dettol may damage paint and plastic parts if prolong contact is allowed.

Recommended Tools

Below is a list of tools required to carry out the service procedures contained in this manual:

Adjustable Wrench
Socket Set 7/16” and 9/16” with extension
Adjustable Torque Wrench – Adjustable up to 40ft/lbs
Screw Driver Set (W/ Multiple Bits)
Multi-meter (0-50VDC)
Step Stool or ladder
Gloves
Needle nosed pliers
Metric Allen wrench set
Flashlight
C-clip removal tool
Punch
Hammer

WARNING
All tools can be dangerous if used incorrectly.

CAUTION

DO NOT attempt to perform service on the ceiling lift without proper training and understanding of this document. Failure to adhere to this warning may result in serious injury to the operator, and/or the individual being lifted /transferred

SECTION 1: TO REMOVE MOTOR FROM TRACK. : Unplug the charger from electrical source before perform this task.

1. Charger Connector
2. Charger End Plate
3. Charger End Screw

4. Safety Pin
5. Safety Pin Ring
6. End Stop Plate
7. End Stop Bolts

1.1 Remove ring

1.2 Remove pin

1.3 Remove screw

1.4 Remove end plate

1.5 Remove charger connector

1.6 Loosen end stop bolts

1.7 Remove end stop-block and plate

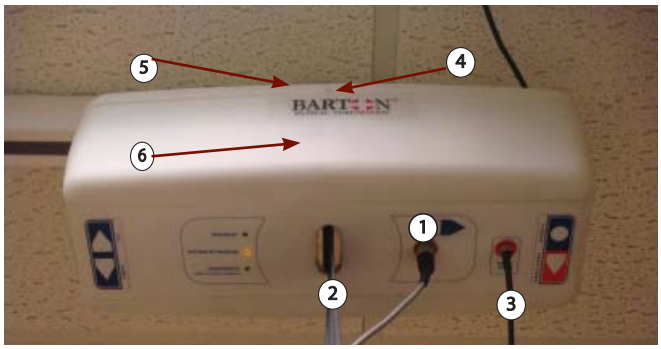
1.8 Remove motor

CAUTION

A sturdy ladder is required in order to access the underside of the lift to remove the motor from the track. Motor and carry bar is a heavy object. Use caution when perform this task.

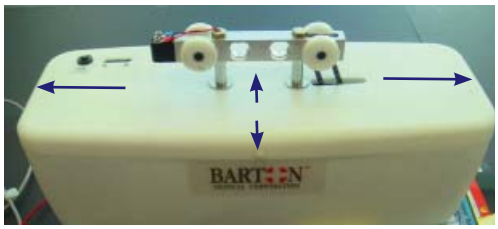
SECTION 2. TO REMOVE PLASTIC COVER: Move carry bar down to the lowest position before performing this procedure.

1. Hand Control Connector
2. Strap
3. Emergency Cord
4. Housing Screws
5. Top Housing
6. Bottom Housing



2.1 Remove hand controls crew

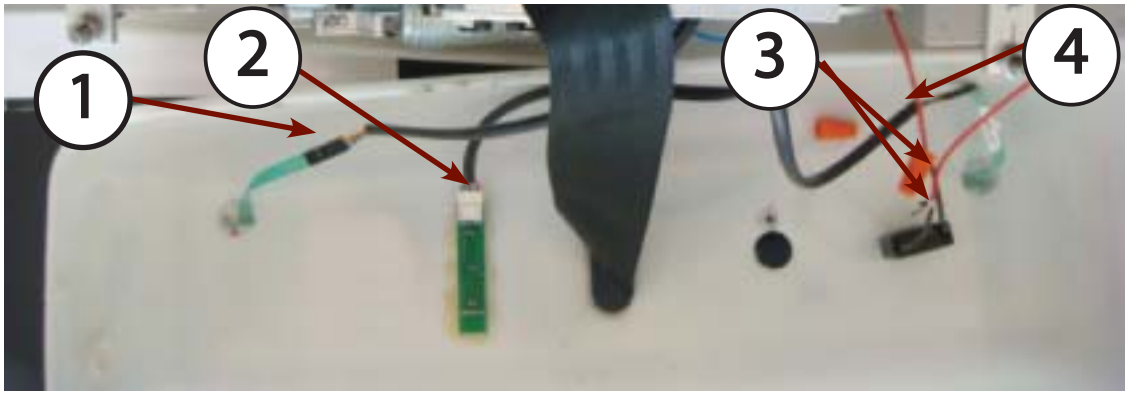
2.2 Remove hand controller



2.3 Remove housing screws (4)

2.4 Turn unit over to remove Bottom Cover

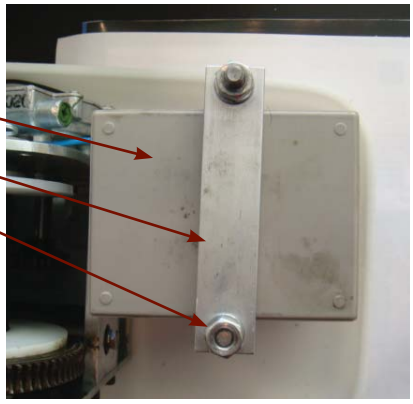
2.5 Remove all electrical connectors and remove the bottom cover.
NOTE: This step is not necessary in most case. Refer to the specification section to determine if this step is required or not.



1. Up/Down connector
2. LEDs Display connector
3. Emergency Pull Cord connector
4. Power/ Emergency Down connector

SECTION 3: TO REPLACE BATTERY

1. Battery
2. Bracket
3. Securing Nuts



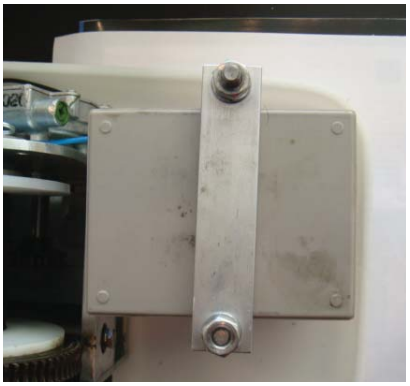
3.1 Remove bottom cover per instructions in section 2.1-2.4 **DO NOT** disconnect cables attached to the bottom cover

3.2 Remove one nut

3.3 Loosen other nut and rotate the bracket 90 degree

3.4 Remove battery and flip it over

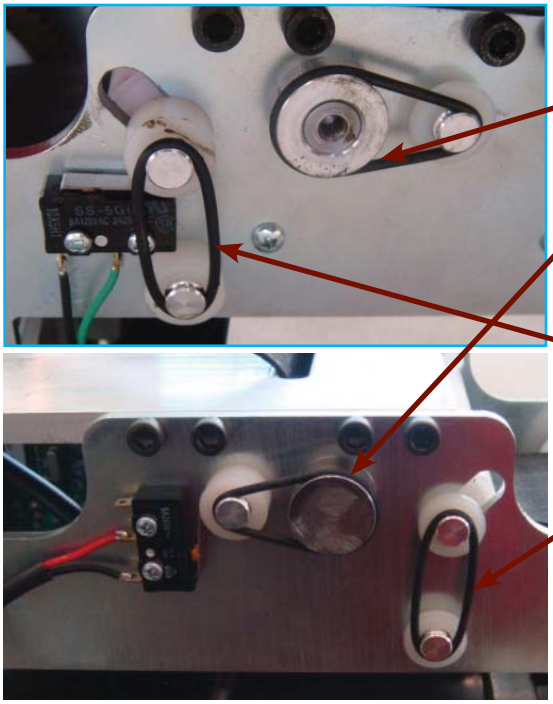
3.5 Transfer the terminal from old battery to the new battery as followings:
BLUE: - NEGATIVE terminal (BLACK)
RED - POSITIVE terminal (RED)



3.6 Flip battery and fasten both nuts.

3.7 Repeat step 3.2 - 3.6 for the other battery

SECTION 4: TO REPLACE O-RINGS
Notes:
Before handling replacement O-ring, be sure your hands are free of grease or oil.
It is recommended O-rings be replaced every 6 months



O-ring (00-500-199 Ø.739 x .070) for Upper Limit Switch

O-ring (00-500-463 Ø.801 x .070) for Lower Limit Switch

4.1 Remove bottom cover per instructions in section 2.1-2.4
DO NOT disconnect cables attached to the bottom cover

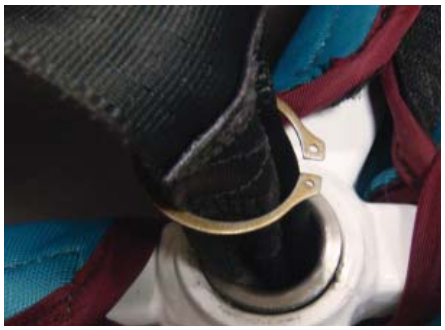
4.2 Remove old O-rings and replace with new ones as shown above

NOTES:
O-RINGS FOR THE LOWER LIMIT SWITCHES ARE SLIGHTLY LARGER THAN THE ONES FOR THE UPPER LIMIT SWITCHES

CAUTION:
Check the tightness of each O-ring after installation to ensure the proper size O-ring has been used. Installation of wrong size O-rings could cause serious malfunction of the lift and potentially cause injury.

SECTION 5: TO REMOVE CARRY BAR

Carry Bar for all models except RTB 1015-70



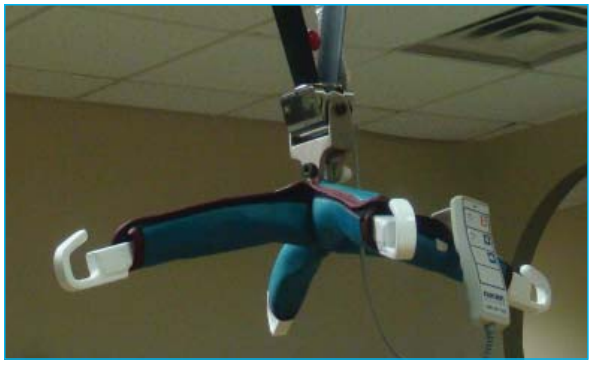
5.1 Remove C-Clip

5.2 Remove cover

5.3 Push center HUB down

5.4 Remove center dowel pin

5.5 Remove strap

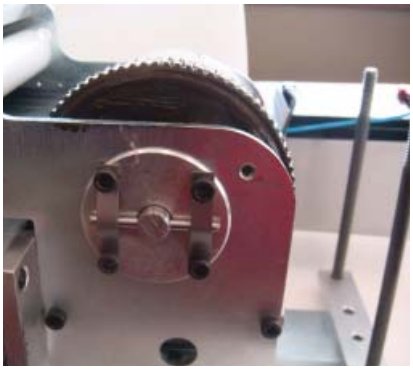


Carry Bar for RTB 1015-70

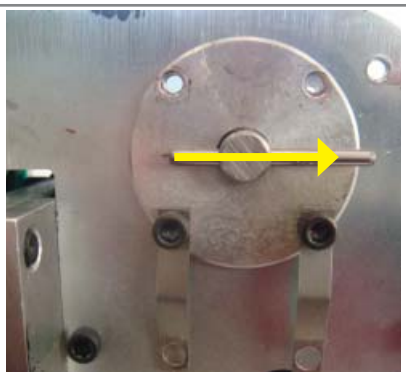
5.5 Remove securing nuts and pin to remove carry bar

SECTION 6: TO REPLACE STRAP

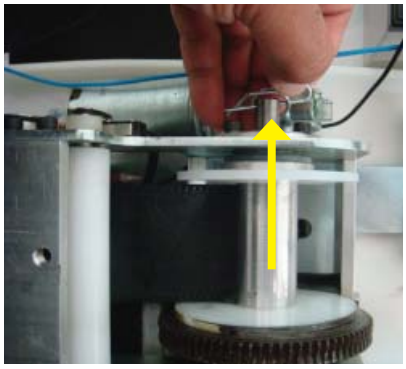
6.1 Remove motor from track per SECTION 1. Using the handset, unwind the belt to its full length.
6.2 Remove Bottom Cover per SECTION 2
6.3 Remove Carry Bar per SECTION 5



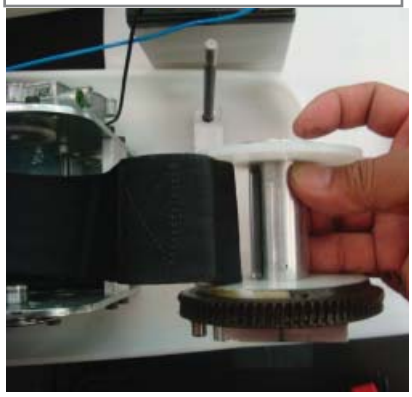
6.4 Remove all 4 screws and bridges to remove pin



6.5 Slide pin away from shaft



6.6 Pull center pin out



6.7 Remove strap by pulling it away from the wheel

6.8 Remove bottom plate by removing 8 screws (4 on each side)

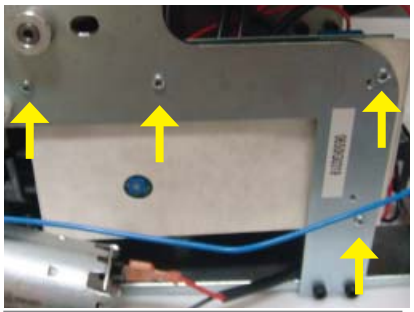
6.9 Remove both O-rings for the upper limit switch pin and pull out pin and roller.

6.10 Removing strap and replace with new strap
6.11 Follow steps 6.1 through 6.9 in reverse order to put strap back in.

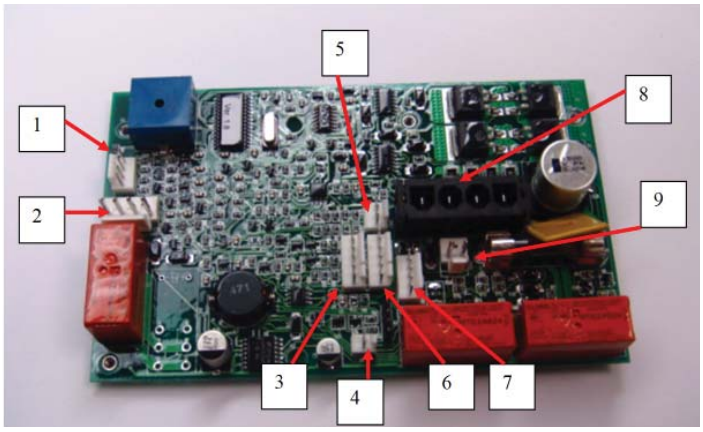
SECTION 7: TO REPLACE CONTROL BOARD

CAUTION:
ESD (electrostatic discharge) protection is required before handling the control board to prevent damage to sensitive devices

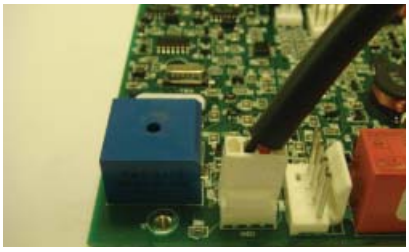
7.1 Remove motor from the track per SECTION 1.
7.2 Remove Bottom Cover per SECTION 2. Disconnect all cables to cover. Disconnect the cable to the battery per SECTION 3.5
7.3 Remove Bottom Plate per SECTION 6.8
7.4 Remove upper limit switch roller per SECTION 6.9



7.5 Remove 4 control board screws



7.6 Remove control board and remove all connectors



7.7 Hand Control connector (Connector #1 - 4 pins)

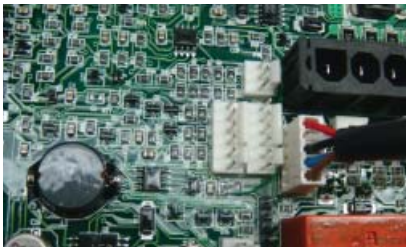
7.8 Traversing Motor (Connector #2 - 4 pins)

7.9 Hand Control connector (Connector #3 - 6 pins)

7.10 Hour Meter (Connector #4 - 2 pins)

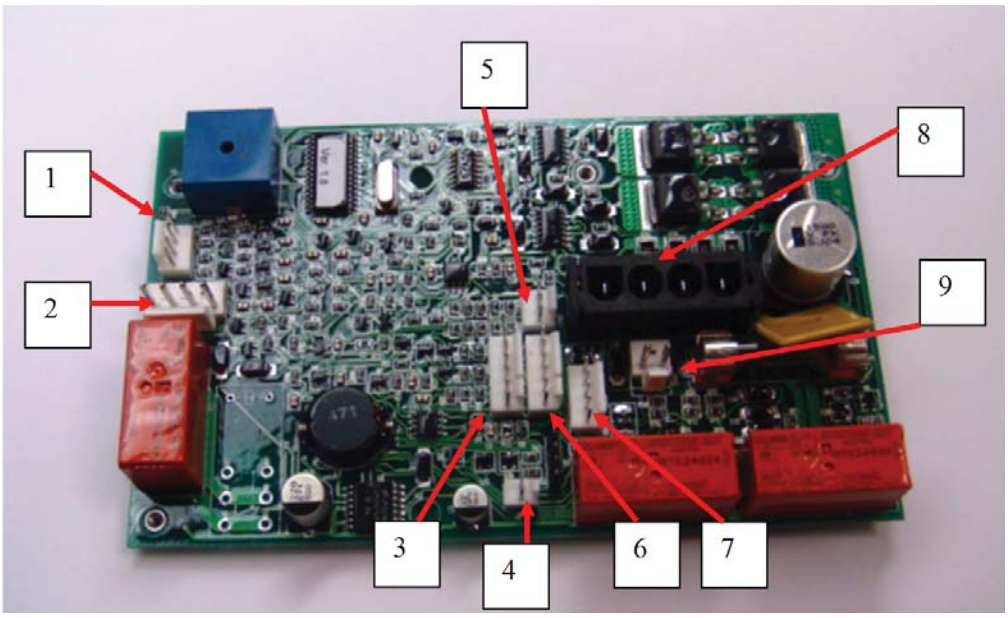
7.11 Limit Switches (Connector #5 - 3 pins)

7.12 Membrane Switches (Connector #6 - 6 pins)

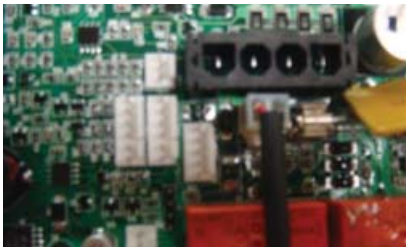


7.13 Main Housing LEDs (Connector #7 - 5 pins)

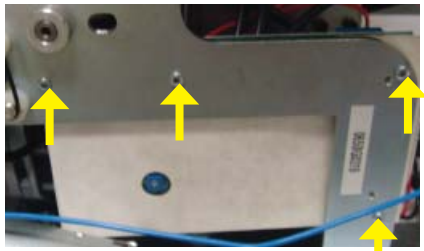
SECTION 7: TO REPLACE CONTROL BOARD (Continued)



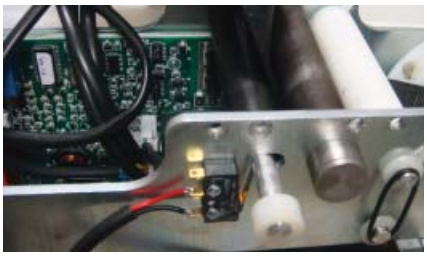
7.14 Main Motor (Connector #8 - 4 pins)



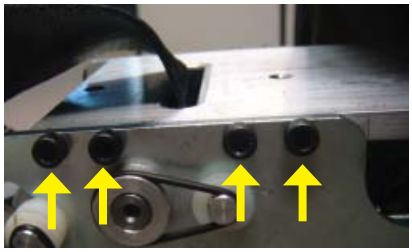
7.15 Charger Connector (Connector #9 - 2 pins)



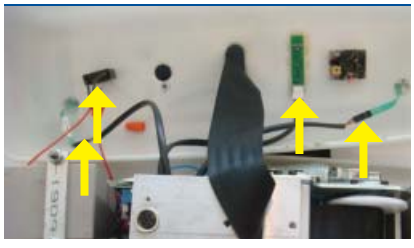
7.16 Fasten control board to the chassis with 4 screws



7.17 Reinstall the upper limit switch roller and O-ring



7.18 Reinstall bottom plate with 8 screws (4 on each side)



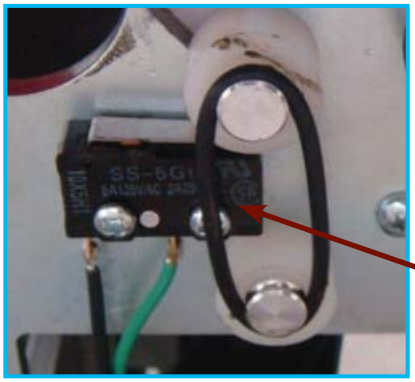
7.19 Re-connect the cables to the bottom cover

7.20 Follow step 2.1 through 2.3 in reverse order to fasten cover.

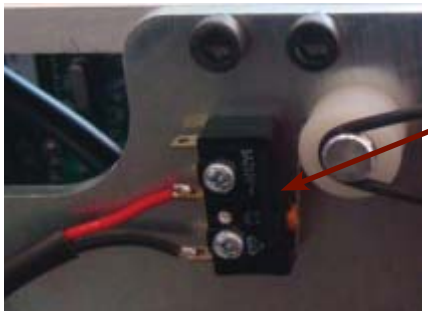
SECTION 8: TO REPLACE LIMIT SWITCH

CAUTION

ESD (electrostatic discharge) protection is required before handle the control board to help prevent damage to sensitive devices



LOWER LIMIT SWITCH



UPPER LIMIT SWITCH

8.1 Remove motor from the track per SECTION 1.
8.2 Remove Bottom Cover per SECTION 2. Disconnect all cables to cover. Disconnect the cable to the battery per SECTION 3.5

8.3 Remove screws (2) that fasten the limit switch to the chassis
8.4 Install the new switch and fasten the screws to secure the switch
8.5

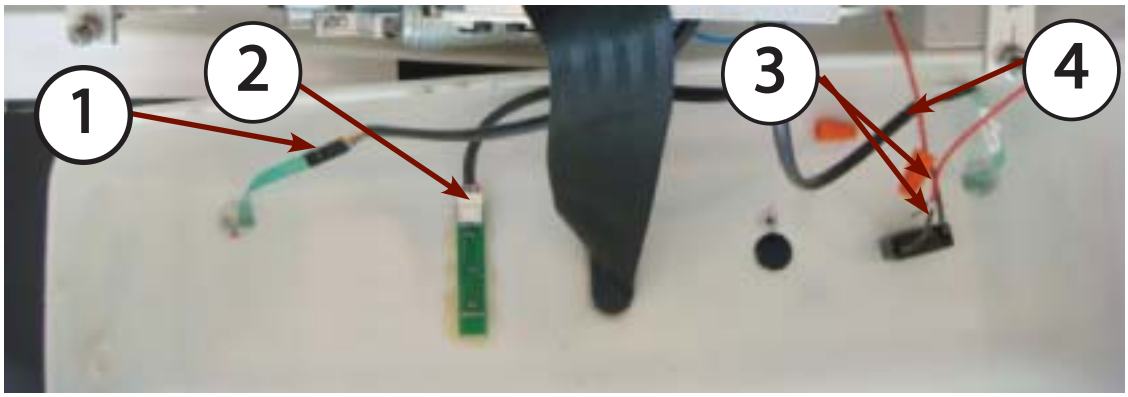
SECTION 9: TO REPLACE MEMBRANE SWITCH

9.1 Remove motor from the track per SECTION 1.
9.2 Remove Bottom Cover per SECTION 2 (disconnect all cables to cover)

UP / DOWN MEMBRANE SWITCH

POWER / EMERGENCY DOWN SWITCH

9.3 Remove the desire switch by peeling away from cover.
9.4 Install new switch by peeling the back adhesive away and place the switch in the original location
9.5 Re-connect all of the Cables per diagram below
9.6 Follow steps 2.1 through 2.4 in reverse order to put bottom cover back in.



1. Up/Down connector
2. LEDs Display connector
3. Emergency Pull Cord connector
4. Power/ Emergency Down connector

SECTION 10: TO REPLACE EMERGENCY STOP SWITCH

10.1 Remove motor from the track per SECTION 1.
10.2 Remove Bottom Cover per SECTION 2 (disconnect all cables to cover)

10.3 Remove the knob by loosen knot at the end.

10.4 Remove the fastener on the switch

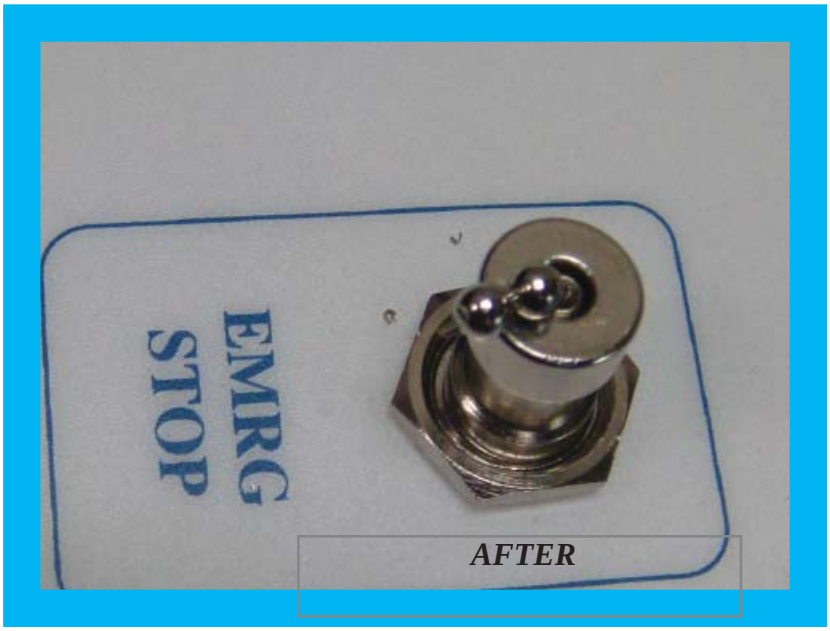
10.5 Remove the switch from the other side by rotating the switch counter clockwise.

10.5 Replacing the switch and reverse steps 10.1 to 10.5 to install new part

SECTION 11: INSTALL EMERGENCY PULL CORD

BEFORE

11.1 Remove existing hardware



AFTER

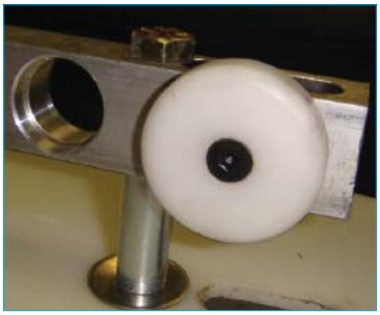
11.2 Install the emergency pull cord ball chain connector to the ball chain on the switch. Use pliers to crimp the two parts together.

SECTION 12: TO REPLACE TRAVERSE CHAIN

12.1 Perform step 6.1 to 6.6 (SECTION 6 - REPLACE STRAP)

12.2 Assemble the chain to a complete loop

12.2 Drop the chain on top of the traverse gear through the top housing



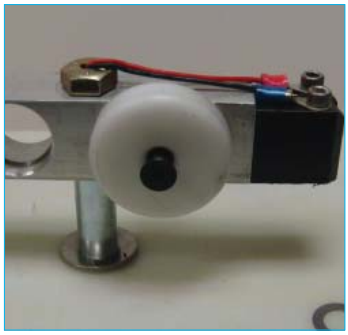
12.3 Flip the unit over to remove the traverse wheel on the trolley. Ensure that the chain does not fall through the housing by putting tape on it. Remove the wheel and bearing on one side of the trolley and pull the assembly away

12.4 Install the chain over the Trolley wheel and ensure full engagement. Reinstall the trolley wheels and bearing

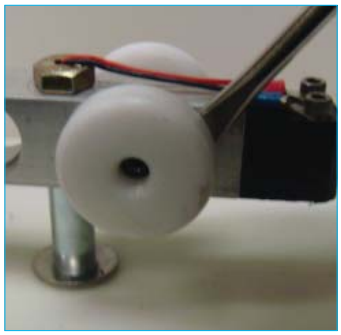
10.5 Following step 6.1 to 6.6 in reverse to put unit back together

SECTION 13: TO REPLACE TROLLEY WHEELS

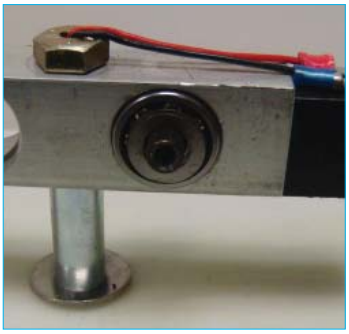
13.1 Remove motor from track per SECTION 1



13.2 Remove the screw

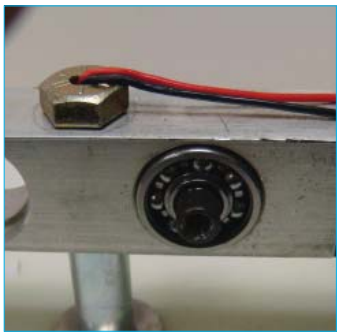


13.3 Remove the wheel

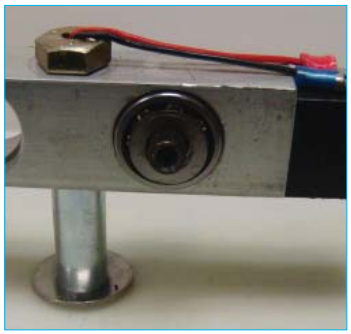


13.4 Remove the washer and bearing

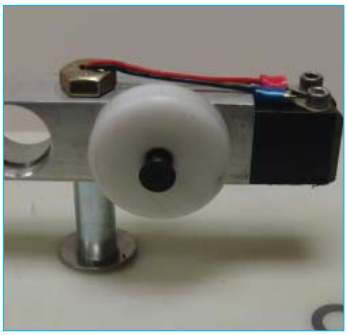
13.5 Remove the bearing and shaft



13.6 Install new bearings and shaft



13.7 Install washers(2) washer and bearing



13.8 Install new wheels and fasten the screws. Ensure to apply locktite to the screws before the installation.

APPENDIX A: PREVENTATIVE MAINTENANCE - CONTINUED

A1 - CHECK LIST PRIOR TO EACH USAGE

- Check lift strap, make sure there is no fraying (See SECTION 6 for Service Instructions)
- Check all Strap stitching (See SECTION 6 for Service Instructions)
- Make sure all slings show no unusual signs of wear and tear
- Check that all functions of the hand control are working properly
- Make sure that there is no visual damage to lift or carry bar
- Make sure the lift is not making any unusual sounds when in use
- Be sure that all end stops are installed and secured at every track end

APPENDIX A: PREVENTATIVE MAINTENANCE - CONTINUED

A2 - CHECK LIST FOR QUARTERLY MAINTENANCE

- Complete the entire visual inspection in Section A.1
- Check that all lifts are getting charge from charger
- Check that all brackets holding track are secured and do not move


- Check that all bracket bolts are tightened to 5 ft/lb
- Check that all endstops bolts are tightened to 25 ft/lb (two bolts per end stop)
- The lift should move freely and traverse entire length of track system

- All O-rings (4) should be inspected and replaced if there are any signs of brittleness or stretching. It is recommended to change O-rings every 6 months regardless of their condition. O-rings are subject to ambient air condition, temperature, frequency of use, etc. ; all of which may affect life expectancy. Indicators of O-ring issues are:
  - If slackening of belt does not immediately engage lower limit switch
  - If fully wound belt does not immediately engage upper limit switch. (Refer SECTION 8)

CHECK FUNCTION UPPER LIMIT SWITCH

- Using the handset, check the function of the Upper Limit Switch (Refer to SECTION 8) by winding in the belt fully, thereby activating the Upper Limit Switch. If the switch does not shut down the unit, change both O-rings and repeat this procedure. In the event the switch still does not activate, the metal arm of the switch can be adjusted slightly in order to make better contact with the roller. To adjust: bend the metal arm out slightly using a pair of needle -nose pliers. (Refer to SECTION 8)

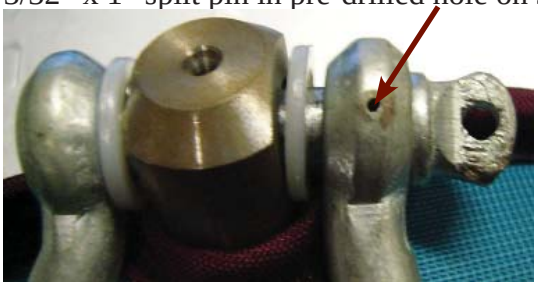
CHECK FUNCTION LOWER LIMIT SWITCH

- Check the function of the Lower Limit Switch (Refer to SECTION 8) by using the down button on the hand control to unwind the belt. While the belt is unwinding under weight of the CARRY BAR, grab the CARRY BAR with your free hand allowing the belt to slacken. The strap should cease to unwind. If the belt continues to unwind, check the O-rings on the Lower Limit Switch and replace if necessary. Alternately, check to ensure the roller (the O-ring is attached to this roller) moves freely in the slot on the side plate. If necessary, clean / remove any debris in this area.

APPENDIX A: PREVENTATIVE MAINTENANCE - CONTINUED

A3 - CHECK LIST FOR SEMI-ANNUAL MAINTENANCE

- Complete all steps noted above in section A.1 AND A.2.
- Remove track lift from track and place it on a clean and flat surface. (SEE SECTION 1)
- Remove cover of the ceiling lift by removing all four nylon screws. (SEE SECTION 2). As you separate the cover from the lift chassis, you will need to unplug the connector to the cover mounted electronics.
- Engage the Emergency Lowering on the lift unit. The belt should unwind and a high-pitched sound should be heard within the lift casing. If there is no sound,then there is likely an issue with the PC Control Board. If this is the case, REPLACE PC BOARD per SECTION 7.
- Check that all other buttons and switches on the lift and the handset function properly.
- Inspect the shackle at the top of the carry bar to ensure the split pin is still in place. If not, insert a 3/32” x 1” split pin in pre-drilled hole on shackle.



- Using the Up and Down buttons, on the handset, move the Carry Bar in both directions and check for smooth descent & ascent of belt. If vibration of lift is deemed excessive, then contact Barton Medical.
- Examine the strap for any fraying or broken stitching. In the event of either being present, change the belt using the procedure in SECTION 6:
- Inspect all hardware fasteners on unit to ensure they are secured tightly. Hand tightens if required.
- Visually inspect for uneven wear around the motor and gear parts. Should excessive wear be evident contact the Barton Medical at 1-877-8-BARTON
- Reinstall the cover.

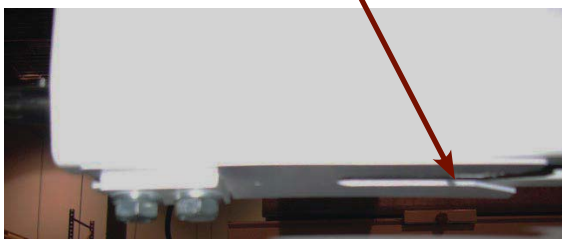
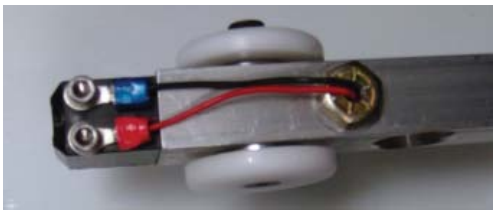
APPENDIX B: TROUBLE SHOOTING

Problems / Symptom	*Resolution*	*Possible Root Cause*
1. Lift does not respond to any commands from the hand control	Pull the emergency cord and try again. •If the lift does not work try next step	The emergency stop has been activated.
	Try the controls on the motor (be sure to reset the emergency stop again). •If the lift now works, the hand control needs to be replaced. •If the lift does not work but the green power LED and the yellow charge LED both light up – call for service (problem with PC board) •If the lift does not work, THENtry next step	Problem with the hand controller
	Return the motor to the charger and check that the LED indicates that the unit is taking a charge. Place the motor in charging position for three hours then try again. If it does not work - REPLACE BATTERY PER SECTION 3.	Dead Battery
2. Sporadic malfunction of the controller	***Resetting the unit*** A potential source of a sporadic malfunction is a problem with the control board. The control board can be reset by pressing the unit emergency down switch for one second and let it off. Wait two seconds and turn the unit power switch off. Wait two more seconds and turn the unit power switch back on. The green power LED should now be on.	Problem with the control board.
3.The carry bar does not lower	It is safe to continue with the lift-and transfer in progress by placing a hand on the carry bar and applying slight downward pressure. Following completion of the lift-and-transfer, have the lift serviced to correct the misalignment.	The lower limit switch (also known as the “slack tape switch”) has likely gone out of alignment.
4. The lift continues to perform a function even though the function key is no longer being pressed	Turn off the power to discontinue the function. Then press EMERGENCY LOWER, the only function on the lift, which will operate without first powering up the electrical system. Have the lift serviced for switch or hand control replacement	

SECTION B: TROUBLE SHOOTING - CONTINUED

Problems / Symptom	*Resolution*	*Possible Root Cause*
5. The lift does not rise	Lift will not rise when docked in charger. Be sure lift is out of charger	
	Lower the lift to see if the strap is twisted or not. Untwist the strap and resume lifting within the 10-degree limit. No service call is required, if the lift now operates correctly. If the lift does not function, call for service	Lifting at an angle of more than 10 degrees perpendicular to the direction of travel may cause the strap to fold and could trip the upper limit switch (also known as the "tape thickness switch"). The lift will stop
6. LEDs	FLASHING red LED on the lift indicates overheat, overload or electrical fault conditions. The first two are caused by operating conditions and the third one indicates detection of an electrical fault during power-up.	
	2 flashes followed by pause overheat condition	Overheat condition Motor wire short to battery wire Control board failure
	Continuous flashing	Overload condition Gear box require service
	3-7 flashes followed by pause	Various electrical fault modes
	•If someone is in the lift when the red LED starts flashing, use either of the DOWN buttons on the hand control to lower the person. If the DOWN buttons do not operate, use the appropriate emergency control on lift.	
	RED LED ON STEADY On steady at power up with beeper on continuous	Due to releasing of On/Off button before diagnostics complete (On/Off must be held for a minimum of 2 seconds to power up).
	On steady and beeps steady during a lift or lower	LOW BATTERY
	On steady with beep steady at all times	Control board failure Motor short fault.

SECTION B: TROUBLE SHOOTING - CONTINUED

Problems / Symptom	*Resolution*	*Possible Root Cause*
8. Lift does not stay in charging station (OPERATOR TRAVERSE MODEL	Check to see if the Securing Plate is installed. If there is no securing plate, install the securing plate.  Replace the securing plate if the existing one is worn out.	Securing Plate 
9. Lift stuck in charging station (RETURN TO CHARGE)	Check the ring terminals on the trolley to ensure the alignment with the block.  If the ring terminals are not aligned to the block, loosen the screw and align the ring terminals to the block. •If the lift still stuck try next step	Ring terminals for the charging system on the trolley are out of alignment.
	Replacing charger end stop. •Follow step 1.1 to 1.7 to remove the charger end stop •Follow step 1.1 to 1.7 in reverse to install new charger end stop.	Charger End Stop

SECTION B: TROUBLE SHOOTING - CONTINUED

Problems / Symptom	*Resolution*	*Possible Root Cause*
10. Failure to power up	• If the POWER button is released too quickly, the red and green LEDs stay on and an alarm sounds. Use the POWER button to turn the system off and start over. • If a function key is pressed before the system has powered up (with or without the red LED flashing) use the POWER button to turn the system off and start over	Due to operator error
	• If an electrical fault is detected during power-up, the red LED starts flashing. Use the POWER button to turn the system off and have the lift serviced.	Due to system failure
11. Motor is not charging while on the charging station	• Motor is not charging while on the charging station • Check the charger is plugged in • Ensure the outlet has power • Charger is not making good contact to the charging plate	 Due to operator error Replace charger end stop
12. Motor does not traversing left or right	• Reset the control board by pressing emergency down for 2 seconds and press power on for 2 seconds (perform this task 3 cycles) • Check the chain to the trolley for tightness (If the chain loose or missing, install the chain) If the unit still not working	Control board need to be reset. Trolley chain become loose Replace PC board

APPENDIX C : PARTS LIST

Part Number	Description
300-000	WEBBING - SEATBELT - 1 15/16
500-199	O-RING Ø.739 x .070
500-463	O-RING Ø.801 x .070
500-226	BATTERY - 12v 4.0Ah
500-071	MEMBRANE SWITCHES (Set of 2)
102-615	PULL CHAIN SWITCH - EMER.STOP.
102-785	Pull Cord Ass'y - Emergency(Red)
102-676	SCREW, 10-32x1/2", Rnd.Hd_NYLON.
500-510	PCB - MAIN CTRL'R w/ RTC TRAVERSE
500-268	CHAIN - ¼" PITCH
500-269	CHAIN CONNECTOR LINK - ¼" PITCH
500-042	SPROCKET
RT-415-10	6-BUTTON STD H'CTRL [RTC]
RT-410-10	6-BUTTON STD H'CTRL [PT]
RT-400-10	4-BUTTON STD H'CTRL
550-005	Wheel Sub-ASSY [4wh.trolley]
550-020	Wheel [power] Sub-ASSY [4wh.trolley]
500-076	PCB - LED CTRL'R
RT-120-30	Endcap - Readytrack
RT-120-32	Endcap - Readytrack Charger
500-601	SECURING PLATE, CHARGER END STOP
500-604	ENDSTOP KIT(PIN, RING, AND CAP SCREW
500-605	CHARGER END STOP KIT
102-615	EMERGENCY STOP SWITCH
500-325	WIRE HARNESS - LOWER LIMIT SWITCH
500-445	WIRE HARNESS - UPPER LIMIT SWITCH
00-500-085	WASHER_Thrust [CL carrybar]
CTL1500	CTL HARDWARE KIT