

LikoGuard™

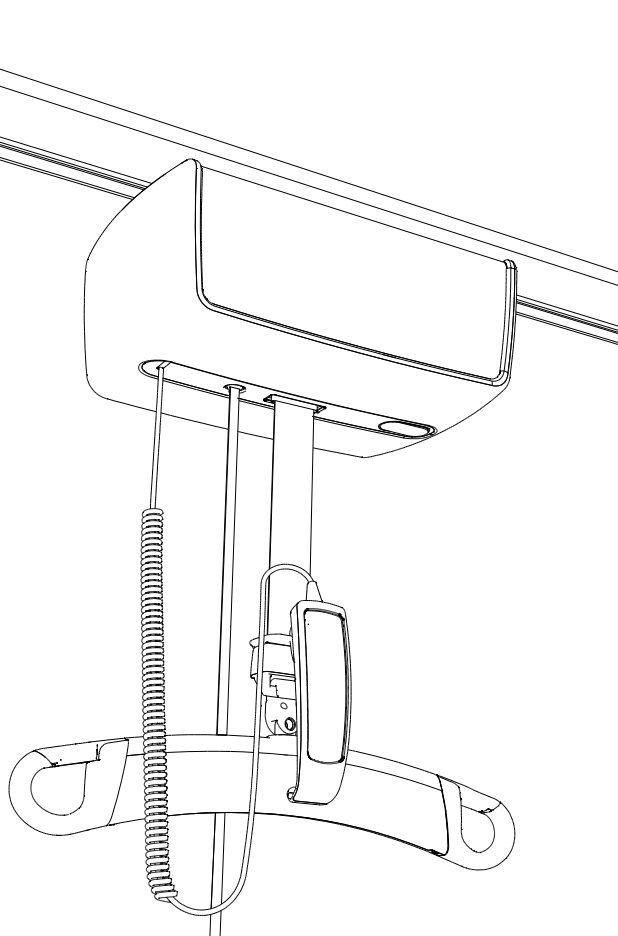
Overhead Lift

Service Manual



LikoGuard™ L Product No. 3301030

LikoGuard™ XL Product No. 3301040





*In this document, this warning symbol indicates that special care should be taken.
If instructions are not followed there is a risk of serious injury to patient or caregiver.*

Spare part statement

Liko AB will as a manufacturer of stationary & mobile lifts keep spare parts available for 10 years after the last manufacturing date of the product.
Spare parts are available in the spare parts list or in the Service Manual for each model of lift.
Components (manufacturing parts) are not available after last manufacturing date.

Repairs and maintenance may only be performed by personnel authorized by Hill-Rom and using original Liko™ spare parts.
For information regarding Service and Maintenance education, contact your Hill-Rom representative.
For contact information please visit our website: www.hill-rom.com

Table of Contents

LikoGuard™ overhead lift

	<u>Page</u>
1.0 Technical Data	
1.1 Dimensions.....	4
1.2 PCB board Wiring Diagram	5
1.3 Rechargeable Li-Ion Battery.....	5
2.0 Troubleshooting	
2.1 General Troubleshooting	6
2.2 Error Code- General Information.....	7
2.3 Error Code- Service Advice	8
3.0 HandControl LG with display	
3.1 Assembly of HandControl LG with display for service....	10
3.2 General Information	11
3.3 Pop-Up messages.....	12
3.4 Next Service	13
3.5 Display language	13
3.6 Password	14
3.7 Reset Service	14
3.8 Power Consumption.....	15
3.9 Transfer Motor	15
3.10 Overload.....	15
3.11 End Position	16
3.12 Error Message	16
3.13 Set Service Interval	16
3.14 Data Storage.....	17
3.15 Data Transfer	17
3.16 System	18
3.17 Calibration overview	18
4.0 Spare Parts Positions.....	19
5.0 Spare Parts Assembly information	20
6.0 Spare Parts List.....	21
7.0 Periodic Inspection Information	24
8.0 Preventive Maintenance	25
9.0 Installation Instructions	26
10.0 Product Changes.....	27

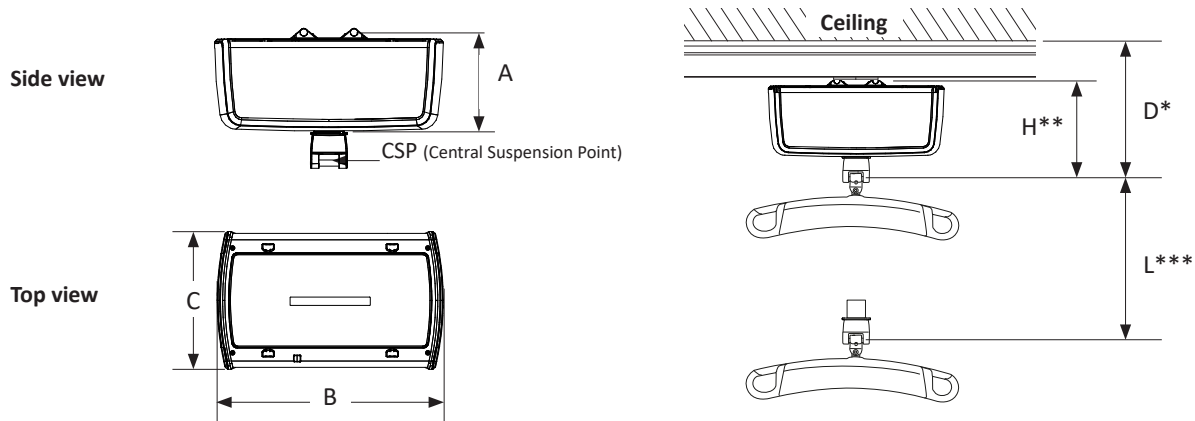
1.1 Technical Data

Maximum load	L: 272 kg (600 lbs.) XL: 363 kg (800 lbs.)	Emergency lowering device:	Mechanical
Battery:	25.2V / 4.2 Ah	Emergency raising:	Electrical
Main board memory backup battery:	Button cell battery Lithium 3 V 225 mAh, CR2032	Duty cycle:	10/90 max. 2 min (0 - 272 kg) (0 - 600 lbs.) (Intermittent power) 5/95 max. 2 min (>272 - 363 kg) (> - 800 lbs.)
Battery charger:	Built-in battery	Sound level:	70 dB(A)
Power source:	Wall charger, Art. No. 3305010 - 3305050* Input: 100-240 VAC, 50/60 Hz, 0.9 A Output: 33.5 VDC, 1.36 A IRC charger, Art. No. 3305510 -3305550** Input: 100-240 VAC, 50/60 Hz, 1.2 A Output: 27.6-29.5 VDC, 1.5 A	Lift motor	
Lifting speed:	5-6 cm/sec with a load between 0 - 100 kg (2 - 2.3 inch./sec. with a load between 0 - 220 lbs.) 4-6 cm/sec with a load between 100 kg - SWL (1.6 - 2.3 inch./sec. with a load between 220 lbs. - SWL)	Protection class:	IP X4 (humidity resistance)
Lifting interval:	Min. 2300 mm	Hand control	
Electrical data:	25.2 V / 30 A	Protection class:	IP X7 (humidity resistance)
Fuse:	Type: 0287020 Voltage: 32VDC Breaking capacity: 1000A Operation Speed: 150ms-5s	Operating forces of controls:	4.9 N
Liftmotor Weight:	14 kg (31 lbs.)	Surrounding environment:	Temp. +5 ° C till +40 ° C, relative humidity 15% to 93% non-condensing. Barometric pressure range of 70 kPa to 106 kPa.

- Intended for indoor use.
- Protection class against electric shock Type BF, (Wall Charger).
- Protection class against electric shock Type B, (IRC Charger).

* Wall charger; full charge is achieved after maximum 6 hours.
** IRC charger; full charge is achieved after maximum 16 hours.

WARNING! This product shall only be used in the recommended environment.



Measurements in mm.

A	B	C	D*	H**	L***
178	410	250	323	232	2300

Measurements in Inch.

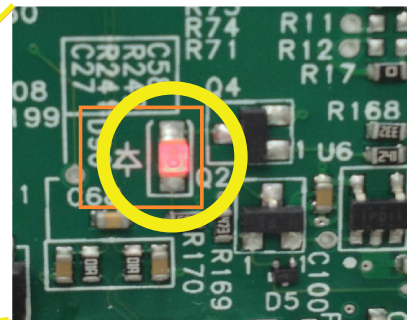
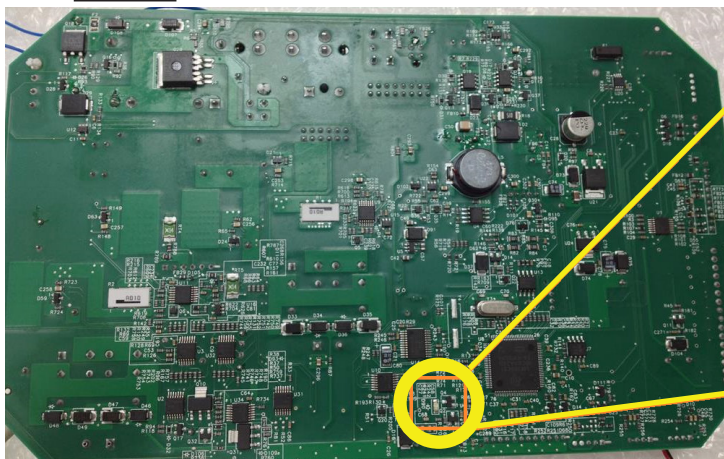
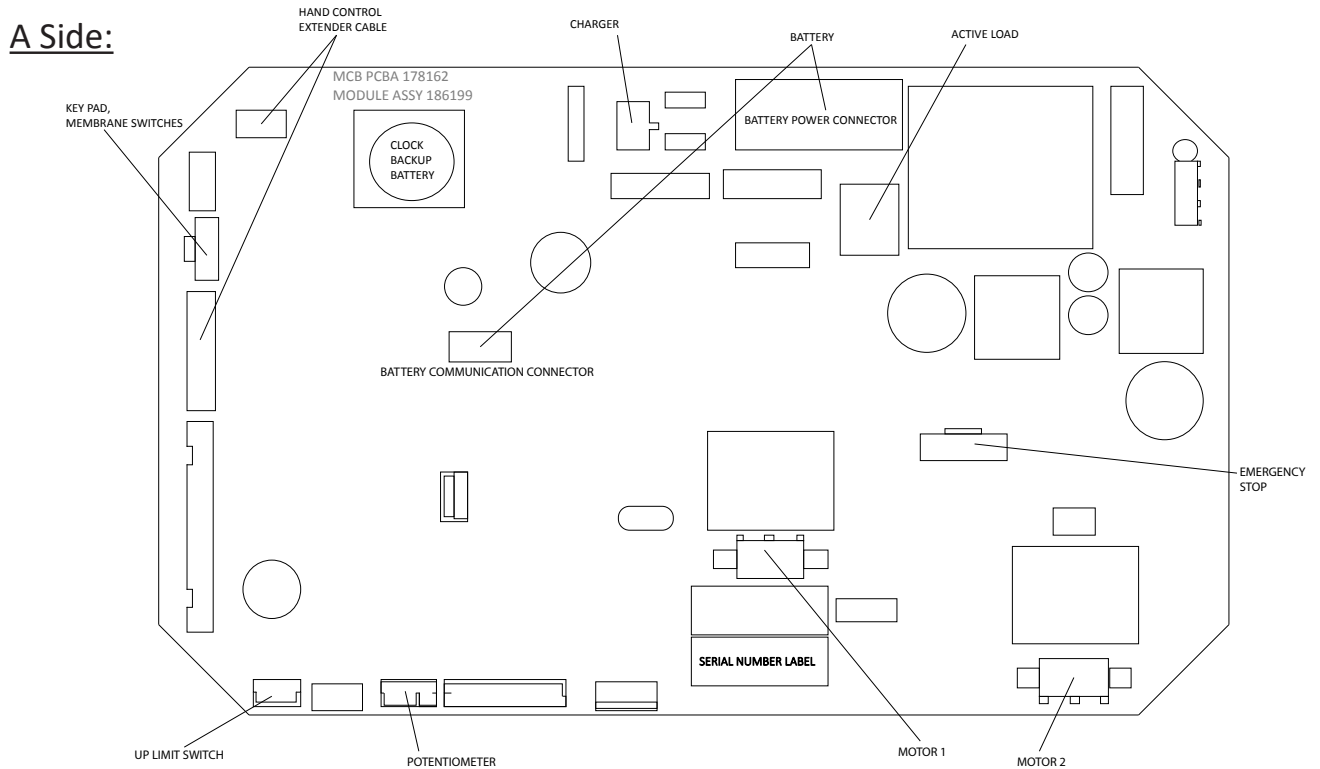
A	B	C	D*	H**	L***
7	16.1	9.8	12.7	9.1	90.6

* Min. distance from ceiling to CSP at max. lifting height.
** Installation dimensions: the distance between the attachment point for the lift unit on the carriage and the CSP at max. lifting height.
*** Lifting interval: the distance between max. lifting height and min. lifting height measured in CSP.



The product fulfils the requirements of:
ISO10535:2006, IEC60601-1, IEC60601-1-2, IEC60601-1-6, IEC60601-1-11, ANSI/AAMI ES60601-1, CAN/CSA C22.2 No 60601-1

1.2 PCB Board Wiring Diagram



Watchdog LED

Flashes continuously until 20 min after lift was last used.

1.3 Rechargeable Li-Ion Battery

Safety advice:

Do not open the battery. Do not crush, disassemble, drop or solder. Lithium-ion batteries may present a risk of fire or explosion or chemical burn when mistreated. Do not short circuit, puncture, incinerate, crush, immerse, force discharge or expose to temperatures above the declared operating temperature range of the product. Wrong handling can cause fire or explosion. In case of fire, use dry chemical extinguishers.

If chemicals leak attend these advices:

Skin contact; Contents of an opened battery can cause skin irritation. Wash skin with soap and water.

Eye contact; Contents of an opened battery can cause eye irritation. Immediately flush eyes thoroughly with water for 15 minutes and seek medical attention.

Charging Instructions:

Do not exceed surrounding temperature range (+5 to +40° C). Charge only with specified charger designed for this battery.

2.1 General Troubleshooting

The lift doesn't work



1. Check that the Emergency Stop button is not activated. (a signal will be heard if the emergency stop is activated and the hand control buttons are pressed)
 2. Charge the LikoGuard™ Overhead lift.
 3. If the lift still does not work satisfactorily, please contact Hill-Rom.
-

A repeated signal can be heard from the lift



1. Charge the LikoGuard™ Overhead lift immediately.
 2. If the lift still does not work satisfactorily, please contact Hill-Rom.
-

The lift stops in the high position



1. Check that the Emergency Stop button is not activated.
 2. Use the mechanical or the electrical emergency lowering device to lower the patient onto a firm surface.
 3. Charge the LikoGuard™ Overhead lift.
 4. If the lift still does not work satisfactorily, please contact Hill-Rom.
-

The lift does not achieve maximum lifting capacity



1. Charge the LikoGuard™ Overhead lift.
 2. If the lift still does not work satisfactorily, please contact Hill-Rom.
-

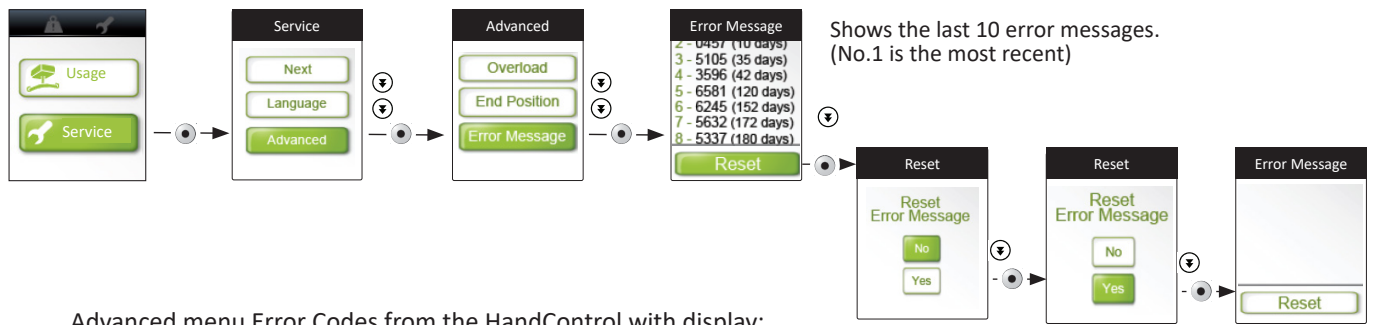
In the event of excessive noise from the lift!



Please contact Hill-Rom.

2.2 Error codes- General Information

HandControl LG with display



Advanced menu Error Codes from the HandControl with display:

The error code consists of 4 digits. The first two digits indicate the origin of the failure in the soft ware (the SW item e.g. the battery handler, motor controller) – table 1.

The second two digits are the type of failure e.g. RTC failure, SPI bus failure. – table 2.

Error Code Examples:

0319: 03 corresponds to – motor controller
19 corresponds to – over temperature error
=> High temperature in the system

0a0b: 0a is the – battery handler
0b is an – I2C bus error
=> Failure occurred on the battery communication line

TABLE 1

Software item	Description
00	Lift Motor driver
01	Transfer motor driver
02	Switch motor driver
03	Motor controller
04	Data storage
05	Pendant handler
06	Real time clock (RTC) handler
07	Sensor handler
08	Power handler
09	Service
0a	Battery handler
0b	System handler
0c	Keyboard handler
0d	Charger handler
0e	Input/Output (IO) expander

TABLE 2

ID	Description
01	Read failure on the SPI bus
02	Write failure on the SPI bus
03	Read failure on the UART bus
04	Write failure on the UART bus
05	Write failure on the I2C bus
06	Read failure on the I2C bus
07	Mutex failure
08	Q failure
09	Eeprom failure
0b	General I2C bus error
0c	Time out error on the I2c
0d	RTC is desynchronised
0e	Charging error
0f	Charging time out error
10	Inrush error
11	Current difference error
12	Potentiometer calibration error
13	Limit switch error
14	No change in the potentiometer error
15	Lower limit switch failure
16	Upper limit switch failure
17	Active load switch missing
18	Current change invalid
19	Overtemperature error
21	Indicator error for software over current
22	Indicator error for hardware over current
30	Checksum failure
31	Critical data read from eeprom failure
32	Pendant communication failure
33	Pendant power down
FF	Error code not defined

2.3 Error codes- Service Advice

HandControl LG with display

Error code	Meaning:	Recovery:	Service advice:
0310	Motor current inrush error	5 minute time out before the system is operational again	If error repeats; Contact Hill-Rom
0311	Current difference greater than 5Amps between the motors	5 minute time out before the system is operational again	If error repeats; Contact Hill-Rom
0314	Potentiometer has failed	5 minute time out before the system is operational again	Check : 1. Potentiometer connects to the gear wheel 2. Electrical connection to the potentiometer 3. Electrical connection to the board 4. Continuity of the cable from potentiometer to board
0318	Invalid current read when lift not moving	5 minute time out before the system is operational again	If error repeats; Contact Hill-Rom
0319	Overtemperature occurred	System does not allow operation if the temperature is too high. When the temperature cools down the system can operate again	If error repeats; Contact Hill-Rom
0320	Error occurred during motor calibration	System can function but using default motor calibration values	Contact Hill-Rom
0321	Overload occurred detected by the software, should only occur if lifting over the SWL, (Software trigger)	Lift should allow downward movement, upward movement available after 2 seconds	If this occurs at loads below the SWL; contact Hill Rom. If this occurs above the SWL, the lift is being used out of specification.
0322	Overload occurred detected by the software, should only occur if lifting over the SWL, (Hardware trigger)	Lift should allow downward movement, upward movement available after 2 seconds	If this occurs at loads below the SWL; contact Hill Rom. If this occurs above the SWL, the lift is being used out of specification.
0430	External memory failure - generates a service request*	Should recover automatically	Check parameters and reset service**
0431	External memory failure - generates a service request*	Should recover automatically	Check parameters and reset service**
0605	Bus communication error		If error repeats; Contact Hill-Rom
0606	Bus communication error		If error repeats; Contact Hill-Rom
0607	Bus communication error		If error repeats; Contact Hill-Rom
0609	Bus communication error		If error repeats; Contact Hill-Rom
0630	External memory failure - generates a service request*	Should recover automatically	Check parameters and reset service **
0631	External memory failure - generates a service request*	Should recover automatically	Check parameters and reset service**
060b	Bus communication error		If error repeats; Contact Hill-Rom
060c	Bus communication error		If error repeats; Contact Hill-Rom
090d	RTC (real time clock) is desynchronised, service flag should be set		Replace the Main Board battery (button), reset service **

* For the HandControl without display service request is indicated by the wrench icon LED.
For the Hand Control with display service request is indicated by the display icon (top right).

** To reset service, see 4.7

2.3 Error codes- Service Advice

HandControl LG with display

Error code	Meaning:	Recovery:	Service advice:
0a06	Bus communication error	System will stop articulation until error clears	If error repeats; Contact Hill-Rom
0a07	Bus communication error	System will stop articulation until error clears	If error repeats; Contact Hill-Rom
0a0b	Bus communication error	System will stop articulation until error clears	If error repeats; Contact Hill-Rom
0a0c	Bus communication error	System will stop articulation until error clears	If error repeats; Contact Hill-Rom
0a0e	Charge fault in Battery	Non-critical error , software tries to recover by re-writing / re-reading. Articulation not impacted	If error repeats; Contact Hill-Rom
0a0f	Charger timeout failure	System will start charging after 5 minutes once the lift is used again (by pressing up/down key)	If error repeats; Contact Hill-Rom
0b16	Upper limit switch failure		Check the upper limit switch connection on the board. Check the upper limit switch wiring is undamaged (no short circuit) Check the switches are functional
0b17	Active load connection failure		Check the active load connection on the board is correct
0b32	HandControl is not responding		Plug in the HandControl Disconnect the battery and reconnect. WARNING! When disconnecting the battery: Disconnect communication connector before power connector When connecting the battery: Connect power connector before communication connector If error repeats; Contact Hill-Rom
0c31	Communication failure with the HandControl		If error repeats; Contact Hill-Rom
0e05	Bus communication error		If error repeats; Contact Hill-Rom
0e06	Bus communication error		If error repeats; Contact Hill-Rom
0e07	Bus communication error		If error repeats; Contact Hill-Rom
0e0b	Bus communication error		If error repeats; Contact Hill-Rom
0e0c	Bus communication error		If error repeats; Contact Hill-Rom

3.1 Assembly of HandControl with display, for service

HandControl LG 2-Button with display

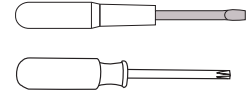
Product No. 3306020



⚠ Before assembly:

- ESD protection is required.

Tools required:



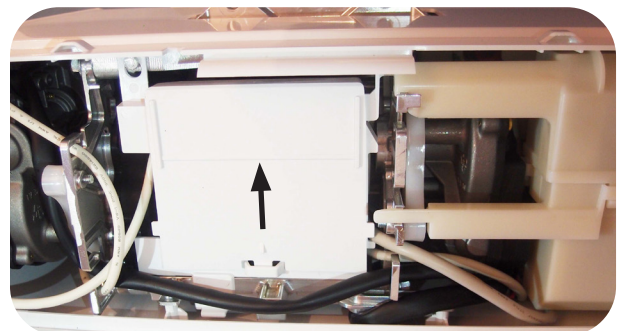
T15

When the HandControl with display is required for service and the HandControl without display is attached to LikoGuard™ Overhead Lift, this assembly instruction can be used:



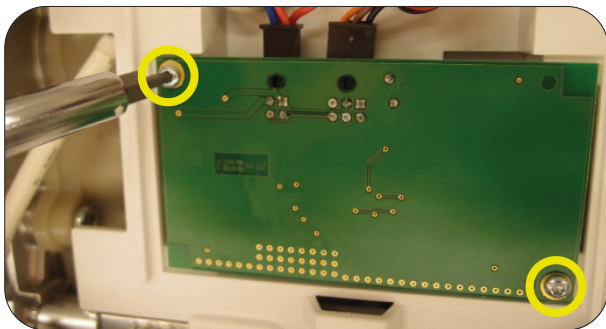
Step 1.

- Activate the emergency stop
- Remove side cover (Screwdriver)



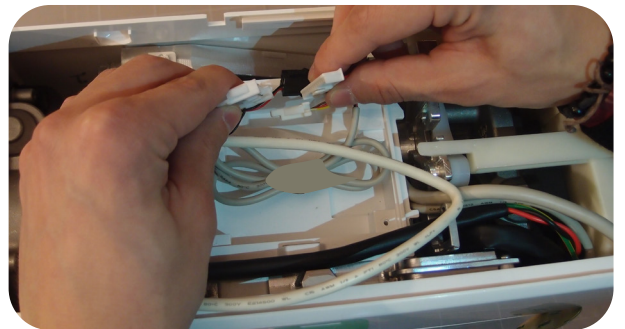
Step 2.

- Release the HandControl cables to access the cover. (White cable)
- Remove the cover by sliding it up.



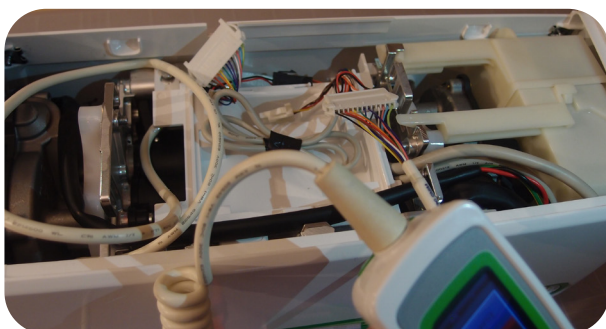
Step 3. (If Step-up card is installed)

- Remove the board, 2xT15 screws.



Step 4.

- Disconnect the HandControl without display.

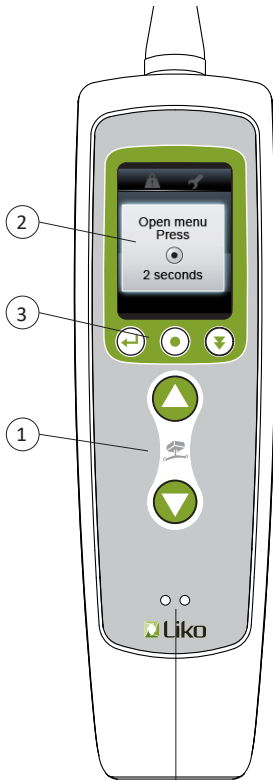


Step 5.

- Connect the HandControl with display and start the service.

3.2 General Information

1. Operation



Up

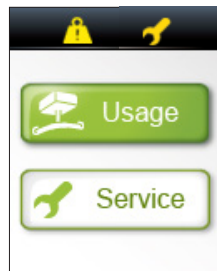
Lift movement is based on the HandControl being held in the direction shown in the picture. The movement stops when the button is released.

Down

Lift movement is based on the HandControl being held in the direction shown in the picture. The movement stops when the button is released.

2. Display

Display window consists of two fields.



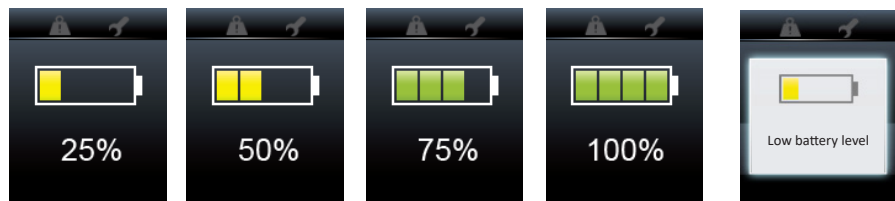
The small field shows Symbols (see 4.3)

The large field shows Information, Messages or Menus (see 4.3)

When the lift is in use the display window shows remaining battery power. The battery power is indicated by four fields.

Battery power is 100% when all fields (1-4) are lit.

If only one field is lit 25% of battery power remains, an alarm (🔔) sounds and the lift should be charged at once.



3. Manage display information in menus

“Back” “Select” “Navigate”



4. Information when charging

When the HandControl is connected to the wall charger the lamps indicate:

1 2

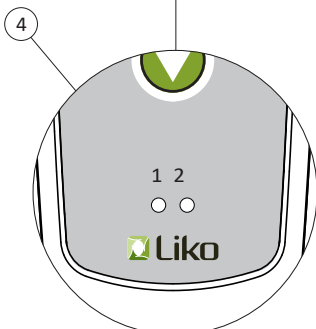


(1) yellow LED illuminates to indicate that the charger is connected to the electrical grid.



(2) yellow LED indicates that charging has begun.

(2) green LED indicates that the battery is fully charged.

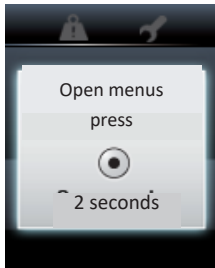



3.3 Pop-Up messages

Symbols and Information (pop-up message)

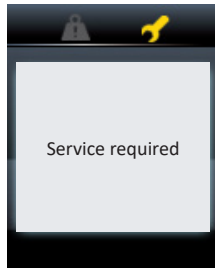
A pop-up message is displayed on screen for 5 seconds or until any button on the HandControl is pressed.

To Menus!



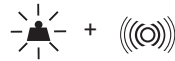
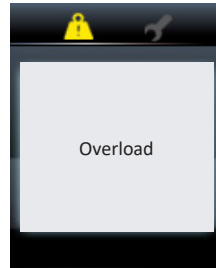
To display menus Usage or Service; Hold in the button  on the HandControl for 2 seconds.

Service required



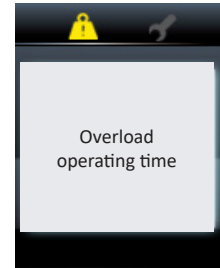
The symbol is continuously illuminated yellow.
-The lift may be used as normal until Service.

Overload (maximum load)!



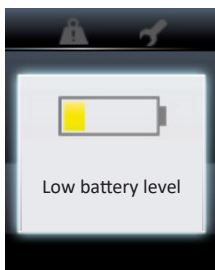
The symbol is illuminated yellow, an alarm sounds and the lift stops.
-Check load, and that the lift is not affected by surrounding objects.
When the symbol goes out and the alarm goes off the lift can be used again.

Overload (operating time)!



The symbol flashes yellow.
- The lift's operating time has been exceeded. The lift may be used to lower the patient to a secure surface. Allow the lift to rest for around 2 hours or until the message is no longer displayed when the button is pressed.
When the symbol goes out the lift can be used again.

Low battery!



The battery should be charged at once.

Broken contact!



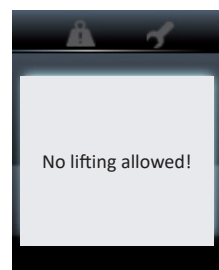
HandControl has lost signal from the lift.

Emergency stop activated!



Press in the emergency stop button on the underside of the lift to reset.

No lifting allowed!



A serious operational fault has developed. Lifting is not permitted.

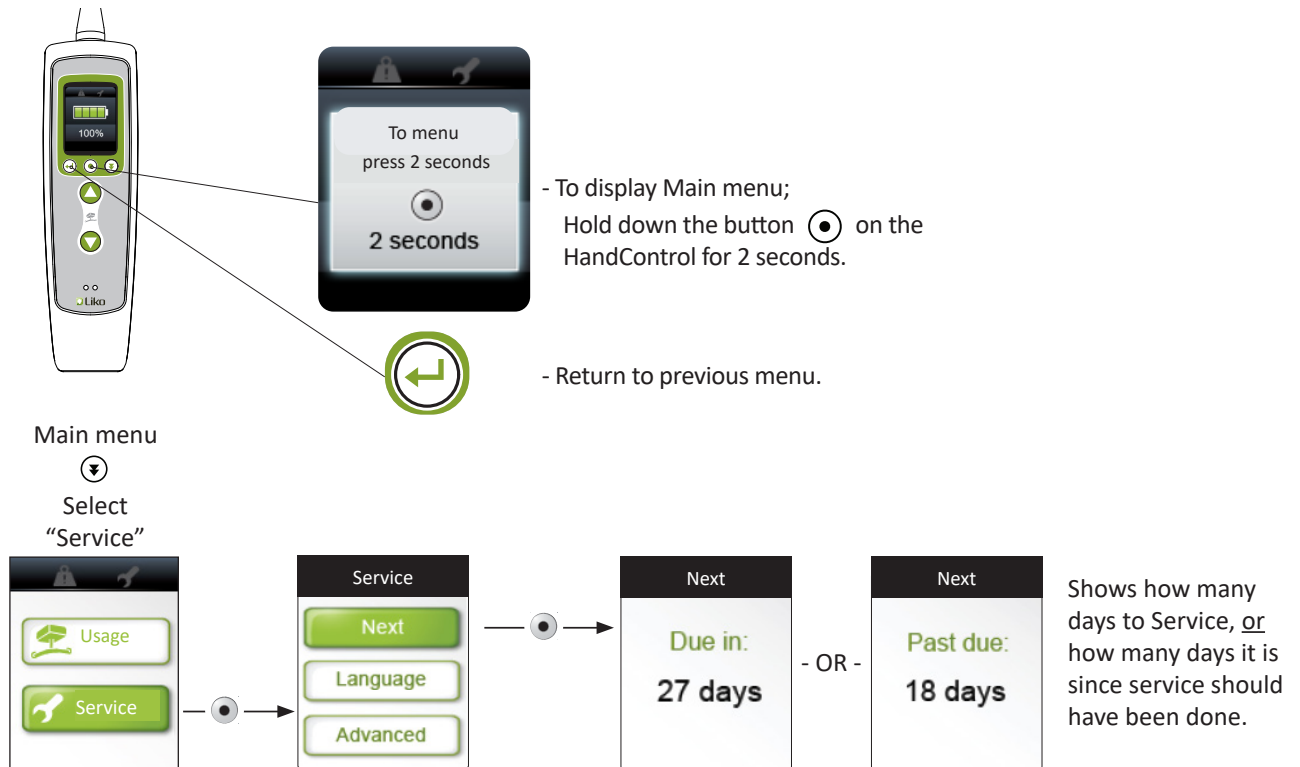
- After 1 minute of unuse (all buttons), back to password and continue the navigation through different screens.
- After 5 minutes of unuse (all buttons), back to screensaver.
- If up or down buttons are used during the screen navigation, nothing happens, the user stays on the same screen.

3.4 Next Service

Menus and information

In the display window main menu there are two choices; Usage and Service.
The Usage menu is described in the Instruction Guide.

In the Service menu it is possible to choose between 14 different languages for the display menu.

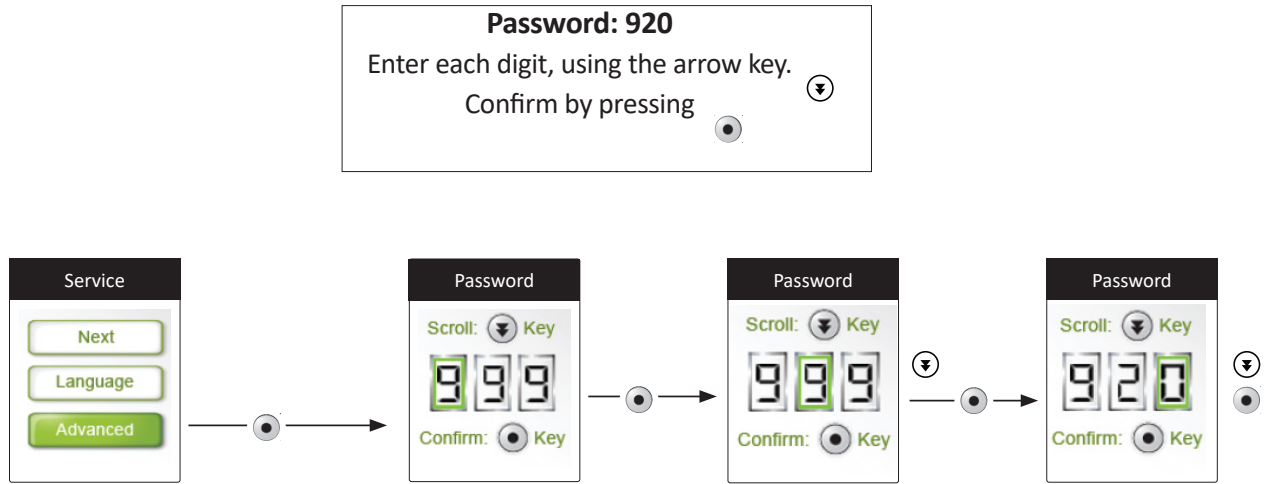


3.5 Display Language



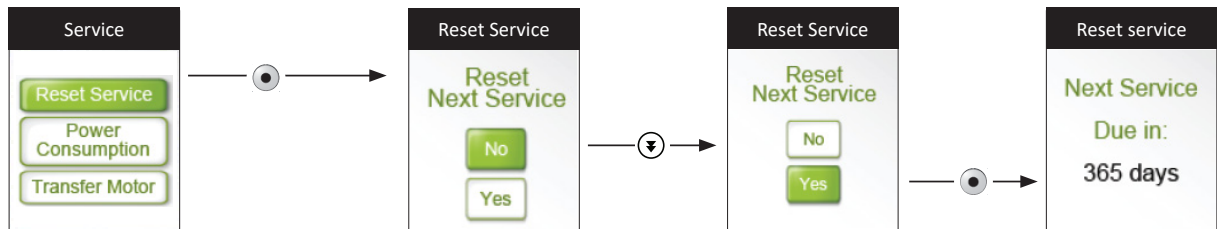
3.6 Password

Advance Service menu is password protected and intended for use by service technicians authorized by Hill-Rom.



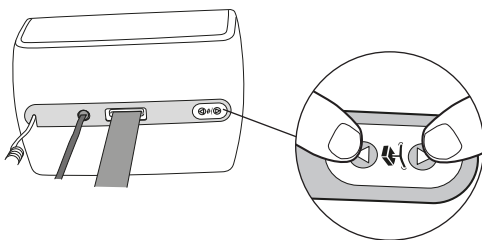
3.7 Reset Service

Reset Service only after performed approved Periodic Inspection, according to chapter 6.



Manual Service reset interface

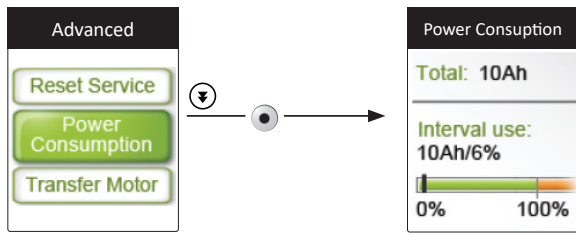
If HandControl with display is not available after performed approved Periodic Inspection, the service light can be switched off using the operation panel on the lift:



- Press and buttons on the lift, for 3 sec.
- The service light at the HandControl flashes.
- Press up-button within 5 sec.



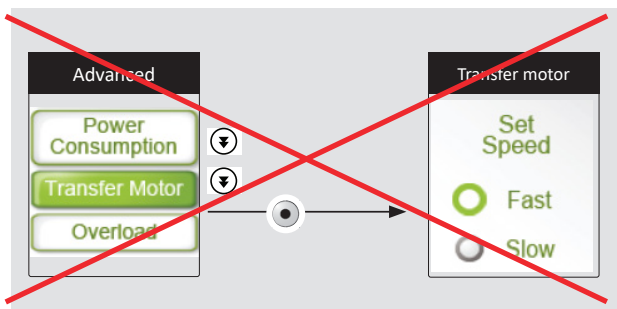
3.8 Power Consumption



Total Power consumption (Ah).
(Will never be reset.)

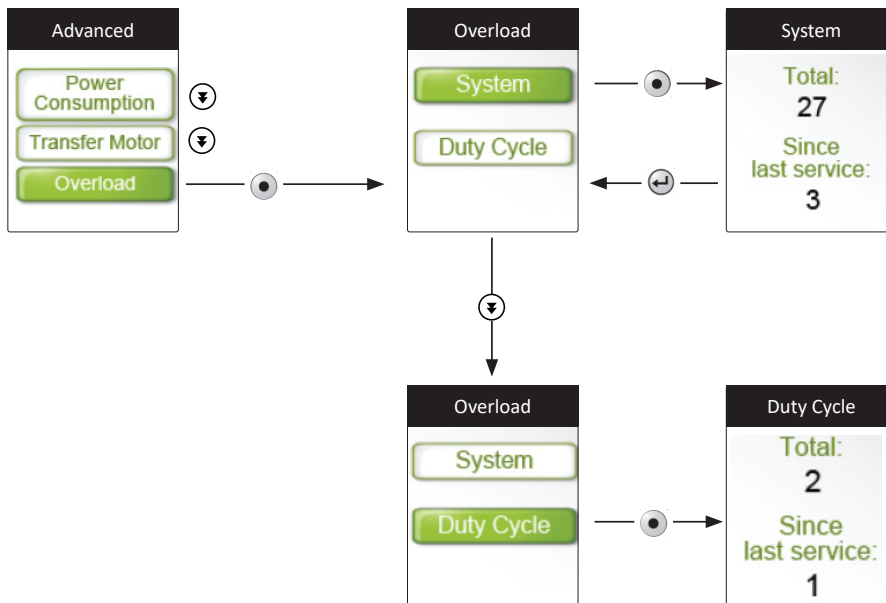
Power Consumption (Ah) since last Service Reset.

3.9 Transfer Motor



Not in use!

3.10 Overload



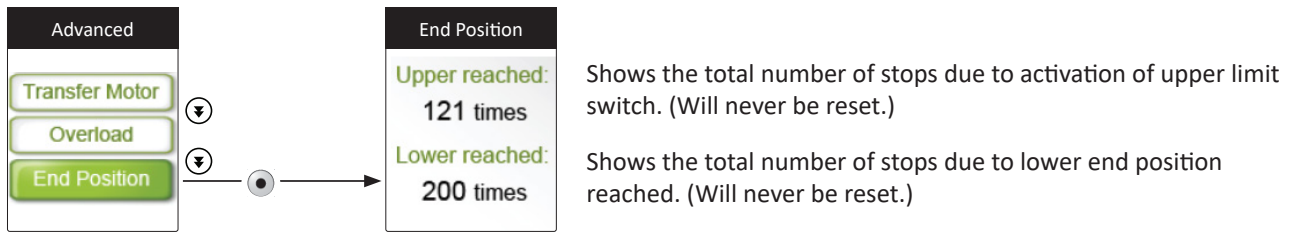
Shows total number of stops due to overload. (Will never be reset.)

Shows total number of stops due to overload from last Service Reset

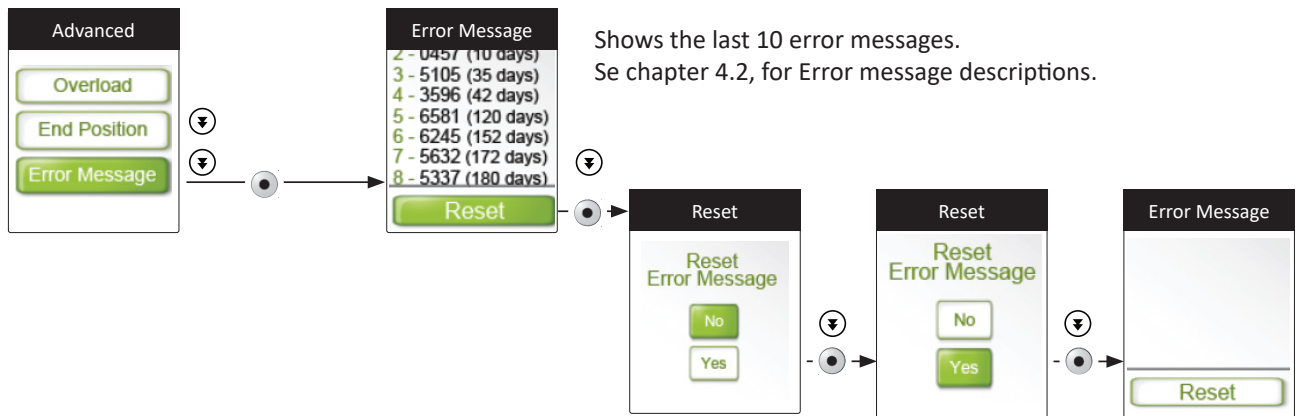
Shows the total number of stops due to Duty Cycle (exceeded max time running the lift). Will never be reset.

Shows the total number of stops due to Duty Cycle, from last Service Reset.

3.11 End position

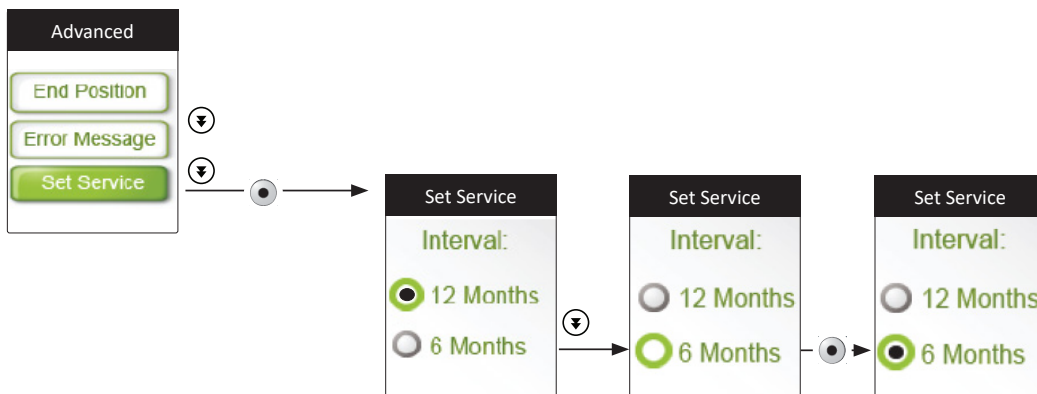


3.12 Error Message



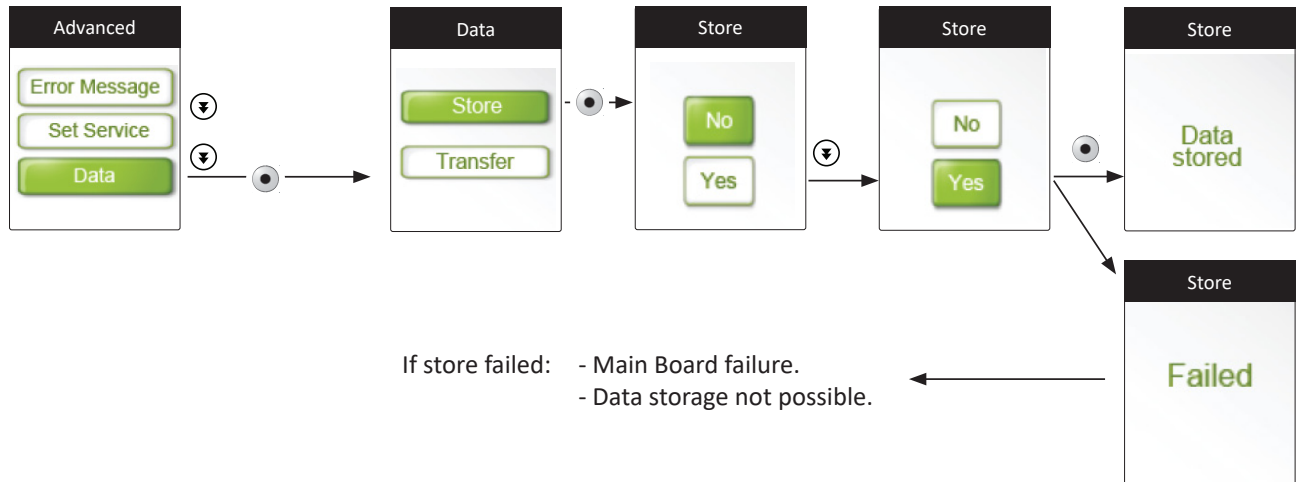
3.13 Set Service Interval

Set interval of Service Period. Shows how many months until the service symbol lights up. (Pre-Set at 12 month)



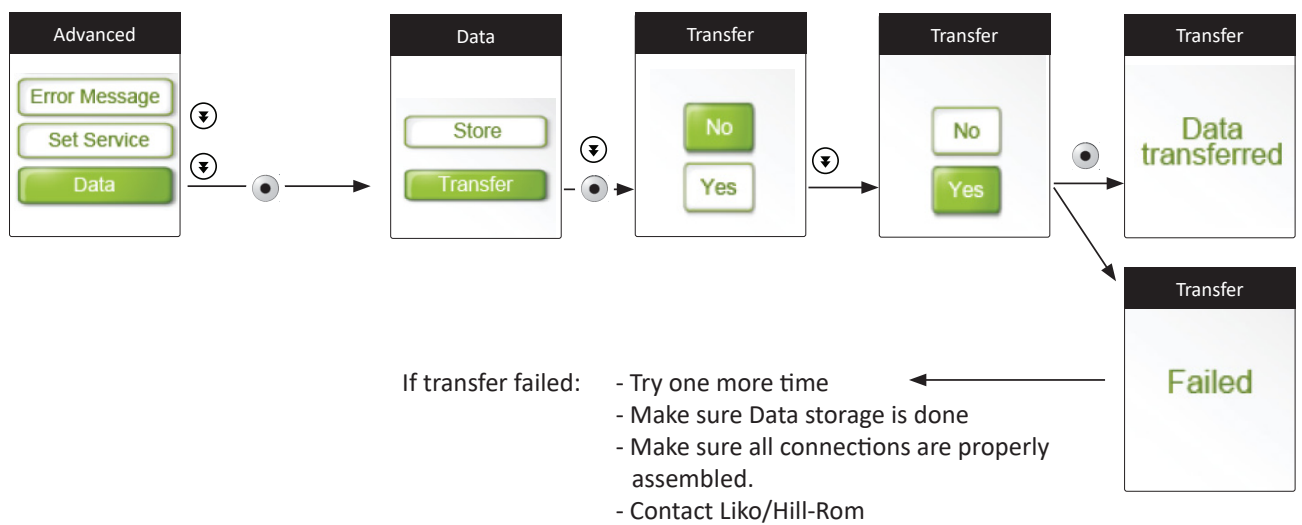
3.14 Data Storage

Store data from Main Board to HandControl. (Use when Main Board needs to be replaced).

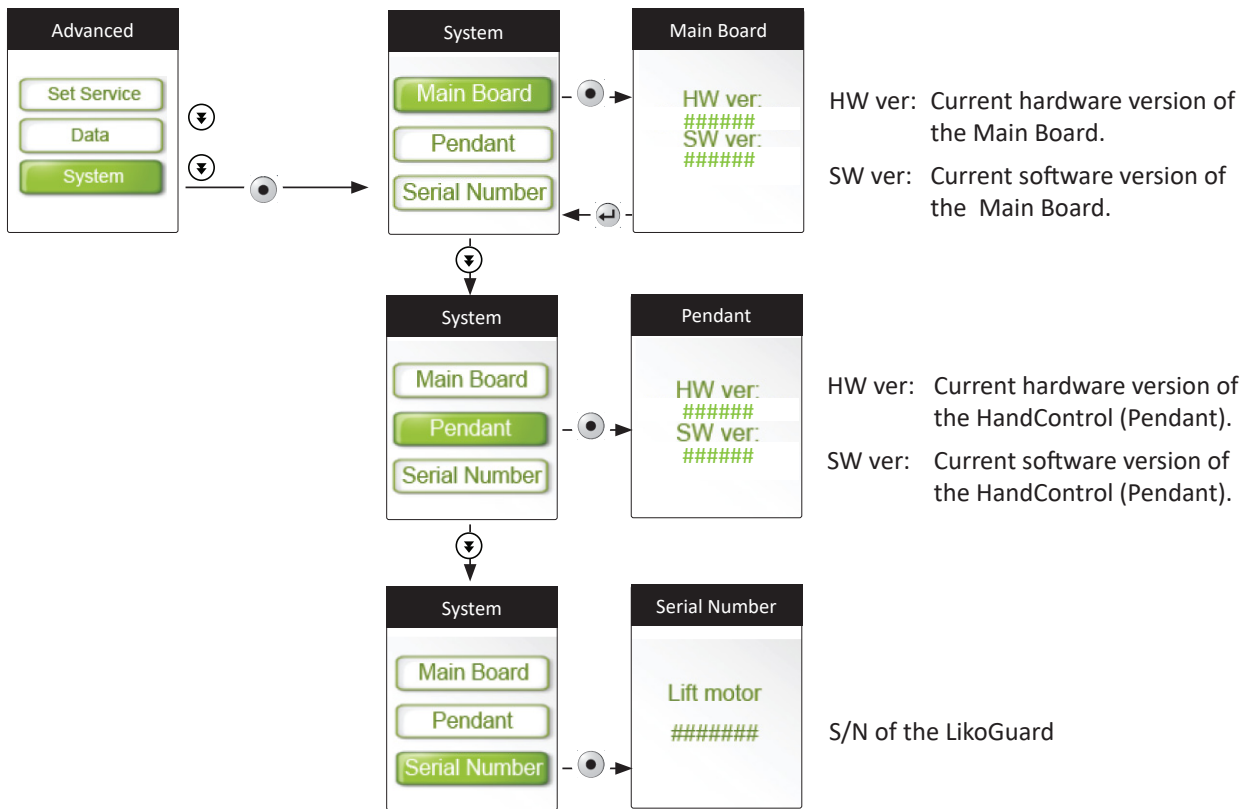


3.15 Data Transfer

Transfer data from HandControl to Main Board. Use only on Main Board replacement. Require successfully completed Data Storage 4.14.



3.16 System

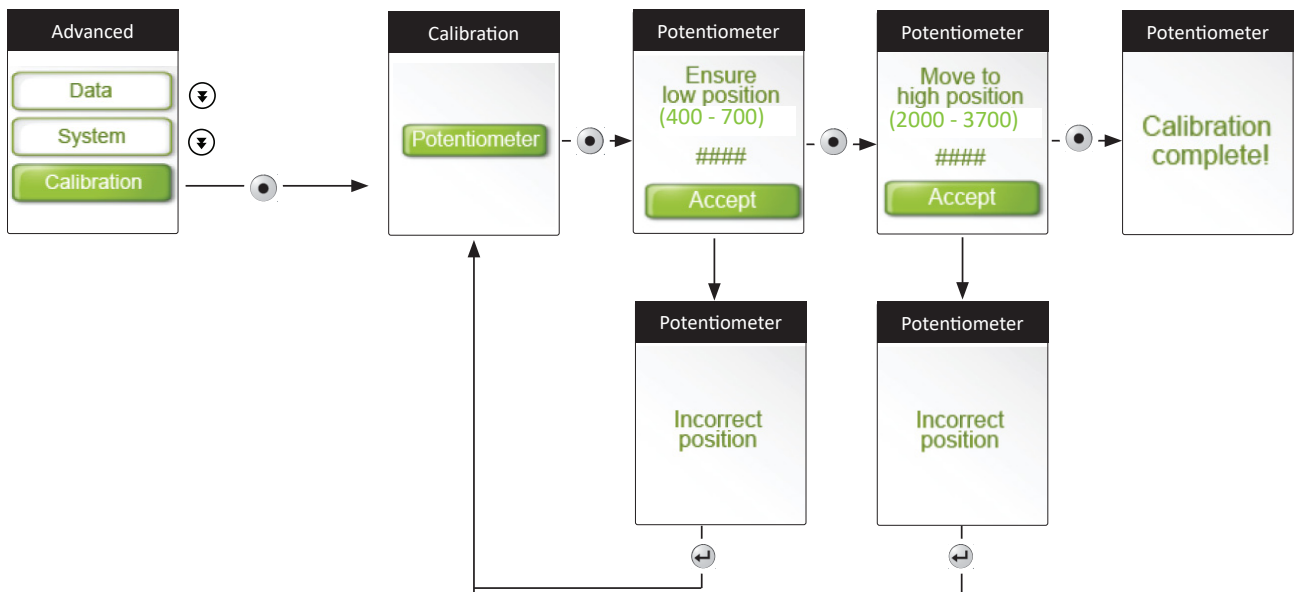


3.17 Calibration overview

Calibration of the potentiometer must to be performed when changing specified spare parts, according to the Assembly Instructions:

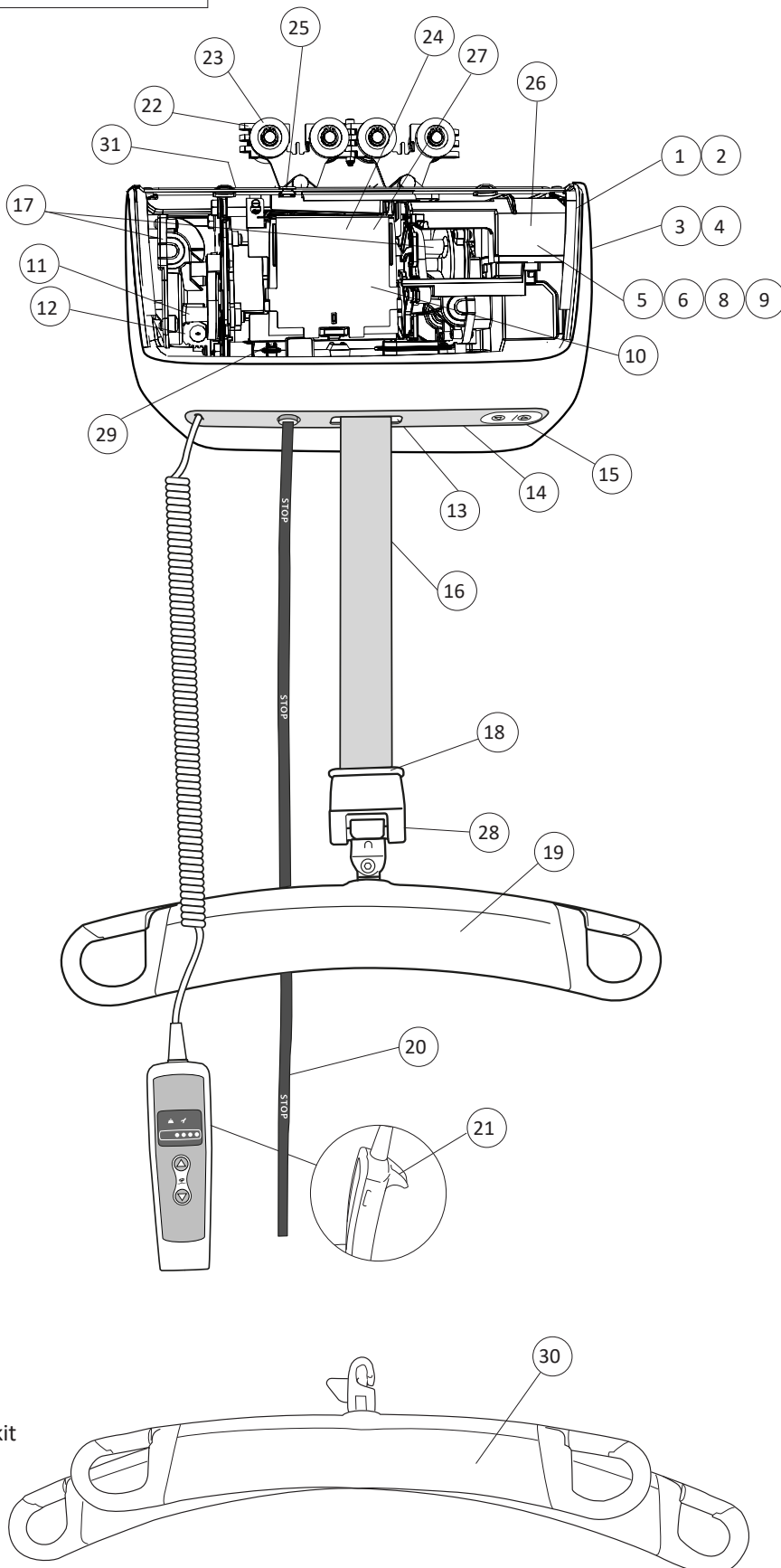
- Potentiometer with holder, Prod No. 33090011
- Lift strap with strap guide, Prod No. 33090016
- Main Board, Prod. No. 33090005 and 33090006

Ensure low and high position of the lift strap by moving the strap all the way down and up. Make sure the values displayed are within specified range.



4.0 Spare Parts Positions LikoGuard™ overhead lift

PROD. NO.	PRODUCT
3301030	LikoGuard L
3301040	LikoGuard XL




- 1 Plastic Covers L
- 2 Plastic Covers XL
- 3 Plastic Covers (top and bottom) L
- 4 Plastic Covers (top and bottom)XL
- 5 Main Board, L
- 6 Main Board, XL
- 8 Fuse 20 A, 10 pce
- 9 Battery Li-ion
- 10 Electronic StepUp Card to IRC
- 11 Potentiometer with holder
- 12 El Brake / active load
- 13 Limit switch, upper
- 14 Panel board, green
- 15 Key Pad, emergency lowering
- 16 Lift strap with strap guide
- 17 Electrical Motors
- 18 Hang-Up HandControl hanger
- 19 Slingbar side cover
- 20 Emergency Stop/Lowering Strap
- 21 HandControl Hanger
- 22 Damper, carriage
- 23 Carriage Plastic Wheels
- 24 HandControl Main Board Cable
- 25 Cable grommet IRC
- 26 Main Board housing
- 27 Step-up box
- 28 SlingGuard attachment
- 29 Emergency Stop Switch
- 30 Cover 670 Twin
- 31 Mechanical lowering restoration kit

5.0 Spare Parts Assembly Information

INFORMATION

Assembly Instructions to Liko™ spare parts are attached with the spare parts. The assembly instructions are also available on the Partner Web and in Agile (internally). Document number to spare parts assembly instructions can be found in the spare parts list.

Document Number

Cable for handcontrol LR 242S, ES 

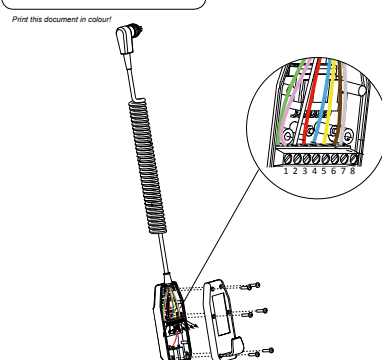
Assembly Instruction

Product No. 31290070

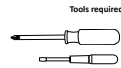
Contains:	Qty:
Hand control cable	1

FR:	Prod. No.
Hand Control 242 ES 2 Button	3126034
Hand Control LR 242 ES-4MS	3126035
Hand Control LR 242 ES 4 Button	3126036
Hand Control LR 242 ES-6-Button	3126038
Hand Control Ultra Twist	21090053
Hand Control Ultra Control Unit	21090059

Print this document in colour!



Tools required:




Cable colour

- 1 Green
- 2 Pink
- 3 White
- 4 Red
- 5 Blue
- 6 Yellow
- 7 Brown
- 8 Grey

NOTE
Make sure the spare part is mounted according to the assembly instruction.
Check all functions related to the changed spare part.
Repairs and maintenance may only be performed by personnel authorized by Hill-Rom and using original Liko™ spare parts.

3EN650203 Rev. 5
ENGLISH

Enhancing outcomes for patients and their caregivers: 

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△ NOTE

- Always make sure the spare part is mounted according to the assembly instruction.
- Check all functions related to the changed spare part.
- Repairs and maintenance may only be performed by personnel authorized by Hill-Rom and using original Liko™ spare parts.

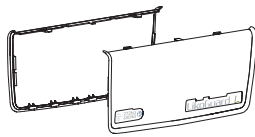
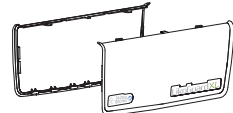
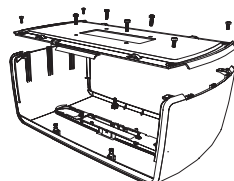
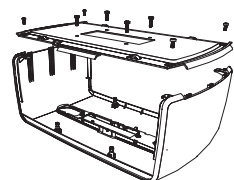
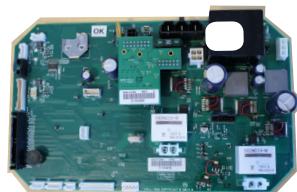
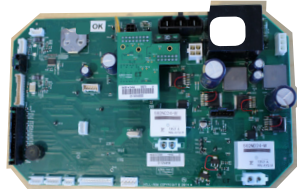
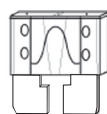
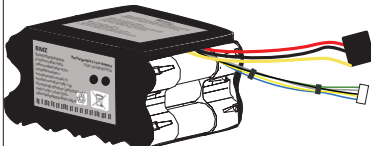

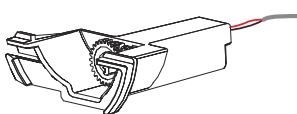
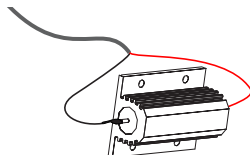
Liko technical documentation can be found on the Partnerweb:

<https://partner.liko.com> - "My information" - "Documents"

If you don't have access, send a mail for registration to: se.customer.service@hill-rom.com

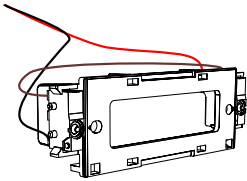
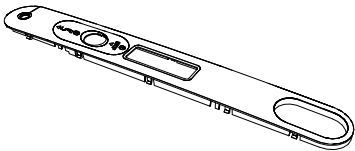
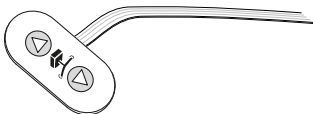
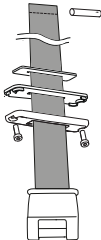
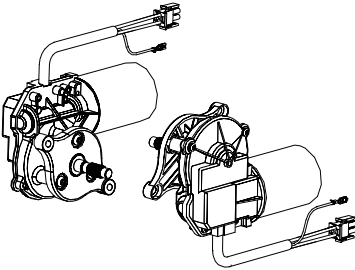
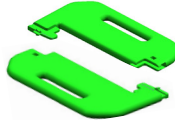
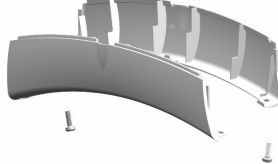
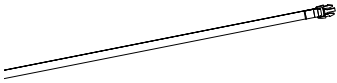

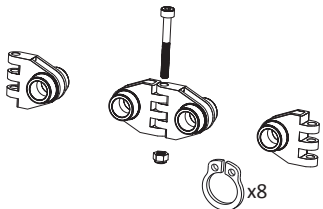
6.0 Spare Parts List

LikoGuard™ overhead lift

PROD. NO.	POS. NO.	NAME	UNIT		ASSEMBLY INSTR.
33090001	1	Plastic Covers L, 2 pices	pair		3EN690246
33090002	2	Plastic Covers XL, 2 pices	set		3EN690246
33090003	3	Plastic Covers (top and bottom) L	set		3EN690247
33090004	4	Plastic Covers (top and bottom)XL	set		3EN690247
33090005	5	Main Board L <i>battery included</i> NOT READY TO ORDER!	pce		3EN690248
33090006	6	Main Board XL <i>battery included</i> NOT READY TO ORDER!	pce		3EN690248
33090008	8	Fuse 20 A, 10 pce	set		3EN690250
33090009	9	Battery Li-ion	pce		3EN690251
33090010	10	Electronic StepUp Card for IRC	pce		3EN690252
33090011	11	Potentiometer with holder	pce		3EN690253
33090012	12	Active load, resistor	set		3EN690254

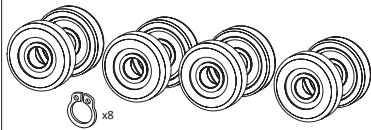
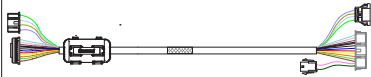

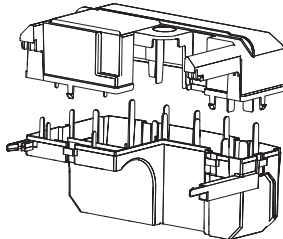
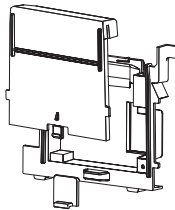

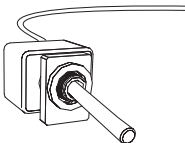
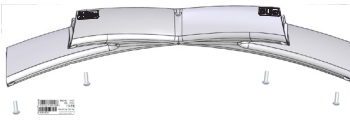
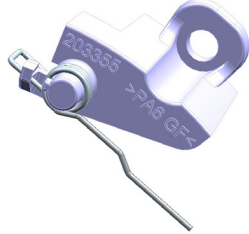
6.0 Spare Parts List

LikoGuard™ overhead lift

PROD. NO.	POS. NO.	NAME	UNIT		ASSEMBLY INSTR.
33090013	13	Upper Limit Switch	pair		3EN690255
33090014	14	Panel board, green	pce		3EN690256
33090015	15	Key Pad, emergency lowering (incl cables)	pce		3EN690257
33090016	16	Lift strap with strap guide	set		3EN690258
33090017	17	Electrial Motors <i>NOT READY TO ORDER!</i>	pair		3EN690259
33090018	18	Hang-Up HandControl Hanger LG, 2 pcs	set		3EN690260
33090019	19	Slingbar side cover <i>product label included</i>			3EN690261
33090020	20	Emergency Stop/Lowering Strap	pce		3EN690262
33090021	21	HandControl Hanger	pce		3EN690263
33090022	22	Damper carriage, 4 pieces (incl. screw and nut)	set		3EN690264

6.0 Spare Parts List

LikoGuard™ overhead lift

PROD. NO.	POS. NO.	NAME	UNIT		ASSEMBLY INSTR.
33090023	23	Carriage Plastic Wheels, 4 pairs (with bearings)	set		3EN690265
33090024	24	HandControl Main Board Cable	pce		3EN690266
33090025	25	Plastic grommet, 10 pce	set		3EN690267
33090026	26	Main Board Housing	set		3EN690268
33090027	27	Step-Up Box	set		3EN690269
33090028	28	SlingGuard attachment			3EN690270
33090029	29	Emergency Stop Switch	pce		3EN690274
33090030	30	Cover 670 Twin <i>product label included</i>	pce		3EN690281
33090033	31	Mechanical Lowering Restoration Kit	set		3EN690287

7.0 Periodic Inspection Information, LikoGuard™ overhead lift

INFORMATION

According to ISO 10535:2006 Annex B, Periodic Inspection of medical device Liko™ overhead lift should be performed at least once a year. For LikoGuard™ overhead lift Periodic Inspection overhead lift (3EN191001) is available on the Partner Web and in Agile (internally).

Lift information		Customer reference	
Lift:		Agreement No.:	
Product Number:		Name:	
Serial Number:		Address:	
Production year:		Post Code:	

▲ Liko™ overhead lifts must be thoroughly inspected at least once per year. Inspection and service must be carried out by Hill-Rom authorized personnel. If the lift is installed in a customer environment such as indoor pool or bathroom, see inspection point 12 before starting inspection. NOTE! For inspection of the lift system, see periodic inspection card "Agile System (3EN191001). If printed: Add a colour print of this instruction.

OVERHEAD LIFT	Action required:	Approved	Not approved
1. Inspect floor			
2. General inspection			
3. Carriage			
4. Hand Control			
5. Emergency Stop			
6. Emergency lowering			
7. Load Safety (see card for MaxLoad)			
8. Charger			
9. Slings (for telescopic)			
10. Slings			
11. Lift strap			

ENVIRONMENTAL IMPACT	N/A	Action required:	Approved	Not approved
12. Environmental assessment				

LOAD TESTING	Max load applied:	Approved	Not approved
13. Maximum load overhead lift	kg: lbs:		
Emergency lowering Maximum Load	kg: lbs:		

Required Measurements:	Measured dimensions:	Approved	Not approved
14. Lowering lift strap length	mm:		

Clear service	N/A	Action required:	Approved	Not approved
15. Service symbol used				

Inspection sign off
Complete inspection according to instructions for the check points (page 2-8), fill in this page and sign below.
Approved to use the overhead lift: Approved Not approved
If the overhead lift has one or more inspection points "Not approved", the lift must not be used.
Action required: Actions according to the inspection items "NOT APPROVED" should be performed immediately. After performed actions sign below. If anything is unclear or if you have questions, please contact Hill-Rom or your local Hill-Rom representative. Contact information to be found at www.hill-rom.com.
Inspection performed by: _____ Date: _____
Next inspection: _____

Inspection performed in accordance with ISO 10535:2006 Annex B. Periodic inspection. Enhancing outcomes for patients and their caregivers. Hill-Rom

NOTE!

▲ Periodic Inspection shall be performed at least once per year.

Liko technical documentation can be found on the Partnerweb:
<https://partner.liko.com> - "My information" - "Documents"
 If you don't have access, send a mail for registration to: se.customer.service@hill-rom.com

Periodic Inspection may only be performed by personnel authorized by Hill-Rom and using original Liko™ spare parts.

Available Liko Periodic Inspections:

- 3EN371001 Periodic Inspection Liko™ Mobile lifts
- 3EN111001 Periodic Inspection Liko™ OH Rail system
- 3EN191001 Periodic Inspection Overhead Lifts
- 3EN301001 PI Freespan Freestand
- 3EN601001 Periodic Inspection Liko™ accessories

Also available is Periodic Inspection Slings. This inspection should be performed by a person who is suitable, has good experience and sufficient knowledge about design, use and maintenance of the sling.

- 7EN160834 General Periodic Inspection Protocol Liko Slings and Sabina SupportVests


8.0 Preventive Maintenance

Expected Life Time

The expected life time of a LikoGuard™ Overhead Lift is 10 years of normal use (see table below) provided that recommended Periodic Inspection and Preventive Maintenance is performed by personnel authorized by Hill-Rom and using original Liko spare parts.

However certain parts have a shorter life cycle and will need to be replaced in order for the overhead lift to meet its expected life time. They are listed below.

Parts that needs to be replaced:

Part	Part No.	Year of life expectancy:	Replacement:
Lift Strap	33090016	5 years	 Must be replaced before 5 years of use, or if wear and tear is detected.
Battery Li-ion	33090009	3 years	Can be used more than 3 years if no malfunction is detected.
HandControl LG	3306010 3306020	5 years	Can be used more than 5 years if no malfunction is detected.

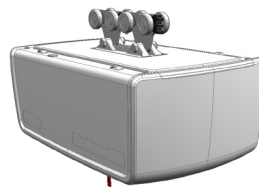
Expected Life Time measured in lift cycles:

Expected Life Time		Load Case 1	Load Case 2	Load Case 3	Load Case 4
		363 kg (800 lbs.)	272 kg (600 lbs.)	200 kg (440 lbs.)	100 kg (220 lbs.)
Total normal lifts*		14500	19000	26000	52000
5 years	lifting frequency	8 lifts/day	10 lifts/day	14 lifts/day	29 lifts/day
	7 years	5 lifts/day	7 lifts/day	10 lifts/day	20 lifts/day
	10 years	4 lifts/day	5 lifts/day	7 lifts/day	14 lifts/day

*A normal lift = 70 cm (27.6 inch) up of witch 40 cm (15.7 inch) with load followed by 70 cm (27.6 inch) down of witch 40 cm (15.7 inch) with load.

9.0 Installation Instructions

Prod No.	Prod Name	Max Load
3301030	LikoGuard™ L, Overhead Lift	272 kg (600 lbs)
3301040	LikoGuard™ XL, Overhead Lift	363 kg (800 lbs)
3307010	Carriage	363 kg (800 lbs)



⚠ Before installation:

Read and understand the contents of the Overhead System Installation Hand Book. Make sure the maximum load of the installed railsystem is equal to or larger than the maximum load of the LikoGuard overhead lift.

Basic condition for installation:

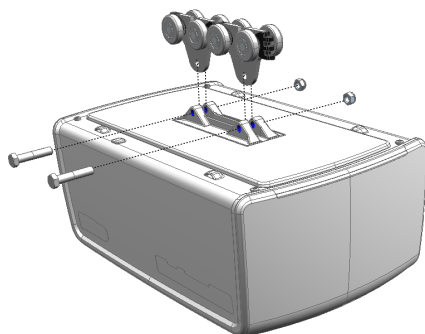
It is recommended to assemble the carriage to the lift motor before installation in the rail system.

Tools Required:

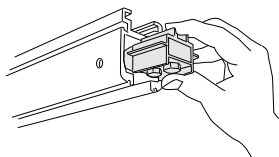
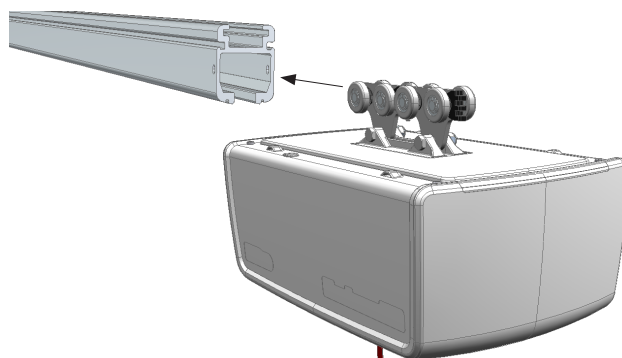


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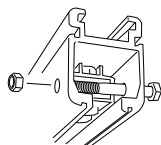
1. Secure the M8 screws. Make sure they go all the way through the locking nuts.



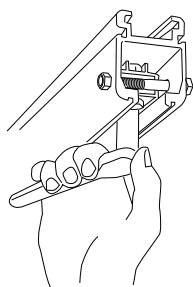
- 2.



3. Insert and locate the end stop in all rail sections.



4. Secure the through bolts.



5. Secure the end stops, and apply choice of cover hats (white or grey)

Check all functions related to the installed parts.

10.0 Product Changes

LikoGuard™ overhead lift

Prod. No 3301030, 3301040



2020

Improved design of emergency stop. LikoGuard L from S/N 2203750 LikoGuard XL from S/N 2301900	SUS003443
Improved mechanical lowering. LikoGuard L from S/N 2203500 LikoGuard XL from S/N 2301700 New spare part is released: 33090033 Mechanical Lowering Restoration Kit LG	SUS003644
Sling bar models SlingGuard 350 and SlingGuard 600 was never released so the spare parts 33090031 and 33090032 have been removed from the Spare part list.	MOD011191

2018

New slingbar models are released: 3308010 SlingGuard™ 350 slingbar 3308510 SlingGuard™ 350 with quick-hook multi, slingbar 3308030 SlingGuard™ 600 slingbar 3308530 SlingGuard™ 600 with quick-hook multi, slingbar New spareparts are created: 33090031 SlingBar plastic cover 350 33090032 SlingBar plastic cover 600	PRJ00909
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2016

New slingbar models are released: 3308040 SlingGuard™ 670 Twin, slingbar 3308540 SlingGuard™ 670 Twin with quick-hook multi, slingbar	PDP001221
New sparepart is released: 33090030 Cover 670 Twin	PDP001284



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