

Guldmann™

SERVICE GUIDE FOR GL5, GLS5

Vers. 1.00



Guldmann develops, manufactures,
distributes and maintains products and
services that make the daily lives
of disabled people and their
carer a little easier.

Time to care

TECHNICAL SPECIFICATIONS

SERVICE

TECHNICAL DRAWINGS

CONTROL

TECHNICAL SPECIFICATIONS

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Product liability

In relation to product liability the current rules under Danish law shall apply.

The seller can never be held liable for operating losses, loss of earnings and other indirect losses.

Product liability insurance which includes cover against injury and property damage has been taken out.

Any disputes between the parties must be settled by the Maritime and Commercial Court in Copenhagen (*Sø- og Handelsretten*) in pursuance of Danish law

Use in corrosive surroundings

Special guidelines must be observed when using the mobile lifters around swimming pools etc.

Particular care should be taken to avoid damaging the surface of painted components.

There must be no swarf, dirt or other impurities on the mobile lifters as this will accumulate moisture and lead to corrosion.

Functions

Lifting capacity, max	: 155/205 kg
Lifting speed	
with 85 kg load	: 36 mm/sec
Number of lifts per charging	: 50 lift with 85 kg
Lifting interval	: 1302 mm
Pushbutton	: 3.3 N

Operation

Lift	: Electric
Width adjustment	: Electric

Weight

Totally	: 46 kg
Chassis	: 21 kg
Mast + lifting boom incl.	
Charger + handcontrol	: 25 kg

Measurements

A.	: 69 mm
B.	: 143 mm
C.	: 2013 mm
D.	: 1370 mm
E.	: 229 mm
F.	: 518 mm
G.	: 1382 mm
H. min/max	: 664/1967 mm
I. min/max	: 456/1759 mm
J. min/max	: 530/1300 mm
K. min/max	: 695/1410 mm

Turning radius

Turning radius:	: 1460 mm
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Safety features

Emergency stop	: Yes
Emergency lowering	: Yes, electronic. Mechanical on request
Protection against trapping	: Yes

Electrical parts

On/off	: Automatically
Power supply for charging	
Input	: 100-240V ac, 47-63Hz, 0.6-0.4A
Output	: 36V, 0.83A
Battery, replaceable NiMH	: 24V /4.5 Ah
Charging time	: Max. 5 hours
Consumption/power of actuator	: 24V, max 8A
Duty Cycle	: Max 10%, max. 2 min on, 18 min off.
Battery protection	: Automatically switches off at low voltage. Diode flashes to indicate critical voltage

Class of tightness

Mobile lifter	: IP 30
Hand control	: IP 44
Power supply:	: IP 20

Accessories/Miscellaneous

Lifting hanger	: to be ordered separately
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Labelling

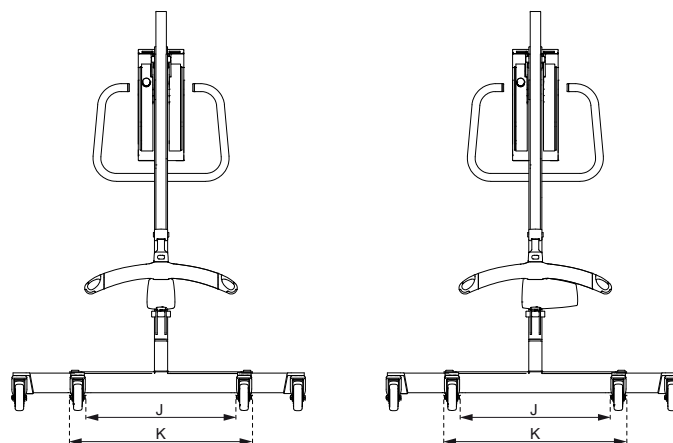
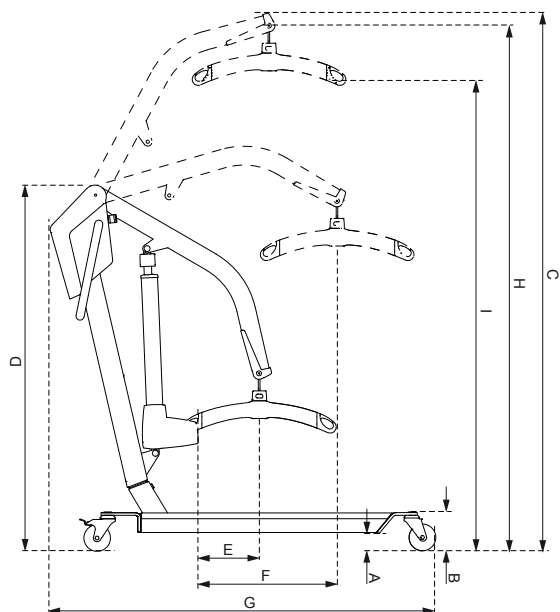
The product is manufactured in compliance with the Council Directive 93/42/EEC of June 14th 1993, including amendments, as medical device class 1.

Item Number/Model

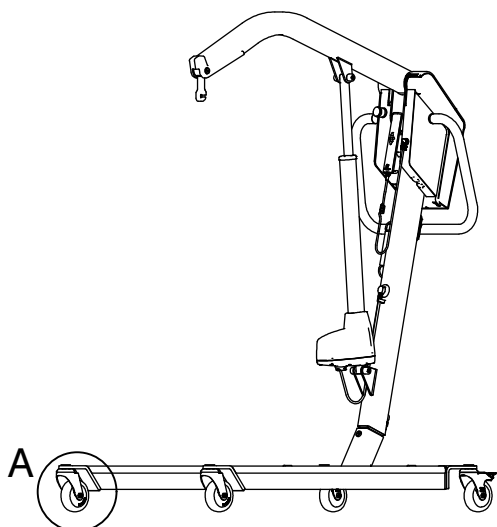
555000	: 205 kg, 100 mm castors
555001	: 155 kg, 100 mm castors
555002	: 205 kg, 100 mm castors, manual lowering
555003	: 155 kg, 100 mm castors, manual lowering

Classified

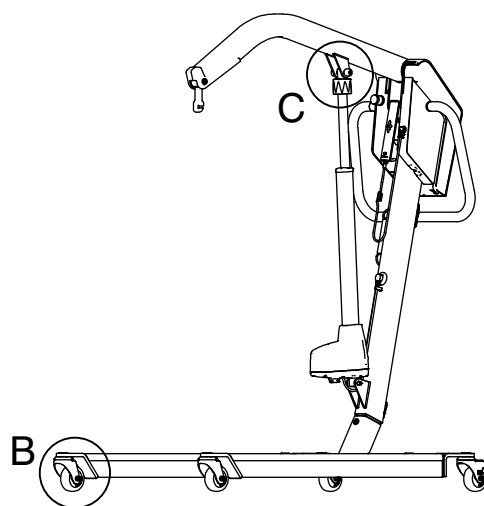
acc. to ISO 9999	: 12 36 03
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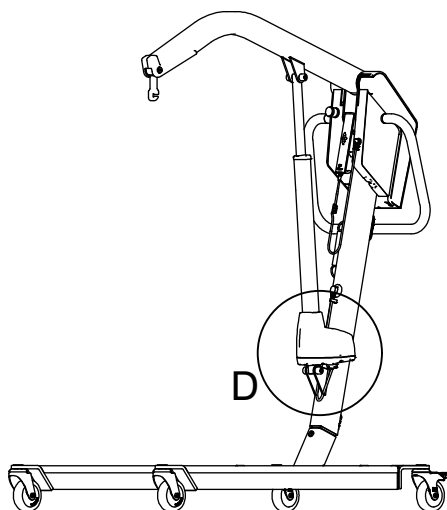
GL5 variants					
Item no.	Item name	Castor 100 mm	Castor 80 mm	Motor turned 90°	Manuel lowering
555000	GL5 205 470 0000	x			
555001	GL5 155 470 0000	x			
555002	GL5 205 450 0000	x			x
555003	GL5 155 450 0000	x			x
555004	GL5 205 370 0000		x		
555005	GL5 155 370 0000		x		
555006	GL5 205 350 0000		x		x
555007	GL5 155 350 0000		x		x
555008	GL5 205 480 0000	x		x	
555009	GL5 155 480 0000	x		x	
555010	GL5 205 380 0000		x	x	
555011	GL5 155 380 0000		x	x	
555012	GL5 205 460 0000	x		x	x
555013	GL5 155 460 0000	x		x	x
555014	GL5 205 360 0000		x	x	x
555015	GL5 155 360 0000		x	x	x



A: Castor 100 mm



B: Castor 80 mm
C: Manual lowering



D: Motor turned 90°

GL5, configurations									
Guldmann lifter type	Product line	Load in kg	Castor type	Actuator type	Additional functions	Scale module	CLM module	Service module	User interface
GL5	(x)	xxx	x	x	x	x	x	x	x
GL5		155	3	7					
		205	3	7					

Example: GL5 205 370 0000

GL5		205	3	7	0	0	0	0	0
-----	--	-----	---	---	---	---	---	---	---

GL5	205	3	7	0	0	0	0		
								Hand control	
								N/A	
								N/A	
								N/A	
								5 = Mechanical emergency down	
								6 = Mechanical emergency down - motor turned 90°	
								7 = W/O Mechanical emergency down	
								8 = W/O Mechanical emergency down - motor turned 90°	
								3 = Ø80 mm, castor	
								8 = Ø100 mm, castor	
								155 kg	
								205 kg	
								N/A	
								Lifter, type GL5	

Functions

Lifting capacity, max : 155/205 kg

Operation

Lift : Electric
Width adjustment : Electric
Pushbuttons - max. : 3.3 N
Knee support : Manual
Lifting boom : Manual

Weight

Totally : 57 kg
Chassis without foot plate
& knee pad : 23 kg
Mast and lifting boom
incl. control box & battery : 22 kg

Measurements

A : 25 mm
B : 90 mm
C : 1770 mm
D : 1190 mm
E : 575 mm
F : 1210 mm
G : 460 mm
H min/max : 850/1740 mm
I min/max : 350/450 mm
J min/max : 560/1190 mm
K min/max : 670/1310 mm
L min/max : 230/320 mm

Turning radius

Turning radius : 1360 mm

Safety Features

Battery protection for
insufficient voltage : Yes, disconnects

Electrical parts

On/off : Automatically
Power supply for charging
Input : 100-240Vac, 47-63Hz, 0.6-0.4A
Output : 36V, 0.83A
Battery, replaceable NiMH : 24V /4.5 Ah
Charging time : Max. 5 hours
Consumption/power
of actuator : 24V, max 8A
Duty cycle : Max 10%, max. 2 min on, 18 min off.

Class of tightness

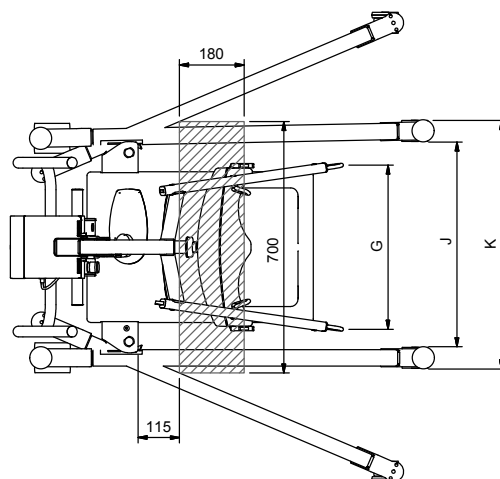
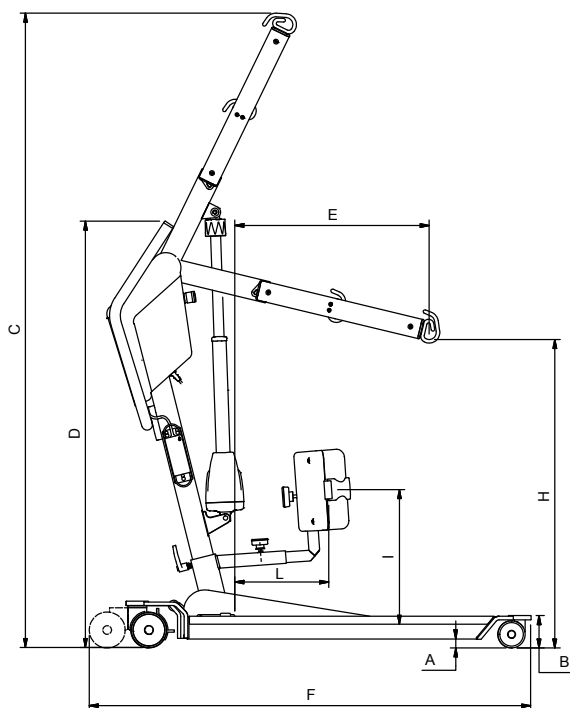
Active lifter : IP 30
Hand control : IP 44
Power supply : IP 20

Labelling

The product is manufactured in compliance with the Council
Directive 93/42/EEC of June 14th 1993, including amendments,
as medical device class 1.

Classified

Acc. to ISO 9999 : 12 36 03



GLS5, configurations									
Guldmann lifter type	Product line	Load in kg	Castor type	Actuator type	Additional functions	Scale module	CLM module	Service module	User interface
GLS5	(x)	xxx	x	x	x	x	x	x	x
GLS5		155	5	6					
		205	5	6					

Example: GLS5 205 370 0000

GLS5		205	5	6	0	0	0	0	0
------	--	-----	---	---	---	---	---	---	---

GLS5		205	5	6	0	0	0	0	
									Hand control
									N/A
									N/A
									N/A
									5 = Mechanical emergency down
									3 = Ø75 / Ø125 mm, castor
									155 kg
									205 kg
									N/A
									Lifter, type GLS5

SERVICE AND REPAIR

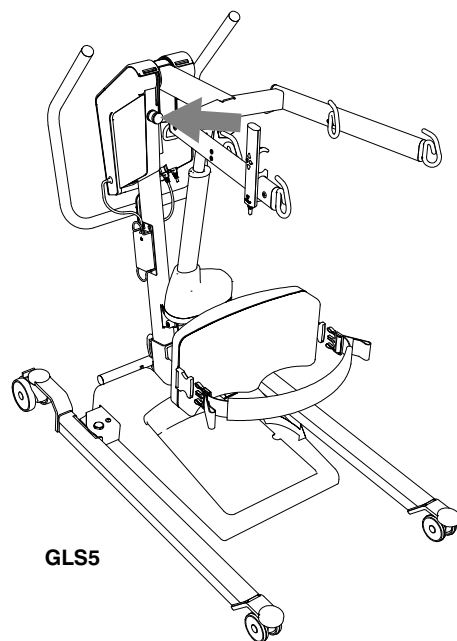
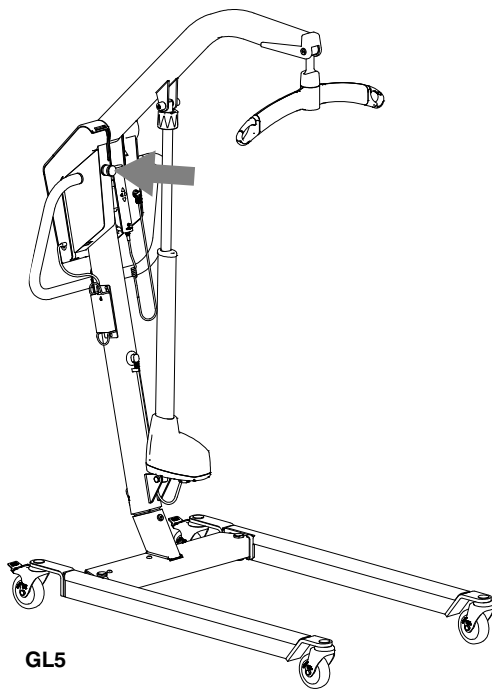
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Before service or repair starts

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SERVICE AND REPAIR

The emergency stop must be activated
before any service is done on the lifter





1 pc. Torx 10 key

1 pc. Torx 20 key

1 pc. Torx 25 key



2 pcs. 5 mm. Allen key

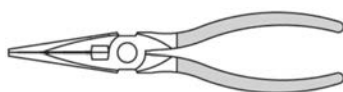
1 pc. 6 mm. Allen key



2 pcs. 7 mm. spanner

2 pcs. 17 mm. spanner

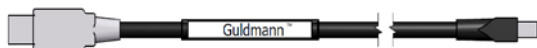
2 pcs. 24 mm. spanner



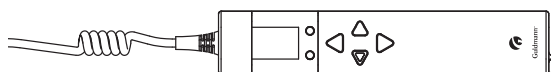
Long nosed plier



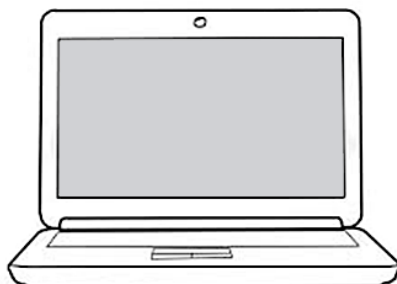
Converter cabel



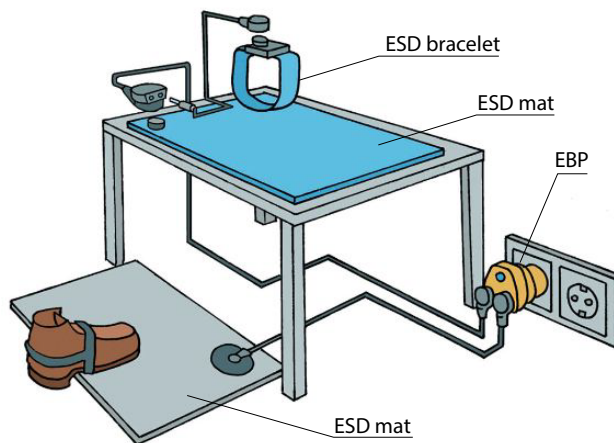
SIC cable



Service hand control



PC with Windows and USB port



Electrostatic discharge (ESD) service kit, Including mat, bracelet and Earth Bonding Point (EBP).

The purpose of ESD protection is to equalise the potential between the electronic components and the person handling the components in a safe and controlled manner.

When possible the ESD kit must be connected to earth with an EBP to release accumulated static electricity. Always make sure that your EBP is compatible with the mains out-let you connect to.



Work instructions including use of ESD service kit is marked with an "Attention" symbol:



Note: it is important to use an anti-static service kit when working inside the lifter to protect the PCB's. This should consist of a mat / bracelet / connection lead.



Remove the 4 screws (Torx 20) to access PCBs.



PCB's and spare serial number labels are located behind the right side cover, when standing in front of the device.



Before removing the battery, activate the emergency stop to turn off the mobile lifter.

Disconnect the charger cable to remove the battery.



Open the lid on the back of the mobile lifter.

Pull up the battery pack from the battery cradle.

Battery maintenance

Periodic visual inspection of the battery is recommended. If the battery is stored for over six months, it is recommended to charge and discharge the battery several times to resume the battery capacity, failure to do so may result in a loss of capacity and shorter battery life.

Bear in mind that self-discharge has to be taken into consideration when storing a charged battery. The remaining battery capacity should be at least 50% after a month of storage at room temperature for a fully charged battery. High storage temperatures will accelerate the self-discharge, and reduce the remaining capacity.

Storage characteristics

Essentially all rechargeable battery cells gradually discharge over time whether they are used or not. The loss rate or self-discharge rate is a function of the cell chemistry and the temperature of the environment experienced by the cell. Due to the temperature sensitivity of the self-discharge reaction, relatively small differences in storage temperature may result in large discharge that is difficult or impossible to reverse.

Cell and battery storage issues of concern to most application designers relate either to the speed with which the cells lose their capacity after being charged or the ability of the cells to charge and discharge "normally" after storage for some period of time. In both situations, general guidelines developed for nickel-cadmium cells work acceptably for nickel-metal hydride cells.

Storage temperature

As already mentioned, the self-discharge reaction rate increases with higher temperatures. Prolonged storage of the battery material deteriorating faster; leakage performance will also deteriorate, resulting in a reduced battery lifetime. It is recommended that, for long storage, batteries should be kept at room temperature or below (0-30°C).

Storage time

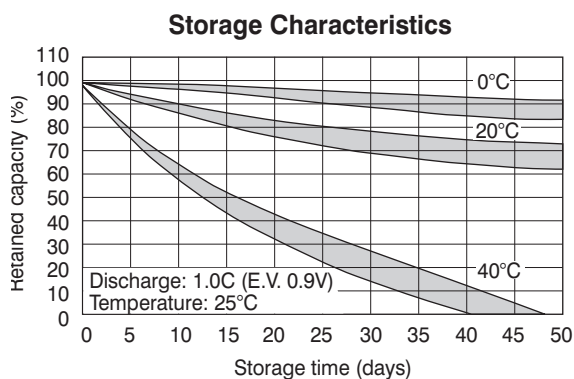
As the battery loses energy during storage, the voltage also drops. In general, the battery capacity loss due to self-discharge during storage can be recovered by recharging. If the battery is stored for over six months, it is advisable to cycle the battery several times to resume the battery capacity. Use good inventory practices (first in, first out) to reduce time cells spend in storage.

Storage humidity

Leakage and rusting of metal parts are accelerated in high humidity environments, especially those with correspondingly high temperatures. The recommended humidity level for battery storage is a maximum of 60% RH.

Capacity recovery after storage

In normal practice, stored cells will provide full capacity on the first discharge after removal from storage and charging with standard methods. Cells stored for an extended period or at elevated temperatures may require more than one cycle to attain pre-storage capacities. Consultation with the manufacturer is recommended if prolonged storage and rapid restoration of capacity is requested.





Note: Before removing the control box, activate the emergency stop to turn off the mobile lifter.

To remove the control box, remove charger cable, battery and handcontrol.

Remove cables for actuators - for GLS5 only.



Remove the 2 Hex socket screws (allen key 5 mm) located under the lifting arm.

Remove the handcontrol retention bracket - for GL5 only.



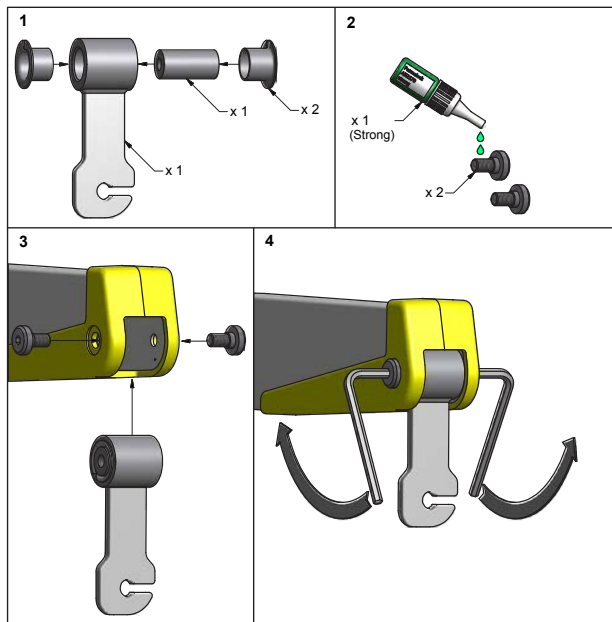
Lift the control box approx. 200 mm to access the wire connection to the mast, disconnect wires to completely detach the control box from the mobile lifter



Reverse operation to reassemble.

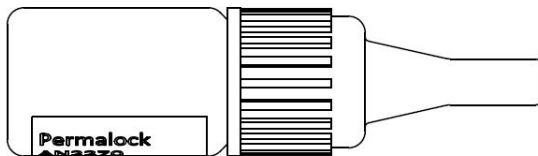
Note: Make sure that wires do not get stuck between mast and control box.

If there is a gap between mast and control box, the wires are not properly guided into the mast.



To replace the hanger attachment hook on the mobile lifter GL5, remove the 2 Hex socket screws (allen key 5 mm) on each side of the hook.

Remove the hook incl. shaft and slide bearings.



When assembling the new components, make sure thread locking adhesive is used on the screws.

Strength = Strong

Note: to achieve the best performance, do not reuse old components.

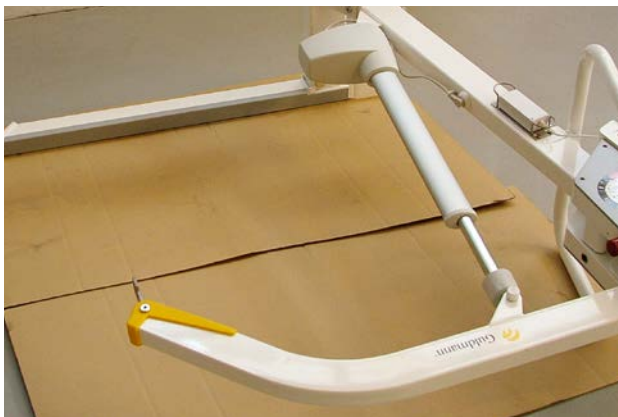
After assembly the mobile lifter must be taken out of service until the thread locking adhesive has cured. Curing time is 12 hours.

Replacing the wheels

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To replace the wheels turn the lifter to the side and expose the underside of the wheels.

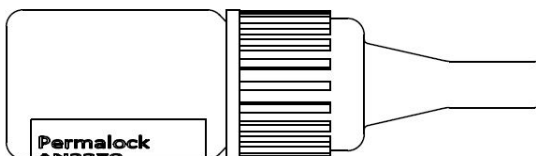


Use protection against scratching when lifter is not resting on the wheels.



Remove the 4 Hex socket screws (allen key 6 mm) from the wheels.

Reassemble the wheels by inserting the screw into the wheel and fasten the screw in the floor structure legs.



When assembling the new components, make sure thread locking adhesive is used on the screws.
Strength = Medium.



Note: Before replacing the lifting actuator, activate the emergency stop to turn off the mobile lifter.

To replace the lifting actuator, disconnect the cable by squeezing and pulling the cable lock, then pull the cable plug from the mast.



Remove nut caps.



Remove lock nuts (17 mm spanner)



Pull out bolt and bush, while supporting lifting arm, and remove lifting actuator.

Reverse sequence to reassemble (replace the lock nut).



Note: Before replacing the leg actuator, activate the emergency stop to turn off the mobile lifter.

To replace the leg actuator, disconnect the cable by squeezing and pulling the cable lock, then pull the cable plug from the mast.



Remove the mast and lifting arm by removing the mast bolt (5 mm allen key).



Turn the floor structure upside down for easy access. Use protection to avoid scratches.



Then the legs must be removed:
Remove the hex socket screw (Torx 25) that connects the push rods in the eccentric adjustment nuts.



Remove the special 24 mm bolts 2 pcs. (24 mm spanner).



Remove the 4 pcs. Hex socket screws (5 mm allen key).



Cut the cable tie to allow the cable moving with the actuator.



The leg actuator can be pulled from the main beam slowly, make sure to push the cable into the main beam at the same time.



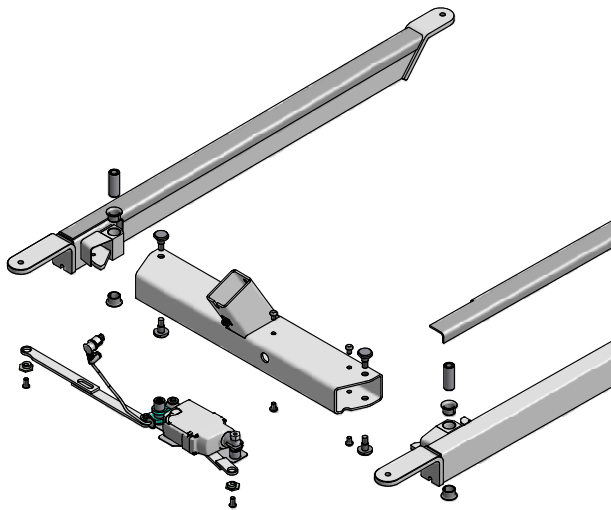
Detach the cable to remove the actuator.



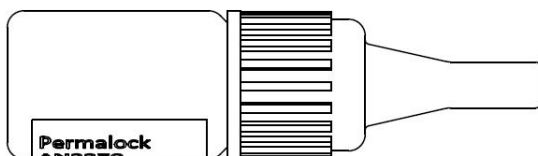
Reassembling of the floor structure.

Insert cable in the hole in the back of the main beam, with the micro-fit connector extending out of the main beam profile end.

Attach the connector in the leg actuator and strap the cable with cable tie. Add glue to the actuator groove to assist in fixing the cable.

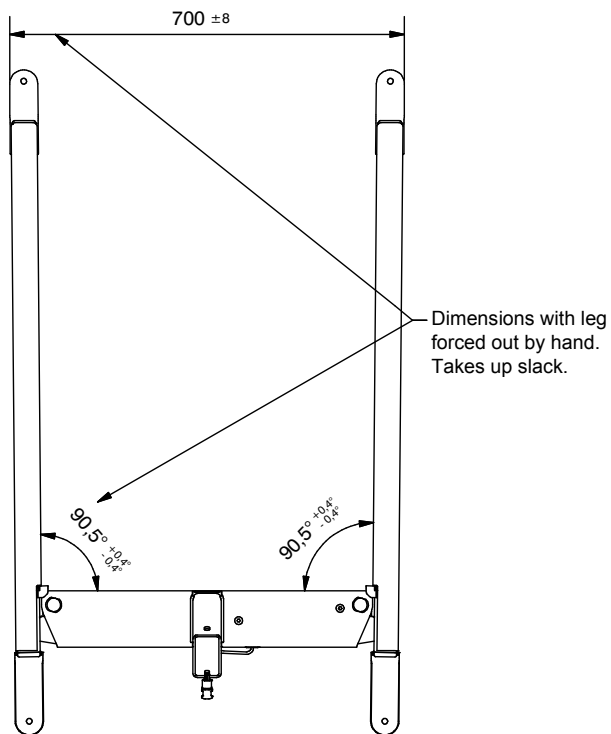


Slowly insert the actuator and pull the cable at the same time.



When assembling the new components, make sure thread locking adhesive is used on the screws.

Strength = Medium.



Adjust the legs to parallel position, then manually force out the legs when measuring the width, this takes up slack.



Adjust angle and width with eccentric nuts.

To replace the charger PCB located inside the battery pack, activate the emergency stop to turn off the mobile lifter. Open the cover on the back of the control box to remove the battery pack.

Note: It is important to always use an anti-static mat and bracelet when working inside the lifter.



Remove screws Torx 20 to open battery pack.

Flip the battery pack with screws facing down, before removing the plastic enclosure.



Unplug all wires from the PCB and remove it from the plastic housing.



Replace PCB and reconnect wires leaving battery wires until last.



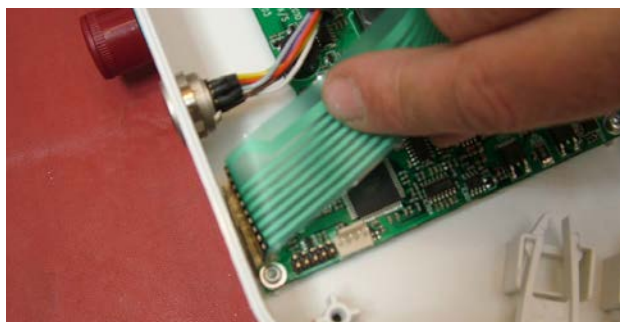
Note: It is important to register all PCB exchanges on the Guldmann traceability website.

The battery pack serial no. for the lifter should be written to get the history for charger PCB.

Note: Before replacement can be done, the data stored on the PCB must be downloaded to the Guldmann service console. See SIC manual for instructions.

After data has been loaded to the Guldmann service console it is safe to replace the Motor safety PCB, activate the emergency stop to turn off the mobile lifter.

Note: It is important to always use an antistatic mat and bracelet when working inside the lifter.



Download data from PCB – see SIC manual for instructions.



Disconnect all wires from PCB - note where they are connected. Shooting a photo is a good way of recording this.



Now remove the PCB from the plastic housing by removing Torx 10 screws. Replace with new PCB and reconnect wires leaving battery wires until last.

Note: It is important to register all PCB exchanges on the Guldmann traceability website.



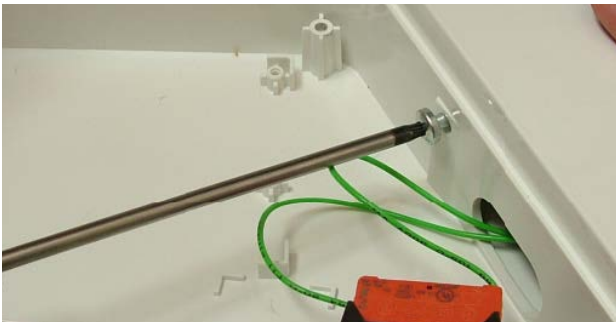
Before the mobile lifter can go back into service the PCB needs to be configured by using the data from the old PCB - see SIC manual for instructions.

Replacing the Control panel

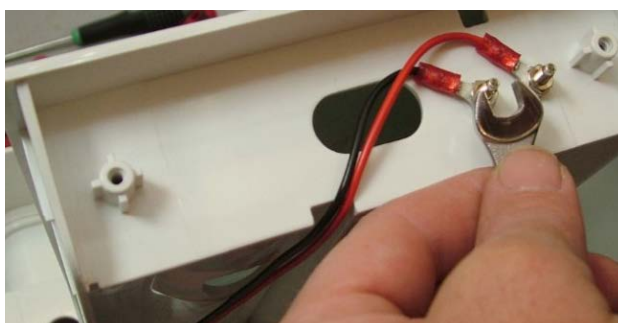
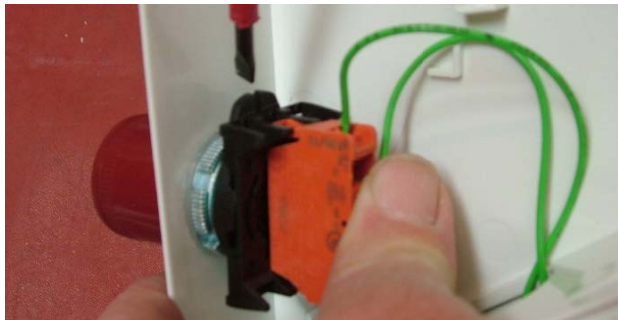
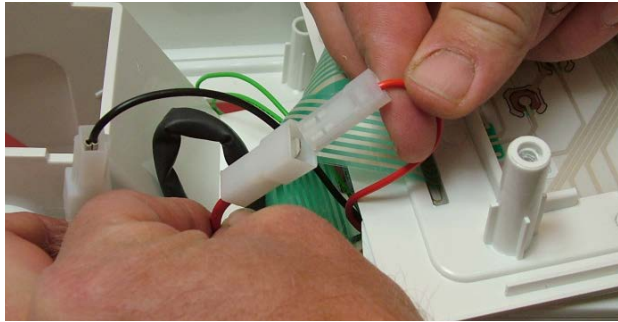
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To replace the wiring in the control box, activate the emergency stop to turn off the mobile lifter. Open the cover on the back of the control box to remove the battery pack.

Note: It is important to always use an anti-static mat and bracelet when working inside the lifter.



Remove the side covers and PCBs.
Remove the 2 screws (Torx 25) from the top cover holding the control panel.



To replace the wiring in the control box, activate the emergency stop to turn off the mobile lifter. Open the cover on the back of the control box to remove the battery pack.

Note: It is important to always use an anti-static mat and bracelet when working inside the lifter.



Remove the side covers and PCB's.

Remove the 2 screws (Torx 25) from the top cover that holds the control panel for easy access to the wire connectors for the wires in the mast (for GL5) and the wires for the battery and emergency stop.

Remove PCB to access Torx 20 screws holding the battery cradle.

Battery wires can be removed using a 7 mm spanner on battery connection terminals.

TECHNICAL DRAWINGS

Spare Parts overview32

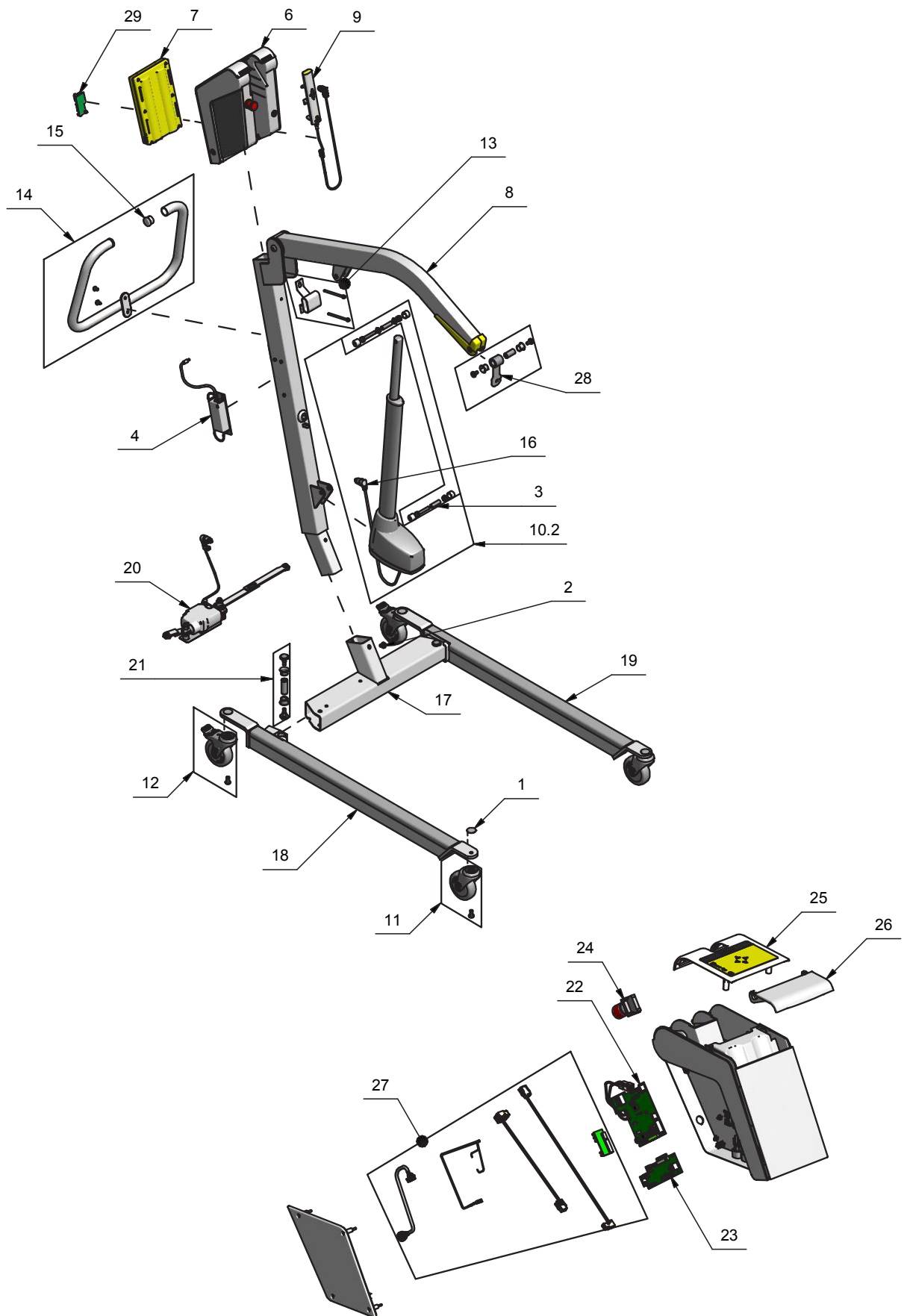
 GL532

 GLS534

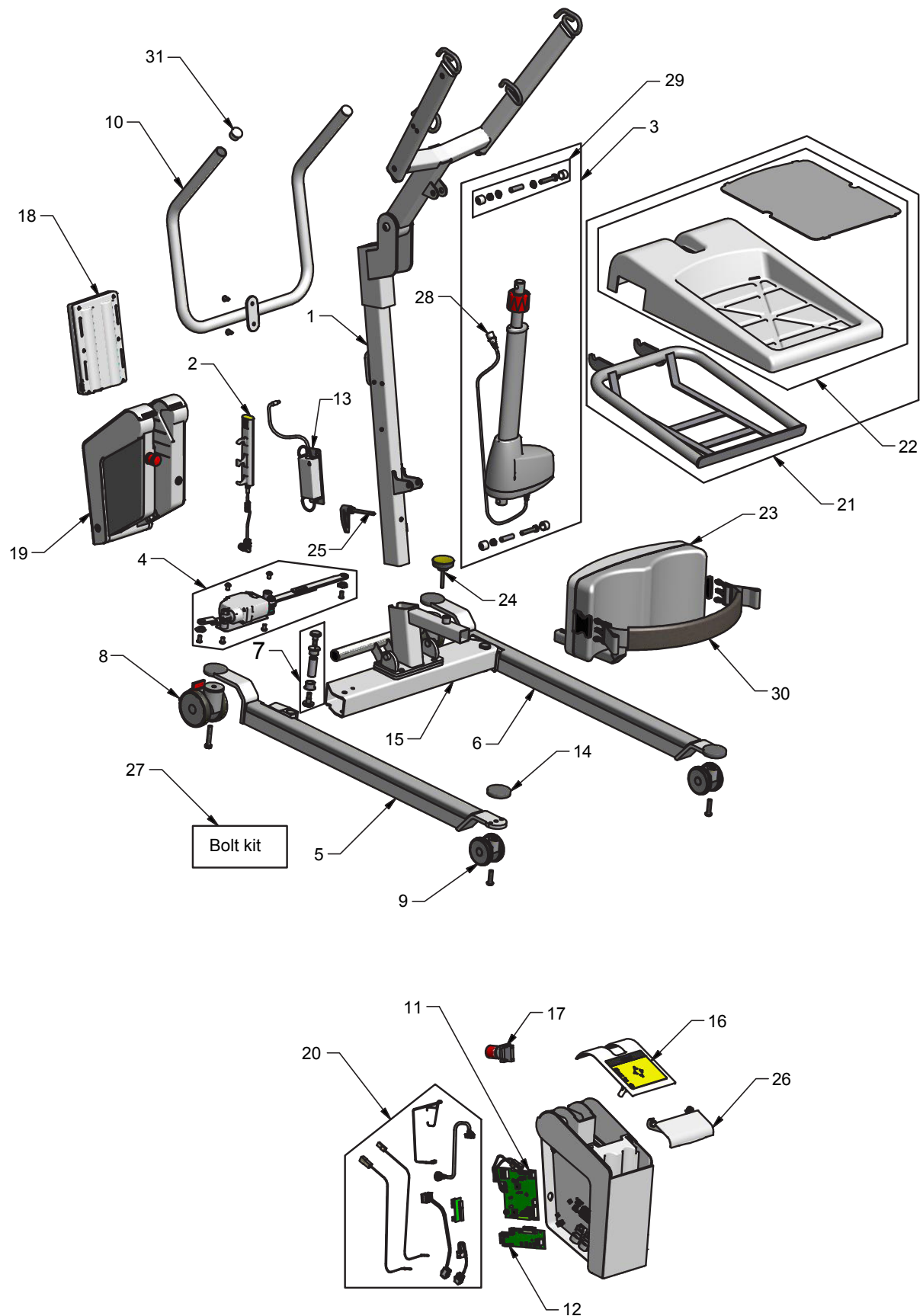
Wiring Diagram36

Jumper settings37

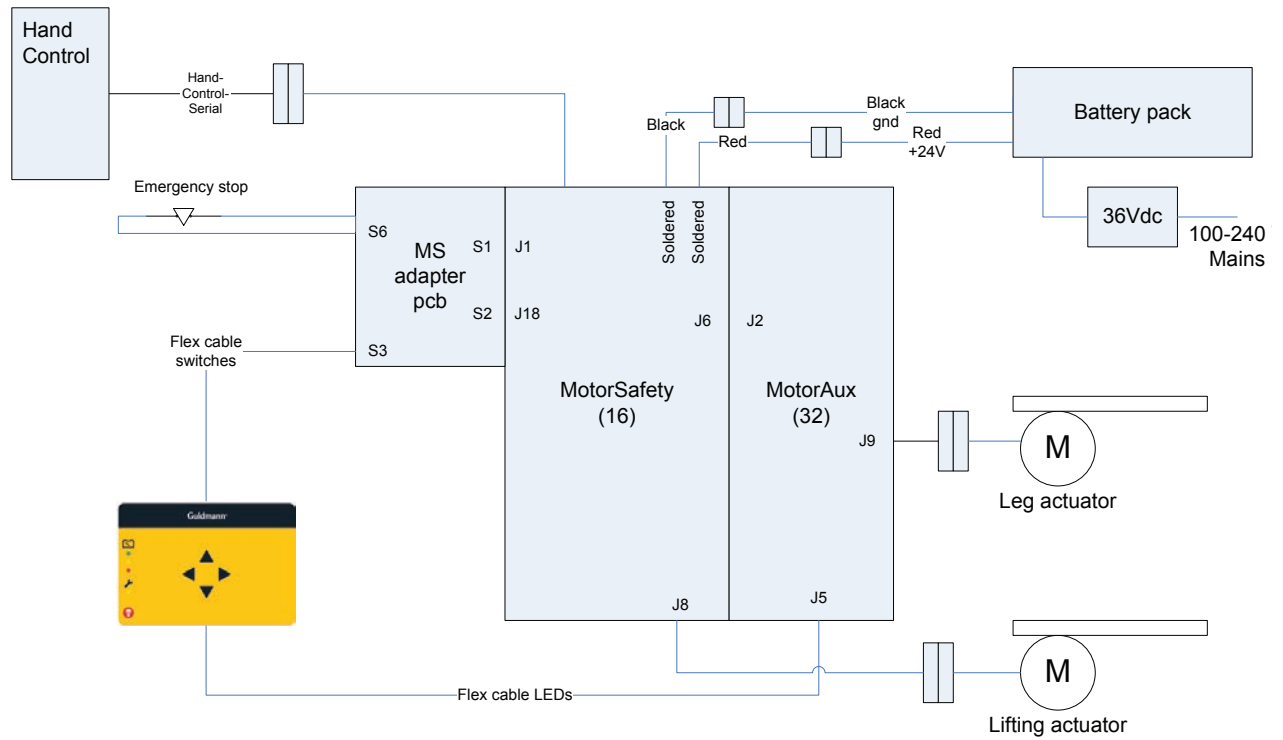
Fault diagnostics38

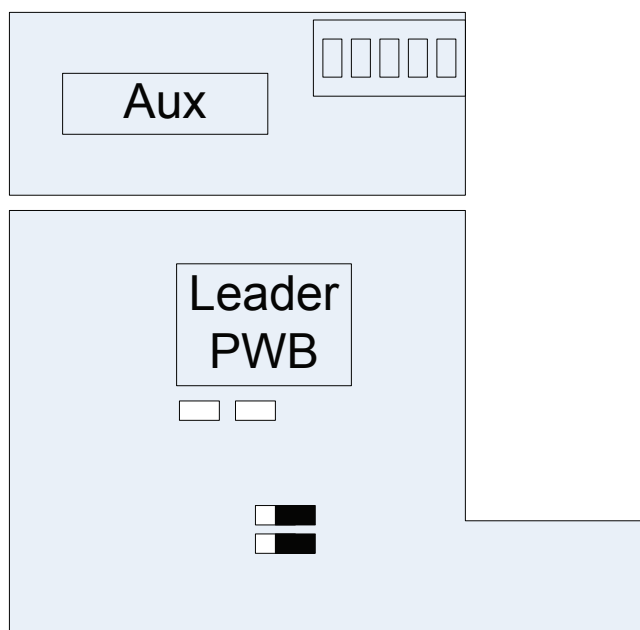


Pos. no.	Part	Drawing/ Item no.
1	Cover, rubber, ø30 mm	553857
2	Bolt, floor structure mast	553860
3	Bolts, actuator	554585
4	Power supply incl. attachment, excl. mains cable	554566
5.1	Cable main power AC, white, EU	554250
5.2	Cable main power AC, white, USA	554251
5.3	Cable main power AC, white, UK	554252
6	Control box. GL5 basic excl. PCB & battery	555137
7	Battery, GL	554571
8.1	Mast & lifting arm cpl. 2013	555138
8.2	Mast & lifting arm, man low., cpl. 2013	555139
9	Handcontrol GL5	553858
10.1	Actuator LA44, manual lowering	553842
10.2	Actuator LA44, standard	553843
10.3	Actuator LA44, motor turned 90°	551173
10.4	Actuator LA44, manual lowering, motor turned 90°	554915
11.1	Castor without brake, 100 mm, complete	553849
11.2	Castor without brake, 80 mm, complete	553850
12.1	Castor with brake, 100 mm, complete	553847
12.2	Castor with brake, 80 mm, complete	553848
13	Hand control retention	555140
14	Push bar, GL5 assy (2013)	555141
15	Pipe plugs for GL5 push handle	554328
16	Wire actuator LA44	555142
17	Floor structure, GL5, 2013	555143
18	Leg. RH, complete	551718
19	Leg. LH, complete	551717
20	Leg adjustment, Mechanism	554556
21	Bushings, Leg. complete	551716
22	Print, MS, GL	554563
23	Print, AUX, GL	554565
24	Switch, Emergency stop, GL	554570
25	Control panel, GL, Basic	554569
26	Cover, battery, control box	554582
27	Wires GL5 control box, Basic	555147
28	Hook, hanger attachment. cpl.	555144
29	Charger PCB, battery, GL	554586



Pos. no.	Part	Drawing/ Item no.
1	Mast & lifting arm	554553
2	Handcontrol, GL5	553858
3	Actuator, lifting, cpl.	554555
4	Leg adjustment, mechanism, spare part	554556
5	Leg, cpl. RH	554557
6	Leg, cpl. LH	554558
7	Bushings, leg, complete	554559
8	Castor, rear, complete	554560
9	Castor, front, complete	554561
10	Drive, brace, complete	554562
11	Print, MS, GL	554563
12	Print, AUX, GL	554565
13	Power supply, complete	554566
14	Cover, leg	554567
15	Floor structure, assembly	554568
16	Control panel, GL, basic	554569
17	Switch, emergency stop, GL	554570
18	Battery, GL	554571
19	Control box, GL, sparepart	554572
20	Wires, control box, basic, kit	554575
21	Foot plate, complete	554577
22	Foot plates, cover	554578
23	Leg support, complete	554579
24	Handle, mast attachment	554580
25	Handle, mast attachment	554581
26	Cover, battery, control box	554582
27	Bolt kit, GLS5	554583
28	Wire, lifting actuator, GLS5	554584
29	Bolts, actuator, kit	554585
30	Strap, calf support	554587
31	Endplugs, drive brace	555033





Hand control display	Fault description	Fault mitigation – Technician
Fault 32/1	Communication fault - Aux drive motor (32)	<ul style="list-style-type: none"> • Check connection to aux module (J2 on RS485 to J3 on 32) • Replace (32)
Fault 32/22	Hardware overcurrent - leader (16)	<ul style="list-style-type: none"> • Replace actuator (16) • Replace PCB (16)
Low battery 16	Low battery	Charge battery for 1½ to 2 hours
Critical low battery 16	Critical low battery	

CONTROL

Checklist40

Periodic Inspection according to DS/EN ISO 10535:2006

12-month inspection of lifter

Guldmann™

Information

All lifters must be inspected every 12 months. The demand for inspection is only related to safety issues and not to maintenance.

Lifter must have a sticker that indicates time for next inspection.

If a periodic inspection reveals any defects, wear or other damage that jeopardize the safety of the lifter, the owner should immediately be notified. In the event of immediate risk to the safety, the lifter should immediately be taken out of operation and must not be used again until the abnormality has been eliminated.

A record of the inspection date of the lifter and inspection result should be noted in a logbook together with the inspector's signature (checklist).

Defects and damage of importance to the safety of the lifter which have occurred between inspections and have already led to corrective actions should be entered in the logbook, and reported back to Guldmann.

Any observations of importance for the safety of the lifter should be noted, preferably in the logbook which should be retained by the person responsible for the servicing/maintenance of the lifter.

Periodic Inspection according to DS/EN ISO 10535:2006

12-month inspection of lifter

Guldmann™

Checklist

1. Electrical connections

- ☐ Check that all cables are intact
- ☐ Check that all cables are secured with a cable relief
- ☐ Check for rupture on cables and on isolation
- ☐ Check that the charger is fully functional

2. Lifter

- ☐ Check connection between hook and hanger
- ☐ Check the emergency stop
- ☐ Check the emergency lowering
- ☐ Do a full lifting cycle with rated load – must be effortless and without jarring sound
- ☐ Do a full leg spreading cycle with rated load – must be effortless and without jarring sound
- ☐ Check that all weldings are free of cracks
- ☐ Check that the wheels are free of filth and hair – must rotate effortlessly
- ☐ Check the wheel brakes – must lock the wheel
- ☐ Visual control of all fasteners – loose fasteners with thread locking adhesive must not be tightened, but replaced with new thread locking adhesive applied
- ☐ Place a sticker with a new date for next inspection

3. Lifting Hanger

- ☐ Check hanger attachment safety mechanism for correct function
- ☐ Check sling attachment rubber finger for correct function and wear
- ☐ Check for damage to plastic covers that could compromise use of the hanger

Comments:

Place of Inspection:

Serial number:

Inspection date:

Inspection by:
