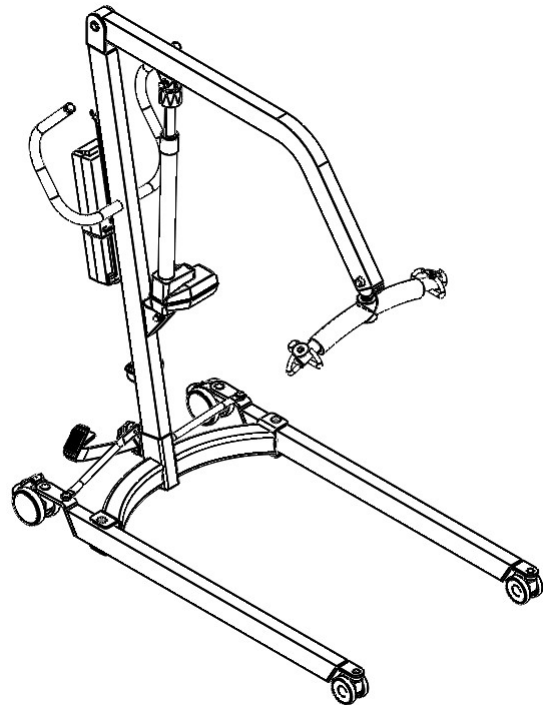
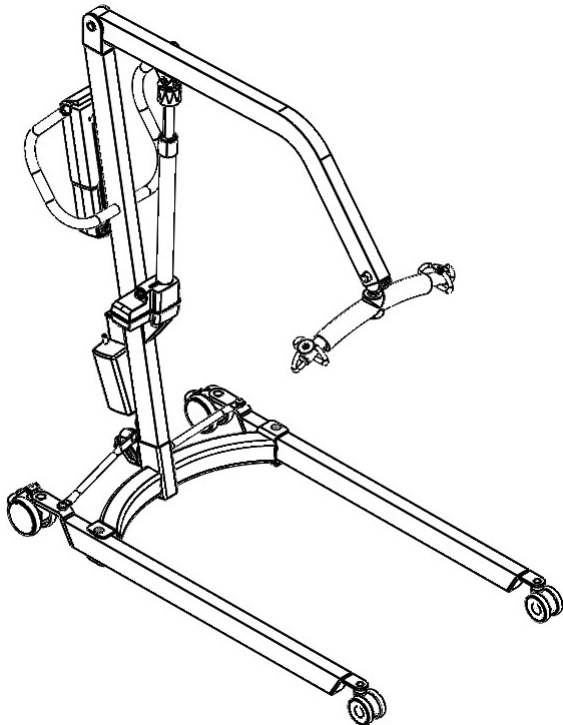
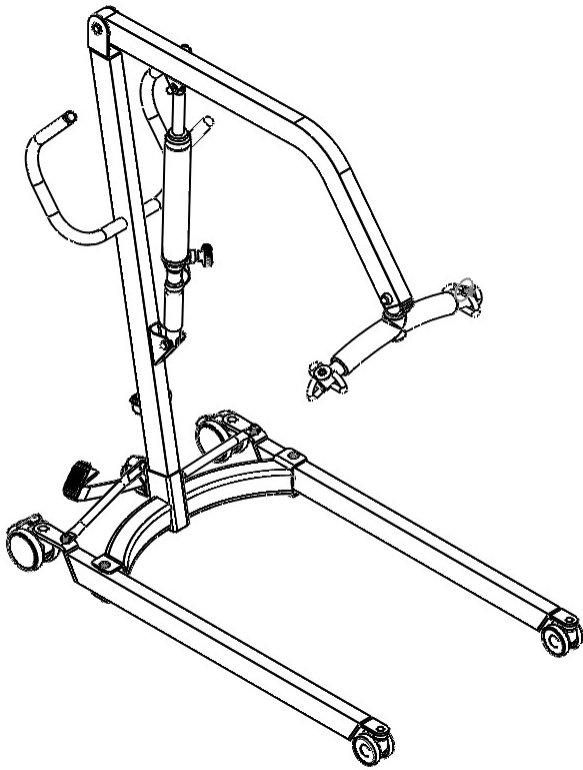


Service - Parts Manual

Hoyer[®] HML450 & HPL450



Statement of Intended Use

The intended use of this lifting device is for the safe lifting and transfer of an individual from one resting surface to another (such as a bed to a wheelchair). Joerns Healthcare recommends that the transfer of a patient is fully risk assessed and conducted safely over a short distance only.

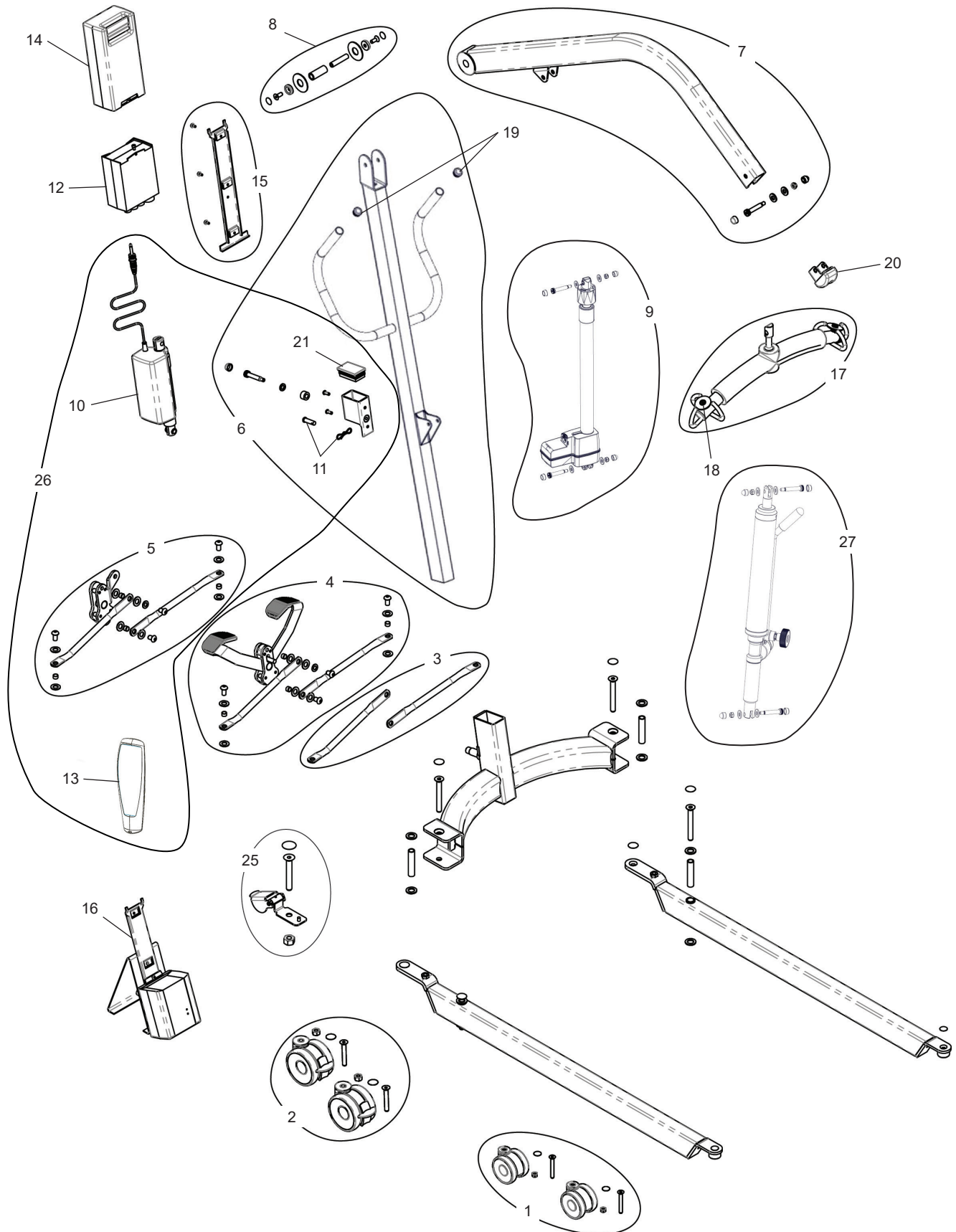
The Hoyer HPL450 and HML450 lifts are suitable for patients in the SITTING, SITTING/RECUMBENT and RECUMBENT positions.

The Hoyer HPL450 lifts are an electrically operated patient lifts, designed to support and promote safe patient handling and transfer for both the patient and caregiver.

The Hoyer HML450 lift is a manually operated patient lift, designed to support safe patient handling and transfer for both patient and caregiver.

The Hoyer HPL450 and HML450 lifts incorporates a 6-point loop style spreader bar as standard and is designed to be used in conjunction with the Hoyer professional range of slings. The examples of slings suitable for use with this device are listed as follows:

- Hoyer Quickfit
- Hoyer Access
- Hoyer Full Back
- Hoyer Long Seat
- Hoyer Quickfit Deluxe
- Hoyer Standing Harness
- Hoyer Repositioning
- Hoyer Twin Turner
- Hoyer Limb



Hoyer®
HML450 / HPL450 Lifts

NO	PART NUMBER	DESCRIPTION
1	39001725	FRONT CASTERS, 75MM (Pair including hardware)
2	39001726	REAR CASTERS, 100MM (Pair including hardware)
N/S	39001944	HPL/HML450, BASE ASSEMBLY, MANUAL
N/S	39001945	HPL450, BASE ASSEMBLY, ELECTRIC
3	39001264	HPL/HML450, TIE RODS (incl. hardware)
N/S	39001431	HPL/HML450, FOOT PEDAL PADS (Foot Pad Adhesive Backed x2)
4	39001275	HPL/HML450, MANUAL LEG MECHANISM
5	39001405	HPL450, ELECTRIC LEG MECHANISM
N/S	39001949	HPL/HML450, MAST LOCKING HARDWARE
6	39001950	HPL450, MAST, ELECTRIC LEG VARIANT Electric leg models ONLY
	39001951	HPL/HML450, MAST, MANUAL LEG VARIANT Manual Leg Model ONLY
7	39001952	HPL/HML450, BOOM
8	39001953	HPL/HML450, BOOM PIVOT HARDWARE
9	39001954	HPL450, LA40PL ACTUATOR
N/S	39001457	ACTUATOR POWER LEAD (Actuator Cable, LA44, 460mm Long)
10	39001441	HPL450/HPL500, LEG ACTUATOR (LA28 Actuator 60mm Stroke)
11	39001467	HPL450/HPL500, LEG ACTUATOR HARDWARE (Clevis Pin, Bowtie Clip)
12	39001994	HPL450, CONTROL BOX (ELECTRIC LEG)
	39001955	HPL450, CONTROL BOX (MANUAL LEG)
13	11015532	USER HANDSET - 2 CHANNEL Electric Leg Model ONLY
	11015531	USER HANDSET - 1 CHANNEL Manual Leg Model ONLY
14	0Y0067	BATTERY PACK, 24V RECHARGEABLE (Battery Pack, 24V)
15	39001698	MOUNTING BRACKET (Mounting Bracket, Screw x3)
16	0Y0053	CHARGER & STAND ASSEMBLY WITH USA LEAD (Charger Stand Assembly, Cable Mains USA)
N/S	11012182	CHARGER LEAD - US
17	39001957	STANDARD SPREADER BAR (Spreader Bar with Misc. Mounting Hardware)
18	39001304	SPREADER BAR SLING RETAINING WASHER
N/S	39001958	HPL/HML450, DECAL SET, MANUAL LEG
N/S	39001959	HPL450, DECAL SET, ELECTRIC LEG
19	39001455	End Caps x2
20	39001960	Boom End Cap (Includes mounting hardware)
N/S	39001449	19mm Screw Covers x2
N/S	39001450	25mm Screw Covers x2
21	11015755	Rectangular Tube Insert Electric Leg Model ONLY
25	39001469	HPL450/HPL500, STRAIGHT LINE STEERING DEVICE
N/S	18001292	White Lift Touch Up Paint, Spray
26	39001961	Kit, Electric Leg Retrofit - HPL450
N/S	39001896	Kit, HPL450/HPL500, Boom/Mast Actuator Hardware
27	39001271	Kit, HML450, Hydraulic Pump

Service and Maintenance

Required Tools: Phillips Screw Driver, Metric Hex Key Set (Allen wrenches), 24mm Socket or Wrench, 17mm Socket, 13mm Socket, 5/16 Socket, Medium Strength Loctite 248 (Blue Stick type) (Older models may require external circlip pliers).

In the event that an inspection of the following components results in the need to replace hardware or assemblies, see the individual service kits listed in the previous section of this service manual. Remove lift from service until required repairs are complete.

Note: Joerns Healthcare recommends that nyloc nuts be replaced once removed.

Spreader Bar

1. The spreader bar assembly is attached to the boom using a Socket Head Shoulder bolt and Nyloc nut.
2. Remove the plastic covers from the Shoulder bolt and Nyloc nut.
3. Using a 13mm Socket and a 5mm Allen wrench remove the Nyloc nut and adjacent washer.
4. Be sure to support the spreader bar before removing the Shoulder bolt.
5. Slide the Shoulder bolt out of the Boom.
6. Examine the Shoulder bolt for signs of wear or damage.
7. With the spreader bar removed from the Boom, examine the attachment point. This applies to both “scale” and “non-scale” versions of the HPL450 and HML450 lifts.
8. Disassembling the Kingpin (attachment point) from the spreader bar is not recommended, and may result in injury or death if tampered with.
9. Check the spreader bar sling hooks for wear or damage. Ensure that the hooks are not bent.

After performing all actions and checks in the previous section reassemble the spreader bar as follows:
Instructions apply to both “scale” and “non-scale” versions.

1. Lubricate the main pivot components (Shoulder bolt, Nyloc nut and boom pivot attachment holes) with any light mineral-based grease, or food grade spray lubricant. Ensure that there is ample lubricant applied to the contacting surfaces of the Shoulder bolt and nyloc nut. Also apply lubricant to the boom pivot attachment holes.
2. Align the spreader bar attachment point to the boom pivot attachment holes. Place one of the washers onto the Shoulder bolt before inserting the Shoulder bolt through the boom attachment holes. Scale versions will have additional spacers that will need to be assembled to each side of the scale housing before the Shoulder bolt can be inserted into the boom attachment holes.
3. Place the second washer over the exposed end of the Shoulder bolt and then assemble the Nyloc nut onto the threaded end of the Shoulder bolt. Tighten the nut until it stops.
4. Press the two plastic covers onto the head of the Shoulder bolt and the Nyloc nut.

Note: It is critical that the spreader bar assembly is inspected after reassembly prior to returning the lift to service.

Boom / Mast

1. Examine the two countersunk Socket Cap Screws (Allen head) that attach the boom to the mast pivot. Ensure that both are fully tightened.
2. Inspect the pivot attachment area of the mast and boom. The bushings located at the pivot point in the boom will need to be replaced if cracked or showing signs of excessive wearing.
3. Check that there is no excessive movement allowed in the mounting area both vertically and horizontally. This will be a good indication of wear and a full inspection of the pivot and mounting area is required. To fully inspect the bushings and pivot area follow these instructions:
 - a. Remove the spreader bar per previous instructions.
 - b. Lower the boom to its lowest point.
 - c. Loosen the two countersunk socket cap screws using two 5mm Allen wrenches.
 - d. Remove the fasteners and lift the boom from the mast pivot.
 - e. Inspect the plastic bushing and two plastic spacers for cracks and any signs of significant wear.
 - f. Inspect the external surface of the threaded metal pin for signs of damage or significant wear.
 - g. Inspect the attachment point on the Mast for signs of wear.
 - h. If no action is required upon inspection of the pivot area, reassemble, applying any light mineral-based grease, or food grade spray lubricant to the exterior surface of the threaded pin, the interior diameter of the plastic bushing, flat surfaces of the two plastic spacers. Reassemble the components by inserting the plastic bushing into the end of the boom pivot boss and placing the two plastic spacers over the exposed ends of the bushing on either side of the boom pivot boss. While holding the spacers in place, guide the pivot end of the boom into the pivot bracket at the top of the mast. Insert the threaded pin through the bracket and boom pivot boss. Place a countersunk washer onto one of the M8 x 20mm countersunk screws and install it into one of the exposed ends of the threaded pin. Install a second M8 x 20mm countersunk screw and washer into the other end of the threaded pin.
 - i. Fully tighten both screws using two 5mm Allen wrenches.
4. Inspect the attachment points of the actuator at the boom and mast. Without disassembling the actuator from the attachment point look for signs of wear at the pivot. Check that there is no excessive movement allowed in the mounting area both vertically and horizontally. This will be a good indication of wear and a full inspection of the pivot pins and mounting area is required. To inspect the actuator and pivots follow these instructions:
 - a. Carefully pry off the plastic caps and use the 5mm hex wrench and 13mm socket to remove the fasteners, starting at the top of the actuator. Support the boom as you remove the upper fasteners, and carefully swing the actuator away from the boom pivot and lower the boom prior to removing the lower fasteners.
 - b. Inspect the actuator mounting brackets on the boom and mast for excessive wear of the holes on both sides of the brackets.
 - c. Reinstallation is the reverse of removal. Joerns does not recommend the re-use of nyloc nuts.

Battery Pack and Control Unit

1. Remove the battery pack and control unit from the bracket. The control unit is held in place by one (1) screw at the top of the control unit.
2. Inspect the mounting bracket for damage and ensure that the three (3) #8 mounting screws are in place and secure.
3. Reattach the control unit.
4. Check the engagement of the battery pack with the mounting. The battery pack should snap in place and be held firmly by the latch at the top of the battery pack.
5. Inspect the hand control and cables for obvious signs of damage. Damage to the hand control and particularly the cable can cause intermittent failures. The hand control should be replaced if damage is evident to the control or cables.
6. Check the operation of the hand control. Press the up and down buttons and confirm that the boom moves in the correct direction.
7. For Electric Leg equipped units, press the leg open and close buttons confirming that the legs move in the proper directions.
8. Check the operation of the emergency stop switch. Push the red button on the control unit. It should remain depressed and operation of the lift should not be possible.
9. Power can be restored by twisting the red button clockwise and releasing.

Mast / Base

To remove the mast from the base, it is recommended to use two persons.

1. On Electric Leg equipped units (for Manual Leg units skip to Step 2):
 - a. Unplug the power cord of the lower actuator from the bottom of the control unit.
 - b. Remove the retainer clip and clevis pin that connects the lower actuator to the leg operating mechanism.
2. Set the caster brakes to prevent the lift from moving.
3. Loosen the Mast Locking Knob by turning it counter-clockwise at least 6 full turns.
4. Lift the Mast/Boom assembly up and out of the Mast receptacle at the center of the base.
5. Position the Mast/Boom assembly on the floor, making certain not to damage the control unit on the back of the mast.
6. Looking down inside the Mast receptacle, make certain that the metal pin extending upward is not bent or broken.
7. To reassemble, insert the lower end of the Mast tube into the Mast receptacle of the base, making certain that the Mast/Boom assembly is oriented so that the Boom is pointing in the same direction as the legs of the lift.
8. Lower the Mast/Boom assembly into the receptacle until the line on the locator decal on the side of the Mast tube is flush with the top edge of the Mast receptacle.
9. Tighten the Mast Locking Knob by rotating it clockwise until fully tightened.

Base/ Legs

1. For stability and safety take note that when the legs are in the closed position they should measure approximately 26-5/8" from the outsides of the plastic leg bumpers at the end of the legs. They should also be at a 90 degree angle to the base. If these measurements are not correct upon inspection of the lift additional maintenance may be required.
2. Peel the Screw Covers off the leg pivot joints and check to see if the legs or the leg pivot bolts are loose using a 8mm Allen Wrench.
3. Check the socket head tie rod bolts to ensure that they are tight using a 6mm Allen wrench.
4. Peel the Screw Covers off the leg caster brackets to access the caster bolts using a 6mm Allen Wrench. Check to make certain that the caster bolts are tight and secure.
5. Re-apply all of the screw covers.
6. Inspect the tie-rods and tie-rod hardware for damage or excessive wear.
7. Replace any component that show signs of damage or excessive wear.

Casters/ Straight-Line Caster Guide

1. Inspect the front and rear casters for damage. Ensure that mounting hardware/casters are securely attached. Make certain that all caster wheels and pivots rotate freely. Remove any build-up of threads, hair or dust that may clog the bearings and prevent free rotation.
2. Inspect the straight-line caster guide to ensure that it is securely attached and that the caster engagement bar rotates freely and engages the caster to prevent it from pivoting.
3. Inspect the rear caster's braking mechanism. A foot-operated pedal activates the brakes. Ensure the brake pedals lock in place and that the lift does not move when the brakes are activated.
4. Lubricate if needed with a light mineral based grease or food grade spray lubricant.

Maintenance Schedule & Daily Checklist

All Hoyer products are designed for minimum maintenance, however some safety checks and procedures are required. A schedule of DAILY tasks are detailed below. Daily checks and a yearly service, inspection and test will ensure a lift is kept in optimum safe working condition. A list of spare parts is available upon request.

DAILY CHECK LIST: Joerns Healthcare strongly recommends the following checks be carried out on a daily basis and before using lift.

- MAKE sure the lift moves freely on its castors.
- MAKE sure the spreader bar is free to rotate and swing. Check the spreader bar is firmly attached to the boom.
- ENSURE the mast is fully engaged into the mast slot and the mast is securely in place.
- EXAMINE the sling hooks on the spreader bar for excessive wear. If in doubt - do not use.
- MAKE sure the legs open and close correctly.
- OPERATE the hand control to confirm the boom raises and lowers satisfactorily.
- CONFIRM the lift is not giving a low battery indicator when the hand control is operated. If a low battery is indicated, DO NOT use and place on charge immediately.
- Check the operation of the emergency stop button.
- EXAMINE slings for fraying or other damage. DO NOT use any sling if damaged or if the sling shows signs of wear.

MAINTENANCE

Joerns Healthcare recommends regular inspection and maintenance. Please refer to the chart on the next page.

THESE CHECKS SHOULD INCLUDE:

✓ = Recommended

	Initially	Before Use	Annual Service
1. SPREADER BAR: Check the spreader bar for freedom of rotation and swing. Check for wear on the central pivot. Check for firm attachment to the boom.	✓	✓	✓
2. BOOM: Check the attachment of the boom to the mast. Make sure there is only minimal side movement of the boom and the boom is free to rotate on the boom bearing.	✓	✓	✓
3. MAST: Check the operation of the mast-locking device. Make sure the mast fully engages into the socket.	✓	✓	✓
4. ACTUATOR: The actuator (two, if lift has optional electric legs) should require no maintenance other than checking for correct operation and listening for unusual noise.	✓		✓
5. CONTROL BOX/SMART MONITOR: Check the function of the emergency stop button. Inspect the hand control socket for correct fitting. Check functioning of the hand control. Check the redundant controls and confirm they operate as intended.	✓	✓	✓
6. BATTERIES: The batteries are housed in the power pack and should not require maintenance other than the regular charging as detailed in the charging instructions. Check that the connections remain clean.			✓
7. LEG ADJUSTMENT: Check the legs operate in both full extensions (inward/outward).	✓		✓
8. CASTORS: Check all castors for firm attachment to the legs. Check for free rotation of the castor and the wheels.	✓	✓	✓
9. CLEANING: Clean with ordinary soap and water and/or any hard surface disinfectant. Harsh chemical cleaners or abrasives should be avoided as these may damage the surface finish of the lift. Avoid wetting any of the electrical parts.		✓	✓
10. BASE AND WHEELS: Ensure base is even and level (all four wheels are on the floor).	✓	✓	✓
11. SLINGS: Check for wear and fraying.	✓	✓	✓
12. LUBRICATION: Lubricate pivot joints with a food grade spray lubricant, including mast and boom connections, pedal assembly, spreader bar joint (only if required).			✓
13. HAND CONTROL: Ensure plugged fully into controller.	✓	✓	
14. HARDWARE: Check all nuts, bolts, screws and fasteners for excessive wear and for tightness. Replace as required.		✓	✓

Technical Specifications

Safe Working Load	450 lbs
Maximum Overall Length	54.0 inches
Minimum Overall Length	53.5 inches
Maximum Overall Height.....	81.0 inches
Minimum Overall Height.....	54.5 inches
Spreader Bar Maximum Height	74.0 inches
Spreader Bar Minimum Height.....	21.0 inches
Height of Spreader Bar at Maximum Reach	48.0 inches
Reach at Maximum Height.....	18.5 inches
Reach at Minimum Height.....	19.5 inches
Maximum Reach*	29.0 inches
Turning Radius	53.0 inches
Legs Open - External Width	48.0 inches
Legs Open - Internal Width	40.25 inches
Legs Closed - External Width	27.0 inches
Legs Closed - Internal Width	22.4 inches
Overall Height of Legs.....	4.0 inches
Ground Clearance	0.6 inches
Front Twin Castors	75 mm
Rear Braked Castors.....	100 mm

Weights

Mast, Base & Boom Assembly (Electrical Base).....	98.9 lbs
(includes 2 point spreader bar)	
Mast, Base & Boom Assembly (Manual Base)	100.8 lbs
Power Pack	6.1 lbs
Total (Electrical Base).....	105 lbs
Total (Manual Base)	106.9 lbs

* Measurement at 600mm per EN ISO 10535

All measurements are within +5/-5 degree of tolerance.

Electrical Specifications:

Batteries2 x 12 Volt rechargeable sealed lead acid type
Battery Capacity2.9 Ampere hours
Charger Rated Input100-240V AC/24 VDC 50/60 Hz. Max 400MA
Charger Rated Output29.5 VDC. Max 19W

Electric Shock Protection:

Charger.....Class II (Double insulated)
Lift.....Internal Power Source

Degree of Shock Protection:

Charger.....Type B
Lift.....Type B

Environmental Conditions:

Outside this environment functionality and safety may be compromised.

Operating:

Temperature5°C to 40°C
Relative humidity20% to 90% @ 30°C - not condensing
Atmospheric pressure800 to 1060 hPa
Noise level.....55 dB

Storage:

Temperature-10°C to +50°C
Relative humidity20% to 90% @ 30°C - not condensing
Atmospheric pressure800 to 1060 hPa

IP Ratings:

Control BoxIPX4
ActuatorIPX4
Off Board ChargerIPX5
BatteryIPX5
Hand ControlIPX4

Duty Cycles:

Actuator10% (2 min/18 min)
Battery10% (2 min/18 min)

KEY SYMBOLS:

The following symbols are used on the charger, control unit and battery:



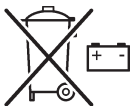
Type B equipment, as per EN 60601-1



Class 2 equipment



The disposal of the charging and control unit should not be mixed with general household waste.



The disposal of batteries should not be mixed with general household waste.



The disposal of electronics should not be mixed with general household waste.



For indoor use



ATTENTION, consult accompanying documents.

Warranty

This Warranty covers HPL450 and HML450 Lifts only. Lifts not covered under this warranty include, but are not limited to: Advance-H, HML400, HPL402, C-HLA, all HoyerPro (and variations).

HPL450 and HML450 Lifts are guaranteed for a period of two (2) years from the date of delivery against defects in materials and workmanship under normal use and service. This warranty includes all mechanical and electrical components (excluding Batteries and casters).

Steel structural components and mechanical components on lifts are covered under warranty for a period of five (5) years from the date of delivery.

Damage caused by use in unsuitable environmental conditions or failure to maintain the product in accordance with user and service instructions is not covered. Any alteration, modification, or repair unless performed by or authorized in writing by Joerns Healthcare will void this warranty.

Parts

HPL450 and HML450 Lifts contain various parts that wear from normal use. These parts, such as batteries and casters are not covered under the two-year warranty but are covered for 90 days after date of delivery.

Joerns Healthcare's obligation under this warranty is limited to supplying replacement parts, servicing, or replacing, at its option, any product which is found by Joerns Healthcare to be defective.

Warranty replacement parts are covered by the terms of this warranty until the product's original warranty period expires.

When requested by Joerns Healthcare, parts must be returned for inspection at the customer's expense. Credit will be issued only after inspection.

Service

Most service requests can be handled by the facility Maintenance Department with assistance from the Joerns Healthcare Product Service Department.

Most parts requested can be shipped next day air at the customer's expense.

Should a technician be required, one will be provided by Joerns Healthcare, at our discretion. Only the Joerns Healthcare Product Service Department can dispatch authorized technicians.

This warranty is extended to the original purchaser of the equipment.

