

LEVO *KID & JUNIOR*

SERVICE MANUAL



This service manual is designed for use by your LEVO dealer and authorized service technicians.

Please carefully read these instructions before carrying out maintenance work on your wheelchair.

This service manual must be read in connection with the instruction manual.

Alterations in constructional and technical manner or to the electronic require the written authorisation of LEVO AG, otherwise no warranty or product liability will be accepted.

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1. Introduction

Your **LEVO KID & JUNIOR** is maintenance-free dispensing the user with the need for further maintenance work except for charging the battery and cleaning the wheelchair on a regular basis.

Due to its complex design, the wheelchair should be checked for safety at least once a year by your LEVO dealer or authorized technician.

This service manual has been designed for use by your LEVO dealer or authorized technician. It contains all information required to carry out safety checks and repair works on your **LEVO KID & JUNIOR**. It will ensure that your wheelchair is a reliable, safe and helpful means of transport.

Always read and apply this service manual in connection with the instruction manual.

2. Accident prevention & safety

Accidents can happen. Be aware of possible dangers when carrying out tests or works on your wheelchair. You should take suitable preventive measures to ensure your own safety and that of other persons.

3. Adjustments – general instructions

Depending on the ability of the user's friends and relatives, they may carry out some of the adjustment works themselves. This manual will tell you how to proceed. However, when delivered, your wheelchair should be adjusted to your personal needs by your LEVO dealer or authorized technician.

4. Repairs – general instructions

Service and repair works on the **LEVO KID & JUNIOR** should only be carried out by a LEVO dealer or authorized technician.

- Repairs: For advice in all repairs in Switzerland contact LEVO AG if in Switzerland. For all other countries contact your local LEVO agent. Addresses are given at the front of this instruction and service manual.
- Major repairs: For all major repairs e.g. bent or damaged frame always replace complete components. Never try to repair damaged steelwork or components.
- Replacement parts: Factory replacement components should be used in all repairs, these are available from LEVO AG. To order parts see the parts list drawings at the end of this manual.

5. Tools & torques

The following tools are required to carry out maintenance work:

Allen key
3mm
4 mm
5 mm
6 mm
8 mm
$\frac{3}{16}$ "

Spanner
10 mm
13 mm
17 mm
27 mm

Screw size	Torque in Nm
M4	3
M5	6
M6	10
M8	25
M10	50

Cross blade screwdriver	Flat blade screwdriver
Soft headed hammer	
Torque wrench: 0 - 50 Nm	

6. Important notes

- Do not reuse Nyloc nuts. Always replace with a new Nyloc nut.
- Always use thread locking compound.
- Always use recommended components and parts available from LEVO AG.
- Do not modify or repair the frame.
- LEVO AG is responsible for any repairs on gas springs, motors and electronic parts.

7. Recommended safety checks

Please note that the following safety checks should be carried out **at least on an annual basis**. Have them carried out only by your LEVO dealer or an authorized technician. If a defect occurs, immediately discontinue using the wheelchair until the defect is remedied.

1. Fold down the backrest and reset. Having put the backrest back in place, check that the clasp latches correctly. Rectify possible defects.
2. Check the frame for possible defects. Replace defective parts if in need of repair.
3. Check seat and backrest covers for possible wear and replace, if necessary.
4. Check the condition of straps, belts and catches and replace, if necessary.
5. Check that nuts, screws, joints and plastic parts are securely tightened as well as for proper condition. Rectify possible defects.
6. Check that push handles and handle covers fit tightly. Rectify possible defects.
7. Check brakes for adequate braking efficiency. Rectify possible defects.
8. Check that front castors and rear wheels run smoothly and are securely fastened. Check tire pressure and the tread of the tire of rear wheels.
9. Check all electrical cables for abrasion marks and safe operation. Rectify possible defects.
10. Check all electrical connections for signs of corrosion and safe operation. Rectify possible defects.

11. Clean batteries and connections. Check battery capacity and inform the customer of its condition. Recharge the battery before returning the wheelchair to the customer.
12. Check the stand-up mechanism and its proper operation. Rectify possible defects.

8. Adjustments

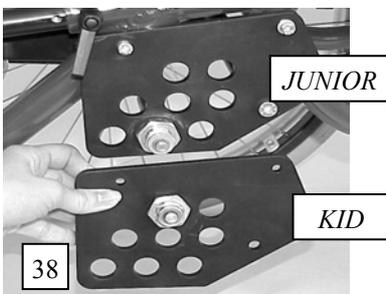
8.1. The backrest and seat upholstery

The surface flexibility of the backrest upholstery can be adjusted using the velcro fasteners. The backrest can be tautened (for a more upright seated posture) or relaxed (for more back support).

The seat upholstery can be similarly tautened or relaxed by use of velcro fasteners. As a rule it should be as taut as possible. Depending on the height of the cushioning in question, it may be necessary to loosen upholstery surface tension to be able to sink the cushioning down between the two seat supports.

8.2. The rear axle

In your **LEVO KID** the rear axle is fitted as standard in the top rear edge of the axle adaptor and in your **LEVO JUNIOR** in the center of the lowest row of holes. This results in a seat inclination of 5° to the rear (see photo 38).



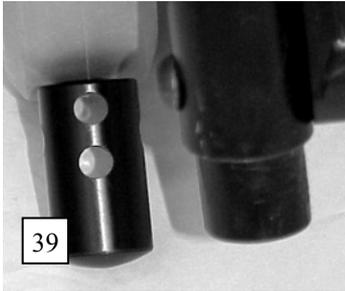
- To increase the wheelchair's tendency to tilt, set the axle one hole forward in the axle adaptor.
- To decrease the wheelchair's tendency to tilt set the axle one hole backwards in the axle adaptor.

Attention: it is not permitted to fix the axle in holes further upwards or downwards to adjust the seat inclination. This will cause instability when standing (risk of tilting)!

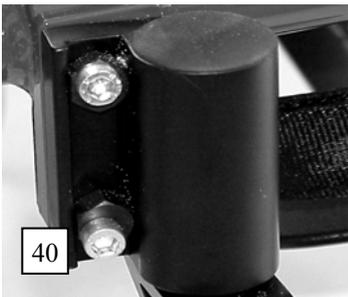
8.3. The castor axle

Having made adjustments to the rear axle, be sure to adjust the castor height and angle accordingly. When carrying out these adjustments, it is important to bear the following points in mind:

- The castor axle should stand at a right angle to the ground.
- The castor should always remain in contact with the ground.
- In the uppermost standing position, the leg supports must be resting on the ground.



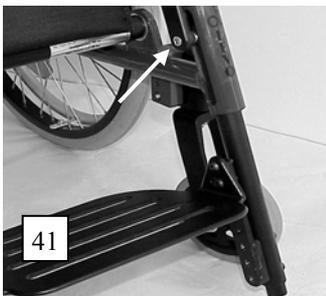
- Bring the LEVO KID & JUNIOR into the standing position.
- Unscrew and remove the cylindrical screws using a 4 mm Allen key, then set the plastic leg plug either higher or lower so that the leg supports are standing on the ground. You may have to turn the leg plug by 90° at most. (see photo 39).



- Unscrew the two cylindrical screws using a 5 mm Allen key and turn the eccentric disc until the axle is sitting vertically (see photo 40). You may have to turn only one of the two eccentric discs. Screw the cylindrical screws tight.

8.4. The leg supports

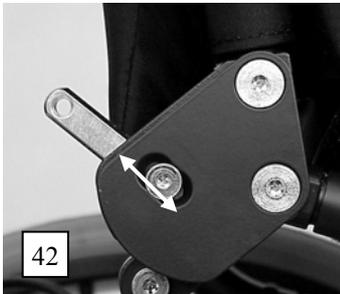
The leg supports should be replaced when the seat height of the wheelchair has been so greatly adjusted that they no longer reach the ground or reach the ground too soon in the uppermost standing position.



- Remove the footrest by loosening the four oval head screws on both the inner edges of the leg supports using a 4 mm Allen key (see photo 41).
- Loosen the four oval head screws on both the outside edges of the leg supports using a 4 mm Allen key and remove them together with the spacer bushing.
- Loosen the Allen screws on the upper portion of the leg supports using a 4 mm Allen key and pull leg supports out of the frame (see photo 41).
- Replace the leg supports and reassemble in reverse order.

8.5. Backrest inclination

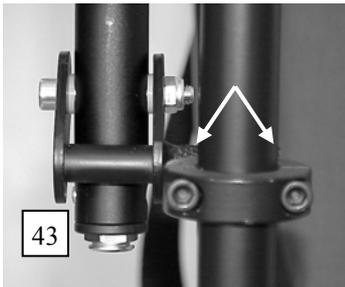
The backrest sits at an angle of 90° to the seat as standard but can be adjusted in either direction by 5°. This adjusting mechanism is not stepless.



- Remove the rear wheels, then remove the skirt guards (see Instruction Manual, section 11).
- Unscrew the countersunk screw on the outer joint using a 4 mm Allen key, remove the screw and the bushing (see photo 42) before adjusting to the desired position and tightening up the countersunk screw.

Attention: Having adjusted the backrest angle, check that the clasp of the folding mechanism latches correctly!

8.6. Armrests

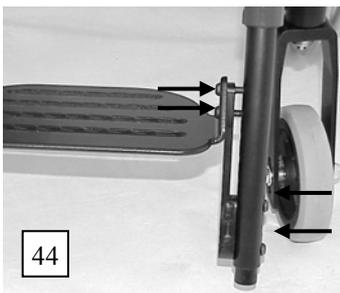


- Remove the backrest cover as well as the velcro fasteners below.
- Loosen the Allen screws of the armrest support using a 3/16" Allen key and adjust the armrest to the desired height (see photo 43).
- Attach the velcro fasteners above and below the armrest. You may have to adjust the height of the armrest to the position of the velcro fasteners.

8.7. The footrest

The height of the footrest is not only important for a good sitting position but even more so for the standing position. On delivery you will find the footrest at the second lowest position.

- With the **LEVO KID** there is a choice of 6 different heights for mounting the footrest.
- With the **LEVO JUNIOR** there is a choice of 12 different heights for mounting the footrest.



- With the **LEVO KID** and the **JUNIOR** unscrew the four oval head screws on both inner edges of the footrest using a 4 mm Allen key and set the footrest either higher up or lower down (see photo 44).
- With the **LEVO JUNIOR** you additionally have the possibility to adjust the height of the footrest adapter by loosening the four oval head screws on both outer edges of the footrests using a 4 mm Allen key (see photo 44).

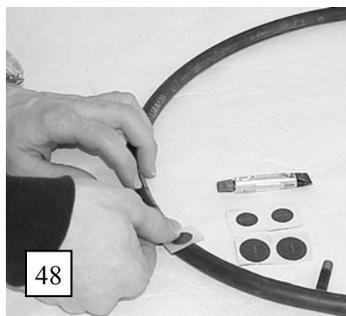
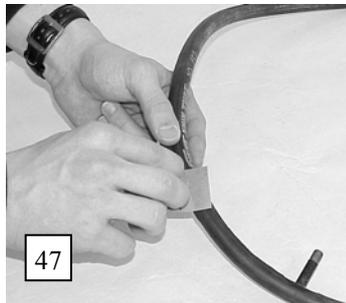
9. Repairs

9.1. Replacing tire/inner tube of rear wheels



- Remove the wheel and open the valve before pressing down on it to let out the air (see photo 45).
- Using a bicycle tire wedge, ease both sides of the tire over the wheel rim and pull the inner tube out of the tire (see photo 46).
- Replace the inner tube by forcing one side of the tire back over the wheel rim, pump up the tire a little, ease the valve through into the hole and lay the inner tube along inside of the tire. Once the whole tube is snug inside the tire, force the other side of the tire back over the wheel rim (starting on the side opposite the valve).
- Check lest the inner tube be caught between tire and rim before pumping it up in line with the manufacturer's recommended tire pressure (see Technical Data, section 12).

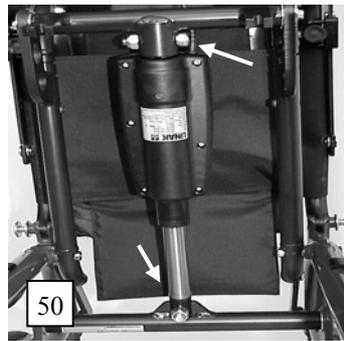
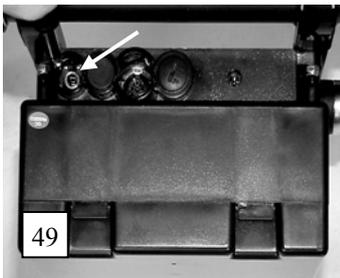
9.2. Repairing the inner tube



- Remove inner tube and tire following the steps described under 9.1.
- Repair the hole using a bicycle puncture repair kit and follow the manufacturer's instructions (clean the area around the hole and roughen the tube surface (see photo 47) before applying the vulcanized solution. Allow to dry, then firmly attach the rubber patch (see photo 48). Again, first allow to dry, then pump up the tube to check that the patch is airtight).
- Replace the inner tube. Once the whole tube is snug inside the tire, force the tire back over the wheel rim (starting on the side opposite the valve).
- Check lest the inner tube be caught between tire and rim before pumping it up in line with the manufacturer's recommended tire pressure (see Technical Data, section 12).

9.3. Replacing the actuator (lifting motor)

- Disconnect actuator plug from battery and electronic unit (see photo 49).
- Loosen and remove locking nuts and Allen screws at the front and rear connecting rod using a 16 mm spanner as well as an 8 mm Allen key (see photo 50).
- Remove the faulty motor and install the replacement in the reverse order.

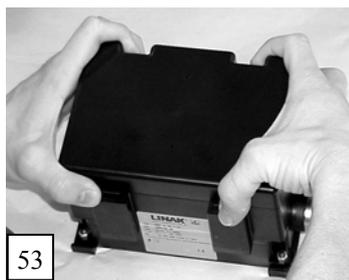


9.4. Replacing the control switch



- Pull out battery lead at the back of the armrest (see photo 51).
- Loosen Allen screw and locking nut of the armrest support using a 10 mm spanner and a 4 mm Allen key and remove the armrest (see photo 51).
- Loosen the two small oval head screws at the outer edge of the armrests on both sides (at the front edge under the foam cover) using a flat blade screwdriver (see photo 51).
- Loosen the hexagon thin nut on the front of the control switch using a 14 mm spanner (see photo 52). Remove thin nut and washer.
- Pull out control switch to the rear.
- Cut-off defective control switch by use of a cable cutter and solder on new control switch. Be sure to take into account the different cable colors.
- Install the control switch in the reverse order.

9.5. Replacing the batteries



- Switch off the emergency cut-out switch.
- Depress the four plastic tabs on the battery cover and remove the cover from the battery and electronic unit (photo 53).
- **Caution: depress all four tabs simultaneously, not only the two upper ones. The two lower ones may break off!**
- Take out the batteries. In so doing, disconnect the pin contacts.
- Install the batteries in reverse order.

Attention: Always replace both batteries together, never just one!

Caution: When working on the batteries take care not to short-circuit them with metal tools etc. Always take off wrist watches and jewelry. When reconnecting the batteries check that the cables are connected to the correct terminals.

Caution: Getting into contact with acid is dangerous. After contact with acid immediately rinse off spilt acid from your body with water and consult your doctor. Immediately take off all clothes covered with acid.

Always clean your hands after having carried out works on batteries.

Attention: Of the battery-/ electronic box only the batteries and the cover can be replaced! It is not admissible to open the electronics or to remove parts thereof (no warranty)! In case of an electronic defect the complete battery-/ electronic box must be replaced!

10. Testing the wheelchair

After having carried repairs on a wheelchair, you should always check all functions for correct operation before returning the wheelchair to your customer. The wheelchair should only be returned after all defects have been rectified.

11. Cleaning

Before you return the wheelchair to your customer, make sure that the wheelchair is clean and dry:

- Remove dirt with a damp cloth and wipe dry.
- In the case of stubborn dirt use a mild detergent and warm water for cleaning.
- Never apply furniture polish, spirit or solvents to clean the wheelchair.

12. Technical Data

Measurements

Model	<i>KID</i>	<i>JUNIOR /40</i>	<i>JUNIOR /44</i>
Seat width	30/35	30/35	30/35
Total width	49/54	49/54	49/54
Total length *	66-74	74-82	77-85
Total height (with backrest) **	55	63	68
Back upholst. height	24	24	24
Seat upholst. height front	33	40	44
Rear wheels	16"	20"	22"
Seat upholst. depth	24-35	24-35	24-35
Foot rest - seat	height and angle adjustable		
Weight without wheels	24V/2 Ah rechargeable		
Total weight	19	20	20
Weight without detachable parts	13	14	14

All measurements in cm and kg. Variations due to model-specific adjustments possible.

* without stroller handle and anti-tip rollers (anti-tip rollers = + 6 cm)

** without stroller handle and backrest extension

Rear tires:	Pneumatic tires, 16"/20"/22"
Tire pressure (rear):	7,5 bar
Front castor:	Airless castors <i>KID</i> : 3", Ø 75x26 mm <i>JUNIOR</i> : 5", Ø 125x29 mm
Power unit:	
Actuator motor:	Linear drive, 24 VDC, Power ca 3000 N, Speed max. 9 mm/sec. Power consumption max. 5.0 A, Protection: IP 51 with emergency cut-out and low voltage acoustic alarm
Batteries:	2 maintenance-free, rechargeable batteries 24 V, 2.7 Ah
Charger:	Transformer 220V - 24V
Operating temperature range:	+5° - +40°
Storage temperature range:	-40° - +60°
Clearance:	max. 6 cm
Max. height of obstacle:	max. 2 cm
Max. permissible gradient/ Cross-fall:	max. 3°
Max. weight, incl. body and load:	max. 50 kg