

Maintenance of Linear motors SM4M3 series



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This document includes maintenance periods and full maintenance procedures for M3 series of solar linear motor. To provide motor's optimal function, please obey the maintenance periods and follow the maintenance procedures carefully.

1. Maintenance periods

Once per 2 months:

- Connect positioning module to computer, resolve and clear warnings or possible errors
- Clean holes in motor housing and motor cap for draining condensed water
- Re-set time

Once per a year:

- Visually check for possible corrosion on tracker shaft
- Fix screws on all connectors properly (positioning module's side and motor's side)
- Visually check all cables for possible fractures, pinched points (blue motor cables, supply cables, photovoltaic cables)
- Make sure that photovoltaic cables have not slipped out of position in a way that they could be strained due to tracker movement
- Greasing motor's moving parts (described below)

After 7 years:

- Expected motor lifetime expiry, replacing motor with mechanical gears is suggested

2. Greasing motor's moving parts

2.1. Before disassembling motor, please acquire:

- 3 replacing rubber O-rings with diameter 7mm and thickness 1mm
- 1 replacing rubber O-ring with diameter 40mm and thickness 2mm
- Mechanical grease

2.2. Disassembling motor

- Disconnect motor cable and dismount motor from tracker **ATTENTION!!!**
Get help so tracker is held in place when dismounting the motor to prevent swinging. Then fix it into stable position with a piece of rope (wind shouldn't move it)

3. Instruction for greasing motors moving parts

1. Hold by longer pipe and hit motor's piston onto a wooden block and longer pipe should slowly slip of the motor internals.



2. Unscrew the spindle completely out.



3. Grease the spindle.



4. Insert grease under the edge of plastic surface of motor housing so piston is greased when moving. Also apply thin layer of grease onto moving piston (old model left picture) or between wiper and plastic bearing (new model right picture).



5. Grease the bearing and fill up the hole of »End switch« pin with grease.



6. Replace rubber O-rings. Reassemble motor in opposite sequence of disassembly.



7. Screw IN the lower 3 screws on motor housing, to release shorter pipe and pull longer and shorter pipes apart.



8. Pull the shorter tube (motor cover) apart from the longer tube.



9. Replace rubber O-rings.



10. Reassemble motor in opposite sequence of disassembly.



4.Replacing motor together with mechanical gears

4.1. Before disassembling motor, please acquire:

- 3 replacing rubber O-rings with diameter 7mm and thickness 1 mm
- 1 replacing rubber O-ring with diameter 40mm and thickness 2 mm

4.2.Disassembling motor

- Disconnect motor cable and dismount motor from tracker ATTENTION!!! Get help so tracker is held in place when dismounting the motor to prevent swinging. Then fix it into stable position with a piece of rope (wind shouldn't move it)

1. Screw the three bolts on the motor cover so that they retreat inside to release the short tube, which can then be removed from the motor.



2. Pull the short tube (motor cover) away from the long tube (motor).



4. Connect the power-supply cable to the motor drive the motor with buttons slowly and turn it until a threaded pin can be seen through the holes.



5. Use a hex wrench to unscrew the threaded pin.



6. Unscrew the four small M3 hex screws with 1.5 hexagon key.



7. Clip off the two wires that connect the bearing with a plate on the gear-motor.



8. Remove the gear-motor from the bearing.



9. Replace the gear-motor, and fit it to the bearing.



10. When mounting it, pay attention to the axis plane of the gear-motor. The axis plane must be at right angles to the hole in the bearing.



11. Tighten the four M3 hex screws, and the M8 threaded pin. Apply anti-loosening agent to the threaded pin before screwing it in.



12. Clip off protective plastic from the wires, and put shrink sleeves on the wires.



13. Using a soldering iron, couple the wires so that the gear-motor will be connected to the bearing.



14. Place the shrink sleeves over the soldered part. Heat the sleeves with a high-temperature burner so that they shrink to fit the wires.



15. Use adhesive tape to fix the wires so that they fit in the notch, thus making a straight connection from the end switch to the plate on the gear-motor.



16. Replace the o-rings (one big and three small ones).



17. Fit the motor cover in place, and screw the three bolts.



18. Screw the three bolts on the motor cover.





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