

maxon motor

driven by precision



Revision 02

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1. Safety note

When using the listed lubricants and adhesives, be sure to follow the safety instructions found on the MSDS (material safety data sheet). Request the latest data sheet from the manufacturer and annually check if it's up-to-date. Follow proper storage time and storage requirements as instructed by manufacturer. Safety goggles and protective gloves must to be worn during the whole oil change process.

2. Oil filling

2.1 Tools

Order code	Supplier	Comment
598575	maxon motor GmbH	Maintenance kit: 1x hand pump with silicone hose 1x back pressure valve 2x hose clamp

2.2 Consumables

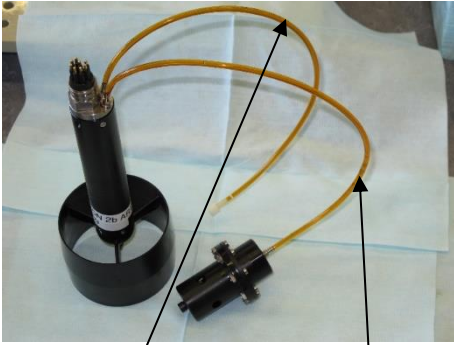
Manufacturer	Designation
Panolin Loctite	HLP SYNTH 15 431

2.3 Refill steps

If the oil dipstick falls below the recommended minimum distance of 3 notches, the total unit must be refilled with oil. The necessary steps are listed below.

pictures

working steps



hose 4

hose 5

Step 1



hose 4

hose 5

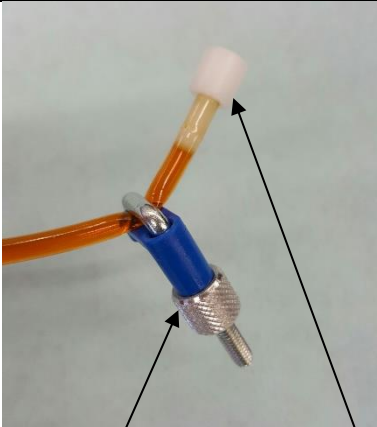
Step 2:

Clamp hose 4 just before the plug with a hose clamp.

Gap between clamp hose and plug should be 4 cm.

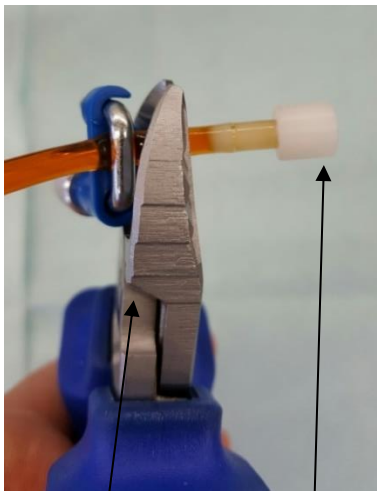
Equipment:

- hose clamp



hose clamp

plug



side cutter

plug

Step 3:

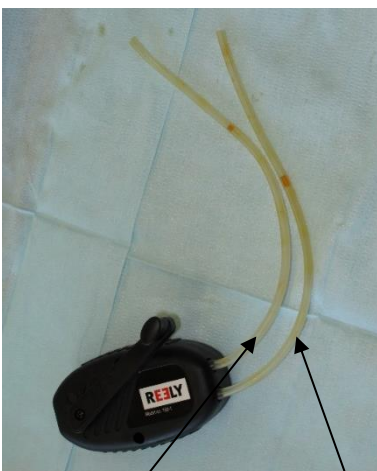
Cut hose 4 just between the plug and the hose clamp with the side cutter.

The hose length behind the clamp should be 2 cm.

Avoid air pockets inside the hose!

Equipment:

- side cutter



hose 2

hose 1

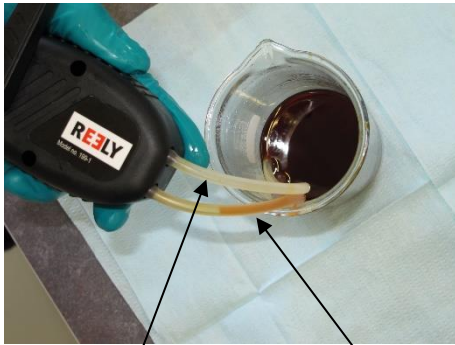
Step 4:

Cut the provided silicone in three equal size pieces. These hoses will be referred to as hose 1, hose 2 and hose 3.

Connect hose 1 and hose 2 to the hand pump, as shown in the picture.

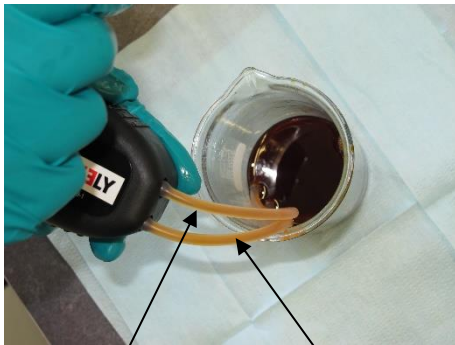
Equipment:

- hand pump



hose 2

hose 1



hose 2

hose 1



Hose 2

hose 1

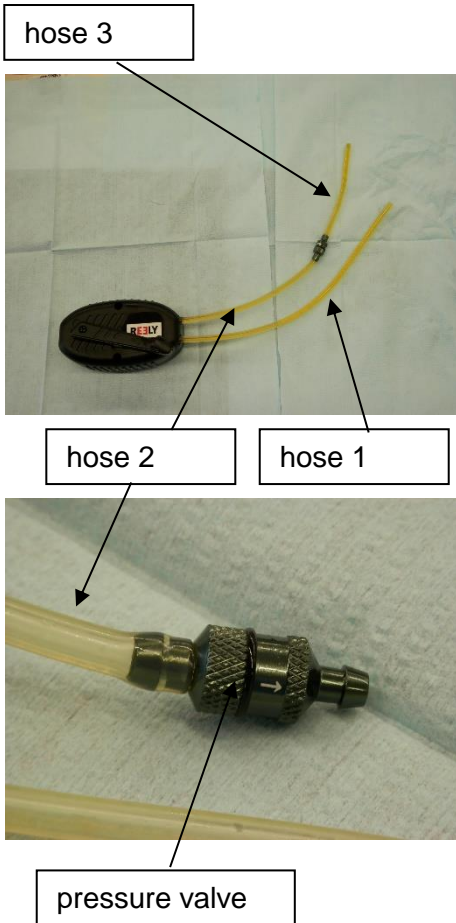
Step 5:

Immerse the open ends of hose 1 and hose 2 in oil and actuate the crank of the hand pump clockwise. Actuate the hand pump until both hoses are completely filled with oil.

Avoid air pockets inside the hose!

Equipment:

- hand pump

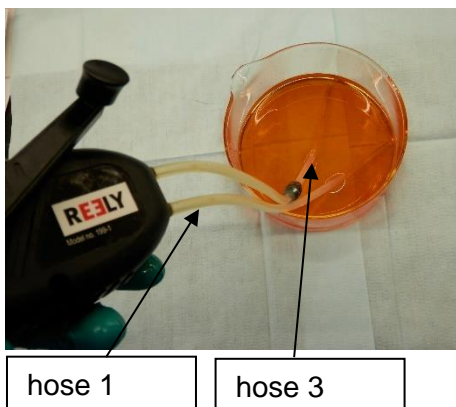
**Step 6:**

Connect the open end of hose 2 with the back pressure valve. Connect the other end of the back pressure valve with hose 3.

Be sure to note the correct direction of flow indicated on the back pressure valve!

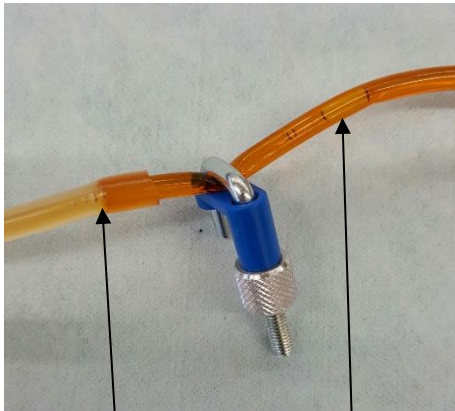
Equipment:

- back pressure valve

**Step 7**

Immerse the open ends of hose 1 and hose 3 in oil and actuate the crank of the hand pump clockwise. Actuate the hand pump until all three hoses are completely filled with oil.

Avoid air pockets inside the hose!



hose 3

hose 4

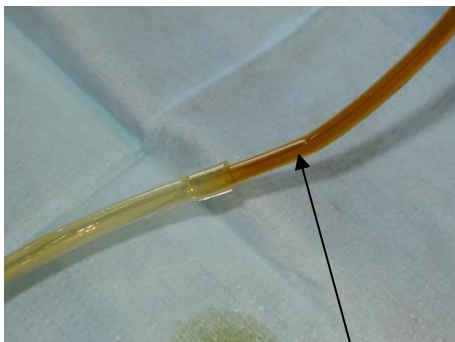
Step 8:

Connect hose 3 with the clamped end of hose 4.

Avoid air pockets inside the hose!

**Step 9:**

In case of air inside hose 1, immerse the end of hose in oil; then pinch the hose so that it becomes saturated with oil.



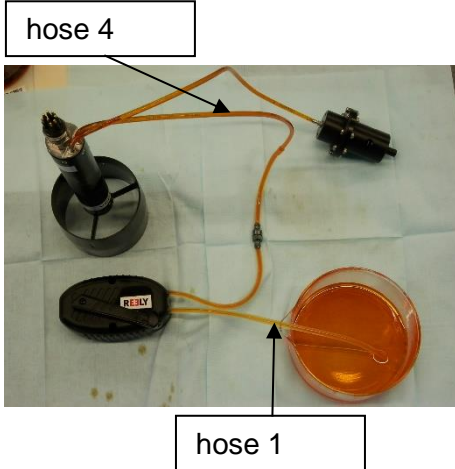
hose 4

Step 10:

Immerse the open end of hose 1 in oil, maintain the connection between hose 3 and hose 4 and remove the hose clamp from hose 4.

Equipment:

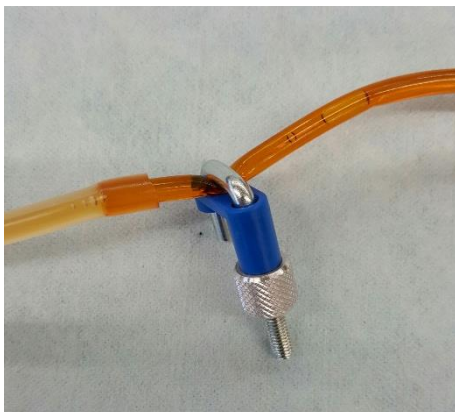
- hose clamp

**Step 11:**

Actuate the hand pump clockwise until the oil dipstick has reached the 4th fill notch.

Equipment:

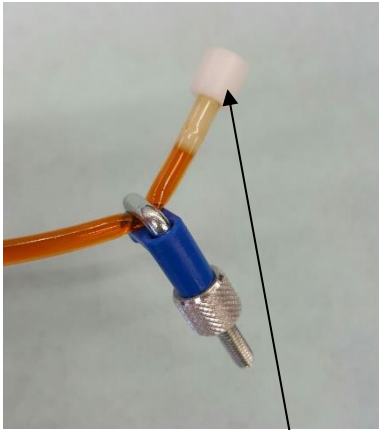
- hand pump

**Step 12:**

Once the oil dipstick reaches the 4th fill notch, clamp hose 4 again with the hose clamp.

Equipment:

- hose clamp



hose 1

Step 13:

Disconnect hose 3 from hose 4 and replug the previously removed plug to the open end of hose 4. Remove hose clamp from hose 4.

Equipment:

- hose clamp
- hose plug



Now the requested (recommended or required) fill level of 4 notches is reached.

3. Propeller and Nozzle change

3.1 Tools

Tool	Comment
torque wrench and socket for female screws with external hexagon	wrench width 8 for the socket torque = 2,0 Nm
torque wrench and blade for screws with hexalobular socket	blade size 10 hexalobular torque = 0,5 Nm

3.2 Consumables

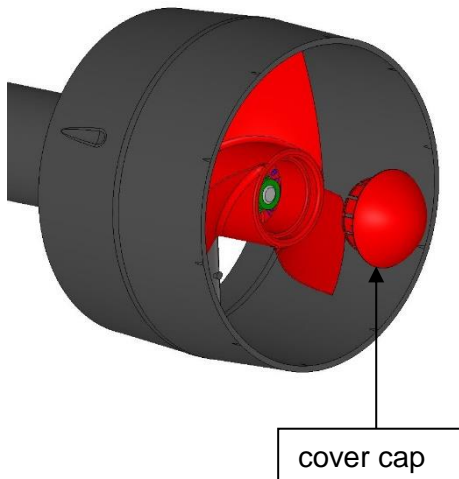
Manufacturer	Designation
Loctite Loctite	243 E 3508

3.3 Propeller change

The following chapter describes the procedure for changing the nozzle and the propeller.

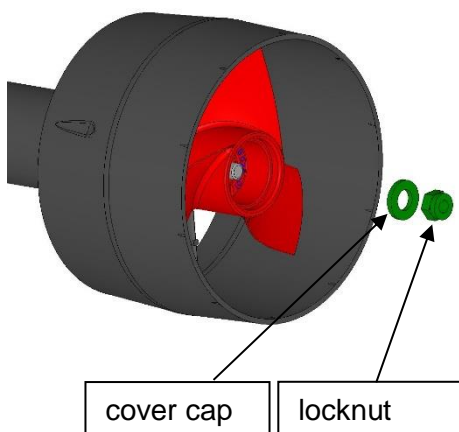
pictures

Changing propeller
working steps



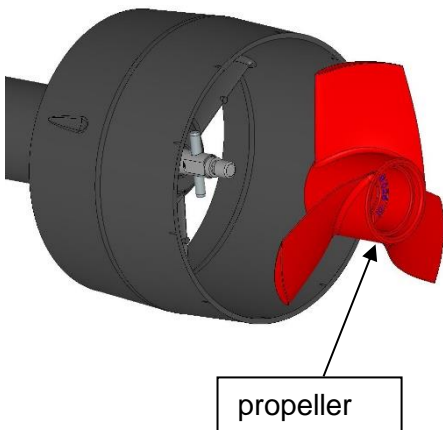
Step 1:

Use a plier to dismount the covering cap of the propeller. The propeller could be damaged during the process.

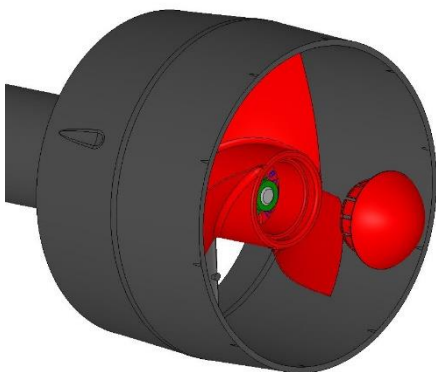


Step 2:

Unscrew the locknut and dismount the washer from the output shaft.

**Step 3:**

Remove the propeller from the output shaft.

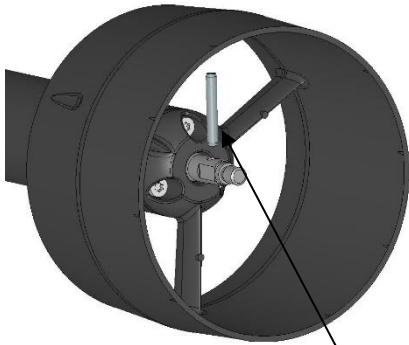
**Step 4:**

Clean all adhesive surfaces with ethanol and affix the cover cap with Loctite 431 on the new propeller. The adhesive needs to harden for 10 minutes under slight pressure.

3.4 Change nozzle

pictures

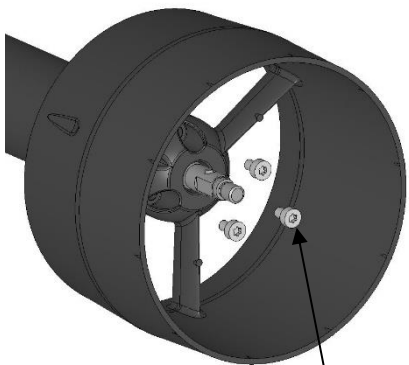
Changing nozzle
working steps



Tranverse pin

Step 1:

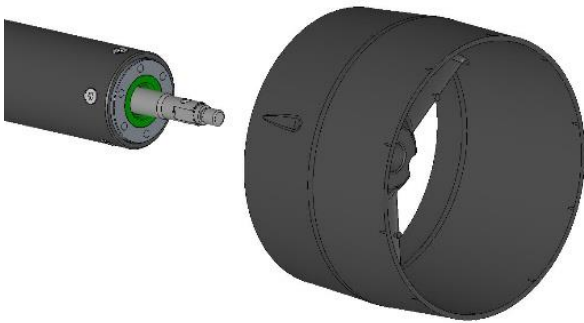
Remove the tranverse pin from the output shaft



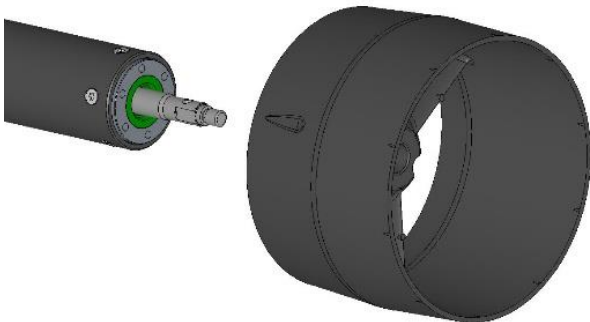
screws

Step 2:

Remove the screws in the nozzle from the
flange.

**Step 3:**

Remove the nozzle.

**Step 4:**

Perform steps 1 and 2 in reverse order to change the nozzle.

Note that the hexalobular screws have to be mounted with a torque of 0,5 Nm and the female screw with a torque of 2,0 Nm. All screw connections have to be locked with Loctite 243 according to manufacturer's instructions.

Equipment:

- Torque wrench with the socket for the female screw.
- Torque wrench for the hexalobular screws.
- Loctite 243