

**Replacement of Consumables for
Micro Pump OEM Modules TS Series**

Maintenance Manual

1 Replacement of Pump Head

1-1

Loosen and remove two pieces of the hexagon screws connecting the pump head and the driving unit with a hexagon (L) wrench.



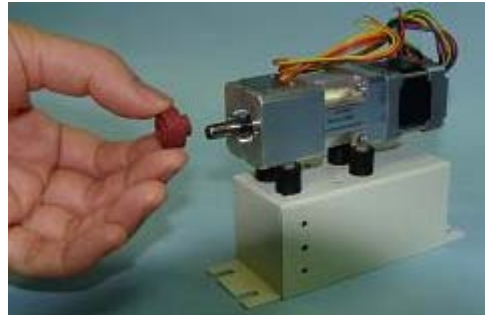
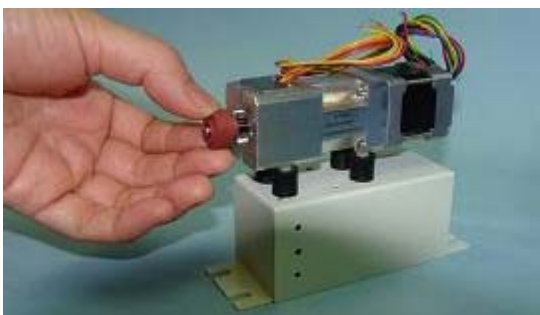
1-2

Pull out forward the pump head, gently turning the pump head right and leftward.



1-3

Remove the bush.



2 Assembly of Pump Head

2-1

Prepare a new pump head and a bush for replacement.

Remove the dust off the plunger with tissue paper slightly alcohol-wetted.



Casing with a seal and valves



Bush



Remove dust off the plunger.

Pump head with seal and valves

2-2

Place the bush on the plunger in a correct direction.



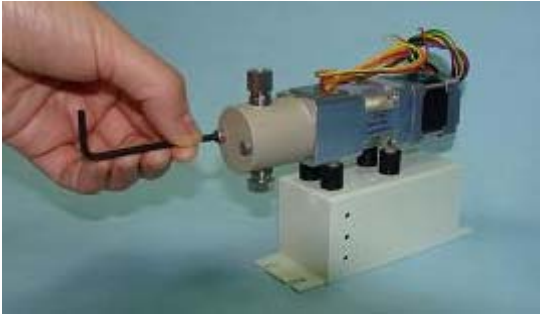
2-3

Place the pump head on the plunger.



2-4

Tighten lightly two pieces of the hexagon screws with a hexagon (L) wrench.



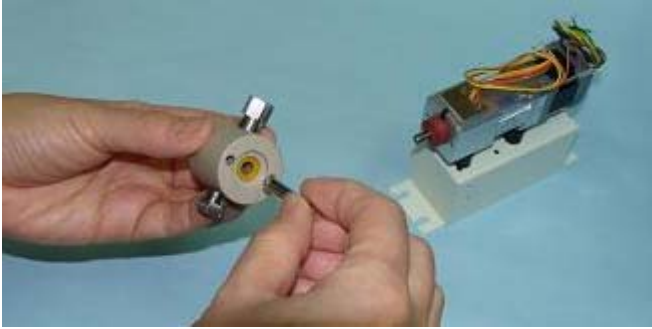
2-5

Give a final and gentle turn to the two pieces of the hexagon screws by using a force with a shorter arm of the hexagon (L) wrench to fix the pump head in the conditions without joggle.

3 Replacement of Seal with Tooling

3-1

Insert the rod tooling with the same diameter as the plunger into the casing.



3-2

Spray the seal with liquefied gas to cool the seal sufficiently.

N.B.: Rapid cooling will be made with the spray cylinder held upside down.



3-3

Pull out the rod tooling vigorously.

The seal will come off from the casing with the rod tooling.



4 Replacement of Seal with Gas or Liquid Pressure

4-1

Insert the tooling rod into the casing.



4-2

Close the outlet valve with a blind plug. Connect tubing in the inlet valve.

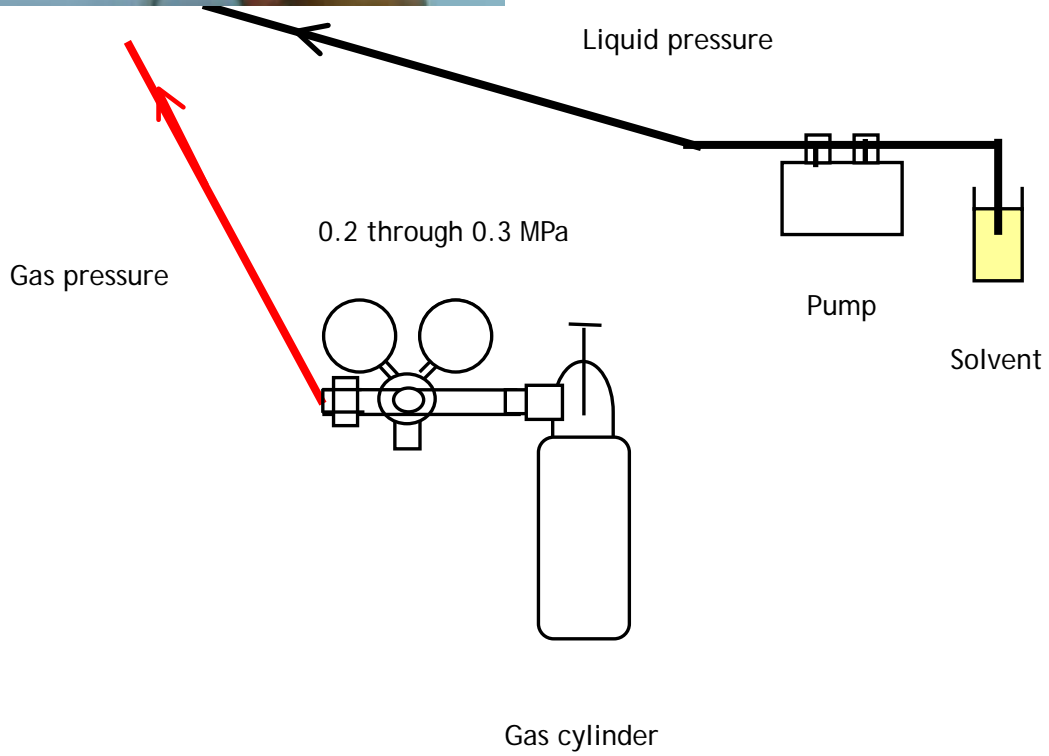


Blind plug

Teflon tubing: 3 mm OD x 2 mm ID

4-3

Hold the tooling rod with fingers. Apply to the pump casing gas pressure of 0.2 to 0.3 MPa, or liquid pressure with another pump, through the tubing.



5 Installation of Seal in Casing

5-1

Insert the tooling rod into the seal in a correct direction.



5-2

Insert the tooling rod with the seal into the casing.



5-3

Place the bush in the tooling rod with a correct direction.



5-4

Fix the seal in the casing, pressing the bush with thumbs of both hands.



5-5

Remove the tooling rod, holding the bush not to remove the seal.

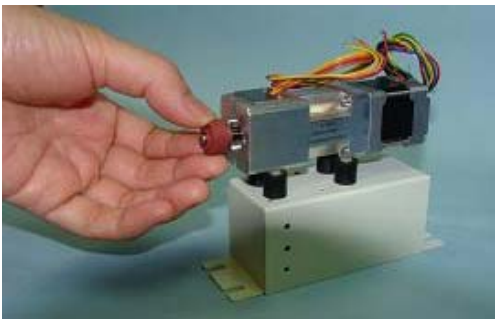
Remove the bush.



6 Installation of the casing in pump

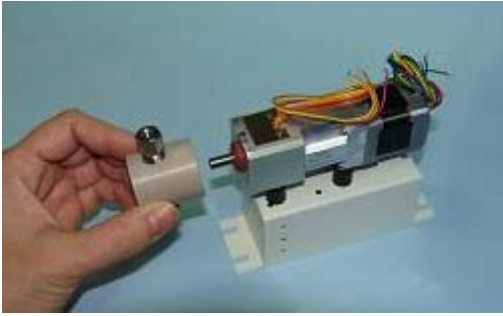
6-1

Place the bush into the plunger.



6-2

Install the casing with the seal in the pump, pressing straight forward along the pump plunger.



6-3

Give a light turn to two pieces of the hexagon screws manually.



6-4

Tighten lightly two pieces of the hexagon screws by using a force with a shorter arm of the hexagon (L) wrench to fix the casing in the conditions without jolt.

