

[ Tools you need ]

#	Name	Note
a	Vise (small-size)	
b	Copper plate (L-shape)	More than 2mm thickness
c	O-ring pulling tool	2Dia. (approx.) pointed metal stick
d	Lineman's pliers	
e	Runner maintenance tool	4Dia. (approx.) bamboo stick or copper stick
f	Runner maintenance tool	2Dia. (approx.) bamboo stick or copper stick
g	Cotton Wiper	

**CAUTION**

<Notes>

- Controlling is only available with exclusive ESN controller. Connection with any other controllers will cause Spear damage.
- Do not modify or machine probe (tip). It will cause damage and function-decreasing.
- Do not heat probe with gas burner, etc. It will cause damage or function-decreasing.
- Do not soak probe in water, oil, organic solvent. It will cause electric shock and damage (heater, sensor).
- In case of blowing air against heated probe, care must be taken to avoid burn injury and to protect eyes. Wear heat-resistant gloves, safety glasses, protective equipment to shield possible air back-flow.
- Any O-ring once removed after maintenance must be replaced with new one. Otherwise it might cause material leakage through the contacted surface of O-ring. Do not reuse removed O-ring.

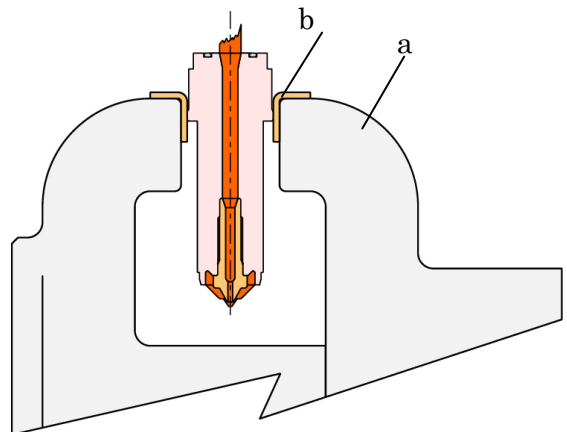
**1. Secure the probe**

Secure the probe (ESN) in a vise.

**CAUTION**

When you anchor the probe in the vise, insert a Copper plate between the probe and the vise to prevent the probe from damage. Clamp the set-ring part of the probe.

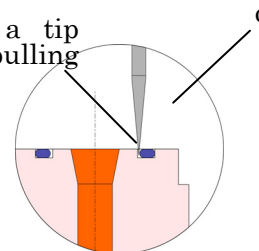
Do not clamp too tight or you may damage the set-ring.



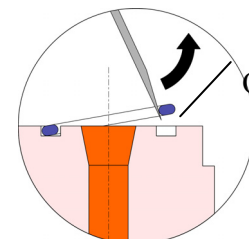
**2. Remove O-rings**

- \* If there is resin adhesions in the groove of the O-rings, heat the probes before disassembly.
- \* Insert a tip of the pulling tool [c] between the O-ring and the groove and pry the O-ring out.

Insert a tip of the pulling tool



Pry the O-ring out



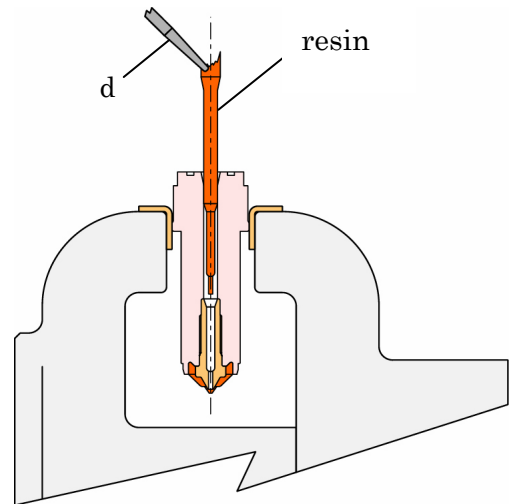
**CAUTION**

Be careful not to damage the O-rings when you insert the pulling jig into the groove.

**3. Cleaning the resin buildup from the probe**

Heat the probe up to 40°C lower than molding temperature (Ex. ABS: 200°C). When the resin starts melting, pull the resin with pliers while cooling down the resin with air to solidify.

Apply the same procedure to the tip with care. Wipe the tip with a cotton wiper to remove excess resins.



**CAUTION**

Wear gloves to protect your hand while working on the heated probe.

Use cotton wiper only. (Chemical fiber fabric is not suitable for this process. Fabric will melt with high temperature.)

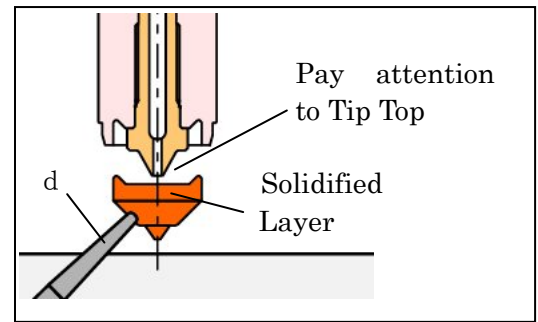
**End of the regular maintenance**

If the problem still persists after regular maintenance or opt for an overhaul, proceed on to Step 4.

**4. Cleaning probe (runner)**

**4-1 Cleaning runner (5Dia.)**

Wrap a cotton wiper around the runner maintenance tool [ e ] (4Dia. × 150). Insert the tool with a turning motion to clean the resins on the inside wall of the probe.

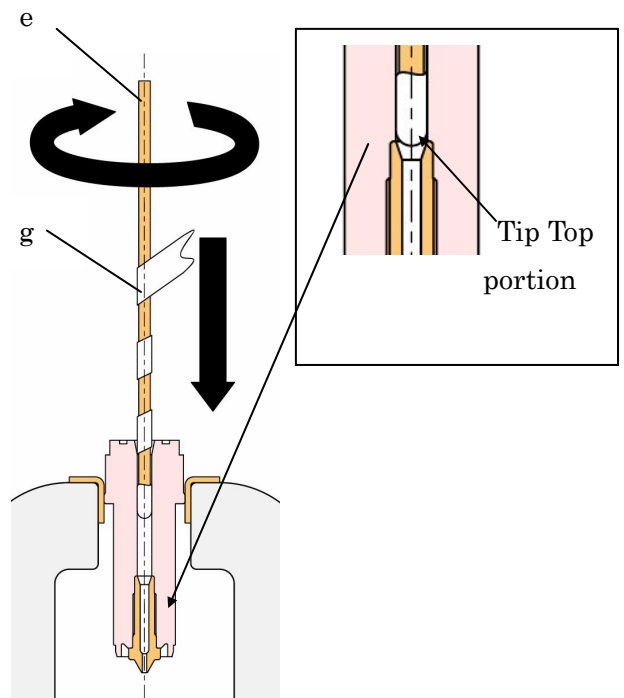


**CAUTION**

The runner maintenance jig should be made with a soft material such as a bamboo stick or a copper stick.

Wear gloves to protect your hand while working on the heated probe.

Use cotton wiper only. (Chemical fiber fabric is not suitable for this process. Fabric will melt with high temperature.)



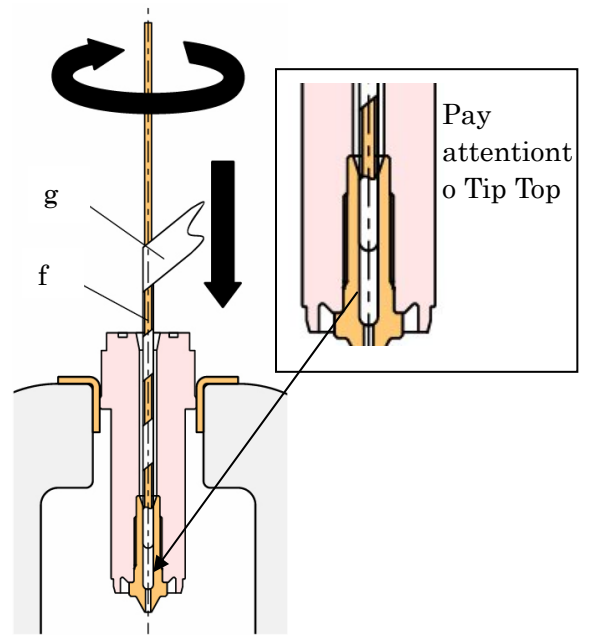
**4-2 Cleaning tip (3.Dia.)**

Wrap a cotton wiper around the runner maintenance tool [ f ] (2Dia. × 200). Insert the tool with a turning motion to clean the resins on the inside wall of the probe.

Use a flashlight to check the inside of the runner. Repeat the step 4-1 and 4-2 until the inside of the runner is completely clean.

Wipe off the tip with a cotton wiper to remove resin buildup.

Stop heating the probe and turn the controller's power off.



**5. Maintenance around the probe**

Maintenance on the mold and the joint area with the manifold block.

**5-1. Maintenance on the setting surface of the manifold**

Polish the manifold touching surface [ A ] with a water-resistant paper (# 1500). (Please consult our office nearest you for any substitute products.)

Clean the groove of the O-ring. (It should have been done on step 2.)

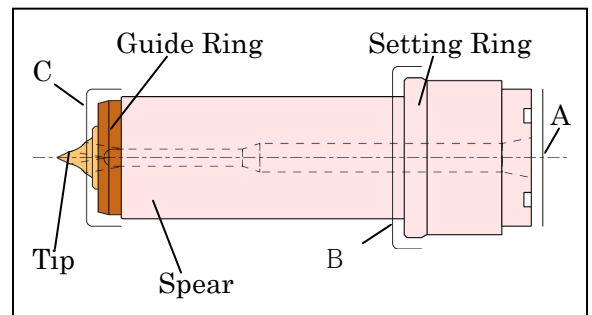
**5-2. Maintenance on the set-ring**

Polish the joint [ B ] between the set-ring and the mold with a water-resistant paper (# 1500).

**5-3. Maintenance on the guide-ring**

Polish the joint [ C ] between the guide-ring and the mold with a water-resistant paper (# 1500).

Wipe the tip with a cotton wiper. (The probe should be heated.)



**CAUTION**

Do not use the edge of the metal to clean the tip. Use a cotton wiper only.  
Clean the joint and the manifold touching surface completely before assembly to avoid a resin leakage and a probe breakage.