# PAC100/110, PAC120 & PAC120T

## *Torch Main Body - Field Repair Bulletin 801780 - Rev. 0*

HYPERTHERM®

# PAC100/110, PAC120 & PAC120T

## Torch Main Body Field Repair Bulletin

## IM-178 (P/N 801780)

**Revision 0 March 1993**

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## ILLUSTRATIONS

## PURPOSE

This field repair bulletin provides the necessary information to maintain your PAC100/110, PAC120 or PAC120T torch. Also refer to the appropriate system instruction manuals for added torch repair and removal and replacement information. Included in this repair bulletin are the following:

- Kits that are available to remove and replace the torch main body as a unit.
- Procedure to remove and replace the PAC100/110, PAC120 and PAC120T torch main body parts.
- Procedure to align the cap on sensor microswitch.

## PAC100/110 TORCH REPAIR KIT (# 028482)

These repair instructions provide the necessary information to allow a customer to remove and replace torch main body at the torch assembly. Repair instructions (PAC100, # 801210 or PAC110, # 801120) are included with the kit.

## PAC120 TORCH RETROFIT KIT (# 028471)

These retrofit instructions provide the necessary information to allow a customer to remove and replace torch main body at the torch assembly. Retrofit instructions (# 801130) are included with the kit.

## PAC100/110, PAC120 AND PAC120T TORCH MAIN BODY PARTS REMOVAL AND REPLACEMENT

### Customer Supplied Tools

# 1 Phillips head screwdriver
# 2 Phillips head screwdriver
Small pliers
Sharp pointed awl
Retaining ring removal pliers
Retaining ring installation tool
Wire cutters/strippers
Sta-kon crimping tool

### Torch Repair Parts

**PAC100/110 Torch**
**Torch main body, # 020280**
O-ring, # 044016
**Insulator, torch, # 020544**
O-ring, # 026012 (2)
O-ring, # 026015

## Torch Repair Parts (Cont.)

Plunger, # 020545
Spring, # 027097
Screw, # 075330
Retaining ring, external, # 027242
Retaining ring, internal, # 027241
Butt splice connector, # 074081
**Microswitch, # 005160**
Screw (2), # 075265

**PAC120 Torch**

**Torch main body, # 020359**
O-ring, # 044016
**Insulator, torch, # 020540**
O-ring, # 026012 (2)
O-ring, # 026015
Plunger, # 020535
Spring, # 027097
Screw, # 075330
Retaining ring, external, # 027242
Retaining ring, internal, # 027241
**Microswitch w/leads, # 029486**
Screw (2), # 075265

**PAC120T Torch**

**Torch main body, # 020885**
O-ring, # 044016
**Insulator, torch, # 020544**
O-ring, # 026012 (2)
O-ring, # 026015
Plunger, # 020589
Spring, # 027097
Screw, # 075330
Retaining ring, external, # 027242
Retaining ring, internal, # 027241
**Microswitch w/leads, # 029830**
Screw (2), # 075265

## Remove and Replace Plunger, Spring and Insulator

To remove and replace the plunger, spring and insulator refer to Figures 1 and 2 and the following procedure.

1. **Shut the power off at the power supply and unplug power cord. Shut off the gas supply to power supply.**

2 Remove the five (5) screws which secure the torch handle halves together and separate. Remove the torch main body and torch switch.

3. Remove the plunger and spring, by referring to Figure 1 and doing the following:

   - Remove the microswitch by either removing the two screws or by removing one screw and pulling the microswitch off of the pivoting pin.
   - Install the consumables on the torch and ensure the retaining cap is snug.
   - Pull back the heat shrink covering the screw on the plunger lead.

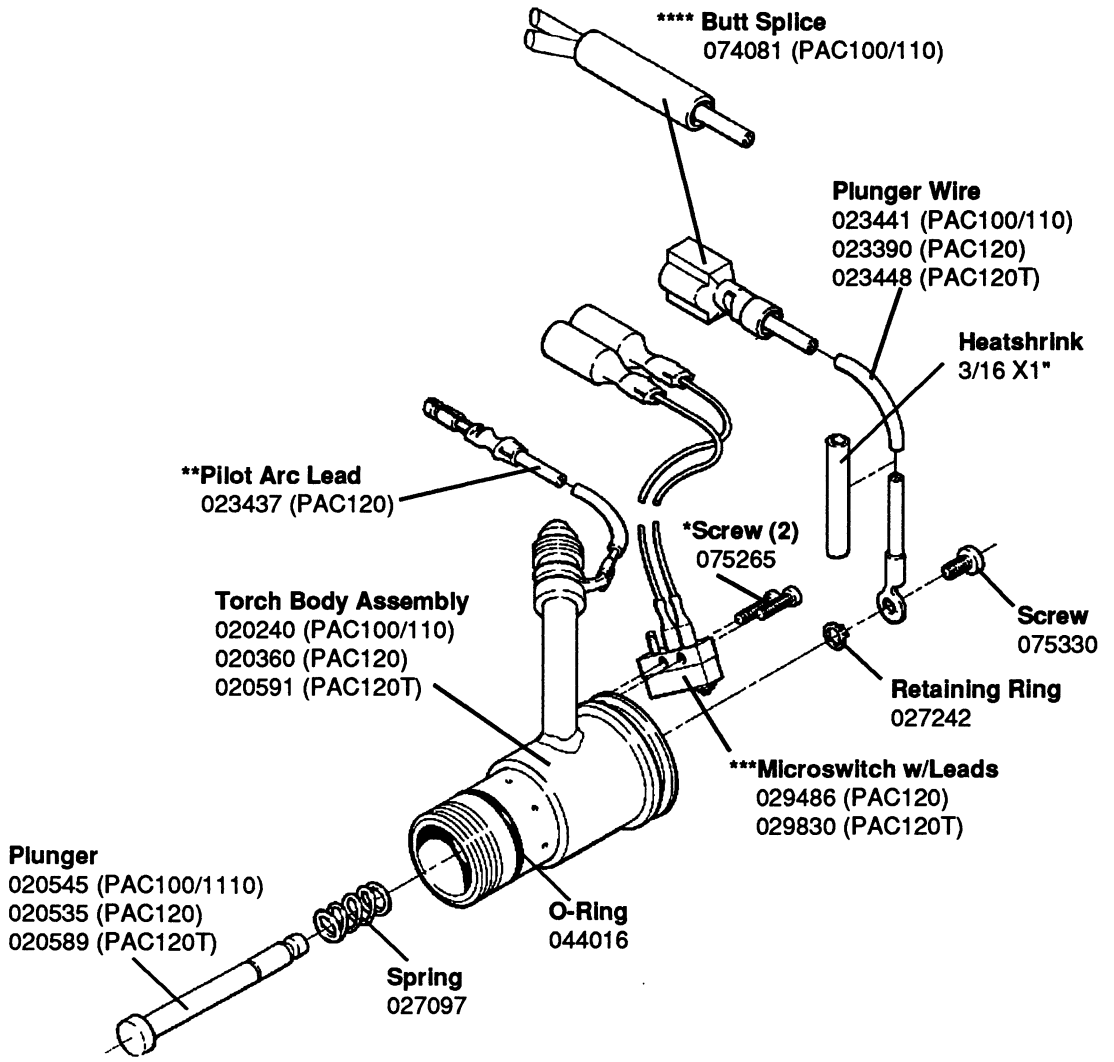
> **Caution:** **Be careful not to score the plunger with pliers, it could cause a torch malfunction. Place a clean cloth around the plunger to protect against scoring.**

   - Hold the plunger with pliers, while removing the screw.
   - Remove the retaining ring with retaining ring pliers.
   - Remove the consumables and then slide the plunger and spring out the front end of the torch main body.
   - Inspect the plunger, spring and insulator for dirt or damage. If the plunger or spring have been damaged, replace the damaged part. Sometimes the spring has been subjected to overheating causing the spring to lose tension, replace if in doubt. If the insulator is okay, go to step 5. If the insulator has been damaged, go to step 4.

4. Remove and replace the torch insulator, by referring to Figure 2 and doing the following:

   - Locate retaining ring.
   - Using a fine pointed awl, slip the point under the open end of the ring and then run it around the circumference to remove the retaining ring from the grove.
   - Push the insulator out of the torch body from the bottom.

> **Caution:** **Prior to replacing the torch insulator, inspect for dirt and dust. Failure to do so could result in a torch failure. Use compressed air to clean away dirt and dust.**




* Some microswitches attach to the torch with two screws (2), others use one screw and a pivoting pin.

** The pilot arc leads on the PAC100/110 and PAC120T are part of the torch lead.

*** The microswitch leads on the PAC100/110 are part of the torch lead.

**** A butt splice is used on the plunger wire on the PAC100/110 rather than a terminal.

**Figure 1 Typical PAC100/110, 120 and 120T Torch Components**

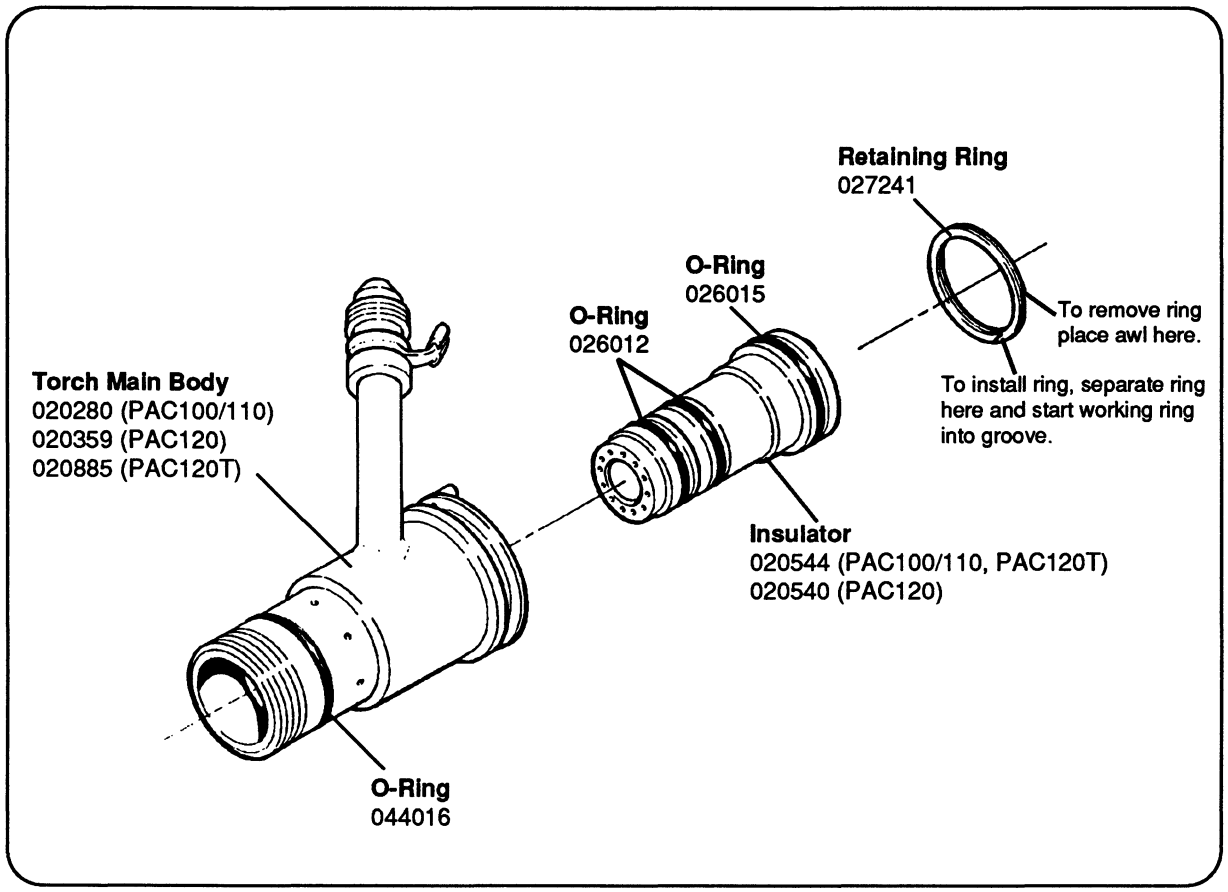



**Figure 2 Typical Torch Insulator Removal and Replacement**

- Replace the torch insulator by lightly coating the insulator O-rings with a petroleum based lubricant. **Do not use silicone as a lubricant, it will cause the silicone impregnated O-rings to deteriorate after a time.**

- Push the insulator into the torch body from the top until it seats.

- Replace the retaining ring by positioning it into the top of the torch body at an angle and then by pressing around the circumference until it seats into the grove.

> **Caution:** **Prior to replacing the plunger and spring, ensure all parts are clean of all dirt and dust. Failure to do so will result in a torch failure. Use compressed air to clean away dirt and dust.**

5. Slide the plunger with spring into the front end of the torch main body.

6. Reinstall the consumables, then place the retaining ring onto the plunger and push down with the retaining ring installation tool until it seats into the groove.

> **Caution:** **Be careful not to score the plunger with pliers, it could cause a torch malfunction. Place a clean cloth around the plunger to protect against scoring.**

7. Hold the plunger with pliers below the microswitch and replace plunger lead and secure with screw.

8. Slide the heat shrink over the screw.

9. Replace the microswitch onto the torch body with two screws or position microswitch onto pivoting pin and secure with screw.

10. Align the microswitch by referring to the procedure below.

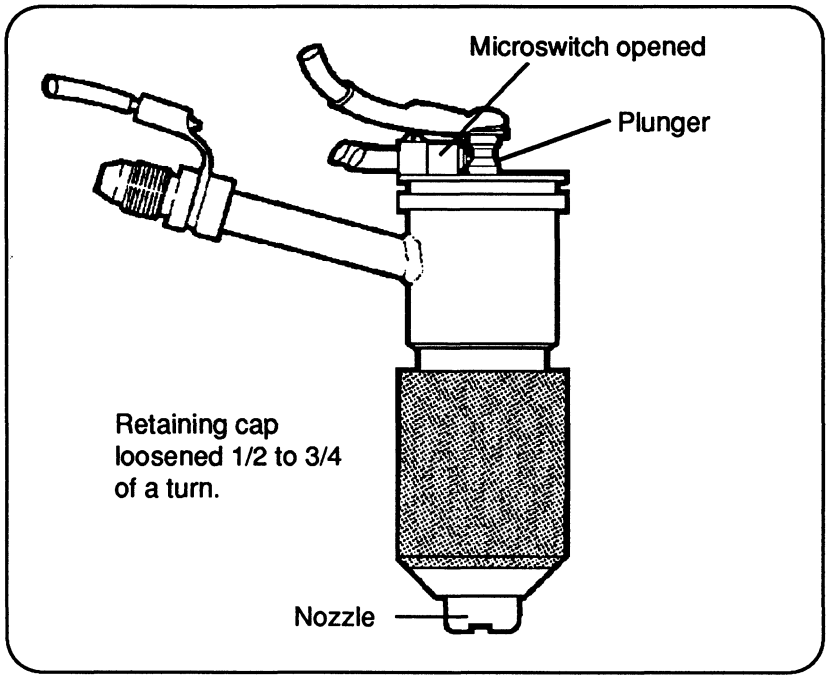
## Microswitch Alignment

To align the microswitch to the plunger, refer to Figure 3 and the following procedure.

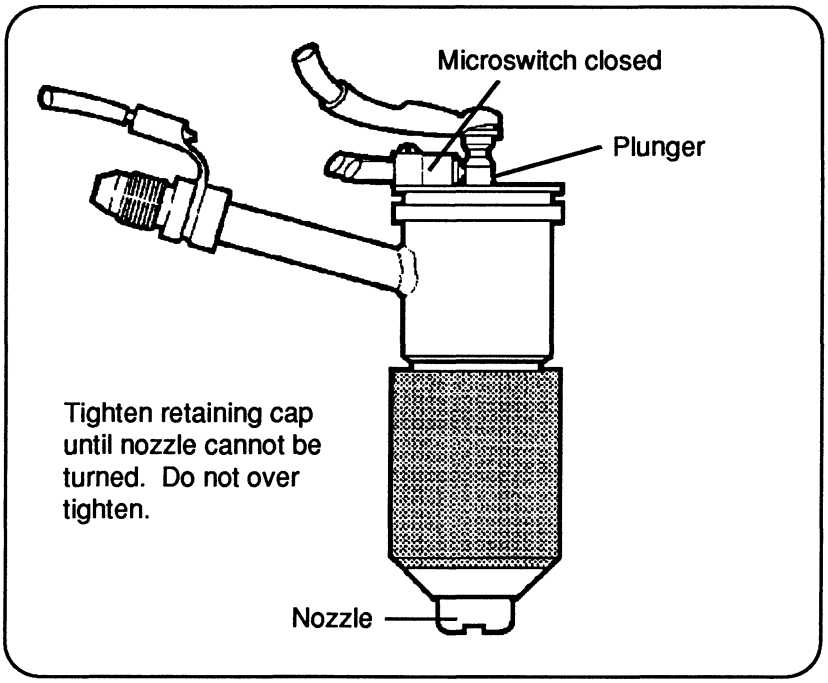
1. Ensure the consumables are on the torch and the retaining cap is in place. A good rule is to tighten the retaining cap until the nozzle cannot be turned. **Do not overtighten retaining cap.**

2. Ensure the two (2) microswitch screws (or one screw and pivoting pin ) are loose enough, so that the microswitch can be moved with finger pressure.

3. Start by centering the microswitch actuator button on the plunger and applying light finger pressure and listening for the microswitch to close. If the microswitch does not close, position the actuator button slightly to the right or left until the microswitch closes. When this occurs, tighten the two screws (or screw) until snug.
4. Check the microswitch and plunger alignment by loosening and tightening the




**Microswitch Opened**




**Microswitch Closed**

**Figure 3 Microswitch to Plunger Alignment**

retaining cap. Either listen for the microswitch opening and closing or verify by use of a multimeter or dc test light (PAC120 and PAC120T torches only) as follows:

While listening, the microswitch should click open during the first 1/2 to 3/4 of a turn when loosening the retaining cap. If it does, go to step 6. If not, realign the microswitch, then go to step 6.

When using a multimeter (ohms scale) or a dc light test fixture to indicate the switch opening and closing (PAC120 and PAC120T torches only), proceed as follows:

- Disconnect the two white wires from the microswitch to the two blue wires from the torch lead.
- Connect the test leads with alligator clips to the microswitch leads.
- The mutimeter or test light should indicate the switch opening during the first 1/2 to 3/4 of a turn when loosening the retaining cap. If it does, go to step 5. If not, realign the microswitch, then go to step 5.

5. Reconnect the two white wires from the microswitch to the two blue wires from the torch lead.

6. Install the torch main body and torch switch into one of the handle halves. While aligning the handle halves, be careful not to pinch any leads. Secure the handle halves together with five (5) screws.

7. Do not forget to tighten the retaining cap. A good rule is to tighten the retaining cap until the nozzle cannot be turned. **Do not overtighten retaining cap.**

8. The torch is now ready for operation.