



**00-020C  
2 May, 2007**

**CHANGING THE CARTRIDGE IN WELDED TYPE MOLYS**

**I. PURPOSE:**

This service note provides instructions for changing the molybdenum cartridge in welded type moly converters. This note affects all Teledyne API NOx models which have welded type moly converters. This presents a more economical alternative to replacing the entire converter, Thermo Couple & Heater in the TAPI NOx analyzers. If your existing Moly has a working heater and thermocouple, there is no need to change them, Order KIT129 & all you will get is the converter cartridge, this fits into all models. If your existing Moly heater or thermocouple has failed, then you are going to have to replace the entire "guts assy". The Guts only kit is the converter cartridge, Heater & TC. There are essentially three kits to order, They are KIT102 for M200, M250/1/2 and KIT103 for all "A" style analyzers except NOy applications which require KIT128.

**II. TOOLS:**

Small flat-blade screwdriver  
#2 Phillips head screwdriver  
2 ea. 7/16" or adjustable crescent wrenches

**III. PARTS:**

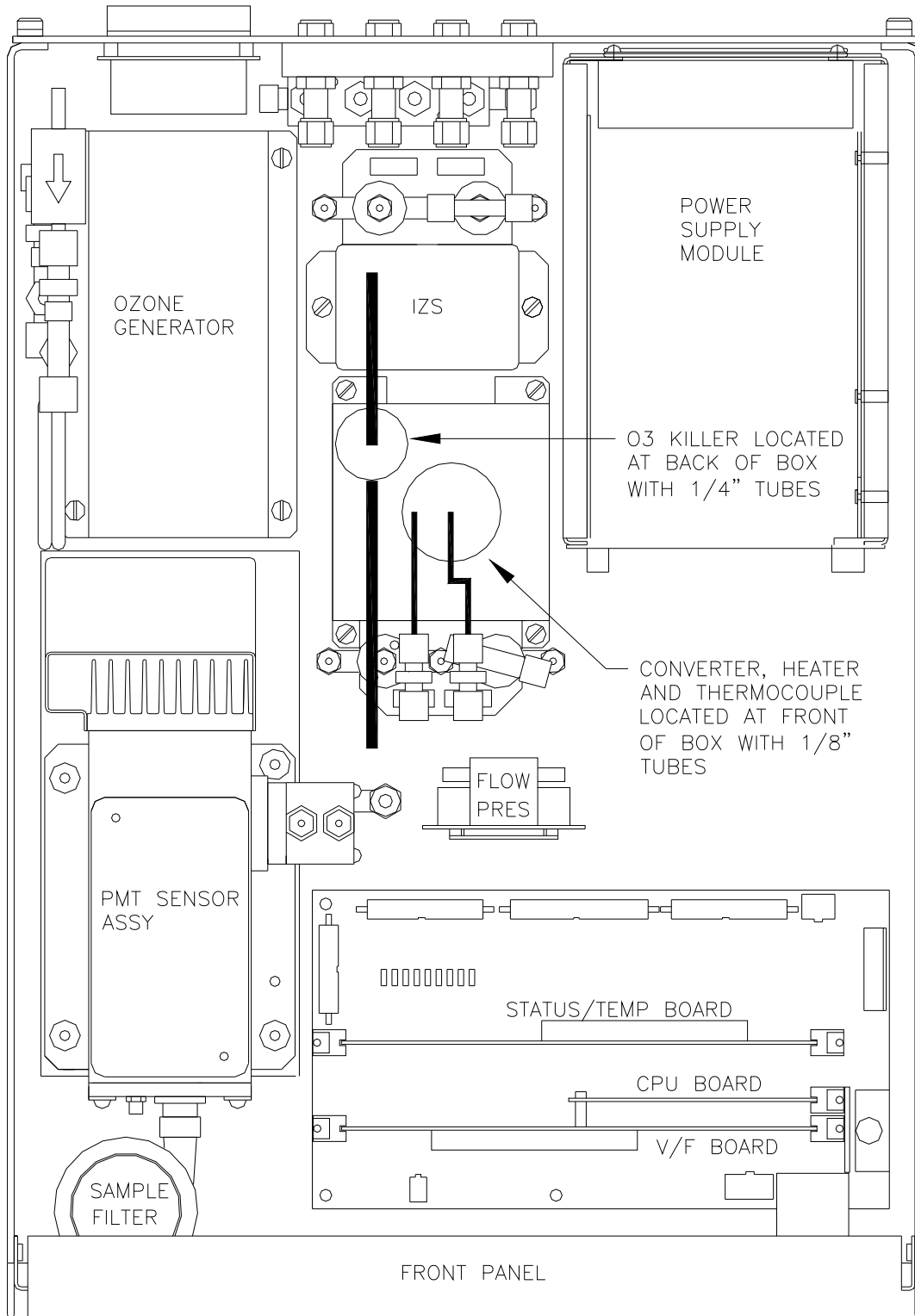
KIT 129

**IV. PROCEDURE:**

**WARNING! The molybdenum converter runs at about 315°C (600°F) and presents a severe burn danger! Do not touch the outer case or remove the cover of the moly until it has cooled for 8 hours or more!**

1. Turn off power for at least 8 hours.
2. Remove the cover from the analyzer.
3. Locate the Moly converter.
  - A. In "A" style analyzers, M200 and M252 it is roughly in the center of the chassis.
  - B. In M251 it is located near the panel opposite the SPAN and ZERO pots.
4. Locate the heater power connector coming out of the Moly (it has a 2 pin connector. The "A" style connector comes under the valve bracket. Remove the connector from the top of the valve bracket. You will be removing the bottom one later. The connector is a large one for 200, 251, 252 and goes onto the PC board. Just disconnect it.)
5. Disconnect the heater power connector.
6. Verify the Moly is at ambient temperature as follows:
  - A. For "A" style and M200 turn on power. Scroll through the TEST features until you see MOLY TEMP or CONV TEMP. Verify temp is close to ambient, no more than 50°C.

- B. For M251 and M252 measure the thermocouple voltage at the PC card screw terminals. This voltage must be <2.5mVDC.
7. If the Moly has sufficiently cooled, then turn off power and remove the power cord.
8. Disconnect the thermocouple wire as follows:
  - A. "A" style: Disconnect the thermocouple wire at J1 on the Status/Temp board. Ensure that the wire is free to move and not wound around other wires, etc.
  - B. M200/251/252: Unscrew the two screw connectors on the attached PC card.
9. Disconnect all tubing from the converter:
  - A. "A" style: Disconnect tubes from valves, noting which tube connects to which port for proper reassembly. If the converter has the O3 killer you will see two ¼" tubes at the front and rear of the Moly. These tubes do not need to be disconnected.
  - B. M200/251/252: Remove the two tubes from the Moly.
10. Remove the cover from the Moly by lifting one side and pulling it up.
11. If you have the M200/251/252 go to step 18.
12. For M200A you will need to locate the screw on the right side near the valves. This screw has a clamp which holds the heater cable. Loosen the screw and move the clamp off of the heater cable.
13. Locate the connector where the heater power was removed in step 4. It is mounted on the valve bracket and is a two pin connector which comes up from the bottom of the valve bracket. You will need to push this connector down through the valve bracket.
14. Ensure that the heater cable and thermocouple cable are clear of obstructions.
15. Remove the fiberglass insulator from on top of the Moly cartridge.
16. Lift the cartridge out of the Moly by pulling up on the two tubes.
17. Go to step 20.
18. For M200/251/252 remove the fiberglass insulator from on top of the Moly cartridge.
19. Remove the Moly cartridge from the housing.
20. The heater is wrapped around the Moly cartridge. To remove the heater from the Moly cartridge you will have to loosen 2 screws which operate clamps. You may have to gently pry the heater open in order to remove the Moly cartridge.
21. Once you have removed the Moly cartridge, locate the anti-seize compound in the KIT129. Apply anti-seize compound to the two screws.
22. Press the new Moly cartridge into the heater and tighten the screws until the heater holds the Moly cartridge snugly.
23. Assembly of the Moly is the reverse of disassembly.



Replacing the Cartridge in Welded Type Molys  
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