



98-028 Rev B  
2 May, 2007

## **REPLACING THE M100A PMT HOUSING**

### **I. SCOPE:**

To guide the customer or technician through replacement of the PMT housing in M100A analyzers.

### **II. TOOLS:**

#2 Phillips Head Screwdriver  
7/16" wrench  
9/16" wrench

### **III. PARTS:**

API PN# KIT-38

### **IV. PROCEDURE:**

- A. Remove power to analyzer and remove top cover.
- B. Disconnect ¼" and 1/8" tubes from top of Rcell housing.
- C. Disconnect the following connections:
  1. Cooler Power – 2 pin connector on sloping metal face over heat sink.
  2. UV Detector ribbon cable – see below.
    1. On older analyzers, this is removed at J11 of the motherboard.
    2. On new analyzers this is removed after pulling the sensor housing out of the chassis. It is located on the bottom of the UV detector housing.
  3. Grounding strap from UV detector cover – unscrew at detector cover.
  4. Rcell heater and thermistor connector – follow wires from heater and thermistor on Rcell to 5 pin Molex connector.
  5. UV lamp – disconnect both wires at the Molex connectors.
  6. Shutter power – 2 pin connector located at the side of the shutter housing.
  7. PMT Preamp cable (ribbon cable) at J5 on the motherboard.
  8. Connector from PMT Preamp to TEC Drive board.
- D. Remove the three #8 screws that hold the sensor assy into the chassis and lift the sensor assy. out of the chassis. Place it on a bench for ease of access.

### **WARNING:**

**EXPOSING THE PMT TO AMBIENT LIGHT WITH POWER APPLIED WILL DESTROY THE PMT. PLEASE ENSURE THAT THE POWER CORD IS UNPLUGGED FROM THE ANALYZER TO PREVENT ACCIDENTALLY APPLYING POWER TO ANALYZER!**

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- E. Using the Hex Wrench supplied in the KIT, remove the 4 allen-head screws holding the Sensor assy. to the PMT housing assy.
- NOTE: For the next 4 steps, refer to sheet 2 of 2 of drawing # 01338, (attached).**
- F. Remove the four #6 screws that hold the cooler drive board and cover (slanted metal cover with PCB over the heat sink) to the heat sink assy. Disconnect 2 pin connector from the cooler drive board.
- G. Remove the 2 screws that hold the Preamp board cover in place. Remove the cover. Remove the 2 screws holding the PMT Preamp board. Remove the 2 connectors from the Preamp board to the Black end cap on the housing. Remove the Preamp board.
- H. Remove the 4 screws from the Black end cap and pull the end cap off. Examine the inside of the end cap. If the O-ring is outside of the screw holes, you don't need to replace the end cap. Skip to step I. Remove the 2 connectors from the Black end cap and set the end cap aside for return to API.
- NOTE: For step I, refer to Drawing #01338, sheet 1 of 2, attached.**
- I. Remove the 4 screws which hold the heat sink to the housing.
- NOTE: For the next 4 steps, refer to drawing # 01144, (attached).**
- J. Remove the two screws holding the cold block to the heat sink. Set the heat sink aside for return to API.
- K. From the heat sink side of the housing, push the cold block and PMT assy through the housing until it can be pulled out from the other side. This should leave the housing without any parts connected and empty inside except for the foam rubber.
- L. Remove the foam rubber from the housing. As you remove them from the old housing, place them into the new housing the same way they came out. Remove the two rubber grommets from the flange on the old housing and install on the new housing.
- M. Wipe the end of the cold block to remove the old thermal grease and apply a thin, even layer of thermal grease to the cold block. Apply a thin, even layer of thermal grease to the exposed side of the cooler on the new heat sink. Using the two bolts, connect the heat sink to the cold block. Start by screwing the bolts in part way, then "rock" them down by doing a few turns on each bolt. Keep rocking them until they are tight, but do not torque them heavily as damage to the cooler could result. When you are done, inspect both surfaces of the cooler from all sides to ensure that the cooler is flush against the metal at all points and has not "wedged" between the metal faces.
- NOTE: For the next 2 steps refer to page 1 of 2 on drawing # 01338, (attached).**
- N. Install an O-ring from the kit onto the heat sink.
- O. Holding the heat sink/cold block/PMT assy by the heat sink, push the assy into the housing. Ensure that you insert the assy in the end of the housing with the PMT hole in the side. Be sure that the PMT hole in the cold block lines up with the PMT hole in the side of the housing. When it has seated, bolt it to the housing using 4 screws. Be sure to remove any metal washers from the screws and install nylon washers on the screws.
- NOTE: For the next 4 steps refer to page 2 of 2 of drawing # 01338, (attached).**
- P. Install the Silica Gel dryer packets into the housing.
- Q. Install an O-ring onto the new Black end cap. Install the two connectors to the Black end cap, being sure to put the small nylon washer onto the connector side of the gold connector. Install the brass 1/8" fitting from the kit into the threaded hole in the end cap, using TFE tape on the 1/8" fitting.
- R. Use the 4 bolts to install the Black end cap onto the housing.
- S. Install the Preamp board onto the housing. Including connections to the Black end cap. Do not place the cover on the Preamp board.
- T. Install the TEC driver board and cover onto the heat sink and connect the cable from the Preamp.

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- U. Mount the sensor assy to the PMT housing.
- V. Installation of the sensor assy/PMT housing is the reverse of removal.
- W. Perform a leak check and light leak check on the analyzer.
- X. Perform factory calibration of analyzer.

If you have any questions or concerns regarding this or any API equipment, please contact API Customer Service.

Phone: (619) 675-9800

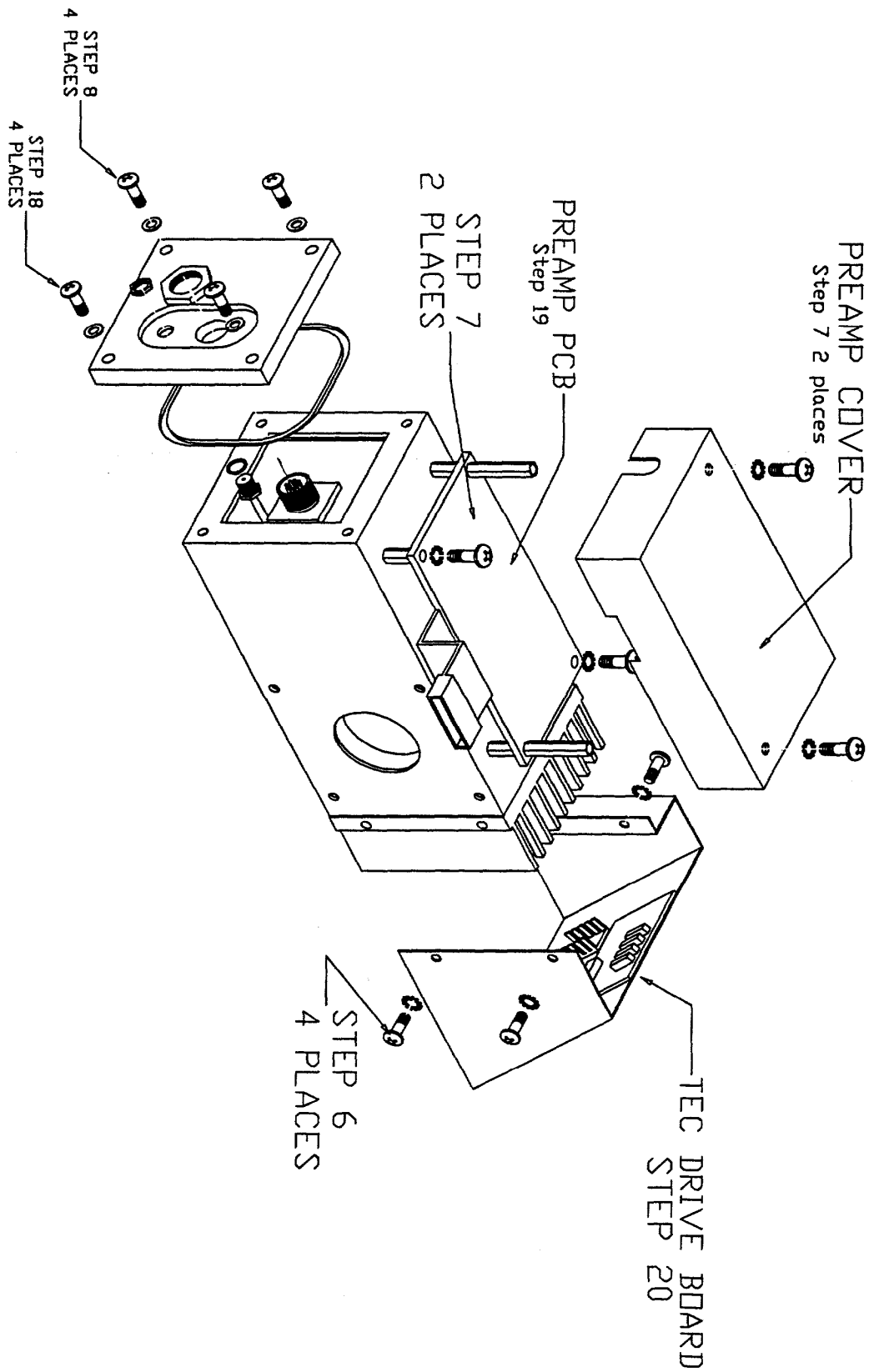
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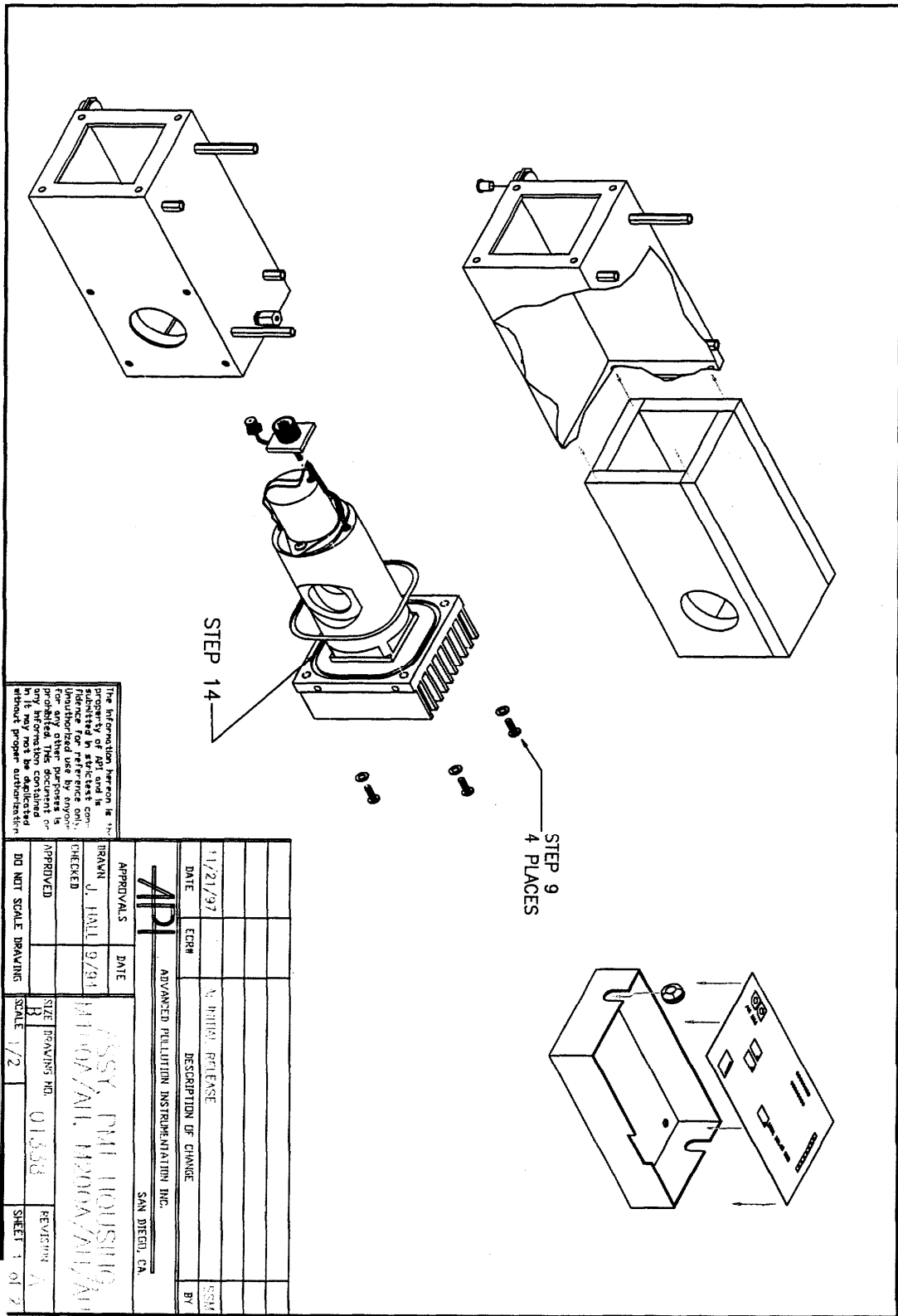


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