TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation

A Teledyne Technologies Company
9480 Carroll Park Drive, San Diego, CA 92121-2251
Phone (858) 657-9800 Fax: (858) 657-9818 Toll Free 1800 324-5190
E-mail: api-customerservice@teledyne.com http://www.teledyne-api.com

Service Note

01-011C
2 May, 2007

INSTALLING NON-SWITCHING H2S RETROFIT INTO A M100A ANALYZER

I. PURPOSE:

The purpose of this service note is to guide you through installation of the NON-Switching H_2S Retrofit Option into the M100A SO_2analyzer

II. TOOLS:

7/16" wrench
½" wrench
9/16" wrench
Flat tip screwdriver
Phillips tip screwdriver
Tubing cutter

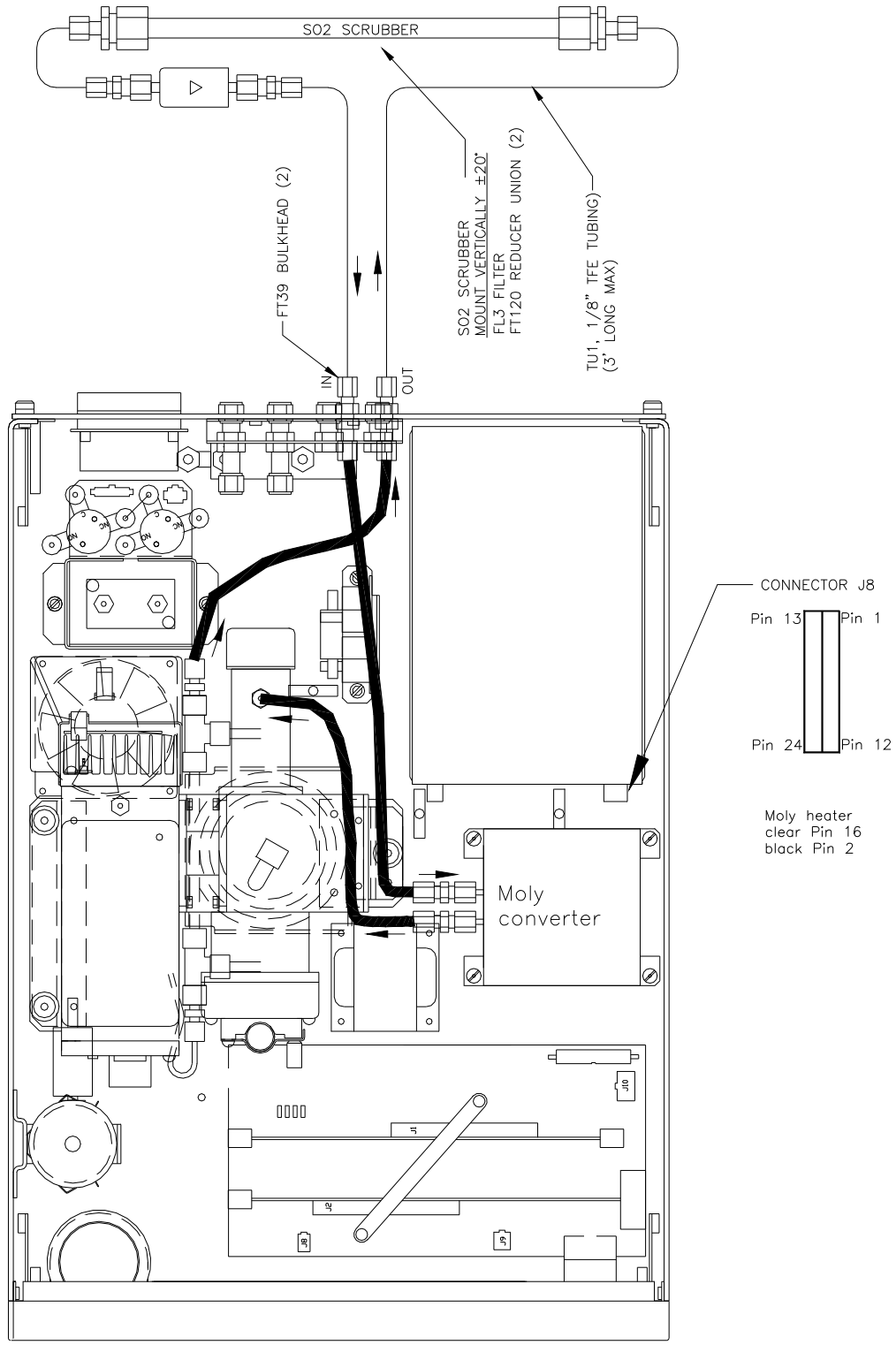
III. PARTS:

KIT000113 - H_2S retrofit NON-switching.

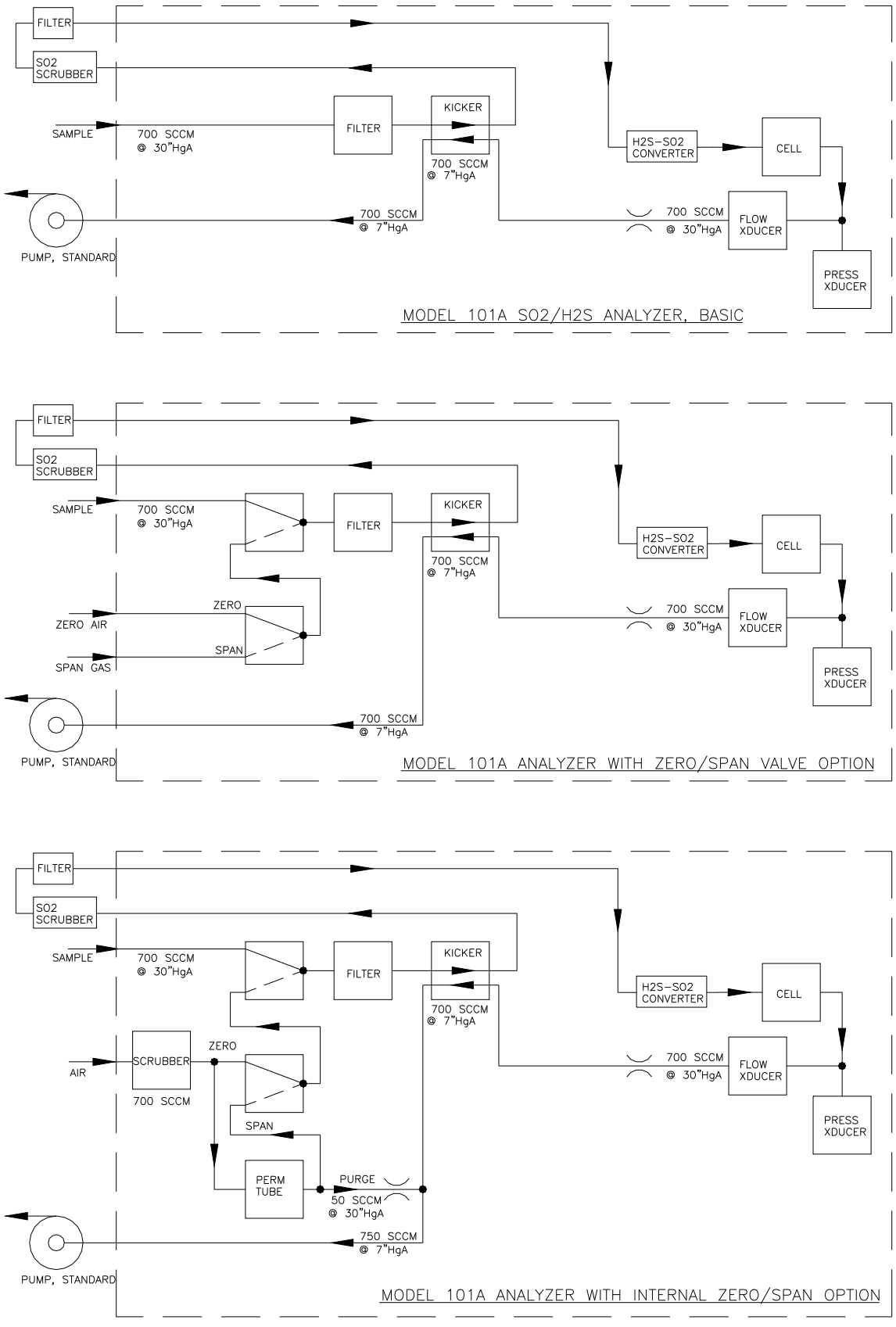
IV. PROCEDURE:

1. Remove the power from the analyzer and remove the cover.
2. If the analyzer has a perm tube, remove the perm tube from the oven and put it into the approved container for that tube.
3. Remove the two fittings from the top of the pump and connect them together with the ¼" union that is in the kit.
4. Remove the pump from the analyzer and cover the leads that goto the pump with some electrical tape or heat shrink so that they will not be able to contact the analyzer chassis or a person when the analyzer is turned back on.
5. Locate J8 pin 16 (J8.16) on the power supply module. See if there is a wire in that pin of the connector. If there is follow the cable to the end where you should find an electrical connector that has heat shrink around it. Cut the heat shrink off of the electrical connector.
6. If your analyzer does not have a wire installed into J8.16 take the wire out of the kit that is labeled for the Moly converter. Remove the J8 connector from the power supply module (PSM), and turn it so that you can insert the cable ends into the connector. Put the clear wire into pin 16 of the J8 connector and the black wire into pin 2 of the J8 connector. (See diagram on page 4).
7. Install the Moly into the analyzer so that the tubes coming out of the Moly are facing inward, towards the Rcell of the analyzer.
8. Connect the power wire that you just installed to the Moly converter heater.
9. Connect the thermocouple (TC) from the Moly converter to the connector on the status temp card.
10. Lower the front panel of the analyzer and remove the CPU and v/f card from the analyzer motherboard.
11. Turn the entire assembly over so that the CPU assembly is facing up toward you. Notice that you have the UV prom (EPROM) facing you so that you can read the words on the prom.

12. Retrieve the prom that comes with the kit and compare it to the one that is on the CPU assembly.
13. If the prom that we just shipped you does not have the same number of legs on it that the one that is in the CPU now contact the API service department with the following information. What the number is that is written on the prom that is in the CPU now and what the serial number is of the analyzer that you are trying to convert to H_2S.
14. If the new prom and the old prom have the same number of legs then, remove the old prom from the CPU card. Install the new prom into the socket that you just removed the prom from checking to ensure that the chip is facing the same direction that the old one was facing.
15. Put the CPU and v/f card assembly back into the analyzer.
16. Turn the analyzer around so that the rear panel is facing you.
17. Put the two 1/8" bulkhead fittings that are in the kit into the holes in the rear panel that are marked "converter: in and out".
18. Remove the black 1/8" line from the reaction cell and install the 1/8" union in the kit to the line that you just removed.
19. For the next 8 steps see the diagram on page 4.
20. Using some of the tubing that is in the kit, connect to the union that you just installed and run the other end over to the rear panel and connect to the fitting that is going through the rear panel fitting labeled "to converter". When you make this connection remember that you have to have enough room in the tube that you can lower the analyzer rear panel without putting the tubing into a bind.
21. Connect the out side of the bulkhead fitting "to converter" to the SO_x scrubber, this is not the side of the SO_x scrubber that has the DFU filter on it.
22. Connect the side of the SO_x scrubber that has the DFU on it to the "from converter" bulkhead fitting.
23. On the inside of the rear panel connect one end of the 1/8" tubing to the "from converter" bulkhead fitting.
24. Connect the other end of this tube to the input to the Moly converter.
25. Connect the out put of the Moly converter to the RxCell assy that has the open 1/8" fitting.
26. Leak check the analyzer. Refer to API Service Notes 98-018 or 98-044 to leak check you analyzer. Another note of interest regarding API manufactured leak checkers is 99-027.
27. Once you have the leak check performed and the analyzer does not have any leaks, then turn on the analyzer.
28. push the following buttons "SETUP_MORE_VARS_929_ENTER_NEXT" to "FACTORY_OPTION" write down this number, and EXIT back to the sample menu.
29. Push the following buttons "SETUP_MORE_DIAG_929_ENTER_NEXT" to "MEMORY RESET" push "EDIT_EEPROM_ENTER". The CPU will now reset.
30. Push the buttons in step 28 and go to the factory option push "EDIT" and enter in the number that you wrote down in step 28.
31. Push the following buttons on the front panel "SETUP_MORE_VARS_ENTER_NEXT" to "MEAS_MODE" then press "EDIT" and change this to "H_2S", push "ENTER" and EXIT to the sample menu.
32. You can now input your H_2S span gas and calibrate this analyzer.
33. Please read the addendum that comes with this service note to understand more about this option and what it does and how to calibrate the analyzer.
34. When you are putting this analyzer into service please keep in mind that the SO_x scrubber on the rear panel of the instrument must hang vertically. We would NOT recommend that the Sox scrubber hang any more than 10° off of vertical. If you lay the SO_x scrubber flat down the media in the scrubber tube will channel and eventually not come into contact with the sample going through it. This means that you are not going to scrub the SO_x out of your sample and your H_2S readings on the front panel are going to read higher than the true levels of H_2S.
35. If you have any doubts about the converter efficiency you should bypass the SO_2 scrubber on the rear panel and put some SO_2 into the analyzer and see what it reads. You should get from 80 to 100% showing as H_2S on the front panel of the instrument.
36. If you have any questions about this service note please contact the Teledyne API service department. If you don't think that the analyzer is performing properly or if the analyzer is showing any faults, please fill out the repair form for the analyzer and fax it to Teledyne API.



M101A LAYOUT
FIGURE 101A–3



M101A H2S/SO2 PNEUMATIC DIAGRAM