



04-009C
2 May, 2007

RETROFIT OF DRYER FOR SAMPLE AND IZS IN M200E ANALYZER

I. PURPOSE:

This service note provides instructions for retrofitting a Perma-Pure dryer into the M200E to simultaneously dry the sample and the IZS.

II. TOOLS:

7/16", 1/2", 9/16" wrenches
#2 Phillips Head screwdriver
Tube cutter

III. PARTS:

API PN# KIT000201



The electronics used in T-API analyzers are sensitive to Electrostatic Discharge (ESD). When working on any T-API device, please ensure that you are properly grounded prior to handling or touching any electronic circuitry in the analyzers! For more information on how to protect sensitive components from ESD during handling, please contact T-API customer service and ask for the ESD Service note number 03-022A.

IV. PROCEDURE:

1. Remove power to analyzer.
2. Remove cover from analyzer.
3. Remove charcoal/Purafil scrubber from rear panel by disconnecting the tube from the bulkhead fitting and removing the whole scrubber/filter/tube assy.
4. Remove 1/4" Tygon tube from scrubber and install it onto the new (short) scrubber from the KIT.
5. Install the new (short) scrubber onto the rear panel with the wider end cap pointing up. Connect the and tube to the bulkhead fitting marked ZERO on the rear panel.
6. Install the brass bulkhead fitting into the "SPAN" port on the rear panel, with the 1/4" side facing out.

7. Take the Tygon tubing and measure out a length that will fit between the bulkhead fitting you installed and the top of the scrubber. Add about 1" and cut the tube.
8. Remove the brass nut and ferrules from the top elbow on the scrubber. Take the piece of Tygon you just cut and push the nut, then the ferrules onto the Tygon tube. Take one of the brass inserts from the KIT and push it into the end of the tube, then insert the tube into the brass fitting on the scrubber. Slide the ferrules and nut into place and swage them by rotating the brass nut 1¼ turns.
9. Remove the SS nut and ferrules from the ¼" side of the bulkhead fitting. Push the nut and ferrules onto the Tygon used in step 7. Take one of the SS inserts from the kit and push it into the Tygon, then insert the tube into the bulkhead fitting. Slide the ferrules and nut into place and swage them by rotating the SS nut 1¼ turns.

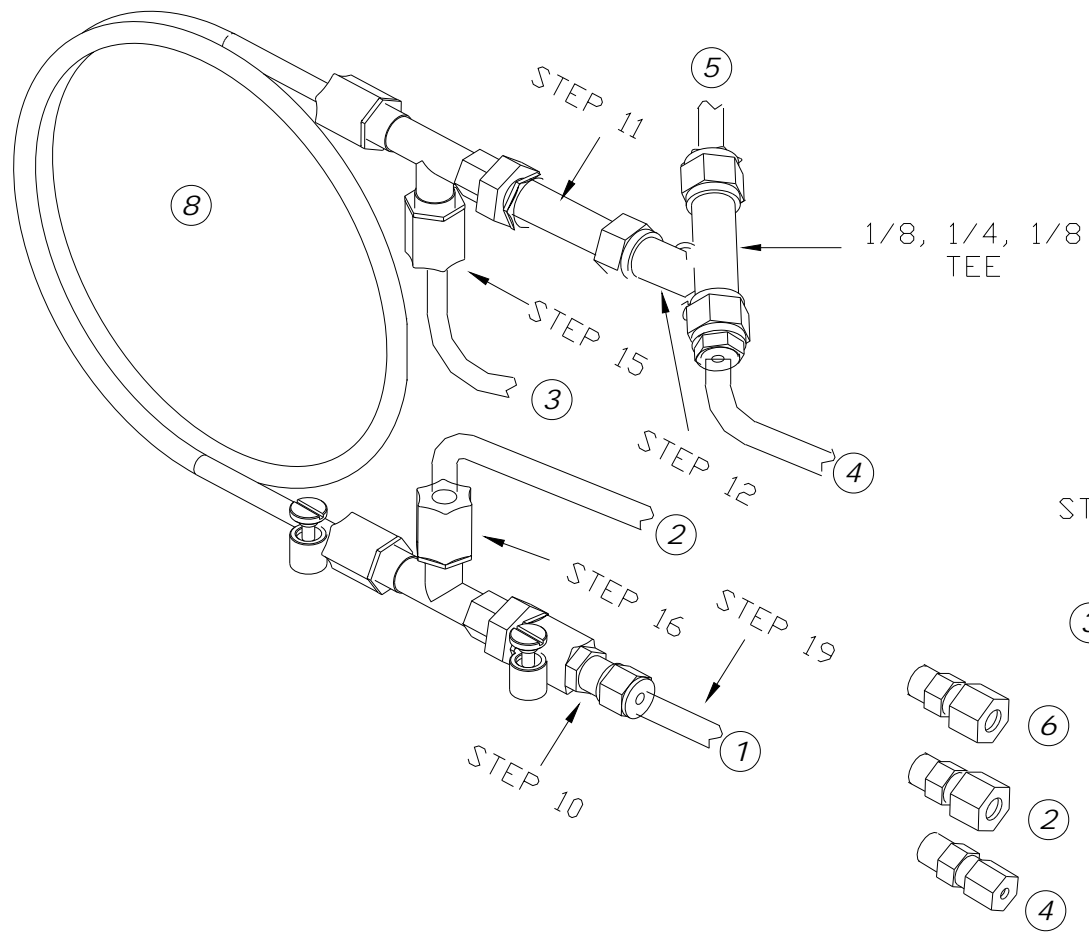
NOTE: FOR STEPS 9 - 12 PLEASE REFER TO DRAWING #1 (ATTACHED).

10. Take the Dryer from the KIT.
11. Loosen the nut at the end of the dryer (Step 10 on Drawing #1). Insert the reducer fitting into the nut and tighten the nut ½ turn past finger tight.
12. Take the ¼" TFE tube from the KIT. Cut the TFE to a length of 3" (7.5CM). Loosen the nut at the other end of the dryer and insert one end of the TFE tube into the nut. Tighten the nut ½ turn past finger tight.
13. Take the ¼"-1/8"-1/8" TFE tee from the KIT. Remove the ¼" nut and ferrules from the TEE and place them onto the open end of the TFE tube attached to the dryer in the previous step. Insert the end of the TFE tube into the ¼" end of the TFE tee and slide the ferrules and nut into place. Swage the fitting by turning it 1¼ turns past finger tight.
14. Take the dryer holder clamp from the KIT (refer to Drawing #2, attached). Attach the holder clamp to the bracket where the existing dryer is mounted (refer to Drawing #3, attached). Attach the dryer to the holder clamp with the ends pointing toward the rear panel, and the tee fitting on top (look at the existing dryer to get a good view of how this should look).

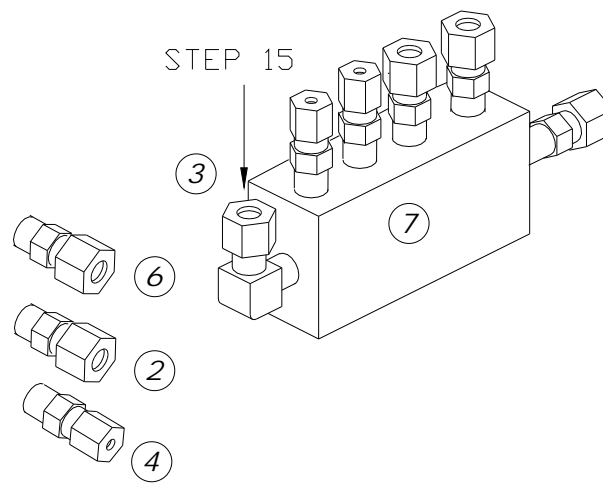
NOTE: FOR STEPS 15 - 26 PLEASE REFER TO DRAWING #1 (ATTACHED).

15. Take the remaining ¼" Tygon tubing and measure out enough to reach from the top side fitting of the dryer to the vacuum manifold (see #3 on Drawing #1). Cut the tube to fit. Remove the nut from the dryer fitting (#3 on Drawing #1). Slide the nut onto the end of the tube. Install a brass insert from the KIT into the end of the tube. Insert the tube end into the fitting on the dryer. Tighten the nut 1¼ turn past finger tight.
16. Disconnect the tube connecting the Exhaust bulkhead fitting to the vacuum manifold at both ends and set this tube aside (#3 on Drawing #1). Take a ¼" Brass Nut and front and rear ferrules from the KIT and slide them onto the open end of the tube from the previous step. Install a brass insert from the KIT into the end of the tube. Insert the tube into the elbow fitting on the vacuum manifold (#3 on Drawing #1) and swage it by turning it 1¼ turns past finger tight.
17. Take the remaining ¼" Tygon tube you removed in previous step. Cut nut and ferrule from one end. Remove the nut on the bottom side of the dryer. Slide the nut onto the end of the tube you just cut. Install a brass insert into the end of the tube. Insert the end of the tube into the fitting on the dryer and tighten it 1¼ turn past finger tight.
18. Connect the other end of the tube from step 17 to the EXHAUST bulkhead fitting on the rear panel.
19. Standing in front of the analyzer, locate the valves on the Moly. Locate the tee on top of the left valve. A black tube is connected to the left side of the tee. This tube comes from the sample filter housing. Disconnect this tee and cut the nut and ferrules off, leaving as much tube as possible remaining.

20. Remove the 1/8" brass nut and ferrules from the reducer fitting on the end of the dryer (#1 on Drawing #1). Slide the nut and ferrules onto the tube you cut in the previous step. Insert the tube into the reducer fitting on the end of the dryer. Slide the nut and ferrules into place and swage the fitting by turning it 1¼ turns past finger tight.
21. Take the 1/8" TFE tube from the KIT. Measure the tube to fit between the TFE tee at the end of the dryer and the left side of the tee on the valve from which you removed the tube in step 18 (#5 on Drawing #1). Cut tube to fit.
22. Take the 1/8" SS nut and ferrules from the KIT. Slide the nut and ferrules onto one end of the 1/8" tube. Insert the end of the tube into the left side of the tee on the valve. Swage the fitting by turning the nut 1¼ turns past finger tight.
23. Take one of the TFE nut and ferrules from the TEE on the end of the dryer and slide them onto the 1/8" tube you cut in the previous step. Insert the end of the tube into the TFE tee on the end of the dryer and swage the fitting by turning the nut 1¼ turns past finger tight.
24. Take the remaining 1/8" tube and measure the tube to fit between the TFE tee at the end of the dryer and the SS bulkhead fitting that you installed on the rear panel. Cut it to fit.
25. Remove the remaining TFE nut and ferrules from the TFE tee on the end of the dryer. Slide the nut and ferrules onto the TFE tube. Insert the end of the tube into the TFE tee on the dryer. Swage the nut by tightening it 1¼ turns past finger tight.
26. Take the 1/8" SS nut and ferrules from the bulkhead fitting you installed in the rear panel. Slide the nut and ferrules onto the open end of the 1/8" tube from the previous step. Insert the end of the tube into the bulkhead fitting and swage the fitting by turning the nut 1¼ turns past finger tight.
27. Power the analyzer and pump on.
28. Verify that you have no flow or pressure related warnings.
29. Leak check the unit by pressing the TST button until you see PRESS. Cap the sample inlet of the analyzer and watch the sample pressure. It will start to decrease. When it has reached a stable value, compare it to the Rcell pressure. The difference between the two must not be more than .5"-Hg-A.
30. Flow check the unit by placing a Flowmeter on the sample inlet. The sample flow must be 550CC/Min +-10%. Press CALZ. The sample flow must be 550CC/Min +-10%. Press EXIT. Press CALS. The sample flow must remain 550CC/Min +-10%.

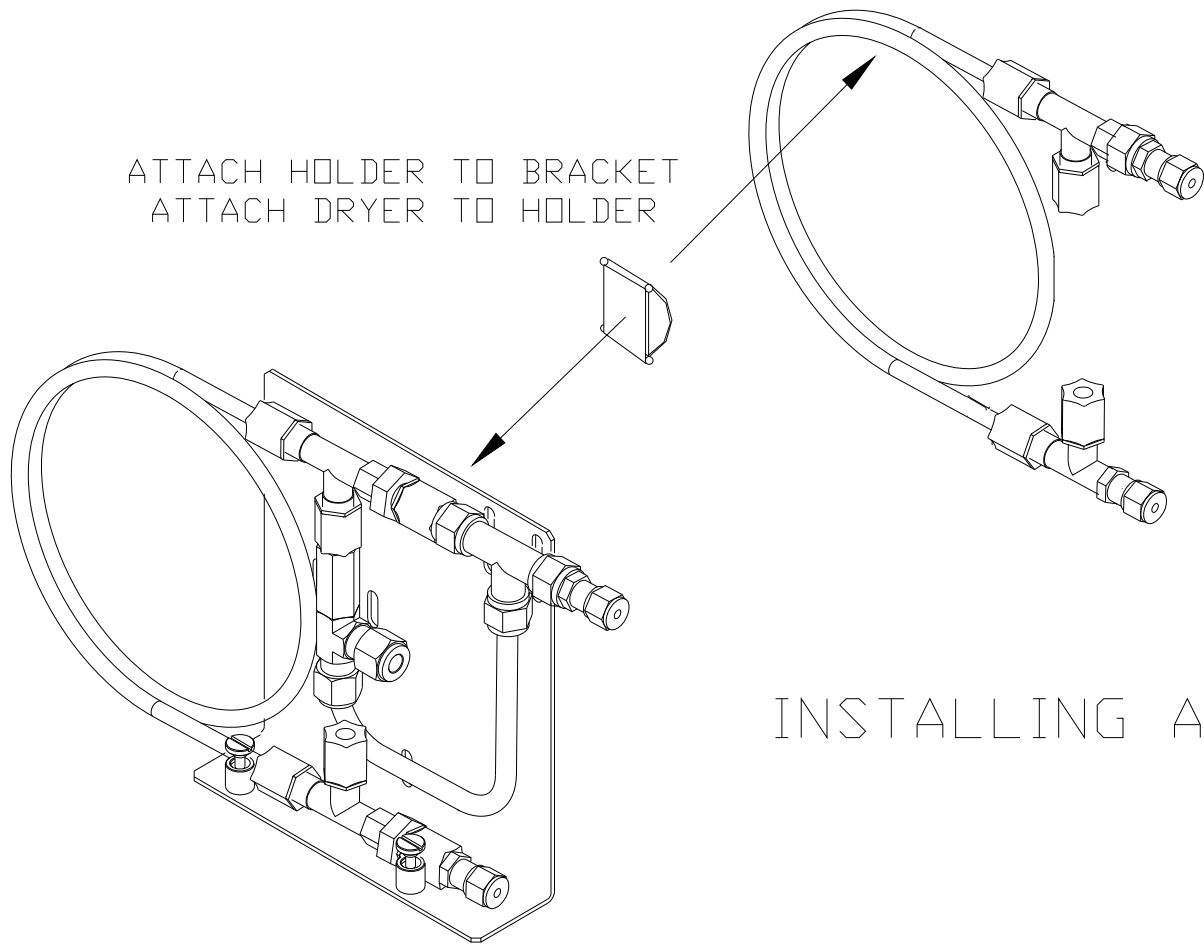


1. Connect to Sample Filter
2. Connect to Exhaust Blkhd Fitting
3. Connect to Vacuum Manifold
4. Connect to 1/8 Blkhd Fitting
5. Connect to NO/NOx Valve
6. Sample Inlet Port
7. Vacuum Manifold
8. Dryer Assembly



DWG # 1.

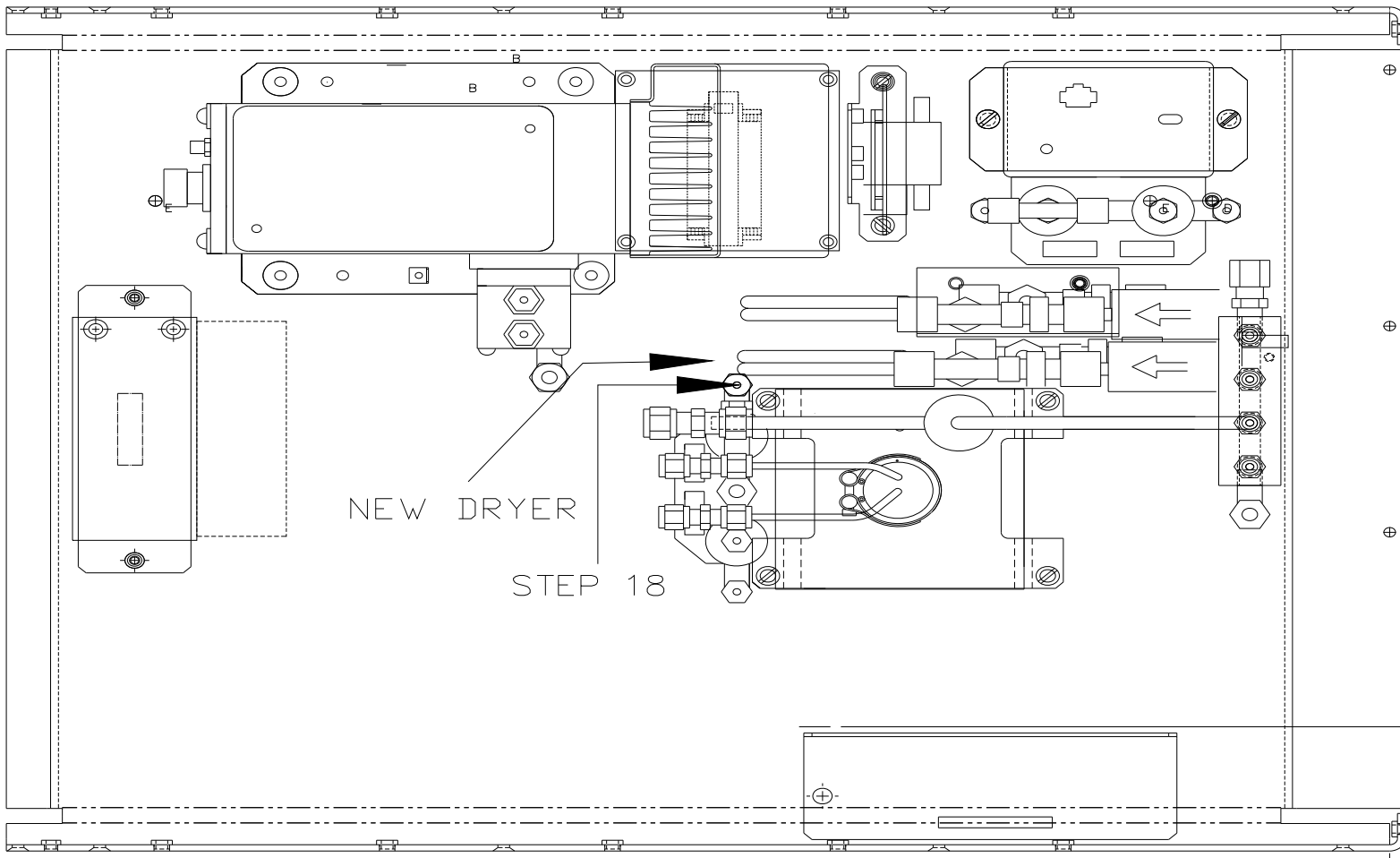
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DWG #2.

INSTALLING A KIT000115

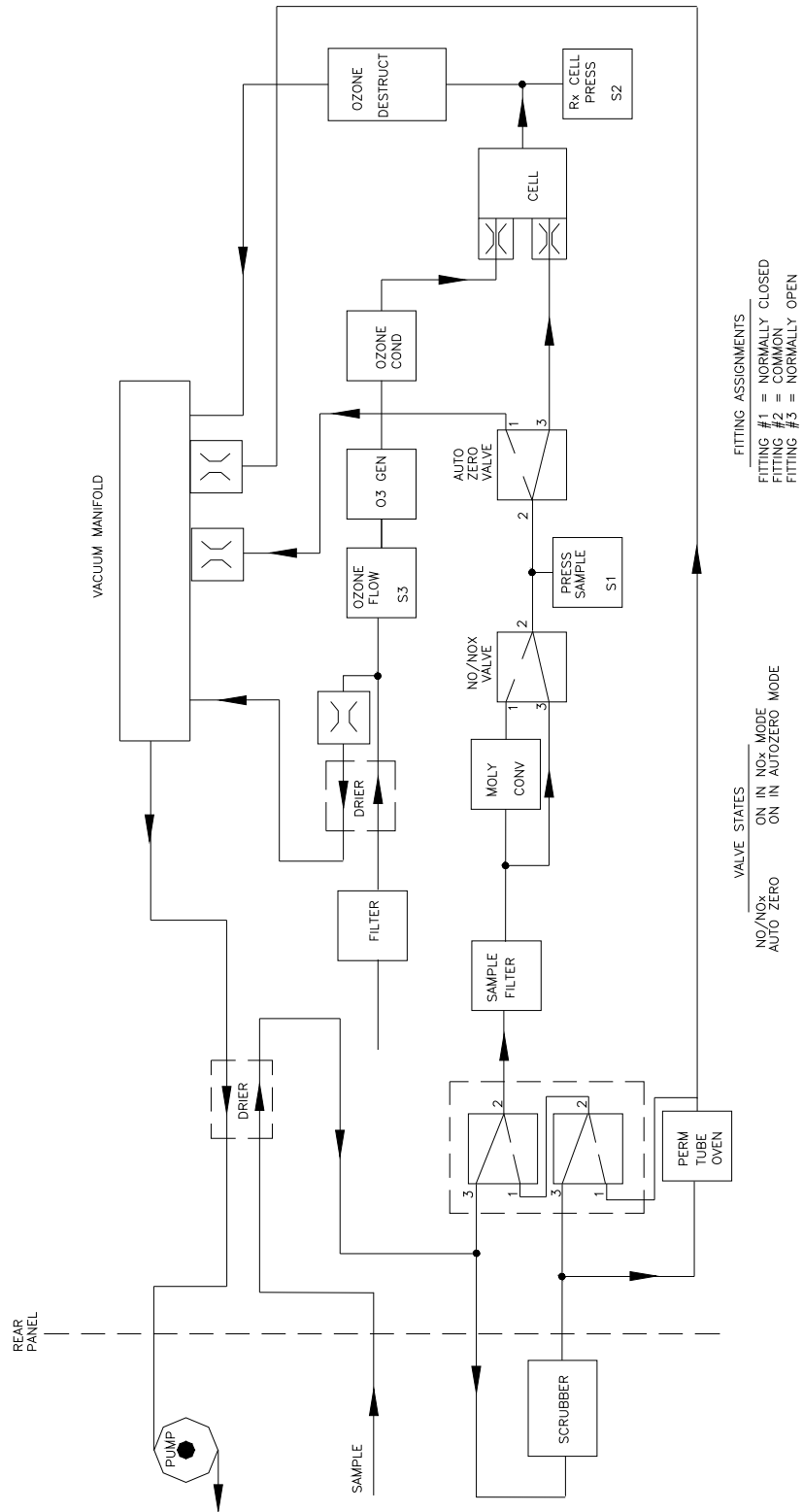
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DWG #3.

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M200E PNEUMATIC DIAGRAM W/ IZS DRYER



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