TELEDYNE
INSTRUMENTS
Advanced Pollution Instrumentation
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Service Note

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NOx R-CELL REBUILD

SCOPE:

This procedure provides instructions for rebuilding the R-cell in API NOx analyzers.

PARTS:

KIT51 For ambient versions of models M200A, M200, M250, M251, M252
KIT52 For high concentration (100 PPM or higher) versions of models M200, M250, M251, M252

TOOLS:

7/16" Wrench
9/16" Wrench
#2 Phillips Head Screwdriver
Large Flat blade Screwdriver
Small Flat blade Screwdriver
Scribe or similar pointed end tool

PROCEDURE:

1. Remove power and cover from analyzer.
2. For M200A analyzers, locate the flowmeter assy. It is located in front of the Moly/Valve assy. Loosen the 2 captive screws holding it in place. Move it aside so you can access the R-cell.
3. Remove the ¼" and 1/8" tubes from the R-cell. Locate and disconnect the heater/thermistor assy connector. Model 200A – locate and disconnect all ground wires relating to the R-cell.
4. Loosen the two fittings on top of the R-cell.
5. Remove the 4 screws holding the R-cell into the sensor housing. Place the R-cell onto a work bench. Separate the manifold from the sleeve assy.
   NOTE: FOR THE FOLLOWING STEPS, REFER TO ATTACHED DRAWING.
6. Remove the sleeve from the housing. Note that there are two O-rings, one at each end of the sleeve. Remove the O-rings from the sleeve.
7. Inspect the sleeve, nozzles and window for contamination. It is normal for the window to have a light haze or discoloration on it. Some white crystals or powder are also normal.
8. Clean the window and sleeve by dipping them into a solution of 1 Tablespoon of baking soda in 6-8 ounces of water. Rinse and dry thoroughly. You can also use window cleaner, but it must be AMMONI-FREE window cleaner.

9. Remove the fittings from the top of the R-cell. Inspect the O-ring built into the fittings for cracks or breaks. If you see any cracks or breaks, replace the O-rings with the OR34 included in the KIT.
10. Remove the sintered filters from the manifold. This is done by pushing on the edge of the filter with a small flat-blade screwdriver until the opposite side pops up. The sintered filters will then drop out. Discard the sintered filters.
11. Remove the O-rings from the manifold by prying them out.
12. Remove the orifices from the manifold. (If necessary, you can insert a scribe into the orifice hole and move the orifice around to break the seal to the bottom O-ring).
13. Remove the bottom O-ring from the manifold.
14. Install new O-rings (OR1 from the KIT) into the manifold. Push them down with the small screwdriver to be sure they are seated flat.
15. Install the new orifices from the KIT. Be sure to insert them with the painted side facing up. Install the blue orifice into the hole closest to the ¼" elbow.
16. Install new O-rings (OR1 from the KIT) on top of the orifices.
17. Install new sintered filters (FL1 from the KIT) on top of the O-rings.
18. Install the springs on top of the sintered filters.
19. Install the fittings you removed in step 9.
20. Assembly is the reverse of disassembly with the following notes:
    When installing the window and sleeve, be sure the new paper gasket is sitting in the sleeve holder, drop the window onto the gasket. Drop one O-ring on top of the window, (ensuring that it is laying flat), then slide the sleeve in and install the second O-ring, (see drawing).
21. Perform a leak check on the analyzer.
22. Calibrate the analyzer per the Factory Calibration (or Quick Cal) procedure appropriate for your analyzer.

If you have questions about this or any API equipment, please contact an API Customer Service Representative.

*** This orifice will be 7 mil for M251/252, 10 Mil for older M200 and all M200A, and 12 mil for newer M200 analyzers.**