



02-035B  
2 May, 2007

**INSTALLING THE REPLACEMENT IZS AND Z/S RETROFIT KIT ON AN M100A ANALYZER**

**I. PURPOSE:**

How to install the IZS and Z/S retrofit kit on an M100A analyzer.

**II. TOOLS:**

Flat Tipped Screwdriver  
7/16-Opened End Wrench  
9/16-Opened Wrench

**III. PARTS:**

KIT000162

**IV. PROCEDURE:**

Please refer to the instructions that pertain to the option installed in your instrument.

**REPLACING Z/S VALVES**

Removing the Old Z/S valve assembly

**Refer to FIGURE 1 for diagram of old Z/S valve assembly.**

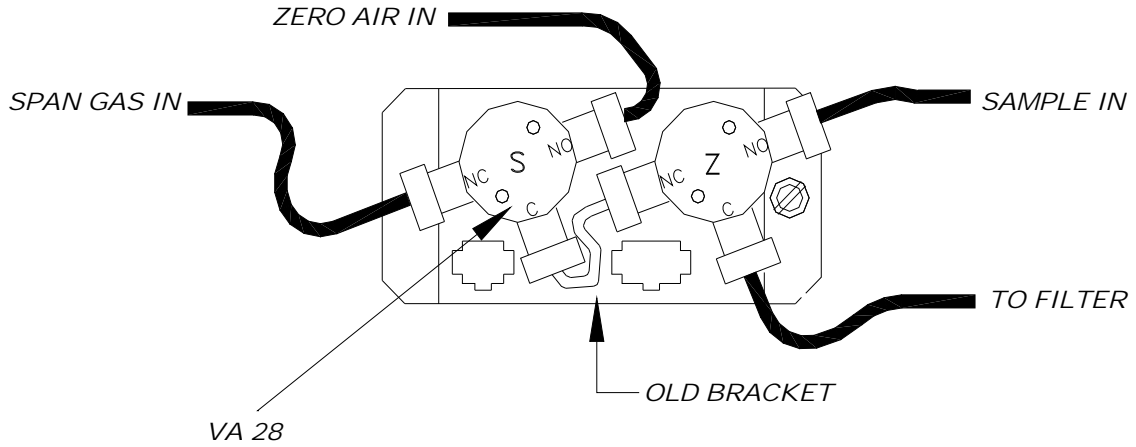
1. Disconnect the tubing from the NO and NC ports of the Span valve (S) and remove the nuts and ferrules.
2. Disconnect the tubing from the NO and C ports of the Zero valve (Z) and remove the nuts and ferrules.
3. Disconnect the 4-pin connector from the wiring harness on the Z/S bracket.
4. Loosen the two self-captive screws on either side of the Z/S bracket.
5. Remove the whole Z/S valve assembly from the instrument.

Installing the new Z/S retrofit kit.

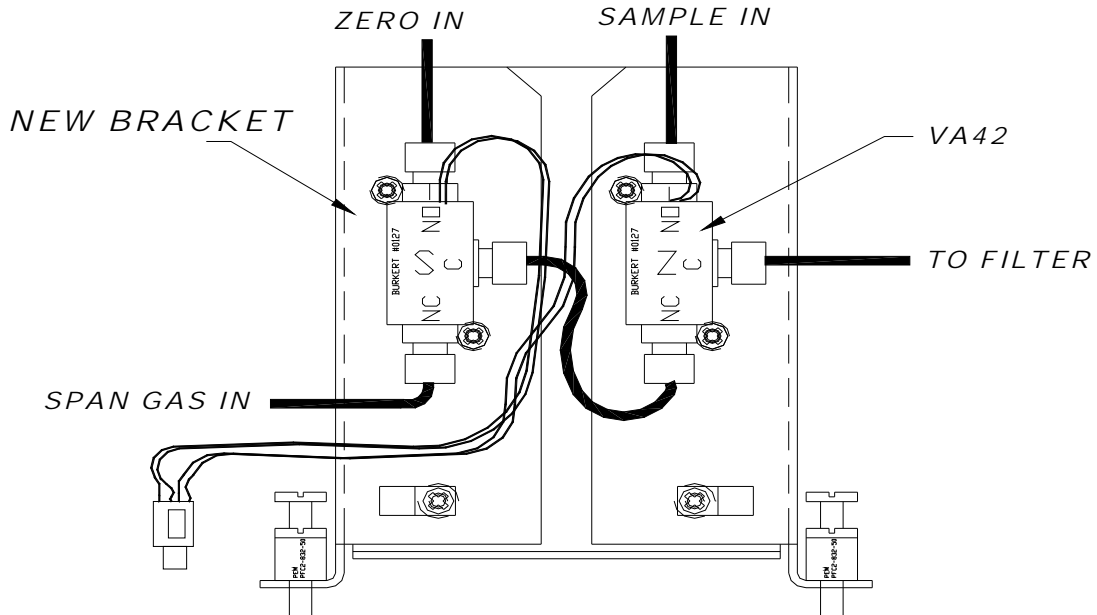
**Refer to FIGURE 2 for diagram of new Z/S assembly.**

1. Take the New Z/S valve assembly and install it in the same location as the old assembly.
2. Tighten the two self-captive screws.
3. Connect the wiring harness to the 4-pin connector on the Z/S valve assembly. \*Note this harness will be FREE HANGING.
4. Remove the Derlin nuts and ferrules from the new valves with exception to the tubing that connects the two valves together. There should be a total of 6 Nuts and 6 Ferrules.
5. Install the tubing into the Derlin nuts and ferrules of the new valves as shown in **FIGURE 6 on page 5**.
6. Connect the tubing to the Z/S valves as shown in **FIGURE 5 on page 5**.
7. Follow the **LEAK CHECK PROCEDURE** before using the valves. **Page 6**
8. The Z/S valves are ready for use.

*Figure 1*  
*ZERO/SPAN OPTION W/ VA28 VALVES*



*Figure 2*  
*ZERO/SPAN OPTION W/VA42 VALVES*



## REPLACING IZS VALVES

Removing the old IZS assembly.

### Refer to Figure 3. IZS option with VA 28 valves.

1. Ensure that there is no power to the instrument and that the perm tube is removed from the oven.
2. Disconnect the tubing going to the NO port and the C port of the Zero valve (Z) and remove the Teflon nuts and ferrules.
3. Disconnect the tubing going to the NC port and the NO port of the Span valve (S) and remove the Teflon nuts.
4. Remove the tubing coming from the scrubber at the top of the perm tube oven.
5. Remove the tubing coming from the purge at the top of the perm tube oven.
6. Disconnect the 4-pin valve connector from the wiring harness and remove the harness from the valve bracket.
7. Disconnect the permeation oven connector from the wiring harness and remove the harness from the valve bracket.
8. Loosen the 2 captive screws that hold the IZS perm tube oven to the chassis of the instrument.
9. Remove the entire IZS assembly from the instrument.
10. Remove the permeation tube oven from the oven chassis by pulling on the Teflon fittings until the oven comes out.
11. Remove all the insulation that is left in the chassis.

Installing the new IZS retrofit kit.

### Refer to Figures 4 & 5 for the new IZS retrofit assembly.

1. Install the insulation into the new IZS chassis with the new valves.
2. Install the permeation tube oven.
3. Install the whole assembly into the instrument in the same location as the previous assembly.
4. Tighten the two captive screws.
5. Connect the permeation tube oven and the valve connectors to the wiring harness. \*Note: the connectors will be FREE HANGING.
6. Remove the Derlin nuts and ferrules from the new valves with exception to the two nuts and ferrules that is used on the tubing that connects the two valves together. There should be 6 nuts and 6 ferrules.
7. Connect the tubing to the new valves as shown in **FIGURES 4 & 5**. Refer to **FIGURE 6** for installation of tubing into the new valves,
8. Perform the leak check procedure before using the IZS system. **Page 6**
9. The IZS assembly is ready for use.

FIGURE 3  
 IZS OPTION W/ VA 28 VALVES

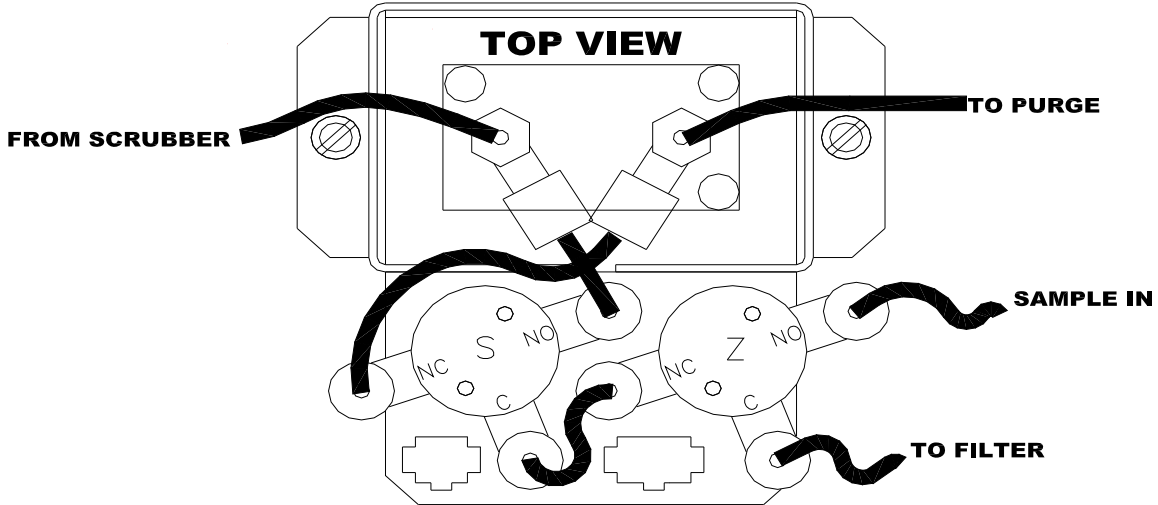


FIGURE 4.  
 IZS OPTION W/ VA 42 VALVES

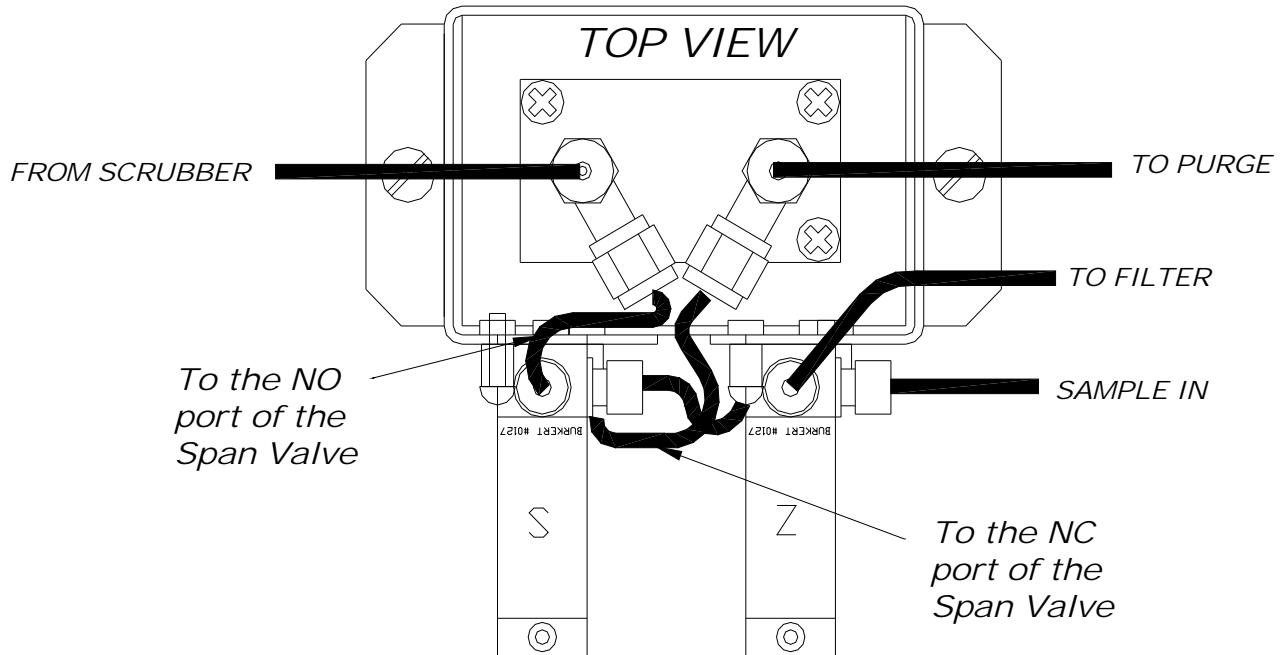


FIGURE 5.

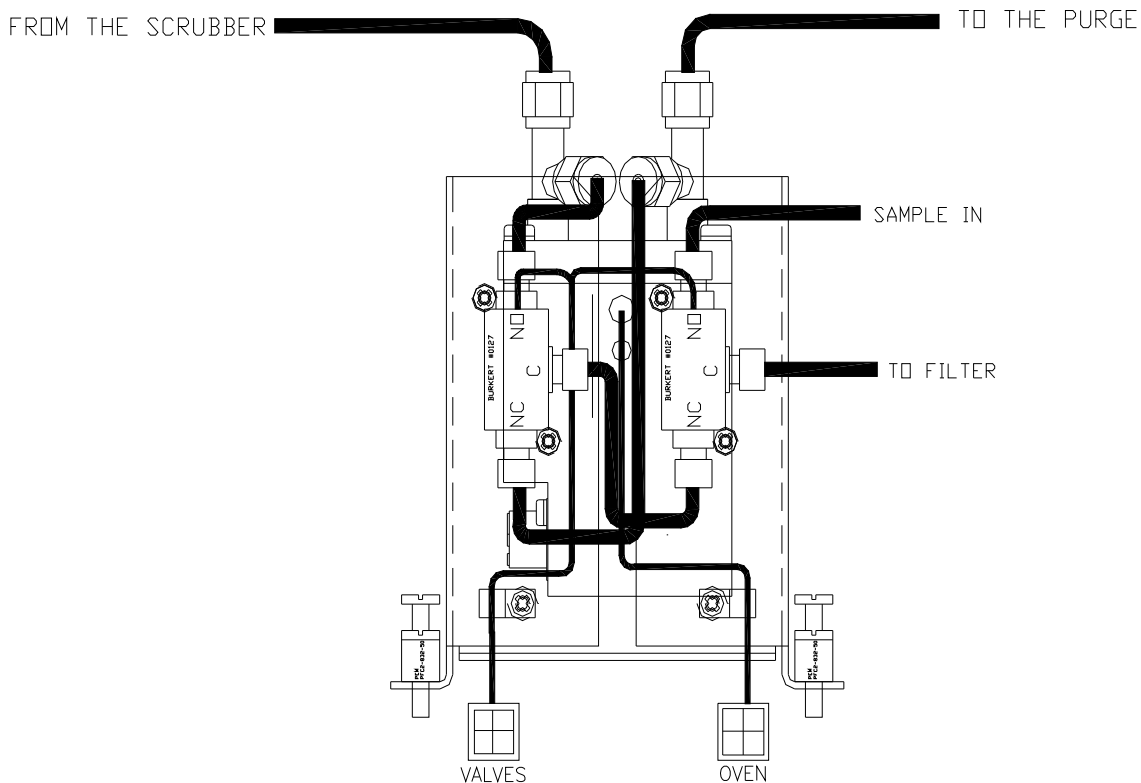
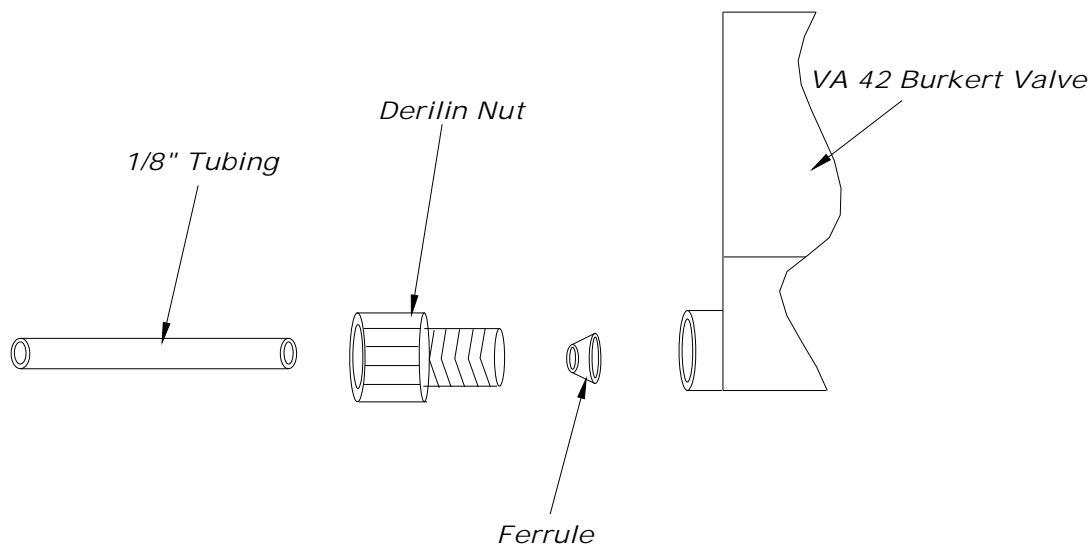


FIGURE 6.

*Installing the tubing into the valve*



## LEAK CHECK PROCEDURE

### IZS OPTION

1. Bypass the pump.
2. Cap the sample inlet.
3. Cap the Zero Air port at the charcoal scrubber.
4. Attach a pump and a valve cutoff to the exhaust port.
5. Enter the CALS mode. (Ensure that there isn't a perm tube in the oven.)
6. Monitor the sample pressure reading on the front panel. The pressure should pull down to < 10"HG.
7. Turn the valve on the exhaust port to hold the vacuum in the instrument.
8. Remove the cap from the Zero Air inlet port.
9. Monitor the Sample Pressure on the front panel. The Sample Pressure reading should not increase more than 1" for every 5 minutes. If the pressure increases more than 1" then you have a leak in the IZS system. Find the leak and then repeat steps 5-8 until the Sample Pressure reading meets the above specification.
10. If there are no leaks then exit the CALS mode, disconnect the pump and the valve from the exhaust port and reconnect the internal pump. Remove all the caps.
11. The instrument's IZS is ready for use.

### Z/S OPTION

1. Bypass the pump.
2. Cap the Zero, Span and Sample inlets.
3. Follow steps 4-10 in the procedure above with exception to step 8. Remove the caps from the Zero and Sample ports.

The Z/S valves are ready for use.