VANDAGRAPH **COMPANY OPERATING PROCEDURE**

Oxygen Sensor manufacture

Modification of R-22DEM Sensors

VM3/COP/40.14

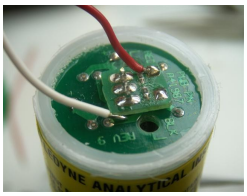
Date: 28 Jun 2007	Revision Date: 13-Apr-11	Issue 1

Only to be attempted by trained personel

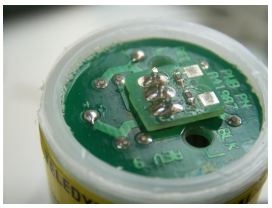
Parts Required			
Quantity	**Description**	**Part No.**	
1	R-22 Sensor any version will work R-22D is preferred R-22A is lowest cost and has a grid		
1	White Box & Lid		
2	Packing Material		
1	Round "Vandagraph" Label		
2	Serial number Labels		
1	Serial number Label for Outer bag		
1	Polythene Bag (outer)		
1	PCB Blank or		
	PCB pre-wired with resistors		
2	4K7 ohm surface mounted resistors or		
2	5K ohm surface mounted resistors		

1. Open the packaging and remove the R-22D Sensor from the Gas barrier bag
2. Check the O_2 sensor for damage and signs of leaking electrolyte.
3. Remove the O_2 sensor specification leaflet and discard.
4. Remove excess outer case unto level of PCB. VM3COP40.11

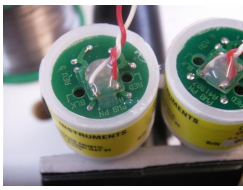
5. Using a Flow divertor hold the sensor in a vice
6. Remove the Molex carefully. The PCB is non conformal coated so the seal must be broken on the sensor carefully



7. Where possible use Pt number prewired PCB with 4K7 or 5K6 resistors and molex connected If not available see page 2

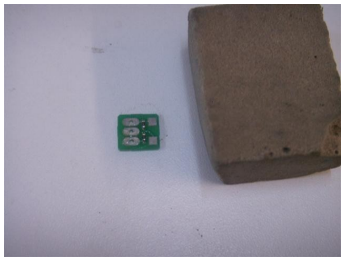


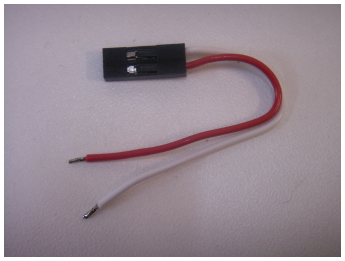
8. Test for output 4.0 mV- 6.5mV.
9. Wire so that the leads lie naturally across the PCB
10. Cut the three pins as close to the solder joint as possible
11. Add a drop of epoxy glue to the small PCB This seals the contacts and holds the wires in place.



12. Remove the existing label and add R-22DEM label to sensor & Tube so that the edges of the labels are parallel to the edges of the container and Sensor.
13. Ensure the O_2 sensor is booked out in the stock books. Place packing material in the bottom and top of the white container and add the cap. Ensure it is sealed.
14. Add the Vandagraph round label to the top of the cap. Add the instruction leaflet, and place the whole into the polythene bag,

Only to be attempted by trained personel





Notes for PCB construction

15. The PCB should be cleaned with a PCB rubber to remove oxidation.
16. The Red & White wires should be cut to 5 cms and stripped with the tool. Insert the wire until the end touches the Red stop. Close the tool and the cable will be stripped. If not rotate the wire and repeat.
17. Tin the bare ends.
18. Inserts should be crimped onto the wires using the special tool
19. The 4K7 or 5K6 resistors should be soldered onto the PCB using the Microscope set up. Only to be attempted by trained SMT engineer. Use two resistors of the same value one the same pCB