



## TROUBLESHOOTING

1. DISPLAY SHOWS STEADY NUMBER (NOT FLASHING) BETWEEN 0.1 AND 5.0 MALFUNCTION LIGHT ON. HI AND LO ALARMS OFF.  
.ZERO DRIFTED NEGATIVE. RESET THE ZERO POT.  
.RECALIBRATE SYSTEM.
2. DISPLAY NOT LIT.  
.NO 9VDC OUTPUT FROM THE POWER SUPPLY.  
.LOADING OF THE 9VDC SOMEWHERE IN THE SYSTEM.  
.FAILURE OF THE CONTROL UNIT.
3. A. DISPLAY SHOWS A STEADY (NOT FLASHING) NUMBER BETWEEN 0.0 AND 9.9 - MALFUNCTION LIGHT ON - HI AND LO ALARMS OFF OR...  
B. DISPLAY FLASHING - MALFUNCTION LIGHT OFF - HI AND LO ALARMS ON.  
- SYSTEM OUT OF CALIBRATION, ATTEMPT TO RECALIBRATE  
- LOOSE CONNECTION BETWEEN DETECTOR UNIT AND CONTROL UNIT.  
- BREAK IN THE DETECTOR CABLE.  
- FAILURE OF THE DETECTOR UNIT.  
- FAILURE OF THE CONTROL UNIT.
4. DISPLAY PERIODICALLY FLASHES ON AND OFF.  
- LOOSE POWER SUPPLY CONNECTIONS.  
- INTERMITTENT OVERLOAD SOMEWHERE IN THE SYSTEM  
- LOOSE COMPONENTS IN THE CONTROL UNIT OR POWER SUPPLY.  
- FOREIGN OBJECTS (LOOSE SCREWS, ETC.) VIBRATING ON CONTROL UNIT CIRCUIT BOARDS.
5. ERRATIC WANDER OF ZERO  
- WATER AND/OR DIRT CONTAMINATION OF THE DETECTOR UNIT.  
- WATER AND/OR DIRT IN THE DETECTOR UNIT CONNECTOR  
- WATER AND/OR DIRT IN THE DETECTOR UNIT CONNECTIONS IN THE CONTROL UNIT.  
- LOOSE DETECTOR CONNECTIONS IN THE CONTROL UNIT

NOTE: TO VERIFY CONTAMINATION OF DETECTOR UNIT, RAP THE DETECTOR UNIT SHARPLY. IF THE ZERO JUMPS AROUND, THERE IS A CONTAMINATE. REPLACE DETECTOR UNIT.

## TROUBLESHOOTING (cont.)

6. A. UNABLE TO HOLD A STABLE ZERO (DRIFT), OR...  
B. SYSTEM HAS LOW OR NO RESPONSE TO CALIBRATION GAS.  
- CONTAMINATION OF THE DETECTOR UNIT (WATER, DIRT, ETC.)  
- END OF DETECTOR UNIT SERVICE LIFE.
7. REMOTE RUN LAMP INOPERATIVE.  
- FAULTY LAMP IN REMOTE INDICATOR.  
- FAULTY SOLID STATE RELAY ON POWER SUPPLY.  
- FAULTY POWER SUPPLY CABLE.  
- FAULTY CONTROL UNIT.

## CALIBRATION

### CALIBRATION PROCEDURE

1. ALLOW SYSTEM TO WARM UP FOR 5 MINUTES PRIOR TO CALIBRATION.
2. REMOVE THE BAFFLE CAP AND CHECK THAT ALL HOLES AND SCREENS ARE FREE OF ANY DIRT OR OBSTRUCTIONS. RE-INSTALL BAFFLE CAP.
3. IN FRESH AIR OR BY USING ZERO AIR, SET THE ZERO POT SO THE CONTROL UNIT SHOWS 0.0 BE SURE TO SET TO THE CENTER OF THE 0.0 RANGE.
4. PLACE THE CALIBRATION CUP OVER THE BAFFLE CAP.
5. APPLY SPAN GAS OF A KNOWN CONCENTRATION AT 1.0 SCFH (0.5 LITERS/MIN.). LET THE CONTROL UNIT DISPLAY STABILIZE.
6. SET THE SPAN POT SO THE CONTROL UNIT SHOWS THE SPAN GAS CONCENTRATION.
7. REMOVE CALIBRATION CUP AND LET THE DETECTOR UNIT CLEAR.

NOTE: IN INSTANCES WHERE A LARGE NUMBER OF TURNS OF THE SPAN POT ARE NECESSARY TO BRING THE CONTROL UNIT INTO CALIBRATION, THE ZERO MAY SHIFT SLIGHTLY. THIS WILL BE NOTICED AFTER THE DETECTOR UNIT HAS CLEARED. IF THE ZERO HAS SHIFTED AFTER THE DETECTOR UNIT HAS CLEARED, REPEAT THIS PROCEDURE A SECOND TIME.

## 140B SYSTEM TEST VOLTAGE MEASUREMENTS (All DC voltages measured with respect to 0 V ground)

Power Supply	
GND	Chassis Ground
AC	Line Voltage Input
ACN	Line voltage Input
MAL	Negative Side of Remote Run Light Relay
LO	
HI	
COM	
RLY	Negative Side of Main Contractor control Relay
Readout	
1	8.5 tp 9.3 VDC from Power Supply
2	0 V Ground from Power Supply
3	Switch Negative Side of Main Contractor Control Relay
4	Switch Negative Side of Remote Run Light Relay
5	
6	
7	
8	
9	0 V Ground to Detector
10	Signal from Detector 2.8 VDC @ 0% Gas 3.6 VDC 5% Gas
11	0 V Ground to Detector
12	8.5 to 9.3 VDC Detector
Detector	
WHITE	8.5 to 9.3 VDC (Power In)
RED	2.8 VDC @ 0% Gas to 3.6 VDC @ 5% Gas (Signal Out)
BLACK	0 V Ground
GREEN	0 V Ground