

**MODEL 077  
RADIATION SHIELD  
OPERATION MANUAL**



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## MODEL 077 RADIATION SHIELD

### 1.0 DESCRIPTION

- 1.1 The MET ONE INSTRUMENTS Power-Aspirated Radiation Shield consists of a large primary tube for mounting up to four Model 060 or 062 sensors; two lightweight aluminum cylinder shields, painted with a gloss enamel on the outer surfaces for maximum reflection and an aspirator motor with fan that requires little or no maintenance. The Model 060 Ambient Temperature, 062 Delta Temperature, or 083C Relative Humidity sensors are generally used with this shield.
- 1.2 The 077 has an external junction box that allows easy field connection of sensors without requiring soldering or potting. The internal junction box minimizes the problems that are associated with the dirt/moisture/resistance paths between the connections on exposed connectors. The 077 will allow the customer to replace sensors easily in the field without re-soldering and re-potting.
- 1.3 The sensor power cable is used to provide 12V DC power to the aspirator motor.
- 1.4 The signal cable provides connections for the temperature sensors.

Table 1-1  
Model 077 Specifications

<u>Radiation Error</u>	Less than 0.01°C under maximum solar radiation of 1.6 gm-cal/cm <sup>2</sup> /min
<u>Power Requirement</u>	12 V @ .1 amp
<u>Temperature</u>	-50 degrees C to +85 degrees C
<u>Weight</u>	4.0 lbs.
<u>Sensor Capacity</u> Shield Model	<u>Sensors Mounted</u> 060/062    083
077    1 to 4	0  1 to 3            1

## 2.0 INSTALLATION

### **CAUTION:**

**To prevent damage to the sensor do not apply pressure or load to the aspirator tube during removal from the shipping tube or carton.**

- 2.1 Loosen the clamp screw on the top of the shield and lift off the aspirator motor. Take care not to strain aspirator motor wires.
- 2.2 Power Cable. Install sensors as desired and route cables through hole in shield and into connection box.
- 2.3 Replace aspirator motor and secure clamp screw.
- 2.4 Mount the 077 on a 3/4" horizontal pipe. The unit will slide over the end of the pipe and will lock into place with the self contained allen head set screws. The horizontal pipe should be positioned so that the sensor will not be located too close to a potential heat source. Generally it is recommended that the unit be on the north side of a tower with the sensing unit at least 3' from the tower.
- 2.5 Slide the top hat onto the tower mounting arm. Tighten the two allen screws to lock into place.
- 2.6 Connect power and sensor cables and route to power source and recorder respectively.
- 2.7 Apply power and verify that aspirator motor is operating.
- 2.8 Check to see that sensor output is being recorded.

### 3.0 TROUBLESHOOTING AND REPAIR

TABLE 3-1  
Troubleshooting

<u>SYMPTOM</u>	<u>PROBABLE CAUSE</u>	<u>SOLUTION</u>
Fan does not operate	Loss of DC power	Check DC source. Check all cables.
	Motor failure	Replace fan

### 3.1 REPAIR INFORMATION

- A. Remove the four (4) screws holding the enclosure cover and remove cover.
- B. Disconnect fan power wires.
- C. Loosen the clamp screw on the top of the shield and lift off the aspirator motor. Take care not to strain aspirator motor wires.
- D. Replace assembly and reassemble shield.