

MODEL 076B-16
Motor Aspirated Temperature Shield

OPERATION MANUAL
Document No. 076B-16-9800



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Manual Part Number: 076B-16-9800
Rev. C March 5, 2012

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1.0 DESCRIPTION

- 1.1 The Met One Instruments, Motor Aspirated Radiation Shield Model 076B-16 is a shield for direct cable connection to the temperature probe. It also includes a fan with a tachometer output. This version of the configuration was designed for mounting on a horizontal, 3/4" IPS boom and for use with a minimal temperature probe array. This shield is powered from 12 VDC and is provided with a tachometer output fan. The shield consists of a large primary tube for mounting up to two temperature probes such as the Model 060, 062, or T-200 sensors. The primary tube contains two anodized lightweight aluminum cylinder shields, which are used to thermally isolate the temperature probes from the heating effects of the sun. For maximum reflection of solar radiation, all external surfaces are powder coated with a gloss white finish. To aid in the circulation of cooling air around the outer shields a DC fan is installed in the top of the aspirated shield. The fan is of a type that requires little or no maintenance.
- 1.2 Two sealing type cord grip fittings are provided for sensor signal cables.

Table 1-1

Model 076B-16 Specifications

Radiation Error	Less than 0.03°C (.05°F) under maximum solar radiation of 1.6 gm-cal/cm ² /min
Power Requirement	12 VDC at 0.450 amps (Typical)
Temperature	-50°C to +85°C
Weight	5.5 Lbs
Shield Capacity	Up to two temperature probes
Power Connection	Connector MOI part number 500891 Assembled Cable Part Number 7323
Signal Connection	Direct connection to sensor.

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 The Radiation Shield is designed to mount onto a horizontal instrument mounting boom or support. The mounting arm may be any horizontal 3/4" IPS pipe suitably mounted.
- 2.2 Slide the top hat onto the tower-mounting, and then tighten the four Allen screws on the top of the mount, to lock the shield into place.
- 2.3 Attach the Radiation Shield to the top hat in quick disconnect box with the radiation shield inlet facing down and tighten side clamp to fasten.
- 2.4 Connect DC and sensor cables and route them to DC power source and translator or data logger, respectively. Refer to Figure 4-1 for power wiring connections.
- 2.5 Apply power and verify that aspirator motor is operating.
- 2.6 Check to see that sensor output is being recorded.

3.0 TROUBLESHOOTING AND REPAIR

TABLE 3-1 Troubleshooting

Symptom	Probable Cause	Solution
Fan does not operate	Loss of DC power	Check DC source Check power cable
	Motor Failure	Replace Fan

4.0 REPAIR INFORMATION

- A. Repair of the Motor Aspirated Radiation Shield is limited to replacement of the aspirator motor.
- B. Aspirator Motor Replacement
 - a. Remove all cables to the shield and remove the entire shield assembly from tower.
 - b. Separate shield from quick disconnect box.
 - c. Unsolder motor wires from receptacle. Note color and pin coding.
 - d. Remove top hat from shield.
 - e. Remove fan assembly.
 - f. Install new fan assembly and secure.
 - g. Resolder motor wires to the proper pins as noted under "C".
 - h. Temporarily connect power and verify fan operation.
 - i. Re-install fan housing assembly to the Radiation Shield.
 - j. Install assembly on tower and verify correct operation.

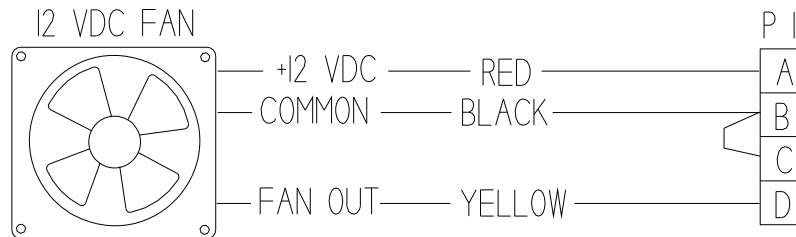


Figure 4-1 Internal Fan Wiring Diagram

REPLACEMENT PARTS LIST

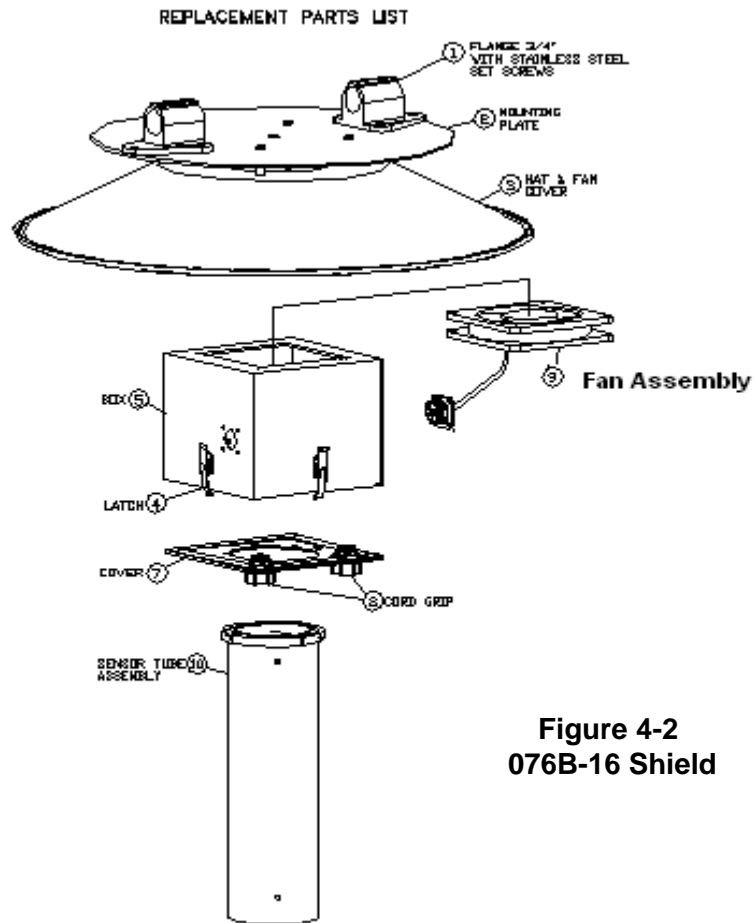


Figure 4-2
076B-16 Shield

Table 4-1 Replacement Parts List

Item	Part #	Description
1	590300	3/4" IPS Pipe Mount
2	2647	Mounting Plate
3	2646	Hat and Fan Cover
4	670202	Spring Latch
5	2364	Fan Box
7	7320	Cover (Special)
8	480528	Cord Grip Fitting
9	3558	Fan Assembly
10	2555	Sensor Shield Assembly

5.0 QUALITY ASSURANCE PROCEDURE

5.1 Purpose

To verify correct operation of Model 076B-16 Motor Aspirated Radiation Shield

5.2 Activity

Confirm adequate flow through the radiation shield, and to check the general

condition of the motor aspirated shield. Clean shield for maximum reflectance.

5.3 Frequency

Every 6 months

5.4 Procedure

Place flow monitor, directly below radiation shield and confirm adequate flow.

5.4.1 Hold flow sensor at base of air inlet, position as shown.

5.4.2 With flow sensor in MPH range, the reading should indicate 5.0 or greater, record value. If flow is below that reading the flow system may be plugged or the motor is not operating properly.

5.4.3 Clean the top shields, and down tube with a damp rag, to remove any accumulation of dust and dirt. The white surfaces of the shield should be kept clean for maximum reflectance of solar radiation.

5.5 Skill level Required

A maintenance technician instructed in the operation of the flow monitor and disassembly of the 076B-16 Shield.

5.6 Required Information

Record Flow

Record any damage to surface of shield, or down tube.

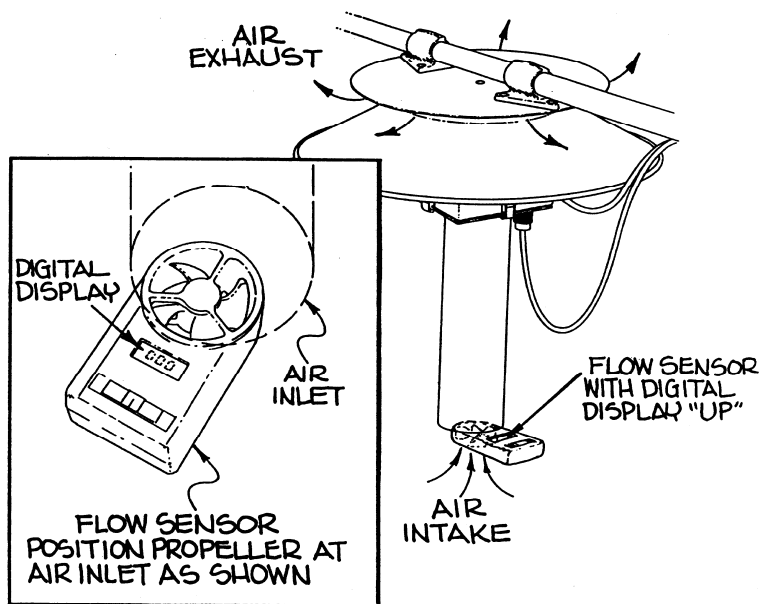
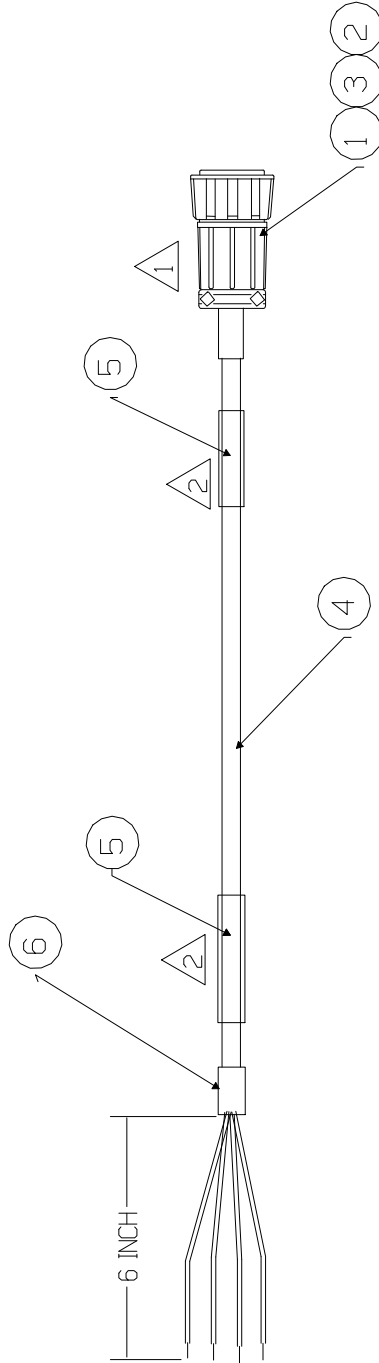


Figure 5-1 Flow Test of Shield

APPENDIX A

Power Cable (7323) Wiring Diagram

A 18JUN2001 DR
 B CHANGED TO 4 PIN 18AUG201 DR



ITEM	PART NR	DESCRIPTION	QTY
1	500891	CONNECTOR, 2 PIN FEMALE	1
2	960075	SLEEVING 1/8" SHRINK	AR
3	995122	RTV-16 ADHESIVE/SEALANT	AR
4	400020	4 CONDUCTOR 20 AWG CABLE	15 FT
5	960060	SLEEVING 1/4" SHRINK CLEAR	AR
6	960050	SLEEVING 1/4" SHRINK BLACK	AR

+12V- PWR — A
 COMMON — B
 COMMON — C
 HALL OUTPUT — D

1 POT CONNECTOR SHELL WITH ITEM #8 TO PREVENT ENTRY OF MOISTURE IN THE FIELD.

2 IDENTIFY CABLE 18" FROM EACH END. DASH NUMBER = LENGTH IN FEET

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SCALE: NONE
 APPROVED BY: _____
 DATE: _____

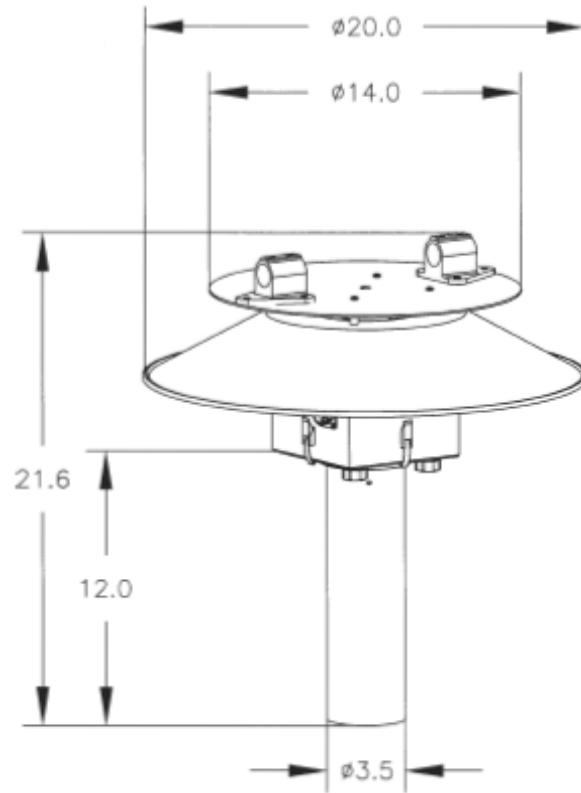
DRAWN BY: REOLA
 REVISED 18AUG2001

076B/7308 DC POWER CABLE
 ASSEMBLY

DRAWING NUMBER
 7323

APPENDIX B

Motor Aspirated Radiation Shield Outline Dimensions



All Dimensions in Inches