

SECTION II. INSTALLATION

4.2.1 INTRODUCTION

The modular design of the ASOS wind sensor enables simple assembly. The four basic components of the wind sensor (wind speed sensor, wind direction sensor, crossarm support, and wind sensor electronics enclosure) are secured to each other by bolts. The entire assembly mounts on the tower and is secured by locking bolts.

4.2.2 ASSEMBLY

The wind speed sensor and wind direction sensor are prewired to mating connectors; there are no interconnecting cables. The wind sensor may be assembled prior to installation, or it can be assembled after the crossarm support is installed on the tower. The following paragraphs provide procedures for assembling the wind sensor and installing it on the tower.

4.2.2.1 Mounting Wind Sensor Electronics Enclosure. The wind sensor electronics enclosure is mounted on the tower as shown on figure 4.2.1 using the procedures provided in table 4.2.1. Power and signal cables are connected through flexible conduits located at the bottom of the enclosure. The power connections from the DCP to the wind sensor power input box located in the electronics enclosure are identical for the one- and two-filter configurations. Section IV contains an illustration showing block diagrams for both configurations.

4.2.2.2 Installing Crossarm Support on Tower. The wind sensor was designed to mate with the tower top section. During installation of the crossarm support on the tower, the tower top section is accessed by lowering it to the horizontal position. Table 4.2.2 lists the procedures to install the crossarm support. Paragraph 4.5.3.3 provides procedures for lowering and raising the tower. The crossarm support post fits inside of the top section post. The crossarm support is aligned by pointing the wind direction sensor end of the crossarm support to due north. The direction survey is performed only once upon installation of the crossarm support. The shorter arm of the crossarm support (wind direction arm) is mechanically aligned to north when it is attached to the crossarm support given that the crossarm support is aligned and secured to the tower. Signal and power cables from the crossarm support are fed to the wind sensor electronics enclosure through the tower and a conduit. The wind direction and wind speed sensors should be installed after the crossarm support is mounted on the tower. Installation and removal of these sensors is described in paragraph 4.5.3.4.

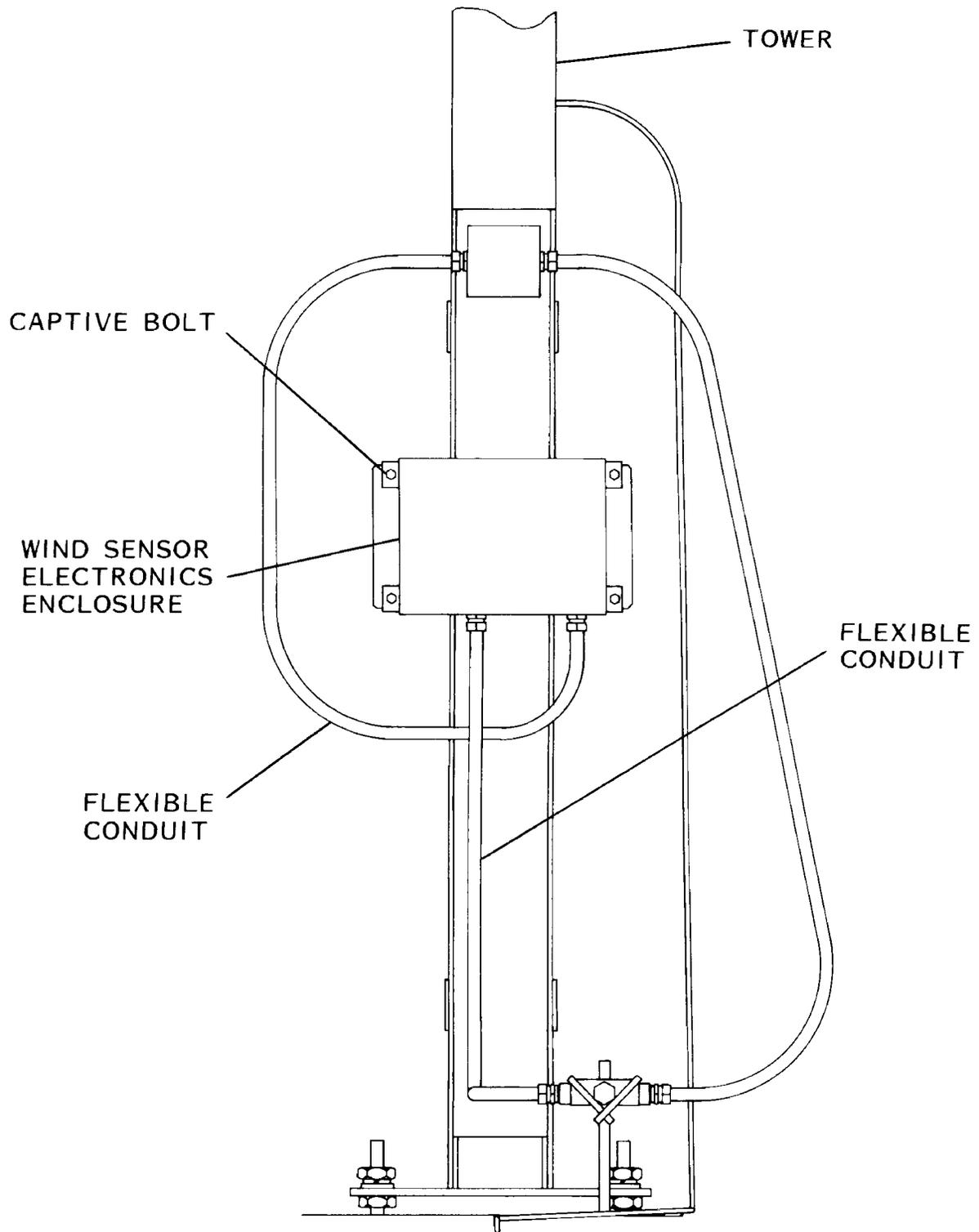


Figure 4.2.1. Wind Sensor Electronics Enclosure Installation (Sheet 1 of 2)

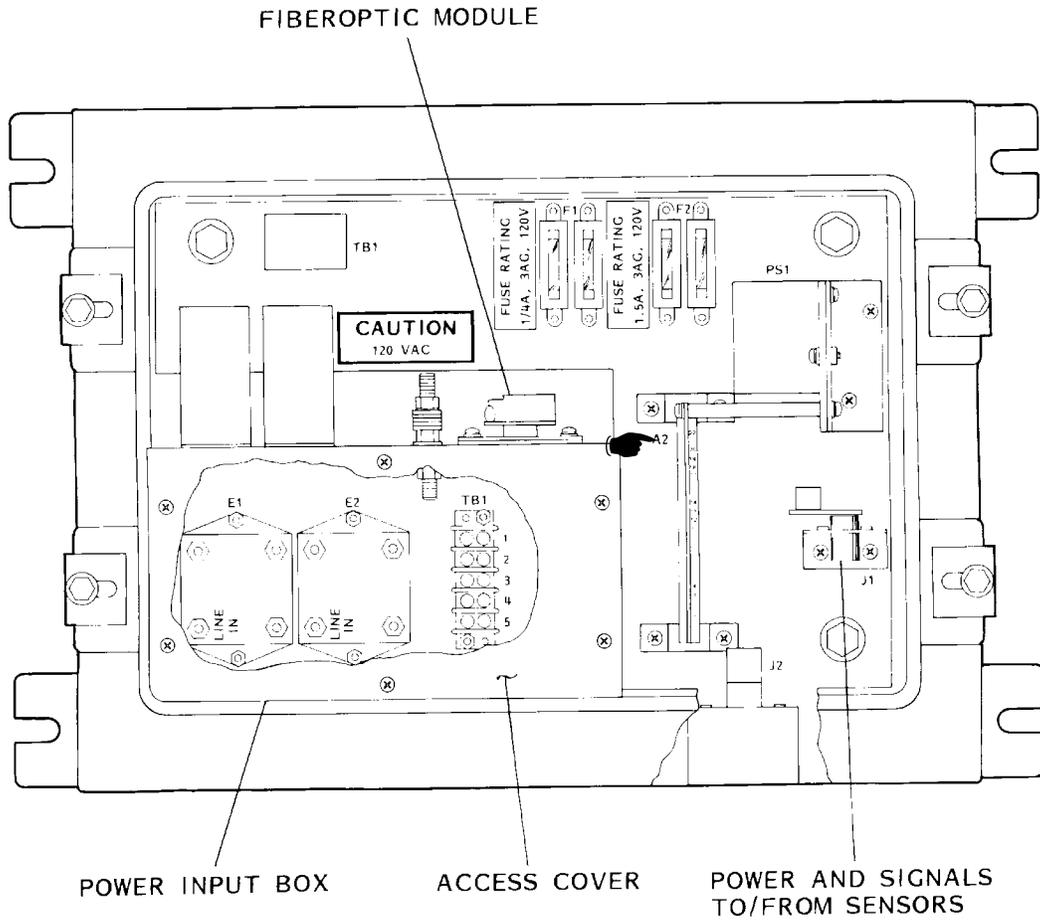


Figure 4.2.1. Wind Sensor Electronics Enclosure Installation (Sheet 2)

Table 4.2.1. Mounting Wind Sensor Electronics Enclosure

Step	Procedure
	<p>Tools required: Large flat-tipped screwdriver No. 1 Phillips screwdriver Large adjustable wrench</p> <p style="text-align: center;"><u>WARNING</u></p> <p>Death or severe injury may result if power is not removed from wind sensor prior to maintenance activities. Ensure that circuit breaker (located in DCP) supplying power to wind sensor is set to off (right) position.</p>
1	Inside DCP equipment cabinet, ensure that circuit breaker on wind sensor power control module is set to off (right) position.
2	Referencing figure 4.2.1, position wind sensor electronics enclosure on tower.
3	Tighten four bolts, washers, and nuts securing electronics enclosure to tower.
4	Using large flat-tipped screwdriver, open electronics enclosure access door.
5	Using Phillips screwdriver, remove six screws securing access cover to electronics enclosure power input box.

Table 4.2.1. Mounting Wind Sensor Electronics Enclosure -CONT

Step	Procedure																		
6	Remove access cover from power input box.																		
7	Carefully slide ac power and signal cables through holes in bottom of electronics enclosure. Using large adjustable wrench, secure flexible conduits to enclosure.																		
8	<p>Connect ac power wiring to terminal board TB1 in power input box according to the following connection chart:</p> <table border="1"> <thead> <tr> <th>Wire color</th> <th>Terminal</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Black</td> <td>TB1-1</td> <td>110 vac</td> </tr> <tr> <td>White</td> <td>TB1-2</td> <td>Neutral</td> </tr> <tr> <td>Green</td> <td>TB1-3</td> <td>Chassis ground</td> </tr> </tbody> </table> <p>If power input box has two filters and surge suppressors, ensure that the following jumpers are also in place:</p> <table border="1"> <thead> <tr> <th>From</th> <th>To</th> </tr> </thead> <tbody> <tr> <td>TB1-1 (black)</td> <td>TB1-4</td> </tr> <tr> <td>TB1-2 (white)</td> <td>TB1-5</td> </tr> </tbody> </table>	Wire color	Terminal	Function	Black	TB1-1	110 vac	White	TB1-2	Neutral	Green	TB1-3	Chassis ground	From	To	TB1-1 (black)	TB1-4	TB1-2 (white)	TB1-5
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9	Remove protective plastic covers from fiberoptic cable connectors on underside of fiberoptic module.																		
10	Referring to stencils on fiberoptic module, connect transmitter cable (TX) to transmitter connector (XMTR) and receiver cable (RX) to receiver connector (RCVR).																		
11	Install access cover on power input box.																		
12	Using Phillips screwdriver, install six screws securing access cover to power input box.																		
13	Connect connectors P1 and P2 of tower signal cable W1 to connectors J1 and J2 in electronics enclosure.																		
14	Using large flat-tipped screwdriver, close and secure electronics enclosure access door.																		

Table 4.2.2. Installing Crossarm Support On Tower

Step	Procedure
	<p>Tools required: 7/16-inch wrench ½-inch wrench RTV732 sealant (or equivalent) Wind tower shims (62828-40224)</p>
1	Lower tower in accordance with paragraph 4.5.3.3 to gain safe access to top of tower.
2	Connect connector P3 of tower signal cable to connector J1 of crossarm support.
3	Install crossarm support in top of tower.
4	Rotate crossarm support such that wind direction sensor end of crossarm support points due north and holes in tower are aligned with holes in crossarm support.
5	Referencing figure 4.2.2, install two bolts, flat washers, and nuts securing crossarm support. Install the required number of wind tower shims to remove any excessive play between crossarm support and tower. Tighten two bolts to secure crossarm assembly to tower.
6	Using RTV732 sealant or equivalent, seal seam around base of crossarm support.
7	Raise tower in accordance with paragraph 4.5.3.3.

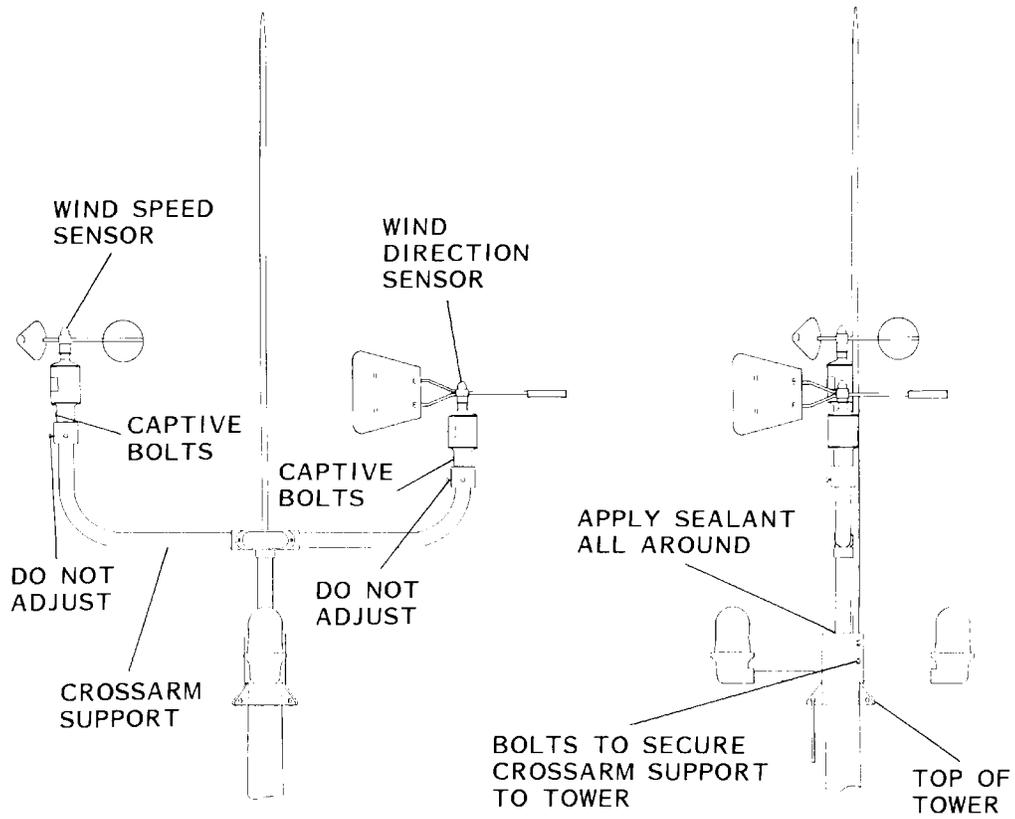


Figure 4.2.2. Wind Sensors and Crossarm Installation