

Zip Dee Inc  
96 Crossen Ave  
Elk Grove Village. IL 60007



800-338-2378  
847-437-0980  
Fax: 847-437-7064  
www.ZipDeeinc.com

11/06

Patents 5,597,006, 5,823,216,  
5,813,424 and others pending.

## AUTOMATIC AWNING INSTALLATION

### 24 volt - Gas Spring Rafter - Anemometer

**Notice:** **Read all instructions carefully before beginning installation.**  
**Do Not use Teflon tape on airline fittings.** Small pieces may be torn off and lodge in the air valves. This condition will not be covered by the warranty.

#### MATERIALS NEEDED:

- a. 100-150 ft. -- 1/4" O.D. 85 durometer Polyurethane Air Line
- b. 10-25 ft. -- 16 Ga. 2 conductor (Red/White) stranded Wire (Control Box to front Main Arm)
- c. 10-20 ft. -- 14 ga. 2 conductor stranded Wire (Coach battery to Control box)
- d. 10-20 ft. -- 1/4" O.D. High pressure Polyethylene or Nylon Air Line (source to box)
- e. As needed (25' Max. recommended) -- 18GA. Twisted pair, braided, shielded, wire (Belden Wire #8208) or equivalent (Control Box to Anemometer)

#### MATERIALS PROVIDED: (Pre-install kit P.N. 290650)

- a. 6 ea. (or 3 ft.) -- 6" x 1/16" ID air line **stub sections** for Main Arm connections. and 6 ea. 1/8 to 1/16 **barbed air line connectors** with locking sleeves for *interior-to-exterior stub* line at Main Arm connections.
- b. 6 ea. -- 1/16" to 1/16" Small profile **barbed air line connectors** (no locking sleeves needed) for connecting Main Arm pigtails to stubs.
- c. 2 ea. -- **barbed "T" connectors** with locking sleeves to split interior air lines 7 & 8.
- d. 2 ea. - **Main arm Hinge**
- e. 2 ea. - **Rafter arm Base**
- f. 2 ea. - **Stainless steel push off protecting Disks**
- g. 1 ea. - **3 cup Anemometer (Wind Sensor)**

## INSTALLATION OUTLINE

- A. Determine beginning and end locations of power runs (Main arm hinge, control box and anemometer).
- B. Run and connect lines from control box to main arms, Anemometer and Ignition.
- C. Run and connect lines between power sources (air and electric) and control box.
- D. Attach awning and connect air/electric (after painting).
- E. Test .

## INSTALLATION PROCEDURE

NOTE: STEPS A-C MUST BE COMPLETED BEFORE INTERIOR WORK IS STARTED. CONTINUE AT STEP D AFTER INTERIOR AND EXTERIOR WORK IS COMPLETED.

### A : DETERMINE BEGINNING AND END LOCATIONS OF POWER RUNS

#### 1. DETERMINE HARDWARE LOCATION (See **Exhibit A** for vehicle specific positions)

- a. Mark location of awning on vehicle. This should match size ordered. See **Fig. 1** for example on Prevost XL2.

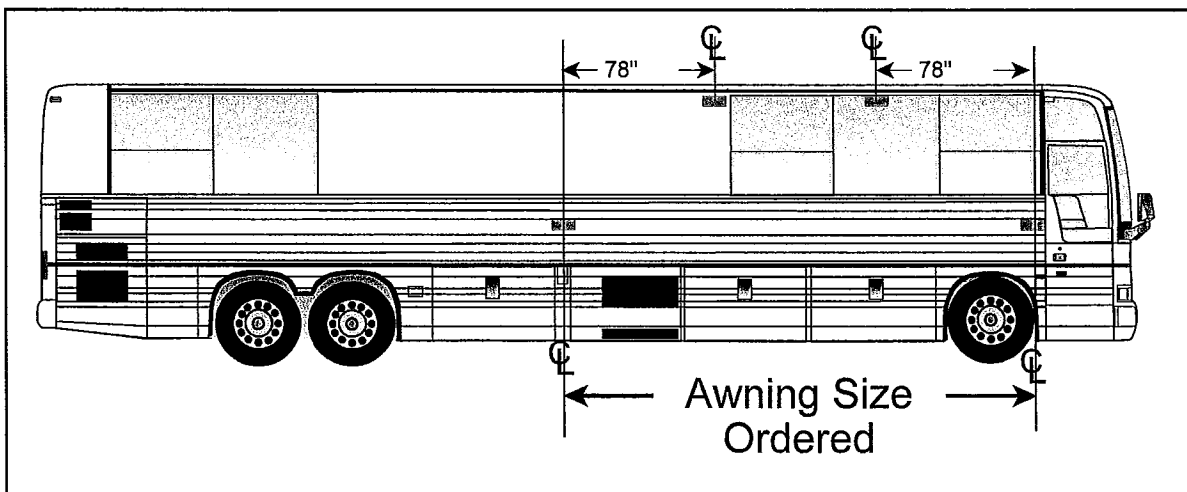
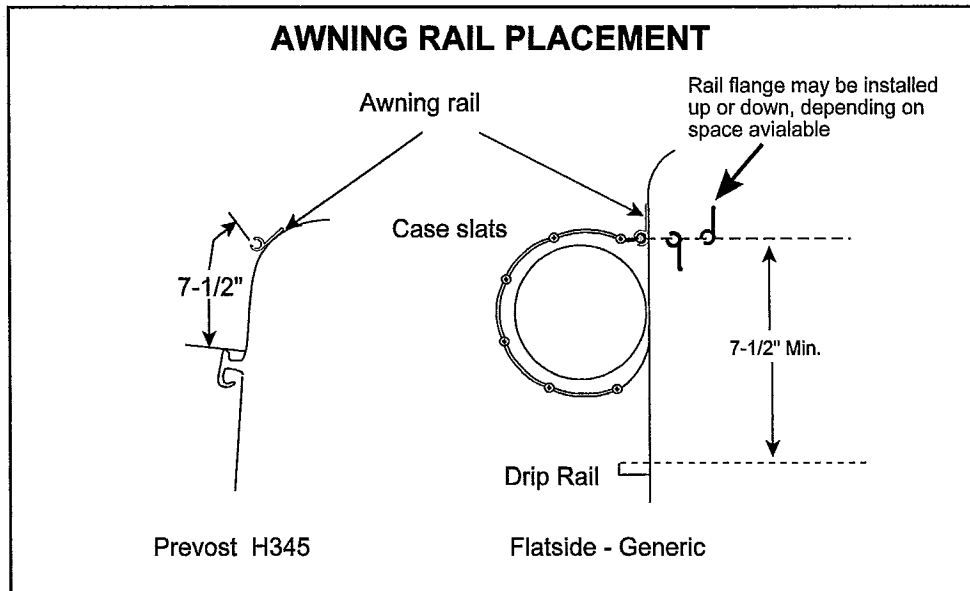


Figure 2

b. Attach awning rail on vehicle per Exhibit A. See **Fig. 2** for examples.



**Figure 2**

c. Determine **Main Arm Hinge** location and reinforce with support plates, if needed. See **Fig. 3**

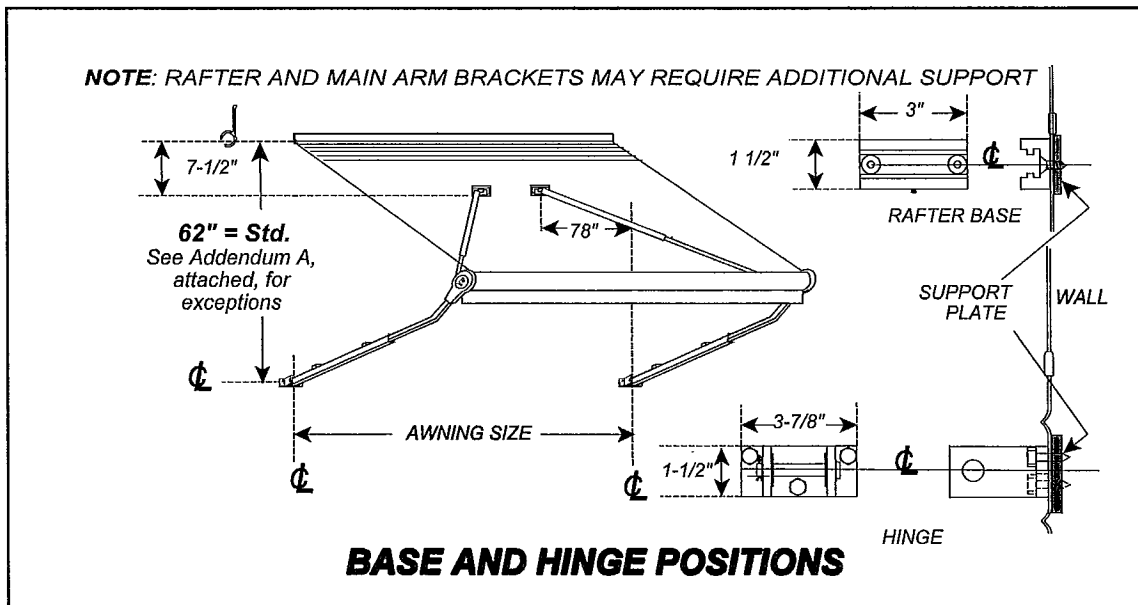
- A. Height is measured from Channel of awning rail; See **Appendix A** for specific vehicle.
- B. Centerline span between Hinges is equal to awning length

d. **Note:** Some vehicles require a special rafter base, see addendum for mounting details.

Determine **Rafter** Base position; reinforce with backer plates, if needed

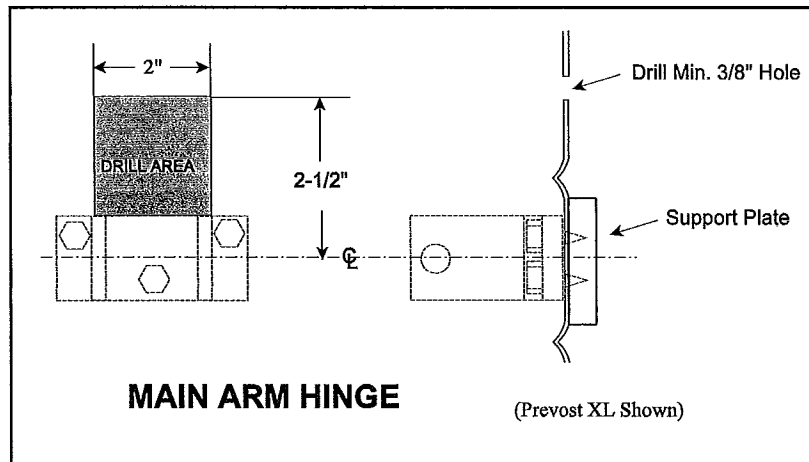
i. Bottom of Rafter Base is 7 1/2" down from channel of Awning Rail.

ii. Vertical Centerline of 78" inward from centerline of Main Arm Hinges. (**See Fig. 3**)



**Figure 4**

- e. Drill outlet hole ( 3/8" dia. min.) For air (and electric at front) near main arm Hinges. Hole should be within the shaded area above the centerline of the proposed Hinge mounting. (see **Fig. 4**)

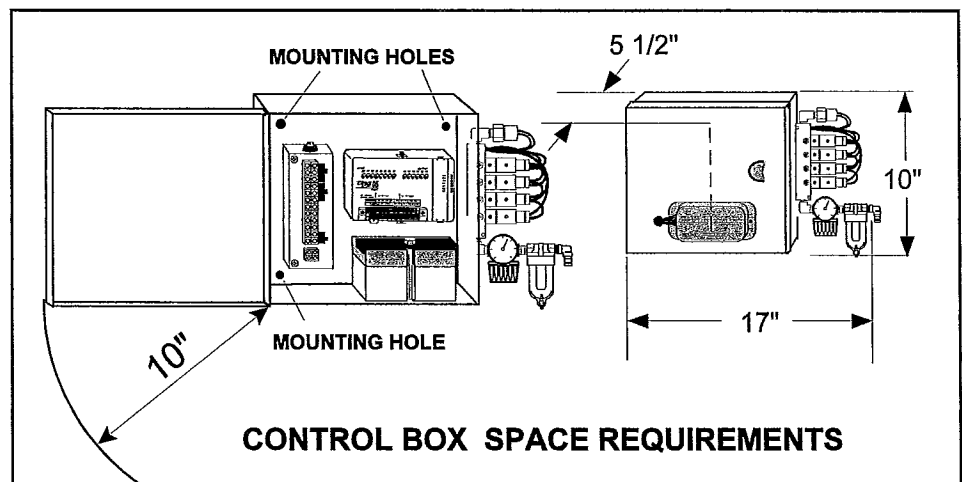


**Figure 5**

**2. LOCATE AND/OR INSTALL CONTROL BOX AND ANEMOMETER**

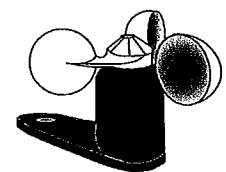
- a. Place box in a central accessible area such as a storage bay, approximately centered between Main Arm Hinges; allow room for the door swing as shown (**Fig. 5**).

- b) Allow a minimum of 2" air space around the control box for cooling. Also allow room for hinged door to open completely so controls can be viewed clearly for manual operation (**Fig. 5**).



**Figure 6**

- c) Mount the box securely through the mounting holes at the back of the box as shown.



Anemometer

- d) Wire and Install Anemometer: See **Appendix B** (Use only 18 GA braid shielded twisted pair - Belden 8208 or equal) to anemometer. Mount the anemometer (Wind Sensor) on the roof of the vehicle. It should be positioned close to the awning so that it will sense the same relative wind conditions as the awning. Avoid areas that are sheltered from the wind, i.e. next to roof vents, storage pods, satellite dishes etc.

Drill 1/4" hole in roof and run signal wire from roof to control box. A reliable signal can be received with up to 25 ft. of cord.

**B: RUN AND CONNECT LINES FROM CONTROL BOX TO MAIN ARM, IGNITION AND ANEMOMETER**

1. Attach a 6" x 1/8" O.D. section of air line (provided) to one end of each of the three (3) 1/4" dia. air lines to be run from the Control box to each Main Arm Hinge. Use 1/16" -1/8" transition barb fittings with locking collars. (Fig.6a) Mark each line by color or number to insure correct connections are made. Run Air Lines 4R, 7 & 8 from Control Box to **Rear Hinge** outlet hole (Fig. 6).

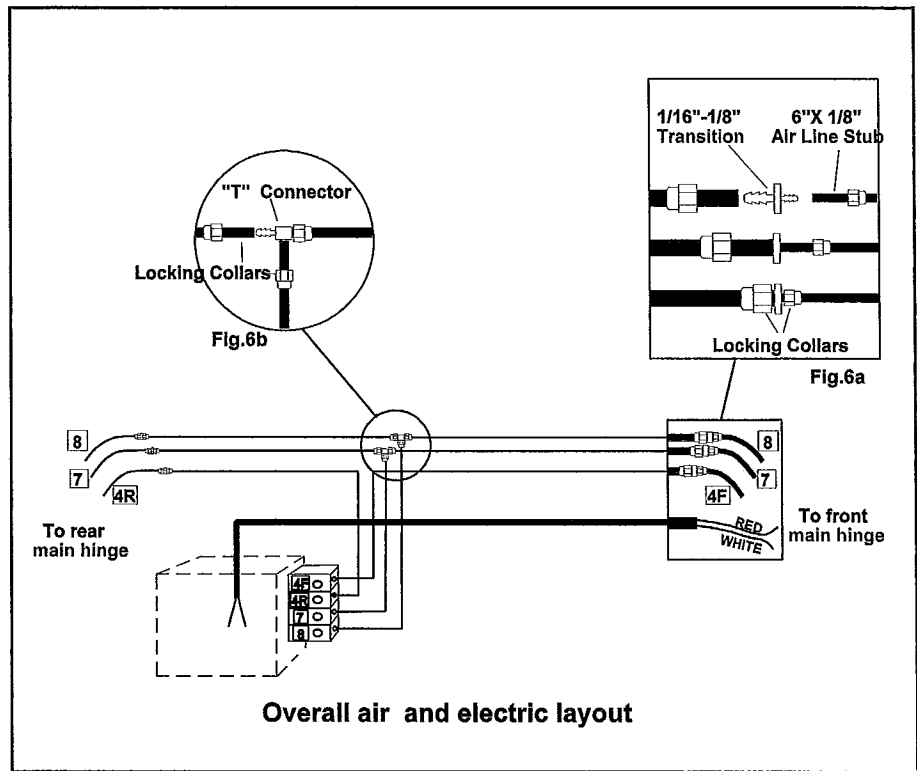


Figure 6

**Note:** Lines 7 & 8 connect to both front and rear arms, using "T" connectors with locking collars provided. (Fig. 6b)

2. Push 1/8" O.D. pigtail hose through hole so that 3-4" extends for later awning attachment. Excess can be trimmed later. (Fig. 7) These lines may be secured in place at the exit hole with grommet (not supplied) and/or Silicone seal. In either case, be careful not to crimp or compress lines in any way that will restrict air flow.

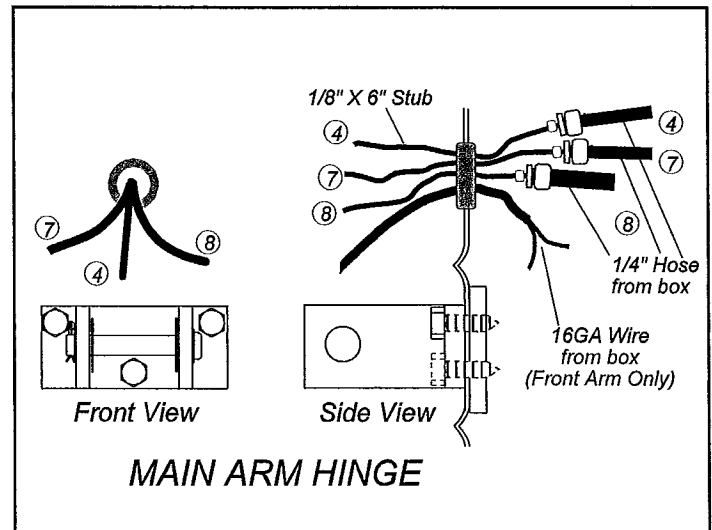


Figure 7

3. For the **Front** Main Hinge outlet, follow the same procedure as above, numbering the lines 4F, 7 & 8, plus 16 ga. electric from the Control box to the Front Hinge outlet.

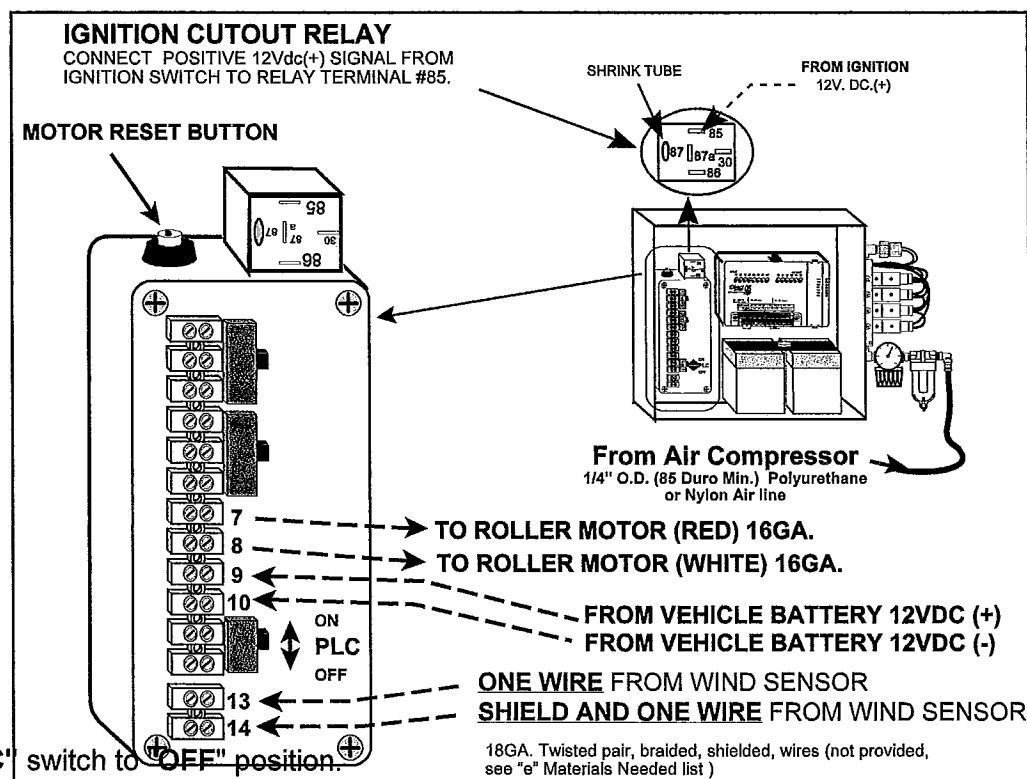
## 4. Box Connections

a) **Air:** Connect air lines to valves as shown in **Appendix C**. Be sure the valve connection number matches the run number as shown in **Fig. 6** . Push air line onto the barbed fitting of the corresponding valves. No locking collars are needed.

b) **Electric: IMPORTANT:** Spade terminals to box gel batteries are shipped disconnected. DO NOT reconnect until all other electric connections, including front main arm connections in Steps 3 & 4, are completed.

1. Connect motor leads to terminal strip so that White pig tail (color of wire extending from main arm) is connected to terminal shown as "8" and Red pig tail is connected to terminal shown as "7" (**Fig. 8**)
2. Connect 18GA. Twisted pair, braided, shielded, wires (not provided, see "e" Materials Needed list ) from Wind Sensor to lower terminals in box, as shown. (**Fig. 8**)

### C. RUN AND CONNECT LINES BETWEEN POWER SOURCES (AIR AND ELECTRIC) AND CONTROL BOX.



1. Move "PLC" switch to "OFF" position.

**Figure 8**

2. Run wire between coach battery and box (14 ga. stranded Min.); connect "positive" (+) and "negative" (-) leads to appropriate recessed terminals on terminal strip in box as shown in **Fig. 8**. **BEFORE CONNECTING TO COACH BATTERY.** **Note:** Terminals in box are unmarked: wires must be connected by position as shown. Then connect to Coach battery.

3. Connect supply line from compressor tank to Air Filter on valve stack of control box. **Note:** The AutoAwn requires a minimum of continuous 90 psi. Use 1/4" O.D. High pressure Polyethylene or Nylon (both have thinner wall and larger I.D. than Polyurethane) air line.

4. Connect ignition safety cutoff Relay. (relay breaks signal from remote receiver or control box to open awning when ignition is on). Run wire from positive ignition signal to terminals 85 (+) as shown in

Fig. 8.

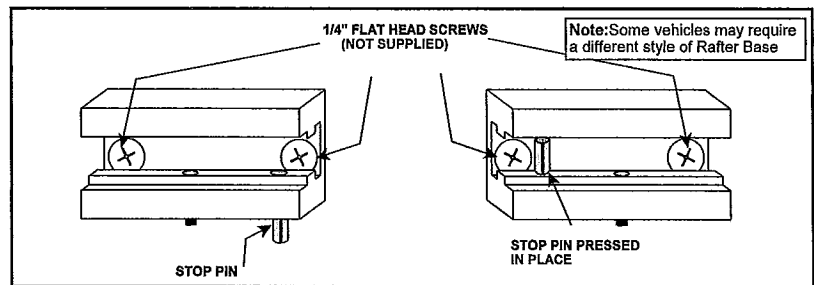
**D: ATTACH AWNING AND CONNECT AIR/ELECTRIC**

1. Mount **Rafter Bases\*** to vehicle in the locations determined in step A.1.e. (**Fig. 3**) above if they were not installed in that step, using fasteners appropriate for vehicle. Push stop pin until the end of the pin is flush with the surface of the base (**Fig. 9**).

**\*Note:** For the Prevost XL2, one or both Rafter Bases must be attached to the window glass by special adhesive. Specially designed Bases are needed and are included with hardware ordered for that coach. Instructions for the recommended adhesive type and procedure is available from Zip Dee.

**2. Install Main Arm Hinges**

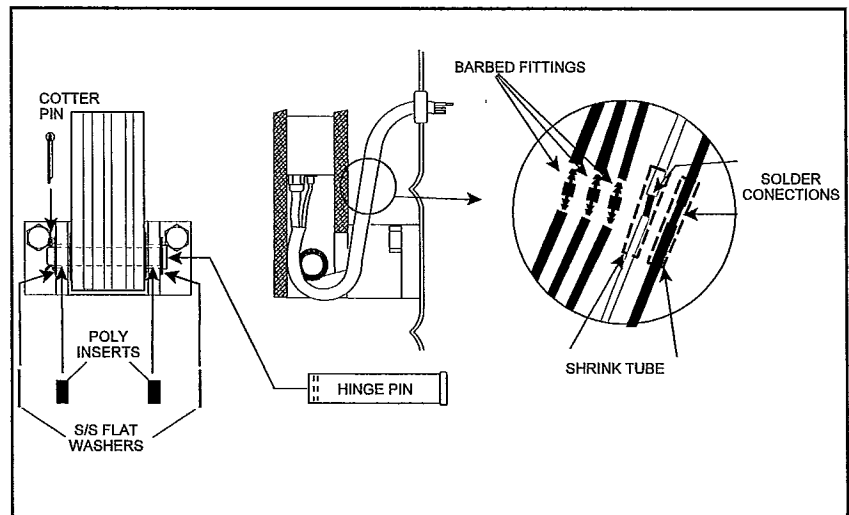
at positions determined in step A. (Fig. 3), Secure to vehicle with appropriate fasteners for awning weight and vehicle structure. Additional support or bracing should have already been placed as directed in Fig. 3.



**Figure 9**

**3. Attach Main Arms to Hinges.**

a) Press a poly insert into each pivot hole in the Hinge flange. Place a stainless steel washer on the 5/16" Pivot Pin, then attach Front Main Arm to Hinge base. (**Fig. 10.**) Put another washer on the pin and secure with cotter pin. Bring air lines from bottom of Arm around front of Pivot Pin to create a short loop bundle as shown in "side view".



**Figure 10**

Connect Pig Tail lines from bottom of arm to stubs air lines extending from vehicle, matching numbers on lines to corresponding numbers (or colors) of stubs. Use 1/16"-1/16" barbed connectors (no locking collar).

b). Splice stranded motor lead pig tails from arm to cord coming from terminals in box so that White pig tail is connected to terminal "8" and Red pig tail is connected to terminal "7", as shown in **Fig. 8**.

c). Cover each splice with shrink tube or tape. Cover all exposed air lines with black vinyl cover jackets provided. (Slit jacket to fit)

d) Attach Rear Main arm as above (NO ELECTRIC LINE IN REAR).

#### 4. Connect Roller to Arms.

a. Attach Head Castings to shafts of Roller Assembly. (Fig. 11) Use 10-32 x 1 1/2" long Phillips head machine screws with Nylock hex nuts (stored in casting).

b. Attach Roller assembly to main arms with 10-32 x 1 3/8" slotted machine screw and hex nut with nylon insert. Plug electric lead at the end of the front arm into lead from motor in the end of roller assembly.

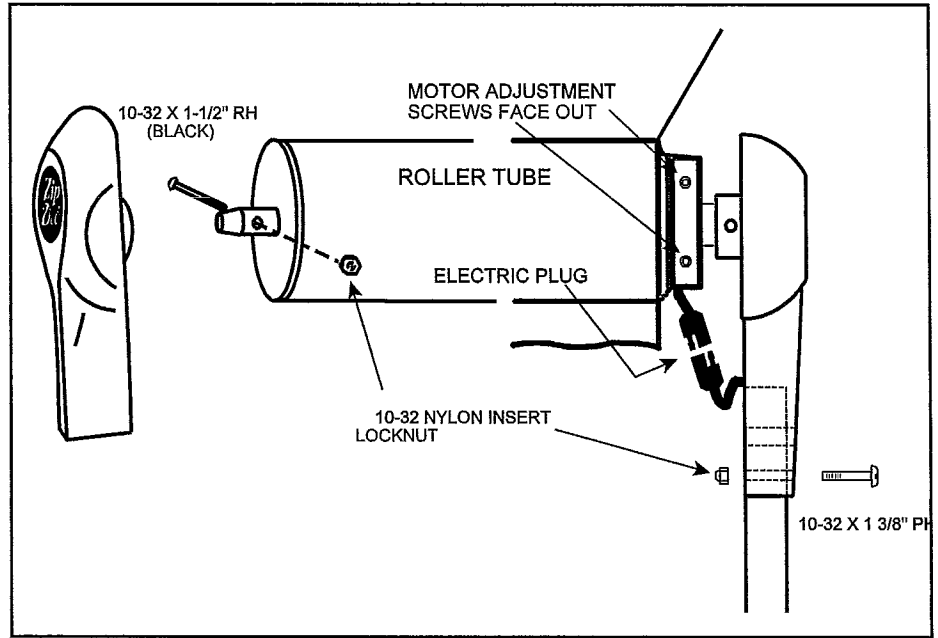


Figure 11

#### 5. Prepare awning rail and cover for installation.

a). Flair open the end of the awning rail where the awning will be inserted. (Fig. 12A)

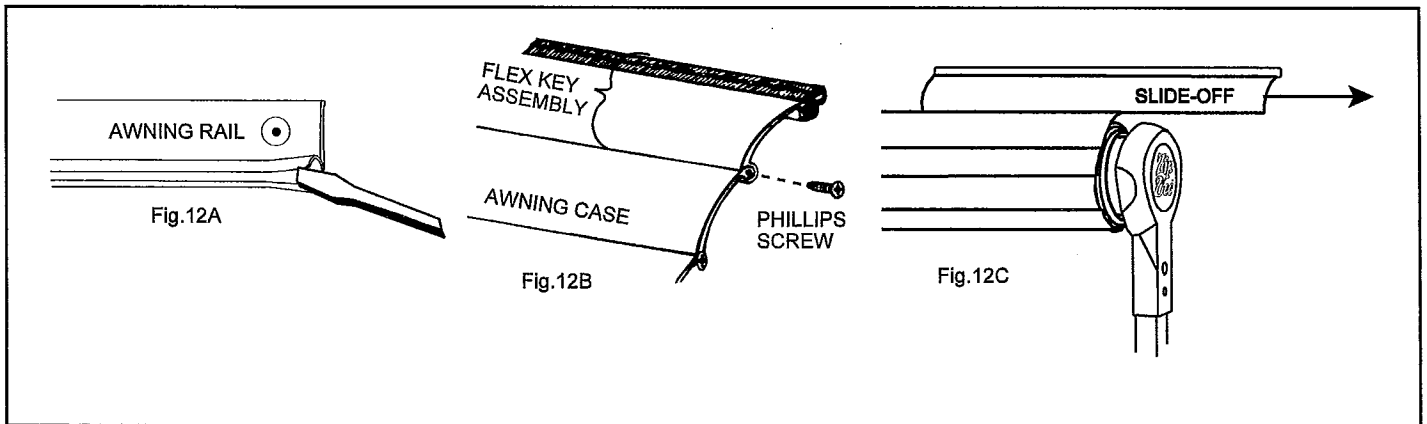


Figure 12

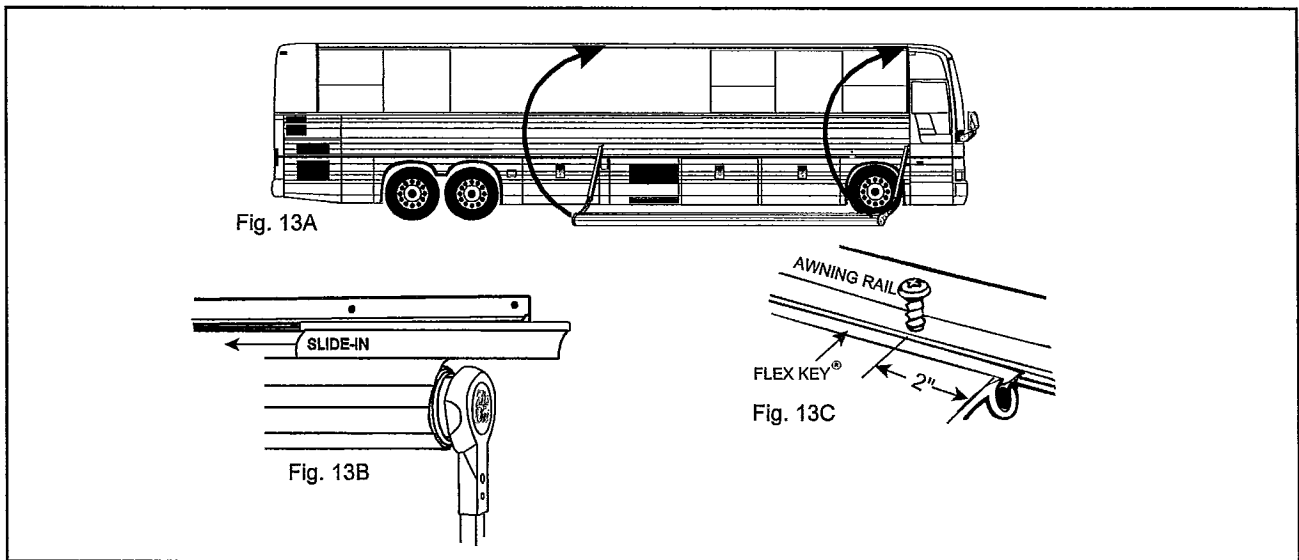
b). Remove the Phillips screw holding the Flex Key™ slat to the cover and set aside. (Fig. 12B).

c) Slide the Flex Key & Slat off of the cover. (Fig. 12C).

#### 6. Attach and secure awning roller assembly to vehicle:



- a) Lift awning roller to vehicle, pivoting on attached main arms (**Fig. 13A**)



**Figure 13**

b) Insert the bead of the Flex Key™ into the awning rail and the channel of the of the Flex Slat onto the bead of the case at the same time (**Fig. 13B**). and slide assembly in until the Slat is even with the other slats of the case. *Hint:* Push upward on the case so that it is "humped" to minimize binding and make it easier to slide the flex key.

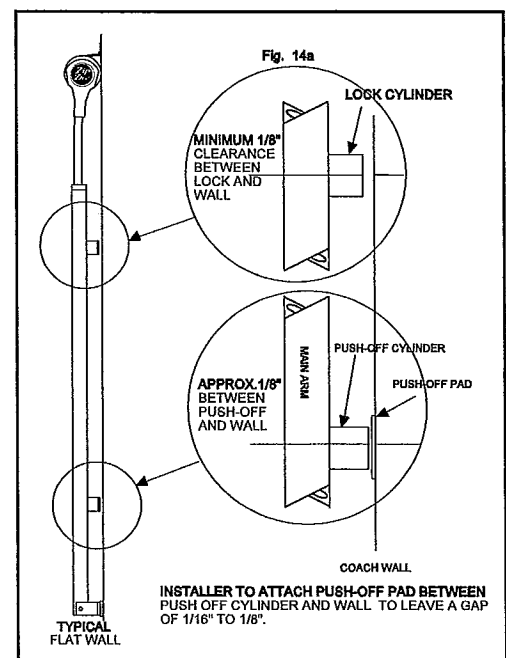
- c.) Replace the screw removed in Step 7 above to lock it is position.

d) Center the awning roller between the Mounting Hinges so that the Main arms are straight and Parallel, then Lock the Roller into the Awning Rail by inserting a screw through the Rail channel at each end, as shown in **Fig. 13C**.

## 6.1 POSITION AND ATTACH PROTECTIVE PUSH OFF PADS.

Place a stainless steel Pad (provided) behind each Pushoff cylinder to fill the gap between the nylon piston and the coach wall and to protect the coach surface. (**Fig. 14**) There should be no more than 1/8" gap between the pad and the piston. Shim the Pad as needed to reduce the gap. Attach to the vehicle with a center screw, double sided 3M adhesive tape or silicone cement.

Also check that Lock Cylinder does not strike vehicle wall. (**Fig. 14 a**)

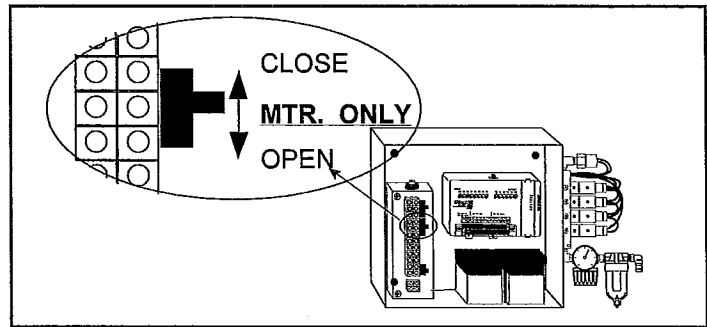


**Figure 14**

7. **Adjust Opening limit on motor**

a) Slide "Power" switch in control box to "ON" position (Fig. 8)

b) Use manual motor control (See Fig. 15) move slide "MTR" switch to "OPEN" position and hold. Awning roller will rotate to unwind. (CAUTION: make sure roller falls away from coach wall. Pull arms away from wall if needed.) Hold button until motor stops when it reaches the factory set open limit approximately 4 inches short of desired full extension.

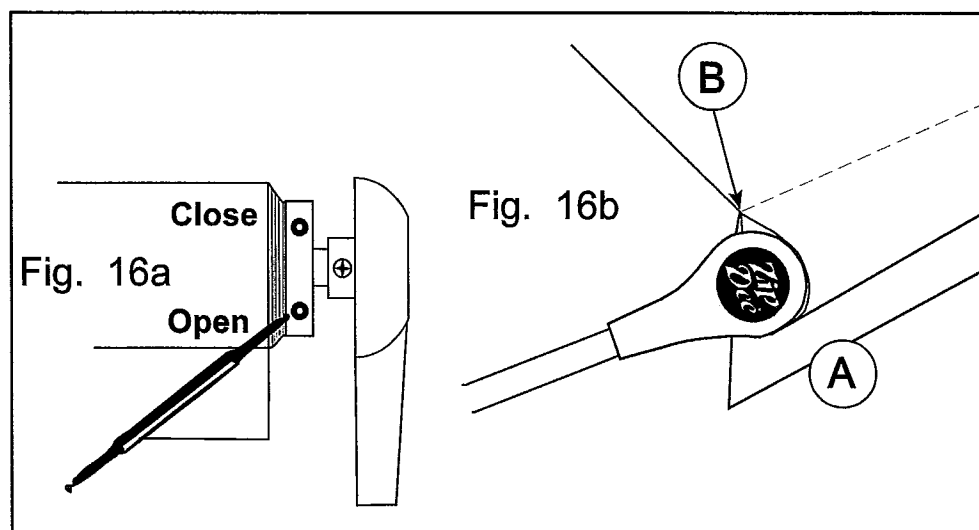


**Figure 15**

**Note:** If motor does not operate, slide switch to "CLOSE" position. If motor starts to open, the polarity is reversed. Switch wires on terminals "7" & "8" or see Troubleshooting Guide.

c) Adjust "Open" limit (Fig. 16) to fully extend awning. The limit switches in the motor are adjusted by turning the appropriate sockets in the exposed portion of the motor at the forward end of the roller tube. Use the Hex adjusting rod provided in the Installation kit or a ball-end 5/32" allen wrench. **DO NOT USE A POWER DRIVER!**

To open the awning more, turn the *lower* socket (Fig. 16a) clockwise. One socket revolution will cause the awning to open about 1 1/4". However, the motor will not run until at least 2 revolutions are made.



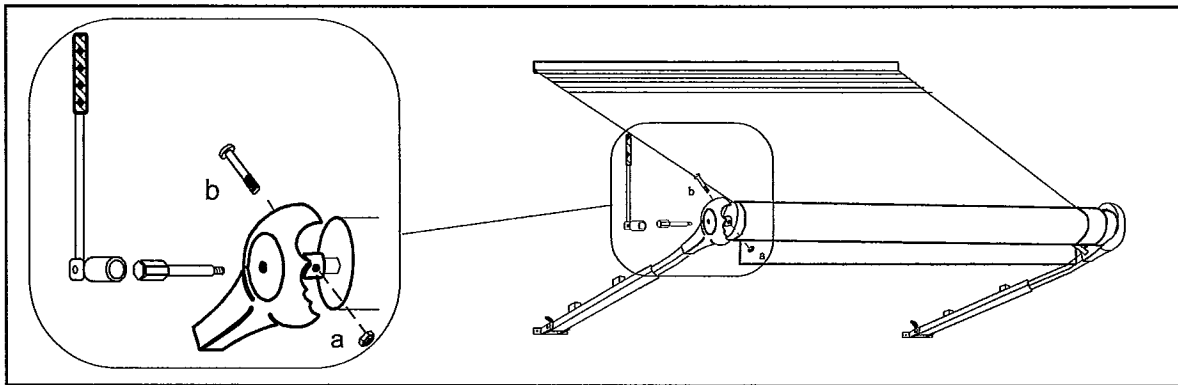
**Figure 16**

After making an adjustment, use the manual motor control slide switch (Fig. 15) to operate the motor ... *first* briefly in the opposite direction you want to move the roller...then reverse the switch, holding the switch until the motor turns off by reaching the new position of the internal limit switch. Continue adjusting and "jogging" the motor back and forth until the awning is fully unrolled. At the "Fully Unrolled" position, (Fig. 16b) the valance (A) will be fully extended and hang straight down from the seam of the pocket and an open "V" will be seen behind the roller tube (B).

## 8. Wind the Spring

a.) Insert the threaded end of the special Winding Insert through the hole in the Zip Dee logo of the rear Head Casting and screw it into the shaft of the roller. (**Fig. 17**) Use a 1/2" socket to tighten until only snug. *Applying excess torque may bend the machine screw that connects the shaft to the head casting.*

**CAUTION:** IN STEPS 8 b - 8 d BELOW, ALL THE TORQUE FORCE IN THE AWNING SPRING WILL BE TRANSMITTED TO THE DRIVING TOOL. **THERE ARE NO SAFETY STOPS. DO NOT RELEASE ANY WINDING TOOL USED WHILE IT IS CONNECTED TO THE AWNING. IT WILL SPIN RAPIDLY AND CAN CAUSE SEVERE PERSONAL INJURY.**



**FIGURE 17**

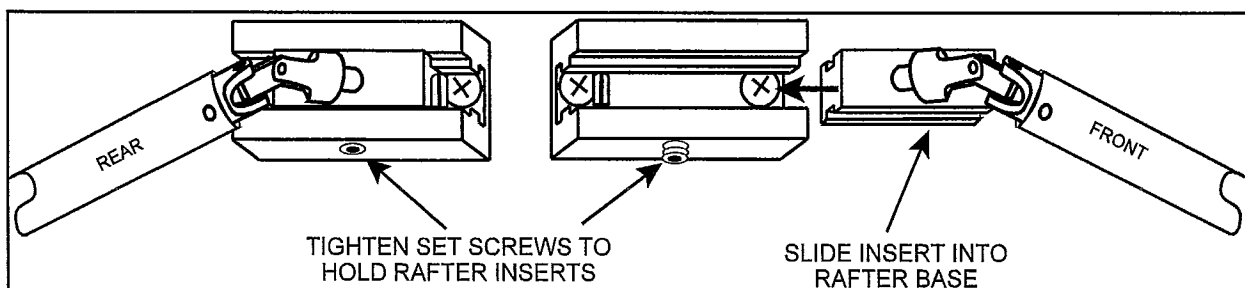
b) Remove Nylock hex nut from head bolt. (**Fig. 17a**) Attach long breaker bar to the hex socket and apply just enough clockwise movement to relieve the pressure on the machine screw so that it can be removed. Hold winding wrench firmly and remove the black 10-32 machine screw that connects the shaft to the head casting. (**Fig. 17b**).

c) Remove all tension on the spring by rotating the wrench in a counter clockwise direction (approximately 8 turns).

d) Wind the spring clockwise **28 turns**. Use the winding wrench to help align the holes in the head and shaft. Replace the black head screw removed in step 10 (b) above. Replace and tighten the Nylock hex nut.

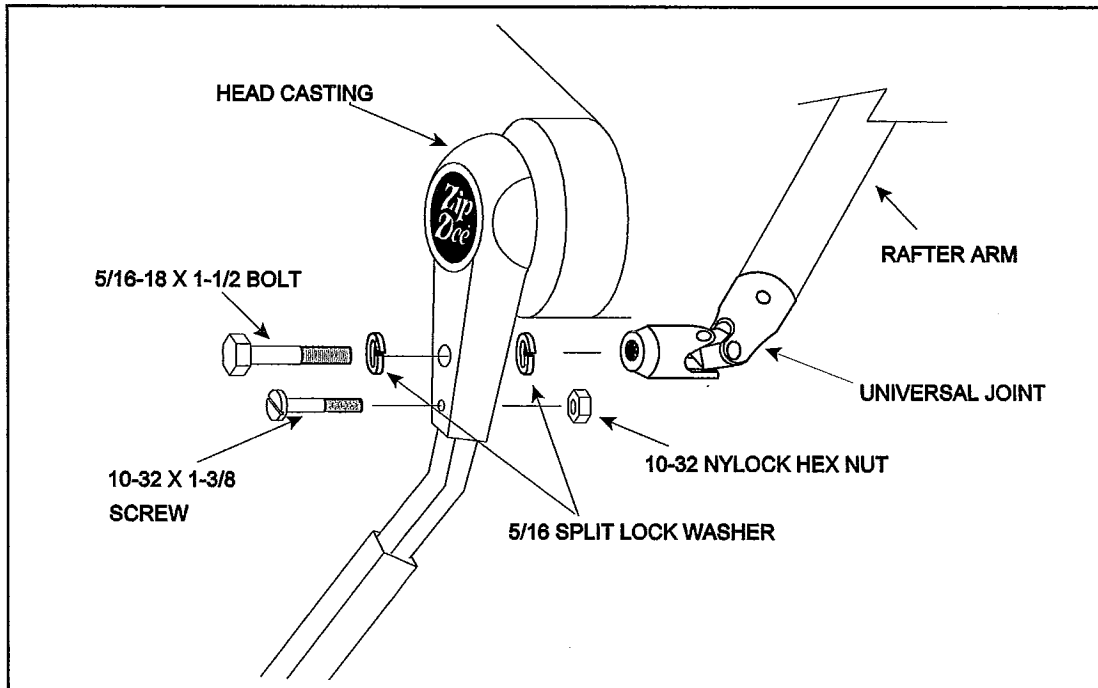
e) Unscrew and remove winding tool.

9. Attach a **Rafter Arm** to each **Rafter Base**, (**Fig.18**) by sliding inset portion attached to the end of each rafter arm into the base so that the insert is against the stop pin in the base. Lock insert in place by tightening set screws in bottom of each Rafter base with 3/32 hex key.



**FIGURE 18**

10. **Connect Rafter Arms to Head Casting.** (Fig. 19) Remove Bolt and Washers from the universal joint at the end of each rafter, compress rafter to shorten (may take 2 people) and connect rafter to head casting by passing bolt through head casting and steel bar. Put one Split Lock Washer between rafter Universal Joint and Head Casting and one between the Bolt and the Head Casting then tighten securely to prevent rotation.

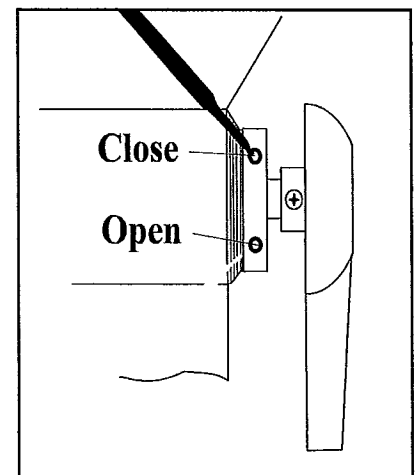


**Figure 19**

11. **Adjust Closing limit on motor switch**

Close the awning: Use the manual motor control (See Fig.15) and move slide switch "MTR" to the "Close" position. The roller motor will begin to turn the roller and close the awning. Hold the switch until the roller stops by reaching factory set close limit . The Closing limit is set in the same manner as for opening (described for "opening" in step D9).

Turn the upper socket *clockwise* (Fig. 20) to close the awning more. One *Clockwise* revolution will take up about 1 1/4" of fabric. Test each change by "Jogging" the motor back and forth (move the "MTR" switch to "Open" then "Close") or make 2 full revolutions of the socket. The roller will stop if **either** the limit switch is reached **or** there is no fabric left to wrap around the roller; in the latter event, the motor will trip the motor circuit breaker (Fig. 7)



**Figure 20**

Continue to adjust the limit switch until the fabric is wrapped snugly around the roller and the roller is held firmly against the vehicle. Properly adjusted, you should be able to manually pull the roller (Using the Main Arms) slightly (about 1/2") away from the vehicle.

**E: TEST AND ADJUST**

1) The awning roller should be in the up or closed position and all air and electric lines should be connected. The roller up and down limits should now be set.

### Caution!

Before starting your first automated operation, read the Section titled "*Emergency Stops and Starts*" in the Troubleshooting section.

Also check vehicle power levels. You should have a minimum of 11 V dc house power and 90 psi air pressure to operate the awning.

*Note: The controller is programmed to ignore the "Open" command for (10) minutes after it is closed. This is to allow sufficient time for the air compressor to recharge and cool down and to prevent overheating of the motor. If it is necessary to operate the awning before 10 minutes, simply turn the controller off, then on again (See "Troubleshooting Guide") to reset.*

2) Momentarily move the slide switch inside the control box (Fig.20) marked "Awning" to the "open" position or push "open" on the remote transmitter. There will be a 3 second delay as the system checks itself before any movement is seen. The awning should open automatically in the following sequence: (and as shown on Page 1 of the "Troubleshooting Guide")

- A) The roller motor should start to unwind.
- B) The push-off pistons will extend and push the arms away from the coach.
- C) The roller should continue to unwind about half of the fabric, then the main arms will extend and mechanically lock. The push-off cylinder should retract at this time.

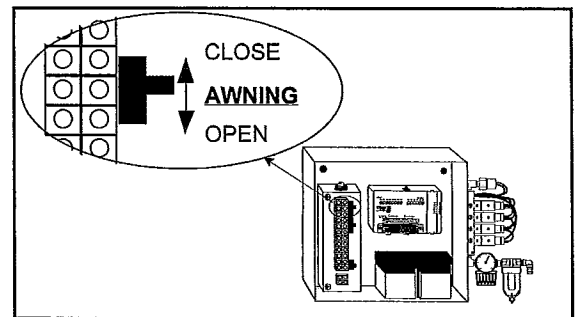


Figure 20

IF THE MOTOR STOPS BEFORE OPENING COMPLETELY use the "MTR" slide switch in the control box to open the awning completely. They may be necessary only in the first automatic cycle. Then continue with the next step.

3) Close the awning by momentarily moving the slide switch inside the control box marked "Awning" to the "close" position.(Fig. 20) The awning will close in the reverse order as it opened.

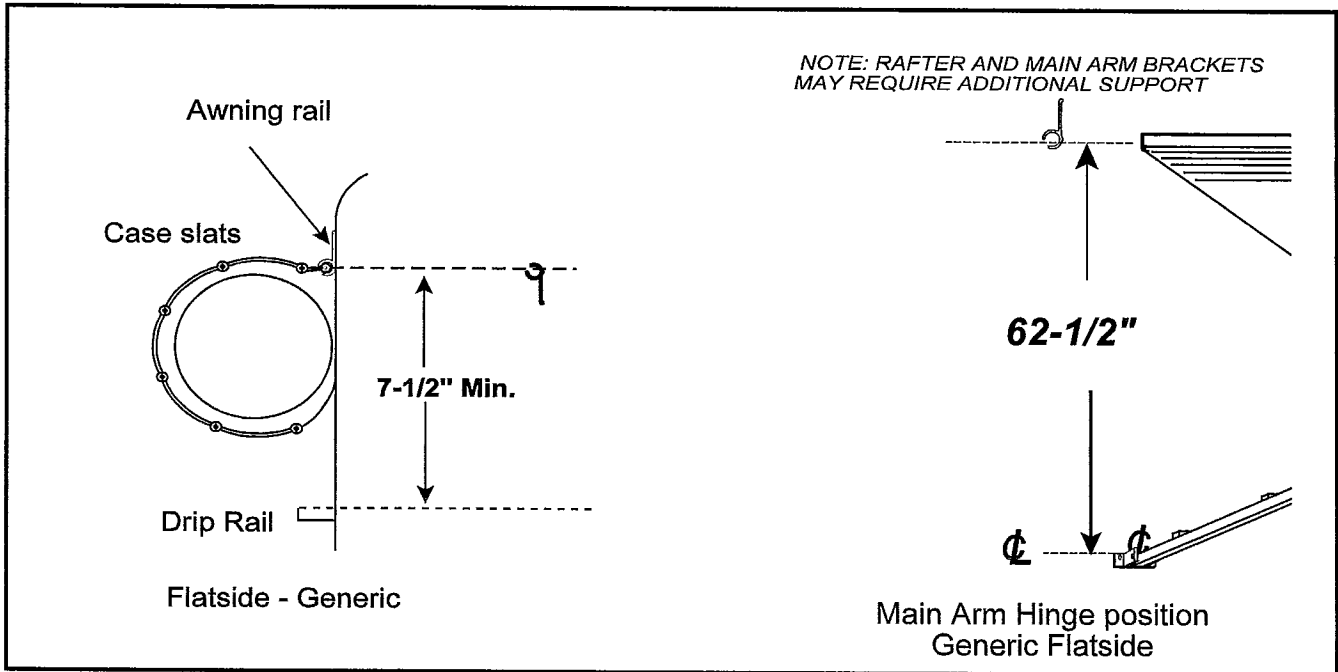
Repeat the open and closed using the remote transmitter.

### Stop Button

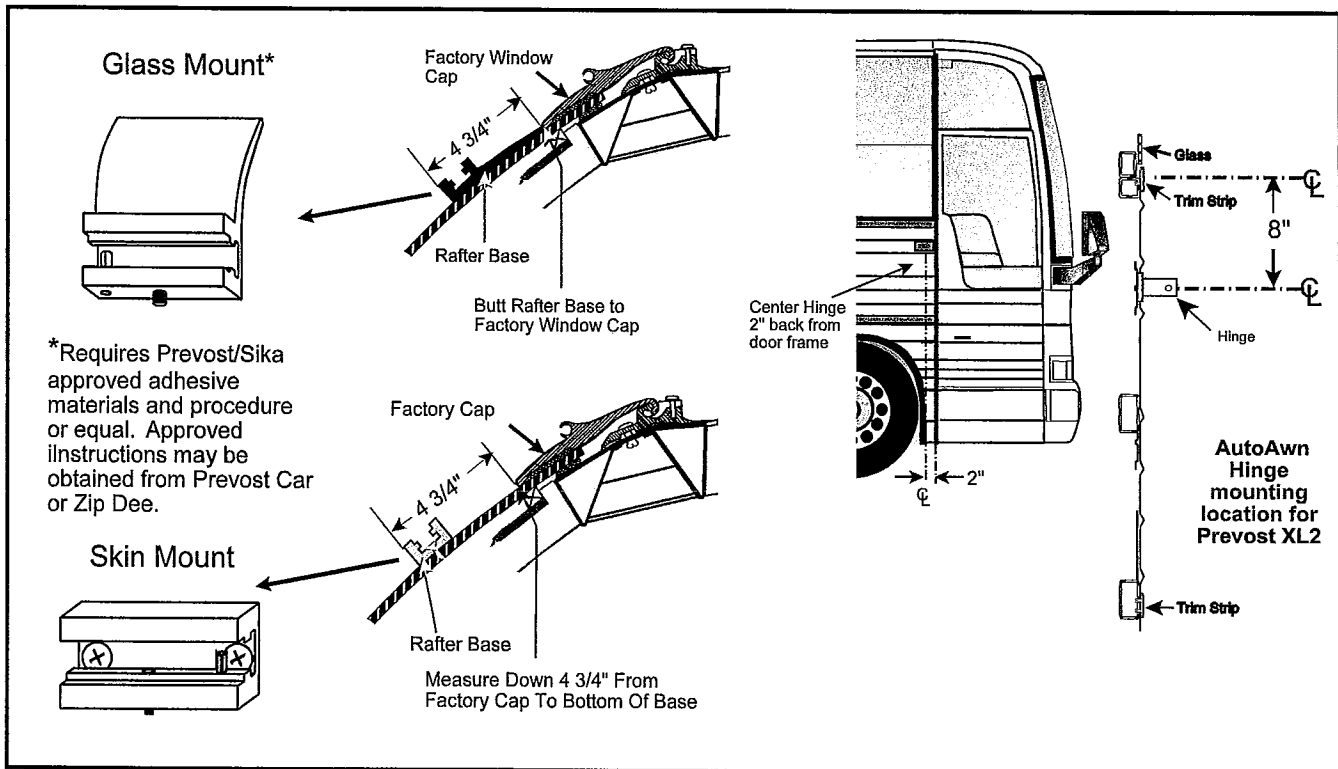
The "Stop" button, on the remote transmitter will stop the awning in almost any position for emergency or for partial extension. From a stopped position, awning can be opened or closed, either partially or completely.

**"No Stop Zone"** During the opening and closing sequence, the stop function will not operate while the main arms locks are open.

# Main Hinge, Rafter Base and Awning Rail mounting position

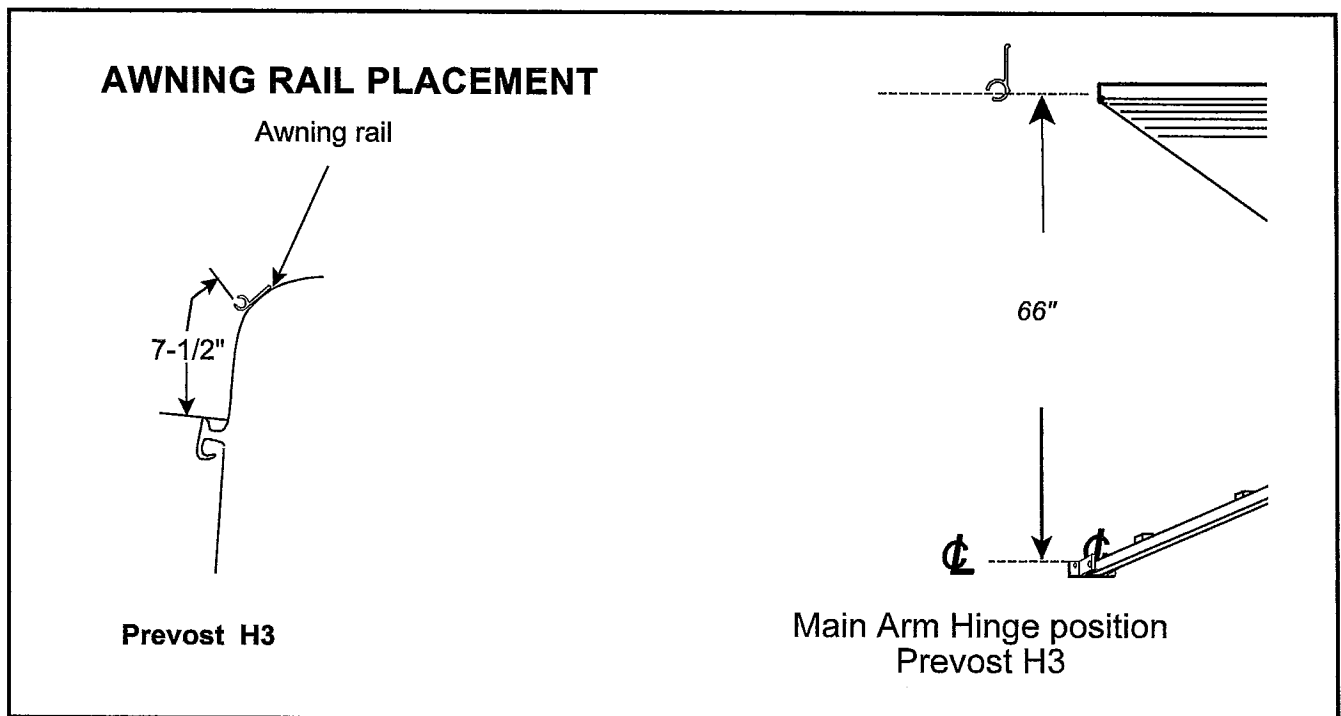


## PREVOST XL2



## Appendix In A (side 1)

# Main Hinge, Rafter Base and Awning Rail mounting position

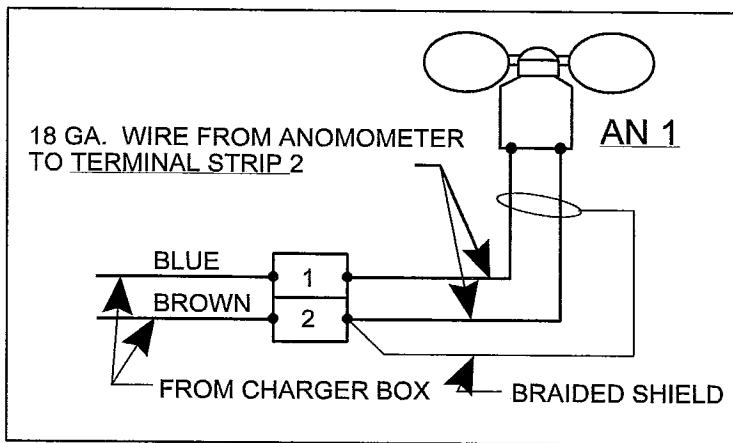


**Appendix In A** (Side 2)

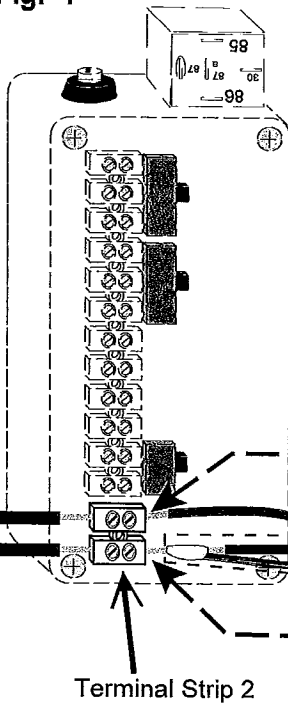
## ANEMOMETER INSTALLATION AND CONNECTION

Installation of the anemometer requires specific signal wire (NOT PROVIDED) to be run from the anemometer to the appropriate terminals in the control box. (Fig. 1). Use only 18 ga braid shielded, twisted pair wire -Belden 8208 or equal.

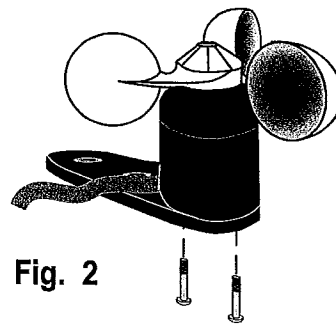
1. Remove bottom plate from anemometer by removing the 2 screws (Fig. 2).
2. Strip braid back from insulated wires and connect one wire to each terminal in base. Tape shielding to prevent shorting (Fig. 3).
3. Run wire into control box
4. Strip PVC jacket from wire to expose braid. Split braid then twist and connect (solder preferred) braid to one wire. Tape exposed braid to prevent shorting. Then connect to **lower** terminal. This should be the terminal with the incoming brown lead. Connect the remaining wire (without braid) to the **upper** terminal. (Fig. 4)



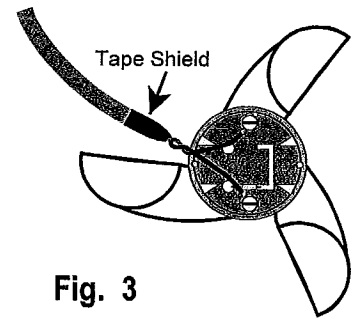
**Fig. 1**



**Fig. 4**



**Fig. 2**



**Fig. 3**

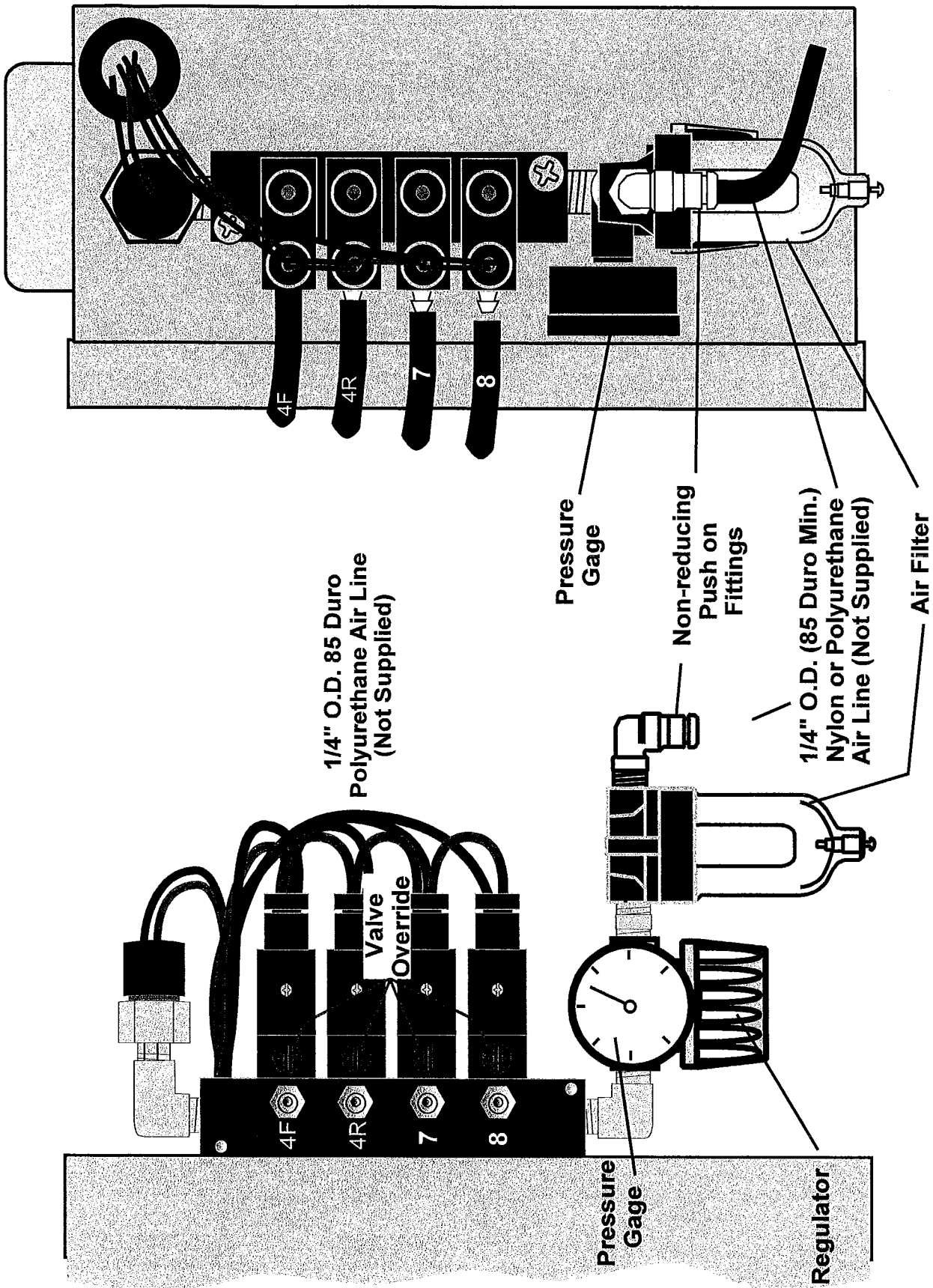
**ONE WIRE FROM WIND SENSOR**

18GA. Twisted pair, braided, shielded, wires (not provided, see "e" Materials Needed list)

**SHIELD AND ONE WIRE FROM WIND SENSOR**

## Appendix In B





## Appendix In C

Air Connections