Installer's Guide

Down Discharge Economizer and Rain Hood

Model:	Used with:
BAYECON101A	2/4TC*,WC*,YC*,DC* *018-036A
BAYECON102A	2/4TC*,WC*,YC*, DC* *042-060A
BAYRLAY004A	(Relay required in WC* Units)

⚠ WARNING: HAZARDOUS VOLTAGE - DISCONNECT POWER BEFORE SERVICING

ALL phases of this installation must comply with NATIONAL, STATE AND LOCAL CODES

IMPORTANT — This Document is **customer property** and is to remain with this unit. Please return to service information pack upon completion of work.

General

The economizer is a multi-damper design. It is installed in the return air stream and is connected to the unit low voltage supply through wire leads. The economizer is fully accessible through the Coil access panel.

Important: The Economizer installation requires that you first install an air filter rack ordered separately. Use:
BAYFLTR101A for 2/4YC*, WC*, TC*, DC* *018-3036A
BAYFLTR201A for 2/4YC*, WC*, TC*, DC* *042-3060A.

When the economizer is installed in WC* models, relay accessory kit BAYRLAY004A is required. Refer to the drawing on page 9 to make your relay wiring connections in the Control Box.

Identify Economizer Kit Contents

Refer to Figures 1 and 2 on page 2 to identify the kit contents.

Inspect Contents

You must report damage and make claims to the transportation company immediately. Report missing parts to your supplier immediately and replace with authorized parts only.

⚠ WARNING

ELECTRIC SHOCK HAZARD
OPEN AND LOCK OUT ALL UNIT DISCONNECTS PRIOR TO ACCESSORY INSTALLATION OR UNIT MAINTENANCE, TO PREVENT INJURY OR DEATH FROM ELECTRICAL SHOCK OR CONTACT WITH MOVING PARTS.

⚠ WARNING

SAFETY HAZARD
DO NOT REMOVE END COVERS FROM ECONOMIZER ACTUATOR; THE SPRING-RETURN ASSEMBLY MAY RELEASE AND CAUSE PERSONAL INJURY.

Install Economizer Kit

1. Remove Power

Disconnect and verify that power is off.

2. Remove Access Panels

Remove these four (4) access panels (see Figure 3, page 2):
- Control/Heat access panel
- Blower access panel
- Coil access panel
- Horizontal Return Air panel (discard or store)

3. Install Economizer Assembly

Note: You must first install the filter rack per the instructions provided and then install the economizer.

⚠ CAUTION

Use care when inserting the economizer in the return air compartment, to prevent damaging the foil faced insulation.

1. The economizer ships with the return air damper folded up to allow the assembly to fit through the Coil opening in the side of the unit, see Figures 1 and 2 on page 2.

   Insert the economizer assembly into the unit through the Coil access panel opening. See Figure 4 on page 3.
2. Swing the return air damper section down so that it rests on the bottom of the unit. The economizer will sit completely over the return air opening in the bottom of the unit. See Figures 5 on page 4. Screw the economizer assembly together with one assembly screw in the side of the economizer. Tighten the linkage rod between the return air dampers.
3. Insert 2 screws through the holes in the front face of the unit and into the matching attachment holes in the econo mizer assembly. See Figure 6 on page 4.
4. Insert a screw through the pre-punched hole in the side flange of the return air damper and into the mating hole in the economizer assembly and tighten. See Figure 5 on page 4.

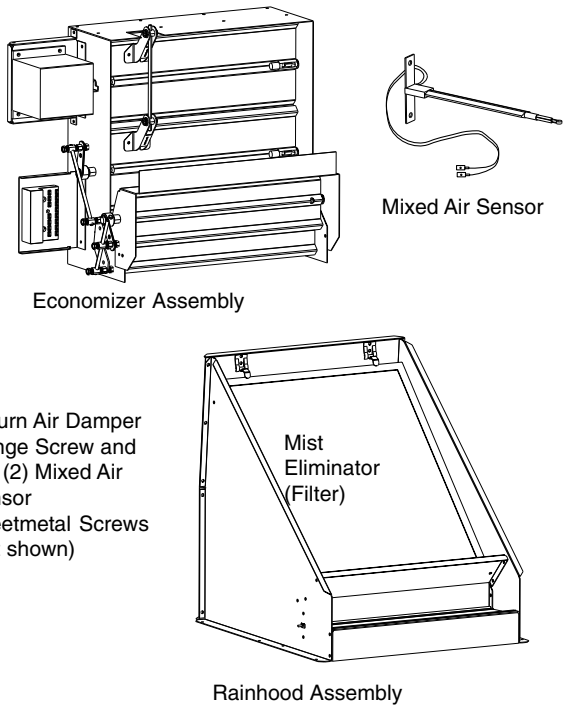


Figure 1. Economizer Kit Components YC*, TC*, WC*, DC* *018A to *036A

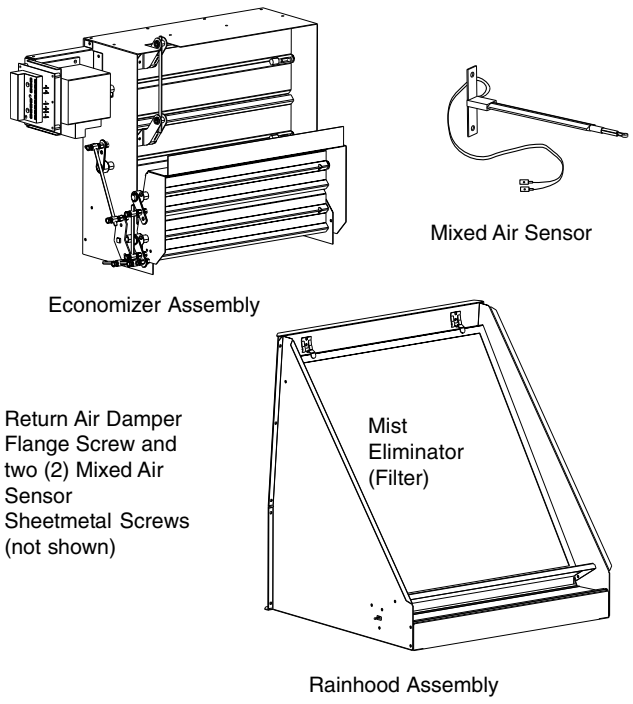


Figure 2. Economizer Kit Components YC*, TC*, WC*, DC* *042A to *060A

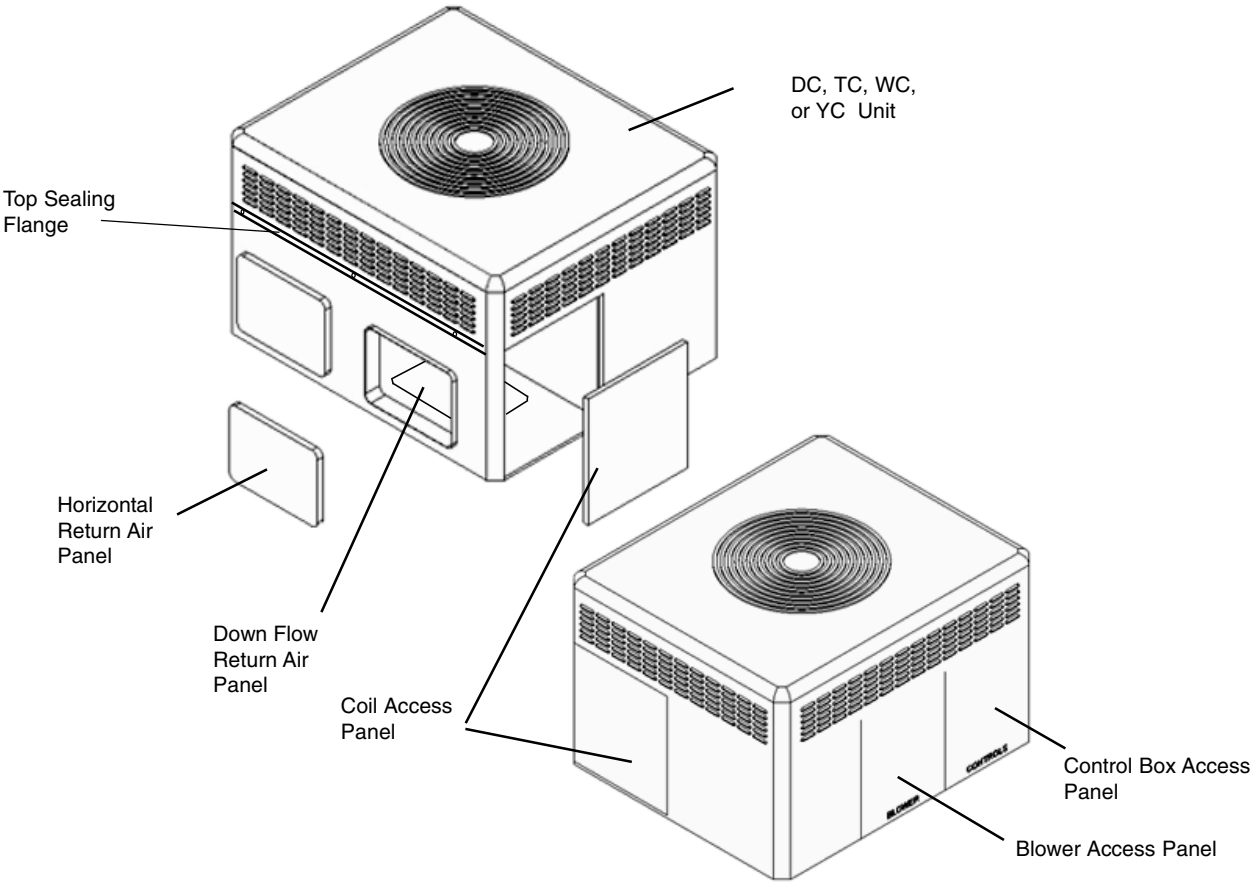


Figure 3. Remove Panels

4. Install Rain Hood Assembly

1. Locate the rainhood assembly, which includes the relief damper and the mist eliminator. The back of the hood side mating flanges need to be gasketed (gaskets included in kit). Loosen the right two (2) screws on the unit's top sealing flange above the economizer. See Figure 3 on page 2.
2. Slide the top flange of the hood up underneath the unit's top sealing flange. Drive two self tapping screws into the keyhole openings on the side flanges of the hood.Tighten the two (2) screws on the top sealing flange and the screws on the hood side flanges. See Figures 8 and 9.

5. Mount Mixed Air Sensor

1. Mount the Mixed Air sensor (with wiring) to the left Blower partition using two sheetmetal screws. See Figure 10. The male tabs on the two (2) yellow wires will connect to the Economizer wiring harness in a later step.
2. **Enthalpy and/or CO2 Sensor**--If used, install these options at this time per instructions provided.

6. Route Main Wiring

1. From the Economizer assembly, pass the wire harness through the coil grommet. See Figure 10 (view A) on page 7. Continue routing the harness behind the Compressor compartment and into the Blower compartment.
2. Continue routing the remaining harness through the grommet in the Control Box partition and into the Control Box.

7. Complete Installation

1. In the Control Box, complete the wiring connections per the appropriate wiring diagram on pages 8 and 9. Secure all wires so that there is no interference with any moving parts in the unit.
2. Power the economizer and run the checkout procedure on page 10. Make desired adjustments to the controller setting the minimum occupied damper position, the outside air setting (if enthalpy used), and the IAQ sensor (if used).
3. Replace the unit Coil access panel, the Blower access panel, and the Control/Heat access panel.

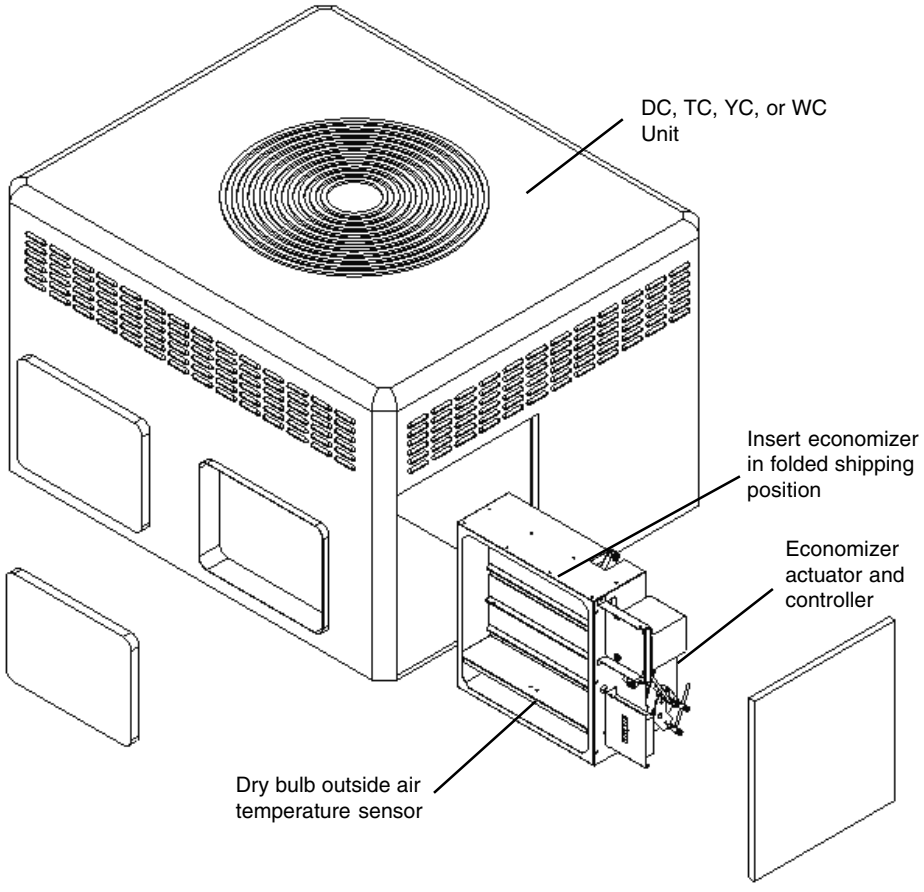


Figure 4. Insert Economizer in Shipping Position

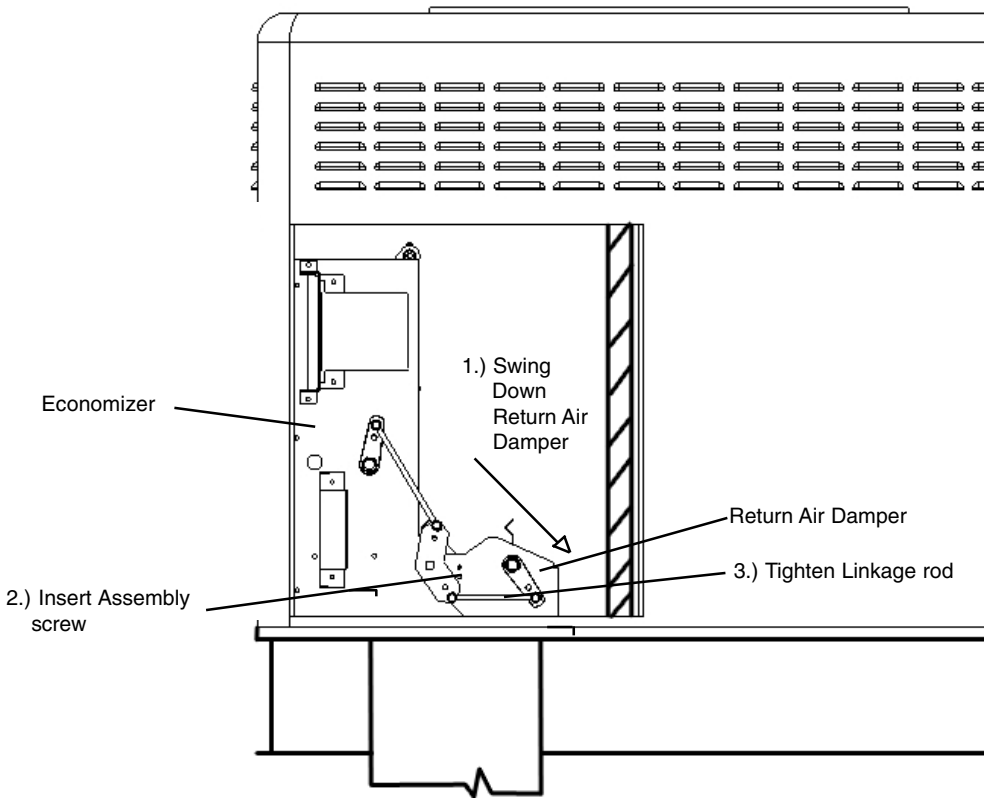


Figure 5. Swing Down and Set Economizer Return Air Damper

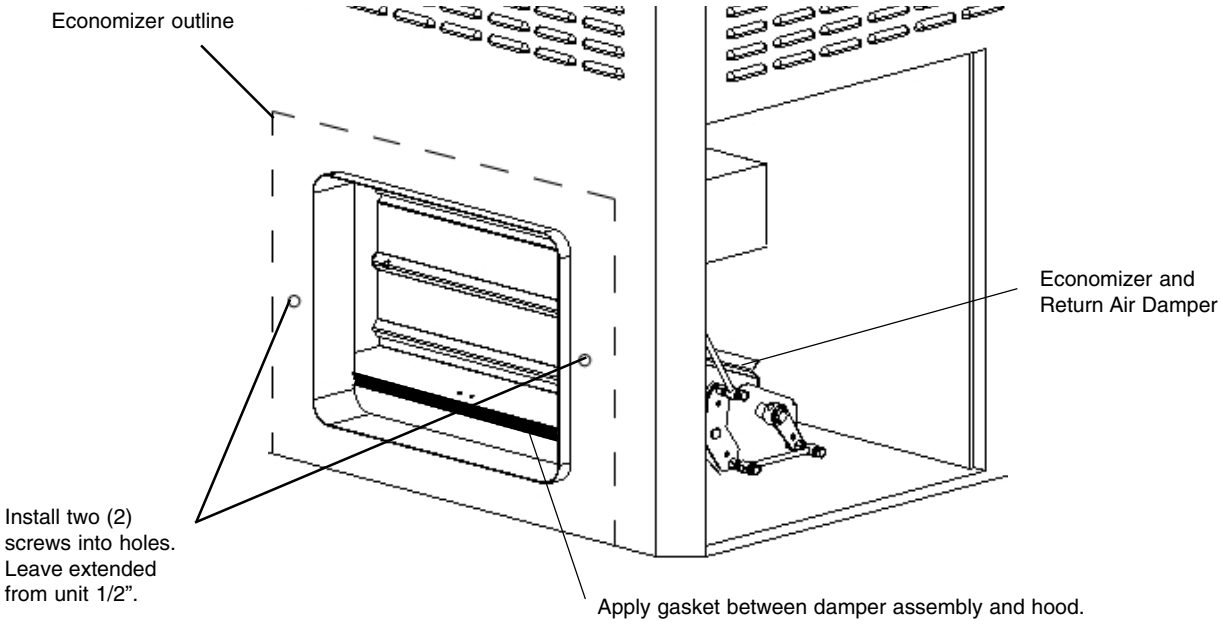


Figure 6. Start Economizer's Front Mounting Screws

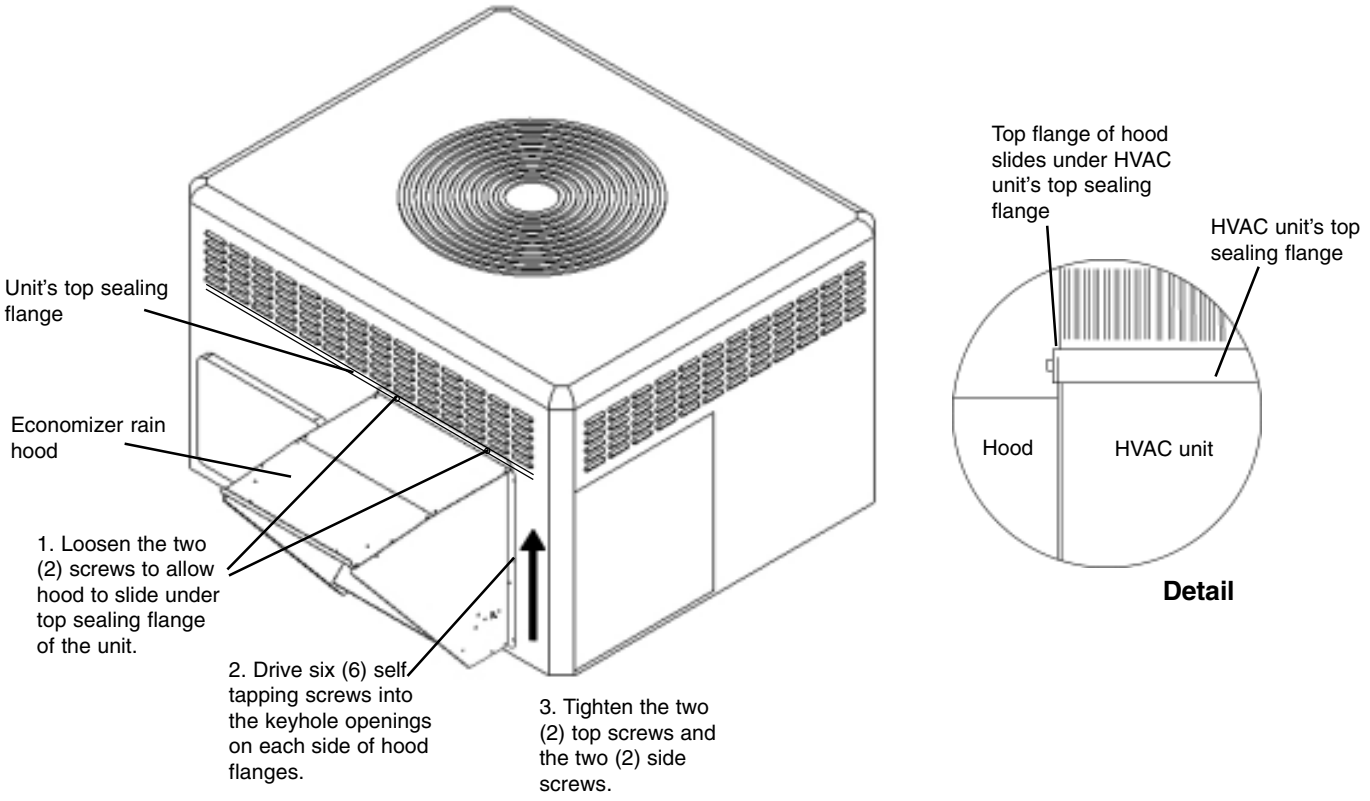


Figure 7. Mounting Rain Hood

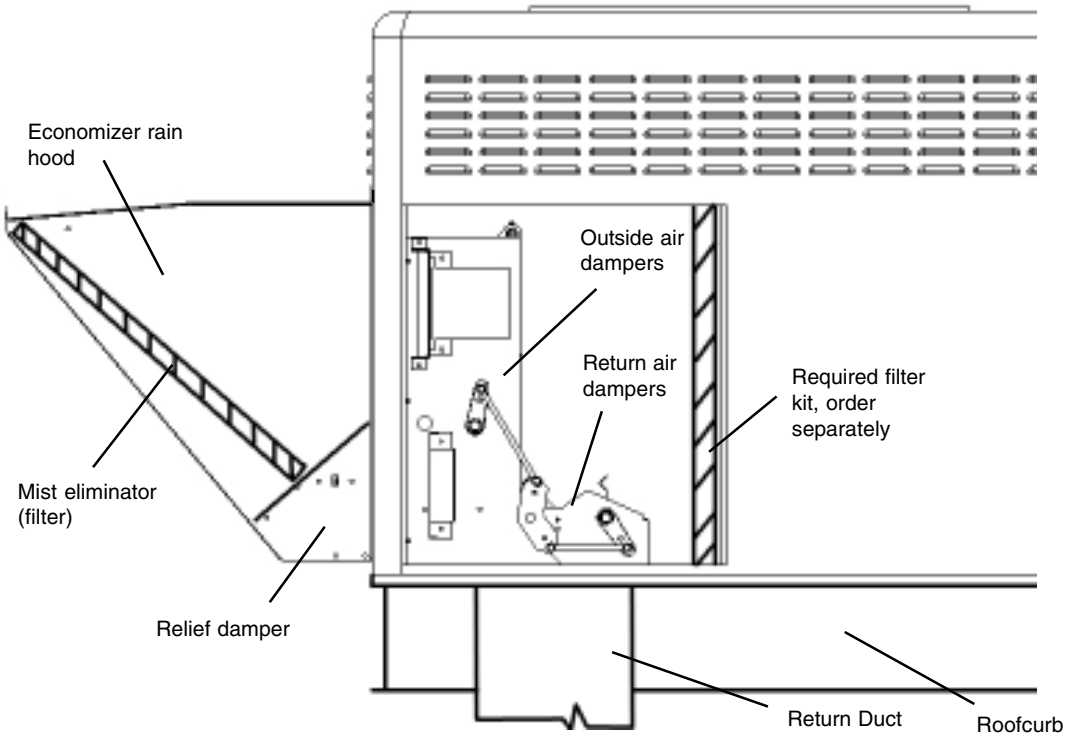
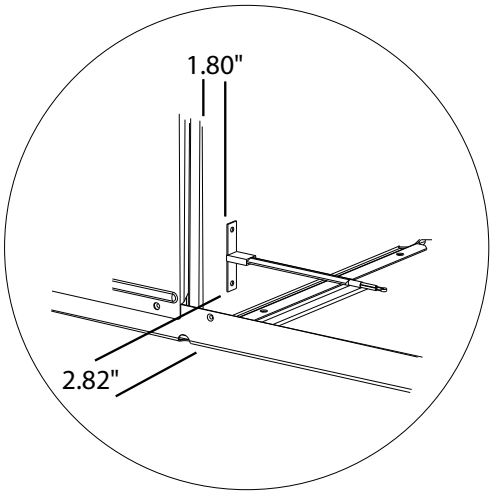


Figure 8. Rain Hood, Economizer, and Filter



View 'A' Approximate Mounting Dimension

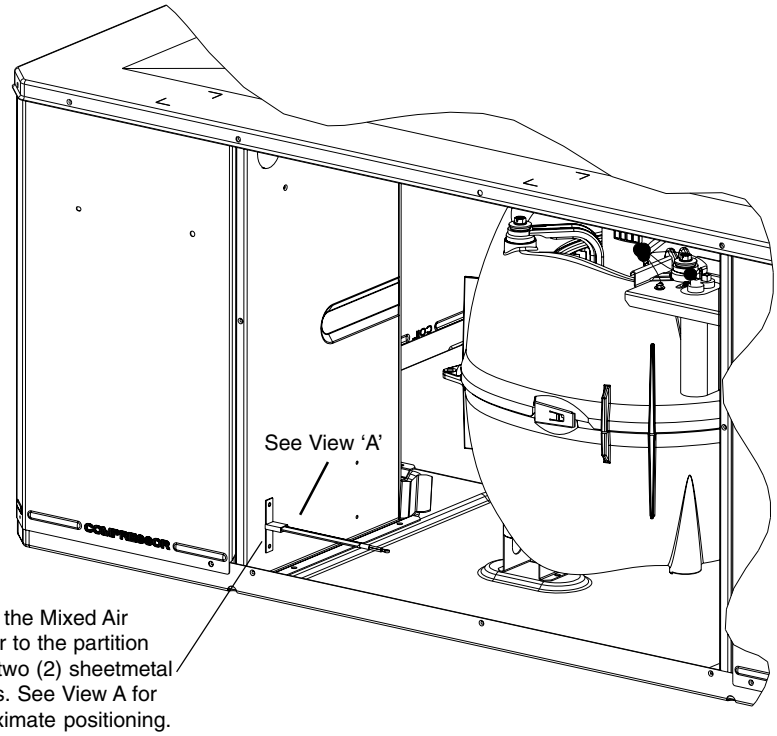
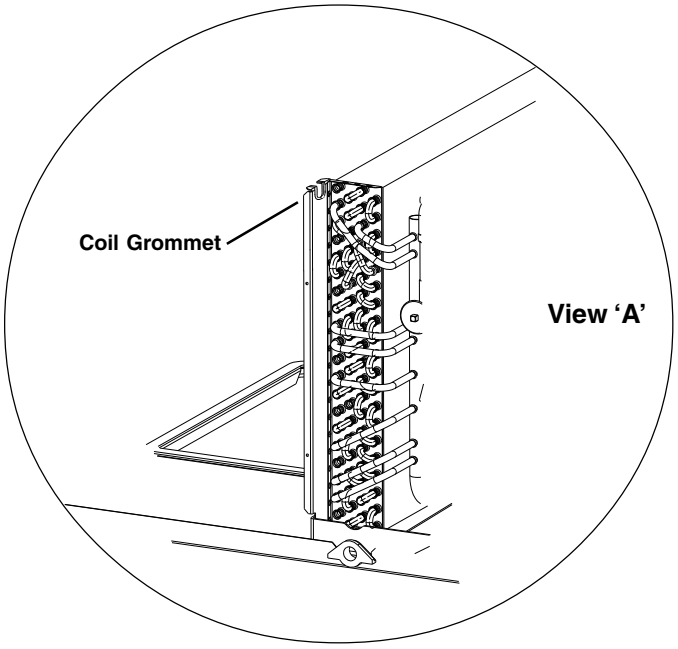


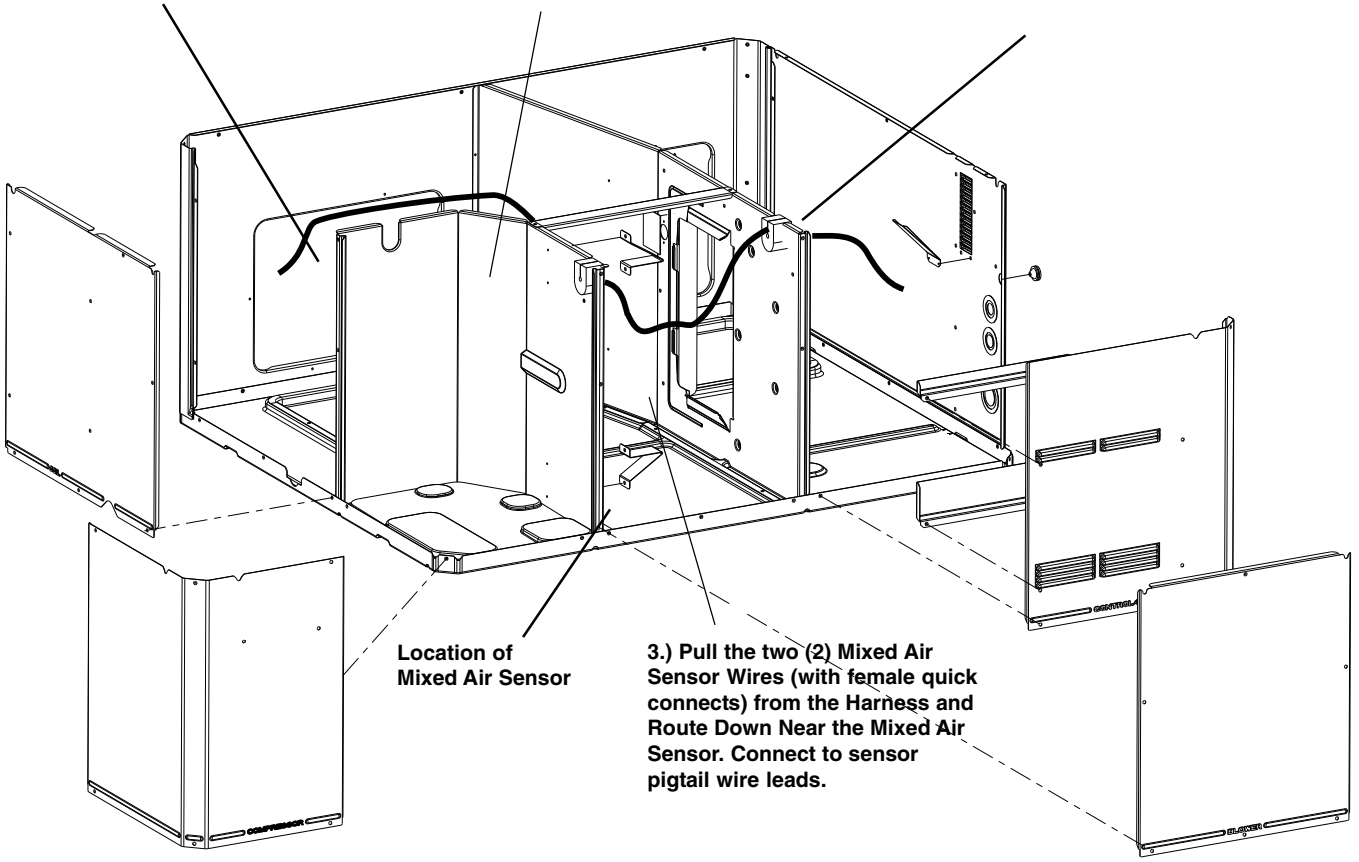
Figure 9. Mount Mixed Air Sensor in Blower Compartment



1.) From EconomizerAssembly, Pass Wire Harness Through Coil Grommet. See View A.

2.) Continue Routing Behind Compressor Compartment and into Blower Compartment.

4.) Continue Routing the Remaining Harness Through the Grommet and into the Control Box.



Location of Mixed Air Sensor

3.) Pull the two (2) Mixed Air Sensor Wires (with female quick connects) from the Harness and Route Down Near the Mixed Air Sensor. Connect to sensor pigtail wire leads.

Figure 10. Main Wire Harness Routing

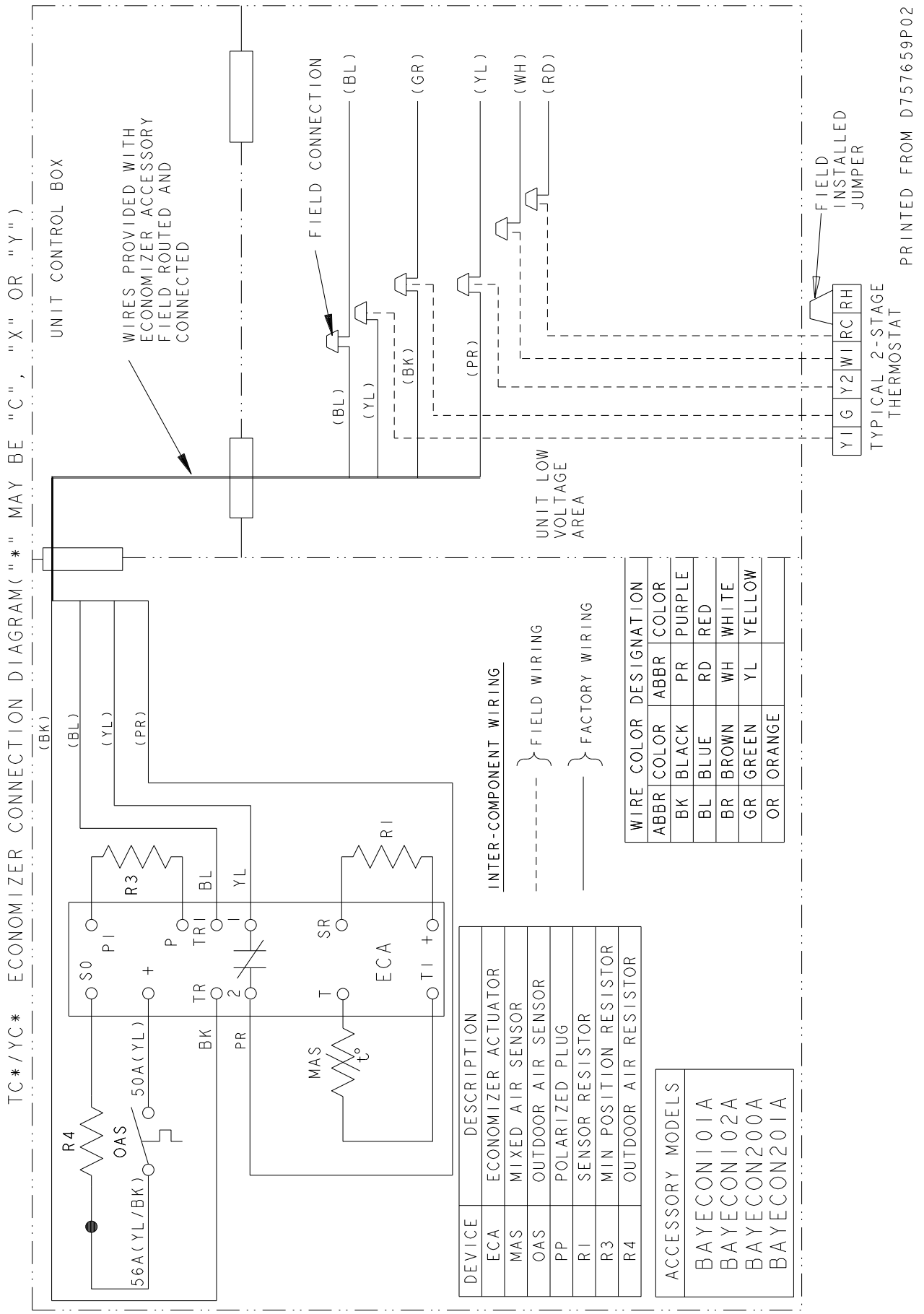
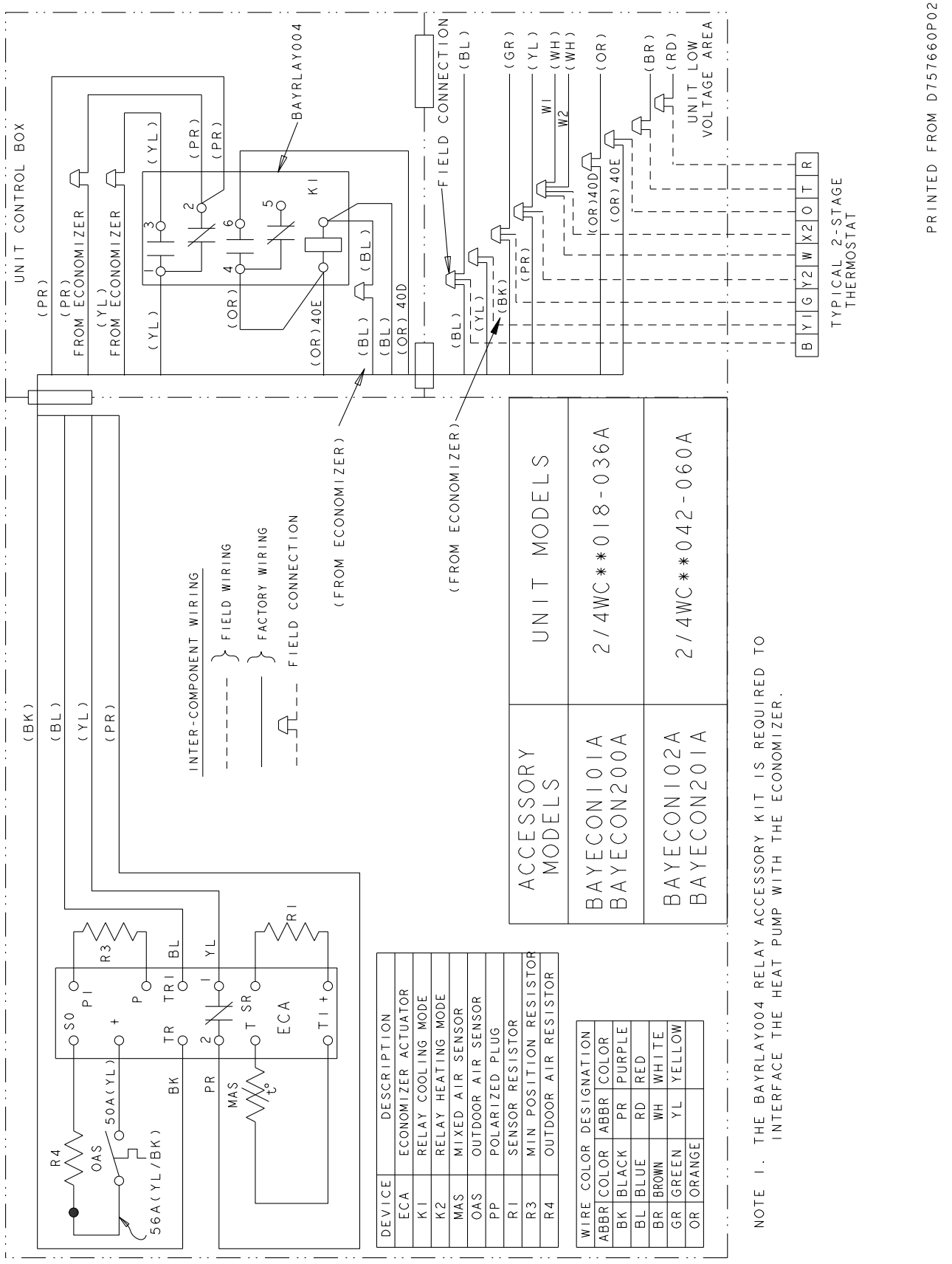


Figure 11. TC*/YC* Economizer Connection Diagram



DEVICE	DESCRIPTION
ECA	ECONOMIZER ACTUATOR
K1	RELAY COOLING MODE
K2	RELAY HEATING MODE
MAS	MIXED AIR SENSOR
OAS	OUTDOOR AIR SENSOR
PP	POLARIZED PLUG
R1	SENSOR RESISTOR
R3	MIN POSITION RESISTOR
R4	OUTDOOR AIR RESISTOR

WIRE COLOR DESIGNATION			
ABBR	COLOR	ABBR	COLOR
BK	BLACK	PR	PURPLE
BL	BLUE	RD	RED
BR	BROWN	WH	WHITE
GR	GREEN	YL	YELLOW
OR	ORANGE		

Figure 12. WC* Economizer Connection Diagram

5. Checkout

Operate the motor through its complete open-close stroke. If necessary, release one of the previously tightened linkage connections to prevent damage. Check for proper operation, making sure that the linkage does not bind and that the motor travels smoothly throughout its fully open and closed position. Table 1 describes how to drive the motor to the full open and full closed positions (power connected). If there is excess length of linkage rod, cut it to size. Make necessary minor adjustments until desired operation is obtained, and tighten all nuts and set screws. This motor checkout ensures that:

1. The motor operates the load.
2. The motor responds properly to the controller.
3. There is no binding of the linkage or motor stalling at any point of travel.

If motor does not operate properly, check for proper voltage or mechanical binding in linkage or damper.

If questions arise regarding this product, contact your distributor or representative.

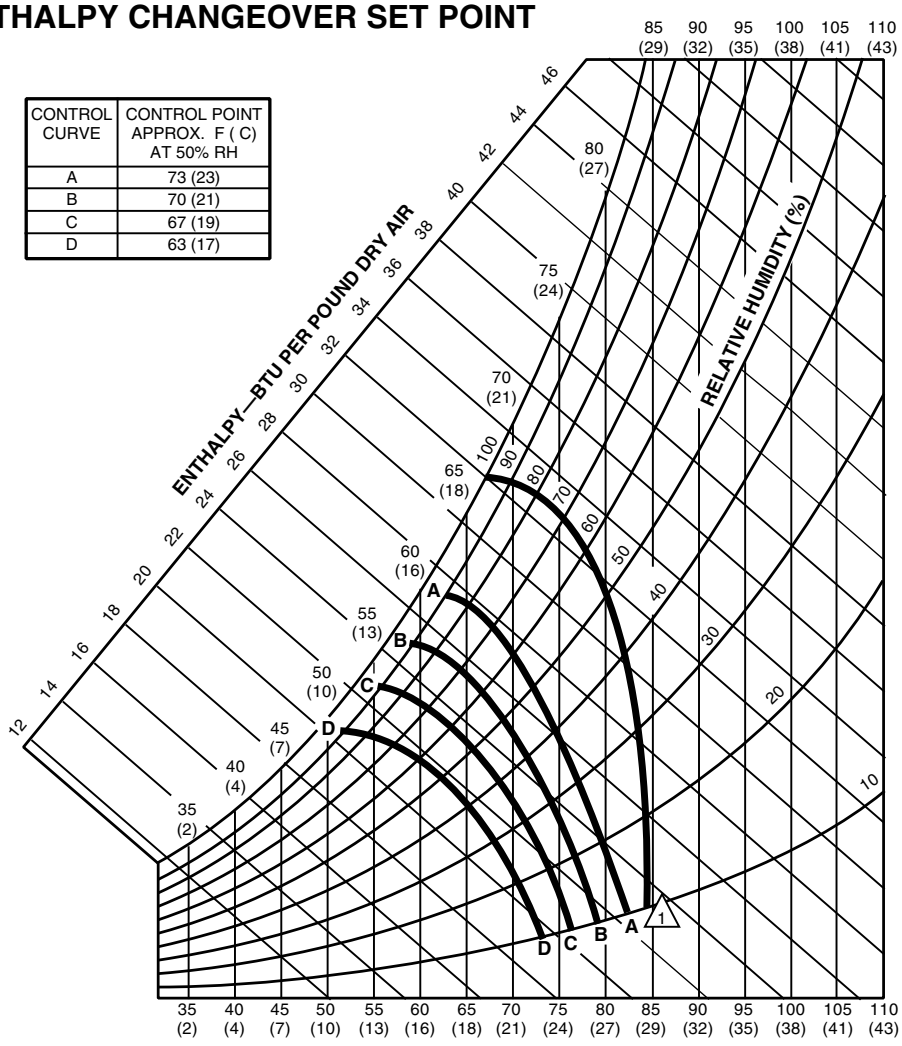
Table 1. Motor Operation Checkout

MODEL	DRIVE MOTOR OPEN	DRIVE MOTOR CLOSED	SPRING RETURN
M7415	Power to TR and TR1, jumper T and T1.	Disconnect jumper at T or T1 and disconnect P or P1,if connected.	Disconnect power at TR and TR1.

SINGLE ENTHALPY CHANGEOVER SET POINT

CONTROL CURVE	CONTROL POINT APPROX. F (C) AT 50% RH
A	73 (23)
B	70 (21)
C	67 (19)
D	63 (17)

Single enthalpy: The enthalpy changeover set point is set to return the outdoor air damper to minimum position when the enthalpy rises above its set point. The enthalpy set point scale markings, located on W7459, are A,B,C,D; see table for the corresponding control point. The factory-installed R4 WHITE 620-ohm jumper must be in place across terminals + and SR.

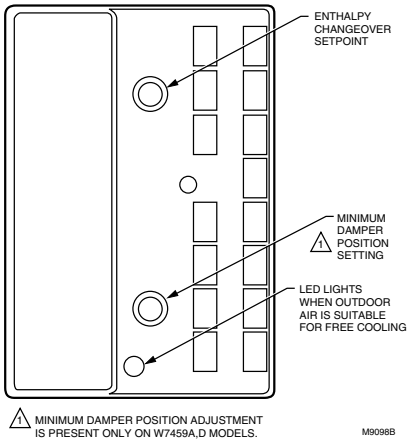


1 HIGH LIMIT CURVE FOR W7459D.

Table 2. Enthalpy Checkout Procedure

	Checkout Procedure	Response
A	1. Disconnect power at TR and TR1. 2. Disconnect jumper P to P1. 3. Jumper TR to 1. 4. Jumper T1 to T. 5. If connected, remove C7400 Solid State Enthalpy Sensor from teminals S0 and +. Ensure factory-installed 620 ohm resistor is connected to terminals Sr and +. 6. Apply power (24Vac) to terminals TR and TR1	LED is off. Motor is in closed position.
B	1. Disconnect factory-installed 620 ohm resistor from terminals Sr and +.	Led turns on, motor drives toward open.
C	1. To simulate high and low enthalpy (single enthalpy sensor) reconnect factory-installed 620 ohm resistor from termonals Sr and +. Connect 1.2K ohm 4074EJM Checkout Resistor across terminals So and +.	—
	2. Turn enthalpy setpoint potentiometer to "A".	LED turns on, indicating low enthalpy. Motor drives toward open.
	3. Turn enthalpy setpoint potentiometer to "D".	LED turns off, indicating high enthalpy. Motor drives toward closed.
	4. Disconnect the 1.2 K ohm checkout resistor.	—
D	1. To verify sensor operation, reconnect the + lead of the outdoor enthalpy sensor to the + terminal of W7459.	—
	2 Connect a DC millimeter between terminal So of the W7459A and terminal S of the enthalpy sensor. See Fig. 10 (positive meter lead to terminal S of the enthalpy sensor).	Millimeter indication is between 3 and 25 mA if sensor is operating properly. If millimeter indicates zero, the sensor may be wired backward.
	3. When using differential enthalpy, check the return air enthalpy sensor by connecting a DC millimeter between terminal Sr of the W7459A and terminal S of the return air enthalpy sensor. (positve meter lead to terminal S of the enthalpy sensor).	Millimeter indication is between 3 and 25 mA if sensor is operating properly. If millimeter indicates zero, the sensor may be wired backward.

Location of Enthalpy Set Point, Minimum Position and LED



Meter Location for Checkout and Troubleshooting

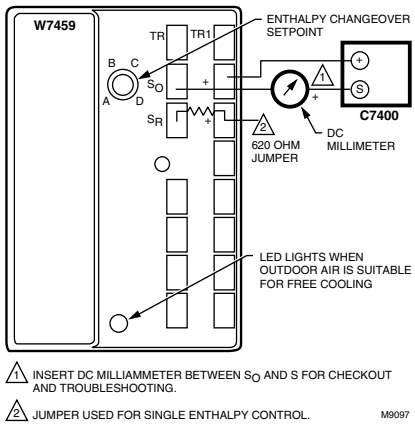


Figure 13. Enthalpy LEDs and Checkout

American Standard Inc.
6200 Troup Highway
Tyler, TX 75707-9010