

Installer's Guide

Down Discharge Economizer and Rain Hood

Model:

BAYECON101AA/AB/AC

BAYECON102AA/AB/AC

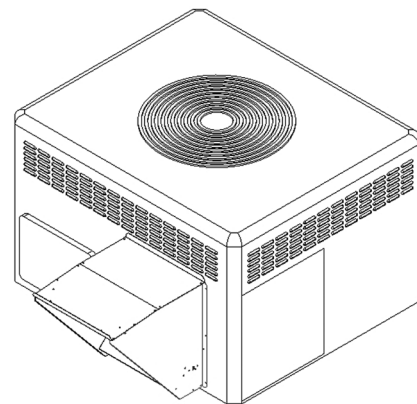
BAYRLAY004A

Used with:

2/4TC*, WC*, YC*, DC* *018-036

2/4TC*, WC*, YC*, DC* *042-060

(Relay required in WC* Units)



Note: "Graphics in this document are for representation only. Actual model may differ in appearance."

SAFETY WARNING

Only qualified personnel should install and service the equipment. The installation, starting up, and servicing of heating, ventilating, and air-conditioning equipment can be hazardous and requires specific knowledge and training. Improperly installed, adjusted or altered equipment by an unqualified person could result in death or serious injury. When working on the equipment, observe all precautions in the literature and on the tags, stickers, and labels that are attached to the equipment.



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 install an air filter rack ordered separately. Use:

BAYFLTR101B for 2/4YC*, WC*, TC*, DC* *018-3036

BAYFLTR201B for 2/4YC*, WC*, TC*, DC* *042-3060.

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 3 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 3):

- Control/Heat access panel
- Blower access panel
- Coil access panel
- Horizontal Return Air panel (discard or store)

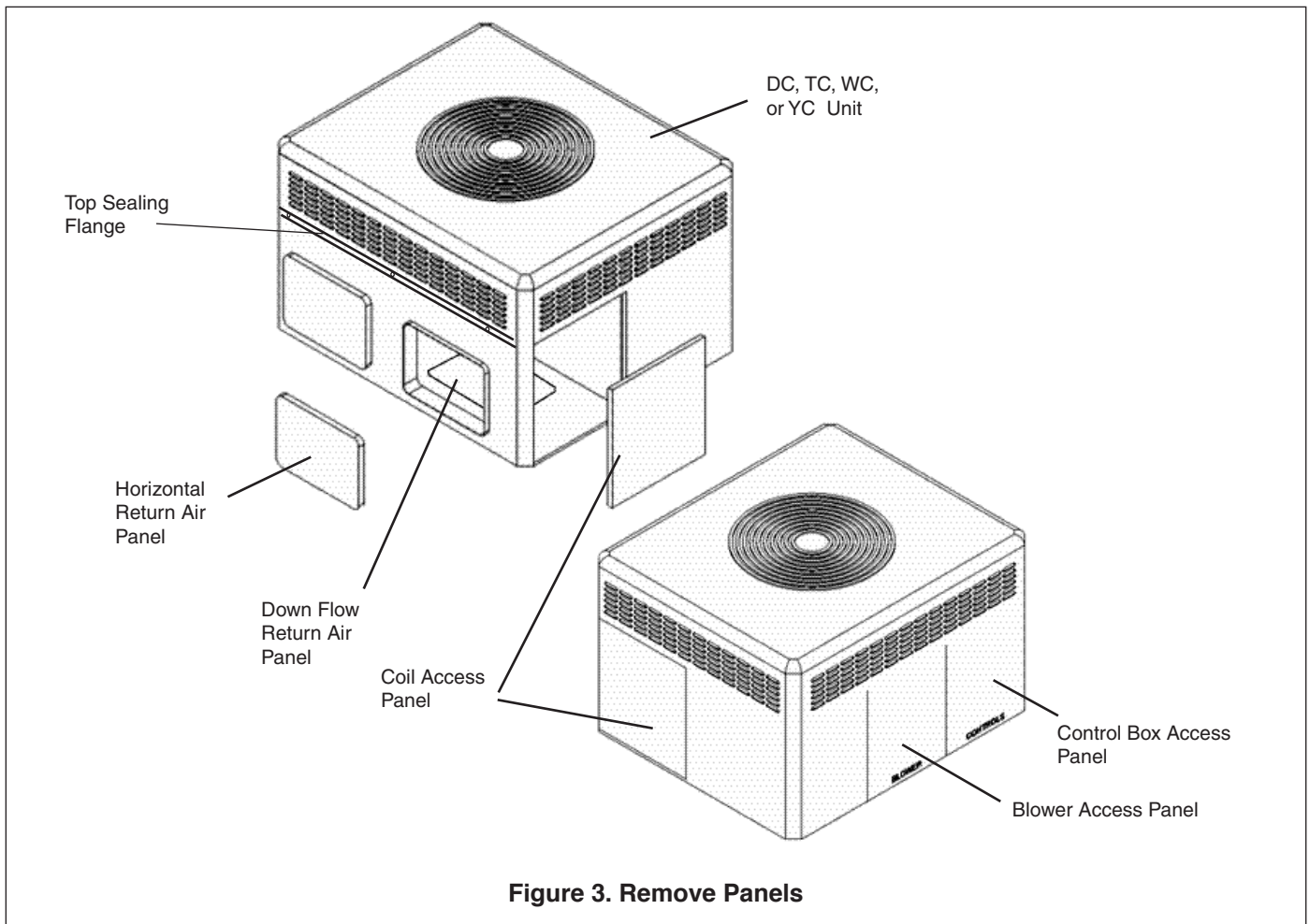
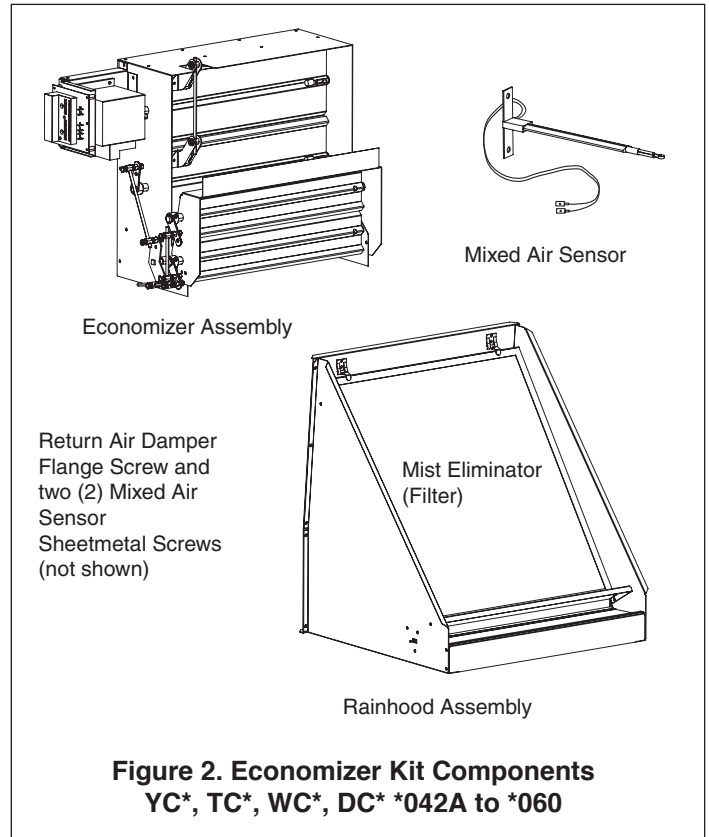
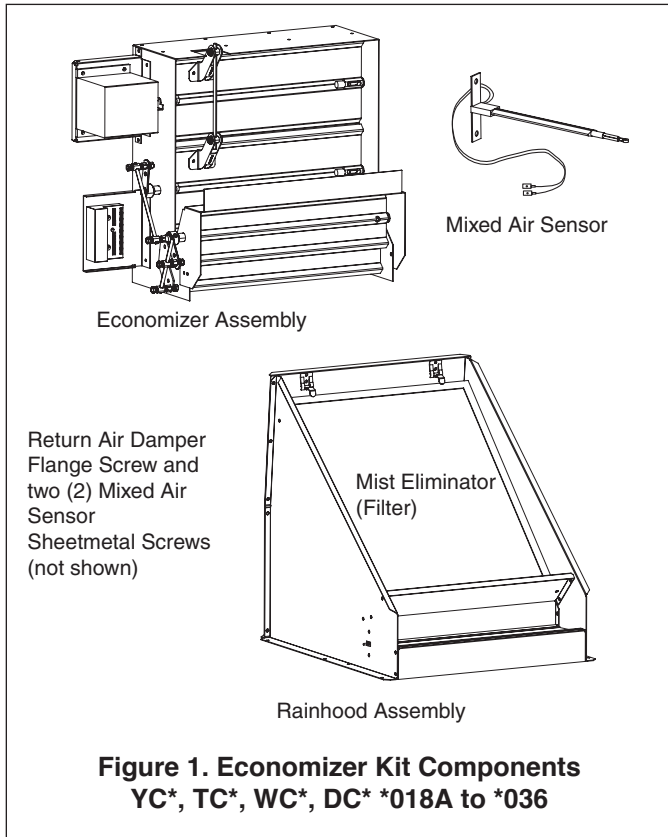
3. Install Economizer Assembly



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 3.
Insert the economizer assembly into the unit through the Coil access panel opening. See Figure 4 on page 4.
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 5. 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 economizer assembly. See Figure 6 on page 5.
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 5.



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 3.
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 8. 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 9 and 10. 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 13. 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.

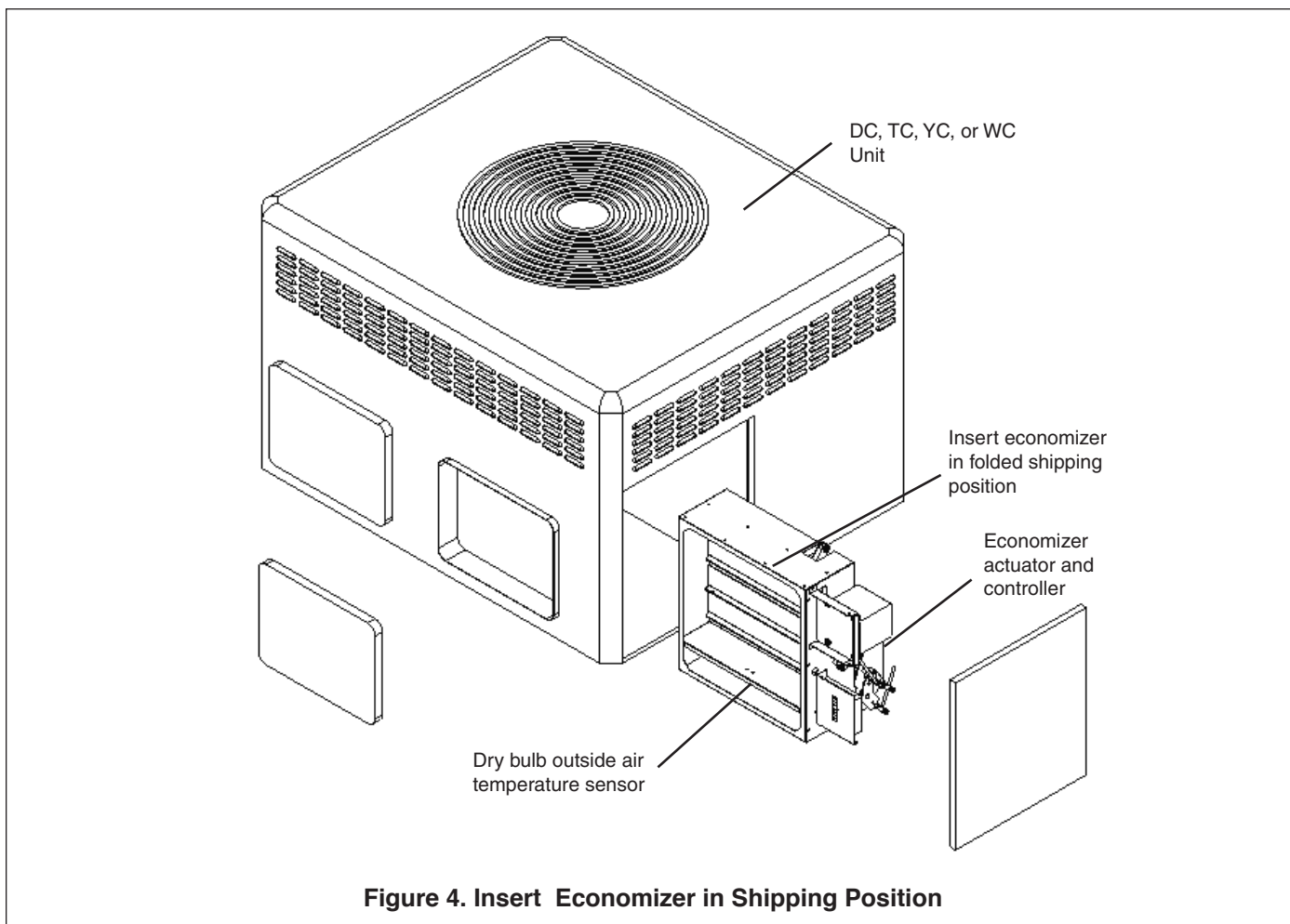


Figure 4. Insert Economizer in Shipping Position

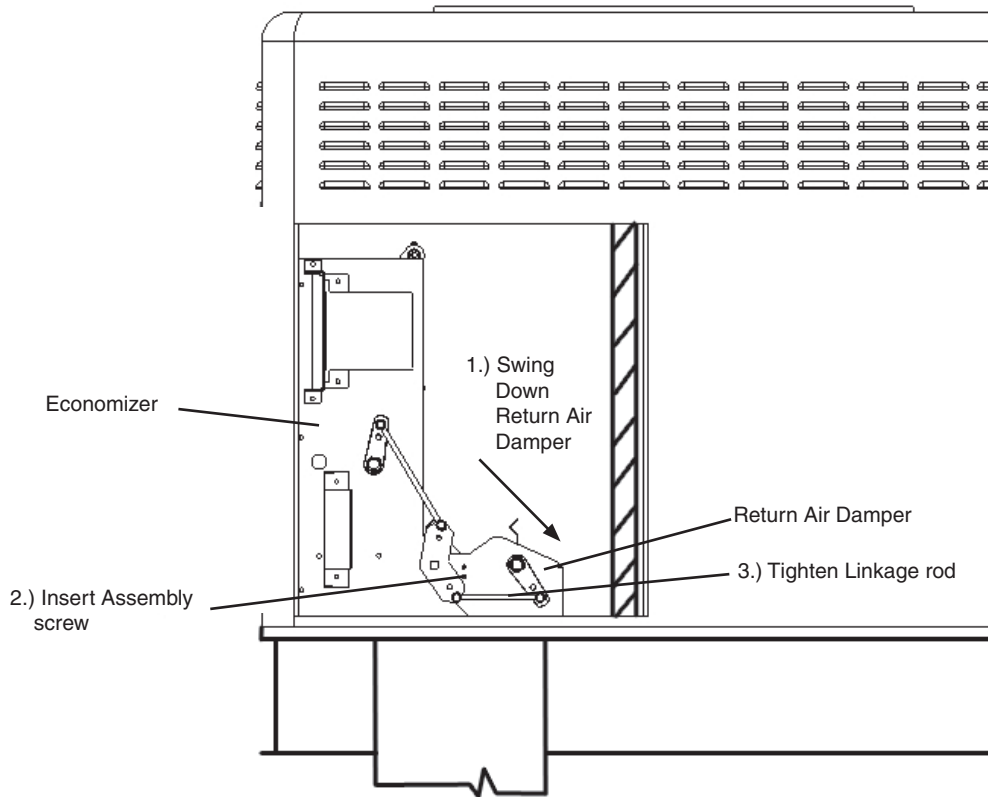


Figure 5. Swing Down and Set Economizer Return Air Damper

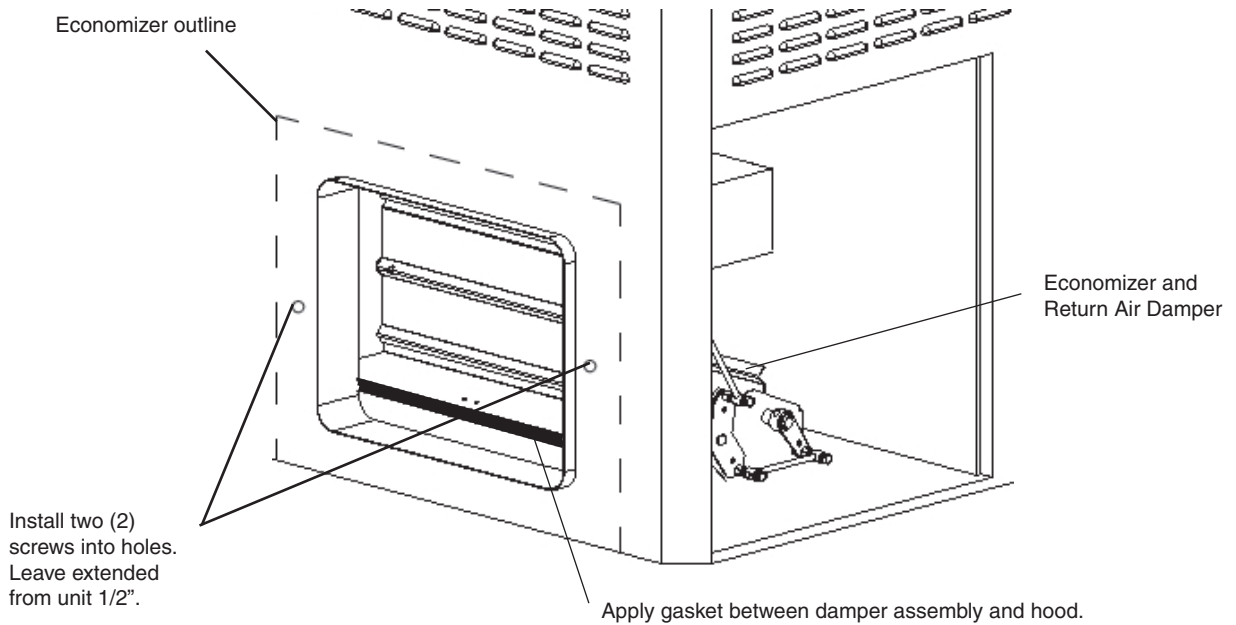
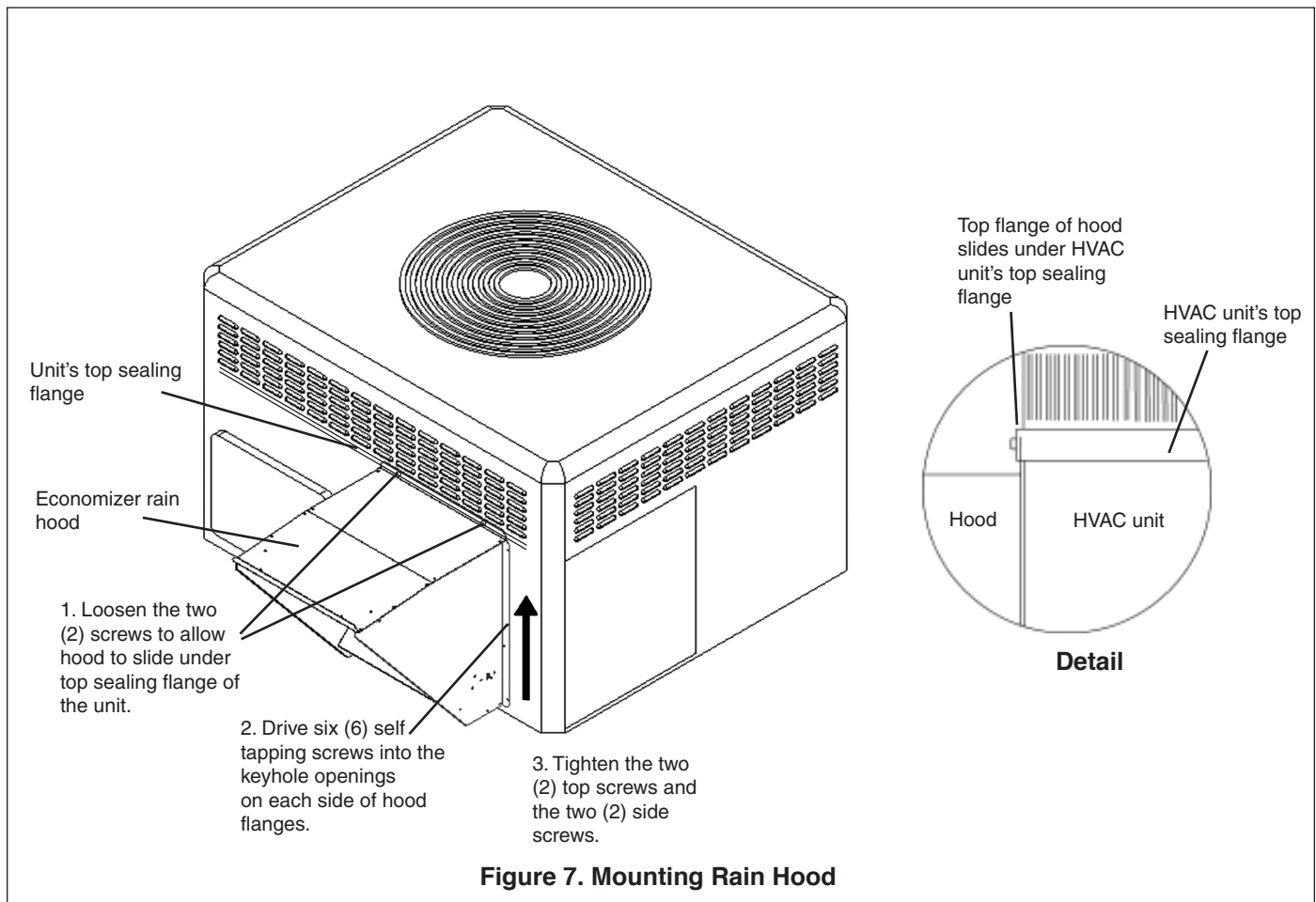


Figure 6. Start Economizer's Front Mounting Screws



Economizer	Unit Application Models	A
BAYECON101AA/AB/AC	2/4TC*,WC*,YC*,DC* *018-036	20.125"
BAYECON102AA/AB/AC	2/4TC*,WC*,YC*,DC* *042-060	24.375"

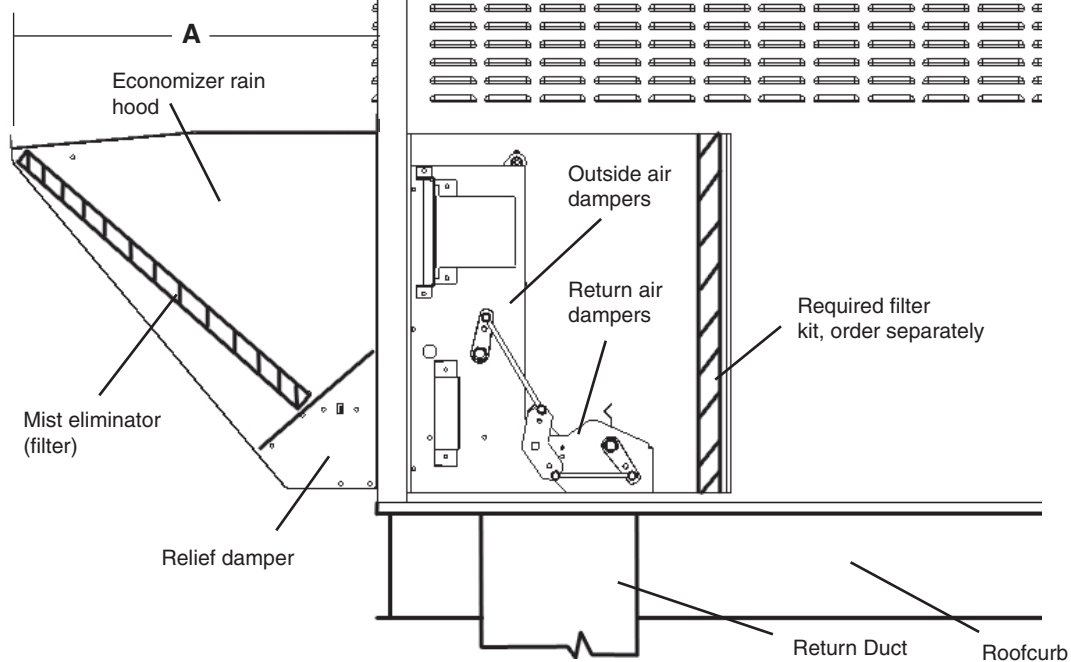
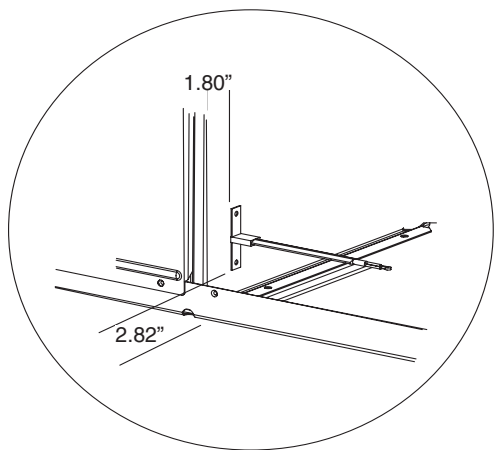
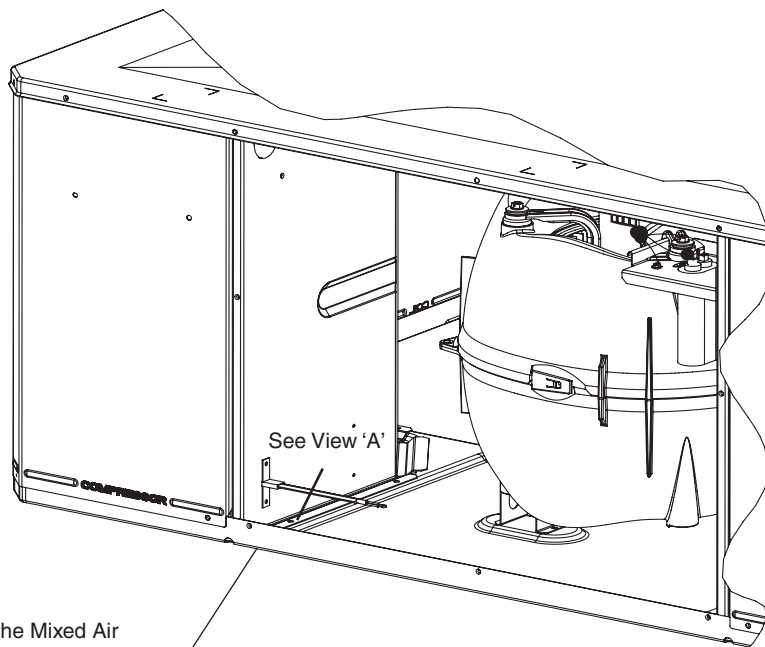


Figure 8. Rain Hood, Economizer, and Filter

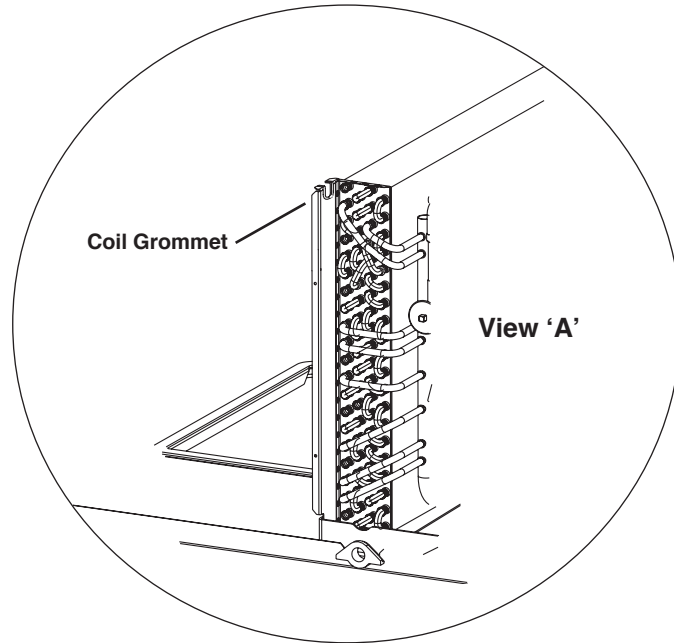


View 'A' Approximate Mounting Dimension



Mount the Mixed Air Sensor to the partition using two (2) sheetmetal screws. See View A for approximate positioning.

Figure 9. Mount Mixed Air Sensor in Blower Compartment



1.) From Economizer-Assembly, Pass Wire Harness Through Coil Grommet. See View A.

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

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.

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

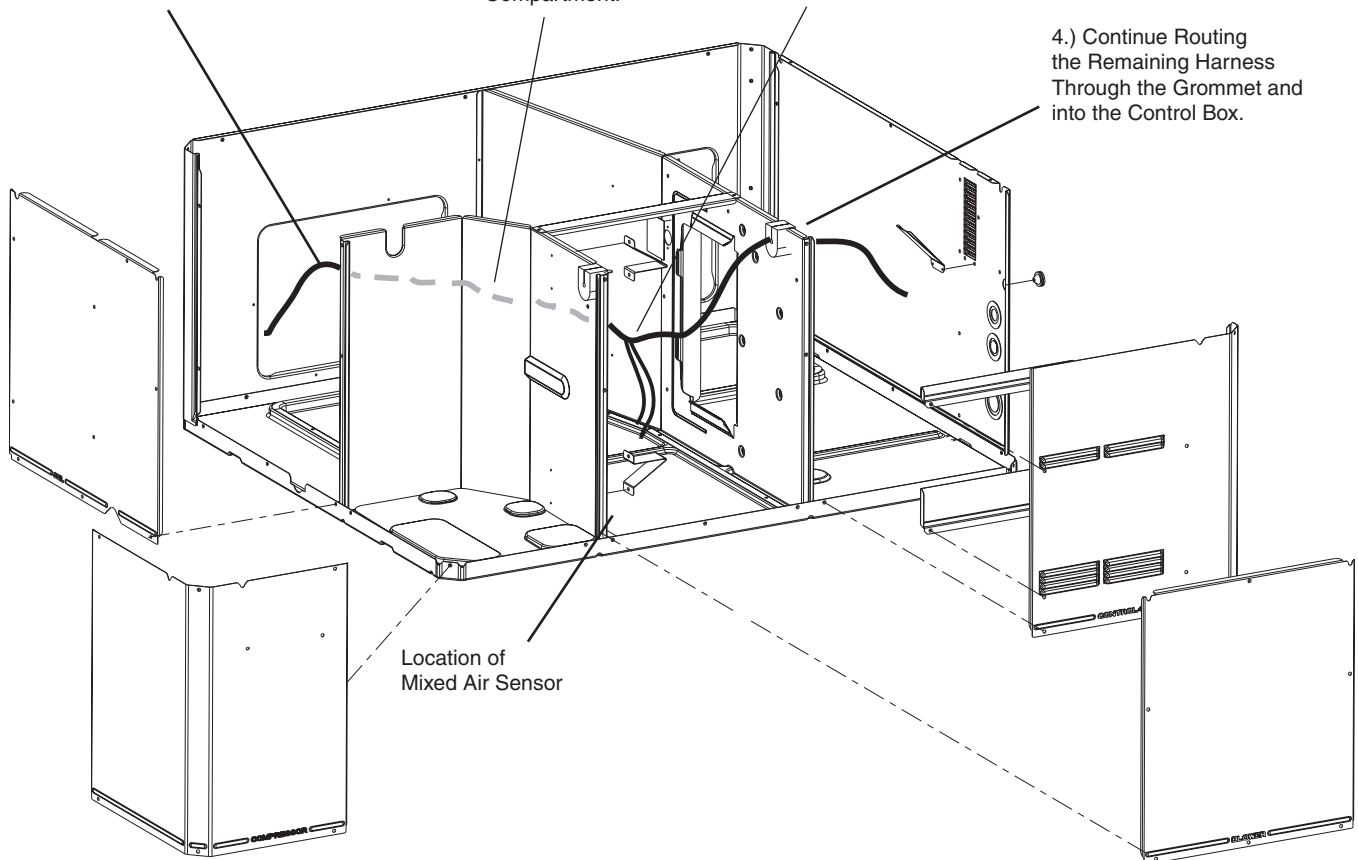


Figure 10. Main Wire Harness Routing

Wiring Diagram for Economizer Using a Honeywell W7459 Logic

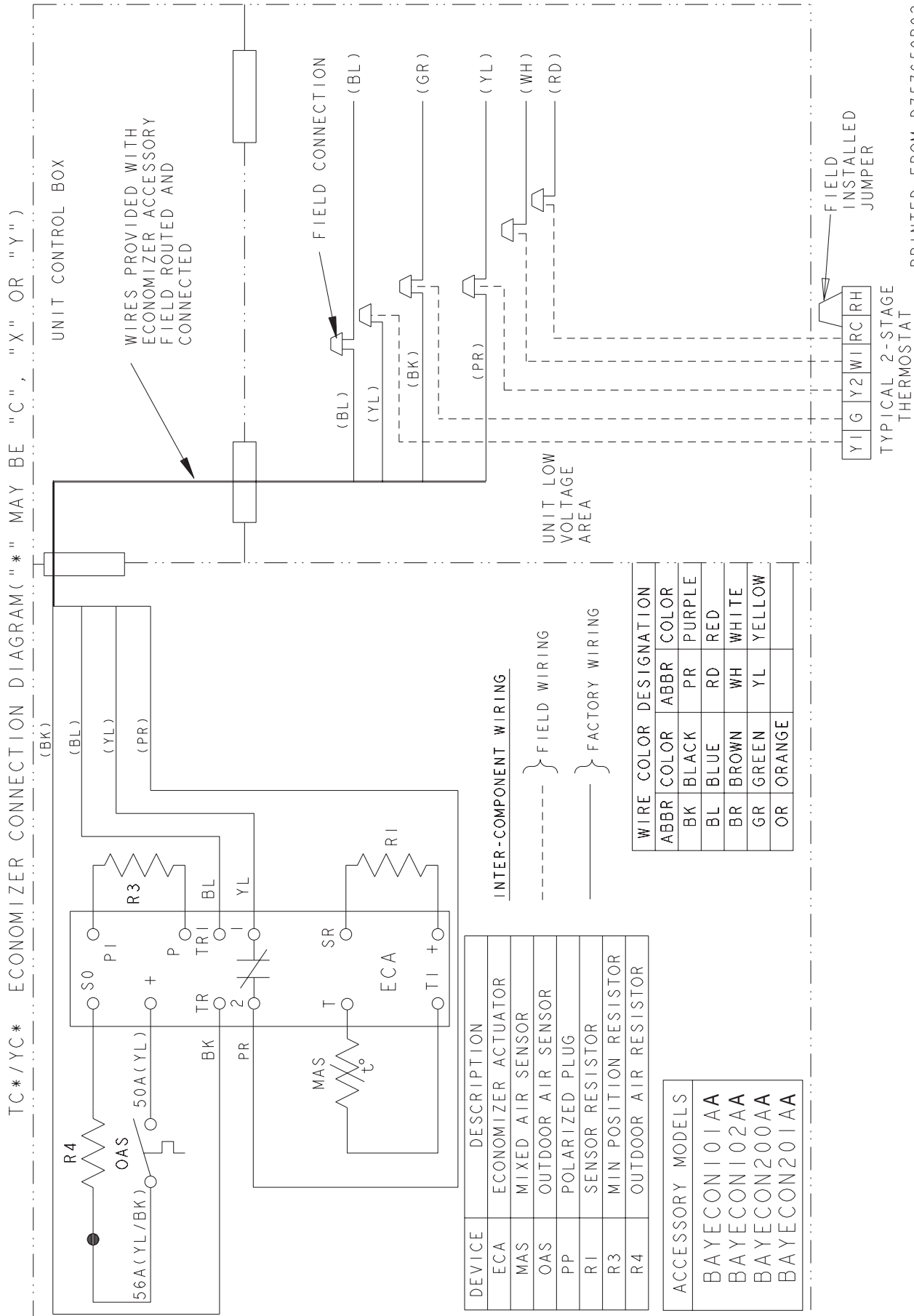
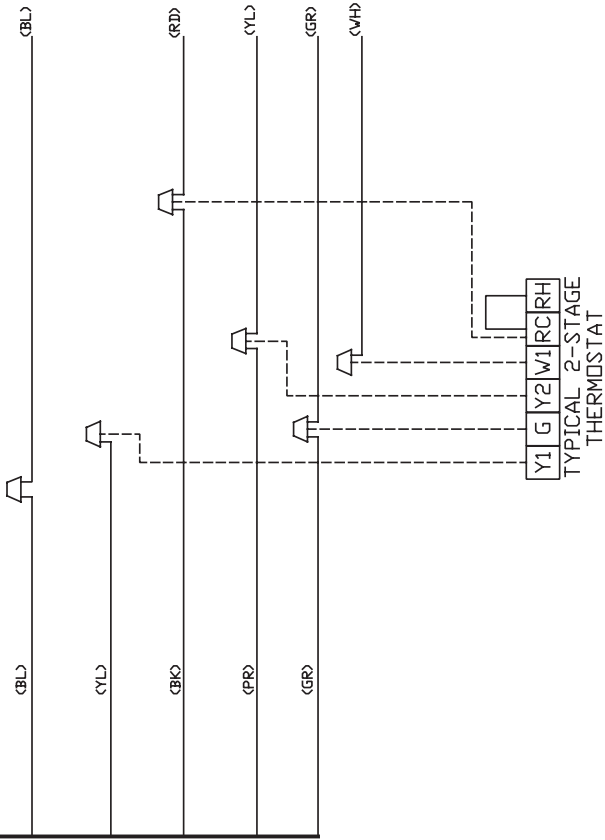
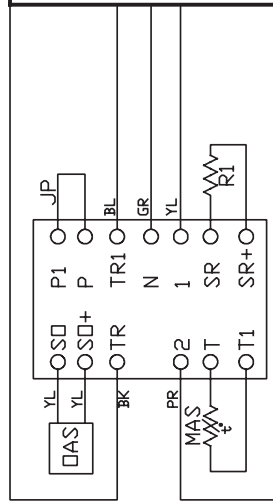


Figure 11. TC*/YC* Economizer Connection Diagram

Wiring Diagram for Economizer Using a Honeywell W7212 Logic Only
 TC*/YC* Economizer Connection Diagram ("**" May Be "C", "X", "Y")



INTER-COMPONENT WIRING

-----] FIELD WIRING

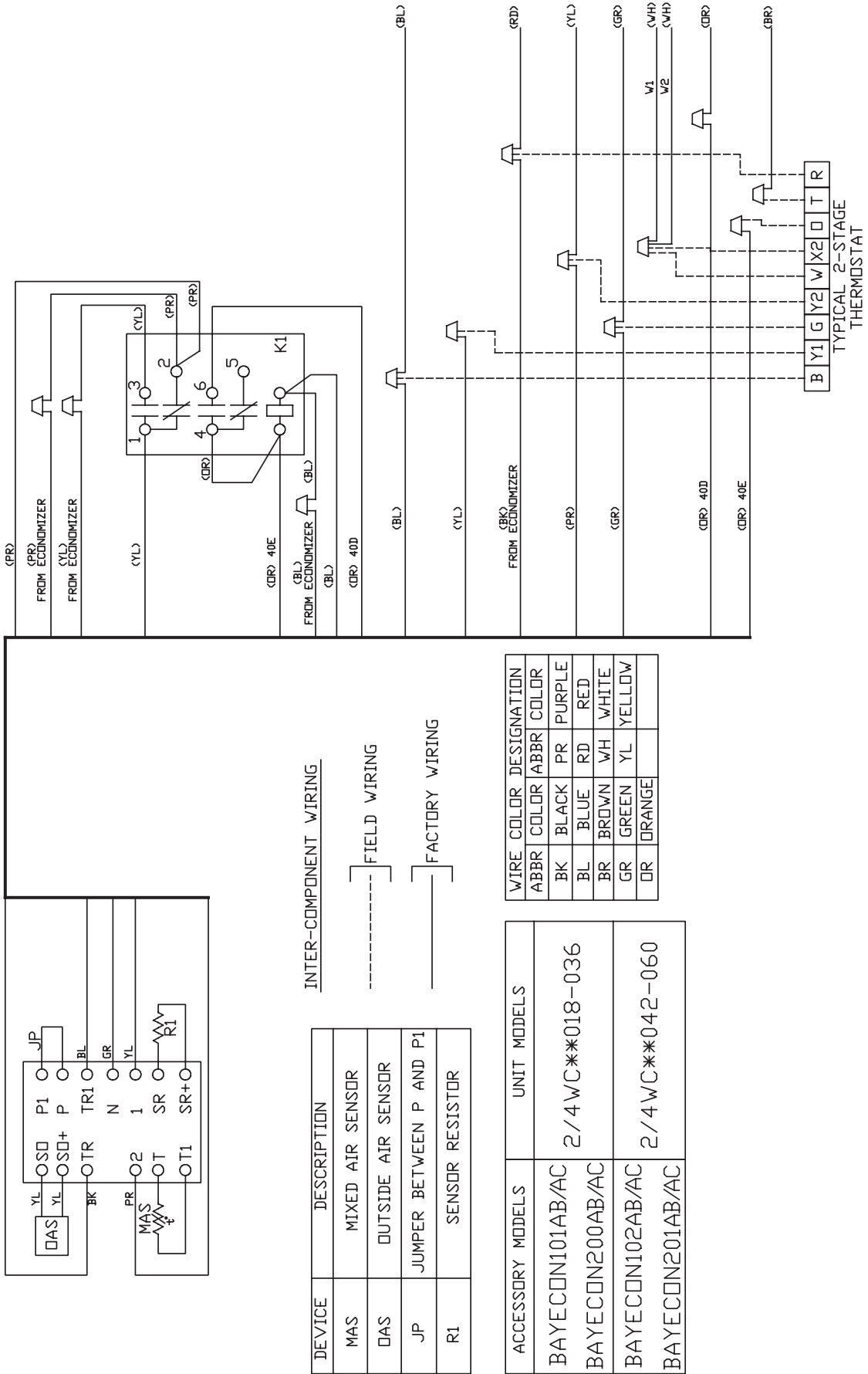
—————] FACTORY WIRING

DEVICE	DESCRIPTION
MAS	MIXED AIR SENSOR
DAS	OUTSIDE AIR SENSOR
JP	JUMPER BETWEEN P AND P1
R1	SENSOR RESISTOR

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

ACCESSORY MODELS
BAYECON101AB/AC
BAYECON102AB/AC
BAYECON200AB/AC
BAYECON201AB/AC

**Wiring Diagram for Economizer Using a Honeywell W7212 ONLY
WC* Economizer Connection Diagram ("*" May Be "C", "X", "Y")**



5A. Checkout - For Units with a Honeywell W7459 Control, Only.
See 5B for W7212

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.

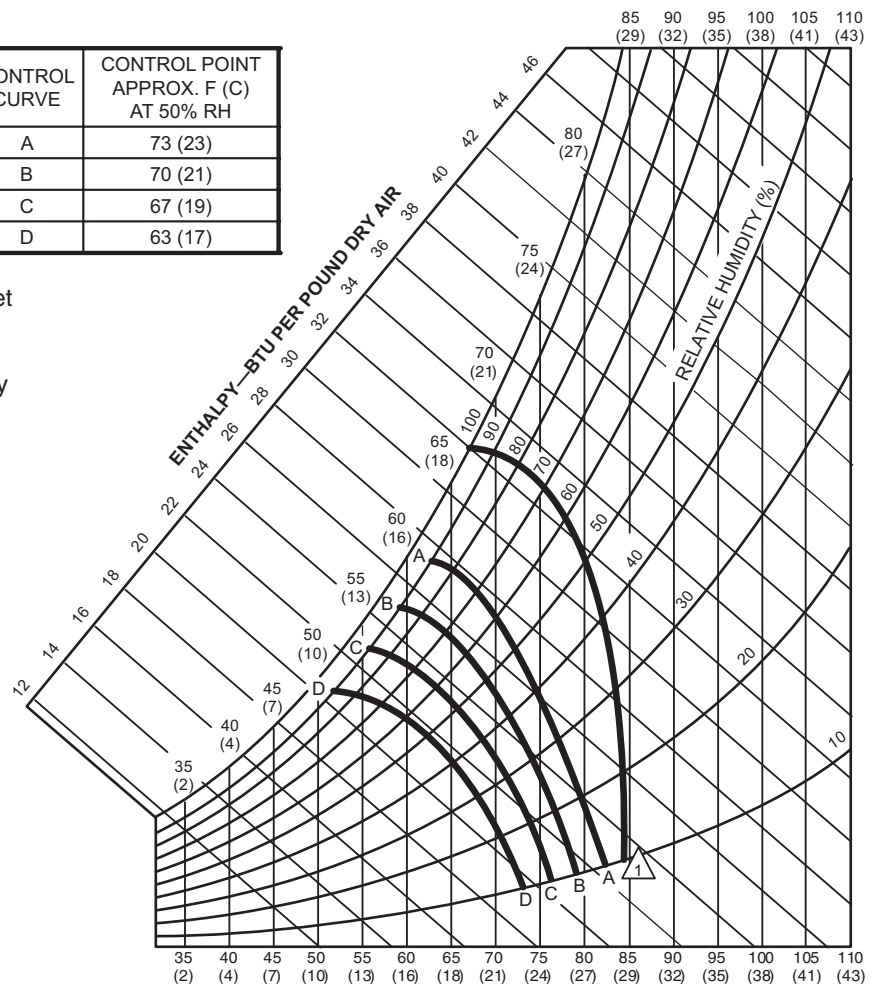
Table 1. Motor Operation Checkout

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.

M11681

Table 2. Enthalpy Checkout Procedure - W7459 Control

	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 terminals 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 terminals 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 1.2K 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 multimeter between terminal So of the W7459A and terminal S of the enthalpy sensor. See Fig. 13 (positive meter lead to terminal S of the enthalpy sensor).	Multimeter indication is between 3 and 25 mA if sensor is operating properly. If multimeter indicates zero, the sensor may be wired backward.
	3. When using differential enthalpy, check the return air enthalpy sensor by connecting a DC multimeter between terminal Sr of the W7459A and terminal S of the return air enthalpy sensor. (positive meter lead to terminal S of the enthalpy sensor).	Multimeter indication is between 3 and 25 mA if sensor is operating properly. If multimeter indicates zero, the sensor may be wired backward.

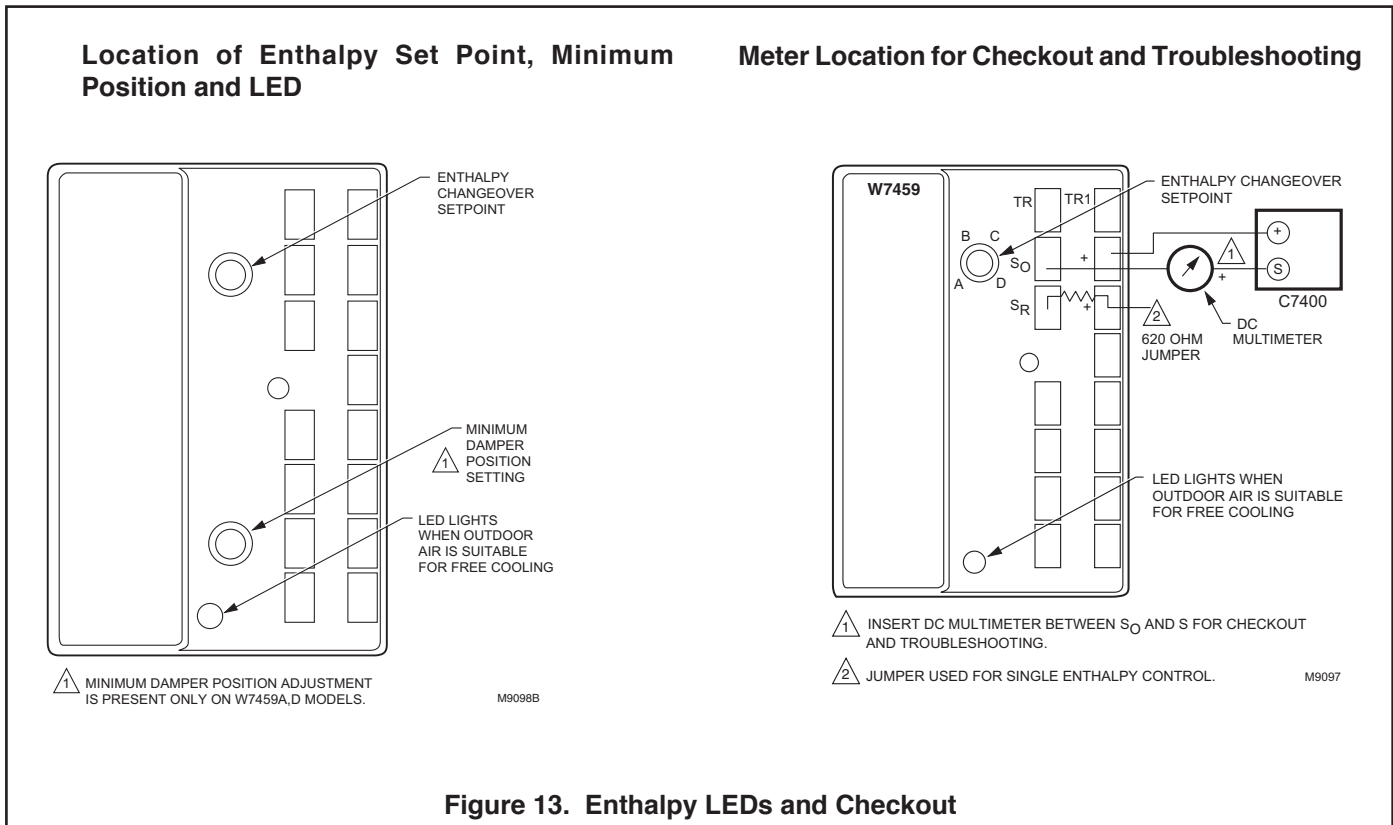


Figure 13. Enthalpy LEDs and Checkout

Table 3. Temp vs. OHM Values for MAS (Mixed Air Sensor)**Temp vs. OHM for MAS (Mixed Air Sensor)**

Temp F	Temp C	R(K OHMS)	DC Volts
33.8	1	9.576	3.910
35.6	2	9.092	3.882
37.4	3	8.636	3.894
39.2	4	8.204	3.863
41.0	5	7.796	3.829
42.8	6	7.412	3.790
44.6	7	7.048	3.749
46.4	8	6.705	3.713
48.2	9	6.380	3.674
50.0	10	6.073	3.634
51.8	11	5.782	3.590
53.6	12	5.507	3.550
55.4	13	5.247	3.507
57.2	14	5.000	3.420
59.0	15	4.767	3.373
60.8	16	4.545	3.328
62.6	17	4.335	3.283
64.4	18	4.136	3.239
66.2	19	3.948	3.180
68.0	20	3.769	3.157
69.8	21	3.599	3.118
71.6	22	3.437	3.080
73.4	23	3.284	3.034
75.2	24	3.138	3.007
77.0	25	3.000	2.971
78.8	26	2.869	2.932
80.6	27	2.744	2.896
82.4	28	2.625	2.860
84.2	29	2.512	2.824
86.0	30	2.404	2.787
87.8	31	2.301	2.750
89.6	32	2.204	2.714
91.4	33	2.111	2.676
93.2	34	2.023	2.639
95.0	35	1.938	2.600
96.8	36	1.858	2.561
98.6	37	1.781	2.526
100.4	38	1.708	2.484

INSTALLER'S GUIDE

5B. Checkout - For Units with a Honeywell W7212 Control, Only. See 5A for W7459

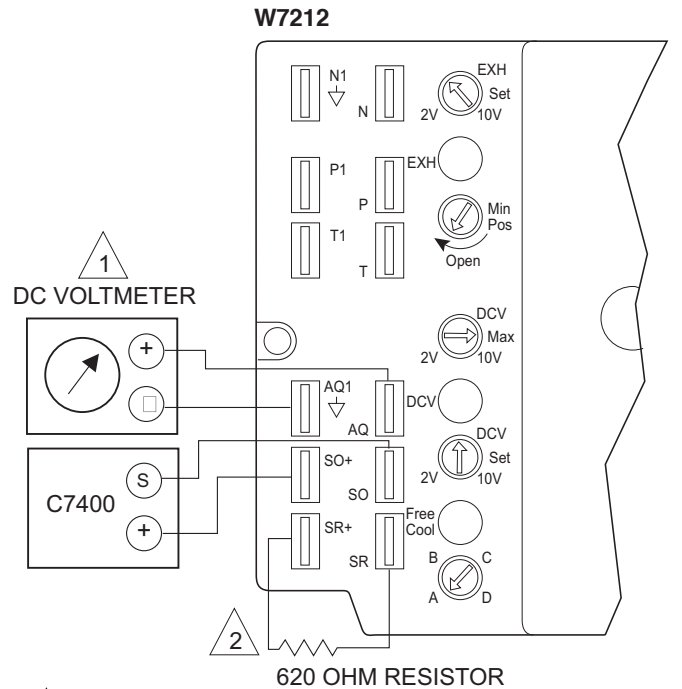
CHECKOUT AND TROUBLESHOOTING

Checkout requires a 9V battery, 620 ohm, 1.2K ohm, 5.6K ohm, and 6.8K ohm resistors. Use Table 4 and Fig. 18 for checkout.

CAUTION

Equipment Damage Hazard.
Excessive force can damage potentiometer controls.

Use a small screwdriver when adjusting enthalpy changeover and minimum damper position controls.



1 INSERT DC VOLT METER BETWEEN AQ AND AQ1 FOR CHECKOUT AND TROUBLESHOOTING.

2 JUMPER USED FOR SINGLE ENTHALPY CONTROL.

M20612

Figure 18. Meter location for checkout and troubleshooting (W7212 shown).

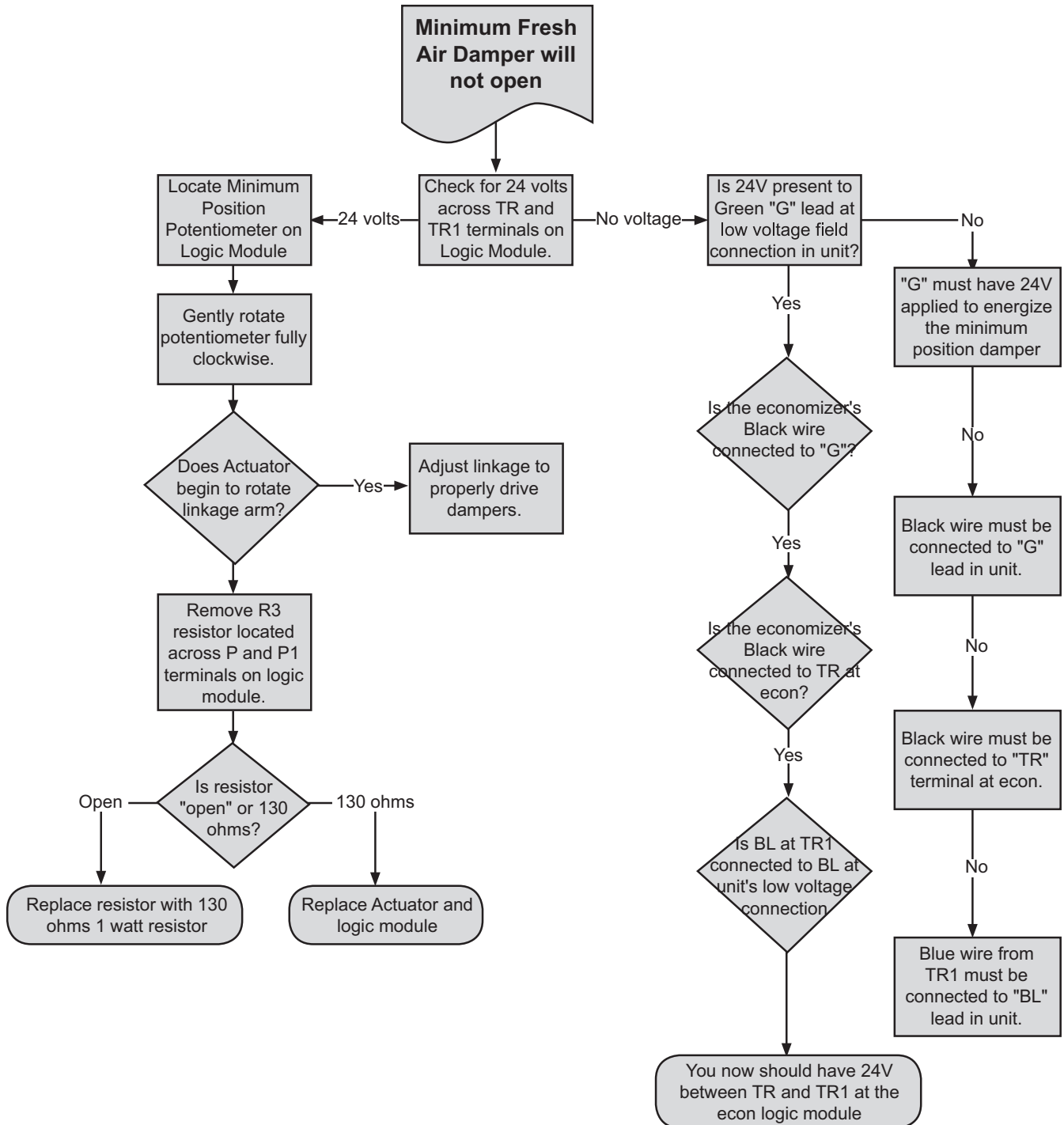
Table 4. Checkout for W7212, W7213, W7214 Economizer Connected to Honeywell Actuator

Step	Checkout Procedure	Proper Response
1.	CHECKOUT PREPARATION FOR ECONOMIZING ONLY	
	Disconnect power at TR and TR1	All LED are off; Exhaust Fan contacts are open
	Disconnect devices at P and P1	
	Jumper P to P1 (defaults to on board MIN POS potentiometer).	
	Place 5.6K ohm resistor across T and T1 (Blue sleeve-provides input to economizer that the MAT is between 50-55F).	
	Jumper TR to 1 (call for cooling from the thermostat).	
	W7212 only jumper TR to N (places economizer in occupied mode).	
	If connected, remove C7400 Enthalpy Sensor from terminals S _O and +.	
	Connect 1.2K ohm, from 4074EJM Checkout Resistor kit, (purple sleeve) across terminals S _O and + (makes OA enthalpy high).	
	Place 620 ohm resistor (white sleeve) across S _R and + (makes return enthalpy lower than OA).	
	Set MIN POS and DCV MAX potentiometers fully CCW.	
	Turn DCV setpoint potentiometer mid position (this sets the DCV ventilation at approximately 1000 ppm).	
	Turn exhaust potentiometer to mid position (motor will be approximately 50% open when the exhaust fan contacts make).	
	Set enthalpy potentiometer to D.	
	W7214 only Jumper TR to O.	
	Apply power (24 Vac) to terminals TR and TR1	

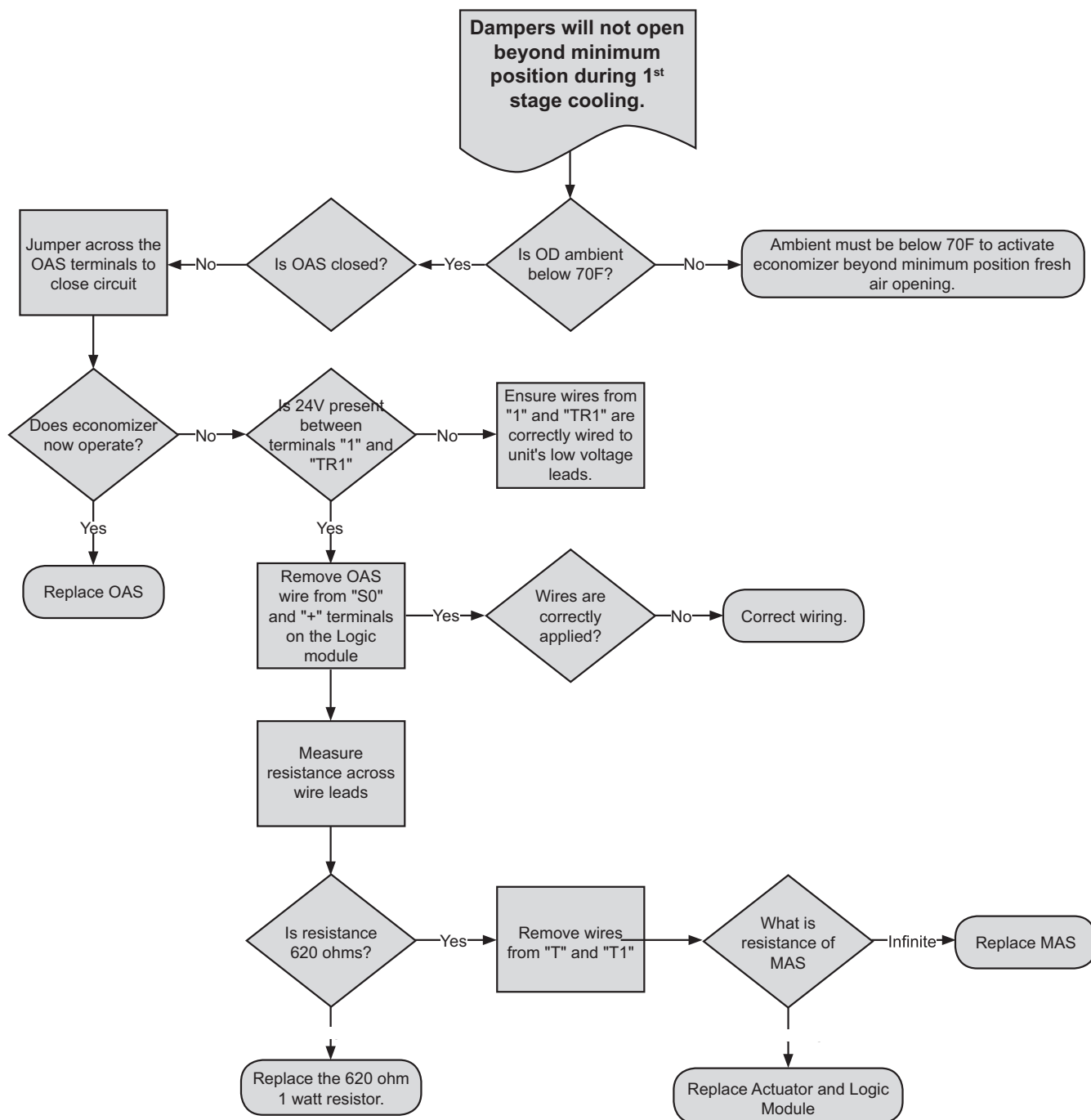
Table 4. Checkout for W7212, W7213, W7214 Economizer Connected to Honeywell Actuator (Cont.)

Step	Checkout Procedure	Proper Response
2.	DIFFERENTIAL ENTHALPY	
	Execute stop one, Checkout Preparation.	—
	Turn DCV MAX to mid position.	
	Place 620 ohm resistor across S _O and + (white sleeve resistor makes OA enthalpy low).	
	Place 1.2K ohm resistor across S _R and + (purple sleeve resistor makes RA enthalpy high).	Free cool LED turn on; motor drives to approximately 45 degrees (half) open.
	Remove 620 ohm resistor from S _O and +.	Free cool LED turn off; motor drives closed
3.	SINGLE ENTHALPY	
	Execute stop one, Checkout Preparation.	—
	Turn DCV MAX to mid position.	
	Set enthalpy potentiometer to A (fully CCW).	Free cool LED turns on; motor drives to approximately 45 degrees (half) open.
	Set enthalpy potentiometer to D or E for W7212C (fully CW).	Free cool LED turns off; motor drives closed.
4.	DCV AND EXHAUST	
	Execute step one, Checkout Preparation.	—
	LED for both DCV and Exhaust should be off.	
	Turn DCV MAX to mid position.	Motor drives to mid position, 45 degrees open.
	Turn MIN POS fully CW.	Motor drives fully open.
	Turn MIN POS and DCV MAX to fully CCW.	Motor drives closed.
	Turn DCV MAX to mid position. Connect 9V battery positive to AQ and negative to AQ1.	LED for both DCV and Exhaust turn on. Actuator drives to 45 degrees open.
	Remove jumper from N terminal (economizer goes into not occupied mode).	Motor remains at 45 degrees open.
	Adjust DCV MAX towards CW.	Motor will move to position set by DCV MAX pot.
	Adjust DCV MAX to fully CCW.	Motor will drive closed.
	Reconnect jumper to N terminal.	
	Adjust DCV MAX and MIN POS pots.	Motor will drive to the most open position of the pots.
	Adjust DCV MAX and MIN POS pots to fully CCW.	
	Remove power from N terminal adjust MIN POS towards CW.	Motor should not move.
	Adjust DCV MAX towards CW.	Motor will move to position set by DCV MAX pot.
5.	MINIMUM AND MAXIMUM POSITION	
	Execute stop one, Checkout Preparation.	—
	Connect 9V battery positive to AQ and negative to AQ1. Adjust DCV MAX potentiometer to mid position.	DCV LED turns on. Actuator drives to 45 degrees open.
	Turn DCV maximum position potentiometer to fully CCW.	Actuator drives fully closed.
	Turn minimum position potentiometer to midpoint.	Actuator drives to 45 degrees open.
	Turn minimum position potentiometer fully CW.	Actuator drives fully open.
	Turn MIN POS to fully CCW.	Actuator drives fully closed.
	W7212: Remove jumper from TR and N.	Actuator drives fully closed.
	W7214: Jumper TR to O.	
6.	MIXED AIR INPUT	
	Execute stop one, Checkout Preparation.	—
	Turn DCV MAX to mid position; set enthalpy potentiometer to A.	Free cool LED turns on. Actuator drives to 45 degrees open.
	Remove 5.6K ohm resistor (green sleeve) and place jumper from T and T1.	Actuator drives to 45 degrees open.
	Remove jumper from T and T1 and leave open.	Actuator drives fully closed.

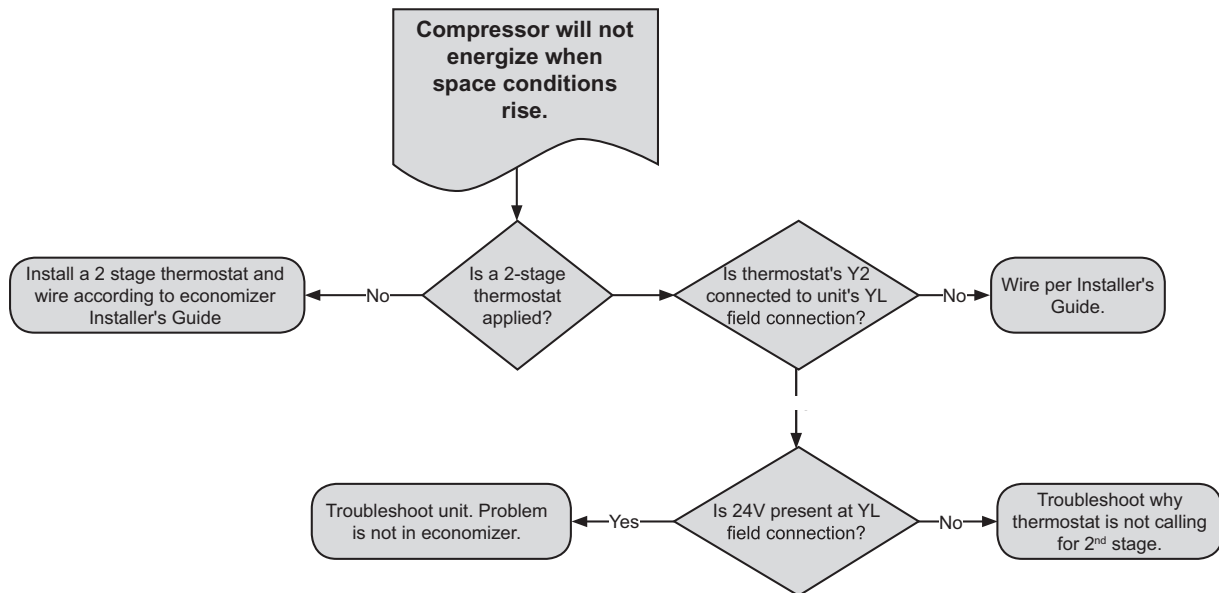
Honeywell W7459 Only - Troubleshooting - No Minimum Fresh Air



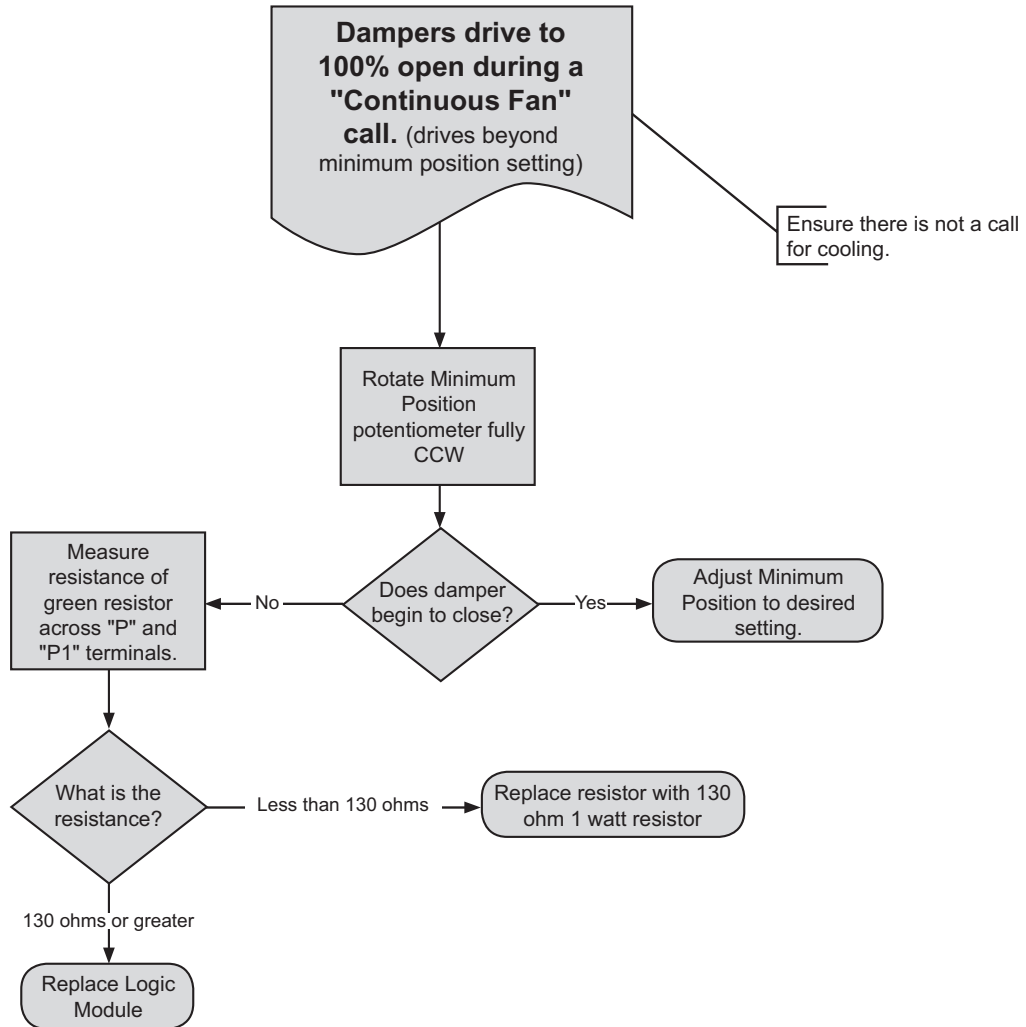
Honeywell W7459 Only - Troubleshooting - Unit Will Not Economize



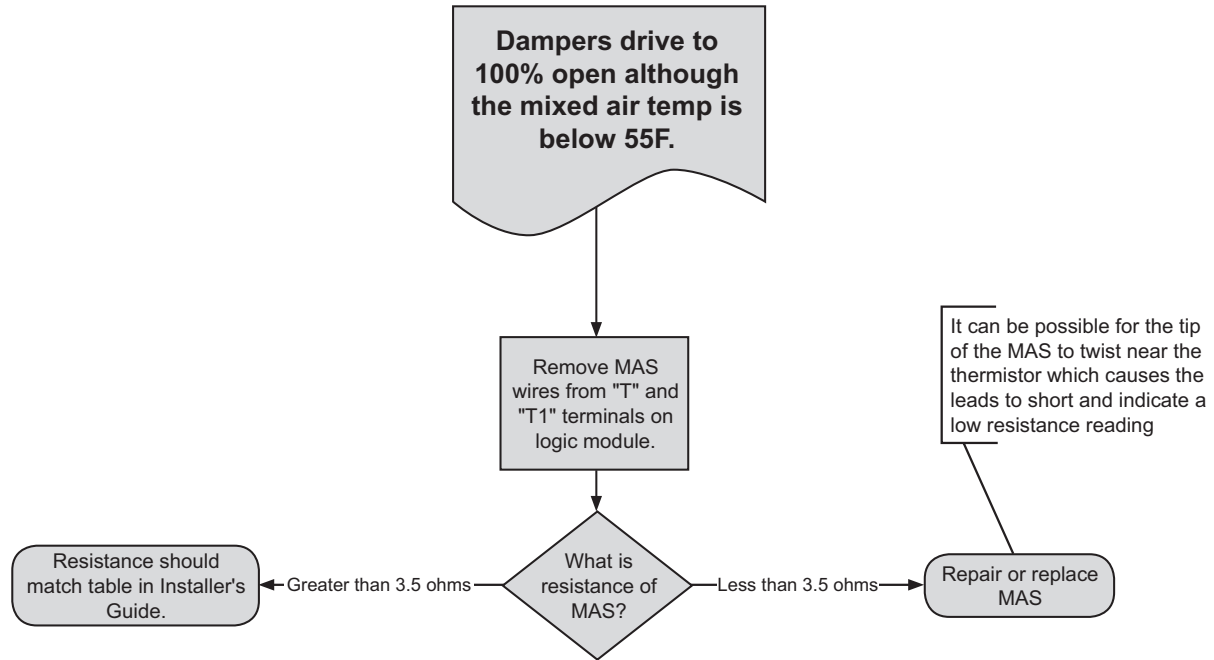
Honeywell W7459 Only - Troubleshooting - 2nd Stage Inoperable



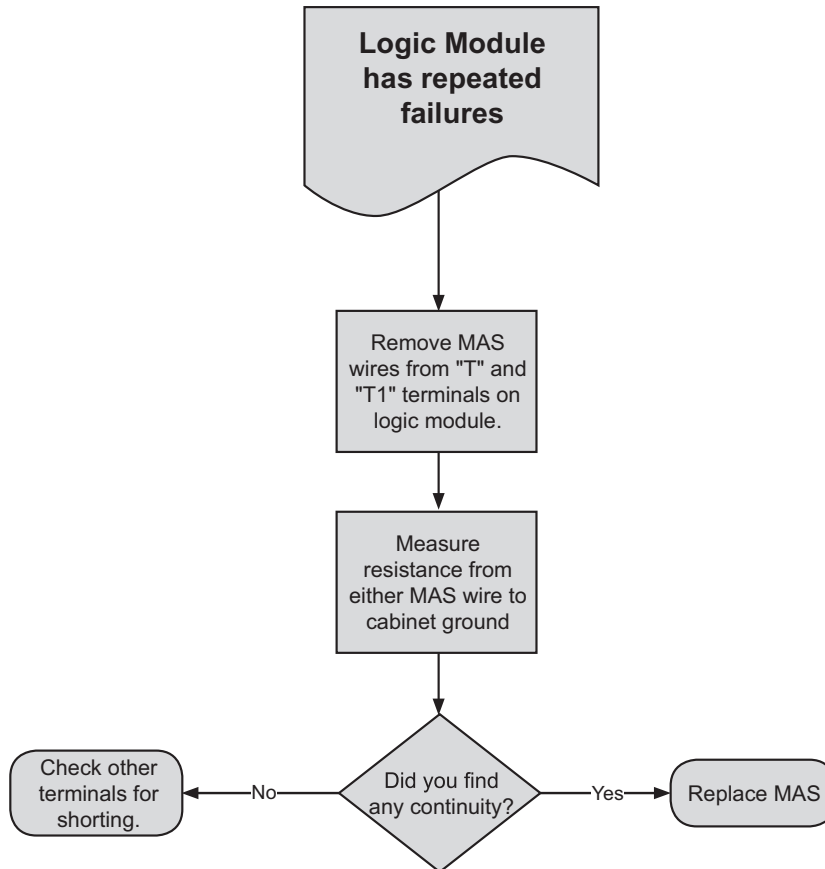
Honeywell W7459 Only - Troubleshooting - Dampers Open With G



Honeywell W7459 Only - Troubleshooting - Mixed Air Sensor



Honeywell W7459 Only - Troubleshooting - Logic Module Failures



About Trane and American Standard Heating and Air Conditioning

Trane and American Standard create comfortable, energy efficient indoor environments for residential applications. For more information, please visit www.trane.com or www.americanstandardair.com

The manufacturer has a policy of continuous data improvement and it reserves the right to change design and specifications without notice. We are committed to using environmentally conscious print practices.

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Supersedes 18-HE39D8-13 (March 2020)

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