

# Installer's Guide

## Horizontal Economizer and Rain Hood

<b>Model:</b>	<b>Used with:</b>
<b>BAYECON207A</b>	<b>*DCZ, *WCZ, *YCZ *018-036</b>
<b>BAYECON208A</b>	<b>*DCZ, *WCZ, *YCZ *042-060</b>
<b>BAYRLAY006B</b>	(Required with *DCZ and *WCZ models)

**Note:** \* indicates an alphanumeric character.

### **⚠ 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 inserts into the return air stream and is connected to the unit low voltage supply through wire leads. The economizer is fully accessible through an access panel.

**IMPORTANT:** After the Economizer installation you must install an air filter rack ordered separately. Use:

BAYFLTR101 for \*DCZ, \*WCZ, \*YCZ \*024-036

BAYFLTR201 for \*DCZ, \*WCZ, \*YCZ \*042-060

When the economizer is installed in \*DCZ and \*WCZ models, relay accessory kit BAYRLAY006B is required. Refer to hookup diagram for the appropriate unit model to make your relay wiring connections in the Control Box.

#### Identify Economizer Kit Contents

Refer to Figure 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.

### **⚠ CAUTION**

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

#### Install Economizer Kit

##### 1. Remove Power

Disconnect and verify that power is off.

##### 2. Remove Access Panels

Remove these three (3) access panels (see Figure 1):

- Control/Heat access panel
- Blower access panel
- Coil access panel

##### 3. BAYRLAY006B Installation (Required for \*DCZ and \*WCZ units only, for \*YCZ units skip to step 4)

1. Remove wire harness that came attached to the BAYECON Logic Module being installed.

**IMPORTANT:** Do NOT remove the resistors from the Logic Module. Also, Do NOT remove the YL and YL/BK wires connected to SO and + on the Logic Module

2. Locate the ICMC Board in the upper left hand corner of the unit control box and the DFC board in the upper center of the unit control box. See Figure 5.
3. Using the existing holes in the back of the unit control box, mount the relay bracket assembly using the 2 screws supplied with the BAYRLAY006B Kit. See Figure 5.
4. Route the BAYRLAY006B wire harness attached to the relays to the logic module as shown in Figure 3.
5. Connect the BAYRLAY006B to the economizer Logic Module and make the field connections as shown in the hookup diagram for the appropriate unit model.

# INSTALLER'S GUIDE

## 4. Install Economizer Assembly

1. Apply two gaskets to horizontal economizer mounting flanges. See Figure 2.

### 2a. Small Cabinet - BAYECON207A

(\*DCZ, \*WCZ, \*Y CZ \*018-036)

Set the horizontal economizer over the horizontal return air opening on the unit. The notches in the bottom flange of the economizer clear the two existing screws below the return air opening of the unit.

### 2b. Medium Cabinet - BAYECON208A

(\*DCZ, \*WCZ, \*Y CZ \*042-060)

Apply a gasket to the economizer and slide the topflange of the economizer under the lip between the top and bottom sections of the unit. Mate the notches on the top flange of the economizer with the existing screws between the top and bottom sections of the unit. The notches on the bottom flange of the economizer clear the two existing screws below the return air opening of the unit.

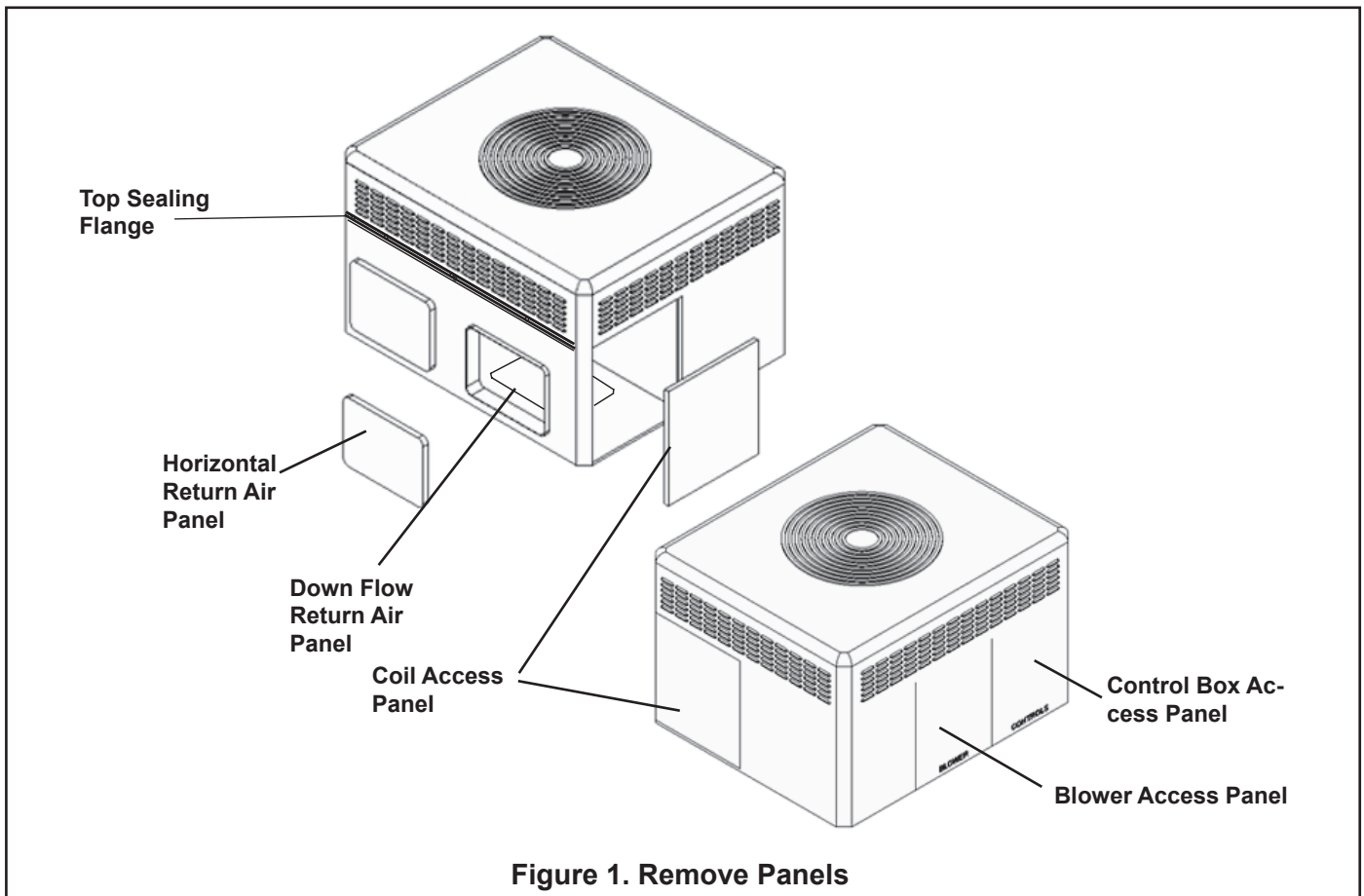
3. Drill three (3) 9/64" holes through the mating holes in the top flange of economizer and into the unit. Then, drive three (3) #10 sheet metal screws to secure the top.
4. Drill three (3) 9/64" engagement holes on each side of the economizer. Then, drive three (3) #10 sheet metal screws into each side of the economizer to the unit.
5. Mount the Mixed Air sensor to the left Blower partition using two sheet metal screws. See Figure 4, page 4. The Yellow and Yellow/Black wires will connect to the Economizer wiring harness in a later step. Install any economizer options at this time per instructions provided with the sensor.
6. Apply a gasket to the Rain Hood flanges. See Figure 2.
7. Place the Rain Hood over the horizontal return air opening of the economizer. See Figure 2. Use the #10 sheet metal screws provided to attach the hood to the economizer.
8. Route the main wiring harness. From the Economizer assembly, route the main wiring harness to the Mixed Air sensor and to the Control Box. See Figure 3.

9. Connect the two (2) Mixed Air Sensor wires (pulled from harness) to the mating pigtail wires (with female quick connects) from the Mixed Air Sensor.
10. In the Control Box, locate the ICMC Board in the upper left hand corner of the Control Box. Find the YL/RD and YL wires in the 12 pin connector. Leaving enough length of these wires so that the ends going to the ICMC Board can be stripped, cut these wires in two. Strip the cut end of the wires going to the ICMC Board and connect to economizer wires as per the appropriate hookup diagrams Cap the ends of the Yellow and Yellow/Red wires not being hooked up. Secure all wires with wire ties so that there is no interference with any moving parts or sharp edges in the unit.

### CAUTION

**Be certain to cap the ends of the cut YL/RD and YL wires that are not being connected to an accessory or the unit to reduce the risk of a short.**

11. In the Control Box, complete the wiring connections per the appropriate wiring diagram. Note that 2 additional blue wires separate from the harness have been provided for installations in R454B (A2L) models that have a mitigation board. The longer of the 2 blue wires is to be connected to the mitigation board as shown in the wiring diagram and is to be routed to the unit low voltage control box. The shorter blue wire is to be connected to the mitigation board as shown in wiring diagram and is to be routed as needed to connect to the appropriate wires as indicated by the wiring diagram. Secure all wires so that there is no interference with any moving parts and do not come into contact with any sharp edges.
12. Attach the return duct to the economizer.
13. Power the economizer and run the checkout procedure as described. Make desired adjustments to the controller: set the minimum occupied damper position, set the outside air (if enthalpy used).
14. Replace the unit Coil access panel, the Blower access panel, and the Control Box access panel.



**Figure 1. Remove Panels**

Economizer	A	B	C	D	E	F
BAYECON207A	22"	20"	16-7/8"	15-11/16"	11-11/16"	15"
BAYECON208A	26"	22-21/32"	19"	17-11/16"	14-11/16"	21-3/8"

**NOTE:** BAYECON208A economizer only contains two clearance notches in the top flange, BAYECON207A shown.

**Figure 2. Horizontal Economizer Assembly & Kit Contents**

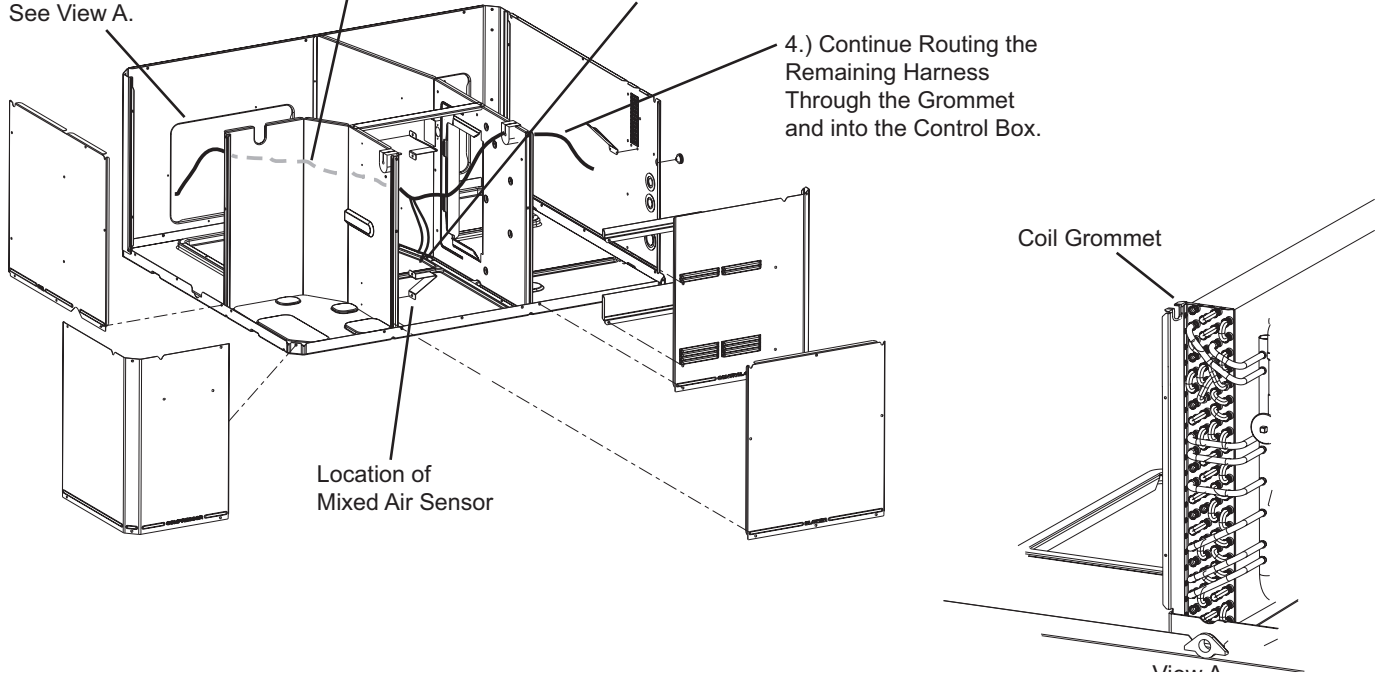
# INSTALLER'S GUIDE

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

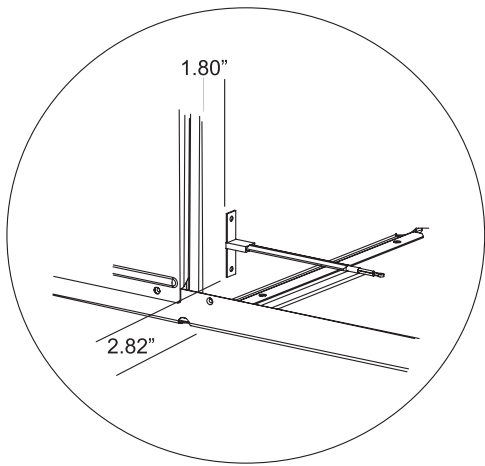
2.) Continue Routing Behind Compressor Compartment and into Blower Compartment.

3.) Pull the 2 Mixed Air Sensor Wires (with Stake-Ons) from the Harness and Route Down Near the Mixed Air Sensor.

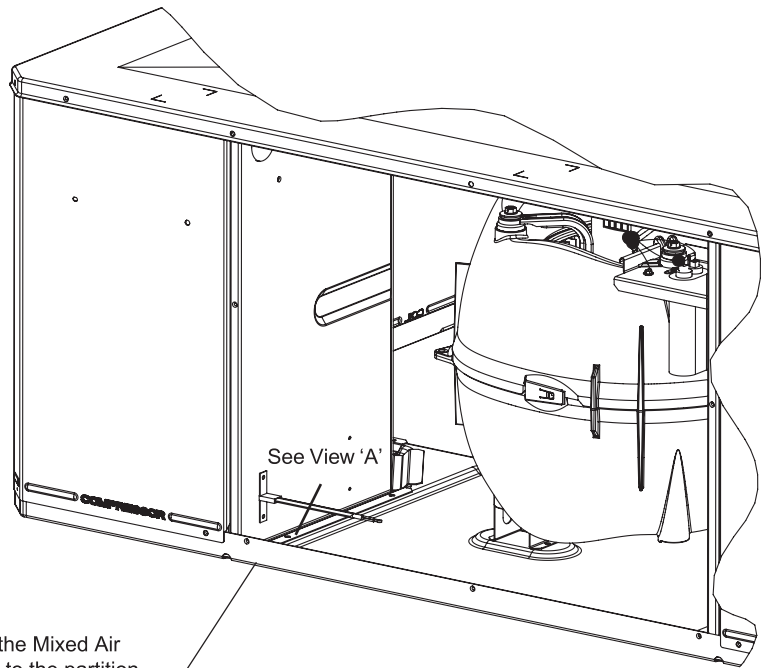
4.) Continue Routing the Remaining Harness Through the Grommet and into the Control Box.



**Figure 3. Main Wire Harness Routing**

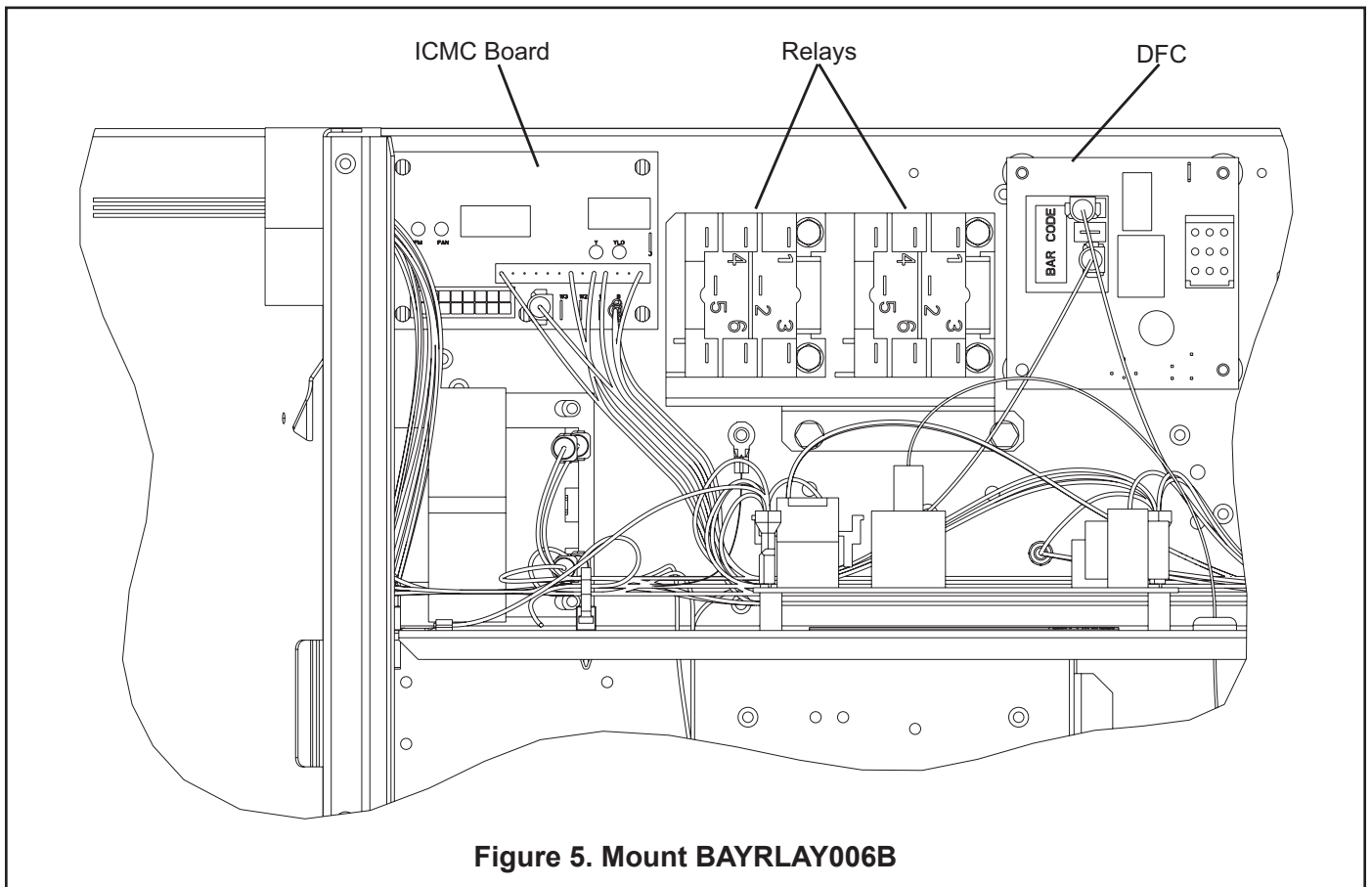


**View 'A' Approximate Mounting Dimension**



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

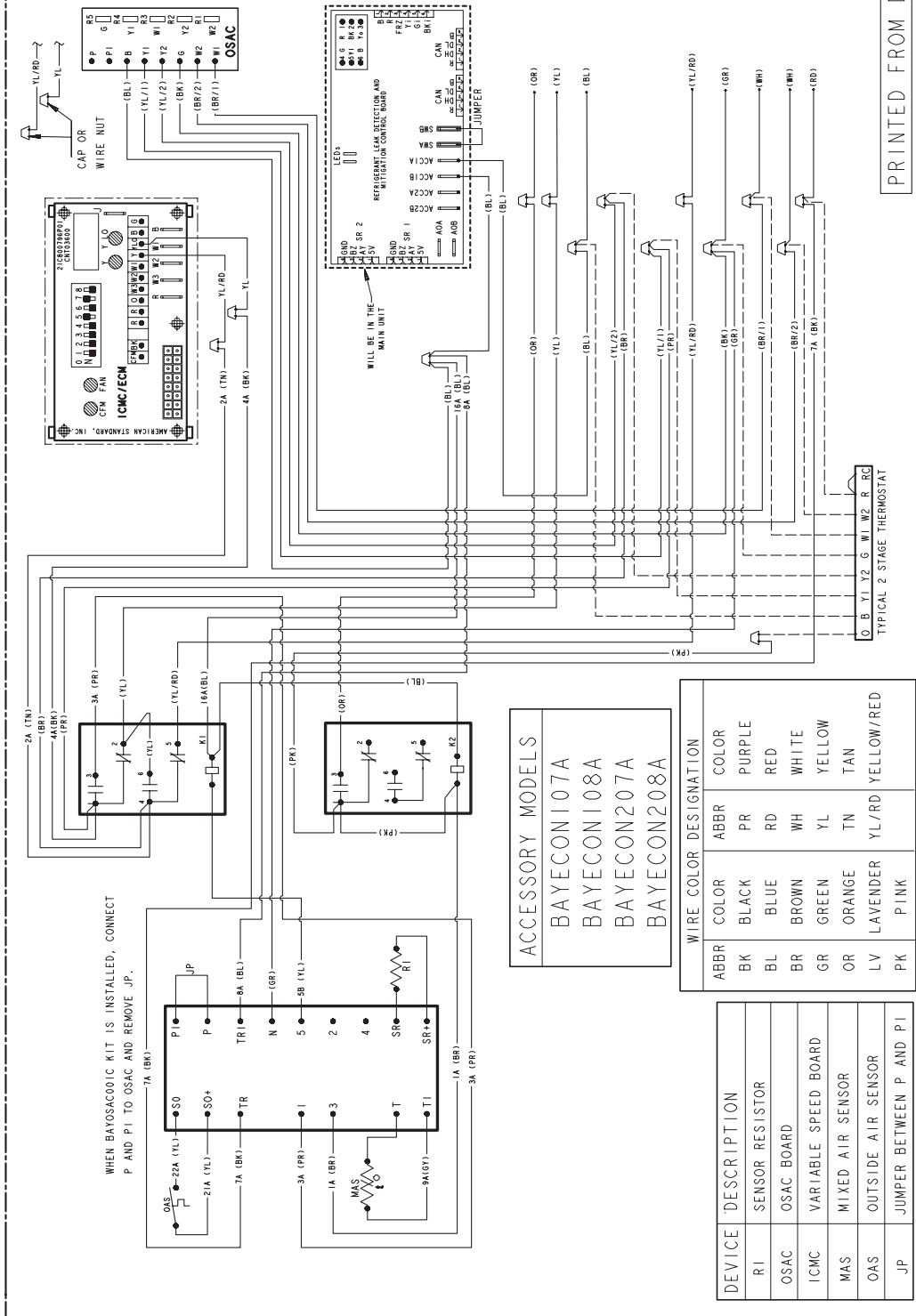
**Figure 4. Mount Mixed Air Sensor in Blower Compartment**



**Figure 5. Mount BAYRLAY006B**



Wiring Diagram for Economizer Using a Honeywell W7212 Logic



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Figure 7. 5DCZ/WCZ Economizer Connection Diagram

IMPORTANT — Retain this wiring diagram; please return this document to service information pack upon completion of work.

Wiring Diagram for Economizer Using a Honeywell W7212 Logic

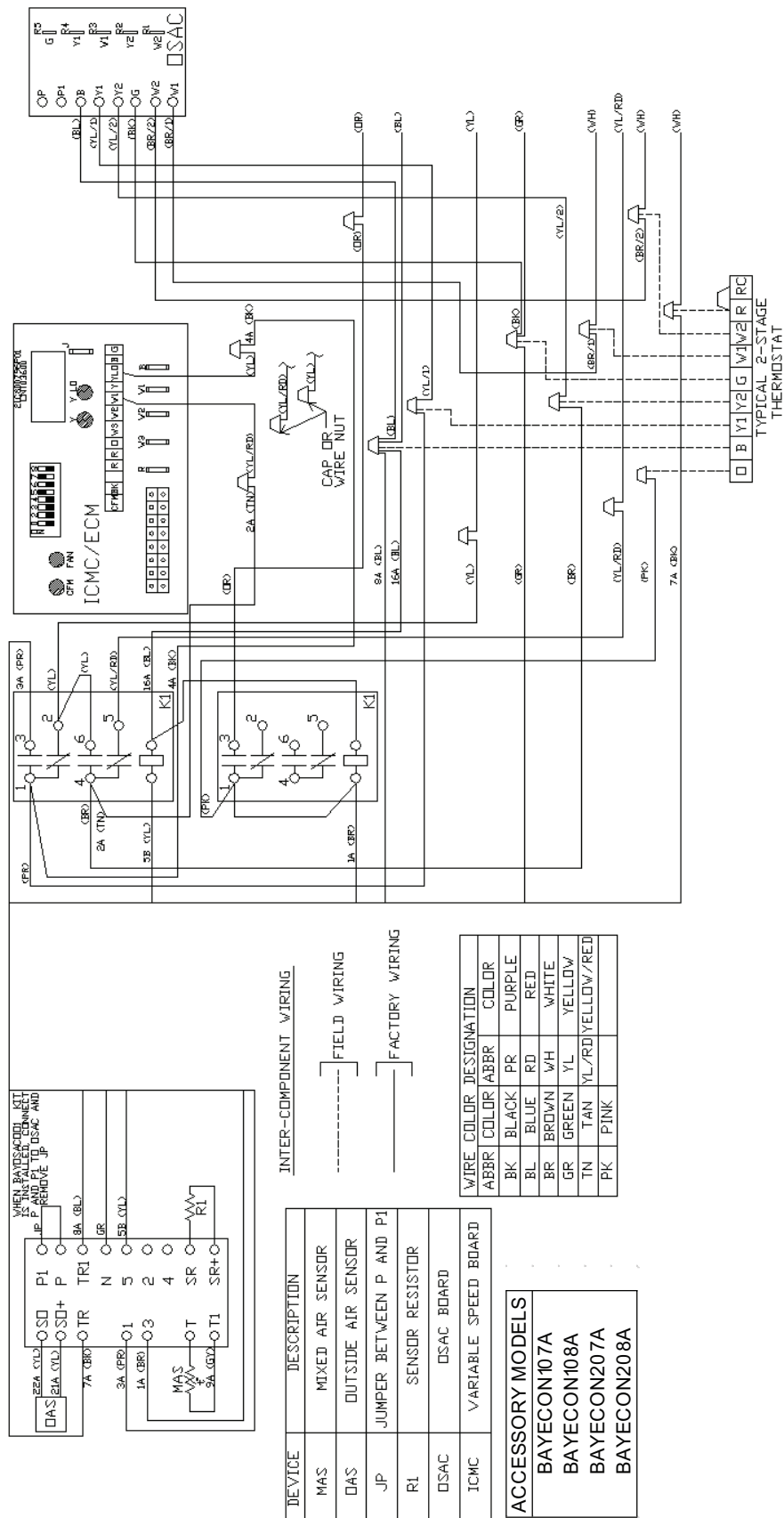
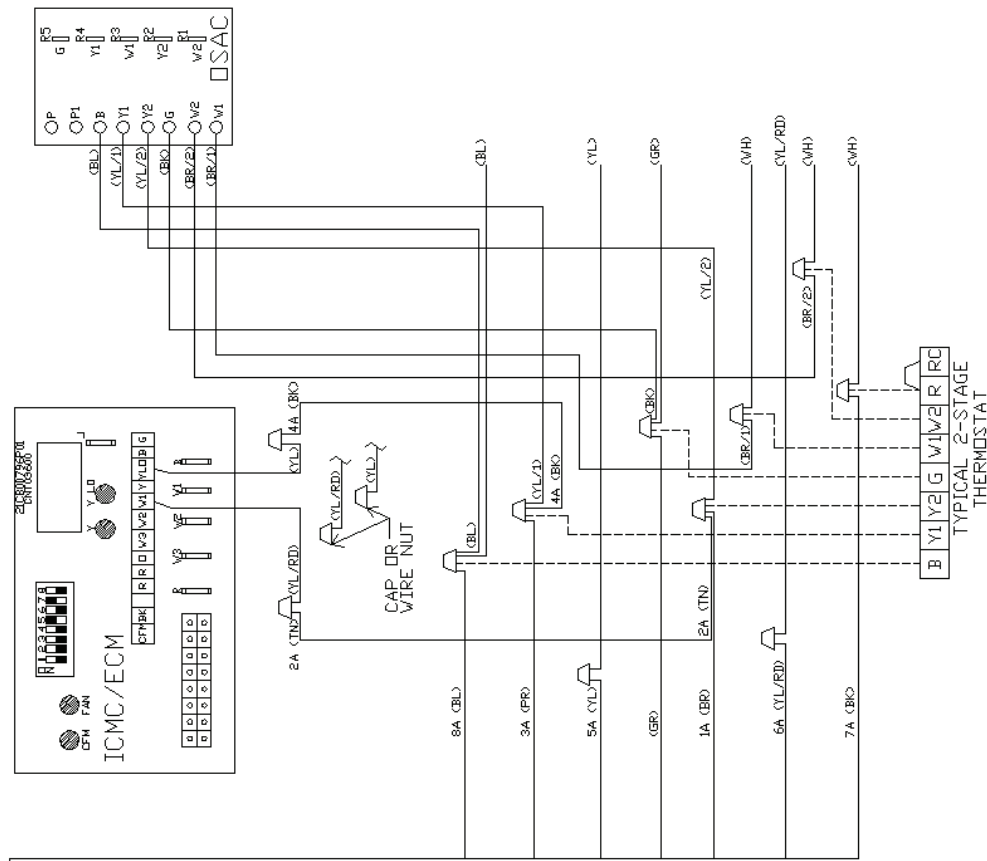


Figure 8. 2/4DCZ/WCZ Economizer Connection Diagram

IMPORTANT-Retain this wiring diagram; please return this document to service information pack upon completion of work.



# Wiring Diagram for Economizer Using a Honeywell W7212 Logic



INTER-COMPONENT WIRING

FIELD WIRING

FACTORY WIRING

WIRE COLOR	DESIGNATION	COLOR
ABBR	COLOR	ABBRR
BK	BLACK	PR
BL	BLUE	RD
BR	BROWN	WH
GR	GREEN	YL
TN	TAN	YL/RD
		YELLOW/RED

DEVICE	DESCRIPTION
MAS	MIXED AIR SENSOR
DAS	OUTSIDE AIR SENSOR
JP	JUMPER BETWEEN P AND P1
R1	SENSOR RESISTOR
DSAC	DSAC BOARD
ICMC	VARIABLE SPEED BOARD

ACCESSORY MODELS
BAYECON107A
BAYECON108A
BAYECON207A
BAYECON208A

Figure 9. 2/4YCZ Economizer Connection Diagram

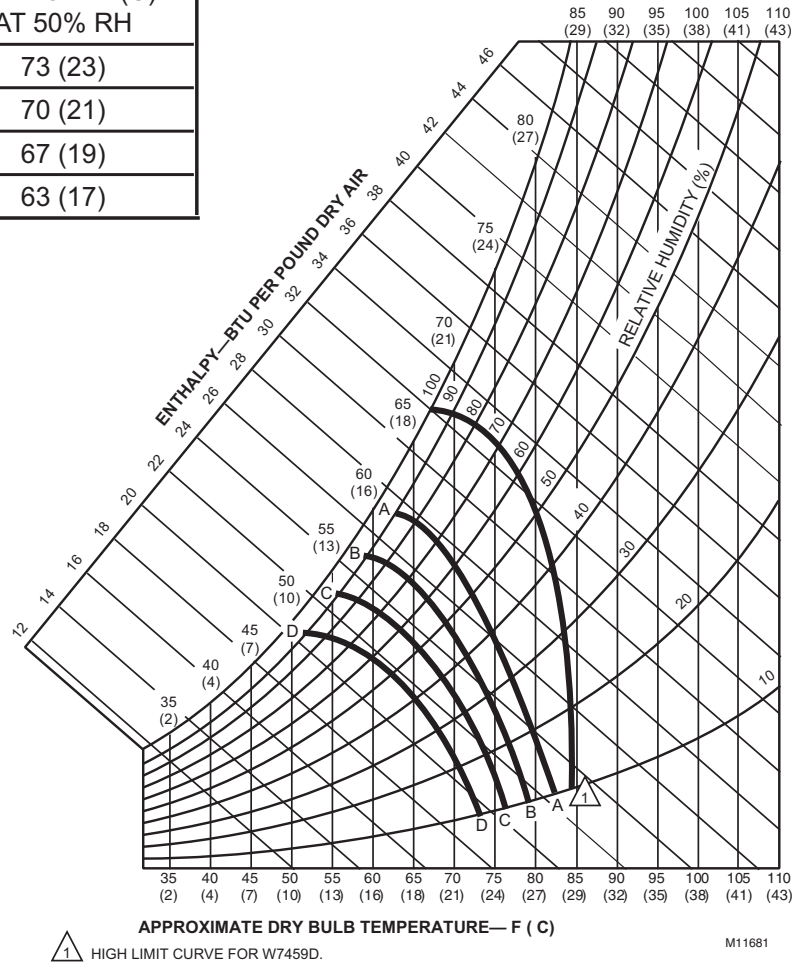
IMPORTANT-Retain this wiring diagram; please return this document to service information pack upon completion of work.

**Table 1. Motor Operation Checkout**

DRIVE MOTOR OPEN	DRIVE MOTOR CLOSED	SPRING RETURN
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

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 change-over 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.



**Figure 10. Single Enthalpy Changeover Set Point**

**Table 2. Temp vs. OHM Values for MAS (Mixed Air Sensor)**

<b>Temp F</b>	<b>Temp C</b>	<b>R(K OHMS)</b>	<b>DC Volts</b>
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

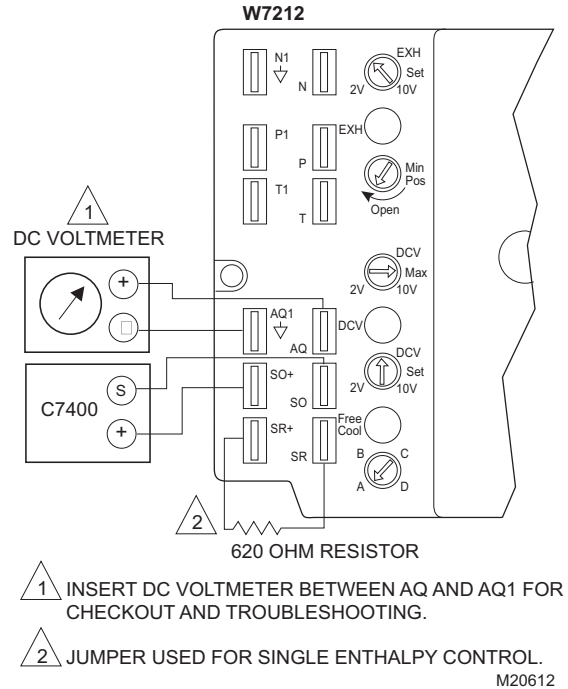
## CHECKOUT - For Units with a Honeywell W7212 Control

### 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. 12 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.



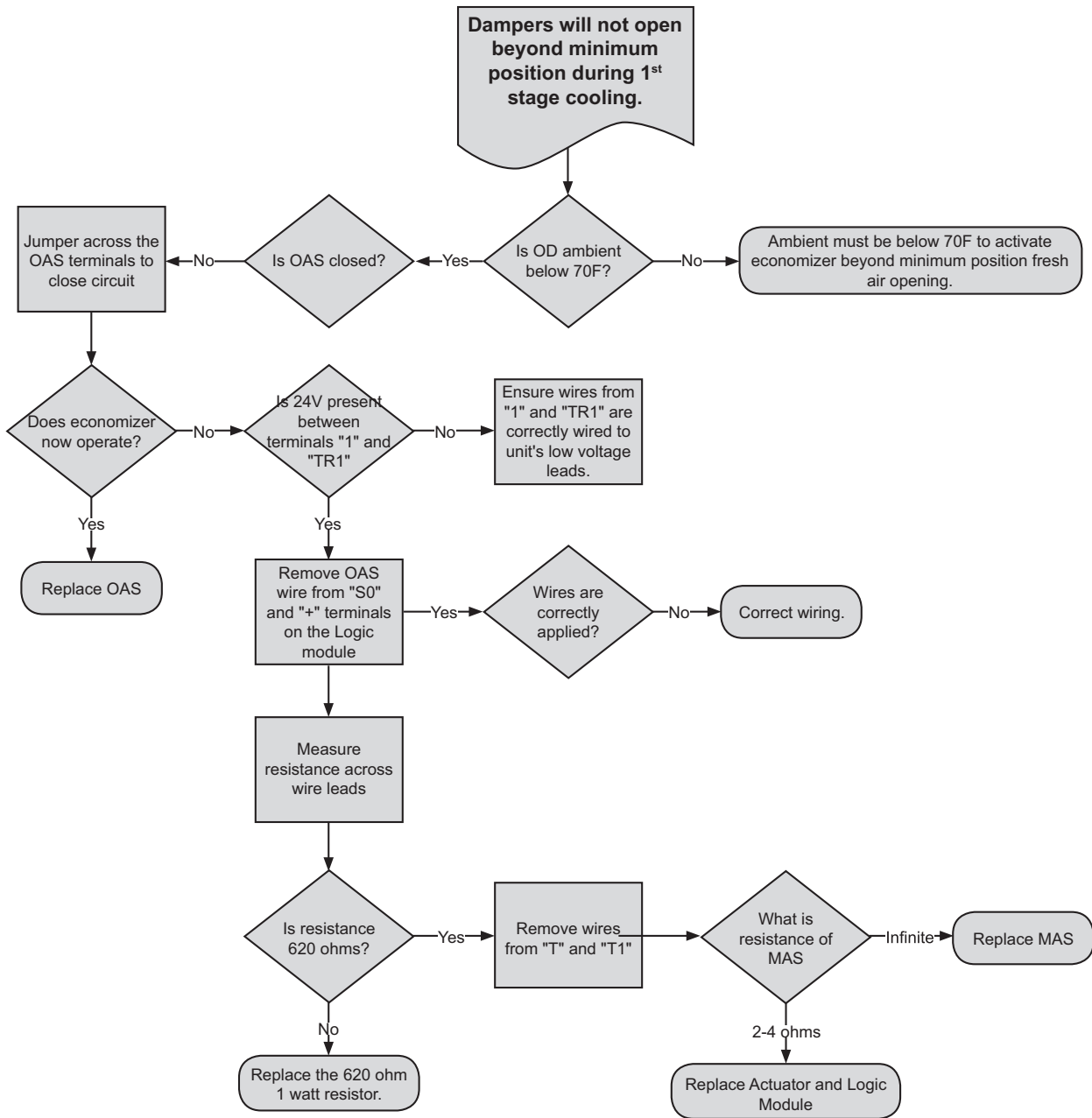
**Fig. 11. Meter location for checkout and troubleshooting (W7212 shown).**

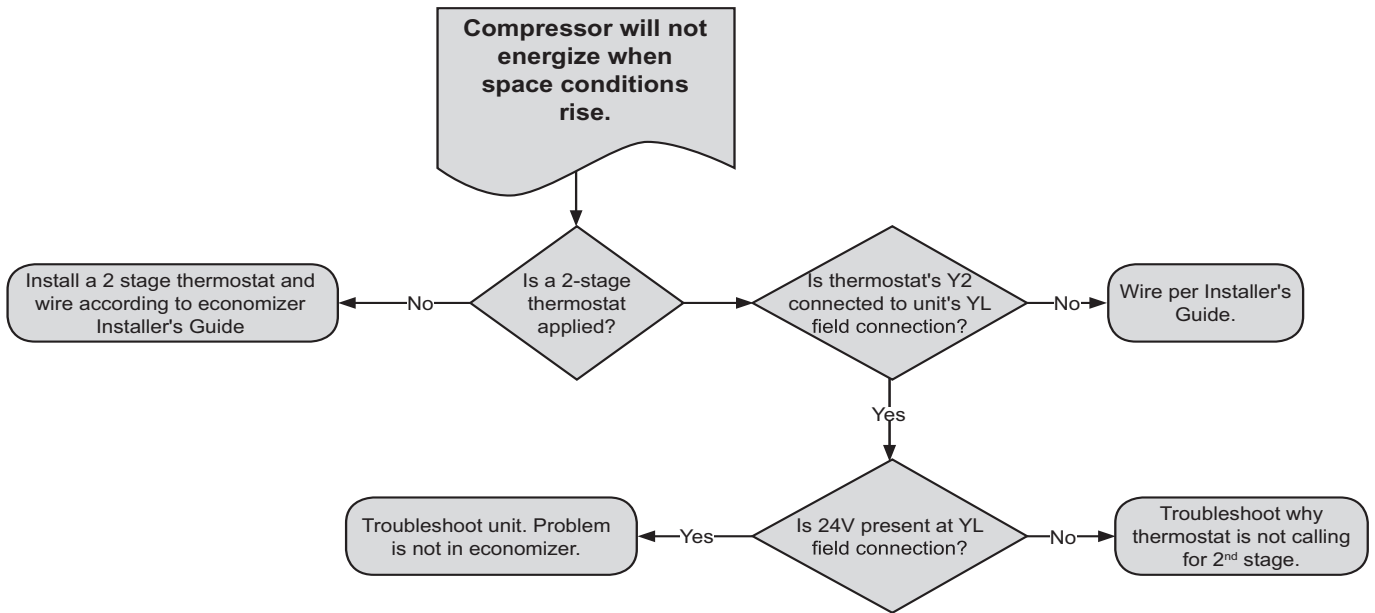
**Table 3. Checkout for W7212, W7213, W7214 Economizer Connected to Honeywell Actuator**

Step	Checkout Procedure	Proper Response
1.	CHECKOUT PREPARATION FOR ECONOMIZING ONLY	All LED are off; Exhaust Fan contacts are open
	Disconnect power at TR and TR1	
	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 <sub>o</sub> and +.	
	Connect 1.2K ohm, from 4074EJM Checkout Resistor kit, (purple sleeve) across terminals S <sub>o</sub> and + (makes OA enthalpy high).	
	Place 620 ohm resistor (white sleeve) across S <sub>R</sub> 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		

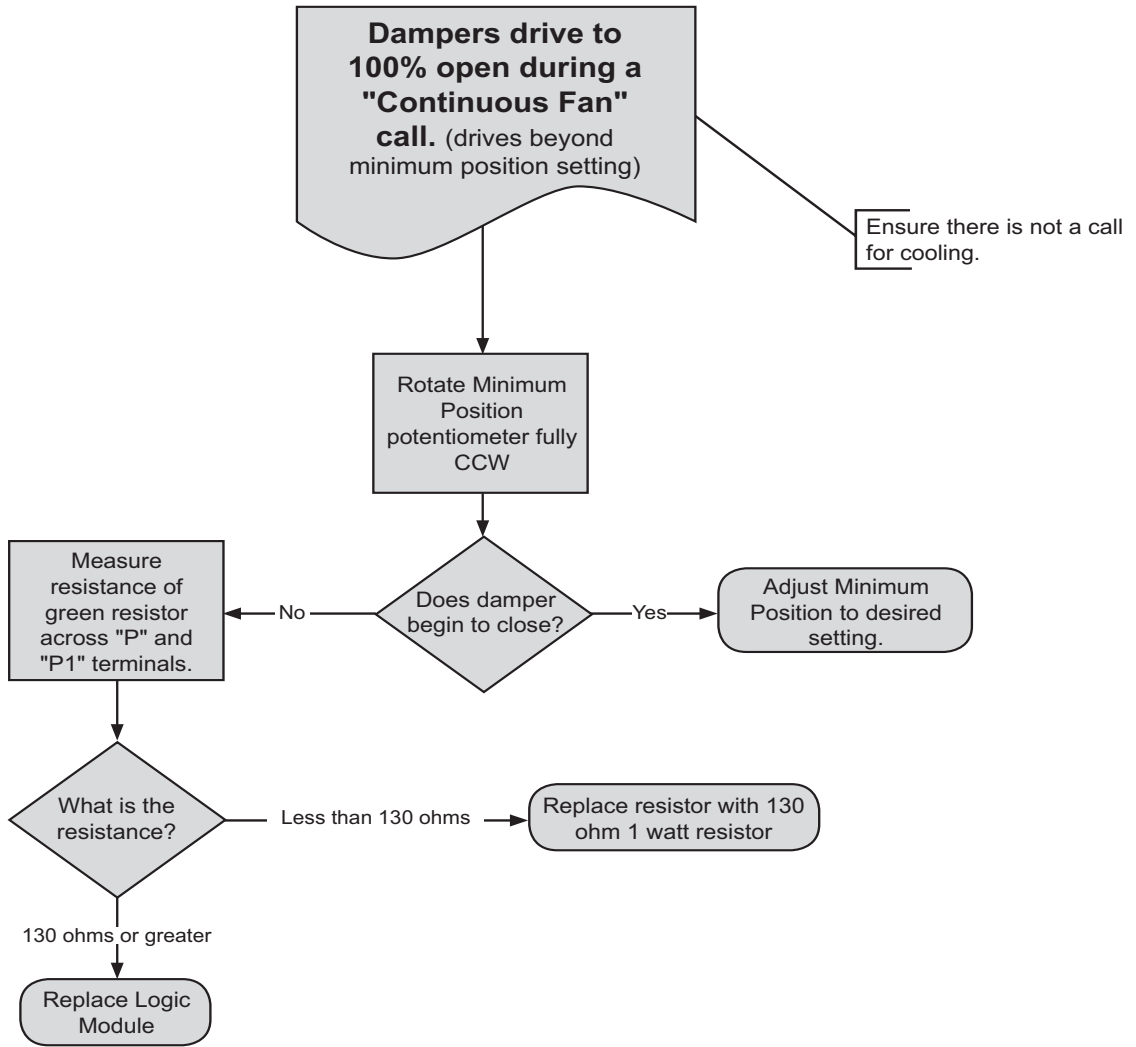
**Table 3. Checkout for W7212, W7213, W7214 Economizer Connected to Honeywell Actuator (Cont.)**

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 <sub>O</sub> and + (white sleeve resistor makes OA enthalpy low).	
	Place 1.2K ohm resistor across S <sub>R</sub> 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 <sub>O</sub> 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. W7214: Jumper TR to O.	Actuator drives fully closed.
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.	



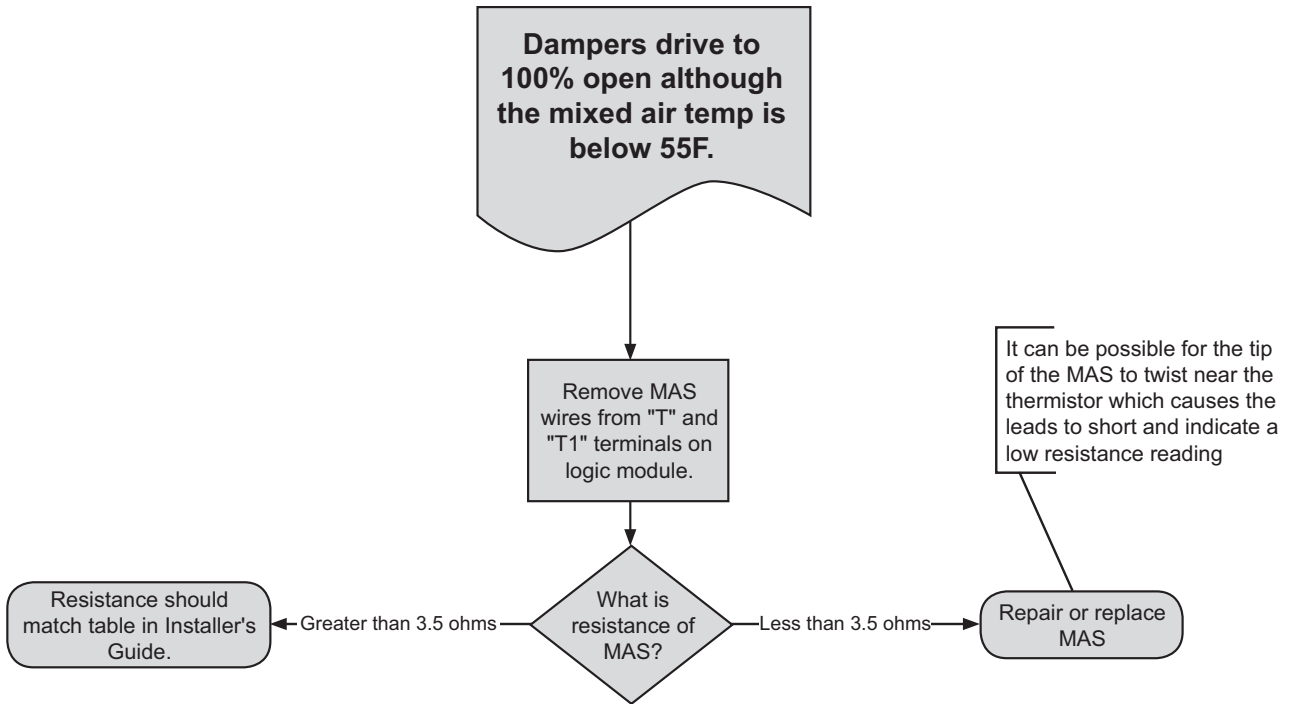


**Troubleshooting - Dampers Open With G**

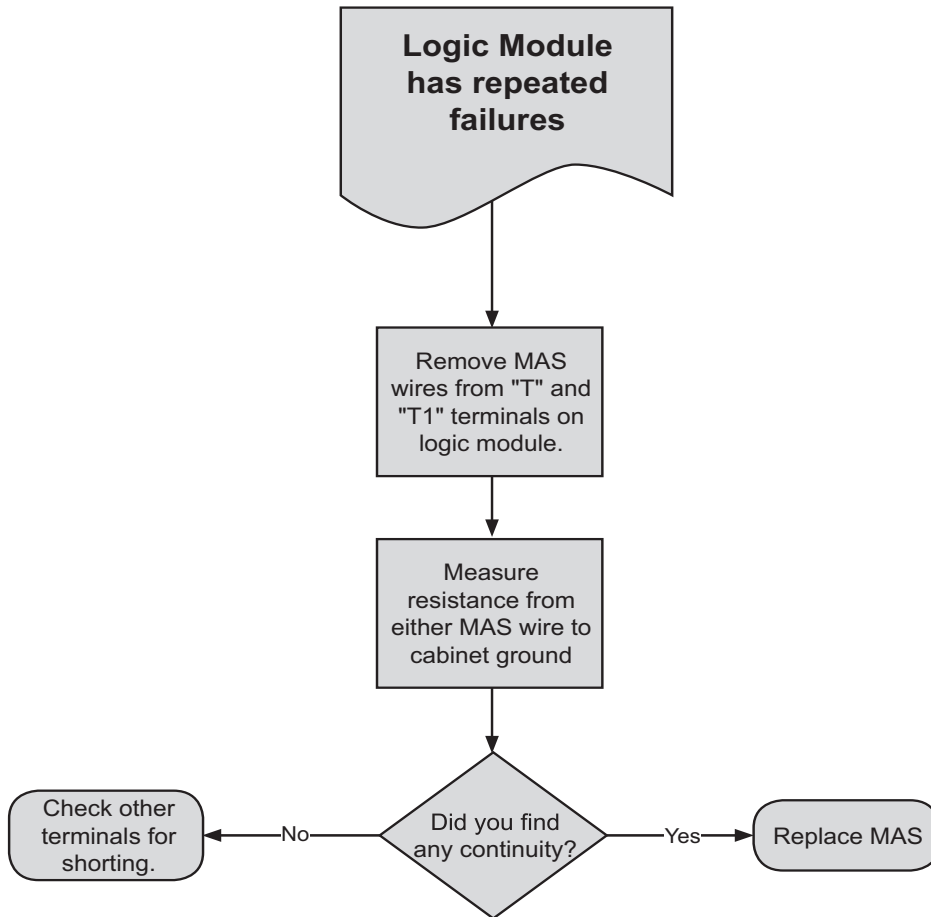




**Troubleshooting - Mixed Air Sensor**



**Troubleshooting - Logic Module Failures**



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