INSTALLATION INSTRUCTION

INSTALLATION INSTRUCTIONS FOR 555621 ECONOMIZERS USED WITH (R4,R6)G* 150/180 UNITS

FORM# 654B-0511 (654B-0808)

I - SHIPPING AND PACKING LIST

Check for correct number of parts. See list below.

Package 1 of 1 contains:

1 - Economizer Assembly
(Discharge Air Sensor Included)
1 - Barometric Relief Hood Kit
1 - Fresh Air Hood w/ Filter Assembly
1 – Hardware Bag

Check contents for shipping damage. Contact the last carrier immediately if any shipping damage is found.

II - APPLICATION

Economizer 555621- is used with Nordyne (R4,R6)G*-150/180 Series package systems for automatic sensor-controlled introduction of outdoor air into the system through an electro-mechanically controlled damper. Outdoor air is mixed with the buildings return air to economically improve indoor air quality and aide in reducing energy costs.

This economizer assembly slides into the horizontal return air opening for both down shot and horizontal applications. Horizontal application requires a special roof curb, Nordyne P/N- 559542 or 559543, for proper supply air duct connections. Fresh Air Intake and Barometric Relief hoods are packaged separately and should be assembled and installed per these instructions. Mixed air sensor is shipped with the economizer and must be relocated to blower outlet. (See Figure 4)

Economizer Weight w/ Hoods @ 356 Lbs.
Economizer Fresh Air Opening @ 61.0” X 18.5” = 1,128 in.2 (7.83 Ft.2)
Economizer Relief Air Opening @ 69.0” X 20.0” = 1,380 in.2 (9.58 Ft.2)

⚠ Warning:

This kit is to be installed by a qualified service technician in accordance with these instructions and all codes having jurisdiction. Failure to follow these instructions could result in serious injury, property damage, or death. These instructions are primarily intended to assist qualified individuals experienced in the proper installation of this appliance. Some local codes require licensed installation/service personnel for this type of equipment.

III - INSTALLATION

1. **DISCONNECT ALL POWER TO THE UNIT**.
2. Open or remove the following parts on the package air conditioning unit: (Retain all screws)

   A - Fresh Air Panel (Discard Panel)
   B - Return Air Panel (Discard Panel)
   C - Economizer Access Panel
   (Located behind Filter Access)
   D - Blower Access Panel

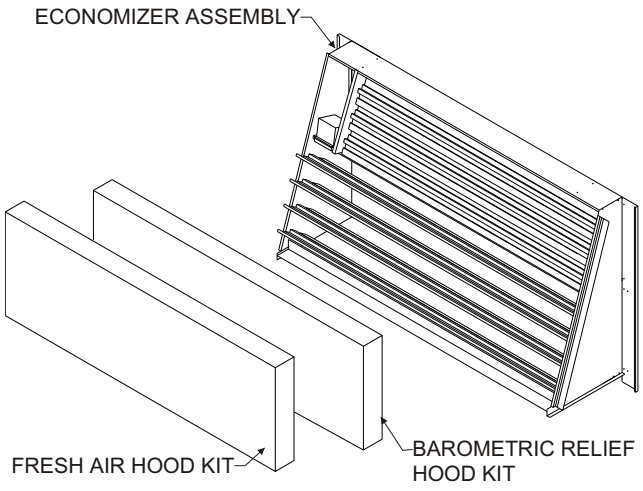

Figure 1

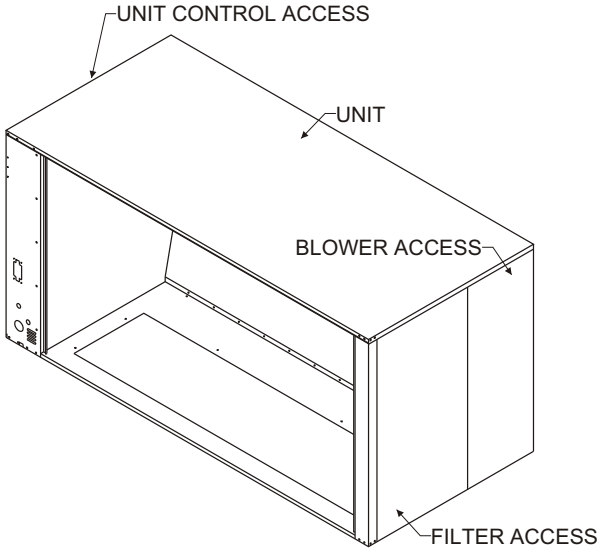

Figure 2

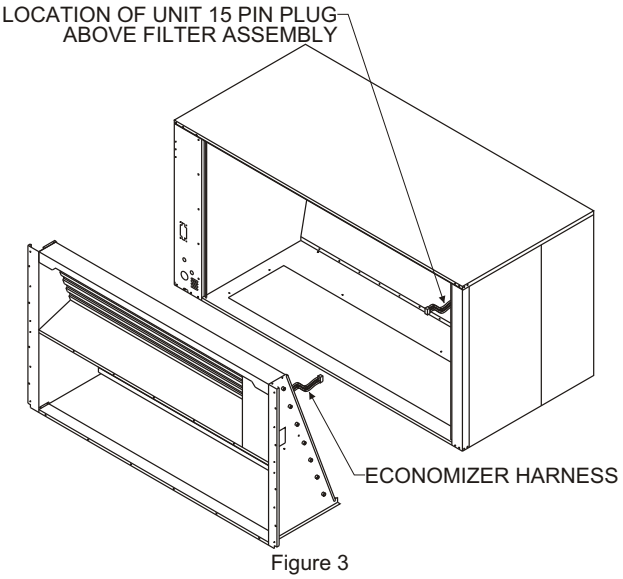

Figure 3

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3. Remove factory installed economizer jumper plug located in the top right hand corner of the filter rack assembly. Store jumper plug near 15 pin plug connection, economizer access panel, or unit control panel for later use if service is required.
4. Set economizer partially into opening of the unit. Route economizer wiring harness up to unit plug and firmly connect it to the unit 15 pin connector ensuring plug and receptacle snap lock together. Secure harness up out of the way of damper blades to ensure proper operation and free travel of vane movement after fully installed. See Figure 3.
5. Take the economizer assembly and slide into the opening. Damper must slide over bottom return duct opening as shown in Figure 4.
6. Once damper is set in place. Secure damper to unit with 1 ¼" watertight screws removed in Step 2 (A & B).
7. Install the discharge air sensor in the blower compartment. Mounting holes are located on blower discharge side panel. Connect two purple wires located below the mounting holes marked "mix air sensor". Replace blower access removed in Step 3.

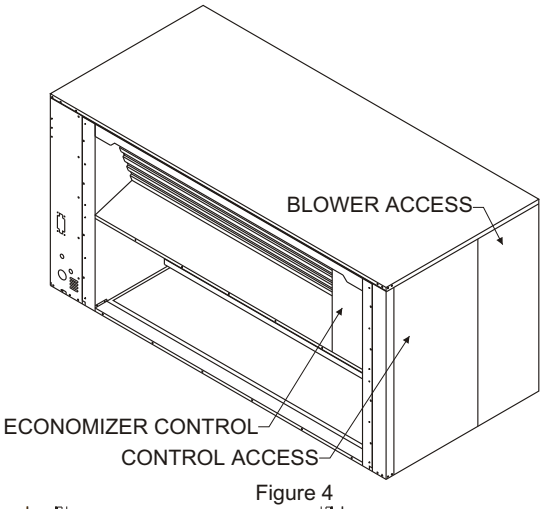

Figure 4

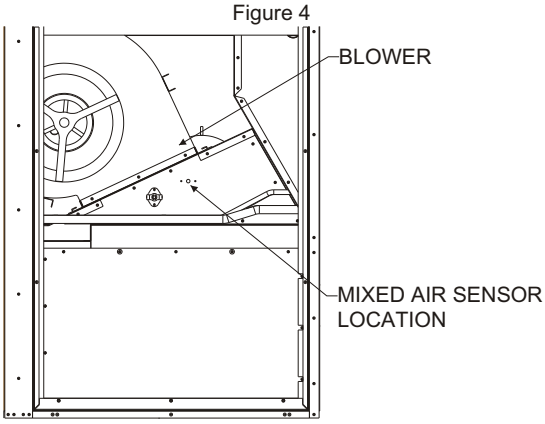

Figure 5

8. To assemble the Barometric Relief Hood the following will be needed.

   39 ea. - Type A #10 - 16 x ½ Screws
   15 ft. - ⅛ x ½ Gasket

Follow these steps:

   A. Take (1 and 2) put the flange of (1) to the inside of (2) and screw in place.
   B. Take (3) and screw in place like step A.
   C. Take (4) and place flanges over (2 and 3) and secure.
   D. Take (5) and slide inside of (2 and 3) and secure (blade opening into hood).
   E. Set barometric releif hood aside for later use.

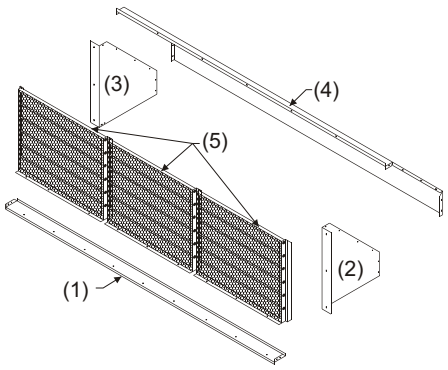

Figure 6

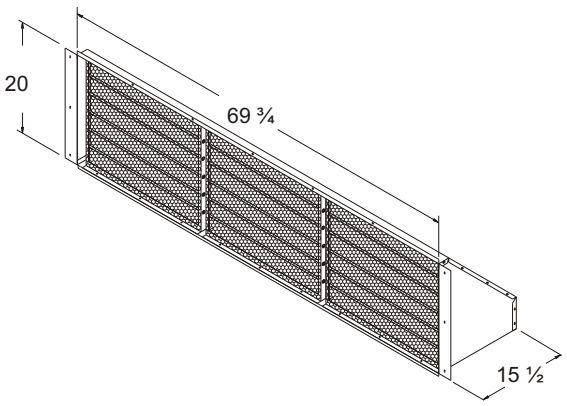

Figure 7

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9. To assemble the Fresh Air Hood the following will be needed.

   29 ea. - Type A #10 16 - x ½ Screws
   15 ft. - ⅛ x ½ Gasket

Follow these steps:

A. Take (2) and screw through (1) into (2) using the Type A screws.

B Take (4) and screw through (3) into (4) using the Type A screws.

C Take (5) and put to the inside of (1 & 3) and secure with Type A screws.

D. Take (6) and place flanges over (1 & 3) and secure with Type A screws.

E. Slide filter in the hood in (2 & 4).

F. Take (7) and secure to (1 & 3) with Type A screws.

G. Place gasket on the back flanges of (1, 3, 5, 6).

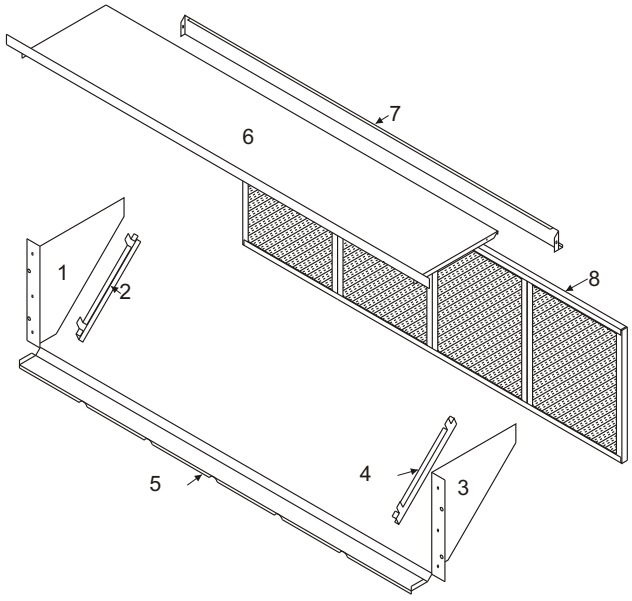

Figure 8

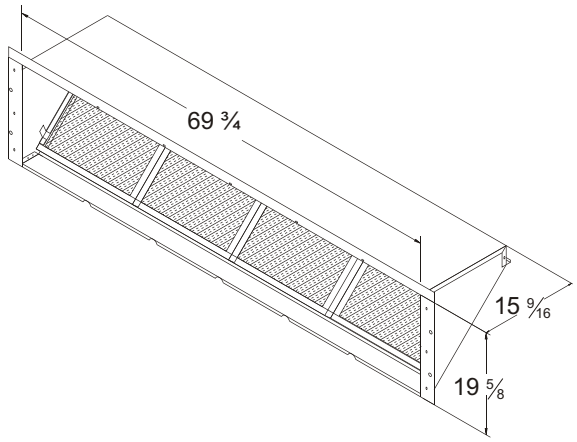

Figure 9

DOWN FLOW APPLICATION

10. Install barometric relief hood over lower return opening on unit using screws provided as shown in Figure 9.
11. Place supplied gasket on four flanges of barometric relief hood that mate to unit surface when installed. Install barometric relief hood over lower return air opening of economizer and secure to unit using screws provided as shown in Figure 9.
12. Install fresh air hood over fresh air opening of economizer and secure to unit using screws provided as shown in Figure 9.
13. Replace all access panels and restore power back to the unit. Check for proper damper operation. (See System Check Section)
14. Small amounts of caulking may be added to clearance holes, seams, hoods, and duct connections to ensure watertight operation.

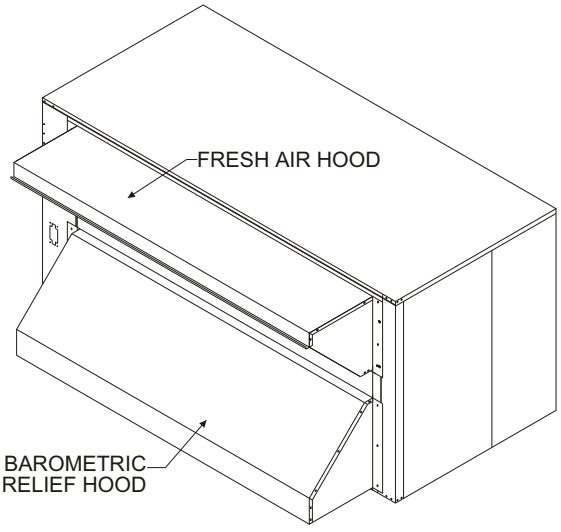

Figure 10

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NOTE:
1. **FOR HORIZONTAL APPLICATIONS, HORIZONTAL ROOF CURB KIT # 559542 OR # 559543 IS REQUIRED.**
2. **RETURN AIR DUCT SIZE: 70" WIDE X 20" HIGH. DUCT FLANGES SHOULD BE 1" MAX. TOP/BOTTOM AND 3" ON SIDES TO ALLOW FOR PROPER SEALING.**

HORIZONTAL APPLICATION

10. Install horizontal return air duct over economizer lower return air opening and secure to economizer and unit using common industry practices and fasteners. Use adequate amounts of gasket or caulking material (field supplied) to ensure a watertight seal.
11. Prepare return air duct for acceptance of barometric relief hood mounting by cutting an opening in side of duct approximately 68" Wide x 18" High Max.. Attach barometric relief hood to return air duct using common industry practices and fasteners. Use adequate amounts of gasket or caulking material (field supplied) to ensure a watertight seal.
12. Install fresh air hood over fresh air opening of economizer and secure to unit using screws provided as shown in Figure 11.
13. Replace all access panels and restore power back to the unit. Check for proper damper operation. (See System Check Section)
14. Small amounts of caulking may be added to clearance holes, seams, hoods, and duct connections to ensure watertight operation.

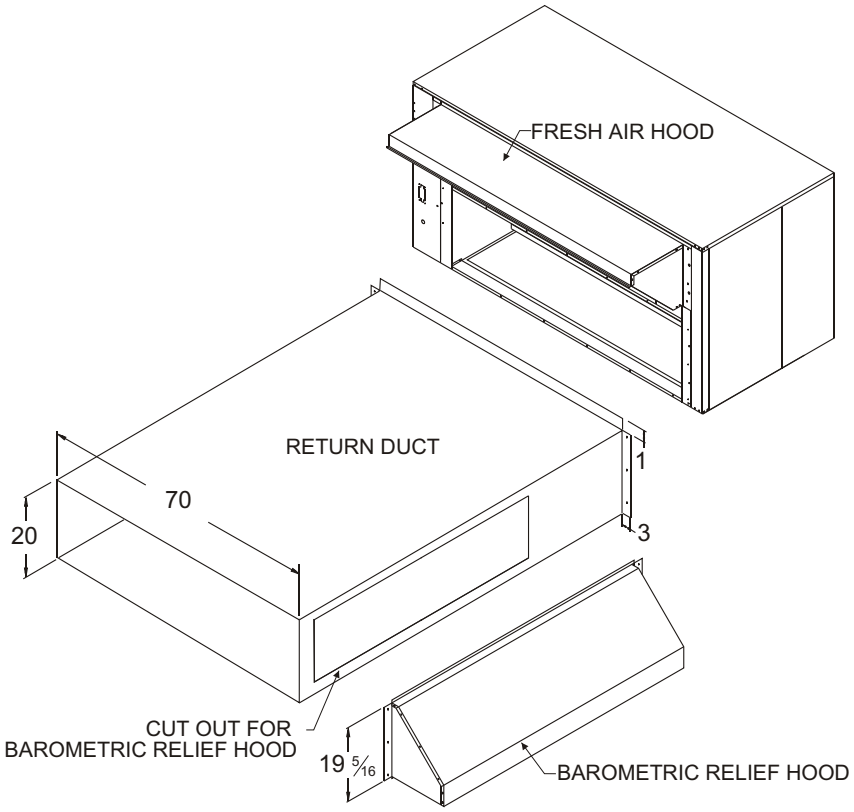

Figure 11

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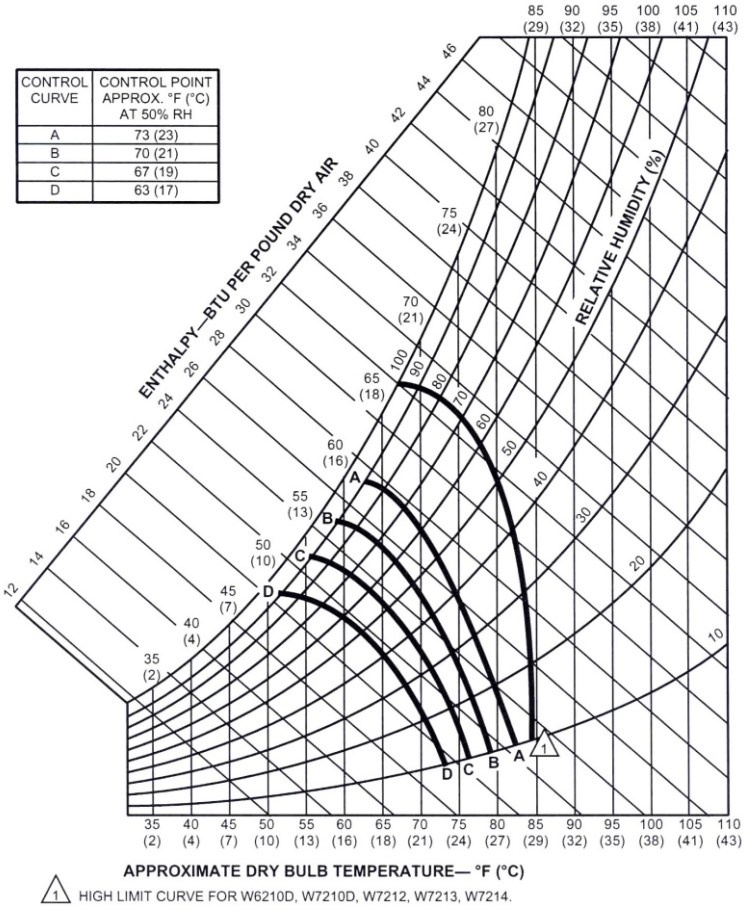

Figure 12

OPERATION

A - Cooling Mode

1. On a call for cooling, with ambient temperature and humidity above enthalpy control setpoint, damper will open to minimum vent position.
2. On a call for cooling, with ambient temperature and humidity suitable for cooling, enthalpy control will shift stage one control to outside air and shift stage two thermostat to first stage compressor. Damper will modulate to control supply air temperature at 55° F (13° C). If additional cooling is required, compressor one may be energized through second stage of thermostat.

B - Heating Mode

1. On a call for heat damper will open to the minimum vent position.

C - Enthalpy Control - Setting the Outside Enthalpy Changeover Point

The enthalpy control senses both temperature and humidity or the heat content of the outside air. It controls the amount of outdoor air brought into the system. When the heat content of the outside air is below control setpoint, the control modulates outdoor dampers to meet cooling needs of the building. When the heat content rises above control setpoint, the control closes outdoor dampers to minimum position. The recommended setpoint is “A”. If Economizer is allowing air which is too warm or too humid to enter the system, control may be changed to a lower setpoint (B, C, or D). Refer to Figure 12.

D – Dual Enthlapy Control (Field Supplied Kit)

A second C7400A enthlapy control can be added to achieve maximum system efficiencies over the standard single enthalpy control set up. The differential enthalpy control system compares the temperature and humidity of the outside air to that of the building return air and allows the economizer to adjust position to ensure the lowest enthalpy air is used for cooling. Refer to the instructions included in the 920233 accessory kit.

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SYSTEM CHECK

1. Disconnect main power to unit.
2. Install jumper on auxiliary contacts of blower contactor in main unit control box.
3. Turn thermostat control to “OFF” position.
4. Install jumper on damper motor terminals T and T1. See Figure 9.
5. Restore power to unit. Damper should drive to fully opened position (requires 1 ½ minutes for full travel). Observe travel for proper damper operation.
6. Disconnect power to unit. Damper should spring return to closed position.
7. Remove T and T1 jumper on damper motor, then restore power to unit. Adjust minimum vent position on potentiometer on damper motor. See Figure 10.
8. Disconnect power to unit and remove jumper on auxiliary contacts of blower contactor in main unit control box. Restore power to unit.

MAINTENANCE

1. Damper motor is prelubricated and does not require further lubrication.
2. Make visual inspection of dampers and linkage assemblies during routine maintenance.
3. Filters should be checked periodically and cleaned when necessary.
4. The washable filters supplied with the economizer can be cleaned with water and a mild detergent.
5. Take note of “Air Flow Direction” marking on filter frame when reinstalling.
6. If filter must be replaced, filter of like kind and size must be used. **DO NOT** replace permanent filters with throwaway type filters.

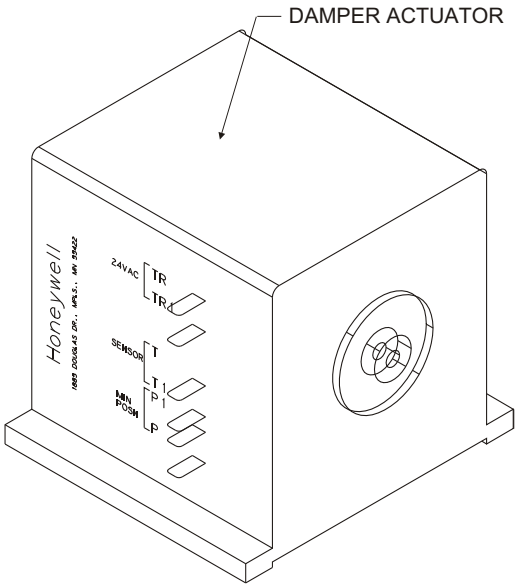


Figure 9

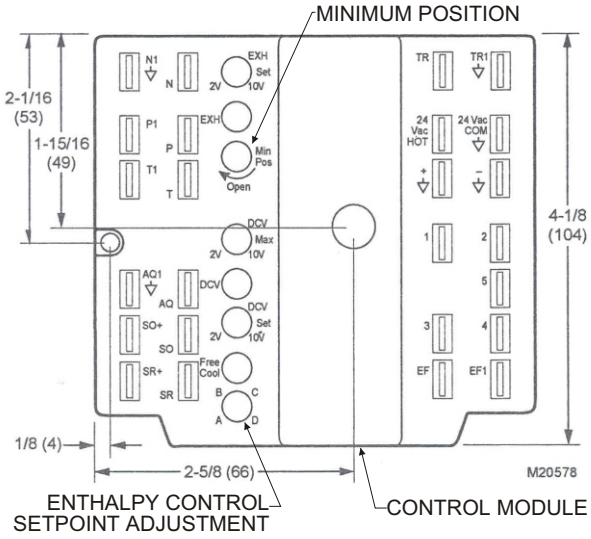


Figure 10

HARNESS DETAIL

E# = WIRE END DESIGNATION

E2 STUD #6 18 Ga. Wire
E3 Female ¼ Quick Disc.
E4 Male ¼ Quick Disc. Insul
E6 Wire Nut Size 73B

HARNESS ENDS AT (P7) ECONOMIZER

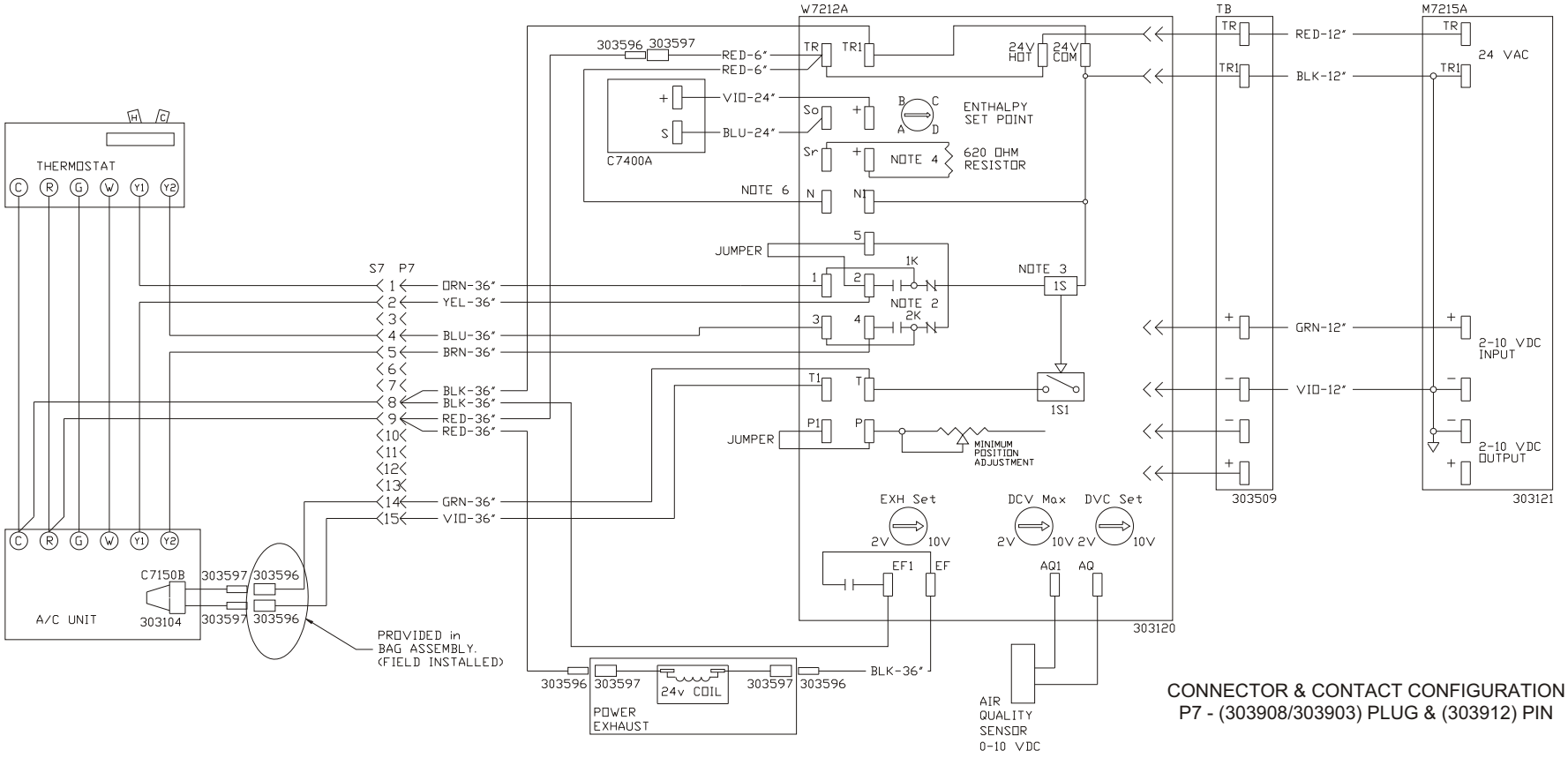
COMPONENT CODE

Economizer	
C7046C	Mixed Air Sensor
C7400A	Fresh Air Sensor
M7215A	Damper Actuator 24V
P7/S7	Plug/Cap Economizer
TB	Terminal Board
W7212A	Logic Module

WIRE COLOR CODE

BLK	Black	BLU	Blue
BRN	Brown	GRN	Green
ORN	Orange	RED	Red
VIO	Violet	YEL	Yellow
WHT	White		

Revision	Change	Date
A	Changed R & C around	06-30-06
B	Changed wiring diagram	12-18-07
C	Changed 303104 to 303103	04-03-08
D	Changed 303113 to 303101 and to 303121	10-13-10
E	Changed 303103 to 303104	08-02-12
F	Changed PLT drawing	04-16-13



CONNECTOR & CONTACT CONFIGURATION
P7 - (303908/303903) PLUG & (303912) PIN

Notes:
1. Unit wiring shown as reference only. Check unit wiring for actual unit wiring.
2. Relays 1K and 2K actuate when the Outdoor Air Enthalpy is higher than the enthalpy set point A-D on the W7212A Logic Module.
3. 1S is an electronic switch which closes when powered by a 24 VAC input.
4. Factory installed resistor should be removed only if C7400 Differential Enthalpy Sensor is added.
5. Y2 must be energized for Stage 1 compressor to operate during economizer operation.
6. "N" terminal used for occupied mode. Remove jumper when night setback control utilized. 24v must be applied for occupied mode operation.

Modulating Economizer
R4GM 150-180

RRS ROOFTOP SYSTEMS
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Date: April 16, 2013
Supersedes: 08-02-12
Drawn by:
Unit #: 47-364-10
Diagram#: 4736410W
Approved by: