RUSKIN®

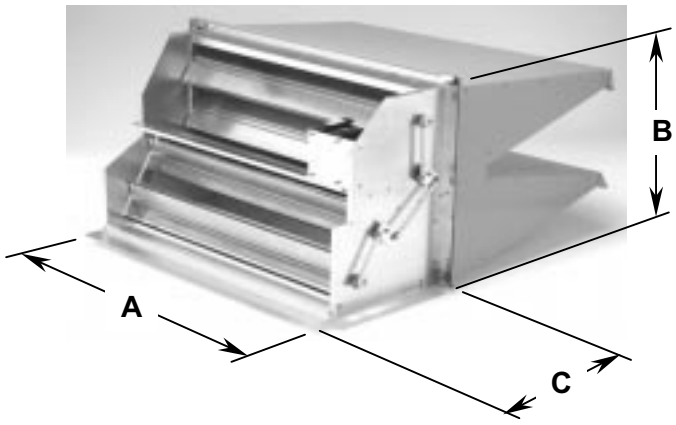
ECONOMIZERS

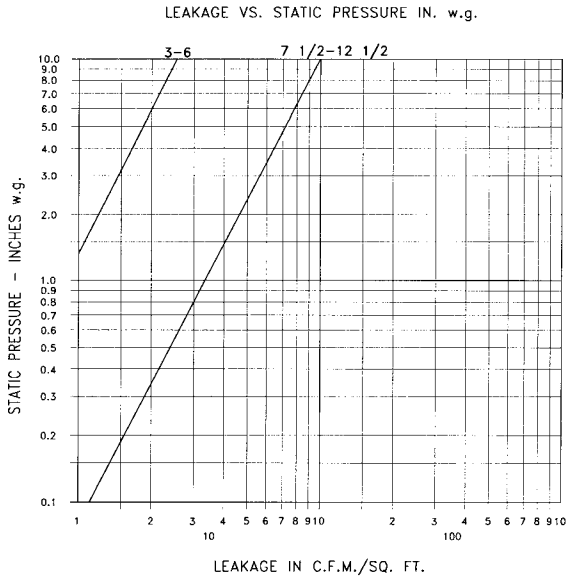
INSTALLATION INSTRUCTIONS

3 to 6 and 7½ to 12½ ton economizers

RUSKIN®

Installation Instructions
3 to 6 and 7 1/2 to 12 1/2 Ton Economizers





* All leakage and performance testing completed in an AMCA certified laboratory. Leakage ratings based on tests and procedures performed in accordance with AMCA Publication 511and comply with the requirements of the AMCA Certified Ratings Program.

	MODEL NUMBER CHART					
	Unit Size	**Part Number**	**Controls**	**A**	**B**	**C**
STANDARD	3 to 6 Ton	EAC03061A	Dry Bulb	28 11/32"	19 1/2"	16"
	3 to 6 Ton	EAC03062A	Single Enthalpy	28 11/32"	19 1/2"	16"
	7 1/2 to 12 1/2 Ton	EAC07121A	Dry Bulb	36 3/16"	22 1/8"	17 7/16"
	7 1/2 to 12 1/2 Ton	EAC07122A	Single Enthalpy	36 3/16"	22 1/8"	17 7/16"
OPTIONAL	3 to 6 Ton	EAC03061B	Dry Bulb	28 11/32"	19 1/2"	16"
	3 to 6 Ton	EAC03062B	Single Enthalpy	28 11/32"	19 1/2"	16"
	7 1/2 to 12 1/2 Ton	EAC07121B	Dry Bulb	36 3/16"	22 1/8"	17 7/16"
	7 1/2 to 12 1/2 Ton	EAC07122B	Single Enthalpy	36 3/16"	22 1/8"	17 7/16"

NOTE: Standard units utilize Honeywell Logic Controls (W7459-A-1001). This control set does not support C02, IAQ, Demand Control Ventilation and other options. If demand control ventilation or C02 features are required, order from the "optional" part numbers above.

Above economizer models may be used in vertical and horizontal applications when installed in Carrier rooftop units listed below. Power Exhaust is not available on horizontal applications when using a convertible unit.

3 - 6 Ton Units: Carrier 48/50 TF, TM & HJ 004-007 and Bryant 580F/558F/581B/551B 036-072

7 1/2 -12 1/2 Ton Units: Carrier 48/50 TF, TM & HJ 008-014 and Bryant 580F/558F/581B/551B 090-150

! WARNING

THIS ACCESSORY IS TO BE INSTALLED BY A QUALIFIED, LICENSED SERVICE PERSON. TO AVOID UNSATISFACTORY OPERATION OR DAMAGE TO THE PRODUCT AND POSSIBLE UNSAFE CONDITIONS, INCLUDING ELECTRICAL SHOCK AND FIRE, THE INSTALLATION INSTRUCTIONS PROVIDED WITH THIS ACCESSORY MUST BE STRICTLY FOLLOWED AND THE PARTS SUPPLIED USED WITHOUT SUBSTITUTION. DAMAGE TO THE PRODUCT RESULTING FROM NOT FOLLOWING THE INSTRUCTIONS OR USING UNAUTHORIZED PARTS MAY BE EXCLUDED FROM THE MANUFACTURER'S WARRANTY COVERAGE.

! WARNING

DISCONNECT ELECTRICAL POWER TO THE UNIT. FAILURE TO DO SO CAN CAUSE ELECTRICAL SHOCK RESULTING IN PERSONAL INJURY OR DEATH.

RUSKIN®

Installation Instructions
3 to 6 and 7 1/2 to 12 1/2 Ton Economizers

TOOLS REQUIRED FOR INSTALLATION:	
3/8" electric drill with assorted sockets	Sheet metal tools (e.g. shears)
Small flat blade screwdriver	

ECONOMIZER PACKAGE CONTENTS

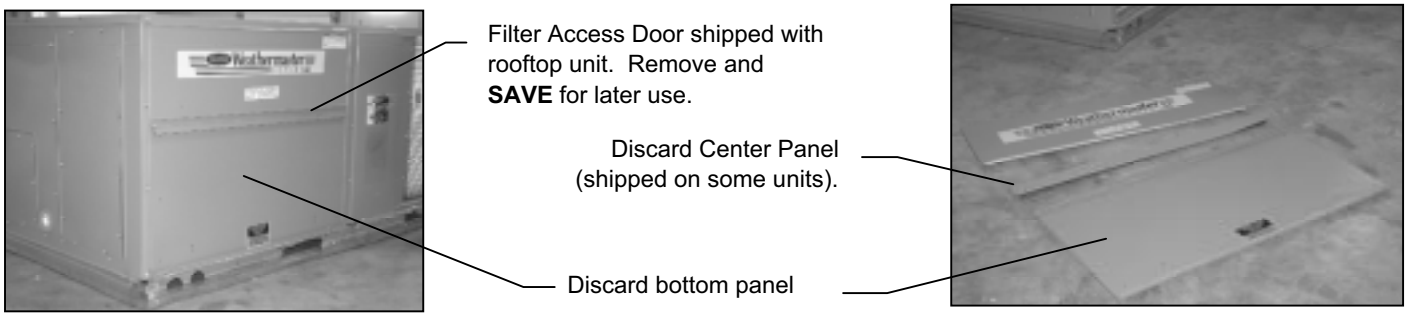
Item	Qty.	Description	Replacement Part #	Comments
1	1	Economizer Assembly	Refer to Model Number Chart on Page one of this manual	Includes actuator, logic controls, outdoor & mixed air temperature sensors
2	1	Hood Kit	EHC03068A (3-6 Ton) EHC07128A (7-12 Ton)	Fully Assembled - Includes, air filter(s) and bird screen
3	1	Vertical Return Air Blank-off Plate	EPC99018A (10-12 Ton)	Used in Vertical 10 - 12 1/2 Ton units only (Dimensions: 20 gage x 2 3/4" x 13 1/2")
4	1	Horizontal Hood Blank-off Plate (insulated)	EPC99108A (3-6 Ton) EPC99208A (7-12 Ton)	Used in horizontal applications only (see detail 10B of page eight)
5	1	Horizontal Return Air Blank-off Plate	EHC99028A (10-12 1/2 Ton)	Used in horizontal 10 - 12 1/2 Ton units only (Dimensions: 20 gage x 3 3/4" x 13 3/4")
6	2	Horizontal Hood Divider Panels	EPC99408A (3-6 Ton) EPC99208A (7-12 Ton)	Used in horizontal applications only (see detail 10A of page eight)
7	1	Parts Bag	n/a	Contents include installation & maintenance manual, (1) discharge air temperature sensor/bracket sub-ass'y, (1) O.A. sensor/bracket sub-ass'y, (3) wire ties, (1) Strain Relief, (2) self-adhesive wire protectors and (20) #10 hex washer head self-tapping screws
8	1	Side Blank-off Plate	EPC90010A (3-6 Ton) EPC90011A (7-12 Ton)	Used on Vertical units only (See detail 2B of page four)

Instructions: Vertical (down discharge) applications only

STEP 1
As previously noted, on page one, disconnect the power supply and install a safety lockout tag before installation or service of the economizer unit.

STEP 2
Remove top and bottom panels of the rooftop unit as shown in Detail 1. Save the top panel (filter access door) for later use. Discard the bottom panel(s) but **keep all fasteners for economizer installation**.

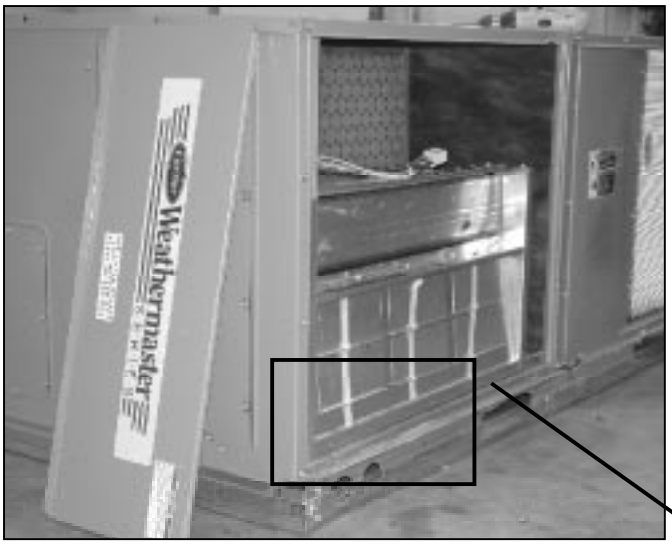
STEP 3
Unpack #1 economizer assembly & #2 hood kit. Locate #7 parts bag and remove the O.A. sensor sub-assembly and the discharge air sensor sub-assembly. The discharge air sensor should be installed to the blower as illustrated in Detail 5 of page 4. The O.A. sensor should be located in the rain hood side of the economizer. For installation details of the O.A. sensor follow instructions as shown on the yellow O.A. sensor installation sheet located in the parts bag.



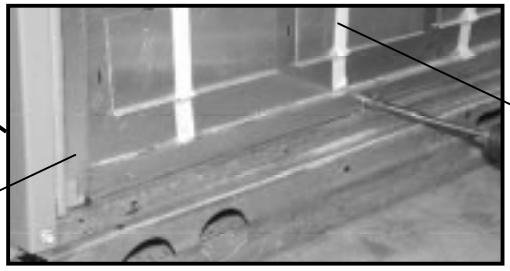
Detail 1

Note: *Install #3 blank-off plate (provided) over right side of return air opening on* ***10 to 12 1/2 ton units only****. The blank-off plate should be secured using furnished #10 hex washer head self-tapping screws.*

Instructions: Vertical (down discharge) applications only - Continued



STEP 4
Slide #1 Economizer into the rooftop unit and position it over the return air opening as shown here. Take precautions to insure the wire harness is not hung up on anything. The back flange of the economizer will slide under the economizer hold-down tabs in the rooftop unit to hold down the back of the economizer (reference Detail 6 on page 5). Line up mating holes and secure economizer in place with fasteners that were saved in step 2 above. For your convenience, extra fasteners are included in the parts bag. Remove shipping tape from the barometric blades and proceed to next step.

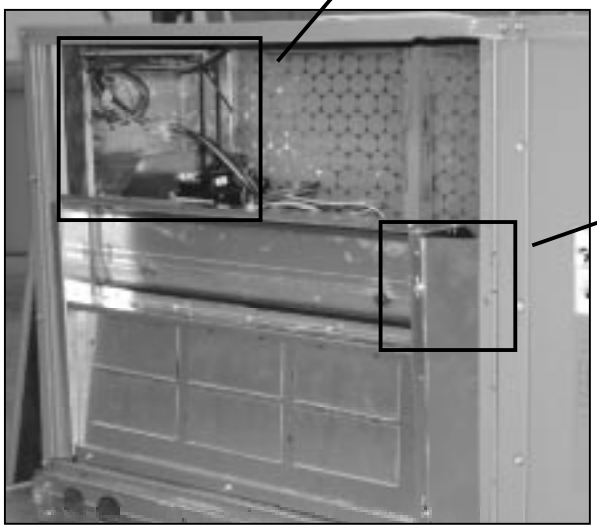


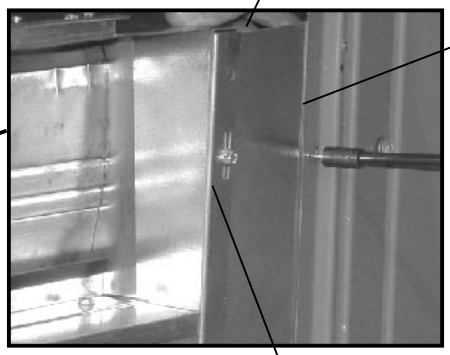
Front flange of economizer sits in front of rooftop mating flange as shown

Remove shipping tape

Detail 2A

STEP 5
Plug wire harness into rooftop mating connector as shown to the left. Install #8 side blank-off plate as shown below. Install the O.A. temperature sensor as shown on the yellow installation sheet found in the parts bag. Use extra wire ties from parts bag to secure the harness in place. Proceed to next step.





#8 Side blank-off plate mounts behind economizer front flange and behind rooftop unit flange

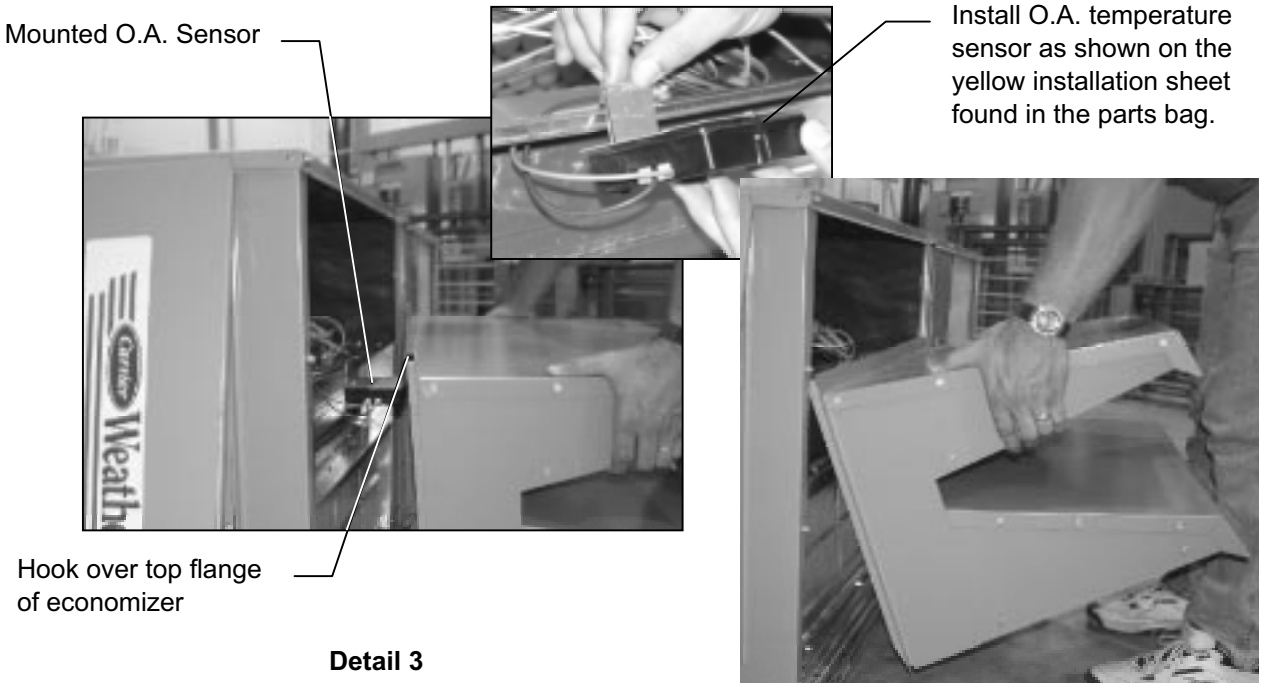
Rooftop unit flange

Economizer front flange

Detail 2B

Instructions: Vertical (down discharge) applications only - Final Steps

STEP 6
Hang #2 Hood Kit from the top flange of #1 Economizer and let the sides fall into place as shown in Detail 3 below. Make sure to hook the Hood Kit behind the top flange of the economizer. Use remaining fasteners from step 2 to secure Hood Kit in place.

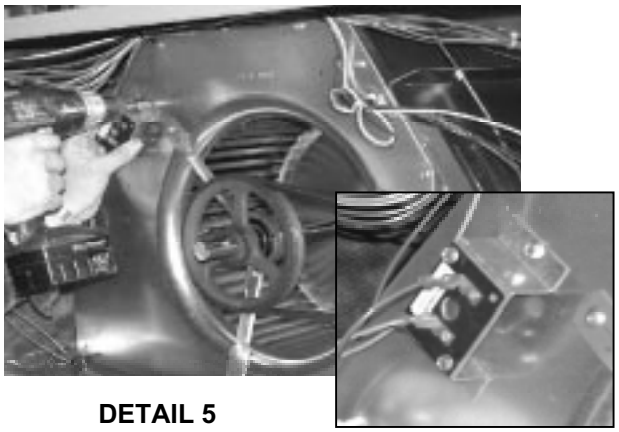


Detail 3

DETAIL 4

STEP 7
Replace filter access door (previously removed in step two) as shown in detail 4 to the left.

STEP 8
Install mixed air temperature sensor as shown in Detail 5 Below.



DETAIL 5

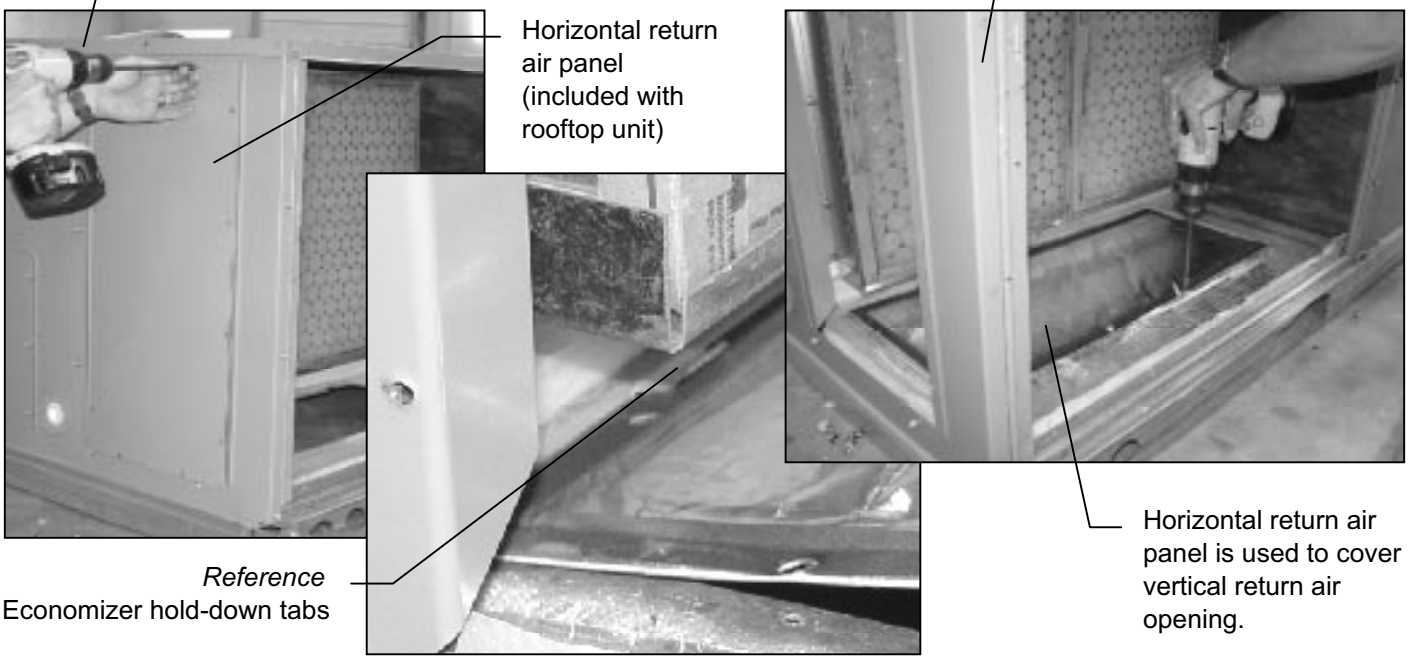
Instructions: Horizontal (side discharge) applications only

STEP 1
As previously noted, on page 1, disconnect the power supply and install a safety lockout tag before installation or service of the economizer unit.

STEP 2
Remove top and bottom panels of the rooftop unit as shown in Detail 1 on page 2. Save the top panel (filter access door) for later use. Discard the bottom panel(s) but **keep all fasteners for economizer installation**.

STEP 3
Unpack #1 economizer assembly & #2 hood kit. Locate #7 parts bag and remove the O.A. sensor sub-assembly and the discharge air sensor sub-assembly. The discharge air sensor should be installed to the blower as illustrated in Detail 5 of page 4. The O.A. sensor should be located in the rain hood side of the economizer. For installation details of the O.A. sensor follow instructions as shown on the yellow O.A. sensor installation sheet located in the parts bag. The O.A. sensor may be installed prior to or following the installation of the economizer unit.

STEP 4
Remove screws securing rooftop unit top on the horizontal return air side and the front corner post. It will not be necessary to remove the top screws on larger units. Next, remove the horizontal return air panel. Placing the panel (insulation side up) under the economizer hold-down tabs, screw the panel over the vertical return air opening as shown in Detail 6 below. The rooftop unit is now ready for installing the economizer unit.

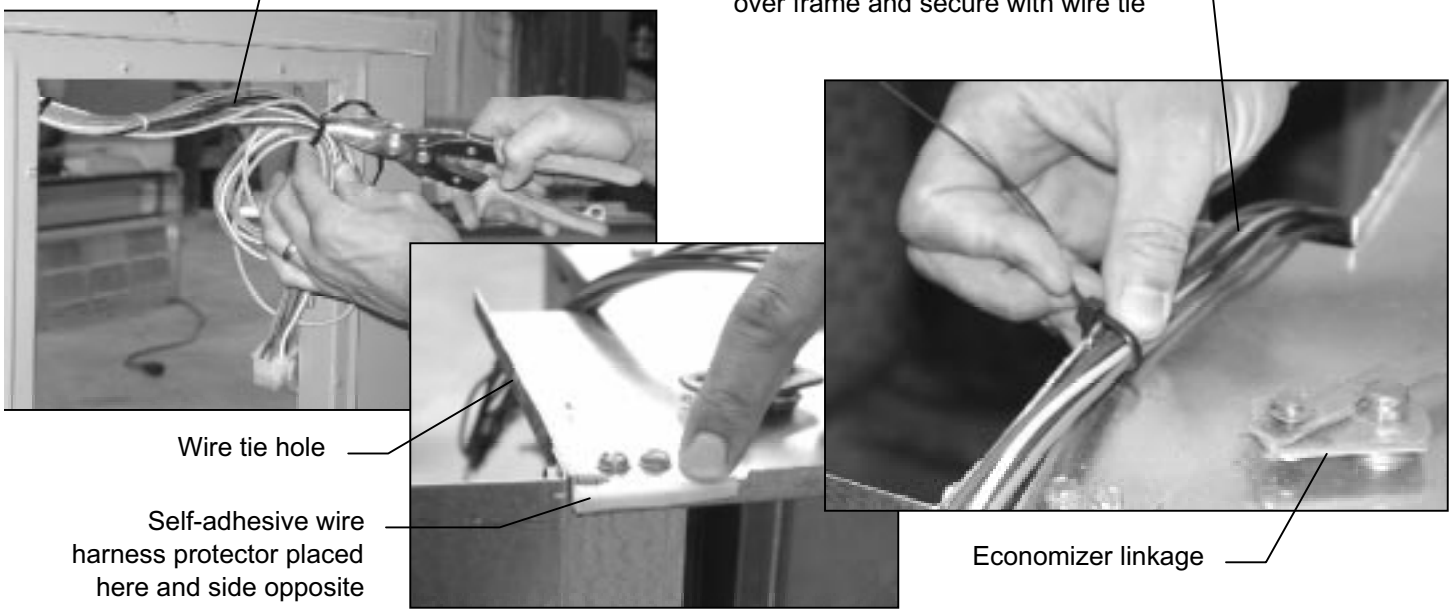


Detail 6

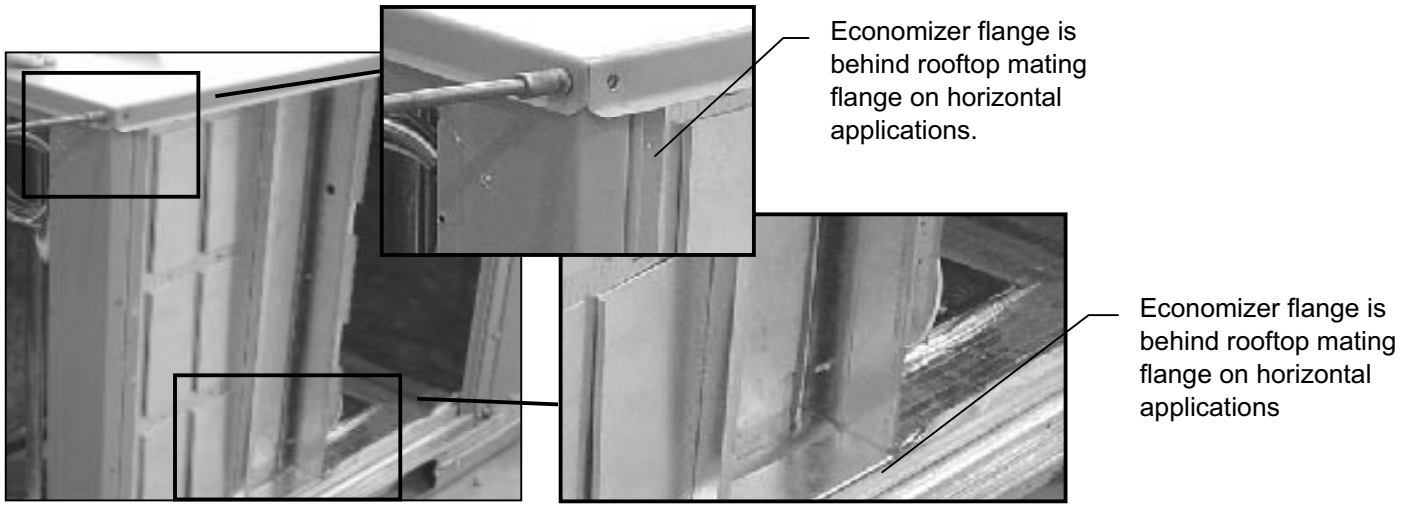
Instructions: Horizontal (side discharge) applications only - Continued

STEP 5

Move the economizer damper just in front of the rooftop unit in the position that it will be installed in the rooftop unit but do not install it yet. Barometric blades face out as shown in Detail 8 below. The linkage side of the economizer should be on the top. Carefully cut the wire tie securing the 12-pin rooftop wire harness. Locate (2) self-adhesive wire harness protectors found in the parts bag (they are clear plastic about 3" long). Place the wire harness protectors along the economizer damper edges in the locations shown in Detail 7 below. Slide the economizer damper half way into the rooftop unit. Position the rooftop unit wire harness over the top of the economizer as shown. The wire harness connector will be next to the economizer controls. Using a wire tie from the parts bag, pull the rooftop wire harness up against the economizer flange (clear of the linkage). Push the economizer the rest of the way into the rooftop unit and secure the rooftop unit top in place as shown in Detail 8. In horizontal applications, the economizer installs behind the rooftop unit mating flanges.



Detail 7

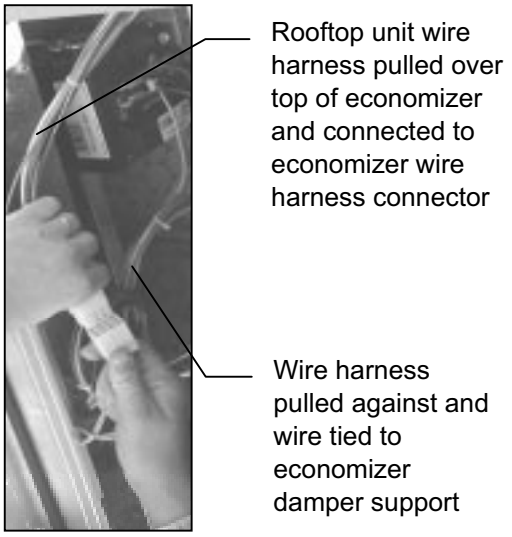


Detail 8

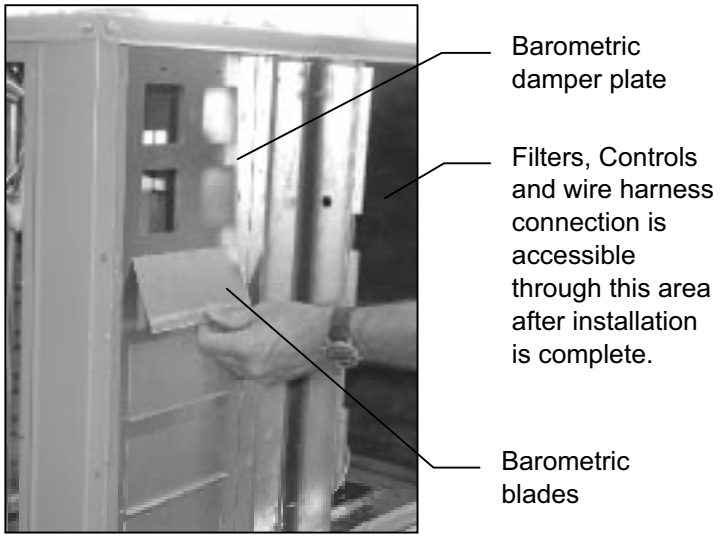
Instructions: Horizontal (side discharge) applications only - Continued

STEP 6
With the economizer secured in place, reach in and connect the economizer wire harness connector to the rooftop unit wire harness connector. With the remaining wire ties from the parts bag, pull the slack out of the harness to keep it out of the economizer blades. The harness can be coiled and attached to the economizer damper support as shown in Detail 9.

STEP 7A
Standard units utilizing W7459-A-1001 logic controller - Pull the barometric blades out of the barometric damper plate and reposition for use in the horizontal application as shown in Detail 10A. No tools are necessary for this step. Proceed to step 8 for further instructions.
Optional units utilizing W7212-A-1009 logic controller - This controller is available on models EAC03061B, EAC03062B, EAC07121B and EAC07122B only. Refer to steps 7B, 7C and 7D with associated details below.



Detail 9



Detail 10A

Detail 10B

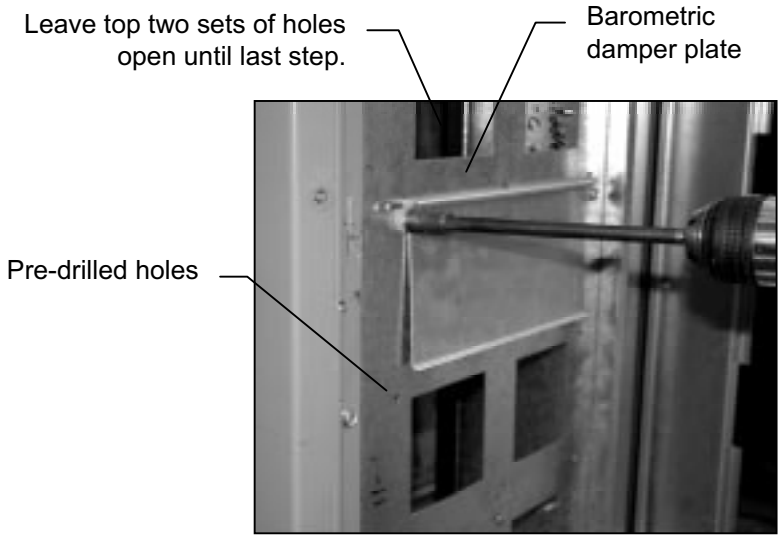
STEP 7B
With the economizer in place, remove the barometric damper blades as shown in Detail 10B. Be careful not to lose any of the nylon straps or screws.

STEP 7C
Starting with the third blade from the top, insert a pivot rod in one of the blades and screw the mounting straps (one on each side) to the barometric damper plate as illustrated in Detail 10C. Holes are pre-drilled for easy installation. Continue with other blades, leaving the top two sets of holes open.

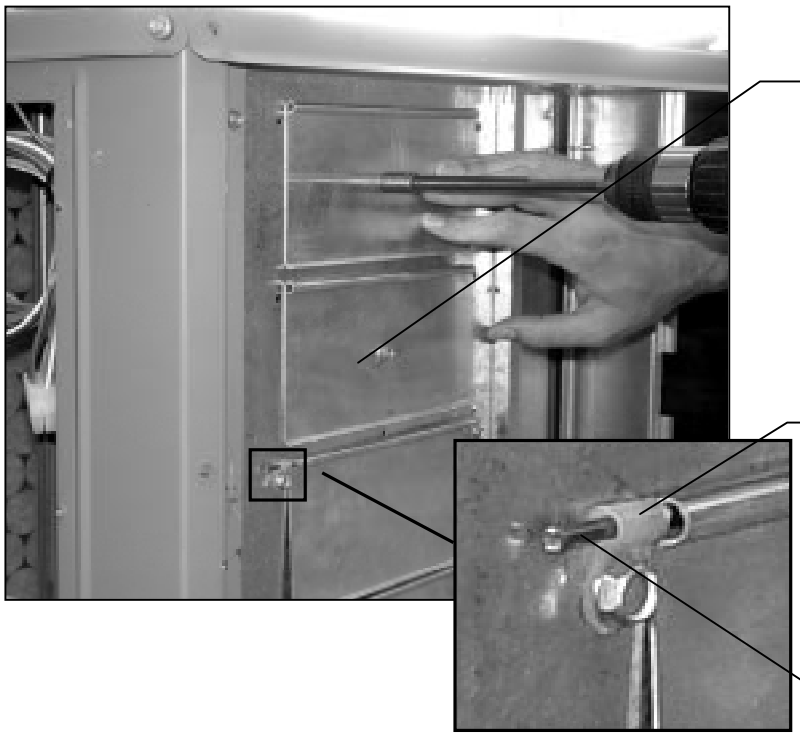
Instructions: Horizontal (side discharge) applications only - Continued

STEP 7D
Position two blades over the top two sets of holes in the barometric damper plate, securing them in place with screws from step 7B, to create a blank-off.

Note:
The top two blades do not function in the horizontal application as they are behind the filter access door (shipped with the rooftop unit).



Detail 10C



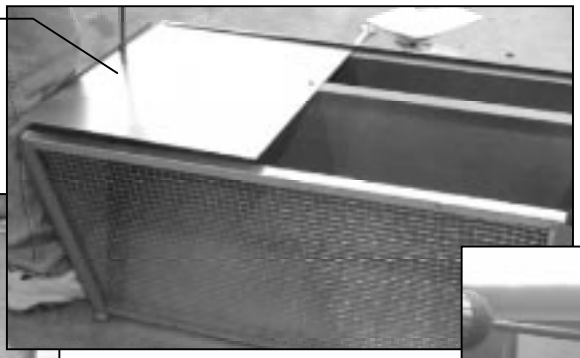
Detail 10D

Instructions: Horizontal (side discharge) applications only - Final Steps

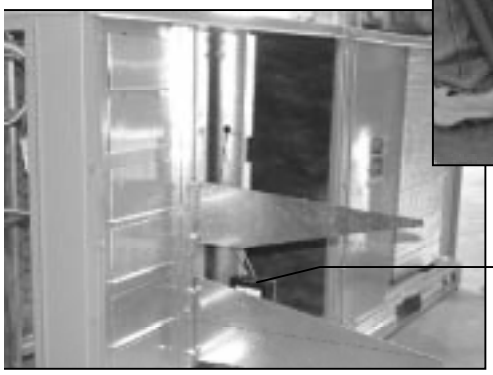
STEP 8
Using #10 hex washer head self-tapping screws from the parts bag, install the # 6 hood dividers as shown in Detail 11A. The leg of the dividers face the barometric blades. Align pilot holes in the economizer frame with the holes in the hood dividers. Next, place #4 insulated blank-off on the back of the hood and screw into place using #10 hex washer head self-tapping screws from the parts bag. The plate should be installed on the left side as viewed from the bird screen or bottom of the hood assembly. Push all the way up against the break on the top hood piece. the plate should not cover the side flange of the hood or hood mounting holes will be covered. See Detail 11B for clarification.

Note: On 10 - 12 1/2 ton rooftop units, install #5 Horizontal return air blank-off plate as shown on Detail 11C below.

Mount #4 horizontal hood blank-off plate on back of hood. Insulation (not shown) should face up during installation.



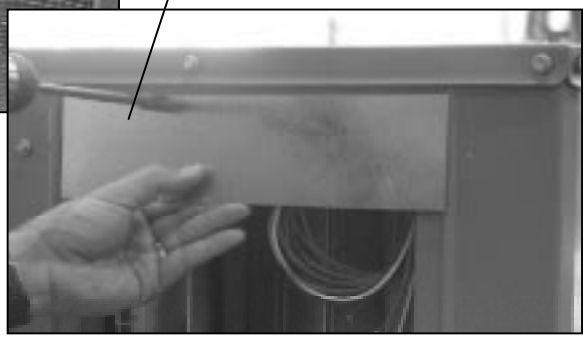
Detail 11B



Install O.A. sensor as shown on the yellow installation sheet found in the parts bag.

Detail 11A

#5 Horizontal return air blank-off plate used on 10-12 1/2 ton units only.



Detail 11C

STEP 9
If the O.A. sensor/bracket sub-assembly has not yet been installed, locate the yellow installation instructions for mounting this sensor and install it at this time. The instructions can be found in the parts bag. Mount the discharge air temperature sensor (Reference Detail 5 of page 5 for mounting details).

STEP 10
Place hood in position and screw into place utilizing gasketed screws saved from step 2. Four holes in the hood side flanges should line up with holes in the rooftop unit mating flanges. Replace the filter access door saved from step 2 and you are finished installing the economizer.

Return air duct opening

Filter access door saved from step 2

Hood side flanges

Detail 12

Fixed Dry Bulb and Enthalpy Wiring Diagram

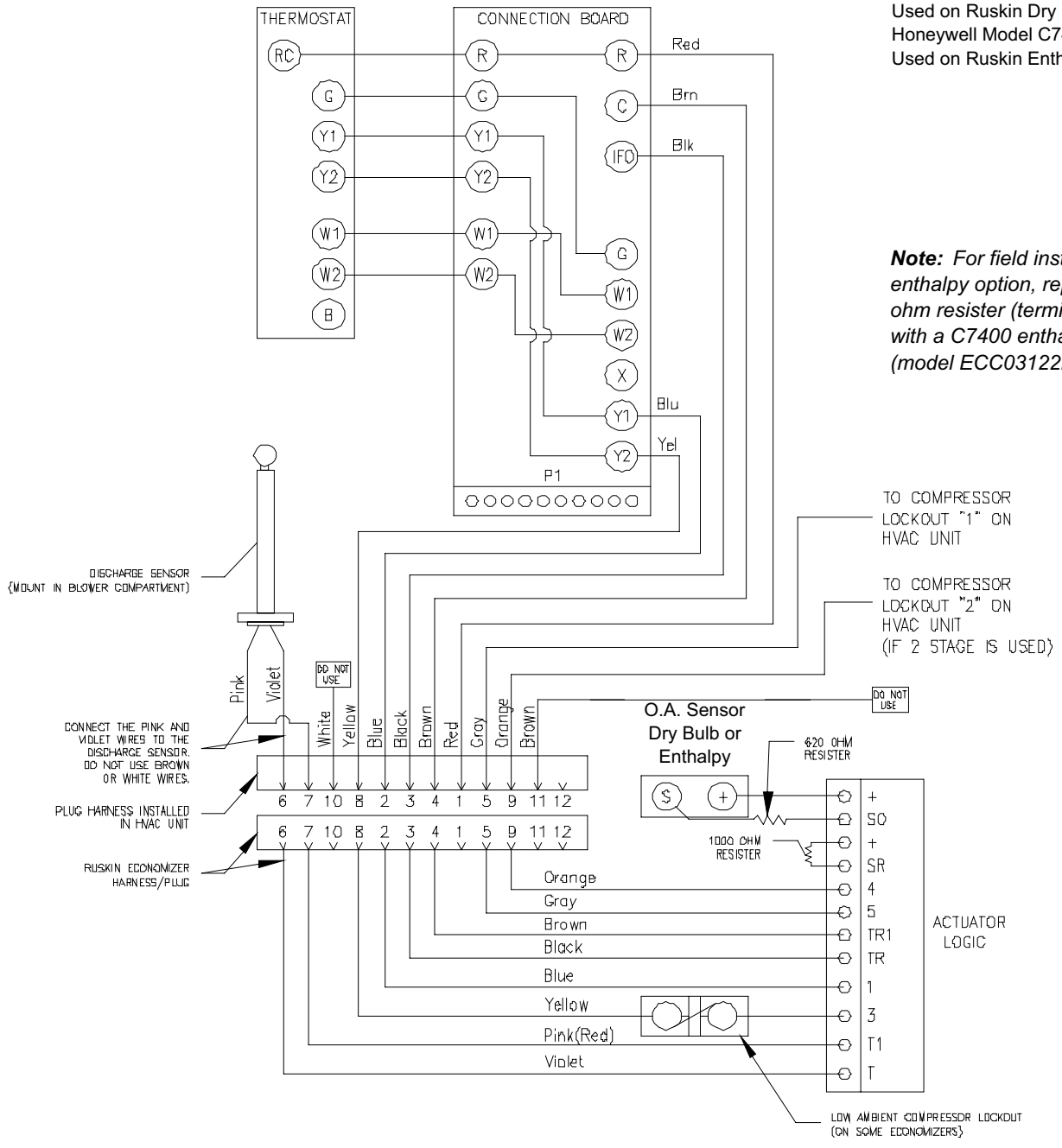
For use on standard economizers (models EAC03061A, EAC03062A, EAC07121A and EAC07122A)

Honeywell Model M7415-A-1006
Used on Ruskin Standard Economizers
EAC03061A and EAC07121A (Dry Bulb)
EAC03062A and EAC07122A (Enthalpy)

Honeywell Model W7459-A-1001
Used on Ruskin **Standard Economizers**
EAC03061A and EAC07121A (Dry Bulb)
EAC03062A and EAC07122A (Enthalpy)

Mixed Air Sensor
Honeywell Model C7150-B-1004
Used on (all models)

Outside Air Sensor
Honeywell Model C7650-A-1001
Used on Ruskin Dry Bulb Economizers
Honeywell Model C7400-A-1004
Used on Ruskin Enthalpy Economizers



Note: *For field installed dual enthalpy option, replace the 1000 ohm resister (terminals SR and +) with a C7400 enthalpy sensor kit (model ECC03122K)*

Fixed Dry Bulb and Enthalpy Wiring Diagram

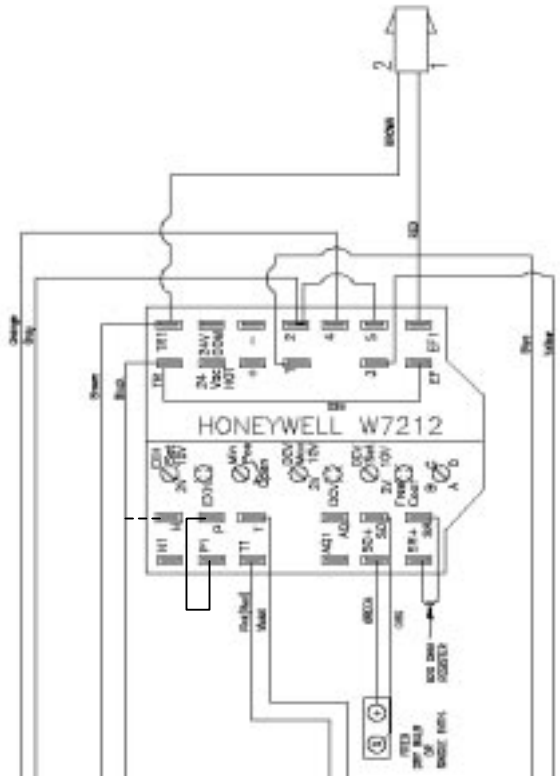
For use on optional economizers (models EAC03061B, EAC03062B, EAC07121B and EAC07122B)

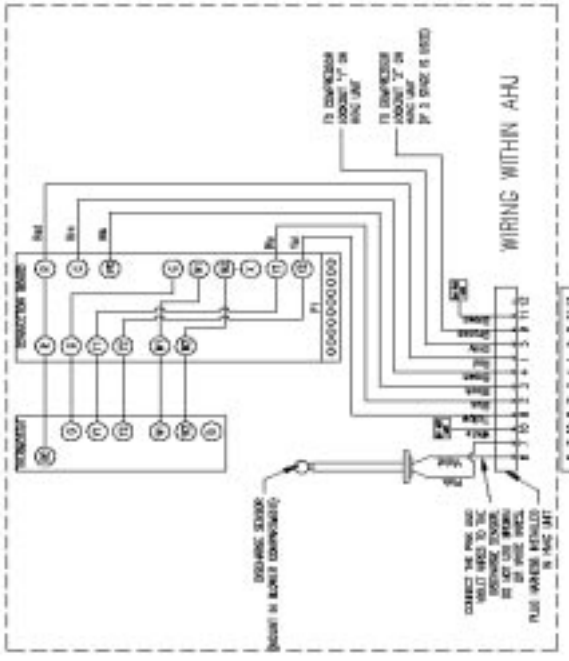
Honeywell Model M7215-A-1008
Used on Ruskin Optional Economizers
EAC03061B and EAC07121B (Dry Bulb)
EAC03062B and EAC07122B (Enthalpy)

Honeywell Model W7212-A-1009
Used on Ruskin **Optional Economizers**
EAC03061B and EAC07121B (Dry Bulb)
EAC03062B and EAC07122B (Enthalpy)

Mixed Air Sensor
Honeywell Model C7150-B-1004
Used on (all models)

Outside Air Sensor
Honeywell Model C7650-A-1001
Used on Ruskin Dry Bulb Economizers
Honeywell Model C7400-A-1004
Used on Ruskin Enthalpy Economizers





Note:
For field installed dual enthalpy option, replace the 620 ohm resister (terminals SR and SR+) with a C7400 enthalpy sensor kit (model ECC03122K)

HARNESS CONN	TO	CONTROLLER CONN
2 BLUE		1
3 BLACK		TR
4 BROWN		TR1
5 GRAY		2 JUMPER TO 5
6 VIOLET		T
7 PINK (RED)		T1
8 YELLOW		3
9 ORANGE		4

CONTROLLER CONN	CONTROLLER CONN
EF RED JUMPER	TR

(1) RED FROM PLUG TO EF1
GREEN WIRE AND ORANGE WIRE FROM KIT 86-02047-000 TO BE ATTACHED TO SO+ AND SO THEN ROLL UP AND SECURE TO ASSEMBLY FOR SHIPPING.