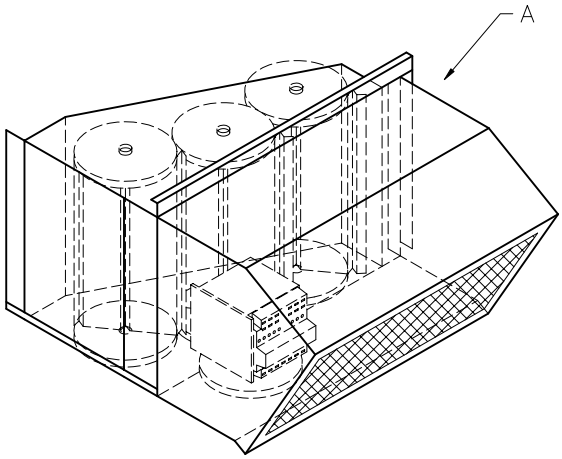
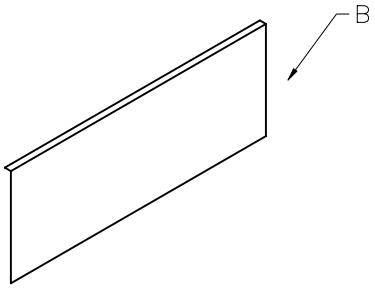
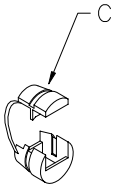
1160 / 1162-HPE INSTALLATION

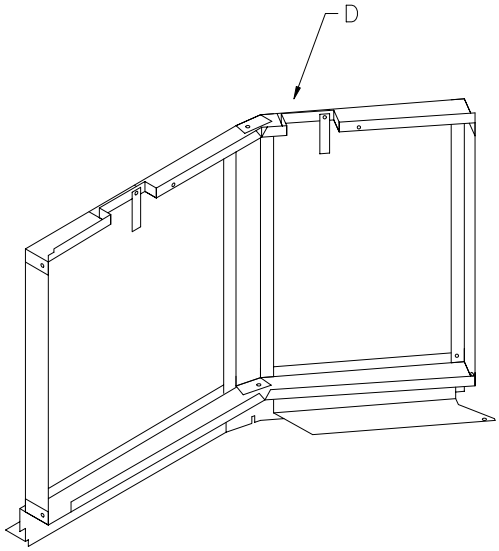




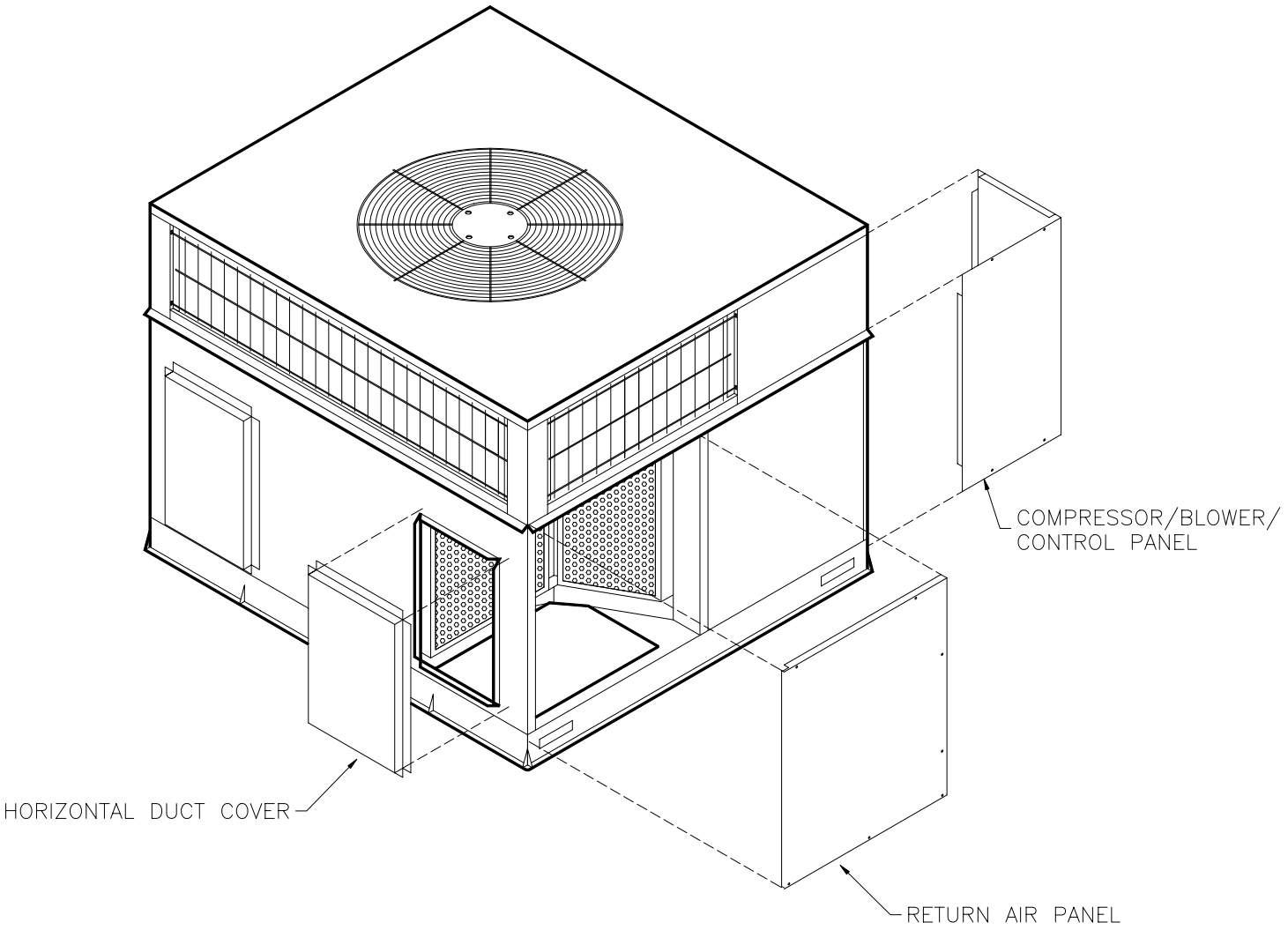


PARTS LIST

(1) A – HORIZONTAL ECONOMIZER
(1) B – FILTER ACCESS FILLER PANEL
(2) C – #1517 7/8 STRAIN RELIEF
(1) D – FILTER RACK WITH (2) 1" FILTERS
(2) #30–071 WIRE NUTS GREY
(34) #10x3/4 WHW TEK SCREWS W/ SEALING WASHER
(4) #L–7–50–MH–9 WIRE TIES W/ HOLE
(20') 1/8x1 GASKET
(1) 67–2700–06 HONEYWELL JADE W7220 BOOKLET



1160 / 1162-HPE INSTALLATION



1 – REMOVE THE HORIZONTAL RETURN AIR DUCT COVER AND THE RETURN AIR PANEL. SAVE THE SCREWS FROM THE COMPRESSOR PANEL. DISCARD THE HORIZONTAL DUCT PANELS. SAVE THE COMPRESSOR ACCESS PANEL.

2 – INSTALL THE FILTER RACK. SEE THE FILTER INSTRUCTIONS FOR DETAILS.

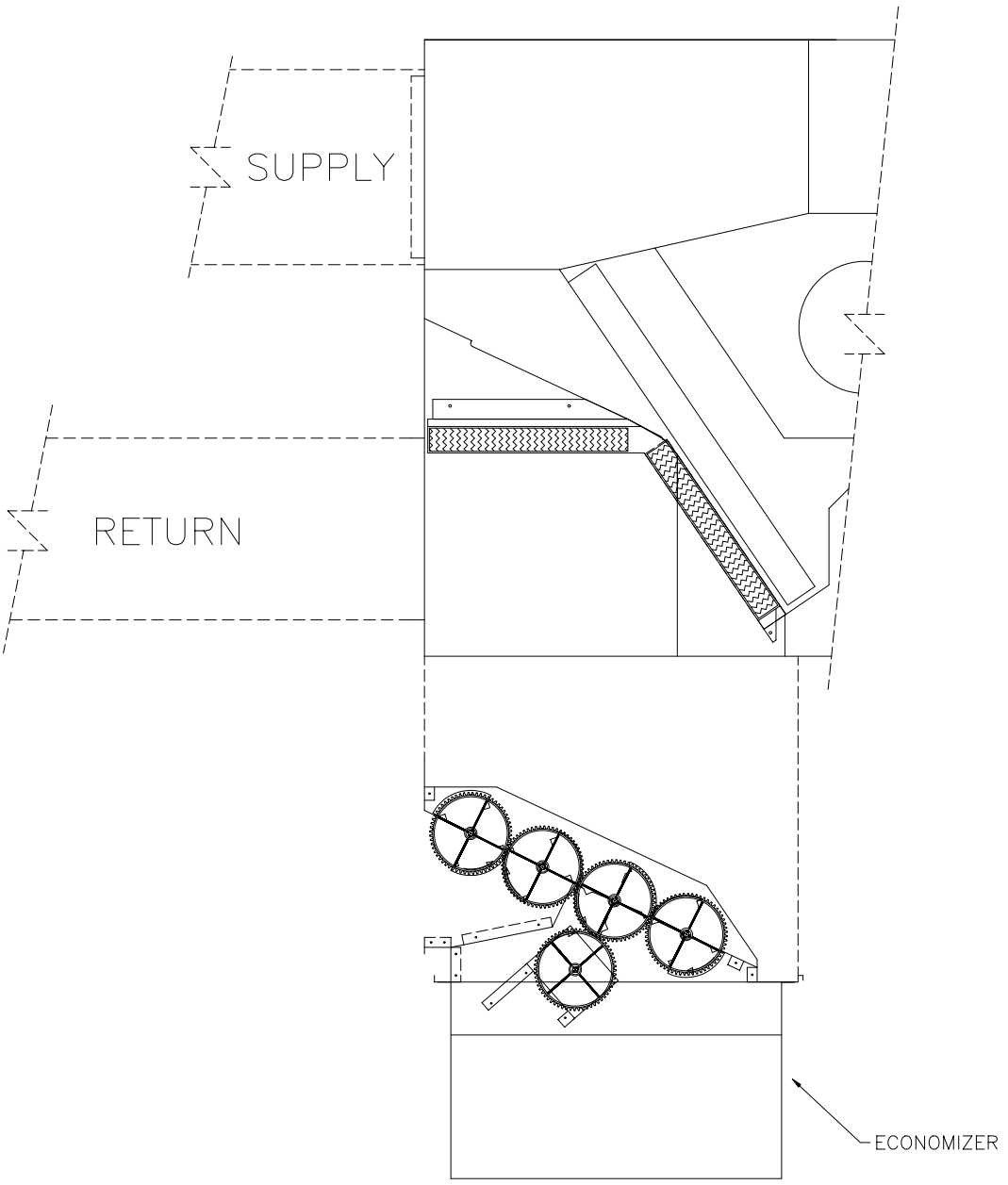
3 – PLACE GASKET ON THE HORIZONTAL ECONOMIZER FLANGES AND POSITION IT BACK OF A/C UNIT. ATTACH WITH #10X3/4 HWH TEK SCREWS WITH NEOPRENE SEALING WASHER. THE ECONOMIZER WILL SLIDE IN BACK OF A/C UNIT AND TO THE LEFT. THE DAMPER FRAME WILL COVER THE HORIZONTAL OPENING IN SIDE OF A/C UNIT.

4 – ATTACH FIELD PROVIDED RETURN AIR DUCT TO THE RETURN AIR OPENING ON THE A/C UNIT.

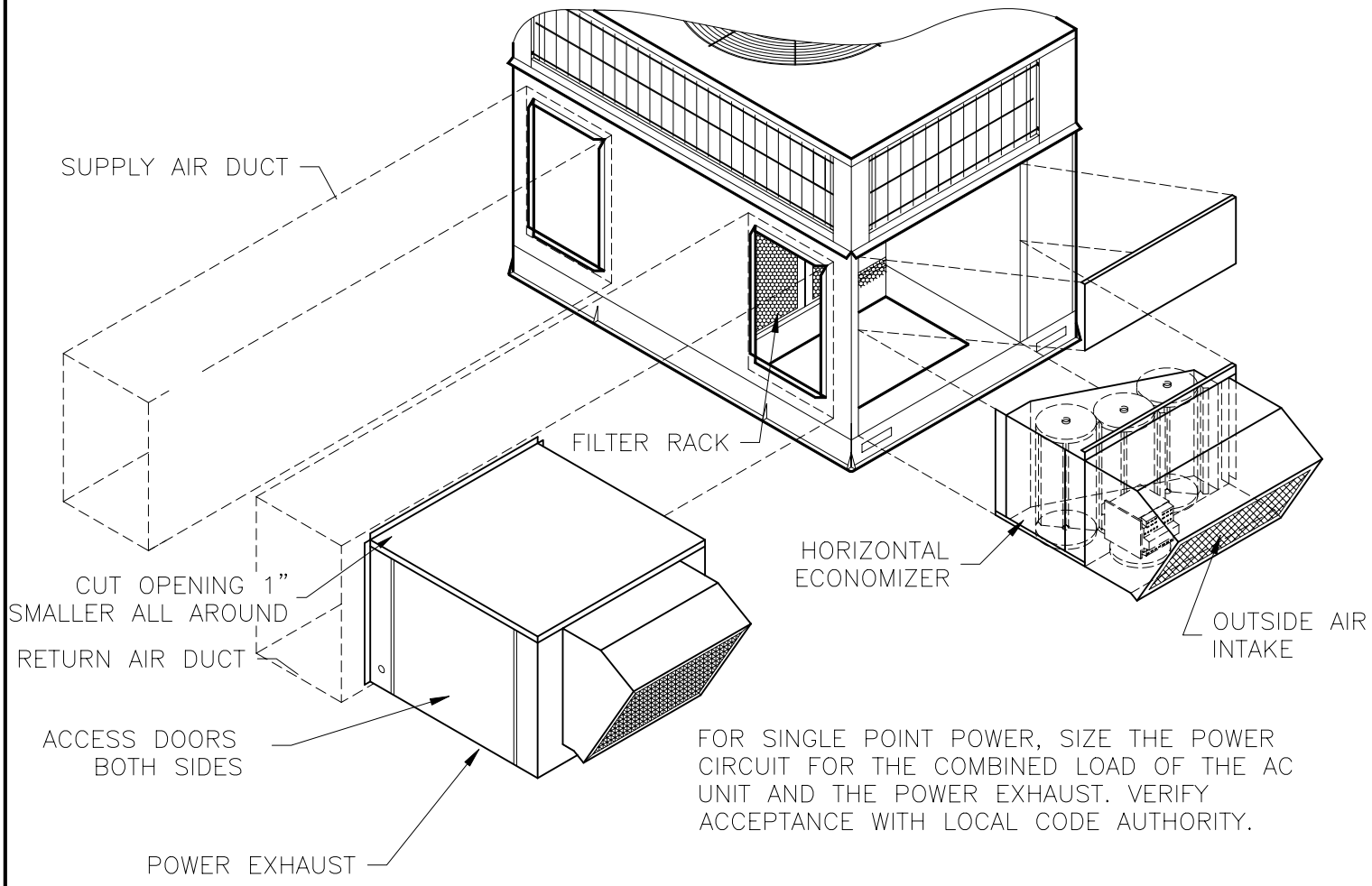
5 – LOCATE THE MIXED AIR SENSOR WITH THE ORANGE TAG MARKED "REMOVE SENSOR AND MOUNT IN FAN COMPARTMENT". REMOVE THE SENSOR AND MOUNT IN THE SUPPLY FAN COMPARTMENT WITH THE PROBE NEAR THE BLOWER INTAKE OPENING. CONNECT THE TWO GREY WIRES FROM THE WIRING HARNESS TO THE MIXED AIR SENSOR WITH WIRE NUTS. SEE THE DETAIL ON THIS PAGE.

6 – SEE THE INCLUDED HONEYWELL ECONOMIZER LITERATURE FOR START AND TEST INFORMATION.

1160 / 1162-HPE Installation

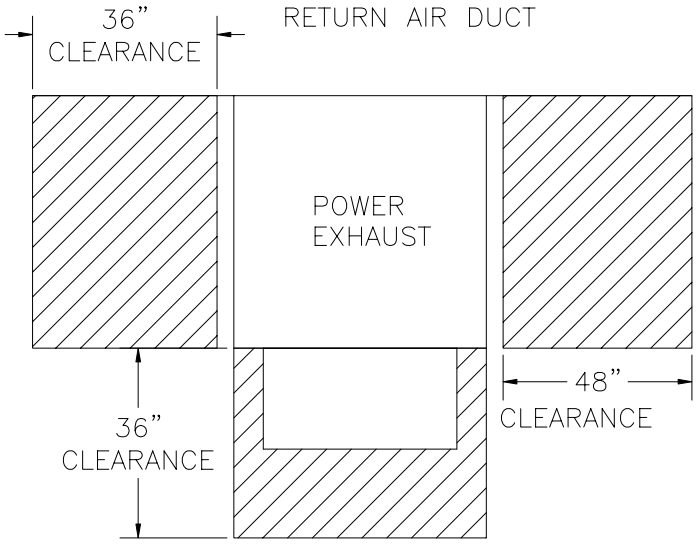


Horizontal Power Exhaust Installation Instructions



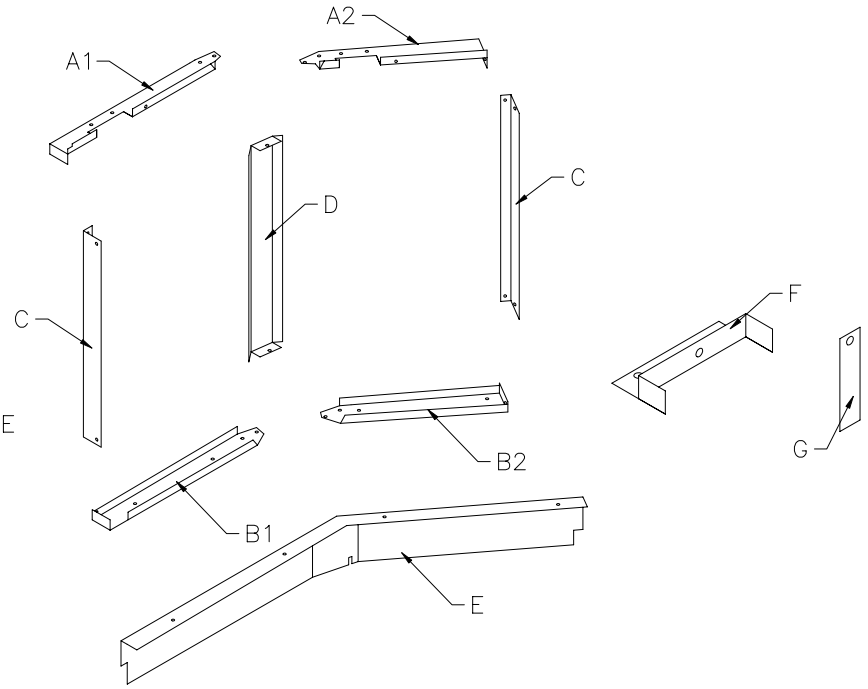
FOR SINGLE POINT POWER, SIZE THE POWER CIRCUIT FOR THE COMBINED LOAD OF THE AC UNIT AND THE POWER EXHAUST. VERIFY ACCEPTANCE WITH LOCAL CODE AUTHORITY.

1 – REMOVE THE COVER FROM THE HORIZONTAL RETURN AIR OPENING AND DISCARD.
2 – IF THE UNIT IS MOUNTED ON A VIBRATION ISOLATION CURB, A FIELD PROVIDED FLEXIBLE CONNECTOR WILL BE REQUIRED BETWEEN THE DUCT AND THE PACKAGE UNIT.
3 – CONNECT THE DUCT TO THE PACKAGE UNIT WITH FIELD PROVIDED SCREWS AND SEALER.
4 – CUT AN OPENING IN THE RETURN AIR DUCT FOR THE HORIZONTAL POWER EXHAUST. MAKE THE HOLE 1" SMALLER THAN THE DIMENSIONS OF THE POWER EXHAUST, ALL AROUND.
5 – CONNECT POWER EXHAUST TO RETURN AIR DUCT, WITH FIELD PROVIDED SCREWS AND SEALER. FIELD PROVIDED LEGS ARE REQUIRED TO SUPPORT THE POWER EXHAUST.
6 – CONNECT POWER EXHAUST WIRING. REFER TO CONTROL WIRING DIAGRAM AND INFORMATION.



1561-FLT Filter Rack Installation

PARTS LIST FOR FILTER RACK:
- (1) A1 – FILTER RACK TOP
- (1) A2 – FILTER RACK TOP
- (1) B1 – FILTER RACK BOTTOM
- (1) B2 – FILTER RACK BOTTOM
- (2) C – FILTER RACK SIDE
- (1) D – FILTER RACK MIDDLE
- (1) E – FILTER RACK BOTTOM BRACE
- (2) F – FILTER RETAINER
- (2) G – SWING BRACKET
- (17) #8x1/2 HWH TEK SCREWS
- (2) FILTERS 20x16x1 NOMINAL



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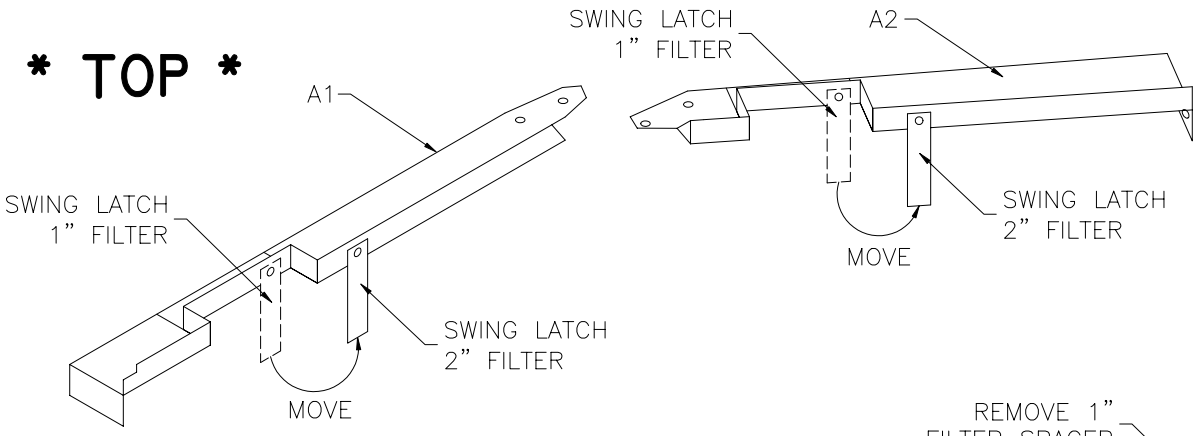
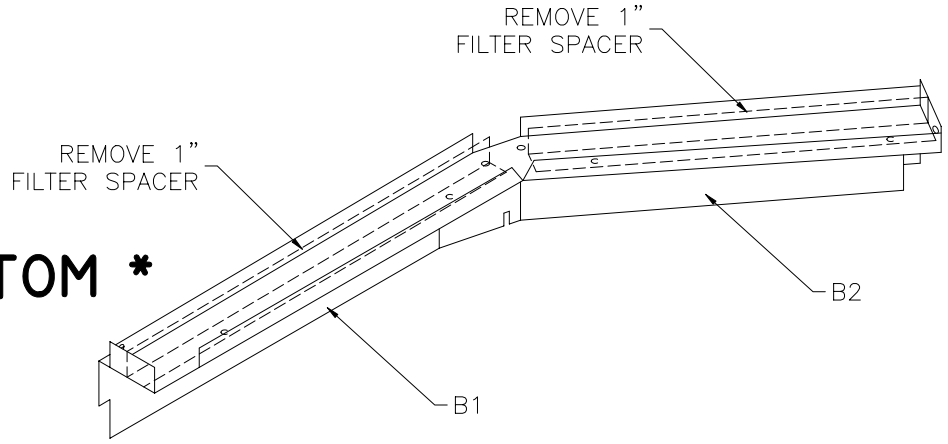
* NOTE *

IF USING 2" FILTERS,
PART A. MOVE SWING LATCH TO THE OTHER SET OF HOLES. SEE BELOW.
PART B. REMOVE 1" FILTER SPACERS. SEE BELOW.

* TOP *



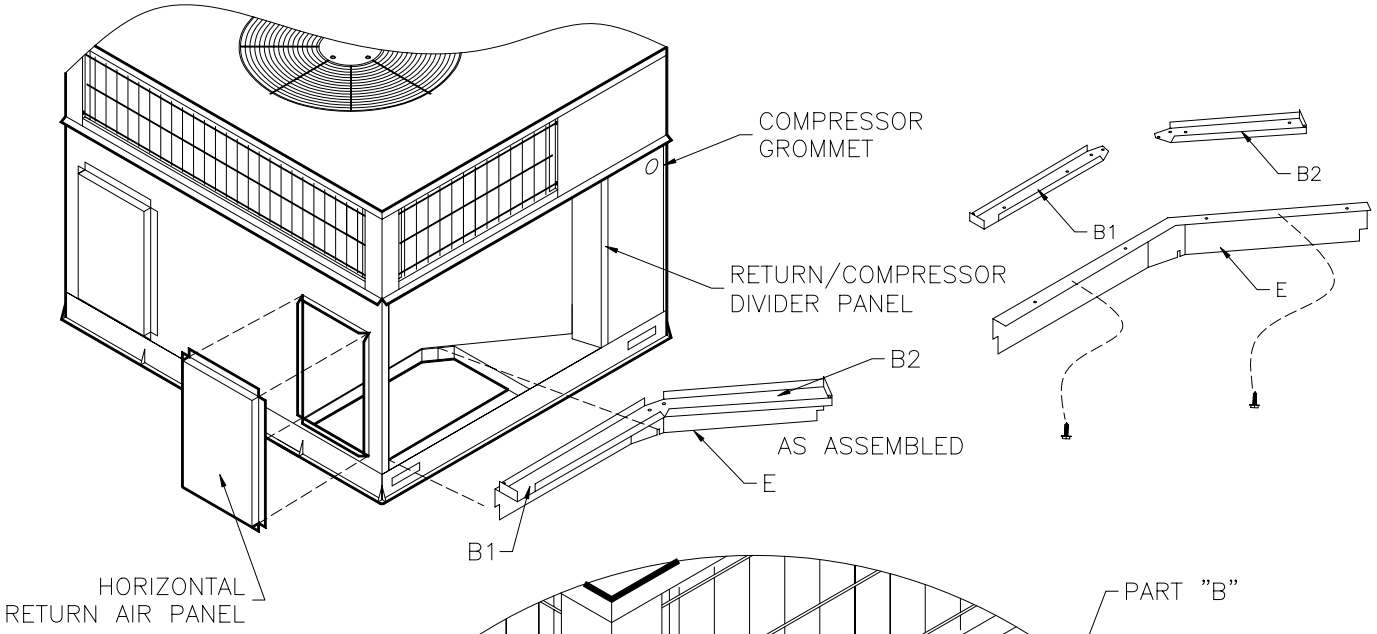
* BOTTOM *

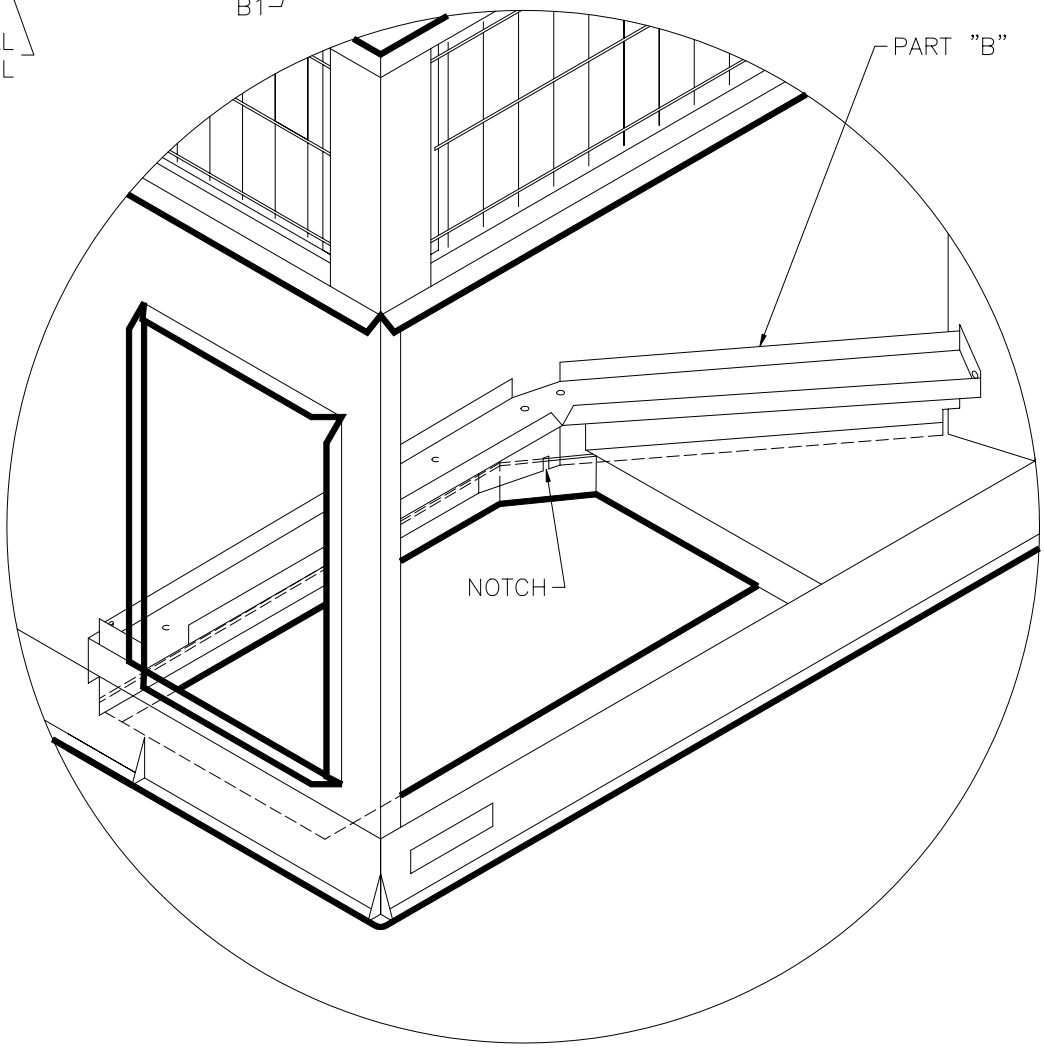


1561-FLT Filter Rack Installation

1 – REMOVE HORIZONTAL RETURN AIR PANEL FROM SIDE OF UNIT. REMOVE RETURN AIR/CONDENSOR PANEL FROM BACK OF UNIT. SAVE BOTH PANELS. SAVE SCREWS AND COMPRESSOR GROMMET FOR LATER RE–INSTALLATION.

2 – LOCATE PART "B1","B2" (FILTER RACK BOTTOM) AND MOUNT TO PART "E" (FILTER RACK BOTTOM BRACE). PUT PARTS INTO THE BOTTOM OF THE UNIT, MAKE SURE TO HOOK THE NOTCH IN THE BOTTOM OF PART "E" OVER THE PAN WALL. SO THAT THE RIGHT SIDE OF PART "E" GOES BEHIND THE PAN WALL AND THE LEFT SIDE GOES IN FRONT OF THE PAN WALL. SEE DETAIL 1. SECURE WITH (4) #8x1/2 SELF DRILLING SHEET METAL SCREWS PROVIDED. SEE BELOW.



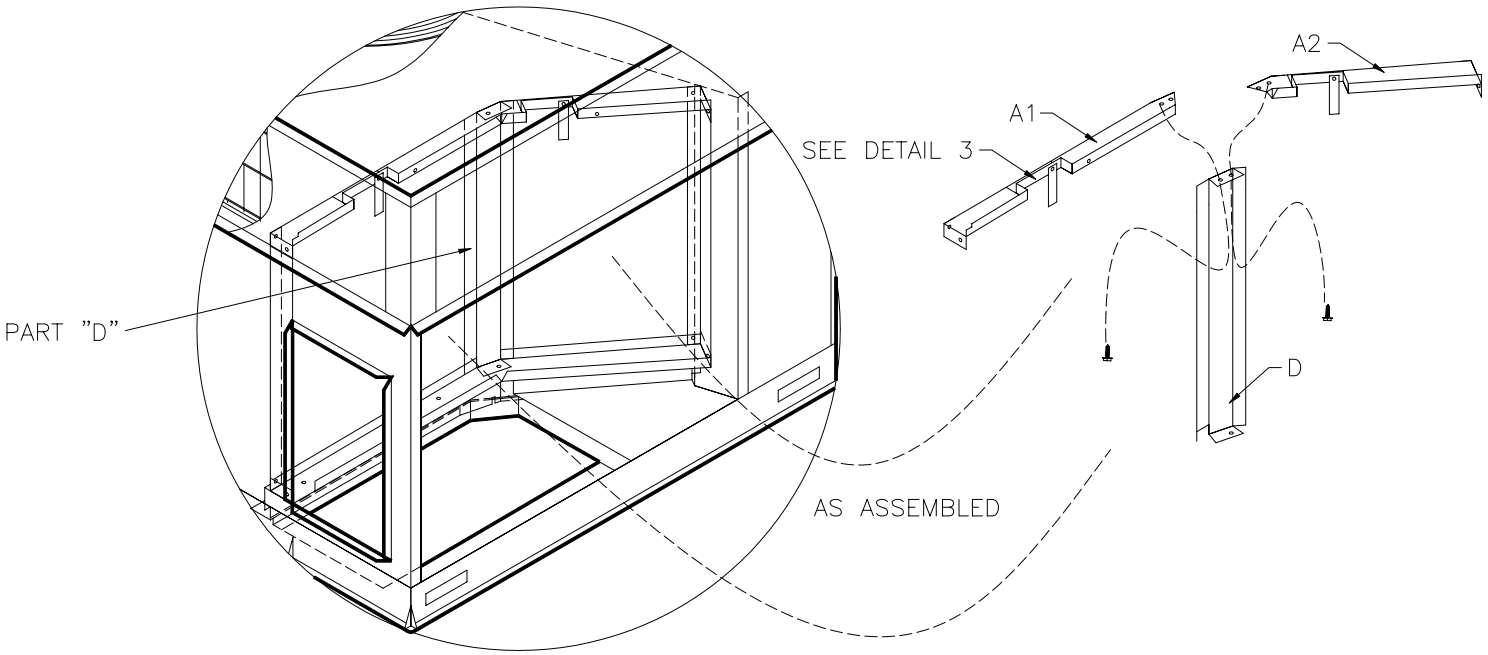


DETAIL 1

1561-FLT Filter Rack Installation

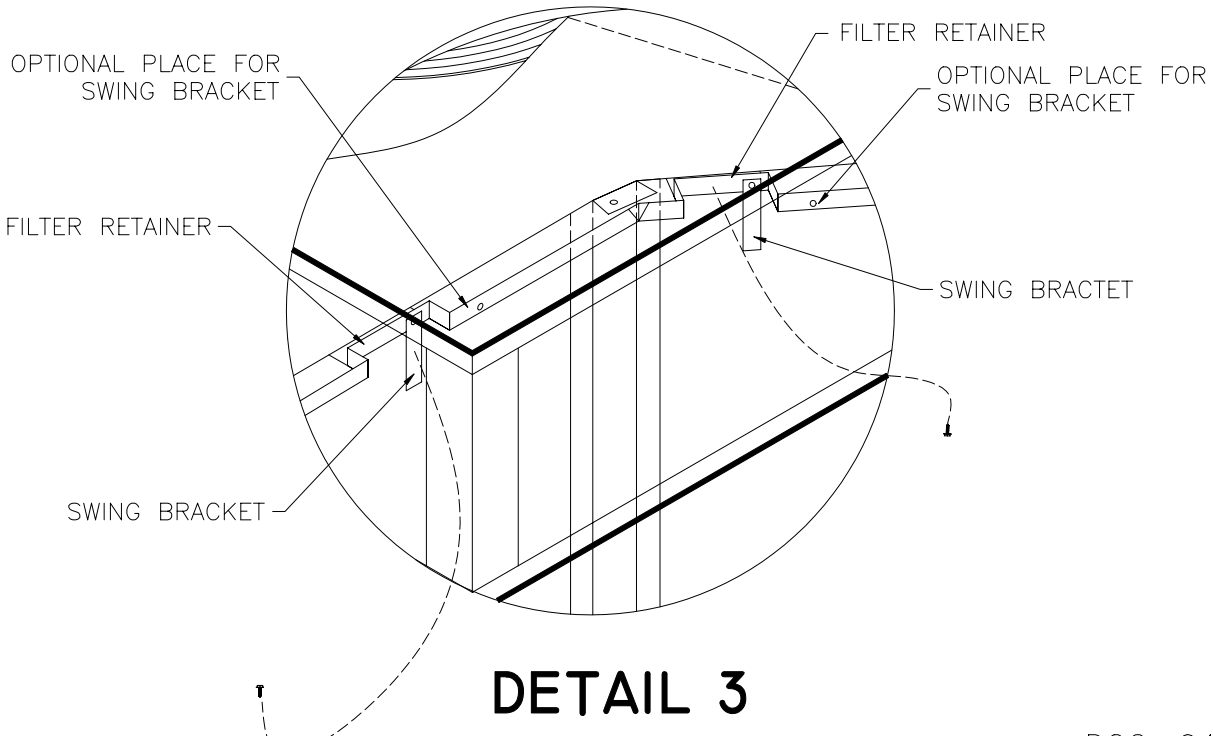
3 – LOCATE PART "A1" AND "A2" (FILTER RACK TOP) & PART "D" [FILTER RACK CENTER SUPPORT]. OVERLAP PART "A1" AND "A2" TOGETHER SO THE 2 HOLES MATCH. TAKE PART "D" AND MOUNT TO "A1" AND "A2" FROM THE INSIDE. NOW TAKE THAT PART AND INSERT IT INTO THE UNIT AND MOUNT PART "D" TO THE BOTTOM WHERE "B1" AND "B2" OVERLAPS. SEE DETAIL 2. SECURE WITH (4) #8x1/2 SELF DRILLING SHEET METAL SCREWS PROVIDED.

NOTE: USE CAUTION WHEN INSTALLING SCREWS NEAR COIL



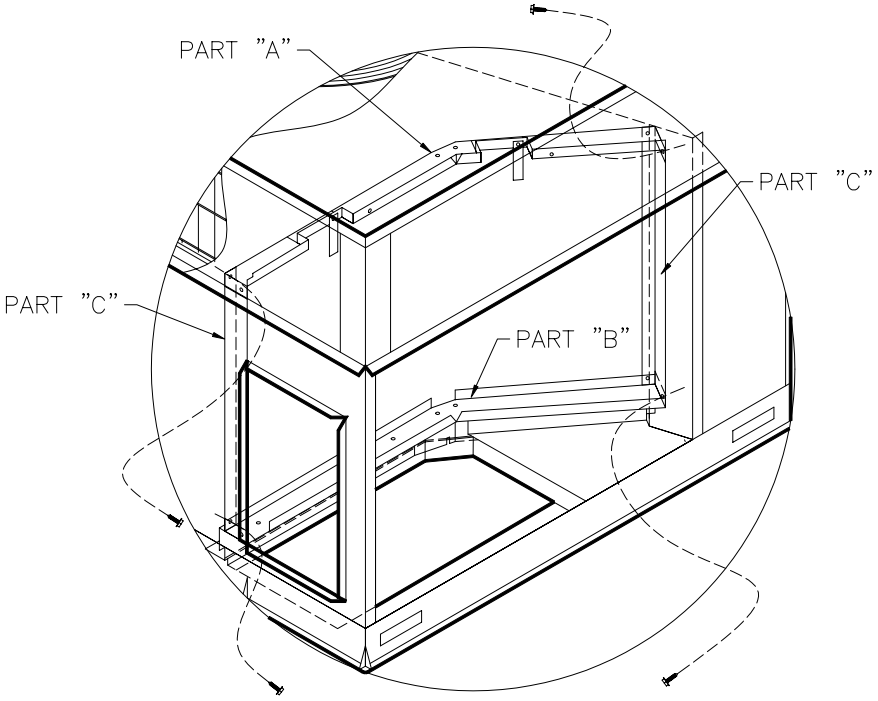
DETAIL 2

4 – TAKE PART "F" (FILTER RETAINER) AND MOUNT TO THE OPEN NOTCHES OF PARTS "A1" AND "A2". ONCE MOUNTED TAKE PART "G" (SWING BRACKET) AND MOUNT WHERE NEEDED ON PARTS "A1" AND "A2".



DETAIL 3

5 – INSERT PART "C" (SIDE SUPPORT) BETWEEN TOP AND BOTTOM ON EACH SIDE. MOUNT TO TOP AND BOTTOM OF FILTER RACK. ON LEFT SIDE, PUT THE SCREWS INTO THE BACK FLANGE. ON THE RIGHT SIDE, PUT THE SCREWS INTO THE SIDE FLANGE. SEE BELOW.



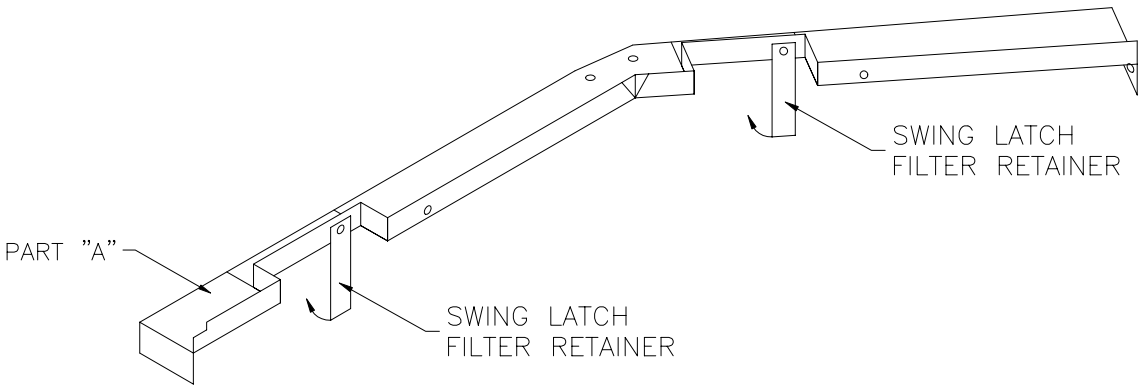
DETAIL 4

1561-FLT Filter Rack Installation

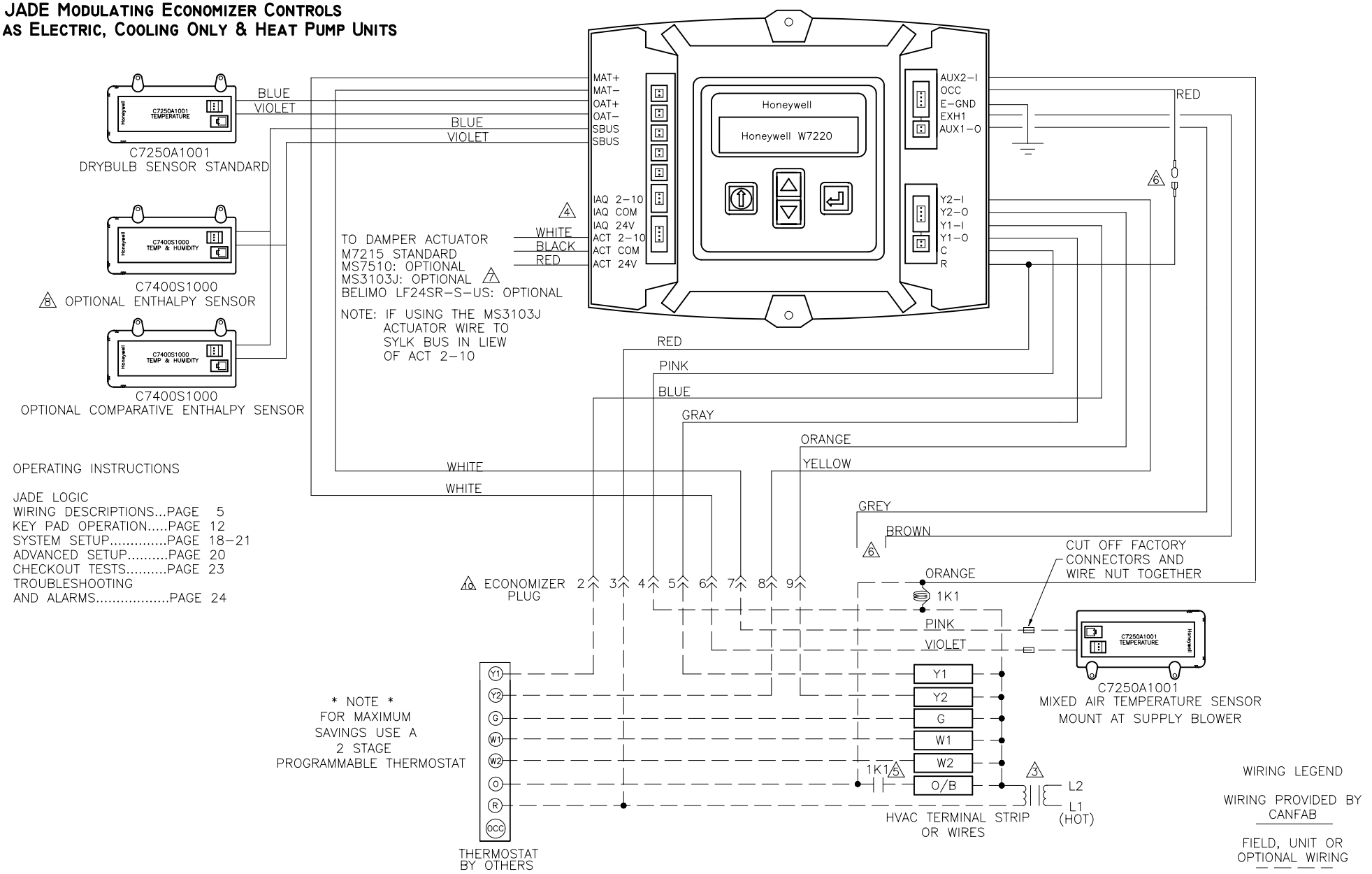
* NOTE *

IF USING A UNIT WITHOUT AN ECONOMIZER DO STEPS 5 & 6.
IF USING A UNIT WITH AN ECONOMIZER SEE ECONOMIZER INSTRUCTIONS NOW.

6 – INSTALL FILTERS. IF USING 2" FILTERS MAKE SURE THE SWING LATCHES ARE MOVED TO THE OTHER SET OF HOLES ON PART. SEE 1561–FLT FILTER RACK INSTALLATION – 1.
   A. PUT BOTTOM OF FILTER INTO FILTER RACK.
   B. SWING LATCH FILTER RETAINER TO ONE SIDE.
   C. PUSH TOP OF FILTER INTO FILTER RACK.
   D. SWING FILTER RETAINER DOWN.
   E. NOW DO THE SAME FOR THE OTHER SIDE.



JADE MODULATING ECONOMIZER CONTROLS
GAS ELECTRIC, COOLING ONLY & HEAT PUMP UNITS



OPERATING INSTRUCTIONS

CANFAB
CANNON FABRICATION INC
182 GRANITE STREET, SUITE 101, CORONA, CA 92879
PHONE: (951)278−1830 FAX: (951)278−8444 www.canfab.com canfab@canfab.com

FOR: Carrier 1.5 Thru 5 Ton Light Commercial Units

PART NO:		PROJECT:	
ENGINEER:		DISTRIBUTOR:	
DRAWING NO:	12109co SW	3.21.13	DATE:
APPROVED BY:			DATE: / /

CANNON FABRICATION INC
182 GRANITE STREET, SUITE 101, CORONA, CA 92879
PHONE: (951)278-1830 FAX: (951)278-8444 www.canfab.com canfab@canfab.com

FOR: JADE ECONOMIZERS

PART NO:

MODULATING ECONOMIZER CONTROLS GAS ELECTRICS, COOLING ONLY AND HEAT PUMP UNITS
PAGE 2

1. POWER SUPPLY. PROVIDE DISCONNECT MEANS AND OVERLOAD PROTECTION AS REQUIRED.
2. MOTOR SPRING-RETURNS CLOSED WHEN UNIT IS NOT RUNNING.
3. ENSURE THAT EQUIPMENT TRANSFORMER IS SIZED TO HANDLE THE EXTRA LOAD OF THE ECONOMIZER AND ACTUATOR.
4. OPTIONAL DEMAND CONTROL VENTILATION (DCV) CO2 SENSOR WITH 2-10VDC OUTPUT. WIRE HARNESS EXTENSION PROVEDED WITH THE CO2 SENSOR.
5. WHEN USING A HEATPUMP WITH DEFROST FEEEDBACK, ADD AN ISOLATION RELAY BETWEEN O AND C. (FIELD PROVIDED AND INSTALLED).
6. WHEN USING A SETBACK THERMOSTAT WITH OCCUPANCY OUT (24Vac) CONNECT THE 24Vac INPUT TO THE OCC TERMINAL. IF NO OCCUPANCY OUTPUT FROM THE THERMOSTAT THEN LEAVE THE JUMPER FROM R TO OCC CONNECTED.
7. 24 VAC OUTPUT WHEN PROGRAMMED CAP OFF IF NOT USED (SEE PAGE 6 FOR ACTUATOR WIRING OPTIONS). NOTE: ON/OFF ACTUATORS CAN BE USED ON THE EXH1 OR AUX1-O TERMINALS WITH GROUND TO THE C TERMINAL. WHEN PROGRAMMING THE EXH1 OR AUX1-O, THE % IS THE PERCENT OPEN POSITION OF THE OUTDOOR AIR DAMPER WHEN THE EXH1 OR AUX1-O TERMINAL IS ENERGIZED AND THE 2-POS DAMPER OPENS 100%. IF USING THE AUX1-O TERMINAL PROGRAM AUX1-O FOR EXH2.
8. OPTIONAL MS3103J COMMUNICATING ACTUATOR AVAILABLE (SPECIAL ORDER CONTACT FACTORY).
9. WHEN USING THE SYLKBUS SENSORS THERE WILL BE A SLIGHT DELAY WHILE THE JADE CONTROLLER AND THE SENSOR/S COMMUNICATE. ANALOG SENSORS DO NOT COMMUNICATE ON THE SYLKBUS AND OUTPUT A 20k OHM SIGNAL TO THE JADE CONTROLLER SO THE RESPONSE TIME IS INSTANTANEOUS.
10. NOT ALL HVAC UNITS WILL HAVE THE ECONOMIZER PLUG, IF YOUR UNIT DOES NOT HAVE THIS REMOVE THE PLUG ON THE ECONOMIZER HARNESS AND HARD WIRE TO THE UNIT AND THERMOSTAT.

NOTE: JADE WILL BE IN "SET UP" MODE FOR THE FIRST 60 MINUTES AFTER POWER UP. IF A SENSOR FOR THE OA OR SYLKBUS DEVICE (SENSOR, ACTUATOR) IS DISCONNECTED DURING THE SET UP MODE, THE JADE WILL NOT ALARM THE FAILURE. THE MA SENSOR IS A SYSTEM "CRITICAL" SENSOR, IF THE MA SENSOR IS REMOVED DURING THE SET UP MODE, THE JADE WILL ALARM. AFTER 60 MINUTES THE JADE CONTROLLER WILL CHANGE TO OPERATION MODE AND ALL COMPONENTS REMOVED OR FAILED WILL ALARM.

PROJECT: DATE:

ENGINEER: DISTRIBUTOR:

DRAWING NUMBER: 12109co sw 3.21.13

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182 GRANITE ST, SUITE 101 ♦ CORONA, CA 92879
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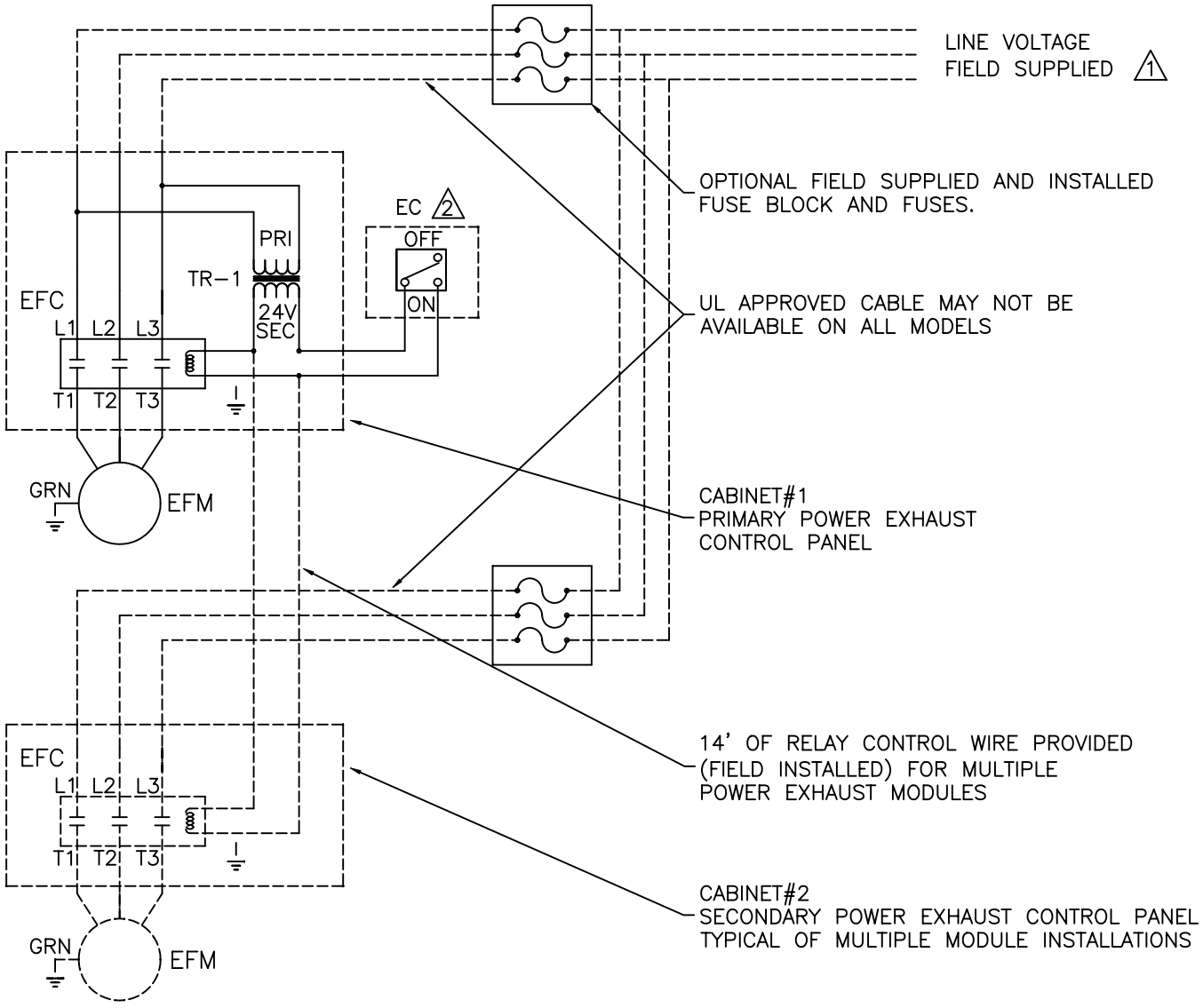
FOR: STANDARD POWER EXHAUST AND MODULATING POWER EXHAUST WIRING AND START UP

PART NO: PE-MPE WIRING-051919

STANDARD POWER EXHAUST & MODULATING POWER EXHAUST WIRING & START UP

PROJECT:	DATE:
ENGINEER:	DISTRIBUTOR:
DRAWING NUMBER: PE-MPE WIRING-050919.DWG	

Power Exhaust Wire Schematic



LEGEND

EFC – EXHAUST FAN CONTACTOR
EFM – EXHAUST FAN MOTOR
TR-1 – CONTROL TRANSFORMER
EC – EXHAUST CONTACTS
⏚ – GROUND CONNECTION

WARNING
TO AVOID SERIOUS INJURY
DISCONNECT POWER SUPPLY
BEFORE SERVICING UNIT.

** NOTES **

1 – POWER SUPPLY, PROVIDE DISCONNECT MEANS AND CIRCUIT PROTECTION AS REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS. IF LOCAL CODES ALLOW CONNECTING TO THE HVAC UNIT POWER MAKE SURE THE DISCONNECT AND INCOMING WIRING ARE SIZED TO HANDLE THE LOAD OF BOTH THE HVAC UNIT AND THE POWER EXHAUST.

2 – THE EXHAUST CONTACTS (EC) ENERGIZE THE POWER EXHAUST WHEN THE OUTSIDE AIR DAMPERS ARE AT THE FULL OPEN POSITION. THE EXHAUST CONTACTS WILL BE EITHER INTEGRAL TO THE ECONOMIZER CONTROLLER OR ACTUATOR OR BE A SEPERATE END SWITCH MOUNTED ON THE DAMPER FRAME.

1269CO.DWG RB 03.25.05

POWER EXHAUST START UP

PRE START UP

ONCE THE POWER EXHAUST ECONOMIZER IS INSTALLED, REMOVE THE ACCESS DOORS ON THE EXHAUST CABINET. ROUTE LINE VOLTAGE CABLE FROM THE VFD TO THE DISCONNECT OR UNIT POWER DISTRIBUTION POINT AS REQUIRED.

** NOTE **

CHECK LOCAL CODE REQUIREMENTS PRIOR TO INSTALLING THE LINE VOLTAGE THROUGH AC PACKAGE UNIT. A SEPERATE DISCONNECT MAY BE REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS.

START UP

USE THE START UP REPORT TO RECORD UNIT INFORMATION AND VERIFICATION OF START UP CHECKS.

1 - THE POWER EXHAUST WILL BE ENERGIZED WHEN THE EXHAUST CONTROL CONTACTS ARE CLOSED. THE CONTACTS WILL NOT BE CLOSED UNTIL THE OUTSIDE AIR DAMPERS ARE FULLY OPEN. ONCE THE CONTACTS ARE CLOSED THE CONTACTOR WILL BE ACTIVATED AND ENERGIZE THE POWER EXHAUST.
2 – CHECK THE POWER EXHAUST INSTALLATION IS COMPLETE, POWER EXHAUST IS LEVEL AND ALL SEAMS ARE TIGHT.
3 - CHECK THE SET SCREWS ON THE BLOWER WHEEL HUB. BE SURE THEY ARE TIGHT AND THE WHEEL DOES NOT RUB THE HOUSING.
4 - CHECK THE MOTOR AND BLOWER PULLEYS. BE SURE THEY ARE TIGHT AND ALIGNED.
5 - CHECK THE BELT TENSION. ASSURE THERE IS NOT MORE THAN 1/2" OF BELT DEFLECTION.
6 - CHECK ALL LINE AND LOW VOLTAGE CONNECTIONS FOR LOOSE OR UN-CONNECTED WIRES.

WARNING: HAZARD OF ELECTRICAL SHOCK! DISCONNECT INCOMMING POWER BEFORE SERVICING THE POWER EXHAUST

7 – VERIFY CORRECT VOLTAGE TO THE DISCONNECT BEFORE TURNING ON POWER TO THE POWER EXHAUST. IF THE BLOWER IS ROTATING THE WRONG DIRECTION, SWITCH THE T1 & T2 MOTOR LEADS AT THE CONTACTOR TO T2 & T1. ADJUST THE MOTOR SHEAVE FOR THE DESIRED BLOWER CFM OUTPUT AT FULL SPEED.

** NOTES **

1 - POWER SUPPLY, PROVIDE DISCONNECT MEANS AND CIRCUIT PROTECTION AS REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS. IF LOCAL CODES ALLOW CONNECTING TO THE HVAC UNIT POWER MAKE SURE THE DISCONNECT AND INCOMING WIRING ARE SIZED TO HANDLE THE LOAD OF BOTH THE HVAC UNIT AND THE POWER EXHAUST.
2 - THE EXHAUST CONTACTS (EC) ENERGIZE THE POWER EXHAUST WHEN THE OUTSIDE AIR DAMPERS ARE AT THE FULL OPEN POSITION. THE EXHAUST CONTACTS WILL BE EITHER INTEGRAL TO THE ECNOMIZER CONTROLLER OR ACTUATOR OR BE A SEPERATE END SWITCH MOUNTED ON THE ACTUATOR OR THE DAMPER FRAME.

POWER EXHAUST CHECK OUT

PROJECT _____

AC UNIT MODEL _____ UNIT TAG _____

POWER EXHAUST MODEL _____

POWER EXHAUST SERIAL NUMBER _____

DATE _____ TECHNICIAN _____

____ POWER EXHAUST CABINET IS INSTALLED IN AC UNIT (SEAMS ARE TIGHT, POWER EXHAUST IS LEVEL, NO GAPS)

____ ELECTRICAL CONNECTIONS ARE TIGHT

____ VERIFY BLOWER ROTATES FREELY AND WHEEL DOES NOT RUB

____ MOTOR SHEAVE, BLOWER SHEAVE AND BLOWER WHEEL SET SCREWS ARE TIGHT.

____ LOW VOLTAGE WIRING IS CONNECTED

____ LINE VOLTAGE WIRING IS CONNECTED

____ VERIFY VOLTAGE _____ L1-L2 _____ L2- L3 _____ L1-L3

_____ L1-N _____ L2-N _____ L3-N

____ VERIFY BLOWER ROTATION

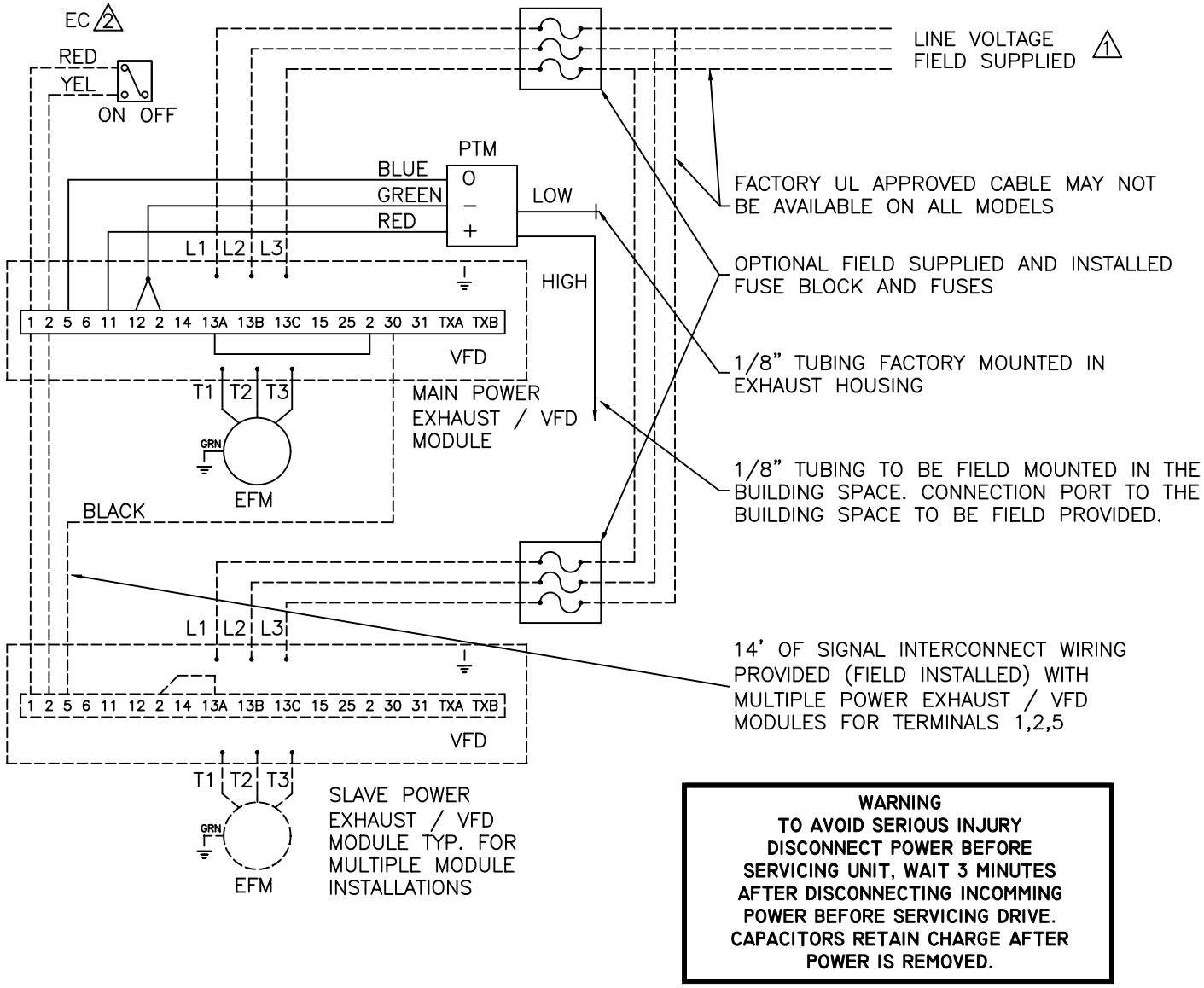
____ BLOWER DATA _____ CFM _____ RPM

VFD _____ L1 AMPS _____ L2 AMPS _____ L3 AMPS

MOTOR _____ T1 AMPS _____ T2 AMPS _____ T3 AMPS

MOTOR _____ BHP

PI MODULATING POWER EXHAUST WIRING (0-.1WG 0-10VDC SENSOR)



WARNING
TO AVOID SERIOUS INJURY DISCONNECT POWER BEFORE SERVICING UNIT, WAIT 3 MINUTES AFTER DISCONNECTING INCOMMING POWER BEFORE SERVICING DRIVE. CAPACITORS RETAIN CHARGE AFTER POWER IS REMOVED.

LEGEND

EFC	– EXHAUST FAN CONTACTOR	PTM	– PRESSURE TRANSMITTER
EFM	– EXHAUST FAN MOTOR	VFD	– VARIABLE FREQUENCY DRIVE
TR–1	– CONTROL TRANSFORMER	⏚	– GROUND CONNECTION
EC	– EXHAUST CONTROL		

** NOTES **

1 – POWER SUPPLY, PROVIDE DISCONNECT MEANS AND CIRCUIT PROTECTION AS REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS. IF LOCAL CODES ALLOW CONNECTING TO THE HVAC UNIT POWER MAKE SURE THE DISCONNECT AND INCOMING WIRING ARE SIZED TO HANDLE THE LOAD OF BOTH THE HVAC UNIT AND THE POWER EXHAUST.

2 – THE EXHAUST CONTACTS (EC) INITIATE THE RUN/STOP SIGNAL FOR THE VFD. WHEN THE OUTSIDE AIR DAMPERS ARE FULLY CLOSED THE VFD IS IN STOP MODE. WHEN THE DAMPERS START TO OPEN THE VFD WILL GO INTO RUN MODE. THE EXHAUST CONTACTS WILL BE EITHER INTEGRAL TO THE ECNOMIZER CONTROLLER OR ACTUATOR OR BE A SEPERATE END SWITCH MOUNTED ON THE DAMPER FRAME.

3 – THE VFD IS FACTORY PRE–PROGRAMMED TO ACCEPT THE 0–10 VDC SIGNAL FROM THE DIFFERENTIAL PRESSURE TRANSMITTER. FOR CUSTOM PROGRAMMING FIRST CHANGE PARAMETER 48 TO USER SETTINGS. SEE INSTRUCTIONS IN THE VFD HAND BOOK TO SET PARAMETERS.

1268CO.DWG RB 05.12.08

MODULATING POWER EXHAUST START UP

PRE START UP

ONCE THE POWER EXHAUST ECONOMIZER IS INSTALLED, REMOVE THE ACCESS DOORS ON THE EXHAUST CABINET. ROUTE THE 1/8" PRESSURE TUBING (PROVIDED) FROM THE HIGH PRESSURE PORT ON THE TRANSMITTER TO THE OCCUPIED BUILDING SPACE. TERMINATE THE PRESSURE TUBING AT A PORT (FIELD PROVIDED) SHIELDED FROM DRAFTS. ROUTE LINE VOLTAGE CABLE FROM THE VFD TO THE DISCONNECT OR UNIT POWER DISTRIBUTION POINT AS REQUIRED.

** NOTE **

CHECK LOCAL CODE REQUIREMENTS PRIOR TO INSTALLING THE LINE VOLTAGE THROUGH AC PACKAGE UNIT. A SEPERATE DISCONNECT MAY BE REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS.

START UP

USE THE START UP REPORT TO RECORD UNIT INFORMATION AND VERIFICATION OF START UP CHECKS.

1 - THE POWER EXHAUST WILL BE ENERGIZED WHEN THE EXHAUST CONTROL CONTACTS ARE CLOSED. THE CONTACTS WILL NOT BE CLOSED UNTIL THE OUTSIDE AIR DAMPERS START TO OPEN. ONCE THE CONTACTS ARE CLOSED THE RUN SIGNAL AT THE VFD WILL BE ENABLED. MOTOR SPEED WILL BE DEPENDENT UPON THE BUILDING PRESSURE SIGNAL FROM THE PRESSURE TRANSMITTER.
2 – CHECK THE POWER EXHAUST INSTALLATION IS COMPLETE, POWER EXHAUST IS LEVEL AND ALL SEAMS ARE TIGHT.
3 - CHECK THE SET SCREWS ON THE BLOWER WHEEL HUB. BE SURE THEY ARE TIGHT AND THE WHEEL DOES NOT RUB THE HOUSING.
4 - CHECK THE MOTOR AND BLOWER PULLEYS. BE SURE THEY ARE TIGHT AND ALIGNED.
5 - CHECK THE BELT TENSION. ASSURE THERE IS NOT MORE THAN 1/2" OF BELT DEFLECTION.
6 - CHECK ALL LINE AND LOW VOLTAGE CONNECTIONS FOR LOOSE OR UN-CONNECTED WIRES.

WARNING: HAZARD OF ELECTRICAL SHOCK! CAPACITORS IN THE VFD RETAIN THEIR CHARGE AFTER THE POWER IS REMOVED. DISCONNECT INCOMMING POWER AND WAIT UNTIL THE VOLTAGE BETWEEN TERMINALS B+ & B- IS 0 VDC BEFORE SERVICING THE DRIVE

7 – VERIFY CORRECT VOLTAGE TO THE DISCONNECT BEFORE TURNING ON POWER TO THE POWER EXHAUST. TO CHECK OUT THE BLOWER, TEMORARILY DISCONNECT THE JUMPER FROM TERMINALS 13A TO 2 ON THE VFD TERMINAL STRIP. THIS WILL PLACE THE VFD IN KEYPAD/FREQUENCY OPERATION. USE THE ARROW KEYS ON THE KEYPAD TO INCREASE THE SPEED TO 60HZ. IF THE BLOWER IS ROTATING THE WRONG DIRECTION, SWITCH THE T1 & T2 MOTOR LEADS AT THE VFD TO T2 & T1. ADJUST THE MOTOR SHEAVE FOR THE DESIRED BLOWER CFM OUTPUT AT FULL SPEED. WHEN THE BLOWER CHECK OUT IS COMPLETE, RUN THE SPEED BACK DOWN TO 20HZ AND RE-CONNECT THE JUMPER BETWEEN TERMINALS 13A AND 2.
8 – ADJUST THE SETPOINT PER JOB REQUIREMENTS. THE VFD WILL DISPLAY THE PRESSURE CONTROL SET POINT IN HUNDREDTHS OF AN INCH W.G. EXAMPLE: 3.0 = .03" W.G. NOTE: THE

INITIAL SETTING AT FIRST POWER UP WILL BE 3.0. IF THE JOB REQUIREMENT IS FOR .03"W.G, THEN NO FURTHER ADJUSTMENT OF THE SETPOINT IS NECESSARY. TO ADJUST THE SET POINT, PRESS THE **UP** OR **DOWN** ARROW, PIC WILL FLASH IN THE DISPLAY THEN THE SET POINT WILL DISPLAY WITH A DOT IN THE UPPER LEFT CORNER OF THE WINDOW. USE THE **UP** OR **DOWN** ARROW TO ADJUST THE SET POINT NOW. AFTER MAKING THE CHANGE, PRESS **MODE** TO ACCEPT IT. AFTER 5 SECONDS OF INACTIVITY THE VFD WILL EXIT THE EDIT SCREEN AND RETURN TO THE DISPLAY SCREEN. USE THE FOLLOWING CHART FOR REFERENCE.

DISPLAY	INCHES WATER GAGE
10.0	0.10"
9.0	0.09"
8.0	0.08"
7.0	0.07"
6.0	0.06"
5.0	0.05"
4.0	0.04"
3.0	0.03"
2.0	0.02"
1.0	0.01"
0.0	0.00"

9 - TO SEE THE FREQUENCY OUTPUT: PRESS **MODE** TWICE, P50 WILL DISPLAY, PRESS THE **UP** ARROW UNTIL P71 IS DISPLAYED, PRESS **MODE**. THE DISPLAY NOW SHOWS THE FREQUENCY OUTPUT. PRESS **MODE** TO RETURN TO THE SET POINT DISPLAY.
10 - TO SEE THE TRANSMITTER OUTPUT: PRESS **MODE** TWICE, P50 WILL DISPLAY, PRESS THE **UP** ARROW UNTIL P69 IS DISPLAYED, PRESS **MODE**. THE DISPLAY NOW SHOWS THE TRANSMITTER OUTPUT SIGNAL LEVEL. 0.0=0VDC, 10.0=10VDC. PRESS **MODE** TO RETURN TO THE SET POINT DISPLAY.
11 - FOR MORE ADVANCED FEATURES AND SETTINGS, REFER TO THE VFD MANUAL.

NOTE: TO CHANGE THE OEM SETTINGS, PARAMETER P48 MUST BE SET TO 01 (USER SETTINGS). THE VFD MUST BE IN A STOPPED STATE WITH --- IN THE DISPLAY TO CHANGE THIS PARAMETER.

**** NOTES ****

1 - POWER SUPPLY, PROVIDE DISCONNECT MEANS AND CIRCUIT PROTECTION AS REQUIRED. SEE POWER EXHAUST NAME PLATE FOR ELECTRICAL RATINGS. IF LOCAL CODES ALLOW CONNECTING TO THE HVAC UNIT POWER MAKE SURE THE DISCONNECT AND INCOMING WIRING ARE SIZED TO HANDLE THE LOAD OF BOTH THE HVAC UNIT AND THE POWER EXHAUST.
2 - THE EXHAUST CONTACTS (EC) INITIATE THE RUN/STOP SIGNAL FOR THE VFD. WHEN THE OUTSIDE AIR DAMPERS ARE FULLY CLOSED THE VFD IS IN STOP MODE. WHEN THE DAMPERS START TO OPEN THE VFD WILL GO INTO RUN MODE. THE EXHAUST CONTACTS WILL BE EITHER INTEGRAL TO THE ECNOMIZER CONTROLLER OR ACTUATOR OR BE A SEPERATE END SWITCH MOUNTED ON THE ACTUATOR OR THE DAMPER FRAME.
3 - THE VFD IS FACTORY PRE-PROGRAMMED TO ACCEPT THE 0-10 VDC SIGNAL FROM THE DIFFERENTIAL PRESSURE TRANSMITTER. FOR CUSTOM PROGRAMMING FIRST CHANGE PARAMETER 48 TO USER SETTINGS. SEE INSTRUCTIONS IN THE VFD HAND BOOK TO SET PARAMETERS.

MODULATING POWER EXHAUST CHECK OUT

PROJECT _____

AC UNIT MODEL _____ UNIT TAG _____

POWER EXHAUST MODEL _____

POWER EXHAUST SERIAL NUMBER _____

DATE _____ TECHNICIAN _____

____ POWER EXHAUST CABINET IS INSTALLED IN AC UNIT (SEAMS ARE TIGHT, POWER EXHAUST IS LEVEL, NO GAPS)

____ ELECTRICAL CONNECTIONS ARE TIGHT

____ VERIFY BLOWER ROTATES FREELY AND WHEEL DOES NOT RUB

____ MOTOR SHEAVE, BLOWER SHEAVE AND BLOWER WHEEL SET SCREWS ARE TIGHT.

____ VERIFY PRESSURE TUBING IS RUN TO OCCUPIED SPACE

____ LOW VOLTAGE WIRING IS CONNECTED

____ LINE VOLTAGE WIRING IS CONNECTED

____ VERIFY VOLTAGE _____ L1-L2 _____ L2- L3 _____ L1-L3

_____ L1-N _____ L2-N _____ L3-N

____ VERIFY BLOWER ROTATION

____ BLOWER & VFD DATA AT 60HZ _____ CFM _____ RPM

VFD _____ L1 AMPS _____ L2 AMPS _____ L3 AMPS

MOTOR _____ T1 AMPS _____ T2 AMPS _____ T3 AMPS

MOTOR _____ BHP

____ VERIFY VFD IS OPERATING IN PI MODE

____ PRESSURE SET POINT FOR OCCUPIED SPACE

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Constant Volume Power Exhaust Sequence Of Operation

Activation of the power exhaust is by a set of exhaust contacts, either integral to the economizer controls or integral to the damper actuator or an end switch mounted on the economizer damper frame. The economizer outside air damper will open and the return air damper will close on a call for cooling when the outside temperature is below the economizer changeover set point. When the economizer outside air damper reaches a full open condition, the exhaust contacts close and activate the power exhaust fan to exhaust the return air and reduce the pressure in the conditioned building space. When the economizer begins to close the contacts will open and the power exhaust will be de-activated.

Modulating Volume Power Exhaust Sequence Of Operation

Activation of the modulating power exhaust is by a set of contacts, either integral to the economizer controls or integral to the damper actuator or an end switch mounted on the damper frame, in conjunction with a variable frequency drive (VFD) and a differential pressure transmitter. When the HVAC unit starts and the economizer outside air damper opens to about 85%, the contacts close. The closed contacts enable the run command at the VFD. As the building space pressure increases relative to the outside ambient pressure, the differential pressure transmitter will send a corresponding 0 to 10vdc signal to the VFD. When the signal is below the pressure set point on the VFD, the power exhaust will be in hibernate mode and there will be no output to the power exhaust blower motor. When the signal rises above the VFD pressure set point, the power exhaust will end the hibernate mode and the VFD will modulate the speed of the exhaust blower as required until the space pressure relative to the external pressure is below the VFD set point. When the HVAC unit is stopped the economizer outside air damper will return to a full closed position. As the economizer closes the contacts will open and disable the run command at the VFD and stop the power exhaust.

Demand Control Ventilation Modified Sequence Of Operation

The economizer controller contains an in input for a 2-10vdc signal provided by a CO2 sensor and a CO2 threshold set point. When the CO2 level rises above the threshold set point, the economizer controller will override the current outside air damper position and modulate open to the full open condition. As the outside air damper opens the return air damper will close. For constant volume power exhaust, when the outside air damper reaches full open, the power exhaust will be activated to reduce space pressure and bring down the CO2 level. For modulating volume power exhaust, as the pressure in the space increases, due to the return air damper modulating closed, the VFD will modulate the speed of the exhaust blower to reduce space pressure and bring down the CO2 level. When the CO2 level drops below the threshold set point, the economizer and power exhaust will return to normal operation.