

Installation Instructions

ACCESSORY HORIZONTAL POWER EXHAUST, GAS HEATING/ELECTRIC COOLING, ELECTRIC COOLING, AND HEAT PUMP UNITS

3 TO 12 1/2 TON

DNPWREXH028A01, DNPWREXH029A01,
DNPWREXH082A00, DNPWREXH083A00

For Use With Horizontal Economizer

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IMPORTANT: Read these instructions completely before attempting to install the accessory power exhaust.

PACKAGE CONTENTS

QTY	CONTENTS
1	Power Exhaust Hood/Fan Assembly
1	Low Voltage Wiring Harness with plug — 48 in. (1219mm)
1	High Voltage Wiring Harness with plug — 218 in. (5537mm)
8	No. 10 x 3/4 in. (19mm) Mounting Screws

UNIT CONFIGURATION TABLE

UNIT CONFIGURATION	UNIT FOOTPRINT SIZE
Small Cabinet	46 3/4" x 74 3/8"
Large Cabinet	58 1/2" x 88 1/8"
Extra Large Cabinet	63 3/8" x 115 7/8"


PACKAGE USAGE

UNIT SIZE	UNIT VOLTAGE	No. of FANS	POWER EXHAUST PART NUMBER
Small and Large Cabinet	208/230 V, 1 Ph	1	DNPWREXH028A01
	460 V, 3 Ph	1	DNPWREXH029A01
Extra Large Cabinet	208/230 V, 1 Ph	2	DNPWREXH082A00
	460 V, 3 Ph	2	DNPWREXH083A00

SAFETY CONSIDERATIONS

Installation and servicing of air-conditioning equipment can be hazardous due to system pressure and electrical components. Only trained and qualified service personnel should install, repair, or service air-conditioning equipment. Untrained personnel can perform the basic maintenance functions. All other operations should be performed by trained service personnel. When working on air-conditioning equipment, observe precautions in the literature, tags and labels attached to the unit, and other safety precautions that may apply.

Follow all safety codes. Wear safety glasses and work gloves.

Recognize safety information. This is the safety-alert symbol . When you see this symbol on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words DANGER, WARNING, and CAUTION. These words are used with the safety-alert symbol. DANGER identifies the most serious hazards which **will** result in severe personal injury or death. WARNING signifies a hazard which **could** result in personal injury or death. CAUTION is used to identify unsafe practices which **may** result in minor personal injury or product and property damage. NOTE is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

WARNING

ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury and/or death.

Before beginning any modification, be certain that the main-line electrical disconnect switch is in the OFF position. Close the main gas supply shutoff valve. Tag disconnect switch and gas valve with suitable warning labels.

CAUTION

CUT HAZARD

Failure to follow this caution may result in personal injury.

Sheet metal parts may have sharp edges or burrs. Use care and wear appropriate protective clothing, safety glasses and gloves when handling parts and servicing furnaces.

GENERAL

The accessory horizontal power exhaust is used in conjunction with a horizontal Economizer only and is mounted external to the rooftop unit in the return air ductwork. For vertical return air applications, this power exhaust accessory **cannot** be used. The vertical power exhaust accessory must be used for vertical return air applications.

NOTE: This accessory may be used with the horizontal or vertical Economizer.

See Table 1 for Economizer usage. See Fig. 1 for accessory dimensions. The 028, 029 accessory weighs 30 lb (13.6 kg). The 082, 083 accessory weighs 75 lb (34 kg).

NOTE: For 575-v installations, a field-supplied and installed transformer (FAST part no. 1171494) must be used with 208/230 v power exhaust.

Table 1 – Accessory Horizontal Economizer Usage

PART NO.	Unit Size	Description
DNECOMZR024A02	Small Cabinet	Economizer with W7212 Controller
DNECOMZR025A02	Large Cabinet	
DNECOMZR064A00	Extra Large Cabinet	

INSTALLATION

IMPORTANT: Follow all local and national electrical codes when installing accessory.

Follow all local and NEC (National Electrical Code) codes. If a single power source is to be used, size the wire to include power exhaust MCA and MOCP. (See Table 2.)

Table 2 – Power Exhaust Electrical Data

POWER EXHAUST PART NO.	MCA (230 v)	MCA (460 v)	MCA (575 v)	MOCP (for separate power source)
DNPWREXH028A01	1.7	N/A	0.68	15
DNPWREXH029A01	N/A	1.0	N/A	15
DNPWREXH082A00	3.3	N/A	1.32	15
DNPWREXH083A00	N/A	1.8	N/A	15

LEGEND

MCA – Minimum Circuit Amps

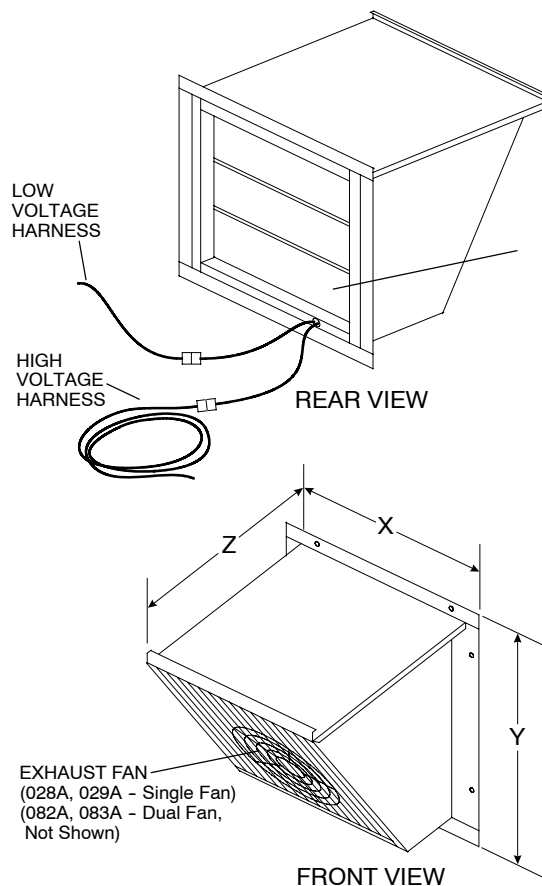
MOCP – Maximum Overcurrent Protection

N/A – Not Applicable

NOTE: For R-410A units, refer to unit nameplate for MCA and MOCP for installed power exhaust. For R-22 units, use the calculations detailed below. If multiple power exhausts are used, the MCA value used in wire size calculations must be the sum of the number of individual power exhausts used.

Check MCA and MOCP when power exhaust is powered through the unit (must be in accordance with NEC and/or local codes). Determine the new MCA including the power exhaust using the following formula:

Fig. 1 – Accessory Horizontal Power Exhaust



Power Exhaust	"X" in (mm)	"Y" in (mm)	"Z" in (mm)
DNPWREXH028A01	23.25 (590)	24.3 (625)	19.6 (495)
DNPWREXH029A01			
DNPWREXH082A00	39 (990)	24.3 (625)	17.1 (435)
DNPWREXH083A00			

MCA New = MCA unit only + MCA of Power Exhaust

For example, using a R-22 gas heat, electric cooling, 6-ton unit with MCA = 28.9 and MOCP = 35, with DNPWREXH030A01 power exhaust.

MCA New = 28.9 amps + 1.7 amps = 30.6 amps

If the new MCA does not exceed the published MOCP, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is acceptable. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

NOTE: For 575-v installations, a field-supplied and installed transformer (part no. 1171494) must be used with 208/230-v power exhaust. See Fig. 5 for single fan units and Fig. 7 for dual fan units.

The horizontal power exhaust can be used with the following type economizer:

- Economizer with W7212 controller.

To install the horizontal power exhaust, perform the following procedure:

1. Turn off unit power supply and install lockout tag.



WARNING

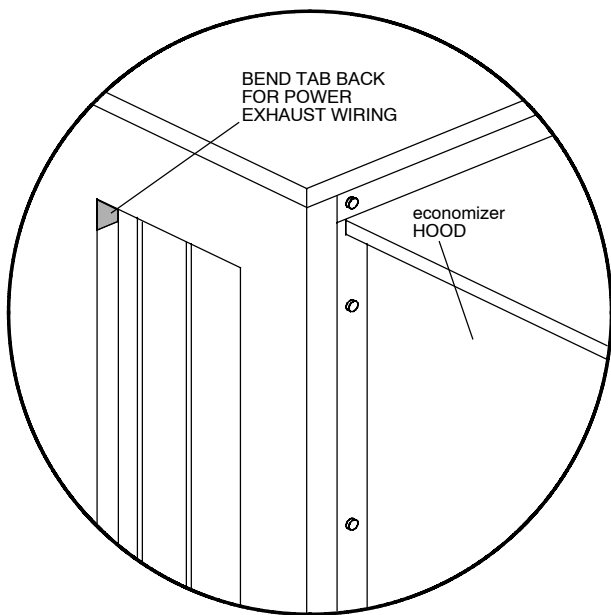
ELECTRICAL SHOCK HAZARD

Failure to follow this warning could cause personal injury and/or death.

Before beginning any modification, be certain that the main-line electrical disconnect switch is in the OFF position. Close the main gas supply shutoff valve. Tag disconnect switch and gas valve with suitable warning labels.

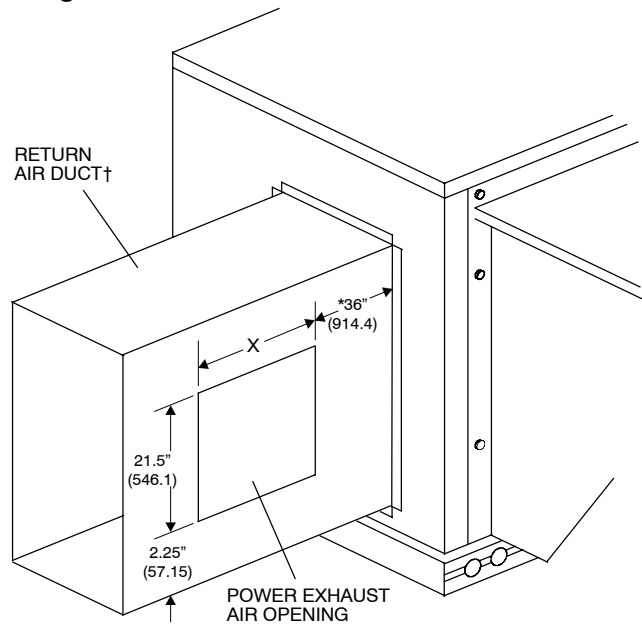
2. If ductwork has not already been constructed and connected to HVAC (heating, ventilation and air conditioning) unit, field-fabricate and secure the return air duct per HVAC unit recommendations and the unit installation instructions.
3. Once the horizontal economizer has been installed, locate the notched tab in the upper left corner of the return damper. (See Fig. 2.) Bend back this tab to allow for power exhaust wiring entry.

Fig. 2 - Tab on Horizontal Economizer



4. Install the economizer per the instructions provided with the accessory. Tape the barometric relief blades on the economizer shut. The barometric relief is not used when the power exhaust is installed.
5. Cut an exhaust air opening in the side of the return air duct. See Fig. 3 for dimensions.
6. Place the power exhaust near the exhaust air opening in preparation for wiring to the unit. It may be easier to hold the power exhaust unit up to this opening and attach with a few screws and then remove so that the installation will be easier later when it is important that the wires are not pinched.

Fig. 3 - Tab on Horizontal Economizer



Power Exhaust	"X" in (mm)
DNPWREXH028A01	
DNPWREXH029A01	19.5 (495)
DNPWREXH082A00	
DNPWREXH083A00	35 (890)

NOTES:

Dimensions are in inches (mm)

* Recommended distance if space allows.

† May require bracing due to the weight of the power exhaust

7. Follow control and power wiring instructions specific to this economizer and unit control.

IMPORTANT: To achieve higher levels of exhaust air, multiple power exhaust accessories may be used. If more than one power exhaust is being installed, cut additional openings in the ductwork.

Power Exhaust Wiring with Economizer

1. Both wiring harnesses (low voltage and high voltage) are plugged together with the extensions at the factory for shipping. Unplug harnesses and uncoil wire. (See Fig. 1.)
2. Route the other end of the low voltage extension harness to the economizer controller. (See Fig. 4.) The harness is connected to the controller by connecting the tan wire to the tan wire 24 VAC COM terminal on the controller. The terminal on the gray wire is connected to terminal EF1 on the controller. See Fig. 5 – Fig. 8 for economizer wiring diagrams. Install the gray jumper wire on the controller from the exhaust fan terminal (EF), to the 24 VAC HOT terminals. The gray jumper is shipped wire tied to the control harness.
3. The power line wiring harness must be routed through the duct, through the hole created by the bent tab on the Economizer, and through the unit to the control box. (See Fig. 4.) The harness must be routed through the grommets provided in the unit control box. Do not drill routing holes.
4. Wire the end of the power line wiring harness to the power exhaust power source. (See Fig. 5 – Fig. 8.)

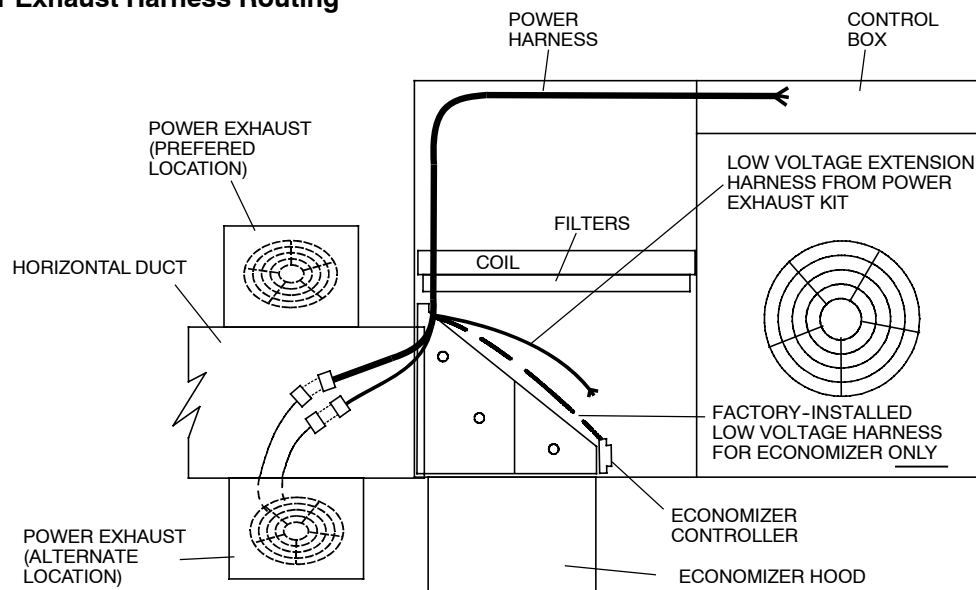
R-410A Rooftop Models Only:

For single point wiring applications, connect the power exhaust power wire harness to the compressor contactor in the control box. Install the power exhaust power wire harness into the pressure lugs on the compressor contactor, used for the field power wiring also.

Be careful not to route power exhaust harness on top of indoor coil. Follow all local and NEC (National Electrical Code) codes. If a single power source is to be used, size the wire to include power exhaust MCA and MOCP.

5. Make sure all wiring is secure. Use field-supplied wire ties if necessary. Be sure that wiring does not interfere with operation of the HVAC unit, Economizer, or power exhaust.
6. Connect the end switch harness plug and the power line harness plug to the two plugs coming out of the power exhaust. (See Fig. 4.)

Fig. 4 - Power Exhaust Harness Routing



**Fig. 5 - Single Fan Power Exhaust Wiring for Economizer with W7212 Controller —
208/230 and 575-V Units**

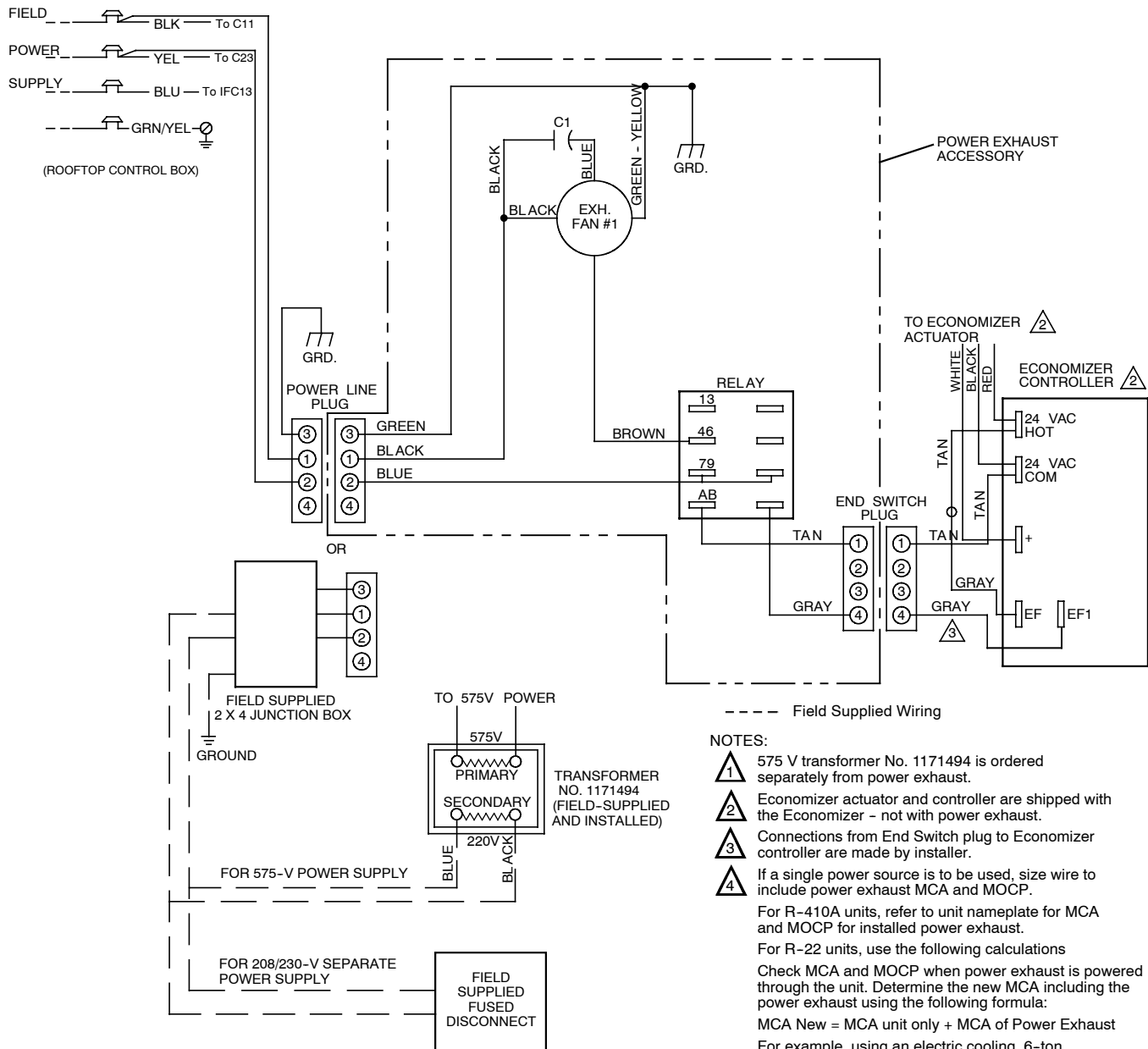
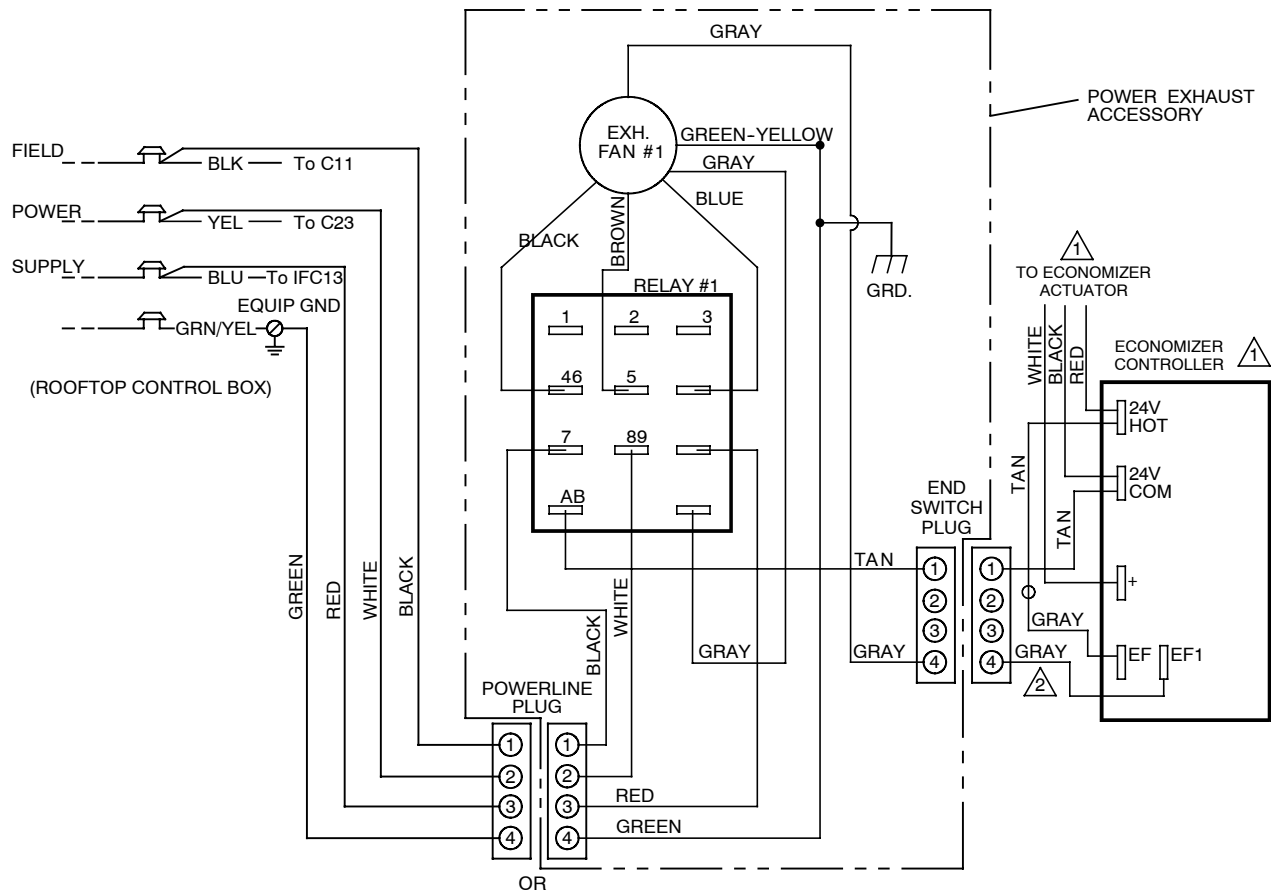


Fig. 6 - Single Fan Power Exhaust Wiring for Economizer with W7212 Controller - 460V Units



--- Field Supplied Wiring

NOTES:

1 Economizer actuator and controller are shipped with the Economizer - not with power exhaust.

2 Connections from End Switch plug to Economizer controller are made by installer.

3 If a single power source is to be used, size wire to include power exhaust MCA and MOCP.

For R-410A units, refer to unit nameplate for MCA and MOCP for installed power exhaust.

For R-22 units, use the following calculations

Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:

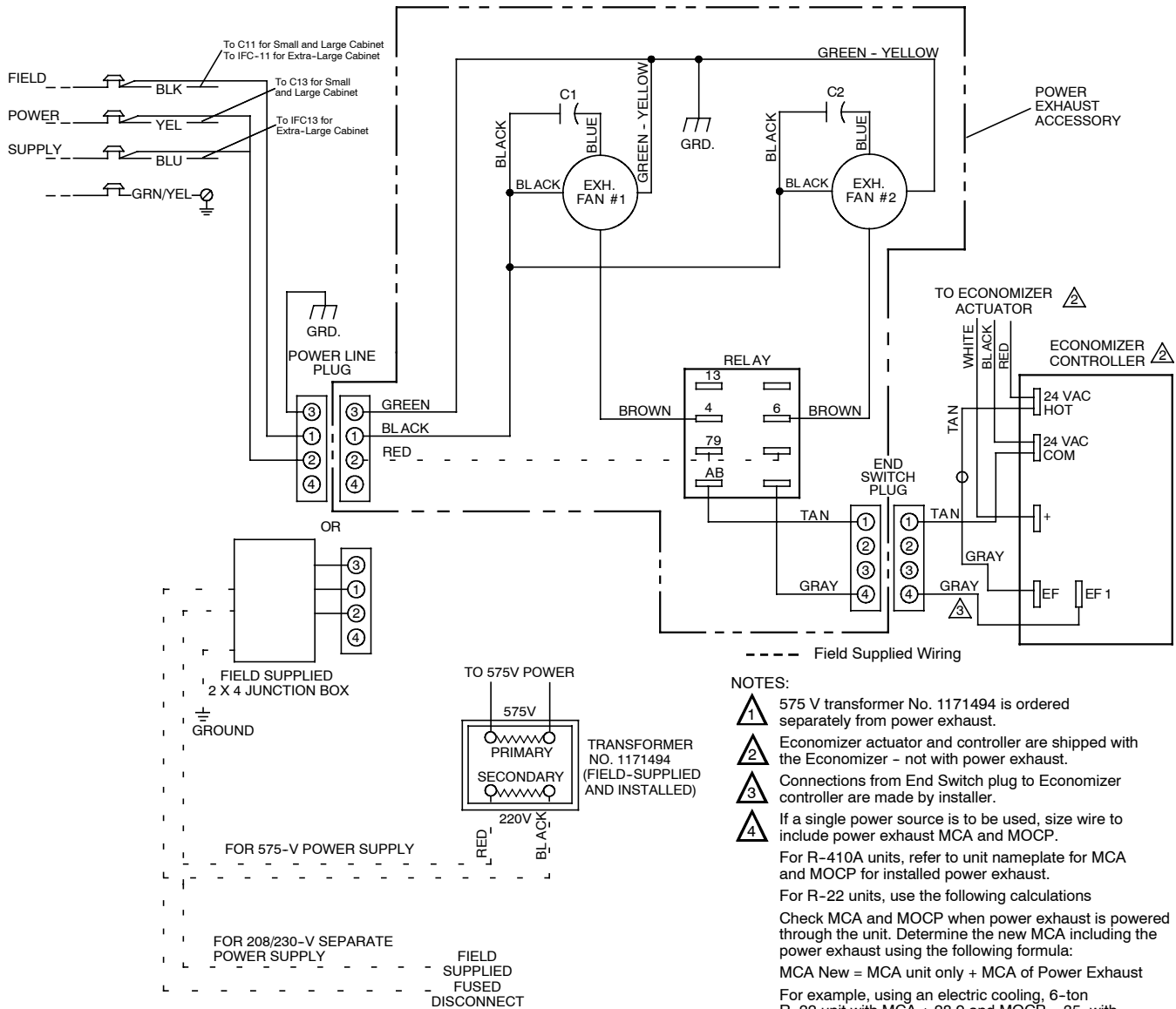
$MCA_{New} = MCA_{unit\ only} + MCA_{of\ Power\ Exhaust}$

For example, using an electric cooling, 6-ton R-22 unit with MCA + 28.9 and MOCP = 35, with DNPWREXH030A01 power exhaust.

$MCA_{New} = 28.9\ amps + 1.5\ amps = 30.4\ amps$

If the new MCA does not go over the MOCP published, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is OK. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

Fig. 7 - Dual Fan Power Exhaust Wiring for Economizer with Controller W7212 — 208/230V and 575V Units



NOTES:

- 1 575 V transformer No. 1171494 is ordered separately from power exhaust.
 - 2 Economizer actuator and controller are shipped with the Economizer - not with power exhaust.
 - 3 Connections from End Switch plug to Economizer controller are made by installer.
 - 4 If a single power source is to be used, size wire to include power exhaust MCA and MOCP.
- For R-410A units, refer to unit nameplate for MCA and MOCP for installed power exhaust.
- For R-22 units, use the following calculations
- Check MCA and MOCP when power exhaust is powered through the unit. Determine the new MCA including the power exhaust using the following formula:
- $$\text{MCA New} = \text{MCA unit only} + \text{MCA of Power Exhaust}$$
- For example, using an electric cooling, 6-ton R-22 unit with MCA + 28.9 and MOCP = 35, with DNPWREXH030A01 power exhaust.
- $$\text{MCA New} = 28.9 \text{ amps} + 1.5 \text{ amps} = 30.4 \text{ amps}$$
- If the new MCA does not go over the MOCP published, then MOCP would not change. The MOCP in this example is 35 amps, the MCA New is below 35, therefore the MOCP is OK. If "MCA New" is larger than the published MOCP, raise the MOCP to the next larger size. For separate power, the MOCP for the power exhaust will be 15 amps per NEC.

Fig. 8 - Dual Fan Power Exhaust Wiring for Economizer with Controller W7212 — 460V Units

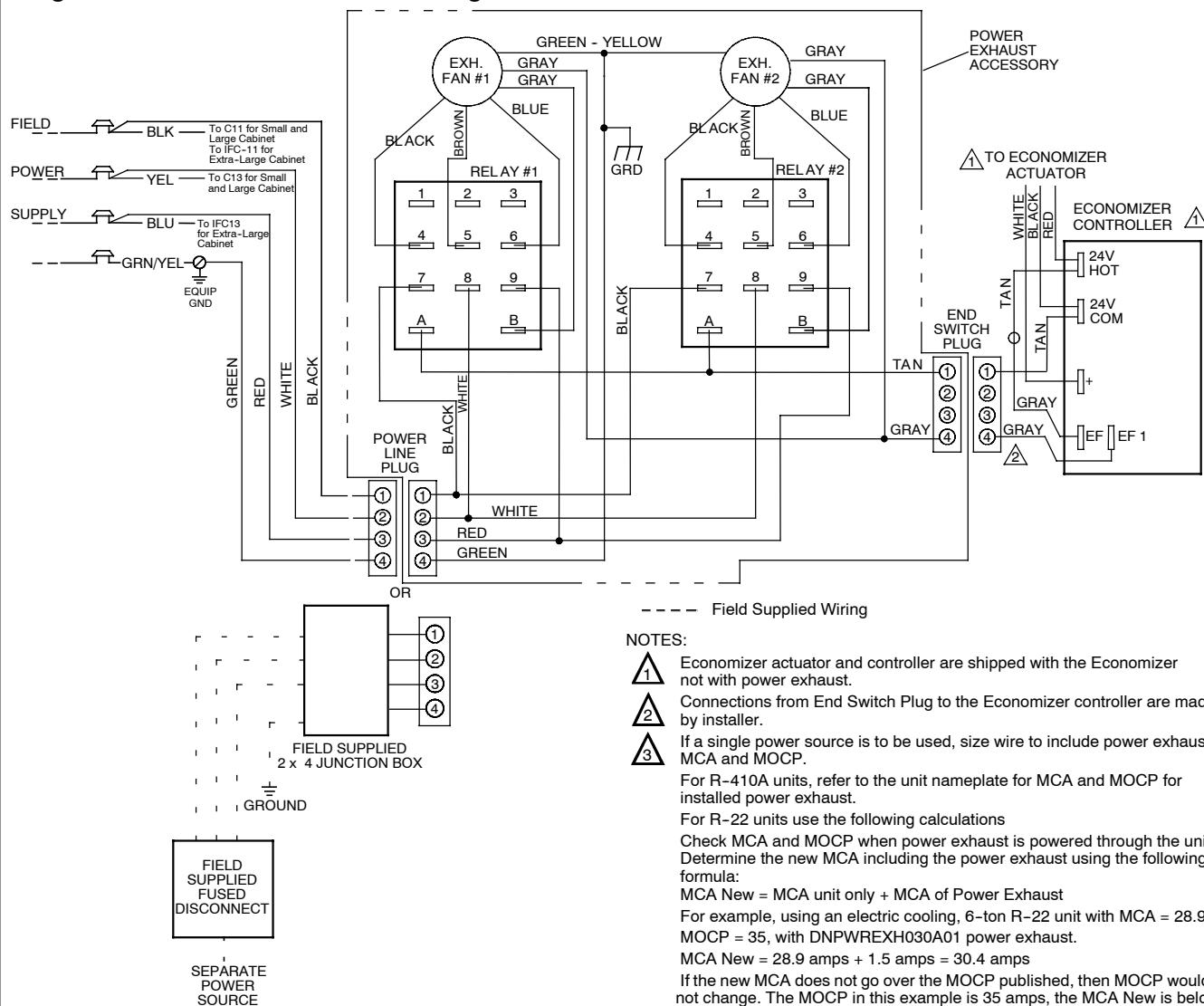
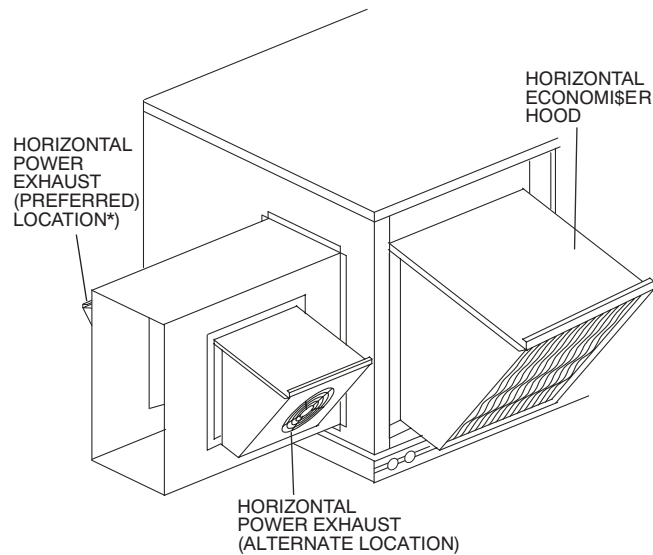
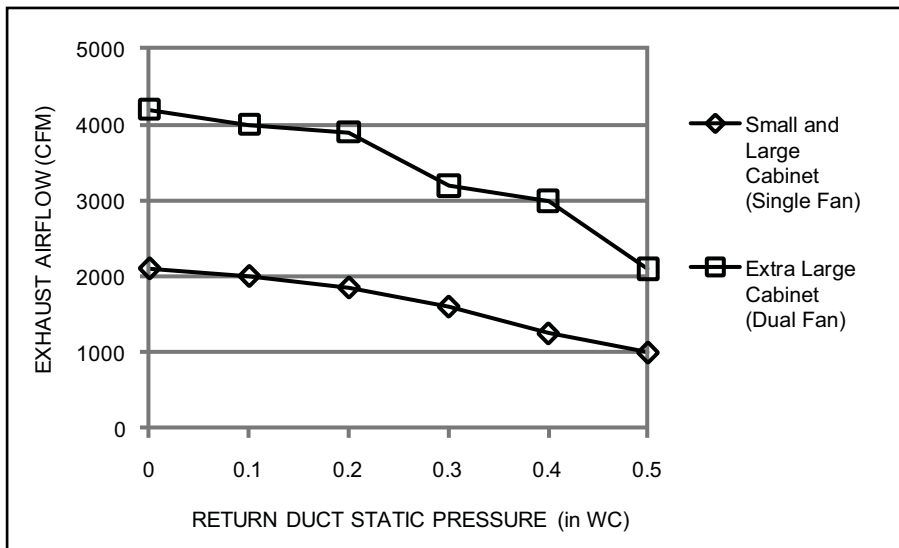


Fig. 9 - Power Exhaust Installed in Duct



* Use alternate location if preferred location causes recirculation of exhaust air into outdoor air intake.

Fig. 10 - Power Exhaust Performance



Attaching Power Exhaust to Duct

1. Caulk the side mating flanges on the power exhaust. Lift power exhaust and install over the duct opening using the screws (no. 10 x $\frac{3}{4}$ in.) provided. (See Fig. 9.) Make sure wiring harnesses are properly secured.

IMPORTANT: The return air duct will need to support the weight of the power exhaust. Reinforce or support duct properly to prevent damage to duct from the weight of the power exhaust.

2. Adjust the power exhaust set point on the economizer controller to the desired activation point.
3. Return power to unit and remove lockout tag.
4. Test power exhaust operation by setting the power exhaust set point on the economizer controller to 0%. Power exhaust performance is shown in Fig. 10.