

INSTALLATION INSTRUCTIONS

Low-Ambient Pressure Switch

NASA201LA, NASA401LA

These instructions must be read and understood completely before attempting installation.

Safety Considerations:

Installing and servicing of air conditioning equipment can be hazardous due to system pressure and electrical components. Only trained personnel should install or service air conditioning equipment.

Untrained personnel can perform basic maintenance functions such as cleaning coils or cleaning and replacing filters. All other operations should be performed by trained service personnel. When working on air conditioning equipment observe precautions in the literature and on tags and labels attached to the unit.

Follow all safety codes. Wear safety glasses and work gloves. Use a quenching cloth for brazing operations. Have a fire extinguisher available.

Safety Labeling and Signal Words

DANGER, WARNING, CAUTION, and NOTE

The signal words **DANGER**, **WARNING**, **CAUTION**, and **NOTE** are used to identify levels of hazard seriousness. The signal word **DANGER** is only used on product labels to signify an immediate hazard. The signal words **WARNING**, **CAUTION**, and **NOTE** will be used on product labels and throughout this manual and other manuals that may apply to the product.

DANGER – Immediate hazards which **will** result in severe personal injury or death.

WARNING – Hazards or unsafe practices which **could** result in severe personal injury or death.

CAUTION – Hazards or unsafe practices which **may** result in minor personal injury or product or property damage.

NOTE – Used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

Signal Words in Manuals

The signal word **WARNING** is used throughout this manual in the following manner:



The signal word **CAUTION** is used throughout this manual in the following manner:



Signal Words on Product Labeling

Signal words are used in combination with colors and/or pictures on product labels.

ELECTRICAL SHOCK HAZARD

Failure to turn off electric power could result in personal injury or death.

Before installing or servicing system, turn off main power to the system. There may be more than one disconnect switch, including accessory heater(s).

INTRODUCTION

These instructions cover the installation of low-ambient pressure switch NASA201LA and NASA401LA in all single-speed air conditioners or heat pumps using R-22 or R-410A. Refer to Table 1 for kit usage. This device is a long life pressure switch that maintains head pressure by

turning the outdoor fan off and on. Other accessories may be required. Refer to the Required Changes for Air Conditioners and Heat Pump Units section.

DESCRIPTION AND USAGE

The low-ambient pressure switch kit is a long life pressure switch which turns the outdoor fan on and off as shown in Table 1. It is wired in series with black fan lead.

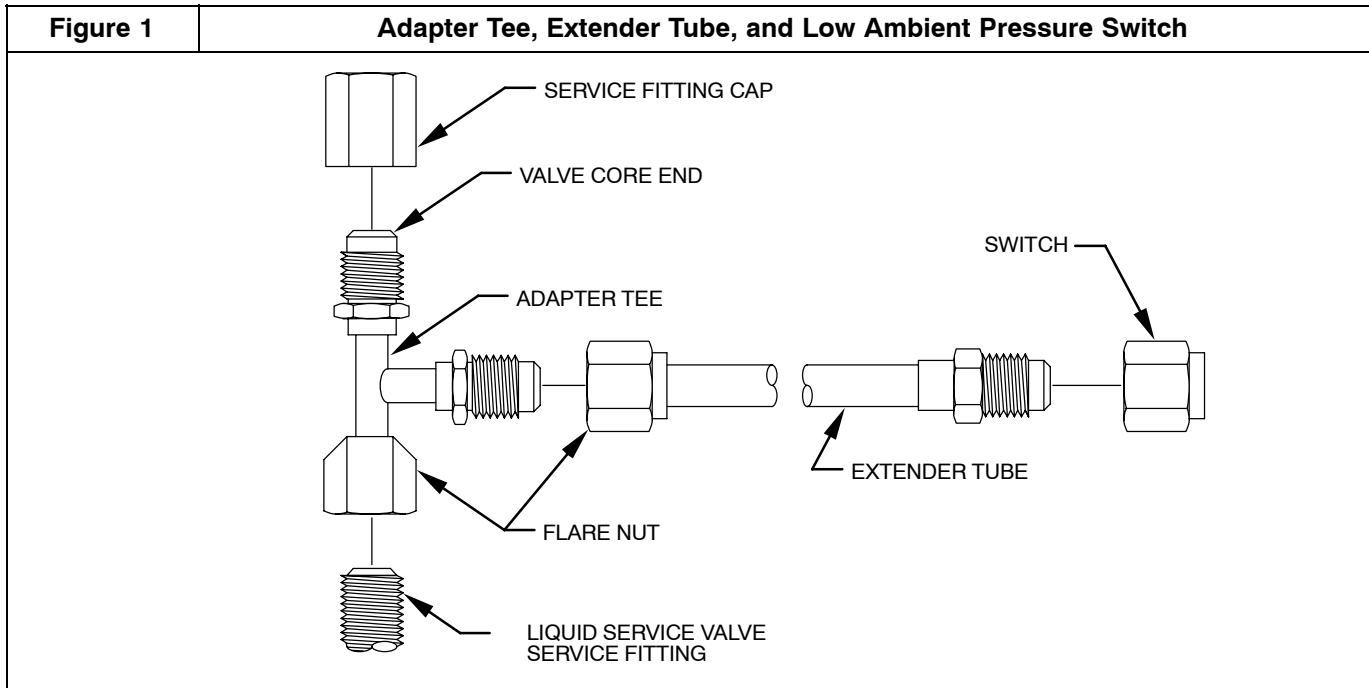
Table 1-Kit Usage and Cut In/Cut Out Pressures

KIT PART NO.	REFRIGERANT	OPEN PRESSURE (PSIG)	CLOSE PRESSURE (PSIG)	WIRE COLORS
		FAN OFF	FAN ON	
NASA201LA	R-22	100	225	Blue and Yellow
NASA401LA	R-410A	200	365	Blue and Violet

INSTALLATION

The pressure switch is mounted inside the outdoor unit cabinet by using adaptor tube supplied. The adapter tee is mounted to the liquid service valve and tube is routed through one of the knockout holes in unit cabinet. From

inside cabinet, the flare nut is attached to extender tube. (See Fig. 1.) The pressure switch is wired in series with black or common fan lead.

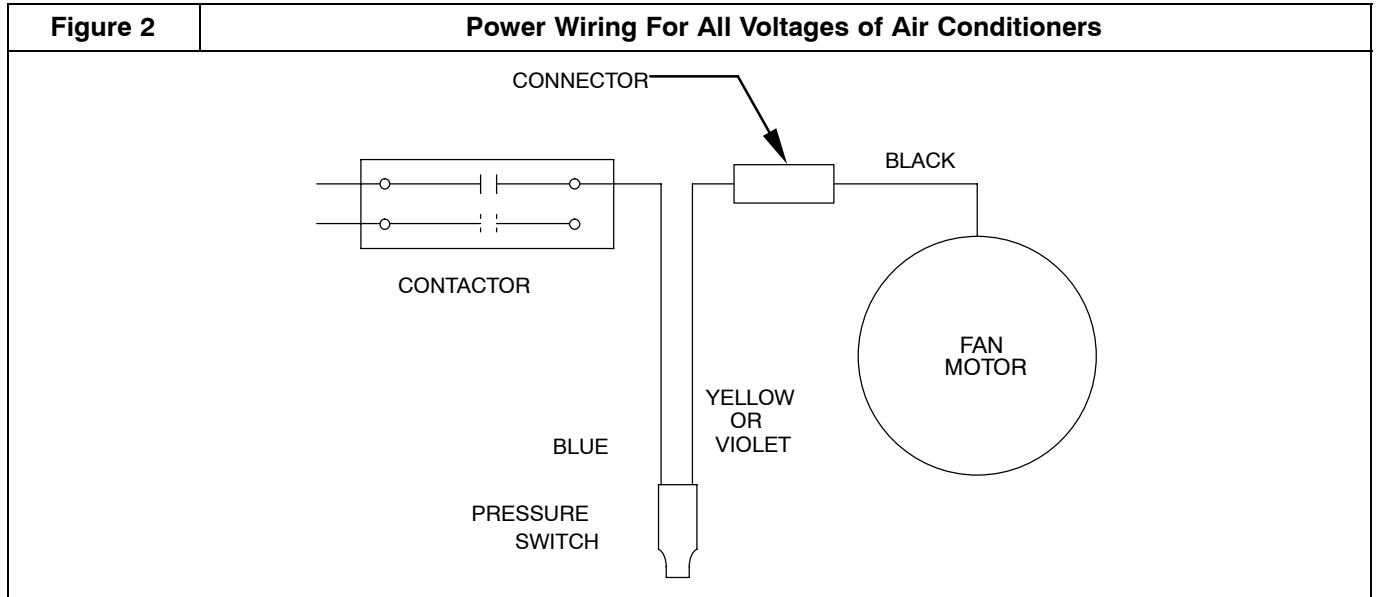


PROCEDURE 1 – WIRING FOR ALL VOLTAGES OF AIR CONDITIONERS

For all voltages of air conditioners, refer to Fig. 2 and wire low-ambient pressure switch as follows:

1. Disconnect black fan lead from contactor and connect this lead to yellow or violet wire from low-ambient pressure switch using connector supplied.

2. Connect blue wire from low-ambient pressure switch to contactor terminal from which black fan lead was removed.



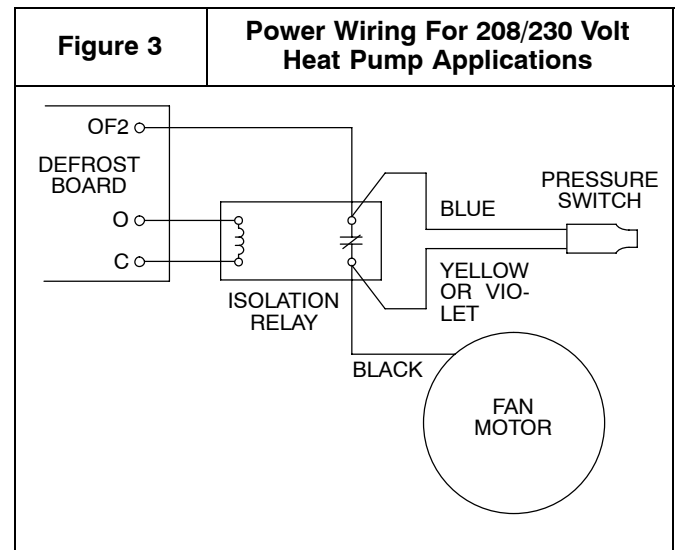
PROCEDURE 2 – WIRING FOR HEAT PUMPS

Heat pumps require a normally closed isolation relay with the 24 Volt coil connected to the C and O terminals of defrost board.

A. 208/230 Volt Applications

For 208/230 Volt heat pump applications, refer to Fig. 3 and wire low-ambient pressure switch as follows:

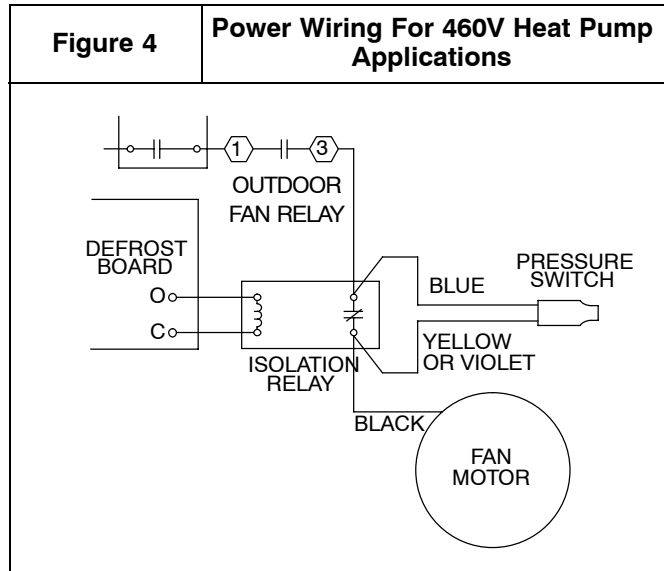
1. Remove black fan lead from defrost board terminal OF2 and reconnect it to NC terminal of isolation relay. Connect yellow or violet lead from low-ambient pressure switch to same NC terminal of isolation relay.
2. Connect a wire from the other NC terminal of isolation relay to OF2 terminal of defrost board. Connect blue lead from low-ambient pressure switch to same NC terminal of isolation relay.



B. 460 Volt Applications

For 460 Volt heat pump applications, refer to Fig. 4 and wire low-ambient pressure switch as follows:

1. Remove black fan lead from outdoor fan relay terminal number 3 and reconnect it to NC terminal of isolation relay. Connect yellow or violet lead from low-ambient pressure switch to same NC terminal of isolation relay.
2. Connect a wire from outdoor fan relay terminal number 3 to other NC terminal of isolation relay. Connect blue lead from low-ambient pressure switch to same NC terminal of isolation relay.



REQUIRED CHANGES FOR AIR CONDITIONERS AND HEAT PUMP UNITS

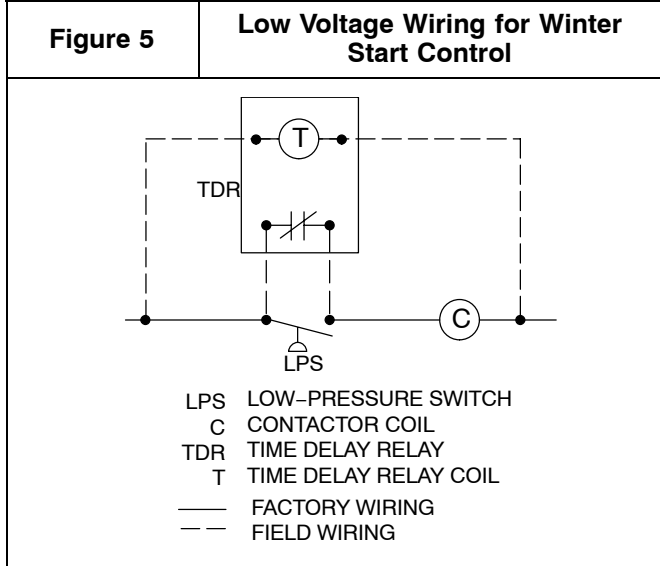
1. Crankcase heaters are required on all applications where low-ambient controls are used.
2. Start capacitor and relay (hard start) kits are required on all single-phase applications where low-ambient controls are used.
3. Evaporator freeze thermostat NASA001FS is required on all applications where low-ambient controls are used.

4. Wind baffles are required for temperatures below 0°F or where there is substantial wind. Refer to the Baffle Design information on pages 5-11.

NOTE: When wind baffles are used, raising unit off of pad a minimum of 4 in. is required to provide better airflow for moderate- and high-ambient temperatures. Check product specification for available support feet.

5. For cooling applications only, winter start control NASA001WS must be used where low-pressure switch tripping may be encountered.

Winter start control must be wired in parallel with low-pressure switch. This allows a delay of three minutes before low-pressure switch becomes part of control circuit. (See Fig. 5.)



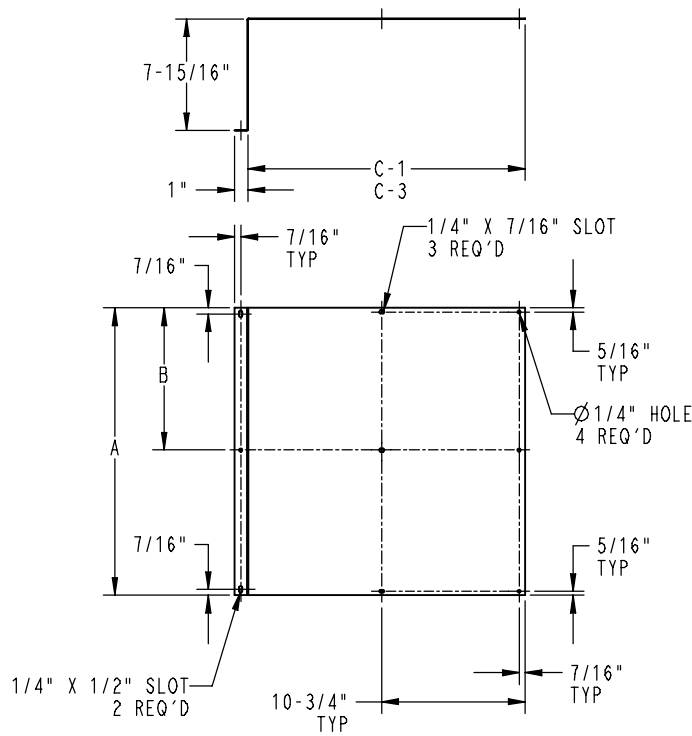
START-UP

To start units equipped with the low-ambient pressure switch, perform the following steps:

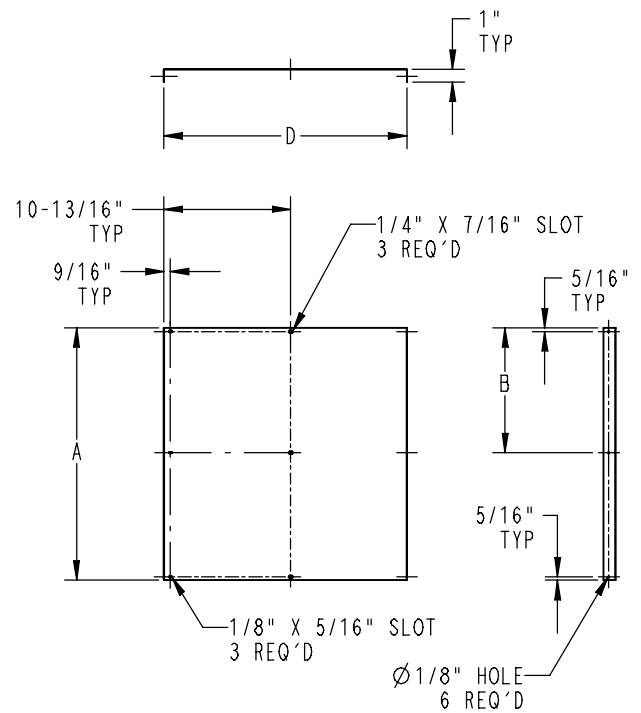
1. Turn power on to unit.
2. Set thermostat below room temperature.
3. Wait for the unit to start. There may be a 5-minute delay in the thermostat or in the outdoor unit.
4. Observe unit operation as described below.
 - a. The fan will be off when compressor starts.

- b. At outdoor temperatures around 0°F, fan may not run at all.
- c. At summer temperatures, fan will start after 10 to 30 seconds of compressor operation and may not turn off until thermostat is satisfied.
- d. At outdoor ambients between 80°F and 20°F, fan will turn on and off to maintain pressure as shown in Table 1.

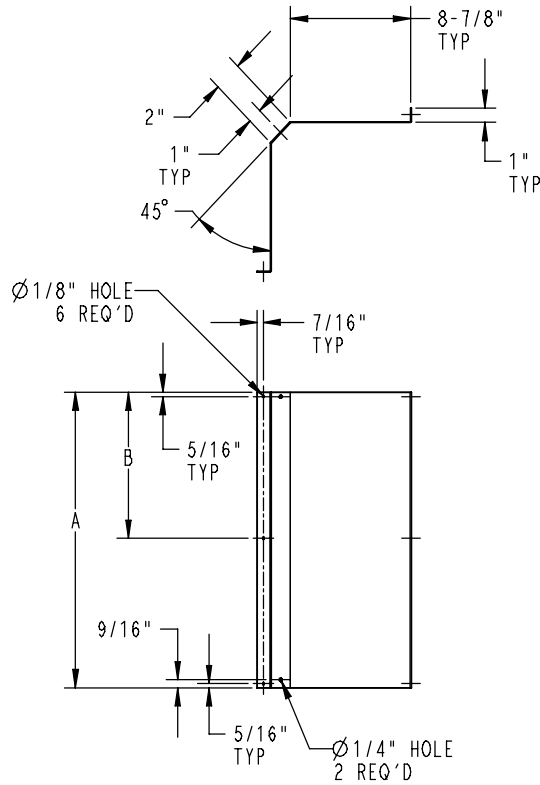
WIND Baffle DESIGN



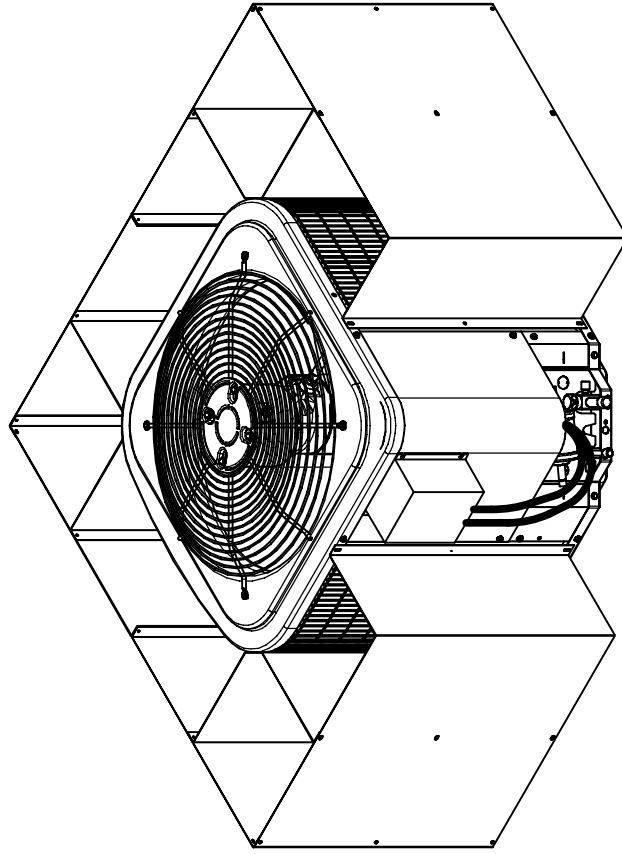
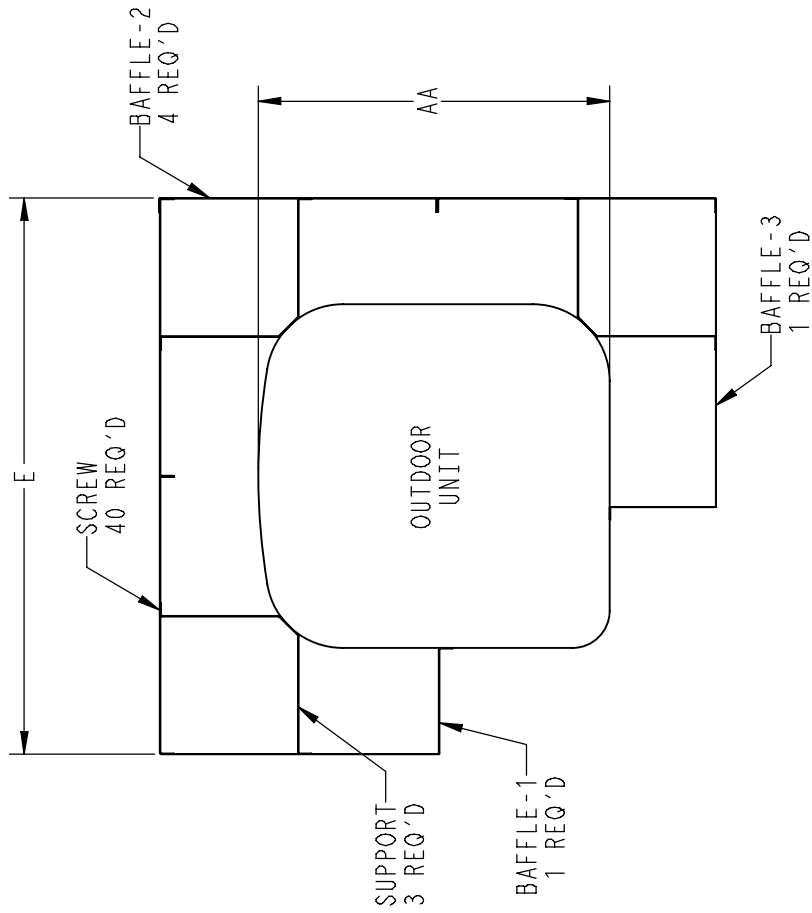
BAFFLE-1 AND -3
MAT'L: 20 GA STEEL



BAFFLE-2
MAT'L: 20 GA STEEL



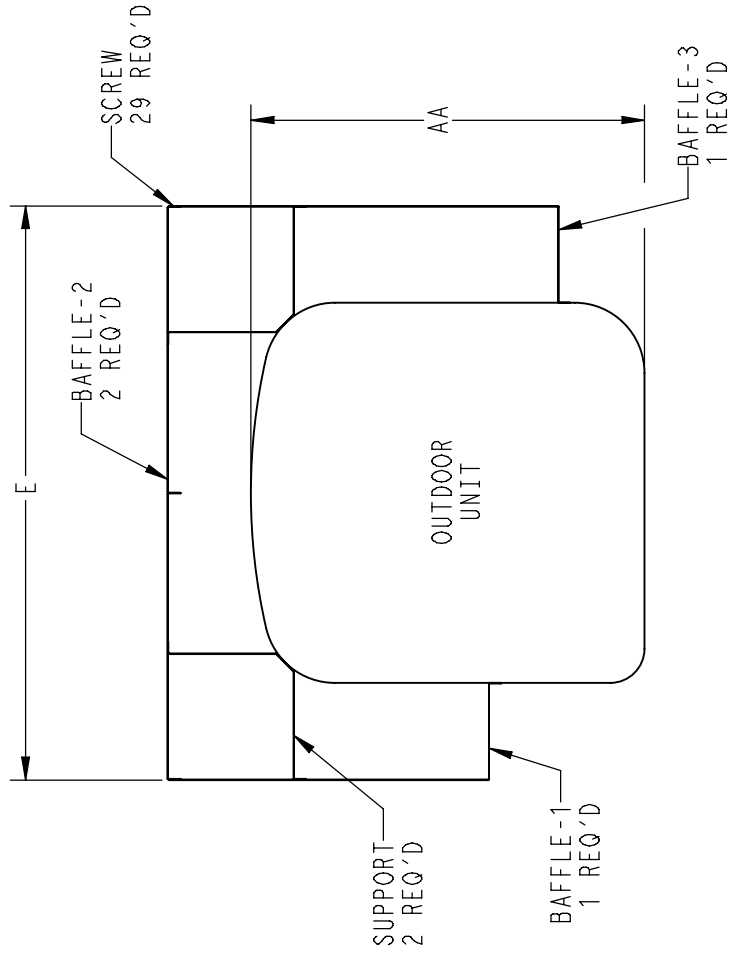
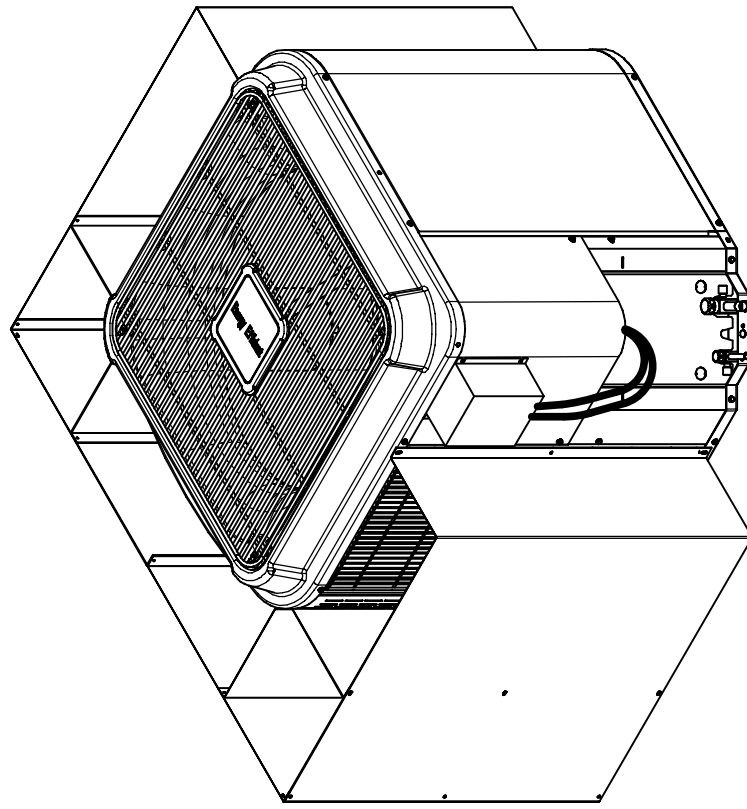
SUPPORT
MAT'L: 20 GA STEEL



BAFFLE ASSEMBLY
ICP ENTRY
SMALL, MEDIUM, AND LARGE BASE

Wind Baffle Dimensions for ICP Entry Units (In.)

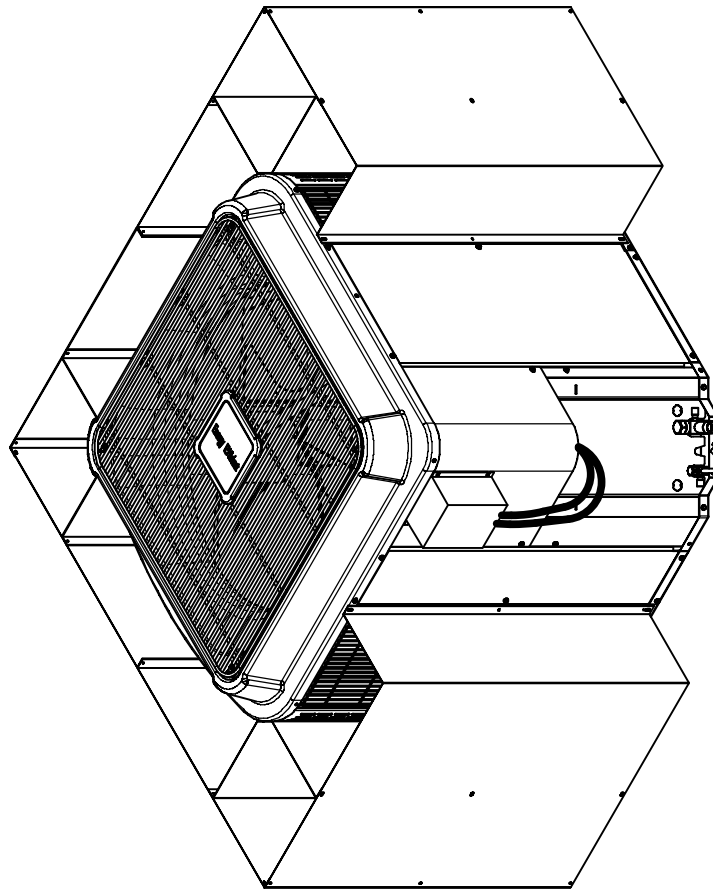
UNIT SIZE	A	UNIT HEIGHT	A	B	C-1	C-3	D	E
Small	26-5/16	25	20-3/8	10-3/16	20-13/16	23	20-3/4	41-11/16
		28-7/16	23-13/16	11-7/8				
		31-13/16	27-3/16	13-5/8				
		35-1/4	30-5/8	15-5/16				
		38-5/8	34	17				
		42	37-3/8	18-11/16				
		45-7/16	40-13/16	20-3/8				
Medium	32-5/16	25-9/16	20-3/8	10-3/16	26-1/4	28-7/16	23-7/16	47-1/8
		28-15/16	23-13/16	11-7/8				
		32-5/16	27-3/16	13-5/8				
		35-3/4	30-5/8	15-5/16				
		39-1/8	34	17				
		42-1/2	37-3/8	18-11/16				
		45-15/16	40-13/16	20-3/8				
Large	36-5/8	25-9/16	20-3/8	10-3/16	23-9/16	32-1/4	25-3/8	50-15/16
		28-15/16	23-13/16	11-7/8				
		32-5/16	27-3/16	13-5/8				
		35-3/4	30-5/8	15-5/16				
		39-1/8	34	17				
		42-1/2	37-3/8	18-11/16				
		45-15/16	40-13/16	20-3/8				



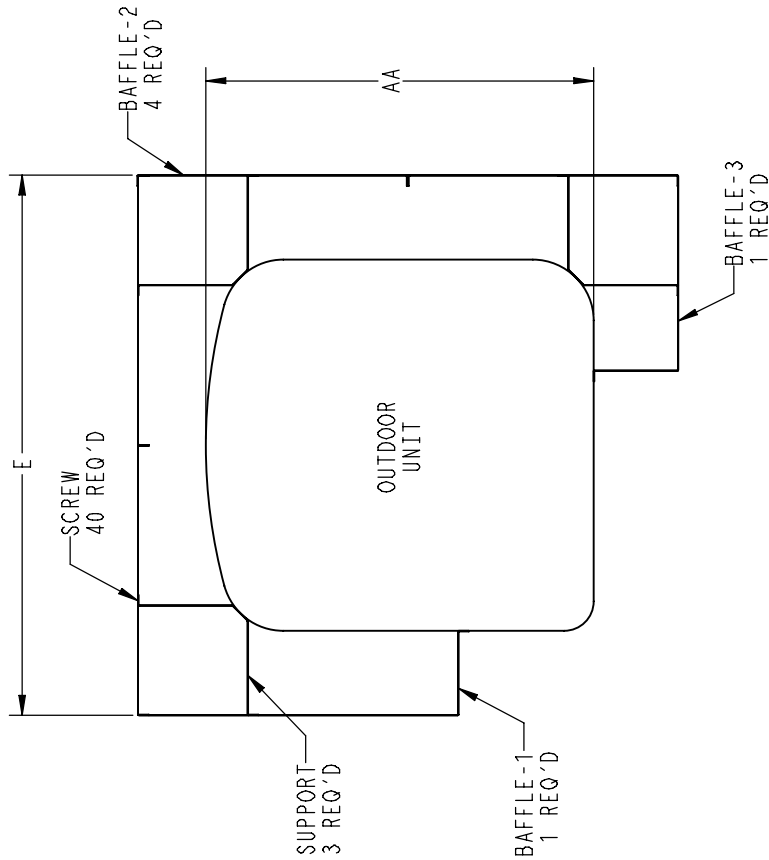
BAFFLE ASSEMBLY
ICP MAINLINE
MEDIUM BASE

Wind Baffle Dimensions for ICP Mainline-Units (In.)

UNIT SIZE	A	UNIT HEIGHT	A	B	C-1	C-3	D	E
Medium	32-5/16	25-3/4	20-3/8	10-3/16	26-1/4	31-15/16	23-7/16	47-1/8
		29-1/8	23-13/16	11-7/8				
		32-9/16	27-3/16	13-5/8				
		35-15/16	30-5/8	15-5/16				
		39-3/8	34	17				
		42-13/16	37-3/8	18-11/16				
		46-3/16	40-13/16	20-3/8				
		26-9/16	20-3/8	10-3/16				
Large	36-5/8	29-15/16	23-13/16	11-7/8	23-9/16	18-5/16	25-3/8	50-15/16
		33-5/16	27-3/16	13-5/8				
		36-3/4	30-5/8	15-5/16				
		40-1/8	34	17				
		43-1/2	37-3/8	18-11/16				
		46-15/16	40-13/16	20-3/8				



BAFFLE ASSEMBLY
ICP MAINLINE
LARGE BASE



Wind Baffle Dimensions for ICP Mainline-Units (In.)

UNIT SIZE	A	UNIT HEIGHT	A	B	C-1	C-3	D	E
Medium	32-5/16	25-3/4	20-3/8	10-3/16	26-1/4	31-15/16	23-7/16	47-1/8
		29-1/8	23-13/16	11-7/8				
		32-9/16	27-3/16	13-5/8				
		35-15/16	30-5/8	15-5/16				
		39-3/8	34	17				
		42-13/16	37-3/8	18-11/16				
		46-3/16	40-13/16	20-3/8				
		26-9/16	20-3/8	10-3/16				
Large	36-5/8	29-15/16	23-13/16	11-7/8	23-9/16	18-5/16	25-3/8	50-15/16
		33-5/16	27-3/16	13-5/8				
		36-3/4	30-5/8	15-5/16				
		40-1/8	34	17				
		43-1/2	37-3/8	18-11/16				
		46-15/16	40-13/16	20-3/8				