

HURRICANE CAP-6972E Falcon XW XY, ZC-ZD Fairlane SYSTEM



This system is a combination heat/cool defrost system. Installation is straightforward, appearance is neat, and performance is unsurpassed, requiring basic mechanic tools, a 1-1/4" and 3" hole saw . Shortening the glove box will be required. This modular design provides accessible behind the dash area not offered by most other systems, while retaining cowl vent.

To be effective, an air conditioner must remove heat from the air in a vehicle faster than it is added. It is therefore desirable to reduce the "heat added" by insulating the roof, firewall, and floorboards. You should also seal all holes in the firewall, insure air tight door and window seals, fresh air inlets and consider window tinting.

For maximum cooling performance a clutch style or steel six-blade fan should be installed with shroud if possible. We do not recommend flex fans. Another alternative, and a definite plus for any system is the addition of an electric condenser fan, dedicated to the A/C System. If the vehicle is equipped with only an electric radiator fan, it MUST be wired to engage with the A/C system. A/C head pressure will increase much faster than the engine temperature. A/C head pressure is generally associated with airflow and can damage the compressor and other components. Steel Fan Blades and High Quality Electric Radiator & Condenser Fans are available from Autoware, at a very reasonable cost.

PREPARATION FOR INSTALLATION

- 1) Disconnect negative battery terminal. Remove the glove box and original heater. Leave the original defrost outlets installed.
- 2) Remove the air/heat & defrost unit from the box and spread parts out so they can be located as required.
- 3) Read through the instructions prior to starting installation.

UNIT INSTALLATION

- 1) Pull the passenger side carpet/floor mat away to expose the firewall. Place the unit template on the inside of the passenger side firewall, and position it so that the drain tube hole is on or just slightly above the horizontal line where the firewall "breaks" towards you, (see photo #1) making sure to allow approximately 2" for the defrost ducts, which are not illustrated on the template.
- 2) Double check the template positioning, make sure it appears horizontal with the dash line. Check engine side of firewall for obstructions and mark center of 3" Hole on the firewall.

Important Note: Due to coil variation it will be necessary for the installer to compare the unit A/C and heater fitting locations to the template. All comparisons to unit should be made on back side of template.

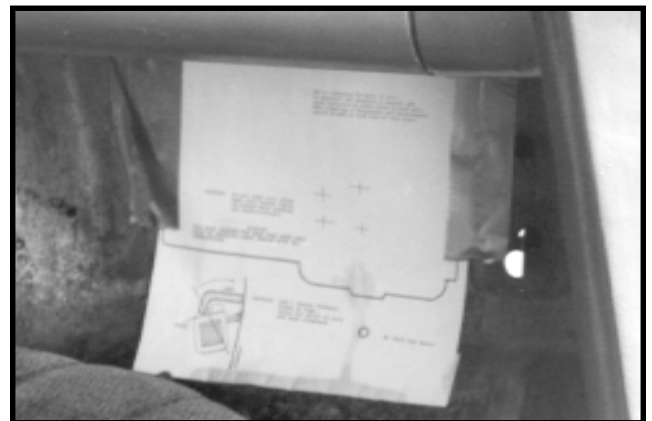


PHOTO #1

3) Loosely install the long (#41-1097) and short (#41-1018) offset mounting brackets on the unit case (see photo #2). **CAUTION:** When bolting the mounting brackets to the unit, do not over-tighten. Failure of the case nut inserts could result.

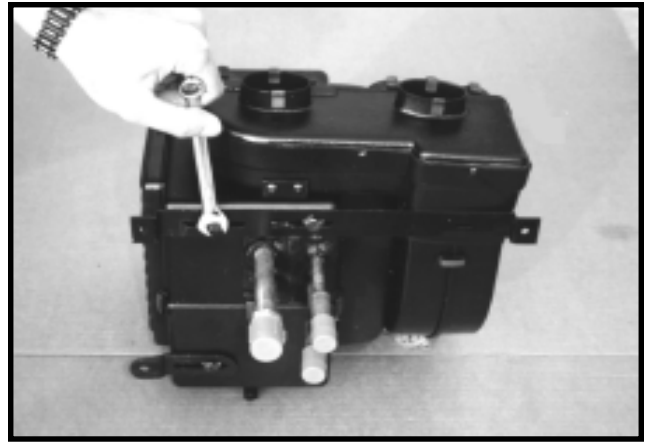


PHOTO #2

4) Insert the unit fittings through the firewall and hold unit in position with fittings centered in the hole. Mark the mounting bracket and drain tube hole locations on firewall.

5) Remove the unit, drill the 1/4" mounting holes and 1-1/4" hole for the drain tube hole grommet. *Tip: If you prefer a clean firewall appearance and the firewall has not been finished or painted 1/4" bolts or studs can be welded to the inside of the firewall to mount the unit so bolts will not be visible from the engine compartment.*

6) Install drain tube grommet in 1-1/4" hole made in firewall.

7) Install drain tube on the unit drain nipple, guide tube through firewall grommet and loosely attach the unit mounting brackets to the firewall using the 1/4" bolts and nuts provided. *(Do not remove staple at end of drain tube it helps prevent insects and debris from getting into the unit case.)*

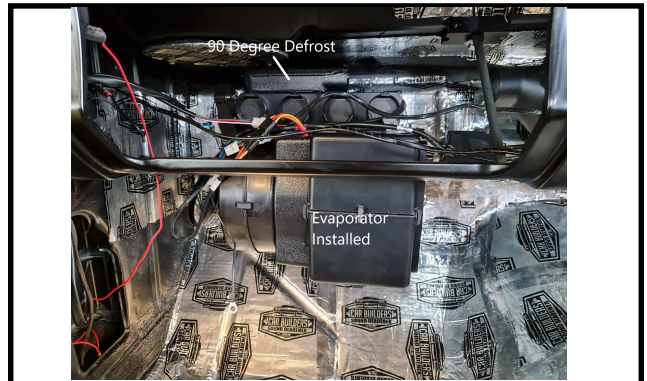


PHOTO #3

8) Install the large round grommet over the heater and A/C fittings and tuck inner lip of grommet inside of firewall hole (photo#3) and tighten mounting bolts securing unit to the firewall. *(TIP: Do not remove the caps on the tubes and use a mild soap and water solution to make it easier to slip the grommet over the tubes.)*

9) Locate the brass 90 degree expansion valve and a # 8 rubber O-ring. Lubricate the O-ring with refrigerant oil, and slide it and the expansion valve onto the lower A/C fitting. (photos #3 & 4) Tighten the fitting using a 5/8", and 7/8" wrench. Use caution not to over tighten and crush or damage the o-ring seal.

Note: *The expansion valve in this kit may have a 134-A label. This refers to the refrigerant used in the sensor tube, not the refrigerant to be used in the system. The expansion valves included with our systems are compatible with both R-12 and 134-A systems.*

10) Gently bend the "pig tail" sensor of the expansion valve so that it is parallel and against the upper A/C tube on the unit. Use the clip provided to secure the "pig tail" to the tube between the firewall and the brass fitting. Wrap the clip, "pig tail" and tube with the black tacky tape provided (see photo # 5).

11) Install the louvers and switching controls, refer to separate instructions for controller intergration instructions 47-6972E.

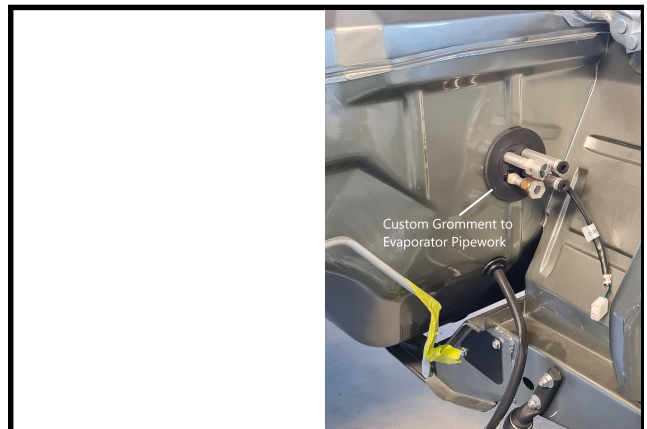


PHOTO #4)



PHOTO #5 (Shown with Expansion Valve)

13) Gently feed the thermostat's capillary sensor tube through the small hole in the top lip of the large inlet air opening (Diagram #1). Gently bend the end of the sensor tube about a 90 degree angle approximately 2" from the end and insert it at approximately a 45 degree downward angle into the fins of the coil about 1/2" up from bottom and centered from front to back of the inlet opening.

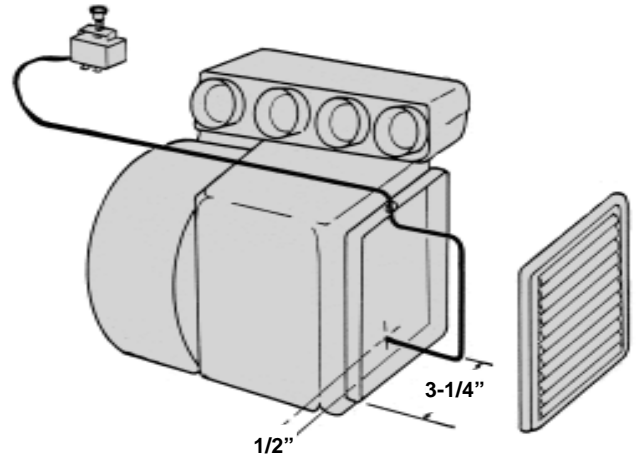


Diagram #1 - Thermostat Placement

NOTE: Thermostat sensor location is important to cycle the compressor to keep the coil from freezing up and achieve maximum cooling performance. The adjustable thermostat in this kit will allow some fine tuning.

20) Attach one end of the defrost duct hose to the outlet on the top of the unit and the other to the defrost adapter outlet, the Defrost adapter (32-1070-2) can be fitted into place with sealant onto the factory Defrost Duct.

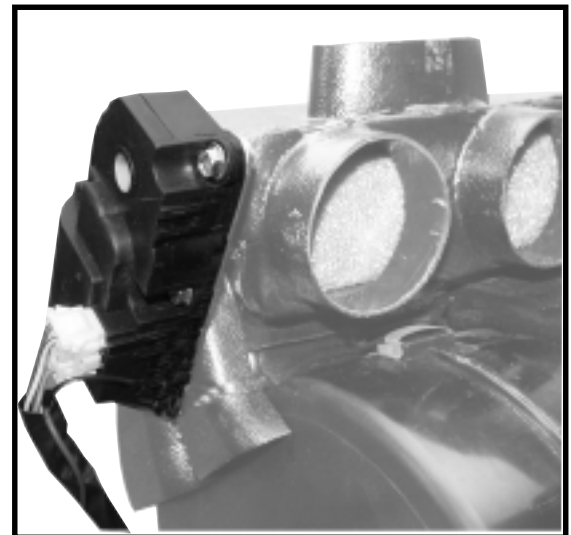


Photo 6

Note: By squeezing the walls of the duct hose together, it will form to an oval shape to fit on outlets or louvers where required.

23) Route duct hose from unit to air vents. Be sure to stretch the duct hose to full length prior to cutting to ensure there is enough to complete the installation.

COMPRESSOR AND BRACKET INSTALLATION

1) Locate the compressor and the mounting bracket. Refer to the instructions in the bracket hardware bag for installation. During installation the compressor may be mounted with fittings pointed to either side for easier hose routing but **DO NOT MOUNT COMPRESSOR UPSIDE DOWN** or more than 90 Degrees from the vertical Position, this will cause Oil to drain from the sump and cause Compressor failure.

NOTE: New compressors are filled with adequate oil for the complete system.

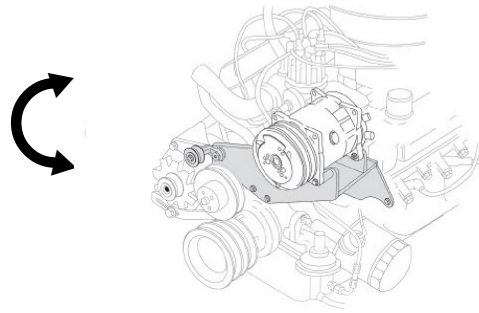
CONDENSER INSTALLATION

1) The condenser should be installed with 6mm to 10mm space between it and the radiator, being careful that they do not touch.

2) The **larger** fitting on the condenser should always be mounted at the top, and with the condenser tubes running horizontal to allow proper transition of the refrigerant from a gas to a liquid state.

3) Modify condenser brackets as required to mount condenser to the radiator support panel.

CAUTION: A backup wrench must be used to hold condenser fittings while attaching fittings.



302-351 Cleveland Mount shown

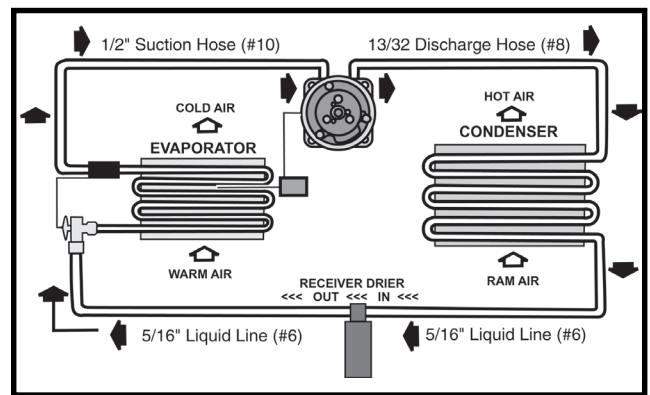


Diagram #2 - Refrigerant Flow Chart

CAUTIONS: [a] Use refrigerant oil to lubricate all o-rings on all hose fittings and connections. [b] Protective caps and plugs should not be removed until refrigerant hoses are ready to be connected. [c] O-Ring fittings should be tight, although excessive over tightening will crush o-ring seal. [d] Avoid sharp bends when installing hose. Hoses should not be too close to the compressor clutch, or touch hot or moving parts of the engine. [e] Slide necessary grommets on hose before routing thru firewall and radiator cowling. Grommets will help prevent cutting hoses on sharp metal edges.

Refer to Diagrams #2 & #3 for the Following Steps 1-5.

1) The # 8 (13/32") discharge hose routes from the outlet of the compressor to the top matching inlet fitting on the condenser. Use lubricated # 8 o-rings with a 7/8" and 3/4" backup wrench to secure fittings.

2) The # 10 (1/2") suction hose routes from the inlet of the compressor to the outlet of the evaporator. Use lubricated # 10

O-Rings with a 1" and a 7/8" backup wrench to secure fittings.
Tip: Likewise, this hose may be routed forward and looped back to the outlet of the evaporator. Using a pull tie where this meets the discharge hose in the center makes for a clean installation.

3) Using brackets supplied, mount the drier in a **VERTICAL** position. It can be mounted to the front of the condenser (photo 7), radiator core support, or inner fender.

4) Route a # 6 (5/16") hose from the outlet of the condenser to the inlet of the receiver drier. Cut to required length. Use lubricated # 6 O-Rings with a 3/4" and a 5/8" backup wrench to secure fittings.

5) Route the remaining section of the #6 (5/16") hose from the outlet of the Drier to the inlet of the expansion valve. Use lubricated # 6 O-Rings with a 3/4" and a 5/8" backup wrench to secure fittings.

6) Install wrap-around hose clamps or pull-ties as necessary to secure all hoses away from sharp edges, moving parts and exhaust manifold or headers to avoid damage to hoses.

INSTALL COMPRESSOR SAFETY SWITCH

This A/C Systems includes a binary safety pressure switch (24-0102). If installing optional trinary

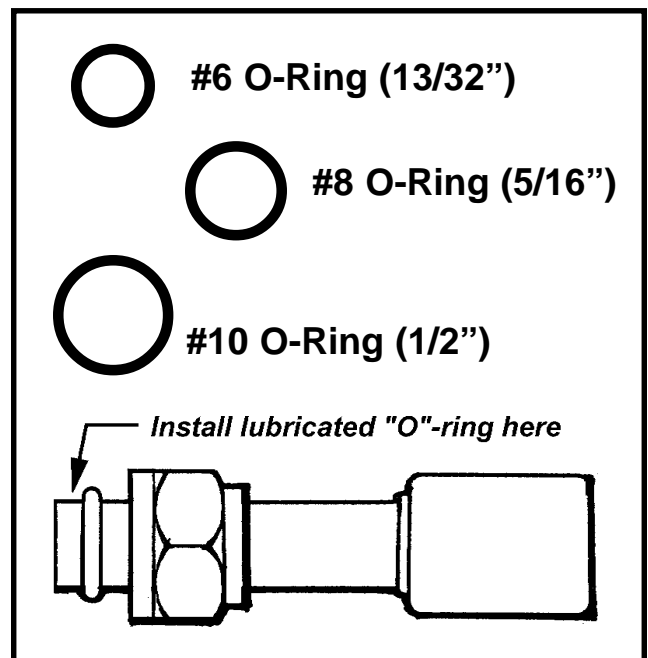
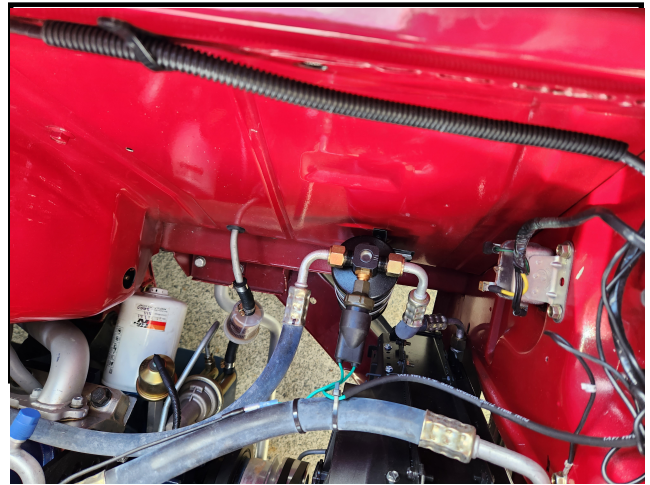
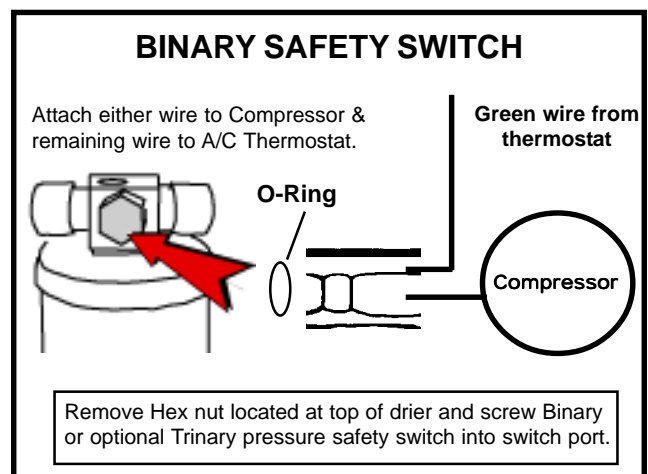


Diagram #3 - O-Ring Seals



switch (24-0103) to operate electric condenser fans follow instructions included with trinary switch and skip to the heater valve installation section.

- 1) To install binary safety switch on drier remove hexagon shaped plug on the side near the top, insert binary safety switch using lubricated o-ring seal.
- 2) Place electrical plug on switch and connect one wire to the green wire coming through firewall from the thermostat. The second wire will connect to the compressor clutch. We recommend waiting until the system is ready for the refrigerant charge before making this connection to the compressor to avoid compressor damage.

CAUTION: Make sure the terminals of the switch are inserted into the connectors, not between the rubber boot and connectors.

HEATER HOSE AND VALVE INSTALLATION

NOTE: Vehicles with 3/4" heater hose will require a 5/8' heater hose nipple available from your local auto supply. During installation we recommend installing the heater hose then let the wire harness length determine the best location for the heater valve. Routing of heater hoses should be close enough to incorporate both hoses through one heater valve.

- 1) Route a section of heater hose from the engine heater outlet (usually on the intake manifold) to the heater inlet fitting (bottom tube) on the unit.
- 2) Route a second section of heater hose from the heater outlet fitting (top tube) on the unit to the heater return fitting on the engine (usually on the water pump).
- 3) Position heater valve in location away from exhaust manifold. Be sure heater valve wire harness connector will reach. Splice into heater hoses and connect as shown in photo #8.

Tip: We recommend gear type clamps be used to fasten the heater hoses and caution should be taken not to over torque the clamps creating damage to the heater valve.

- 4) Fill radiator with antifreeze for a minimum protection of -10 degrees Fahrenheit.

FREON SERVICE

- 1) This system should be serviced/charged by a certified technician and requires a minimal vacuum pump evacuation of 45 minutes.

NOTE: When charging the system it will be necessary to put in about 12 to 18 ounces of refrigerant before the pressure safety switch will engage the compressor clutch.

- 1) **R-12 Systems** will require 30 to 36 ounces of Freon. This is

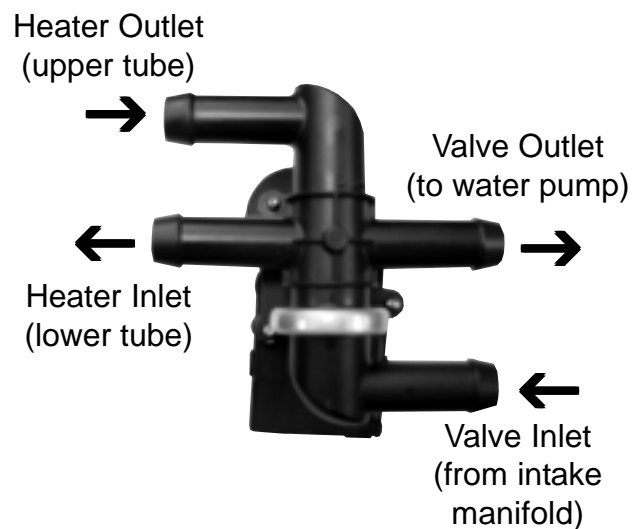


Photo 8 - Heater valve flow

only a guide line, and the sight glass (under the dimple area) on top of the drier should be monitored. The exact charge will be relevant to the length of hose, compressor capacity, and size of condenser.

2) **134-A Systems** will require 28 to 32 ounces. An exact charge with 134-A is more critical for maximum performance than that of R-12. The exact charge will be relevant to the length of hose, compressor capacity, and size of condenser. We recommend adding a partial charge, and monitor temperature at vents while slowly adding remaining charge, while testing for point of maximum performance.

NOTE: This should be done with the doors shut, windows closed, fan on high blower, and an electric fan in front of the radiator. If excessive high pressure exists adding an electric condenser fan is recommended if space permits.

3) Test all A/C connections for leaks.

4) Place a copy of these installation instructions in glove box for future reference.

OPERATION INSTRUCTIONS

Air Conditioning - Rotate the Fan Switch clockwise to adjust the fan speeds. Turn thermostat knob clockwise to adjust a/c temperature. Make sure heater valve control is in full closed position.

Heater - Rotate Fan Switch clockwise to adjust the fan speed. Turn the thermostat knob counterclockwise to the off position. Rotate heater valve knob clockwise to full open position.

BLEND- Turn A/C knob to full cold position, rotate heater valve knob clock wise for warmer temperatures and counter clock wise for cooler temperatures. **For defrost function only.**

Defrost / Dash Air - Defrost function will work with both heater an a/c. Rotate defrost/dash air knob on control panel. Counter clockwise this will put air in the defrost position while clock wise will offer dash air. The door can also be stopped at any position to allow both dash and defrost air.

Thank You for choosing
this System for your
Classic car or truck.



Regards,
Autoware

Caution

You must maintain adequate antifreeze in the cooling system for -10 degrees Fahrenheit. The heater valves should be opened to allow anti-freeze to flow into the heater core before operating the A/C system so it will not freeze and rupture the heater core.

Neglect of these cautions will cause damage to your system and may Void Manufacturers Warranty.

PARTS LIST

INSIDE PACKAGE

(IP-1100 Hurricane Series)

Hurricane Unit (1100)

Air Inlet Grill

Round Grommet w/ 4 Holes

Unit Mounting Kit (51-1004)

- 1 Long Bracket (#41-1097)
- 1 Short Offset Bracket (#41-1018)
- 3 1/4" x 3/4" Hex bolts
- 3 1/4" x 1/2" Hex bolts
- 3 1/4" Nuts
- 6 1/2" screw

Expansion Valve Kit (51-1003)

- 1 Expansion Valve (#25-1000)
- 1 Sensor bulb clamp
- 1 1/2" Drain Tube
- 1 Rubber Grommet
- 1 Black Tacky Tape
- 1 O-ring Kit (1/#6, 1/#8, 1/#10 & 1 Tube Oil)

Heater Valve Kit

- 1 Electric Heater Valve (#25-1555M)

Vents

2 x Vertical Kick panel Louvers (32-14)

1 x Centre Underdash Dual Rectangle (32-3F)

Duct Hose

50mm ducting for Louvers,
64mm for Defrost chamber to
Defrost adapter

47-6972E Control Package

COMPLETE PACKAGE

(CAP-1100 Hurricane Series)

Inside Package (IP-1100)

Compressor Bracket 302-351 Cleveland

(Requires 3 Row Crank Pulley)

Condenser (11-1618)

Includes universal mounting brackets & hardware

A/C Hose Kit (Length and fittings may vary by application)

- 1 #6 Liquid Line w/ 90 Degree Fitting
- 1 #8 Discharge Hose w/ 90 Degree Fitting
- 1 #10 Suction Hose w/ 90 Degree Fitting

A/C Fitting Kit (May vary by application)

- 1 #6 Straight Fitting
- 1 #8 Straight Fitting
- 1 #10 Straight Fitting
- 3 #6 90 degree Fittings
- 1 #8 90 degree Fitting
- 1 #10 90 degree Fitting
- 3 #6 Ferrules
- 1 #8 Ferrule
- 1 #10 Ferrule
- 2 Drier Strap Brackets
- 6 Zip Ties
- 1 Double Wrap Around Clamp
- 1 #10 Wrap Around Clamp
- 1 #8 Wrap Around Clamp
- 1 #6 Wrap Around Clamp
- 2 Rubber Grommets
- 1 O-ring Kit (4/#6, 2/#8, 2/#10 & 1 Tube Oil)
- 6 Sheet Metal Screws

Receiver / Drier

Binary Safety Switch Kit

- 1 Binary Pressure Safety Switch
- 1 O-ring
- 1 Wire Harness (22-0117)

WIRING DIAGRAM

