INSTALLING THE HURRICANE CAP-1167M SERIES SYSTEMS

1967-68 Ford Mustang

OLD AIR PRODUCTS
Division of Cold Air Products Inc.
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(817) 531-2665 or FAX 531-3257

This unit is a combination heat/cool & defrost system. The kit is easy to install using basic mechanic tools and a 1-1/4" hole saw. The complete system provides a neat clean appearance with unsurpassed performance. To achieve maximum cooling efficiency, an air conditioner must remove heat from the air in a vehicle faster than it is added. We recommend tinting windows, insulating the roof, firewall, floorboards, seal all holes in the firewall and replacing old or damaged door and window seals. These are all important factors to reduce "added heat" and maximize the cooling efficiency of an A/C system.

For maximum cooling performance, a clutch style fan, straight six-blade fan with shroud or electric radiator fan is recommended. Note: Flex fans are not recommended
CAUTION: When replacing the stock radiator fan blade with an electric fan assembly it will be necessary for the fan to engage when the A/C system is on, or add a second fan on the condenser dedicated to the A/C. The A/C head pressure will rise much faster than the engine temperature. Inadequate airflow will damage the A/C system (compressor failure, or ruptured hoses). The use of a fan pressure switch is recommended to allow the fan to engage according to A/C pressure.

PREPARATION FOR UNIT INSTALLATION

1) Read the instructions thoroughly before beginning.

2) Disconnect the negative battery terminal.

3) Remove the glove box and center dash Panel.

4) Remove original heater, control and control cables.

5) Remove driver and passenger side fresh air ducts.

6) Remove defrost duct hoses but leave defrost outlets in dash.

7) If installing a complete A/C system, drain the cooling system, remove grill, radiator, hood latch, brace and horns.

8) Remove the air/heat/defrost unit from the box and spread parts out so they can be located as required.

Photo 1 - Install Fresh Air Block-off

UNIT INSTALLATION

1) Install block-off caps over fresh air vents on both driver and passenger side. Make sure edges of opening are clean so adhesive/sealer will stick. Press cap into opening and attach with three #8 X 3/4" phillips head screws provided. (Photo 1)

2) Attach mounting bracket to unit using four 1/4" X 2" bolts and 1/4" flat washers. (Photo 2).

Photo 2 - Attach Unit Mounting Plate

3) Align fittings on back of unit and mounting plate studs with holes in firewall and temporarily mount unit to the firewall. (Photo 3)

4) Mark location for drain tube hole. (Photo 4)

5) Remove unit, center punch and drill 1-1/4" hole in firewall at marked location for drain tube.

6). Insert rubber grommet in drain tube hole.

9) Install thermostat and air inlet grill. (Photo 5)

A) feed the thermostat's capillary sensor tube through the small hole in the top lip of the large inlet air opening. (Diagram 1).

B) Gently bend the sensor tube at a 90 degree angle about 2" from the end and insert it into the fins of the coil approximately 1/2" up from bottom and centered front to back of the air inlet opening. (Diagram 1).

C) Carefully coil remainder of sensor tube so that it will fit inside of opening and snap inlet grill onto the side of unit. (Photo 6)

D) Thermostat adjustment - rotate knob clockwise to the full "on" position then rotate back counter clockwise to the indent. (about 1/8 turn) This is the normal operating position.

10) Push plastic drain tube over nipple on the bottom of unit. *(Do not remove the staple at the end of drain tube. If staple is removed the evaporator may not drain properly.)*

11) Install unit into car, insert end of drain tube through grommet, align fittings and mounting plate studs with holes in firewall and loosely attach the unit to the firewall with the (4) 1/4"-20 nuts and (4) 1/4" washers provided. (Photo 6) *NOTE: Don't tighten nuts until rubber grommet is installed.*

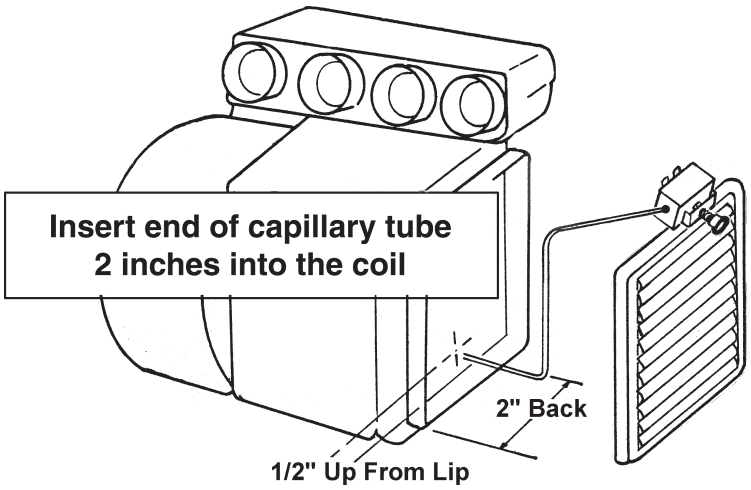


DIAGRAM 1 - Thermostat Location

NOTE: Thermostat location is important to cycle the compressor, keeping the coil from freezing up, and achieve maximum cooling performance.

Photo 3 - Mount Unit to Firewall

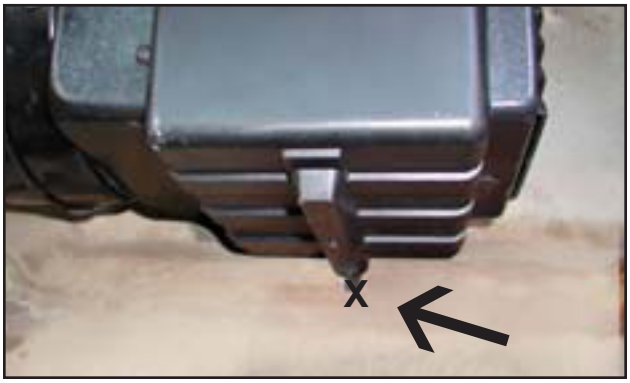


Photo 4 - Mark Hole Location

Photo 5 - Install Inlet Grill & Thermostat

Photo 6 - Loosely Attach Unit to Firewall

12) Install firewall grommet. Carefully stretch round 4 hole rubber grommet over fittings from engine side of firewall and tuck inner lip inside of round firewall opening. *(Photo 7) NOTE: Firewall grommet is a tight fit, leave caps on fittings and lubricate fittings so grommet will slip over the fittings easier.*

13) Check to make sure the drain tube is not kinked or pinched and that all the inside edges of the firewall grommet are tucked into the firewall opening properly.

14) Tighten the (4) 1/4”-20 nuts to secure the unit to firewall.

15) Attach the eyelet connector on the black ground wire from the unit to a solid clean point of contact on the vehicle body using the hex screw and star washer provided.

NOTE: It is very important to have a good ground connection because a loose ground wire may cause excessive amperage draw, intermittent blower operation, blower switch failure and damage to the wire harness.

16) Install expansion valve.

Note: The expansion valve included in this kit may have a 134-A label, it refers to the type of refrigerant used in the sensor tube and can be used with either R-12 or 134-A.

A) Lubricate a #8 O-ring with refrigerant oil, slide o-ring onto the lower fitting of the evaporator core, attach expansion valve and tighten the fitting using a 7/8” and 5/8” wrench. *(Photo 8) Refer to o-ring torque specifications. (Diagram 3)*

B) Gently bend the “pig tail” sensor that is attached to the expansion valve so that it is parallel and against the upper A/C (Suction) tube on the unit. Use the clip provided to secure the pig tail” to the suction tube between the firewall and the brass fitting. (Photo 9).

C) Wrap the clip “pigtail” tube assembly with the black insulating tape provided. (Photo 9).

Note: Sensor bulb and clip must be completely covered with the black insulating tape, if not the refrigerant flow may become inconsistent resulting in poor cooling performance.

CONTROL INTEGRATION

NOTE: These instruction are for 1967-68 Mustang heater only control. Before opening bag make sure this control package is correct application for your vehicle, if using factory a/c control contact your distributor and/or Old Air Products.

NOTE: Control Packages that have been opened and/or incorrectly ordered will be subject to restocking, shipping and handling fees.

1) Remove original blower switch and attached wire harness.

2) Install new blower switch, insert bracket on switch between faceplate and rear lever bracket assembly of control, then attach with factory screw and #8 X 3/8” screw provided. (Photo 10)

Photo 7 - Firewall Grommet

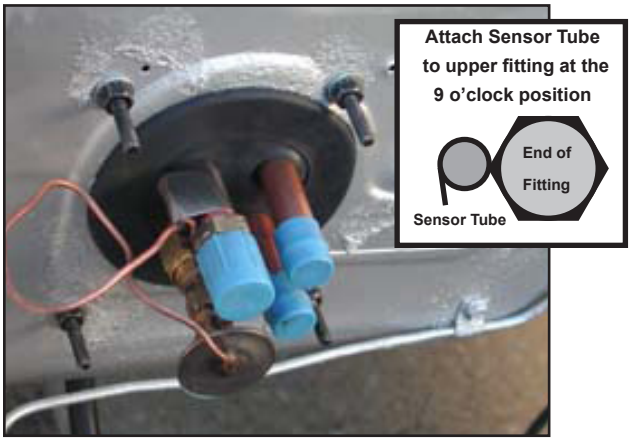


Photo 8 - Expansion Valve

Photo 9 - Wrap Sensor Tube

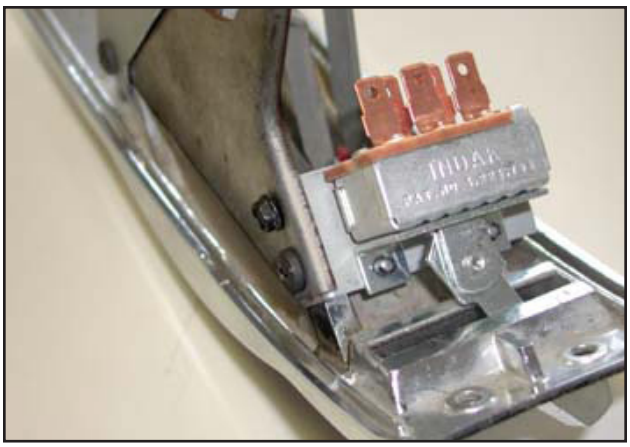


Photo 10 - Install Blower Switch

3) Install micro-switch:

a) Align micro-switch bracket with rivited bracket on rear of control. (Photo 11)
b) Mark & drill 1/8” pilot holes for micro-switch bracket.
c) Attach micro-switch bracket with #8 X 3/8” screws provided. (Photo 11)
d) Test center lever to make sure it engages the micro-switch when knob is at the botom of control.

4) Attach Potentiometers to Control: (Photo 12)

a) Place loop end of wire on lever pin.
b) align mounting tabs on cable sleeve with hole in factory bracket
c) Place poteniometer bracket under factory bracket, align poteniometer slide levers with slots in cable end, insert screws through cable mounting tabs, factory bracket and into threaded nutserts on potentiometer bracket.
d) Secure cable ends to levers with push nuts provided.

5) Attach wire harness to control: (Photo 13)

a) Push brown molded 5 terminal plug onto blower switch.
b) Connect blue wire w/black strip to “NO” (normally open) terminal on microswitch
c) Connect pink wire w/ black strip to the “COM” (common) terminal on microswitch.

6) Carefully insert wire harness through dash opening and Install control in dash.

7) Route the wire marked “Defrost” to the servo motor on. (Photo 14)

8) Route the Heater Valve wire forward through the firewall. ***NOTE:*** *This cable will be connected to the heater valve when under hood components are installed.*

See Wiring Diagram for steps 8 - 13

9) Connect the 2 ORANGE wires marked “12+ IGN” to a “KEY-ON” power source, *NOTE: in most cars these wires can be connected to the factory heater circuit from the fuse block, insert 30 amp fuse in “heater” slot of factory fuse box.*

10) Attach the blower motor connector (red, yellow and orange wires) from the control panel to the mating connector on the evaporator/heater case.

Note: Depending on the wire harness routing a jumper wire may be required. If needed a jumper wire is supplied with this kit.

11) Attach the BLACK ground wire eyelet, (from the unit case) to the body of vehicle, with the bolt and nut provided. ***Note:*** *This connection must a tight/solid contact. If this ground connection is dirty or loosens it will cause intermittent blower operation, and/or excessive amperage draw, resulting in premature blower switch failure.*

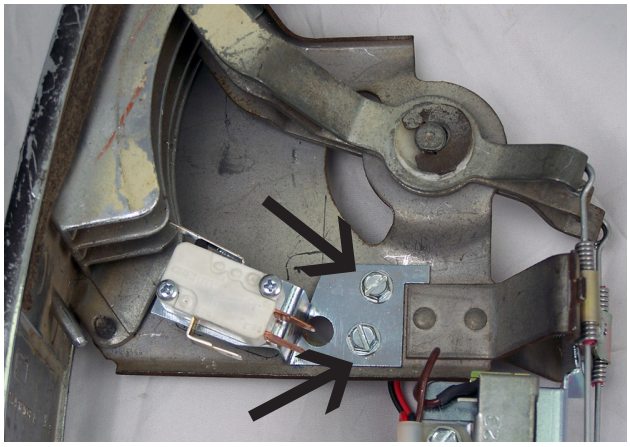


Photo 11 - Install Micro-switch

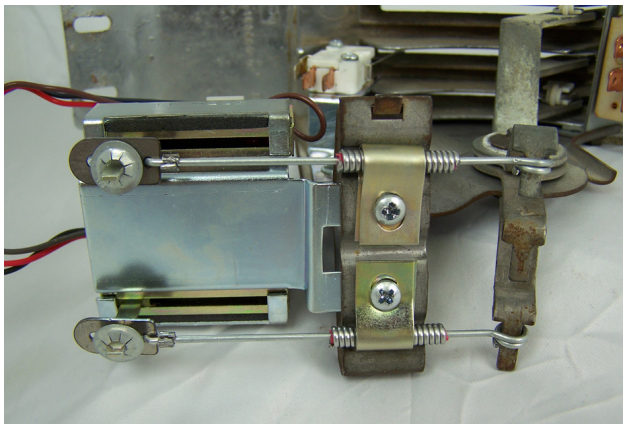


Photo 12 - Install Microswitch

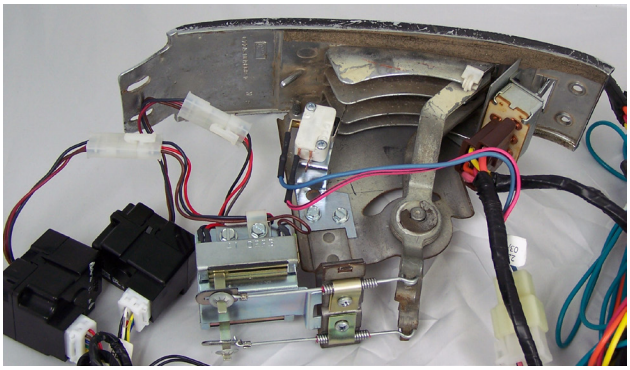


Photo 13 - Attach Wire Harness & Cables

12) Connect the 2 GREEN wires (Thermostat) to the two terminals on the thermostatic switch mounted on the inlet grill. (Photo 5)

14) Route the GREEN wire with bullet connector forward through the firewall. ***NOTE:*** *This wire will be connected to the compressor safety switch when under hood components are installed. Do not make this connection until the system is ready to be charged with refrigerant.*

LOUVER & DUCT HOSE INSTALLATION

NOTE: Be sure to stretch plastic duct hose to make sure that there will be enough. While routing the duct hose try to avoid kinking or pinching that might restrict air flow and secure hoses up inside the dash to prevent unsightly sagging hoses.

1) Attach a short piece of 2-1/2" duct hose from the defrost outlet on unit to the Y-duct, then route a piece of 2-1/2" duct hose from the "Y" duct to each of the factory defrost ducts. (Photo 14) *NOTE: Make sure to leave enough clearance for windshield wiper arms to operate without damaging the duct hoses.*

2) Place center louver template over center section of dash, mark area to be removed and cut out. (Photo 15)

3) Install center louver assembly. (Photo 16)

4) Hold corner louver against kick panel at bottom edge of dash and mark location of factory screw. (Photo 17)

TIP: *For a custom appearance, the vents can be removed from the bezels and the bezels can be painted or dyed.*

5) Drill mounting hole at marked location.

6) Attach louver housing to dash using factory screw at dash and rear of housing to kick panel with phillips head screw.

7) Install louver in housing and route 2" duct hose from louver to Hurricane unit. (Photo 18)

8) Repeat steps 4 through 7 for driver's side louver.

9) Install Duct hose from both center louvers to Hurricane unit.

Photo 14 - Connect Defrost Outlets

Photo 15 - Enlarge Dash Opening

Photo 16 - Install Center Louver Assembly

Photo 17 - Install Louver Housing

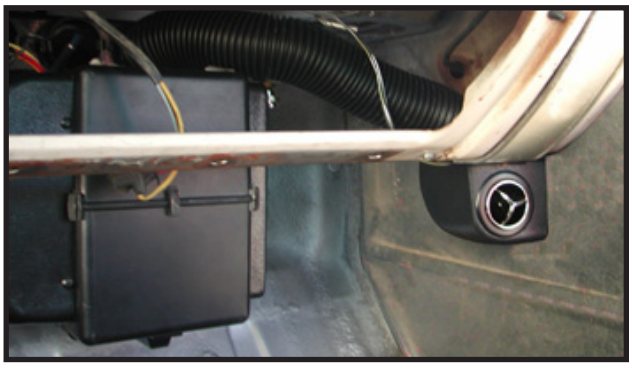


Photo 18 - Install Vent & Duct Hose

HEATER HOSE & VALVE INSTALLATION

NOTE: For vehicles with 3/4” heater hose use adapter sleeve over heater valve nipple to step up from 5/8” to 3/4” hose size. If you prefer not to use the adapter sleeve, 5/8” hose nipples are 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.

5. Refill radiator with antifreeze that will provide freezing protection for at least -10 degrees fahrenheit. Failure to have adequate antifreeze may allow a/c system to freeze heater core and rupture tubing in heater core.

6. Check to make sure that all hoses and wires are secured away from radiator fan and other moving parts to prevent damage to hoses.

CAUTION

This is not a blend system.

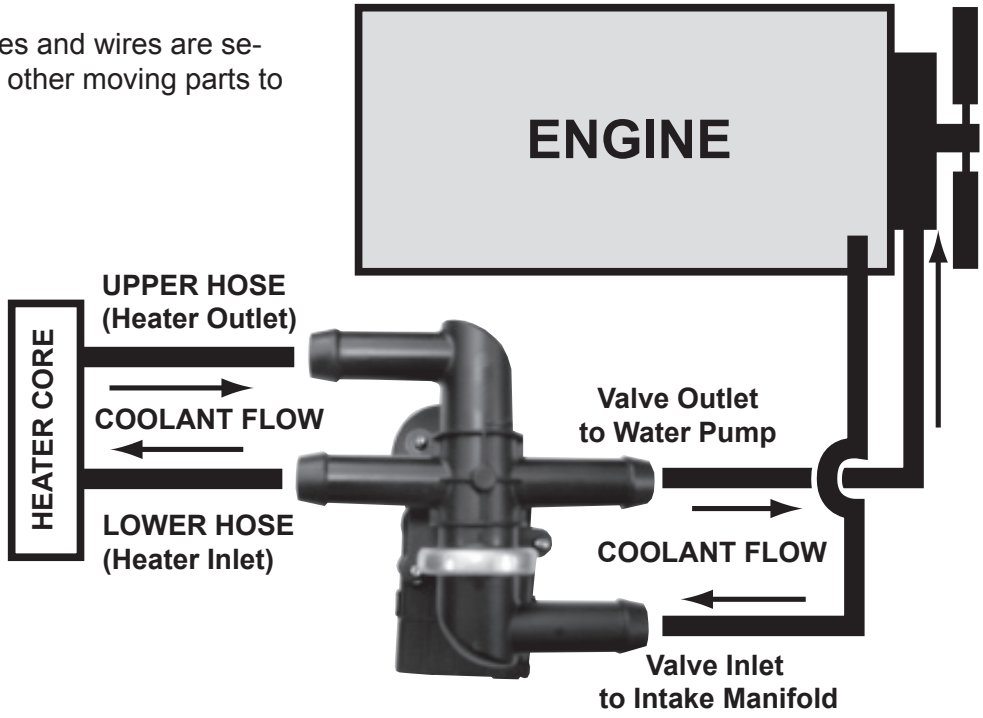
You must maintain an adequate antifreeze mixture in the cooling system for protection to -10 degrees Fahrenheit.

During installation the heater valves must be opened to allow antifreeze to flow into the heater core before operating the A/C system to prevent possible freezing and damage to the heater core.

The heater valve should be closed while operating the air conditioning system for maximum cooling.

Neglect of these cautions will cause damage to A/C & heater system and Void Manufacturers Warranty.

COOLANT FLOW CHART



COMPRESSOR AND BRACKETS

1) Locate the compressor and the mounting bracket.

2) Before opening hardware bag, Check bracket application to make sure it is the correct one for your engine. If bracket is not correct or you have any questions about mounting bracket contact Old Air Products Dealer before proceeding.

3) Install bracket and compressor on engine, refer to the instructions in the bracket hardware bag for installation.

NOTE: During installation the compressor may be mounted with fittings pointed to either side for easier hose routing.

DO NOT MOUNT COMPRESSOR UPSIDE DOWN.

NOTE: New compressors from Old Air Products are filled with oil for the complete system.

CONDENSER INSTALLATION

If installing optional condenser w/ passenger side fittings see instruction sheet included with condenser assembly #51-3067.

1) Open the "Knock Out" for the A/C lines located on the driver side of the core support. (Photo 19)

- **A.** Using a 1-1/2" hole saw drill through the core support at dimples.
- **B.** Knock out area between holes along perforation.

2) Attach condenser & drier assembly to core support using top OEM driver and passenger side factory mounting holes. (Photo 20) Secure top driver side bracket with 1/4-20 X 1" bolt & 14-20 nut. Secure passenger top bracket with #14 X 1" Sheet metal screw. Attach lower brackets with #10 X 1/2" self tapping screws.

3) Using a #8 o-ring seal, connect condenser Inlet tube to top fitting on condenser. (Photo #21)

A/C HOSE INSTALLATION

CAUTIONS: Important Hose Installation Information

A) Use refrigerant oil to lubricate all o-rings on all hose fittings.

B) Protective caps and plugs should not be removed until refrigerant hoses are ready to be connected.

C) O-Ring fittings should be tight but be careful not to over tighten and crush o-ring seal.

D) Hose Clamps should not be used with R-134A Refrigerant, a bubble style crimper (not a linear style) is recommended. Even though hose clamps are acceptable for use with R-12 refrigerant, it is recommend that all hose fittings be crimped for neatness, and to facilitate easy conversion to another refrigerant if desired, at a later date. We will crimp these at no charge, or most A/C shops or auto supply stores can also crimp the a/c hoses for a modest fee.

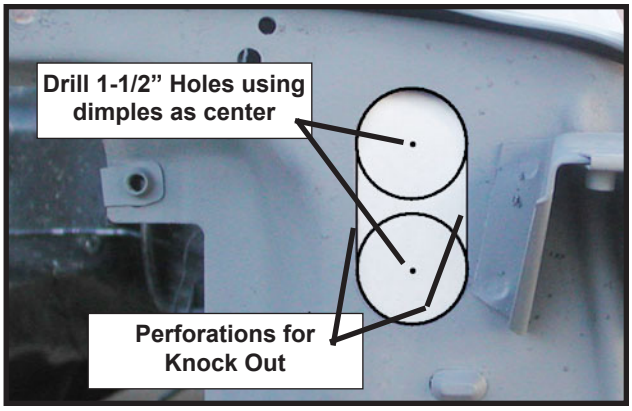


Photo 19 - Mount Condenser, Drier & Tubes

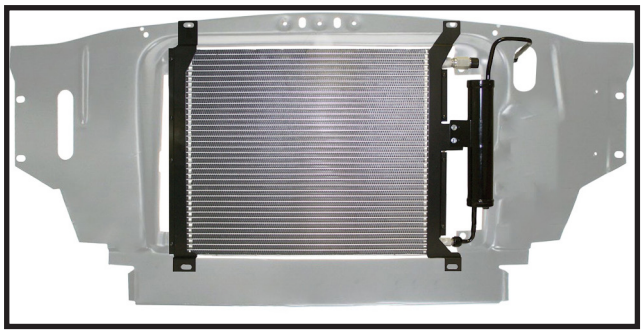


Photo 20 - Mount Condenser Assembly

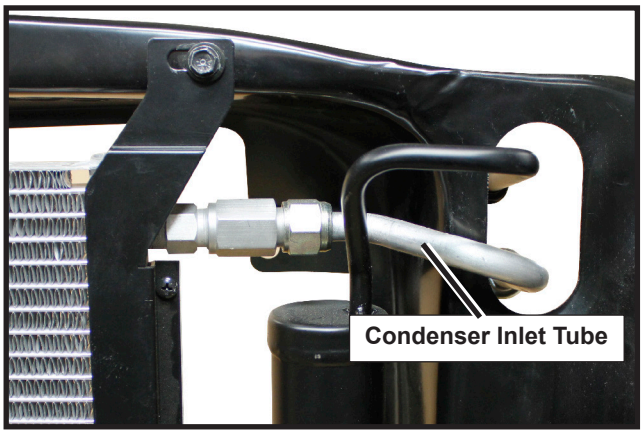


Photo 21 - Condenser Inlet Tube

Refer to Diagrams #3 & #4 for the Following Steps 1-5.

1) Assemble all A/C hoses with fittings and ferrules and test fit on vehicle before crimping ferrules.

2) Install Pressure Safety Switch (Photo 22)
   A) Install O-ring adapter fitting on receiver drier outlet.
   B) Install In-line pressure switch port to adapter fitting.
   C) Place o-ring on pressure switch and screw into port on in-line fitting.

3) Route a section of the #6 (5/16") hose from the expansion valve to the in-line pressure switch fitting on the receiver drier.

4) Route a section of # 8 (13/32") discharge hose from the outlet of the compressor to the #8 condenser inlet tube on the condenser.

4) Route a section of # 10 (1/2") suction hose from the evaporator outlet fitting to inlet of the compressor.

5) Remove A/C hoses, crimp fittings with beadlock crimper.

6) Reinstall hoses using lubricated o-ring seals, tighten all fittings (see torque specifications diagram 3, page 8)

CAUTION: *To prevent damage to tubes, fittings and system components always use a backup wrench to tighten fittings, failure to use backup wrench on fittings will twist and damage tubes or other system components.*

10) Place electrical plug on pressure safety switch. ***CAUTION:*** *Make sure the terminals of the switch are inserted into the connectors, not between the rubber boot and connectors.*

11) Connect one wire from safety switch to the green wire coming through firewall from the thermostat. The second wire will connect to the compressor clutch, it is recommend to wait until the system is ready for the refrigerant charge before making this final connection to the compressor to prevent compressor damage.

12) Install wraparound 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.

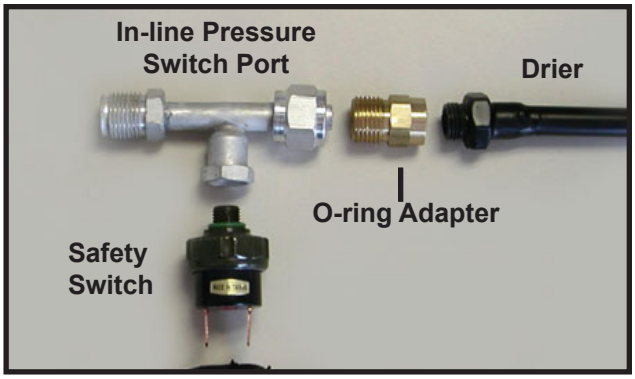
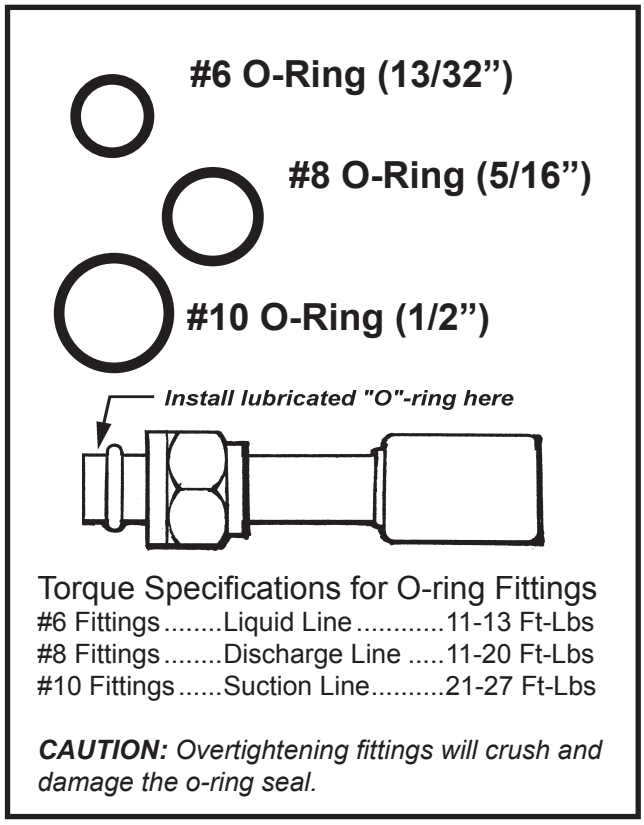


Photo 22 - Pressure Safety Switch



Torque Specifications for O-ring Fittings

#6 Fittings	Liquid Line	11-13 Ft-Lbs
#8 Fittings	Discharge Line	11-20 Ft-Lbs
#10 Fittings	Suction Line	21-27 Ft-Lbs

CAUTION: *Overtightening fittings will crush and damage the o-ring seal.*

Diagram 3 - O-ring Seals

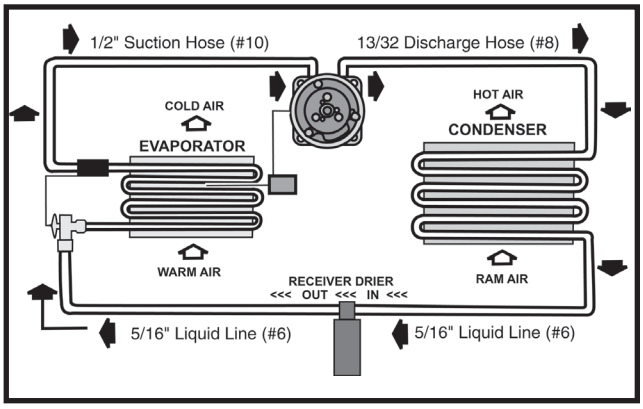


Diagram 4 - Refrigerant Flow Chart

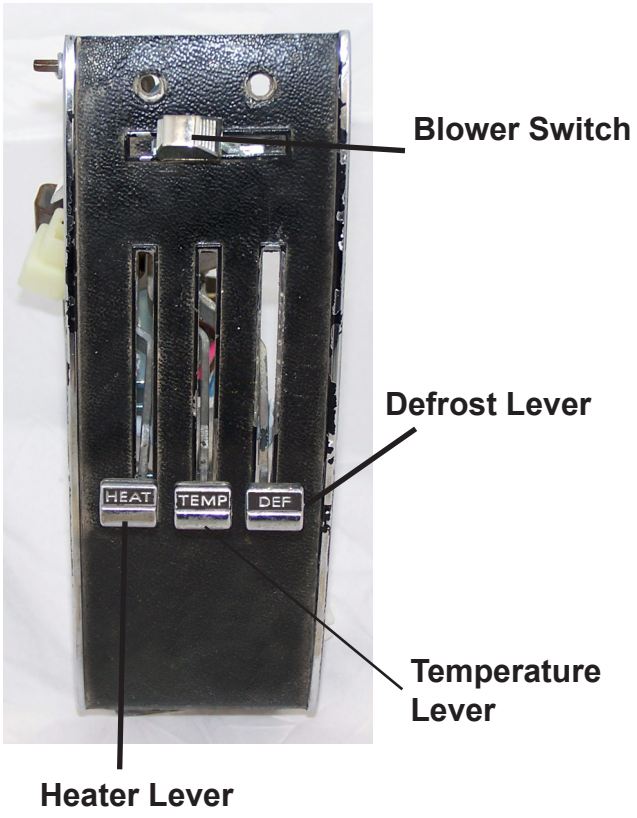
A/C & HEATER SYSTEM OPERATION

OFF / ON & FAN SPEED - System is OFF with the Switch lever in left position, Move switch lever to right to turn ON and select LOW, MEDIUM or HIGH Fan Speed.

A/C - Turn system ON & select fan speed, Move Left (Temp) Lever up to top position then move center lever down to engage compressor. Right lever in the up position will direct air to the dash vents or lever can be moved downward to direct airflow to the defrost outlets.

HEATER - Turn system ON and select fan speed. Move center lever to top to turn OFF Compressor, Move Left (Temp) lever down to adjust temperature for heater. Right (Defrost) lever in the up position will direct air to the dash vents or lever can be moved downward to direct airflow to the defrost outlets.

DEFROST - Turn system on, Select fan speed, Move right (Defrost) lever down to direct airflow to defrost outlets. Airflow can be directed to defrost outlet in either A/C or Heater Mode.



FREON SERVICE

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

2) New compressors purchased with complete systems from Old Air Products contain the correct amount of refrigerant oil.

VARIABLES AFFECTING FREON CAPACITY

a) Length of hoses, driver or passenger side compressor.
b) Size of condenser.
c) Compressor capacity.

3) **134-A Systems** will require 32 to 36 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.

R-12 Systems will require 28 to 36 ounces of Freon. This is 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.

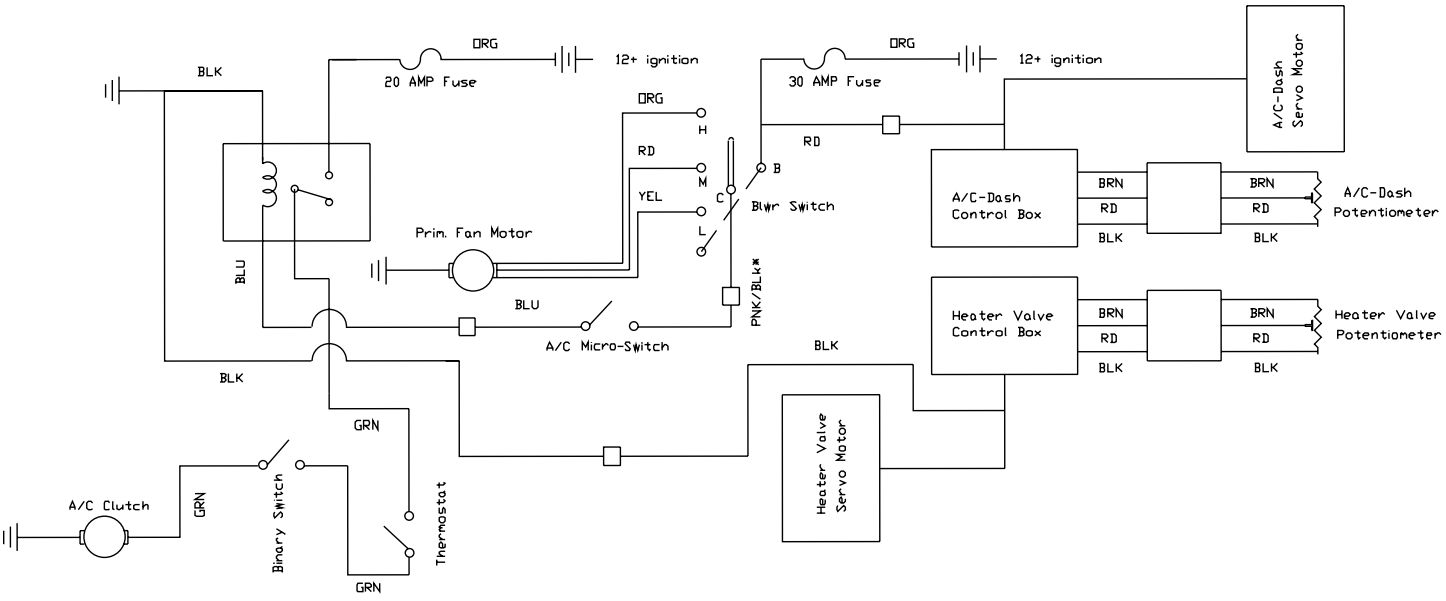
NOTE: When charging the system it will be necessary to put in about 12 to 18 ounces of refrigerant before the pressure safety switch will engage the compressor clutch. Charging and testing should be done with the doors shut, windows closed , convertible top up, fan on high blower, and an electric fan in front of radiator. If excessive high pressure exists adding an electric condenser fan is recommended if space permits.

NOTE: 134A requires 15 - 20% less refrigerant than R-12, which means the sight glass may not ever clear.

3) Leak test all A/C connections.

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

CAP-1167M - Wiring Diagram



PARTS LIST

IP-1167M - Inside Package

51-1102-2	**Hurricane Unit**
49-1013	**Louver Kit**
48-0067	**Fresh Air Block Off Plate**
49-1167	**Control Package**
49-1003	**Expansion Valve Kit**
91-0200P-168	**2” Duct Hose 168’ Length**
91-0250P-72	**2-1/2” Duct Hose 72” Length**
71-CAP-1067M	**Instructuon Sheet**

CAP-1167M - Complete Package

IP-1067M	**Inside Package**
51-1069	**Condenser Assembly**
49-0008	**Fitting Kit**
12-0006	**Tube, Fitting**
51-1065M-DS	**Hose Kit (May Vary by Application)**
Compressor	**May Vary by Application**
Comp. Bracket	**May Vary by Application**

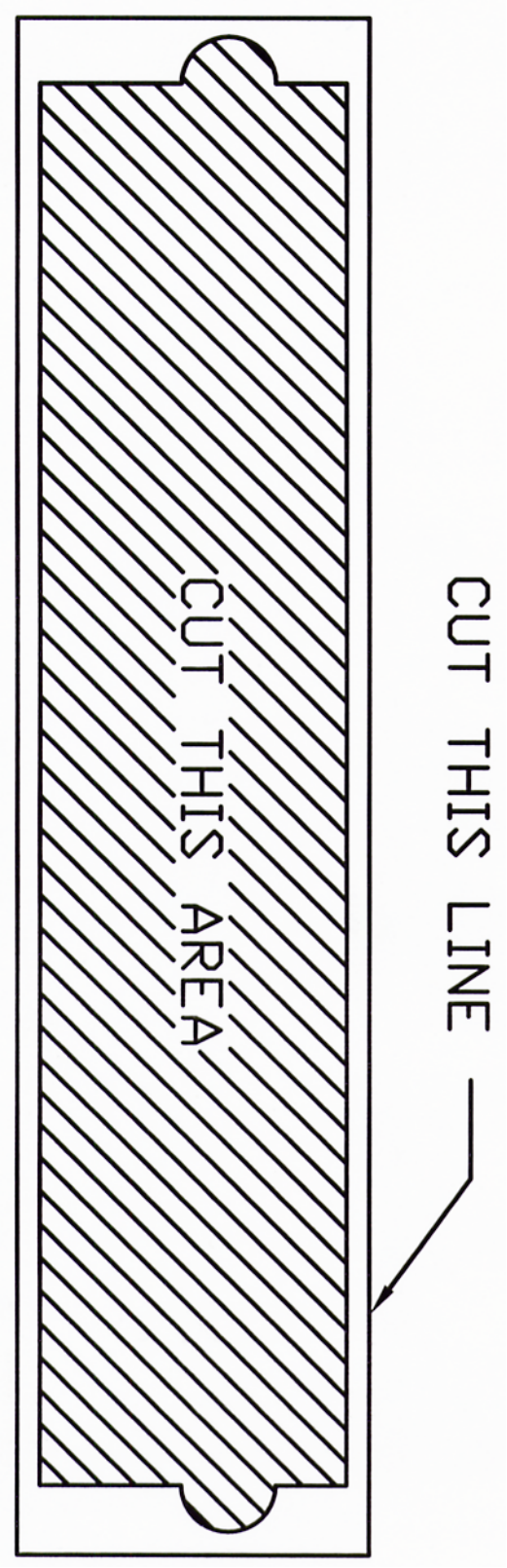
MP-1167M - Master Pack

IP-1067M	**Inside Package**
51-1069	**Condenser Assembly**
49-0008	**Fitting Kit**
12-0006	**Tube, Fitting**
51-1065M-DS	**Hose Kit (May Vary by Application)**
Compressor	**May Vary by Application**

MPC-1167M -

IP-1067M	**Inside Package**
51-1069	**Condenser Assembly**
49-0008	**Fitting Kit**
12-0006	**Tube, Fitting**
51-1065M-DS	**Hose Kit (May Vary by Application)**

Center Dash Louver Template



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