

INSTALLING THE HURRICANE CAP-1165M SERIES SYSTEMS

1965-66 Ford Mustang



8744 Forum Way, TX 76140
(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.
- 4) Remove original heater, 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.

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 and press cap into opening. (Photo 1) secure with 2 #8 X 1/2" screws provided.
- 2) Attach mounting bracket to unit using four 1/4" X 2" bolts and 1/4" flat washers. (Photo 2).



Photo 1 - Install Fresh Air Block-off



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 5)

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.*

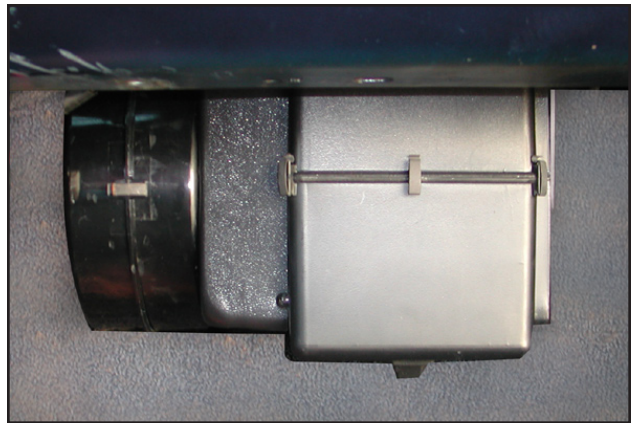


Photo 3 - Mount Unit to Firewall

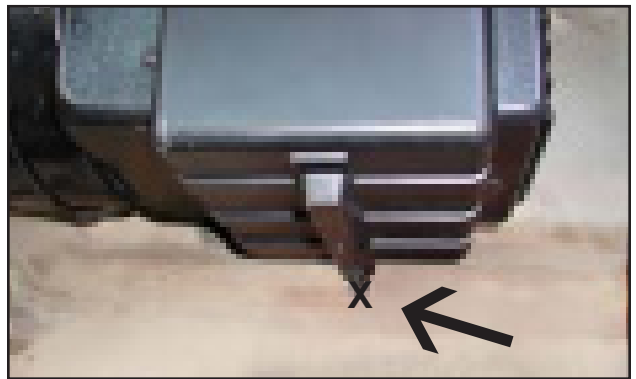


Photo 4 - Mark Hole Location



Photo 5 - Install Inlet Grill & Thermostat

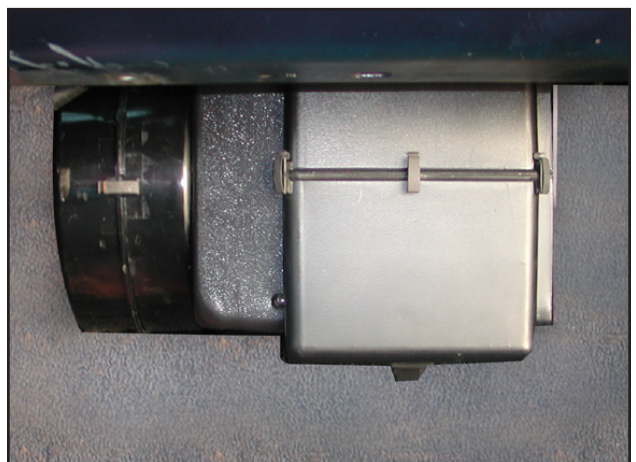
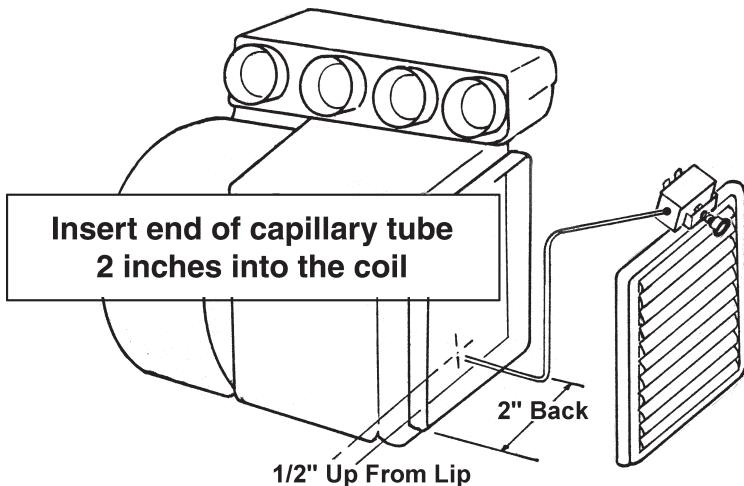


Photo 6 - Loosly Attach Unit to Firewall



DIAGRAHM 1 - Thermostat Location

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

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 INSTALLATION

NOTE: These instructions are for the 1964-66 Mustang, Before opening bag make sure this control package is correct application for your vehicle, Control packages that have been and or incorrectly ordered will be subject to restocking, shipping & handling fees. Any questions contact your distributor and/or Old Air Products.

1) Install New Electronic Control: (Photo 10)

- a) Insert wire harness through the factory dash opening
- b) Attach New Control to dash.

2) Connect the orange wire w/30 amp fuse from blower switch to a "KEY ON" Power Source.

3) Attach the 2 green wires from the wire harness to the two terminals on the thermostat located on inlet grill.

4) Rotate knob on thermostat clockwise to the full "ON" position, then turn it back counterclockwise until you feel a small indent, (about 1/4 turn) This is the normal operating position.



Photo 7 - Firewall Grommet

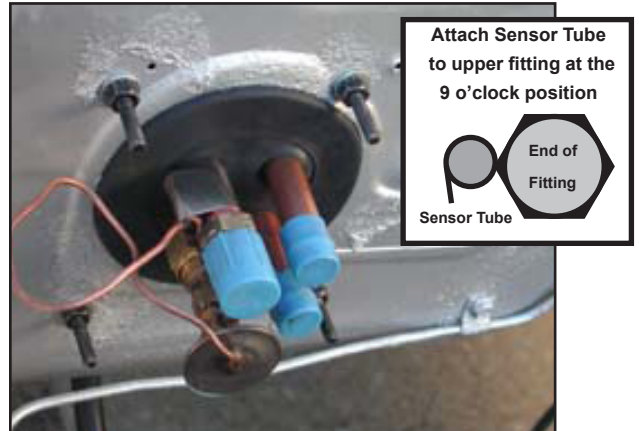


Photo 8 - Expansion Valve



Photo 9 - Wrap Sensor Tube

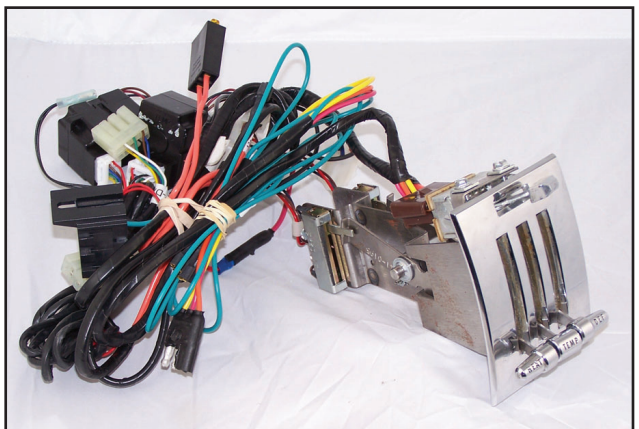


Photo 10 - Install Control

- 5) Connect the orange wire with 20 amp fuse to a 12 volt power source. (see wiring diagram)
- 6) Plug the flat 3 terminal connector from the wire harness into the matching connector on the unit. (see wiring diagram)
- 7) Connect the black wire with the ring terminal from the unit to a ground (-). It is very important that the connection be a clean solid connection. A loose or dirty connection will cause excessive amperage draw resulting in intermittent blower operation and damage to blower switch or wire harness. (see wiring diagram)
- 8) Attach small black wire from relay to ground source, (-).
- 9) Connect wire harness plug marked "Defrost" to servo motor on A/C unit.
- 10) Route wire Harness Plug marked "Htr Valve" through firewall to engine compartment, (this will be connected when heater Valve installed).
- 11) Route green wire with bullet connector through firewall to engine compartment. (This will be connected to pressure safety switch)

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 11)
NOTE: Make sure to leave enough clearance for windshield wiper arm linkage to operate without damaging the duct hoses.
- 2) Remove phillips screw from the bottom of center vent assembly and remove face from duct. (Photo 12)
- 3) Hold duct at desired position at the bottom of dash and mark position of mounting holes.
- 4) Drill 1/4" holes at marked locations.
- 5) Re-assemble center louver assembly and attach to dash with 1/4" bolts provided. (Photo 13)
- 6) Hold corner louver against kick panel at bottom edge of dash and mark location of mounting screws. (Photo 14)

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



Photo 11 - Connect Defrost Outlets

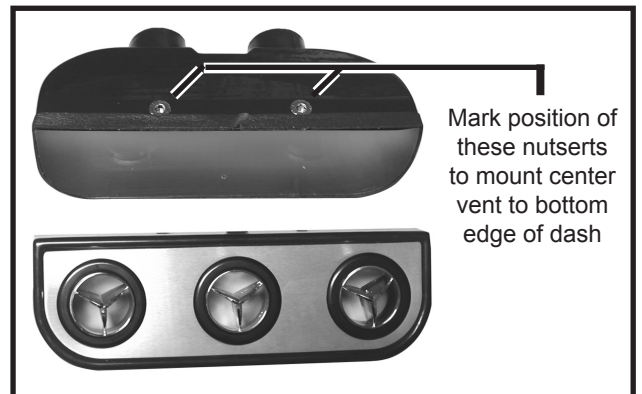


Photo 12 - Remove Face From Center Louver



Photo 13 - Install Center Louver Assembly

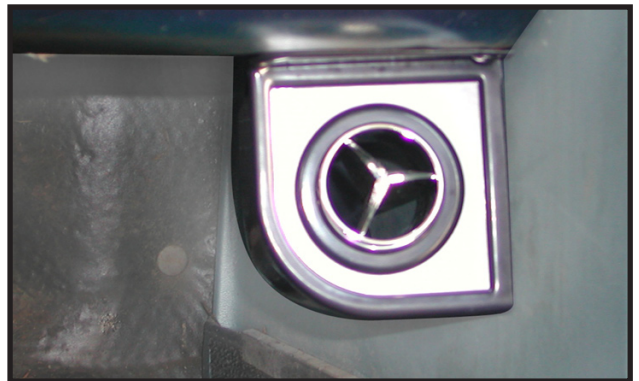


Photo 14 - Install Side Louver Housing

COOLANT FLOW CHART

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

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

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

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.

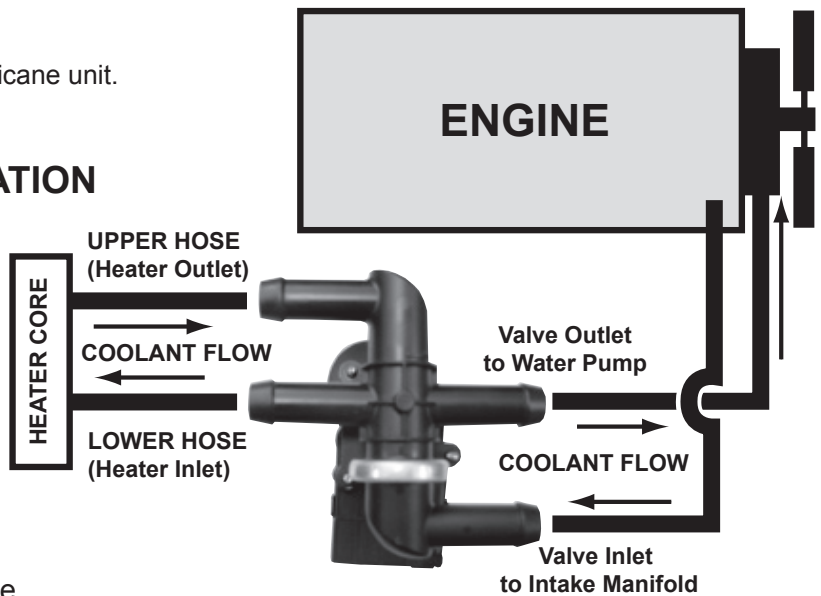


Diagram 2 - Coolant Flow Chart

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 should be opened to allow antifreeze to flow into the heater core before operating the A/C system to prevent possible freezing and rupture of the heater core.

The heater valve should not be open while operating the air conditioning system.

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

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

- 1) Attach condenser to core support using top OEM driver and passenger side factory mounting holes. *(The final installation of tubes will be done when hoses are installed.)*

A/C TUBE & 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.

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 90 Degree Drier Outlet tube with switch port.
 - A), Align 90 Degree tube to drier and mark location of hole through core support.
 - B). Drill 1-1/2" hole
 - C). Insert short end of tube through hole and attach to drier.
- 3) Install Pressure Safety Switch, place lubricated o-ring on pressure switch and screw into switch port. (Photo 22)
- 4) Using desired fittings route a section of the #6 (5/16") hose from the expansion valve to the pressure port adapter fitting at the core support.

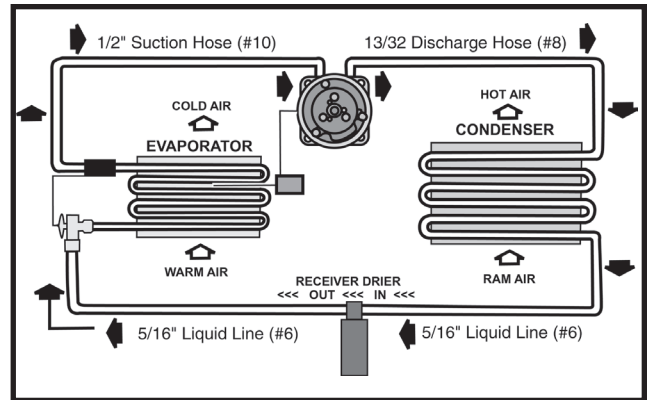


Diagram 4 - Refrigerant Flow Chart

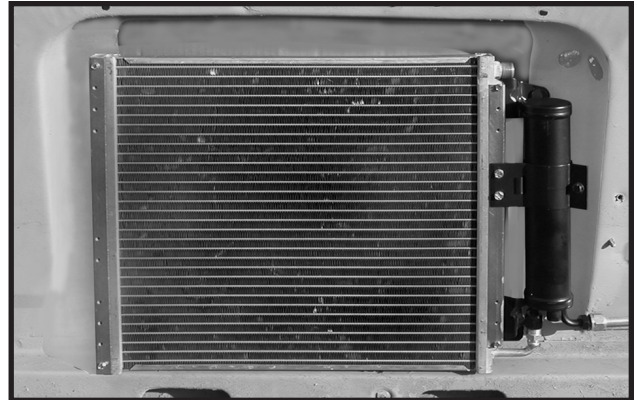


Photo 20 - Mount Condenser, Drier & Tubes

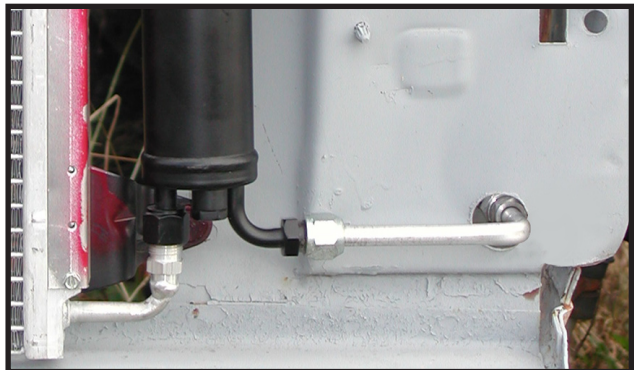


Photo 21 - Drier Outlet Tube



Photo 22 - Install Safety Pressure Switch

- 5) Install discharge hose. (Photo 23)
 - A). Align #8 straight fitting with condenser inlet fitting and mark location of hole through core support.
 - B). Drill 1-1/2" hole
 - C). Insert fitting through hole and attach to condenser inlet.

6) Route a section of # 8 (13/32") discharge hose from the outlet of the compressor to the #8 fitting at the condenser inlet.

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

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

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

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 safety switch. **CAUTION:** Make sure the terminals of the switch are inserted into the connectors, not between the rubber boot and connectors. (Photo 22)

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 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.

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.

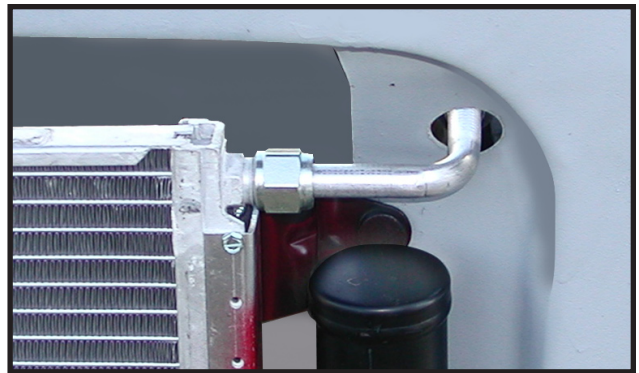


Photo 23 - Install Discharge Hose

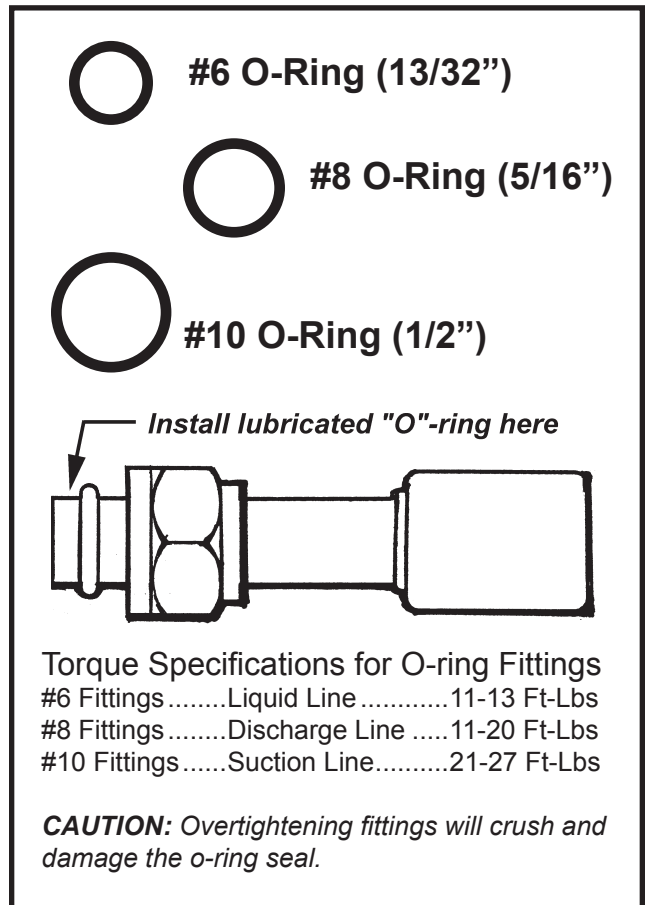
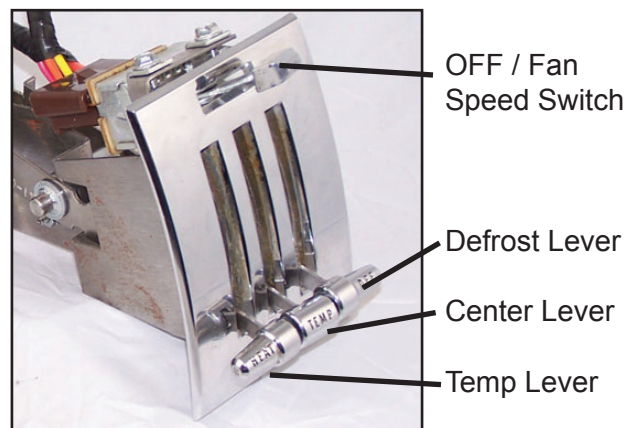


Diagram 3 - O-ring Seals



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.

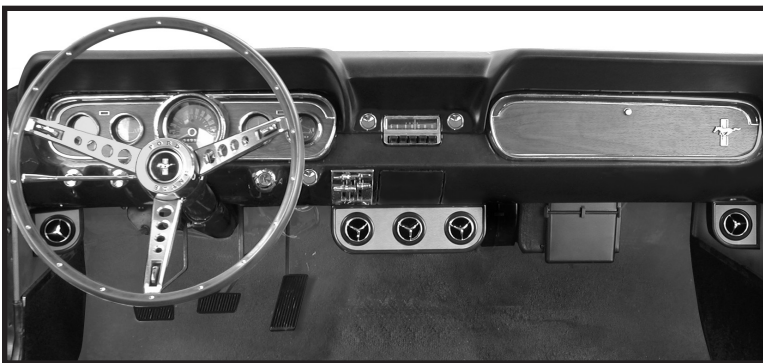
R-12 Systems will require 28 to 36 ounces of Freon. This is only a guide line, and the sight glass (under the dimple area) on top of the drier should be monitored. The exact charge will be relevant to the length of hose, compressor capacity, and size of condenser.

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.

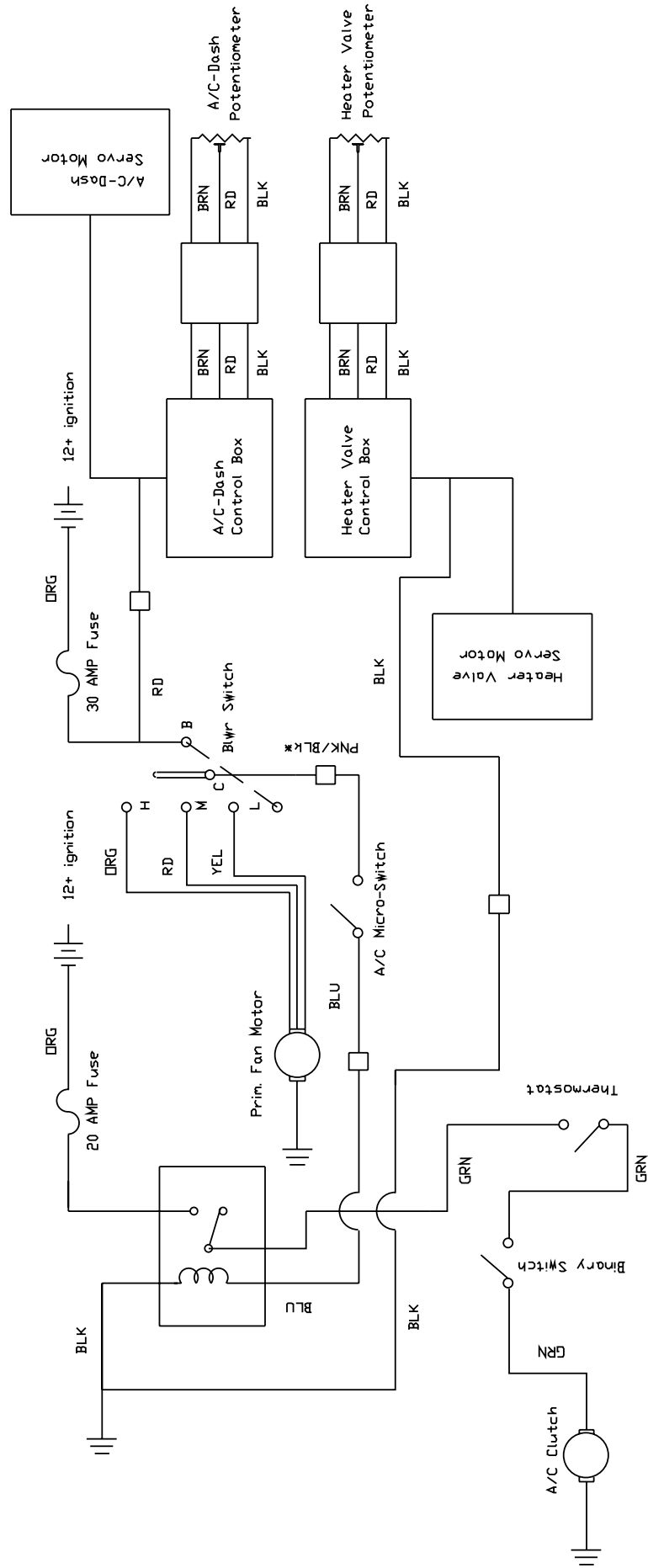
3) Leak test all A/C connections.

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



Completed Installation of Inside Package

CAP-1165M - Wiring Diagram



PARTS LIST

1965-66 Mustang Units

IP-1165M - Inside Package

51-1102-2	Hurricane Unit
49-1002-2	Air Inlet Grill (w/ Thermostat)
49-0005	Louver Kit
49-1166	Control Package
49-0064	Defroster Kit
49-1003	Expansion Valve Kit
91-0200P-132.00	Duct Hose 2" X 132"
91-0250P-50.00	Duct Hose 2.5" X 50"
71-CAP-1165M	Instructions

CAP-1165M - Complete Package

IP-1165M	Inside Package
51-6465	Condenser Assembly
49-0007	Fitting Kit
51-1065M-DS	Hose Kit (May Vary by Application)
12-0017	Liquid Tube
12-1006	Tube / Fitting
Compressor	May vary by application
Bracket	May Vary By Application

MP-1165M - Master Pack

IP-1165M	Inside Package
51-6465	Condenser Assembly
49-0007	Fitting Kit
51-1065M-DS	Hose Kit (May Vary by Application)
12-0017	Liquid Tube
12-1006	Tube / Fitting
Compressor	May vary by application

MPC-1165M -

IP-1165M	Inside Package
51-6465	Condenser Assembly
49-0007	Fitting Kit
51-1065M-DS	Hose Kit (May Vary by Application)
12-0017	Liquid Tube
12-1006	Tube / Fitting