

AIR CONDITIONING KIT INSTRUCTIONS Jaguar Mk. I, Mk. II, 3.8S **RIGHT HAND DRIVE ONLY!!**

OPEN AND CHECK SHIPMENT!
SHORTAGES MUST BE REPORTED WITHIN 5 DAYS!

**CAREFULLY LAY OUT ALL PARTS IN THEIR APPROXIMATE
LOCATION AND READ INSTRUCTIONS BEFORE
PROCEEDING!**

**PLEASE BE SURE YOU UNDERSTAND THE INSTRUCTIONS AND WHERE
EACH PIECE GOES!**

A Contents List is Included!

KEEP COVERS ON ALL FITTINGS UNTIL CONNECTION TIME!!

Prior to starting, use the proper repair manual to remove the following:

**Battery Disconnected; Heater Box Assembly; Hood (Bonnet); Radiator Grille; Radiator; Fan
Blade; Fan Belt; Wooden Dash Top and left Side Pieces; Mk II Center Radio Console; Mk II
"Cubby" Metal Shelf with Wooden Trim; "S" Models Parcel Shelf.**

SEE AND UNDERSTAND PICTURES BEFORE STARTING!

CONDENSER INSTALLATION

With grille removed, measure 13 inches from bottom pan on Left (Passenger) side grille opening wall and mark. At the same height, measure 1-1/2 inches from the radiator support/brace. Check for clearance and interference on both sides of Grille wall! These intersecting marks will be the center of a 1-1/4 inch diameter hole in the side panel to gain access to the L/F wheel opening. Drill another 1-1/4 inch hole 9-3/4 inches (measure to be sure) below the first one. Fit the enclosed grommets into these holes after treating raw edges with rust preventive. The top hole/connection will be the large inlet, while the lower hole/connection will be the smaller outlet. Make sure the condenser connections or A/C hoses will not chafe on metal. Loosely mount the condenser so it will be next to the left (passenger) side of the grille opening where the holes were just made.

The condenser fittings should be accessible for attachment to the A/C hoses upon completion of this section. Install the Electric Fan Last using the enclosed Relay!

SEE AND UNDERSTAND PICTURES BEFORE STARTING!

COMPRESSOR INSTALLATION

Mark I, II, "S" Models

With the radiator removed and the condenser installed, remove the fan belt and fan blade. Remove the inverted 5/16" head nut and stud directly above the center generator bracket bolt

(See picture) and install replacement stud first, then the “S” shaped Bracket followed by the stud nut/washer. Do not tighten nut at this time.

The front bracket is installed with the supplied 5/16" bolts/washers in the upper outermost holes in the front timing chain cover (just below the head). Remove any bolts already there. If your generator adjustment bracket is anchored to one of these, place it at another location. Leave all the bolts on the brackets somewhat loose and install the compressor with the three bolts supplied (head of bolts should be against the compressor ears and the lock washers/nuts against the steel bracket). If the compressor pulley/clutch has less than one inch of clearance to the inner fender, it may be necessary to "dimple" the inner fender to give the proper clearance prior to mounting compressor. (The engine can torque to the left, therefore it is important that all motor mounts be in excellent condition to maintain sufficient clearances between inner fender and forward between fan and radiator.) Before tightening all compressor bolts followed by the bracket bolts, make sure the compressor connection fittings are in the same position as the photographs. Prior to mounting the fan shroud, cut 1/4 to 5/16th-inch deep section, approximately 4-6 inches long (see photos) from fan shroud edge to accommodate protruding compressor clutch and pulley. After installing the Back Idler Pulley (see attached sheet), make sure all pulleys line up prior to mounting the included fan belt. Leave the fan belt loose to be tightened after radiator and shroud is installed. After rechecking, install Radiator and shroud. Seal all open spaces around the shroud and grille opening with heat resistant foam rubber or seal. This is to direct all air entering the grille opening to pass through the condenser and radiator and all the air pulled through the radiator exits through the shroud rear opening. Tighten fan belt until the belt deflects no more than 1/2 to 3/4 inch. This will need to be re-checked after 100 miles of operating. *See accompanying instructions for Back Idler Pulley!*

EVAPORATOR/BLOWER MOTOR INSTALLATION

Blower Motor

After removal of the Heater Box Assembly and passenger carpeting, remove the LH Pedal Box cover. Using the enclosed Metal Pattern, Bolt the lower pattern hole to the corresponding hole in the body and leave loose. Aligning the pattern, trace and cut the Blower opening in the body sheet metal to give full airflow into the enclosed oval ABS Hose Adapter which will be mounted on top, inside the engine compartment. The Blower is mounted inside the car with the opening to the rear. This cut can be made with an air body saw or similar tool. Re-locate wiring and ancillary items to clear the Blower assembly when mounted. After making sure of the blower motor placement, remove it. All of the existing Firewall Heater and defroster openings must be permanently covered with the enclosed sheet metal pieces and sealed against the weather. Use Silicone under all metal pieces to be mounted.

Mount the Blower inside and the Oval ABS Hose Adapter outside, in the Engine Compartment using the 6 #10 screws, washers and Nyloc Nuts. The 4 inch Insulated duct inner plastic hose can be attached at this time by forming it around the ABS engine compartment outlet; secure it with the included 2 washers/screws, Tie Wraps and seal edges with silicone sealer. After the sealer is dry, seal the 4" Duct Hose outer shell with the Aluminum Tape provided. After cutting the 4" Hose to the proper length, attach to the Evaporator in the same fashion. **DO NOT RESTRICT THE AIRFLOW!** The included Insulated Hose has a “Mylar” covering and needs to be protected from high heat with the enclosed Aluminum sheet! It will need to be mounted and formed to protect the Blower and Evaporator from Exhaust Heat.

Evaporator

-INSTALL & SEAL FIREWALL SHEETMETAL BEFORE MOUNTING EVAPORATOR!!

Install the Flat metal cover over the left side of the large hole and the angled metal cover over the small bottom holes and slot.

The evaporator is shipped with the cover removed that will be installed later. To mount the evaporator, place this cover on the firewall horizontally, sharp edges out and installed Weatherstrip to the bottom, where the Heater formally was. Place the left (passenger) side of the cover as close to the left hinge as possible without interfering with the Bonnet opening/closing, or the Insulation on the Evaporator. The top of the cover should be 1-3/4 inches from the underside of the cowl overhang. Make sure that the front cover is level and lined up, then drill two 3/32 inch holes on both right and left upper sides (away from the 2 & 2.5 inch holes about to be drilled) to secure the cover to the firewall with screws.

INSURE EVAPORATOR & HOSES HAVE PROPER CLEARANCES INSIDE & OUT!

After drilling three 2 inch holes, and one 2.5 inch hole with a hole saw through the cover and firewall, remove the 1-1/2" paper defroster hoses- they will be replaced with Kit supplied hoses. When Drilling the 2 & 2.5" holes, **Space these four (4) holes fairly equal to maximize airflow!** The 2.5 inch hole and Hose Adapter should be positioned to the left (passenger) side to take advantage of the space available since there are two "Y" Hose Fittings to attach- the round one with the control will be attached, with a small section of hose to the 2.5" fitting coming through the firewall. The Air Control part of the "Y" is attached to the the flat "Y" with the Defroster Hose Adapters. The round 3rd arm will attach to the 2.5" to 2" Hose adapter, then to the vent as described below (**see picture**). After cutting the four (4) holes (one goes through the supplied Kit Sheet Metal filler panel, & inner "Cowl vent Scuttle" housing wall), remove the Evaporator cover, and seal the small mounting holes. Use included foam weatherstrip to seal the firewall depressions under the mounted evaporator.

Clean/trim all hole edges and place the four- outlets inside the cover with a sealing or PVC adhesive, then put cover on evaporator with supplied screws after drilling and adding the round Weather Strip to the bottom of the oversized cover. *Do not invert cover or holes will not line up!* Use silicone to fill any spaces in evaporator case joints. The outlets will protrude out from the cover and into the firewall holes (it may be easier to attach the duct hoses with enclosed tie wraps before mounting the Evaporator-see below). Mount the evaporator with supplied evaporator brackets and 1/4X1/2 Bolts and flat washers (previously installed). After insuring that the assembly and brackets are level and outlets fully inserted, drill 3 holes (3/32") in the firewall for each bracket and attach with supplied SM screws. **THE EVAPORATOR MUST BE FIRMLY AGAINST THE FIREWALL!** This would be the time to insure the expansion valve (the bottom hose connection on the evaporator) is at a 10 to 15 degree angle toward the inner fender and drill a 1-1/4 inch hole in the inner fender for the enclosed grommet that allows the A/C hose to pass through. (**THIS SHOULD BE DONE PRIOR TO PERMANENTLY MOUNTING EVAPORATOR SO THE HOSE LINES UP WITH THE CONNECTION.**)

Before moving inside the car, mount the insulated intake hose (attached to the blower motor) to the oval intake on the evaporator- cut off any excess. At this time, attach the inner, Insulated Duct hose to the evaporator with the supplied Nylon tie and seal edges with silicone. The outer, insulation w/ covering will then be secured with the enclosed Foil Tape. Once the evaporator has been securely attached, drill a hole, from inside the car, for the capillary tube and grommet through the firewall and the cover. The hole should be between the 2nd or 3rd outlet leaving enough space to attach the duct hose. See capillary tube instructions below. The space around

the duct hose coming through the Cowl vent (Scuttle) housing should be sealed with Silicone. That will leave the vent fully functional for outside air coming into the car, yet seal the interior from heat.

MARK II INTERIOR

The metal "Cubby" previously removed will now have to be cut to allow clearance for the louver duct tubing. Remove 2-1/2 inches deep by ten inches long from the right side, lengthwise, from the closed rear of the "Cubby", making it open front and rear except in back of the vent handle. Use Tape to protect the "Cubby" sharp cut edge. Reinstall the "Cubby" without the wood trim and secure the radio center console piece to it for stability. Cut the 2-inch duct tubing to length so 2 tubes will hang out through the "Cubby" from the 2 middle Evaporator outlets. The right Evaporator outlet duct hose will attach to the round louver installed in the finish panel under the driver side dash. The left hose will attach as below-see picture and instructions. The lower louvers are installed by unscrewing the body, making a 2-1/2 inch hole in the finish panel with a hole saw, and assembling, or using the under-dash mounts enclosed. Secure the Hoses with Sealant.

When installing the under dash louvers, it is critical to route the hoses and louvers so they will not be obstructed. ALLOW EXTRA LENGTH ON ALL DUCT HOSE AS IT CAN BE COLLAPSED OR TRIMMED, BUT NOT STRETCHED! For service after installation, It will be necessary to remove the wood trim panel and louver panel and stretch the duct hose to get behind the instrument panel!

The under dash finish panel on the passenger side will have to be shortened 6 to 7 inches from the firewall end to mount the blower motor and allow enough air to reach it. Measure the amount to be taken and mark the unfinished side. Using a heat gun, heat up the area to be removed and pull the vinyl away from backer board past your mark.

Cut the board and trim the vinyl so it can be reattached in the same manner as original with contact cement.

You can make mounting holes for the switches if so desired. There is, also, a switch panel that can be used instead of concealing the switches. The "bare spot" on your upper passenger Firewall can be covered with the vinyl removed in the previous operation.

3.8S & 420 INTERIOR

It is important to reduce the glove box interior or there will not be sufficient room for this installation. A Mark II box is smaller or the stock box can be modified to the Mark II dimensions. Remove the Parcel Shelves for easier access and determine the location of the 4 Louver Vents on the Parcel Shelf rear wall, mark and drill 2-1/2" holes with a Hole Saw and install the louver Vents. Duct tubing may have to be shaped into an oval to reach the drivers side and should be attached to the Vents before replacing the shelves. Since some cars are different, you should determine the route of the hoses before you start. The under-dash material can be finished similar to the Mark II under dash passenger panel is done for professional results- see below. A switch panel may be used to house the switches.

MARK II, 3.8S & 420

Route the capillary tube of the temperature switch through the hole (with grommet) previously drilled and push halfway into evaporator coil. This is a judgment call- the coil takes up approx. two thirds of the case. It should go in a few inches before meeting light resistance. Once resistance is met, push it in another 2-1/2 inches unless too much resistance is felt, pull out and try again in a slightly different location. This tube senses the temperature of the air coming in

and switches the compressor on and off as needed. When routing the tube from the switch, make every effort to keep the tube from touching any metal or ducts which may affect the temperature sensing. **DO NOT CRIMP THIS TUBE!**

Attach the previously cut duct hose (if not already attached) to the firewall evaporator outlets using the enclosed short tie wraps. Be sure these joints are secure and tight as the efficiency of the unit depends on this. This would be the time to install the round louver on the drivers side after removing the under dash finish panel.

The duct hose may now be attached to the rectangular louvers that have been fitted into their panel and will be below the instrument panel. The hose fits inside of some louver hose attachments and outside of others. They should not need any fasteners. The louver panel, with the louvers installed, may need trimming and is attached by fitting it between the wood trim piece and the "Cubby". Drill holes in the appropriate places and attach the nuts to the wood trim piece and tighten. Reattach the drivers under-dash trim panel, making sure that the duct hose is attached to the louver. Do not attach the passenger trim panel. If fitting switches to this panel, be sure of clearances and wire accessibility for the electrical hookup. Attach the 30 amp circuit breaker under dash brace as pictured. This will be wired later.

SEE AND UNDERSTAND PICTURES BEFORE STARTING!

A/C HOSE CONNECTIONS

REMOVE COVERS ONLY AT CONNECTION TIME!!

HAVE PROPERLY LUBRICATED "O" RING ON EACH HOSE CONNECTION!

There are 4 A/C hoses with your kit. The largest (#10) one with the Straight Service Port fitting is attached to the large compressor fitting. Hand tighten and attach other end to the upper fitting on the evaporator- again hand tighten. The next largest (#8) hose will need a 1-1/4 inch hole and supplied grommet in the inner fender near the Compressor. Connect the 45 degree Service Port fitting to the end to the compressor by hand and through the hole, while the plain 45 degree end goes through the left side of the Grille shell and gets connected to the upper, large fitting of the condenser. The plain end of the small hose goes from the Evaporator through the other inner fender hole and connects the other end to the Receiver/Drier being sure the "IN" fitting is receiving the hose from the Condenser!

The very short piece of hose has a straight end that attaches to the small fitting on the condenser. The other end will attach to the "IN" fitting on the Receiver/Drier. Be sure there are no obstructions or clearance problems for the drier bracket and screws and attach. Attach the Drier wiring harness and feed it into the engine compartment using an existing hole or make a new one.

After hose installation, cut insulation to size for hose protection against extreme heat (exhaust manifold), and cut lengthwise to slip over hose. Use enclosed Aluminum Tape to cover slit lengthwise, which should be away from heat source.

Electrical Hook-up

The Wiring harness has 5 electrical connectors on one end- connect as follows:

Black to "B" on the Fan Switch, Red to "M", Yellow to "L", Orange to "H". The remaining Blue wire is connected to either side of the Thermostatic Switch. The short Blue wire goes from "C" on the Fan Switch to the other thermostat connector. The Long blue wire is attached to one wire on the Hi-Lo Switch. The other Hi-Lo Switch wire goes to the compressor with the enclosed 12 Ga wire and connector. Establish a connection to a switched ignition source with the free

Harness Black wire, so it is "live" when the switch is on and "dead" when the switch is off. Connect this wire to the supplied circuit breaker at "AUX" terminal on the Circuit Breaker. Attach the Black large harness wire to the circuit breaker terminal "BAT". The loose Yellow wire on the Motor will be attached to the vehicle's body for "GROUND". That leaves the Red and blue wire connected. Route all the wires out of the way of obstructions that may develop when the dash and ducts are put together. Make sure all connections are good and hook up the harnesses and switches. Connect the battery and turn on the ignition to test the motor. When switched on, the motor should draw air from the passenger compartment and blow vigorously through the upper louvers. If not, something may be wired incorrectly.

Refrigerant/ Heater Installation

BE SURE ALL FITTINGS HAVE LUBED "O" RINGS AND ARE TIGHT!

Once it is wired up correctly, connect and tighten all Refrigerant hoses as the system will need to be evacuated for one hour or more and charged with R134a refrigerant. Before charging the system, you may have to use a "jumper" wire to connect the Hi/Lo pressure switch harness terminals. Drain the compressor oil and install the same amount drained with PAG 100 or compatible oil. When charging the system, it should take approximately 12 to 18 oz of R134a refrigerant. This can be done at your local A/C garage as they should be able to recognize the proper pressures for the most efficient cooling. You should obtain temperatures of 35 to 40 degrees F at the louvers depending on the outside temperature, while maintaining good engine cooling. This is, of course, dependant on the installation of the A/C Kit and condition of the cooling system.

The original Jaguar Heater Valve will be attached to the matching plate on the New A/C/Heater Unit and the other, "out" hose connected to the other ½" fitting.

CALL, CALL, CALL or

E-Mail, E-Mail, E-Mail

DO NOT HESITATE TO CALL FOR TECHNICAL ASSISTANCE.

Technical Support- 972-996-6687- sales@retroair.com

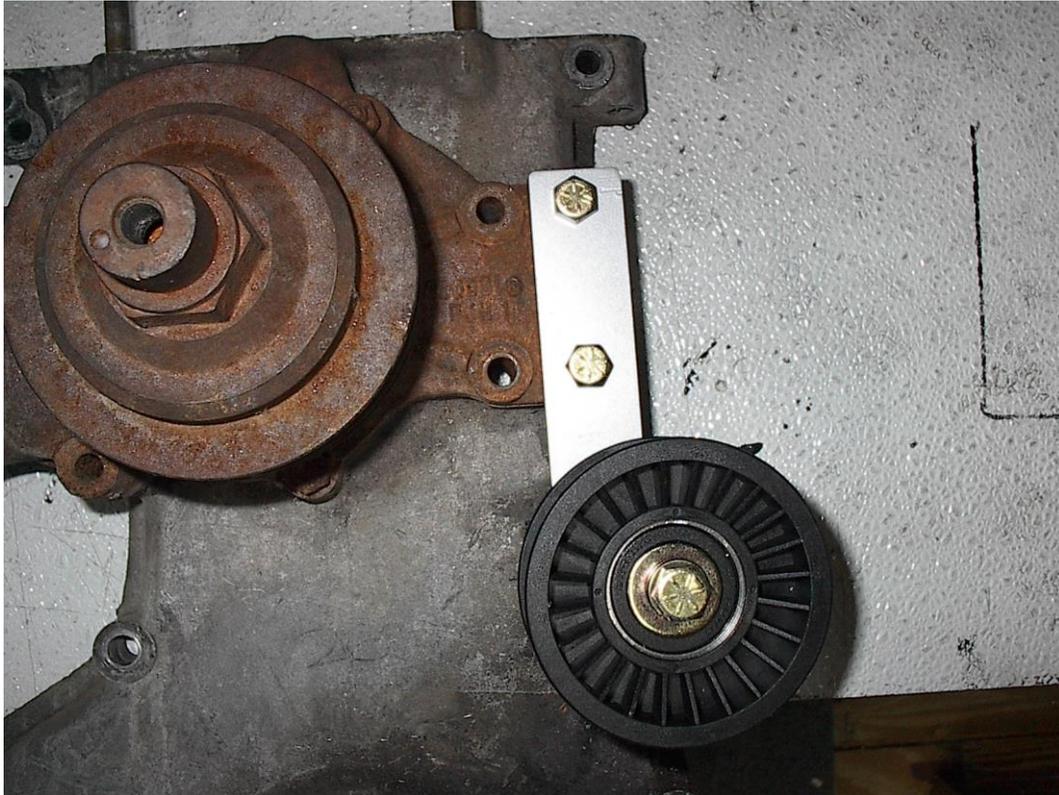
Thank you for purchasing the most efficient and complete kit available for this car- anywhere!

MARK II, IX, XKE S1-3.8, 4.2 IDLER PULLEY KIT

For 3.8 Engine with Our A/C

3.8 Engine Instructions:

It will be necessary to remove the Radiator and Fan Blade. Remove the Bolt (see pictures). The back of the belt rides on the idler pulley and goes down to the Crankshaft on the Right side and comes up & over the Waterpump pulley on the Left side, to the Compressor, down to the Generator/Alternator to make the complete loop.



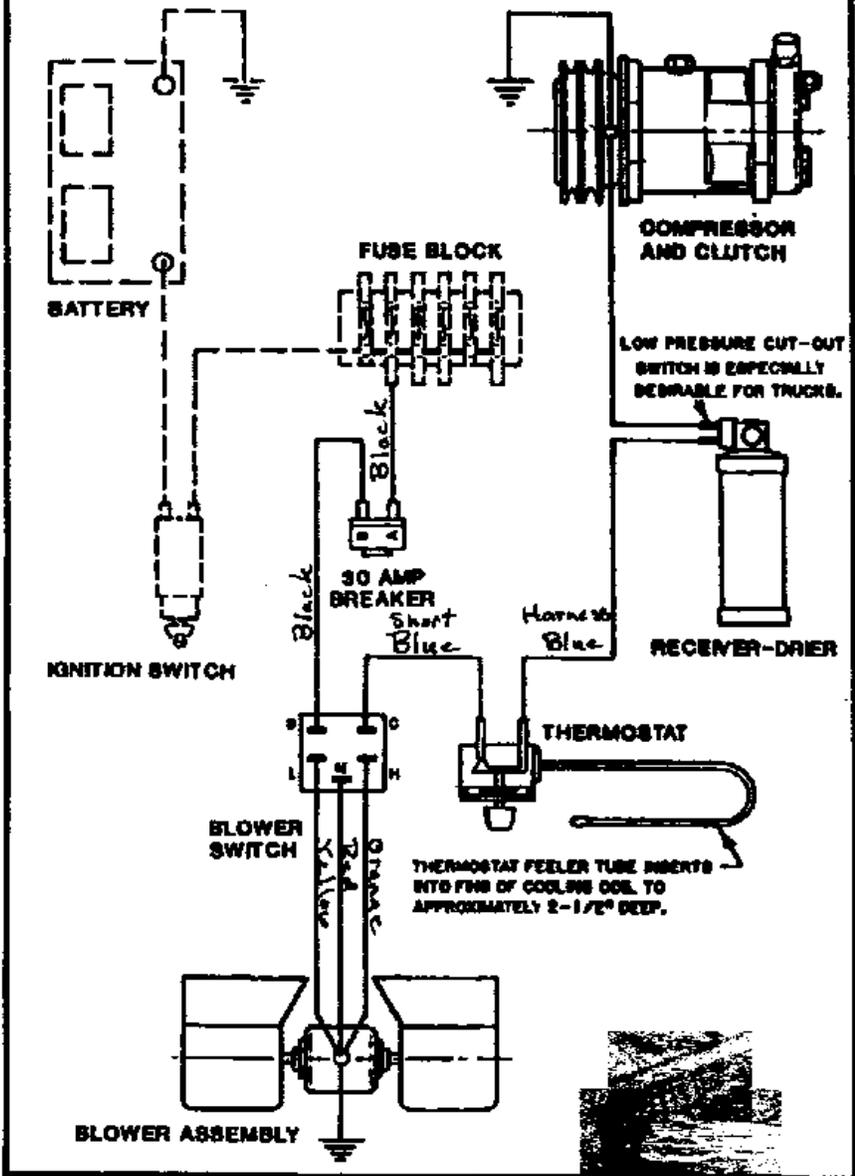
Mark II RHD Demister Set-Up



Configuring the top “Y”:

The right side is attached to the outlet coming through the Firewall by 2.5” Hose. The right side is hosed to a 2.5” to 2” adapter, and then hosed to the 2” vent Hose Adapter installed in the under-dash Finish Panel. The center is controlled by the original cable and operates the valve that is hosed to the flat “Y” which is attached to the 1.5” Demister hoses. Use the Tie Wraps to clamp. All items are supplied with Kit.

WIRING DIAGRAM



RetroAir 2-7-2014

JAGUAR Mk. I, Mk. II, "S" & 420 - *Right-Hand Drive*

CONTENTS LIST

RETROAIR MULTI-FLOW CONDENSER

CONDENSER PACK

2- Custom Long Brackets; 4- 10 X ½" Sheet Metal Screws;
4- 10 X ½" Bolts & Nyloc Nuts; 2- 1-¼" Grommets

SANDEN/BEHR 5H14-V COMPRESSOR

COMPRESSOR PACK

6 ft-14 GA Wire w/ Female Terminal Installed ;
3- 3/8X1-¼" Bolts, Nuts & Lock Washers
2- 90 degree M/F Service Port Adapters (#8,#10)

EVAPORATOR / HEATER ASSEMBLY

2- Installed Brackets & Faceplate

EVAPORATOR PACK

1- Heater Valve O-ring, 3- 2" Hose Outlets; 1- 2.5" Hose Outlet;
1- "Y" Duct w/Valve; 1- Flat "Y" Duct w/ Step Downs;
1- 2.5" to 2" Hose Adapter; 1- Capillary Grommet; 2- 8" of 1/2"
Drain Hoses; 6- 10 X ½" Black Cover Screws; 12- 10 X ½" Sheet
Metal Screws; 6- #10 Washers; 1 ft- Weather Strip

MISCELLANEOUS PAK 1

10- "O" Rings & Lube; 2- 1-¼" Hose Grommets;
1- 3 Speed Fan Switch; 1-Temp Switch (long capillary tube);
2- Switch Knobs/Nut Covers; 1- Fan/Temp Switch Wire Harness
Mark 2 Only- 2- Chrome Round Louvers; 2- Under Dash Mounts
420 & S Models- 4 Chrome Ball Louvers

LOOSE ITEMS:

4- A/C BARRIER HOSES

2- RECTANGULAR LOUVERS/PANEL (Mk.2 ONLY)

1- FAN BELT 9555)

1- 10"X12" ALUMINUM SHEET

1- EXHAUST ALUMINUM HEAT SHIELD

2- FIREWALL OPENING COVERS

15 ft- 2" DIA. DUCT HOSE

6 ft- 1 ½" DIA. DUCT HOSE

3 ft- 2 ½" DIA. DUCT HOSE

2 ft- 4" DIA. INSULATED DUCT HOSE

1- 4" OVAL HOSE OUTLET

OPTIONS:

ALLOY WATERPUMP "V" PULLEY

ALLOY CRANK "V" PULLEY

POWEER STEERING ALTERNATOR

ALUMINUM RADIATOR

11" ELECTRIC FAN ASSEMBLY

4- Fan Mounting Brackets, Ties, & Pads

BLOWER MOTOR ASSEMBLY

6-10 X ¾" Bolts, Washers, & Square Nuts;
Steel Blocking Plate

2 CUSTOM COMPRESSOR BRACKETS

2- 5/16" X 2" Bolts & Lock Washers;
1- Replacement 5/16" Head Stud

BACK IDLER PULLEY PACK

1- Back Idler Pulley Assembly
2- 5/16" X 3" Gr. 8 Bolts & Lock Washers

RECEIVER/DRIER PAK

1- Receiver/Drier; 1- Hi/Lo Pressure Switch and Harness;
1-Drier Bracket Clamp; 1- 10 X ½" Sheet Metal Screw;
2- 14ga Wire Connectors & Heat Shrink

MISCELLANEOUS PAK2

1-30amp Circuit Breaker; 1-30amp Relay;
3- 1" Hose Hangers; 3- ¾" Hose Hangers;
6- #8 X ½" SM Screws; 10-Medium Nylon Hose Ties;
7-Large Nylon Hose Ties; 3 ft- Hose Insulation;
6 ft- Aluminum Tape; 2- 14ga Wire Connectors & Heat Shrink

COMPLETE INSTRUCTIONS WITH PICTURE ALBUM

**TECHNICAL HELP??
CALL (972) 996-6687**