MARK IV
REFRIGERATED
AUTOMOTIVE AIR CONDITIONING

INSTALLATION MANUAL

for

1955 PACKARD V8

REFRIGERATED AUTOMOTIVE AIR CONDITIONING

This Instruction Brochure is intended to serve as a guide in the installation of MARK IV Units bearing Serial Numbers 5875 and subsequent.

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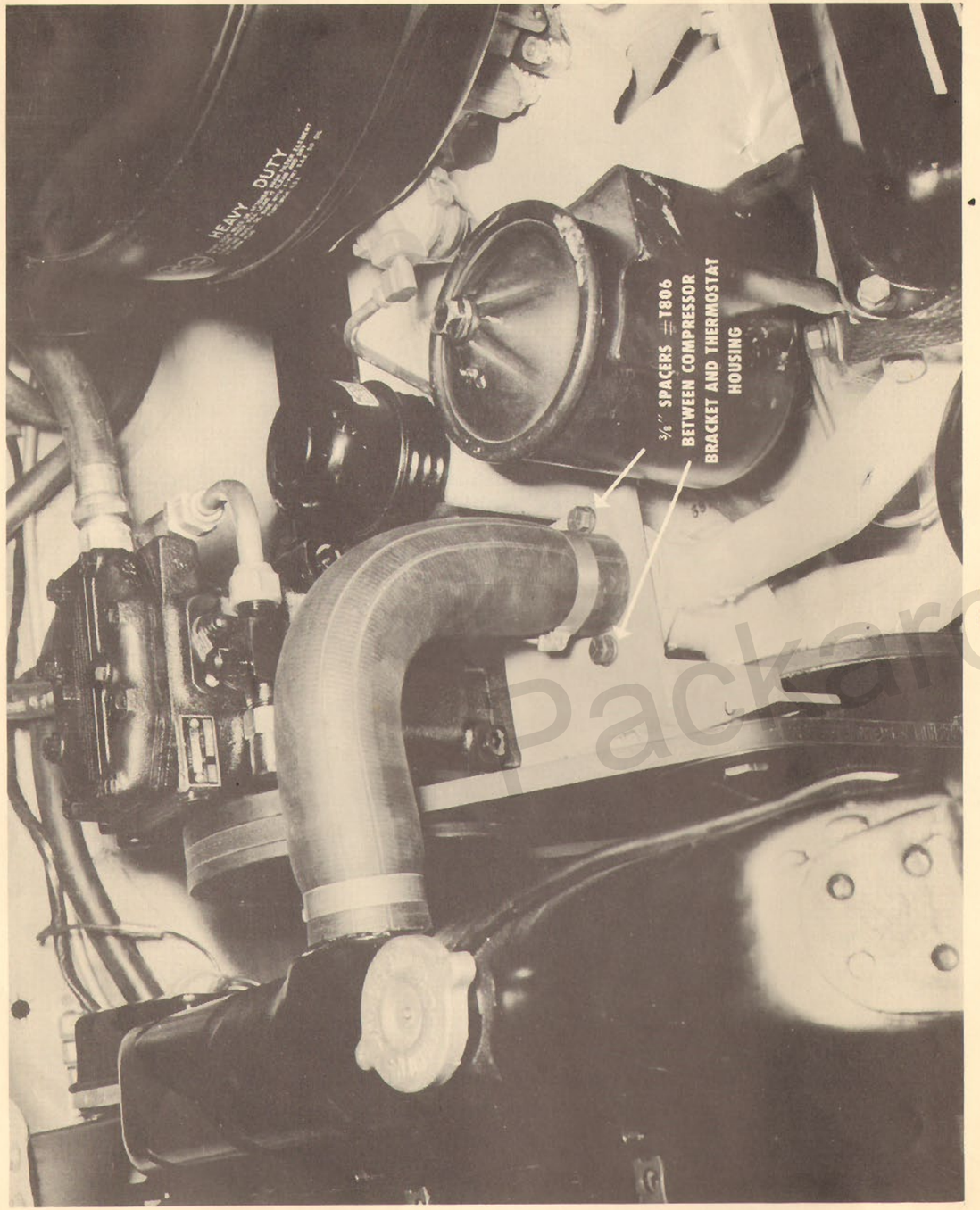


FIG. 1

INSTALLATION INSTRUCTIONS
for
COMPRESSOR AND CONDENSER

1955 Packard V-8

All Instructions given as if from driver's seat.

1. Remove radiator and cowling. Remove the two 3/8" cap screws from the thermostat housing, and the two 3/8" cap screws that secure the lower right water manifold to the engine block. Disconnect and remove the generator adjusting arm. Remove crankshaft center bolt and crankshaft power steering pulley, if present. Remove top radiator hose.

2. Attach compressor to mounting bracket with four 3/8" x 3/4" cap screws and lockwashers. Do not tighten. With compressor attached, mount bracket to engine, as shown in Figs. 1 and 2, using two 3/8" spacers #T806 between the bracket and the thermostat housing. Install two 3/8" x 1-1/2" cap screws and lockwashers at this point. Do not tighten. Using two 1/2" spacers #T827 between the bracket and the lower water manifold, start two 3/8" x 1-3/4" cap screws and lockwashers at this location. If the generator adjusting arm is notched or bent slightly, it can now be attached to the bracket in its original location with one 5/16" x 1" cap screw and lockwasher.

3. Attach idler assembly #T200 to the mounting bracket. Install crankshaft drive pulley #225V201 into balancer and attach with one 3/4" x 1-3/4" cap screw. Install compressor belt #UA56S. Adjust generator belt and tighten adjusting arm. Align compressor and tighten all cap screws. Adjust and tighten idler assembly.

4. Condenser Mounting: It is necessary to rotate the left horn on its bracket as shown in Fig. 3. Remount the right horn on the splash pan with two 1/4" x 3/4" cap screws, lockwashers and hex nuts. Attach condenser mounting brackets #225V305 to condenser with four 1/4" x 3/4" cap screws, lockwashers and hex nuts. With brackets attached, place condenser in position as shown in Fig. 3 and mark location of holes for mounting the condenser to the radiator yoke. Note: Be sure that the condenser is low enough for the valves to clear the radiator cowling. Attach the condenser with four 1/4" x 3/4" cap screws, lockwashers and hex nuts. Install radiator, connect hoses and add coolant.

5. Discharge line installation: Cut and form a piece of 1/2" tubing to connect to the condenser discharge valve and to the 1/2" rubber freon hose (Fig. 3). Make up another piece of 1/2" tubing to connect this freon hose to the discharge service valve on the compressor.

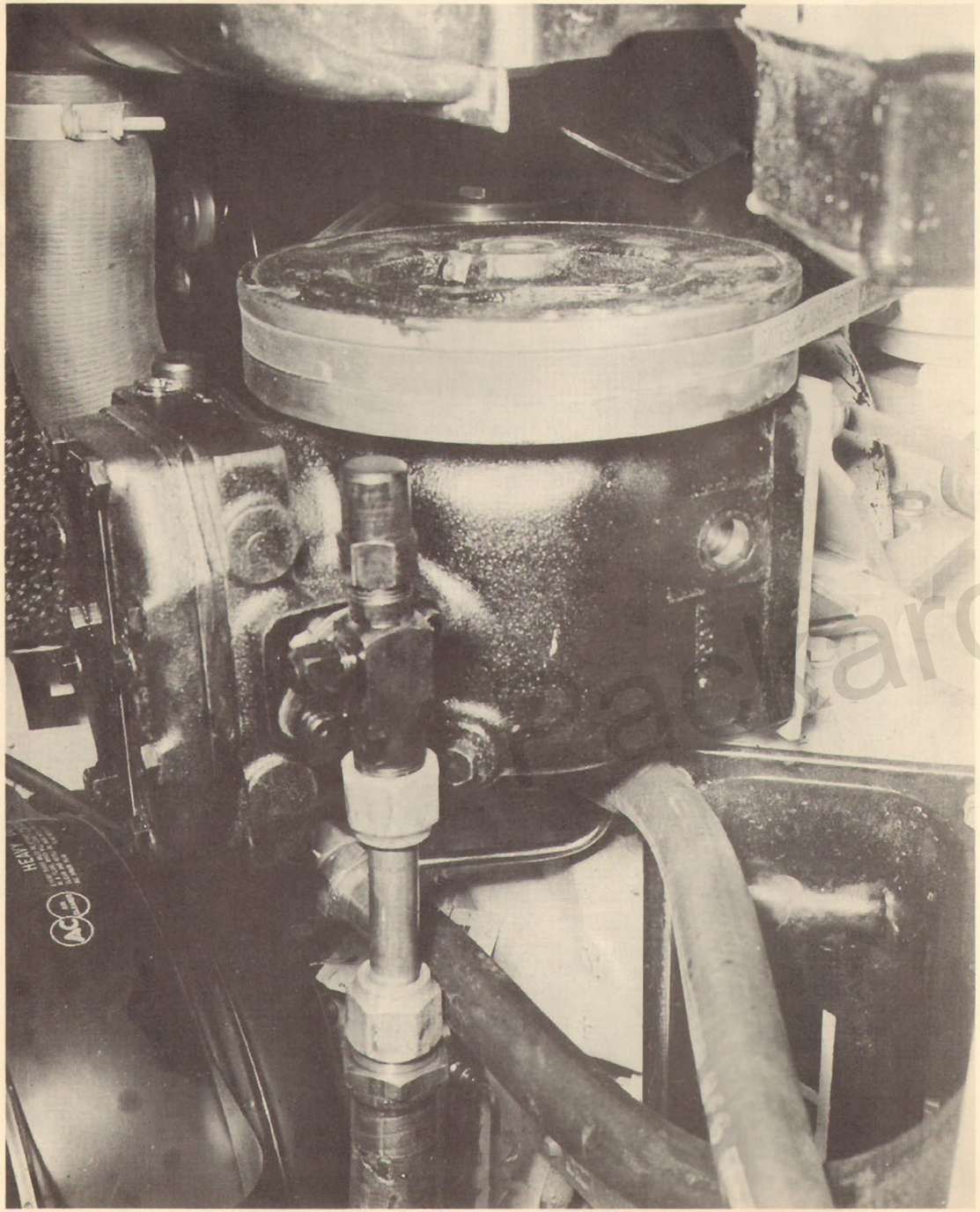


FIG. 2

6. Cut and flare a short piece of 5/8" tubing to connect the 5/8" rubber freon hose to the compressor suction service valve.

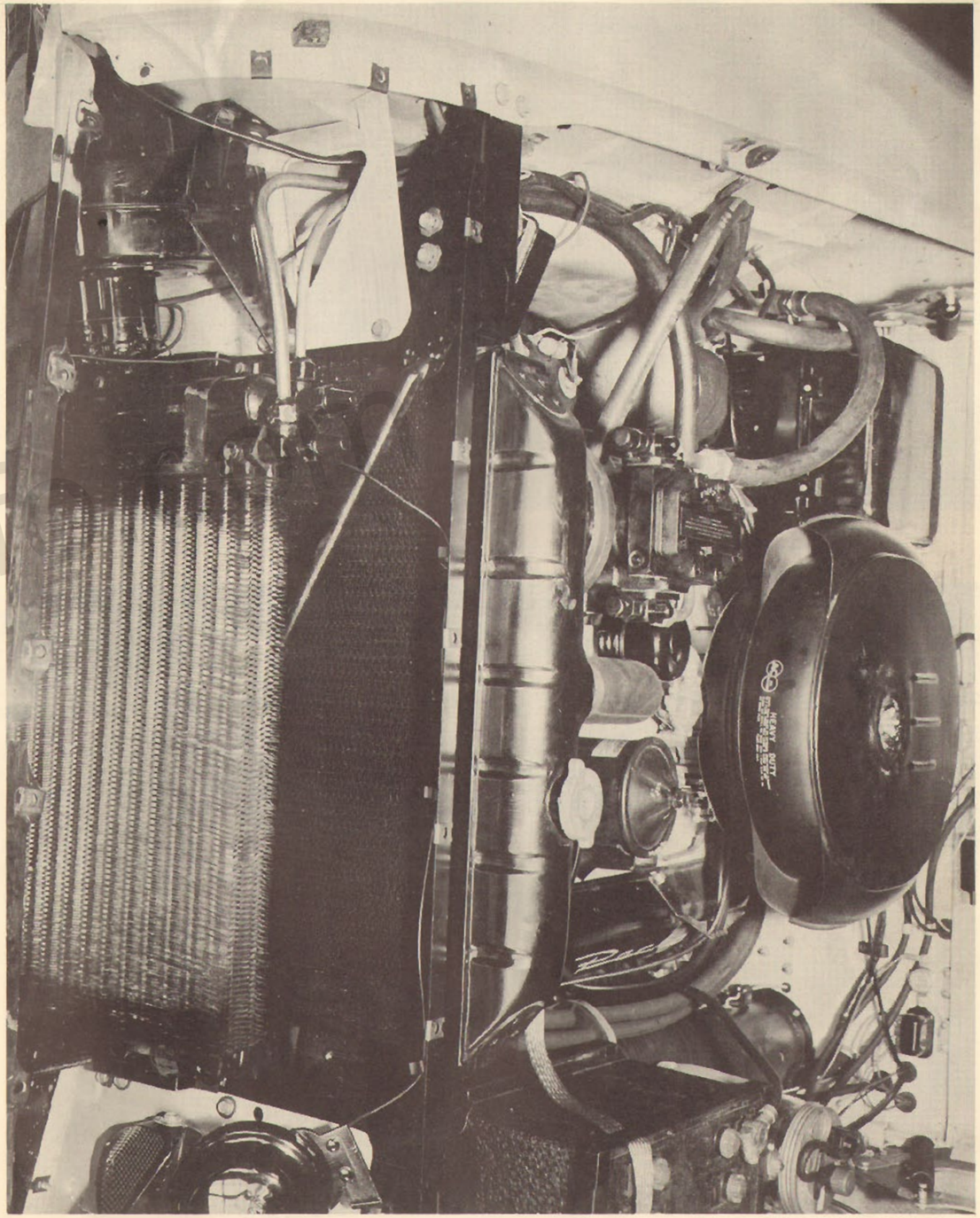
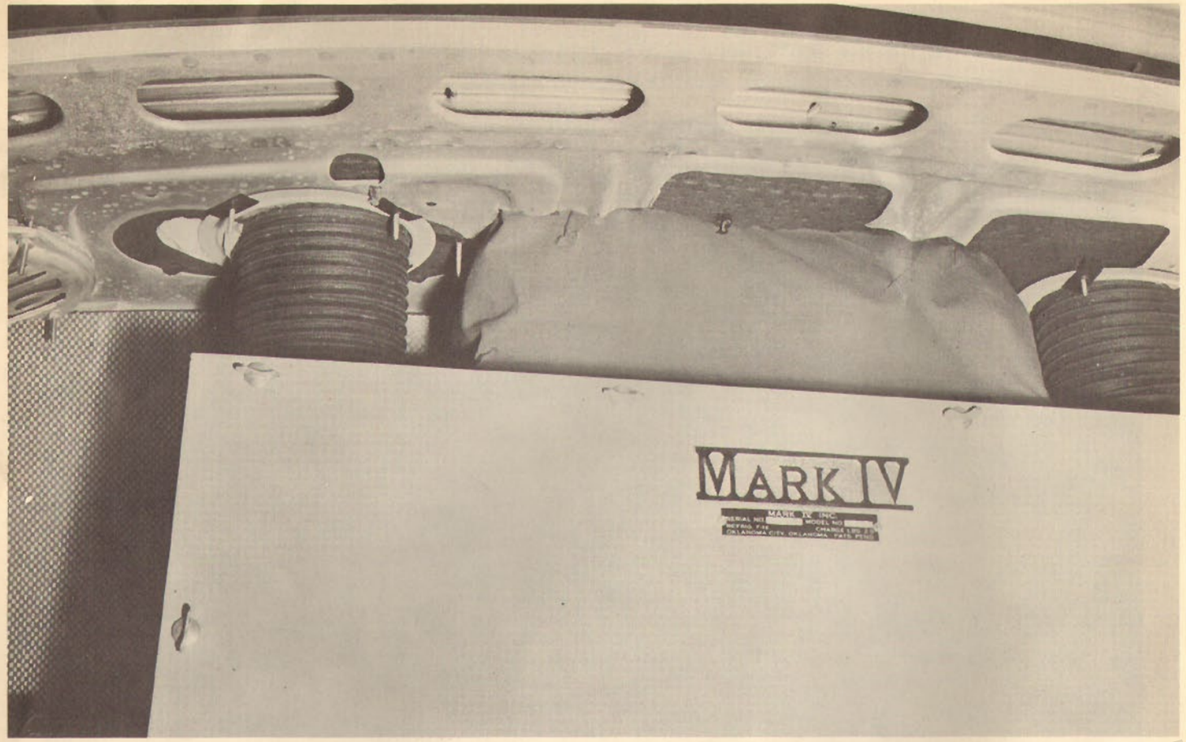
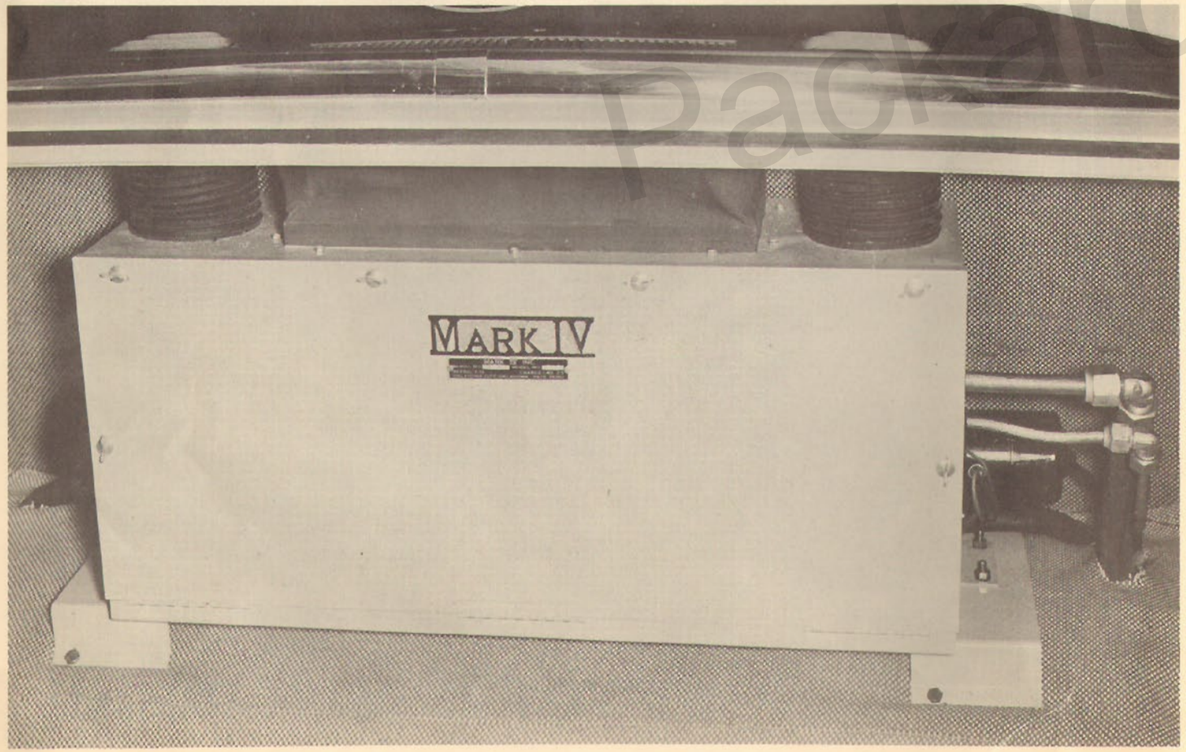


FIG. 3





INSTRUCTIONS FOR CUTTING PACKAGE SHELF

NOTE: If rear seat speaker is present, it may be necessary to recover the package shelf.

Lay the package shelf template on the shelf equi-distant from sides of car and approximately 1" from rear seat back. Before any actual cutting is done, place the evaporator case in the trunk compartment and double-check to insure correct alignment between the discharge air openings in the case and the corresponding circles on the package shelf template. This step is very important, as some model cars have critical space limitations that will govern the location of the evaporator case. With template in place:

1. Scribe outline of return air opening on the package shelf.

2. Drill 1/4" holes in centers of circles representing discharge air openings. Use 1/4" angle drill for this operation. Then, with these holes for guides, cut openings through shelf from the bottom with 4-1/8" hole saw.

3. With discharge holes properly cut, take a sharp knife and follow the scribe marks that you have already made for the return air opening. Carefully cut through the cardboard in this manner until you are able to remove the center piece. Now cut away the metal below this opening with skill saw attachment, jiffy air tool, or other suitable tool.

INSTALLATION INSTRUCTIONS
for
EVAPORATOR ASSEMBLY

1. Remove floor mat from trunk compartment. Place evaporator case in position on shelf, equal distance from sides and with discharge openings in case aligned with the corresponding openings in the package shelf. Mark location of mounting holes. Locate drain tube holes in line with drain outlets in case. Drill a 1-1/8" hole for each drain. Drill two 1-1/8" holes, 1-1/4" C-C to admit suction and liquid lines. Drill 9/32" holes for case mounting. See Illustration.

2. Replace floor mat in trunk compartment. Pierce to match holes drilled in trunk shelf.

3. (NOTE: Be sure liquid and suction lines are sealed before running them under the car. This is to prevent entrance of any dirt or foreign material into the lines since the presence of such material will seriously damage the system.) Install sponge rubber tubing on 5/8" suction line. Start 5/8" tubing through opening at rear of engine compartment and run it alongside frame to trunk compartment. Run forward end of liquid line through hole in radiator yoke. Cut tubing to proper length. Remove 1/2" x 3/8" reducing flare nut #U8R from liquid receiver tank service valve for installation on liquid line.

4. Support liquid and suction lines with clamps, secured by #10 x 1/2" metal screws. NOTE: Refrigerant lines must be kept above lowest level of frame to prevent possible road damage. Clamp liquid line to fender splash pan with adel clamp and one #10 x 1/2" sheet metal screw.

5. Set evaporator case in position. Using bending spring, form suction and liquid line to clear blower motor.

6. NOTE: Beginning with serial #2101, the evaporator case is sealed and should remain sealed until all lines have been run and the installation is complete at the front of the car. These should be your final connections. Flare lines coming through floor of trunk compartment and install 3/8" and 5/8" elbows in flare nuts on lines. Before the lines are connected to the evaporator, be sure to blow them out good by releasing some freon from the condenser. This may be done by opening the forward valve on the condenser for a second, allowing freon to flow through the system. This is most important, as it will clean out all scale and dirt that may have entered the lines during installation. Remove the plugs by holding the flange of the plug with a pair of pliers and exerting pressure through the center of the plug. Once plugs have been removed from the lines, connect the evaporator immediately. Once started, this step must be completed.

7. Be sure sponge rubber cover on suction line is all the way up to the flare nut.

8. Install rubber drain hoses.

INSTALLATION INSTRUCTIONS
for
AIR DUCT ASSEMBLIES FOR PACKAGE SHELF

1. Place the two discharge insert sleeves #T705 into the 4-1/8" holes previously cut in package shelf.* Cut discharge air duct to proper length for installation between cold air outlet on case and insert sleeve in package shelf. Place discharge air louver #T703 (or plastic duct on some models) in position on insert sleeve. Position hold down rings #T704 over the louvers or plastic duct and mark mounting hole locations. Drill holes, using 1/8" diameter drill. Install four #8 x 1-1/4" sheet metal screws in each hold down ring. Apply back-up clip for these screws to under side of package shelf where necessary.

2. Bring canvas duct** through return air opening in package shelf. Split all four corners down to 1/4" above the level of the package shelf. Then trim duct so that approximately 1/2" of the canvas will lap over the package shelf. Apply thin coating of 3M cement (tan) to package shelf around return air opening. This cement should not be spread more than 1/2" from edge of the opening. Now press canvas firmly into cement.

3. Place return air grille #T701 in position and mark holes. Drill holes, using 1/8" diameter drill bit. Install two #8 x 1-1/4" sheet metal screws.

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* Except 1955 Dodge V-8. Lack of space requires omission of this part on some Mark IV models.

** Some models have a return air duct already attached to the evaporator case. On some models the return air duct is separate and must be attached as follows: With the evaporator case removed, take the return air duct and cement it around the flange on top of the evaporator case with a good grade of rubber cement (we recommend Minnesota Mining 3M tan type). There will be an overlap of approximately 1" on the canvas. Cement the ends of the canvas together, forming a return air duct.

INSTALLATION OF CONTROL PANEL ASSEMBLY

1. Attach control panel to underside of dash with two #10 x 1/2" sheet metal screws. Locate panel so it will be accessible to occupants of front seat. See illustration.

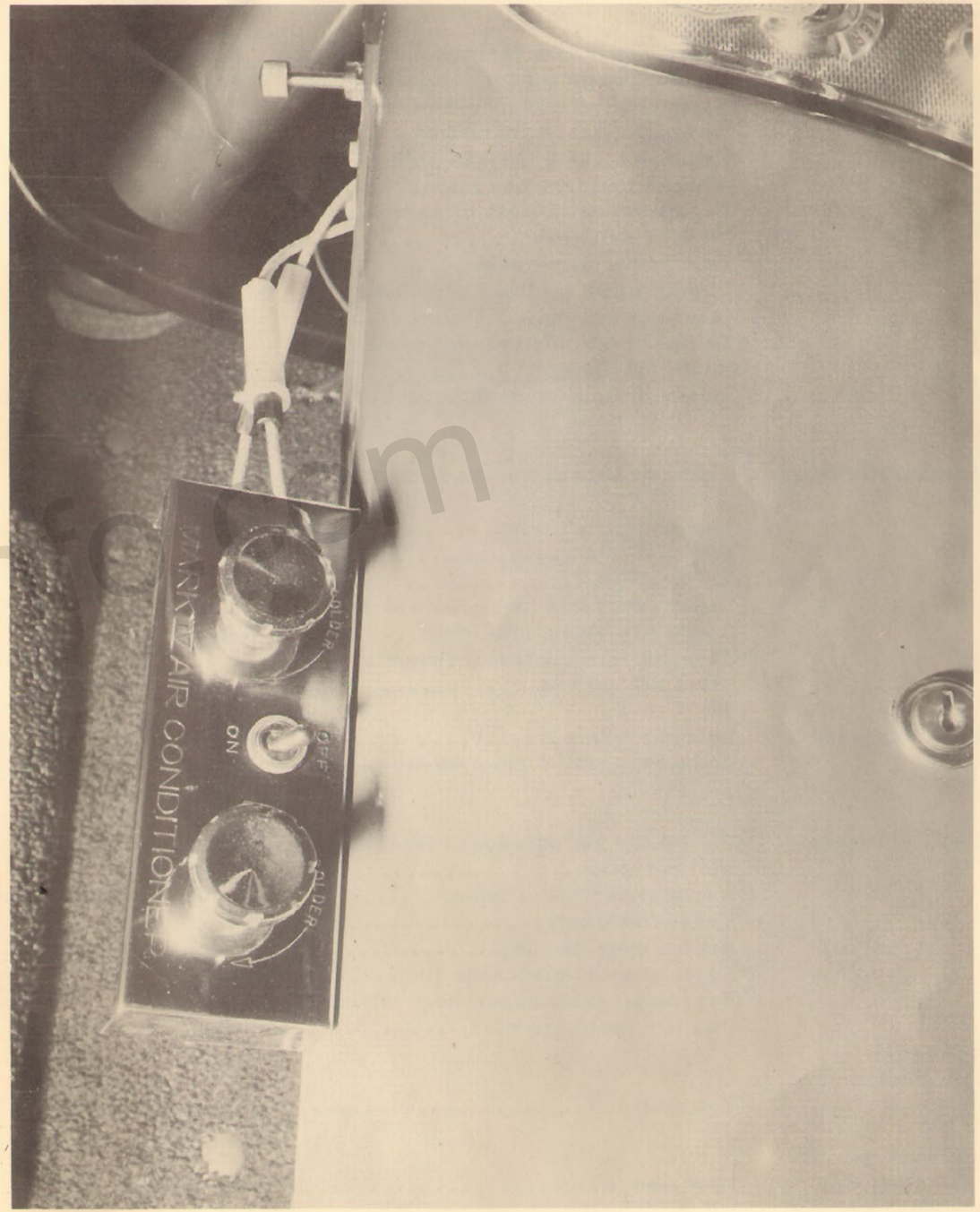
2. Drill 5/16" hole in firewall forward of control panel. Then, using rubber plug removed from 3/8" evaporator liquid line for a grommet, run electrical wires from control panel through this hole adjacent to liquid and suction lines into trunk compartment. Be sure that these wires are properly secured to refrigerant lines so that they do not hang down under the car. Be sure also that the insulation is not damaged on the wiring. Improper grounding of these wires will cause unit to operate incorrectly.

3. Connect the line fuse harness to the accessory terminal of the ignition switch.

4. Connect the two wires from the blower motors to their respective rheostats.

5. Connect the wire from the solenoid valve to the solenoid switch terminal of the control panel.

Place sufficient quantity of permagum around drain hoses and refrigerant lines to prevent dust or water from entering the trunk compartment.



EFFECT	CAUSE	CORRECTION
ow Suction Pressure	Drier plugged or restricted.....	Replace
	Liquid line plugged or restricted.....	Replace
	Expansion valve super-heat setting too high (closed too much).....	Adjust valve
	Expansion valve thermo-bulb charge lost.....	Replace valve
	Expansion valve port plugged with dirt or moisture.....	Clean, eliminate moisture, replace drier
	Blower fan inoperative.....	Check motors and wiring
	Temperature control thermostat does not cut-out.....	Check setting & bulb
	*Temperature control thermostat bulb lost charge.....	Replace thermostat
	Moisture or freeze-up.....	Open, evacuate, replace drier, re-charge
gh Suction Pressure	Leaky or broken compressor valves	Replace compressor valve plate
	Low charge.....	Add charge
	Clutch slipping.....	Check clutch & wiring
	Loose belts.....	Tighten or replace
	Expansion valve (open too wide).....	Adjust valve
	Expansion valve bulb loose.....	Tighten clamp
	*Temperature control thermostat does not cut-out.....	Replace thermostat
w Head Pressure	Low charge.....	Add charge
	Leaky or broken compressor valves	Replace compressor valve plate
gh Head Pressure	Condenser air passages clogged.....	Clean
	Air in system.....	Purge
	Radiator fan belt slipping.....	Replace or tighten fan belt
	Excessive charge.....	Bleed excess
	Engine over-heating.....	Check cooling system
	Restriction in discharge line.....	Replace line
	Expansion valve super-heat setting too low (open too wide).....	Adjust valve
mpressor Noisy th Low Suction essure	Too much oil.....	Check compressor oil level
isy Expansion lve (hissing)	Low charge.....	Add charge

*Low suction pressure Mark IV models with solenoid liquid line
*High suction pressure Mark IV models with solenoid by-pass application