GROUP 11

RADIO, HEATER, VENTILATION AND AIR CONDITIONER

11-1 GENERAL DESCRIPTION OF HEATER SYSTEM FOR GRAN SPORT SKYLARKS

The only physical change in the Gran Sport heater system is in the length of the heater hoses from the engine to the heater core. This was required because of use of the larger, 400 cu. inch engine. All specifications, adjustments, removal and installation procedures contained in the 43000 - 44000 Series chassis shop manual are applicable as indicated.

11-2 GENERAL DESCRIPTION OF HEATER-AIR CONDITIONER SYSTEM FOR GRAN SPORT SKYLARKS

There are four changes in the Heater - Air Conditioner System for Gran Sport Skylarks. These changes involve (1) length and layout of freon and radiator coolant hosing, (2) the diameter of the compressor pulley and length of belt, (3) exterior dimensions of condenser and (4) a new Suction Throttling Pilot Operated Absolute valve. The effect of these changes on the system is as follows:

a. Air Conditioning Freon Hoses and Air Conditioning Heater Hoses

New compressor suction and discharge hoses, condenser to receiver-dehydrator and receiver-dehydrator to expansion valve pipes are used to accommodate the larger, 400 cu. inch engine (see Figures 11-1 and 11-2). The pipe connecting the muffler to the condenser is the same as used on Specials and Skylarks.

Heater core hosing used on air conditioned Gran Sports was slightly lengthened and rerouted to accommodate the larger engine. See Figure 11-3. None of these changes affect adjustment, removal or installation procedures contained in the chassis shop manual.

b. 5 Inch Diameter Compressor Pulley

The diameter of the compressor pulley was increased from 4.72 inch to 5.00 inch. Because of the high engine RPM's on the Gran Sport, a larger diameter pulley was required to maintain the compressor RPM's within maximum limitations. This change does not affect any of the service procedures contained in the chassis shop manual.

c. Condenser

A reshaped condenser is used to accommodate the cross flow radiator. The condenser is mounted

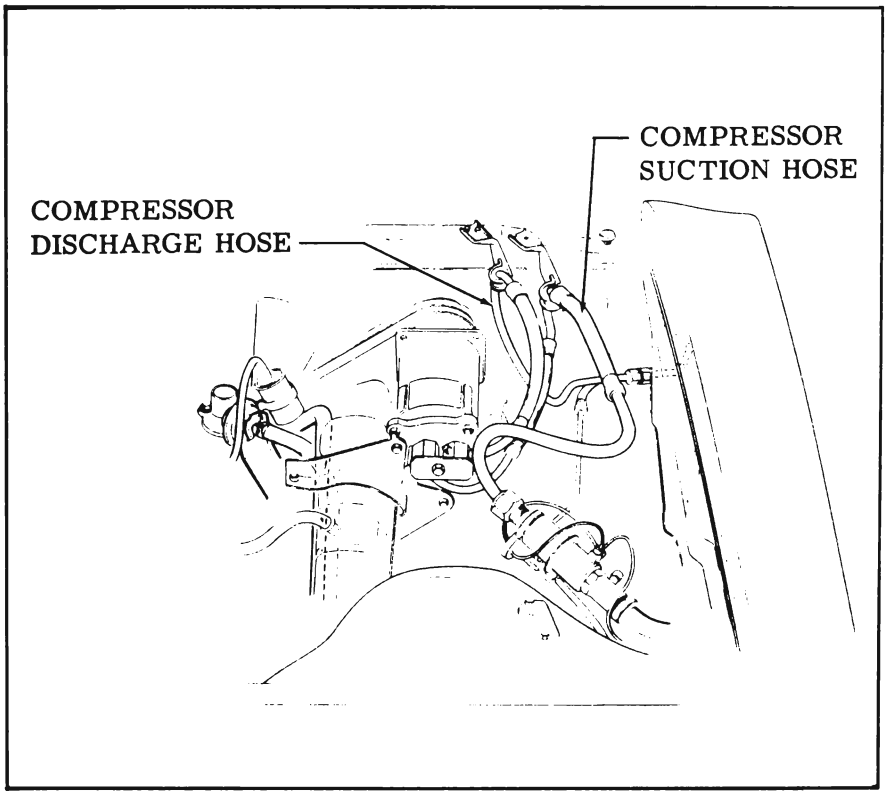

Figure 11-1—Air Conditioner Compressor Hoses

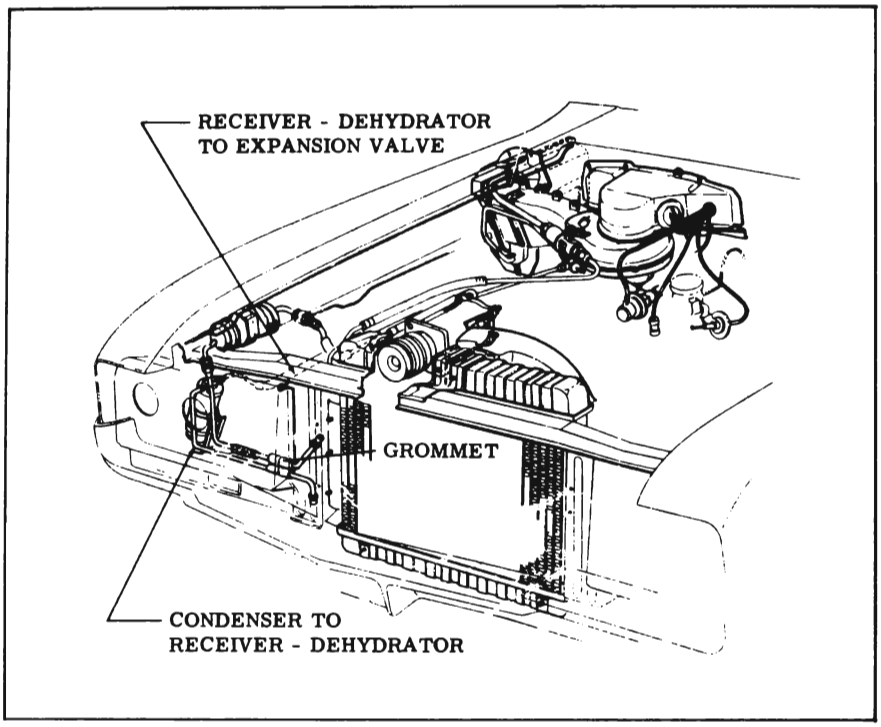

Figure 11-2—Air Conditioner Piping

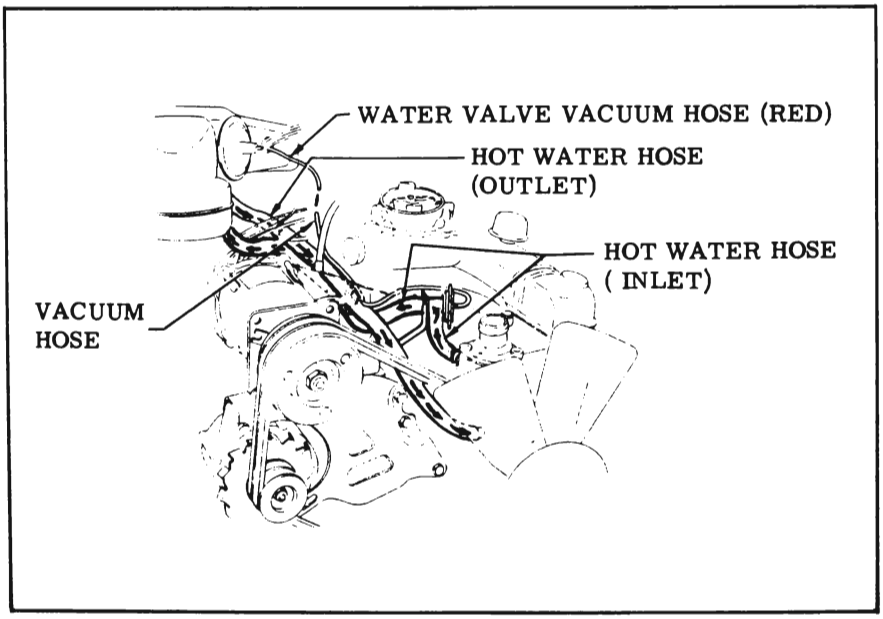

Figure 11-3—Air Conditioner System Heater Core Hoses

in much the same manner, only farther forward. No change in service procedures will be required by use of second type condenser.

d. Suction Throttling Pilot Operated Absolute (POA) Valve

This valve (see Figure 11-4) replaces the previously used Suction Throttling Valve (STV). The difference between the STV and the POA valve is that no neoprene or vacuum element diaphragms are used. The advantages are that there is no neoprene diaphragm which might fail, and that the valve will not change calibration when the system is operated at a higher altitude due to the effect of atmospheric pressure on the vacuum element diaphragm.

The POA valve cannot be disassembled or adjusted. If it is determined that the POA has failed, it should be replaced. The amount of freon charge and the functional test specifications remain unchanged. It is important that greater emphasis be given to maintaining a clean, dry system. Replacement parts should not be uncapped until just prior to installation.

NOTE: When replacing a POA valve, the serviceman should check the interior of the valve for corrosion or crystalization of salts. This would indicate excessive moisture in the system. If this condition exists, the receiver-dehydrator should be replaced and the system evacuated for one hour.

When leak testing the POA valve, it is necessary to check only the hose coupling ends. When using the low sensitivity propane torch leak detector, no evidence of freon should be present at the POA valve.

Due to the elimination of the vacuum element diaphragm, the interior pressure of the valve is isolated from the exterior atmospheric pressure. As a result, the controlling element (bronze bellows) of the POA valve is able to operate independently of the effect of atmospheric pressure. However, any gauge used to check the valve pressure will not be free from the effect of atmospheric pressure. For this reason, it might appear (when considering the fact that the POA valve

pressure gauge reading varies with altitude changes) that it is the pressure within the valve that is changing. Actually the reverse is true. The pressure within the valve remains unaffected by atmospheric variations, while the gauge used to read these pressures is affected by atmospheric pressure. It is important to remember when checking pressures on a POA valve that the altitude effect on the gauge must be taken into account when interpreting a reading. The gauge pressure increase exists not because the internal pressure in the system varies, but because the performance of the gauge is affected by the altitude. The table shown in Figure 11-5 indicates the gauge pressures which will be obtained at various altitudes. If readings are obtained other than these, the valve is malfunctioning.

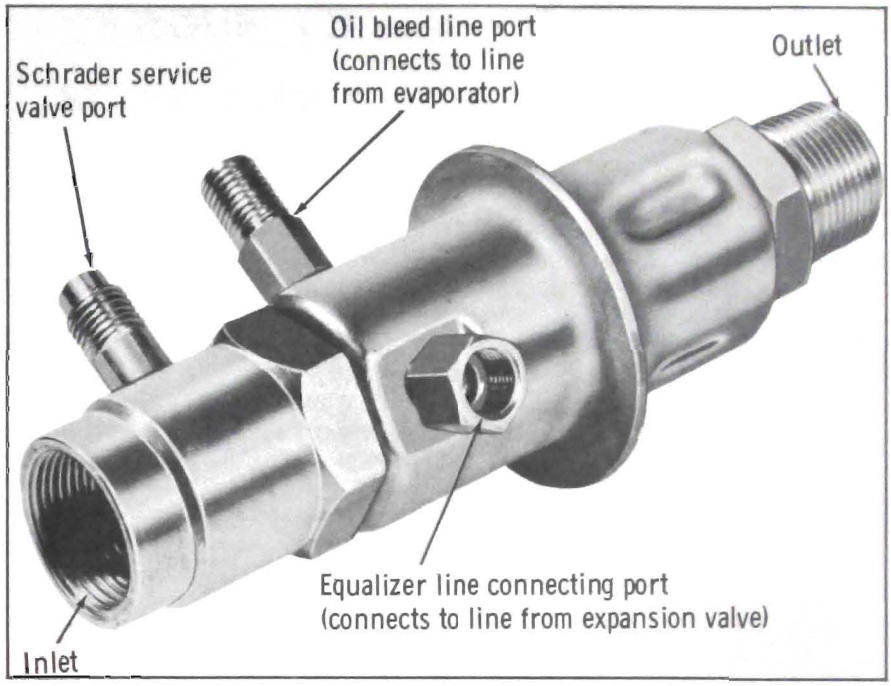

Figure 11-4—Pilot Operated Absolute Valve

ALTITUDE OF LOCAL (FT)	GAGE PRESSURE (PSI)	ALTITUDE OF LOCAL	GAGE PRESSURE (PSI)
0 (Sea Level)	28.5	6000	31.4
1000	29.0	7000	31.8
2000	29.5	8000	32.3
3000	30.0	9000	32.7
4000	30.5	10,000	33.2
5000	31.0		
Allowable tolerance of POA valve is ± 1 psi			

FIGURE 11-5. TABLE OF ALTITUDE CORRECTED GAGE PRESSURES FOR EVALUATING POA VALVE PERFORMANCE

Figure 11-5—Table of Altitude Corrected Gauge Pressures For Evaluating POA Valve Performance