

SERVICE INFORMATION - 1957, 1958 BROUGHAM

(1) DISASSEMBLY AND ASSEMBLY OF COMPRESSOR (Fig. 1)

a. Disassembly

1. Remove oil filter assembly from brass nipple by rotating assembly counter-clockwise.
2. To disassemble filter, remove center retaining screw and separate front cover, rubber gasket, filter element, and rubber spacer from rear cover.
3. Remove brass elbow from oil metering valve and remove valve fitting from compressor housing.
4. Disconnect wires from terminals on starting relay, remove two screws retaining relay to motor housing, and remove relay.
5. Remove housing front cover by prying it loose, using a flat-bladed tool.
6. Scribe a line across the pressure switch cover, cylinder head, and compressor housing, to aid in reassembly.
7. Remove four screws retaining cylinder head to compressor housing, and remove cylinder head with pressure switch assembly and reed suction valves with valve plates.

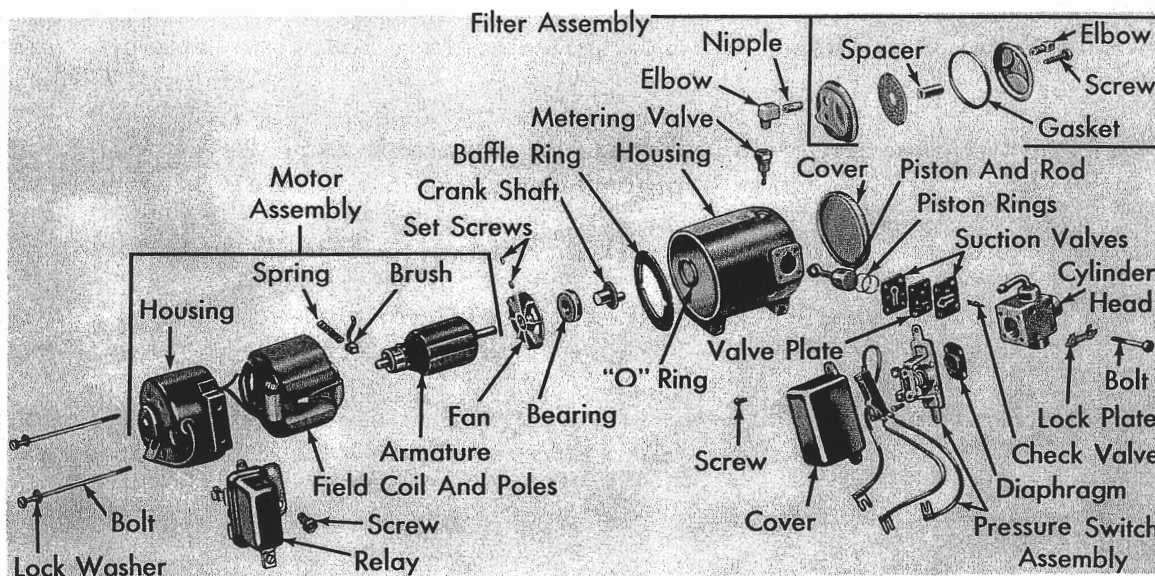


FIG. NO. 1 AIR COMPRESSOR - DISASSEMBLED

8. Remove two screws that retain pressure switch cover to cylinder head and remove cover.
9. Remove four screws that retain pressure switch assembly to cylinder head and separate switch assembly from diaphragm and cylinder head.
10. Using Special Tool, J-6888, or similar tool, remove Shrader type check valve from bottom of cylinder head.
11. Remove two thru bolts retaining motor housing to compressor housing, and remove housing and fields.

NOTE: Do not lose the thrust washers at the commutator end of the armature shaft, as they must be installed in exactly the original position when reassembling.

12. Remove armature, fan, bearing, and crankshaft as an assembly by pulling on armature, being careful not to distort the connecting rod.
13. Remove Allen set screws that retain the fan, bearing, and crankshaft to armature and remove these parts (1 set screw and 1 lock screw in same threaded hole).
14. Remove piston-to-rod assembly from cylinder in casting.
15. Remove "O" ring seal from bearing bore in housing and discard.
16. To remove bearing from crankshaft, place assembly in a 15/16" deep socket, journal end down, and tap on crankshaft with a smooth, round drift punch and hammer.

NOTE: Bearing should not be removed from crankshaft unless it is necessary to replace bearing. If necessary to replace crankshaft, replace bearing also, because it will be damaged by removal. Early compressors have a flat spacer between the crankshaft and bearing. If bearing is removed from crankshaft, the spacer should be discarded and should not be installed during assembly.

17. To gain access to motor brushes, remove screw retaining field coil assemblies to motor housing and remove field coils.
18. If brush replacement is necessary, unsolder lead wires and remove.

NOTE: The baffle ring in the compressor casting is replaceable, but should not be removed unless it is damaged.

b. Assembly

1. If motor brushes have been removed for replacement, install new ones, soldering the lead wires into position.

2. Install brush springs and brushes in their holders and retain in position with Brush Retainer, J-7890.

3. Install armature and remove Brush Retainer.

NOTE: Be sure thrust washers are installed at commutator end of armature exactly as they were originally installed.

4. Install and align field coil assembly. Install field coil retaining screw.

5. Center bearing, with rubber facing up, on a 5/8" socket. Position crankshaft over bearing and, using a plastic hammer, tap crankshaft into bearing until seated.

6. Install fan over crankshaft, aligning screw hole in fan with hole in crankshaft.

NOTE: Two types of crankshafts and fans have been used in production; the only difference being in the diameter of the set screw hole in the fan and crankshaft hub. If service replacement is necessary, fans and crankshafts with the same diameter holes must be used in conjunction with each other.

As indicated in the Brougham Parts List, only the late style crankshaft with the large hole is available as a service replacement part. Both types of fans are available. It should also be noted that the small hole assembly requires two identical 8-32 x 5/16" screws, while the large hole assembly requires a 10-32 x 3/8" set screw and a 10-32 x 1/4" locking screw.

7. Install crankshaft and fan on the armature so that the crankshaft bottoms on the armature shaft. Align the holes in the crankshaft and fan with the flat spot on the armature shaft. Secure with the Allen set screw and install the Allen locking screw. (If properly aligned, the second Allen screw will seat flush with the flat on the fan assembly.)

8. Install new "O" ring seal into groove in bearing bore of housing.

9. Insert piston and rod assembly into cylinder of compressor housing, being careful not to damage piston rings.

10. Slide motor housing and armature assembly into compressor casting, guiding journal on crankshaft into connecting rod of piston.

11. Install two thru bolts through motor housing, securing housing to compressor housing. Turn crankshaft by hand to make sure assembly can be moved freely.

12. Install front cover on compressor housing.

13. Install Shrader type check valve in cavity of cylinder head and tighten securely.

14. Position suction valve reeds on valve plate, as shown in Fig. 1, and position over cylinder. Place first reed valve in position, matching tip of valve to corresponding depression in compressor housing. Then, match valve plate to the first valve and second valve to the plate.
15. Align cylinder head with scribe marks on compressor housing and secure with four screws and two lock links.
16. Position diaphragm on pressure switch plunger assembly and secure plunger and pressure switch assembly to cylinder head with four screws.

NOTE: When properly assembled, the contact points will be to the right and the wires will leave the unit at the lower right hand corner.

17. Place switch cover over switch and secure with two screws.
18. Install oil metering valve fitting in housing and tighten securely. Install brass elbow into oil metering valve fitting and nipple into elbow.
19. Assemble oil filter by placing filter element in position on rear cover. Then, install rubber spacer and gasket, aligning cut-outs on front and rear plates. Secure assembly with attaching screws.
20. Install filter assembly on brass elbow by rotating filter assembly clock-wise.
21. Position relay on bracket of motor housing and secure with two screws, and connect four leads as follows: Red lead to #4 terminal, Black to #2, Natural to #2, and Light Green to the unmarked.

NOTE: After installing the compressor on car, check and adjust the pressure switch setting as outlined below.

(2) ADJUSTMENT OF AIR COMPRESSOR SWITCH (Fig. 2)

It is important that the pressure switch be properly adjusted to assure proper operation of the compressor, whenever a compressor is overhauled, a new pressure switch is installed, or when diagnosis of compressor troubles indicates the need for adjustment.

Specifications and adjustment of the pressure switch are outlined below. The adjustments are performed on-car.

The compressor should cut-in at 105-110 psi and cut-out at 120-125 psi. Check pressure at service valve at tee in pressure line (compressor to accumulator tank), using Air Pressure Gage, Tool No. J-6840.

a. Cut-In Pressure Adjustment

1. Remove bakelite cover from pressure switch.

2. Loosen two screws securing switch to plunger assembly.

NOTE: Bottom screw hole is slotted for cut-in pressure adjustment, Fig. 2.

3. Adjustment is made by moving contact point end of switch assembly fore or aft. To increase cut-in pressure, move contact point end of switch assembly rearward. To decrease cut-in pressure, move contact point end of switch assembly forward.
4. Adjust switch cut-in pressure at 105-110 psi, using Air Pressure Gage, No. J-6840, and tighten switch mounting screws.

NOTE: If it becomes necessary to increase cut-in pressure beyond switch adjustment, file the metal end of the plunger pin in the switch assembly.

b. Cut-Out Pressure Adjustment

Before performing cut-out pressure adjustment, make certain that cut-in pressure is in proper range.

1. Adjustment is made by bending the rearward metal contact tab, Fig. 2, at the contact point end of the switch assembly, fore or aft. To increase cut-out pressure, bend tab rearward. To decrease cut-out pressure, bend tab forward.

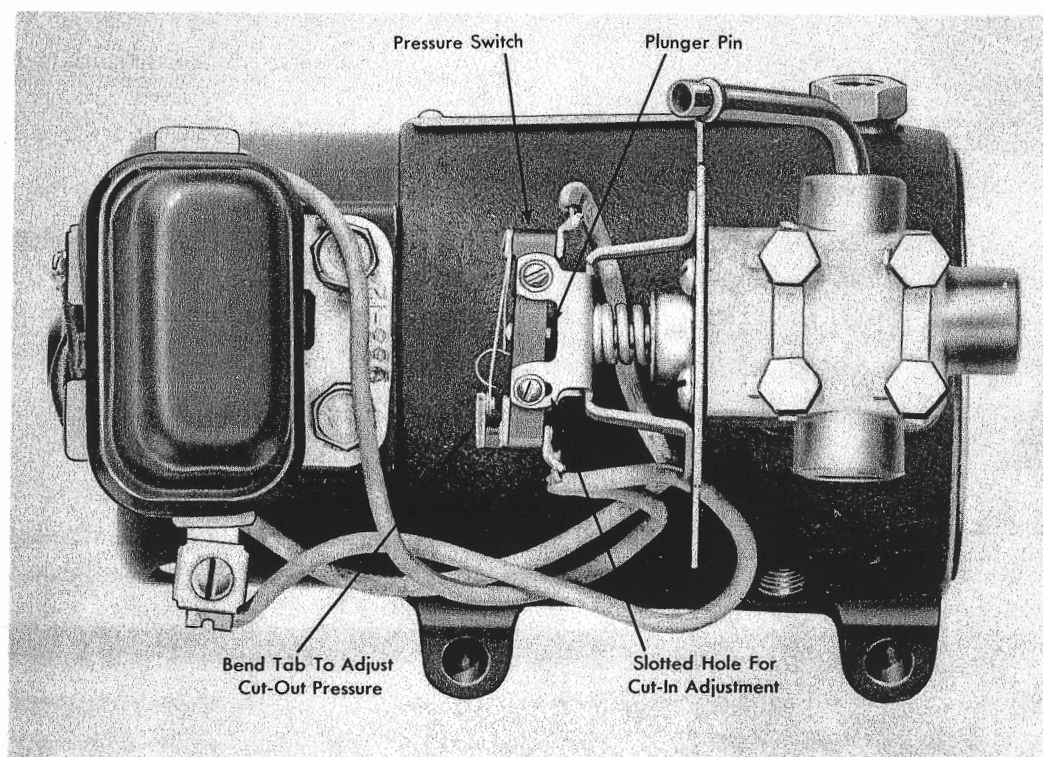


FIG. NO. 2 PRESSURE SWITCH ADJUSTMENT

CAUTION: Do not bend spring steel contact point.

- 2. Adjust switch cut-out pressure at 120-125 psi, using Air Pressure Gage, No. J-6840.**
- 3. Recheck cut-in and cut-out pressures and readjust if necessary.**
- 4. Replace switch cover.**

(3) DISASSEMBLY, INSPECTION, ASSEMBLY, AND ADJUSTMENT OF LEVELING VALVE (Fig. 3)

CAUTION: Provide clean work area and tools at all times.

a. Disassembly

1. Remove four cover plate retaining screws and remove plate and dash pot assembly.
2. Remove seal and seal cover from dash pot.

NOTE: Do not disassemble dash pot as it is serviced as an assembly.

3. Remove seal spring from dash pot actuating pin.
4. Remove "O" ring from leveling valve. Do not discard unless damaged.
5. Remove intake valve adapter assembly. Discard "O" ring.
6. Remove intake check valve core and intake valve core from intake valve adapter, using Valve Core Remover and Installer, J-6888.
7. Remove exhaust valve adapter assembly. Discard "O" ring.
8. Remove exhaust check valve core from exhaust valve adapter, using Valve Core Remover and Installer, J-6888. The exhaust valve core is not removable.

NOTE: Do not attempt any further disassembly. If the exhaust valve core, the valve actuating arm, the torsion spring, the spring operating arm, or the leveling valve arm are found to be unserviceable, it will be necessary to replace the entire leveling valve.

b. Inspection

1. Inspect all parts and replace those that are needed.
2. If necessary, clean all parts except the dash pot, with solvent and dry with low pressure air (25 lbs. max.).
3. Clean exhaust valve core by moving leveling valve arm until valve core becomes

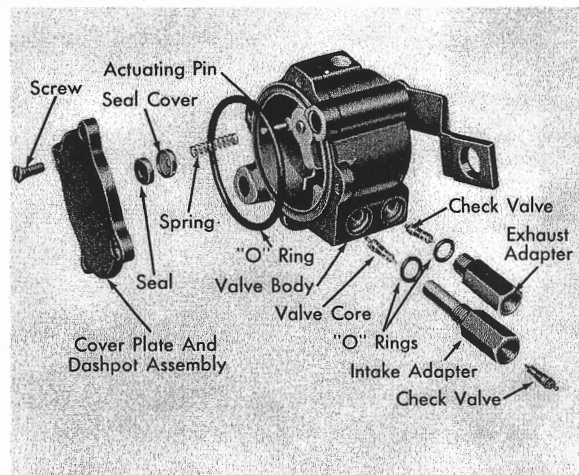


FIG. NO. 3 LEVELING VALVE - DISASSEMBLED

unseated, and pour solvent into valve opening. Dry with low pressure air.

c. Assembly

NOTE: Of the three valve cores removed from the assembly, two are brass at the threaded end, and one is steel. The steel valve core is the intake valve and must be installed in the threaded end of the intake valve adapter.

Apply several drops of machine oil to all "O" rings before assembly to assure an airtight seal.

1. Install exhaust check valve core in exhaust valve adapter, using Tool No. J-6888. Tighten to 2-1/2 - 3 in. lbs. torque.
2. Using new "O" ring, install exhaust valve adapter in valve body, tightening to 12-15 in. lbs. torque. Be careful not to damage "O" ring.
3. Install intake check valve core and intake valve core in intake valve adapter, using Tool No. J-6888. Tighten to 2-1/2 - 3 in. lbs. torque.

NOTE: Check adjustment of intake valve core actuating arm as described below:

- a. Place .030" wire gage between side of actuating arm stop nearest valve cores and middle ear of actuating arm. Wedge opposite side with small screwdriver so that wire gage does not fall out.
- b. Connect valve end of Air Ride Hose, J-7143, to an air pressure line and reduce line pressure to 50-80 psi. Do not exceed 80 psi. Install other end of hose to intake valve adapter on leveling valve.
- c. A slight amount of air leakage should be heard. If not, use Bending Tool, J-7148-3, to bend upper ear of actuating arm toward intake valve core until some leakage is heard.
- d. Remove gage and screwdriver and use .035" wire gage in place of .030" wire gage and wedge with screwdriver. No air leakage should be heard.
- e. If air leakage does exist, bend upper ear away from valve core just enough to stop all air leakage. Recheck using .030" wire gage.

NOTE: It is important that the upper ear of the actuating arm be adjusted to satisfy the conditions of Steps c and d, otherwise the leveling valve will not function properly.

- f. Shut off air line pressure and disconnect Air Ride Hose.

5. Install seal spring on dash pot actuating pin.
6. Position seal and seal cover over slotted hole in dash pot cover with rubber seal down. A small amount of silicone will help to hold seal in place.
7. Install "O" ring on leveling valve. Use new "O" ring if original one is worn or damaged.
8. Install cover plate and dash pot assembly on valve body, making certain that actuating pin pilots through hole in seal cover and seats in slotted hole in dash pot.
9. Install four cover plate retaining screws, tightening to 20-25 ft. lbs. torque.