CHEVROLET

SERVICE NEWS

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CONTENTS

Vibration Noise on 1964 Chevrolet with Powerglide Transmission

A possible complaint of objectionable groan or vibration noise, seeming to come from the transmission, has been traced to the rear axle.

This noise is very misleading as to the source and extensive investigation could be done in the transmission area before the real cause is found.

This noise is noted only when backing up slowly when the axle lubricant is warm and has been confined to Chevrolets with 327 or 409 V-8 engines and Powerglide transmissions with standard rear axles.

The problem can be corrected by removing the factory fill lubricant and installing positraction lubricant #3758791 from Parts stock.

Correcting Arm Rest Stain

A stain or discoloration of fawn and ivory color arm rest trim (which may occur on some 1964 Chevrolet, Chevelle, and Corvair vehicles) is a result of bleed-through when an excessive amount of trim cement is used during assembly. For correction of this complaint, arm rest trim pads have been made available through the parts department.

These pads are to be used for service, instead of complete arm rest assemblies; but their use should be limited to correction of the staining complaint.

Front Wheel Bearing Torque

ALL PASSENGER MODELS

The torque specification on the front wheel bearing adjusting nut has been revised to obtain correct adjustment of front wheel bearing end play. This revision was made as a result of a change in the wheel bearings on the Corvair and to standardize the torque specification among all passenger car models. Each model shop manual should be revised to show 12 ft. lbs.

Horn Button Spring—Telescoping Column

On Corvette and Corvair vehicles equipped with telescoping steering column, a running change (effective October 1, 1964) added a spring under the horn button to eliminate possible button vibration noise. Should a complaint of vibration arise, correct by installing the new spring (Part #3868785) as shown in fig. 1.

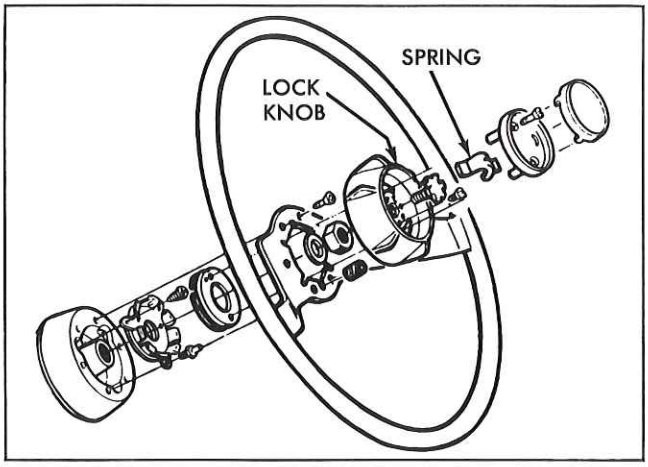

Fig. 1—Horn Button Spring

Rear Speaker Harness Connector Revised

On early production 1965 Chevrolet and Chevelle vehicles equipped with rear speaker, incomplete electrical contact at the harness connector, located on the radio receiver (fig. 2), causes speaker malfunction from occasional static to inoperation. A revised harness entered production approximately September 28, 1964.

The pre-delivery inspection on the above factory equipped vehicles should include a check for this malfunction, and dealer installed packages should be inspected before installation. If the condition does exist, rework the connector as follows:

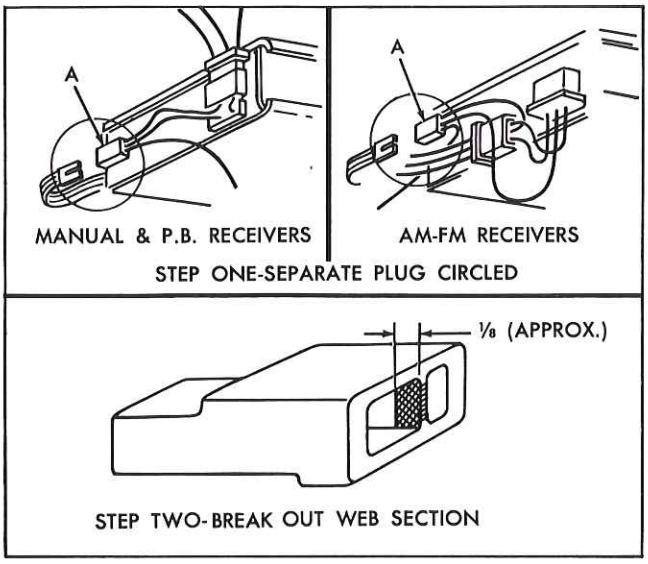

Fig. 2—Harness Connector Rework

1. Separate the small plug assembly (shown circled in figure 2 top view).
2. Using needle nose pliers or other suitable tool, break out a section of the plastic web as shown in figure 2—lower view. Use care to not damage the electrical contactors during this operation.
3. Reassemble the plug assembly. When properly reworked, the flat slotted plug will stop against the wires rather than on the bottom of the slot.

Truck 3-Speed Speedometer Drive Gear Replacement Revised

The present shop manual procedure for replacing the speedometer drive gear on the transmission output shaft requires press operations for both removing and installing the gear. This operation is made simpler and easier by removing the gear with tool J-1453, the same tools used to remove the drive gear on the Powerglide transmission. The gear may be driven on using sleeve installer J-6133.

Chevy II Vacuum Power Brake Revision

Three (3) design changes associated with the internal components of the Bendix Vacuum Power Brake Cylinder were released under two (2) Chevrolet Part Numbers for 1964 and 1965 Chevy II models.

Each design change is identified by the code "H-1"; "H-2"; or "H-3" stamped on the valve rod as shown in figure 3. The valve rod plunger face diameter and mating diaphragm plate and valve body assembly were redimensioned on each revision to increase controllability of the power brake system.

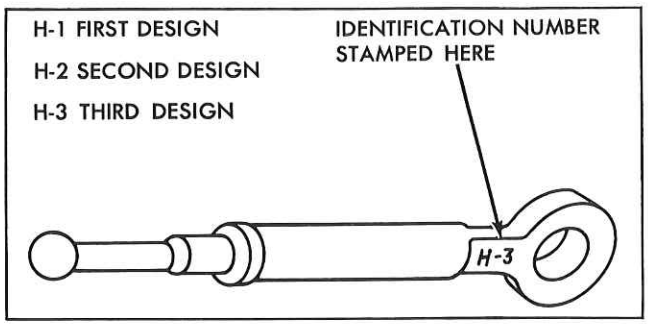

Fig. 3—Power Brake Revision Identification

These changes do not affect the interchangeability of the complete power head assemblies, but separate repair kits and individual piece replacement parts will be released to service each design. To ensure that the proper service parts are used, reference should be made to the unit identification code stamped on the valve rod.

Corvair Manual Transmission Removal Procedure Improved

In the Corvair Chassis Shop Manual on Page 7-27, Step No. 8 points out which rear strut rod bracket bolts to loosen and which to remove in order to allow the assembly to swing down for clearance to remove the transmission from the axle carrier. When the shifter tube (not shown in fig. 7B-24 in Shop Manual) is in proper position, the manual transmissions will not clear the tube because binding of the rear torque rod bushings will not allow the power train to swing low enough for clearance.

To allow the transaxle to swing much lower for the required clearance, revise Step 8 as follows:

8. Loosen the front, upper bolt from each rear strut rod bracket at the differential (a few turns to relieve tension on the lock washer). Remove the other three on each side (See fig. 4).

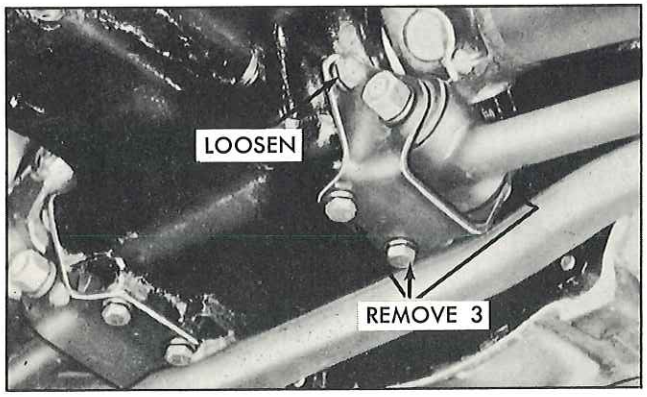

Fig. 4—Rear Strut Rod Bracket Bolts

Corvair Rear Wheel Bearing End Play Procedure Revised

The 1965 Corvair Chassis Shop Manual, Pages 4-28 and 4-29, outline a procedure to check the bearing end play and select the proper shim for reassembly. In certain instances the gauge tool J-21836 has too few threads to bottom the gauge against the bearings.

The outer nut on the gauge is being revised to undercut approximately ¼" of thread and revised nuts will be shipped by Kent-Moore to all dealers on a no-charge basis. This undercut side of the nut should go against the bearing when using the gauge tool (fig. 5) as follows:

1. With bearings off the spindle, place the tool through the torque arm and assemble the inboard bearing and nut—finger tight. This places inner bearing against the shoulder on the tool.
2. Install the spacer and outer bearing over the tool from outboard end, then install the nut (undercut toward bearing) finger tight. There should now be no play in the gauge tool body. NOTE: *If tool must be used before new nut is received a suitable spacer washer may be used between the nut and the outer bearing.*
3. Install dial indicator and make end play check as outlined in the shop manual.

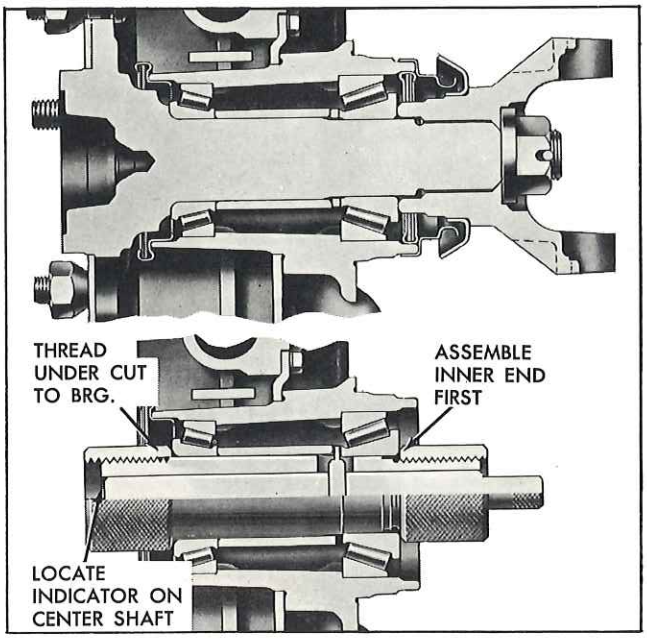

Fig. 5—Gauge Tool Installation

Towing the 1965 Corvair

The 1965 Corvair can be towed safely at speeds up to 55 mph with a tow bar, using the sling principle as illustrated in figures 6 and 7.

However, severe damage to the body rear sheet metal, the engine exhaust system, and the engine cooling air exhaust duct work may result if care is not exercised while placing the tow bar or towing the vehicle with a tow bar not incorporating the sling and cross bar features.

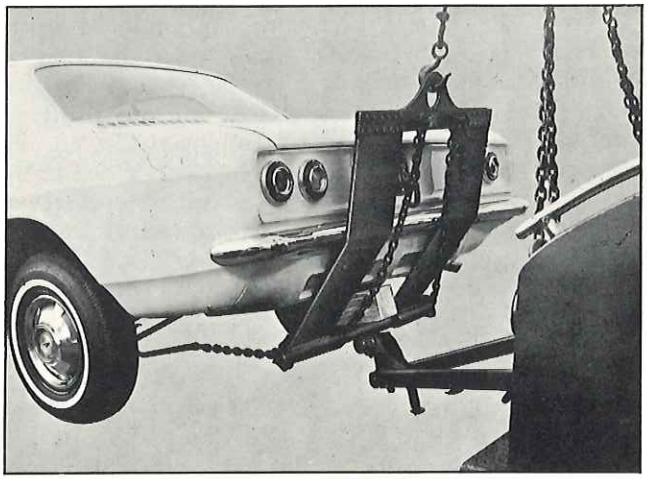

Fig. 6—Towing Sling Attachment

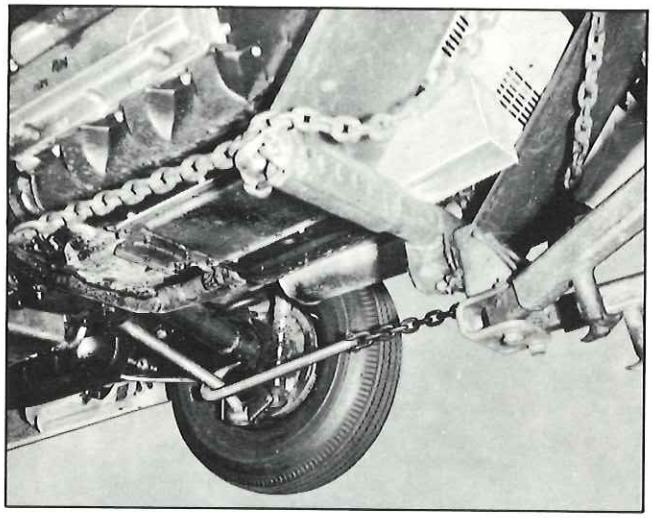

Fig. 7—Towing Sling Hook Attachment

The rear of the vehicle can be raised without damaging the suspension components or the body using the following procedure:

1. Use a lifting sling employing the principle of the sling shown.
2. Attach the tow hooks of the lifting sling to the outer ends of the rear strut rods. If the strut rods cannot be used because of damage or failure, the tow hooks or chains can be attached through the bracket which attaches the forward end of the torque control arms to the body.
3. It is extremely important to position a short piece of 4"x4" between the crossarm of the lifting sling and the engine skid plate, so that it lifts at the center of the engine below the skid plate. This is necessary to prevent above mentioned damage.

Corvette Disc Brakes Service Procedures Revised

SHOE REPLACEMENT

When the brake shoe pads are replaced it is necessary to first remove fluid from the master cylinder reservoir to avoid spillage when moving the caliper pistons. Removal of *all* the fluid in the reservoir can allow air to enter the master cylinder during the shoe replacement time if the pistons move toward the disc and, therefore, a bleeding operation would be required. To avoid this, remove only about 2/3 of the fluid in the master cylinder reservoir.

BLEEDING PROCEDURE

The operation of bleeding the disc brake hydraulic system is more involved than that required for the conventional shoe and drum type brake.

Either the pressure method or manual method can be used to bleed the disc brake system. The following procedure is recommended for each method and is adaptable to either the power (split) or manual (single) brake system.

PRESSURE METHOD

1. Remove master cylinder cover and install pressure bleeding adapter tool #J-21994 as shown in figure 4, Page 5-2 of the 1965 Corvette Shop Manual and connect an air pressure bleeder tank to it. For power brakes, which incorporate a split main cylinder, install this adapter over the rear opening for bleeding the rear brakes (fig. 8) and over the front opening for bleeding the front brakes.

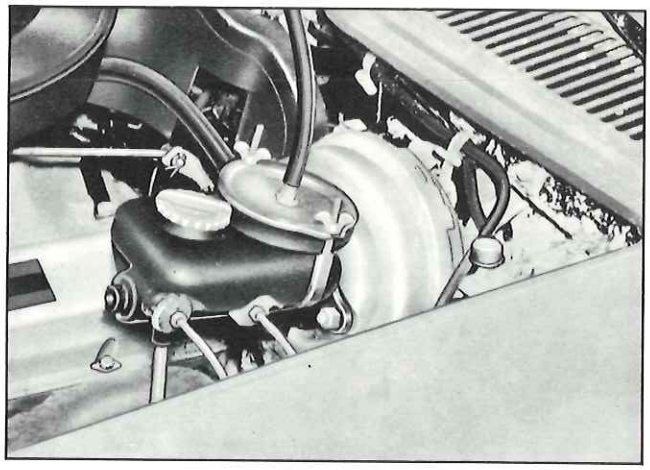

Fig. 8—Bleeder Adapter Attachment

2. Raise car and remove both rear wheels.
3. Position bleeder wrench (J-21472) and a length of bleeder hose (clear plastic, if available) to either bleeder valve at the right rear caliper. Place loose end of bleeder hose in a transparent container. Pour a sufficient volume of brake fluid into a container to ensure that end of bleeder hose will remain submerged. The purpose of this is to aid in visually determining the condition of the fluid leaving the calipers.
4. With low air pressure *(10-20 psi)* applied to the system, open the bleeder valve to allow the trapped air to escape. Maintain the above pressure and beeder opening until clear fluid appears. Tapping the caliper with a rubber mallet during the later stages of the bleeding operation may assist in obtaining a good bleed job. After one side of the caliper has been satisfactorily bled, repeat this procedure for the other side.

   NOTE: *It is important that low air pressure be utilized to prevent aeration of the fluid in the hydraulic system due to excessive fluid agitation caused by higher inlet pressures.*
5. Repeat steps 3 and 4 on the left rear caliper.
6. Repeat steps 3 and 4 for the right front and then the left front caliper assemblies. Only

one bleeder screw is used on each front caliper on the inboard side, and is accessible with front wheel in place.

CAUTION: *This bleeding procedure necessitates the use of a considerable quantity of fluid and, therefore, the supply of fluid in the bleeder tank should be checked periodically to ensure that the level does not drop to the point that air begins to enter.*

MANUAL METHOD

The same basic procedure should be utilized for this method as that used for the pressure method. The only difference being that pressure is supplied manually by pumping the brake pedal and applying a constant, moderate pressure while the bleeder valve is opened.

NOTE: On manual brakes, to insure that outside air is not sucked back into the hydraulic system, the bleeder valve should be closed before the brake pedal reaches the floor.

SPLIT BRAKE SYSTEM DIAGNOSIS

To aid Field personnel in determining if both front and rear brakes of the split (Power brake) system are operating properly, this short explanation of the operation is provided. The split system consists basically of two separate brake systems. When a failure is encountered on either, the other is adequate to stop the vehicle. If one system is not functioning, it is normal for the brake pedal lash and pedal effort to substantially increase. This occurs because of the design of the master cylinder which incorporates an actuating piston for each system. When one of the systems loses fluid and takes in air, its piston will bottom against the piston of the functioning system. This is felt at the brake pedal by an apparent lack of brakes for most of the brake travel and then, when the pistons are bottomed against one another, an extremely hard pedal. If a vehicle displays these symptoms, it is a good indication that one of the systems contains air. To determine which system is at fault, the car can be driven and braked hard enough to skid the wheels. The wheels that lock are functioning properly.

Antenna to Fender Gasket Sealing

On some early production 1965 Chevrolet and Chevelle vehicles, a water leak can occur between the antenna and fender if the gasket is squeezed out of position during assembly. On rear antenna vehicles this water leak will enter the trunk area. A new gasket (Part No. 3820672) now being used in production, eliminates this problem.

Until the new gasket is available for service, the following rework is recommended on vehicles with water leakage into the trunk area.

1. Remove the antenna mast, cap, and bezel.
2. With the bezel gasket installed on the bezel, pack the lower face of the bezel with adhesive caulking material such as obtainable in P/N 4226000 Caulking Kit.
3. Intsall the bezel and cap using 40/60 in. lb. torque to tighten cap.
4. Install mast assembly and wipe off excess sealer.

Automatic Level Control

A pneumatic level control system that automatically maintains correct rear trim height of a car under varying load conditions, is available as factory or dealer installed option for all Chevrolet, Chevelle, and Chevy II models equipped with Superlift Shock Absorbers.

The Superlift Shock Absorber option alone, consists of the two shock absorbers with pressure lines to a "Tee" where a fill valve is located. The shocks are inflated with (or deflated of) compressed air (at any gas station) to obtain the vehicle level desired with any given load change.

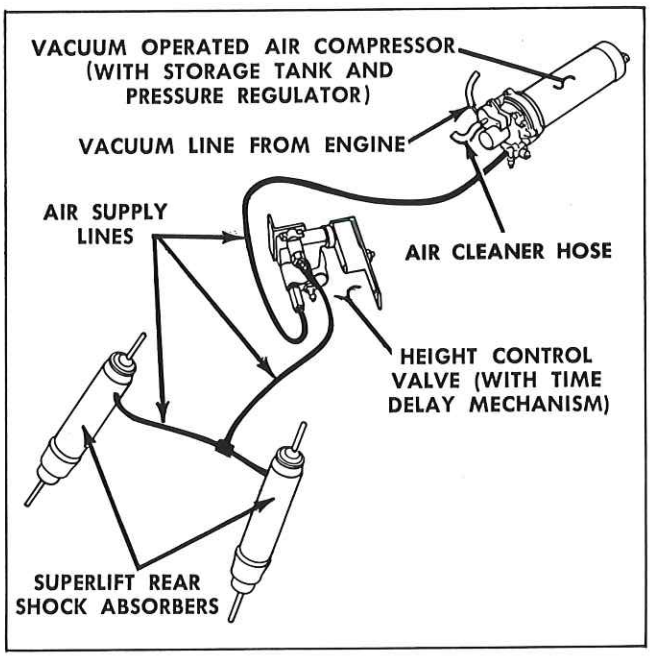

Fig. 9—Automatic Level Control Schematic

The automatic leveling system is added to the Superlift Shock Absorbers and supplies its own compressed air. The system (fig. 9) consists of a vacuum operated air compressor with pressure regulator and integral storage tank, vacuum line to engine, air intake filter and lines, and a height control valve.

THE COMPRESSOR, a two-stage type requiring no lubrication, is designed to operate off engine vacuum to replenish air used from the reservoir. As the compressor cycles, the reservoir air pressure gradually increases (causing a back pressure on

the 2nd stage piston) until it equals the engine vacuum pull against the diaphragm. At this point, a balanced condition is reached and the unit stops operating. After reservoir pressure drops due to system air usage the compressor again begins to cycle and replenish the reservoir.

A PRESSURE REGULATOR is attached to the output side of the reservoir. It regulates Superlift supply pressure to approximately 125 psi. The rear standing height is automatically maintained at a nearly constant position by a CONTROL VALVE (fig. 10) attached to the rear suspension

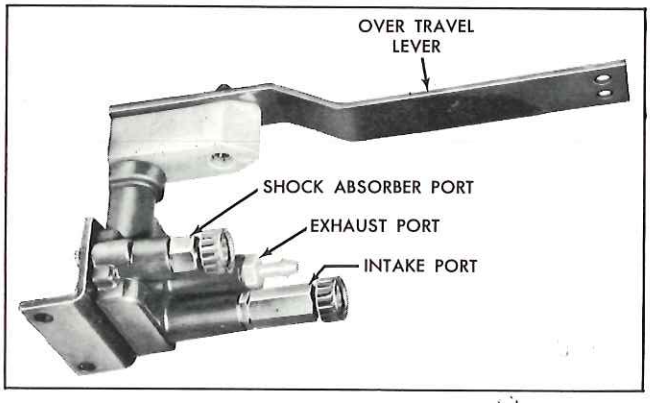

Fig. 10—Height Control Valve

cross member. A link attaches the valve lever to the suspension upper control link. When sufficient load is added to deflect the rear suspension at least ½", the control valve admits air to the Superlifts which raises the car to level. When load is removed, and the car rises, the control valve exhausts air from the Superlifts which lowers the car to level. A four to fifteen second time delay mechanism inside the control valve housing prevents transfer of air when the lever is moved during normal ride motions. In this manner, the control valve responds only to actual load changes of sufficient duration to overcome the delay action.

THE SUPERLIFT (fig. 11) is essentially a conventional shock absorber enclosed in an air chamber. A pliable nylon reinforced neoprene

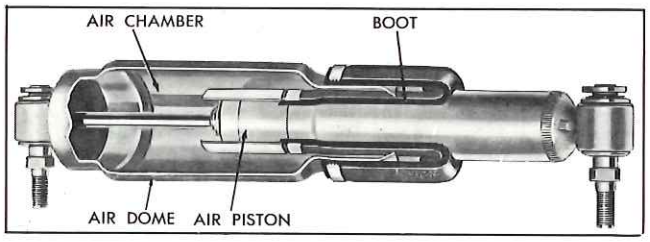

Fig. 11—Superlift Shock Absorber

boot seals the dust tube (air dome) to the reservoir tube (air piston). The unit will extend when inflated and retract when deflated by the control valve. An eight to fifteen PSI air pressure is maintained in the Superlift at all times to minimize boot friction. This is accomplished by a check valve in the exhaust fitting on the control valve.

SYSTEM TEST

A complete system test includes on and off-the-car component tests.

On the car tests are:

Quick check of Automatic Level Control System
Compressor output test
Regulator test and adjustment
Control valve test
Time delay test
Line and fitting leak test
Trim adjustment

Off-the-car operations include:

Control valve replacement
Compressor repair
Component leak tests
a. Compressor, reservoir, and regulator
b. Control valve
c. Superlifts

Quick Check of Automatic Level Control System

1. Record rear trim height of empty car (measure from center of rear bumper to ground).
2. Add weight equivalent to two passenger load to rear of car. Car should begin to level in 4-15 seconds and final position should be approximately ± ½ inch of dimension measured above.
3. Remove weight. After 4-15 seconds car should begin to settle. Final unloaded position should be within approximately ± ½ inch of original measurement recorded in step 1.

Automatic Level Control Test Gage (Fig. 12)

NOTE: *To service the Automatic Level Control it will be necessary to secure Kent-Moore gage set J-22124 or make up the following test gage. If the connectors indicated are not readily available others may be substituted.*

1. Collect the following parts:
   a. Fill Valve, J-21999.
   b. A tee which has three ⅛" female taper pipe threads.
   c. An adapter which has a ¼" female taper pipe thread on one end and a ⅛" male taper pipe thread on the other end.
   d. Air Pressure Gage, J-4872.
   e. Two metal sleeves, rubber seals and tube nuts.
   f. A length of ⅛" tubing.

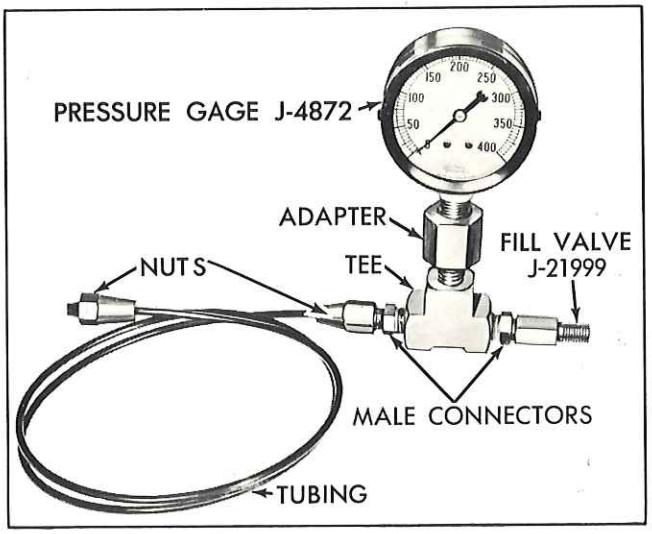

Fig. 12—Test Gage Set J-22124

g. Two male connectors which have a 1/8" male taper pipe thread on one end and a 3/8-24 straight thread male fitting on the other end.

2. Assembly
   a. Connect Fill Valve, J-21999, (female end) at male connector 3/8-24 straight thread fitting.
   b. Connect other end of male connector to tee.
   c. Connect adapter to tee.
   d. Connect pressure regulator to adapter.
   e. Connect second male connector to tee, (1/8 inch male pipe thread fitting).
   f. Install tubing to connector; other end of tubing will go on unit to be checked.

   NOTE: *Make certain all fittings are air tight.*

Compressor Output Test—On Car

1. With all accessories off, run the engine until fast idle screw is off the fast idle cam. Turn off ignition.
2. Deflate system through service valve, then remove high pressure line at regulator adapter and connect test gage.
3. Inflate reservoir to 70 psi through service valve.
4. Observe test gage for evidence of compressor air leak.
5. If leaking, proceed to leak test-compressor reservoir, and regulator. If not leaking, continue this test.
6. With engine running at slow idle, observe reservoir build-up for five minutes. Reservoir pressure should build up to a minimum of 90 psi.
7. If compressor fails to cycle, make sure the vacuum and air intake lines are open and unobstructed before removing compressor for repair.
8. If build-up is too slow, proceed to repair compressor.
9. Satisfactory build-up indicates system problem to be in the control section. However, again observe the test gage for evidence of an air leak and proceed accordingly.

Regulator Test and Adjustment

Performance test the regulator with a known good compressor on the car.

1. Deflate system through service valve and remove line at regulator and connect test gage at regulator adapter.
2. Inflate reservoir through service valve to maximum pressure available. If less than 140 psi start engine to build-up reservoir to this pressure.
3. Regulated pressure on the test gage should build-up to 100-130 psi and hold steady within this range.
4. Recheck regulated pressure by momentarily depressing valve core on test gage and observe gage reading.
5. If regulated pressure reads under 100 psi remove boot and reposition the sleeve retainers deeper into the body using a deep well socket.
6. If regulated pressure exceeds 130 psi, replace regulator as a unit.

Control Valve Test

a. Exhaust (Superlifts Inflated)

1. Disconnect control valve lever from link.
2. Hold lever down in exhaust position until Superlifts deflate or for a minimum of 15 seconds.
3. If Superlifts deflate, perform Intake Check.
4. If Superlifts do not deflate, remove exhaust adapter from control valve and hold lever down as in step 2. Replace adapter, O-ring and filter if this deflates Superlifts.
5. Replace control valve if none of the above steps solve problem.

b. Intake (Reservoir Pressure 125 PSI Minimum)

1. Disconnect overtravel lever from link.
2. Hold lever up in intake position until Superlifts inflate or for a minimum of fifteen seconds.
3. If Superlifts inflate and hold, proceed to Time Delay Check.
4. If Superlifts inflate and then leak down, perform leak test on lines and fittings and then on Superlifts and control valve. Repair or replace as indicated.

c. Time Delay Test (Reservoir Pressure 125 PSI Minimum)

1. Record rear trim height of empty car (rear bumper to ground).

2. Add weight equivalent to two passenger load to rear of car. Car should begin to level in 4-15 seconds and final position should be approximately ± ½ inch of dimension measured above.
3. Remove weight. After 4-15 seconds car should begin to settle. Final unloaded position should be within approximately ± ½ inch of dimension measured above.
4. Replace valve if time delay is not within the 4-15 seconds.

Trim Adjustment—On Car

Trim adjustment should be performed with a full fuel tank (or the equivalent in load at the rate of 6 lbs./gallon).

a. Preparation

1. Raise car with rear axle supported.
2. Remove Superlift line at control valve (fig. 10).
3. Connect a Fill Valve Assembly, J-21999 to this line (male end).
4. Inflate Superlifts to 8-15 psi. Jounce car to neutralize suspension.
5. Connect test gage to Superlift adapter on control valve and attach air pressure source (80-110 psi).

b. Adjustment

1. Loosen overtravel lever adjusting nut.
2. Hold overtravel body down in exhaust position until air escapes from exhaust valve port.
3. Slowly move overtravel body and tighten nut at the point of minimum air bleed. With nut tight, a slight continuous air bleed should be noticeable.

c. Restore System

1. Remove test gage and air pressure source from Superlift adapter.
2. Remove Fill Valve Assembly, J-21999, from Superlift line and reconnect line to control valve.
3. Lower car and inflate reservoir through service valve.

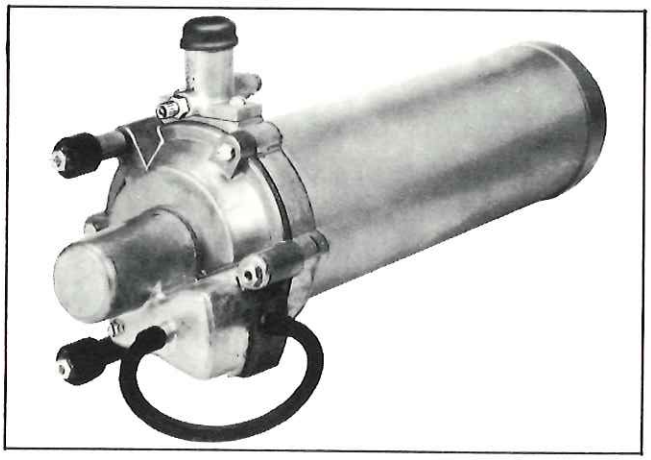

Fig. 13—Assembly Leak Test Preparation

Leak Tests

a. Compressor, Reservoir and Regulator

1. Remove assembly intact.
2. Connect test gage to regulator. Inflate reservoir through service valve to 80-110 psi.
3. Route an 8" rubber hose between vacuum and vent ports, (fig. 13).
4. Submerge in water and observe for air leaks at:
   Reservoir weld seam.
   Reservoir to compressor O-ring.
   Regulator to compressor O-ring.
   Regulator boot-defective internal O-ring.
   Diaphragm between first and second stage housings. Tightening through bolts may correct the leak.
   Cover gasket and retainer screw. A few bubbles here is not a leak. A continuous stream indicates defective compressor check valves.
   Service valve.
   Test gage connections.
5. Correct any leaks detected by either tightening screws or replacing parts.

b. Control Valve

1. Remove control valve unit from car.
2. Clean exterior of control valve thoroughly.
3. Connect test gage and air pressure source to intake adapter and open air pressure (80-110 psi).
4. Submerge unit in water. No air should escape if overtravel lever is in "neutral" position. If bubbles escape from Superlift port, replace control valve.
5. Shut off air pressure and detach test gage from air intake port. Plug intake port with Fill Valve, J-21999 (female end).
6. Connect test gage to Superlift port and open air pressure.
7. With overtravel lever in "neutral" position no air should escape. If bubbles escape from exhaust port, replace control valve.
8. If air escapes around edge of cover plate, tighten screws on replace gasket.
9. Remove control valve from water. Actuate overtravel lever to expel any water from unit.
10. Shut off air pressure and remove line from Superlift port.

c. Lines and Fittings

1. Disconnect overtravel lever from link.
2. Hold lever up in intake position for maximum Superlift inflation and release.
3. Leak check all connections with a soap and water solution.

d. Superlifts

1. Disconnect lines and remove unit from car.
2. Inflate individually to 50-60 psi utilizing Fill Valves J-21999. Submerge in water and observe unit for leaks.
3. Install Superlifts.

Control Valve Replacement

a. Removal

1. Deflate system using service valve.
2. Disconnect two air lines at leveling valve intake and Superlift ports.
3. Disconnect link from overtravel lever by removing one nut and lockwasher.
4. Remove two screws securing leveling valve to frame and remove leveling valve.

b. Installation

1. Install control valve with two screws, with time delay mechanism down.
2. Secure link to overtravel lever with one nut and lockwasher. On all station wagons series the link is secured to the lower hole. On all other series cars with standard springs, the link is secured to the upper hole.
3. Connect air lines at control valve intake and Superlift port.
4. Inflate reservoir to 140 psi or maximum pressure available through service valve.

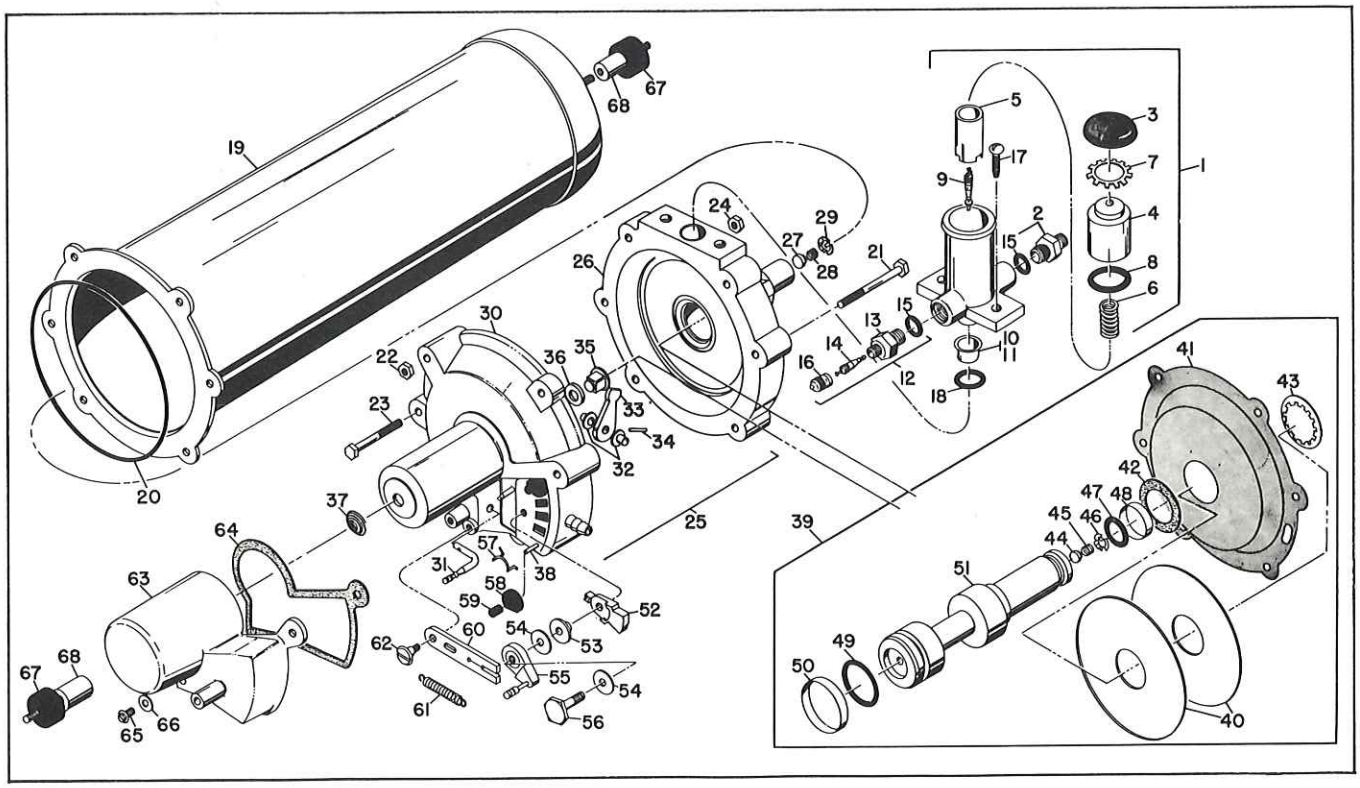

Fig. 14—Compressor, Regulator and Reservoir—Exploded view

1. Regulator Assembly
2. Adapter Assembly
3. Boot
4. Sleeve
5. Piston
6. Spring
7. Retainer
8. "O" Ring
9. Valve Core
10. Retainer, Screen
11. Screen, Filter
12. Adapter Assembly
13. Adapter
14. Valve Core
15. "O" Ring
16. Cap
17. Screw, Regulator Retaining
18. "O" Ring, Regulator To Compressor
19. Reservoir
20. "O" Ring, Reservoir To Compressor
21. Thru Bolt, Reservoir Retaining
22. Nut, Thru Bolt Reservoir
23. Thru Bolt, Compressor Retaining
24. Nut, Thru Bolt Compressor
25. Compressor Assembly
26. Housing, 2nd Stage
27. Check Valve
28. Spring
29. Expansion Plug Retainer
30. Housing, 1st Stage
31. Arm, Swivel
32. Bushing
33. Arm, Rocker
34. Pin, Rocker Arm Retaining
35. Intake Valve
36. Washer
37. Spring, Intake Valve Retaining
38. Pin, Bushing Retaining
39. Piston Assembly
40. Plate, Diaphragm
41. Diaphragm
42. Washer (.760-.765 ID)
43. Retainer, Diaphragm
44. Check Valve
45. Spring
46. Expansion Plug Retainer
47. "O" Ring (.357-.367 I.D.)
48. Seal (.569-.571)
49. "O" Ring (.732-.742 I.D.)
50. Seal (.943-.945)
51. Piston
52. Distributor Valve
53. Bushing, Distributor Valve
54. Washer (.160-.163 I.D.)
55. Arm Assembly, Distributor
56. Screw
57. Spring, Valve Tension
58. Bushing, Distributor Valve Stop
59. Bushing, Arm Assembly Stop
60. Arm Actuating
61. Spring, Arm Tension
62. Screw, Arm Pivot
63. Cover
64. Gasket
65. Screw, Cover Retaining
66. Gasket, Cover
67. Mount, Flexible
68. Adapter

Compressor, Reservoir and Regulator

Removal and Installation

1. Disconnect air lines (manifold and air cleaner) at compressor end.
2. Disconnect pressure line at compressor head.
3. From wheel side of fender skirt, remove two screws from bracket on compressor end.
4. Remove nut and washer from reservoir stud at bracket and remove assembly from vehicle.
5. Remove compressor end mount bracket.
6. Reverse steps 1-5 for installation, then leak check fittings.

Compressor, Reservoir and Regulator Disassembly into Major components (fig. 14)

The compressor is a precision-built mechanism. All parts should be carefully handled and assembled. Take care to prevent entrance of dirt or foreign matter. DO NOT LUBRICATE as unit is designed to run dry.

1. Remove compressor as described above.
2. Remove three flexible mounts and three adapters.
3. Remove reservoir retaining through bolt, cover retaining screw and cover gasket that secure cover and gasket to first stage housing. Remove cover and discard gaskets.
4. Remove two regulator retaining screws, regulator assembly and O-ring from second stage housing. Discard O-ring.
5. Remove three nuts at reservoir flange and two through bolts that enter from flanged side of reservoir. Separate reservoir and O-ring. Discard O-ring.
6. Remove three compressor retaining through bolts that secure second stage housing to first stage housing.
7. Slide second stage (small diameter) housing straight off piston.
8. Disconnect arm tension spring from swivel arm.
9. Remove arm pivot screw and actuating arm.
10. Slide piston assembly straight out of first stage housing.

Compressor, Reservoir and Regulator Disassembly, Inspection and Assembly of Major Components (fig. 14)

a. Diaphragm

1. Inspect diaphragm for holes, looseness or other defects and replace if necessary.
2. Remove diaphragm retainer with diagonal pliers and discard.
3. Remove diaphragm plate, diaphragm, second diaphragm plate and corprene washer from piston.
4. Install new corprene washer, old plate, new diaphragm with outer lip toward second stage side, (fig. 14) and second plate. Plates should be installed so that lip on each plate faces away from diaphragm.
5. Use a 13/16 inch deep socket as a pilot for the new diaphragm retainer. Press against the piston shoulder on first stage side, (fig. 15) to position diaphragm retainer. The wood blocks used in the illustration are each ¾"x¾"x12". NOTE: *Position diaphragm retainer securely to effect air tight seal against corprene washer.*

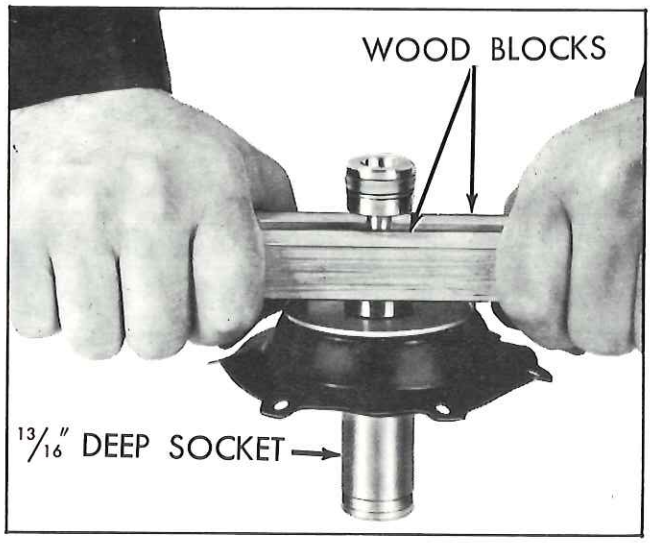

Fig. 15—Installing Diaphragm Retainer

b. Seals

1. Inspect seals for evidence of excessive wear or coring. If necessary replace seals and O-rings.
2. Remove seals and O-rings from piston.
3. Install new O-rings by rolling into groove. Relieve any resulting twist.
4. Install new seals using a piece of .020" shim stock, (fig. 16). Make sure shim stock has no sharp edges that may cut seal. Do not stretch seal more than necessary to install. Seals should be installed so they are not twisted.

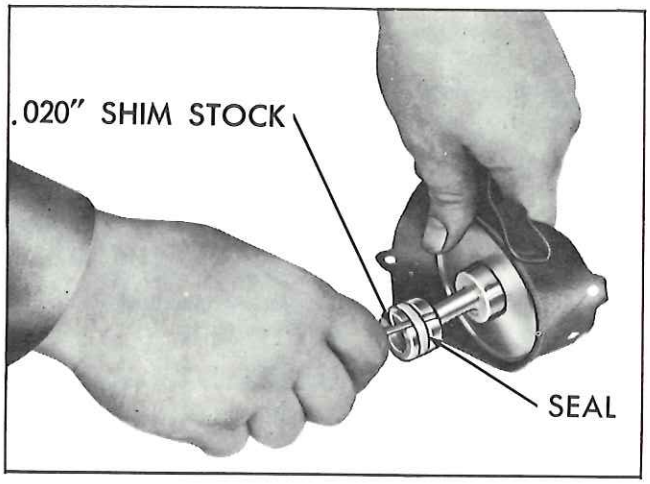

Fig. 16—Installing Seal

c. Distributor Valve Mechanism and Intake Valve (First Stage Housing)

NOTE: *Actuate distributor valve with finger. Valve tension spring should press against distributor valve, holding it against either stop. If valve action is not free and positive, it will be necessary to rebuild using new parts in Distributor Valve and Arm Package. If action is free and positive and upon disassembly there are no damaged parts, parts may be re-used.*

Disassembly

1. Remove screw, washer, distributor arm assembly, washer, and distributor valve bushing.
2. Remove two arm assembly stop bushings and two distributor valve stop bushings.
3. Carefully remove distributor valve being careful not to distort valve tension spring.
4. Remove valve tension spring from housing boss, again being careful not to distort valve tension spring.
5. Remove intake valve retaining spring, intake valve and washer using pocket knife.
6. If necessary, remove rocker and swivel arms. Position pin for removal by prying with screwdriver, (fig. 17). Grip pin with water pump pliers and remove pin. Remove swivel arm, rocker arm and bushings.

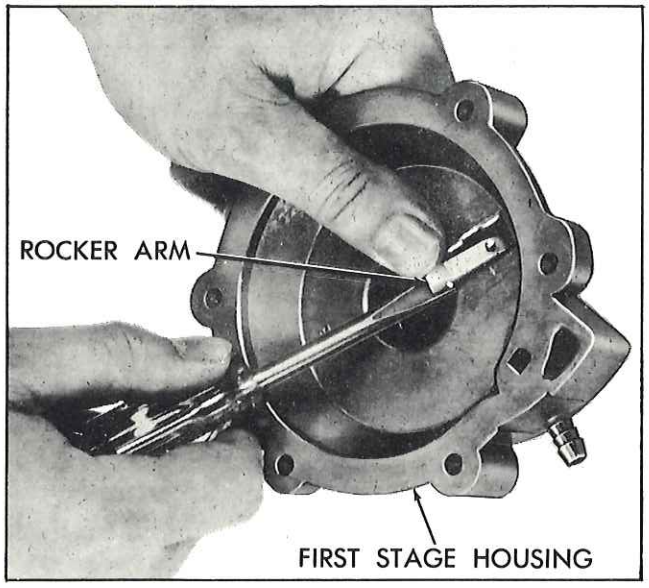

Fig. 17—Removing Rocker Arm

Cleaning and Inspection

1. Clean all parts in clean solvent except distributor arm assembly and blow dry with compressed air.
2. Inspect distributor valve for cracks. Discard if damaged.
3. Inspect all other parts for wear or damage.

Assembly

1. If removed, position bushings in first stage housing and install rocker arm and swivel arm. Align hole in rocker arm with swivel arm and install rocker arm retaining pin, small end first.

   NOTE: *If distributor mechanism failed to function properly or one or more parts were found defective, use new parts in distributor valve and arm package during remaining build-up.*
2. Install washer on intake valve and install in first stage housing with intake valve retaining spring.
3. Install longer leg of valve tension spring into boss on first stage housing being careful not to distort valve tension spring.
4. Position distributor valve being careful not to distort valve tension spring.
5. Install two distributor valve stop bushings and two arm assembly stop bushings.
6. Install distributor valve bushing, washer, distributor arm assembly, and washer and secure with screw. Tighten to 12 inch pounds.

   NOTE: *Do not install remaining parts at this time as rocker arm must be free to permit entrance of piston into first stage housing.*

d. Check Valve Replacement (Second Stage Piston)

1. Pry out expansion plug retainer on second stage piston (with pointed tool) and remove spring and check valve.
2. Pour a small amount of clean solvent through bore in piston and blow dry with compressed air. Check valve seat should be smooth and clean.
3. Install new check valve and spring.
4. Insert new expansion plug retainer and tap in until it bottoms.

e. Check Valve Replacement (Second Stage Housing)

1. Pry out expansion plug retainer on second stage housing (with pointed tool) and remove spring and check valve.
2. Clean second stage housing with clean solvent and blow dry with compressed air. Check valve seat should be clean and smooth.
3. Install new check valve and spring.
4. Insert new expansion plug retainer and tap in until it bottoms.

Compressor, Reservoir and Regulator Assembly From Major Components

1. Slide piston assembly straight into first stage (large diameter) housing.
2. Install actuating arm and secure to first stage housing with arm pivot screw, tightening to 12 inch pounds.
3. Connect arm tension spring to swivel arm.

4. Rotate piston in first stage housing to align elongated hole in diaphragm with vent port in first stage housing.
5. Install three compressor retaining through bolts that secure second stage housing to first stage housing. Housings will align one way only. Nuts are positioned in counterbores in second stage housing. Tighten to 28 inch-pounds.
6. Install new O-ring on second stage housing. Wash inside of reservoir in clean solvent and blow dry with compressed air. Install reservoir on second stage housing with three nuts, tightening to 28 inch-pounds. Install two reservoir retaining through bolts, tightening to 28 inch-pounds. Through bolt heads should be positioned against reservoir. Leave out through bolt that secures cover.
7. Install new O-ring on regulator and secure regulator with two regulator retaining screws, tighten to 35 inch-pounds. Service valve should be on same side as first stage housing.
8. Install new gasket, cover, and secure with cover retaining screw and new cover gasket. Tighten cover retaining screw to 35 inch-pounds. Install through bolt so head is positioned against reservoir. Tighten through bolt to 28 inch-pounds.
9. Install three adapters and flexible mounts.
10. Proceed to compressor output test on car.

DIAGNOSIS CHART

CONDITION	CAUSE	CORRECTION
Car loaded, will not raise.	External damage or breakage. Line leak. Linkage to overtravel lever in wrong hole. Control valve setting incorrect. Defective component.	Visually inspect - Lines Link Control valve Superlifts Leak Test - Lines and fittings Lower hole in overtravel lever for convertibles series only or cars with standard springs. Perform trim adjustment on car. Perform system test and proceed as indicated.
Car loaded. Raises to level and then leaks down.	Line leak. Control valve exhaust leak. Superlift leak. Control valve leak.	Leak test lines and fittings from control valve to Superlifts and crossover line. Control valve test - on car Leak test Superlifts Leak Test - Control Valve Off Car
Car loaded, raises partially.	Load excessive (over 500 lbs. at axle). Control valve setting incorrect. Low supply pressure.	Distribute load, shift forward if practical. Perform trim adjustment on car Perform compressor output test on car
Car unloaded, rides too high, will not come down.	Control valve setting incorrect. External damage or breakage. Linkage to overtravel lever in wrong hole. Defective control valve.	Perform trim adjustment on car Visually inspect - Lines Link Control valve Superlifts Lower hole in overtravel lever for station wagon only. Control valve test
Car rises when loaded but leaks down while driving.	Time delay mechanism not functioning properly.	Check time delay mechanism