Group 17
SPRINGS AND SHOCK ABSORBERS

CONTENTS

DATA AND SPECIFICATIONS

SPRINGS

Model	PS-1	PS-3	PC-1	PC-2	PC-3	PY-1
Type	Semi-Elliptic					
No. of Leaves						
Sedans (all)	5	5	5	6	7	6
Hardtops (all)	5	5	5	6	7	6
Convertibles	5	-	5	6	7	6
Town and Country Wagon	-	-	6	-	7	-
Width (Inches)	2.50					
Length (Inches)	57	57	57	60	60	60
Shackle	Silent Block Rubber Bushings					
Hanger	Side Strapped with Rubber Bushed Bolts					

SHOCK ABSORBERS

Type	Oriflow, Double Acting Hydraulic

SPECIAL TOOLS

C-3553	Remover and Installer — Lower Mounting
C-3709	Remover and Installer — Spring Eye Bushing

TIGHTENING REFERENCE

	Foot-Pounds
Rear Spring Front Pivot Bolt Nut (PS-1, PS-3)	65
Rear Spring Front Pivot Bolt Nut (PC-1, PC-2, PC-3, PY-1)	125
Rear Spring Shackle Nuts	40
Rear Spring "U" Bolt Nuts	60 - 80
Shock Absorbers Mounting Nut (Rear)	60
(Front - Upper)	55
(Front - Lower)	35
Shock Absorbers Stud Nut—Lower	70
Upper	60

SERVICE DIAGNOSIS

1. SPRINGS SAG OR BOTTOM

a. Spring sagged or taken a set.

b. Broken, bent or weak spring leaves.

2. SPRING NOISE

a. Loose "U" bolts.

b. Loose rebound clips or clips rubbing edges of leaves.

c. Loose or worn shackle bushings.

d. Worn interliner buttons.

3. SPRING BREAKAGE

a. Loose "U" bolts.

b. Shock absorber inoperative.

c. Vehicle overloaded.

Group 17
SPRINGS AND SHOCK ABSORBERS

SERVICE PROCEDURES

4. SPRING MAINTENANCE

It is important that spring "U" bolts be inspected at regular intervals and kept tight to prevent spring breakage. Tighten spring "U" bolt nuts to 70 foot-pounds torque. The spring shackles should be inspected occasionally to make sure they are tight, but not binding. Tighten to 50 foot-pounds torque. No lubrication of any kind should be used on the rear springs or rubber bushings.

Front suspension heights may be affected if the rear spring height varies more than ¾ inch on one side as compared with the other side. To check this height, measure the vertical distance from the top of the rear spring main leaf to the underside of the body frame on both sides of the car. If these distances vary by more than ¾ inch, it is an indication that one of the rear springs may need replacing. **It is normal for rear springs to show some reverse arch, even with no load, so appearance alone should not be the reason for spring replacement.**

Springs may "bottom" under abnormal loading conditions, particularly when road dips and railroad crossings are encountered at relatively high speeds.

5. REAR SPRINGS (Fig. 1)

a. Removal

(1) With the car body frame supported on floor stands and jack pressure under axle housing, disconnect shock absorber.

(2) Lower jack until it supports only the weight of

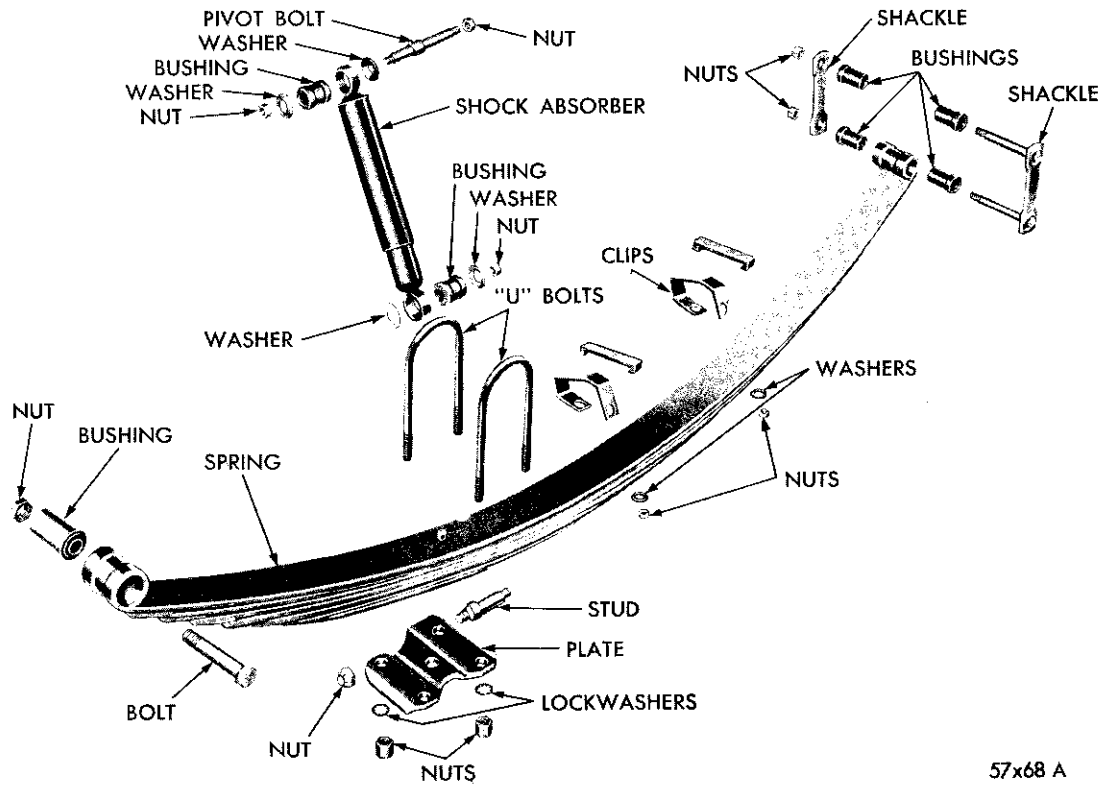


Fig. 1—Rear Spring and Shackles (Disassembled View)

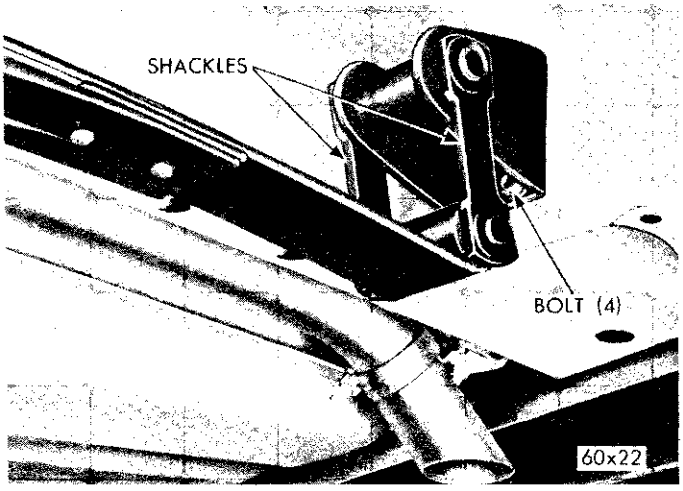


Fig. 2—Rear Spring Rear Hanger

the axle housing and remove the rear spring rear shackle (Fig. 2).

(3) Loosen the rear spring silent block bolt nut. The nut should be backed off until it is retained on the silent block bolt (Fig. 3) by two or three threads.

(4) Using a pry bar between the silent block bolt nut and the body frame, force the silent block bolt outward until the nut contacts the spring mounting bracket.

(5) Remove the silent block bolt nut and using a suitable tool, force the silent block bolt out of the spring.

(6) Remove the spring "U" bolts and spring.

b. Installation

(1) Position the springs in their respective front hangers and install the silent block bolts and nuts **(finger tight only).**

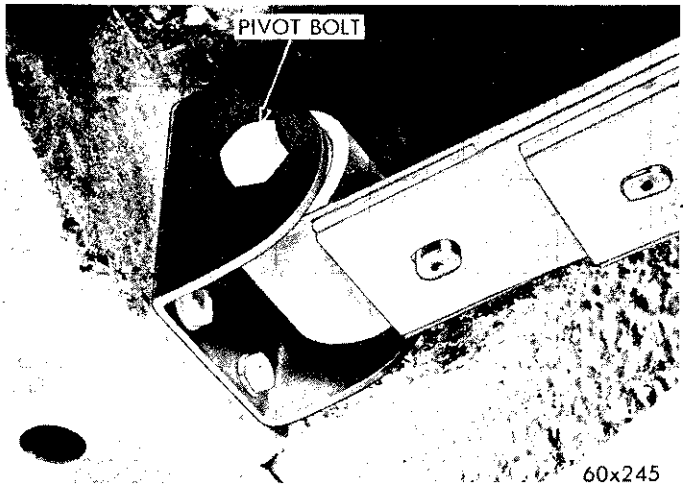
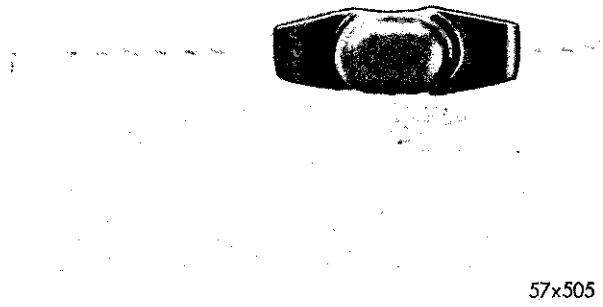


Fig. 3—Rear Spring Front Hanger



(2) Install the spring shackles and nuts.

(3) Install the spring "U" bolts, washers and nuts.

(4) Tighten the spring U-bolt nuts 60 to 80 foot-pounds torque and shackle bolt nuts 40 foot-pounds torque.

(5) Connect the shock absorbers.

(6) Remove the car floor stands and with the car weight on the wheels, torque the silent block bolt and shackle nuts 65 foot-pounds torque on Models PS-1, PS-3, and 125 foot-pounds torque on Models PC-1, PC-2, PC-3 and PY-1.

(7) The bushings and shackles should not be lubricated at any time. Check the car curb height whenever a rear spring or shackle has been replaced.

6. REAR SPRING INTERLINERS (Figs. 4 and 5)

a. Removal

(1) Raise the rear end of frame until shock absorbers are fully extended.

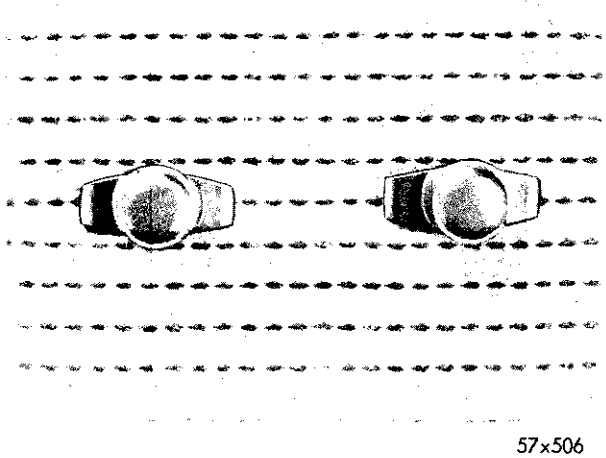


Fig. 5—Rear Spring Rear Interliner

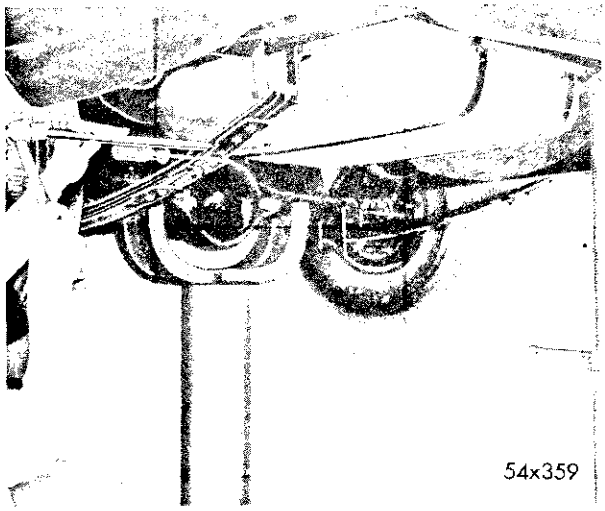


Fig. 6—Separating the Spring Leaves

(2) Remove the rebound clips from spring.

(3) Remove the metal fasteners directly beneath the spring seat surface.

(4) Separate the spring leaves (Fig. 6) and remove the interliners.

b. Installation

(1) With the leaves separated, be sure the spring leaf where interliner makes contact is clean and smooth.

(2) Insert the interliner between the spring leaves (Fig. 7) until the prongs of the metal fasteners are aligned with the holes.

(3) Pry the prong end of the fastener through the hole in spring leaf (Fig. 8).

(4) Position aligning clip (Fig. 9) and tighten re-

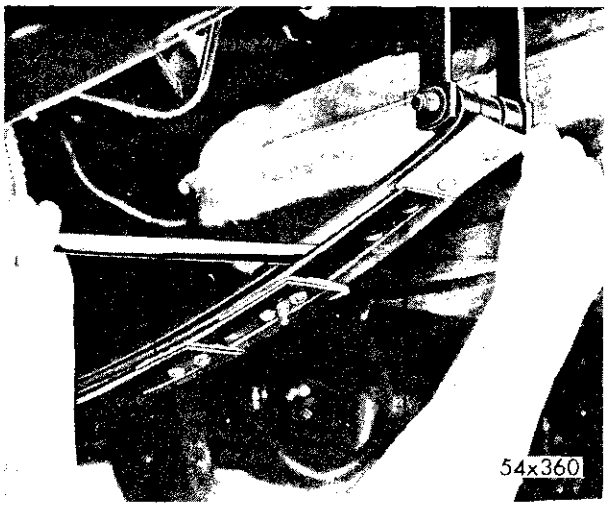


Fig. 7—Positioning the Interliner

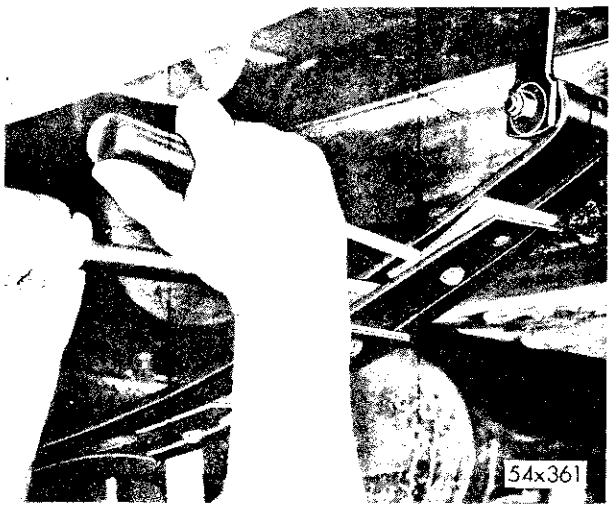


Fig. 8—Installing Interliner Fastener

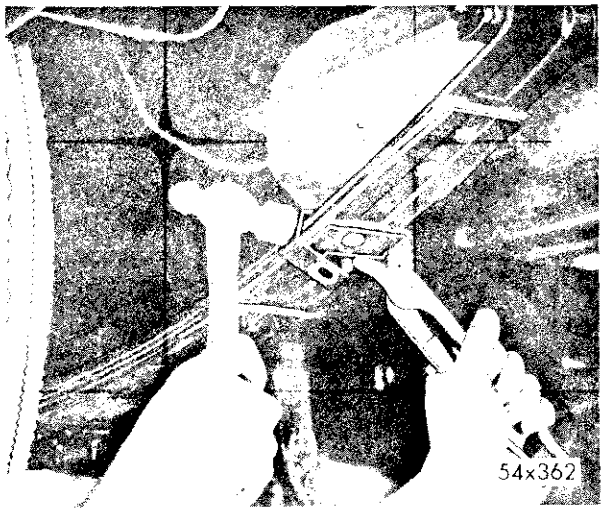


Fig. 9—Positioning Aligning Clip

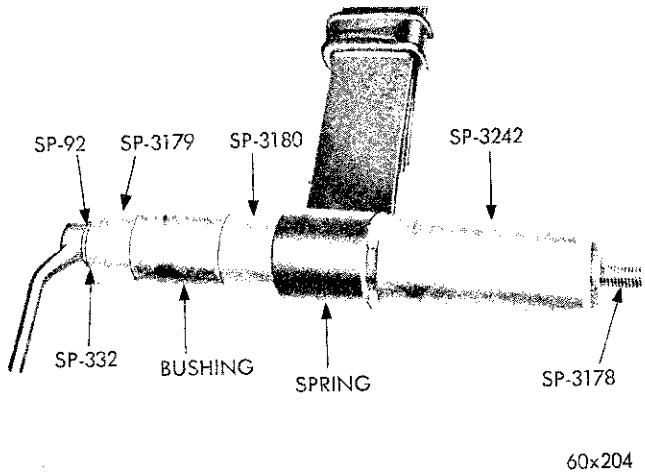


Fig. 10—Removing or Installing Spring Leaf Bushing Using Tool C-3709

tainer nut. Peen end of bolt over nut. Do not lubricate rear springs. The interliners act as the friction control and receive no lubrication.

7. SPRING LEAF BUSHING REPLACEMENT

Removal of the old bushing and installation of the new bushing is performed in one operation, using Tool C-3709 (Fig. 10).

(1) On bolt SP-3178, position the bearing washer SP-92, thrust bearing SP-332, bushing adaptor SP-3179 (flat side of adapter next to the washer), spring leaf bushing and remover adapter SP-3180.

(2) Insert bolt SP-3178 through the bushing to be removed.

(3) Install adaptor SP-3242 on bolt SP-3178. The slot in adaptor SP-3242 should be visible to aid in correct positioning of the bushing as it is being installed.

(4) Tighten bolt SP-3178 to remove the old bushing and install the new bushing. Remove tool after the new bushing has been correctly positioned.

SHOCK ABSORBERS

The Oriflow shock absorber cannot be refilled or disassembled. When servicing is required, the shock absorber must be removed and a new unit installed. SHOCK ABSORBERS SHOULD ONLY BE REPLACED IF THEY HAVE LOST THEIR RESISTANCE OR IF THEY **DRIP** OIL. **EVIDENCE OF SLIGHT OIL MOISTURE ON OUTSIDE OF SHOCK ABSORBER IS NOT CAUSE TO REPLACE SHOCK ABSORBER.**

8. FRONT SHOCK ABSORBER AND/OR BUSHING

a. Removal

(1) Refer to Figure 11 and disconnect the upper end of shock absorber piston rod.

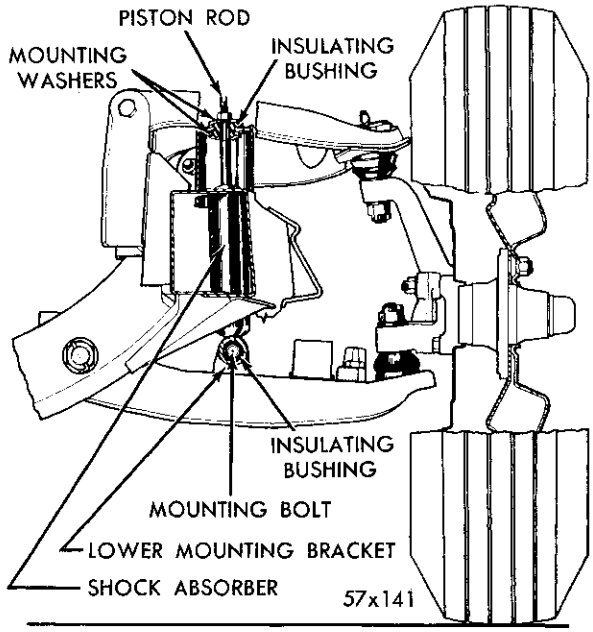


Fig. 11—Front Shock Absorber (Typical Installation)

(2) Compress the shock absorber by pushing the rod through the shock absorber support.

(3) Remove the lower mounting bolt and remove shock absorber.

(4) Using a suitable drift, force the steel sleeve out of the upper bushing.

(5) Remove bushing through frame opening and inspect for wear, damage or deterioration. If bushing is to be replaced, remove the lower mounting bushing from the shock absorber, using Tool C-3553 (Fig. 21).

b. Testing and Bleeding the Shock Absorber

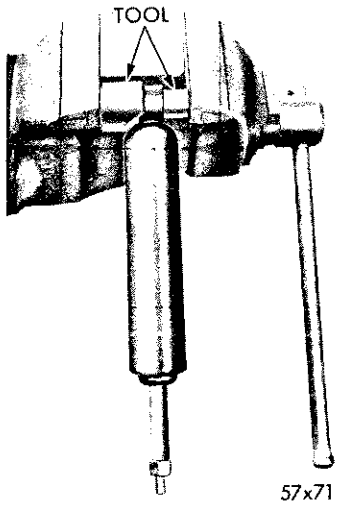


Fig. 12—Removing or Installing Shock Absorber Lower Bushing

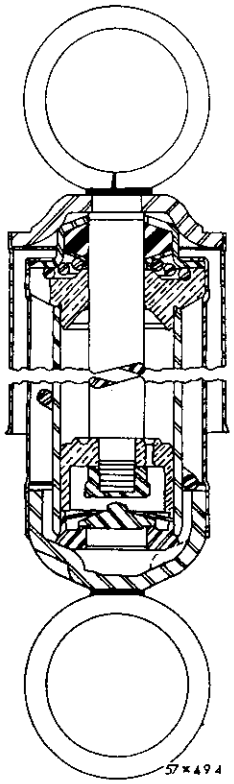


Fig. 13—Rear Shock Absorber (Sectional View)

Hold the shock absorber in an upright position with the dust shield section upward. Extend shock absorber to the maximum length and turn it upside down. Compress the shock absorber. Repeat this procedure to make sure all air is removed from the unit. Do not extend shock absorber when it is in the upside down or in a horizontal position, otherwise air will enter the cylinder tube.

A steady resistance should be felt when the shock absorber is extended or compressed. If no resistance is felt, replace the shock absorber.

c. Installation

(1) Install the upper bushing in the frame opening using a hammer and brass rod of suitable size. **Dip bushing in water to aid in installation.** When installed properly, the groove in the bushing will index with the opening in the shock absorber tower.

(2) Install the steel sleeve in the bushing.

(3) Using Tool C-3553 press the lower bushing into the shock absorber eye until it is centered. **Always press against the steel sleeve to avoid damage to the assembly.**

(4) Bleed the shock absorber, Paragraph 8, then compress to its shortest length.

(5) Install the lower cup washer (concave side up) on the rod and into position.

(6) Hold the shock absorber in the installed position in the frame. Slide the upper cup washer (concave side down) over piston rod and down onto the bushing. Install the nut finger tight.

(7) Position the lower end of shock absorber in the mounting bracket on the lower control arm, then install retaining bolt, lockwasher, and nut. Tighten to 55 foot-pounds torque. While holding the piston rod, tighten the piston rod nut to 35 foot-pounds torque or until the upper and lower washer bottoms against the core sleeve.

9. REAR SHOCK ABSORBER REPLACEMENT (Fig. 13)

(1) Remove the nuts and washers attaching the shock absorber to the mounting studs.

(2) Remove the shock absorber from the studs.

(3) Inspect the bushings for deterioration, damage, or wear. Install new bushings if necessary. Test and bleed the shock absorber as outlined in Paragraph 8.

(4) Position the shock absorber on the mounting studs and install the remaining cupped washers and nuts. Tighten the upper and lower stud nuts to 60 foot-pounds torque.