

GROUP 17
SPRINGS AND SHOCK ABSORBERS
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DATA AND SPECIFICATIONS

SPRINGS

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

SHOCK ABSORBERS

Type	Oriflow, Double Acting Hydraulic
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TIGHTENING REFERENCE

	Foot-Pounds
Rear Spring Front Pivot Bolt Nut	125
Rear Spring Shackle Nuts	40
Rear Spring "U" Bolt Nuts (SC-1 and SC-2)	55
(SC-3 and SY-1)	50
Shock Absorbers Mounting Nut (Rear)	60
(Front—Upper)	25
(Front—Lower)	55
Shock Absorbers Stud Nut—Lower	70
Upper	60

GROUP 17

SPRINGS AND SHOCK ABSORBERS

SERVICE PROCEDURES

SPRING MAINTENANCE

It is important that spring "U" bolts be inspected at regular intervals and kept tight to prevent spring breakage. Tighten the spring "U" bolt nuts 55 foot-pounds torque (SC-1 and SC-2) 50 foot-pounds torque (SC-3 and SY-1). The spring shackles should be inspected occasionally to make sure they are tight, but not binding. Tighten to 40 foot-pounds torque. No lubrication of any kind should be used on the rear springs or rubber bushings.

When measuring the rear spring heights, the vehicle should be placed on a level floor, have the correct front suspension height, the correct tire pressures, no passenger or luggage compartment load and a full tank of fuel.

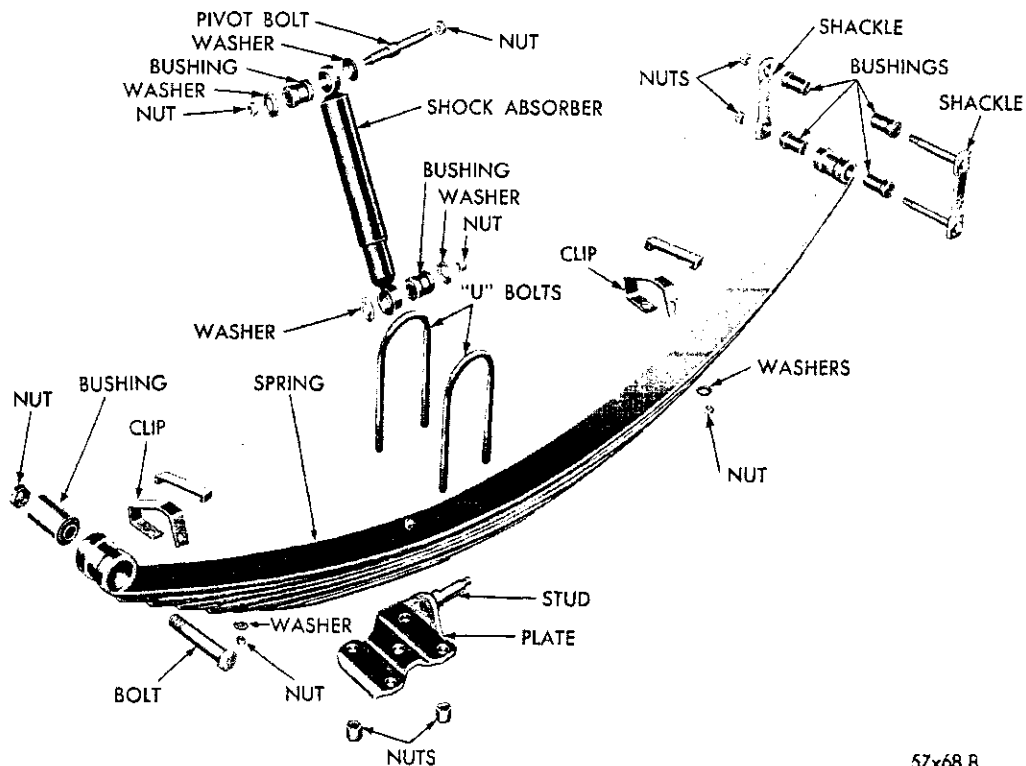
To measure the rear spring height:

(1) Jounce the car several times (rear bumper first). Release the bumpers at the same point in each cycle.

(2) Measure the shortest distance from the highest point on the underside of the rear axle bumper strap (at rear of bumper) to the top of the axle housing.

(3) Measure both right and left sides.

If these measurements vary by more than $\frac{3}{4}$ 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.



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

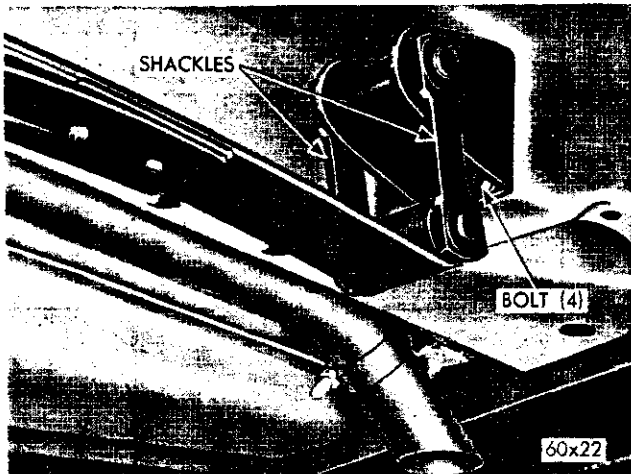


Fig. 2—Rear Spring Rear Hanger

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

REAR SPRING (Fig. 1)

a. Removal

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

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

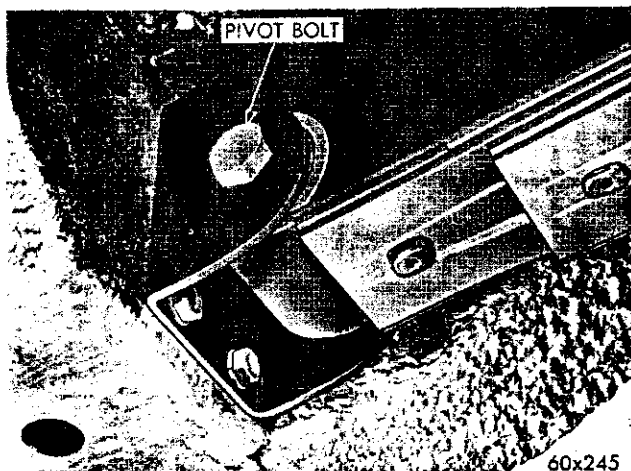


Fig. 3—Rear Spring Front Hanger

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 the spring.

b. Installation

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

(2) Install the spring shackles and nuts.

(3) Install the spring “U” bolts and nuts.

(4) Tighten the spring U-bolt nuts 55 foot-pounds torque (SC-1 and SC-2), 50 foot-pounds torque (SC-3 and SY-1), and shackle bolt nuts 40 foot-pounds torque.

(5) Connect the shock absorbers.

(6) Remove the vehicle floor stands and with the vehicle weight on the wheels, torque the silent block bolt to 125 foot-pounds torque.

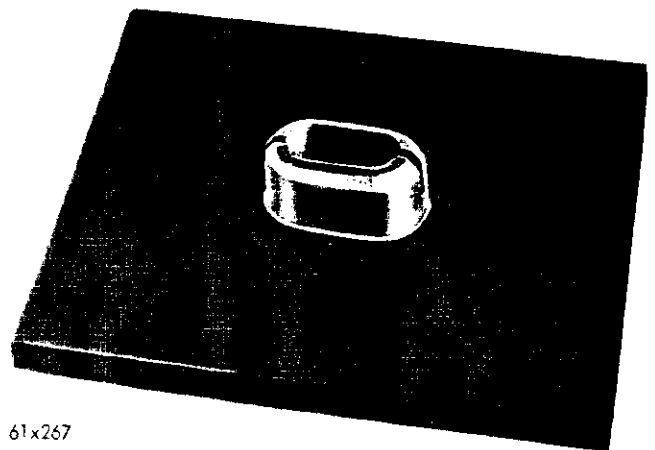


Fig. 4—Rear Spring Front Interliner

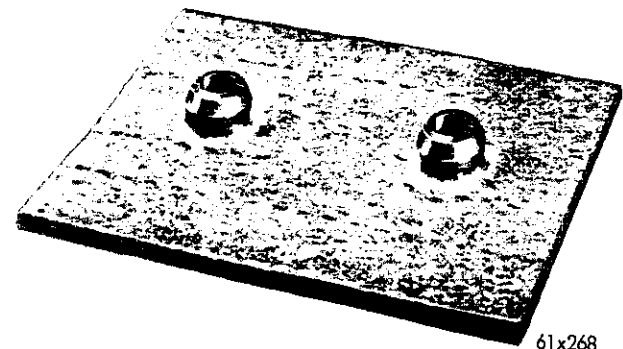
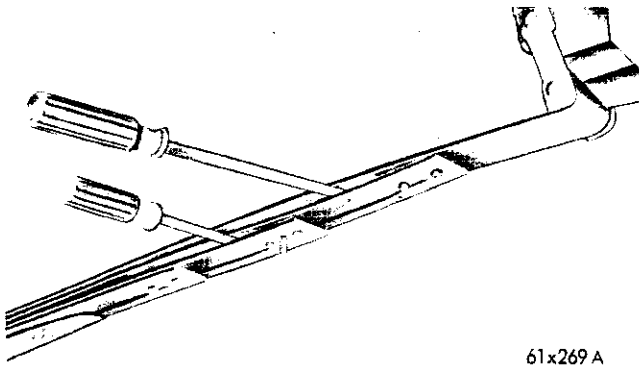


Fig. 5—Rear Spring Rear Interliner



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Fig. 6—Separating the Spring Leaves

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

REAR SPRING INTERLINERS (Figs. 4 and 5)

a. Removal

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

(2) Remove the alignment clips from the spring.

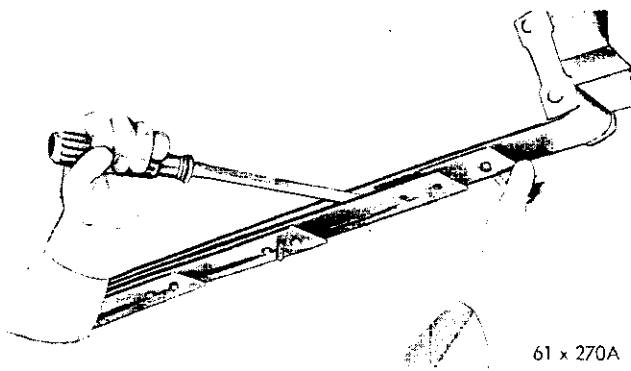
(3) Separate the spring leaves (Fig. 6) and remove the interliners.

b. Installation

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

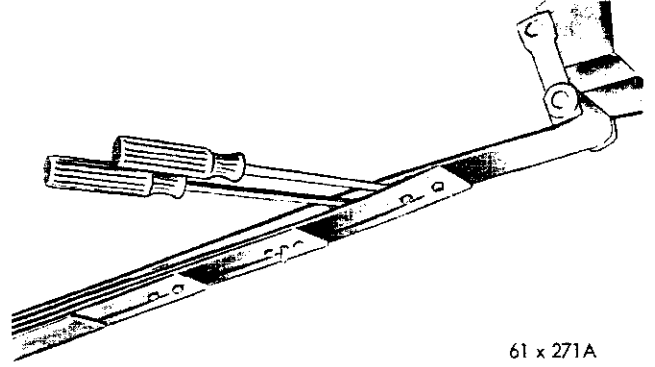
(2) Insert the interliner between the spring leaves (Fig. 7) until the fasteners are aligned with the holes.

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



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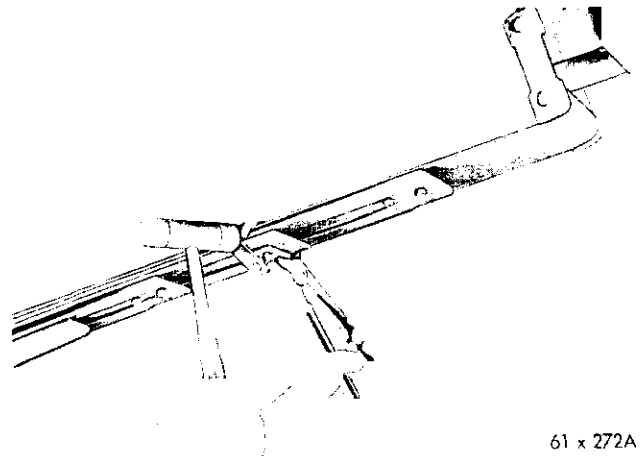
Fig. 7—Positioning the Interliner



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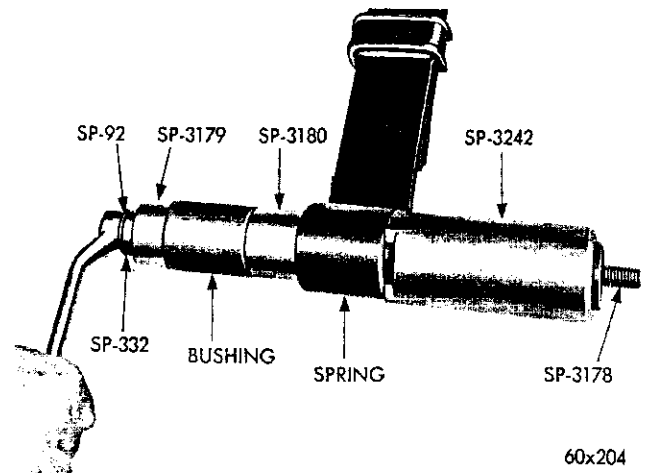
Fig. 8—Installing the Interliner Fastener

(4) Position the aligning clip (Fig. 9) and tighten the retainer nut. Do not lubricate rear springs. The interliners act as the friction control and receive no lubrication.



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Fig. 9—Positioning the Aligning Clips



60x204

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

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 adaptor 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 the tool after the new bushing has been correctly positioned.

SHOCK ABSORBERS

NOTE: 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.**

FRONT SHOCK ABSORBER AND/OR BUSHING**a. Removal**

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

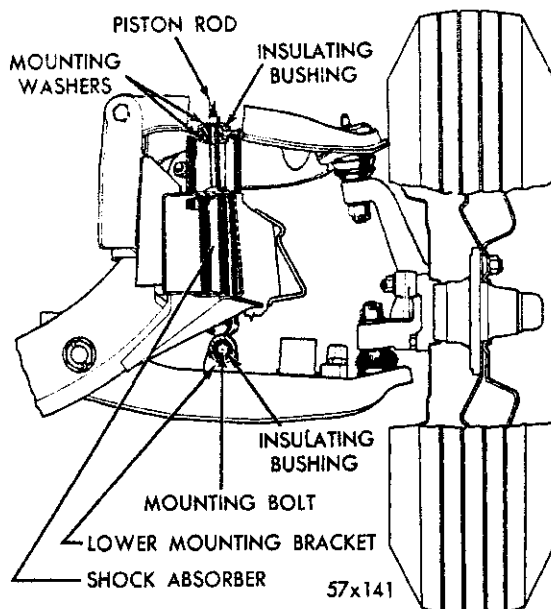


Fig. 11—Front Shock Absorber (Typical Installation)

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

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

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

(5) Remove the bushing through the 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. 12).

b. Testing and Bleeding the Shock absorber

Hold the shock absorber in an upright position with the dust shield section upward. Extend the shock absorber to the maximum length and turn it upside down. Compress the shock absorber. Repeat this

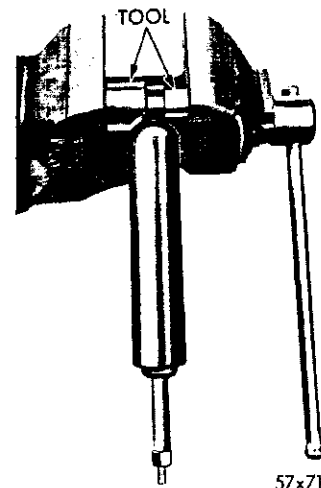


Fig. 12—Removing or Installing the Shock Absorber Lower Bushing

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 the 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 "Front Shock Absorber and/or Bushing" 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 the 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 25 foot-pounds torque after the upper and lower washers bottom against the core sleeve.

REAR SHOCK ABSORBER REPLACEMENT

(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 bushing for deterioration, damage, or wear. Install new bushings if necessary. Test and bleed the shock absorber as outlined in Paragraph "Front Shock Absorber and/or Bushing."

(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.

SERVICE DIAGNOSIS

Condition	Possible Cause	Correction
1. Springs Sag or Bottom	(a) Springs sagged or taken a set.	(a) Replace the spring.
	(b) Broken, bent or weak spring leaves.	(b) Replace the spring main leaf, or spring as necessary.
2. Spring Noise	(a) Loose "U" bolts.	(a) Tighten the "U" bolt nuts 55 foot-pounds torque (SC-1 and SC-2) 50 foot-pounds torque (SC-3 and SY-1).
	(b) Loose or worn shackle bushings.	(b) Replace the bushings and tighten shackle bolt nuts 40 foot-pounds torque.
	(c) Worn or missing interliners.	(c) Install new interliners.
3. Spring Breakage	(a) Loose "U" bolts	(a) Tighten the "U" bolt nuts 55 foot-pounds torque (SC-1 and SC-2), 50 foot-pounds torque (SC-3 or SY-1).
	(b) Shock absorber inoperative.	(b) Replace the spring and the shock absorber.
4. Strut Noise Cracking or Grunting Noise at Rear End of Imperial Models.	(a) Loose strut bushing bolt nut.	(a) Tighten the strut bushing bolt nut to 65 foot-pounds torque.
	(b) Faulty strut bushing.	(b) Install new bushing. Tighten bushing bolt nut to 65 foot-pounds torque.