SPRINGS

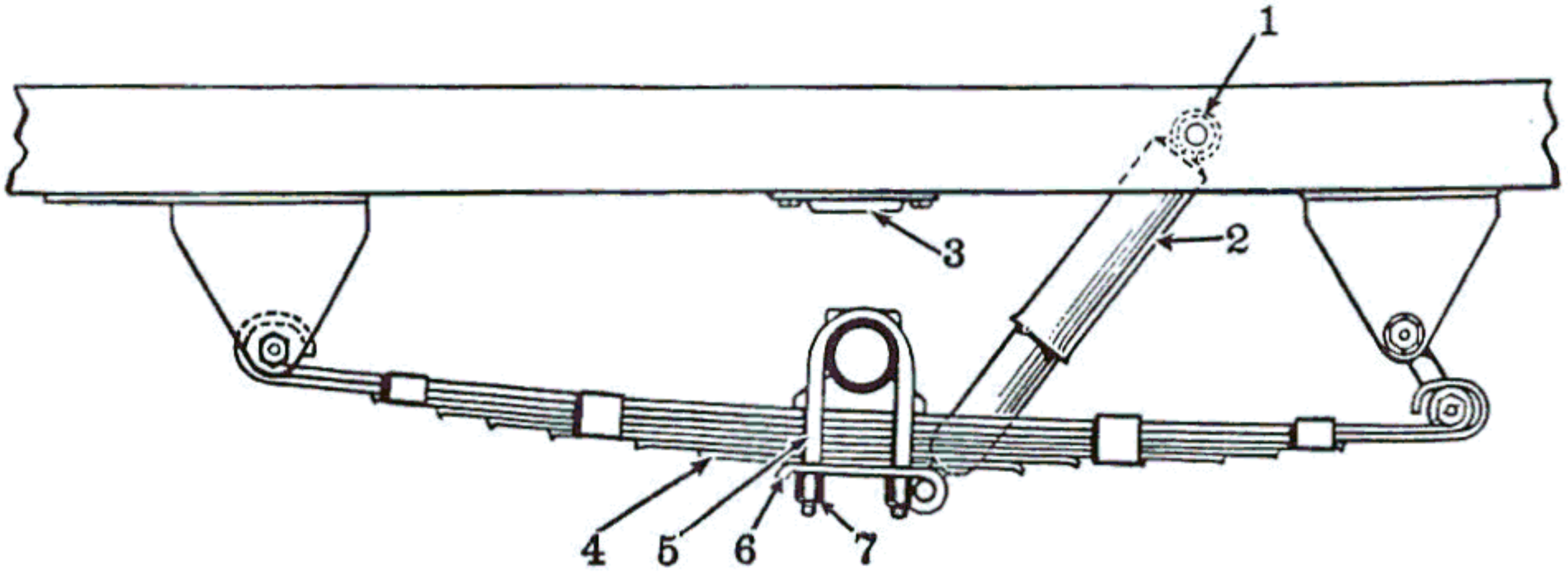


FIG. 16—SPRING AND SHOCK ABSORBER

Item No.	Gov't Group No.	Willys Part No.	Bantam Part No.	Name
1	1603	637936	R-10246	Shock Absorber Mounting Pin Bushing
2	1603	A-169	14297	Shock Absorber Assembly
3	1506	A-6377	14316	Axle Bumper
4	1601	A-612	14268	Spring
5	1000	A-6511	14257	Spring Clip (Axle to Spring)
6	1000	A-572	14332	Spring Clip Plate and Shaft Assembly—Right
7	1000	A-6508	14421	Spring Clip Nut

The specially designed springs used on this vehicle are constructed of chromium alloy steel to stand the severe service to which they may be subjected.

The springs Fig. 16 are the semi-elliptic type, 36¼" long and 1¾" wide. There are eight leaves in each spring with No. 2 leaf military wrapped over the eye of No. 1 leaf. The cross section of the leaves (except the shortest leaf) is so designed to equalize the stresses of spring action thereby minimizing spring breakage. The ends of the leaves are turned down to eliminate squeaks. Each spring is equipped with four rebound clips.

The spring requires a load of 525 lbs. for a 5/16" camber.

The front end of the spring is bronze bushed and is pivoted by a pivot bolt at frame bracket, flexible "U" shackles are used at the rear.

The spring saddles on axle are welded in place and springs are held in position through "U" bolts, using the spring center bolt inserted in spring saddle to prevent shifting of the axle.

Spring Shackles and Pivot Bolts

The spring shackles are of the "U" type, Fig. 17, with threaded core bushings using right and left hand threads, depending on which position they are to be used in the chassis.

The bushings are anchored solidly in frame bracket and spring eyes and the oscillation taken between the threads of the "U" shackle and the inner threads of the bushing.

There are three bushings used with right hand threads and one with left hand threads. The right hand threaded type bushing has a plain hexagon head. The left hand threaded bushing has a groove around the head and is used only in the right rear spring eye. This is to prevent the bushing from turning out due to the load and spring action.

The left hand threaded "U" shackle can be identified by a forged boss on the lower shank of the shackle.

The "U" shackles are installed so that the bushing hexagon heads are to the outside of the frame. When making installation of a new "U" shackle or shackle bushing the following procedure should be followed:

Install shackle grease seal and retainer over threaded end of shackle up to the shoulder. Insert new shackle through frame bracket and eye of spring. Holding "U" shackle tightly against frame, start upper bushing on shackle, care being taken when it enters the thread in the frame that it is not cross threaded. Screw up about halfway, and then start lower bushing holding shackle tightly against spring eye and thread bushing in approximately half way, then alternating from top bushing to lower bushing turn them in until the head of the bushing is snugly against the frame bracket, and the bushing in spring eye is 1/32" away from spring measured from inside of hexagon head to spring.

Lubricate the bushings with chassis lubricant and then try the flex of the shackle, which should be free. If shackle is tight it will be detrimental to the bushings as well as to the spring and it will be necessary to re-thread the bushing on shackle.

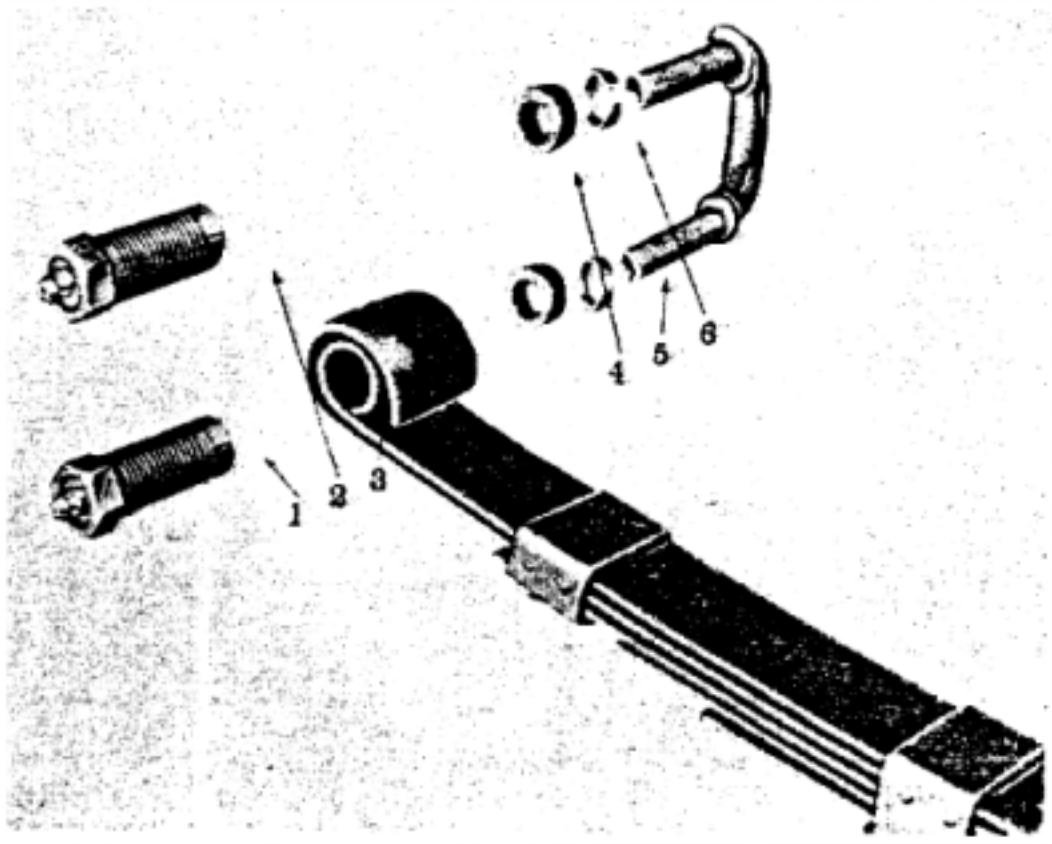


FIG. 17—SPRING SHACKLE—RIGHT SPRING

Item No.	Gov't Group No.	Willys Part No.	Bantam Part No.	Name
1	1602	635532	14315	Spring Shackle Bushing Assembly (L. H. thread)
2	1602	634432	14314	Spring Shackle Bushing Assembly (R.H. thread)
3	1601	A-612	14268	Spring Assembly
4	1602	A-515	14408	Spring Shackle Grease Seal
5	1602	A-513	14313	Spring Shackle U-Bolt (L.H. thread)
6	1602	A-1252	14409	Spring Shackle Grease Seal Retainer

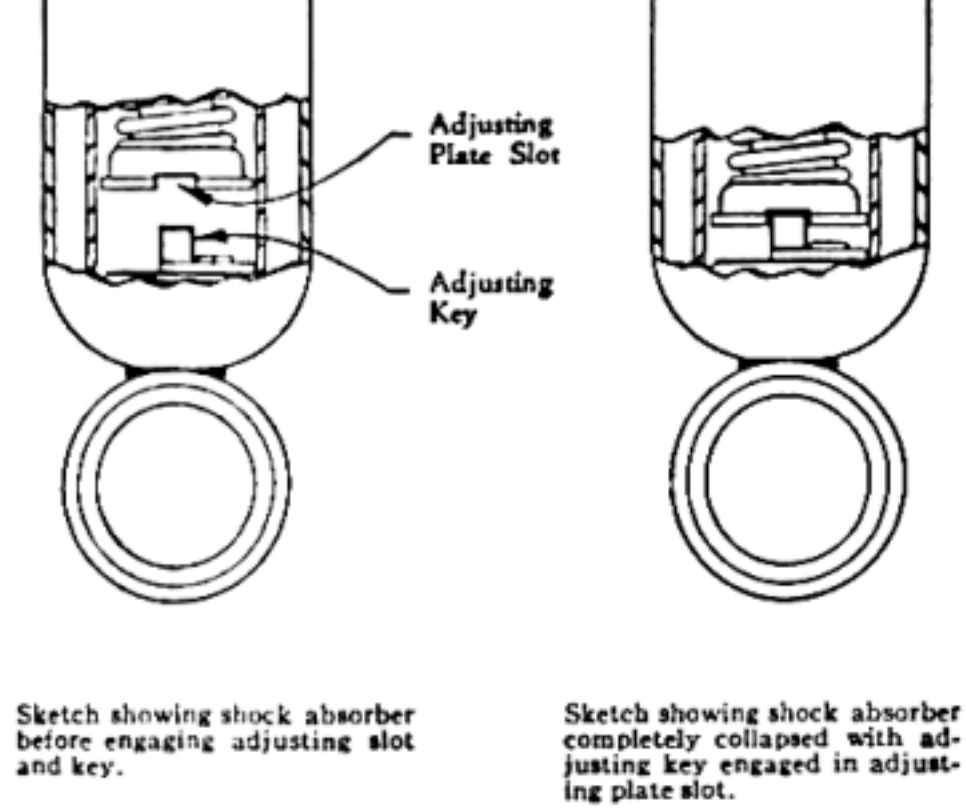
Remove and Replace Spring

To remove a spring raise the vehicle, then place two stand jacks under frame side rail, adjusted to a distance so that the load is relieved on the spring and yet the wheel still rests on the floor, remove the four axle "U" bolt nuts and lock washers. Remove spring plate. Lower jack at side rail so that the spring is free from axle.

Remove spring front bolt nut and drive out bolt from spring bracket and bushing Fig. 18.

Remove bushing from "U" shackle.

To install spring, replace front bolt first and then the "U" shackle bushing. Raise jack and place center bolt in spring saddle and install "U" bolts and nuts. "U" bolt nut, torque wrench reading, 50-55 ft. lbs.: Spring front bolt nut, 27-30 ft. lb.



Sketch showing shock absorber before engaging adjusting slot and key.

Sketch showing shock absorber completely collapsed with adjusting key engaged in adjusting plate slot.

FIG. 19—SHOCK ABSORBER

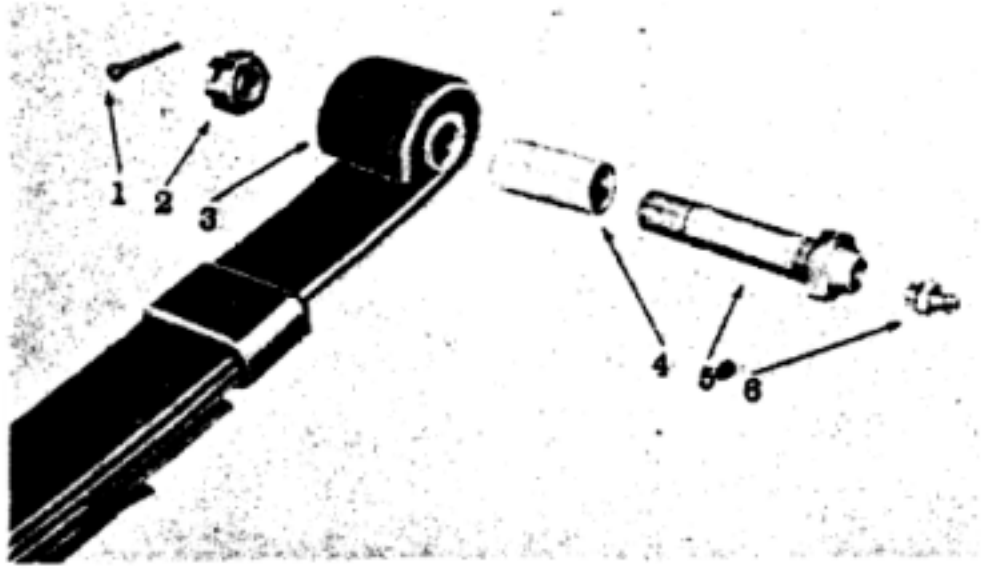


FIG. 18—SPRING BOLT

Item No.	Gov't Group No.	Willys Part No.	Bantam Part No.	Name
1	1506	5021	115x33	Cotter Pin
2	1602	53043	33x81-R	Spring Bolt Nut
3	1601	A-612	14268	Spring Assembly
4	1601	359039	14383	Spring Bolt Bushing
5	1602	384228	14270	Spring Bolt
6	1602	392909	14338	Grease Fittings

Shock Absorbers

The shock absorbers, Fig. 19 dampen the spring action as the vehicle passes over irregularities in the road.

The shock absorbers are the direct action type, two-way control and adjustable. The range of adjustment is four turns. To adjust the shock absorber, remove the lower end from the spring plate, push the unit together to engage the adjusting key and turn in a clockwise direction until the limit of the adjustment is reached. Holding adjusting key in slot, turn lower end anti-clockwise two turns. This is the average adjustment. Turning the adjustment to the right, or clockwise, gives a firmer control for rough roads, while turning in the opposite direction gives a softer control, allowing faster spring action.

The shock absorber is sealed at the factory with the proper amount of fluid and is non-refillable.

SPRING AND SHOCK ABSORBER TROUBLES AND REMEDIES

SYMPTOMS	PROBABLE CAUSE AND REMEDY
Breakage—At center Bolt	Spring to Axle Clip Nuts Loose—Tighten
Main Leaf Breakage on Ends	Tight Shackle or Pivot Bolt—Free Up Shock Absorber Control Weak—Adjust No Shock Absorber Control—Replace Springs Lubricated—Discontinue
Excessive Wear on Shackle Bushings	Inside Spring Eye Opened Up—Repair or Replace Leaf Bushing Improperly Installed—Re-install Lack of Lubrication—Periodically Lubricate Worn Bushings—Replace
Shock Absorber Noise	Lack of fluid—Replace Shock Absorber Damaged Cylinder—Replace Shock Absorber Loose Mounting Brackets—Reweld Mounting rubber bushings—Replace
Shock Absorber Control	Adjust Lack of Fluid —Replace shocks

SPRING SPECIFICATIONS

Spring

Make	Mather
Type Leaf	Parabolic Cross Section
Length Center to Center of Eye	36¼″
Width	1¾″
Number of Leaves	8
Front Eye Center to Center Bolt	18⅛″
Rear Eye Center to Center Bolt	18⅛″
Camber under 525 lbs.	5/16″
Eye Bushing	1¾″ long I.D., .5655″
Rebound Clips	4

Shock Absorber

Make	Gabriel
Type	Hydraulic
Action	Double
Length Compressed	10 7/16″
Length Extended	16⅛″
Adjustable	Yes
Mountings	Rubber