

SECTION K

THE FRONT SUSPENSION

General Description and Maintenance.

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GENERAL DESCRIPTION

The independent front suspension comprises torsion bars splined into arms attached to the lower ends of the swivel pins ; at the rear, both torsion bars are splined into a bracket bolted to the frame.

Tubular telescopic dampers are mounted on the lower suspension arm at the bottom and to the frame at the top.

Rubber bushes are used in the pivots at each end of the upper and lower suspension arms and at each end of the tie-bar from lower arm to frame.

MAINTENANCE

See Sections P.7 and L.

Section K.1

REMOVING A TORSION BAR

Raise the front of the car and place supports under the chassis frame side-members ; remove the front wheels. It is necessary to relieve the torsion bars of all load before attempting their removal ; if necessary a jack should be used below the swivel pin to take the weight of the hub, drum and suspension assembly, after the upper link bolt has been removed and the

damper disconnected at the bottom attachment. The outer end of the tie-rod must also be disconnected, by removing the split pin and nut, and withdrawing the ball-end out of its taper.

Take out the set screw and remove the retaining plate from the rear end of the torsion bar.

The torsion bar can now be withdrawn rearwards, using the special tool No. AJA.5059. (See Section Q.)

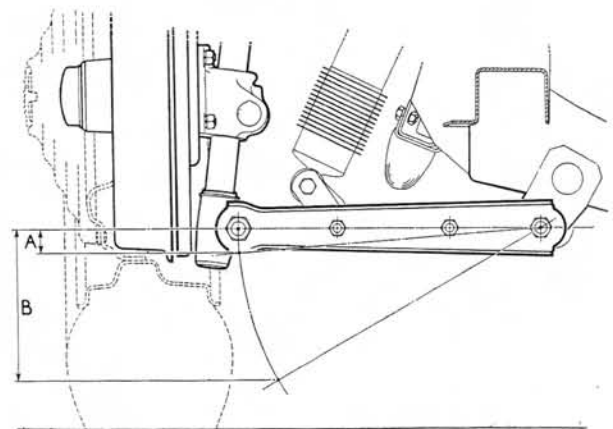


Fig. K.1.
Front suspension setting showing the dimensions referred to in Section K.2 : "A" in showroom trim ; " B " in the "NO LOAD" position.

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Section K.2

ADJUSTING TRIM AND FITTING A TORSION BAR

A torsion bar that has been fitted and used on one side of the car *must not* be transferred for use on the other side. Torsion bars are only interchangeable when new as they become handed when they have once been in service.

There are 48 splines on the front end and 52 on the rear end of each torsion bar, enabling the trim of the car to be finely set.

Before trimming the car or fitting a new torsion bar, it should be run onto level ground and all subsequent vertical measurements must be taken from a horizontal flat plate.

If the front end of the car appears to be down at one side or the other, measure the vertical heights of the inner and outer pivot pin centres of the lower suspension arm. With the car in showroom trim the inner pivot pin centres should be 1 in. (25.4 mm.) above the outer pivot pin centres. If adjustment is required it will be necessary to remove the bar or bars and replace in different splines.

To raise or lower one side of the car or to fit a new torsion bar proceed as follows :—

Jack up the car and remove the torsion bar as detailed in Section K.1.

Set the lower suspension arm to the free position, i.e. with the centre of the bolt at the outer end of the arm $6\frac{5}{16}$ in. (160.34 mm.) below the level of the centre of the inner bolt. (See General Data.)

Fit the torsion bar by presenting it to the hubs until the splines at the front and rear are in perfect alignment, then drive it into position, using a brass drift to avoid damage to the retaining groove in the bar.

Check that the lower arm is still in the correct position. (See General Data.)

Jack up the bottom arm and reassemble in the reverse order of dismantling.

Bounce the front of the car to settle the rubbers. The centre of the lower suspension arm inner bolt should now be 1 in. (25.4 mm.) higher than that of the outer bolt.

Check the track and reset as necessary.

Section K.3

REMOVING A DAMPER

There is no need to jack up the car or to remove the wheel.

Unscrew the locknut and retaining nut at the top of the damper ; remove the washer and rubber mounting.

Remove the lower mounting bolt and slacken the bolt securing the rear mounting link to the lower suspension arm. Swing the free plate of the lower mounting to one side and withdraw the damper.

To replace, reverse the above sequence of operations.

Section K.4

REMOVING AND REFITTING A SWIVEL PIN ASSEMBLY

Jack up the car and place supports below the chassis frame side-member.

Remove the wheel.

Disconnect the brake hose at the union. (See Section M.9.)

Extract the split pin and disconnect the steering ball joint.

Unscrew the nut and remove the lower outer pivot bolt; slacken the two bolts holding the front and rear members of the lower suspension arm together ; slightly spread the two arms and withdraw the lower end of the swivel pin assembly.

Remove the bolts securing the two upper suspension arm members.

Unscrew the nut and push out the upper pivot bolt ; withdraw the swivel pin, brake-drum and hub assembly.

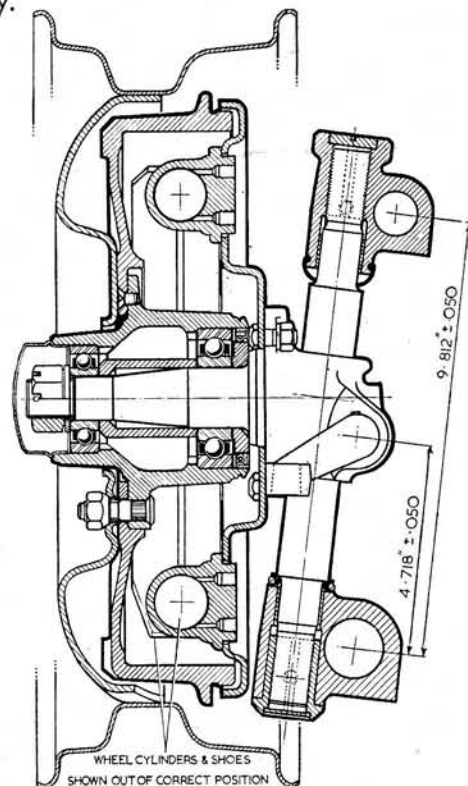


Fig. K.2.

A^csection through the hub and swivel pin assembly.

When refitting, make sure that the rubber bushes are correctly located ; tighten the pivot bolts finally with the car resting on the wheels in the static position to avoid damage to the rubber bushes in use.

Bleed the brakes.

Section K.5

DISMANTLING AND REASSEMBLING A SWIVEL PIN ASSEMBLY

Remove the swivel pin assembly as detailed in the previous section.

Remove the hub as detailed in Section K.6.

Remove the brake-shoes as detailed in Section M.6 ; unscrew the nuts and remove the back-plate.

Screw off the upper and lower trunnions; these have left- or right-hand threads.

Remove the nut and push the steering arm from its tapered hole in the steering knuckle ; note the key.

To reassemble, reverse the above sequence of operations.

Screw the trunnions as far as they will go by hand and then screw them back approximately one turn. See Fig. K.2 for dimensions.

If the rubber seals are ineffective or damaged, replace them with new ones.

Section K.6

DISMANTLING AND ASSEMBLING A HUB

Remove the wheel.

Prise off the grease cap.

Extract the split pin and unscrew the castellated nut.

Pull off the hub with the special tool, Part No. AJA.5019.

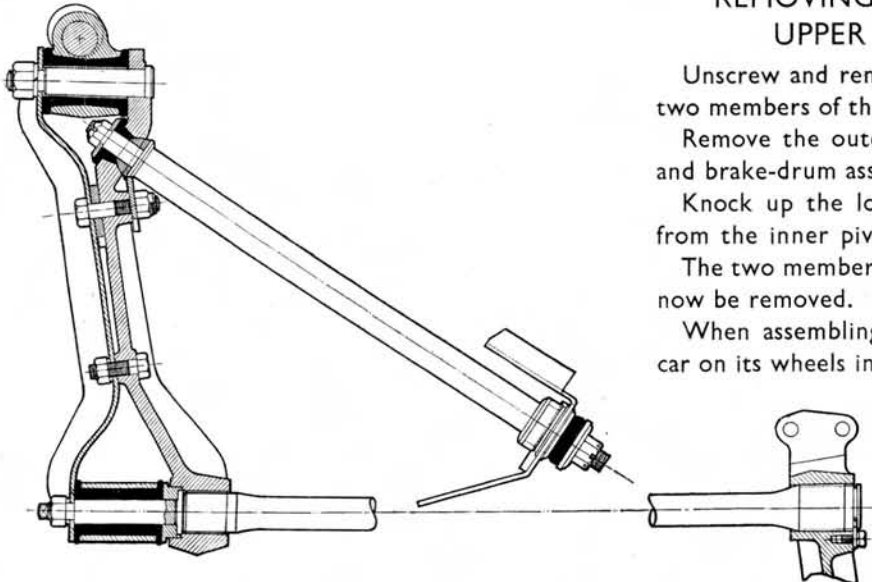


Fig. K.3.
The layout of the front suspension showing the assembly of a torsion bar and tie-rod.

Knock out the bearings and remove the spacer ; do not disturb the oil seal unless it needs replacing.

When refitting the bearings, make sure that they are hard against their housings ; fully tighten the nut and fit a new split pin.

Section K.7

REMOVING AND REPLACING A LOWER SUSPENSION ARM

Front. Remove the nut and spring washer from the inner and outer pivot bolts and from the inner one of the two bolts clamping front and rear arms together ; remove the self-locking nut from the remaining bolt. Disconnect the shock absorber lower mounting. The front arm can now be removed.

Rear. Remove the torsion bar as detailed in Section K.1.

Extract the split pin and remove the nut from the front end of the tie-bar.

Remove the outer pivot pin and support the hub assembly so that its weight is not taken on the brake hose. Remove the two bolts from the centre portion of the suspension arm.

Disconnect the shock absorber lower mounting.

The rear member of the lower suspension arm may now be removed.

Reassemble by reversing the above sequence of operations, but do not finally tighten the pivot pins and tie-bar nut until the car is standing on its wheels, to prevent undue stress on the rubber bushes in service.

Section K.8

REMOVING AND REPLACING AN UPPER SUSPENSION ARM

Unscrew and remove the two bolts connecting the two members of the upper arm.

Remove the outer pivot pin and support the hub and brake-drum assembly.

Knock up the locking tabs and unscrew the nuts from the inner pivot pin.

The two members of the upper suspension arm may now be removed.

When assembling, tighten the pivot pins with the car on its wheels in the static position.

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Section K.9

REPLACING A FRONT SUSPENSION PIVOT PIN

Remove the damaged pivot pin by carefully chiselling; also remove the shaded portion (1, Fig. K.4) of the bump rubber support bracket, finally cutting along line "B" (Fig. K.4) and grinding off surplus weld.

Note.—Take great care not to damage the pivot bracket while chiselling.

Retain the removed portion of the bump rubber support bracket for refitting when welding in the new pin.

Assemble the new pivot pin assembly by feeding in from the rear of the bracket, making sure that the 2 in. dimension (3, Fig. K.4) is obtainable from the cup depression to the shoulder on the pin. Tack-weld the cup as shown (4, Fig. K.4) to secure it while welding.

Use a fitting bar of 1.372/1.370 in. diameter in the torsion bar tube to check the height at front and rear end of the pivot pin (2, Fig. K.4).

Complete the fixture of the pin by welding around the inside faces of the bracket and the outside diameter of the washer.

Chamfer the edges of the cut "B" (5, Fig. K.4) to take the weld.

Replace the chiselled-out portion of the bump rubber support bracket in position and tack-weld at each end

of the cut "B." Check the alignment and centres of the bump rubber support bracket and the location of the top edge of the bracket to pin.

Finally weld the bracket in position and weld cut "B." Grind off surplus metal at this line to a flat surface for the bump rubber mounting.

Section K.10

MODIFIED UPPER SUSPENSION ARMS

Modified front suspension upper arms are introduced from Chassis No. 4083 to ensure the correct amount of wheel camber. On these the distance between the bush centres is increased from $8\frac{1}{16}$ in. (204.78 mm.) to $8\frac{3}{16}$ in. (207.96 mm.).

The links are interchangeable in sets only.

Section K.11

REMOVING A TORSION BAR FROM CARS WITH A GEARBOX VERTICAL STEADY

On later cars fitted with the gearbox vertical steady, it is necessary to remove the steady cross-member and the exhaust pipe to clutch housing bracket before removing a torsion bar.

The torsion bar may then be removed as detailed in Section K.1.

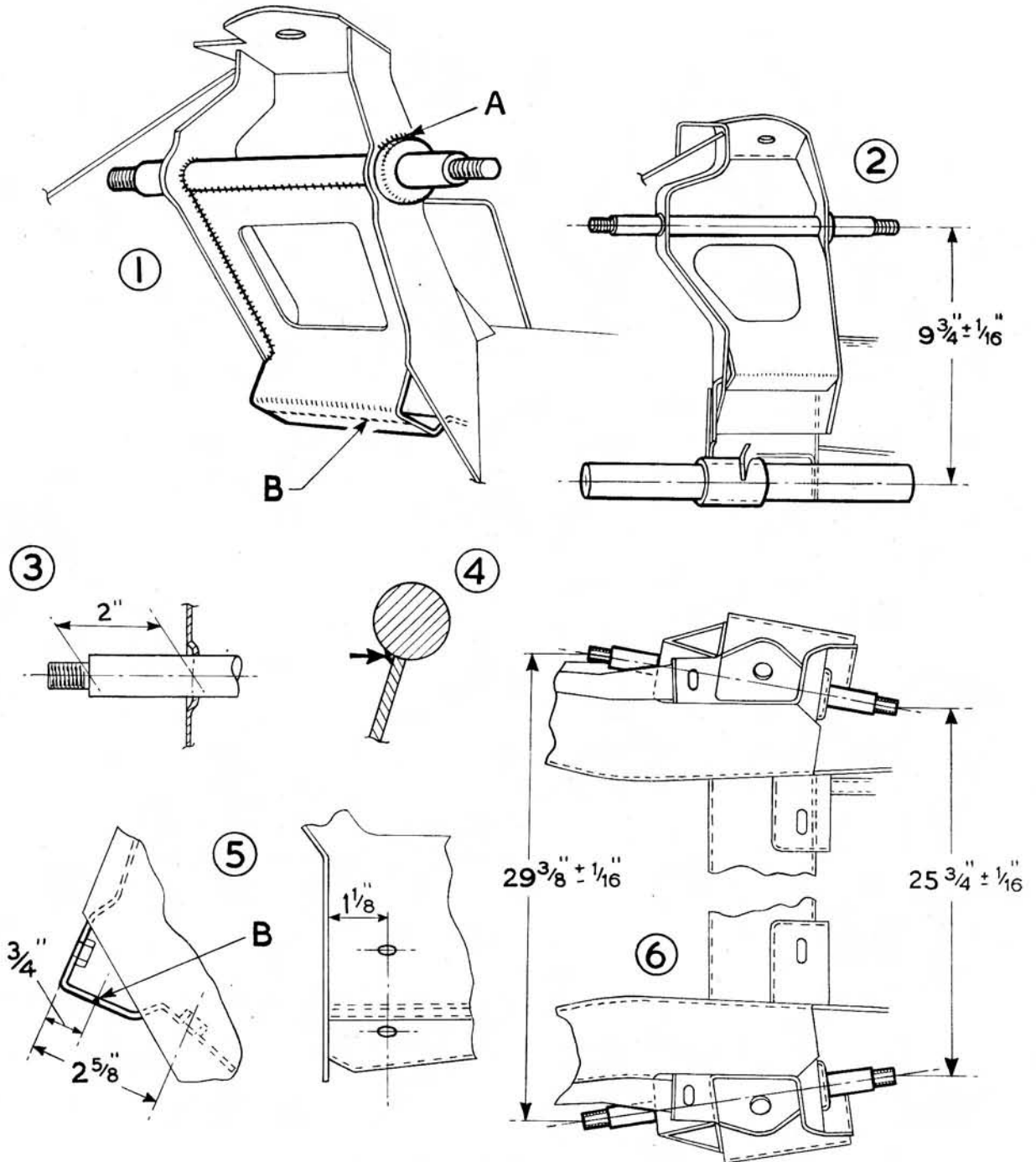


Fig. K.4.
Illustrating instructions in Section K.9.