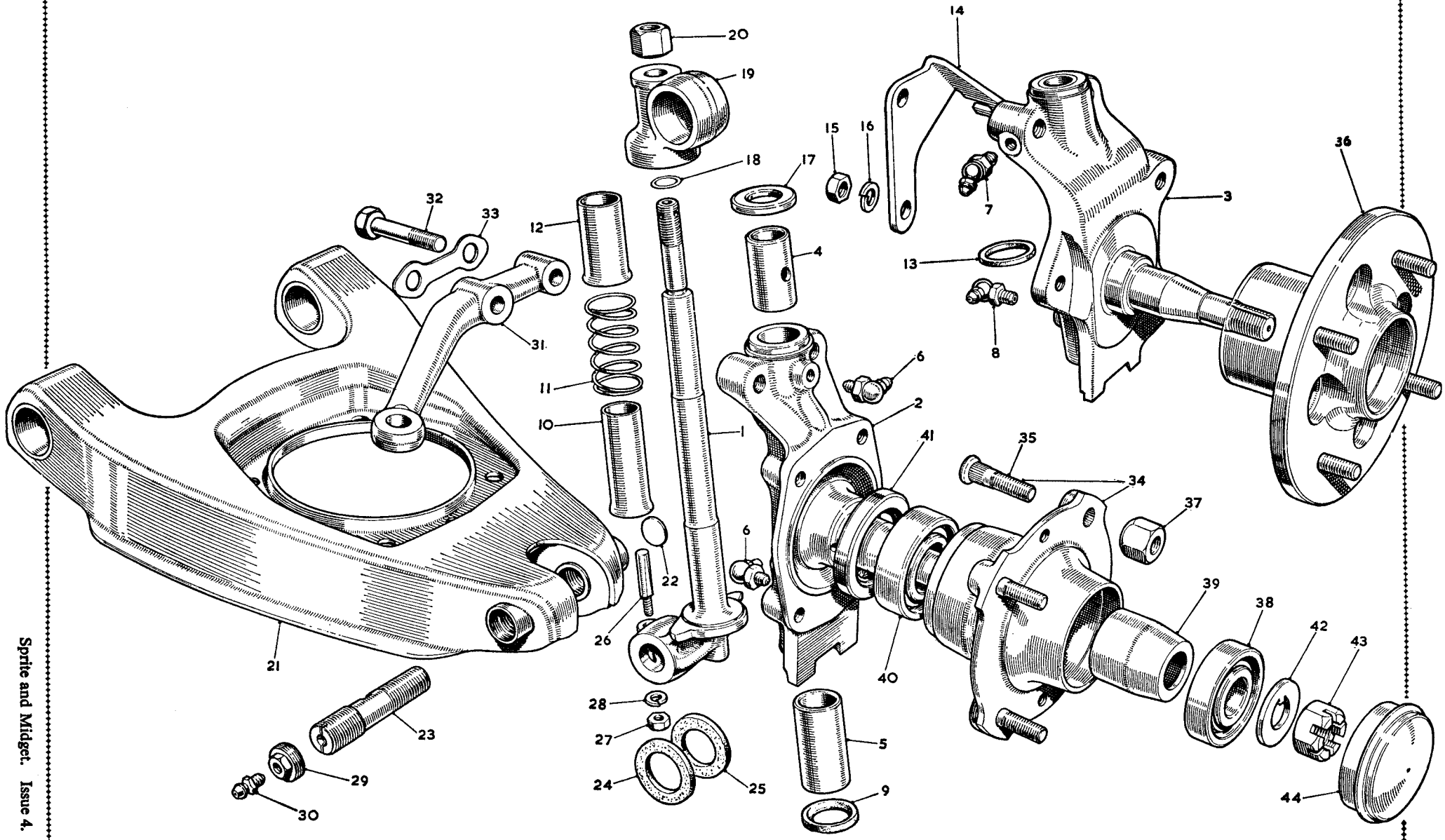
# SECTION K

## THE FRONT SUSPENSION

# THE FRONT SUSPENSION COMPONENTS



## KEY TO THE FRONT SUSPENSION COMPONENTS

| *No.* | *Description* |
|---|---|
| 1. | Swivel pin. |
| 2. | Swivel axle assembly. |
| 3. | Swivel axle assembly. |
| 4. | Bush (top). |
| 5. | Bush (bottom). |
| 6. | Lubricator. |
| 7. | Lubricator. |
| 8. | Lubricator. |
| 9. | Sealing ring. |
| 10. | Dust excluder tube (bottom). |
| 11. | Dust excluder spring. |
| 12. | Dust excluder tube (top). |
| 13. | Sealing ring. |
| 14. | Brake hose lock plate. |
| 15. | Nut. |
| 16. | Spring washer. |
| 17. | Thrust washer. |
| 18. | Adjustment washer. |
| 19. | Suspension trunnion link. |
| 20. | Nut. |
| 21. | Lower link. |
| 22. | Plug. |
| 23. | Fulcrum pin. |
| 24. | Ring (large). |
| 25. | Ring (small). |
| 26. | Cotter pin. |
| 27. | Nut. |
| 28. | Spring washer. |
| 29. | Screwed plug. |
| 30. | Lubricator. |
| 31. | Steering lever. |
| 32. | Set screw. |
| 33. | Lock washer. |
| 34. | Hub assembly. |
| 35. | Wheel stud. |
| 36. | Hub assembly. |
| 37. | Nut. |
| 38. | Outer hub bearing. |
| 39. | Bearing distance piece. |
| 40. | Inner hub bearing. |
| 41. | Oil seal. |
| 42. | Retaining washer. |
| 43. | Nut. |
| 44. | Cap. |

### GENERAL DESCRIPTION

The independent suspension is of the 'wishbone' type. It consists of a single-armed, double-acting hydraulic damper bolted to its support bracket at its upper end. The single arm is towards the front of the car and is secured to the swivel pin trunnion link by a fulcrum pin

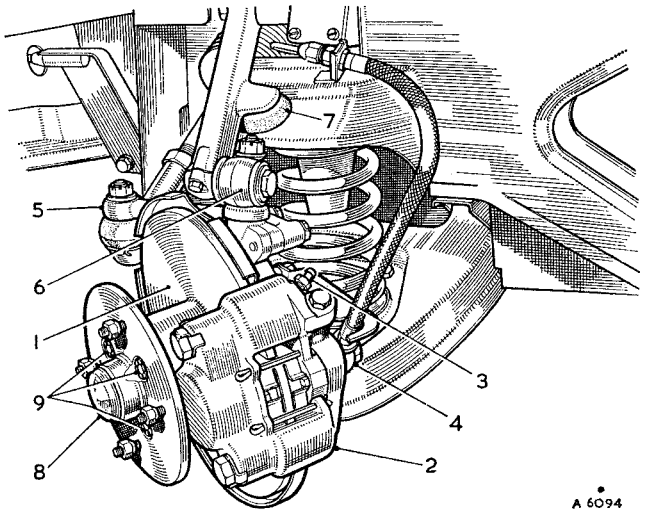



*Fig. K.1*

*Front suspension (later cars)*

1. Brake disc.
2. Calliper assembly.
3. Bleeder screw.
4. Calliper fluid connector.
5. Steering lever.
6. Suspension trunnion link.
7. Rebound buffer.
8. Retaining cap.
9. Brake disc to hub securing bolts.

and Metalastik rubber bushes. The bottom end of the swivel pin is secured to the outer end of the lower links by a fulcrum which is cottered in position.

The inner arms of the lower links are fixed to brackets by Metalastik rubber bushes and fulcrum pins.

A rebound buffer is fitted to the bottom of the coil spring top bracket and a smaller rebound buffer under the damper arm.

A spring seat is secured to the lower links by bolts, flat washers, and self-locking nuts.

An anti-roll bar, mounted on the body underframe and connected to the suspension lower links, is fitted to later cars.

## Section K.1

### LUBRICATION

A lubricating gun filled with lubricant should be applied to each of the eight nipples and three or four strokes given at regular intervals. Nipples are provided on both lower arm joints where they meet the swivel axle housings and on the two tie-rod ball joints. There are two nipples on each swivel axle pin which are best lubricated when the weight of the car has been taken off the suspension with a jack or sling. This will allow the lubricant to penetrate around the bushes more effectively.

## Section K.2

### CASTOR, CAMBER, AND SWIVEL PIN ANGLES

The castor and camber angles and the swivel pin inclination are determined by machining and assembly of the components during manufacture, and are not adjustable.

Should the car suffer damage to the suspension, the angles (as given in **'GENERAL DATA'**) must be verified with a camber, castor, and swivel pin inclination gauge and new parts fitted as found necessary.

## Section K.3

### FRONT SUSPENSION ASSEMBLY

**Removing**

Raise the car and remove the wheel and coil spring (see Section K.4). Disconnect the steering side-tube from the steering-arm by withdrawing the split pin and removing the slotted nut. If the ball pin shank is tight in the steering-arm release the nut, but do not remove. Sharply tap the steering-arm at the side-tube end, when it will be found to come away quite easily on removing the nut. Disconnect the flexible hose. Withdraw the split pins, remove the nuts, tap the fulcrum pins through the lower link inner ends, and take away the two rubber bushes at the outer ends of the lower link inner brackets. Remove the bolts and nuts to release the anti-roll bar link bracket (later cars only) from the suspension lower link. The lower end of the suspension is now free.

At the upper end remove the clamp bolt and shakeproof washer in the hydraulic damper arm, withdraw the split pin, and release the slotted nut on the fulcrum pin. Tap off the fulcrum pin and retrieve the rubber bushes. The suspension unit is now free and can be lifted away.

**Dismantling**

Secure the suspension by clamping the web of the lower links between a dummy baseplate at the bottom and a solid metal disc and bolt at the top.

Remove the drum securing screw and withdraw the brake-drum (early cars). Remove the hub assembly as described in Section K.5 or K.6.

Detach the backplate by removing its securing bolts and washers.

Tap back the lock washers and remove the set screws to release the steering lever.

Extract the split pin and remove the slotted nut at the top of the swivel axle pin. Remove the trunnion and preserve the shims for use during assembly. Lift off the phosphor-bronze Oilite thrust washer and the swivel axle along with the dust excluder tubes and their spring, and the bevelled cork sealing ring at the bottom of the swivel axle pin.

Release the lower trunnion swivel pin cotter nut and knock the cotter loose. Remove the nut, spring washer, and cotter. Screw out the swivel pin lower trunnion oil nipple and its housing, which also serves to plug the lower trunnion.

Unscrew the swivel pin lower trunnion fulcrum pin, remove the swivel pin and cork sealing washers, and knock out the welch plug.

**Reassembling**

Reverse the sequence of operations detailed for dismantling, but note the following point. Place the phosphor-bronze thrust washer over the swivel axle. Put a ·008 in. shim (·008 in. [·2 mm.] and ·012 in. [·3 mm.] shims available) onto the swivel pin, followed by the trunnion with its bore towards the hub when it is fitted. Tighten the slotted nut. Resistance should be just felt when the swivel axle is moved from lock to lock and there should be no vertical movement of the swivel axle. Increase the thickness of the shims to loosen and decrease to tighten as required.

**Refitting**

Wet the spring rebound bumper and push it into its hole in the bottom of the hydraulic damper mounting plate, and the hydraulic damper arm rebound buffer in the top. Wet two of the large rubber bearings and position one from inside each lower link. Lift the two arms into position, insert the fulcrum pin from the inner end so that its washer registers, position the two remaining rubber bearings from outside the lower links, locate the special washer, tighten the slotted nuts, and insert and turn back the split pins.

With the block still under the hydraulic damper arm proceed to connect the top end.

Insert the two small rubber bearings in the upper trunnion eye, tap the fulcrum pin from the rear to go through the bearings and damper arm, and see that the notch in the fulcrum pin is to the top. Tighten the slotted nut till the notch is in line with the clamp bolt hole in the damper arm, split-pin the slotted nut, and tighten the clamp bolt onto its shakeproof washer.

Refit the coil spring (Section K.4). Replace the wheel and lower the car. The block can now be removed from under the hydraulic damper arm.

## Section K.4

### COIL SPRINGS

**Removing**

Place a hardwood or metal block 1·125 in. (28·57 mm). long under the hydraulic damper arm to keep the arm

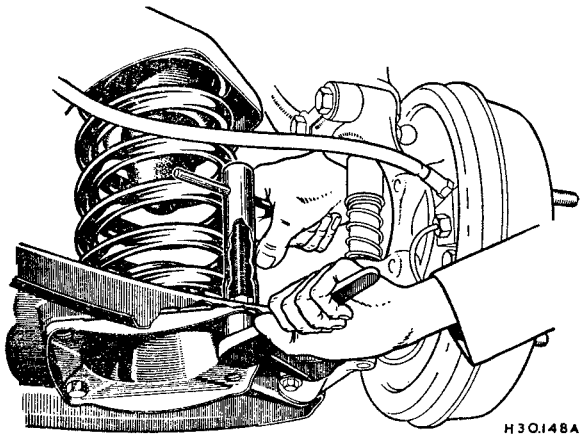



*Fig. K.2*

*Using a pair of slave bolts to remove or replace a coil spring*

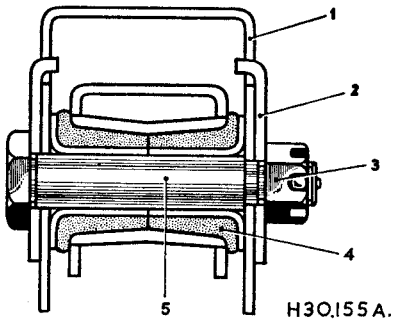



*Fig. K.3*

*Lower link mounting (inner end)*

1. Mounting bracket.
2. Special washer.
3. Slotted nut.
4. Rubber bush (bearing).
5. Fulcrum pin.

off its rubber rebound buffer when the car is in a raised position. With the vehicle raised to a workable height remove two diametrically opposite spring seat securing nuts and bolts. Using Service tool 18G 153 (or two slave bolts), compress the spring. Remove the remaining nuts and bolts from the spring seat and release the centre screw of the Service tool to allow the spring to expand.

Check the spring length against the figure given in **'GENERAL DATA'**, if not within the limits given, the spring must be renewed.

**Refitting**

Reverse the removal procedure when refitting, with attention being given to inserting two guide rods in diametrically opposite holes to bring the spring seat and wishbone lower links into line when in the process of compressing the spring.

## Section K.5

### FRONT HUBS
### (Early Cars)

**Removing**

Raise the car and remove the wheel. Remove the brake-drum securing screw from the countersunk hole and withdraw the drum.

Remove the hub cap by levering with a screwdriver. Wipe away any excess grease and extract the split pin. Remove the slotted nut and washer. Withdraw the complete hub assembly from the swivel axle, using tool 18G 304 Z and adaptor 18G 304 F.

Should the inner bearing remain on the swivel axle, it should be carefully extracted, using Service tools 18G 8 and 18G 8 P. It is usually only the inner race of the inner bearing that is left behind, and removal will be found easier if the backplate is first removed.

With the hub removed, the outer bearing and distance piece can be tapped out, using Service tool 18G 260 together with 18G 260 A. Similarly, the inner bearing and oil seal can be detached by drifting them off from the other side of the hub, using Service tools 18G 260 and 18G 260 B.

**Refitting**

Pack the bearings and the cavity between them with grease.

Surplus grease must be removed after the hub has been fitted, to allow for expansion, and in no circumstances should grease be put into the retaining cap.

Reverse the removal procedure, with special attention being given to ensure that the inner and outer bearings are drifted on with their sides marked 'THRUST' towards the centre of the hub, using Service tool 18G 134 together with adaptors 18G 134 B and 18G 134 C.

Ensure also that the oil seal is pressed in with its lipped end towards the inner bearing.

Using Service tool 18G 7, refit the hub assembly on the swivel axle.

Fit the washer and nut. Tighten the nut to the torque wrench reading given in 'GENERAL DATA'.

## Section K.6

### FRONT HUBS
### (Later Cars)

**Removing**

(1) Raise the front of the car and remove the wheel.

(2) Remove the brake calliper assembly as described in Section M.9 but do not disconnect the hydraulic hose; support the calliper assembly so that its weight is not taken by the hose.

*Wire wheels*

(3) Using tool 18G 363 withdraw the inner cap from the hub housing.

(4) Remove the split pin and nut.

(5) Using tool 18G 1032, withdraw the hub complete with brake disc.

*Pressed wheels*

(6) Remove the split pin and nut.

(7) Using tool 18G 304 Z with adaptor 18G 304 B, withdraw the hub complete with brake disc.

**Dismantling**

(8) Remove the brake disc retaining bolts and remove the disc.

(9) Remove the outer bearing and tapered spacer.

(10) Remove the inner bearing and oil seal.

**Reassembling**

(11) Reverse the dismantling procedure, noting the following points:

(*a*) Pack the bearings with one of the recommended greases, allowing the grease to protrude slightly from the bearing.

(*b*) Before fitting, dip the oil seal in light engine oil; take care not to damage the lip of the seal during fitting.

(*c*) Ensure that the bearings are fitted with their thrust side adjacent to the bearing spacer.

(*d*) After fitting the inner bearing and oil seal, pack the cavity between them with a recommended grease.

**Refitting**

(12) Reverse the removing procedure, noting the following points.

(*a*) Before fitting the hub, inspect the oil seal journal on the stub axle for signs of damage.

(*b*) After refitting the hub remove any surplus grease; the retaining cap should not be packed with grease before refitting.

(*c*) After fitting, check the 'run out' at the outer periphery of the disc braking surface, if this exceeds ·006 in. (·152 mm.), remove and reposition the disc on the hub.

## Section K.7

### ANTI-ROLL BAR
### (Later Cars)

**Removing**

(1) Raise the front of the car and position supports beneath the front suspension.

(2) Remove the four screws to release the anti-roll bar bearing straps from the underframe.

(3) Remove the two nuts to release the links from the anti-roll bar.

(4) Remove the four screws and nuts to release the end stops from the anti-roll bar.

(5) Withdraw the bearings from the anti-roll bar.

(6) Remove the two nuts to release the anti-roll bar links from the brackets on the suspension lower links.

(7) Remove the six bolts and nuts to release the link brackets from the suspension lower links.

**Refitting**

(8) Reverse the procedure in (1) to (7).