FRONT SUSPENSION OPERATIONS

Front hub assembly	
– remove and refit	60.25.01
– overhaul	60.25.07
Front hub bearings end-float	
– check and adjust	60.25.13
Front hub stub axle	
–remove and refit	60.25.22
–overhaul	60.25.24
Front road springs assembly	
– remove and refit	60.20.01
– overhaul	60.20.07
Front shock absorber	
– remove and refit	60.30.02
Swivel pin housing	
– remove and refit	60.15.20
– overhaul	60.15.23
Trim height	
– check and adjust	60.45.01

SWIVEL PIN HOUSING ASSEMBLY

–Remove and refit **60.15.20**

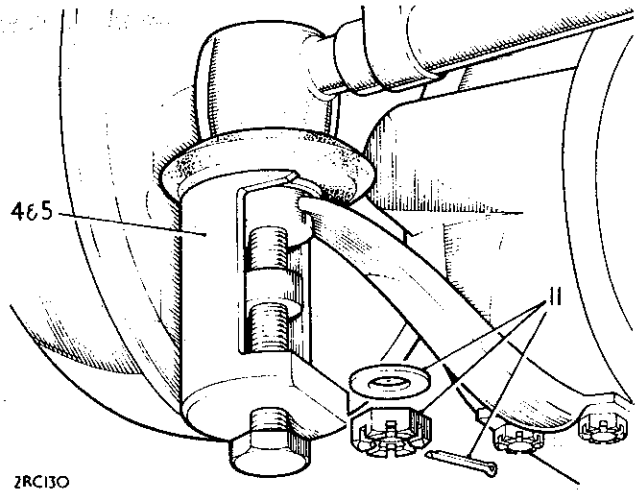
Service tool: **601763, Ball joint extractor**

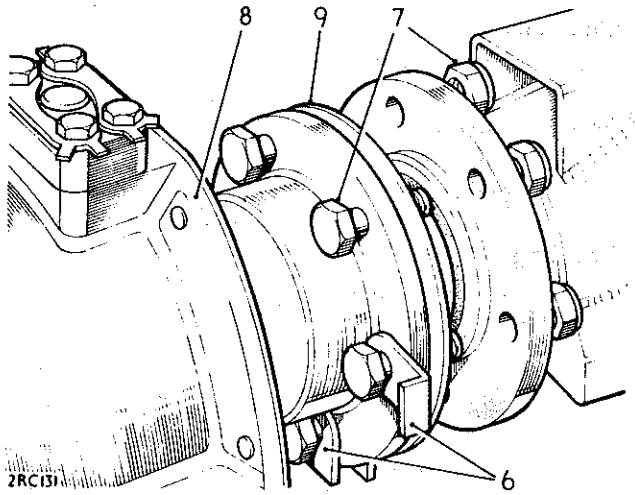
Removing

1. Remove the front hub assembly. 60.25.01.
2. Remove the hub stub axle. 60.25.22.
3. Withdraw the axle half shaft complete.
4. Disconnect the track rod at the ball joint, using 601763.
5. If required, disconnect the drag link at the ball joint, using 601763.
6. Note the fitted position of the steering lock stop plate and, on the RH side only, the jack location stop plate.
7. Remove the fixings, swivel pin housing to axle case.
8. Withdraw the swivel pin housing.
9. Withdraw the joint washer.

Refitting

10. Reverse 6 and 7.
11. Reverse 4 and 5. Torque load 4,0 kgf.m (30 lbf.ft.).
12. Reverse 1 to 3.





SWIVEL PIN HOUSING ASSEMBLY

—Overhaul 60.15.23

Dismantling

1. Carry out items 1 to 9 of operation 54.10.01 to separate the hub assembly, half shaft and swivel pin housing complete from the axle case.
2. Remove the oil seal retainer.
3. Prise out the bearing housing oil seal.
4. Remove the upper and lower swivels.
5. Withdraw the bearing housing and bearings.
6. Press the bush and bearings from the swivel pin bearing housing, as required.

Inspecting

7. Examine all components for obvious wear or damage.
8. The taper roller bearing must be a light push fit on the bottom swivel pin, if a new bearing is a loose fit, the swivel pin assembly must be renewed.
9. The Railko bush must be a light push fit on the top swivel pin, if a new bush is a loose fit, the swivel pin assembly must be renewed. It is important to note that these bushes and thrust washers should not be washed in any type of cleaning fluid, otherwise there is a danger that the damping characteristics of the material will be adversely affected.
10. Examine the surface of the swivel pin bearing housing for signs of corrosion or damage; replace the housing if necessary.

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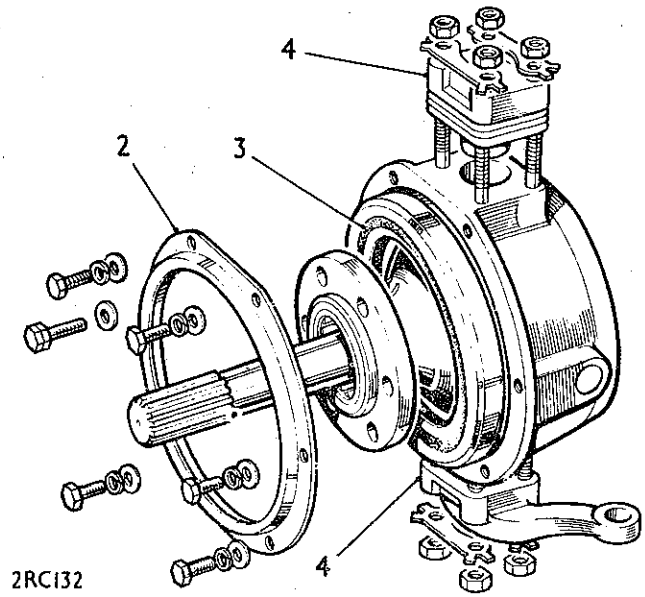
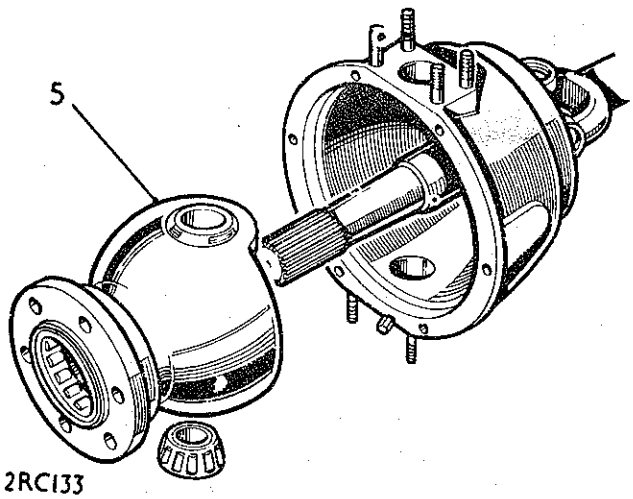


2RC132



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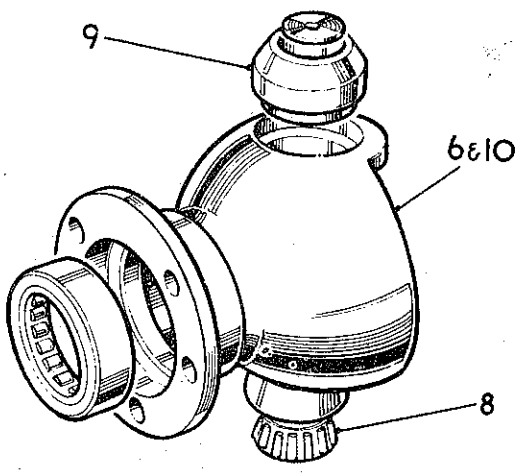
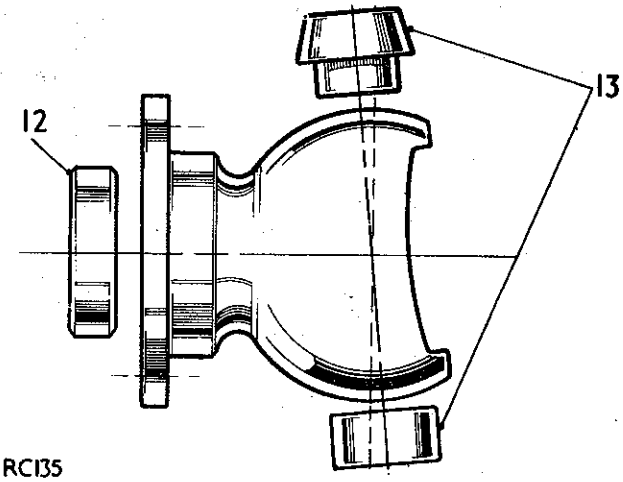


2RC134

Reassembling

11. Using the same oil as recommended for the swivel pin housing (see Division 09) thoroughly lubricate the internal diameter of the Railko bush.
12. Press the roller bearing for the axle half shaft into the swivel pin bearing housing.
13. Press the Railko bush into the top of the bearing housing, and the taper bearing outer race, wide edge first, into the bottom of the housing. Take care to correctly identify the bush and bearing locations, noting that the top of the housing is narrower, as illustrated.
14. Place the taper roller bearing in position in the bottom of the swivel pin bearing housing, and locate the bearing housing into the swivel pin housing.
15. Fit a rubber 'O' ring to the steering lever and swivel pin assembly.
16. Smear the mating surfaces of the swivel pin and housing with jointing compound.
17. Fit the steering lever (using new replacement nuts) ensuring that it faces forward (away from the oil filler/level plug).
18. Secure the fixings, torque load 7,0 kgf.m (50 lbf.ft.) and engage the lock plates.
19. Fit the swivel pin and bracket assembly to the top of the swivel pin housing, fitting the shims removed during dismantling to the value of 1,0mm (0.040 in.)
20. Tighten the fixings bolts evenly and securely, but do not engage the lock plates at this stage.
21. Hold the swivel pin bearing housing by clamping the flange in a vice fitted with soft jaws, or temporarily fit the swivel pin housing to the axle case.
22. Using a spring balance attached to the steering lever at the track rod connecting eye, measure the resistance to rotation of the swivel pin housing, which must be 5,4 kg. to 6,3 kg. (12 lb. to 14 lb.) after having overcome inertia. Adjust as necessary by adding or subtracting shims under the swivel pin bracket until the correct resistance figure is obtained.
23. Engage the lockplates at the swivel pin fixing nuts.

Continued



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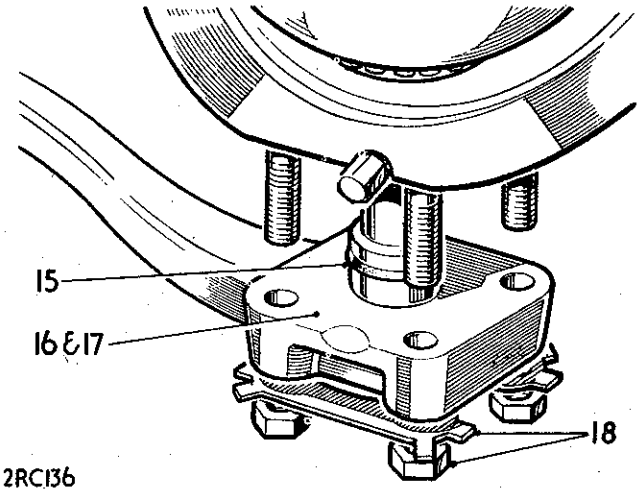

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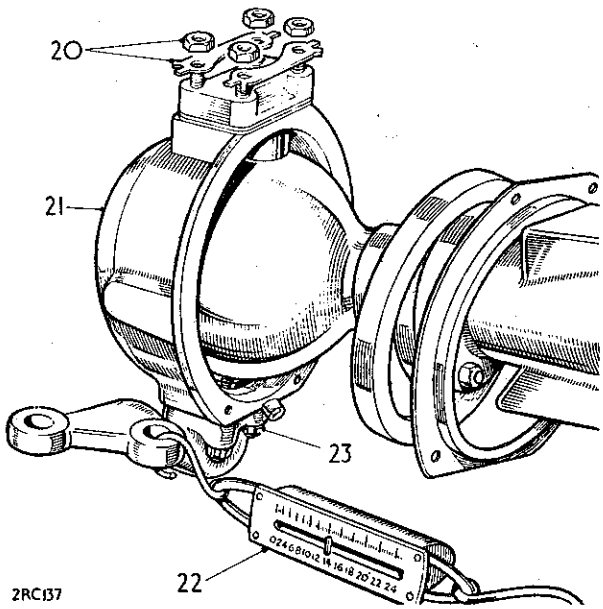
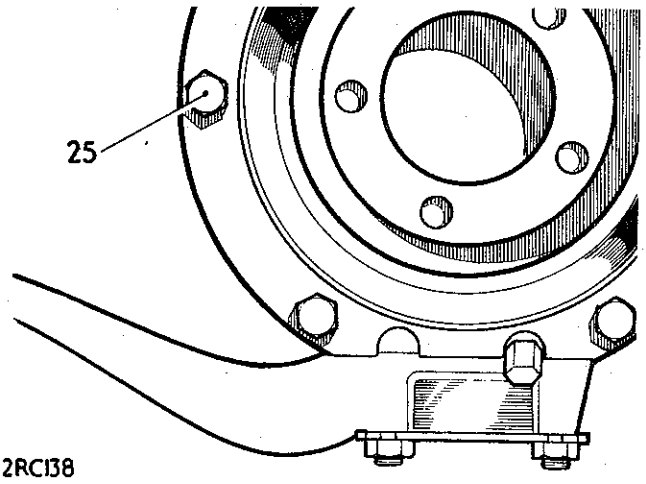


2RC137

24. Pack the swivel pin housing oil seal with heavy grease.
25. Fit the seal and its retainer to the swivel pin housing, locating the steering stop adjustment bolt in the forwardmost hole.
26. Check that the oil seal wipes the full surface of the bearing housing and adjust the position, if necessary, by slackening off the retainer bolts and resetting the seal.
27. Reverse 1.



2RC138

DATA

Swivel pin housing resistance to rotation	5,4 to 6,3 kg. (12 to 14 lb.)

FRONT ROAD SPRING

—Remove and refit **60.20.01**

Removing

1. The driver side and passenger side road springs are not interchangeable, the free camber of the driver's side spring being greater to compensate for the extra weight (driver, etc.) carried on that side of the vehicle. Springs are identified with the part number which is marked on the top face and on the under face of one of the leaves.
2. Jack up the vehicle and support on stands.
3. Remove the road wheel.
4. Support the axle with a jack.
5. Disconnect the shock absorber at the lower fixings.
6. Remove the fixings and withdraw the spring support plate.

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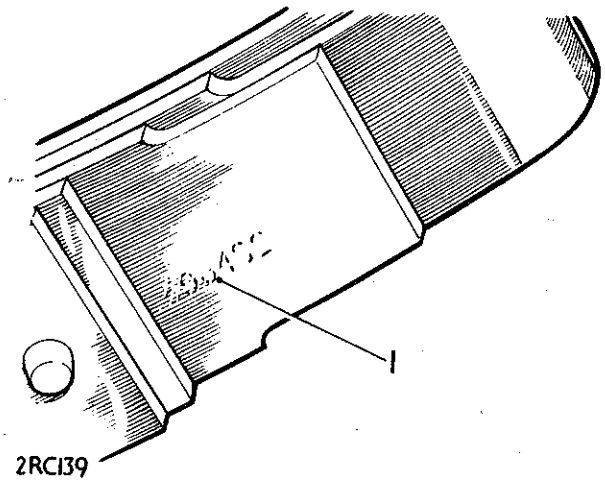

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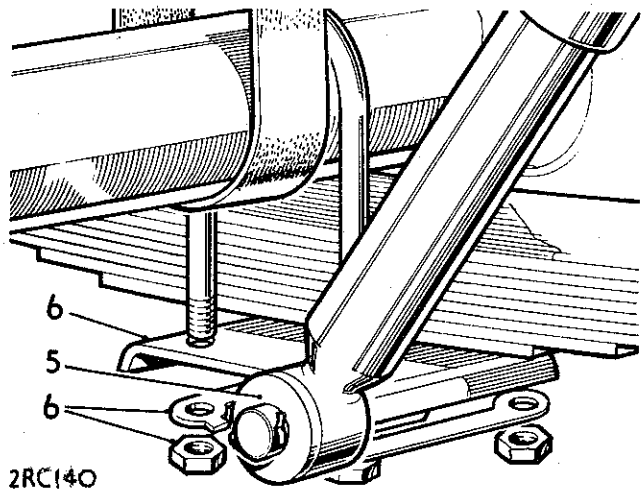
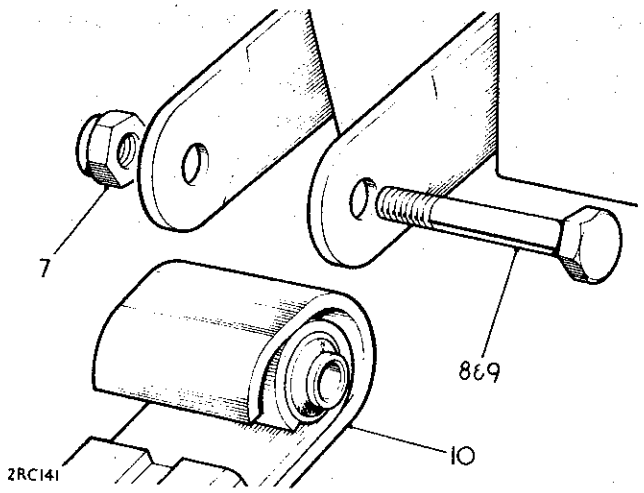


2RC140

7. Remove the self-locking nut from the shackle pin in each spring eye.
8. Remove the shackle pin from the rear end of the spring, the pin is threaded into the inner shackle plate.
9. Remove the shackle pin from the front end of the spring.
10. Remove the road spring complete.

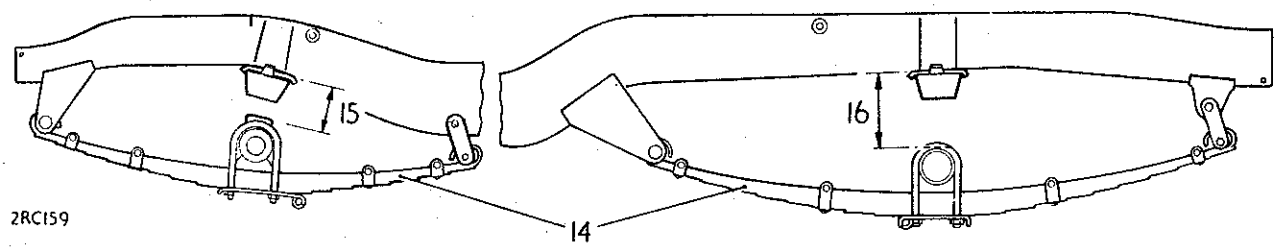


Refitting

11. Slacken the shackle pin securing the shackle plates to the chassis.
12. Reverse 6 to 10: do not tighten the shackle pins and locking nuts at this stage.

Spring setting procedure

13. In the following procedure, the spring shackles are tightened onto the shackle bushes whilst in their approximate working positions, thus minimising the torque load on the shackle bush rubbers when the vehicle weight is taken on the springs and so prolonging the bush working life.
14. Deflect the spring toward the chassis, using a suitable chain and lever, until the following dimensions (measured as illustrated) are obtained; items 15 and 16.
15. Front springs:
    165 mm (6.5 in.)
16. Rear springs:
    229 mm (9.0 in.)
17. With the springs held in position, tighten first the shackle pin then the locknut. Torque 9,6 kgf.m (70 lbf. ft.).
18. Reverse 2 to 5.
19. Check the vehicle trim height. 60.45.01.

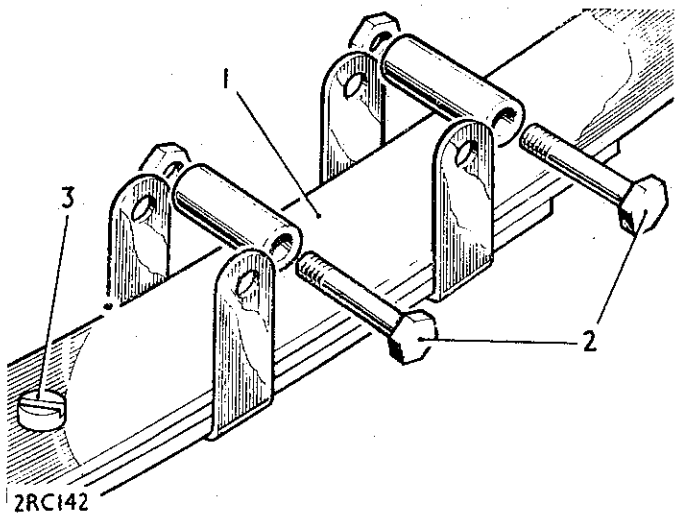


FRONT ROAD SPRING

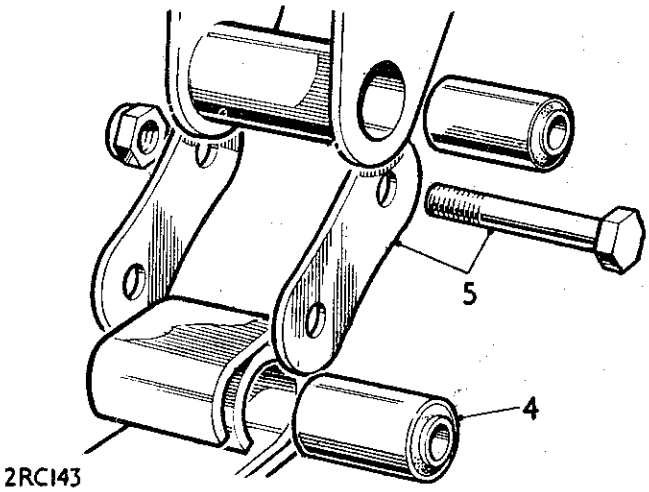
- Overhaul 60.20.07

Dismantling

1. Remove the road spring. 60.20.01
2. Remove the fixings from the leaf clips, which may be bolts and nuts, and/or long screws threaded into the leaf clips.
3. Remove the centre bolt and nut to release the spring leaves.
4. Press out the bushes from each end of the spring.
5. Remove the fixings and withdraw the shackle plates from the chassis frame.
6. If necessary, remove the shackle bush from the chassis frame bracket with the aid of a tubular drift or suitable extractor; if the bush disintegrates, leaving the outer casing in the chassis frame bracket, it should be carefully sawn through with a hack-saw to facilitate removal. DO NOT saw the chassis bracket.



2RC142



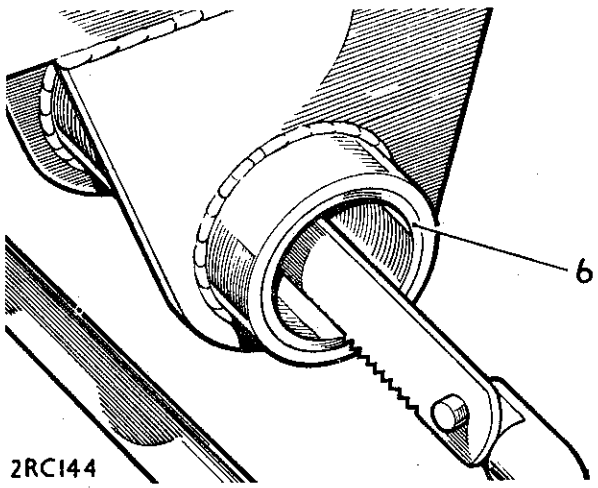
2RC143

Inspecting

7. Clean the leaves and examine for cracks. Only the main and second leaves and the spring assembly complete are supplied as replacement.
8. The recambering of road springs is not advised, but if no alternative is possible, the spring should be reset, if necessary, either to a new spring or to the dimensions included in General Specification Data, 04.

Reassembling

9. If removed, fit the shackle bush to the chassis frame bracket. The bush must be a drive fit.
10. Grease each leaf with graphite grease and reassemble the spring by fitting the centre bolt and leaf clips; fit the spring bushes, which must be a press fit.
11. Fit the shackle plates to the chassis frame, but do not fully tighten the fixings until the spring is refitted to the vehicle.
12. Reverse 1.



2RC144

FRONT HUB ASSEMBLY

–Remove and refit **60.25.01**

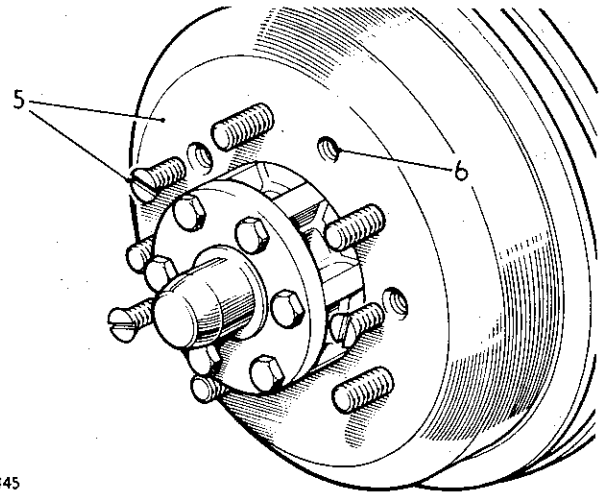
Service tool: **R01010 Spanner for driving member nut,**

Removing

1. Drain the swivel housing lubricating oil.
2. Jack up the front of the vehicle.
3. Remove the road wheel.
4. Slack off the brake shoe adjuster/s.
5. Remove the brake drum, noting the provision of an extractor tapping, item 6.
6. If difficulty is experienced in removing the drum, fit one of the drum fixing screws into the extractor tapping provided and turn in the screw whilst using a mallet to dislodge the drum.
7. Prise off the hub cap.
8. Remove the driving member from the axle stub shaft and hub.
9. Remove the hub fixings.
10. Hold in position the outer roller bearing.
11. Withdraw the hub and bearing.

Refitting

12. Lubricate the bearings, using the recommended grease– Division 09 refers. Do not pack the hubs with grease.
13. Reverse 9 to 11 and adjust the hub bearing end float. 60.25.13 refers.
14. Fit the driving member with the felt and rubber oil seal fitted with the rubber side facing outwards. Torque load for driving member fixing bolts is 3,9 kgf.m (28 lbf.ft.). Torque load for stub shaft to driving member nut is 1,4 to 2,0 kgf.m (10 to 15 lbf.ft.) using R01010 on 109 models with the circular castellated nut.
15. Reverse 4 to 7 and adjust the brakes.
16. Reverse 1 to 3.



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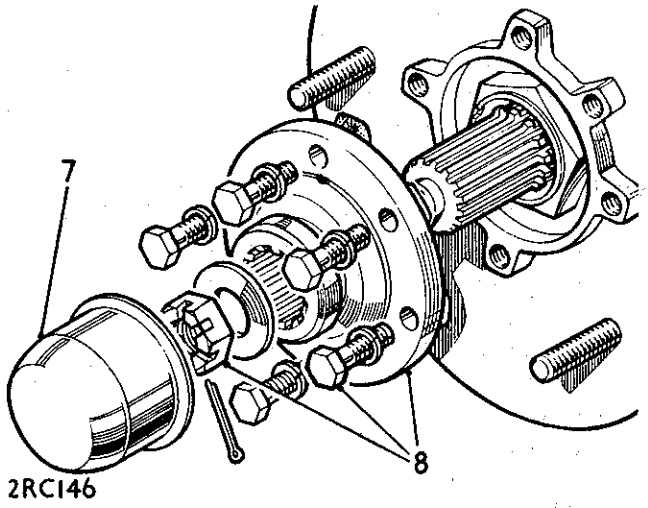

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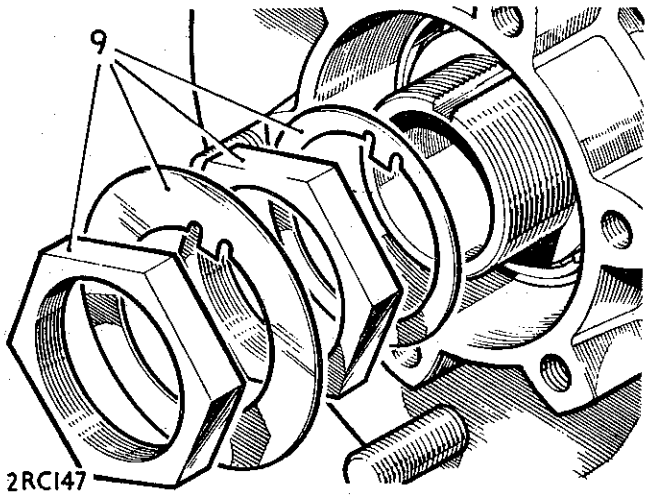


2RC147

FRONT HUB ASSEMBLY

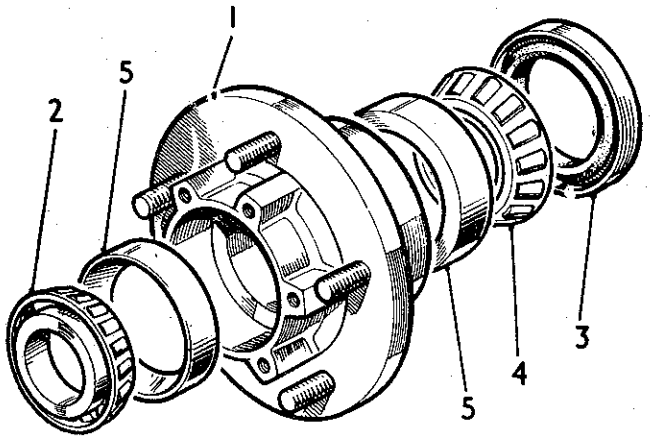
—Overhaul 60.25.07

Dismantling

1. Remove the front hub. 60.25.01.
2. Withdraw the outer roller bearing.
3. Prise out the oil seal.
4. Withdraw the inner roller bearing.
5. Press the bearing outer races from the hub.

Inspecting

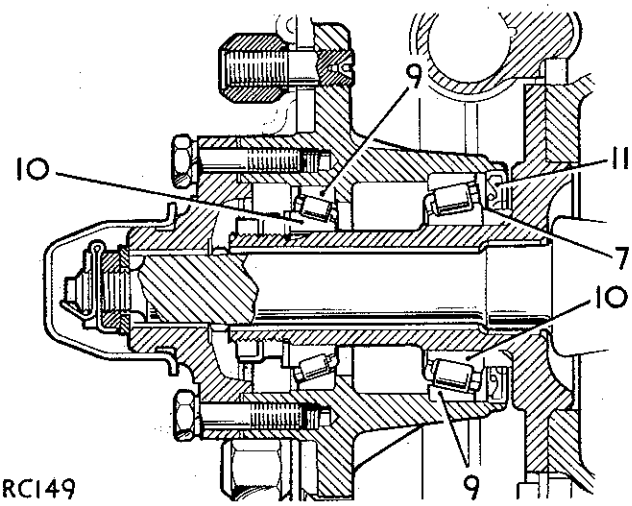
6. Examine all components for obvious wear or damage.
7. Examine the outside diameter of the inner bearing distance piece which is pressed on to the exposed stub axle. The diameter forms the inner seat for the hub oil seal and must be free from scores, damage and roughness. To replace the distance piece, 60.25.24 refers.
8. The hub bearings must be a sliding fit on the stub axle and a press fit in the hub.



2RC148

Reassembling

9. Press the bearing outer races, wide side first, into the hub, ensuring that they abut the locating shoulders.
10. Grease and fit the inner roller bearings. Do not pack the hub centre with grease.
11. Reverse 3, using jointing compound, and fitting the seal flush with and not below the rear face of the hub.
12. Reverse 1 and 2.



2RC149

FRONT HUB BEARINGS END FLOAT

–Check and adjust **60.25.13**

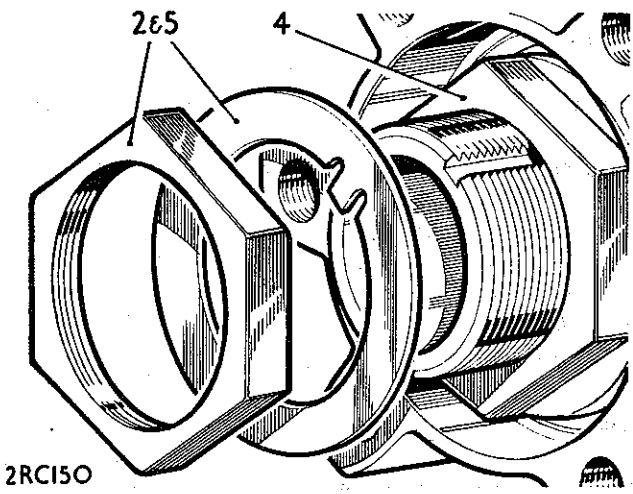
Service tool: **606435 Spanner for hub bearing nuts.**

Procedure

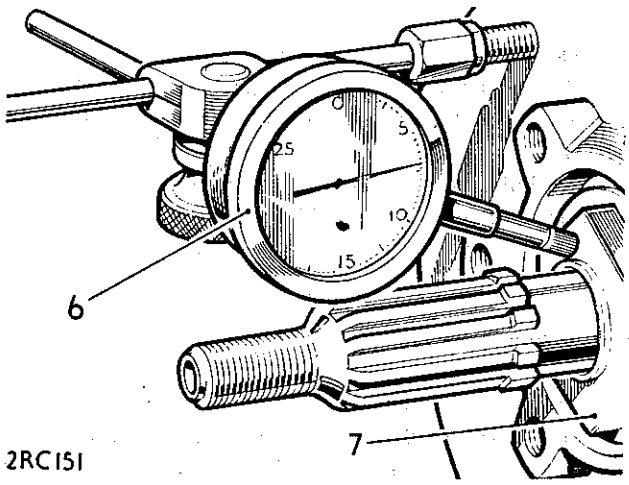
1. Carry out items 1 to 8 of operation 60.25.01 to remove the brake drum and hub driving member.
2. Remove the locknut and lockwasher from the hub.
3. Spin the hub vigorously, causing the bearing rollers to settle in the tapered races, producing maximum end-float conditions.
4. Tighten the adjuster nut sufficient only to take up any obvious end-float.

NOTE: It is necessary to spin the hub every time before checking the end-float, as moving the hub laterally will resettle the rollers, affecting the measurable end-float.

5. Fit the lockwasher and nut, tighten the nut but do not engage the lockwasher.
6. Using a dial test indicator, check the end-float of the hub, which must be 0,05 to 0,10mm (0.002 to 0.004 in.)
7. If the hub end-float is not within the permitted limits, remove the locknut and washer, and readjust the inner nut. Fit the lockwasher, tighten the locknut and recheck the end-float.
8. When the end-float is correct, engage the lockwasher.
9. Reverse 1.



2RC150



2RC151

DATA

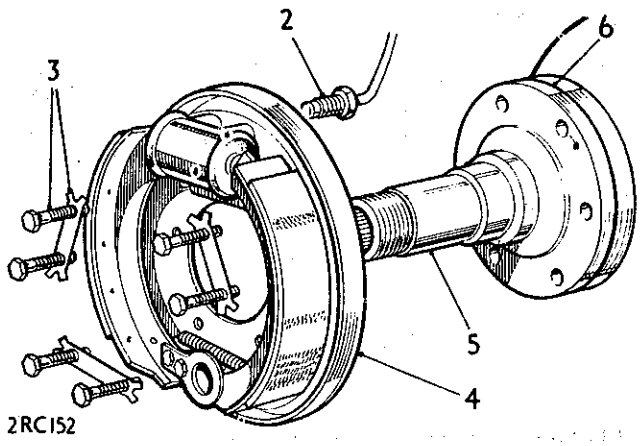
Bearing end-float	0,05 to 0,10mm (0.002 to 0.004 in.)

FRONT HUB STUB AXLE

–Remove and refit	**1 to 6 and 11 to 12**	60.25.22
–Overhaul	**7 to 10**	60.25.24

Removing

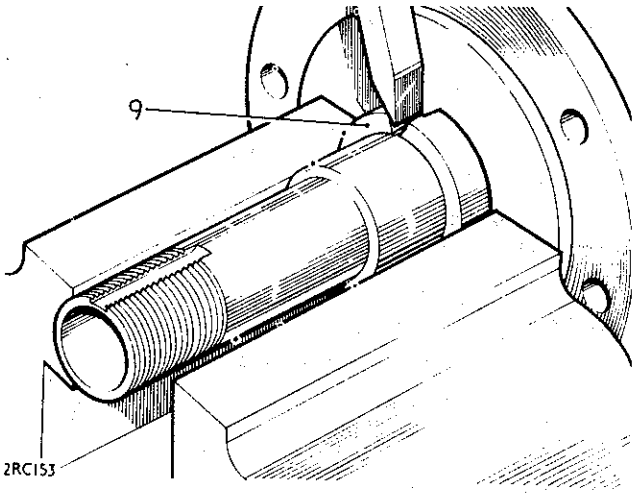
1. Remove the front hub. 60.25.01.
2. Release the brake pipe from the retaining bracket at the upper swivel pin.
3. Remove the brake anchor plate and stub axle fixings.
4. Suspend aside the anchor plate assembly.
5. Withdraw the stub axle.
6. Withdraw the joint washer.



2RC152

Overhauling

7. Examine for obvious wear or damage.
8. Check the outside diameter of the inner bearing distance piece, this must not show any signs of damage or roughness as it forms the inner seat for the oil seal. The distance piece should be a *press fit* on the stub axle. Any clearance between these two parts will allow oil to leak past on to the brake linings.
9. If it is required to remove the inner bearing distance piece from the stub axle, it must be shattered, using extreme care to avoid damaging the axle.
10. Press on the replacement distance piece.



2RC153

Refitting

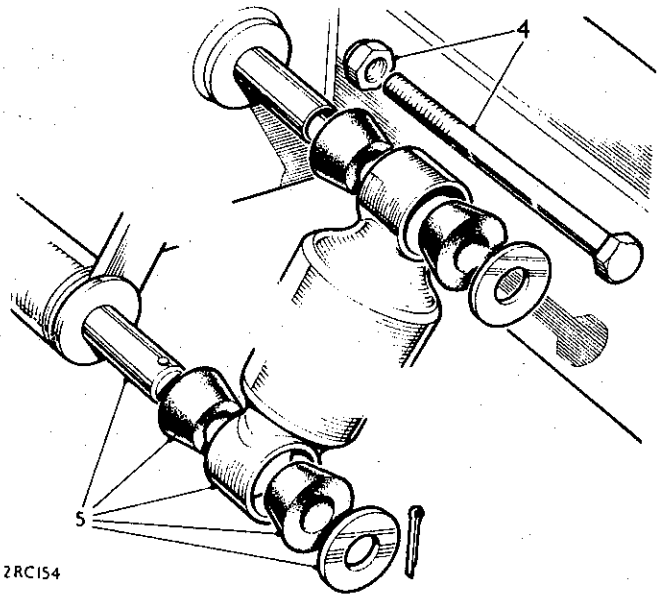
11. Grease and fit the joint washer.
12. Reverse 1 to 5.

FRONT SHOCK ABSORBER

–Remove and refit 60.30.02

Removing

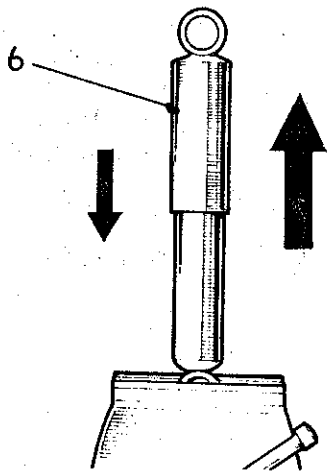
1. Slacken the fixings at the road wheel.
2. Jack up the front of the vehicle and support on stands.
3. Remove the road wheel.
4. Remove the shock absorber top fixings.
5. Remove the lower fixings.



2RC154

Checking the shock absorber operation

6. Secure the shock absorber vertically in a vice by holding the bottom fixing between the jaws.
7. The shock absorber incorporates differential damping, having greater resistance on the extension stroke. Check the operation by extending and compressing the shock absorber, there must be a uniform resistance throughout the length of the stroke. If the resistance is erratic or weak, fit a new shock absorber.



2RC156

NOTE: When fitting new shock absorbers, first prime, using a vice as in check method. When primed some dozen or so strokes, keeping in a vertical position, fit to vehicle.

Refitting

8. Reverse 1 to 5.

TRIM HEIGHT

–Check and adjust 60.45.01

General

The road springs differ in spring rating according to their fitting position (see General Specification data, 04) and no adjustment is provided. An incorrect replacement spring or incorrect fitting procedure can adversely affect the vehicle trim; check before replacing parts.

Checking procedure

1. Position the vehicle on firm level ground.
2. Ensure that the vehicle is in the static unladen weight condition, that is with a full coolant and lubrication system and 22.7 litres (5 UK gallons) of fuel.

Continued

3. Check and if necessary adjust tyres to recommended pressures.
4. Measure the distance from the ground to the shackle pin centres as illustrated on both sides of the vehicle.
5. The measurements at the front should agree within 25mm (1.0 in.), as should those at the rear.
6. Where measurements are not within limits, first check that the correct springs are fitted. The spring part number is marked on the spring top face and also on the underside of one of the leaves.
7. If the springs are correct, jack up the vehicle and take the weight off the road springs.
8. Remove the shackle pins and ensure that they are a free fit in the shackle plate threads and not binding in the shackle pin bushes. Lubricate or polish to achieve this condition.
9. Deflect the springs and torque load the pins as detailed in operation 60.20.01.
10. Lower the vehicle and recheck the trim height.