

OVERHAUL FRONT HUB ASSEMBLY**Service tools:****Drift 18G 134****Hub oil seal replacer 18G 1349****Dial gauge bracket RO 530106****DISMANTLE**

1. Slacken road wheel nuts.
2. Jack up the vehicle and lower onto axle stand.
3. Remove the road wheel.
4. Slacken the lock nuts securing the jump hose to the retaining bracket.
5. Remove the two bolts securing the brake caliper and whilst withdrawing the caliper from the brake disc release the jump hose from the bracket. Tie the caliper securely to one side.

NOTE: Since the bracket on later vehicles is not open-ended, the caliper must be removed completely.

6. Lever-off the dust cap.
7. Remove the circlip from the drive shaft.
8. Remove the drive shaft shim.
9. Remove the five bolts and withdraw the driving member and joint washer.
10. Bend back the lock washer tab.
11. Remove the locknut and tab washer.
12. Remove the hub adjusting nut.

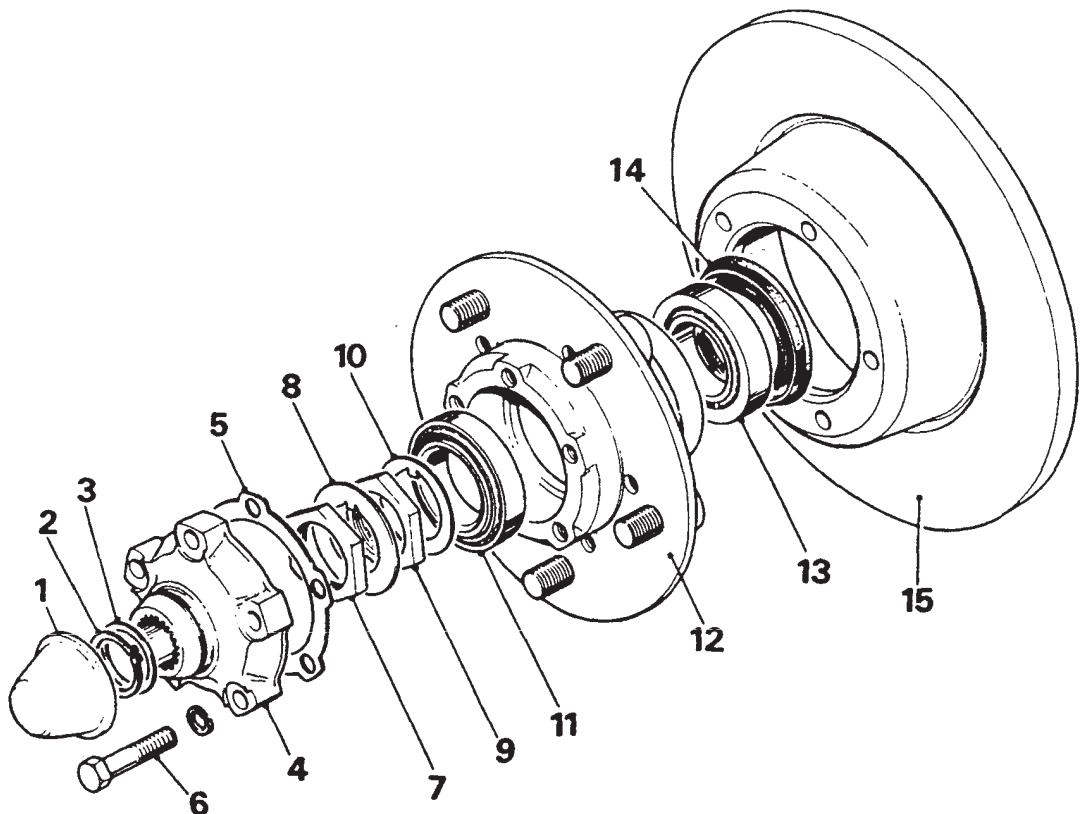
13. Remove the key washer.
14. Withdraw the hub and brake disc assembly complete with bearings.
15. Remove the outer bearing.
16. Mark, for reassembly, the relationship between the hub and brake disc, if original hub is to be refitted.
17. Remove the five bolts and separate the hub from the brake disc.

NOTE: The road wheel retaining studs must not be renewed. Should any studs be unservicable a new hub complete with studs must be obtained.

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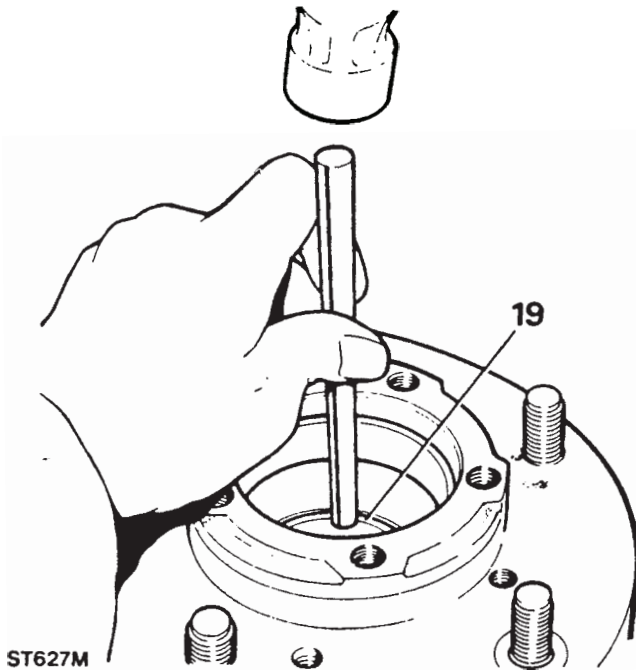
KEY TO HUB ASSEMBLY

1. Dust cap.
2. Drive shaft circlip.
3. Drive shaft shim.
4. Drive member.
5. Drive member joint washer.
6. Drive member retaining bolt (five off).
7. Locknut.
8. Lock washer.
9. Hub adjusting nut.
10. Keyed washer.
11. Outer bearing.
12. Hub.
13. Inner bearing.
14. Grease seal.
15. Brake disc.



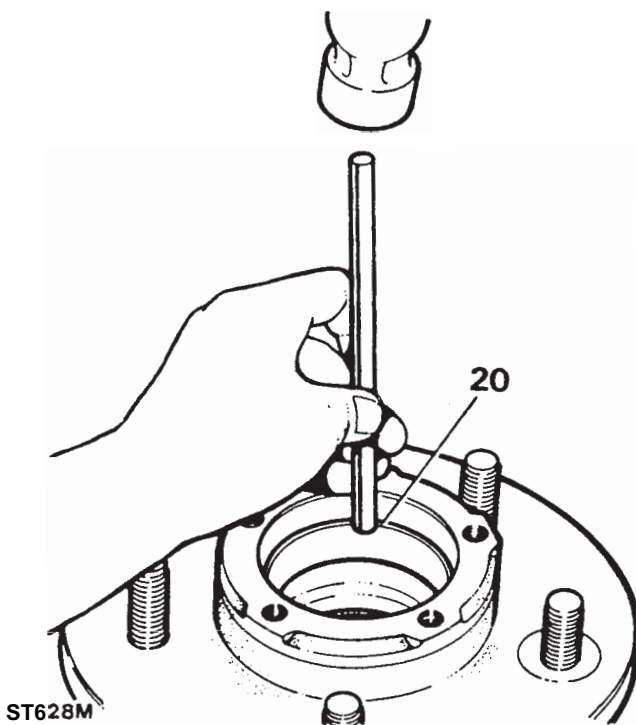
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18. Drift-out the grease seal and inner bearing from the hub and discard the seal.
19. Drift-out the inner and outer bearing tracks.



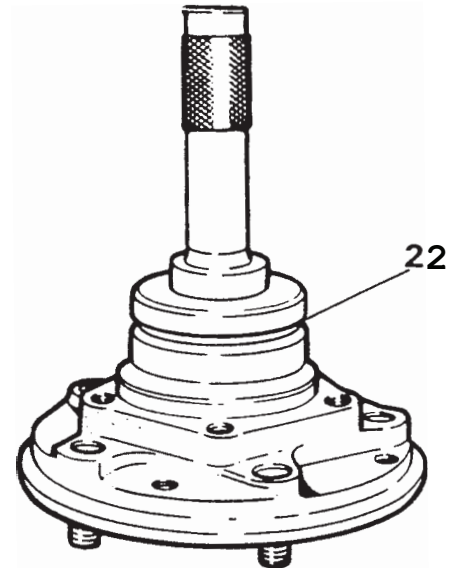
ASSEMBLE

20. Clean and degrease the hub and drift-in the inner and outer bearing tracks.



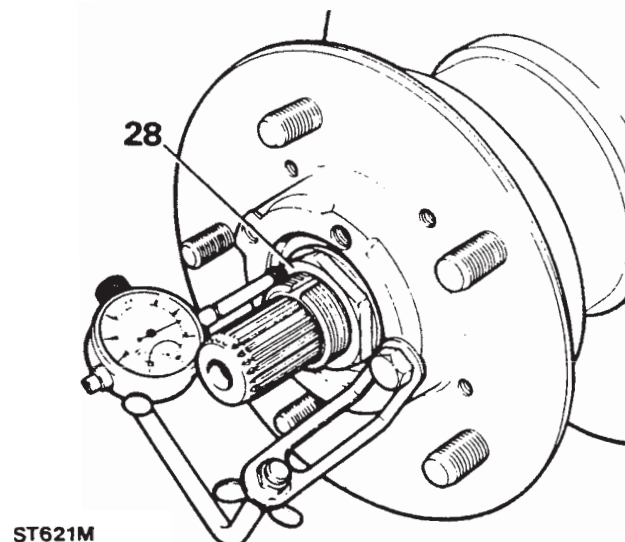
21. Pack the hub inner bearing with a grease recommended in the lubrication chart and fit to the hub. Use a minimum of 8,5 grams of grease.

22. With the lip side leading fit a new seal to the hub using special tool 18G 1349 grease seal replacer and drift 18G 134. Drive-in the seal so that it is recessed 4,83 to 5,33 mm (0.190 to 0.210 in) below the rear face of the hub. Apply grease liberally between the seal lips and springs.

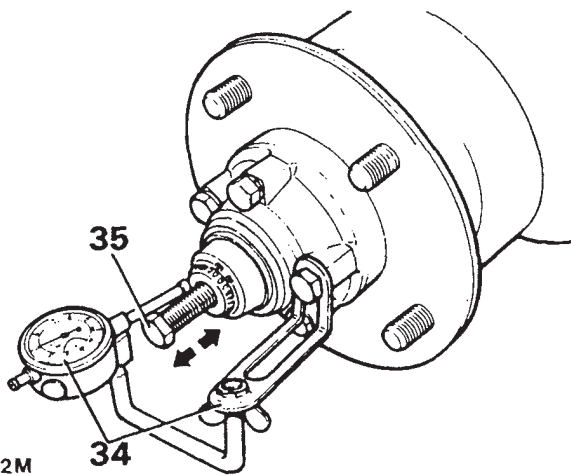


23. Assemble the brake disc to the hub lining up the marks made during dismantling. Fit and tighten the five retaining bolts to 65 to 80 Nm (48 to 59 lbf ft).
24. Grease as in instruction 21 and fit the outer bearing to the hub.
25. Clean the stub axle and drive shaft and fit the hub assembly to the axle.
26. Fit the key washer.
27. Fit the hub adjusting nut and tighten by hand whilst rotating the hub until all end-play is taken up.
28. Mount a dial gauge using bracket RO 530106 and rest the stylus in a loaded condition on the adjusting nut.

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29. Slacken off the adjusting nut until an end-play of 0,1270 to 0,1016 mm (0.0005 to 0.004 in) is obtained.
30. Fit a new keyed lock tab washer.
31. Fit and tighten the hub adjusting nut and re-check the end-play before bending the lock tab over.
32. Fit a new joint washer to the driving member and fit the member to the hub and secure with the five bolts tightening evenly to 60 to 70 Nm (44 to 52 lbf ft).
33. Fit the original drive shaft shim and secure with the circlip.
34. To check the drive shaft end-play mount a dial gauge using bracket RO 530106 and rest the stylus in a loaded condition on the end of the drive shaft.
35. Fit a suitable bolt to the threaded end of the drive shaft and using a pair of pliers move the drive shaft back and forth noting the dial gauge reading. The end-play should be between 0,127 to 0,254 mm (0.005 to 0.010 in).



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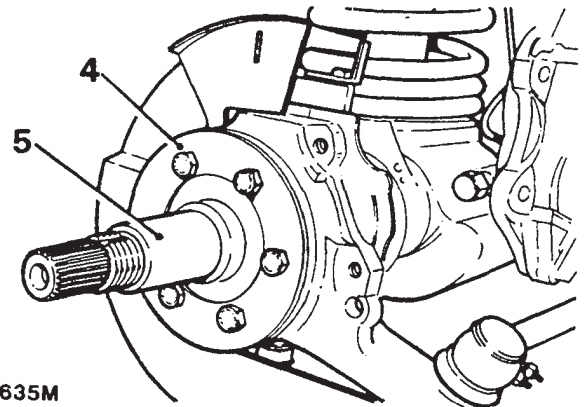
36. If the end-play requires adjustment, remove the circlip, measure the shim thickness and fit an appropriate selective shim to give the required end-play.
37. Remove the bolt from the drive shaft, fit the circlip and dust cap.
38. Fit the brake caliper and tighten the two bolts to 120 to 150 Nm (88 to 111 lbf ft).
39. Locate the jump hose in the bracket and tighten the locknuts.
40. Fit the road wheel, remove the axle stand and finally tighten the road wheel nuts.
41. Operate the footbrake several times to locate the brake pads before taking the vehicle on the road.

OVERHAUL STUB AXLE, AXLE SHAFT, CONSTANT VELOCITY JOINT AND SWIVEL ASSEMBLY

Special tool: 18G 284AAH bush extractor

Remove stub axle, axle shaft and constant velocity joint

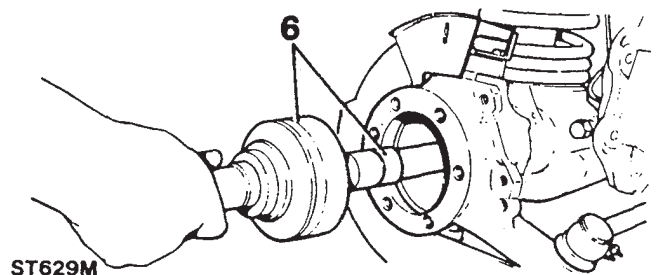
1. Remove the hub complete as described in the operation to overhaul the hub assembly instructions 1 to 14.
2. Drain the swivel pin housing and refit plug.
3. Remove the six bolts retaining the stub axle to the swivel housing.
4. Remove the mud shield.
5. Remove the stub axle and joint washer.



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6. Pull-out the axle shaft and constant velocity joint from the axle casing.

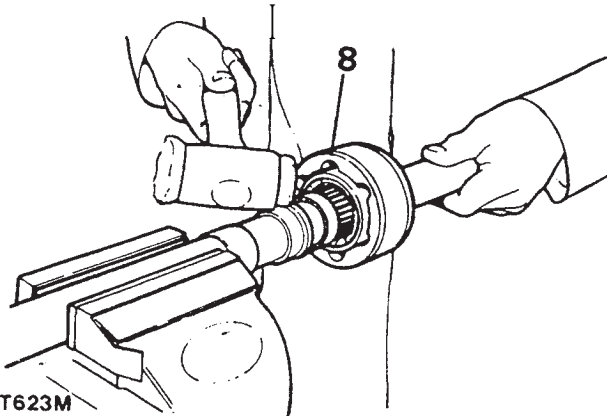
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Remove constant velocity joint from axle shaft

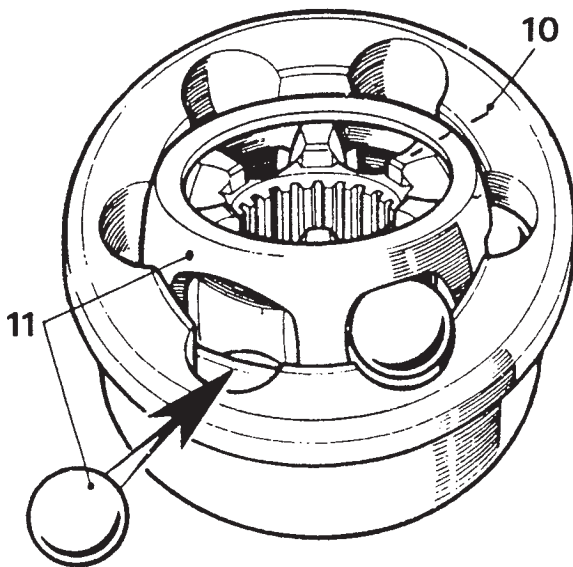
7. Hold the axle shaft firmly in a soft jawed vice.
8. Using a soft mallet drive the constant velocity joint from the shaft.
9. Remove the circlip and collar from the axle shaft.



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Dismantle the constant velocity joint

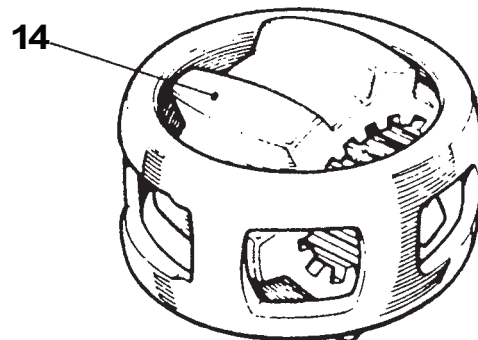
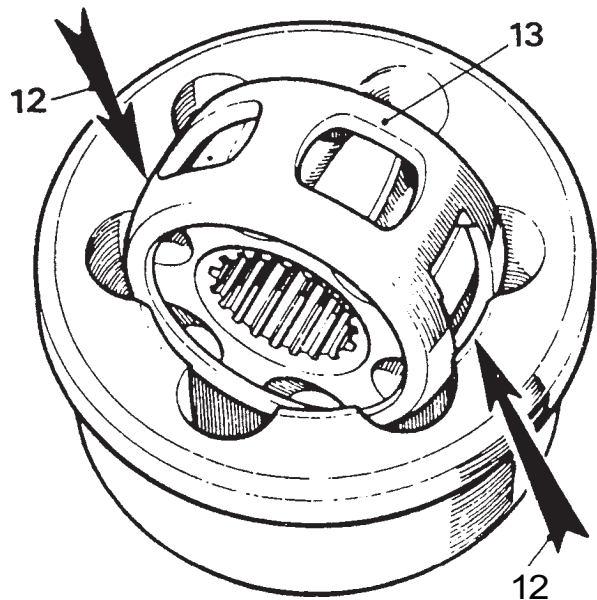
10. Mark the relative positions of the constant velocity joint inner and outer race and the cage for correct reassembly.
11. Tilt and swivel the cage and inner race to remove the balls.



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12. Swivel the cage into line with the axis of the joint and turn it until two opposite windows coincide with two lands of the joint housing.
13. Withdraw the cage.
14. Turn the inner track at right angles to the cage with two of the lands opposite the cage openings and withdraw the inner race.
15. Degrease and examine all components for general wear and condition.
16. Examine the inner and outer track, cage balls and bearing surfaces of the constant velocity joint for damage and excessive wear.
17. To assemble the constant velocity joint, reverse the dismantling instructions and lubricate with a recommended EP oil.
18. Check that the end-float of the assembled joint does not exceed 0,64 mm (0.025 in).

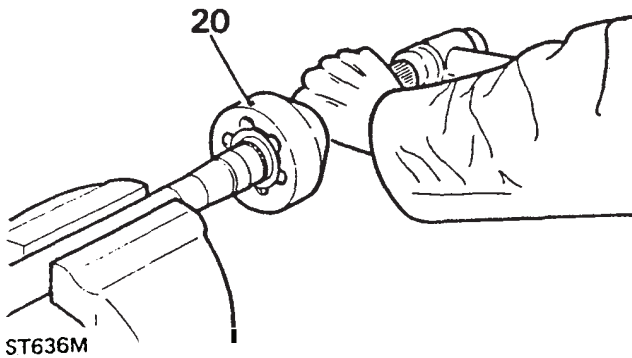
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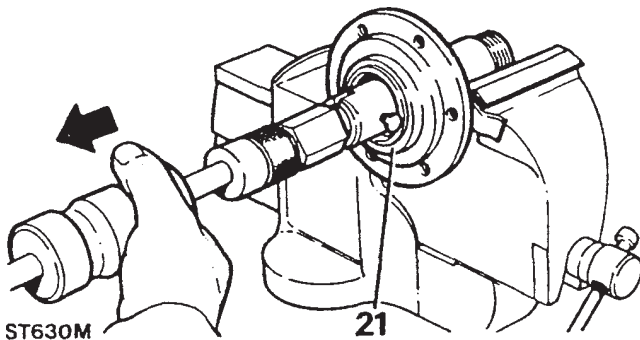
Fit constant velocity joint to axle

19. Fit the collar and a new circlip.
20. Engage the constant velocity joint on the axle shaft splines and using a soft mallet, drive the joint home.



Renew stub axle intermediate oil seal and bush

21. To remove the bronze bush and oil seal use special tool 18G 284AAH and a slide hammer. Ensure that the fingers of the tool locate behind the oil seal so that the seal and bush are driven-out together.



22. Lubricate the seal and lip with EP90 oil and with the cavity side leading press-in a new intermediate oil seal using a suitable tube.
23. Using a suitable block, press or drive-in the bush up to the shoulder.

Remove swivel pin housing

24. Remove the brake disc shield secured by one nut and bolt at the bottom front, and one single bolt, behind the shield, in the swivel housing.
25. Disconnect the track-rod end ball joint from the housing.
26. Disconnect the drag-link ball joint.
27. Remove the seven bolts securing the swivel pin housing oil seal and retaining plate and joint washer and release the assembly from the swivel pin housing. Note that whilst the joint washer can be removed at this stage, the oil seal and retaining plate must remain until the swivel pin bearing housing is removed.

28. Remove the two bolts, complete with the brake disc shield bracket, securing the lower swivel pin to the housing.
29. Withdraw the lower swivel pin and joint washer by tapping the small protruding lug.
30. Remove the top swivel pin retaining bolts complete with the brake jump hose bracket.
31. Withdraw the top swivel pin and shims.
32. Remove the swivel pin housing whilst retrieving the lower taper bearing.
33. If the swivel pin housing is to be renewed, remove the drain and level plugs and lock-stop bolt and nut.

Remove swivel pin bearing housing

34. Remove the seven bolts securing the swivel pin bearing housing to the axle case and remove the housing and joint washer.
35. Remove and discard the swivel pin oil seal and joint washer.

Overhaul swivel pin bearing housing

36. Prise-out the oil seal from the back of the housing.
37. Drift-out the lower swivel pin bearing track.
38. Press-out the upper swivel pin in Railko bush housing.
39. If worn, pitted or damaged, renew the housing.
40. Press-in the lower swivel pin bearing track.
41. Press-in the Railko bush housing ensuring that the machined flat is towards the back of the housing, i.e. when the housing is fitted to the axle, the flat faces inboard.
42. With the cavity side trailing press the axle shaft oil seal into the housing and grease.
43. Fit the thrust disc into the bottom of the Railko bush housing and check that it is still in position when the swivel pin is fitted.

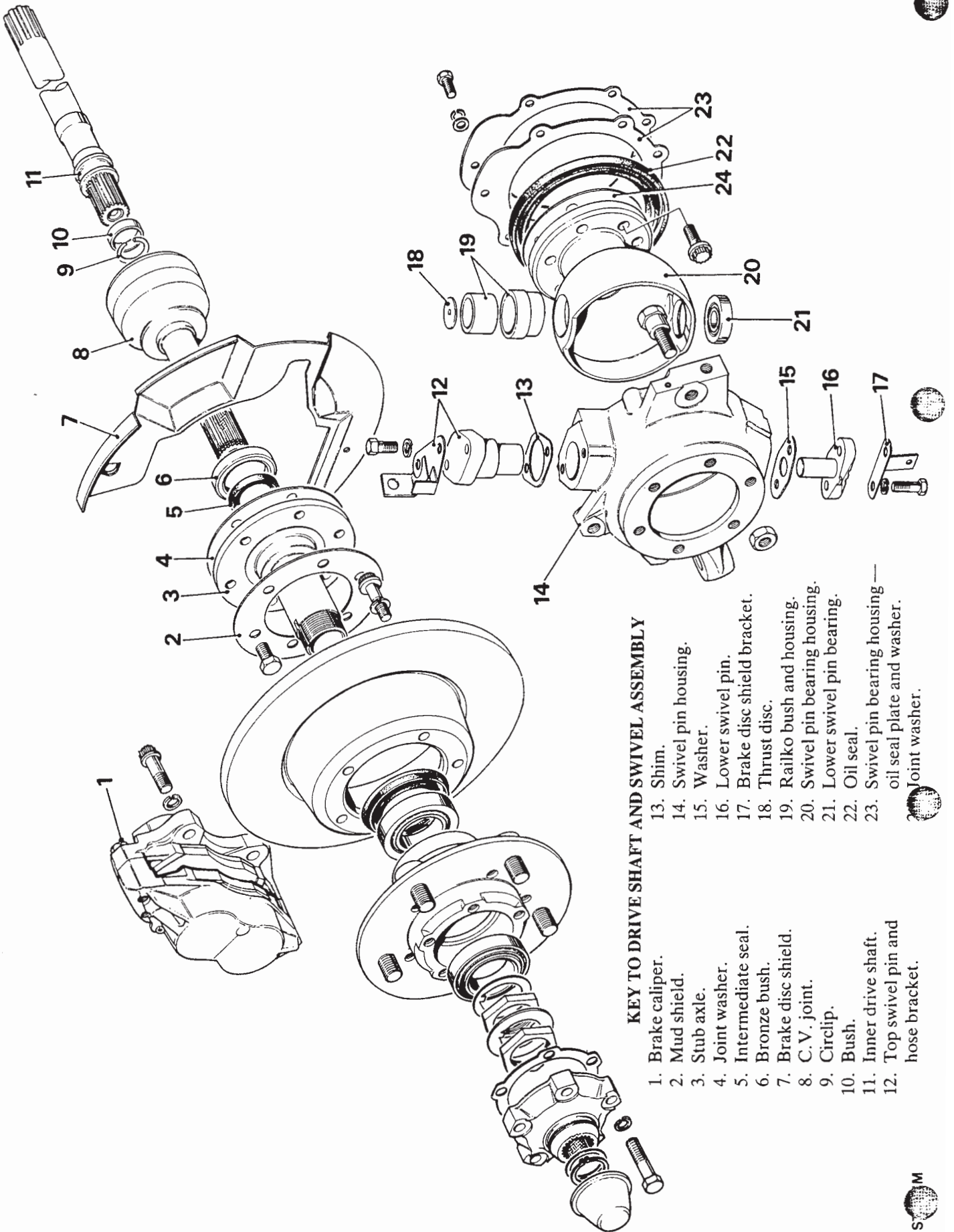
Fit swivel pin bearing housing to axle

44. Coat the swivel pin bearing housing to axle casing bolts with Loctite 270.
45. Coat both sides of a joint washer and place in position on the swivel pin bearing housing to axle mating face.
46. Hang the swivel pin bearing housing oil seal, retainer and joint washer over the back of the housing.
47. Fit and secure the swivel pin bearing housing to the axle with the seven bolts tightening evenly to 65 to 80 Nm (48 to 59 lbf ft).

Fit swivel pin housing

48. Grease and fit the lower swivel pin bearing to the bearing housing.
49. Place the swivel pin housing in position over the swivel in bearing housing.

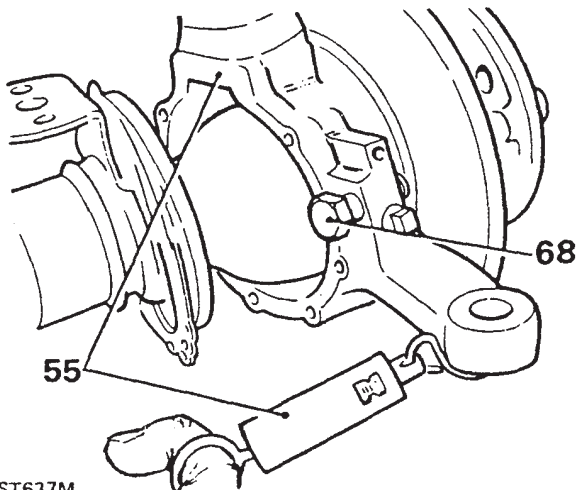
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KEY TO DRIVE SHAFT AND SWIVEL ASSEMBLY

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| 1. Brake caliper. | 13. Shim. |
| 2. Mud shield. | 14. Swivel pin housing. |
| 3. Stub axle. | 15. Washer. |
| 4. Joint washer. | 16. Lower swivel pin. |
| 5. Intermediate seal. | 17. Brake disc shield bracket. |
| 6. Bronze bush. | 18. Thrust disc. |
| 7. Brake disc shield. | 19. Railko bush and housing. |
| 8. C.V. joint. | 20. Swivel pin bearing housing. |
| 9. Circlip. | 21. Lower swivel pin bearing. |
| 10. Bush. | 22. Oil seal. |
| 11. Inner drive shaft. | 23. Swivel pin bearing housing — oil seal plate and washer. |
| 12. Top swivel pin and hose bracket. | 24. Joint washer. |

50. Coat a joint washer both sides with sealing compound and place in position on the lower swivel pin.
51. Fit the lower pin with lip outboard. Do not secure with bolts at this stage.
52. Lubricate the Railko bush with an EP oil and fit the top swivel pin with existing shims and fit the securing bolts and jump hose bracket (do not tighten).
53. Coat the threads of the lower swivel pin bolts with Loctite 270 and fit, together with the brake disc shield bracket, and tighten to 22 to 28 Nm (16 to 21 lbf ft).
54. Tighten the top swivel pin securing bolts to 60 to 70 Nm (44 to 52 lbf ft).
55. To check the top swivel pin pre-load attach a spring balance to the track-rod ball joint bore and pull the balance to determine the effort required to turn the swivel. The resistance, once the initial inertia has been overcome, should be 3,60 to 4,50 Kg (8 to 10 lbf). If necessary, adjust by removing or adding shims to the top swivel pin as required.



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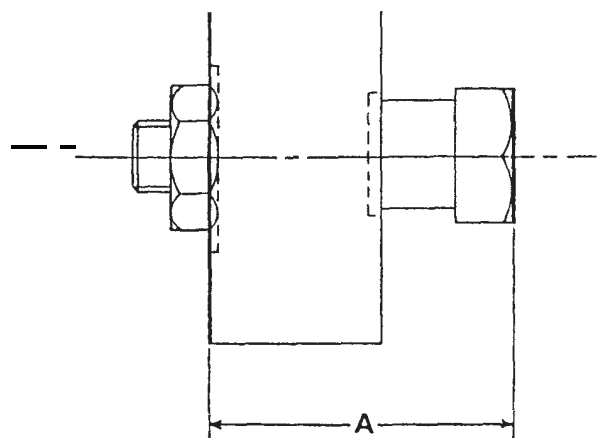
56. Liberally apply — but do not pack — a recommended grease between the lips of the swivel oil seal (2,5 to 4,0 grams).
57. Secure the oil seal and joint washer with the retaining plate and securing bolts tightening evenly to 7 to 10 Nm (5 to 7 lbf ft).
58. Fit the track-rod and drag link and secure with new split pins.
59. Fit the brake disc shield.
60. Loosely fit the lock stop bolt and nut for later adjustment.

Fit drive shaft and stub axle

61. Place a new joint washer in position on the swivel pin housing to stub axle mating face.
62. Taking care not to damage the axle shaft oil seals, insert the axle shaft, and when the differential splines are engaged, push the assembly home.

63. Fit the stub axle with the keyway uppermost at 12 o'clock. At this stage it is most important to ensure that the constant velocity joint bearing journal engages fully into the bronze bush in the rear of the stub axle before the stub axle is secured with bolts. Damage to the bush can occur if this precaution is not observed. To ensure proper engagement, grasp the stub axle with one hand and with the other pull the axle shaft into the bush. The shaft and bush are correctly engaged when the end of the axle shaft splines are flush with the end of the stub axle. This condition must be maintained during all ensuing assembly operations.
64. Place the mud shield in position and secure the stub axle to the swivel pin housing with the six bolts using Loctite 270 and evenly tighten to 60 to 70 Nm (44 to 52 lbf ft).
65. To complete the reassembly, follow instructions 25 to 41 covering front hub overhaul.
66. Check that the swivel pin housing drain plug is tightly fitted and remove the filler level plug.
67. Inject approximately 0,28 litres (½ pint) of recommended EP oil until the oil begins to run out of the filler hole. Fit and tighten the plug and wipe away any surplus oil.
68. Set the steering lock-stop bolts to provide a clearance between the tyre wall and radius arm in accordance with the dimensions below. This dimension however, must be set to 56 mm, irrespective of tyre size and type where steering gaiters are fitted.

Tyre Size	Dim 'A' ± 0,25 mm
750 x 16 Michelin XS	54,00 mm
750 x 16 Avon Rangers	54,00 mm
750 x 16 (All others)	51,00 mm



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