

54 - FRONT AXLE AND FINAL DRIVE

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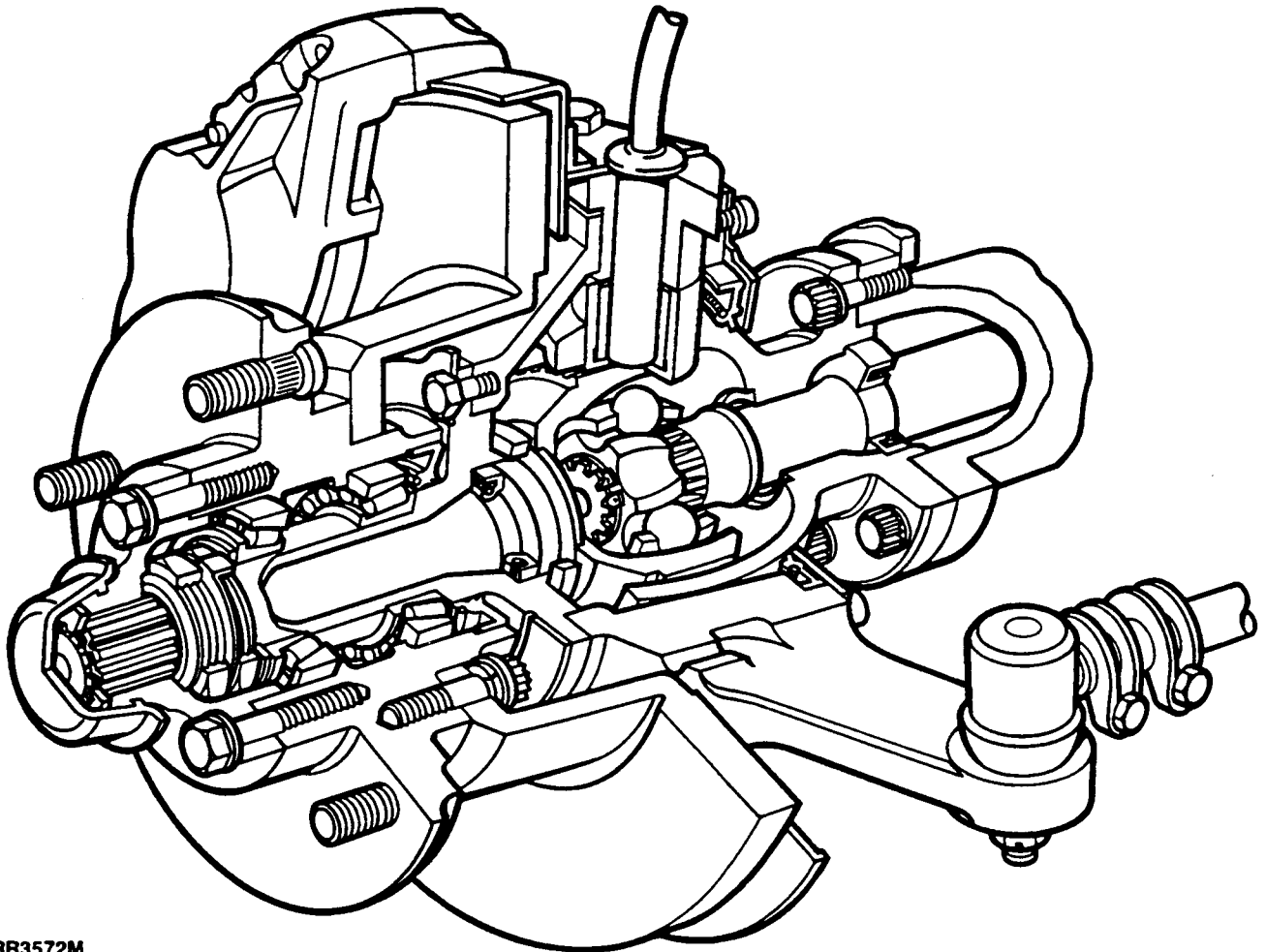
FRONT HUB1



DESCRIPTION

The welded steel front axle casing houses a separate spiral bevel type differential unit, which is off set to the right of the vehicle centre line. The differential unit drives the front wheels via the axle shafts and constant velocity joints which are totally enclosed in the spherical and swivel housings.

Front axles fitted with ABS brakes are of slightly different construction to axles with non ABS brakes.

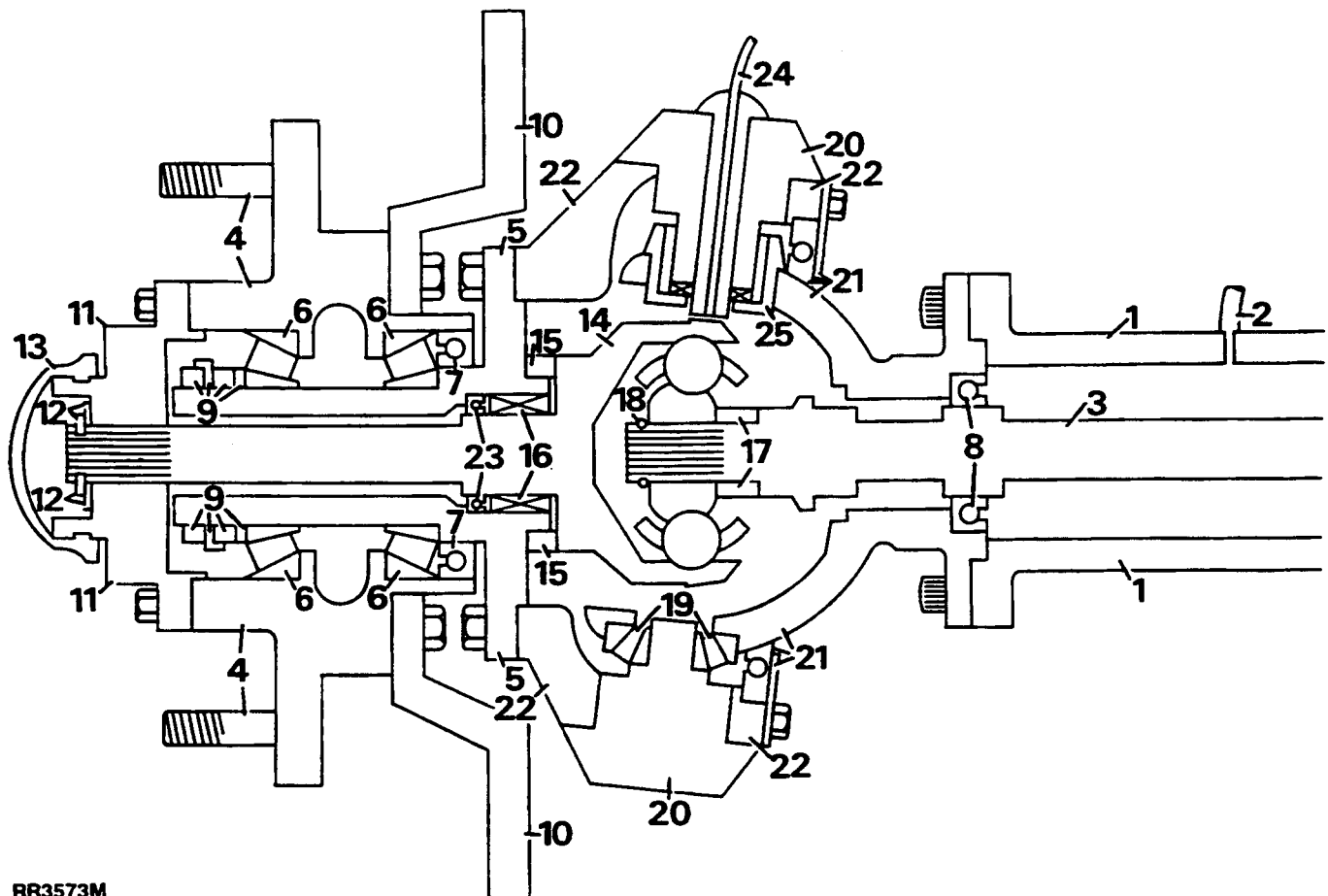


RR3572M

Front axle - ABS brakes

Front axle - ABS brakes

The front wheels are pivoted on taper roller bearings at the bottom of the swivel housing and a 'Railko bush' at the top. The wheel hubs are supported by two taper bearings and driven by drive flanges which are splined to the one piece, stub shaft/constant velocity joint.



RR3573M

Front axle - ABS brakes

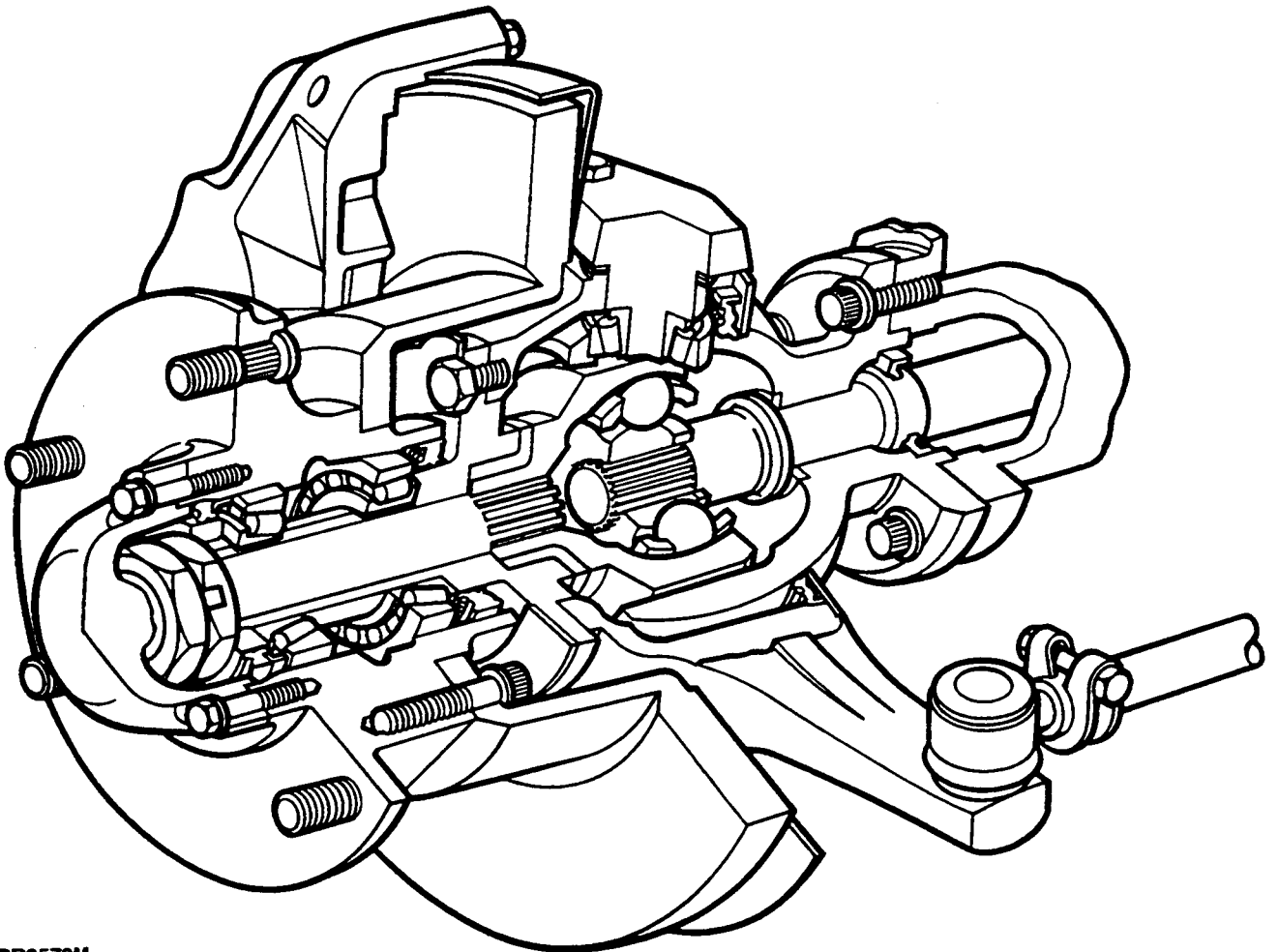
- | | |
|---|--|
| 1. Axle casing | 16. Roller bearing |
| 2. Ventilation pipe | 17. Spacer |
| 3. Axle shaft | 18. Circlip |
| 4. Wheel studs and hub | 19. Bottom swivel taper bearing |
| 5. Stub axle | 20. Top and bottom swivel pins |
| 6. Wheel bearings (2) | 21. Spherical housing, seal and retainer |
| 7. Inner and outer hub seals | 22. Swivel housing |
| 8. Axle shaft seal | 23. Constant velocity shaft seal |
| 9. Hub lock plate, thrust washer and nuts (2) | 24. ABS pickup (electrical connection) |
| 10. Brake disc | 25. 'Railko' bush see note below |
| 11. Drive flange | |
| 12. Shim washer and circlip | |
| 13. Dust cap | |
| 14. Constant velocity joint/shaft | |
| 15. Thrust collar for CV joint | |

Ref item 25. Early ABS axles are fitted with a 'Railko' bush and thrust washer. Later axles have a 'Railko' bush and roller thrust bearings as illustrated.



Front axle - non ABS brakes

The front wheels are pivoted on taper roller bearings at the top and bottom of the swivel housing. The wheel hubs are supported by two taper bearings and driven by a one piece shaft/constant velocity joint which are splined to the axle shafts.



RR3570M

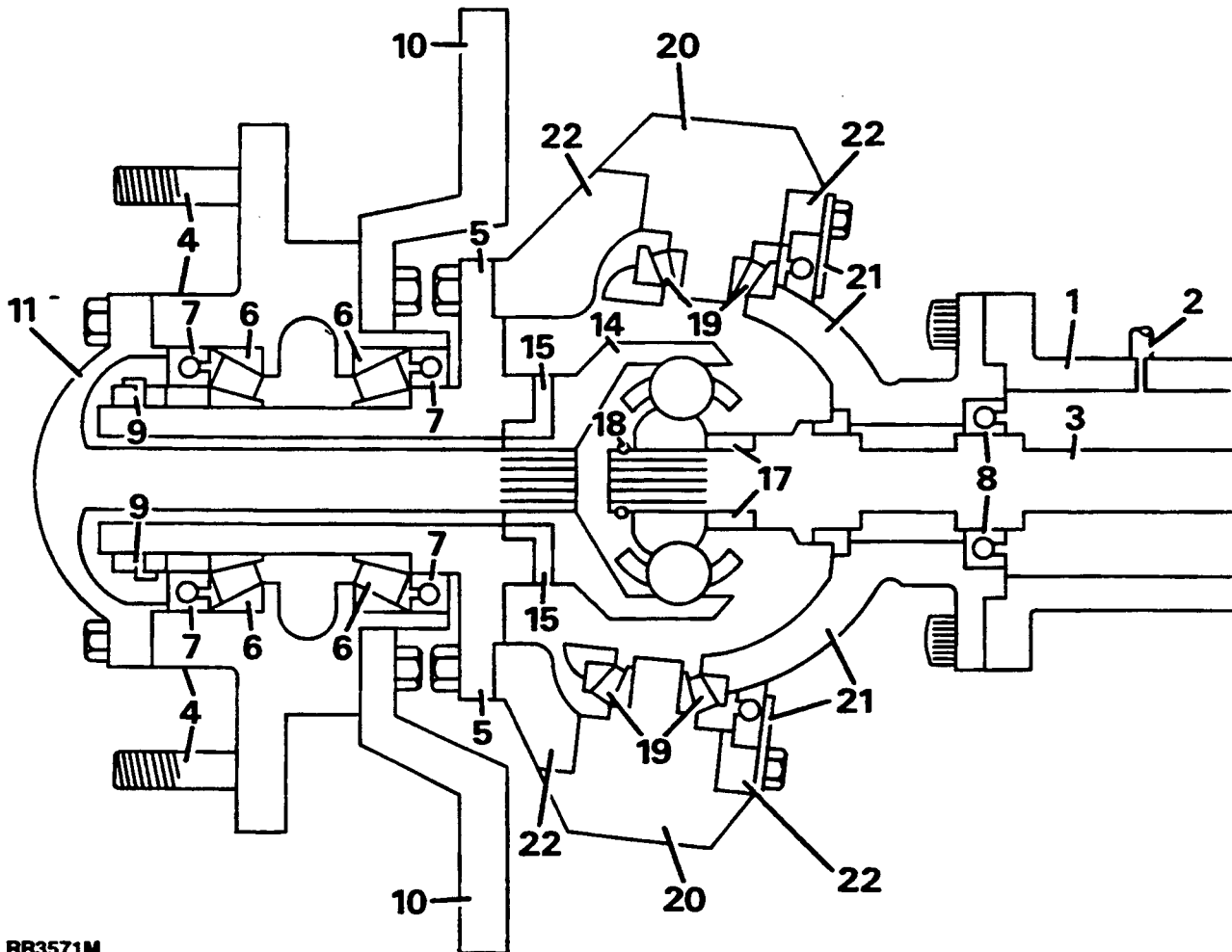
Lubrication

The differential, swivel housing and wheel hubs are individually lubricated and separated by oil seals 7 and 8, to prevent oil transfer across the axle when the vehicle is traversing steep inclines.

The wheel bearings are lubricated with grease and the swivel housing and differential with oil.

Ventilation

Ventilation of the differential is through a plastic pipe which terminates at a high level on the vehicle on both ABS and non ABS axles. The swivel housings ventilate through axle shaft oil seals 8 into the differential and the hub bearings vent via the oil seals into swivel housing.



RR3571M

Front axle - non ABS brakes**Key**

- | | |
|---|---|
| 1. Axle casing | 11. Drive flange and shaft |
| 2. Ventilation pipe | 12. Constant velocity joint/shaft |
| 3. Axle shaft | 13. Thrust collar/support bush for CV joint |
| 4. Wheel studs and hub | 14. Spacer |
| 5. Stub axle | 15. Circlip |
| 6. Wheel bearings (2) | 16. Top and bottom swivel taper bearing |
| 7. Inner and outer hub seals | 17. Top and bottom swivel pins |
| 8. Axle shaft seal | 18. Spherical housing, seal and retainer |
| 9. Hub lock plate, thrust washer and nuts (2) | 19. Swivel housing |
| 10. Brake disc | |



FAULT DIAGNOSIS

Complaint - Oil leaks

Front axles with ABS brakes and those with non ABS brakes have different internal oil seals which separate the lubrication of the differential, swivel housings and wheel hubs. The external seals on both axles are the same. An external leak of lubrication can be caused by a faulty internal seal. For example, if the seals which separate the differential from the swivel housings are faulty and the vehicle is operating or parked on an embankment, oil may leak across the axle leaving one swivel with a high level and the other swivel and differential lacking lubrication.

See 'Description and Operation' for illustrations of oil seal locations.

When investigating leaks or checking oil levels, it is essential that all the lubrication is drained from any housing with a high level and that the other levels are checked.

Swivel oil should be checked for signs of grease leaking from the hub bearings and the hub grease should not contain oil.

Check that the axle ventilation system is clear, as a blockage can cause internal pressure to force oil past the seals.

If the vehicle is driven in deep water with defective oil seals, water may contaminate the lubricants and when checked, give a false impression that the housing has been overfilled with oil.

Do not assume that a high oil level is due to over filling or, that a low level is because of an external leak.



FRONT AXLE ASSEMBLY

Service repair no - 54.15.01 or -54.16.01(ABS)

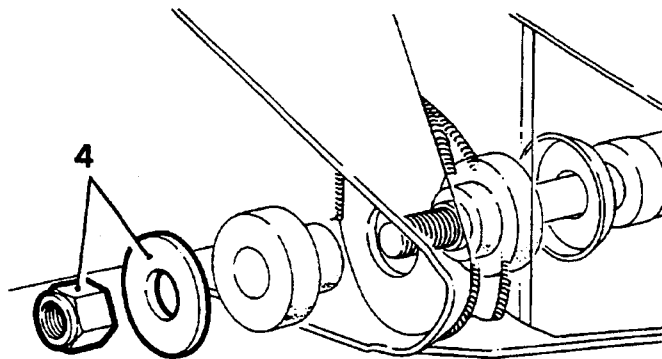
Remove and refit

Remove



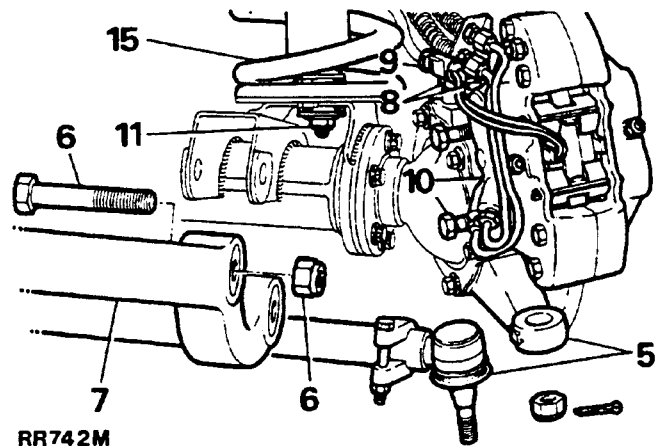
WARNING: Remove and refit of axle requires a further two persons to steady axle when lowering or repositioning axle.

1. Support chassis front.
2. Remove road wheels.
3. Support axle weight with hydraulic jack.
4. Remove radius arms to chassis frame nuts.



RR983M

5. Disconnect steering damper from track rod. Using an extractor remove track rod links from swivel pin arms.
6. Remove four nuts and bolts securing radius arms to axle bracket.
7. Remove radius arms.
8. Remove bolts securing brake hose brackets. Refit bolts to prevent oil leakage.
9. Disconnect brake pad wear multiplug, and where applicable remove ABS sensor.
10. Remove bolts from brake calipers and tie to one side.
11. Remove nuts and washers securing shock absorbers to axle.
12. Disconnect drag link from swivel pin housing arm.



RR742M

13. Remove two nuts and bolts securing Panhard rod to axle bracket. Lift rod clear of axle.
14. Mark for reassembly drive shaft flanges. Remove four nuts and bolts, tie propeller shaft to one side.
15. Lower axle assembly and remove road springs.
16. Disconnect anti roll bar link. *See FRONT SUSPENSION, Repair, Anti-roll bar ball joint links*
17. Remove axle assembly.

Refit

18. Position axle under vehicle, supporting left side of axle.
19. Reverse removal procedure.
20. Tighten propeller shaft bolts to **47 Nm**.
21. Tighten Panhard rod to axle bracket to **88 Nm**.
22. Tighten drag link to hub arm to **40 Nm**.
23. Tighten upper swivel pin bolts. *See Specifications, torque, Torque Values*
24. Tighten radius arms to axle bolts to **197 Nm**.
25. Tighten radius arms to chassis side member nuts to **197 Nm**.
26. Tighten track rod end to **40 Nm**
Fit new split pin.

FRONT BRAKE DISCS ABS

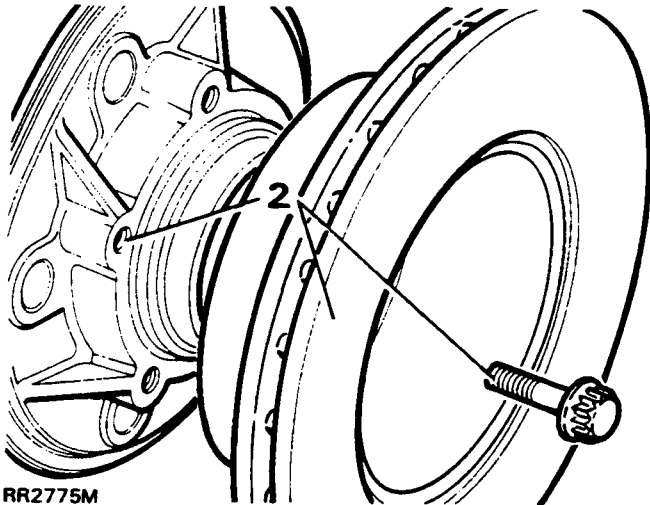
Service repair no - 70.11.10.

Remove and refit**Remove**

1. Remove front hub assembly. *See Front hub assembly ABS*
2. Remove five hub to disc bolts.
3. Tap disc to separate from hub.

Refit

4. Locate disc to hub.
5. Apply Loctite 270 to disc bolts. Tighten to **73Nm**.



6. Check total disc runout with a dial indicator, this must not exceed 0,15 mm. If necessary reposition disc.
7. Fit hub assembly. *See Front hub assembly ABS*

Front brake vented disc reclamation

Vented discs may be reduced to a total minimum thickness of 22 mm.

Metal may be machined off each disc face, but equal thicknesses of disc must remain each side of vent.

FRONT BRAKE DISCS NON ABS

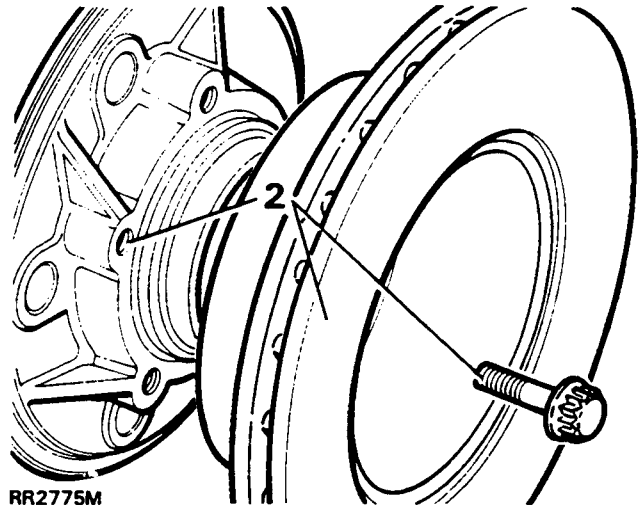
Service repair no - 70.10.10.

Remove and refit**Remove**

1. Remove front hub assembly. *See Front hub assembly non ABS*
2. Remove five hub to disc bolts.
3. Tap disc to separate from hub.

Refit

4. Locate disc to hub.
5. Apply Loctite 270 to disc bolts. Tighten to **73Nm**.



6. Check total disc runout with a dial indicator, this must not exceed 0,15 mm. If necessary reposition disc.
7. Fit hub assembly. *See Front hub assembly non ABS*

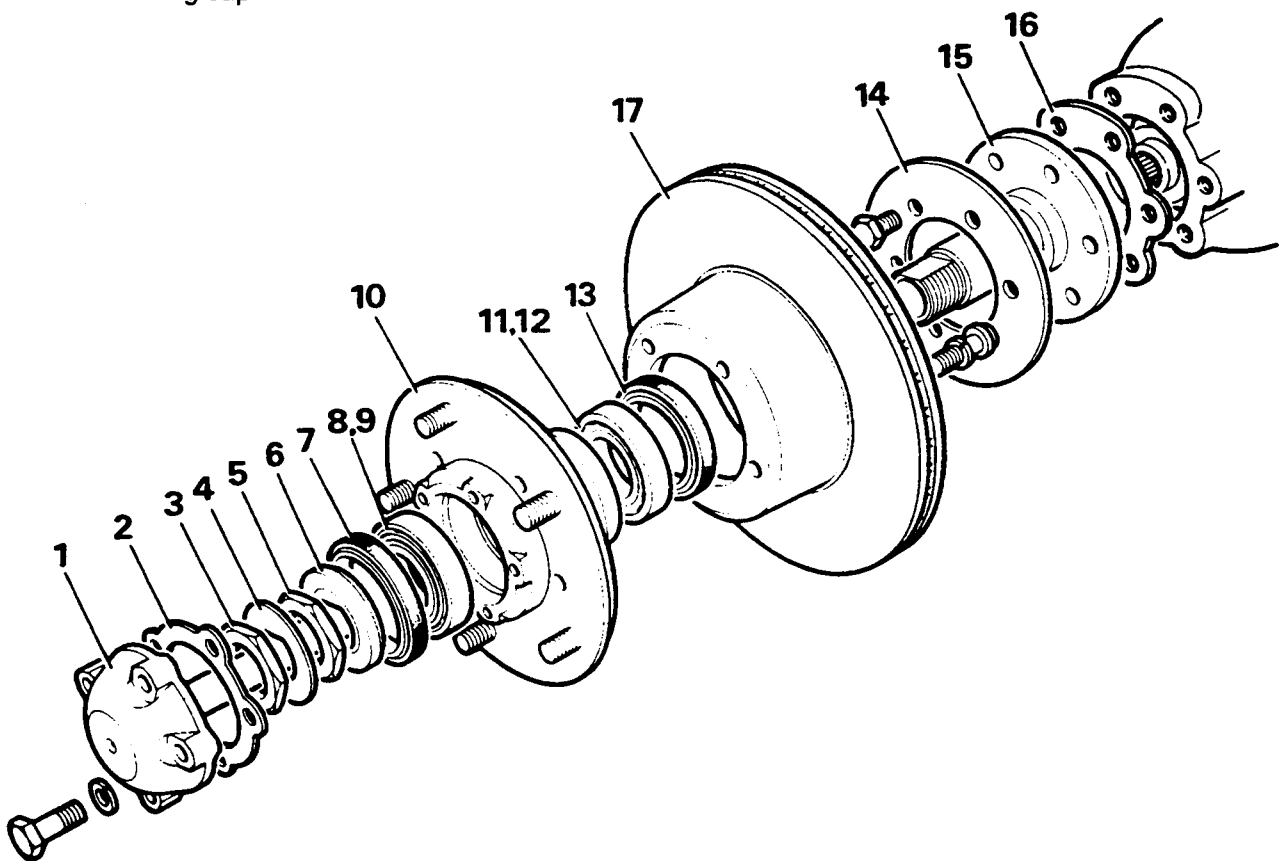


FRONT HUB ASSEMBLY NON ABS

Service repair no - 60.25.01.

Front hub components

- | | |
|-----------------------|----------------------------|
| 1. Hub driving shaft | 10. Hub |
| 2. Gasket | 11. Inner bearing cup |
| 3. Locknut | 12. Inner bearing cone |
| 4. Lock washer | 13. Inner oil seal |
| 5. Adjusting nut | 14. Mudshield |
| 6. Seal track spacer | 15. Stub axle |
| 7. Outer oil seal | 16. Stub axle joint washer |
| 8. Outer bearing cone | 17. Brake disc |
| 9. Outer bearing cup | |



RR3775M

Remove and refit

Remove

1. Place front axle onto axle stands and remove road wheel.
2. Release brake hose clips and remove brake caliper bolts. Secure to one side.



WARNING: Take care not to kink brake hose.

3. Remove bolts, hub driving shaft to hub and withdraw shaft.
4. Straighten locking washer tab. Use service tool 606435 box spanner to remove locknut. Remove lock washer and adjusting nut.
5. Remove seal track spacer.
6. Remove hub assembly.

Refit

7. Select a new seal track spacer. Check outer diameter is smooth and no burrs are on chamfered leading edge.
8. Fit hub assembly to stub axle.



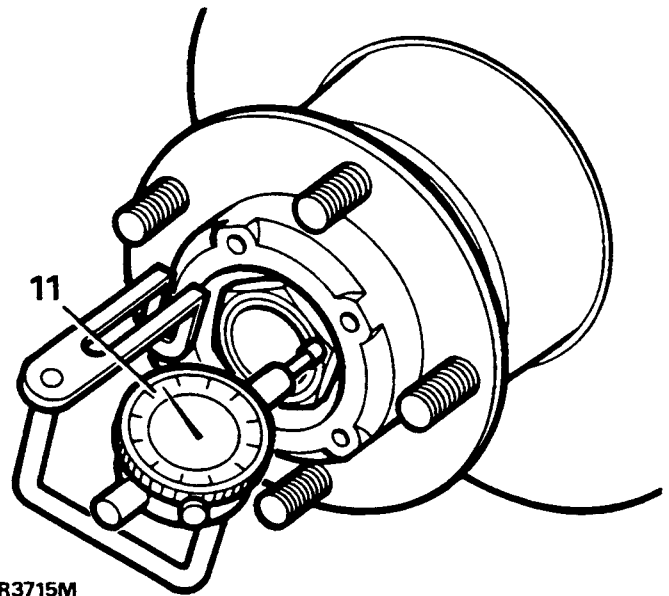
CAUTION: Outer seal damage could occur if hub is rested on stub axle before seal track spacer is fitted.

9. Fit seal track spacer, seal lip leading.



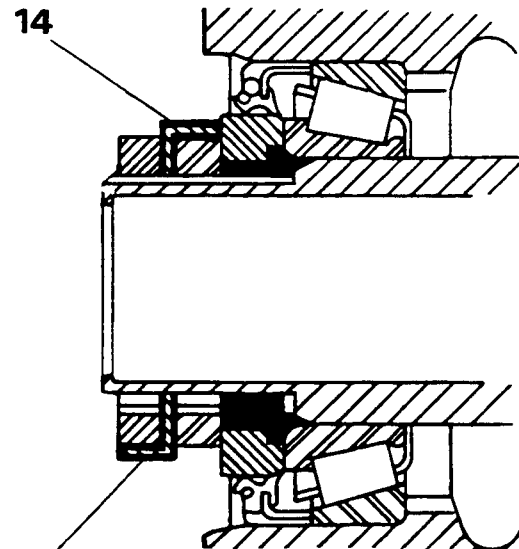
NOTE: Instruction 10 applies to hubs fitted with new components. Instruction 11 applies if fitting original components.

10. Fit adjusting nut and using box spanner 606435 tighten nut while revolving hub until end float is removed. Back-off nut half a turn and retighten to **1.5Nm giving required hub end-float of 0,013 to 0,10 mm.**
11. If seal track spacer has previously been compressed hub end-float is checked by mounting a dial indicator on hub so trace pin rests preloaded on nut. Rotate hub and check end-float of 0,013 to 0,10 mm by pushing and pulling the hub.
12. Fit a new lock washer and locknut. Restrain adjustment nut and tighten lock nut to **102 Nm.**
13. If fitting original components rotate hub then recheck end-float.



RR3715M

14. Bend lock washer over adjusting nut and over locknut. Avoid damaging outer seal.
15. Using a new joint washer, fit hub driving shaft. Tighten to **47Nm.**
16. Fit brake caliper retaining bolts. Tighten to **82Nm.**
Fit brake pipe bracket to top of swivel housing.



RR3714M

17. Fit road wheel. Place vehicle onto ground and tighten road wheel nuts to **126Nm.**



FRONT HUB ASSEMBLY ABS

Service repair no - 60.26.01.

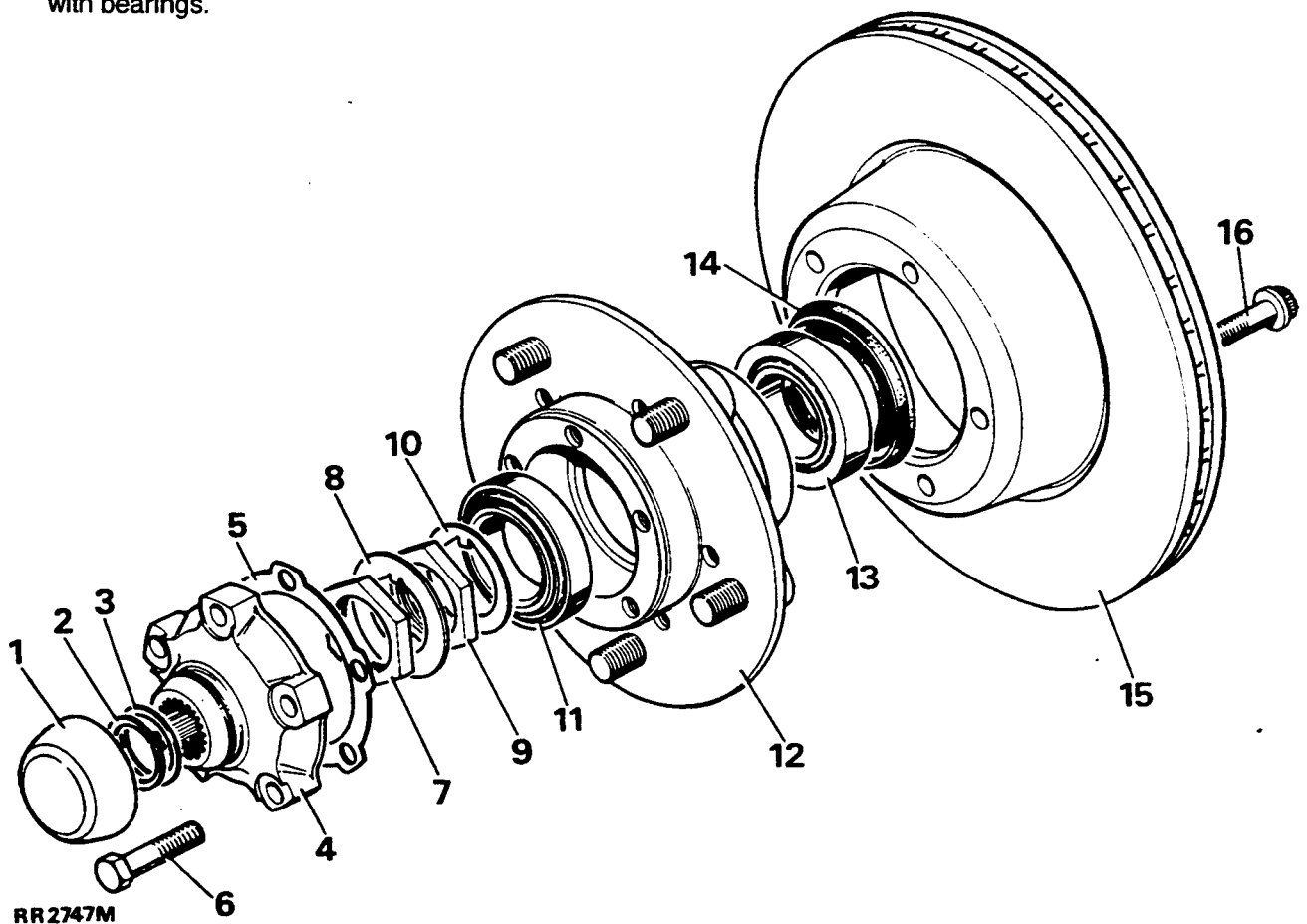
Remove and refit

Remove

1. Slacken front wheel nuts, jack up vehicle and lower onto axle stands and remove road wheel.
2. Release brake hose clips and remove brake caliper. Secure to one side.
3. Lever off dust cap.
4. Remove circlip and propeller shaft shim from propeller shaft.
5. Remove five bolts and withdraw driving member and joint washer.
6. Bend back lock washer tab.
7. Remove locknut and tab washer.
8. Remove hub adjusting nut.
9. Remove keyed washer.
10. Remove hub and brake disc assembly complete with bearings.

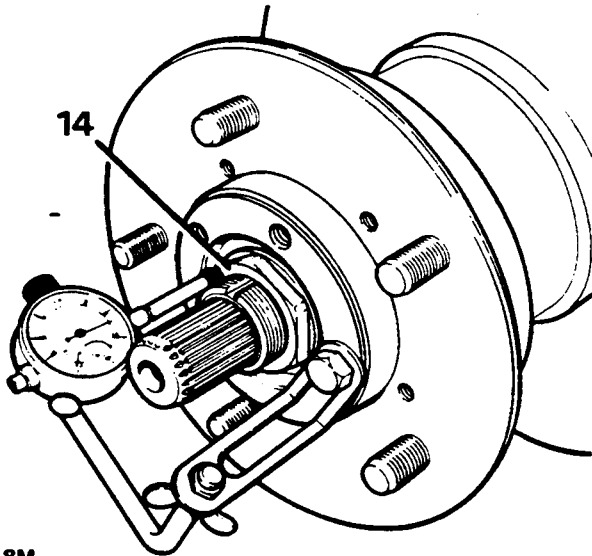
HUB COMPONENTS

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



Refit

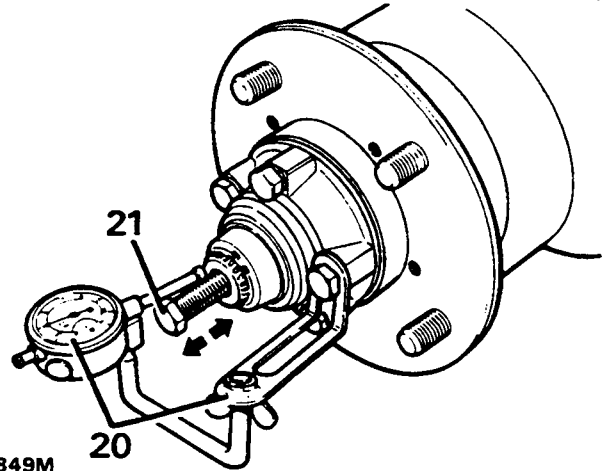
11. Clean stub axle and propeller shaft and fit hub assembly to axle.
12. Fit keyed washer.
13. Fit hub adjusting nut and tighten by hand whilst rotating hub until all end-play is taken up.
14. Mount a dial gauge using bracket LRT-99-503 and rest pin in a loaded condition on adjusting pin.



RR3848M

15. Slacken off adjusting nut until a hub end play of 0,013 to 0,05 mm is obtained.
16. Fit a new keyed lock tab washer.
17. Fit and tighten hub adjusting nut and recheck end play before bending lock tab over.
18. Fit a new joint washer to driving member and fit member to hub and secure with five bolts. Tighten to 65Nm.

19. Fit original propeller shaft shim and secure with a circlip.
20. To check drive shaft end play mount a dial gauge using bracket LRT-99-503 and rest pin in a loaded condition on end of propeller shaft.
21. Fit a suitable bolt to threaded end of propeller shaft. Move propeller shaft in and out noting dial gauge reading. End play should be between 0,08 to 0,25 mm.



RR3849M

22. If end play requires adjustment, remove circlip, measure shim thickness and fit an appropriate shim to give required end-play.
23. Remove bolt from propeller shaft, fit circlip and dust cap.
24. Fit brake caliper. Tighten to 82Nm.
25. Bleed brake system. See *BRAKES, Repair, Brake System Bleed (ABS)*
26. Fit road wheel, remove axle stands and tighten road wheel nuts to 126Nm.
27. Operate footbrake to locate brake pads before taking vehicle on road.



FRONT DIFFERENTIAL

Service repair no - 54.10.07. or - 54.11.07.

Overhaul

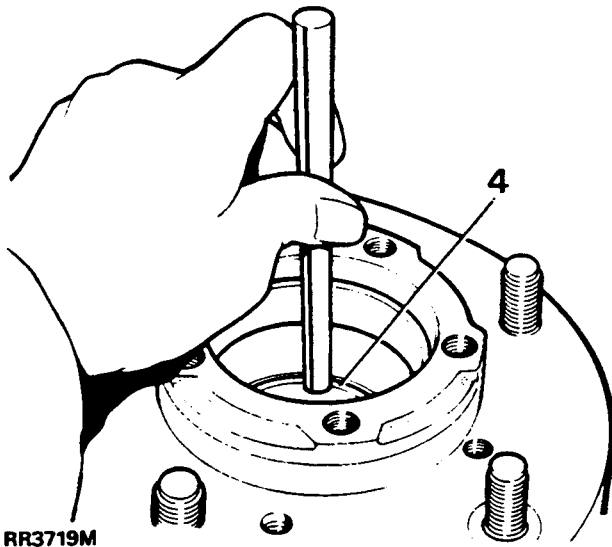
The front and rear differentials fitted to Range Rover are the same. When overhauling front differential. See **REAR AXLE AND FINAL DRIVE, Overhaul, Axle differential assembly**

FRONT HUB NON ABS

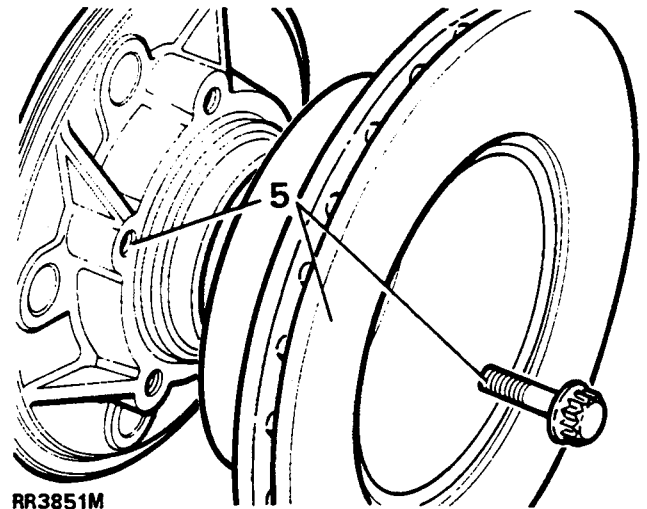
Service repair no - 60.25.14.

Overhaul

1. Remove hub assembly. See **Repair, Front hub assembly non ABS**
2. Remove inner and outer oil seals.
3. Remove inner and outer bearing cones.
4. Remove inner and outer bearing cups.



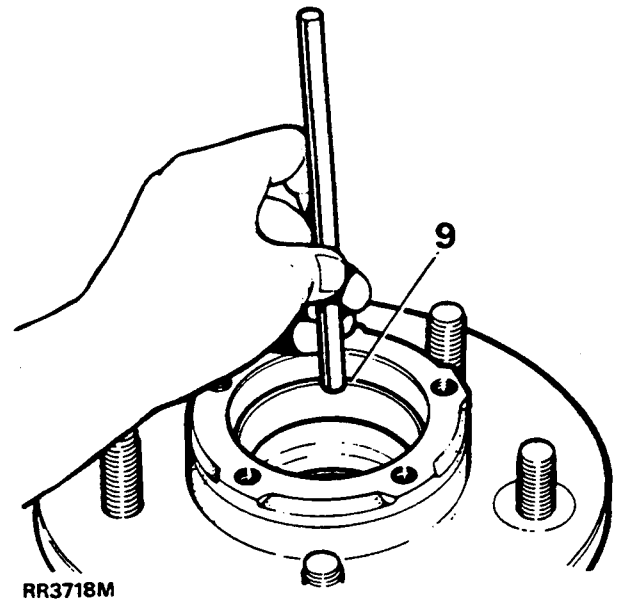
5. Examine hub and brake disc and replace if unserviceable. Mark position of hub to disc if original parts are to be assembled.
6. Examine stub axle. Check inner seal track is smooth and free from blemishes.



7. If necessary remove six bolts and remove stub axle complete with mudshield and joint washer.

Assemble

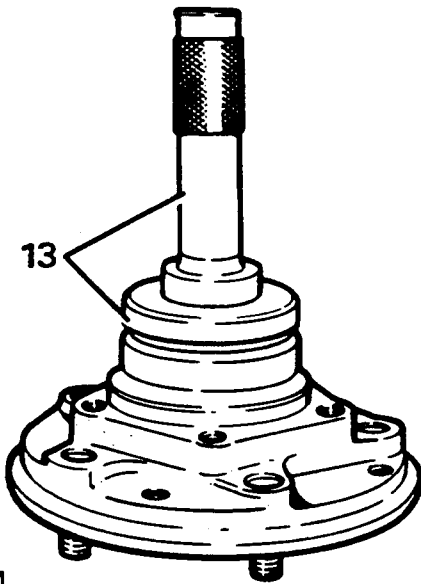
8. Using a new joint washer fit stub axle and mud shield. Coat threads of bolts with Loctite 270. Tighten to **65Nm**
9. Fit new inner and outer bearing cups to hub.



10. Fit new inner bearing cone and pack with recommended grease.

Fitting inner oil seal

11. Clean oil seal housing and check seal locating surface is smooth and free from burrs.
12. Apply recommended grease to outside diameter of seal before fitting.
13. Fit seal, lip side leading, using the 76 mm end of service tool LRT-54-001 and drift LRT-99-003 flush with end face of hub.



RR3850M

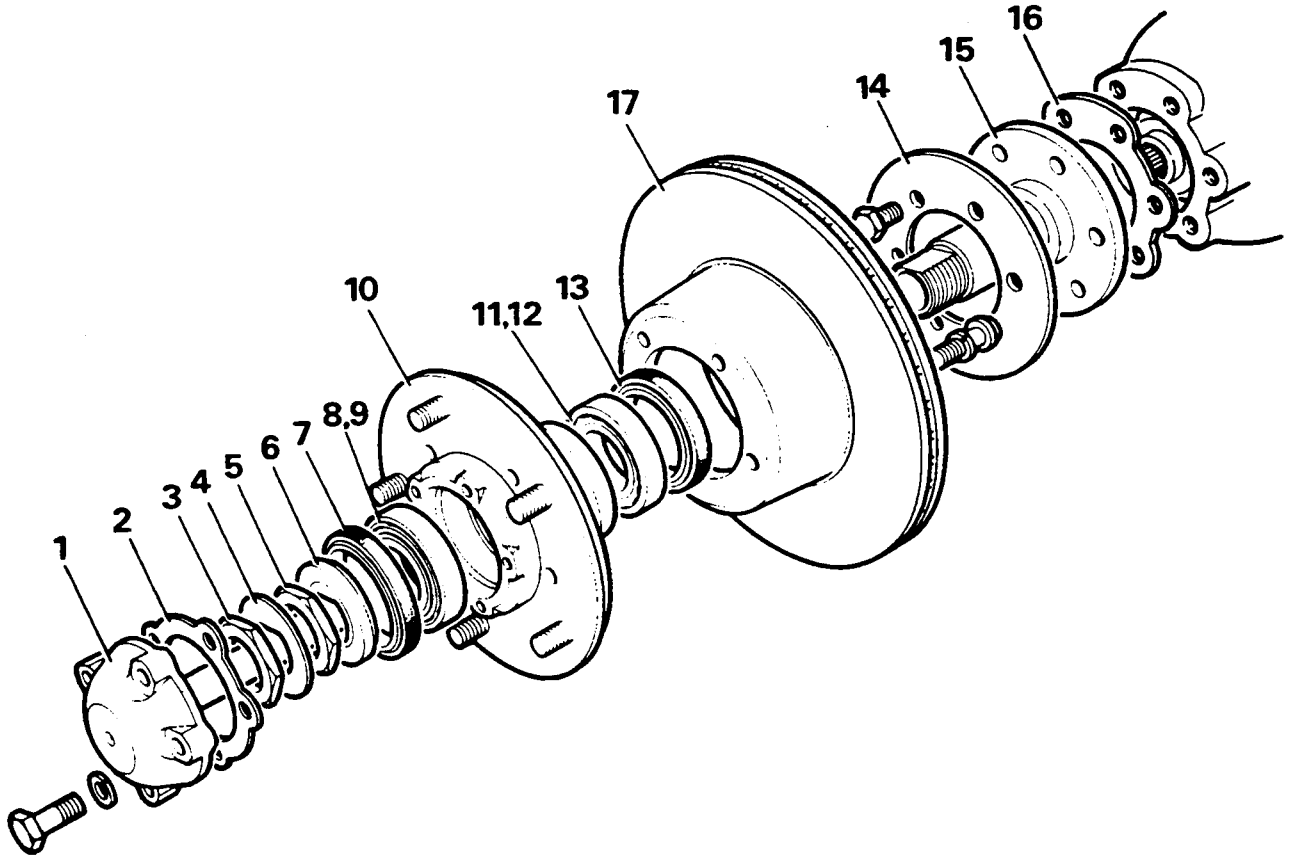
Fitting outer oil seal

14. Fit new outer bearing cone and pack with a recommended grease. Repeat instructions 11 and 12.
15. Fit outer seal, lip side leading, using 72 mm end of service tool LRT-54-001 and drift LRT-99-003, to depth determined by tool.
16. Coat lips of seals with recommended grease.
17. Fit hub assembly to axle. **See Repair, Front hub assembly non ABS**



FRONT HUB ASSEMBLY COMPONENTS NON ABS

- | | |
|-----------------------|----------------------------|
| 1. Hub driving shaft | 10. Hub |
| 2. Gasket | 11. Inner bearing cup |
| 3. Locknut | 12. Inner bearing cone |
| 4. Lock washer | 13. Inner oil seal |
| 5. Adjusting nut | 14. Mudshield |
| 6. Seal track spacer | 15. Stub axle |
| 7. Outer oil seal | 16. Stub axle joint washer |
| 8. Outer bearing cone | 17. Brake disc |
| 9. Outer bearing cup | |



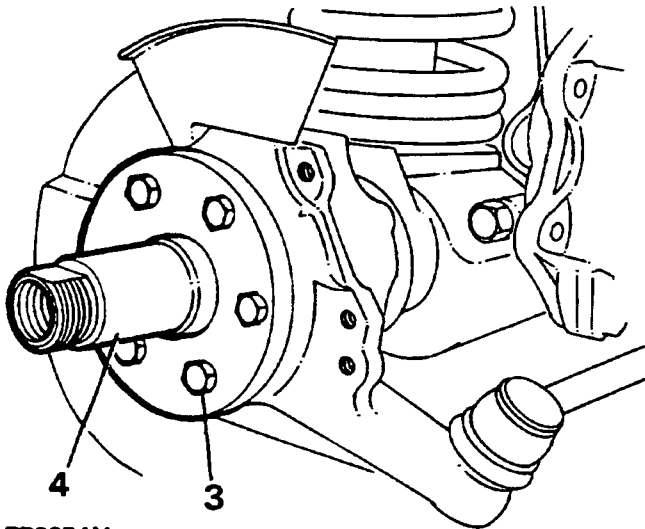
RR3775M

STUB AXLE, AXLE SHAFT, CONSTANT VELOCITY JOINT AND SWIVEL PIN, NON ABS

Service repair no - 60.15.45.

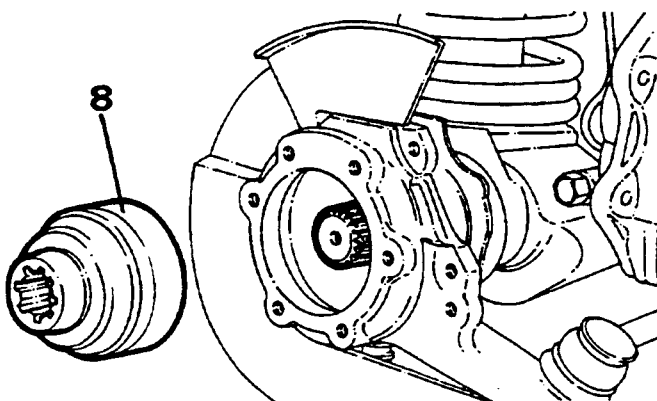
Overhaul

1. Remove hub assembly. *See Repair, Front hub assembly non ABS*
2. Drain oil from swivel pin housing.
3. Remove six bolts retaining stub axle to swivel pin housing.
4. Remove mud shield, stub axle and joint washer.
5. Remove brake disc shield.



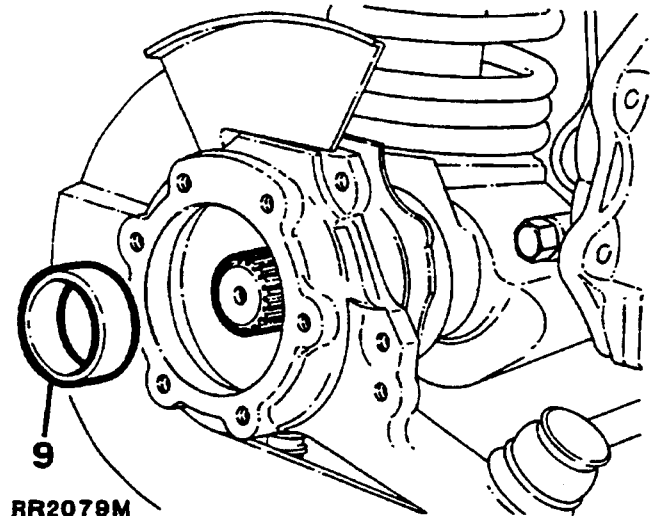
RR2074M

6. Disconnect tie-rod end ball joint from swivel pin housing.
7. Disconnect drag link ball joint.
8. Remove constant velocity joint from axle shaft.



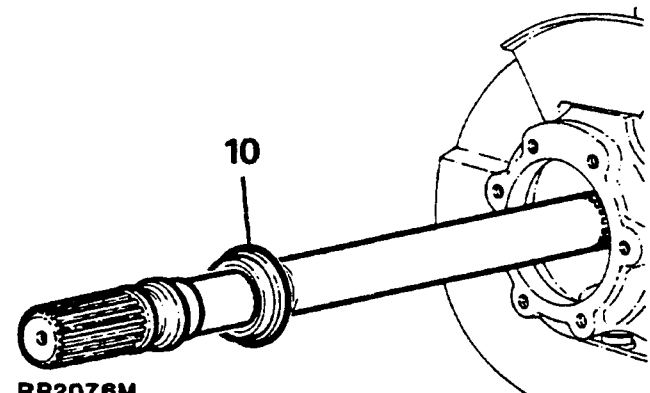
RR2075M

9. Remove spacer from axle shaft and then axle shaft from axle tube.



RR2079M

10. Remove bush from axle shaft.

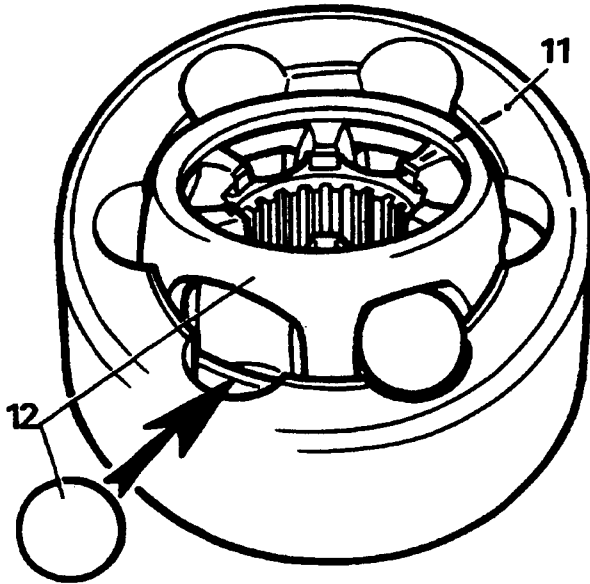


RR2076M



Constant velocity joint

11. Mark positions of constant velocity joint, inner and outer race and cage for reassembly.
12. Swivel cage and inner race to remove balls.



RF2077M

13. Examine all components in particular inner and outer track, cage balls and bearing surfaces for damage and excessive wear.
14. Maximum acceptable end-float on assembled joint 0,64mm. Renew if worn or damaged. Lubricate with a recommended oil during assembly.

Stub axle

15. Remove phospher bronze bush.
16. Examine stub axle, in particular check inner seal track diameter is smooth.
17. Press on a new bush up to shoulder of stub axle.

Swivel pin housing assembly

18. Remove bolts securing oil seal, retaining plate and joint washer. Release assembly from swivel pin housing.



NOTE: Removal of oil seal and retaining plate is achieved when swivel bearing housing is removed.

19. Remove two bolts, retaining lower swivel pin to housing.
20. Remove brake disc shield bracket.
21. Tap lug to remove lower swivel pin and joint washer.
22. Remove two bolts retaining brake hose bracket and top swivel pin.
23. Remove bracket, top swivel pin and shims.
24. Remove swivel pin housing while retrieving lower and upper bearings.

Swivel bearing housing

25. Remove lower bearing track from swivel bearing housing.



NOTE: Use upper bearing opening to gain access to lower bearing track.

26. Remove seven bolts retaining swivel bearing housing to axle case.
27. Remove inner oil seal from back of housing.
28. Remove top bearing track from swivel bearing housing.



NOTE: Use lower bearing opening to gain access to upper bearing track.

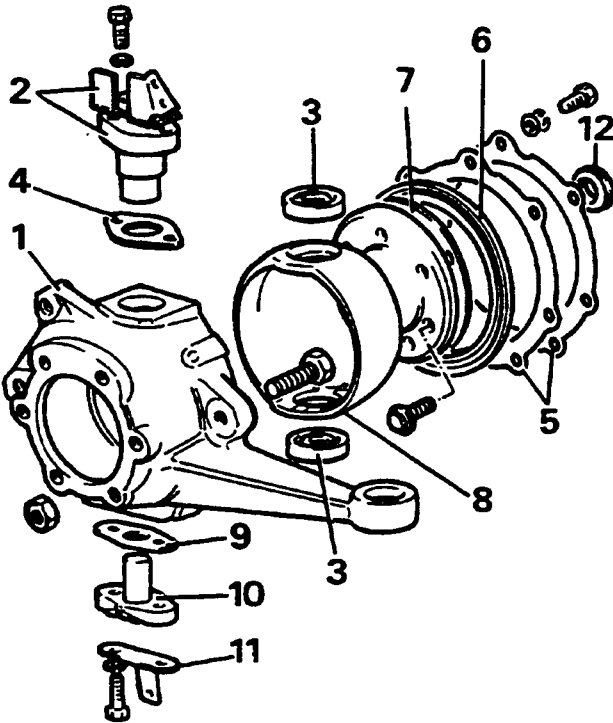
29. If worn, pitted or damaged, renew housing.
30. Fit upper and lower bearing tracks into swivel bearing housing.



CAUTION: Ensure bearing tracks are fitted square or damage could occur.

31. With seal lips trailing, fit swivel housing inner oil seal into rear of housing. Grease seal lips.

Swivel assembly components



RR980M

1. Swivel pin housing
2. Top swivel pin and brake hose bracket
3. Upper and lower swivel pin bearings
4. Shim
5. Retaining plate and washer
6. Oil seal
7. Joint washer
8. Swivel bearing housing
9. Joint washer
10. Lower swivel pin
11. Mudshield bracket
12. Swivel housing inner oil seal

Assemble swivel pin housing.

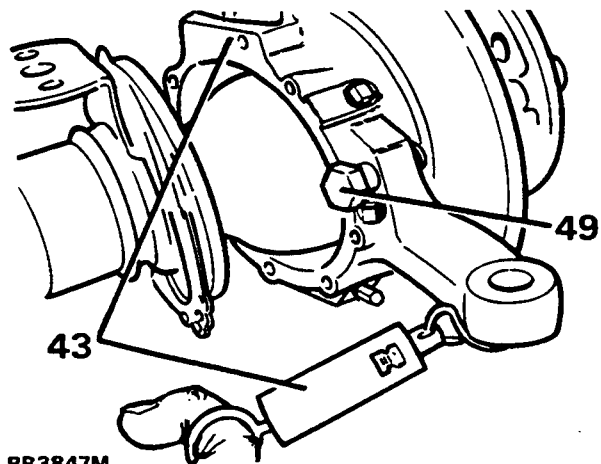
32. Coat swivel bearing housing to axle casing bolts with Loctite 270 or equivalent.
33. Coat both sides of joint washer with a sealing compound. Position swivel bearing housing to axle mating face.
34. Place retaining plate, joint washer and oil seal over axle flange ready for assembly.
35. Fit swivel bearing housing to axle flange with seven bolts. Tighten to **73 Nm**.
36. Grease and fit upper and lower swivel pin taper roller bearings.
37. Position swivel pin housing over swivel bearing housing.
38. Coat joint washer both sides with sealing compound and position on lower swivel pin.
39. Loosely fit brake shield bracket plus lower swivel pin with lug outboard to swivel pin housing.
40. Loosely fit top swivel pin plus existing shims and brake hose bracket to swivel pin housing.
41. Apply Loctite 270 or equivalent to lower swivel pin bolts. Tighten to **78Nm** bend over lock tabs.
42. Tighten top swivel pin bolts to **78Nm**.

Check and adjust preload on bearings non ABS



NOTE: Swivel housing oil seal and axle should not be fitted.

43. Attach a spring balance to ball joint bore and pull balance to determine effort required to turn swivel pin housing. Resistance, once initial inertia has been overcome, should be **1.16 to 1.46 kg**. Adjust by removing or adding shims to top swivel pin.



RR3847M



44. When setting is correct remove top swivel bolts, apply Loctite 270 or equivalent. Refit to **78Nm**, and bend over lock tabs.
45. Apply recommended grease between lips of swivel oil seal.
46. Fit oil seal, joint washer and retaining plate with seven bolts and spring washers to **11Nm**.
47. Fit tie rod and drag link and secure with new split pins. Tighten to **40Nm**.
48. Fit brake disc shield.
49. Loosely fit lock stop bolt and nut.

Assemble constant velocity joint, stub axle and axle shaft.

50. Fit a new phosphor bronze bush onto axle shaft.
51. Place axle shaft into axle tube, ensuring splines are engaged push shaft home.



CAUTION: When fitting axle shaft avoid damage to oil seal.

52. Fit constant velocity bearing journal into bush on stub axle.
53. Fit spacer onto axle shaft.
54. Position joint washer on swivel pin housing to stub axle mating surface.
55. Fit stub axle with flat at 12 o'clock position. Ensure constant velocity bearing journal engages fully into bush.



CAUTION: Damage to bush may occur if assembly is not engaged fully.

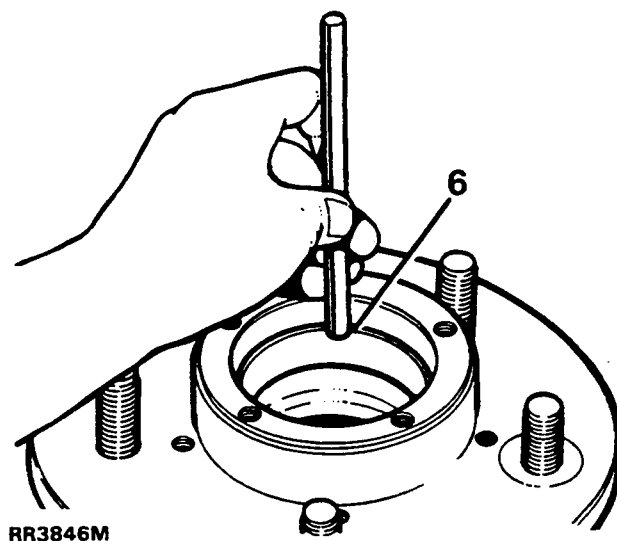
56. Fit mudshield and stub axle to swivel pin housing with six bolts. Apply Loctite 270 or equivalent. Tighten to **65Nm**.
57. Fit front hub assembly. *See Repair, Front hub assembly non ABS*
58. Fill swivel assembly to correct level, with new oil. *See SECTION 10, Maintenance, Under Vehicle Maintenance*
59. Set steering lock stop bolts. *See STEERING, Adjustment, Steering lock stops*

FRONT HUB ABS

Service repair no - 60.26.14.

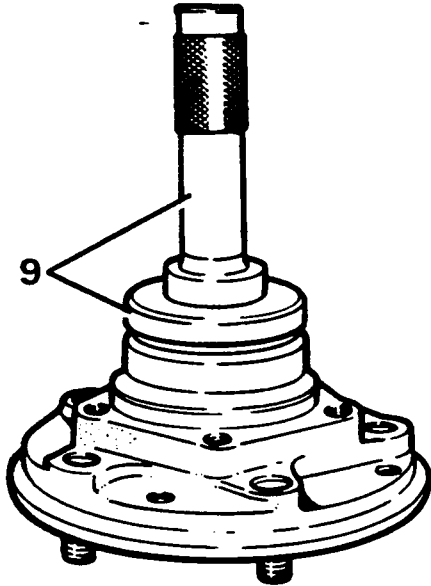
Overhaul

1. Remove front hub assembly ABS. *See Repair, Front hub assembly ABS*
2. Remove outer bearing.
3. Mark, for reassembly, relationship between hub and brake disc, if original hub is to be refitted.
4. Remove five bolts and separate hub from brake disc.
5. Drift out grease seal and inner bearing from hub and discard seal.
6. Drift out inner and outer bearing tracks.
7. Clean hub and drift in inner and outer bearing tracks.



8. Pack hub inner bearing with recommended grease and fit to hub.

9. With lip side leading fit new seal to hub using special tool LST 137 seal replacer and drift 18G 134. Drive in seal flush with rear face of hub. Apply grease between seal lips.
10. Fit brake disc to hub, lining up to marks made during dismantling. Applying Loctite 270, fit and tighten five retaining bolts to **73Nm**.

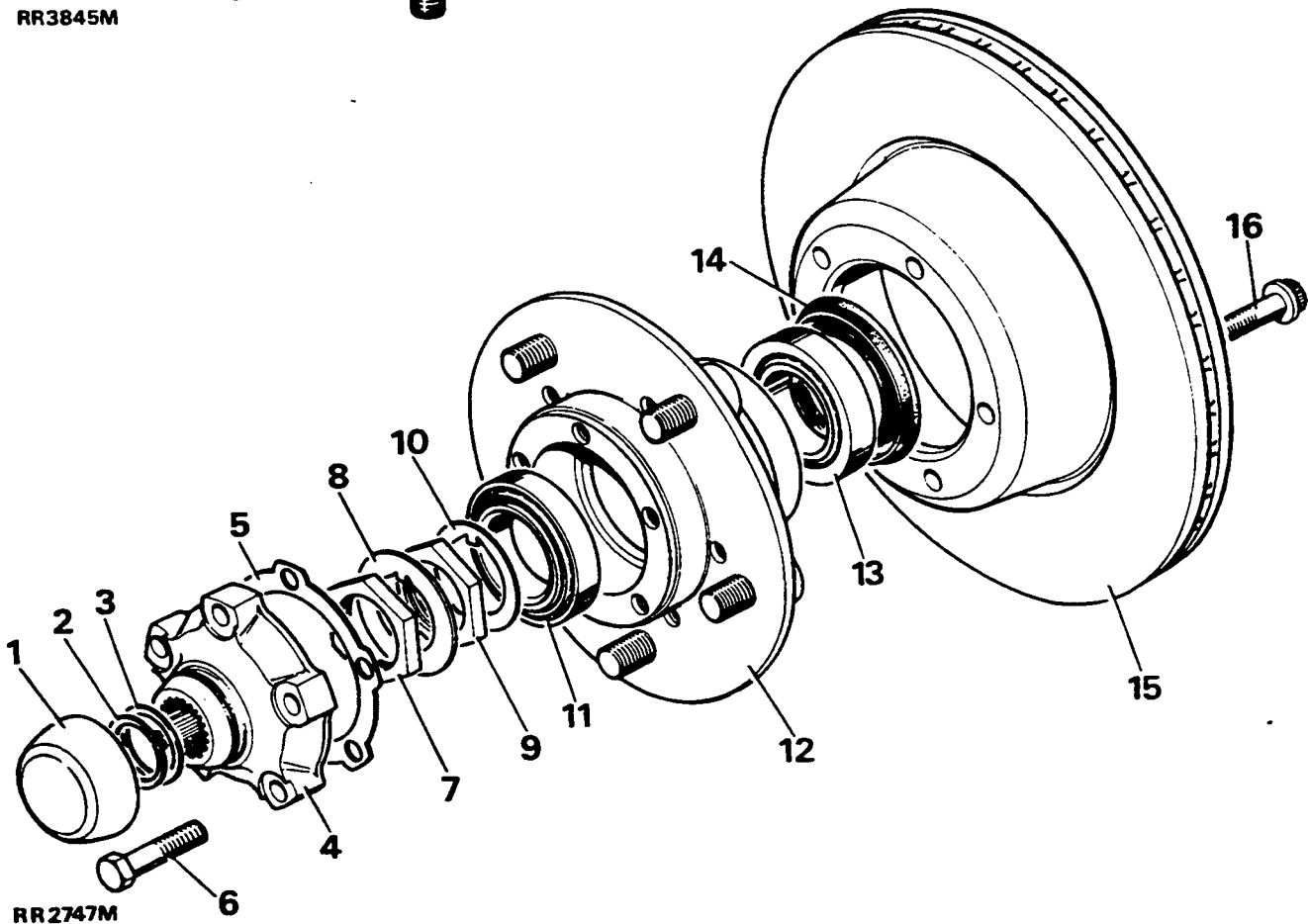


RR3845M

11. Grease and fit outer bearing to hub.
12. Fit front hub assembly. *See Repair, Front hub assembly ABS*

HUB COMPONENTS

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



RR2747M

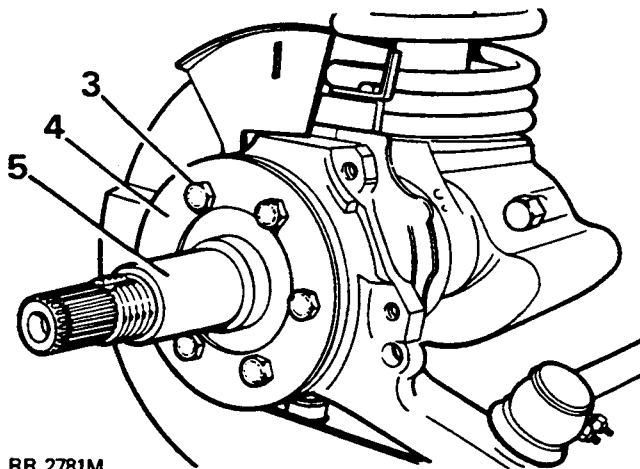


FRONT STUB AXLE, CONSTANT VELOCITY JOINT AND SWIVEL WITH ABS

Service repair no - 60.16.43.

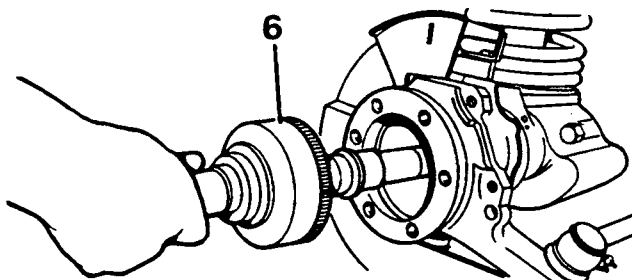
Remove stub axle, axle shaft and constant velocity joint.

1. Remove front hub assembly with abs. See *Repair, Front hub assembly abs*
2. Drain swivel pin housing and refit plug.
3. Remove six bolts retaining stub axle to swivel housing.
4. Remove mud shield.
5. Remove stub axle and joint washer.



RR 2781M

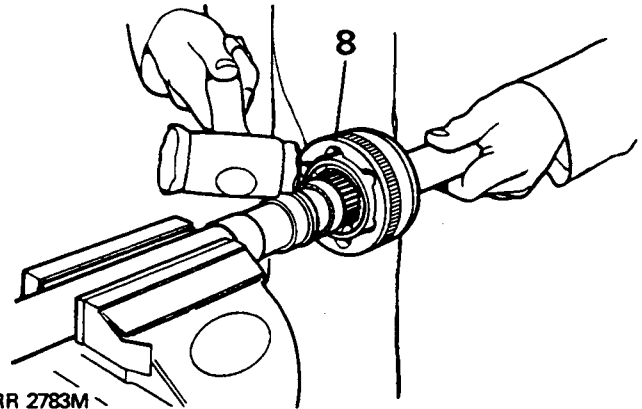
6. Pull out axle shaft and constant velocity joint from axle casing.



RR2782M

Remove constant velocity joint from axle shaft

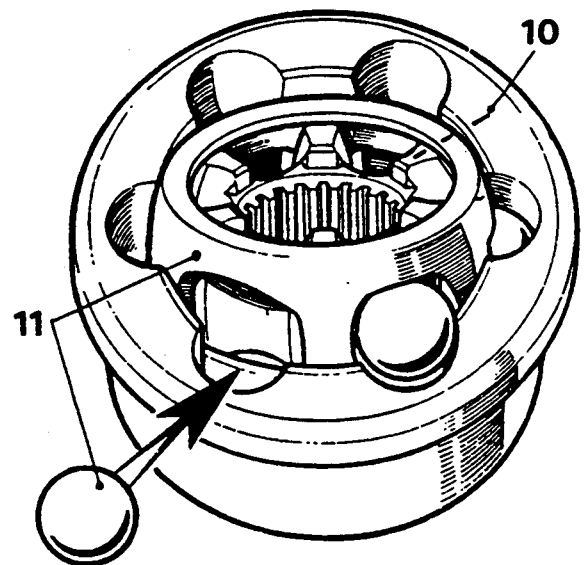
7. Hold axle shaft firmly in a soft jawed vice.
8. Using a soft mallet drive constant velocity joint from shaft.
9. Remove circlip and collar from axle shaft.



RR 2783M

Constant velocity joint

10. Mark positions of constant velocity joint, inner and outer race and cage for reassembly.
11. Swivel cage and inner race to remove balls.

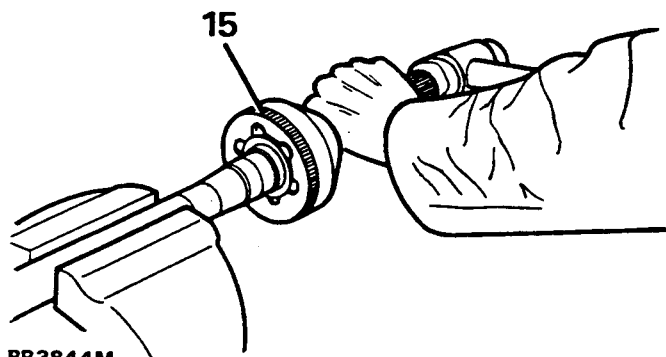


ST1025M

12. Examine all components in particular inner and outer track, cage balls and bearing surfaces for damage and excessive wear.
13. Maximum acceptable end-float on assembled joint 0,64mm. Renew if worn or damaged. Lubricate with a recommended oil during assembly.

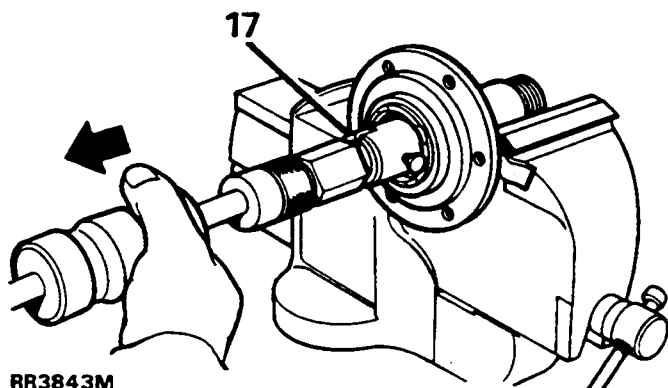
Fit constant velocity joint to axle

14. Fit collar and a new circlip.
15. Engage constant velocity joint on axle shaft splines and using a soft mallet, drive joint in fully.

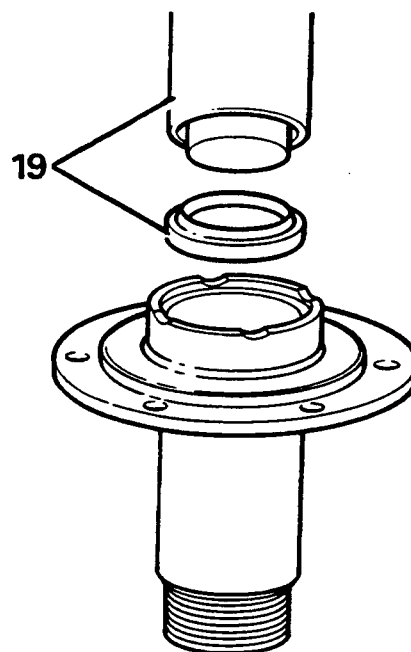


Renew stub axle, thrust ring, oil seal and bearing

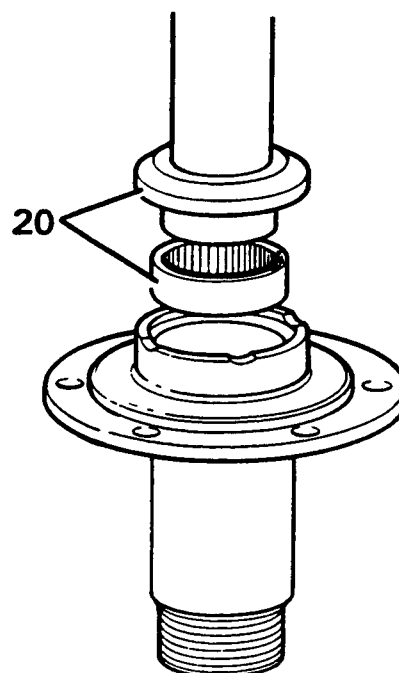
16. Drill and chisel off thrust ring taking care to avoid damaging stub axle.
17. Remove bearing and oil seal using special tool TRT-37-004 and slide hammer LRT-99-004. Ensure lip of tool locates behind bearing to drive it out.
18. Repeat instruction for removal of oil seal.



19. Lubricate seal and lip with EP90 oil and with cavity side leading press in a new oil seal using special tool LRT-54-004.



20. Using special tool LRT-54-005, fit bearing with its part number visible when fitted, and flush with end face of stub axle.





21. Press fit a new thrust ring onto stub axle.

Swivel pin housing.

22. Remove brake shield secured at bottom by one nut and bolt, and midway by lock stop nut.
23. Disconnect track-rod end ball joint from housing.
24. Disconnect drag-link ball joint.
25. Disconnect jump hoses from brake jump hose bracket.
26. Remove ABS brake sensor.
27. Remove six bolts securing oil seal and retaining plate to swivel pin housing. Prise seal from swivel pin housing.

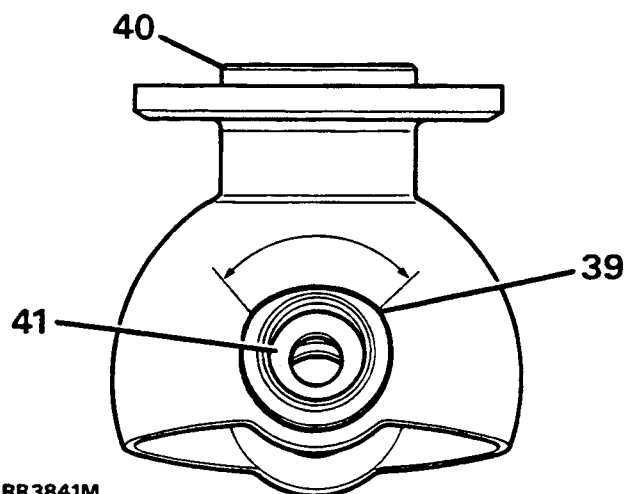


NOTE: Oil seal and retaining plate cannot be removed until swivel pin bearing housing is removed.

28. Remove two screws securing brake damper/shield bracket, and lower swivel pin to housing.
29. Withdraw lower swivel pin and joint washer by tapping protruding lug.
30. Remove top swivel pin retaining bolts complete with brake jump hose bracket.
31. Remove top swivel pin and shims.
32. Remove swivel pin housing while retrieving lower taper bearing.

Swivel pin bearing housing

33. Remove seven bolts securing swivel pin bearing housing to axle case.
34. Remove and discard oil seal and joint washer.
35. Remove lower swivel pin bearing track.
36. Remove top swivel pin bush housing assembly. Discard thrust washer. From 1991 model year on, discard two thrust washers and bearing.
37. If worn, pitted or damaged, renew swivel pin bearing housing.
38. Fit a new lower swivel pin bearing track.
39. Fit a new bush and bush housing. Ensure relieved lip of bush housing faces towards rear, as shown.



RR3841M

40. With seal lips trailing press axle shaft oil seal flush into rear of housing. Grease lips.
41. Fit a new thrust washer into top swivel pin bush with black P.T.F.E. coating uppermost. Check it is in position when fitting top swivel pin. From 1991 model year fit new thrust washers and thrust bearing.
42. Hang swivel pin bearing housing oil seal and retainer plate over back of housing. Ensure they are in correct assembly order.
43. Fit a new joint washer and secure swivel pin bearing housing to axle. Starting with top fixing dowel bolt. Tighten to **72Nm**.

Fit swivel pin housing

44. Grease and fit lower swivel pin bearing to bearing housing.
45. Place swivel pin housing in position over swivel pin bearing housing.
46. Using a new joint washer, fit lower swivel pin with lip outboard. Do not secure with screws at this stage.
47. Fit a new sensor bush and new oil seal, lip side leading to top swivel pin.
48. Lubricate with a recommended oil and fit top swivel pin with existing shims.
49. Coat threads of top swivel pin bolts with Loctite 542. Fit bolts and jump hose bracket (do not tighten).

50. Coat threads of lower swivel pin screws with Loctite 270 and fit, together with damper and shield bracket. Tighten to **25Nm**.
51. Tighten top swivel pin and brake jump hose bracket securing bolts to **65Nm**.

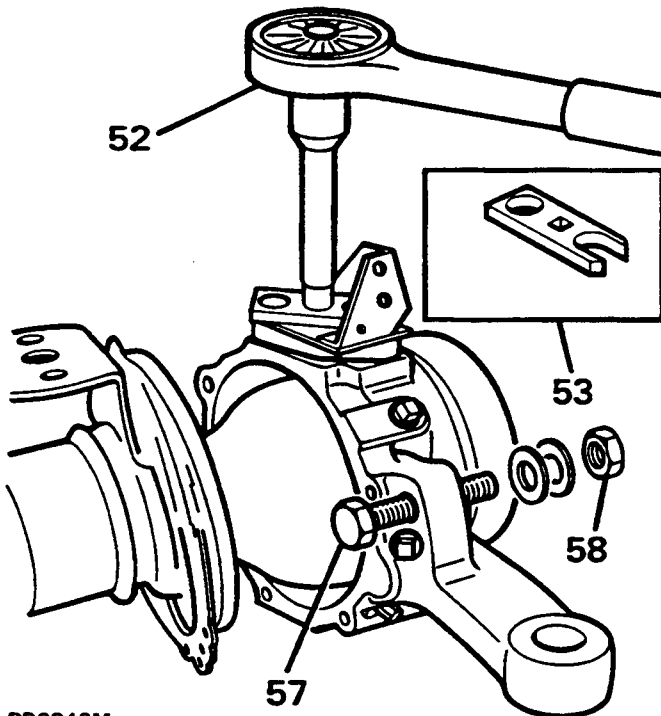
Check and adjust preload on bearings 1990 model year with ABS.

52. The preload on bearings to be **0,18 to 0,23 mm**, **without** swivel housing oil seal and axle fitted, and reading from centre of swivel pin. The torque required to turn swivel assembly from lock to lock to be **5.1 to 7.3 Nm**. Adjust by removing or adding shims as necessary.

Check and adjust preload on bearings 1991 model year on with ABS.

The preload on bearings to be **0,25 to 0,30 mm**, **without** swivel housing oil seal and axle fitted, and reading from centre of swivel pin. The torque required to turn swivel assembly from lock to lock to be **2.0 to 2.8 Nm**. Adjust by removing or adding shims as necessary.

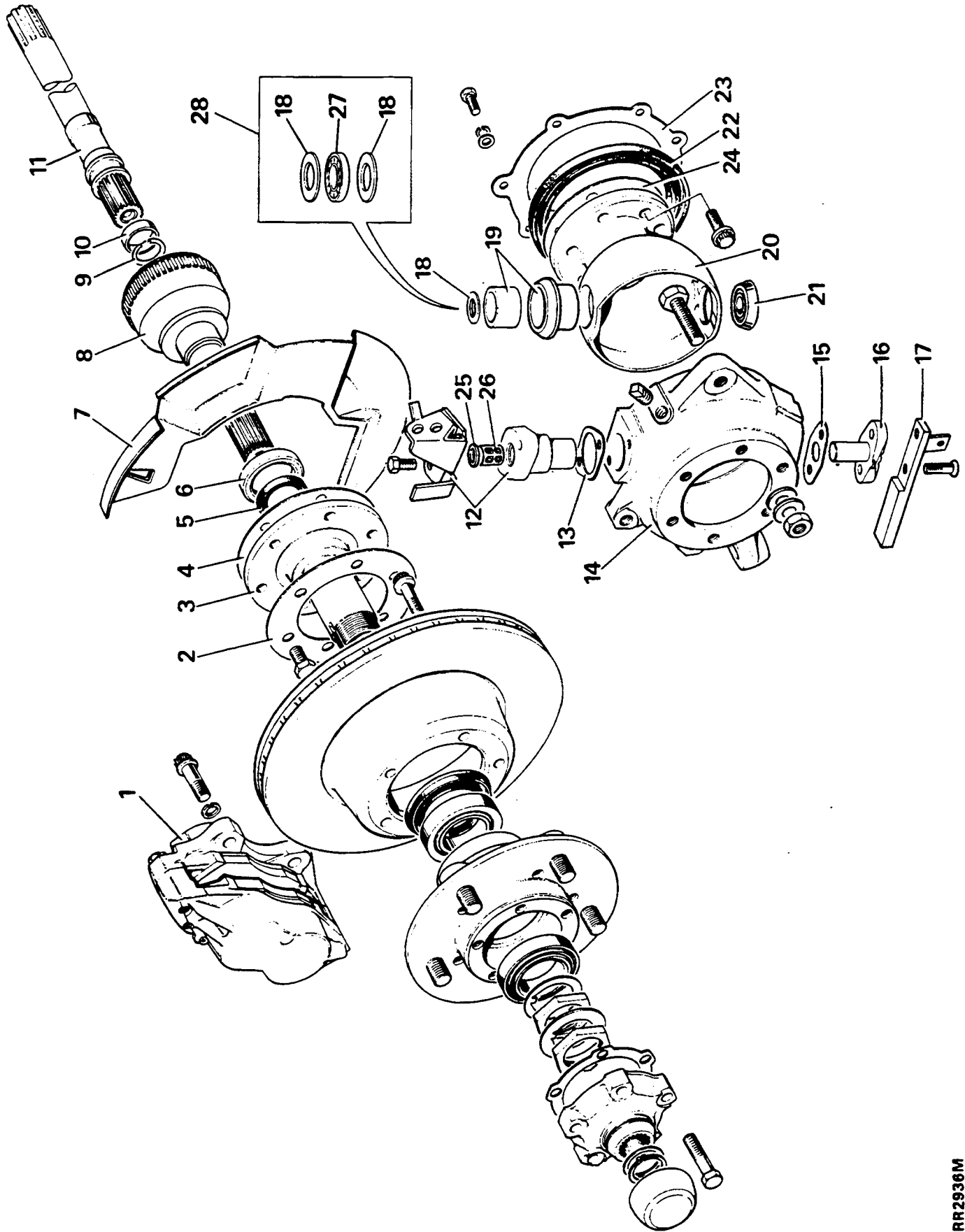
53. To take a reading use special tool LRT-57-024 torque test adaptor, with a torque spanner and extension as shown.



RR3842M

FRONT HUB AND SWIVEL COMPONENTS

1. Brake caliper.
2. Mud shield.
3. Stub axle.
4. Joint washer.
5. Oil seal.
6. Bearing.
7. Brake disc shield.
8. Constant velocity joint.
9. Circlip.
10. Bush.
11. Inner propeller shaft.
12. Top swivel pin and jump hose bracket.
13. Shim.
14. Swivel pin housing.
15. Joint washer.
16. Lower swivel pin.
17. Damper and shield bracket.
18. Thrust washer.
19. Bush and housing.
20. Swivel pin bearing housing.
21. Lower swivel pin bearing.
22. Oil seal.
23. Oil seal retaining plate.
24. Joint washer.
25. Oil seal.
26. Sensor bush.
27. Thrust bearing.
28. 1991 model year on.



7

Fit remaining components

54. Apply a recommended grease between lips of swivel housing oil seal.
55. Secure oil seal with retaining plate and securing bolts. Tighten to **11Nm**.
56. Fit track-rod and drag link and secure with new split pins.
57. Loosely fit lock stop bolt for later adjustment.
58. Fit brake disc shield. Leaving middle fixing nut loose until lock stop has been set.

Fit propeller shaft and stub axle

59. Insert axle shaft, and when differential splines are engaged, push assembly in fully.



CAUTION: Take care not to damage axle shaft oil seals.

60. Place a new joint washer in position on swivel pin housing to stub axle mating face. Coat threads of stub axle bolts with Loctite 270.
61. Fit stub axle with keyway at 12 o'clock position.



CAUTION: Ensure that constant velocity joint bearing journal is butted against thrust ring on stub axle. Before stub axle is secured.

62. Place mud shield in position and secure stub axle to swivel pin housing with six bolts and tighten evenly to **65Nm**.
63. Fit brake jump hoses to brake jump hose bracket.
64. Fit front hub complete assembly. **See Repair, Front hub assembly ABS**
65. Check swivel pin housing oil drain plug is fitted.
66. Fill swivel assembly to correct level, with new oil. **See SECTION 10, Maintenance, Under Vehicle Maintenance**
67. Set steering lock stop bolts to provide a clearance of 20mm. **See STEERING, Adjustment, Steering lock stops**
68. Fit ABS brake sensor. **See BRAKES, Repair, Sensors-front**



TORQUE VALUES



NOTE: Torque wrenches should be regularly checked for accuracy to ensure that all fixings are tightened to the correct torque.

Nm

FRONT AXLE

| | |
|--|-----|
| Hub driving shaft to hub | 4 |
| Brake disc to hub | 73 |
| Stub axle to swivel pin housing | 65 |
| Brake caliper to swivel pin housing | 82 |
| Upper swivel pin to swivel pin housing | 78* |
| Lower swivel pin to swivel pin housing | 78* |
| Oil seal retainer to swivel pin housing | 11 |
| Swivel bearing housing to axle case | 73* |
| Pinion housing to axle case | 41 |
| Crown wheel to differential housing | 58 |
| Differential bearing cap to pinion housing | 90 |
| Differential drive flange to drive shaft | 47 |
| Mudshield to bracket lower swivel pin | 11 |
| Bevel pinion nut | 130 |
| Draglink to hub arm | 40 |
| Panhard rod to axle bracket | 88 |
| Radius arm to axle | 190 |
| Radius arm to chassis side member | 190 |

FRONT AXLE ABS

| | |
|---|-----|
| Hub driving member to hub | 65* |
| Brake disc to hub | 73* |
| Stub axle to swivel pin housing | 65* |
| Brake caliper to swivel pin housing | 82 |
| Upper swivel pin to swivel pin housing | 65 |
| Lower swivel pin to swivel pin housing | 25* |
| Oil seal retainer to swivel pin housing | 11 |
| Swivel pin bearing housing to axle case | 73* |
| Disc shield to bracket lower | 9 |



NOTE: * These bolts to be coated with Loctite 270 prior to assembly.

Torque values below cover all screws and bolts used, unless specified otherwise.

| | Nm |
|------------------|-----|
| METRIC | |
| M5 | 6 |
| M6 | 9 |
| M8 | 25 |
| M10 | 45 |
| M12 | 90 |
| M14 | 105 |
| M16 | 180 |
| UNC / UNF | |
| 1/4 | 9 |
| 5/16 | 24 |
| 3/8 | 39 |
| 7/16 | 78 |
| 1/2 | 90 |
| 5/8 | 136 |

FRONT HUB AND SWIVEL DATA

Front hub

| | |
|-------------------------------------|------------------|
| Front hub end float non ABS | 0,013 to 0,10 mm |
| Front hub end float with ABS | 0,013 to 0,05 mm |
| Drive shaft end play with ABS | 0,08 to 0,25 mm |

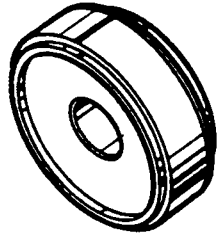
Swivel pin bearing preload

| | |
|--|----------------|
| 1990 model year vehicles with ABS | |
| - Torque to turn | 5. to 7.Nm |
| 1991 model year on with ABS - Torque to turn | 2. to 3.Nm |
| Non ABS vehicles - Resistance to turn..... | 1,16 to 1,46Kg |



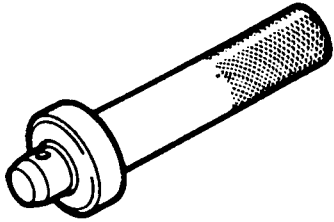
FRONT HUB

LRT-54-001 Oil seal replacer non ABS
LST550-5



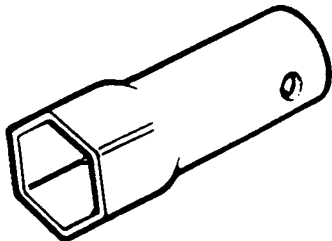
LST 5505

LRT-99-003 Drift
18G134



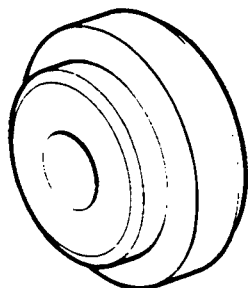
18G134

LRT-54-002 Hub nut wrench
RO606435A

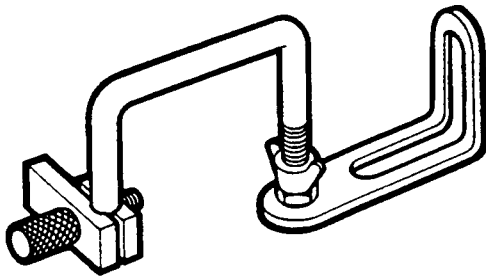


606435A

LRT-54-003 Hub oil seal replacer ABS
LST137

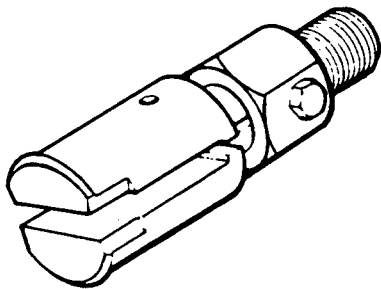


LST137



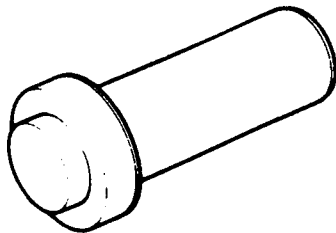
RO530106

LRT-99-503 Dial gauge bracket
RO530106



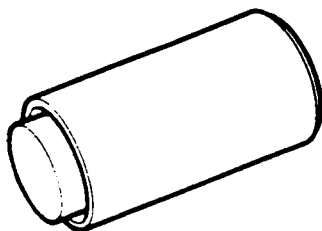
8G284AAH

LRT-37-004 Extractor ABS
18G284AAH



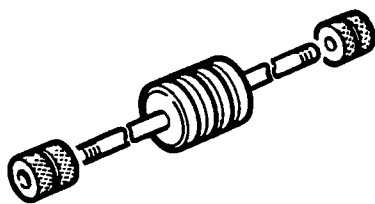
LST132

LRT-54-005 Bearing installer ABS
LST132



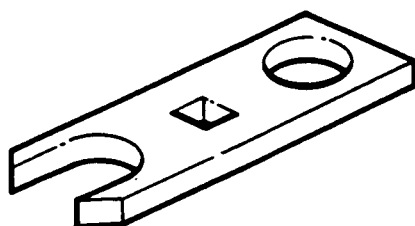
LST133

LRT-54-004 Seal installer ABS
LST133



MS284

LRT-99-004 Impulse extractor
MS284



LST141

LRT-570-024 Torque test adaptor ABS
LST141