



FRONT DIFFERENTIAL

Service repair no - 54.10.07.

Overhaul

The front and rear differentials are the same. When overhauling front differential. **See REAR AXLE AND FINAL DRIVE, Overhaul, Axle Differential Assembly**

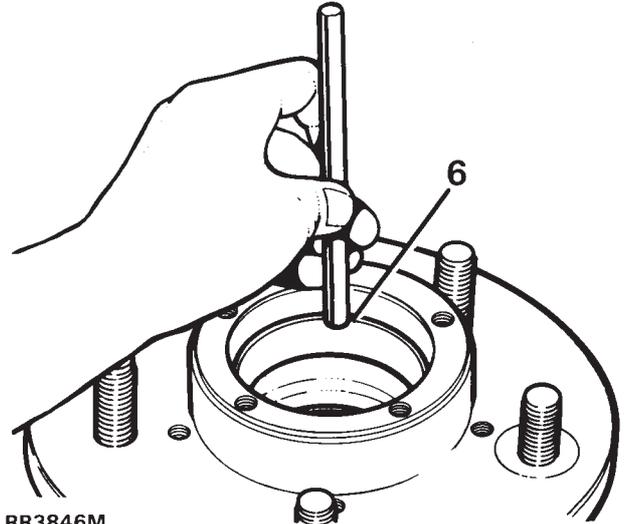
FRONT HUB

Service repair no - 60.26.14.

Overhaul

1. Remove front hub assembly. **See Repair, Front Hub Assembly**
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.

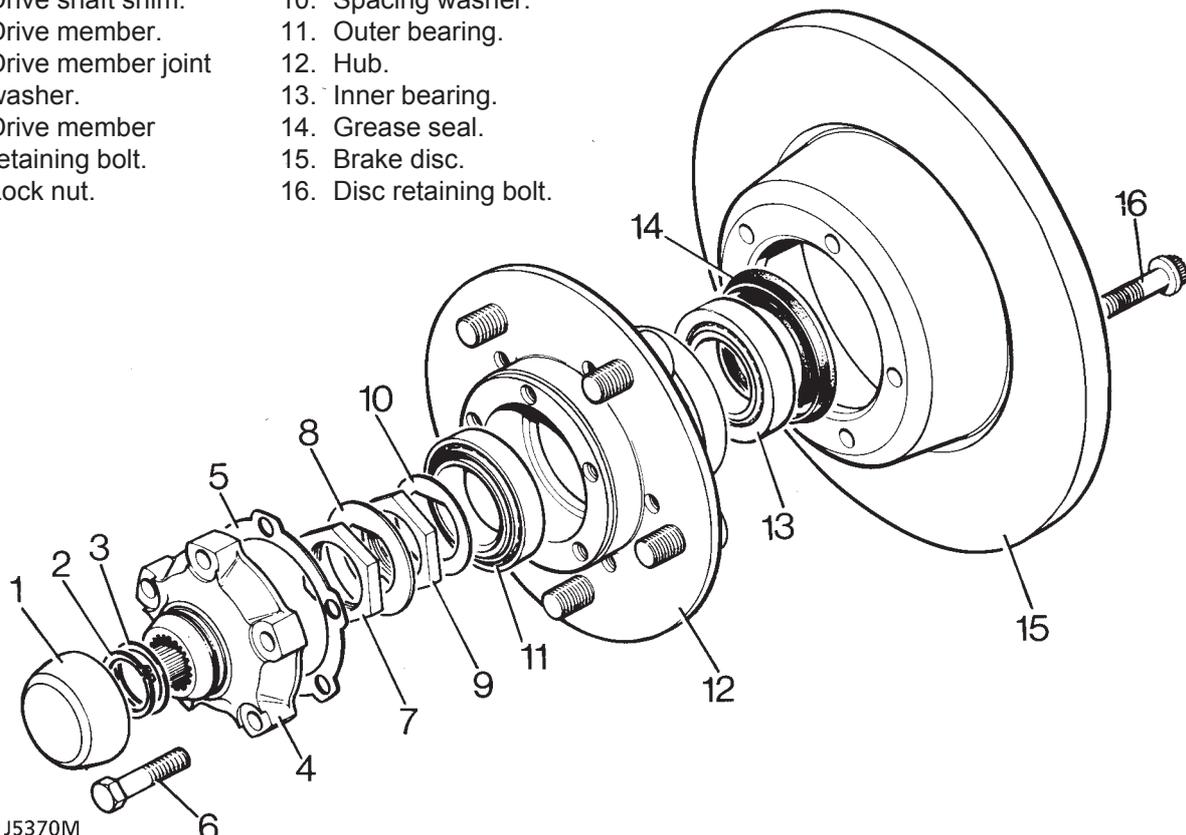


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8. Pack hub inner bearing with recommended grease and fit to hub.

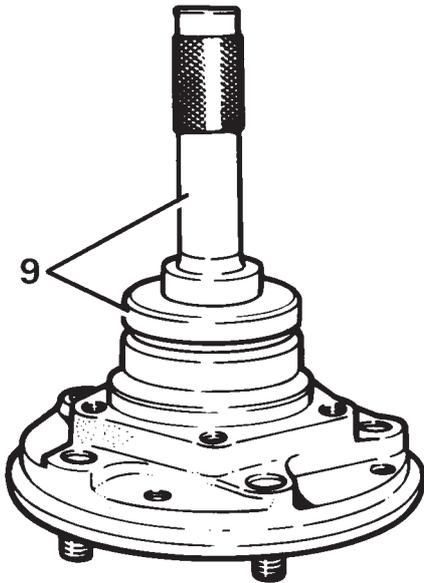
HUB COMPONENTS

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



J5370M

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 five retaining bolts. Tighten to **73 Nm**.



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

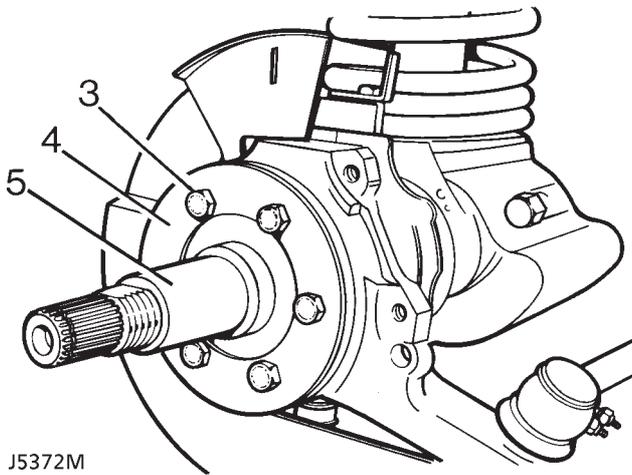


FRONT STUB AXLE, CONSTANT VELOCITY JOINT AND SWIVEL PIN HOUSING NON ABS

Service repair no - 60.15.43.

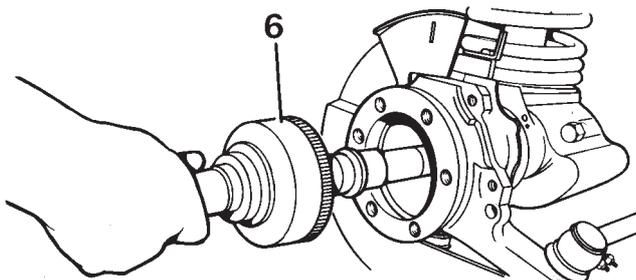
Remove stub axle, axle shaft and constant velocity joint.

1. Remove front hub assembly. *See Repair, Front Hub Assembly*
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.



J5372M

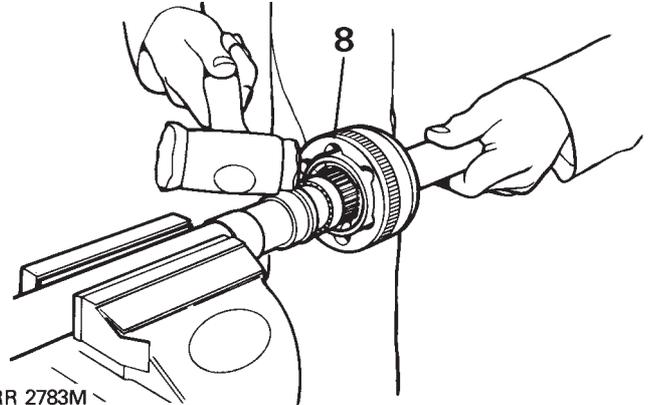
6. Pull out axle shaft and constant velocity joint from axle casing.



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Remove constant velocity joint from axle shaft

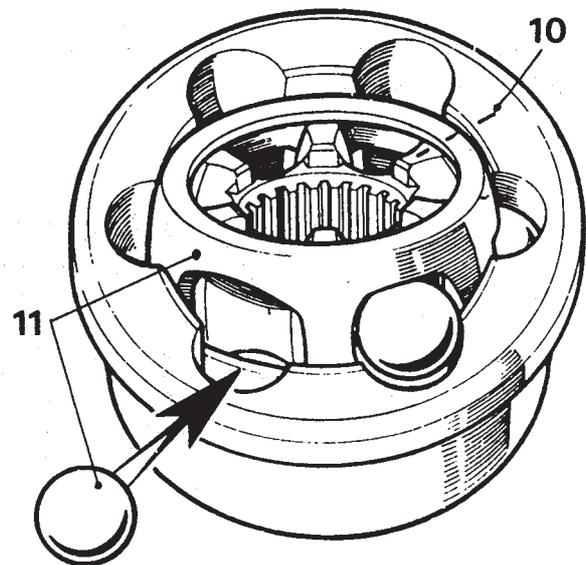
7. Hold axle shaft firmly in a soft jawed vice.
8. Using a soft mallet drive constant velocity joint from shaft.
9. Remove circlip and collar from axle shaft.



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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.

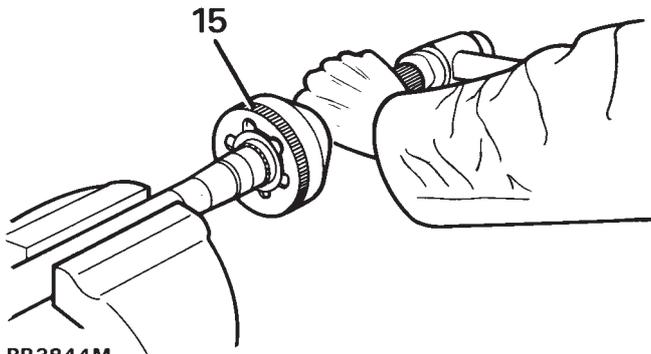


ST1025M

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

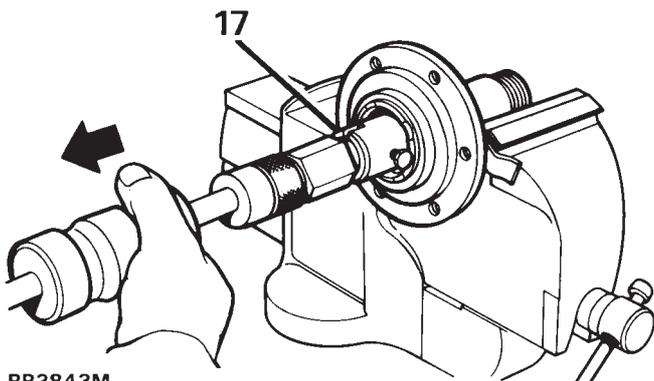
14. Fit collar and a new circlip.
15. Engage constant velocity joint on axle shaft splines and using a soft mallet, drive joint in fully.



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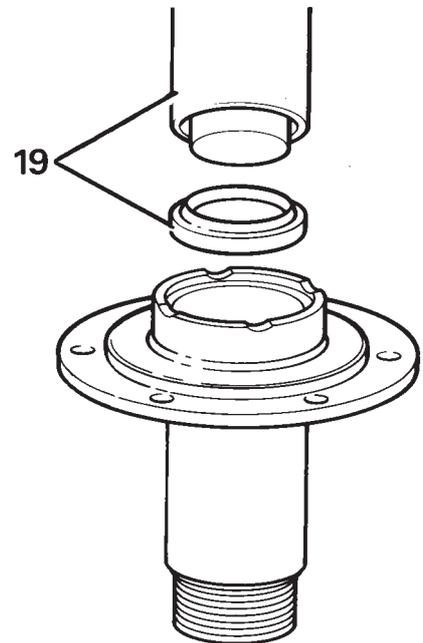
Renew stub axle, thrust ring, oil seal and bearing

16. Drill and chisel off thrust ring taking care to avoid damaging stub axle.
17. Remove bearing and oil seal using special tool LRT-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.



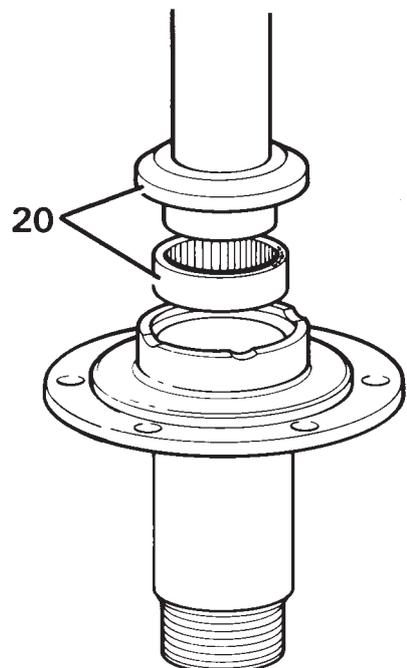
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19. Lubricate seal and lip with EP90 oil and with cavity side leading press in a new oil seal using special tool LRT-54-004.



RR3840M

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.



RR3839M



Swivel pin housing

22. 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.

23. Remove two bolts, retaining lower swivel pin to housing.
24. Remove brake disc shield bracket.
25. Tap lug to remove lower swivel pin and joint washer.
26. Remove two bolts retaining brake hose bracket and top swivel pin.
27. Remove bracket, top swivel pin and shims.
28. Remove swivel pin housing while retrieving lower and upper bearings.

Swivel bearing housing

29. Remove lower bearing track from swivel bearing housing.



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

30. Remove seven bolts retaining swivel bearing housing to axle case.
31. Remove inner oil seal from back of housing.
32. Remove top bearing track from swivel bearing housing.



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

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



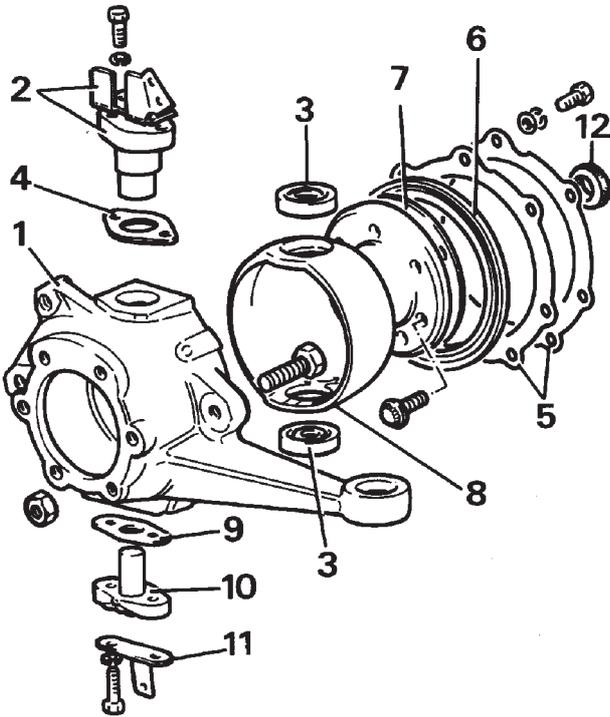
CAUTION: Ensure bearing tracks are fitted square or damage could occur.

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

Fit swivel pin housing

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

Swivel assembly components



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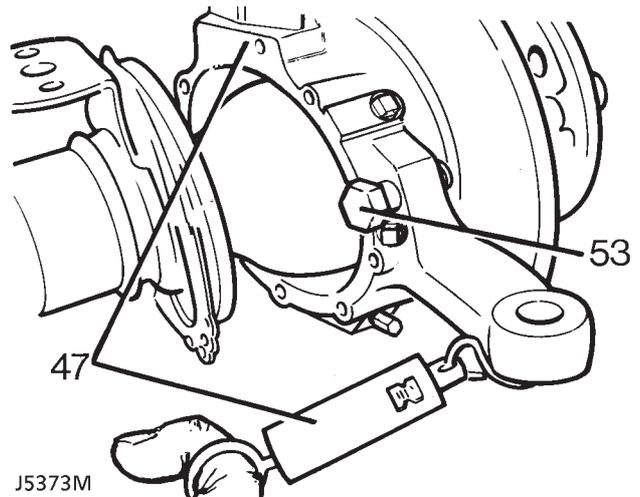
1. Swivel pin housing
2. Top swivel pin and brake hose bracket
3. Upper and lower swivel pin bearings
4. Shim
5. Retaining plate and washer
6. Oil seal
7. Joint washer
8. Swivel bearing housing
9. Joint washer
10. Lower swivel pin
11. Mudshield bracket
12. Swivel housing inner oil seal

Check and adjust preload on bearings



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

47. 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.



J5373M

48. When setting is correct remove top swivel bolts, apply Loctite 270 or equivalent. Refit to **78 Nm**, and bend over lock tabs.
49. Apply recommended grease between lips of swivel oil seal.
50. Fit oil seal, joint washer and retaining plate with seven bolts and spring washers to **11 Nm**.
51. Fit tie rod and drag link and secure with new cotter pins. Tighten to **40 Nm**.
52. Fit brake disc shield.
53. Loosely fit lock stop bolt and nut.
54. Apply a recommended grease between lips of swivel housing oil seal.
55. Secure oil seal with retaining plate and securing bolts. Tighten to **11 Nm**.
56. Fit track-rod and drag link and secure with new cotter pins.
57. Loosely fit lock stop bolt for later adjustment.
58. Fit brake disc shield.



Fit driveshaft 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 flat 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.

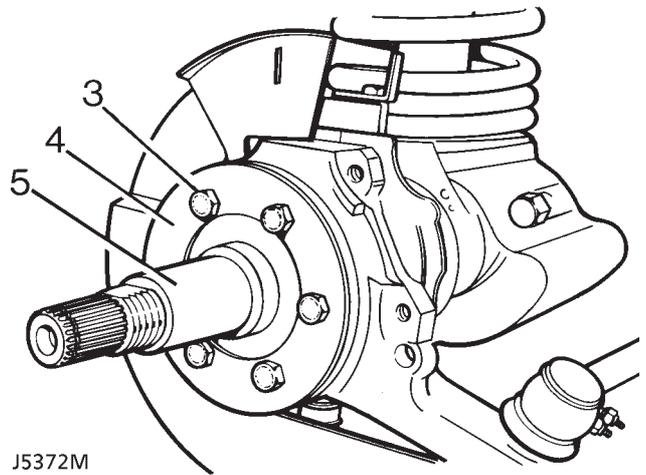
- 62. Place mud shield in position and secure stub axle to swivel pin housing with six bolts and tighten evenly to **65 Nm**.
- 63. Fit brake jump hoses to brake jump hose bracket.
- 64. Fit front hub complete assembly. *See Repair, Front Hub Assembly*
- 65. Check swivel pin housing oil drain plug is 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*

FRONT STUB AXLE, CONSTANT VELOCITY JOINT AND SWIVEL PIN HOUSING ABS

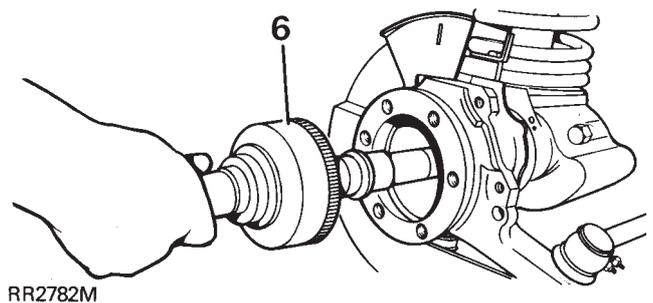
Service repair no - 60.15.43.

Remove stub axle, axle shaft and constant velocity joint.

- 1. Remove front hub assembly. *See Repair, Front Hub Assembly*
- 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.

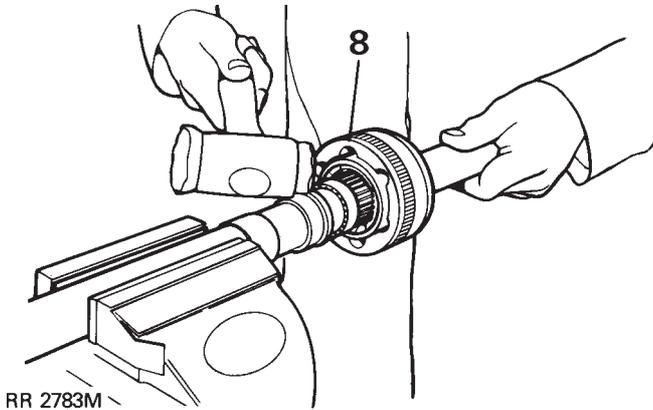


- 6. Pull out axle shaft and constant velocity joint from axle casing.

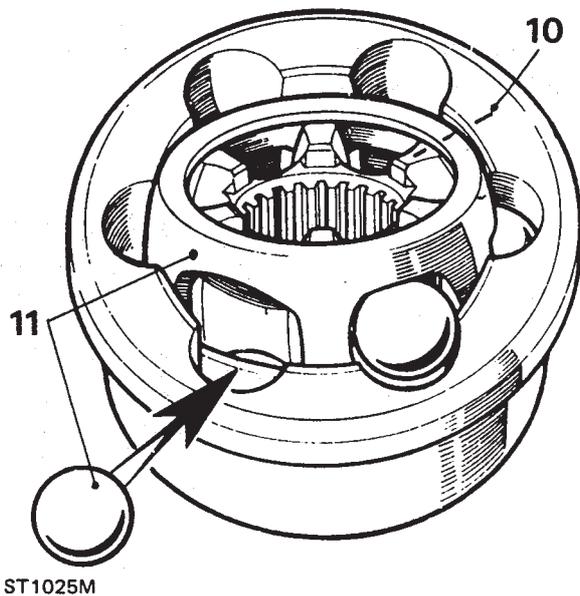


Remove constant velocity joint from axle shaft

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.

**Constant velocity joint**

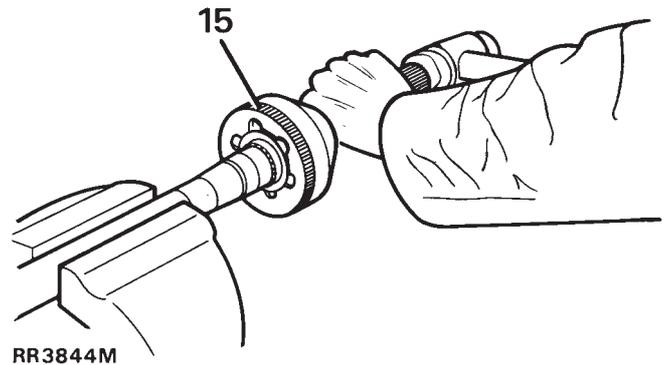
10. Mark positions of constant velocity joint, inner and outer race and cage for reassembly.
11. Swivel cage and inner race to remove balls.



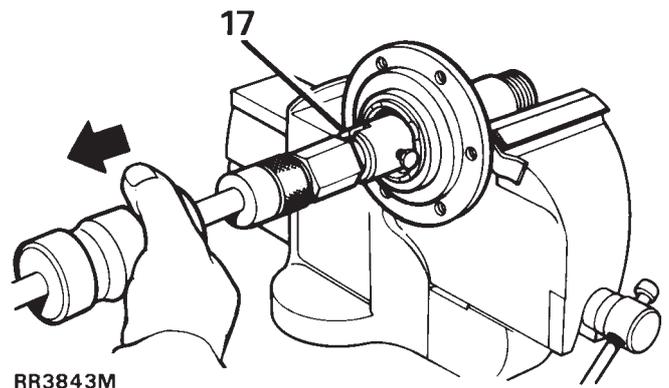
12. Examine all components in particular inner and outer track, cage balls and bearing surfaces for damage and excessive wear.
13. Maximum acceptable end-float on assembled joint 0,64mm. Renew if worn or damaged. Lubricate with a recommended oil during assembly.

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.

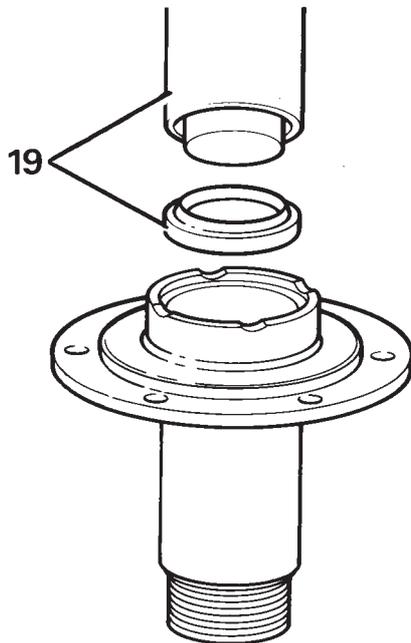
**Renew stub axle, thrust ring, oil seal and bearing**

16. Drill and chisel off thrust ring taking care to avoid damaging stub axle.
17. Remove bearing and oil seal using special tool LRT-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.



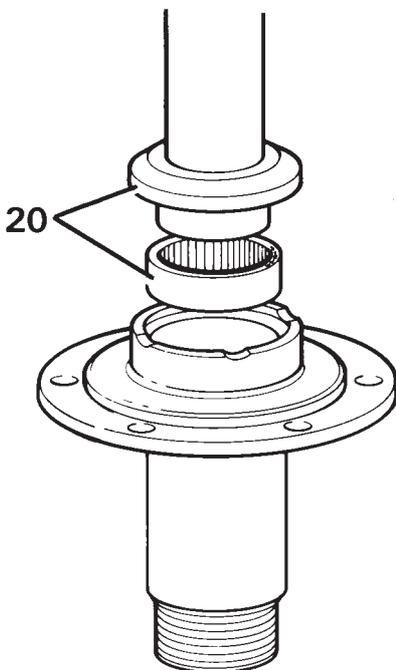


19. Lubricate seal and lip with EP90 oil and with cavity side leading press in a new oil seal using special tool LRT-54-004.



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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.



RR3839M

Swivel pin housing assembly

22. Remove brake disc shield bracket.
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.

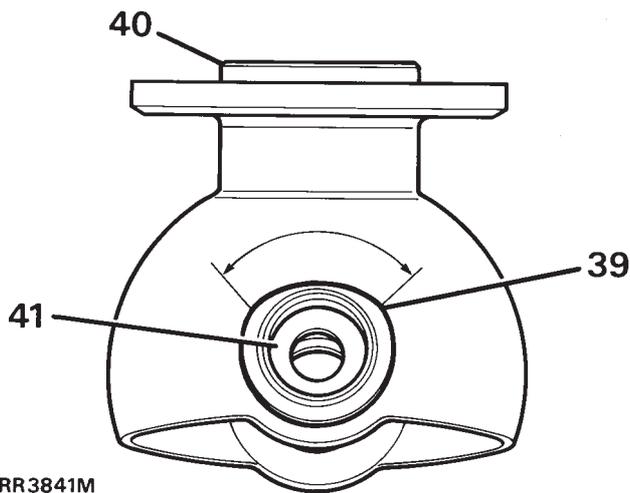


NOTE: Oil seal and retaining plate cannot be removed until swivel pin bearing housing is removed.

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 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 new thrust washers and bearing into top swivel pin bush.
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**.

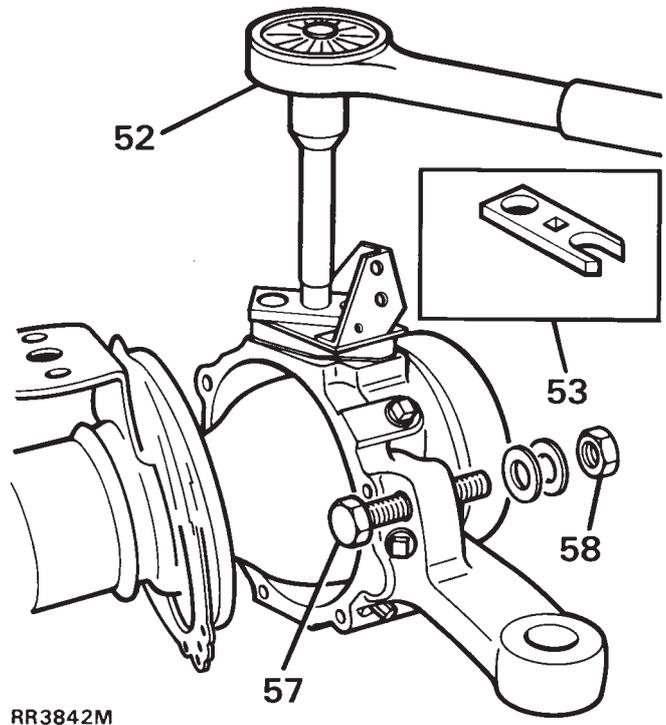
Fit swivel pin housing

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 **25 Nm**.
51. Tighten top swivel pin and brake jump hose bracket securing bolts to **65 Nm**.

Check and adjust preload on bearings

52. 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 wrench and extension as shown.



RR3842M

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 cotter pins.
57. Loosely fit lock stop bolt for later adjustment.
58. Fit brake disc shield.



Fit driveshaft 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 flat at 12 o'clock position.

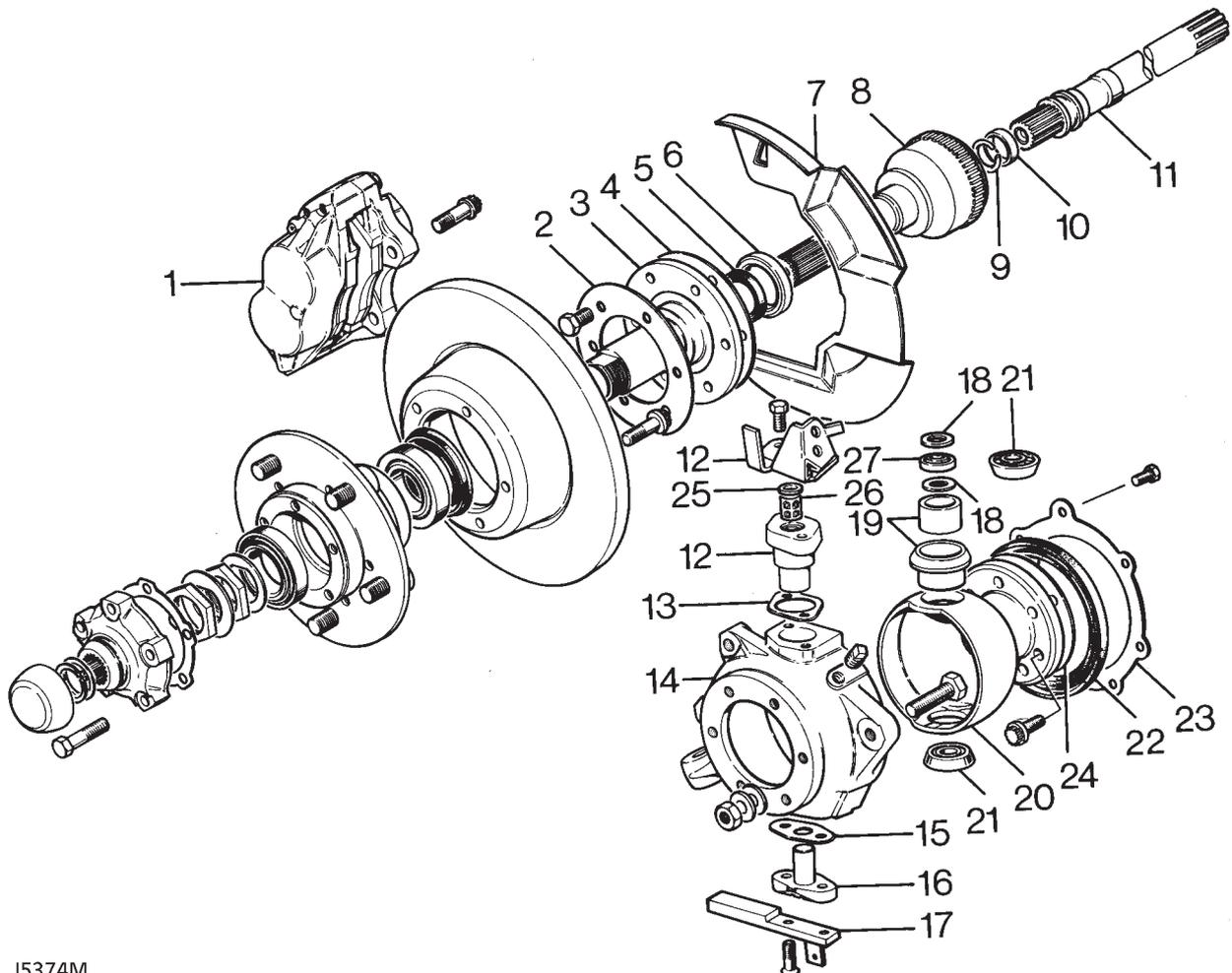


CAUTION: Ensure that constant velocity joint bearing journal is butted against thrust ring on stub axle. Before stub axle is secured.

62. Place mud shield in position and secure stub axle to swivel pin housing with six bolts and tighten evenly to **65 Nm**.
63. Fit brake jump hoses to brake jump hose bracket.
64. Fit front hub complete assembly. **See Repair, Front Hub Assembly**
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**

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 driveshaft.
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, ABS.
19. Bush and housing, ABS.
20. Swivel pin bearing housing.
21. Lower swivel pin bearing (and upper bearing non ABS).
22. Oil seal.
23. Oil seal retaining plate.
24. Joint washer.
25. Oil seal, ABS.
26. Sensor bush, ABS.
27. Thrust bearing, ABS.



J5374M



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 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	78*
Upper swivel pin to swivel pin housing ABS	65
Lower swivel pin to swivel pin housing	78*
Lower swivel pin to swivel pin housing ABS	25*
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
Disc shield to bracket lower ABS	9
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



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

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

METRIC	Nm
M5	6
M6	9
M8	25
M10	45
M12	90
M14	105
M16	180

UNC / UNF	Nm
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	0,010 mm
Drive shaft end play	0,08 to 0,25 mm

Swivel pin bearing preload

ABS vehicles - Torque to turn	2. to 3. Nm
Non ABS vehicles - Resistance to turn	1,16 to 1,46Kg