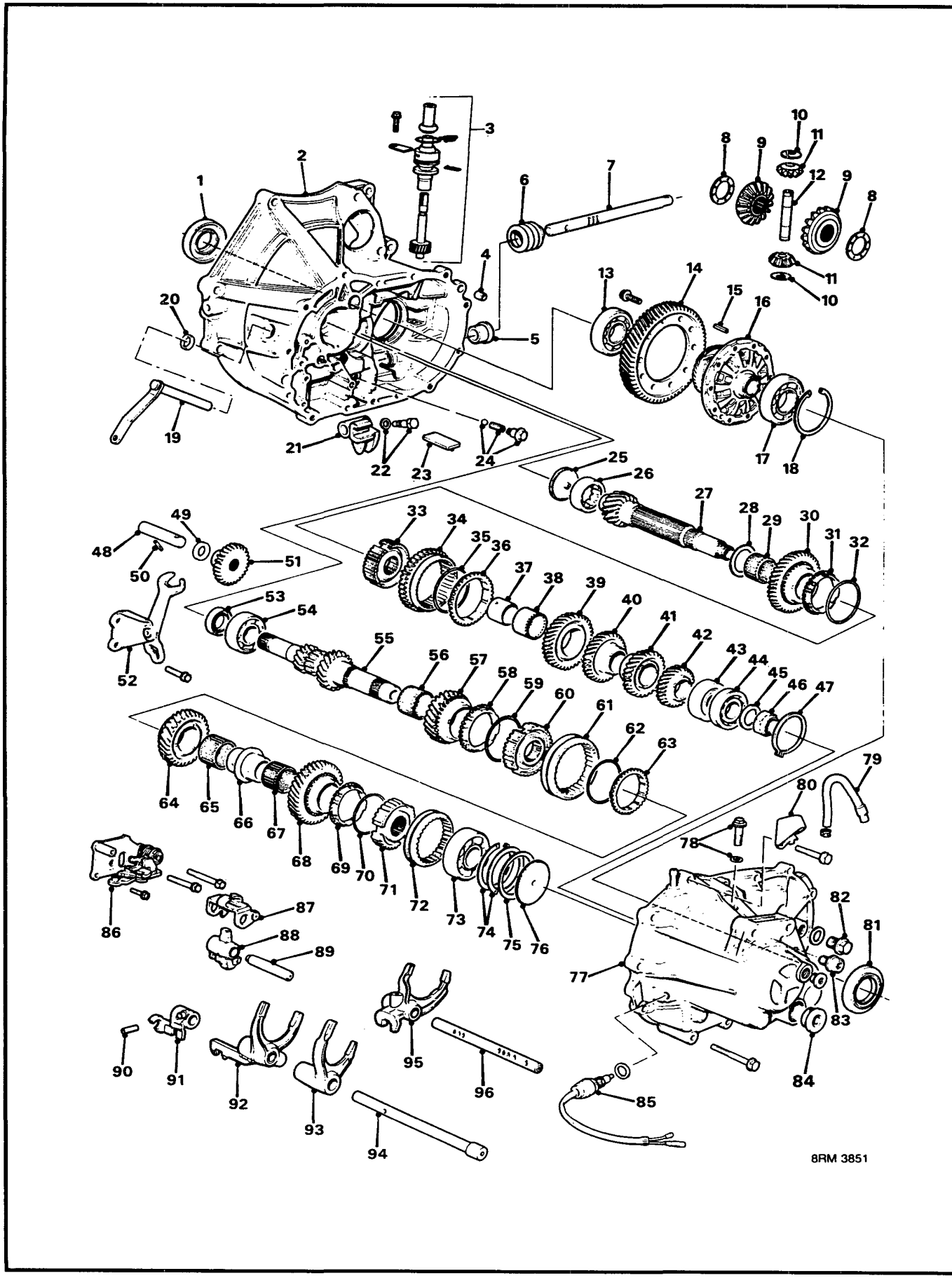
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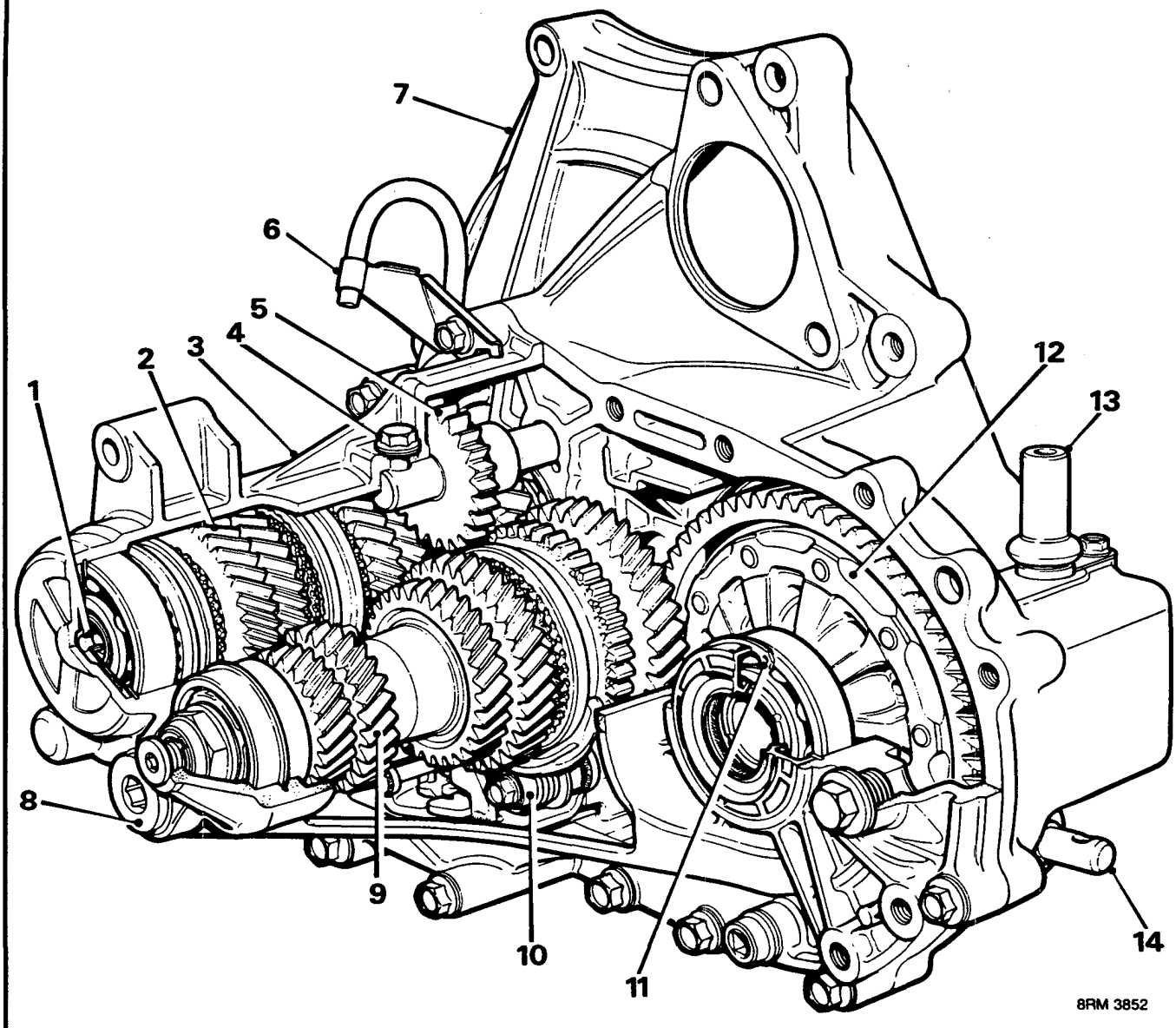
GEARBOX COMPONENTS

1. Oil seal – differential
2. Differential housing
3. Speed sensor – instruments
4. Dowel
5. Oil seal – selector rod
6. Boot
7. Selector rod
8. Thrust washer – sun gear
9. Sun gear
10. Thrust washer – planet pinion
11. Planet pinion
12. Pinion shaft
13. Ball bearing – differential
14. Final drive gear
15. Roll pin – differential pinion shaft
16. Differential casing
17. Ball bearing – differential
18. Selective shim
19. Clutch release arm
20. Oil seal – clutch release arm
21. Selector rod guide
22. Dowel bolt and washer
23. Magnet
24. Detent cap bolt, ball and spring – selector rod
25. Oil guide plate
26. Parallel roller bearing – output shaft
27. Output shaft
28. Selective thrust washer – 1st gear end float
29. Needle roller bearing – 1st gear
30. 1st gear
31. Synchro ring – 1st gear
32. Synchro spring
33. Synchro hub – 1st/2nd gear
34. Synchro sleeve – 1st/2nd gear
35. Synchro spring
36. Synchro ring – 2nd gear
37. Selective collar – 2nd gear end float
38. Needle roller bearing – 2nd gear
39. 2nd gear
40. 3rd gear
41. 4th gear
42. 5th gear
43. Roller bearing – output shaft
44. Ball bearing – output shaft
45. Washer
46. Output shaft nut – L.H. thread
47. Circlip
48. Reverse idler shaft
49. Thrust washer – reverse idler gear
50. Roll pin – reverse idler shaft
51. Reverse idler gear
52. Reverse fork
53. Oil seal – input shaft
54. Ball bearing – input shaft
55. Input shaft
56. Needle roller bearing – 3rd gear
57. 3rd gear
58. Synchro ring – 3rd gear
59. Synchro spring
60. Synchro hub – 3rd/4th gears
61. Synchro sleeve – 3rd/4th gears
62. Synchro spring
63. Synchro ring – 4th gear
64. 4th gear
65. Needle roller bearing – 4th gear
66. Distance collar – 4th/5th gears
67. Needle bearing – 5th gear
68. 5th gear
69. Synchro ring
70. Synchro spring
71. Synchro hub – 5th gear
72. Synchro sleeve – 5th gear
73. Ball bearing – input shaft
74. Selective snap rings – input shaft end thrust
75. Belleville washer – input shaft end thrust
76. Oil guide plate
77. Gearbox casing
78. Reverse idler shaft bolt and washer
79. Breather pipe
80. Breather pipe bracket
81. Oil seal – differential
82. Filler/level plug
83. Drain plug
84. Access plug – output shaft bearing circlip
85. Reverse light switch
86. Shift arm assembly
87. Interlock
88. Shift arm guide
89. Shift shaft
90. Roll pin – 5th/reverse gear selector
91. Gear selector – 5th/reverse gears
92. Selector fork – 3rd/4th gears
93. Selector fork – 5th gear
94. Selector shaft – 5th/reverse gears
95. Selector fork – 1st/2nd gears
96. Selector shaft – 1st/2nd gears



SECTIONED VIEW OF GEARBOX

1. Oil guide plate
2. Input shaft assembly
3. Gear case
4. Reverse shaft bolt
5. Reverse idler gear
6. Breather pipe and bracket
7. Bell housing
8. Access plug – output shaft bearing circlip
9. Output shaft
10. Selector interlock
11. Selective spacer
12. Final drive assembly
13. Speedometer drive
14. Gearshift rod

DESCRIPTION

The 5 – speed constant mesh gearbox employs single helical gears for speed transmission and final drive.

The input shaft carries the primary input gear, reverse pinion, 2nd gear and 3rd, 4th, and 5th gear synchromesh hubs and idler gears. It is supported by two ballraces. End float is controlled by shims and a Belleville washer. Its short input end eliminates the need for support in the engine crankshaft.

The output shaft carries the final drive pinion, 1st idler gear, 1st and 2nd synchromesh hubs, 2nd speed idler gears and 3rd, 4th and 5th gears

Pinion location is controlled by a selective washer. The rear end of the shaft is secured by a circlip which retains the double ballrace to the gear case.

Synchromesh is by spring rings and spline extensions in the inner faces of the synchromesh sleeves.

Gear selection is via an interlock and gearshift holder assembly which transmits movement of the main selector shaft to the selector forks.

Lubrication is by splash. An oil gutter located on the upper side of the gear case collects splashed oil and directs it to oil guide plates which distribute it to the hollow input shaft and output shaft.

OPERATION

With the exception of reverse all gears are in constant mesh. Forward ratios are obtained by locking a gear to its shaft using its individual synchronizer hub and sleeve. Reverse gear is obtained by engaging an idler gear with the reverse gears changing the direction of rotation of the output shaft.

When a forward gear is selected the synchronizer sleeve presses the synchromesh female cone into contact with a corresponding male cone in the gear chosen. This synchronizes the speeds of the synchronizer hub and gear. The synchronizer sleeve then engages the gear and by means of a spring ring, teeth extensions on the synchronizer sleeve and detents in the selector shafts holds the selected gear in engagement. Torque is transmitted from the input shaft through the selected gear to the output shaft pinion and final drive gear to the drive shafts.

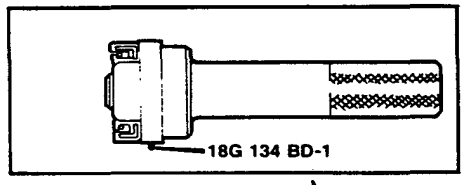
DIFFERENTIAL OIL SEAL - R.H.

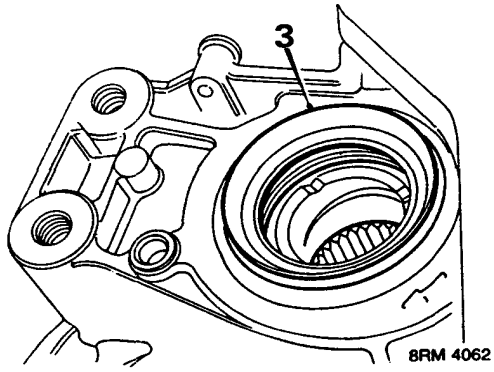
Remove

1. Remove R.H. drive shaft and intermediate shaft, see **DRIVE SHAFTS - Repairs.**
2. Prise out differential oil seal; discard oil seal.

Refit

1. Thoroughly clean oil seal recess.
2. Lubricate a new differential oil seal with gearbox oil, see **INFORMATION - CAPACITIES, FLUIDS AND LUBRICANTS.**





3. Fit differential oil seal using tool **18G 134 BD - 1**
4. Fit R.H. drive shaft and intermediate shaft, see **DRIVE SHAFTS - Repairs.**

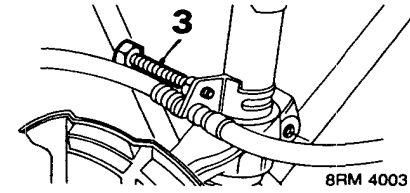
DIFFERENTIAL OIL SEAL - L.H.

Remove

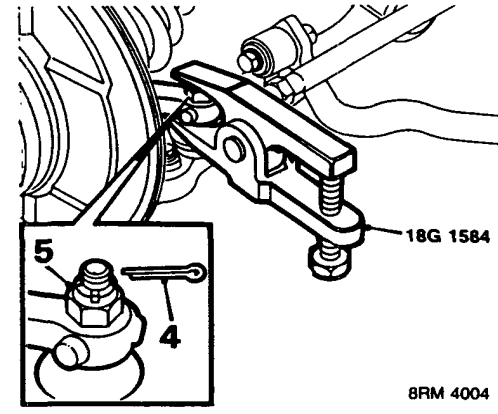
1. Raise L.H. front side of vehicle.

WARNING: Support on safety stands.

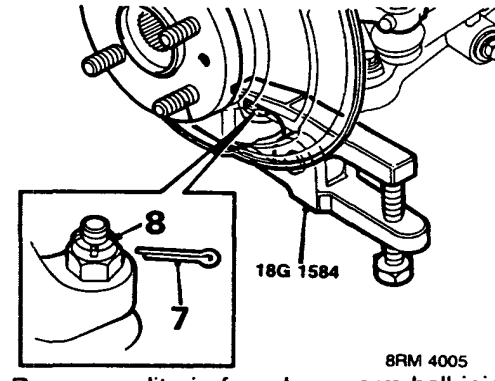
2. Remove road wheel(s).



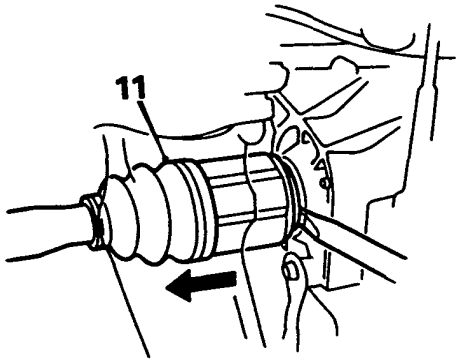
3. Remove bolt securing brake hose bracket to L.H. suspension strut.

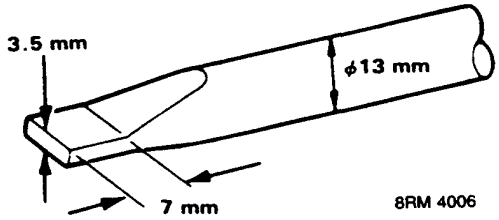


4. Remove split pin from L.H. steering arm ball joint nut; discard split pin.
5. Remove ball joint nut.
6. Release track rod from steering arm using tool **18G 1584.**

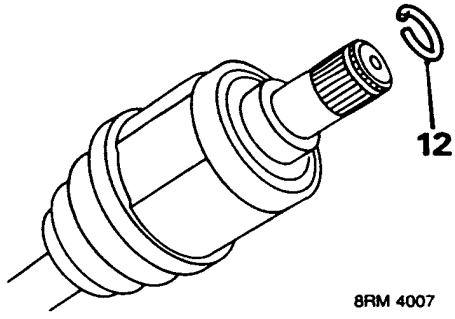


7. Remove split pin from lower arm ball joint nut; discard split pin.
8. Slacken lower arm ball joint nut.
9. Release lower arm ball joint from hub using tool **18G 1584**; remove ball joint nut as hub is released.
10. Position container beneath gearbox.

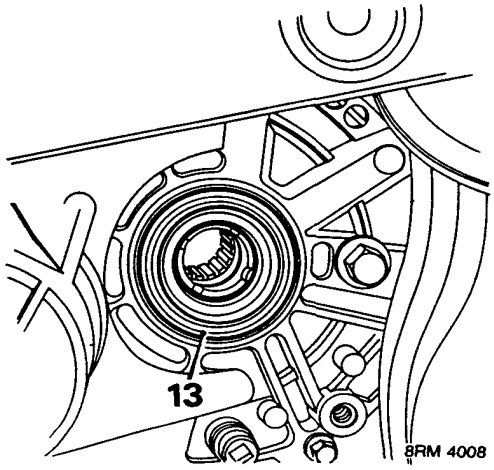




11. Using a screwdriver with dimensions as shown; release drive shaft from differential; move drive shaft aside.



12. Remove and discard circlip from drive shaft.

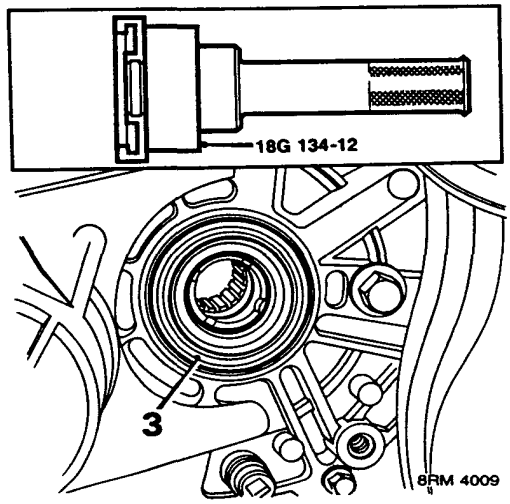


13. Prise out differential oil seal; discard oil seal.

Refit

1. Thoroughly clean oil seal recess and splines of drive shaft.

2. Lubricate a new differential oil seal with gearbox oil, see **INFORMATION – CAPACITIES, FLUIDS AND LUBRICANTS.**



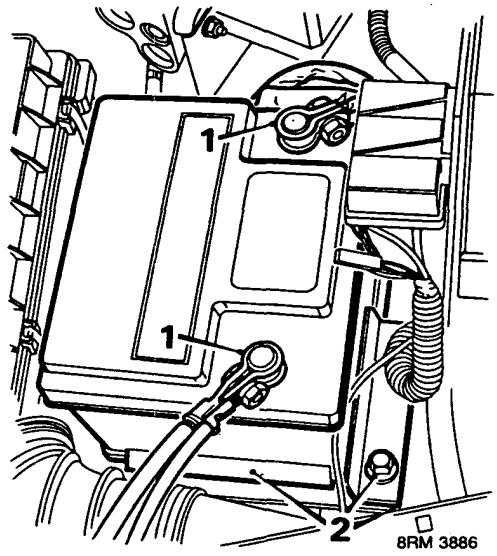
3. Fit differential oil seal using tool **18G 134BD – 12.**
4. Fit new circlip to drive shaft.
5. Engage drive shaft in differential; push drive shaft fully home.

***CAUTION:** Pull drive shaft away from differential to ensure circlip is fully engaged.*

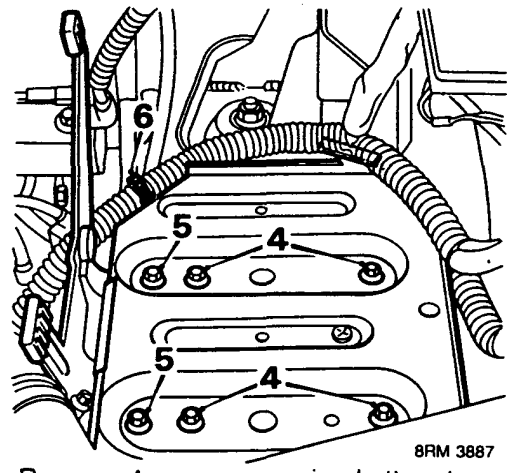
6. Engage lower arm ball joint to hub.
7. Fit lower arm ball joint nut and tighten to 83 Nm.
8. Secure nut with a new split pin.
9. Fit steering arm ball joint.
10. Fit steering arm ball joint nut and tighten to 44 Nm.
11. Secure nut with a new split pin.
12. Position brake hose bracket to suspension strut; fit bolt and tighten to 25 Nm.
13. **Fit road wheel and tighten nuts to 100 Nm.**
14. Remove stand(s) and lower vehicle.
15. Top – up gearbox oil level, see **MAINTENANCE.**

MANUAL GEARBOX

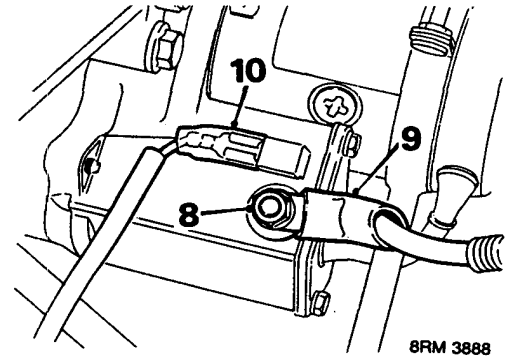
Remove



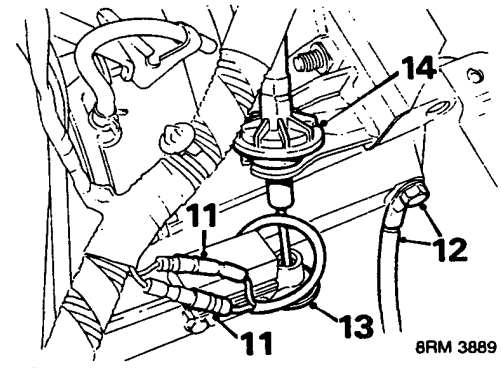
1. Disconnect both battery leads.
2. Remove bolt and battery clamp; lift out battery.
3. Remove air cleaner, see **FUEL SYSTEM - Repairs.**



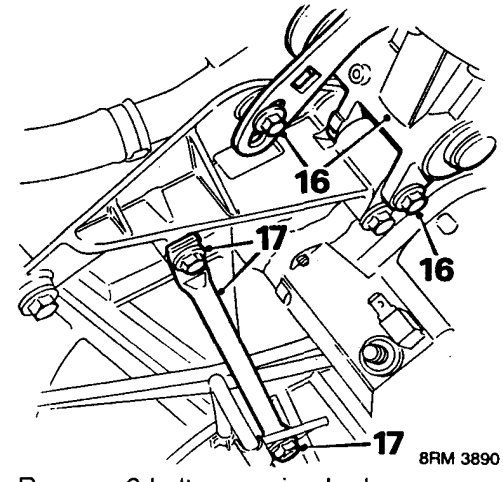
4. Remove 4 screws securing battery tray.
5. *Non - Turbo Models:* Remove 2 screws securing resonator bracket to battery tray.
6. Release harness clip from battery tray; remove tray.
7. *Non - Turbo Models:* Move resonator aside.



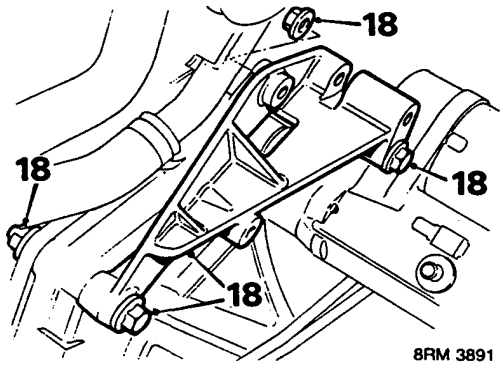
8. Remove starter solenoid terminal nut.
9. Disconnect lead from terminal.
10. Disconnect starter solenoid Lucar.



11. Disconnect 2 leads from reverse lamp switch.
12. Remove bolt securing earth lead to gearbox; move lead aside.
13. Release clutch cable from release lever.
14. Release clutch cable from abutment bracket; move cable aside.
15. Remove brake servo vacuum pump drive belt, see **MAINTENANCE.**



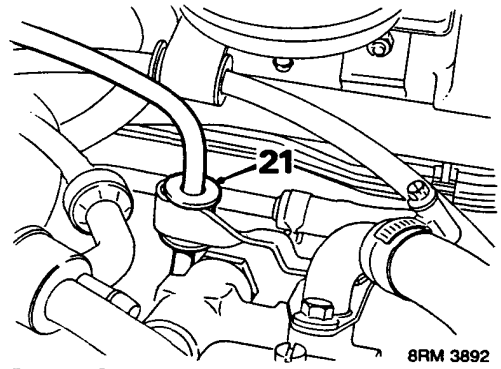
16. Remove 2 bolts securing brake servo vacuum pump to mounting bracket; move pump aside.
17. Remove nut and bolt securing brake servo vacuum pump bracket support stay; remove stay.



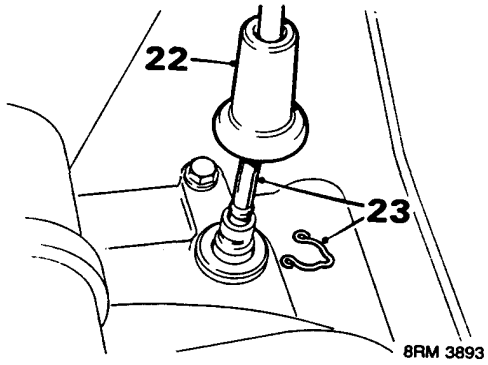
18. Remove 2 nuts and bolts securing brake servo vacuum pump bracket to gearbox; remove bracket.
19. Raise front of vehicle.

WARNING: Support on safety stands.

20. Remove both front road wheels.

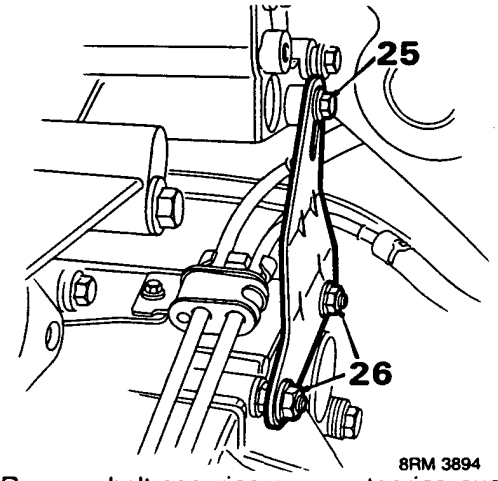


21. *Power Steering:* Release speedometer cable from bracket on power steering pump.



22. Release speedometer cable cover from gearbox.
23. Remove clip securing speedometer cable at gearbox, release cable from gearbox; move cable aside.
24. Remove starter motor, see **ELECTRICAL - Repairs.**

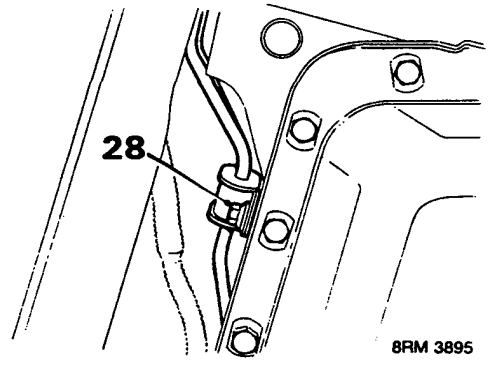
Power Steering Models



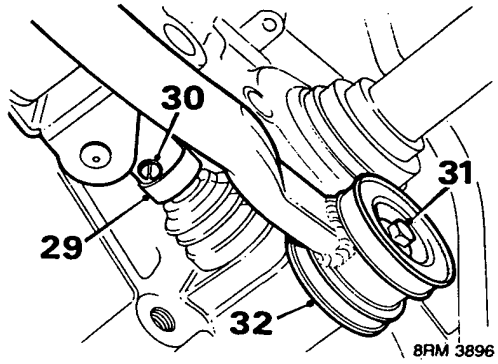
25. Remove bolt securing power steering pump support bracket to power steering pump.
26. Remove 2 nuts securing power steering pump support bracket to gearbox; remove support bracket.

All Models

27. Remove nut and bolt securing fuel pipe bracket to gearbox.

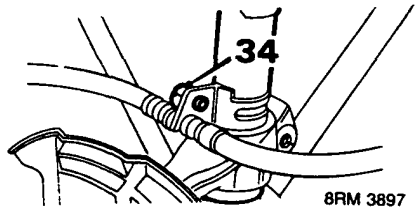


28. Remove bolt securing fuel pipe bracket to front of cylinder block; move fuel pipes aside.

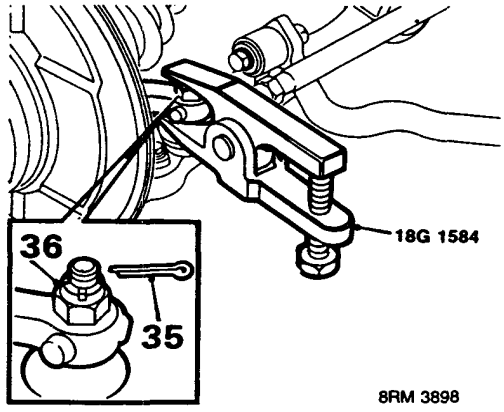


29. Remove clip retaining gear selector rod roll pin.
30. Using a suitable punch, drive out selector rod roll pin.

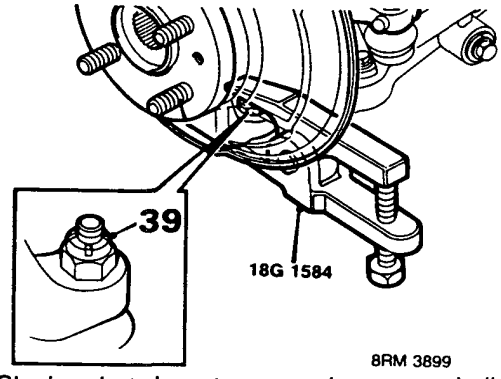
31. Remove bolt securing gear change steady rod to gearbox; release steady rod and selector rod.
32. Recover washer from gearbox spigot.
33. Remove L.H. tie rod, **REPAIR MANUAL - SUSPENSION - Repairs.**



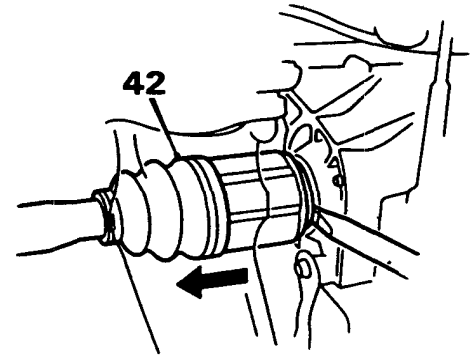
34. Remove bolt securing brake hose bracket to L.H. suspension strut.

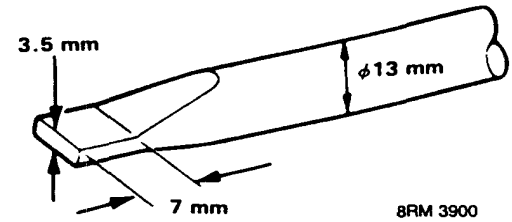


35. Remove split pin from L.H. steering arm ball joint nut; discard split pin.
36. Remove ball joint nut.
37. Release track rod from steering arm using tool **18G 1584.**
38. Remove split pin from L.H. lower arm ball joint nut; discard split pin.



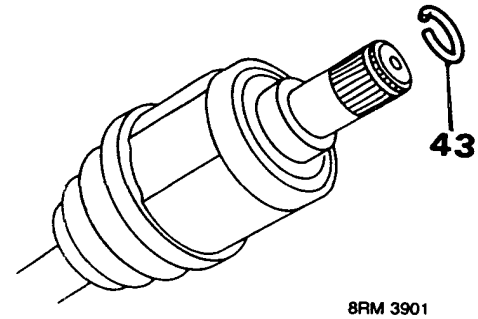
39. Slacken but do not remove lower arm ball joint nut.
40. Release lower arm ball joint from hub using tool **18G 1584** remove ball joint nut as hub is released.
41. Drain gearbox oil, see **MAINTENANCE.**



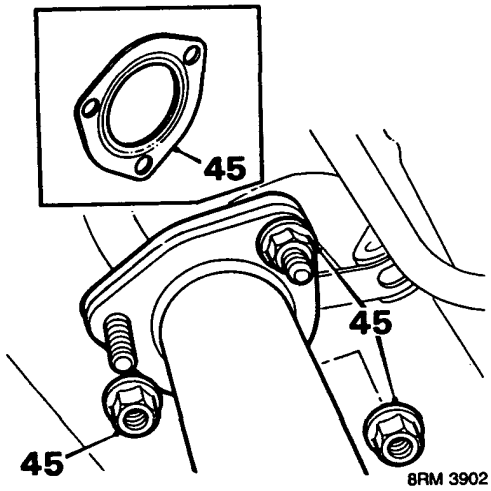


42. Using a screwdriver with dimensions as shown, release L.H. drive shaft from differential; move drive shaft aside.

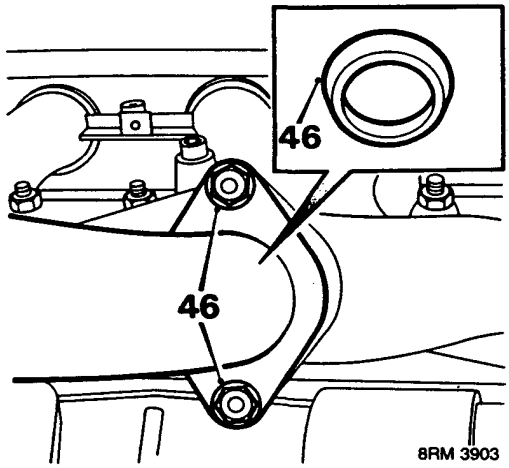
***CAUTION:** Keep drive shaft horizontal to avoid damaging differential oil seal.*



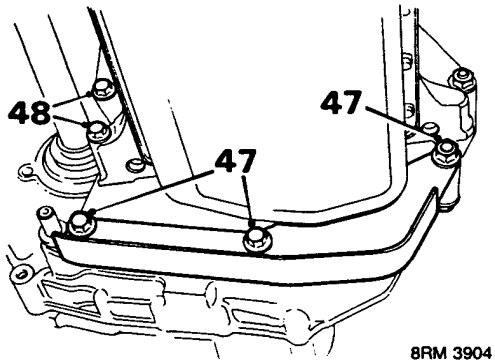
43. Remove circlip from end of drive shaft; discard circlip.
44. Remove R.H. drive and intermediate shafts, see **DRIVE SHAFTS - Repairs.**



45. *Turbo Models:* Remove 3 nuts securing exhaust down pipe to turbocharger elbow; recover flange packing.



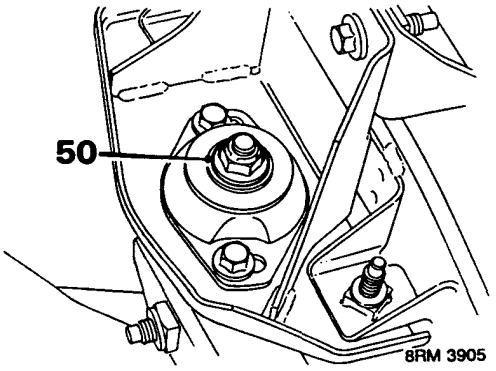
46. *Non - Turbo Models:* Remove 2 nuts securing exhaust down pipe to manifold; recover flange packing.



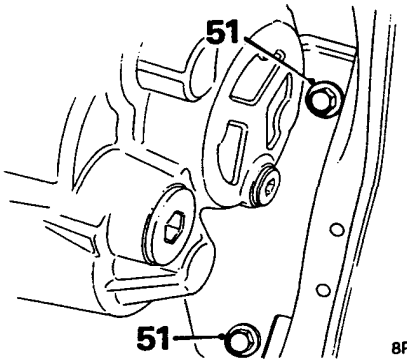
47. Remove 3 bolts and nut securing the engine protection plate; remove plate.
48. Noting their fitted positions, remove 2 gearbox securing bolts from beneath gearbox.

49. Support engine on a trolley jack.

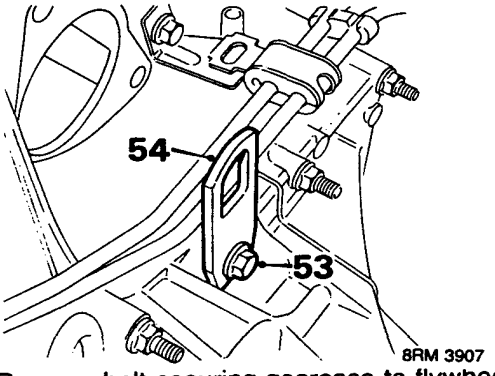
CAUTION: *Use a block of wood or hard rubber pad to protect sump.*



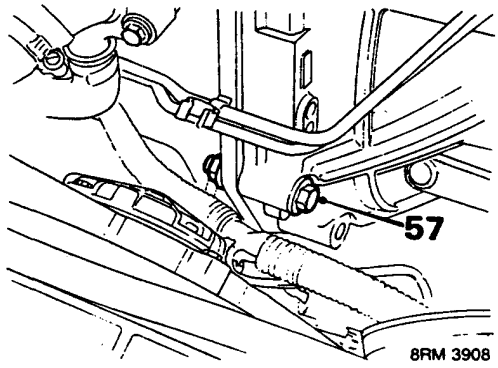
50. Remove centre nut from engine L.H. mounting.



51. Slacken but do not remove 2 bolts securing engine L.H. mounting bracket to body.
52. Lower the trolley jack until sufficient clearance to allow for gearbox removal is obtained.



53. Remove bolt securing gearcase to flywheel housing to enable lifting eye to be fitted.
54. Fit lifting eye.
55. Using a suitable shackle, connect lifting chain to lifting eye.
56. Raise lifting chain to support weight of gearbox.



57. Remove remaining nut and bolts securing gearbox.
58. Release gearbox from locating dowels and engine.
59. Lower gearbox to floor; remove gearbox from beneath vehicle.

Refit

1. Thoroughly clean gearbox exterior and mating faces.
2. Ensure 2 gearbox locating dowels are fitted.
3. Remove bolt securing gearcase to flywheel housing to enable lifting eye to be fitted; fit lifting eye.
4. Position gearbox beneath vehicle.
5. Using a suitable shackle, connect lifting chain to lifting eye.
6. Raise gearbox to position and using assistance, locate gearbox to engine and dowels.
7. Fit M12 x 30, M12 x 60 and M10 x 80 flywheel housing bolts and nuts and tighten to:

M12 x 30 bolts - 60 Nm

M12 x 60 bolts - 83 Nm

M12 nuts - 83 Nm

M10 x 80 bolts - 45 Nm

8. Raise engine and align engine L.H. mounting.
9. Fit centre nut to engine L.H. mounting stud and tighten to 72 Nm.
10. Tighten engine L.H. mounting bracket securing bolts to 45 Nm.
11. Release lifting chain, remove shackle and lifting eye.
12. Fit gearcase to flywheel housing bolt and tighten to 45 Nm.
13. Remove trolley jack.
14. Fit engine protection plate, fit nut and bolts and tighten to 45 Nm.

Turbo Models

15. Fit exhaust down pipe flange packing; fit down pipe to turbocharger elbow.
16. Fit exhaust down pipe securing nuts and tighten to 30 Nm.

All Models

19. Fit washer to gearbox spigot, fit selector rod and steady rod.
20. Fit selector rod roll pin; secure pin with clip.
21. Fit gear change steady rod securing bolt and tighten to 35 Nm.
22. Fit R.H. drive and intermediate shafts, see **DRIVE SHAFTS - Repairs.**
23. Thoroughly clean L.H. drive shaft and differential oil seal.
24. Lubricate differential oil seal with gearbox oil, **CAPACITIES, FLUIDS AND LUBRICANTS.**
25. Fit new circlip to drive shaft.
26. Engage drive shaft in differential; push drive shaft fully home.

CAUTION: Pull drive shaft away from differential to ensure circlip is fully engaged.

27. Engage lower arm ball joint to hub.
28. Fit lower arm ball joint nut and tighten to 83 Nm.
29. Secure nut with a new split pin.
30. Fit steering arm ball joint.
31. Fit steering arm ball joint nut and tighten to 44 Nm.
32. Secure nut with a new split pin.
33. Fit L.H. tie rod, see **SUSPENSION - REPAIR MANUAL - Repairs.**
34. Position brake hose bracket to suspension strut; fit bolt and tighten to 25 Nm.
35. Position fuel pipes and bracket to cylinder block; fit bolt and tighten 9 Nm.
36. Position fuel pipes and bracket to gearbox; fit nut and bolt and tighten to 9 Nm.

Power Steering Models

37. Position power steering pump support bracket to gearbox; fit nuts and tighten to 83 Nm.
38. Fit bolt, power steering pump to support bracket; tighten bolt to 25 Nm.
39. Check/adjust power steering pump drive belt tension, see **MAINTENANCE.**

All Models

40. Clean drive end of speedometer inner cable; connect cable to gearbox.
41. Fit speedometer cable retaining clip; secure cover.
42. *Power Steering Models:* Secure speedometer cable to support bracket.
43. Fit starter motor, see **ELECTRICAL - Repairs.**
44. **Fit road wheel and tighten nuts to 100 Nm.**
45. Remove stand(s) and lower vehicle.

46. Position brake servo vacuum pump support stay, fit nut and bolt and tighten to 25 Nm.
47. Fit and tension brake servo vacuum pump drive belt, **MAINTENANCE.**
48. Secure clutch cable to abutment bracket; connect cable to release lever.
49. Position earth lead to gearbox; fit and tighten bolt.
50. Connect reverse lamp switch leads.

CAUTION: *Ensure leads are positioned clear of clutch lever.*

51. Connect Lucar to starter solenoid, connect lead to solenoid terminal; fit and tighten nut.
52. Position battery tray, position harness to tray and secure clip.
53. *Non – Turbo Models:* Position resonator bracket to battery tray; fit and tighten screws.
54. Fit battery tray; fit and tighten securing screws.
55. Fit battery into tray, fit clamp and tighten bolt; connect both battery leads.
56. Fit air cleaner, see **FUEL SYSTEM – Repairs.**
57. Fill gearbox with oil, see **MAINTENANCE.**

TORQUE SETTINGS

Flywheel housing bolts	M12 x 30 – 60 Nm M12 x 60 – 83 Nm M10 x 80 – 45 Nm
Flywheel housing nuts	83 Nm
L.H. engine mounting centre stud nut	72 Nm
L.H. engine mounting bracket to gearbox bolts	45 Nm
Engine protection plate nut and bolts	45 Nm
Exhaust down pipe nuts	30 Nm
Gear change steady rod bolt	35 Nm
Lower arm ball joint nut	83 Nm
Steering arm ball joint nut	44 Nm
Brake hose bracket bolt	25 Nm
Fuel pipe bracket nut and bolts	9 Nm
Power steering pump support bracket nuts	83 Nm
Power steering pump to support bracket bolt	25 Nm
Brake servo pump support stay nut and bolt	25 Nm
Road wheel nuts	100 Nm

TOOL NUMBERS

18G 134 BD – 1	Oil seal replacer
18G 134 BD – 12	Oil seal replacer
18G 1584	Ball joint separator