

# Chapter 7 Part A:

## Manual gearbox

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### Degrees of difficulty

<b>Easy</b> , suitable for novice with little experience 	<b>Fairly easy</b> , suitable for beginner with some experience 	<b>Fairly difficult</b> , suitable for competent DIY mechanic 	<b>Difficult</b> , suitable for experienced DIY mechanic 	<b>Very difficult</b> , suitable for expert DIY or professional 
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### Specifications

Note: Refer to "Engine identification" on page REF\*4 for details of engine identification.

#### General

Type	Four or five forward speeds (all synchromesh) and reverse. Final drive differential integral with main gearbox
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#### Designation

Four-speed units	JB0 or JB4
Five-speed units	JB1, JB3 or JB5

#### Gear ratios (typical)

	4-speed	5-speed
1st	3.7 : 1	3.7 : 1 (JB3 048 - 3.1 : 1)
2nd	2.1 : 1	2.1 : 1 (JB3 048 - 1.8 : 1)
3rd	1.3 : 1	1.3 : 1
4th	0.9 : 1	1.0 : 1
5th	-	0.8 : 1
Reverse	3.6 : 1	3.6 : 1

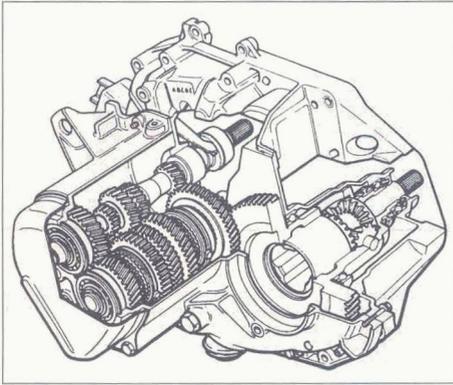
#### Final drive ratios

JB0 (031) and JB4 (004)	3.4 : 1
JB0 (032) and JB4 (008)	3.6 : 1
JB1 (038 and 043)	3.5 : 1
JB1 (046)	4.3 : 1
JB3 (041)	3.3 : 1
JB3 (045)	3.4 : 1
JB3 (046)	3.9 : 1
JB3 (048)	4.2 : 1
JB5 (005 and 010)	3.6 : 1
JB5 (015)	4.2 : 1

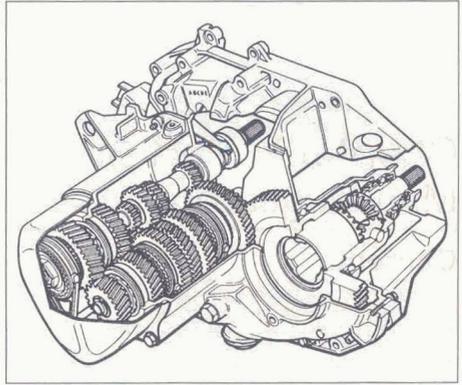
#### Torque wrench settings

	Nm	lbf ft
Gearbox mounting nuts/bolts	40 to 50	30 to 37
Clutch bellhousing to engine	50	37
Gearchange casing nuts	15	11
Gearchange link rod clamp nuts and bolts	30	22

## 7A•2 Manual gearbox



1.1a Cutaway view of the four-speed gearbox



1.1b Cutaway view of the five-speed gearbox

### 1 General information

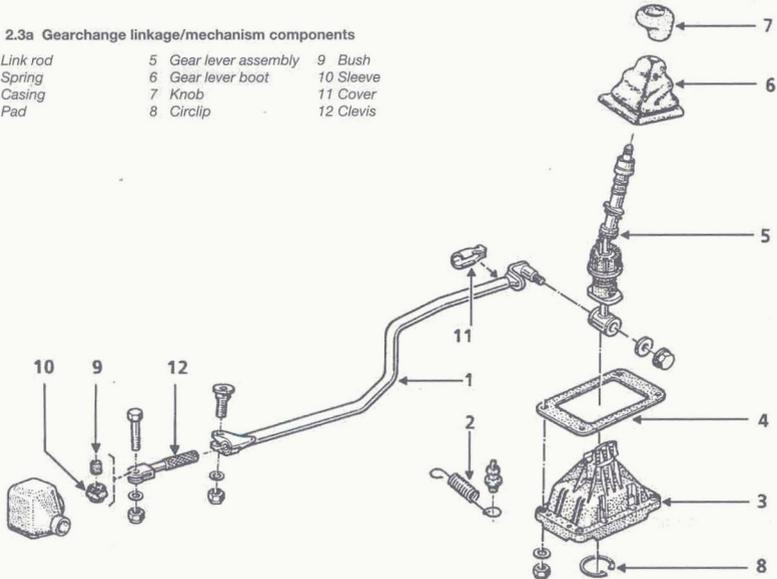
1 The manual gearbox is either of four-speed or five-speed type, with one reverse gear. Baulk ring synchromesh gear engagement is used on all the forward gears. The final drive (differential) unit is integral with the main gearbox, and the gearbox and differential

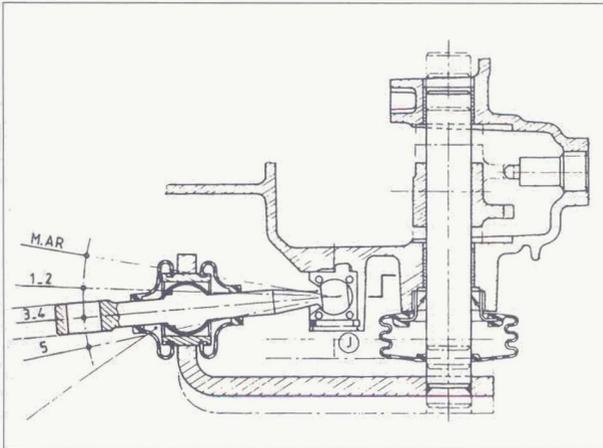
both share the same lubricating oil (see illustrations).

2 Gearshift is by means of a floor-mounted lever, connected by a remote control housing and gearchange rod to the gearbox for contact shaft.

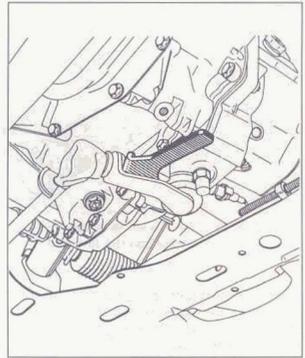
### 2.3a Gearchange linkage/mechanism components

- |            |                       |           |
|------------|-----------------------|-----------|
| 1 Link rod | 5 Gear lever assembly | 9 Bush    |
| 2 Spring   | 6 Gear lever boot     | 10 Sleeve |
| 3 Casing   | 7 Knob                | 11 Cover  |
| 4 Pad      | 8 Circlip             | 12 Clevis |

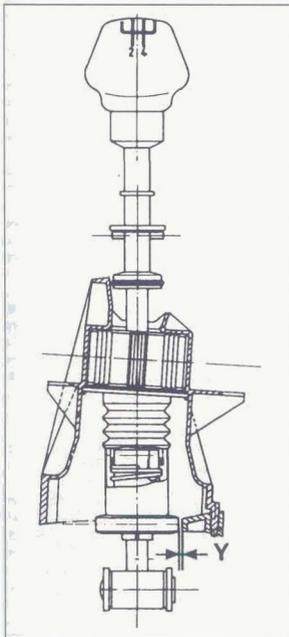




2.3b Gear positions for the gearbox lever



2.3c Using the special Renault tool to hold the gearbox lever in 1st gear position



2.4 The adjustment gap (Y) should be between 4.5 and 7.5 mm

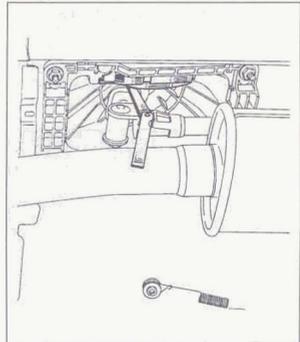
## 2 Gearchange linkage/mechanism - adjustment

- 1 Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support").
- 2 Unbolt and remove the splash guard from under the gearbox.
- 3 Select 1st gear on the gearbox by moving the lever to the correct position. Renault technicians use a special tool to hold the lever in position and take up any free play; a suitable alternative tool can be made from flat metal bar or wood (see illustrations).
- 4 Using a feeler blade, check that the clearance between the reverse stop-ring on the gear lever and the inclined plane on the right-hand side of the gear lever housing is between 4.5 and 7.5 mm (see illustration).
- 5 If adjustment is necessary, unhook the return spring from the gear lever end of the link rod, then loosen the clamp bolt at the gearbox end of the link rod so that the rod can be moved on the clevis.
- 6 Move the gear lever so that the reverse stop-ring is against the inclined plane on the housing, then insert a suitable feeler blade between the ring and plane (see illustration). Hold the lever in this position, then tighten the clamp bolt.
- 7 Remove the holding tool and refit the return spring.
- 8 Repeat the clearance check given in paragraph 4.
- 9 Check that all gears can be selected, then refit the splash guard and tighten the bolts. Lower the car to the ground.

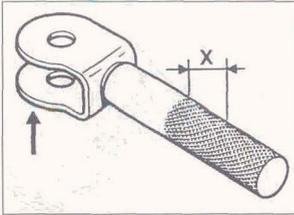
## 3 Gearchange linkage/mechanism - removal and refitting

### Removal

- 1 Working inside the car, prise the gear lever gaiter from the centre console.
- 2 Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support").
- 3 Working beneath the car, disconnect the exhaust pipe flexible mountings. Unbolt and remove the splash guard from under the gearbox.



2.6 Adjusting the gear lever mechanism with a feeler blade



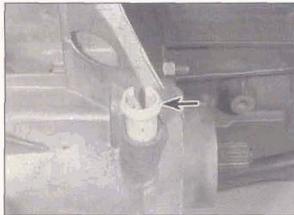
3.12 Area of the clevis to be showing when reconnecting the link rod

X = 10 to 12 mm

- 4 Unhook the return spring from the link rod.
- 5 Pull back the rubber boot from the front end of the link rod. Remove the bolt and disconnect the rod from the gearbox lever. Recover the bush and sleeve. Note that the clevis at the front end of the rod is offset, and must be refitted correctly.
- 6 Remove the nuts securing the casing assembly to the underbody. Lower the assembly, at the same time pulling the exhaust system to one side.
- 7 Mark the link rod and gear lever clevis in relation to each other. Unscrew the pinch-bolt and remove the rod from the clevis.
- 8 Grip the gear lever in a vice, then remove the knob and gear lever gaiter. The knob is bonded to the lever, and may be hard to remove.
- 9 Extract the circlip from the bottom of the gear lever, and withdraw the lever and latch from the casing.

**Refitting**

- 10 Refitting is a reversal of removal, noting the points in the following paragraphs.
- 11 Lubricate the pivot points with grease, and use a suitable adhesive to bond the knob to the lever.
- 12 Make sure that the clevis on the front end of the link rod is fitted with the offset towards the gearbox (see illustration). If the clevis has been removed or if a new clevis is being fitted, connect the link rod to the clevis leaving 10 to 12 mm of the knurled area showing. This will locate the gear lever in its correct longitudinal position.



4.0 Speedometer drive plastic connection (arrowed) on later models

13 Adjust the gearchange mechanism as described in Section 2.

**4 Speedometer drive - removal and refitting**

**Note:** On some later models, the speedometer drive is taken from the right-hand side of the gearbox, just above the driveshaft. It is not possible to remove the drive on this type. The later type can be identified by the plastic cable connection to the gearbox instead of the clip type connection on earlier models (see illustration).

**Removal**

- 1 Disconnect the left-hand driveshaft at the gearbox end - refer to Chapter 8. There is no need to disturb the hub end of the driveshaft; the driveshaft/swivel hub assembly can be removed together, as described for engine removal (Chapter 2E).
- 2 Extract the circlip and thrustwasher, then withdraw the left-hand sun wheel from the differential. The sun wheel also acts as the driveshaft spider housing.
- 3 Turn the differential until the planet wheels are in a vertical plane so that the speedometer drivegear is visible (see illustration).
- 4 Pull out the clip and disconnect the speedometer cable from the outside of the gearbox.
- 5 Using long-nosed pliers, extract the speedometer drivegear shaft vertically from the outside of the gearbox.
- 6 Using the same pliers, extract the speedometer drivegear from inside the differential housing, being very careful not to drop it.
- 7 Examine the drivegear teeth for wear and damage. Renew it if necessary. Note that if the drivegear teeth on the differential are worn or damaged, it will be necessary to dismantle the gearbox - this work should be entrusted to a Renault dealer.

**Refitting**

- 8 Using long-nosed pliers, insert the speedometer drivegear into its location.
- 9 From outside the gearbox, refit the

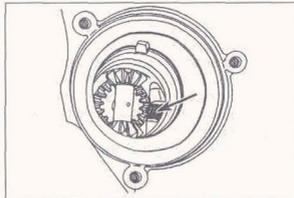
drivegear shaft. Make sure that it engages with the gear location notches correctly (see illustration).

- 10 Refit the speedometer cable, and secure with the clip.
- 11 Insert the differential sun wheel, then refit the thrustwasher and circlip.
- 12 Reconnect the left-hand driveshaft with reference to Chapter 8.

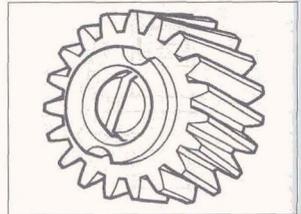
**5 Differential output oil seal (right-hand side) - renewal**

**Note:** A balljoint separator tool will be required during this operation. A new differential sun wheel shaft O-ring and new driveshaft-to-differential sun wheel roll pins will be required on refitting. Suitable sealant will be required to seal the ends of the roll pins.

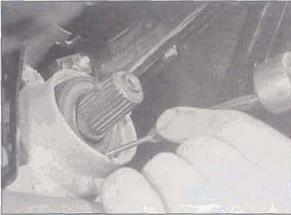
- 1 Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support"). Remove the right-hand wheel.
- 2 Position a suitable container beneath the gearbox, then unscrew the drain plug and allow the oil to drain. (On some models, it may be necessary to remove a splash guard from the bottom of the gearbox first.) When most of the oil has drained, clean and refit the drain plug, tightening it securely.
- 3 Using a pin punch (5 mm diameter), drive out the double roll pins securing the inner end of the right-hand driveshaft to the differential sun wheel. New pins will be required when reassembling.
- 4 Unscrew the nut securing the steering track rod end to the steering arm. Use a balljoint removal tool to separate the balljoint taper.
- 5 Refer to Chapter 9 and unbolt the brake caliper from the swivel hub. Do not disconnect the hydraulic hose from the caliper. Tie the caliper to the suspension coil spring without straining the hydraulic hose.
- 6 Loosen (but do not remove) the lower bolt securing the swivel hub to the bottom of the suspension strut. Unscrew and remove the upper bolt, then tilt the swivel hub and disconnect the driveshaft. Take care not to damage the driveshaft rubber bellows.



4.3 View of the speedometer drivegear (arrowed) with the differential sun wheel removed



4.9 Notches in the speedometer drivegear engage with the shaft



5.9 Tap the old differential output oil seal with a small drift to remove it

7 Recover the O-ring from the sun wheel shaft.

8 Wipe clean the old oil seal, and measure its fitted depth below the casing edge. This is necessary to determine the correct fitted position of the new oil seal if the special Renault fitting tool is not being used.

9 Free the old oil seal, using a small drift to tap the outer edge of the seal inwards so that the opposite edge of the seal tilts out of the casing (see illustration). A pair of pliers or grips can then be used to pull out the oil seal. Take care not to damage the splines of the differential sun wheel.

10 Wipe clean the oil seal seating in the casing.

11 Before fitting the new oil seal, it is necessary to cover the splines on the sun wheel shaft to prevent damage to the oil seal lips. Ideally, a close-fitting plastic cap should be located on the splines. If this is not available, wrap some adhesive tape over the splines.

12 Smear a little grease on the lips of the new oil seal and on the protective cap or tape.

13 Carefully locate the new oil seal over the sun wheel shaft, and enter it squarely into the casing. Using a piece of metal tube or a socket, tap the oil seal into position to its correct depth, as noted previously (see illustrations). Renault use a special tool to ensure that the oil seal is fitted to the correct depth; it may be possible to hire this tool from a Renault garage or tool hire shop.

14 Remove the plastic cap or adhesive tape, and apply a little grease to the splines of the sun wheel shaft. Fit a new O-ring to the sun wheel shaft.

15 Engage the driveshaft with the splines on the sun wheel so that the roll pin holes are correctly aligned. Tilt the swivel hub and slide the driveshaft onto the side gear, making sure that it enters the oil seal centrally.

16 With the holes aligned, tap the new roll pins into position. Seal the ends of the roll pins with a suitable sealant.

17 Refit the upper bolt securing the swivel hub to the bottom of the suspension strut, then tighten both upper and lower bolts to the specified torque (see Chapter 10).

18 Refit the brake caliper to the swivel hub, and tighten the bolts to the specified torque



5.13a Position the new differential output oil seal on the gearbox . . .

with reference to Chapter 9.

19 Clean the track rod end balljoint taper and the steering arm, then refit the balljoint to the arm and tighten the nut to the specified torque (see Chapter 10).

20 Refill the gearbox with the correct quantity and grade of oil, with reference to Chapter 1A or 1B. Refit the splash guard where necessary.

21 Refit the roadwheel and lower the car to the ground.



5.13b . . . and drive it in with a socket or metal tube

## 6 Reversing light switch - removal and refitting

Note: A new switch washer will be required on refitting.

### Removal

1 Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support").

2 Where applicable, unbolt and remove the splash guard from the bottom of the gearbox.

3 Position a suitable container beneath the gearbox, then unscrew the drain plug and allow the oil to drain. When all of the oil has drained, clean and refit the drain plug, tightening it securely.

4 The switch is located on the left-hand side of the gearbox, next to the driveshaft (see illustration 8.21). Disconnect the wiring from the switch.

5 Unscrew the switch from the gearbox, and remove the washer.



7.5 Unscrewing the gearbox oil drain plug

### Refitting

6 Clean the location in the gearbox and the threads of the switch.

7 Insert the switch together with a new washer, and tighten it securely.

8 Reconnect the wiring.

9 Refill the gearbox with the correct quantity and grade of oil, with reference to Chapter 1A or 1B.

10 Refit the gearbox splash guard, where applicable.

11 Lower the car to the ground.

## 7 Manual gearbox (C-, D- and E-type engines) - removal and refitting

Note: This Section describes the removal of the gearbox, leaving the engine in position in the car. If adequate lifting gear is available, it will almost certainly be easier to remove the engine and the gearbox together, as described in Chapter 2E, and to separate them on the bench. Where applicable (see text), new right-hand driveshaft-to-differential sun wheel roll pins will be required on refitting, and suitable sealant will be required to seal the ends of the roll pins.

### Removal

1 The gearbox is removed upwards from the engine compartment, after disconnecting it from the engine. Due to the weight of the unit, it will be necessary to have suitable lifting equipment (such as an engine crane or hoist) available.

2 Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support"). Remove both front roadwheels.

3 Remove the battery with reference to Chapter 5A.

4 Remove the bonnet with reference to Chapter 11.

5 Remove the plastic cover from the bottom of the gearbox. Position a suitable container beneath the gearbox, then unscrew the drain plug and allow the oil to drain (see illustration). When all of the oil has drained, clean and refit the drain plug, tightening it securely.



7.14a Pull back the rubber boot . . .



7.14b . . . then unbolt the gearchange rod from the lever on the gearbox

6 Unscrew the nut securing the left-hand steering track-rod end to the steering arm, then use a balljoint removal tool to separate the balljoint taper.

7 Working in the engine compartment, unscrew the three bolts securing the left-hand driveshaft inner rubber boot to the gearbox.

8 Refer to Chapter 9 and unbolt the left-hand brake caliper from the swivel hub. Do not disconnect the hydraulic hose from the caliper. Tie the caliper to the suspension coil spring without straining the hydraulic hose.

9 Unscrew and remove the pinch-bolt securing the front left lower balljoint to the bottom of the swivel hub.

10 Support the weight of the swivel hub and driveshaft on a trolley jack, then unscrew the two bolts and separate the swivel hub from the bottom of the suspension strut.

11 Withdraw the left-hand driveshaft and swivel hub from the gearbox. Make sure that

the tripod components remain in position on the inner end of the driveshaft, otherwise they may fall into the gearbox.

12 Working on the right-hand side driveshaft, where applicable use a 5 mm diameter pin punch to drive out the roll pins. **Note:** On some later models, the roll-pin at the inner end of the driveshaft joint is sprung to retain it in the differential sun wheel stub shaft – ignore the references to removing and refitting the roll-pins when working on one of these vehicles.

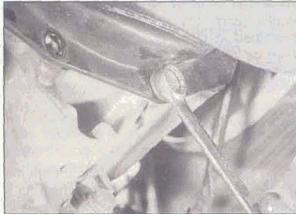
13 Loosen (but do not remove) the lower bolt securing the right-hand swivel hub to the bottom of the suspension strut. Unscrew and remove the upper bolt, then tilt the swivel hub and disconnect the driveshaft from the gearbox sun wheel shaft.

14 Cut the plastic tie and pull back the rubber boot, then disconnect the gearchange rod from the lever on the gearbox by unscrewing the nut and removing the bolt (see illustrations). Recover the bush from inside the lever. Do not separate the gearchange rod at the clamp, otherwise it will be necessary to adjust the gear lever position on refitting.

15 Unbolt the front left-hand inner wing protective cover (where necessary, drill out the retaining rivets).

16 On C-type engines, unbolt and remove the clutch cover from the bottom of the gearbox bellhousing.

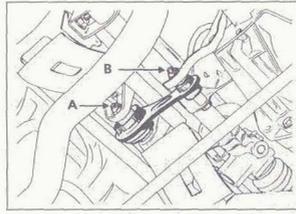
17 On E-type engines, unscrew the engine-



7.17a Unscrew the engine-to-gearbox tie-rod bracket bolts at the gearbox . . .



7.17b . . . and at the engine – E-type engine



7.24 Engine/gearbox rear mounting link - E-type engine

A Rear mounting bolt  
B Front mounting bolt

to-gearbox tie-rod bracket mounting bolts and remove the bracket (see illustrations).

18 On all engines, unscrew the engine-to-gearbox mounting nut located near the right-hand output shaft.

19 Pull out the clip and disconnect the speedometer cable from the rear of the gearbox, near the rear mounting.

20 Disconnect the clutch cable from the gearbox, as described in Chapter 6.

21 Unbolt the earth cable from the gearbox casing.

22 Pull the wiring connector from the reversing light switch on the gearbox casing.

### C-type engines

23 Unbolt and remove the engine-to-gearbox tie-rod.

### E-type engines

24 Loosen (but do not remove) bolt (A), then unscrew and remove bolt (B) from the rear mounting link (see illustration).

25 Drain the cooling system as described in Chapter 1A or 1B.

26 Loosen the clips and remove the radiator top hose. Also remove the thermostat.

27 Remove the distributor cap with reference to Chapter 5B or 5C, as applicable.

28 Where applicable, remove the engine speed (flywheel) sensor and the ignition module with reference to Chapter 4B or 4C, as applicable.

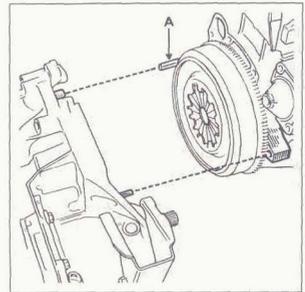
29 Loosen (but do not remove) the bolt securing the rear mounting bracket to the gearbox, and swivel the mounting down.

### All engines

30 Refer to the accompanying illustration and remove stud (A) (see illustration). Use a nut and locknut to remove the stud.

31 Connect a suitable hoist to the engine, and lift it slightly. Alternatively, the engine may be supported on a trolley jack so that the hoist can be used to remove the gearbox.

32 Remove the right-hand engine/gearbox mounting bracket/battery mounting bracket, complete with gearbox mounting pad (when applicable).



7.30 Stud (A) locating gearbox on engine



**8.5a** Removing the plastic cover from the bottom of the gearbox



**8.5b** Unscrew the drain plug . . .



**8.5c** . . . and drain the oil

### C-type engines

- 33** Remove the air cleaner housing assembly with reference to Chapter 4A.  
**34** Unscrew the nut securing the gearbox front mounting to the subframe. Unbolt the front mounting from the gearbox.  
**35** Unbolt and remove the rear mounting from the rear of the gearbox.  
**36** Note the routing of the engine wiring harness, then disconnect it and remove it from the gearbox.

### All engines

- Unscrew and remove the gearbox-to-engine nuts and bolts from around the gearbox and from the starter motor. There is no need to remove the starter motor.  
**38** Support the weight of the gearbox. Disconnect the gearbox end housing between the engine subframe and the front wing side panel. Careful use of a wide-bladed screwdriver may be necessary to free the bellhousing from the location dowels. Do not allow the weight of the gearbox to hang on the input shaft.  
**39** Pivot the gearbox forwards to release the final drive section. Lift the gearbox upwards from the engine compartment, bellhousing end first. If the hoist is being used, attach it to the bellhousing mounting bolt holes.

### Refitting

- 40** Refitting is a reversal of removal, noting the following additional points.
- Before assembling the gearbox to the engine, position a length of wood or a similar distance piece between the end of the clutch release fork and the outer cable bracket on the gearbox casing, in order to hold the fork in its released position. This will prevent the release bearing from becoming detached from the end of the release fork during the refitting procedure.
  - Make sure that the location dowels are correctly positioned in the gearbox.
  - Apply a little high-melting-point grease to the splines of the gearbox input shaft. Do not apply too much, otherwise there is the possibility of the grease contaminating the clutch friction disc.
  - Make sure that the centring bush for the

starter motor is correctly fitted. Refer to Chapter 5A if necessary.

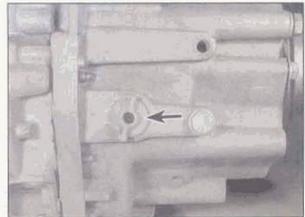
- Where applicable, use new roll pins when reconnecting the right-hand driveshaft, and seal the ends using a suitable sealant.
- Refit and tighten the brake caliper mounting bolts, with reference to Chapter 9.
- When applicable, check the engine mounting adjustment dimensions, as given in the relevant Part of Chapter 2.
- Refill the gearbox with oil, and check the level with reference to Chapter 1A or 1B.
- Tighten all nuts and bolts to the specified torque.
- Refill the cooling system with reference to Chapter 1A or 1B.

## 8 Manual gearbox (F-type engine) - removal and refitting

**Note:** This Section describes the removal of the gearbox, leaving the engine in the car. If adequate lifting gear is available, it may be easier to remove the engine and gearbox together, as described in Chapter 2E, and to separate them on the bench. Where applicable (see text), new right-hand driveshaft-to-differential side gear roll pins will be required on refitting, and suitable sealant will be required to seal the ends of the roll pins.

### Removal

- The gearbox is removed upwards from the engine compartment, after disconnecting it from the engine. Due to the weight of the unit, it will be necessary to have suitable lifting equipment available, such as an engine crane or hoist, to enable the unit to be removed in this way.
- Apply the handbrake, then jack up the front of the car and support it on axle stands (see "Jacking and vehicle support"). Remove both front roadwheels.
- Remove the battery with reference to Chapter 5A, and the air cleaner assembly with reference to Chapter 4B or 4C.
- Remove the bonnet with reference to Chapter 11.



**8.5d** Oil filler plug (arrowed) on the front of the gearbox

- 5** Remove the plastic cover from the bottom of the gearbox. Position a suitable container beneath the gearbox, then unscrew the drain and filler plugs and allow the oil to drain (see illustrations). When all of the oil has drained, clean and refit the drain plug, tightening it securely.

- 6** Unscrew the nut securing the left-hand steering track-rod end to the steering arm, then use a balljoint removal tool to separate the balljoint taper. On models fitted with ABS, unbolt the sensor from the swivel hub (see illustration).

- 7** Working in the engine compartment, unscrew the three bolts securing the left-hand driveshaft inner rubber boot to the gearbox (see illustration).

- 8** Refer to Chapter 9 and unbolt the left-hand brake caliper from the swivel hub (see



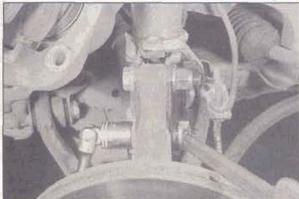
**8.6** Unbolt the ABS sensor from the swivel hub



**8.7 Bolts securing the left-hand driveshaft inner rubber boot to the gearbox**

**illustration).** Do not disconnect the hydraulic hose from the caliper. Tie the caliper to the suspension coil spring without straining the hydraulic hose.

**9** Unscrew and remove the pinch-bolt



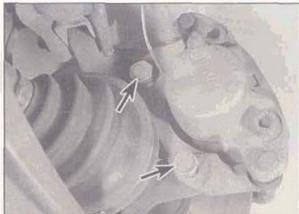
**8.10a Unscrewing the bolts securing the swivel hub to the bottom of the suspension strut**



**8.10b Disconnecting the swivel hub from the lower balljoint**



**8.14c ... and recover the bush from inside the lever**



**8.8 Left-hand brake caliper retaining bolts (arrowed)**

securing the front left lower balljoint to the bottom of the swivel hub (**see illustration**).

**10** Support the weight of the swivel hub and driveshaft on a trolley jack. Unscrew the two bolts, and separate the swivel hub from the bottom of the suspension strut and from the lower balljoint (**see illustrations**).

**11** Withdraw the left-hand driveshaft and swivel hub from the gearbox. Make sure that the tripod components remain in position on the inner end of the driveshaft, otherwise they may fall into the gearbox.

**12** Working on the right-hand side driveshaft, where applicable, use a 5 mm diameter pin punch to drive out the roll pins. **Note:** On some later models, the roll-pin at the inner end of the driveshaft is deleted, and the splined end of the driveshaft joint is sprung to retain it in the differential sun wheel stub shaft – ignore the references to removing and refitting the roll-pins when working on one of these vehicles.



**8.14a Pull back the rubber boot on the gearchange rod ...**



**8.15a Rivets (arrowed) holding the inner wing protective cover**



**8.9 Removing the pinch-bolt securing the lower balljoint to the swivel hub**

**13** Loosen (but do not remove) the lower bolt securing the right-hand swivel hub to the bottom of the suspension strut. Unscrew and remove the upper bolt, then tilt the swivel hub and disconnect the driveshaft from the gearbox.

**14** Cut the plastic tie and pull back the rubber boot, then disconnect the gearchange rod from the lever on the gearbox by unscrewing the nut and removing the bolt. Recover the bush from inside the lever (**see illustrations**). Do not separate the gearchange rod at the clamp, otherwise it will be necessary to adjust the gear lever position on refitting.

**15** Unbolt the front left-hand inner wing protective cover (where necessary, drill out the retaining rivets) (**see illustrations**).

**16** On F3P engines, unscrew the engine-to-gearbox tie-rod bracket mounting bolts, and remove the bracket (**see illustration**). No tie-rod bracket is fitted to the F7P (16-valve) engine.



**8.14b ... unscrew and remove the bolt ...**



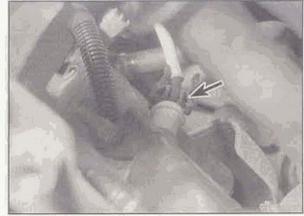
**8.15b Inner wing protective cover bottom bolt (arrowed)**



8.16 Engine-to-gearbox tie-rod bracket (arrowed) - F-type engine



8.17 Engine-to-gearbox mounting nut (arrowed) located on the rear of the engine



8.18 Speedometer cable connection (arrowed) at the rear of the gearbox



8.20a Wiring harness support on the gearbox - F7P (16-valve) model



8.20b Earth strap attachment to the gearbox casing



8.20c Wiring harness earth wire attachment to the gearbox casing

- 17 Unscrew the engine-to-gearbox mounting nut located near the right-hand gearbox output shaft (see illustration).  
 18 Squeeze together the plastic clip, and disconnect the speedometer cable from the



8.21 Disconnecting the wiring from the reversing light switch



8.22 Rear mounting link swivelled downwards



8.27 ABS wiring harness attachment to the gearbox mounting



8.29 Removing a starter motor mounting bolt

rear of the gearbox, near the rear mounting (see illustration).

19 Refer to Chapter 6, and disconnect the clutch cable from the gearbox.

20 Unbolt the earth cable from the gearbox casing and from the cylinder block. Also unbolt the wiring harness supports and the earth strap from the gearbox and gearbox mountings, as applicable (see illustrations).

21 Pull the wiring connector from the reversing light switch on the gearbox casing (see illustration).

22 Refer to illustration 7.24, and loosen (but do not remove) bolt (A), then unscrew and remove bolt (B) from the rear mounting link. Swivel the link down (see illustration).

23 Drain the cooling system and remove the radiator, referring to Chapters 1 and 3. (On F7P/16-valve engines, it will be necessary to unbolt the crossmember from the front of the engine compartment).

24 Disconnect the radiator top hose from the engine.

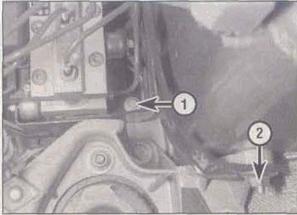
25 Remove the distributor cap.

26 Remove the ignition module with reference to Chapter 5C, and the engine speed (flywheel) sensor with reference to Chapter 4B or 4C, as applicable.

27 Where applicable, unclip the wiring harness from the ABS unit and from the gearbox mounting (see illustration).

28 Disconnect the wiring for the engine from inside the plastic box on the left-hand side of the engine compartment.

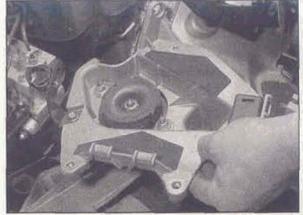
29 Disconnect the wiring from the starter motor and (when applicable) from the oxygen sensor. Detach the wiring bracket from the rear of the cylinder block, and feed it through the starter cover. Remove the starter motor (see Chapter 5A), and pull the engine wiring loom through the hole in the bellhousing (see illustration).



8.33a ABS unit bracket bolt (1) and gearbox mounting nut (2)



8.33b Using a cable tie (arrowed) to hold the ABS unit away from the gearbox



8.35 Removing the gearbox mounting assembly

30 Loosen (but do not remove) the bolt securing the rear mounting bracket to the gearbox, and swivel the mounting down.

31 Connect a suitable hoist to the engine, and lift it slightly. Alternatively, the engine may be supported on a trolley jack so that the hoist can be used to remove the gearbox.

32 Disconnect and remove the bottom hose from the coolant pipe on the cylinder block.

33 On models with ABS, unbolt the ABS unit bracket from the right-hand inner wing panel. Unscrew the uppermost nut securing the gearbox mounting to the left-hand suspension turret. Tie the ABS unit to one side, being careful not to strain the hydraulic pipes (see illustrations).

34 Support the weight of the gearbox.

35 Remove the remaining nuts and bolts which secure the gearbox mounting/battery tray to the bodywork. Remove the bolts which

secure the mounting bracket to the gearbox, and lift out the mounting assembly (see illustration).

36 Unbolt the short brace from the left-hand side of the engine subframe (see illustration).

37 Remove the air inlet duct from the left-hand front corner of the engine compartment.

38 Loosen (but do not remove) the front bumper lower mounting bolt on the left-hand side.

39 Loosen (but do not remove) the two left-hand subframe nuts, and lower the subframe to the extent permitted by the length of the bolts (see illustration). This will give the extra room necessary to manoeuvre the gearbox.

40 Unscrew and remove all of the gearbox-to-engine bolts and nuts, noting the location of the washers (see illustrations).

41 Disconnect the gearbox from the engine, sliding the gearbox end housing between the

engine subframe and the front wing side panel. Careful use of a wide-bladed screwdriver may be necessary to free the bellhousing from the location dowels. Do not allow the weight of the gearbox to hang on the input shaft.

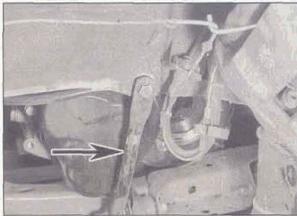
42 With the gearbox moved as far to the left-hand side of the engine compartment as possible, refer to Chapter 6 and remove the clutch. This is necessary in order to give additional room to manoeuvre the gearbox from the engine compartment.

43 Pivot the gearbox forwards to release the final drive section. Lift the gearbox upwards from the engine compartment, bellhousing end first. If the hoist is being used, attach it to the bellhousing mounting bolt holes (see illustration).

### Refitting

44 Refitting is a reversal of removal, noting the following additional points.

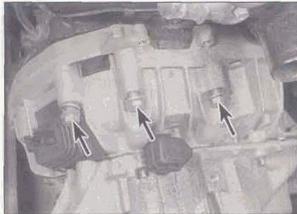
- Before assembling the gearbox to the engine, position a length of wood or similar distance piece between the end of the clutch release fork and the outer cable bracket on the gearbox casing, in order to hold the fork in its released position. This will prevent the release bearing from becoming detached from the end of the release fork during the refitting procedure.
- Make sure that the location dowels are correctly positioned in the gearbox.
- Apply a little high-melting-point grease to the splines of the gearbox input shaft. Do



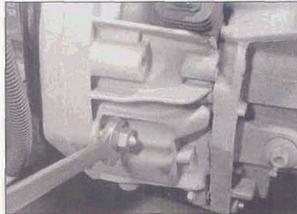
8.36 Short brace (arrowed) on the left-hand side of the subframe



8.39 Subframe lowered to the extent of the mounting bolts (exposed thread arrowed)



8.40a Removing the gearbox-to-engine mounting bolts (arrowed) . . .



8.40b . . . and nuts



8.43 Lifting the gearbox out of the engine compartment

not apply too much, otherwise there is the possibility of the grease contaminating the clutch friction disc.

- d) Make sure that the centring bush for the starter motor is correctly fitted. Refer to Chapter 5A if necessary.
- e) Where applicable, use new roll pins when reconnecting the right-hand driveshaft, and seal the ends using a suitable sealant.
- f) Refit and tighten the brake caliper mounting bolts with reference to Chapter 9.
- g) Check the engine mounting adjustment dimensions, as given in Chapter 2D.
- h) Refill the gearbox with oil, and check the level with reference to Chapter 1A or 1B.
- i) Tighten all nuts and bolts to the specified torque.
- j) Refill the cooling system with reference to Chapter 1A or 1B.

## 9 Manual gearbox overhaul - general information

1 Overhauling a manual gearbox is a difficult and involved job for the DIY home mechanic. In addition to dismantling and reassembling many small parts, clearances must be precisely measured and, if necessary, changed by selecting shims and spacers. Gearbox internal components are also often difficult to obtain, and in many instances, extremely expensive. Because of this, if the gearbox develops a fault or becomes noisy, the best course of action is to have the unit overhauled by a specialist repairer, or to obtain an exchange reconditioned unit (see illustrations).

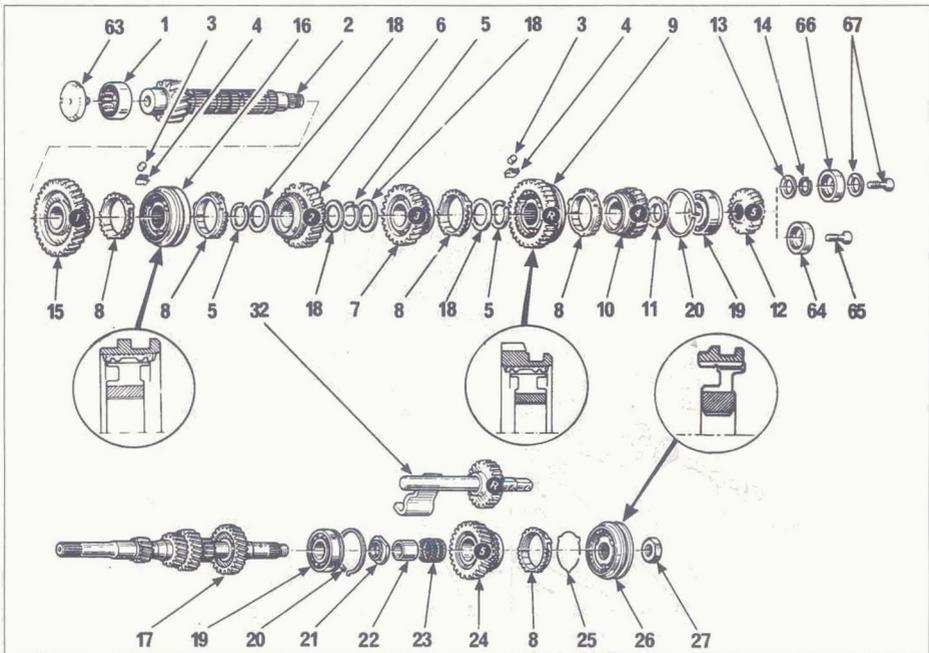
2 Nevertheless, it is not impossible for the more experienced mechanic to overhaul a gearbox,

provided the special tools are available and the job is done in a deliberate step-by-step manner so that nothing is overlooked.

3 The tools necessary for an overhaul include internal and external circlip pliers, bearing pullers, a slide-hammer, a set of pin punches, a dial test indicator, and possibly a hydraulic press. In addition, a large, sturdy workbench and a vice will be required.

4 During dismantling of the gearbox, make careful notes of how each component is fitted, to make reassembly easier and more accurate.

5 Before dismantling the gearbox, it will help if you have some idea what area is malfunctioning. Certain problems can be closely related to specific areas in the gearbox, which can make component examination and replacement easier. Refer to the "Fault finding" Section at the end of this manual for more information.



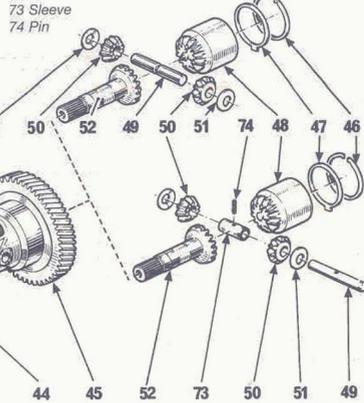
9.1a Gearbox internal components

1 Roller race	8 Synchro-ring	15 1st speed gear	22 5th speed ring	63 Oil baffle
2 Output shaft	9 3rd/4th gear hub	16 1st/2nd gear hub	23 Needle race	64 Thrustwasher
3 Roller	10 4th speed gear	17 Input shaft	24 5th speed gear (primary)	65 5th speed end bolt on output shaft
4 Spring	11 Washer	18 Splined ring	25 5th speed spring	66 Shouldered washer
5 Circlip	12 5th speed gear	19 Ball race	26 5th speed gear hub	67 Retaining bolt and washer
6 2nd speed gear	13 Washer	20 Circlip	27 5th speed nut	
7 3rd speed gear	14 5th speed circlip	21 Washer	32 Reverse shaft and gear	

**9.1b Differential components**

- 38 O-ring
- 39 Oil seal
- 40 Circlip
- 41 Speedometer drivegear
- 42 Ball race
- 43 Spacer washer
- 44 Spring washer
- 45 Differential housing

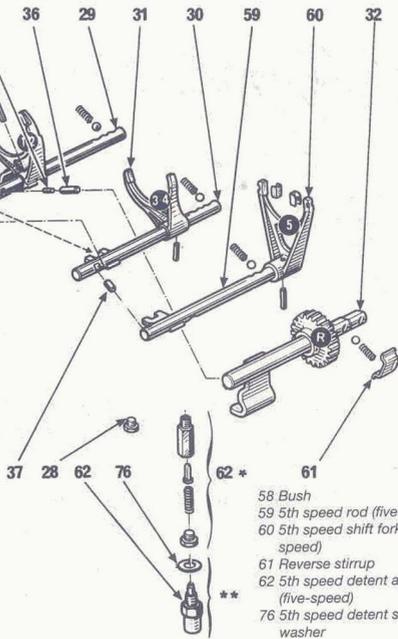
- 46 Circlip
- 47 Shim
- 48 Spider-type sun wheel
- 49 Planet wheel shaft
- 50 Planet wheels
- 51 Planet wheel washer
- 52 Sun wheel with tall shaft
- 68 Circlip
- 69 Ball race



**9.1c Gear selector components**

- Note:\* = 1st type
- Note:\*\* = 2nd type
- 28 Threaded stop (four-speed)
- 29 1st/2nd shift rod
- 30 3rd/4th shift rod
- 31 3rd/4th gear fork
- 32 Reverse shaft
- 33 Plunger between 1st/2nd and 3rd/4th
- 34 1st/2nd shift fork

- 35 1st/2nd plunger
- 36 Plunger between 1st/2nd and reverse
- 37 5th speed plunger (five-speed)
- 53 Circlip
- 54 Link support
- 55 Link
- 56 Selector finger
- 57 Input shaft



- 58 Bush
- 59 5th speed rod (five-speed)
- 60 5th speed shift fork (five-speed)
- 61 Reverse stirrup
- 62 5th speed detent assembly (five-speed)
- 76 5th speed detent shim washer