

Chapter 7 Part A: Manual transmission

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Degrees of difficulty

Easy, suitable for novice with little experience



Fairly easy, suitable for beginner with some experience



Fairly difficult, suitable for competent DIY mechanic



Difficult, suitable for experienced DIY mechanic



Very difficult, suitable for expert DIY or professional



Specifications

General

Type	Manual, five forward speeds and reverse. Synchromesh on all forward speeds
Application:	
Non-turbo petrol engine models	BE3
Turbo petrol engine models	ME5T
2.1 litre non-turbo diesel engine models	BE3
2.1 litre turbo diesel	ME5T
2.5 litre turbo diesel models	MG5TB

Lubrication

Capacity:	
BE3	2.0 litres
ME5T	1.85 litres
MG5TB	2.2 litres

Torque wrench settings

Roadwheel bolts	Nm	lbf ft
	See Chapter 1A or 1B	

BE3 transmission

Gearchange selector rod to lever pivot bolt	15	11
Gearchange linkage bellcrank pivot bolt	28	21
Oil filler/level plug	20	15
Oil drain plug	30	22
Clutch release bearing guide sleeve bolts	12	9
Reversing light switch	25	18
Right-hand driveshaft intermediate bearing retaining bolt nuts	10	7
Engine movement limiter-to- driveshaft intermediate bearing housing	50	37
Engine movement limiter-to- subframe	85	62
Left-hand engine/transmission mounting:		
Rubber mounting-to- bracket bolts	30	22
Mounting stud to transmission	60	44
Mounting stud bracket-to-transmission	60	44
Centre nut	65	48
Engine-to-transmission fixing bolts	45	33



Torque wrench settings (continued)

	Nm	lbf ft
ME5T transmission		
Oil filler/level plug	20	15
Oil drain plug	30	22
Gearchange lever housing bolts	7	5
Clutch release bearing guide sleeve bolts	12	9
Reversing light switch	25	18
Right-hand driveshaft intermediate bearing retaining bolt nuts	10	7
Engine movement limiter-to-driveshaft intermediate bearing housing	50	37
Engine movement limiter-to-subframe	85	62
Left-hand engine/transmission mounting:		
Mounting to bracket	30	22
Mounting bracket-to-transmission	30	22
Centre nut	65	48
Engine-to-transmission fixing bolts	60	44
MG5TB transmission		
Engine-to-transmission fixing bolts	55	41
Oil filler/level plug	27	20
Oil drain plug	27	20
Gearchange lever housing bolts	7	5
Reversing light switch	25	18
Right-hand driveshaft intermediate bearing retaining bolt nuts	10	7

1 General information

The transmission is contained in a cast-aluminium alloy casing bolted to the engine's left-hand end, and consists of the gearbox and final drive differential. Three transmission types are fitted; refer to the application listing in the Specifications for details. All three transmission types are similar and operate as follows.

Drive is transmitted from the flywheel via the clutch to the input shaft, which has a splined extension to accept the clutch friction plate, and rotates in sealed ball-bearings. From the input shaft, drive is transmitted to the output shaft, which rotates in a roller bearing at its right-hand end, and a sealed ball-bearing at its left-hand end. From the output shaft, the drive is transmitted to the differential crownwheel, which rotates with the differential case and planetary gears, thus driving the sun gears and driveshafts. The rotation of the planetary gears on their shaft allows the inner roadwheel to rotate at a slower speed than the outer roadwheel when the car is cornering.

The input and output shafts are arranged side by side, parallel to the crankshaft and driveshafts, so that their gear pinion teeth are in constant mesh. In the neutral position, the relevant input shaft and output shaft gear pinions rotate freely, so that drive cannot be transmitted to the output shaft and crownwheel.

Gear selection is via a floor-mounted lever actuating a selector rod mechanism on BE3

and ME5T transmissions, or a selector cable mechanism on the MG5TB unit. The selector rod/cables cause the appropriate selector fork to move its respective synchro-sleeve along the shaft, to lock the gear pinion to the synchro-hub. Since the synchro-hubs are splined to the input and output shafts, this locks the pinion to the shaft, so that drive can be transmitted. To ensure that gear-changing can be carried out quickly and quietly, a synchro-mesh system is fitted to all forward gears, consisting of baulk rings and spring-loaded fingers, as well as the gear pinions and synchro-hubs. The synchro-mesh cones are formed on the mating faces of the baulk rings and gear pinions.

2 Manual transmission - draining and refilling



Note: A suitable square section wrench may be required to undo the transmission filler/level and drain plugs on some models. These wrenches can be obtained from most motor factors or your Citroën dealer.

1 This operation is much quicker and more efficient if the car is first taken on a journey of sufficient length to warm the engine/transmission up to operating temperature.

2 Park the car on level ground, switch off the ignition and apply the handbrake firmly. To ensure that the car remains level when refilling, jack up the front and rear of the car and support it securely on axle stands.

3 On models equipped with the BE3 transmission, remove the left-hand front roadwheel then release the screws and clips

and remove the wheel arch liner from under the wing for access to the filler/level plug. On all models, remove the splash guard from under the engine.

4 Wipe clean the area around the filler/level plug. On the BE3 transmission, the filler/level plug is the largest bolt among those securing the end cover to the transmission. On the ME5T unit, the filler/level plug is located on the end face of the transmission, adjacent to the end cover. On the MG5TB unit, the filler/level plug is located on the engine side of the differential casing, to the rear of the right hand driveshaft. Unscrew the filler/level plug from the transmission and recover the sealing washer (see illustration)

5 Position a suitable container under the drain plug(s). On the BE3 and MG5TB units, there is one drain plug, situated on the underside of the final drive casing at the rear of the transmission. On the ME5T unit, there are two drain plugs - one on the underside of the differential casing and one on the under side of the transmission casing, adjacent to



2.4 Unscrewing the filler/level plug - MG5TB transmission shown



2.5 Unscrewing the drain plug - MG5TB transmission shown

the bellhousing mating surface. Unscrew the drain plug(s) (see illustration).

6 Allow the oil to drain completely into the container. If the oil is hot, take precautions against scalding. Clean the filler/level and the drain plug(s), being especially careful to wipe any metallic particles off the magnetic inserts. Discard the original sealing washers; they should be renewed whenever they are disturbed.

7 When the oil has finished draining, clean the drain plug threads and those of the transmission casing, fit a new sealing washer and refit the drain plug, tightening it to the specified torque wrench setting.

8 Refilling the transmission is an extremely awkward operation. Above all, allow plenty of time for the oil level to settle properly before checking it. Note that the car must be level when checking the oil level.

9 Refill the transmission with the exact amount of the specified type of oil then check the oil level as described in the relevant Part of Chapter 1; if the correct amount was poured into the transmission and a large amount flows out on checking the level, refit the filler/level plug and take the car on a short journey so that the new oil is distributed fully around the transmission components, then check the level again on your return.

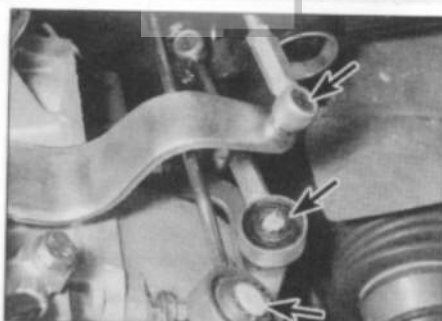
10 When the level is correct, fit a new sealing washer to the filler/level plug. Tighten the plug to the specified torque wrench setting. Wash off any spilt oil. Refit the wheel arch liner and splash guard, and secure with the retaining screws and clips. Refit the roadwheel (if removed) then lower the car to the ground.

3 Gearchange linkage (BE3, ME5T transmission) - removal and refitting

Removal

1 Remove the centre console (Chapter 12).
2 Chock the rear wheels, then jack up the front of the vehicle and support it on axle stands.

3 Refer to the relevant Part of Chapter 4 and remove the exhaust system and heat shields, as necessary for access to the gearchange linkage.



3.5 Disconnect the three gearchange linkage link rods (arrowed) from their transmission balljoints

4 Slacken and remove the nut, and withdraw the pivot bolt securing the selector rod to the base of the gearchange lever.

5 Using a flat-bladed screwdriver, carefully lever the three link rods off their balljoints on the transmission (see illustration). Disengage the selector rod from the bellcrank pivot, and remove it from underneath the vehicle.

6 Carefully prise the plastic cap off the bolt securing the gearchange linkage bellcrank to the subframe.

7 Slacken and remove the bellcrank pivot bolt and washer, then manoeuvre the bellcrank and link rod out from under the vehicle, and recover the spacer and pivot bushes from the centre of the bellcrank.

8 Inspect all the linkage components for signs of wear or damage, paying particular attention to the pivot bushes and link rod balljoints, and renew worn components as necessary. If necessary, the gearchange lever can be removed and inspected as follows.

9 Slacken and remove the selector lever retaining nuts and lift off the retaining plate then lower the lever out from underneath the vehicle.

10 Peel back the lower gaiter from the base of the gearchange lever, then disengage the lever mounting plate, and slide the upper gaiter up the lever to gain access to the gearchange lever pivot ball. Examine the lever components for signs of wear or damage, paying particular attention to the rubber gaiters, and renew components as necessary. The lever can be separated from its baseplate after the retaining ring has been unclipped.

Refitting

11 Refitting is a reversal of the removal procedure, noting the following points:

- Apply a smear of molybdenum disulphide grease to the gearchange lever pivot ball, the link rod balljoints and the bellcrank ball and pivot bushes.
- Ensure that the gearchange lever rubber gaiters are correctly seated before refitting the lever assembly to the vehicle.
- Ensure that the link rods are securely pressed onto their balljoints.
- Refit the heat shields and exhaust components (Chapter 4C) and the centre console (Chapter 12).

4 Gearchange cables (MG5TB transmission) - removal and refitting

Removal

1 Remove the air cleaner assembly (Chapter 4B) and battery tray (Chapter 5A). If required, access can be further improved by removing the hydraulic fluid reservoir (Chapter 9).

2 Remove the centre console as described in Chapter 12.

3 Working in the engine compartment, carefully prise the two gearchange cable balljoints from the selector levers on the transmission. Access is extremely limited and to avoid damage to the ball joint assemblies, the fabrication of a special tool is recommended (see Tool Tip in Chapter 2B). Insert the forked tool under the balljoint head, then drive the balljoint off the selector levers by tapping the end of the tool with a mallet.

4 Chock the rear wheels, then jack up the front of the vehicle and support it on axle stands.

5 Extract the two horseshoe shaped clips securing the cables to the mounting bracket on the transmission. The clips can be accessed from above or below the engine.

6 Refer to Chapter 4C and detach the exhaust system and heat shields, as necessary for access to the cables and gearchange lever housing.

7 From inside the car, remove the sound-proofing shim then unscrew the bolts securing the lever housing to the floor. Release any clips or ties securing the gearchange cables, then remove the lever housing and gearchange cables as an assembly from under the car.

Refitting

8 Refitting is a reversal of the removal procedure, noting the following points:

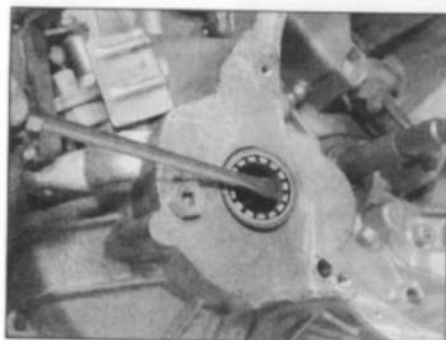
- Ensure that the sound-proofing shim is correctly positioned when refitting the lever housing.
- Ensure that the cables are fitted to the correct selector levers on the transmission - the 13.0 mm diameter balljoint connects to the upper lever and the 10.0 mm diameter balljoint connects to the side lever.
- Refit the heat shields, exhaust components and air cleaner assembly (Chapter 4C) and the centre console (Chapter 12).

5 Oil seals - renewal

Driveshaft oil seals

Note: A new suspension lower balljoint nut will be required on refitting.

1 Chock the rear wheels, then jack up the front of the car and support it on axle stands. Remove the appropriate front roadwheel, and



5.8 Use a large flat-bladed screwdriver to prise the driveshaft oil seals out of position

remove the splash guard from under the engine.

2 Drain the transmission oil as described in Section 2.

3 On models equipped with ABS, remove the wheel sensor as described in Chapter 10.

4 Slacken and remove the nut securing the front suspension lower balljoint to the swivel hub, and free the balljoint from the lower arm (see Chapter 11). Discard the nut and remove the protector plate (if loose).

Right-hand seal

5 Loosen the two intermediate bearing retaining bolt nuts, then rotate the bolts through 90° so that their offset heads are clear of the bearing outer race.

6 Carefully pull the swivel hub assembly outwards, and pull on the inner end of the driveshaft to free the intermediate bearing from its mounting bracket.

7 Once the driveshaft end is free from the transmission, slide the dust seal off the inner end of the shaft, noting which way around it is fitted, and support the inner end of the driveshaft to avoid damaging the constant velocity joints or gaiters.

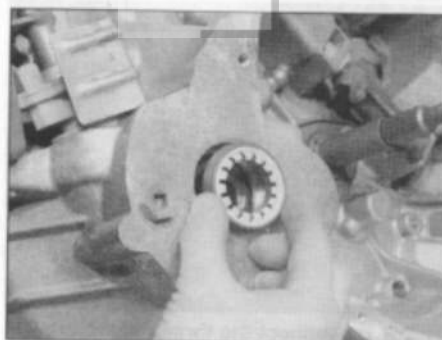
8 Carefully prise the oil seal out of the transmission, using a large flat-bladed screwdriver (see illustration).

9 Remove all traces of dirt from the area around the oil seal aperture, then fill the space between the lips of the new oil seal with grease. Fit the new seal into its aperture, and drive it squarely into position using a suitable tubular drift (such as a socket) which bears only on the hard outer edge of the seal, until it contacts its locating shoulder. If the seal was supplied with a plastic protector sleeve, leave this in position until the driveshaft has been refitted (see illustrations).

10 Thoroughly clean the driveshaft splines, then apply a thin film of grease to the oil seal lips and to the driveshaft inner end splines.

11 Slide the dust seal into position on the end of the shaft, ensuring that its flat surface is facing the transmission.

12 Carefully locate the inner driveshaft splines with those of the differential sun gear, taking care not to damage the oil seal, then align the intermediate bearing with its



5.9a Fit the new seal to the transmission ...

mounting bracket, and push the driveshaft fully into position. If necessary, use a soft-faced mallet to tap the outer race of the bearing into position in the mounting bracket.

13 Ensure that the intermediate bearing is correctly seated, then rotate its retaining bolts back through 90° so that their offset heads are resting against the bearing outer race, and tighten the retaining nuts to the specified torque. Remove the plastic seal protector (where supplied), and slide the dust seal tight up against the oil seal.

14 Refit the protector plate (where removed) to the lower balljoint, then align the balljoint with the lower arm. Fit the new balljoint nut and tighten it to the specified torque setting (see Chapter 11).

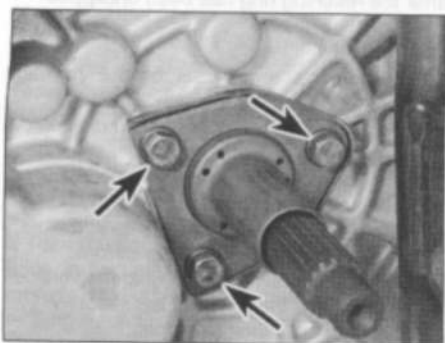
15 Where necessary, refit the ABS wheel sensor as described in Chapter 10.

16 Refit the roadwheel and the engine splash guard, then lower the vehicle to the ground and tighten the roadwheel bolts to the specified torque.

17 Refill the transmission with the specified type and amount of fluid/oil, and check the level using the information given in Chapter 1A or 1B.

Left-hand seal

18 Pull the swivel hub assembly outwards and withdraw the driveshaft inner constant velocity joint from the transmission, taking care not to damage the driveshaft oil seal.



5.23a Clutch release bearing guide sleeve retaining bolts (arrowed) on the BE3 transmission ...



5.9b ... and tap it into position using a tubular drift

Support the driveshaft, to avoid damaging the constant velocity joints or gaiters.

19 On the BE3 and MG5TB transmissions, renew the oil seal as described in paragraphs 8 to 10. On ME5T transmissions, unbolt the differential bearing stop plate, and prise or drift the oil seal out of the stop plate. Also remove the sealing O-ring. Thoroughly clean the stop plate, then fill the space between the lips of the new oil seal with grease. Fit the new seal into its aperture, and drive it squarely into position using a suitable tubular drift (such as a socket) which bears only on the hard outer edge of the seal, until it is fully seated. Locate a new O-ring in position then refit the stop plate to the transmission.

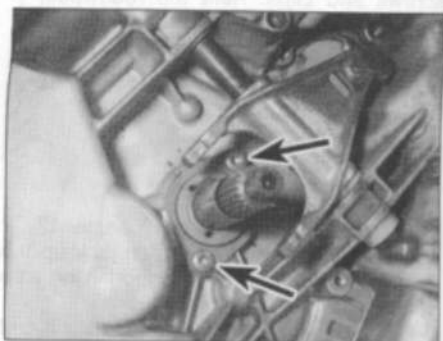
20 Carefully locate the inner constant velocity joint splines with those of the differential sun gear, taking care not to damage the oil seal, and push the driveshaft fully into position. Where fitted, remove the plastic protector from the oil seal.

21 Carry out the operations described above in paragraphs 14 to 17.

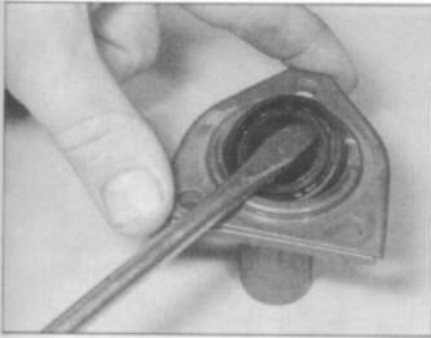
Input shaft oil seal

22 Remove the transmission as described in Section 8 or 9 as applicable.

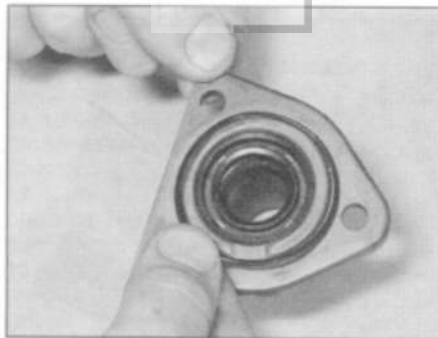
23 Undo the bolts securing the clutch release bearing guide sleeve in position, and slide the guide off the input shaft, along with its O-ring or gasket (see illustrations). Recover any shims or thrustwashers which have stuck to



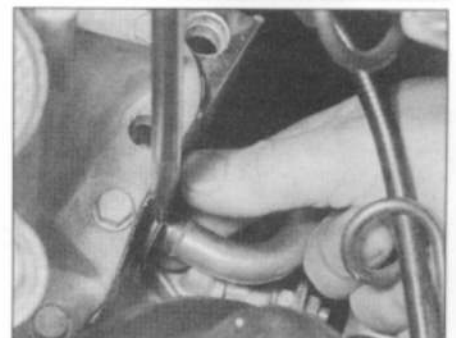
5.23b ... and on the ME5T transmission (arrowed)



5.24 Removing the input shaft seal from the guide sleeve



5.27 Fit a new O-ring/gasket (as applicable) to the guide sleeve



5.31a On the BE3 transmission, use a screwdriver to prise the selector shaft seal out of position ...

the rear of the guide sleeve, and refit them to the input shaft.

24 Carefully lever the oil seal out of the guide using a suitable flat-bladed screwdriver (see illustration).

25 Before fitting a new seal, check the input shaft's seal rubbing surface for signs of burrs, scratches or other damage, which may have caused the seal to fail in the first place. It may be possible to polish away minor faults of this sort using fine abrasive paper; however, more serious defects will require the renewal of the input shaft. Ensure the input shaft is clean and greased, to protect the seal lips on refitting.

26 Dip the new seal in clean oil, and fit it to the guide sleeve.

27 Fit a new O-ring or gasket (as applicable) to the rear of the guide sleeve, then carefully slide the sleeve into position over the input shaft (see illustration). Refit the retaining bolts and tighten them to the specified torque.

28 Take the opportunity to inspect the clutch components if not already done (Chapter 6). Finally, refit the transmission (Section 8 or 9).

Selector shaft oil seal (BE3 transmission)

29 Park the car on level ground, chock the rear wheels, then jack up the front of the vehicle and support it on axle stands. Remove the left-hand front roadwheel, then release the screws and clips and remove the wheel arch liner from under the wing.

30 Using a large flat-bladed screwdriver,

lever the link rod balljoint off the transmission selector shaft, and disconnect the link rod.

31 Carefully prise the selector shaft seal out of the housing, and slide it off the end of the shaft (see illustrations).

32 Before fitting a new seal, check the selector shaft's seal rubbing surface for signs of burrs, scratches or other damage, which may have caused the seal to fail in the first place. It may be possible to polish away minor faults of this sort using fine abrasive paper; however, more serious defects will require the renewal of the selector shaft.

33 Apply a smear of grease to the new seal's outer edge and sealing lip, then carefully slide the seal along the selector rod. Press the seal fully into position in the transmission housing.

34 Reconnect the link rod to the selector shaft, ensuring that its balljoint is pressed firmly onto the shaft.

35 Refit the wheel arch liner and secure it in position with its retaining screws and clips. Refit the roadwheel then lower the car to the ground.

plunger-type switch that is screwed into the top of the transmission casing. If a fault develops in the circuit, first ensure that the circuit fuse has not blown.

2 To test the switch, remove the air cleaner components as required for access (Chapter 4A or 4B) then disconnect the wiring connector, and use a multimeter (set to the resistance function) or a battery-and-bulb test circuit to check that there is continuity across the switch terminals only when reverse gear is selected. If this is not the case, and there are no obvious breaks or other damage to the wires, the switch is faulty, and must be renewed.

Removal

3 Remove the air cleaner components as described in the relevant Part of Chapter 4.

4 Disconnect the wiring connector, then unscrew it from the transmission casing along with its sealing washer (see illustrations).

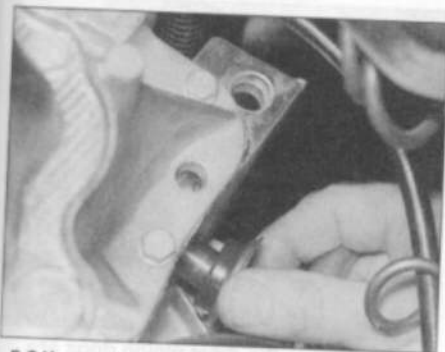
Refitting

5 Fit a new sealing washer to the switch, then screw it back into position in the top of the transmission housing and tighten it to the specified torque setting. Reconnect the wiring connector, and test the operation of the circuit. Refit any components removed for access.

6 Reversing light switch - testing, removal and refitting

Testing

1 The reversing light circuit is controlled by a



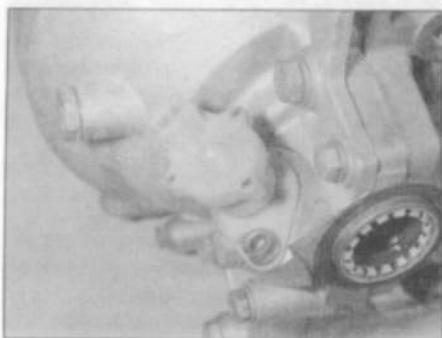
5.31b ... then slide the seal off the shaft



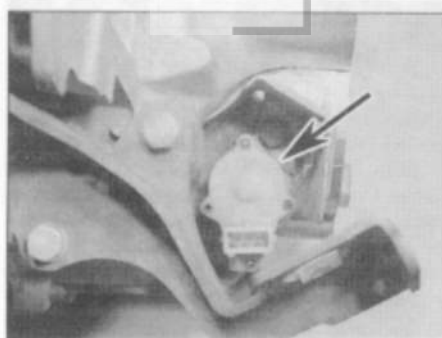
6.4a Disconnecting the wiring connector from the reversing light switch (arrowed)



6.4b Location of the reversing light switch on the MG5TB transmission



7.1a Speedometer transducer unit as fitted to the ME5T transmission



7.1b On MG5TB transmissions, the speedometer transducer (arrowed) is located at the top of the differential casing

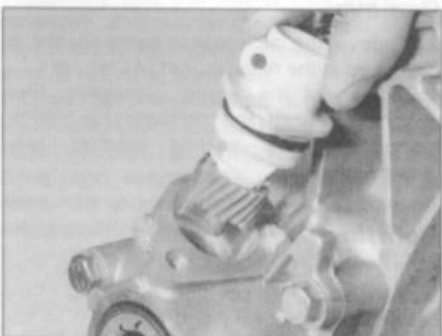


7.3a Slacken and remove the retaining bolt ...

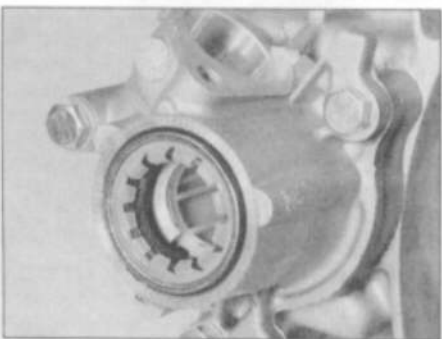
7 Speedometer drive - removal and refitting

Removal

1 Chock the rear wheels, then jack up the front of the car and support it on axle stands. Remove the splash guard from under the engine. The speedometer drive is situated on the rear of the transmission housing, next to the inner end of the right-hand driveshaft. According to model either a standard cable drive unit or transducer unit is fitted (see illustrations).



7.3b ... then withdraw the speedometer drive from the transmission (transmission removed for clarity)



7.6a Undo the three retaining bolts ...

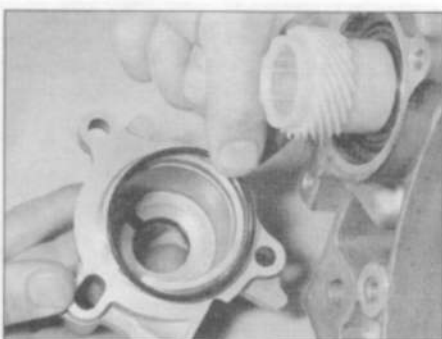
2 On the cable type, pull out the speedometer cable retaining pin and disconnect the cable from the speedometer drive. Also disconnect the wiring connector (where applicable). On the transducer type, disconnect the wiring.

3 Slacken and remove the retaining bolt, along with the heat shield (where fitted), and withdraw the speedometer drive and driven pinion assembly from the transmission housing, along with its O-ring (see illustrations).

4 If necessary, the pinion can be slid out of the housing, and the oil seal can be removed from the top of the housing. Examine the pinion for signs of damage, and renew if necessary. Renew the housing O-ring as a matter of course.

5 If the driven pinion is worn or damaged, also examine the drive pinion in the transmission housing for similar signs. The drive pinion on the BE3 transmission can be renewed as described below; on the ME5T transmission, major dismantling is necessary which must be entrusted to a dealer.

6 To remove the drive pinion on the BE3 transmission, first disengage the right-hand driveshaft from the transmission, as described in Section 5. Undo the three retaining bolts, and remove the speedometer drive housing from the transmission, along with its O-ring. Remove the drive pinion from the differential gear, and recover any adjustment shims from the gear (see illustrations).



7.6b ... and remove the housing, O-ring and drive pinion from the transmission (transmission removed for clarity)

Refitting

7 Refit the adjustment shims to the differential gear, then locate the speedometer drive on the gear, ensuring it is correctly engaged in the gear slots (see illustration). Fit a new O-ring to the rear of the speedometer drive housing, then refit the housing to the transmission and securely tighten its retaining bolts. Inspect the driveshaft oil seal for signs of wear, and renew if necessary. Refit the driveshaft to the transmission, using the information given in Section 5.

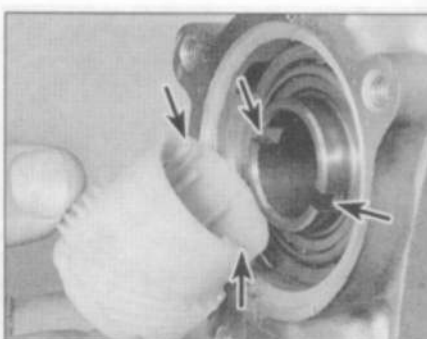
8 Apply a smear of grease to the lips of the seal and to the driven pinion shaft, and slide the pinion into position in the speedometer drive.

9 Fit a new O-ring to the speedometer drive and refit it to the transmission, ensuring that the drive and driven pinions are correctly engaged.

10 Refit the retaining bolt and the heat shield (where fitted), and tighten the bolt.

11 On the transducer type, reconnect the wiring. On the cable type, reconnect the wiring connector to the speedometer drive where applicable, then apply a smear of oil to the speedometer cable O-rings, reconnect the cable to the drive, and secure it in position with the rubber retaining pin.

12 Refit the splash guard under the engine then lower the vehicle to the ground.



7.7 Ensure the drive pinion dogs are correctly engaged with the gear slots (arrowed)

8 Manual transmission - removal and refitting



General information

1 On all models, the installation of the engine/transmission assembly is such that removal of the transmission unit alone cannot be achieved without disturbing the subframe and the associated front suspension components. For this reason, it is recommended that the engine and transmission are removed as a complete assembly and separated on the bench; refer to Chapter 2C for details.

2 Note that on petrol engined models and 2.1 litre diesel engined models only, it is possible to separate the engine and transmission in situ, to allow access to the clutch components, as described in next subsection.

Engine and transmission separation (in situ)

3 Refer to Chapter 9 and depressurise the hydraulic system. Disconnect the battery negative cable.

4 Raise the front of the car, support it securely on axle stands and remove the front wheels. Refer to Section 2 and drain the transmission.

5 Refer to Chapter 5A and remove the battery. Unbolt the battery holder from the bodywork and remove it from the engine compartment.

6 Refer to Chapter 4A or B (as applicable) and remove the air cleaner assembly and all associated intake air ducting from the engine compartment.

7 Remove the hydraulic fluid reservoir, with reference to Chapter 9.

8 With reference to the relevant Sections in this Chapter, carry out the following:

- Disconnect the gear change/selector rods from the transmission.
- Disconnect the speedometer drive cable/sensor wiring from the transmission.
- Disconnect the reversing light switch wiring from the transmission.

9 Slacken the screws and withdraw the TDC

sensor from the top of the transmission bellhousing.

10 Refer to Chapter 6 and disconnect the clutch cable from the release arm.

11 Unbolt the starter motor from the transmission bellhousing, with reference to Chapter 5A.

12 Refer to Chapter 9 and unbolt the pressure regulator from the front of the transmission casing.

13 Remove the securing screws and detach the plastic liners from the inner wheel arches. Unbolt and remove the wheel arch-to-subframe bracing bar.

14 Remove both driveshafts from the transmission, as described in Chapter 8.

15 Working underneath the car, unbolt and remove the flywheel protection plate from the underside of the transmission bellhousing.

16 Support the transmission from below using a trolley jack and an interposed block of wood. Attach an engine hoist, or lifting beam to the left hand end of the engine and raise the jib to just take the weight of the engine.

17 Refer to Chapter 2A or B (as applicable) and remove the left hand engine/transmission mounting. Note that it will be necessary to unscrew the transmission mounting stud from top of the transmission casing.

18 Check that nothing remains connected between the transmission and engine, then slacken and withdraw the transmission-to-engine mounting bolts and pull the transmission away from the engine on the trolley jack. With the end of the transmission casing drawn towards the left hand wheel arch, there should now be adequate access to the clutch components.

Refitting

19 Ensure the clutch plate and transmission input shaft splines are clean and dry. Do not apply grease to the splines as they have a special low-friction nickel coating.

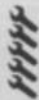
20 Ensure the locating dowels are correctly positioned prior to installation and make sure the clutch release mechanism components are correctly fitted.

21 Carefully offer the transmission to the engine, until the locating dowels are engaged. Ensure that the weight of the transmission is not allowed to hang on the input shaft as it is engaged with the clutch friction disc.

22 Refit the transmission housing-to-engine bolts, ensuring that all the necessary brackets are correctly positioned, and tighten them to the specified torque setting.

23 The remainder of the refitting procedure is a reversal of removal, ensuring that the left hand engine/transmission mounting bolts are tightened to the specified torque (see Chapter 2A or 2B as applicable).

9 Manual transmission overhaul - general information



Overhauling a manual transmission 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. Internal transmission components are also often difficult to obtain, and in many instances, extremely expensive. Because of this, if the transmission 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.

Nevertheless, it is not impossible for the more experienced mechanic to overhaul the transmission, provided the special tools are available, and the job is done in a deliberate step-by-step manner, so nothing is overlooked.

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.

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

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