






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	
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Specifications

General

Type Transverse mounted, front wheel drive layout with integral transaxle differential/final drive. 5 forward speeds, 1 reverse speed

Designation:

1242 cc engine	C.514.5.13
1370 cc engine	C.514.5.13, C.513.5.13
1581 cc engine	C.513.5.13
1747 cc engine	C.510.5.17

Lubricant capacity:

1.2 and 1.4 litre models	1.7 litres
1.6 and 1.8 litre models	2.0 litres

Torque wrench settings

	Nm	lbf ft
Flywheel cover	25	18
Gear lever support	15	11
Oil drain and filler plugs	46	34
Reversing light switch	30	22
Speedometer pinion retaining bolt	12	9

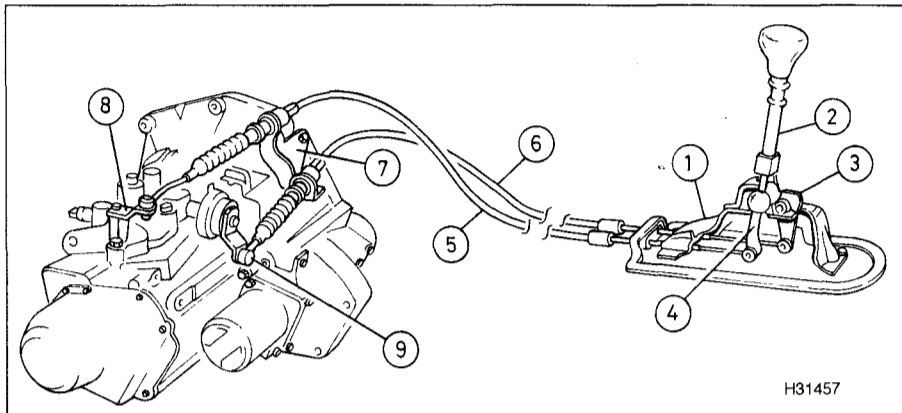
7A•2 Manual transmission

1 General information

The manual transmission is bolted to the left-hand end of the engine, and incorporates the main gears and final drive differential. Drive is transmitted from the crankshaft via the clutch to the input shaft, which is splined to accept the clutch friction disc. From the input shaft, drive is transmitted to the output shaft, final drive and differential, then through the driveshafts to the front roadwheels. The differential unit allows the inner roadwheel to rotate at a slower speed than the outer roadwheel when the car is cornering.

The transmission input and output shafts are arranged side by side, so that their gear pinion teeth are in constant mesh. Sliding synchromesh units allow the gears to be locked to their shafts when a gear is selected. In neutral, none of the gears are engaged so the input shaft rotates independently of the output shaft.

Gear selection is via a floor-mounted lever. On 1.2 litre models the gear change consists of two cables. On 1.4 litre models the gear change consists of a gear selector rod, a gear

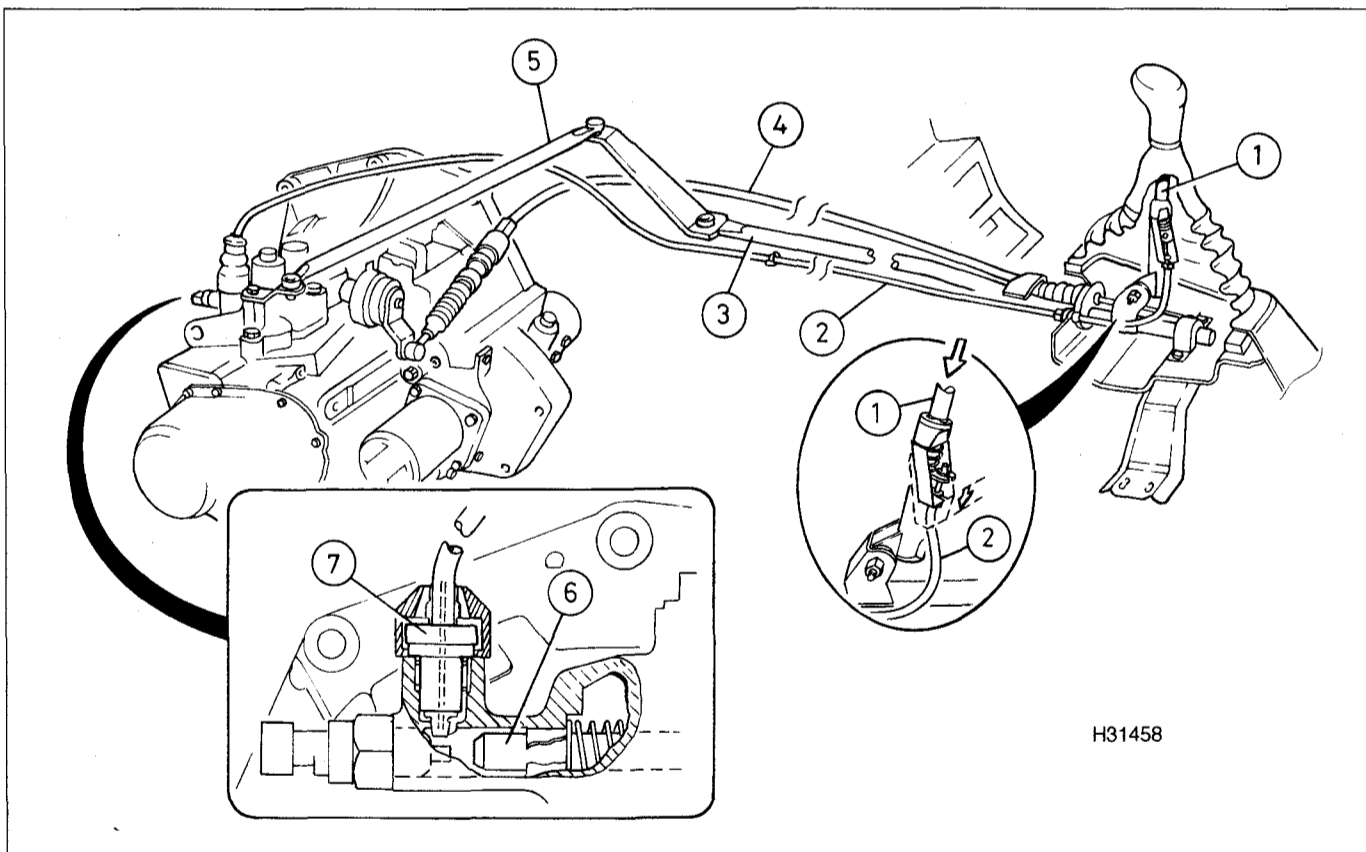


1.3a Gearchange cables and lever (1.2 litre models)

- | | | |
|----------------------|--------------------------|------------------------------------|
| 1 Gear lever support | 5 Gear engagement cable | 8 Selector lever on transmission |
| 2 Gear lever | 6 Gear selector cable | 9 Engagement lever on transmission |
| 3 Selector linkage | 7 Cable mounting bracket | |
| 4 Engagement linkage | | |

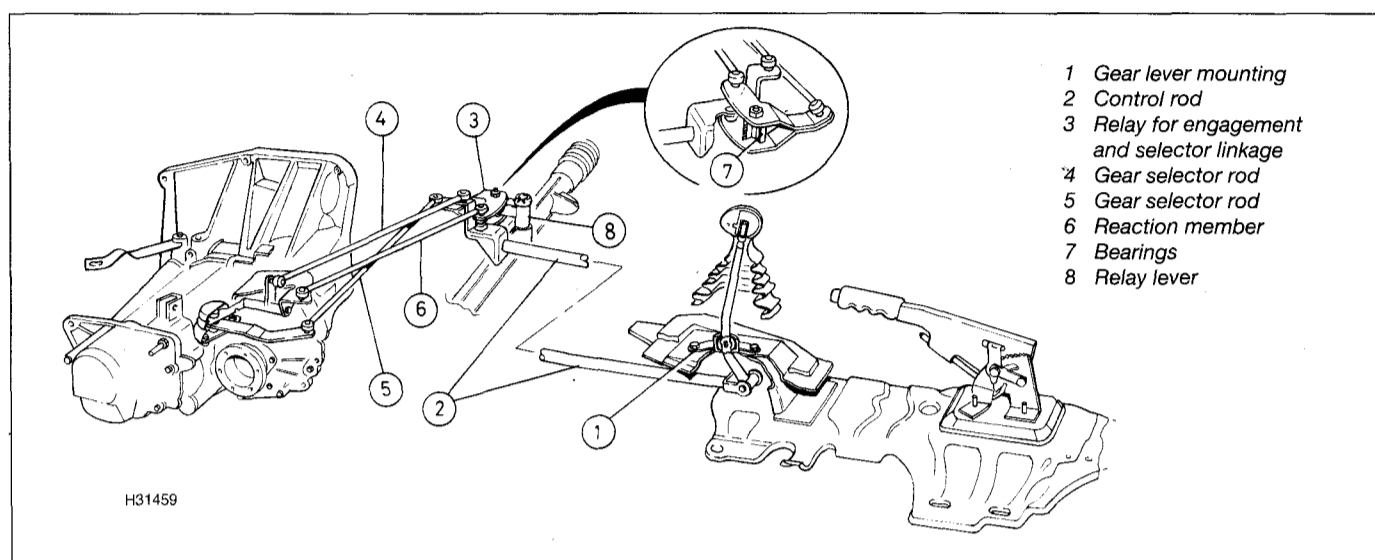
engagement cable, and a reverse inhibitor cable. The rod selects the gear, and the main cable engages the gear. The second cable prevents accidental engagement of reverse gear. On 1.6 and 1.8 litre models the gear change linkage consists of three rods operated by a single

control rod. One of the rods acts as a reaction member to ensure the remaining two rods operate at a constant distance from the linkage relay. One of the remaining rods is a gear selector rod, and the other is a gear engagement rod (see illustrations).



1.3b Gearchange linkage and lever (1.4 litre models)

- | | | |
|--------------------------------|-------------------------|------------------------------------|
| 1 Sliding part of gear lever | 4 Gear engagement cable | 6 Gear selector and engagement rod |
| 2 Reverse gear inhibitor cable | 5 Gear selector link | 7 Reverse gear inhibitor device |
| 3 Gear selector rod | | |



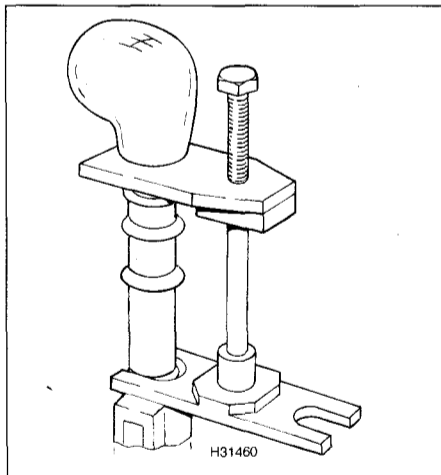
1.3c Gearchange linkage and lever (1.6 and 1.8 litre models)

2 Gearchange lever and linkage - removal, overhaul and refitting

1.2 litre models

Removal

- 1 Apply the handbrake, then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*).
- 2 Remove the battery and mounting tray as described in Chapter 5A.
- 3 Release the wiring from the rear of the battery mounting bracket, then undo the bolt and remove the relay box cover. Unscrew the nuts and remove the relay box from the mounting bracket - position the box to one side.
- 4 Unbolt and remove the battery mounting bracket.
- 5 Inside the car, release the gear lever gaiter



2.17 Tool for removing the knob from the gear lever

from the floor, then release the upper strap and pull the gaiter over the knob.

6 Release the handbrake lever gaiter from the floor, then disconnect the wiring from the handbrake warning light switch.

7 Carefully prise the gear engagement cable end from the lever on the transmission, then unbolt the mounting bracket.

8 Carefully prise the gear selector cable end from the lever on the transmission.

9 Working under the car, disconnect the handbrake cables from the equaliser bar then release them from the rear bracket and tie them to one side.

10 Remove the complete exhaust system from under the car with reference to Chapter 4C.

11 Unscrew the bolts and remove the heat shield assembly from the underbody.

12 Unscrew the mounting bolts from the handbrake and gear lever control assembly. There are 13 bolts in total.

13 Carefully lower the assembly and unscrew the nuts securing the remote control assembly to the gear lever mounting.

14 Withdraw the linkage and cables from the engine compartment, then lower and remove from under the car.

Overhaul

15 With the assembly on the bench, unbolt and remove the gear lever bracket and remove the rubber cover.

16 Extract the clips securing the two outer cables to the mounting, then disconnect the cable ends. The engagement cable end is a press fit on the ball, and the selector cable end is secured with a circlip.

17 Unbolt the gear lever from the bracket. FIAT technicians use a special tool to press the knob from the top of the lever (see illustration) however, a tool may be made from two metal plates and a long bolt, using nuts to hold the plates in position.

18 To dismantle the gear lever mechanism, extract the circlip and slide out the shaft and lever. Unscrew the nut to remove the lever from the shaft.

19 Check the components for wear and damage, and renew them as necessary.

20 Reassemble the components using a reversal of the dismantling procedure.

Refitting

21 Refitting is a reversal of removal, but tighten all nuts and bolts securely. Check the operation of the handbrake and if necessary adjust it with reference to Chapter 9.

1.4 litre models

Removal

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

23 Inside the car, release the gear lever gaiter from the floor, then pull the knob together with the gaiter from the top of the gear lever.

24 Release the handbrake lever gaiter from the floor, then disconnect the wiring from the handbrake warning light switch.

25 Remove the clip securing the gear engagement cable to the transmission casing, then carefully lever the cable end fitting from the ball on the engagement lever.

26 Unscrew the bolt and disconnect the reverse gear inhibitor and cable from the top of the transmission. The inhibitor is located beneath the battery position.

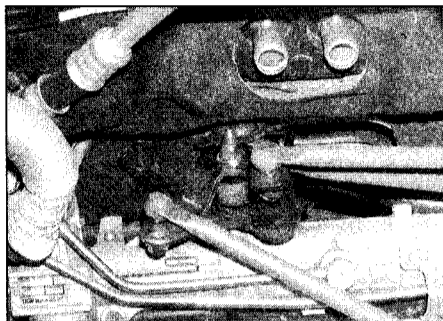
27 Unbolt the reaction and gear selector link from the transmission.

28 Working under the car, disconnect the handbrake cables from the equaliser bar then release them from the rear bracket and tie them to one side.

29 Remove the complete exhaust system from under the car with reference to Chapter 4C.

30 Unscrew the bolts and remove the heat shield assembly from the underbody.

7A•4 Manual transmission



2.51 Gearchange relay and rods on the steering gear

31 Unscrew the mounting bolts from the handbrake and gear lever control assembly. There are 13 bolts in total.

32 Carefully lower the assembly and unscrew the nuts securing the remote control assembly to the gear lever mounting.

33 Withdraw the linkage and cables from the engine compartment, then lower and remove from under the car.

Overhaul

34 With the assembly on the bench, extract the circlip and release the reverse inhibitor cable from the gear lever, at the same time unhooking the inner cable end fitting. Release the cable from the base.

35 Extract the circlip and disconnect the gearchange cable from the pin at the bottom of the gear lever. Pull out the retaining clip and release the cable from the base.

36 Unscrew the pivot bolt and remove the gear lever from the gear selector link rod.

37 Unscrew the nuts and remove the gear selector rod rear clamp from the base. Remove the support pad.

38 Withdraw the gear selector rod from the base.

39 Check the components for wear and damage and renew them as necessary.

40 Reassemble the linkage using a reversal of the dismantling procedure, but apply a little multi-purpose grease to the bearing surfaces.

Refitting

41 Refitting is a reversal of removal, but tighten all nuts and bolts securely. Check the operation of the handbrake and if necessary adjust it with reference to Chapter 9.

1.6 and 1.8 litre models

Removal

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

43 Inside the car, release the gear lever gaiter from the floor, then pull the knob together with the gaiter from the top of the gear lever.

44 Unscrew the front mounting bolt for the handbrake and gear lever control assembly. The bolt is located just in front of the lever.

45 Release the handbrake lever gaiter from the floor, then disconnect the wiring from the handbrake warning light switch.

46 Remove the complete exhaust system from under the car with reference to Chapter 4C.

47 Disconnect the handbrake cables from the equaliser bar then release them from the rear bracket and tie them to one side.

48 Unscrew the bolts and remove the heat shield assembly from the underbody.

49 Working in the engine compartment identify the location of the three gearchange rods to ensure correct refitting.

50 Unscrew the nut and disconnect the control rod from the relay lever.

51 Detach the relay lever from the pivot on the top of the steering gear by removing the cap, spring clip and washers, and sliding the lever from the pivot (**see illustration**).

52 Disconnect the reaction, selector and engagement rods from the transmission, then withdraw the rods as an assembly from the engine compartment.

53 Unscrew the mounting bolts from the handbrake and gear lever control assembly. There are 13 bolts in total.

54 Carefully lower the assembly together with the handbrake lever from the underbody, at the same time withdrawing the control rod from the engine compartment.

Overhaul

55 With the assembly on the bench, unscrew the two bolts securing the gear lever to the mounting, and also unscrew the bolt securing the control rod to the bottom of the lever. Remove the lever from its mounting bracket and also remove the control rod.

56 The relay components may be dismantled by unscrewing the nut. Note the order of removal as the components are removed from the pivot.

57 Check the components for wear and damage and renew them as necessary.

58 Reassemble the components using a reversal of the dismantling procedure, but apply a little multi-purpose grease to the bearing surfaces.

Refitting

59 Refitting is a reversal of removal, but tighten all nuts and bolts securely. Check the operation of the handbrake and if necessary adjust it with reference to Chapter 9.

3 Manual transmission - removal and refitting

1.2 and 1.4 litre models

Removal

1 Select a solid, level surface to park the vehicle on. Give yourself enough space to move around it easily. Apply the handbrake then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*). Remove both front wheels.

2 Remove the battery and mounting tray as described in Chapter 5A.

3 Release the wiring from the rear of the battery mounting bracket, then undo the bolt and remove the relay box cover. Unscrew the nuts and remove the relay box from the mounting bracket - position the box to one side.

4 Unbolt and remove the battery mounting bracket.

5 On 1.2 litre models, carefully prise the gear engagement cable end from the lever, then unbolt the cable mounting bracket from the transmission.

6 On 1.4 litre models, disconnect the selector rod from the lever on top of the transmission.

7 Disconnect the wiring from the reversing light switch on top of the transmission. Also disconnect the wiring from the speedometer sender.

8 On 1.4 litre models, unscrew the bolt and remove the reverse inhibitor cable from the transmission.

9 Unscrew the nut and disconnect the earth cable.

10 Disconnect the clutch cable from the transmission with reference to Chapter 6.

11 On 1.2 litre models, carefully prise the gear selector cable end from the lever, then position both gearchange cables to one side.

12 On 1.4 litre models, pull out the clip and disconnect the gear engagement outer cable from the transmission, then prise the inner cable end fitting from the ball on the lever. Position the cable to one side.

13 Unscrew the upper bolts securing the starter motor to the transmission.

14 Working on each side at a time, unscrew the nut and use a balljoint separator tool to disconnect the steering track rod ends from the steering arms on the hub carriers. Refer to Chapter 10 if necessary.

15 Remove the inner panel splash guards from under each side of the front wings, then remove the dust guards after disconnecting the wires from the front brake pads.

16 Position a suitable container beneath the transmission, then unscrew and remove the drain plug and allow the oil to drain. On completion, refit and tighten the drain plug.

17 Remove the exhaust front downpipe as described in Chapter 4C.

18 Remove the right- and left-hand driveshafts as described in Chapter 8. Use a suitable lever to prise the driveshafts from the transmission, using a thin piece of wood to prevent damage to the transmission casing.

19 Disconnect the wiring from the starter motor, then unscrew the lower mounting bolt and withdraw the starter motor from the transmission.

20 Unbolt and remove the flywheel cover.

21 Unbolt the exhaust front downpipe securing bracket from the front of the cylinder block for access to the transmission-to-engine mounting bolt. Unscrew and remove the bolt.

22 The engine must now be supported while the transmission is being removed. To do this, remove the engine top cover and attach a

hoist to the left-hand end of the inlet manifold, then take the weight of the engine. Make sure that the engine is well supported since only one other engine mounting will still be connected when the transmission is removed.

Do not support the engine with a trolley jack positioned under the sump because the position of the right-hand front engine mounting dictates that the centre of gravity of the engine mass is high, and it is quite likely that the engine will fall to one side damaging either the radiator or the rear bulkhead. As an additional precaution, position axle stands and a block of wood beneath the engine.

23 Unscrew and remove the upper and lower bolts securing the transmission to the engine, but leave the side nut and bolt at this stage.

24 Support the transmission on a trolley jack. **25** Working under the car, unbolt the rear engine mounting and bracket from the transmission and underbody.

26 Unbolt the front engine mounting and bracket from the front valance and transmission.

27 Lower the transmission and engine slightly until the transmission is clear of the left-hand inner body panels. Unscrew and remove the remaining rear mounting nut and front mounting bolt securing the transmission to the engine, then, with the help of an assistant, withdraw the transmission directly from the left-hand end of the engine. Do not allow the weight of the transmission to rest on the clutch friction disc hub.

28 Lower the transmission to the ground and withdraw from under the car.

Refitting

29 Before refitting the transmission, check the clutch release bearing with reference to Chapter 6 and renew it if necessary.

30 Refitting is a reversal of removal, but first apply a little high-melting-point grease to the clutch friction disc hub splines, taking care not to allow any onto the friction linings. Refer as necessary to the Chapters used for the removal procedures. Tighten the nuts and bolts to the specified torque where given. Fill the transmission with the correct grade and quantity of oil with reference to Chapter 1. Finally, adjust the clutch as described in Chapter 6.

1.6 litre models

Removal

31 Select a solid, level surface to park the vehicle on. Give yourself enough space to move around it easily. Apply the handbrake then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*). Remove both front wheels.

32 Unbolt the air inlet duct from the engine compartment front crossmember, then disconnect it from the air cleaner and remove.

33 Remove the air inlet duct from between the air cleaner and throttle body by loosening the clips. Also disconnect the crankcase ventilation hose from the front of the cylinder block.

34 Remove the battery and battery tray with reference to Chapter 5A.

35 Release the wiring from the rear of the battery mounting bracket, then undo the bolt and remove the relay box cover. Unscrew the

nuts and remove the relay box from the mounting bracket - position the box to one side.

36 Disconnect the wiring from the engine management ECU by unclipping the connector. Unscrew the nuts and remove the ECU mounting bracket from the battery mounting bracket. The nuts also secure the starter motor and fuel injection wiring.

37 Unbolt and remove the battery mounting bracket and unclip the remaining wiring supports.

38 As applicable, either disconnect the clutch cable or unbolt the slave cylinder from the transmission with reference to Chapter 6 (see illustration).

39 Unscrew the nut and disconnect the earth wire from the transmission (see illustration).

40 Disconnect the gear linkage and reaction rods from the transmission by unscrewing the nuts or separating the rod socket from the ball (see illustration).

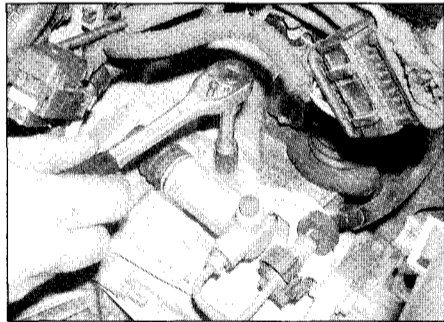
41 Disconnect the wiring from the speedometer sender (see illustration).

42 Disconnect the wiring from the reversing light switch (see illustration).

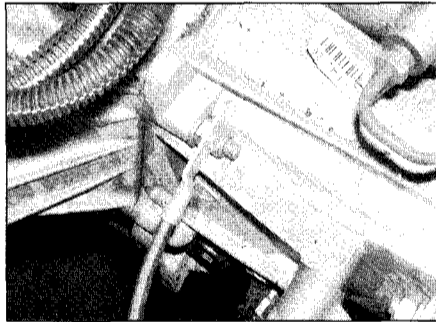
43 Remove the electric cooling fan assembly from the rear of the radiator with reference to Chapter 3.

44 Disconnect the wiring from the starter motor, then unscrew the mounting bolts and remove the starter motor from the transmission. Refer to Chapter 5A if necessary.

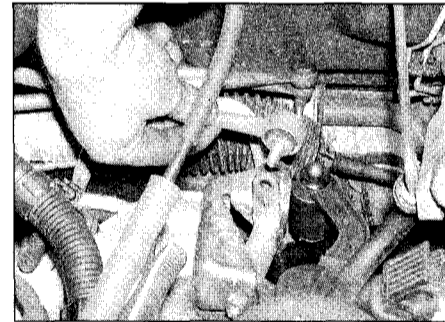
45 Position a suitable container beneath the transmission, then unscrew and remove the drain plug and allow the oil to drain (see illustration). On completion, refit and tighten the drain plug.



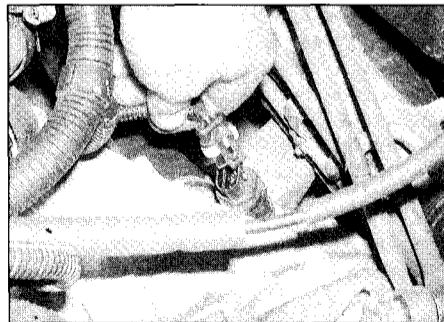
3.38 Unbolting the clutch slave cylinder from the transmission



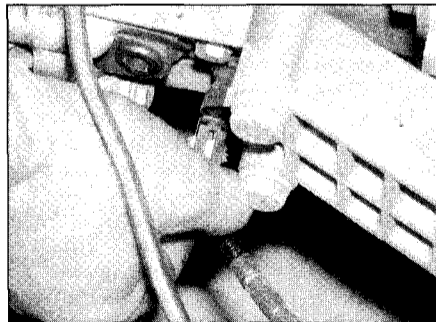
3.39 Earth wire on the transmission



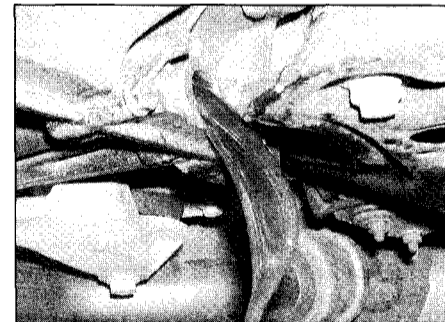
3.40 Disconnecting the gear linkage and reaction rods from the transmission



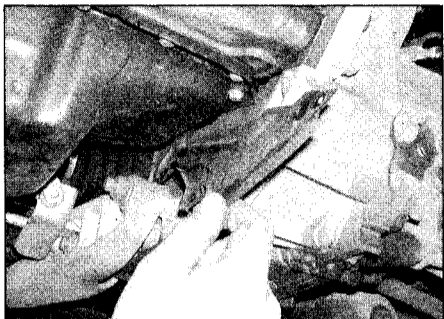
3.41 Disconnecting the wiring from the speedometer sender



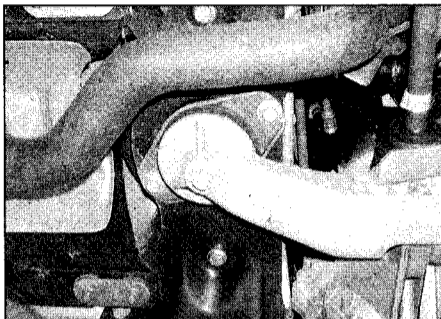
3.42 Disconnecting the wiring from the reversing light switch



3.45 Draining the oil from the transmission



3.50 Removing the flywheel cover



3.52 Rear engine mounting and bracket

46 Remove the right- and left-hand driveshafts as described in Chapter 8. The clips securing the inner joint gaiters to the transmission side flanges must be removed, and the driveshaft inner tripod joints withdrawn from the differential sun gears.

47 Unscrew and remove the upper and lower bolts securing the transmission to the engine, but leave the side nut and bolt at this stage.

48 The engine must now be supported while the transmission is being removed. FIAT recommend fitting an eyelet to the thermostat housing after unbolting the wiring support bracket from it, however an alternative method is to fit the lifting chain to the left-hand end of the exhaust manifold. If the latter method is used, first remove the engine top cover then attach a hoist to the manifold and take the weight of the engine. **Do not** support the engine with a trolley jack positioned under the sump because the position of the right-hand front engine mounting dictates that the centre of gravity of the engine mass is high, and it is quite likely that the engine will fall to one side damaging either the radiator or the rear bulkhead. As an additional precaution, position axle stands and a block of wood beneath the engine.

49 Support the transmission on a trolley jack.
50 Unbolt and remove the flywheel cover (see illustration).

51 Unbolt the exhaust front downpipe from the exhaust manifold and support on an axle stand. Recover the gasket.

52 Working under the car, unbolt the rear engine mounting and bracket from the transmission and underbody (see illustration).

53 Unbolt the front engine mounting and bracket from the front valance and transmission.

54 Lower the transmission and engine slightly until the transmission is clear of the left-hand inner body panels. Unscrew and remove the remaining rear mounting nut and front mounting bolt securing the transmission to the engine, then, with the help of an assistant, withdraw the transmission directly from the left-hand end of the engine. Do not allow the weight of the transmission to rest on the clutch friction disc hub. The engine may need to be moved forward a little, but make sure that the heater hoses on the bulkhead

are not strained - if necessary, drain the cooling system and disconnect the hoses.

55 Lower the transmission to the ground and withdraw from under the car.

1.8 litre models

56 Select a solid, level surface to park the vehicle on. Give yourself enough space to move around it easily. Apply the handbrake then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*). Remove both front wheels.

57 Unbolt the air inlet duct from the engine compartment front crossmember, then disconnect it from the air cleaner and remove.

58 Remove the battery and battery tray with reference to Chapter 5A.

59 Remove the inlet duct from the rear of the engine compartment by disconnecting the wiring and crankcase ventilation hose, then loosening the clips and disconnecting the duct from the throttle body and air cleaner.

60 Release the wiring from the rear of the battery mounting bracket, then undo the bolt and remove the relay box cover. Unscrew the nuts and remove the relay box from the mounting bracket - position the box to one side.

61 Unscrew the bolts and disconnect the wiring from the battery positive terminal.

62 Unbolt and remove the battery mounting bracket and unclip the remaining wiring.

63 Disconnect the clutch cable from the transmission with reference to Chapter 6.

64 Unscrew the nut and disconnect the earth wire from the transmission. Also disconnect the wiring from the speedometer sender.

65 Unscrew the nuts and disconnect the gearchange reaction link from the transmission.

66 Remove the electric cooling fan assembly from the rear of the radiator with reference to Chapter 3.

67 Unscrew and remove the two upper bolts securing the transmission to the rear of the engine.

68 At the right-hand side of the engine, unbolt the short engine steady bar between the cylinder head and inner body panel.

69 Remove the right- and left-hand driveshafts as described in Chapter 8. If preferred, the driveshafts can remain attached to the front hub bearings, and tied to one side.

70 Position a suitable container beneath the transmission, then unscrew and remove the drain plug and allow the oil to drain. On completion, refit and tighten the drain plug.

71 Remove the intermediate shaft from the right-hand side of the transmission as described in Chapter 8.

72 Prise the gear engagement and selector rods from the levers on the transmission.

73 Remove the exhaust front downpipe as described in Chapter 4C.

74 Disconnect the wiring from the starter motor, then unscrew the mounting bolts and remove the starter motor from the transmission. Refer to Chapter 5A if necessary.

75 Unbolt the exhaust front downpipe securing bracket from the front of the cylinder block for access to the transmission-to-engine mounting bolt. Unscrew and remove the bolt.

76 The engine must now be supported while the transmission is being removed. FIAT recommend fitting an eyelet to the left-hand side of the cylinder block, however an alternative method is to fit the lifting chain to the left-hand end of the inlet manifold. Attach a suitable hoist and take the weight of the engine. **Do not** support the engine with a trolley jack positioned under the sump because the position of the right-hand front engine mounting dictates that the centre of gravity of the engine mass is high, and it is quite likely that the engine will fall to one side damaging either the radiator or the rear bulkhead. As an additional precaution, position axle stands and a block of wood beneath the engine.

77 Support the transmission on a trolley jack.

78 Working under the car, unbolt the rear engine mounting and bracket from the transmission and underbody.

79 Unbolt the engine left-hand side mounting from the transmission and underbody.

80 Lower the transmission and engine slightly until the transmission is clear of the left-hand inner body panels. Unscrew and remove the remaining bolts and nut securing the transmission to the engine, then, with the help of an assistant, withdraw the transmission directly from the left-hand end of the engine. Do not allow the weight of the transmission to rest on the clutch friction disc hub. The engine may need to be moved forward a little, but make sure that the heater hoses on the bulkhead are not strained - if necessary, drain the cooling system and disconnect the hoses.

81 Lower the transmission to the ground and withdraw from under the car.

Refitting

82 Refitting is a reversal of the removal procedure with reference to the Chapters used for removal, but note the following points.

- a) Check the clutch release bearing with reference to Chapter 6 before refitting the transmission.

- b) Apply a smear of high-melting-point grease to the clutch friction disc splines; take care to avoid contaminating the friction surfaces.
- c) Tighten all bolts to the specified torque, where given.
- d) Observe any special procedures for setting the engine mountings as given in Chapters 2A, 2B, 2C and 2D. In particular, on 1.6 and 1.8 litre engines assemble the left-hand mounting loosely, then tighten the bolts securing the mounting to the left-hand end of the transmission to 5 Nm, followed by the bolts securing the mounting to the front of the transmission tightened to the same torque. Finally, fully tighten the bolts.
- e) Refill the transmission with the correct quantity and grade of oil with reference to Chapter 1.
- f) Adjust the clutch as described in Chapter 6.

4 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 that 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 end of this manual for more information.

5 Reversing light switch - testing, removal and refitting

Testing

- 1 The reversing light circuit is controlled by a plunger-type switch screwed into the front of the transmission casing. If a fault develops, first ensure that the circuit fuse has not blown.
- 2 To test the switch, 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 between 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 Access to the reversing light switch is best achieved from under the vehicle. Apply the handbrake, then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*).
- 4 Position a container beneath the transmission to catch any spilt oil.
- 5 Disconnect the wiring connector, then unscrew the switch from the transmission casing.

Refitting

- 6 Refit the switch and tighten securely.
- 7 Check and if necessary top up the transmission oil level with reference to Chapter 1.
- 8 Reconnect the wiring then lower the vehicle to the ground.

6 Differential oil seals (except 1.6 litre models) - renewal

- 1 Apply the handbrake, then jack up the front of the vehicle and support it on axle stands (see *Jacking and vehicle support*).
- 2 On 1.2 and 1.4 litre models, remove the relevant driveshaft as described in Chapter 8.
- 3 To renew the left-hand oil seal on 1.8 litre models, remove the driveshaft as described in Chapter 8. Position a container beneath the transmission to catch spilt oil/fluid. Lever out the drive flange, using a suitable lever and piece of thin wood to protect the transmission casing.
- 4 To renew the right-hand oil seal on 1.8 litre models, remove the driveshaft and intermediate shaft as described in Chapter 8.
- 5 Wipe clean the old oil seal and note the fitted depth below the casing edge. This is necessary to determine the correct fitted position of the new oil seal.
- 6 Using a large screwdriver or lever, carefully prise the oil seal out of the transmission casing, taking care not to damage the casing. If the oil seal is reluctant to move, it is sometimes helpful to carefully drive it *into* the transmission a little way, applying the force at one point only. This will have the effect of swivelling the seal out of the casing, and it can then be pulled out. If the oil seal is particularly difficult to remove, an oil seal removal tool may be obtained from a garage or accessory shop.
- 7 Wipe clean the oil seal seating in the transmission casing, then press the new seal a little way into the casing by hand, making sure that it is square with its seating and its closed end is facing outwards.
- 8 Using a suitable tube or large socket, carefully drive the oil seal fully into the casing up to its previously-noted fitted depth. Check that the oil seal spring has not been displaced from its location around the inner lip.
- 9 On 1.8 litre models, either press in the left-hand drive flange until the internal circlip engages the groove, or refit the intermediate shaft with reference to Chapter 8.
- 10 Refit the driveshaft with reference to Chapter 8, then lower the car to the ground.