



Chapter 7 Part B:

Automatic 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	Automatic, four forward speeds and reverse
Designation	4 HP 18

Lubrication

Recommended fluid	See <i>Lubricants and fluids</i>
Capacity (approximate):	
Drain and refill	2.5 to 3.0 litres approx.
Total capacity (including torque converter)	7.5 litres approx.

Torque wrench settings

	Nm	lbf ft
Transmission fluid drain plug	45	33
Filter base plate screws	10	7
Fluid cooler mounting bolts	50	37
Engine-to-transmission securing bolts	60	44
Torque converter screws	65	48

1 General information

Automatic models are fitted with a four-speed, fully-automatic transmission, consisting of a torque converter, an epicyclic geartrain, and hydraulically-operated clutches and brakes.

Drive is taken from the engine to the transmission by a torque converter. The torque converter provides a fluid coupling between the engine and transmission, and acts as an automatic clutch, also providing a degree of torque multiplication when accelerating.

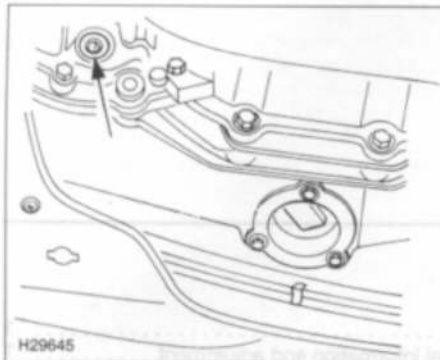
The epicyclic geartrain provides either of

the four forward or one reverse gear ratios, according to which of its component parts are held stationary or allowed to turn. The components of the geartrain are held or released by brakes and clutches which are activated by a hydraulic control unit. A fluid pump within the transmission provides the necessary hydraulic pressure to operate the brakes and clutches.

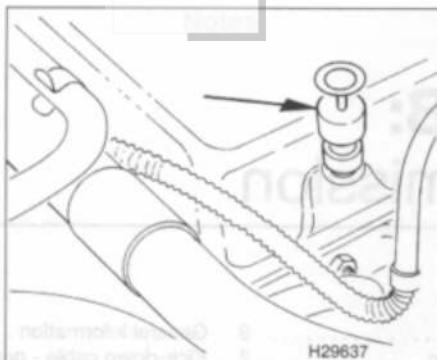
Driver control of the transmission is by a multi-position selector lever. The transmission has a 'drive' position, and a 'hold' facility on the first three gear ratios. The 'drive' position 'D' provides automatic changing throughout the range of all four gear ratios, and is the one to select for normal driving. An automatic kick-down facility shifts the transmission down a gear if the accelerator pedal is fully depressed. This is useful when extra

acceleration is required. The 'hold' facility is very similar, but limits the number of gear ratios available - ie when the selector lever is in the '3' position, only the first three ratios can be selected; in the '2' position, only the first two can be selected, and so on. The lower ratio 'hold' is useful for providing engine braking when travelling down steep gradients, or for preventing unwanted selection of top gear on twisty roads.

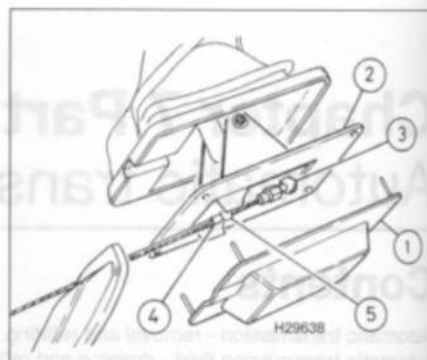
Due to the complexity of the automatic transmission, any repair or overhaul work must be left to a Citroën dealer with the necessary special equipment for fault diagnosis and repair. The contents of the following Sections are therefore confined to supplying general information, and any service information and instructions that can be used by the owner.



2.3 Location of transmission fluid drain plug (arrowed)



2.6 Fill the transmission via the dipstick tube (arrowed)



3.9 Selector cable and lever components

- | | |
|-------------------|---------------|
| 1 Lower casing | 4 Spring clip |
| 2 Support bracket | 5 Locknut |
| 3 Ball joint | |

lever assembly and withdraw the lever support bracket.

11 Remove the spring clip and unscrew the locknut from the cable end.

12 Prise the ball joint from the base of the selector lever.

Refitting

13 Refitting is the reverse of removal, ensuring that the selector lever is in the 'P' position and the cable is correctly routed and retained with any relevant clips and ties.

14 At the transmission unit end of the cable, rotate the ball joint end fitting to extend the cable, so that the joint can be pressed onto the swivel plate ball - ensure that the selector lever is in the 'P' position as you do this.

Adjustment

15 Provided that no other components have been disturbed, the selector cable should not need further adjustment. If alignment between the selector mechanism components has been lost, carry out the following adjustments before refitting the selector cable.

16 Inside the car, place the selector lever in position 'P'.

17 Working underneath the transmission, rotate the selector lever swivel plate fully clockwise, to set the transmission in 'Park'.

18 Locate the linkrod that connects the selector lever swivel plate to the selector lever on the transmission unit. Check that its length is 73 mm. If not, prise it off with a small screwdriver and rotate one of the balljoint end fittings to achieve the correct length (see illustration).

19 At the end of the selector cable, rotate the ball joint end fitting to extend the cable, so that the joint can be pressed onto the selector lever swivel plate.

20 Finally, check the operation of the transmission as follows:

- Check that the car is immobilised when only 'P' is selected.
- Check that the car can be reversed when 'R' is selected.
- Check that the starter motor can only be turned when either 'P' or 'N' is selected.

2 Automatic transmission fluid - draining and refilling

1 Take the vehicle on a short run, to warm the transmission up to normal operating temperature.

2 Park the vehicle on level ground, switch off the ignition and apply the parking brake firmly. For improved access, jack up the front of the vehicle and support it securely on axle stands. Note that the vehicle must be lowered to the ground and be level, to ensure accuracy when refilling and checking the fluid level.

3 Remove the dipstick, then position a suitable container under the transmission drain plug. The drain plug is located under the transmission on the differential casing (see illustration).

4 Unscrew the drain plug and allow the fluid to drain completely into the container. Note that only approximately 2.5 to 3.0 litres will drain out as it is not possible to completely drain the torque converter. If the fluid is hot, take precautions against scalding. Clean the drain plug, being especially careful to wipe any metallic particles off the magnetic insert. Discard the original sealing washer which should be renewed whenever it is disturbed.

5 When the fluid has finished draining, clean the drain plug threads and those of the transmission casing, fit a new sealing washer to the drain plug and refit it to the transmission, tightening securely. If the vehicle was raised for the draining operation, lower it to the ground.

6 Refilling the transmission is an extremely awkward operation, adding the specified type of fluid to the transmission a little at a time via the dipstick tube (see illustration). Alternatively, use the filler cap (breather) having cleaned around the area first. Use a funnel with a fine mesh gauze, to avoid spillage and to ensure that no foreign matter enters the transmission. Allow plenty of time for the fluid level to settle properly before checking. Note that the vehicle must be parked on flat level ground when checking the fluid level.

7 Add approximately 2.5 to 3.0 litres and check the level on the dipstick continuously as the last litre is added. Once the level is up to the MAX mark on the dipstick, refit the dipstick then start the engine and allow it to idle for a few minutes. Recheck the level with the engine still turning and top-up if necessary. Take the vehicle on a short run to fully distribute the new fluid around the transmission, then recheck the fluid level.

3 Selector cable - removal, refitting and adjustment

Removal

1 Remove the air cleaner assembly as described in Chapter 4A.

2 Move the gear selector lever to the 'P' position.

3 Working in the engine compartment, carefully prise the selector cable balljoint from the selector lever swivel plate on the transmission unit.

4 Remove the two screws and lift off the flange securing the cable to the mounting bracket on the transmission.

5 With reference to Chapter 13, remove the selector lever control grid illumination bulbholder, the control grid and the sound proofing gaiter. Unscrew the nuts securing the selector lever housing to the floor.

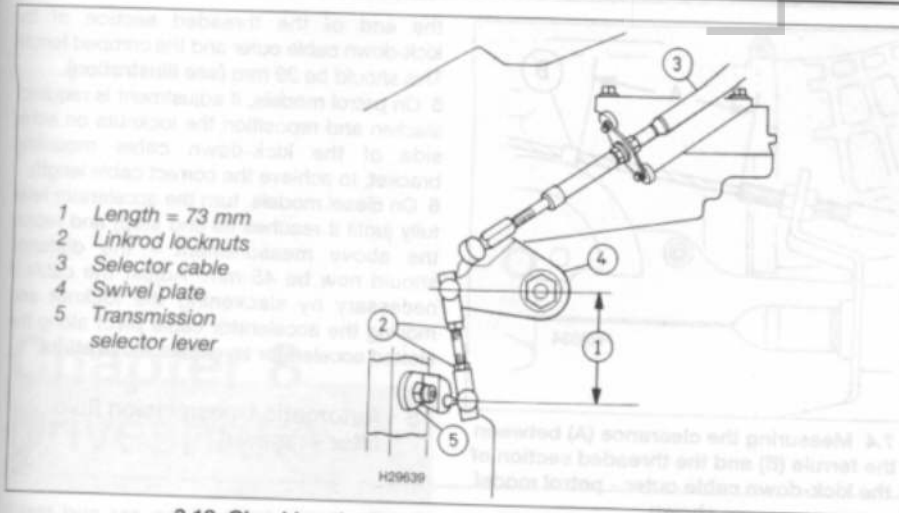
6 Chock the rear wheels, then jack up the front of the car and support it on axle stands.

7 Refer to Chapter 4C and remove the exhaust system and heat shields, as necessary for access to the cable and gear selector lever housing.

8 Work back along the selector cable, releasing it from any relevant retaining clips, and noting its correct routing.

9 Release any remaining clips or ties, then remove the selector lever housing and cable as an assembly from under the car (see illustration).

10 Detach the lower casing from the selector



3.18 Checking the length of the selector cable linkrod

4 Oil seals - renewal

Only the driveshaft oil seals can be renewed without extensive dismantling. The procedure is essentially the same as that described for manual transmission models, in Chapter 7A.

5 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.
- 2 Disconnect the wiring connector/drive cable (as applicable) from the speedometer drive housing.
- 3 Slacken and remove the retaining bolt, along with the heat shield, and withdraw the speedometer drive and driven pinion assembly from the transmission housing, along with its O-ring. As the drive is withdrawn, hold the pinion assembly in place as there is a possibility that it can be dislodged and fall into the transmission casing.
- 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. Renew the housing O-ring as a matter of course.

Refitting

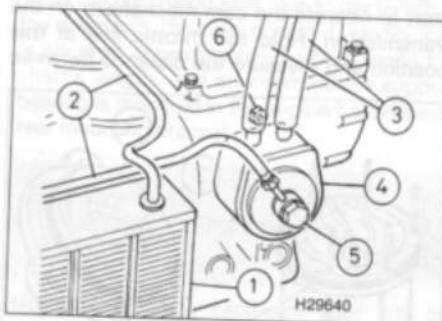
- 5 Fit a new O-ring to the speedometer drive and refit it to the transmission, ensuring the drive and driven pinions are correctly engaged.
- 6 Refit the retaining bolt and the heat shield and tighten the bolt. Reconnect the wiring.

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

6 Fluid cooler - removal and refitting

Removal

- 1 The fluid cooler is mounted on the front of the transmission housing. To gain access to the fluid cooler, carry out the following:
 - a) Remove the air cleaner assembly and intake ducts as described in Chapter 4A or 4B.
 - b) Remove the battery and battery holder, with reference to Chapter 5A.
- 2 Unclip the wiring connector from the support bracket located just above the fluid cooler, then remove the support bracket.
- 3 Using hose clamps or similar, clamp both the fluid cooler coolant hoses to minimise coolant loss during the following operations.
- 4 Disconnect both coolant hoses from the



6.5a Transmission fluid cooler details

- 1 Air-to-transmission fluid heat exchanger
- 2 Transmission fluid lines
- 3 Coolant pipes
- 4 Coolant-to-transmission fluid heat exchanger
- 5 Banjo union bolt
- 6 Brake band adjustment screw

fluid cooler being prepared for some coolant spillage. Wash off any split coolant immediately with cold water, and dry the surrounding area before proceeding further.

- 5 Slacken and remove the union bolts, and remove the cooler from the transmission. Remove the seals from the mounting bolts, and the two seals fitted to the base of the cooler, and discard them; new ones must be used on refitting (see illustrations).

Refitting

- 6 Lubricate the new seals with clean automatic transmission fluid, then fit the two new seals to the base of the fluid cooler, and a new seal to each mounting bolt.
- 7 Locate the fluid cooler on the top of transmission housing, taking care not to obscure the brake band adjustment screw behind it. Refit the union bolts, and tighten securely.
- 8 Reconnect the coolant hoses to the fluid cooler and remove the hose clamps.
- 9 Refit the support bracket and wiring connector, then refit the battery and its holder (Chapter 5A) and the disturbed intake duct/air cleaner components (see Chapter 4A).
- 10 On completion, top-up and bleed the cooling system and check the automatic transmission fluid level as described in Chapters 1A or 1B.

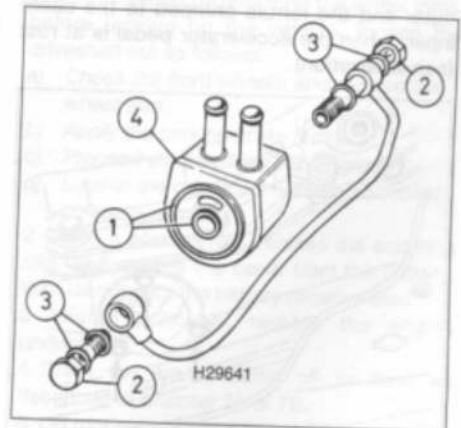
7 Kick-down cable - general information and adjustment

General information

- 1 The removal of the kick-down cable requires the removal of the transmission hydraulic valve block. This is an extremely complex task that should be entrusted to an automatic transmission expert or a Citroën dealer.

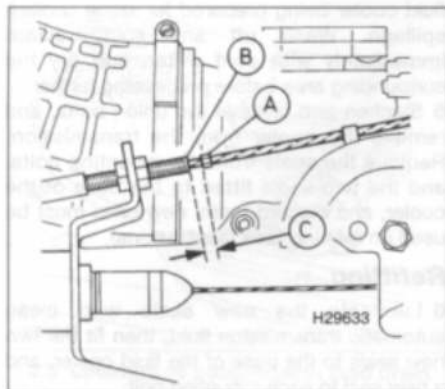
Adjustment

- 2 Check the accelerator cable adjustment as described in Chapter 4A or 4B.

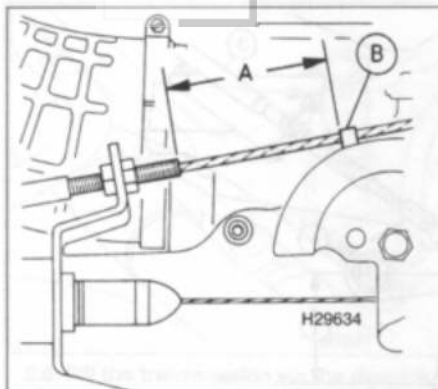


6.5b Coolant-to-transmission fluid heat exchanger assembly

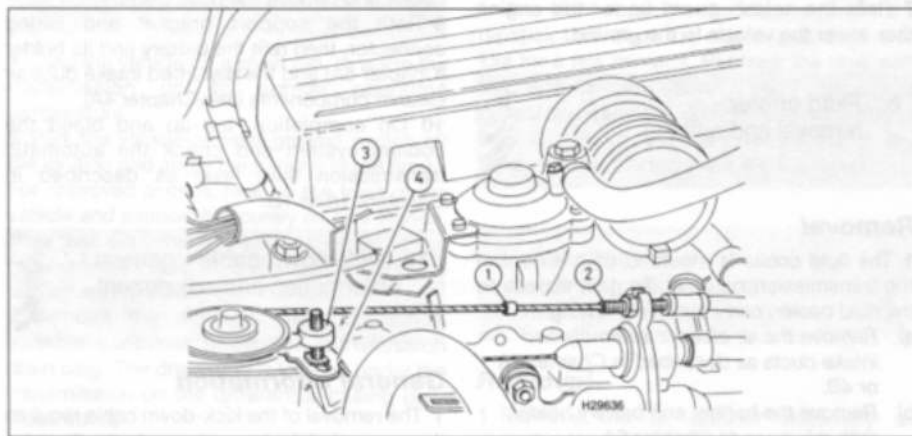
- 1 Seals
- 2 Banjo union bolts
- 3 Sealing washers
- 4 Heat exchanger



7.3 Check that there is a clearance (C) of 0.5 to 1.0 mm between the threaded section of the kick-down cable outer (B) and the ferrule (A) crimped to the cable inner, when the accelerator pedal is at rest



7.4 Measuring the clearance (A) between the ferrule (B) and the threaded section of the kick-down cable outer - petrol model shown

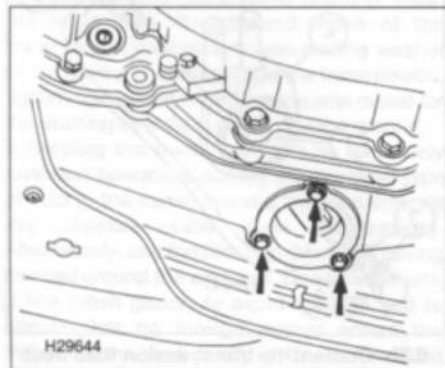


7.6 Measuring the clearance between the ferrule and the threaded section of the kick-down cable outer - 2.1 litre diesel model shown

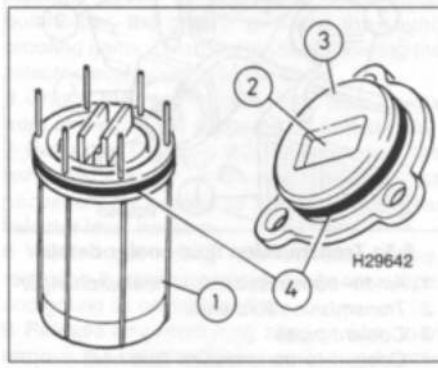
1 Ferrule 2 Kick-down cable outer 3 Accelerator cable pivot 4 Accelerator lever

3 At the throttle housing (petrol models) or fuel injection pump (diesel models), check that there is a clearance of 0.5 to 1.0 mm between the threaded section of the kick-down cable outer and the ferrule crimped to the cable inner, when the accelerator pedal is at rest (see illustration).

4 Operate the accelerator lever slowly by hand. At a point roughly three quarters of the way through the lever's total travel, slight resistance will be felt as the kick-down cable start to operate the cam mechanism on the transmission. Hold the throttle still at this position and measure the distance between



8.3 Unscrew the three screws (arrowed) and lower the filter housing away from the transmission



8.5 Transmission fluid filter assembly

1 Filter cartridge 2 Magnet 3 Cover plate 4 Seals

the end of the threaded section of the kick-down cable outer and the crimped ferrule. This should be 39 mm (see illustration).

5 On petrol models, if adjustment is required, slacken and reposition the locknuts on either side of the kick-down cable mounting bracket, to achieve the correct cable length.

6 On diesel models, turn the accelerator lever fully (until it reaches its end stop) and repeat the above measurement - the distance should now be 45 mm. Adjust the cable if necessary by slackening the locknut and moving the accelerator cable pivot along the slotted accelerator lever (see illustration).

8 Automatic transmission fluid filter - renewal

1 Jack up the front of the car and rest it securely on axle stands.

2 Refer to Section 2 of this Chapter and drain the automatic transmission fluid.

3 Working under the transmission, unscrew the three screws and lower the filter housing away from the transmission (see illustration). Be prepared for some transmission fluid loss and take precautions against scalding.

4 Detach the filter cartridge from the base plate and clean it thoroughly. Clean the magnet at the centre of the base plate, taking care to remove all metallic particles.

5 Fit a new seal to the base plate and the filter cartridge. Press the filter into place on the base plate (see illustration).

6 Refit the base plate to the transmission, then insert the securing screws and tighten them to the specified torque.

7 On completion, refill the transmission as described in Section 2.

9 Automatic transmission - removal and refitting

1 The transmission cannot be removed with the engine *in situ* - both units must be lifted from the engine compartment as an assembly and separated on the bench. This procedure is described in Chapter 2C.

10 Automatic transmission overhaul - general information

In the event of a fault occurring with the transmission, it is first necessary to determine whether it is of an electrical, mechanical or hydraulic nature, and to do this, special test equipment is required. It is therefore essential to have the work carried out by a Citroën dealer if a transmission fault is suspected.

Do not remove the transmission from the car for possible repair before professional fault diagnosis has been carried out, since most tests require the transmission to be in the vehicle.