

## RECOMMENDATIONS - PRECAUTIONS (AL4 AUTOMATIC GEARBOX)

Engines: NFU - RFJ

### PRECAUTIONS TO BE TAKEN

#### Towing.

The front of the vehicle must be raised in order to be towed.  
If the front of the vehicle cannot be raised.

**IMPERATIVE: Put gear lever in position «N».**

- Do not add any oil.
- Do not exceed 30 mph over a distance of 30 miles of maximum.

#### Driving.

Never drive with the ignition switched off.  
Never push the vehicle to try to start it (*impossible with an automatic gearbox*).

#### Lubrication.

The automatic gearbox is only lubricated when the engine is running.

#### Removing - Refitting (automatic gearbox).

**WARNING:** Never place the gearbox on its lower casing (*risk of deformation of the tray and damage to the hydraulic block*).  
- Do not use the connectors as handles to lift, turn, hold or push the gearbox.

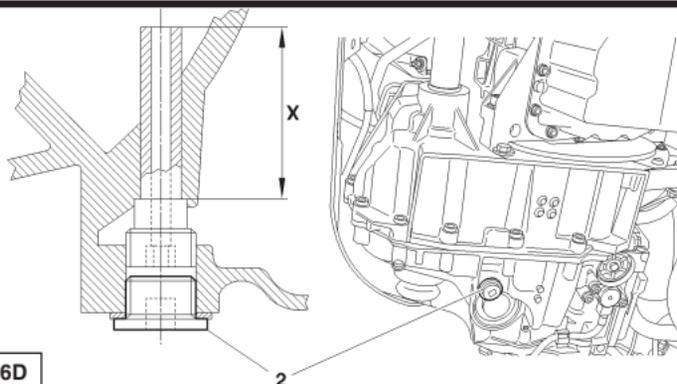
#### IMPERATIVE:

- Set the converter retaining peg when the gearbox is being removed.
- Place the centring peg to line up the gearbox on the engine (*remove the converter retaining peg just prior to this lining up*).

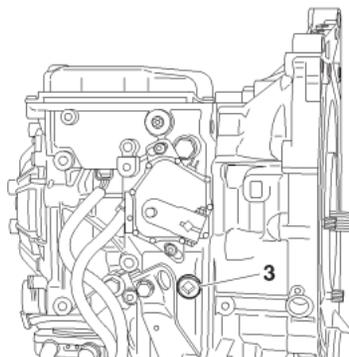
**WARNING:** In emergency mode, there is a noticeable snatching when changing «P» → «R» or «N» → «R».

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B2CP3X6D



B2CP3X5C

### Draining - Filling.

#### Tooling recommended.

[1] Filling cylinder

: (-).0341

#### Draining.

**IMPERATIVE:** The gearbox should be drained when the oil is warm (*at least 60°C*), to eliminate the impurities in suspension in the oil.

**NOTE:** Draining is partial, the converter cannot be completely emptied.

Remove:

- The level plug (2).
- The oil draining and overflow plug (1).

**NOTE:** Approx. **3 litres** of oil should flow out.

#### Filling.

- Refit the drain plug (1), tighten to **0,9 ± 0,2 m.daN**.
- Remove the oil filler cap (2).
- Use tool [1].

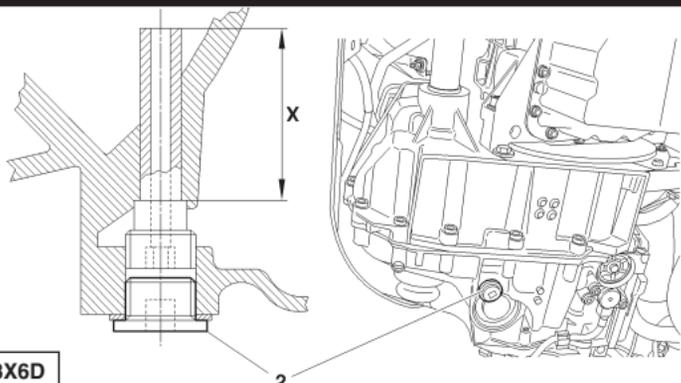
Oil capacity:

- Oil capacity for dry gearbox: **5,85 litres**.
- Oil remaining after draining: **3 litres (approx.)**.
- Quantity of oil to be put back in: **3 litres (approx.)**.
- Refit the oil filler cap (2) (*equipped with a new seal*), tighten to **2,4 m.daN**.

Initialise the oil wear counter (*follow the diagnostic tool procedure*).

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**NOTE:** Dimension **X = 48 mm**.

An excessive level of oil can lead to the following consequences:

- Oil heating up abnormally.
- Oil leaks.

A level that is too low will result in the destruction of the gearbox.

### Checking the oil level (*prior conditions*).

- Vehicle in horizontal position.
- Check gearbox is not in back-up mode.
- Remove the oil filler cap (3).
- Add **0,5 litres** extra oil into the gearbox.
- Foot on the brake, change through all the gears.
- Selection lever in position "P".
- Engine running, at idle.
- Oil temperature: **60°C (+8°C ; -2°C)**, measured by means of the diagnostic tool.
- Remove the oil level plug (2).

### Thread of oil then "drip-drip".

Refit the plug (3) (*equipped with a new seal*). Tighten to **2,4 m.daN**.

### "Drip-drip" or nothing.

Refit the oil level plug (2).

- Stop the engine.
- Add **0,5 litres** extra oil into the gearbox.
- Repeat the oil level procedure.

**NOTE:** The level is correct at the moment the thread of oil becomes "drip-drip".

- Refit the oil level plug (2) (*equipped with a new seal*), tighten to **3,3 ± 0,5 m.daN**.
- Refit the oil filler plug (3) (*equipped with a new seal*), tighten to **2,4 m.daN**.

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### PROCEDURE BEFORE A REPAIR

**When the ECU detects a value that is incorrect or absent on one of its inputs or outputs:**

- It writes the fault into memory.
- For each type of associated context, it records the context of the earliest fault into memory.
- It launches a back-up mode strategy.

**There are two sort of back-up mode:**

- The ECU uses replacement values (*impact on comfort, gear changing quality, loss of functions*).
- Change to emergency mode (*only 3rd gear and reverse gear are available*).

**Reading of fault codes.**

- Carry out a reading of the fault codes.
- Absence of fault codes.
- Carry out a measuring of parameters.

Presence of faults confirmed:

- **YES:** Perform the necessary repairs.
- **NO:** Read the fault codes: **engine ECU**.  
Carry out a road test.

Having carried out an **ECU** initialisation procedure, for a certain time one may obtain gear changing quality that is more or less good (*adaptation of the ECU parameters to the gearbox*).  
To improve the quality, it is necessary to perform a road test with frequent changing through the gears (*auto-adaptive laws*).

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ECU: Initialisation

### Updating the gearbox ECU by downloading.

- Follow the procedure using the diagnostic tool.

The downloading operation enables the automatic gearbox to be updated, or adapted to an evolution of the engine ECU.

Before commencing the downloading, take the value of the oil usage counter present in the automatic gearbox ECU.

### After the downloading operation, carry out the following.

- A clearing of faults.
- An initialisation of the auto-adaptives.
- A writing of the value of the oil usage counter previously read.
- A road test.

**ESSENTIAL:** Every update of the automatic gearbox ECU should be accompanied by an update of the engine ECU.

### Updating the value of the oil usage counter.

#### Using PROXIA

Access to reading and recording of the oil counter is via the menu:  
«**Configuration (integrated circuit button)/Oil counter**».

Adjustment of the oil counter value is done in incremental steps of  
**2750 units**.

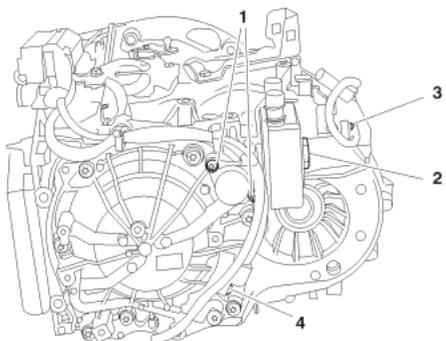
#### Using LEXIA

Access to reading and recording of the oil counter is via the menu:  
«**Oil counter**».

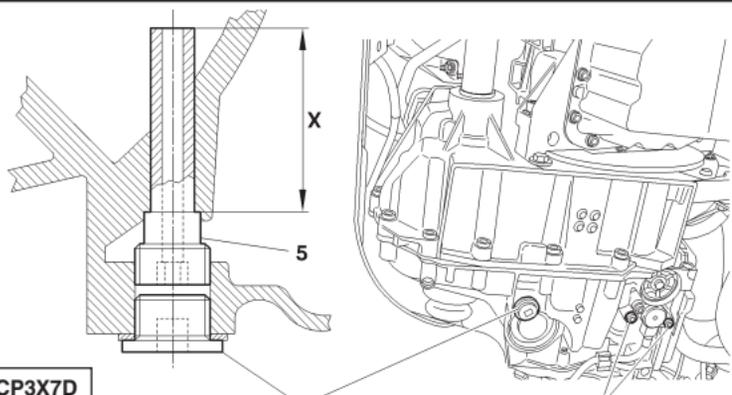
Adjustment of the oil counter value is done by entering directly the **5 figures** of the oil counter.

## TIGHTENING TORQUES: AUTOMATIQUE AL4

Engines: NFU - RFJ



B2CP3EDD



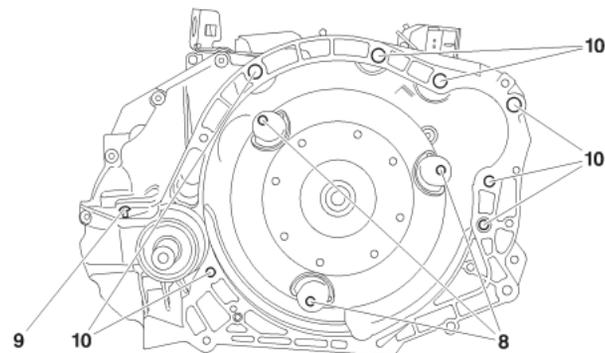
B2CP3X7D

### Tightening torques (m.daN).

- |  |                 |
|--|-----------------|
| (1) Oil flow modulation electrovalve fixing<br>in the exchanger (EPDE) | : $1 \pm 0,2$   |
| (2) Heat exchanger fixing  | : $5 \pm 1$     |
| (3) Output speed sensor fixing   | : $1 \pm 0,2$   |
| (4) Input speed sensor fixing  | : $1 \pm 0,2$   |
| (5) Oil overflow and drain plug fixing ( $X = 48 \text{ mm}$ )         | : $0,9 \pm 0,2$ |
| (6) Oil level plug   | : $3,3 \pm 0,5$ |
| (7) Oil pressure sensor fixing   | : $0,8 \pm 0,1$ |

## AL4 AUTOMATIC GEARBOX

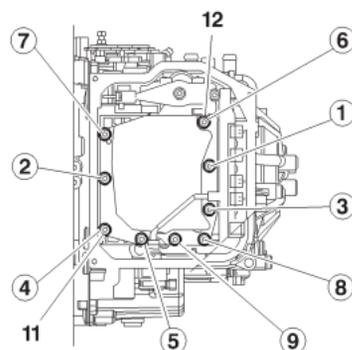
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B2CP3EED

### Tightening torques (m.daN).

- (8) Fixing of converter on diaphragm
- Pre-tightening :  $1 \pm 0,1$
  - Tightening :  $3 \pm 0,3$
- (9) Plug fixing :  $0,8 \pm 0,2$
- (10) Gearbox fixing on engine :  $5,2 \pm 1$



B2CP3X8C

### **Hydraulic block fixing.**

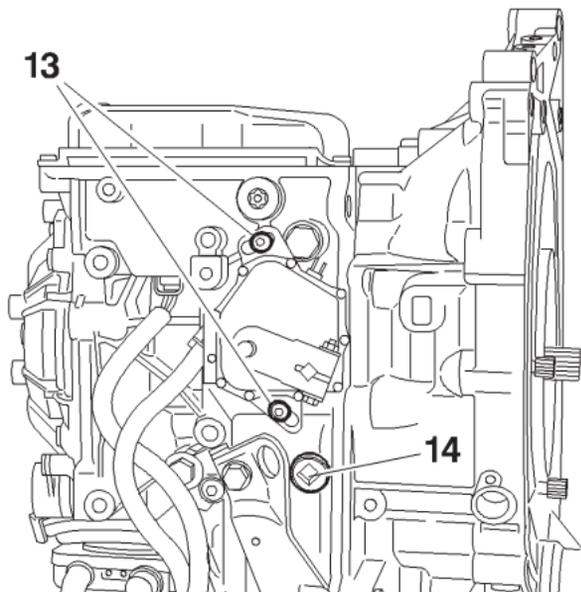
Centre the hydraulic block, using screws (11) and (12).

- Pre-tighten (*no strict order*) :  $0,9$
- Slacken : **All 7 screws**
- Tighten (*respect the order indicated*) :  $0,75$

**NOTE:** The screw (11) is shouldered.

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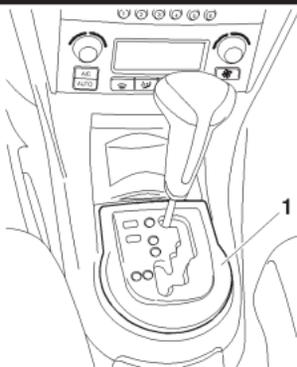


(13) Fixing of selector lever position switch :  $1,5 \pm 0,2$

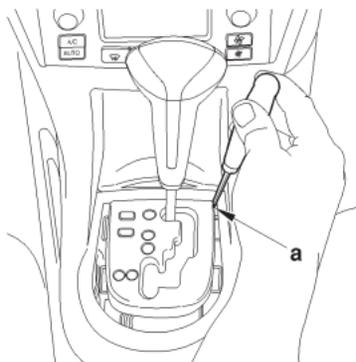
(14) Oil filler plug :  $2,4 \pm 0,4$

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C5FP0NZC



C5FP0P0C

### SHIFT LOCK.

The «**shift lock**» is a system that locks the gear selection lever in position «**P**».

#### Unlocking the «**SHIFT LOCK**» (*normal operation*).

- Switch on the ignition.
- Press the brake pedal and keep it pressed.
- Move the gear selection lever out of position «**P**».

#### Unlocking the «**SHIFT LOCK**» (*with an operating fault*).

**NOTE:** It is impossible to unlock the «**shift lock**» with the «**Normal operation**» method.

The fault may originate from one of the following components:

#### «**Shift lock**».

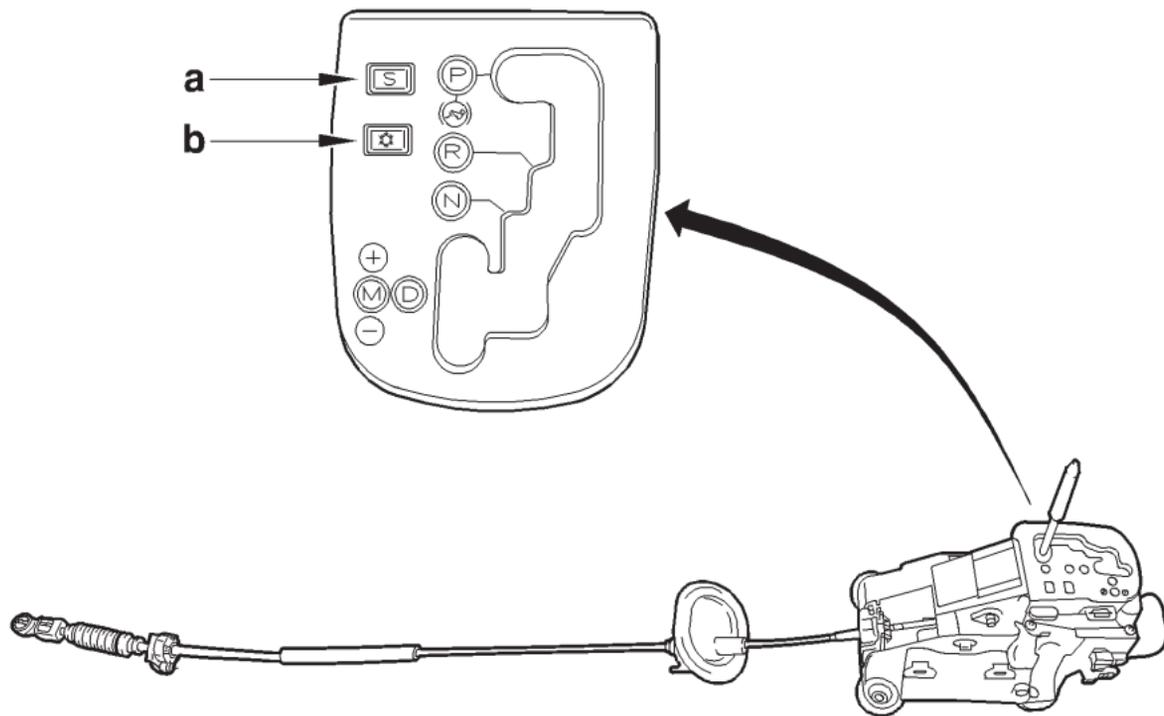
- Gear lever position switch.
- Automatic gearbox ECU.
- Electrical harnesses.
- Battery voltage.

Remove:

- The gear lever cover (**1**) (*pull upwards*).
- Unlock the «**shift lock**» by pressing at «**a**» with the aid of a screwdriver.
- Move the gear selection lever out of position «**P**».

## AL4 AUTOMATIC GEARBOX CONTROLS

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The gear selection lever is guided by the shape of the step grille and by a recall spring which holds it to the left.

The gear control has **5 positions**:

- «**P**» Parking (*locking and immobilisation of the vehicle*).
- «**R**» Reverse gear.
- «**N**» Neutral.
- «**D**» Drive (*use of the four forward gears in automatic and auto-adaptive operation*).
- «**M**» Manual (*this position allows the driver to choose his gears sequentially by pulling «M» or pushing «M+» on the gear selection lever*).

**NOTE:** Only positions «**P**» or «**N**» authorise starting of the engine.

In position «**M**», the selection is by means of an electronic sensor situated close to the selection lever.

The variation of flux necessary to affect the sensor cells is obtained by a magnet on the lever opposite the cells, provoking the changes of status.

The information on this is transmitted to the gearbox ECU.

**NOTE:** On a vehicle equipped with «**shift lock**», it is necessary to switch on the ignition and press the brake pedal to release the selection lever from position «**P**».

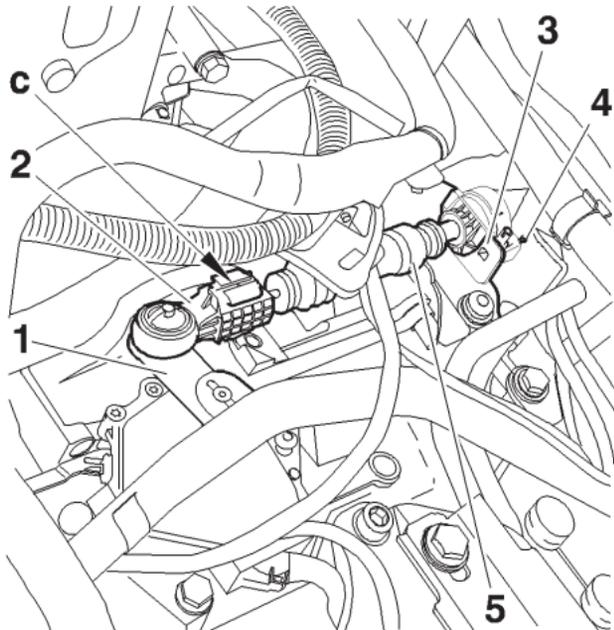
The two switches positioned on the gear control grille allow the driver to choose one of the following three driving programmes:

- **Normal programme.** The **Normal** programme operates in the absence of any other selection being made (*auto-adaptive mode ; eco law*).
- «**a**» **Sport programme.** The **Sport** programme permits a more dynamic driving style, with greater performances and acceleration.
- «**b**» **Snow programme.** The **Snow** programme facilitates moving off and traction on ground that has limited adhesion.

To revert to the **Normal** programme, you have to press a second time on the **sport** or **snow** switch.

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**Gearbox end.**

The automatic gearbox is controlled by a cable.

«c» Push-button

(1) Control lever with ball-joint

(2) Automatic adjustment

- Pull out the button to adjust the control.

- Push it in to lock the adjustment of the control.

(3) Sleeve stop

(4) Selection control locking clip (5) on the sleeve stop (3)

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