

Manual Transmission/Transaxle External Controls -**Torque Specifications**

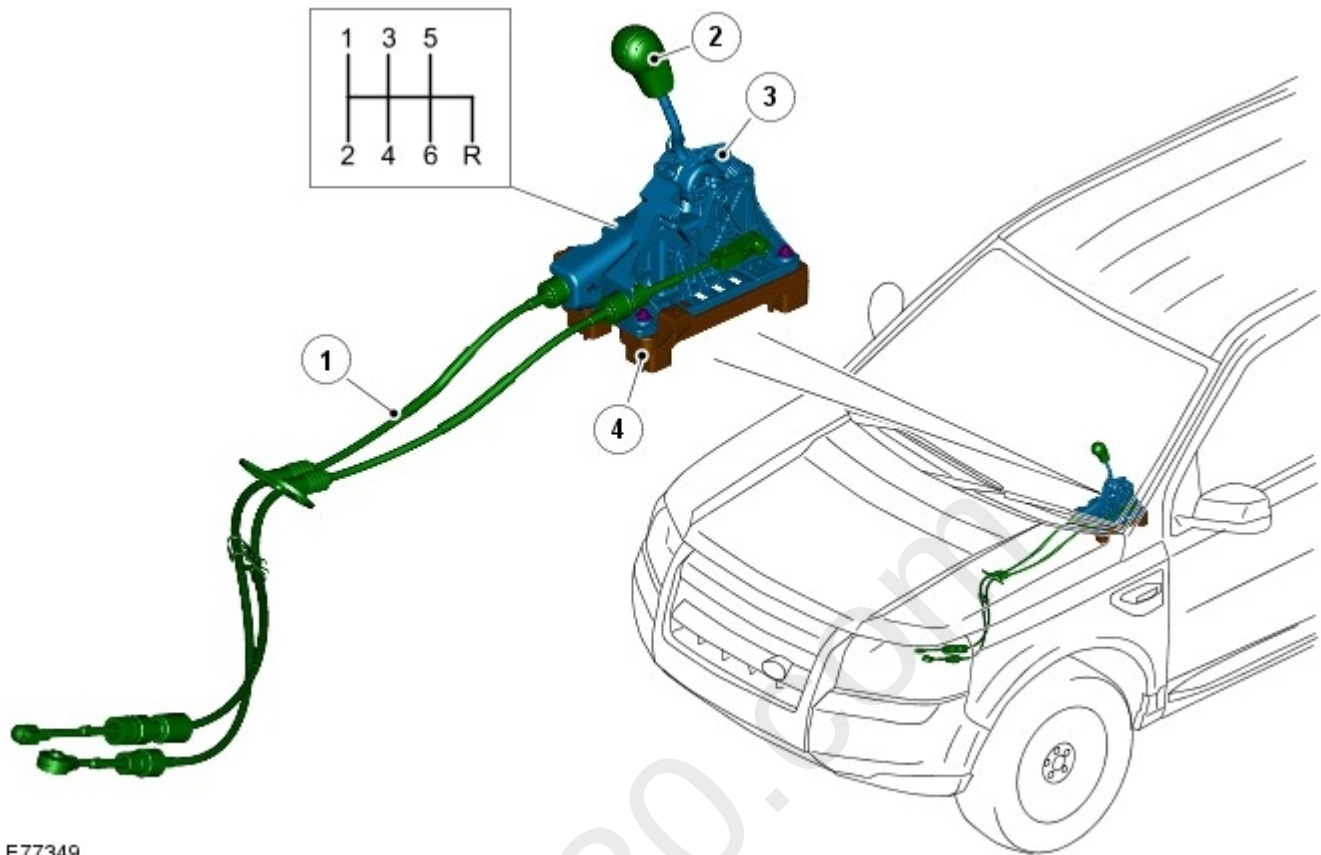
Description	Nm	lb-ft
Gearshift lever bolts	10	7
Gearshift mechanism bracket bolts	24	18

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Manual Transmission/Transaxle External Controls - External Controls

Description and Operation

COMPONENT LOCATION



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Item	Part Number	Description
1	-	Shift cables
2	-	Gear knob
3	-	Selector lever assembly
4	-	Selector lever mounting plate

INTRODUCTION

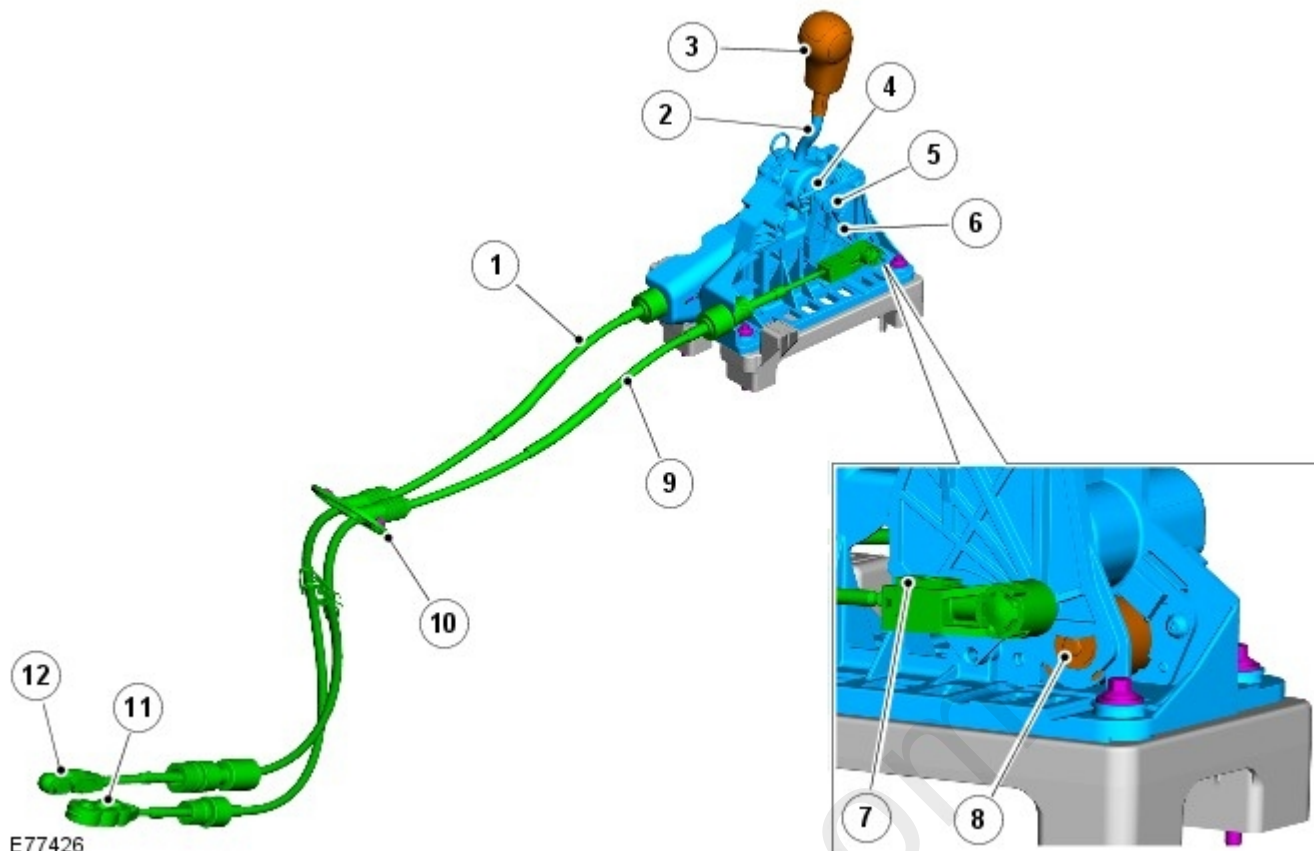
The manual transmission external controls comprise a selector lever assembly and 2 shift cables. The selector allows the driver to engage the 6 forward gears and reverse gear.

The selector lever assembly is located in a central position on the transmission tunnel, between the front driver and passenger seats and is secured to the transmission tunnel with 4 bolts. The selector lever assembly is a non-serviceable mechanical assembly.

Selections made using the selector lever are passed to the transmission lever arm by the shift cables. Ball pins on the selector lever provide for the attachment of the shift cables.

The selector has a vehicle speed dependent solenoid interlock device. This ensures that the driver is prevented from accidentally selecting reverse gear.

Selector Lever and Shift Cables



Item	Part Number	Description
1	-	Longitudinal shift cable
2	-	Gear selector lever
3	-	Gear knob
4	-	Centring spring
5	-	Ball end
6	-	Lever plate
7	-	Lateral cable adjustment button
8	-	Interlock solenoid
9	-	Lateral shift cable
10	-	Bulkhead seal
11	-	Longitudinal shift cable - transmission attachment
12	-	Lateral shift cable - transmission attachment

The selector lever assembly is a plastic moulded construction. The lever is attached to a gimbal mechanism which allows easy movement in the lateral and longitudinal planes.

The lever has a ball end on its base to which the longitudinal shift cable is attached. This cable passes all longitudinal movements of the lever to the transmission. A second ball end is attached at 90 degrees to the lever and engages with a centering spring. The centering spring returns the lever to a position between 3rd and 4th gears when neutral is selected.

The second ball end locates in a rotating lever plate. This plate is spring loaded and has ball end for attachment of the lateral shift cable. The lever plate rotates with movement of the selector lever from side to side and passes lateral movements of the selector lever to the lateral shift cable.

The two shift cables have abutments which locate in the selector lever assembly and in brackets on the transmission. The lateral shift cable is adjustable at the cable ball end attachment. Both shift cables have eye-ends which locate on ball ends on the transmission selector shift mechanism levers.

Inhibition of reverse gear is achieved through a solenoid interlock device located on the selector lever assembly. When the solenoid is energized, movement of the lever plate is restricted to prevent the reverse gear position being accessed. The solenoid is activated at speeds in excess of 25 km/h (15 mph) to prevent inadvertent selection of reverse gear. The solenoid is deactivated at speeds below 15 km/h (9 mph). The Central Junction Box (CJB) controls the solenoid operation using speed signals received on the high speed Controller Area Network (CAN) bus from the Anti-lock Brake System (ABS).

The lateral shift (select) cable has an adjustment/setting mechanism at the selector lever end. The purpose of the mechanism is to accommodate vehicle to vehicle build tolerances. This ensures that the selector lever movements are correctly aligned with the movements of the gearbox selector lever. This is essential to ensure the correct operation of the selector mechanism. The fore/aft (shift) cable does not require any adjustment or setting.

Cable Setting Procedure

The correct cable adjustment is achieved by use of a yellow adjustment button in the selector lever arm eye end of the lateral shift cable.

Ensure that the transmission is in neutral and release the yellow adjustment button. Allow the centering spring to centre the selector lever in the lateral direction.

Once the cable is in the correct position, the yellow adjustment button can be pressed back into the 'locked' position to engage with the serrated portion of the cable. Ensure that the selector lever is not moved before the button is pressed.

Check the cable for the correct setting by selecting 3rd gear and checking that the lateral movement of the selector lever feels symmetrical.

The cable should be reset whenever any part of the transmission selector assembly has been disturbed or replaced, including the transmission, cables or selector lever assembly.

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Manual Transmission/Transaxle External Controls - External Controls

Diagnosis and Testing

Principles of Operation

For additional information.

REFER to: [Manual Transaxle and Clutch](#) (308-00 Manual Transmission/Transaxle and Clutch - General Information, Diagnosis and Testing).

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Manual Transmission/Transaxle External Controls - Gearshift Linkage

Removal and Installation

Removal

1. Remove the cover and disconnect the battery ground cable.

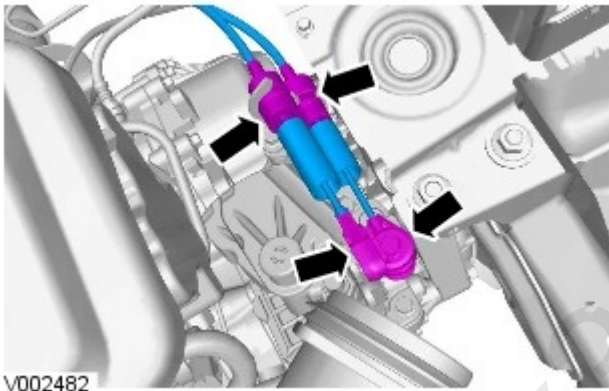
Refer to: [Specifications](#) (414-00 Battery and Charging System - General Information, Specifications).

2. Remove the air cleaner assembly.

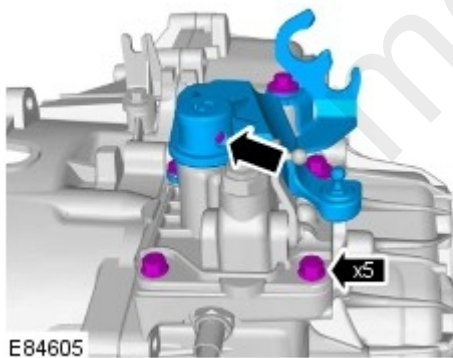
Refer to: [Air Cleaner](#) (303-12B Intake Air Distribution and Filtering - TD4 2.2L Diesel, Removal and Installation).

3. Remove the battery tray.

Refer to: [Battery Tray](#) (414-01 Battery, Mounting and Cables, Removal and Installation).

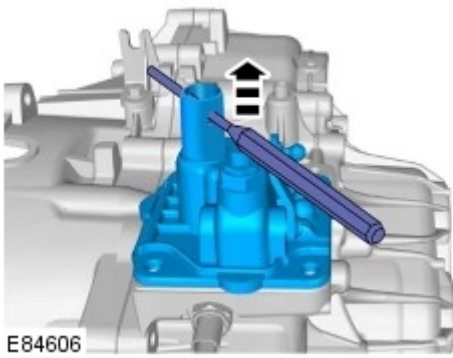


- 4.



5. Torque: 24 Nm

6.



Installation

1.  CAUTION: Make sure that the mating faces are clean and free of corrosion and foreign material.

To install, reverse the removal procedure.

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Manual Transmission/Transaxle External Controls - Gearshift Lever

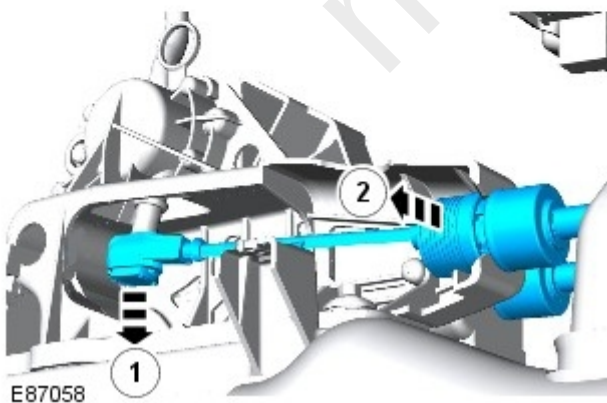
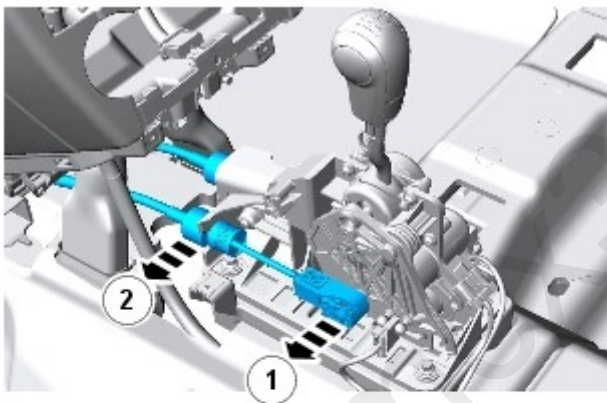
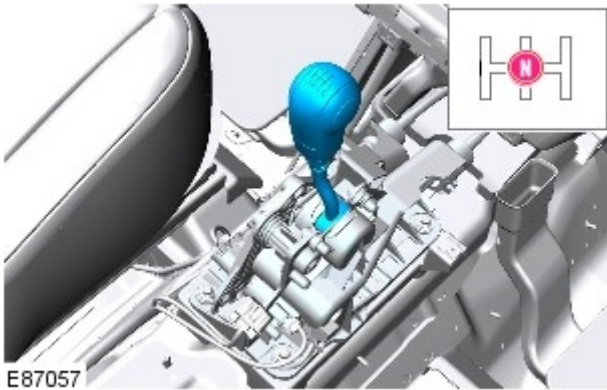
Removal and Installation

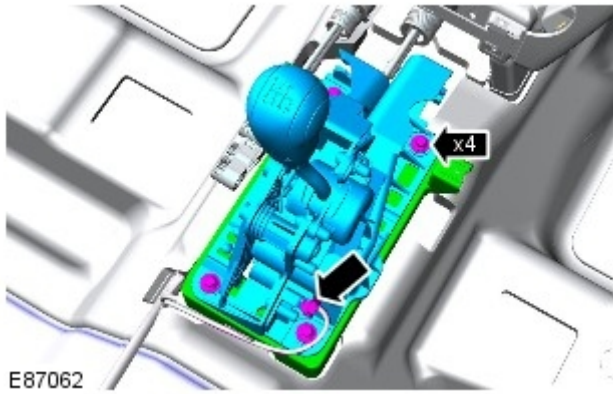
Removal

1. Remove the floor console.

Refer to: [Floor Console](#) (501-12 Instrument Panel and Console, Removal and Installation).

2. **2. NOTE:** Neutral must be selected before the cables are released to allow the cables to be correctly set on the install.





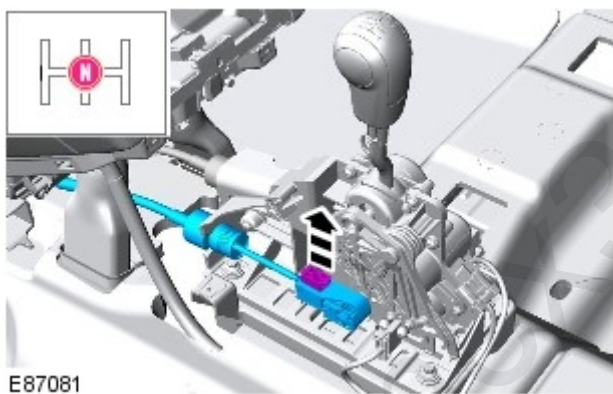
4.

Installation

1. Install the gearshift lever.

Torque: 10 Nm

2. Secure the selector cables.
3. Connect the selector cable ball joints.



4.

- Release the LH cable securing clip.
- Allow the gearshift lever to come to rest in the neutral position.
- Secure the cable selector clip, without disturbing the gearshift selector lever position.

5. Install the floor console.

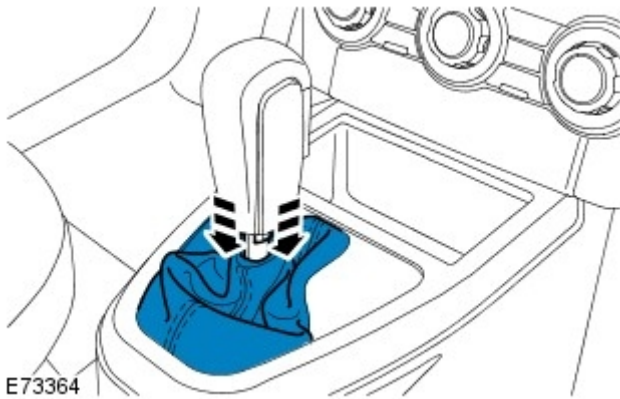
Refer to: [Floor Console](#) (501-12 Instrument Panel and Console, Removal and Installation).

Manual Transmission/Transaxle External Controls - Gearshift Lever Knob

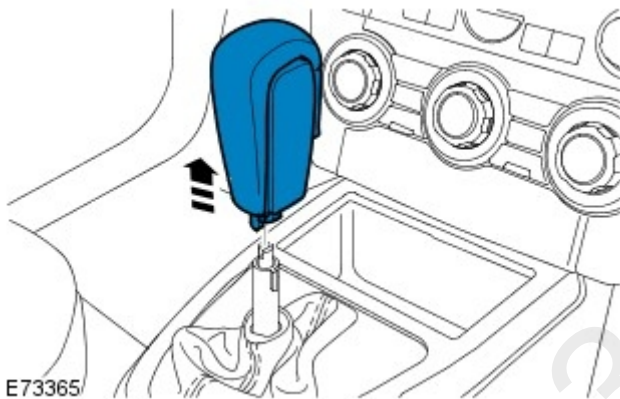
Removal and Installation

Removal

1.



2.  **WARNING:** The selector lever knob will be released suddenly, keep face clear during removal.



Installation

1. To install, reverse the removal procedure.

Manual Transmission/Transaxle External Controls - Gearshift Cables

Removal and Installation

Removal

1.  **WARNING:** Make sure to support the vehicle with axle stands.

Raise and support the vehicle.

2. Remove the driveshaft.

Refer to: [Driveshaft - Vehicles Without: Diesel Particulate Filter \(DPF\)](#) (205-01 Driveshaft, Removal and Installation).

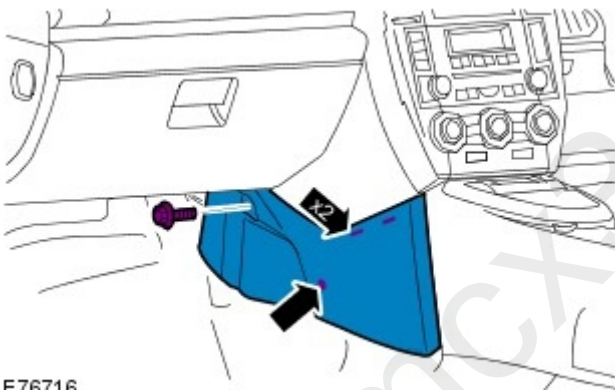
3. Remove the floor console.

Refer to: [Floor Console](#) (501-12 Instrument Panel and Console, Removal and Installation).

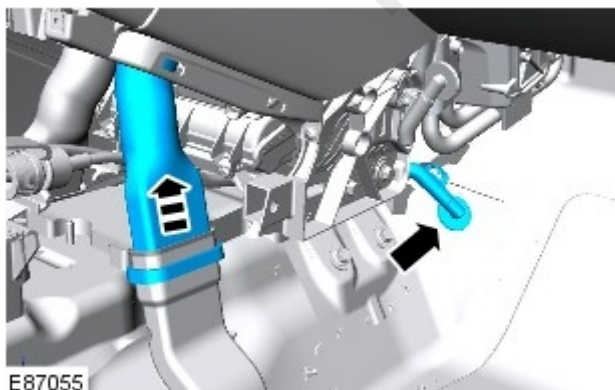
4. Remove the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

5. Remove the instrument panel, lower trim panels.

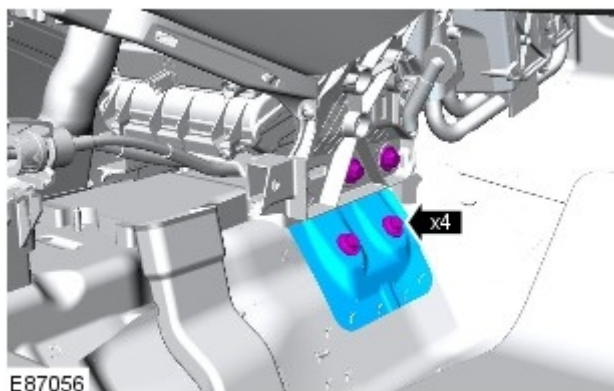


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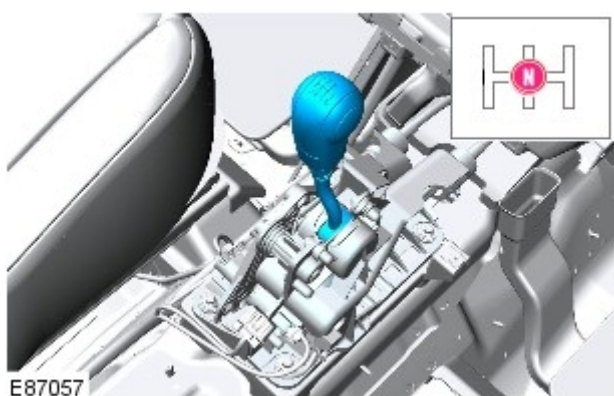


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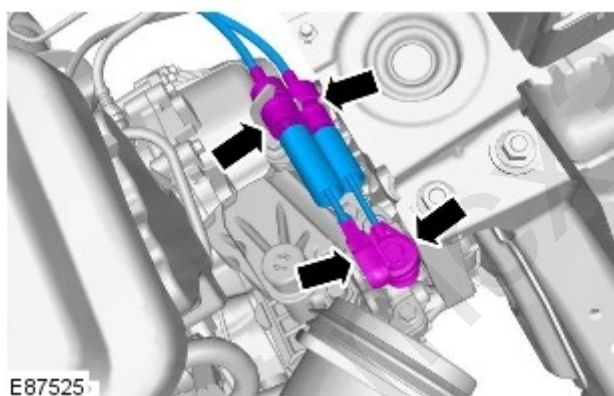
- 6.



7. Remove the RH instrument pack lower bracket.

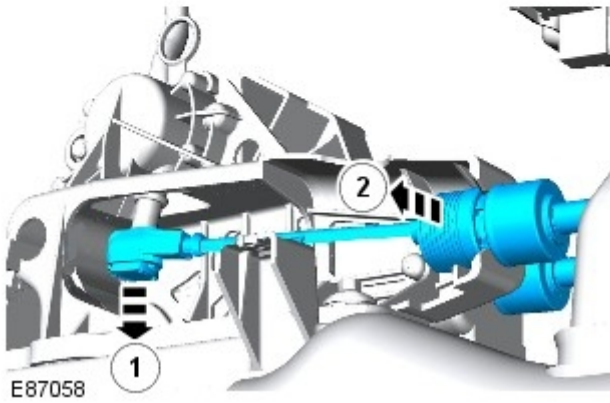
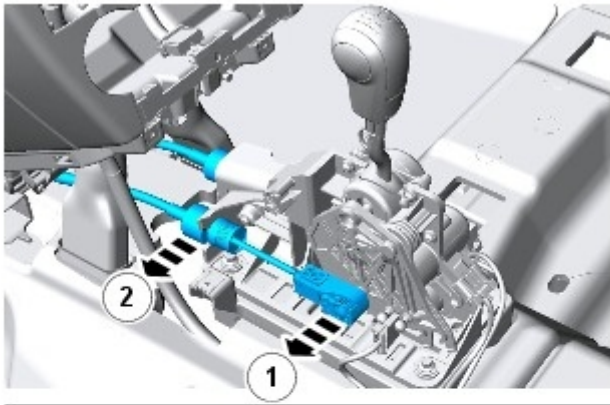


8. **8.** NOTE: Neutral must be selected before the cables are released to allow the cables to be correctly set on the install.

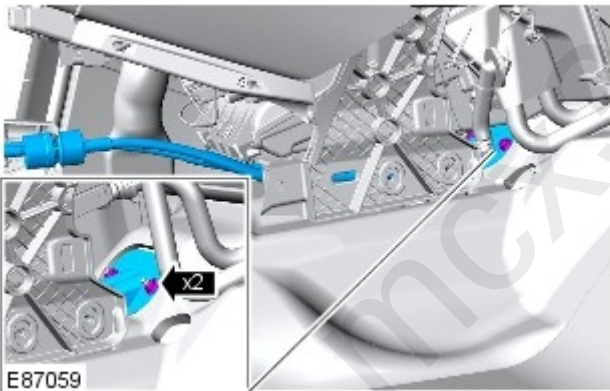


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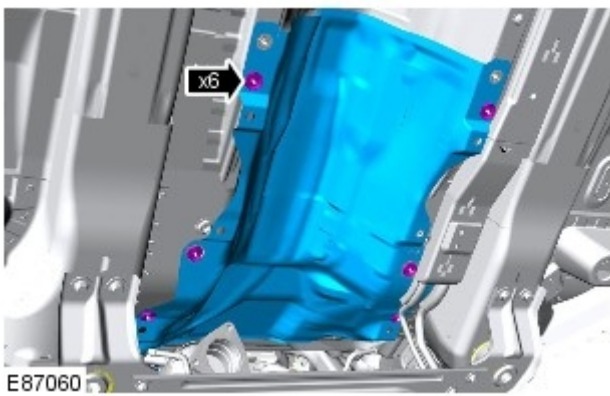
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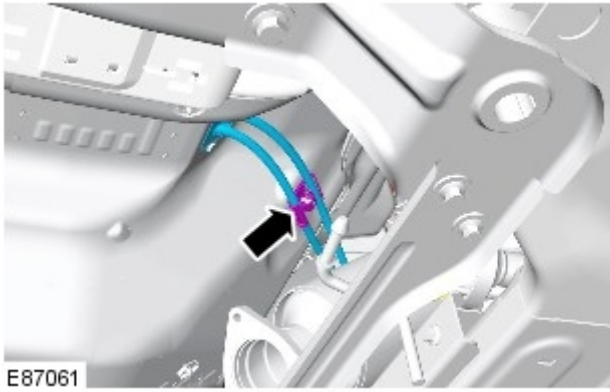


11. Release the cable sealing plate.

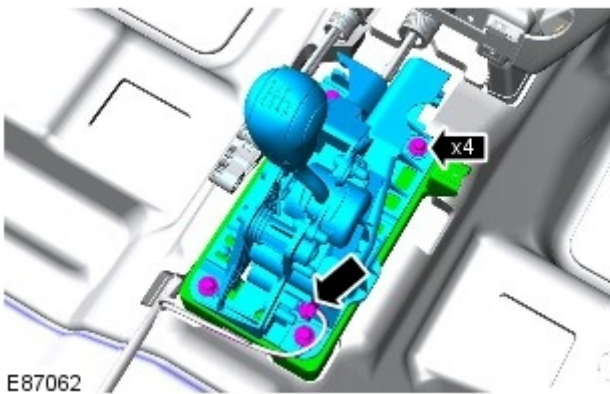


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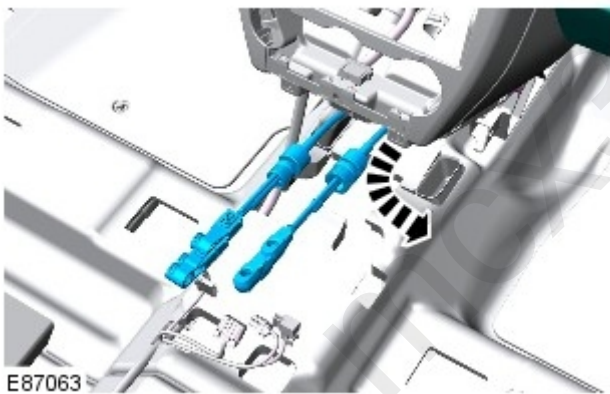




13.



14.



15. **15. NOTE:** This step requires the aid of another technician.

Remove the gearshift cable assembly.

Installation

1. **1. NOTE:** This step requires the aid of another technician.

Install the gearshift cable assembly.

2. Install the gearshift lever.

Torque: 10 Nm

3. Secure the cables in the clips.

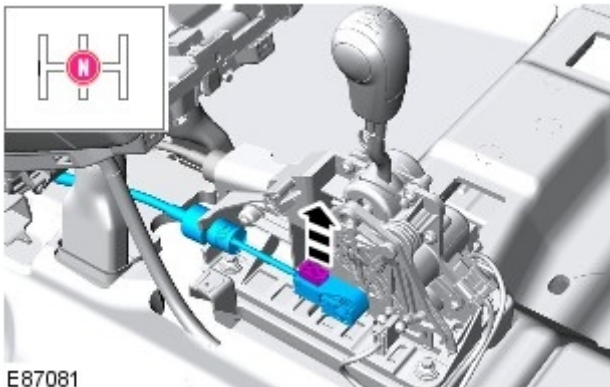
4. Install the heat shield.

5. Secure the selector cables.

6. Install the sealing plate.

Torque: 7 Nm

7. Connect the selector cable ball joints.



8.

- Release the LH cable securing clip.
- Allow the gearshift lever to come to rest in the neutral position.
- Secure the cable selector clip, without disturbing the gearshift selector lever position.

9. Install the instrument pack bracket.

Torque: 25 Nm

10. Secure the drain tube and heater duct.

11. Install the instrument panel, lower trim panels.

12. Install the air cleaner assembly.

Refer to: [Air Cleaner](#) (303-12A Intake Air Distribution and Filtering - I6 3.2L Petrol, Removal and Installation).

13. Install the floor console.

Refer to: [Floor Console](#) (501-12 Instrument Panel and Console, Removal and Installation).

14. Install the driveshaft.

Refer to: [Driveshaft - Vehicles Without: Diesel Particulate Filter \(DPF\)](#) (205-01 Driveshaft, Removal and Installation).