

Specifications

Description	Nm	lb-ft
Clutch pressure plate bolts	29	21

Clutch - Vehicles With: 6-Speed Manual Transmission (MT82)

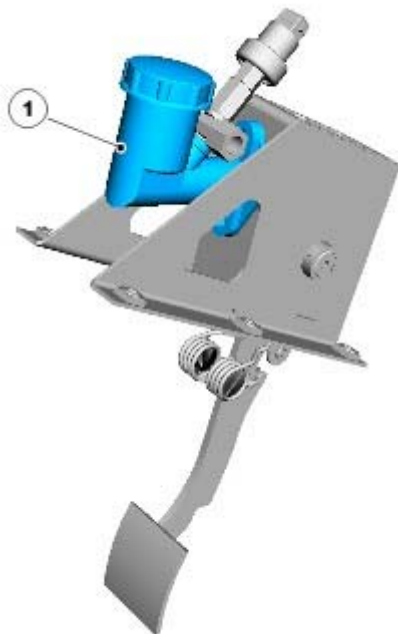
OVERVIEW

The clutch system is based on the established principle of a single driven plate and diaphragm spring clutch cover assembly hydraulically actuated from the clutch pedal. Depressing the clutch pedal transfers hydraulic fluid through the master cylinder, pipe work, and concentric slave cylinder ultimately actuating the clutch fingers to release the clutch and thus disengage drive from the crankshaft. When your foot is off the pedal, the spring pushes the pressure plate against the clutch disc, which in turn presses against the flywheel; this locks the engine to the transmission input shaft, causing them to rotate at the same speed.

The clutch system is of conventional design comprising the following major components:

- Clutch master cylinder and pressure pipes
- Concentric slave cylinder outlet assembly and peak torque limiter
- Vibration damper (Left hand drive vehicles only)
- Concentric slave cylinder
- Clutch cover assembly
- Clutch driven plate
- Flywheel

CLUTCH MASTER CYLINDER



E88782

Item	Part Number	Description
1		Clutch master cylinder

The clutch master cylinder is attached directly to the pedal box assembly, located in the driver's footwell.

The cylinder contains a piston assembly, with a push rod connected to the clutch pedal and spring. When the clutch pedal is depressed, it pushes on the piston, via a linkage. Pressure builds in the cylinder and lines as the clutch pedal is depressed further.

The cylinder has 2 hydraulic connections:

- A low pressure feed pipe (providing fluid supply from the brake fluid reservoir)
- A high pressure pipe

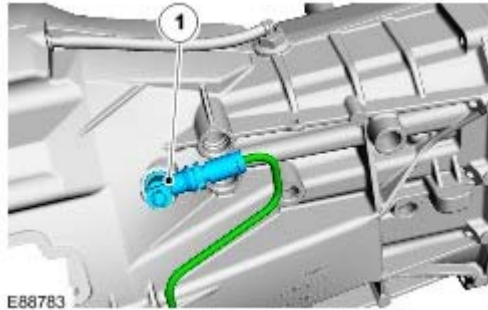
The pedal travel is constrained by an 'up-stop' contained within the master cylinder and a 'down-stop' contained

within the pedal box.

CONCENTRIC SLAVE CYLINDER OUTLET ASSEMBLY

NOTE:

Right hand drive vehicle shown.



Item	Part Number	Description
1		Slave cylinder outlet assembly and peak torque limiter

The concentric slave cylinder outlet assembly connects the external pipes with the release system contained within the clutch housing. A securing bracket locates the assembly in the correct orientation and a seal is provided between the assembly and the clutch housing.

Contained within the slave cylinder outlet assembly is a peak torque limiter. This component is designed to restrict the hydraulic fluid flow during the clutch pedal up-stroke. Under normal pedal actuation this restriction can not be detected, but in the event of an unintentional pedal release (e.g. wet shoe slipping off the clutch pedal) the peak torque limiter limits the fluid return rate and protects the transmission and driveline from excessive shock loads, which might cause damage.

On left hand drive vehicles, the hydraulic pipework contains an anti-vibration damper plugged into the peak torque limiter. This is used to reduce pedal roar/vibrations during clutch operation.

CONCENTRIC SLAVE CYLINDER

The concentric slave cylinder assembly contains the release bearing and the hydraulic slave cylinder. The assembly is attached to the front end of the transmission via 3 bolts. These bolts are asymmetrically positioned to ensure correct angular location of the slave cylinder, which is also spigot-mounted for positional fit. In its free condition the slave cylinder is fully extended, but it positions itself automatically as the clutch housing is fitted to the engine. The assembly requires no setting or adjustment.

CLUTCH COVER ASSEMBLY

The clutch cover assembly comprises a pressure plate, cover and diaphragm and is mounted on and rotates with the flywheel.

The pressure plate is machined to provide a smooth surface for the drive plate to engage on. Lugs on the outer diameter of the pressure plate connect it via leaf springs to the cover. The leaf springs have leaves, which assist in pulling the pressure plate away from the drive plate when the clutch pedal is depressed.

The cover houses all pressure plate components. Shouldered rivets support the diaphragm inside the cover. The rivets heads are chamfered to allow the diaphragm to pivot when pressure is applied to it by the release bearing. Holes in the cover locate on dowels on the flywheel and further holes provide for the attachment of the cover to the flywheel. Larger holes in the cover provide ventilation for the drive plate and pressure plate and flywheel contact surfaces.

The diaphragm comprises a cast ring with fingers. The diaphragm is attached to the cover with shouldered rivets. The inner head of each rivet is chamfered to allow the diaphragm to pivot when the clutch is depressed or released. When pressure is applied to the fingers of the diaphragm by the release bearing, the diaphragm pivots on the rivets and moves away from the pressure plate, releasing the force applied to the pressure plate and allowing the drive plate to slip between the pressure plate and the flywheel.

CLUTCH DRIVEN PLATE

The clutch driven plate is sandwiched between the flywheel and the pressure plate of the clutch cover assembly. The clutch driven plate has a splined hub, which engages with the splines on the primary shaft from the transmission. The splined hub is located in an inner plate, which contains 3 compression pre-damper springs. The inner plate is retained by the springs, which can compress in both directions to cushion engine vibration at idle speed. The inner plate is located on 4 larger compression springs, which are located in a central plate. The hub is sandwiched between the central plate and the friction damper. The friction damper comprises friction washers located between the hub and the central plate. The friction washers reduce transmission noises and vibrations due to engine cyclic excitation.

FLYWHEEL

The single mass flywheel is bolted to the flange of the engine crankshaft. A dowel ensures that the flywheel is correctly located. A ring gear is located on the outside diameter of the flywheel and is seated against a flange. The ring gear is an interference fit on the flywheel and is a serviceable item, which can be replaced if damaged or worn.

The operating face of the flywheel is machined to provide a smooth surface for the clutch driven plate to engage on.

Clutch Disc and Pressure Plate (33.10.01)


Special Service Tools



308419

Clutch alignment tool.
308-419

Removal


1.  **WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.**

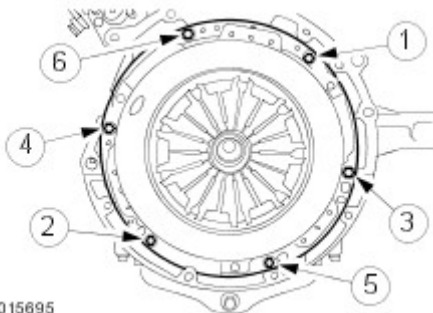
Raise and support the vehicle.

2. Disconnect the battery ground cable.
For additional information, refer to [Battery Disconnect and Connect](#)
3. Remove the transmission.
For additional information, refer to [Transmission \(37.20.02.99\)](#)

4.  **CAUTION: Loosen the clutch pressure plate bolts by 2 turns at a time in the sequence shown.**

Remove the clutch disc and the clutch pressure plate.

 Remove the 6 bolts.



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Installation

1.  **CAUTION: Apply grease of the correct specification to the pilot bearing.**

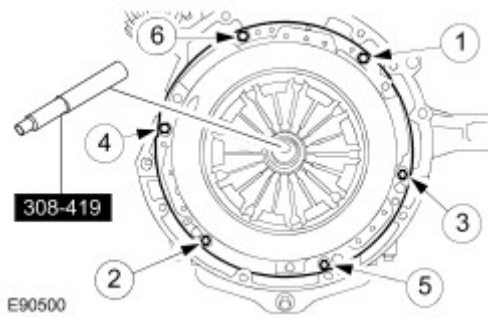
 **CAUTION: Tighten the bolts in the sequence shown.**

NOTE:

Clean the component mating faces.

Using the special tool, install the clutch disc and the clutch pressure plate.

▶ Tighten the bolts to 29 Nm (21 lb.ft).



2 . Remove the special tool.

3 . Install the transmission.

For additional information, refer to [Transmission \(37.20.02.99\)](#).

4 . Connect the battery ground cable.

For additional information, refer to [Battery Connect](#)

Pilot Bearing (12.21.45)

Special Service Tools




Bearing installer
205-081



Bearing remover
303-078

Removal

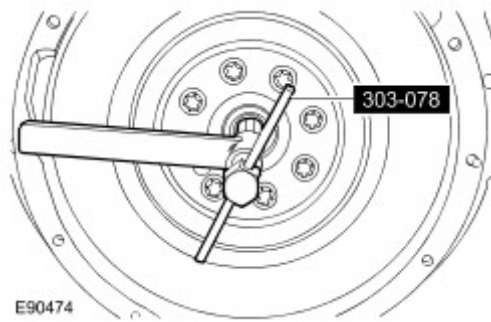
1.  **WARNING: Do not work on or under a vehicle supported only by a jack. Always support the vehicle on safety stands.**

Raise and support the vehicle.

2. Disconnect the battery ground cable.
For additional information, refer to [Battery Disconnect and Connect](#).
3. Remove the clutch disc and pressure plate.
For additional information, refer to [Clutch Disc and Pressure Plate \(33.10.01\)](#).
4. Using a suitable tool, break through the pilot bearing.

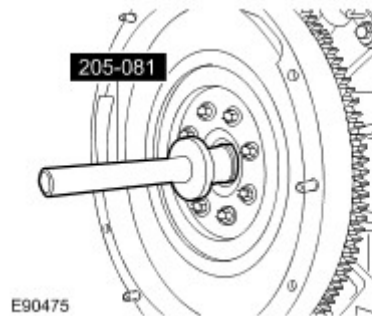


5. Using the special tool, remove the pilot bearing.



Installation

- 1 . Using the special tool, install the pilot bearing.



- 2 . Install the clutch disc and pressure plate.
For additional information, refer to [Clutch Disc and Pressure Plate \(33.10.01\)](#).
- 3 . Connect the battery ground cable.
For additional information, refer to [Battery Connect](#).