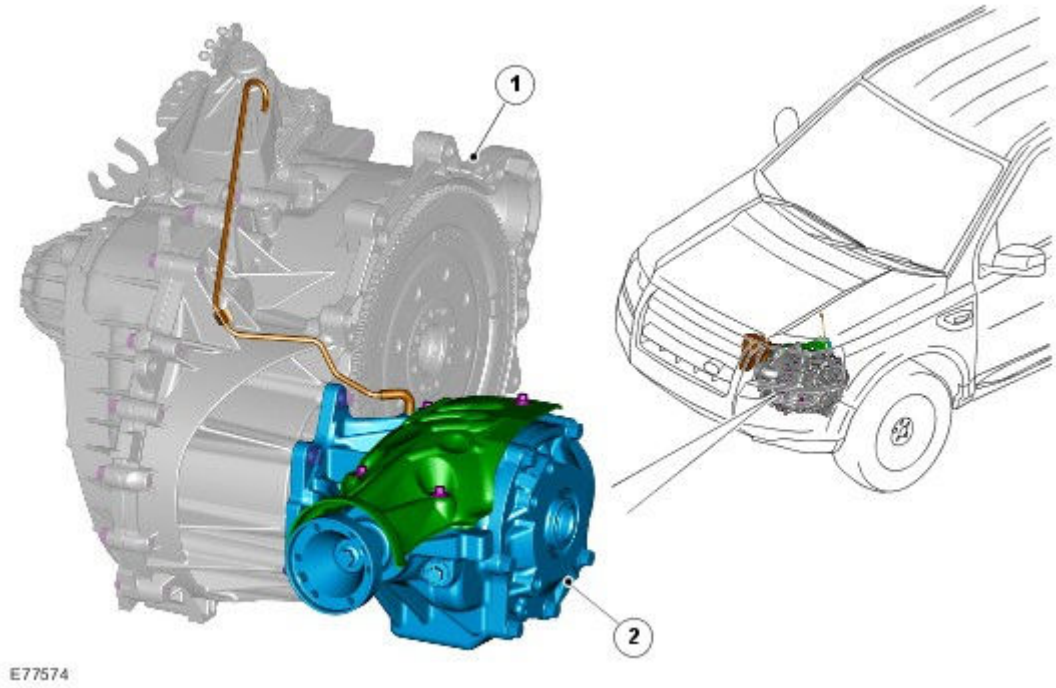
Published: Sep 12, 2006

Four-Wheel Drive Systems

COMPONENT LOCATION

NOTE:

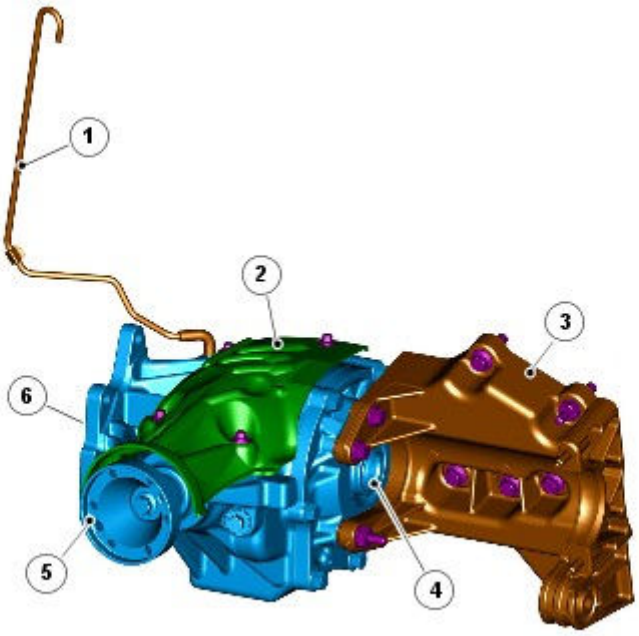
Manual transmission shown, automatic transmission similar.



Item	Part Number	Description
1		Transmission
2		Power Transfer Unit

OVERVIEW

The power transfer unit is located at the rear of the engine and is attached directly to the transmission casing and to the engine cylinder block via a bracket. The power transfer unit is a common unit between the petrol and diesel engine variants and also automatic and manual transmissions.



E77575

Item	Part Number	Description
1		Breather tube
2		Heat shield
3		Engine mounting bracket
4		Right Hand (RH) half shaft seal
5		Drive shaft mounting flange
6		Transmission differential input shaft spline

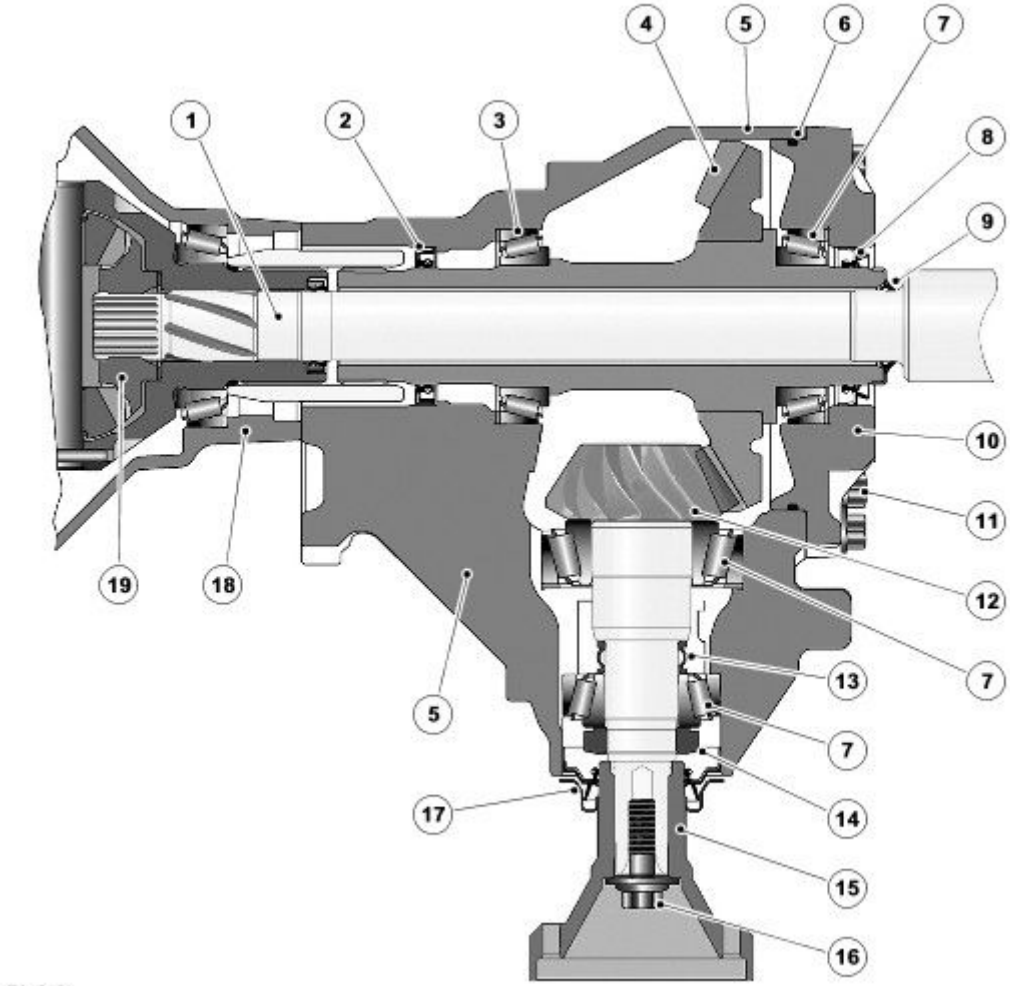
The power transfer unit is driven directly from the transmission differential via a hollow shaft through which the RH half shaft passes. (The Left Hand (LH) half shaft is driven directly from the transmission differential). Drive is taken to the drive shaft via a low-offset hypoid bevel gear, configured for minimal power loss across the speed range. The power transfer unit transfers drive from the transmission differential to the drive shaft and rear differential, no drive from the power transfer unit is passed to the to front halfshafts.

The power transfer unit has the following features:

- 1500 Nm torque capacity
- 2.58:1 output ratio to drive shaft
- Oil filled for life
- Remote breather.

The power transfer unit has an internal bearing pre-load system. This allows the output seal to be changed in service without disturbing the bearing pre-load.

POWER TRANSFER UNIT



E84242

Item	Part Number	Description
1		Right Hand (RH) half shaft
2		Oil seal
3		Taper roller bearing
4		Crown wheel drive gear
5		Casing
6		O ring seal
7		Taper roller bearings
8		Oil seal and flinger
9		Oil seal
10		Housing
11		Bolts
12		Pinion gear
13		Collapsible spacer
14		Pre-load nut
15		Drive flange
16		Flange head bolt
17		Oil seal and flinger
18		Transmission casing
19		Transmission differential

The power transfer unit comprises a crown wheel drive gear and a pinion gear drive shaft which are housed in a

casing.

The crown wheel drive gear is mounted longitudinally across the unit. The Left Hand (LH) end of the gear has splines which mate with corresponding splines in the transmission differential output sleeve. The drive gear is hollow which allows for the fitment of the Right Hand (RH) half shaft. The half shaft is located through the hollow drive gear and mates with splines in the transmission differential. The half shaft is driven by the transmission differential and receives no drive from the power transfer unit.

The crown wheel is supported in the casing on opposing taper roller bearings which are pressed into the casing and the housing. The drive gear is retained in the casing by a housing which is bolted to the casing and sealed with an O ring seal. The housing is fitted with a triple edge oil seal and flinger on the outer end of the housing which direct dirt and moisture away from the area of the drive gear. Another seal is fitted which prevents the ingress of dirt and moisture between the drive gear and the RH half shaft.

The pinion gear is located in the housing at 90 degrees to the crown wheel drive gear. The pinion gear is supported in the casing on opposing taper roller bearings. The pinion gear is retained in the housing with a pre-load nut. The outer end of the pinion gear is splined and mates with the drive shaft output flange. The flange is secured with a flanged bolt which is screwed into the pinion gear.

A collapsible spacer is located between the outer taper roller bearing and a shoulder on the pinion gear. The collapsible spacer holds the bearing in alignment and also collapses under pressure applied to the pre-load nut. This allows the pre-load nut to be tightened to a predetermined torque, which collapses the spacer, setting the correct bearing pre-load and the correct meshing of the pinion gear and crown wheel drive gear teeth.

Drive from the transmission differential drives the crown wheel drive gear, which in turn rotates the pinion gear. Drive is passed from the pinion gear to the drive shaft and the rear differential via the drive flange attached to the pinion gear shaft.