VOLVO

FACT SHEET

GEARBOX

PT2606 Powertronic 6-speed powershift gearbox

PT2606 is a 6-speed fully automatic powershift transmission with torque converter and the possibility for manual gear changes. PT2606 is dimensioned for engine torque of 2600 Nm.

Powertronic PT2606 is specially developed for heavy transport operations. It offers smooth, gentle gear changes without any interruption in the power delivery and permits safe starts even in difficult conditions. This makes it ideal for demanding construction applications and urban transportation duties characterised by frequent stop-start driving.

PT2606 has well-adapted gear change strategies. The gearbox has long oil and filter change intervals, every 200,000 km or every two years.

PT2606 consists of a hydraulic torque converter with lockup, a number of planetary gears with multiple disc brakes and clutches that lock to the various parts of the planetary gear. The gear changing functions are completely electronically controlled and monitored via control units for the gear selector and the gearbox, integrated in the truck's electronic system.

The torque converter is robustly designed to match the engine's torque, offering excellent pulling power and hill-climbing ability. The torque converter steps up the engine's torque and in this way provides excellent starting traction. It also absorbs all snatch in the driveline when starting off from a standstill.

The torque converter is equipped with an automatic lockup that locks the impeller and turbine wheels to each other. This lockup is activated on all gears and offers a high efficiency rating, low fuel consumption and low running costs.

DRIVER APPEAL

- The driver can adapt the driving program to the prevailing road conditions.

PRODUCTIVITY

- Smooth gear changes without interruption in the power delivery, both in fully automatic and manual modes.
- Good starting traction even in difficult operating conditions.
- Automatic lockup in all gears.
- Electronic control allows advanced diagnostics and fault tracing.
- Long oil and filter change intervals allow an increased access.
- Engine-driven power take-off as an option.
- Integrated retarder as an option.
- Integrated oil cooler as standard.

SPECIFICATION

Type designation	PT2606
Weight without oil	505 kg
Type	Automatic planetary gearbox
Max. torque	2600 Nm
Number of forward gears	6
Reverse gears	2
Max. ratio in the torque amplifier	2.07
Oil change quantity with oil cooler	Approx. 32 l
Gear selector positions	
R	Reverse
N	Neutral
A	Automatic
M	Manual
Driving programs	
E	Economy program
P	Performance program (full power)

PC24

FACT SHEET

GEARBOX

PT2606 Powertronic 6-speed powershift gearbox

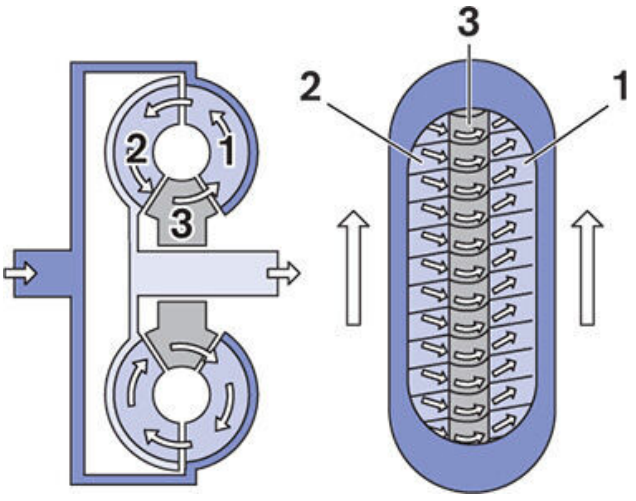
Lockup improves efficiency rating

Power from the engine is transmitted to the automatic gearbox via the torque converter. In the torque converter, the engine torque increases steplessly by the impeller (1) which presses oil onto a turbine wheel (2). When the oil flow reaches the turbine wheel, the wheel starts spinning and transmits power to the gearbox.

The intermediate wheel is carried in bearings on a freewheel (3) between the turbine wheel and the impeller. The wheel is locked to the gearbox housing in the opposed engine rotation direction, while in the engine rotation direction it rotates with the other wheels.

The intermediate wheel directs the flow of oil from the turbine wheel back into the impeller at the optimum angle for the impeller. The greater the speed difference between the impeller and turbine wheel, the greater the torque amplification and the counter-force on the intermediate wheel.

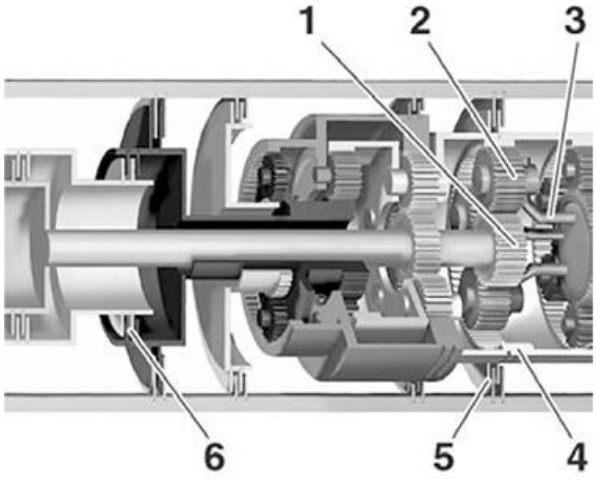
When the vehicle's speed increases, the impeller and turbine wheel rotate almost at the same speed and the intermediate wheel rotates along with them. No torque amplification occurs at this point. To avoid power losses, the impeller and turbine wheel are now locked to each other via a direct lock-up clutch. This ensures a high efficiency rating and low fuel consumption.



Torque amplifier with impeller (1), turbine wheel (2) and intermediate wheel (3).

Compact planetary gear system

Power from the torque amplifier is transmitted to the gearbox's planetary gear system. It consists of five planetary gears and a number of hydraulically controlled disc clutches and brakes. The planetary gear consists of a sun wheel (1), planetary gear (2), planetary gear carrier (3) and a ring gear (4). The oil cooled brakes (5) and disc clutches (6) control the planetary gears' function. Different gear ratios are obtained by locking certain parts of the planetary gear and allowing other parts to rotate.



Planetary gear with sun wheel (1), planetary gear (2), planetary gear carrier (3), ring gear (4), brake (5) and disc clutch (6).

Driving program for optimum efficiency

In automatic mode, the driver can choose between different driving programs depending on the current conditions. Economy mode provides a good fuel economy. In this mode, gear changes take place at the most economical revs.

The Performance mode is for extra engine power. In this mode, gear changes take place at higher engine revs. There is also the option of manual gear changing.

In manual mode, the driver changes gears with a rocker switch on the gear lever.

PC24

FACT SHEET

GEARBOX

PT2606 Powertronic 6-speed powershift gearbox

Ready-prepared for power take-off

The gearbox is available with an optional power take-off designed for propeller shaft operation or direct-fitted hydraulic pumps.

The power take-offs are powered directly from the engine via the torque amplifier, and can be engaged and disengaged using the hydraulically controlled disc clutch during driving.

The position of the power take-off makes it possible to have an engine mounted power take-off installation.

Oil cooler

The transmission is as standard equipped with a two-circuit high-performance oil cooler (TC-HWO) for retarder, converter and lubrication.

The oil cooler ensures good performance also in applications that impose high demands on transmission cooling, for instance heavy transportation.

TC-HWO is based on watercooling of the transmission oil, one circuit for retarder/converter and one additional circuit for lubrication oil. The heat exchanger is attached to the transmission and connected to the engine's own cooling system.