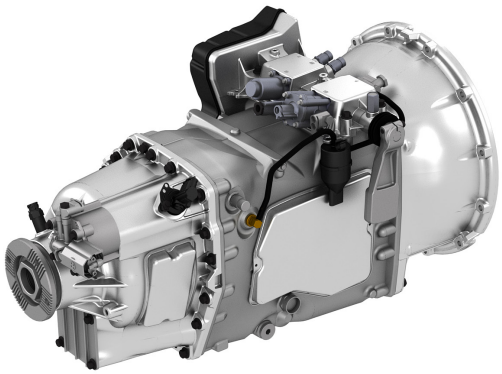
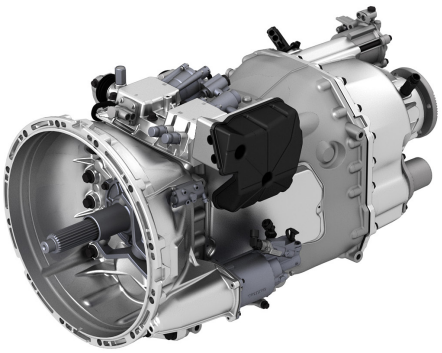
Volvo Trucks. Driving Progress

FACT SHEET

Gearbox VT2514B





Euro 6

The VT2514B is a 14-speed range/splitter gearbox designed for an engine torque of 2500 Nm.

The gearbox has a wide range of gear ratios, and close, well-balanced shift increments. This provides very high starting traction while also offering the capacity for high average speeds. The highest gear is a direct gear where power passes through the gearbox with minimal loses. The VT2514B is intended for transport operations involving gross combination weights up to 100 tonnes.

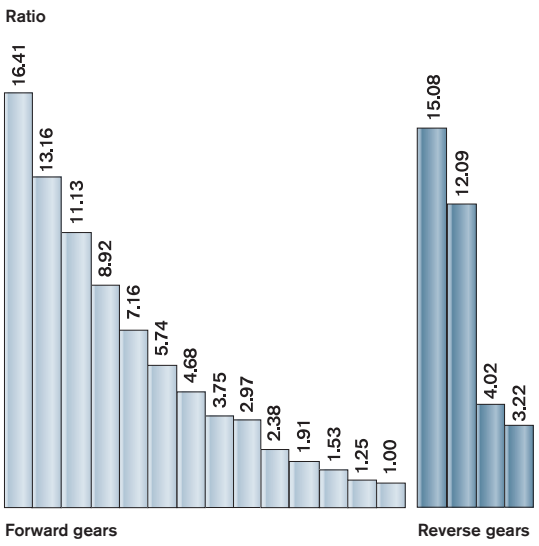
The gearbox is divided into a forward basic unit and a rear range housing. The basic unit is made of cast iron and contains three basic gears, an integrated splitter gear, and crawler and reverse gears. The range housing, which contains a planet range gear, is available in two versions; nodular iron or aluminium, depending on the type of transport for which it will be used. The clutch casing is made of aluminium, and combined with an aluminium range housing results in a gearbox with low weight.

The VT2514B is fitted with a new cable link gear-changing mechanism, resulting in a vibration-free gear lever and distinct gear positions. The gearbox is also fitted with patented synchronisation, which contributes to low gear-changing forces and a high level of driver comfort.

The VT2514B has extended oil change intervals for lower operating costs, and reduced environmental impact. When special oil is used, the maximum oil and filter change interval is 450 000 km (400 000 km/Euro 3, Euro 4, Euro 5) or every third year.

FEATURES AND BENEFITS

- Planet range gear with a range lock that prevents incorrect down-changes.
- Cable link gear-changing mechanism for a vibration-free gear lever and distinct gear positions. Combined with servo synchronisation, this provides easy operation.
- Prepared for a compact retarder, power take-off, emergency steering servo pump, oil cooler, and oil temperature measurement.



FACT SHEET

Gearbox VT2514B

Robustly dimensioned components

All shafts, bearings and gears are robustly dimensioned for high reliability and long service life. All the gears are made of special steel that has been case-hardened to give high strength. The gears in the basic unit are bevel gears, which means that several gears can be in mesh with each other at the same time. This results in quiet operation and high reliability.

The gears on the input, main and reversing shafts are journalled with double needle bearings, with bearing holders in steel, which give low friction.

All the shafts and planetary gears in the range-change gearbox are journalled in roller bearings, with the exception of the low-loaded output shaft which is journalled in a ball bearing.

Shift by cable and servo function provide high driver comfort

The VT2514B is equipped with a newly developed shift by cable which results in short, distinct gear lever movements. The gear lever is comple-tely free of vibration, which contri-butes to com-fortable operation and a lower noise level in the cab. The gearbox also has patented synchro-nisation which, with the assistance of a mechanical servo function, provides extra power at the moment of synchronisation. The torque that arises when the synchronisation starts to slow down the rotation is converted to an axial force which gives the driver servo assistance. This design solution contributes to low gear-shifting forces and increased driver comfort.

SPECIFICATION

Designation	VT2514B
Max. torque	2500 Nm
Weight without oil	334 kg*
Type	Synchronised range/splitter gearbox
No. of forward gears	12
crawler gears	2
reverse gears	4
Oil change capacity	approx. 13.5 l
incl. normal capacity oil cooler	approx. 13.6 l
incl. high capacity oil cooler	approx. 14.3 l

* With aluminium range housing. Range housing in nodular iron adds approx. 20 kg

Integrated split gear gives low fuel consumption

The split gear, which is a compact and sturdily supported unit, is fitted on the input shaft in the forward part of the basic unit. The split gear is operated by compressed air, and the split cylinder is integrated into the clutch casing. The high and low positions of the split gear are preselected with a button on the gear lever knob. Shifting takes place as soon as the clutch pedal is depressed.

In the low-split position, a downshift takes place which halves the shifting step between two basic gears. Thanks to the low-split function, the correct gear can be selected in relation to the engine's economy speed, which results in lower fuel consumption.

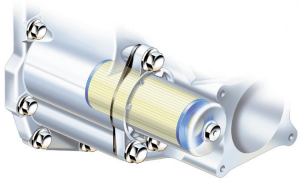
The high split together with 6th gear provides a direct gear where the power passes straight through the gearbox with a minimum of friction losses.

Long service life with efficient pressurised oil system

The oil pump in the gearbox is of the rotor type and is fitted on the rear end wall of the basic unit. It is driven by a gear via the countershaft. From the oil pump, the oil is forced through an integrated, metal-free insert filter of the full-flow type at a readily accessible place on the rear end wall of the range housing. The oil then continues out to all the bearings, apart from the rear bearing of the countershaft, which is lubricated by partial immersion in oil.

When the oil is cold, the surplus oil is directly returned to the suction side of the oil pump by means of an overflow valve. The oil is consequently heated more quickly and can reach the lubricating points faster.

The oil level can be checked easily through an inspection window on the right-hand side of the gearbox.



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