

Document Title: Drivetrain, description	Function Group: 400	Information Type: Service Information	Date: 2014/6/23
Profile: ART, A40E [GB]			

Drivetrain, description

The flywheel housing and power take-off for driving the hydraulic pumps are built as a single unit. Lubrication takes place via the engine lubrication system and oil is returned to the engine by way of a built-in oil pump. A flex plate located in the flywheel housing drives the torque converter in the transmission.

The transmission is of the planetary type and fully automatic with nine forward gears and three reverse gears. There is Lock-up on all gears, except for the reverse gears. The automatic gearshifting is controlled by an electronic control unit (T-ECU) which, through the gearshifting control system, selects the correct gear in relation to travel speed.

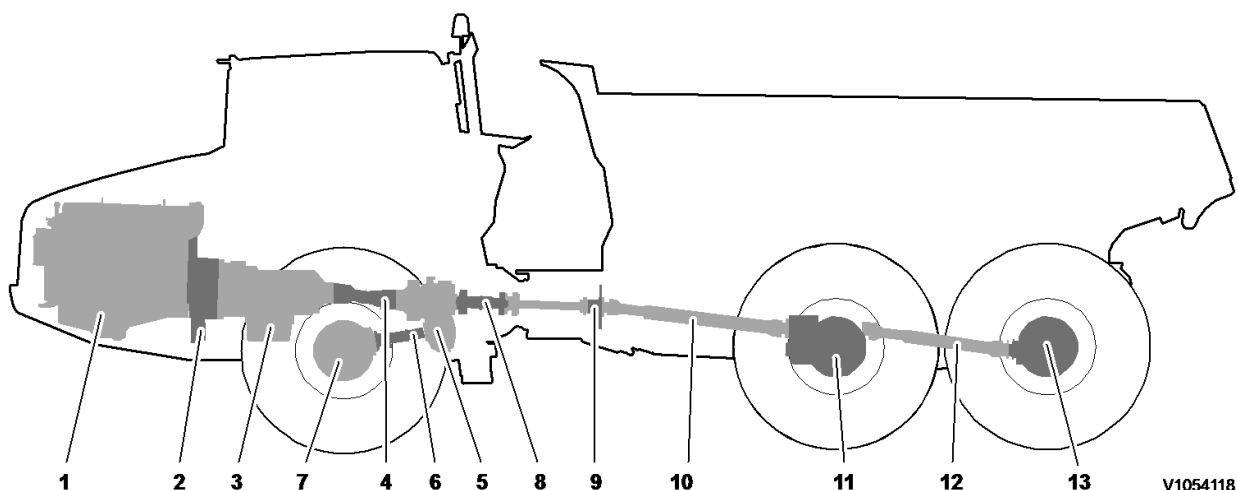
The dropbox has a differential with locking function.

The ground dependent hydraulic pump for the secondary steering system is also located on the dropbox.

The dropbox is driven by the transmission via a propeller shaft and in turn drives the front and rear drive axles via propeller shafts.

The drive axles have differentials with differential locks and are equipped with the planetary gears in the hubs, so-called hub reductions.

Six-wheel drive can be engaged and disengaged on the move and is operated together with the longitudinal differential lock.



V1054118

Figure 1
Power transmission

1. Engine (see [200 Engine, general specifications](#))
2. Flywheel housing (rear engine transmission) and power take-off
3. Transmission (see [420 Hydraulic transmission, specifications](#))
4. Propeller shaft
5. Dropbox (see [430 Dropbox, specifications](#))
6. Propeller shaft
7. Front axle (see [460 Axles, specifications](#))
8. Propeller shaft (steering joint)
9. Propeller shaft (frame joint)
10. Propeller shaft
11. Front bogie axle (see [460 Axles, specifications](#))
12. Propeller shaft
13. Rear bogie axle (see [460 Axles, specifications](#))

Document Title: Transmission, cut-away drawing	Function Group: 420	Information Type: Service Information	Date: 2014/6/23
Profile: ART, A40E [GB]			

Transmission, cut-away drawing

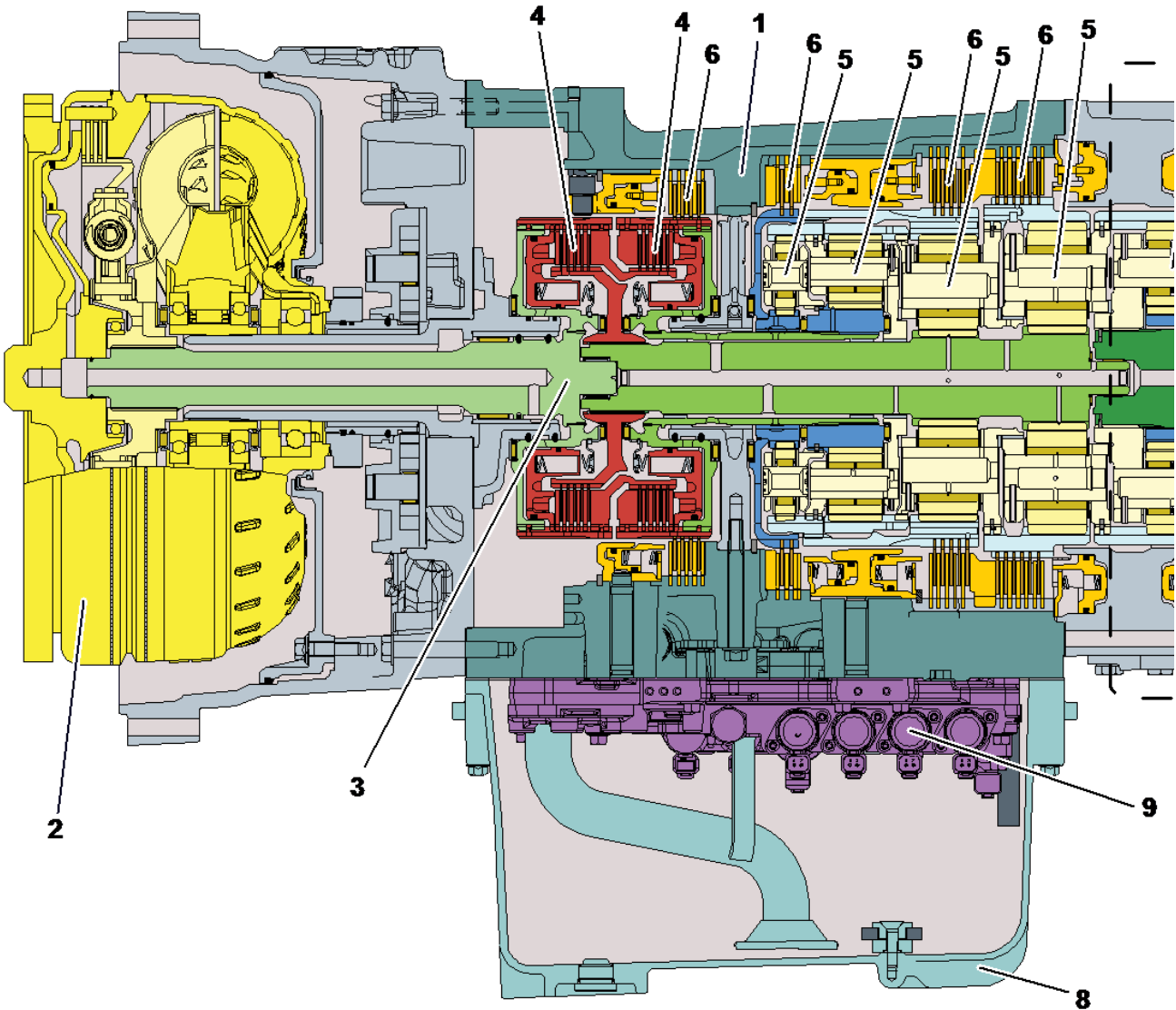


Figure 1
Transmission PT2509

- 1. Transmission housing
- 2. Torque converter
- 3. Shaft
- 4. Directional clutch
- 5. Planetary stages
- 6. Brake
- 7. Range gearbox
- 8. Oil sump

9. Control system

Document Title: Description	Function Group: 420	Information Type: Service Information	Date: 2014/6/23
Profile: ART, A40E [GB]			

Description

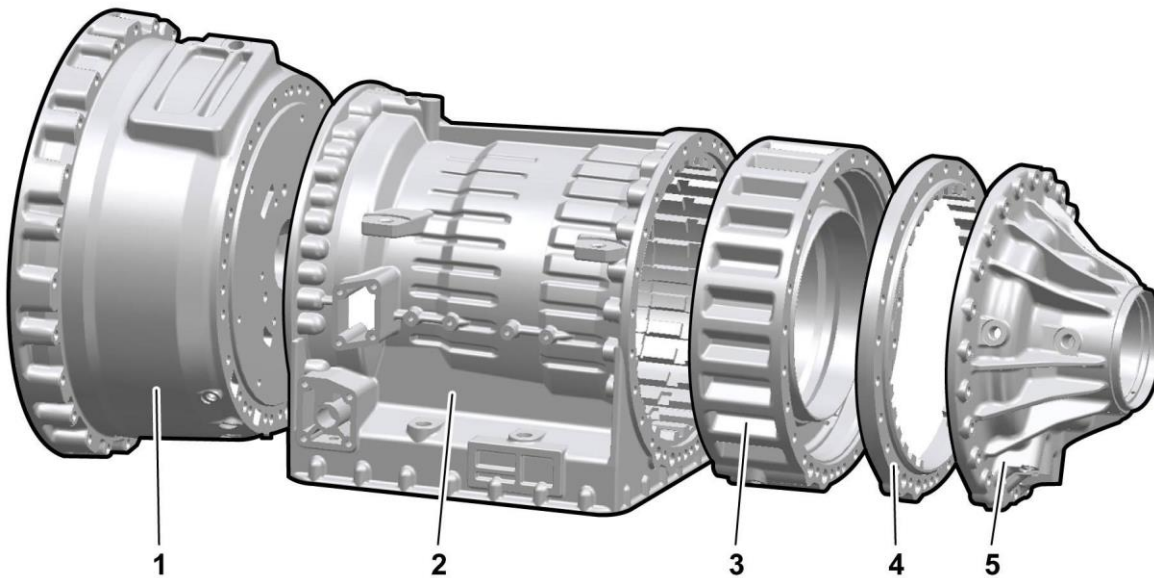
Planetary gearbox, description

The transmission is automatic, a so-called planetary gearbox, with forward nine gears and three reverse gears. The basis is a six-speed gearbox (base gearbox) which is built up with an additional gearbox (range gearbox) to provide the option for more gears.

The transmission consists of a housing, torque converter, shaft, disc type directional clutches, planetary stages with disc brakes, disc clutch for high and low gear, oil sump and control system.

Housing

The transmission housing consists of torque converter housing, gearbox housing, housing, ring and cover. All parts are cast in aluminium and machined, internally, in the contact surfaces, screw holes and for the oil channels. Flanges are cast in the parts for the cooling of the housing.



V1052266

Figure 1
Transmission housing

1. Torque converter housing
2. Transmission housing
3. Housing
4. Ring
5. Cover

Torque converter

The torque converter consists of a pump rotor, a turbine rotor which is connected together with a turbine shaft, a stator which is equipped with a freewheel and a vibration damper. The space between the pump rotor and the turbine rotor is filled with oil. The pump rotor is secured in the engine's flywheel.

In order to prevent losses in the torque converter, e.g. when driving at a constant speed, the pump rotor and the turbine rotor are locked together with a direct clutch disc called Lock-up.

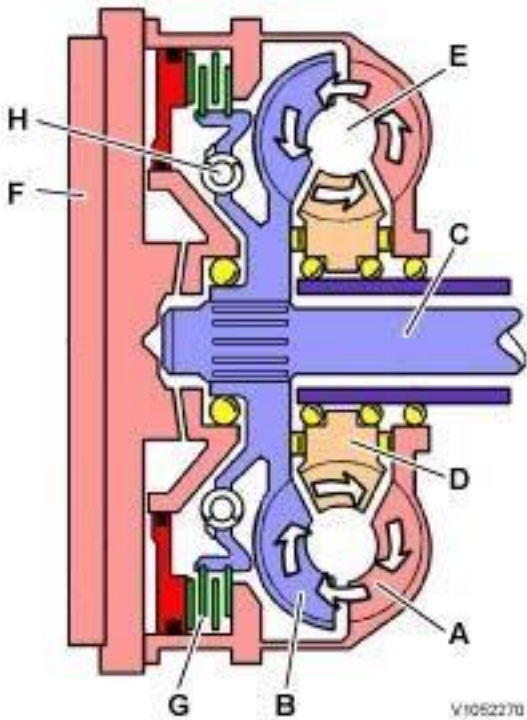
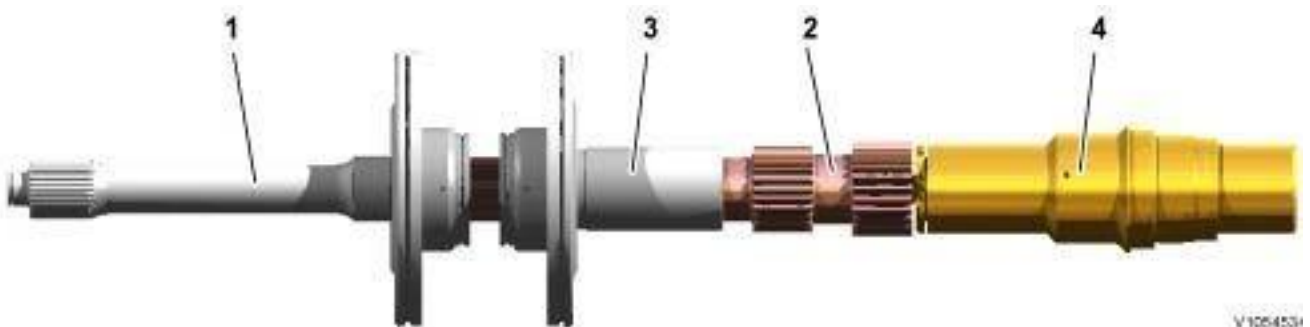


Figure 2
Torque converter

- A. Pump rotor
- B. Turbine rotor
- C. Turbine shaft
- D. Stator
- E. Space
- F. Engine flywheel
- G. Lock-up clutch
- H. Vibration damper

Shaft

The transmission shaft consists of four sections: turbine shaft, main shaft, pipe shaft and output shaft, or range shaft. The turbine shaft, which is the input shaft, is driven via the torque converter by the engine. The turbine shaft is fitted together with the cover to the clutch drum for disc clutch K1 (disc clutch for forward gears, F1–F7). The main shaft is connected with disc clutch K1 via a splined joint. The main shaft is connected with planetary stages 3 and 4 via gear pinions. The pipe shaft is fitted together with the cover for the clutch drum for disc clutch K2 (disc clutch for reverse gears R1–R3 and forward gears F7–F9). The pipe shaft is connected with planetary stage 2 via splined joints. Output shaft, range shaft, connected with planetary stage 5. It can rotate freely in relation to the main shaft thanks to needle bearing and bushing between both these shafts. Oil channels are drilled in the shaft which ensure the lubrication of the shaft's bearing. There is a drive flange on the output shaft and this transfers the power to the vehicle's axles and onward to the wheels via the vehicle's propeller shafts.



Hello

**Thank you very much
for reading.**

PLEASE CLICK HERE.

**Then back to the
site.**