Document Title: **Drivetrain, description**	Function Group: **400**	Information Type: **Service Information**	Date: **2014/7/25**
Profile: **ART, A35F (37142) [GB]**			

Drivetrain, description

The flywheel housing, located between the engine and transmission, houses the power take-off for driving the hydraulic pumps, these are built as a unit (PTO). Lubrication of the power take-off takes place via the engine's lubrication system and return of the oil to the the engine takes place using a built-in oil pump.
A flex plate located in the flywheel housing drives the torque converter in the transmission.
For more information on the transmission, see 200 Engine, description and 200 Engine, general specifications.

The transmission is of planetary type and fully automatic with nine forward gears and three reverse gears, with lock-up in all gears. Automatic shifting is controlled by an electronic control unit (V-ECU) which, via the transmission's control system, always selects the correct gear in relation to the machine's speed and torque use.
For more information on the transmission, see 420 Transmission, description and 420 Hydraulic transmission, specifications.

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 transmission drives the dropbox via a propeller shaft and, in turn, the dropbox drives the front and rear drive axles via a number of propeller shafts.
For more information on the transmission and propeller shafts, see 430 Transfer gearbox, description, 430 Dropbox, specifications and 450 Propeller shaft, description.

The drive axles have differentials with differential locks and are equipped with the planetary gears in the hubs, so-called hub reductions.
For more information on the transmission, see 460 Axles, specifications.

ATC, Automatic Traction Control, automatically controls engagement and disengagement of the longitudinal differential lock and 6–wheel drive as needed.

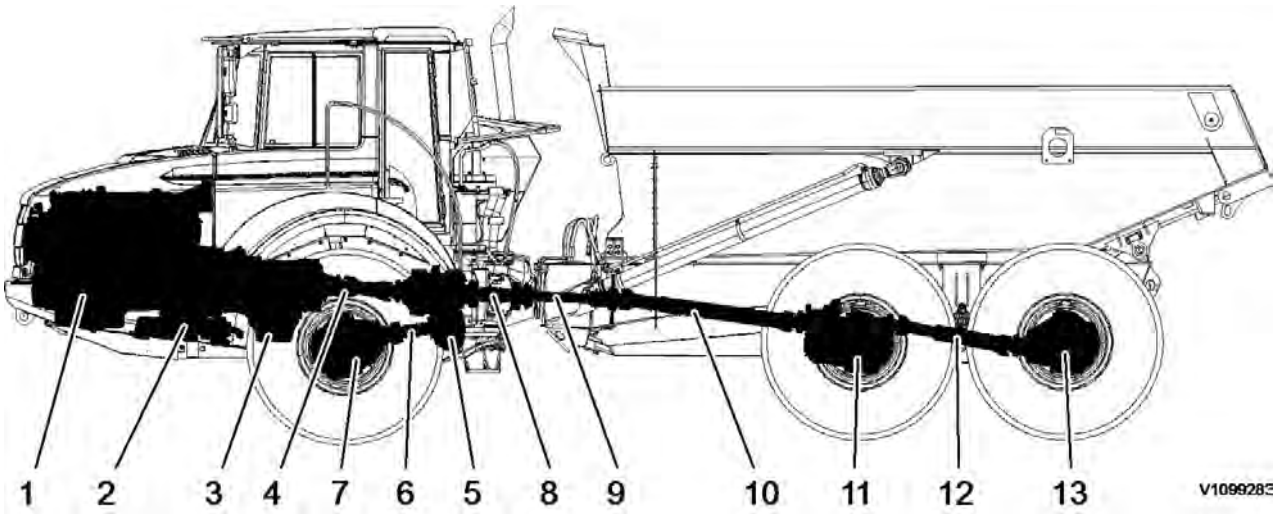


Figure 1
Power transmission

1. Engine
2. Power take-offs for hydraulic pumps
3. Gearbox
4. Propeller shaft, transmission–dropbox
5. Dropbox
6. Propeller shaft, dropbox–front axle
7. Front drive axle

8. Propeller shaft, steering joint
9. Intermediate shaft, hitch
10. Propeller shaft, intermediate shaft–front bogie axle
11. Front bogie axle with power divider 6x6
12. Propeller shaft, front bogie axle–rear bogie axle
13. Rear bogie axle

Document Title: **VCADS Pro, Operations**	Function Group: **400**	Information Type: **Service Information**	Date: **2014/7/25**
Profile: **ART, A35F (37142) [GB]**			

VCADS Pro, Operations

The following VCADS Pro operations are available for function group 4. Operations used when changing or working on components are mandatory.

NOTE!
Operations used when changing or repairing components are mandatory.

NOTE!
New operations are developed regularly. For a current list of all tests, see VCADS Pro software.

Tests

Operation	Application
40006-2 Parameter values gearbox, check	The test is used to read out parameter values for the transmission's calibration status.
40012-3 Gear selector position sensor, test	The test is used to check that the selected gear position is correctly read in the control unit.
40026-3 PWM-valves clutches and brakes, test	The test is used to check the PWM valves in the transmission control system.
42002-3 PWM valve main oil pressure gearbox, test	The test is used to check the PWM valve that regulates main oil pressure to the transmission.
46075-3 Sensors ATC, check	The test is used to check function of the sensors for the ATC-system.

Calibration

Operation	Application
40104-3 Gearbox, calibration	The test is used when changing transmission or component in the transmission.
42001-3 Lock-up, calibration	The test is used to calibrate Lock-up pressure in the transmission.
42004-3 Gearbox, return to uncalibrated position	The test is used for basic setting of the calibration parameters for the transmission. Should be done after changing transmission, before starting to operate to warm up temperature before calibrating.

Document Title: **PT Transmission**	Function Group: **420**	Information Type: **Service Information**	Date: **2014/7/25**
Profile: **ART, A35F (37142) [GB]**			

PT Transmission

Cross section (PT2519)

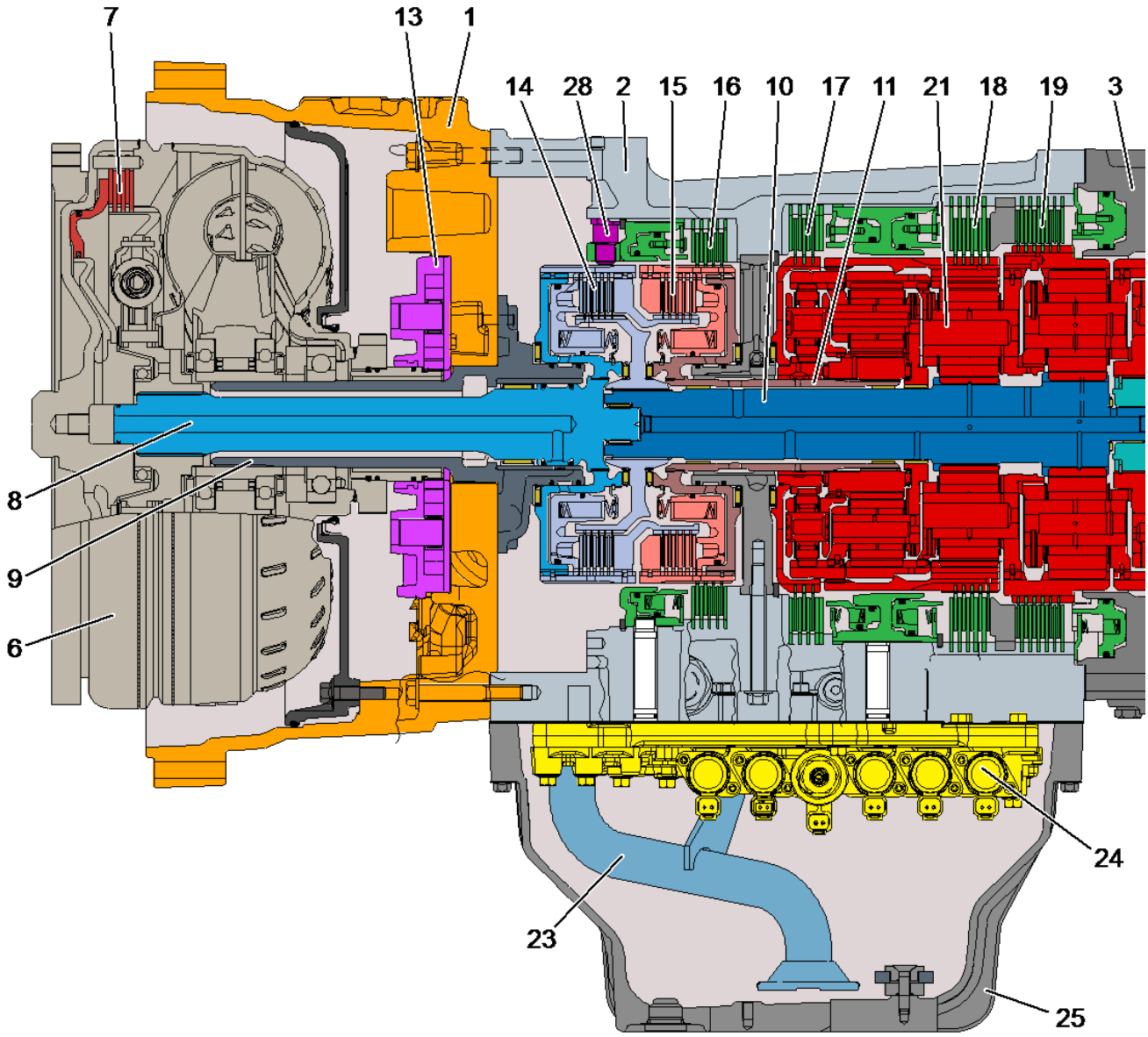
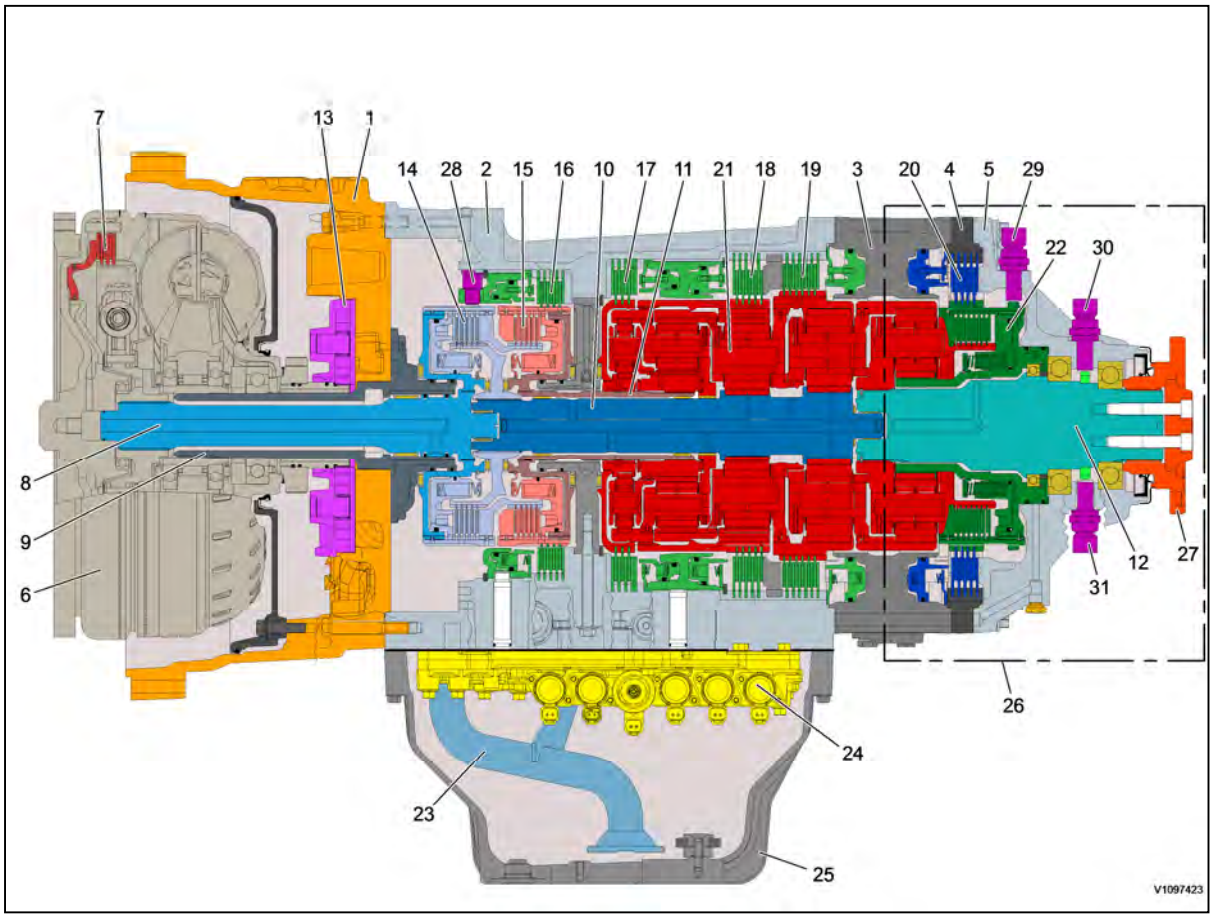


Figure 1
Transmission PT2519

1. Torque converter housing
2. Gearbox housing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3. Housing
4. Ring
5. Cover
6. Torque converter
7. Lock-up clutch
8. Turbine shaft
9. Stator shaft
10. Main shaft
11. Tubular shaft
12. Output shaft / range shaft
13. Oil pump
14. Directional clutch K1
15. Directional clutch K2
16. Brake B1
17. Brake B2
18. Brake B3
19. Brake B4
20. Brake B5
21. Planetary stages
22. Clutch K3
23. Suction strainer
24. Control system
25. Oil sump
26. Range gearbox
27. Drive flange
28. Turbine speed sensor (SE4213)
29. Range speed sensor (SE4215)
30. Sensor, output speed (SE4307)
31. Sensor, rotation direction output shaft (SE4209)

Side views (PT2519)

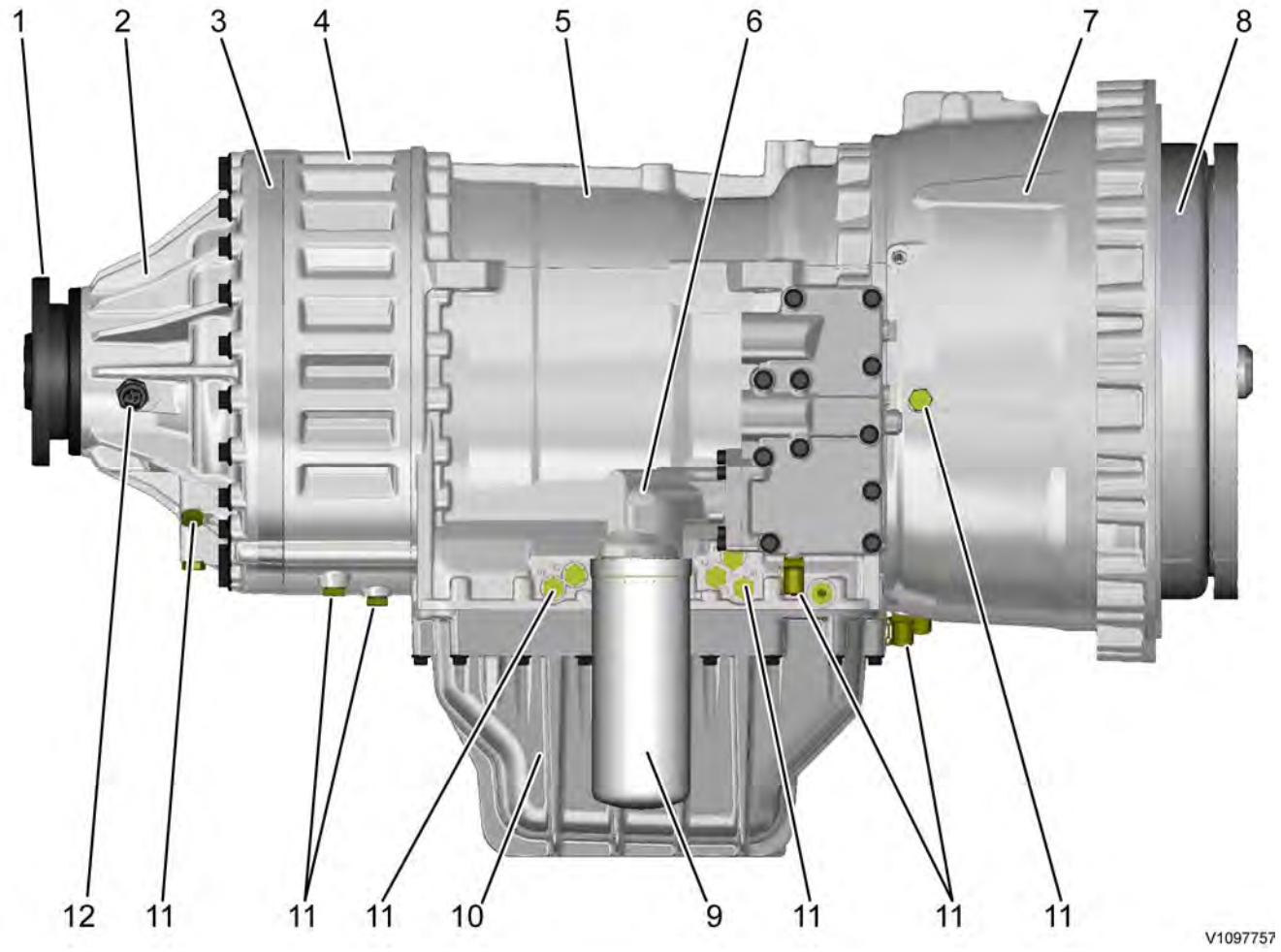


Figure 2
Right side

1. Drive flange
2. Cover
3. Ring
4. Housing
5. Gearbox housing
6. Filter bracket
7. Torque converter housing
8. Torque converter
9. Lubricating oil filter
10. Oil sump
11. Pressure check connection
12. Sensor, rotation direction output shaft (SE4209)

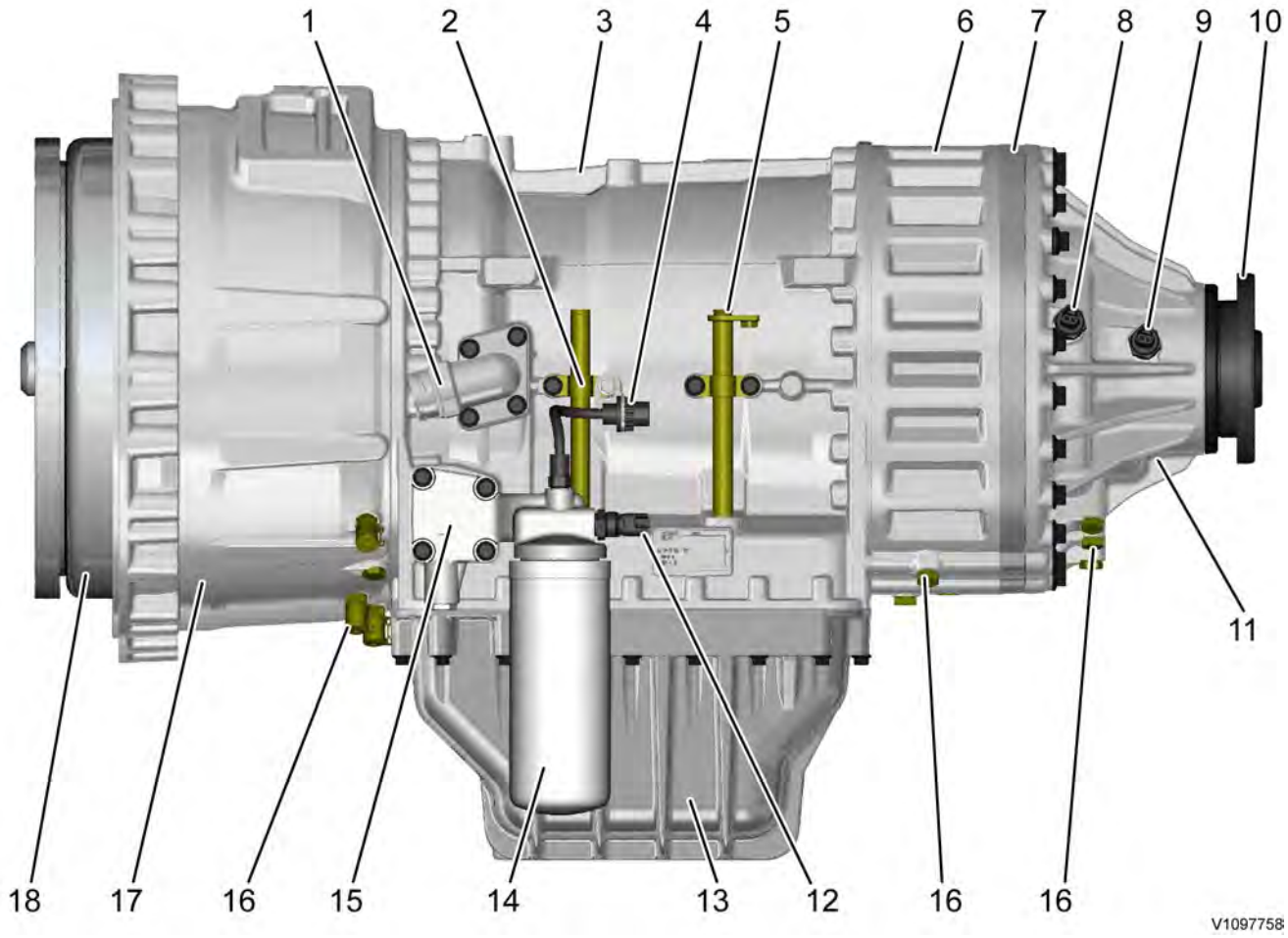


Figure 3
Left side

1. EH-connector
2. Pipe for oil filling point
3. Gearbox housing
4. Pressure monitor, main oil filter (SE4218)
5. Tube for oil dipstick
6. Housing
7. Ring
8. Range speed sensor (SE4215)
9. Sensor, output speed (SE4307)
10. Drive flange
11. Cover
12. Main oil pressure sensor (SE4219)
13. Oil sump
14. Main oil pressure filter
15. Filter bracket
16. Pressure check connection
17. Torque converter housing
18. Torque converter

VOLVO
Construction Equipment

Service Information

Document Title:	Function Group:	Information Type:	Date:
Transmission, description	**420**	**Service Information**	**2014/7/25**
Profile: **ART, A35F (37142) [GB]**			

Transmission, description

Introduction

The following is an overview of the transmission's function. Descriptions are listed to the right of each paragraph, where you can read more about the text in bold print. The illustrations show what part of the transmission is described in the text below the illustration.

Designations of included parts in the transmission are found in the paragraph 420 PT Transmission and the transmission's hydraulic diagram under 420 Hydraulic diagram PT.

Description

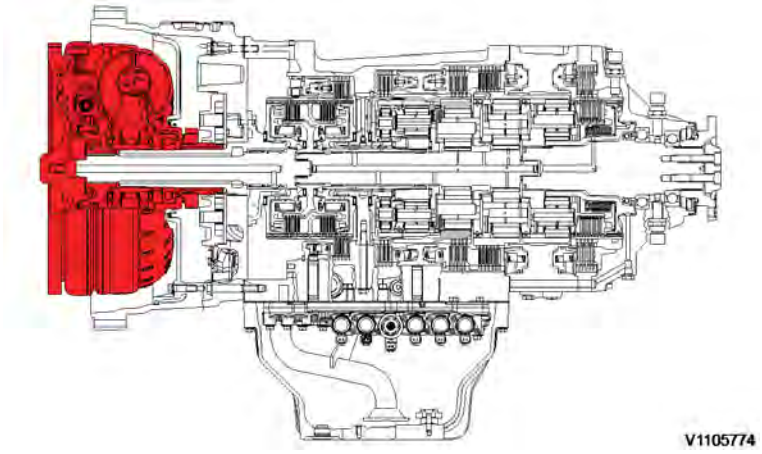
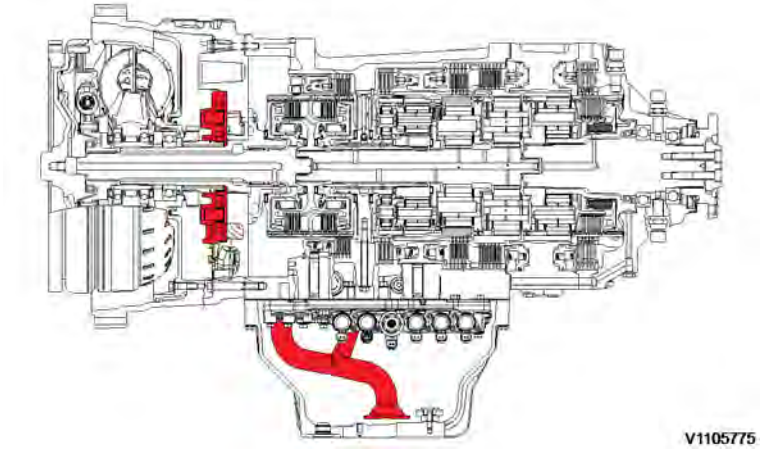


Figure 1

The transmission is driven by the engine via a flex plate in the **power take-off** that absorbs vertical movements between engine and transmission. The engine power is transmitted via the flex plate to the **torque converter** which is a hydrodynamic clutch. The design of the clutch enables it to absorb jerks and shocks from the engine and also reinforces the torque. When drive of the machine is smooth, the torque converter can be "short-circuited". Then the torque converter's pump rotor is connected to the turbine rotor using the **Lock-up clutch** inside the torque converter, which means that the transmission is driven directly by the engine. This reduces losses in the drivetrain.

- 482 PTO (Power Take Off), description
- 420 Torque converter
- 420 Lock-up clutch



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