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**THEME:**

**TRANSMISSION AND CHASSIS OF EXCAVATOR**



Transmission - a set of mechanisms and gears that change the torque, speed and direction of movement - serves to transfer energy from the engine to the drive wheels.

A mechanical transmission consists of gear, friction, chain and other mechanical gears.



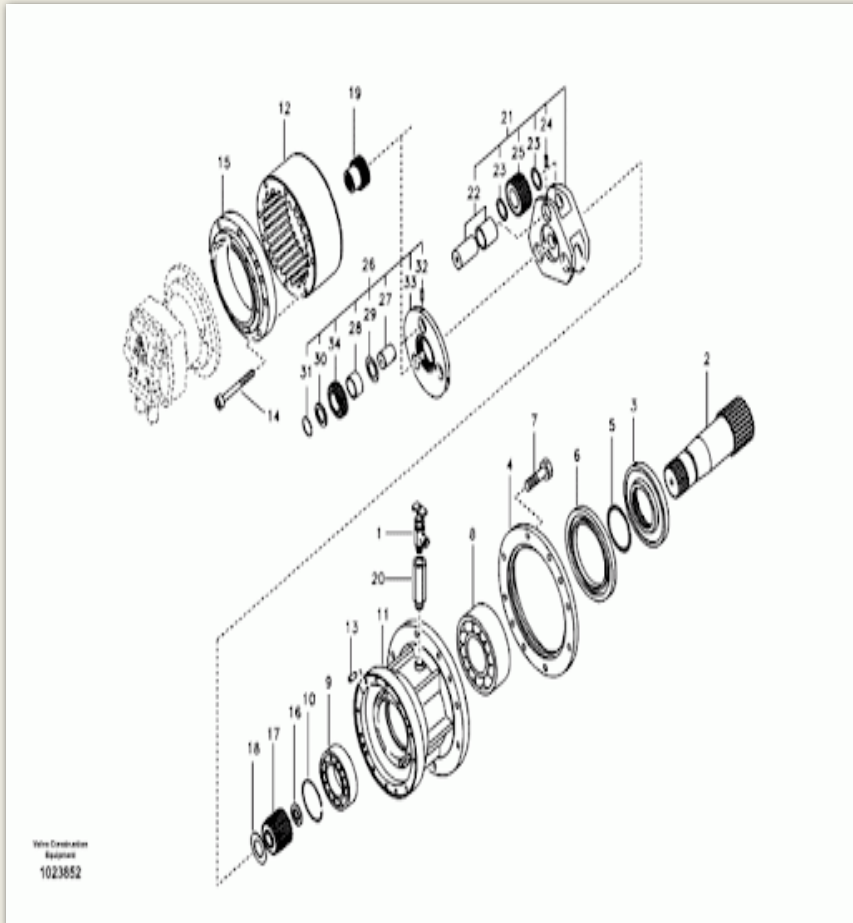
Hydromechanical transmission includes hydrodynamic transmission, for example, a torque converter. The hydraulic transmission uses the transmission of fluid pressure energy in combination with mechanisms (gears, levers). In semi-rotary wheeled excavators, a mechanical transmission is used, consisting of a clutch, gearbox, cardan gear, transfer gearbox, final drive, differential, final drives.

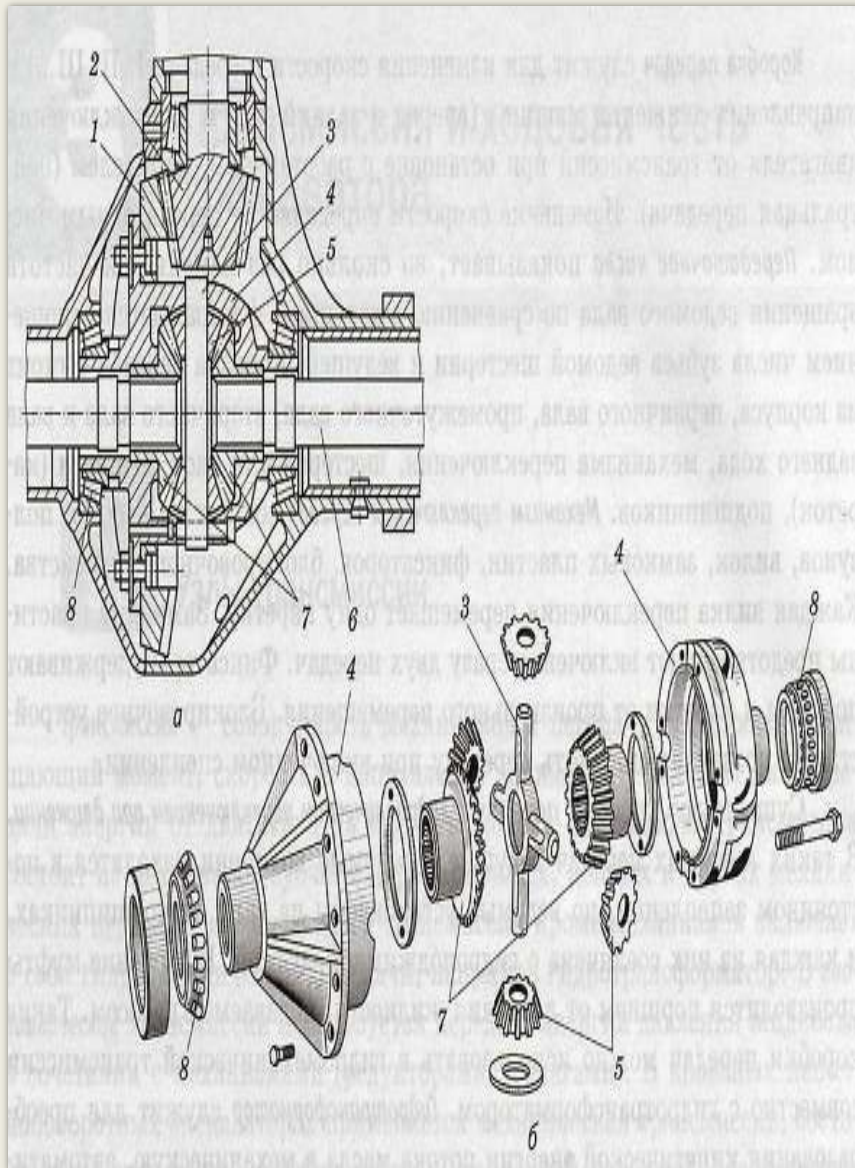


The clutch is used to transmit torque from the engine flywheel to the transmission shaft, briefly disconnect the engine from the transmission (when starting and shifting gears), smoothly connect them (at the beginning of the machine). Clutch - friction, permanently closed, dry, single or double disc.

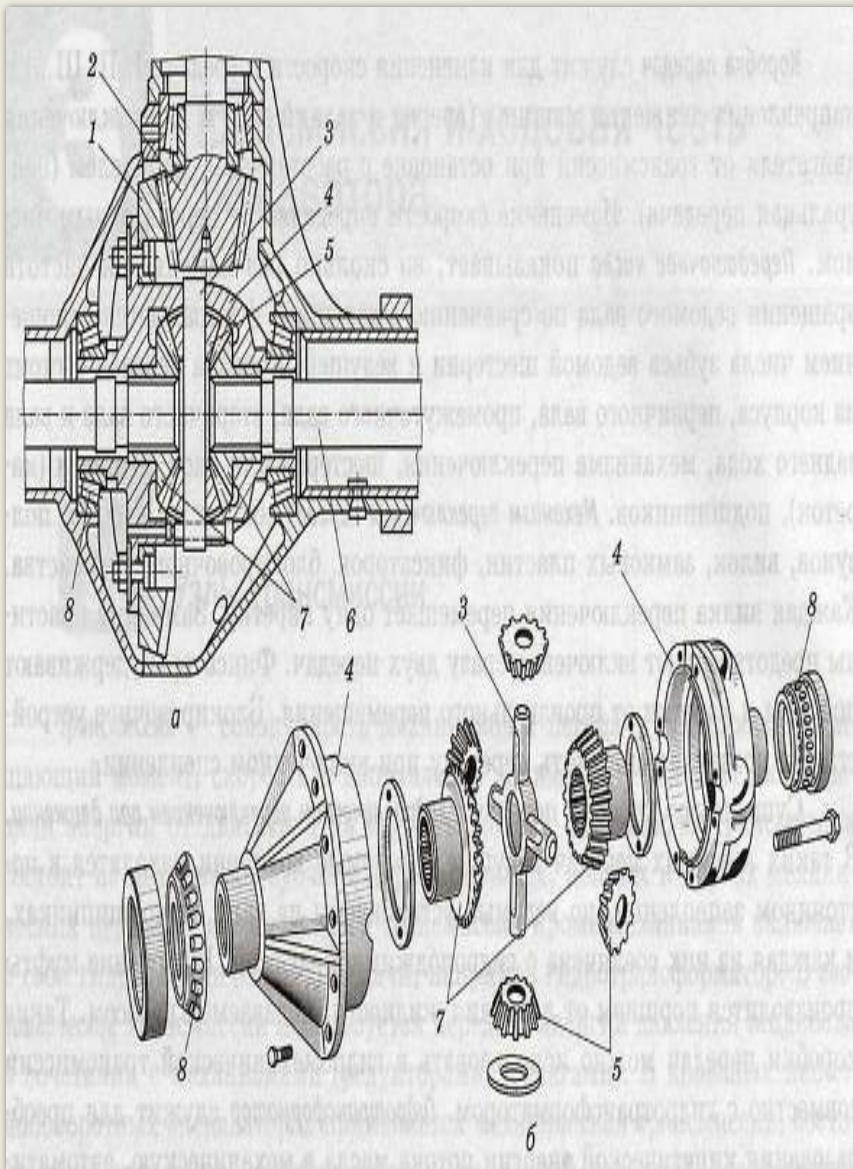


The gearbox serves to change the speed (gears I, II, III ...) and the direction of movement of the machine (forward and reverse) and to disconnect the engine from the transmissions when stopping with the engine running (neutral gear). The change in speed is determined by the gear ratio. The gear ratio shows how many times the speed of the driven shaft changes compared to the drive shaft.





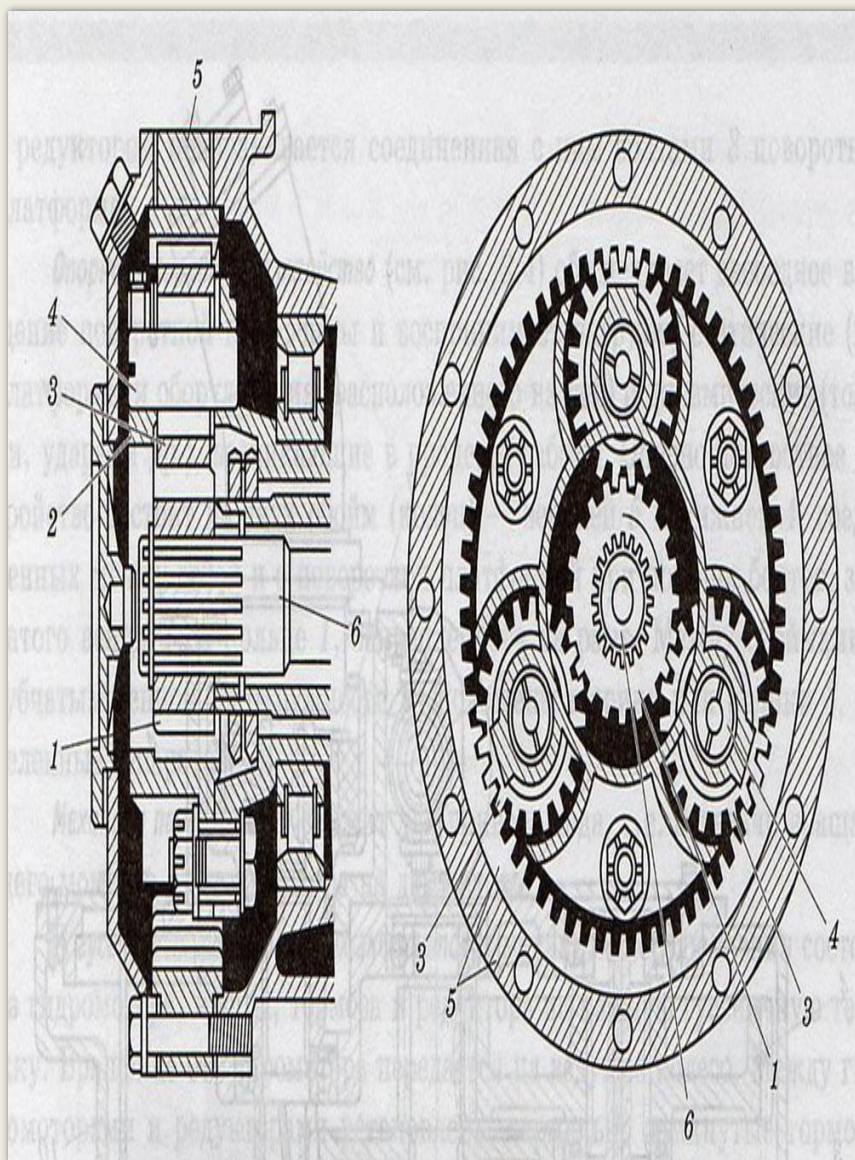
The converter is used to convert the kinetic energy of the oil flow into mechanical energy, automatically changes the speed of the machine depending on traction resistance, which ensures a high degree of engine load without operator intervention. The control of such a machine is reduced to the control of the fuel supply, there is a stepless change in speed, the machine stops due to overload.



1 - ведомая шестерня главной передачи; 2 - ведущая шестерня главной передачи; 3 - крестовина; 4 - корпус дифференциала; 5 - сателлиты; 6 - полуось; 7 - шестерни полуосей; 8 - подшипник.

1 - a conducted gear wheel of the main transfer; 2 - a leading gear wheel of the main transfer; 3 - crosspiece; 4 - differential case; 5 - satellites; 6 - semi-axis; 7 - gears of semiaxes; 8 - bearing

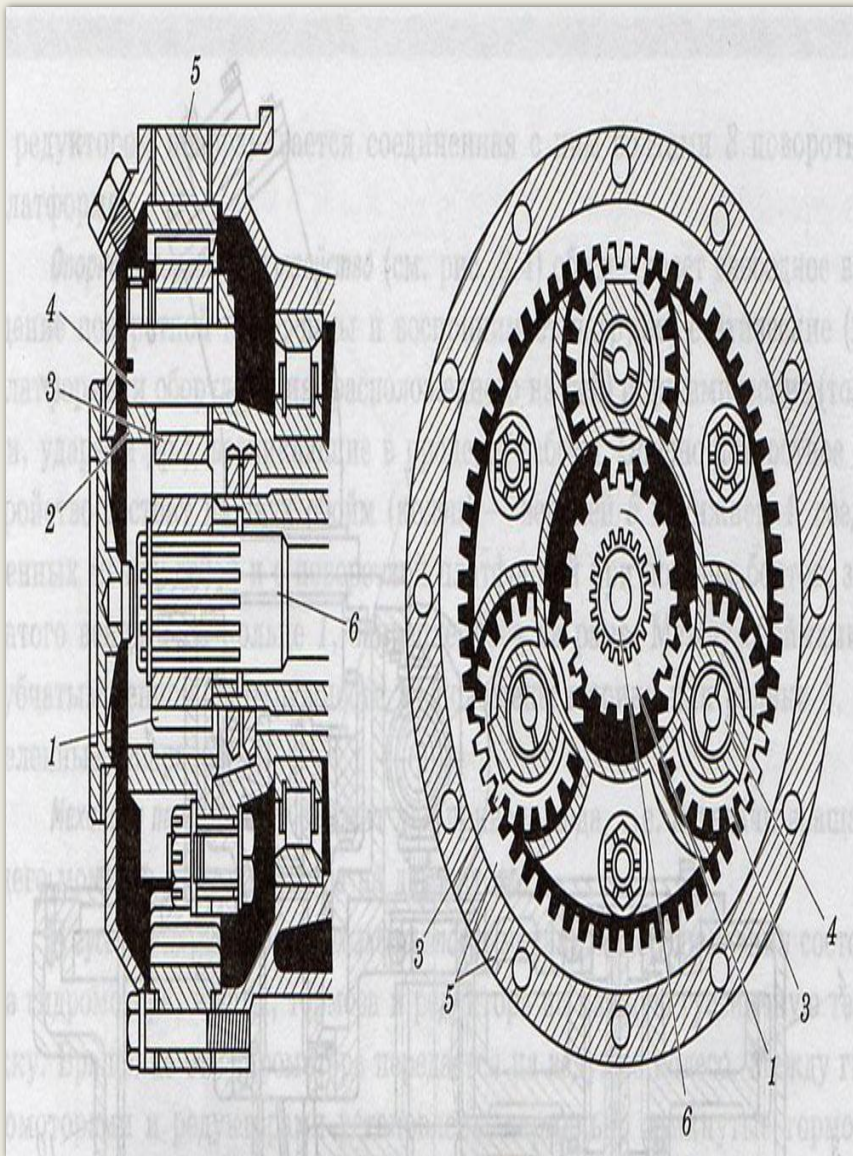




*1- солнечная шестерня; 2 - водило; 3 - сателлит; 4 - ось сателлита; 5 - коронная шестерня; 6 - вал.*

*1 - sun gear; 2 - carrier; 3 - satellite; 4 - satellite axis; 5 - ring gear; 6 - shaft.*





Final drives (wheel or final drives) are used to increase the torque when transmitting it to the drive wheels. In excavators, the final gear is a planetary one with a large gear ratio for small sizes, consisting of a housing, a ring gear 5, satellites 3 on the axles 4 installed in the carrier 2 and the sun gear 1. The torque is transmitted from the shaft 6 to the sun gear 1, then to satellites 3, which, rotating on the axles 4, run around the teeth of the stationary crown gear 5 and transmit the rotation to the carrier 2 and the wheel hub connected to it.



## EXCAVATOR TRANSMISSION