



## Mechanism of Automatic Transmission System

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### DESCRIPTION

Automatic transmissions are also known as self-shift transmissions or AT or double pedal technology because this system works without a clutch pedal. This is a type of automotive transmission that can automatically change the gear ratio as the vehicle moves, eliminating the need to manually change gears. An automatic transmission (sometimes abbreviated as automatic or AT) is a multi-speed transmission used in vehicles powered by an internal combustion engine that inputs the driver's input to change the forward gear under normal operating conditions. It usually includes the gearbox, axle and differential in the integrated assembly and is technically a transmission.

The most common type of automatic transmission is the hydraulic automatic, which uses a planetary gear set, hydraulic controls, and a torque converter. Other types of automatic transmissions include Continuously Variable Transmissions (CVT), Automated Manual Transmissions (AMT), and Dual-Clutch Transmissions (DCT). An Electronic Automatic Transmission (EAT) may also be called an Electronically Controlled Transmission (ECT), or Electronic Automatic Transaxle (EATX).

### Principle of automatic transmission

The manual gearbox used a sliding or synchronous gearbox, while the automatic gearbox used a planetary gearbox. This type of transmission does not engage with sliding gears, but you can achieve different gear speeds by simply tightening the brake band on the gear drum. It consists of sun gear, pinion or planet gear and ring gear. The ring gear has teeth on its inner circumference and is surrounded by a brake band. The brake band is operated by the hydraulic pressure applied by the hydraulic oil. This is controlled by electronic sensors or movements related to vehicle speed, loads and throttle opening. When the ring gear is locked by the brake band, the spinning sun gear spins the planetary gear. The cogs of the planet are forced to overcome it. In this

position, the ring gear acts as a raceway for planetary gear movement. This will rotate the output shaft connected to the planetary carrier. When the ring gear is released, it can move freely due to the rotation of the planetary gear that rotates around its axis. During this position, there is no movement of the planetary carrier, so the output shaft remains stationary. Planetary gears contain a large number of such units for different decelerations.

### Component of automatic transmission

The main components of an automatic transmission are the converter housing box, oil pan and extension housing. The converter housing encloses the torque converter, the housing contains the planetary gear set, and the extension housing encloses the output shaft. The oil pan is bolted to the housing. The entire transmission unit is attached to the engine block by screws that pass through the holes in the flange of the converter housing.

### Working of automatic transmission

The automatic transmission is same work because the manual transmission except its control by the brake arrangement operated hydraulically. Within the transmission system the engine shaft is connected to the clutch and therefore the further connected to the turbine of the converter. The converter drives the ring gear of first train through a free wheel. The drive of the ring gear of the second train is then taken from the earth carrier of the primary gear train in order that they act nonparallel. This arrangement gives three forward and one reverse speed by subsequently application of brake. The choice of the actual gear and application of corresponding clutch and brake is completed hydraulically. The hydraulic pressure is regulated by the car speed that control pressure on one side of the shift valve and therefore the throttle opening controlled by the driving force through the accelerator which controls oil pressure on other side of the shift valve.

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