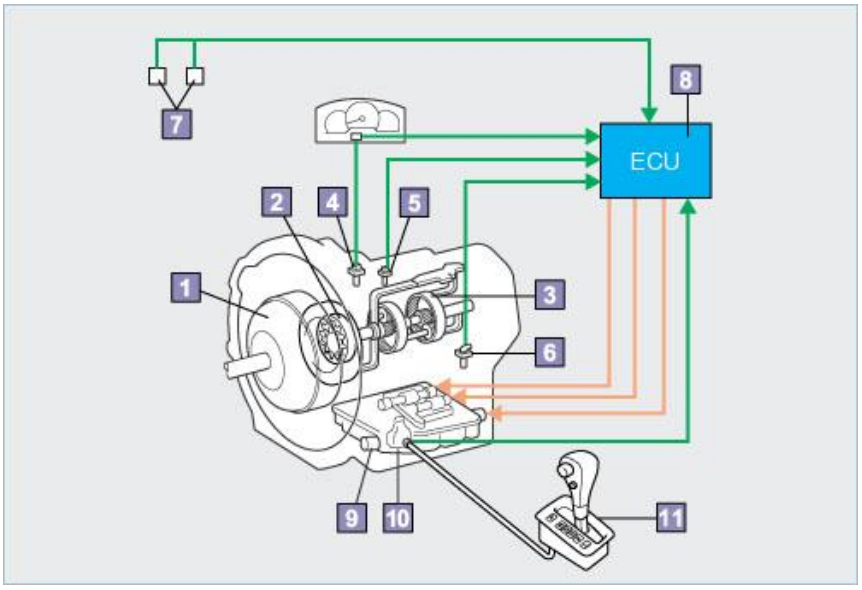
30.Automatic Transaxle-

It consists of a torque converter, planetary gear unit, and hydraulic control system. It uses hydraulic pressure to automatically shift gears in accordance with the vehicle speed, accelerator opening, and shift lever position. Therefore it is unnecessary to shift gears as in the manual transaxle; it is not even equipped with a clutch.

It also uses a computer to regulate shifting in accordance with the driving conditions detected by sensors. This system is called ECT (Electronically Controlled Transmission.

Parts Of Automatic Transaxle-

1. Torque converter
2. Oil pump
3. Planetary gear unit
4. Vehicle speed sensor
5. Counter gear speed sensor
6. Input turbine speed sensor
7. Sensors
8. Engine & ECT ECU (Electronic Control Unit)
9. Solenoid valves
10. Hydraulic control unit
11. Shift lever.



Torque Converter-

. The torque converter of an automatic transaxle vehicle transmits the power of the engine to the transaxle by utilizing the force of the fluid. Its principle can be equated to a pair of fans that face each other. One fan blows air to turn the other fan. The rotation of the pump impeller applies a centrifugal force to the fluid, which transmits the power to the turbine runner.

Parts Of Torque Converter -

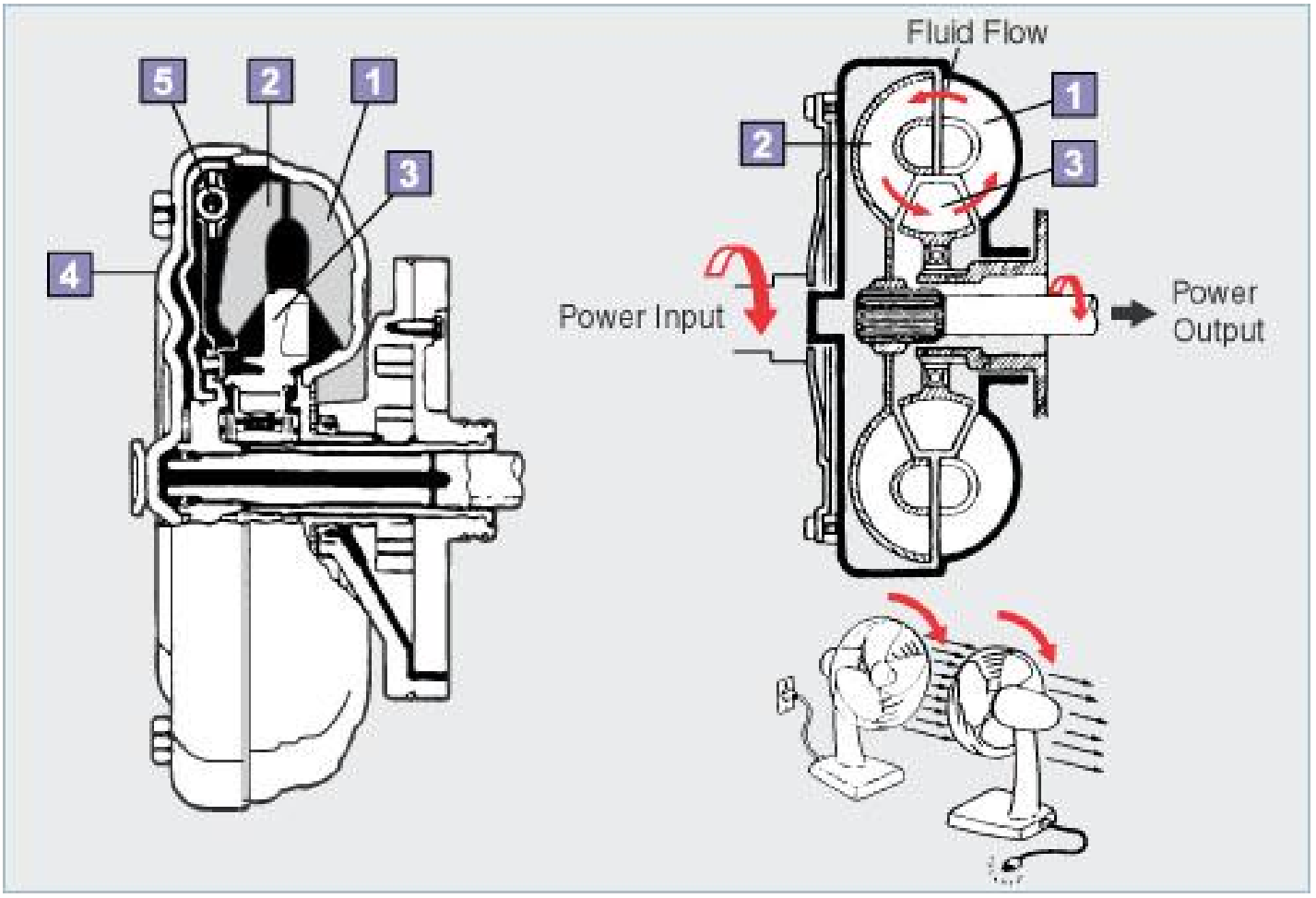
1.Pump impeller (from Engine)

2.Turbine runner (to transaxle)

3.Stator

4.Front cover

5.Lockup clutch



Oil Pump-

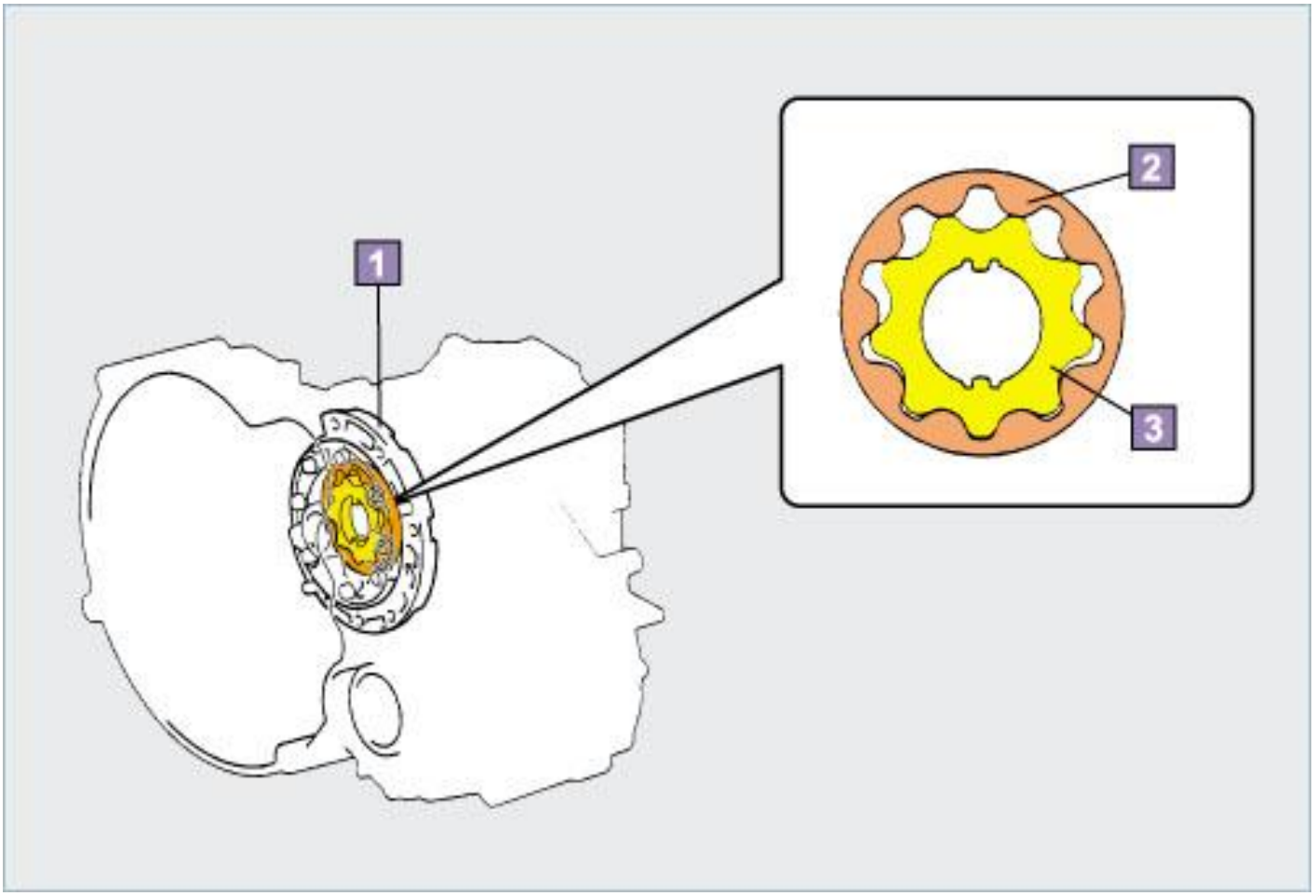
. The oil pump is driven by the torque converter to supply the hydraulic pressure that is required for the operation of the automatic transmission.

Parts Of Oil Pump -

1.Front body

2.Driven gear

3.Drive gear



Planetary Gear Unit-

. This unit shifts the gears in the automatic transmission. It uses hydraulic pressure to hold one of the three types of gears (pinion gear, sun gear or ring gear) stationary in order to create the following conditions as desired: deceleration, direct coupling and reverse rotation.

Parts Of Planetary Gear Unit –

1.Intermediate shaft

2.Planetary carrier

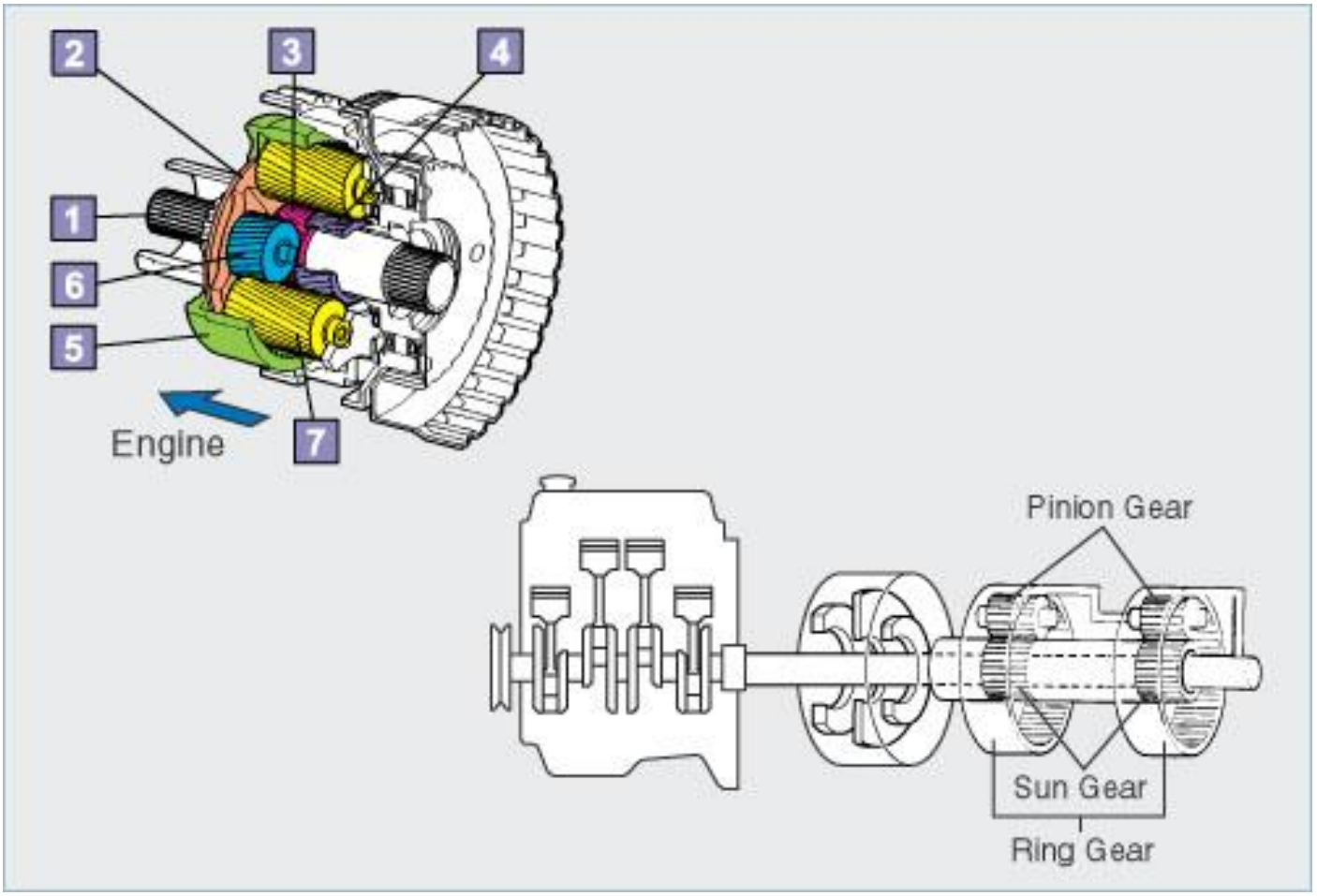
3.Front sun gear

4.Rear sun gear

5.Ring gear

6.Pinion gear (short)

7.Pinion gear (long)



Hydraulic Control Unit-

. This component controls the hydraulic (line) pressure that operates the planetary gear unit.

Representative valves

1.Primary regulating valve-

Regulates the hydraulic pressure from the oil pump to create line pressure.

2.Shift valve

Shifts gears.

3.Manual valve

Switches the line pressure paths in accordance with the movement of the shift lever.

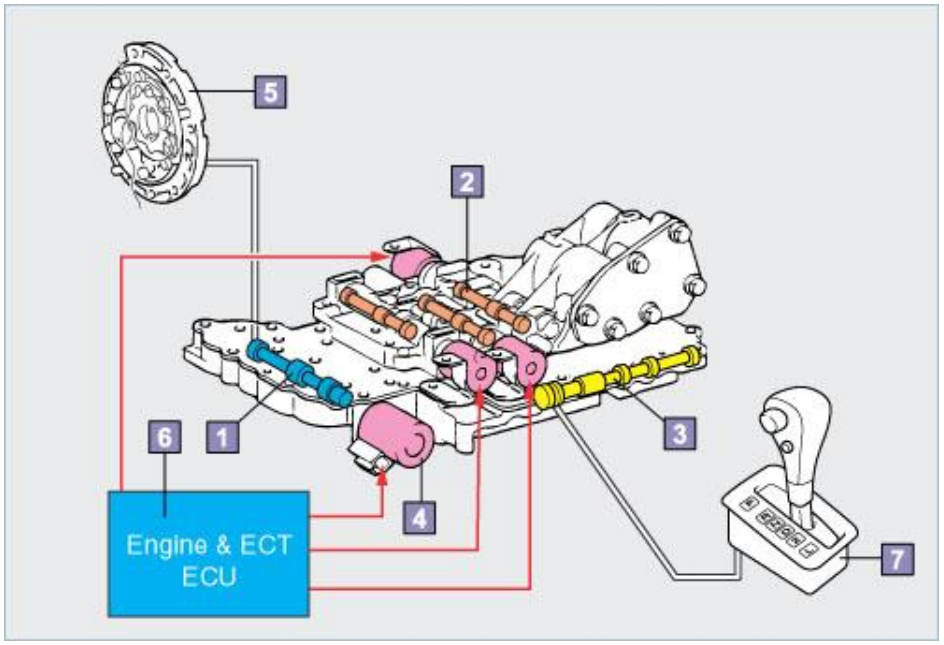
4.Solenoid valve

Switches hydraulic paths to shift gears by receiving the signals from the ECU (Electronic Control Unit).

5.Oil pump.

6.Engine & ECT ECU (Electronic Control Unit)

7.Shift lever



Engine & ECT ECU (Electronic Control Unit)

. This computer receives electric signals from the sensors, transmits them to the solenoid valves in the hydraulic control unit, and controls the shifting of the gears. Sensors-

Detect the vehicle speed and accelerator opening among other things, and transmit electrical signals to the ECU.

Representative sensors

1.Neutral start switch

Detects the shift lever position.

2.Throttle position sensor

Detects the throttle opening.

3.Speed sensor

Detects the vehicle speed.

4.Input shaft speed sensor

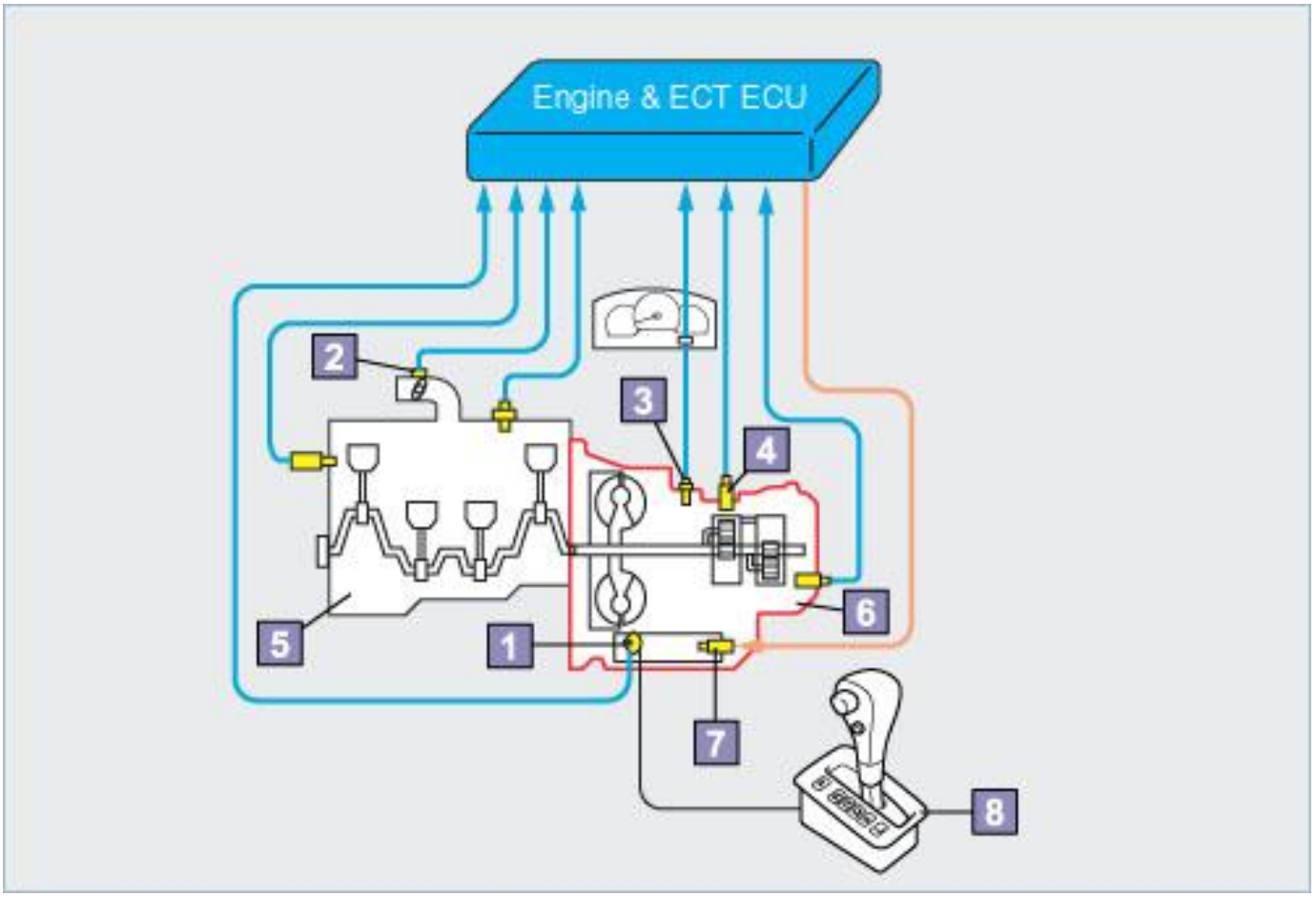
Detects the speed of the input shaft.

5.Engine

6.Automatic transaxle

7.Solenoid valve

8.Shift lever


Engine & ECT ECU
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