



SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)

COIMBATORE-35.

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Grade

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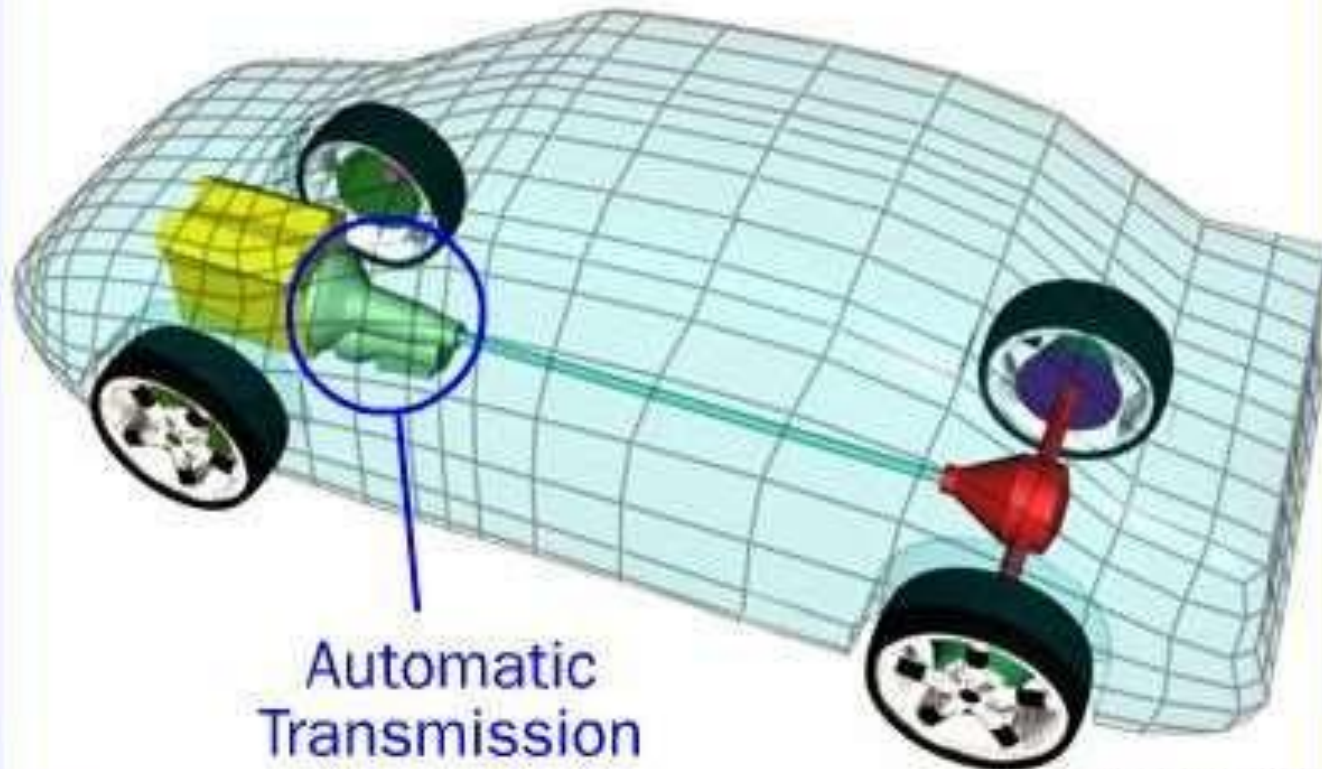
COURSE NAME : 23AUT101 – ELEMENTS OF AUTOMOTIVE SYSTEM

I YEAR /II SEMESTER

Unit 3- Transmission System

Topic : Fluid Flywheel, Overdrive

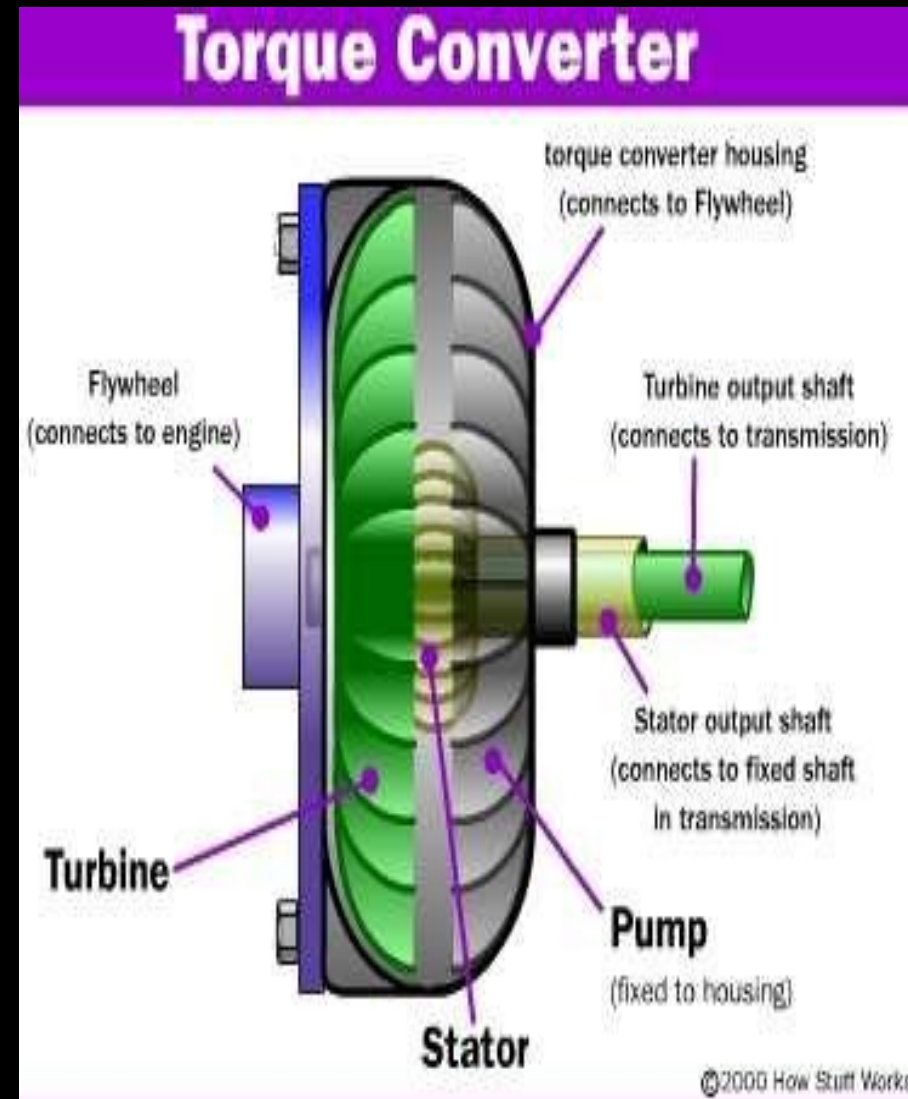
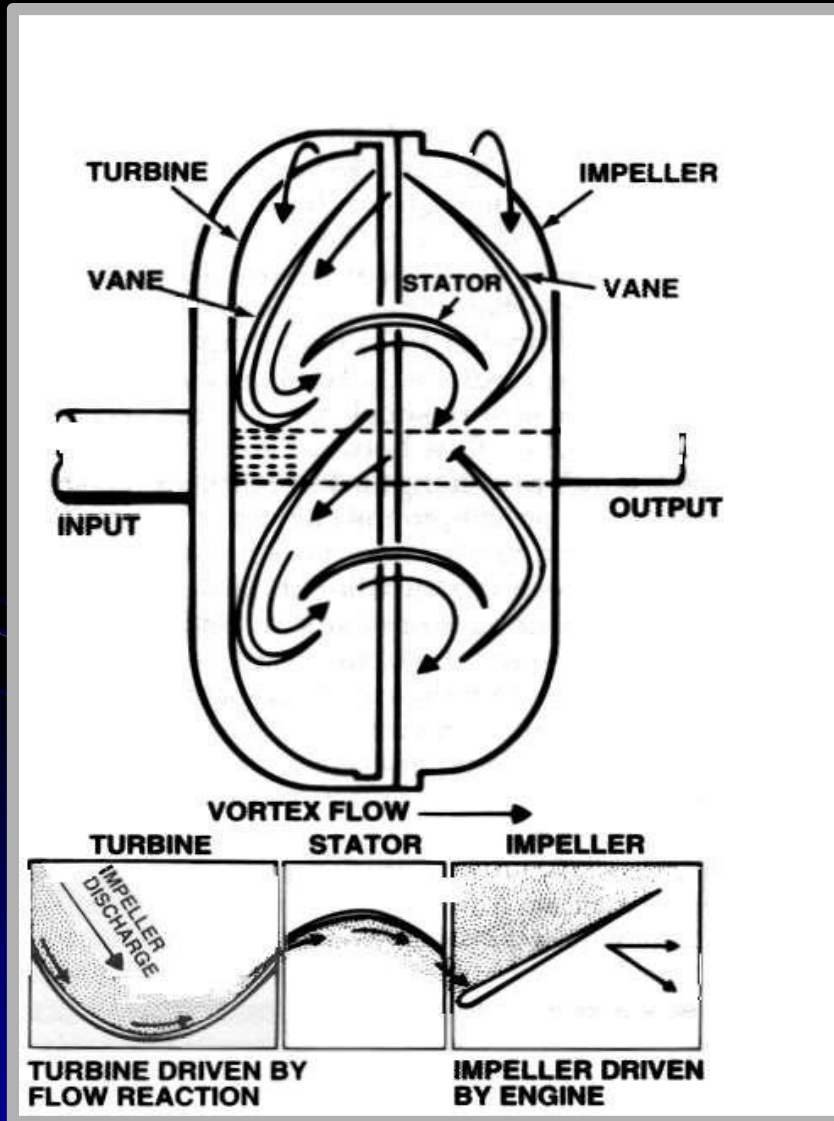
How Automatic Transmissions Work

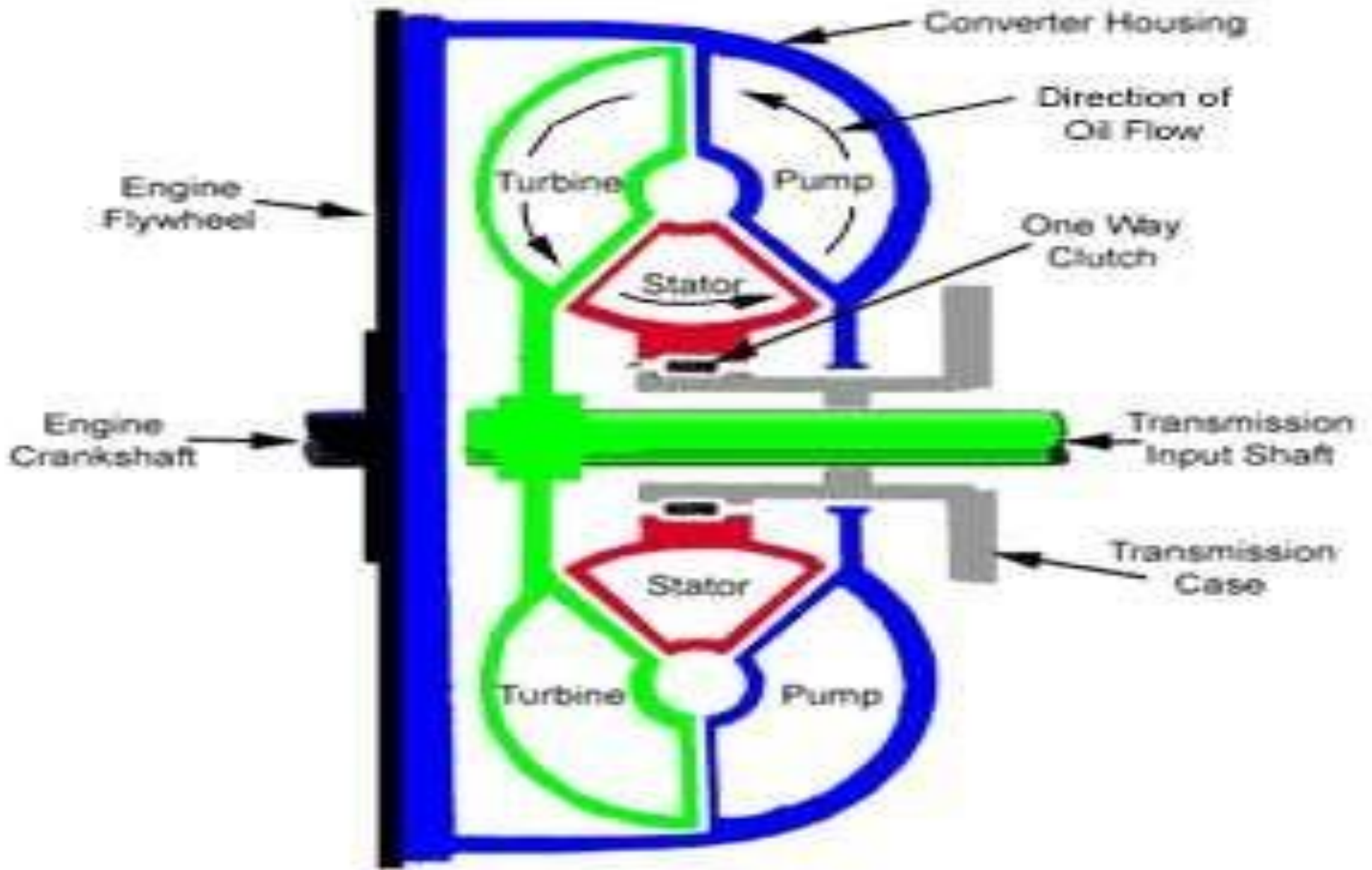


Automatic
Transmission

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Torque converter



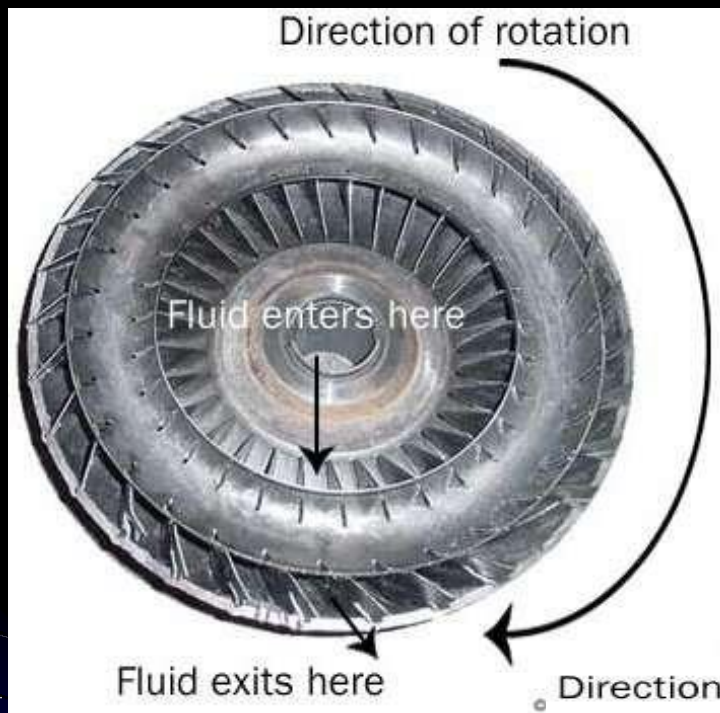


TORQUE CONVERTOR

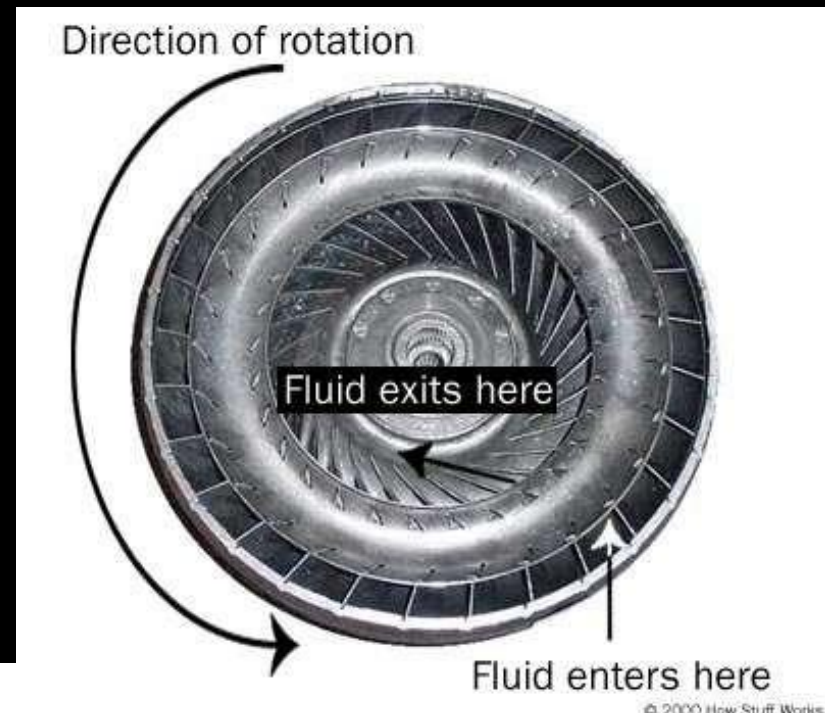
Purpose of Torque convertor

- Allows vehicle to stop in gear
- Provide torque multiplication to allow smooth acceleration from a stop
- Torque converters can multiply torque at a 2:1 to 3:1 ratio
- House a torque converter clutch which will eliminate torque converter slippage at highway speeds

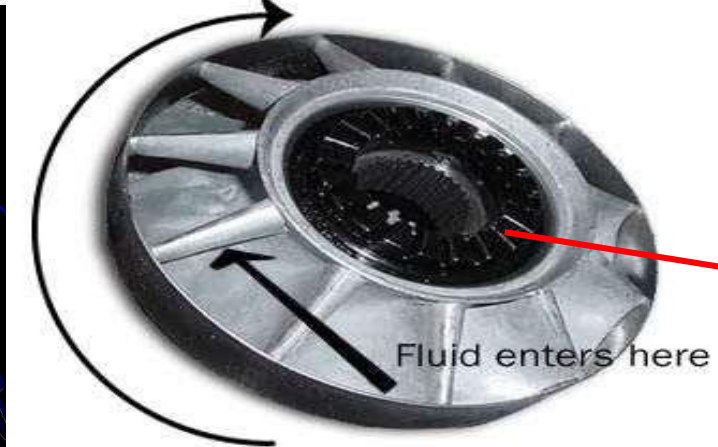
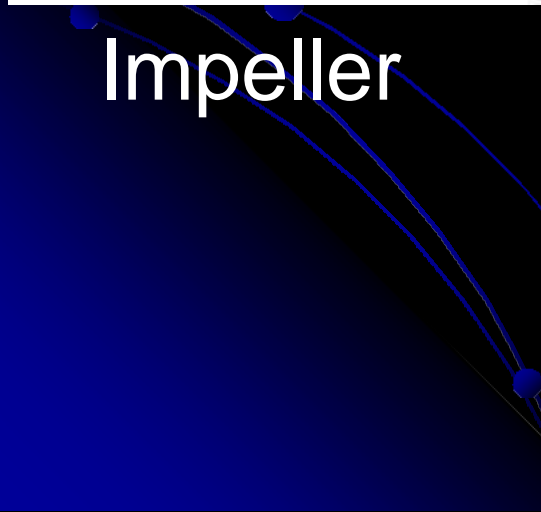
Parts of a Torque Converter



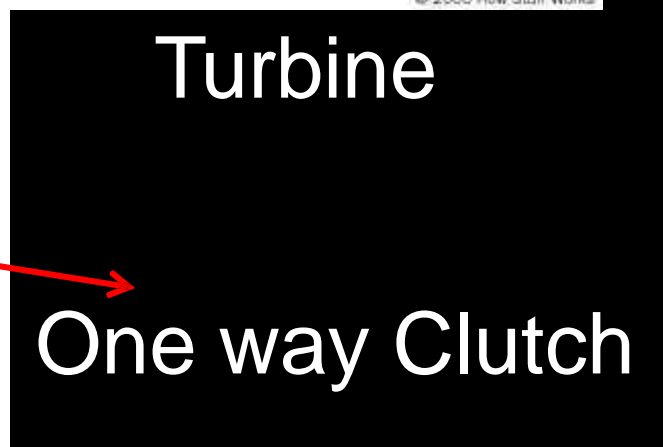
Stator



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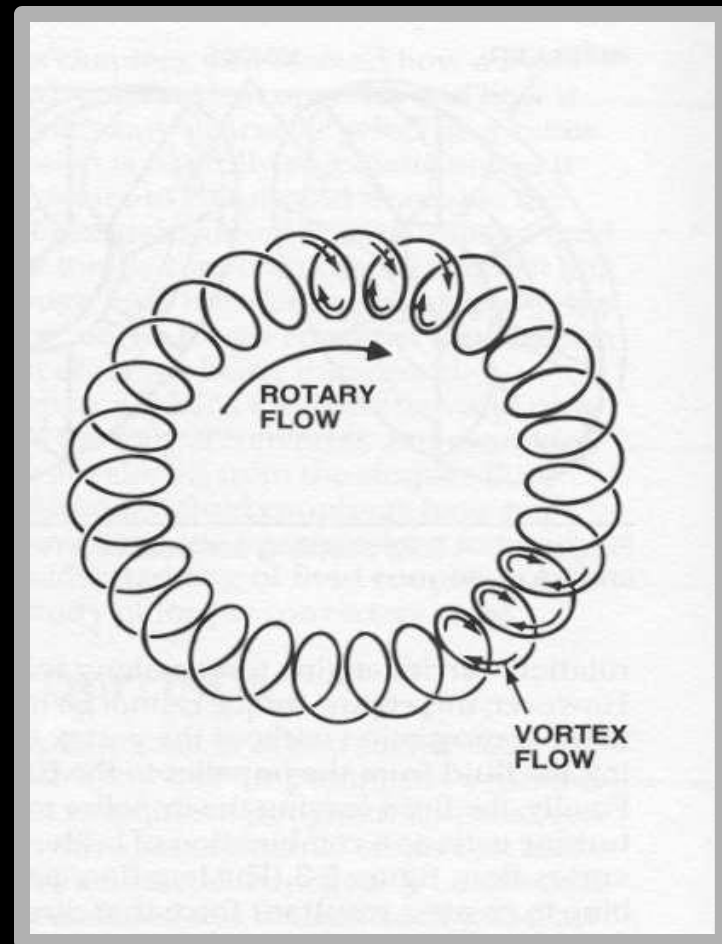
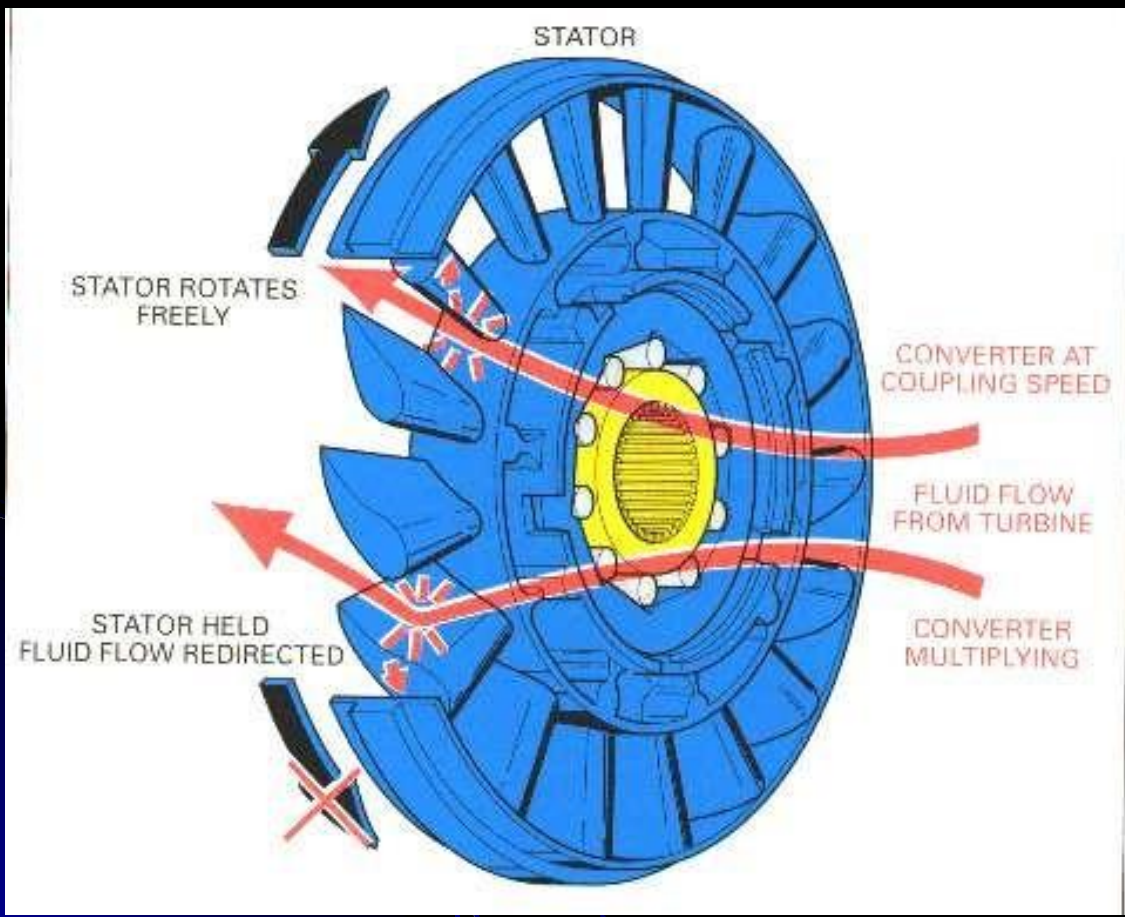
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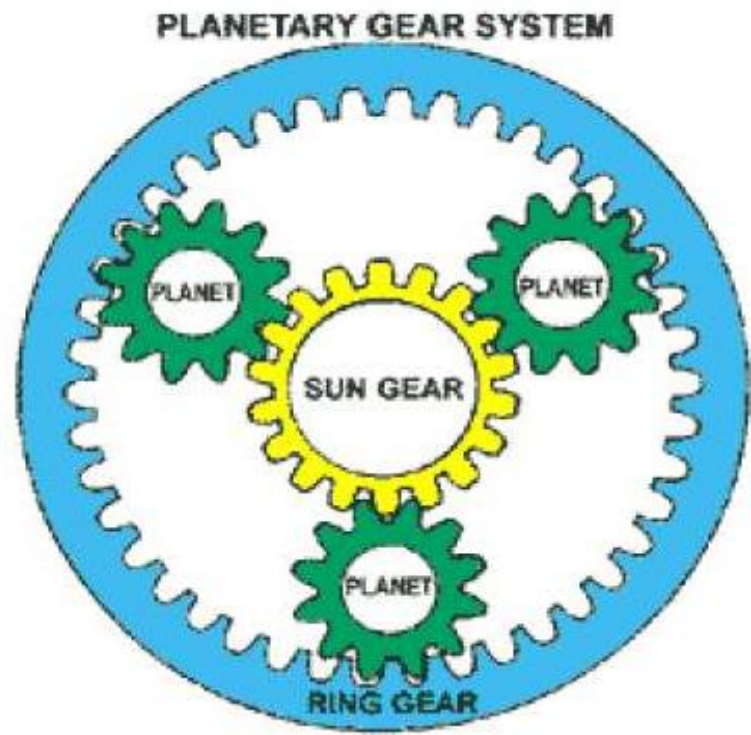
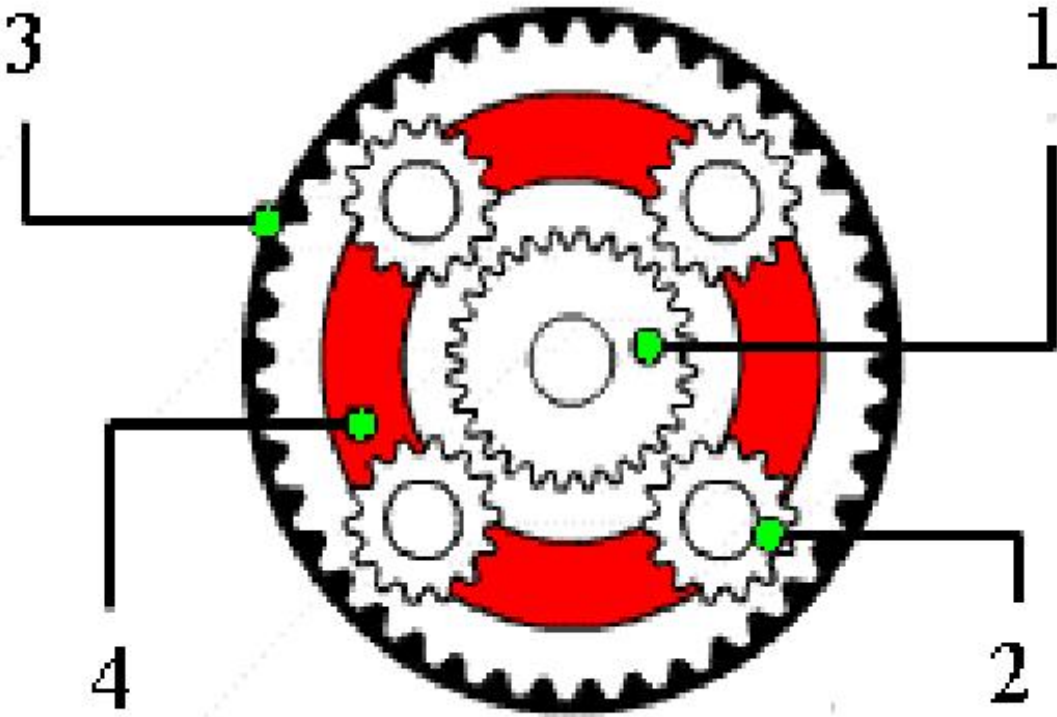


Operation of stator

- Fluid flow can be re-directed to “help” impeller at lower speeds increasing torque of engine
- Fluid re-directing is performed by stator
- After torque multiplication is not desired stator overruns
- Defective one way clutch can cause lack of power at low or high rpm

Stator Operation





- 1. Sun gear
- 2. Planet gear
- 3. Ring gear
- 4. Planetary carrier

PLANETARY GEAR SYSTEM

Holding Device

- Multiplate Clutch — holds two rotating planetary components.
- Roller or Sprag One-Way Clutch — holds planetary components in one rotational direction and freewheels in the other direction.
- Multiplate Brake and Brake Band — holds planetary components to the transmission case.

Planetary Gear Shafts

The planetary gear set cutaway and model will help visualize the workings of holding devices, gear shafts, and planetary gear member.

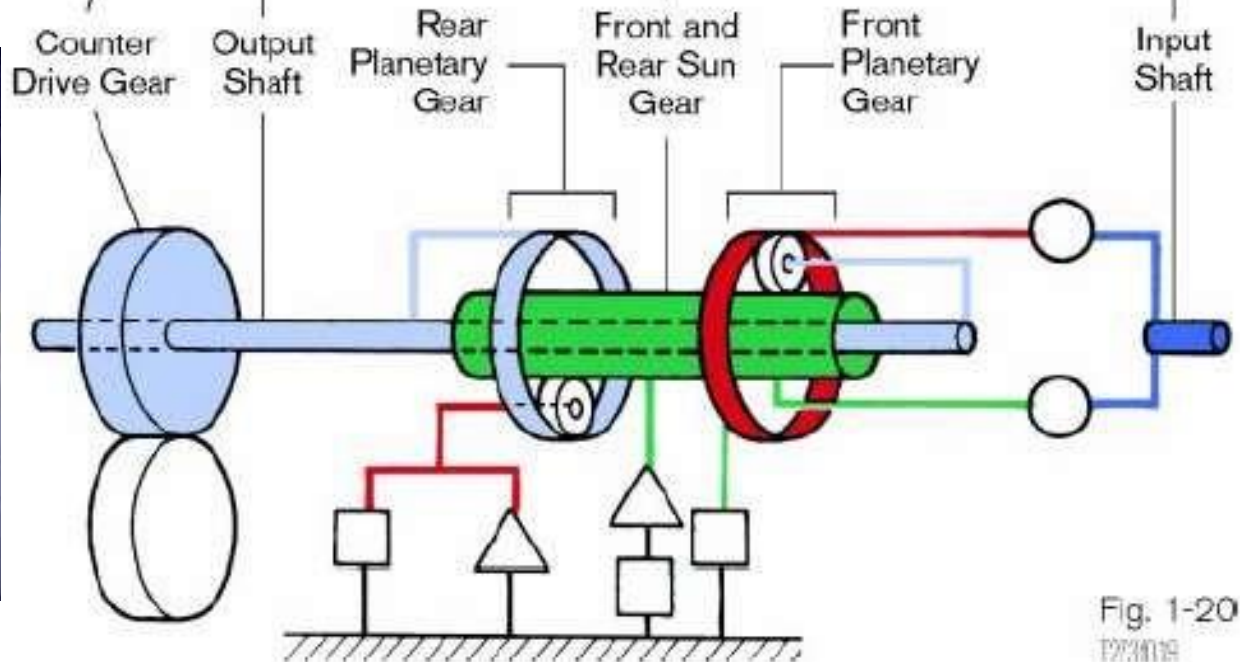
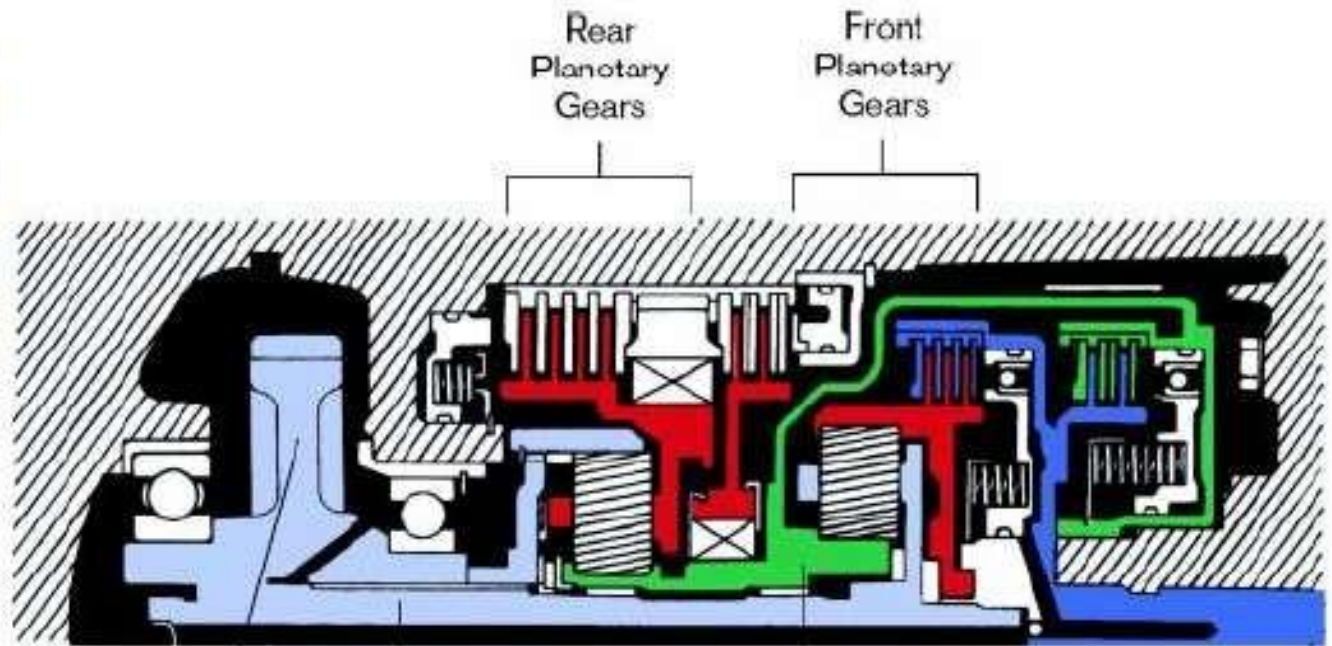


Fig. 1-20
T2731119

Planetary Holding Devices

The first and reverse brake (B3) and No. 2 one-way clutch (F2) both hold the rear planetary carrier.

The second brake (B2) and the No. 1 one-way clutch (F1) work together to hold the sun gear.

The second coast brake (B1) holds the sun gear also.

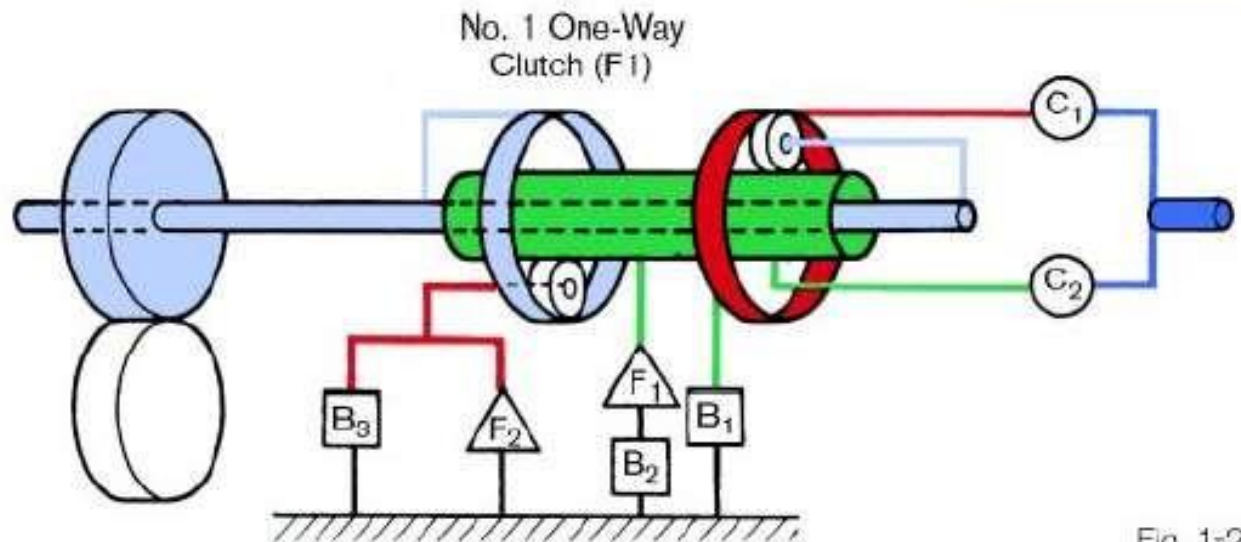
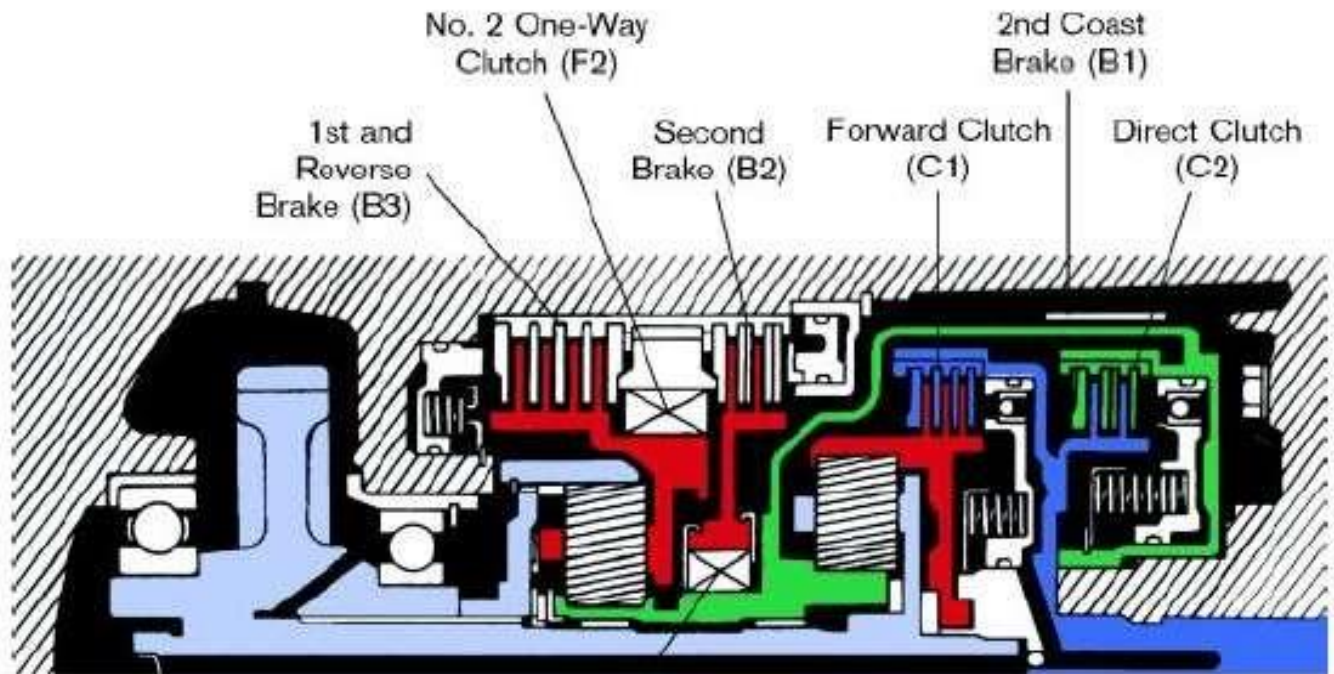
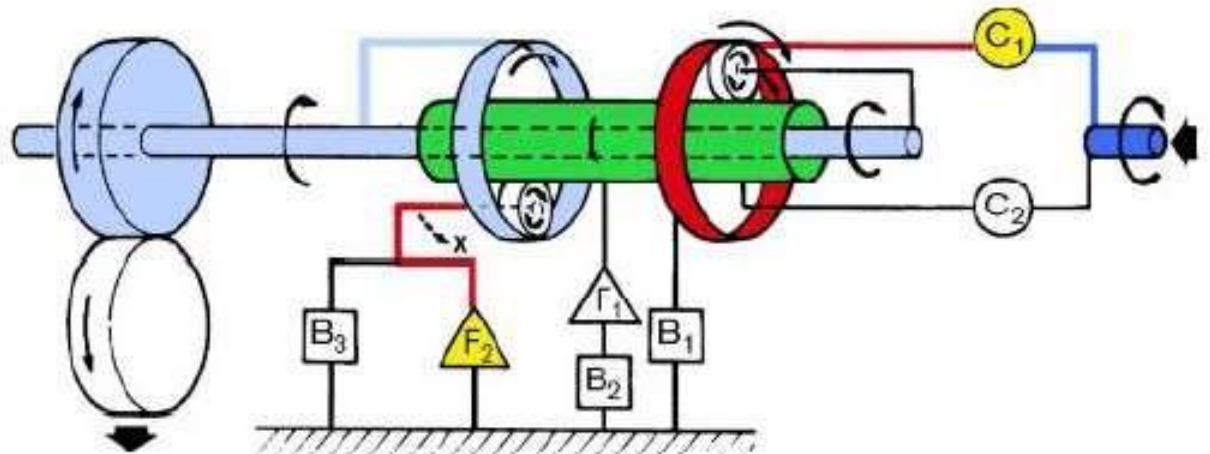
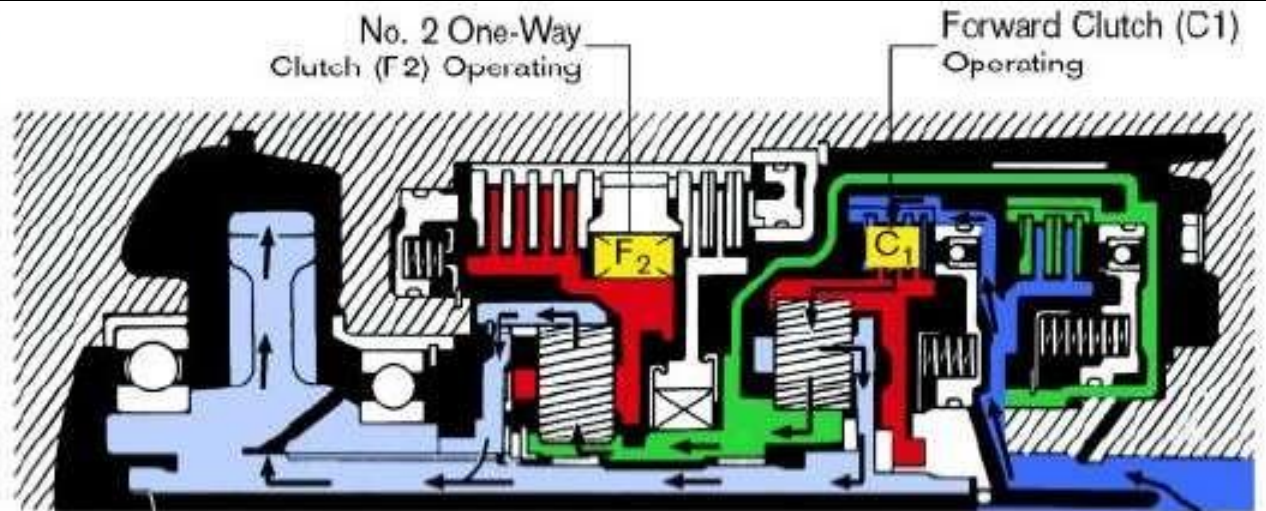


Fig. 1-22

D or 2-Range First Gear

First gear is unique because it uses both the front and rear planetary gear sets.

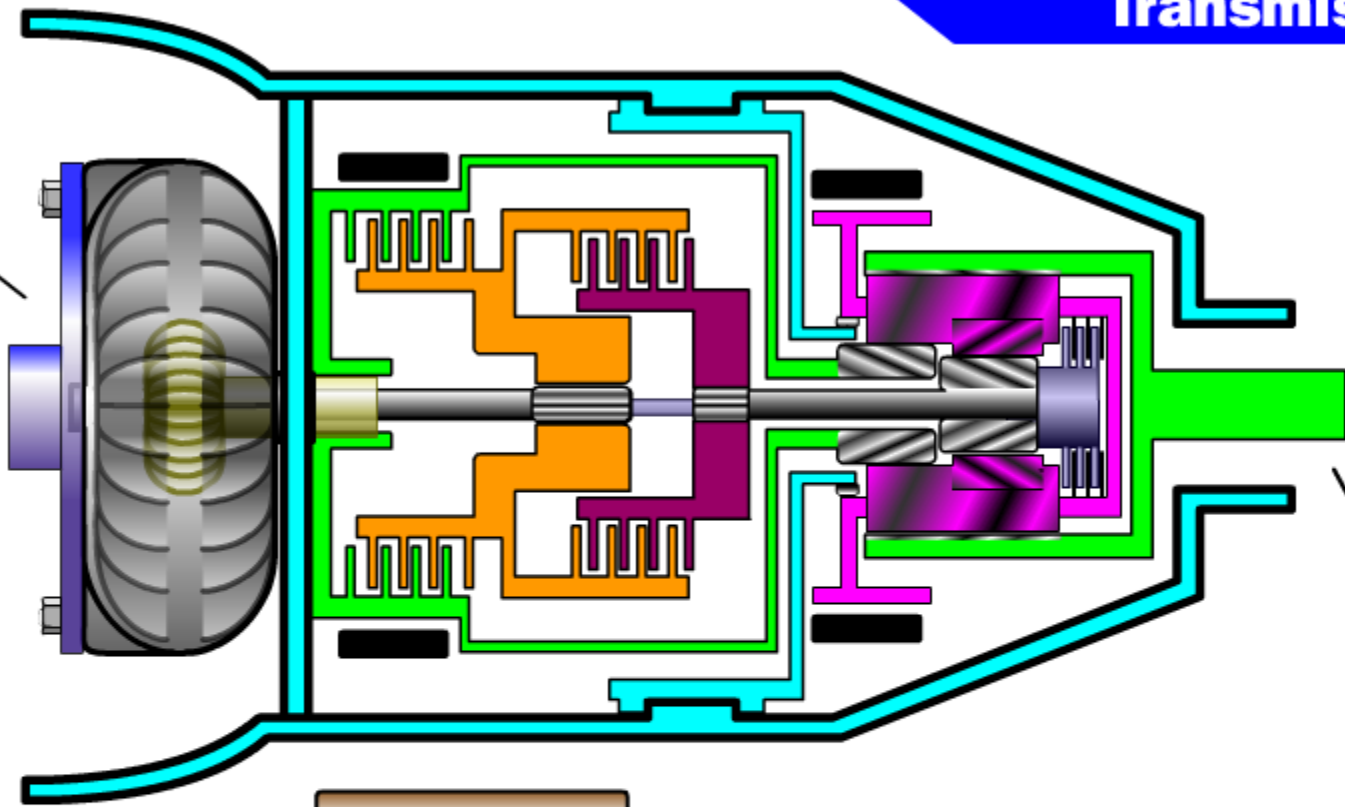


Shift Lever Position	Gear Position	C1	C2	B1	B2	B3	F1	F2
D	1st							

Fig. 1-24
T273623/T273624

Automatic Transmission

Flywheel -
Connected
to engine



Output

 Power Flow

 Stopped

