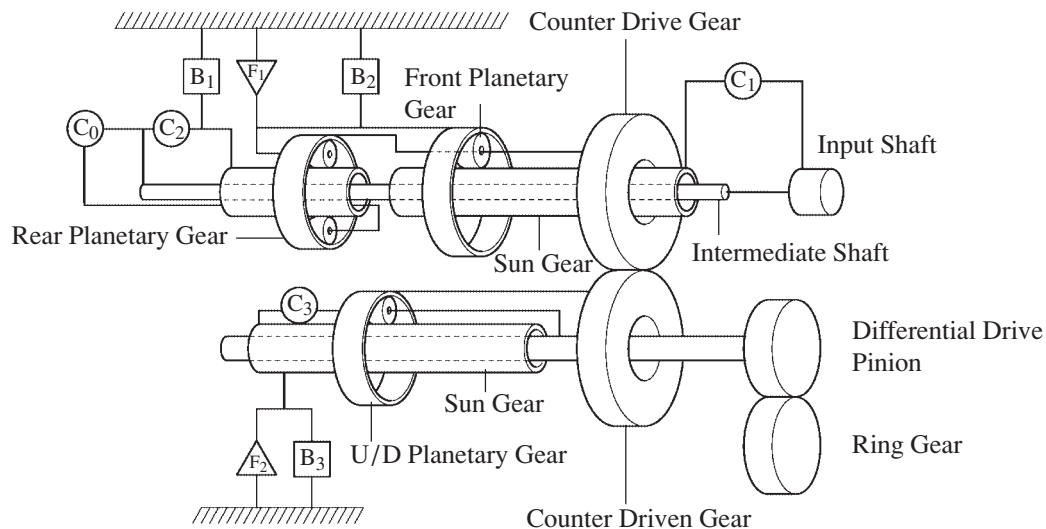


4. Planetary Gear Unit

Construction

- The counter drive and driven gears are placed in front of the front planetary gear and the under drive (U/D) planetary gear unit is placed above the counter shaft. Furthermore, the force transmission method has been changed by eliminating the brake and the one-way clutch. As a result, a torque capacity that accommodates the high output engine has been attained, while realizing a compact gear unit.
- The centrifugal fluid pressure canceling mechanism has been adopted in the C_0 , C_2 , C_3 , and C_1 clutches that are applied when shifting from 2nd to 3rd and from 3rd to 4th. For details, refer to 97.



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Function of Component

| Component | | Function |
|-----------------|---------------------|--|
| C_1 | Forward Clutch | Connects input shaft and front planetary sun gear. |
| C_2 | Reverse Clutch | Connects input shaft and rear planetary sun gear. |
| C_3 | U/ Direct Clutch | Connects U/D sun gear and U/D planetary carrier. |
| C_0 | Direct & O/D Clutch | Connects input shaft and rear planetary carrier. |
| B_1 | 2nd & O/D Brake | Prevents rear planetary sun gear from turning either clockwise or counterclockwise. |
| B_2 | 1st & Reverse Brake | Prevents rear planetary carrier and front planetary gear from turning either counterclockwise or clockwise. |
| B_3 | U/D Brake | Prevents U/D planetary sun gear from turning either clockwise or counterclockwise. |
| F_1 | No.1 One-Way Clutch | Prevents rear planetary carrier from turning counterclockwise. |
| F_2 | U/D One-Way Clutch | Prevents U/D planetary sun gear from turning clockwise. |
| Planetary Gears | | These gears change the route through which driving force is transmitted, in accordance with the operation of each clutch and brake, in order to increase or reduce the input and output speed. |

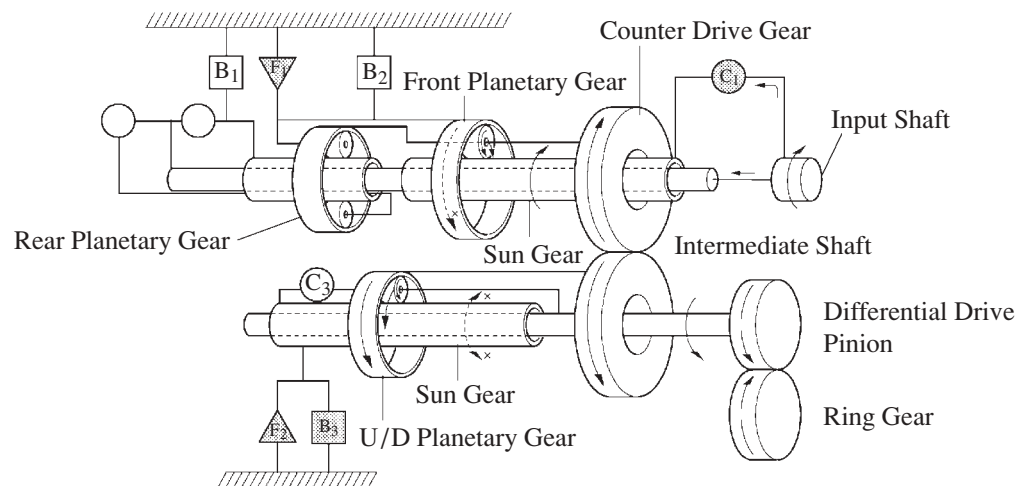
Transaxle Power Flow

| Shift Lever Position | Gear | Solenoid Valve | | | | | | Clutch | | | | Brake | | | One-way Clutch | |
|----------------------------|---------|----------------|----|-----|-----|-----|-----|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------------------|----------------|
| | | S4 | SR | DSL | SL1 | SL2 | SL3 | C ₀ | C ₁ | C ₂ | C ₃ | B ₁ | B ₂ | B ₃ | F ₁ | F ₂ |
| P | Park | | | | ○ | ○ | | | | | | | | ○ | | |
| R | Reverse | | | | ○ | ○ | | | | ○ | | | ○ | ○ | | |
| N | Neutral | | | | ○ | ○ | | | | | | | | ○ | | |
| D, S (5)* | 1st | | | | ○ | ○ | | | ○ | | | | | ○ | ○ | ○ |
| | 2nd | | | | | ○ | | | ○ | | | ○ | | ○ | | ○ |
| | 3rd | | ○ | △ | ○ | | | ○ | ○ | | | | | ○ | | ○ |
| | 4th | | ○ | △ | | ▲ | ○ | ○ | | | | ○ | | ○ | | ○ |
| | 5th | ○ | ○ | △ | | ▲ | ○ | ○ | | | ○ | ○ | | | | |
| S (4)* | 1st | | | | ○ | ○ | | | ○ | | | | | ○ | ○ | ○ |
| | 2nd | | | | | ○ | | | ○ | | | ○ | | ○ | | ○ |
| | 3rd | | ○ | △ | ○ | | | ○ | ○ | | | | | ○ | | ○ |
| | 4th | | ○ | △ | | ▲ | ○ | ○ | | | | ○ | | ○ | | ○ |
| S (3)* | 1st | | | | ○ | ○ | | | ○ | | | | | ○ | ○ | ○ |
| | 2nd | | | | | ○ | | | ○ | | | ○ | | ○ | | ○ |
| | 3rd | | ○ | △ | ○ | | | ○ | ○ | | | | | ○ | | ○ |
| S (2)* | 1st | | | | ○ | ○ | | | ○ | | | | | ○ | ○ | ○ |
| | 2nd | | | | | ○ | | | ○ | | | ○ | | ○ | | ○ |
| S (1)* | 1st | | | ○ | ○ | ○ | | | ○ | | | | ○ | ○ | ○ | ○ |

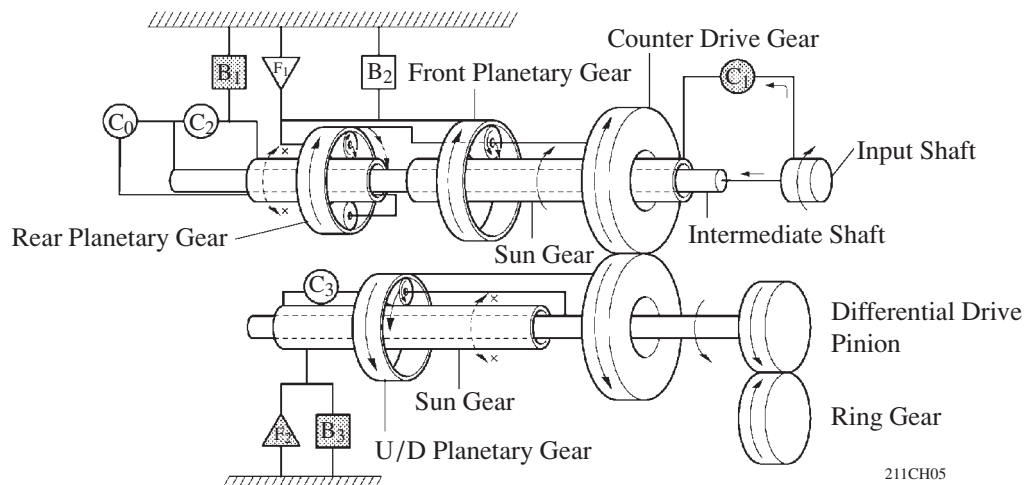
○: ON △: Lock-up ON ▲: According to Hex Lock-up

*: When the shift lever position is “S” and the range position indicator shows “5”, “4”, “3”, “2” and “1”

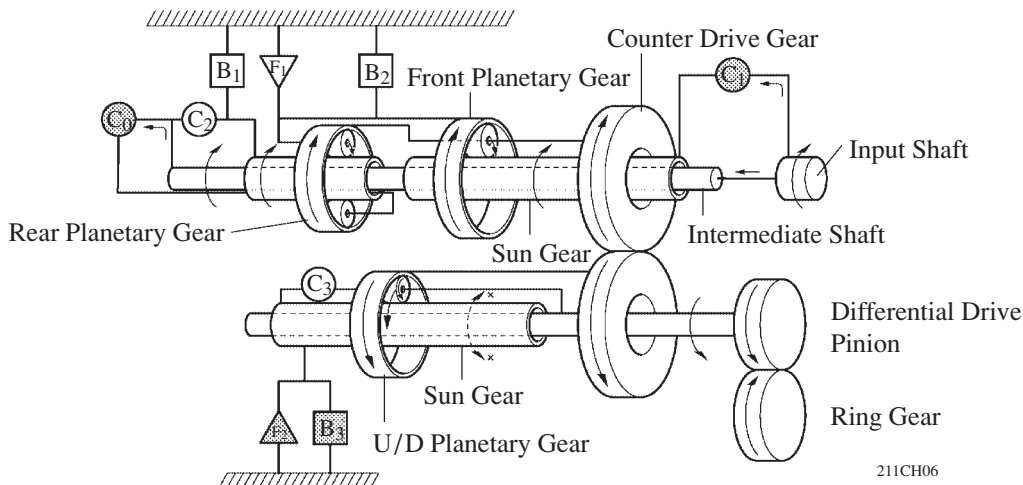
1) 1st Gear (D or S mode 2, 3, 4, 5 Position)



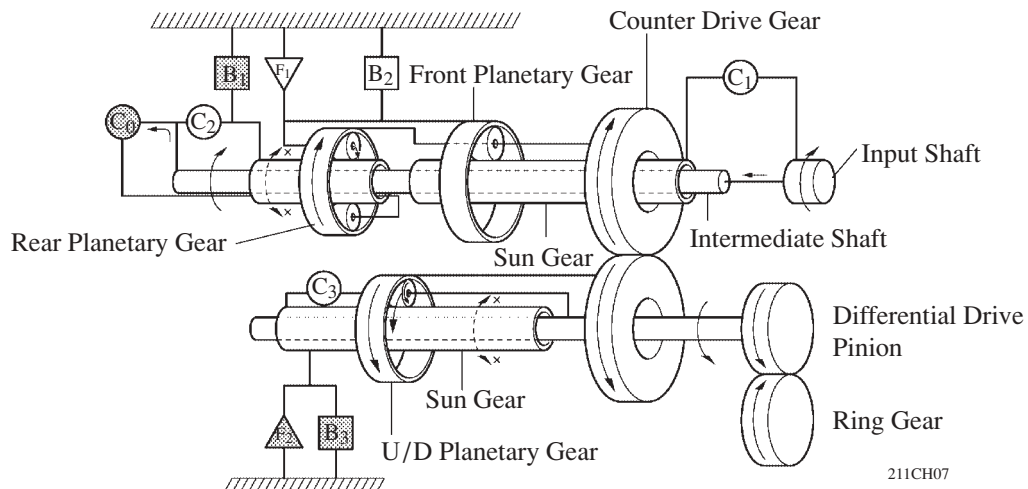
2) 2nd Gear (D or S mode 2, 3, 4, 5 Position)



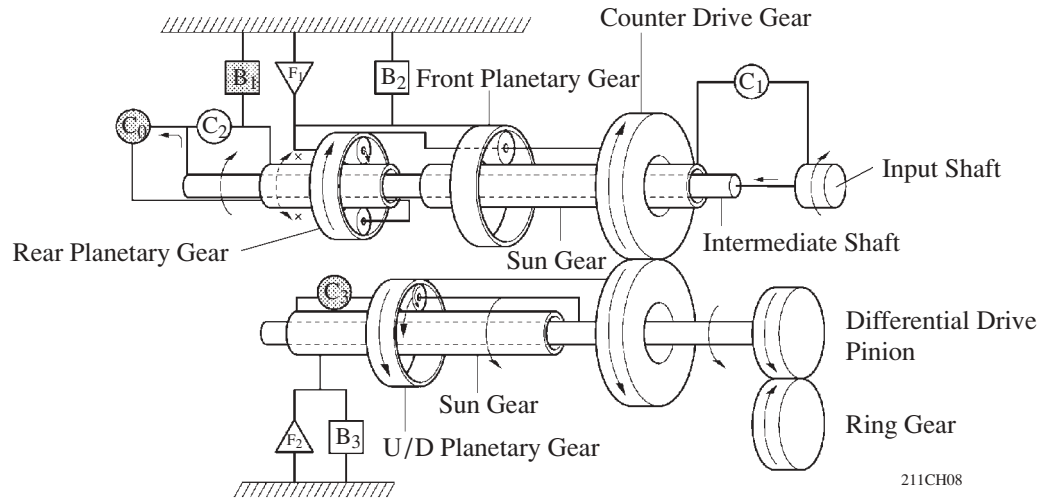
3) 3rd Gear (D or S mode 3, 4, 5 Position)



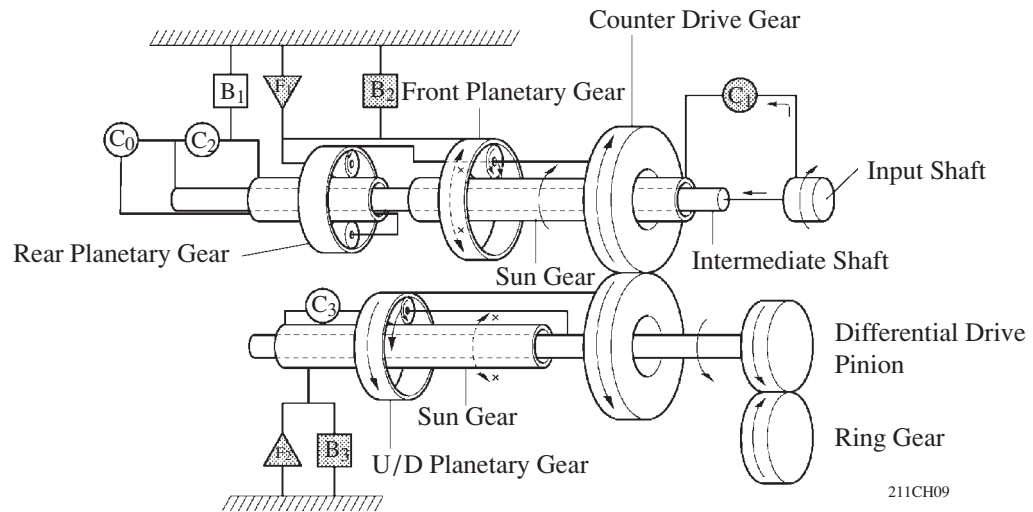
4) 4th Gear (D or S mode 4, 5 Position)



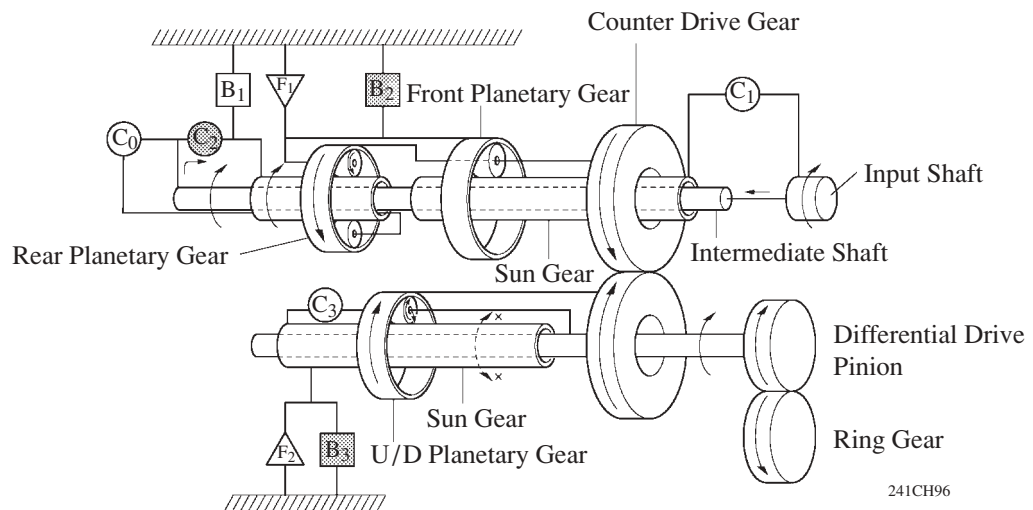
5) 5th Gear (D or S mode 5 Position)



6) 1st Gear (S mode 1 Position)



7) Reverse Gear

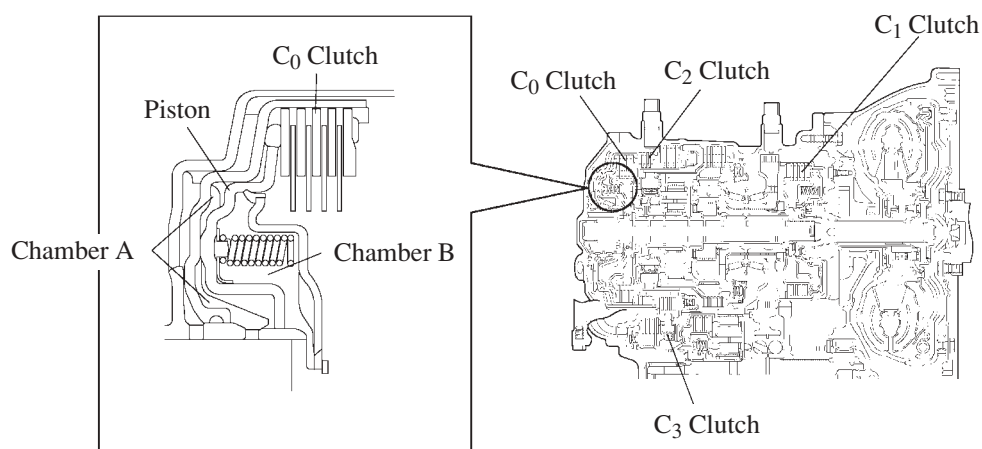


Centrifugal Fluid Pressure Canceling Mechanism

There are two reasons for improving the conventional clutch mechanism:

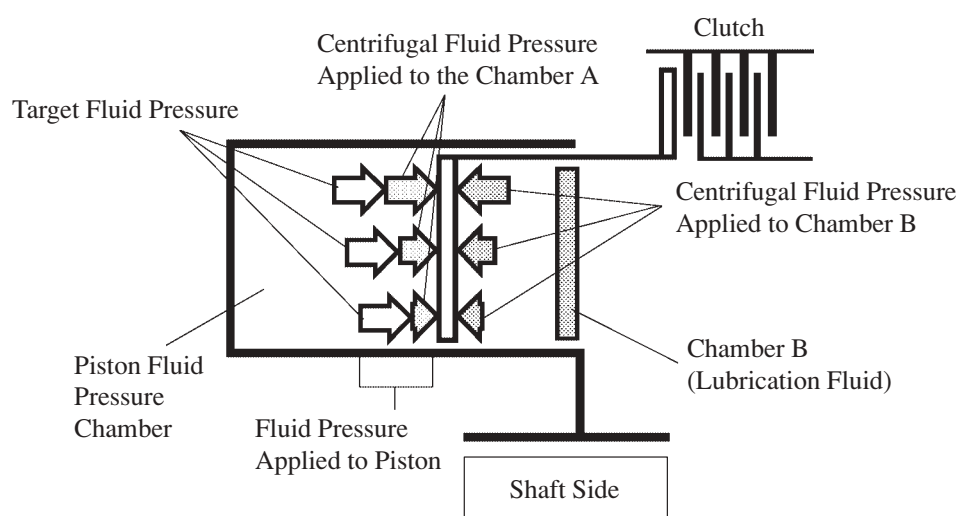
- To prevent the generation of pressure by the centrifugal force that applied to the fluid in piston fluid pressure chamber (hereafter referred to as “chamber A”) when the clutch is released, a check ball is provided to discharge the fluid. Therefore, before the clutch can be subsequently applied, it took time for the fluid to fill the chamber A.
- During shifting, in addition to the original clutch pressure that is controlled by the valve body, the pressure that acts on the fluid in the chamber A also exerts influence, which is dependent upon revolution fluctuations.

To address these two needs for improvement, a canceling fluid pressure chamber (hereafter referred to as “chamber B”) has been provided opposite chamber A.



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By utilizing the lubrication fluid such as that of the shaft, the same amount of centrifugal force is applied, thus canceling the centrifugal force that is applied to the piston itself. Accordingly, it is not necessary to discharge the fluid through the use of a check ball, and a highly responsive and smooth shifting characteristic has been achieved.



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| | | | | |
|-------------------------------------|---|--|---|---|
| Fluid pressure applied to piston | — | Centrifugal fluid pressure applied to chamber B | = | Target fluid pressure (original clutch pressure) |
|-------------------------------------|---|--|---|---|