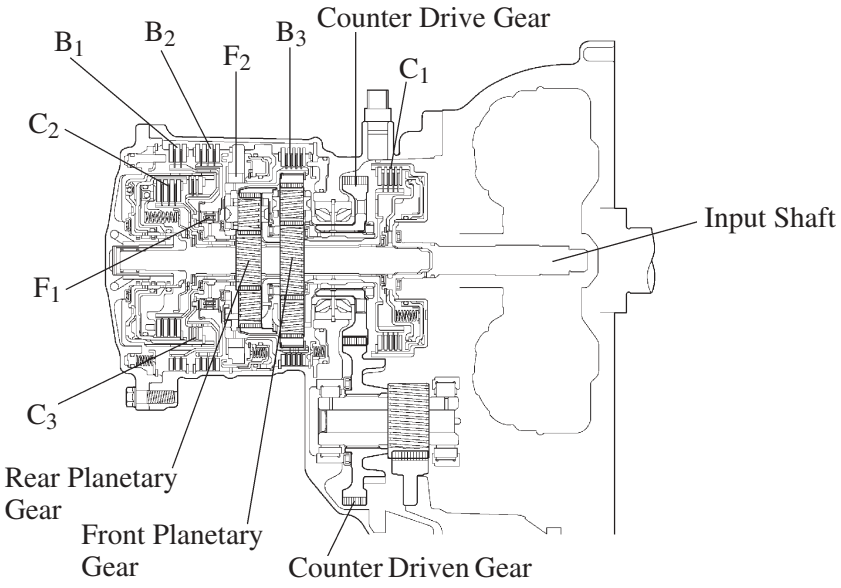
■PLANETARY GEAR UNIT

1. U340E Automatic Transaxle

General

- A CR-CR type planetary gear is used in the planetary gear unit which is located on the input shaft. In this planetary gear unit, the front planetary carrier is joined to the rear ring gear, and the rear planetary carrier is joined to the front ring gear. As result, the unit has been made significantly simple and compact.
- A centrifugal fluid pressure canceling mechanism is used in the C_1 clutch which is applied when shifting from 3rd to 4th.



216CH05

▶ **Specifications** ◀

C_1	Forward Clutch	The No. of Discs	4
C_2	Direct Clutch		3
C_3	Reverse Clutch		2
B_1	OD & 2nd Brake		2
B_2	2nd Brake		3
B_3	1st & Reverse Brake		4
F_1	No.1 One-way Clutch	The No. of Sprags	16
F_2	No.2 One-way Clutch	The No. of Rollers	15
Front Planetary Gear		The No. of Sun Gear Teeth	46
		The No. of Pinion Gear Teeth	21
		The No. of Ring Gear Teeth	85
Rear Planetary Gear		The No. of Sun Gear Teeth	32
		The No. of Pinion Gear Teeth	21
		The No. of Ring Gear Teeth	75
Counter Gear		The No. of Drive Gear Teeth	52
		The No. of Driven Gear Teeth	53

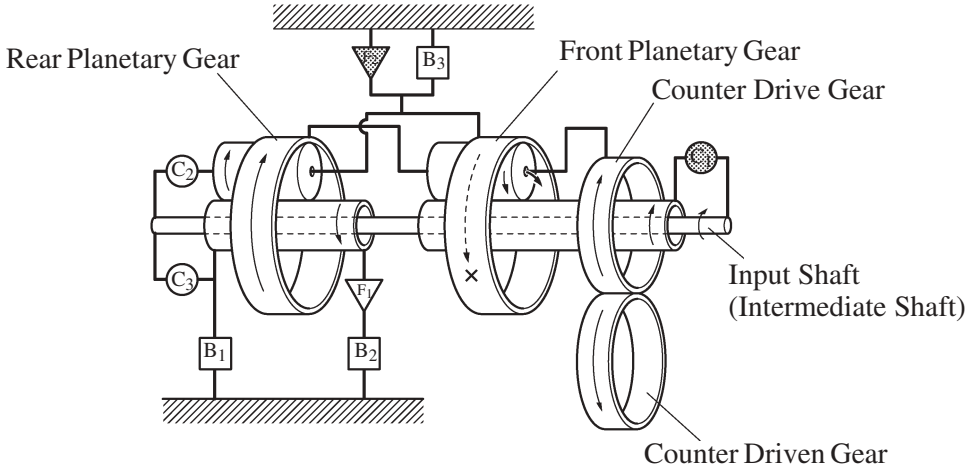
Function of Components

Component		Function
C_1	Forward Clutch	Connects input shaft and front planetary sun gear.
C_2	Direct Clutch	Connects intermediate shaft and rear planetary carrier.
C_3	Reverse Clutch	Connects intermediate shaft and rear planetary sun gear.
B_1	OD & 2nd Brake	Locks the rear planetary sun gear.
B_2	2nd Brake	Prevents rear planetary sun gear from turning counterclockwise.
B_3	1st & Reverse Brake	Locks the front planetary ring gear and rear planetary carrier.
F_1	No.1 One-way Clutch	Prevents rear planetary sun gear from turning counterclockwise.
F_2	No.2 One-way Clutch	Prevents front planetary ring gear and rear planetary carrier from turning counterclockwise.
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.

Motive Power Transaxle

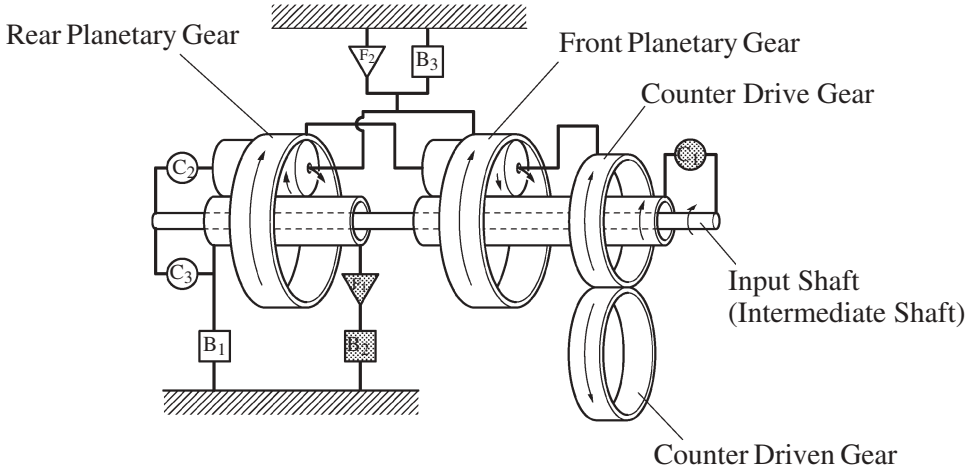
Shift Lever Position	Gear	Solenoid Valve		Clutch			Brake			One-way Clutch	
		S1	S2	C_1	C_2	C_3	B_1	B_2	B_3	F_1	F_2
P	Park	ON	ON								
R	Reverse	ON	ON			○			○		
N	Neutral	ON	ON								
D	1st	ON	ON	○							○
	2nd	ON	OFF	○				○		○	
	3rd	OFF	OFF	○	○			○			
	4th	OFF	ON		○		○	○			
3	1st	ON	ON	○							○
	2nd	ON	OFF	○				○		○	
	3rd	OFF	OFF	○	○			○			
2	1st	ON	ON	○							○
	2nd	ON	OFF	○			○	○		○	
L	1st	ON	ON	○					○		○

1st Gear (D, 3 or 2 Position)



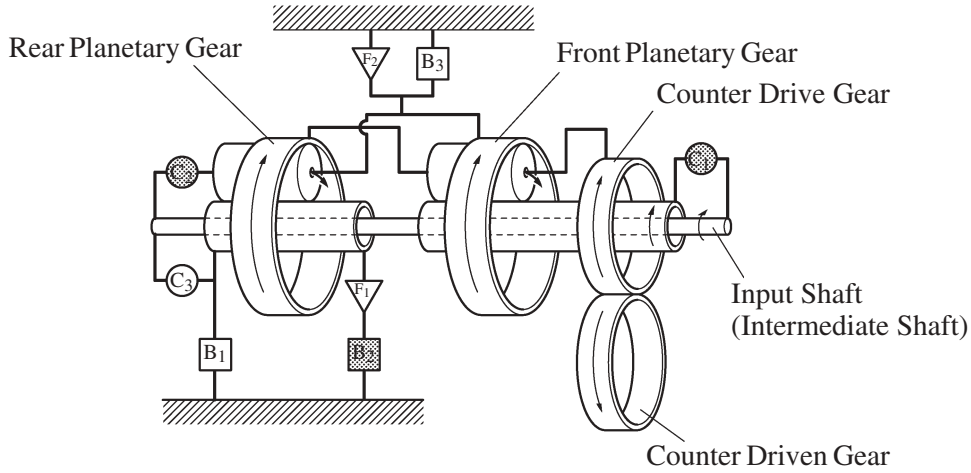
248CH39

2nd Gear (D or 3 Position)



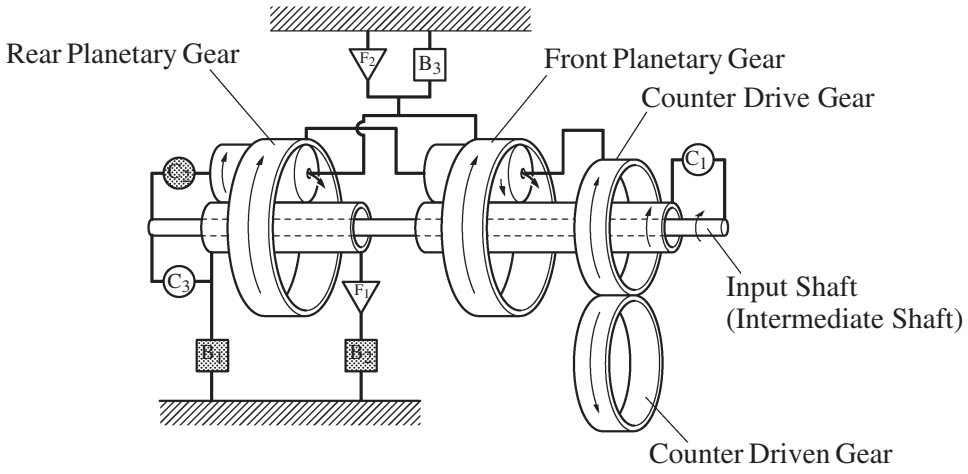
171CH06

3rd Gear (D or 3 Position)



248CH40

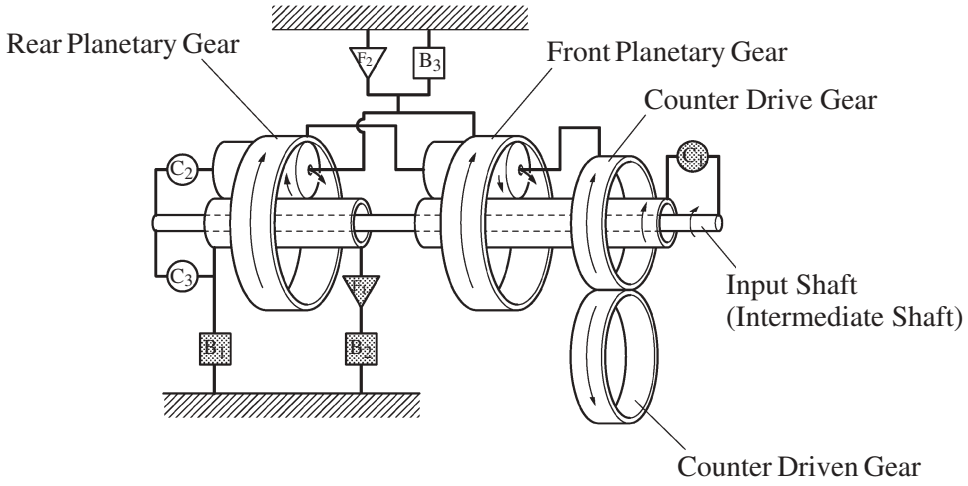
4th Gear (D Position)



248CH41

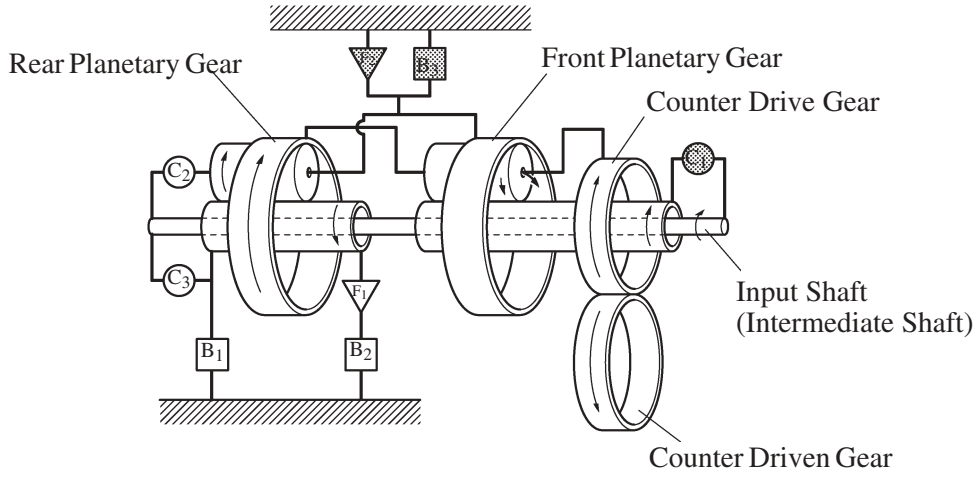
CH

2nd Gear (2 Position)



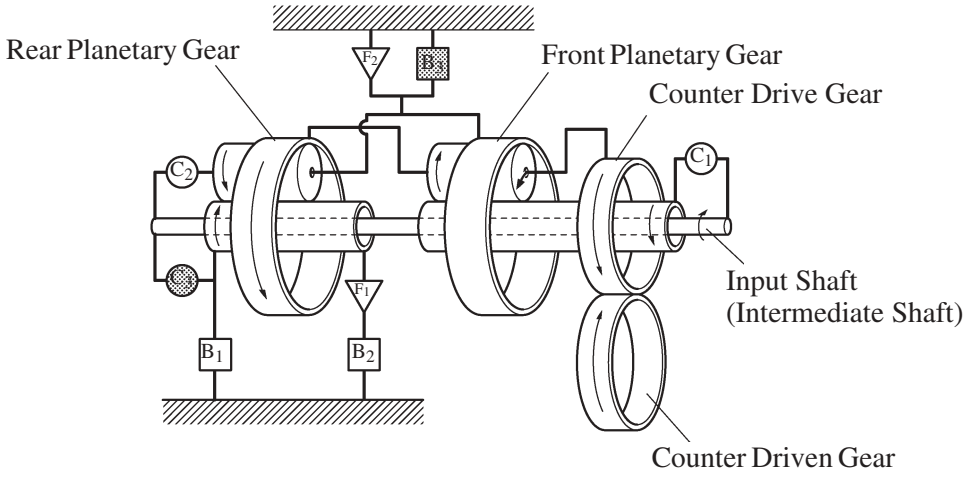
171CH09

1st Gear (L Position)



248CH42

Reverse Gear (R Position)

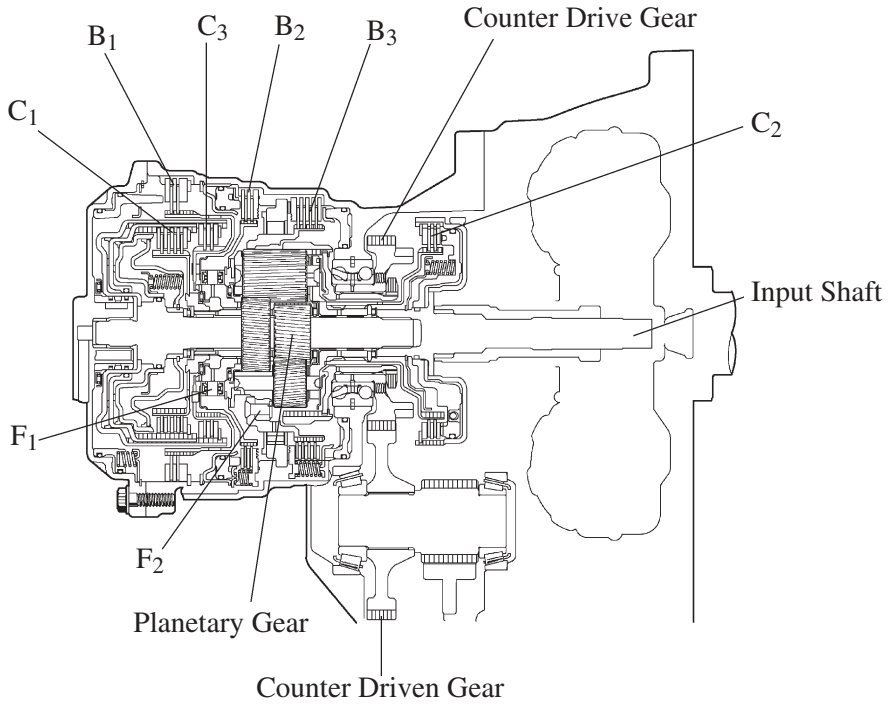


248CH43

2. U441E Automatic Transaxle

General

- A Ravigneaux type planetary gear is used in the planetary gear unit which is located on the input shaft. This planetary gear combines a set of sun gears with two different diameters and a short pinion gear and long pinion gear.
- A centrifugal fluid pressure canceling mechanism is used in the C_1 clutch, which is applied when shifting from the 4th to 3rd and from the 4th to 2nd.



00SCH33Y

▶ Specifications ◀

C_1	Forward Clutch	The No. of Discs	4
C_2	Direct Clutch		2
C_3	Reverse Clutch		2
B_1	OD & 2nd Brake		2
B_2	2nd Brake		2
B_3	1st & Reverse Brake		4
F_1	No. 1 One-way Clutch	The No. of Sprags	12
F_2	No. 2 One-way Clutch	The No. of Rollers	15
Planetary Gear		The No. of No.1 Sun Gear Teeth	24
		The No. of No.2 Sun Gear Teeth	30
		The No. of Long Pinion Gear Teeth	20
		The No. of Short Pinion Gear Teeth	19
		The No. of Ring Gear Teeth	69
Counter Gear		The No. of Drive Gear Teeth	44
		The No. of Driven Gear Teeth	45

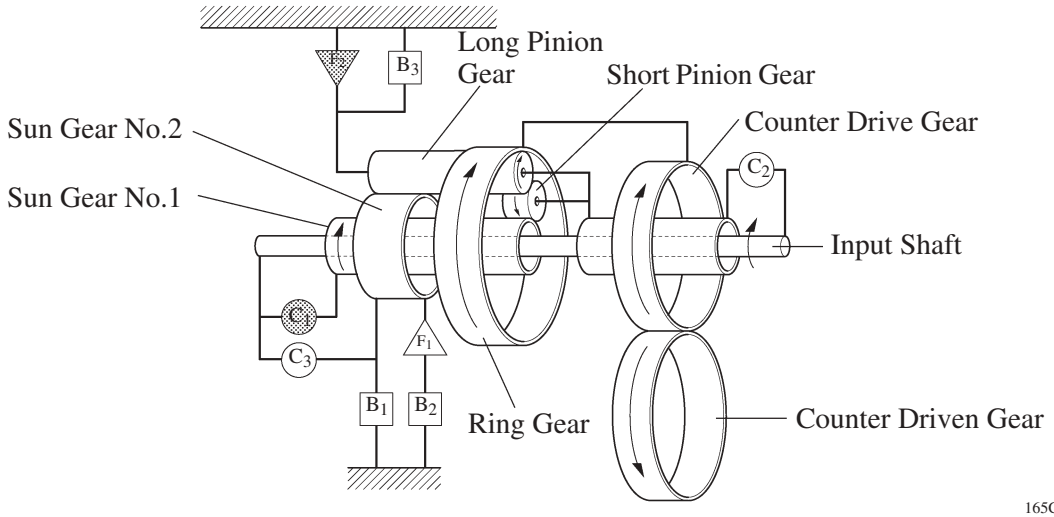
Function of Components

Component		Function
C_1	Forward Clutch	Connects input shaft and planetary sun gear No.1.
C_2	Direct Clutch	Connects input shaft and planetary carrier.
C_3	Reverse Clutch	Connects input shaft and planetary sun gear No.2.
B_1	OD & 2nd Brake	Locks the planetary sun gear No.2.
B_2	2nd Brake	Prevents planetary sun gear No.2 from turning counterclockwise.
B_3	1st & Reverse Brake	Locks the planetary carrier.
F_1	No. 1 One-way Clutch	Prevents planetary sun gear No.2 from turning counterclockwise.
F_2	No. 2 One-way Clutch	Prevents planetary carrier from turning counterclockwise.
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.

Motive Power Transaxle

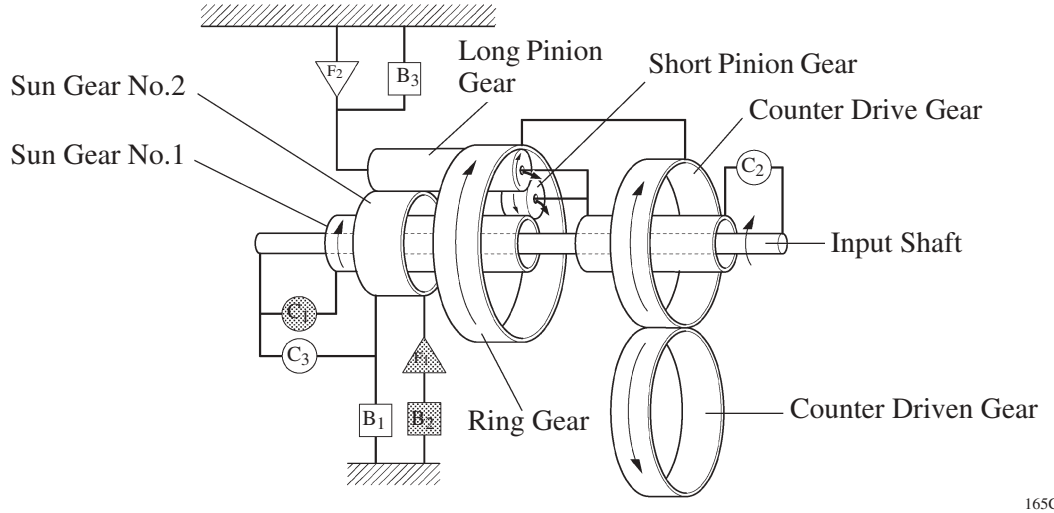
Shift Lever Position	Gear	Solenoid Valve		Clutch			Brake			One-way Clutch	
		S1	S2	C_1	C_2	C_3	B_1	B_2	B_3	F_1	F_2
P	Park	ON	ON								
R	Reverse	ON	ON			○			○		
N	Neutral	ON	ON								
D	1st	ON	ON	○							○
	2nd	ON	OFF	○				○		○	
	3rd	OFF	OFF	○	○			○			
	4th	OFF	ON		○		○	○			
3	1st	ON	ON	○							○
	2nd	ON	OFF	○				○		○	
	3rd	OFF	OFF	○	○			○			
2	1st	ON	ON	○							○
	2nd	ON	OFF	○			○	○		○	
L	1st	ON	ON	○					○		○

1st Gear (D, 3 or 2 Position)



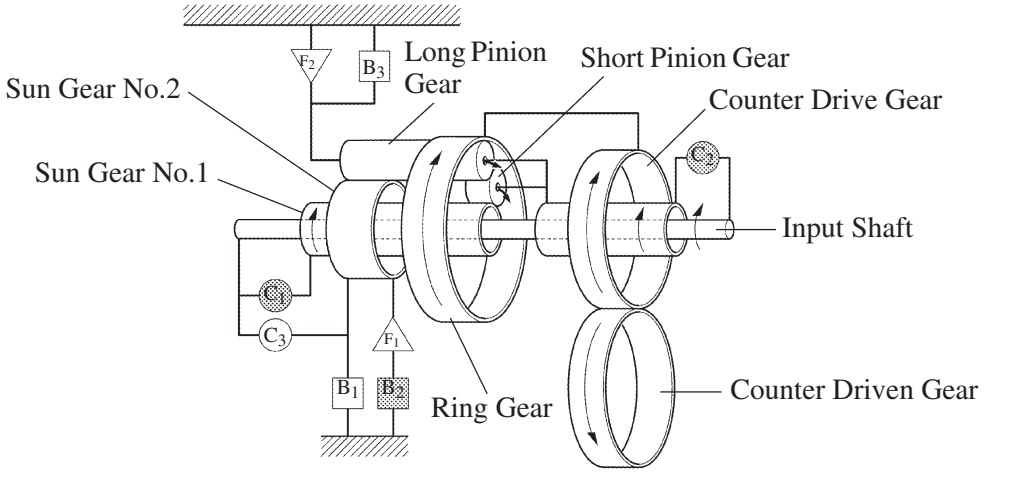
165CH35

2nd Gear (D or 3 Position)



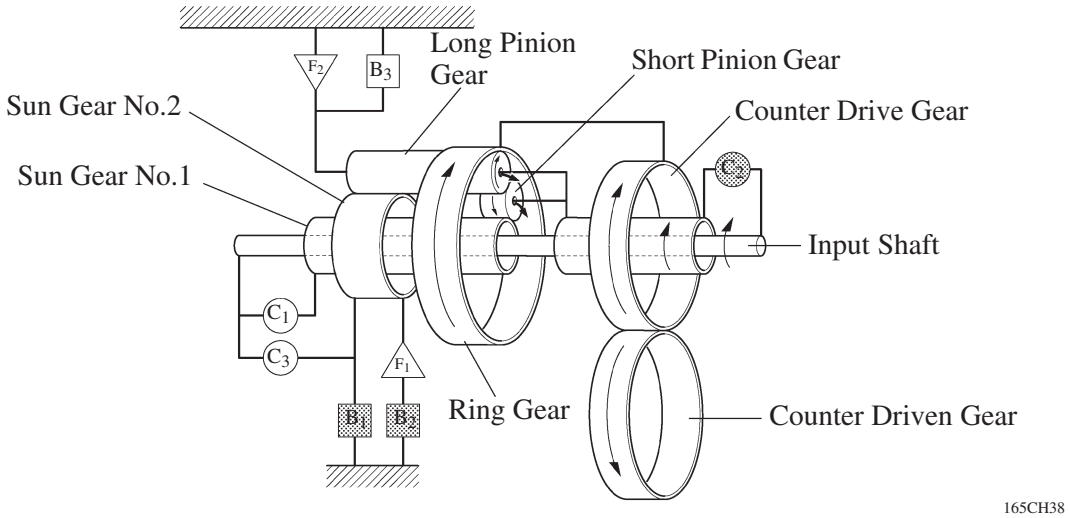
165CH36

3rd Gear (D or 3 Position)



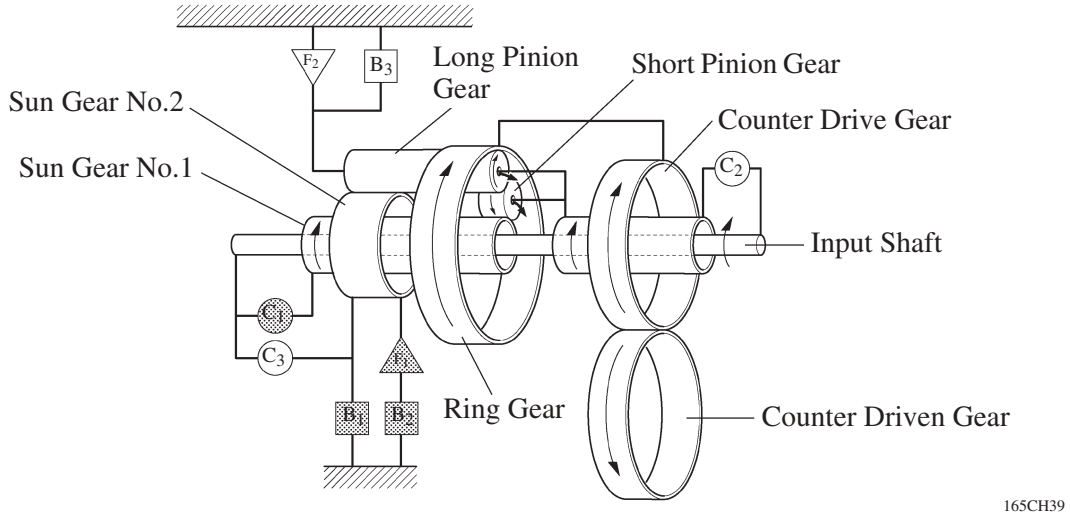
165CH37

4th Gear (D Position)



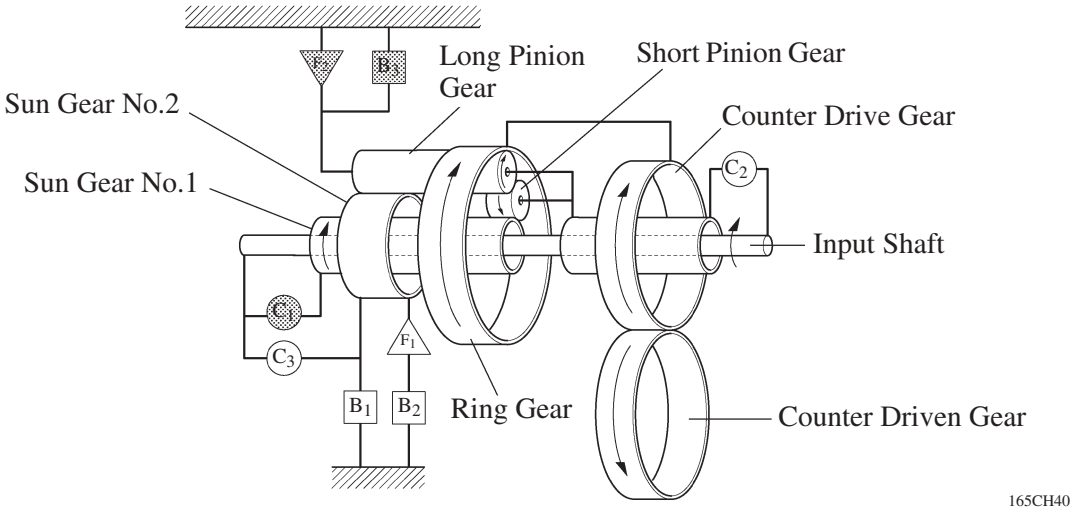
165CH38

2nd Gear (2 Position)



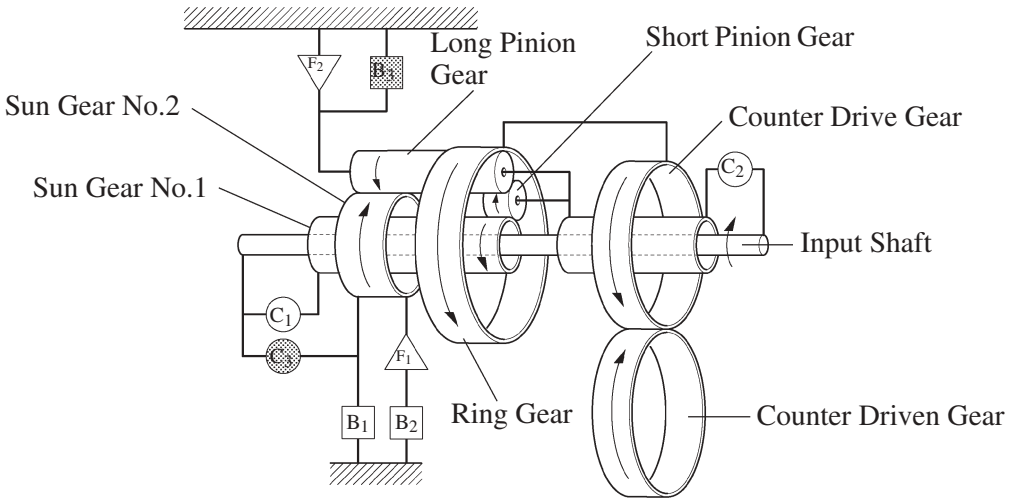
165CH39

1st Gear (L Position)



165CH40

Reverse Gear (R Position)



165CH41

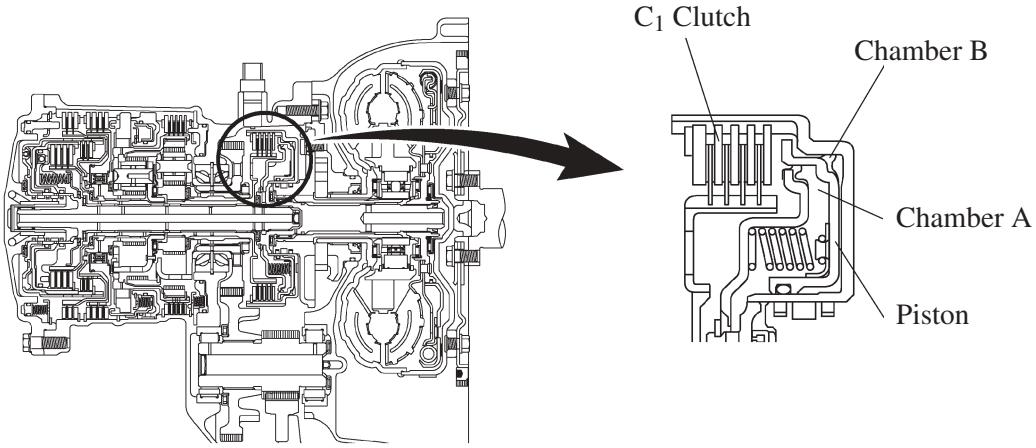
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3. Centrifugal Fluid Pressure Canceling Mechanism

There are two reasons for improving the conventional clutch mechanism:

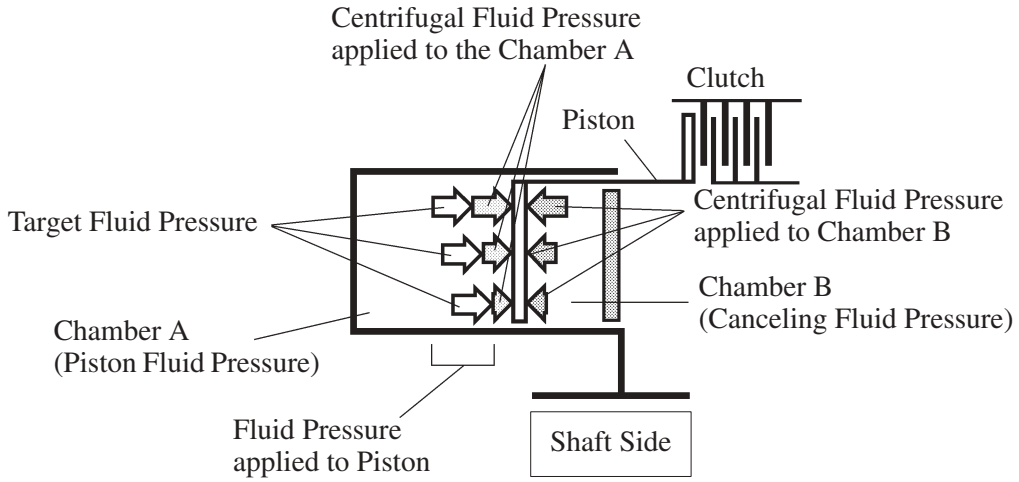
- To prevent the generation of pressure by the centrifugal force that applied to the fluid in piston fluid pressure chamber (hereafter referred to as "chamber A") when the clutch is released, a check ball is provided to discharge the fluid. Therefore, before the clutch can be subsequently applied, it 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.



U340E Automatic Transaxle

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.



Fluid pressure applied to piston	–	Centrifugal fluid pressure applied to chamber B	=	Target fluid pressure (original clutch pressure)