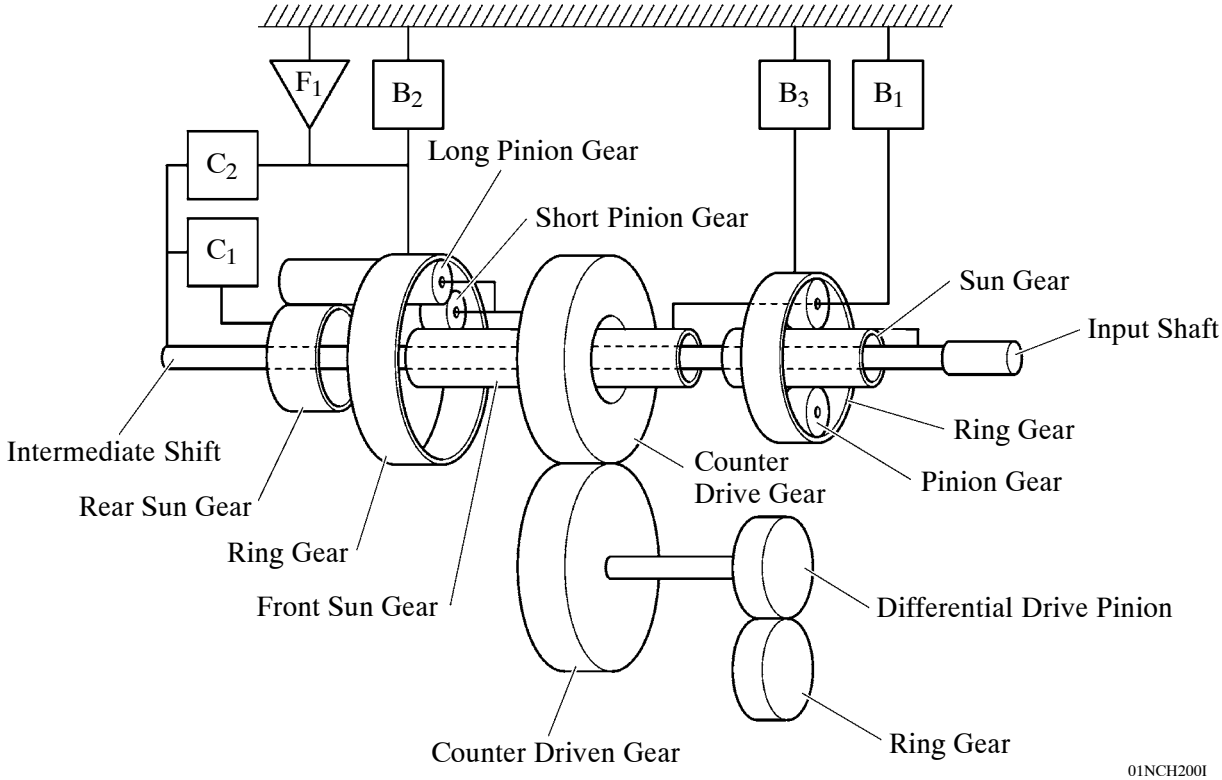
■ PLANETARY GEAR UNIT

1. Construction

- A 6-speed configuration has been achieved by using 2 planetary gear units, creating a 6-speed automatic transaxle.
- An underdrive planetary gear unit is used as the front gear unit, and a Ravigneaux planetary gear unit is used as the rear gear unit. The Ravigneaux planetary gear unit consists of pairs of sun gears (front and rear) and planetary pinion gears (long and short) with different diameters within a single planetary gear.
- The centrifugal fluid pressure canceling mechanism is used in the No. 1 clutch (C_1) and No. 2 clutch (C_2) applied when shifting from the 1st to 6th gears.



2. Function of Components

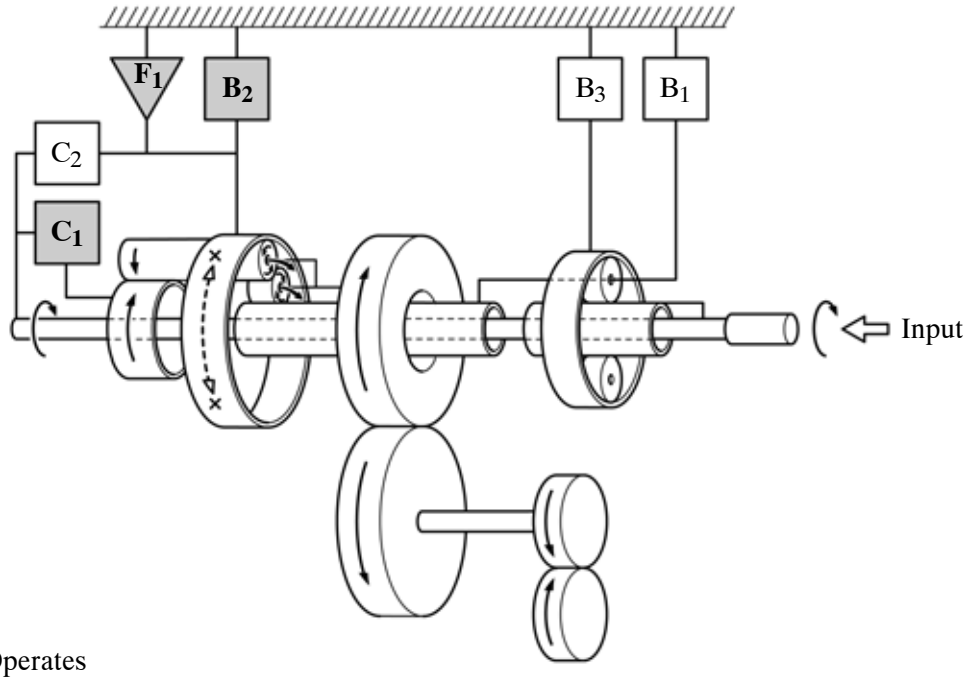
Component	Function
No. 1 Clutch (C_1)	Connects the intermediate shaft and the Ravigneaux planetary rear sun gear.
No. 2 Clutch (C_2)	Connects the intermediate shaft and the Ravigneaux planetary ring gear.
No. 1 Brake (B_1)	Prevents the Ravigneaux planetary front sun gear and the underdrive planetary carrier from turning clockwise or counterclockwise.
No. 2 Brake (B_2)	Prevents the Ravigneaux planetary ring gear from turning clockwise or counterclockwise.
No. 3 Brake (B_3)	Prevents the underdrive planetary ring gear from turning clockwise or counterclockwise.
No. 1 1-way Clutch (F_1)	Prevents the Ravigneaux planetary ring gear 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.

3. Transaxle Power Flow

Shift Lever Position and Gear Range		Shift Solenoid Valve						Clutch		Brake			1-way Clutch
		SL	SL1	SL2	SL3	SL4	SLU	C_1	C_2	B_1	B_2	B_3	F_1
P			○										
R		■				○					○	○	
N			○										
D	1st		○					○			(○)		○
	2nd	○	○		○		▲	○		○			
	3rd	○	○			○	▲	○				○	
	4th	○	○	○			▲	○	○				
	5th	○		○		○	▲		○			○	
	6th	○		○	○		▲		○	○			
M6	6th	○		○	○		▲		○	○			
M5	5th	○		○		○	▲		○			○	
M4	4th	○	○	○			▲	○	○				
M3	3rd	○	○			○	▲	○				○	
M2	2nd	○	○		○		▲	○		○			
M1	1st		○				○	○			○		○

○: On
(○): During engine brake operation
▲: In accordance with flex lock-up
■: On while engaging, off when engaged

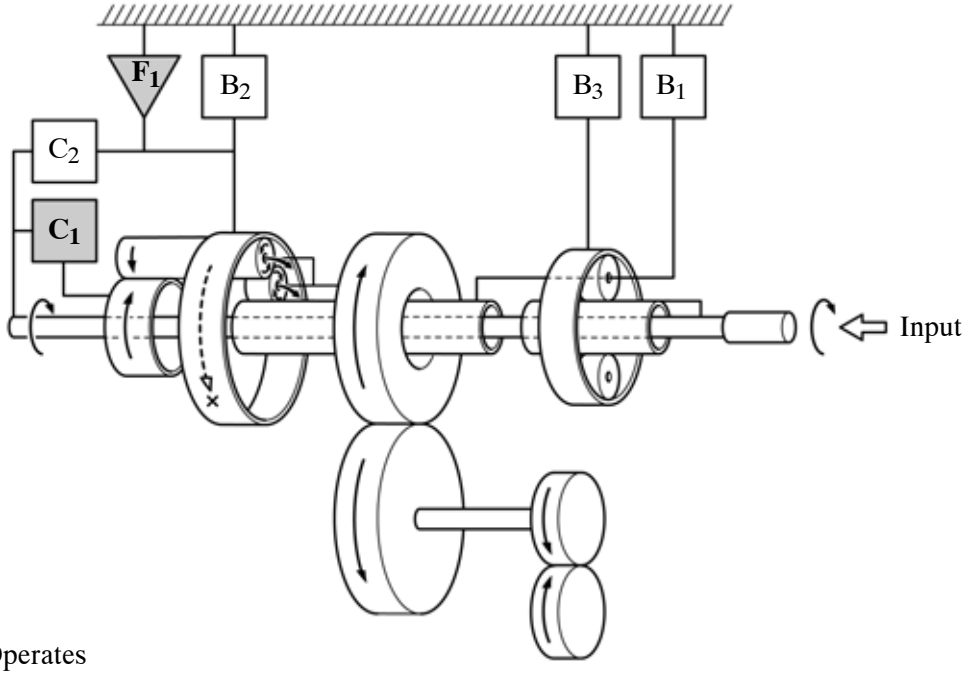
1st Gear (M Mode)



: Operates

01NCH201I

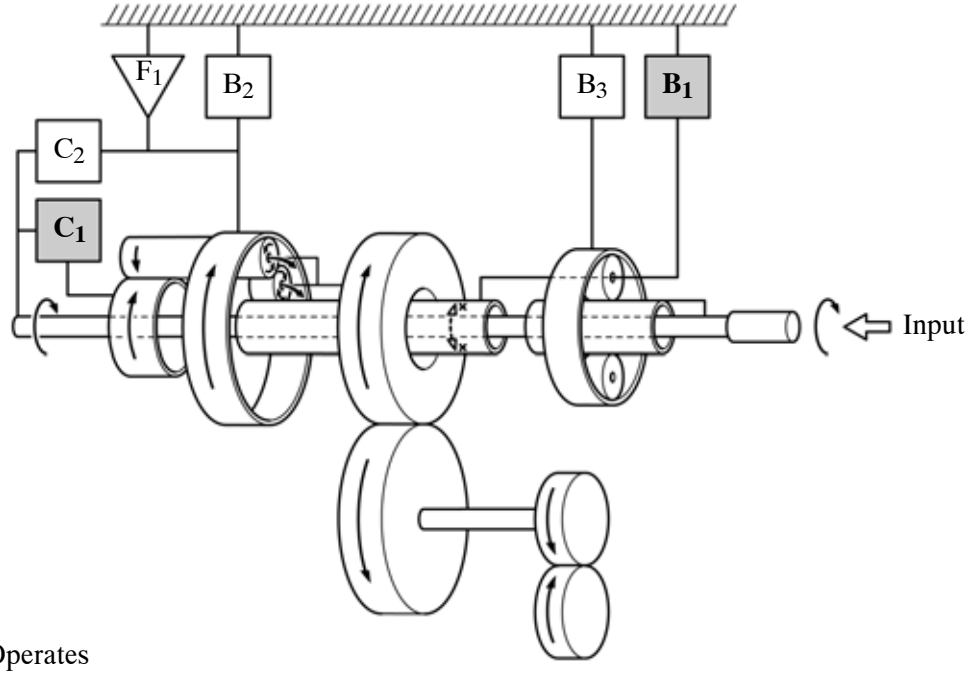
1st Gear (D Mode)



: Operates

01NCH202I

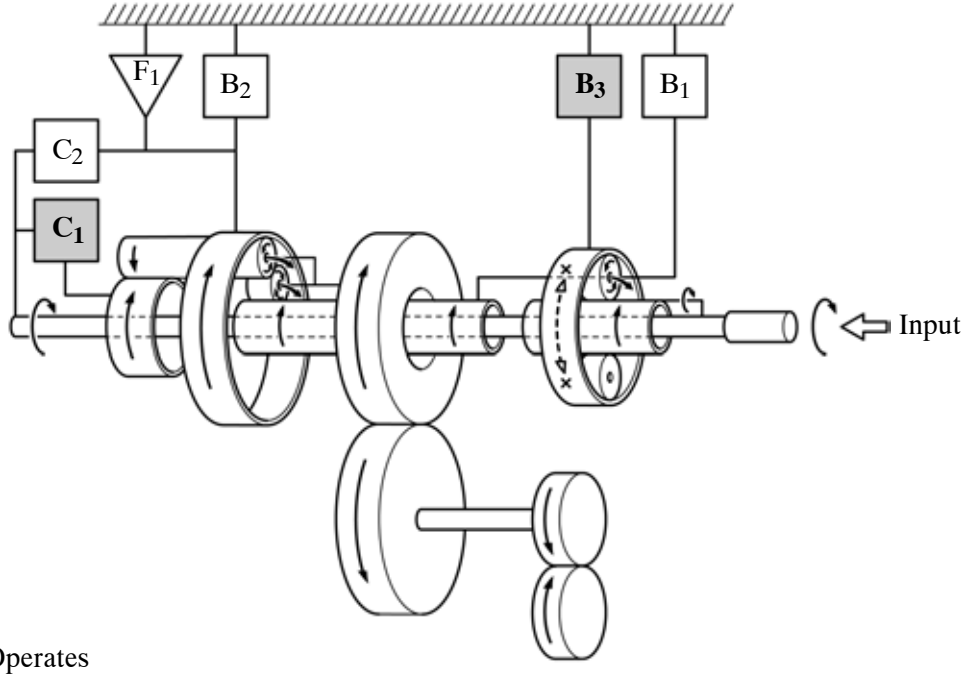
2nd Gear



: Operates

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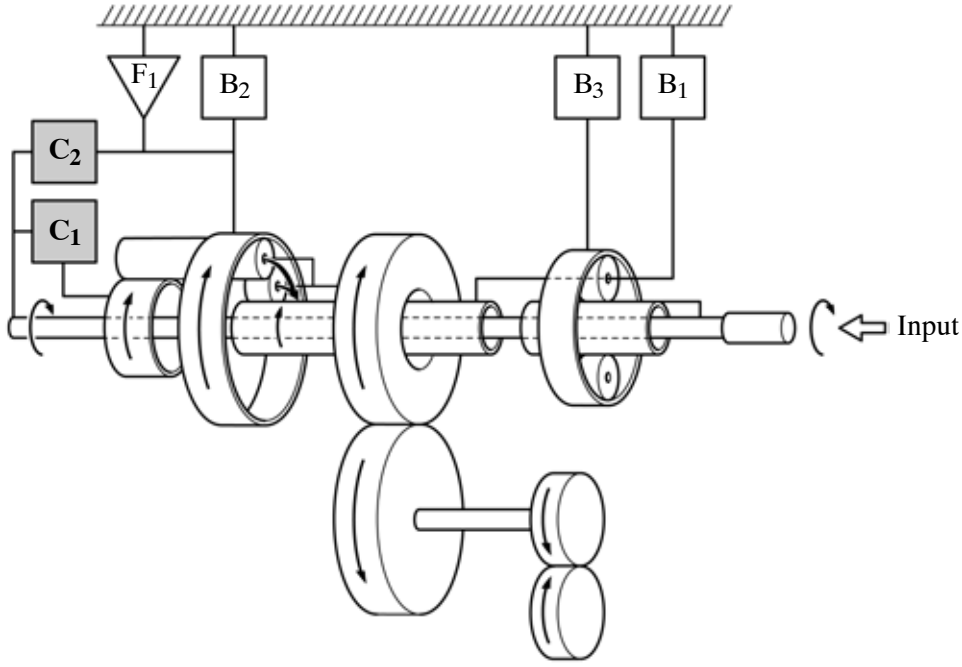
3rd Gear



: Operates

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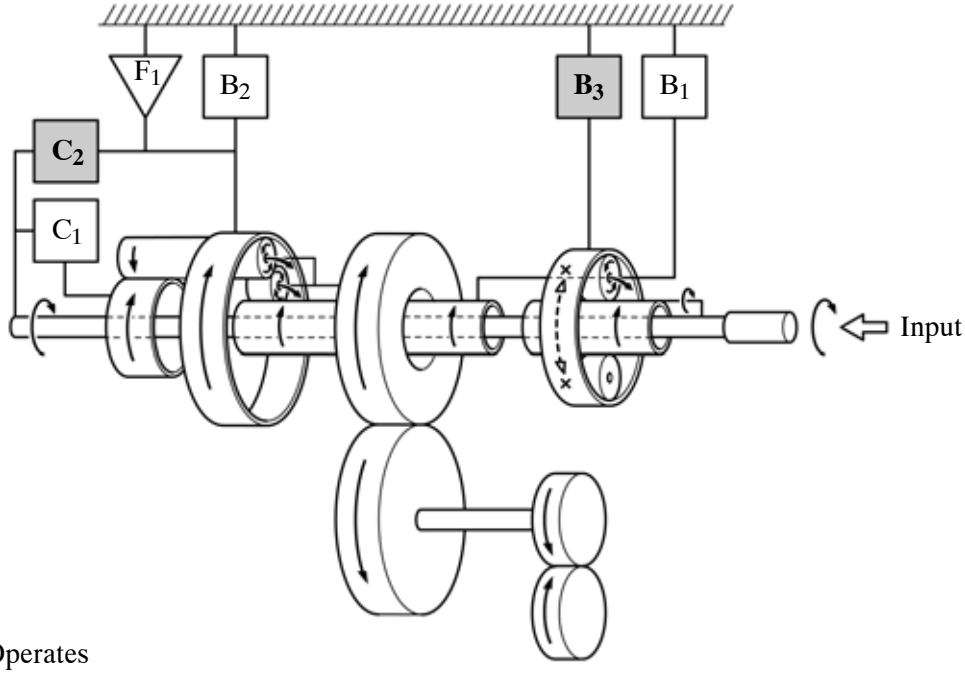
4th Gear



: Operates

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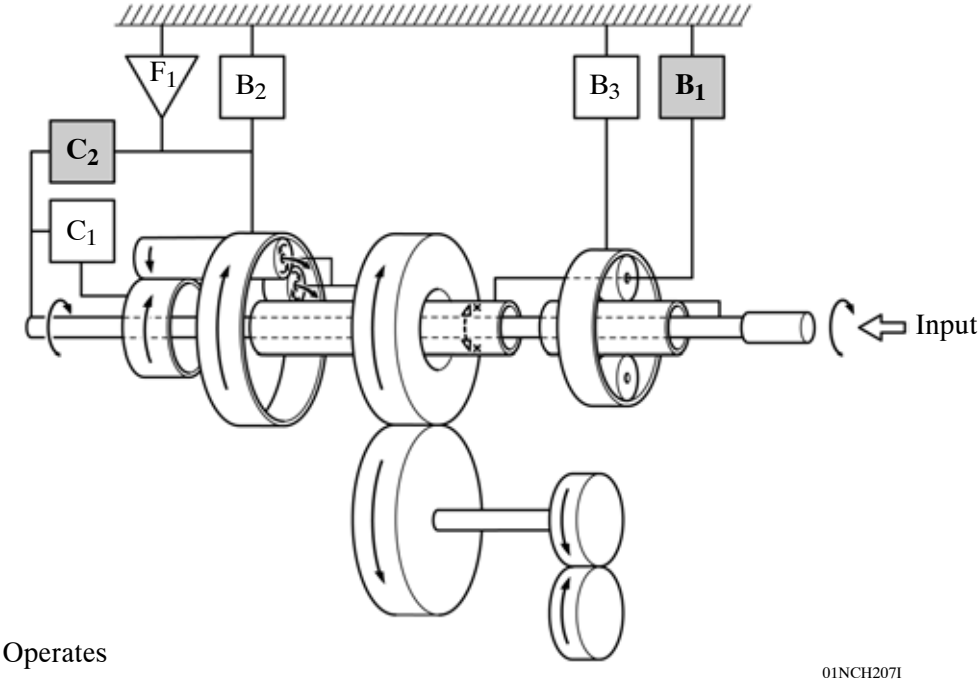
5th Gear



: Operates

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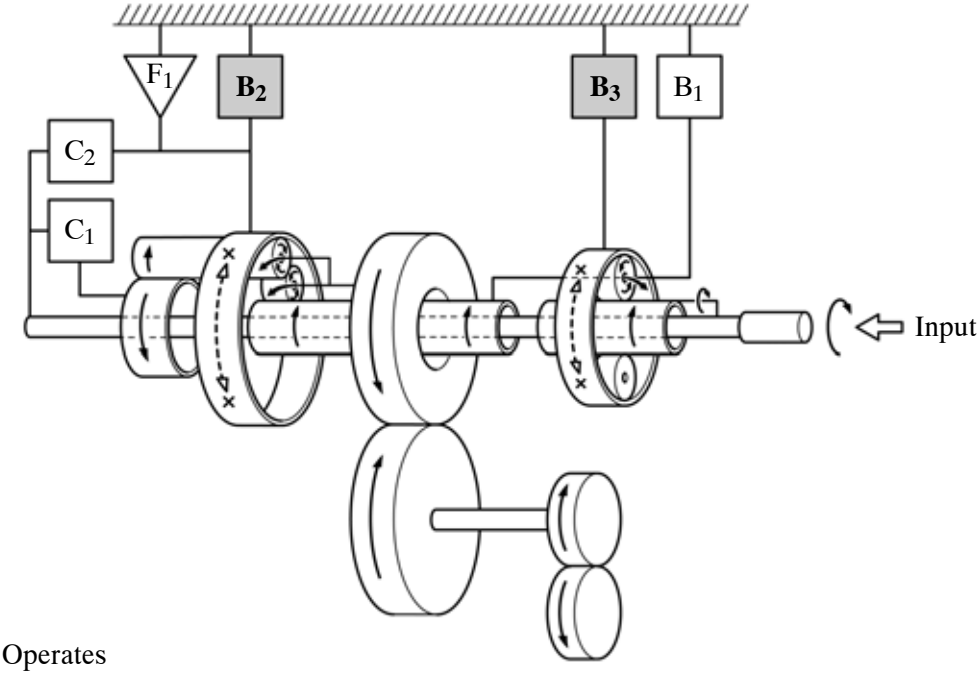
6th Gear



: Operates

01NCH207I

Reverse Gear



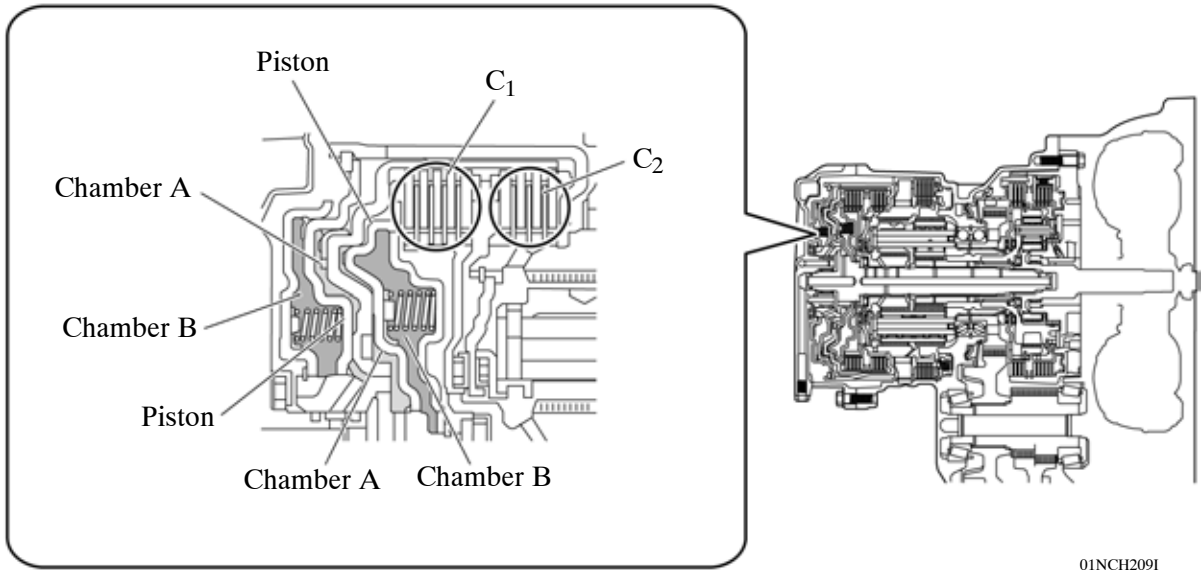
: Operates

01NCH208I

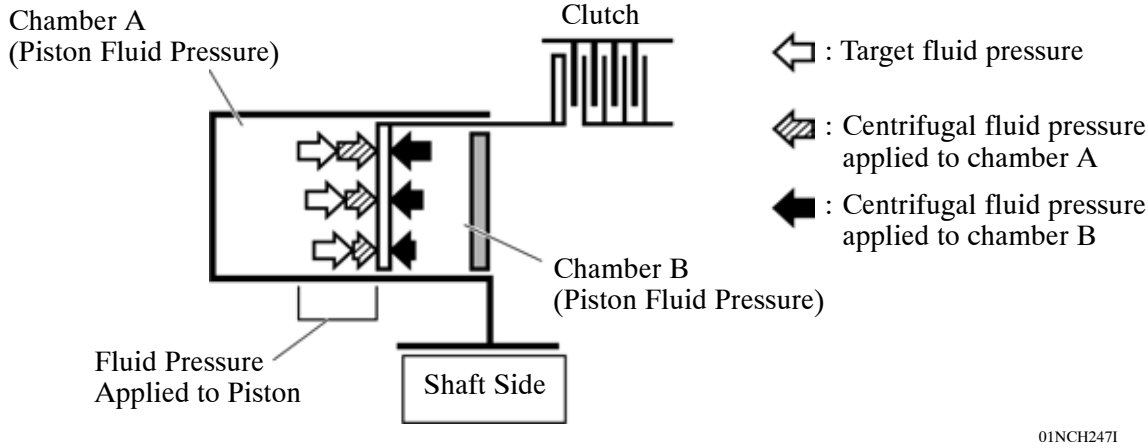
4. Centrifugal Fluid Pressure Canceling Mechanism

For the following reason, a centrifugal fluid pressure canceling mechanism is used on the No. 1 clutch (C_1) and No. 2 clutch (C_2):

- Clutch shifting operation is affected not only by the valve body controlling fluid pressure but also by centrifugal fluid pressure from the fluid that is present in the clutch piston oil pressure chamber (chamber A). The centrifugal fluid pressure canceling mechanism uses chamber B to reduce the effects of the centrifugal fluid pressure caused by the fluid in chamber A. As a result, smooth shifting with excellent response is achieved.



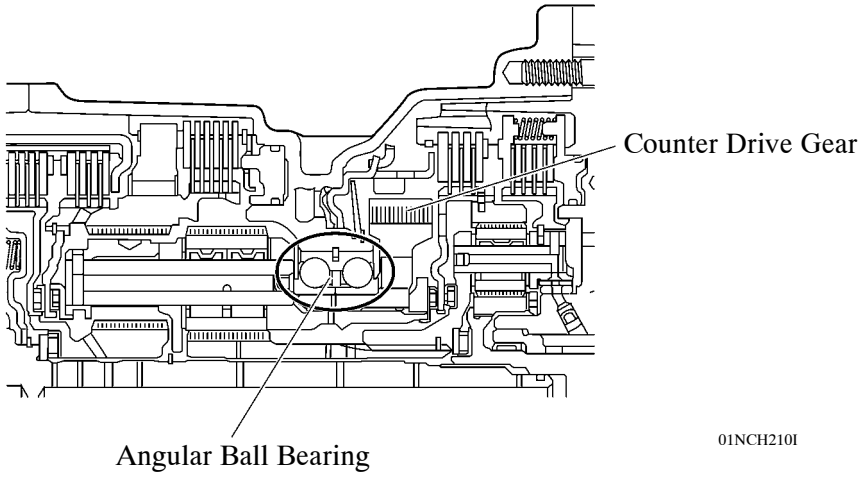
- Chamber B is filled by fluid supplied to the shaft for lubrication. As a result of filling chamber B, the same amount of fluid pressure is present on both sides of the piston due to centrifugal force. This cancels the effects of fluid pressure on the piston caused by centrifugal force. Accordingly, it is not necessary to discharge the fluid through the use of a check ball, and highly responsive and smooth shifting characteristics are achieved.



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

5. Counter Drive Gear Support Angular Ball Bearing

Angular ball bearings are used to support the counter drive gear and the Ravigneaux planetary gear unit, reducing the rolling resistance and noise.



6. Clutch and Brake Pistons

- 2 types of pistons are used: a non-split piston that acts in the push direction for the No. 1 clutch (C_1) operation, and a split piston that acts in the pull direction for the No. 2 clutch (C_2) operation. These 2 types of pistons contribute to making the entire clutch structure compact.
- When the split piston operates, clutch drag occurs due to rattling caused by the divided portion of the piston. However, by fitting springs on the circumference of the piston, this rattling is restrained and the occurrence of clutch drag is minimized.
- By setting the piston for the No. 3 brake (B_3) operation around the counter drive gear, the brake structure has been made more compact.

