

# Description

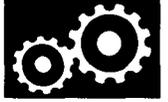
## Power Flow

PART POSITION	TORQUE CON-VERTER	1ST GEAR 1ST-HOLD CLUTCH	1ST GEAR 1ST CLUTCH	1ST GEAR ONE-WAY CLUTCH	2ND GEAR 2ND CLUTCH	3RD GEAR 3RD CLUTCH	4TH		REVERSE GEAR	PARKING GEAR
							GEAR	CLUTCH		
<b>P</b>	○	×	×	×	×	×	×	×	×	○
<b>R</b>	○	×	×	×	×	×	×	○	○	×
<b>N</b>	○	×	×	×	×	×	×	×	×	×
<b>D<sub>4</sub></b>	1ST	○	×	○	*2○	×	×	×	×	×
	2ND	○	×	*1○	×	○	×	×	×	×
	3RD	○	×	*1○	×	○	×	×	×	×
	4TH	○	×	*1○	×	×	×	○	○	×
<b>D<sub>3</sub></b>	1ST	○	×	○	*2○	×	×	×	×	×
	2ND	○	×	*1○	×	○	×	×	×	×
	3RD	○	×	*1○	×	○	×	×	×	×
<b>2</b>	○	×	*1○	×	○	×	×	×	×	×
<b>1</b>	○	○	○	○	×	×	×	×	×	×

○: Operates, x: Doesn't operate.

\*1: Although the 1st clutch engages, driving power is not transmitted as the one-way clutch slips.

\*2: The one-way clutch engages when accelerating, and slips when decelerating.

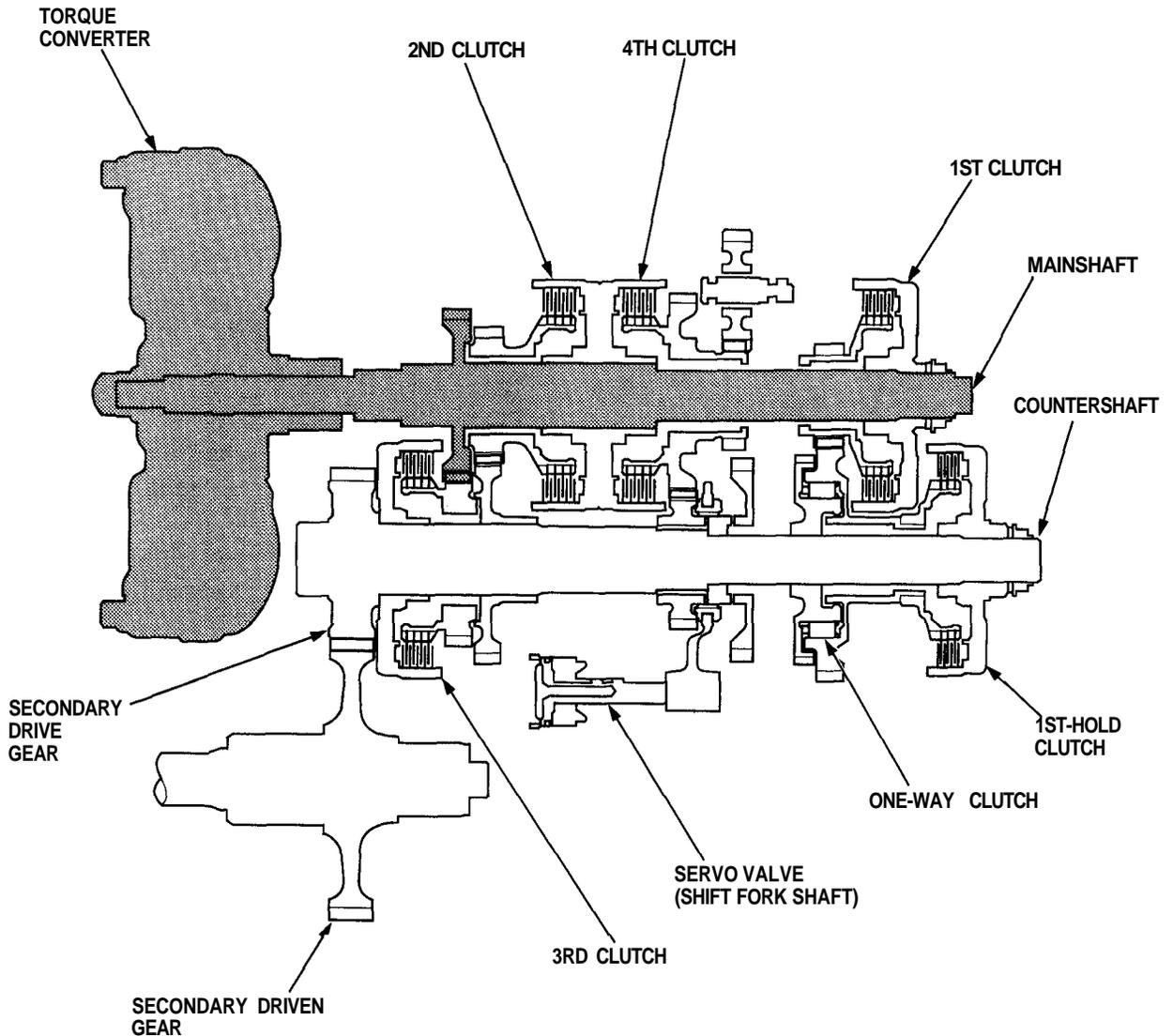


**N Position**

Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft.

**P Position**

Hydraulic pressure is not applied to the clutches. Power is not transmitted to the countershaft. The countershaft is locked by the parking brake pawl interlocking the parking gear.



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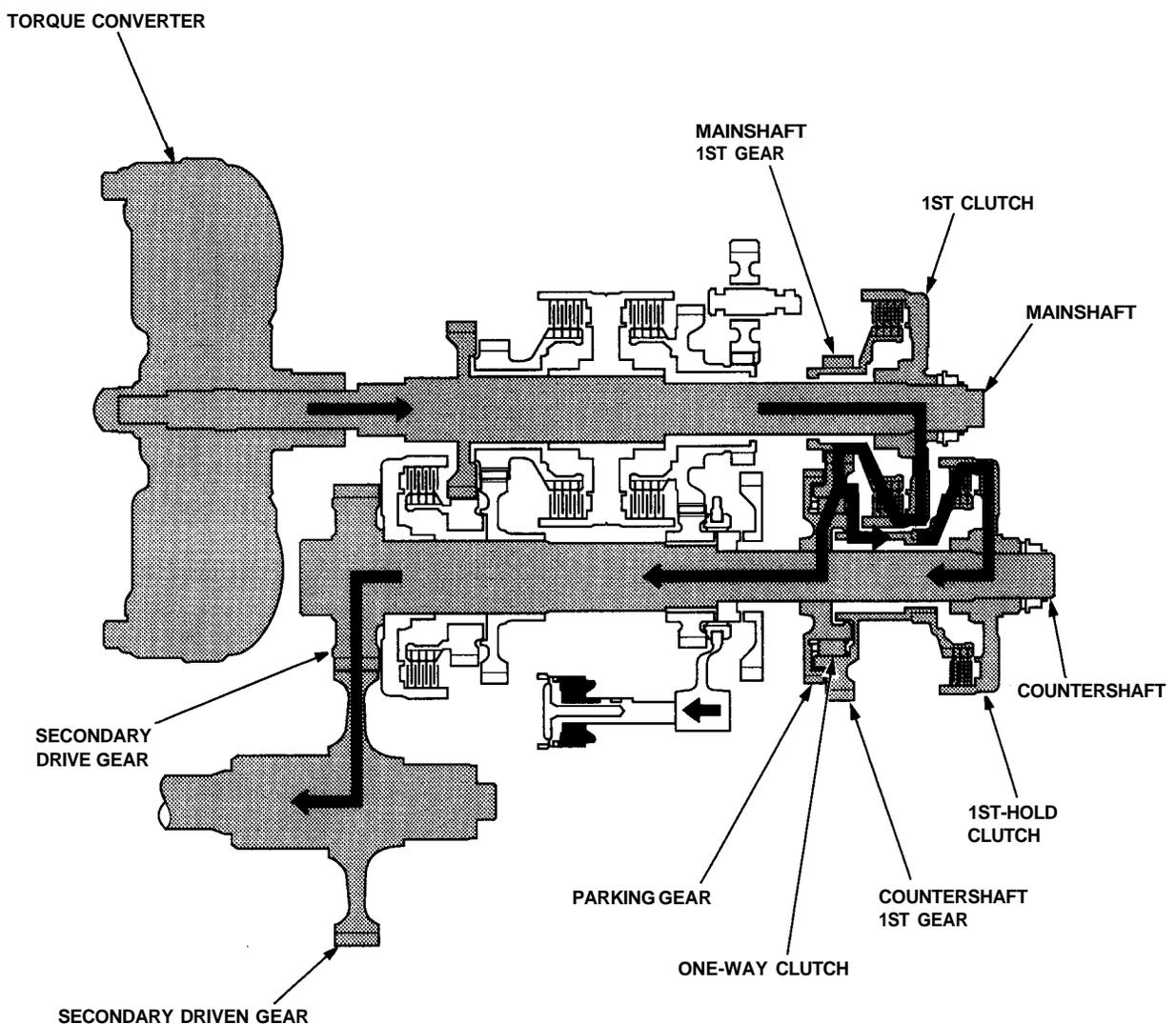
## Power Flow (cont'd)

### 1 Position

In 1 position, hydraulic pressure is applied to the 1st clutch and the 1st-hold clutch.

The power flow when accelerating is as follows:

1. The hydraulic pressure is applied to the 1st clutch on the mainshaft, and power is transmitted via the 1st clutch to the mainshaft 1st gear.
2. Hydraulic pressure is also applied to the 1st-hold clutch on the countershaft. Power transmitted to the mainshaft 1st gear is conveyed via the countershaft 1st gear to the one-way clutch and the 1st-hold clutch. The one-way clutch is used to drive the countershaft, and the 1st-hold clutch drives the countershaft.
3. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

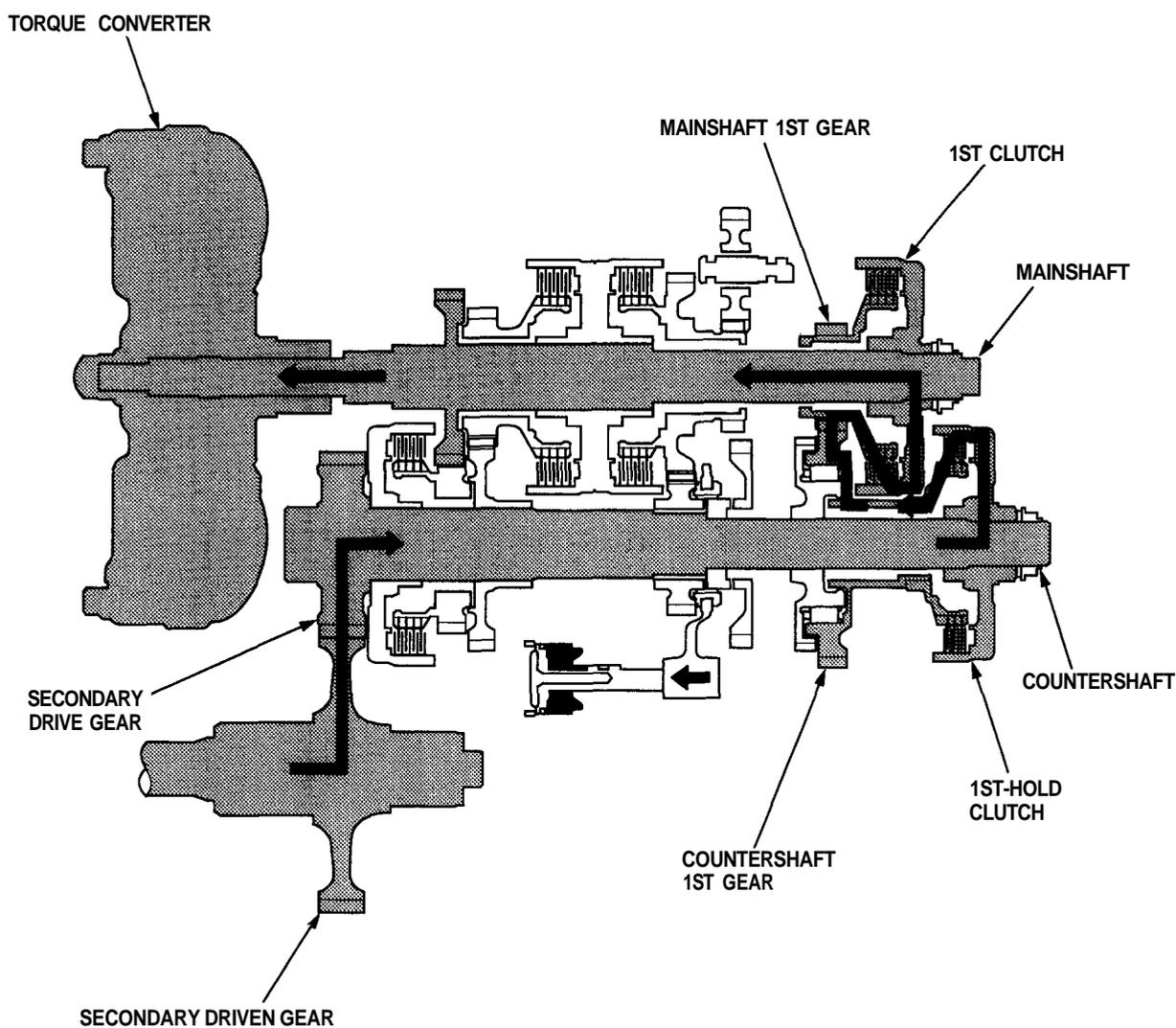




## 1 Position

The power flow when decelerating is as follows:

1. Rolling resistance from the road surface goes through the front wheels to the secondary drive gear, then to the countershaft 1st gear via the 1st-hold clutch which is applied during deceleration.
2. The one-way clutch disengages at this time because the application of torque is reversed.
3. The counterforce conveyed to the countershaft 1st gear turns the mainshaft 1st gear. At this time, since hydraulic pressure is also applied to the 1st clutch, counterforce is also transmitted to the mainshaft. As a result, engine braking can be obtained with 1st gear.



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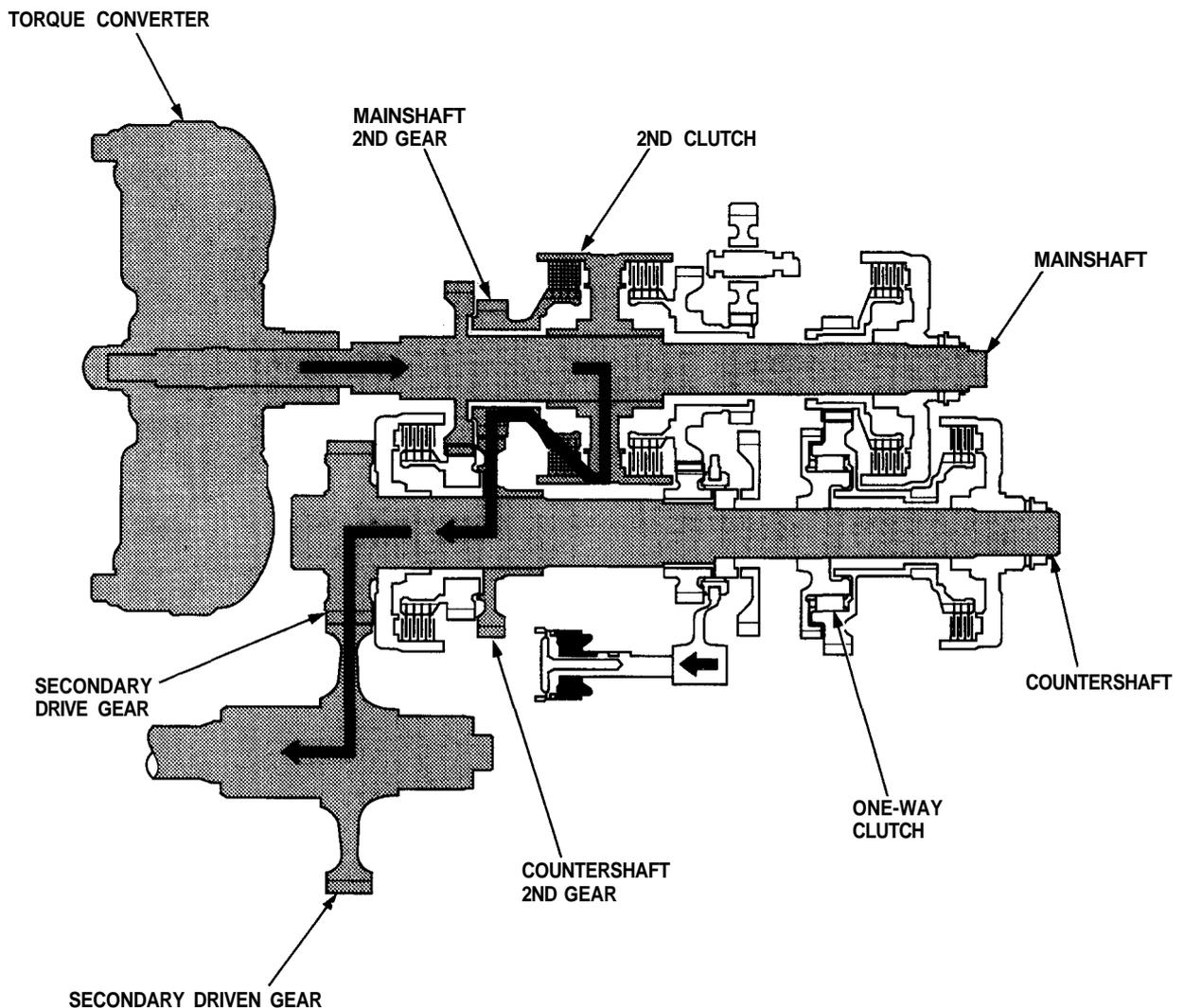
## Power Flow (cont'd)

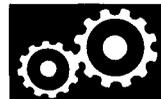
### 2 Position

2 Position is provided to drive only in 2nd gear.

1. Hydraulic pressure is applied to the 2nd clutch on the mainshaft, and power is transmitted via the 2nd clutch to the mainshaft 2nd gear.
2. Power transmitted to the mainshaft 2nd gear is conveyed via the countershaft 2nd gear, which drives the counter-shaft.
3. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

NOTE: Hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of the 2nd gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



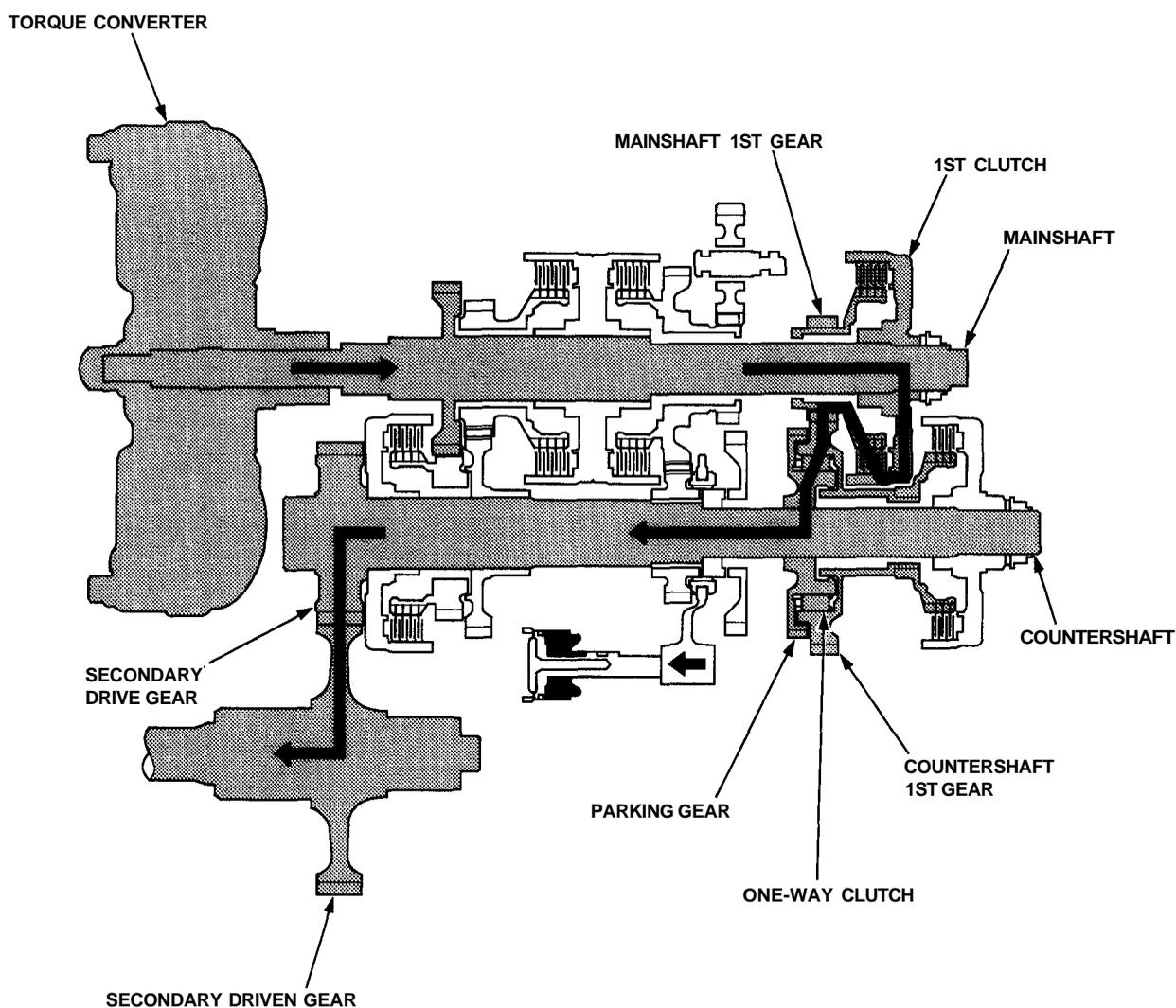


In D<sub>4</sub> or D<sub>3</sub> position, the optimum gear is automatically selected from 1st, 2nd, 3rd, and 4th gears, according to conditions such as the balance between throttle opening (engine load) and vehicle speed.

**D<sub>4</sub> or D<sub>3</sub> Position, 1st gear**

1. Hydraulic pressure is applied to the 1st clutch, which rotates together with the mainshaft, and the mainshaft 1st gear rotates.
2. Power is transmitted to the countershaft 1st gear, which drives the countershaft via the one-way clutch.
3. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

NOTE: In D<sub>4</sub> or D<sub>3</sub> position, hydraulic pressure is not applied to the 1st-hold clutch.



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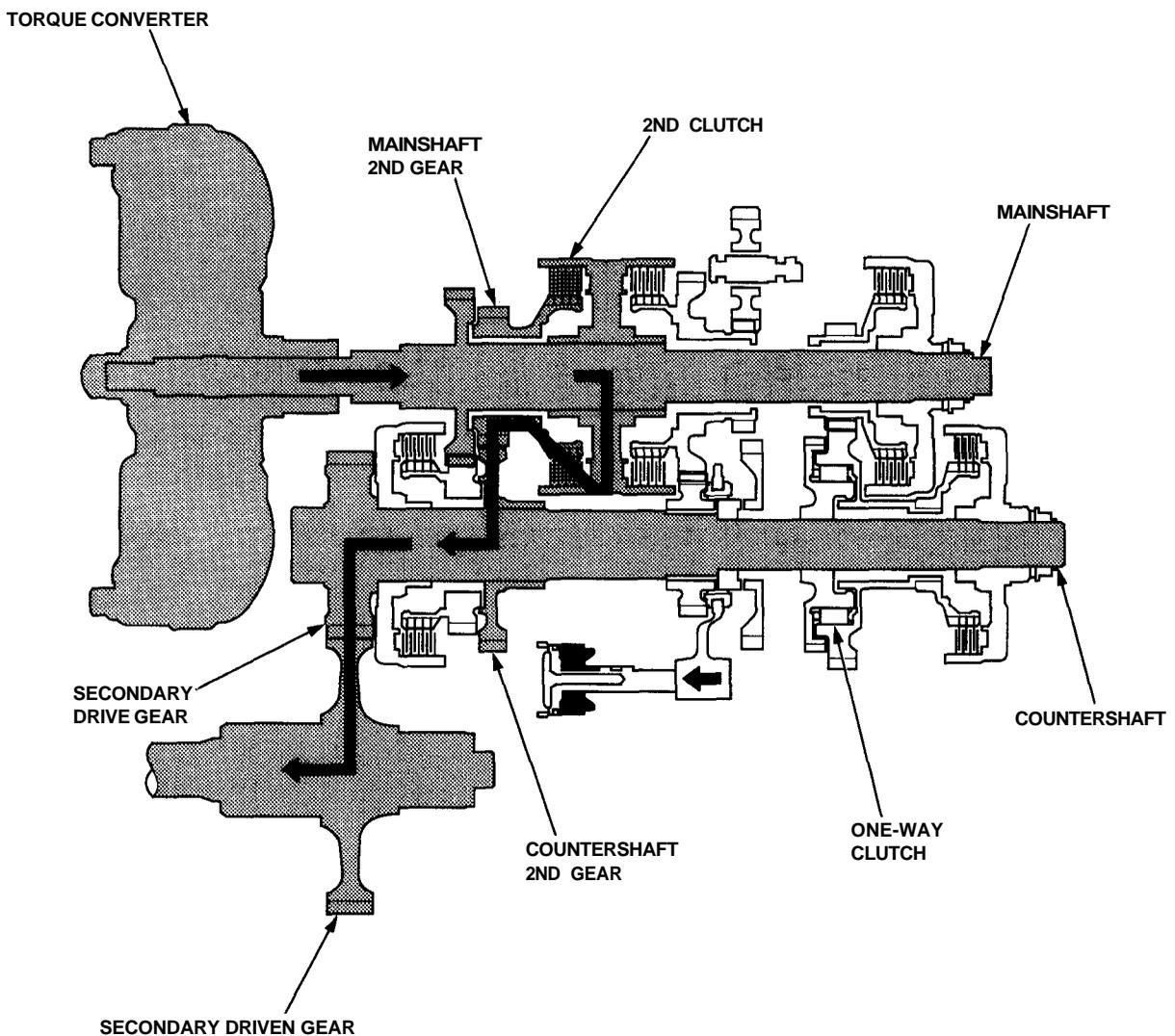
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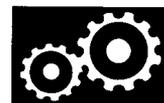
## Power Flow (cont'd)

### D<sub>4</sub> or D<sub>3</sub> Position, 2nd gear

1. Hydraulic pressure is applied to the 2nd clutch, which rotates together with the mainshaft, and the mainshaft 2nd gear rotates.
2. Power is transmitted to the countershaft 2nd gear, which drives the countershaft.
3. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

NOTE: In D<sub>4</sub> or D<sub>3</sub> position, 2nd gear, hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 2nd gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.

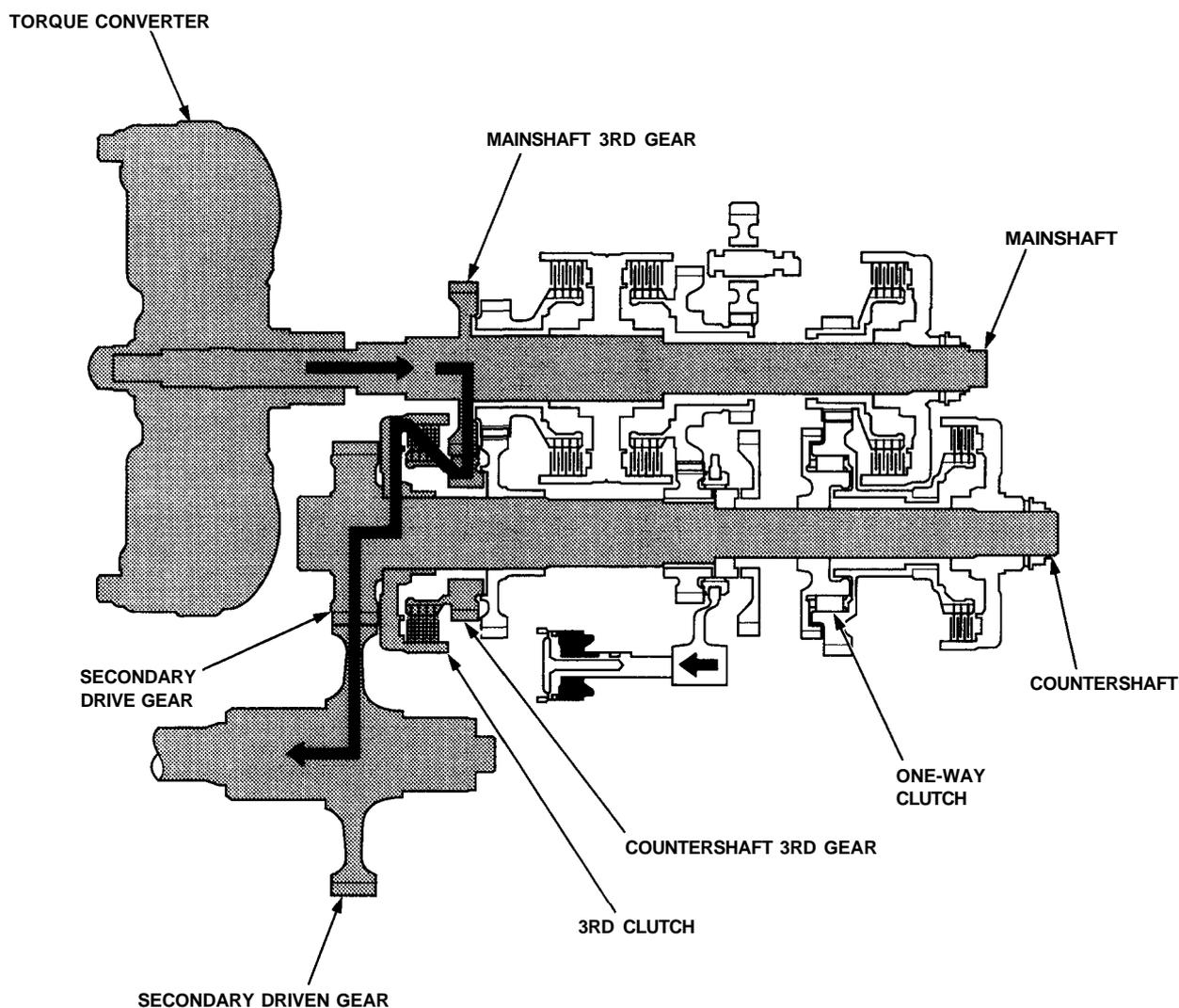




**D<sub>4</sub> or D<sub>3</sub> Position, 3rd gear**

1. Hydraulic pressure is applied to the 3rd clutch. Power from mainshaft 3rd gear is transmitted to the countershaft 3rd gear.
2. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

NOTE: In **D<sub>4</sub>** or **D<sub>3</sub>** position, 3rd gear, hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 3rd gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.



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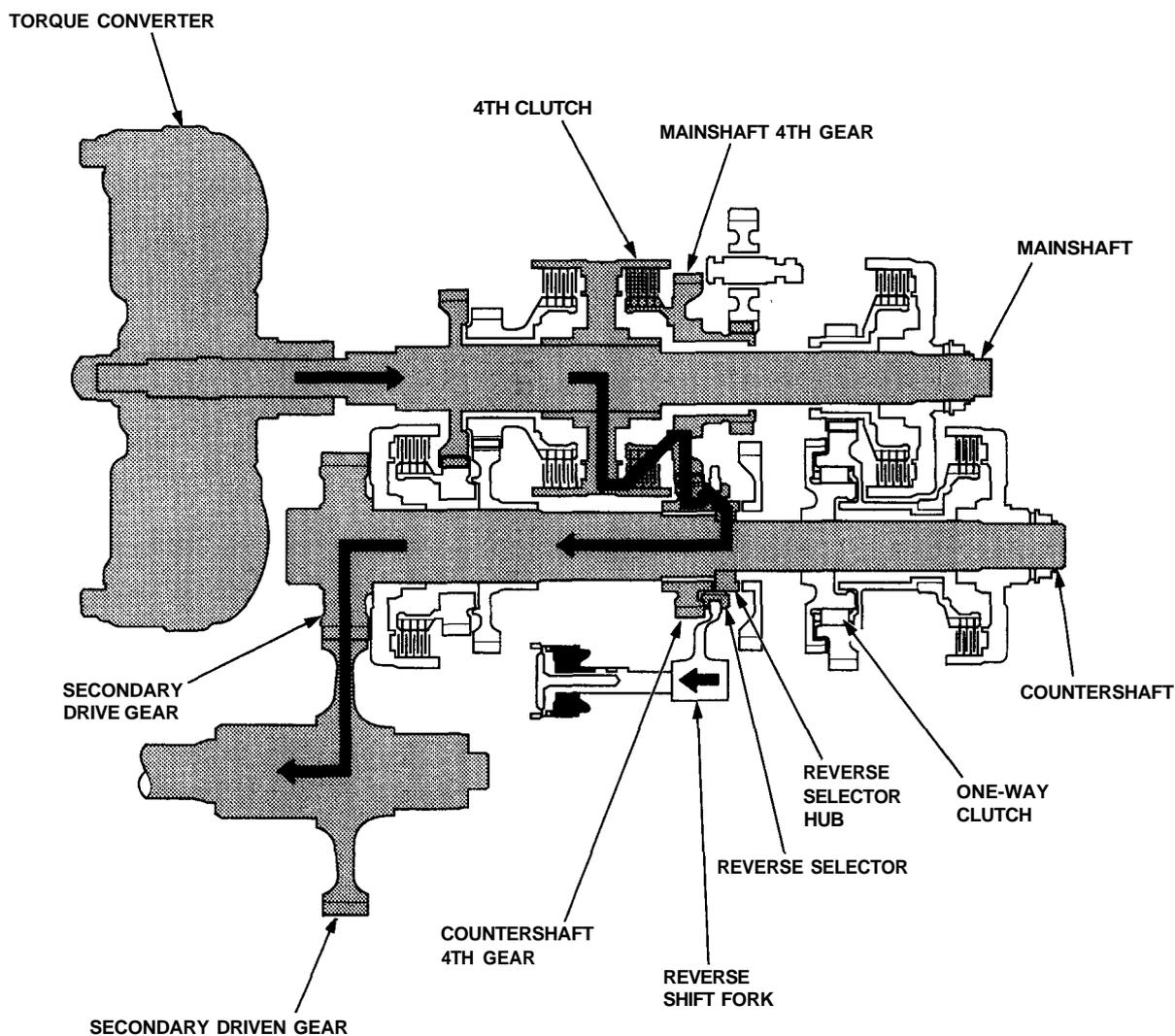
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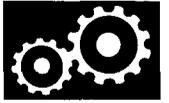
## Power Flow (cont'd)

### D<sub>4</sub> Position, 4th gear

1. Hydraulic pressure is applied to the 4th clutch, which rotates together with the mainshaft, and the mainshaft 4th gear rotates.
2. Power is transmitted to the countershaft 4th gear, which drives the countershaft.
3. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.

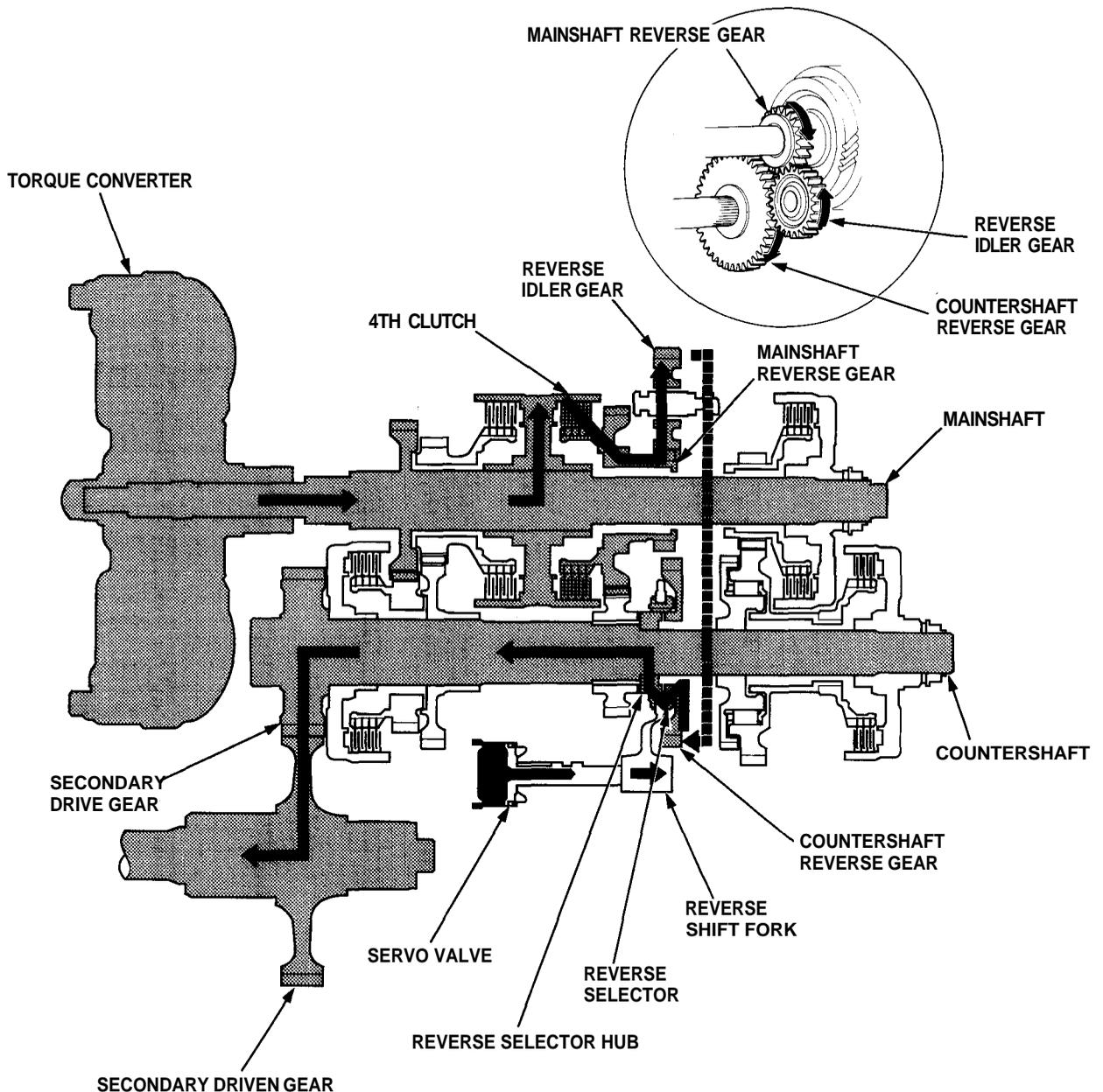
NOTE: In **D<sub>4</sub>** position, 4th gear, hydraulic pressure is also applied to the 1st clutch, but since the rotation speed of 4th gear exceeds that of 1st gear, power from 1st gear is cut off at the one-way clutch.





**R** Position

1. Hydraulic pressure is switched by the manual valve to the servo valve, which moves the reverse shift fork to the reverse position. The reverse shift fork engages with the reverse selector, reverse selector hub and the countershaft reverse gear.
2. Hydraulic pressure is also applied to the 4th clutch. Power is transmitted from the mainshaft reverse gear via the reverse idler gear to the countershaft reverse gear.
3. The rotation direction of the countershaft reverse gear is changed via the reverse idler gear.
4. Power is transmitted to the secondary drive gear, which drives the secondary driven gear.



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