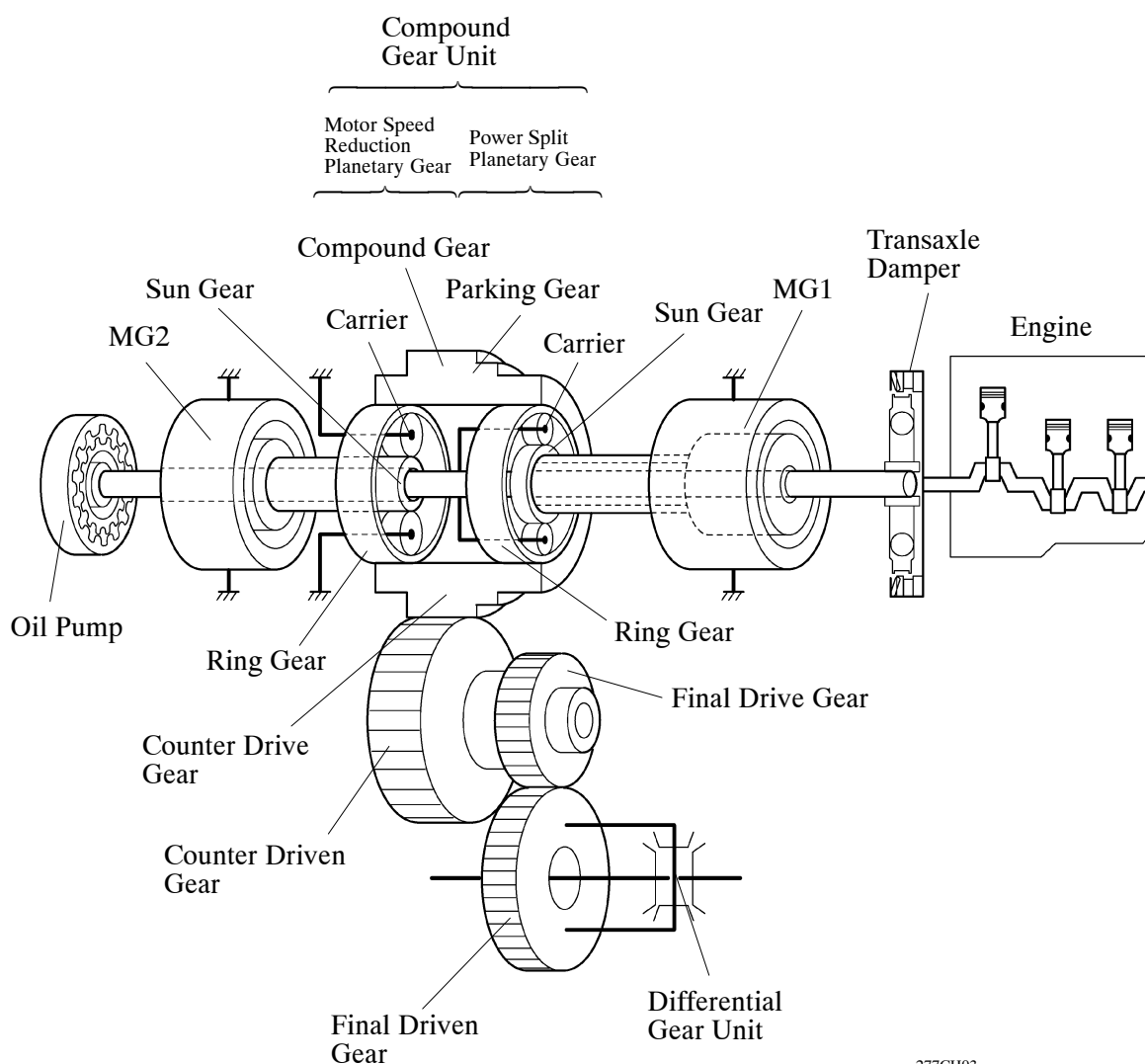


■ TRANSAXLE UNIT

1. General

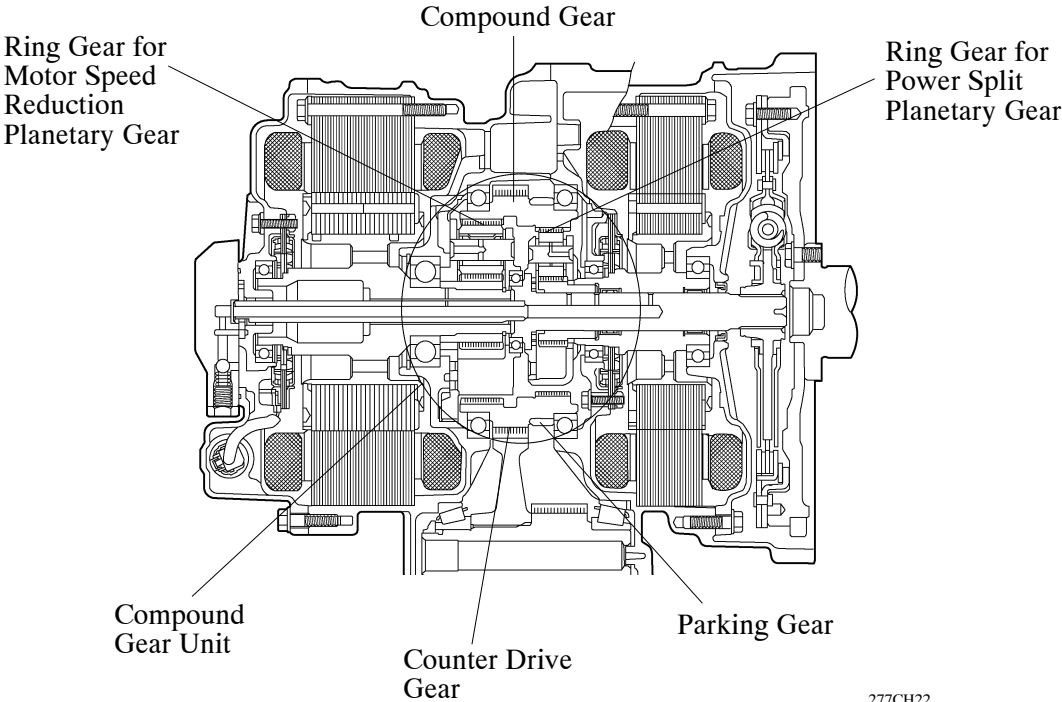
- This hybrid transaxle consists primarily of MG1, MG2, a compound gear unit (which consists of a motor speed reduction planetary gear unit and a power split planetary gear unit), a counter gear unit, and a differential gear unit.
- This transaxle has a three-shaft configuration. The compound gear unit (consisting of the motor speed reduction planetary unit and a power split planetary gear unit), MG1, and MG2 are provided on the main shaft. The counter driven gear and the final gear are provided on the second shaft. The differential ring gear and the differential gear unit are provided on the third shaft.
- The engine, MG1 and MG2 are mechanically joined via the compound gear unit.
- The compound gear unit contains a motor speed reduction planetary gear unit and a power split planetary gear unit. The motor speed reduction planetary gear unit, whose purpose is to reduce motor speed, is used to enable the high-speed, high-output MG2 to adapt optimally to the power split planetary gear unit. The power split planetary gear unit splits the motive force of the engine two ways: one to drive the wheels, and the other to drive the MG1, so that it can function as a generator.
- In the motor speed reduction planetary gear unit, the sun gear is coupled to the output shaft of MG2, and the carrier is fixed.



2. Compound Gear Unit

General

The compound gear unit consists of a motor speed reduction planetary gear, and a power split planetary gear. Each planetary ring gear is integrated with the compound gear. Furthermore, this compound gear is integrated with a counter drive gear and parking gear.



277CH22

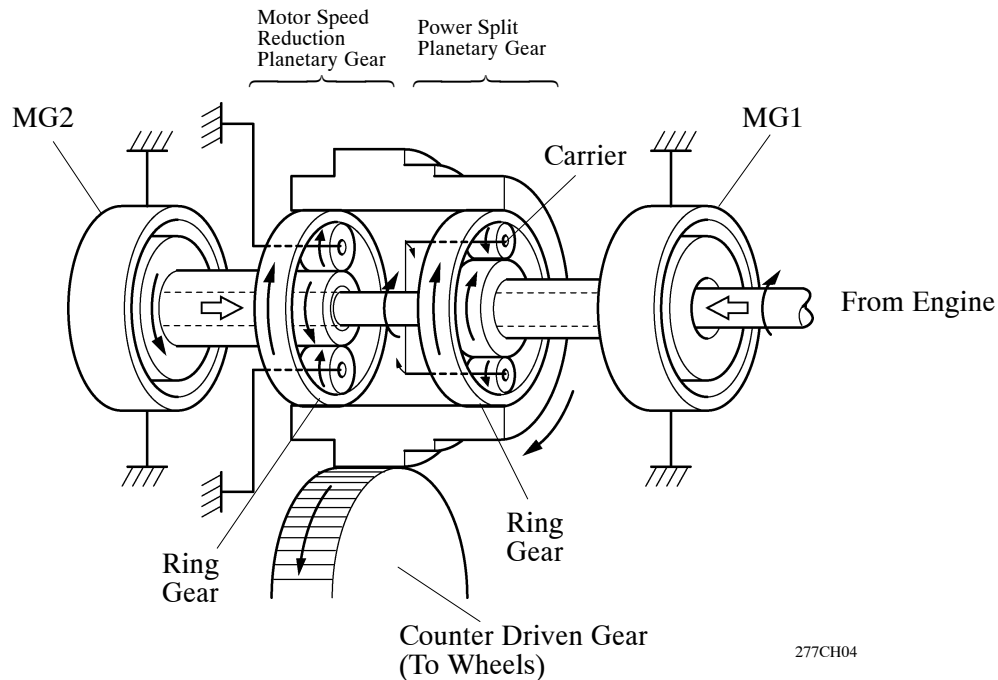
CH

Item		Connection
Power Split Planetary Gear	Sun Gear	MG1
	Ring Gear	Output (Wheels)
	Carrier	Engine Output Shaft
Motor Speed Reduction Planetary Gear	Sun Gear	MG2
	Ring Gear	Output (Wheels)
	Carrier	Fixed

Power Split Planetary Gear

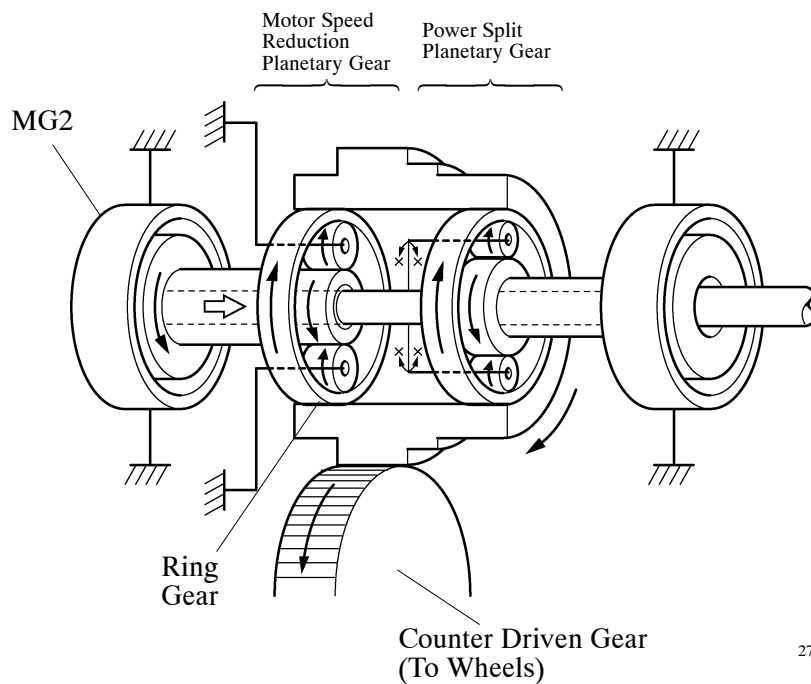
The power split planetary gear in the compound gear unit transmits the motive force in the four ways described below.

- The engine motive force, which is input by the carrier, is output to the ring gear. Furthermore, the MG2 motive force is output to the ring gear via the motor speed reduction planetary gear. The sum of these two motive forces is transmitted in order to drive the wheels.



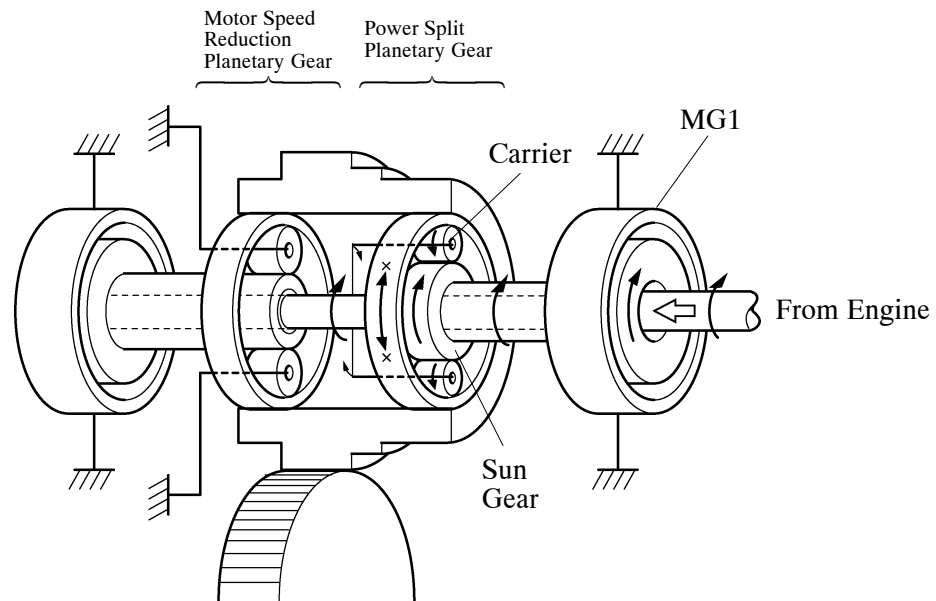
277CH04

- The MG2 motive force is output to the ring gear via the motor speed reduction planetary gear, and this motive force is transmitted in order to drive the wheels.



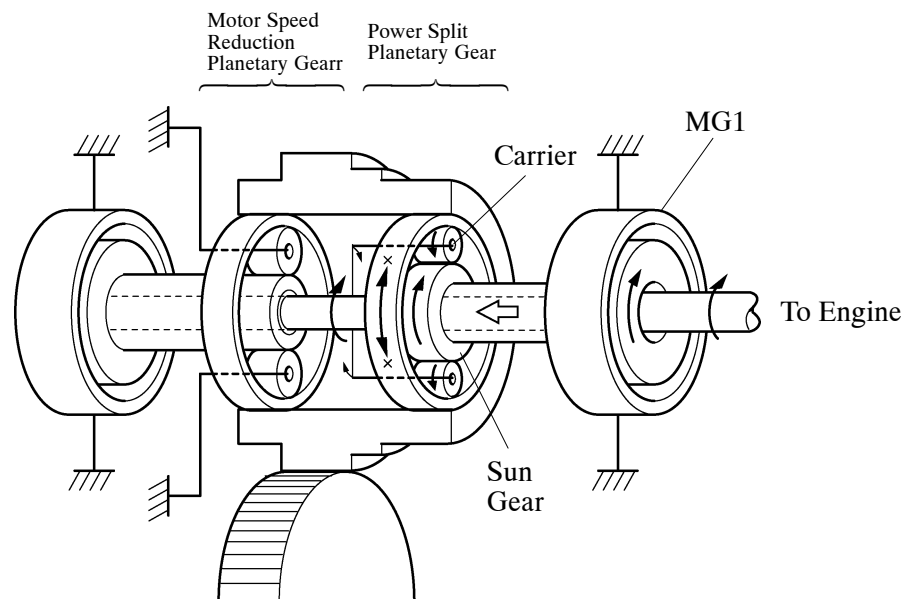
277CH05

- The engine motive force, which is input by the carrier, is output to the sun gear. Thus, the motive force is transmitted in order to operate MG1 as a generator.



277CH27

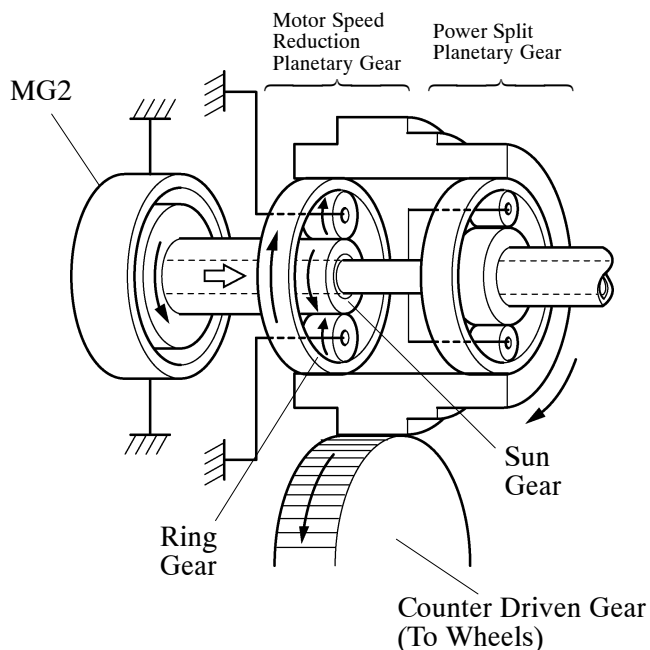
- The MG1 motive force is input by the sun gear and output to the carrier. Thus, the motive force is transmitted in order to start the engine.



277CH28

Motor Speed Reduction Planetary Gear

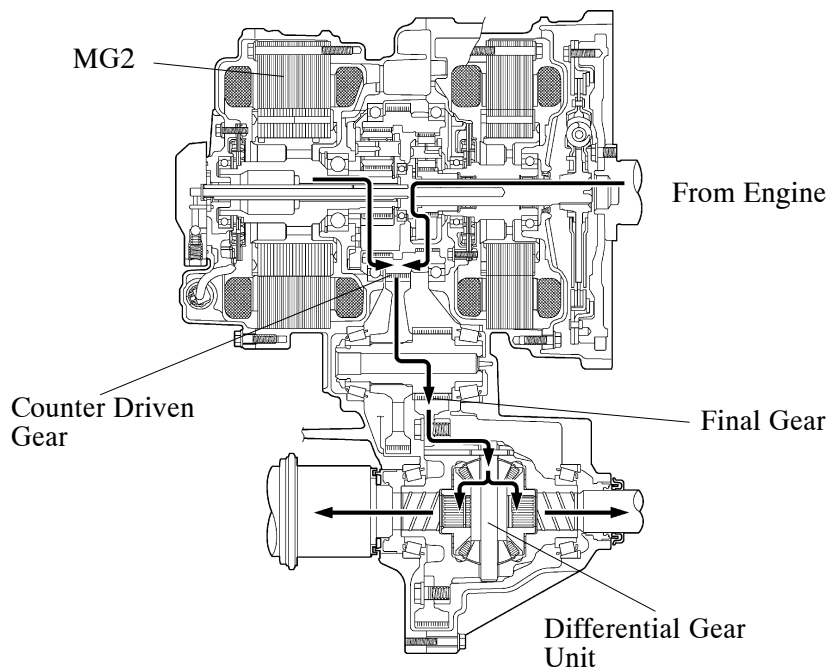
The carrier of the motor speed reduction planetary gear, which is located in the compound gear unit, is fixed. The MG2 motive force is input by the sun gear and is output to the ring gear, in order to drive the wheels. For this reason, the motor speed reduction planetary gear has a function to reduce the speed of MG2 and increase torque, in accordance with a set gear ratio.



277CH29

3. Gear Train

This transaxle transmits the motive force created by the engine and MG2 to the counter drive gear and the counter driven gear of the compound gear unit, via the final gear, and to the differential gear unit, in order to drive the front wheels.



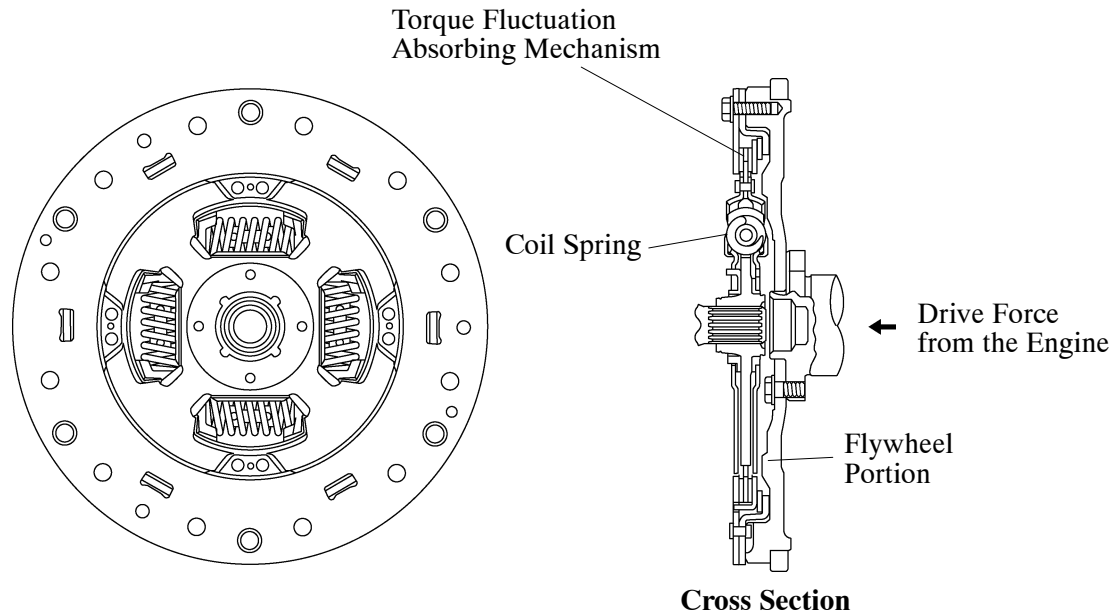
277CH07

4. Differential Gear Unit

For the differential gear unit, a 2-pinion type that is similar to the differential unit of the conventional transaxle is used.

5. Transaxle Damper

A transaxle damper that consists of a coil spring with low-twist characteristics is used in order to absorb the torque fluctuation in the drive force of the engine. Furthermore, a torque fluctuation absorbing mechanism that uses a dry-type, single-plate friction material is used. Through the use of the parts, a damper construction that excels in absorbing the vibrations of the engine motive force has been achieved.



277CH06

6. MG1 and MG2

MG1 and MG2 are located coaxially at each end of the compound gear unit.

MG1 connects to the sun gear of the power split planetary gear, and MG2 connects to the sun gear of the motor speed reduction planetary gear. For detailed characteristics of MG1 and MG2, refer to MG1, MG2 and MGR in THS-II, on [page TH-27](#).

Service Tip

Do not disassemble MG1 or MG2 because they are precision components. If a malfunction is found on either of these components, replace MG1 or MG2 as a complete assembly.