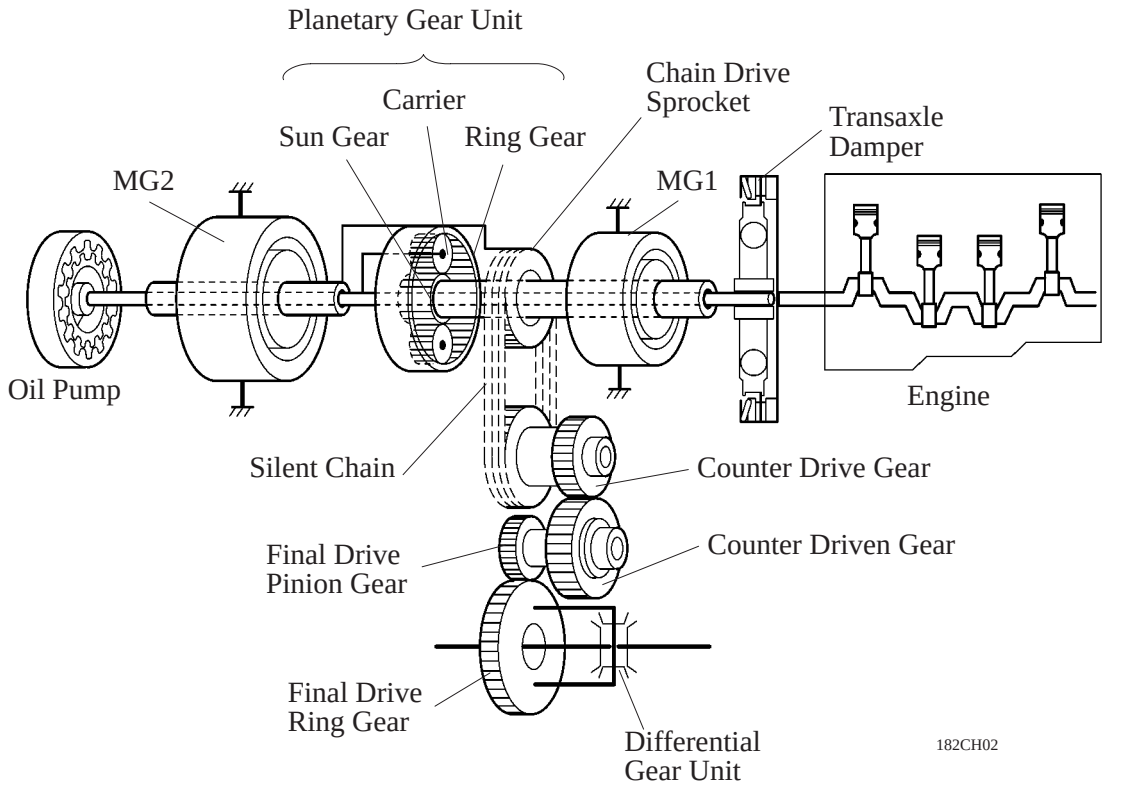
■TRANSAXLE UNIT

1. General

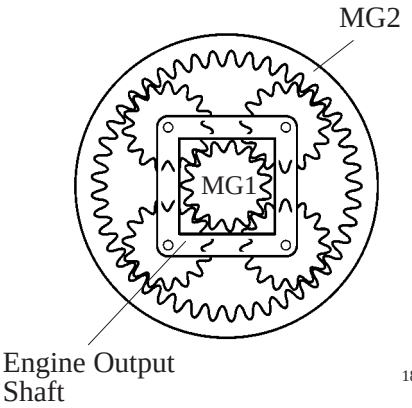
- The transaxle unit consists primarily of a transaxle damper, MG1, MG2, planetary gear unit and a reduction unit (containing a silent chain, counter drive gear, counter driven gear, final drive pinion gear, and final drive ring gear).
- The planetary gear unit, MG1, MG2, transaxle damper, and the chain drive sprocket are located coaxially, and the motive force is transmitted from the chain drive sprocket to the reduction unit via a silent chain.



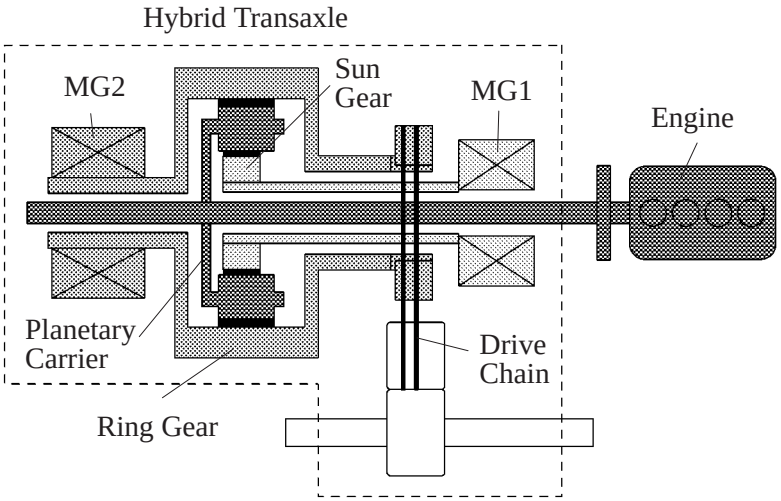
2. Planetary Gear Unit

- The power output of the engine, which is transmitted via the planetary gear unit, is divided into the motive force directed to the drive wheels and the drive force to MG1 for generating electricity.
- As part of the planetary gear unit, the sun gear is connected to MG1, the ring gear is connected to MG2, and the carrier is connected to the engine output shaft. The motive force is transmitted via the chain to the counter drive gear.

Item	Connection
Sun Gear	MG1
Ring Gear	MG2
Carrier	Engine Output Shaft



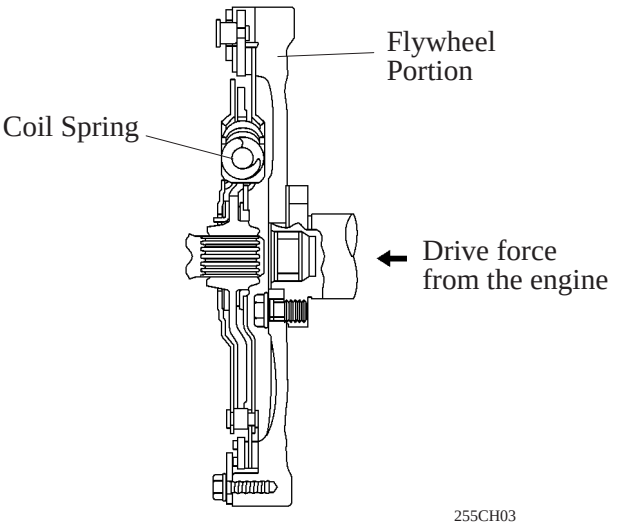
182CH77



255CH19

3. Transaxle Damper

- As on the previous model, the new Prius uses a coil spring with low torsional characteristics in the transaxle damper, to which the following changes have been made:
  - ♦ The spring rate characteristics of the coil spring have been reduced further to improve its vibration absorption performance.
  - ♦ The shape of the flywheel portion has been optimized for weight reduction.
- This transaxle damper, which transmits the drive force of the engine, contains a torque fluctuation absorption mechanism that uses a dry, single-plate friction material.



4. MG1 and MG2

MG1 and MG2 are located coaxially at each end of the planetary gear unit.
MG1 connects to the sun gear of the planetary gear unit, and MG2 connects to the ring gear. For detailed characteristics of MG1 and MG2, refer to MG1 and MG2 in THS-II, on page TH-26.

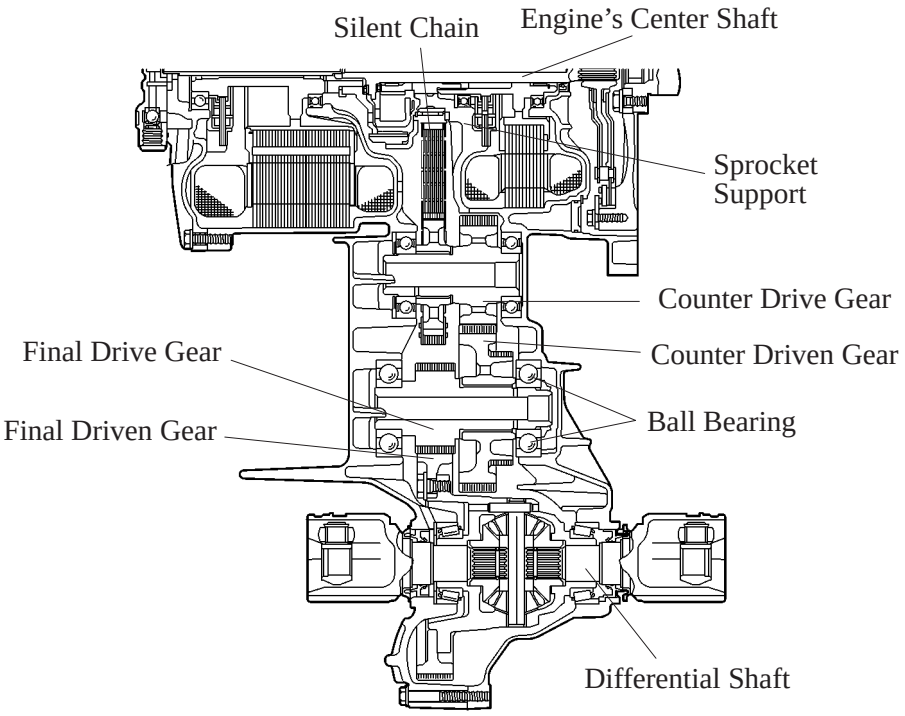
Service Tip

Do not disassemble MG1 and MG2 because they are precision components. If malfunction is found on these components, replace them on the hybrid transaxle assembly basis.

5. Reduction Unit

- As on the previous model, the new Prius uses a reduction unit, to which the following changes have been made:
  - ♦ An aluminum sprocket support, which is integrated on the MG1 cover, has been adopted.
  - ♦ Ball bearings have been adopted to support the counter driven gear shaft.

- The reduction unit consists of the silent chain, counter gears and final gears.
  A silent chain with a small pitch width has been adopted to ensure quiet operation, and the overall length has been reduced in contrast to the gear-driven mechanism.
  The counter gears and final gears teeth have been processed through high-precision honing and their tooth flanks have been optimized to ensure extremely quiet operation.
  The final gears have been optimally allocated to reduce the distance between the engine's center shaft and the differential shaft, thus resulting in a transmission with a compact package.



■DIFFERENTIAL GEAR UNIT

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

■LUBRICATION UNIT

A force-feed lubrication system using a trochoid pump has been adopted for lubrication of the planetary gear unit and the beatings on the main shaft.
The same type of oil is used for both the reduction unit portion and the differential portion.

