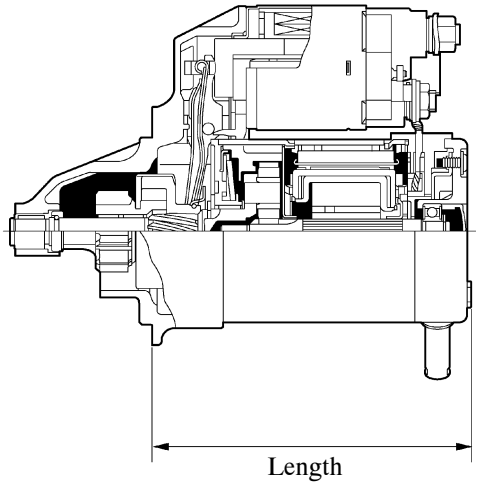
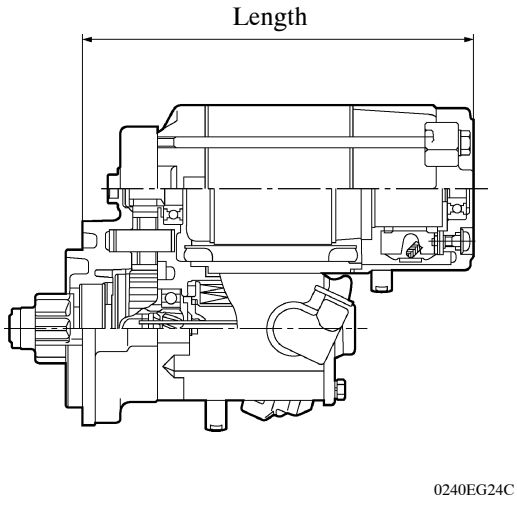
■STARTING SYSTEM

1. General

A compact and lightweight PS (Planetary reduction-Segment conductor motor) type starter is standard. An RA (Reduction Armature) type starter is used for cold weather specification vehicles.



PS Type Starter



RA Type Starter

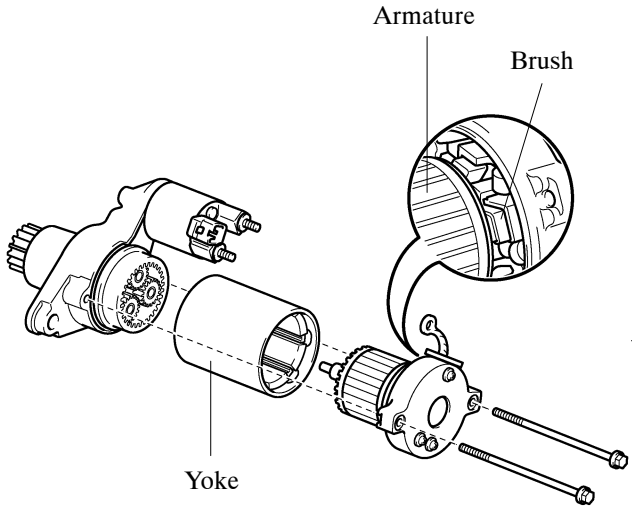
▶ Specifications ◀

Type	PS	RA
Rated Output	1.6 kW	2.0 kW
Rated Voltage	12 V	
Length	126.4 mm (4.98 in.)	185.3 mm (7.30 in.)
Weight	2800 g (6.2 lb)	4700 g (10.4 lb)
Rotation Direction	Clockwise (Viewed from pinion end)	

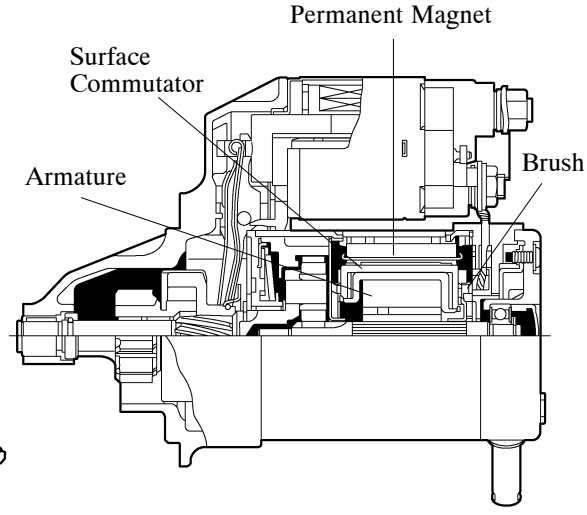
2. PS starter

General

- The PS starter contains an armature that uses square-shaped conductors. The surface of the armature at one end functions as the commutator, resulting in improved output torque and overall length reduction.
- In place of the field coil used in the conventional starter, the PS starter uses two types of permanent magnets: main magnets and interpolar magnets. The main magnets and interpolar magnets have been efficiently arranged to increase the magnetic flux and to shorten the length of the yoke.



206EG18

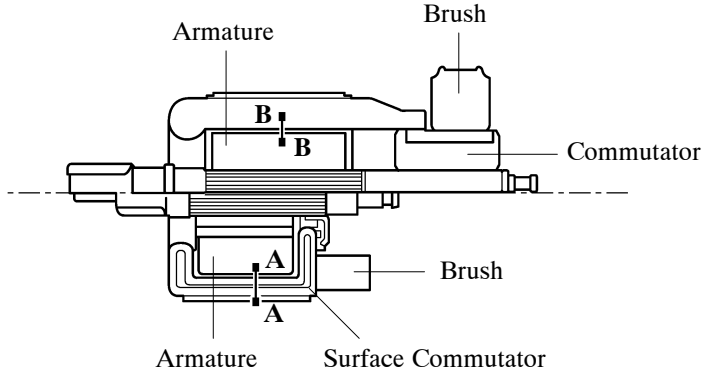


04E0EG11C

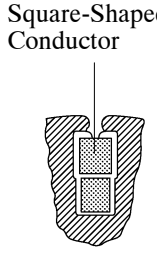
Construction

- Instead of the round-shaped conductor wires used in the conventional starter, the PS type starter uses square-shaped conductors. In this type of construction, square-shaped conductors can achieve the same conditions as those achieved by winding numerous round-shaped conductor wires, but without increasing the mass. As a result, the output torque is increased, and the armature coil is more compact.
- Because the surface of the square-shaped conductors that are used in the armature coil functions as a commutator, the overall length of the PS type starter has been shortened.

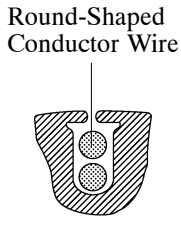
Conventional Type Starter



PS Starter



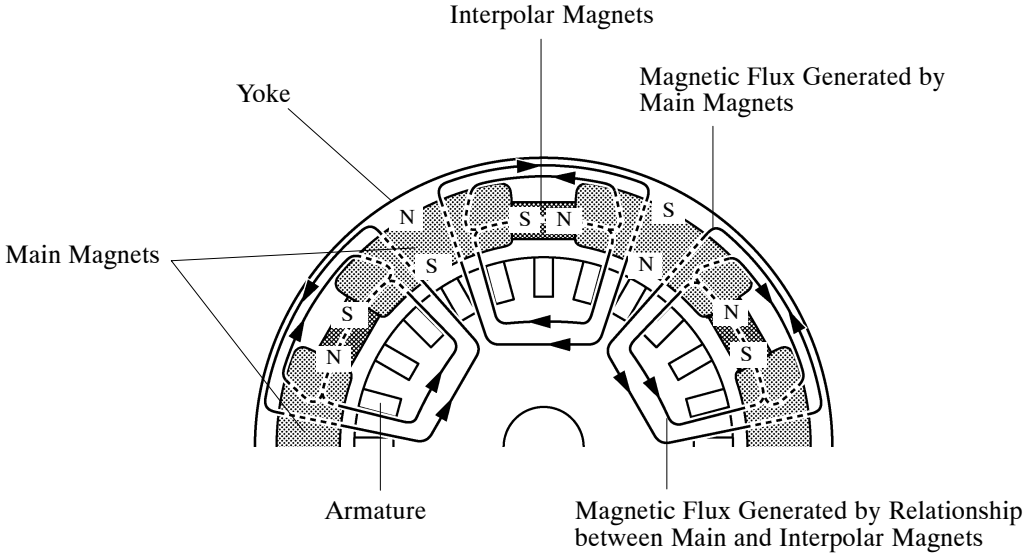
A - A Cross Section (PS Type)



B - B Cross Section (Conventional Type)

206EG20

- Instead of the field coils used in the conventional starter, the PS type starter uses two types of permanent magnets: the main magnets and the interpolar magnets. The main and interpolar magnets are arranged alternately inside the yoke. This allows the magnetic flux generated between the main and interpolar magnets to be added to the magnetic flux generated by the main magnets. In addition to increasing the amount of magnetic flux, this construction shortens the overall length of the yoke.



Cross Section of Yoke Portion

264EG14