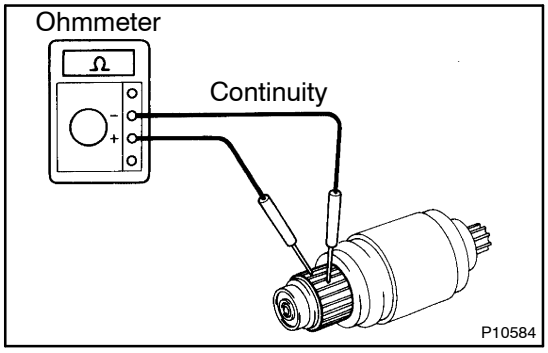
ST0G9–03

INSPECTION

1. INSPECT ARMATURE COIL

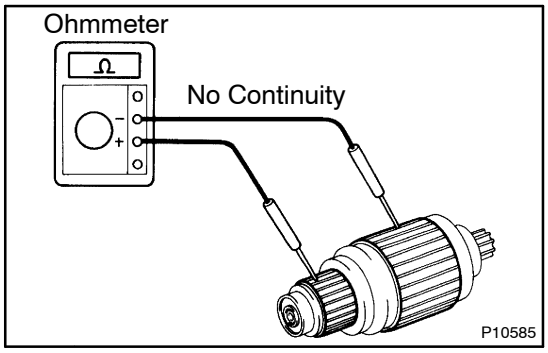
(a) Check the commutator for open circuit.
Using an ohmmeter, check that there is continuity between the segments of the commutator.

If there is no continuity between any segment, replace the armature.



(b) Check the commutator for ground.
Using an ohmmeter, check that there is no continuity between the commutator and armature coil core.

If there is continuity, replace the armature.



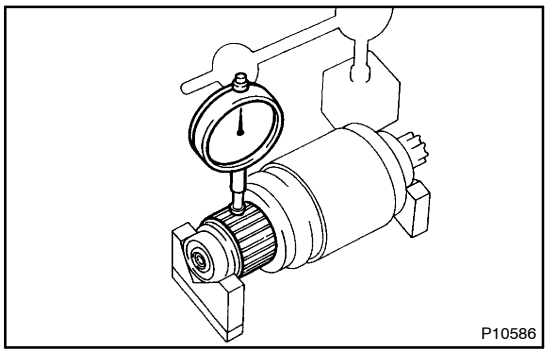
2. INSPECT COMMUTATOR

(a) Check the commutator for the dirty and burnt surfaces.

If the surface is dirty or burnt, correct it with sandpaper (No.400) or on a lathe.

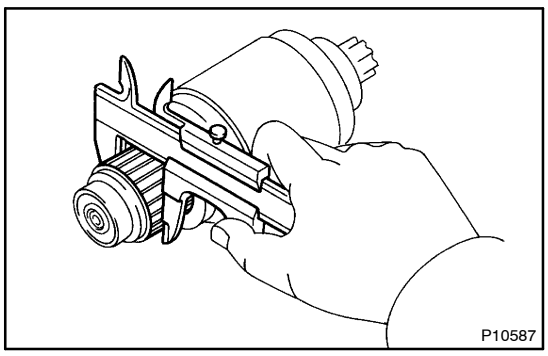
(b) Check for the commutator circle runout.
(1) Place the commutator on V–blocks.
(2) Using a dial gauge, measure the circle runout.
Maximum circle runout: 0.05 mm (0.0020 in.)

If the circle runout is greater than maximum, correct it on a lathe.



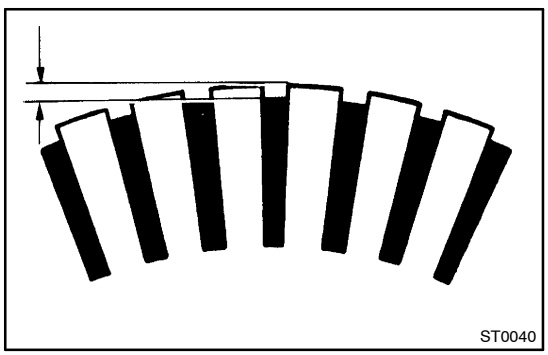
(c) Using vernier calipers, measure the commutator diameter.
Standard diameter: 36.0 mm (1.417 in.)
Minimum diameter: 35.0 mm (1.378 in.)

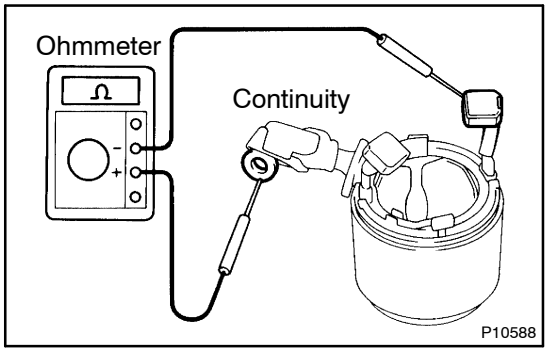
If the diameter is less than minimum, replace the armature.



(d) Check that the undercut depth is clean and free of foreign materials. Smooth out the edge.
Standard undercut depth: 0.7 mm (0.028 in.)
Minimum undercut depth: 0.2 mm (0.008 in.)

If the undercut depth is less than minimum, correct it with a hacksaw blade.



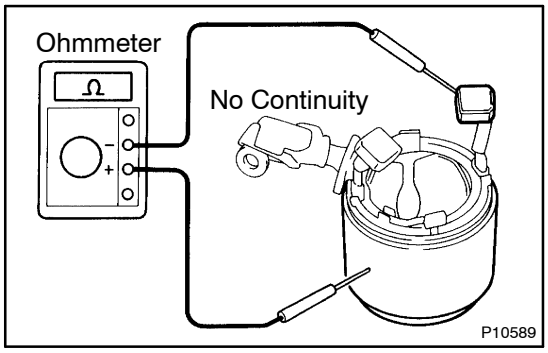


3. INSPECT FIELD COIL

(a) Check the field coil for open circuit.

Using an ohmmeter, check that there is continuity between the lead wire and field coil brush lead.

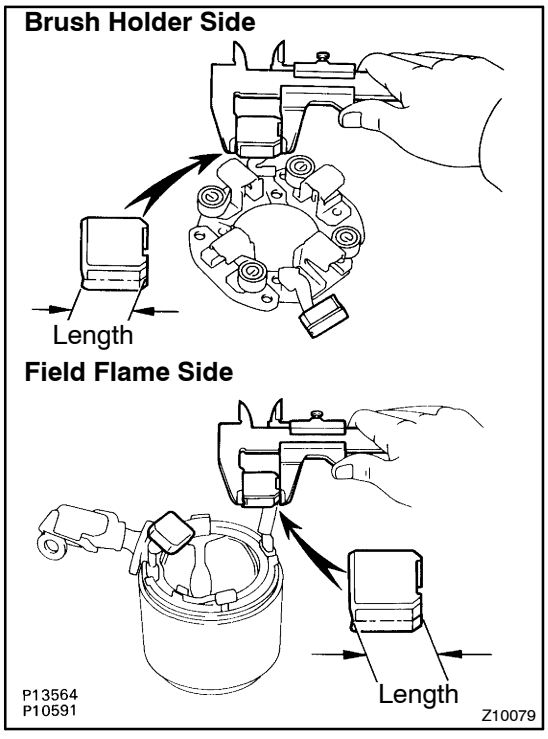
If there is no continuity, replace the field frame.



(b) Check the field coil for ground.

Using an ohmmeter, check that there is no continuity between the field coil end and field frame.

If there is continuity, repair or replace the field frame.

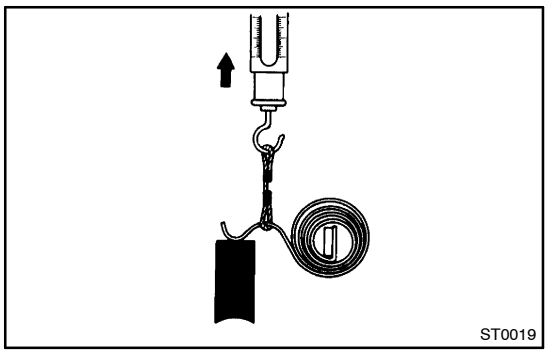


4. INSPECT BRUSHES

Using vernier calipers, measure the brush length.

Standard length:
20.5 mm (0.807 in.)
Minimum length:
11.0 mm (0.433 in.)

If the length is less than minimum, replace the brush holder and field frame.



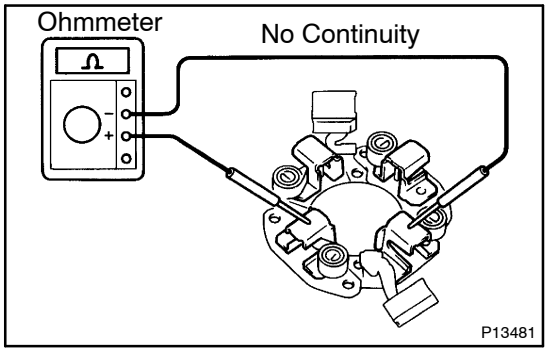
5. INSPECT BRUSH SPRING

Check the brush spring load.

Take the pull scale reading the instant the brush spring separates from the brush.

Standard spring installed load:
34.3 – 42.1 N (3.5 – 4.3 kgf, 7.7 – 9.5 lbf)
Minimum spring installed load:
18.6 N (1.9 kgf, 4.2 lbf)

If the installed load is less than minimum replace the brush springs.



6. INSPECT BRUSH HOLDER

Check the brush holder insulation.

Using an ohmmeter, check that there is no continuity between the positive (+) and negative (–) brush holders.

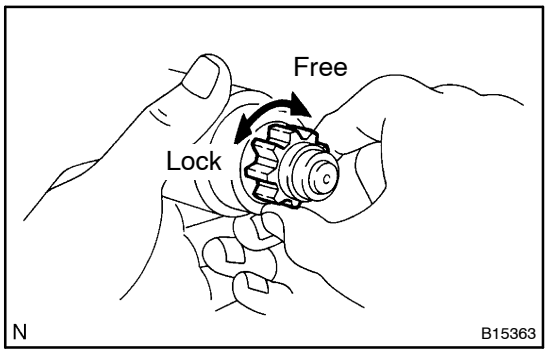
If there is continuity, repair or replace the brush holder.

7. INSPECT CLUTCH AND GEAR

(a) Check the gear teeth on the pinion gear, idler gear and clutch assembly for wear or damage.

If damaged, replace the gear or clutch assembly.

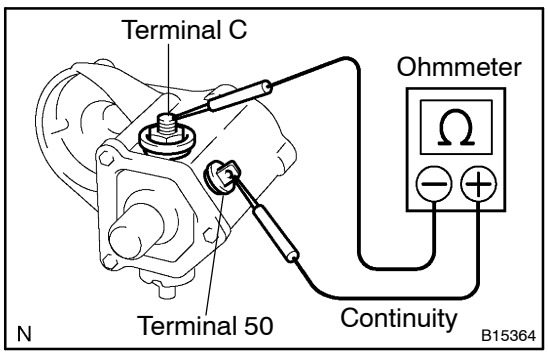
If damaged, also check the ring gear of the flywheel/drive plate for wear or damage.



(b) Check the clutch pinion gear.

Hold the starter clutch and rotate the pinion gear counterclockwise, and check that it turns freely. Try to rotate the pinion gear clockwise and check that it locks.

If necessary, replace the clutch assembly.

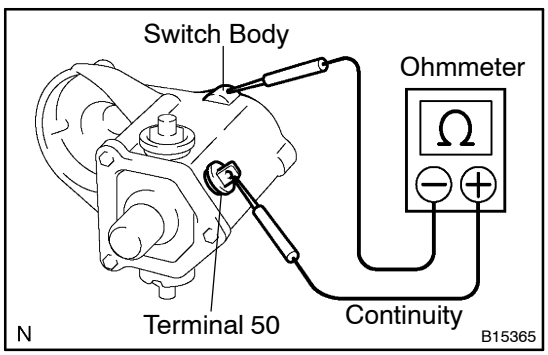


8. INSPECT MAGNETIC SWITCH

(a) Check the pull–in coil for open circuit.

Using an ohmmeter, check that there is continuity between terminals 50 and C.

If there is no continuity, check and replace the magnetic switch.



(b) Check the hold–in coil for open circuit.

Using an ohmmeter, check that there is continuity between terminal 50 and the switch body.

If there is no continuity, replace the magnetic switch.

9. INSPECT BEARING

Turn the bearing by hand while applying inward force.

If resistance is felt or the bearing sticks, replace the bearing (See page ST–8).