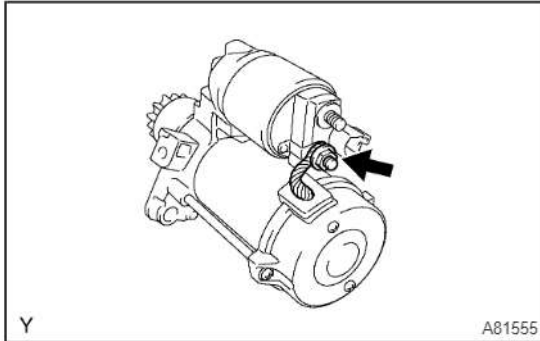
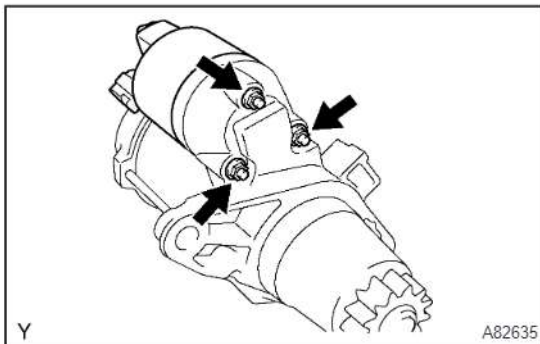


OVERHAUL

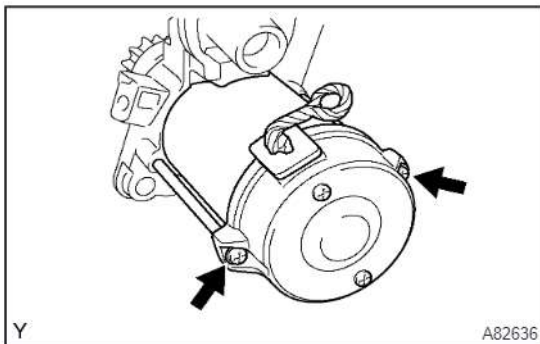


1. REMOVE REPAIR SERVICE STARTER KIT

- (a) Remove the nut, and disconnect the lead wire from the repair service starter kit.

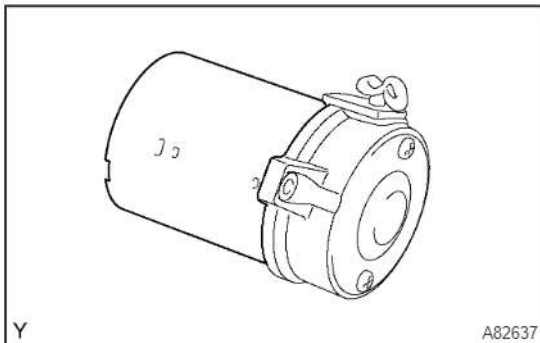


- (b) Remove the 3 nuts holding the repair service starter kit to the starter housing.
 (c) Remove the repair service starter kit.
 (d) Remove the return spring and plunger.



2. REMOVE STARTER YOKE ASSY

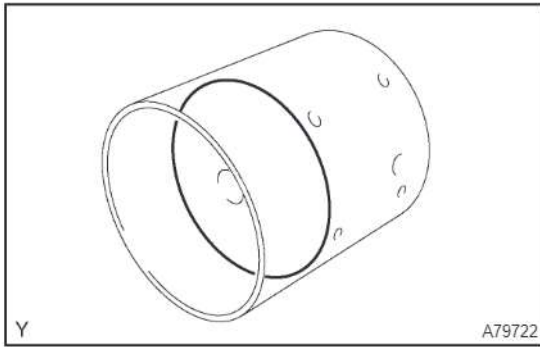
- (a) Using a torx driver T25, remove the 2 through bolts and pull out the starter yoke together with the starter commutator end frame.



- (b) Remove the starter yoke from the starter commutator end frame.

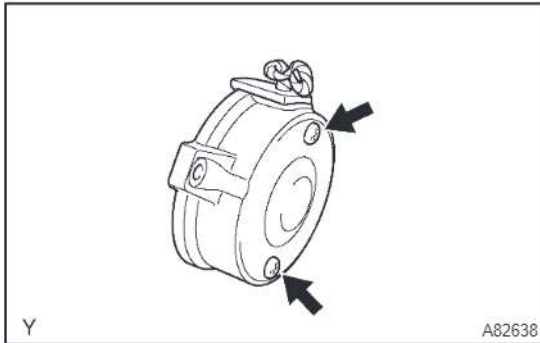
3. REMOVE STARTER ARMATURE ASSY

- (a) Remove the starter armature assy from the starter yoke assy.



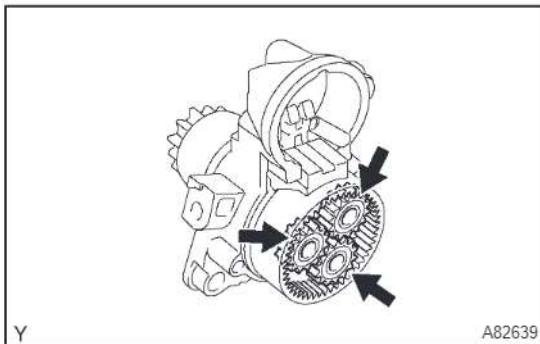
4. REMOVE STARTER ARMATURE PLATE

- (a) Remove the armature plate from the starter yoke.



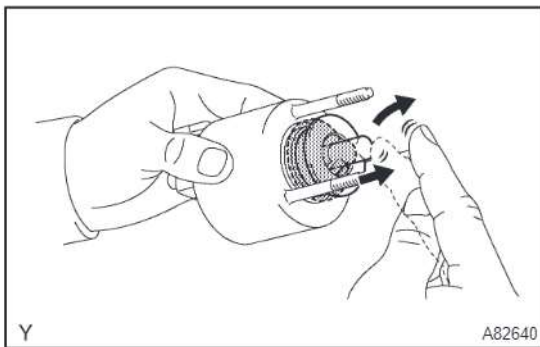
5. REMOVE STARTER BRUSH HOLDER ASSY

- (a) Remove the 2 screws and brush holder assy from the commutator end frame.



6. REMOVE PLANET GEAR

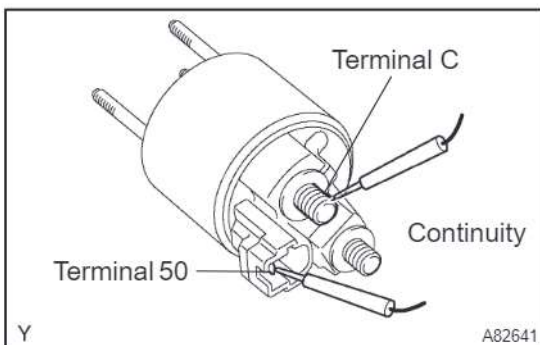
- (a) Remove the 3 planet gears from the repair service starter kit.



7. INSPECT REPAIR SERVICE STARTER KIT

- (a) Check the plunger.
 (1) Push in the plunger and check that it returns quickly to its original position.

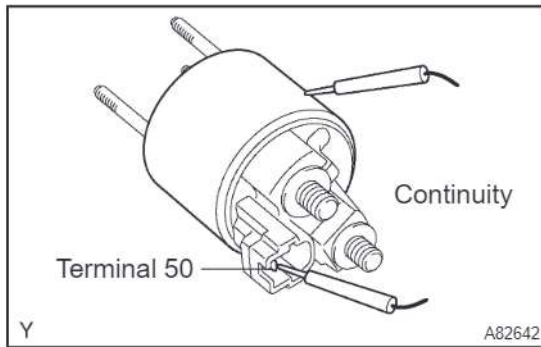
If necessary, replace the repair service starter kit.



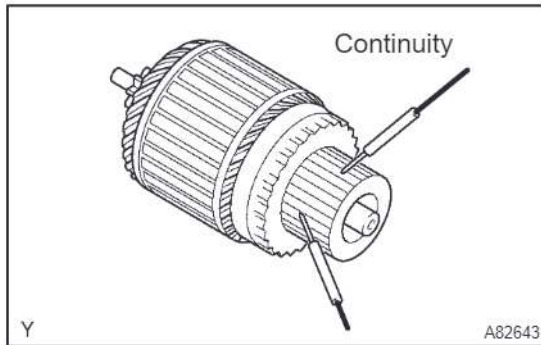
- (b) Check the pull-in coil for open circuit.

- (1) Using an ohmmeter, check that there is continuity between terminals 50 and C.

If there is no continuity, replace the repair service starter kit.

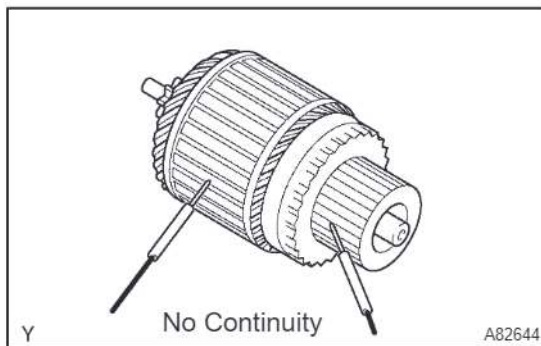


- (c) Check if the hold-in coil has an open circuit.
- (1) Using an ohmmeter, check that there is continuity between terminal 50 and the switch body.
- If there is no continuity, replace the repair service kit.

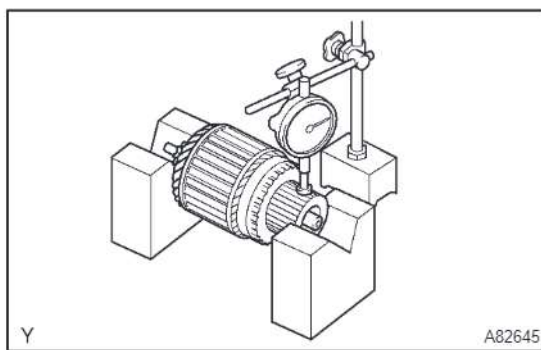


8. INSPECT STARTER ARMATURE ASSY

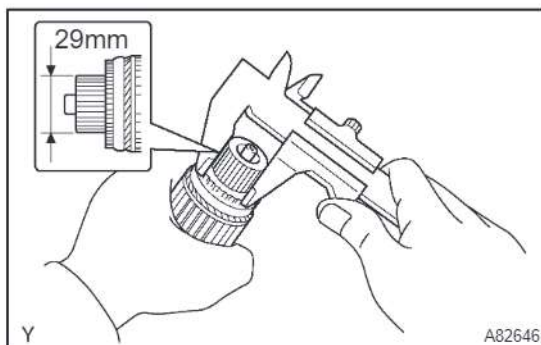
- (a) Check the commutator for open circuit.
- (1) Using an ohmmeter, check that there is continuity between the segments of the commutator.
- If there is no continuity between any segments, replace the armature.



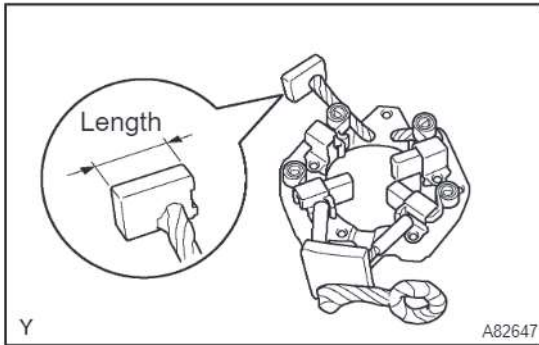
- (b) Check the commutator for ground.
- (1) Using an ohmmeter, check that there is no continuity between the commutator and the armature coil core.
- If there is continuity, replace the armature.



- (c) Check the commutator for dirty or burned surface. If the surface is dirty or burnt, smooth the surface with 400-grit sandpaper.
- (d) Check for the commutator circuit runout.
- (1) Place the commutator on V-blocks.
- (2) Using a dial indicator, measure the circle runout.
- Standard runout: 0.02 mm (0.0008 in.)**
- Maximum runout: 0.05 mm (0.0020 in.)**
- If the runout is greater than maximum, replace the armature.



- (e) Using vernier calipers, measure the commutator diameter.
- Standard length: 29 mm (1.142 in.)**
- Minimum length: 28 mm (1.102 in.)**
- If the diameter is less than minimum, replace the armature.



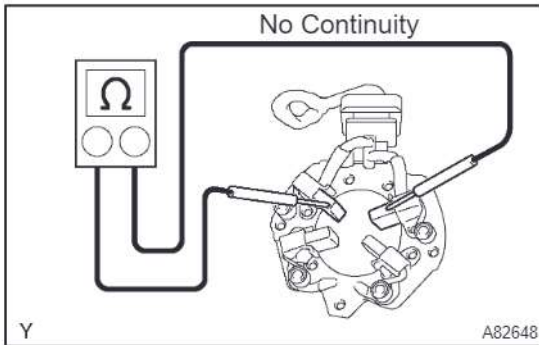
9. INSPECT STARTER BRUSH HOLDER ASSY

- (a) Using vernier calipers, measure the brush length.

Standard length: 15.5 mm (0.610 in.)

Minimum length: 9.0 mm (0.354 in.)

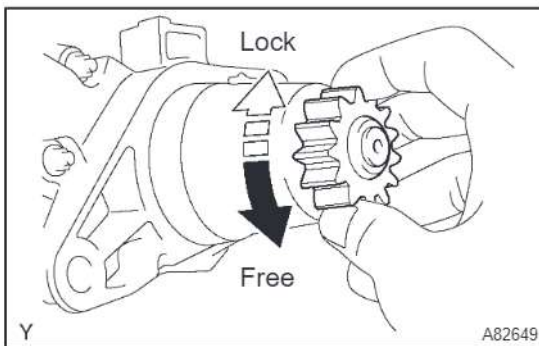
If the length is less than minimum, replace the starter brush holder assy.



- (b) Check the brush holder.

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

If there is continuity, repair or replace the starter commutator end frame assy.

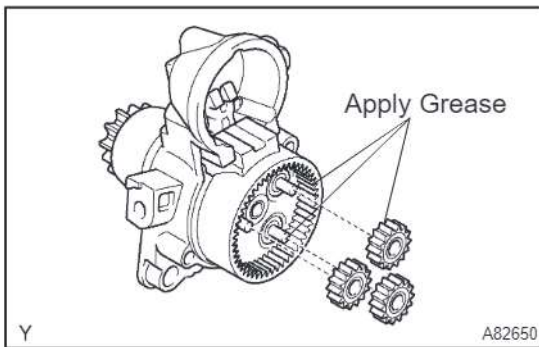


10. INSPECT REPAIR SERVICE STARTER KIT

- (a) Check the starter clutch.

- (1) Rotate the clutch pinion gear counterclockwise and check that it turns freely. Try to rotate the clutch pinion gear clockwise and check that it locks.

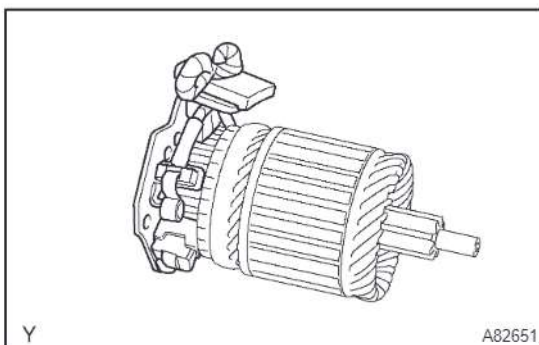
If necessary, replace the repair service starter kit.



11. INSTALL PLANET GEAR

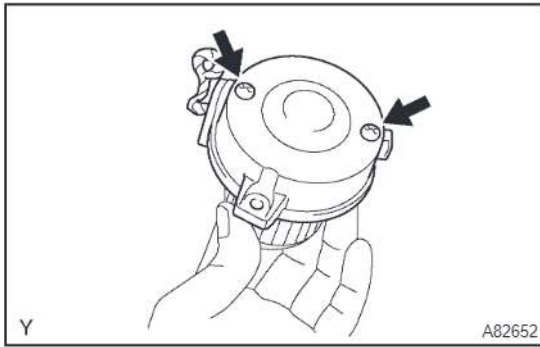
- (a) Apply grease to the planet gears and pin parts of the planetary shaft.

- (b) Install the 3 planet gears.



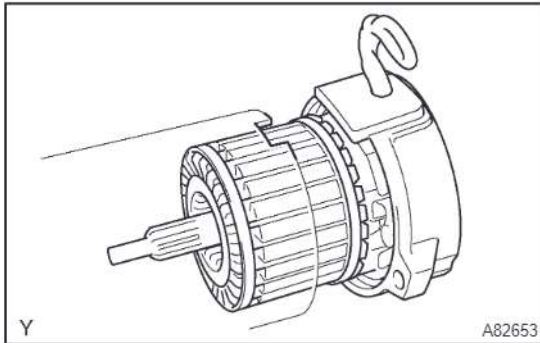
12. INSTALL STARTER BRUSH HOLDER ASSY

- (a) Install the brush holder to the starter armature assy.



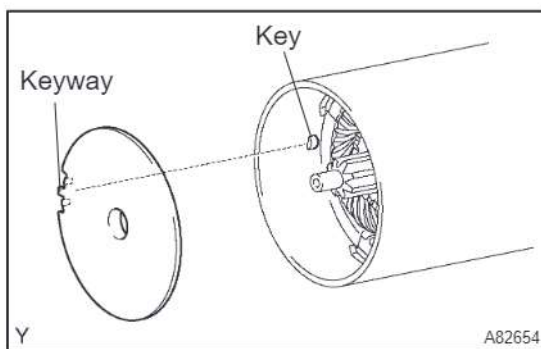
13. INSTALL STARTER COMMUTATOR END FRAME ASSY

- (a) Install the commutator end frame with the 2 screws.



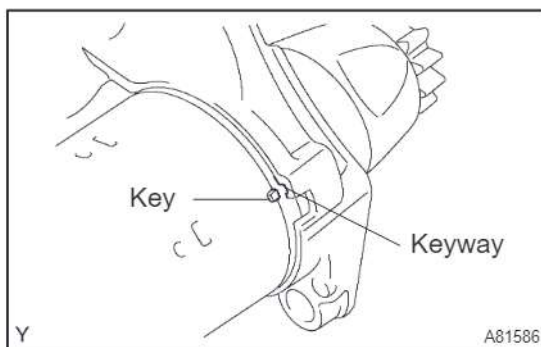
14. INSTALL STARTER ARMATURE ASSY

- (a) Align the rubber with the convex cutout of starter yoke.
(b) Install starter armature with the brush holder to the starter yoke.



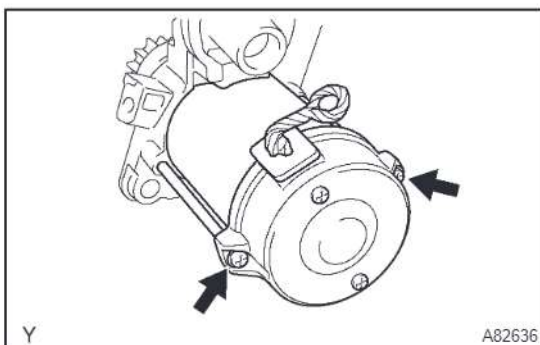
15. INSTALL STARTER ARMATURE PLATE

- (a) Insert the starter armature plate to the starter yoke.
(b) Align the keyway of the starter plate with the key inside the starter yoke, and install the starter plate.



16. INSTALL STARTER YOKE ASSY

- (a) Align the key of the starter yoke with the keyway located on the starter drive housing.

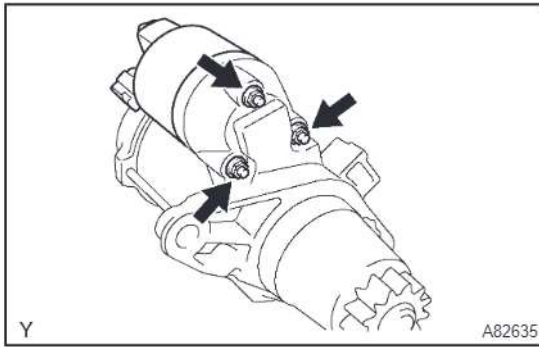


- (b) Using a torx driver T25, install the starter yoke with the 2 through bolts.

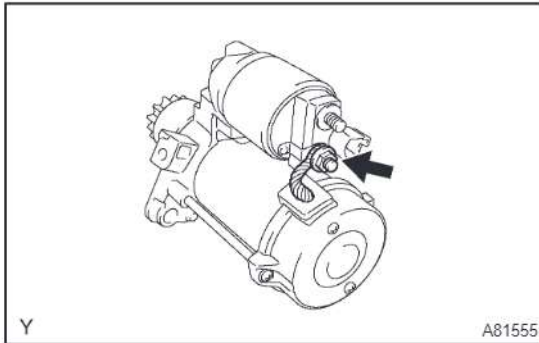
Torque: 6.0 N·m (61 kgf·cm, 53 in·lbf)

17. INSTALL REPAIR SERVICE STARTER KIT

- (a) Apply grease to the plunger and hook.
(b) Set the plunger and hook of the repair service starter kit to the drive lever.
(c) Install the plunger and return spring.



- (d) Install the repair service starter kit with the 3 nuts.
Torque: 2.3 N·m (24 kgf·cm, 21 in·lbf)



- (e) Connect the lead wire to the repair service starter kit and then fasten it with the nut.
Torque: 6.0 N·m (61 kgf·cm, 53 in·lbf)