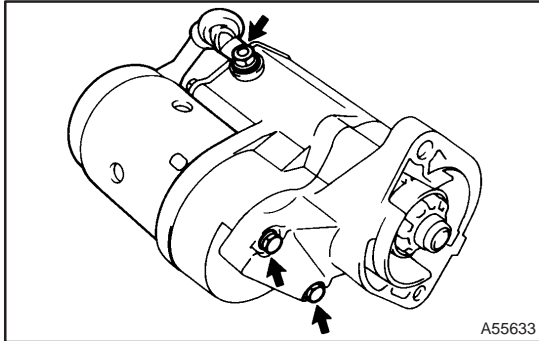
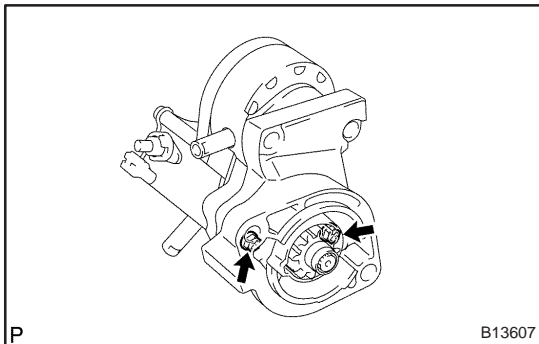


OVERHAUL



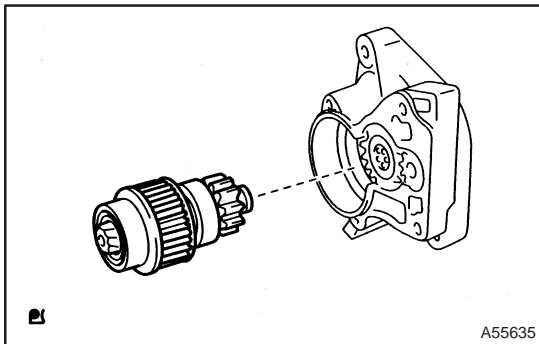
1. REMOVE STARTER YOKE ASSY

- (a) Remove the nut, and disconnect the lead wire from the magnetic switch terminal.
- (b) Remove the 2 through bolts.
- (c) Pull out the yoke together with the armature from the magnetic switch.

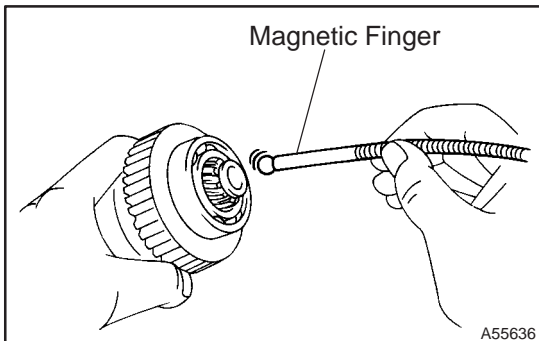


2. REMOVE STARTER CLUTCH SUB-ASSY

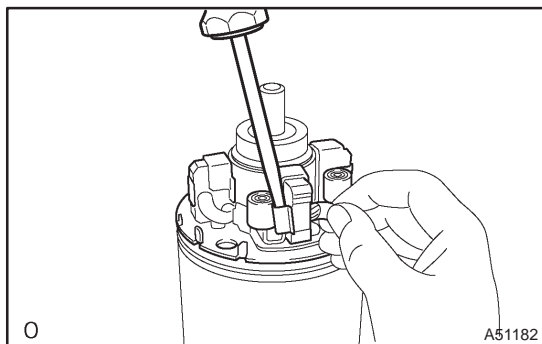
- (a) Remove the 2 bolts and drive housing.



- (b) Remove the clutch from the drive housing

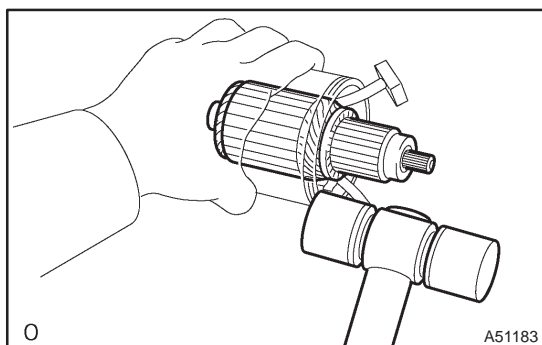


- (c) Using a magnetic finger, remove the ball from the clutch shaft hole.



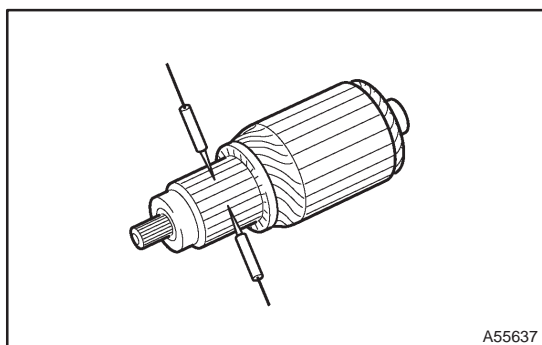
3. REMOVE STARTER BRUSH HOLDER ASSY

- (a) Using a screwdriver, hold the spring back disconnect the brush from the brush holder. Disconnect the 4 brushes and remove the brush holder.



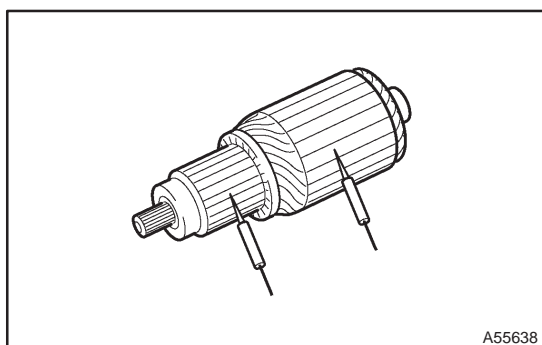
4. REMOVE STARTER ARMATURE ASSY

- (a) Using a plastic-faced hammer, tap the yoke and remove the armature.

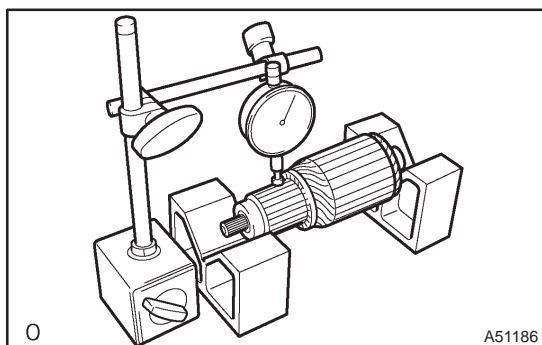


5. INSPECT STARTER ARMATURE ASSY

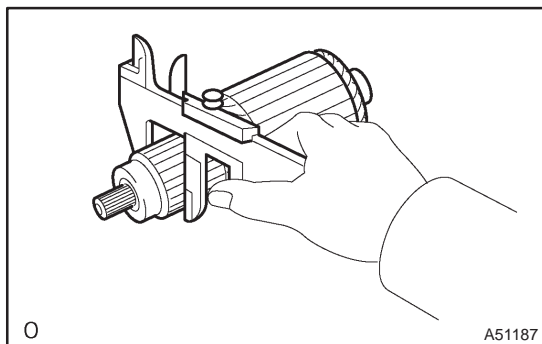
- (a) Using an ohmmeter, check that there is continuity between the segments of the commutator.



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



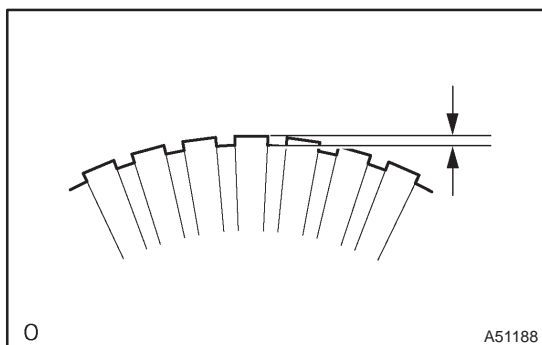
- (c) Place the commutator on V-blocks.
 (d) Using a dial gauge, measure the circle runout.
Maximum circle runout: 0.05 mm (0.002 in.)



- (e) Using vernier calipers, measure the commutator diameter.

Standard diameter: 35 mm (1.378 in.)

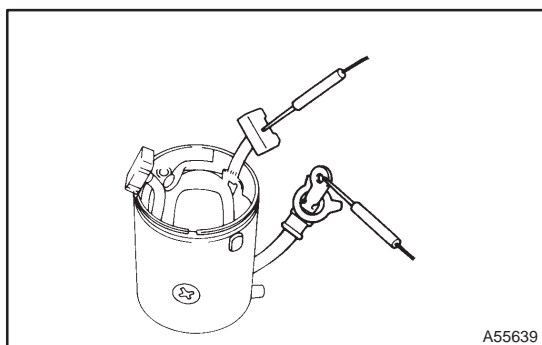
Minimum diameter: 34 mm (1.3386 in.)



- (f) Check that the undercut depth is clean and free of foreign materials. Smooth out the edge.

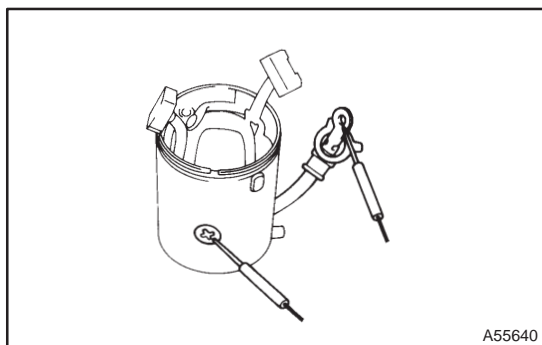
Standard undercut depth: 0.7 mm (0.0276 in.)

Minimum undercut depth: 0.2 mm (0.079 in.)

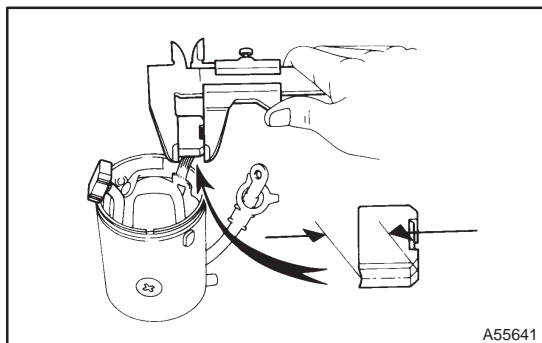


6. INSPECT STARTER YOKE ASSY

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



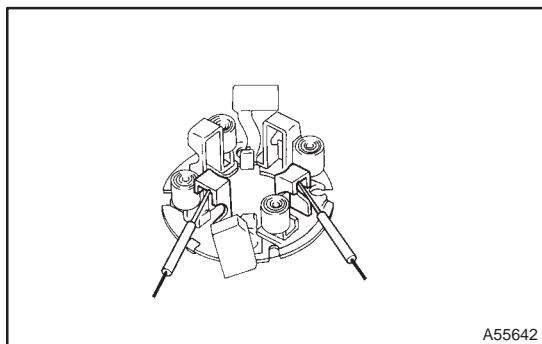
- (b) Using an ohmmeter, check that there is no continuity between the field coil brush lead and yoke.



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

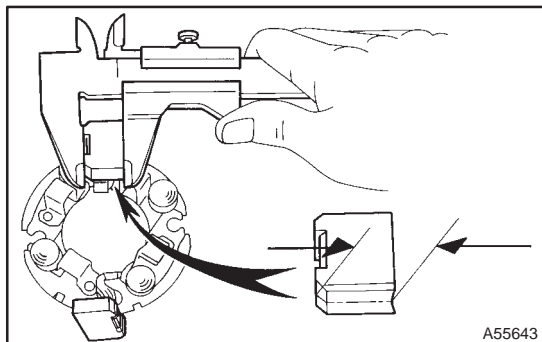
Standard length: 16.5 mm (0.6496 in.)

Minimum length: 9 mm (0.3543 in.)

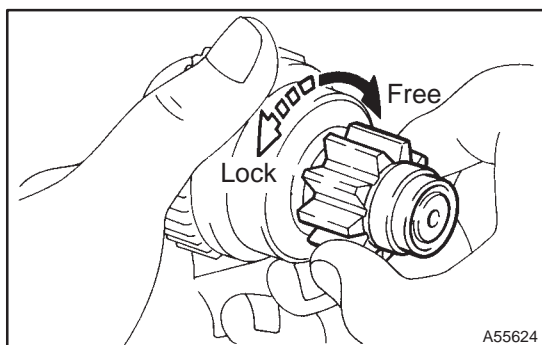


7. INSPECT STARTER BRUSH HOLDER ASSY

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

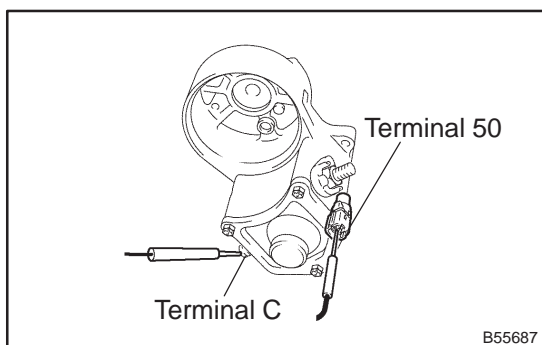


- (b) Using vernier calipers, measure the brush length.
Standard length: 16.5 mm (0.6496 in.)
Minimum length: 9 mm (0.3543 in.)



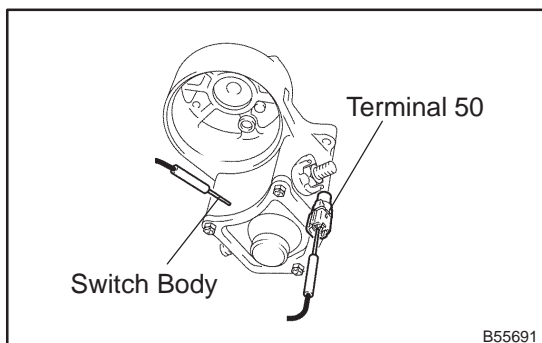
8. INSPECT STARTER CLUTCH SUB-ASSY

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

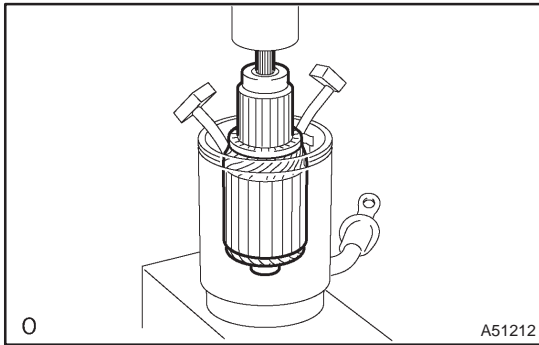


9. INSPECT MAGNET STARTER SWITCH ASSY

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

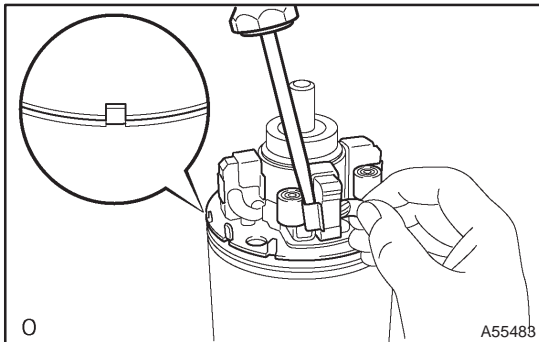


- (b) Using an ohmmeter, check that there is continuity between terminal 50 and the switch body.



10. INSTALL STARTER ARMATURE ASSY

- (a) Apply grease to the armature bearings.
- (b) Using a press, press in armature.



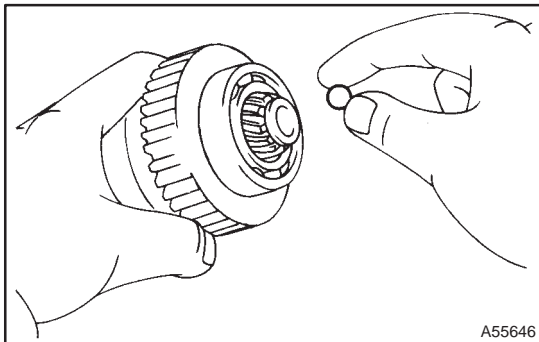
11. INSTALL STARTER BRUSH HOLDER ASSY

- (a) Align the claw of the brush holder with the claw groove of the yoke.
- (b) Place the brush on the yoke.
- (c) Using a screwdriver, hold the brush spring back and connect the brush into the brush holder. Connect the 4 brushes.

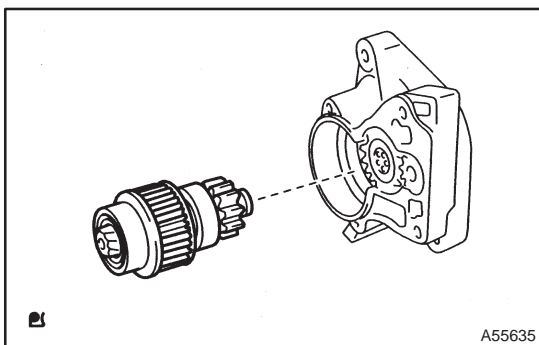
NOTICE:

Check that the positive (+) lead wires are not grounded.

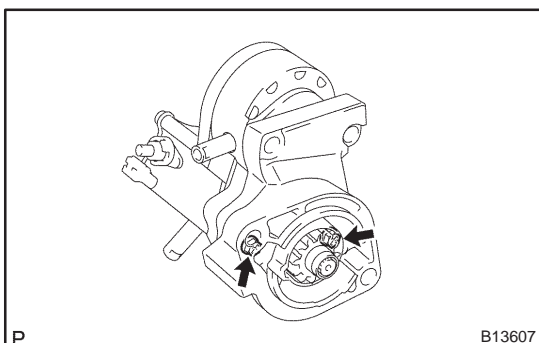
12. INSTALL STARTER CLUTCH SUB-ASSY



- (a) Apply grease to the ball.
- (b) Insert the ball into the clutch shaft hole.

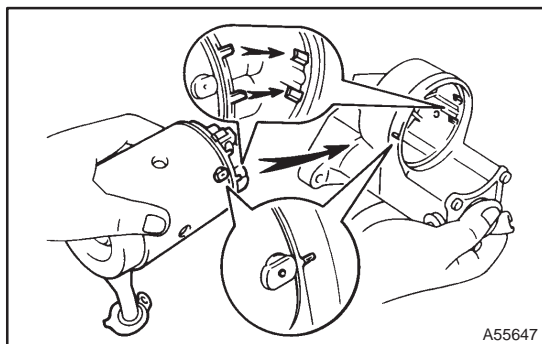


- (c) Place the clutch on the drive housing.



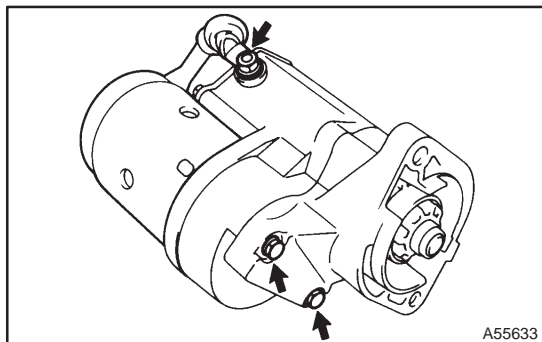
- (d) Install the drive housing to the magnetic switch with the 2 bolts.

Torque: 9.3 N·m (95 kgf·cm, 82 in·lbf)



13. INSTALL STARTER YOKE ASSY

- (a) Align the claws of the brush holder with the grooves of the magnetic switch, and install the yoke and armature.
- (b) Align the punch mark of the yoke with the line of the magnetic switch.



- (c) Install the yoke and armature with the 2 through bolts.
Torque: 12.7 N·m (130 kgf·cm, 9 ft·lbf)
- (d) Connect the lead wire to terminal C with the nut.
Torque: 5.9 N·m (60 kgf·cm, 52 in·lbf)