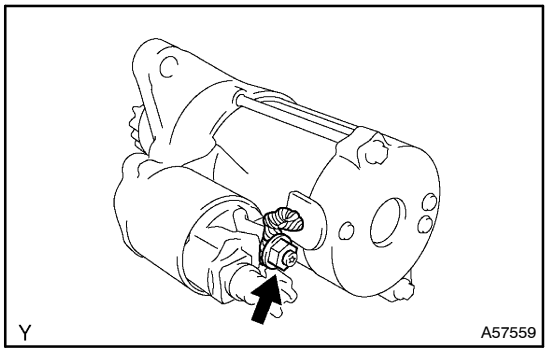
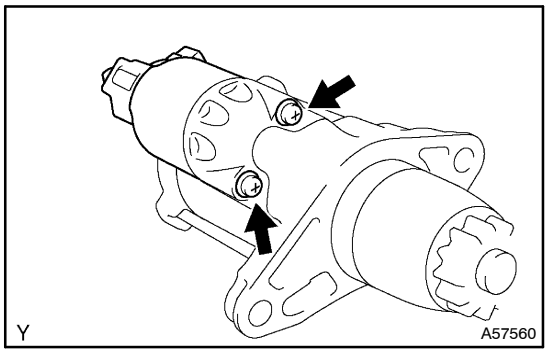
19093–01

OVERHAUL



1. REMOVE REPAIR SERVICE STARTER KIT

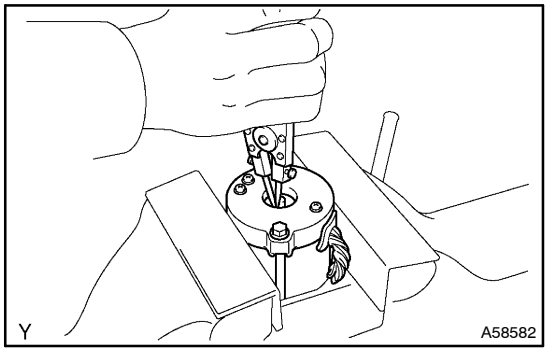
(a) Remove the nut, and disconnect the lead wire from the repair service starter kit.



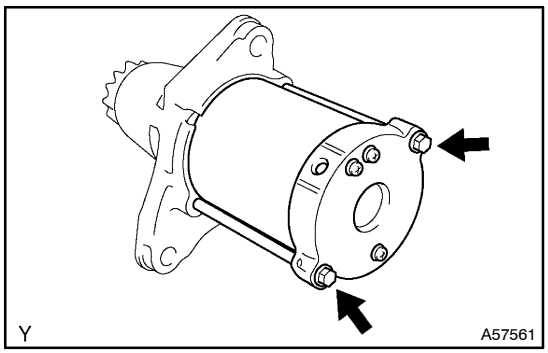
(b) Remove the 2 screws holding the repair service starter kit to the starter housing.
(c) Remove the repair service starter kit.
(d) Remove the return spring and plunger.

2. REMOVE STARTER COMMUTATOR END FRAME ASSY

(a) Using a screwdriver, remove the starter commutator end frame cover.



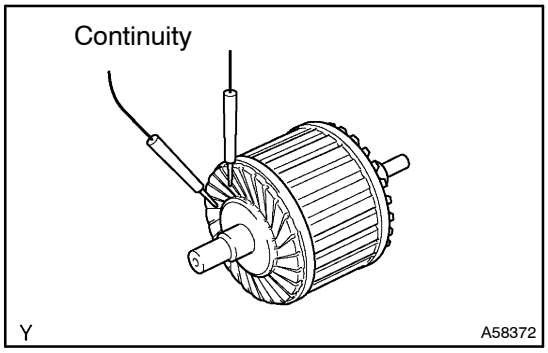
(b) Using snap ring pliers, remove the snap ring and plate washer.



(c) Remove the 2 through bolts, and pull out the starter yoke assy together with the commutator end frame assy.

3. REMOVE STARTER ARMATURE ASSY

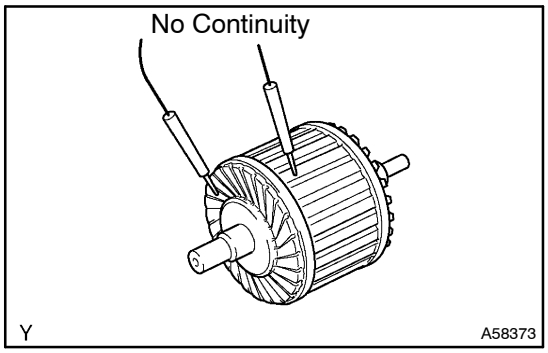
(a) Remove the starter armature assy from starter yoke assy.



4. INSPECT STARTER ARMATURE ASSY

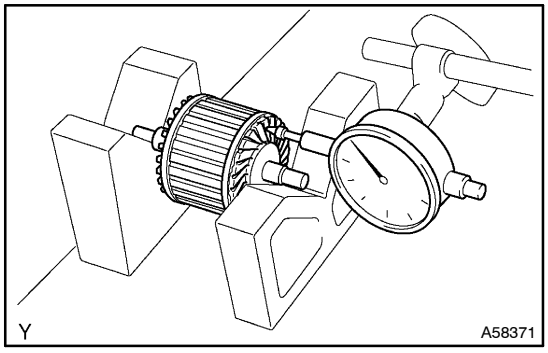
(a) Check the commutator for open circuit.
  (1) Using an ohmmeter, check that there is continuity between the segments of the commutator.

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 armature coil core.

If there is continuity, replace the armature.

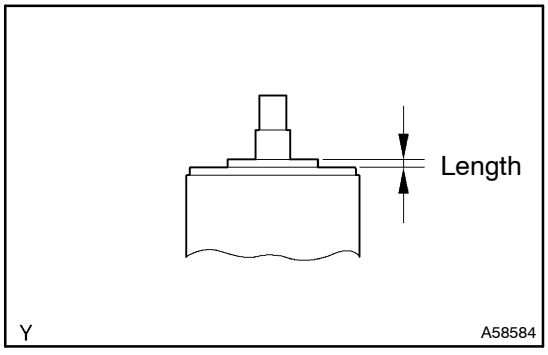


(c) Check the commutator for dirty and burn on surface.

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

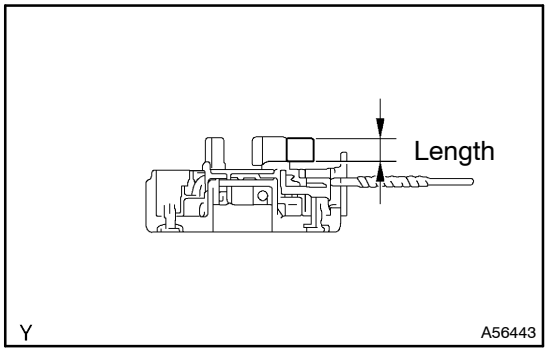
(d) Check for the commutator circuit runout.
  (1) Place the commutator on V–blocks.
  (2) Using a dial indicator, measure the circle runout.
  Standard circle runout: 0.02 mm (0.0008 in.)
  Maximum circle runout: 0.05 mm (0.0020 in.)

If the circle runout is greater than maximum, replace the armature.



(e) Using vernier calipers, measure the commutator length.
  Standard length: 3.3 mm (0.130 in.)
  Maximum length: 4.0 mm (0.158 in.)

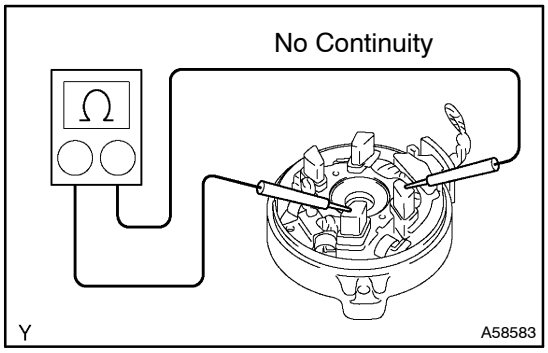
If the length is greater than maximum, replace the armature.



5. INSPECT STARTER COMMUTATOR END FRAME ASSY

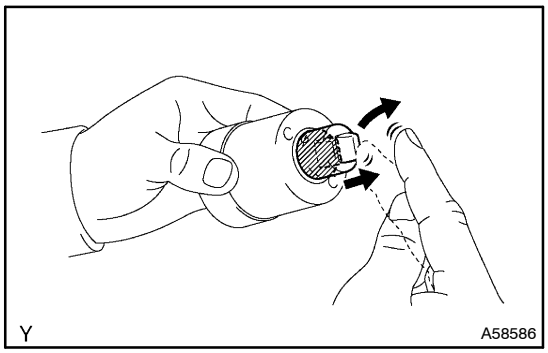
(a) Using vernier calipers, measure the brush holder length.
Standard length: 9.0 mm (0.354 in.)
Maximum length: 4.0 mm (0.158 in.)

If the length is less than minimum, replace the starter commutator end frame assy.



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

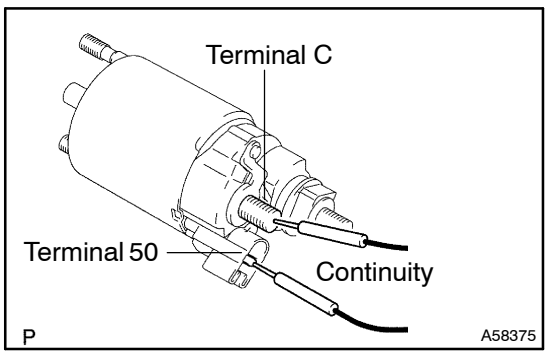
If the there is continuity repair or replace the starter commutator end frame assy.



6. INSPECT REPAIR SERVICE STARTER KIT

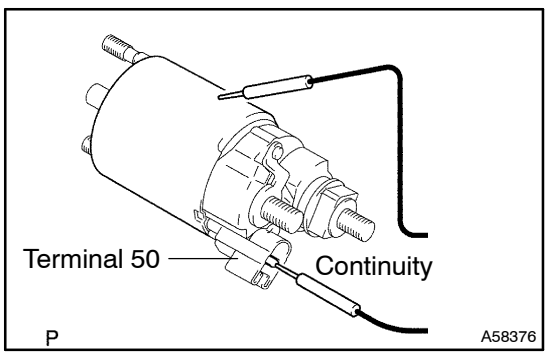
(a) Check the plunger.
(1) Push in the plunger and check that it returns quickly to its original position.

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.

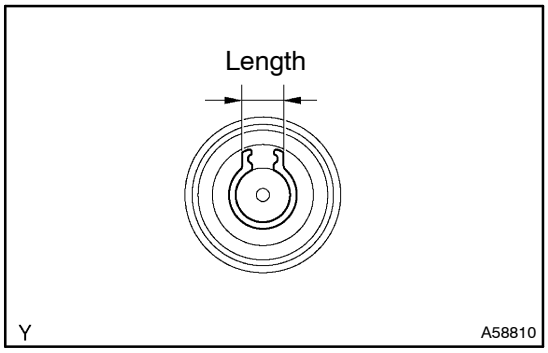


(c) Check whether the hold–in coil has an open circuit.
(1) Using an ohmmeter, check that there is continuity between terminal 50 and the switch body.

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

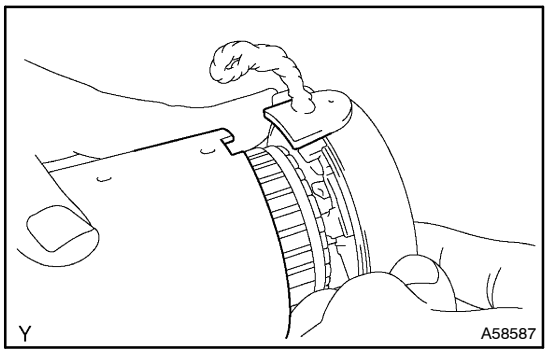
7. INSTALL STARTER ARMATURE ASSY

(a) Apply grease to the washer plate and armature shaft.
(b) Install the armature shaft to the starter commutator end frame assy.
(c) Using snap ring pliers, install the plate washer and new snap ring.



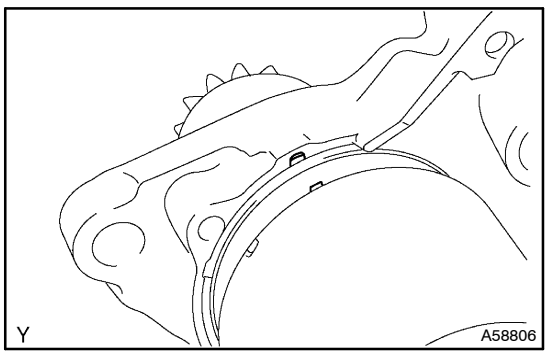
(d) Using vernier calipers, mesure the snap ring.
Maximum length: 5.0 mm (0.197 in.)

If the length is greater than maximum, replace the new snap ring.

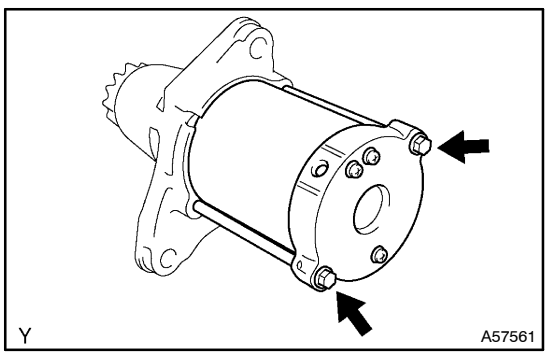


8. INSTALL STARTER COMMUTATOR END FRAME ASSY

(a) Align the starter commutator rubber end frame with the cutout of starter yoke.
(b) Install starter yoke assy to starter commutator end frame.



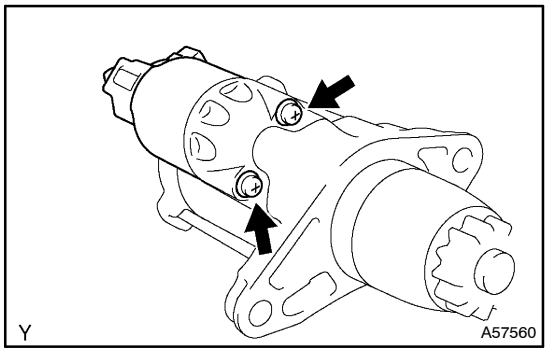
(c) Align the starer yoke assy with the cutout of motor terminal starter kit.



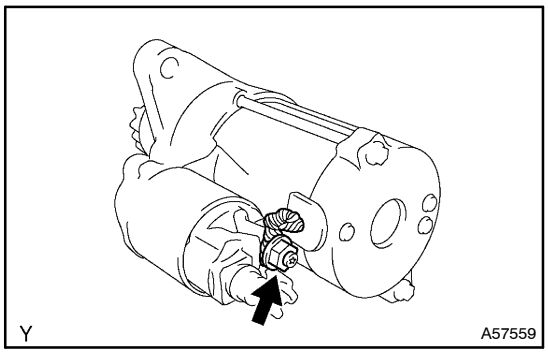
(d) Install the starter yoke assy with the 2 through bolts.
Torque: 6.0 N·m (61 kgf·cm, 53 in.·lbf)
(e) Install the starter commutator end frame cover.

9. INSTALL REPAIR SERVICE STARTER KIT

(a) Apply grease to the plunger and hook.
(b) Hang the plunger 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 2 screws.
Torque: 7.5 N·m (77 kgf·cm, 66 in.·lbf)



(e) Apply grease to the nut of the lead wire.
(f) Connect the lead wire to the terminal with the nut.
Torque: 6.5 N·m (66 kgf·cm, 58 in.·lbf)