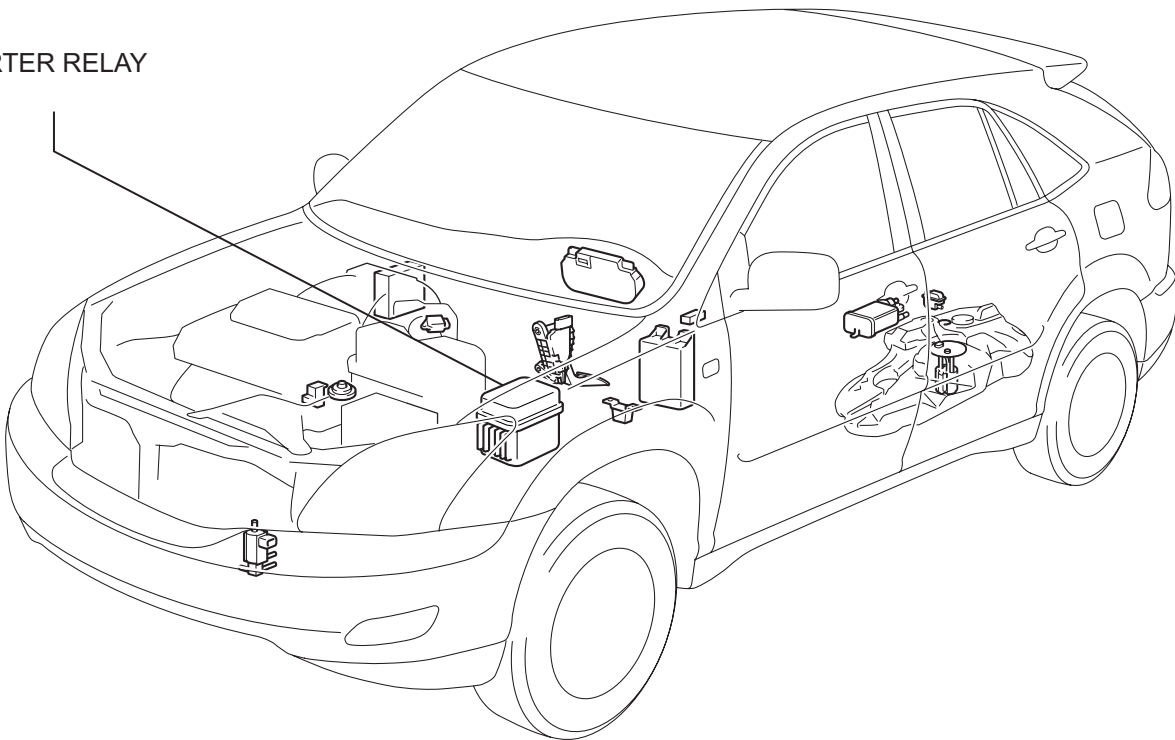


STARTING SYSTEM

PARTS LOCATION

ENGINE ROOM R/B AND
FUSIBLE LINK BLOCK:

STARTER RELAY



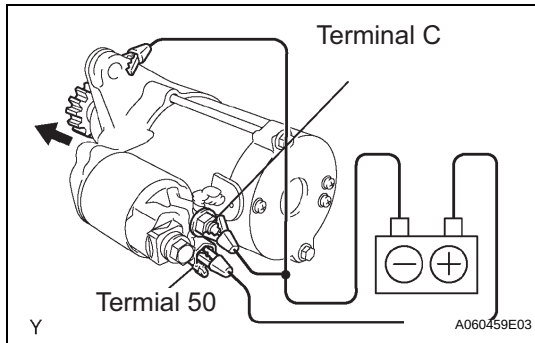
ST

INSPECTION

1. INSPECT STARTER ASSEMBLY

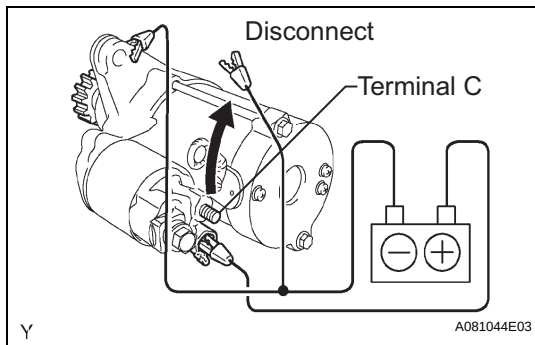
NOTICE:

These tests must be performed within 3 to 5 seconds to avoid burning out the coil.



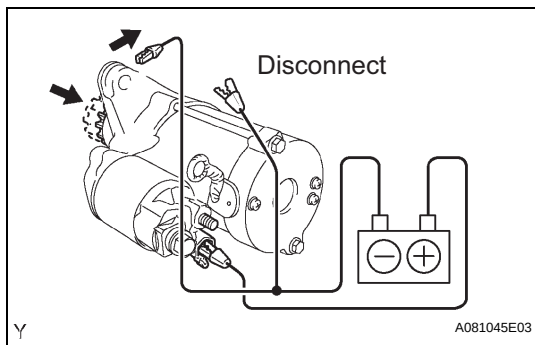
(a) Do pull-in test (Condition (A))

- (1) Disconnect the field coil lead wire from terminal C.
- (2) Connect the battery to the magnetic switch as shown in the illustration on the left. Check that the clutch pinion gear is extended. If the clutch pinion gear does not move, replace the magnetic switch.



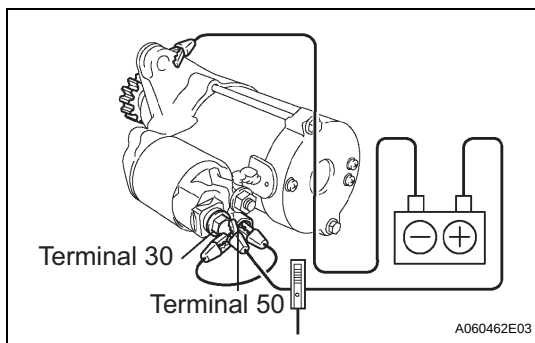
(b) Do hold-in test

- (1) Disconnect the negative (-) lead from terminal C with the above condition (A) is being maintained. Check that the pinion gear remains extended. If the clutch pinion gear returns inward, replace the magnetic switch.



(c) Inspect clutch pinion gear return

- (1) Disconnect the negative (-) lead from the switch body. Check that the clutch pinion gear returns. If the clutch pinion gear does not return, replace the magnetic switch.



(d) Do no-load performance test

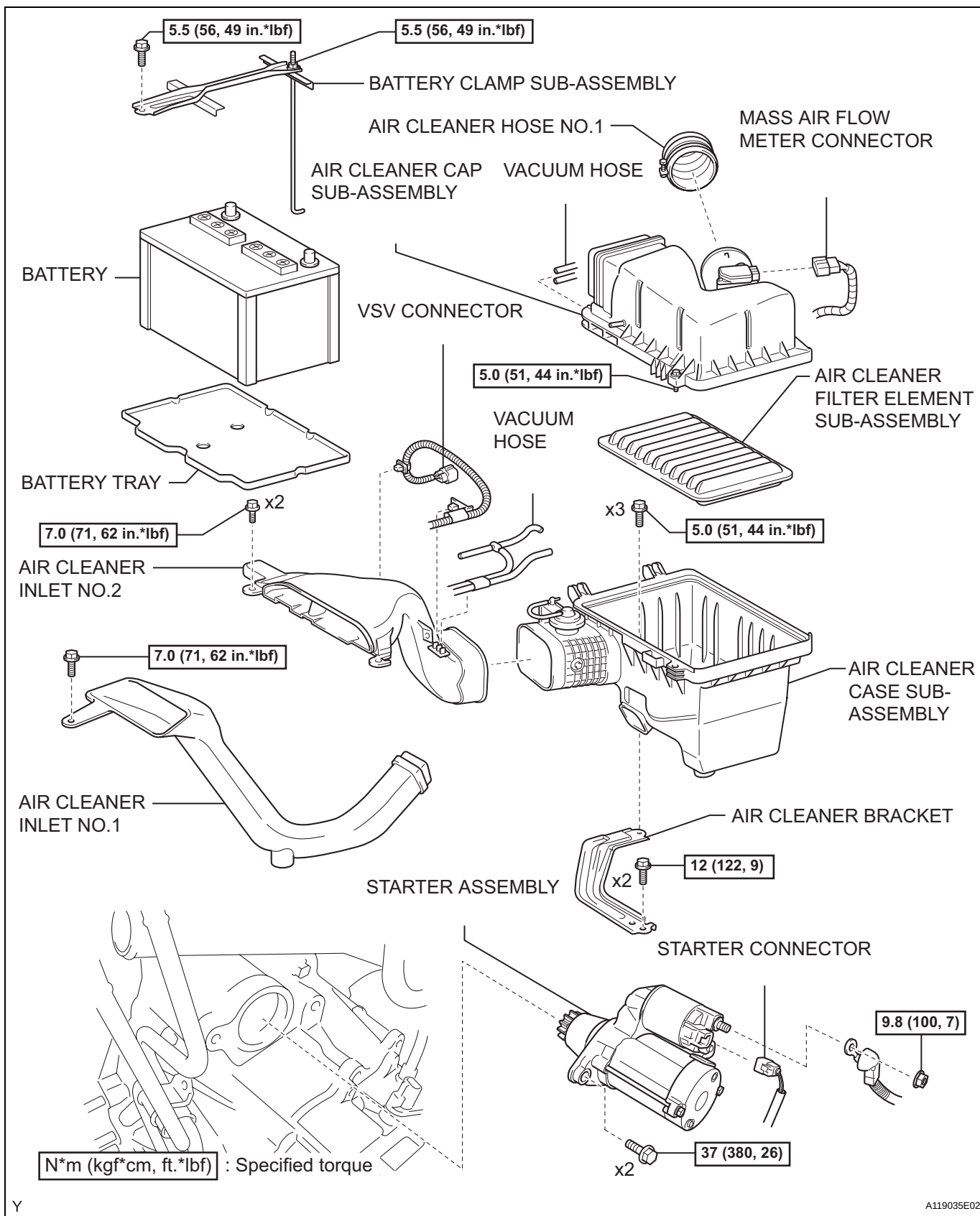
- (1) Connect the field coil lead wire to terminal C. Make sure that the lead is not grounded.
- (2) Clamp the starter in a vise.
- (3) Connect the battery and an ammeter to the starter as shown in the illustration.
- (4) Check that the starter rotates smoothly and steadily with the clutch pinion gear extended. Check that the ammeter reads the specified current.

Specified current:

90 A or less at 11.5 V

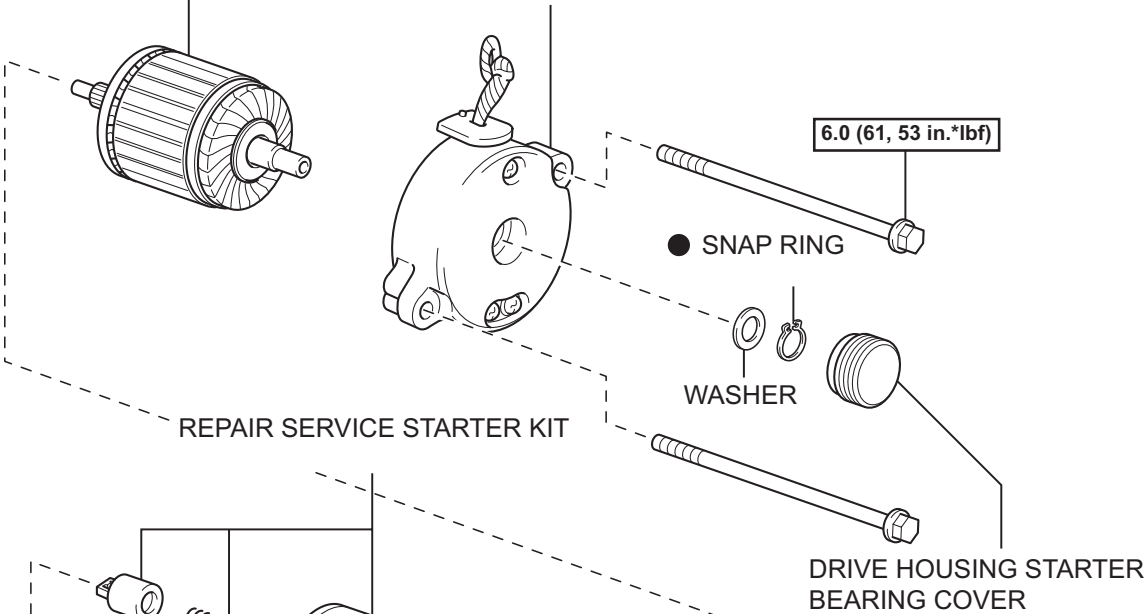
STARTER

COMPONENTS



STARTER ARMATURE ASSEMBLY

STARTER COMMUTATOR END FRAME ASSEMBLY



ST

MOTOR TERMINAL STARTER KIT

PLANET GEAR

STARTER YOE ASSEMBLY

STARTER ARMATURE PLATE

N*m (kgf*cm, ft.*lbf) : Specified torque

● Non-reusable part

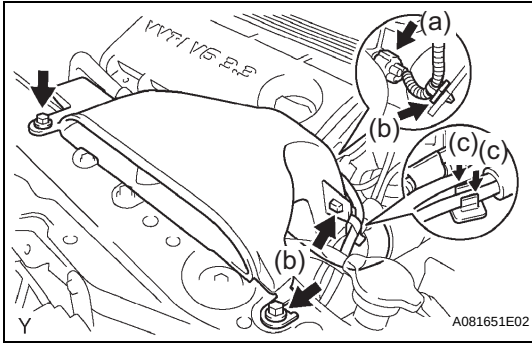
REMOVAL

1. REMOVE BATTERY

2. REMOVE BATTERY TRAY

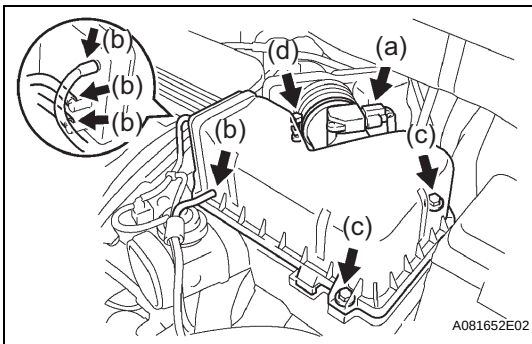
3. REMOVE AIR CLEANER INLET NO.2

- (a) Disconnect the VSV connector.
- (b) Remove the 2 wire harness clamps.
- (c) Remove the vacuum hoses from the hose clamp.
- (d) Remove the 2 bolts, and then remove the air cleaner inlet No. 2.

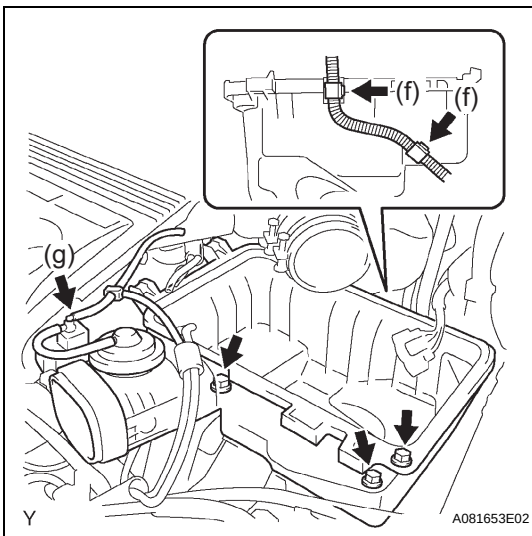


4. REMOVE AIR CLEANER ASSEMBLY

- (a) Disconnect the mass air flow meter connector.
- (b) Disconnect the 4 vacuum hoses.
- (c) Loosen the 2 air cleaner cap bolts.
- (d) Loosen the air cleaner hose clamp bolt, and then remove the air cleaner cap.
- (e) Remove the air cleaner filter element.

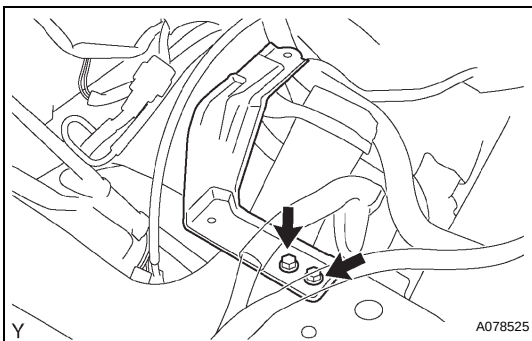


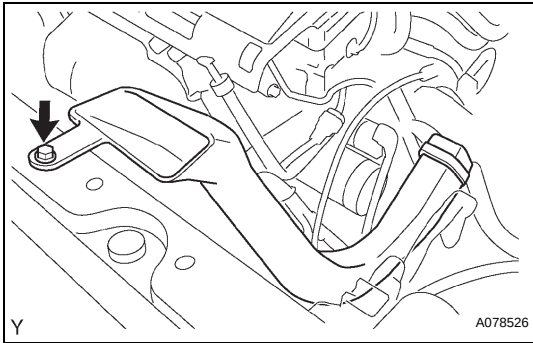
- (f) Remove the wire harness from the 2 wire harness clamps.
- (g) Disconnect the vacuum hose.
- (h) Remove the 3 bolts, and then remove the air cleaner case.



5. REMOVE AIR CLEANER BRACKET

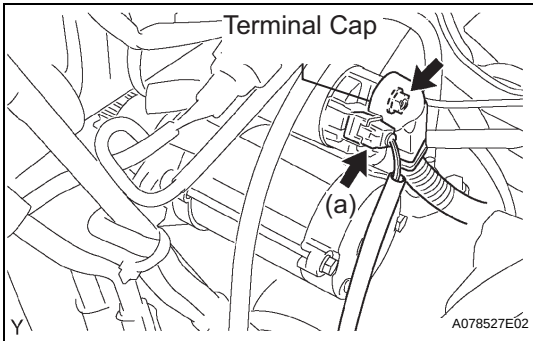
- (a) Remove the 2 bolts, and then remove the air cleaner bracket.





6. REMOVE AIR CLEANER INLET NO.1

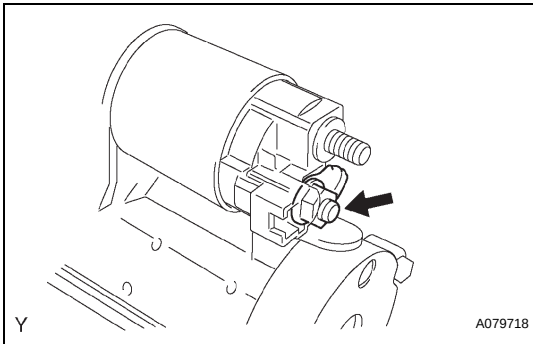
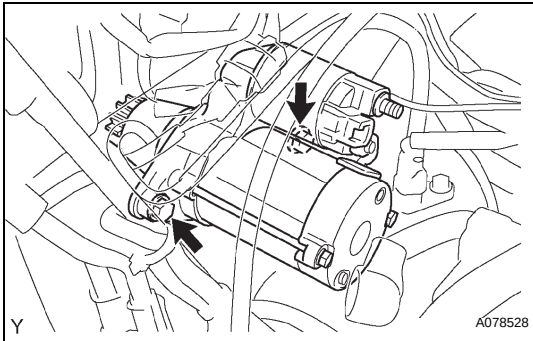
- (a) Remove the bolt, and then remove the air cleaner inlet No. 1.



7. REMOVE STARTER ASSEMBLY

- (a) Disconnect the starter connector.
(b) Open the terminal cap, remove the nut and disconnect the starter wire.

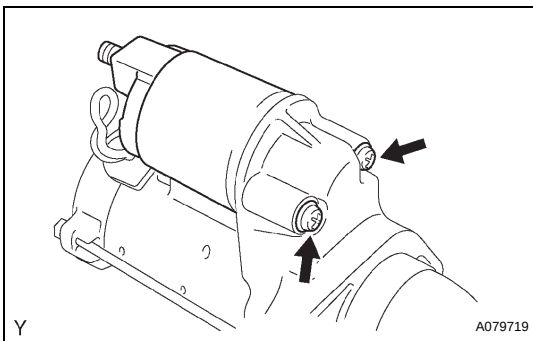
- (c) Remove the 2 bolts, and then remove the starter.



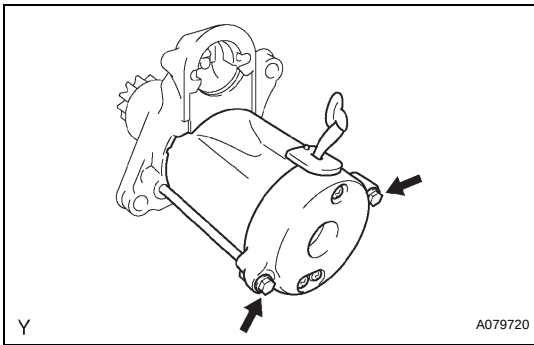
DISASSEMBLY

1. REMOVE REPAIR SERVICE STARTER KIT

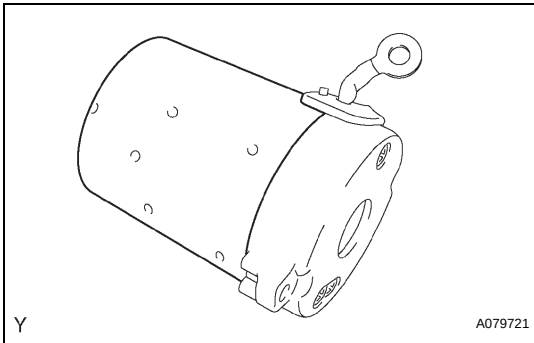
- (a) Remove the nut, and disconnect the lead wire from the repair service starter kit.



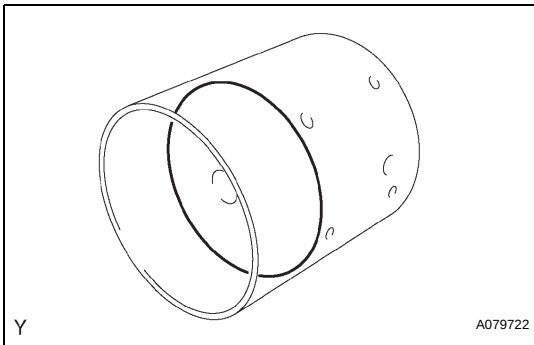
- (b) Remove the 2 screws which are used to secure the repair service starter kit to the starter drive housing.
(c) Remove the repair service starter kit.
(d) Remove the return spring and plunger from the motor terminal starter kit.

**2. REMOVE STARTER YOKE ASSEMBLY**

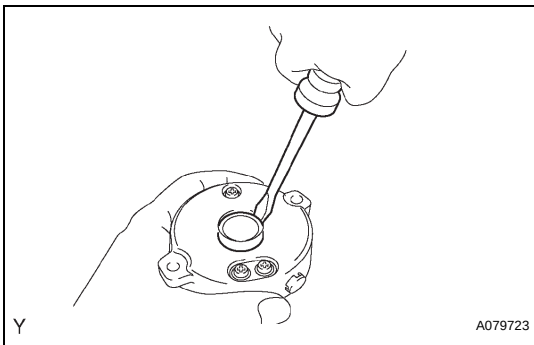
- (a) Remove the 2 through bolts, and pull out the starter yoke together with the starter commutator end frame.



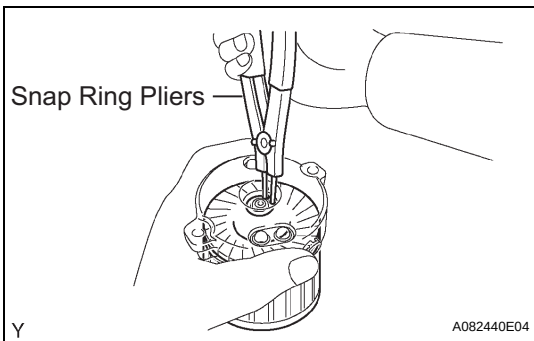
- (b) Remove the starter yoke from the starter commutator end frame.

**3. REMOVE STARTER ARMATURE PLATE**

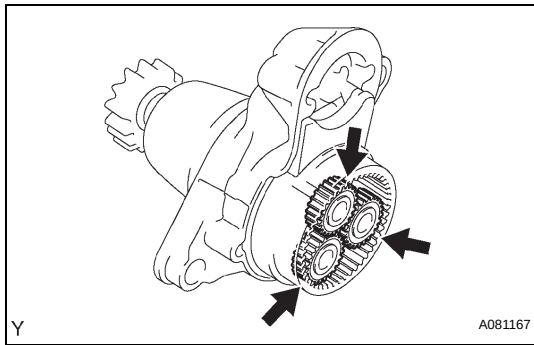
- (a) Remove the starter armature plate from the starter yoke.

**4. REMOVE STARTER COMMUTATOR END FRAME COVER**

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

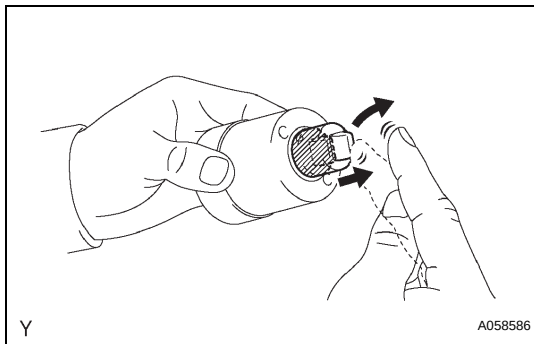
**5. REMOVE STARTER ARMATURE ASSEMBLY**

- (a) Using snap ring pliers, remove the snap ring and the plate washer.
- (b) Remove the starter armature from the commutator end frame.



6. REMOVE PLANET GEAR

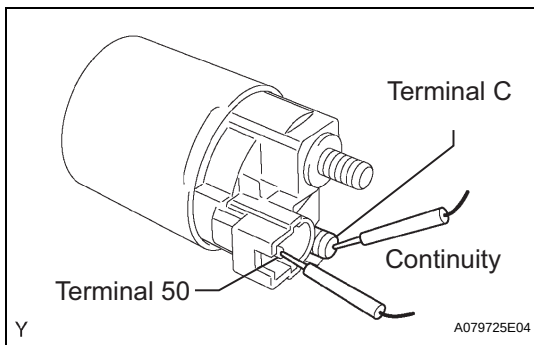
- (a) Remove the 3 planet gears from the motor terminal starter kit.



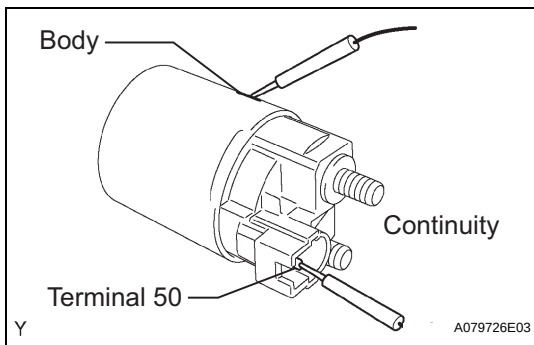
INSPECTION

1. INSPECT REPAIR SERVICE STARTER KIT

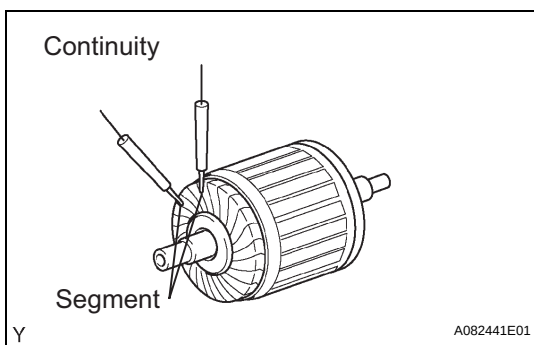
- (a) Check the plunger.
- (1) Push in the plunger and check that it returns quickly to its original position. If necessary, replace the repair service starter kit.



- (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.

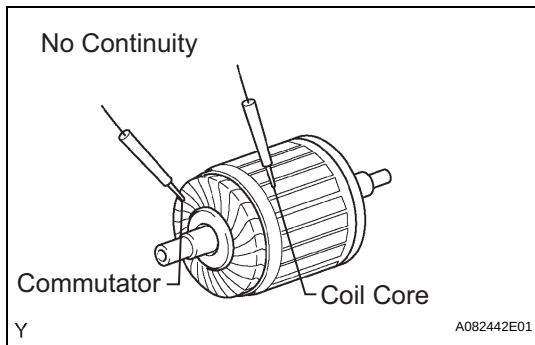


- (c) Check whether or not the holding coil has an open circuit.
- (1) Using an ohmmeter, check that there is continuity between terminal 50 and the switch body. If there is no continuity, replace the repair service starter kit.

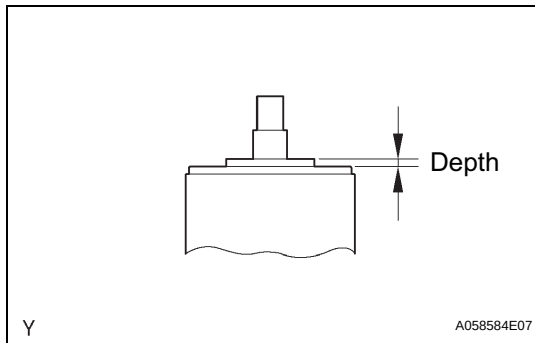


2. INSPECT STARTER ARMATURE ASSEMBLY

- (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 starter 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 starter armature.
- (c) Check the commutator for dirty and burned surface. If the surface is dirty or burnt, smooth the surface with 400-grit sandpaper or lathe.

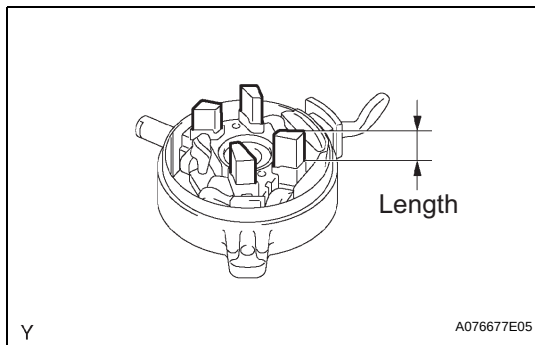


- (d) Check the commutator depth.
 - (1) Using vernier calipers, measure the commutator depth.

Standard length:
3.1 mm (0.122 in.)

Maximum length:
3.8 mm (0.150 in.)

If the depth is greater than maximum, replace the starter armature.



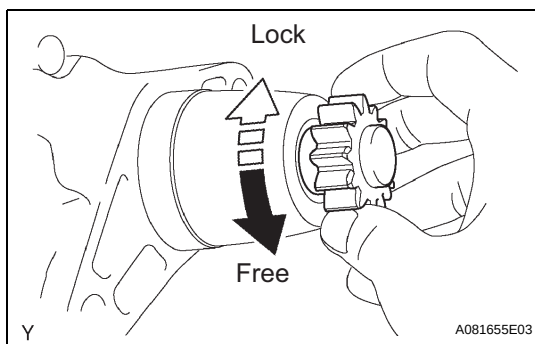
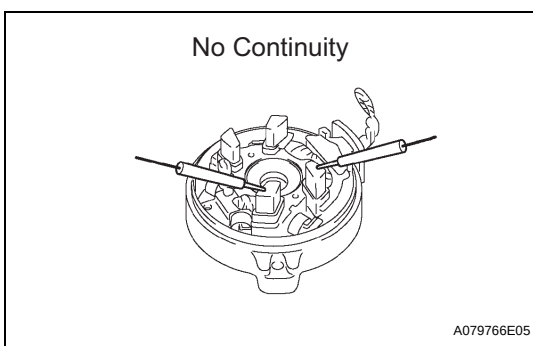
3. INSPECT STARTER COMMUTATOR END FRAME ASSEMBLY

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

Standard length:
9.0 mm (0.354 in.)

Minimum length:
4.0 mm (0.158 in.)

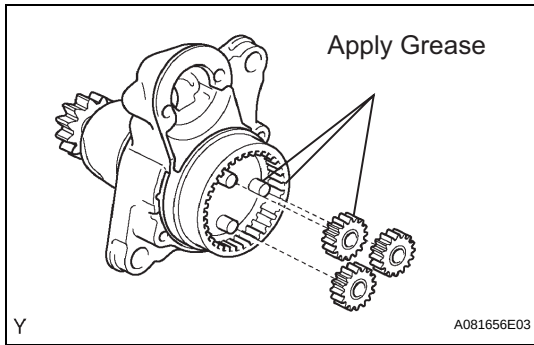
If the length is less than minimum, replace the starter commutator end frame.
- (b) Check the brush.
 - (1) Using an ohmmeter, check that there is no continuity between the positive (+) and negative (-) brush. If there is continuity, repair or replace the starter commutator end frame.



4. INSPECT MOTOR TERMINAL STARTER KIT

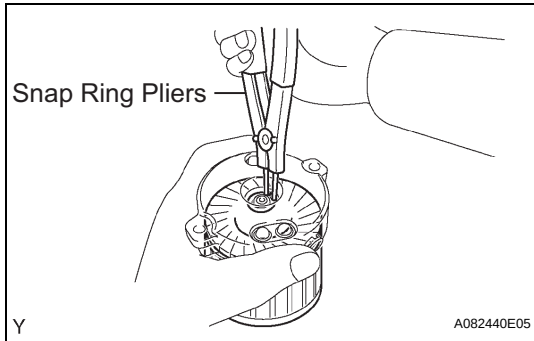
- (a) Check the starter clutch.
 - (1) Rotate the clutch pinion gear counterclockwise and check that it turns freely. Try to rotate the clutch pinion gear clockwise and check that it locks. If necessary, replace the motor terminal starter kit.

REASSEMBLY



1. INSTALL PLANET GEAR

- Apply grease to the planet gears and pin parts of the planetary shaft.
- Install the 3 planet gears.



2. INSTALL STARTER ARMATURE ASSEMBLY

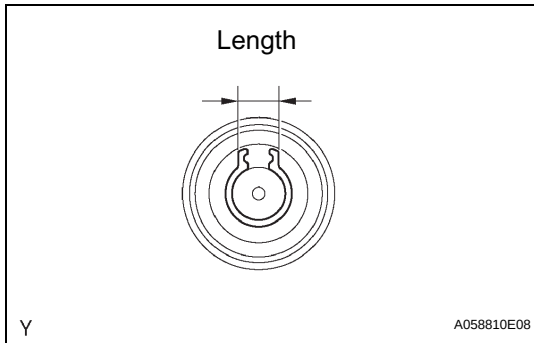
- Apply grease to the plate washer and the armature shaft.
- Install the starter armature to the starter commutator end frame.
- Using snap ring pliers, install the plate washer and a new snap ring.

- Using vernier calipers, measure the snap ring.

Maximum length:

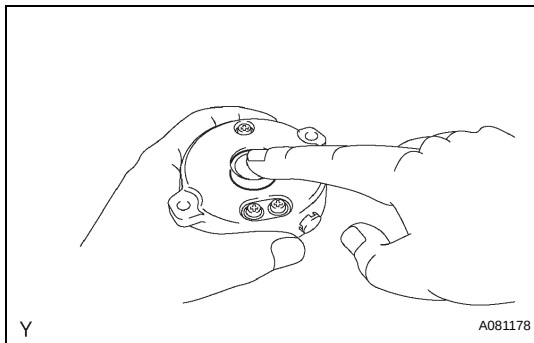
5.0 mm (0.197 in.)

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



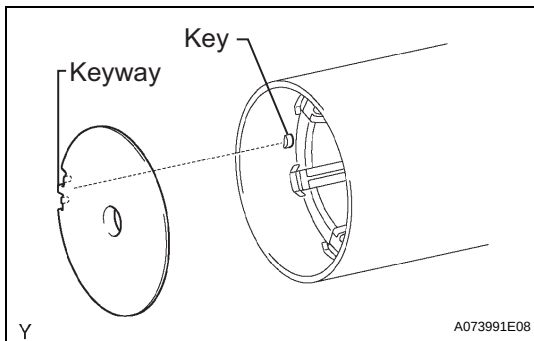
3. INSTALL STARTER COMMUTATOR END FRAME COVER

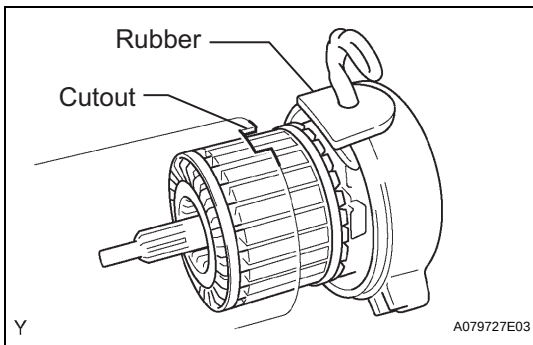
- Install the starter commutator end frame cover to the starter commutator end frame.



4. INSTALL STARTER ARMATURE PLATE

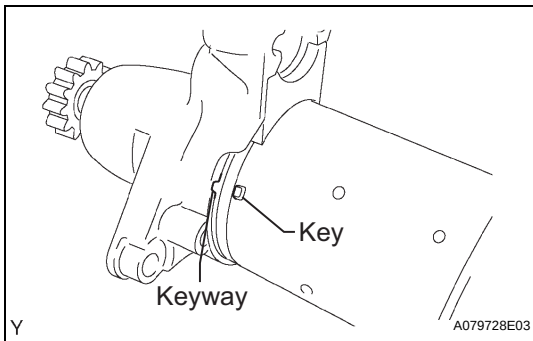
- Insert the starter armature plate to the starter yoke.
- Align the keyway of the starter plate with the key inside the starter yoke, and install the starter plate.





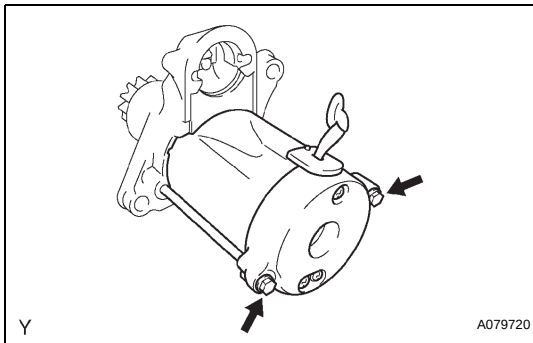
5. INSTALL STARTER COMMUTATOR END FRAME ASSEMBLY

- Align the rubber with the convex cutout of starter yoke.
- Install starter commutator end frame to the starter yoke.

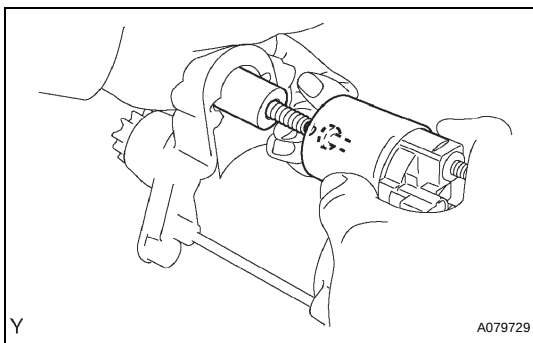


6. INSTALL STARTER YOKE ASSEMBLY

- Align the key of the starter yoke with the keyway of starter drive housing.

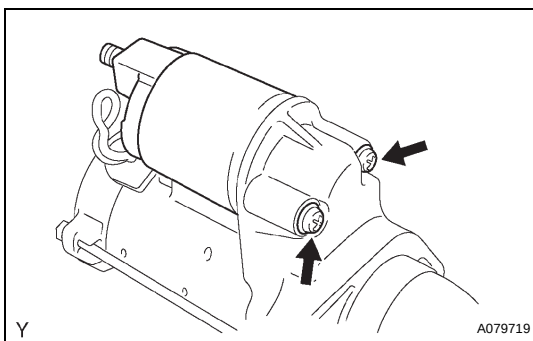


- Install the starter yoke with the 2 through bolts.
Torque: 6.0 N*m (61 kgf*cm, 53 in.*lbf)

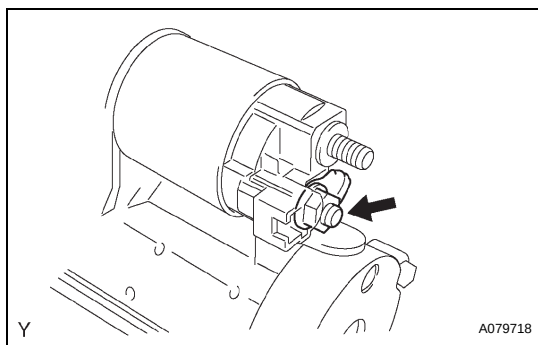


7. INSTALL REPAIR SERVICE STARTER KIT

- Apply grease to the plunger and the hook.
- Hang the plunger hook of the repair service starter kit to the drive lever.
- Install the plunger and the return spring.

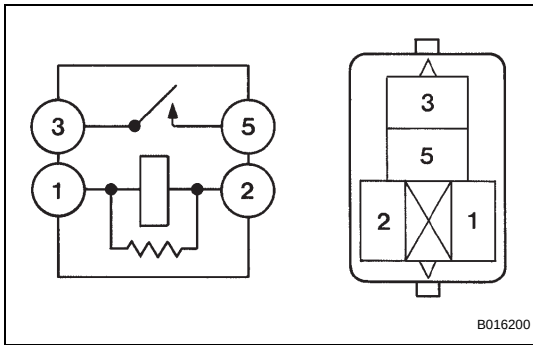


- Install repair service starter kit with the 2 screws.
Torque: 7.5 N*m (76 kgf*cm, 66 in.*lbf)



- (e) Connect the lead wire to the repair service starter kit with the nut.

Torque: 10 N*m (102 kgf*cm, 7 ft.*lbf)



STARTER RELAY

INSPECTION

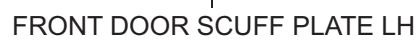
1. INSPECT STARTER RELAY ASSEMBLY

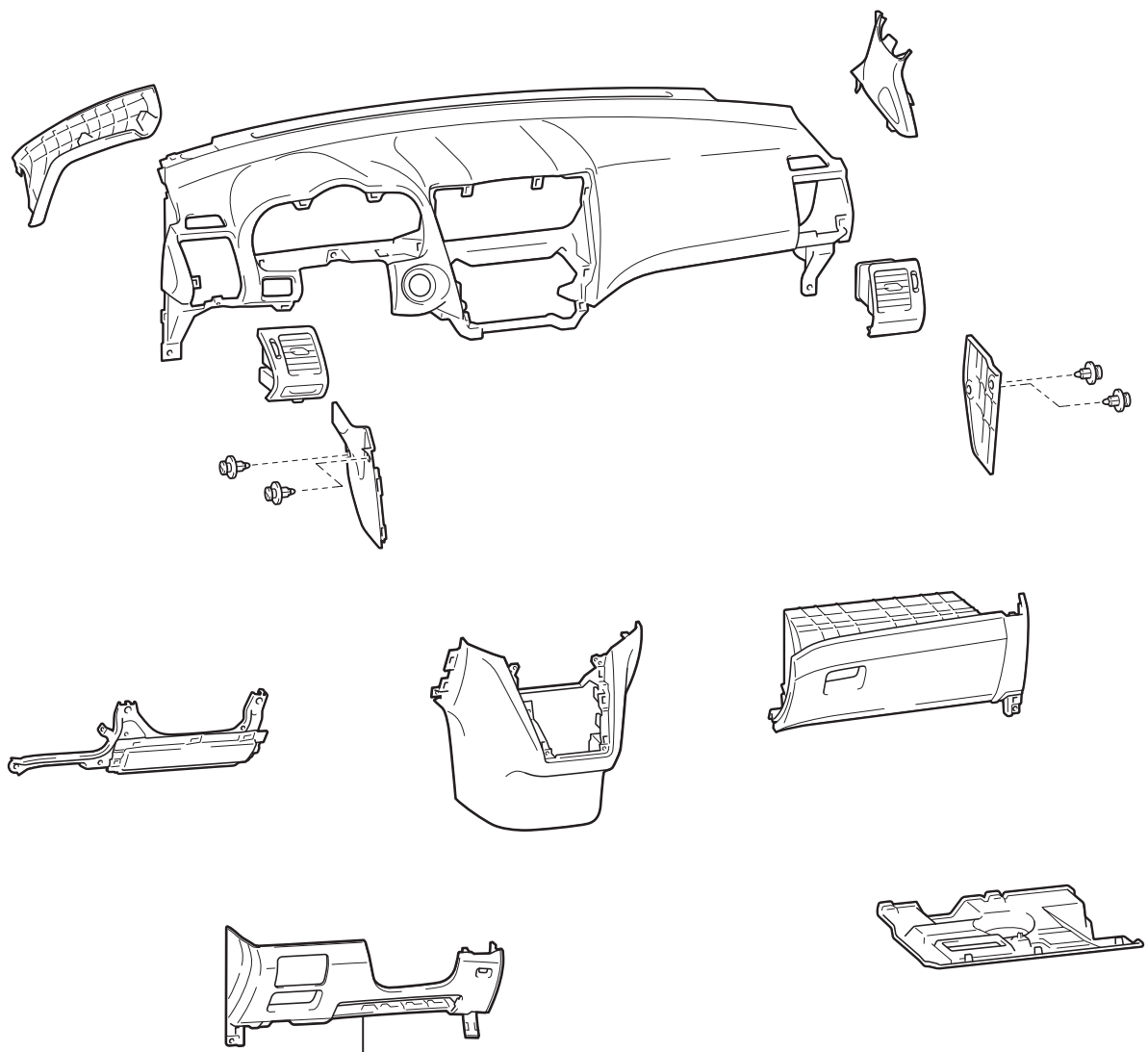
- (a) Continuity inspection.
 - (1) Using an ohmmeter, check for resistance between the terminals.

Resistance

Tester Connection	Specified Condition
3 - 5	10 k Ω or higher
	Below 1 Ω (Apply battery voltage terminals 1 and 2)

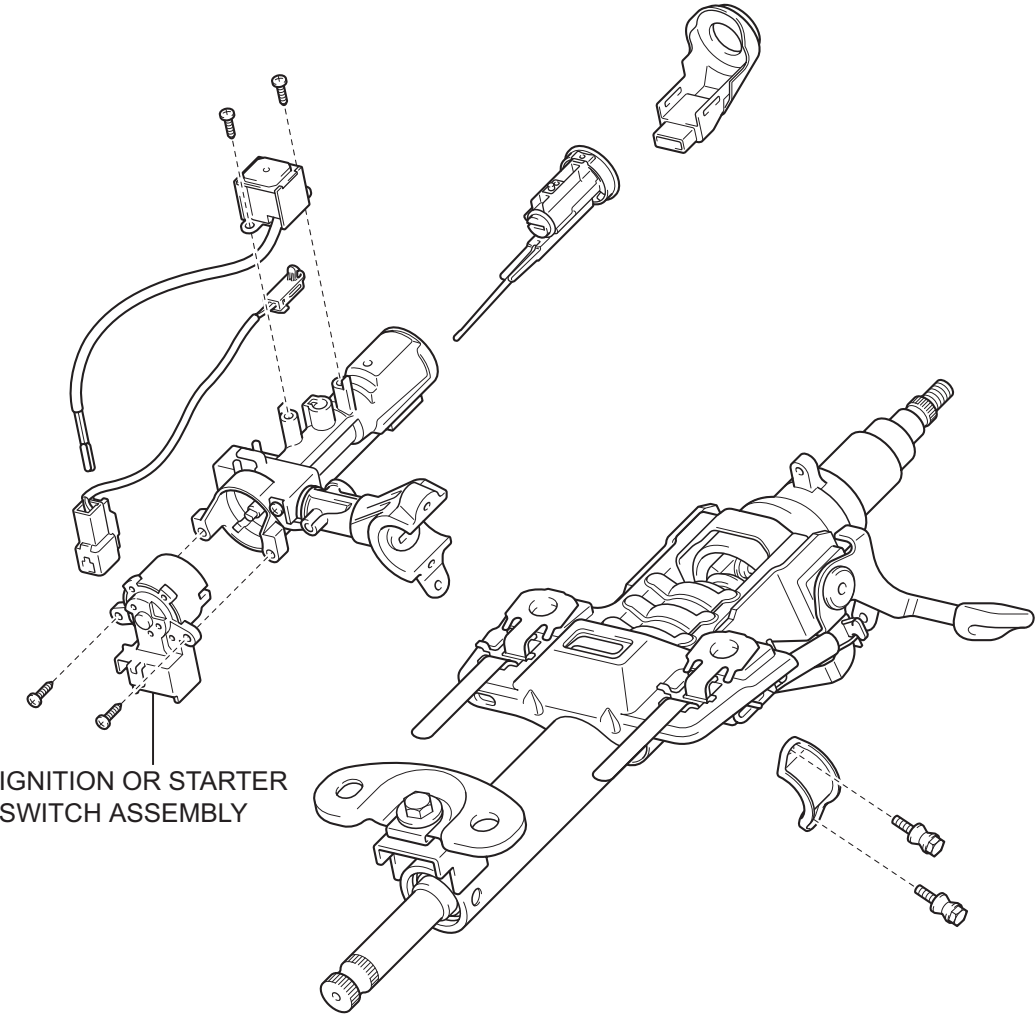
COMPONENTS





INSTRUMENT PANEL FINISH
PANEL SUB-ASSEMBLY LOWER

ST

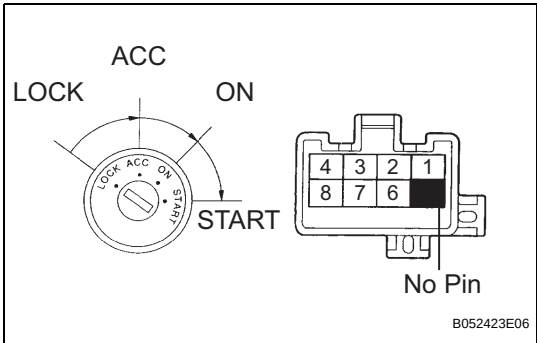
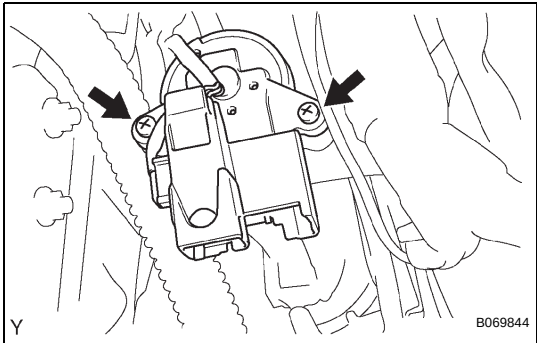


IGNITION OR STARTER
SWITCH ASSEMBLY

ST

REMOVAL

- 1. REMOVE FRONT DOOR SCUFF PLATE LH (See page IR-6)
- 2. REMOVE INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LOWER (See page IP-12)
- 3. REMOVE IGNITION OR STARTER SWITCH ASSEMBLY
 - (a) Disconnect the ignition switch connector and unlock warning switch connector.
 - (b) Remove the clamp.
 - (c) Remove the 2 screws and ignition switch.



INSPECTION

- 1. INSPECT IGNITION OR STARTER SWITCH ASSEMBLY
 - (a) Inspect the switch resistance.

Resistance

Tester Connection	Switch Position	Specified Condition
-	LOCK	10 kΩ or higher
2 - 3	ACC	Below 1 Ω
2 - 3	ON	
2 - 4		
6 - 7		
1 - 2	START	
2 - 4		
6 - 7		
7 - 8		

If the result is not as specified, replace the switch assembly.

INSTALLATION

1. INSTALL IGNITION OR STARTER SWITCH ASSEMBLY
2. INSTALL INSTRUMENT PANEL FINISH PANEL SUB-ASSEMBLY LOWER
3. INSTALL FRONT DOOR SCUFF PLATE LH