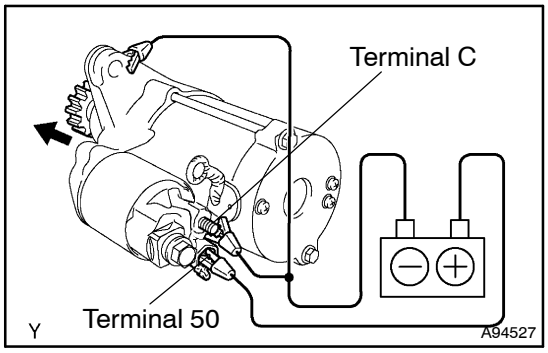
# STARTING SYSTEM (3MZ–FE)

## INSPECTION

190W3–01




**1. INSPECT STARTER ASSY**

**NOTICE:**

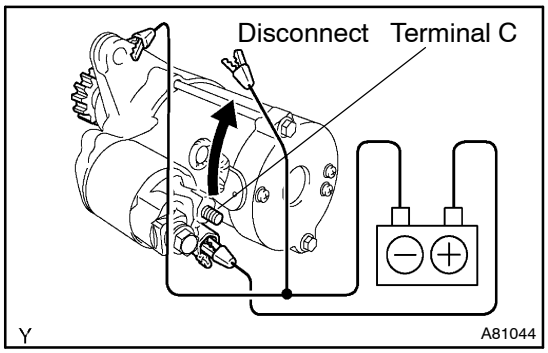
**These tests must be performed within 3 to 5 seconds to avoid burning out the coil.**

(a) Do the pull–in test.

(1) Disconnect the 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 extends.

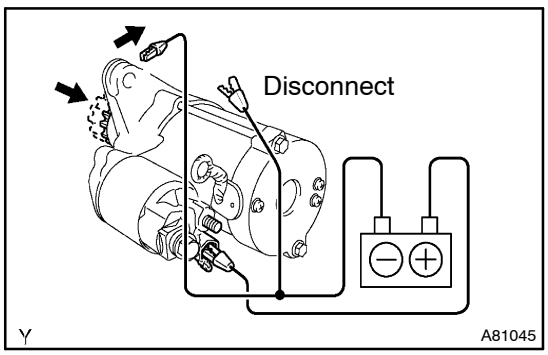
If the clutch pinion gear does not move, replace the magnetic switch assy.




(b) Do the hold–in test.

(1) Maintain the battery connections in step (a), but disconnect the negative (–) lead from terminal C. Check that the pinion gear remains extended.

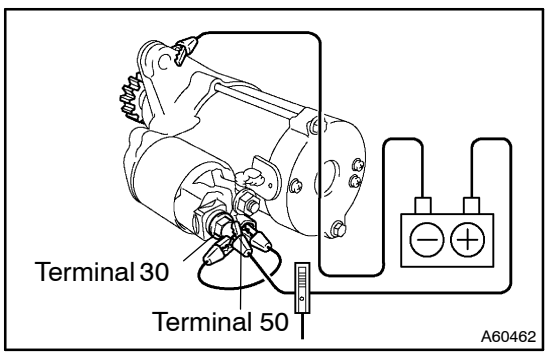
If the clutch pinion gear returns inward, replace the magnetic switch assy.




(c) Check the 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 assy.




(d) Do the no–load performance test.

(1) Connect the lead wire to terminal 30. Make sure that the lead is not grounded.

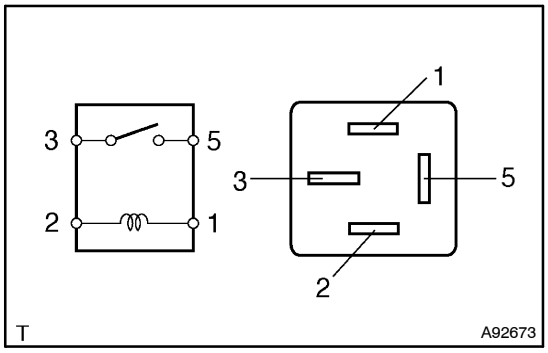
**Torque: 10 N·m (102 kgf·cm, 7 ft·lbf)**

(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**




**2. INSPECT RELAY (Marking: STARTER)**

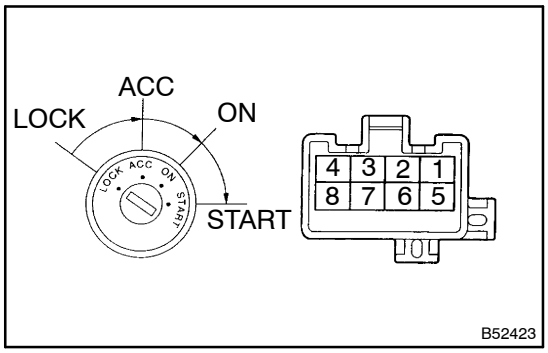
(a) Remove the STARTER relay from the engine room R/B.

(b) Measure the resistance of the STARTER relay.

**Standard:**

| Tester Connection | Specified Condition |
|---|---|
| 3 – 5 | 10 kΩ or higher |
| 3 – 5 | Below 1Ω<br>(when battery voltage is applied to terminals 1 and 2) |

If the result is not as specified, replace the relay.




**3. INSPECT IGNITION OR STARTER SWITCH ASSY**

(a) Measure the switch resistance.

**Standard:**

| Tester Connection | Switch Condition | Specified Condition |
|---|---|---|
| – | LOCK | 10 kΩ or higher |
| 2 – 3 | ACC | Below 1 Ω |
| 2 – 3<br>2 – 4<br>6 – 7 | ON | Below 1 Ω |
| 1 – 2<br>1 – 4<br>6 – 7<br>6 – 8 | START | Below 1 Ω |

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