DIC2N–03

DTC	P0617	Starter Relay Circuit High

CIRCUIT DESCRIPTION

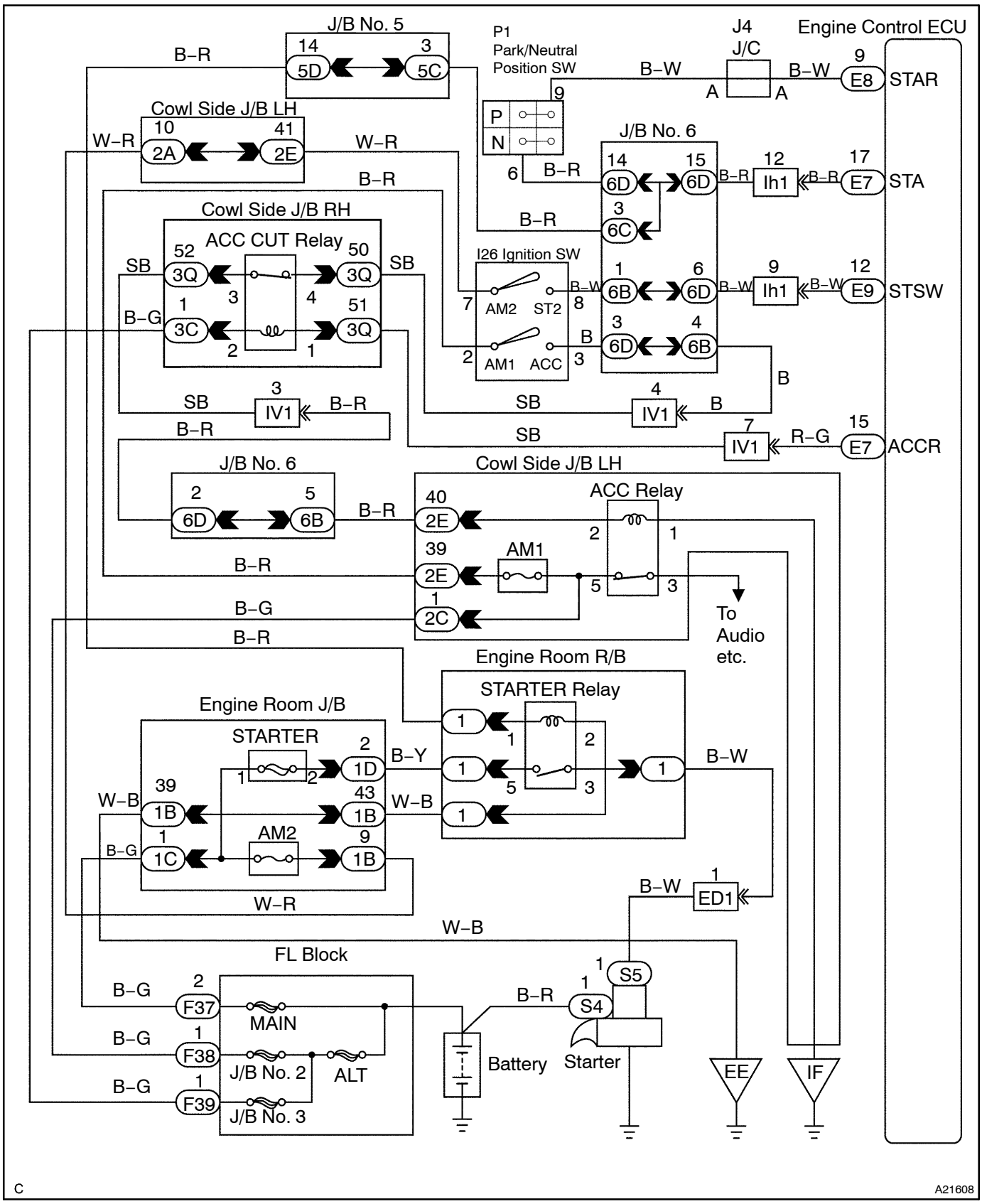
While the engine is being cranked, the battery positive voltage is applied to terminal STA of the engine control ECU.

If the vehicle is being driven and the engine control ECU detects the starter control signal (STA), the engine control ECU concludes that the starter control circuit is malfunctioning. The engine control ECU will turn on the MIL and a DTC is set.

This monitor runs when the vehicle is driven at 20 km/h (12 mph) for over 20 seconds.

DTC No.	DTC Detection Condition	Trouble Area
P0617	When all conditions (a), (b) and (c) are satisfied for 20 seconds with battery (+B) voltage 10.5 V or more (1 trip detection logic) (a) Vehicle speed ≧ 20 km/h (12.4 mph) (b) Engine revolution ≧ 1,000 rpm (c) STA signal ON	• Park/neutral position switch • Starter relay circuit • Ignition switch • Engine control ECU

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand–held tester. Freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, freeze frame data can help determine if the vehicle was running or stopped, if the engine was warmed up or not, if the air–fuel ratio was lean or rich, as well as other data from the time when a malfunction occurred.

When using hand–held tester:

1	**Connect hand–held tester, and check STA signal.**

PREPARATION:

(a) Connect the hand–held tester to the DLC3.
(b) Turn the ignition switch ON, and push the hand–held tester main switch ON.
(c) Enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / STARTER SIG.

CHECK:

Read the STA signal on the hand–held tester while the starter operates.

OK:

Ignition Switch Position	ON	START
STA Signal	OFF	ON

OK → **Go to step 5.**

NG

2	**Check park/neutral position switch (See Pub. No. RM970E, page DI–32).**

NG → **Repair or replace park/neutral position switch. Go to next step 3 after the replacement.**

OK

3	**Check ignition switch (See Pub. No. RM616E, page BE–20).**

NG → **Replace ignition switch. Go the next step 4 after the replacement.**

OK

4	**Connect hand–held tester, and check STA signal.**

PREPARATION:

(a) Connect the hand–held tester to the DLC3.

(b) Turn the ignition switch ON, and push the hand–held tester main switch ON.

(c) Enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / STARTER SIG.

CHECK:

Read the STA signal on the hand–held tester while the starter operates.

OK:

Ignition Switch Position	ON	START
STA Signal	OFF	ON

NG → **Repair or replace harness or connector.**

OK

5	**Check DTC reoccur.**

PREPARATION:

(a) Connect the hand–held tester to the DLC3.

(b) Turn the ignition switch ON and hand–held tester main switch ON.

(c) Clear DTC (See page DI–3).

(d) Drive the vehicle more than 40 km/h (25 mph) for 20 seconds or more.

CHECK:

Check DTC reoccur.

RESULT:

Display (DTC output)	Proceed to
P0617	A
No DTC output	B

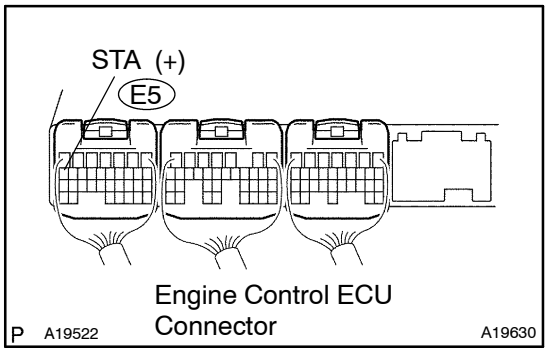
A → **Replace engine control ECU (See Pub. No. RM630E, page FI–74).**

B

Check for intermittent problems (See page DI–3).

When not using hand–held tester:

1	**Check voltage between terminal STA of engine control ECU connector and body ground.**



PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal STA of the engine control ECU connector and the body ground, while cranking the engine (ignition switch START position) and while not engine cranking the engine (ignition switch position ON).
OK:

Voltage:
6 V or more (ignition switch START position)
0 V (ignition switch ON position)

OK	**Go to step 5.**

NG

2	**Check park/neutral position switch (See Pub. No. RM970E, page DI–32).**

NG	**Replace park/neutral position switch. Go to next step 5 after the replacement.**

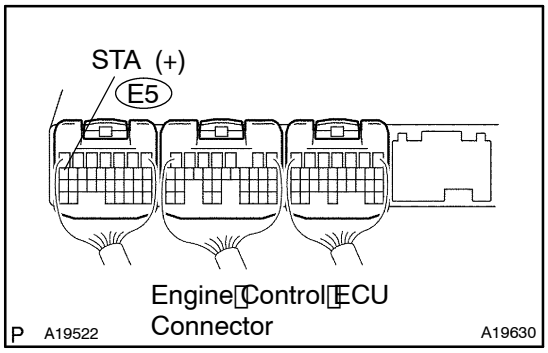
OK

3	**Check ignition switch (See Pub. No. RM616E, page BE–20).**

NG	**Replace ignition switch. Go to next step 5 after the replacement.**

OK

4	**Check voltage between terminal STA of engine control ECU connector and body ground.**



PREPARATION:
Turn the ignition switch ON.
CHECK:
Measure the voltage between terminal STA of the engine control ECU connector and the body ground, while cranking the engine (ignition switch START position) and while not engine cranking the engine (ignition switch position ON).
OK:

Voltage:
6 V or more (ignition switch START position)
0 V (ignition switch ON position)

NG	**Repair or replace harness or connector.**

OK

5	**Check DTC reoccur.**

PREPARATION:
(a) Clear DTC (See page DI–3).
(b) Drive the vehicle more than 40 km/h (25 mph) for 20 seconds or more.
CHECK:
Check DTC reoccur.
RESULT:

Display (DTC output)	Proceed to
P0617/89	A
No DTC output	B

A	**Replace engine control ECU (See Pub. No. RM630E, page FI–74).**

B

Check for intermittent problems (See page DI–3).