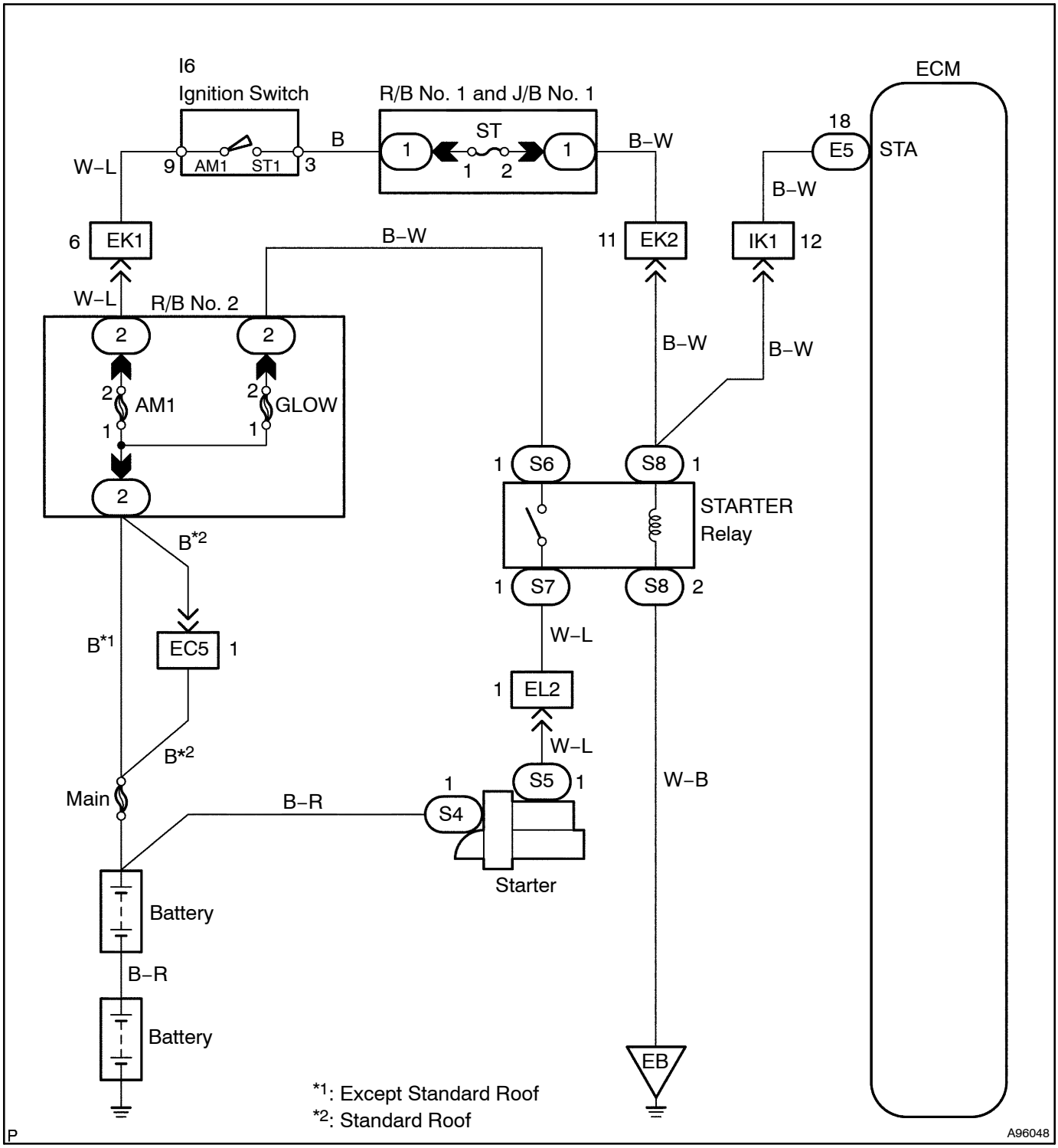
STARTER SIGNAL CIRCUIT

CIRCUIT DESCRIPTION

When the engine is being cranked, the intake air flow is slow, so fuel vaporization is poor. A rich mixture is therefore necessary in order to achieve good startability. While the engine is being cranked, the battery positive voltage is applied to terminal STA of the ECM. The starter signal is mainly used to increase the fuel injection volume for starting injection control and after–start injection control.

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:
This diagnostic chart is based on the premise that the engine is being cranked under normal conditions. If the engine does not crank, proceed to the problem symptoms table on page 05–22.

When using hand–held tester:

1	READ VALUE OF DATA LIST (STA SIGNAL)

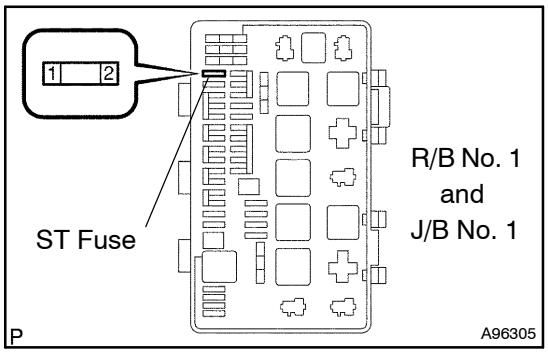
(a) Connect the hand–held tester (with 24 V VIM) to the DLC3.
(b) Turn the ignition switch ON and turn the hand–held tester ON.
(c) On the hand–held tester, enter the following menus: DIAGNOSIS / OBD/MOBD / DATA LIST / ALL / STARTER SIG. Read the values.
Standard:

Ignition Switch Position	ON	START
STARTER	OFF	ON

OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05–22)**

NG

2	INSPECT FUSE (ST)

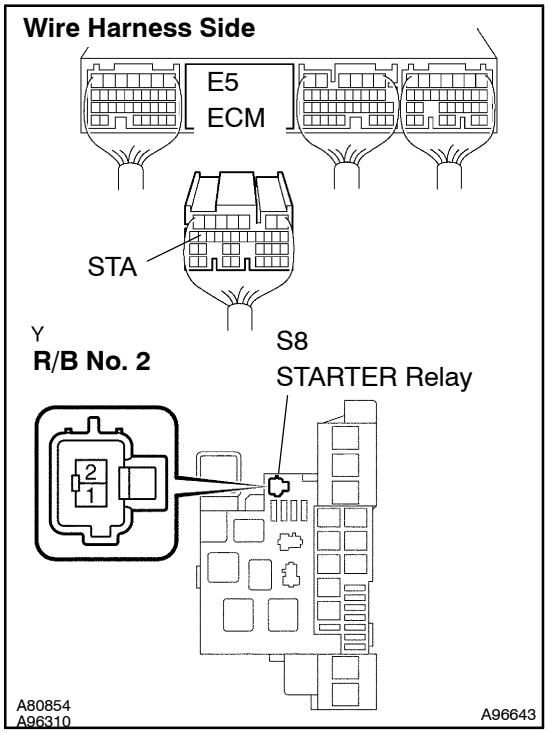


(a) Remove the ST fuse from the R/B No. 1 and J/B No. 1.
(b) Measure the resistance of the fuse.
Standard: Below 1 Ω

NG → **REPLACE FUSE**

OK

3	CHECK WIRE HARNESS (ECM – STARTER RELAY)



(a) Disconnect the E5 ECM connector.
(b) Remove the STARTER relay from the R/B No. 2.
(c) Measure the resistance of the wire harness side connectors.

Standard:

Tester Connection	Specified Condition
S8–1 – E5–18 (STA)	Below 1 Ω

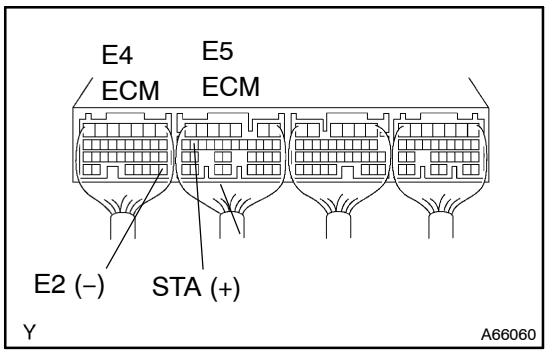
NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM (See page 10–10)

When not using hand–held tester:

1	CHECK ECM (STA VOLTAGE)



(a) Turn the ignition switch ON.
(b) Measure the voltage of the ECM connectors.

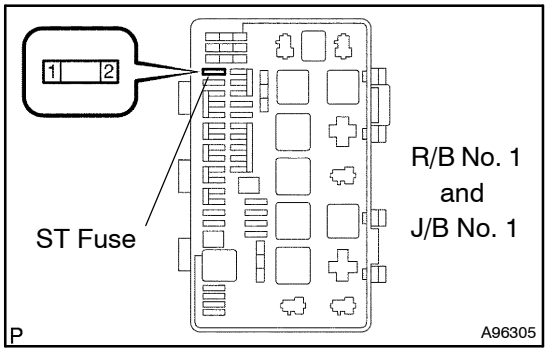
Standard:

Tester Connection	Condition	Specified Condition
E5–18 (STA) – E4–28 (E2)	Cranking	18 V or more

OK → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (See page 05–22)**

NG

2 INSPECT FUSE (ST)

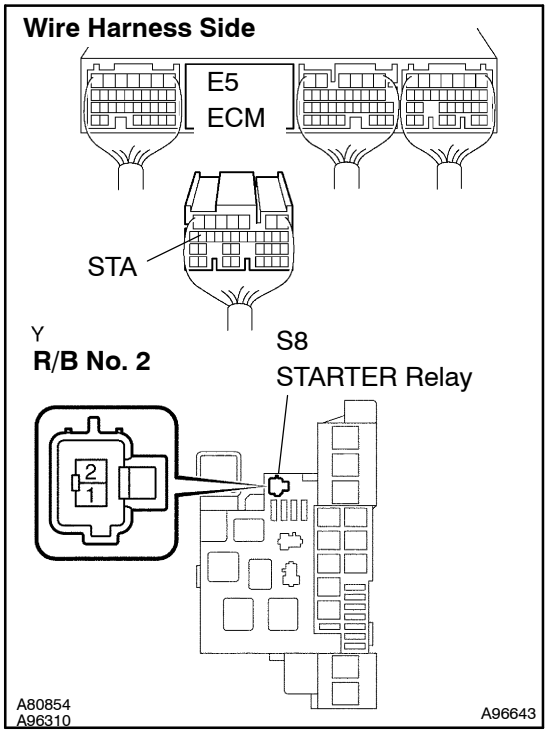


(a) Remove the ST fuse from the R/B No. 1 and J/B No. 1.
(b) Measure the resistance of the fuse.
Standard: Below 1 Ω

NG → **REPLACE FUSE**

OK

3 CHECK WIRE HARNESS (ECM – STARTER RELAY)



(a) Disconnect the E5 ECM connector.
(b) Remove the STARTER relay from the R/B No. 2.
(c) Measure the resistance of the wire harness side connectors.
Standard:

Tester Connection	Specified condition
S8–1 – E5–18 (STA)	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS AND CONNECTOR**

OK

REPLACE ECM (See page 10–10)