DTC P0617 STARTER RELAY CIRCUIT HIGH

MONITOR DESCRIPTION

While the engine is being cranked, the battery positive voltage is applied to terminal STA of the ECM. If the vehicle is being driven and the ECM detects the starter control signal (STA), the ECM concludes that the starter control circuit is malfunctioning. The ECM will turn on the MIL and a DTC is set.

DTC No.	DTC Detecting Condition	Trouble Area
P0617	When conditions (a), (b) and (c) are met and the battery (+B) voltage 10.5 V or more is applied for 20 seconds: (a) Vehicle speed greater than 12 mph (20 km/h) (b) Engine revolution greater than 1,000 rpm (c) STA signal ON	• Short in PNP switch (A/T) or clutch start switch (M/T) • PNP switch (A/T) • Clutch start switch (M/T) • Ignition switch • ECM

MONITOR STRATEGY

Related DTCs	P0617: Starter Signal
Required sensors/ components (Main)	Starter Relay, PNP Switch
Required sensors/ components (Related)	Crankshaft Position Sensor, Vehicle Speed Sensor
Frequency of operation	Continuous
Duration	20 seconds
MIL operation	Immediate
Sequence operation	None

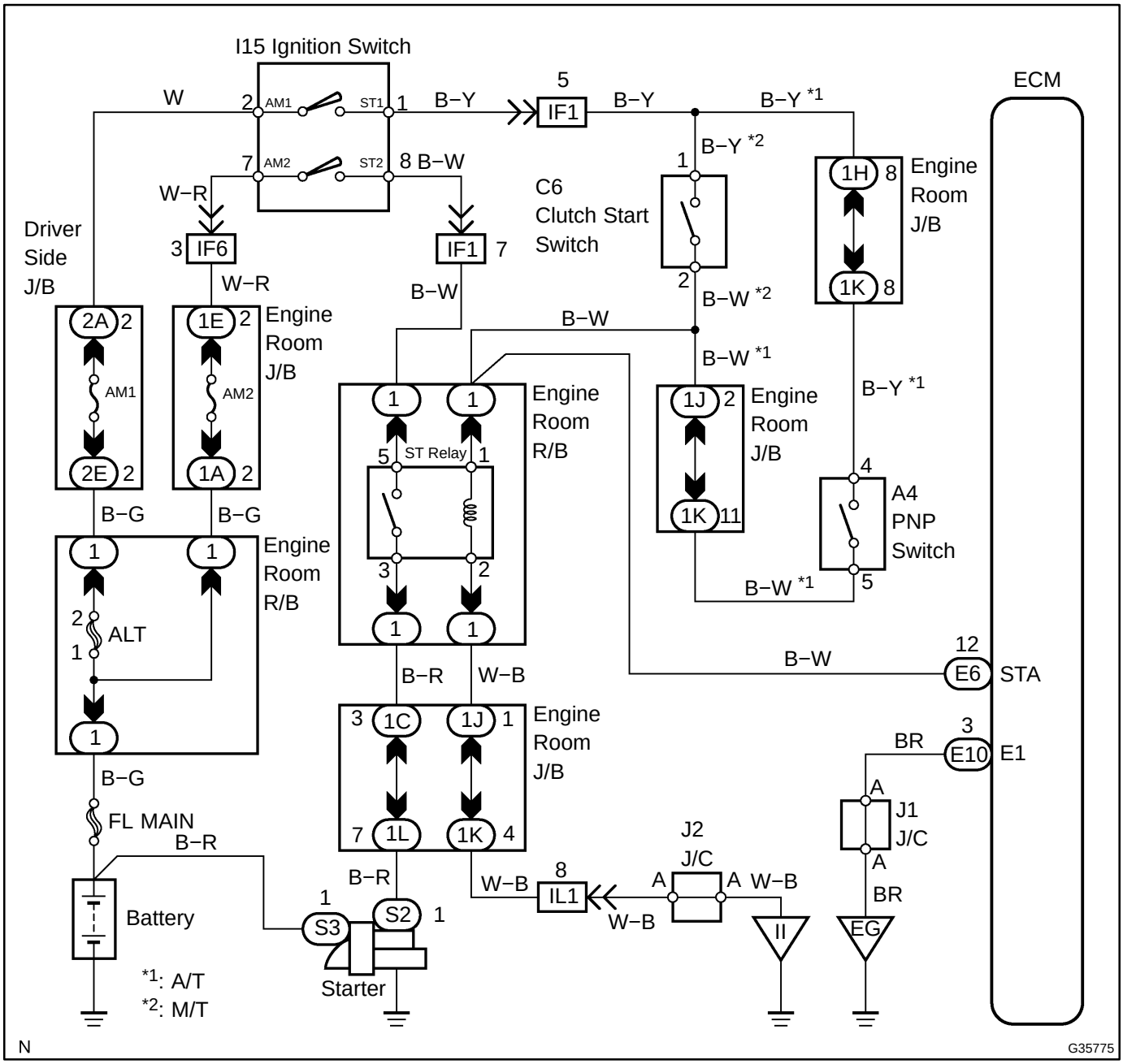
TYPICAL ENABLING CONDITIONS

The monitor will run whenever these DTCs are not present	See page 05−16
Battery voltage	10.5 V or more
Vehicle speed	12.4 mph (20 km/h) or more
Engine RPM	1,000 rpm or more

TYPICAL MALFUNCTION THRESHOLDS

Starter signal	ON

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

Read freeze frame data using the hand−held tester or the OBD II scan tool. 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, and other data from the time the malfunction occurred.

Hand−held tester:

1	READ VALUE OF HAND−HELD TESTER (STA SIGNAL)

(a) Connect the hand−held tester to the DLC3.
(b) Turn the ignition switch ON. Push the hand−held tester or the OBD II scan tool tester main switch ON.
(c) On the hand−held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / STARTER SIG. Read the values.

Result:

Ignition Switch Condition	ON	START
STA Signal	OFF	ON

OK → **REPLACE ECM (See page 10−9)**

NG

2	INSPECT PARK/NEUTRAL POSITION SWITCH OR CLUTCH START SWITCH

(a) Check the PNP switch (A/T) (see page 05−241).

OK: When shift lever is in the N position, the PNP switch is ON.
When shift lever is in the D position, the PNP switch is OFF.

(b) Check the clutch start switch (M/T) (see page 42−20).

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH OR CLUTCH START SWITCH (Go to next step 3 AFTER REPLACEMENT)**

OK

3	READ VALUE OF HAND−HELD TESTER (STA SIGNAL)

(a) Connect the hand−held tester to the DLC3.
(b) Turn the ignition switch ON. Push the hand−held tester or the OBD II scan tool tester main switch ON.
(c) On the hand−held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / STARTER SIG. Read the values.

Result:

Ignition Switch Condition	ON	START
STA Signal	OFF	ON

OK → **SYSTEM OK**

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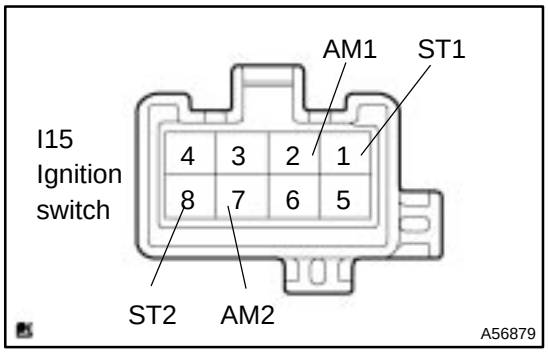
4	INSPECT IGNITION OR STARTER SWITCH ASSY



(a) Check the resistance of the ignition switch terminals.
Standard:

Switch Condition	Tester Condition	Specified Condition
LOCK	1 − 2, 7 − 8	10 kΩ or higher
START	1 − 2, 7 − 8	Below 1 Ω

NG → **REPLACE IGNITION OR STARTER SWITCH ASSY (Go to next step 5 AFTER REPLACEMENT)**

OK

5	READ VALUE OF HAND−HELD TESTER (STA SIGNAL)

(a) Connect the hand−held tester to the DLC3.
(b) Turn the ignition switch ON, Push the hand−held tester or the OBD II scan tool tester main switch ON.
(c) On the hand−held tester, enter the following menus: DIAGNOSIS / ENHANCED OBD II / DATA LIST / ALL / STARTER SIG. Read the values.
Result:

Ignition Switch Condition	ON	START
STA Signal	OFF	ON

OK → **SYSTEM OK**

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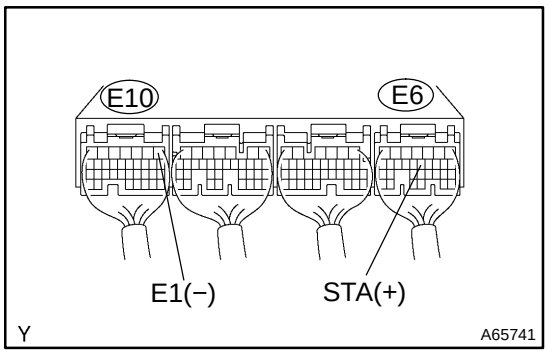
REPAIR OR REPLACE HARNESS AND CONNECTOR

OBD II scan tool (excluding Hand−held Tester):

1	INSPECT ECM



(a) Turn the ignition switch ON.
(b) Check the voltage of the ECM connectors.
Standard:

Tester Connection	Condition	Specified Condition
E6−12 (STA) − E10−1 (E1)	Ignition switch ON	0 V
E6−27 (STA) − E10−1 (E1)	Engine cranking	6 V or more

OK → **REPLACE ECM (See page 10−9)**

NG

2 INSPECT PARK/NEUTRAL POSITION SWITCH OR CLUTCH START SWITCH

(a) Inspect the PNP switch (A/T) (see page 05−241).

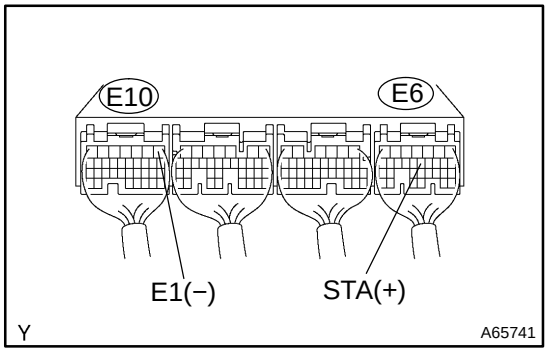
OK: When shift lever is in the N position, the PNP switch is ON.
When shift lever is in the D position, the PNP switch is OFF.

(b) Inspect the clutch start switch (M/T) (see page 42−20).

NG → **REPLACE PARK/NEUTRAL POSITION SWITCH OR CLUTCH START SWITCH (Go to next step 3 AFTER REPLACEMENT)**

OK

3 INSPECT ECM



(a) Check the voltage of the ECM connectors.

(b) Measure the voltage between the specified terminals of the E10 and E6 ECM connectors.

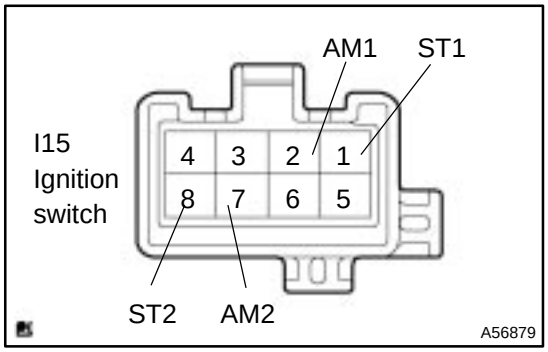
Standard:

Tester Connection	Condition	Specified Condition
E6−12 (STA) − E10−1 (E1)	Ignition switch ON	0 V
E6−27 (STA) − E10−1 (E1)	Engine cranking	6 V or more

OK → **SYSTEM OK**

NG

4 INSPECT IGNITION OR STARTER SWITCH ASSY



(a) Check the resistance of the ignition switch terminals.

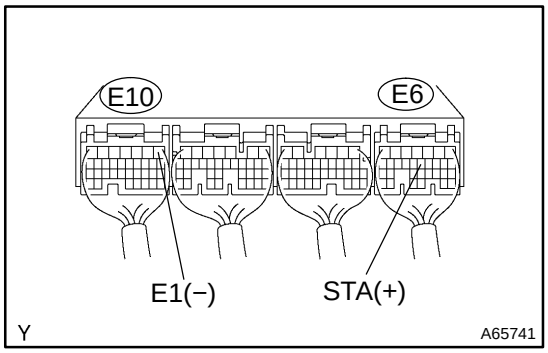
Standard:

Switch Condition	Tester Condition	Specified Condition
LOCK	1 − 2, 7 − 8	10 kΩ or higher
START	1 − 2, 7 − 8	Below 1 Ω

NG → **REPLACE IGNITION OR STARTER SWITCH ASSY (Go to step 5 AFTER REPLACEMENT)**

OK

5	INSPECT ECM



(a) Check the voltage of the E10 and E6 ECM connectors.

Tester Connection	Condition	Specified Condition
E6−12 (STA) − E10−1 (E1)	Ignition switch ON	0 V
E6−27 (STA) − E10−1 (E1)	Engine cranking	6 V or more

OK → **SYSTEM OK**

NG

REPAIR OR REPLACE HARNESS AND CONNECTOR