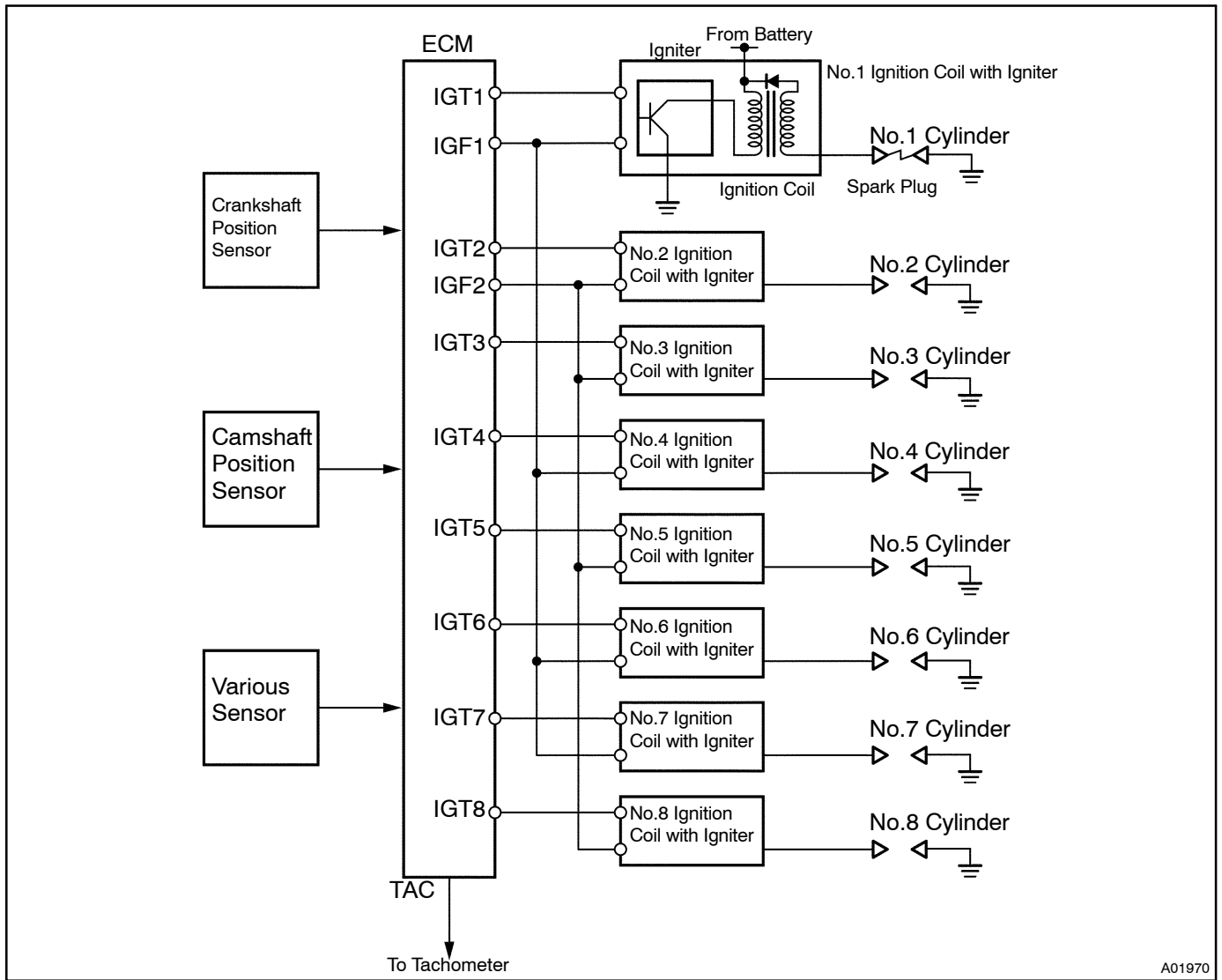


DTC	P0351	Igniter Coil "A" Primary/Secondary Circuit
DTC	P0352	Igniter Coil "B" Primary/Secondary Circuit
DTC	P0353	Igniter Coil "C" Primary/Secondary Circuit
DTC	P0354	Igniter Coil "D" Primary/Secondary Circuit
DTC	P0355	Igniter Coil "E" Primary/Secondary Circuit
DTC	P0356	Igniter Coil "F" Primary/Secondary Circuit
DTC	P0357	Igniter Coil "G" Primary/Secondary Circuit
DTC	P0358	Igniter Coil "H" Primary/Secondary Circuit

CIRCUIT DESCRIPTION

A Direct Ignition System (DIS) has been adopted. The DIS improves the ignition timing accuracy, reduces high-voltage loss, and enhances the overall reliability of the ignition system by eliminating the distributor. The DIS is a 1-cylinder ignition system which ignites one cylinder with one ignition coil. In the 1-cylinder ignition system, the one spark plug is connected to the end of the secondary winding. High voltage generated in the secondary winding is applied directly to the spark plug. The spark of the spark plug pass from the center electrode to the ground electrode.

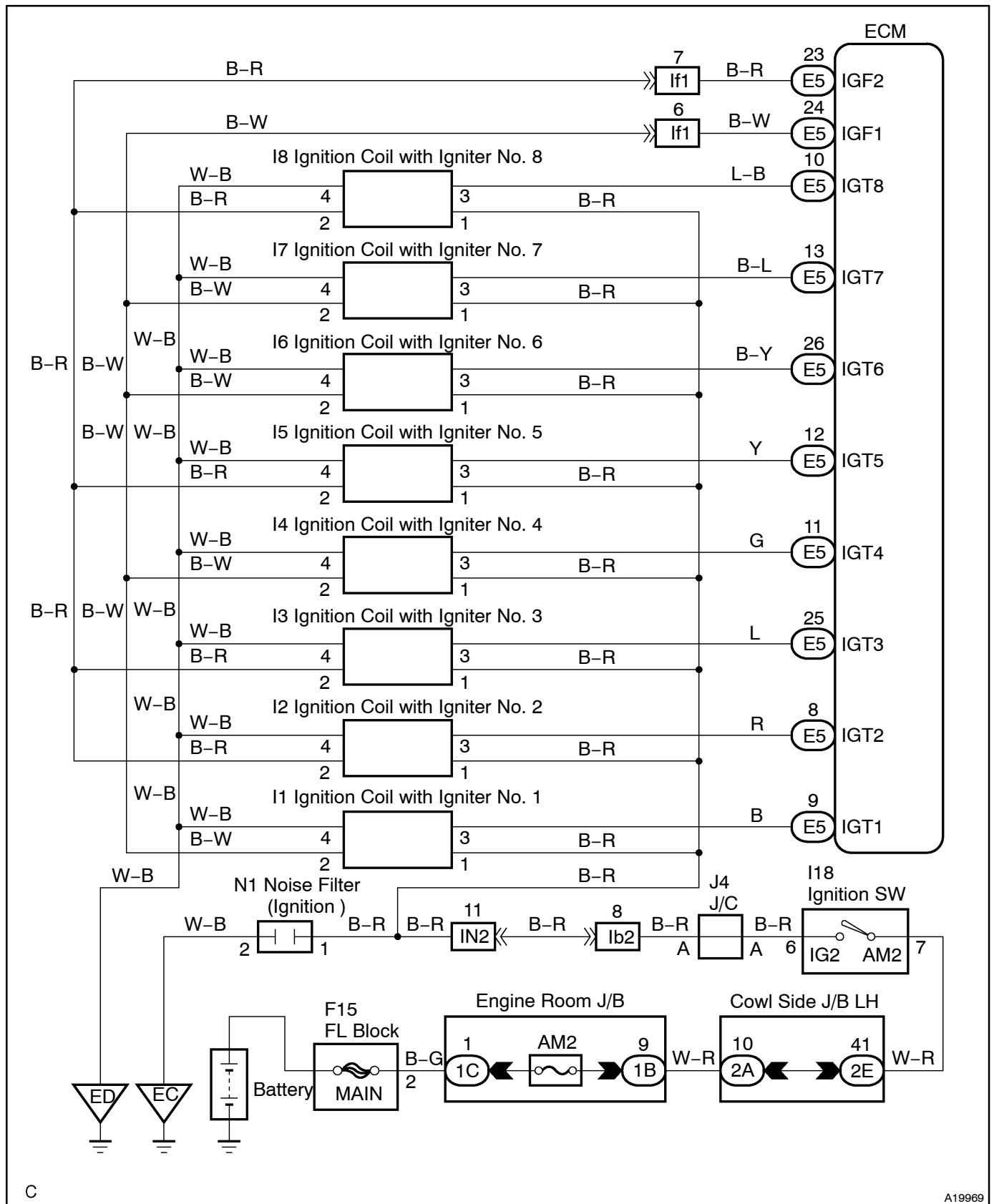
The ECM determines ignition timing and outputs the ignition signals (IGT) for each cylinder. Based on IGT signals, the power transistors in the igniter cuts off the current to the primary coil, and spark is supplied to the spark plug that are connected to the end of the secondary coil. At the same time, the igniter also sends an ignition confirmation signal (IGF) as a fail-safe measure to the ECM.



A01970

DTC No.	DTC Detecting Condition	Trouble Area
P0351 P0352 P0353 P0354 P0355 P0356 P0357 P0358	No IGF signal to ECM while engine is running	• Open or short in IGF1 or IGF2 and IGT1 – IGT8 circuit from ignition coil with igniter to ECM • No.1 – No.8 ignition coil with igniter • Ignition system • ECM

WIRING DIAGRAM



INSPECTION PROCEDURE

HINT:

- If DTC P0351 is displayed, check No.1 ignition coil with igniter circuit.
- If DTC P0352 is displayed, check No.2 ignition coil with igniter circuit.
- If DTC P0353 is displayed, check No.3 ignition coil with igniter circuit.
- If DTC P0354 is displayed, check No.4 ignition coil with igniter circuit.
- If DTC P0355 is displayed, check No.5 ignition coil with igniter circuit.
- If DTC P0356 is displayed, check No.6 ignition coil with igniter circuit.
- If DTC P0357 is displayed, check No.7 ignition coil with igniter circuit.
- If DTC P0358 is displayed, check No.8 ignition coil with igniter circuit.
- If DTCs P0351, P0354, P0356 and P0357 are output simultaneously, IGF1 circuit may be open or short.
- If DTCs P0352, P0353, P0355 and P0358 are output simultaneously, IGF2 circuit may be open or short.
- Read freeze frame data using hand-held tester or the OBD II scan tool, as freeze frame data records the engine conditions when a malfunction is detected. When troubleshooting, this is useful for determining whether the vehicle was running or stopped, the engine was warmed up or not, the air-fuel ratio was lean or rich, etc. at the time of the malfunction.

1

Check spark plug and spark (See page [IG-1](#)).

NG

Go to step 4.

OK

2

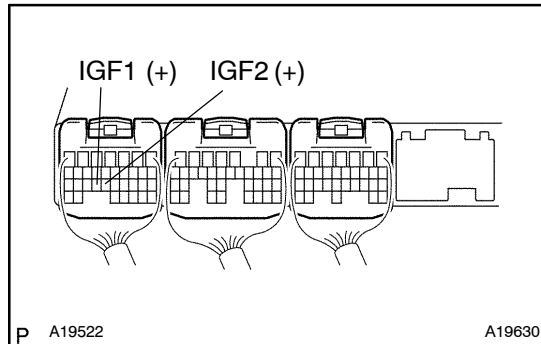
Check for open and short in harness and connector in IGF and IGT signal circuits between ECM and ignition coil with igniter (See page [IN-36](#)).

NG

Repair or replace harness or connector.

OK

- 3 Disconnect ignition coil with igniter connector, and check voltage between terminals IGF1, IGF2 of ECM connector and body ground.**

**PREPARATION:**

- (a) Remove the glove compartment door (See page [SF-60](#)).
- (b) Disconnect the ignition coil with igniter connector.
- (c) Turn the ignition switch ON.

CHECK:

Measure the voltage between terminals IGF1, IGF2 of the ECM connector and body ground.

OK:

Voltage: 4.5 – 5.5 V

OK

Replace ignition coil with igniter.

NG

Check and replace ECM (See page [IN-36](#)).

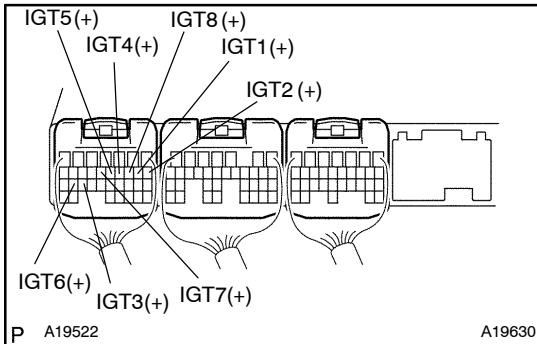
- 4 Check for open and short in harness and connector in IGT signal circuit between ECM and ignition coil with igniter (See page [IN-36](#)).**

NG

Repair or replace harness or connector.

OK

5 Check voltage between terminals IGT1 – IGT8 of ECM connector and body ground.



PREPARATION:

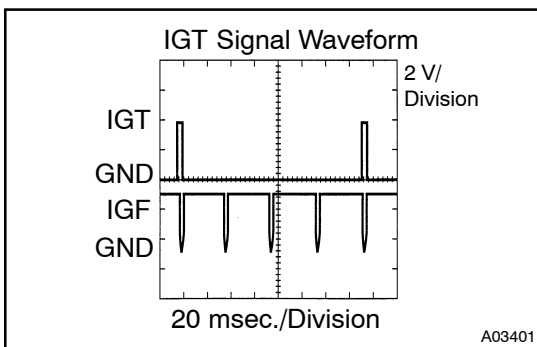
Remove the glove compartment door (See page [SF-60](#)).

CHECK:

Measure the voltage between terminals IGT1 – IGT8 of the ECM connector and body ground when the engine is cranked.

OK:

Voltage: More than 0.1 V and less than 4.5 V



Reference: INSPECTION USING OSCILLOSCOPE

During cranking or idling, check the waveform between terminals IGT1 – IGT8 and E1 of the ECM connector.

HINT:

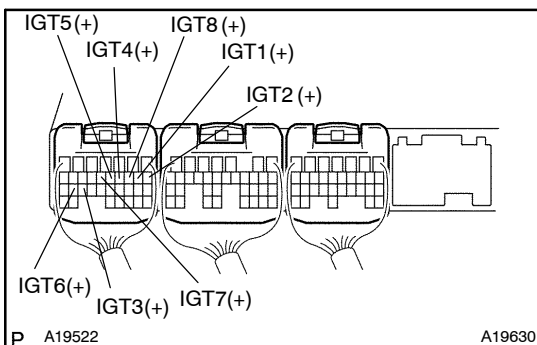
The correct waveform appears as shown, with rectangle waves.

NG

Check and replace ECM (See page [IN-36](#)).

OK

6 Disconnect ignition coil with igniter connector, and check voltage between terminals IGT1 – IGT8 of ECM connector and body ground.



PREPARATION:

(a) Remove the glove compartment door (See page [SF-60](#)).

(b) Disconnect the ignition coil with igniter connector.

CHECK:

Measure the voltage between terminals IGT1 – IGT8 of the ECM connector and body ground when the engine is cranked.

OK:

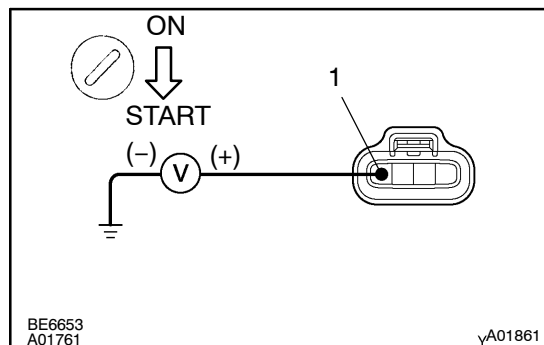
Voltage: More than 0.1 V and less than 4.5 V

NG

Check and replace ECM (See page [IN-36](#)).

OK

7 Check ignition coil with igniter power source circuit.

**PREPARATION:**

Disconnect the ignition coil with igniter connector.

CHECK:

Measure the voltage between terminal 1 of the ignition coil with igniter connector and body ground when the ignition switch is turned to ON and START position.

OK:

Voltage: 9 – 14 V

OK

Repair ignition coil with igniter power source circuit.

NG

8 Check for open and short in harness and connector between ignition switch and ignition coil with igniter (See page [IN-36](#)).

NG

Repair or replace harness or connector.

OK

Replace ignition coil with igniter.