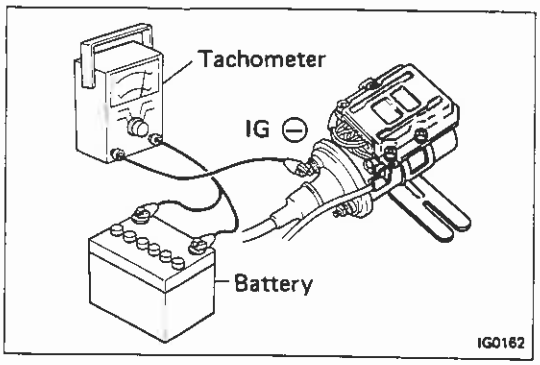
IGNITION SYSTEM



PRECAUTIONS

1. **Do not allow the ignition switch to be ON for more than 10 minutes if the engine will not start.**
2. **As some tachometers are not compatible with this ignition system, it is recommended that you consult with the manufacturer.**
3. **NEVER allow the ignition coil terminals to touch ground as it could result in damage to the igniter and/or ignition coil.**
4. **Do not disconnect the battery when the engine is running.**
5. **Make sure that the igniter is properly grounded to the body.**
6. **When a tachometer is connected to the system, connect the tachometer test probe to the ignition coil negative terminal.**

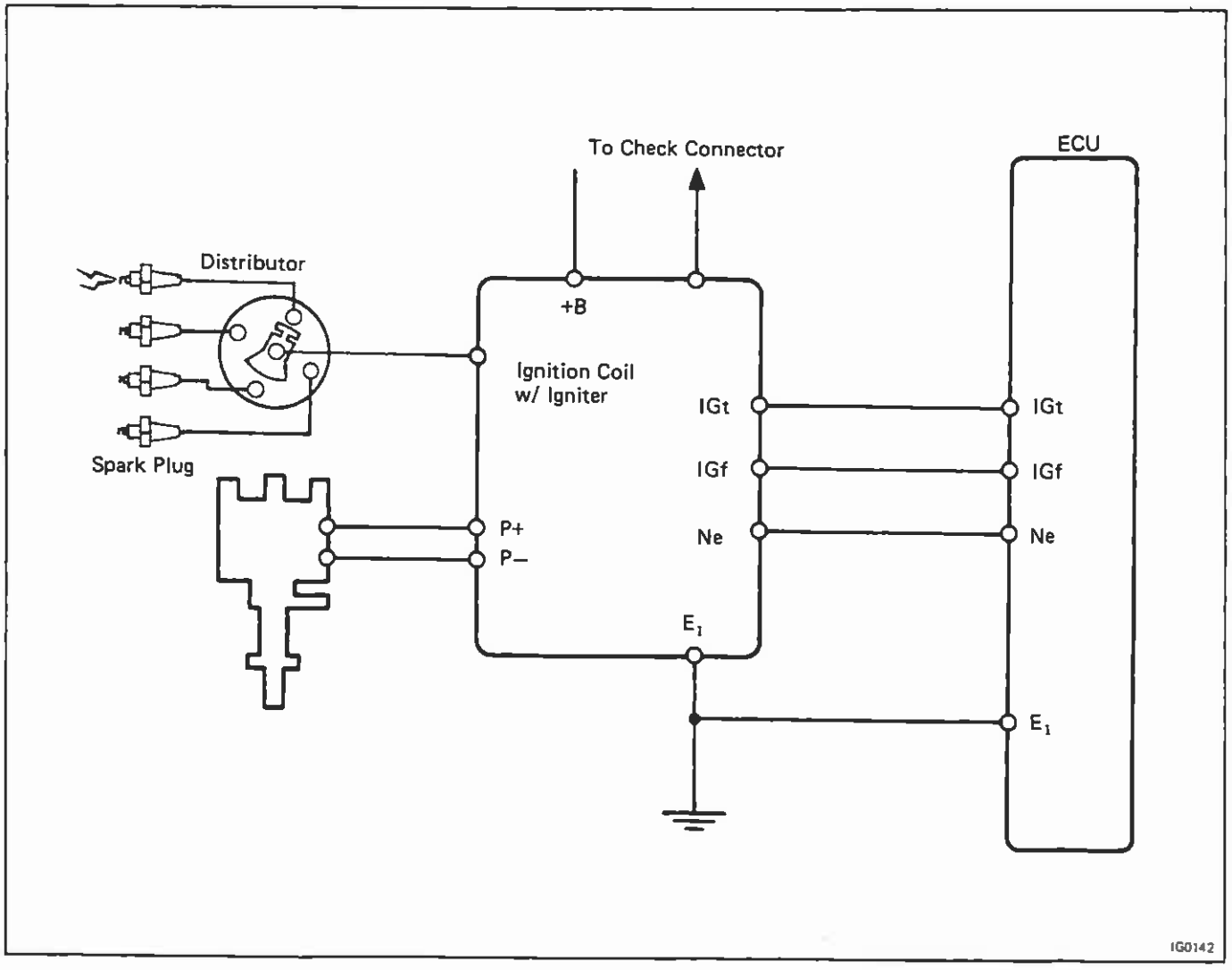
TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Engine will not start/ Hard to start (cranks ok)	Ignition problems • Ignition coil • Igniter • Distributor Spark plugs faulty Ignition wiring disconnected or broken	Perform spark test Inspect coil Inspect igniter Inspect distributor Inspect plugs Inspect wiring	IG-4 IG-5 IG-6 IG-7 IG-4 IG-4
Rough idle or stalls	Spark plugs faulty Ignition wiring faulty Incorrect ignition timing Ignition problems • Ignition coil • Igniter • Distributor	Inspect plugs Inspect wiring Reset timing Perform spark test Inspect coil Inspect igniter Inspect distributor	IG-4 IG-4 IG-8 IG-4 IG-5 IG-6 IG-7
Engine hesitates/ Poor acceleration	Spark plugs faulty Ignition wiring faulty Incorrect ignition timing	Inspect plugs Inspect wiring Reset timing	IG-4 IG-4 IG-8
Engine dieseling (for carb.) (runs after ignition switch is turned off)	Fuel cut system faulty	Repair fuel cut system	
Muffler explosion (after fire) all the time	Incorrect ignition timing	Reset timing	IG-8
Engine backfires	Incorrect ignition timing	Reset timing	IG-8
Poor gasoline mileage	Spark plugs faulty Incorrect ignition timing	Inspect plugs Reset timing	IG-4 IG-8
Engine overheats	Incorrect ignition timing	Reset timing	IG-8

ELECTRONIC SPARK ADVANCE (ESA)

The ECU is programmed with data for optimum ignition timing under any and all operating conditions. Using data provided by sensors which monitor various engine functions (rpm, intake air volume, eng. temperature, etc.) the microcomputer (ECU) triggers the spark at precisely the right instant.

ESA SYSTEM CIRCUIT



ON-VEHICLE INSPECTION

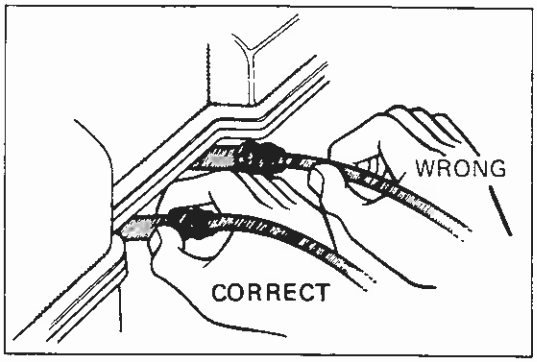
SPARK TEST

NOTE: Perform this test to check that current is coming from the distributor.

1. **CONNECT TIMING LIGHT TO EACH SPARK PLUG**

2. **CRANK ENGINE AND CHECK THAT LIGHT FLASHES**

   If the timing light does not flash, check the wiring connections, ignition coil, igniter, distributor or ignition switch.



INSPECTION OF HIGH TENSION CORD

1. **CAREFULLY REMOVE HIGH TENSION CORDS BY RUBBER BOOT**

   CAUTION: DO NOT pull on or bend the cords to avoid damaging the conductor inside.

2. **INSPECT CORD TERMINALS**

   Check the terminals for corrosion, breaks or distortion. Replace cords as required.

3. **CHECK CORD RESISTANCE**

   Using an ohmmeter, check that the resistance does not exceed the maximum. Replace cords as required.

   Maximum resistance: 25 kΩ per cord

INSPECTION OF SPARK PLUGS

1. **REMOVE SPARK PLUGS**

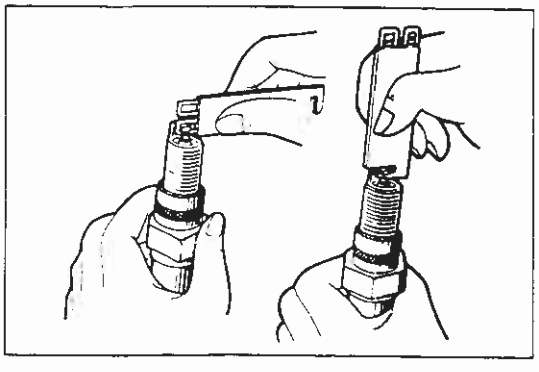
2. **CLEAN AND INSPECT SPARK PLUGS**

   (a) Clean the spark plugs with a spark plug cleaner or wire brush.

   (b) Inspect the spark plugs for electrode wear, thread damage and insulator damage.

   If a problem is found, replace the plugs.

   Spark plug: ND W16EXR-U
   NGK BPR5EY



3. **ADJUST ELECTRODE GAP**

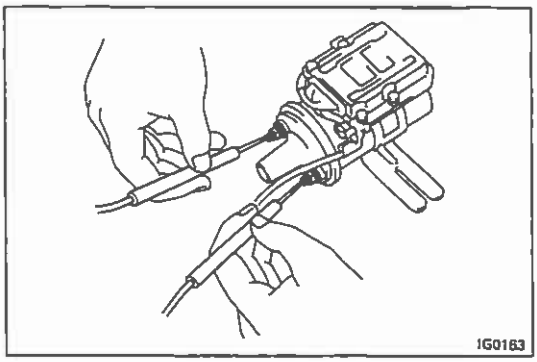
   Carefully bend the outer electrode to obtain the correct electrode gap.

   Correct electrode gap: 0.8 mm (0.031 in.)

4. **INSTALL SPARK PLUGS**

INSPECTION OF IGNITION COIL

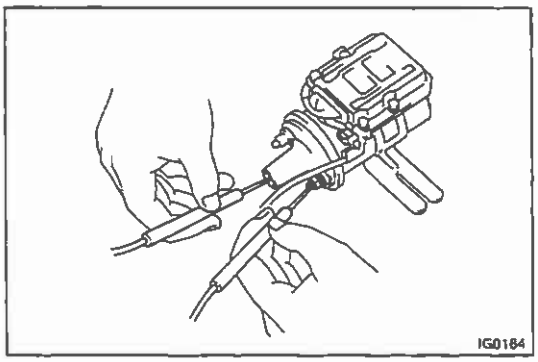
1. **DISCONNECT HIGH TENSION CORD**



2. **MEASURE PRIMARY COIL RESISTANCE**

Using an ohmmeter, measure the resistance between the positive (+) and negative (−) terminals.

Primary coil resistance (cold): 0.5 — 0.7 Ω



3. **MEASURE SECONDARY COIL RESISTANCE**

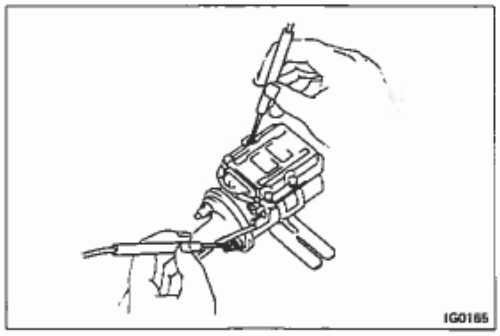
Using an ohmmeter, measure the resistance between the positive (+) terminal and high-tension terminal.

Secondary coil resistance (cold): 11.4 — 15.6 kΩ

4. **CONNECT HIGH TENSION CORD**

INSPECTION OF IGNITER

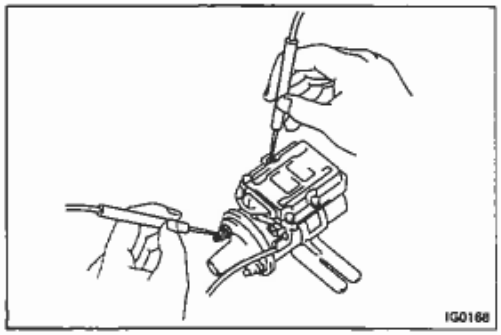
1. **TURN IGNITION SWITCH ON**



2. **CHECK POWER SOURCE LINE VOLTAGE**

Using a voltmeter, connect the positive (+) probe to the ignition coil positive (+) terminal and the negative (−) probe to body ground.

Voltage: Approx. 12V

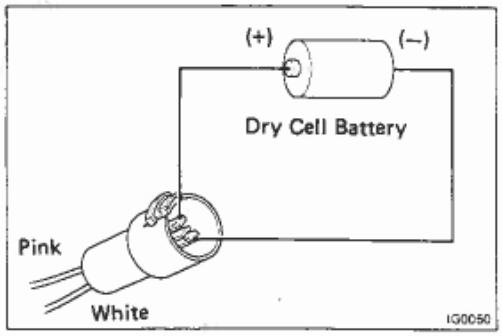


3. **CHECK POWER TRANSISTOR IN IGNITER**

(a) Using a voltmeter, connect the positive (+) probe to the ignition coil negative (−) terminal and the negative (−) probe to body ground.

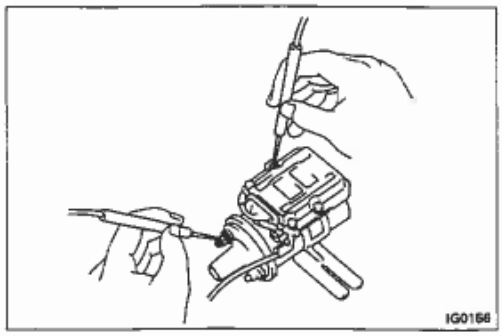
Voltage: Approx. 12V

(b) Unplug the wiring connector from the distributor.



(c) Using a dry cell battery (1.5V), connect the positive (+) pole of the battery to the pink wire terminal and the negative (−) pole to the white wire terminal.

CAUTION: Do not apply voltage more than 5 seconds to avoid destroying the power transistor in the igniter.



(d) Using a voltmeter, connect the positive (+) probe to the ignition coil negative (−) terminal and the negative (−) probe to the body ground.

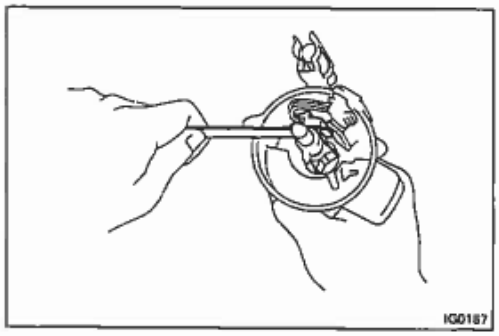
(e) Check the voltage reading.

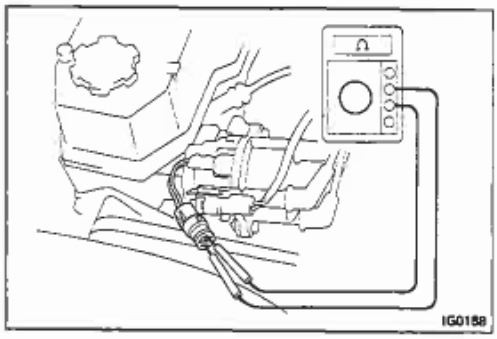
Voltage: 5 — 8V

If a problem is found, replace the igniter.

4. **TURN IGNITION SWITCH OFF**

5. **REMOVE TEST EQUIPMENT AND RECONNECT WIRING**





DISTRIBUTOR

ON-VEHICLE INSPECTION OF DISTRIBUTOR

1. **CHECK AIR GAP**

   (a) Using a feeler gauge, measure the gap between the signal rotor and the pickup coil projection.

   Air gap: 0.2 — 0.4 mm (0.008 — 0.016 in.)

   (b) Adjust the gap if necessary.

   - Loosen the two screws and move the signal generator until the gap is correct. Tighten the screws and recheck the gap.

2. **CHECK SIGNAL GENERATOR**

   Using an ohmmeter, check the resistance of the signal generator.

   Generator resistance: 140 — 180Ω

   If the resistance is not correct, replace the distributor assembly.

REMOVAL OF DISTRIBUTOR

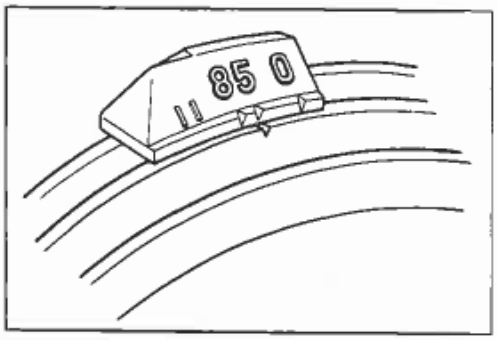
1. **DISCONNECT HIGH TENSION CORDS AND WIRING CONNECTOR**
2. **REMOVE TWO SCREWS AND PULL OFF DISTRIBUTOR CAP**
3. **REMOVE HOLD-DOWN BOLT AND PULL OUT DISTRIBUTOR**

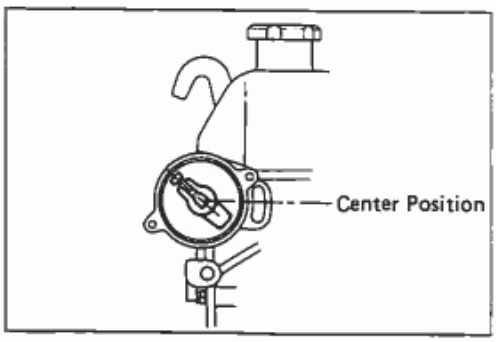
INSTALLATION OF DISTRIBUTOR

1. **INSTALL DISTRIBUTOR AND SET TIMING**

   (a) Turn the crankshaft pulley until the timing mark is aligned with 5° BTDC mark.

   NOTE: Check that the rocker arms on the No.1 cylinder are loose. If not, turn the crankshaft one full turn.

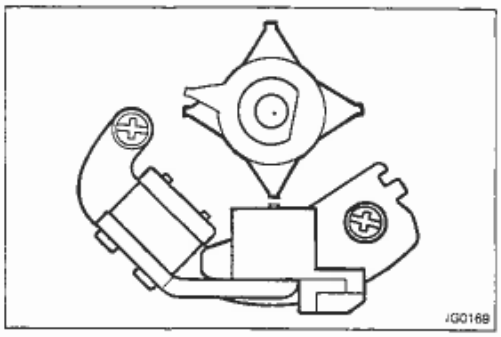




   (b) Temporarily install the rotor.

   (c) Begin insertion of the distributor with the rotor pointing upward and the distributor mounting hole approximately at center position of the bolt hole.

   (d) When fully installed, the rotor will rotate to the position shown.



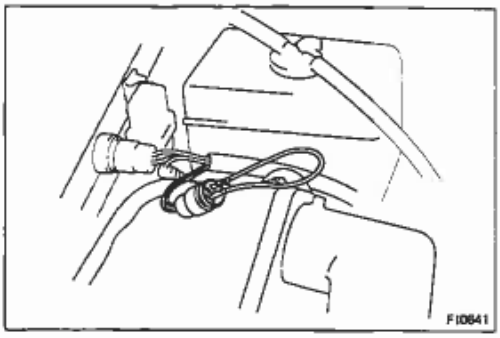
(e) Align the rotor tooth with the pickup coil projection.

(f) Coat the distributor set bolt with sealer and install the bolt. Torque the bolt.

Torque: 220 kg-cm (16 ft-lb, 22 N·m)

(g) Install the rotor and distributor cap with wires.

2. CONNECT WIRING CONNECTOR

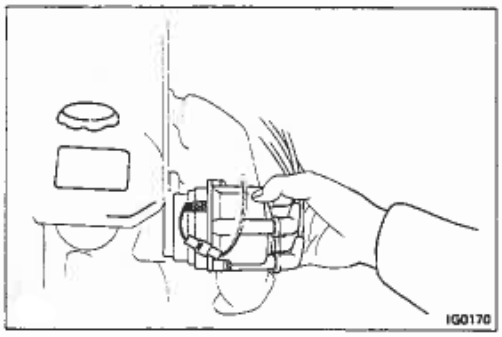


3. ADJUST IGNITION TIMING

(a) Connect a timing light to the engine.

(b) Start and warm up the engine.

(c) Using a sub-wire, short terminals T-E_1 of the check engine connector.



(d) Using a timing light, slowly turn the distributor until the timing mark on the crankshaft pulley is aligned with the 5° mark. Tighten the distributor bolt.

Ignition timing: 5° BTDC@ (T ↔ E_1) at idle

(e) Remove the sub-wire from the check engine connector.

(f) Check the ignition timing.

Ignition timing: 12° BTDC@ at idle.