A: No Start

Note

This pinpoint test is intended to diagnose the following:

- Spark (As related to Electronic Engine Control).
- Powertrain control module (PCM) (12A650).

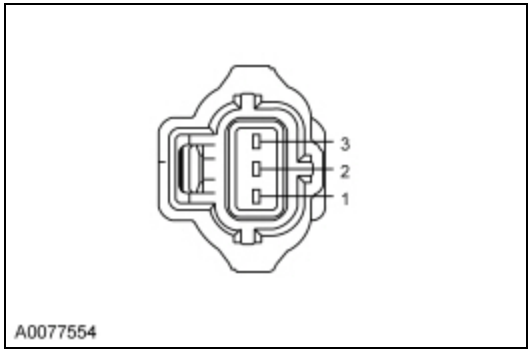
Warning

STOP THIS TEST AT THE FIRST SIGN OF A FUEL LEAK AND REPAIR AS REQUIRED.

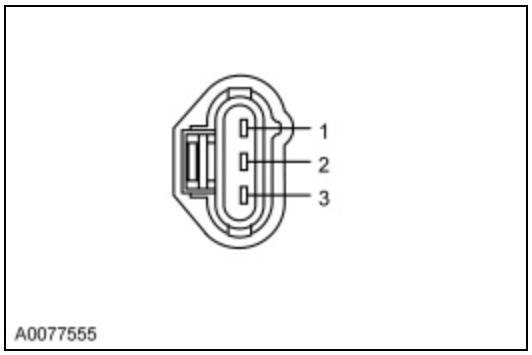
No open flame. No smoking during fuel delivery checks.

Throttle Position (TP) Sensor Connector

A

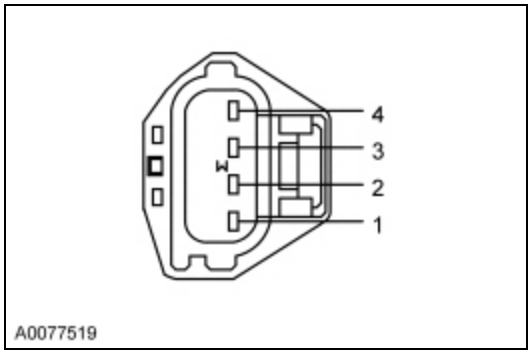


B



Vehicle	Connector	Circuit	Pin
Focus, Ranger 2.3L	A	SIGRTN VREF	1 3
All other vehicles	B	SIGRTN VREF	3 1

Electronic Throttle Body TPS (ETBTPS) Sensor Connector



Circuit	Pin
ETCRTN (Electronic Throttle Control Return)	3
ETCREF (ETCREF (Electronic Throttle Control Reference Voltage to TP))	2

A1 CHECK THE PASSIVE ANTI-THEFT SYSTEM (SECURE LOCK)

- Verify the anti-theft system status.

Is the system activated?

Yes	REFER to Workshop Manual, Section 419, Electrical Anti-theft.
No	GO to A2.

A2 ATTEMPT TO CRANK THE ENGINE

Note: *VERIFY the Inertia Fuel Shutoff (IFS) switch is set (button pushed in). REFER to the Owner Guide for location.*

Does the engine crank?

Yes	KEY OFF. GO to A3.
No	KEY OFF. REFER to Workshop Manual, Section 303, Starting Systems.

A3 IDENTIFY THE TYPE OF NO START

Note: *The purpose of this test step is to identify intermittent no starts in order to determine the proper repair procedure.*

Does the vehicle start?

Yes	KEY OFF. Vehicle is an intermittent no start. GO to Z2.
No	KEY OFF. GO to A4.

A4 DETERMINE THE THROTTLE TYPE
Is vehicle equipped with Electronic Throttle Control?

Yes	GO to A6.
No	GO to A5.

A5 CHECK THE VREF VOLTAGE TO TP SENSOR

- TP Sensor connector disconnected.

- Key ON Engine OFF.
- Measure the voltage between:

(+)TP Sensor Connector, Harness Side	(-)TP Sensor Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4 V - 5.5 V?

Yes	KEY OFF. RECONNECT the TP sensor. GO to A7.
No	KEY OFF. GO to C1.

A6 CHECK THE VREF VOLTAGE TO THE ETC SENSOR
- ETBTPS Sensor connector disconnected.
- Key ON Engine OFF.
- Measure the voltage between:

(+)ETBTPS Sensor Connector, Harness Side	(-)ETBTPS Sensor Connector, Harness Side
ETCREF - Pin 2	ETCRTN - Pin 3

Is the voltage between 4 V - 5.5 V?

Yes	KEY OFF. Reconnect ETC. GO to A7.
No	KEY OFF. GO to C1.

A7 CHECK THE FLASH EEPROM POWER SUPPLY (FEPS) CIRCUIT FOR A SHORT TO POWER IN THE HARNESS"
- Key ON Engine OFF.
- Measure the voltage between:

(+)DLC Connector, Harness Side	(-)Vehicle battery
FEPS	Negative terminal

Is the voltage greater than 9 V?

Yes	KEY OFF. REPAIR short circuit to PWR. **For Coil on plug ignition testing:** GO to A16.
No	KEY OFF. GO to A8.

A8 CHECK THE PCM DRIVER TO COILS

- Connect a test lamp between B+ and each coil driver circuit at the harness connector.
- Crank the engine.

Note: *Test lamp bulb filament wattages vary widely. The intensity and duration of blinking depends on the test lamp being used.*

Does the test lamp blink consistently (one blink per engine revolution)?

Yes	KEY OFF. GO to A9.
No	KEY OFF. GO to JD1.

A9 CHECK THE RPM IN THE PCM

Note: *The scan tool must be connected to a reliable power source that is powered with the key in the START position (such as directly to the vehicle battery). Also verify that the vehicle battery is fully charged.*

- Access the PCM-RPM PID.
- Crank the engine while viewing the RPM PID.

Is the RPM between 150 RPM - 350 RPM?

Yes	KEY OFF. **For Coil on plug ignition testing:** GO to JB1. **For Coil pack ignition testing:** GO to JC1.

	For Dedicated NGV vehicles that do not require ignition testing: GO to A12. **For All other vehicles that do not require ignition testing:** GO to A10.
No	KEY OFF. GO to JD2.

A10 CHECK THE FUEL PRESSURE

WARNING: THE FUEL SYSTEM REMAINS PRESSURIZED WHEN THE ENGINE IS NOT RUNNING. TO PREVENT INJURY OR FIRE, USE CAUTION WHEN WORKING ON THE FUEL SYSTEM.

REFER TO THE WARNING TEXT FOUND AT THE BEGINNING OF PINPOINT TEST HC.

- Relieve the fuel pressure.
- Connect the fuel pressure gauge using the appropriate fuel pressure test hose and adaptor.
- Scan Tool Connected.
- Key ON Engine OFF.
- Enter Output Test Mode (refer to section 2).
- Activate the fuel pump to obtain maximum fuel pressure.

Is the fuel pressure within specification (refer to the fuel pressure chart in Pinpoint Test HC)?

Yes	KEY OFF. GO to A11.
No	KEY OFF. GO to HC1.

A11 CHECK THE FUEL PRESSURE LEAKDOWN

- Scan Tool Connected.
- Key ON Engine OFF.
- Enter Output Test Mode (refer to section 2).
- Activate the fuel pump to obtain maximum fuel pressure.
- Exit the Output Test Mode.
- Verify the fuel pressure remains within 34 kPa (5 psi) of the maximum pressure for 1 minute after turning the pump off.

Does fuel pressure remain within 34 kPa (5 psi)?

Yes	KEY OFF. GO to A12.
No	KEY OFF. GO to HC1.

A12 CHECK THE FUEL INJECTORS FOR VPWR

- CHECK at least 2 fuel injectors, 1 on each bank on V type engines. A no start condition can exist only if greater than half of the fuel injectors are without VPWR.
- Disconnect 2 fuel injectors.
- Key ON Engine OFF.
- Measure the VPWR voltage at each fuel injector harness connector.

Is the voltage greater than 10.5 volts?

Yes	KEY OFF. **For Dedicated NGV** GO to A14. **For Gasoline** GO to A13.
No	KEY OFF. REPAIR the VPWR circuit.

A13 CHECK THE FUEL INJECTORS ABILITY TO DELIVER FUEL

- Cycle the key several times to charge the fuel system.
- Locate and activate the fuel inertia switch to disable fuel pump.
- Monitor the fuel pressure gauge while cranking the engine for at least 5 seconds.

Is there a pressure drop greater than 34 kPa (5 psi) while cranking the engine?

Yes	KEY OFF. The Electronic Engine Control (EEC) system is not the cause of the no start. Concern is elsewhere. RETURN to Section 3, Symptom Charts for further direction.
No	KEY OFF. REPLACE the PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM)).

A14 CHECK THE FUEL PRESSURE

WARNING: BEFORE SERVICING OR REPLACING ANY COMPONENTS IN THE FUEL SYSTEM, REDUCE THE POSSIBILITY OF INJURY OR FIRE BY FOLLOWING THE WARNING, CAUTION, AND HANDLING DIRECTIONS IN PINPOINT TEST HB.

- Key ON Engine OFF.
- Access the FRP PID (PCM) or FRPREAB PID (AFCM).
- Record the fuel pressure.

Is the fuel pressure within specification (refer to the fuel pressure chart in Pinpoint Test HC)?

Yes	GO to A15.

No	GO to HB1.

A15 CHECK THE INJECTOR SIGNAL FROM THE NATURAL GAS MODULE

Note: *This test requires a standard 12-volt test lamp. A properly operating system shows a dim glow.*

- Connect a non-powered test lamp between the injector signal circuit and VPWR circuit pin at the injector harness.
- Crank the engine.

Does the test lamp have a dim glow while cranking?

Yes	GO to HA22.
No	GO to HA16.

A16 CHECK THE PCM DRIVER TO COILS

- Connect a test lamp between B+ and each coil driver circuit at the harness connector.
- Crank the engine.

Does the test lamp blink consistently (one blink per engine revolution)?

Yes	GO to A9.
No	GO to JD1.