A: No Start

WARNING: Stop this test at the first sign of a fuel leak and repair as required.

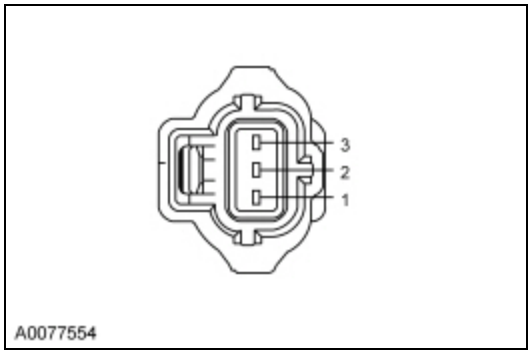
No open flame. No smoking during fuel delivery checks.

This pinpoint test is intended to diagnose the following:

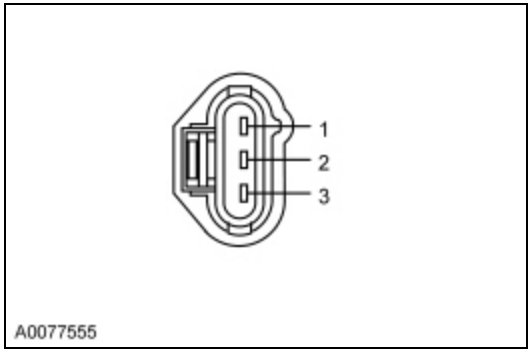
- Spark (As related to Electronic Engine Control)
- Powertrain control module (PCM) (12A650)

Throttle Position (TP) Sensor Connector

A



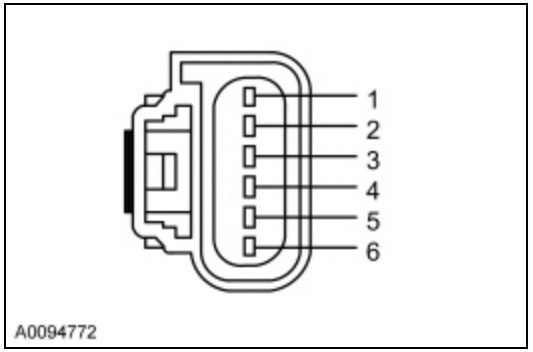
B



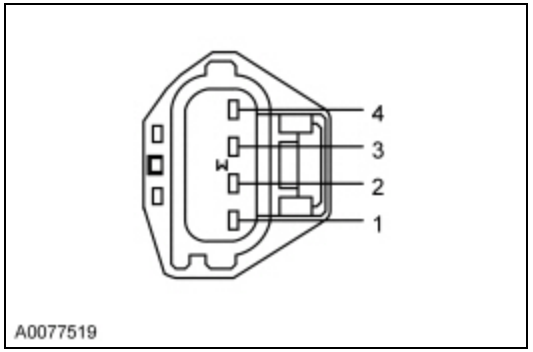
Vehicle	Connector	Pin	Circuit
Escape 2.3L, Focus, Mariner 2.3L, Ranger 2.3L	A	1 3	SIGRTN VREF
All other vehicles	B	3 1	SIGRTN VREF

Electronic Throttle Body Throttle Position Sensor (ETBTPS) Connector

A

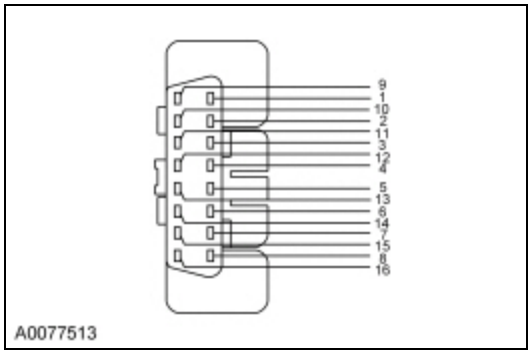


B



Vehicle	Connector	Pin	Circuit
F-150 4.2L, Five Hundred, Freestyle, Montego	A	4 5	ETCRTN ETCREF
All other vehicles	B	3 2	ETCRTN ETCREF

Data Link Connector (DLC)



Pin	Circuit
13	FEPS (Flash EEPROM Programming Signal)

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 419-01, Electrical Anti-theft to diagnose anti-theft system.
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's Literature for location.*

Does the engine crank?

Yes	Key in OFF position. GO to A3.
No	Key in OFF position. REFER to the Workshop Manual Section 303-06, Starting System.

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 in OFF position. Vehicle is an intermittent no start. GO to Z2.
No	Key in OFF position. 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

- Key in OFF position.
- 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 4.5 - 5.5 V?

Yes	Key in OFF position. RECONNECT the TP sensor. GO to A7.
No	Key in OFF position. GO to C1.

A6 CHECK VREF VOLTAGE TO ETBTPS SENSOR

- Key in OFF position.
- ETBTPS connector disconnected.
- Key ON, engine OFF.
- Measure the voltage between:

(+) ETBTPS Connector, Harness Side	(-) ETBTPS Connector, Harness Side
ETCREF	ETCRTN

Is the voltage between 4.5 - 5.5 V?

Yes	Key in OFF position. RECONNECT the ETC. GO to A7.
No	Key in OFF position. GO to C1.

A7 CHECK THE FLASH EEPROM POWER SUPPLY (FEPS) CIRCUIT FOR A SHORT TO VOLTAGE IN THE HARNESS

- Measure the voltage between:

(+) DLC, Harness Side	(-) Vehicle Battery
FEPS - Pin 13	Negative terminal

Is the voltage greater than 9 V?

Yes	Key in OFF position. REPAIR the short circuit.
No	Key in OFF position. GO to A8.

A8 CHECK THE RPM IN THE PCM

Note: *The diagnostic tool must be connected to a reliable voltage 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 and monitor the RPM PID.
- **Note:** *Normal engine cranking speed is between 150 RPM and 350 RPM.*
- Crank the engine while viewing the RPM PID.

Is the RPM between 150 RPM - 350 RPM?

Yes	GO to A9.
No	Key in OFF position. For base engine concerns, REFER to the Workshop Manual Section 303-00, Engine System - General Information for additional information. For all others, GO to JD2.

A9 CHECK FOR CKP AND CMP SYNCHRONIZATION

- Access the PCM and monitor the SYNC PID.
- Crank the engine while viewing the SYNC PID.

Does the SYNC PID read YES?

Yes	GO to A10.
No	GO to JD2.

A10 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 in OFF position. For vehicles that do not require ignition testing: GO to A11. For Coil-on-plug (COP) ignition testing GO to JB1. For Coil pack ignition testing GO to JC1.
No	Key in OFF position.

	GO to JD2.

A11 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 fuel system WARNING information at the beginning of Pinpoint Test HC.

- Relieve the fuel pressure.
- Connect the fuel pressure gauge to the Schrader valve using the appropriate fuel pressure test hose and adaptor.
- **Note:** *For vehicles not equipped with a fuel rail Schrader valve, a T-adapter with hoses must be installed on the fuel rail before proceeding with this test.*
- Diagnostic tool connected.
- Key ON, engine OFF.
- Enter output test mode. Refer to Section 2, Output Test Mode (OTM).
- 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 in OFF position. GO to A12.
No	Key in OFF position. GO to Pinpoint Test HC.

A12 CHECK THE FUEL PRESSURE LEAKDOWN

- Diagnostic tool connected.
- Key ON, engine OFF.
- Enter output test mode. Refer to Section 2, Output Test Mode (OTM).
- Activate the fuel pump to obtain maximum fuel pressure.
- Exit 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 in OFF position. GO to A13.
No	Key in OFF position. GO to Pinpoint Test HC.

A13 CHECK THE FUEL INJECTORS FOR VPWR

- CHECK at least 2 fuel injectors, 1 on each bank on V type engines. A no start condition typically exists 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 in OFF position. GO to A14.
No	Key in OFF position. REPAIR the VPWR circuit.

A14 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 in OFF position. The electronic engine control (EEC) system is not the cause of the no start. RETURN to Section 3, Symptom Charts for further direction.
No	Key in OFF position. INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM).