

A: No Start

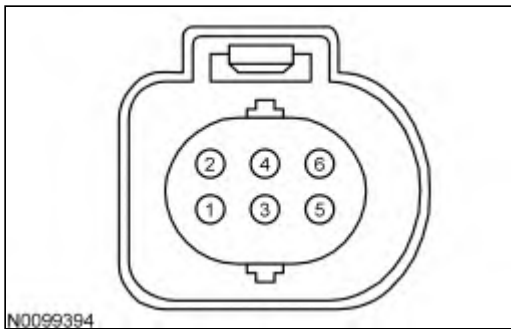
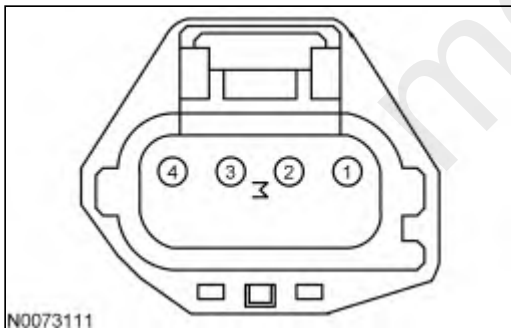
⚠ WARNING: Stop this test at the first sign of a fuel leak and repair as required.

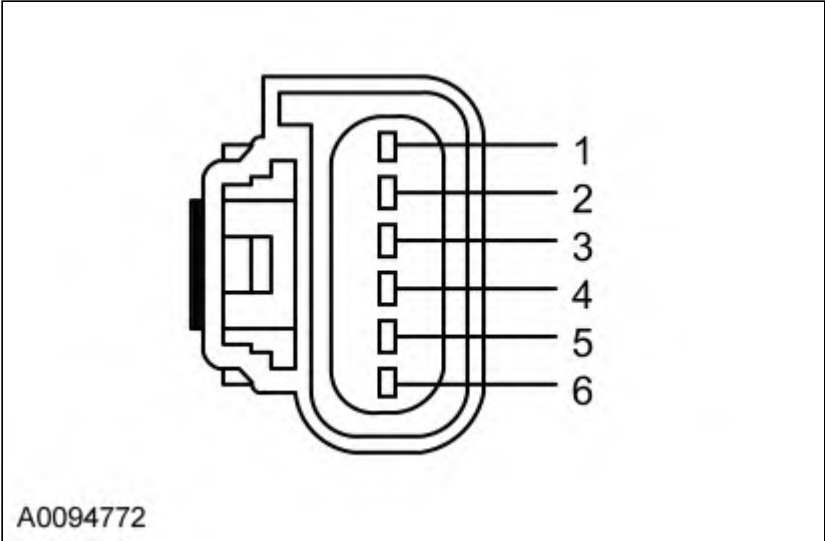
No open flame. No smoking during fuel delivery checks.

Failure to follow these instructions may result in personal injury.

This pinpoint test is intended to diagnose the following:

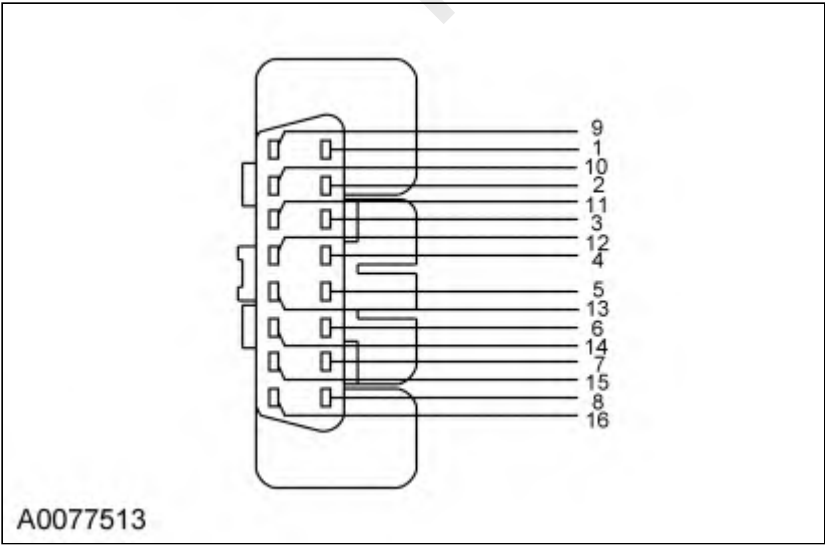
- spark (as related to electronic engine control)
- PCM (12A650)

Electronic Throttle Body Throttle Position Sensor (ETBTPS) Connector**A****B****C**



Vehicle	Connector	Pin	Circuit
EcoSport 1.5L, EcoSport 1.0L, Escape/Kuga 1.5L, Fusion 1.5L, KA, Transit Connect 1.0L	A	3 1	ETCRTN ETCREF
F-650 / F-750, Flex GTDI 3.5L	B	3 2	ETCRTN ETCREF
All other vehicles	C	4 5	ETCRTN ETCREF

Data Link Connector (DLC)



Pin	Circuit
13	FEPS (Flash EEPROM Programming Signal)

A1 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	GO to A2 .
No	REFER to the Workshop Manual Section 303-06, Starting System, and DIAGNOSE the engine does not crank symptom.

A2 IDENTIFY THE TYPE OF NO START

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

Does the vehicle start?

Yes	The vehicle has an intermittent no start. GO to Pinpoint Test Z .
No	For DTCs P0320 or P0322, GO to Pinpoint Test JD . For all others, GO to A3 .

A3 CHECK VREF VOLTAGE TO THE ETBTPS

- Ignition OFF.
- ETBTPS connector disconnected.
- Ignition 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	GO to A4 .
No	GO to Pinpoint Test C .

A4 CHECK THE FLASH EEPROM PROGRAMMING SIGNAL (FEPS) CIRCUIT FOR A SHORT TO VOLTAGE

Note: For vehicles without a FEPS circuit, follow the Yes answer.

- Ignition OFF.
- ETBTPS connector connected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) DLC, Harness Side	(-) Vehicle Battery

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

Is the voltage less than 9 V?

Yes	GO to A5 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

A5 CHECK THE RPM IN THE PCM

Note: Connect the scan tool to a voltage source that is powered with the ignition in the START position (such as directly to the vehicle battery). Also verify that the vehicle battery is fully charged.

Note: Normal engine cranking speed is between 150 RPM and 350 RPM.

- Access the PCM and monitor the RPM (RPM) PID.
- Crank the engine while viewing the RPM PID.

Is the RPM between 150 RPM - 350 RPM?

Yes	GO to A6 .
No	For base engine concerns, REFER to the Workshop Manual Section 303-00, Engine System - General Information, and DIAGNOSE difficult starting symptom. For all others, GO to JD2 .

A6 CHECK FOR CRANKSHAFT POSITION (CKP) AND CAMSHAFT POSITION (CMP) SYNCHRONIZATION

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

Does the SYNC PID read YES?

Yes	GO to A7 .
No	GO to Pinpoint Test JD .

A7 CHECK FOR SPARK AT THE CYLINDERS

- Ignition OFF.
- Remove the fuel pump fuse to disable the fuel pump.
- Disconnect the ignition coils from the spark plugs on half of the number of cylinders on the engine.
- Connect the Adjustable Ignition Spark Tester THX458 or equivalent to a spark plug boot and repeat for half the number of cylinders on the engine.
- Observe the spark tester while cranking the engine.

Is a bluish-white spark present for each tested cylinder?

Yes	GO to A8 .
No	GO to Pinpoint Test JF .

A8 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.

Failure to follow these instructions may result in personal injury.

Note: While activating the fuel pump on an electronic returnless fuel system a brief pressure spike may occur.

- Ignition OFF.
- Relieve the fuel pressure. Refer to the Workshop Manual Section 310-00, Fuel System for the Fuel System Pressure Release procedure.
- Connect the fuel pressure gauge using the appropriate fuel pressure test hose and adaptor.
- Ignition ON, engine OFF.
- Access the PCM and control the FP (MODE) PID.
- 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	GO to A9 .
No	GO to Pinpoint Test HC .

A9 CHECK THE FUEL PRESSURE LEAKDOWN

- Ignition ON, engine OFF.
- Access the PCM and control the FP (MODE) PID.
- Activate the fuel pump to obtain maximum fuel pressure.
- Monitor the FRP.
- 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	For Aviator, Continental 2.0L, Continental 2.7L, Continental 3.0L, Corsair 2.0L, Corsair 2.3L, EcoSport 1.0L, EcoSport 2.0L, Edge, Escape/Kuga 1.5L, Escape/Kuga 2.0L, Expedition, Explorer, F-150, Flex 3.5L GTDI, Ford GT, Fusion 1.5L, Fusion 2.0L, Fusion 2.7L, MKZ, Mustang 2.3L, Mustang 5.0L, Nautilus, Navigator, Ranger 2.3L, Transit, Transit Connect 1.0L, and Transit Connect 2.0L, GO to A11 .
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	For all others, GO to A10 .
No	GO to Pinpoint Test HC .

A10 CHECK THE FUEL INJECTORS FOR VOLTAGE

Note: A no start condition typically exists only if greater than half of the fuel injectors are without voltage. Check at least 2 fuel injectors, 1 on each bank on V type engines.

- Ignition OFF.
- Disconnect 2 fuel injectors.
- Ignition ON, engine OFF.
- Measure the VPWR voltage at each fuel injector harness connector.

Is the voltage greater than 10.5 V?

Yes	GO to A11 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

A11 CHECK THE FUEL INJECTORS ABILITY TO DELIVER FUEL

- Cycle the ignition several times to charge the fuel system.
- Disable the 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	For Aviator, Continental 2.0L, Continental 2.7L, Continental 3.0L, Corsair 2.0L, Corsair 2.3L, EcoSport 1.0L, EcoSport 2.0L, Edge, Escape/Kuga 1.5L, Escape/Kuga 2.0L, Expedition, Explorer, F-150, Flex 3.5L GTDI, Ford GT, Fusion 1.5L, Fusion 2.0L, Fusion 2.7L, MKZ, Mustang 2.3L, Mustang 5.0L, Nautilus, Navigator, Ranger 2.3L, Transit, Transit Connect 1.0L, and
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	Transit Connect 2.0L, GO to Pinpoint Test D1 . For all others, The electronic engine control (EEC) system is not the cause of the no start. RETURN to Section 3, Symptom Charts for further direction.
No	GO to A12 .

A12 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Visually inspect for:
 - pushed out pins
 - corrosion
- Connect all the PCM connectors and make sure they seat correctly.
- Carry out the PCM self-test.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new PCM. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) , Programming the VID Block for a Replacement PCM.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.