

DRIVEABILITY—NO START OR CONSTANT ENGINE MISFIRE—FUEL INJECTION CONTROL MODULE (FICM) DIAGNOSIS—6.0L DIESEL

TSB 04-18-6

FORD:

2003-2004 EXCURSION, F-SUPER DUTY

This article supersedes TSB **04-11-5** to update the vehicle lines listed in the printed version of TSB 04-11-5.

ISSUE

Vehicles equipped with a 6.0L engine may exhibit a no start or a constant engine misfire. Multiple root causes can create these symptoms, including the fuel injection control module (FICM).

ACTION

If the FICM is suspected to be the root cause refer to the following procedure to verify the FICM is at fault before replacement.

SERVICE PROCEDURE

NOTE

VERIFY THAT THE WDS IS AT THE LATEST RELEASE LEVEL AND THE VEHICLE IS UPDATED TO THE LATEST CALIBRATION. CALIBRATION ISSUES AND RELATED POWERTRAIN COMPONENTS CAN MIMIC A DEFECTIVE FICM.

NOTE

THE MOST COMMON SYMPTOMS OF A FAILED FICM ARE A NO START OR A CONSTANT MISFIRE AT ALL ENGINE TEMPERATURES. DIAGNOSTIC TROUBLE CODES (DTCS) U0105 OR P0611 MAY ALSO BE PRESENT. SYMPTOMS OTHER THAN THESE ARE NOT LIKELY TO BE CAUSED BY THE FICM MODULE.

NOTE

THE REPLACEMENT FICM DOES NOT CONTAIN SOFTWARE, IT MUST BE PROGRAMMED PRIOR TO USE.

1. Check for FICM wiring harness chafing and use a wiggle test to verify integrity of connections at the FICM and injectors. It is common to see DTC's P2614 and P2617 as a result of wire chafing. It is often necessary to push on the engine/injector harness to duplicate a ground out condition. Ensure FICM connectors are fully seated. If any wire chafing is noted, repair as necessary and reevaluate vehicle, if the condition is corrected return vehicle to customer. If no wiring chafes are located proceed to Step 2.

NOTE

SOME COMMON CHAFING LOCATIONS ARE: UPPER LEFT VALVE COVER, VALVE COVER BOLT, AND INTAKE BOLTS, UNDER AND NEAR THE FICM.

2. Set up WDS to test FICM power and grounds by selecting:
 - a. Tool Box
 - b. Datalogger
 - c. Tick Mark
 - d. Powertrain
 - e. Engine
 - f. Tick Mark
 - g. Clear All PIDS
 - h. Select:
 - (1) FICM_LPWR
 - (2) FICM_MPWR
 - (3) FICM_VPWR
 - (4) B+
 - i. KOEO

NOTE: The information in Technical Service Bulletins is intended for use by trained, professional technicians with the knowledge, tools, and equipment to do the job properly and safely. It informs these technicians of conditions that may occur on some vehicles, or provides information that could assist in proper vehicle service. The procedures should not be performed by "do-it-yourselfers". Do not assume that a condition described affects your car or truck. Contact a Ford, Lincoln, or Mercury dealership to determine whether the Bulletin applies to your vehicle. Warranty Policy and Extended Service Plan documentation determine Warranty and/or Extended Service Plan coverage unless stated otherwise in the TSB article. The information in this Technical Service Bulletin (TSB) was current at the time of printing. Ford Motor Company reserves the right to supersede this information with updates. The most recent information is available through Ford Motor Company's on-line technical resources.

TSB 04-18-6 (Continued)

- j. Tick Mark
3. Monitor datalogger PIDS for the following values:
- FICM_VPWR: FICM vehicle power from ignition switch voltage = battery voltage
 - FICM_LPWR: FICM logic power from fuse, FICM relay voltage = battery voltage
 - FICM_MPWR: Internal FICM power voltage = 47-50 volts
- a. If all of the above readings are within range, proceed to Step 4.
- b. If any of the above are out of range, disconnect the three (3) FICM connectors and inspect condition of connector, pins, and wiring at the connector, paying close attention for wiring chafes. Repair any issues and reevaluate vehicle, if the condition is corrected return vehicle to customer. If the condition is still present continue to Step c.
- c. With a voltmeter check the following:
- (1) Check for B+ voltage at pin 27 of connector 1388c with the KOEO. If no, or low voltage is present, repair as necessary. If B+ is present, jumper pin 27 of connector 1388c to a good battery ground (see Figure 2 at end of article).
 - (2) Check for B+ voltage at pins 4,7,8,23,24,25 (see Figure 2 at end of article). If no or low voltage is found at any pin, repair as necessary. If B+ is present at all pins, replace the FICM and return vehicle to customer.

NOTE

THE REPLACEMENT FICM DOES NOT CONTAIN SOFTWARE, IT MUST BE PROGRAMMED PRIOR TO USE.

4. Set up WDS for injector electrical self test by selecting:
- a. Tool Box
 - b. Self Test
 - c. Tick Mark
 - d. Powertrain
 - e. Engine KOEO Injector Electrical Self Test

- f. Tick Mark
- g. Follow Screen, Tick Mark
5. Perform Injector Electrical Self Test (Buzz/Click Test) this tests the wiring from the FICM to each injector.
- a. First all eight (8) injectors will click. Then listen to each injector individually in numeric order 1 thru 8.

NOTE

EACH CLICK IS SEPARATED BY APPROXIMATELY TWO (2) SECONDS. LISTEN FOR ANY INJECTOR THAT DOES NOT CLICK.

NOTE

IF ALL INJECTORS CLICK, CONCERN IS NOT FICM RELATED, PROCEED WITH NORMAL PC/ED DIAGNOSTICS, INCLUDING CAM SENSOR AND CRANK SENSOR INPUTS FOR FICM SYNCHRONIZATION.

- b. If any injector does not click then proceed to check the wiring from the FICM to the particular injector that did not click.
- c. Using a test light, probe between pins 1 and 2 of the injector connector harness side (Figure 1). Start the engine and monitor the test light for indication the FICM driver is functioning (test light flickering).
- d. Repeat test light probe between pins 3 and 4 of the injector connector harness side.

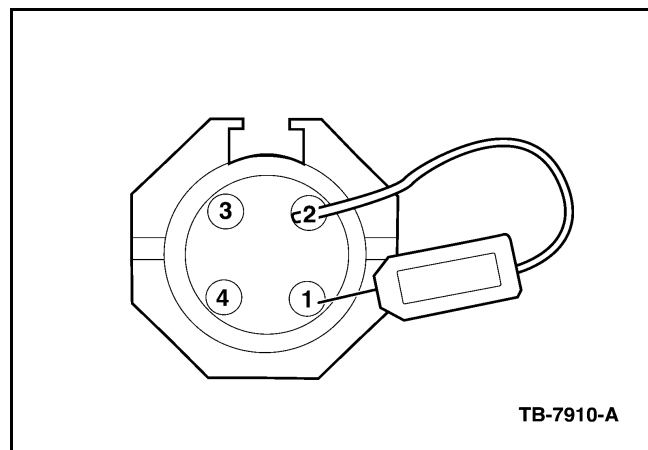


Figure 1 - Article 04-18-6

NOTE

IF ENGINE WILL NOT RUN, RERUN THE INJECTOR ELECTRICAL SELF TEST WHILE MONITORING THE TEST LIGHT. THIS WILL MOMENTARILY ENERGIZE THE FICM DRIVERS.

TSB 04-18-6 (Continued)

- e. If the test light does not illuminate for a particular injector, check harness integrity and repair as necessary.
- f. If the harness is OK, replace the FICM.

NOTE

THE REPLACEMENT FICM DOES NOT CONTAIN SOFTWARE, IT MUST BE PROGRAMMED PRIOR TO USE.

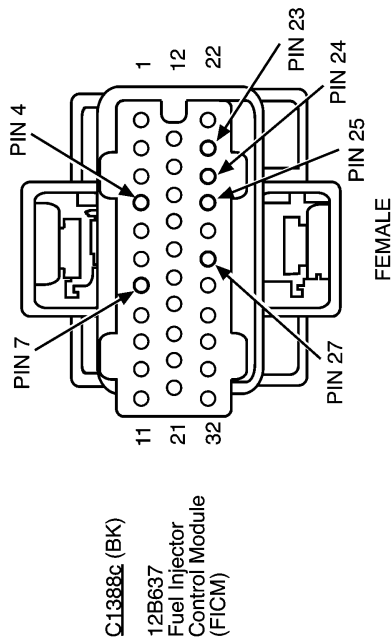
PART NUMBER	PART NAME
4C3Z-12B599-AARM	FICM

WARRANTY STATUS: Eligible Under Provisions Of New Vehicle Limited Warranty Coverage And Emissions Warranty Coverage

DEALER CODING

BASIC PART NO.
12B599

CONDITION
CODE
42



Pin	Circuit	Circuit Function
1	574 (BK/PK)	Ground
2	574 (BK/PK)	Ground
3	574 (BK/PK)	Ground
4	876 (DG/LG)	Fuel Injector Control Module (FICM) power relay, switched power
5	54 (LG/YE)	Fuel delivery command
6	-	Not used
7	1717 (VT/OG)	Voltage supplied in start and run (overload protected)
8	814 (WH/BK)	Fuel Injector Control Module (FICM) power relay, switched power, fused feed
9	878 (PK/YE)	Powertrain Control Systems, Communication
10	56 (DB/OG)	Cylinder identification
11	-	Not used
12	-	Not used
13	-	Not used
14	-	Not used
15	-	Not used
16	-	Not used

Pin	Circuit	Circuit Function
17	-	Not used
18	-	Not used
19	-	Not used
20	-	Not used
21	-	Not used
22	574 (BK/PK)	Ground
23	876 (DG/LG)	Fuel Injector Control Module (FICM) power relay, switched power
24	876 (DG/LG)	Fuel Injector Control Module (FICM) power relay, switched power
25	876 (DG/LG)	Fuel Injector Control Module (FICM) power relay, switched power
26	574 (BK/PK)	Ground
27	3098 (RD/YE)	Fuel Injector Control Module (FICM) power relay, control
28	-	Not used
29	-	Not used
30	69 (RD/LG)	CAN Bus 2H
31	70 (LB/WH)	CAN Bus 2L
32	57 (BK)	Drain wire

TB-7907-B

Figure 2 - Article 04-18-6