Fusion 2.0L, Fusion 1.6L, Fusion 1.5L, MKZ 2.0L	198 PIN	B29 B27 B39	IES FPM FPC
All other vehicles	198 PIN	B27 B39	FPM FPC

PINPOINT TEST KC: FUEL PUMP CONTROL MODULE > TEST PROCEDURE

KC1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)

Are DTCs P025A, P025B, P025C, P025D, P0627, P166A, U0109 or U210B present?

Yes	No
For DTC P0627, GO to KC9. For DTC P166A, GO to KC30. For DTC U210B, GO to KC24. For all others, GO to **KC2** .	RETURN to SYMPTOM CHARTS for further direction.

KC2 CHECK THE VOLTAGE TO THE FUEL PUMP CONTROL MODULE

NOTE: Verify the IFS switch is set (button pressed) (if equipped).

Ignition OFF.

Fuel Pump Control Module connector disconnected.

Ignition ON, engine OFF.

Measure the voltage between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
VPWR Fuel	Ground

Is the voltage greater than 10.5 V?

Yes	No
GO to **KC3** .	GO to KC7.

KC3 CHECK THE GND CIRCUIT FOR AN OPEN

Ignition OFF.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)

GND	Ground

Is the resistance less than 5 ohms?

Yes	No
GO to **KC4** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC4 CHECK THE FPC AND FPM CIRCUITS FOR AN OPEN

PCM connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) PCM Connector, Harness Side
FPC	FPC
FPM	FPM

Are the resistances less than 5 ohms?

Yes	No
GO to **KC5** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC5 CHECK THE FPC AND FPM CIRCUITS FOR A SHORT TO GROUND

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
FPC	Ground
FPM	Ground

Are the resistances greater than 10K ohms?

Yes	No
GO to **KC6** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC6 CHECK THE FPC AND FPM CIRCUITS FOR A SHORT TO VOLTAGE

Ignition ON, engine OFF.

Measure the voltage between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
FPC	Ground
FPM	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new Fuel Pump Control Module. REFER to the service information , Fuel Charging and Controls. Clear the PCM DTCs. REPEAT the self-test.

KC7 CHECK THE VPWR FUEL CIRCUIT FOR AN OPEN

Ignition OFF.

For Escape, Focus and Transit Connect,

BCM-E connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Component Side	(-) BCM-E Connector, Harness Side
VPWR Fuel	VPWR - Pin E9

For all others,

Fuel Pump Control Module Relay connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) Fuel Pump Control Module Relay Connector, Harness Side
VPWR Fuel	VPWR Fuel

Is the resistance less than 5 ohms?

Yes	No
For Escape/Kuga, Focus, and Transit Connect, GO to **KC8** . For all others, GO to KC17.	For Motorhome/Stripped Chassis/Step Van, GO to KC22. For all others, REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC8 CHECK THE BODY CONTROL MODULE FOR CRASH STATUS PIDS

Ignition ON, engine OFF.

Access the BdyCM and monitor the CRASH (MODE) PID.

Is the PID state NO?

Yes	No
INSTALL a new BCM. REFER to the service information ,	RESET the PID.

Multifunction Electronic Modules. Clear the PCM DTCs. REPEAT the self-test.	Clear the PCM DTCs. REPEAT the self-test.

KC9 CHECK THE FPPWR CIRCUIT, FPRTN CIRCUIT, AND INTERNAL FUEL PUMP CIRCUIT RESISTANCE

Ignition OFF.

Fuel Pump Control Module connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) Fuel Pump Control Module Connector, Harness Side
FPPWR	FPRTN

Is the resistance less than 10 ohms?

Yes	No
GO to KC12.	GO to **KC10** .

KC10 CHECK THE FPPWR AND FPRTN CIRCUITS FOR AN OPEN

FP connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) FP Connector, Harness Side
FPPWR	FPPWR
FPRTN	FPRTN

Are the resistances less than 5 ohms?

Yes	No
GO to **KC11** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC11 CHECK THE FP FOR AN OPEN

Measure the resistance between:

(+) FP Connector, Component Side	(-) FP Connector, Component Side
FPPWR	FPRTN

Is the resistance less than 10 ohms?

Yes	No

GO to **KC12** .	INSTALL a new FP. REFER to the service information , Fuel Tank and Lines. Clear the PCM DTCs. REPEAT the self-test.

KC12 CHECK THE FPPWR AND FPRTN CIRCUITS FOR A SHORT TO GROUND

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
FPPWR	Ground
FPRTN	Ground

Are the resistances greater than 10K ohms?

Yes	No
GO to **KC13** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC13 CHECK FOR FPPWR AND FPRTN CIRCUITS SHORTED TOGETHER

Measure the resistance between:

(+) FP Connector, Harness Side	(-) FP Connector, Harness Side
FPPWR	FPRTN

Is the resistance greater than 10K ohms?

Yes	No
GO to **KC14** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC14 CHECK THE FPPWR AND FPRTN CIRCUITS FOR A SHORT TO VOLTAGE

Ignition ON, engine OFF.

Measure the voltage between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
FPPWR	Ground
FPRTN	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC15** .

KC15 INTERMITTENT CHECK

Ignition OFF.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) FP Connector, Harness Side
FPPWR	FPPWR
FPRTN	FPRTN

While monitoring the resistance measurement, wiggle, shake, and bend small sections of the wiring harness while working from the FP to the fuel pump control module.

Is a concern present?

Yes	No
REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC16** .

KC16 CHECK THE FUEL PUMP CONTROL MODULE FOR CORRECT OPERATION

NOTE: During output state control, the fuel pump stays commanded on for only about 5 seconds. Be aware that output state control turns the FP off after a calibrated time. If this happens, command the output ON to continue testing.

Fuel Pump Control Module connector connected.

Measure the voltage between:

(+) FP Connector, Harness Side	(-) FP Connector, Harness Side
FPPWR	FPRTN

Ignition ON, engine OFF.

Access the PCM and control the FP (MODE) PID.

Command the FP PID ON.

Does the voltage increase with the PID commanded ON?

Yes	No
INSTALL a new FP. REFER to the service information , Fuel Tank and Lines. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new Fuel Pump Control Module. REFER to the service information , Fuel Charging and Controls. Clear the PCM DTCs. REPEAT the self-test.

KC17 CHECK THE FUEL PUMP CONTROL MODULE RELAY FOR CORRECT OPERATION

Carry out the fuel pump control module relay component test. Refer to the service information Component Testing.

Is a concern present?

Yes	No
INSTALL a new Fuel Pump Control Module relay. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC18** .

KC18 CHECK THE B+ CIRCUITS FOR AN OPEN

Measure the voltage between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-)
B+	Ground

Is the voltage greater than 10.5 V?

Yes	No
For E-Series, F-650/F-750, Fiesta, and Motorhome/Stripped Chassis/Step Van, GO to **KC19** . For all others, GO to KC21.	A B+ circuit concern is present. CHECK the condition of the related fuse/fuse links. If OK, REPAIR the open circuit. If the fuse/fuse link is damaged, CHECK the circuit for a short to ground before installing a new fuse/fuse link.

KC19 CHECK THE VPWR VOLTAGE TO THE FUEL PUMP CONTROL MODULE RELAY

Ignition ON, engine OFF.

Measure the voltage between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-)
VPWR	Ground

Is the voltage greater than 10.5 V?

Yes	No
GO to **KC20** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC20 CHECK THE FUEL PUMP CONTROL MODULE RELAY GROUND CIRCUIT FOR AN OPEN

Ignition OFF.

Measure the resistance between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-)
GND	Ground

Is the resistance less than 5 ohms?

Yes	No
The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC21 CHECK THE FP CIRCUIT FOR AN OPEN

For Edge, Fusion, MKZ and Transit,

BCM-C connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-) BCM-C Connector, Harness Side
FP	FP

For all others,

BCM-F connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-) BCM-F Connector, Harness Side
FP	FB

Is the resistance less than 5 ohms?

Yes	No
INSTALL a new BCM. REFER to the service information , Multifunction Electronic Modules. Clear the PCM DTCs. REPEAT the self-test.	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC22 ISOLATE THE OPEN IN THE VPWR FUEL CIRCUIT

IFS Switch connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Relay Connector, Harness Side	(-) IFS Switch Connector, Harness Side
VPWR Fuel	VPWR Fuel - A - Pin 2

Is the resistance less than 5 ohms?

Yes	No
GO to **KC23** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC23 CHECK THE VPWR FUEL CIRCUIT FOR AN OPEN BETWEEN THE IFS SWITCH AND FUEL PUMP CONTROL MODULE

Measure the resistance between:

(+) IFS Switch Connector, Harness Side	(-) Fuel Pump Control Module Connector, Harness Side
VPWR Fuel - B - Pin 1	VPWR Fuel

Is the resistance less than 5 ohms?

Yes	No
INSTALL a new IFS switch. REFER to the service information , Fuel Tank And Lines. Clear the PCM DTCs. REPEAT the self-test.	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC24 CHECK FOR RESTRAINTS CONTROL MODULE (RCM) DTCS

Carry out the RCM self-test.

Are any RCM DTCs present?

Yes	No
DIAGNOSE the supplemental restraint system concern. REFER to the service information , Supplemental Restraint System. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC25** .

KC25 INSPECT THE HARNESS BETWEEN THE FUEL PUMP CONTROL MODULE AND RESTRAINTS CONTROL MODULE (RCM)

Ignition OFF.

Check the harness for the following:

damage

corrosion

correct routing

Is a concern present?

Yes	No
REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC26** .

KC26 CHECK THE ENS CIRCUIT FOR AN OPEN

NOTE: Refer to the service information , Supplemental Restraint System.

Depower the supplemental restraint system (SRS). Refer to the service information , Supplemental Restraint System for the Supplemental Restraint System (SRS) Depowering and Repowering procedure.

RCM connector disconnected.

Connect the battery ground cable.

Fuel Pump Control Module connector disconnected.

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-) RCM Connector, Harness Side
ENS	ENS

Is the resistance less than 5 ohms?

Yes	No
GO to **KC27** .	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KC27 CHECK THE ENS CIRCUIT FOR A SHORT TO GROUND

Measure the resistance between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
ENS	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to **KC28** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC28 CHECK THE ENS CIRCUIT FOR VOLTAGE

Ignition ON, engine OFF.

Measure the voltage between:

(+) Fuel Pump Control Module Connector, Harness Side	(-)
ENS	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	GO to **KC29** .

KC29 CHECK THE ENS CIRCUIT FOR CORRECT RESPONSE

Ignition OFF.

Fuel Pump Control Module connector connected.

Ignition ON, engine OFF.

Measure the voltage between:

(+) RCM Connector, Harness Side	(-)
ENS	Ground

Is the voltage greater than 10.5 V?

Yes	No
INSTALL a new RCM. REFER to the service information , Supplemental Restraint System. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new Fuel Pump Control Module. REFER to the service information , Fuel Charging and Controls. Clear the PCM DTCs. REPEAT the self-test.

KC30 CHECK THE IES CIRCUIT FOR AN OPEN

BCM-C connector disconnected.

PCM connector disconnected.

Measure the resistance between:

(+) BCM-C Connector, Harness Side	(-) PCM Connector, Harness Side
IES	IES

Is the resistance less than 5 ohms?

Yes	No
GO to **KC31** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC31 CHECK THE IES CIRCUIT FOR A SHORT TO GROUND

Measure the resistance between:

(+) BCM-C Connector, Harness Side	(-)
IES	Ground

Is the resistance greater than 10K ohms?

Yes	No
GO to **KC32** .	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KC32 CHECK THE IES FOR A SHORT TO VOLTAGE

Measure the voltage between:

(+) BCM-C Connector, Harness Side	(-)
IES	Ground

Is any voltage present?

Yes	No
REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.	INSTALL a new BCM. REFER to the service information , Multifunction Electronic Modules.

PINPOINT TEST KF: FAN CONTROL RELAYS > INTRODUCTION

This pinpoint test is intended to diagnose the following:

- CAC fan relay
- fan control (FC1, FC2, FC3, FC4, FC5) relays
- harness circuits: CACCF, LFC, MFC, HFC and VPWR
- PCM (12A650)

Although the PCM output circuits are called LFC, MFC, and HFC, cooling fan operation is controlled by a combination of these outputs.

COOLING FAN REFERENCE

	PCM Output	Low Speed	Medium Speed	High Speed
Vehicles With 5 Fan Control Relays	LFC	ON	ON	ON
	MFC	OFF	ON	ON
	HFC	OFF	OFF	ON
All others	LFC	ON	N/A	ON
	HFC	OFF	N/A	ON