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**KC: Fuel Pump Control Module**

 **WARNING:** The fuel system remains under pressure after the engine is off. Relieve pressure before repairing. Highly flammable mixtures are present. To release pressure from the fuel system, carry out the following:

- Connect Fuel Pressure Test Kit 310-D009 (D95L-7211A) or equivalent.
- Gradually open the testing kit valve to relieve the fuel pressure in the vehicle fuel system and drain the fuel into a suitable container or return it to the fuel tank.
- To avoid unnecessary fuel spillage and fire hazard, any time fuel lines are disconnected, the ignition switch must be in the OFF position unless fuel pump operation is required for test purposes.

Failure to follow these instructions may result in personal injury.

 **WARNING:** Before working on or disconnecting any of the fuel tubes or fuel system components, relieve the fuel system pressure to prevent accidental spraying of fuel. Fuel in the fuel system remains under high pressure, even when the engine is not running. Failure to follow this instruction may result in serious personal injury.

 **WARNING:** Do not smoke, carry lighted tobacco or have an open flame of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

 **WARNING:** Do not carry personal electronic devices such as cell phones, pagers or audio equipment of any type when working on or near any fuel-related component. Highly flammable mixtures are always present and may be ignited. Failure to follow these instructions may result in serious personal injury.

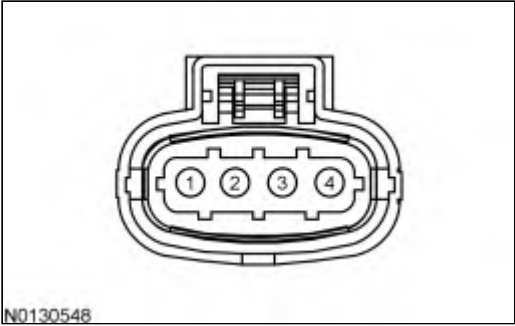
 **WARNING:** When handling fuel, always observe fuel handling precautions and be prepared in the event of fuel spillage. Spilled fuel may be ignited by hot vehicle components or other ignition sources. Failure to follow these instructions may result in serious personal injury.

 **WARNING:** Clean all fuel residue from the engine compartment. If not removed, fuel residue may ignite when the engine is returned to operation. Failure to follow this instruction may result in serious personal injury.

This pinpoint test is intended to diagnose the following:

- fuel pump (9H307)
- fuel pump control module (9D370)
- fuel pump control module 2 (9D370)
- fuel pump control module relay
- fuel pump control module relay 2
- inertia fuel shutoff (IFS) switch (9341)
- harness circuits: B+, GND, FP, FPC, FPGND, FPM, FPM2, FPPWR, FP2PWR, FPRTN, FP2RTN, IES, VPWR, and VPWR Fuel
- PCM (12A650)

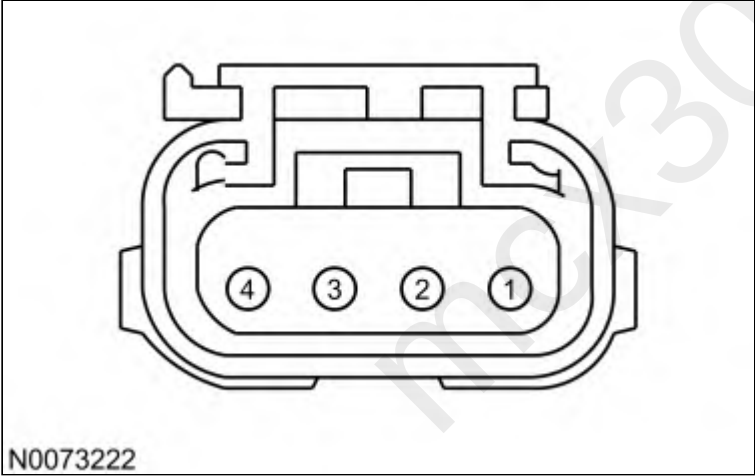
**Fuel Pump (FP) Assembly Connector****A**



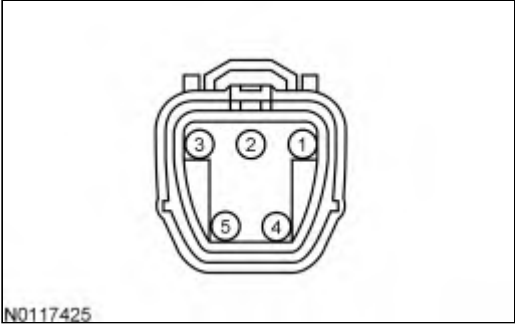
B



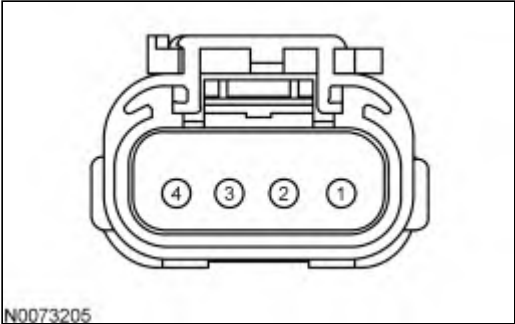
C



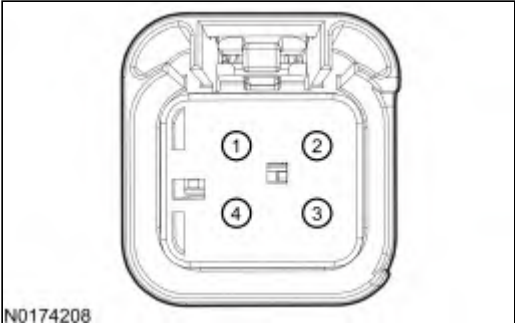
D



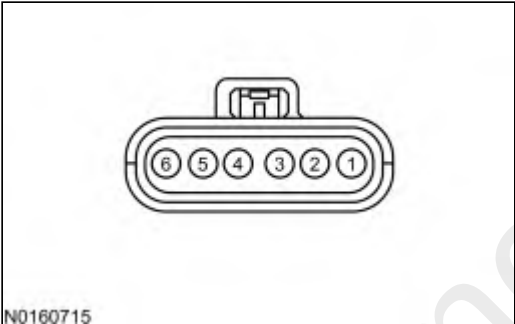
E



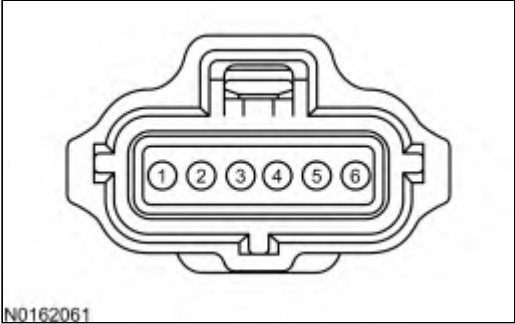
F



G



H



| Vehicle              | Connector | Pin    | Circuit        |
|----------------------|-----------|--------|----------------|
| Aviator,<br>Explorer | A         | 2<br>1 | FPRTN<br>FPPWR |

| Vehicle                                                                                                       | Connector | Pin              | Circuit                            |
|---------------------------------------------------------------------------------------------------------------|-----------|------------------|------------------------------------|
| Continental 3.0L,<br>Mustang 5.2L                                                                             | B         | 6<br>3<br>1<br>4 | FPRTN<br>FPPWR<br>FP2RTN<br>FP2PWR |
| E-Series,<br>Expedition,<br>F-150,<br>Mustang 2.3L,<br>Mustang 5.0L,<br>Navigator,<br>Ranger 2.3L,<br>Transit | C         | 3<br>4           | FPRTN<br>FPPWR                     |
| EcoSport 1.5L,<br>EcoSport 1.0L Manual Transmission,<br>KA                                                    | D         | 4<br>5           | FPGND<br>FPPWR                     |
| F-650 / F-750,<br>F-Series Super Duty,<br>Motorhome / Stripped Chassis / Step Van                             | E         | 3<br>4           | FPRTN<br>FPPWR                     |
| Ford GT                                                                                                       | F         | 1<br>4<br>3<br>2 | FPRTN<br>FPPWR<br>FP2RTN<br>FP2PWR |
| MKZ 3.0L                                                                                                      | D         | 1<br>2<br>5<br>4 | FPRTN<br>FPPWR<br>FP2RTN<br>FP2PWR |
| Ranger 2.5L                                                                                                   | G         | 3<br>4           | FPGND<br>FPPWR                     |
| Transit Connect 1.0L                                                                                          | H         | 5<br>1           | FPRTN<br>FPPWR                     |
| All other vehicles                                                                                            | D         | 4<br>5           | FPRTN<br>FPPWR                     |

### Fuel Pump Control Module Connector



N0073034

| Vehicle            | Connector | Pin                             | Circuit                                                 |
|--------------------|-----------|---------------------------------|---------------------------------------------------------|
| Transit            | A         | 6<br>8<br>5<br>7<br>3<br>4<br>1 | ENS<br>FPRTN<br>FPPWR<br>FPM<br>FPC<br>GND<br>VPWR Fuel |
| All other vehicles | A         | 8<br>5<br>7<br>3<br>4<br>1      | FPRTN<br>FPPWR<br>FPM<br>FPC<br>GND<br>VPWR Fuel        |

### Fuel Pump Control Module 2 Module Connector

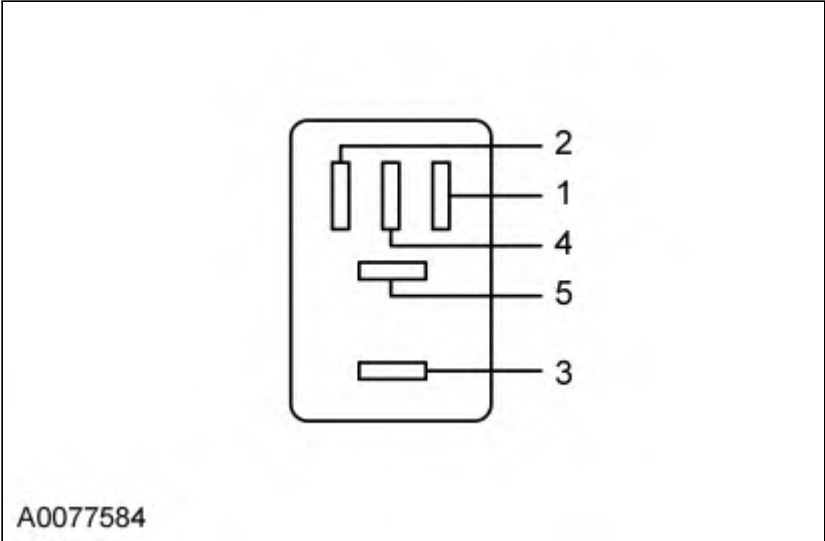


| Pin | Circuit                     |
|-----|-----------------------------|
| 8   | FP2RTN (Fuel Pump 2 Return) |
| 5   | FP2PWR (Fuel Pump 2 Power)  |
| 7   | FPM2 (Fuel Pump Monitor 2)  |
| 3   | FPC (Fuel Pump Command)     |
| 4   | GND (Ground)                |
| 1   | VPWR Fuel                   |

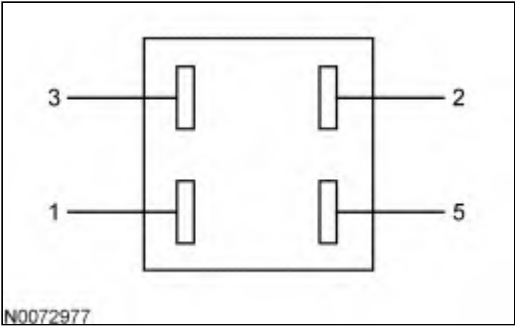
### Fuel Pump Control Module Relay Connector

Refer to the Wiring Diagrams Manual for schematic and connector information.

**A**



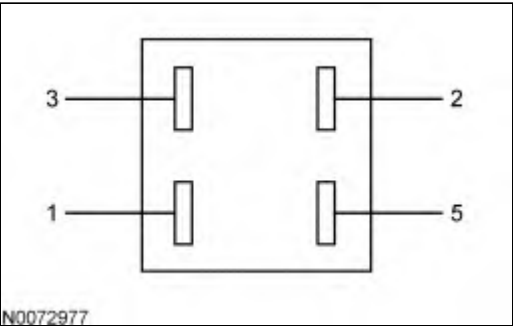
B



| Vehicle                                              | Connector | Pin              | Circuit                         |
|------------------------------------------------------|-----------|------------------|---------------------------------|
| E-Series,<br>Motorhome / Stripped Chassis / Step Van | A         | 2<br>1<br>3<br>5 | GND<br>VPWR<br>B+<br>VPWR Fuel  |
| Edge,<br>Expedition,<br>Nautilus,<br>Navigator       | B         | 1<br>2<br>3<br>5 | FPRPWR<br>FP<br>B+<br>VPWR Fuel |
| Explorer,<br>Mustang                                 | A         | 1<br>2<br>3<br>5 | FPRPWR<br>FP<br>B+<br>VPWR Fuel |
| Fusion,<br>MKZ                                       | B         | 1<br>2, 3<br>5   | FP<br>B+<br>VPWR Fuel           |
| KA                                                   | A         | 2<br>1, 3        | FP<br>B+                        |

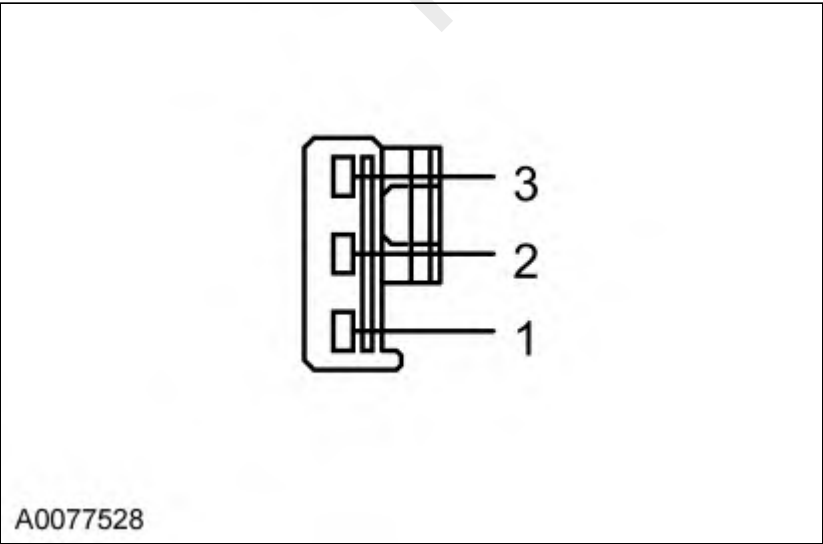
| Vehicle            | Connector | Pin            | Circuit               |
|--------------------|-----------|----------------|-----------------------|
| Ranger             | A         | 2<br>1, 3<br>5 | FP<br>B+<br>VPWR Fuel |
| All other vehicles | B         | 2<br>1, 3<br>5 | FP<br>B+<br>VPWR Fuel |

Fuel Pump Control Module 2 Relay Connector



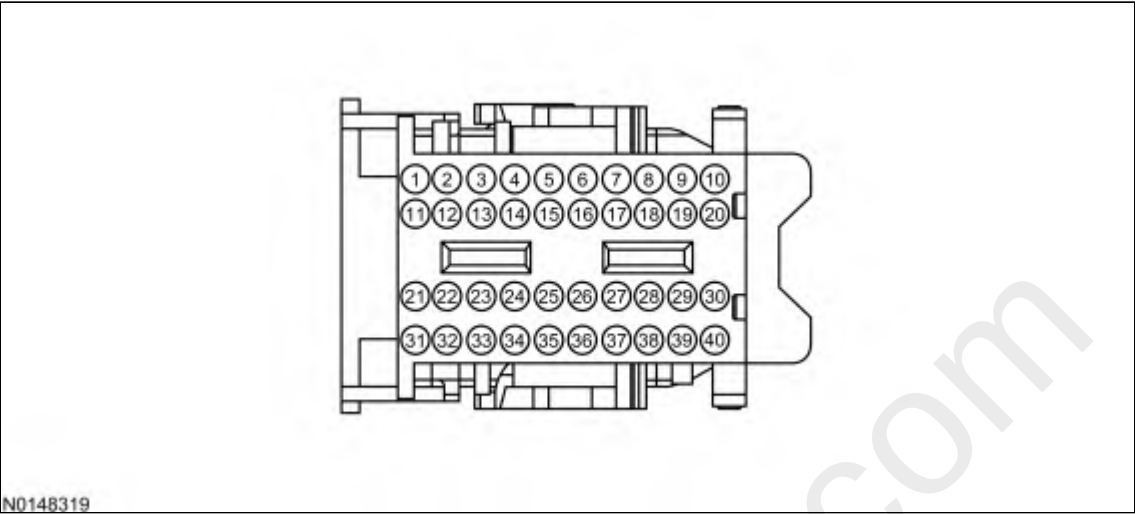
| Pin  | Circuit                       |
|------|-------------------------------|
| 2    | FP (Fuel Pump)                |
| 1, 3 | B+ (Battery Positive Voltage) |
| 5    | VPWR Fuel                     |

Inertia Fuel Shutoff (IFS) Switch Connector



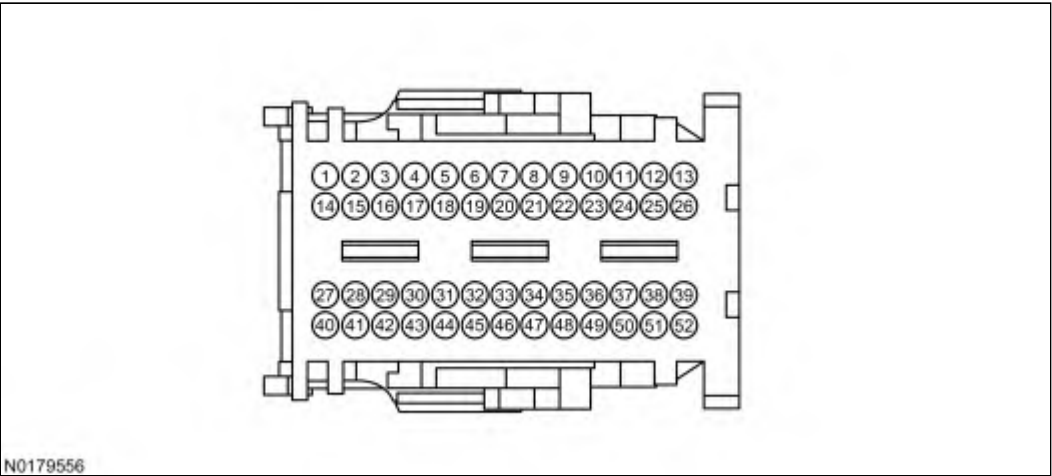
| Pin | Circuit       |
|-----|---------------|
| 1   | VPWR Fuel - B |
| 2   | VPWR Fuel - A |

Body Control Module-C (BCM-C) Connector



| Vehicle                        | Connector | Pin      | Circuit   |
|--------------------------------|-----------|----------|-----------|
| Continental,<br>Fusion,<br>MKZ | A         | 29<br>26 | IES<br>FP |
| Ranger 2.5L                    | A         | 29       | IES       |
| All other vehicles             | A         | 26       | FP        |

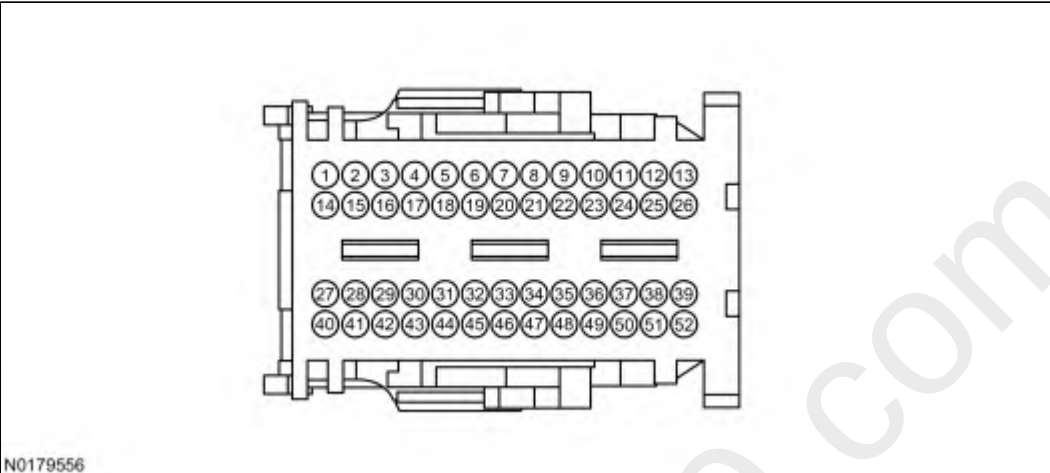
Body Control Module-D (BCM-D) Connector



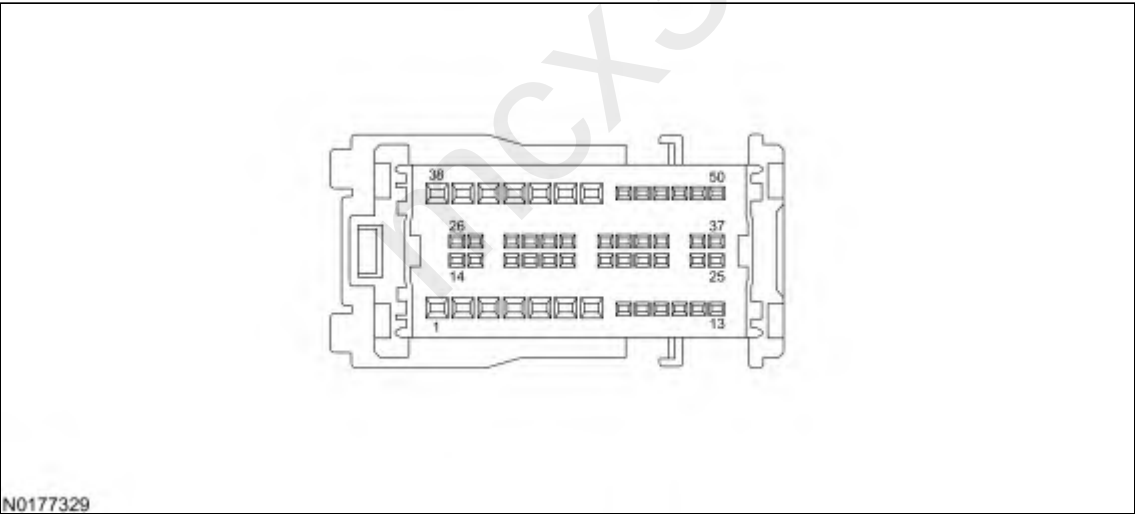
| Pin | Circuit                   |
|-----|---------------------------|
| 49  | IES (Impact Event Signal) |

Body Control Module-E (BCM-E) Connector

A



B

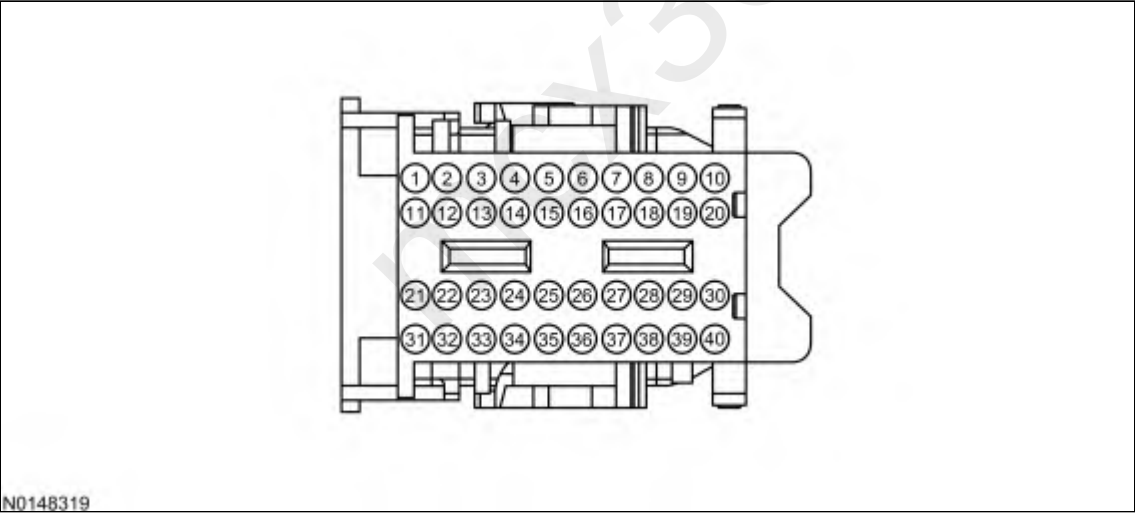


| Vehicle | Connector | Pin | Circuit |
|---------|-----------|-----|---------|
|         |           |     |         |

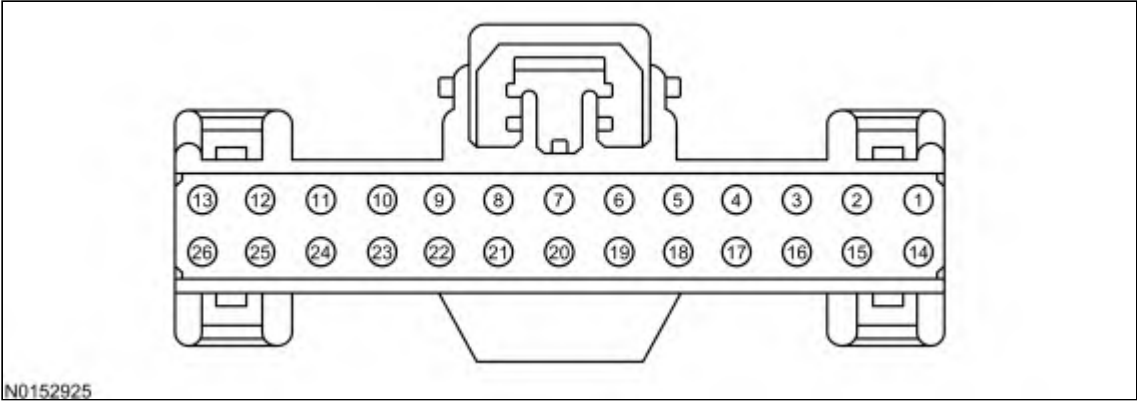
| Vehicle                                                                                                                                                     | Connector | Pin      | Circuit   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------|-----------|
| Aviator,<br>Explorer,<br>F-150 2.7L,<br>F-150 3.3L,<br>F-150 3.5L Base,<br>F-150 5.0L,<br>F-Series Super Duty,<br>Mustang 2.3L,<br>Mustang 5.0L,<br>Transit | A         | 49       | IES       |
| EcoSport,<br>KA,<br>Transit Connect                                                                                                                         | B         | 11<br>24 | IES<br>FP |
| Expedition,<br>F-150 3.5L High Output,<br>Navigator                                                                                                         | A         | 49       | ENS       |

Body Control Module-F (BCM-F) Connector

A



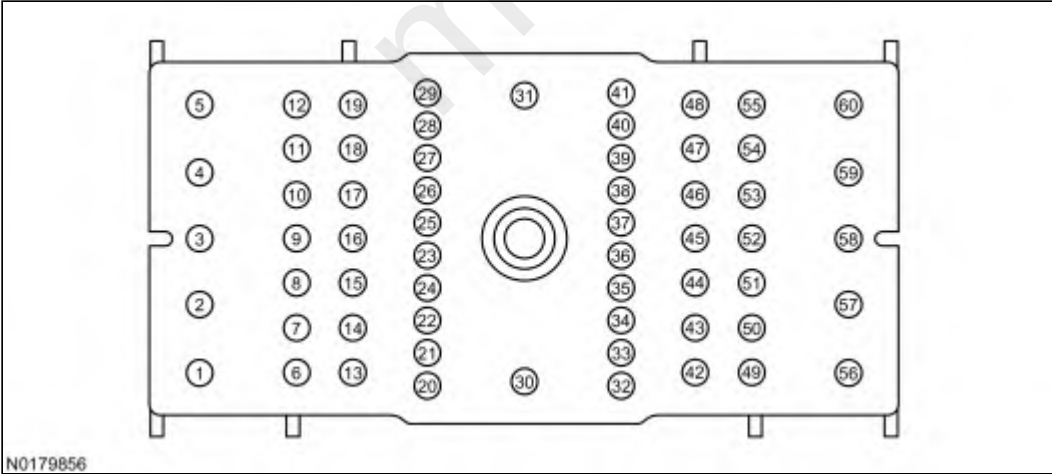
B



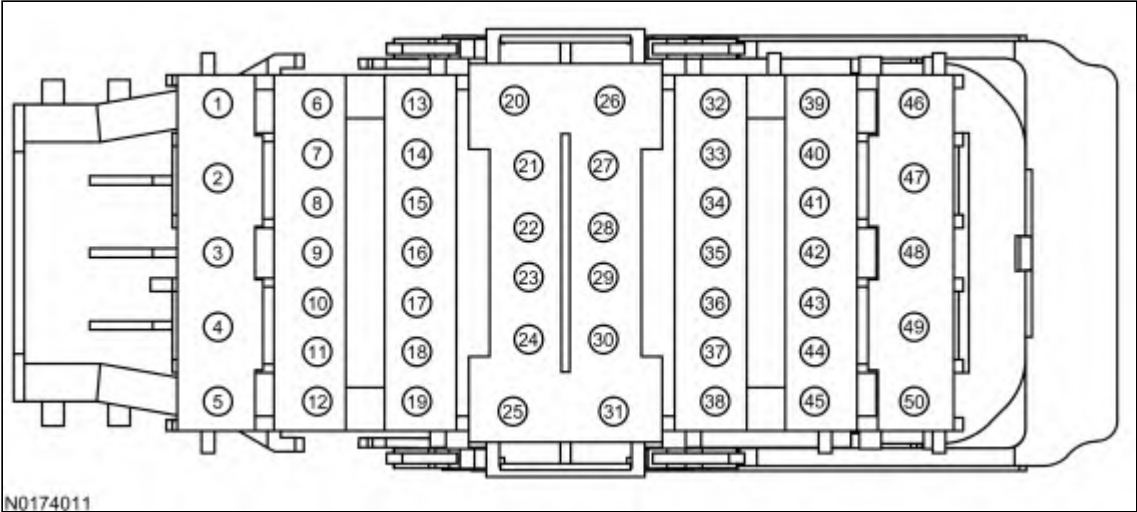
| Vehicle                                                              | Connector | Pin      | Circuit   |
|----------------------------------------------------------------------|-----------|----------|-----------|
| Corsair,<br>Escape/Kuga                                              | A         | 13       | IES       |
| Expedition,<br>F-150 3.5L High Output,<br>Mustang 5.2L,<br>Navigator | A         | 29       | IES       |
| Ford GT                                                              | A         | 29<br>26 | IES<br>FP |
| All other vehicles                                                   | B         | 6        | FP        |

Battery Junction Box-A (BJB-A) Connector

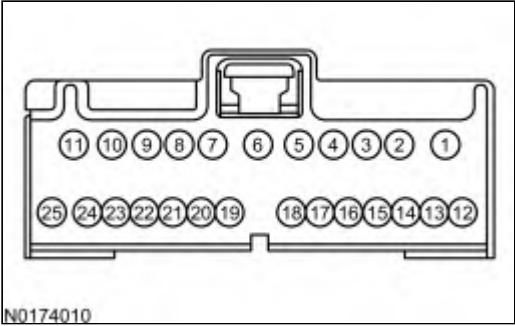
A



B



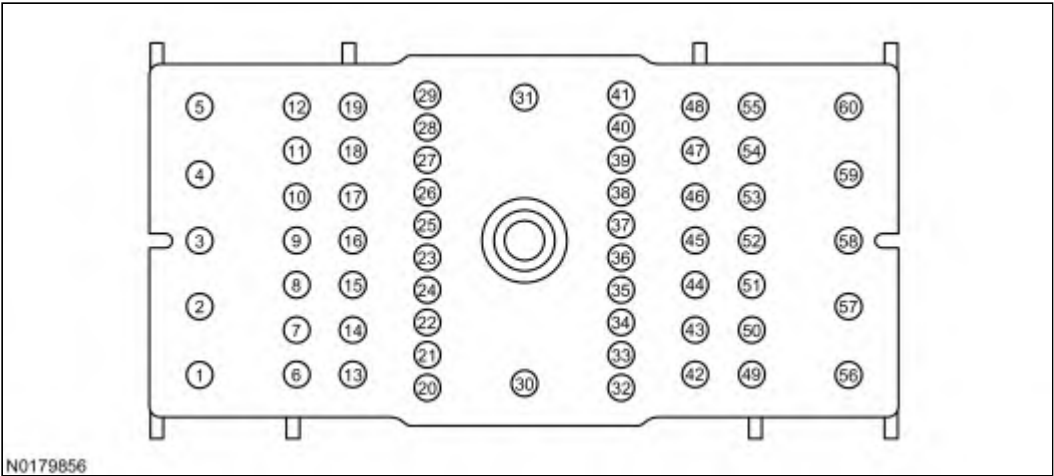
C



| Vehicle                 | Connector | Pin            | Circuit                   |
|-------------------------|-----------|----------------|---------------------------|
| Aviator,<br>Explorer    | A         | 19             | VPWR Fuel                 |
| Corsair,<br>Escape/Kuga | B         | 10<br>1<br>4   | FPRPWR<br>FP<br>VPWR Fuel |
| F-Series Super Duty     | C         | 28<br>26<br>19 | FPRPWR<br>FP<br>VPWR Fuel |
| Transit Connect         | B         | 41             | FP                        |

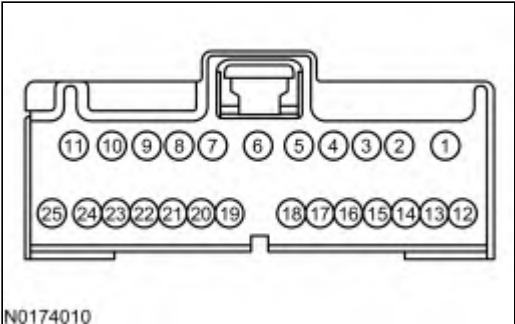
Battery Junction Box-B (BJB-B) Connector

A



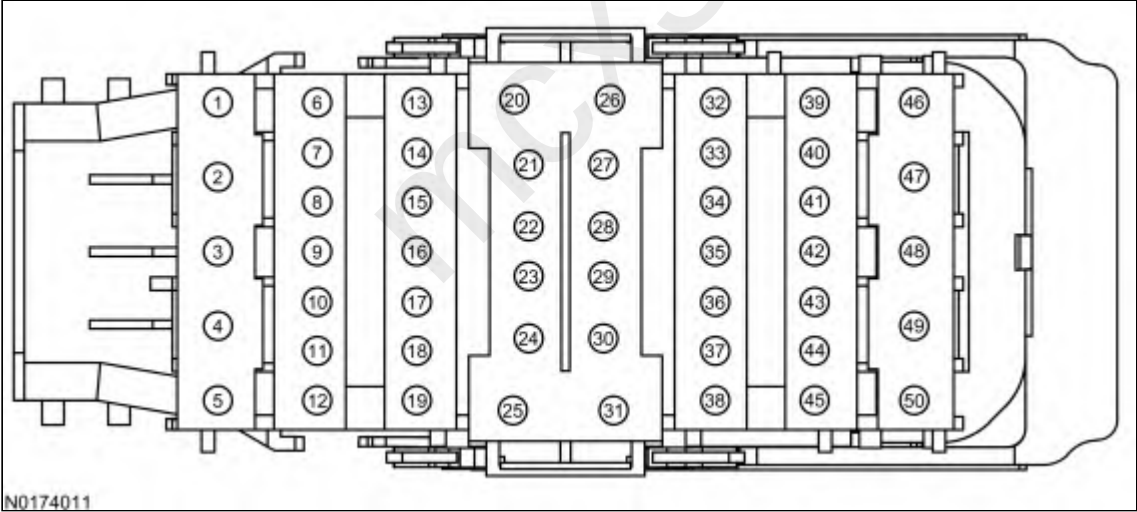
N0179856

B



N0174010

C

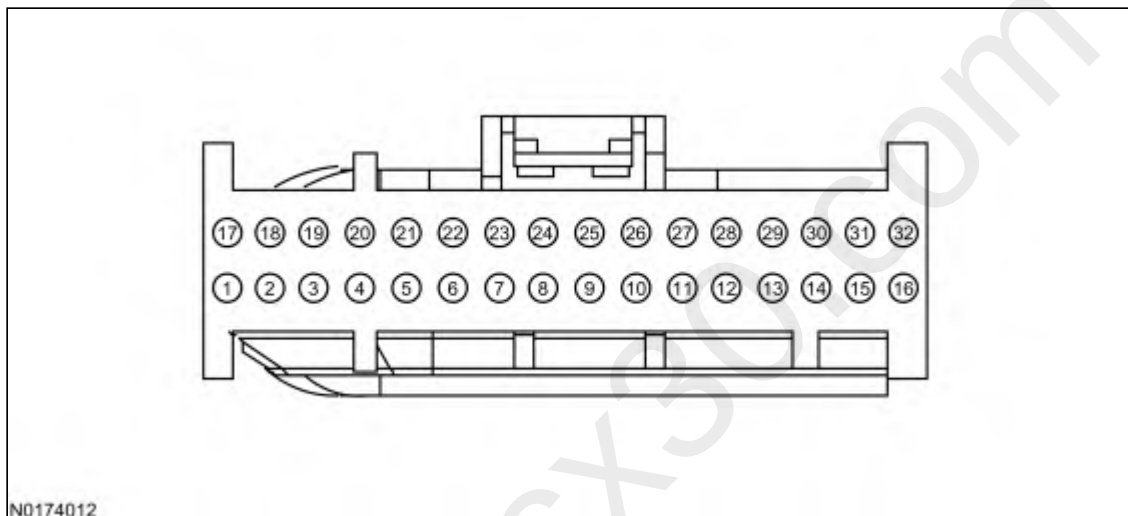


N0174011

| Vehicle                                                    | Connector | Pin      | Circuit         |
|------------------------------------------------------------|-----------|----------|-----------------|
| Aviator,<br>Explorer                                       | A         | 36       | FP              |
| Continental 2.0L,<br>Continental 2.7L,<br>Continental 3.7L | B         | 23<br>11 | FP<br>VPWR Fuel |

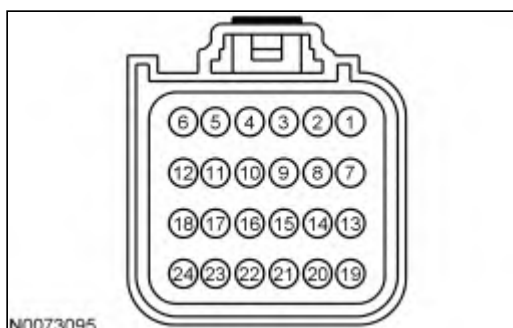
| Vehicle                   | Connector | Pin                  | Circuit                               |
|---------------------------|-----------|----------------------|---------------------------------------|
| Continental 3.0L          | B         | 23<br>13<br>11<br>12 | FP<br>FP2<br>VPWR Fuel<br>VPWR Fuel 2 |
| F-150,<br>Transit Connect | C         | 50                   | VPWR Fuel                             |
| Transit                   | A         | 28<br>29<br>19       | FPRPWR<br>FP<br>VPWR Fuel             |

### Battery Junction Box-C (BJB-C) Connector



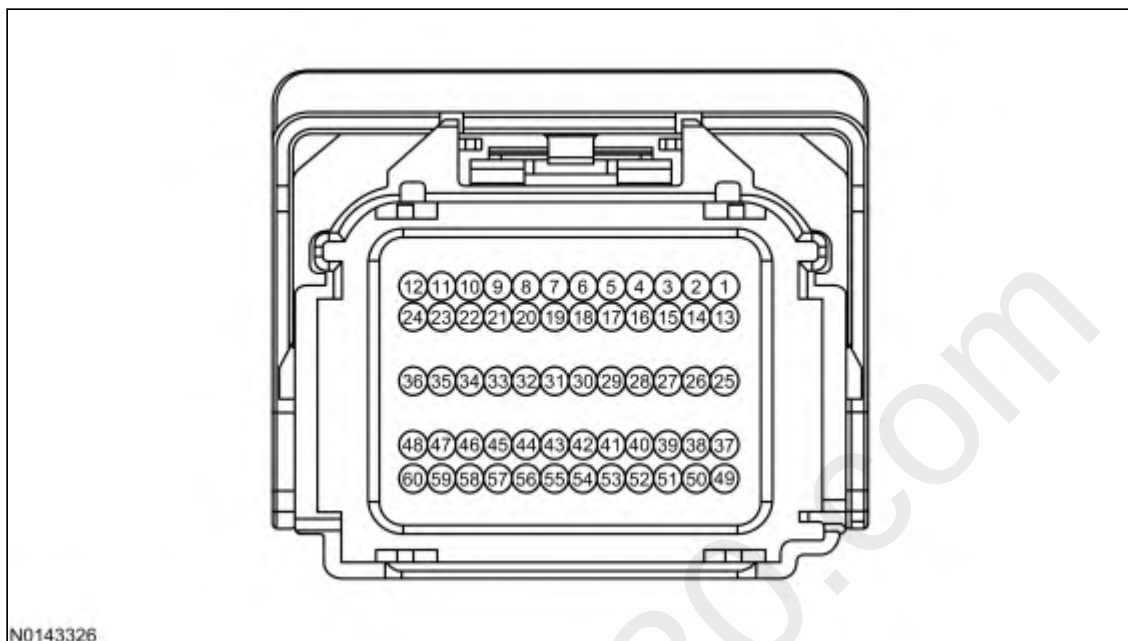
| Pin | Circuit                        |
|-----|--------------------------------|
| 2   | FPRPWR (Fuel Pump Relay Power) |
| 3   | FP (Fuel Pump)                 |

### Restraints Control Module-A (RCM-A) Connector



| Pin | Circuit                         |
|-----|---------------------------------|
| 19  | ENS (Event Notification Signal) |

### Restraints Control Module-B (RCM-B) Connector



| Vehicle                                             | Connector | Pin | Circuit |
|-----------------------------------------------------|-----------|-----|---------|
| Expedition,<br>F-150 3.5L High Output,<br>Navigator | A         | 42  | ENS     |
| All other vehicles                                  | A         | 42  | IES     |

### Powertrain Control Module (PCM) Connector

For PCM connector views or reference values, refer to Section 6.

| Vehicle                                   | Connector | Pin                      | Circuit                   |
|-------------------------------------------|-----------|--------------------------|---------------------------|
| Aviator,<br>Mustang 5.0L                  | 306 PIN   | B37<br>B52<br>B3         | IES<br>FPM<br>FPC         |
| Continental 3.0L,<br>Ford GT,<br>MKZ 3.0L | 198 PIN   | B29<br>B27<br>B85<br>B39 | IES<br>FPM<br>FPM2<br>FPC |

| Vehicle                                                                                                                          | Connector | Pin                                    | Circuit                                  |
|----------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------|------------------------------------------|
| Continental 3.7L                                                                                                                 | 198 PIN   | B49<br>B27<br>B14                      | IES<br>FPM<br>FPC                        |
| Corsair 2.0L,<br>Corsair 2.3L,<br>Edge 2.0L,<br>Escape/Kuga 1.5L,<br>Escape/Kuga 2.0L,<br>Nautilus 2.0L,<br>Ranger 2.3L          | 198 PIN   | B53<br>B23<br>B42<br>B54<br>B58        | IES<br>FPRPWR<br>FP<br>FPM<br>FPC        |
| Corsair 2.5L,<br>Escape/Kuga 2.5L                                                                                                | 198 PIN   | B49<br>B32<br>B27<br>B101              | IES<br>FP<br>FPM<br>FPC                  |
| E-Series,<br>F-650 / F-750,<br>Flex TiVCT 3.5L                                                                                   | 198 PIN   | B27<br>B14                             | FPM<br>FPC                               |
| EcoSport 1.0L Manual Transmission                                                                                                | 198 PIN   | B29<br>B27                             | IES<br>FPM                               |
| EcoSport 1.5L Automatic Transmission,<br>KA 1.5L Automatic Transmission                                                          | 198 PIN   | B49<br>B27                             | IES<br>FPM                               |
| EcoSport 1.5L Manual Transmission,<br>KA 1.2L,<br>KA 1.5L Manual Transmission                                                    | 112 PIN   | B17<br>B48                             | IES<br>FPM                               |
| Edge 2.7L,<br>F-150 2.7L,<br>F-150 3.3L,<br>F-150 5.0L,<br>F-150 3.5L Base,<br>F-Series Super Duty,<br>Nautilus 2.7L,<br>Transit | 306 PIN   | B37<br>B14<br>B29<br>B52<br>B3         | IES<br>FPRPWR<br>FP<br>FPM<br>FPC        |
| Expedition,<br>F-150 3.5L High Output,<br>Navigator                                                                              | 198 PIN   | B90<br>B27<br>B24<br>B57<br>B67<br>B23 | ENS<br>IES<br>FPRPWR<br>FP<br>FPM<br>FPC |
| Explorer 2.3L                                                                                                                    | 198 PIN   | B53<br>B54<br>B58                      | IES<br>FPM<br>FPC                        |
| Explorer 3.0L,<br>Explorer 3.3L                                                                                                  | 306 PIN   | B37<br>B14<br>B52<br>B3                | IES<br>FPRPWR<br>FPM<br>FPC              |

| Vehicle                                       | Connector | Pin                            | Circuit                         |
|-----------------------------------------------|-----------|--------------------------------|---------------------------------|
| Flex GTDI 3.5L                                | 198 PIN   | B27<br>B39                     | FPM<br>FPC                      |
| Fusion 2.5L,<br>Transit Connect 2.5L          | 198 PIN   | B49<br>B27<br>B65              | IES<br>FPM<br>FPC               |
| KA 1.0L                                       | 128 PIN   | B17<br>B4                      | IES<br>FPM                      |
| Motorhome / Stripped Chassis / Step Van       | 306 PIN   | B14<br>B29<br>B52<br>B3        | FPRPWR<br>FP<br>FPM<br>FPC      |
| Mustang 2.3L                                  | 198 PIN   | B53<br>B42<br>B27<br>B58       | IES<br>FP<br>FPM<br>FPC         |
| Mustang 5.2L Supercharged                     | 306 PIN   | B49<br>B29<br>B52<br>T37<br>B3 | IES<br>FP<br>FPM<br>FPM2<br>FPC |
| Mustang TiVCT 5.2L                            | 198 PIN   | B49<br>B27<br>B31<br>B14       | IES<br>FPM<br>FPM2<br>FPC       |
| Ranger 2.5L                                   | 128 PIN   | B4<br>B34                      | IES<br>FPM                      |
| Transit Connect 1.0L,<br>Transit Connect 2.0L | 198 PIN   | B27<br>B54<br>B58              | IES<br>FPM<br>FPC               |
| All other vehicles                            | 198 PIN   | B29<br>B27<br>B39              | IES<br>FPM<br>FPC               |

**KC1 CHECK FOR DIAGNOSTIC TROUBLE CODES (DTCS)**

Are DTCs P00BA, P00BB, P0148, P0230, P0231, P0232, P025A, P025B, P025C, P025D, P027B, P0627, P166A, P2632, U0109, U016C or U210B present?

|            |                                                                                                                                                                                                                                                                                                           |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For DTC P0230, GO to <a href="#">KC22</a> .<br>For DTCs P0231 or P0232, GO to <a href="#">KC18</a> .<br>For DTCs P0627 or P2632, GO to <a href="#">KC9</a> .<br>For DTC P166A, GO to <a href="#">KC37</a> .<br>For DTC U210B, GO to <a href="#">KC31</a> .<br>For all others, GO to <a href="#">KC2</a> . |
| <b>No</b>  | For symptoms without DTCs, GO to <a href="#">KC2</a> .                                                                                                                                                                                                                                                    |

|                                                                            |
|----------------------------------------------------------------------------|
| For all others, RETURN to Section 3, Symptom Charts for further direction. |
|----------------------------------------------------------------------------|

**KC2 CHECK THE VOLTAGE TO THE FUEL PUMP CONTROL MODULE**

**Note:** The Continental 3.0L, Ford GT, MKZ 3.0L and Mustang 5.2L are equipped with two fuel pump control modules. Diagnose the fuel pump control module related to the current DTC.

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

- Ignition OFF.
- For DTCs P027B or U016C,
- Fuel Pump Control Module 2 Module connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| VPWR Fuel - Pin 1                                               | Ground |

- For all others,
- 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?**

|            |                             |
|------------|-----------------------------|
| <b>Yes</b> | GO to <a href="#">KC3</a> . |
| <b>No</b>  | GO to <a href="#">KC7</a> . |

**KC3 CHECK THE GND CIRCUIT FOR AN OPEN**

- Ignition OFF.
- For DTCs P027B or U016C,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| GND - Pin 4                                                     | Ground |

- For all others,
- Measure the resistance between:

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

**Is the resistance less than 5 ohms?**

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC4</a> .                                        |
| <b>No</b>  | 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.
- For DTCs P027B or U016C,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|-----------------------------------------------------------------|-----------------------------------|
| FPC - Pin 3                                                     | FPC                               |
| FPM2 - Pin 7                                                    | FPM2                              |

- For all others,
- 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?**

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC5</a> .                                        |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

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

- For DTCs P027B or U016C,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| FPC - Pin 3                                                     | Ground |
| FPM2 - Pin 7                                                    | Ground |

- For all others,
- Measure the resistance between:

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

**Are the resistances greater than 10K ohms?**

|            |                             |
|------------|-----------------------------|
| <b>Yes</b> | GO to <a href="#">KC6</a> . |
|            |                             |

|           |                                                                     |
|-----------|---------------------------------------------------------------------|
| <b>No</b> | 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.
- For DTCs P027B or U016C,
- Measure the voltage between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| FPC - Pin 3                                                     | Ground |
| FPM2 - Pin 7                                                    | Ground |

- For all others,
- Measure the voltage between:

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

**Is any voltage present?**

|            |                                                                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.                                                                                                   |
| <b>No</b>  | INSTALL a new suspect Fuel Pump Control Module. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls.<br>Clear the PCM DTCs. REPEAT the self-test. |

**KC7 CHECK THE VPWR FUEL CIRCUIT FOR AN OPEN**

- Ignition OFF.
- For Continental 3.0L with DTCs P027B or U016C,
- BJB-B connector disconnected.
- Fuel Pump Control Module 2 Module connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) BJB-B Connector, Harness Side |
|-----------------------------------------------------------------|-------------------------------------|
| VPWR Fuel - Pin 1                                               | VPWR Fuel 2                         |

- For Ford GT, MKZ 3.0L and Mustang 5.2L with DTCs P027B or U016C,
- Fuel Pump Control Module 2 Module connector disconnected.
- Fuel Pump Control Module 2 Relay connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) Fuel Pump Control Module 2 Relay Connector, Harness Side |
|-----------------------------------------------------------------|----------------------------------------------------------------|
| VPWR Fuel - Pin 1                                               | VPWR Fuel - Pin 5                                              |

- For Aviator, Continental, Explorer, F-150, Transit, and Transit Connect,

- BJB-B connector disconnected.
- Fuel Pump Control Module connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module Connector, Harness Side | ( - ) BJB-B Connector, Harness Side |
|--------------------------------------------------------|-------------------------------------|
| VPWR Fuel                                              | VPWR Fuel                           |

- For Corsair, Escape/Kuga, and F-Series Super Duty,
- BJB-A connector disconnected.
- Fuel Pump Control Module connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module Connector, Harness Side | ( - ) BJB-A Connector, Harness Side |
|--------------------------------------------------------|-------------------------------------|
| VPWR Fuel                                              | VPWR Fuel                           |

- For all others,
- Fuel Pump Control Module connector disconnected.
- 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?

|            |                                                                                                                                                                              |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For Continental, Corsair, F-150, Escape/Kuga, F-Series Super Duty, Transit, and Transit Connect, GO to <a href="#">KC8</a> .<br>For all others, GO to <a href="#">KC18</a> . |
| <b>No</b>  | For E-Series, GO to <a href="#">KC29</a> .<br>For all others, REPAIR the open circuit.<br>Clear the PCM DTCs. REPEAT the self-test.                                          |

#### KC8 CHECK THE BODY CONTROL MODULE FOR CRASH STATUS PIDS

- BCM-C connector connected.
- BCM-E connector connected.
- BCM-F connector connected.
- Ignition ON, engine OFF.
- Access the BdyCM and monitor the CRASH (MODE) PID.

Is the PID state NO?

|  |  |
|--|--|
|  |  |
|--|--|

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | <p>For symptoms without DTCs, RETURN to Section 3, Symptom Charts for further direction.</p> <p>For Aviator, Corsair, Continental, Escape/Kuga, Explorer, F-150, F-Series Super Duty, and Transit Connect, GO to <a href="#">KC22</a>.</p> <p>For DTCs P00BA, P00BB or P0148, the system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.</p> <p>Clear the PCM DTCs. REPEAT the self-test.</p> <p>For all others, FOLLOW the directions for the Guided Routine (BCM) in the Workshop Manual DTC Chart to continue diagnosis. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls, Diagnosis and Testing.</p> <p>Clear the PCM DTCs. REPEAT the self-test.</p> |
| <b>No</b>  | <p>RESET the PID.</p> <p>Clear the PCM DTCs. REPEAT the self-test.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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

**Note:** The Continental 3.0L, Ford GT, MKZ 3.0L and Mustang 5.2L are equipped with two fuel pump control modules. Diagnose the fuel pump control module related to the current DTC.

- Ignition OFF.
- For DTC P2632,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) Fuel Pump Control Module 2 Module Connector, Harness Side |
|-----------------------------------------------------------------|-----------------------------------------------------------------|
| FP2PWR - Pin 5                                                  | FP2RTN - Pin 8                                                  |

- For all others,
- 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?

|            |                              |
|------------|------------------------------|
| <b>Yes</b> | GO to <a href="#">KC12</a> . |
| <b>No</b>  | GO to <a href="#">KC10</a> . |

### KC10 CHECK THE FPPWR AND FPRTN CIRCUITS FOR AN OPEN

- FP Assembly connector disconnected.
- For DTC P2632,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) FP Assembly Connector, Harness Side |
|-----------------------------------------------------------------|-------------------------------------------|
| FP2PWR - Pin 5                                                  | FP2PWR                                    |
| FP2RTN - Pin 8                                                  | FP2RTN                                    |

- For all others,
- Measure the resistance between:

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

Are the resistances less than 5 ohms?

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC11</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### KC11 CHECK THE FP FOR AN OPEN

- For DTC P2632,
- Measure the resistance between:

| ( + ) FP Assembly Connector, Component Side | ( - ) FP Assembly Connector, Component Side |
|---------------------------------------------|---------------------------------------------|
| FP2PWR                                      | FP2RTN                                      |

- For all others,
- Measure the resistance between:

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

Is the resistance less than 10 ohms?

|            |                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC12</a> .                                                                                                           |
| <b>No</b>  | INSTALL a new FP assembly. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. Clear the PCM DTCs. REPEAT the self-test. |

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

- For DTC P2632,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| FP2PWR - Pin 5                                                  | Ground |
| FP2RTN - Pin 8                                                  | Ground |

- For all others,
- Measure the resistance between:

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

Are the resistances greater than 10K ohms?

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC13</a> .                                        |
| <b>No</b>  | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### KC13 CHECK FOR FPPWR AND FPRTN CIRCUITS SHORTED TOGETHER

- For DTC P2632,
- Measure the resistance between:

| ( + ) FP Assembly Connector, Harness Side | ( - ) FP Assembly Connector, Harness Side |
|-------------------------------------------|-------------------------------------------|
| FP2PWR                                    | FP2RTN                                    |

- For all others,
- Measure the resistance between:

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

Is the resistance greater than 10K ohms?

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC14</a> .                                        |
| <b>No</b>  | 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.
- For DTC P2632,
- Measure the voltage between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - )  |
|-----------------------------------------------------------------|--------|
| FP2PWR - Pin 5                                                  | Ground |
| FP2RTN - Pin 8                                                  | Ground |

- For all others,
- Measure the voltage between:

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

**Is any voltage present?**

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>Yes</b> | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC15</a> .                                        |

**KC15 INTERMITTENT CHECK**

- Ignition OFF.
- For DTC P2632,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Module Connector, Harness Side | ( - ) FP Assembly Connector, Harness Side |
|-----------------------------------------------------------------|-------------------------------------------|
| FP2PWR - Pin 5                                                  | FP2PWR                                    |
| FP2RTN - Pin 8                                                  | FP2RTN                                    |

- For all others,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module Connector, Harness Side | ( - ) FP Assembly 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?**

|            |                                                                   |
|------------|-------------------------------------------------------------------|
| <b>Yes</b> | REPAIR as necessary.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC16</a> .                                      |

**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.

- For DTC P2632,
- Fuel Pump Control Module 2 Module connector connected.
- Measure the voltage between:

| ( + ) FP Assembly Connector, Harness Side | ( - ) FP Assembly Connector, Harness Side |
|-------------------------------------------|-------------------------------------------|
| FP2PWR                                    | FP2RTN                                    |

- For all others,
- Fuel Pump Control Module connector connected.
- Measure the voltage between:

| ( + ) FP Assembly Connector, Harness Side | ( - ) FP Assembly 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?**

|            |                                                                                                                                                                       |
|------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC17</a> .                                                                                                                                          |
| <b>No</b>  | INSTALL a new suspect Fuel Pump Control Module. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls.<br>Clear the PCM DTCs. REPEAT the self-test. |

### KC17 CHECK THE FUEL PRESSURE

**Note:** Refer to the fuel system WARNING information at the beginning of this pinpoint test.

- Ignition OFF.
- FP Assembly connector connected.
- Relieve the fuel pressure. Refer to the Workshop Manual Section 310-00, Fuel System for the Fuel System Pressure Release procedure.
- Mechanical fuel pressure gauge connected.
- Ignition ON, engine OFF.
- Pressurize the fuel system. Refer to the Workshop Manual Section 310-00, Fuel System for the Fuel System Pressure Release procedure to pressurize the fuel system.
- Cycle the ignition several times to charge the fuel system.

**Is the fuel pressure greater than 240 kPa (35 psi)?**

|            |                                                                                                                                           |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.                        |
| <b>No</b>  | INSTALL a new FP assembly. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines.<br>Clear the PCM DTCs. REPEAT the self-test. |

### KC18 CHECK THE FUEL PUMP CONTROL MODULE RELAY FOR CORRECT OPERATION

**Note:** The Continental 3.0L, Ford GT and Mustang 5.2L are equipped with two fuel pump control module relays. Diagnose the fuel pump control module relay related to the current DTC.

- Carry out the fuel pump control module relay component test. Refer to the Wiring Diagrams Cell 149 Component Testing.

**Is a concern present?**

|            |                                                                                         |
|------------|-----------------------------------------------------------------------------------------|
| <b>Yes</b> | INSTALL a new Fuel Pump Control Module relay. Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC19</a> .                                                            |

### KC19 CHECK THE B+ CIRCUITS FOR AN OPEN

- For DTCs P027B or U016C,
- Measure the voltage between:

| ( + ) Fuel Pump Control Module 2 Relay Connector, Harness Side | ( - )  |
|----------------------------------------------------------------|--------|
| B+ - Pin 1, 3                                                  | Ground |

- For all others,
- Measure the voltage between:

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

**Is the voltage greater than 10.5 V?**

|            |                                                                                                                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For E-Series, and Motorhome / Stripped Chassis / Step Van, GO to <a href="#">KC20</a> .<br>For all others, GO to <a href="#">KC22</a> .                                                                                                |
| <b>No</b>  | 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. |

#### **KC20 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?**

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC21</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### **KC21 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?**

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

#### **KC22 CHECK THE CIRCUITS FOR AN OPEN**

- Ignition OFF.
- For Continental 3.0L with DTCs P027B or U016C,
- BCM-C connector disconnected.
- BJB-B connector disconnected.
- Measure the resistance between:

| ( + ) BJB-B Connector, Harness Side | ( - ) BCM-C Connector, Harness Side |
|-------------------------------------|-------------------------------------|
| FP2                                 | FP                                  |

- For Ford GT and Mustang 5.2L with DTCs P027B or U016C,
- BCM-F connector disconnected.
- Fuel Pump Control Module 2 Relay connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module 2 Relay Connector, Harness Side | ( - ) BCM-F Connector, Harness Side |
|----------------------------------------------------------------|-------------------------------------|
| FP - Pin 2                                                     | FP                                  |

- For Continental,
- BCM-C connector disconnected.
- BJB-B connector disconnected.
- Measure the resistance between:

| ( + ) BJB-B Connector, Harness Side | ( - ) BCM-C Connector, Harness Side |
|-------------------------------------|-------------------------------------|
| FP                                  | FP                                  |

- For Corsair and Escape/Kuga,
- PCM connector disconnected.
- BJB-A connector disconnected.
- Measure the resistance between:

| ( + ) PCM Connector, Harness Side | ( - ) BJB-A Connector, Harness Side |
|-----------------------------------|-------------------------------------|
| FP                                | FP                                  |

- For EcoSport 1.0L Manual Transmission and EcoSport 1.5L,
- BCM-E connector disconnected.
- FP Relay connector disconnected.
- Measure the resistance between:

| ( + ) FP Relay Connector, Harness Side | ( - ) BCM-E Connector, Harness Side |
|----------------------------------------|-------------------------------------|
| FP                                     | FP                                  |

- For EcoSport 1.0L Automatic Transmission and EcoSport 2.0L,
- BCM-E connector disconnected.
- Fuel Pump Control Module Relay connector disconnected.
- Measure the resistance between:

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

- For Fusion, KA, and MKZ,
- BCM-C connector disconnected.
- Fuel Pump Control Module Relay connector disconnected.
- Measure the resistance between:

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

- For Edge, Expedition, Nautilus, Navigator, and Ranger 2.3L,
- PCM connector disconnected.
- Fuel Pump Control Module Relay connector disconnected.
- Measure the resistance between:

| ( + ) Fuel Pump Control Module Relay Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|--------------------------------------------------------------|-----------------------------------|
| FP                                                           | FP                                |
| FPRPWR                                                       | FPRPWR                            |

- For Explorer,
- BCM-F connector disconnected.
- BJB-B connector disconnected.
- Measure the resistance between:

| ( + ) BJB-B Connector, Harness Side | ( - ) BCM-F Connector, Harness Side |
|-------------------------------------|-------------------------------------|
| FP                                  | FP                                  |

- For F-150,
- BJB-C connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

| ( + ) BJB-C Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|-------------------------------------|-----------------------------------|
| FP - Pin 3                          | FP                                |
| FPRPWR - Pin 2                      | FPRPWR                            |

- For F-Series Super Duty,
- BCM-F connector disconnected.
- BJB-A connector disconnected.
- Measure the resistance between:

| ( + ) BCM-F Connector, Harness Side | ( - ) BJB-A Connector, Harness Side |
|-------------------------------------|-------------------------------------|
| FP                                  | FP                                  |

- For Transit,
- BJB-B connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

| ( + ) BJB-B Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|-------------------------------------|-----------------------------------|
| FP                                  | FP                                |
| FPRPWR                              | FPRPWR                            |

- For Transit Connect,
- BCM-E connector disconnected.
- BJB-A connector disconnected.
- Measure the resistance between:

| ( + ) BCM-E Connector, Harness Side | ( - ) BJB-A Connector, Harness Side |
|-------------------------------------|-------------------------------------|
| FP                                  | FP                                  |

- For all others,
- BCM-F connector disconnected.
- Fuel Pump Control Module Relay connector disconnected.
- Measure the resistance between:

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

Are the resistances less than 5 ohms?

|            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | For symptoms without DTCs, RETURN to Section 3, Symptom Charts for further direction.<br>For Corsair, Escape/Kuga, Expedition, F-150, Navigator, and Ranger 2.3L, GO to <a href="#">KC23</a> .<br>For EcoSport 1.0L Manual Transmission, EcoSport 1.5L, and KA, GO to <a href="#">KC25</a> .<br>For DTCs P00BA, P00BB or P0148, the system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.<br>Clear the PCM DTCs. REPEAT the self-test.<br>For all others, FOLLOW the directions for the Guided Routine (BCM) in the Workshop Manual DTC Chart to continue diagnosis. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls, Diagnosis and Testing.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

#### KC23 CHECK THE FP AND FPRPWR CIRCUITS

- For Corsair and Escape/Kuga,
- Measure the resistance between:

| ( + ) BJB-A Connector, Harness Side | ( - ) |
|-------------------------------------|-------|
|                                     |       |

| ( + ) BJB-A Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP                                  | Ground |
| FPRPWR                              | Ground |

- For Expedition, Navigator, and Ranger 2.3L,
- Measure the resistance between:

| ( + ) Fuel Pump Control Module Relay Connector, Harness Side | ( - )  |
|--------------------------------------------------------------|--------|
| FP                                                           | Ground |
| FPRPWR                                                       | Ground |

- For F-150,
- Measure the resistance between:

| ( + ) BJB-C Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP - Pin 3                          | Ground |
| FPRPWR - Pin 2                      | Ground |

- For Transit,
- Measure the resistance between:

| ( + ) BJB-B Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP                                  | Ground |
| FPRPWR                              | Ground |

**Are the resistances greater than 10K ohms?**

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC24</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### **KC24 CHECK THE FP AND FPRPWR CIRCUITS FOR A SHORT**

- Ignition ON, engine OFF.
- For Corsair and Escape/Kuga,
- Measure the voltage between:

| ( + ) BJB-A Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP                                  | Ground |
| FPRPWR                              | Ground |

- For Expedition, Navigator, and Ranger 2.3L,
- Measure the voltage between:

| ( + ) Fuel Pump Control Module Relay Connector, Harness Side | ( - )  |
|--------------------------------------------------------------|--------|
| FP                                                           | Ground |
| FPRPWR                                                       | Ground |

- For F-150,
- Measure the voltage between:

| ( + ) BJB-C Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP - Pin 3                          | Ground |
| FPRPWR - Pin 2                      | Ground |

- For Transit,
- Measure the voltage between:

| ( + ) BJB-B Connector, Harness Side | ( - )  |
|-------------------------------------|--------|
| FP                                  | Ground |
| FPRPWR                              | Ground |

**Is any voltage present?**

|            |                                                                                                                                                                                                       |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.                                                                                                                                   |
| <b>No</b>  | For Expedition, Navigator, and Ranger 2.3L, REPAIR the short circuit.<br>Clear the PCM DTCs. REPEAT the self-test.<br>For all others, INSTALL a new BJB.<br>Clear the PCM DTCs. REPEAT the self-test. |

#### KC25 CHECK THE PUMP CIRCUITS FOR AN OPEN

- Ignition OFF.
- FP Assembly connector disconnected.
- PCM connector disconnected.
- Measure the resistance between:

| ( + ) FP Relay Connector, Harness Side | ( - ) FP Assembly Connector, Harness Side |
|----------------------------------------|-------------------------------------------|
| FPPWR                                  | FPPWR                                     |

- Measure the resistance between:

| ( + ) FP Relay Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|----------------------------------------|-----------------------------------|
| FPPWR                                  | FPM                               |

- Measure the resistance between:

| ( + ) FP Assembly Connector, Harness Side | ( - )  |
|-------------------------------------------|--------|
| FPGND                                     | Ground |

Are the resistances less than 5 ohms?

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC26</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### KC26 CHECK THE INTERNAL RESISTANCE OF THE FUEL PUMP

- Measure the resistance between:

| ( + ) FP Assembly Connector, Component Side | ( - ) FP Assembly Connector, Component Side |
|---------------------------------------------|---------------------------------------------|
| FPPWR                                       | FPGND                                       |

Is the resistance less than 10 ohms?

|            |                                                                                                                                        |
|------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC27</a> .                                                                                                           |
| <b>No</b>  | INSTALL a new FP assembly. REFER to the Workshop Manual Section 310-01, Fuel Tank and Lines. Clear the PCM DTCs. REPEAT the self-test. |

#### KC27 CHECK THE FPM AND FPPWR CIRCUITS FOR A SHORT TO VOLTAGE

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

| ( + ) FP Relay Connector, Harness Side | ( - )  |
|----------------------------------------|--------|
| FPPWR                                  | Ground |

Is any voltage present?

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>Yes</b> | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC28</a> .                                        |

#### KC28 CHECK FOR CORRECT FP OPERATION

- Ignition OFF.
- PCM connector connected.
- FP Relay connector connected.
- FP Assembly connector connected.
- Ignition ON, engine OFF.
- For EcoSport and KA,
- Connect a 5 amp fused jumper wire between the following:

| Point A BCM-E Connector, Harness Side | Point B |
|---------------------------------------|---------|
| FP                                    | Ground  |

- For all others,
- Connect a 5 amp fused jumper wire between the following:

| Point A BCM-C Connector, Harness Side | Point B |
|---------------------------------------|---------|
| FP                                    | Ground  |

- Listen for the sound of the fuel pump operating which can be heard from outside the vehicle.

#### Is the fuel pump running?

|            |                                                                                                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | FOLLOW the directions for the Guided Routine (BCM) in the Workshop Manual DTC Chart to continue diagnosis. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls, Diagnosis and Testing.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | INSTALL a new FP assembly. Clear the PCM DTCs. REPEAT the self-test.                                                                                                                                                                                    |

#### KC29 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?

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC30</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### KC30 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?

|            |                                                                                                                                          |
|------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | INSTALL a new IFS switch. REFER to the Workshop Manual Section 310-01, Fuel Tank And Lines.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.                                                                       |

#### KC31 CHECK FOR RESTRAINTS CONTROL MODULE (RCM) DTCS

- Carry out the RCM self-test.

**Are any RCM DTCs present?**

|            |                                                                                                                                                                               |
|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | DIAGNOSE the supplemental restraint system concern. REFER to the Workshop Manual Section 501-20B, Supplemental Restraint System.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC32</a> .                                                                                                                                                  |

**KC32 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?**

|            |                                                                   |
|------------|-------------------------------------------------------------------|
| <b>Yes</b> | REPAIR as necessary.<br>Clear the PCM DTCs. REPEAT the self-test. |
| <b>No</b>  | GO to <a href="#">KC33</a> .                                      |

**KC33 CHECK THE ENS CIRCUIT FOR AN OPEN**

**Note:** Refer to the warnings in Workshop Manual Section 501-20B, Supplemental Restraint System.

- Depower the supplemental restraint system (SRS). Refer to the Workshop Manual Section 501-20B, Supplemental Restraint System for the Supplemental Restraint System (SRS) Depowering and Repowering procedure.
- Ignition OFF.
- RCM-A connector disconnected.
- RCM-B connector disconnected.
- Connect the battery ground cable.
- Fuel Pump Control Module connector disconnected.
- Measure the resistance between:

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

|                                     |
|-------------------------------------|
| ( - ) RCM-A Connector, Harness Side |
| ENS - Pin 19                        |

**Is the resistance less than 5 ohms?**

|            |                                                                    |
|------------|--------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC34</a> .                                       |
| <b>No</b>  | REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test. |

**KC34 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

GO to [KC35](#).
- No

REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

**KC35 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

REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
- No

GO to [KC36](#).

**KC36 CHECK THE ENS CIRCUIT FOR CORRECT RESPONSE**

- Ignition OFF.
- Fuel Pump Control Module connector connected.
- Ignition ON, engine OFF.
- Measure the voltage between:

|              |                                     |        |
|--------------|-------------------------------------|--------|
|              | ( + ) RCM-A Connector, Harness Side | ( - )  |
| ENS - Pin 19 |                                     | Ground |

Is the voltage greater than 10.5 V?

- Yes

INSTALL a new RCM. REFER to the Workshop Manual Section 501-20B, Supplemental Restraint System.  
Clear the PCM DTCs. REPEAT the self-test.
- No

INSTALL a new Fuel Pump Control Module. REFER to the Workshop Manual Section 303-04, Fuel Charging and Controls.  
Clear the PCM DTCs. REPEAT the self-test.

**KC37 CHECK THE CIRCUIT FOR AN OPEN**

**Note:** Refer to the warnings in Workshop Manual Section 501-20B, Supplemental Restraint System.

- Depower the supplemental restraint system (SRS) before disconnecting the restraints control module (RCM). Refer to the Workshop Manual Section 501-20B, Supplemental Restraint System for the Supplemental Restraint System (SRS) Depowering and Repowering procedure.
- Ignition OFF.
- PCM connector disconnected.
- For Ford GT, and Mustang 5.2L,
- BCM-F connector disconnected.
- Measure the resistance between:

|                                     |                                   |
|-------------------------------------|-----------------------------------|
| ( + ) BCM-F Connector, Harness Side | ( - ) PCM Connector, Harness Side |
|-------------------------------------|-----------------------------------|

**( + ) BCM-F Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

- For EcoSport, KA, and Transit Connect,
- BCM-E connector disconnected.
- Measure the resistance between:

**( + ) BCM-E Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

- For Corsair, and Escape/Kuga,
- BCM-F connector disconnected.
- RCM-B connector disconnected.
- Measure the resistance between:

**( + ) BCM-F Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

- Measure the resistance between:

**( + ) BCM-F Connector, Harness Side**

IES

**( - ) RCM-B Connector, Harness Side**

IES

- For Edge, Nautilus, and Ranger 2.3L,
- BCM-D connector disconnected.
- RCM-B connector disconnected.
- Measure the resistance between:

**( + ) BCM-D Connector, Harness Side**

IES - Pin 49

**( - ) PCM Connector, Harness Side**

IES

- Measure the resistance between:

**( + ) BCM-D Connector, Harness Side**

IES - Pin 49

**( - ) RCM-B Connector, Harness Side**

IES

- For Aviator, Explorer, F-150 2.7L, F-150 3.3L, F-150 3.5L Base, F-150 5.0L, F-Series Super Duty, Mustang 2.3L, Mustang 5.0L, and Transit,
- BCM-E connector disconnected.
- RCM-B connector disconnected.
- Measure the resistance between:

**( + ) BCM-E Connector, Harness Side****( - ) PCM Connector, Harness Side**

**( + ) BCM-E Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

- Measure the resistance between:

**( + ) BCM-E Connector, Harness Side**

IES

**( - ) RCM-B Connector, Harness Side**

IES

- For Expedition, F-150 3.5L High Output, and Navigator,
- BCM-E connector disconnected.
- BCM-F connector disconnected.
- RCM-B connector disconnected.
- Measure the resistance between:

**( + ) BCM-E Connector, Harness Side**

ENS

**( - ) PCM Connector, Harness Side**

ENS

- Measure the resistance between:

**( + ) BCM-E Connector, Harness Side**

ENS

**( - ) RCM-B Connector, Harness Side**

ENS

- Measure the resistance between:

**( + ) BCM-F Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

- For all others,
- BCM-C connector disconnected.
- Measure the resistance between:

**( + ) BCM-C Connector, Harness Side**

IES

**( - ) PCM Connector, Harness Side**

IES

**Are the resistances less than 5 ohms?****Yes**GO to [KC38](#).**No**

REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

**KC38 CHECK THE CIRCUIT FOR A SHORT TO GROUND**

- For Expedition, F-150 3.5L High Output, and Navigator,

- Measure the resistance between:

|     |                                   |
|-----|-----------------------------------|
|     | ( + ) PCM Connector, Harness Side |
| ENS |                                   |
| IES |                                   |

|        |
|--------|
| ( - )  |
| Ground |
| Ground |

- For all others,
- Measure the resistance between:

|     |                                   |
|-----|-----------------------------------|
|     | ( + ) PCM Connector, Harness Side |
| IES |                                   |

|        |
|--------|
| ( - )  |
| Ground |

Are the resistances greater than 10K ohms?

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| <b>Yes</b> | GO to <a href="#">KC39</a> .                                        |
| <b>No</b>  | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test. |

#### KC39 CHECK THE CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.
- For Expedition, F-150 3.5L High Output, and Navigator,
- Measure the voltage between:

|     |                                   |
|-----|-----------------------------------|
|     | ( + ) PCM Connector, Harness Side |
| ENS |                                   |
| IES |                                   |

|        |
|--------|
| ( - )  |
| Ground |
| Ground |

- For all others,
- Measure the voltage between:

|     |                                   |
|-----|-----------------------------------|
|     | ( + ) PCM Connector, Harness Side |
| IES |                                   |

|        |
|--------|
| ( - )  |
| Ground |

Is any voltage present?

|            |                                                                                                                                                                                                                                                         |
|------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Yes</b> | REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.                                                                                                                                                                                     |
| <b>No</b>  | FOLLOW the directions for the Guided Routine (BCM) in the Workshop Manual DTC Chart to continue diagnosis. REFER to the Workshop Manual Section 303-14, Electronic Engine Controls, Diagnosis and Testing.<br>Clear the PCM DTCs. REPEAT the self-test. |

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