

AG: Accelerator Pedal Position (APP) Sensor

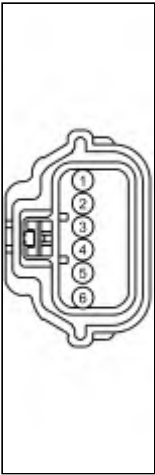
Note: After clearing an APP sensor DTC to verify a repair or an intermittent concern, apply the accelerator pedal before carrying out the self-test. Take 10 seconds to carry out a full sweep of the accelerator pedal from fully released to fully applied and back to fully released.

Note: Regeneration may occur during normal operation. During regeneration, diagnostic procedures may display biased values. If a regeneration occurs during diagnostic procedures, allow the process to complete before continuing diagnostics.

This pinpoint test is intended to diagnose the following:

- APP sensor (9F836)
- harness circuits: APP1, APP2, APPRTN1, APPRTN2, APPVREF1, and APPVREF2
- PCM (12A650)

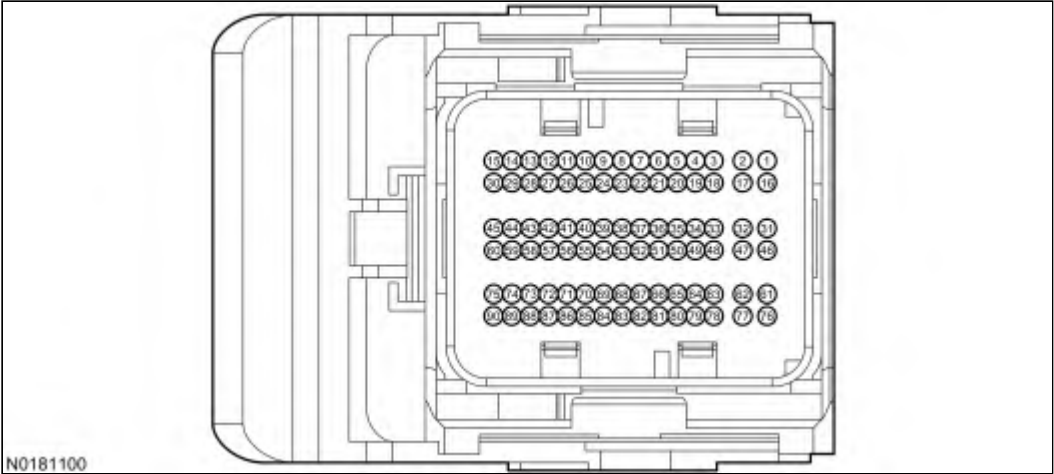
Accelerator Pedal Position (APP) Sensor Connector



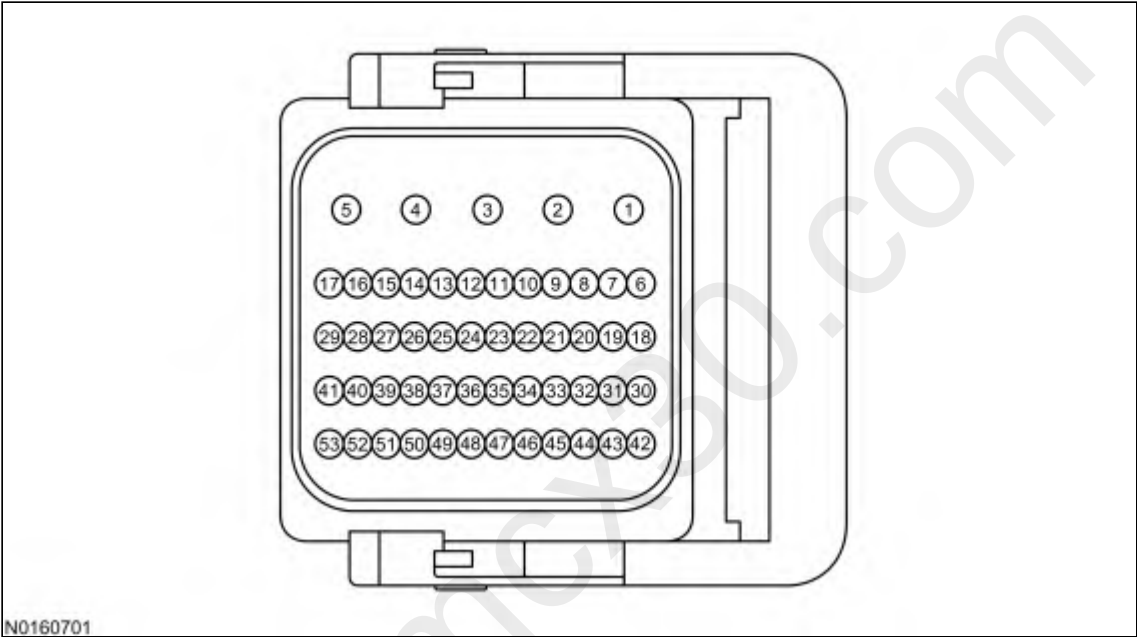
Pin	Circuit
5	APP2 (Accelerator Pedal Position 2)
2	APP1 (Accelerator Pedal Position 1)
4	APPRTN2 (Accelerator Pedal Position Return 2)
6	APPVREF2 (Accelerator Pedal Position Reference Voltage 2)
3	APPRTN1 (Accelerator Pedal Position Return 1)
1	APPVREF1 (Accelerator Pedal Position Reference Voltage 1)

Powertrain Control Module-B (PCM-B) Connector

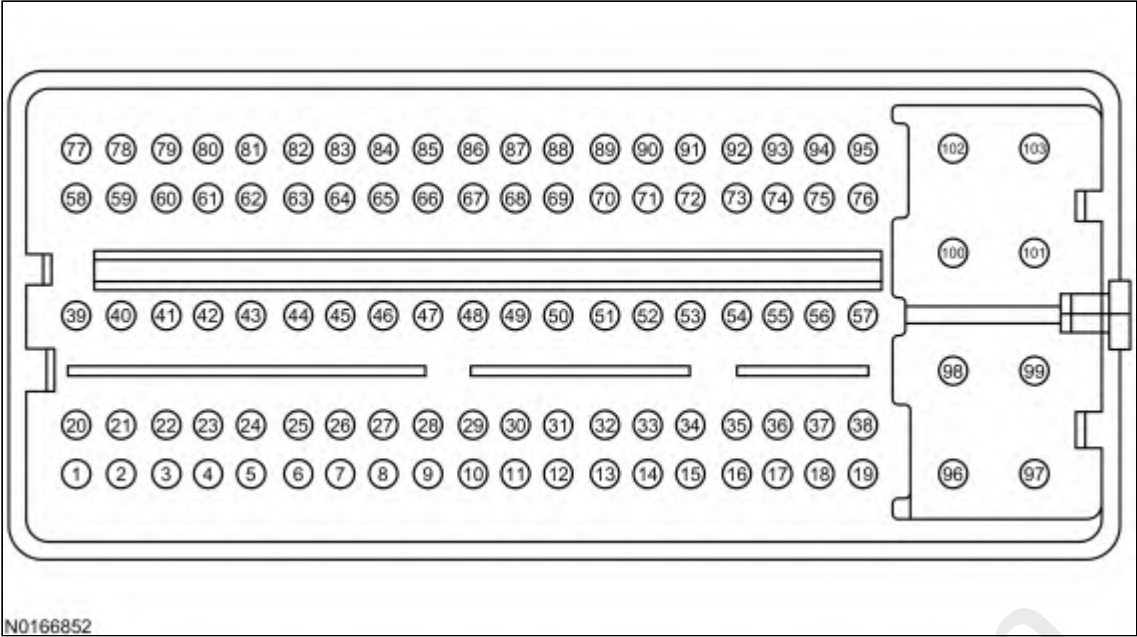
A



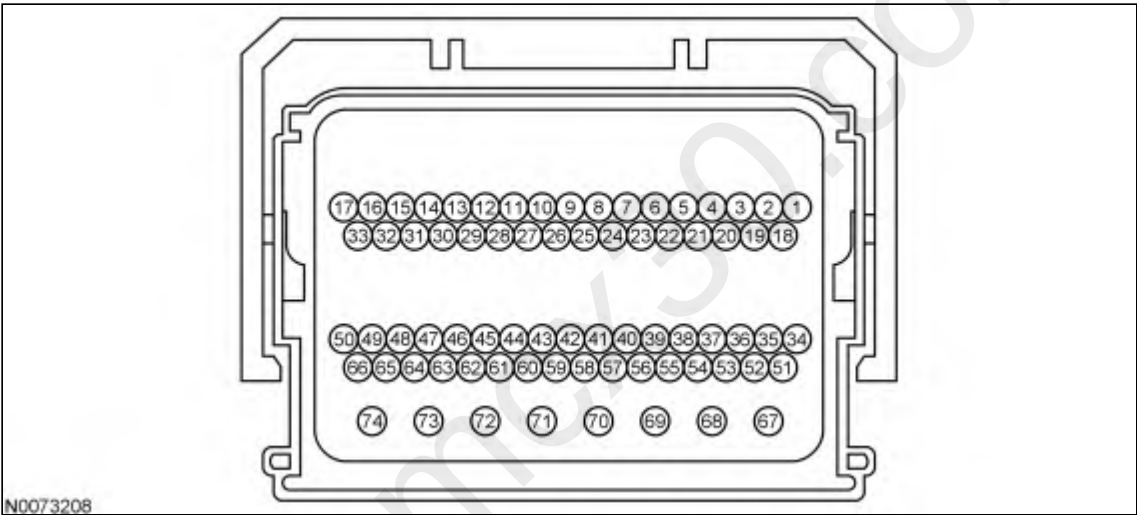
B



C



D



Vehicle	Connector	Pin	Circuit
F-Series Super Duty	A	25	APP2
		54	APP1
Transit	B	19	APP2
		20	APP1
Transit Connect	C	73	APP2
		74	APP1
All other vehicles	D	29	APP2
		28	APP1

AG1 CHECK FOR DTCS

Are DTCs P060D, P1575, P2122, P2123, P2127, P2128 or P2138 present?

Yes	For DTC P1575, GO to AG2 . For all others, GO to AG3 .
No	RETURN to Section 3, Symptom Charts for further direction.

AG2 REPEAT THE KEY ON ENGINE OFF (KOEO) SELF-TEST

Note: Make sure the accelerator pedal is not applied during the KOEO self-test.

- Ignition ON, engine OFF.
- Carry out the PCM KOEO self-test.

Are any DTCs present other than P1575?

Yes	DISREGARD the current diagnostic trouble code (DTC) at this time. DIAGNOSE the next DTC. GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions .
No	GO to AG3 .

AG3 CHECK THE ACCELERATOR PEDAL FOR OBSTRUCTION

- Press the accelerator pedal fully to the floor and release.

Is the accelerator pedal free of any visible obstruction or debris?

Yes	GO to AG4 .
No	REMOVE or REPAIR the obstruction. Clear the PCM DTCs. REPEAT the self-test.

AG4 CHECK THE VOLTAGE TO THE APP SENSOR

- Ignition OFF.
- APP Sensor connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
APPVREF1 - Pin 1	APPRTN1 - Pin 3
APPVREF2 - Pin 6	APPRTN2 - Pin 4

Are the voltages between 4.5 - 5.5 V?

Yes	GO to AG5 .
No	GO to Pinpoint Test B .

AG5 CHECK THE APP CIRCUITS FOR AN OPEN

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

(+) APP Sensor Connector, Harness Side	(-) PCM-B Connector, Harness Side

(+) APP Sensor Connector, Harness Side	(-) PCM-B Connector, Harness Side
APP1 - Pin 2	APP1
APP2 - Pin 5	APP2

Are the resistances less than 5 ohms?

Yes	GO to AG6 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

AG6 CHECK THE APP CIRCUITS FOR A SHORT TO GROUND

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-)
APP1 - Pin 2	Ground
APP2 - Pin 5	Ground

Are the resistances greater than 10K ohms?

Yes	GO to AG7 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

AG7 CHECK THE APP CIRCUITS FOR A SHORT

- Measure the resistance between:

(+) APP Sensor Connector, Harness Side	(-) APP Sensor Connector, Harness Side
APP1 - Pin 2	APP2 - Pin 5
APP1 - Pin 2	APPRTN1 - Pin 3
APP1 - Pin 2	APPRTN2 - Pin 4
APP1 - Pin 2	APPVREF1 - Pin 1
APP1 - Pin 2	APPVREF2 - Pin 6
APP2 - Pin 5	APPRTN1 - Pin 3
APP2 - Pin 5	APPRTN2 - Pin 4
APP2 - Pin 5	APPVREF1 - Pin 1
APP2 - Pin 5	APPVREF2 - Pin 6

Are the resistances greater than 10K ohms?

Yes	GO to AG8 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

AG8 CHECK THE APP CIRCUITS FOR A SHORT TO VOLTAGE

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

(+) APP Sensor Connector, Harness Side	(-)
APP1 - Pin 2	Ground
APP2 - Pin 5	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to AG9 .

AG9 CHECK THE OPPOSITE INDUCED HIGH APP SIGNAL

- Ignition OFF.
- PCM-B connector connected.
- Ignition ON, engine OFF.
- Connect a 5 amp fused jumper wire between the following:

Point A APP Sensor Connector, Harness Side	Point B APP Sensor Connector, Harness Side
APPVREF1 - Pin 1	APP1 - Pin 2
APPVREF2 - Pin 6	APP2 - Pin 5

- Access the PCM and monitor the APP1__APP_D_ (PER) and APP2__APP_E_ (PER) PIDs.

Are the percentages greater than 95%?

Yes	For DTC P060D, GO to AG10 . For all others, INSTALL a new APP sensor. REFER to the Workshop Manual Section 310-02, Acceleration Control. Clear the PCM DTCs. REPEAT the self-test.
No	GO to AG11 .

AG10 CHECK THE PCM FOR THE LATEST CALIBRATION

- Ignition OFF.
- APP Sensor connector connected.
- Program the PCM to the latest calibration. Refer to Section 2, [Flash Electrically Erasable Programmable Read Only Memory \(EEPROM\)](#), for PCM reprogramming.
- Ignition ON, engine running.
- Increase the engine speed to 2,000 RPM for 5 seconds.
- Carry out the PCM self-test.

Is DTC P060D present?

Yes	GO to AG11 .
No	The system is operating correctly at this time.

AG11 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.

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

Is the concern still present?

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