

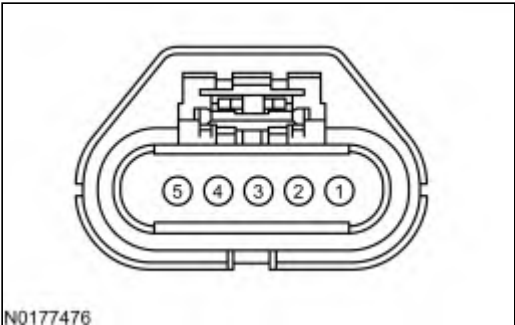
KD: Electric Exhaust Gas Recirculation (EGR)

This pinpoint test is intended to diagnose the following:

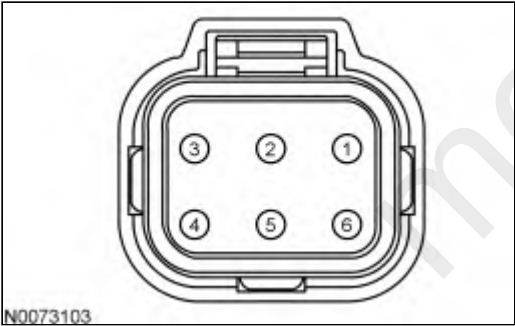
- electric EGR stepper motor (9D475)
- harness circuits: EGRMC1, EGRMC2, EGRMC3, EGRMC4, EGRVCH, EGRVCL, EGRVP, SIGRTN, VPWR and VREF
- PCM (12A650)

Electric Exhaust Gas Recirculation (EEGR) Assembly Connector

A



B



Vehicle	Connector	Pin	Circuit
Corsair 2.5L, Escape/Kuga 2.5L, F-150 2.7L	A	2	EGRVP
		1	SIGRTN
		3	VREF
		4	EGRVCL
		5	EGRVCH
Explorer 3.3L, F-150 3.3L, Transit	A	4	EGRVP
		5	SIGRTN
		3	VREF
		1	EGRVCL
		2	EGRVCH

Vehicle	Connector	Pin	Circuit
Fusion, Transit Connect	B	6 4 3 1 2, 5	EGRMC4 EGRMC3 EGRMC2 EGRMC1 VPWR
All other vehicles	A	3 2 4 1 5	EGRVP SIGRTN VREF EGRVCL EGRVCH

Powertrain Control Module (PCM) Connector

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

Vehicle	Connector	Pin	Circuit
Corsair 2.5L, Escape/Kuga 2.5L	198 PIN	E31 E47 E46	EGRVP EGRVCL EGRVCH
Explorer 3.3L, F-150, Transit	306 PIN	E49 E19 E40	EGRVP EGRVCL EGRVCH
Fusion, Transit Connect 2.5L	198 PIN	E31 E46 E47 E48	EGRMC4 EGRMC3 EGRMC2 EGRMC1
Transit Connect 2.0L	198 PIN	E2 E18 E4 E8	EGRMC4 EGRMC3 EGRMC2 EGRMC1
All other vehicles	198 PIN	E36 E48 E49	EGRVP EGRVCL EGRVCH

KD1 CHECK FOR DTCS

Are DTCS P0400, P0403, P0404, P0405, P0406, P042E, P042F, P046D, P04FA or P1408 present?

Yes	For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus and Ranger with DTC P1408, GO to KD10 . For all others with DTC P1408, GO to KD9 . For DTCS P0405, P0406 or P046D, GO to KD11 . For all others, GO to KD2 .
No	For symptoms without DTCS, GO to KD2 .

For all others, RETURN to Section 3, Symptom Charts for further direction.
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KD2 CHECK THE EEGR CONNECTOR

Note: If the DTC is intermittent, wiggle the harness and connectors when taking measurements.

- Check the connection of the EEGR connector.

Are the connector contacts clean and correctly seated?

Yes	For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus and Ranger, GO to KD4 . For all others, GO to KD3 .
No	REPAIR as necessary. Clear the PCM DTCs. REPEAT the self-test.

KD3 CHECK THE EGR CIRCUITS FOR AN OPEN

- Ignition ON, engine OFF.
- EEGR Assembly connector disconnected.
- Measure the voltage between:

(+) EEGR Assembly Connector, Harness Side	(-) Vehicle Battery
VPWR	Negative terminal

Is the voltage greater than 10.5 V?

Yes	GO to KD4 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KD4 CHECK THE EGR CIRCUITS FOR AN OPEN

- Ignition OFF.
- EEGR Assembly connector disconnected.
- PCM connector disconnected.
- For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus, Ranger and Transit,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) PCM Connector, Harness Side
EGRVCH	EGRVCH
EGRVCL	EGRVCL

- For all others,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) PCM Connector, Harness Side
EGRMC1	EGRMC1
EGRMC2	EGRMC2
EGRMC3	EGRMC3
EGRMC4	EGRMC4

Are the resistances less than 5 ohms?

Yes	GO to KD5 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KD5 CHECK THE EGR CIRCUITS FOR A SHORT TO GROUND

- For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus, Ranger and Transit,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) Vehicle Battery
EGRVCH	Negative terminal
EGRVCL	Negative terminal

- For all others,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) Vehicle Battery
EGRMC1	Negative terminal
EGRMC2	Negative terminal
EGRMC3	Negative terminal
EGRMC4	Negative terminal

Are the resistances greater than 10K ohms?

Yes	GO to KD6 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KD6 CHECK FOR A SHORT BETWEEN EGR CIRCUITS

- For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus, Ranger and Transit,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) EEGR Assembly Connector, Harness Side
EGRVCH	EGRVCL

- For all others,
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) EEGR Assembly Connector, Harness Side
EGRMC3	EGRMC1
EGRMC3	EGRMC2
EGRMC3	EGRMC4

(+) EEGR Assembly Connector, Harness Side	(-) EEGR Assembly Connector, Harness Side
EGRMC1	EGRMC2
EGRMC1	EGRMC4
EGRMC2	EGRMC4

Are the resistances greater than 10K ohms?

Yes	GO to KD7 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KD7 CHECK THE EGR CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition ON, engine OFF.
- For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus, Ranger and Transit,
- Measure the voltage between:

(+) EEGR Assembly Connector, Harness Side	(-) Vehicle Battery
EGRVCH	Negative terminal
EGRVCL	Negative terminal

- For all others,
- Measure the voltage between:

(+) EEGR Assembly Connector, Harness Side	(-) Vehicle Battery
EGRMC1	Negative terminal
EGRMC2	Negative terminal
EGRMC3	Negative terminal
EGRMC4	Negative terminal

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to KD8 .

KD8 CHECK THE EGR COILS FOR AN OPEN

- Ignition OFF.
- For Corsair, Edge, Escape/Kuga, Explorer, F-150, Nautilus, Ranger and Transit,
- Measure the resistance between:

(+) EEGR Assembly Connector, Component Side	(-) EEGR Assembly Connector, Component Side
EGRVCH	EGRVCL

- For all others,

- Measure the resistance between:

(+) EEGR Assembly Connector, Component Side	(-) EEGR Assembly Connector, Component Side
EGRMC1	VPWR
EGRMC2	VPWR
EGRMC3	VPWR
EGRMC4	VPWR

Are the resistances between 12 - 24 ohms (Fusion and Transit Connect) or between 2.4 - 2.8 ohms (all others)?

Yes	GO to KD15 .
No	INSTALL a new EEGR assembly. REFER to the Workshop Manual Section 303-08, Engine Emission Control. Clear the PCM DTCs. REPEAT the self-test.

KD9 CHECK THE MAP SENSOR OPERATION

- Ignition ON, engine OFF.
- Access the PCM and monitor the MAP (PRESS) PID.
- Record the MAP PID value.
- Ignition ON, engine running.
- Record the MAP PID value.

Is the MAP PID value higher than 69 kPa (10 psi) with the ignition ON, engine OFF and lower than 69 kPa (10 psi) with the ignition ON, engine RUNNING?

Yes	The concern is not present at this time. Make sure the MAP sensor is correctly seated and the vacuum source is not restricted. Clear the PCM DTCs. REPEAT the self-test.
No	GO to KD10 .

KD10 CARRY OUT THE KOER SELF-TEST

- Carry out the PCM KOER self-test.

Is DTC P1408 retrieved again?

Yes	GO to Pinpoint Test Z .
No	REFER to Section 3, Symptom Charts, No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index , to continue diagnosis.

KD11 CHECK THE VREF AND SIGRTN CIRCUITS FOR AN OPEN

- Ignition OFF.
- EEGR Assembly connector disconnected.
- Ignition ON, engine OFF.
- Measure the voltage between:

(+) EEGR Assembly Connector, Harness Side	(-) EEGR Assembly Connector, Harness Side
VREF	SIGRTN

Is the voltage between 4.5 - 5.5 V?

Yes	GO to KD12 .
No	GO to Pinpoint Test C .

KD12 CHECK THE EGRVP CIRCUIT FOR AN OPEN

- PCM connector disconnected.
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-) PCM Connector, Harness Side
EGRVP	EGRVP

Is the resistance less than 5 ohms?

Yes	GO to KD13 .
No	REPAIR the open circuit. Clear the PCM DTCs. REPEAT the self-test.

KD13 CHECK THE EGRVP CIRCUIT FOR A SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between:

(+) EEGR Assembly Connector, Harness Side	(-)
EGRVP	Ground

Is the resistance greater than 10K ohms?

Yes	GO to KD14 .
No	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.

KD14 CHECK THE EGRVP CIRCUIT FOR A SHORT TO VOLTAGE

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

(+) EEGR Assembly Connector, Harness Side	(-)
EGRVP	Ground

Is any voltage present?

Yes	REPAIR the short circuit. Clear the PCM DTCs. REPEAT the self-test.
No	GO to KD15 .

KD15 CHECK FOR CORRECT OPERATION

- EEGR Assembly connector connected.
- PCM connector connected.
- Carry out the PCM self-test.
- Verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new EEGR assembly. REFER to the Workshop Manual Section 303-08, Engine Emission Control. Clear the PCM DTCs. REPEAT the self-test.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

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