

C: Reference Voltage (VREF) Introduction

[C: Pinpoint Tests](#) ➔

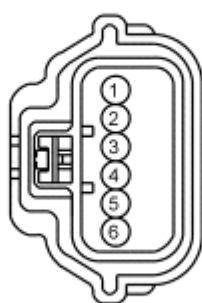
WARNING: CROWN VICTORIA POLICE INTERCEPTOR VEHICLES EQUIPPED WITH FIRE SUPPRESSION SYSTEM, REFER TO SECTION 419-03 FOR IMPORTANT SAFETY WARNINGS. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN PERSONAL INJURY.

This pinpoint test is intended to diagnose the following:

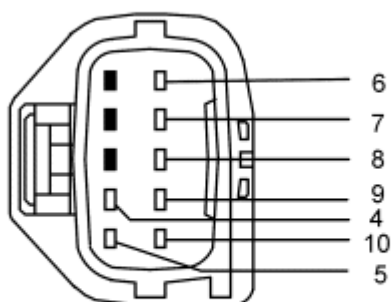
- harness circuits: ETCREF, ETCRTN, SIGRTN and VREF
- accelerator pedal position (APP) sensor (9F836)
- air conditioning pressure (ACP) transducer sensor (19D594)
- differential pressure feedback exhaust gas recirculation (EGR) sensor (9J460)
- EGR system module (ESM) (9Y456)
- fuel rail pressure temperature (FRPT) sensor (9G756)
- fuel tank pressure (FTP) sensor (9C052)
- manifold absolute pressure (MAP) sensor (9F479)
- power steering pressure (PSP) sensor (3N824)
- throttle position (TP) sensor (9B989)
- powertrain control module (PCM) (12A650)

Accelerator Pedal Position (APP) Sensor Connector

A

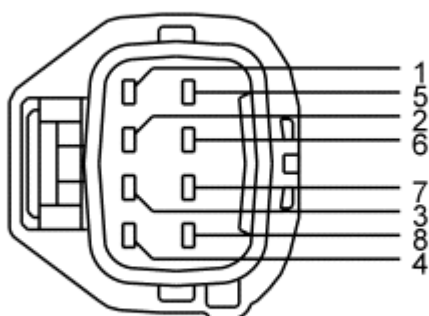


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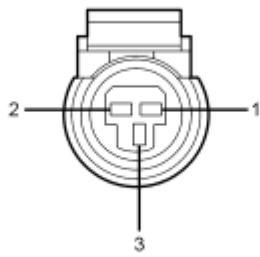


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Vehicle	Connector	Pin	Circuit
E-Series 4.6L, E-Series 5.4L, Escape/Mariner, Expedition, F-150, Focus, Navigator	A	4	ETCRTN3
		3	
		6	ETCRTN2
		1	ETCREF3
Fusion, Milan, MKZ	B		ETCREF2
Fusion, Milan, MKZ	B	6, 9	ETCRTN
		10, 8	ETCREF
All other vehicles	C		
All other vehicles	C	1, 3	ETCRTN
		6, 7	ETCREF

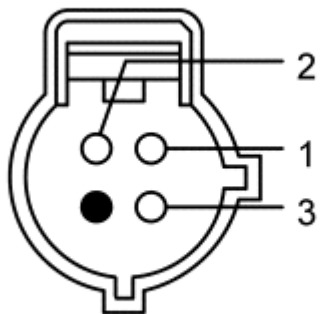
Air Conditioning Pressure (ACP) Transducer Sensor Connector

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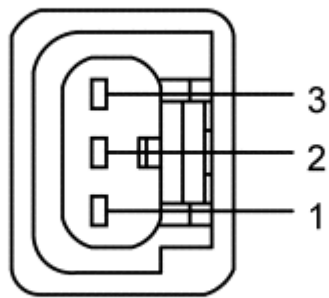
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Vehicle	Connector	Pin	Circuit
Edge, Fusion, Milan, MKX, MKZ	A	1 2	SIGRTN VREF
All other vehicles	B	1 2	SIGRTN VREF

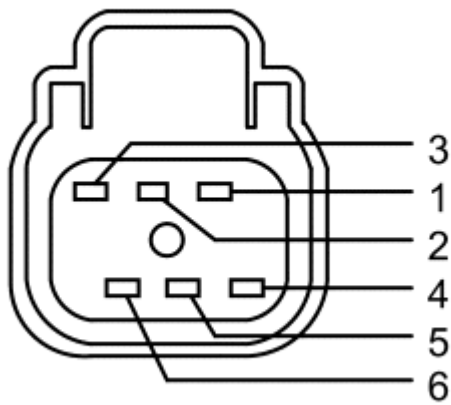
Differential Pressure Feedback EGR Sensor Connector



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Pin	Circuit
1	VREF (Reference Voltage)
2	SIGRTN (Signal Return)

EGR System Module (ESM) Connector

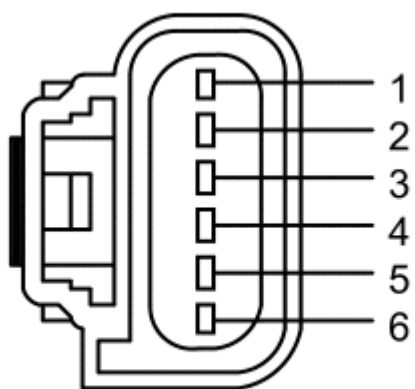


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Pin	Circuit
6	SIGRTN (Signal Return)
2	VREF (Reference Voltage)

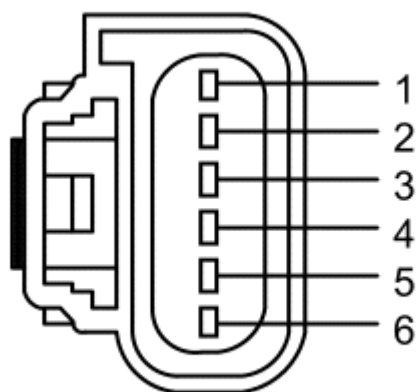
Electronic Throttle Body Throttle Position Sensor (ETBTPS) Connector

A



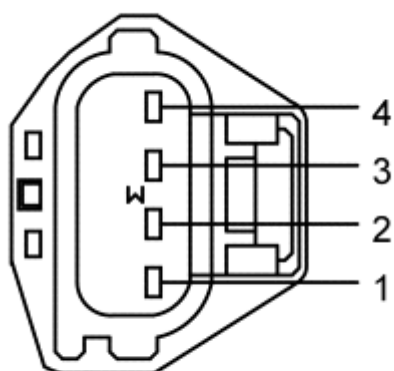
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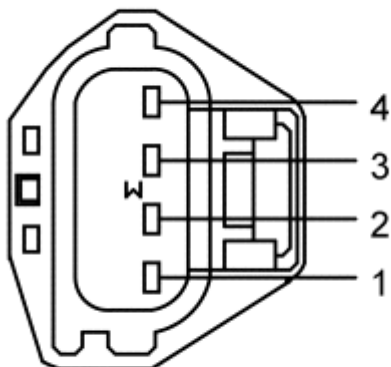


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Vehicle	Connector	Pin	Circuit
E-Series 4.6L, Edge, F-150 2V 4.6L, Flex, Focus, MKS, MKX, MKZ, Sable, Taurus, Taurus X	A	2 3	ETCRTN ETCREF
Escape/Mariner, F-150 3V 4.6L, Fusion 3.0L, Milan 3.0L	B	4 5	ETCRTN ETCREF
Fusion 2.3L, Milan 2.3L	B	3 5	ETCRTN ETCREF
All other vehicles	C	3 2	ETCRTN ETCREF

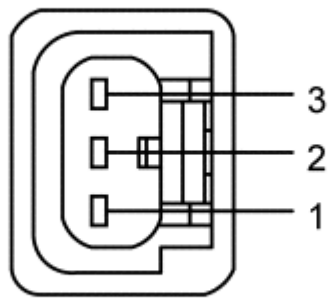
Fuel Rail Pressure Temperature (FRPT) Sensor Connector



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Pin	Circuit
2	VREF (Reference Voltage)
4	SIGRTN (Signal Return)

Fuel Tank Pressure (FTP) Sensor Connector

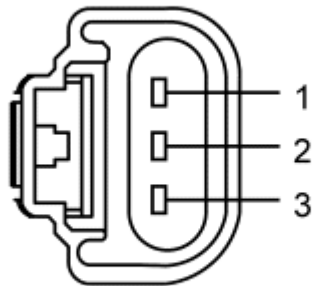


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Pin	Circuit
1	VREF (Reference Voltage)
2	SIGRTN (Signal Return)

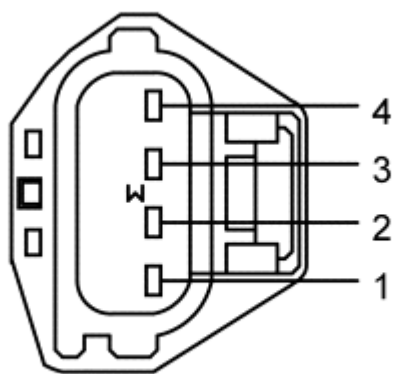
Manifold Absolute Pressure (MAP) Sensor Connector

A



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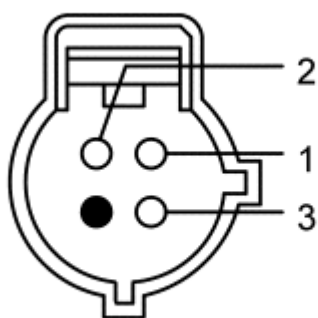
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Vehicle	Connector	Pin	Circuit
Escape/Mariner 3.0L, Fusion 3.0L, Milan 3.0L	A	2 3	SIGRTN VREF
All other vehicles	B	4 2	SIGRTN VREF

Power Steering Pressure (PSP) Sensor Connector

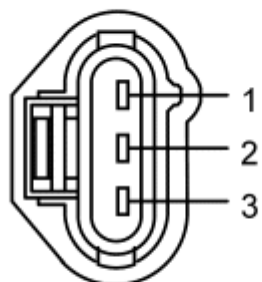


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Pin	Circuit
2	VREF (Reference Voltage)
1	SIGRTN (Signal Return)

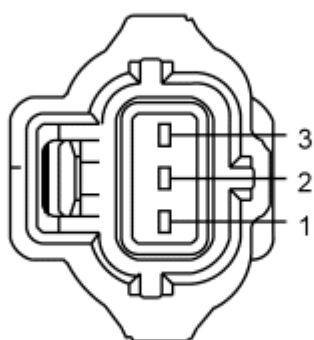
Throttle Position (TP) Sensor Connector

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Vehicle	Connector	Pin	Circuit
Ranger 4.0L	A	1 3	VREF SIGRTN
Ranger 2.3L	B	3 1	VREF SIGRTN

Powertrain Control Module (PCM) Connector

For PCM connector views or reference values, refer to [Section 6](#).

Vehicle	Connector	Pin	Circuit
Crown Victoria	170 Pin	B35, B36 B41, E58, T41	VPWR SIGRTN

		B43, B6, E59 E57 B24, B4, E66	ETCRTN VREF ETCREF
E-Series 4.6L	190-Pin	B67, B68 B58, E64 B60 B44 E60 E63 B61 B45 E59	VPWR SIGRTN ETCRTN3 ETCRTN2 ETCRTN VREF ETCREF3 ETCREF2 ETCREF
E-Series 6.8L	170 Pin	B35, B36 B41, E58, T41 B18, B6, E59 E57 B16, B4, E66	VPWR SIGRTN ETCRTN VREF ETCREF
E-Series 5.4L, Expedition, F-150 3V 4.6L, F-150 5.4L, Navigator	190-Pin	B67, B68 B58, E64 B60 B44 E60 B52, E63 B61 B45 E59	VPWR SIGRTN ETCRTN3 ETCRTN2 ETCRTN VREF ETCREF3 ETCREF2 ETCREF
Escape/Mariner	190-Pin	B67, B68 B56, E49, T41 B60 B44 E61 B52, E35 B61 B45 E57	VPWR SIGRTN ETCRTN3 ETCRTN2 ETCRTN VREF ETCREF3 ETCREF2 ETCREF
Explorer, Explorer Sport Trac, Grand Marquis, Mountaineer, Town Car	170 Pin	B35, B36 B41, E58, T41 B43, B6, E59 B40, E57 B24, B4, E66	VPWR SIGRTN ETCRTN VREF ETCREF
F-150 2V 4.6L	190-Pin	B67, B68 B58, E64, T43 B60 B44 E60 B52, E63 B61	VPWR SIGRTN ETCRTN3 ETCRTN2 ETCRTN VREF

		B45 E59	ETCREF3 ETCREF2 ETCREF
F-Super Duty	170 Pin	B35, B36 B41, E58, T41 B18, B6, E59 B40, E57 B16, B4, E66	VPWR SIGRTN ETCRTN VREF ETCREF
Focus	190-Pin	B67, B68 B58, E64, T40 B60 B44 E60 B52, B66, E63 B61 B45 E59	VPWR SIGRTN ETCRTN3 ETCRTN2 ETCRTN VREF ETCREF3 ETCREF2 ETCREF
Fusion, Milan, MKZ	140 Pin	B51, B52 B58, E58 B59, B60, E59 B33, E57 B21, B28, E66	VPWR SIGRTN ETCRTN VREF ETCREF
Mustang	170 Pin	B35, B36 B41, E58, T41 B41, B6, E59 B40, E57 B24, B4, E66	VPWR SIGRTN ETCRTN VREF ETCREF
Ranger	170 Pin	B35, B36 B41, E58, T41 B40, E57	VPWR SIGRTN VREF
All other vehicles	190-Pin	B51, B52, B53 B58, E58 B59, B65, E59 B29, B64 B21, B28, E66	VPWR SIGRTN ETCRTN VREF ETCREF

SENSORS CONNECTED TO VREF/ETCREF

Applications	TP or ETC	APP	Differential Pressure Feedback EGR or ESM	FTP	ACP	PSPT	FRPT	MAP
Crown Victoria/Grand Marquis/Town Car/Mustang - 4.0L	ETC	X	X	X	X		X	
Edge/MKX/Flex/MKS/Sable/Taurus/Taurus X	ETC	X		X	X			
Escape/Mariner	ETC	X		X				X
E-Series - 4.6L/E-Series - 5.4L	ETC	X	X	X				

E-Series - 6.8L/Expedition/Navigator	ETC	X		X				
Explorer/Explorer Sport Trac/Mountaineer/Mustang - 5.4L	ETC	X	X	X			X	
F-150 - 4.6L 2V	ETC	X	X	X		X		
F-150 - 4.6L 3V/5.4L	ETC	X		X		X		
F-Super Duty	ETC	X		X			X	
Focus	ETC	X		X		X		X
Fusion/Milan/MKZ	ETC	X		X	X			X
Mustang - 4.6L	ETC	X		X			X	
Ranger - 2.3L	TP			X				X
Ranger - 4.0L	TP		X	X				

Note:

- ETCREF and ETCRTN are internally bussed within the PCM and are dedicated circuits for the APP sensor and the electronic throttle body TP sensor only. Refer to the Wiring Diagrams Manual Electronic Engine Controls Cell for schematic and connector information.

[C: Pinpoint Tests](#) ➔
