

Step 3: No DTCs Present Symptom Charts

Chart 1

- Starting Concerns: Stall After Start
- Stalls/Quits: Idle, Acceleration, Cruise
- Runs Rough
- Misses
- Buck/Jerk
- Hesitation/Stumble
- Surge
- Unique Idle concerns: Rolling Idle

Note: For stalls on passenger car applications, the engine may stall if left running while refueling. Advise the customer to turn the engine off while refueling to avoid contamination or damage to the EVAP system.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
<p>Check the following PIDs:</p> <ul style="list-style-type: none"> ▪ DPFEGR (if equipped) (hot idle value within 0.15 volt of KOEO value) ▪ LONGFT1/LONGFT2 (value between -20 and +20%) ▪ VPWR (value between 10.5 and 17.0 volts, and within 0.5 volt of battery voltage) 	<p>DPFEGR PID value not within 0.15 volt of KOEO value:</p> <ul style="list-style-type: none"> • For vehicles equipped with ESM EGR: GO to HH27. • All others: GO to HE57. <p>LONGFT1/LONGFT2 value low (-): Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich.</p> <p>LONGFT1/LONGFT2 value high (+): Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean.</p> <p>VPWR not between 10.5 and 17.0 volts: REFER to the Workshop Manual Section 414-00 Charging System - General Information.</p> <p>VPWR between 10.5 and 17.0 volts, but not within 0.5 volt of battery voltage: CHECK B+ supply to PCM power relay. CHECK VPWR circuit between PCM and PCM power relay. CHECK PWR GND circuits.</p>
<p>For vehicles that run rough at idle:</p>	<p>INJxF PID(s) indicate a fault (an injector circuit fault is indicated):</p>

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
<p>With the key ON engine running, check the INJxF PIDs (the "x" indicates the injector number; there will be one INJxF PID for each engine cylinder). All INJxF PIDs must indicate no fault (or NO).</p>	<p>Ford GT: GO to HL3. All others: GO to H40.</p>
<p>Mass Air Flow (MAF) Sensor</p>	<p>GO to DC26.</p>
<p>Secondary Ignition System</p>	<p>For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC. For all others, GO to Pinpoint Test JB.</p>
<p>Fuel Delivery System</p>	<p>GO to Pinpoint Test HC.</p>
<p>Exhaust System</p>	<p>GO to HF8.</p>
<p>PCV System</p>	<p>GO to Pinpoint Test HG.</p>
<p>EVAP System</p>	<p>GO to HX14.</p>
<p>Automatic Transmission</p>	<p>REFER to the Workshop Manual Section 307-01 Automatic Transmission/Transaxle.</p>
<p>Base Engine</p>	<p>REFER to the Workshop Manual Section 303-01 Engine.</p>
<p>Intake Air System</p>	<p>For vehicles with electronic throttle control (ETC), GO to HU66. For all others, GO to HU1.</p>
<p>Applications with A/C pressure sensor (3-wire sensor): A/C pressure (ACP) sensor input to PCM</p>	<p>GO to DS18 .</p>
<p>Additional Testing</p>	<p>GO to Pinpoint Test Z.</p>

SYSTEM/COMPONENT

REFERENCE (Section 5 Pinpoint Test unless noted)

Additional Checks:

Note: *Some applications have a PID that indicates whether the PCM is reducing torque (TQ_CNTL) (#095Eb0), and if so, why the torque is being reduced (#095Eb1-13) (0 equals No torque reduction requested; 1 equals Torque Truncation. Cuts fuel to protect when line pressure falls to minimum limit; 2 equals Traction Control Event. Cuts fuel/spark for traction control; 3 equals Vehicle Speed Limit. Cuts fuel).*

- Correct the PCM vehicle identification (VID) block information (refer to Section 2, [Flash Electrically Erasable Programmable Read Only Memory \(EEPROM\)](#)).
- Be aware of engine RPM/speed limiting functions of the PCM (look for incorrect high vehicle speed signal from ABS, VSS, or OSS).
- Verify the fuel cap is properly tightened and not physically damaged.
- Drivelines
- Manual transmission/clutch
- Charging system
- Traction control system (if equipped)
- A/C system (for surge with A/C on)
- Speed control system (for surge with speed control on)
- A/C compressor diode, if equipped (for rolling idle)

REFER to the applicable Workshop Manual section.

Chart 2

- Starting Concerns: Hard Start/Long Crank/Erratic Start/Erratic Crank

SYSTEM/COMPONENT

REFERENCE (Section 5 Pinpoint Test unless noted)

Battery Condition and Current Draw

Visual. REFER to the Workshop Manual Section 414-00 Charging System - General Information.

Secondary Ignition System

For vehicles equipped with a coil pack ignition system, [GO to Pinpoint Test JC](#).
For all others, [GO to Pinpoint Test JB](#).

Fuel Delivery System

[GO to Pinpoint Test HC](#).

Exhaust System

GO to [HF8](#).

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
PCV System	GO to Pinpoint Test HG.
EVAP System	GO to HX14.
Intake Air System	For vehicles with electronic throttle control (ETC), GO to HU66. For all others, GO to HU1.
Starting System	REFER to the Workshop Manual Section 303-06 Starting System.
Mass Air Flow (MAF) Sensor	GO to DC26.
Additional Testing	GO to Pinpoint Test Z.
Additional Checks: <ul style="list-style-type: none"> ▪ For applications with two camshaft position (CMP) sensors, verify the CMP1 and CMP2 circuits are not shorted together. 	Visual

Chart 3

- Starting Concerns: No Start (Engine Cranks)

Note: *Extended cranking because of a no start can load the exhaust system with raw fuel, damaging the catalytic converter after the engine starts. For applications with secondary air injection (AIR) systems, carry out the following after the no start has been repaired: Disconnect the electric AIR pump relay, run the engine until the surplus fuel is used up, and reconnect the relay (disconnecting the relay may set a continuous memory PCM DTC that needs to be cleared).*

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Add-on Anti-Theft Devices	Visual. CHECK with the customer.
Fuel/Ignition	LS and Thunderbird: GO to KB53. All others:

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
	GO to Pinpoint Test A.
Applications without electronic throttle control - If the engine will start at part throttle: If the engine will not start at closed throttle, but will start and run normally at part throttle, check the idle air control (IAC) system.	The engine will now start and run normally at part throttle: GO to Pinpoint Test KE.
Exhaust System (restrictions)	GO to HF8.
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Additional Testing	GO to Pinpoint Test Z.

Chart 4

- Unique Idle Concerns: Slow Return To Idle

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Vacuum Leaks, Throttle Body	Visual.
PCV System	GO to Pinpoint Test HG.
Applications without electronic throttle control: Intake Air System (air leaks)	GO to Pinpoint Test HU.

Chart 5

- Unique Idle Concerns: Fast Idle
- Diesels/Runs On

Note: If the vehicle runs normally after the ignition key is turned OFF, check for a damaged ignition switch, an IGN RUN circuit short to power, a VPWR circuit short to power, etc. Refer to the applicable Wiring Diagrams or Workshop manuals.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
<p>Base engine air leaks, including proper sealing of intake manifold and components/vacuum lines attached to intake air (such as the PCV, EGR or IAC valve/vacuum lines).</p>	<p>Visual. REFER to the Workshop Manual Section 303-01 Engine.</p>
<p>Verify the engine operates at normal temperature.</p>	<p>Visual. REFER to the Workshop Manual Section 303-03 Engine Cooling or the Symptom Index, to diagnose any cooling system concerns that are present.</p>
<p>Fast idle concerns: (applications without electronic throttle control) KOEO, monitor the TP MODE PID while wiggling the TP sensor circuits. The TP MODE PID can also be monitored during vehicle drive. With the throttle closed, the TP MODE PID must be C/T (closed throttle).</p>	<p>TP Mode PID is not C/T with the throttle closed:</p> <p>Note: At vehicle start, the TPREL begins at about 1.25 volts, and counts down to the lowest TP V value seen since engine start. If the TP V value goes below the "normal" range, then increases again, TPREL sets to the lower voltage. If TP V is about 0.04 volts greater than the TPREL value at closed throttle, the PCM goes into part throttle mode.</p> <p>Monitor the TP V and TPREL PIDs for sudden changes while checking for intermittent TP circuit/connector concerns. Also check for loose/worn throttle plates. If no concern is found, GO to Pinpoint Test Z.</p>
<p>Applications without electronic throttle control: Intake Air System (air leaks)</p>	<p>GO to Pinpoint Test HU.</p>
<p>Additional Testing</p>	<p>GO to Pinpoint Test Z.</p>

Chart 6

- Unique Idle Concerns: Low/Slow Idle
- Stalls/Quits: Deceleration

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Verify the fuel filler cap is properly tightened.	Visual
For A/T with stalls/quits on deceleration: Transmission	REFER to the Workshop Manual Section 307-01 Automatic Transmission/Transaxle (Diagnosis by Symptom: Torque Converter Operation Concerns).
Fuel Delivery System	GO to Pinpoint Test HC.
Intake Air System	For vehicles with electronic throttle control (ETC), GO to HU66 . For all others, GO to HU1 .
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Additional Testing	GO to Pinpoint Test Z.

Chart 7

- Backfires

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Secondary Ignition	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, GO to Pinpoint Test JB .
Fuel Delivery System	GO to Pinpoint Test HC.
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Exhaust System	GO to HF8 .

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Additional Testing	GO to Pinpoint Test Z.

Chart 8

- Lack/Loss of Power

Note: Verify the symptom is reported under normal driving conditions without excessive engine/vehicle load. Also, be aware of the engine RPM/speed limiting functions of the PCM.

Note: For applications with a knock sensor (KS), a lack of power may result when the vehicle is operated with a breakout box installed at the PCM. The KS circuits are not shielded in the breakout box, and KS signal noise may be noticed by the PCM. If this happens, spark timing will be retarded and a lack of power may result.

Note: For applications with a knock sensor, a lack of power may result if the engine has developed an abnormal noise. The knock sensors may interpret some abnormal noise as detonation and retard spark timing.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
<ul style="list-style-type: none"> ▪ Automatic Transmission Fluid ▪ Throttle Linkage ▪ Air cleaner element 	Visual
<p>Check the following PIDS:</p> <ul style="list-style-type: none"> ▪ DPFEGR (if equipped) (hot idle value within 0.15 volt of KOEO value) ▪ LONGFT1/LONGFT2 (value between -20 and +20%) ▪ For vehicles equipped with IMTV: IMTVF for both KOEO and KOER, with the transmission in PARK/NEUTRAL and the engine RPM greater than 3,000 RPM, the PID should indicate no fault (or NO) in both situations. 	<p>DPFEGR PID value not within 0.15 volt of KOEO value:</p> <ul style="list-style-type: none"> • For vehicles equipped with ESM EGR: GO to HH27. • All others: GO to HE57. <p>LONGFT1/LONGFT2 value low (-): Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich.</p> <p>LONGFT1/LONGFT2 value high (+): Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean.</p> <p>IMTVF PID indicates a fault: GO to HU41.</p>
Fuel Delivery System	GO to Pinpoint Test HC.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Secondary Ignition	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, GO to Pinpoint Test JB .
Mass Air Flow (MAF) Sensor	GO to DC26 .
Exhaust System	GO to HF8 .
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Automatic Transmission	REFER to the Workshop Manual Section 307-01 Automatic Transmission/Transaxle.
Brake System (brake drag or binding)	REFER to the Workshop Manual Section 206-00 Brake System - General Information.
Supercharged applications: Supercharger Bypass System	GO to KJ11 .
Additional Testing	GO to Pinpoint Test Z .
<p>Additional Checks:</p> <p>Note: <i>Some applications have a PID that indicates whether the PCM is reducing torque (TQ_CNTL) (#095E b0), and if so, why the torque is being reduced (#095Eb1-13) (0 equals No torque reduction requested; 1 equals Torque Truncation. Cuts fuel to protect when the line pressure falls to a minimum limit; 2 equals Traction Control Event. Cuts fuel/spark for traction control; 3 equals Vehicle Speed Limit. Cuts fuel).</i></p> <ul style="list-style-type: none"> ▪ Customer driving habits ▪ Correct PCM vehicle identification (VID) block information. REFER to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM). ▪ IMRC linkage (if equipped) ▪ Clutch (M/T) ▪ Charging system 	Visual. REFER to the applicable Workshop Manual section.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
<ul style="list-style-type: none"> ▪ Engine RPM/speed limiting functions of the PCM (look for incorrect high vehicle speed signal from ABS, VSS, or OSS) 	

Chart 9

- Spark Knock

Note: Carbon build up in the combustion chamber and on the back of valves can be a contributing factor for engine spark knock concerns. Remove carbon deposits prior to any component replacements.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Verify the engine operates at normal temperature	Visual. REFER to the Workshop Manual Section 303-03 Engine Cooling or the Symptom Index to diagnose any cooling system concerns that are present.
Verify correct coolant level and coolant concentration	REFER to the Workshop Manual Section 303-03 Engine Cooling for proper coolant concentrations and fill procedures.
Mass Air Flow (MAF) Sensor	GO to DC26 .
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Fuel Delivery System	GO to Pinpoint Test HC .
Secondary Ignition System	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, GO to Pinpoint Test JB .
PCV System	GO to Pinpoint Test HG .
Engine Oil Quality	Visual

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Additional Testing	GO to Pinpoint Test Z.
Verify the correct alignment of the camshaft position (CMP) sensor and the camshaft synchronizer	REFER to the Workshop Manual Section 303-14, Engine Electronic Controls, Removal and Installation, Camshaft Synchronizer procedure.

Chart 10

- Poor Fuel Economy

Note: Since driving styles can have a significant influence on fuel economy, verify the concern before starting an in-depth diagnosis. Also, the following external factors could contribute to poor fuel economy conditions:

- Stop and go driving
- Improper tire pressure and size
- Vehicle loads (such as trailer towing)
- Extended winter warm-up conditions
- High speed driving

- Improper axle ratio
- Road/weather conditions
- Aftermarket add-ons
- Short run operations
- Customer expectations

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Transmission Fluid Level	Visual
<p>Check the following PIDs:</p> <ul style="list-style-type: none"> ▪ DPFEGR (if equipped) (hot idle value within 0.15 volt of KOEO value) ▪ LONGFT1/LONGFT2 (value between -20 and +20%) ▪ VPWR (value between 10.5 and 17.0 volts, and within 0.5 volt of battery voltage) 	<p>DPFEGR PID value not within 0.15 volt of KOEO value:</p> <ul style="list-style-type: none"> • For vehicles equipped with ESM EGR: GO to HH27. • All others: GO to HE57. <p>LONGFT1/LONGFT2 value low (-): Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich.</p> <p>LONGFT1/LONGFT2 value high (+): Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean.</p> <p>VPWR not between 10.5 and 17.0 volts:</p>

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
	REFER to the Workshop Manual Section 414-00 Battery and Charging System. VPWR between 10.5 and 17.0 volts, but not within 0.5 volt of battery voltage: CHECK the B+ supply to the PCM power relay. CHECK the VPWR circuit between the PCM and the PCM power relay. CHECK PWR GND circuits.
Verify the engine operates at normal temperature.	Visual. REFER to the Workshop Manual Section 303-03 Engine Cooling or the Symptom Index, to diagnose any cooling system concerns that are present.
Secondary Ignition System	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, GO to Pinpoint Test JB .
Fuel System	GO to Pinpoint Test HC .
Exhaust System	GO to HF8 .
Automatic Transmission	REFER to the Workshop Manual Section 307-01 Automatic Transmission/Transaxle.
PCV System	GO to Pinpoint Test HG .
Additional Checks: <ul style="list-style-type: none"> ▪ Correct PCM vehicle identification (VID) block information. Refer to Section 2, Flash Electrically Erasable Programmable Read Only Memory (EEPROM). ▪ Brake drag ▪ Base engine concerns ▪ Incorrect PCV valve ▪ Contaminated MAF sensor ▪ Intake air system 	REFER to the applicable Workshop Manual section.
Additional Testing	GO to Pinpoint Test Z .

Chart 11

- Emissions Compliance

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Emissions Related Systems	GO to Pinpoint Test EM.

Chart 12

- Warning Indicators: PTO, MIL, TCIL, Temperature Warning Indicator Lamp or Gauge (applications with CHT sensor only), Check Fuel Cap Indicator Lamp, ETC Indicator Lamp
- PTO not working correctly

Note:

- *If the symptom is both a MIL on and exhaust emission test failure, GO directly to Chart 11.*
- *If the engine is a no start, GO directly to Chart 3.*
- *If the engine runs rough at idle, GO directly to Chart 1.*

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Verify the fuel filler cap is properly tightened.	Visual
Trucks with power take off (PTO) and MIL concern: PTO input to the PCM	E-Series and F-Series: GO to Pinpoint Test FB.
PTO Indicator never on, always on: PTO circuits	E-Series and F-Series: GO to FB6 .
PTO not working correctly: PTO operation	E-Series and F-Series: GO to Pinpoint Test FB.
MIL always on when the engine is running (no DTCs): MIL circuits	Crown Victoria/Grand Marquis, Explorer Sport Trac, and Ranger: GO to Pinpoint Test NB.

SYSTEM/COMPONENT	All others: REFERENCE (Section 5 Pinpoint Test unless noted)
	REFER to the Workshop Manual Section 413-01 Instrument Cluster.
TCIL always on when the engine is running (no DTCs): TCIL circuits	Crown Victoria/Grand Marquis, Excursion, Explorer Sport Trac, E-Series, and Ranger: GO to TB7 . All others: REFER to the Workshop Manual Section 413-01 Instrument Cluster.
MIL never on: (including the bulb check when the engine is first started): MIL circuits	Crown Victoria/Grand Marquis, Explorer Sport Trac, and Ranger: GO to NB3 . All others: REFER to the Workshop Manual Section 413-01 Instrument Cluster.
TCIL never on: TCIL circuits	Crown Victoria/Grand Marquis, Excursion, Explorer Sport Trac, and Ranger: GO to TB9 . All others: REFER to the Workshop Manual Section 413-01 Instrument Cluster.
Temperature warning indicator lamp or gauge concerns (applications with CHT sensor only): Engine cooling system or lamp circuits	If engine is overheating: REFER to the Workshop Manual Section 303-03 Engine Cooling. Be aware that since a PCM DTC was not received, the PCM has not attempted to turn the lamp on. If engine operates at normal temperature: GO to DL28 .
Check fuel cap indicator lamp always on or off: Check the fuel indicator lamp circuits	Crown Victoria/Grand Marquis, Explorer Sport Trac, and Ranger: Indicator Lamp Always On, GO to HX46 . Indicator Lamp Always Off, GO to HX47 . All others: REFER to the Workshop Manual Section 413-01 Instrument Cluster.
ETC indicator lamp never/always on: ETC indicator lamp circuits	REFER to the Workshop Manual Section 413-01 Instrument Cluster.
Additional Testing	GO to Pinpoint Test Z .

Chart 13

- Automatic Transmission (A/T) Shift Concerns: Upshift, Downshift, Engagement

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Transmission	REFER to the Workshop Manual Section 307-01 Automatic Transmission/Transaxle.
Additional Tests	GO to Pinpoint Test Z.

Chart 14

- Instrumentation: Tachometer Inoperative, Speedometer/Odometer Inoperative, Boost Gauge indicates higher than normal boost (supercharger applications), Fuel Gauge Inoperative

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Tachometer inoperative: Applications with CTO circuit from the PCM	GO to Pinpoint Test JH.
Speedometer/odometer inoperative:	<p>Applications with manual shift-on-the-fly (MSOF) transfer case using a transfer case speed sensor (TCSS): GO to DP16.</p> <p>Applications with manual transmissions using a vehicle speed sensor (VSS): GO to Pinpoint Test DP.</p> <p>Applications with manual transmissions using an output shaft speed (OSS) sensor: GO to Pinpoint Test TJ.</p>
Boost gauge indicates higher than normal boost: Supercharger bypass control Intercooler system	<p>Supercharger bypass control: GO to Pinpoint Test KJ.</p> <p>Intercooler system: GO to KP8.</p>
Fuel gauge inoperative: Fuel gauge always indicates full or empty.	<p>For vehicles with hardwired fuel level indicator (FLI) circuit input to PCM (Crown Victoria/Grand Marquis, Explorer Sport Trac, Ranger): GO to HX37.</p> <p>All others:</p>

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
	REFER to the Workshop Manual Section 413-01 Instrument Cluster.
Instrumentation	REFER to the Workshop Manual Section 413-01 Instrument Cluster.

Chart 15

- Oil System Concerns: High Oil Consumption, Leaks

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
PCV System	GO to Pinpoint Test HG.
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Additional Checks <ul style="list-style-type: none"> External leaks Proper dipstick Proper oil viscosity 	Visual

Chart 16

- Cooling System Concerns: Electric Cooling Fan(s) Does Not Operate (Low, Medium, High or Variable speed)

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Electric Cooling Fan Components	Crown Victoria/Grand Marquis, Five Hundred/Freestyle/Montego, LS, Thunderbird, and Town Car: GO to KN9 . All others: GO to KF56 .

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Cooling System	REFER to the Workshop Manual Section 303-03 Engine Cooling.

Chart 17

- Cooling System Concerns: Electric Cooling Fan(s) Always Runs

Note: *This chart is intended to only diagnose an electric cooling fan that always runs with a cool engine and the A/C and defroster off.*

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Cooling fan circuits and ACPSW or ACP circuits	<p>Crown Victoria/Grand Marquis, Five Hundred/Freestyle/Montego, LS, Thunderbird, and Town Car: VERIFY results of the Quick Test. Visually INSPECT the cooling fan for concerns.</p> <p>Mustang 4.0L, Freestar/Monterey and Aviator: GO to KF56.</p> <p>All others: GO to KF55.</p>
Cooling System	REFER to the Workshop Manual Section 303-03 Engine Cooling.

Chart 18

- Exhaust System Concerns: Visible Smoke

Note: *Black smoke indicates a rich fuel mixture, blue smoke indicates burning oil, and white smoke indicates water in the combustion chamber.*

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Base Engine	REFER to the Workshop Manual Section 303-01 Engine.
Black smoke: Fuel Delivery System	GO to Pinpoint Test HC.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Black smoke: Ignition System	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, GO to Pinpoint Test JB .
Blue smoke: PCV System	REFER to the Workshop Manual Section 303-00 Engine System - General Information for a description of the Oil Consumption Test.

Chart 19

- Fuel System Concerns: Odor, Engine Compartment

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
EVAP System	Visual.
Fuel System	Visual. GO to Pinpoint Test HC .

Chart 20

- Engine Noise (under hood)

Note: Attempt to identify the source of the noise. If the noise is from a source other than those listed below, refer to the Symptom Index (for noise such as spark knock) or the applicable Workshop Manual section.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Snap noise that may be due to secondary ignition arcing: Secondary Ignition System	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC . For all others, CHECK the condition of the spark plug boots.

Chart 21

- Climate Control: Lack of cooling, A/C not functioning, A/C always on, or A/C compressor runs continuously

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
A/C System	<p>If sent here from the Workshop Manual with WACF PID indicating a fault (or YES): GO to Section 4, Diagnostic Trouble Code (DTC) Charts and Descriptions and follow the directions for KOEO DTC P0645.</p> <p>All others: REFER to the Workshop Manual Section 412-00 Climate Control System - General Information.</p>

Chart 22

- Exhaust System Concerns: Odor (Sulfur or Rotten Egg Smell)

Note: A slight sulfur smell may be normal. Catalysts with less than 8,000-16,000 kilometers (5,000-10,000 miles), new vehicle or replaced catalyst, are likely to have a sulfur smell due to the highly active state of new catalysts. Replacing the catalyst can actually make the symptom worse.

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Check for any driveability or exhaust smoke symptoms.	REFER to Step 2: No DTC(s) Present Symptom Chart Index for direction to repair other symptoms.
Fuel Delivery System	GO to Pinpoint Test HC.
Fuel Source	Talk with the customer. Since sulfur content can vary in different fuels, suggest trying a different fuel source.

Chart 23

- Starting Concerns: No Crank

SYSTEM/COMPONENT	REFERENCE (Section 5 Pinpoint Test unless noted)
Add-on Anti-Theft Devices	Visual. CHECK with the customer.
Anti-Theft	REFER to the Workshop Manual Section 419-01 Anti-Theft.
Base Engine (Starting System)	REFER to the Workshop Manual Section 303-01 Engine.