Computers and Control Systems: Symptom Related Diagnostic Procedures
No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

Chart 1

— Stalls/Quits: Idle, Acceleration, Cruise, Stall After Start

— Runs Rough

— Misses

— Buck/Jerk

— Hesitation/Stumble

— Surge

— Unique Idle Concerns: Rolling Idle

Note: For some vehicle 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 evaporative emission (EVAP) system.

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Check the following parameter identifiers (PIDs): — DPFEGR (if equipped) (hot idle value within 0.15 volt of the key ON, engine OFF 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)	**DPFEGR PID value not within 0.15 volt of key ON, engine OFF value:** For vehicles equipped with an exhaust gas recirculation system module (ESM), GO to Pinpoint Test HH. For all others, GO to Pinpoint Test HE. **LONGFT1/LONGFT2 value low (-):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich. **LONGFT1/LONGFT2 value high (+):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean. **VPWR not between 10.5 and 17.0 volts:** REFER to Charging System and carry out the Inspection and Verification to continue diagnosis. **VPWR between 10.5 and 17.0 volts, but not within 0.5 volt of battery voltage:** CHECK the B+ voltage to the powertrain control module (PCM) power relay. CHECK the VPWR circuit between the PCM and the PCM power relay. CHECK the PWR GND circuits.
For vehicles that run rough at idle: Check the INJx__F PIDs (the "x" indicates the injector number) with the key ON, engine OFF. There is 1 INJx__F PID for each engine cylinder. All INJx__F PIDs must indicate no fault (or NO).	The INJx__F PID(s) indicate a fault (an injector circuit concern is indicated), GO to Pinpoint Test KG.

(Continued)

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Mass Air Flow (MAF) Sensor	GO to Pinpoint Test DC.
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 Pinpoint Test HF.
Positive Crankcase Ventilation (PCV) System	GO to Pinpoint Test HG.
EVAP System	GO to Pinpoint Test HX.
Charging System	GO to Pinpoint Test HY.
Heated Oxygen Sensor (HO2S) (for Taurus, Taurus X, Sable PZEVs)	GO to Pinpoint Test DZ.
Automatic Transmission	REFER to Automatic Transmission/Transaxle diagnostic strategy to continue diagnosis.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Intake Air System (for vehicles equipped with an IAC valve)	GO to Pinpoint Test HU.
A/C Pressure (ACP) Transducer Sensor	GO to Pinpoint Test DS.
Additional Testing	GO to Pinpoint Test Z.

(Continued)

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Additional Checks: — Some vehicles have a TQ_CNTRL PID available. Check this PID to determine if the PCM is reducing torque, and if so, why the torque is being reduced. As a PID display example; 0 equals no torque reduction requested, 1 equals torque truncation, which cuts fuel to protect when line pressure falls to minimum limit and 2 equals traction control event, which cuts fuel/spark for traction control. — Correct PCM vehicle identification (VID) block information. Refer to Diagnostic Methods, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) to carry out the Making Changes to the VID Block procedure. — 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 filler cap is correctly tightened or the capless fuel tank filler pipe is correctly sealed 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 Testing for that System or Component.

Chart 1 Continued

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

Chart 2

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

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Battery Condition and Current Draw	Visual. REFER to Charging System and carry out the Inspection and Verification to continue diagnosis.
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 Pinpoint Test HF.
PCV System	GO to Pinpoint Test HG.
EVAP System	GO to Pinpoint Test HX.
Intake Air System (for vehicles equipped with an IAC valve)	GO to Pinpoint Test HU.
Starting System	REFER to Starting System and diagnose the engine cranks slowly symptom.
MAF Sensor	GO to Pinpoint Test DC.
Additional Testing	GO to Pinpoint Test Z.
Additional Checks: — For vehicles equipped with 2 camshaft position (CMP) sensors, verify the CMP1 and CMP2 circuits are not shorted together.	Visual

Chart 3

— Starting Concerns: No Start (Engine Cranks)

Note: An extended crank because of a no start may load the exhaust system with raw fuel, damaging the catalytic converter after the engine starts. For vehicles equipped with a secondary air injection (AIR) system, carry out the following after the no start concern is repaired: Disconnect the electric AIR pump relay, run the engine until the surplus fuel is used up, and connect the relay. Disconnecting the relay may set a continuous memory PCM DTC that needs to be cleared.

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Add-on Anti-Theft Devices	Visual. CHECK with the customer.
Fuel/Ignition	GO to Pinpoint Test A.
Intake Air System (for vehicles equipped with an IAC valve). If the engine will not start at closed throttle, but will start and run normally at part throttle, check the IAC valve.	GO to Pinpoint Test KE.
Exhaust System Restrictions	GO to Pinpoint Test HF.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Additional Testing	GO to Pinpoint Test Z.

Chart 4

— Unique Idle Concerns: Slow Return To Idle

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Vacuum Leaks, Throttle Body	Visual
PCV System	GO to Pinpoint Test HG.
Intake Air System Leaks (for vehicles equipped with an IAC valve)	GO to Pinpoint Test HU.

Chart 5

— Unique Idle Concerns: Fast Idle

— Diesels/Runs On

Note: If the vehicle runs normally with the key in the OFF position, check for a damaged ignition switch, an IGN START/RUN or ISP-R circuit short to voltage, or a VPWR circuit short to voltage.

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Base Engine Check for air leaks, including correct sealing of intake manifold and components/vacuum lines attached to intake air (such as the PCV, EGR or IAC valve/vacuum lines).	Visual. REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Verify the engine operates at normal temperature.	Visual. REFER to Cooling System, Engine Cooling or No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index, to diagnose any cooling system concerns that are present.
Fast idle concerns (for vehicles equipped with an IAC valve) With the key ON, engine OFF 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).	TP MODE PID is not C/T with the throttle closed: At vehicle start, the TPREL begins at about 1.25 volts and counts down to the lowest TP voltage value seen since engine start. If the TP voltage value goes below the normal range, then increases again, TPREL sets to the lower voltage. If the TP voltage is about 0.04 volt greater than the TPREL value at closed throttle, the PCM goes into part throttle mode. MONITOR the TP voltage and TPREL PIDs for sudden changes while checking for intermittent TP circuit/connector concerns. CHECK for loose or worn throttle plates. If no concern is found, GO to Pinpoint Test Z.
Intake Air System Leaks (for vehicles equipped with an IAC valve)	GO to Pinpoint Test HU.
Additional Testing	GO to Pinpoint Test Z.

Chart 6

— Unique Idle Concerns: Low/Slow Idle

— Stalls/Quits: Deceleration

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Verify the fuel filler cap is correctly tightened or the capless fuel tank filler pipe is correctly sealed.	Visual
Automatic Transmission (stalls/quits on deceleration)	REFER to Automatic Transmission/Transaxle to diagnose the torque convertor operation concerns.
Fuel Delivery System	GO to Pinpoint Test HC.
Intake Air System (for vehicles equipped with an IAC valve)	GO to Pinpoint Test HU.

(Continued)

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Charging System	GO to Pinpoint Test HY.
Heated Oxygen Sensor (HO2S) (for Taurus, Taurus X, Sable PZEVs)	GO to Pinpoint Test DZ.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Additional Testing	GO to Pinpoint Test Z.

Chart 7

— Backfires

SYSTEM/COMPONENT	REFERENCE (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 Engine System and carry out the Inspection and Verification to continue diagnosis.
Exhaust System	GO to Pinpoint Test HF.
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 or vehicle load. Also, be aware of the engine RPM/speed limiting functions of the PCM.

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

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Automatic Transmission Fluid	Visual
Throttle Linkage	Visual
Air Cleaner Element	Visual
Check the following PIDS: — LONGFT1/LONGFT2 (value between -20 and +20%) — IMTVF (if equipped): For both key ON, engine OFF and key ON, engine running 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.	**LONGFT1/LONGFT2 value low (-):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich. **LONGFT1/LONGFT2 value high (+):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean. **IMTVF PID indicates a fault:** GO to Pinpoint Test HU.
Fuel Delivery System	GO to Pinpoint Test HC.
Secondary Ignition	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC. For all others, GO to Pinpoint Test JB.
MAF Sensor	GO to Pinpoint Test DC.
Exhaust System	GO to Pinpoint Test HF.
Variable Camshaft Timing (VCT) System	GO to Pinpoint Test HK.
Accelerator Pedal Position Sensor	GO to Pinpoint Test DK.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Automatic Transmission	REFER to Automatic Transmission/Transaxle diagnostic strategy to continue diagnosis.
Brake System Drag or Binding	REFER to Brake System.
Supercharger Bypass System	GO to Pinpoint Test KJ.
Additional Testing	GO to Pinpoint Test Z.

(Continued)

Chart 8 Continued

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Additional Checks: — Some vehicles have a TQ_CNTRL PID available. Check this PID to determine if the PCM is reducing torque, and if so, why the torque is being reduced. As a PID display example; 0 equals no torque reduction requested, 1 equals torque truncation, which cuts fuel to protect when line pressure falls to minimum limit, and 2 equals traction control event, which cuts fuel/spark for traction control. — Customer driving habits — Correct PCM vehicle identification (VID) block information. Refer to Diagnostic Methods, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) to carry out the Making Changes to the VID Block procedure. — Intake manifold runner control (IMRC) linkage (if equipped) — Clutch (M/T) — Charging system — Engine RPM/speed limiting functions of the PCM (look for incorrect high vehicle speed signal from ABS, VSS, or OSS)	Visual. REFER to Testing for that System or Component.

Chart 9

— Spark Knock

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Verify the engine operates at normal temperature	Visual. REFER to Cooling System, Engine Cooling or No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index to diagnose any cooling system concerns that are present.
Verify correct coolant level and coolant concentration	REFER to Cooling System, Engine Cooling for correct coolant concentrations and fill procedures.
MAF Sensor	GO to Pinpoint Test DC.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
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
Additional Testing	GO to Pinpoint Test Z.

Chart 10

— Poor Fuel Economy

Note: Driving styles may have a significant influence on fuel economy. Verify the concern before starting an in-depth diagnosis. The following external factors may contribute to poor fuel economy:

- stop and go driving
- incorrect tire pressure and size
- vehicle loads (such as trailer towing)
- extended winter warm-up conditions
- high speed driving
- incorrect axle ratio
- road/weather conditions
- aftermarket add-ons
- short run operations
- customer expectations

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Check the following PIDs: — LONGFT1/LONGFT2 (value between -20 and +20%) — VPWR (value between 10.5 and 17.0 volts, and within 0.5 volt of battery voltage)	**LONGFT1/LONGFT2 value low (-):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run rich. **LONGFT1/LONGFT2 value high (+):** Continue diagnosis. Concentrate checks in areas that would cause the engine to run lean. **VPWR not between 10.5 and 17.0 volts:** REFER to Charging System and carry out the Inspection and Verification to continue diagnosis. **VPWR between 10.5 and 17.0 volts, but not within 0.5 volt of battery voltage:** CHECK the B+ voltage to the PCM power relay. CHECK the VPWR circuit between the PCM and the PCM power relay. CHECK the PWR GND circuits.
Verify the engine operates at normal temperature.	Visual. REFER to Cooling System, Engine Cooling 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 Pinpoint Test HF.
Variable Camshaft Timing (VCT) System	GO to Pinpoint Test HK.
Transmission Fluid Level	Visual
Automatic Transmission	REFER to Automatic Transmission/Transaxle diagnostic strategy to continue diagnosis.
PCV System	GO to Pinpoint Test HG.
Additional Checks: — Correct PCM VID block information. Refer to Diagnostic Methods, Flash Electrically Erasable Programmable Read Only Memory (EEPROM) to carry out the Making Changes to the VID Block procedure. — Brake drag — Base engine concerns — Incorrect PCV valve — Contaminated MAF sensor — Intake air system	REFER to Testing for that System or Component.
Additional Testing	GO to Pinpoint Test Z.

Chart 11

— Emissions Compliance

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

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

Chart 12

— Warning Indicators: Check Fuel Cap Indicator, Malfunction Indicator Lamp (MIL), Power Take Off (PTO), Temperature Warning Indicator or Gauge (applications with CHT sensor only), Transmission Control Indicator Lamp (TCIL), Powertrain Malfunction Indicator (Wrench)

— PTO Concerns: 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 (Pinpoint Test unless noted)
Verify the fuel filler cap is correctly tightened or the capless fuel tank filler pipe is correctly sealed.	Visual
Check Fuel Cap Indicator — Never/always on	REFER to Inst., Gauges, Warn Ind., Instrument Cluster to diagnose the check fuel cap indicator is never/always on or Inst., Gauges, Warn Ind., Information and Message Center to diagnose the CHECK FUEL CAP warning is inoperative.
MIL — Always on when the engine is running (no DTCs present) — Never on (including during indicator prove out)	REFER to Instrument Panel, Gauges and Warning Indicators, Instrument Cluster and carry out the Inspection and Verification to continue diagnosis.
PTO — PTO indicator never/always on — PTO not working correctly	GO to Pinpoint Test FB.
Temperature Warning Indicator or Gauge (applications with CHT sensor only) — Engine cooling system — Indicator circuits	For an engine that is overheating, REFER to Cooling System, Engine Cooling to diagnose the engine overheating symptom. Be aware that since a PCM DTC is not present, the PCM is not attempting to activate the indicator. For an engine operating at normal temperature, GO to Pinpoint Test DL.

(Continued)

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
TCIL — Always on when the engine is running (no DTCs present) — Never on	For E-Series, GO to Pinpoint Test TB. For all others, REFER to Instrument Panel, Gauges and Warning Indicators, Instrument Cluster.
Powertrain Malfunction Indicator (Wrench) — Never/always on	REFER to Inst., Gauges, Warn Ind., Instrument Cluster to diagnose the wrench indicator is never/always on or Inst., Gauges, Warn Ind., Information and Message Center to diagnose the POWERTRAIN MALFUNCTION warning is inoperative .
Additional Testing	GO to Pinpoint Test Z.

Chart 13

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

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Transmission	REFER to Automatic Transmission/Transaxle diagnostic strategy to continue diagnosis.
Additional Tests	GO to Pinpoint Test Z.

Chart 14

— Instrumentation: Tachometer Inoperative, Speedometer/Odometer Inoperative, Boost Gauge Indicates Higher Than Normal Boost, Fuel Gauge Inoperative

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Tachometer Inoperative	REFER to Inst., Gauges, Warn Ind., Instrument Cluster to diagnose the incorrect tachometer indication.
Speedometer/Odometer Inoperative	REFER to Inst., Gauges, Warn Ind., Instrument Cluster to diagnose the inoperative speedometer/odometer.
Boost Gauge (for vehicles equipped with a supercharger) — Indicates higher than normal boost	For supercharger bypass control concerns, GO to Pinpoint Test KJ. For charge air cooler (CAC) system concerns, GO to Pinpoint Test KP.
Fuel Gauge Inoperative — Fuel gauge always indicates full or empty	REFER to Instrument Panel, Gauges and Warning Indicators, Instrument Cluster to diagnose the incorrect fuel gauge indication.
Instrumentation	REFER to Instrument Panel, Gauges and Warning Indicators, Instrument Cluster.

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

Chart 15

— Oil System Concerns: High Oil Consumption, Leaks

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
PCV System	GO to Pinpoint Test HG.
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Additional Checks — External leaks — Correct dipstick — Correct oil viscosity	Visual

Chart 16

— Cooling System Concerns: Electric Cooling Fan(s) Does Not Operate (Low, Medium, High or Variable Speed), Cooling Fan Clutch Does Not Operate

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Electric Cooling Fan	For Crown Victoria/Grand Marquis, Fusion/Milan/MKZ, Edge/MKX, Taurus/Taurus X/Sable, and Town Car, GO to Pinpoint Test KN. For all others, GO to Pinpoint Test KF.
Cooling Fan Clutch	GO to Pinpoint Test HV.
Cooling System	REFER to Cooling System, Engine Cooling to diagnose the cooling fan clutch.

Chart 17

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

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

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Cooling Fan A/C pressure switch (ACPSW) or ACP transducer sensor circuits	For Crown Victoria/Grand Marquis, Fusion/Milan/MKZ, Edge/MKX, Taurus/Taurus X/Sable, and Town Car, VERIFY the results of the PCM self-test. Visually INSPECT the cooling fan for concerns. For all others, GO to Pinpoint Test KF.
Cooling System	REFER to Cooling System, Engine Cooling to diagnose the electric cooling fans.

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 (Pinpoint Test unless noted)
Base Engine	REFER to Engine System and carry out the Inspection and Verification to continue diagnosis.
Fuel Delivery System — Black smoke	GO to Pinpoint Test HC.
Ignition System — Black smoke	For vehicles equipped with a coil pack ignition system, GO to Pinpoint Test JC. For all others, GO to Pinpoint Test JB.
PCV System — Blue smoke	REFER to Engine System for a description of the Oil Consumption Test.

Chart 19

— Fuel System Concerns: Odor, Engine Compartment

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

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

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 No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index (for noise such as spark knock) or Testing for that System or Component to continue diagnosis.

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Secondary Ignition System Snap noise that may be due to secondary ignition arcing.	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 A/C Cooling, A/C Not Functioning, A/C Always On, or A/C Compressor Runs Continuously

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
A/C System	If sent here from the Workshop Manual with WAC_F PID indicating a fault (or YES), GO to DTC Index, Diagnostic Trouble Code (DTC) Charts and Descriptions and follow the directions for KOEO DTC P0645. For all others, REFER to Heating and Air Conditioning, Climate Control System.

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), either from a new vehicle or new catalyst, are likely to have a sulfur smell due to the highly active state of new catalysts. Installing a new catalyst may actually make the symptom worse.

No Diagnostic Trouble Codes (DTCs) Present Symptom Charts

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Check for any driveability or exhaust smoke symptoms.	REFER to No Diagnostic Trouble Codes (DTCs) Present Symptom Chart Index for direction to repair other symptoms.
Fuel Delivery System	GO to Pinpoint Test HC.
Fuel Source	Talk with the customer. Sulfur content can vary in different fuels. Suggest trying a different fuel source.

Chart 23

— Starting Concerns: No Crank

SYSTEM/COMPONENT	REFERENCE (Pinpoint Test unless noted)
Add-on Anti-Theft Devices	Visual. CHECK with the customer.
Anti-Theft	REFER to Antitheft and Alarm Systems, Anti-Theft and diagnose the vehicle does not start symptom.
Base Engine — Starting system	REFER to Starting System and diagnose the engine does not crank symptom.