

Computers and Control Systems: Symptom Related Diagnostic Procedures

Testing Notes

- Verify that a pass code 11/111 was received in Key On Engine Off (KOEO), Engine Running (KOER), and Continuous self tests before continuing with this test.
- If a symptom is present and the EEC system is suspect, continue to symptom charts. See: Symptom Cross Reference Chart
- If the EEC system is not suspected or if symptom or application is not contained in the diagnosis by symptom charts, go to Diagnosis By Symptom (Diagnostic Routines). See: Diagnostic Routines

Diagnostic Routine Chart		
GASOLINE ENGINES		
Title	Routine	OASIS Number
Cranks Normally But Won't Start	201	610200
Starts Normally But Won't Run (Stalls)	202	620100
Cranks Normally But Slow to Start	203	610300
Rough Idle	204	620800
Misses Under Load	205	630300
Low Idle (Stalls on Deceleration or Quick Stop)	206	630103
Hesitates or Stalls on Acceleration	207	631900
Backfire (Induction or Exhaust)	208	630600
Lack of Power	209	630400
Surges at Steady Speed	210	630200
High Idle (Engine Diesels)	211	620700, 640100
Engine Noise	212	4400
Poor Fuel Economy	213	640200
High Oil Consumption	214	4101
Spark Knock/Pinging	215	632500
Engine Vibrates at Normal/High Speeds	216	7210
Engine Runs Cold	217	4300
Engine Runs Hot	218	4300
Exhaust Smoke	219	—
Gas Smell	220	—
"CHECK ENGINE" / "SERVICE ENGINE SOON" Light Always On or Never On "CHECK ENGINE" / "CHECK DCL" Message On	221	—
State Emission Test Failure	222	—
Improper Shift 1989, 90 only	223	5101, 5102
Shift Indicator Light and Audible Chimes "ON" 1990 only	224	—

Diagnostic Routine Chart - Gasoline Engines

NOTE: You should only enter Diagnostic by Symptom when directed here

Symptom	Pinpoint Test Step Direction						
	2.3L EFI	2.9L EFI	3.0L EFI	4.9L EFI	5.0L EFI	5.8L EFI	7.5L EFI
Engine runs rough or misses Engine stalls Lack of power Rough idle Erratic rpm Surges Stalls in Self-Test	S1	S1	S1	S1	S1	S1	S1
Stall during parking maneuvers	FF3	FF3	FF3	FF3	FF3	—	—
A/C Compressor runs continuously	KM25	—	—	—	—	—	—
Surges with A/C on at idle	KM20	—	—	—	—	—	—
A/C does not cut off under WOT conditions	KM10	KM10	KM10	—	—	—	—
A/C not functioning	KM1	KM1	KM1	—	—	—	—
Low idle with A/C On	FA10	FA10	FA10	FA10	FA10	FA10	FA10
"CHECK ENGINE" light always on	—	ML1	ML1	ML1	ML1	ML1	ML1
"CHECK ENGINE" light never on	—	ML5	ML5	ML5	ML5	ML5	ML5
Stumble after hot restart	H20	H20	H20	H20	H20	H20	H20
Fuel pump runs with engine off	J22	—	—	—	—	—	—
Gasoline fumes under hood	—	—	—	—	—	—	KD1
Spark knock	DG1	—	—	DG1	DG1	—	—
Poor idle quality Rolling idle Shifts harshly Poor fuel economy	—	—	T90	—	—	—	—

201 CRANKS NORMALLY BUT WON'T START

NOTE: Extended cranking, because of a "No Start" condition, can load the exhaust system with raw fuel, which can ruin the catalytic converter after the engine starts. To prevent this, disconnect the thermactor air supply and run engine until surplus fuel is used up before reconnecting.

System	Component	Reference
Ignition	Electrical Connections Secondary Ignition Wires Ignition Coil Ignition Module Rotor Alignment Distributor Cap, Adapter, Rotor & Stator Spark Plugs Fouled Ignition Switch	Ignition Systems
External Carburetor/Fuel Charging Assy./ Throttle Body	Electrical and Vacuum Connections Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200) Venturi Valve (7200) Throttle Linkages	Visual, Fuel Systems
EGR	Valve	EGR Section
Internal Carburetor	Float/Inlet Needle and Seat Idle Air Bleeds and Fuel Passages	Fuel Systems
Fuel Delivery	Filter Pump Water/Dirt/Rust Contamination in Fuel Lines Tank (Fuel Supply) Dual Tanks (Selector Switch) Sender Filter Inertia Switch	Visual, Fuel Pump Section
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Basic Engine	Camshaft Timing Compression	Engine Section

Diagnostic Routine 201

202 STARTS NORMALLY BUT WON'T RUN (STALLS)

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Electrical and Vacuum Connections Fast Idle Speed Choke Plate and Linkage Cold Enrichment Rod And Linkage (7200) Choke Pulldown Adjustment & Diaphragm Venturi Valve (7200) Choke Cap Indexing	Visual, Fuel System
Ignition	Electrical Connections Secondary Ignition Wires Ignition Coil Ignition Module Rotor Alignment Distributor Cap, Adapter, Rotor & Stator Ignition Switch Ballast Resistor	Ignitions Systems
EGR	Valve	EGR Section
Fuel Delivery	Filter Pump Water/Dirt/Rust Contamination in Fuel Lines Tank (Fuel Supply) Sender Filter Inertia Switch	Visual, Fuel Pump Section
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Internal Carburetor	Float/Inlet Needle and Seat Idle Air Bleeds and Fuel Passages	Fuel System
Exhaust	Component (Restricted)	Exhaust System
Basic Engine	Camshaft and Valve Train	Engine Section

Diagnostic Routine 202

203 CRANKS NORMALLY BUT SLOW TO START

NOTE: It is a good practice to confirm that the correct starting procedure was being used by the customer before proceeding with diagnosis.

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Electrical and Vacuum Connections Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200) Choke Cap Indexing Accelerator Pump Venturi Valve (7200) Bowl Vents	Visual, Fuel System
Fuel Delivery	Filter Pump Water/Dirt/Rust Contamination in Fuel Lines Sender Filter	Visual, Fuel Pump Section
Internal Carburetor/Injectors	Hot Idle Compensator (may be external) Float/Inlet Needle and Seat Stepper Motor (7200) Cold Enrichment System (7200) Injectors	Visual, Fuel System
Ignition	Scope Engine for: Spark Plugs, Coil, Secondary Ignition Wires Distributor Cap, Adapter & Rotor Spark Plugs Fouled	Visual, Ignition System
Induction and Vacuum Distribution	Vacuum Leaks Air Cleaner Element Restricted	Visual, Audible, Engine Section
Cooling	Electric Fan (Hot Start Only)	Cooling System
EGR	Valve	EGR Section
PCV	Valve	PCV Section
EVAP	Components	Fuel System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis

Diagnostic Routine 203

204 ROUGH IDLE

System	Component	Reference
Cooling	Fan or Electric Fan (Loose or Cracked)	Visual
Vacuum Distribution	Vacuum Leaks	Visual and Audible
External Carburetor/Fuel Charging Assy Throttle Body	Curb or Fast Idle Speeds Electrical and Vacuum Connections Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200) Venturi Valve (7200) Choke Pulldown Bowl Vent	Visual, Fuel System
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap, Adapter and Rotor	Ignition System
Carburetor	Idle Mixture	Fuel System
EGR	Valve Vacuum Regulator	EGR Section
PCV	Valve	PVC Section
EVAP	Components	Fuel System
Ignition Timing	Base plus Advance and Retard Functions	Ignition System
Internal Carburetor/Injectors	Idle, Air Bleeds or Fuel Passages Float/Inlet Needle and Seat Stepper Motor (7200) Hot Idle Compensator (may be external) Altitude Compensator Cold Enrichment System (7200) Injectors Fuel Rail	Visual, Fuel System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Turbocharger		Fuel Systems
Exhaust	Pipes, Muffler, Catalyst Resonator, Heat Control Valve	Exhaust System
Basic Engine	Compression Valve Train Camshaft Intake Manifold Gaskets	Engine Section

Diagnostic Routine 204

205 MISSES UNDER LOAD

System	Component	Reference
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap, Adapter and Rotor	Ignition System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Fuel Delivery	Filter Pump Lines Sender Filter	Visual, Fuel System
External Carburetor/Fuel Charging Assy/Throttle Body	Electrical and Vacuum Connections Choke and Linkage Cold Enrichment Rod and Linkage (7200) Venturi Valves (7200)	Visual, Fuel System
Internal Carburetor/Injectors	Basic: Idle, Main, and Accelerator Pump Float/Inlet Needle and Seat Main Metering Fuel Enrichment Injectors	Visual, Fuel System
Ignition Timing	Base plus Advance and Retard Functions	Ignition System

Diagnostic Routine 205

206 LOW IDLE (STALLS ON DECEL OR QUICK STOP)

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Curb or Fast Idle Speed Electrical and Vacuum Connections Throttle Devices Venturi Valve (7200)	Visual, Fuel System
EGR	Valve	EGR Section
Internal Carburetor	Idle Airbleeds or Fuel Passages Stepper Motor (7200) Hot Idle Compensator (may be external) Float/Inlet Needle and Seat Cold Enrichment System (7200)	Visual, Fuel System
Turbocharger	Retard Switches	Fuel System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Idle Speed Control	Components	Aisan Carburetor Only

Diagnostic Routine 206

207 HESITATES OR STALLS ON ACCELERATION

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Choke Plate and Linkage Electrical & Vacuum Connections Cold Enrichment Rod and Linkage (7200) Accelerator Pump Venturi Valve (7200)	Visual, Fuel System
Induction and Vacuum Distribution	Vacuum Leaks	Visual and Audible
Induction	Air Cleaner Duct and Valve	Evaporative Emission System
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap, Adapter and Rotor	Ignition System
External Carburetor/Fuel Charging Assy/Throttle Body	Curb or Fast Idle Speeds	Fuel System
EGR	Valve	EGR Section
Fuel Delivery	Filter Pump Water/Dirt/Rust Contamination in Fuel Lines Sender Filter	Visual, Fuel Pump Section
Internal Carburetor/Injectors	VV Diaphragm (7200) Power Valve Stepper Motor (7200) Main System (Restriction) Injectors	Fuel System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Turbocharger	Turbocharger Assembly	Fuel System
Ignition Timing	Base plus Advance and Retard Functions	Ignition System
Exhaust (Restriction)	With Backpressure EGR System	Exhaust System

Diagnostic Routine 207

208 BACKFIRE (INDUCTION OR EXHAUST)

System	Component	Reference
Vacuum Distribution	Vacuum Leak(s)	Visual and Audible
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap and Rotor, Crossed Wires	Ignition System
External Carburetor	Choke Plate and Linkage	Visual and Fuel System
Basic Engine	Intake Manifold Gaskets Compression Check Camshaft Valves	Engine Section
Thermactor	Thermactor System Components	Thermactor Section
Pulse Air	Pulse Air System Components	Thermactor II Section
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Ignition Timing	Base plus Advance and Retard Functions	Ignition System
Exhaust	Components (Restricted)	Exhaust System
Fuel Delivery	Filter Pump Water, Dirt, Rust, Contamination in Fuel Lines Sender Filter	Visual, Fuel Pump Section

Diagnostic Routine 208

209 LACK OF POWER

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Electrical and Vacuum Connections Choke Plate and Linkage Accelerator Pump Venturi Valves (7200)	Visual, Fuel System
Induction	Air Cleaner Duct and Valve and Element	Evaporative Emission System
Fuel Delivery	Filter Pump Lines Sender Filter	Visual, Fuel Pump Section
EGR	Valve	EGR Section
Internal Carburetor/Injectors	Float Inlet/Needle and Seat Accelerator Pump Main Metering System Fuel Enrichment Altitude Compensator Stepper Motor (7200) Pullover Rod Sticking (1949) Injectors	Visual, Fuel System
Basic Engine	Compression Check Camshaft Valves	Engine Section
Drive Train	Clutch, Automatic Transmission, Brakes	Differential & Transaxle Section
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Turbocharger	Turbocharger Assembly	Fuel System
Exhaust	Components (Restricted)	Exhaust System
Ignition Timing	Base plus Advance Retard Functions	Ignition System

Diagnostic Routine 209

210 SURGE AT STEADY SPEED

System	Component	Reference
External Carburetor/Fuel Charging Assy (Throttle Body)	Choke Plate and Linkage Electrical & Vacuum Connections Venturi Valves (7200)	Visual, Fuel System
Vacuum Distribution	Vacuum Leaks	Visual, Audible
Fuel Delivery	Filter Pump Lines Sender Filter	Visual, Fuel Pump Section
Internal Carburetor/Injectors	Idle, Main Systems Float/Inlet Needle and Seat Fuel Enrichment Systems Altitude Compensator Injectors	Visual, Fuel System
EGR	Valve	EGR Section
EEC	Quick Test	Computer Engine Control System
MCU	Component Diagnostics	MCU Diagnosis
Turbocharger	Turbocharger Assembly	Fuel System
EVAP	Components	Fuel Systems
Basic Engine	Valve Train and Camshaft Intake Manifold Gaskets	Engine Section
Thermactor	Thermactor System Components	Thermactor Section
Ignition Timing	Base plus Advance and Retard Functions	Ignition Section

Diagnostic Routine 210

212 ENGINE NOISE

Symptom	Component	Reference
Squeal, Click, or Chirp	Oil Level (low) Valve Train Drive Belts (loose) Belt Driven Components EEC Solenoids	Visual, Audible, Emissions, Engine, Cooling Sections
Rumble, Grind	Belt Driven Components	
Rattle	Component (loose)	
Hiss	Thermactor System (leak) Vacuum Distribution System (leak) Induction System (leak) Spark Plug (loose)	Visual, Audible, Thermactor & Engine Sections
	Cooling System (leak)	Visual and Audible
	EVAP System (leak)	Evaporative Emission Section
Snap	Secondary Ignition	Visual and Audible
Rap, Roar	Exhaust System (leak) Pulse Air System (air cleaner)	Visual, Audible, Exhaust & Thermactor Section
Whine	Turbocharger (some whine is normal)	Audible
Knock	Connection Rod Bearing (worn) Main Bearing (worn) Piston Pin (loose) Piston to Bore Clearance (cold engine)	Engine Section
	Fuel Pump	Fuel System
	Detonation	Routine 215

Diagnostic Routine 212

213 POOR FUEL ECONOMY

NOTE: While fuel consumption is drastically increased for short-run operation, stop and go driving, trailer towing, extended winter warm-up periods, etc., as opposed to "trip" mileage, an attempt should be made to determine these factors when confronted with "poor mileage" conditions. However, since the operator is not always at fault, the following is appended:

System	Component	Reference
External Carburetor/Fuel Charging Assy/Throttle Body	Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200) Electrical & Vacuum Connections	Visual , Fuel System
Induction	Air Cleaner Duct and Valve Air Cleaner Element (Restricted)	Evaporative Emission System
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap, Adapter and Rotor	Ignition System
Internal Carburetor	Idle, Main Systems Enrichment Systems Float/Inlet Needle and Seat	Fuel System
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Fuel Delivery	Fuel Return Line Blocked	Fuel System
Cooling	Thermostat	Cool System
Factors External to the Engine	Tire Pressure & Type Clutch Operation Converter Clutch Override Automatic Transmission Shift Pattern and Fluid Level Brake Drag Exhaust System Speedometer/Odometer Gear Ratio Axle Ratio Vehicle Load Road & Weather Conditions	Manual and Visual
Ignition Timing	Base plus Advance and Retard Functions	Ignition System

Diagnostic Routine 213

214 HIGH OIL CONSUMPTION

NOTE: If the condition cannot be verified, clean engine, if necessary, change oil and filter (at customer's expense), seal and have customer drive 500 miles (804.5 Km) or enough distance to consume two quarts before returning for re-examination.

System	Component	Reference
External Leaks	Engine Assembly	Visual
Proper Dipstick	Overfilling (sometimes accomplished by the "short stick" gas station procedure).	Manual and Visual
Induction	Air Cleaner Element (Sealing)	Visual , Fuel System
PCV	Valve	PCV Section
Turbocharger	Compressor/Turbine Bearing, Seals, Center Drain, Etc.	Visual, Fuel Section
Internal Leaks (blue smoke from tailpipe)	Valve Guides Valve Stem Seals Intake Manifold and Gasket Cylinder Head Drain Passages Piston Rings	Engine Section

Diagnostic Routine 214

215 SPARK KNOCK/PINGING

NOTE: If the above fails to correct the condition, it is recommended that the owner change his source of fuel and use higher octane fuel.

System	Component	Reference
EGR	Verify correct application, then diagnose.	EGR System
Induction	Air Cleaner Duct and Valve Assembly	Evaporative Emission System
Vacuum Distribution	Vacuum Leaks Spark Delay Valve PVS	Visual, Audible, Emission Components
Basic Engine	Oil Level Compression Check Intake Manifold Gasket	Engine Section
Cooling	Overheating	Routine 218
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Turbocharger	Turbocharger Assembly	Fuel System
Thermactor	Thermactor System Components	Thermactor Section
Ignition Timing	Initial plus Advance and Retard Functions	Ignition System

Diagnostic Routine 215

216 ENGINE VIBRATES AT NORMAL SPEEDS

System	Component	Reference
Engine Accessories	Fan Belt Driven Components Engine Mounts Engine Vibration Damper	Manual and Visual
Otherwise	Non-Engine Components: Drive Line, Tires, Wheel Balance	Manual and Visual

Diagnostic Routine 216

217 ENGINE RUNS COLD

System	Component	Reference
Gauge System	Gauge, Sender	Body Electrical
Cooling	Thermostat	Cooling System

Diagnostic Routine 217

218 ENGINE RUNS HOT

System	Component	Reference
Cooling	Coolant Level Radiator or A/C Condenser Pressure Cap and Overflow System External Leaks Belts and Belt Tension Fan and Fan Clutch Electric Fan (If So Equipped)	Cooling System
Gauge System	Gauge, Sender	Body Electrical
Cooling	Thermostat	Cooling System
Ignition Timing	Base Plus Advance and Retard Functions	Ignition System
Vacuum Distribution	Spark Delay Valve	Emission Components
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Cooling	PVS	Emission Components
Basic Engine	Oil Level Internal Leak(s) Core Sand in Head/Block Water Pump	Engine Section
Brake	Brakes (dragging)	

Diagnostic Routine 218

219 EXHAUST SMOKE

NOTE: White Smoke is normal during warm-up.

Symptom	Component	Reference
Black Smoke (rich mixture)	Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200)	Fuel System
	Air Cleaner Element (Restricted)	Visual
	Internal Carburetor Components: Basic: Idle, Main and Accelerator Pump Metering Systems Enrichment Systems Fuel Inlet Needle/Seat Float Injectors	Visual, Fuel System
	EEC Components	Computer Engine Control Section
	MCU Components	MCU Diagnosis
	Blue Smoke (burning oil)	PCV Valve
Valve Guides/Stems/Seals Oil Drain Passages in Head		Engine Section
Turbo Bearing Seals		Fuel System
Rings (not seated) Cylinder bores (scuffed)		Engine Section
White Smoke (coolant in combustion)	Thermaxtor Vacuum Delay Valve (restricted) EGR Cooler Intake Manifold Cylinder Head/Gasket (leaks) Block (cracked/porous)	Emission Components, EGR System, Engine Section.

Diagnostic Routine 219

220 GAS SMELL

System	Component	Reference
Fuel Delivery	Fuel Filter (leaks) Fuel Line to Carburetor (leaks) Fuel Pump (leaks) Fuel Line, Pump to Tank (leaks) Fuel Tank (leaks) Fuel Tank Filler Neck/Cap (leaks) Fuel Return Line (Blocked)	Visual , Fuel Systems
Internal Carburetor/Injectors	Float/Inlet Needle (stuck) Injectors (Leaking)	Fuel System
EVAP	Component (leaks)	Fuel System

Diagnostic Routine 220

221 "CHECK ENGINE" LIGHT ALWAYS ON OR NEVER ON "CHECK ENGINE"/"CHECK DCL" MESSAGE ON

System	Component	Reference
NON-EEC	Emission Maintenance Warning Light	Warning Lights
EEC	Quick Test	Computer Engine Control Section

Diagnostic Routine 221

222 STATE EMISSION TEST FAILURE

NOTE: Canada and some states or metropolitan areas in the United States require periodic Idle Emission Tests. All Ford products have been certified to pass these tests. If a Ford product fails an Idle Emission Test, it is probable that 1) The engine temperature was not warm and stabilized prior to the test. 2) The vehicle had idled too long just prior to the test. (Too long at idle will trigger the thermactor air system to dump thermactor air into the atmosphere to prevent over heating of the exhaust system.)

It is recommended that the following procedure be followed prior to testing idle emissions on Ford products:

- Turn engine off and wait 10 seconds.
- Start engine and idle for one minute.
- Run engine at 2500 ± 300 rpm for 30 seconds.
- Return engine speed to idle.
- Measure Idle emissions within 30 seconds.

Complaints of Idle Emission Test failure should be verified by using the above procedure prior to starting any services.

Diagnostic Routine 222 (Part 1)

System	Component	Reference
EEC	Quick Test	Computer Engine Control Section
MCU	Component Diagnostics	MCU Diagnosis
Ignition	Scope Engine For: Spark Plug, Coil, Secondary Wires, Distributor Cap, Adapter and Rotor	Ignition System
Vacuum Distribution	Vacuum Leaks/Blockage	Visual and Audible
Ignition Timing	Base plus Advance and Retard Functions	Ignition
Carburetor	Idle Mixture	Fuel System
External Carburetor/Fuel Charging Assy Throttle Body	Curb or Fast Idle Speeds Electrical and Vacuum Connections Choke Plate and Linkage Cold Enrichment Rod and Linkage (7200) Venturi Valve (7200) Choke Pulldown Bowl Vent	Visual, Fuel System
Internal Carburetor/Injectors	Idle, Air Bleeds or Fuel Passages Float/Inlet Needle and Seat Stepper Motor (7200) Hot Idle Compensator (may be external) Altitude Compensator Cold Enrichment System (7200) Injectors Fuel Rail	Visual, Emission Components, Fuel System
EGR	Valve Vacuum Regulator	EGR Section
PCV	Valve	PCV Section
EVAP	Components	Fuel Section
Thermactor	Thermactor Air Dump	Evaporative Emission Section
Exhaust	Pipes, Muffler, Catalyst Resonator, Heat Control Valve	Exhaust Section
Cooling	Unstabilized Engine Temperature	Visual, Routine 218
Turbocharger	Turbocharger Assembly	Fuel System
Basic Engine	Scheduled Maintenance Compression Valve Train Camshaft Intake Manifold Gaskets	Engine Section

Diagnostic Routine 222 (Part 2)