Advanced Electronic Controls

A powerful, integrated network

An all-new Engine Control Module (ECM) leveraged 32-bit processing power, 32 megabytes of burst flash memory, and 32 kilobytes of external RAM to deliver optimal performance. The ECM also has a high-speed controller area network (CAN) to precisely integrate with the vehicle modules that control the antilock braking and adaptive cruise control systems.

The ECM also enables GM's Oil Life System, which calculates oil life based on oil temperatures, driving cycles, vehicle loads and coolant temperature. The oil life system usually reduces the number of recommended oil changes, which saves both money and the environment.

Hydra-Matic 4T45-E Transmission

This electronically controlled automatic transmission adapts to changes in temperature and driving conditions.



The Ecotec 2.4L I-4 will often be mated with the Hydra-Matic 4T45-E, a dront-wheel drive 4-speed transaxle with a proven record of smooth, smart shifts and rugged durability

Ecotec 2.4L Engine

Specifications

Configuration: 2.4L Displacement: 2.384 cc

Bore x Stroke: 88mm x 98 mm
Valvetrain: Dual overhead camshafts

4 valves per cylinder

Valve Lifters: Hydraulic roller finger follower

Compression Ratio: 10.6:1 Firing Order: 1-3-4-2

Fuel System: Sequential port fuel injection

Recommended Fuel: Unleaded regular Peak Horsepower: 177 hp (132 kW) Peak Torque: 166 lb-ft (223 Nm)

MATERIALS:

Cylinder Block: Cast aluminum
Cylinder Head: Cast aluminum

COMPONENT DESCRIPTIONS:

Throttle Type Electronic control Ignition System: Coil-on-plug

All specifications listed are based on the latest product information available at time of publication. The right is reserved to make changes at any time without notice.



GM Powertrain

www.gmpowertrain.com



Ecotec 2.4L I-4 Engine

Bigger is better for this new Ecotec, but there is more than added cc's.



The Ecotec Grows and Improves

The Ecotec was designed from inception to be able to easily handle larger displacement.

The original 2.2L Ecotec I-4 has proven itself to be an excellent engine and is one of GM's highest volume engines. Adding more displacement (growing from 2.2L to 2.4L) and incorporating someother new features makes the new 2.4L Ecotec that much better. For example, variable valve timing helps deliver 90 percent of the peak torque at as low as 2400 rpm, and a new engine control module further improves the integration between theengine and transmission.

The new Ecotec 2.4L engine's torque-rich power and designed-in refinement delever a driving experience that will please both performance-oriented buyers and those simply seeking a more sophisticated feel from a compact car powertrain.



The Ecotec is a global engine and was designed using input from around the world. It incorporates a large number of features in order to please drivers worldwide.

Key Features



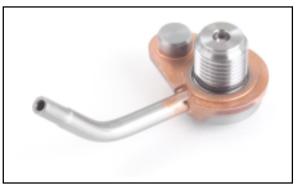
Variable Valve Technology

Electronically controlled hydraulic camshaft phasers alter the relationship of the intake and exhaust camshafts as much as 50 degrees relative to crankshaft. This enhances the low and mid-range toque output.



Coil-on-Plug Ignition *Individual coil-on-plug modules for each spark plug enhance combustion and enfine energy*

efficiency.



Piston-Cooling Oil Jet

An oil jet continuously sprays the underside of each piston with a continuous bach of engine oil, increasing longevity by reducing engine operating temperatures

Additional Features

- This 2.4L Ecotec retains the many excellent features of the original 2.2L, such as a vibration-reducing structureal oil pan, highly regid lower crankcase, and direct-mounted accessories.
- Clectrolnic throttle control (ETC) replaces the physical connection between the accelerator pedal and the engine throttle for precise response and improved integration with the cruise control system.
- All engine-related sensors are digital rather than analog for improved accuracy and reliability.
- Twin counter-rotating balance shafts spin at twice the speed of the engine crankshaft to cancel the second-order vibrations inherent to inline four-cylinder engines.
- The auxiliary oil cooler is approximately 30 percent smaller than similar-capacity oil coolers.
- An enhanced lubrication system provides for the camshaft phasers and oil cooling jets.

Applications



2005 Pontiac Solstice (Available July 2005)
The smooth powerful 2.4L Ecotec I-4 will provide the Solstice with 177 hp at 6000 rpm and 166 lb-ft of torque, which is exceptional for a normally aspirated 4 cylinder engine.