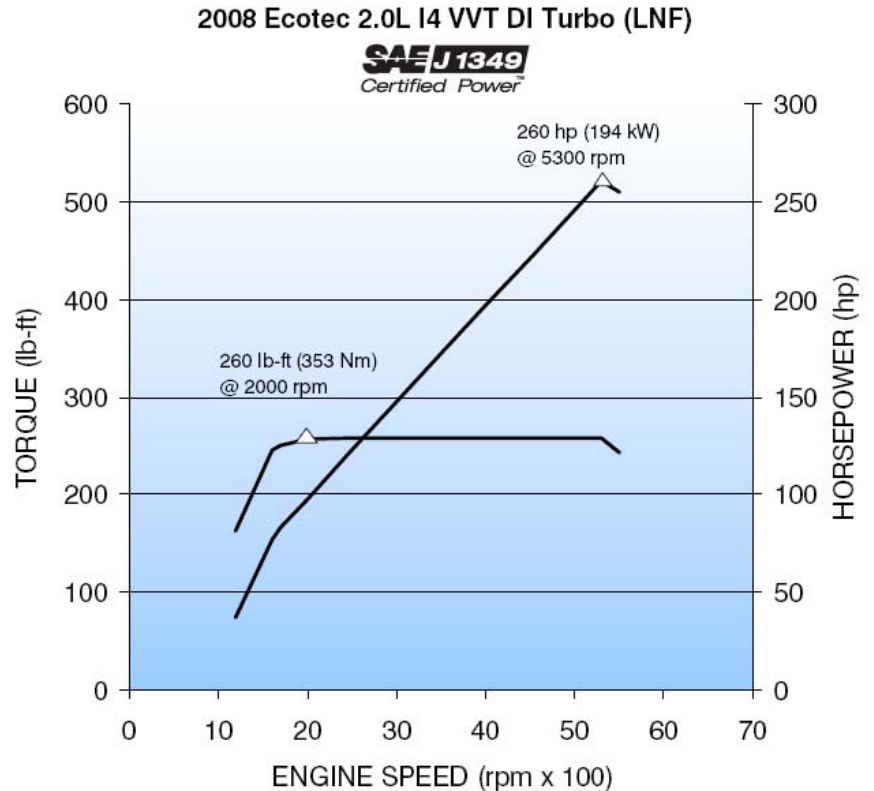


# 2008 Cobalt SS & HHR SS 2007 & 2008 Solstice & Sky 2.0L Ecotec Direct Injected Turbo Engine



Chevrolet Cobalt SS

Ecotec 2.0L I4 Turbo  
2008 (LNF)



Chevrolet Cobalt SS

# 2.0L Ecotec Direct Injected Turbo Engine

*"We know Chevy had no trouble at all with the power. The lag-free turbocharged and intercooled 2.0-liter Ecotec is a marvel. Lifted straight out of the Pontiac Solstice GXP it cranks out 260 hp and 260 ft-lbs. Think of it this way; the 507bhp 7.0-liter LS7 motor in the Z06 makes less than twice as much power. The blown Ecotec then is pretty mighty. Especially neat is the boost pressure, which is continuously variable. Normal boost is between 15-18 psi, but if conditions (such as high altitude) merit the change, the turbo can whoosh as much as 21 psi."*

Jalopnik Reviews  
Jonny Lieberman  
18 December 2007



2.0L (LNF) in the 2008 Chevrolet HHR SS

# 2.0L Ecotec Direct Injected Turbo Engine

## Highlights of the Ecotec 2.0-liter Turbo engine include:

Steel crankshaft – [Similar to the LSJ Supercharged engine](#)

Forged connecting rods – [Similar to the LSJ Supercharged engine](#)

Cast aluminum oil-galley pistons

Jet-spray piston cooling – [Similar to the LSJ Supercharged engine](#)

9.2:1 compression ratio

Aluminum cylinder head with sodium-filled exhaust valves

High-pressure engine-driven fuel pump

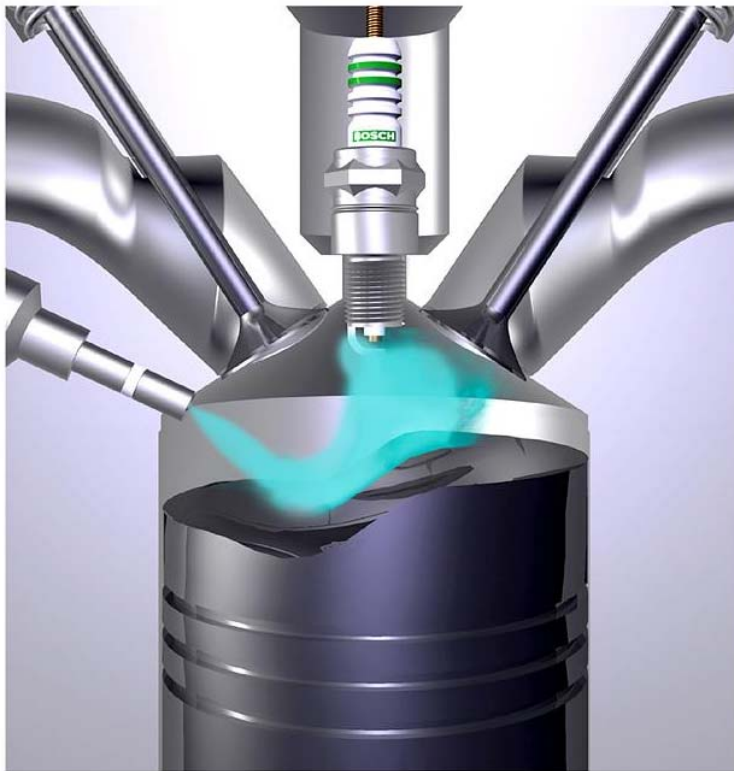
    About 2200 PSI

Variable pressure fuel rail

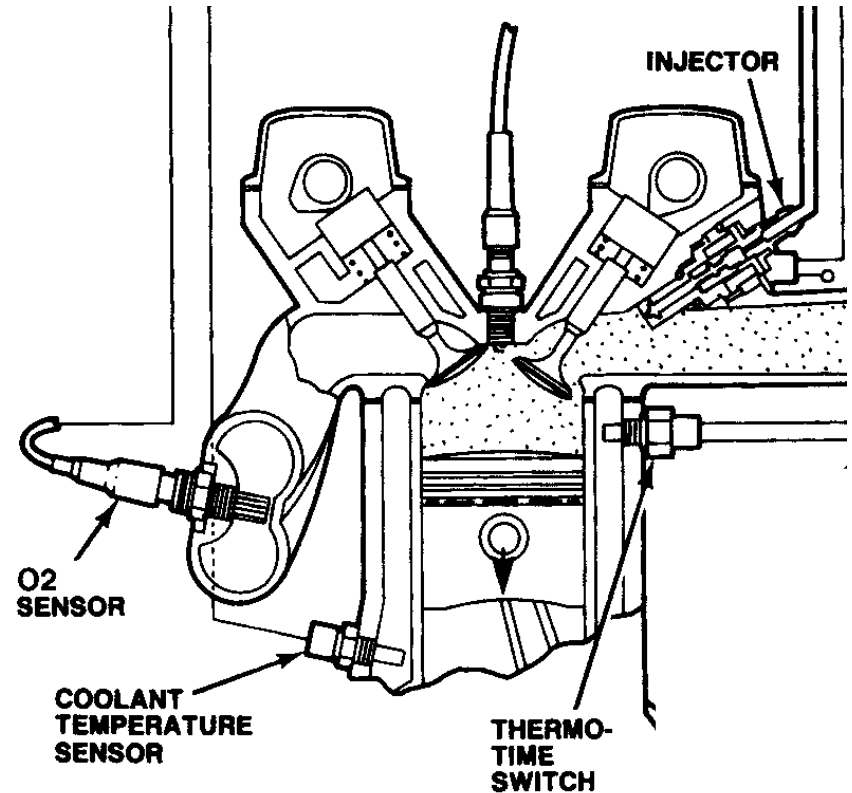
Dual-scroll turbocharger

# What is Direct Injection

**Direct Injection**



**Port Fuel Injection**



# Advantages of Direct Injection

By injecting fuel directly into the combustion chamber, GMPT is able to increase performance and decrease fuel consumption.

## **SIDI PRIMARY BENEFITS:**

- Reduced knock sensitivity
- Evaporative cooling and reduced residence time
- Improved thermal efficiency
- Increased volumetric efficiency:
  - Fuel is removed from inlet port, so only air flows
  - Evaporative cooling leads to increased charge density
- Significant increases in horsepower (up to 15%) and torque (up to 10%)
- Moderate fuel consumption benefit (2 to 3%)

## **•SIDI SECONDARY BENEFITS:**

- Stratified start (high-pressure fuel injection during the compression stroke):
  - Reduced sensitivity to fuel properties
    - Less enrichment required
- Split injection (fuel is injected during the intake stroke and during the compression stroke, just prior to ignition) for rapid catalyst heating:
  - Reduced cold start emissions
  - More aggressive deceleration fuel cut-off (DFCO)

# Is Direct Injection Untuneable?

## Tuning for DI

**Is Direct Injection Really Untunable?** Posted March 12 2008 04:13 AM by [esanchez](#)

Filed under: [Expert Car Opinions](#), [Mazda Sport Cars](#), [Car Engine Management Systems](#)

.... many enthusiasts are saying it's "untunable."

All modern diesels are direct-injected, and the aftermarket tuning scene has taken to them with a vengeance. It is not at all unheard of to get gains of 100 horsepower and more than 200 lb./ft. of torque on the big 3/4-ton diesels with just a little chip tuning and a few bolt-ons.....

Much like fuel injection back in the day when carburetors ruled the streets, I think the declarations of direct injection being untunable are more from unfamiliarity ....

In time, just like with fuel injection, emissions-controlled engines, The Gen-III GM small-block, and all other new & unfamiliar things, tinkerers will find their way to squeeze more power out of this new-fangled technology.

# 2.0L Ecotec Direct Injected Turbo Engine

## What's Next?

### ANYONE SEE THIS LAST WEEK?

