



Caterpillar

ACERT™ TECHNOLOGY FOR 2007

Precision Combustion

Air Management



**ACERT™ TECHNOLOGY
FOR 2007**

Advanced Electronics

Effective Aftertreatment

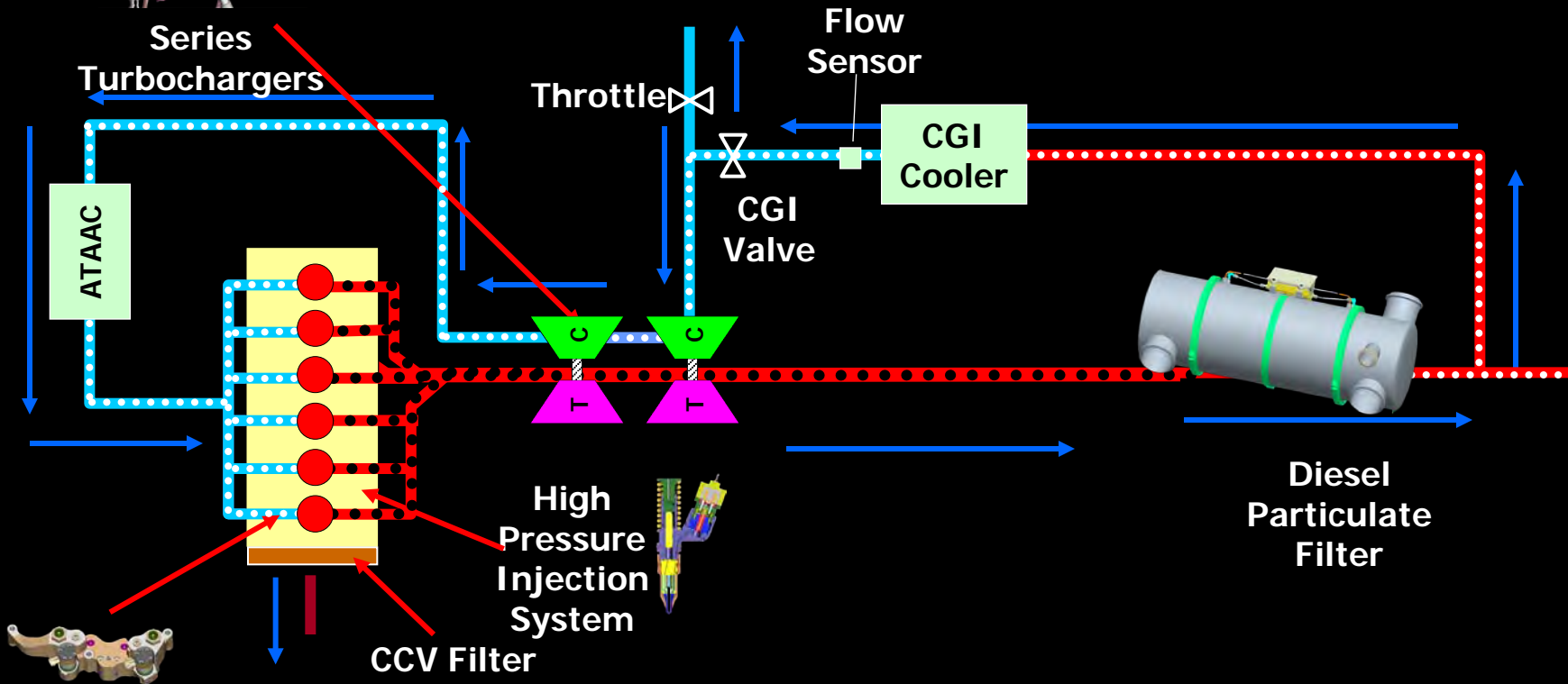


How Do We Achieve This?

**ACERT™ TECHNOLOGY
FOR 2007**

More Cool, Clean Air

2007 Airflow



Variable Valve Actuation
with Thermal
Management
Function



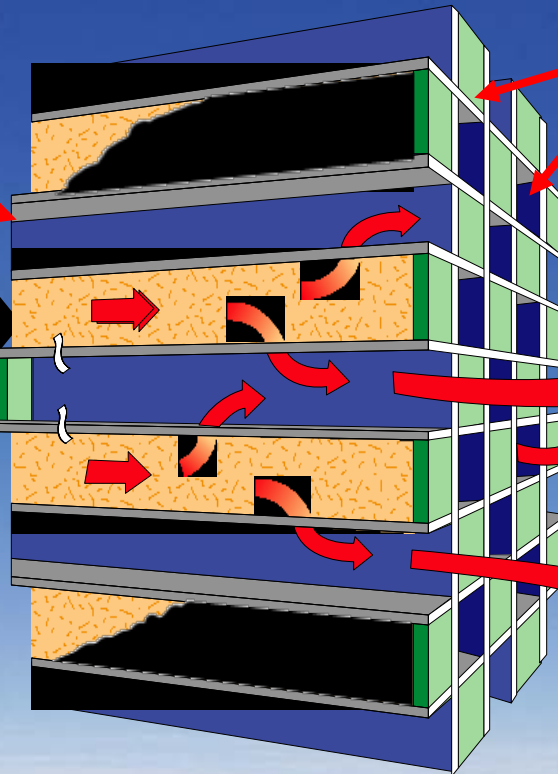
ACERT™ TECHNOLOGY FOR 2007

*Particulate Matter (PM)
Reduction Technologies*

Wall Flow Filter Technology

Soot Collects
Along the
Inlet Walls

Particulate
Matter
or Soot



Cells
Fill Up

Clean
Exhaust
Out
(CO₂, H₂O)

Filter Substrate



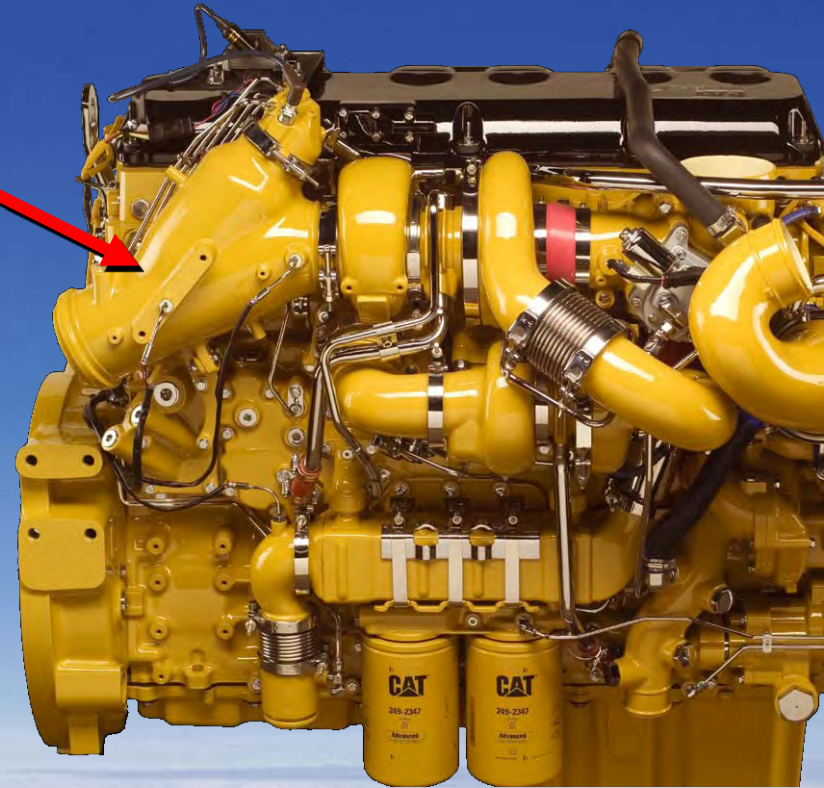
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Active Regeneration Options

Cat Regeneration System

Auxiliary Heater

- Increases exhaust temperature on the engine to promote regeneration
- “Enhanced” passive



System Design for Engine Thermal Management

Engine Exhaust Temp at Idle/Light Loads

Enhance Passive

100°C
(212°F)

200°C
(392°F)

300°C
(572°F)

400°C
(752°F)

500°C
(932°F)

600°C
(1112°F)

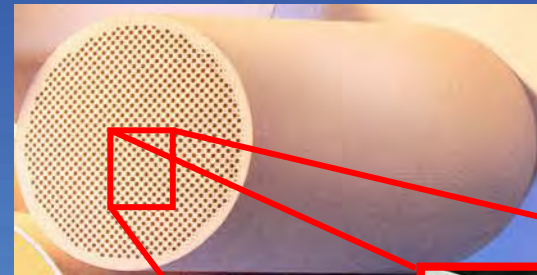
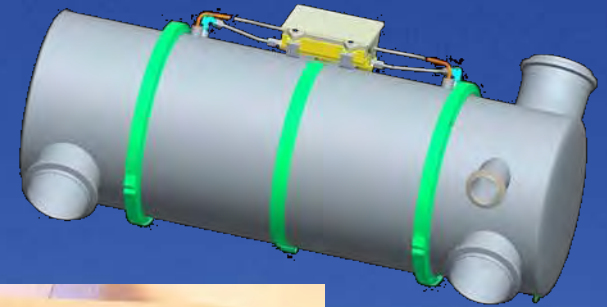
- Maintains safe exhaust temps
- Regen under ALL conditions
 - Light Loads
 - Low Ambient
 - Pick-up and Delivery
 - Mixer / Dump
 - Extended Idle
- Maximizes up-time
 - *no need for stationary regen
- Maximizes Fuel Economy

PASSIVE Regeneration

DPF Cleaning

Cleaning Out Residual Ash is a Regular Maintenance Procedure

- EPA requirement of at least 150,000 miles prior to cleaning
 - Cat expects at least twice this mileage
- On- or off-vehicle cleaning by dealers or customers



Warranty and ESC

- Base warranty of 2-years
Unlimited mileage - includes CRS/DPF components
- Extended Service Coverage
 - From 3-7 years
 - Additional covering injectors, turbos and water pumps and CRS/DPF available

Biodiesel Use in 2007 On-Highway Engines

- Many fundamental changes for 2007 on-highway engines:
 - New engine technologies including Diesel Particulate Filters (DPF) required to meet 2007 emission regulations
 - Ultra Low Sulfur Diesel (15 ppm S) introduction
 - New engine oil category, API CJ-4 (Cat ECF-3)
- Current Status:
 - 2006 & prior: up to B30
 - EPA 2007 compliant: Requirements under review
 - ❖ Note: Engine Manufacturers Association has proposed that all engine manufacturers adopt B20 standard

Biodiesel Requirements

- Final biodiesel blend must meet requirements for distillate diesel fuel published by Caterpillar, ASTM D975, or EN590
 - Biodiesel blend stock must meet requirements listed in the Caterpillar biodiesel specification, * ASTM D6751, or EN 14214
 - Distillate diesel used for blending must meet Caterpillar requirements, ASTM D975, or EN590
- For blends above B5, complete oil analysis (Cat S.O.S. Services) is strongly recommended to ensure oil change intervals are appropriate

* Available at www.cat.com



Warranty Coverage with Biodiesel

- **Warranty covers material and workmanship defects:**
 - Failures caused by other factors, including lack of proper maintenance (use of improper fuel, oil or filters, lubricants and coolant) are not covered by warranty.
- **Use of acceptable biodiesel blends does not affect Caterpillar warranty for materials and workmanship**

Questions ?