

## **Elements of Caterpillar ACERT**

Caterpillar's new ACERT engines are a combination of several engine design concepts that, when coupled together, provide reduced emissions without utilizing cooled EGR designs.

These design elements are:

1. Air Management – Cat air management systems introduced and refined since 1986 insure cool intake air. EGR systems result in high intake air temperatures. In higher output engines turbochargers are used in series to provide the needed air volumes.
2. HEUI (Hydraulically actuated Electronically controlled Unit Injector) fuel systems in the mid-range engines and MEUI (Mechanically actuated Electronically controlled Unit Injector) fuel systems in the heavy-duty engines.
3. Variable valve actuation to optimize performance to increase fuel economy and reduce NO<sub>x</sub> emissions.
4. Advanced engine electronic systems to control and coordinate all engine systems.
5. Exhaust after treatment.

Caterpillar ACERT systems are intended to meet the 2002 EPA emission requirements as well as the stricter guidelines effective in 2007. A full range of engines are expected to pass EPA certification by the end of 2003.

Source: Caterpillar Inc. www video conference - March, 2003

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