ADT

ACTIVE DECOMPRESSION TECHNOLOGY®

Jacobs®

FOR START-UP AND SHUTDOWN ENGINE STRATEGIES

When drivers expressed frustration with anti-idling regulations, our engineers developed a device to improve start-up and shutdown engine technology. ADT® allows drivers to experience smoother start-ups with faster starting times and engine shutdown without engine-induced cabin vibration.

BENEFITS

- Eliminates engine-shutdown-induced cabin vibrations
- Faster transition from eMotor to ICE in hybrid vehicles
- Improves driver satisfaction
- Increases engine cranking speed for easier start-up
- Improves cold start
- Lowers cranking torque and current draw
- Reduces starter system wear
- Complements start-stop fuel savings strategies
- Simple, cost effective design

LEARN MORE & SEE
ADT IN ACTION

BENEFITS

REDUCED START UP EMISSIONS & FUEL CONSUMPTION

- Start/Stop - no engine idling
- Reduced unburned hydrocarbons during start up
- Greenhouse gas credits
- Reduced energy consumption during cranking

HYBRID VEHICLE SUPPORT

- Improved reaction time
- Frequent hybrid operation

INCREASED DURABILITY OF STARTER SYSTEM

- 40% lower cranking torque and current draw
  - Decreases wear on starter gear and allows for less design margin for starter and fly wheel gear
  - Reduces loading on engine components during start up
- Increases engine cranking speed
  - Up to two times normal speed for smoother starting and improved cold start

IMPROVED DRIVER SATISFACTION

- Start Up
  - Engine-induced cabin vibration during engine shutdown is eliminated for increased driver comfort
- Sleeper Mode
  - Drivers can sleep through automated engine start/stop during engine charging events to maintain hotel battery load
- Anti-idle Acceptance
  - Allows an increase in the frequency of engine shutdown, improves fuel economy, and reduces idling emissions

COST EFFECTIVE DESIGN

- ADT can easily integrate onto multiple engine platforms

HOW ADT WORKS

START UP

When the engine is turned on, the ECU automatically activates the device to keep the engine valve open. This keeps the engine in a decompressed state, which decreases the cranking torque and allows the engine to spin at a higher speed.

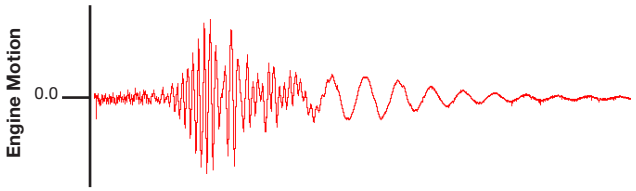
SHUTDOWN

Upon shutdown the ECU activates the device to keep the engine valves open. By keeping the valves open, the engine is able to coast to a smooth shutdown without causing the cab to shake.

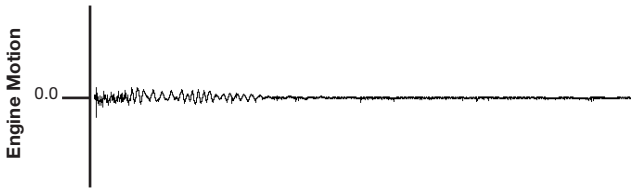
COLD START UP

In cold temperatures when an inlet air heater is used, the engine can be turned over while decompressed. This allows pre-warming the inlet air and engine cylinders without the engine load from compression. This is especially important when battery levels are low due to freezing temperatures. After the warm-up period is completed, the engine compression can be reactivated and fueling can begin.

Shake During Normal Engine Shutdown



Shake During Engine Shutdown with ADT



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