Jacobs' Compression Release Engine Brake takes the load off the foundation brakes, turning your power-producing diesel engine into a power-absorbing air compressor using a compression-release mechanism. By providing supplemental braking power to the trucks, engine braking reduces the total cost of ownership of the truck and increases safety, while allowing the truck to meet regulatory requirements.

- Capable of 85% of the vehicle’s braking needs
- Increases productivity by maintaining higher average downhill speed
- Reduces slowing time/distances on flat land, slowing a heavily loaded vehicle from 90 to 70 kph in 30% less time and distance than with wheel brakes alone
- Lower total cost of ownership
- Significantly reduces brake wear
- Eliminates “brake fade” due to high temperatures on the friction brakes; keeping them cool for maximum effectiveness when needed.
WHAT IS IT?
The Jacobs Engine Brake is a diesel engine retarder that uses the engine to aid in slowing and controlling the vehicle. When activated, the engine brake alters the operation of the engine’s exhaust valves so that the engine works as a power-absorbing air compressor. This provides a retarding, or slowing, action to the vehicle’s drive wheels, enabling you to have improved vehicle control without using the service brakes. This conservation results in reduced service brake maintenance, shorter trip times, and lower total cost of ownership.

HOW A COMPRESSION RELEASE BRAKE WORKS
When activated, when the engine is not fueling, the Jacobs’ Compression Release Brake opens the exhaust valves near the top of the compression stroke, releasing the highly compressed air through the exhaust system. The vehicle energy is used to push the engine to compress the air, but little energy is returned to the piston, and as the cycle repeats, the energy of the truck’s forward motion is dissipated, causing the truck to slow down.

Engine Brake On (no Fuel)
By removing air from the cylinder at the peak of compression, the rebound effect of the compressed air is removed causing the engine to produce braking power.

Engine Brake Off (no Fuel)
The absorbed power during compression is returned to the piston by the rebound of the expansion cycle.