



INTRODUCTION TO ENGINE BRAKING

Why Engine Braking is Necessary

Engine Braking provides supplemental braking power to the trucks. Engine Braking reduces the total cost of ownership for the truck and increases safety, while allowing the truck to meet regulatory requirements.

Reduces Total Cost of Ownership for the Truck

- Allows for faster trip times, increasing productivity
- Extends life of foundation brakes by 2 to 5 times
 - Lowers service costs
 - Increases truck uptime (productivity)
 - Eliminates need for periodic cool down times
- Improves fuel economy
- Return on investment for engine brake in 1 year

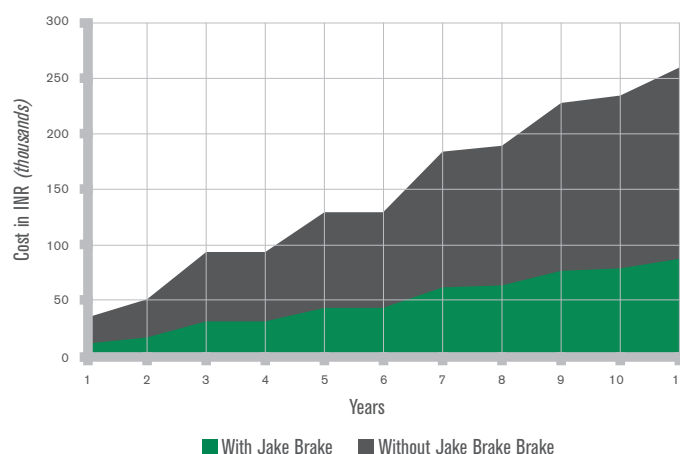
Increases Safety

- Allows for safer, higher average truck speeds
- Increases driver control and confidence
- Reduces stopping distances
- Allows for downhill speed control

Allows Trucks to Meet Secondary Braking Regulations

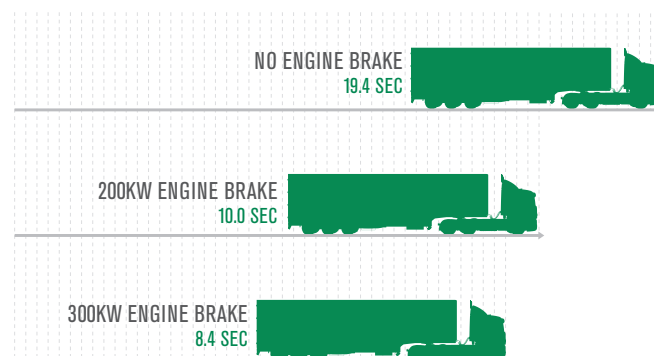
- UN ECE Regulation 13 (India Regulation 11852)

Total Brake Servicing Cost



Slowing Time & Distance

Service brakes wear out much faster when they are hot and become less effective at high temperatures (terminology is called "brake fading"). Example below: Slowing a heavily loaded vehicle from 90 to 70 kph.



Actual results may vary due to specific engine and vehicle configuration

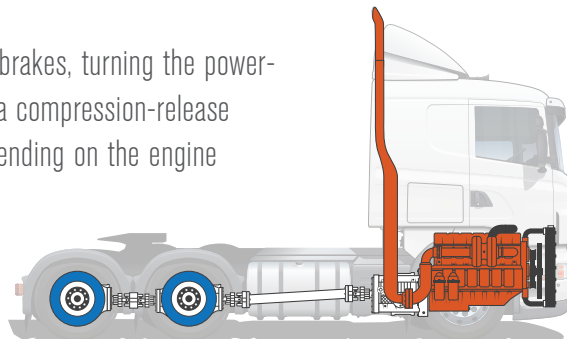


Compression Release Brakes

What Is It?

Jacobs' Compression Release Brake takes the load off the foundation brakes, turning the power-producing diesel engine into a power-absorbing air compressor using a compression-release mechanism. Compression Release Brakes come in different forms depending on the engine architecture and desired retarding power.

■ FOUNDATION BRAKES ■ ENGINE POWER

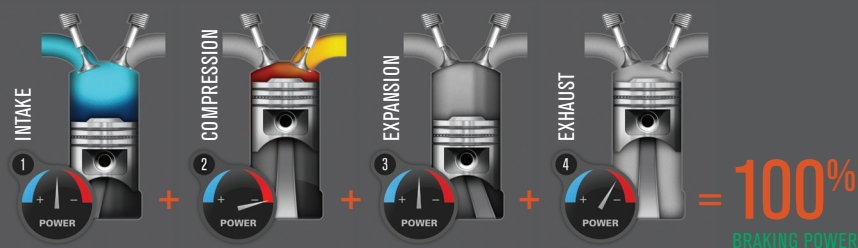


How Does It Work?

When activated, the Compression Release Brake opens the exhaust valves near the top of the compression stroke, releasing compressed air through the exhaust system. 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.

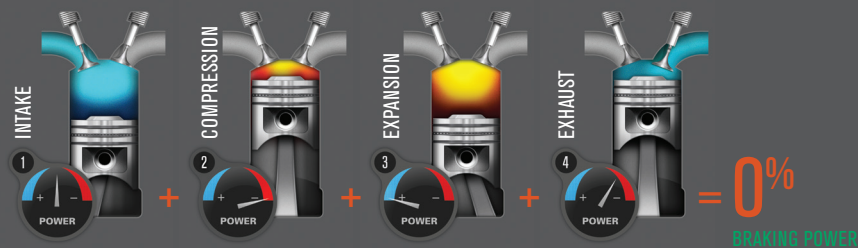
ENGINE BRAKE ON (no Fuel)

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.



Features and Benefits

- BOLT ON or INTEGRATED in engine overhead
- Fully integrated with electronic controls
- Three-stage engine brake operation, low/med/high
- Integrated with vehicle ABS for greater driver control