

Muffling & Engine Brakes

Focus on Muffler Equipped Vehicles

- Drivers depend on engine brakes for safe operation of their vehicles
- Driving public depend on engine brakes for safer travel with trucks
- Can't be disabled on some vehicles
 - Eaton auto-shift

Properly Muffled Vehicles

- Controls noise during acceleration as well as engine braking
- Manufacturer's original or after market replacement mufflers are within federal regulations
- Higher performance mufflers are available if greater noise suppression is required
- Proper maintenance reduces noise as well

Send the Right Message

If you must have a sign, allow the sign to create safer vehicle operation and improve safety on the roads for your community with the following:

- Allow the engine brake for public safety by requiring a proper muffling device
- Allow the truckers to utilize the safety benefits and cost effective engine retarding equipment they have come to depend upon
- Avoid Trademark infringement, use "engine brake" vs. Trademarked "Jake Brake®"

Incorrect Usage



Correct Usage



Next Steps

What is Jacobs Doing?

- Working with states and municipalities that have posted "no engine brake" signs to assist in implementing reasonable and effective noise control regulations and signs
- Regulate the causes, not the symptoms
- Support enforcement of existing noise laws
- Encourage use of proper mufflers and muffler maintenance procedures
- Recommend muffler inspection as part of current roadside commercial vehicle inspections
- Muffler identification procedures are available to inspect exhaust systems for proper configuration and condition

What Can You Do?

- Citizens can encourage local police to stop noisy vehicles and check them for muffler integrity
- If you know someone who is operating a vehicle with an excessively loud exhaust system, encourage him or her to fix it
- For examples of how municipalities have updated ordinances to reflect proper muffling requirements, visit us at www.jacobsvehiclesystems.com/about-us/environmental-health-safety/noise-concerns/
- If your community is considering an ordinance that prohibits Jake Brake or engine brake use, or you see a see an incorrect sign posted, please let us know by using our feedback form at www.jacobsvehiclesystems.com/contact-us/



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ENGINE BRAKE NOISE

Who Is Jacobs Vehicle Systems?

With over 50 years of experience, Jacobs Vehicle Systems leads the trucking industry in worldwide engine brake solutions for heavy duty vehicles. Originally developed and patented by Clessie L. Cummins in 1957, today the Jacobs' Engine Brake is sold worldwide, and in 2013, Jacobs Vehicle Systems manufactured its 5,000,000th engine brake.

What's Inside?

- Engine Brake 101
- Noise Concerns
- Noise Regulation
- Muffling & Engine Brakes
- Next Steps

What Is an Engine Brake?

- Vehicle retarding device used on diesel-powered vehicles
- Converts a power producing engine into a power absorbing air compressor

Why Use an Engine Brake?

- Reduces the load on foundation brakes which helps prevent dangerous brake overheating and fade, keeping brakes available for emergencies
- Controls vehicle speed on downhill grades, flatlands, and in traffic
- Minimizes speed differential between cars and trucks
- Reduces wheel brake maintenance frequency, cost, and increases tire casing life
- Aids specialized vehicle control systems
 - Cruise control
 - Collision warning systems
 - Auto-shift transmission controls

What Are the Benefits of an Engine Brake?

- **Reduces Social Costs:** "The savings in social costs of a reduction in runaway accident damage and injury would save the U.S. between \$19,273,000 and \$37,322,500."
- **Increased Productivity:** "An ordinary truck operator could gain as much as \$2,400 in a year from just the increased benefit gained from a retarder."
- **Reduced Brake Maintenance Cost:** "If only 25% of all brake truck axles were on retarder equipped vehicles, brake savings along would amount to \$185-274 million every year."

Source: National Highway Traffic Safety Administration

Sources of Vehicle Noise

Engine Noise

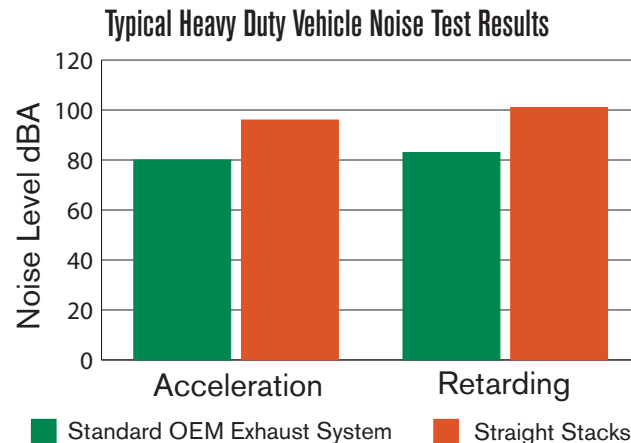
- Exhaust
- Engine Combustion
- Engine Brake
- Intake and Turbo
- Fan

Truck Noise

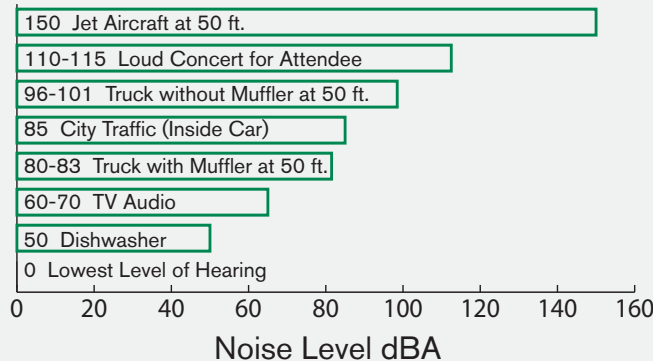
- Tire and Road
- Mechanical
- Drive Train
- Chassis
- Wind

Characteristic Engine Brake Sound

Engine brake noise is a component of exhaust noise and is controlled by a functioning muffler. While there is not a large difference between engine brake and acceleration sound levels, there is a very noticeable difference when the engine brake is not muffled.



Sound Pressure Levels - Human Perception



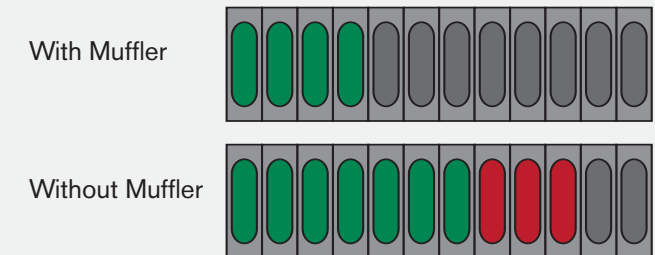
Federal Truck Noise Emission Control Regulation

EPA Regulation Title 40 CFR Part 205:

- Trucks built after January 1, 1988 must not produce sound emissions in excess of 80 dBA
- Manufacturers must communicate to the end user what constitutes as "tampering" with the vehicle noise control system
- Tampering by dealers, repair personnel, end purchasers, and operators is prohibited
- Removal of any noise control components voids certification and is unlawful
- 2007 emissions regulations requires the addition of exhaust after-treatment which has two positive effects:
 - Added components tend to reduce noise emissions in addition to exhaust emissions
 - All exhaust components are now part of emissions certification
 - Illegal to tamper, modify, or remove exhaust components
- Continual emissions regulations will further enhance exhaust after-treatments and reduce overall emissions

Engine Brake Noise Test

40 mph Drive-by Test at 50 ft. with an Engine Brake



Hear for yourself! Visit www.jacobsvehiclesystems.com/about-us/environmental-health-safety/noise-concerns/