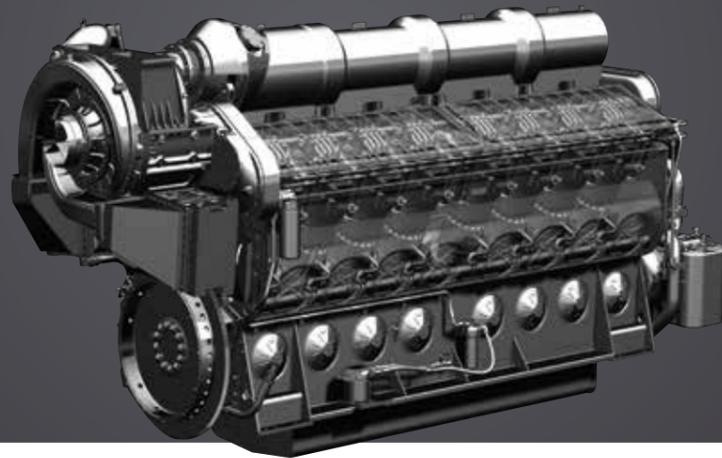


EMD 710 SERIES ENGINE BENEFITS



- Superior reliability means the 710 engine can operate more than three years without experiencing a road failure, setting the bar for the rail industry
- Lightweight, medium-speed engine
- Custom design and integration for optimized performance across a wide range of operating environments
- Inherently emissions friendly and fuel efficient
- Ease of maintenance and lower overhaul costs
- Low lube oil consumption and oil changes based on scheduled sampling
- Quickly reaches full power providing superior adhesion control during wheel slip events for AC freight locomotives
- Robust, service-proven design with unmatched durability
- Largest installed fleet and common parts provide reduced material, labor, tooling and training costs
- New EMD engine technologies can be retrofit on existing models to further enhance performance and efficiency

EMD 710 SERIES ENGINE SPECIFICATIONS



ENGINE DESIGNATION	8-710	12-710	16-710	20-710
Cylinders, Arrangement	8 cylinders, 45°V	12 cylinders, 45°V	16 cylinders, 45°V	20 cylinders, 45°V
Bore Diameter	230.2 mm (9.1 in)	230.2 mm (9.1 in)	230.2 mm (9.1 in)	230.2 mm (9.1 in)
Piston Stroke	279.4 mm (11 in)	279.4 mm (11 in)	279.4 mm (11 in)	279.4 mm (11 in)
Full-Load Speed	900 rpm	900 rpm	950 rpm	900 rpm
Power Rating	1,640 kW (2,200 BHP)	2,460 kW (3,300 BHP)	3,355 kW (4,500 BHP)	4,045 kW (5,500 BHP)
Length	3,632 mm (143 in)	4,597 mm (181 in)	5,563 mm (219 in)	6,426 mm (253 in)
Width	1.75 m (68 in)	1.75 m (68 in)	1.75 m (68 in)	1.75 m (68 in)
Height	2.75 m (108 in)	2.75 m (108 in)	2.75 m (108 in)	2.75 m (108 in)
Weight	11,300 kg (24,912 lbs)	14,600 kg (32,187 lbs.)	18,000 kg (39,683 lbs.)	21,000 kg (42,297 lbs)



ENGINES

710 SERIES ENGINES



WORLD-CLASS RELIABILITY

Sets the rail industry standard for mean time between road failures

LEADING SUSTAINABILITY AND EFFICIENCY

Meets emissions standards while providing optimized fuel efficiency and reduced lube oil consumption

SUPERIOR MAINTAINABILITY

Designed for ease of access and lower maintenance costs

UNMATCHED DURABILITY

Engineered for decades of exceptional performance in demanding operations

RAPID ENGINE LOAD RESPONSE

Superior adhesion control during wheel slip events

Progress Rail
A Caterpillar Company

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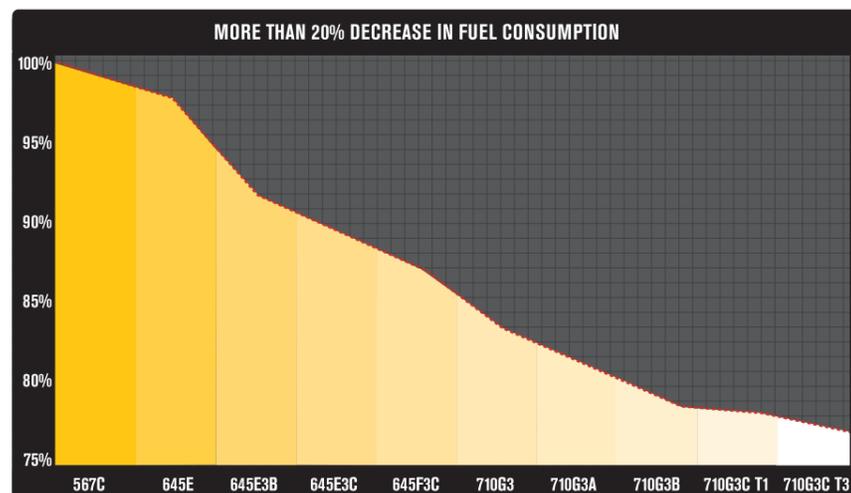
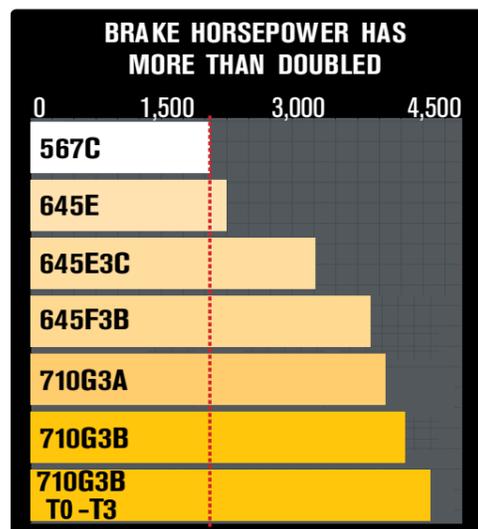
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Progress Rail
A Caterpillar Company

SERVICE-PROVEN RELIABILITY

Our qualification processes are among the most stringent of any engine manufacturer. We utilize a comprehensive reliability program including rigorous analytical work, performance and emissions testing, durability sites with thousands of hours of component testing, extensive reliability growth testing (RGT) and locomotive field testing in revenue service.

710 ENGINE PERFORMANCE



BUILT FOR THE FUTURE – NEW 710 ENGINE TECHNOLOGIES

We are developing two natural gas solutions to enable railroads to lower operating costs and reduce emissions by utilizing natural gas, while maintaining the leading performance and reliability of EMD locomotives.

Dynamic Gas Blending™: Provides up to 70% substitution of diesel with natural gas. DGB™ is a dual-fuel technology allowing for seamless operation using diesel or natural gas.

Direct Injected Gas: Offers exceptional savings with more than 95% substitution with the same horsepower and transients as a diesel engine.

A PROUD LEGACY

The 710 Series Engine is based on highly successful EMD 567 and EMD 645 two-stroke engines, with continuous improvements for enhanced performance and the lowest life cycle cost.



567 SERIES (1938)
32,000 Produced



645 SERIES (1965)
29,000 Produced



710 SERIES (1985)
More than 12,000
Produced



WE KNOW ENGINES.

We have designed and produced 75,000 diesel engines — more than any other locomotive manufacturer. With deliveries to over 75 countries, we have the largest installed fleet worldwide. We are also a leading global provider of 710 engines for marine, drilling and power generation applications.

Leveraging our engineering expertise and continuous investments, we further enhance the 710 engine with advanced technologies for new and existing locomotives. We are recognized worldwide for setting rail industry standards for performance and reliability, and delivering optimized efficiency for our customers.

EXAMPLES OF LOCOMOTIVES EQUIPPED WITH EMD 710 SERIES ENGINES

HEAVY HAUL



SD70ACe



SD70ACe-P4



SD70ACe/LCi



SD70ACS



SD70ACe-BB



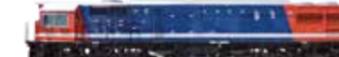
SD80ACe

REPOWER LOCOMOTIVES



710ECO™ Repowers extend locomotive life for up to 40 years and lower life cycle costs by equipping older models with EMD 710 engines. Benefits include lower emissions, 10 to 25% increase in fuel efficiency, 50% reduction in oil consumption, increased reliability, improved maintainability and enhanced diagnostics.

INTERNATIONAL



GT38AC (Congo)



GT42AC (Botswana, Tunisia)



GT46AC (Gabon)



GT50AC



GT46C-ACe/GT46CU-AC



GT38LC-3 (Tanzania)



JT42CWRM (Egypt, Gabon)

In addition to these examples, several new locomotive models are under development featuring the 710 engine.

