

## Certified Emission Kits for EMD 645 Marine Engines

Electro-Motive Diesel has provided emissions solutions for its engines for over 25 years and continues to lead the industry in emissions compliance.

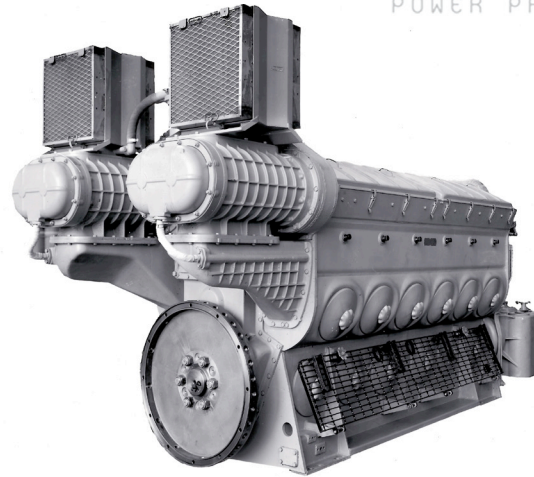
One of the EPA's guiding principles for the new 40 CFR Part 1042 emission rule was to achieve sizeable reductions in emissions as early as possible. EMD has met this challenge. Its skilled emissions research team has used extensive iterative testing to develop the most advanced emission solutions for marine applications using EMD 645 engines.

### System Integration

EMD's full system knowledge allows for the most reliable and fuel efficient emission kits for EMD engines. Meeting emissions is not a piece-part activity but a finely-tuned balance between emissions compliance and fuel efficiency. Reverse engineered parts lack the proven reliability, systems integration, and support that only the OEM can provide.

### EPA Compliance

EPA Final Rule under 40 CFR Part 1042 requires Category 2 Marine engines, including all EMD 645 models originally manufactured in 1973 or later, to meet a 25% Particulate Matter reduction when overhauled. Installing an EPA certified EMD emissions kit ensures full regulatory compliance with Part 1042 requirements.



### Benefits of EMD Emissions Solutions

- EMD emissions kits are OEM engineered, designed, and tested upgrades which provide >25% Particulate Matter reductions.
- Lube Oil consumption is reduced by 25% - 30%
- Fuel Consumption is reduced or maintained on all kits with typical improvements of 1.5% - 3.0%
- With the application of these kits per EMD Maintenance Instructions the engine achieves full compliance with EPA regulations per 40 CFR Part 1042.

### Emissions Kit Contents

EMD emissions kits include the following components:

- Low PM Power Assemblies
- OEM Emission Spec Fuel Injectors
- Aftercoolers and Plumbing (as needed)
- Engine Emission Label
- Installation Instructions
- Kit Registration Card

### Kit Availability

Kits are available for Roots Blown and Turbocharged 645 engine models including:

- 645E
- 645EB
- 645FB

## The EMD OEM Advantage

EMD 645 emissions kits are the result of extensive development and testing in the same engineering facilities where our new Marine engines are designed, built, and tested. This OEM focus ensures the same performance, reliability, and durability for which EMD engines are legendary.

- OEM fuel injectors are fully remanufactured to precise internal specs vs. partially rebuilt retrofits. This ensures sustained fuel economy and emissions performance over the full useful life of the kit and avoids the operating penalties and expense of non-compliance.
- Power Assemblies and all emissions critical components are the result of fully integrated OEM design vs. partial substitution of non-optimized third party components.
- Engines and critical subsystems are carefully calibrated to optimize performance, reduce emissions, and minimize fuel consumption.
- EMD kits require no cumbersome catalyst retrofits which can suffer from excessive backpressure, ash fouling, and extreme temperatures.
- EMD has stood solidly behind its products since 1922. As the EPA certificate holder for its engines and kits, their in-use emission compliance and engine performance is covered by the EMD OEM factory warranty.