

## Tier 2 Emissions 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.

A goal for both the new EPA and CARB emission rules is to achieve considerable 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 and CARB Compliance

The EPA requires marine engines, including all EMD 645 models, to meet specific emissions reductions when overhauled. The California Air Resources Board (CARB) enacted the Commercial Harbor Craft Regulation in January 2009 in order to accelerate the reductions of emissions of diesel particulate matter (PM) and oxides of nitrogen (NOx) from commercial harbor craft operating in California Regulated Waters.

This regulation requires owners/operators who are replacing, modifying, or retrofitting engines to comply with the current Tier 2 emissions standards beginning in 2010.



### Benefits of EMD Emissions Solutions

- This EMD emission kit is an OEM engineered, designed, and tested upgrade which satisfies the requirements of the CARB Commercial Harbor Craft Regulation.
- With the application of these kits per EMD Instructions the 645E and 645EB engines achieve full compliance with EPA Tier 2 regulations.

### Certified EPA Engine Families

- 645E: \*EMDN169.RT2
  - 645EB: \*EMDN211.TT2
- \* character changes with year of certification.*

### Emissions Kit Contents

- Emissions Compliant Power Assemblies
- Tier 2 EUI Fuel Injectors
- EUI Fuel System
- EMDEC Control System
- Tier 2 Control System Software
- Low NOx Camshafts
- Four-pass Aftercoolers (as required)
- Hardware and Plumbing Kits
- Engine Emission Label
- Installation Instructions
- Kit Registration Card

Insist on Genuine EMD Parts.

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## 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.