ELECTRO-MOTIVE

LOCOMOTIVE PRODUCTS

EM2000 Control System Retrofit Improves the Performance & Reliability of Older Locomotives

The Electro-Motive EM2000™ Control System is the only microprocessor-based system in continuous use for over 16 years. That history has been supported by a continuous program of product development and enhancement. The EMD EM2000 is installed in 7000 locomotives in service worldwide.

The EM2000 Control System Retrofit is a cost effective solution for upgrading older locomotives to the same full-featured microprocessor technology available in current model locomotives. In addition to managing all critical locomotive operating functions, the EM2000 System:

- Increases locomotive residual value.
- Improves locomotive availability.
- Improves tractive effort.
- Lowers life cycle costs.

EM2000 Control System Retrofit Benefits

Improved Adhesion

Radar-based wheel slip control increases adhesion performance 33% over older WS10 control systems.

- Employs the same adhesion control logic as current EMD 70-Series locomotives.
- Radar system provides true ground speed sensor.
- Creep control improves both high and low speed adhesion.

Interactive, User-Friendly Display Interface

- Diagnostic fault data is displayed as clear and concise values rather than numeric codes.
- Ability to store up to 600 fault messages.
- Reveals engine performance issues.
- Self-test routines reduce troubleshooting time.
- Data collected before and during fault provides snapshot of operating condition.
- Virtually eliminates NDF trouble reports.

Integrated Automatic Engine Start Stop (AESS)

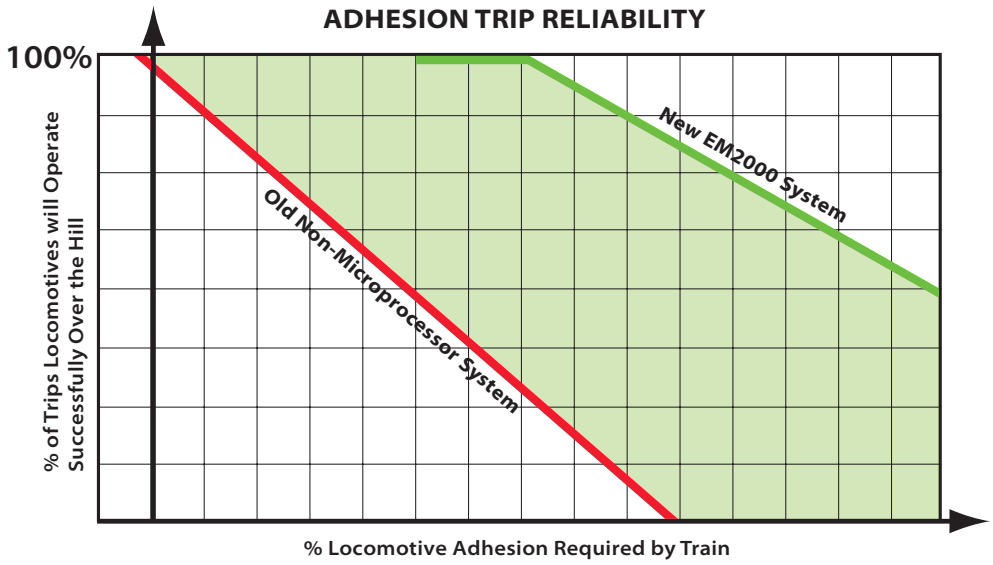
- Average savings of 16 gallons of fuel per day per locomotive.
- Reduces idle time and emissions.

Parts Standardization

- Commonality of parts with other EM2000-equipped locomotives in the fleet.
- Reduces inventory, maintenance, and operating cost.
- Service personnel are familiar with the technology.

Complete Traction Motor Management

- Utilizes the full available TE curve within specified temperature criteria.
- Continuously simulates traction motor temperature.
- Reduces operating times at higher temperatures to extend traction motor life.
- When temperature criteria is exceeded locomotive is limited to continuous current levels.



Improved adhesion and radar based wheel slip control increase trip reliability allowing for better fleet utilization. Shaded area indicates improvement over WS 10.

EM2000 Control System Retrofit Software Options

- Ground relay lockout reset switch
- EMD automatic horn sequencer
- Hot engine lead unit nullification
- Immersion heater protection
- Local alarm bell silencer
- Microprocessor-controlled cooling fan shutters
- Integrated traction motor cutout
- Cooling system automatic drain
- Engine purge control
- Inertial filter blower alarm
- Low engine water detection
- Low water temperature speedup
- Lube oil filter by-pass detection
- Starter motor protection
- Auto Engine Start Stop (AESS™)
- Extended range dynamic brake
- Self load test
- Serial link to event recorder
- Voltage compensation based on battery temperature
- Air compressor synchronization
- Air compressor low oil protection
- Microprocessor-controlled main reservoir drain heater
- Low main reservoir air pressure speed up
- Main reservoir blow down timer
- Lead truck sand detection
- Emergency sand cut out at 0 mph
- Aux Gen “circuit breaker open” alarm
- Unpowered locked wheel detection
- Slow speed control
- Winter isolation switch

To inquire about an EM2000 Control System Retrofit for your fleet, contact an Electro-Motive Parts Sales Representative at (800) 255-5355.

ELECTRO-MOTIVE®