

M.I. 1794

MAINTENANCE INSTRUCTION



EMISSIONS-RELATED MAINTENANCE On EMD Locomotives Equipped with Model 645 Blower-Type Engines Compliant with 40 CFR Part 92

92.211(b)(1) Statement: Maintenance, replacement, or repair of the emissions control devices and systems on EMD locomotives may be performed by any locomotive or locomotive engine repair establishment or individual.

December 11, 2001

INTRODUCTION

This Maintenance Instruction is published in accordance with the requirements of the United States Code of Federal Regulations 40 CFR 92.211. Instructions supplied herein supersede any contained in any other Maintenance Instructions affecting the same components of the same locomotives. Locomotive owners and operators are required by 40 CFR 92.1004 and 40 CFR 92.1103(a)(3)(iii) to carry out these instructions and to create and maintain sufficient records to show that they have been carried out. Not to do so may incur civil penalties as described in 40 CFR 92.1106(a)(1) and 92.1106(a)(3).

The scheduled inspection and maintenance items defined herein are specific to GMLG freight and passenger locomotives as a general class of motive power. Component renewal provisions are consistent with traditional "In-Carbody" engine overhaul procedures.

Nothing in this Maintenance Instruction or in the engine and locomotive service publications referenced herein is to be construed as requiring the use of brand-name parts or a service facility employed by or under the control of General Motors to maintain in force an emissions warranty in violation of Section 92.211(b)(1) and (2) or Section 92.1103(a)(4)(iv) of 40 CFR 92.

NOTES:

Publications, as referenced in abbreviation examples listed below, will be followed for inspections, tightening, and maintenance procedures.

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| LOM | means Locomotive Operator's Manual |
| LSM | means Locomotive Service Manual |
| EMM | means Engine Maintenance Manual |
| M.I. | means Maintenance Instruction |
| CTG | means Computer And Troubleshooting Guide |
| FRA | means Federal Railway Administration standards Ref: Title 49 CFR-Transportation (parts200 -399) |
| AAR | means Association of American Railroads Manual of Standards and Recommended Practices. |

90-DAY INTERVALS

Check air box drains for flow; clean if necessary.

Engine Air Filters

Paper – Take manometer readings. Replace elements if necessary

LSM. Use elements equal to original equipment.

Fiberglass – renew

LSM. Use elements equal to original equipment.

NOTE: Engine air filters can be changed at the six-month interval if the extended life (180 day) filter has been applied.

SIX-MONTH INTERVALS

Visually inspect crankcase, blower duct mounting flanges, and air box for air leaks; repair as necessary. EMM.

Engine Air Filters

Fiberglass – renew

LSM. Use elements equal to original equipment.

NOTE: This applies only to the extended life (180 day) filter. All other engine air filters must be changed at the 90-day interval.

ONE YEAR INTERVALS

Inspect radiator air passages; clean if necessary.

LSM and M.I. 549. Note: Operation in areas and in periods of airborne seeds and leaves can require more frequent cleaning.

Set injector timing and rack length.

EMM.

Check proper operation of radiator shutter system.

LSM and MI 1756 for lubricant specifications.

Check engine and cooling fan temperature switches for proper operation and settings.

LSM.

Perform self-load test after engine work, and before releasing unit, confirm the following:

LSM and EMM.

- Proper loading at each throttle notch.
- Jacket cooling water temperature is within specified range.
- Check engine speeds and governor balance point.

If tests indicate that the horsepower is out of specification, check injectors and load control. If engine speeds are out of specification, reset, rebuild, or replace governor.

TWO-YEAR INTERVALS

Inspect condition of power assemblies for scuffs, broken rings, or broken valves. Replace any failed assemblies. EMM

THREE-YEAR INTERVALS

Renew injectors; replace with new or remanufactured. EMM.

Check exhaust valve timing. If timing is found to be out of specification, check camshaft drive gear train for wear or failure. Make repairs as necessary. EMM.

FOUR-YEAR INTERVALS

Renew blowers. EMM.

AFTER END OF EPA USEFUL LIFE

Renew power assembly components. EMM.

- Apply new or remanufactured heads, liners, and pistons.
- Apply new piston rings.
- Apply new head seat rings.
- Apply new lower liner inserts.
- Apply new or remanufactured rocker arms and rocker arm bushings.
- Apply new or remanufactured valve bridges and lash adjusters.