M.I. 1795

# MAINTENANCE INSTRUCTION

ELECTRO-MOTIVE
General Motors

# EMISSIONS-RELATED MAINTENANCE
# On H-Engined EMD Locomotives
# 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:**
Mileage and MWHR values referenced herein are defined by Microprocessor Archive Data as accumulated by the locomotive's control computer system.

As always, when specific operating conditions severely impact locomotive performance and or reliability, maintenance and overhaul schedules must be adjusted accordingly.

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

| | |
|---|---|
| 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

| | |
|---|---|
| After 1st 90-day interval, retorque air intake elbows and turbo air ducts. | EMM. |
| Change fiberglass element engine air filters.<br>NOTE: Engine air filters can be changed at the six-month interval if the extended life (180 day) filter has been applied. | LSM. Use elements equal to original equipment. |

## SIX-MONTH INTERVALS

| | |
|---|---|
| Change fiberglass element engine air filters. NOTE: This applies only to the extended life (180 day) filter. All other engine air filters must be changed at the 90-day interval. | LSM. Use elements equal to original equipment. |
| Remove hand hole covers and perform a crankcase/ lower liner inspection; replace any failed power assemblies. | EMM. |
| Visually inspect joints in turbocharger compressor discharge ducts and charge air coolers for air leaks; repair as necessary. | EMM. |
| Check EMDEC active and inactive fault codes.<br>– Correct any system failures.<br>– Clear fault codes. | EMDEC Troubleshooting Guide. |

## 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. |
| With engine under normal operation, check air pressure drop across aftercoolers. Clean if necessary. | EMM. |
| Check proper operation of radiator shutter system. | LSM and MI 1756 for lubricant specifications. |
| Check linking valve function. Repair as necessary. | LSM. |
| Perform self-load test after engine work, and before releasing unit, confirm the following:<br>– Proper loading at each throttle notch.<br>– Jacket cooling water and aftercooler water inlet temperatures are within specified ranges.<br>– Use hand-held diagnostic reader or PC to confirm injector response times.<br>– Check turbo speeds and corresponding air box pressures.<br>If tests indicate that the horsepower is out of specification, check EMDEC software. | LSM, EMM, and EMDEC Troubleshooting Guide. |

## THREE-YEAR INTERVALS

| | |
|---|---|
| Inspect engine mounted EMDEC components and wire harness for damage. | EMDEC troubleshooting guide. |
| Renew fuel delivery pumps and nozzles. | EMM. |
| Renew valve bridge/ lash adjuster assemblies. | EMM. |

## SIX-YEAR INTERVALS

| | |
|---|---|
| Renew rocker arm and cam follower assemblies. | EMM. |

## AFTER END OF EPA USEFUL LIFE

| | |
|---|---|
| Renew turbochargers. | EMM. |
| Renew power assemblies. | EMM. |