M.I.1791B

MAINTENANCE INSTRUCTION

EMISSIONS-RELATED MAINTENANCE
On 710-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.

October 30, 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

Check air box drains for flow; clean if necessary.	
Renew fiberglass element engine air filters. 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

Visually inspect crankcase, aftercooler duct mounting flanges, and air box for air leaks; repair as necessary.	EMM.
Inspect condition of power assemblies for scuffs, broken rings, or broken valves. Replace any failed assemblies. If broken rings or valves are found, remove exhaust manifold inspection plate and inspect screen trap. If foreign objects are found in trap, remove screen to inspect turbine vanes.	EMM
Renew 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.
Check EMDEC active and inactive fault codes (if equipped). – Correct any system failures. – 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.
Set MUI injector timing and rack length (if equipped).	EMM.
Check EUI injector calibration codes (if equipped); reset if necessary.	EMDEC Troubleshooting Guide.
Check air pressure drop across aftercoolers; clean aftercooler cores if necessary.	EMM.
Check proper operation of radiator shutter system.	LSM and MI 1756 for lubricant specifications.
On locomotives equipped with separate circuit aftercooling, check linking valve function. Repair as necessary.	LSM.

ONE YEAR INTERVALS (continued)

Perform self-load test after engine work, and before releasing unit, confirm the following: – Proper loading at each throttle notch. – Jacket cooling water and (if equipped with separate loop aftercooling) aftercooler water inlet temperatures are within specified ranges. – For MUI applications, check engine speeds and governor balance point. – For EUI applications, use hand-held diagnostic reader or PC to confirm injector response times. If tests indicate that the horsepower is out of specification, check MUI injectors, or check EMDEC software or EUI calibration codes. If mechanically injected engine speeds are out of specification, reset, rebuild, or replace governor.	LSM, EMM, and EMDEC Troubleshooting Guide.

THREE-YEAR INTERVALS or 10,000 MEGAWATT HOURS (WHICHEVER OCCURS FIRST)

Renew injectors; replace with new or remanufactured.	EMM.

THREE-YEAR INTERVALS

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.

AFTER END OF EPA USEFUL LIFE

Renew turbocharger.	EMM.
Renew power assembly components. – 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.	EMM.