

MAINTENANCE INSTRUCTION

**NEW LOCOMOTIVE INSPECTION
AND TIGHTENING PROGRAM**

INTRODUCTION

Prior to placing a new locomotive in service, it is important that certain equipment inspections be made. After limited service (approximately one month) it is essential that an additional inspection be made and equipment tightened to proper torque values. Such attention will have a definite bearing on continued successful operation.

This publication outlines the procedures and inspections that should be performed with accurate records kept of initial inspection and tightening. Since it covers locomotives having varying equipment, certain of the items listed may not be applicable.

Before proceeding with the initial inspection, remove all protective coverings that were applied to protect the locomotive for shipment.

INSTRUCTION REFERENCES

In the "Remarks" column of this instruction, abbreviations are used to reference publications that contain information related to maintenance. The following examples are provided to aid in understanding the abbreviations used.

- LSM means Locomotive Service Manual
- EMM means Engine Maintenance Manual
- M.I. 1756 means Maintenance Instruction 1756.

BEFORE SERVICE INSPECTION AND TIGHTENING

MECHANICAL	REMARKS
------------	---------

1. ENGINE	Pre-lube before starting engine. Bar over during pre-lube inspection. LSM.
a. Check racks	Move injector control lever to check for freedom of movement and no binding of injectors.
b. Lubricating oil	Fill to proper level with approved oil. M.I. 1752. Before starting, make certain that lobe oil strainer housing is filled. Recheck oil level with engine running.
c. Governor	Check oil level. Should be between marks on sight glass with engine running. Add as required. M.I. 1764.
d. Top deck	Inspect for loose parts and foreign material. With engine running at idle, check for proper lubrication.
e. Air box drain	Check for air discharge.

*This bulletin is revised and supersedes previous issues of this number.

MECHANICAL	REMARKS
------------	---------

- | | |
|------------------------------------|--|
| 2. COOLING SYSTEM | Fill cooling water system. Use EMD approved water treatment . M.I. 1748. Check shutter and fan operation after engine is running. |
| 3. AIR COMPRESSOR | Check oil level, M.I. 1110. Add as required, M.I. 1756. Check air compressor operation for cut in and cut out after engine is running. |
| 4. SPEED RECORDER | Check oil level. Add as required. Refer to Manufacturer's bulletin. |
| 5. TRUCKS | |
| a. Traction motor support bearings | Check oil level, M.I. 3900. Add as required, M.I. 1756. |
| b. Gear case | Check grease level, M.I. 3900. Add as required, M.I. 1756. |
| c. Journal boxes | |
| Roller bearing | Check oil level, M.I. 1552. Add as required, M.I. 1756. |
| Friction type | Check oil level, M.I. 1554. Add as required, M.I. 1756. |
| d. Brakes | Check operation. Observe that brakes apply and release properly, and that there are no leaks. |
| e. Sand | Check that sand is applied to rail in proper amount at proper location. |
| 6. BLOWERS | Check air discharge from traction motor vents and discharge through main generator into engine room. |
| 7. GENERATOR PIT DRAIN ASPIRATOR | Check for obstructions and air flow. |

ELECTRICAL	REMARKS
------------	---------

- | | |
|------------------------|---|
| 8. ROTATING EQUIPMENT | Inspect slip rings, commutators, and brushes. Replace broken or chipped brushes using same grade and type as removed. |
| a. Main generator | |
| b. Traction motors | |
| c. Auxiliary generator | |

ELECTRICAL

REMARKS

9. DEVICES AND SYSTEMS

- | | | |
|----|--|---|
| a. | Contactors, relays, and switches | Check wiring connections for tightness and check for proper operation. |
| b. | Terminal boards, resistors and rheostats | Check connections for tightness. |
| c. | Fuses (main electrical cabinet) | Test and install fuses. |
| d. | Fuses (main generator and radiator cool- | Check fuse indicating pins. ing fan) |
| e. | Control system qualification | Perform qualification checks listed in LSM. Perform forward and reverse movement check in single and multiple unit operation. |

10. BATTERIES

Connect battery leads. Check battery water level and specific gravity. Add water as necessary.

11. AUXILIARY GENERATOR

Check auxiliary generator voltage. If necessary, perform adjustment in run 8 with equipment at operating temperature.

12. ALARM AND SAFETY DEVICES

- | | | |
|----|--------------------------------------|-----------------------------|
| a. | All annunciator lights. | Test for correct operation. |
| b. | Governor shutdown (low oil pressure) | |
| c. | Hot engine | |
| d. | No power (auxiliary AC) | |
| e. | Overspeed trip | |
| f. | High voltage ground/fault | |
| g. | Engine protector | |
| h. | Turbocharger auxiliary pump | |

13. INERTIAL AIR FILTER DUST BIN MOTOR

Check for correct rotation.

AFTER-SERVICE INSPECTION AND TIGHTENING

Perform All Operations Listed After Approximately One Month Of Service

MECHANICAL	REMARKS
1. ENGINE TIGHTNESS CHECK	Check bolts, nuts, and connections for tightness.
2. ENGINE BOLT AND NUT RETORQUING	Tighten to correct torque values. EMM.
a. Cylinder liner water inlet line nuts and bolts	
b. Exhaust manifold flange bolts	
c. Cylinder head crab nuts	
d. Head frame to crankcase bolts	
e. Turbocharger to aftercooler air duct bolts	
3. ENGINE INSPECTION	
a. Air box	Bar engine over and make visual inspection. EMM.
b. Oil pan	
c. Top deck	
4. ENGINE CONTROLS AND ADJUSTMENTS	Check settings. Refer to Engine Maintenance Manual for correct settings.
a. Injector timing	
b. Injector rack setting	
c. Engine speed	
d. Lash adjusters	
e. Pilot valve setting	Readjust pilot valve setting if engine speed adjustment is changed.
5. EQUIPMENT RACK	Check tightness of all bolts, nuts, and connections on equipment rack.
6. COOLING SYSTEM	
a. Check inhibitor	M.I. 1748.
b. Fans and shutters	Press buttons to check operation. Check for blown fuses.
c. Piping	Check for leaks at piping, radiators, and aftercooler (if applicable).

MECHANICAL**REMARKS**

7. FUEL SYSTEM

- a. Suction strainer Clean suction strainer
- b. Filters Change fuel filters.

8. LUBE OIL SYSTEM

- a. Lube oil Check for dilution or contamination.
- b. Lube oil filters Change filters. Clean the filter housing.
- c. Lube oil strainer housing Clean the suction screens.

9. Air COMPRESSOR

Tighten cylinder head and cylinder to crankcase bolts. M.I. 1110.

10. TRUCKS AND WHEELS

Make visual inspection of frame, bolster, wear plates, liners, springs, spring seats, snubbers, brake rigging, rubber bolster springs, and shock absorbers. Check torque of shock absorber mounting bolts.

ELECTRICAL**REMARKS**

1. ROTATING EQUIPMENT

Perform checks listed in Step 8 under "Before Service." Also inspect for flashover damage.

2. DEVICES AND SYSTEMS

Perform checks listed in Step 9 under "Before Service."