



M AINTENANCE I NSTRUCTION

SCHEDULED MAINTENANCE PROGRAM - GP18, SD18

INTRODUCTION

Maintenance Instruction 1712 comprises average recommendations which we believe will insure satisfactory locomotive operation and economical maintenance cost where average load factors and average climatic conditions are encountered.

The maintenance period recommendations reflect our experience with special long life items as well as the standard items under the best possible maintenance conditions.

The recommendations assume that the following conditions will apply:

1. All work scheduled will be done in a workmanlike manner, which assumes that the proper tools, facilities and supervision will be available.
2. No work not called for, either by the schedule or by operating reports, will be done, other than to satisfy I.C.C. requirements which are not included in this schedule.
3. All lubricating oil used **MUST** meet the specifications of Maintenance Instruction 1752.
4. Fuel oil used should meet the specifications of Maintenance Instruction 1750.
5. Lubricating oil filters should be changed in accordance with Item 2, at one (1) month or 10,000 mile intervals, and **MUST** meet EMD specifications.
6. Lubricating oil should be changed in accordance with Item 7, at three (3) month or 30,000 mile intervals.

MECHANICAL AND ELECTRICAL MAINTENANCE SCHEDULE

ONE MONTH OR 10,000 MILES

REMARKS

- | | |
|---|----------------------------|
| 1. CARBODY AIR FILTERS | M.I. 1706 |
| a. Change or clean | |
| 2. LUBE OIL FILTER - 7-ELEMENT | EMD approved type elements |
| a. Change filter elements | |
| b. Clean lube oil strainer | |
| 3. CHECK LUBE OIL FOR FUEL OR WATER DILUTION | |
| 4. CHECK LEVEL OF OIL IN OIL BATH AIR FILTERS | |
| a. Engine | M.I. 431 |
| b. Air compressor | M.I. 1110 |
| 5. CHECK BATTERY WATER LEVEL AND GRAVITY | |

TWO MONTHS OR 20,000 MILES

REMARKS

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|---|-----------|
| 6. CLEAN OR CHANGE FUEL FILTER ELEMENTS | M.I. 1706 |
| a. Suction and discharge | |

THREE MONTHS OR 30,000 MILES

REMARKS

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|---|---------------------------|
| 7. CHANGE ENGINE LUBE OIL | Engine Maintenance Manual |
| a. Clean oil suction screen | |
| b. Clean scavenging oil screens | |
| c. Clean oil pan | |
| d. Change filter elements | |
| e. Clean filter housing | |
| f. Clean and inspect oil filter relief valves | |
| 8. INSPECT ENGINE | Engine Maintenance Manual |
| a. Crankcase | |
| b. Pistons and liners | |
| c. Cylinder head mechanism with engine idling | |

THREE MONTHS OR 30,000 MILES**REMARKS**

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| 9. CHECK COOLING WATER INHIBITOR | Engine Maintenance Manual |
| 10. DRAIN CONDENSATE FROM FUEL TANK | More frequently in rapid temperature changes. |
| 11. TRACTION MOTOR BRUSHES | Experience with individual operations will dictate the frequency of this item. Brush life will vary from three (3) to six (6) months, depending on type of service and operating conditions. M.I. 3900 |
| a. Replace in complete sets | |

SIX MONTHS OR 60,000 MILES**REMARKS**

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| 12. OIL BATH AIR FILTERS - CLEAN FILTER BOWL AND CHANGE OIL | |
| a. Engine (if panel type, check at 3 months) | M.I. 431 |
| b. Air compressor | M.I. 1110 |
| 13. MAIN GENERATOR BRUSHES | Experience with individual operations will dictate the frequency of this item. Brush life will vary from six (6) to nine (9) months depending on type of service and operating conditions. M.I. 3302 |

ONE YEAR OR 120,000 MILES**REMARKS**

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| 14. LUBE OIL COOLER | Pointers #68 |
| a. Check temperature differential between lube oil and cooling water into engine | Clean oil cooler if required. |
| 15. VISUALLY INSPECT COOLING SYSTEM FOR LEAKS | Locomotive Operating Manual |
| 16. REPLACE BRUSHES | |
| a. Auxiliary generator - (replace complete set) | M.I. 3701 |
| b. Alternator slip ring brushes | M.I. 3306 |
| 17. CHECK CALIBRATION AND OPERATION OF PROTECTION AND SAFETY DEVICES | |
| a. High temperature | M.I. 5511 |
| b. Low oil pressure | Engine Maintenance Manual |

ONE YEAR OR 120,000 MILES**REMARKS**

17. CHECK CALIBRATION AND OPERATION OF PROTECTION AND SAFETY DEVICES (Cont'd)
- c. High oil suction
 - d. No voltage
 - e. Overspeed trip
 - f. Ground relay
 - g. Wheel slip relay
18. WASH OUT BATTERY BOXES AND GREASE TERMINALS
19. CLEAN DYNAMIC BRAKE GRIDS
20. ELECTRICAL CABINET
- a. Visually inspect contact tips of all contactors and replace where required
21. CHECK OPERATION OF VOLTAGE REGULATOR
22. CHECK OPERATION OF DYNAMIC BRAKE REGULATOR
23. CHECK LOW VOLTAGE SYSTEM FOR GROUNDS
24. RENEW GOVERNOR DIAPHRAGMS

Engine Maintenance Manual
M.I. 5323
Engine Maintenance Manual
M.I. 5384
M.I. 5353

Use clean dry air.

M.I.'s 5300, 5373, 5398, 5380,
5427, 5428, 5375, 5364, 5374

Must be at operating temperature.
M.I. 4510

M.I. 4508

Engine Maintenance Manual

TWO YEARS OR 240,000 MILES**REMARKS**

25. RECONDITION AIR COMPRESSOR VALVES
- a. Suction
 - b. Discharge
26. CHECK SETTING OF RELAYS IN AUTOMATIC TRANSITION CIRCUIT
27. LOAD REGULATOR
- a. Clean commutator and replace brushes
28. UNIT EXCHANGE FUEL PUMP AND FUEL PUMP MOTOR

M.I. 1110

M.I. 6829, 5497

M.I. 4504

TWO YEARS OR 240,000 MILES**REMARKS**

29. RENEW BRUSHES

M.I. 4104

- a. Dynamic brake blower motor

THREE YEARS OR 360,000 MILES**REMARKS**

30. UNIT EXCHANGE CYLINDER ASSEMBLIES

Engine Maintenance Manual

- a. Replace grommets, all-metal gaskets, and lower liner seal
- b. Renew piston rings
- c. Clean top deck, air box, and oil pan

Take compression lead readings of all cylinders when reapplied to engine. Maintain records.

31. UNIT EXCHANGE INJECTORS

32. UNIT EXCHANGE WATER PUMPS

33. REMOVE BATTERIES, CLEAN AND PAINT BATTERY BOXES

FOUR YEARS OR 480,000 MILES**REMARKS**

34. INSTALL NEW THRUST COLLARS AND NEW LOWER MAIN BEARINGS

Engine Maintenance Manual

35. UNIT EXCHANGE ENGINE BLOWERS

36. UNIT EXCHANGE TRACTION MOTORS

37. UNIT EXCHANGE GOVERNOR

SIX YEARS OR 720,000 MILES**REMARKS**

38. UNIT EXCHANGE

- a. Auxiliary generator
- b. Dynamic brake blower motor
- c. Cooling fans
- d. Traction motor blower motors

39. RECONDITION AIR COMPRESSOR ASSEMBLY

M.I. 1110

40. CLEAN AND INSPECT

- a. Fuel tank

TWELVE YEARS OR 1,440,000 MILES**REMARKS**

41. UNIT EXCHANGE ENGINE ASSEMBLY

42. UNIT EXCHANGE MAIN GENERATOR
AND ALTERNATOR ASSEMBLY

43. RENEW HIGH VOLTAGE CABLE

It is recognized that this work may not be required at this particular time or mileage. However, shop efficiency may require this operation at time of engine and generator exchange.

44. RENEW LOW VOLTAGE WIRING

It is recognized that this work may not be required at this particular time or mileage. However, shop efficiency may require this operation at time of engine and generator exchange.

45. CLEAN AND RECONDITION ENGINE
CARBODY**NON-SCHEDULED MECHANICAL AND ELECTRICAL MAINTENANCE**

A definite schedule for the items listed below cannot be established due to variation in wheel life and truck overhaul periods. This rework to be performed at wheel change time or when truck is removed for reconditioning.

REMARKS

1. MAGNAFLUX

M.I. 1211

- a. Pinion gears
- b. Axle gears
- c. Axles with inner races removed

2. CHECK ARMATURE BEARINGS

Whenever truck assembly is removed from locomotive, check traction motors for any unusual bearing noise or heat at not less than 1500 RPM. M.I. 3900

3. CLEAN AND RECONDITION HYATT
JOURNAL BOXES

M.I. 1552

LUBRICATION SCHEDULE

ONE MONTH OR 10,000 MILES**REMARKS**

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|------------------------------------|---|
| 1. TRACTION MOTOR SUPPORT BEARINGS | Fill to 6-1/2" mark. Capacity 12-1/2 pints. M.I. 1752 |
| 2. TRACTION MOTOR GEAR CASE | Jet Lube or equivalent. M.I. 3900 |
| 3. WATER PUMPS | Fill cup on pumps. M.I. 1752 |
| 4. BELL RINGER | |
| 5. SHUTTER LINKAGE | |
| 6. JOURNAL BOX - ROLLER BEARING | Maintain at fill plug level. |

THREE MONTHS OR 30,000 MILES**REMARKS**

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| 7. LUBRICATE SPEED RECORDER AND DRIVE CABLE | SAE #10 oil. This item not required for grease lubricated recorders. |
| 8. HAND BRAKE WHEEL | Light oil. |
| 9. BRAKE SLACK ADJUSTER SCREWS | Use graphite grease. |
| 10. LUBRICATE: | |
| a. Mars headlight | |
| b. Windshield wiper motors | |
| c. Door and window hardware | |

ONE YEAR OR 210,000 MILES**REMARKS**

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| 11. AIR COMPRESSOR UNLOADER - (ALL METAL TYPE) | Light machine oil. Lubricate parts when valves are inspected and cleaned. M.I. 1110 |
| 12. CHANGE OIL IN ENGINE GOVERNOR | M.I. 1752 |
| 13. CHANGE OIL IN AIR COMPRESSOR | M.I. 1752 |

THREE YEARS OR 360,000 MILES**REMARKS**

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|--|-----------------------------------|
| 14. MAIN GENERATOR BEARING | Use Cyprina RA grease - Grade #3. |
| a. Repack as follows: | Capacity (New) - D12 Generator: |
| (1) Remove bearing cover | Bearing 14 oz. |
| (2) Remove old grease from cover and exposed portions of bearing | Cap 18 oz. |
| (3) Inspect exposed portions of bearing for signs of distress, metal chips, etc. | Cover 18 oz. |
| (4) Repack bearing solidly with approved grease | |
| (5) Repack cover and apply | |