

Bangor and Aroostook Railroad
Locomotive
Quarterly Mechanical Maintenance
Leads

Unit 023

Date 7-18-11

1. INSPECT ENGINE
 - a. Blowers, Lube oil Separator and Stack studs for oil and water leaks. Tighten stack studs. OB
 - b. Gear train housing, pumps, governor and governor linkage for defect and leaks. -
 - c. Crankcase, connecting rods, Bearings for cracks and leaks. -
 - d. Air Boxes, Liners, Pistons and Piston Rings for cracks, oil and water leaks. -
 - e. Wipe out air boxes DB,
2. Take Cylinder Lead Readings. -
3. Change Michiana Filter Elements. OK
4. Remove and Clean Lube Oil Suction Strainers. OK
- Change or Clean Fuel Oil Filters. OK
 - a. Sintered Bronze. OK
 - b. Fullflo Filter Elements. OK
 - c. Suction Filter Elements. OK
6. LUBRICATE THE FOLLOWING:
 - a. Traction Motor Gears. (4 pkg. per gear case).. OK
 - b. Journal Boxes. OK
 - c. Speed Recorder Drive Chain. -
 - d. Throttle Governor. -
 - e. Shutter Linkage. -
 - f. Bell Ringer. -
 - g. Air Compressor Flexible Coupling. -
7. Inspect, Repair and Lube Hand Brake. D. B. L.
8. Inspect and Repair TM Gear Case. D. B. L.
H.C.
9. CHECK COOLING WATER SYSTEM.
 - a. Inspect for leaks. OK
 - b. Water Inhibitor Concentration. OK
 - c. Water Gauges. OK
10. Drain Condensate From Fuel Tank Sump. OK
11. Drain Condensate From Lube Oil Sump. OK
12. Check Fuel Emergency Cutoff Valve Operation. OK
13. Check Fuel System For Leaks and Repair. OK
14. Check Traction Motor Air Duct Bellows. D. B. L. H.C.
15. Change Engine Air Filters. OK
16. Change Carbody Air Filters. OK
17. Change High Voltage Cabinet Air Filters. OK
18. Change or Clean Air Compressor Intake Air Filters. OK
- Clean Screen in Air Comp. Discharge Oil Separator. -
- Clean Aftercooler Discharge Filter. -
21. Clean Oil Cooler Breather. -
22. CHECK OPERATION OF ALL GAUGES
 - a. Engine lube oil pressure. -
 - b. Engine lube oil suction. -
 - c. Water temperature. -
 - d. Water pressure. -
 - e. Air compressor lube oil pressure. -
 - f. Main resevoir/air compressor governor. -
 - g. Fuel gauges. -
23. Perform Daily Inspection. -

**BANGOR & AROOSTOOK SYSTEM
LOCOMOTIVE
QUARTERLY ELECTRICAL MAINTENANCE**

UNIT 23 DATE 7/19/11

TYPE OF MILEAGE

TYPE OF UNIT

(M-1) (M-2) (LM) (M-12) (M-24) (M-36) (GP-7) (GP-9) (GP-35R) (GP-38) (GP-40)

		SIGNATURE
1.	INSPECT, CLEAN, AND CHECK BRUSHES	
	A. TRACTION MOTORS	
	1. NO. 1.....	<i>H. Conlogue</i>
	2. NO. 2.....	<i>H. Conlogue</i>
	3. NO. 3.....	<i>H. Conlogue</i>
	4. NO. 4.....	<i>R. Stant</i>
	B. MAIN GENERATOR.....	<i>L. J. Stant</i>
	C. AUXILIARY GENERATOR.....	<i>L. J. Stant</i>
	D. ALTERNATOR SLIP RINGS.....	<i>L. J. Stant</i>
	E. FUEL PUMP MOTOR.....	<i>L. J. Stant</i>
	F. DYNAMIC BRAKING MOTOR.....	<i>N/A</i>
	G. TURBO LUBE PUMP MOTOR.....	<i>-N/A-</i>
2.	CHECK MAIN ALTERNATOR	
	A. DIODES.....	<i>N/A</i>
	B. FUSES.....	<i>N/A</i>
3.	DRAIN WATER AND LUBE MOTOR SUPPORT BEARINGS	<i>H. Conlogue</i>
4.	LUBE SPEED RECORDER, (UNITS 60-79).....	<i>N/A</i>
5.	INSPECT AND CLEAN CONTROLLER STAND.....	
6.	INSPECT AND CLEAN ALL EQUIPMENT IN ELECTRICAL CABINETS.....	<i>L. J. Stant</i>
7.	CHECK WATER LEVEL AND GRAVITY OF BATTERIES....	<i>L. J. Stant</i>
8.	WASH OUT BATTERY BOXES AND GREASE TERMINALS	<i>L. J. Stant</i>
9.	INSPECT AND CLEAN COMMUTATOR AND SLIP RING ASSEMBLY OF THE LOAD REGULATOR.....	<i>L. J. Stant</i>
10.	INSPECT, CLEAN, AND REPAIR ALL POWER CONTRACTORS	<i>L. J. Stant</i>
11.	INSPECT, CLEAN, AND REPAIR ALL REVERSER CONTRACTORS.....	<i>L. J. Stant</i>
12.	INSPECT, CLEAN, AND REPAIR ALL DYNAMIC BRAKING CONTRACTORS.....	<i>N/A</i>
13.	CHECK FOR LOOSE TERMINALS AND INSULATION DEFECTS IN CABINETS.....	<i>L. J. Stant</i>
14.	CHECK ELECTRICAL SYSTEM FOR GROUNDS	
	A. HIGH VOLTAGE..... <i>300K-2 @ 125V</i>	<i>L. J. Stant</i>
	B. LOW VOLTAGE..... <i>7M-2 @ 250V</i>	<i>L. J. Stant</i>
	C. A/C VOLTAGE SYSTEM..... <i>OK</i>	<i>L. J. Stant</i>

SIGNATURE

- 15. CHECK ENGINE COOLING SYSTEM
 - A. COOLING FANS.....
 - B. SHUTTER OPERATION.....
- 16. CHECK RUNNING VOLTAGES
 - A. AUXILIARY GENERATOR VOLTAGE (72 VOLTS) ^{69.2v @ idle}
 - B. 3 PHASE A/C VOLTAGE. 39v @ idle - 183v @ 5th notch
- 17. CHECK OPERATION OF ALARM CIRCUITS AND SAFETY SWITCHES
 - A. LOW OIL PRESSURE.....
 - B. SUCTION ALARM.....
 - C. HIGH TEMPERATURE.....
 - D. CREW ALERT SYSTEM.....
 - E. TURBO LUBE PUMP TIMER.....
- 18. CHECK OPERATION OF WHEEL SLIP RELAYS.....
- 19. PERFORM A DAILY INSPECTION.....
- 20. DOWN LOAD EVENT RECORDER.....
- 21. CALIBRATE LOAD METER (+/-5%).....
- 22. GOVERNOR
 - A. CHANGE OIL..... Gov- OK
 - B. REMOVE PACK AND CLEAN ALL SOLENOIDS.....

R. Hussey
R. Hussey
[Signature]
[Signature]

[Signature]
[Signature]

[Signature]
NO

COMMENTS:

Eng. Side Battery

<u>25V</u>		<u>Hydro</u>	
25	75	50	50
75	75	25	75
75	75	50	50
50	50	50	50

OUTSIDE BANK

Cond. Side Battery

<u>25V</u>		<u>Hydro</u>	
50	50	75	50
50	50	50	50
50	50	50	50
50	50	50	50

BAR
Unit 23

Montreal, Maine, & Atlantic Railway
Locomotive

Date 7-19-11

3 Month Federal Air Work

Signature

1. Inspect and repair air piping and valves for leaks D. Black
2. Test all air gauges with gauge tester and set if required..... D.B
3. With full brake pipe pressure, make a 20lb. reduction, move the cutoff valve to "OUT" position and move the lead - dead valve to "DEAD" position. Brakes must remain applied for 5 minutes..... D.B
4. Cover each trainline hose coupling with hand and test for leakage through valve, then apply blank dummy couplings to the trainline hoses on each end of the unit and open trainline valves. Make a 20lb. reduction with the Automatic, move the cutoff valve to "OUT" position and check for brake pipe leakage. Leakage shall not exceed 5 lb. per minute..... D.B
5. Reduce main reservoir pressure to 85 lbs. by draining #2 main reservoir.(*). Check cab gauge for leakage from main reservoirs and piping for 3 minutes. Leakage must not exceed an average of 3 lb. per minute during the test..... D.B
6. Drain #1 main reservoir (*) completely and test check valve between reservoirs. Pressure should remain on the main reservoir gauge in the cab as #1 main reservoir is drained..... D.B
7. Check all MU valve handles to ensure the locking devices work properly. Lubricate or replace as necessary..... D.B
8. Check knuckle thrower to make sure it opens the knuckle. Lubricate or repair as necessary..... D. Black

Note (*) #1 reservoir is without the check valve.# 2 is with the check valve.

Bangor and Aroostook Railroad

Brush Record

Unit 23

Date 7-18-11

MAIN GENERATOR

POS	1	2	3	4	5	B	W
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Signature [Signature]

Aux. Generator

POS	1	2
2		
4		
8		
10		

Signature [Signature]

Fuel Pump

3	
9	

Signature [Signature]

NO. 1 TRACTION MOTOR

POS	1	2	3	B	W
3					
6					
9					
12					

SIGNATURE [Signature]

No. 2 Traction Motor

3					
6					
9					
12					

Signature [Signature]

No. 3 Traction Motor

3					
6					
9					
12					

Signature [Signature]

No. 4 Traction Motor

3					
6					
9					
12					

Signature [Signature]

Montreal, Maine, & Atlantic Railway
Mechanical Department

Unit Number. 23

Date 7-18-11

1. Inspect traction motor wicks and report action

- #1. OK ... OK
- #2. _____ ... _____
- #3. _____ ... _____
- #4. _____ ... _____
- #5. _____ ... _____
- #6. _____ ... _____

Hassey - Duffy

22 needs to be profiled

LOCOMOTIVE **23** DATE **7-18-11**

	Start Readings				Has Shims			END READING				Has Shims		OLD GAUGE
	Flange Height	Flange Thickness	Rim Thickness	Witness Grove	YES	NO		Flange Height	Flange Thickness	Rim Thickness	Witness Grove	YES	NO	
X L#1	3.22	0-0	2 1/16				L#1	0-21						FLANGE THICKNESS MEASUREMENT 0-on 0-1-17/64" 1-on 0-1-15/64" 2-on 0-1-7/32" 3-on 0-1-5/32" 4-on 0-1-7/64" 5-on 0-1-3/64" 6-on 0-1-1/32" 7-on 0-1-63/64" 8-on 0-1-15/16"
X L#2	3.22	0-0	2 1/16				L#2							
X L#3	2.22	0-0	2 3/16				L#3							
X L#4	3.22	0-0	2 1/16				L#4							
L#5							L#5							
L#6							L#6							
													OLD GAUGE	
														FLANGE HEIGHT MEASUREMENT
Y R#1	2.22	0-0	2 1/16				R#1	0-21						0-on 0-1"
R#2	0.22	0-0	2 3/16				R#2							0-on 1-1-1/16"
X R#3	2.22	5-0	2 1/16				R#3							0-on 2-1-1/8"
Y R#4	2.22	0-0	2 9/16				R#4							0-on 3-1-3/16"
R#5							R#5							0-on 4-1-1/4"
R#6							R#6							0-on 5-1-5/16"
														0-on 6-1-3/8"
														2-on 6-1-13/32"
														4-on 6-1-7/16"
														6-on 6-1-31/64"

WEAR LIMITS FOR ROAD & SWITCH LOCOMOTIVES - MINIMUM DAILY REQUIREMENTS

- FRA 1 1/2" MMA 1 7/16" Flange Height
- FRA 7/8" MMA 15/16" Flange Thickness
- FRA 1" MMA 1 1/16" Rim Thickness
- FRA 5/16" MMA 1/4" Tread Wear

FLANGE HEIGHT MEASUREMENT

WEAR LIMITS - ROAD & SWITCH LOCOS - MIN. 92 DAY REQ.

WEAR LIMITS - PASSENGER LOCOS - MIN 92 DAY REQ.

Flange Height	Flange Thickness	Rim Thickness	Tread WEAR	Flange Height	Flange Thickness	Rim Thickness	Tread WEAR
FRA 1 1/2"	FRA 7/8"	FRA 1"	FRA 5/16"	FRA 1 1/2"	FRA 7/8"	FRA 1"	FRA 5/16"
MMA 1 7/16"	MMA 1 1/32"	MMA 1 1/8"	MMA 1/4"	MMA 1 1/2"	MMA 1"	MMA 1 1/4"	MMA 1/4"

CONVERSION CHART FOR WHEEL DIAMETER

8= 37"	15= 37 7/8"	22= 38 3/4"	29= 39 5/8"	36= 40 1/2"
9= 37 1/8"	16= 38"	23= 38 7/8"	30= 39 3/4"	37= 40 5/8"
10= 37 1/4"	17= 38 1/8"	24= 39"	31= 39 7/8"	38= 40 3/4"
11= 37 3/8"	18= 38 1/4"	25= 39 1/8"	32= 40"	39= 40 7/8"
12= 37 1/2"	19= 38 3/8"	26= 39 1/4"	33= 40 1/8"	40= 41"
13= 37 5/8"	20= 38 1/2"	27= 39 3/8"	34= 40 1/4"	41= 41 1/8"
14= 37 3/4"	21= 38 5/8"	28= 39 1/2"	35= 40 3/8"	42= 41 1/4"

FLANGE THICKNESS MEASUREMENT

LOCOMOTIVE RAIL CLEARANCE

COUPLER HEIGHT		PILOT HEIGHT		FRONT		HEIGHT OF HORIZONTAL END HANDHOLD OR UNCOUPLING LEVER IF USED AS HORIZONTAL HANDHOLD		LOCO RAIL CLEARANCE	
FRA	MAX 34 1/2" MIN 31 1/2"	FRA	MAX 6" MIN 3"	FRONT	4 1/2"			FRA	MIN 2 1/2"
MMA	MAX 34 1/2" MIN 32 1/2"	MMA	MAX 6" MIN 3 1/2"	REAR	4 3/4"			MMA	MIN 3"

WHEEL DIAMETER MEASUREMENTS ARE TAKEN FROM THE TOP OF THE WITNESS GROOVE 40" DIAMETER WHEELS WITNESS GROOVE = 36"
42" DIAMETER WHEEL WITNESS GROOVE = 38"

WHEEL MATCHING STANDARDS FOR 6 AXLE LOCOMOTIVES (FRA & MMA STANDARDS ARE THE SAME)

- 1/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIMS.
- 1/2" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS APPLIED.
- 1 1/4" IS THE MAXIMUM VARIATION ALLOWED, IN WHEEL DIAMETER, BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS.

NOTE: WHEN FIGURING THE DIFFERENCE IN WHEEL DIAMETER, TO DETERMINE IF SHIMS ARE REQUIRED, YOU MUST USE THE AVERAGE WHEEL DIAMETER FIGURES

REMEMBER THIS RULE

6 TO 10 DIAMETER DIFFERENCE NO SHIMS REQUIRED 6 TO 10 DIAMETER DIFFERENCE ADD APPROPRIATE SHIMS TO BOTH BOXES ON BOTH SIDES OVER 10 IN DIAMETER DIFFERENCE REQUIRES WHEEL CHANGE OR TRUED NOTE: ON EMD LOCOMOTIVES USE ONLY ONE 1/2" SHIM END PART NUMBER 8455981 SHELLED TREAD AND FLAT SPOTS MUST BE TRUED OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE KCS CONDEMNING LIMITS FOR SHELLED TREAD ON A SERVICE TRACK

• ONE SHELLED SPOT 1" OR GREATER IN LENGTH • ONE SHELLED SPOT WITH A DEPTH OF 1/4" OR MORE

EMPLOYEES SIGNATURE

Wayne Cantore

SUPERVISORS SIGNATURE

[Empty Signature Box]

DEFECT	CORRECTIVE ACTION TAKEN	SIGNATURE
#1 & #3 GEAR CASE bott	new botts	McQuinn
Aux-Gen Conduet support BO broken weld	WELDED	J. Anderson
Load Reg. stand-base has broken welds	changed	D. V. Lut
H Bad Brake Shoe	wired in - still needs antenna end	D. V. Lut
Needs cables for C.D.U.	soldered in antenna end -	D. V. Lut
Front Ditchlight ring broken	9/0 w/new stock	D. V. Lut
Toilet empty	Refilled	P. Good
LR Sand Air line off -	Reinstalled air line for LR sander	D. Black
L3 overriding B-Shoe	Replaced shoe	T. Plouffe

Inspector: _____ Time: _____

Time and Date Ok'd For Service: _____

The above work has been performed, except as noted, and the report is approved.

Signature: _____ Occupation: _____

Foreman in Charge

TRACTION MOTOR INVENTORY FOR LOCOMOTIVE

#.....

Motor type	serial number	gear case type
1 _____	_____	_____
2 _____	_____	_____
3 _____	_____	_____
4 _____	_____	_____
5 _____	_____	_____
6 _____	_____	_____