



Locomotive Release from Shop Form

To be completed on every engine released from the Shop

I have reviewed the work packet for locomotive 5078 on this date 9-3-11 and take no exception to applicable laws, rules and or MMA standards, policies and standards.



UNIT 5078

DATE 9-3-11

Service Operations

THROTTLE 8 OUTBOUND LOAD TESTS

Eng RPM (900)	EMD	_____	Lube Oil Pres	<u>- NA -</u>
Eng RPM (1050)	GE	_____	Water Temp	<u>155°F</u>
Horsepower		_____	Overspeed Setting	<u>OK - [Signature]</u>
Volts (5.3)	B-23	_____	RACK SETTING	_____
Volts (7)	C-30	<u>6.9</u>		
Volts (720)	B-39	_____		

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THROTTLE #1 STALL TEST

OP Mode	(PWR)	_____	NOT APPLICABLE TO B-23 AND C-30
AMPS	(300)	_____	
MGA	(1220)	_____	
Charging Rate	(70v)	<u>73.4v</u>	

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B-23, B-39, C-30, GP-7 MO3 INSPECTION



In-Bound Loadtest Electrical/Mechanical

WORKED BY:

ELECTRICAL

VERIFY THE OPERATION OF THE GROUND RELAY
 CHECK FOR LOW VOLTAGE GROUNDS (7 watt bulb)
 WHILE IN THROTTLE 3 LOAD TEST, CHECK FOR AC GROUNDS

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CHECK OPERATION OF:

A. HEATING

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COMPLETE THE IN-BOUND LOAD TEST SHEETS

GROUND RELAY-(TEST THREE TIMES TO VERY LOCK-OUT)(DYNAMIC & POWER)

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CHECK THE FOLLOWING FOR PROPER OPERATION:

A. CREW ALERT

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B. RADIO AND ANTENNA

C. AXLE ALT. SPEEDO

D. MU ENGINE SHUTDOWN

E. FUEL CUT-OFF

F. TEST WARNING DEVICES

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MECHANICAL

CLEAN AND SERVICE TOILET AND RESTROOM

DRAIN RETENTION TANK

PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.

INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS

INSPECT COOLING SYSTEM:

A: CHECK HOSES AND PIPES FOR LEAKS

CHECK OPERATION OF ENGINE PROTECTION DEVICES:

A. CRANKCASE PRESSURE

VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS

PERFORM MANUAL AIR BRAKE TEST

Verify Flow Gauge
 130 main reservoir is 64 + or - 3,
 reservoir is 60 + 0

NOTE: 120-
 130-140 main

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PERFORM PENALTY BRAKE TEST

CHECK FOR CORRECT AIR PRESSURE SETTINGS:

A. MAIN RESERVOIR (130 - 140 PSI)

B. BRAKE PIPE (90 PSI)

C. EQUALIZING RESERVOIR (90 PSI)

D. BRAKE CYLINDER (72 - 74 PSI)

E. COMPRESSOR CONTROL (130 - 140 PSI +/-5 PSI)

CHECK FLUID LEVELS BEFORE LOADING:

A: ENGINE OIL

B: COOLING WATER

C: AIR COMPRESSOR OIL

TEST OPERATION OF THE FOLLOWING DEVICES:

A. BELL

B. SANDERS (FORWARD, REVERSE, EMERGENCY)

C. RADIATOR SHUTTERS

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B-23, B-39, C-20, GP-7 MO3 INSPECTION

MECHANICAL IN HOUSE

WORKED BY:



REVIEW LAB CODE AND PERFORM A COMPLETE AIRBOX/CRANKCASE INSPECTION IF A LAB CODE EXISTS
 WITH THE ENGINE WARM, PRESSURE TEST COOLING SYSTEM AT 20 PSI FOR 15 MINUTES AND IF THE PRESSURE ON THE GAUGE DOES NOT DROP, THEN NO FURTHER ACTION IS REQUIRED
 CHANGE THE FOLLOWING FILTERS AND ASSOCIATED GASKETS:
 FUEL SPIN ON FILTERS. EMD ONLY
 SOAK BACK FILTER. EMD ONLY
 TURBO SPIN ON FILTER. EMD ONLY
 COMPLETE FRA INSPECTION (DAILY INSPECTION CHECKLIST)

N/A
 N/A
 N/A
 N/A
 N/A

CARBODY

INSURE SAND NOZZLES AND HOSES ARE IN PLACE AND SECURED. MAKE SURE THEY ARE ALIGNED WITH WHEEL AND TRACK. INSPECT SAND TRAPS AND REPAIR AS NEEDED.
 INSPECT COUPLERS & DRAFT GEARS. MAKE REPAIRS AS NECESSARY
 CHECK KNUCKLE CLEARANCE AND KNUCKLE THROWER, MAKE REPAIRS AS NEEDED AND APPLY SPARE KNUCKLES (E AND F TYPE) (2.5")
 INSPECT PIN LIFTERS CHECKING FOR PROPER HAND CLEARANCE AND ANTI-CREEP
 CHECK SNOWPLOW (IF EQUIPPED) FOR HANDHOLDS AND PROPER DISTANCE
 CHECK AUTO BLOWDOWNS FOR PROPER OPERATIONS IN AUTOMATIC MODE
 ENSURE SUMP DRAINS ARE OPEN AND FREE OF DEBRIS

D. Black
 D. Black
 D. Black
 D. Black
 D. Black

TRUCKS

INSPECT WICK BOLT SECUREMENT AND REPAIR IF NECESSARY
 CHECK SUSPENSION BEARING OIL LEVEL
 CHECK JOURNAL BOX OIL LEVEL (FILL TO POINT OF OVERFLOW)
 CHECK GEAR CASES AND INSPECT BULL GEAR (ADD 6lbs. OF GEARCASE GREASE)
 CHECK OIL FILLED GEAR CASES AND FILL (RECORD USAGE BELOW)

D. Black

1 TRACTION MOTOR: OIL USED _____
 # 2 TRACTION MOTOR: OIL USED _____
 # 3 TRACTION MOTOR: OIL USED _____
 # 4 TRACTION MOTOR: OIL USED _____
 # 5 TRACTION MOTOR: OIL USED _____
 # 6 TRACTION MOTOR: OIL USED _____

3 gals bag
 600

↓

INSPECT ALL BRAKE HANGERS, HEADS, GUIDES AND STRAPS ENSURING BRAKE SHOES ARE IN LINE WITH WHEELS

D. Black
 D. B
 D. Black

CAB

CHECK FIRE EXTINGUISHERS, DATE AND TAG. REPLACE IF USED OR OUT OF DATE.
 CHECK CAB SEATS FOR PROPER OPERATION INSURING ALL BOLTS ARE IN PLACE AND TIGHT.
 CHECK HANDBRAKE AND INSPECT DATE. MAKE REPAIRS AS NECESSARY

MISC

IN ACCORDANCE WITH FRA 229.23. VERIFY AIR GAUGES (+/- 3PSI) (CALIBRATE AT +/- 1PSI, REQUIRES 130 PSI MR)
 CHECK ALL FLUID LEVELS, ENGINE OIL, COOLING WATER, AIR COMPRESSOR OIL
 DRAIN RETENTION TANK
 TOILET MAINTENANCE:
 A. INSPECT/REPAIR AS NEEDED TOILET DRAIN VALVE & FLOOR SEALS

Cab Seat Inspection:


A. INSPECT THE VERTICAL ADJUSTMENT LEVER. VERIFY THAT THE LEVER OPERATES AND THAT THE SEAT PAN ADJUSTS UP AND DOWN AND DOES NOT DROP SUDDENLY.
 B. LUBRICATE PIVOT POINTS
 C. INSPECT ROTATION ADJUSTMENT LOCKING PIN. VERIFY THAT THE LOCKING PIN OPERATES (PULL OUT TO RELEASE LOCK) AND THAT THE SEAT ROTATES WHEN UNLOCKED.
 D. LUBRICATE THE PIN MECHANISM.
 E. SEAT PAN COMPONENTS: INSPECT THE FORE-AFT FINE ADJUSTMENT LEVER.
 F. VERIFY THAT THE LEVER SLIDES SIDWAYS TO UNLOCK SEAT FOR/AFT ADJUSTMENT AND

D. B

SEAT SLIDES FORWARD EASILY

B-23, B-39, C-30, GP-7 MO3 INSPECTION

Revision Date: 8/18/2010
 Issued By: Tim Scalia

	<p>Electrical in House</p>	<p>WORKED BY:</p>
	<p>SERVICE THE BATTERIES AND COMPLETE JSP-010</p>	<p>VERIFY EVENT RECORDER IS WORKING</p>
<p>CHECK & RECORD THE DATE ON HEAD END DEVICE <u>5-DEC-10</u></p>	<p>COMPLETE THE HEAD END DEVICE CONNECTOR SHEET</p>	<p><i>[Signature]</i></p>
<p>COMPLETE THE HEAD END DEVICE CONNECTOR SHEET</p>	<p>CHECK THE FOLLOWING EQUIPMENT AND THEIR RELATED GUARDS AND LENSES FOR PROPER OPERATION:</p>	<p><i>[Signature]</i></p>
<p>CHECK ALL GROUND AND STEP LIGHTS, FRONT AND REAR HEADLIGHTS, DITCH LIGHTS, CAB LIGHTS, GAUGE LIGHTS, NUMBER PLATES, PLATFORM LIGHTS, ALL WARNING AND INDICATOR LIGHTS</p>	<p>TRACTION MOTORS AND UNDERFRAME</p>	<p><i>[Signature]</i></p>
<p>CHECK THE TRACTION MOTOR LEADS, VERIFY NO LEADS ARE RUBBING ON THE FRAME</p>	<p>INSPECT TRACTION MOTOR COVERS AND ENSURE BOLTS ARE IN PLACE AND TIGHT</p>	<p><i>[Signature]</i></p>
<p>CHECK M.U. RECEPTACLE PINS AND LIDS. MAKE NECESSARY REPAIRS</p>	<p>MAKE SURE M.U. CABLES DO NOT FOUL COUPLERS</p>	<p><i>[Signature]</i></p>

TM #1 - 12 o'clock outside brush $\frac{1}{2}$ - frayed shunts *[Signature]*
 TM #6 - $\frac{1}{2}$ all brushes - short - ~~frayed~~ shunts *[Signature]*

Changed oil filters
 11 Fuel filter
 11 Air Baggly filters

Took oil sample

J. Auleis

B-23, B-39, C-30, GP-7 MO3 INSPECTION

G. IF THE SEAT MOVEMENT IS IMPEDED REMOVE SEAT CUSHION AND INSPECT SEAT PAN ROLLER TRACK FOR DEBRIS, MALFUNCTION, OR LACK OF LUBRICATION.	OK
H. INSPECT SEAT RAILS AND REPLACE IF DAMAGED OR WORN BEYOND PROVIDING SECURE, STABLE MOUNTING OF SEAT.	
I. INSPECT THE FORE/AFT SEAT POSITIONING TRACK. INSPECT THE SEAT RAILS AND REPLACE IF DAMAGED OR WORN BEYOND PROVIDING SECURE, STABLE MOUNTING OF SEAT.	
J. LUBRICATE THE SEAT RAILS WITH SILICONE LUBRICANT.	
K. INSPECT THE BACKREST RAKE ADJUSTMENT KNOB. VERIFY THAT THE KNOB ROTATES EASILY TO ADJUST BACKREST ANGLE.	
L. INSPECT KNOB FOR CRACKS OR SPLITS AND THAT IT IS SECURELY FASTENED.	
M. INSPECT GEAR MECHANISM FOR ANY WEAR OR DAMAGE.	
N. ENSURE THAT THE BACKREST MECHANICAL STOP IS INTACT AND FUNCTIONS AS INTENDED-- PREVENTS THE SEAT BACKREST FROM RECLINING BEYOND APPROXIMATELY 45 DEGREES BACKWARDS FROM A VERTICAL POSITION.	
O. INSPECT THE LUMBAR SUPPORT ADJUSTMENT LEVER. VERIFY THAT THE ADJUSTMENT LEVER OPERATES EASILY TO ADJUST THE LUMBAR SUPPORT.	
P. VERIFY ALL ARMREST FASTENERS ARE SECURE. REPLACE ANY MISSING OR STRIPPED OUT FASTENERS.	
Q. INSPECT ARMREST SWIVEL FASTENERS. ENSURE SWIVEL FASTENER IS SECURE ON EACH ARMREST SUCH THAT THE ARMREST IS WITHOUT SIDE TO SIDE MOVEMENT. ARMREST SHOULD SWIVEL TO VERTICAL. ARMREST SHOULD NOT DROP DOWN PAST IT'S ORIGINAL STOP.	Arm rest small hole OK
R. INSPECT SEAT FABRIC ON SEAT PAN AND BACKREST. INSPECT FOR RIPS, TEARS, OR HOLES. SEAT PAN OR BACKREST COMPONENT MAY BE REPLACED IF THERE IS AN EXCESSIVE RIP, TEAR, OR HOLE.	
SEAT PART NUMBERS: Cab Seat, Freight with arms: 2043511 Cab Seat Mid Back: 20425731 Wall Mounted Pedestal: 20435541 Trunion Pedestal Assembly: 20425721 Seat Pedestal Rail Left Side 65": 20422211 Seat Pedestal Rail Right Side 46": 20422221	
INSPECT AND REPAIR AS REQUIRED: A. CAB / CARBODY/DOORS/HINGES/WINDOWS/LATCH SEALS/WEATHER STRIPPING AND SEALS/MIRRORS. ALSO LUBRICATE/CHANGE AS NEEDED A. CLEAN THE CAB, WINDOWS, AND EQUIPMENT COMPLETE WINTERIZATION SHEET (AUGUST - APRIL) WASH LOCOMOTIVE ENGINE/ENGINE ROOM/AND AIR COMPRESSOR ROOM WASH THE LOCOMOTIVE	

B-23, B-39, C-30, GP-7 MO3 INSPECTION



Out Bound Loadtest Electrical/Mechanical

WORKED BY:

ELECTRICAL

- VERIFY THE OPERATION OF THE GROUND RELAY
- CHECK FOR LOW VOLTAGE GROUNDS (7 watt bulb)
- WHILE IN THROTTLE 3 LOAD TEST, CHECK FOR AC GROUNDS
- CHECK OPERATION OF:
 - A. HEATING
- COMPLETE THE IN-BOUND LOAD TEST SHEETS
- GROUND RELAY-(TEST THREE TIMES TO VERY LOCK-OUT)(DYNAMIC & POWER)
- CHECK THE FOLLOWING FOR PROPER OPERATION:
 - A. CREW ALERT
 - B. RADIO AND ANTENNA
 - C. AXLE ALT. SPEEDO
 - D. MU ENGINE SHUTDOWN
 - E. FUEL CUT-OFF
 - F. TEST WARNING DEVICES

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MECHANICAL

- CLEAN AND SERVICE TOILET AND RESTROOM
- DRAIN RETENTION TANK
- PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.
- INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS
- INSPECT COOLING SYSTEM:
 - A. CHECK HOSES AND PIPES FOR LEAKS
- CHECK OPERATION OF ENGINE PROTECTION DEVICES:
 - A. CRANKCASE PRESSURE
- VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS
- PERFORM MANUAL AIR BRAKE TEST
- Verify Flow Gauge NOTE: 120-130-140 main
 130 main reservoir is 64 + or - 3,
 reservoir is 60 + 0
- PERFORM PENALTY BRAKE TEST
- CHECK FOR CORRECT AIR PRESSURE SETTINGS:
 - A. MAIN RESERVOIR (130 - 140 PSI)
 - B. BRAKE PIPE (90 PSI)
 - C. EQUALIZING RESERVOIR (90 PSI)
 - D. BRAKE CYLINDER (72 - 74 PSI)
 - E. COMPRESSOR CONTROL (130 - 140 PSI +/-5 PSI)
- CHECK FLUID LEVELS BEFORE LOADING:
 - A. ENGINE OIL
 - B. COOLING WATER
 - C. AIR COMPRESSOR OIL
- TEST OPERATION OF THE FOLLOWING DEVICES:
 - A. BELL
 - B. SANDERS (FORWARD, REVERSE, EMERGENCY)
 - C. RADIATOR SHUTTERS

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UNIT 5078
 DATE 9/4/11

Service Operations

THROTTLE 8 OUTBOUND LOAD TESTS

Eng RPM (900)	EMD	_____	Lube Oil Pres	_____
Eng RPM (1050)	GE	_____	Water Temp	<u>120°F</u>
Horsepower		<u>2834</u>	Overspeed Setting	<u>OK</u>
Volts (5.3)	B-23	_____	RACK SETTING	_____
Volts (7)	C-30	<u>6.8v</u>		
Volts (720)	B-39	_____		

[Handwritten Signature]

THROTTLE #1 STALL TEST

OP Mode	(PWR)	_____	
AMPS	(300)	_____	
MGA	(1220)	_____	NOT APPLICABLE TO B-23 AND C-30
Charging Rate	(70v)	<u>73.7V</u>	

	LOCOMOTIVE <i>5078</i>	DATE <i>9-4-11</i>
--	----------------------------------	------------------------------

	Start Readings				Has Shims			END READING				Has Shims		OLD GAUGE
	Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO		Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO	
L#1	0-17	0-0	48				L#1							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 0-63/64" 8-on 0-15/16"
L#2	0-18	0-0	48				L#2							
L#3	0-19	0-0	40				L#3							
L#4	0-20	0-0	24				L#4							
L#5	0-18	0-0	50				L#5							
L#6	0-19	0-0	46				L#6							
OLD GAUGE														
R#1	0-17	0-0	48				R#1							FLANGE HEIGHT MEASUREMENT 0-on 0-1" 0-on 1-1-1/16" 0-on 2-1-1/8" 0-on 3-1-3/16" 0-on 4-1-1/4" 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"
R#2	0-19	0-0	50				R#2							
R#3	0-20	0-0	40				R#3							
R#4	0-18	0-0	24				R#4							
R#5	0-18	0-0	50				R#5							
R#6	0-19	0-0	46				R#6							

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

All wheels boxes drain & refilled DB

NEW GAUGE	
0-on-17--1-1/16"	FLANGE HEIGHT MEASUREMENT
0-on-18--1-1/8"	
0-on-19--1-3/16"	
0-on-20--1-1/4"	
0-on-21--1-5/16"	
0-on-22--1-3/8"	
2-on-22--1-13/32"	
4-on-22--1-7/16"	
6-on-22--1-15/32"	
8-on-22--1-1/2"	

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 7/16"	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"

NEW GAUGE	
0-on 0-1-17/64"	FLANGE THICKNESS MEASUREMENT
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 0-63/64"	
8-on 0-15/16"	

LOCOMOTIVE RAIL CLEARANCE

COUPLER HEIGHT		PILOT HEIGHT		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	5	FRA MIN 30" MMA MIN 30" FRA MAX 50" MMA MAX 50"	FRA MIN 2 1/2" MMA MIN 3"
MMA	MAX 34 1/2" MIN 32 1/2"	MMA	MAX 6" MIN 3 1/2"	REAR	5		

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)

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

0 TO 5 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 EMD PART NUMBER 8455981 SHELLED TREAD AND FLAT SPOTS MUST BE TRUED OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE. KCS REMAINING 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

D. Black

SUPERVISORS SIGNATURE

Montreal, Maine, & Atlantic Railway
Locomotive

Unit 5078

Date 9-14-11

3 Month Federal Air Work

Signature

1. Inspect and repair air piping and valves for leaks DB
 2. Test all air gauges with gauge tester and set if required DB
 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 DB
 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 DB
 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 DB
 7. Check all MU valve handles to ensure the locking devices work properly. Lubricate or replace as necessary DB
 8. Check knuckle thrower to make sure it opens the knuckle. Lubricate or repair as necessary DB
- Note (*) #1 reservoir is without the check valve.# 2 is with the check valve. DB

JSP-010 (BATTERY MAINTENANCE AND QUALIFICATION)

JOB SPECIFIC PROCESS

Locomotive Type: ALL MODELS

Valid for Road Numbers: (All Models)

- MMA 5078 - 9-4-11

Overview: This job process sheet will assist with the maintenance and qualification of batteries.

SPECIAL TOOLS OR EQUIPMENT:

SEQUENCE OF JOB STEPS

Please print your name,
NO signatures

1. Ensure the locomotive is shutdown, discharged, all of the circuit breakers are open and the battery knife switch is open.

DAVID STAPAREWICZ

Battery Qualification/Maintenance

2. **NOTE: If batteries are dead, connect the charger until the charge rate falls below 10 amps to determine state of charge. Readings under 20 V are suspect for units with just 2 batteries.**

3. Insert hose stem into battery cell and squeeze bulb.

4. Release pressure until enough acid solution is drawn into the tube allowing the float to float freely. Be sure float does not touch rubber stopper at the top of the tube.

5. The float reading at the water line is the uncorrected charge level of the battery.

6. Read and record the specific gravity of all 16 pilot cells. "record readings below": acceptable range is 1.225 - 1.300 (if out of this range notify tech support)

Note 1: the sheet below is set up for 2 or 8 batteries as some units have 8 batteries.

Note 2: accurate readings cannot be obtained if water has recently been added to cells. Differences of 50 points or more between readings in battery cells may indicate pending battery failure.

7. Based on the above specific gravity readings, do any batteries need replaced? Remember, if the unit came in with already dead batteries, an attempt to charge the batteries must be made before taking the specific gravity readings. YES

8. Return acid to cell from which it was drawn.

9. Be sure all vent plugs are replaced and tight.

10. With Unit shut down measure the voltage reading across each battery at the terminals, record readings on the chart below.

11. Make a general check of the battery as to proper blocking, clean and tight connections at all points, and any unusual appearance or condition. If any unusual appearance or conditions exit, like corrosion, clean with scotch-brite buffer or wire br

12. Apply approved protective coating to connections after terminals are cleaned and dried

13. Add water as required (Add water to bottom of filler neck).

DAVID STAPAREWICZ

Battery Cranking Voltage Test

14. Close battery knife switch, and circuit breakers.

15. Open the injector toggle switch, on EUI units to prevent unit from starting.

NOTE: Battery cranking voltage readings do not need to be taken on Air Start Locomotives.

16. On MUI engines, pull the Governor button and hold back the Lay-shaft while cranking the engine over to prevent unit from starting.

18. Based on the cranking voltages, is any battery suspect of needing replaced? YES NO

66.9V @ switch

2 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	
Battery 1								o
Section A	1.22	1.28	1.28	1.28	✓			
Section B	1.28	1.28	1.28	1.28	✓			
Section C	1.28	1.28	1.28	1.28	✓			
Section D	1.28	1.28	1.28	1.28	✓			

2 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	
Battery 2								o
Section A	1.22	1.28	1.28	1.22	✓			
Section B	1.22	1.28	1.22	1.22	✓			
Section C	1.22	1.28	1.22	1.28	✓			
Section D	1.22	1.145	1.22	1.28	✓			

8 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	
Battery 1								
Battery 2								
Battery 3								
Battery 4								
Battery 5								
Battery 6								
Battery 7								
Battery 8								

BATTERY CRANKING VOLTAGE CHART

	Battery 1	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6	Battery 7	Battery 8
Battery Voltage								
Battery Voltage								
Cranking Battery Voltage								
Battery Voltage								
Cranking Battery Voltage								

Unit: 5078

Date: 9-4-11

DEFECTS FOUND DURING INSPECTION

DEFECT <u>HL Bad gear case cap</u>	INSPECTED BY: <u>[Signature]</u>
REPAIR <u>replaced</u>	CORRECTED BY: <u>[Signature]</u>

DEFECT <u>Speedometer or axle alt B.O.</u>	INSPECTED BY: <u>D. Str.</u>
REPAIR <u>c/o speedometer head trimmed axle-alt wires tested w/meter and in yard - OK</u>	CORRECTED BY: <u>[Signature]</u>

DEFECT <u>Fuel filter gasket leaks after service</u>	INSPECTED BY: <u>[Signature]</u>
REPAIR <u>c/o fuel filter gasket</u>	CORRECTED BY: <u>J. Anderson</u> <u>or Black</u>

DEFECT _____	INSPECTED BY: _____
REPAIR _____	CORRECTED BY: _____

DEFECT _____	INSPECTED BY: _____
REPAIR _____	CORRECTED BY: _____

Unit: _____

Date: _____

DEFECTS FOUND DURING INSPECTION

DEFECT _____ _____ _____	INSPECTED BY: _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____
REPAIR _____ _____ _____	CORRECTED BY: _____

DEFECT _____ _____ _____	INSPECTED BY: _____
REPAIR _____ _____ _____	CORRECTED BY: _____

