

1103



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 9-8-12 and take no exception to applicable laws, rules and or MMA standards, policies and standards.

5078

~~9-8-12~~

# Service Operations

DATE 9-9-12

## THROTTLE 8 OUTBOUND LOAD TESTS

Eng RPM	(1000)	_____	Exhaust Temp	_____
Eng MPH (1050)	(10)	_____	Water Temp	<u>181</u>
Eng Power	(1000)	<u>2650 (6.40)</u>	Overhead Temp	_____
Volts (5.3)	(1000)	_____	ICW (1000)	<u>19.50</u>
Volts (7)	(1000)	_____		
Volts (7.2)	(1000)	<u>72 ✓</u>		
THROTTLE #1 INSTALL TEST				
AMPS	(1000)	_____	NOT APPLICABLE TO B-23 AND C-30	
NRGA	(1000)	_____		
Charging Rate	(700)	<u>68.8</u>		

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  
 CHECK OPERATION OF:

*J. Boordie*  
*J. Boordie*  
*J. Boordie*

A. HEATING

COMPLETE THE IN-BOUND LOAD TEST SHEETS

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

*Not done*

*J. Boordie*  
*J. Boordie*  
*J. Boordie*

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

*J. Boordie*  
*J. Boordie*  
*J. Boordie*  
*J. Boordie*  
*J. Boordie*  
*J. Boordie*

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:

*J. Boordie*  
*J. Boordie*  
*J. Boordie*

A: CHECK HOSES AND PIPES FOR LEAKS

CHECK OPERATION OF ENGINE PROTECTION DEVICES:

A. CRANKCASE PRESSURE

*J. Boordie*  
*J. Boordie*  
*J. Boordie*  
*J. Boordie*

VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS

PERFORM MANUAL AIR BRAKE TEST

*J. Boordie*  
*J. Boordie*

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

NOTE: 120-  
 130-140 main

*DO NOT*

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)

*Not Shown*

*J. Boordie*  
*J. Boordie*  
 130-140  
 90 *J. Boordie*  
 90 *J. Boordie*  
 73 *J. Boordie*  
 130-140 *J. Boordie*

CHECK FLUID LEVELS BEFORE LOADING:

- A: ENGINE OIL
- B: COOLING WATER
- C: AIR COMPRESSOR OIL

*H. Conlogue*

TEST OPERATION OF THE FOLLOWING DEVICES:

- A. BELL
- B. SANDERS (FORWARD, REVERSE, EMERGENCY)
- C. RADIATOR SHUTTERS

*J. Boordie*  
*J. Boordie*

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)

*M. Boudi*  
**NA**

**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

**R. Shorey**  
↓  
*M. Boudi*  
*M. Boudi*

**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)

# 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 BAGS EACH**

**R. Shorey**  
↑

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

**R. Shorey**

**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

**R. Shorey**  
**RWC**  
**R. Shorey**

**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

**QWC**  
*M. Boudi*  
*M. Boudi*  
*M. Boudi*

**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 SIDEWAYS TO UNLOCK SEAT FOR/AFT ADJUSTMENT AND

**QWC**  
**L**

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

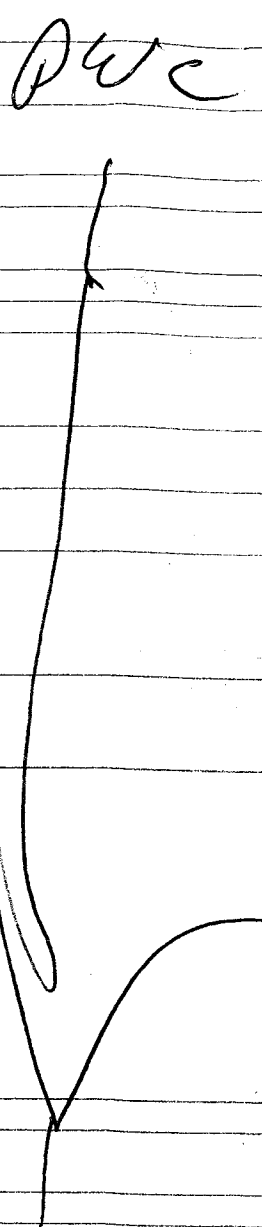
Revision Date: 8/18/2010  
 Issued By: Tim Scalia

Electrical in House		WORKED BY:
SERVICE THE BATTERIES AND COMPLETE JSP-010		<i>QWC</i>
VERIFY EVENT RECORDER IS WORKING		
CHECK & RECORD THE DATE ON HEAD END DEVICE <u>12-4-10</u>		<i>QWC</i>
COMPLETE THE HEAD END DEVICE CONNECTOR SHEET		
CHECK THE FOLLOWING EQUIPMENT AND THEIR RELATED GUARDS AND LENSES FOR PROPER OPERATION:		
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		<i>QWC</i>
<b>TRACTION MOTORS AND UNDERFRAME</b>		
CHECK THE TRACTION MOTOR LEADS, VERIFY NO LEADS ARE RUBBING ON THE FRAME		<i>QWC</i>
INSPECT TRACTION MOTOR COVERS AND ENSURE BOLTS ARE IN PLACE AND TIGHT		<i>QWC</i>
CHECK M.U. RECEPTACLE PINS AND LIDS. MAKE NECESSARY REPAIRS		<i>QWC</i>
MAKE SURE M.U. CABLES DO NOT FOUL COUPLERS		<i>QWC</i>

- changed:
1. Baggie Filters
  2. Oil Filters
  3. Fuel Filter
  4. Comp. Air Intake Filters

*QWC*

**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	
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.	
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.	
<p><b>SEAT PART NUMBERS:</b>            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</p>	
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

*J. Boode*



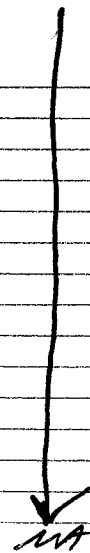
**MECHANICAL**

- 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 main reservoir is 64 + or - 3, reservoir is 60 + o
- 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

*J. Boode*  
*J. Boode*

*J. Boode / C. Ferguson*  
*Hazen Collogue*  
*Hazen Collogue*

*Hazen C. / J. Boode*  
*J. Boode*



*NA*

# Service Operations

DATE \_\_\_\_\_

## THROTTLE & OUTBOUND LOAD TESTS

Eng RPM @ 500	(100)	_____	Water Temp	_____
Thrustpower		<u>2650</u> <u>6-40</u>	Water Temp	<u>28.1</u>
Volts @ 500	(100)	_____	Water Temp	_____
Volts @ 700	(100)	_____	Water Temp	_____
Volts @ 2000	(100)	<u>72v</u>	Water Temp	_____
			Water Temp	<u>19.50</u>

## THROTTLE @ STALL TEST

AMPS	(300)	_____	NOT APPLICABLE TO B-23 AND C-30
MG/A	(1200)	_____	
Charging Rate	(70v)	<u>65-8</u>	



LOCOMOTIVE <b>5078</b>														DATE <b>9-8-12</b>									
Start Readings														Has Strips		END READING						OLD GAUGE	
L#	Flange Height	Flange Thickness	Rim Thickness	Witness Groove	Has Strips		L#	Flange Height	Flange Thickness	Rim Thickness	Witness Groove	Has Strips		FLANGE THICKNESS MEASUREMENT									
					YES	NO						YES	NO										
L#1	0-18	0-0	50				L#1																
L#2	0-20	0-0	48				L#2																
L#3	0-18	0-0	49				L#3																
L#4	0-19	0-0	47				L#4																
L#5	0-20	0-0	47				L#5																
L#6	0-19	0-0	27				L#6																
WEAR LIMITS FOR ROAD & SWITCH LOCOMOTIVES - MINIMUM DAILY REQUIREMENTS																							
R#1	0-18	0-0	50				R#1																
R#2	0-19	0-0	47				R#2																
R#3	0-18	0-0	50				R#3																
R#4	0-19	0-0	48				R#4																
R#5	0-19	0-0	47				R#5																
R#6	0-19	0-0	26				R#6																

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

**NEW GAUGE**

2-on-17-1-1/2"  
 2-on-18-1-1/8"  
 2-on-19-1-1/4"  
 2-on-20-1-1/2"  
 2-on-21-1-3/4"  
 2-on-22-1-13/32"  
 2-on-23-1-1/2"  
 2-on-24-1-1/2"  
 2-on-25-1-1/2"

**WEAR LIMITS - ROAD & SWITCH LOCOMOTIVES - MIN 92 DAY REQ**

**WEAR LIMITS - PASSENGER LOCOMOTIVES - 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 1/4"	29= 39 5/8"	36= 40 1/2"
9= 37 1/8"	16= 38"	23= 38 7/8"	30= 39 1/4"	37= 40 5/8"
10= 37 1/2"	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 1/4"	19= 38 3/8"	26= 39 1/2"	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 3/4"

**NEW GAUGE**

2-on-26-1-1/2"  
 2-on-27-1-1/2"  
 2-on-28-1-1/2"  
 2-on-29-1-1/2"  
 2-on-30-1-1/2"  
 2-on-31-1-1/2"  
 2-on-32-1-1/2"  
 2-on-33-1-1/2"  
 2-on-34-1-1/2"  
 2-on-35-1-1/2"  
 2-on-36-1-1/2"  
 2-on-37-1-1/2"  
 2-on-38-1-1/2"  
 2-on-39-1-1/2"  
 2-on-40-1-1/2"  
 2-on-41-1-1/2"  
 2-on-42-1-1/2"

**LOCOMOTIVE RAIL CLEARANCE**

COUPLER HEIGHT	FRONT	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"	33"	FRA MAX 6 MIN 3	5 5/8"	FRA MIN 50 MMA MIN 50 FRA MAX 50 MMA MAX 50	FRA MIN 11 MMA MIN 11
MMA MAX 34 1/2" MIN 32 1/2"	33 1/2"	MMA MAX 6 MIN 3	5 3/8"		

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

DIFFERENT MATCHING STANDARDS FOR RAIL LOCOMOTIVES - FRA & MMA STANDARDS ARE THE SAME

THIS IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH 17" GAUGE

THIS IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH 17" GAUGE

THIS IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS

REMEMBER THIS RULE

EMPLOYEES SIGNATURE: *R. Murray*

SUPERVISORS SIGNATURE

5078

9-9-12

1. Inspect and repair air piping and valves for leaks..... C. Ferguson
2. Test all air gauges with gauge tester and set if required..... C. Ferguson
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..... TP Goodie
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..... TP Goodie
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..... TP Goodie
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..... TP Goodie
7. Check all M2 valve handles to ensure the locking devices work properly. Test to be replaced as necessary..... C. Ferguson
8. Check knuckle pin ends to make sure they are tight. Duplicate or repair as necessary.....

Equalizing Gauge leaks off - Replaced O-rings in  
 Test block/Gauge mounting - C. Ferguson

# JSP-010 (BATTERY MAINTENANCE AND QUALIFICATION)

## JOB SPECIFIC PROCESS

Locomotive Type: ALL MODELS

Valid for Road Numbers: (All Models)

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.

*Paul*  
*Paul*

### 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.**

*Paul*

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

*Paul*

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.

*Paul*

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

*Paul*

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.

*Paul*

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

*no*  
*Paul*

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

*Paul*

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

*Paul*

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

*Paul*

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 exist, like corrosion, clean with scotch-brite buffer or wire br

*Paul*

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

*Paul*

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

*Paul*

### Battery Cranking Voltage Test

14. Close battery knife switch, and circuit breakers.

*Paul*

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

*Paul*

**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

*Handwritten signature*

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	12.75	12.75	12.75	12.50		✓		
Section B	12.75	13.00	12.75	12.75		✓		
Section C	12.50	12.75	12.50	12.75		✓		
Section D	12.75	12.75	12.50	13.00		✓		

*Handwritten 'No' and checkmarks*

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	12.50	12.50	12.50	12.50		✓		
Section B	12.50	12.50	12.50	12.75		✓		
Section C	12.50	12.50	12.75	12.50		✓		
Section D	12.50	12.50	12.50	12.50		✓		

*Handwritten 'No' and checkmarks*

8 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	
Battery 1								o
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	33.8	33.3						
Battery Voltage								
Cranking Battery Voltage	67.1							
Battery Voltage								
Cranking Battery Voltage								

Unit: 5078

Date: \_\_\_\_\_

DEFECTS FOUND DURING INSPECTION

DEFECT <u>Pilot Hight to High float</u> <u>Missing Plate</u>	INSPECTED BY: <u>R.A.S</u>
REPAIR <u>Replaced Plate</u>	CORRECTED BY: <u>R.A.S</u>

DEFECT <u>4 Bad - B Shoes</u>	INSPECTED BY: <u>J. Powell</u>
REPAIR <del>3 Exc piston travels</del> <u>Replaced 4 shoes</u>	CORRECTED BY: <u>J. Powell</u>

DEFECT <u>3 Exc. piston travels</u>	INSPECTED BY: <u>J. Powell</u>
REPAIR <u>Adj. All 3 travels</u>	CORRECTED BY: <u>J. Powell</u>

DEFECT <u>Equal. Gauge leaks off on Gauge test</u>	INSPECTED BY: <u>C. Ferguson</u>
REPAIR <u>Replaced O-rings in Gauge mount + test block</u>	CORRECTED BY: <u>C. Ferguson</u>

DEFECT <u>Cont. Tank 1/4 Full</u>	INSPECTED BY: <u>J. Powell</u>
REPAIR <u>Drained</u>	CORRECTED BY: <u>J. Powell</u>

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: _____ _____

# Description of Work Performed

Locomotive ID \_\_\_\_\_

Time Started \_\_\_\_\_

Time Finished \_\_\_\_\_