



Manufacturer is QEI    Version # S45E  
Serial Number is 0204110402  
Customer is MMAR

Data was removed on        - 09:09:37 on 09/11/12  
Last Downloaded on        - 12:36:00 on 06/05/12  
Battery was installed on    - 11/12/04  
Locomotive Number is      - 8525

Downloaded by    -            jh  
Location         -            derby  
Train             -            234  
Wheel Size Entry -    40  
Wheel Size used by program:  
Circumference = 125.7    Diameter = 40.0  
No memo present.

Wheel size used for printout is 125.66

QDP Version V



Quantum Desktop Playback  
Data Scan Report

Report Date: 09-11-2012  
Locomotive 8525

Data Removed on 09-11-12

SPEED (MPH)	OK
TRACTION MOTOR CURRENT	OK
BRAKE PIPE PRESSURE	OK
INDEPENDENT BRAKE	OK
END-OF-TRAIN PSI	Never above 20.
EP BRAKE REQUESTED	Never ON/ACTIVE
THROTTLE	Low Idle never reported.
REVERSE	OK
EIE	OK
PCS	OK
HORN	OK
EOT MOVING	Never ON/ACTIVE
EOT MSG. JUST RX	Never ON/ACTIVE
EOT LIGHT	Never ON/ACTIVE
EP OPERATING MODE	Never ON/ACTIVE
EP PENALTY BRAKE	Never ON/ACTIVE
EP ENGINEER EMERGENCY	Never ON/ACTIVE

M 03



Locomotive Release from Shop Form  
To be completed on every engine released from the Shop

I have reviewed the work packet for locomotive 8525 on this date 9-11-12 and take no exception to applicable laws, rules and or MMA standards, policies and standards.

oil sample C. Ferguson

# Service Operations

DATE \_\_\_\_\_  
DATE \_\_\_\_\_

## THROTTLE 8 OUTBOUND LOAD TESTS

Eng RPM (100)	(1200)	_____	Eng RPM (100)	_____
Eng RPM (100)	(1200)	_____	Water Temp	_____
Horsepower		_____	Overspeed Setting	_____
Volts (5.5)	(120)	_____	RPM (Set) (100)	_____
Volts (7)	(120)	_____		
Volts (200)	(120)	_____		

## THROTTLE 8 STALL TEST

AMPS	(100)	_____	NOT APPLICABLE TO B-23 AND C-80
NGA	(120)	_____	
Charging Rate	(70v)	_____	

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:

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

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 + o

NOTE: 120-  
130-140 main

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

IN bound Self Load - AMPS - 3840

Volts - 700

Hp - 3725

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 *Engine Filters*

~~FUEL SPIN ON FILTERS (EMD ONLY)~~ *oil Filters*

~~SOAK BACK FILTER (EMD ONLY)~~ *Fuel*

~~TURBO SPIN ON FILTER (EMD ONLY)~~ *Comp intake two*

COMPLETE FRA INSPECTION (DAILY INSPECTION CHECKLIST)

C. Ferguson  
 C. Ferguson  
 C. Ferguson  
 C. Ferguson

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

*K. Ferguson*  
*K. Ferguson*  
*K. Ferguson*  
*K. Ferguson*  
*K. Ferguson*  
*B.C.*  
*B.C.*

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)

*Trucks K. Ferguson*

# 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

*B.C.*

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

*K. Ferguson*

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

*C. Ferguson*

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

*K. Ferguson*

*B.C.*

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 SIDEWAYS TO UNLOCK SEAT FOR/AFT ADJUSTMENT AND

*Out*


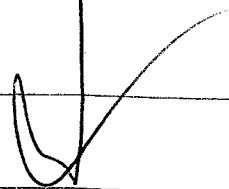

*[Signature]*

**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>DWC</i>
VERIFY EVENT RECORDER IS WORKING	<i>DWC</i>
CHECK & RECORD THE DATE ON HEAD END DEVICE _____	<i>DWC</i>
COMPLETE THE HEAD END DEVICE CONNECTOR SHEET	
CHECK THE FOLLOWING EQUIPMENT AND THEIR RELATED GUARDS AND LENSES FOR PROPER OPERATION:	<i>_____</i>
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>DWC</i>
<b>TRACTION MOTORS AND UNDERFRAME</b>	
CHECK THE TRACTION MOTOR LEADS, VERIFY NO LEADS ARE RUBBING ON THE FRAME	
INSPECT TRACTION MOTOR COVERS AND ENSURE BOLTS ARE IN PLACE AND TIGHT	<i>DWC</i>
CHECK M.U. RECEPTACLE PINS AND LIDS. MAKE NECESSARY REPAIRS	<i>DWC</i>
MAKE SURE M.U. CABLES DO NOT FOUL COUPLERS	<i>DWC</i>

**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

**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 + 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

NOTE: 120-130-140 main

*[Handwritten signature]*

*[Handwritten signature]*

*[Handwritten signature]*

CF

*[Handwritten signature]*

# Service Operations

DATE \_\_\_\_\_

## THROTTLE & OUTBOUND LOAD TESTS

Eng RPM (n)	(1100)	_____	Oil Pressure	_____
Eng RPM (1050)	(0)	_____	Water Temp	_____
Throttle		_____	Engine Coolant	_____
Volts (S/N)	(120)	_____	WATER SETTINGS	_____
Volts (7)	(120)	_____		
Volts (2)	(120)	_____		

## THROTTLE #1 STALL TEST

AMPS	(300)	_____	NOT APPLICABLE TO B-23 AND C-30
MGA	(122)	_____	
Charging Rate	(70v)	_____	

LOCOMOTIVE												DATE		
8525												9-11-12		
Start Readings					Has Shifts		END READING					Has Shifts		OLD GAUGE
Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO	Flange Height	Flange Thickness	Rim Thickness	Witness Groove	YES	NO	FLANGE THICKNESS MEASUREMENT		
L#1	0-21	0-0	2.14			L#1								
L#2	0-21	0-0	2.14			L#2								
L#3	0-21	0-0	2.14			L#3								
L#4	2-22	0-2	2.12			L#4						2-on-6--1-13/32"		
L#5						L#5								
L#6						L#6								
R#1	6-22	0-0	2.18			R#1								
R#2	0-21	0-0	2.12			R#2								
R#3	0-21	0-0	2.14			R#3								
R#4	0-20	0-0	2.14			R#4						2-on-6--1-13/32"		
R#5						R#5								
R#6						R#6								

See defect sheet

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

NEW GAUGE

0-on-17-1/16"
0-on-18-1/16"
0-on-19-1/16"
0-on-20-1/16"
0-on-21-1/16"
0-on-22-1/16"
2-on-22-1-13/32"
4-on-22-1-13/32"
6-on-22-1-13/32"
8-on-22-1-13/32"

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
MMA 1 7/16"	MMA 1 1/32"	MMA 1 1/8"	MMA 1/4"	FRA 1 1/2"	FRA 7/8"	FRA 1"	FRA 5/16"

FLANGE HEIGHT MEASUREMENT

FLANGE THICKNESS MEASUREMENT

NEW GAUGE

0-on-20-1/16"
1-on-20-1/16"
2-on-20-1/16"
3-on-20-1/16"
4-on-20-1/16"
5-on-20-1/16"
6-on-20-1/16"
7-on-20-1/16"
8-on-20-1/16"

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 1/4"	17= 38 1/8"	24= 39"	31= 39 7/8"	38= 40 3/4"
11= 37 3/8"	18= 38 1/2"	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 HEIGHT MEASUREMENT

FLANGE THICKNESS MEASUREMENT

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"	FRA	MAX 5" MIN 3"	5"	FRA MIN 2 1/2"
MMA	MAX 34 1/2" MIN 32 1/2"	MMA	MAX 5" MIN 3 1/2"	5"	MMA MIN 2"

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

WHEELS - MATCHING STANDARDS FOR 6-AXLE LOCOMOTIVES. FRA & MMA STANDARDS ARE THE SAME.

1. IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIM?  
2. IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS?  
3. IS THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS?

REMEMBER THIS RULE

NOTE: THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITHOUT SHIMS IS 1/8" FOR FRA AND 1/16" FOR MMA. THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS IN THE SAME TRUCK WITH SHIMS IS 1/4" FOR FRA AND 1/8" FOR MMA. THE MAXIMUM VARIATION ALLOWED IN WHEEL DIAMETER BETWEEN ANY 2 WHEELS ON DIFFERENT TRUCKS IS 1/2" FOR FRA AND 1/4" FOR MMA.

EMPLOYEES SIGNATURE

*K. Huang*

SUPERVISORS SIGNATURE

[Signature Box]

9525  
Date: 9-11-12  
3 Month Federal Air Work

- 1. Inspect and repair air piping and valves for leaks..... K. Harb
- 2. Test all air gauges with gauge tester and set if required..... K. Harb
- 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..... K. Harb
- 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..... B.C. / R. Kott.

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 5 lb. per minute during the test..... P.C.

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..... P.C.

7. Check all M<sup>2</sup> valve handles to ensure the locking device work properly. Lubricate or replace as necessary..... K. Harb

8. Check brake transfer to make sure it opens the transfer. Lubricate or repair as necessary..... P.C.

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

# 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.

*DWC*

### 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 exist, 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).

### 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**

*[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	<i>OK</i>					✓		<i>NO</i>
Section B						✓		
Section C						✓		
Section D						✓		

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	<i>OK</i>					✓		<i>NO</i>
Section B						✓		
Section C						✓		
Section D						✓		

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	<i>34.8v</i>	<i>34.8v</i>						
Battery Voltage	Battery 1	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6	Battery 7	Battery 8
Cranking Battery Voltage	Battery 1	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6	Battery 7	Battery 8
Battery Voltage	Battery 1	Battery 2	Battery 3	Battery 4	Battery 5	Battery 6	Battery 7	Battery 8
Cranking Battery Voltage	<i>69.4v</i>							

Unit: 8525

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

### DEFECTS FOUND DURING INSPECTION

DEFECT	R-1 high flange (6.22) R-H flange high on board (6.22)	INSPECTED BY: K. Hay
REPAIR	cut # R-1 (6.21)	CORRECTED BY: K. Hay / Billy C.

DEFECT	Front Train Tanking Oil	INSPECTED BY: K. Hay
REPAIR	put new train line on unit & High up	CORRECTED BY: PC / Billy C.

DEFECT	Compressor room fire extinguisher. 1 year out of date.	INSPECTED BY: C. Ferguson
REPAIR	Replaced the old fire extinguisher with a brand new up to date fire extinguisher	CORRECTED BY: C. Ferguson

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: _____



# Description of Work Performed

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

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

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