

REVISED: 8/18/2010



MMA RAILWAY
MECHANICAL DEPARTMENT
MODIFICATIONS

UNIT 4522

DATE 10-18-2010

ELECTRICIAN / MACHINIST

SIGNATURES

1. DYNAMIC BRAKE HOLDING FEATURE
2. CHECK BATTERY CONNECTIONS AND RECOAT LUGS
3. SINGLE MAN BRAKE TEST

A. Stahl
J. Harts
N.



B-23, B-39, C-30, GP-7 M06 INSPECTION

LOCOMOTIVE INSPECTION REPORT AIR99		SIGNATURE
	RECORDED DATE	(STENCIL DATE)
26 INDEPENDENT BRAKE VALVE	4-15-10	4-15-10
26 C AUTOMATIC BRAKE VALVE	"	
HB5D RELAY AIR VALVE (NOTE IF NOT EQUIPPED)	"	
26 F CONTROL VALVE	"	
A-1 CHARGING VALVE	"	
P-2-A PENALTY BRAKE APPLICATION VALVE	"	
F-1 SELECTOR VALVE (NOTE IF NOT EQUIPPED)	"	
MU2A VALVE	"	
J-1 RELAY AIR VALVE	"	
J-1.6-16 RELAY AIR VALVE	"	
QUICK RELEASE PORTION	"	
#8 VENT ENGINEER'S SIDE (NOTE IF NOT EQUIPPED)	4-16-10	
#8 VENT FIREMAN'S SIDE (NOTE IF NOT EQUIPPED)	4-16-10	
MAIN RESERVOIR POP VALVE Check for proper setting		

The equipment above is to be changed out every 24 months. If the date dictates it needs changed, please change it.

Unit: _____

Date: _____

DEFECTS FOUND DURING INSPECTION

DEFECT	NEEDS WATER TREATMENT	INSPECTED BY:	NO
REPAIR	water inhibitor added	CORRECTED BY:	D. Black

DEFECT	VERIFY HOTSTART OPERATION	INSPECTED BY:	NO
REPAIR	1 bearing NO HOT START ON UNIT	CORRECTED BY:	NA

DEFECT	1 Gear case Bottom Cap Bad	INSPECTED BY:	D. Black
REPAIR	replace	CORRECTED BY:	D. Black

DEFECT	L-4 Dust seal Bad	INSPECTED BY:	
REPAIR	repaired	CORRECTED BY:	D. Black

DEFECT	L-3 Bad wick gaskets	INSPECTED BY:	
REPAIR	replaced	CORRECTED BY:	D. Black

Unit: _____

Date: _____

DEFECTS FOUND DURING INSPECTION

DEFECT	Air Pox Between R-7-8 leaking	INSPECTED BY:	J. Blak
REPAIR	Replaced Both O-Ring	CORRECTED BY:	J. Blak

DEFECT	Bathroom light missing lense	INSPECTED BY:	JH
REPAIR	Replaced missing lense	CORRECTED BY:	JH

DEFECT	Front + rear door sills rotten and pushed below door seats	INSPECTED BY:	J. Martin
REPAIR	Replaced rear door sill - JH Repaired front door sill - JH	CORRECTED BY:	JH

DEFECT	MR Check Valve Seal	INSPECTED BY:	D. Blak
REPAIR	replace new rebuilt O-ring	CORRECTED BY:	D. Blak

DEFECT	Bathroom bucket under MR	INSPECTED BY:	D. Blak
REPAIR	low temp added	CORRECTED BY:	D. Blak

LOCOMOTIVE										DATE				
8592										10-18-70				
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	FLANGE THICKNESS MEASUREMENT
L#1	0-20	0-0	2.14				L#1							0-on 0-1-17/64"
* L#2	0-22	0-0	2.12				L#2	0-21	0-0	2.12				1-on 0-1-15/64"
L#3	0-21	0-0	2.14				L#3							2-on 0-1-7/32"
L#4	0-21	0-0	2.14				L#4	0-20	0-0	2.14				3-on 0-1-5/32"
L#5							L#5							4-on 0-1-7/64"
L#6							L#6							5-on 0-1-3/64"
														6-on 0-1-1/32"
														7-on 0-63/64"
														8-on 0-15/16"
R#1	0-22	0-0	2.06				R#1	0-20	0-0	2.00				0-on 0-1"
R#2	5-22	0-0	2.16				R#2	0-21	0-0	2.16				0-on 1-1-1/16"
R#3	0-21	0-0	2.14				R#3							0-on 2-1-1/8"
R#4	0-22	0-0	2.12				R#4	0-21	0-0	2.12				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 6-1-13/64"

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

NEW GAUGE

0-on 17-1-1/16"
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"

FLANGE HEIGHT MEASUREMENT

FLANGE THICKNESS 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 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 1/4"	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"
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		FRONT PILOT HEIGHT		REAR PILOT HEIGHT		FRONT REAR		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"	FRONT	MAX 6" MIN 3"	MMA	MAX 6" MIN 3 1/2"	FRONT	5 1/4"	FRONT	FRA MIN 30" MMA MIN 30"	FRONT	FRA MIN 2 1/4"
MMA	MAX 34 1/2" MIN 32 1/2"	REAR	MAX 6" MIN 3 1/2"	REAR	5 1/4"	REAR	5 1/4"	REAR	FRA MAX 50" MMA MAX 50"	REAR	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)

3/4" 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 END LOCOMOTIVES USE ONLY ONE 1/2" SHIM EMD PART NUMBER 8459981 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

D. Black

SUPERVISORS SIGNATURE

[Signature Box]

WINTERIZATION	Signature
Winterization - All MMA Locomotives. (August - April)	
Inspect front and rear cab door seals replace, as needed (NO TAPE)	J. Hartin
Inspect left and right side window seals replace as needed.	J. Hartin
Inspect Electric cabinet door seals replace as needed.	J. Hartin
Operate Cab Heaters-Check condition of Heater Assembly @ 45o F above Ambient Temperature.	
Operate Window Defrosters-Check condition of Defroster @ 45o F above Ambient Temperature.	
If equipped, test the Auto Dump valve for proper operation.	
Test Manual Water Dump Valves, Proper Handle, Location, Orifice is Open.	J. Hartin
Close Winter/ Summer doors if equipped. <i>OPEN Winter Door</i>	J. Black
Check Traction Motor cover gaskets, install as needed.	J. Hartin
Check condition of Cab Door Hinges (Lubricate all Hinges)	
Check condition of Cab Door Locks (Lubricate all Locks)	
Inspect Cab Windows Slider Rail, Adjust Top Rail as needed, Lubricate with Silicone Grease.	J. Hartin
Renew all Wiper Blades.	
Criteria for Door seal Replacement: A. Seal shows signs of Deterioration and or Medium to Heavy Cracking. B. Door seal is Torn or Loose from Door. C. With Door in the fully closed position has noticeable crack between door jam and cab carbody.	<i>Bad Door stoops F.R.</i>
Criteria for Window seal Replacement: A. Seals shows signs of Deterioration and or Medium to Heavy Cracking. B. Seal is Torn or Loose from window seal. C. With windows fully in the closed position there is a gap between window frame and carbody.	<i>J. Black</i>

see note

Note replace both door stoops *J. Black*
J. Hartin



UNIT _____

DATE _____

Service Operations

THROTTLE 8 OUTBOUND LOAD TESTS

Eng RPM (900)	EMD	<u> </u>	Lube Oil Pres	<u>60</u>
Eng RPM (1050)	GE	<u>1050</u>	Water Temp	<u>181</u>
Horsepower		<u>3702</u>	Overspeed Setting	<u>22 1090</u>
Volts (5.3)	B-23	<u> </u>	RACK SETTING	<u>23.5</u>
Volts (7)	C-30	<u> </u>		
Volts (720)	B-39	<u>704</u>		

THROTTLE #1 STALL TEST

OP Mode	(PWR)	<u>F</u>	
AMPS	(300)	<u>300</u>	
MGA	(1220)	<u>3715</u>	NOT APPLICABLE TO B-23 AND C-30
Charging Rate	(70v)	<u>73V</u>	

B-23, B-39, C-30, GP-7 MO6 INSPECTION

<i>In-Bound Loadtest Electrical/Mechanical</i>	WORKED BY:
ELECTRICAL	
VERIFY THE OPERATION OF THE GROUND RELAY	<i>J. Hart</i>
CHECK FOR LOW VOLTAGE GROUNDS (7 watt bulb)	<i>J. Hart</i>
WHILE IN THROTTLE 3 LOAD TEST, CHECK FOR AC GROUNDS	<i>J. Hart</i>
CHECK OPERATION OF:	
A. HEATING	<i>J. Hart</i>
COMPLETE THE IN-BOUND LOAD TEST SHEETS	<i>J. Hart</i>
GROUND RELAY-(TEST THREE TIMES TO VERY LOCK-OUT)(DYNAMIC & POWER)	<i>J. Hart</i>
CHECK THE FOLLOWING FOR PROPER OPERATION:	
A. CREW ALERT	<i>J. Hart</i>
B. RADIO AND ANTENNA	<i>J. Hart</i>
C. AXLE ALT. SPEEDO	<i>J. Hart</i>
D. MU ENGINE SHUTDOWN	<i>J. Hart</i>
E. FUEL CUT-OFF	<i>J. Hart</i>
F. TEST WARNING DEVICES	<i>J. Hart</i>
MECHANICAL	
CLEAN AND SERVICE TOILET AND RESTROOM	<i>D. Black</i>
DRAIN RETENTION TANK	<i>D. Black</i>
PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.	<i>D. Black</i>
INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS	<i>D. Black</i>
INSPECT COOLING SYSTEM:	<i>D. Black</i>
A: CHECK HOSES AND PIPES FOR LEAKS	<i>D. Black</i>
CHECK OPERATION OF ENGINE PROTECTION DEVICES:	<i>D. Black</i>
A. CRANKCASE PRESSURE	<i>D. Black</i>
VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS	<i>D. Black</i>
PERFORM MANUAL AIR BRAKE TEST	<i>D. Black</i>
Verify Flow Gauge	NOTE: 120-130-140 main
130 main reservoir is 64 + or - 3, reservoir is 60 + 0	
PERFORM PENALTY BRAKE TEST	<i>D. Black</i>
CHECK FOR CORRECT AIR PRESSURE SETTINGS:	
A. MAIN RESERVOIR (130 - 140 PSI)	<i>D. Black</i>
B. BRAKE PIPE (90 PSI)	<i>D. Black</i>
C. EQUALIZING RESERVOIR (90 PSI)	<i>D. Black</i>
D. BRAKE CYLINDER (72 - 74 PSI)	<i>D. Black</i>
E. COMPRESSOR CONTROL (130 - 140 PSI +/- 5 PSI)	<i>D. Black</i>
CHECK FLUID LEVELS BEFORE LOADING:	<i>OK</i>
A: ENGINE OIL	<i>OK</i>
B: COOLING WATER	<i>OK</i>
C: AIR COMPRESSOR OIL	<i>OK</i>
TEST OPERATION OF THE FOLLOWING DEVICES:	<i>D. Black</i>
A. BELL <i>New Carriage</i>	<i>D. Black</i>
B. SANDERS (FORWARD, REVERSE, EMERGENCY)	<i>D. Black</i>
C. RADIATOR SHUTTERS	<i>—</i>

Left front Sand Nozzle replace D. Black