

40-3

Locomotive Release from Shop Form

To be completed on every engine released from the Shop

I have reviewed the work packet for locomotive 5018 on this date 12-9-12 and take no exception to applicable laws, rules and or MMA standards, policies and standards.

Dranid toilet

- Due for oil change - *[Signature]* / Mike N.

Service Operations

THROTTLE 8 INBOUND LOAD TESTS

UNIT _____

DATE _____

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

THROTTLE #1 STALL TEST

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

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

<i>In-Bound Loadtest Electrical/Mechanical</i>	WORKED BY:
ELECTRICAL	SS
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	<i>JP bowdi</i>
DRAIN RETENTION TANK	
PROPER LUBRICATION? FUEL LEAKS? CAM ROLLER ROTATION? ETC.	
INSPECT FUEL SYSTEM HOSES AND PIPES FOR LEAKS	<i>JP bowdi</i>
INSPECT COOLING SYSTEM:	<i>JP bowdi</i>
A: CHECK HOSES AND PIPES FOR LEAKS	<i>JP bowdi</i>
CHECK OPERATION OF ENGINE PROTECTION DEVICES:	<i>JP bowdi</i>
A. CRANKCASE PRESSURE	
VISUALLY INSPECT AIR COMPRESSOR FOR WATER, AIR OR OIL LEAKS	<i>JP bowdi</i>
PERFORM MANUAL AIR BRAKE TEST	<i>JP bowdi</i>
Verify Flow Gauge	NOTE: 120-130-140 main
130 main reservoir is 64 + or - 3, reservoir is 60 + 0	<i>131 - 140 JP bowdi</i>
PERFORM PENALTY BRAKE TEST	<i>JP bowdi</i>
CHECK FOR CORRECT AIR PRESSURE SETTINGS:	<i>JP bowdi</i>
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	

WINTERIZATION	
	Signature
Winterization - All MMA Locomotives. (August - April)	
Inspect front and rear cab door seals replace, as needed (NO TAPE)	B White
Inspect left and right side window seals replace as needed.	B White
Inspect Electric cabinet door seals replace as needed.	
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.	
Close Winter/ Summer doors if equipped.	
Check Traction Motor cover gaskets, install as needed.	
Check condition of Cab Door Hinges (Lubricate all Hinges)	B White
Check condition of Cab Door Locks (Lubricate all Locks)	B White
Inspect Cab Windows Slider Rail, Adjust Top Rail as needed, Lubricate with Silicone Grease.	B White
Renew all Wiper Blades.	OK B White
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.	OK B White
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.	OK B White

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.	OK B White
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 KNOW. 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.	
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:	B
A. CAB / CARBODY/DOORS/HINGES/WINDOWS/LATCH SEALS/WEATHER STRIPPING AND SEALS/MIRRORS. ALSO LUBRICATE/CHANGE AS NEEDED	B White
A. CLEAN THE CAB, WINDOWS, AND EQUIPMENT	B White
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	Revision Date: 8/18/2010 Issued By: Tim Scalia
Electrical in House	WORKED BY: <i>B White</i>
SERVICE THE BATTERIES AND COMPLETE JSP-010	<i>B White</i>
VERIFY EVENT RECORDER IS WORKING	<i>B. Weymunt</i>
CHECK & RECORD THE DATE ON HEAD END DEVICE _____	
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>B White</i>
TRACTION MOTORS AND UNDERFRAME	
CHECK THE TRACTION MOTOR LEADS, VERIFY NO LEADS ARE RUBBING ON THE FRAME	<i>B Weymunt</i>
INSPECT TRACTION MOTOR COVERS AND ENSURE BOLTS ARE IN PLACE AND TIGHT	<i>B Weymunt</i>
CHECK M.U. RECEPTACLE PINS AND LIDS. MAKE NECESSARY REPAIRS	
MAKE SURE M.U. CABLES DO NOT FOUL COUPLERS	

B-23, B-39, C-30, 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)

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

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 _____

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

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 SIDEWAYS TO UNLOCK SEAT FOR/AFT ADJUSTMENT AND SEAT SLIDES FOR/AFT EASILY

B. Weymouth
B. Weymouth
B. Weymouth
B. Weymouth
B. Weymouth

OK

B. Weymouth
B. Weymouth
B. Weymouth
B. Weymouth
B.

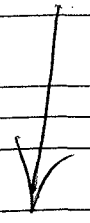
B. Weymouth

OK B White
B White
B White

B White
OK B White

B White

OK B White



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

Out Bound Loadtest Electrical/Mechanical	WORKED BY:
ELECTRICAL	SS/BW
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	NOTE: 120-
130 main reservoir is 64 + or - 3,	130-140 main
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	

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.

B white

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.

B white

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.

B white

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

B white

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.

B white

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

B white

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

B white

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

B white

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

B white

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

B white

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

B white

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

at B white

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

B white

2 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
Battery 1	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	0
Section A	1275	1275	1275	1275		✓		
Section B	1275	1275	1275	1275		✓		
Section C		1275	1275	1275		✓		
Section D	1250	1250	1275	1250		✓		

2 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
Battery 2	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	0
Section A	1275	1250	1275	1275		✓		
Section B	1275	1275	1275	1275		✓		
Section C	1275	1275	1275	1300		✓		
Section D	1250	1250	1250	1275		✓		

8 Battery Units	Specific Gravity				Water Added			Battery Replaced-Reason
Battery 1	Cell 1	Cell 2	Cell 3	Cell 4	Yes	No	Yes	0
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								
Battery Voltage								
Battery Voltage								
Battery Voltage								
Battery Voltage								
Battery Voltage								
Battery Voltage								

Unit: 5018

Date: 12-9-12

DEFECTS FOUND DURING INSPECTION

DEFECT <u>Hand brake wont stay set - Bad spring inside ?</u>	INSPECTED BY: <u>JPB</u>
REPAIR <u>replaced spring (missing) replaced two nuts + tested</u>	CORRECTED BY: <u>Bwhite</u>

DEFECT <u>Eng. Rear wiper Arm unhooked - broken</u>	INSPECTED BY: <u>JPB</u>
REPAIR <u>Tightened up and tested</u>	CORRECTED BY: <u>Bwhite</u>

DEFECT <u>Dumped toilet - needs to be filled</u>	INSPECTED BY:
REPAIR <u>Filled and pumped</u>	CORRECTED BY: <u>Bwhite</u>

DEFECT <u>Exh. has oil in it - R1, R2, R3 oil on Top Deck covers - exh. gets hot really fast might have bad rings - putting oil into Exhaust</u>	INSPECTED BY: <u>JPB</u>
REPAIR	CORRECTED BY:

DEFECT <u>number lite fear engine side Blown + contactor are burnt out</u>	INSPECTED BY: <u>Bwhite</u>
REPAIR <u>replaced both</u>	CORRECTED BY: <u>Bwhite</u>

Service Operations

THROTTLE 8 OUTBOUND LOAD TESTS

UNIT _____

DATE _____

Eng RPM (900)	FMD	_____	Lube Oil Pres	_____
Eng RPM (1050)	GE	_____	Water Temp	_____
Horsepower		<u>2824</u>	Overspeed Setting	_____
Volts (5.3)	B-23	_____	RACK SETTING	_____
Volts (7)	C-30	_____		
Volts (720)	B-39	_____		

THROTTLE #1 STALL TEST

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

LOCOMOTIVE											DATE			
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	0-17	0-0	3-1				L#1							0-on 0 - 1-17/64 1-on 0 - 1-15/64 2-on 0 - 1-13/32 3-on 0 - 1-5/32 4-on 0 - 1-1/64 5-on 0 - 1-3/64 6-on 0 - 1-1/32"
L#2	0-21	0-0	2-6				L#2							
L#3	0-18	0-0	2-0				L#3							
L#4	0-19	0-4	3-1				L#4							
L#5	0-19	0-0	3-3				L#5							
L#6	0-19	0-0	3-0				L#6							
														OLD GAUGE
														FLANGE HEIGHT MEASUREMENT
R#1	0-17	0-0	3-1				R#1							0-on 0 - 1-17/64 0-on 1 - 1-17/64 0-on 2 - 1-17/64 0-on 3 - 1-37/64 0-on 4 - 1-1/4 0-on 5 - 1-5/16 0-on 6 - 1-3/8 2-on 6 - 1-13/32"
R#2	0-21	0-0	2-17				R#2							4-on 6 - 1-7/16 6-on 6 - 1-31/64
R#3	0-19	0-0	2-2				R#3							
R#4	0-19	0-4	2-14				R#4							
R#5	0-19	0-0	3-0				R#5							
R#6	0-19	0-0	3-0				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

NEW GAUGE

0-on 17 - 1-17/64
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 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 - 1-3/64"
8-on 0 - 1/16"

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 33	MAX 34 1/2" MIN 31 1/2"	FRA 5 1/4" MAX 6" MIN 3"		FRA MIN 30" MMA MIN 30" FRA MAX 50" MMA MAX 50"	FRA MIN 2 1/2" MMA MIN 3"
MMA 32	MAX 34 1/2" MIN 32 1/2"	MMA 4 1/4" MAX 6" MIN 3 1/2"	REAR		

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 3 DIAMETER DIFFERENCE NO SHIMS REQUIRED. 4 TO 19 DIAMETER DIFFERENCE ADD APPROPRIATE SHIMS TO BOTH BOXES ON BOTH SIDES. OVER 19 IN DIAMETER DIFFERENCE REQUIRES WHEEL CHANGE OR TREAD. NOTE: ON END LOCOMOTIVES USE ONE (ONE) SHIM END PART NUMBER 9455981. SHELLED TREAD AND FLAT SPOTS MUST BE TREAD OR CHANGED WHEN FOUND ON PERIODIC OR UNSCHEDULED MAINTENANCE. KCS CONDEMNS 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

SUPERVISORS SIGNATURE



Quantum Desktop Playback
Data Scan Report

Report Date: 12-10-2012

Locomotive 5018

Data Removed on 12-10-12

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	Stop never reported. Low Idle never reported.
REVERSE	OK
EIE	OK
PCS	Never ON/ACTIVE
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



Quantum Desktop Playback

Manufacturer is QEI Version # S45E
Serial Number is 0204090074
Customer is MMR

Data was removed on - 14:43:52 on 12/10/12
Last Downloaded on - 09:16:00 on 09/10/12
Battery was installed on - 08/10/04
Locomotive Number is - 5018

Downloaded by - baw
Location - derby
Train - 765
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

MMA-3 air work

Mainline Maintenance & Atlantic Railway

Locomotive

MMA 5018

Date 12-11-12

3 Mainline Electric Air Work

1. Inspect and repair air piping and valves for leaks..... JA - JAM
 2. Test all air gauges with gauge tester and set if required..... JA - JAM
 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..... JA - JAM
 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..... JA - JAM
 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..... JA - JAM
 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..... JA - JAM
 7. Check all MF valve handles to ensure the locking devices work properly. Lubricate or replace as necessary..... J. Sullivan
 8. Check hand levers to make sure they open the reservoirs. Lubricate or replace as necessary..... J. Sullivan
- Note (*) #1 reservoir is without the check valve # 2 is with the check valve.

9 test AND CALABRETT Air Flow Meter