DCA16MR011
NJT
Collision of Train 1614
Hoboken Station
Hoboken, NJ
September 29, 2016

Attachment 10

EPIC II WI1050-WGS Rev B – System test plan

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REVISIONS

EWO	LTR	DESCRIPTION	DRAWN BY	DATE	CHECKED	APPROVED
	A	INITIAL RELEASE	DAC	07-18-06		
	B	Correct page 13 verification for RLY11. Correct Page 17, Step 7 verification for RLY 19, 20 and 21. Notes for clarification.				

UNLESS OTHERWISE SPECIFIED:
DIMENSIONS ARE IN INCHES AND INCLUDE FINISHES.
DIM AND TOL PER ASME Y14.5M-1994

MACHINE SURFACES

TOL:

.XX= ±.03   ANG= ± ·
XXX = ± .015   FRAC= ±

MATERIAL

FINISH

APPROVALS	DATE
ORIGINATOR Mitch Anderson	10-8-12
PLANT MANAGER. Justin Whitmack	10-17-12
	10/22/12
	10-15-12
	10-17-12

CAGE CODE

WABTEC GLOBAL SERVICES
Q.A. Test Procedure
EPIC® II System/Comet V Brake Equipment Single End Cab Car Alstom/NJT

SIZE	WABTEC PART NO.	DOC NO.	REV
A	WPN 19724 WPN 19914	WI1050-WGS	B

SCALE | DO NOT SCALE DWG | SHEET 1 OF 21

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EQUIPMENT

1. BCU 19724 and CCU 19914

2. Comet/Alp Test Cart

SAFETY

Observe general plant safety guidelines. Safety glasses and earplugs must be worn while performing this procedure. Work area must be clean and free of debris.

CAUTION

A current calibration sticker must be attached on equipment that requires calibration and are used with this test. The use of equipment not in calibration can result in incorrect test results.

The device being tested must meet all the requirements of this specification before being released for shipment to the customer.

NOTE

Pounds per square inch (PSI) shall indicate pressure as pounds per square inch gage (PSIG) unless otherwise specified.

OBJECTIVE

Ensure that the BCU or CCU conforms to system specifications.

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PROCEDURE

Initial setup

1. Connect all air lines to the test cart.

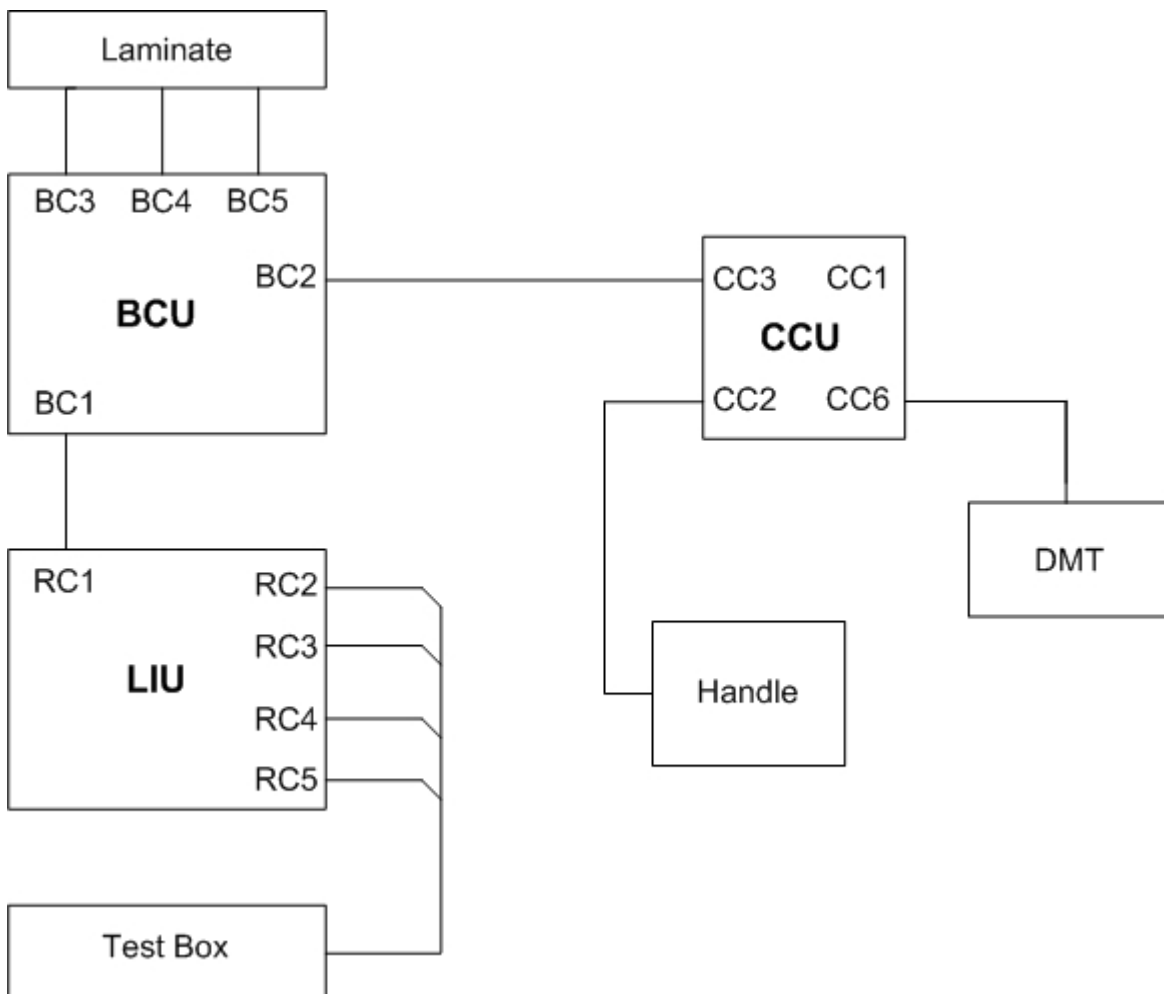2. Connect EPIC® II cables as per the diagram shown in Figure 1.

Figure 1

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3. Shop Supply air ON.

4. Set the main reservoir between 130 – 140 PSI.

5. Set the laminate selection panel valves to the Comet positions. Refer to Figure 2.

6. Set the power supply between 70 – 74 VDC.

Figure 2

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7. Set all the switches on the test box to their initial positions as indicated by the Input/Output Functions Reference Table. Refer to Table A-1 in Appendix A for the Input/Output Functions table. Refer to Figure 3. for the available switches on the test box.

Figure 3

8. Ensure the automatic brake handle is in the Release position.
9. Apply air pressure to the system by turning on shop air.
10. Click on the Diagnostic Maintenance Terminal (DMT) icon on the Comet 5 Test Rack computer monitor.

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PART 1: FUNCTIONAL TESTS

Train Wire 13T, Brake Fail Test & Brake Cylinder Regulating Valve Test

<u>PURPOSE</u>: This test verifies the operation of the backup circuit in the case of a power interruption with the 74 volt power supply.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Verify that the air spring (AS) is between 103 to 105 PSI.	N/A
2	Turn on power to Epic and clear the power up penalty.	N/A
4	Turn on the 13T switch.	N/A
5	Turn off the main power to EPIC® II from the test box.	a) Verify that no emergency brake application occurs. b) Verify a service brake application occurs c) EQR RES = 0 PSI BRAKE PIPE = 10 (±2) PSI **NOTE:** The BC gauge indication reaches 84 PSI due to electronic backup operation. At this point, adjust the BC regulation check valve to read 84 (±2) PSI if necessary. Verify that the locking nut has been tightened. d) Verify that RLY18 (PKOR light) is off.
6	Turn off the 13T switch.	N/A
7	Wait for 10 seconds.	N/A
8	Turn on the 13T switch.	BC = 84 (±2) PSI
9	Move the automatic handle to the Emergency position.	BP = 0(+2) PSI
10	Turn on the main power to EPIC® II. Clear the power up penalty	- Verify RLY18 (PKOR light) illuminates. - EQ RES = 110 (±2) PSI BP = 110 (±2) PSI BC = 0 (+2) PSI

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Automatic Application and Release Test

PURPOSE: This test verifies that the Cab Control Computer is properly reading the handle movements.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic handle to the Service position and then immediately to the Lap position. (Ensure that the solenoid valves have stopped cycling before taking pressure readings – approx 20 seconds.)	EQR RES = 104 (±1) PSI BRAKE PIPE = 104 (±1) PSI BRAKE CYL = 10 (+5 – 0) PSI Record results in the data sheet.
2	Move the automatic brake handle to the Service position and then back to the Lap position using 5 PSI brake reduction increments.	Verify that this function occurs.
3	Move the automatic brake handle to the Service position and then back to the Lap position until BP = 76 PS! (a 34 PSI reduction). (Ensure that the solenoid valves have stopped cycling.)	EQR RES = 76 (±2) PSI BRAKE PIPE = 76 (±2) PSI BRAKE CYL = 62 (±2) PSI Record results in the data sheet.
4	Move the automatic brake handle to the Handle-Off (HO) position. (Ensure that the solenoid valves have stopped cycling.)	EQR RES = 0 (±2) PSI BRAKE PIPE = 0 (±2) PSI BRAKE CYL = 62 (±2) PSI Record results in the data sheet.
5	Move the automatic brake handle to the Emergency position and follow screen instructions. Wait for 60 seconds to ensure that the solenoid valves have stopped cycling.	EQR RES = 0 (+2) PSI BRAKE PIPE = 0 (+2) PSI BRAKE CYL = 72 (+1/-2) PSI Record results in the data sheet.
6	Move the automatic brake handle to the Handle-Off (HO) position.	N/A

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7	Move the automatic brake handle to the Service position and then back to the Lap position until BP = 76 PSI(a 34 PSI reduction). (Ensure that the solenoid valves have stopped cycling.)	BC = 62 (+2) PSI. Record results in the data sheet.
8	Move the automatic brake handle to the Release position,	N/A

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Cut-out Test

PURPOSE: This test verifies that cutting out EPIC® II will properly isolate the brake pipe.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Verify that switch 5 is in the down position.	**Switch 5 ACTIVE.**
2	**Wait 3 minutes for the Brake Pipe to charge.**	**Take note of pressures.**
3	Move the EPIC® II system to lead/cut out mode by pressing the Out pushbutton on the brake handle unit. Ensure that the magnet valves have stopped cycling before taking pressure readings – approx 20 seconds.	EQR = **110 (± 2) PSI** BP = No Change BC = No Change
4	Move the automatic brake handle to the HO position.	EQR = Reduces BP = No Change BC = No Change
5	Move the automatic brake handle to the Release position.	EQR = 110 (±2) PSI BP = No Change BC = No Change

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PART II: EPIC® II EQUIPMENT – SYSTEM TEST

TLAR – Application Trainline Input: RLY2

PURPOSE: This test verifies that the application trainline signal is received in the case that EPIC® II brake system is cut-out while the E–**P (Comet 5 Test Box)** circuit breaker is on.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Verify that EPIC® is in the lead/cut-out mode. Push the Out pushbutton on the handle unit if necessary.	Verify that the Out pushbutton is illuminated.
2	Change the RLY2 (TLAR input) switch to the down position **[RLY2 Active].**	Verify that the brake pipe pressure reduces at a service rate.
3	Change the RLY2 (TLAR input) switch to the up position **[RLY2 Inactive].**	Verify that the brake pipe pressure levels off.
4	Return the EPIC® II system to lead/cut-in mode: - Push the In pushbutton on the automatic handle. - Move the automatic handle to the Lap position.	**Button will flash.** Verify that the In pushbutton is illuminated.

TLHR – Holding Trainline Input: RLY3

PURPOSE: This test verifies that the EPIC® II brake system receives the holding trainline signal.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic handle to the Service position until BP is 100 PSI.	Verify that BC is applied. Take note of the BC value.
2	**Change** the RLY3 (TLHR input) switch to Active **[down position].**	N/A
3	Move the automatic handle to the Release position.	Verify that BC is applied and has the same value as that obtained in step 1.
4	Set the RLY3 (TLHR input) switch to Inactive **[up position].**	BC = 0 (+2) PSI

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TLER – Emergency Trainline Input: RLY4

PURPOSE: This test verifies that the EPIC® II brake system receives the emergency trainline signal.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Sound the emergency horn for the test system.	N/A
2	Flip the RLY4 (TLER input) switch down.	Verify that an emergency brake application occurs.
3	Move the automatic handle to the Emergency position.	N/A
4	Flip the RLY4 (TLER input) switch up.	N/A
5	Wait for 30 seconds.	N/A
6	Recover the emergency as instructed on the screen.	N/A

CAR – Cab Activation Input: RLY5

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Ensure that the automatic handle is in the Release position.	N/A
2	Set the RLY5 (CAR input) switch to Active **(if not already Active).**	Verify that EPIC® II is in the lead/cut-in mode on the controller buttons. BP = 110 (±2) PSI
3	Set the RLY5 (CAR input) switch to Inactive.	Verify that EPIC® II remains in cut-in mode. Verify that BP and BC do not change.
4	Set the RLY5 (CAR input) switch to Active.	Verify that no change in the brake mode occurs.

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SBR – Snow Brake Input: RLY8

PURPOSE: This test verifies that the command brake cylinder pressure is available whenever a snow brake is required.

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Set the RLY8 (SBR input) switch to Active.	BC = 10 (±2) PSI
2	Move the automatic handle between the Service and Lap positions until **EQR = 76 PSI (a 34 PSI reduction).**	BC = 62 (±2) PSI
3	Return the automatic handle to the Release position.	Initial reading: BC = 0 (+2) PSI After 15 seconds: BC = 10 (±2) PSI
4	Set the RLY8 (SBR input) switch to Inactive.	BC = 0 (+2) PSI

DIAG A – Class A Fault: RLY9

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Remove the automatic **application (AA)** and independent **application (IA)** magnet valve wires located on the BC portion on the EPIC® II pneumatic operation unit.	N/A
2	Move the automatic handle between the Service and Lap positions until **EQR = 76 PSI (a 34 PSI reduction).**	Wait. Verify that RLY9 (DIAGA light) extinguishes. **An ERROR will occur on the DMT screen.**
3	Reattach the automatic application **and independent** magnet valve wires to the BC portion. **Go to Release.** **Clear Logs.**	N/A **ERROR will clear.**
4	Make 4 Automatic applications and releases. **Service/Release/Pause** **Note: Pause for 10 – 15 seconds after each application**	Verify that RLY9 (DIAGA light) illuminates. **Note: If RLY9 does not Illuminate, check/adjust MR diverter valve % open.**
5	Return the automatic handle to the	N/A

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Release position.	

OTR – Onboard Test: RLY10

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic handle on the handle unit to the Service position.	Verify that RLY10 (OTR light) illuminates when BC > 25 PSI.
2	Return the automatic handle to the Release position.	Verify that RLY10 (OTR light) extinguishes when BC < 19 PSI.

Dual Optoisolator Fault Diagnostic B (Fault "A" Test Box): RLY11

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Toggle all CCS1 and CCS2 switches A to H individually.	Verify that **DIAGA** light extinguishes when a switch is set to Active and illuminates when the same switch is set to Inactive.
2	Set the CCS1 enable switches "C" and "D" to Active.	N/A **This action drains down all pressures.** Verify that **DIAGA** light extinguishes
3	Set the ATC CCS1 switch "A" to Active.	Verify that a cab signal penalty occurs.
4	Set the ATC CCS1 switch "A" to Inactive.	Verify that **DIAGA** light illuminates.
5	Move the automatic handle to the Lap position. **Follow screen instructions.**	Verify that the cab signal penalty clears after 8 seconds.
6	Set the ATC CCS1 switch "B" to Active.	Verify that a cab signal penalty occurs. Verify that **DIAGA** light extinguishes.
7	Set the ATC CCS1 switch "B" to Inactive. **Follow screen instructions.**	Verify that the cab signal penalty clears after 8 seconds. Verify that **DIAGA** light illuminates.
8	Set the ATC CCS1 switches "C" and "D" to Inactive.	N/A
9	Set the Alerter CCS2 switches "G" and	N/A

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	"H" to Active.	
10	Set the Alerter CCS2 switch "E" to Active.	Verify that an alerter penalty occurs. Verify that **DIAGA** light extinguishes.
11	Set the Alerter CCS2 switch "E" to Inactive. **Follow screen instructions.**	Verify that the alerter penalty clears after 8 seconds. Verify that **DIAGA** light illuminates.
12	Set the Alerter CCS2 switch "F" to Active.	Verify that an Alerter penalty occurs. Verify that **DIAGA** light extinguishes.
13	Set the Alerter CCS2 switch "F" to Inactive. **Follow screen instructions.**	Verify that the alerter penalty clears after 8 seconds. Verify that **DIAGA** light illuminates.
14	Set the Alerter CCS2 switches "G" and "H" to Inactive.	EQR RES = 110 (±2) PSI BRAKE PIPE = 110 (±2) PSI BRAKE CYL = 0 (+2) PSI

PSR – Permanent Suppression Test: RLY12

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic brake to the Service Position.	Verify that RLY12 (PSR light) illuminates when BC > 46 PSI.
2	Return the automatic brake handle to the Release position.	Verify that RLY12 (PSR light) extinguishes when BC < 42 PSI. **The LED goes out as soon as you go to Release.**

ABCR – Alerter Break Cylinder Check: RLY13

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic brake handle to the Service Position.	Verify that RLY13 (ABCR light) illuminates when BC > 25 PSI.
2	Return the automatic brake handle to the Release position.	Verify that RLY13 (ABCR light) extinguishes when BC < 24 PSI.

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PSIR – Permanent Suppression Initialization: RLY14

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic brake handle to the Service Position. Make an 8 – 10 PSI reduction.	Verify that RLY14 (PSIR light) illuminates.
2	Move the automatic handle to the Lap position.	Verify that RLY14 (PSIR light) extinguishes.
3	Return the automatic brake handle to the Release position.	Verify that RLY14 (PSR light) remains off.
4	Move the automatic handle to the HO position.	Verify that RLY14 (PSIR light) illuminates.
5	Return the automatic brake handle to the Release position.	Verify that RLY14 (PSIR light) extinguishes when the handle moves out of the HO position and BP < 6 PSI below release pressure. **BP </= 104 PSI.**

9/35 Pipe – Port 35 Representation Test: RLY15

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Sound emergency horn for the test system. Open the Ball Valve located above on the test laminate. This simulates a Break In–Two. **Note: When testing with a POU, open BP exhaust valve on the POU air control panel.**	N/A Verify that BP is vented. Verify that a trainline emergency is initiated. Verify that the 9/35 pipe light illuminates.
2	Close the ball valve **or BP exhaust valve for POU.**	N/A

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3	Recover the emergency per screen instructions.	N/A

HOR – Handle-Off Indication: RLY16

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Move the automatic handle to the Hold position.	Verify that RLY16 (HOR light) is off.
2	Move the automatic handle to the Lap position.	Verify that RLY16 (HOR light) is off.
3	Move the automatic handle to the Service position.	Verify that RLY16 (HOR light) is off.
4	Move the automatic handle to the Handle-Off position.	Verify that RLY16 (HOR light) illuminates.
5	Return the automatic handle back to the Release position.	N/A

ESXR – Emergency Sanding Relay Switch: RLY17, AND
PKOR – Power Knockout Relay Test: RLY18

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Sound the emergency horn for the test system. **This is very loud!**	N/A
2	Move the automatic handle to the Emergency position.	Verify that RLY17 (ESXR light) illuminates for 5 seconds and then extinguishes. Verify that RLY18 (PKOR light) extinguishes.
3	Set the Zero speed relay to Inactive.	Verify that RLY17 (ESXR light) illuminates.
4	Set the Zero speed relay to Active.	Verify that RLY17 (ESXR light) extinguishes.

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5	Wait for 30 seconds.	N/A
6	Recover the emergency per the screen instructions.	Verify that RLY18 (PKOR light) illuminates.

TLEC – Emergency Trainline: RLY19,
TLAC – E-P Handle Apply Command: RLY20, AND
TLHC – E-P Auto Handle Holding Command Tests: RLY21

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Ensure that the automatic brake handle is in the Release position.	Verify that the following are off: RLY 19 (TLEC light), RLY20 (TLAC light), and RLY21 (TLHC light).
2	Move the automatic brake handle to the Hold position.	Verify that RLY21 (TLHC light) illuminates.
3	Move the automatic brake handle to the Lap position.	Verify that RLY21 (TLHC light) remains illuminated.
4	Move the automatic brake handle to the Service position.	Verify that RLY21 (TLHC light) remains illuminated. Verify that RLY20 (TLAC light) illuminates.
5	Move the automatic brake handle to the Handle-Off position.	Verify that RLY20 (TLAC light) and RLY21 (TLHC light) remain illuminated.
6	Sound the emergency horn for the test system.	N/A
7	Move the automatic brake handle to the Emergency position.	Verify that RLY19 (TLEC light) **and RLY20 (TLAC light)** illuminate. Verify that RLY21 (TLHC light) extinguishes.
8	Wait for 30 seconds.	N/A
9	Move the automatic brake handle to the Handle-Off position for 5 seconds.	N/A
10	Return the handle to the Release position.	Verify that all following are off: RLY19 (TLEC light), RLY20 (TLAC light), and RLY21 (TLHC light).

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CCS1 and CCS1 Enable – Cab Coded Signal System Test (on Test Box)

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Set the CCS1 switch to Active.	N/A

2	Set the CCS1 Enable to Active.	- Verify that a cab signal penalty occurs on the display screen.
		- EQR = 0 (+2) PSI
		  BP = 10 (+2) PSI **(initially, then to "0")**
		  BC = 62 (±2) PSI

3	Set the CCS1 switch to Inactive.	N/A
4	Set the CCS1 Enable switch to Inactive.	N/A
5	Move the automatic handle to the Lap position.	Verify that the penalty message on the display screen clears after 8 seconds.
6	Return the automatic handle to the Release position.	N/A

CCS2 and CCS2 Enable – Cab Coded Signal System Test (on Test Box)

STEP	DESCRIPTION	REQUIREMENT VERIFICATION
1	Set the CCS2 switch to Active.	N/A

2	Set the CCS2 Enable switch to Active.	- Verify that a Cab signal penalty occurs on the display screen.
		- EQR = 0 (+2) PSI
		  BP = 10 (+3) PSI **(initially, then to "0")**
		  BC = 62 (±2) PSI

3	Set the CCS2 switch to Inactive.	N/A
4	Set the CCS2 Enable switch to Inactive.	N/A
5	Move the automatic handle to the Lap	Verify that the penalty message on the

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	position.		display screen clears after 8 seconds.
6	Return the automatic handle to the Release position.		N/A

Appendix A: Input/Output Functions Reference

Relay No. or Switch	LABEL	Initial Condition	Functional Description
RLY1	ZERO SPEED	ACTIVE	Energized: Allows cut-in and cut-out functions to occur.
RLY2	TLAR	INACTIVE	(Application Trainline Input) E-P auto handle Service position receive. Energized when E-P brake application trainline is energized. Only a receiver function.
RLY3	TLHR	INACTIVE	(Holding Trainline Input) E-P auto handle Holding position receive. Energized when E-P brake hold trainline is energized. Only a receiver function.
RLY4	TLER	INACTIVE	(Emergency Trainline Input) E-P auto handle Emergency position receive. Energized when E-P brake emergency trainline is energized. Only a receiver function.
RLY5	CAR	ACTIVE	(Cab Activated Input) Cab not activated when de-energized. Cab is keyed up and active when energized.
RLY6	*X*	*X*	*NOT*
RLY7	*X*	*X*	*USED*
RLY8	SBR	INACTIVE	(Snow Brake) When snow brake is active, then apply 10 PSI or greater to BC if commanded by the auto handle. If auto handle moves to Release, then allow BC to go to 0 PSI for 15 sec and then reapply 10 PSI for BC.
RLY9	FLTA (DIAGA)	N/A	(Class A Fault – DIAGA Output Relay) Energize and de-energize the same as the brake fail. Output is active if any level A diagnostic code is active Deactivate if all level A faults are inactive. On power up this output will default to the inactive state.
RLY10	OTR	N/A	(On Board Test)

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Relay No. or Switch	LABEL	Initial Condition	Functional Description
			Energized when BC > 25 PSI. De-energized when BC < 19 PSI.
RLY11	FLTB (DIAG**B**)	N/A	Energize when there is a dual optoisolator failure.
RLY12	PSR	N/A	(Permanent Suppression) Energized when BP reduction ≥ 17 PSI (from last hold). De-energized when BP reduction < 15 PSI (from last hold PSIG).
RLY13	ABCR	N/A	(Alerter Brake Cylinder Check) Energized when BC > 25 PSI. De-energized when BC < 24 PSI.
RLY14	PSIR	N/A	(Permanent Suppression Initialization) Energized when BP reduction ≥ 8 PSI (from last hold) or when automatic handle is in Application or HO positions. De-energized when BP reduction < 6 PSI (from last hold PSIG) and automatic handle is not in Application or HO positions.
RLY15	9/35 PIPE	N/A	(Port 35 Representation) Energized relay analogous to 26L brake valve #35 or #9 pipe (break in two emergency) being pressurized. Relay energized when cut-out. Relay de-energized when cut-in.
RLY16	HOR	N/A	(Handle-off Indication) Energized when handle is not in Handle-off position.
RLY17	ESXR	N/A	(Emergency Sanding Relay) Energizes sanding trainline during emergency. 2 form c contacts available. 5 second sanding (activation) time.
RLY18	PKOR	N/A	(Power Knockout) Relay normally energized to provide power knock out.
RLY19	TLEC	N/A	(Emergency (Handle) Trainline Output)

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EPIC II SYSTEM/COMET V BRAKE EQUIPMENT
SINGLE END CAB CAR ALSTOM/NJT
WPN 19724 and WPN 19914
WI1050-WGS Rev B

Relay No. or Switch	LABEL	Initial Condition	Functional Description
			Relay energized while automatic handle is in emergency Relay is de-energized when moved out from emergency.
RLY20	TLAC	N/A	(E-P Auto Handle Apply Command) Energized when auto handle is moved to Service position or beyond. De-energized when handle is in Release, Holding, or Lap positions and in continuum between these positions.
RLY21	TLHC	N/A	(E-P Auto Handle Apply Command) Energized when auto handle is moved between Holding and Handle-off positions. De-energized only when the handle is moved into Release and Emergency positions.
CCS2	CCS2	INACTIVE	Circuit to detect penalty brake command. 0 VDC = penalty brake commanded +32 VDC = no penalty brake
CSS2 ENABLE	CCS2 ENABLE	INACTIVE	Circuit to detect penalty brake enable. 0 VDC = CCS circuit active +24 VDC = CCS circuit inactive
CCS1	CCS1	INACTIVE	Circuit to protect penalty brake command. 0 VDC = penalty brake commanded +32 VDC = no penalty brake
CSS1 ENABLE	CCS1 ENABLE	INACTIVE	Circuit to detect penalty brake enable. 0 VDC = CCS circuit active +24 VDC = CCS circuit inactive

WABTEC GLOBAL SERVICES Q.A. Test Procedure Data Sheet
EPIC® II System/Comet V Brake Equipment Single End Cab Car Alstom/NJT
WI1050-WGS

PO# of POU:_____   S# of BCU:_____   Date:_____   Tested By:_____

WHEN APPLICABLE, CIRCLE "A" (ACCEPT) OR CIRCLE "R" (REJECT) TO INDICATE
TEST RESULTS; ALL OTHERS, WRITE IN TEST VALUES.

NOTE: Each Test section has a Page # referencing the relevant TP Page #.

BRAKE CYLINDER REGULATING VALVE TEST: Page 6

    Step #8 BC = 84 (± 2) psi   _____

           All remaining steps   A   R

AUTOMATIC APPLICATION AND RELEASE TEST: Pages 7-8

    Step# 1 handle to service and then back to lap
         position:
         EQR = 104 (- 1) psi.   _____

         BP = 104 (- 1) psi.   _____

         BC = 10 (+5 -0)psi.   _____

    Step# 2 movement of handle through application zone.
         Incremental reduction of EQR and BP
         and incremental increase in BC:
                        A   R

    Step# 3 handle in service and back to lap position:
         EQR = 76 (± 2) psi   _____

         BP = 76 (± 2) psi   _____

         BC = 62 (± 2) psi   _____

AUTOMATIC APPLICATION AND RELEASE TEST (continued): Pages7-8

    Step #4 handle to handle off position:

        EQR = 0 (+ 2) psi   _____

        BP = 0 (+ 2) psi   _____

        BC = 62 (± 2) psi   _____

    Step #5 handle to emergency position:

        EQR = 0 (+ 2) psi   _____

        BP = 0 (+ 2) psi   _____

        BC = 72 (+1 -2) psi   _____

    Step #8 make a 34 psi reduction until EQR = 76 psi

        BC = 62 (± 2) psi   _____

CUT-OUT TEST: Page9

    Step #3 system to Lead cut-out mode:

        EQR = NO CHANGE   A_____R

        BP = NO CHANGE   A_____R

        BC = NO CHANGE   A_____R

    Step #5 handle to HO and back to RELEASE:

        EQR = 110 (± 2) psi.   A_____R

        BP = NO CHANGE   A_____R

```
                    BC = NO CHANGE              A          R
```

TLAR APPLICATION TRAINLINE INPUT: RLY2 Page10

```
        All steps accepted            A          R
```

TLHR HOLDING TRAINLINE INPUT: RLY3 Page10

```
    Step #1 BC increases to some value:
                                       A          R


    Step #3 handle to RELEASE position:
            BC holds the same as in Step 1
                                       A          R


    Step #4 Switch RLY3 to INACTIVE:
            BC =  0 (+ 2) psi.         _____
```

TLER EMERGENCY TRAINLINE INPUT: RLY4 Page11

```
         All steps accepted            A          R
```

CAR - CAB ACTIVATION INPUT: RLY5 Page11

```
         All steps accepted            A          R
```

SBR - SNOW BRAKE INPUT: RLY8 Page12

    Step #1 Switch RLY8 to ACTIVE:
        BC = 10 (± 2) psi.   _____

    Step #2 34 psi. reduction in EQR:
        BC = 62 (± 2) psi.   _____

    Step #3 handle to RELEASE position:
        BC = 0 (+ 2) psi.   _____

        and after 15 seconds:
        BC = 10 (± 2) psi.   _____

    Step #4 RLY8 to INACTIVE:
        BC = 0 (+ 2) psi.   _____

DIAG A - CLASS A FAULT: RLY9 Page12

    Step #2 34 psi reduction in EQR:
        RLY9 light extinguishes   A   R

    Step #4 magnet valve wires re-attached to BC
        portion:
        RLY9 light illuminates   A   R

OTR - ON BOARD TEST: RLY 10 Page12

    Step #1 handle to service position:
        RLY10 light illuminates when:
        BC › 25 psi.   A   R

```
Step #2 handle to release position:
     RLY10 light extinguishes when:
     BC ‹ 19 psi.                    A_____R
```

DUAL - OPTO ISOLATOR FAULT DIAG B: RLY11 Page13

```
          All steps accepted       A_____R
```

PSR - PERMANENT SUPPRESSION TEST: RLY12 Page14

```
Step #1 handle to service position:
     RLY12 illuminates when:
     BC › 46 psi.                    A_____R

Step #2 handle to release position:
     RLY12 light extinguishes when:
     BC ‹ 42 psi.                    A_____R
```

ABCR - ALERTER BRAKE CYLINDER CHECK: RLY13 Page14

```
Step #1 handle to service position:
     RLY13 illuminates when:
     BC › 25 psi.                    A_____R

Step #2 handle to release position:
     RLY13 light extinguishes when:
     BC ‹ 24 psi.                    A_____R
```

PSIR – PERMANENT SUPPRESSION INITIALIZATION: RLY13 Page14

    Step #1 handle to service position:
        RLY14 illuminates   A   R

        handle to LAP position after
        an 8-10 psi reduction.
        RLY14 extinguishes   A   R

PSIR – PERMANENT SUPPRESSION INITIALIZATION (continued): RLY14 Page14

    Step #2 handle to release position:
        RLY14 light remains off when
        BP < 6 psi below release pressure
                A   R

    Step #3 handle to HO position:
        RLY14 illuminates   A   R

    Step #4 handle to release position:
        RLY14 light extinguishes when
        BP < 6 psi below release pressure
                A   R

9/35 Pipe – PORT 35 REPRESENTATION TEST: RLY15 Page15

    Step #1 trainline emergency is initiated
        and 9/35 light is illuminated
                A   R

HOR – HANDLE OFF INDICATION: RLY16 Page15

    Step #1 handle to hold position:

RLY16 (HOR light) is extinguished

A _____ R _____

Step #2 handle to lap position:
RLY16 (HOR light) is extinguished

A _____ R _____

Step #3 handle to service position:
RLY16 (HOR light) iS extinguished

A _____ R _____

Step #4 handle to handle off position:
RLY16 (HOR light) is illuminated

A _____ R _____

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ESXR – EMERGENCY SANDING RELAY SWITCH: RLY17

PKOR – POWER KNOCKOUT RELAY TESTS: RLY18 Page16

Step #2 handle to emergency position:
RLY17 illuminates for 5 sec.

A _____ R _____

RLY18 (PKOR light) extinguishes

A _____ R _____

Step #3 RLY17 (ESXR LIGHT) illuminates

A _____ R _____

Step #4 RLY17 (ESXR LIGHT) extinguishes

A _____ R _____

Step #6 handle to release position:
RLY18 illuminates   A _____ R _____

TLEC – EMERGENCY TRAINLINE: RLY19

TLAC – E-P HANDLE APPLY COMMAND: RLY20

TLHC – E-P AUTO HANDLE HOLDING COMMAND: RLY21 Page17

```
Step #1 Auto handle in the release position:
        RLY19, RLY20, AND RLY21 lights are OFF
                                        A         R
```

```
Step #2 Auto handle to hold position:
        RLY21 illuminates        A         R
```

```
Step #3 Auto handle to lap position:
        RLY21 remains illuminated A         R
```

```
Step #4 Auto handle to service position:
        RLY21 remains illuminated and
        RLY20 illuminates        A         R
```

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RLY19, RLY20, AND RLY21 SWITCH TESTS (continued):

```
Step #5 Auto handle to handle OFF position:
        RLY20 and RLY21 remain illuminated
                                    A         R
```

```
Step #7 Auto handle to EMERGENCY position:
        RLY19 and RLY20 are illuminated
        while RLY21 is extinguished
                                    A         R
```

```
Step #8 Auto handle to release:
        RLY19, RLY20 and RLY21 are extinguished
                                    A         R
```

**CCS1 and CCS1 Enable CAB CODED SIGNAL SYSTEM TEST
(on test box):** Page18

```
Step #2 Switch CCS1 enable to ACTIVE
        EQR =  0 (+ 2) psi.         _____
```

```
          BP =  0 (+ 2) psi.        _____


          BC = 62 (± 2) psi.        _____


   Step #5 Auto handle to lap position for 8 Sec:
           penalty message on display screen
           no longer present.      A        R
```

**CS2 and CCS2 Enable CAB CODED SIGNAL SYSTEM TEST
(on test box):** Page18

```
     Step #2 Switch CCS2 enable ACTIVE
             EQR =  0 (+ 2) psi.       _____


             BP =  0 (+ 2) psi.        _____


             BC = 62 (± 2) psi.        _____


     Step #5 Auto handle to lap position for 8 sec:
             penalty message on display screen
             no longer present.      A        R
```

END