



## IronWood Technologies

Railroad Accident Reconstruction

## Federal Railroad Administration

### False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - Cause: Loss of Shunt - Possible Rust or Foreign Material on Rail

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
----------	------	-------------------	--------------	--------------	---------------	-------------------	--------------------	----------	--------------------------

21	1/12/1995	NS	CTC			8031	Track Circuit	Devon, WV	N
----	-----------	----	-----	--	--	------	---------------	-----------	---

At approximately 8:00AM, train No. 946U1 was shoving a caboose and four (4) cars eastbound from #2 Storage Track onto the Buchanan Branch at Devon. The move was governed by dwarf signal 4L which displayed a SLOW APPROACH aspect. The move was stopped with three (3) cars past the 4L signal and inside the "OS" at Devon, in order to make a reverse movement. It was noticed by the train crew that 4L signal was still displaying SLOW APPROACH. Once the reverse movement started, 4L signal went to a STOP aspect.

Investigation by signal personnel showed that a 0.06 ohm shunt, when applied at the base of the rail in the "OS" track circuit would drop the "OS" track relay. However, when held to the top of the rail, the shunting was erratic. There were signs of rust on the wheels in this area. Further investigation led to the determination that rust on the top of the rail in #2 Storage Track had built up on the wheels of the cars being shoved, and that, along with the rust already on the "OS" rails, caused loss of shunt. A cut of cars was shoved back onto the "OS" to verify this finding. Intermittent shunting was evident on this cut, also. A car with brake applied was pulled over the affected tracks to clear the rust to the point where shunting was reliable.

Ground tests were performed and proper track relay current was verified. No other discrepancies were found, and the signal system was returned to service.

37	1/20/1995	UP	CTC			NLNP-18	None	Darr, Nebraska	N
----	-----------	----	-----	--	--	---------	------	----------------	---

On January 20, 1995, at 15:53 (CDT) westbound NLNP-18 on the Council Bluffs Subdivision was stopped on Track 1 at Control Point B233 with westbound LND-15 occupying Track 1 west of the control point. NLNP-18 reported signal 1W went from Red to Green about four times in 5-second durations.

An investigation could not duplicate the occurrence, and it was determined that loss of shunt by LND-15, a single 4-axle locomotive, had caused the signal display.

All applicable tests were performed.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
24	1/29/1995	NS	AB			8575	Track Circuit	Ford, VA	N
<p>Train No. 235 had lead unit 8575 fail with a wheel slip alarm. The train was stopped and the rest of the units were used to move the train to the adjacent track. Mechanical shop employees then attempted to move the stalled engine which was by that time alone in the block. The protecting signal was being observed by Trainmaster and the crew of No. 235, and they noticed that it was flopping between a STOP and CLEAR indication while the attempt was being made to move the engine.</p> <p>Signal personnel were called to investigate, and by the time they arrived, engine 8575 had been moved to a spur track. It was found that the track relay, a 2 ohm, 4 point, DN-11, could be shunted with a 0.06 ohm shunt at either end and at the point where the engine was being operated at the time the false clear was observed. The track relay was tested and found to be in spec. The Mechanical forces were questioned about the operation and condition of engine 8575, and they said it had been leaking grease profusely to the rail. Due to this grease and the icy conditions, they had operated the sanders while attempting to move the engine. The condition was duplicated as closely as possible with the engine heavily sanding the rail and loss of shunt did occur. The cause was determined to be the grease/sand combination on the rails that resulted in the intermittent loss of shunt.</p> <p>Once the rails were determined to be sufficiently clean of the grease, the signals were fully returned to service.</p>									
58	3/1/1996	BNSF	CTC			BN8014	Track Circuit	Lohman, MT	N
<p>Extra 8014 East waiting behind absolute signal behind units 2267 (lead) &amp; 2079 (trail). While light engines were proceeding through block, crew observed absolute signal go to Green and back to Red several times. Train crew reported improperly displayed signal (signal was CLEAR for only a few seconds), and dispatcher talked crew by signal. Data logs at location indicate that H recovered for several seconds several times. Track circuits were checked and all were found properly adjusted. Shunt tests were made throughout block and all OK. We assume that there was a loss of shunt on light engines proceeding through block at 50M.</p>									
134	5/11/1997	CSXT	CTC			9026	Rusty Rail	OB Cabin, Covington, KY	N
<p>On May 11, 1997, at 0124 hours, train Q504-09 struck the rear gondola car of the Lott Yard Job, Y235, within the control point limits at OB Cabin on the Cincinnati Terminal Subdivision. Train Q504-09 was traveling northbound through the control point limits at OB Cabin on signal indication. The gondola was occupying the control point track circuit but was not detected due to rusty rail conditions. The incident was investigated by signal personnel on the morning of May 11, 1997. The incident was reported to Mr. Blanchard of the FRA via the FRA Emergency Number at 0700. Mr. Blanchard entered the information on FRA Report No. 386813.</p> <p>Investigation of the incident showed that at 2302 hours, Y235 shoved a cut of cars into the KC passing siding from the south end, KC Cabin. The crew made arrangements with the dispatcher to protect their movement by lining the N1 signal at OB Cabin. The N1 signal is the northbound signal for the KC passing siding at OB Cabin. The northbound signal at OB Cabin was still lined at the completion of the movement, indicating the control point was not occupied. The dispatcher then put the northbound signal at OB Cabin to stop. At 0123, the dispatcher lined the N3 signal for the movement of Q504-09. The N3 signal is the northbound signal on the number two main line track at OB Cabin. Q504-09 passed the N3 signal and struck the rear gondola car of Y235.</p> <p>The track relays for the N1 signal, N3 signal, and the KC passing siding were subsequently tested for shunting.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
167	9/18/1997	UP	CTC		ATC	175	None	Chicago, IL	N
<p>On September 18, 1997, at 11:00 CDST, on the Geneva Subdivision at Chicago, IL, the Switch Tender reported the eastbound signal 3.8 on #1 Main Track was Green with the track occupied east of the signal.</p> <p>An investigation revealed a rusty rail condition was preventing the track circuit from shunting while occupied.</p> <p>The track relay was adjusted and a stainless steel bead will be welded to the rail. The signal system was restored to proper operation, and all applicable tests were performed.</p>									
176	12/5/1997	UP	CTC			CNW 8830	None	Sheep Creek, WY	N
<p>On December 05, 1997 at 12:53 MST, on the North Platte Subdivision at CPW195 in Sheep Creek, WY, westbound CNWNA-01, making a move from track #2 to track #1, observed the signal change from Red over lunar momentarily to Red over Green and then back to a Red indication with the track occupied in front of him.</p> <p>An investigation determined a temporary loss of shunt of the light engine on the main track west of W195 caused the momentary proceed indication.</p> <p>All applicable tests were performed.</p>									
204	3/11/1998	UP	CTC			UP 8197	None	Colton, UT	N
<p>On March 11, 1998 at 2300 MST, on the Provo Subdivision at Colton, Utah, eastbound CTVSV-04, on the main track, observed the eastbound signal at MP 644.7 display a momentary Green with the track circuit east of the signal at MP 644.7 occupied.</p> <p>An investigation revealed momentary loss of shunt in the occupied track circuit east of signal at MP 644.7 caused the momentary Green signal at eastbound signal at MP 644.7.</p> <p>All applicable tests were performed.</p>									
228	5/30/2000	BNSF	CTC			ZNBYWSP2-28A,	None	Courtney, MO	N
<p>Train ZNBYWSP2-28A, traveling eastward on main track 1 between Congo and Courtney, following a single 4 axle unit, BNSF 2600, train WHMOHMO1-30, observed automatic signal 4414 upgrade to CLEAR from Red and then go back to Red. Engine BNSF 2600 was in the block ahead of the ZNBYWSP2-28A. Signal Supervisor, Signal Inspector, and Signal Maintainer investigated the incident by downloading logs from the Electrocode track circuits and confirmed that engine BNSF 2600 had lost shunting and allowed signal 4414 to upgrade. The track circuits were tested for shunting sensitivity with 0.06 ohm shunts with no exceptions taken. Dispatcher instructions prohibit allowing following moves behind single engines on BNSF. The dispatcher had erred. A copy of Rule 44.5 from the dispatcher's manual is attached.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<a href="#">277</a>	9/1/2000	UP	CTC			UP3074	None	Dexter Junction, MO	N
<p>On September 1, 2000 at 5:48 CDT at Dexter Junction on the Jonesboro Subdivision, southbound MINPB 01 on the main track at mile pole 40.3 reported the southbound signal (4L) displaying a Green aspect and as they proceeded they encountered the northbound LSV50 01, a local with a single 4-axle unit, in the same block.</p> <p>An investigation revealed an oil film was present on the rail between Dexter Junction and Bernie causing a loss of shunt. It is unknown as to the origin of the oil film and it is under investigation.</p> <p>The oil film was removed and the signal system operated as intended.</p>									
<a href="#">233</a>	10/25/2000	BNSF	CTC			BNSF 4594	Rail (Insulated)	Wellington, KS	N
<p>MCILAC7-24A operating westbound on MT 1, CP 238.5 cut their power from the rest of the train and took a signal westward from MT 1 to MT 1. Then they were given a signal into the yard to pick-up 4 cars. After coupling onto the cars they were lined westward from the yard to MT 1. After traveling west of the eastbound absolute signal the dispatcher normalized the switch and then talked them back onto their train sitting east of the westbound absolute signal. The leading wheels of the BNSF 4594 remained in the OS of CP 238.5 while the power and the additional four cars were coupled onto the rest of the train. During this period of setting at this spot for @ 15 minutes the OS relay re-energized. The dispatcher then requested the 1 West signal clear. The 1 West signal cleared displaying an APPROACH MEDIUM. Upon arrival several meter readings were obtained; current on the relay was 165 milliamps, voltage on the relay was 0.73 volts voltage on the rail was 0.95 volts. A 0.06 ohm shunt was placed on the track and the track relay de-energized with 7mA of current on the relay. The shunt was removed and the relay re-energized. The resistance of the wheels was measured at 0.3 of an ohm. Samples of a light film of unknown origin covering the rail were then taken and the train was talked out of the OS. The OS track relay and a meter were observed while this occurred. The relay de-energized as soon as the wheels started to move with the current on the relay going to 3 mA with the third set of trucks and 0 with the next set of wheels. The thin layer of grease coupled with the sand from the locomotive and the moisture from the rain appeared to form an insulating material which prevented the axles from shunting the OS. The subsequent train moves through this location shunted the track without incident. A sample of this substance has been sent to the Topeka Labs for analysis.</p> <p>Note on top of page: "This should not be charged as a false proceed. Rail Conamination (Rule 136.51)"</p>									
<a href="#">678</a>	8/15/2001	ARR		Manual		4009		South Hurricane	N
<p>North bound absolute signal at South Hurricane displayed STOP indication. Train with engine 4009 moved past the signal to occupy the OS circuit and take the power operated switch on hand. After stopping with the lead truck in the OS circuit the power switch moved to the reverse position and the north bound signal indicated PROCEED. The engine had lost shunt in the OS circuit due to the presence of a foreign material on the top of the rails. The material was removed from the rails and the circuit tested to insure proper operation.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
367	9/3/2002	UP	CTC			CNW 8817	None	Platteville, CO	N
<p>On August 30, 2002 at 21:27 MDT, at Plattville, CO on the Greeley Subdivision, southbound CCSBR1-31, on the siding at MP 33.80, reported that the signal out of the siding at CP W034 went Green and then Red with the main track south occupied.</p> <p>An investigation revealed the train occupying the main track south of CPW034 was a single 4 axle locomotive, and that the CTC log had recorded a momentary loss of shunt.</p> <p>All applicable tests were performed.</p>									
418	6/10/2003	UP	CTC			BNSF 706	None	Burbank, WA	N
<p>On June 10, 2003 at 11:57 PDT, in Burbank, WA on the Yakima Subdivision, eastbound F52817, on the main track at MP 6.3, reported the eastbound absolute signal at CP E006 (West Villard) was Red, turned Green, and then back to Red, with the block occupied.</p> <p>An investigation revealed the CAD log indicated a loss of shunt in the occupied block.</p> <p>All applicable tests were performed.</p>									
423	9/4/2003	UP	CTC			UP 1674	None	Mitchellville, AR	N
<p>On September 04, 2003 at 16:14 CDT, in Mitchellville, AR on the McGehee Subdivision, southbound MPBBT 04, at MP 393.90, reported southbound signal A394 was Green, with the next block south occupied by (light power) LWB71-04, UP1674 &amp; UP 912.</p> <p>An investigation revealed the CAD Log verified a loss of shunt by the LWB71-04.</p> <p>All applicable tests were performed.</p>									
431	1/14/2004	NS	CTC			NS 5578	None	Bryan, Ohio	N
<p>On 1/14/04 at approximately 10:30 a.m. train B41, engine only, moving east on track 2, observed 2E signal change from Red (STOP) to Green for approximately 6 seconds then back to Red (STOP) while train B40, engine only, was in the block ahead. Office diagnostics revealed that train B40 lost shunt several times during his movement. Train B41 did not proceed on the Green aspect. All track circuits between CP 340 and intermediate signal at MP CD335.9 were tested with a .06 ohm shunt with no exceptions. Due to rain, no evidence of contamination was found. The prior movement to this incident was an empty grain train (bean meal). As a precaution an order for light engine to operate by absolute block has been placed in these limits.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
----------	------	-------------------	------------------------	---------------------	---------------	-------------------	--------------------	----------	--------------------------

725	3/20/2004	NJTR		Remote		LRV 3508	1AT (1 ANTR) Track Circuit	CP 175, Burlington, NJ	N
-----	-----------	------	--	--------	--	----------	----------------------------	------------------------	---

Train #247 (equipment: LRV #3508) was tripped by the 2N-2 train stop while heading south through CP175 interlocking. The VHLC download revealed the train was tripped because track circuit 1AT picked up while the train was occupying the circuit. The circuit picked up for a duration 8 seconds (1 second over the loss of shunt timer) due to poor shunting. At no time was there a more favorable aspect displayed than STOP.

Immediate action was taken in the form of lowering the track circuit relay current from 230 milliamps to 190 milliamps. A recorder was setup to monitor shunting and additional rail scrubbing has been scheduled for this area.

No. of Reports Shown in this Listing: 17