



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - State of Kentucky

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
			Cause						
			Narrative						
22	1/24/1995	NS	CTC			5158	Foreign Current	Corinth (Blanchet), KY	N

Train No. 388 was stopped on Track #2 at Blanchet waiting on Train No. 108 to clear the block ahead. Meanwhile, Train No. 108 was running northbound, Track #2, on an APPROACH indication waiting for two southbounds to clear the single track ahead. The dispatcher had requested the northward signal for No. 388 at Blanchet so that it would come in once No. 108 could get a signal and clear the block. The crew on No. 388 reported observing that the signal at Blanchet displayed an APPROACH indication for about six (6) seconds and then went back to a STOP. At this point in time the crew knew that No. 108 was still in the block ahead and reported the false proceed signal they had observed.

Signal personnel investigated and determined that the cause was foreign current causing the coded track relay at Blanchet to chatter on the negative side, thus momentarily picking up the "H" relay for Track #2 while it was occupied. This occurrence was duplicated by observing signal equipment response whenever a northbound train passed a repeater cut section about two miles north of Blanchet. As the rear axle passed through the insulated joint stagger at the cut section, the track relay at Blanchet would chatter and very briefly pick the "H" relay. There was approximately 6.5 VAC foreign current present in the stagger at the cut section.

The problem was corrected by installing track reactors (in both tracks) at the Blanchet L-case in series with the respective track relays. Appropriate tests and inspections were performed to verify signal system integrity, and the signals were returned to service.

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

36	12/24/1995	NS	CTC			Unknown	Insulated Joint	Stearns, KY	N
----	------------	----	-----	--	--	---------	-----------------	-------------	---

At approximately 9:45 AM, Train No. 108 was moving northbound on track #2 at Stearns, KY when they observed an APPROACH DIVERGING signal for their movement. Knowing they were to meet opposing southbound traffic at the end of the double track (the next signal), they expected to get an APPROACH indication at Stearns. Engineer reported the incident to the dispatcher and proceeded on to the end of double track at Whitley where he had a STOP indication as expected.

The signal maintainer was arriving at Stearns to investigate a previously reported loss of train indication in the block where the false proceed signal was encountered. He was waiting on the traffic to clear before starting his investigation when Train 108 observed the false proceed. After Train 108 passed, the maintainer opened the signal case and observed the coded track relays chattering, indicating the presence of AC on the rails. The amount of AC on the rails diminished during the day, and so the relays never picked to the point of causing a repeat of the false APPROACH DIVERGING signal. However, one of the insulated joints at the signal read as having a four ohm short. The intermediate signal at Stearns is designed to receive only a minus code for an approach and a plus code for an approach diverging. The track was taken out of service pending resolution of the problem.

The next morning, there was more induced AC read on the rails than on the previous day, but the insulated joint that had been shorted the day before now read over 65 ohms. However, by manually shorting out the joint, the relays chattered to the point that the "BD" relay falsely picked when only an "H" code was received resulting in a false approach diverging signal. Discussion with the local power company revealed that their load on a power line that crossed the track in the block was much higher in the morning than at other times of the day.

To correct the problem, the intermittently shorting insulated joint was replaced, and reactors were installed in series with all coded track relays in the block. Tests were then run to verify that the problem could not be duplicated by shorting an insulated joint at the Stearns signal location. The signal system on track #2 was then returned to service.

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

134	5/11/1997	CSXT	CTC			9026	Rusty Rail	OB Cabin, Covington, KY	N
-----	-----------	------	-----	--	--	------	------------	-------------------------	---

Loss of Shunt - Possible Rust or Foreign Material on Rail

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.

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.

The track relays for the N1 signal, N3 signal, and the KC passing siding were subsequently tested for shunting.

148	8/14/1997	NS	CTC			6103	Track Circuit	Peter Cave, KY	N
-----	-----------	----	-----	--	--	------	---------------	----------------	---

At approximately 12:30 AM, Train No. 946 was picking up at the West End of Peter Cave. The crew noticed that with four cars past the westward signal (and occupying the OS), the signal was displaying a CLEAR indication.

Signal personnel were called to investigate and found that the two fouling wires in the OS were broken. This is a shunt fouling circuit, and, without the fouling wires connected, the OS track circuit did not extend back to the clearance joints in the siding. The wires had been broken by the leading end of T&S Gang 23 just before they stopped work on the day before. Signal maintainers working with this gang were unaware that the work had proceeded that far before quitting for the day and had therefore not checked on the condition of these wires. There effectively was a dead section about five car lengths long between the bracket signal and the fouling joints on the turnout side.

The wires were repaired and the track circuit tested for proper operation.

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

346	12/31/2001	CSXT	CTC			NS 6688	Insulated Joints	High Bridge, KY	N
------------	------------	------	-----	--	--	---------	------------------	-----------------	---

Failed Equipment or Device - Insulated Joint(s)

On 12/31/01 at 2:10 a.m., Central Division Train #50VT830, lead unit NS 6688, proceeding southbound on Track #1 at High Bridge, KY, observed the home signal at High Bridge Control Point, MP-102.5, to display a CLEAR aspect for the train's movement. The signal should have displayed an APPROACH aspect due to the signal in advance, located on Track #1 at Control Point Brown MP-105.0, displaying STOP aspect. Train #50VT8 was aware of the dispatcher's plan for a meet with an opposing train at Brown and was able to stop the train short of the home signal at that location.

Investigation revealed that the track circuit on #1 track between High Bridge and Brown had the presence of foreign AC current on the rail. This allowed the track relay at High Bridge to intermittently pickup, and energize the decoder and associated relay pertaining to the CLEAR aspect. The presence of foreign current was attributed to two defective insulated joints on #1 track at High Bridge, one being shorted and one having low resistance.

As a corrective measure, both insulated joints were replaced. As an additional precaution, 60 cycle reactors were installed on the involved circuit at both High Bridge and Brown. The signal system was tested and returned to normal service at 4:15 p.m.

316	12/31/2001	NS	CTC			NS 6688	Insulated Joints	High Bridge, KY	N
------------	------------	----	-----	--	--	---------	------------------	-----------------	---

Failed Equipment or Device - Insulated Joint(s)

On 12/31/01 at 2:10 a.m., Central Division Train #50VT830, lead unit NS 6688, proceeding southbound on Track #1 at High Bridge, KY, observed the home signal at High Bridge Control Point, MP-102.5, to display a CLEAR aspect for the train's movement. The signal should have displayed an APPROACH aspect due to the signal in advance, located on Track #1 at Control Point Brown MP-105.0, displaying STOP aspect. Train #50VT8 was aware of the dispatcher's plan for a meet with an opposing train at Brown and was able to stop the train short of the home signal at that location.

Investigation revealed that the track circuit on #1 track between High Bridge and Brown had the presence of foreign AC current on the rail. This allowed the track relay at High Bridge to intermittently pickup, and energize the decoder and associated relay pertaining to the CLEAR aspect. The presence of foreign current was attributed to two defective insulated joints on #1 track at High Bridge, one being shorted and one having low resistance.

As a corrective measure, both insulated joints were replaced. As an additional precaution, 60 cycle reactors were installed on the involved circuit at both High Bridge and Brown. The signal system was tested and returned to normal service at 4:15 p.m.

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

360	9/19/2002	NS	CTC			NS 6645	Timer	Fayette, KY	N
------------	-----------	----	-----	--	--	---------	-------	-------------	---

Maintenance - Improper Adjustment on Non-Track Circuit Device

On Thursday, September 19, 2002 at 9:01 a.m., Central Division train #215, lead unit NS 6645, proceeding southbound on track 2 at Fayette, KY, observed the home signal at Fayette Control Point MP 79.6 changing aspects from APPROACH to CLEAR, to ADVANCE APPROACH and then to APPROACH DIVERGING. The correct sequence should have been from APPROACH to APPROACH DIVERGING.

Investigation of the above occurrence was duplicated and a defective timer relay was found at Fayette. The timer relay was designed to prevent undesirable upgrade of the signal at Fayette for 9 seconds during the time the code being received was in transition. Since the timer was only running for 5 seconds, the changing aspects were observed by the southbound train. The total time the signals flashed through the cycling aspects was 3 seconds.

The timer relay was readjusted to operate for 10 seconds and the signals returned to service.

362	12/5/2002	NS	CTC			NS 9515	Thermal Timer Relay	Reid, KY	N
------------	-----------	----	-----	--	--	---------	---------------------	----------	---

Failed Equipment or Device - Relay

On Thursday, December 5, 2002 at 2:30 p.m., train #230, lead unit NS 9515, reported the northbound automatic signal at MP 356 changing from APPROACH to CLEAR prior to passing the signal. The next signal at Reid, Control Point MP 32.0 was a DIVERGING CLEAR into number two track. The correct aspect for the signal at 35.4 would have been APPROACH to APPROACH DIVERGING.

Investigation of the above occurrence was duplicated and found to be a thermal time relay at the 35.4 automatic signal. The time was designed to hold off the signal upgrade at 35.4 for 8 seconds. This allows the northbound signal to remain at APPROACH until the track code changes to positive and the minus codes for the approach is lost.

If the timer operates less than the required time the coding of a minus for the APPROACH and a plus for the APPROACH DIVERGING gets decoded as a minus plus (CLEAR).

The timer relay was replaced and the signals returned to service. The particular timer is a type B1 GRS LOS timer and is common on the first and second districts of the CNO&TP. All locations are being inspected for style of timer relay and operation is being checked.

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
706	1/20/2003	PAL	AB			PAL 2104	Shunt Wire	Louisville, KY	N
<p>Cause</p> <p>Narrative</p> <p>Maintenance - Switch Shunt Wires Broken</p> <p>PAL 2104 had CLEAR signal @ MP 3.5 in yard limits @ Louisville Yard. Switch @ MP 3.8 Standard Oil x-over was in reverse position.</p> <p>Investigation Determined: Shunt wires on east rail - one was broken off, the other was high resistant at connection to rail.</p> <p>Connectors were replaced & shunt wires reconnected. System functioned properly after corrective action.</p>									
394	7/2/2003	CSXT	CTC			Q208-02	None: Phantom	South Latonia, Kenton, KY	N
<p>Phantom Signal - Due to Sun Angle</p> <p>At 1500 on July 2, 2003 the NB train Q20802 reported getting a RESTRICTING signal, Lunar over Red, out of the siding with the switch in the normal position and SB X20101 occupying the track ahead. The signals were taken out of service and signal personnel were dispatched to investigate.</p> <p>The Maintainer and Signal Supervisor viewed the signal from the train and from the ground and determined that the sun created an effect on the signal in such a way that a Lunar over Red was displayed when the signal should have displayed Dark over Red. The Maintainer and Supervisor tested the signal system and determined signal system was working as designed. The signals were placed back in service. Longer hood was installed and the signal was refocused to mitigate the effect of sunlight on the signal. We are reporting this event but we do not consider this to be a false proceed.</p>									

No. of Reports Shown in this Listing: **10**