



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - Cause: Failed Equipment or Device - Insulated Joint(s)

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
475	4/6/1995	CNW			ATC	BOMVY	Sig. 210 - Insulated Joints	Ogden, IA	N
<p>On 4/6/95 "BOMVY" working at Ogden, IA entered the eastbound main (Trk 2) and observed the eastbound approach signal to the Boone bridge (#210) to be Red with his cab signal showing CLEAR. Investigation revealed both insulated joints at Sig. 210 had failed due to failed metal flow over the top. Normal reverse polarity design on the feed wires caused the signal to go to Red as intended however the 100 cycle train control fed past the insulated joints from the block ahead. Remedied by replacing one insulated joint and slotting the other.</p>									
514	9/1/1995	MNCR	CTC			Train 1504	Insulated Joint	East Norwalk, CT	N
<p>Train #1504 received a Normal Cab because the route ahead was clear. The 4244 signal displayed STOP AND PROCEED due to defective insulated joint.</p>									
69	8/4/1996	BNSF	CTC			None	PSO	Essex, MT	N
<p>Maintainer called account Red blocks. Upon arrival found signals CLEAR. Investigation found that slide fence would not set signals Red. Signals were set to STOP until cause could be determined. It was found that there was a shorted insulated joint at Signal 1158, and enough signal was conducting through ground to allow another PSO for a dragging equipment detector to pick the slide fence receiver PSO at shed 4D (both 211 Hz). Changed frequencies of dragger and slide fence to 4000 Hz and 645 Hz respectively, and insulated joint was also replaced. System tested and operating as intended.</p>									
74	10/2/1996	BNSF	CTC			1260	Insulated Joints and Lightning Arrestors	Hinsdale, IL	N
<p>Signal employee observed signal 318.8 display a CLEAR aspect with train 1260 in block. Supervisor and Maintainers found an insulated joint shorted and two gas lightning arrestors shorted allowing enough current to pick up the track relay with shunt on track. Replaced defective insulated joint and lightning arrestors.</p>									
599	5/14/1998	CR	AB			SFEL3	Sig. 425.4	Elkhart, IN	N
<p>Automatic signal 425.4 displayed APPROACH aspect with train in block. Cause was found to be two shorted insulated joints and an open track wire from switch circuit controller allowing 9ct track relay to become energized with battery from adjacent track circuit.</p> <p>Corrective Action: Installed biased track relay and insured opposite polarity across insulated joints.</p>									

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615	5/4/1999	CR		Remote		6664	2E Signal	CP Alum, Blairsville, PA	N
<p>Engineer on eastbound PICA4 reported receiving APPROACH MEDIUM cab signal aspect with home signal 2E at STOP ahead. Problem was found to be 2 bad insulated joints at home signal 2E, which caused the DC track circuit in the interlocking to drop but did not shut off the MEDIUM APPROACH cab which was the proper cab for the route lined.</p>									
669	6/8/2001	MNCR		Remote		Train #708, Engine	2S Signal	CP 58 - Beacon, NY	N
<p>Train #708 received a NORMAL cab signal for a short period of time when the 2S signal at CP58 was at STOP, due to a failure of the insulated joints adjacent to the signal. The failure downgraded the signal to STOP as the train approached, while permitting cab signal intended for this train after passing the signal, to be received before passing the signal.</p>									
346	12/31/2001	CSXT	CTC			NS 6688	Insulated Joints	High Bridge, KY	N
<p>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.</p> <p>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.</p> <p>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.</p>									
316	12/31/2001	NS	CTC			NS 6688	Insulated Joints	High Bridge, KY	N
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701	9/6/2002	CP	CTC			SOO 2032W	Insulated Joints	Brooten, MN	N
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About 1330 on September 6, 2002, Engineer [redacted] told the S&C Supervisor [redacted] at Glenwood that there may be a problem with the signal at MP 104.5 near the West House Track at Brooten, MN. Engineer [redacted] stated they stopped with a westbound wayfreight on September 1, 2002 about 1600 east of signal 104.5, cut off their train with 3 engines and two cars then proceeded west to the west house track switch. They reversed the switch and backed into the house track far enough to set out the cars and thought the signal 104.5 appeared to displayed a CLEAR aspect with the house track switch lined reverse.

S&C Supervisor [redacted] proceeded to the site and simulated the train move. He found by simulation when the west house track switch was open, signal 104.5 displayed a CLEAR aspect. Further investigation revealed the house track switch was wired per plan breaking the track circuit through the switch circuit controller with the polarity the same on both sides of the insulated joints with TJs around insulated joints for the warning devices on CSAH-18 (Central Ave.) and both insulated joints were shorted.

Method of train operation is freight with maximum speed of 60 MPH for expedited trains and all others 50 MPH in CTC territory on the Paynesville Sub.

Cause of failure was due to insulated joints shorted.

Corrective action taken: Temporarily switch was taken out of service with a shunt circuit wired in the circuit controller until insulated joints were changed out. All switches were inspected following this incident and any switches found to have two insulated joints breaking the track circuit through the switch circuit controller are being redesigned to have track leads transposed at all of these locations.

343	10/30/2002	BNSF	CTC			E-CDJJRM0-05A, B	Insulated Joints	MP 78.0 MT3, MP 77.8 MT3, Bill, WY	N
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E-IOGCDM0-71A BNSF 8833 with 0-118-2584 tons, westbound MT3 between intermediate 3-75.3 and CP 72.5 with a DIVERGING CLEAR aspect at 72.5 CP. Following train E-CDJJRM0-05A BNSF 8883 with 0-136-3406 tons, westbound MT3 West Bill CP received a Yellow/Red aspect on the 3WA West Bill at 18:31:15 for 27 seconds, dropped to a Red/Red for 9 seconds, changed to Green/Red for 8 seconds, changed to Red/Red for 17 seconds, and then to Flashing Yellow/Red for 4 min. 25 seconds with the BNSF 8883 taking the OS at West Bill at 18:37:46. The first train BNSF 8833 entered the OS at CP 72.5 at 18:36:49. A track indication came in behind the BNSF 8833 at 18:32:03 and picked up at 18:32:16. 3WA West Bill should not have upgraded to Green/Red, it should have displayed Flashing Yellow/Red. Track circuits are Electrocode 4+, with 1 Electrolock at MP 77.8 with VHLC controls at 72.5 and West Bill. During tests and re-enactment, both insulated joints at intermediate 78.1 joints were found to be fully shorted on main track 3, and 1 insulated joint was failing at Electrolock MP 77.8. From this find, the probable cause of the 3WA displaying Green/Red was due to intermixing of codes from the intermediate signal 78.1 combined with codes from the Electrolock at MP 77.8. Insulated joints were replaced October 31st, unable to duplicate the Green/Red with shunts around the new insulated joints. Grounds and megging tests revealed no exceptions. Track wires were cross megged to all 3 tracks at intermediate signal 78.1 and no exceptions were taken.

No. of Reports Shown in this Listing: 11