



# IronWood Technologies

Railroad Accident Reconstruction

## Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - State of Tennessee

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<a href="#">27</a>	4/25/1995	NS	AB			UP2532-4261-3151	Human Error	Rossville, TN	N
<p><b>Human Error - Improper Equipment Installed</b></p> <p>At approximately 2:00 PM, Train No. 391, running westbound, observed the westward signal at the east end of Rossville siding display CLEAR. The next signal which was at the west end of Rossville displayed STOP as it should have because an eastbound train, No. 364, was approaching on the single track ahead. Train No. 391 was expecting to stop short of the switch at the west end of Rossville in order to meet No. 364, so a normal stop was made.</p> <p>The false proceed was reported to the dispatcher, and signal personnel were called to investigate. The incident was recreated and was discovered to be caused by the improper presence of a full wave rectifier between the polar output of the electronic track device and the polar HD relay for the involved signal. This device, an HP-1, caused the polar HD relay to be picked in the "normal" position with either positive or negative polarity feeding out of the ElectroCode HD terminals. The HP-1 was removed, proper testing performed, and the signal system was returned to service.</p> <p>The HP-1 was intended to provide neutral polarity from a polar HD source on another ElectroCode cabinet. The HP-1 had been removed by the maintainer while troubleshooting a problem about two weeks prior to this incident. Following the troubleshooting the HP-1 was installed on the wrong Electrocode cabinet by mistake and the error was not detected until the incident in question.</p>									
<a href="#">15</a>	6/19/1995	CSXT	CTC			Train R69718	Vandalism	North Rocky, TN	N
<p><b>Vandalism - Instrument Case, Cable, or Junction Box Damaged</b></p> <p>On June 19, 1995, Train R69718 reported a MEDIUM APPROACH at North Rocky, TN. This route was not requested. Train crew reported vandals shooting firearms at signal housing; Train Dispatcher removed signals from service.</p> <p>Signal Department personnel investigated incident and discovered vital signal cable and extensive damage from vandalism.</p> <p>Signal personnel completed repairs and made all operational tests. Signal system was returned to service.</p>									

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143	3/22/1997	NS	CTC			8610, 7026	Wiring Error	Harriman, TN	N
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**Human Error - Field Wiring Error, Inadequate Service Testing**

At approximately 3:00 PM, Train No. 235 was running northbound approaching Harriman. The signal at milepost 47.1D, the approach to Harriman, was displaying a CLEAR aspect. Knowing the location of Train No. 196 ahead, the crew correctly assumed that their next signal (Signal 24-2N at Harriman, milepost 49.6D) would be displaying STOP and that they would have seen an APPROACH at 47.1D. Train No. 235 had no trouble complying with subsequent signal indications and reported the incident to the dispatcher. A following train, No. 302, reported a similar occurrence at about 3:30 PM.

Signal personnel were called to investigate and were able to duplicate the reported incident. The problem was traced to a wiring error in the code out selection circuit for the Electrocode box connected to the south track at Harriman. The error allowed a "D" code (code 4) to be sent to 47.1D when a "H" code (code 2) should have gone out. The problem was corrected, the system was checked and the signals were returned to service.

The wiring error was apparently made during a cut-in of a new code system the day before the incident. The modified prints called for the #5 contact group in the 24-2NAG relay to be used for an indication circuit. During cut-in, it was discovered that the Electrocode code selection circuit already used this group, and somehow as the conflict was corrected, the front contact selection wire got doubled in with the heel wire.

150	12/31/1997	NS	CTC			9004	Signal Lens	Cleveland, TN	N
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**Vandalism - Signal Damaged, Caused Phantom Aspect**

At approximately 7:00 AM, Train No. Q26, while running eastbound on the siding between Control Points Bradley and Lyle, went by the eastward signal at Lyle while it was displaying STOP. The engineer was able to come to a stop one car length past the signal into the OS at Lyle. No other trains were in the area, and the signal had not been lined for No. Q26 to leave the siding onto single track. Both crew members reported they observed the signal to be displaying DIVERGING APPROACH when they were about 50 cars west of it. Once they were within 5 car lengths of the signal, they said they saw it drop to STOP so came to a safe stop. Signal personnel were called to investigate.

The signal system for Lyle is TC with the control station at Knoxville, TN. Lyle is the last control point when traveling east and eastbound moves must have both a permissible signal and a track warrant to proceed east. The signal system east of Lyle is APB with Electrocode II electronic track circuits. The signal system from Lyle west is TC with underground HD circuits. Q26 was in the siding which is a controlled siding so his approach to Lyle would have been RESTRICTING. Q26 did have track warrant to proceed, but no signal had been lined at Lyle for their movement. The signal is a ground mounted 3 aspect type "D" dwarf signal capable of displaying Red over Green (DIVERGING CLEAR), Red over Yellow (DIVERGING APPROACH) and Red (STOP). The three aspect signal had a red in top, green in the middle and yellow on the bottom.

All appropriate FRA and operational tests were performed with no exceptions. However, it was observed that the red inner lens was cracked and the lamp voltages were a little low. Believing that this could have contributed to a phantom signal, the dwarf signal was left out of service until sight tests could be performed the next day at 7:00 AM. Those tests were performed and it was found that the red dwarf signal did appear from 6-7.5 to 8.0-9.5 volts. Then the signal was rechecked and found to be displaying proper aspects at all distances where it could be seen.

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			<b>Narrative</b>							
<b>437</b>	1/11/1998	CSXT	CTC			Z35610	N/A	NAS Wauhatchie, Chattanooga, TN	N	
			<b>Failed Equipment or Device - Aerial or Underground Cable, Shorted or Grounded (not due to vandalism or digging)</b>							
			On Sunday, January 11, the AJ dispatcher line Norfolk Southern (NS) NAS Wauhatchie on the Chattanooga Subdivision for NS train Z35610. Z35610 passed the Wauhatchie signal at 0034 and passed a STOP signal at Wildwood at 0040. The signals at NS NAS Wauhatchie were removed from service.							
			A re-enactment of the situation by signal personnel revealed that the aspect at NS NAS Wauhatchie had improperly displayed a MEDIUM APPROACH MEDIUM (R/Y/FG) instead of MEDIUM APPROACH (R/Y) into the STOP aspect at NAS Wildwood. Further investigation revealed a ground in the twist wire that had been installed to temporarily repair the code line due to a recent wire theft. The wire had been damaged by placement of new rail beside the track. The ground caused 4.5 VDC to be placed on the 2RD relay at Wauhatchie. The improperly energized RD circuit caused a Flashing Green signal to be displayed at Wauhatchie in addition to the R/Y signal.							
			The circuit tested clear after the wires were repaired and the signals returned to service. Electronic track circuits were installed in this section and placed in service on January 21.							
<b>353</b>	8/30/2002	CSXT	CTC				None - Phantom	S.E. Gorman, Gorman, TN	N	
			<b>Phantom Signal - Due to Sun Angle</b>							
			At 10:30 AM 8/30/02, received report of a CLEAR indication (Green over Red) on the S.B. Dwarf signal at the SE Gorman without a signal requested from the Operations Center as verified by the system log. Signal was removed from service and investigated by Train Control. Investigation revealed that the signal appeared to be sunlit. The affected signal head was replaced, operational tested and restored to service. We are reporting this event but we do not consider this to be a false proceed.							
<b>345</b>	11/23/2002	BNSF	CTC			PRICBIRI20A, CSXT	195TR & 195XTR	Memphis, TN	N	
			<b>Vandalism - Instrument Case, Cable, or Junction Box Damaged</b>							
			At 2235 hours the PRICBIRI20A reported that the southbound signal on Main 1 at South Yale was showing an APPROACH aspect while the CSXT 269 was still fouling the main track. The crew of the CSXT 269 while backing off Main 1 into the yard at South Yale reported seeing the switch throw back normal while they were still occupying the circuit. Signal Supervisor and two Signal Maintainers responded to investigate. The Signal Supervisor and Maintainers found that they could not open the left door to the instrument case that housed the relays for this location. Damage was discovered at the bottom front corner of the relay case. Upon opening the right door and looking down the shelves, they observed three relays lying on their backs. The 194 RTR, 195 TR, and the 195 XTR were turned on their back. The relays were placed in their normal position and tested for proper shunting. Further testing was performed to confirm the proper operation of the 195 switch and 194L signal with no exceptions taken. It is believed that whatever damaged the instrument case caused the relays to be knocked out of their normal position on the relay shelf.							

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<b>393</b>	4/3/2003	CSXT	CTC				Design	South End, Nashville, TN	N	
			<b>Human Error - Signal Circuit Design Error, Inadequate Service-Testing</b>							
			<p>0230 on April 03, 2003 a false proceed signal at South End Interlocking in Nashville Terminal was reported. A signal team responded to the report that signal #14 was CLEAR with the next signal at STOP. The signals were immediately removed from service pending investigation. The signal team determined the sequence of events that led up to the time of the incident as follows. The dispatcher requested signal #14 and then requested signal #6 with a switch reverse at South End. He then requested a southbound signal at Oak Street the next interlocking south. The switch at signal #6 failed to lock up reverse which resulted in signal #6 remaining in the STOP position. The signal at Oak Street cleared which resulted in signal #14 at South End upgrading to a CLEAR into #6 at STOP. Further investigation revealed that the circuitry would allow this failure to occur. The design shop in Jacksonville was contacted concerning the design issues and supplied the necessary correction. Corrections were applied and operational tests were performed with the signal system returned to service upon satisfactory completion at 1130 hours.</p>							
<b>403</b>	8/24/2003	NS	APB			8923	68H Relay	White Siding, TN	N	
			<b>Failed Equipment or Device - Relay</b>							
			<p>On August 24, 2003 at 3:30 p.m. CDT, eastbound train No. 334, while stopped in the East End of White Siding observed the eastbound mainline signal MP 540.2A display a CLEAR signal. Westbound train 391 was running on CLEAR signals in the automatic block territory between the West End of Rossville and the East End of White Siding. The eastbound signal at the E.E. White Siding displaying a CLEAR did not downgrade to STOP until westward train 391 passed the automatic signal at MP 538.8A. Trains operate under track warrant authority in the Automatic Block Signal territory.</p> <p>The failed condition was observed by C&amp;S Supervisor while performing simulation tests. The failure was determined to be the 68H relay at automatic signal MP 536.8A. In attempt to duplicate the actual conditions a heat lamp was used to apply heat to the 68H relay. After applying heat for 30 minutes the relay remained energized without power for 4 minutes. The relay failed the field drop away test with a value of 1.8 milliamps. The last relay test was performed on September 9, 2002 with a drop away value of 4.7 milliamps. Required test interval is 4 years. The relay was manufactured by GRS with a tag date of March 27, 1971. It is a 900 ohm neutral relay. Relay is being shipped to Texas Transport Institute, College Station, TX for further testing.</p>							
<b>397</b>	10/21/2003	CSXT	CTC			Q52621	Workmanship	Montfort, MP 172.2, Hendersonville, TN	N	
			<b>Human Error - Field Wiring Error, Inadequate Service Testing</b>							
			<p>At approximately 1227 on October 21, 2003, northbound Q52621 received a CLEAR (Green) signal at MP 172.2 with northbound Q28621 in the second block ahead. The correct signal should have been an APPROACH (Yellow). Signals were set to Red and removed from service and Train Control personnel were dispatched.</p> <p>The cause was found to be a broken cable at a circuit controller which had been spliced together incorrectly earlier that day and placed back in operation at approximately 1200 hours without proper operational tests being performed. The wiring error was corrected, operational tests were performed, and signals restored to service.</p>							

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