



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - State of Georgia

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
9	2/6/1995	CSXT	AB				Signal 122.3	Social Circle, GA	N
<p>Maintenance - Pole Line (storm, excessive vegetation, rotting poles, excessive slack in wires, etc.)</p> <p>On February 6, 1995, Signal Maintainer was dispatched to signal trouble at M.P. YYG-122.3. Upon investigation, he determined that the home signal at M.P. YYG-120.1 displayed a CLEAR indication while the intermediate signal in advance (122.3) displayed a Red indication. Signal system was removed from service. Upon further investigation, it was discovered that the signal control wires were wrapped, causing improper polarity to be applied to control relay.</p> <p>Control wires were unwrapped, and situation corrected. Operational test was performed; and signal system was returned to service.</p>									
10	2/12/1995	CSXT	CTC			Train Q67611	None	Atlanta, GA	N
<p>Scenario Reenacted, Unable to Duplicate, No Defects Found</p> <p>On February 12, 1995, Train Q67611 alleged having Lunar over Red indication at signal 10 at top of slide, and then to Dark over Red, this route was not requested at this time. Signal system was removed from service.</p> <p>Signal person performed all required operational tests. It was determined that signal system was functioning as intended. Signal system is restored to service.</p>									
26	3/4/1995	NS	CTC			6598	Human Error	Stockbridge, GA	N
<p>Human Error - Signal Personnel Introduced False Energy into Signal System During Testing</p> <p>Train No. 230 was northbound at Milepost 169.811, the first intermediate signal north of Stockbridge control point, where they observed a CLEAR signal indication. Aware of the presence of another northbound train in the block ahead, they contacted the dispatcher and were instructed to take the 169.8H signal as displaying RESTRICTED PROCEED. The next signal, intermediate 166.8H, was displaying RESTRICTED PROCEED when they came in sight of it. The train ahead, No. 140, had been in the block just past this signal when No. 230 observed the CLEAR indication at 169.8H.</p> <p>Signal personnel were in the process of repairing a severely vandalized signal bungalow at Pless, Milepost 164.5H. Because of damage to the signal system at Pless, northward signals were not available leaving the next control point south (Stockbridge). To expedite train movements, signal personnel were stationed at the 166.8 signal with an ElectroCode test set temporarily feeding signal codes into the location as if they were coming in from Pless. Through a lack of communication, the temporary arrangement was configured to give false proceed indications to northbound trains. The temporary arrangement was removed and the signal system returned to normal service after testing as required following the restoration of Pless bungalow.</p>									

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19	9/5/1995	CSXT	CTC			Train P62405	#6 Signal	N. Boynton Beach	N
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Vandalism - Instrument Case, Cable, or Junction Box Damaged

On September 5, 1995 Train P62405 reported that Train P62705 had a medium clear out of siding while P62405 had a clear signal down the main line.

Signal system was removed from service. Signal department personnel investigated the incident and discovered that vandals had damaged junction box causing the LBRG control to contact the LBDG control.

The junction box was repaired and operational test completed. Signal system was returned to service.

91	10/25/1996	CSXT	CTC			Train R67410	Lighting Circuit	South Halls, Halls, GA	N
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Human Error - Field Wiring Error, Inadequate Service Testing

On 10/11/96 Train R67410 reported receiving a MEDIUM APPROACH signal on #2 signal and that #6 signal out of siding was displaying a MEDIUM APPROACH.

Signals were removed from service.

Signal personnel investigated the incident and determined that a break in the LBHG circuit through the LAHR relay had not been installed.

Corrections were made, operational test performed and signals functioned as intended.

Signal system was restored to service.

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132	3/30/1997	CSXT	CTC					North Tucker, Tucker, GA	N
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Cause
Narrative

Human Error - Field Wiring Error, Inadequate Service Testing

On Saturday March 30, 1997 at 1:38 P.M. northbound train Q51428 reported Northward Absolute Signal at North Tucker displaying a CLEAR indication while a southward train was just south of the Gloster Holdout signal.

The signal system was removed from service immediately. Signal personnel were able to recreate the situation and investigation revealed that a small machine screw was bridging the LCH relay's 1 and 2 heel contacts thus causing the LA signal at North Tucker to display a CLEAR aspect.

The screw was removed, operational tests completed, and proved the signal system to operate properly. Signals were returned to service.

Further investigation revealed that approximately 1 year earlier the installation of radio control equipment and the removal of Union Switch and Signal 506 system was the origin of the machine screw. The old code equipment was residing directly above the LCH relay and is believed to be the culprit of the machine screw and was inadvertently missed during clean up.

An alert bulletin has been issued to all field personnel to promptly inspect for similar conditions as well as emphasizes the importance of prompt and proper cleanup subsequent to wiring work.

146	5/3/1997	NS	CTC			7129	Relay	Powder Springs, GA	N
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Failed Equipment or Device - Relay

At approximately 7:35 AM, Train No. 150G102 with Engineer, Engineer Trainee, and Conductor, was northbound north of Powder Springs when they called a CLEAR indication (G/R) at intermediate signal 128.2 and then had a STOP indication at the next location, Clark control point. Train No. 688 was occupying the block north of Clark. Train No. 150 was brought to a stop before passing the STOP signal at Clark.

The incident was reported, and signal personnel were called to investigate. They were able to recreate the problem and traced it to an intermittently sticking 180D relay. The signals are controlled by a GRS Ratecode system. Yellow code rate, which was seen being received during recreation, is 75 per minute. The 180D relay is supposed to be picked only by a 180 per minute code rate as selected through a 180 decoder. With the 180D relay stuck up, signal 128.2 would display a Green over Red instead of a Yellow over Red while a 75 rate was received. If no rate received, the signal would display stop since the H relay needs to be up in order to get any signal.

The relay, a GRS B type, was replaced; the signals were tested and then returned to service. The relay was sent to the Signal Repair Facility in Roanoke for further investigation, results of which are pending.

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140	9/7/1997	CSXT	CTC			U141-05	None	Sessoms, GA	Y
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Human Error - Signal Equipment Improperly Installed

On September 7, at approximately 0950 hours, train U141-05 was traveling southbound over the switch at the north end of Sessoms. The dispatcher, desiring to line a follow-up movement, called for a reverse switch at the north end of Sessoms. The switch began to move to the reverse position while U141-05 was still over the switch, causing the derailment of four cars.

Upon investigation, signal personnel found the TPSR relay hanging by its wires off the front of the shelf in a horizontal position. In this position, the front contacts were on the verge of being closed. The position of the relay and the vibration due to the passing train caused the contacts to close intermittently and the OS track circuit to indicate clear under the train. The OS track circuit falsely indicated CLEAR, thereby allowing the switch to reverse while the train was still over the switch.

The relay had been installed as part of a timing circuit in late June. The relay was not in a cradle or placed on matting. The relay was repositioned and secured. The location was tested in accordance with all FRA and CSX guidelines with no exceptions taken. The location was returned to service upon completion of repairs.

141	10/14/1997	CSXT	CTC			A013-14	None	Horn Industrial Track, Elberton, GA	N
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Human Error - Signal, Improper Lenses Installed

On October 15, the engineer of work train A013 mentioned during a conversation with signal personnel that there was a problem with the dwarf signal on the Horn industrial track at the south end of Norman on the Abbeville subdivision. The engineer said that he had received a Yellow aspect to exit the industrial track onto the occupied siding. The proper signal should have been a lunar aspect for RESTRICTING speed. The signals at the south end of Norman were suspended pending investigation.

Investigation revealed that the engineer had received a Yellow aspect to exit the industrial track onto an occupied siding. The signal should have been a lunar aspect indicating a RESTRICTING signal. The wiring in the location was according to plan. Discussion with the signal design group revealed that the Yellow lens had never been changed to a lunar when the operating rules were changed.

The Yellow lens was changed to a lunar and all circuit wiring was verified to plans. The location was placed back in service following a complete operational test.

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442	7/20/1998	CSXT	CTC			Q59221	RCRE Cable	NE Lilly, Lilly, GA	N
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Failed Equipment or Device - Electrical Ground (not in underground or aerial cable)

On July 20, train Q59221 reported observing a CLEAR signal on the main and a MEDIUM CLEAR on the dwarf signal at the north end of Lilly. The signals were removed from service and signal personnel were dispatched. Upon arrival, signal personnel found the train on the OS circuit. The signal on the main displayed STOP while the dwarf signal displayed a MEDIUM CLEAR.

Investigation revealed that the RCRE cable had been pinched in the door to the dwarf signal the last time the signal was closed. The signal went to STOP when the door was opened and the cable moved. The RCRE cable was repaired and the flex wires inside the dwarf signal were replaced.

The signals were returned to service after performing operational tests, megging cables and checking for grounds.

301	2/6/2001	CSXT	CTC			Q453-06	Phantom Aspect	10 Signal So. Wye, Waycross, GA	N
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Phantom Signal - Due to Sun Angle

16:35, 02-06-01, 10 Signal at Waycross south wye was over-run by Q453-06 to track J02 south bound. Train crew reported they had stopped and rechecked the 10 signal indication and agreed on the RESTRICTING indication and passed the signal. Upon arrival, signal personnel observed the sun shining directly into the 10 signal, with Q453 stopped occupying yard lead, 10 signal OS, 5 switch normal, and J02 track. The top red aspect was clearly visible. The middle aspect indicated a white reflection from left to right, approximately 1" in height, top and bottom part of lens was darker in appearance. The bottom red aspect indicated dull red to orange appearance. Signal personnel performed full operational checks and inspections with no exceptions noted. Signals returned to service at 21:00 on 02-06-01. A test with a locomotive, signal & transportation personnel occurred on 02-07-01 at 16:30 to simulate the previous day's conditions. The test was conducted with bright sun shine conditions. While on a locomotive about 30 feet from 10 signal, observing personnel could not determine when the signal had changed from STOP to RESTRICTING with direct sun light into the face of the signal. Signal department immediately changed the lower red lens, screening and installing longer hoods. We are reporting this event but we do not consider this to be a false proceed.

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312	6/16/2001	NS	CTC			NS 9360	Track Circuit	Briswold, GA	Y
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Human Error - Signal Circuit Design Error, Inadequate Service-Testing

On 6/16/01 at 12:45 a.m. near Control Point East Griswold, GA at MP S181.1, Georgia Division Train # 191G515, lead unit 9360, struck the rear car JMHX 69090 of Georgia Division train # 119G514. Train #119 was at a stop waiting for train #192 going eastbound into the siding track at Control Point West Griswold at MP S182.7, train #191 was westbound following train #119.

The westbound signal at East Griswold displayed an APPROACH aspect for the main track and with the main track between east and west Griswold occupied by train #119. Train #119 was waiting for eastbound train #192 to enter the siding and then was to continue westbound. Train #191 was to follow train #119 westbound and occupy the main track between the switches at Griswold, clearing the way for train #192 to proceed through the siding to the main track at East Griswold. Train #191 had a CLEAR signal at the approach signal at MP S178.2 and then an APPROACH aspect at the westbound control signal at East Griswold. The approach signal should have displayed an APPROACH aspect at S178.2 and the control signal at East Griswold should have displayed a STOP aspect. The conditions were able to be recreated and the false clear aspect displayed numerous times during testing.

The circuitry involved is the track transmission and receive circuits of the Union Switch and Signal track code logic. This coded track circuitry was modified in January 2000 for a highway grade crossing upgrade installation at Henderson Road crossing at MP S181.1. The upgrade included the installation of a code isolation unit that is supposed to isolate the signal system track coming from the detection circuits of the highway grade crossing equipment. Testing showed that the code isolation unit was reflecting the coding information sent by the East Griswold location back into itself, through a capacitance effect generated by the isolation unit.

The application of this particular code isolation unit in the circuit was modified after consultation with the supply vendor to eliminate the fault condition. In addition, electronic track circuit equipment will be installed as this type circuitry would eliminate the need of the code isolation unit and the fault condition altogether.

349	5/5/2002	CSXT	CTC			Q68905	None - Phantom	N.E. Osierfield, Osierfield, GA	N
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Phantom Signal - Due to Sun Angle

At about 17:40 hours on May 5, 2002 train Q68905 reported an APPROACH signal at the N.E. Osierfield for about 5 to 8 seconds with a train in the block ahead. Investigation revealed that the signal was working as intended and the APPROACH aspect was due to being sunlit and was verified as a phantom aspect. Individual hoods were installed on each affected signal. After this mitigation action the signal was rechecked under similar conditions and now exhibits no aspect exceptions. We are reporting this event but we do not consider this to be a false proceed.

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401	8/9/2003	NS	CTC			9526	B1 Biased Relay	Flovilla, GA	N
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Failed Equipment or Device - Relay

At approximately 12:56 p.m. on August 9, 2003, northbound train 264 ran through a power switch lined against them at Flovilla, Georgia, MP 203 H under a CLEAR aspect. The GRS 5H dual control machine was in the reverse position in hand throw operation. The machine indicated normal correspondence allowing the dispatcher to request and clear the northbound signal for the main track. Train 264 accepted the signal and ran through the switch stopping clear of the OS track. Signals at this location are color light signals, no exceptions were found with the signals, cable or switch machine.

Investigation revealed that the NWP switch correspondence relay had remained in the falsely energized position, after voltage had been removed from the relay coils. This allowed the switch to falsely indicate it was in the normal position.

The control point data logger showed the relay remained in the energized position with the switch machine in hand throw operation and laying in the reverse position. This allowed northbound signal to display Green over Red or CLEAR, and allowed the approach signal at CP Sandy to display a CLEAR aspect for train 264.

The fault and signal display was reproduced and verified during testing. The faulty relay is a 500 ohm biased relay and was removed from service on 8/9/2003.

402	8/12/2003	NS	CTC			8631	Track Circuit	Rockmart, GA	N
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Human Error - Signal Circuit Design Error, Inadequate Service-Testing

At approximately 9:36 p.m. on August 12, 2003, southbound train 924 reported that the southbound signal on the mainline at Control Point Ollie, MP 101.5H went from STOP (Red over Red) to CLEAR (Green over Red) then to APPROACH (Yellow over Red), as train 924 was coming to a controlled stop in advance of the southbound signal at the Control Point.

Investigation revealed that the southbound signal did flash to CLEAR (Green over Red) for 2.5 to 4 seconds before displaying an APPROACH (Yellow over Red) aspect. A permissive signal displayed for such a short time interval should not be considered a viable signal to operate on.

Condition was caused when a single light pusher unit in the block south of Control Point Ollie transversed the insulated joints at the intermediate signal at MP 104.2H. The north track circuit picked up before the south track circuit was de-energized, permitting a single pulse of 180 code being sent to CP Ollie. The track code information was deciphered at Ollie and a CLEAR signal displayed for time interval noted. This is GRS Rate Code Track Circuitry.

This condition was reproduced and the CLEAR signal aspect displayed for 2.5 to 3 seconds repeatedly during testing. To correct the condition, the code selection circuit was modified adding a contact of the southbound (1041) directional stick relay in the circuit to eliminate the 180 code transmission into the oncoming train with the southbound directional stick relay energized.

No. of Reports Shown in this Listing: 15