



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - 2003

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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705	1/14/2003	CN	AB				113N Trk Relay	Broadview, IL	N
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A westbound train, WC 349 on main track #2 reported signal 11.3W CLEAR and signal 13.3W RESTRICTED. Upon investigation, the 11.3W westbound approach signal displayed CLEAR when it should have displayed APPROACH. The transmit battery wire was transposed on the 113 Normal Track Relay which was energized when it should have been deenergized, and the 113 Reverse Track was deenergized when it should have been energized. Prior to the incident a construction gang was replacing track wires at Des Plaines Ave. on the Freeport Subdivision near Broadview, IL. After replacing the track wires, the crossing was tested, however the foreman failed to test the wayside signal system, which consisted of back to back BH relays and line circuits.

410	1/14/2003	UP	AB			UP 9252	None	Shreveport, LA	N
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On January 14, 2003 at 1342 CST, in Shreveport, LA on the Reisor Subdivision, northbound MSHFW 14, on the main track at mile post 315.80, reported the northbound signal at Hollywood, mile post 315.8 cleared when they had passed the signal, and were still in the block north of the signal.

An investigation revealed that at milepost 316.0 a pole fell and caused a short in the signal control wires, which false cleared northbound signal at Hollywood Jct., MP 315.8.

The pole line was repaired and 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?
399	1/17/2003	NS	CTC			NS 9077	Phantom Aspect, Color Position Light Sign	Hurt, VA	N
<p>At 11:00 a.m. on January 17, 2003, train 3529217 with lead engine NS 9077 was eastbound on the Altavista District of the Virginia Division when the crew reported they observed an APPROACH DIVERGING aspect on signal 2026 at MP V 202.6 and received a STOP aspect at CP Hurt at MP V 200.2. The 2026 signal should display an APPROACH aspect with a STOP aspect at CP Hurt. This is electronic track territory with electronic interlockings and color position light signals. Cables were meggered, relays tested and grounds checked at both locations with no exceptions found. Logger cards were installed at both locations. The 2026 signal was returned to service on January 17, 2003.</p> <p>On Saturday, January 18, 2003 the signal was observed at the same time as the eastbound move on the previous day from a test engine with C&S and Transportation personnel on board. Conditions were similar to that of the previous day and in approach of the 2026 signal there appeared to be two white lights on the bottom head of the signal in the 90 degree position. Further investigation found that the signal hoods over the bottom head lenses were faded on the top and sides of the hoods. The sun was to the right of the signal and sunlight was reflecting off of the signal heads giving the white light effect. The top head (45 degree yellow) was clearly visible. This could have been mistaken for an APPROACH DIVERGING aspect if the train crew did not watch the signal carefully.</p> <p>The signal hoods in question were painted with a flat black paint and observed in like conditions on January 20, 2003 with no exceptions taken.</p>									
706	1/20/2003	PAL	AB			PAL 2104	Shunt Wire	Louisville, KY	N
<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>									
392	1/25/2003	CSXT	CTC				Lock Rod Clip	E.E. Georgia, Georgia, IN	N
<p>At about 1425 hours, Q554-25 heading westbound at the East End of Georgia on the Indiana Sub, while Q565-24 was stationary in the siding reported receiving an APPROACH signal. While occupying the OS section of the East End Georgia the crew on Q554-25 observed the switch aligned reverse toward the standing Q565-24. Q554-25 stopped short of the Q565-24. Signals were removed from service and signal personnel dispatched to the scene. Inspection revealed that the internal point detector rod broke leaving the point detector circuit controller indicating the switch in the normal position with the switch points physically reversed thereby allowing a signal request cleared to the standing train in the siding while the circuitry appeared to be lined for the main track resulting in a false proceed signal. Investigation also revealed that an improper installation (clip installed backwards) of the lock rod clip that ensures that the "H" contacts center in the event that the point detector rod breaks and doesn't follow the movement of the switch points. Signal personnel replaced the broken point detector rod, properly installed the lock and clips, performed all operational tests and upon satisfactory completion restored the signals to service. Subsequently, a system-wide instructional notice has been issued to all signal personnel to inspect all switch machines of similar make to ensure that there are no other improperly installed lock rod clips in service.</p>									

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375	2/5/2003	BNSF	CTC			UROOEVE105A	None Found	East North Dalles, VA	N
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The train crew of UROOEVE105A reported that at around 14:30 Pacific Time on February 5, 2003, they observed a Flashing Yellow at the westbound intermediate signal 96.1 into a Red over Red at the East North Dalles control point. There was a train ZCHCPTL903A on the siding at that time, and the switch was lined reverse. This was reported to the Signal Supervisor on 2/14/2003 at around 08:30. The dispatcher's log showed that a westbound signal was requested into the siding, but would not clear. There was also a train parked on the main at this time. The train crew reported it to the dispatcher, but when the Signal Maintainer heard the conversation, he told them he would take care of it. He told me he did not recognize the problem as an alleged false proceed, so he did not call for help.

Signal technician tested the signal at 96.1 on 2/14/2003, and took no exception to this location. Signal Supervisor, Signal Technician, and Signal Inspector tested East North Dalles control point, and could not duplicate the problem. There was a recorder at the intermediate signal, but too much time passed and the data had already been overwritten.

707	2/21/2003	CN		Manual		STCBCHI1	33 Crossover	Brighton Park, IL	Y
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On February 21 at approximately 1730 hours eastward train STCBCHI1 derailed 2 cars at #33 switch at 33 crossover at Corwith Interlocker. The route given displaying a permissive signal at 35 signal was 33 reverse, 39 normal, and 43 reverse to Santa Fe Yard. A second incident had also occurred with the BNSF local reporting that after proceeding past a permissive signal switch 75 was lined reverse, against the established route. At the time of the derailment being reported, the Operator, was verifying in the field that 75 switch was lined reverse.

Signal Supervisor [redacted] contacted Manager [redacted] of the situation and the interlocker was taken out of service. At approximately 1930 hours [redacted] and Field Engineer [redacted] arrived to investigate the incident. It was confirmed in the tower that levers 33, 35, 43, and 41 were pulled, which is correct for signal 35 to display a signal to proceed. Upon inspection of the derailment, it was determined that the #33 switch of the 33 crossover had moved from the reverse position to a position one inch from normal, while the other end of the crossover was still lined reverse. It was also discovered that [redacted] and the Corwith Maintainer were replacing a polar relay for switch 34 while trains STCHCHI1 and the BNSF local were moving across the interlocker. The relay change out started at approximately 16:30 hours and was completed at approximately 1700 hours. While the relay was pulled the Santa Fe main breaker (140VDC), which supplies control battery to the switch machines, was tripped open. At approximately 17:30 hours the main breaker had been reset. At this moment the Supervisor stated he had heard a couple of clicks for the control machine in the tower and within five minutes STCBCHI1 reports they had derailed at #33 switch at the crossover.

Further investigation of the interlocker included resistance testing on all cables, ground tests, and verification of all routes. No exceptions were found during these tests. The incident could not be reproduced. Cause was determined to be human interference during the relay change out.

[Note from editor: The above description is unclear as to exactly how the human interference could have occurred (jumper, etc.). Since it doesn't mention errors in circuit design or field wiring, this false proceed is being charged to Human Error - Improper Circuit Jumper in Place.]

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
411	2/28/2003	UP	CTC			UP 9135	None	Fair Oaks, AR	N
<p>On February 28, 2003 at 1333 CST, in Fair Oaks, AR on the Memphis Subdivision, westbound ZMNMQ 28, on the siding at milepost 319.20, received a Green westbound indication with no signal requested.</p> <p>An investigation revealed a design error allowing a battery back feed with the red bulb burnt out.</p> <p>The circuits were revised to prevent a re-occurrence, and all applicable tests were performed.</p>									
709	3/1/2003	DH		Automatic		Train #165	Approach Signal 652.9	Hop Bottom, PA	N
<p>On Saturday, March 01, 2003, D&H train 165 was traveling northbound on the Freight Main Line. The crew of train 165 observed an ADVANCE APPROACH signal (Rule 282A) at signal 652.9, the northbound approach at CPF at 650, the crew observed a MEDIUM APPROACH signal. The crew reported the incident to the Train Dispatcher at this time and the signal system was removed from service. S&C personnel investigated the report, and determined that a Code 2 indication was being transmitted from the interlocking at CPF 650 in lieu of a Code 4. The codes were corrected to display the proper signal indication and the signal system was tested and returned to service.</p> <p>{Note from Editor: The above report offers no detail as to what caused the incorrect code to be transmitted to the approach signal, and so, this false proceed is being attributed to Human Error - Signal Circuit Design Error, Inadequate Service Testing.}</p>									
708	3/5/2003	CN	CTC			343	Signal 2WA-CL	IKE north - Ray, MN	N
<p>NB train 343 was in the siding preparing to proceed NB on a CLEAR signal indication. Temperature was -30degF bright sunny. Signal maintainer was on site working on switch trouble due to frost on switch contacts. At approx. 11:11 train crew reported to signalman that they observed an APPROACH aspect on the main line signal (2WA). At the time they had a CLEAR on signal 2WB.</p> <p>Signal maintainer bagen tests and could not simulate or replicate. No defects were found. Signal supervisor downloaded recorder. Data showed signal 2WA never lined at the time signal 2WB was up. Signal system returned to service when all tests were complete.</p> <p>Train crew later reported in written statement that the lens color of 2WA changed from Amber to Red when they were within 1-2 car lengths. Train crew also reports frost on the signal lenses.</p> <p>Cause appears to be a phantom aspect due to angle of sun on signal lens with heavy frost. Frost was removed from signal.</p>									

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376	3/6/2003	BNSF	CTC			ZWSPKCK906	None	Gorin, MO	N
<p>SOC reported that at 12:10 am, the westbound Z-WSPKCK 9 06 had gotten by a Red signal on Main One at Gorin, MO. Crew alleged that the absolute signal displayed a CLEAR aspect and that the 2741 signal displayed a CLEAR aspect. Data logs from recorder at Gorin were retrieved and determined from the information that the westbound absolute signal displayed a STOP indication. Logs from NOC and data log retrieved from Gorin revealed that an eastbound signal was cleared through the west crossovers. Westbound train trailed through the west switch located on main track one. Signal system was set up in the same manner that existed. Signal aspects were checked, there were no exceptions taken, all signals worked as intended. Relays and signal mechanisms were tested, cross battery and ground tests were performed and no exception taken. Indication locking was performed on the 2L signal. Signal system was found to be working as intended.</p>									
393	4/3/2003	CSXT	CTC				Design	South End, Nashville, TN	N
<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>									
412	4/4/2003	UP	CTC			UP 2205	None	Missouri City, CA	N
<p>On April 4, 2003 at 08:50 CST, in Missouri City, TX on the Glidden Subdivision, eastbound RBMBD-02, at mile post 20.60, reported the eastbound intermediate signal 20.60 was Green, and the next eastbound absolute signal at SA019 was Red over Yellow.</p> <p>An investigation revealed that the polarity on the control circuit to eastbound signal 20.60 was reversed.</p> <p>The signal system was restored to proper operation and all applicable tests were performed.</p>									
377	4/5/2003	BNSF	CTC			Gateway Railroad	54 LB Signal	Kansas City, MO	N
<p>A Gateway Railroad switch engine crew on April 5, 2003 reported observing Red over Green aspect at the 54 LB signal, and stated they stopped short of the next signal (50L) displaying a Red aspect. Signals were put to STOP and traffic was suspended over said route. Investigation revealed that report by crew was factual. Investigation also revealed that during a cutover March 27, 2003 changes had been made to correct a wiring error, but related signals were not re-tested. Circuit changes were made to correct the wiring error and all signals were tested without exceptions. Signal 54 LB put back in service April 5, 2003.</p>									

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378	4/8/2003	BNSF	CTC			B-RICWAT5-06A	None	Fullerton Jct., MP 45.0, Fullerton, CA	N
<p>Train B-RICWAT5-06A, traveling westbound on Main Two MP 165 Fullerton Jct. on the San Bernardino Sub, signals on Main 2 at Atwood for the 4WA signal was Flashing Yellow over Red MP 40.3 and intermediate signal 433 was Yellow over Red on Main Two and at Fullerton Jct. 4WA signal on Main 2 was Red over Red. San Bernardino dispatcher reports ticket # 860065 Fullerton Jct., switch from Main 2 to Main 1 Metro-Link was run through by the B-RICWAT5-06A MP 165 Fullerton. All logs were captured at all three locations. Show signals were F/Y over Red Atwood MP 40.3 and Yellow over Red at the intermediate signal 433 and Red over Red at Fullerton Jct. Reenactment was conducted with Trainmaster and Road Foreman of Engines. After all tests were conducted, found signal system working as intended. Replace repairs were made to No#3 switch at Fullerton Jct., replace lock rods, throw rod, and point detector rod. Reenactment was also done the following morning at same time which revealed sun reflecting on signal from 1250 ft. approaching signal until about 950 ft. Long hoods were placed over all westbound signals which eliminated sun reflection.</p>									
710	4/16/2003	ARR	CTC			4016	None	Anchorage, AK	N
<p>Train 4016 South with Engineer, Student Brakeman, Brakemen, and Conductor. This was the relief crew that dog caught the train at Reves. Train crew reported the distant signal at MP 121.3 to be Yellow over Yellow and the absolute southbound signal at CP 1198 to be Yellow over Red with a diverging switch. The signal at CP 1198 were tested and verified that the aspect displayed was Red over Yellow at CP 1198. Event recorders at the distant signal and at CP 1198 as well as CP 1170 were checked and verified the aspects displayed were correct. No exceptions were taken to any of the signal appliances. Interviews of the crew members involved have been completed, and the results of the testing are being explained to all trainmen. No exceptions were found with the signal system. All light wires to the signal were megged, all signal tests were completed on the affected signal.</p> <p>Attached are the graphic representations of the data downloads from event recorders at the D signal MP 121.3, the VHLC at CP 1198 and CP 1170.</p>									
413	4/23/2003	UP	CTC			(WB) UP 9318, (EB	Code Xmit Relay	Kramm, CA	N
<p>On April 23, 2003 at 13:20 PDT, in Kramm, CA on the Canyon Subdivision, two incidents happened. Westbound WDMELB/22 reported westbound signal at 216.10 was Yellow then turned Green until he passed it, and the next absolute signal at CPF215 was Red over Yellow.</p> <p>Eastbound IOASC/22 reported that eastbound absolute signal at CPF213 was Yellow, turned Green, and then back to Yellow while he approached the signal.</p> <p>An investigation revealed a bad 75 code transmitter relay common to both track circuits feeding from CPF215.</p> <p>The code relay was replaced, and all applicable tests were performed.</p>									
414	4/23/2003	UP	CTC			UPY562	None	Salt Lake City, UT	N
<p>On April 23, 2003 at 10:25 CDT, in Salt Lake City, UT on the Lynndyl Subdivision, westbound YSC44 22, at mile post 782.40, reported the westbound signal on No. 1 track was Red over Lunar without the signal being requested from the dispatcher.</p> <p>An investigation revealed the sun reflecting off the outer lens of the bottom red aspect gave the appearance of a lunar.</p> <p>The outer lens was replaced, and all applicable tests were performed.</p>									

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379	4/24/2003	BNSF		Remote		G HURINB 1 19, B	2EA Signals (SA Mech)	River Street Control Point, Tacoma, WA	N
<p>At about 2:30 PST the train BTACTAC in the Tacoma, WA, yard observed an EB signal on Main 2 that they felt did not go Red when the OS was occupied by EB train GHURINB at the River Street Control Point. The BTACTAC made the next move in the same direction and the same signal and took the time to observe the signal and it did not go Red while they were still in the OS section. The signal did not slot off to Red until the train hit the first track circuit east of the control point. Signal personnel found a bent contact in the plugboard of the 2EA searchlight mechanism that caused an intermittent circuit path to the mech coil. This particular signal was hit by a hanging boxcar door in November of 2002. The signal was replaced at that time, and believe the contact was bent at that time.</p> <p>2EA Signal SA Mech was changed and tests made to correct the problem.</p>									
711	4/26/2003	PLRR		Manual		958	Drawbridge Hydraulic Control System	Bridge C29.20, Lakeport Drawbridge, Laconi	N
<p>Failure of hydraulic control system raised bridge after a northbound train accepted a CLEAR signal. Signal system has been bulletined out of service while an engineering review is conducted.</p> <p>{Note from Editor: The failure of the hydraulic system notwithstanding, the signal circuitry should have assumed its most restrictive indication in conformance with 49 CFR 236.5, which requires all such circuits to be designed on the closed circuit principle. As such, this false proceed is being attributed to Human Error - Signal Circuit Design Error, Inadequate Service Testing.]</p>									
415	5/3/2003	UP				UP 4580	H2 Mechanism	Wells, NV	N
<p>On May 10, 2003 at 14:40 CDT, in Wells, NV on the Lakeside Subdivision, eastbound 1ZLTG1 10, on the #2 track at mile post 605.2, reported the eastbound signal at MP 605.2 displayed a Green aspect with the next block east occupied.</p> <p>An investigation revealed the H2 mechanism at the eastbound signal at MP 605.2 was stuck displaying a Green aspect.</p> <p>The H2 mechanism was replaced and all applicable tests were performed.</p>									

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389	5/13/2003	BNSF	CTC			S-BPATAC1-10M	Phantom Aspect	East Wishram, WA	N
<p>The train crew of S-BPATAC1-10M was headed westbound on the Fallbridge Subdivision toward East Wishram and observed a Yellow/Red at the approach signal 110.1, and proceeded prepared to stop at East Wishram. At approximately 11:50 on 11/13/03 the train got out of the tunnel at M.P. 108.1, they could see the bottom head was Red, but the top head looked dark at East Wishram. Just before they got to the milepost sign at 108, both crew members said that it looked like the top head was Green. They kept looking at the signal, and at M.P. 107.9, they realized that the top head was Red and stopped about 500 feet before getting to the signal. The signal is a color light signal located at M.P. 107.7. Event recorder at the dispatcher's office showed no signal was called at this location, and the recorder in the field showed no signals lined at that time. The signal maintainer opened the circuits to the green and yellow bulbs until testing could be completed. The trainmaster rode the next train through, and said the signal looked dark, but it did have a green "hue."</p> <p>Field testing showed no defects to signal equipment inside the bungalow, but the top head of the signal was not aligned the same as the bottom head, and the bulb voltage was about 0.5 volt low in both the top and bottom heads. The bulb voltage was raised to 9.4 volts and the top head was aligned the same as the bottom head. The next train crew said the signals looked good to them.</p> <p>Signal trouble ticket #937845.</p>									
380	5/13/2003	BNSF	APB			H-BARVAW1-09	Switch Circuit Controller	West Deschutes, OR	N
<p>At about 09:30 on 5/13/03, train H-BARVAW1-09 was headed eastbound on the Oregon Trunk when it stopped and the crew lined themselves into the siding at West Deschutes. The signal for movement over the switch should have dropped to Red when they threw the switch, but it stayed Green. The signal maintainer and signal technician went to the location and set the signals to STOP.</p> <p>The signal maintainer installed new track wires at this location the previous week, from the track to the signal case. He inadvertently bypassed the switch circuit controller when he installed the new wires. He shunted both track circuits after connecting the new track wires, but he did not test the switch because he did not remember that the circuit controller was in the control circuit for the track relay.</p> <p>The signal technician and maintainer found the old track wires and connected them and tested the system. The circuit was working correctly by 14:00, 5/13/03.</p> <p>Reference signal trouble ticket number 872336.</p>									
381	5/15/2003	BNSF	AB			U-INBROO115	0.5 Signal	Seattle, WA	N
<p>Crew on U-INBROO reported at approx 2320 Hrs on May 15, 2003 that the 0.5 signal on the Seattle Subdivision was Red then went Green with a train in the next block.</p> <p>Cutover of new Spokane Street CTC equipment and interface to old equipment was accomplished on May 14, 2003. During this process a N12 battery wire was inadvertently left in the wiring, and was not found during checkout. This allowed N12 and B12 to the SA mech of signal 0.5 when they should not have been causing the mech to poll to a Green aspect.</p> <p>This N12 wire was removed and the signal system tested and then returned to service at 0350 Hrs PT on May 16, 2003.</p>									

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713	5/15/2003	ST	CTC			Train ED2	VTB Relay	Control Point CPR-9, Deerfield, MA	N
<p>Train ED2 at CRML location CPR-9 received a MEDIUM CLEAR (RGR) aspect when routed toward Deerfield Yard tracks at CP 384. Aspect should have been RYR. Track speed for all moves on this track is 10 MPH. Investigation determined that a defective VTB coded track relay caused this problem. Operation was investigated, application of component modified & system tests performed to assure proper function.</p> <p>[Editor's Note: What is meant by "application of component modified"??]</p>									
712	5/21/2003	CN		Remote		M393 3120	Plant Trap	Wellsboro, IN	N
<p>Event: Dispatcher on Desk TD4 from [redacted] operations center reported westbound train M39331 20 accepted a signal 4L at the Wellsboro interlocker on the South Bend Subdivision, although his panel had shown an occupancy on track 2 on the CSX. This occurred on Wednesday, May 21, at 12:41 EDT. Plant was taken out of service to be investigated by the Signal Department.</p> <p>Investigation: CSX was performing undercutter maintenance on their track, and created a track circuit wire to be severed, therefore creating a track occupancy on the TD4 panel. From the Digicon logs, signal 4L had been previously clear prior to the CSX severing the track wire. This track occupancy put signal 4L at STOP, until the CSX had repaired the track wire. Then the signal recleared even with the panel still reflecting an occupancy.</p> <p>The occupancy shown on the panel was created by the CSX trap circuit (trap circuits are used for the 66-foot dead section of track where the CSX crosses the CN trackage. In a normal train move the track circuit gets released after the train passes through the entire interlocker. With the occupancy created by the undercutter only on the north side of the interlocker the trap did not release.</p> <p>The investigation has revealed that planned additions were requested by CSX to this location in 1998. In the investigation we found that CN missed installing a portion of the modifications, also there was a software logic error introduced with the CSX electronic interlocker. Either of the railroads performing these changes correctly would have prevented this false proceed to occur. The CN has retrofitted the logic changes to its portion of the interlocker to correct the situation. The CSX will be correcting their software, to have a second method of preventing this condition from occurring.</p> <p>It should be noted this interlocker worked properly for all normal through movements, the fault was found only on the trap circuit.</p>									
416	5/28/2003	UP	CTC			UP 4052	None	Chalk, TX	N
<p>On May 28, 2003 at 14:57 CDT, in Chalk, TX on the Dallas Subdivision, eastbound ASKMQ 27, on #2 track at CP T220 at mile post 219.9, reported the eastbound signal 2E went from Red over Red, to Flashing Red over Red, then back to Red over Red, while a signal was cleared westbound from #2 track to #1 track.</p> <p>An investigation revealed a circuit error, that left a wrap circuit out of the flasher relay circuit, that allowed the top head of the eastbound 2E signal to flash when a westbound signal for movement from #2 track to #2 track was cleared.</p> <p>The circuit was corrected, and all applicable tests were performed.</p>									

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417	6/2/2003	UP	CTC			UP 2313	None	Rawlins, WY	N
<p>On June 2, 2003 at 12:15 CDT, in Rawlins, WY on the Laramie Subdivision, westbound IDUSE 31, on #1 track, reported the westbound approach signal to CP W678 at MP 673.3 was Yellow, and the westbound absolute signal at W678 was not called for, and was Red over Yellow, then went to Red over Dark, while the switch was lined normal.</p> <p>An investigation revealed a signal gang, with track and time in the OS, was preparing circuits for a future cut over, and caused the westbound absolute signal at W678 to display other than STOP.</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>									
382	6/11/2003	BNSF	CTC			ZWSPLAC408A	Cable	San Bernardino, CA	N
<p>Signal gang replaced cable between the main control house and the westbound control signals at Verdement. The conductors in the cable for the control circuit of bottom head on the #1 main track westbound signal were hooked up incorrectly, causing a false proceed signal.</p>									
419	6/17/2003	UP	CTC			UP 6297	CTU Unit	Fairfax, IA	N
<p>On June 10, 2003 at 11:40 CDT, in Fairfax, IA on the Clinton Subdivision, westbound MBYDM 17, on the South Track at MP 89.13, reported a Green train control into a Red absolute signal at CP A090.</p> <p>An investigation revealed a HXP Crossing Control Transfer Unit at CP 090 was damaged from a power surge and was back feeding the North Track's CLEAR train control onto the South Track.</p> <p>The HXP Crossing Control Transfer Unit was replaced, and all applicable tests were performed.</p>									

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400	6/21/2003	NS					Track Circuit	Greensboro, NC	N
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At approximately 7:20 p.m. on 6/21/03, train Amtrak 74 was running northbound on Track #1 when it received a Green over Red (G/R) CLEAR aspect at the intermediate signal at MP 285.6. Amtrak 74 should have received a Yellow over Green (Y/G) APPROACH DIVERGING aspect. The Control Point at Elm MP 284.5 was lined for a turnout move onto the H-Line and displayed a Red over Green (R/G) DIVERGING CLEAR aspect. This is Trackcode territory with color light signals and GRS 5H power switch machines. The condition was reproduced during testing. An invalid Trackcode pulse was being transmitted from CP Elm to the intermediate signal at MP 285.6. A (+ - +) was being transmitted and deciphered as a (- +) and displayed the CLEAR aspect. When the pulse was adjusted with the NPL adjustment pot to slow down the rate, a (+ -) was sent and deciphered at MP 285.6, displaying the proper aspect, Yellow over Green APPROACH DIVERGING. Current levels on the track were within specifications, all cables were meggered and relays tested with no exceptions found.

Track circuit was adjusted to proper rate and engineering change made in the AD & BD relays to prevent this type of signal aspect display in the future.

394	7/2/2003	CSXT	CTC			Q208-02	None: Phantom	South Latonia, Kenton, KY	N
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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.

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.

420	7/2/2003	UP	CTC			UP 3382	None	Salt Lake City, UT	N
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On July 02, 2003 at 22:15 CDT, in Salt Lake City, UT on the Lynndyl Subdivision, eastbound UGDEO, on the side track at MP 779.10, reported the eastbound signal #12 in the siding was Yellow over Red, and there was no signal requested and the switch was lined normal.

An investigation revealed the outer magnifying lens of the top signal head was not properly sealed to the inner lens, and the angle of the sun caused the Red indication to appear Yellow/Orange.

The lenses were cleaned, resealed, and all applicable tests were performed.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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383	7/13/2003	BNSF	CTC			X GATRED9 13	None	Somerville, TX	N
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As a northbound train was departing the yard at North Somerville Yard control point. A second northbound train, the X GATRED9-13 approached the control point on the mainline from the south. The northbound train on the mainline was to follow the northbound train departing the yard. The mainline train received a Yellow aspect at the approach signal and a Red aspect at the absolute NB mainline signal at North Somerville Yard control point. While stopped, and as the train departing the yard was occupying the OS track circuit, the engineer on the mainline train glanced up at the absolute NB mainline signal and noticed that it appeared to be displaying a Yellow aspect. The engineer reported the occurrence to the dispatching center, however, did not take the signal.

Signal and Operating Department personnel were dispatched to investigate and determined that the signal system was working as intended. It was found that light colored rock (white marble/limestone), recently spread on an access road adjacent to the absolute NB mainline signal, reflected sunlight into the H2 signal head causing the Red aspect to appear Yellow when viewed from the locomotive. The investigation team further verified the cause to be reflected sunlight when the aspect was observed Red with the sun behind the clouds and Yellow when the sun came out from behind the clouds.

The phantom signal was resolved by removing the white rock and replacing it with darker colored rock (absorbs, not reflects sunlight). In addition, ...

714	7/13/2003	SEPA		Automatic			Cab Decoder Circuit (see below)	Juniper Interlocking, Philadelphia, PA	N
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On June 29th at 08:50hrs, the C&S Trouble Desk received a report of cabs dropping to RESTRICTING after accepting interlocking signal 4N at Juniper. Signal Maintainers were dispatched to investigate the alleged report of the cabs dropping out, but they could not duplicate the reported failure.

Then on July 4th at 07:43hrs, the C&S Desk took a report of Juniper Interlocking signal 4N displaying CLEAR, then having the cabs drop to RESTRICTING with the next interlocking signal at Market East displaying RESTRICTING. Once again, Signal Maintainers were dispatched to the scene to investigate an alleged report that the signal was dropping in the train's face, and once again could not duplicate the failure.

Finally, on July 13, 2003 at approximately 18:00hrs, the C&S Desk received a report that a train operating north on no. 2 track from Suburban Station, reported Juniper Interlocking signal 4N displaying CLEAR with 180 cab in the 4T interlocking track circuit and a train ahead sitting in Market East station. The train also reported that when the train exited Juniper Interlocking and entered track circuit 2ET the cabs dropped to RESTRICTING.

Upon learning of the incident, the C&S Desk immediately removed signal 4N from service via form C&S 39 "Signal Facility Out of Service," 4N signal was set to STOP SIGNAL and Signal Maintainers were dispatched to investigate. Concurrently, Signal Foreman J. Caro was dispatched to the scene.

During the investigation, signal 4N was set to display RESTRICTING and the cab was removed from track circuits 4T and 2ET.

Using operational simulations, it was not possible to recreate the alleged false proceed. Nonetheless, from the Juniper circuit drawings it appeared possible for a failure fitting the reported description to occur if the 2EDR relay were to fail to drop away. Consequently, the 2EDR relay, Decoding Unit and Decoding Transformer were replaced. In addition, the 2EDR, 2EHR, 4AHR as well as other suspected circuits were point checked and broken down. Grounds were also checked. Finally, during testing, the 2EDR was falsely energized and signal 4N displayed CLEAR with 180 code in the interlocking and no code in track circuit 2ET.

On July 15, 2003 at 17:25hrs Juniper Interlocking signal 4N was returned to service.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
384	7/14/2003	BNSF	AB			Q-ALTRIC1-11A	Signal 11551	Pittsburg, CA	N
<p>Signal 11551 at East Pittsburg displayed Green approach into Signal 11571 Red, against switch 1157.05 reverse at West Pittsburg.</p> <p>Found that WBP (west block repeater) relay at West Pittsburg, which served as the pole changer for 11551 (1R) block circuit, was not checked by the WNP (switch normal repeater) and thus remained energized. With switch fully reversed, a reverse contact on the switch circuit controller allows for the 1R block to remain energized to permit an APPROACH aspect.</p> <p>The last changes that created this situation were put in service on August 7, 1997.</p> <p>A revised circuit change was furnished, implemented and tested on July 14, 2003. The 19BP (19 block repeater) now serves as the pole changer and is qualified by both the WBP and WNP energized.</p>									
421	8/2/2003	UP	CTC			UP 4425	None	Tornillo, TX	N
<p>On August 02, 2003 at 07:13 CDT, in Tornillo, TX on the Valentine Subdivision, eastbound ILBNS 31, on the side track at MP 792.5, reported the eastbound signal in the siding went Green for several seconds before downgrading to Yellow, with a train ahead of him east of Tornillo.</p> <p>An investigation revealed rodent damage to the circuit wiring causing a battery wire to intermittently false pick the EDR relay giving a Green signal.</p> <p>The damage was repaired and all applicable tests were performed.</p>									
401	8/9/2003	NS	CTC			9526	B1 Biased Relay	Flovilla, GA	N
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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402	8/12/2003	NS	CTC			8631	Track Circuit	Rockmart, GA	N
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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.

Report #	Date	Reporting Carrier	Block System	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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715	8/21/2003	CP	CTC			CP 8526	Sig. 1W	MP 385.9, Vermillion, MN	N
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[Text of e-mail message from Timothy L. Lyon (S&C Supervisor, LaCrosse, WI), to himself on 8/25/2003]

On Thursday night at about 2302 I was contacted by Operations Control Center that a train had reported a signal displayed a DIVERGING CLEAR and that the signal should have been a DIVERGING APPROACH.

I immediately had the local maintainer go to the site and test the signal. Maintainer arrived on site and had the Dispatcher request the same line-up as had been requested for the train. Signal displayed a DIVERGING APPROACH. Site was ground tested with no exceptions found. Signal head and junction box were inspected with no defects found.

On Friday morning I contacted the Technician in the Soo Line building for a copy of the logs from the CTC system for the timeframe involved in the accident. Those logs are attached to this message.

On Friday morning, after talking to the Technician, I then drove to the site and was met by the Signal Maintainer. We proceeded to retest the signal again. The line-up was duplicated from the previous evening when the incident occurred. We had the Dispatcher duplicate the entire move, including the stack request. The signal, when lined displayed a DIVERGING APPROACH.

We then meggered the cable from the house to the signal with no exceptions found. We also did another ground test with no exceptions noted. We also inspected the signal head and junction box with no exceptions noted.

Signal lamp voltages are as follows: Green 9.0, Yellow 9.0, Lunar 8.6, Red 9.0. With signal 1W lined for DIVERGING APPROACH, voltages are: Red 8.2, Yellow 8.6.

With signal 1W lined through the crossover from Main Track to Track #2, aspect was a DIVERGING APPROACH in all tests. Incoming codes from East Hastings during the test remained a Code 1 & 2 during the entire test.

Outgoing codes were a Code 1 & 3. All codes are as prescribed by the print.

Control point to the west is East Hastings, all signals were displaying Red aspects as no signals had been lined at this location as shown in the attached logs.

Train that reported this incident was train # 297-20 (CP 8526).

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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716	8/22/2003	LI		Manual		N/A	Signal Control Relay (16RBHB)	Jay Interlocking, Jamaica, New York	N
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Sequence of Events:

On August 22, 2003 at 10:20am the Block Operator at Jay Tower reported that the indication for 16R signal at Jay Interlocking remained lit after the passage of eastbound train #4308 into #1 layup track. Block Operator restored 16R lever to the center position and was able to cancel signal. The signal was removed from service immediately and a block was placed on the affected track and route. There were no trains following the first train. Signal personnel were immediately dispatched to the interlocking.

Failure Cause:

Upon arrival at the location, Signal personnel simulated the route. The route was 16R to 14L with 7, 9, & 13 switches reverse and 11 switch normal (see Attachment A). They displayed 16R signal and they shunted the tripping track circuit (7TR) and observed a RESTRICTING signal aspect displayed on 16R signal. In addition, they observed the 16RBHB relay energized with the 7TS (track stick) deenergized. This resulted in a RESTRICTING signal being displayed when it was not intended. The cause of the 16RBHB relay remaining energized was found to be grounded positive energy wires between switch lever bands in the Model 14 Interlocking Machine. The circuit was meggered and found to be grounded. The wires are old style TC Green. The 16RBHB circuit is not a true double broken circuit (see Attachment B), only the 16R band breaks the common energy, and in this case the 16R band was made making the circuit effectively single broken. In addition, the grounded wires were further proven to be the cause by trying an alternate route from the same signal. This resulted in the circuit working properly.

Repair & Testing:

All of the wires in the route for the 16RBHB were replaced and the ground was removed. We field tested all applicable relays, meggered, cross meggered and circuit meggered all applicable wires and cables, and tested the 7TR track circuit. The train move/route was re-simulated and found to be working properly.

Recommendations:

We have continued rewiring all the single broken circuits at our last few TC Green interlockings. It is a painstaking task because every wire you replace in a bundle of hundreds of wires could cause an adjacent wire to fail. The Jay Interlocking Model 14 machine is scheduled to be replaced entirely by the end of 2004. This will eliminate all TC Green at Jay. We will continue replacing wires until the new system is cutover.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
403	8/24/2003	NS	APB			8923	68H Relay	White Siding, TN	N
<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&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>									
422	8/24/2003	UP	CTC			UP 2466	Circuit Controller	Stanwix, AZ	N
<p>On August 24, 2003 at 02:45 MDT, in Stanwix, AZ on the Gile Subdivision, eastbound 1 ALAWFX 20, at CP SP819, had a CLEAR signal for a move from single main track to #1 main track, and the movable point frog was not in full reverse position.</p> <p>An investigation revealed the securing screws supporting the reverse switch indication contact assembly of the M23 switch machine had come loose, letting the reverse contacts make with the movable point frog not in full reverse position.</p> <p>The circuit controller assembly was replaced and all applicable tests were performed.</p>									
385	8/26/2003	BNSF	AB	Remote		ZCHCSSE124	Hand Throw Switch MP 4.05, Main 1 SB	ARGO Interlocking, Seattle, WA	N
<p>Train crew on the ZCHCSSE124 reports that they had a Yellow signal southbound Main 1 at ARGO Interlocking and then found the hand throw Airport Way Switch at MP 4.05X in the open position. This was reported at about 1950 hrs PT on August 26, 2003.</p> <p>Main 1 south of the ARGO Interlocking was taken out of service with notification to the Signal Department at about 2015 hrs PT. Tests were conducted and the Yellow signal was confirmed with the New Airport Hand Throw Switch open, when the Main 1 southbound signal should have been at Red.</p> <p>Switch was removed from service, tagged and clamped awaiting signal circuit changes. Changes to the 2-3 WD1 and the N2-3 WD1 were accomplished on August 28, 2003 and all required and necessary tests were made and switch was placed back in service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
404	8/26/2003	NS	APB			3285	Incorrect Wiring	Leighton, AL	N
<p>On August 26, 2003 at 11:30 a.m. CDT, eastbound train A80 left Sheffield Yard on an APPROACH signal at MP 399.0A. Another eastbound train Q36 had left Sheffield Yard prior to A80. Train A80 reported the next automatic signal at MP 396.2A, Leighton, AL to be a CLEAR signal but suspected that train Q36 had not traveled far enough east to permit the signal to clear. In addition they had heard the Town Creek defect detector reporting the passing of train Q36, indicating that the train ahead had just passed the next signal location at MP 393.2A. Train crew of A80 notified the signal maintainer.</p> <p>C&S personnel investigated and discovered the S-Code Electronic Track Circuit cabinet was improperly wired at the automatic signal location MP 396.2A. The wiring was corrected per the location signal plans and operational tests performed.</p>									
405	8/27/2003	NS	CTC			8818	B-1 Biased Relay	Mansfield, OH	N
<p>At 6:03 p.m. August 27, 2003, train 528, traveling from track #2 to track #1 westbound at CP Lucas, reported the home signal was LIMITED CLEAR (Red over Flashing Green). 528 reported his next signal, intermediate signal 1727-1W, displayed STOP AND PROCEED. Train 528 brought his train to a normal stop. No other trains were involved.</p> <p>Upon arrival the condition was reproduced and was determined to be caused by a melted contact in the 1727 AHP relay. This contact had battery B-12 on the front and the positive coil of the 1727 AHPP relay on the heel. This condition allowed the 1727 AHR and 1727 AHP relays to be energized and the 1727 to be de-energized when, under normal conditions, it would have been energized. Had the 1727 AHPP been energized, the 1727 signal would have been displaying an APPROACH aspect vs. STOP AND PROCEED. The HD circuits leaving the 1727 signal towards CP Lucas are controlled through the 1727 AHP relay. The aspects to be displayed on 1727 signals are controlled through the 1727 AHPP relay. This scenario allowed the HD circuits to upgrade back towards CP Lucas account the 1727 AHP relay being energized but, account the 1727 AHPP being de-energized held intermediate signal 1727 AHPP at STOP AND PROCEED.</p> <p>The cause of the relay contact melting in the 1727 AHP relay is suspected to have been caused by several severe thunder storms and lightning in the area earlier in the afternoon.</p> <p>The 1727 AHPP relay is a GRS Part #298 B-1 biased 194 ohm slow drop. The relay was replaced in kind and the signal system tested and restored to service at 11:16 p.m., August 27, 2003.</p>									
395	8/28/2003	CSXT	CTC			N935-15	Wiring	East End of B&O Siding, Fostoria, OH	N
<p>On August 28th at approximately 21:10, westbound N93515 on #2 track at the East End of the B&O center siding, reported receiving a Yellow over Yellow (APPROACH SLOW) into a STOP signal at the West End of the B&O center siding. Signals were removed from service and signal personnel were dispatched. During testing and inspection of the signals, it was discovered that a wiring change from a prior project was made incorrectly that allowed the improper aspect to display if the R178WFSR stick relay was picked. The wiring error was corrected, operational tests were performed and the signals were returned to service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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 & 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>									
396	9/8/2003	CSXT	CTC			Q27808 - L29607	Wiring	Lemoyne, OH	N
<p>On Sept. 8th at 13:44, Q27808 was sitting at the westbound absolute signal number #1 at Lemoyne, MP CD 111.0, waiting to cross over to #2 track following the L29607. L29607 was WB on #2 track. Q27808 heard the L29607 call the aspect on the 1071-2 intermediate signal, the 2nd intermediate west of Lemoyne. Q27808 observed the WB signal on #2 track display a MEDIUM CLEAR, Red over Green, for 6 to 8 seconds before slotting off to STOP. The event log indicated the WB signal at Lemoyne had gone into time. The signal was removed from service. A simulation recreation of the false clear. An investigation revealed that the coded track circuit west of the 1091-2 intermediate signal, the first intermediate west of Lemoyne, when shunted, had an 8 to 10 second delay before the 1092-2 or 1071-2 HD relays would be deenergized. The 8 to 10 second delay was found to be caused by wires on a front and back contacts of the 1092-2 ZTR, code following relay, that had been reversed and were not according to design. This resulted in energy being applied to the positive coil wire of the 1092-2TPR when the track circuit was shunted. The 1092-2TPPR drops the HD circuits. The 1092-2TPPR wasn't dropping immediately due to a capacitor, which by design, was across the coil wires causing an 8 to 10 second drop delay while the capacitor bled off. This caused the improper aspect to be displayed for eight to ten seconds as reported. The wiring error was corrected, operational tests were performed with no exceptions. The signals were placed in service.</p>									
717	9/15/2003	CN				NS 278	21L Signal	Gilman, IL	N
<p>NS278 crew reported at approximately 1840 during sunset that 21L signal B head was Yellow. NS crew was on the Gilman Sub at 23L signal going to the Chicago Sub. A southbound IC M34241 was also going across the interlocking on the main. The dispatcher questioned the crew if it was the sun but they said it wasn't. The dispatcher told the Maintainer that 21L signal was not called for.</p> <p>The maintainer, supervisor and inspector meggered the signal cables and tested for grounds. The relays were also tested. The interlocker was placed in remote control to do a reenactment and test the signal. The approach to 23L signal was shunted and remained shunted during the suration of the tests, because this is where the NS train was located. 1R and 13R signals were lined and 18T was shunted north then south of the diamond, 21L signal remained Red. We also shunted 21RT and lined 21L signal to verify the call on (B head Yellow) and got the signal indication. 21L signal was cleared and shunted 18T, 21L signal went to Red. Gilman Interlocker Harmon Logic Controller was downloaded. We verified that 21L signal was not called for or true.</p> <p>The next evening during sunset the supervisor and maintainer went and inspected the signal. The weather conditions were similar to the day before. It appeared to be lit. We climbed up the signal mast and opened up the door and verified the bulb was not lit. Within 30 minutes it no longer appeared to look lit. A light diffuser was ordered for this signal to remedy the problem.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
718	9/17/2003	TRRA		Remote		NS 115D817	Interlocking Signal #54	SH Interlocking, Venice, IL	N
<p>At 11:18am, September 17, 2003, interlocking signal #54 displayed a less restrictive signal than intended for movement of Norfolk Southern (NS) train 115D817. 115D817 was following Gateway Eastern (GWE) train GWE17 southward on the northbound main track between SH Interlocking and CP Junction Interlocking. At 11:24am, NS train 115D817 reported the GWE train ahead in the same block and the improper signal indication observed on interlocking signal #54. The NS train 115D817 was able to stop short of the GWE17 train without incident.</p> <p>Signal #54 was taken out of service immediately by the TRRA Merchants Dispatcher. Investigation of incident by Signal Department revealed that signal #54 had displayed an APPROACH, Rule 285B (Yellow over Red) for the following movement of the NS 115D817. The correct aspect should have been RESTRICTING, Rule 290B (Red over Yellow).</p> <p>The cause of failure was determined to be an error in the signal control circuit design that was not detected during in-service testing. Immediate corrective action was to disable the "following stick relay" (58FSR) which would normally allow a RESTRICTING signal only for a following train movement into an occupied block. Signal #54 was then retested and restored to service at 1:00 pm on same date. The following stick circuit will remain disabled until the signal control circuit is modified and retested.</p>									
424	9/24/2003	UP			ACS	UP 3205	None	Cheyenne, WY	N
<p>On September 24, 2003 at 19:00 MDT, in Cheyenne, WY on the Sidney Subdivision, westbound LCA53 24, on 3 track at CP W508, reported a westbound Red over Lunar signal to proceed into the yard, and his cab signal went from a Yellow to a Flashing Yellow when they entered the OS circuit.</p> <p>An investigation revealed a circuit design error.</p> <p>The circuit was corrected and all applicable tests were performed.</p>									
386	9/29/2003	BNSF		Remote		ZALTSBD227	Design Error	Belen, NM	N
<p>Westbound train Z-ALTSBD2-27 reported to Road Foreman they had a Red over Flashing Yellow at El Paso Jct. into a Red over Red at Belen Jct. on September 28, 2003. Road Foreman left voice mail for Signal Supervisor, who didn't receive voice mail until September 29, 2003. Signal Supervisor investigated and found when 6WA signal at Belen Jct. (coming off Main 6) cleared it picked the 4WBMR which allowed a R/FY on the 4WAB signal (lined main 2 to main 8) at El Paso Jct. into a Red at Belen Jct. (on main 8).</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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387	9/30/2003	BNSF	CTC			L-NWE823130	CL	Everett, Washington	N
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At approximately 16:05 PDT on 10-30-03, train L-NWE823130 while traveling north on main 2 ran by a red signal displaying Red over Red at Everett Jct. The train was traveling in reverse with a caboose in the lead. The crew thought they saw a Yellow over Yellow signal and found the switch lined against them in the OS section of Everett Jct. The train stopped before they ran through the switch.

The signal team was notified and all logs were downloaded and revealed that the signal was Red over Red when the train entered the OS section at Everett Jct. Further investigation by the signal team revealed lamp voltage was lower than standard by about a 1/2 volt. They also found that the signal alignment was poor. The following day, 10/1/03, the signal team along with the operating team recreated the incident at the same time of day with the same conditions. Lamp voltage was reduced to the levels of the previous day and the train proceeded north. They viewed the signal as they proceeded north taking pictures along the way. Although the pictures clearly show the signals being Red, they thought they could see a phantom aspect of Yellow over Yellow. The weather conditions were bright afternoon sun.

The repairs were that the signal was re-aligned and lamp voltages raised to BNSF standard.

388	10/21/2003	BNSF	CTC			Q LACAUG 618	None Found	Estelline, TX	N
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Dispatcher reported two EB trains at East Estelline. The 1st EB train had a Red signal at E. Estelline and was talked by the signal. The 2nd train also had a Red signal at E. Estelline and was being talked by the signal when the signal went Green. The 1st EB train advised the 2nd EB train that the signal at E. Estelline should not be Green because the rear of their train just passed the approach signal at MP 233.6. The signal at E. Estelline for the 2nd EB train should have been Yellow.

After extensive testing, the alleged false proceed could not be duplicated. After consultation with BNSF Signal Engineering and GE Global Signaling (coded track equipment manufacturer) it was decided to change out the coded track systems at both the intermediate signal 233.6 and E. Estelline. In addition, a recorder was installed at intermediate signal 233.6 and a 216DL recorder module inserted into the newly installed Electrocode 4H at E. Estelline. Operating Department personnel and the engineers on both trains are aware of our pending results and remedial actions.

397	10/21/2003	CSXT	CTC			Q52621	Workmanship	Montfort, MP 172.2, Hendersonville, TN	N
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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.

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.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
425	10/21/2003	UP	CTC			BNSF 8819	2 Relays	Castle Rock, CO	N
<p>On October 21, 2003 at 13:20 MDT, in Castle Rock, CO on the Colorado Springs Subdivision, northbound BNSF 8819, on the main track at MP 31.6, reported the northbound signal at MP 31.6 was Flashing Yellow and the next northbound signal at MP 29.4 was Red.</p> <p>An investigation revealed a high resistant contact on the coded 20T track relay along with an internal jumper missing in the 20HR relay allowing northbound signal at MP 31.6 to alternately display Yellow and Dark.</p> <p>The relays were replaced and all applicable tests were performed.</p>									
406	10/30/2003	NS	CTC			NS 5555	Vandalized SA Searchlight Mechanism	Johnson City, NY	N
<p>On 10/30/2003 at approximately 8:50 a.m., train H1GHA30, engine NS 5555, 25 loads, 37 empties with no hazmat, reported signal 4W on track 2 at CP Johnson appeared to display a RESTRICTING aspect. Upon stopping his train and walking up to observe the signal, Engineer reported the signal at STOP but the inner lens was broken. The sun was shining directly into the signal at this time. The phantom aspect was caused by an unknown party breaking the inner lens allowing the sun to be refracted in the outer lens. The inner lens was replaced, and all appropriate tests made prior to returning the signal to service.</p>									
719	10/31/2003	AMTK		Manual			Route Locking	Union Interlocking, Rahway, NJ	Y
<p>On October 31, 2003 at approximately 7:15am New Jersey Transit train no. 3818 derailed while diverting No. 1 to "A" track west end of Union Interlocking over No. 43 switch reverse. The train remained upright, with only the lead MU derailed. There were no passenger injuries associated with the derailment. Investigation found that signal circuit wiring revisions completed incorrectly in May 2001 caused this derailment. As a result of this mistake by Amtrak signal employees the Route Locking was ineffective when the first circuit was occupied on No. 1 track in advance of the 44L signal when NJT 3818 passed the signal. Although Union Interlocking doesn't have an event recording of signal functions (no event recorder installed). NJT 3818 locomotive event recorder indicated that the cab signal changed from 120 (APPROACH MEDIUM) to 75-code rate (APPROACH) when the train crossed the insulated joints located close to 43-switch points. This event recording information indicates that the points of 43-switch had to move away from the reverse position toward normal position because the track circuit is designed with separate feeds that correspond with switch position. The C&S department believes that the tower lever man was able to operate the No. 43-switch to the normal position, and then back to the original reverse position in the face of NJT 3818 (however, the lever man states that he never threw the switch when NJT 3818 was traversing the route). This action caused the first MU car to derail when the first wheel set of the truck went toward No. 1 track, instead of No. "A" track. On October 31, 2003 C&S forces resolved the wiring problem; however, on Monday, November 3, 2003 the 43-switch was removed from service pending the completion of a full point check of all revised circuits. Discipline investigations will be scheduled for the responsible employees, as well as an inspection of other projects that were completed by the same Supervisor crew.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
407	11/3/2003	NS		Automatic		F729729	Signal System	Durham, NC	N
<p>At approximately 12:00 p.m. on November 3, 2003, CSX train F729729 approached the D&S Interlocking at MP H57.4 on the H-Line and MP D86.40 on the D-Line, westbound on the CSX track which intersects both the H-Line and D-Line at this interlocking. As F729729 approached the interlocking, the signal controlling CSX westbound movement across the diamond, displayed a PROCEED aspect, Green over Red. The crew then noticed NS train E22 had fouled the interlocking limits, attempting to make a northbound move on the D-Line through the interlocking.</p> <p>Train E22 stopped at the 2R signal of the interlocking, the signal was dark and E22 acted in accordance with the time table special instructions for movements across the interlocking with signal outages or troubles. E22 had moved across the joints at the signals and fouled the interlocking 2T OS track but had not fouled the diamond when F729729 observed E22. E22 was waiting the prescribed 5 minutes before proceeding across the diamond. The CSX signal should have displayed a STOP, Red over Red aspect.</p> <p>Investigation found that the 2T OS and 2L approach track circuit relays had been energized with temporary jumpers during new construction at this interlocking. The D-Line had been taken out of service during the new work. While out of service, the 2T OS and 2L track wires were destroyed during grading and temporary jumpers were applied to get the interlocking back in service for CSX train moves. The D-Line was then restored to service without the 2T OS and 2L approach track relay jumpers being removed.</p> <p>The D-Line is currently out of service pending restoration of damaged interlocking cable and the 2T OS track circuit has been restored to service and tested.</p>									
426	11/4/2003	UP			ATC	UP 4418	None Found	Fairfax, IA	N
<p>On November 04, 2003 at 12:55 CST, in Fairfax, IA on the Clinton Subdivision, eastbound ZOAG16 01, on track #1, had a CLEAR cab signal, and could see ahead that the eastbound signal at MP 92.60 was Red. The cab signal changed from CLEAR to RESTRICTING at MP 93.48.</p> <p>An investigation of the cab signal system on the UP 4418 and on the track from MP 95.50 to MP 92.60 could not duplicate the report. Recorder tapes from UP 4418 revealed that the cab signal was falsely clear between MP 95.50 and MP 93.48.</p>									
408	11/12/2003	NS		Remote		NS 3425	10WB Dwarf P/L, Signal Man Failure	GP Works, Altoona, PA	N
<p>On 11/12/03 at approximately 6:40 p.m., Engineer and Conductor moving light engines NS 3425 and NS 3359 reported signal 10WB displaying a SLOW CLEAR with the next signal 12W at STOP. Investigation revealed that the internal wiring of signal 10WB was improperly wired, the green and yellow wires reversed causing 10WB to display a SLOW CLEAR instead of a SLOW APPROACH. Wiring error was made on 7/21/02 when 10WB was replaced and improperly tested. Corrections made along with proper tests and signal returned to service on 11/12/03.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
427	11/15/2003	UP	CTC			UP 3934	Case Wiring	Niland, CA	N
<p>On November 15, 2003 at 22:14 PST, in Niland, CA on the Yuma Subdivision, eastbound MWCFW-13, on the main track at MP 665.63, reported the eastbound absolute signal at CPSP665 (West Niland) was Yellow over Dark for a move into the siding.</p> <p>An investigation revealed that case wiring had deteriorated, which allowed false battery to keep the 84RAHPR relay energized.</p> <p>The wire was replaced, and all applicable tests were performed.</p>									
428	11/20/2003	UP	CTC			UP 2236	None	Vaughn, NM	N
<p>On November 20, 2003 at 14:32 MST, in Vaughn, NM on the Carrizozo Subdivision, westbound MHNEP-19, on the main track at MP 741.2, reported the westbound absolute at CP TC741 (West Vaughn) was Green, then turned to Red, with the switch at West Vaughn lined against him.</p> <p>An investigation revealed the Red signal appeared Green for a short time, from reflection off of the top of the signal hood, while the westbound train was rounding a curve.</p> <p>The signal was realigned, and all applicable tests were performed.</p>									
398	11/25/2003	CSXT	CTC			Z16025	None: Phantom	Hopple Street, Cincinnati, OH	N
<p>Northbound NS train on #1 track bassed by a STOP signal at 10:19 11-25-03. Logs were pulled and indicated signal was at STOP. Train crew reported they had an APPROACH at previous signal at Tower A and then a RESTRICTED PROCEED at Hopple Street. Signal personnel were dispatched and upon arrival, observed signal at STOP. Crew also stated that when they saw the dwarf signal, they wer about two cars away from the signal and it was lit Green - Yellow with white lights underneath. As the train went by the signal, they also saw Red indications with white light, which they took as RESTRICTED PROCEED. With the above information, Transportation officers from NS, CSX and CSX signal personnel returned to Hopple St. to observe the signal. We observed the sun was shining bright on this day and would have been behind the approaching train's back and could have been shining directly into the signal at the time of the incident. Operational tests were performed on the signal and no exceptions were taken.</p> <p>Further investigation on 12/01/03 (next day of similar light conditions) was conducted and it was observed that the sun was shining into the signal making it look as though all lights were lit.</p> <p>Dwarf signals on #1 and #2 tracks were realigned forward to vertical. This action substantially reduced the effect of the sun shining on the lenses. Hoods on these signals are 7 inches long. 12 inch hoods have been ordered and will be installed upon delivery. We are reporting this event but we do not consider this to be a false proceed.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
429	12/9/2003	UP	CTC			UP 9072	Code Following Relay	Ft. Hancock, TX	N
<p>On December 9, 2003 at 15:26 CDT, in Ft. Hancock, TX on the Valentine Subdivision, westbound IMNLB 07, on the main track at MP 780.7, reported the westbound approach signal to SA738, East Iser, was Yellow over Yellow, and the next westbound signal at SA738 was Red.</p> <p>An investigation revealed a defective 120 CDF (code following relay) allowed the WDDR to energize while receiving 75 code.</p> <p>The relay was replaced, and all applicable tests were performed.</p>									
720	12/21/2003	CN	CTC			WC 5707	Sig. 544 S. Trk Circuit	State Line South CP	N
<p>At approx. 16:18 on 12/21/03 SB Engine WC7507 reported a R/G aspect at State Line S. MP into a R/D aspect at approach signal at Grim Rd. MP 54.4. At approx. 17:10 CN2554 reported the same.</p> <p>Plant was taken out of service, signalmen tried to reproduce defective aspect. Unable to simulate the defective signal in the field. Tested for grounds, none found.</p> <p>Recorder at S. State Line shows track circuit bobbling to the south. New turnout being installed at MP 53.0 earlier this day was adversely affecting the circuit at this time.</p> <p>4 rail bonds were found off in the circuit at the new turnout location. Bonds were replaced.</p> <p>At the same time an indication problem was occurring between the Dispatcher's office and the field at State Line South. Indications were lost or delayed. Once the ATCS radio was reset in the field indications began to function normally.</p> <p>Temp was 45deg and sunny with no snow on the ground. This report is being submitted by the request of [redacted].</p>									
409	12/22/2003	NS	AB	Remote		NS 9752	Signal	Van Loon, IN	N
<p>On Tuesday, December 22, 2003 at 8:49 a.m., train 20E was traveling east on the Chicago District westbound main track. Engineer and Conductor on engine NS 9752 called the home signal at Van Loon interlocking, MP B-497.9 a SLOW APPROACH (Yellow over Red). The crew was contacted by the Chicago District dispatcher in Ft. Wayne, IN, after proceeding past Van Loon. The dispatcher informed the crew to bring their train to a stop. The crew of 20E walked back to observe the dwarf signal and reported the signal had been painted orange.</p> <p>Investigation of the above incident verified that the 3 position color light dwarf signal had the top and bottom lenses painted orange and the can of spray paint was laying by the signal.</p> <p>The incident was also reported to railroad police for further investigation.</p> <p>The signal lenses were replaced and the signal was tested and placed back in service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
390	12/29/2003	BNSF	AB			Y-HUT-1011-29	Signal Circuit Design	Hutchinson, KS	N
<p>The local, working between Dodge City KS & Newton KS noticed intermediate signal 2221 displayed a CLEAR aspect while the track circuit was occupied. Upon report, the signal system between stations was removed from service and signal personnel were dispatched to the area. Signal personnel confirmed this aspect and proceeded to test circuitry. During testing it was noted that although the track relay de-energized with a .06 shunt the signal still displayed PROCEED. Tests were then made to determine why this did not show up during in-service testing in 1996. It was determined that this was a center feed track circuit with the relay on the west end of the circuit containing a line break but the relay on the east end did not. The track circuit was walked and several broken bonds were discovered between the east track relay and the battery feed point. A shunt placed between east track relay and the battery feed point would deenergize only the east track relay. After replacing the bonds a shunt anywhere in the circuit would de-energize both track relays in this circuit. After consulting the engineering office a break of the line circuits was installed in the west track relay at intermediate signal 2221 and test were made de-energizing either relay of this circuit would set the signals governing movement over this track circuit to STOP. Root cause was an improper design with the in-service testing procedure being inadequate to determine the design error.</p>									
391	12/29/2003	BNSF	CTC					East Victorville	N
<p>General Order to remove signals not conforming to rule 9.1.11 was removed on the Cajon Subdivision. The East Victorville signals had been due to be converted in a cutover planned earlier in the year but has been re-scheduled several times due to train traffic volumes. When Signal Supervisor completed spreadsheets to a master list this location was shown as completed but had not yet been done. Red over Flashing Yellow aspects were converted to Red over Yellow and routes were tested and system returned to service.</p>									

No. of Reports Shown in this Listing: 71