



IronWood Technologies

Railroad Accident Reconstruction

Federal Railroad Administration

False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - 2002

Report #	Date	Reporting Carrier	Block System	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
357	1/17/2002	NS	CTC			NS 5512	Track Isolation Unit	Seneca, NY	N
<p>On January 17, 2002 at 3:15 a.m., Harrisburg Division train 17H, lead unit NS 5512, southbound on the Ebenezer Running Track at Seneca, New York, reported signal 39E at MP 3.9 display an APPROACH aspect for the train's movement. This signal should have displayed a RESTRICTING aspect due to a hand throw switch ahead in the block being in the reverse position.</p> <p>Train 17H's crew was aware of the switch being left in the reverse position by the crew of a previous train movement, and therefore train 17H proceeded at Restricted Speed and stopped short of the hand throw switch lined against their movement.</p> <p>Investigation revealed that the B1-1T track circuit in advance of the 39E signal had a track isolation unit with an open resistor and shorted diode. This condition allowed the track isolation unit to discharge its capacitor through the 39HR relay during the entire duration of its discharge time, which prevented the relay from dropping out while the hand throw switch was in the reverse position.</p> <p>The track isolation unit was replaced and signal restored to normal service at 2:50 p.m.</p>									
334	1/22/2002	BNSF	CTC			Unknown	Signal	Phillipsburg, TX	N
<p>Engineering changes were to be made to convert Red over Flashing Yellow aspect to Red over Yellow aspect prior to January 20, 2002 when the new System Special Instructions and Division Timetables to be in effect. The new timetable removed the rule in item three of the type of operation section that had previously covered signals not conforming to the DIVERGING APPROACH rule. The changes were overlooked and never made resulting in a westbound train taking the siding at East Phillipsburg on a Red over Flashing Yellow aspect with the next signal at West Phillipsburg was displaying STOP indication. The proper aspect at East Phillipsburg should have been Red over Yellow.</p>									
687	2/13/2002	CORP	AB			CORP 3819	Aerial Cable	MP 550.4, Myrtle Creek, OR	N
<p>The CORP 3819 was northbound at Myrtle Creek on 2/13/02. The crew reported a Dark signal at 550.4 and 551.2. While passing 551.2 they looked back at signal 551.3. 551.3 was showing an APPROACH while train was still occupying the block which it governed. I responded immediately and began shunting track circuits. I discovered the track relays were de-energizing, but the 5513HR and 5505HR would not de-energize. After checking the rints and pole line, I concluded that the aerial drop cable to signal 550.4 was shorted out between the 5513H and 5505H circuits. I set both the 5505 signal and the 5513 signal to their most restrictive aspects and informed dispatch. The next morning, myself and [ends in midsentence].</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
358	2/17/2002	NS	CTC			NS 9003	Relay Circuit	Matewan, WV	N
<p>At 12:42 a.m. on 2/17/02, train U72U616 received a westbound APPROACH aspect on the 8LR signal at Control Point Ought-One, MP N445.5 on the Pocahontas Division, when the 8LR signal located at MP D0.6 should have displayed a STOP aspect.</p> <p>The problem was duplicated during testing and found to be a foreign voltage on the LC08H relay, falsely energizing the relay which allowed the Yellow aspect to be displayed on the "A" signal head. Signal 8LR is a color light signal. The short was found in the LC08H circuit in the main shelter at CP Ought-One. This is a TC Green wired bungalow and a TC Green wire had shorted to local battery. The defective wire was replaced in the circuit, eliminating the foreign voltage. In addition, the location is scheduled to be upgraded to new electronic equipment in March, 2002.</p>									
689	2/26/2002	MRL	CTC			BNSF 1016	None	Eddy, MT	N
<p>On February 26, 2002, Engineer on train XPASABE123 reported that while approaching eastward intermediate signal 240, the signal was first observed as displaying a Green aspect, then the signal was observed as displaying a Flashing Yellow aspect. The proper aspect for signal 240 at this time was Flashing Yellow account the eastward absolute signals at East Eddy were Red.</p> <p>Signal Department personnel promptly investigated this incident. Personnel checked the electronic log reports for the HLC equipment at East Eddy and West Eddy which revealed the signal system was functioning as intended. Personnel checked the electronic data log reports for Digicon, which revealed the system was functioning as intended. Personnel checked the electronic data logger report the the Electrocode equipment at signal 240, which revealed the signal system was functioning as intended with signal 240 displaying a Flashing Yellow aspect at the time of the occurrence.</p> <p>Signal Department personnel also performed operational tests, performed relay tests, megging tests, tested relays, performed ground tests and inspected wiring. Subsequent to tests, signal system functioned as intended.</p> <p>Signal Department personnel were unable to duplicate this alleged false proceed incident. All tests and inspections revealed the signal system functioned as intended.</p>									
347	2/27/2002	CSXT	CTC			R27627	None: Phantom	NAS Contentnea #2 Tr., Contentnea, NC	N
<p>On February 27, 2002 at about 1545 hours the crew of K27627 reported a RESTRICTING signal (R/R/L) at the NAS Contentnea, NC Number 2 Track at MP A139.0. Investigation revealed that the signal was working as intended and the RESTRICTING aspect was due to being sunlit and was verified as a phantom aspect. The signal backgrounds were painted, outer lens replaced and realigned signal to the apex of the curve. Phantom screens were ordered and will be installed upon receipt. After the mitigating 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.</p>									

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688	3/2/2002	CORP	AB			UP 2459	Semaphore Arm	MP 617.4, Curtin, OR	N
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0332 AM, March 2, 2002

The southbound 501, UP 2459, heading to Roseburg, passed semaphore signal 617.5. The engineer looked at the opposing signal, 617.4, and noticed that it was displaying a Yellow indication.

Upon arrival and inspecting, the signal relays, track relays and slot coil were energized, and signal 617.4 was still displaying a Yellow indication.

Upon further inspection to signal 617.4 the buffer for the 617.4 semaphore arm was immovable, held stationary, in its Red position. Inspecting the buffer the grease was stiff, to the point of being frozen. The buffer and buffer chamber were cleaned and new grease installed.

Signal location was then tested with shunts and train movement observed.

Weather conditions for the day of March 02, 2002: frost with patches of ice, outside temperature 33 deg.

335	3/12/2002	BNSF	AB			RNCA 0023-12A	None	Maltby, CA	N
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Road Switcher RNCA 0023-12A reported seeing Signal 1166.1 go from Red to Green then back to Red while ETD of ZMEMRICH-109A was still in view.

Incident took place at 2020 PST. Crew reported incident at 2400 during job debriefing at end of shift. Signal was immediately taken out of service and Signal personnel were called to investigate. Cross and Ground tests, Relay tests, Cable Insulation tests and progressive shunt test of location were made with no exceptions found. Signal 1166.1 was put back in service at 0710 PST 03/13/02.

Interview with Train Crew was conducted and it was determined that they had followed two trains westbound out of Port Chicago MP 1164. The first was Local LNCA 2141-12A which cleared in the siding at Maltby. The second was ZMEMRICH 109A. RNCA 002312A witnessed normal signal operation in ABS. When LCNA lined the switch behind them after clearing in the siding Signal 1166.1 went Green for ZMEMRICH 109A then dropped Red as he entered the block and stayed Red until they left the block. RNCA 00213-2A witnessed the Green from 1 1/2 to 2 miles away while in approach to Signal 1165.1 and couldn't tell where the ETD ahead of them was in relation to Signal 1166.1.

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348	4/9/2002	CSXT	CTC			H75709	Aerial Cable	W.E. Gordonsville, Gordonsville, VA	N
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At 18:25 on April 9, 2002 H75709 was operating westbound in the siding at the west end of Gordonsville. The switch was lined reverse and the westbound dwarf signal displayed a SLOW CLEAR (G) for the train to leave the siding. The train crew then observed a CLEAR (G/R) signal westbound on the main at the west end of Gordonsville. This signal should have been at STOP. H75709 stopped and reported the incident to the dispatcher. The signals were immediately removed from service and signal personnel were dispatched to the location. Upon arrival, Signal Supervisor and team verified this condition. Further investigation revealed foreign battery applied to the H-D line circuits causing the signal on the main to incorrectly indicate CLEAR. The line circuits were opened and the signals in both directions at the west end of Gordonsville were left out of service until repairs completed. Investigation revealed the aerial cable at the West End of Gordonsville junction box showed signs of moisture and corrosion. The affected aerial cable was removed from the junction box and the terminal strips were cleaned. Some of the conductors were cut off and the cable was reterminated. All conductors passed the megging test to ground and the cross megging test. The aerial cable was then restored to the signal system. Operational tests were performed with no exceptions taken. Signals were restored to service.

336	4/30/2002	BNSF	CTC			BNSF 4958	ECII-5K Module	Moorcroft, Wyoming	N
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At approximately 0937 AM MDT eastbound VTACMEM827M-BNSF 1117 reported to dispatcher that intermediate signal 574.6 dropped from APPROACH MEDIUM Flashing Yellow to Red, while following a eastbound. BNSF 1117, after stopping and reporting to dispatcher, proceeded at restrictive speed to intermediate 572.8 which displayed Flashing Yellow, APPROACH MEDIUM and continued eastbound to Moorcroft.

At approximately 1000 AM MDT eastbound XVAWHON927A - BNSF 4958 with 3 units no loads 107 empties 3300 tons, no hardous cars, following the BNSF 1117 reported intermediate signal 574.6 at Flashing Yellow, APPROACH MEDIUM, and as they approached intermediate signal 572.8 which was Yellow, APPROACH, at a distance of approximately 1300 feet it began flashing Yellow at a rate of 25-27 flashes per minute. BNSF 4958 passed intermediate 572.8 at 27 mph and stopped at intermediate 570.8 which was Red, with the BNSF 1117 in advance at approximately 20 car lengths. Crew reported incident to dispatcher at 1005 AM. Dispatcher did not hold the BNSF 1117 nor the BNSF 4958.

Maintainer was called to investigate dropped signal at intermediate 574.6 at 943 AM, Supervisor Signal and Inspector were called at 1010 AM and arrived at approximately 1030 AM. Maintainer arrived at intermediate 574.6 at 1020 AM and Supervisor and Inspector arrived at intermediate 572.8 at 1030 AM.

Signal employees reenacted the train movements of the BNSF 1117 and the BNSF 4958 and determined at intermediate signal 572.8 the Electrocode IIC cabinet was outputting from 3 VDC to 13.4 VDC to the HER relay at a rate of 25-27 fluctuations per minute, while receiving a Code 2 from the intermediate at 570.8. Both the Supervisor and Inspector observed the HER relay releasing and picking, and observed signal 572.8 flashing in correspondence with the HER relay, at a rate of 25-27 flashes per minute. Signal displayed a normal Yellow with 9.0 VDC on the GEM bulb, then a dim Yellow with Approximately 3.9 VDC on the bulb during the release and pickup of the HER relay and did not display Red. 5K Code 2 decoder module was replaced and signal system tested for proper operation.

Suspected bad order 5K module will be sent to manufacturer for inspection and disposition.

Incident occurred on 4 aspect CTC territory with Electrocode IIC coded track circuits, Safetran colorlight signals, and WABCO PN150 relays.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
349	5/5/2002	CSXT	CTC			Q68905	None - Phantom	N.E. Osierfield, Osierfield, GA	N
<p>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.</p>									
338	5/14/2002	BNSF	CTC			KCKOKC 9-14	Flashing Yellow Aspect Control Not Remo	Lebo, Kansas	N
<p>Train crew of KCKOKC 9-14 westbound reported Red over Flashing Yellow aspects while making a crossover move from main 2 to 1 at Ridgeton. The next westbound intermediate signal was Red. Supervisor Lefler reported that the control circuits that produce the Red over Flashing Yellow had not been removed as planned before timetable change. Due to Hours of Service law the crossovers were removed from service for night. May 15, 2002 the Red over Flashing Yellow aspect was removed at Ridgeton and the location was tested with no exceptions.</p>									
690	5/14/2002	CN	CTC			IC 1116	SB Signal, Trk 1, Skip	St. Charles, LA	N
<p>Signal Supervisor was notified at 20:15. M320 train reported a false proceed at Skip. The approach signal to Skip was APPROACH DIVERGING and went to APPROACH then back to APPROACH DIVERGING. The signal aspect at Skip was Red over Flashing Red, then to a DIVERGING CLEAR, and back to Red over Flashing Red. Crew M320 knew that TL James crossover was Red lined against his movement, due to an empty grain train going through to track 2.</p> <p>The Supervisor and Inspectors arrived at Martin Jct. and the signal was Red over Red over Red. They checked for grounds on the battery busses and found a 12mA negative ground on the B12 buss with AC power on, with the AC power off it read 500 mA. They lined the switch on track one for the TL James crossover Red. The Code 2 was lost going to Skip on the EC 4H unit, sending only a Code 1 and 5, but every few seconds the Code 4 would light up and stay on about 6 seconds then drop back out.</p> <p>The ground was on 5RC and 5RA signal head. Any time the 5RALOR relay was down it would not produce a Code 4. If the 5RALOR was up with the 5RCEN or 5RCRE off it would not produce a Code 4. With a switch lined you dropped out the ANWPR which dropped the 1NBPR that took the path away from your reference to Code 4 with the relay down. The negative 12mA ground was making the unit think it needed to send a Code 4 out, which was why the DIVERGING CLEAR was falsely produced at Skip. It should have been a RESTRICTING signal, Red over Flashing Red because TL James crossover was lined Red. The cable to the 5R signal was megged. They found the 5RAEN and 5RCEN grounded. The signal heads were removed and the wires were repaired. They meggered and tested the signal system, and it was placed back in service at 14:30, 5/15/02.</p>									

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692	5/17/2002	AMTK		Automatic			Switch Detector Locking	Chicago, IL	Y
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On May 17, 2002 at approximately 8:30 AM-CT METRA Commuter train 2116 operating in a shoving move with 2 locomotives and 9 cars derailed the lead locomotive at the switch (37-MPF) entering track number nine. There were no injuries to passengers or crew. Investigation determined that the (37-MPF) switch had been thrown normal while the last locomotive was traversing over the switch. Investigation revealed that a 39-foot section of rail located between the N37 switch and the R40 signal had been removed to facilitate the replacement of long switch ties on track two. This rail removal caused the 37-track circuit to be down and the 37 & 39 switches to be detector locked. Engineer C&S revealed that jumpers had been applied bridging contacts in the 37 & 39 switch lock circuit, which disabled the switch locking circuits on the 37 & 39 switches. This condition allowed the train director to throw the 37-switch under the METRA train. This accident caused considerable damage to the interlocking infrastructure (Track & Signal) and on-board equipment which was estimated at \$30,000 cost. Track and signal restoration was completed by 2-PM on Sunday, May 19, 2002. Record of jumper permission was found in [redacted] office per AMT-23, section number eight that indicated that [redacted] authorized the jumper to be applied (copies attached). This accident was caused by an employee failing to follow proper procedures in the application of jumpers, per Amtrak AMT-23 Rules number 300 thru 304 & 407. Rule number 302 reads: "The guiding principle at all times must be that any protection temporarily defeated by the jumper must be provided by some other means until the removal of all jumpers is assured and original protection is restored." Rule number 407 which reads in part "... When necessary to disconnect or impair the function of locks, circuits, or other safeguards in an interlocking, all switches affected must be safely secured before any train or engine is permitted to pass over them..." [redacted] failed to ensure that protective measures were in place. The Division Engineer has indicated to this writer that the events that caused this incident are not normal procedure. He has initiated new procedures for the application of jumpers that require his or [redacted] the Manager C&S authority. He has also scheduled instructional meetings with C&S employees to re-enforce jumper procedures, as well as checking C&S employee AMT-23 & 27 qualifications. He has also discussed discipline against [redacted] (who has accepted full responsibility for this accident), and is requiring [redacted] to meet with all C&S employees to discuss his involvement in this accident. The C&S system office will be issuing an advisory on the use of jumpers and attaching a paper copy of the Electronic Jumper Permission Log currently in use on the Northeast Corridor for distribution to other areas of the Amtrak system.

350	5/17/2002	CSXT	CTC			Q69617	None - Phantom	Monroe, NC	N
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Train Q69617 arrived at Monroe from Charlotte at about 1800 hours. Dispatcher is lined for a mainline move at the north end of Monroe but will put signal to STOP and route Q69617 NB out of the siding onto #1 track. The Engineer on Q29217 states he called the signal as a SLOW CLEAR and as he approached the switch it was lined for main so he stopped train and reported incident to the train dispatcher. Signals were removed from service and signal personnel dispatched to the site. Investigation revealed that the signal was working as intended and the SLOW CLEAR aspect was due to interference from the sun and was verified as a phantom aspect. Individual hoods were installed on the affected signal and phantom reducing screens were installed. After this mitigating action the signal was rechecked under similar conditions and now exhibits no exceptions. We are reporting this event but we do not consider this to be a false proceed.

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339	5/20/2002	BNSF	CTC			Unknown	CPL	Stockton, CA	N
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WB train (ID unknown) reported 2W signal at MP 1120.7 displayed Red/Green indication for route through #1 crossover UP Diamond into Red 77LB signal MP 1122.2 at West Stockton. Signal Maintainer was notified at 14:05 and confirmed aspect at 15:44. Signal Construction Supervisor was notified immediately and Maintainer was instructed to protect the route by spiking and clamping the #1 crossover in the normal position, open battery to the switch motors and to notify the Dispatcher that the crossover was out of service until investigation could be completed. Investigation revealed cause to be failure of cable conductor insulation and shorting of B10 to 77LBHDP circuits in ground mounted junction box at West Stockton.

Previously Dwarf Signal 77LB had been run over and destroyed by loader replacing switch panel at West Stockton. Signal had been replaced by Construction Gang. Cross and Ground, Color tests and appropriate locking tests had been performed by Signal Inspector with assistance, and all tests completed with no exceptions noted.

Upon further investigation, it was determined that the ground mounted junction box had also been driven over by the loader and had broken at the connection to the riser box, below ground level. This damage was not visible under normal inspection. The cable conductors that shorted were stretched across the break and the stress on the conductors had gone undetected during re-installation and testing of the signal.

Corrective action: Junction box was replaced, B10 and 77LBHDP circuits were moved to spare conductors within the cable, appropriate tests were made to assure system was working as intended, crossover #1 at UP Diamond was put back in service at 11:30 AM 05/21/02.

691	5/27/2002	KCS	CTC			KCS 685	Vandalism	Watts, OK	N
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At approximately 23:25hrs on 05/27/02, train 108227 (#82), with Engineer and Conductor, with a consist of 51 loads, 17 empties, 6532 tons and 4251 feet, with engines KCS 4509, KCS 669 and BNSF 9873 was traveling northbound on the main track at North Watts, Mile Post 234.30 on the Heavener Subdivision, Mid Continent Division. As the train approached North Watts the crew reported that the northbound main line signal and the trailing signal out of the siding were both displaying a CLEAR (Green). Upon investigation of the report by the Signal Supervisor, it was discovered that the SA mechanism in the trailing siding signal had been vandalized, shot by a rifle, which caused debris to hang the mechanism in a position to cause it to display a Green.

Please see attached Call Desk trouble ticket, a statement of facts from [redacted], a train report and a Station report for North Watts.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
359	5/30/2002	NS	CTC			560C329	Human Error	CP-207, Elyria, OH	N
<p>On Thursday, May 30, 2002 at 11:00 a.m., Dearborn Division train 560C329, lead unit NS 9451, westbound on track 2 at MP-CD205.7, reported intermediate signal 205-2W to display a CLEAR aspect for its movement. This signal should have displayed an APPROACH aspect due to the next signal, the 2W home signal at CP-207, displaying a STOP aspect account train 15JB129 ahead in the block.</p> <p>Train 560C329 was aware of a train ahead in the block and therefore stopped short of the 2W signal at CP-207.</p> <p>Investigation revealed that a signal testman was performing relay testing at CP-207 at the time of the incident. The maintainer performed testing on the 2WAHR relay during the time that train 15JB129 was in the block, which involved false battery being applied to this relay. Testing on this relay had been performed without obtaining the proper track time authority, and without appropriate measures taken to insure safety of train movements.</p> <p>Dispatcher logs indicate that the 2W home signal displayed a permissive aspect without being requested, and remained in that state for 41 seconds. Tests after the incident proved that the 205-2W signal would display a CLEAR aspect when false battery was applied to the 2WAHR relay at CP-207.</p> <p>The signal system was tested for proper operation and restored to normal service at 2:00 p.m.</p>									
340	6/2/2002	BNSF	CTC			ZKCKLAC1-01	None	Clovis, NM	N
<p>On June 2, 2002 at approximately 12:05 MT the KCKLAC1-01A train reported to the Assistant Trainmaster and the Dispatcher that they had a DIVERGING CLEAR aspect at control point Clovis, MP 657.6 on Main Track 2 with seven cars from the eastbound QLACAUG1-31B in the fouling section of the turnout into the South Siding switch off of Main 2. The Signal Supervisor was called and arrived on the scene and observed a false proceed condition. Upon investigation the Signal Supervisor discovered that the 3BXTR track relay which is used to detect trains in the fouling section South Siding switch was in the inverse position. The relay was placed in the proper position and signal changed from DIVERGING CLEAR aspect to STOP aspect.</p> <p>Trains were cleared from the area for signal testing per dispatcher instruction through the control point. When tracks were cleared, track and time was obtained from the dispatcher and all track circuits in the plant were tested and verified to be working as intended. In addition, all routes through the plant were also tested with no exceptions found. After tests were completed the track and time to the dispatcher was released and the control point at Clovis was returned to service.</p>									
695	6/15/2002	FEC	CTC			415, Train #10115	Grounded Cable	Delray Beach, Florida	N
<p>See attached report dated June 21, 2002. [no report attached]</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
696	6/18/2002	CP		Remote		CSXT 7911	CL	Portage, WI	N
<p>After changing the outer clear plastic lens to a glass outer clear lens, the signal maintainer failed to secure the lunar CL head. Train 614 (CSXT 7911) was on the siding at Portage Jct. The train was about 10 cars west of 2EA signal when they observed what they thought to be a DIVERGING CLEAR aspect. Train 614 passed the signal and stopped short of a power switch lined against them.</p> <p>We are reviewing FRA Rule 236.3 (locking of signal apparatus housings) with all concerned.</p>									
693	6/20/2002	KCS	CTC			KCS 685		Monticello, TX	N
<p>At approximately 11:45hrs on 06/20/02, train #060819 (INSATLA), with Engineer and Conductor and a consist of 24 loads, 0 empties, 6233 tons and 5685 feet, with engines ATSF 0693 and BNSF 4885 was traveling westward on the main track at East Monticello, Mile Post 101.0 on the Greenville Subdivision, Transcontinental Division, where he received a CLEAR (Green) aspect to proceed westward. As the train approached West Monticello, Mile Post 102.4, the crew reported that the westbound main line signal was Dark. Upon investigation of the report by the Signal Inspector, who also witnessed the Dark signal, it was discovered that there was a back nut behind the EN battery strap that was loose. [redacted] had been wiring in a recorder at this location when he was notified to give up his track authority and clear for a train.</p> <p>Please see attached Call Desk trouble ticket, and a Train report for the train affected.</p>									
694	6/21/2002	CN	AB			IC 6124	Signal 415.4	Gramercy, LA	N
<p>IC train 316 on June 21, 2002 reported a false aspect at signal 415.4, Gramercy LA, Baton Rouge Subdivision. The switcher was shoving cars in the north end of Mt. Airy siding. When the switcher cleared the switch and was in the fouling section, the switch was then lined back for the main and signal 415.4 went to Green. Upon arrival the Inspector found both 15' fouling wires broken. The fouling wires were repaired. The signals, fouling and switch circuit were tested.</p>									
697	7/2/2002	CP		Manual		730 Transfer	Sig. 5EA/5EB	Milwaukee, WI	N
<p>Switch engine (730 Transfer) with Engineer [redacted] and Conductor [redacted] sitting on #3 track at Merrill Park just west of the EB absolute signal (5EB) governing movement into Cutoff Interlocking. The crew requested the signal (5EB) to proceed east from Merrill Park #3 track with the hand throw switch lined for their route into Cutoff Interlocking. The signal (5EA) governing movement from Merrill Park #2 track into Cutoff Interlocking cleared which is not correct. When the hand throw switch is lined reverse, the signal (5EA) governing movement from Merrill Park #2 should clear when requested. When the hand throw switch is lined normal, the signal (5EB) governing movement off Merrill Park #3 should clear when requested.</p> <p>It was found that the switch circuit controller on the hand throw switch for Merrill Park #2 and #3 tracks was adjusted incorrectly causing the wrong signal to clear.</p> <p>A formal investigation is scheduled to determine facts and place responsibility for this incident.</p>									

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698	7/6/2002	CN	AB			CN 2528	CLS-20	Greendale, IL	N
<p>A southbound train, CN2528 was holding in siding at South Greendale, a spring switch Electrocode style end-of-siding. As a northbound train approached South Greendale, the train crew on CN2528 observed the signal on the southbound trailing main, which should have been displaying Red was displaying a Yellow. The Signal Supervisor was notified and South Greendale was removed from service. While investigating the southbound absolute signal on the trailing main track, it was discovered that mice had been in the signal mast. They had eaten away the insulation on the pullman light wires and the red wire had deteriorated and the yellow light wire shorted to the remains of the red causing the yellow to illuminate instead of the red. The pullman wire was replaced, the signal mast was re-sealed to keep the mice out, and the signal location was tested and placed back in service.</p>									
365	7/19/2002	UP	AB			NS 8971	None	Fairbanks, TX	N
<p>On July 17, 2002 at 08:30 CDT, at Fairbanks, TX on the Eureka Subdivision, northbound MHOFW 19, on the main track at MP 7.60, reported that the northbound signal at MP 6.70 was Green, and the next northbound signal at MP 7.6 was Red.</p> <p>An investigation revealed that a line wrap which caused the signal at MP 6.70 to be Green rather than Yellow.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
351	8/14/2002	CSXT	CTC			K650-13	Relay	St. Stephen, NC	N
<p>At 0630 on August 14, 2002, train crew report on K65013 while operating northbound on the single main track to #2 track over a reversed switch, observed and reported a CLEAR indication (Green) at the intermediate signal MP A355 and a LIMITED CLEAR (Red over Flashing Green) at South St. Stephen when the intermediate signal should have displayed an APPROACH LIMITED (Yellow over Flashing Green). The signals were removed from service at 0645 and a team was dispatched to the site to investigate this event. Investigation revealed that the RHHR relay, a DN-11 style shelf relay, had vibrated off the shelf and was found inverted, hanging by the wires in the equipment house at St. Stephen which caused a signal to be displayed at the intermediate signal indicating better than conditions warranted. The relay was up righted and an anti-vibration assembly was installed. Complete operational tests were performed with no exceptions taken. Signals were restored to service at 1100 on 8/14/02.</p>									
352	8/15/2002	CSXT	CTC			Q579-14	None - Phantom	S.E. Hurricane, Bay Minette, AL	N
<p>At 8:40 AM on August 15, 2002, southbound Q579-14 reported a MEDIUM APPROACH from siding to main track at the South End of Hurricane (Red/Yellow) while the switch was lined for the main track at the South End of Hurricane. Signals were removed from service and Train Control personnel conducted an investigation revealed that the 59C Dwarf Signal appeared sunlit. 18 inch hoods and a vandal proof cover were installed. Signals were restored to service on 8-16-02. 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 System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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700	8/22/2002	MRL	CTC			BNSF 5447	Switch Machine	Reed Point, MT	Y
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On August 22, 2002 at approximately 10:29 hours, eastward train UP 4978, train symbol ESPBDKM029, derailed 3 locomotives and 16 cars at West Reed Point. Engineer on train ESPBDKM029 reported that he observed the eastward absolute signal at West Reed Point as displaying a Green over Red aspect with the switch points for the West Siding Switch open. Train ESPBDKM029 split the switch and derailed 3 locomotives and 16 cars.

Preliminary investigation by Signal Department personnel revealed the absolute signal at West Reed Point was displaying a Green over Red aspect with the switch points open as reported by the Engineer on train ESPBDKM029. At the time the derailment occurred, the point detector rods was broken and the switch was indicating in the normal position with the switch points gapped open along with bent switch rods.

Signal Department personnel revealed the cause of the failure to be a combination of a broken point detector rod, a missing wear plate under the lock rod on the field side of the GRS Model 5D switch machine and wear under the lock rod on the field side of the switch machine frame. The wear plate was found in the bottom of the switch machine with a broken pin that secures the wear plate in place under the lock rod on the switch machine frame.

The missing wear plate which was 0.093" thick and 0.028" wear on the frame of the switch machine permitted the lock rod to sit 0.121" lower in the switch machine than normal. This resulted in permitting the point detector yoke to move an additional 1/16" before resting on top of the lock rod clips. This was enough movement to permit the point detector to indicate in the normal position with the switch points in the reverse position.

Furthermore, it was determined that the west siding switch had been run through by two westbound trains prior to the derailment. Westward train BNSF 5447, train symbol VKCMTAC820 ran through the switch at approximately 7:42 hours. At this time the switch points were lined for the reverse position and indicating in the normal position. Westbound train BNSF 4398, train symbol HKCKPAS119 also ran through the switch at approximately 7:56 hours. Both trains were on the Main Track and the westward signal for the Mian Track at West Reed Point displayed a Green signal aspect for both trains. Neither train crew reported a signal failure at West Reed Point prior to the derailment. The train crew on train VKCMTAC820 did notify the Dispatcher after hearing about the derailment and reporting that they thought the switch was lined against them at West Reed Point but they were not positive so they didn't file a report.

Signal Department personnel replaced the switch machine at West Reed Point and have checked the wear plates and performed a switch point integrity test on all power operated switch machines on Montana Rail Link.

699	8/24/2002	CN	APB			Rail Grinder	Signal 2EA	Round Lake Beach, IL	N
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On Sat. Aug. 24, 2002 at Round Lake Beach, IL at 1845 a false proceed signal was observed by the crew on the Railgrinder.

The Rail Grinder on the #2 Main had a CLEAR signal for the #2 Main (Signal 2EB lined to converge). The switch was lined reverse for a move from #2 Main to Main Track. The rail grinder observed that the SB signal on #1 Main (Signal 2EA) appeared to be a Flashing Red aspect.

Upon arrival, signal maintainer observed erratic flickering of Red to Dark on signal 2EA.

After investigation supervisor found the plug strip behind lamp module was pushed back and loose from its anchor point. Module plug was secured and module was reseated tightly.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
353	8/30/2002	CSXT	CTC				None - Phantom	S.E. Gorman, Gorman, TN	N
<p>At 10:30 AM 8/30/02, received report of a CLEAR indication (Green over Red) on the S.B. Dwarf signal at the SE Gorman without a signal requested from the Operations Center as verified by the system log. Signal was removed from service and investigated by Train Control. Investigation revealed that the signal appeared to be sunlit. The affected signal head was replaced, operational tested and restored to service. We are reporting this event but we do not consider this to be a false proceed.</p>									
366	8/30/2002	UP	CTC			BNSF 4432	None	Norden, CA	N
<p>On August 30, 2002 at 21:27 PDT, at Norden, CA on the Roseville Subdivision, westbound 1QDVST 27, on track 1 at MP 191.20, reported that the westbound absolute signal was Red over Green, with the crossover switch on track 1 lined normal and the crossover switch on track 2 lined reverse.</p> <p>An investigation revealed wiring errors in the crossover switch on track 1.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
367	9/3/2002	UP	CTC			CNW 8817	None	Platteville, CO	N
<p>On August 30, 2002 at 21:27 MDT, at Plattville, CO on the Greeley Subdivision, southbound CCSBR1-31, on the siding at MP 33.80, reported that the signal out of the siding at CP W034 went Green and then Red with the main track south occupied.</p> <p>An investigation revealed the train occupying the main track south of CPW034 was a single 4 axle locomotive, and that the CTC log had recorded a momentary loss of shunt.</p> <p>All applicable tests were performed.</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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701	9/6/2002	CP	CTC			SOO 2032W	Insulated Joints	Brooten, MN	N
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About 1330 on September 6, 2002, Engineer [redacted] told the S&C Supervisor [redacted] at Glenwood that there may be a problem with the signal at MP 104.5 near the West House Track at Brooten, MN. Engineer [redacted] stated they stopped with a westbound wayfreight on September 1, 2002 about 1600 east of signal 104.5, cut off their train with 3 engines and two cars then proceeded west to the west house track switch. They reversed the switch and backed into the house track far enough to set out the cars and thought the signal 104.5 appeared to display a CLEAR aspect with the house track switch lined reverse.

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

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

Cause of failure was due to insulated joints shorted.

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

360	9/19/2002	NS	CTC			NS 6645	Timer	Fayette, KY	N
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On Thursday, September 19, 2002 at 9:01 a.m., Central Division train #215, lead unit NS 6645, proceeding southbound on track 2 at Fayette, KY, observed the home signal at Fayette Control Point MP 79.6 changing aspects from APPROACH to CLEAR, to ADVANCE APPROACH and then to APPROACH DIVERGING. The correct sequence should have been from APPROACH to APPROACH DIVERGING.

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

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

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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341	9/23/2002	BNSF	CTC			P-PHXCHII-21A	None	Ft. Madison, IA	N
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Train P-PHXCHII-21A was following train Z-ALTWSP2-22B operating eastbound on Main Track 2 and crossing over to Main Track 1. Eastbound absolute signal at West Ft. Madison was lined to make a follow-up move from Main Track 2 to Main Track 1 behind the Z-ALTWSP2-22B. Crew reported that the eastbound absolute signal displayed a DIVERGING CLEAR aspect. The eastbound absolute signal should have displayed an APPROACH DIVERGING due to the Z-ALTWSP2-22B occupying the block east of the automatic signal at MP 235.

Signal Department employees were dispatched to the locations. Data logs were retrieved and reviewed, operational tests were conducted, and eastbound absolute signal for this route was lined with no exception being taken. Battery grounds and cross battery test were performed. Signal system worked as intended.

Follow-up testing continued on September 24, 2002. During this testing the report from the train crew was confirmed. The false proceed was caused by an engineering design error. Circuit modifications were made to correct the problem and the signal system tested with no further exceptions.

354	10/4/2002	CSXT		Automatic		NS-B46	Wiring	Warsaw Crossing At Grade, Warsaw, IN	N
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At approximately 03:15 on October 4, 2002 the southbound train NS-B46 traveled across the Warsaw Interlocker (Railroad Crossing at Grade) in Warsaw, IN. The NS-B46 proceeded south into the siding at CP 33 (Claypool). The southbound train NS-175 followed the NS-B46 across the Warsaw Interlocker. The crew of the southbound NS-175 reported that they had received a CLEAR indication at the Warsaw Interlocker and a STOP indication at Signal 30 with the NS-B46 ahead. The Warsaw Interlocker was removed from service and Norfolk Southern signal personnel were dispatched. Norfolk Southern signal personnel contacted CSX signal personnel at 07:45. The Norfolk Southern signal personnel was able to re-create the False Proceed signal through standard field testing procedures. During the investigation it was discovered that a Code Following Relay with Frequency Decoding Contacts (STPAR) had the negative control wire for the relay device (SBDR) that supplies battery to the 4S signal on the number 4 (four) contact when it should have been on the number 1 (one) contact. The number 4 (four) contact is a non-tuned contact that follows the working action of the relay. The number 1 (one) contact is a tuned contact that follows the working action of the relay only when the action reaches a minimum of 115 code cycles through a maximum of 125 code cycles. The use of the number 4 (four) contact supplied battery to the SBDR. Further investigation revealed that the circuit plans for the location show that the wire was designed to be on the number 1 (one) contact on the STPAR and the condition was corrected. The appropriate tests were made and the Warsaw Interlocker was returned to service.

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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702	10/5/2002	LI		Manual		NA	Track Stick Relay (13TS)	Queens Interlocking, Queens, New York	N
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Sequence of events: On Saturday, October 5, 2002 at 8:25am the Block Operator at Queens Tower reported that the indication for 12R signal at Queens Interlocking remained lit after the passage of eastbound train #6710 on track 4. Block Operator was able to restore 12R lever to the center position and cancel signal. A restriction was immediately placed on the affected track and route. Signal personnel were immediately dispatched to the interlocking.

Failure cause: Upon arrival at the location, signal personnel simulated the train move. The route was 12R to 12L with 13, 21 & 23 switches normal. The simulated move included, displaying 12R signal, then shunting the track circuit in advance of the signal (4TR), then the tripping track circuit (13TR) and finally the leaving track circuit 12TR. While shunting the 13TR track circuit, signal personnel observed that aspect on 12R signal remained displayed at CLEAR. Further investigation determined that the 13TS (Track Stick) relay was falsely energized while the 13TM (Track Repeater) was de-energized. This caused the signal to remain at CLEAR.

The cause of the 13TS relay failure was found to be a grounded wire (13TS1) on the positive control. The wire ground measured 10mA and 12VDC. The 13TS relay is energized through a single broken circuit with common always on the relay.

Repair & testing: The wire was immediately replaced and the ground was removed. The train move/route was re-simulated and found to be working properly. In addition, all wires in similar single break circuits were replaced.

Recommendations: Due to this failure we are inspecting other interlockings that have similar single broken circuits for the same possible wire problems.

368	10/8/2002	UP	CTC		ATC	METX 159	None	West Chicago, IL	N
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On October 08, 2002 at 18:30 CDT, in West Chicago, IL on the Geneva Subdivision, westbound METX 159, on track 3 at MP 28.50, reported that he received a CLEAR ATC cab signal after he had passed a Yellow westbound signal at Y028.

An investigation revealed a design error. The Electrocode program of a new cut section located 1200 feet west of MP 28.50 applied ATC energy to the rails east, when receiving Code 4 from the rails west. When passing the Yellow signal the train should have received no ATC energy.

The cut section was removed, pending redesign, and all applicable tests were performed.

355	10/11/2002	CSXT	AB			Q416-09	S8PT Connectors	W.E. Space Center, Lordstown, OH	N
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On October 11, 2002 at 6:00 AM the Q416-09 approached intermediate signal W90.41, displaying a CLEAR signal and stopped east of the signal, made a cut on Q416-09 to pick up cars at the West End Space Center, Goodman Yard. The train crew went west of intermediate signal W90.41 and observed that the signal indication changed to RESTRICTED PROCEED. The crew went west of the trailing point switch, threw the switch reverse and entered the West End Space Center. The switch was left open while working and upon clearing the fouling circuit, train crew reported that the W90.41 signal indicated CLEAR. When the train crew came back out onto the fouling circuit, W90.41 signal indicated RESTRICTED PROCEED. The train crew tied back onto their train, restored the switch normal and proceeded west with permission. Signals were removed from service and signal personnel dispatched to the site. Investigation revealed that corroded track connections from the circuit controller to the rail were the cause of the false proceed signal. All track connections from the circuit controller to the rail were renewed and a new switch circuit controller installed. Full operational tests were performed and the signals were restored to service.

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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342	10/30/2002	BNSF	CTC			L-CHI0081-30A	None	Ethel, MO	N
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Train L-CHI0081-30A light power, was following train Z-WSPSBD9-30B operating westbound on Main Track 1. Westbound absolute signal at West Ethel was lined to make a follow-up move for the L-CHI0081-30A. The crew operating the L-CHI0081-30A reported that the westbound absolute signal at West Ethel displayed an APPROACH aspect. The westbound absolute signal should have displayed a STOP aspect due to the Z-WSPSBD9-30B occupying the block between West Ethel and the intermediate signal at MP 333.2. The crew stopped their train at MP 332.6, which is approximately 0.5 mile from the rear of the train ahead.

Signal department employees were dispatched to the location. Operational tests were conducted to simulate the train movements and events. The tests confirmed the report by the crew on the L-CHI0081-30A.

The false proceed was caused by an engineering design error. The design error was not detected in signal service testing. Circuit modifications were made to correct the problem and the signal system was tested with no further exceptions being taken.

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

369	11/4/2002	UP	CTC			UP 4598	None	Lehi, UT	N
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On November 4, 2002 at 16:30 CDT, in Lehi, UT on the Provo Subdivision, westbound MWCOG-01, on the main track at MP 721.30, reported that the westbound absolute signal at West Mesa was Flashing Red into a "Track and Time" permit.

An investigation revealed a circuit error that permitted the Red indication to flash without the signal being requested.

The circuit error was corrected, and all applicable tests were performed.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking Systems	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
370	11/6/2002	UP	AB			UP 4357	None	Toyah, TX	N
<p>On November 06, 2002 at 11:16 CDT, in Toyah, TX on the Toyah Subdivision, westbound 1ZNSLC-04, on the main track at mile post 665.1, reported that the westbound absolute signal at the east end of Toyah was Green, with the hand throw switch at the west end of Toyah in the reverse position.</p> <p>An investigation revealed a circuit error. The normal switch relay for the east end of Toyah was not breaking the HD control for the westbound signal at the west end of Toyah.</p> <p>The circuit error was corrected, and all applicable tests were performed.</p>									
371	11/9/2002	UP	CTC			AMTK 451	None	Oakland, CA	N
<p>On November 09, 2002 at 09:40 PDT, in Oakland, CA on the Niles Subdivision, southbound AMT714.09, on the main track at mile post 6.40, reported that the southbound signal at N1006 was Red while they were approaching it, and when they were about 30 feet from the signal, it turned Yellow.</p> <p>An investigation revealed the door to the signal head was slightly opened, which allowed sunlight to make the Red signal look Yellow at approximately 30 feet from the signal.</p> <p>The condition was corrected, and all applicable tests were performed.</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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703	11/15/2002	CN	CTC			CN5427	Absolute Signal 10E	Port Huron, MI	N
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Mouse had built a nest in the red unit of a colorlight signal and had eaten the insulation off of the wires supplying energy to the bulbs in the red and yellow lenses. The nest pushed these wires into contact with each other causing the bulb in the yellow lens to light. This produced a R/Y aspect even though the dispatcher did not request the signal.

The nest was removed, the wires replaced, signal mast sealed to prevent further intrusion. Signal cables were meggered and found to be above 500k ohms. Proper operation of the signal was confirmed with route and aspect testing to ensure that correct aspects were displayed and were upgraded as intended.

(see attached letter to Brian Eisel for further details)

[Following text from letter to Brian Eisel, RR Safety Inspector, Signal & Train Control, FRA:]

On Friday, November 15, 2002 at 0836 hours, CN train #380 received a PROCEED indication more favorable than intended at signal 10E, Tappan Interlocking, MP 332.20, Flint S/D. Train #380 was a northward train on the Mt. Clemens Subdivision. Its destination was into track #1 at Port Huron.

Train #380 approached signal 10E and accepted a signal that displayed a R/Y indication. The Troy dispatcher (TD3) had not issued a control to clear the signal for this movement.

The incident was reported to the Signal Department around 0930 hours. Replays of the event were made from both the Toronto and Troy RTC computer equipment. Signal Department personnel arrived at Tappan at 1200 hours.

Upon investigation by the Signal Department the signal displayed a R/Dark. This is a colorlight signal. The signal foreman working on this investigation climbed the signal and removed the back cover and found that a mouse had recently built a nest in the red lens housing which obscured the visibility of the bulb shining through the red lens.

He then discovered that the mouse had eaten the insulation off of the light wires that provided battery power to the bulbs in the red and yellow lenses and that they were in such close proximity to each other that the slightest movement touched them together and both bulbs would light.

Both of these wires showed abrasion in the areas where they could touch indicating that they had been making contact. These facts indicated that train #380 did receive an indication more favorable than intended.

No other trains passed this signal in this condition. Repairs were made by the signal inspector and foreman by 1600 hours. The signal was tested and placed back in service around 1800 hours. Further testing was conducted and concluded by 2000 hours. Testing that was performed insured that the proper aspects were displayed for all the routes that this signal governed, and that the correct signal upgrade was made as intended.

This activity was observed by FRA Inspector Brian Eisel from beginning to end.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
372	11/17/2002	UP	CTC			MWCEU.16	None	Hotlum, CA	N
<p>On November 17, 2002 at 16:16 PDT, in Hotlum, CA on the Black Butte Subdivision, northbound MWCEU.16, on the main track at mile post 352.85, reported he passed a Green northbound absolute signal at North Hotlum, and looked back to see the southbound signal was Green.</p> <p>An investigation revealed that the southbound signal mechanism had been damaged by gunfire and jammed in the Green position.</p> <p>The signal mechanism was replaced, and all applicable tests were performed.</p>									
704	11/19/2002	SEPA	AB				Track Relay	Automatic Signal 330, Pennbrook, PA	N
<p>Vandalized relay case caused weather conditions to fail relay. See attached report from Foreman.</p> <p>[following is the entire text of the attached report]</p> <p>This morning at 6:30 AM signal maintainer [redacted] received a trouble report from the C&S desk that automatic signal 330 was reported dark. This signal is on SEPTA's main line just south of Pennbrook Station.</p> <p>[redacted] proved the signal lamp to be good and noticed that the AR relay was up with a train in the approach block. As a precaution the maintainer set automatic 330 to STOP AND PROCEED.</p> <p>The cut section case in automatic 330's block was vandalized. A solid shunt was applied across the rails at the relay end of 330AT circuit and the track relay did not respond. The track relay remained in the energized position after being physically removed from the relay rack.</p> <p>The state of the relay remained unchanged because it had been exposed to the elements and was covered with ice as a result of the vandalized signal case.</p> <p>Repairs were made to secure the case and the track relay and its repeater were replaced and tested.</p>									
345	11/23/2002	BNSF	CTC			PRICBIRI20A, CSXT	195TR & 195XTR	Memphis, TN	N
<p>At 2235 hours the PRICBIRI20A reported that the southbound signal on Main 1 at South Yale was showing an APPROACH aspect while the CSXT 269 was still fouling the main track. The crew of the CSXT 269 while backing off Main 1 into the yard at South Yale reported seeing the switch throw back normal while they were still occupying the circuit. Signal Supervisor and two Signal Maintainers responded to investigate. The Signal Supervisor and Maintainers found that they could not open the left door to the instrument case that housed the relays for this location. Damage was discovered at the bottom front corner of the relay case. Upon opening the right door and looking down the shelves, they observed three relays lying on their backs. The 194 RTR, 195 TR, and the 195 XTR were turned on their back. The relays were placed in their normal position and tested for proper shunting. Further testing was performed to confirm the proper operation of the 195 switch and 194L signal with no exceptions taken. It is believed that whatever damaged the instrument case caused the relays to be knocked out of their normal position on the relay shelf.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
344	11/26/2002	BNSF	AB			VMCISBD8-25	None	Coal City, Illinois	N
<p>Train crew on westbound VMCISBD8-25 allege that they went by automatic signal 511 which displayed a Green aspect, then observed the next signal, 541, displaying a Red aspect, which then upgraded to Yellow and then Flashing Yellow. Signal 511 should have displayed a Yellow aspect due to a train ahead. Signal department employees responded and performed tests to simulate the position of the trains involved, with no exceptions taken to the aspects displayed by signal 511. Further testing was conducted including cross and grounds, electrical tests of all relays, shunting sensitivity tests of track circuits and megger tests of all cables. Visual inspections were performed of all junction boxes and the poleline with no exceptions. The internal wiring in the signal mast at signal 541 was removed for visual inspection with no exceptions taken. At the conclusion of all tests, inspections and shunting, no exception to the operation of the signal system was taken.</p>									
361	11/29/2002	NS	CTC			NS 9361	PSO Coupler	Bellevue, OH	N
<p>On November 29, 2002 at 9:15 p.m., train LB 28, lead unit NS 9361, while approaching the eastbound signal at Bragg Rd., MP B-246, observed signal to be RESTRICTING. When train LB 28 was seven (7) car lengths from the signal, it upgraded to an APPROACH for less than a second, then dropped to STOP. Train was stopped four (4) car lengths from the signal. Train 403 was proceeding east in the block ahead of LB 28.</p> <p>C&S investigation determined that a Phase Shift Overlay (PSO) rail to line coupler was discharging enough voltage on the signal control line circuit to energize the R222 HD relay causing the signal to display an APPROACH signal for a second and cancelling the stick circuit causing signal to drop to STOP. The phase shift overlay is superimposed on the signal control line wire and the coupler discharged into the relay after the track circuit was energized. This overlay circuit was not in service at this time.</p> <p>Manufacturer is testing coupler and their use in this application. The PSO will be moved to spare wires and vendor is reviewing its application.</p>									
373	11/29/2002	UP	CTC			UP 6573	None	Wellington, UT	N
<p>On November 29, 2002 at 10:02 MST, in Wellington, UT on the Green River Subdivision, eastbound CCSWE-25, on the main track at mile post 613.50, reported that the eastbound signal at West Wellington cycled from Flashing Yellow to Green with a westbound train entering the siding at East Wash.</p> <p>An investigation revealed that the point detector on the power switch at East Wash was failing intermittently as the westbound train passed over the reverse switch, causing the main track HD line circuit feeding west to pump. The existing circuitry at West Wash/East Wellington pole changed the HD circuit feeding west in response to this pumping action, resulting in a Green aspect at West Wellington.</p> <p>The circuits at West Wash/East Wellington were revised to prevent a reoccurrence of this failure. All applicable tests were performed.</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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362	12/5/2002	NS	CTC			NS 9515	Thermal Timer Relay	Reid, KY	N
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On Thursday, December 5, 2002 at 2:30 p.m., train #230, lead unit NS 9515, reported the northbound automatic signal at MP 356 changing from APPROACH to CLEAR prior to passing the signal. The next signal at Reid, Control Point MP 32.0 was a DIVERGING CLEAR into number two track. The correct aspect for the signal at 35.4 would have been APPROACH to APPROACH DIVERGING.

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

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

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

364	12/16/2002	NS	CTC			P40	Signal Circuits	Kannapolis, NC	N
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At 7:50 a.m., December 16, 2002, southbound train P40 observed the northbound 339.8 intermediate signal, as his southbound train passed the adjacent southbound proceed signal at the 339.9 intermediate signal location.

P40's train had passed the 339.9 southbound signal by approximately 3 - 4 car lengths, as Engineer observed an APPROACH DIVERGING (Y/G) signal at the adjacent northbound 339.8 intermediate signal. At this time, P40 still occupied the track circuit north of the 339.8 northbound signal with approximately 1/2 mile of train. The APPROACH DIVERGING signal was displayed for 3-4 seconds before displaying a RESTRICTING signal (R/R with number plate). The signal remained RESTRICTING until P40 Engineer could no longer observe the 339.8 signal.

C&S personnel investigated and were able to duplicate the signal as observed by Engineer. Investigation found shorted blocking diodes in a trackcode isolation unit located at the 339.8 signal location along with excessive current on the track circuit. The current limiting diodes shorted in the isolation unit allowed the track relay to pick up from the kick back circuit generated by the inductor magnetic field collapse. The track relay followed the code being generated for a following move due to the stick circuit being energized. The code following track relay allowed the BD relay to energize and display the northbound APPROACH DIVERGING aspect. Track circuit current levels were adjusted, the isolation unit was changed out and the signal system tested. Returned to service at 3:30 p.m. on 12/16/02.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
363	12/17/2002	NS	CTC			908P217	Relay Circuit	Burlington, NC	N
<p>At 12:01 p.m. on 12/17/02, train 908P217 with engine 5196 handling 1 load 11 empties, passed the westbound STOP signal at control point Merrill, M.P. H23.5. Train passed the STOP signal by approximately 182 feet. Train crew reported to dispatcher that the non-automatic signal at Haw River, NC, M.P. H25.5 displayed a CLEAR aspect. The controlled holdout signal at MP H23.5 displayed a STOP aspect.</p> <p>Investigation of the incident revealed the CLEAR signal indication at the non-automatic signal at MP H25.5 displayed account of improper temporary wiring made by signal personnel during a signal cutover on 12/13/02. The "H" and "D" output of the Electrocode unit were wired together to the coil of the relay used to light the CLEAR aspect, allowing either the "H" or "D" to display the CLEAR.</p> <p>The wire was removed from the "H" output to the relay coil and the system was tested and returned to service at 2:00 p.m. on 12/17/02.</p>									
356	12/20/2002	CSXT	CTC			Y133-20	None - Phantom	CP Woods, Indianapolis, IN	N
<p>At about 1520, the Y133-20, lead engine CSX 2759 and two hoppers, reported a SLOW APPROACH at CP Woods while traveling eastbound on yard track "B" in the Chevrolet Transfer Yard. The crew of the Y133-20 questioned the IC dispatcher as to their route, when they were informed to stop their movement due to a signal not being requested at the control point. Signal personnel were dispatched to the scene and upon arrival, found the #2E-2 signal displaying a STOP indication. The #2E-2 signal is a two position color light signal that had a yellow aspect in the "A" head and a red aspect in the "B" head. Observations made 20 feet away from the signal found a faint yellow aspect visible and a red aspect displayed in "B" position with no signal requested. Further inspection revealed that vandals had damaged the outer lenses of the yellow and red aspects. All ground and cable integrity tested within FRA specifications. Lamp voltages on the red and yellow lamps were 9.5V, with no voltage/current evident on the yellow aspect circuitry with the signal at STOP. With the signal requested, depending on the route, either a Yellow/Red or a Yellow aspect illuminates. All routes were lined displaying the correct aspects. This signal displays only SLOW APPROACH, RESTRICTING or a STOP indication. The diagnostic logs from the Indianapolis Dispatching Center confirmed that the signal was not requested. Replaced the vandalized lenses, installed longer hoods and returned the signal to operation. We are reporting this event but we do not consider this to be a false proceed.</p>									
374	12/22/2002	UP	AB			AMT510	None	North King City, CA	N
<p>On December 22, 2002 at 23:19 CST, in North King City, CA, on the Coast Subdivision, southbound AMT11-20, on the main track at milepost 157.80, reported the southbound signal at MP 157.8 displayed a Green aspect and the next southbound signal at MP 159.20 displayed a Red aspect.</p> <p>An investigation revealed the HD line north, the HD line south, and the Common were wrapped at MP 159.2.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									

No. of Reports Shown in this Listing: **57**