



# IronWood Technologies

Railroad Accident Reconstruction

## Federal Railroad Administration

### False Proceed Signal Database

January 1, 1995 through May 3, 2004

All Reports - Cause: Human Error - Signal Circuit Design Error, Inadequate Service Testing

Report #	Date	Reporting Carrier	Block System	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<a href="#">23</a>	1/25/1995	NS	CTC			2540	Design	New Bohemia (Poe), VA	N
<p>Train No. 821, traveling westbound on the Eastbound Main reported a CLEAR signal indication at Milepost N-73.5 and then encountered a RESTRICTED indication at Milepost N-75.7.</p> <p>Signal personnel investigated and determined that the RESTRICTED signal was due to a line wire wrap at Milepost N-77.1 which shorted out the coils of the ZTPA relay at the N-75.7 signal. A design deficiency was responsible for fact that the singular failure of the ZTPA relay did not result in an HD pole change to the signal at Milepost N-73.5.</p> <p>The problem was corrected by circuit changes and by correcting the line wrap condition.</p>									
<a href="#">459</a>	2/9/1995	CR	CTC			Train ML420, Engin	Signal 254S	Northlumberland, PA	N
<p>Engineer on train ML420 reported that signal 254S displayed APPROACH. The aspect then upgraded to APPROACH MEDIUM several times before passing the signal with 76L signal at Norry at STOP. Cause was due to contact bounce of the 76LBR relay. 76LBFR relay was removed from service, circuit design corrected, signal system tested and returned to service.</p>									
<a href="#">464</a>	3/2/1995	AMTK		Remote		3837	Signal 10R	San Francisco, CA	N
<p>On March 2, 1995 the C&amp;S Department in San Jose, CA was notified of a non conforming signal on the 10R signal at Portrero Interlocking in San Francisco, CA. The report stated that the engineman of Southern Pacific 3837 received a Yellow over Dark (APPROACH) in lieu of a Red over Green (DIVERGING CLEAR) when he made a diverging move over number eleven switch reverse at Portrero Interlocking. Investigation revealed that the original 1959 signal design by Southern Pacific allowed movement against current of traffic on number one track without checking the position of the switches permitting movement against current of traffic. This permitted an APPROACH aspect to be displayed with number eleven switch reverse in lieu of a diverging signal. The circuit has been disabled pending redesign, and all aspects have been checked and the signal system now functions properly.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
466	3/11/1995	ATSF	CTC			79	Trap Ckt	Kansas City, MO	N
<p>Approximately 9:30 PM, March 11, 1995, Traffic Control Operator tried to clear westbound signal (54R) BN crossing over the 63 switch reverse. Then stacked a route to clear the eastbound signal (54LA) over the 63 switch normal. Signal (54R) would not clear and the GWRR switch engine was authorized to flag the Red (54R) signal. While the GWRR switch engine was flagging over dead section of the BN crossing frog, the 63 switch moved to normal position. Investigation by Signal Department determined the 53 trap circuit is not effective unless signal is cleared over the crossing frog dead section. As a temporary measure of protection, instructions were issued to the Traffic Control Operators to provide manual protection for similar type switching moves until circuit design changes can be installed that will provide route locking over the crossing frog regardless of position of the control signal.</p>									
467	3/12/1995	ATSF	CTC			876	Circuit Design Error	Barstow, CA	N
<p>Approximately 10:20AM, March 12, 1995, train crew on the S-LBNY5-11 reported eastbound control signal (2RA) West D yard was Green and next signal eastbound control signal (2RA) East D yard was Red. Signal Department was notified of condition reported and since all information of routes that were established at time of reported incident was not made available to the investigating team, the first effort to find reported problem was inconclusive. Further review of circuit plans and with additional information of exact routes established at reported time of incident, the reported signal condition was reproduced. Investigation revealed that a circuit design error was the cause of the reported incident. Recent circuit design change to provide compliance with FRA Rule 236.23 created the false proceed signal condition. Normal in service testing would not detect this condition, because it involved a route not under test. Circuit design error was corrected and signal system was tested to prove proper operation.</p>									
479	4/18/1995	CR	AB			Train UCI-18A, Engi	Signal 29.2	Shire Oaks, PA	N
<p>Engineer on train UCI-18A reported automatic signal 29.2 displayed a CLEAR aspect with 2S at CP Oak displaying Dark over Red. Problem was determined to be incorrect circuit design of the 292TATN and 292TATB track circuit selection through the 2S ALOR. Circuitry was corrected and signal system tested and restored to service.</p> <p>Investigation being conducted to determine responsibility.</p>									
497	7/12/1995	ATSF	CTC			7161	Circuit Design Error	Mykawa, Texas	N
<p>Approximately 10:19 PM, July 12, 1995, train crew on the F-01756-12 reported eastbound control signal (2R) West End Mykawa was CLEAR and the next signal 2RA at East End Mykawa was Red. Signal Department was notified of condition reported and were able to reproduce the condition. Investigation revealed that a circuit design error was the cause of the reported incident. The circuit design error was corrected and the signal system was tested to prove proper operation.</p>									

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<a href="#">28</a>	7/25/1995	NS		Remote		Unknown	Design	Spriggsboro, IN	N
<p>At approximately 4:00 PM, Train No. 308 received and took a DIVERGING CLEAR indication on the eastward signal from the Ft. Wayne District to the Chicago District at the West End Spriggsboro. Their route was lined onto the Chicago District Main Track and in the same plant into the siding. The crew had a STOP indication on the eastward signal at the east end of the siding. The train was stopped before passing the STOP signal, and the crew reported the improper signal they had received at the West End Spriggsboro. Signals at Spriggsboro were kept in STOP position for train movements until the signal system could be verified.</p> <p>Signal personnel investigated, and found that with the mainline eastward signal cleared at the East End Spriggsboro, the eastward signal off the Ft. Wayne District would display DIVERGING CLEAR instead of the correct DIVERGING APPROACH on a route lined into the siding. The "D" relay for this signal was energized by circuitry for an alternate route.</p> <p>Signal changes installed earlier in the year had a design error that was not found during cut-in tests on this untypical line-up of signals. The design error was corrected and the interlocking was completely tested before being returned to service.</p>									
<a href="#">43</a>	7/26/1995	UP		Manual		SP FHOCHQ	None	Lennox, IL	N
<p>On July 26, 1995, at 19:16 (CDT) on the Pana Subdivision at Lennox Interlocker, eastbound SP FHOCHQ reported a Red over Green over Red home signal with a trailing point switch lined against them.</p> <p>An investigation revealed the signal circuits were not designed to check trailing point switches in the control network.</p> <p>Circuit plans have been revised and the switch position relay contacts are being installed in the proper control circuits.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
<a href="#">46</a>	8/16/1995	UP				UP9191	None	Auburn, WA	N
<p>On August 16, 1995, at 2:48 (CDT) on the Seattle Subdivision at Control Point S162, northbound APSEZ-13 reported northbound signal displayed a Flashing Red over Red with the switch north of the signal out of correspondence.</p> <p>An investigation revealed a problem in the circuit design. Circuits were revised; the signal system was restored to proper operation, and all applicable tests were performed.</p>									
<a href="#">507</a>	8/16/1995	WC					Signal 2071	Anton - Weyauwega, Wisconsin	N
<p>Empty hopper train was following a westbound engine with one car at restricted speed. Hopper train observed signal 2071 go from Red to Green for about two seconds and then back to Red. This occurred at the time the engine and car passed signal 2109, the next signal in advance.</p> <p>The passage of the short, fast train by 2109 caused the track circuit in rear of the signal to pick up before the slow release signal YGP had dropped, hence, the brief false clear on 2071. This sequence of events also dropped the directional stick prematurely, hence, 2071 reverted to Red.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
525	10/25/1995	LI		Remote		1624	Signal Circuitry	Divide Interlocking	N
<p>At Divide Interlocking, an eastbound route was displayed for train 1624, to route the train from Main Line #2 Track, 3-2E signal, to Station Track #2, 3-2W signal. In addition, a stored route had been established for train RF-31 from Station Track #1, 3-1W signal to Main Line #2, 3-2E signal. The track circuit 3-A1TR, which is the first circuit east of 3-2E signal on Main Line #2, momentarily de-energized (flipped). This caused the previously established route (3-2E to 3-2W) to reset, enabling the stored route (3-1W to 3-2E) to be established via a back to train stick feature. Signal 3-1W then displayed a RESTRICTING aspect.</p> <p>Corrective Actions:</p> <ol style="list-style-type: none"> <li>1. The back to train stick features were disabled.</li> <li>2. Conflicting stored route operation was prohibited via a computer warning on the "CRT" and written procedures from the Transportation Department.</li> </ol>									
534	11/16/1995	SP				Work Train 7435	Signal 4279	Klamath Falls, OR	N
<p>On November 16, 1995 at approximately 3:00 PM, Engineer operating work train no. 7435 traveling east, reported that while only half of his train had passed signal 4279, he observed that signal 4279 was Yellow instead of Red.</p> <p>Under the direction of the Signal Supervisor, the signal system was thoroughly tested, and it was found that the 4274T and 4274AT track circuits did not slot the 4279H control. The problem was immediately corrected; the signal system was thoroughly tested and found to be working as intended with no exceptions.</p> <p>The signal system was returned to service on November 16, 1995 at 6:30 PM.</p>									
51	11/18/1995	UP		Manual	ATS	EX140	None	Barrington, IL	N
<p>On November 18, 1995, at 09:15 (CST) on the Harvard Subdivision, southbound train EX140 had a Red over Green signal for movement from No. 3 track to No. 2 Track at CP T031, Barrington, with a northbound train lined into No. 2 track at CP N019, Seeger.</p> <p>An investigation revealed a circuit design error in the traffic locking circuit at CP T031.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									

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34	12/4/1995	NS		Automatic		Unknown ICG Engi	Design	Hattiesburg, MS	N
<p>At approximately 1:00 AM, northbound Train No. 294, Engine NS 6651, stopped short of its track warrant limits at the approach signal to Hattiesburg automatic interlocking. Train 294 was held to allow an ICG switching move to be completed in the vicinity of the interlocking. As the ICG switching movement progressed, it moved out onto the NS main track through a switch facing away from the interlocking. This was done under track warrant authority by NS dispatcher at Birmingham, and when the switch was reversed by ICG, a stick circuit was set which would normally have been used to allow a key stand clearing for ICG movement across the interlocking. However, the stick circuit was held up by Train 294's presence on the approach circuit at the time the stick was set. Once Train 294 received a track warrant to proceed and observed they had a CLEAR indication at the approach signal, the engineer started movement toward the interlocking. Meanwhile, the ICG switching movement that had completed their switching came up to the interlocking on their track and checked the indication on their key stand. Because the stick circuit was still up, the ICG crew had a CLEAR indication that meant that they could activate the pushbutton. When the button was pushed the ICG got a signal to proceed across the interlocking, which they did. When the ICG move occupied the "OS" it illuminated a holding signal for Train 294, and that train again stopped until the ICG movement cleared the interlocking.</p> <p>The design problem that permitted this scenario was corrected, the signals were checked out and returned to service.</p>									
540	12/18/1995	AMTJ		Remote		Engine 1069	Signal R58	Somerville, MA	N
<p>At Swift Interlocking on the Fitchburg mainline in Somerville, MA, lite engine 1069 reported receiving a SLOW CLEAR on signal R58 lined to a non-signalized track. Investigation revealed that the R58 DPR circuit was not selective enough and allowed a SLOW CLEAR to be displayed into a non signal track. The R58 signal network has been revised and all appropriate tests were performed leaving the R58 signal working as intended.</p>									
80	1/30/1996	CSXT		Remote		Train Z24020	#3 Track Circuit	GTW Crossing, Toledo, OH	N
<p>On Tuesday, January 21, 1997 Norfolk Southern Train Y13 reported a RESTRICTING eastbound signal at GTW Interlocking while train Z24020 was fouling the crossing diamond.</p> <p>CSXT Train Control personnel removed the signal system from service for this route. CSXT Train Control personnel investigated the incident and determined the last car of the train was bridging the track circuit between the dead section of the diamond and the insulated joints at the number 2 signal. The car length was 80 feet and the track circuit length was 37 feet 6 inches.</p> <p>This route remains out of service with design changes scheduled for completion on January 31, 1997.</p>									
556	4/25/1996	CR		Remote		Train ELBN-5, Eng.	4W Signal at CP-Hick	Indiana Harbor, IN	N
<p>Engineer on ELBN5, westbound on #3 track, received a LIMITED CLEAR aspect on the 4W signal at CP-Hick with the rear car of BRSE5 occupying #2 track foul of his route. Upon investigation, it was found that the location of the fouling point insulated joints east of #13 switch on #2 track did not provide sufficient track centers through the fouling section to prevent interference with trains on the adjacent track. Changes were made in the home signal network to prevent a signal from being displayed if this section of track is occupied (8T circuit #2 track).</p> <p>Signal system was tested and returned to service.</p>									

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563	6/18/1996	KCS		Automatic		KCS 704	?	Texarkana, AR	N
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On 6/18/96 an KCS 704 was traveling north at the KCS/Cotton Belt interlocker at approximately 10:45 hours in Texarkana, AR. The Engineer reported to the Signal Maintainer that the signal at the interlocker was Green and he found a handthrow switch north of the interlocker lined reverse. After investigation by the Signal Supervisor and Signal Maintainer, it was determined that the NWP circuit for the switches north of the interlocker were checking only the yellow aspect and not the green aspect.

Immediately the changes were made for the NWP to check the Green aspect. {The signal Supervisor and Maintainer} made all required tests and returned the interlocker to service.

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564	7/11/1996	AMTK			ACS	Engine 929	Track Code	East of Harrison, NJ	N
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On July 11, 1996, train no. 179, Engine 929, reported just prior to midnight that after passing signal W63 displaying APPROACH (cab signal conformed) and after the normal code change to RESTRICTING, the cab signal changed to APPROACH MEDIUM several times while approaching a STOP signal at "Swift." Testing was performed following this report as explained in our letter of July 26, 1996, attached. On July 27, 1996, three trains, Engines 925, 912 & 923, each reported a similar condition at the same location. Subsequent tests and conclusions are fully explained in our letter of August 8, 1996, attached.

[Text of Letter of August 8, 1996]

Mr. David R. Meyers  
 Administrator, FRA  
 Scott Plaza Two - Suite 550  
 Philadelphia, PA 19113

Dear Mr. Meyers:

On Saturday, July 27, 1996, at 8:09 AM, a report was made to New York Central Control by train 205, engine 925, that cab signals were flipping from RESTRICTING to APPROACH MEDIUM and back to RESTRICTING, while approaching the 3W signal at Swift Interlocking in the STOP position. At 9:18 AM, train 195 with engine 912, reported experiencing the same irregularity in cab signals. Train 204 with engine 923 was instructed to report waysides and cab signals while approaching the 3W signal at Swift Interlocking in the STOP position. He reported all proper, until approaching this signal, where his cab signals started bouncing between APPROACH MEDIUM and RESTRICTING.

This was the second occurrence involving this same scenario in which cab signals went up to APPROACH MEDIUM while the 3W signal at Swift was at STOP. Please find attached, the July 26, 1996 copy of our letter concerning the first incident on July 11, 1996. All tests performed at that time disclosed no irregularities.

C&S personnel arrived on the scene on July 27, while the cab signals were in the failure mode as described by the Engineers of the above-stated trains. Investigation revealed that intermittent removal of steady energy at the W70 signal location from the 2E1 track circuit was caused by the existing circuit design. This produced pulses from W70, eastward, when the code change went into effect on the approach of a train. These pulses were accepted by the locomotive cab signal equipment on the above stated trains in a manner that caused cycling between APPROACH MEDIUM and RESTRICTING cab signals.

C&S management and supervision became involved and determined, by performing a revision of the track circuit design, that these unwanted pulses could be eliminated. This revision was performed on the morning of July 27, 1996.

A re-enactment was scheduled and held in the early morning of August 6, in which the 929 AEM7 locomotive was used to re-create the code failure when the track circuitry was restored to its original design. Amtrak management and C&S employees, along with FRA representatives were on hand. It was proven that the intermittent track circuit pulse produced the cab signal irregularities. Chart recorders were used to get records of what was occurring in this situation. The 929 was downloaded and the tape will be part of this occurrence file. The circuitry was restored to the revision approved network and put back in normal service.

During the re-enactment, the false display of the APPROACH MEDIUM aspect was clearly demonstrated to be only momentary, of approximately one-half

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second duration, and recurring at a cyclic rate with the display of RESTRICTING for a minimum of two seconds between each one-half second pick-up of the APPROACH MEDIUM. While this condition severely undermined our engineer's confidence in the cab signal system, and is therefore highly undesirable, it did not constitute a dangerous condition such that any engineer would actually accept the momentary false display and try to exceed restricted speed, nor would he have been able to exceed 20 mph, as the speed control continued to limit his speed.

Due to the nature of this condition, there has been some confusion as to whether an actual false proceed report should be filed. However, since the one-half second display was just barely long enough to require an acknowledgment, I am attaching a false proceed report on the prescribed form. Please consider this as a follow-up to our original letter of July 26, 1996, which was filed within fifteen days of the initial occurrence.

If we can be of any assistance concerning any files or records involved with the above, please contact my office at 215-349-1028.

Sincerely,

Assistant Chief Engineer C&S

567	8/10/1996	SEPA	CTC	Remote			Home Signal L12D	CP Kalb, Borough of Norristown, Montgomer	N
<p>Nature of Failure: Engineer reported passing home signal L12D at CP Kalb (approach signal to home signal 2S at CP Ford) displaying APPROACH MEDIUM instead of MEDIUM APPROACH with home signal 2S at CP Ford displaying RESTRICTED.</p> <p>Cause of Failure: Cause was traced to a circuit design condition. Circuit for signal L12D (searchlight-type) should not have been poled when a RESTRICTED signal was displayed for signal 2S at CP Ford.</p> <p>Corrective Action Taken: Set signal L12D at CP Kalb to RESTRICTED. Corrected circuit design. Conducted necessary tests and inspections. Returned system to normal operation.</p>									
571	9/27/1996	CR				TV55, Eng. 6117	Automatic Signal 779-2	Galion, OH	N
<p>Engineer on TV55 westbound on #1 track observed signal 779-2 on #2 track at APPROACH MEDIUM with home signal at CP-80 at Stop.</p> <p>Found that polar control relay 779BDR had been redesigned as a neutral relay by design contractor. Circuit was redesigned with separate BDR circuits and installed correctly.</p>									

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573	11/1/1996	SEPA		Remote			20LBDPR Circuit	Signal 20L, Newtown Jct. Int., MP 6.2 Main Li	N
<p>Nature of Failure: Conrail engineer of southbound freight train SCCS-1 reported southbound home signal 20L displayed MEDIUM CLEAR and approached next signal, signal 4W-2 at CP Nice displaying STOP.</p> <p>Cause of Failure: Design problem. Signal 20L should have displayed a MEDIUM APPROACH indication for a route through the interlocking to the Conrail low grade route for this move. The least restrictive indication to be displayed at signal 20L for this route is APPROACH MEDIUM.</p> <p>The MEDIUM CLEAR indication that was displayed at signal 20L was the result of the 20L BDPR circuit being energized through an alternate energy source that had existed from a former circuit configuration. The circuit energy should have been fed only through #17 switch reverse indication a crossover route, to southbound on the Main Line.</p> <p>A simultaneous southbound parallel move from home signal 16L for a SEPTA train caused the 20L BDPR relay to energize from the alternate energy source.</p> <p>Correction: Revised circuit by removing the alternate energy source.</p>									
107	12/20/1996	UP	AB			UP5041/NLSH-20	None	Marshall, Texas	N
<p>On December 20, 1996, at 16:00 CDT on the Reisor Subdivision, southbound NLSH-20 reported the southbound signal at the north end of Louisiana, M.P. 350.3 was CLEAR and the Spring Switch at the south end of Louisiana was lined reverse.</p> <p>An investigation revealed the NWP relay for the Spring Switch did not break the HD signal control circuit to cause the southbound signal to display a Red signal.</p> <p>The circuits were revised to break the southbound signal's HD wires with the NWP relay.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
578	12/30/1996	CR	AB			UP2455	Signal 2E @ CP-154	St. Elmo, IL	N
<p>Engineer on eastbound NLINO observed a CLEAR signal on 2E with signal 152E STOP AND PROCEED ahead. Investigation revealed that the switch repeater 1520NWPR did not open the 2EHR relay, which allowed a CLEAR code to be generated from the micro unit at signal 152E. Circuit was reissued with 2EHPR relay contact located in input circuit of Microcode unit. Failure was due to unauthorized field change. Plans reissued as originally designed.</p> <p>Signals tested and returned to service.</p>									

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<b>109</b>	1/9/1997	BNSF	CTC			Helper Engine BN 5	Design of EOR Circuit	Near Firth, NE	N
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At approximately 2115 hours, Thursday, January 9, 1997, train crew on the helper engine reported that they were sitting on the rear of eastward coal train #03HH98-08, on main track two, east of intermediate (241.9). They reported observing an APPROACH MEDIUM aspect on westward intermediate signal (141.9), on main track one. They believed this signal should have been an APPROACH aspect. There were three trains involved in this incident, the third train was engines from a grain train #01GLIMA-06, which had also assisted in pushing coal train over hill. At the time that the alleged improper aspect was observed the grain train engines were headed west, occupying the track west of intermediate signal 241.9. Dispatcher had lined grain train engines westward at West Firth from main track two to main track. At this time the eastward signal from main track one to main track at East Firth was also lined. (Diagram attached)

This report was confirmed. With the scenario as described the 141.9 signal would display an APPROACH MEDIUM aspect when it in fact should have displayed an APPROACH aspect. However, the signal system functioning as designed. A design change was made to ensure this would not be observed again.

Although this condition could be observed from adjacent track, if main track one was occupied or a signal lined through the block this condition would not exist. Basically, no train could accept this signal could observe this condition.

This report being filed for information purposes only.

<b>135</b>	7/8/1997	CSXT	CTC			U33730	None	N.E. Waxhaw, Waxhaw, NC	N
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On July 8, 1997, south bound train U33730 reported to the dispatcher receiving a MEDIUM APPROACH signal at the north end of Waxhaw siding, which was already occupied by south bound train Q61908. The signal should have been RESTRICTING. U33730 did not take the signal. The dispatcher held the trains in position until signal personnel could arrive and investigation.

Investigation by signal personnel confirmed the false proceed indication. The siding track relay was observed coding. The coding was caused by energy supplied from the track isolation unit. The block operates by reversible DC code. The isolation unit would discharge on the off cycle of DC code in the block. The discharge routed through the axle of the approaching train and was the proper polarity to energize the siding track relay, thereby upgrading the signal. The isolation unit was removed from the circuit and the track relay stopped coding. The crossing and signal location were tested for proper operation and the signals placed back in service.

The isolation unit was installed as part of a grade crossing warning device installation. The relays were tested and found to be within specification. Two isolation units were installed at a different point in the circuit to prevent the situation from re-occurring. The signal system was tested for proper operation and found to be functioning as intended.

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138	8/4/1997	CSXT	CTC			Unknown	None	Deshler, OH	N
<p>On August 13, 1997, the train control group was notified that a south bound train received an APPROACH LIMITED aspect at the approach signal to the south bound absolute signal governing the north crossover at Deshler on 8/4/97. The absolute signal was lined and displayed a MEDIUM APPROACH for the crossover move that was lined. The approach signal should have displayed an APPROACH MEDIUM aspect and was a false proceed indication. The signals were removed from service and signal personnel were dispatched to investigate.</p> <p>Signal personnel noted that both A and B overlays were not operating and confirmed the false proceed indication viewed by the train. The approach signal is a color position signal with a C marker. The circuit is designed with H and D circuits as well as an A and B overlay on the line wire. The A overlay relay in the energized position gives a flashing C marker at the approach signal to display an APPROACH LIMITED signal for a mainline move. The B overlay relay in the energized position gives a steady C marker at the approach signal to display an APPROACH MEDIUM aspect for a diverging move. The relays are wired so both relays cannot be energized at the same time. A loss of both overlays left only the H &amp; D on the line wire as designed resulted in a flashing C marker for an APPROACH LIMITED aspect into the APPROACH MEDIUM aspect at the absolute signal.</p> <p>Signal personnel disabled the EOR relay for the C marker until a design revision is engineered.</p>									
166	9/4/1997	UP	CTC		ACS	UP 6211		Cheyenne, WY	N
<p>On September 4, 1997, at 11:20 CDST, on the Sidney Subdivision at Cheyenne, Wyoming, westbound ANPMI-03 observed a Red over Red indication at westbound signal 509.7 while receiving a APPROACH LIMITED cab signal. While approaching signal 509.7, he continued to receive an APPROACH LIMITED cab signal until he passed eastbound signal 509.2 and then the cab signal dropped to APPROACH.</p> <p>An investigation reviewed a circuit error in the cab circuits at eastbound signal 509.2.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
119	9/14/1997	BNSF	CTC			CP Transfer	5 E Signal	Minneapolis, MN	N
<p>At approximately 1945 on 09-14-97 a CP Transfer crew reported a Red over F/Y 5E signal at University Ave Intr. Thru a 12 MPH turnout (#10 switch) into Shorem Yard. Upon investigation the maintainer found 5E to be Red over F/Red until the 1E signal coming out of Shorem Yard was cleared. Further investigation revealed that 5E would come up to Red over Green with no train on the approach to 1E. Cause was found to be that the #10 switch correspondence was not programmed into the VHLC control system for the B head Green, F/Y, and Yellow aspects. Green and Yellow aspects were disabled until corrective action was completed on 09-16-1997. Corrective action entailed adding external correspondence relays for the #10 and #1 switches, so that the 5E signal displays no better than Red over F/Red with the #10 switch in the reverse position.</p>									
588	10/10/1997	CR				Eng 707	Cab Signal	Westfield, MA	N
<p>TV-6 Engine 707 reported cab signal upgraded from RESTRICTING to CLEAR when light engine 6574, east ahead cleared the main track at an electrically locked hand operated switch with the switch still in the reverse position. Cause was found to be improper design which did not open the cab generating circuit with the WP down. The circuit was redesigned, field changes were made, all circuits were tested and the signal system was returned to service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
126	10/16/1997	BNSF	CTC			BN 9507	None	Bridgeport, Nebraska	N
<p>Approximately 0805 MDT BN 9507 east, train symbol EMLTBTM236 with 0 loads 116 empties 3147 tons 6380 feet, stopped in approach to EA signal at East Bridgeport on Main Track observed EA signal display Green for approximately 4 seconds then Yellow for 2 seconds then went Red. Helpers BN 9212 east a two unit 12 axle consist was cleared out of the siding at East Bridgeport and was at intermediate signal 35.8 at the same time BN 9507 observed the EA signal telegraph. BN 9507 east did not take the EA signal. Supervisor Signal was notified at 0824 MDT and advised Alliance South dispatcher to put signals to STOP. Maintainer notified st stay at depot Bridgeport until Supervisor's arrival. Field data logs and Ft. Worth Network office logs show 1WT track picking up and the 1ET track deenergized at the same time at intermediate signal 35.8. 1WT track is an end fed dc track circuit with a biased 2 ohm relay. 1ET track is Electrocode II. Reenactment was performed using a two unit 12 axle consist and the problem could not be duplicated. Tests were performed at intermediate signal 35.8 using 0.06 ohm shunts which showed Electrocode II 1ET track circuit deenergized approximately 5 seconds after a 0.06 ohm shunt was placed on circuit at signal 35.8. It was calculated that the 12-axle consist traveling approximately 30 mph would cause the 1WT to energize before the 1ET track deenergized, which would allow the 1EHR and the 1EDR at East Bridgeport to energize causing signal to momentarily display green then yellow and back to red when 1ET track deenergized. Office logs confirm EA signal at East Bridgeport displayed aspect cleared for 5 seconds. HXP-3R2 data logs from Hwy 26 show BN 9212 east passed intermediate signal 35.8 at 28mph.</p> <p>Corrective action taken - installed 8 second loss of shunt time on 1WT track circuit to compensate for the 5 second delayed deenergization on the Electrocode II - 1ET track circuit. Operational tests performed on signal system with no other exceptions taken.</p>									
127	10/25/1997	BNSF	CTC			VKCKPHX123, Eng	2W Signal	Canyon Diablo, AZ	N
<p>Westbound train VKCKPHX123 reported a Red over Flashing Yellow aspect into the controlled siding at East Canyon Diablo. This siding was changed to a non-signal siding to facilitate installation of non-signalized split point derails. All route displaying RESTRICTING aspects into the siding except the westbound route from the north track which was reported by the VKCKPHX123. Circuit plans were revised and the 2W signal now displays a RESTRICTING aspect when lined into the siding.</p>									
589	11/20/1997	CR		Remote		None	Home Signal 5W	Cleveland, Ohio	N
<p>Signal 5W was observed by a Signal Maintainer as Green over Green, CLEAR, with 4 switch reverse. Signal should have been Green over Red, SLOW CLEAR.</p> <p>Cause was found to be a design error, which allowed the signal control relay for the bottom aspect of 5W signal to be energized whenever 11 switch was lined normal. Design changes were made, signals were tested, and returned to service.</p>									
596	3/11/1998	AMTK		Remote		NA	63R	West Cambridge, MA	N
<p>Mr. James Hoffnagle of the FRA reported to [redacted] Assistant Division Engineer C&amp;S MBTA for Amtrak, that signal 63R at West Cambridge Interlocking displayed APPROACH MEDIUM with a route displayed over #52 crossover which is a #15. It was determined that circuit design of the 63R would allow APPROACH MEDIUM aspect to be displayed thru the #52 crossover reverse. Circuitry was redesigned, operational tests made and no exceptions taken.</p>									
597	4/3/1998	SCRA	CTC			Eng. #876	EC-4H/VHLCprog.	Glendale, CA	N
<p>Added "Joint Hop Logic" to Executive Software [see printed report]</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
206	4/30/1998	UP	CTC			SP 6823	None	near Millican, TX	N
<p>On April 30, 1998 at 16:30 CDT, on the Ft. Worth Subdivision, north bound RSPOG 29 observed a Yellow over Green indication at the north bound approach signal at MP 56.8 with the next north bound home signal at control point Q058 displaying a Red over Yellow indication with the track lined for the siding.</p> <p>An investigation revealed the north bound signal at MP 56.8 should have displayed a Yellow over Yellow indication with the control point Q058 lined into the siding.</p> <p>The north bound signal at MP 56.8 was changed to display a Yellow over Yellow indication with the control point Q058 lined for the siding. All applicable tests were performed.</p>									
600	5/15/1998	CR		Remote		Unknown	Signal 6W-4	Toledo, OH	N
<p>Signal 6W-4 at Nasby Interlocking displayed a SLOW CLEAR aspect with signal 1WB ahead at STOP. Cause was found to be a design error which omitted a #3 switch in the home network of signal 6W-4. The controls for 6W-4 signal have been opened in the field to prevent 6W-4 from displaying better than SLOW APPROACH. New design will be issued, installed and tested as soon as practicable.</p>									
195	5/25/1998	NS	AB			9057	Design	Hattiesburg, MS	N
<p>At approximately 4:30 AM train No. 314 reported a CLEAR signal northward at Hattiesburg Interlocking and a STOP indication at the next signal, N.E. Hattiesburg.</p> <p>No. 314 had left part of its train on the main south of the interlocking and proceeded on signal indication north of the N.E. Hattiesburg. They then reversed the switch and made a reverse move into Hattiesburg Yard to make a pick up. After returning to the main and restoring the switch, No. 314 moved southward with the proper Red signals at N.E. Hattiesburg and Hattiesburg Interlocking to couple to their train. They then proceeded north with a CLEAR at the interlocking and found a STOP at the N.E. Hattiesburg.</p> <p>Investigation revealed that a southbound movement at N.E. Hattiesburg when cars were occupying the track south of Hattiesburg Interlocking enabled a circuit path at N.E. Hattiesburg permitting a CLEAR code back to the interlocking while a STOP was displayed at the N.E. Hattiesburg. The design was corrected and the signals were thoroughly tested.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
441	7/17/1998	CSXT	CTC			U241	None	Three Mile, Mobile, AL	N
<p>Shortly before 0800 on July 17, a signal maintainer was dispatched to the scene of a run through electric lock switch just south of Three Mile Drawbridge. The signal maintainer arrived at 0830 and found southbound train U241 stopped just north of SAS Three Mile with a STOP aspect. Shortly thereafter, SAS Three Mile changed to a CLEAR aspect. The maintainer observed the switch operating handle vertical and immediately checked the NWPR. The maintainer removed the signals from service upon finding the NWPR deenergized.</p> <p>Investigation determined that a design defect caused a CLEAR signal to be displayed with the A-BNWPR deenergized. The A-BNWPR protects the electric lock switch which was installed as part of a speed increase early in 1998. The A-BNWPR was rewired to be in series with the lock time relay, track release circuit, and H+ input of the HD polar adapter. The HD polar adapter device is configured to provide a reverse polarity output when there is battery input to the H+ terminal. A normal polarity output is given when there is battery input to the D+ terminal. A battery input to the H+ terminal is not required for normal polarity output.</p> <p>The defect was corrected by relocating the track A-BNWPR, WLTER, and A_BTOR control of the 6633HDR from between the Electrocode unit and HD polar adapter to between the HD polar adapter and the positive control of the 6633HDR. Operational tests were made and the signals were returned to service the evening of July 17.</p>									
605	8/5/1998	AMTK		Remote		941	Signal 971-3, Charles Interlocking, Signal	Baltimore, MD	N
<p>Engineer on train 105 reported that signal 7SB displayed STOP, due to #89 switch out of correspondence. Dispatcher gave the engineer permission by the 7SB signal with Rule 241. The engineer reported that after passing 7SB signal the cab signal aspect indicated CLEAR. Signal 971-3 displayed STOP AND PROCEED with CLEAR cab aspect displayed in engine. After investigation, it was determined that the 3 HGR did not check the cab signal network, therefore, allowing CLEAR cab rather than RESTRICTING cab to be displayed. Circuit changes made, circuitry tested, and signal system returned to service.</p>									
609	11/11/1998	IC	CTC			GCG2CH	NBH Sig.	South Edgewood, IL	N
<p>Crew of train observed NBH at CP South Edgewood display Yellow over Green in approach to the home signal at Edgewood Jct. displaying Red over Red.</p> <p>Investigation found the Light Out Relay was de-energized for the top Red marker at Edgewood Jct. With the LOR down, the lower aspect was set Red; however, the outgoing code to the approach signal was not downgraded and continued to send a code for Yellow over Green.</p> <p>Interim circuits were made by disabling the codes for the approach aspects when the LOR is de-energized. When the interim circuit changes were completed, tests were performed and signals observed to insure integrity. Permanent changes require programming and circuit changes, and these changes are being installed.</p>									
610	11/20/1998	AMTK				MARC #532, Eng. 4	3N Signal, Charles	Baltimore, MD	N
<p>Engineer on northbound MARC local reported that signal 3W at Charles displayed MEDIUM APPROACH with cab signal displaying APPROACH MEDIUM rather than APPROACH. Upon investigation it was found that due to a circuit design error, the speed selection network was omitted thru the new switch #66. Circuit was revised by breaking the speed selection network thru the #66 correspondence relays. Circuit was tested and 3N signal 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?
611	12/3/1998	CR	CTC			6664	Auto. Sig. 1421W	Columbus, OH	N
<p>Train PICO2, westbound, #1 track on Cincinnati Line observed signal 1421W CLEAR with westbound home signal at CP 144 displaying MEDIUM APPROACH. Cause was found to be field Signal personnel had made unauthorized circuit change and had failed to properly test the signal system.</p> <p>Circuit design was corrected, all tests were made and the signal system was restored to service. Involved employees were removed from service and discipline was assessed.</p>									
612	12/12/1998	CR		Remote		OIPI-1	14W Signal, CP UN	Gallitzin, PA	N
<p>Westbound crew on OIPI-1 observed home signal 14W at CP "UN" displaying MEDIUM CLEAR with train RR 261 ahead in the block. Cause was found to be a design error which allowed the 14 WADR to be energized with a train in the block.</p> <p>Design revisions were issued, all signal tests were completed and the signal system was returned to service.</p>									
617	7/8/1999	IMRL	CTC			IMRL 8925	RHDR Circuit	Deer Creek, IA	N
<p>On July 8, 1999 at approximately 13:53 hours, crew on eastward train M 232D 08 reported passing the eastward absolute signal at West Deer Creek displaying a CLEAR aspect when the next signal in advance at East Deer Creek was displaying a STOP aspect. At this time the power operated switch was lined reverse with a signal lined eastward out of the siding at East Deer Creek. The proper aspect for the eastward absolute signal at West Deer Creek at this time was APPROACH.</p> <p>Signal Department personnel were immediately notified and arrived on the scene to promptly investigate this incident. Personnel duplicated the conditions that were reported at the time this incident occurred and determined this condition did occur as reported. With an eastward absolute signal lined out of the siding at East Deer Creek and an eastward signal lined down the main track at West Deer Creek, the eastward absolute signal at West Deer Creek would improperly display a CLEAR aspect.</p> <p>This condition was caused by a circuit design error involving the RHDPR circuit at East Deer Creek which pole changes normal energy on the RHD line circuits. The RHDPR relay was designed to be energized when the RA or RB signal was lined at East Deer Creek. Corrections were made in the RHDPR circuit by checking the front contacts of the RAHR and NWPR relays before the RHDPR relay would be energized. Circuit changes were made and tests were completed at 0200 hours on July 9, 1999.</p> <p>Signal Department personnel have determined that this condition has existed since 1979 when the CTC control points at Deer Creek were installed. Signal Department personnel have also checked all CTC control points on IMRL and have determined this design error does not exist at any other signal locations.</p>									
618	7/22/1999	AMTK		Remote		Train #418, Eng. 49	Charles Int., Signal 2N	Baltimore, MD	N
<p>Engineer on train #418 reported that signal 2N at Charles Interlocking displayed APPROACH SLOW aspect with 4N signal at Paul displaying STOP aspect. Investigation revealed that a circuit design error existed in the 2NHRYPYR circuit. Revision of the circuit was accomplished by breaking the 2NHRYPYR circuit through the front contact of the 66RWCR. Circuitry was changed, tests completed and signal system 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?
621	9/24/1999	AMTK		Remote		Commuter Rail Trai	Loop Interlocking - 14E	Boston, MA	N
<p>Commuter Rail Road Foreman reported to ADE C&amp;S Commuter the 14E signal at Loop Interlocking displayed an APPROACH MEDIUM into a SLOW APPROACH at the 14E at Broad Interlocking. Investigation revealed that a circuit design error from a field change that occurred on March 5, 1999 was the result of improperly displayed aspect on 14E at Loop. Circuitry was changed, tests completed and signal system returned to service. Investigation being conducted to determine responsibility.</p>									
222	1/25/2000	BNSF	CTC			Local	Signal 76L	Ft. Scott, KS	N
<p>Local train, while switching train at Ft. Scott yard, reported seeing Flashing Red on main one and a Flashing Yellow on main two southbound at absolute signals South Ft. Scott, KS. Upon arrival it was determined that if code 4 was received on both main tracks from the south and either southbound signal was lined, that both the Yellow signal that was requested and Red on the adjacent main track would flash. Investigation revealed that a yellow signal repeater contact break was not in the light energy circuit.</p> <p>Yellow repeater check was added to the light energy circuits, operational tests were performed and all systems working as intended.</p>									
258	3/10/2000	NS	CTC			8373, 8792, 8051	Light Out Circuit	Reading, PA	N
<p>At approximately 5:30 AM on 3/10/00, train 11AH510 was proceeding west on Track #1 on the Harrisburg Line in Reading, PA. After having passed Intermediate Signal 591 displaying a CLEAR indication, the train encountered the next signal, Intermediate Signal 601 displaying a RESTRICTING indication.</p> <p>The train was brought to a safe stop, and the problem was reported to the Harrisburg Dispatcher.</p> <p>Investigation of the incident revealed a lamp failure on the Green aspect of Signal 601, and a design deficiency in the light out circuit at Signal 601. The signal design at this location would cause a Red aspect to be displayed when a lamp failure condition existed on the Green or Yellow aspect (as is proper), but failed to change the polarity feeding the approach signal, Signal 591. The result was Signal 591 displaying a CLEAR indication into a RESTRICTING indication at Signal 601 when a lamp failure condition was present on the Green or Yellow aspect at Signal 601.</p> <p>After the incident, changes were made in the circuit design at Signal 601 such when a lamp failure occurs on the Green or Yellow aspects at Signal 601, in addition to causing Signal 601 to display RESTRICTING indication, a polarity change will be fed to Signal 591, causing it to display an APPROACH indication. Upon completion of these changes, the signal system was restored to normal service.</p>									
629	3/28/2000	CN		Manual			CL	E. Bridge Interlocking	N
<p>Polarity of control wires for H2 mechanism (Signal 31) was reversed allowing said signal to display Green aspect in lieu of Yellow. (09:00, 28-Mar-00). Signal wires were restored and full operational tests were made (18:00, 29-Mar-00). Signal was found to have been wired according to circuit plans. Plan was in error and field corrections made. East Bridge Interlocking, New Orleans, LA.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
630	4/14/2000	IMRL	APB			IMRL 355	Stick Circuit	Kittredge, IL	N
<p>On April 14, 2000, Engineer on train M264D14 reported the eastbound signal at East Kittredge as displaying an APPROACH aspect with westbound train ICHLB14 occupying the same block east of Kittredge. The proper aspect for the eastbound signal at East Kittredge at this time was Red.</p> <p>Signal Department personnel were notified and immediately investigated this incident. Signal Department duplicated this incident and found stick relays energized at MP 114.8. This condition prevented the opposing east bound signals to tumble back to Kittredge when train ICHLB14 passed Adeline.</p> <p>Signal personnel released the stick circuits and performed the appropriate tests. Subsequent to tests, signal system was returned to operation at 22:52 hours on April 14, 2000.</p>									
241	4/23/2000	CSXT		Remote		N94820	#4 Signal	VR Tower, Walbridge, OH	N
<p>At approximately 2315 hours on 4/23/2000 at VR Tower in Walbridge, OH, northbound train N94820 reported receiving a MEDIUM CLEAR (Red over Green) on the #4 Signal when lined for a crossover move from #1 track into the receiving yard through #7 and #5 crossovers reversed. The signal for this move should have been RESTRICTED (Red over Yellow). The following train, Q39723, made this same move and reported receiving a RESTRICTING signal. Upon notification, Train Control personnel were dispatched to investigate.</p> <p>Further investigation revealed that when a signal was lined northbound on the #2 track at Yard D through the next northbound interlocking (#8 Signal), a Code 7 was sent back to VR Tower holding up the W2DR. This permitted a MEDIUM CLEAR signal to be displayed when the signal was lined on #2 track without checking the position of the #5 crossover.</p> <p>The wiring error was corrected and signals were returned to service following operational testing.</p> <p>The cause was found to be a design error.</p>									
242	5/11/2000	CSXT	CTC			IHB Run 518	Design	CP Francisco, Blue Island, IL	N
<p>On Thursday, May 11, 2000 at approximately 1022 hours Indiana Harbor Belt (IHB) Train Run 518 received a RESTRICTING signal at CP Francisco MP DC 14.9 (IHB MP 15.4) to proceed west on Track 1. At the same time, eastbound IHB Train NP 11 accepted an opposing approach signal at CP 123 (IHB MP 17.5) to proceed east on Track 1. Each train proceeded into the block until they viewed the opposing train and stopped. The signals were removed from service and Train Control personnel were dispatched.</p> <p>Further investigation revealed that the false proceed was caused when the Call-on feature was initiated by the dispatcher, which permitted a RESTRICTING signal to be displayed at CP Francisco with an opposing signal already lined into the block.</p> <p>Temporary wiring changes were made to disable the Call-on circuit, and signals were returned to service following operational testing.</p> <p>The cause was found to be a design error.</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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<b>259</b>	6/2/2000	NS	CTC			AMT 57, AMT 37	Design Error	Elyria, OH	N
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At 4:45 a.m., June 2, 2000, Amtrak #29 was traveling west on track #2 at MP 203 on the Chicago Line when they received a STOP signal at CP-203. After receiving permission to pass the STOP signal, they progressed to intermediate signal 205 2W which was displaying a LIMITED CLEAR (Red/Flashing Green). At this time they notified the dispatcher concerning the improperly displayed signal.

Investigation: The signals were lined to replicate the conditions experienced by Amtrak 29, The crossover at CP 207 was lined and it displayed a LIMITED CLEAR aspect. At signal 205 2W a LIMITED CLEAR aspect was also displayed. At this time the NWLPPR relay was also still de-energized. Signal 2W at CP-203 was displaying a STOP aspect. Under these conditions Signal 205 2W should display a STOP AND PROCEED aspect (Red/Red), but was displaying an improper aspect of LIMITED CLEAR (Red/Flashing Green).

Review of the in service circuit plans revealed that aspect displayed was consistent with the designed circuit. The circuit design allowed the "B" head to continue to display a Flashing Green with the hand throw switch showing not lined for normal movement. With the cross-over at CP 207 lined from track #2 to track #1 the signal that would be displayed at 205 2W if the NWLPPR relay was energized would be APPROACH LIMITED (Yellow/Flashing Green). When the NWLPPR relay was de-energized the "A" head went to Red but the "B" head remained at Flashing Green.

Correction: Signal engineering was contacted and they developed a circuit modification to correct the problem. The circuit was modified and complete signal checks were performed. The signals were placed back in service at approximately 2:00 p.m.

<b>272</b>	6/2/2000	UP	CTC			UP-3568	None	Houston, TX	N
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On June 2, 2000 at 18:00 CDT, at Houston, TX on the Terminal Subdivision at MP 366.30, westbound 1HHOKC 02 was lined from Main Track 2 to Main Track 1, and reported the westbound signal #15 on Track 2 at LF369 was Red over Flashing Yellow and the next westbound intermediate signal at MP 5.9 was at STOP.

An investigation revealed a design error. The Reverse Switch Relay was not wired into the "B" signal head of the westbound #15 signal.

The signal system was restored to proper operation, and all applicable tests were performed.

<b>274</b>	6/3/2000	UP	CTC			UP-1647	None	Houston, TX	N
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On June 3, 2000 at 14:50 CDT, at Houston, TX on the Terminal Subdivision at MP 366.30, the Dispatcher was able to line a route from CP LF369, on the #1 main to Bellaire Junction, with a hand throw switch on the #1 main, located south of CP LF369 in a reverse position.

An investigation revealed a design error. The Switch Correspondence Relay was not wired into the control for the southbound signal at LF369.

The signal system was restored to proper operation, 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?
634	6/6/2000	CN	AB			IC 1026	85 Signal	Cicero (Hawthorne), IL	N
<p>At approximately 1100 hours on June 6, 2000, westbound train CHWL-06 reported that signal 85 displayed a Yellow aspect with the hand-throw switch lined reverse, within the block at Mile 8.8.</p> <p>Signal 85 was removed from service by the Signal Supervisor. Upon arrival at the location, the investigation found that the location had not been vandalized or damaged and that the incident was reproducible.</p> <p>On June 2, 2000 the hand-throw switch at Mile 8.8 had been placed in service. The crossover track circuits 1AXT and 2AXT had been inadvertently omitted from block repeater circuit 85BP, which allowed signal 85 to display an aspect less restrictive than intended when the crossover switch was lined reverse. The omission was not discovered during the in-service testing.</p> <p>Corrections to the 85BP circuit were made to include the 1AXT and 2AXT in the block repeater circuit 85BP. The circuits were then tested to determine that they were operating as intended.</p> <p>Signal 85 was returned to service at 1800 hours.</p>									
638	7/9/2000	CR		Manual		N/A	Proximity Detector	Bridgeport, NJ	N
<p>On 7/19/00, the bridge operator at Bridgeport moveable bridge at MP 20.79 on the Pennsgrove Secondary notified the signal office that he was able to get a signal with one of the mitre rails not seated. Upon investigation by local C&amp;S forces, we found a proximity switch that failed in the closed position.</p> <p>On 7/19/00, the signal forces removed the defective proximity detector and set the signals.</p> <p>On 7/20/00, the defective proximity detector was replaced after new circuitry was installed to insure that if a proximity detector did fail in the open position, it would be impossible to get a signal.</p> <p>[Note from Editor: This false proceed was charged to "Signal Circuit Design Error" because it is clear from the description above that the circuit was not originally designed on the "closed circuit" principle, as required by 49 CFR Part 236.5]</p>									
275	7/9/2000	UP	CTC			AMT 28	None	Madison, IL	N
<p>On July 09, 2000 at 11:15 CDT, at Madison, Illinois on the Springfield Subdivision, northbound 1AMT22.08, on track #2, had a Yellow (APPROACH DIVERGING) northbound signal at CP GM278, with the northbound home signal at WR Tower, MP 275.60 displaying a Red over Yellow (RESTRICTING) indication.</p> <p>An investigation revealed differences in signal aspect rules between the TRRA and the UPRR resulted in a signal design error.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking Systems	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<b>279</b>	9/20/2000	UP	CTC			UP6558	None	Atchison, KS	N
<p>On September 20, 2000 at 13:15 CDT, at Atchison, KS on the Falls City Subdivision, northbound CWBCD 17 was on the Main Track at MP 329.50, south of Signal Z329. The Dispatcher was able to line northbound signal at Z329 with the A-B crossover north of northbound Signal Z329 reversed.</p> <p>An investigation revealed the normal switch repeater relay for the A-B crossover was not in the signal control for northbound Signal Z329.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
<b>251</b>	10/21/2000	CSXT		Remote		L256-21	2WA Signal	CP-124, Ridgeway, OH	N
<p>At approximately 0500 hours on October 21, 2000, Train L258-21 was westbound on #1 track awaiting the 2WA signal to proceed into Hayes siding through the #4 crossover reversed. When the signal was received, the crew initially observed a RESTRICTING signal (NORAC Rule 29 - Red over Yellow) which changed to a MEDIUM CLEAR (Rule 283 - Red over Green). The signal should have been RESTRICTING. The signals were removed from service, and Train Control personnel were dispatched.</p> <p>The cause was found to be a design error in the circuit, which included an extra wire allowing the 2WA-BDR to be energized when the #3 crossover was reversed regardless of the position of the #4 crossover. The wire was removed, signal checks were made with no exceptions, and the signals were returned to service.</p>									
<b>647</b>	11/2/2000	CN		Remote		Amtrak #51	8W Signal	Thornton, IL	N
<p>8W signal displayed a SLOW CLEAR (R/G) into STOP (R/R) at UP home signal on the UP wye at Thornton Junction.</p> <p>Cause: Wire/design error and insufficient testing at time of installation.</p> <p>Corrective Action: Wire/design change to give a RESTRICTING signal (R/Y) at 8W to the UP wye track.</p>									
<b>282</b>	11/7/2000	UP	CTC			UP6266	None	Taylor, TX	N
<p>On November 7, 2000 at 01:49 CST in Taylor, TX on the Austin Subdivision, northbound MLDAS 06, on the main track, reported the northbound signal at CP Q146 was Green with the switch north at MP 144.8 lined reverse.</p> <p>An investigation revealed a design error caused by a contact of the Normal Switch Relay not properly disabling the Electrocode Repeater at MP 145.20.</p> <p>The signal system was restored to proper operation, 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?
<b>653</b>	12/4/2000	WC		Manual		BYFDIT	Signal 10LA - Case	Schiller Park, IL - B12 Interlocker	N
<p>Northbound train BYFDIT reported a CLEAR aspect at approach signal 139 into a STOP (Red) absolute signal 10LA at B12.</p> <p>After testing and investigation it was discovered that Code 7 (CLEAR) was being transmitted to the south from 10LA to 139 while the IHB route was lined northbound. This was the result of a defective circuit design. The circuit was repaired to send an APPROACH code (C-2) to the approach 139 when the IHB is lined for a northbound route.</p>									
<b>302</b>	2/19/2001	CSXT	CTC			Q297-19	Design	PA Tower, Fort Meade, MD	N
<p>At about 2130 on 2-19-01 B702-19 was traveling WB on #1 Track crossing over to #2 Track at Savage. After B702 cleared Savage, Train Dispatcher requested #3 crossover Savage normal and #8 Signal WB on #2 Track behind B702 for a following train Q297-19. As Q297 approached the #2 WB signal at PA Tower the train crew reported an APPROACH MEDIUM signal with B702 ahead in the block west of Savage. This signal should have been an APPROACH signal into the RESTRICTED PROCEED following B702. Signals were immediately removed from service and Train Control personnel dispatched to the location for investigation. The investigation revealed a design error at Savage that allowed a Code 3 generated and sent to PA Tower when a RESTRICTED PROCEED signal was displayed at Savage. A corrected design was sent to the field and installed. Full operational checks were made and the signals were restored to normal service at 1500 on 2-21-01.</p>									
<b>286</b>	2/24/2001	BNSF	CTC			P EPEKCK1 24A En	None	Camden, MO	N
<p>Train P EPEKCK1 24A, traveling west on main track 3 (Norfolk Southern track), observed a Red over Flashing Yellow on the 6L (Norfolk Southern signal) at CA Jct. Control Point, for a move from main 3 to main 1. The signal should have displayed Red over Yellow. This signal had been overlooked when plans were issued to change the Red over Flashing Yellow to Red over Yellow on this Subdivision to conform to current BNSF signal aspects. Temporary circuit changes were made to correct the condition until permanent circuit plans are issued. The Signal was tested and placed back in service.</p>									
<b>305</b>	3/12/2001	CSXT	CTC			Q245-10	Workmanship	Vandalia, OH	N
<p>On 3-12-01 train Q245-10 received a MEDIUM CLEAR signal entering the siding at Vandalia into a MEDIUM CLEAR signal crossing over at Vandalia crossover. Signals were removed from service pending investigation. Field investigation revealed that recently installed signals were designed for medium speed while a slow speed crossover was in service. The signals were immediately downgraded to RESTRICTING and STOP. Proper test and inspections were performed and signals were restored to service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<b>288</b>	3/30/2001	BNSF	CTC			R-SCA0111-29	Equation Error in VHLC	Commerce, CA	N
<p>The R-SCA0111-29 was lined to follow the V-LACCHC4-29 (3 units of power) from the Vail Lead eastbound to Main Track #1 at MP 148.8 CP Vail. The crew on the R-SCA0111-29 observed that the eastbound signal at Vail, 10E, displayed a Red over Yellow aspect while the V-LACCHC4-29 was still in the block ahead. The R-SCA0111-29 did not proceed until the V train was east of the next Control Point at Bandini and reported the event to the dispatcher.</p> <p>Field logs and re-enactment were able to recreate the situation.</p> <p>Cause: The control point at Vail was placed in service on February 12, 2001. The 2E-HR, which is the block between Vail and Bandini on Main Track #1 was not in the logic equation for the 10EB signal and was not identified during in-service testing.</p> <p>Corrective Action: The logic equation was modified and signal system tested.</p>									
<b>667</b>	6/5/2001	DH	AB			Train #268	Signal 2.2	Menands, NY	N
<p>Train #268 had reported that the southbound signal at CP04 went from STOP to CLEAR (for about 2 sec.) and back to STOP again. The work train (2 lite engines) was going south ahead of train #268. When the work train went past signal 2.2, it caused the timing between the Electrocode circuits south of the signal and the DC battery circuits north of the signal to allow this condition to exist. We have corrected this timing problem and retested the signals.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
312	6/16/2001	NS	CTC			NS 9360	Track Circuit	Briswold, GA	Y
<p>On 6/16/01 at 12:45 a.m. near Control Point East Griswold, GA at MP S181.1, Georgia Division Train # 191G515, lead unit 9360, struck the rear car JMHX 69090 of Georgia Division train # 119G514. Train #119 was at a stop waiting for train #192 going eastbound into the siding track at Control Point West Griswold at MP S182.7, train #191 was westbound following train #119.</p> <p>The westbound signal at East Griswold displayed an APPROACH aspect for the main track and with the main track between east and west Griswold occupied by train #119. Train #119 was waiting for eastbound train #192 to enter the siding and then was to continue westbound. Train #191 was to follow train #119 westbound and occupy the main track between the switches at Griswold, clearing the way for train #192 to proceed through the siding to the main track at East Griswold. Train #191 had a CLEAR signal at the approach signal at MP S178.2 and then an APPROACH aspect at the westbound control signal at East Griswold. The approach signal should have displayed an APPROACH aspect at S178.2 and the control signal at East Griswold should have displayed a STOP aspect. The conditions were able to be recreated and the false clear aspect displayed numerous times during testing.</p> <p>The circuitry involved is the track transmission and receive circuits of the Union Switch and Signal track code logic. This coded track circuitry was modified in January 2000 for a highway grade crossing upgrade installation at Henderson Road crossing at MP S181.1. The upgrade included the installation of a code isolation unit that is supposed to isolate the signal system track coming from the detection circuits of the highway grade crossing equipment. Testing showed that the code isolation unit was reflecting the coding information sent by the East Griswold location back into itself, through a capacitance effect generated by the isolation unit.</p> <p>The application of this particular code isolation unit in the circuit was modified after consultation with the supply vendor to eliminate the fault condition. In addition, electronic track circuit equipment will be installed as this type circuitry would eliminate the need of the code isolation unit and the fault condition altogether.</p>									
674	7/4/2001	NJTR		Remote		N/A	Span/Rail Locks	Newark Drawbridge - "Broad" Interlocking, N	N
<p>M&amp;E train dispatcher reported signals indicated they went to STOP, rail locks not locked, and track circuit occupancy on both tracks at Newark Drawbridge with no trains present and no drawbridge opening requested. The lift rails were found in the raised position with the swing span unlocked and ready to open. With the emergency system the bridge was manually locked and the rails were lowered. The automatic drive system was disengaged and de-energized to allow safe movement of trains. Investigation revealed that the wedge and rail drive control system had become falsely energized by a faulty output from the programmable logic controller used to operate the drawbridge automatically. The drive control circuit was revised to include a physical contact of the signal master relay as well as the existing software interlock.</p>									
308	7/5/2001	CSXT	AB			D750-05	Workmanship	Signal 1598, Sterling, OH	N
<p>At 0845 hours on July 5, 2001, D750-05 train crew observed Signal 1598 displaying a CLEAR (G/R) signal while moving eastbound, following behind train K518-02, which was ahead in the second block. D750-05 stated that Signal 1598 stayed CLEAR for approximately 30 seconds before changing to an APPROACH aspect (Y/R). D750-05 train crew informed the train dispatcher of the signal incident and dispatcher informed the train crew to treat the signal as RESTRICTING. Signals were removed from service. Investigation revealed that the line overlay was not properly broken through the track relays, thus giving the improper signals. Design was notified and the proper wire breaks were designed, installed and tested. Signal system was restored to service.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
315	9/18/2001	NS	CTC			P83P918	Signal "HD" Circuits	Charlotte, NC	N
<p>At approximately 4:40 p.m. on 9/18/01, Train P83P918, running southbound on Track #1 approaching the control point at North Advance, MP 379.6 on the Piedmont Division observed a DIVERGING CLEAR aspect on the southbound control signal. This was after receiving a RESTRICTING aspect at the approach signal at Summitt Avenue, MP 378.4. They were anticipating a STOP signal at N. Advance due to an occupied block indication between N. Advance and Charlotte Jct., MP 380.6 for Track #1. Switch was requested and indicating normal at N. Advance.</p> <p>Investigation revealed that the track circuit between N. Advance and Charlotte Jct. for Track #1 was a center fed DC track circuit with two track relays. One on the north end of the circuit and one on the south end. "HD" information for N. Advance is sent from Charlotte Jct. to N. Advance in a multiconductor cable between the two control points.</p> <p>A track production gang had worked track between Charlotte Jct. and N. Advance earlier that day and caused track leads for the south track relay at Charlotte Jct. to open, de-energizing the relay. Contacts of the relay were in the indication circuits and indicated an occupied block. However, they were not in the 227LBHD circuit and did not de-energize this circuit. Dispatcher had requested a follow-up move at N. Advance. The 227LBHD relay was energized and allowed the DIVERGING CLEAR (Red/Green/Red) to display.</p> <p>Circuits were corrected adding contacts of the 221RT track relay in the 227LBHD circuit to open the circuit with the track relay deenergized.</p> <p>The corrections were implemented and tested on 9/19/01.</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>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
341	9/23/2002	BNSF	CTC			P-PHXCHII-21A	None	Ft. Madison, IA	N
<p>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.</p> <p>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.</p> <p>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.</p>									
368	10/8/2002	UP	CTC		ATC	METX 159	None	West Chicago, IL	N
<p>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.</p> <p>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.</p> <p>The cut section was removed, pending redesign, and all applicable tests were performed.</p>									
342	10/30/2002	BNSF	CTC			L-CHI0081-30A	None	Ethel, MO	N
<p>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.</p> <p>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.</p> <p>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.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<b>369</b>	11/4/2002	UP	CTC			UP 4598	None	Lehi, UT	N
<p>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.</p> <p>An investigation revealed a circuit error that permitted the Red indication to flash without the signal being requested.</p> <p>The circuit error was corrected, and all applicable tests were performed.</p>									
<b>370</b>	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>									
<b>373</b>	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>									
<b>411</b>	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>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
709	3/1/2003	DH		Automatic		Train #165	Approach Signal 652.9	Hop Bottom, PA	N
<p>On Saturday, March 01, 2003, D&amp;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&amp;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>									
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>									
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>									
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>									

Report #	Date	Reporting Carrier	Block System	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
<b>384</b>	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>									
<b>402</b>	8/12/2003	NS	CTC			8631	Track Circuit	Rockmart, GA	N
<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>									
<b>385</b>	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?
<b>718</b>	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>									
<b>424</b>	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>									
<b>386</b>	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?
390	12/29/2003	BNSF	AB			Y-HUT-1011-29	Signal Circuit Design	Hutchinson, KS	N
<p>The local, working between Dodge City KS &amp; 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>									
435	1/7/2004	UP	CTC			UP 5012	None	Pedley, CA	N
<p>On January 07, 2004, at 06:27 PST in Pedley, CA on the Los Angeles Subdivision, westbound ETULA 06, on track 2 at MP 48.80, reported the 2-west signal at C049 was Yellow over Green, with the next westbound signal C047 CLEAR for movement into the pass track.</p> <p>An investigation revealed a design error that allowed the bottom head at westbound signal C049 to be Green with the switch at C047 lined for the pass track.</p> <p>The design error was corrected, and all applicable tests were performed.</p>									
434	1/19/2004	CSXT	CTC			P05218	Design Error	West AY, Richmond, VA	N
<p>At 06:57 on January 19, 2004, P05218 reported the northbound intermediate to West AY was showing CLEAR (Green) with a diverging route lined from #1 to #2 track at West AY. The signal at West AY was displaying a SLOW CLEAR (Red/Red/Green). The signals were removed from service and signal personnel were dispatched. Upon arrival at the location, signal personnel were able to duplicate the reported condition during testing. Initial investigation revealed a design error which allowed the Electrocode unit at West AY to send code to the intermediate signal (26W) allowing a more favorable signal to be displayed at the intermediate with the diverging route lined up. The proper signal aspect at the intermediate should have been APPROACH (Yellow). The design error was verified by office personnel. The circuit was redesigned and field personnel made the necessary changes. The signals were checked and 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?
<b>202</b>	1/26/2004	UP	AB			UP 2319	None	Columbus, NE	N
<p>On January 26, 1998, at 10:30 CST, on the Council Bluffs Subdivision at Columbus, NE, eastbound LNF10/26, in the siding, observed the eastbound siding leaving signal A848 and the eastbound main signal 846 display Green aspects with track circuit west of eastbound signal 846 occupied.</p> <p>An investigation revealed the track circuit west of eastbound signal 846 was left out of the control of the eastbound siding leaving signal A848.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
<b>724</b>	3/3/2004	CN		Manual		WC 3012	Interface Circuit w. METRA	Forest Park, IL	N
<p>On March 3, 2004 at approximately 1515 hours, L50191-03, northbound on single track out of Forest Park (Junction 11) off #2 Main Track reported a CLEAR signal at the approach (CM013.9), then a Red signal at B-12 while E24961-02 was coming off the IHB connection and occupying B-12.</p> <p>Upon arrival of Signal Supervisor, Testman and Maintainer, download of ElectroCode 4H was obtained and confirmed indications as reported. Check for grounds proved negative. False proceed was reproduced under reported conditions. Circuit plans were reviewed and a defect was found in the Code 4 reference in the ElectroCode 4H. This defect allowed Code 4 to be added to Code 2 already present when the IHB is lined for the WC Main through a contact of the 10LDPPR, sending a Code 7 to the approach signal. To correct this situation, a front contact of the 10LAHPPR was added to the W-C4 reference.</p> <p>After changes were made to the wiring, all signals involved were tested for proper operation and the approach signal was returned to service.</p>									

No. of Reports Shown in this Listing: **98**