



Report #	Date	Reporting Carrier	Block System	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
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151	1/2/1997	UP	CTC	Manual		Job #700	Underground Cable	Avondale, LA	N
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On January 2, 1997, at 14:25 CDT on the Alexandria Subdivision the Tower Operator at West Bridge Junction, at Milepole 10.2 reported that as Train Job #700 passed Signal No. 7 leaving the new yard on the SP tracks to Westwego, Signal No. 7 stayed Yellow.

An investigation revealed the 7GZ signal mechanism had a ground on it through an underground cable from switch No. 9 which kept the mechanism energized with a train occupying the OS track ahead of Signal No. 7.

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

109	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.

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142	1/13/1997	NS	CTC			N/A	Insulation	Front Royal, VA	N
<p>At approximately 7:30 AM Asst. Track Supervisor was driving southbound on a road adjacent to the track when he noticed southward intermediate signal 63.9 displaying a CLEAR aspect. Being aware of the fact that northbound train 460V612 was in the block ahead around milepost H-68, he knew the signal should have been displaying RESTRICTING so he reported the incident to the dispatcher.</p> <p>Signal personnel were called to investigate, and, upon arrival were able to duplicate the reported incident. Both the 63.9 and the 66.7 signals would display a CLEAR aspect when the next southward signal ahead was RESTRICTING and was not sending energy on the 667 BP line circuit. The problem was traced to a falsely energized 667 BP relay.</p> <p>Signals in this area are AC operated. The false energy was found to be caused by two grounds south of milepost H66.7. BX110 was found to be going to ground through the insulation holding a contact in the slide fence circuit controller at milepost H67.8. The grounded BX110 was getting to the 667 BP line wire from a guy wire that was touching it at milepost H 67.4. The guy wire had been damaged at some previous time, allowing it to come in contact with the 667 BP line wire. Both grounds were eliminated, the signals tested and then put back in service.</p>									
108	1/16/1997	BNSF	CTC			Q-BHSH1-15	FR-2 Module	E.E.Clearcreek, TX	N
<p>Westbound train Q-BHSH1-15, Eng 7068, reported APPROACH signal 4611 displaying a Flashing Yellow aspect and WB control signal at the east end of Clearcreek, MP-448.9 of the Panhandle Subdivision, Oklahoma Division, displaying a Red over Dark aspect with the signal cleared into the siding over a reverse switch.</p> <p>The incident was investigated by Supervisor of Signals, Signal Inspector. And Signal Maintainer. The reported condition was reproduced by making the same lineup, subsequent investigation revealed that the Electro Pneumatic Corporation (Harmon) FR-2, Revision "B," current regulated solid state flasher, was outputting 500mA at 0.95 VDC to the LB lamp which was enough current to energize the LBCR, a DN-22L, 0.8 ohm light check relay, but not enough to produce a visible light aspect.</p> <p>The FR-2 Rev. "B" module was replaced with a FR-2 Rev. "C" module and the circuit tested for proper operation.</p> <p>BNSF is in the process of upgrading all FR-2 modules to Revision "C."</p>									
152	1/23/1997	UP	CTC			UP 3697	None	Mason City, Iowa	N
<p>On January 23, 1997, at approximately 1:50 CDT on the Mason City Subdivision KSIT/22 was northbound at M.P. 199.69 and had the distant signal Green with a route to the siding at U199. The distant signal should have displayed a Yellow signal.</p> <p>An investigation revealed the Electrocode program at U199 needs to be changed to code a Yellow to the distant signal with the route lined for the siding.</p> <p>The green bulb has been removed from the distant signal until the new software is installed. All applicable tests were performed.</p>									

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130	1/24/1997	CSXT	AB			Train Z49022	Intermediate Signal	Intermediate Signal 259.2, Mitchell, IN	N
<p>On January 23, 1997 Soo Line Train Z49022 reported a CLEAR signal at intermediate 259-2 with CSX train Q564-22 ahead.</p> <p>Signal system was removed from service. Investigation revealed that the signal control wires for this signal had been damaged by rodents. Voltage present on one of these wires was demonstrated to recreate this problem.</p> <p>Train Control personnel made repairs to the signal control wires, conducted operational test and returned the signal system to service.</p>									
579	1/28/1997	WC	AB				Signal 105.9	Sussex, WI	N
<p>SA mechanism had improper polarity giving CLEAR indication verses APPROACH.</p> <p>Mechanism changed out 1/27/97 rail gang working west of signal so circuit could not be tested.</p> <p>Testman did not return to make final check after track was put back together.</p>									
131	1/29/1997	CSXT	AB			Train J770	Semaphore Mechanism	Intermediate 147.7, Crawfordsville, IN	N
<p>On January 29, 1997 northbound train J770 reported their northbound signal was CLEAR and observed the opposing southbound signal at APPROACH.</p> <p>The signal system was removed from service. Investigation revealed condensation had formed inside the semaphore mechanism housing. Due to extremely cold temperatures the brushes of the semaphore mechanism froze to the armature, preventing the mechanism from displaying the proper aspect.</p> <p>The condensation was removed from the motor brushes and armature assembly. The seals of the semaphore housing were replaced with new seals and the armature and brushes were cleaned with contact cleaner. An operational test was satisfactorily completed and the signal system was returned to service.</p>									
580	1/29/1997	SEPA	AB				Signal #302	ABS #302, MP 11.1, Main Line, Montgomery	N
<p>Nature of Failure: Engineer of southbound train 0121 reported passing signal #302 displaying CLEAR with next signal, #R2 at CP-Jenkin displaying STOP.</p> <p>Cause of Failure: Could not duplicate condition, however, during investigation and testing it was found that circuit NR2DRP contained a conductor with less than 100,000 ohms resistance to ground although the circuit was working as intended.</p> <p>A grounded conductor in this circuit could cause the condition.</p> <p>Corrective Action Taken: Relocated NR2DRP circuit to a conductor with acceptable resistance to ground reading. No other condition was found that would have contributed to the incident. Performed all necessary tests and inspections to determine if the condition existed.</p>									

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110	2/3/1997	BNSF	CTC			Z-KCTP2-28 Eng Li	None	Argentine, KS	N
<p>At 06:45 hours on Feb 3, 1997 Lite Eng 636 passed signal 2W, at CP-143, Middle Track, MP-5.5 of the Emporia Sub., Kansas Division displaying CLEAR, Green over Red. The next signal, 4W at CP-142, MP-5.8 was observed to be at Stop or Red. After stopping short of the red 4W signal the crew reported to the Kansas City dispatcher in the Soc at Schaumberg, IL.</p> <p>The incident was investigated by Gen. Supvr. Const. and Supvr. Signals. The condition was found to exist as described by the train crew. Further investigation revealed that the 4WHDP relay was energized at CP-142 when Signal 4W was at STOP causing signal 2W at CP-143 to display CLEAR. The 4WHDP relay was energized from the new wiring that was done for future track changes. No. 1 front and heel of the 4WCR had an existing circuit, 4WHDP wired in and working. An additional circuit 4WALOR was crimped into the same flag terminals (US&S plug-in relays) with No. 1 front connected to 4WGB battery buss. This connection to the battery buss was the source to energize the 4WHDP relay.</p> <p>The wiring was corrected and the system checked out and left operating as intended. There is a formal investigation of this matter pending.</p>									
153	2/8/1997	UP	AB			UP9191	Relay, 75 Coder	North Platte, Nebraska	N
<p>On February 8, 1997, at 14:40 CDT on the Council Bluffs Subdivision, CJRWB-07 was eastbound on Track No. 2 at M.P. 285.5 and observed the eastbound signal at B285 was cycling from Green to Yellow with the second track ahead of the signal occupied.</p> <p>An investigation revealed a Style 75 Coder Relay that operated the eastbound signal at B285 intermittently failing.</p> <p>The relay was replaced, and the signal system was restored to proper operation, and all applicable tests were performed.</p> <p>NOTE: This report supercedes previous report of this incident dated February 14, 1997.</p>									
581	2/20/1997	KCS	CTC			UP3589	N/A	Mauriceville, TX	N
<p>At 11:30hrs on 2/20/97 Extra UP3589 North the AGLI with Engineer and Conductor was traveling north on the main line at Mile Post 752.88 and received a CLEAR signal at signal #7522 the north bound approach to South Mauriceville. Upon arriving at South Mauriceville Mile Post 750.1 they received a Red over Lunar signal which is a normal head in move into the siding. Signal Maintainer [redacted] and Signalman [redacted] performed all applicable tests and found and corrected the problem. Signal Supervisor [redacted] was en route and verified testing and results with [redacted].</p> <p>On 2/19/97 [redacted] and [redacted] combined a split battery system (LB10 & RB10) at control point South Mauriceville, TX. During a previous wiring change an old circuit had been left in, which referenced B10 to the Code 4 output (Green output) on the south Electrocode IIC unit. This caused the approach signal (7522) to display a Green aspect. Proper testing was not performed after disarrangement of LB10 and RB10. A formal investigation is scheduled concerning this matter.</p> <p>Attached are the statements of findings from [redacted] and [redacted].</p>									

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111	2/24/1997	BNSF	AB			SP 8027 Eng, ICXCI	Signal 1617	Crowley, LA	N
<p>Upon arrival found approach signal 1617 was Green with train on mainline between switches at Crowley and east spring switch reverse for siding. Head in signal 1639 was Red with signal 1617 Green. All signals involved placed to STOP. Inspection revealed trees had fallen through the pole line and had several wires wrapped together causing signal 1617 to be false cleared with foreign battery. Trees were then cleared, pole line repaired, signals put back on line and all tested OK.</p>									
582	2/27/1997	CR		Remote		6749	Home Sig. 4E @ CP Tara	Rutherford, PA	N
<p>4E signal at CP Tara observed at Advance Approach with automatic signal 1022E ahead at STOP AND PROCEED. Cause was the 432 HGP relay being falsely energized at signal 1022E. False energy on the 432HGP circuit was caused by rodents chewing through the insulation of the conductors which control the signal mechanism. All damaged conductors were replaced, all appropriate tests were completed and the signal system was returned to service.</p>									
154	3/21/1997	UP	CTC			UP9453	None	Kansas City, Missouri	N
<p>On March 21, 1997, at 17:50 CST on the Kansas City Terminal Subdivision, CRMWL-20 was east bound stopped on Track No. 2 across the insulated joints occupying both the east and west track circuits at the intermediate signal location at Mile Post 280.4. The westbound signal at Mile Post 280.4 was observed displaying a Yellow over lunar.</p> <p>An investigation revealed the signal cabin at Mile Post 280.4 had been hit and knocked a foot off center dumping all the relays in the house.</p> <p>The relays were all righted, the signal system was restored to proper operation, and all applicable tests were performed.</p>									
144	3/22/1997	NS	CTC			8516-8558	Wiring Error	Poe, VA	N
<p>At approximately 12:10 AM, Train No. 184 eastbound received a CLEAR indication on #2 signal at Poe off the Beltline for movement onto Main No. 1. At the time, Train No. 676 was working the Car Lot track, having entered through the west end crossover off of Main No. 1. Though No. 676 was clear of the fouling circuit, both the mainline and inside hand throw switches were still in the reverse position, and since this was in the block immediately east of Poe, the #2 signal should not have cleared. The dispatcher had requested the route for Train No. 184 when the block light went off on Main No. 1 east of Poe, thinking that No. 676 had cleared up in the Car Lot track and restored his switches. The #2 signal went in time once No. 676's crew started to restore the switches. Train No. 184 did not move on the #2 CLEAR signal indication since they were aware of the reversed switches. The alertness of the involved train crews prevented an accident in this case.</p> <p>Signal personnel were called to investigate and were able to duplicate the incident. They found that neither the mainline nor the inside switch were wired according to the print. The way they were wired caused the normal switch repeater relay for this crossover to be energized not only when both switches were normal, but also when both were lined reverse (for movement main to Car Lot track). When either switch was out of correspondence with the other, the relay dropped. This is why the condition was not detected during 236.103 tests.</p> <p>The wiring errors were corrected, the signal system tested appropriately, and signals were returned to service. It is not known when or how this wiring error came about. Due to the "normal" nature of train operations involving this switch, it could have gone undetected for a long time.</p>									

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143	3/22/1997	NS	CTC			8610, 7026	Wiring Error	Harriman, TN	N
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At approximately 3:00 PM, Train No. 235 was running northbound approaching Harriman. The signal at milepost 47.1D, the approach to Harriman, was displaying a CLEAR aspect. Knowing the location of Train No. 196 ahead, the crew correctly assumed that their next signal (Signal 24-2N at Harriman, milepost 49.6D) would be displaying STOP and that they would have seen an APPROACH at 47.1D. Train No. 235 had no trouble complying with subsequent signal indications and reported the incident to the dispatcher. A following train, No. 302, reported a similar occurrence at about 3:30 PM.

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

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

145	3/24/1997	NS	CTC			8805-8893	Phantom Signal	Williamson	N
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At approximately 12:00 noon, Train No. U06-581, running eastbound, called an ADVANCE APPROACH indication on signal N-471.2 shortly after emerging from Williamson Tunnel. The crew, consisting of Engineer and Conductor and accompanied by Trainmaster, all reported seeing this indication, but as they got nearer to the signal, they reported it "dropped" to an APPROACH. Facts later were used to determine that an APPROACH was the proper signal they should have received on N-471.2 as the next signal at Williamson had never been lined for their route.

Signal personnel were called to investigate and could not duplicate the reported incident. Appropriate signal tests were made at both Williamson and at signal N-471.2 with no exceptions taken. The signal system was returned to service with appropriate limitations until a test for a phantom aspect could be made.

At about the same time the next day, a reenactment was made with a similar lead locomotive configuration. Trainmaster accompanied the signal personnel. With his help, it was determined that the ADVANCE APPROACH had first been noted in a 6-degree curve leading to the signal at a point approximately 1270 feet from the signal. The APPROACH indication had been noticed at about 950 feet from the signal. Whereas there was bright sunlight on the day of the accident, this next day it was overcast. It was observed that the signal indication could not be seen until they got to about 950 feet from the signal. Trainmaster then acknowledged that what he had observed further out than 950 feet on the previous day could not have been the lighted aspects because of the signal alignment. At about 12:15 PM the sun did come out bright and a possible phantom ADVANCE APPROACH was observed from the sun reflecting off the tops of the signal hoods. The signal hoods are slightly faded with a lot of bird droppings on them. This was a very dim looking phantom, and should not have been construed as being a signal.

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132	3/30/1997	CSXT	CTC					North Tucker, Tucker, GA	N
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On Saturday March 30, 1997 at 1:38 P.M. northbound train Q51428 reported Northward Absolute Signal at North Tucker displaying a CLEAR indication while a southward train was just south of the Gloster Holdout signal.

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

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

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

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

112	4/4/1997	BNSF	CTC			C-TPRR1-04 Engin	None	Augusta, Kansas	N
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On April 4, 1997, at approximately 1510 hours, UP coal train C-TPRR1-04, UP engine 9552, was traveling westbound on the north track of the Emporia Subdivision, Kansas Division, approaching the east end of Augusta Siding MP-183.21 when they reported the 2R signal pumping from Yellow to Flashing Yellow and back to Yellow with the next signal at CP-1853 Red to the Soc in Schaumburg, Illinois. The weather was windy, cold and raining.

The train was advised to stop short of the signal. Signal 2R was taken down and the crew advised to wait for the arrival of Supervisor Signals. Interviewed the crew and advised the dispatcher that they could flag signal 2R. This route was taken out of service until testing could be performed.

The incident was investigated by Supervisor Signals and Signal Maintainers. Signal 2R at the east end of Augusta was requested and displayed a Flashing Yellow aspect with the next signal at CP-1853 Red. Further investigation revealed that the NWMR relay at the east end of Augusta was energized with the 2RAHDP relay at CP-1853 de-energized. This allowed signal 2R to display a Flashing Yellow.

The battery end of the NWMR circuit was opened at CP-1853 and there was still approximately 10 volts DC on the circuit from an external source. The poleline was walked and a line wrap was discovered between the number 5, top arm, track side position and the number 5, bottom arm, track side position with the number 4, top arm wire laying against the number 4, bottom arm wire at approximately MP-184.64. The top arm 4 and 5 track side circuit is NSWXRN and NSWXR respectively. The bottom arm 4 and 5 is NWNRN and NWMR respectively. The NSWXR circuit is a 10 volt DC wrap for the Custer Lane crossing at MP-184.64 that is normally energized. The wires were sagging account of an imbalance on the east side of the double arm which allowed the track side west to become slack.

The wrap was removed, an arm guy installed and the slack taken out of the wires. All energy was removed from the NWMR circuit and the signal 2R now displayed a Yellow aspect. The signal was tested including cross and grounds and returned to service at approximately 1930 hours. The NWMR and NSWXR circuits were staggered to prevent a similar occurrence in the future.

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583	4/6/1997	CR		Remote		1681	Home Signal 8E	Wayne, Michigan	N
<p>Home signal 8E at Wayne Jct. Interlocking was passed in Red position by Engine 1681. Engineer and Conductor both stated that signal appeared to be displaying RESTRICTING. Investigation revealed that sunlight reflecting off of signal lens caused a Yellow aspect. Signal did have proper hood and lens configuration. Signal mechanism and lens were replaced with no noticeable improvement. Phankill was installed which improved situation. A different style of lens assembly was also installed. Signal was returned to service.</p>									
155	4/7/1997	UP	AB			LVW50-06	Switch Foot	Adobe Creek, Colorado	N
<p>On April 7, 1997, at 2:22 DST on the Hoisington Subdivision, eastbound LVW50-06 observed the signal at the west end of Adobe Creek was CLEAR with the switch at the east end of Adobe Creek in a reverse position for movement from main to siding.</p> <p>An investigation revealed the switch foot connecting the switch rod to the switch point at the east end of Adobe Creek was broken, so reversing the switch would not operate the switch circuit controller which would have caused a Red signal at the west end of Adobe Creek.</p> <p>The switch was repaired; the signal system was restored to proper operation, and all applicable tests were performed.</p>									
114	4/15/1997	BNSF	CTC			UP-		North Portland Jct., Oregon	N
<p>At 12:30 IB 4/14/97, the signal crew cut several cables with the backhoe. It was determined that just one of the cables was being used, and the rest were abandoned. After the cable was spliced together, it was decided that since the cable from the U.P. signal to the case and the cable from the U.P. case to the BN case had not been disturbed, only the circuits between the BN case and the BN tower were tested.</p> <p>On 4/15 at 02:45, I was called back because the U.P. was investigating a false proceed. They said their Yellow repeater was being held up with 4 volts on the coil, and sending a Green back to their approach when the absolute signal at North Portland Jct. was Red. It was determined that the cable supplying N-10 to the U.P. case was not repaired. With this missing, and because the case battery negative, and the tower battery negative were tied together in the U.P. case, the B-10 connected to the UP-H relay found its way back to N-10 through the Yellow repeater in the U.P. case picking this relay, and causing a false proceed on the U.P. approach signal. The negative batteries were tied together by the U.P. in their case, but this was not shown on our print or theirs.</p> <p>The N-10 cable was repaired, and the negative batteries were separated in the case eliminating the possibility of a single fault in the N-10 allowing a track relay to pick up through the common negative.</p>									

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146	5/3/1997	NS	CTC			7129	Relay	Powder Springs, GA	N
<p>At approximately 7:35 AM, Train No. 150G102 with Engineer, Engineer Trainee, and Conductor, was northbound north of Powder Springs when they called a CLEAR indication (G/R) at intermediate signal 128.2 and then had a STOP indication at the next location, Clark control point. Train No. 688 was occupying the block north of Clark. Train No. 150 was brought to a stop before passing the STOP signal at Clark.</p> <p>The incident was reported, and signal personnel were called to investigate. They were able to recreate the problem and traced it to an intermittently sticking 180D relay. The signals are controlled by a GRS Ratecode system. Yellow code rate, which was seen being received during recreation, is 75 per minute. The 180D relay is supposed to be picked only by a 180 per minute code rate as selected through a 180 decoder. With the 180D relay stuck up, signal 128.2 would display a Green over Red instead of a Yellow over Red while a 75 rate was received. If no rate received, the signal would display stop since the H relay needs to be up in order to get any signal.</p> <p>The relay, a GRS B type, was replaced; the signals were tested and then returned to service. The relay was sent to the Signal Repair Facility in Roanoke for further investigation, results of which are pending.</p>									
133	5/4/1997	CSXT	CTC			Q68402	Signal Mechanism	Oakworth, Decatur, AL	N
<p>On May 4, 1997 at approximately 2:00 a.m. Signal Maintainer while on a trouble call discovered an improperly displayed Northward Absolute Signal at Oakworth. The signal was displaying a Red over Green aspect while train Q68402 was occupying the O.S. track section. The Signal Maintainer immediately removed the signal system from service. Investigation revealed that the bottom signal mechanism was stuck on the Green aspect. A new signal mechanism was installed and additional test were performed to the Maintainer's satisfaction. The signal system was returned to service. The signal mechanism was sent to a repair facility to determine the cause of the failure with results forthcoming.</p>									
134	5/11/1997	CSXT	CTC			9026	Rusty Rail	OB Cabin, Covington, KY	N
<p>On May 11, 1997, at 0124 hours, train Q504-09 struck the rear gondola car of the Lott Yard Job, Y235, within the control point limits at OB Cabin on the Cincinnati Terminal Subdivision. Train Q504-09 was traveling northbound through the control point limits at OB Cabin on signal indication. The gondola was occupying the control point track circuit but was not detected due to rusty rail conditions. The incident was investigated by signal personnel on the morning of May 11, 1997. The incident was reported to Mr. Blanchard of the FRA via the FRA Emergency Number at 0700. Mr. Blanchard entered the information on FRA Report No. 386813.</p> <p>Investigation of the incident showed that at 2302 hours, Y235 shoved a cut of cars into the KC passing siding from the south end, KC Cabin. The crew made arrangements with the dispatcher to protect their movement by lining the N1 signal at OB Cabin. The N1 signal is the northbound signal for the KC passing siding at OB Cabin. The northbound signal at OB Cabin was still lined at the completion of the movement, indicating the control point was not occupied. The dispatcher then put the northbound signal at OB Cabin to stop. At 0123, the dispatcher lined the N3 signal for the movement of Q504-09. The N3 signal is the northbound signal on the number two main line track at OB Cabin. Q504-09 passed the N3 signal and struck the rear gondola car of Y235.</p> <p>The track relays for the N1 signal, N3 signal, and the KC passing siding were subsequently tested for shunting.</p>									

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113	5/12/1997	BNSF	CTC			H-MCKC4-10	None Noted	Sibley, Missouri	N
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At 1430 hours on May 12, 1997 westbound train H-MCKC4-10 reported that the westbound approach signal, 4221, was Flashing Yellow and the next signal at the East End of Sibley was Red. The dispatcher had an eastbound lineup at East Sibley from single track to the south track for the P-PXWSI-10. The H-MCKC4-10 was westbound on the north track approaching the end of double track at East Sibley.

The train crew consisted of Engineer and Conductor. They stated that the signal displayed what they perceived as a normal Flashing Yellow aspect until they were approximately 3-4 car lengths from the signal when it changed to a solid Yellow. The crew stated that they thought the dispatcher had pulled down the lineup and forgot to notify them. They had no problem making a normal stop at E. Sibley. The signal was lit upon arrival by the signal inspector and the signal displayed a solid Yellow aspect. The signal in question does not display a Flashing Yellow aspect. Signal tests were performed as follows: checked office logs, tested relay contacts for high resistance, looked for loose connections, inspected pole line, and inspected signal via train ride. No defects were noted and were unable to duplicate condition reported.

As a precaution, the light control unit and light bulb were changed.

156	6/3/1997	UP	CTC			UP804	Switch Circuit Controller	Geronimo, TX	N
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On June 3, 1997, at 5:45 CDST, on the Austin Subdivision, northbound LAS49/02 backed into the Geronimo Spur, at MP 219.0 and was in the clear. With the Geronimo Spur switch still reverse, a northbound signal was cleared at CPQ219 for a main line movement over the switch.

An investigation revealed that excess rail movement from loose rail seats and spikes had caused the Switch Circuit Controller cams to roll past, and off of their rollers, letting their normal contacts make and causing a false indication of the switch.

The loose rail seats and spikes were tightened and the Switch Circuit Controller was adjusted. The signal system was restored to proper operation, and all applicable tests were performed.

157	6/8/1997	UP	CTC			UP3924	Electrocode Unit	Valentine, AR	N
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On June 8, 1997, at 4:30 AM CDST on the Hoxie Subdivision, southbound MCHHO-06 on track 1 observed southbound Signal 3343 at MP 334.5 Green with the next southbound Signal 3367 at MP 336.7 Red.

An investigation revealed that, with the block occupied south of southbound Signal 3367, the Electrocode unit at 3367 was transmitting a Code 4 north to southbound Signal 3343 instead of a Code 2.

The Electrocode unit at 3367 was replaced. 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?
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158	6/13/1997	UP	AB			UP1172	None	Crockett, CA	N
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On June 13, 1997, at 19:30 PDST, on the Cal-P line of the Martinez Subdivision, eastbound 2CROCKETT13 on track No. 2 observed a Yellow over Yellow at signal 284, the approach to CP A30, with the home signal at CP A30 Red.

An investigation at the same time of day was made and revealed the bottom head of approach signal 284 was dark, but appeared to be illuminated Yellow from the rays of the sun.

Antiphantom screens were installed to Signal 284 which prevented any further reflections being observed from the sun.

115	6/14/1997	BNSF	CTC			Train S-CHR11-14, E	None	Argentine, Kansas	N
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Train S-CHR11-14, traveling westbound on the south main track of the Emporia Subdivision of the Kansas Division at MP-3.5, CP-148, 12st St., at approximately 14:43 hours on June 14, 1997, reported signal 4W displaying a Red over Flashing Yellow, signal 4W at MP-3.9, CP-147, AY Tower, was displaying a Red over Red while signal 4W at MP-4.0, CP-145, 18th St., was displaying a Red over Flashing Yellow with a route over No. 1 crossover reverse to the middle main.

The incident was investigated by Mgr Sig, Sup Sig, Gen Sup Sig Const, and Sig Mntr. The lineup was recreated and revealed that the 4W signal at CP-148 was displaying a Flashing Yellow over Red with 4W at CP-147 displaying a Red over Red with 4W at CP-145 displaying a Red over Flashing Yellow with a route over No. 1 crossover reverse to the middle main.

Further investigation revealed that the SWADGR relat at CP-147 was energized with the 4W signal at STOP. When the SWADGR relay is energized it in turn energizes the SMR circuit between CP-147 and CP-148 and allows the 4W signal to display a Flashing Yellow over Red.

The SWADGR relay should not have been energized unless the 4WAHDP was energized at CP-147. The front heel combination in the 4WAHDP relay of the SWADGR circuit was inadvertently removed during a cutover on 6/12/97 and the subsequent testing did not reveal the defect.

The SWADGR circuit was rewired to correct the defect and the route tested and returned to service at approximately 22:00 hours on 6-14-97.

159	6/16/1997	UP		Manual		UP883	None	West Bridge Jct., LA	N
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On June 19, 1997, at 15:22 CDST, on the Alexandria Subdivision at West Bridge Jct., LA, southbound MLINO-16 observed a Yellow dwarf signal for movement from the Yard to UP Long Bridge with a power switch not lined for the movement.

An investigation revealed the sun was shining in the signal and washed out the Red aspect.

The lens was changed and the signal was adjusted so it would display a more plainly lit Red aspect.

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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147	6/25/1997	NS	CTC			6594-8971	Human Error	Parrish, AL	Y
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At approximately 11:49 PM, Train No. 152, running east on signal indication, derailed on the west end of No. 2 power crossover at Parrish, MP NA-95.6.

The west end switch is a facing point move for eastbound trains. Though the route requested and the signal indication were for a straight move, the west end switch was found to be locked up in the reverse (crossover) position. TC logs showed a normal indication for this crossover since about 3:00 PM that day.

Investigation revealed that a combination of two wiring errors in the Parrish signal bungalow resulted in this accident. The first error, precipitated by an outsider cutting some of the underground cabling, resulted in the crossover correspondence relays being controlled only by the condition of the east end switch. The west end of the crossover had been erroneously patched out of the correspondence circuit. The crossover had apparently been operated this way without incident since June 10th. Then sometime presumably during the early afternoon of June 25th, the motor control straps (in the bungalow) were inadvertently removed from the west end switch while it was in the reverse position. Then when the Birmingham dispatcher requested the crossover normal at about 3:00 PM, the east end threw normal and, due to the first wiring error, picked up the normal switch correspondence relay in the bungalow. The west switch stayed locked up reverse since motor control was absent. With the crossover in this condition likely three trains, running on signal indication trailed through the west switch running westbound on the main track. The trains and approximate times were: No. W73 at about 4:01 PM, No. 319 at about 6:01 PM, and No. 191 at about 8:06 PM. Marks found on the switch point following the derailment indicated that the switch had been run through by at least one westbound move on the main while the switch was laying reverse. The point was probably bent open by this action, and this set up the condition for a derailment on the next eastbound train.

135	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.

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
116	7/9/1997	BNSF	CTC			LWAS861	Wiring Error	East Columbia River, WA	N
<p>Signal Technician and a Signalman were testing new VHLC equipment at East Columbia River control point in preparation for signal cutover. During the testing the flex wires for the westbound signal lower head were opened and when closed the WBRE wire was placed on the terminal for WBLE which resulted in the Lunar aspect being displayed when the signal should have been Red.</p> <p>Signal wires restored to proper position and complete signal aspect checkout was conducted with no other exceptions noted. Formal Investigation schedules on both individuals involved.</p>									
136	7/19/1997	CSXT	CTC			Q591-18	None	S.E. Ames, Ames, IN	N
<p>On July 18, 1997, southbound train Q591-18 was located between the switches at the south end of Ames. The south bound signal was STOP and the train crew observed the north bound signal to be APPROACH. The train was held in position until signal personnel arrived. The signal personnel confirmed the false APPROACH indication.</p> <p>Upon investigation, the signal personnel found the line wire one span north of the north bound signal wrapped. The XC circuit and the 149.6CHD were wrapped, thereby placing 8.8 volts reverse polarity to the north bound signal.</p> <p>The north bound signal went to the proper Red aspect when the wires were unwrapped.</p> <p>The signal personnel were unable to duplicate the problem after clearing the line wrap. The south bound signal continued to stay at Red. After further investigation, signal personnel found the CHD wrapped with the line common at MP 152.2 and MP 152.5. Clearing these wraps cleared the Red southbound signal. The signals were returned to service after testing for proper operation and found to be functioning properly.</p>									
160	7/24/1997	UP	CTC			SP 8280	None	Luling, LA	N
<p>On July 24, 1997 at 15:30 CDST, on the Alexandria Subdivision at Luling, LA, northbound FINOLB-23 observed northbound signal 23.7 Green with the next northbound signal at CP L027 Red and a train occupying the track north of L027.</p> <p>An investigation revealed the D biased relay at signal 23.7 had been changed out earlier due to lightning damage with a neutral relay.</p> <p>The relay was changed out to the proper relay, the signal system was restored to proper operation and all applicable tests were performed.</p>									
584	7/25/1997	CR				Train ML 420, Engi	Auto Sig 254S	Northumberland, PA	N
<p>Southbound ML420 reported automatic signal 254S displaying CLEAR with home signal ahead at CP-Norry displaying STOP.</p> <p>Cause was found to be North and South signal control wires shorted with 120volt AC line to ground due to trees fallen into pole line at mile posts 255.7 and 255.8.</p> <p>Trees were removed, signal system tested and 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?
137	7/31/1997	CSXT	CTC			Q579-31	Signal Mechanism	S.E. Hardy, Hardy, AL	N
<p>On 7/31/97, Q579-31 received a CLEAR indication at the approach signal to the SAS Hardy. The SAS Hardy indicated STOP at the time and no signal had been requested. At 1301 hours, Q579-31 overran the Red aspect at SAS Hardy.</p> <p>The SAS Hardy was removed from service and subsequently investigated by signal personnel. The Yellow Green Repeater Relay (YGPR) for the SAS Hardy signal mechanism was found energized due to a bent connector pin in the plug coupler assembly. The pin was bent following testing of the signal mechanism by maintenance personnel on the morning of 7/31/97. Voltage on the YGPR sends code back to the approach signal, thereby upgrading the approach signal to display a Green aspect while the SAS was at STOP. The voltage being applied to the YGPR had no effect on the operation of the SAS Hardy.</p> <p>The signal mechanism and coupler were replaced and signals inspected, tested, and returned to service on 8/1/97.</p>									
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 & 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>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
117	8/6/1997	BNSF	AB			SSW8089 East	Signal 1660	Crowley, LA	N
<p>Train 7290 west was in the siding at Crowley with train 7952 west pulling into the siding behind the 7290 west to meet east bound train SSW 8089. The 7952 west was too long and several cars were hanging out on the main line at the east end of the siding. Train SSW 8089 reported that when he approached and passed signal 1660 at the west end of the siding the signal 1660 was Green and when he arrived at east end signal 1639 was Red. Signal Supervisor was called and placed the signals to STOP until all trains had departed. When reenactment was done signal 1660 assumed the correct Yellow aspect. All circuits and relays were tested with no exceptions poleline was walked and line wrap was observed at mile post 164.2 account trees in the line. The wrap was between BL10 and WPC control wire, which is the pole changer from Yellow to Green at signal 1660. Even though circuit wasn't failing at time of inspection when wires were pressed together signal 1660 did change to the Green position. This failure was reproduced for the local trainmaster and we think the line wrap was the cause of the reported false proceed. The line wrap, trees, brush and BL10 were removed and all signals restored and tested OK. We will install Electrocode in this area immediately to preclude this from happening again.</p> <p>The SSW 8089 had authority in the Midland Block and was not authorized in the Crowley block. The SSW 8089 had to stop at the east end of Crowley due to no authority in the block and therefore there was no chance of a collision.</p>									
161	8/10/1997	UP	CTC		ATC	UP5071	None	Nelson, IL	N
<p>On August 10, 1997, at 17:45 CDST, on the Geneva Subdivision at Nelson, IL, eastbound worktrain WNEKCR, at mile post 105, while making a switching move from track 2 through track 3 and track 5 to the yard, ran by a dwarf signal that should have displayed a Red indication but the bulb was burnt out. The train crew claimed the dwarf signal displayed a lunar indication.</p> <p>An investigation revealed with the sun shining in the signal, it gave the appearance of a lunar indication.</p> <p>The dwarf signal is being changed out to a two position colorlight signal on a five foot mast.</p>									
139	8/13/1997	CSXT	APB			Q564-13	None	Mitchell, IN	N
<p>On August 13, 1997, north bound train Q564-13 occupied the main line between the switches at Mitchell in preparation for a reverse move onto the Indiana subdivision. After stopping short of the north end of Mitchell, the train crew observed the south bound semaphore signal at the north end of Mitchell indicating an APPROACH aspect into their occupied block. The train continued on its route and notified the dispatcher. The signals were removed from service and signal personnel dispatched to investigate.</p> <p>Signal personnel simulated the train movement and observed the south bound at the north end of Mitchell display a Yellow aspect. Investigation revealed that a line wrap with bare wire and heavy brush and rain had caused the false proceed. The negative lock control line wire (L5RGPN) wrapped with HD circuit wire 255.1HD1. The line wrap was combined with a ground due to the brush to give the false proceed.</p> <p>This segment has FRA approval for abandonment. After the line wrap was cleared, the coil wires for all signals were removed and DTC operation was put in place.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
585	8/14/1997	AMTK		Manual		None	Signal 42L	North Philadelphia, PA	N
<p>At North Philadelphia Interlocking on the NEC in Philadelphia, PA. The tower operator reported a problem with the 42L signal. The C&S forces found the 42L displaying an APPROACH aspect with a train occupying the block. Investigation finds cable conductor 42LAH5 not meeting insulation resistance standards allowing foreign current to energize the 42LAH relay. The circuit was rerouted to good conductors. All appropriate tests were made along with a complete operation check observing all aspects with no exceptions found. Signal was restored to service.</p>									
148	8/14/1997	NS		CTC		6103	Track Circuit	Peter Cave, KY	N
<p>At approximately 12:30 AM, Train No. 946 was picking up at the West End of Peter Cave. The crew noticed that with four cars past the westward signal (and occupying the OS), the signal was displaying a CLEAR indication.</p> <p>Signal personnel were called to investigate and found that the two fouling wires in the OS were broken. This is a shunt fouling circuit, and, without the fouling wires connected, the OS track circuit did not extend back to the clearance joints in the siding. The wires had been broken by the leading end of T&S Gang 23 just before they stopped work on the day before. Signal maintainers working with this gang were unaware that the work had proceeded that far before quitting for the day and had therefore not checked on the condition of these wires. There effectively was a dead section about five car lengths long between the bracket signal and the fouling joints on the turnout side.</p> <p>The wires were repaired and the track circuit tested for proper operation.</p>									
162	8/25/1997	UP		CTC		SP 8574	Battery	Strauss, NM	N
<p>On August 25, 1997, at 14:00 CDST, on the Lordsburg Subdivision at Strauss, NM, eastbound 1EPLDW.19 had a Flashing Red signal for a move from the siding to the main track before the dispatcher requested the switch reverse.</p> <p>An investigation revealed a bad set of operating battery causing pumping relays and the siding signal flashing in lieu of steady Red.</p> <p>The battery was replaced, the signal system was restored to proper operation and all applicable tests were performed.</p>									
164	8/28/1997	UP		CTC		CNW 6887	None	Dunlap, IA	N
<p>On August 28, 1997, at 11:45 CDST, on the Boone Subdivision at Dunlap, Iowa, westbound APRNP reported the westbound approach signal 299.9 to Dunlap displayed a Yellow over Green indication, and the westbound signal at Dunlap (A304) displayed a Red over Green indication with the switch lined for the siding.</p> <p>An investigation revealed that the 299BG and N299BG wires were swapped in the signal head at signal 299.9.</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?
163	8/29/1997	UP	CTC			SP8574	None	Slover, CA	N
<p>On August 29, 1997, at 12:45 CDST, on the Mojave Subdivision at Slover, CA, eastbound 1MBKWC.K22 observed a Yellow over Yellow approach signal 487.8 with the home signal at West Slover Red.</p> <p>An investigation revealed vandals had removed the back plate of the lower signal at 487.8, allowing sunlight to shine through, which produced a mistaken Yellow aspect.</p> <p>The signal system was restored to proper operation and all applicable tests were performed.</p>									
165	9/2/1997	UP	CTC			UP 9512	None	Harvard, CA	N
<p>On September 2, 1997, at 14:00 CDST, on the Los Angeles Subdivision at Harvard, CA, westbound IG2LA/30 observed a Flashing Yellow indication at westbound signal 172.3, and with a Red indication at the next westbound signal 170.5.</p> <p>An investigation revealed that a faulty eyelet on the HDR relay at signal 172.3 shorted the #1 and #2 reverse contacts together which allowed the flasher relay to pick up and operate.</p> <p>The signal was restored to proper operation, and all applicable tests were performed.</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>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
140	9/7/1997	CSXT	CTC			U141-05	None	Sessoms, GA	Y
<p>On September 7, at approximately 0950 hours, train U141-05 was traveling southbound over the switch at the north end of Sessoms. The dispatcher, desiring to line a follow-up movement, called for a reverse switch at the north end of Sessoms. The switch began to move to the reverse position while U141-05 was still over the switch, causing the derailment of four cars.</p> <p>Upon investigation, signal personnel found the TPSR relay hanging by its wires off the front of the shelf in a horizontal position. In this position, the front contacts were on the verge of being closed. The position of the relay and the vibration due to the passing train caused the contacts to close intermittently and the OS track circuit to indicate clear under the train. The OS track circuit falsely indicated CLEAR, thereby allowing the switch to reverse while the train was still over the switch.</p> <p>The relay had been installed as part of a timing circuit in late June. The relay was not in a cradle or placed on matting. The relay was repositioned and secured. The location was tested in accordance with all FRA and CSX guidelines with no exceptions taken. The location was returned to service upon completion of repairs.</p>									
170	9/8/1997	UP	CTC			UP 3347	Switch Machine	North Platte, NE	N
<p>On September 8, 1997, at 05:46 CDST, on the Council Bluffs Subdivision at B283 in North Platte, Nebraska, eastbound ZSEME 05, while making a move from Track 1 to Track 3, had a PROCEED signal with the east switch of the east crossover gapped open approximately one inch.</p> <p>An investigation revealed the switch had been run through and the switch machine and rods had been damaged and bent in such a manner to allow the machine to lock up and indicate with the point gapped.</p> <p>The switch machine was replaced, the signal system was restored to proper operation, and all applicable tests were performed.</p>									
118	9/11/1997	BNSF		Automatic		E-MEACDM023	None	Shattuc, IL	N
<p>Train E-MEACDM023 reported that the approach signal to the Shattuc Automatic Interlocker was Green and that the absolute signal at the Shattuc Interlocker was Red and a CSX train was occupying the interlocker. E-MEACDM023 was traveling eastbound and got by the absolute signal. Signal Dept. forces from both the BNSF and CSX responded to conduct signal tests, review the information from the event recorder and simulate the event with track shunts. All tests reproduce the event with the timing shown on the event recorder were negative, and tests for cross and grounds, relay values, approach locking and inspection of signals and equipment showed no defects. The interlocker is maintained by the CSX and the BNSF approach signal and track circuits are maintained by BNSF.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
121	9/12/1997	BNSF	CTC			UP LNJ5812	Alleged 2R Signal	Eton, MO	N
<p>Eastbound UPRR train LNJ5812 was stopped at Eton on south track at the 4R signal. An eastbound train on the north track was crossing over from north to south track. The engineer and conductor on the UPRR train stated that as the train on the adjacent track was going under the 2R signal on the north track that the signal was going from Red over Red to Red over Yellow. This occurred numerous times. This was not the signal for EB movement on the south track for the UPRR train.</p> <p>Due to a communication error between the dispatcher and signal controller, the wrong signal was investigated by field personnel. The signal team investigated the eastbound signal on the south track. They looked at the field logs, office logs and did a reenactment. The replay did show that the switch went out of correspondence momentarily, and a bad order 4TU timer were found. These two problems did not cause the signal to change aspect as reported but were found and repaired while testing. Another field investigation was accomplished on October 2 and 3, 1997. The proper signal was investigated with no exceptions.</p> <p>The outer 10 degree deflecting lens and phankill units were removed from all signals at this location on 9-17-97 to reduce this potential of sunlight being reflected into the signal.</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>									
168	9/15/1997	UP	AB			Yard Job	None	Commerce City, CO	N
<p>On September 15, 1997, on the Greely Subdivision at Commerce City, Colorado, the southbound Yard Job reported the northbound signal at milepost 4.0 displayed a Green indication with the track occupied north of the signal.</p> <p>An investigation revealed that vandals had painted the red lens of the northbound signal at milepost 4.0 with blue paint, which caused the signal to appear to display a Green indication.</p> <p>The painted lens was replaced with a red lens, 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?
167	9/18/1997	UP	CTC		ATC	175	None	Chicago, IL	N
<p>On September 18, 1997, at 11:00 CDST, on the Geneva Subdivision at Chicago, IL, the Switch Tender reported the eastbound signal 3.8 on #1 Main Track was Green with the track occupied east of the signal.</p> <p>An investigation revealed a rusty rail condition was preventing the track circuit from shunting while occupied.</p> <p>The track relay was adjusted and a stainless steel bead will be welded to the rail. The signal system was restored to proper operation, and all applicable tests were performed.</p>									
169	9/22/1997	UP	AB			SSW9627	None	Fort Worth, TX	N
<p>On September 22, 1997, on the Dallas Subdivision at Fort Worth, TX, westbound ZMEL/21 on track #1 observed a Green signal aspect at westbound signal T246, and Red signal aspect at the next intermediate westbound signal 246.3, with the track occupied west of 246.3.</p> <p>An investigation revealed the polarity was reversed on the "D" relay coils for signal T246.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
120	9/26/1997	BNSF	AB			SF3680	Signal 1401	Elks DTC Bolck near Lafayette, LA	N
<p>Train P-NWOCLO1-26/engine SF3680 reported signal 1401 Green with next signal 1415 Red with no other trains in vicinity. Upon arrival Signal Supervisor and Signal Maintainer observed the above condition and placed 1401 signal to STOP. Further investigation revealed signal 1415 was Red due to a failed rectifier which shorted down the signal batteries at 1415 signal. Signal 1401 was Green account line wire 01G was wrapped with the 15PCR line wire which falsely held 1401 Green. The line wrap was caused by a dozer working under our poleline near mile post 140.05. The dozer had hit one of our poles and caused a hard wrap. There wasn't any trees or brush in this area and the dozer apparently belongs to a farmer doing work in the field next to the BNSF property. After line wrap was removed and rectifier replaced, signal 1401 was restored to service, all circuits tested and ok for service. Electrocode will be installed in this area to retire the poleline circuits.</p>									
172	9/27/1997	UP	AB			None	None	Shreveport, LA	N
<p>On September 27, 1997 on the Reisor Subdivision at Shreveport, Louisiana, the northbound signal 315.7 at milepost 315.6 (Hollywood Junction) was observed to display a Green aspect with the track north of the signals occupied.</p> <p>An investigation revealed scrap wire, laying on the pole line north of signal 315.7, shorting and false feeding signal control circuits.</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?
171	9/29/1997	UP	CTC			SP 8007	Code Relay	Lasca, TX	N
<p>On September 29, 1997 at 04:40 CDST, on the Valentine Subdivision at Lasca, Texas, eastbound 11LAAV/23, on the main track at mile pole 746.1, observed a Green eastbound signal at the west end of Lasca, with a Red eastbound signal at the east end of Lasca.</p> <p>An investigation revealed a bad order 180 code relay at west end of Lasca was responding to 75 code.</p> <p>The signal was restored to proper operation, and all applicable tests were performed.</p>									
122	10/1/1997	BNSF	CTC				3E Signal - Searchlight Mech	Mississippi St. Control Point, St. Paul, MN	N
<p>On Oct 1, 1997 at 1643 CST, vandals shot out both signal heads on the eastbound controlled signal on the eastward track (Main 2) at Mississippi Street on the Minnesota Division, St. Paul Subdivision, causing 3E signal to display the aspect Dark/White Light. Both A and B head searchlight mechanisms were replaced and testing completed at 0300hrs CST Oct 2, 1997.</p>									
587	10/5/1997	IMRL	CTC			IMRL 218	None	Deer Creek, Iowa	N
<p>On October 5, 1997, Engineer on train 98K 04 reported that he observed the eastward absolute signal at East Deer Creek as displaying a Yellow aspect. The proped aspect for the eastward absolute signal at East Deer Creek at this time was Red. This signal had not been lined by the dispatcher.</p> <p>Signal Department personnel were immediately called to investigate this incident. Personnel performing operating tests and were unable to duplicate this incident. Personnel viewed the log report and replayed the events as they occurred from the CTC Computer System which indicated the eastward absolute signal at East Deer Creek was never lined for train 98K 04.</p> <p>The only exception found by Signal Department personnel was the hood was not secured on the lower light unit. This condition is still under investigation to determine if the reflection from the sun could have [ends in mid-sentence]</p>									
123	10/8/1997	BNSF	CTC			UINBROO108	None	Towal, WA	N
<p>Signal Supervisor was notified by SCC, approximately 1415 10-08-97, that a train had passed a Red absolute signal at West Towal. After talking to NOC, Supervisor it was determined that at West Towal the replay showed no signal had been requested, no EB signal was cleared, switch was reversed, WBK was on, and OS circuit was occupied. While Signal Supervisor was in route to West Towal, Trainmaster interviewed the train crew and reported the approach signal 121.2 displayed an APPROACH, then when they were about five to six cars from the signal the signal displayed APPROACH MEDIUM. On approach to West Towal the signal displayed STOP and the train crew could not stop their train before passing the signal displaying STOP. The engine stopped approximately 15 feet past the signal. The train crew reported the approach signal was properly aligned and had a bright aspect. The day was overcast with intermittent rain showers, All tests and inspections were made at both West Towal and at the signal 121.2 with no exceptions taken to any equipment. Signal aspect observed at approx. same time of day and no exceptions taken. An event recorder has been installed at signal 121.2 and will be monitored.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking System	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
124	10/9/1997	BNSF	CTC			STACBPA109	None	Wishram, WA	N
<p>On Friday 10/10/97, at 16:00 Pacific time, Signal Supervisor was informed by the Superintendent that there was an alleged false proceed at Wishram Center at around 22:00 Thursday night, 10/9/97. A train crew near Maryhill claimed they overheard a conversation between the dispatcher and STACBPA109 train crew about going by a CLEAR signal at Wishram Center into a Red signal at Wishram East. The CTC logs were pulled, and it was determined that they did have a signal at Wishram Center, but the aspect cannot be determined by the logs. At that time, East Wishram had not been lined yet.</p> <p>Signal Supervisor and Signal Inspector tested both Wishram Center and Wishram East and could not duplicate the reported problem and took no exception to the operation of the signal system at these locations. The train crew was interviewed by the Superintendent in Vancouver when they returned Friday night, and they verified what the other train crew reported.</p> <p>Signal Supervisor talked to Engineer on 10/15. He thought the dispatcher lined the signal, then took it away putting the plant in time. According to the CTC logs, this did happen earlier, but it was long before they would have seen it at Wishram Center. The engineer advised he called the dispatcher immediately to report the incident and was told by the dispatcher to continue on.</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>									
125	10/14/1997	BNSF		Remote		Train ID # CJRKCN	Phantom Signal	Lincoln, NE	N
<p>Train crew reported to the Carling Tower Operator that they had a Red over Lunar aspect on the 2E Signal on the South Wye at Hall Tower Interlocking plant. The train stopped prior to passing the signal and questioned the Carling Operator since he had not seen this aspect on this particular signal before. The Operator had not lined the signal. Signal personnel determined that the 2E signal was not equipped with a lunar lens. It was determined that what they saw was the sun reflecting off the snow shield on the bottom head. This signal is located on a curve and next to an overpass which was casting a shadow on a portion of the signal. Signal personnel did observe the reflection that was reported by the train crew which was a very bright white light approximately 3 to 4 inches in diameter. The signal was re-adjusted for better visibility and individual hoods for each aspect were installed, replacing the snow hood which is a continuous hood shielding all aspects. This is a new Safetran signal which includes new back grounds and hoods.</p>									

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
141	10/14/1997	CSXT	CTC			A013-14	None	Horn Industrial Track, Elberton, GA	N
<p>On October 15, the engineer of work train A013 mentioned during a conversation with signal personnel that there was a problem with the dwarf signal on the Horn industrial track at the south end of Norman on the Abbeville subdivision. The engineer said that he had received a Yellow aspect to exit the industrial track onto the occupied siding. The proper signal should have been a lunar aspect for RESTRICTING speed. The signals at the south end of Norman were suspended pending investigation.</p> <p>Investigation revealed that the engineer had received a Yellow aspect to exit the industrial track onto an occupied siding. The signal should have been a lunar aspect indicating a RESTRICTING signal. The wiring in the location was according to plan. Discussion with the signal design group revealed that the Yellow lens had never been changed to a lunar when the operating rules were changed.</p> <p>The Yellow lens was changed to a lunar and all circuit wiring was verified to plans. The location was placed back in service following a complete operational test.</p>									
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>									
173	10/22/1997	UP	AB			UP 3592	Switch Circuit Controller	Boracho, TX	N
<p>On October 22, 1997 at 21:00 CDT, on the Baird Subdivision at Boracho, Texas, westbound IDALB 21, on the main track, reported westbound signal 708.1 Green with the spring switch in the next block at MP 710.0 lined reverse.</p> <p>An investigation revealed a bad order switch circuit controller at the spring switch.</p> <p>The switch circuit controller was replaced. 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?
127	10/25/1997	BNSF	CTC 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.			VKCKPHX123, Eng	2W Signal	Canyon Diablo, AZ	N
174	11/5/1997	UP	CTC On November 5, 1997 at 12:10 CDT, on the Falls City Subdivision in Falls City, Nebraska, at Control Point Z384, northbound ZMESE 03 on the main track had CLEAR signals with the siding switch of a crossover movement. An investigation revealed the shunt wires were broken at the siding switch of the crossover at MP 384.4. The shunt wires were replaced. The signal system was restored to proper operation, and all applicable tests were performed.			UP 9367	Shunt Wires	Falls City, Nebraska	N
175	11/14/1997	UP	AB On November 14, 1997 at 03:58 CST, on the Carrizozo Subdivision at Carrizozo, New Mexico, westbound IGTWC-05 observed a Green approach Semaphore signal 1441.5 to a Red signal 1440.3 at the east end of Carrizozo. An investigation revealed a plugged air valve in the Semaphore signal 1441.5 did not let the signal move to a Yellow position. The signal system was restored to proper operation, and all applicable tests were performed.			SSW 9690	Semaphore Signal Air Valve	Carrizozo, NM	N
589	11/20/1997	CR	Remote 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. 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.			None	Home Signal 5W	Cleveland, Ohio	N

Report #	Date	Reporting Carrier	Block System Narrative	Interlocking	Auto. Systems	Loco or Train No.	Device that Failed	Location	Collision or Derailment?
128	11/22/1997	BNSF		Manual		SPOALB		Loc. CP 143, Pasco, WA	N
<p>Signal Supervisor was notified by Division Trainmaster on Nov. 24 that a train reported passing a signal displaying an ADVANCE APPROACH (Rule 9.1.5) at CP 143 and the next signal was RESTRICTING (Rule 9.1.13) at CP Grapevine. The message said CP 143 was Yellow over Green and CP Grapevine was Lunar under. After Trainmaster spoke with the Engineer, he reported the train was on Main One and at CP 143 the signal aspect west bound was Yellow over Green, at CP Grapevine the route was Main One to the Grapevine Lead with a Red over Lunar. The Engineer reported he knew the route he was lined for and recognized the aspect displayed at CP 143 was incorrect and handled his train accordingly. Rule 9.1.5 ADVANCE APPROACH was NOT listed as an applicable signal for Main One West Bound in the General Order putting CP 143 in service.</p> <p>Upon investigation it was found the 1WB signal at CP 143 had Green, Green, and Red lens installed, when it should have been Lunar, Lunar, Red lens. The correct lens were installed and testing completed at 1400 24 Nov 1997.</p>									
590	12/2/1997	AMTK				101	3BSA Relay	Phila., PA	N
<p>Amtrak train no. 653 engine no. 101 traveling west on no. 3 track passed auto signal no. 69. Auto signal 69 on no. 3 track was observed displaying APPROACH with the block occupied. C&S forces investigating found the "3BSA" relay not wired properly. The relay was replaced. All appropriate tests were made along with a complete operational check. Signal 69 was returned to service with no exceptions. Disciplinary actions have been initiated to prevent any reoccurrence.</p>									
176	12/5/1997	UP				CNW 8830	None	Sheep Creek, WY	N
<p>On December 05, 1997 at 12:53 MST, on the North Platte Subdivision at CPW195 in Sheep Creek, WY, westbound CNWNA-01, making a move from track #2 to track #1, observed the signal change from Red over lunar momentarily to Red over Green and then back to a Red indication with the track occupied in front of him.</p> <p>An investigation determined a temporary loss of shunt of the light engine on the main track west of W195 caused the momentary proceed indication.</p> <p>All applicable tests were performed.</p>									
177	12/5/1997	UP				CSX T8603	None	AMA Jct., LA	N
<p>On December 05, 1997 at 04:23 CST, on the Alexandria Subdivision at CPL021, AMA Jct., LA, southbound MLINOB/04 on track #1 observed a Yellow over Red signal with the track ahead occupied.</p> <p>An investigation revealed the HR relay output and relay common wires swapped between track 1 and track 2 at LO21.</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?
178	12/11/1997	UP	CTC			UP 3539	None	Pace, MO	N
<p>On December 11, 1997 at 09:25 CST, on the Sedalia Subdivision at Pace, Missouri, eastbound MKCAS-09 observed the eastbound approach signal on track #1 at milepost 59.0 indicating a Yellow over Yellow signal, with the eastbound home signal on track #1 at CP M058 indicating a Red signal.</p> <p>An investigation revealed the eastbound approach signal at milepost 59.0 had a bottom signal head that has one light which is yellow. The access door to the bottom signal head was open and sunlight shining into the back of it gave the appearance of a Yellow signal on the bottom head.</p> <p>The signal system was restored to proper operation, and all applicable tests were performed.</p>									
591	12/16/1997	CR	CTC			MAIL 8M, Eng 5564	Signal 2E	Nasby Interlocking, Toledo, OH	N
<p>Crew of MAIL-8, located on the siding west of Nasby Interlocking, Chicago Line, MP 272, observed signal 2E on Track 2 displaying APPROACH with MAIL-8M head end in the interlocking and the rear end west of the plant on #2 Track. Cause was found to be improperly wired contacts on the 2HPR polar relay. This allowed lighting energy to hold up the SR relay when AC power was off. The additional wire was removed from the relay, all appropriate tests were performed and the signal system returned to service.</p>									
129	12/17/1997	BNSF	CTC			EMD 9068	None	Crawford, Nebraska	N
<p>Approximately 1545 MST EMD 9068 with 115 loads 0 empties, 15600 tons, 6700 feet long, train symbol CBKMSLC459, was eastbound Main Track 2 and had a Green/Red at Control Point Crossover 437.5, Flashing Yellow/Red at intermediate signal 2-427.2 and red/red at control point Crossover 425.5. Engineer made normal train stop in approach of Red/Red at Crossover 425.5 and was advised by Signal Inspector and Signal Electronic Technician that they were troubleshooting a signal problem and that they had caused intermediate signal 2-427.2 to display Flashing Yellow/Red. Crew notified dispatcher, and Signal Supervisor was notified. Signal Supervisor obtained statements from Inspector and Electronic Technician. Inspector was testing for a cross by opening wires one at a time off of the C12 buss and had removed the C12 coil wire from the buss which fed the 2EAHGR relay. Removing the wire created a pickup path that passed through the coils of the 2EASPR, the 2EAHGR to the 2EAHGPR by way of a parallel coil wire connection and energized the 2EAHGPR causing the Electrocode unit to transmit a Flashing Yellow code 4 to signal 2-427.2.</p> <p>Corrective action: Parallel coil wire connection between the 2EAHGR and 2EAHGPR was separated and the 2EAHGPR was made a repeater of the 2EAHGR. Signal system tested with no exceptions. Investigation scheduled to determine responsibilities of Inspector and Electronic Technician.</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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149	12/30/1997	NS	CTC			8808-8677	Phantom Signal	Pearisburg	N
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At approximately 3:10 PM, Train No. 817 reported to the dispatcher that they had received an APPROACH DIVERGING westbound at signal 327.5, but when they arrived at the next signal, Control Point Pearisburg, the signal there was at STOP. The switch was lined normal (correct for their move), but the dispatcher had not yet requested a signal at Pearisburg for their move. Signal 327.5 should have been displaying APPROACH. No. 817 got stopped 35 cars lengths past the signal. No other trains were involved.

Signal personnel were called to investigate, but could not find a problem or duplicate the incident. The signal control on the single track approaching Pearisburg is by Electrocode 4. Signal 327.5 is a right hand ground mast colorlight. It has a three position head over a single green head which is illuminated only for APPROACH DIVERGING. All heads are phankill equipped. As the train crew said the bottom green appeared weak, a test was scheduled for the same time the following day for a possible phantom signal. That test did show a weak (whitish) phantom green on the normally dark head that was found to be caused by reflection from heavy snow on the ground in front of the signal. The sun at the time was about 40-degrees up and to the back of the signal in question. As the sun went down, the reflection got dimmed, disappearing altogether by 4:00 PM. The bottom head was turned to the field until the snow was gone.

150	12/31/1997	NS	CTC			9004	Signal Lens	Cleveland, TN	N
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At approximately 7:00 AM, Train No. Q26, while running eastbound on the siding between Control Points Bradley and Lyle, went by the eastward signal at Lyle while it was displaying STOP. The engineer was able to come to a stop one car length past the signal into the OS at Lyle. No other trains were in the area, and the signal had not been lined for No. Q26 to leave the siding onto single track. Both crew members reported they observed the signal to be displaying DIVERGING APPROACH when they were about 50 cars west of it. Once they were within 5 car lengths of the signal, they said they saw it drop to STOP so came to a safe stop. Signal personnel were called to investigate.

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

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

No. of Reports Shown in this Listing: **83**