

FEDERAL RAILROAD ADMINISTRATION

FALSE PROCEED SIGNAL REPORT

Jun-01

DATE

19-Jun-01

REPORTING CARRIER

Norfolk Southern Corporation

Division: Georgia Division

REPORTING OFFICER

Chief Engineer - Eastern Region
Communications & Signal Department

MAIL TO

Mr. Michael Woods
Federal Railroad Administration
16th Floor - Suite 16T20
100 Alabama Street, SW
Atlanta, GA 30303-3104

TYPE OF SYSTEM	DATE	LOCOMOTIVE NUMBER	DEVICE THAT FAILED	LOCATION (city and state)
1 BLOCK SYSTEMS <input type="checkbox"/> AB <input type="checkbox"/> APB <input checked="" type="checkbox"/> TC	06/16/2001	NS 9360	Track Circuit	Griswold, GA
2 INTERLOCKING <input type="checkbox"/> REMOTE <input type="checkbox"/> MANUAL <input type="checkbox"/> AUTO-MATIC				
3 AUTOMATIC SYSTEMS <input type="checkbox"/> ATS <input type="checkbox"/> ATC <input type="checkbox"/> ACS				
4 OTHER (specify)				

NATURE AND CAUSE OF FAILURE / CORRECTIVE ACTION TAKEN

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 NS 9360 with Conductor J. and Engineer , struck the rear car JMHX 69090 of Georgia Division train # 119G514, with Conductor and Engineer . Train # 119 was at a stop waiting for train #192 going eastbound into the siding track at Control Point West Griswold at MP S182.7, train #191 was westbound following train #119.

The westbound signal at East Griswold displayed an approach aspect for the main track 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.

It was determined that the cause of the false clear was in the track transmission and receive circuit for the main track between East and West Griswold. It was erroneously coding the track relay (LTR) which then allowed the reverse polarity repeater relay (LTRFPR) to energize, the block H relay (LHR) would energize allowing the route check relay (LHSPR) to pick up and finally the signal H relay (12LAHR) would pick up and display the approach aspect on the 12L westbound signal.

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 coding from the detection circuits of the highway grade crossing equipment. Testing showed that the code isolation unit was reflecting the coding information sent by the East Griswold location back into itself, through a capacitance effect generated by the isolation unit.

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