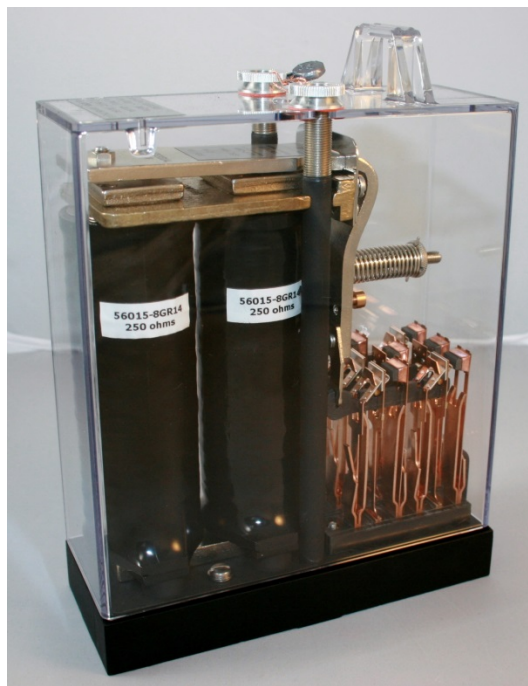


# ***SAFETY NOTICE***

**TYPE B1 RELAYS (1960 – 1985)**

**August 18, 1995**



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GRS has received reports of a residual screw in the armature of a Type B1 relay not releasing from the lower core head surface within a specified time. This condition could develop in any application utilizing one or more B1 relays.

GRS has evaluated these incidents and after extensive testing has concluded:

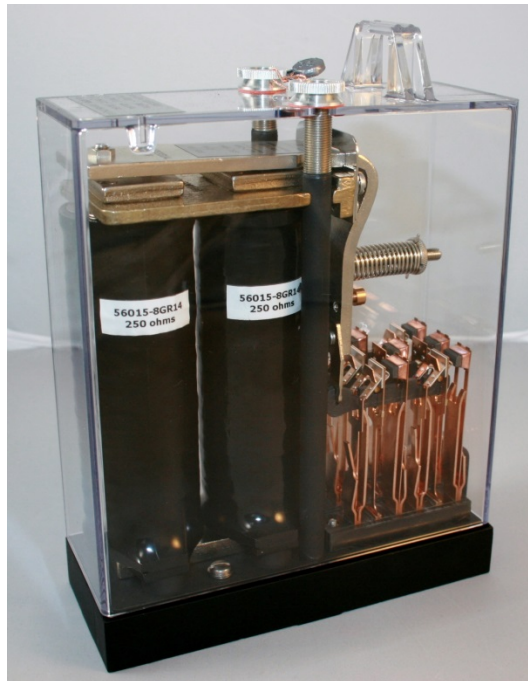
1. The condition arises from the transfer of material from the cadmium-tin plated core head to the copper-silicon residual screw, which can cause the residual screw to adhere to the core head.
2. Any B1 relay manufactured by GRS between January 1960 and December 1985 incorporating a residual screw could develop this condition.
3. The condition is more likely to occur in B1 relays normally in the energized position used in one or more of the following circumstances:
  - a. High temperatures, i.e. ambient temperatures above 100 degrees Fahrenheit (38 degrees Celsius) on a regular basis; and/or
  - b. Number of operations of the B1 relay is less than four (4) times a day.
4. To avoid the condition, all B1 relays manufactured between January 1960 and December 1985 incorporating a residual screw should be modified by replacing the residual screw with a new residual screw.
5. B1 relays manufactured **before January 1960**, which incorporated a smaller diameter residual screw, are not affected by this notice.
6. B1 relays manufactured **after December 1985** are not affected by this notice. All relays manufactured after 1985 have been outfitted with nickel plated lower core heads and are not susceptible to this condition.

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# ***ADDENDUM to SAFETY NOTICE***

## **TYPE B1 RELAYS (1960 – 1985)**

**February 4, 2008**



This is an Addendum to the Type B1 Safety Notice dated August 18, 1995 and covers Type B1 Relays manufactured by General Railway Signal Corporation (now known as ALSTOM Signaling Inc.) between January 1960 and December 1985. This Addendum provides information concerning relays that have been reworked per the Safety Notice dated August 18, 1995. It does not supersede said Safety Notice.

It has been reported that the residual screw in a small percentage of its reworked B1 relays did not properly release from the lower core head surface within the specified drop-away current. There have been no reports that these occurrences have caused unsafe operation in service.

Alstom has evaluated these incidents and after extensive analysis has concluded:

1. The occurrence results from the transfer of material from the cadmium-tin plated core head to the residual screw, which can cause the residual screw to adhere to the core head.
2. This transfer of material could potentially occur in any B1 relay incorporating a residual screw which was manufactured between January 1960 and December 1985. However, there is an extremely low probability that this transfer of material will occur in relays which were reworked per the recommendations of the Safety Notice dated August 18, 1995. Periodic visual inspection and electrical testing to verify proper operation should permit detection and correction of any such material transfer before it causes an unsafe operation.
3. ALSTOM recommends that customer who reworked B1 relays in accordance with the B1 Safety Notice dated August 18, 1995 perform periodic visual inspection and electrical testing of the relays to ensure proper operation. Any B1 relay that exhibits a reduction in drop away value should be removed from service and the core surface and residual screw should be carefully inspected. If such inspection shows that cadmium-tin plating has transferred to the residual screw surface and/or that the core surface is worn, it is recommended that customer rework the relays per the B1 Relay Safety Notice dated August 18, 1995.
4. Alternatively, B1 relays manufactured between January 1960 and December 1985 incorporating a residual screw can be reworked by replacing the relay core and bracket assembly and the residual screw. The replacement core and bracket uses nickel-plating, which eliminates the possibility of material transfer from the core surface to the residual screw.
5. The attached information identifies by serial number the B1 relays which were manufactured between January 1960 and December 1985.

# ALSTOM Serial Number Sequences

The following serial number sequences were used on relays manufactured between January 1960 and December 1985:

- a. Relays manufactured between January 1, 1960 and January 8, 1973 have serial numbers consisting of a six (6) digit number equal to or greater than 286576 and less than 600000.
- b. Relays manufactured between January 9, 1973 and October 1983 have a six-character serial number. Serial numbers begin with a letter ranging from "A" to "L", signifying the calendar months January through December respectively, followed by a two (2) digit number ranging from 73 to 83, signifying the year 1973 through 1983 respectively, followed by a three (3) digit alpha numeric character. An example of a serial number for such a relay is "D79-A02". In this example, the number "79" identifies a relay manufactured in 1979.
- c. Relays manufactured between October 1983 and December 31, 1985 have a nine-character serial number. Serial numbers begin with a five (5) digit number followed by a letter "C" through "E", where the letter "C" signifies the year 1983 and the letter "E" signifies the year 1985, followed by three (3) numbers comprising the sequence number of the relay within the factory order. An example of a serial number for such a relay is "12345D123".

The complete sequence for this group of serial numbers is:

C = 1983      D = 1984      E = 1985