

Part 21 (PAR)

Event # 49230

<b>Rep Org:</b> ABB INC.	<b>Notification Date / Time:</b> 07/31/2013 17:45 (EDT)
<b>Supplier:</b> ABB INC.	<b>Event Date / Time:</b> 07/31/2013 (EDT)
	<b>Last Modification:</b> 04/08/2015
<b>Region:</b> 1	<b>Docket #:</b>
<b>City:</b> FLORENCE	<b>Agreement State:</b> Yes
<b>County:</b>	<b>License #:</b>
<b>State:</b> SC	
<b>NRC Notified by:</b> JAY LAVRINC	<b>Notifications:</b> GORDON HUNEGS R1DO
<b>HQ Ops Officer:</b> DONALD NORWOOD	MICHAEL F. KING R2DO
<b>Emergency Class:</b> NON EMERGENCY	STEVE ORTH R3DO
<b>10 CFR Section:</b>	THOMAS FARNHOLTZ R4DO
21.21(d)(3)(i) DEFECTS AND NONCOMPLIANCE	PART 21 REACTORS EMAIL

## PART 21 REPORT - DEVIATION OF HK CIRCUIT BREAKER CLOSE LATCH SPRING

ABB identified a deviation with close latch springs provided since 1/20/2010 used in medium voltage HK circuit breakers. These close latch springs are used on new legacy HK circuit breakers, replaced during HK circuit breaker refurbishment activities, and provided in HK refurbishment kits and as component items. The ABB part number for the close latch spring is: 162374A00. The nature of the deviation is a reduced spring force. There is a potential for an aged HK circuit breaker with hardening grease and this reduced spring force not to close.

The following is a list of affected customers:

Detroit Edison Fermi 2  
 Dominion VA  
 DTE  
 Duke Catawba  
 Duke Energy - Seneca  
 Duke Energy - Cataw  
 Duke Huntersville  
 Duke McGuire  
 Duke Oconee  
 Entergy River Bend  
 Exelon Limerick  
 Exelon Nuclear  
 Exelon Peach Bottom  
 Exelon Point Beach  
 First Energy Beaver Valley  
 Georgia Power Plant Vogtle

LE19  
 NRR

Nextera Point Beach  
 Nextera Seabrook  
 Prairie Island Nuclear  
 Progress Energy Brunswick  
 Progress Energy Crystal River  
 PSEG Alloway Creek  
 Southern Cal Edison  
 STP Nuclear  
 TVA Sequoyah.

\*\*\* UPDATE AT 1715 EDT ON 04/08/15 FROM DAVID C. BROWN TO S. SANDIN \*\*\*

The following information is excerpted from a fax/email submitted by ABB, Inc.:

"This letter amends the previous 10CFR Part 21 Notification of 31 July 2013 to encompass a wider time period during which the close latch spring (P/N: 162374A00) was sold for use in medium voltage HK circuit breakers. The initial time period of concern reported was January 2010 to July 2013. Revision 7 to the print was issued in January 2010 and it was determined during the initial investigation that this was the start of the deviation because the free angle was incorrectly shown. Our [ABB, Inc.] corrective actions in 2013 corrected this mistake.

"In February 2015, a licensee notified us [ABB, Inc.] of springs from 2007 that have the same improper free angle. The order of springs received just prior to it had the proper free angle. We [ABB, Inc.] have narrowed the start time of this issue to the lone batch of springs purchased in 2007 as they were received shortly before the order identified by the licensee was released."

Notified R1DO (Ferdas), R2DO (Heisserer), R3DO (Skokowski), R4DO (Azua) and NRR Part 21 via email.

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April 6, 2015

Document Control Desk  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555-0001  
FAX 301-816-5151

**Subject: Amendment to Previous 10CFR Part 21 Notification of Deviation re. HK Circuit Breaker  
Close Latch Spring**

This letter amends the previous 10CFR Part 21 Notification of 31 July 2013 to encompass a wider time period during which the close latch spring (P/N: 162374A00) was sold for use in medium voltage HK circuit breakers. The initial time period of concern reported was January 2010 to July 2013. Revision 7 to the print was issued in January 2010 and it was determined during the initial investigation that this was the start of the deviation because the free angle was incorrectly shown. Our corrective actions in 2013 corrected this mistake.

In February 2015, a licensee notified us of springs from 2007 that have the same improper free angle. The order of springs received just prior to it had the proper free angle. We have narrowed the start time of this issue to the lone batch of springs purchased in 2007 as they were received shortly before the order identified by the licensee was released.

1. This letter provides notification of a failure to comply with specifications associated with a close latch spring part number 162374A00 used in medium voltage HK circuit breakers. Information is provided as specified in 10CFR21 paragraph 21.21(d) (4).
2. Notifying individual: Jay Lavrinc, Vice President & General Manager, ABB (Medium Voltage Service), 2300 Mechanicsville Road, Florence, SC 29501
3. Identification of the Subject component: ABB part number 162374A00 close latch spring. This close latch spring is a torsion spring that is used on new legacy HK circuit breakers, replaced during HK circuit breaker refurbishment activities and provided in HK refurbishment kits and as component items.
4. Nature of the deviation: The close latch springs provided during the reported time period have acceptable dimensional, material type and finish critical characteristics; however a sampling of springs were found to be as much as 34% lower initial moment and as low as 18% lower final moment relative to the nominal requirements of the master drawing. There is a potential for an aged HK circuit breaker with hardening grease (towards the end of the ABB 10-year recommended maintenance periodicity) and this reduced spring force not to close when commanded. No field failures or shop failures of this closing latch spring have been identified.

**ABB Inc.**

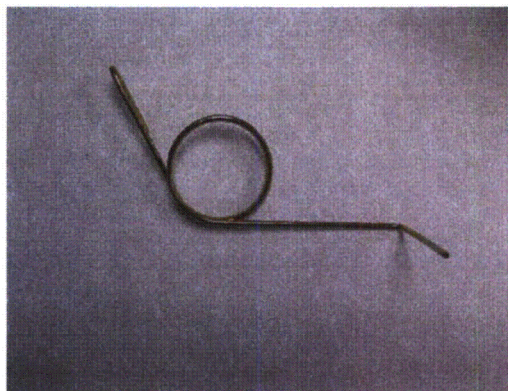


Figure 1 - Closing Latch Spring

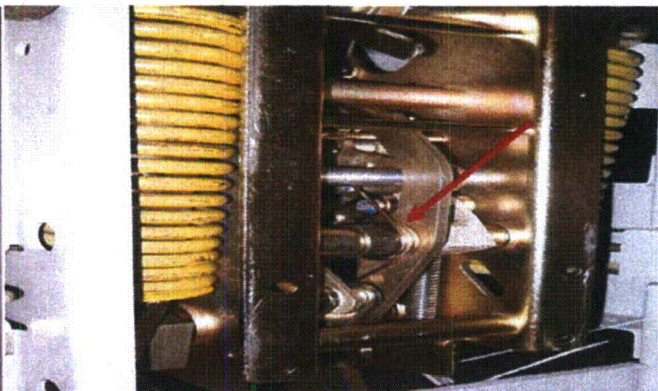
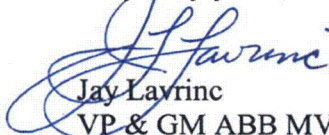


Figure 2 - Close Latch Spring in HK operating mechanism

5. Corrective actions taken during the initial 10CFR Part 21 notification included:
  - a. Removed all part number 162374A00 springs from inventory. (Action complete)
  - b. Stopped shipment on work in-progress using this part number 162374A00 spring. (Action complete)
  - c. Notified the supplier of part number 162374A00 springs (Ace Wire and Spring) of the issue and completed specification review to determine required changes to spring free position to achieve initial and final moment force desired. (Action complete)
  - d. Revised part number 162374A00 spring Critical Characteristics to include torsion test verifying initial and final moment forces during the commercial grade dedication process. (Action complete)
  - e. Revised WI-ENG-27 Commercial Grade Dedication Plan for springs and posts to include torsion test of a sample from each torsion spring lot received. (Action complete)
  - f. Revised part number 162374A00 spring drawing to revision 8 to include a larger free position angle. (Action complete)
  - g. Notified all customers affected from January 2010 to present. (Action Complete)
  
6. Corrective actions taken for this 10CFR Part 21 notification of 6 April 2015 include:
  - a. Notify customers of affected orders from July 2007 until January 2010. (Action to be complete week of 13 April 2015)
  
7. Because of the large potential variety of usages of the affected HK circuit breakers, as well as the maintenance condition and periodicity, ABB (Medium Voltage Service) cannot determine if the potential for a substantial safety hazard exists at any licensee's facility due to this reduced spring force performance. It is recommended that the Licensees replace HK circuit breaker closing latch springs at the next convenient maintenance opportunity defined in the ABB HK circuit breaker Information Bulletin.

Very truly yours,

  
Jay Lavrinc  
VP & GM ABB MVS

**ABB Inc.**