

GENERAL  ELECTRIC

POWER SYSTEMS MANAGEMENT BUSINESS DEPARTMENT
GENERAL ELECTRIC COMPANY • 205 GREAT VALLEY PARKWAY • MALVERN, PENNSYLVANIA 19355-0715 • (215) 251-7000

November 12, 1987

Mr. James Taylor
Director of Office of Inspection & Enforcement
United States Nuclear Regulatory Commission
Washington, DC 20555

Subject: Type HFA relay with latching mechanisms.

Dear Mr. Taylor:

This letter is to notify you of a reportable condition under 10CFR21 related to certain types of HFA auxiliary relays manufactured by our department. Three models qualified by our department to IEEE-323 are affected. They are: HFA151B, HFA154B and HFA154E.

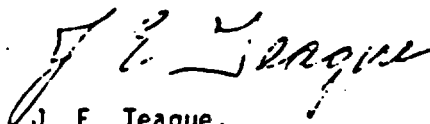
We classified this as a reportable condition after an investigation into a report of insufficient latch engagement provided to us by GE's Nuclear Energy Business Operation on Oct. 7, 1987.

The attached service advice letter is being sent to all purchasers of these relay models who specified "Nuclear IE", or equivalent on the order. The attachment explains the nature of a possible defect. Users must determine from their application of the relay if a safety hazard could be created by such defect.

Production has been stopped in our factory and will resume after we insure additional contact carrier clearance and adequate leaf spring tension.

All relays having a date code prior to November, 1987 should be checked per the attached procedure to determine if the latch mechanism is adequately engaging.

Sincerely yours,



J. E. Teague,
Manager, Engineering

Attachment

JET/fb

87111702B1 871112
PDR PT21 EMVGENE
87 PDR

IE19
/

GENERAL ELECTRIC

METER AND CONTROL BUSINESS DEPARTMENT
GENERAL ELECTRIC COMPANY • CALL BOX 15 • MALVERN, PENNSYLVANIA 19355-0715 • (215) 251-7000

RELAY AND ACCESSORY SERVICE ADVICE LETTER

Subject: HFA RELAYS WITH LATCHING MECHANISMS Number 190.1
Issued by: R. R. Hammer November 16, 1987
Prepared by: S. S. Duerwachter

<u>NON-CENTURY SERIES</u>	<u>CENTURY SERIES</u>
TYPES: HFA54 HFA74 HFA51B HFA71B	TYPES: HFA154 HFA174 HFA151B HFA171B

One user of latching-type HFA Relays has reported finding several Relays on which the latch engagement was less than the recommended minimum. With the armature in the latched position, each leg of the U-shaped latch should engage the top of the armature by at least 1/32 inch. There is a possibility that with less than the recommended minimum latch engagement, the relay could unlatch incorrectly.

Our investigation into this report has led us to conclude that latch engagement of less than 1/32 inch may be caused by two circumstances. If there is insufficient clearance between the top of the relay armature and the top of the molded moving contact carrier, it could prevent the mechanical latch from reaching the minimum 1/32 inch engagement. The second reason could be insufficient tension by the formed leaf spring that rotates the latch to its fully engaged position. If this leaf spring does not have proper tension, there is a possibility that the spring will relax before full engagement between the latch and armature is achieved.

In order to confirm proper engagement of the mechanical latch, the following procedures may be followed:

A.) CONTACT CARRIER CLEARANCE

1. Measure the distance between the top of the molded contact carrier and the top of the relay armature. This distance should be a minimum of 1/32 inch.

B.) INSUFFICIENT LEAF SPRING TENSION

1. With the armature fully depressed against the Pole Piece, check to see if the Latch is fully rotated by pulling up on the latch assembly. If the latch is fully rotated, there should be no motion of the latch, since the latch should be held against the armature by spring tension.

If the above conditions are not met, we recommend the following:

FOR STANDARD COMMERCIAL GRADE APPLICATIONS.

- a. If there is insufficient clearance between the top of the molded moving contact support and the top of the armature, a small portion of the molded support can be removed by filing. This can be done as follows:
 1. Remove the armature assembly from the relay.
 2. Disassemble armature assembly, maintaining the proper orientation of contact springs and moving contacts.
 3. File approximately 1/16 inch from the top of the contact carrier.
 4. Reassemble armature assembly, maintaining original orientation of contact springs and moving contacts, and recheck for at least 1/32 inch clearance, as mention in (A1).
 5. Replace armature assembly in Relay.
- b. If full latch rotation is not present:
 1. Remove latch assembly by removing the 10-32 screw at the top of the latch assembly.
 2. Re-form leaf latch spring to have less curve (flatter spring).
 3. Reassemble latch assembly and check for full rotation.
 4. If relay is electric reset, check to ensure that relay resets with 60% of rated voltage applied to the reset coil circuit.

FOR NUCLEAR IE APPLICATIONS

For Latching-Type HFA relays originally certified for IE applications, a replacement relay is recommended. Replacement relays should be ordered through your local GE district sales office. Relays ordered before December 1, 1988, will be furnished at 60% of the published handbook price. Requests for replacement HFA's must include:

- A. A reference to Service Advice No. 190.1.
- B. Requisition number and purchase order under which the original relay was furnished and the complete relay catalog number.
- C. CFR serial number which is on each IE Relay.
- D. Nuclear Damage Waiver.

Latching-type HFA relays manufactured November 1, 1987 or later (date code YB) will be adjusted and checked at the factory for the above conditions.

Labor for the above procedures is the responsibility of the purchaser.

SERVICE:INFOLTRS
CP:dpr

HFA LATCHING RELAY

276B561

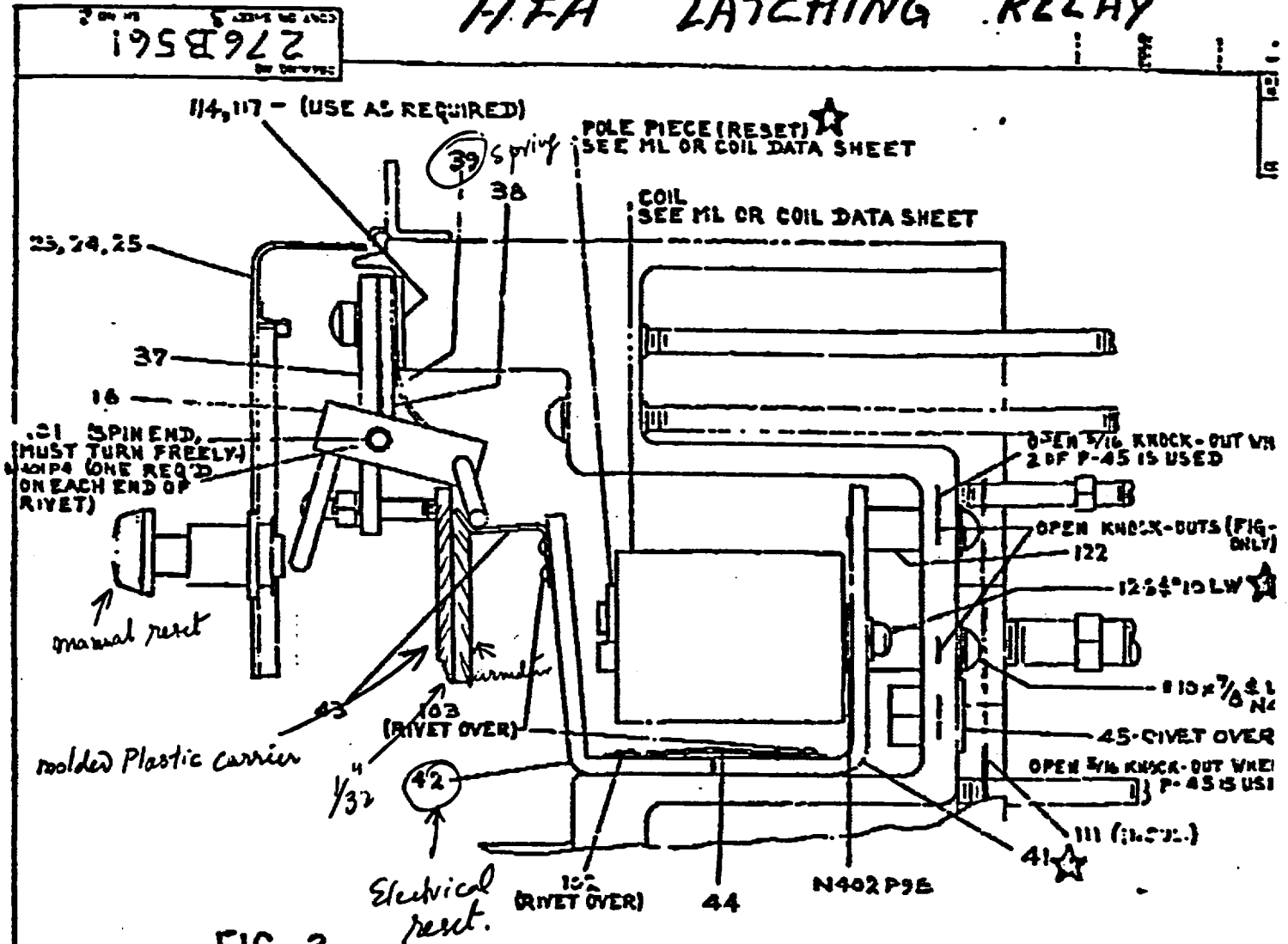


FIG-2

HAND AND ELECTRIC RESET PARTS ADDED OTHERWISE SAME AS FIG. -1
 NOTE: SPECIAL RELAY HFA55A1 (-) ADD JUMPER FROM STUD 12 TO 14 EXTERNALLY IN THE RELAY

FIG-2A

HAND RESET PARTS ONLY OTHERWISE SAME AS FIG. 1

NOTE

- RESET ARM REQUIRES FOLLOWING BENDS:
 1- LATCH ASM. 378A541 GR. 1 & 2
 APPROX. 10° BEND DOWN TOWARDS THE ARMATURE.
 2- LATCH ASM. 378A541 GR. 4 & 5
 APPROX. 5° BEND UP TOWARDS THE COVER.
 ★ ASSEMBLE PER PROCESS P12H26
 USE 2 DROPS OF A15B70A4 (LOCTITE)
 TO THE SCREW(S) BEFORE ASSEMB

REV.	DATE	BY	CHKD.	APP'D.	DESCRIPTION
1	1-13-64	[Signature]	[Signature]	[Signature]	3
2	7-8-68	[Signature]	[Signature]	[Signature]	4
3	5-23-77	[Signature]	[Signature]	[Signature]	4
4	5-23-77	[Signature]	[Signature]	[Signature]	4
5	5-23-77	[Signature]	[Signature]	[Signature]	4

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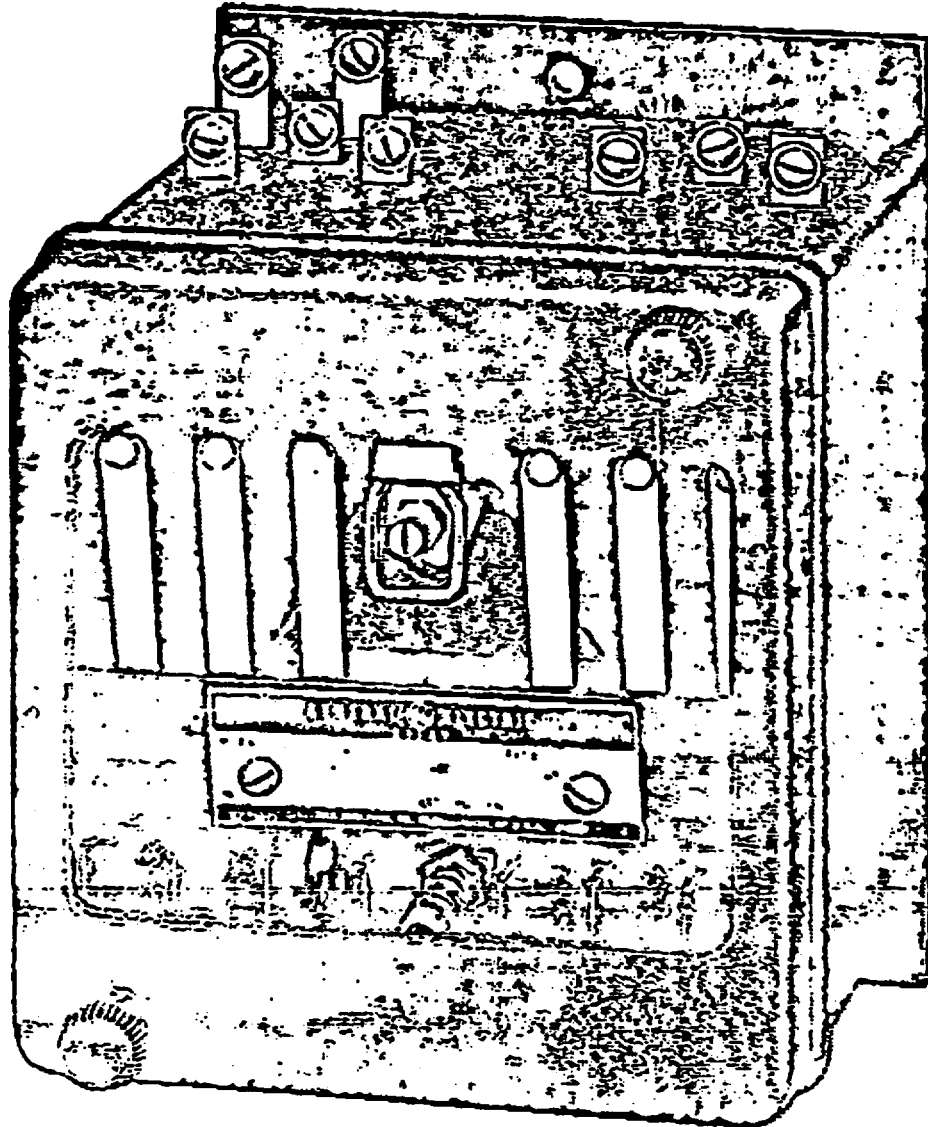


FIG. 2 (0025721) #FA154 RELAY, FRONT CONNECTED, SURFACE MOUNTED (FRONT VIEW)

LIST OF RECENTLY ISSUED
NRC BULLETINS

Bulletin No.	Subject	Date of Issuance	Issued to
88-02	Rapidly Propagating Fatigue Cracks in Steam Generator Tubes	2/5/88	All holders of OLs or CPs for W-designed nuclear power reactors with steam generators having carbon steel support plates.
88-01	Defects in Westinghouse Circuit Breakers	2/5/88	All holders of OLs or CPs for nuclear power reactors.
87-02	Fastener Testing to Determine Conformance with Applicable Material Specifications	11/6/87	All holders of OLs or CPs for nuclear power reactors.
87-01	Thinning of Pipe Walls in Nuclear Power Plants	7/9/87	All licensees for nuclear power plants holding an OL or CP.
86-04	Defective Teletherapy Timer That May Not Terminate Dose	10/29/86	All NRC licensees authorized to use cobalt-60 teletherapy units.
86-03	Potential Failure of Multiple ECCS Pumps Due to Single Failure of Air-Operated Valve in Minimum Flow Recirculation Line	10/8/86	All facilities holding an OL or CP.
86-02	Static "O" Ring Differential Pressure Switches	7/18/86	All power reactor facilities holding an OL or CP.
86-01	Minimum Flow Logic Problems That Could Disable RHR Pumps	5/23/86	All GE BWR facilities holding an OL or CP.
85-03	Motor-Operated Valve Common Mode Failures During Plant Transients Due to Improper Switch Settings	11/15/85	All power reactor facilities holding an OL or CP.

OL = Operating License
CP = Construction Permit