

SUBSTATION MAINTENANCE STANDARD	TITLE USE OF SILICONE OIL IN ALL GENERAL ELECTRIC TYPE MA PNEUMATIC OPERATING MECHANISMS	Page
		No. 6408-2 (I)
Date October 27, 1961		

TRANSMITTAL LETTER NO. S - (I) - 62-3

**Subject: Use of Silicone Oil on rubber control valve seals on G.E.
Type MA-13, MA-14, MA-15, MA-16, MA-18 and MA-19
circuit breaker operating mechanisms**

**Attached is Maintenance Standard No. 6408-2 covering the use of
silicone oil in General Electric Type MA pneumatic operating
mechanisms.**

**This standard is based on information from the General Electric
Company. There have occurred breaker misoperations due to sticking
of control valve series. Use of silicone oil is intended to relieve this
problem.**


Charles J. Slatt
Chief of Maintenance

Attachment

LECarson:il

SUBSTATION MAINTENANCE STANDARD	TITLE USE OF SILICONE OIL IN ALL GENERAL ELECTRIC TYPE MA PNEUMATIC OPERATING MECHANISMS	Page 1
		No. 6408-2
Date October 27, 1961		

PURPOSE:

To describe the use of silicone oil to prevent sticking of rubber control valve seals in G.E. Type MA-13, MA-14, MA-15, MA-16, MA-18 and MA-19 circuit breaker operating mechanisms.

PROGRAM:

The following recommendation and instruction from the General Electric Company on the lubrication of neoprene valve seals are to be put into effect immediately.

"Recommended use of silicone oil on the rubber seats of control valves of Type MA-19 pneumatic mechanisms used with Type FGK oil circuit breakers.

"Prior to June 1960, the seat of the main piston of the two-inch control valves used on Type MA-19 pneumatic mechanisms was made of neoprene rubber. At this time this seat was changed to a synthetic rubber material Adiprene *L-100. This material was found through laboratory research for a tougher material. It also has less tendency to indentation. A few reports received from the field stated that the main piston neoprene rubber seats had a tendency to stick to the metal seats.

"Subsequent investigation revealed that the length of time between valve operations and the temperature to which the valve was subjected have a direct relation to the amount of sticking encountered. Accelerated tests designed to equal more than a year of average field operations have been run at the factory to determine the effectiveness of the use of a lubricant to prevent this sticking. These tests have shown that the use of a small amount of silicone oil at one-year intervals will prevent the rubber seats from sticking.

"Therefore, we recommend that all customers having breakers with Type MA-19 mechanisms with neoprene rubber seats make an addition to their yearly maintenance programs to include the use of silicone oil on the control valves. The neoprene rubber seats can easily be distinguished from the Adiprene *L-100 seats by their color. The neoprene rubber has an opaque blackish color and the Adiprene *L-100 has a transparent brownish color. It is not necessary to apply the silicone oil to the valves with the Adiprene *L-100 seats, but there will be no ill effects if this should be done.

"With the mechanism air pressure exhausted, the oil can be applied to the valve by removing the end plate over the exhaust ports and running about a teaspoon of the oil through an exhaust port under the exhaust valve portion of the main piston. The oil can then be worked up and down by hand a few times so that the oil will spread over the whole rubber seat.

*Note: This is a Registered DuPont trade mark.

SUBSTATION MAINTENANCE STANDARD	TITLE USE OF SILICONE OIL IN ALL GENERAL ELECTRIC TYPE MA PNEUMATIC OPERATING MECHANISMS	Page 2
		No. 6408-2
Date October 27, 1961		

PROGRAM: (continued)

"This oil can also be used on any of the older one-inch control valves with rubber seats installed in Type MA-13, 14, 15, 16 and 18 pneumatic mechanisms. To apply the oil in the one-inch control valves, the valve must be either disassembled or removed so that a quantity of oil can be put on the rubber seat of the main piston of the valve.

"The oil tested and recommended is G.E. SF-96-500 silicone oil. This is the same oil that is used in the EC-2A trip device for Type AKC circuit breakers. This oil will be available from the General Electric Company, High Voltage Switchgear Department in small two ounce bottles. It is estimated that one bottle will contain enough oil for application to ten mechanisms."

GENERAL:

There have been instances when GE circuit breakers have failed to close properly. Some of these misoperations were caused by problems encountered with neoprene rubber control valve seals.

An initial supply of the recommended lubricant has been placed on order and will be distributed to each area and additional quantities are to be ordered as required by each Area.