

SLIDE WIRE APPARATUS CLEANING AND LUBRICATING PROCEDURES

1. GENERAL

1.01 This section covers cleaning and lubricating procedures for slide wire apparatus. These procedures supplement procedures for cleaning which are included in the individual sections covering the various types of apparatus.

1.02 This section is reissued to incorporate material from the addendum in its proper location.

1.03 Due to the fact that failure of a circuit to function properly is often traced to dirty contacts or dirty or gummy parts, it is essential that the contacts, resistance units and certain other parts of slide wire apparatus be kept clean.

1.04 Where individual or group type covers are used it is important that these covers should not be left off longer than absolutely necessary.

1.05 Since the transmission characteristics of some circuits may be seriously impaired while the slide wire apparatus is being cleaned and lubricated proper precautions should be taken to prevent service reactions. In some cases it will be necessary to remove the circuit from service while this apparatus is being cleaned.

1.06 In order to maintain the apparatus in satisfactory operating condition, it will be necessary to perform the cleaning and lubricating procedures periodically, depending upon local conditions such as humidity, sulphur content of the air, etc.

1.07 Cleaning procedures shall in all cases be followed by lubricating procedures except as hereinafter specified.

2. PROCEDURES

2.01 List of Materials

<u>Code No.</u>	<u>Description</u>
D-98063	Cloth
KS-7860	Petroleum Spirits
KS-6320	Orange Stick
W.E.Co. 57997	Petrolatum (Unmedicated Vaseline)
R2217	Tweezers, 4 3/4 Inch

Note: In the following procedures, petrolatum per specification 57997 will be referred to as "lubricant", and cloth per D-98063 will be referred to as "cloth".

2.02 In order to expose certain slide wire apparatus it may be necessary to remove protective coverings, to partially dismantle the apparatus or to dismount it. Detailed instructions for providing access to the apparatus and lists of the necessary tools are given in practices covering the particular piece of apparatus involved.

Cleaning

2.03 The resistance units of all slide wire apparatus shall be cleaned as follows:- Remove any heavy accumulation of dirt and grease with a piece of cloth. Then with a clean piece of cloth folded into a convenient pad, rub the winding along the contact path using a reasonable pressure, frequently refolding the cloth to present a clean surface to the winding. This operation should be continued until no more dirt appears on a clean surface of the cloth. Care should be exercised to avoid bringing the fingers into contact with the resistance element, injuring the winding or disturbing the contact spring adjustment.

Note: If the above procedure does not eliminate trouble on apparatus having roller type contacts, repeat the operation with a piece of cloth very slightly dampened with petroleum spirits. This procedure should be followed only when the above cleaning method fails, since the use of this cleaning fluid may permanently damage the insulating elements of the apparatus.

2.04 The contact surfaces of all sliding contacts except ball contacts shall be cleaned as follows:- Insert a clean piece of cloth between the contact spring and resistance winding and while applying a reasonable pressure to the spring directly over the point of contact, rotate the apparatus back and forth several times through a convenient arc frequently rearranging the cloth to present a clean section to the contact surface. Continue this procedure until no more dirt appears on a clean surface of the cloth. While still applying pressure to the contact spring pull the cloth from under the spring. The cloth used for this operation shall be of suitable length for the arc through which the apparatus is rotated and shall be approximately 1 inch wide and folded at the center along

its length. Care should be exercised to avoid bringing the fingers into contact with the resistance element, injuring the winding or disturbing the contact spring adjustment.

2.05 The contact surfaces of apparatus having ball type contacts shall be cleaned as follows:- Remove the screw holding one end of the slide bar and loosen the screw holding the other end. With the loosened end as a pivot swing the slide bar sufficiently so that the slider can be removed from the bar. Remove the ball and springs from the slider and wipe each part with a clean piece of cloth until they appear to be clean by visual inspection. Stretch a piece of cloth over the end of an orange stick and wipe out the inside of the slider. With a clean piece of cloth wipe all four sides of the slide bar. Then replace the springs and ball into the slider using a clean pair of tweezers for this purpose. Replace the slider on the slide bar and swing the bar back into position replacing the screw that was removed and tightening the screw that was loosened. In reassembling the slide bar care shall be taken not to damage the resistance winding.

2.06 The roller on apparatus having roller type contacts shall be cleaned as follows: Fold a piece of cloth about 5 inches long and 1-1/2 inch wide along its length so as to have a folded strip about 3/4 inch wide. Wrap this cloth spirally around an orange stick so that the folded edge is exposed having about 3 turns of cloth per inch of length. The end of the cloth winding may be held with the fingers or other suitable means. Clean the roller by rubbing back and forth with the cloth wound orange stick holding the length of the stick parallel with the axis of the roller. By rotating the roller the entire contact surface shall be cleaned in this manner, this procedure being continued until no more dirt appears on a clean surface of the cloth. Care should be taken not to damage the resistance winding or to disturb the contact spring adjustment during this cleaning procedure.

Note: If trouble is not eliminated after cleaning the roller in this manner and cleaning the resistance winding as outlined above, repeat the cleaning procedure on the roller using a cloth slightly dampened with petroleum spirits.

2.07 On slide wire apparatus such as the 34, 59 and other types of rheostats in which the bearings, spring washers and thrust collars carry current and thus become sliding contacts, these parts shall be dismantled from the apparatus by removing the nuts or loosening the screws which hold them

in place. The bearing and contact surfaces of each part shall then be cleaned by wiping with a clean piece of cloth. After cleaning, these parts shall be lubricated as described in paragraph 2.10 before reassembling. When the apparatus has been reassembled it shall be checked to insure that the contact springs are properly aligned and meet the apparatus requirements for contact pressure.

Lubricating

2.08 Apply a small amount of lubricant evenly to a clean piece of cloth and wipe the entire contact surface of the resistance winding with this cloth, taking care not to apply the lubricant to other parts of the apparatus, especially the insulation. A visible coating of lubricant shall appear on the resistance winding. An excess of lubrication is to be avoided as it will collect dirt and dust. This procedure shall be performed, after cleaning, on all types of slide wire apparatus excepting those employing roller type contacts. Roller type contacts should not be lubricated since they do not have the self-wiping action necessary to keep the contact path free of dust and dirt which the lubricant may collect but rather tend to compress the dirt into the winding.

Note: Petrolatum the type of lubricant used in these procedures begins to flow at approximately 100°F. It is undesirable therefore to lubricate apparatus which normally operates at temperatures near or above this value. The question of lubrication of a particular piece of apparatus therefore should be determined by a study of its operating and circuit conditions.

2.09 It will be unnecessary to lubricate contact springs if the resistance windings are properly lubricated.

2.10 On the slide wire apparatus referred to in Paragraph 2.07 above, in which the bearings, spring washers and thrust collars form sliding contacts, the bearing surfaces of these parts shall be lubricated with a visible coating of lubricant applied with a clean piece of cloth.

2.11 The slide bars of apparatus having ball type contacts shall be lubricated by applying a visible coating of lubricant with a clean piece of cloth to all four sides of the bars.