KNIFE SWITCHES

1. GENERAL

1.001 This addendum supplements Section A401.516, Issue 5-D.

1.002 The addendum is issued to give further information on the method of applying molybdenum disulfide powder as a lubricant, to restrict its use to infrequently operated large switches, and to continue the use of petrolatum as a lubricant.

The following changes apply to Part 1 of the section.

(a) 1.02 - revised

1.02 It is reissued to include an additional switch and to use molybdenum disulfide dry powder (hereafter referred to as powder) as a switch lubricant in some cases.

(a) Where large switches remain unoperated for long periods of time without cleaning and relubrication, the petrolatum tends to dry out and form a gummy bond between the moving parts of the switch. This makes the switch difficult to operate and, once the bond is broken, may cause heating due to poor electrical contact. The powder will lubricate the switch just as well but should not change chemically over long periods of time and should not be affected by the normal heating of a switch. Both the powder and petrolatum are poor conductors but petrolatum, being very soft, is mostly squeezed out from between the contact surfaces as the switch is operated and only a very thin film remains. The powder is composed of solid granules and, unless particular care is used in applying it, a layer much thicker than that obtained with petrolatum may result. It is important therefore to apply only a very thin coating of the powder to avoid increasing the contact resistance. Heating of the switch will increase rapidly as the contact resistance increases. To apply a thin coating, work a small amount of powder into a clean, lint-free cloth, shake off excess powder, and rub the surface to be coated with the portion of the cloth to which the powder has adhered. When a barely visible gray metallic sheen is observed on the surface, stop rubbing with the powdered cloth and rub the surface briskly with a clean cloth to even out the coating and remove any lumps or build-ups. As the contact surfaces should be parallel to obtain the greatest possible contact area, any lump or build-up will increase the contact resistance greatly. When finished, check the contact pressure and temperature requirements. If a force exceeding the requirements is required to open the switch, an additional thin coating of powder may be required. If the temperature of the switch at maximum office load up to the full load rating of the switch exceeds the requirements, too thick a coating of powder has been applied. Use a cloth moistened with petroleum spirits to remove a too thick coating or to remove the original coating when relubricating. In older switches, heating may also be due to insufficient clip or hinge tension, insufficient contact area due to bent parts, or poor connection to the switch terminal.

(b) Where switches are operated and relubricated frequently, petrolatum should continue to be used as a switch lubricant, as it is easier to apply and is satisfactory for this type of operation.

2. REQUIREMENTS

The following changes apply to Part 2 of the section:

(a) 2.01(b), 2.05(d), and 2.05(h) - revised

2.01(b)
2.05(d)
2.05(h)

Contact surfaces shall be lubricated with either petrolatum or powder (see 1.02). Where powder is used, relubricate after every 200 to 300 operations of the switch.

3. ADJUSTING PROCEDURES

The following changes apply to Part 3 of the section:

(a) 3.001 - revised

(b) 3.01(4) and (6); 3.04(4); 3.05(1), (6), and (8) - Substitute the word lubricant for powder.

3.001 Materials (See Sections A710.001 and A710.002)

Canvas or Tape

Cloth, abrasive - 100 grade

Cloth, cleaning, KS-14666

Oil, mineral, light, 90-110 S100

Pad, felt

Petrolatum

Powder, molybdenum disulfide, Moly 99 8-oz squeeze bottle, Moly Lubrication Products, Great Neck, N. Y.

Spirits, petroleum