

## KNIFE AND ROTARY SWITCHES CLEANING AND LUBRICATION

### 1. GENERAL

**1.01** This section covers the cleaning and lubrication procedures for knife and rotary switches.

**1.02** The contact surfaces of switches, clips, tongues, blades, hinge contact, and center contact of rotary switches shall be lubricated annually after first being cleaned.

**1.03** Care should be exercised when using trichloroethane to provide adequate ventilation. Use the absolute minimum amount of trichloroethane required for the cleaning operation, and keep the container closed when not in use.

**1.04** If the switch is connected to a battery, disconnect all electrolytic capacitors (electrolytic capacitors that make up the output filter of a rectifier circuit) or charge them to the battery voltage before exercising the switch.

**1.05** Switches may have a high potential while in use. To avoid injury to personnel or damage to equipment, these switches should be disconnected before cleaning or lubricating.

**Caution:** *Generally, in 24 volt and 48 volt plants it is not practicable to remove potential from the switch. Live parts should be wrapped with canvas or tape before cleaning or lubricating. Extreme care should be exercised to avoid a short circuit between the live contacts and other metal parts of the switch or metal framework. Certain cases may require that the switch be disconnected from the power supply. Such cases should be referred to the supervisor, since it may be necessary to shunt the switch temporarily with a cable or bus bar of adequate capacity to maintain the office load before disconnecting the switch.*

**SECTION 030-745-701**

**2. TOOLS AND MATERIALS**

CODE OR SPEC NO.	DESCRIPTION
<b>TOOLS</b>	
R-8950	Rubber Syringe
<b>MATERIALS</b>	
KS-2423 or KS-14666	Cloth
KS-16736 L1	Compound
KS-19578 L1	Trichloroethane
KS-19589 L2	Lubricant
—	Crocus Cloth
—	Jewelers Rouge
—	Petrolatum

(b) Operate the switch to its bottom position; similarly clean the top contact surfaces; apply the compound to these surfaces.

(c) Operate the switch to its top position and again apply the compound to all accessible bottom contact surfaces to replace compound removed by operation of the switch. Where the movable contact surfaces are not accessible, ensure that operation of the switch back and forth a few times will apply compound to the moving contact.

(d) After a half hour interval, remove all compound possible using a clean, soft, nonlint cloth such as KS-2423 or KS-14666. Then finish wiping using a similar cloth moistened with KS-19578 L1 trichloroethane. Change cloths when dirty and continue cleaning. Operate the switch and continue cleaning until all the compound is removed from the contact surfaces. Wipe all contact surfaces clean.

**3. CLEANING**

**Knife Switches**

**3.01** Clean the *copper* knife contact surfaces as follows:

(a) With the switch in its top position, wipe all accessible bottom position contact surfaces clean with KS-19578 L1 trichloroethane removing any accumulated dirt and old lubricant. Use a soft, clean, nonlint cloth such as KS-2423 or KS-14666. Then apply KS-16736 L1 compound liberally to the contact surfaces with a circular scrubbing motion.

*Note:* Take care not to spill cleaning compound and/or trichloroethane on other components.

(c) Clean the hinge contact of the switch using KS-19578 L1 trichloroethane. Operate the switch while applying the cleaner. Wipe all contact surfaces clean removing any accumulated dirt and old lubricant.

**3.02** Clean the *silver plated* knife switch contact surfaces as follows:

(a) Flush all accessible contact surfaces with KS-19578 L1 trichloroethane using the R-8950 rubber syringe. Operate the switch to all positions and similarly flush the surfaces not previously treated.

(b) Operate the switch to all positions and again flush all accessible contact surfaces if required. Operation of the switch will apply trichloroethane to the clips.

(c) Wipe all accessible contact surfaces clean using a soft, clean, nonlint cloth such as KS-2423 or KS-14666. Change the cloth when dirty and continue cleaning, operating the switch as required, until all contact surfaces are clean. If present, the black (sulphated) tarnish will not be removed by this procedure. Use crocus cloth or jeweler's rouge as required.

(d) Clean the hinge contact of the switch using KS-19578 L1 trichloroethane. Wipe all contact surfaces clean removing any accumulated dirt and old lubricant.

#### Rotary Switches

**3.03** Clean the *copper* contact surfaces as follows:

(a) Wipe all accessible contact surfaces clean with KS-19578 L1 trichloroethane removing any accumulated dirt and old lubricant. Use a soft, clean, nonlint cloth such as KS-2423 or KS-14666. Then apply KS-16736 L1 compound liberally to the contact surfaces with a circular scrubbing motion.

(b) Operate the switch to all positions and again apply compound to all accessible contact surfaces to replace compound removed by the operation of the switch. Where movable contact surfaces are not accessible, ensure that operation of the switch will apply compound to the moving contact.

(c) After a half hour interval, remove all compound possible using a clean, soft, nonlint cloth such as KS-2423 or KS-14666. Then, finish wiping using a similar cloth moistened with KS-19578 L1 trichloroethane. Change cloths when dirty and continue cleaning. Operate the switch and continue cleaning until all the compound is removed from the contact surfaces. Wipe all contact surfaces clean.

(d) Clean the rotating arm, spring loaded, center connection using KS-19578 L1 trichloroethane. Rotate the switch back and forth while applying the cleaner.

**3.04** Clean the *silver plated* contact surfaces as follows:

(a) Flush all accessible contact surfaces with KS-19578 L1 trichloroethane using the R-8950 rubber syringe. Operate the switch to all positions and similarly flush the surfaces not previously treated.

(b) Operate the switch to all positions and again flush all accessible contact surfaces if required. Ensure that operation of the switch will apply KS-19578 L1 trichloroethane to the moving contact.

(c) Wipe all accessible contact surfaces clean using a soft, clean, nonlint cloth such as KS-2423 or KS-14666. Change the cloth when dirty and continue cleaning, operating the switch as required, until all contact surfaces are clean. If present, the black (sulphated) tarnish will not be removed by this procedure. Use crocus cloth or jeweler's rouge as required.

(d) Clean the rotating arm, spring loaded, center connection using KS-19578 L1 trichloroethane. Rotate the switch back and forth while applying the cleaner.

#### 4. LUBRICANT

**4.01** After cleaning the switch lubricate by wiping a thin film of petrolatum on the contact surfaces of the switch, taking care not to lubricate other parts. Avoid an excess of petrolatum as it will collect dust and dirt.

**4.02** Lubricate the hinge contact of knife switches with KS-19589 L2 lubricant. Operate the switch after lubricating.

**4.03** Lubricate the rotating arm, spring loaded, center connection of rotary switches with KS-19589 L2 lubricant. Rotate the switch after lubricating.