

MANUALLY OPERATED ROTARY SWITCHES REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers manually operated rotary switches KS-5614, KS-5625, KS-5716, KS-5761, KS-5768, KS-15119, KS-15564, KS-15595, KS-15656, KS-15709, KS-15718, KS-15725, KS-15730, KS-15751, KS-15752, KS-15753, KS-15791, KS-15793, KS-15810, KS-15819, KS-15832, KS-15845, KS-15846, KS-15888, KS-15889, KS-15895, KS-15958, KS-19677, KS-20010, KS-20020, and KS-20220. Typical switches are shown in Fig. 1 through 9.

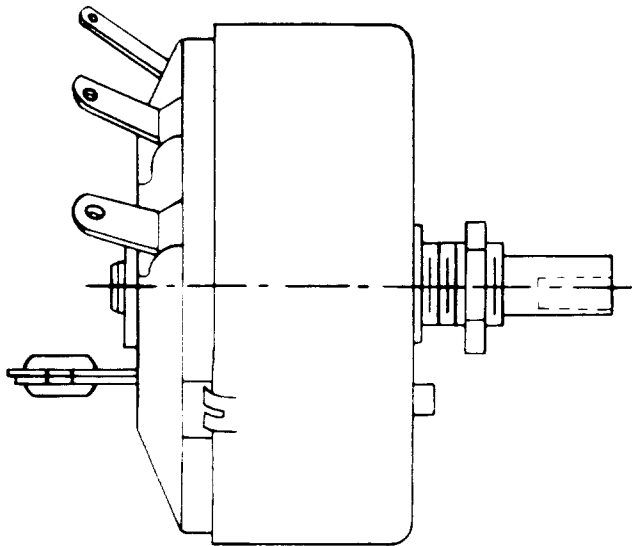


Fig. 1—KS-15564 and KS-15718 Switches—Similar to Open-Type KS-5614

1.02 This section is reissued to add requirement in 2.02 that switches shall be exercised annually. This reissue does not affect the Equipment Test List.

1.03 Reference shall be made to Section 020-010-711 covering general requirements and definitions for additional information necessary for the proper application of the requirements listed herein.

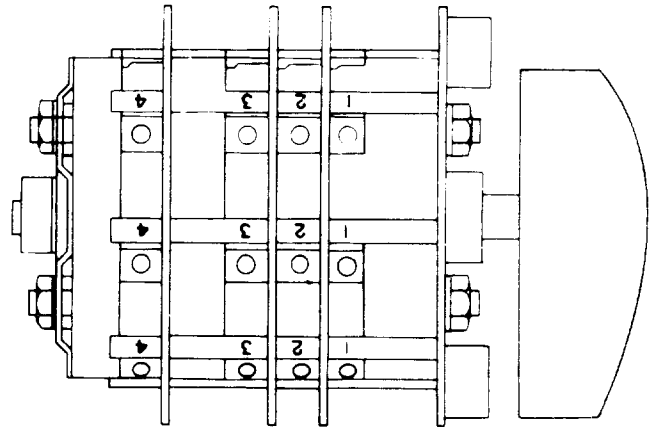


Fig. 2—KS-15595 Switch—Also General Design of KS-15819 and KS-15832

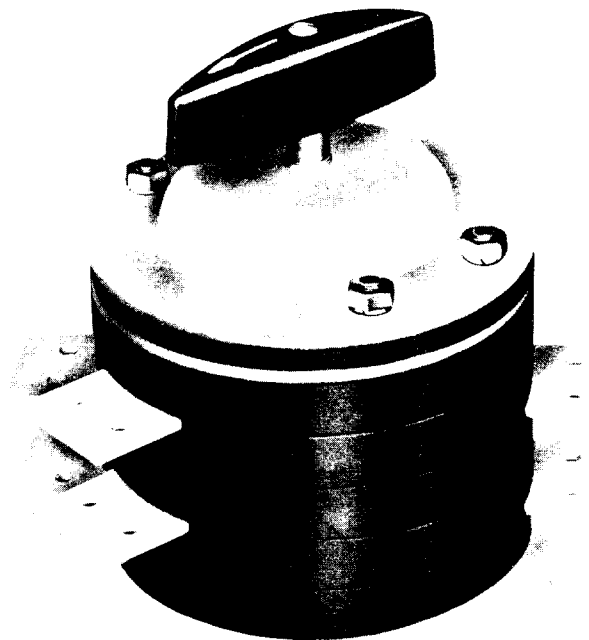


Fig. 3—Typical of KS-5716, KS-15119 and KS-15656 Switches

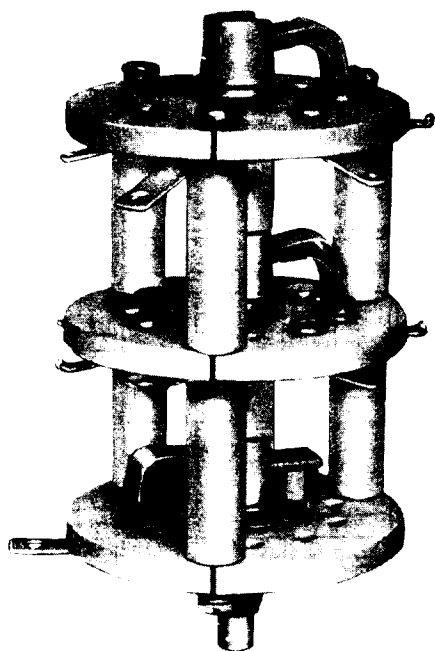


Fig. 4—KS-5761 High-Voltage Instrument Switch

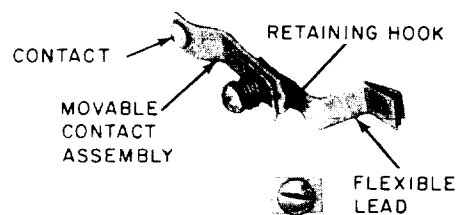
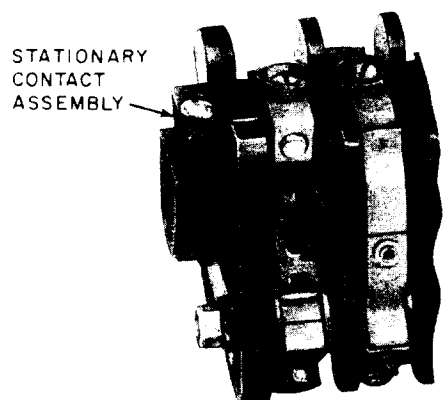


Fig. 5—KS-5625 Switch—Cover Removed

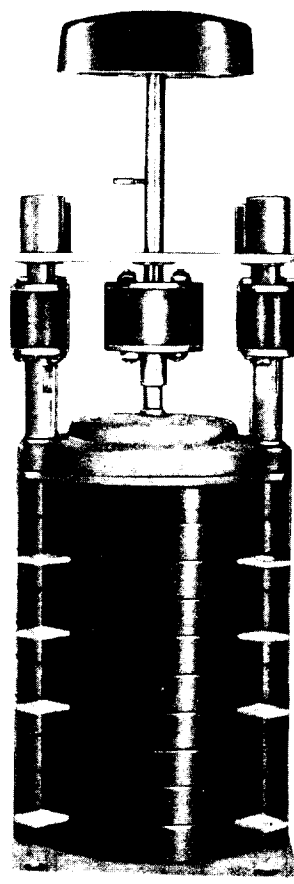


Fig. 6—Typical of KS-5768, KS-15725, KS-15730, KS-15751, KS-15791, KS-15793, KS-15888, KS-15889, and KS-15895 Switches

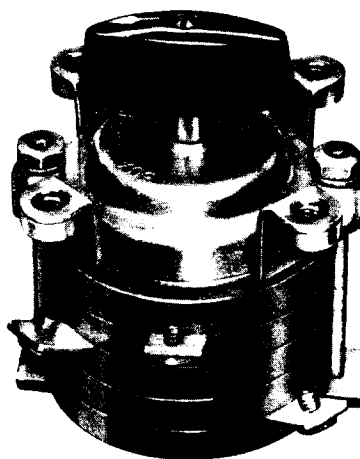


Fig. 7—Typical of KS-15709, KS-15752, KS-15753, and KS-15968 Switches

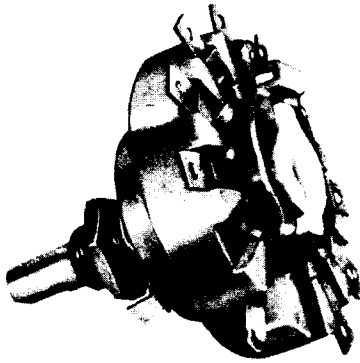


Fig. 8—KS-15810 Tap Switch

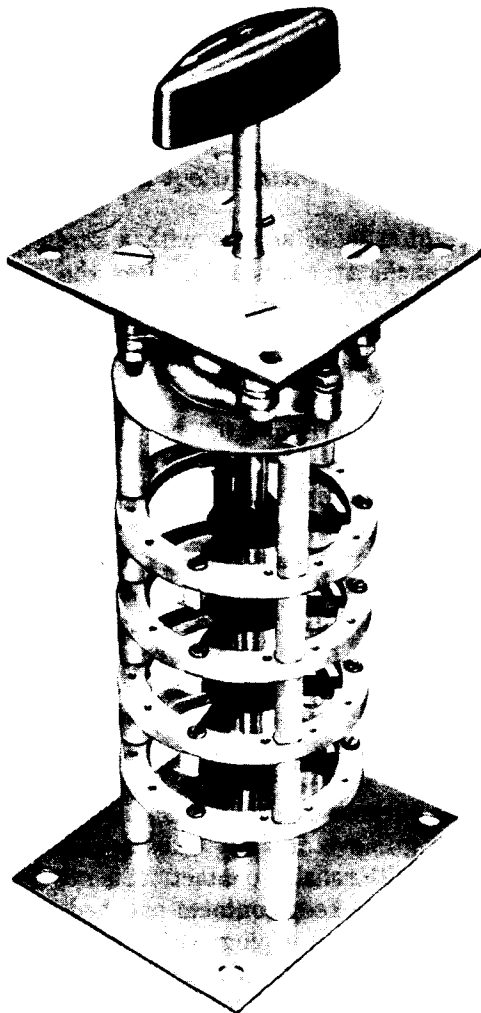


Fig. 9—KS-15845 and KS-15846 Switches

1.04 Asterisk (*): Requirements are marked with an asterisk when to check for them would necessitate dismantling or dismounting of apparatus, or would affect the adjustment involved, or other adjustments. No check need be made for these requirements unless the apparatus or part is made accessible for other reasons, or its performance indicates that such a check is advisable.

1.05 Caution: *The KS-15845 and KS-15846 switches are used in high-voltage applications. Power should be disconnected from these switches before any work operations are performed. If this is not possible, extreme care should be used to prevent personal contact with or shorting or grounding of live parts of the switch.*

1.06 Since it is not practicable to do any maintenance work on the KS-5716, KS-5761, KS-5768, KS-15119, KS-15564, KS-15595, KS-15656, KS-15709, KS-15718, KS-15725, KS-15730, KS-15751, KS-15752, KS-15753, KS-15791, KS-15793, KS-15819, KS-15832, KS-15958, KS-19677, KS-20010, KS-20020, and KS-20220 switches, they should be replaced when they become inoperable or fail to meet their requirements.

2. REQUIREMENTS

2.01 Switch Mounting: The switch shall be fastened securely to its mounting. The component parts shall be held together securely. Mounting plates of the KS-15845 and KS-15846 switches shall be aligned so as not to twist or stress the insulating parts.

Gauge by feel and by eye.

2.02 Operation: The switch shall operate satisfactorily without undue binding. ♦The switch shall be exercised annually to break through possible oxide formation, thus improving the electrical contacts.♦

2.03 Contact surfaces of the KS-5614, KS-5625, KS-15810, KS-15845, and KS-15846 switches shall be clean and free from buildups which might interfere with satisfactory operation. For the KS-15845 and KS-15846 switches, the corners of the fixed contacts nearest the shaft shall be rounded slightly if and when corona effects or breakdown occur.

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Gauge by eye.

***2.04 Temperature:** The temperatures of switch parts shall not exceed the values shown below.

	MAXIMUM
Terminals	90°C
Frames	50°C

If temperature is thought to be excessive, measure by thermometer. To check the requirement, disconnect the switch from power before making measurements. Hold the bulb of the thermometer against the part in question, covering that part of the bulb which is not in contact with the part with a piece of felt or its equivalent. Observe the temperature indicated. Readings should be taken as soon as possible after disconnecting the switch.

2.05 Cleanliness: All surfaces of switches shall be free of dirt, dust, oil, and other substances.

Gauge by eye.

3. ADJUSTING PROCEDURES

3.001 List of tools, gauges, and materials

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
265C	Contact burnisher
KS-2663	File
KS-6854	3-1/2 Inch screwdriver
R-2512	8-Inch adjustable wrench
—	3-Inch D screwdriver
—	5-Inch E screwdriver
GAUGES	
R-1032,	Thermometer
Detail 1	

MATERIALS

KS-7860	Petroleum spirits
KS-14666	Cleaning cloth
—	150 Grade abrasive cloth
—	felt pad

3.002 Care should be exercised when using petroleum spirits in power rooms where there are dc machines since commutation may be adversely affected by softening of commutator film by the fumes. To avoid the need for burnishing the commutators of dc machines, after doing any switch contact cleaning called for in this section, provide adequate ventilation, use the absolute minimum amount of petroleum spirits required for the cleaning operation, and keep the container closed when not in use.

3.01 Switch Mounting (Reqt 2.01)

- (1) Tighten loose screws with a screwdriver or wrench, as applicable. For the KS-15845 and KS-15846 switches, care should be taken to see that tightening of any screws does not throw the mounting plates out of line.

3.02 Operation (Reqt 2.02)

- (1) If difficulty is experienced in the mechanical operation of a switch, look for foreign objects or evidence of broken parts. Remove foreign objects. In the case of broken parts in a KS-5625 switch, dismantle it, and replace the broken parts. In all other cases, replace the entire switch.

3.03 Contact Surfaces (Reqt 2.03)

- (1) The purpose of cleaning contacts is to remove any gummy or dirty substance that would interfere with reliable contact. It is not necessary or desirable to keep contacts polished or shining. Clean contacts by wiping with a cloth moistened with petroleum spirits (3.002), followed by wiping with a dry cloth. The contacts should be disconnected from the power supply during the cleaning operation.
- (2) There shall be as little smoothing of contacts as is consistent with satisfactory operation.

Contacts should be smoothed while closed. Disconnect the contacts from the power supply and operate the switch to close the contacts. Insert a burnishing tool or a strip of abrasive cloth between the contacts to be cleaned and draw it back and forth until the buildups are reduced sufficiently to insure reliable contact. Then clean the contacts as outlined above. For the KS-15845 and KS-15846 switches, round the inner corners of the fixed contacts with a file, smoothing off any rough edges.

- (3) Replace the entire KS-5614, KS-15810, KS-15845, and KS-15846 switches when the contacts become badly worn or roughened.
- (4) Replace badly worn contacts of the KS-5625 switch. To replace a movable contact, disconnect the flexible lead with a screwdriver and operate the switch to open the contact to be removed. Grasp the movable contact assembly between thumb and finger, free the retaining

hook which is located immediately below the spring and behind the flexible lead, and slide the assembly upward. Install a new assembly by a reverse operation. To replace a worn stationary contact, it is necessary to replace the entire stationary contact assembly. Remove it by loosening the two screws which hold it in place in the switch. Wherever a contact is replaced because of wear, the contact with which it is paired should be replaced also.

3.04 *Temperature* (Reqt 2.04)

- (1) If the temperature exceeds the limit, see that all other requirements are met. If the temperature is still outside the limit, refer the matter to the supervisor.

3.05 *Cleanliness* (Reqt 2.05)

- (1) Wipe surfaces with a cleaning cloth.