

197- AND 198-TYPE SWITCHES REQUIREMENTS AND ADJUSTING PROCEDURES

1. GENERAL

1.01 This section covers general information for 197- and 198-type switches and associated parts.

1.02 This section is reissued to cover a general revision of the requirements and procedures.

1.03 *Requirements for Related Apparatus:*
The requirements for parts related to the 197- and 198-type switches are covered in the individual sections for such apparatus.

1.04 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.

1.05 *Asterisk:* Requirements are marked with an asterisk (*) when to check for them would necessitate the dismantling or dismantling 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.

1.06 *Vertical normal position of the shaft* (197-type switches only) is that position of the shaft in which the normal pin clamp rests on the upper shaft bearing.

1.07 *Rotary normal position of the shaft* is that position in which the normal pin is in contact with the shaft spring bracket.

1.08 *Normal position of the shaft* (198-type switches only) is that position of the shaft in which the normal pin is in contact with the shaft spring bracket.

1.09 Where it is specified that a requirement shall be met on the first and tenth levels, it shall be understood that on switches operating on less than ten levels the requirement shall

be checked on the lowest and highest operating levels. On 198-type switches the requirements shall be checked on the operating level.

1.10 When any adjustments are made which may affect the switch operation, the switch operation requirement specified in Section 030-705-704 shall be checked.

2. LIST OF TOOLS AND MATERIALS

CODE OR SPEC NO.	DESCRIPTION
TOOLS	
417A	1/4" and 3/8" Hex. Open Double End Flat Wrench
KS-6320	Orange Stick
KS-7782	Parallel Jaw Pliers
—	4" Regular Screwdriver
AE Co. No. 26221	Switch Supporting Fixture
—	ED-30712-01 Test Stand (as required)
MATERIALS	
—	DOOR-EASE (manufactured by American Grease Stick Co., Muskegon, Michigan)
—	Toothpicks, Hardwood, Flat at One End and Pointed at the Other

3. PREPARATION AND GENERAL PROCEDURES

General

3.01 *Make Busy Information:* Before making any adjustments, make the switch busy in accordance with approved procedures. On certain types of toll connectors, the busy ground is removed when the shaft is moved off normal. In such cases, block the circuit to the release magnet as covered in 3.02.

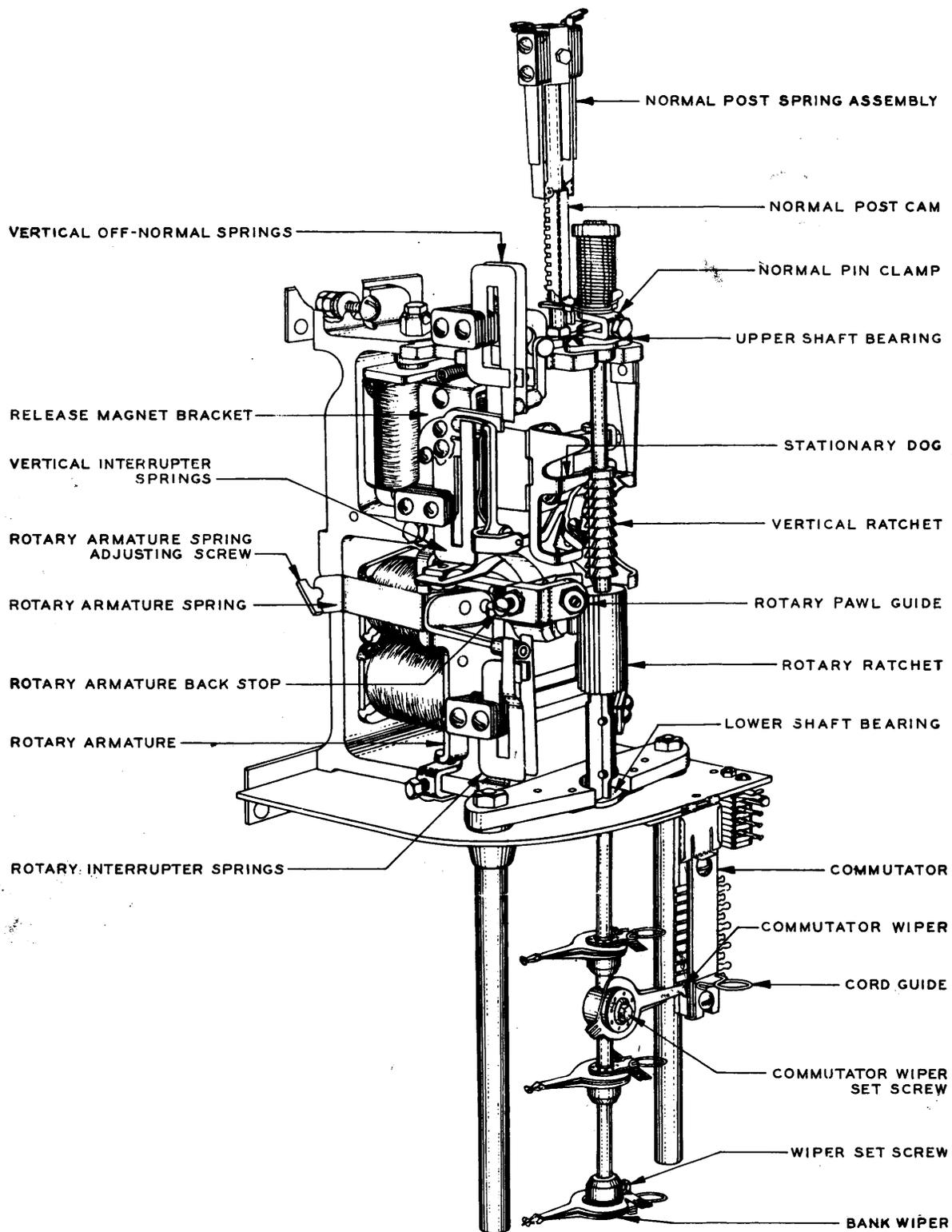


Fig. 1 - Illustrating Parts of 197-type Switch as Viewed From the Left Side

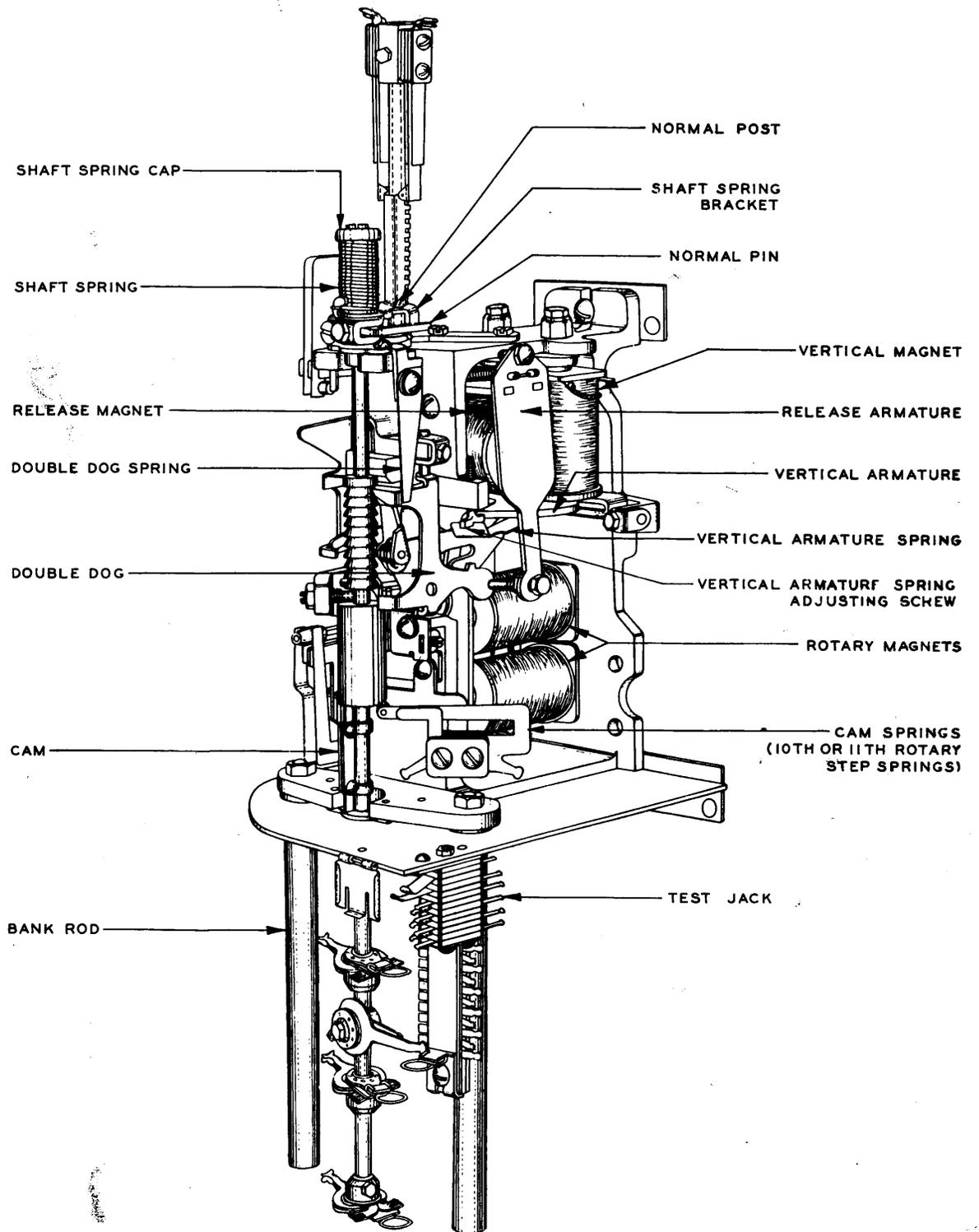


Fig. 2 - Illustrating Parts of 197-type Switch as Viewed From the Right Side

3.02 When it is necessary to open the circuit to the release magnet, block the vertical off-normal springs in their unoperated position by means of a toothpick or KS-6320 orange stick as shown in Fig. 3. On 198-type switches, and when necessary on 197-type switches, insulate the contacts of the rotary off-normal springs that close the circuit to the release magnet. Where the adjustments require that the switch cut in on any level, exercise care not to interfere with the normal operation of circuits associated with the bank contacts.

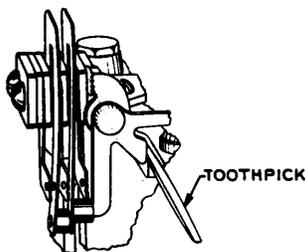


Fig. 3 – Method of Blocking Vertical Off-Normal Springs in Their Unoperated Position

3.03 Switch Support: In some cases it may be necessary to support the switch away from the frame to gain full access to the parts. In such cases, use the No. 26221 switch supporting fixture to support the switch. Where full access still cannot be obtained, mount the switch on an ED-30712-01 test stand as described in 3.06 to 3.11 inclusive.

3.04 Adjusting Switches With Commutator:

When adjusting a switch on the test stand and the switch operates with a commutator mounted on the banks, compensate for the lack of commutator wiper pressure on the bank by holding the shaft spring bracket against the left side of the normal post. When the switch is re-mounted on the frame, recheck such requirements as might have been affected.

3.05 Removal of Rear Covers: To remove rear covers from switches mounted on the test stand, back off the upper switch mounting

screws of the test stand sufficiently to clear the rear cover. Take care not to back off these screws more than enough to just clear this rear cover, or the switch may fall. Remove the rear cover from the switch using the 4" regular screwdriver. After removal support the cover by placing the bayonet slot over one of the upper switch mounting screws on the outside of the test stand.

Removal of Switch

3.06 To remove a switch from the shelf, proceed as follows. Remove the switch cover.

3.07 If the switch has a commutator mounted on the banks, remove all cord guides from the commutator. In the case where the cord guide bracket and cord guide are one piece, it will be necessary to loosen the mounting screw holding the cord guide bracket to the commutator using the 4" regular screwdriver. Where detachable commutator cord guides are used, it is only necessary to detach the commutator cord guides from the cord guide brackets.

3.08 Remove the bank rod nuts with the No. 417A wrench so as to free the switch from the banks.

3.09 Place the left hand under the lower cover plate of the switch and grasp the switch firmly with the right hand as shown in Fig. 4. The thumb should rest on the release armature bracket on the left of the switch and the first three fingers should rest on the release armature on the right. Then, while pressing the switch inward, lift it upward until the shelf pins are opposite the slot openings. Hold the switch in this position with the right hand and, at the same time, steady the bank with the left hand and exert a slight pressure toward the shelf so as to prevent the wipers from catching on the bank contacts. When clearance is assured, re-grasp the lower cover plate with the left hand and tilt the lower portion of the switch forward to avoid damage to the wipers. Then draw the switch forward free of the shelf.

Caution: Take care in all cases not to allow the weight of the switch to be supported by the relays or the cover supports, since this may result in damage to the relays.

3.10 In some cases, the condenser mounting bracket mounted on the rear of the switch may interfere with the removal of the switch. In such cases, make sure that the mounting bracket clears the frame while the switch is being removed and that the switch does not contact the wiring of the shelf above it.

3.11 Although the methods described in 3.09 and 3.10 are generally applicable, these procedures may be varied as required to prevent damage to switches equipped with vertical interrupter springs or release contact springs.

3.12 When the switch mounting plate is equipped with a handle at its upper end, hold the handle with the right hand to assist in raising the switch when removing it from the shelf, at the same time supporting the lower cover plate with the left hand as described in 3.09.

Remounting of Switch

3.13 Before remounting a switch, examine the shelf jack springs to determine whether they require cleaning. If they do, clean them in accordance with the section covering cleaning and treating of 197- and 198-type switches.

3.14 Grasp the switch firmly with the right hand so that the thumb rests on the release magnet bracket at the left of the switch and the first three fingers of the right hand rest on the release armature on the right. Hold the switch so that the upper slots in the switch frame are above the upper shelf pins, supporting the switch at the lower cover plate with the left hand. Tilt the top of the switch toward the shelf. Then move the lower part of the switch against the shelf so that the lower slots in the switch frame are above the lower shelf pins and the full length of the mounting plate rests against the shelf.

3.15 While guiding the switch take care that the bank does not interfere with the wipers. If necessary, exert slight pressure against the bank toward the frame to insure clearance. Slowly lower the switch until its

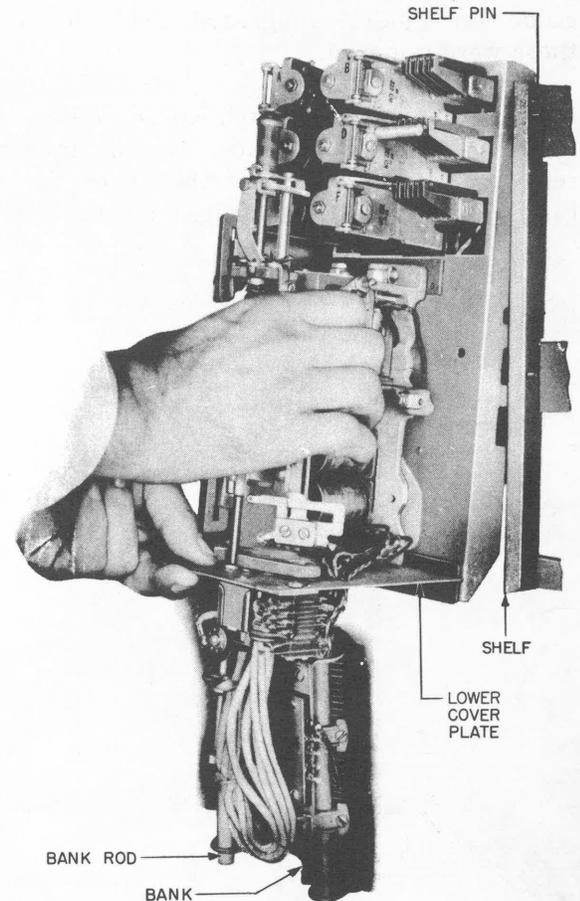


Fig. 4 – Method of Removing Switch From Frame

downward movement is checked by the shelf pins coming in contact with the upper extremity of the bayonet slots, at the same time guiding the bank rods into the holes in the lower cover plate. Make sure that the switch plug properly engages the shelf jack. Where difficulty is experienced in mounting a switch on a shelf due to improper alignment of the switch plug and jack, loosen the jack mounting screws with the 4" regular screwdriver and shift the jack as required to align the parts.

3.16 Bring the bank into position against the lower cover plate. Take care in doing this that no wires are pinched between the shoulders of the bank rods and the bottom of the lower cover plate as the switch seats itself. Remount and securely tighten the bank rod nuts

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using the No. 417A wrench. Remount the cord guide (or guides) and cord guide bracket if these were removed.

3.17 Remount the switch cover. Where difficulty is experienced in mounting or removing covers, examine the cover for bent lugs. If these are bent, straighten them with the

KS-7782 pliers. If, with the lugs properly straightened, the cover is still difficult to mount, apply DOOR-EASE to both sides of each lug. On switches equipped with 204-type selectors, the bank terminals of the selector may have to be bent out of the way to permit the cover to be mounted without interference.