

## KS-19717, L1, L2, L4, AND L5

### TAPE PRINTERS

### REQUIREMENTS AND ADJUSTING PROCEDURES

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#### 1. GENERAL

**1.01 Introduction:** The KS-19717, L1, L2, L4, and L5, tape printers are a subminiature ribbonless tape printer, housed in a metal case, capable of printing any of 16 characters at a speed of up to 100 words per minute. It is activated by a four bit parallel signal input of 48 volts plus a 48-volt print command signal. The characters are printed on KS-19855, L1, or KS-19717, L12, pressure responsive tape.

**1.02** This section is reissued for the following reasons:

- (a) To add lubrication procedures for units not installed by the date specified by the manufacturer.

(b) To rate the KS-19717 tape printers Mfr Disc. No further references to these tape printers being Mfr Disc. will be shown in this section.

Revision arrows are used to emphasize the more significant changes. The Equipment Test List is not affected.

**1.03** This section covers requirements and adjusting procedures for the KS-19717, L1, L2, L4, and L5, tape printers.

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

**1.05 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 should 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** To show the location of component parts, the KS-19717, L5, tape printer, with cover removed, is illustrated in Fig. 1.

**1.07** ♦Paragraph numbers for requirements and procedures corresponding to each topic are indicated in Table A.♦

#### 2. REQUIREMENTS

**2.01 Cleaning:** The tape printers shall be cleaned when necessary in accordance with approved procedures.

**2.02 Lubrication:** ♦The KS-19717 tape printers do not normally need lubrication. However, if

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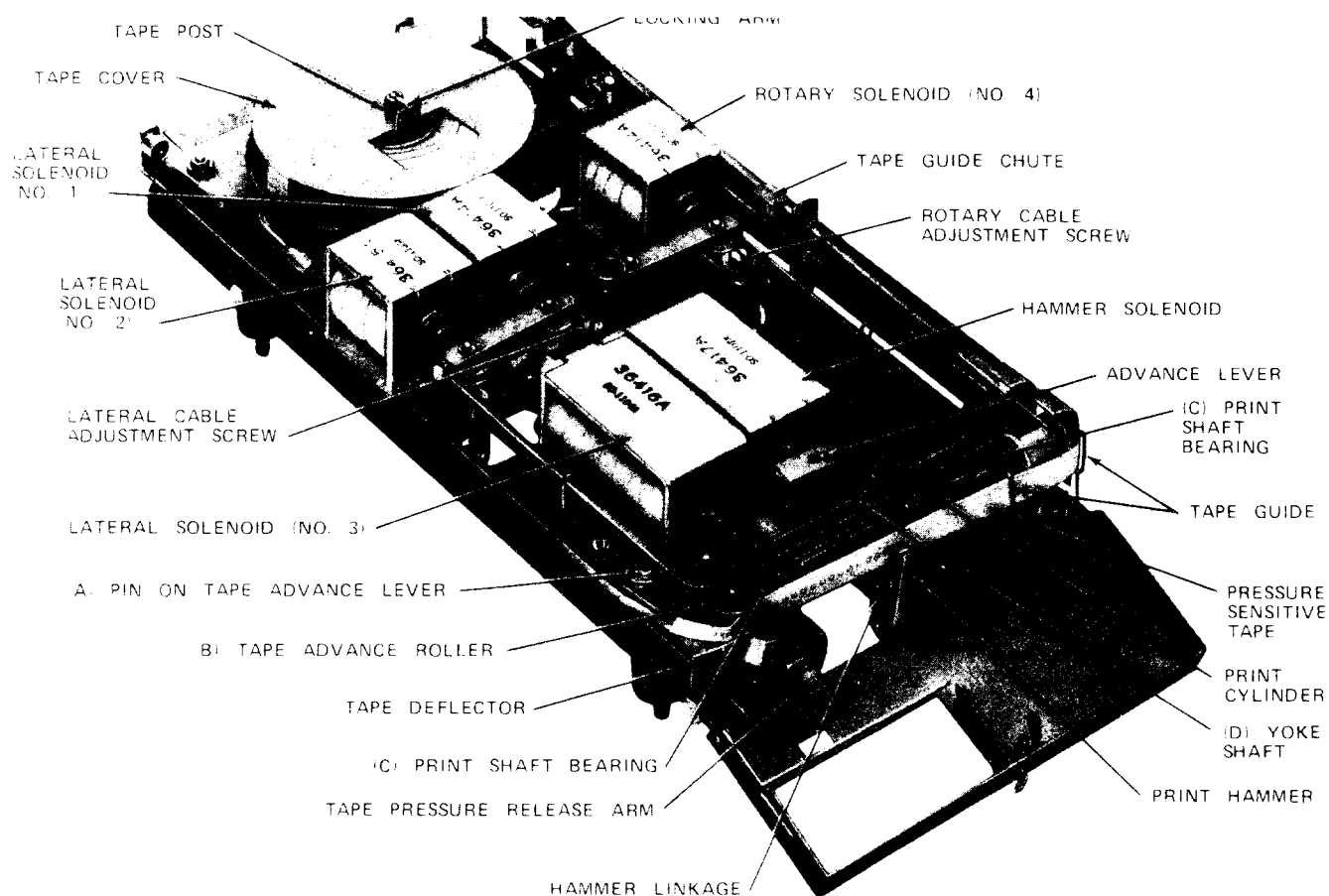


Fig. 1—KS-19717, L5, Tape Printer—Cover Removed

the installation date supplied with the equipment by the manufacturer is exceeded, lubrication is necessary.

**\*2.03 Freedom of Movement:** All moving parts shall be free from bind.

Gauge by feel.

**\*2.04 Plunger Stroke Travel:** The plunger stroke travel requirements for the solenoids are given in the following list:

SOLENOID	PLUNGER STROKE TRAVEL
1	0.060 Inch
2	0.120 Inch
3	0.240 Inch

SOLENOID	PLUNGER STROKE TRAVEL
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4	0.060 Inch
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Use B27580 solenoid adjustment tool.

**\*2.05 Lateral Position Cable Adjustment:**

With the plunger stroke travel requirement in paragraph 2.04 met for solenoids 1, 2, and 3, each of the characters and symbols shall be in correct horizontal alignment, centered under the print hammer.

Gauge by eye.

**\*2.06 Rotary Position Cable Adjustment:**

With the plunger stroke travel requirement in paragraph 2.04 met for solenoid 4 and the lateral cable adjustment in paragraph 2.05 met, all of the

TABLE A

TITLE	REQUIREMENT PARAGRAPH NO.	PROCEDURE PARAGRAPH NO.
Cleaning	2.01	4.01
Lubrication	2.02	4.02
Freedom of Movement	2.03	4.03
Plunger Stroke Travel	2.04	4.04
Lateral Position Cable Adjustment	2.05	4.05
Rotary Position Cable Adjustment	2.06	4.06
Hammer Solenoid and Tape Advance	2.07	4.07
Low Tape Alarm (L10 and L11)	2.08	4.08

characters and symbols shall be centered vertically on the tape.

Gauge by examining printout.

**\*2.07 Hammer Solenoid and Tape Advance:**

The print hammer solenoid assembly shall be positioned to give proper tape advance action (character spacing) and proper intensity of printout.

Gauge by examining printout.

**\*2.08 Low Tape Alarm (L10 and L11):** The low tape alarm may be actuated at any point on the tape roll as determined by local requirements.

**3. APPARATUS**

**3.01 List of Tools, Gauges, and Materials:**

TOOLS	DESCRIPTION
B27580	Solenoid Adjusting Tool*
349	3/16- and 7/32-Inch Hex Closed Double-End Offset Wrench
417A	1/4- and 3/8-Inch Open Flat Wrench
AT-7825	3-Inch C Screwdriver

**TOOLS**

◆KS-2993

R-8550

**MATERIALS**

◆KS-19139, L4

KS-2423

**DESCRIPTION**

Brush◆

6-Inch Steel Scale

Lubricating Compound

Cotton Twill Cloth◆

\*Manufacturer supply number MITE PIN A27580, supplied by Mite Corporation, 446 Baker Street, New Haven, Connecticut

**4. ADJUSTING PROCEDURES**

**Note:** In order to make the adjustments covered herein, remove the tape printer from service. The equipment cover must be removed to gain access to the components. Fig. 2 illustrates the relative position of the components that may require adjustment.

**4.01 Cleaning:**

- (1) Clean the external parts of the tape printer with a clean dry cloth.
- (2) To clean other parts of the tape printer, use a clean, lint-free cloth and a KS-2993 brush.

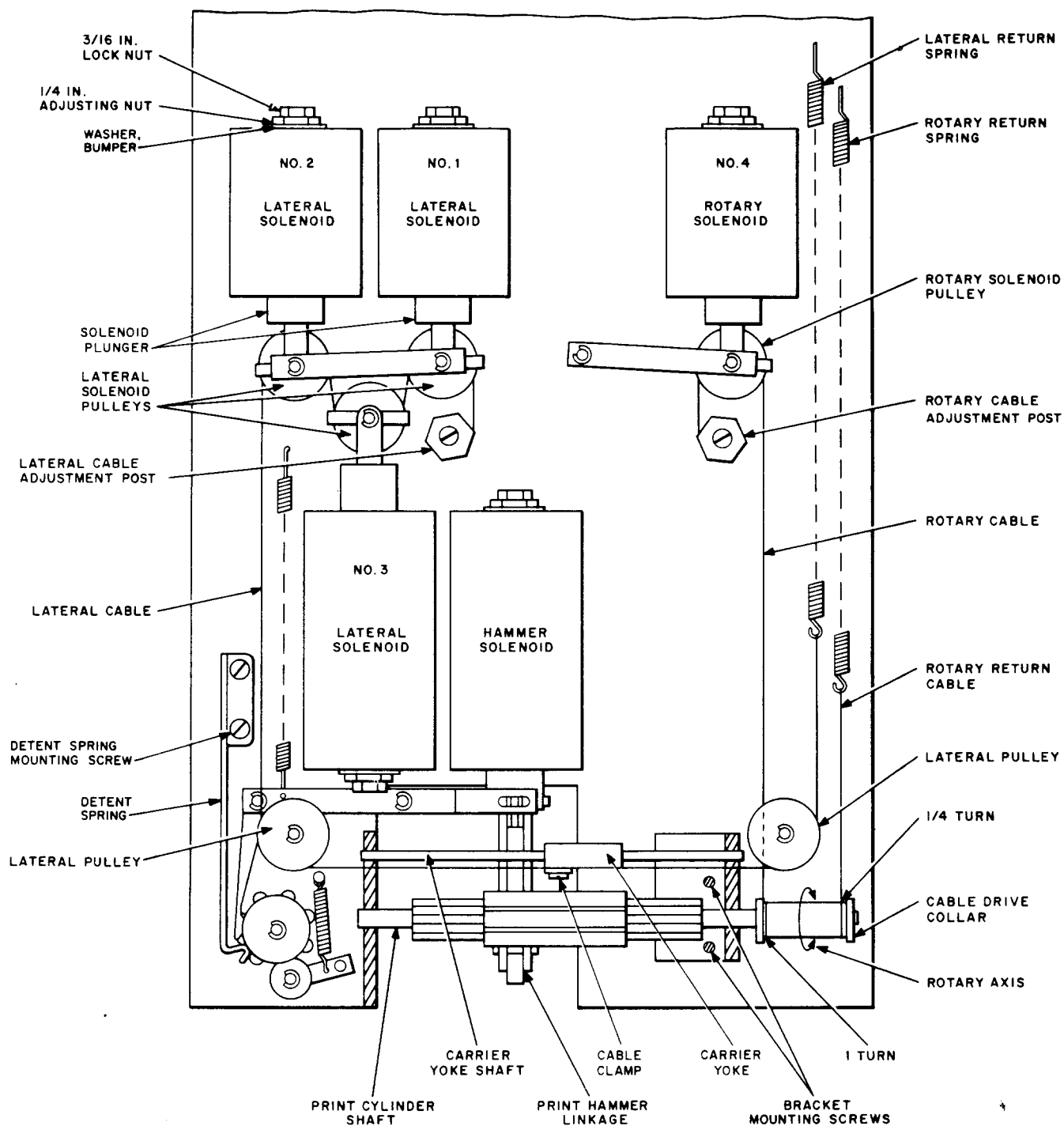


Fig. 2—Functional Diagram of KS-19717, L5, Tape Printer

**4.02 Lubrication:** If the installation date is exceeded, the KS-19139, L4, lubricant should be applied sparingly to the following points shown in Fig. 1.

POINT OF APPLICATION	DESCRIPTION
A	Tape Advance Lever and Pawl Assembly Pivot Points
B	Tape Advance Roller Post
C	Print Shaft Bearings
D	Yoke Shaft

**Caution:** Never lubricate any of the solenoid plungers as the lubricant will pick up dirt and result in sluggish operation of the solenoids. Also, do not allow grease on tape, keys, or contacts.

#### 4.03 Freedom of Movement:

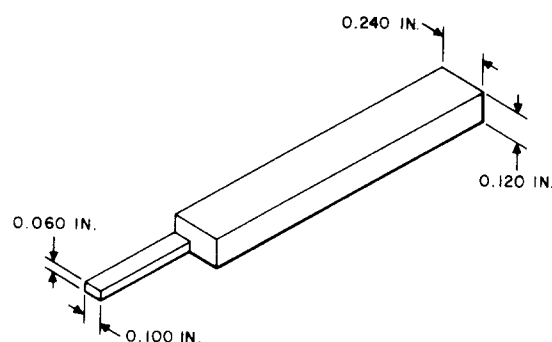
- (1) If binding occurs in solenoid plungers, check for possible dirt or metallic particles. Clean the plunger and liner. Examine the liner for signs of wear and replace as required.
- (2) If binding occurs in hammer operating linkage, print cylinder movement, or any of the other mechanical functions, check for wear and replace worn parts.

#### 4.04 Plunger Stroke Travel:

- (1) Manually press the plunger against the solenoid seat and loosen the 3/16-inch hex nut at the rear of the plunger. Insert the proper size end of the B27580 adjusting tool (Fig. 3) between the rubber washer next to the 1/4-inch nut at the rear of the solenoid and the solenoid body.
- (2) Adjust the distance between the rubber washer next to the 1/4-inch nut and body to the tool size and tighten the 3/16-inch nut. Remove the tool.

#### 4.05 Lateral Position Cable Adjustment:

**Note:** To avoid overheating the solenoids, do not energize any longer than is necessary. To



**Fig. 3—B27580 Solenoid Adjusting Tool**

avoid damaging the contacts on the printed circuit board, it is recommended that the 48 volts required for test and adjustment procedures be supplied to the printer through a WE 906H connector instead of through alligator clips or other similar means.

- (1) Energize solenoids 1, 2, and 3. The character 7 should be in correct alignment under the print hammer. If the 7 is correctly aligned, proceed to (4); if not, perform (2) and (3).
- (2) Loosen the locknut or screw on the lateral cable adjustment post and rotate the hex pulley either cw or ccw until the character 7 is properly aligned.
- (3) Retighten the locknut or screw when the proper alignment has been achieved.
- (4) Energize solenoids 1 and 2. The character 1 should be in correct alignment under the print hammer. If the 1 is correctly aligned, proceed to (7); if not, perform (5) and (6).
- (5) Loosen the 3/16-inch locknut on solenoid 3 and rotate the 1/4-inch adjustment nut cw or ccw until the character 1 is properly aligned.
- (6) Hold the 1/4-inch adjustment nut in place and tighten the 3/16-inch locknut.
- (7) Energize solenoids 1 and 3. The symbol ) should be in correct alignment under the print hammer. If the ) is correctly aligned, proceed to (10), if not, perform (8) and (9).

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- (8) Loosen the 3/16-inch locknut on solenoid 2 and rotate the 1/4-inch adjustment nut cw or ccw until the symbol ) is properly aligned.
- (9) Hold the 1/4-inch adjustment nut in place and tighten the 3/16-inch locknut.
- (10) Energize solenoids 2 and 3. The character 8 should be in correct alignment under the print hammer. If the 8 is correctly aligned, proceed to (13), if not, perform (11) and (12).
- (11) Loosen the 3/16-inch locknut on solenoid 1 and rotate the 1/4-inch adjustment nut cw or ccw until the character 8 is properly aligned.
- (12) Hold the 1/4-inch adjustment nut in place and tighten the 3/16-inch locknut.
- (13) De-energize all of the solenoids. The symbol A should be in correct alignment under the print hammer. If the A is not correctly aligned, repeat (1) through (13).

### 4.06 Rotary Position Cable Adjustment:

**Note:** To avoid overheating the solenoids, do not energize any longer than is necessary. To avoid damaging the contacts on the printed circuit board, it is recommended that the 48 volts required for test and adjustment procedures be supplied to the printer through a WE 906H connector instead of through alligator clips or other similar means.

- (1) With a roll of tape properly threaded in the printer (Section 030-342-301), energize solenoid 4 and operate the hammer solenoid several times to print character 5. The character should be centered on the tape. If not centered, perform (2) and (3).
- (2) Loosen the locknut or screw on the rotary cable adjustment post and rotate the hex pulley cw to raise the character on the tape or ccw to lower the character.
- (3) Retighten the rotary cable adjustment screw and check alignment.
- (4) Repeat (1), (2), and (3) until the character 5 is properly centered on the tape.
- (5) Operate the hammer solenoid several times to print the symbol A. Print the character 5 several times and compare vertical alignment of symbol A with the character 5. If vertical alignment is not correct, perform (6) and (7).
- (6) Loosen the 3/16-inch locknut on solenoid 4 and adjust the 1/4-inch nut closer to the solenoid body to lower the symbol A on the tape or farther from the solenoid body to raise the symbol.
- (7) Hold the 1/4-inch adjustment nut in place and tighten the 3/16-inch locknut.
- (8) Repeat (5), (6), and (7) until the symbol A is properly aligned with the character 5.

### 4.07 Hammer Solenoid and Tape Advance:

To correct the tape advance action and intensity of the printout, adjust the hammer solenoid assembly position.

- (1) Loosen the hammer solenoid mounting screws or nuts and manually operate the solenoid by pushing in on the solenoid plunger until the plunger has moved to the limit of its travel.
- (2) Press the solenoid body to hold the plunger securely against its seat (simulating an energized condition). With the solenoid plunger held to its most rearward position and the solenoid body held firmly to the solenoid plunger, tighten the solenoid assembly mounting screws.
- (3) Hold the solenoid plunger in the operated position and loosen the 3/16-inch locknut on the solenoid. Adjust the 1/4-inch adjustment nut to obtain a clearance of 0.100 inch between the solenoid body and the rubber washer next to the 1/4-inch nut. Hold the 1/4-inch nut in place and tighten the 3/16-inch locknut.
- (4) With the tape in the unit, loosen the solenoid mounting screws or nuts and manually hold the print hammer against the print cylinder. Move the entire solenoid assembly to the rear until the clearance between the 1/4-inch adjustment nut and the solenoid bracket is minimum -0.085, maximum -0.090 inches.
- (5) Hold the solenoid assembly in place and tighten the solenoid mounting screws or nuts.
- (6) Manually actuate the solenoid plunger and observe the operation of the advance pawl and

the detent spring in their respective notches on the ratchet. The advance pawl should engage one tooth at a time and rotate the tape drum cw a sufficient distance to allow the detent spring to complete the rotation. This action should feed the tape an adequate distance to provide space for printing one character.

(7) If the detent spring action is not sufficient to feed the tape properly, loosen the detent spring mounting screw and move the spring either forward or to the rear as required to correct the tape feed. A notch along the edge of the detent spring is provided to insert a screwdriver to bear against the screw threads and move the detent spring small controlled amounts. When the detent spring is properly adjusted, the teeth on the advance roller appear to be motionless during continuous operation.

#### 4.08 Low Tape Alarm:

(a) **L10 Alarm:** Adjustment of the L10 low tape alarm is accomplished by bending the low tape lever that contacts the tape roll. Make only slight adjustments until the desired setting is obtained.

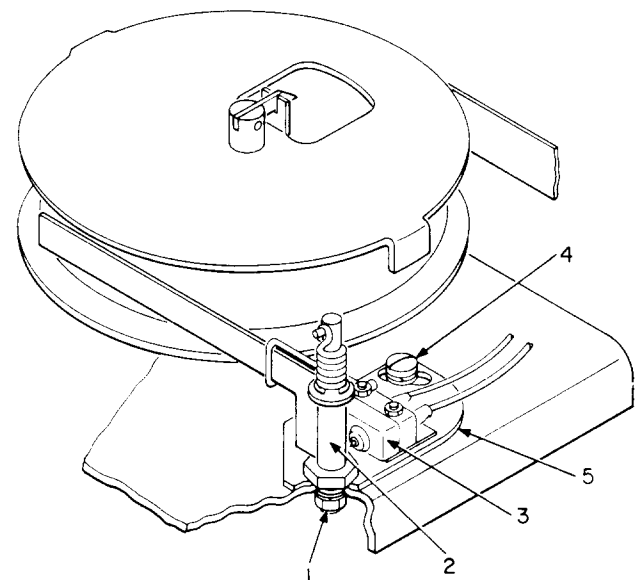
(b) **L11 Alarm:** Adjustment of the L11 low tape alarm (Fig. 4) is accomplished by using the following procedure:

- (1) Remove the tape cap and tape roll.
- (2) Loosen the hex nut (Item 1) on the low tape lever pivot stud (Item 2) enough to allow the pivot stud to turn with light pressure.
- (3) Turn hex on the low tape lever pivot stud until switch (Item 3) actuates.
- (4) Tighten the hex nut.

(5) Loosen screw (Item 4) and position the switch pivot bracket (Item 5) so the switch will actuate at the desired position of the low tape lever.

(6) Tighten screw (Item 4).

(7) Replace tape roll and tape cover.



- 1 HEX NUT
- 2 LOW TAPE LEVER PIVOT STUD
- 3 SWITCH
- 4 SCREW
- 5 SWITCH PIVOT BRACKET

Fig. 4—KS-19717, L11, Low Tape Alarm Adjustment