RECORDERS

KS-19125, LIST 1 AND LIST 2

PIECE-PART DATA AND REPLACEMENT PROCEDURES

1. GENERAL

1.01 This section covers the information necessary for ordering parts to be used in the maintenance of KS-19125, List 1 and List 2 recorders. It also covers approved procedures for replacing these parts.

1.02 This section is reissued to incorporate information on the List 2 recorder and to designate the information which is not common to both the List 1 and the List 2 recorders. In this process, marginal arrows have been omitted.

1.03 Piece parts other than mounting hardware which can be replaced in the field are listed in the index at the end of Part 2. These parts are identified by the use of references to illustrations in Part 3 which show the different parts together with their piece-part numbers and corresponding names.

1.04 Part 3 covers the approved procedures for the replacement of the piece parts designated in Part 2. No attempt shall be made in the field to replace parts not designated.

1.05 The information in Parts 2 and 3 applies to both the List 1 and the List 2 recorders except where otherwise indicated.

2. PIECE-PART DATA

2.01 The illustrations to which references are made in this part show the various piece parts in their proper relation to the other parts of the recorder. The piece-part numbers of the various parts are given together with their names as listed by the Western Electric Company Merchandise Department. Where these names differ from those in general use in the field, the latter names in some cases are shown in parentheses.

2.02 When ordering replacement parts, give both the piece-part number and the name of the part as shown in the following example:

B-896815 cover door latch

If a part is identified by other than a piece-part number, state the number, name of the part, and the manufacturer's name as follows:

No. 48C lamp, General Electric Co.

Do not refer to the BSP number or to any information shown in parentheses on the following illustrations.

2.03 Information enclosed in parentheses is not ordering information. This information may be references to notes, information pertaining to parts not considered replaceable, or part names in general use in the field if the names differ from those assigned by the manufacturer.

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Spade Bolt	18	
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3. REPLACEMENT PROCEDURES

3.01 *List of Tools and Materials*

CODE OR SPEC. NO.	KS-19125 RECORDER LIST 1	KS-19125 RECORDER LIST 2	DESCRIPTION
TOOLS			
133A	√	—	Thickness Gauge Nest or equivalent (for 0.040-inch measurement)
417A	—	√	3/8- and 1/4-Inch Open Double-End Flat Wrench
418A	—	√	5/16- and 7/32-Inch Open Double-End Flat Wrench
1092F	√	√	11/16-Inch Open Double-End Flat Wrench
AT-7329	√	√	4-Ounce Riveting Hammer
AT-7825	√	√	4-Inch E and 5-Inch E Screwdrivers
KS-6257	√	√	3/8-Inch Tee-Handle Socket Wrench
R-1005	√	√	Jewelers Screwdriver
R-1471	√	√	No. 13 Drill Bit
R-1770	√	√	1/2-Inch Open Double-End Flat Wrench

CODE OR SPEC. NO.	KS-19125 RECORDER LIST 1	KS-19125 RECORDER LIST 2	DESCRIPTION
TOOLS (Cont)			
R-2670	√	√	3/32-Inch Allen Wrench
R-2671	√	√	1/8-Inch Allen Wrench
R-2812	√	√	3/16-Inch Allen Wrench
R-2958	√	√	5/64-Inch Allen Wrench
R-2959	√	√	1/16-Inch Allen Wrench
R-2961	√	√	0.050-Inch Allen Wrench
R-2975	√	√	Snap-Ring Pliers
R-3193	√	√	11/32-Inch Open Double-End Flat Wrench
—	√	√	3/32-, 1/8-, and 5/32-Inch Drive Pin Punches, No. 565 L. S. Starrett Co. (or equivalent)
—	√	√	1/4-Inch Drill, No. 1495-WE, Albertson & Co. (or equivalent)
—	—	√	APCO Mossberg Torque Screwdriver with 7/16-Inch Screwdriver Bit. (Obtain bit locally.)
MATERIALS			
KS-2423	√	√	Twill Cloth
KS-19094, L1	√	√	Antiseize Compound
—	√	√	Freon (TF Grade)
—	√	—	Masking Tape
—	√	√	No. 22 AWG Teflon Tubing
—	√	√	No. 6 Compound Lubricant, Dow Corning, Midland, Mich.
—	—	√	S-122 Flurocarbon Dry Lubricant, Miller Stephenson, Chicago, Ill.
—	—	√	Sealant (Loctite) Grade AA
—	—	√	Sealant (Loctite) Grade E

3.02 Before performing any replacement procedures, the recorder must be taken out of service and the power turned off. Also any tape containing AMA information must be removed, identified, and placed in its container as specified in Section 034-356-301.

3.03 No procedure is given for removal of the recorder assemblies (Fig. 1) from the AMA recorder and TTY unit. All procedures covered in this section can be performed without removing the recorder assembly from the frame. To gain access to parts on the front of the tape transport, open the transparent cover door by pulling the latch outward. To gain access to parts on the rear of the tape transport, use the 4-inch E screwdriver to loosen the four captive screws (Fig. 2) and open the rear doors.

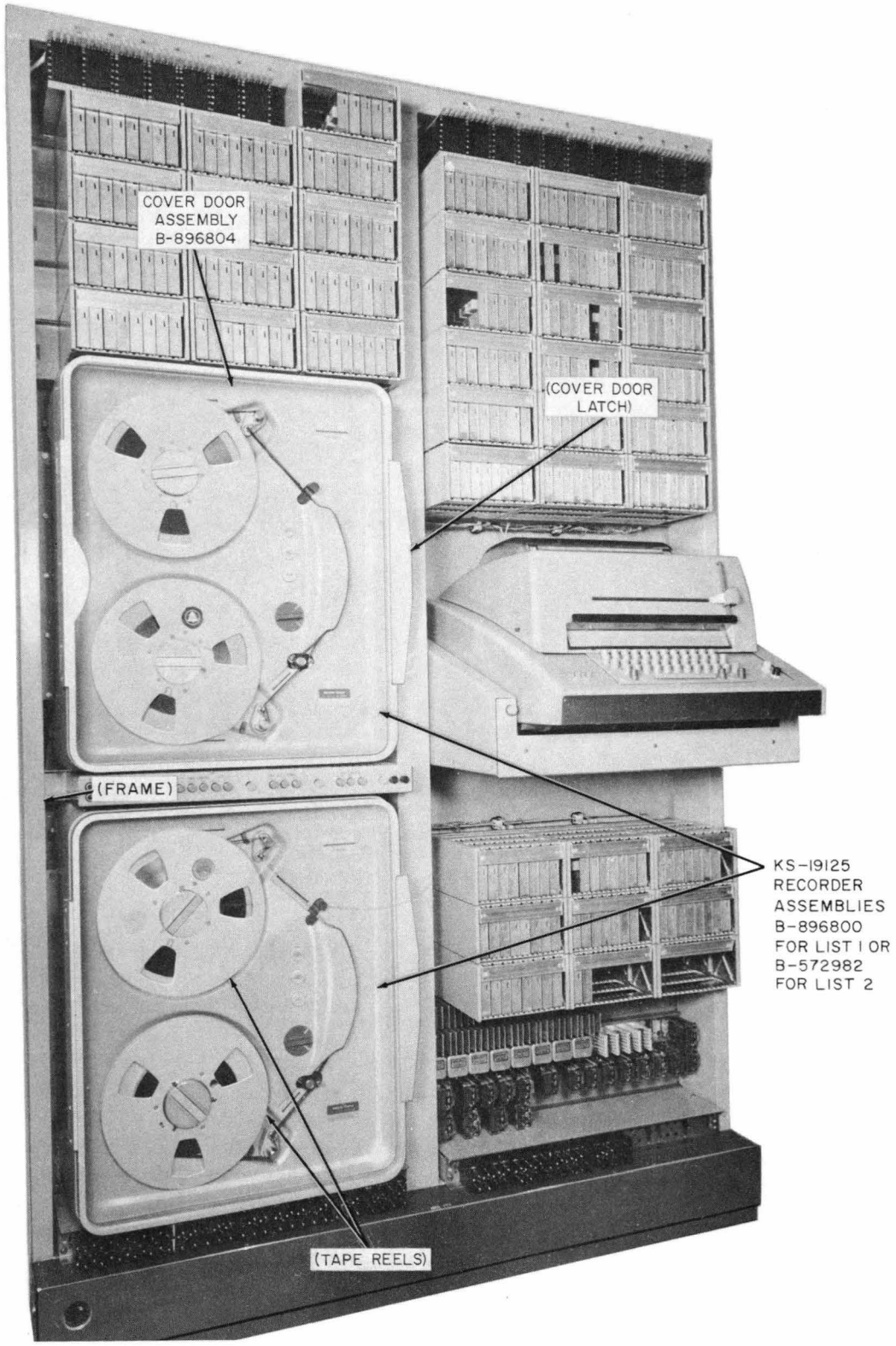


Fig. 1 — KS-19125 Recorder Assemblies in Normal Operating Location in AMA Recorder and TTY Unit

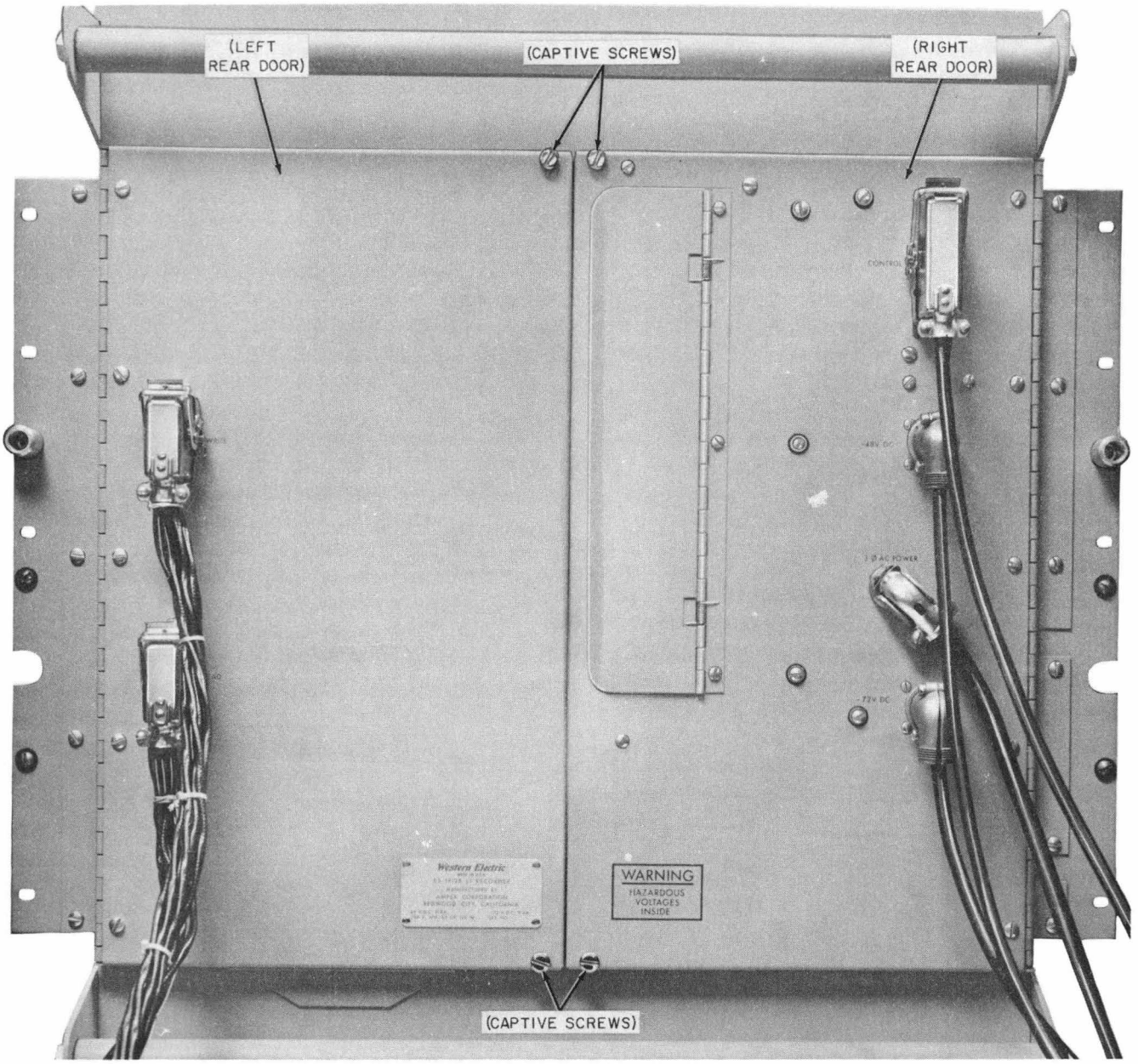


Fig. 2 — Recorder Assembly — Rear View

3.04 No instructions are given for replacement of screws or other parts where the procedure consists of a simple operation.

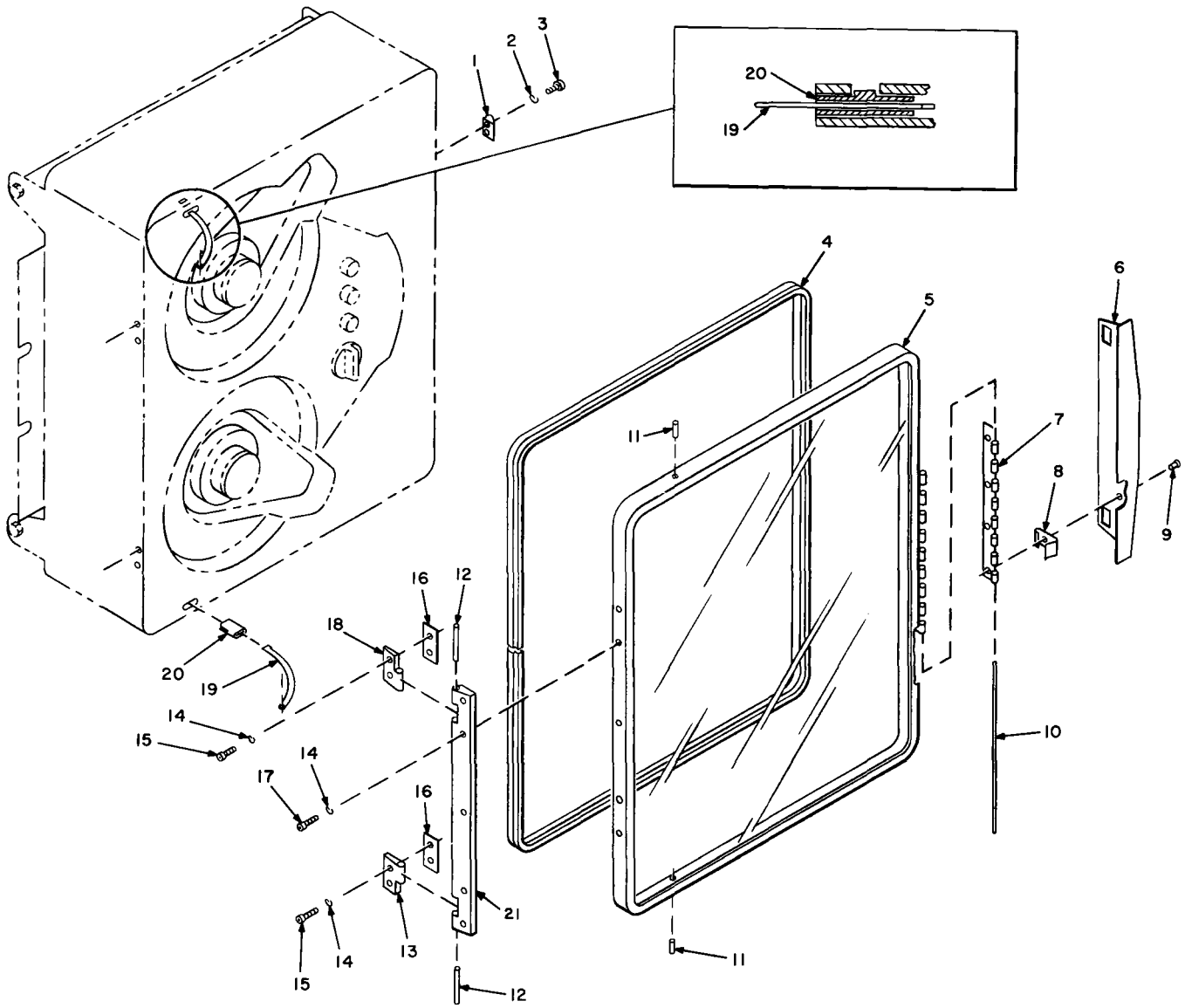
3.05 After replacement of any parts, the recorder assembly shall meet the requirements as specified in Section 034-356-701. Replacement operations may affect the adjustment of other parts. Therefore, such parts should be checked against requirements and adjusted if necessary.

Cover Door Assembly and Associated Parts

3.06 ***Cover Door Assembly:*** To replace cover door assembly (Fig. 1), proceed as follows:

(1) Before cover door assembly can be removed, the two stops (Fig. 3) must be disengaged from the recorder housing. Unlatch and open the door. Using a screwdriver blade, press down through the upper access hole and force the stop insert forward (toward cover door as-

sembly) along the stop until insert is free from the housing. Similarly disengage the lower stop. Support cover door assembly and, using the 3/32-inch Allen wrench, remove four screws and lockwashers holding the upper and lower hinge blocks; then remove cover door assembly and hinge block shims taking care to prevent bending the stops as they are drawn through the slots.



1. B-896946 LATCH STRIKE
2. NO.4,1/8×5/16×0.032 PLAIN WASHER
3. 0.112-40 3/8 HEX SOCKET BUTTON HD STL SCREW
4. B-896809 GASKET
5. (PANEL,FRAME,AND HINGE HALF)
6. B-896815 LATCH
7. (HINGE HALF)
8. B-896818 LATCH SPRING
9. 0.186×0.250, 100° FCSK HD SEMI-TUBULAR ALUMINUM RIVET
10. (PIN, PART OF LATCH HINGE)
11. GP 24-187×0.375-12 GROOV-PIN
12. TYPE 24,0.156 2-7/16 GROOV-PIN
13. B-896810 LOWER HINGE BLOCK
14. NO. 6 LOCKWASHER
15. 0.138×32×1/2 HEX SOCKET BUTTON HD STL SCREW
16. B-896955 HINGE BLOCK SHIM
17. 0.138×32×7/16 HEX SOCKET BUTTON HD STL SCREW
18. B-896811 UPPER HINGE BLOCK
19. B-896945 STOP
20. B-896944 STOP INSERT
21. B-896812 COVER DOOR HINGE

Fig. 3 — Cover Door Assembly and Associated Parts — Exploded View

(2) To remount cover door assembly, apply KS-19094, L1 antiseize compound to the threads of the four hinge block screws (Fig. 3) and place cover door assembly in position by inserting the stops through the slots in the recorder housing. Using the 3/32-inch Allen wrench, secure upper and lower hinge blocks and shims with the four screws and lockwashers. Using a screwdriver blade against the ear of the upper stop insert, force insert into slot until the ear engages the access hole. Similarly engage the lower stop insert. Check that cover door is centered on the front of the recorder when closed and add or remove hinge block shims as required. It is not necessary to disengage stops to adjust shims. Using the 5/64-inch Allen wrench, adjust latch strikes so that gasket makes sealing contact along the full periphery of the cover door when the latch is in the fully closed position as shown in Fig. 1.

3.07 ***Cover Door Hinge:*** To replace cover door hinge, remove cover door assembly as described in 3.06. Refer to Fig. 3 and use the 3/32-inch Allen wrench to remove the five screws holding the hinge to the frame and remove hinge. Apply KS-19094, L1 antiseize compound to threads of the screws and secure new hinge to the frame. Remount cover door assembly as described in 3.06.

3.08 ***Cover Door Latch:*** To replace cover door latch (Fig. 3), use the 1/8-inch drive pin punch to remove pin from latch hinge and remove the latch from the frame. Place new latch in position on cover door frame; align hinge halves; and replace pin.

3.09 ***Door Latch Springs:*** To replace door latch springs, remove cover door latch from frame as described in 3.08; and using the No. 13 drill bit and low speed 1/4-inch drill, drill out the two end rivets (Fig. 3) holding the hinge half to the latch. Observe positions of old springs, and remove them from between the hinge half and the latch. Insert new springs into position, and replace rivets using the 4-ounce riveting hammer to brad rivets. Remount cover door latch as described in 3.08.

3.10 ***Cover Door Gasket:*** To replace cover door gasket (Fig. 3), remove old gasket and clean the groove in the frame. Cut a new piece of gasket material about an inch longer than the old gasket. Press new gasket into groove so that joint is located approximately at the midpoint on the door hinge side of the frame. Trim gasket as required for the two ends to make firm contact with each other and form an airtight seal.

Drive Motor and Associated Parts

3.11 ***Drive Motor Assembly:*** To replace the drive motor assembly, proceed as follows:

(1) To gain access to the drive motor assembly, use the 4-inch E screwdriver to remove the six screws holding the suppressor cover (Fig. 4) and remove the cover. Disconnect and tag the seven leads of drive motor from terminals 5 through 11 of TB1 (Fig. 5 or 6). Remove the screws, washers, and cable clamps from the upper suppressor housing bracket and from the lower suppressor housing bracket; remove the screw holding the locking tab; and swing the suppressor network assembly out as shown in Fig. 7 or 8.

(2) To remove drive motor assembly, use the 11/32-inch open-end wrench to remove nylon locknut holding screw retainer clip and spade bolt; unhook pinch roller pressure spring from pinch roller arm; and remove spring, spade bolt, and retainer clip. Using the 3/8-inch tee-handle socket wrench, unscrew the three motor mounting screws from tape transport casting while supporting drive motor assembly; and then remove drive motor assembly.

(3) Before installing drive motor assembly, make sure that lockwashers are under heads of motor mounting screws. Position drive motor assembly with electrical leads toward bottom of tape transport (Fig. 7 or 8); and using the 3/8-inch tee-handle socket wrench, secure drive motor assembly to tape transport casting

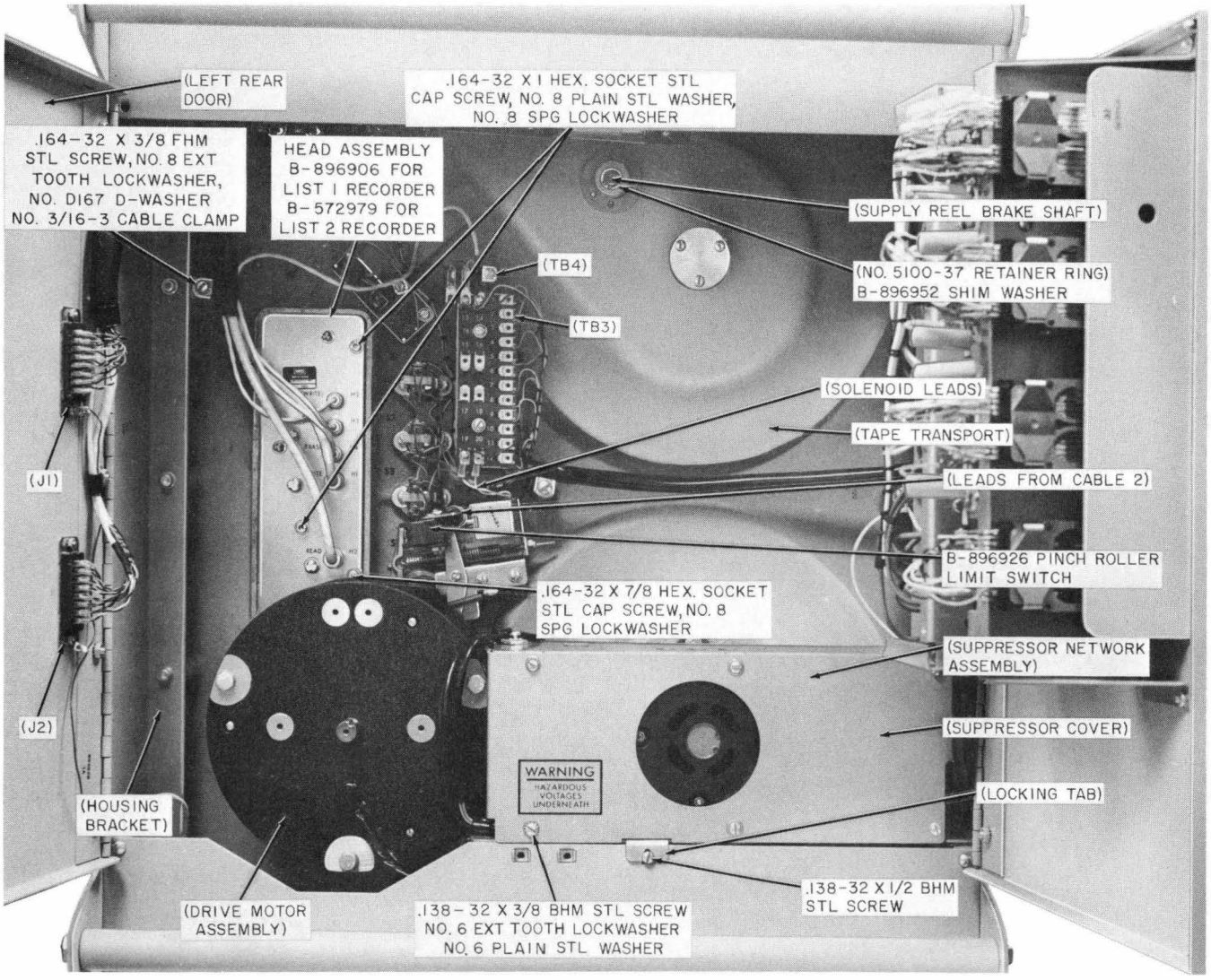


Fig. 4 — Recorder Assembly — Rear Doors Open

with the three mounting screws. Hook pinch roller pressure spring to pinch roller arm and to spade bolt. Using 11/32-inch open-end wrench, secure spring and spade bolt to pinch roller lock bracket with the nylon locknut.

(4) Swing suppressor network assembly into position as shown in Fig. 5 or 6, and secure with screw in locking tab using the 4-inch E screwdriver. Connect leads of drive motor to terminals of TB1 as follows:

Shorter red lead to terminal 5

Shorter yellow lead to terminal 6

Shorter blue lead to terminal 7

Longer red lead to terminal 8

Longer yellow lead to terminal 9

Longer blue lead to terminal 10

White lead to terminal 11

Secure motor leads to upper and lower suppressor housing brackets each with screw, cable clamp, D-washer, and lockwasher. Install suppressor cover as shown in Fig. 4 and secure with the six screws, plain washers, and lockwashers.

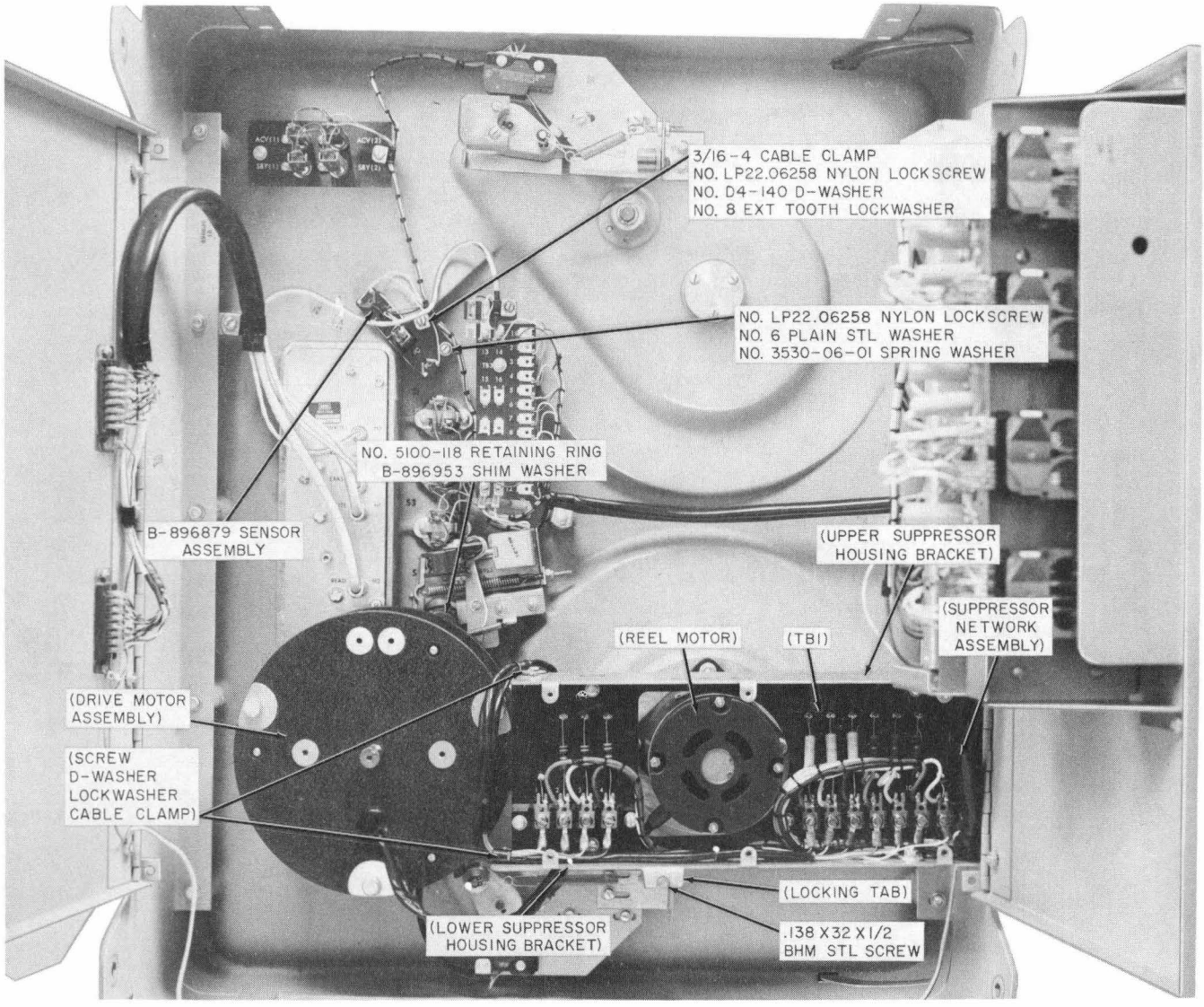


Fig. 5 — KS-19125, List 1 Recorder Assembly — Rear Internal View

With a visual clearance between cam surface of pinch roller knob and pinch roller arm in the RUN condition, adjust tension of pinch roller pressure spring to requirements described in Section 034-356-701.

3.12 ***Pinch Roller Arm Assembly:*** To replace pinch roller arm assembly, proceed as follows:

(1) Remove drive motor assembly as described in 3.11.

(2) Using the 11/16-inch open-end wrench, unscrew pinch roller arm shaft (Fig. 9) from drive motor; and remove pinch roller arm assembly. Screw the shaft of new pinch roller arm assembly into drive motor, and tighten with the 11/16-inch open-end wrench.

(3) Install drive motor assembly on tape transport as described in 3.11.

3.13 ***Pinch Roller Assembly:*** To replace the pinch roller assembly (Fig. 10 or 11), use the blade of the R-1005 jewelers screwdriver to

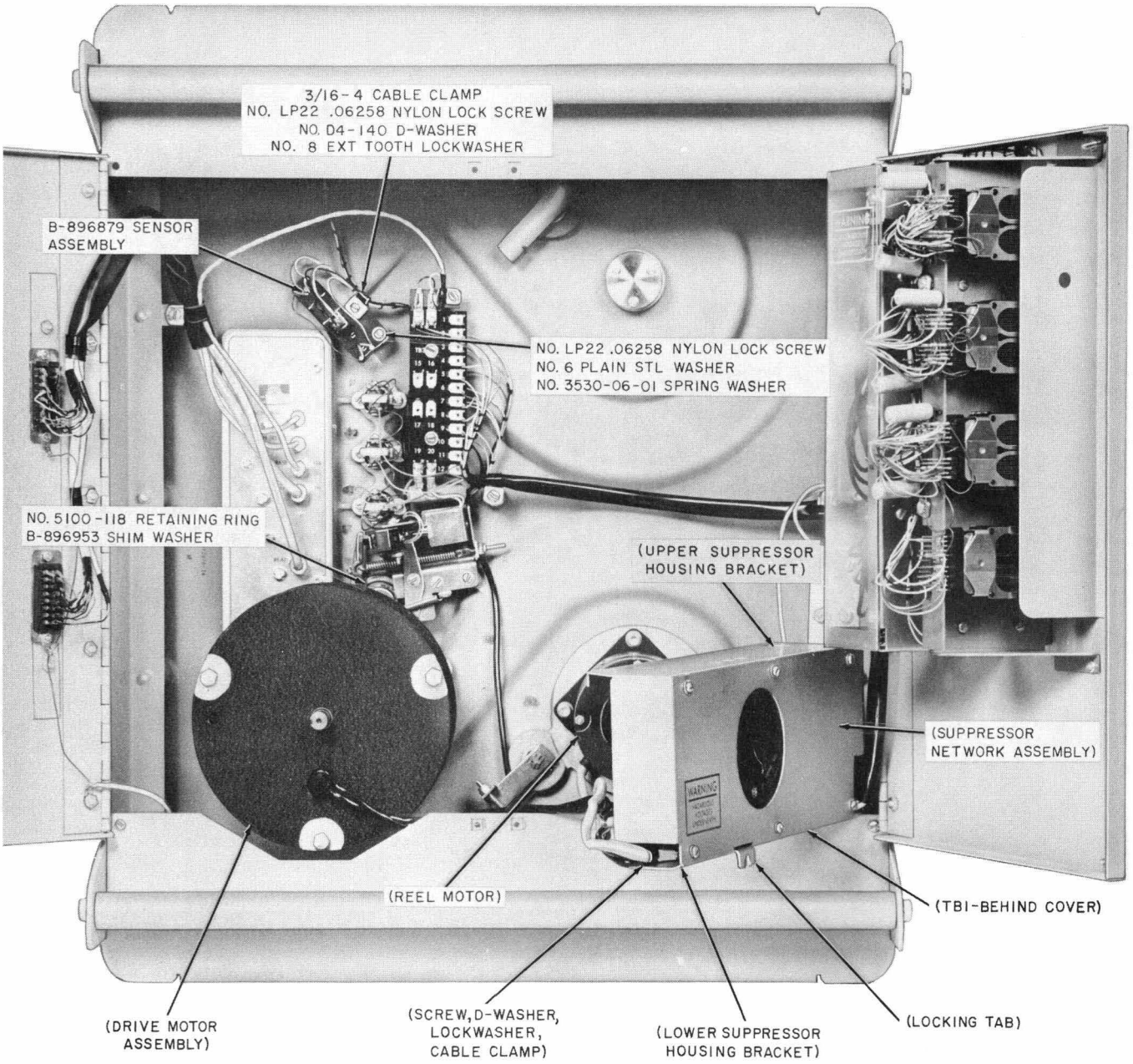


Fig. 6 — KS-19125, List 2 Recorder Assembly — Rear Internal View

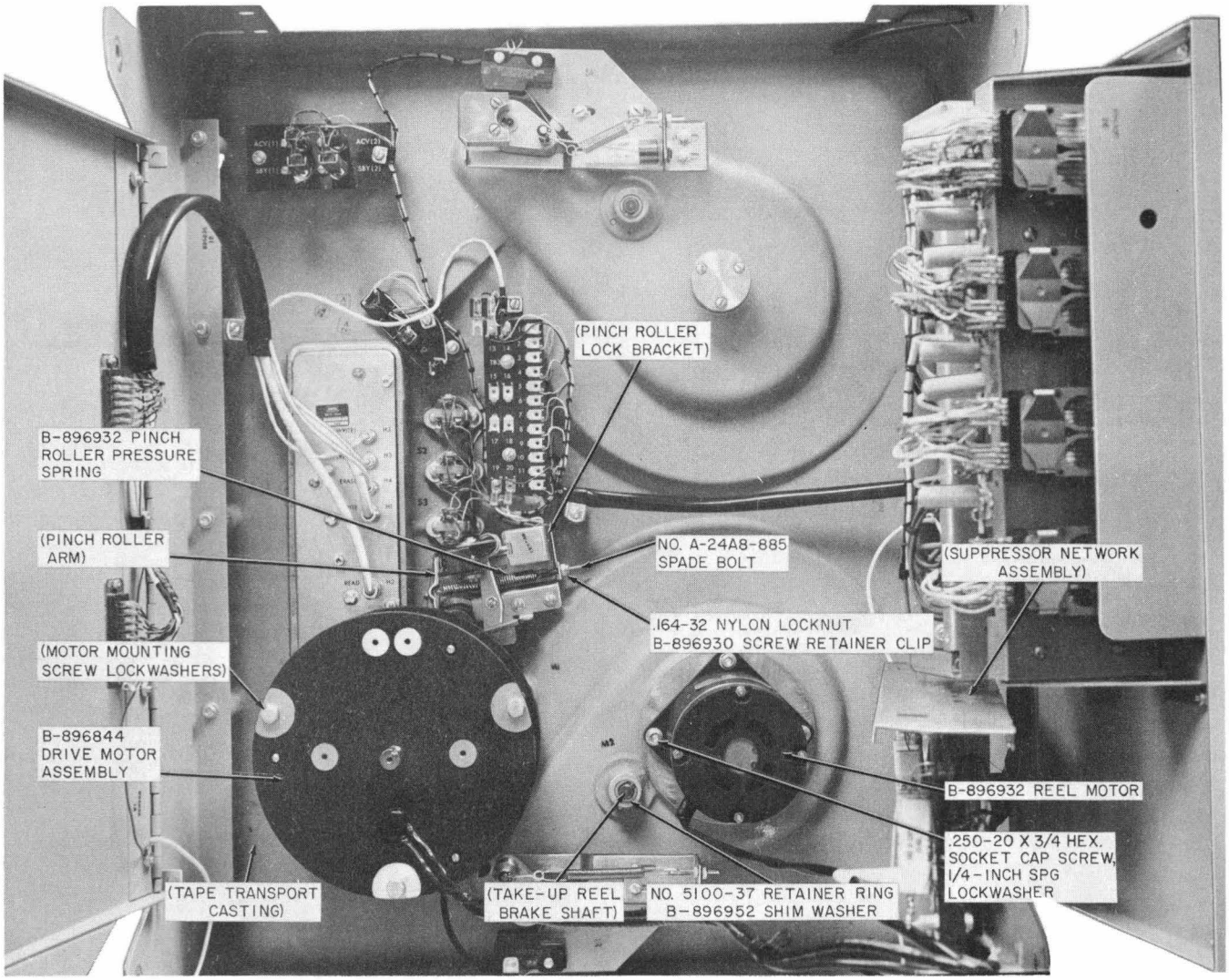


Fig. 7 — KS-19125, List 1 Recorder Assembly — Rear View of Tape Transport

pry bearing cover retainer (Fig. 9) from the internal groove; and remove retainer and bearing cover. Using the 1/8-inch Allen wrench, remove pinch roller assembly from pinch roller arm. Install new pinch roller assembly and tighten with the 1/8-inch Allen wrench. Replace bearing cover and bearing cover retainer. Adjust pinch roller pressure to meet requirements described in Section 034-356-701.

Reel Turntables and Associated Parts

3.14 ***Reel Turntable:*** To remove reel turntable, proceed as follows:

(a) ***Recorder with KS-19125, L 102 (NAB) Reel Hold-Down Knob Assembly (Fig. 12)***

Caution: Use extreme care to prevent damage to braking surface of turntable (Fig. 13).

(1) Refer to Fig. 10 for location of the turntables. Using the 0.050-inch Allen wrench, remove two setscrews (Fig. 12) holding cover plate; and remove cover plate from knob assembly.

(2) Using the 5/64-inch Allen wrench, loosen the setscrew holding nylon ball in reel base. Place a piece of masking tape over hole in reel base to prevent loss of nylon ball.

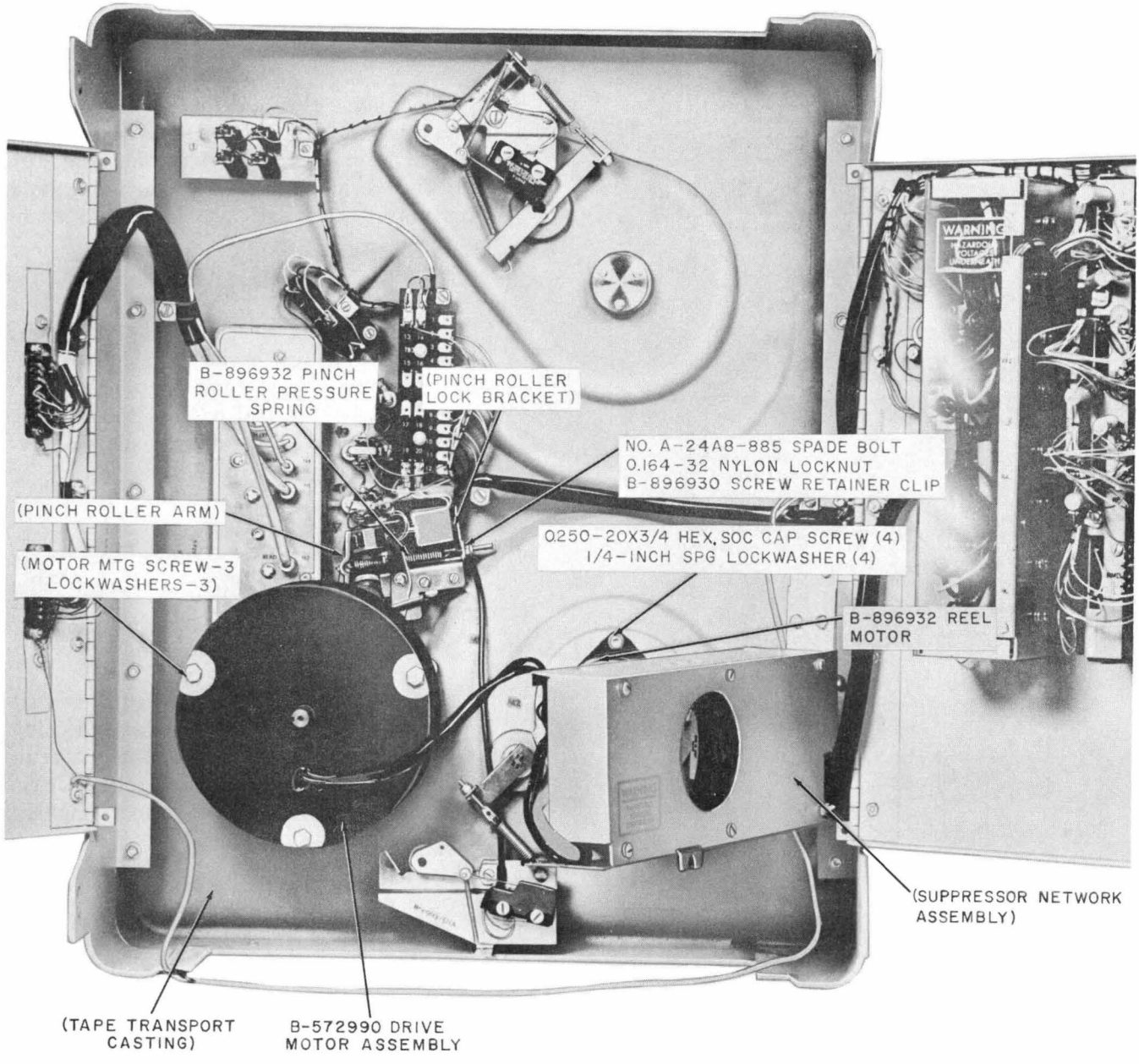


Fig. 8 — KS-19125, List 2 Recorder Assembly — Rear View of Tape Transport

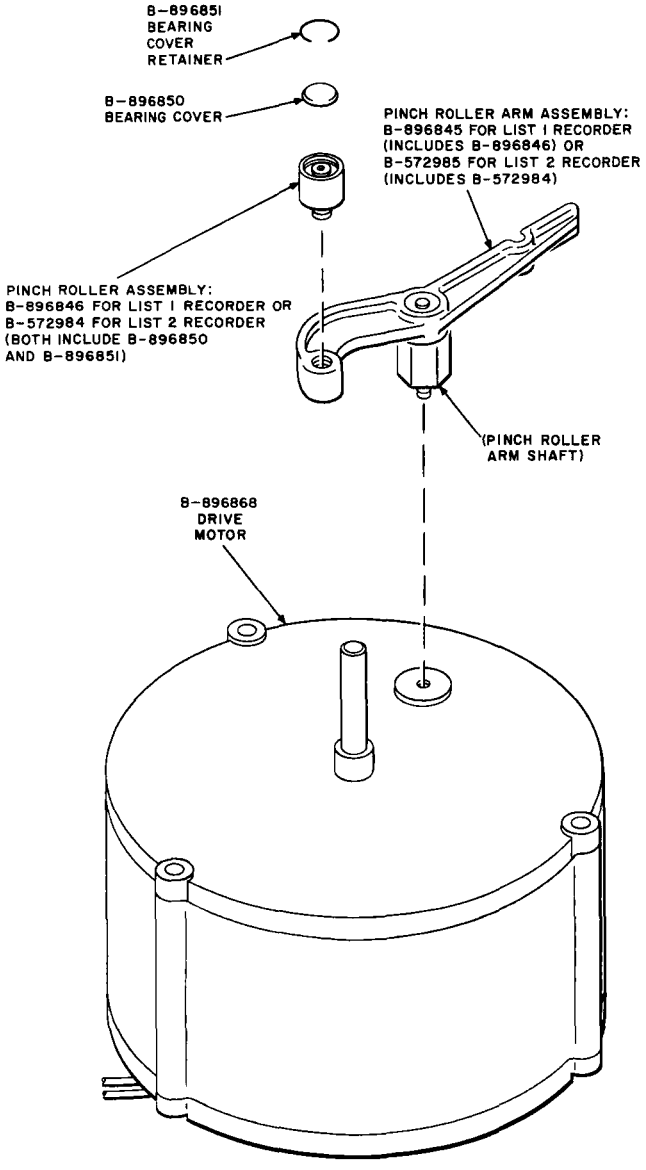
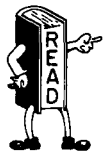


Fig. 9 — Drive Motor Assembly — Exploded View

(3) Using the 5-inch E screwdriver, unscrew the special captive screw; and remove knob assembly from reel base.

(4) Using the 4-inch E screwdriver, remove the three screws holding reel base; and remove reel base from reel turntable.



Steps (1) through (4) are sufficient for making turntable alignment measurements specified in Section 034-356-701. To reinstall hold-down knob, proceed with (7) through (10). If removal of turntable is required, refer to (5) and (6).

(5) To remove turntable (Fig. 13), use the 5/64-inch Allen wrench to loosen setscrew in turntable; hold reel brake (Fig. 10) away from braking surface of turntable; and remove turntable and key (Fig. 13) from shaft.

(6) To install turntable, insert key in shaft; and holding reel brake (Fig. 10) to provide clearance, slide turntable onto shaft with mounting holes for reel base to the outside. Adjust position of turntable on shaft as described in Section 034-356-701.

(7) Using the 4-inch E screwdriver, secure reel base (Fig. 12) to turntable with the three screws.

(8) Remove tape from reel base; insure that nylon ball is in setscrew hole; and using the 5-inch E screwdriver, secure knob assembly to reel base with the special captive screw. Using the 5/64-inch Allen wrench, tighten setscrew against nylon ball.

(9) Place cover plate on knob assembly; and using the 0.050-inch Allen wrench, secure cover plate with the two setscrews.

(10) Clean the braking surface of turntable, and adjust brake pressure as described in Section 034-356-701.

Caution: Do not touch braking surface after it has been cleaned. Even the body oil left by a finger print will affect the braking characteristics of the surface.

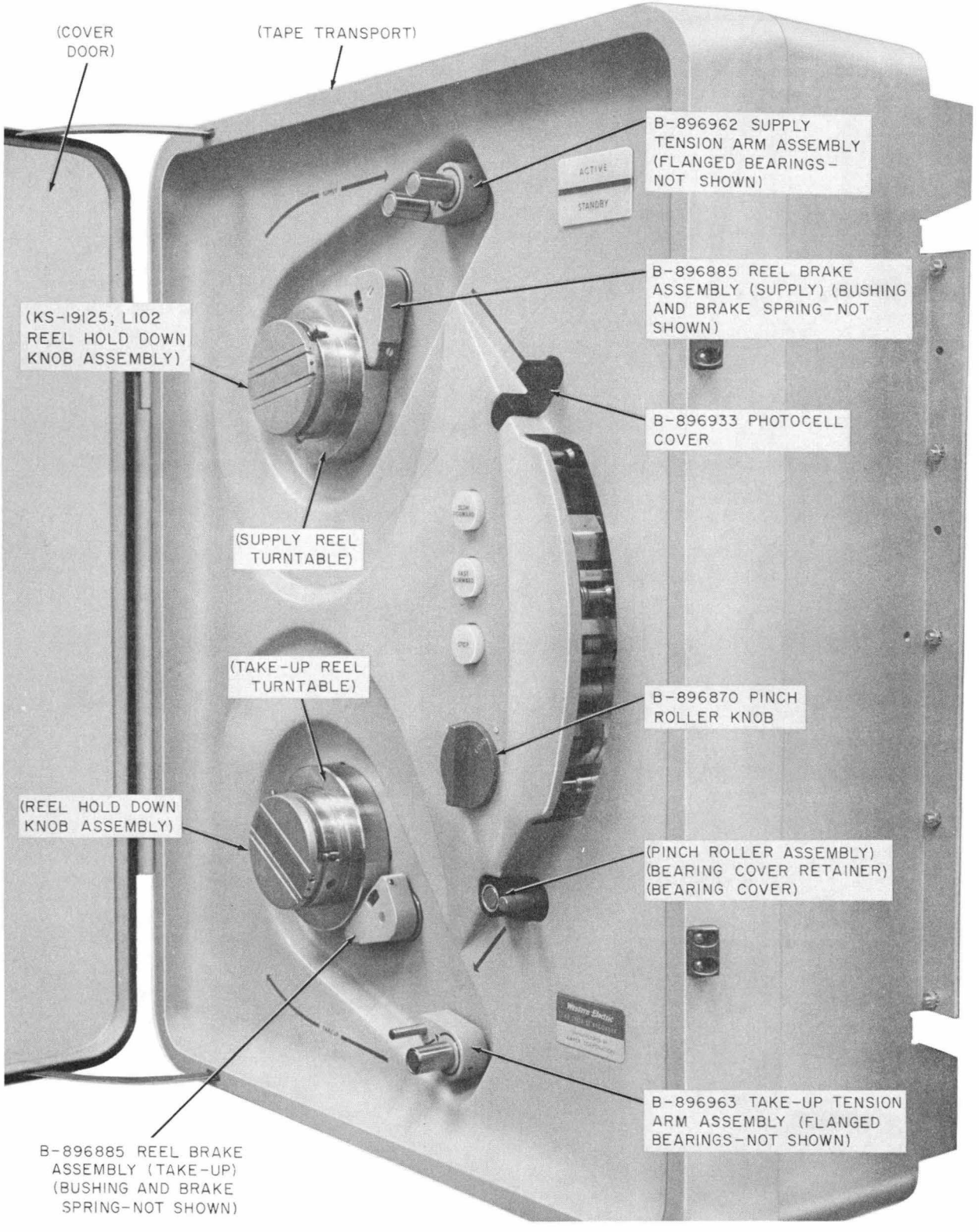


Fig. 10 — KS-19125, List 1 Recorder Assembly — Front View

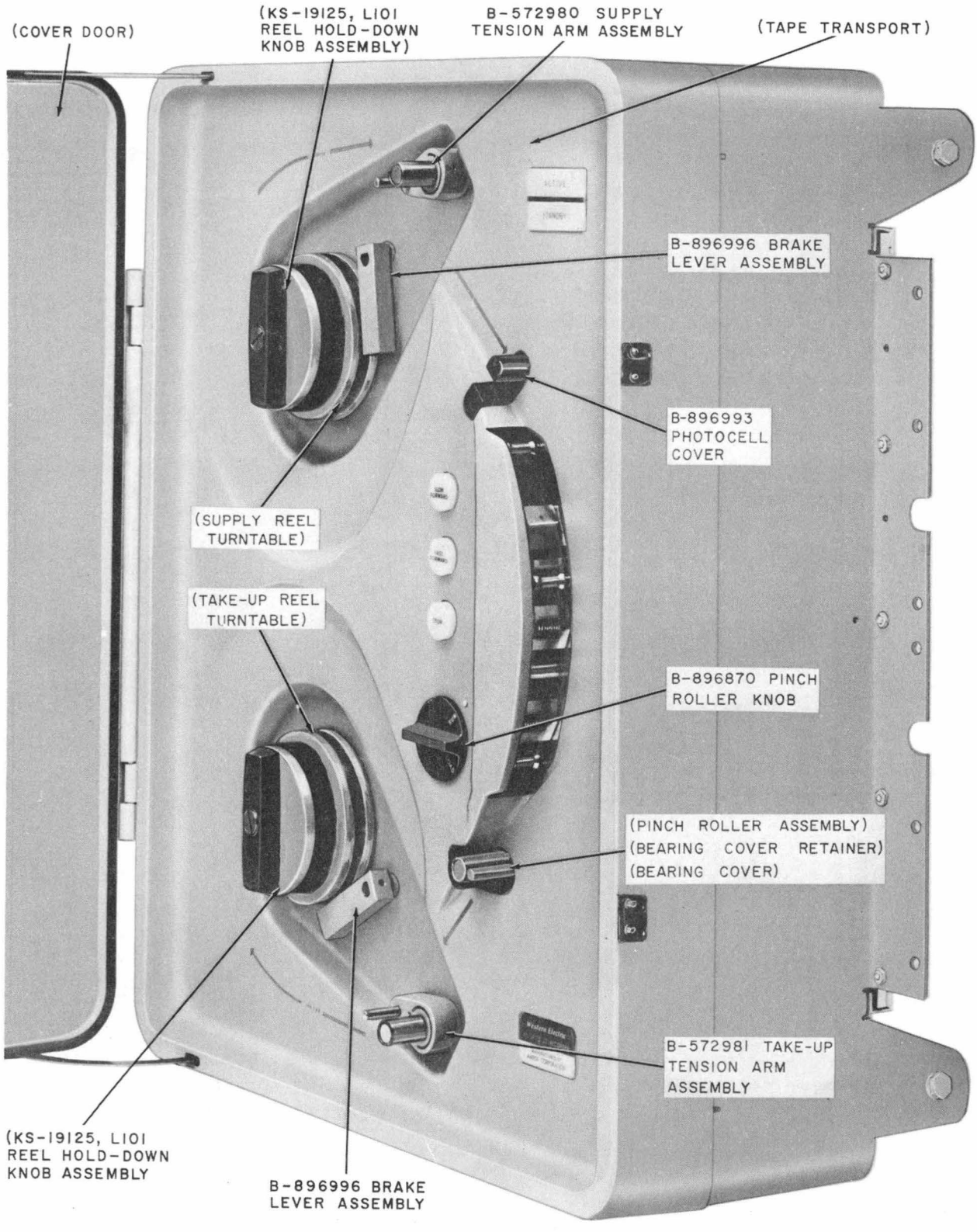


Fig. 11 — KS-19125, List 2 Recorder Assembly — Front View

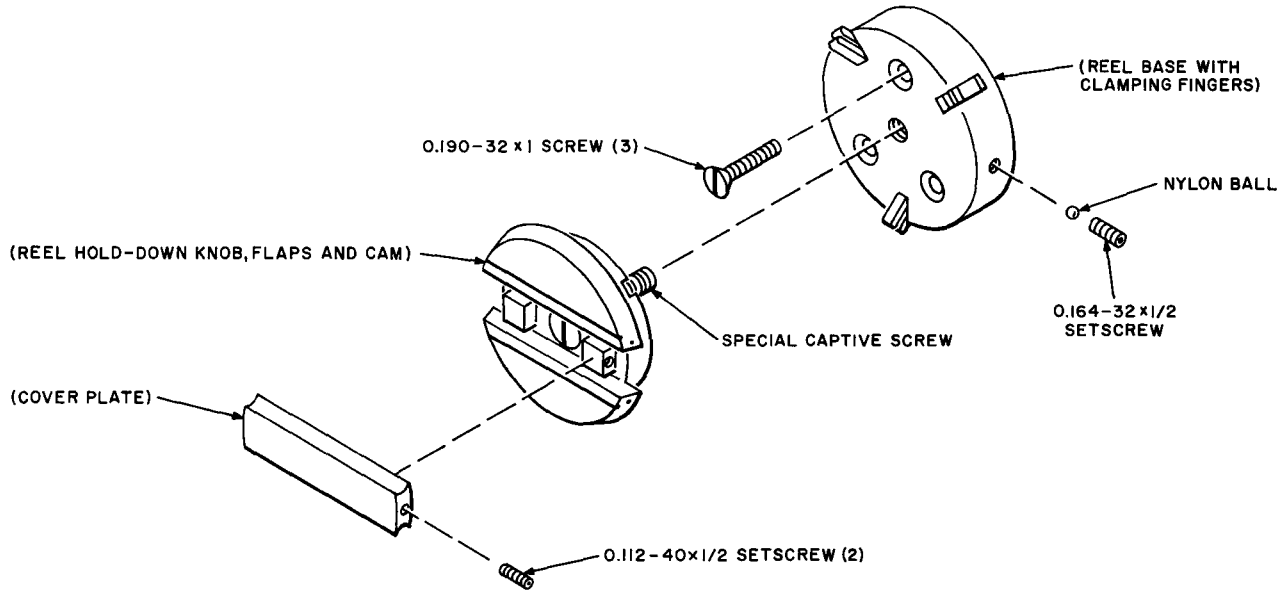


Fig. 12 — KS-19125, L102 (NAB) Reel Hold-Down Knob Assembly — Exploded View

(b) ***Recorder with KS-19125, L 101 (ASA) Reel Hold-Down Knob Assembly (Fig. 14)***

Caution: Use extreme care to prevent damage to braking surface of reel turntable (Fig. 13).

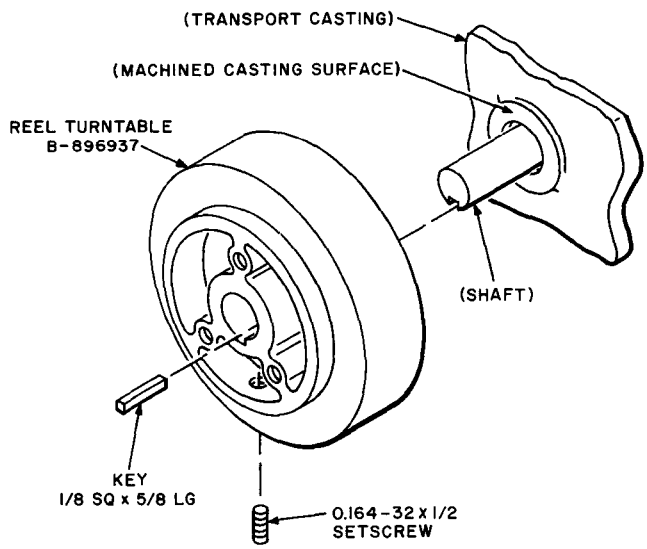


Fig. 13 — Reel Turntables and Mounting Details

(1) Take care not to mar the slotted area of the special left-hand threaded flat head screw (Fig. 14). Using the 5-inch E screwdriver, remove the screw by turning it clockwise while holding the hold-down bar.

(2) Unscrew hold-down bar by turning it counterclockwise; remove hold-down bar, two hardened steel washers, thrust bearing, and hold-down cap from stud.

(3) Using the 4-inch E screwdriver, remove three screws and lockwashers, and the hold-down base and ring assembly from turntable (Fig. 13).

Steps (1) through (3) are sufficient for making reel turntable alignment measurements specified in Section 034-356-701. To reinstall hold-down knob, proceed with (12) through (14). If removal of turntable is required, refer to (a) (5) and (6).

(4) If necessary, remove hold-down ring (Fig. 14) from hold-down base by sliding the ring off the base.

(5) Using a clean KS-2423 twill cloth moistened with Freon, clean end of stud to remove antiseize compound from the threads.

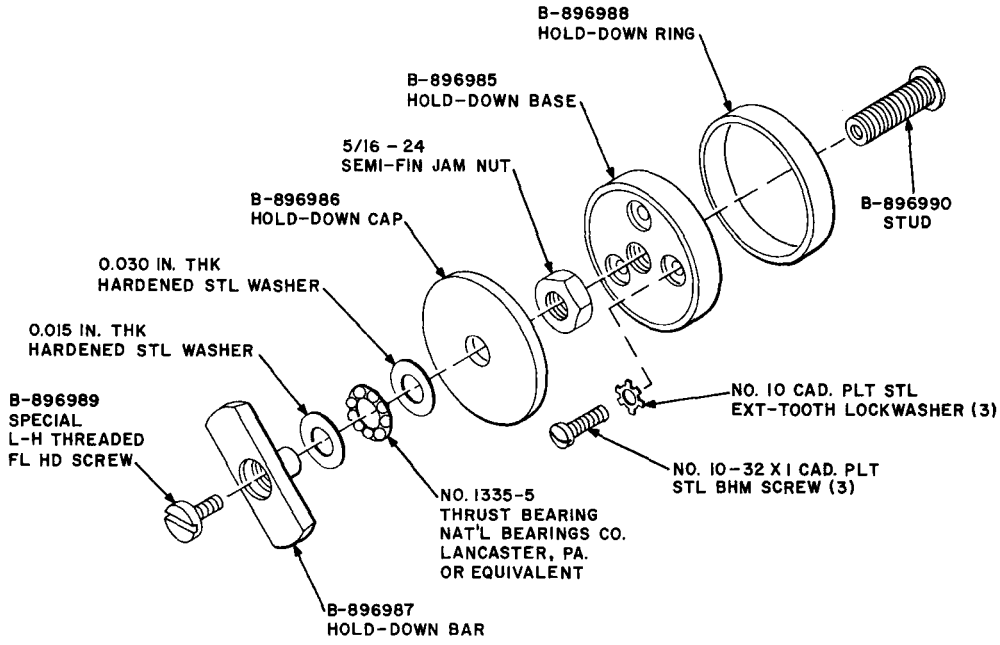


Fig. 14 — KS-19125, L101 (ASA) Hold-Down Knob — Exploded View

Only if necessary should the hold-down base and stud be disassembled.

(6) To disassemble hold-down base from stud, the jam nut which is cemented to the stud must be broken loose. Using the 418A wrench and the 5-inch E screwdriver, unscrew jam nut from stud by turning the wrench counterclockwise. Do not try to turn stud with screwdriver before jam nut is removed from stud threads. Then hold the hold-down base and unscrew stud from base.

(7) To remove and reinstall turntable, refer to (a)(5) and (6).

(8) Using a clean KS-2423 twill cloth moistened with Freon, clean threads of stud and hold-down base. If the old stud is to be reused, be sure all old sealant is removed from threads.

(9) Using the 5-inch E screwdriver, thread stud into hold-down base until head of stud bottoms securely on hold-down base. Refer to Fig. 14.

(10) Apply Loctite AA sealant to approximately five threads of the stud nearest the hold-down base. Then thread jam nut over the sealant; and using the 418A wrench and the 5-inch E screwdriver, tighten jam nut securely against hold-down base.

(11) Using a clean KS-2423 twill cloth, clean the outermost surface of hold-down base and the inside surface of hold-down ring. Then spray these surfaces with S-122 flourocarbon dry lubricant and slide ring onto base. Wipe off any excess lubricant with the cloth.

(12) Using the 4-inch E screwdriver, install hold-down base and ring assembly with three screws and external tooth lockwashers on turntable (Fig. 13).

(13) Refer to Fig. 14 and install hold-down cap, two washers, and thrust bearing. Apply KS-19094, L1 antiseize compound to approximately five threads nearest the end of the stud. Then thread hold-down bar onto stud taking care that washers and thrust bearing are in proper alignment before tightening.

(14) Apply Loctite E sealant to threads of special left-hand threaded flat head screw. Install screw by threading it counterclockwise into the end of the stud while holding the hold-down bar. Take care not to mar the slotted area of the screw, and tighten to a torque of 18 to 20 pound inches using the APCO Mossberg torque screwdriver with a 7/16-inch bit. To measure counterclockwise torque, set screwdriver to torque desired and rotate handle counterclockwise back to zero.

(c) ***Reel Hold-Down Knob Conversion***

(1) To convert the KS-19125, List 1 recorder to handle reels with ASA-type hubs, remove the two KS-19125, L 102 reel hold-down knobs as described in (a)(1) through (4); and replace them with two KS-19125, L 101 reel hold-down knobs as described in (b)(12) through (14).

(2) To convert the KS-19125, List 2 recorder to handle reels with NAB-type hubs, remove the two KS-19125, L 101 reel hold-down knobs as described in (b)(1) through (3); and replace them with two KS-19125, L 102 reel hold-down knobs as described in (a)(7) through (10).

3.15 ***Reel Motor:*** To replace reel motor, proceed as follows:

(1) Remove take-up reel turntable (Fig. 10 or 11) as described in 3.14(a) or (b).

(2) To gain access to reel motor, use the 4-inch E screwdriver to remove the six screws holding the suppressor cover (Fig. 4) and remove the cover. Disconnect and tag the four leads of reel motor from terminals 1, 2, 3, and 4 of TB1 (Fig. 5 or 6). Remove the screws, washers, and cable clamps from the upper suppressor housing bracket and from the lower suppressor housing bracket. Remove the screw holding the locking tab, and swing the suppressor network assembly out as shown in Fig. 7.

(3) To remove reel motor, use the 3/16-inch Allen wrench to remove four hex. socket screws and lockwashers holding motor; and remove motor from transport casting.

(4) To install reel motor, place motor in the position shown in Fig. 7 with the electrical leads extending toward the bottom left. Using the 3/16-inch Allen wrench, secure motor to transport casting with the four screws and lockwashers.

(5) Swing suppressor network assembly to the position shown in Fig. 5, and secure with screw in locking tab using the 4-inch E screwdriver. Connect leads from motor to TB1 as follows:

White lead to terminal 1

Red lead to terminal 2

Yellow lead to terminal 3

Blue lead to terminal 4

Secure motor leads to upper and lower suppressor housing brackets each with screw, cable clamp, D-washer, and lockwasher. Install suppressor cover as shown in Fig. 4, and secure with six screws, plain washers, and lockwashers.

(6) Install reel turntable and associated parts as described in 3.14(a) or (b).

3.16 ***Reel Brake Assembly:*** To replace reel brake assembly, proceed as follows:

(a) ***List 1 Only***

(1) Remove reel turntable as described in 3.14(a) or (b).

(2) To remove the supply reel brake assembly, use the R-2975 snap-ring pliers to remove retainer ring (Fig. 4); and remove shim washer from supply reel brake shaft. Remove brake assembly (Fig. 10) from front of tape transport.

(3) To gain access to take-up reel brake shaft, use the 4-inch E screwdriver to remove the screw holding the locking tab (Fig. 4); and swing the suppressor network assembly out as shown in Fig. 7. Use the R-2975 snap-ring pliers and remove retainer ring and shim washer from take-up reel brake

shaft. Remove reel brake assembly (Fig. 10) from the front of tape transport.

(4) To install the reel brake assembly, insert brake shaft through bushing so that brake spring is anchored in the middle anchorage slot in the transport casting. Using the R-2975 snap-ring pliers, secure brake shaft (Fig. 4 or 7) with shim washer and retainer ring. If take-up reel brake assembly has been replaced, return suppressor network assembly to position shown in Fig. 4; and using the 4-inch E screwdriver, secure locking tab with the screw.

(5) Install reel turntable and associated parts as described in 3.14(a) or (b).

(b) ***List 2 Only***

(1) To remove supply reel brake assembly, unhook tension arm control spring (Fig. 15) from brake arm assembly. Using the 3/8-inch open-end wrench, remove hex. locknut, spade bolt, and brake tension spring from brake arm assembly. Using the 1/16-inch Allen wrench, loosen setscrew in the end of brake lever assembly (Fig. 11 and 16); and remove brake lever and shim washer.

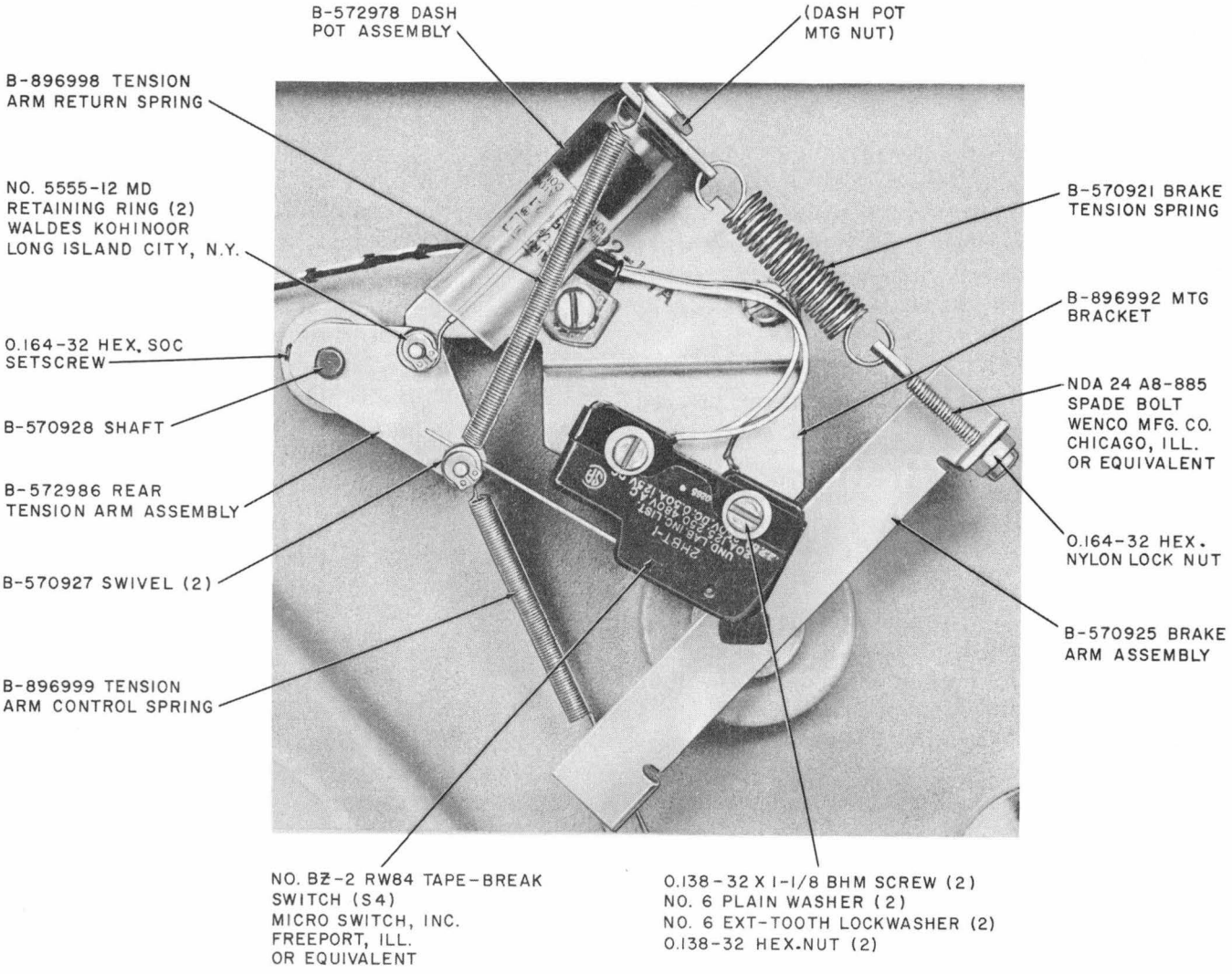


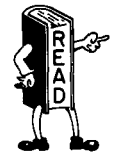
Fig. 15 — Supply Reel Brake and Tension Arm Assembly — KS-19125, List 2 Recorder

From the rear of the transport, slide brake arm assembly out of brake shaft bushing; and remove spring washer and shim washer.

(2) To gain access to take-up reel brake assembly, use the 4-inch E screwdriver to remove screw holding the locking tab (Fig. 4); and swing suppressor network assembly out as shown in Fig. 6. Using the 3/8-inch open-end wrench, remove hex. locknut, spade bolt, and brake tension spring (Fig. 17) from brake arm assembly. Using the 1/16-inch Allen wrench, loosen setscrew in end of brake lever assembly (Fig. 11 and 16); and remove brake lever and shim washer. From the rear, slide brake arm assembly out of brake shaft bushing; and remove spring washer and shim washer.

(3) Before installing reel brake assembly, clean the shaft with a clean KS-2423 twill cloth.

(4) Install shim washer and spring washer on shaft of brake arm assembly (Fig. 16), and insert shaft through brake shaft bushing. From the front of the transport, install shim washer and brake lever assembly on shaft. Using the 1/16-inch Allen wrench, tighten setscrew in the end of brake lever arm while applying slight pressure from the rear.



The spring washer should not be completely compressed.

(5) For the supply reel brake assembly, hook loose end of tension arm control spring (Fig. 15) to brake arm assembly. Assemble brake tension spring and spade bolt to brake arm assembly and secure with hex. locknut using the 3/8-inch open-end wrench. Adjust brake pressure as described in Section 034-356-701.

(6) For the take-up reel assembly, assemble brake tension spring and spade bolt to brake arm assembly (Fig. 17); and secure with hex. locknut using 3/8-inch open-end wrench. Adjust brake pressure as described in Section 034-356-701. Return suppressor network housing assembly to position shown in Fig. 4; and using the 4-inch E screwdriver, secure locking tab with screw.

Tension Arms and Associated Parts

3.17 ***Supply Tension Arm Assembly:*** To replace supply tension arm assembly and associated parts, proceed as follows:

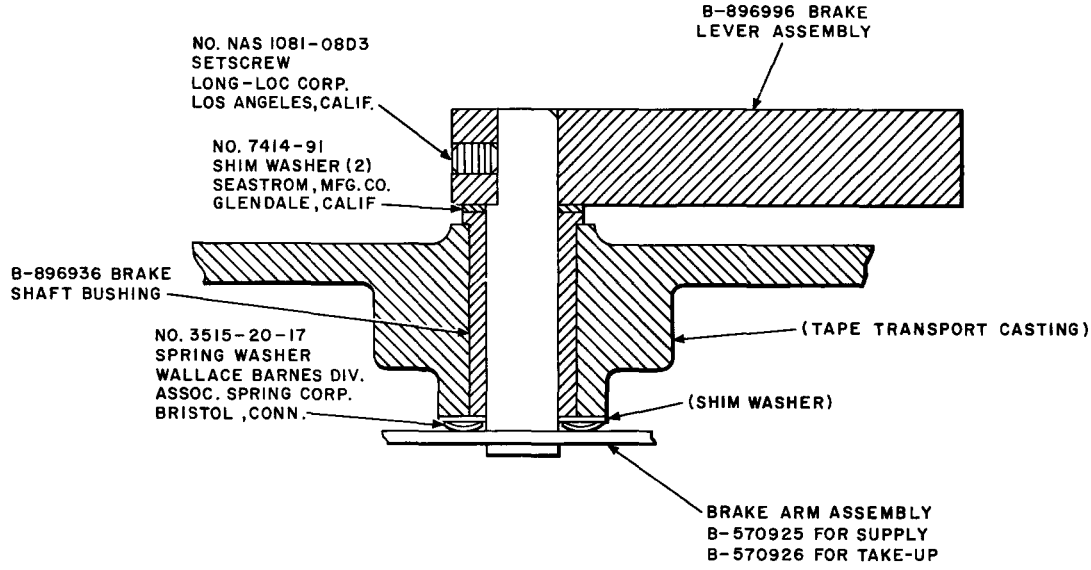


Fig. 16 — Sectional View of Supply or Take-Up Reel Brake Assembly — KS-19125, List 2 Recorder

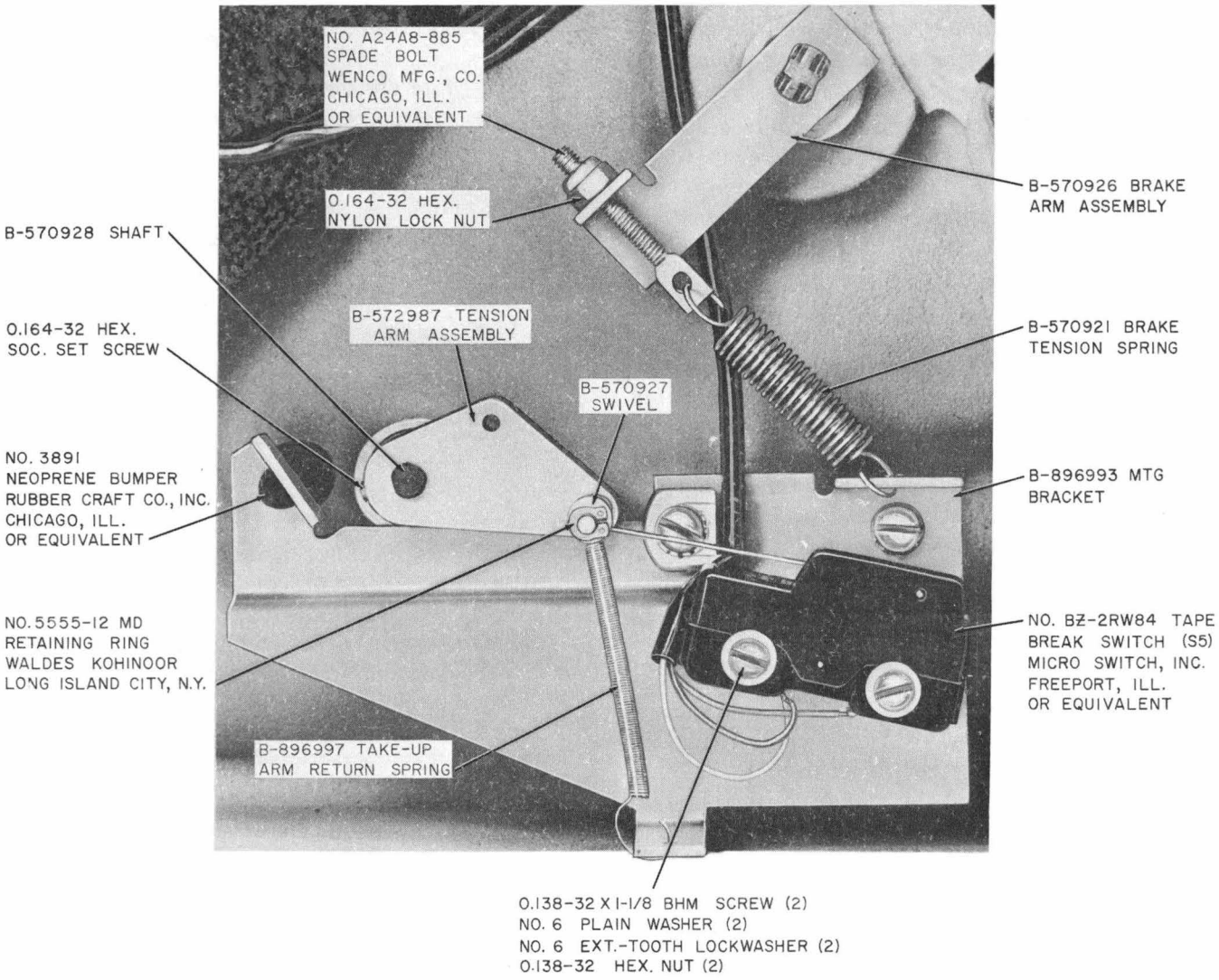


Fig. 17 — Take-Up Reel Brake and Tension Arm Assembly — KS-19125, List 2 Recorder

(a) *List 1 Only*

(1) To remove supply tension arm assembly (Fig. 10), use the R-2975 snap-ring pliers to remove outermost grip ring (Fig. 18); slide the connecting rod swivel of the supply tension arm spring from the spring arm; and using the R-2975 snap-ring pliers, remove the next two grip rings. Remove the dash pot from the dash pot bracket using a 1/2-inch open-end wrench by loosening the mounting nut of the dash pot. With the dash pot free, slide the dash pot swivel from the spring arm. Remove the shim washer from the spring arm. Use the 4-inch E screwdriver to remove the two screws holding the weight and remove weight. Use the 1/16-inch Allen wrench to loosen setscrew located in the end of the spring arm under the weight; and remove spring arm, key, shim washer, and spring washer. Remove supply tension arm assembly (Fig. 10) from front of tape transport.

(2) Before installing supply tension arm assembly, clean the shaft with a clean KS-2423 twill cloth.

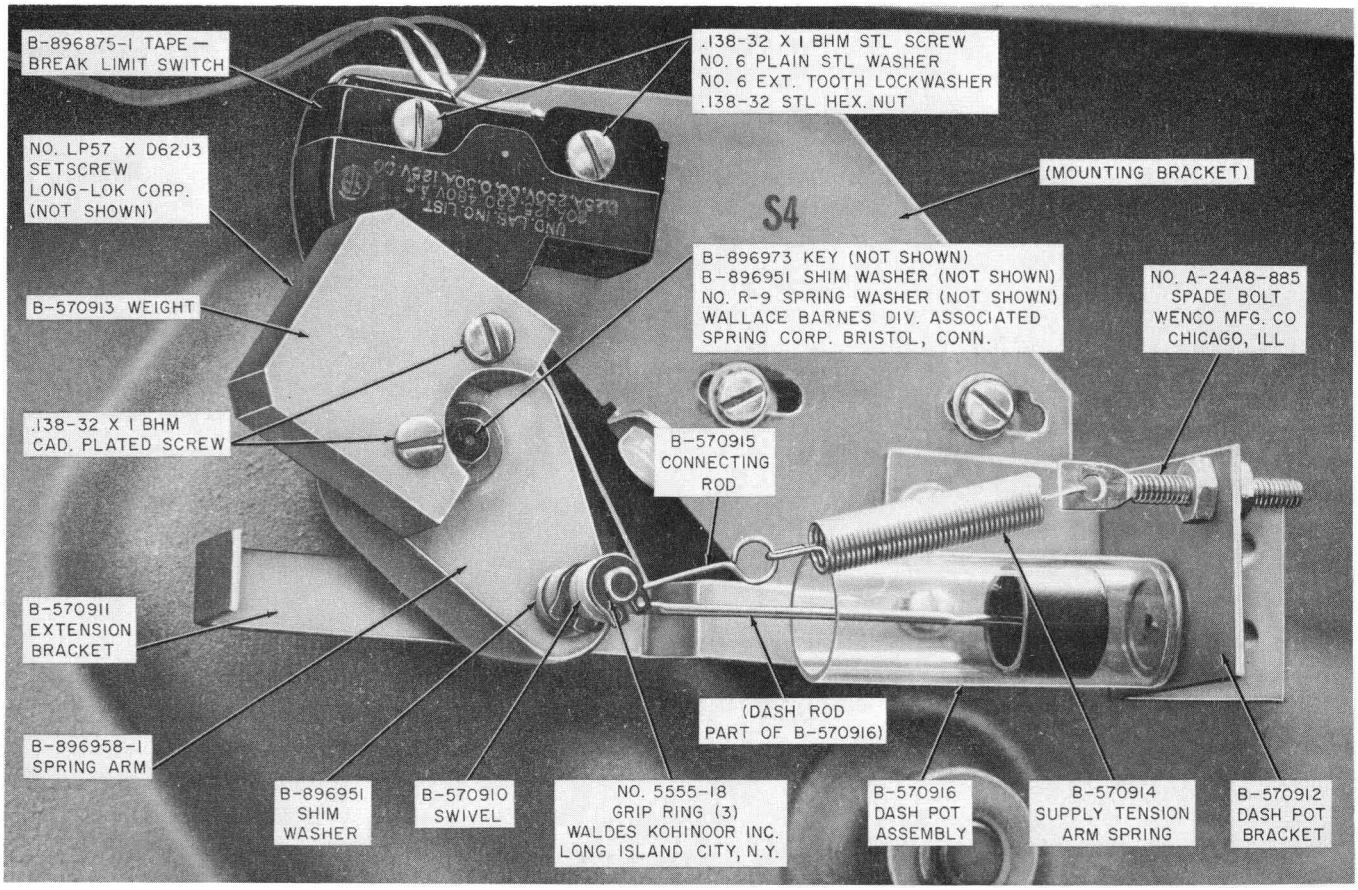
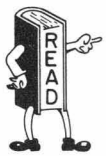


Fig. 18 — Supply Tension Controls — KS-19125, List 1 Recorder

(3) Insert the shaft of tension arm assembly through the flanged bearings; install spring washer (Fig. 18), shim washer, key, and spring arm. Using the 1/16-inch Allen wrench, tighten setscrew in end of spring arm against key. Check the shaft for longitudinal play using a very light force so as not to compress the spring washer.



Spring washer should not be completely compressed so that it will be flat when spring arm is installed.

If this has occurred, remove spring arm, key, and shim washers; replace spring washer with a new one; install one shim washer, key, and spring arm; and recheck shaft for play. Install the shim washer and slide the dash pot swivel on the spring arm. Install the dash pot on the dash pot bracket using the 1/2-inch open-end wrench to tighten the dash pot mounting nut. Using the R-2975 snap-ring pliers and the 133A thickness gauge, install grip ring allowing about 0.040-inch clearance between it and the swivel. Install grip ring allowing about 1/8-inch clearance between the two grip rings. Install the connecting rod swivel of the supply tension arm spring on the spring arm. Install grip ring so that a clearance of about 0.040 inch will exist on both sides of the swivel and that the connecting rod is centered with regard to the supply tension arm spring. Install weight and fasten with two screws using the 4-inch E screwdriver.

(4) Adjust supply spring tension as described in Section 034-356-701.

(5) To replace the tape-break limit switch (Fig. 18), use the 4-inch E screwdriver to remove the two screws and hex. nuts

holding the switch; place new switch in position shown and secure to mounting bracket with the two screws, plain washers, external tooth lockwashers, and hex. nuts. Adjust switch for proper operation as described in Section 034-356-701.

(b) ***List 2 Only***

(1) To remove supply tension arm assembly (Fig. 11), use the R-2975 snap-ring pliers to remove outermost retaining ring (Fig. 19); and slide swivel of supply tension arm return spring from shaft. Using the R-2975 snap-ring pliers, remove retaining ring from shaft holding dash pot swivel. Using the 1/2-inch open-end wrench, loosen mounting nut of dash pot (Fig. 15); and remove dash pot from dash pot mounting bracket. With dash pot free, slide dash pot swivel from shaft. Unhook the tension arm control spring from supply brake arm assembly. Using the 1/16-inch Allen wrench, loosen setscrew located in the end of rear tension arm assembly (Fig. 19); and slide rear tension arm assembly, spring washer, and shim washer from the shaft.

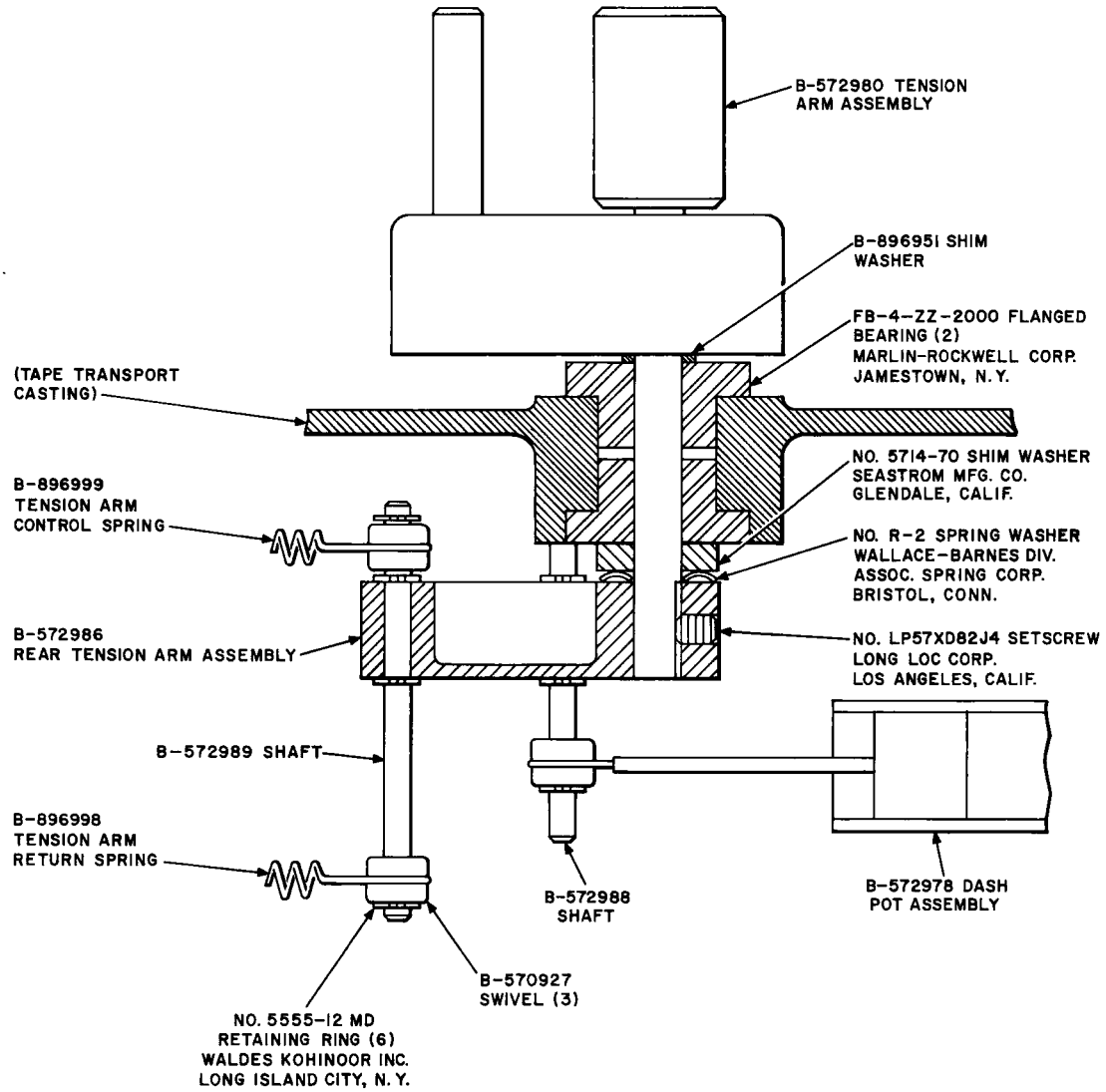


Fig. 19 — Sectional View of Supply Tension Arm and Associated Parts — KS-19125, List 2 Recorder

Remove supply tension arm assembly (Fig. 11) from the front of tape transport. Remove shim washer from shaft of supply tension arm assembly.

(2) Before installing supply tension arm assembly, clean the shaft with a clean KS-2423 twill cloth.

(3) To replace supply tension arm assembly (Fig. 11), install shim washer on shaft (Fig. 19) and insert shaft of supply tension arm assembly through flanged bearings. Install shim washer, spring washer, and rear tension arm assembly onto shaft of supply tension arm assembly. Using the 1/16 Allen wrench, tighten setscrew in the end of rear tension arm assembly while applying 1/2 to 2 pound preload pressure against the flanged bearings. Check the shaft for longitudinal play and observe that spring washer is not completely compressed.

Spring washer should not be completely depressed so that it will be flat when rear tension arm is installed.

If this has occurred, remove rear tension arm; replace spring washer with a new one; reinstall rear tension arm; and recheck shaft for play. Hook the loose end of tension arm control spring in the hole provided in brake arm assembly (Fig. 15). Install the dash pot on the dash pot mounting bracket using the 1/2-inch open-end wrench to lighten mounting nut. Slide dash pot swivel on the (short) shaft (Fig. 19); and using the R-2975 snap-ring pliers, install retaining ring 1/4-inch from end of shaft. Install tension arm return spring swivel on the (long) shaft; and using the R-2975 snap-ring pliers, install retaining ring 1/16-inch from end of shaft.

(4) Adjust supply spring tension as described in Section 034-356-701.

(5) To replace tape-break switch S4 (Fig. 15), remove soldered leads and use the 4-inch E screwdriver to remove the two screws, plain washers, external tooth lockwashers, and hex. nuts holding switch on mounting bracket. Position new switch as shown and secure to mounting bracket with two screws, plain washers, external tooth lockwashers, and hex. nuts. Replace leads by soldering to the proper terminals. Adjust switch for proper operation as described in Section 034-356-701.

3.18 ***Take-Up Tension Arm Assembly:*** To replace take-up arm assembly and associated parts, proceed as follows:

(a) ***List 1 Only***

(1) Use the 4-inch E screwdriver to remove the screw holding locking tab (Fig. 4), and swing the suppressor network assembly out as shown in Fig. 7.

(2) Use the R-2975 snap-ring pliers to remove grip ring (Fig. 20); slide connecting rod swivel and weight from spring arm. Use the 1/16-inch Allen wrench to loosen setscrew in end of spring arm; and remove spring arm, key, shim washer, and spring washer. Remove take-up tension arm assembly (Fig. 10) from front of tape transport.

(3) Before installing take-up tension arm assembly, clean the shaft with a clean KS-2423 twill cloth.

(4) Insert the shaft of tension arm assembly (Fig. 10) through the flanged bearings; install spring washer (Fig. 20), shim washer, key, and spring arm. Using the 1/16-inch Allen wrench, tighten setscrew in end of spring arm against key. Check the shaft for longitudinal play using a very light force so as not to compress the spring washer.

Spring washer should not be completely compressed so that it will be flat when spring arm is installed.

If this has occurred, remove spring arm, key, and shim washers; replace spring washer with a new one; install one shim washer, key, and spring arm; and recheck shaft for play. Install weight and connecting rod swivel by sliding them onto the spring arm as shown in Fig. 20. Using the R-2975 snap-ring pliers and the 133A thickness gauge, install grip

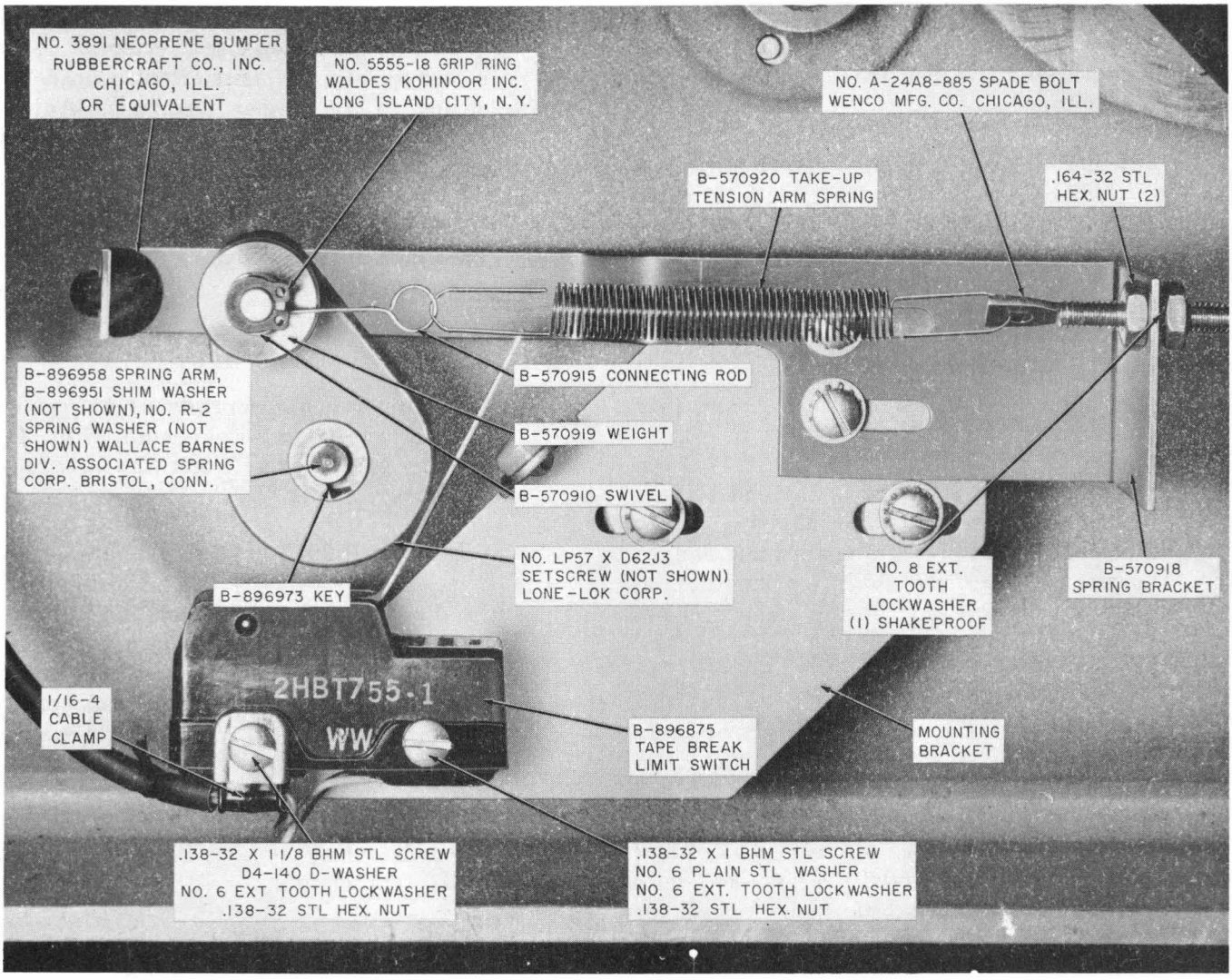


Fig. 20 — Take-Up Tension Controls — KS-19125, List 1 Recorder

ring allowing about 0.040-inch clearance on both sides of the swivel.

(5) Adjust take-up spring tension if necessary as described in Section 034-356-701.

(6) To replace tape-break limit switch (Fig. 20), use the 4-inch E screwdriver to remove two screws and hex. nuts holding the switch and cable clamp; place new switch in position shown; and secure cable clamp and switch to mounting bracket with the 1-1/8 inch screw, D-washer, external tooth lockwasher, and hex. nut. Secure switch using the other mounting hole with the 1-inch screw, plain washer, external tooth lockwasher, and hex. nut. Adjust switch for proper operation as described in Section 034-356-701.

(7) Return suppressor network assembly to position shown in Fig. 4; and using the 4-inch E screwdriver, secure locking tab with the screw.

(b) ***List 2 Only***

(1) Using the 4-inch E screwdriver, remove screw holding tab (Fig. 4); and swing suppressor network assembly out as shown in Fig. 6. Use the R-2975 snap-ring pliers to remove retaining ring (Fig. 17); and slide

take-up arm return spring swivel from shaft. Using the 1/16-inch Allen wrench, loosen setscrew in the end of rear take-up tension arm assembly (Fig. 21); and remove tension arm assembly, spring washer, and shim washer from shaft. Remove take-up tension arm assembly (Fig. 11) from front of tape transport. Remove shim washer from shaft of take-up tension arm.

(2) Before installing take-up tension arm assembly, clean shaft with a clean KS-2423 twill cloth.

(3) Install shim washer on shaft of take-up tension arm assembly, and insert shaft through the flanged bearings from front of tape transport. Install shim washer, spring washer, and rear tension arm assembly on shaft as shown in Fig. 21. While applying 1/2 to 2 pound preload pressure against the flanged bearings, use the 1/16-inch Allen wrench to tighten setscrew in the end of rear take-up tension arm assembly. Check the shaft for longitudinal play, and observe that the spring washer is not completely compressed.

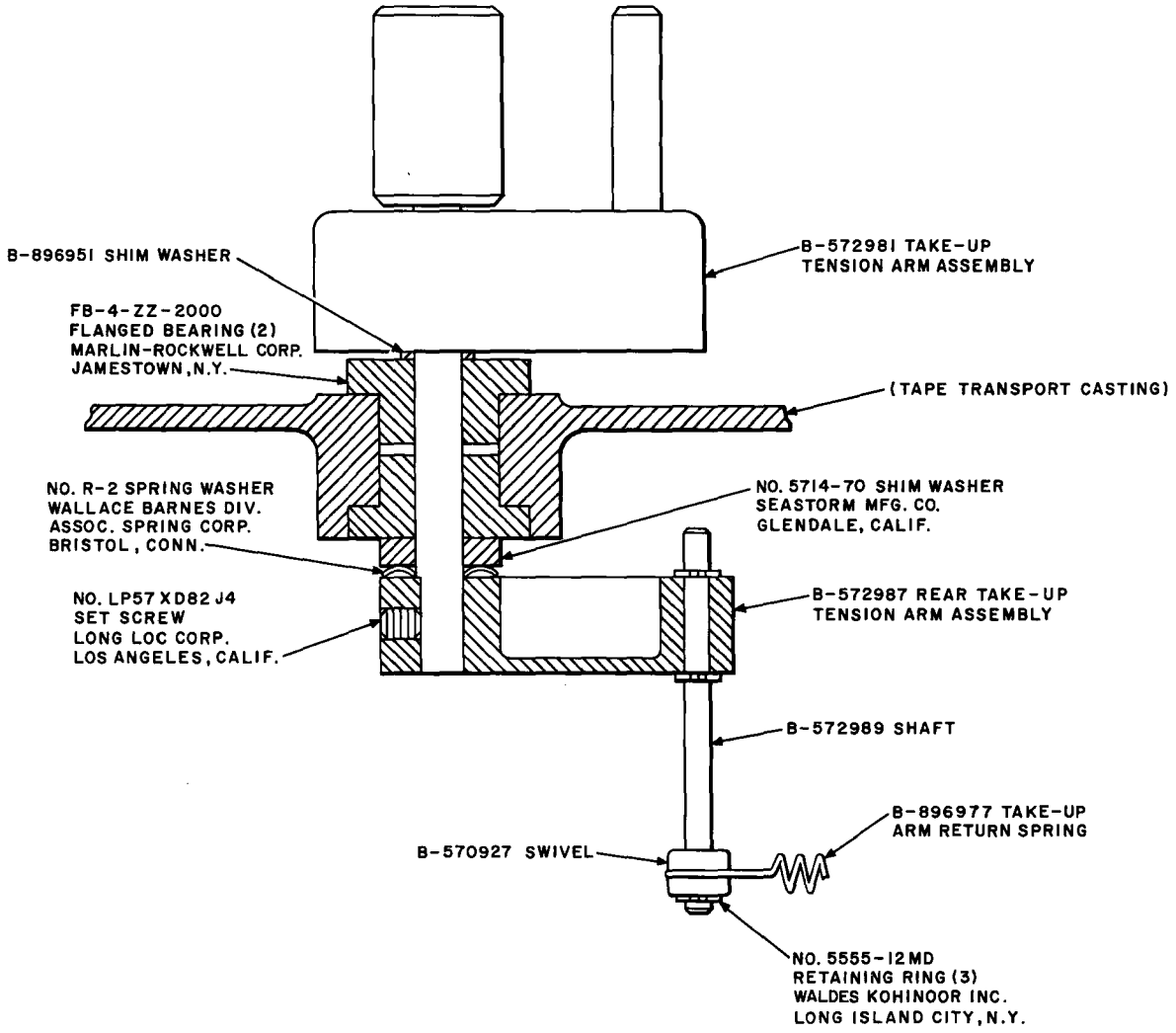
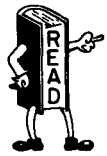


Fig. 21 — Sectional View of Take-Up Tension Arm Assembly — KS-19125, List 2 Recorder



Spring washer should not be completely compressed so that it will be flat when tension arm assemblies are installed.

If this has occurred, remove rear tension arm assembly and replace spring washer with a new one; reinstall rear tension arm assembly; and recheck shaft for play. Install take-up arm return spring swivel on the shaft; and using the R-2975 snap-ring pliers, install retaining ring 1/16-inch from end of shaft.

(4) Adjust take-up spring tension as described in Section 034-356-701.

(5) To replace tape-break switch S5 (Fig. 17), tag and remove soldered leads; and use the 4-inch E screwdriver to remove two screws, plain washers, external tooth lockwashers, and hex. nuts holding switch. Position new switch on mounting bracket as shown in Fig. 17, and secure with two screws, plain washers, external tooth lockwashers, and hex. nuts. Replace leads by soldering to proper terminals. Adjust switch for proper operation as described in Section 034-356-701.

(6) Return suppressor network housing assembly to position shown in Fig. 4; and using the 4-inch E screwdriver, secure locking tab with screw.

Pinch Roller Lock Solenoid and Associated Parts

3.19 ***Pinch Roller Knob:*** To replace pinch roller knob (Fig. 10 or 11), proceed as follows:

(1) Remove drive motor assembly as covered in 3.11.

(2) Turn the knob to the RUN position. Using the R-2975 snap-ring pliers, remove retaining ring (Fig. 5 or 6) from pinch roller knob; and remove the knob from front of tape transport (Fig. 10 or 11).

(3) Before installing new knob, lubricate cam surface with thin film of No. 6 compound lubricant. Insert new knob so that it will seat in the RUN position, and secure with the retaining ring (Fig. 5 or 6).

(4) Install drive motor assembly on tape transport as covered in 3.11.

3.20 ***Pinch Roller Lock Solenoid, Switch, and Springs:*** To remove pinch roller lock solenoid, switch, and springs, proceed as follows:

(1) To remove the pinch roller lock solenoid, disconnect and tag the two solenoid leads (Fig. 4) from terminals 19 and 20 of TB3 and the four leads from terminals of pinch roller limit switch. Use the 11/32-inch open-end wrench to remove nylon lock hex. nut (Fig. 22) holding screw retainer clip and spade bolt; unhook pinch roller pressure spring from pinch roller arm; and remove spring, spade bolt, and retainer clip. Unhook cam return spring from pinch roller lock bracket. Using the 4-inch E screwdriver, remove the two screws holding the bracket to the transport casting; and remove the bracket, solenoid, pinch roller limit switch, arm return spring, and locking arm as a group. Use the 3/32-inch drive pin punch to remove pin (Fig. 23) from solenoid plunger. Using the 4-inch E screwdriver, remove two screws, lockwashers, and plain washers holding solenoid to bracket and remove solenoid.

(2) To install pinch roller lock solenoid, place new solenoid (Fig. 23) on bracket so that the screw holes in the bracket are aligned with those in the solenoid. Then secure with the two screws, plain washers, and external tooth lockwashers using the 4-inch E screwdriver, and pin locking arm to solenoid plunger using the 3/32-inch drive pin punch and the 4-ounce riveting hammer. Place the bracket, solenoid, switch, arm return spring, and locking arm as a group in the position shown in Fig. 22; and secure bracket to transport casting with the two screws, plain washers, and external tooth lockwashers using the 4-inch E screwdriver. Hook cam return spring to the bracket; and install pinch roller pressure spring, spade bolt, screw retainer clip, and nylon lock hex. nut using the 11/32-inch open-end wrench to tighten the locknut. Connect lead as follows:

Leads of solenoid to terminals 19 and 20 of TB3

Slate lead from cable 2 to normally open terminal of switch

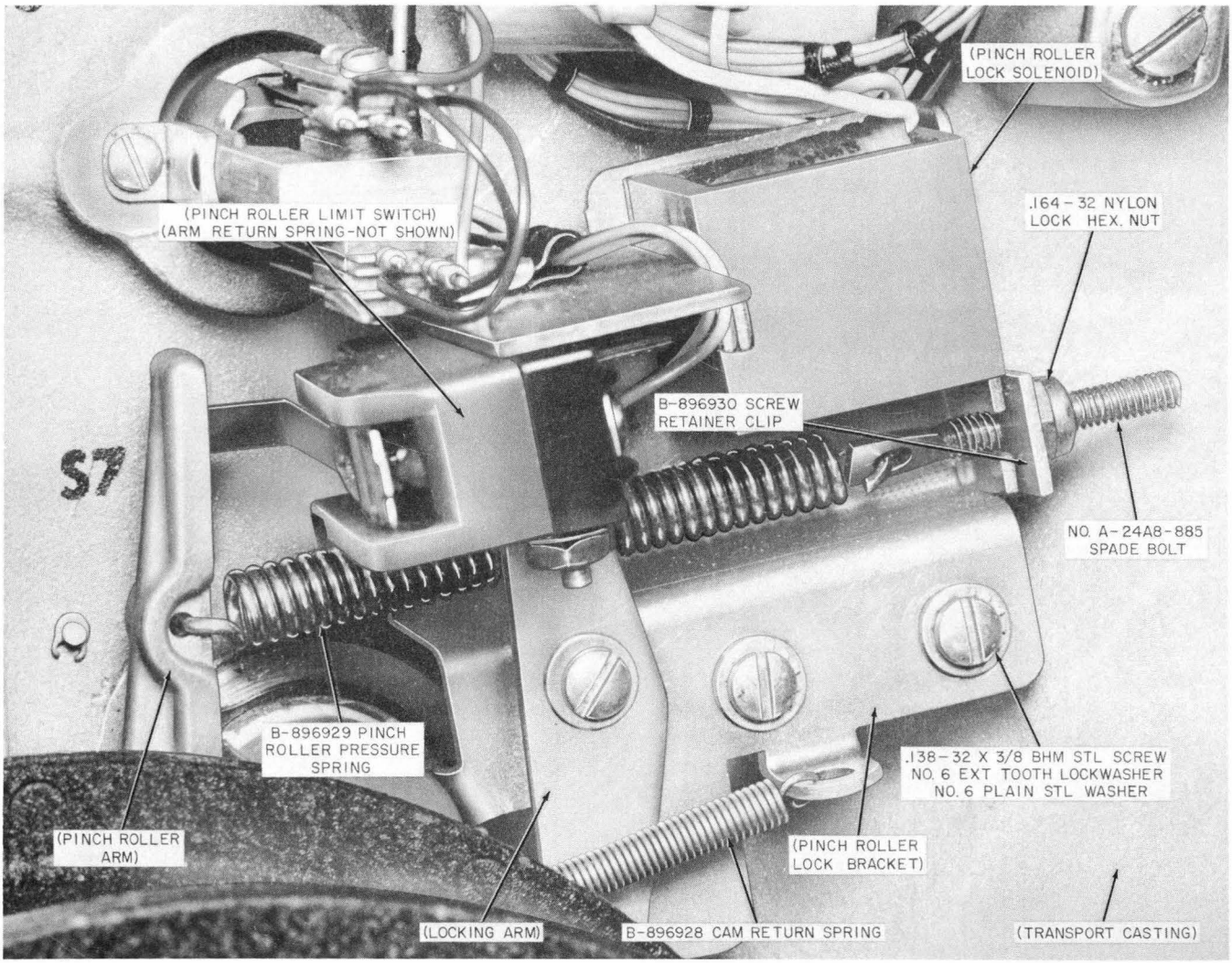


Fig. 22 — Pinch Roller Lock Solenoid and Associated Parts — Mounted on Transport Casting

Black lead from cable 2 to common terminal of switch

Two white-yellow leads from cable 2 to normally closed terminal of switch

Adjust pinch roller pressure and operation of switch as described in Section 034-356-701.

Recording Head and Sensor

3.21 ***Head Assembly:*** To remove head assembly, proceed as follows:

(1) To gain access to the head assembly, remove drive motor assembly as described in 3.11. Disconnect J1 (Fig. 4), J2, and the two leads on TB4 from TB3. Using the 4-inch E screwdriver, remove screw, D-washer, and lockwasher holding cable clamp. Using the 1/8-inch Allen wrench, remove three hex. socket screws, plain washers, and lockwashers holding head assembly; and remove head assembly from tape transport.

(2) To install new head assembly, place head assembly on tape transport with H3 at top as shown in Fig. 4; and using the 1/8-inch Allen wrench, secure head assembly to the two upper mounting bosses with the two 1-inch hex. socket screws, plain washers, and lockwashers. Secure to the lower mounting boss with the 7/8-inch hex. socket screw and lockwasher.

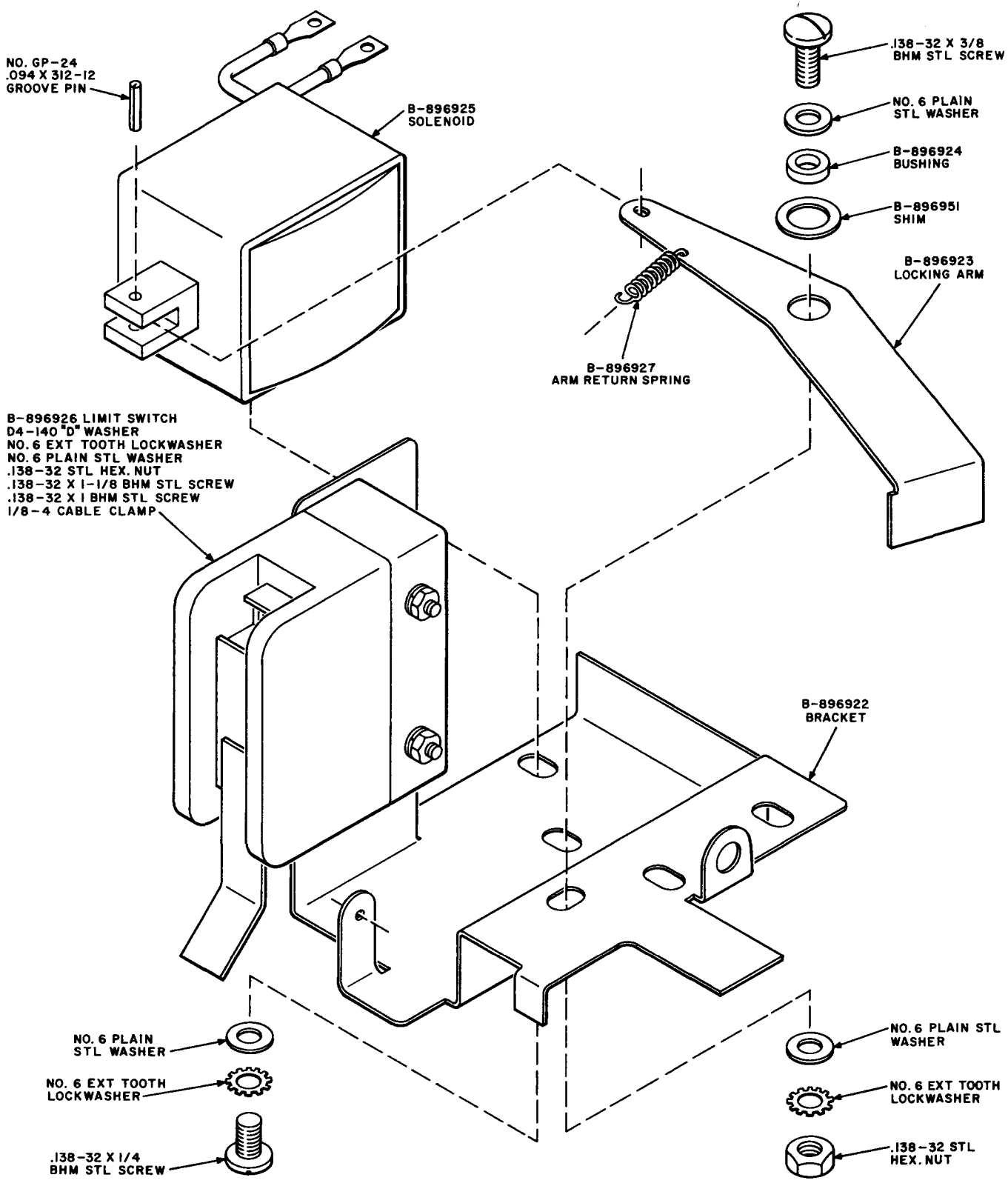


Fig. 23 — Pinch Roller Lock Group — Exploded View

Using the 4-inch E screwdriver, secure cable clamp to housing bracket with screw, D-washer, and lockwasher. Connect the two leads on TB4 to terminals 13 and 14 of TB3 as shown in Fig. 4. Connect J1 and J2 to the mating connectors on the left rear door. Install drive motor assembly as covered in 3.11.

3.22 ***End-of-Tape Sensor Assembly:*** To replace end-of-tape sensor assembly, proceed as follows:

(1) To remove the end-of-tape sensor assembly, remove photocell cover (Fig. 10 or 11); disconnect and tag six leads from the sensor assembly (Fig. 5 or 6). Use the 4-inch E screwdriver to remove the two nylon lockscrews holding the sensor assembly and cable clamp, and remove sensor assembly from transport casting.

(2) To replace photocell, unsolder the two leads from terminals on the back of the mounting bracket (Fig. 24); pull photocell from the hole in the mounting bracket; insert leads of new photocell through slot in bottom of hole so that the light-sensitive side of the photocell will face the other photocell; seat photocell into hole taking care not to kink the leads; insulate each lead with the No. 22 AWG Teflon tubing; and solder the leads to the appropriate terminals.

(3) To install sensor assembly, place it in position as shown in Fig. 5 or 6. Using the 4-inch E screwdriver, carefully secure sensor assembly at the right-hand corner hole with nylon lockscrew, plain washer, and spring washer taking care not to fully compress spring washer to prevent cracking corner of mounting bracket. Mount the cable clamp at the other hole with nylon lockscrew, D-washer, and external tooth lockwasher. Connect the six leads as follows:

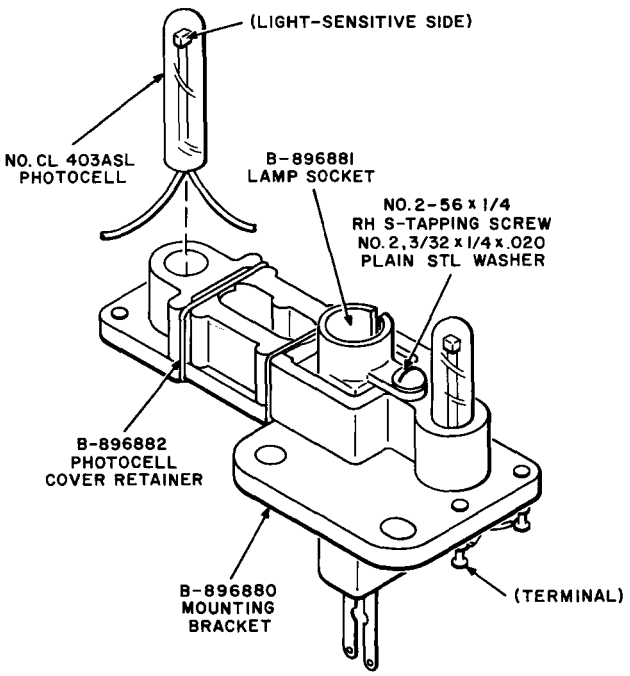


Fig. 24 — End-of-Tape Sensor Assembly — Partially Exploded View

White lead to the terminal at PC1 without jumper

Yellow lead to the jumpered terminal at PC1

Two red-white leads to one terminal of lamp socket

Black lead to other terminal of lamp socket

Violet-white lead to the terminal at PC2 without jumper

If the jumper between PC1 and PC2 has been disconnected, connect it to the terminal with the yellow lead at PC1 and to the terminal with only the photocell lead at PC2. Close rear doors and replace photocell cover (Fig. 10 or 11).