

**BELL SYSTEM PRACTICES    ADDENDUM P31.118.1**  
**Teletypewriter and Data Stations    Issue 1, February, 1959**  
**AT&TCo Standard**

**4A TAPE WINDER**  
**(MOTOR DRIVEN)**  
**DESCRIPTION, REQUIREMENTS,**  
**PROCEDURES, AND LUBRICATION**

**1. GENERAL**

- 1.001 This addendum supplements Section P31.118.1, Issue 1.  
1.002 This addendum is issued to change the position of the scale for measurement of the clutch torque.

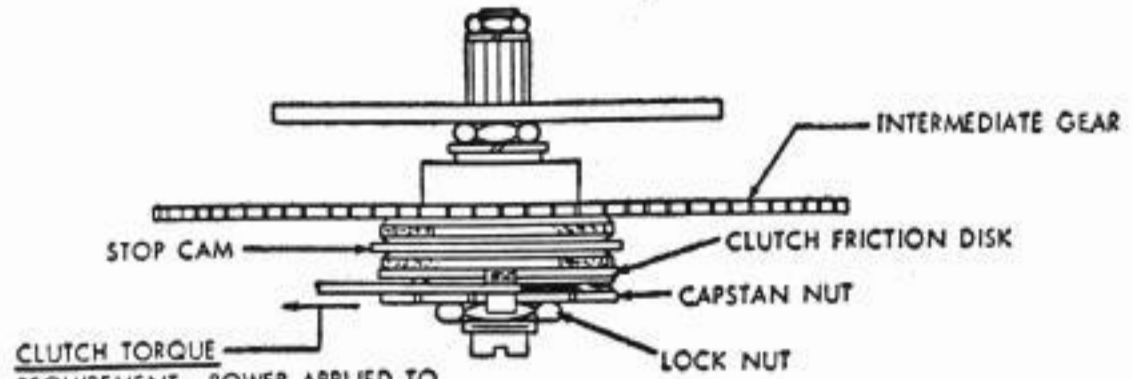
**3. REQUIREMENTS AND ADJUSTING PROCEDURES**

The following change applies to Part 3 of the section:

- (a) 3.05—revised

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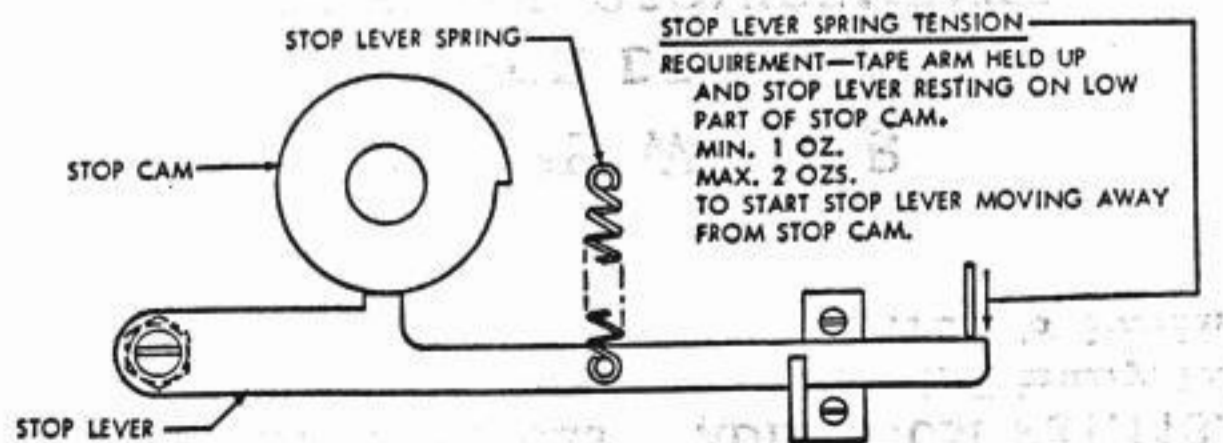
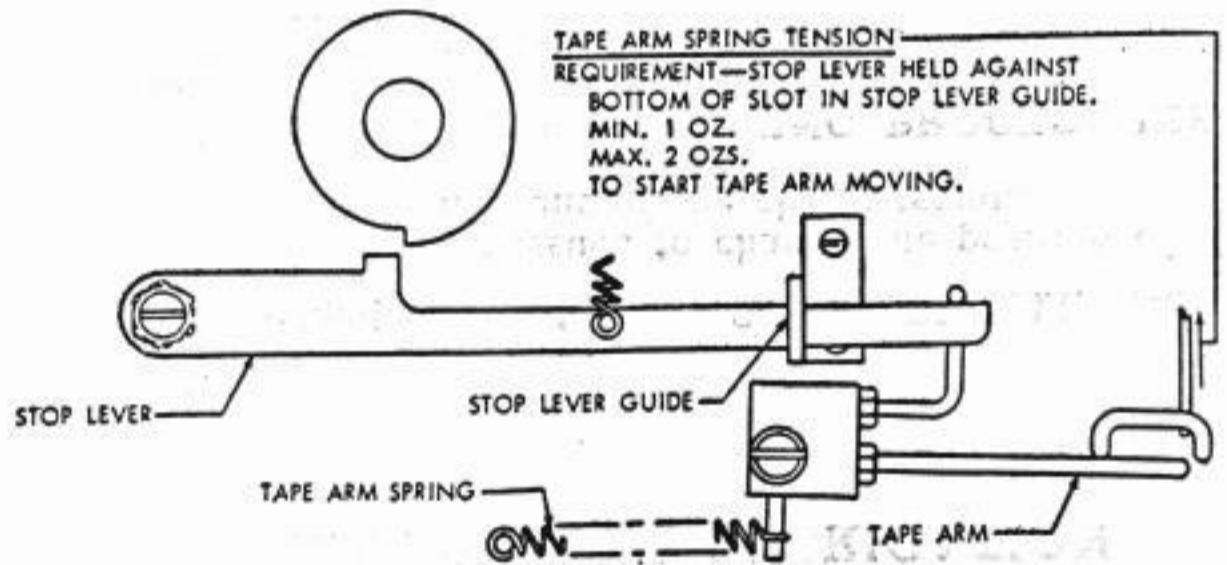
### 3.05 Clutch Torque, Tape-arm Spring, and Stoplever Spring



**REQUIREMENT**—POWER APPLIED TO UNIT. STOP LEVER HELD OUT OF ENGAGEMENT WITH STOP CAM.  
MIN. 10 OZS.  
MAX. 14 OZS.  
TO KEEP CLUTCH FRICTION DISK FROM MOVING.

**TO ADJUST**—POSITION CAPSTAN NUT WITH LOCK NUT LOOSENED: CLOCKWISE TO INCREASE TENSION, COUNTERCLOCKWISE TO DECREASE TENSION.

**NOTE**  
THIS MEASUREMENT SHOULD BE MADE WHEN UNIT IS WARM FROM OPERATION.



**BELL SYSTEM PRACTICES**  
**Teletypewriter and Data Stations**

**SECTION P31.118.1**  
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## 1. GENERAL

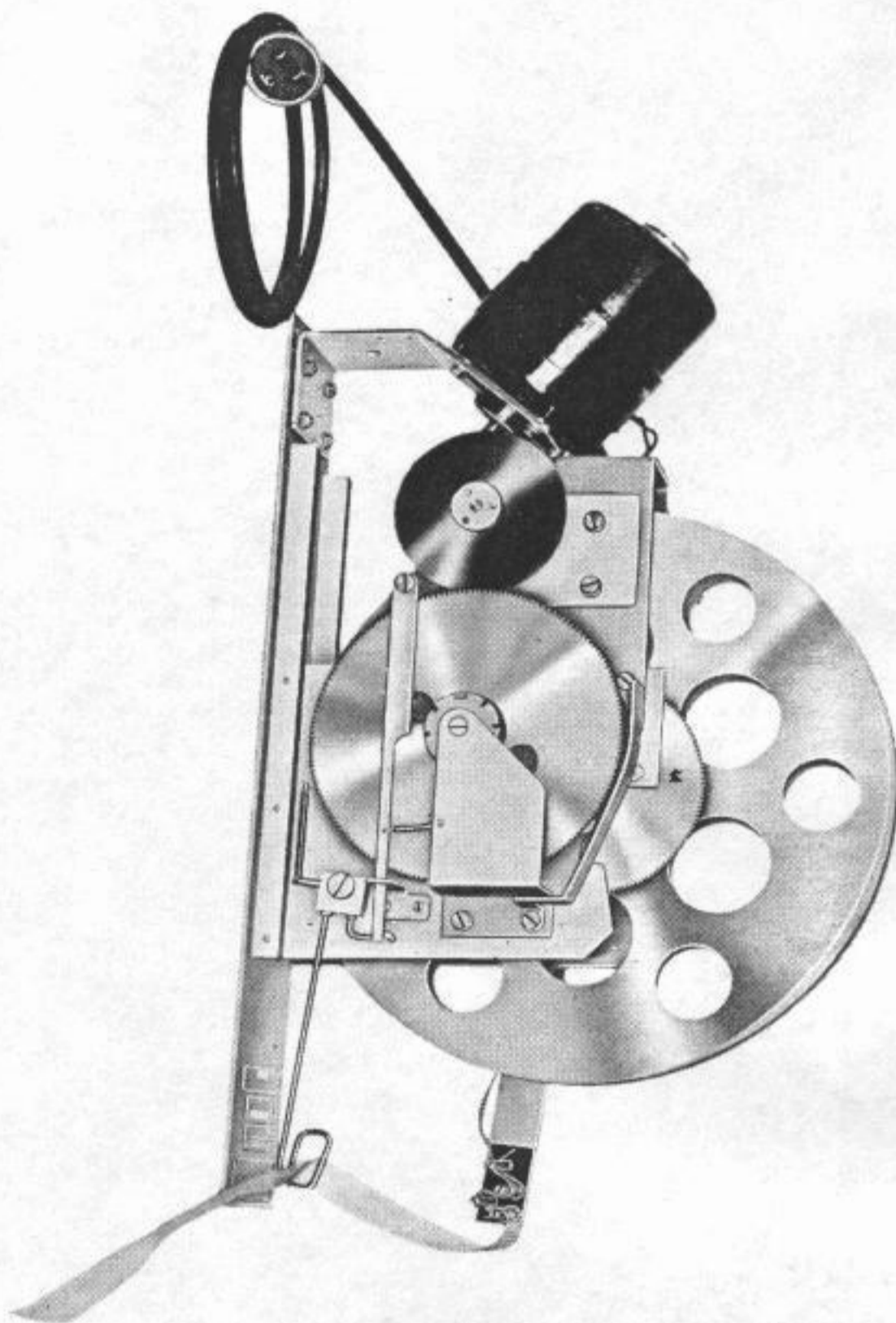
1.01 This section contains descriptive information for the 4A tape winder and provides the requirements, adjusting procedures, and lubrication instructions for maintaining it.

1.02 The 4A tape winder accommodates 1000 feet of 11/16-inch chadless tape, is capable of serving units operating at speeds of 60, 75, or 100 words per minute, and has provisions permitting manual unwinding of tape from the tape reel. Its initial application was in the 28F teletypewriter cabinet of the 28 automatic sending and receiving set of the 82B1 teletypewriter switching system. A further application was in the 28A typing reperforator cabinet.

1.03 The tape winder consists of a tape-reel assembly of the one-reel type, a frame which supports the reel as it revolves and which provides means for guiding tape onto the tape reel, a motor with power cord and plug, and a base plate on which the frame and motor bracket are mounted. The tape winder is 12-3/4 inches high and occupies floor space approximately 20-1/2 inches long and 5 inches wide. Where the winder is used in a 28F teletypewriter cabinet, it fits into a mounting in the tape-winder compartment of the cabinet. The unit can easily be lifted off the mounting and out of this cabinet for maintenance.

**Fig. 1**

Fig. 1—4A Tape Winder Ready for Operation



1.04 **Tape-reel Assembly:** The metal tape-reel assembly is of split-disc construction and has a metal shaft which drops into a slotted bearing on each of the two side plates of the reel support frame. The tape-reel discs are 12 inches in diameter. Each has a fiber core of approximately 2 inches diameter fastened at the inner center of the reel disc. A clamping device serves to fasten the two discs together and then the two fiber cores form the winding core of the tape-reel assembly. One metal tape-reel disc has a gear fastened to its outer surface for driving the reel. **Fig. 2**

1.05 **Support Frame:** The frame is made up of two metal side plates having slotted bearings to hold the tape-reel assembly in position. On one side plate are mounted a tight tape arm, a gear train, and a drive clutch for the tape reel. The drive clutch is of the friction type, actuated by the tight tape arm, so that the reel will be put into motion or stopped as required. On the other side plate are mounted the power switch with its power cord and plug, a tape-guide bracket with drag pins to control the travel of the tape from the tight tape arm to the reel, and a directional plate to illustrate the proper threading of the tape through the drag pins.

1.06 **Motor:** The tape winder is driven by a 115-volt ac, 50/60 cycle, 1/40 hp shaded-pole-type motor mounted on a bracket supported by the base plate.

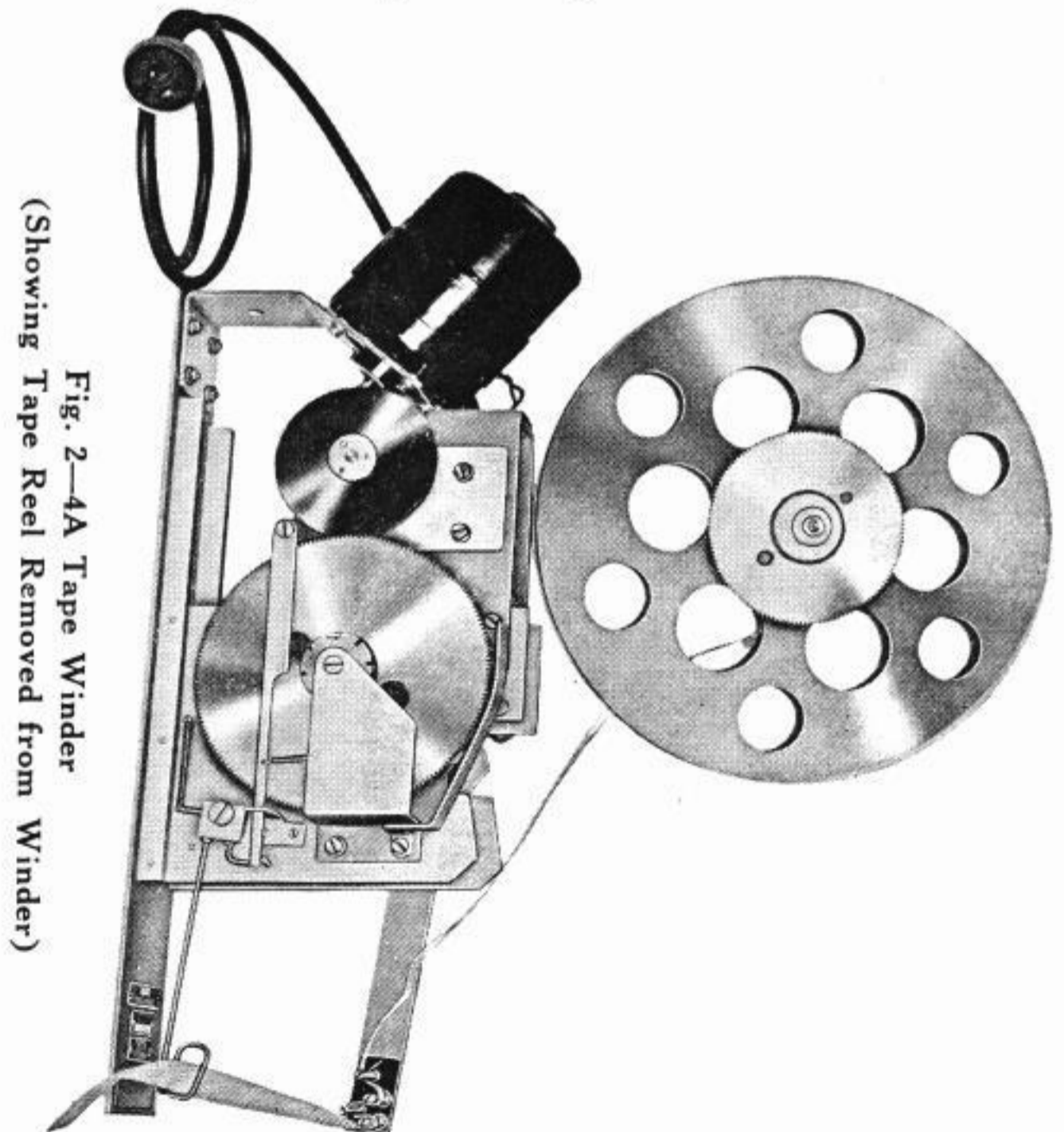


Fig. 2-4A Tape Winder  
(Showing Tape Reel Removed from Winder)

1.07 **Base Plate:** This is a metal base plate approximately 18-1/4 inches long and 3-1/4 inches wide. It mounts the support frame and the motor-support bracket with the motor. There are no projections below the bottom surface of the plate. Two holes are provided in the base plate for mounting purposes when required, as in the 28A typing reperforator cabinet.

## 2. PLACEMENT OF TAPE

2.01 The 4A tape winder is designed to wind tape approaching the winder from the side opposite the gear train and at a level of approximately 3 inches above the base plate. Tape can be wound directly on the fiber core of the tape-reel assembly of the 4A tape winder. Tape can also be wound on a partially filled tape reel or on a cardboard core of a roll of perforator tape slipped on the tape-reel fiber core.

### A. Directly on the Fiber Core of the Tape Reel

2.02 To start tape directly on the empty tape-reel core of the 4A tape winder, feed several feet of tape through the tight tape arm, and through the drag pins in accordance with the instructions on the directional plate mounted on the tape-guide bracket. Pull the tape reel forward so that it does not engage the driving gear. Fold the end of the tape and insert it in the slot of the tape-reel core. Rotate the tape reel by hand by moving the top of the reel toward the rear about two revolutions to secure the tape on the core. Push the tape reel back into its operating position.

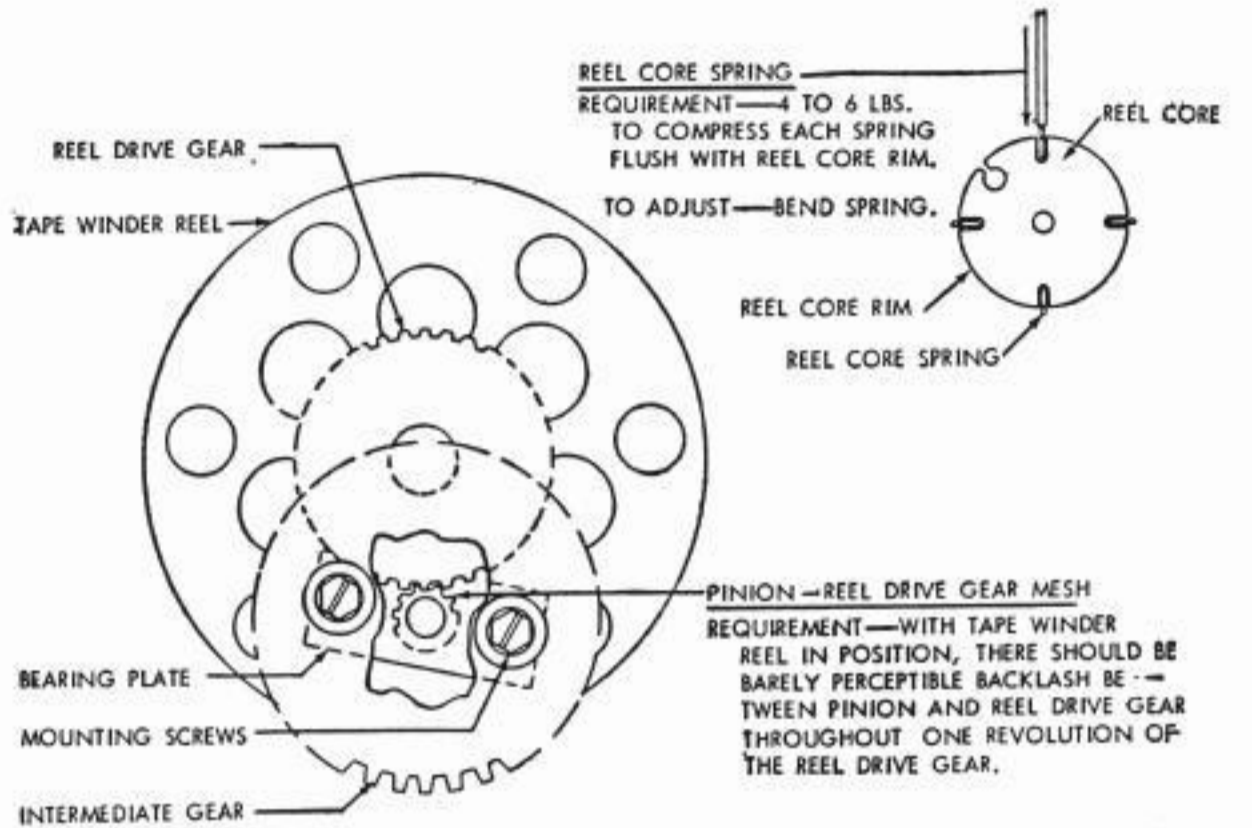
### B. On a Partially Filled Tape Reel or on a Cardboard Core on the Tape Reel

2.03 If it is necessary to start a piece of tape on a partially filled tape reel, or on a cardboard core of a roll of perforator tape with only several turns of tape remaining on the ring, proceed as follows: Fasten together the ends of the two tapes in order to permit the tape to be pulled back or rewound from the reel as a continuous piece. If a stapler is used to do this, staple the tapes between the drag pins and the tape reel so that the stapled joint is not required to feed through the drag pins where it might snag and tear the tapes. **Do not use staples if the tape may be used again in a transmitter-distributor.** Where a stapler is not used, unwind about three turns of tape from the reel, place the end of the new tape under the tape on the reel, press the tapes together, and rewind; thus securing the end of the new tape by friction.

## 3. REQUIREMENTS AND ADJUSTING PROCEDURES

3.01 The following figures show the adjusting tolerances, positions of moving parts and spring tensions. The illustrations are arranged so that the adjustments are in the sequence that would be followed if a complete readjustment of the 4A tape winder were being made.

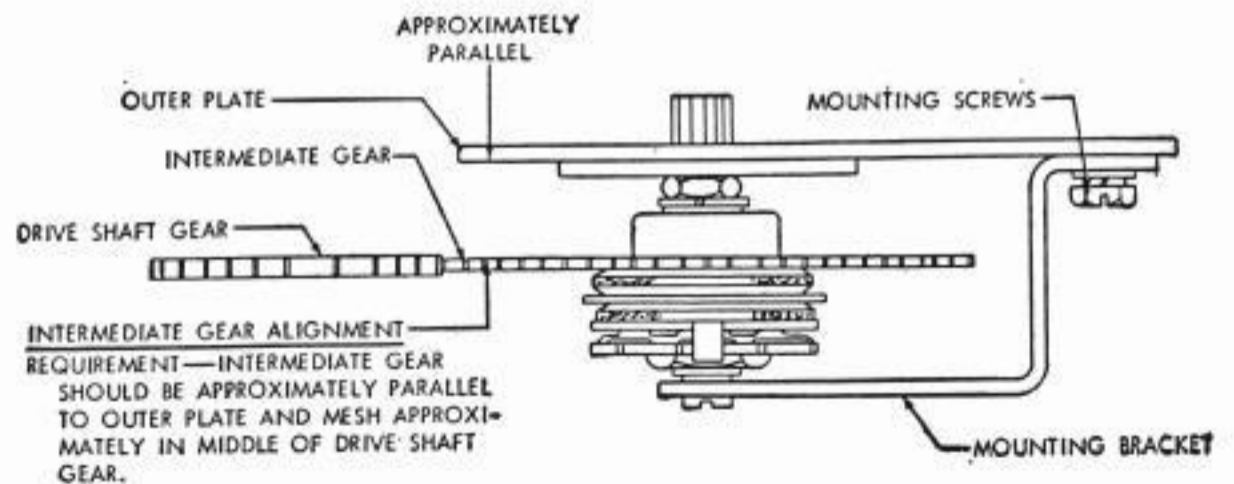
### 3.02 Reel Core, Pinion and Reel-drive-gear Mesh, and Intermediate Gear



TO ADJUST—POSITION BEARING PLATE  
 WITH MOUNTING SCREWS LOOSE-  
 NED. (MOUNTING SCREWS ARE ACCESSIBLE  
 THROUGH HOLES IN INTERMEDIATE GEAR).

NOTE

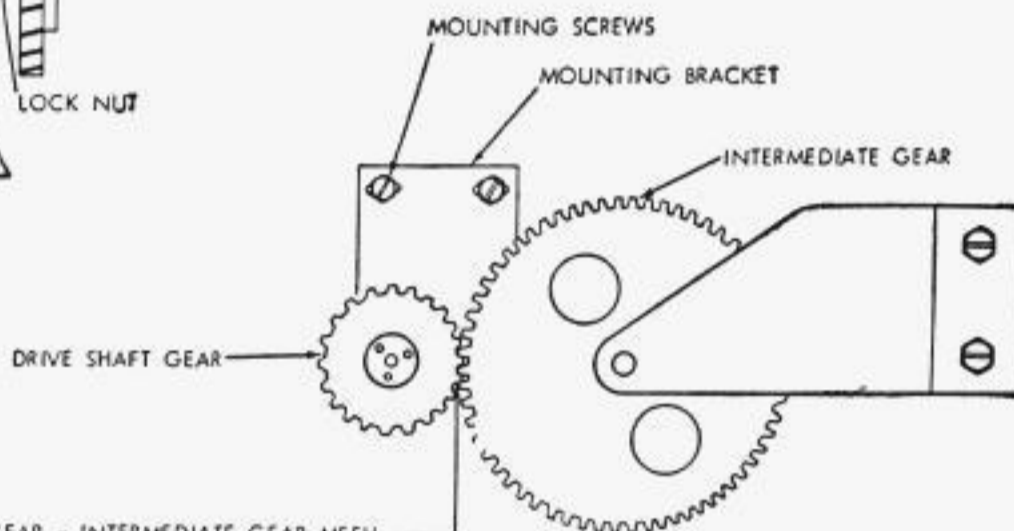
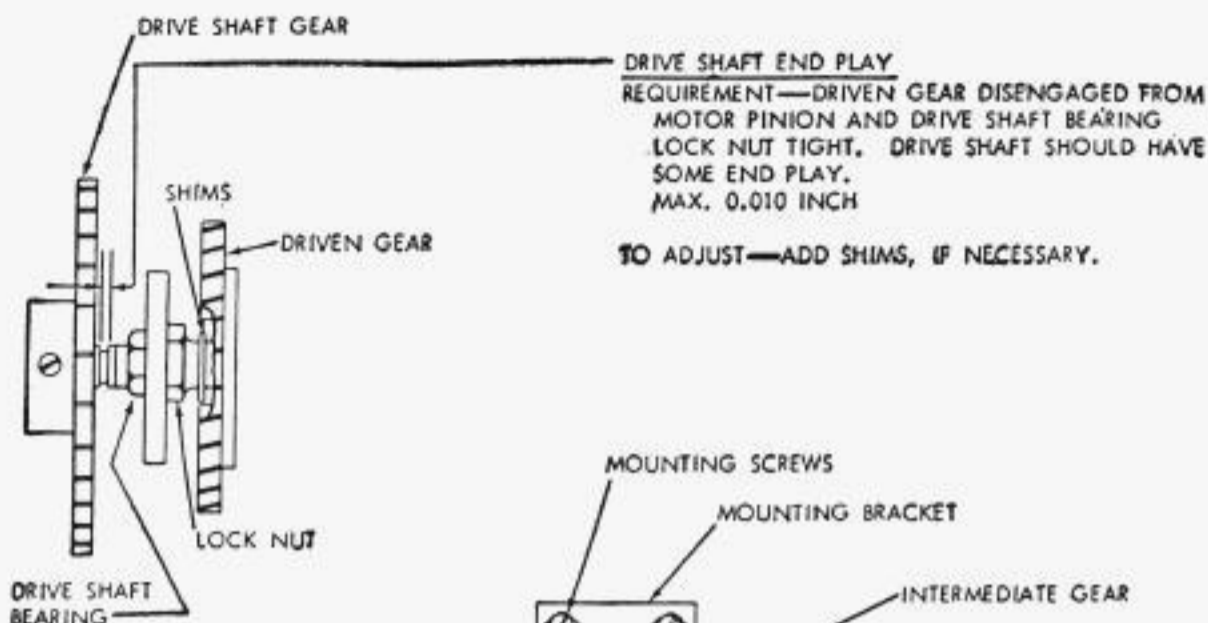
THIS ADJUSTMENT SHOULD BE RECHECKED  
 IF TAPE WINDER REELS ARE INTERCHANGED  
 BETWEEN UNITS.



TO ADJUST—POSITION MOUNTING  
 BRACKET WITH MOUNTING SCREWS  
 LOOSE-  
 NED.

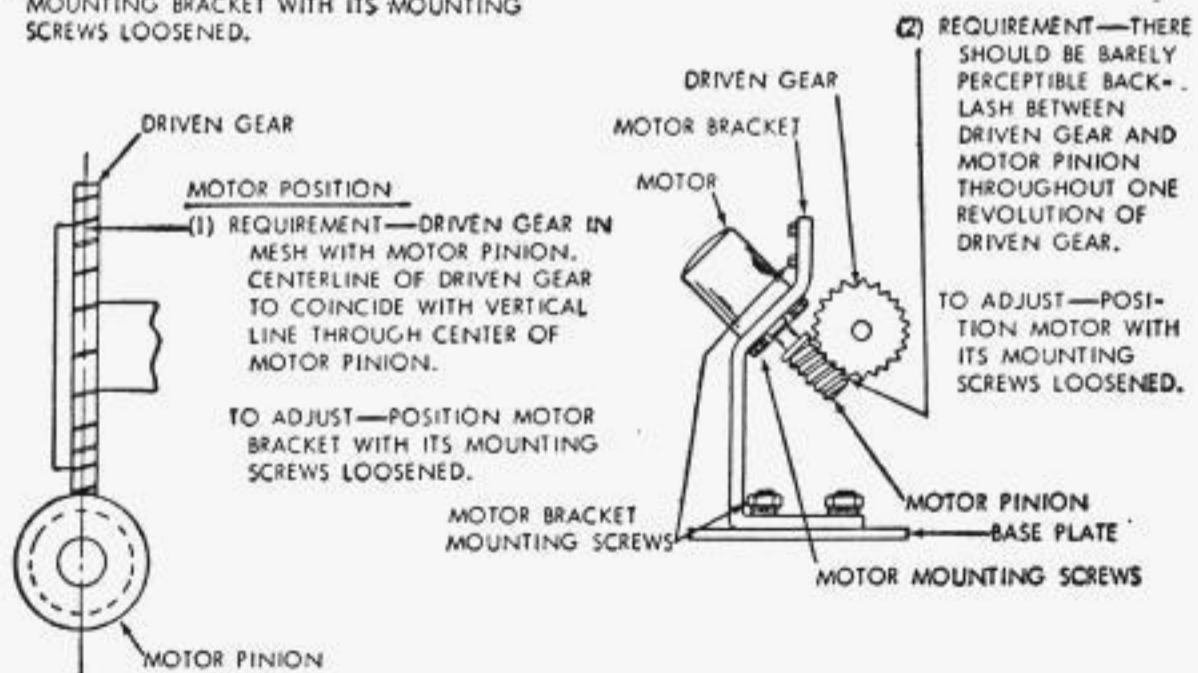


### 3.03 Drive Shaft and Motor Position

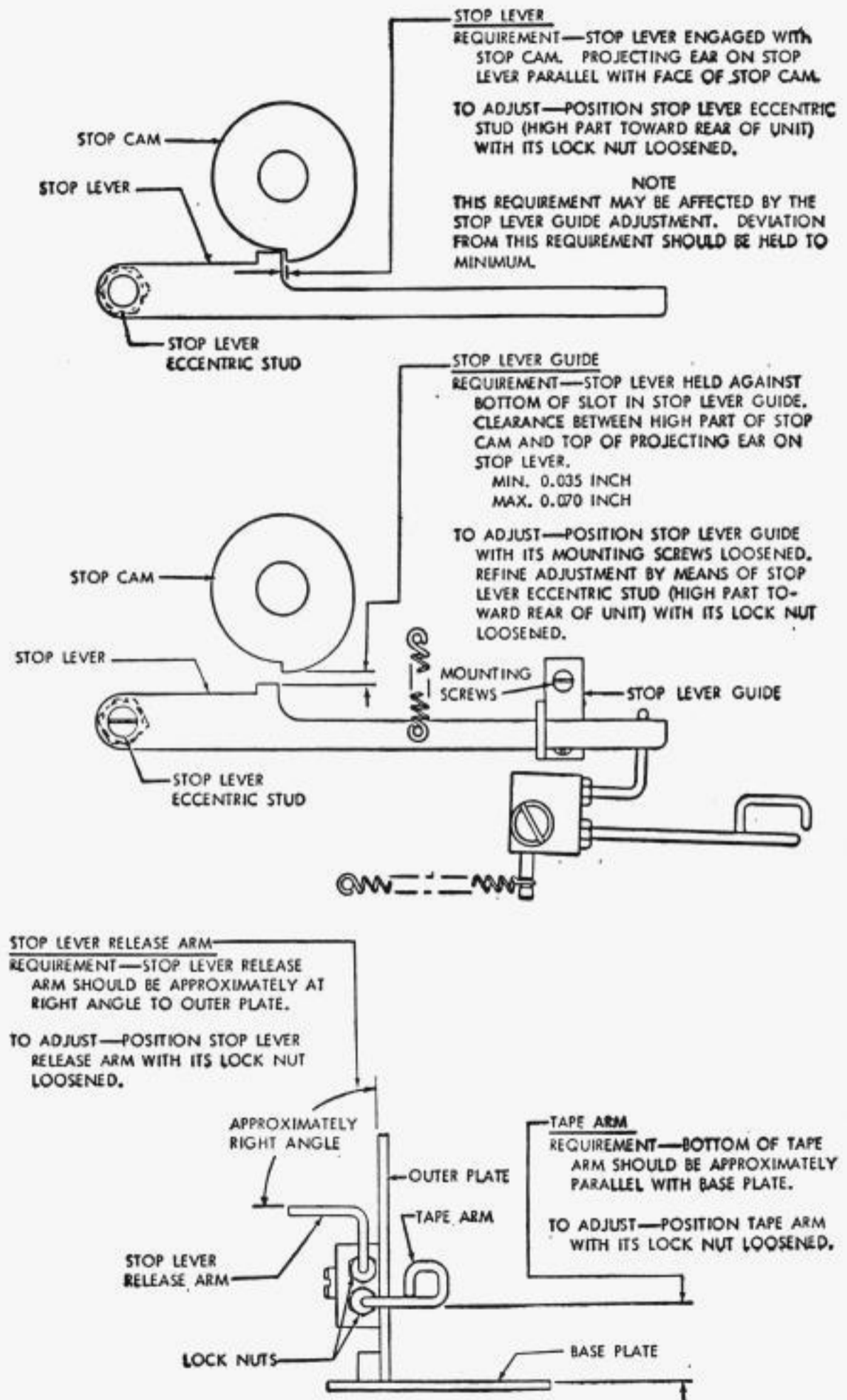


DRIVE SHAFT GEAR - INTERMEDIATE GEAR MESH  
REQUIREMENT—THERE SHOULD BE BARELY PERCEPTIBLE BACKLASH BETWEEN DRIVE SHAFT GEAR AND INTERMEDIATE GEAR THROUGHOUT ONE REVOLUTION OF INTERMEDIATE GEAR.

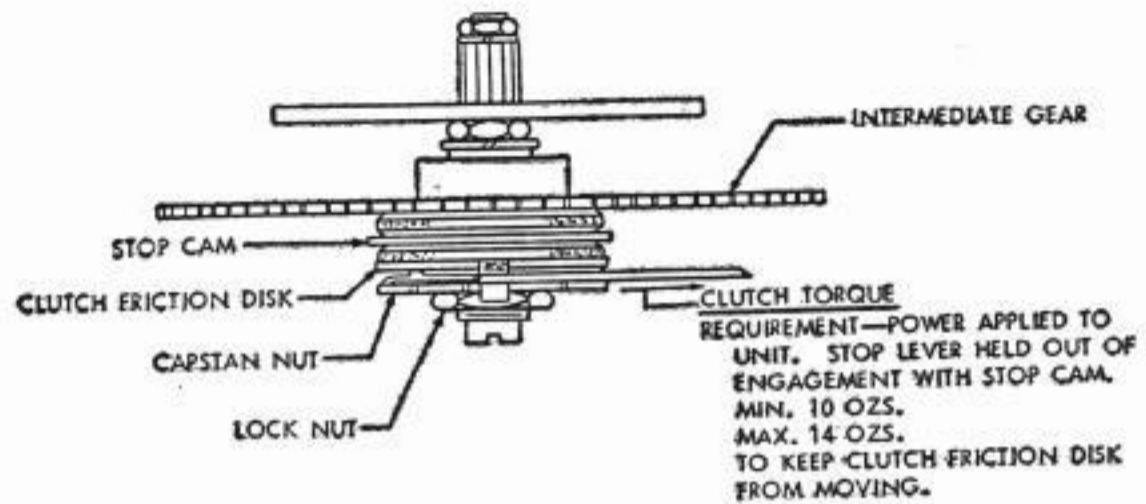
TO ADJUST—POSITION DRIVE SHAFT GEAR MOUNTING BRACKET WITH ITS MOUNTING SCREWS LOOSENED.



### 3.04 Tape Winder Control Mechanism

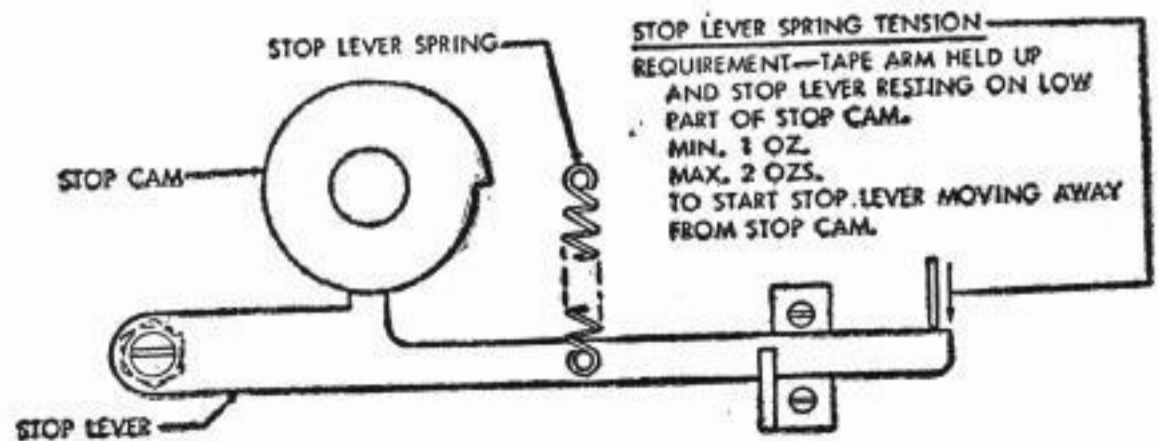
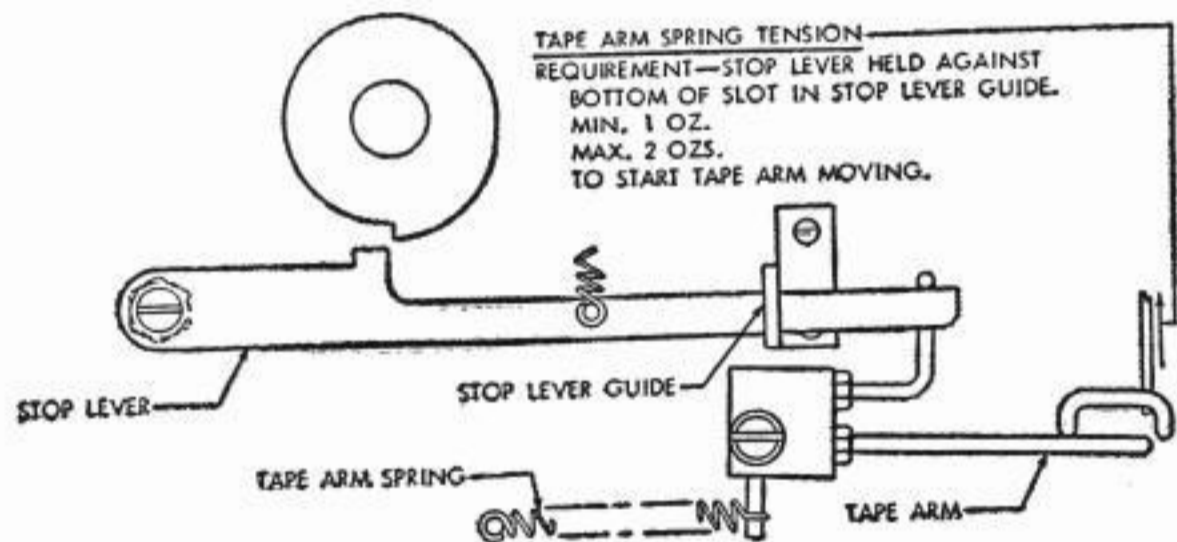


### 3.05 Clutch Torque, Tape-arm Spring, and Stoplever Spring



**TO ADJUST**—POSITION CAPSTAN NUT WITH LOCK NUT LOOSENED: CLOCKWISE TO INCREASE TENSION, COUNTERCLOCKWISE TO DECREASE TENSION.

**NOTE**  
 THIS MEASUREMENT SHOULD BE MADE WHEN UNIT IS WARM FROM OPERATION.



#### 4. LUBRICATION

4.01 The 4A tape winder should be lubricated before it is placed in service in accordance with the principles given in Section P33.014. After that, because of varying conditions at each station, the winder should be lubricated as often as specified by local instructions.

4.02 The lubricants and methods of lubrication are those specified in Section P30.011, and the lubrication symbols used herein are the same as those given in that practice.

4.03 The parts of the 4A tape winder requiring lubrication, the points at which the lubricant should be applied, and the kind and amount of lubricant to be used are given in Table A.

4.04 When lubricating an entire winder it is recommended that the parts requiring oil lubrication be oiled, and then all parts requiring grease lubrication be greased. Over-lubrication, however, which would permit oil or grease to drip or be thrown on other parts should be avoided.

**Note:** Do not lubricate the tape-reel gear, the clutch-shaft pinion, or the tape-reel-shaft bearings.

**Table A—Lubrication Chart**

| <u>Part</u>      | <u>Points of Lubrication</u>                               | <u>Lubricant</u> |
|------------------|--|------------------|
| Drive shaft      | Bearings   | O                |
| Motor            | Pinion   | G                |
| Fiber gears      | Teeth  | G                |
| Clutch shaft     | Inner bearings   | O                |
| Clutch shaft     | Outer bearings   | O                |
| Clutch shaft     | Friction washers   | SAT              |
| Stap cam         | Cam surface  | G                |
| Stoplever        | Pivot screw  | O                |
| Stoplever        | Points of engagement with cam<br>and stoplever release arm | G                |
| Tape arm         | Pivot screw  | O                |
| Stoplever spring | Both loops   | O                |
| Tape-arm spring  | Both loops   | O                |

## 5. ASSOCIATED BELL SYSTEM PRACTICES

5.01 The following Bell System Practices contain information that may be required for use with this section.

| <u>Subject</u>  | <u>Section</u> |
|---|----------------|
| Teletypewriter Apparatus, General Requirements and Procedures .....       | P30.012        |
| Teletypewriter Apparatus, Lubrication, General Requirements .....         | P30.011        |
| Teletypewriter Apparatus, Preparation of Apparatus for Installation ..... | P33.014        |
| Descriptive Information on 28 ASR .....                                   | P34.102        |
| Descriptive Information on 28 Typing Reperforators.                       | P34.104        |
| 4A Tape Winder, Wiring Diagram .....                                      | P34.311        |

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**4A TAPE WINDER**