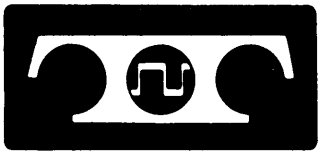
BULLETIN 248B

TECHNICAL MANUAL
MODEL 28
TAPE HANDLING STAND (LTHS)
AND
REPERFORATOR TRANSMITTER
BASE (LRXB)



TELETYPE®
CORPORATION
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INTRODUCTION

Bulletin 248B provides adjustments, lubrication, disassembly and reassembly procedures for the Model 28 Tape Handling Stand (LTHS) and Reperforator Transmitter Base (LRXB).

The bulletin is made up of a group of appropriate, independent sections. They are separately identified by title and section number, and the pages of each section are numbered consecutively, independent of other sections.

The identifying number of a section, a 9-digit number, appears at the top of each page of the section, in the left corner of left-hand pages and right corner of right-hand pages. The sections are placed in the manual in ascending numerical order.

To locate specific information refer to the table of contents on the following page. Find the name of the involved component in column one and the title of section in column two. The correct 9-digit section number will then be found in column three. Turn to page one of the section indicated where the contents of that section will be found (except where a section is small and does not require a listing of contents).

Note: Individual copies of the sections in this bulletin are available upon request.

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Note: For information on Motor Units see Bulletin 295B.

28 TAPE HANDLING STAND (LTHS) AND REPERFORATOR TRANSMITTER BASE (LRXB)

ADJUSTMENTS

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1. GENERAL

1.01 This section presents adjustment information for the Teletype Model 28 tape handling stands and reperforator transmitter bases.

1.02 The reperforator transmitter bases covered in this section are used on three different Reperforator Transmitter Sets. These are:

(a) A Standard Speed Reperforator Transmitter Set capable of sending and receiving data at standard line speeds of 60, 75, or 100 words per minute.

(b) A Low to High Speed Reperforator Transmitter Set for receiving data at standard line speeds of 60, 75, or 100 words per minute and transmitting at speeds of up to and including approximately 1000 words per minute.

(c) A High to Low Speed Reperforator Transmitter Set for receiving data at speeds of up to and including approximately 1000 words per minute and transmitting at standard line speeds of 60, 75, and 100 words per minute.

1.03 The standard speed tape handling stand is capable of winding tape at a speed of 200 words per minute and is used in conjunction with the Standard Speed Reperforator Transmitter Set. The high speed tape handling stand is capable of winding tape at a speed of 1000 words per minute and is used on both the Low to High and High to Low Reperforator Transmitter Sets.

Note: Remove power from unit before making any adjustments.

1.04 It is assumed that the mechanisms illustrated in this section are being viewed from a position in front of the equipment, unless the illustrations are specifically labeled otherwise. In the line drawings, fixed pivot points are shown by solid black circles and moveable points are shown by cross-hatched circles. References in the text to left, right, up, down, front, or rear apply to the unit in its normal operating position with the viewer facing the tape storage bin.

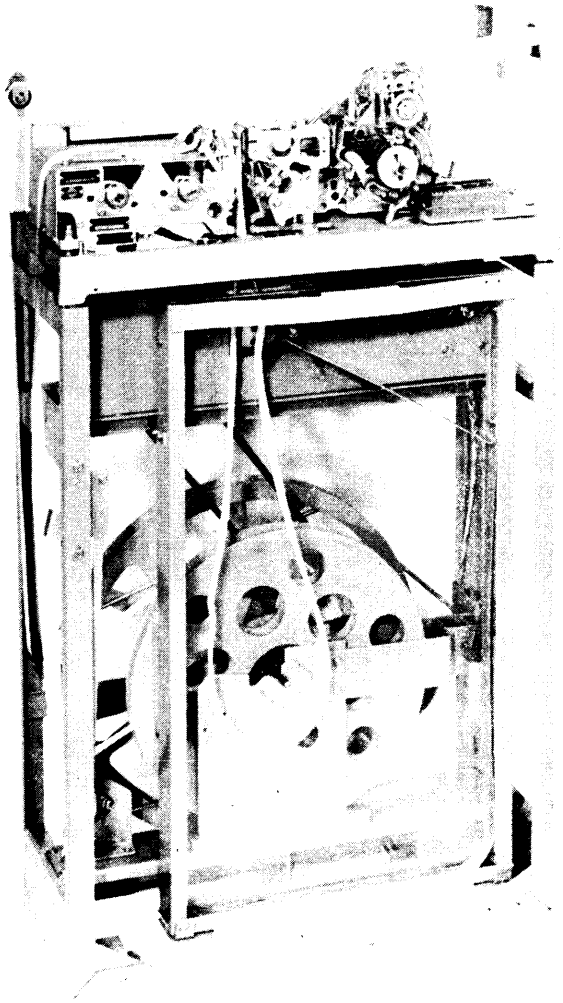
1.05 In the adjustments and spring tensions covered in this section, location of clearances, position of parts, and point and angle of scale applications are illustrated by drawings. Requirements and procedures are set forth in the texts that accompany the drawings. A complete adjusting procedure should be read before making the adjustment or checking the spring tension. The adjustments are arranged in a sequence that should be followed if a complete readjustment of the unit were undertaken.

1.06 Tools required to make the adjustments and check the spring tensions are not supplied with the equipment, but are listed in Section 570-005-800TC.

1.07 When a part mounted on shims is removed, the number of shims at each mounting screw should be noted so that the identical shim pile-up can be made when the part is remounted. Unless stated otherwise, all nuts and screws that were loosened should be tightened after an adjustment has been made.

1.08 The spring tensions given in this section are indicated values and should be checked with Teletype scales in the positions shown in the drawings. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

1.09 When rotating the drive shaft gear by hand, the rotation is counterclockwise as viewed from the exposed side of the drive shaft gear.

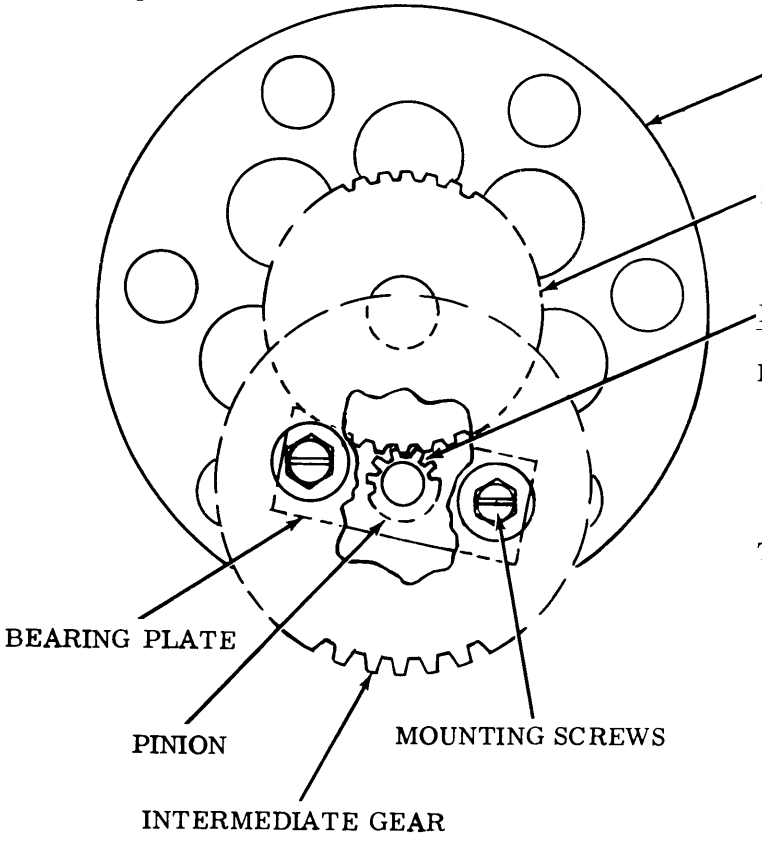


Model 28 Reperforator Transmitter Set

2. ADJUSTMENTS

STANDARD SPEED TAPE HANDLING STAND

2.01 Tape Drive Mechanism



PINION REEL DRIVE GEAR MESH

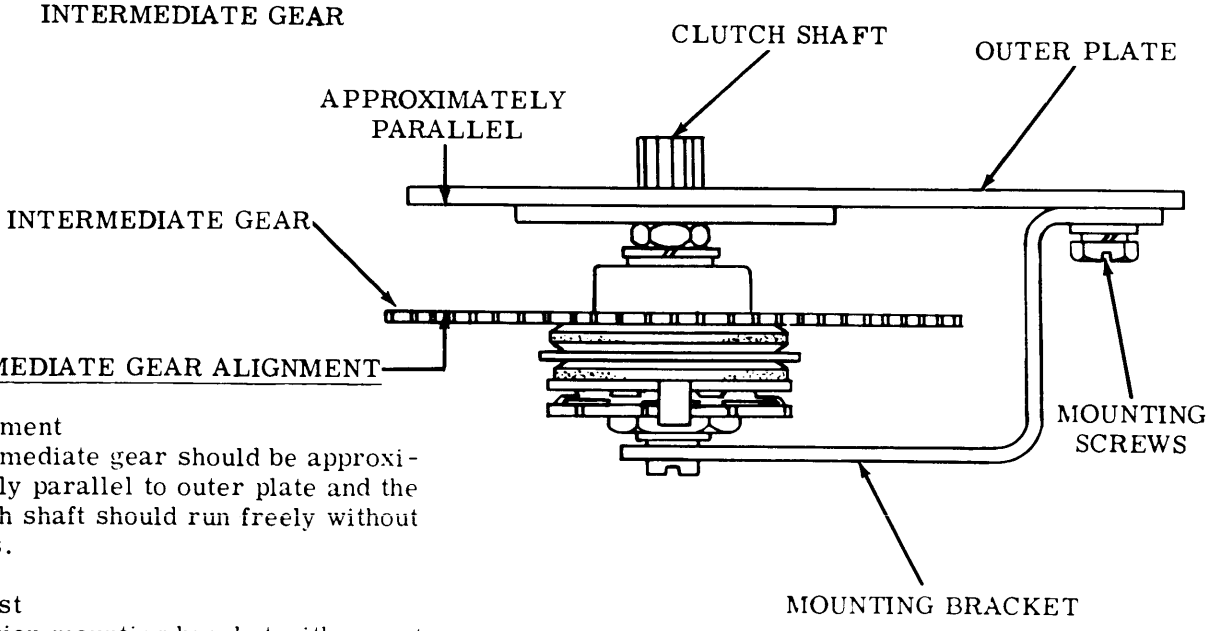
Requirement

With tape winder reel in position, there should be a barely perceptible backlash between pinion and reel drive gear at point where backlash is least.

To Adjust

Position bearing plate with mounting screws loosened. (Mounting screws are accessible through holes in intermediate gear.)

Note: This adjustment should be rechecked if tape winder reels are interchanged between units.



INTERMEDIATE GEAR ALIGNMENT

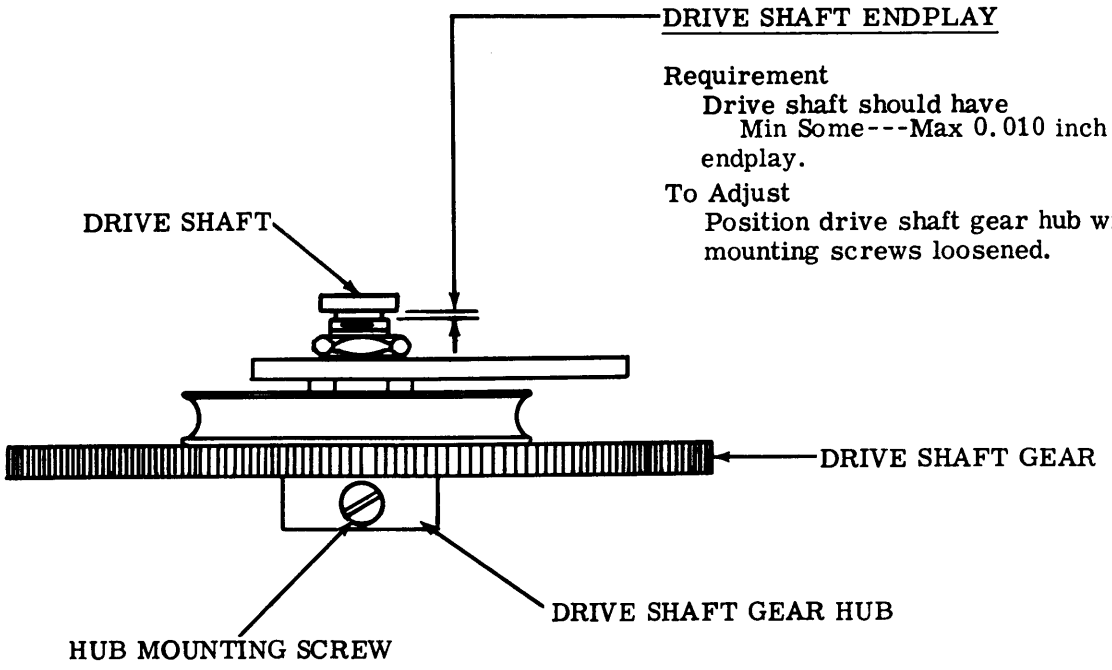
Requirement

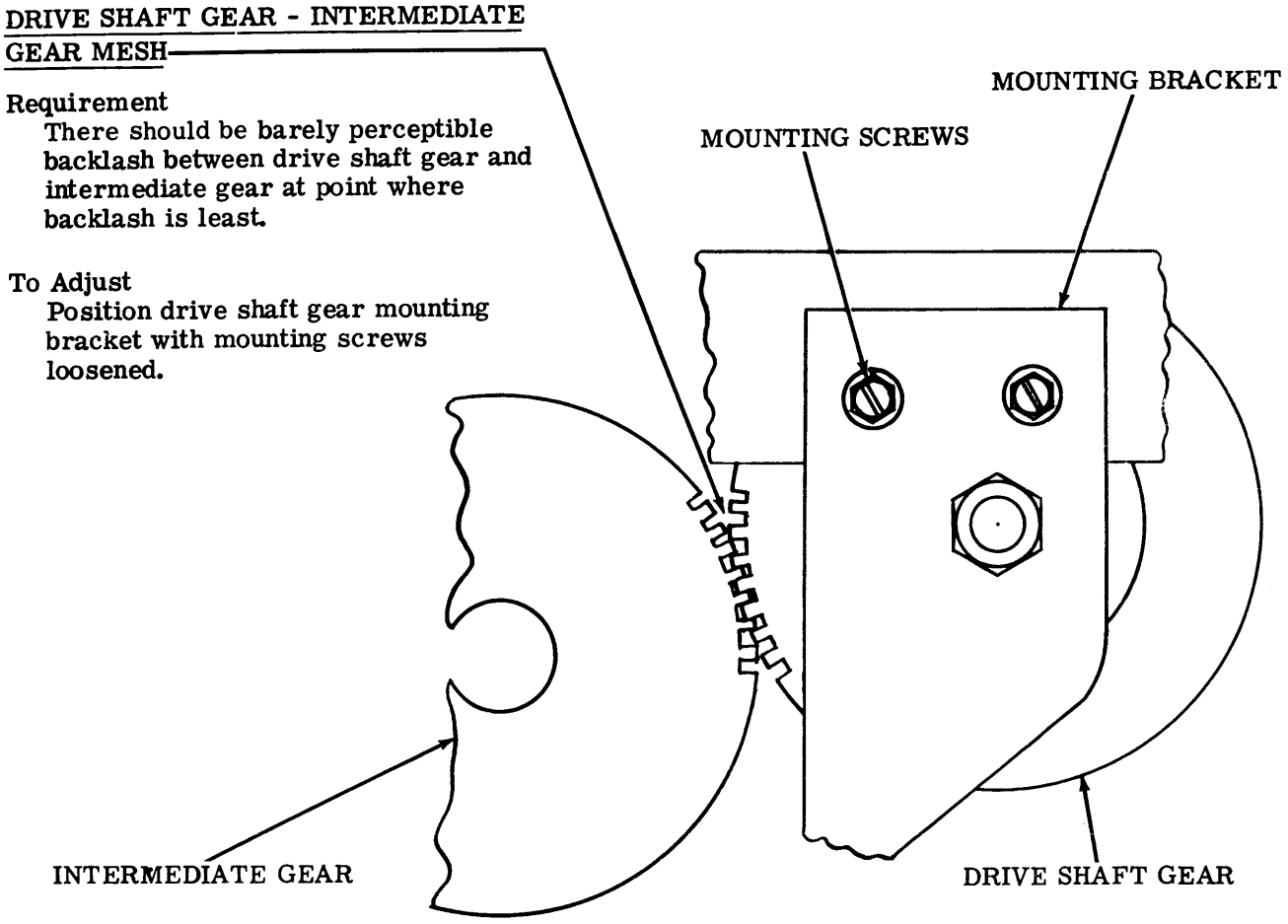
Intermediate gear should be approximately parallel to outer plate and the clutch shaft should run freely without binds.

To Adjust

Position mounting bracket with mounting screws loosened.

2.02 Tape Drive Mechanism (continued)



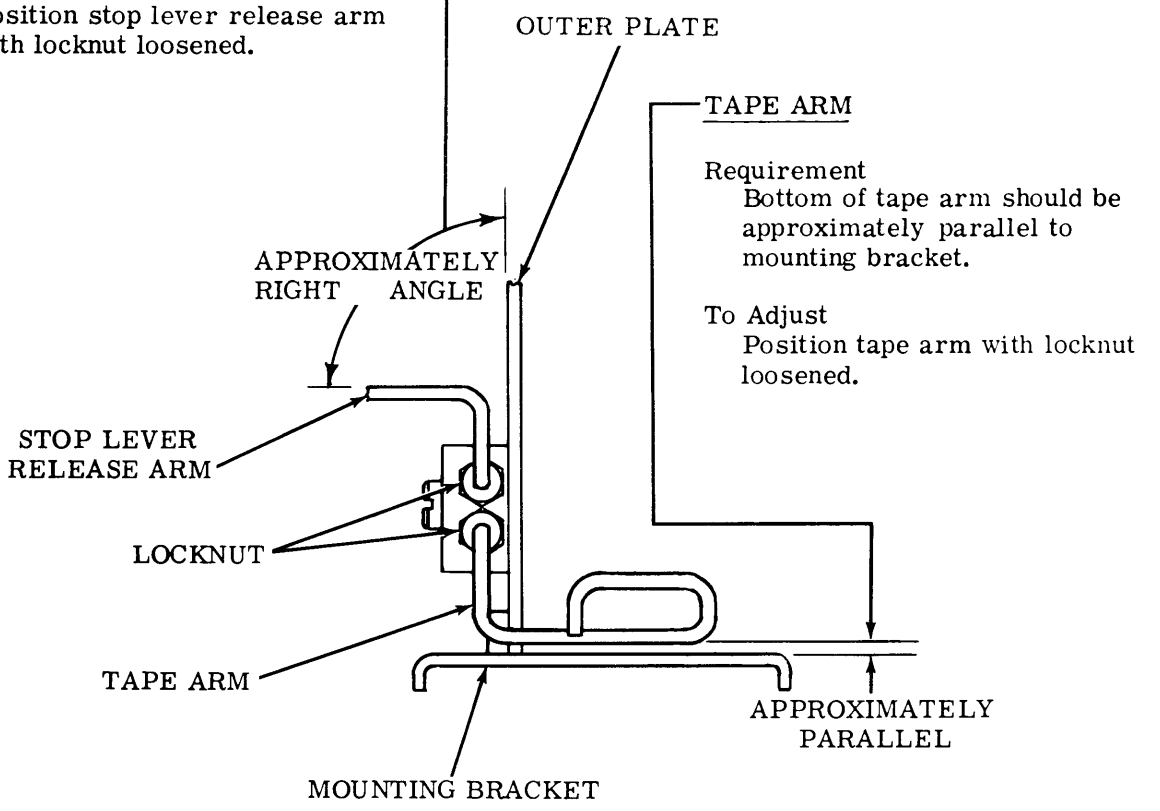


2.03 Tape Control Mechanism

STOP LEVER RELEASE ARM

Requirement
Stop lever release arm should be approximately at right angle to outer plate.

To Adjust
Position stop lever release arm with locknut loosened.



TAPE ARM

Requirement
Bottom of tape arm should be approximately parallel to mounting bracket.

To Adjust
Position tape arm with locknut loosened.

2.04 Tape Control Mechanism (continued)

STOP LEVER ECCENTRIC STUD

Requirement

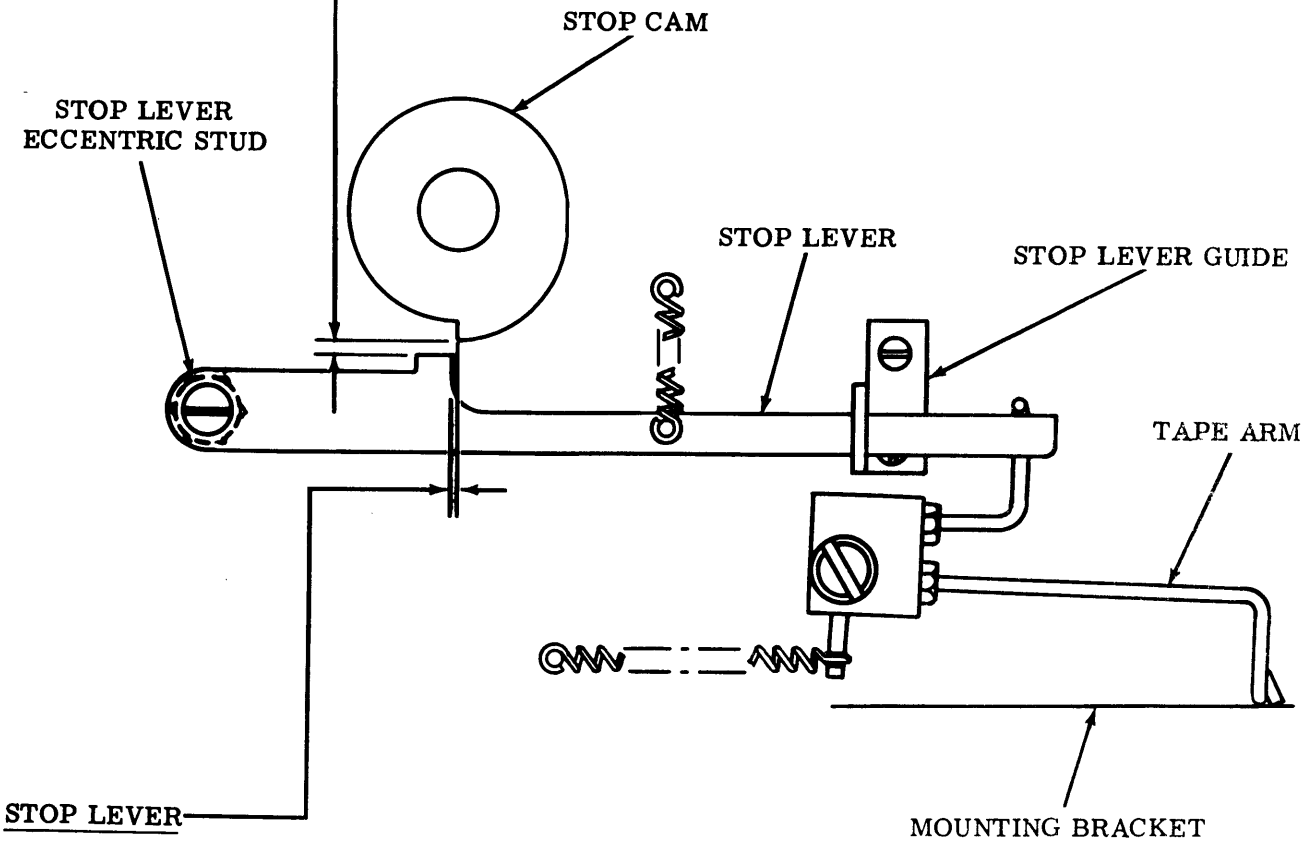
Tape arm resting against mounting bracket. Clearance between high part of stop cam and top of stop lever projecting ear should be Min 0.005 inch---Max 0.015 inch

To Adjust

Position stop lever eccentric stud (high part toward rear of unit) with its locknut loosened.

Note 1: Check that there is some clearance between bottom of slot in stop lever guide and stop lever. If necessary, lower stop lever guide with mounting screws loosened.

Note 2: If the 0.005 inch to 0.015 inch clearance cannot be met refine stop lever release arm adjustment above.



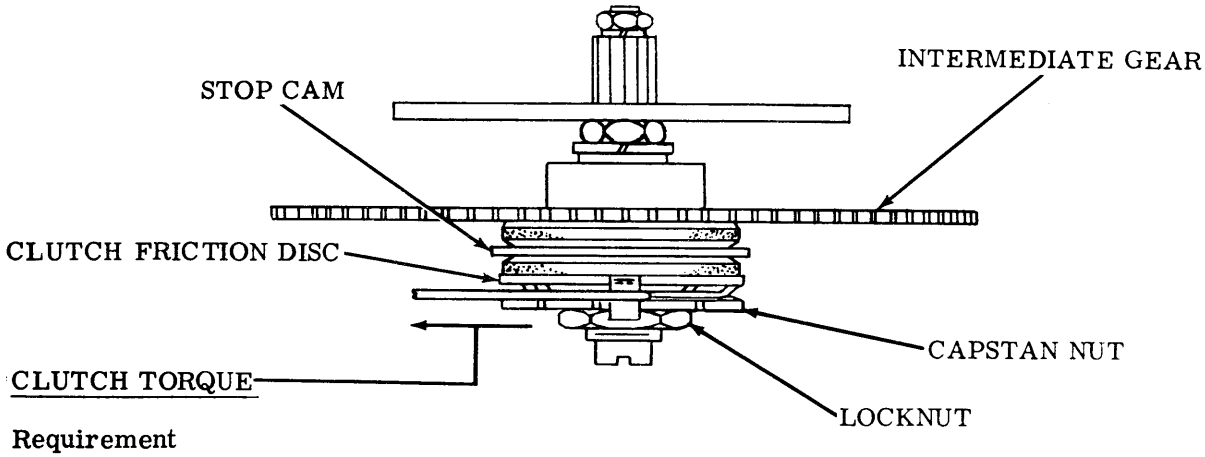
Requirement

Face of stop can should be parallel to mating surface of stop levers projecting ear when stop lever is in engagement with stop cam.

To Adjust

Position post with stop lever mounting post nut loosened. High part of eccentric post must be toward rear of unit. Tighten nut.

2.05 Tape Drive Mechanism (continued)

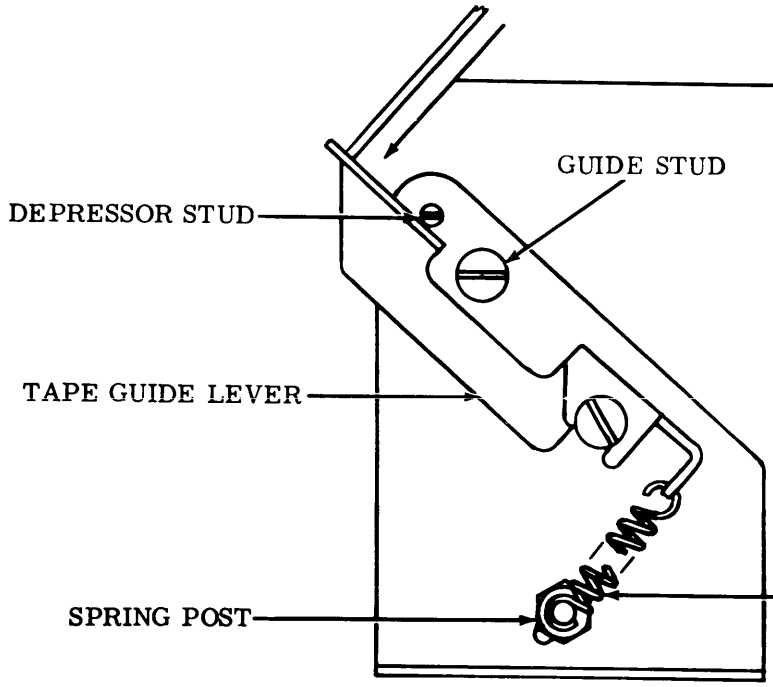


Requirement
Power applied to unit. Stop lever held out of engagement with stop cam.
Min 12 oz---Max 16 oz
to keep clutch friction disc from moving.

To Adjust
Position capstan nut with locknut loosened; clockwise to increase tension, counterclockwise to decrease tension.

Note: This measurement should be made when unit is warm from operation.

2.06 Tape Control Mechanism (continued)

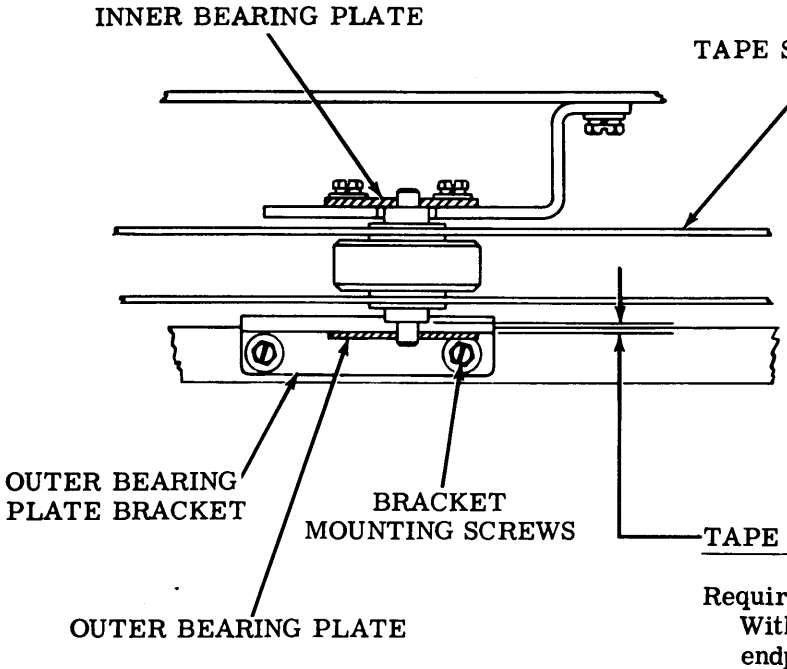


Requirement
Min 9 oz---Max 11 oz
*Min 2 oz---Max 6 oz
to start depressor moving away from depressor stud.

To Adjust
Position spring post with locknut loosened.

*For units using fully perforated tape.

2.07 Tape Reel Mechanism



TAPE SUPPLY REEL SHAFT ENDPLAY

Requirement

With tape supply reel in place, shaft endplay should be

Min Some---Max 0.100 inch

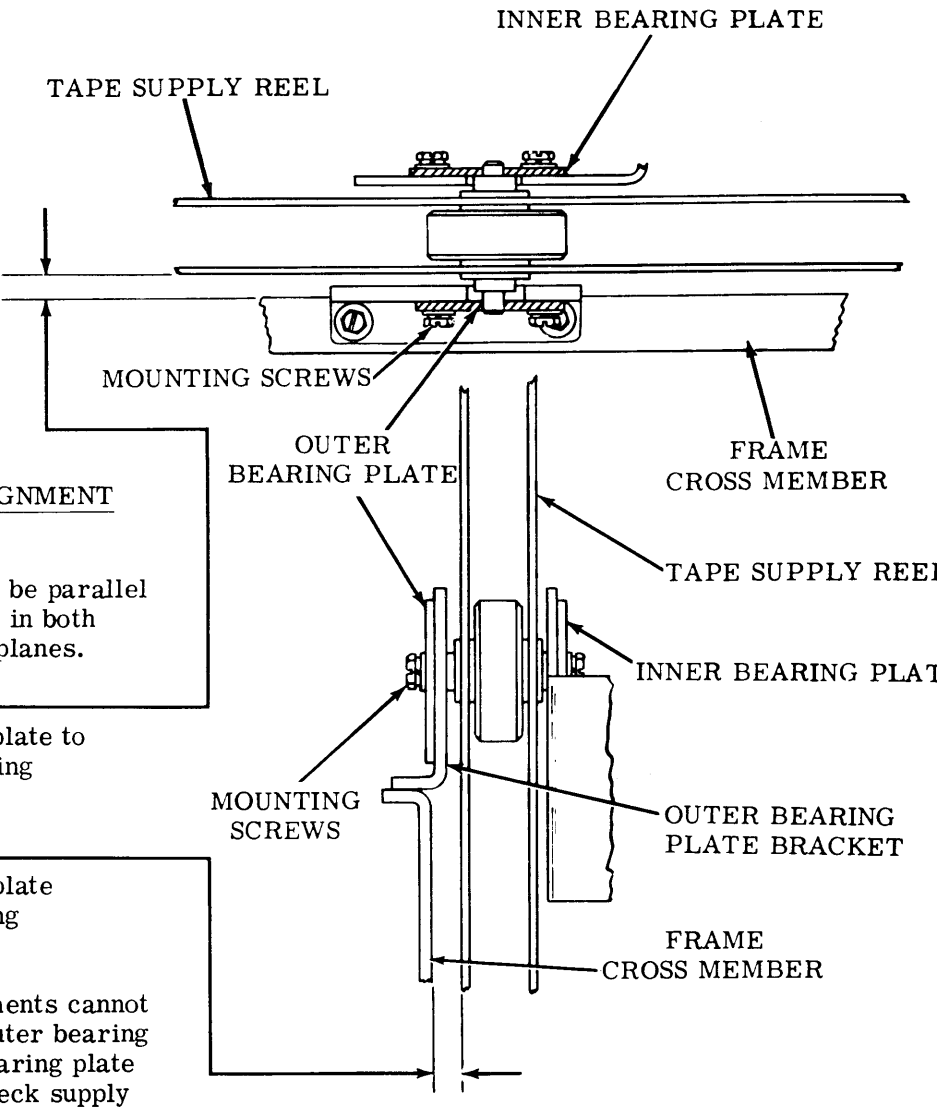
*Min Some---Max 0.062 inch

To Adjust

Position outer bearing plate bracket with mounting screws loosened.

*Units with V belt drive.

2.08 Tape Reel Mechanism (continued)



TAPE SUPPLY REEL ALIGNMENT

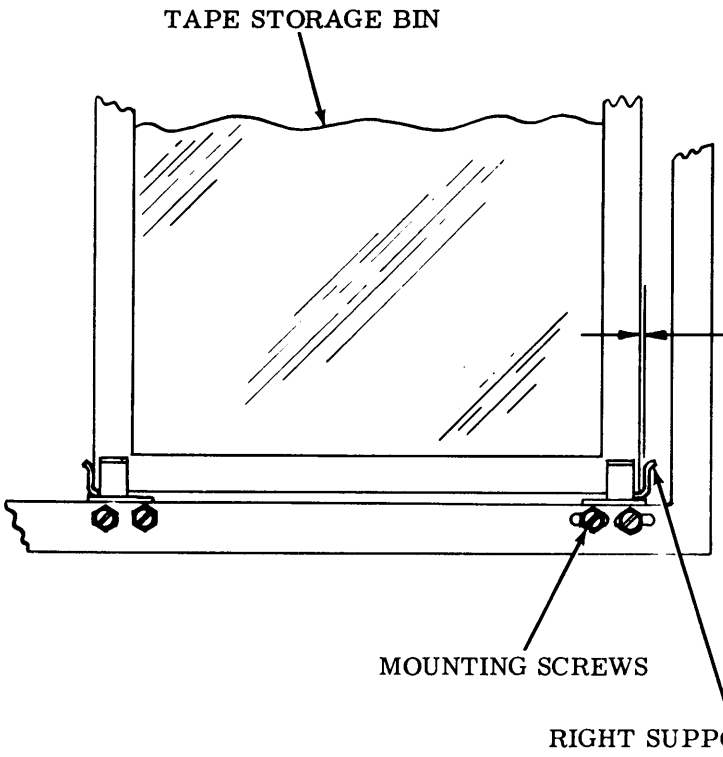
Requirement
Tape supply reel should be parallel to frame cross member in both horizontal and vertical planes.

To Adjust (Horizontal)
Position outer bearing plate to left or right with mounting screws loosened.

To Adjust (Vertical)
Position outer bearing plate up or down with mounting screws loosened.

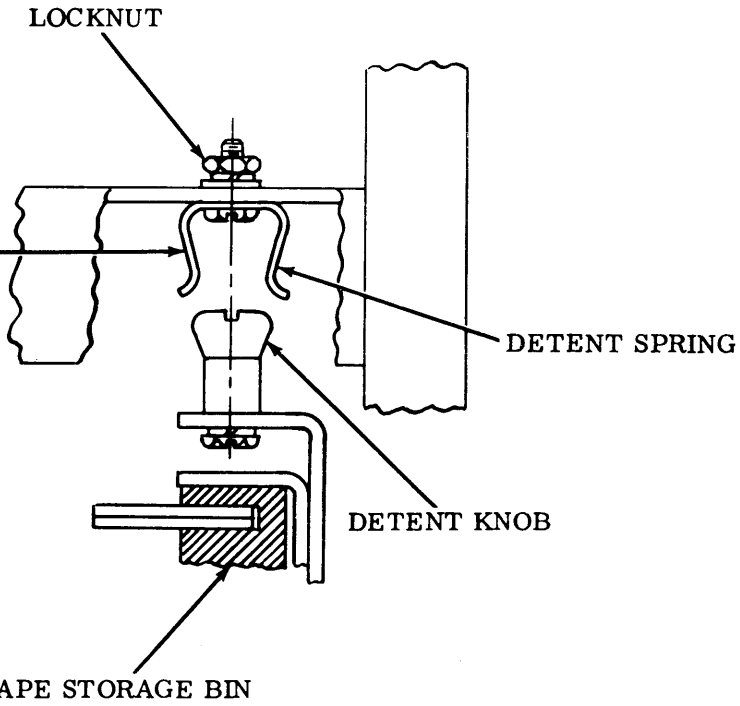
Note: If these requirements cannot be met by positioning outer bearing plate, position inner bearing plate in similar manner. Check supply reel endplay.

2.09 Tape Bin



Requirement
Tape storage bin in place
Min Some---Max 0.030 inch clearance between tape storage bin and right support bracket.

To Adjust
Position right support bracket with mounting screws loosened

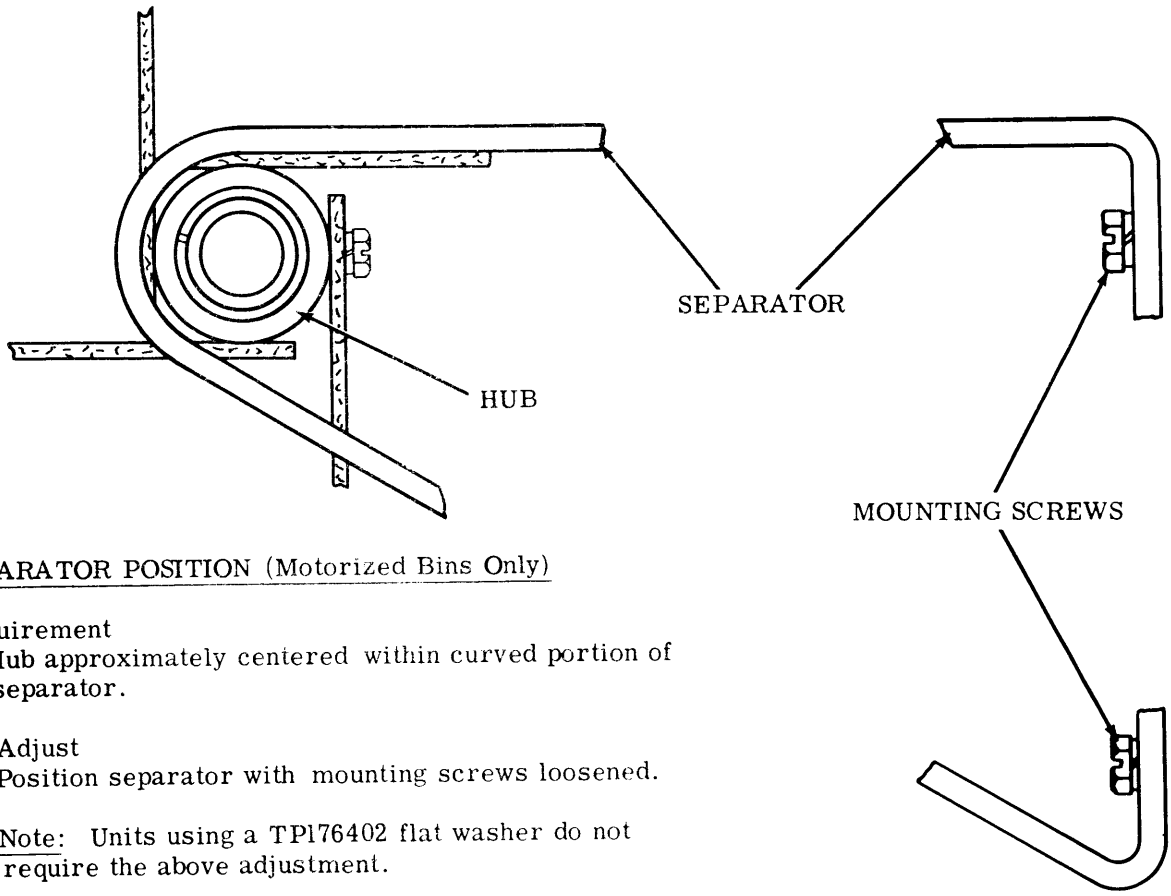


STORAGE BIN DETENT SPRINGS

Requirement
Detent springs aligned approximately vertical. Detent springs should be horizontally centered on their corresponding detent knobs.

To Adjust
Position detent spring with its locknut loosened.

2.10 Tape Control Mechanism (continued)



SEPARATOR POSITION (Motorized Bins Only)

Requirement
Hub approximately centered within curved portion of separator.

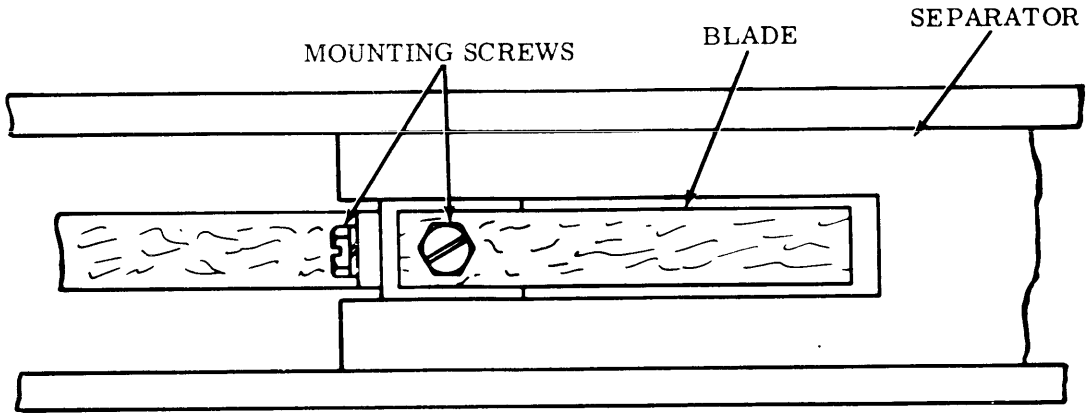
To Adjust
Position separator with mounting screws loosened.

Note: Units using a TP176402 flat washer do not require the above adjustment.

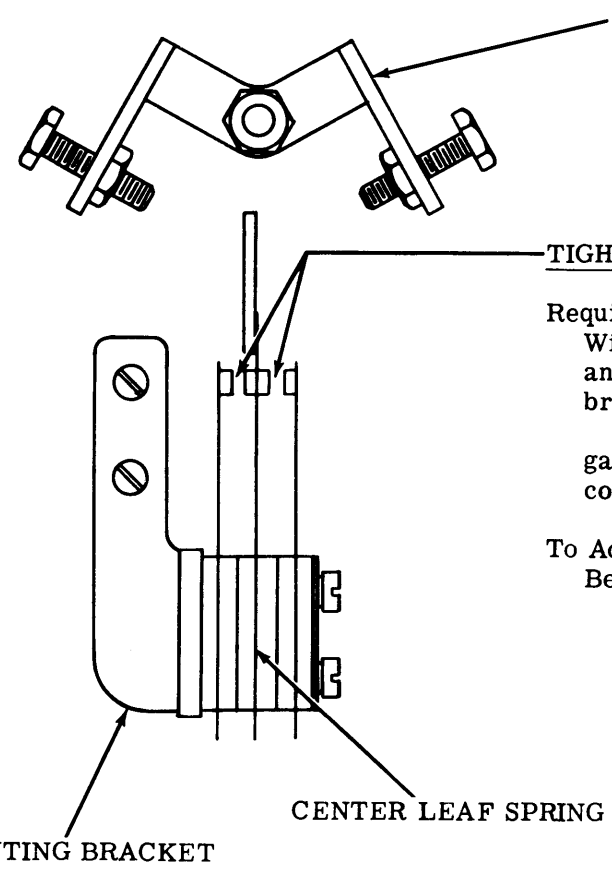
BLADE POSITION (Motorized Bins Only)

Requirement
Blades should be approximately centered in slot in separator. Check four blades.

To Adjust
Position blades with mounting screws loosened.



2.11 Tape Control Mechanism (continued)



TIGHT-TAPE AND LOW TAPE SWITCH

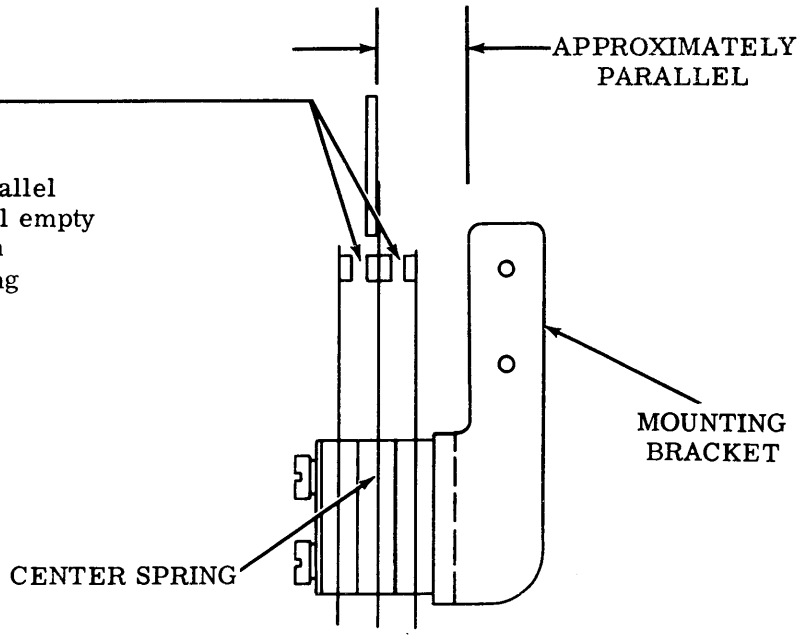
Requirement
With center leaf spring in neutral position and approximately parallel to mounting bracket
Min 0.015 inch---Max 0.030 inch gap between both left and right spring contacts and center spring contact.

To Adjust
Bend leaf springs.

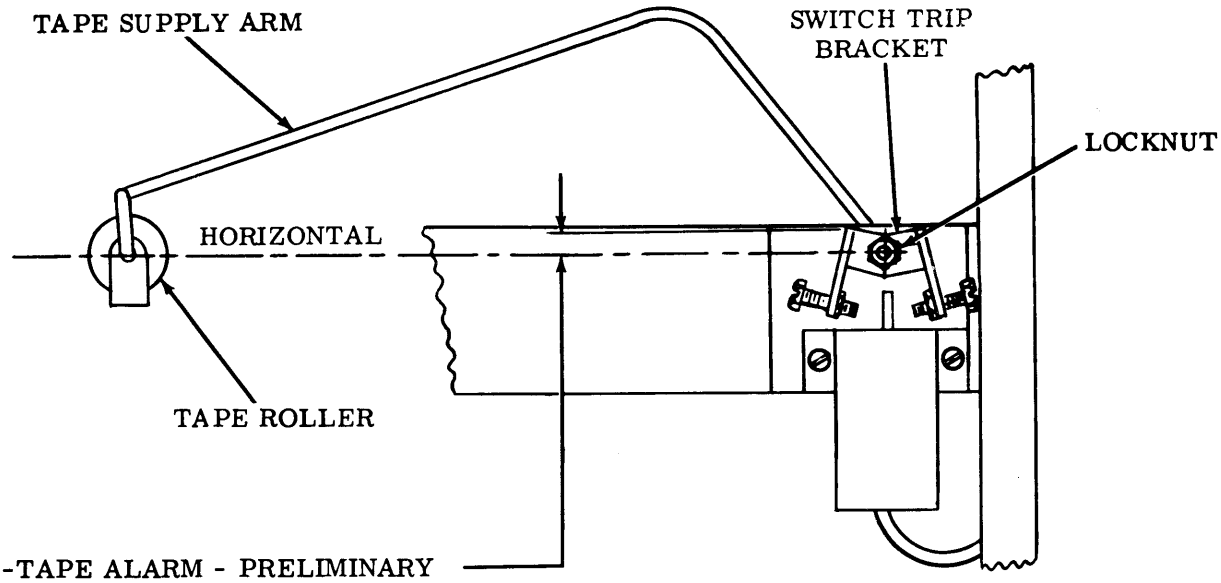
FULL TAKE-UP REEL SWITCH

Requirement
With leaf springs approximately parallel to mounting bracket and take-up reel empty
Min 0.015 inch---Max 0.030 inch gap between both left and right spring contacts and center spring contact.

To Adjust
Bend leaf springs



2.12 Tape Control Mechanism (continued)



TIGHT-TAPE ALARM - PRELIMINARY

Requirement

With tape supply arm positioned so tape roller and trip bracket locknut are on same horizontal level, top of switch trip bracket should be approximately horizontal.

To Adjust

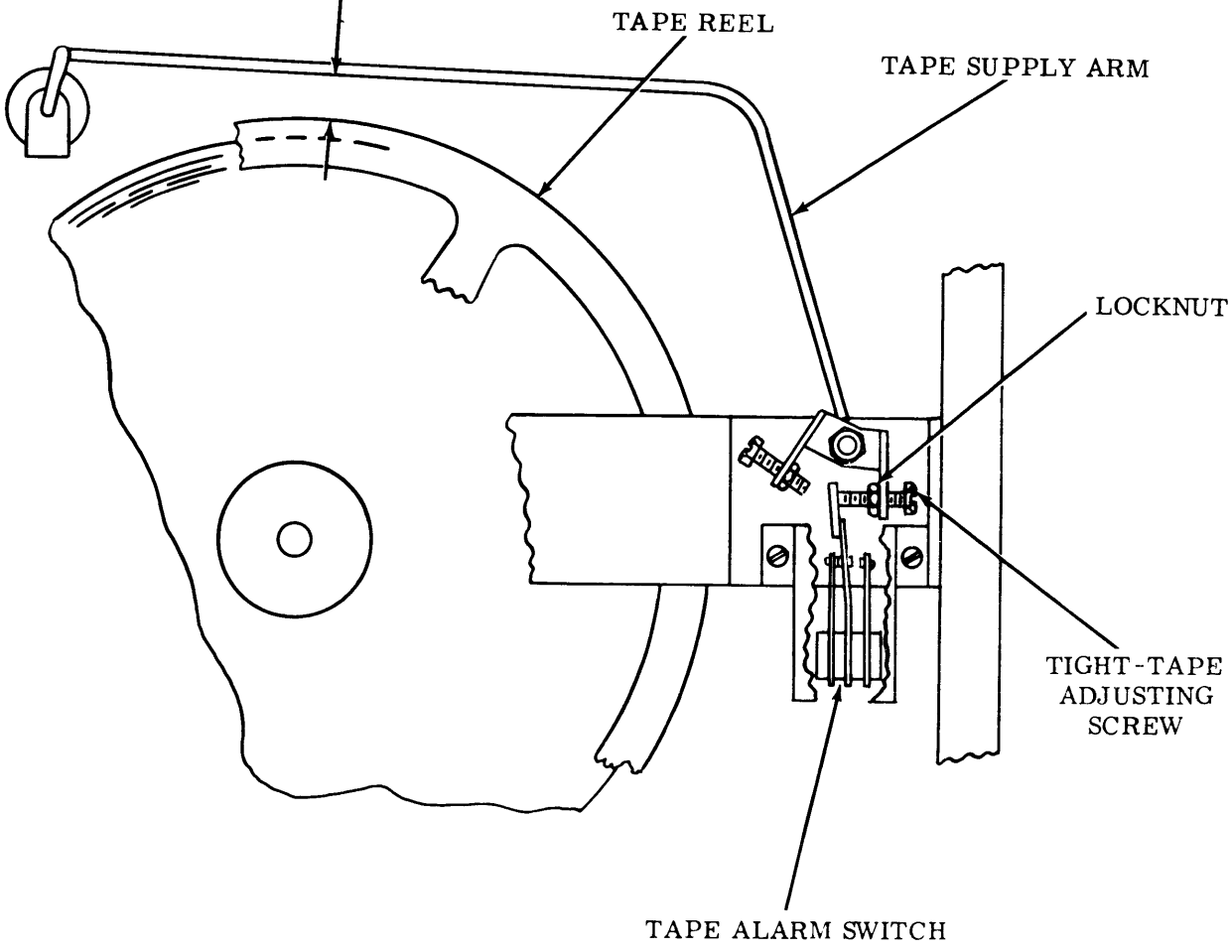
Position switch trip bracket with locknut loosened.

2.13 Tape Control Mechanism (continued)

TIGHT-TAPE ALARM - FINAL

Requirement
With tape supply arm positioned so there is clearance between edge of tape reel and tape supply arm
Min 3/4 inch---Max 1 inch
Tight-tape adjusting screw should just close tape alarm switch.

To Adjust
Position tight-tape adjusting screw with locknut loosened.



2.14 Tape Control Mechanism (continued)

LOW TAPE ALARM

Requirement

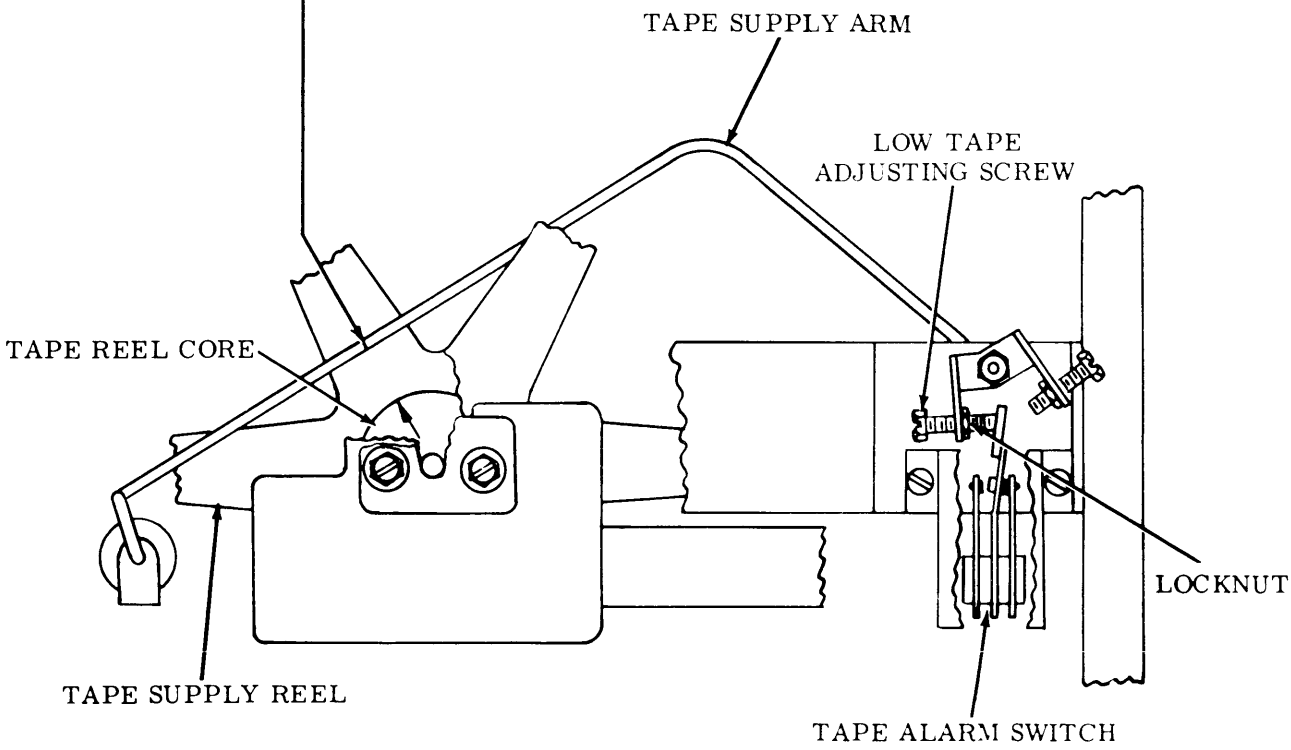
With tape supply arm positioned so there is clearance between empty tape reel core and tape supply arm

Min 1/2 inch---Max 3/4 inch

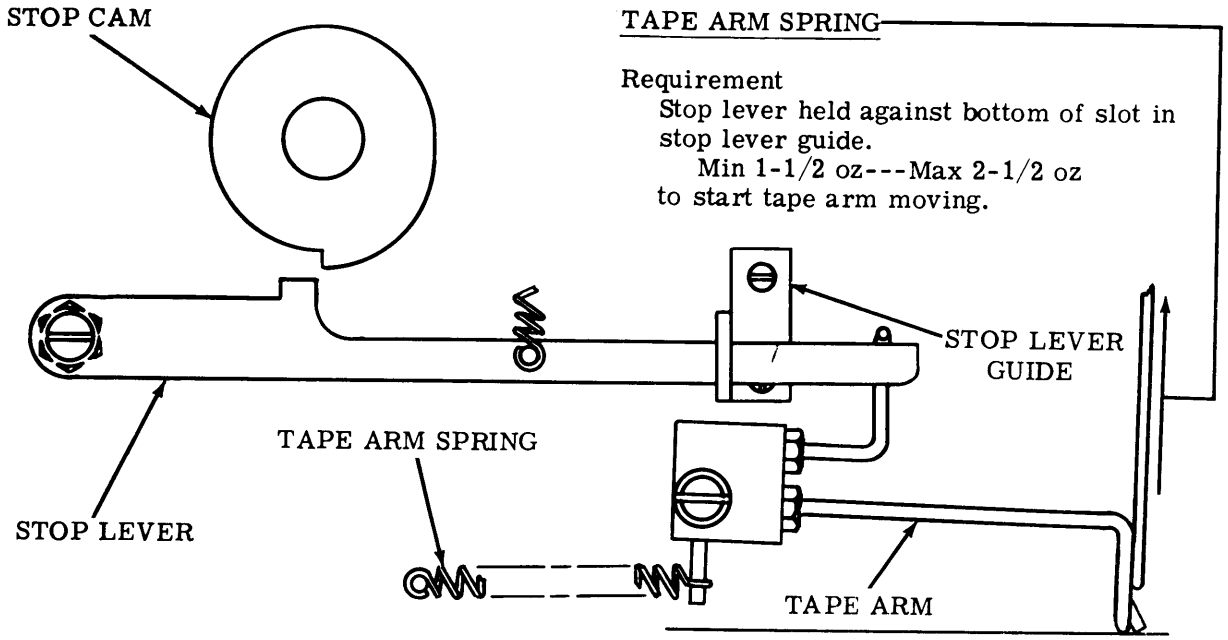
Low tape adjusting screw should just close tape alarm switch.

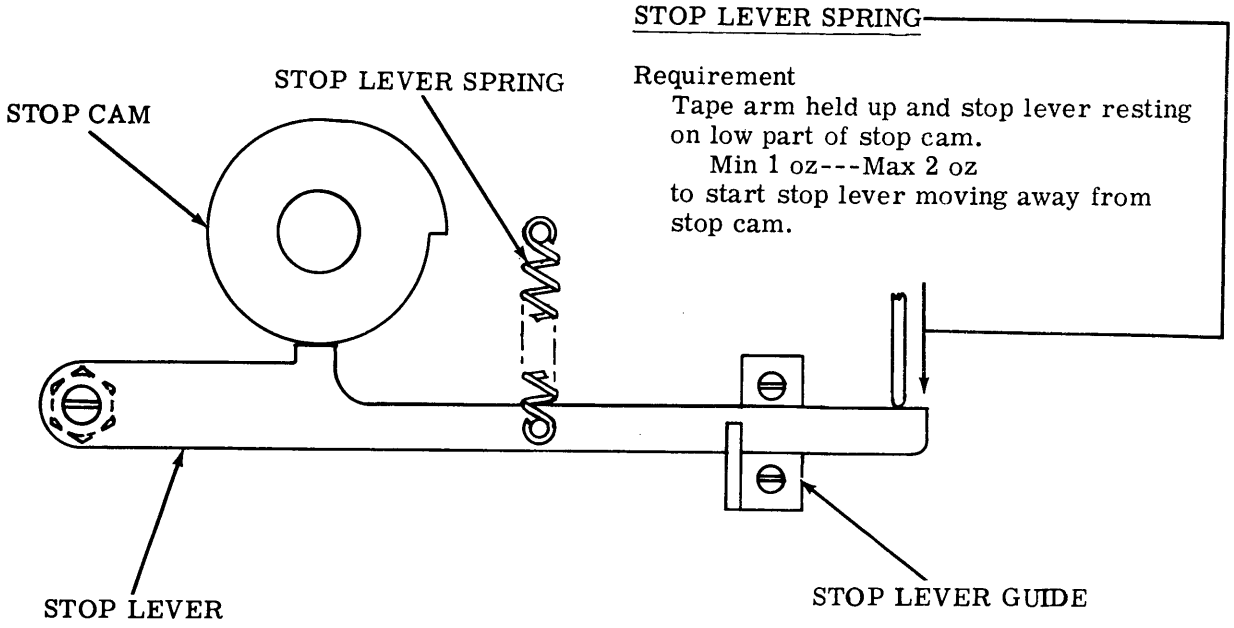
To Adjust

Position low tape adjusting screw with locknut loosened.

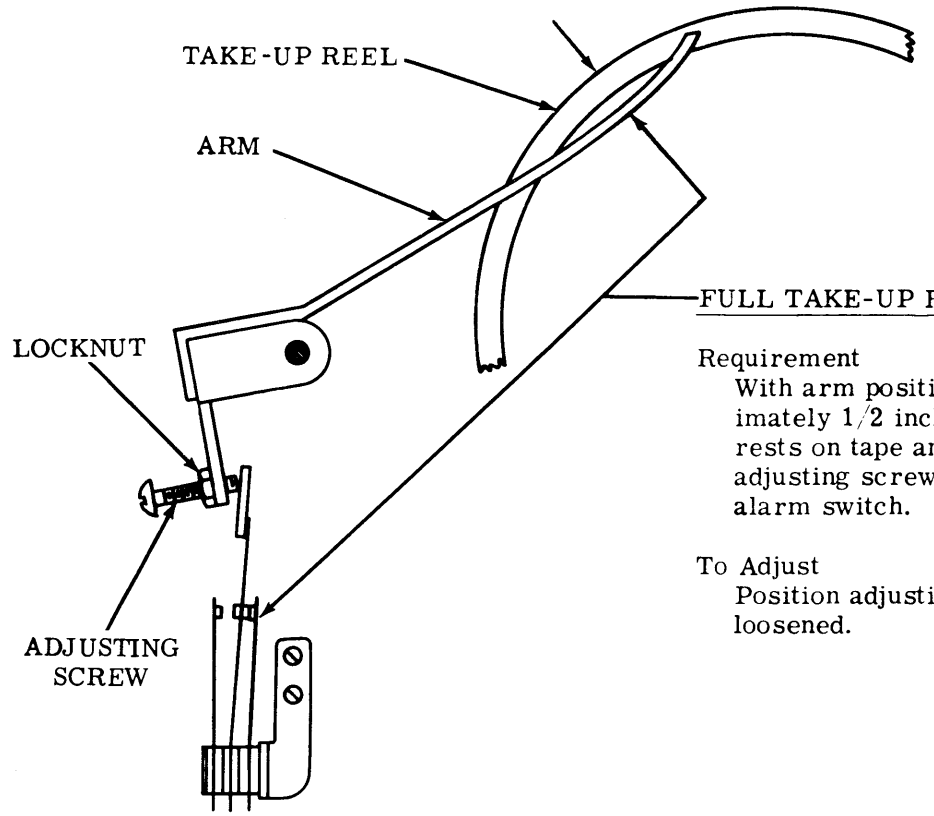


2.15 Tape Control Mechanism (continued)





2.16 Tape Control Mechanism (continued)



FULL TAKE-UP REEL ALARM

Requirement
With arm positioned so there is approximately 1/2 inch between portion of arm that rests on tape and edge of take-up reel, adjusting screw should just close contacts of alarm switch.

To Adjust
Position adjusting screw with its locknut loosened.

ACTUATOR SPRING

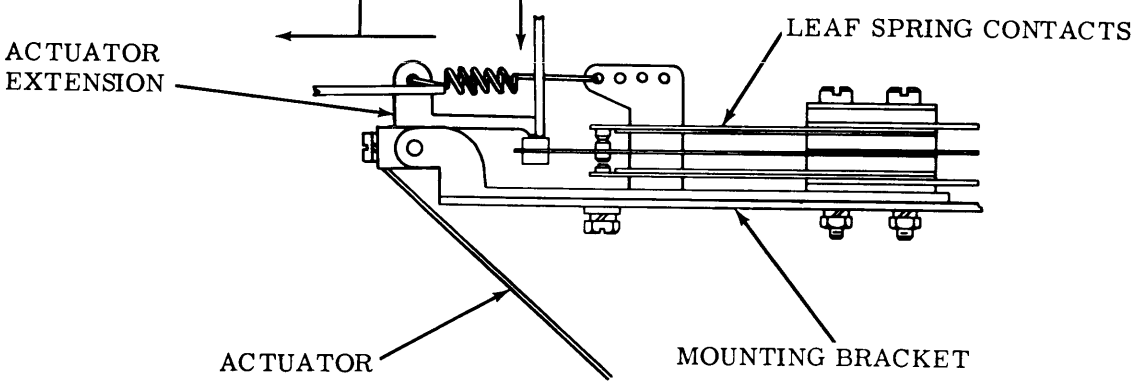
Requirement
With actuator spring hooked in first hole
Min 2-1/4 oz---Max 2-1/2 oz
to separate actuator extension from leaf spring operating button. If requirement cannot be met replace spring.

TAPE BIN FULL SWITCH

Requirement
With leaf spring approximately parallel to mounting bracket and actuator extension held away from operating button
Min 3/4 oz---Max 1-1/4 oz
*Min 1 oz---Max 1-1/2 oz
to open contacts.

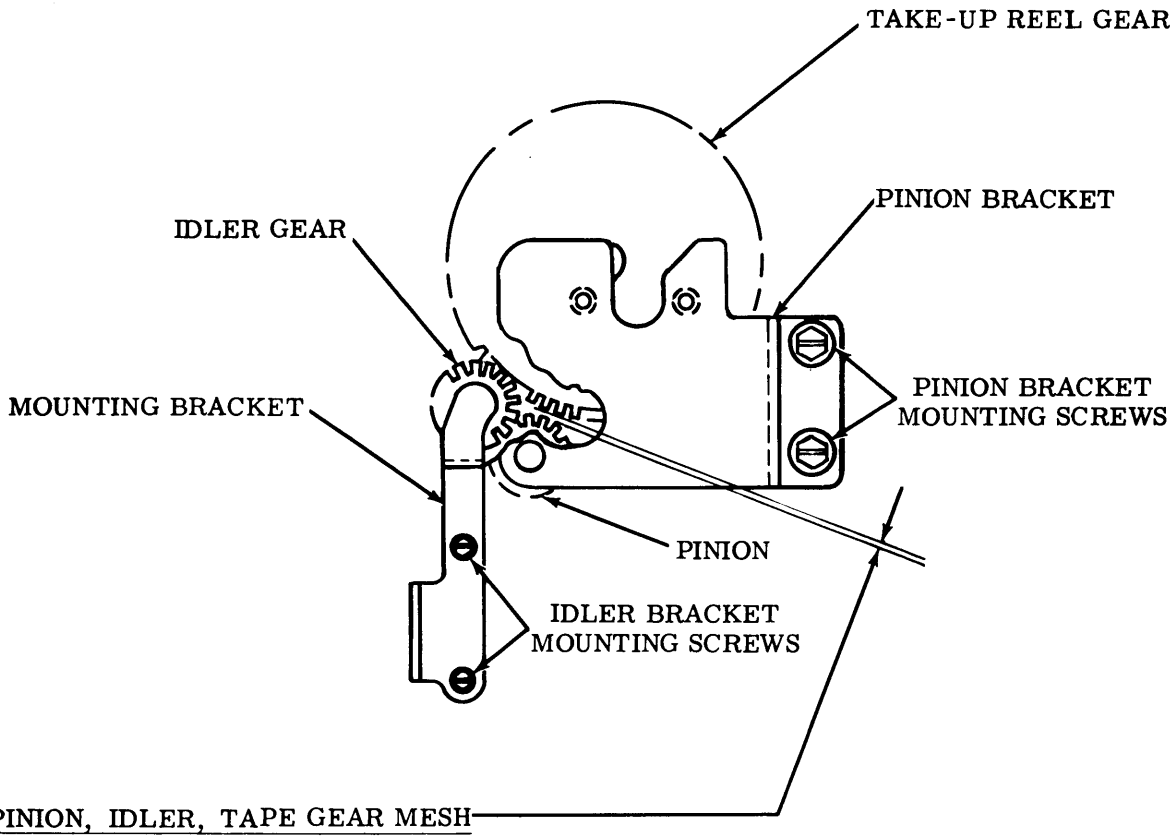
To Adjust
Bend leaf springs.

*For units using fully perforated tape.



2.17 Tape Drive Mechanism (continued)

Note: This adjustment is used when replacing the felt clutch on the low speed tape handling stand with a belt drive mechanism.



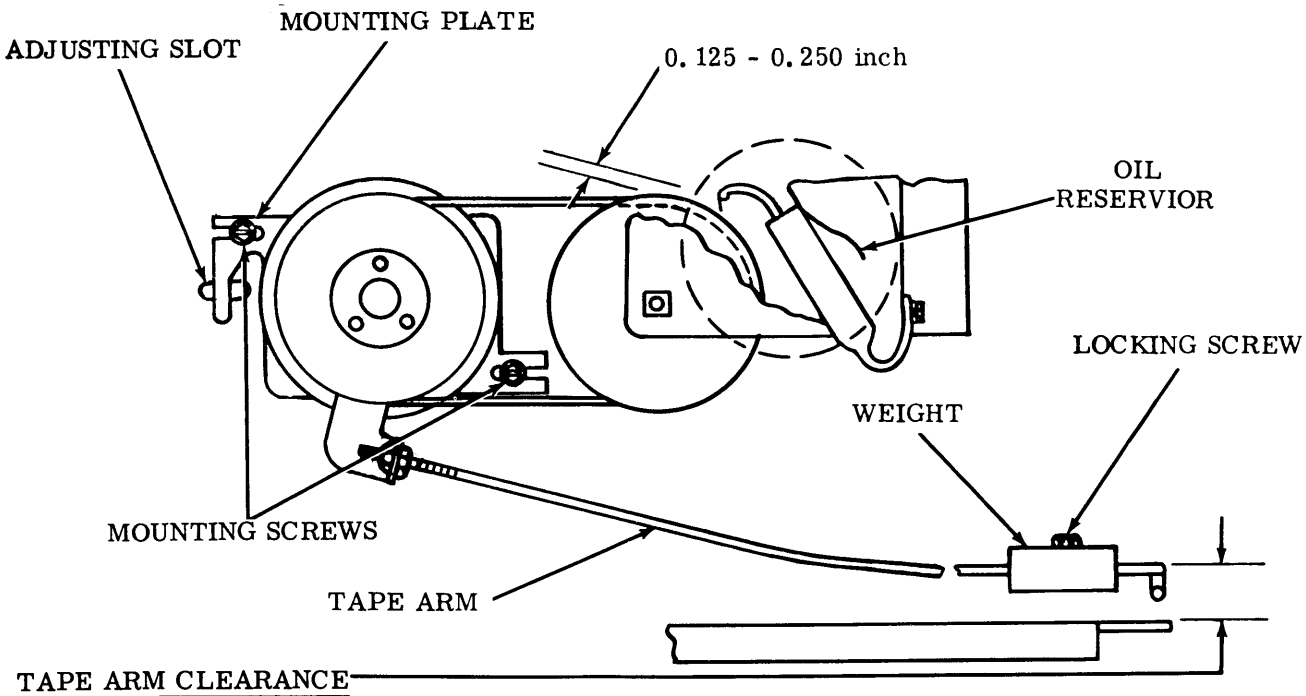
(1) Requirement
With take-up reel in position there should be a barely perceptib. amount of backlash between take-up reel gear and idler gear and between idler gear and pinion at point where backlash is least.

(2) Requirement
Clearance between outside diameters of take-up reel gear and pinion at closest point on their peripheries
Min 0.015 inch.

To Adjust
With pinion bracket and idler bracket mounting screws loosened, position both brackets to meet requirements.

2.18 Tape Control Mechanism (continued)

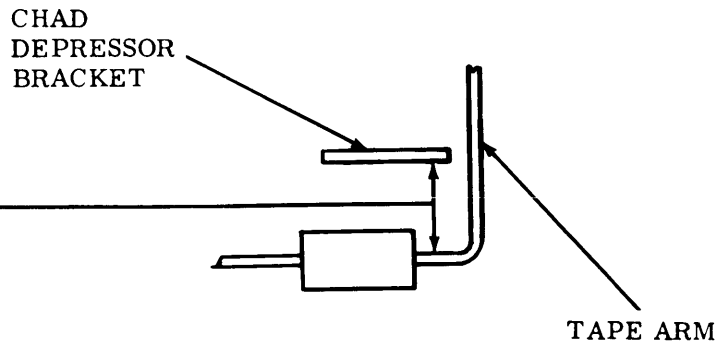
Note: These two adjustments are used when replacing the felt clutch on the low speed tape handling stand with a belt drive mechanism.



TAPE ARM CLEARANCE

Requirement
With take-up reel removed
Min 3/4 inch---Max 1 inch
from top edge of tape arm to top of mounting bracket.

To Adjust
Loosen mounting screws. Insert screwdriver in adjusting slot and position mounting plate so top of tape arm is approximately 1-1/4 inches above bar. Tighten mounting screws. Push tape arm down until it touches mounting bracket and let it rise slowly. Arm should come to rest as per requirement. If necessary, refine adjustment.

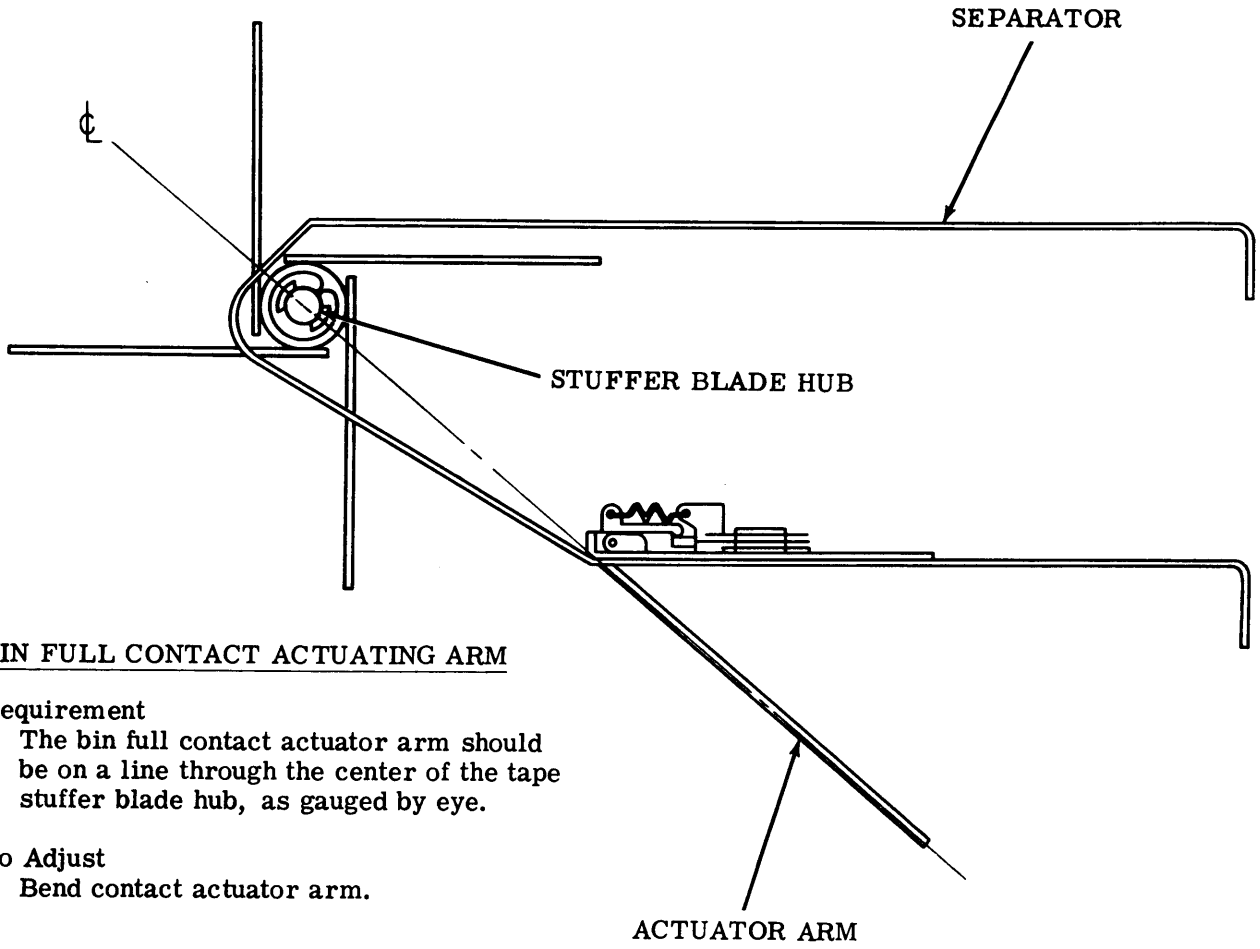


TAPE ARM HORIZONTAL CLEARANCE

Requirement
Tape arm should be
Min 1/2 inch---Max 3/4 inch
from chad depressor bracket.

To Adjust
Bend arm to meet requirement.

2.19 Tape Control Mechanism (continued)



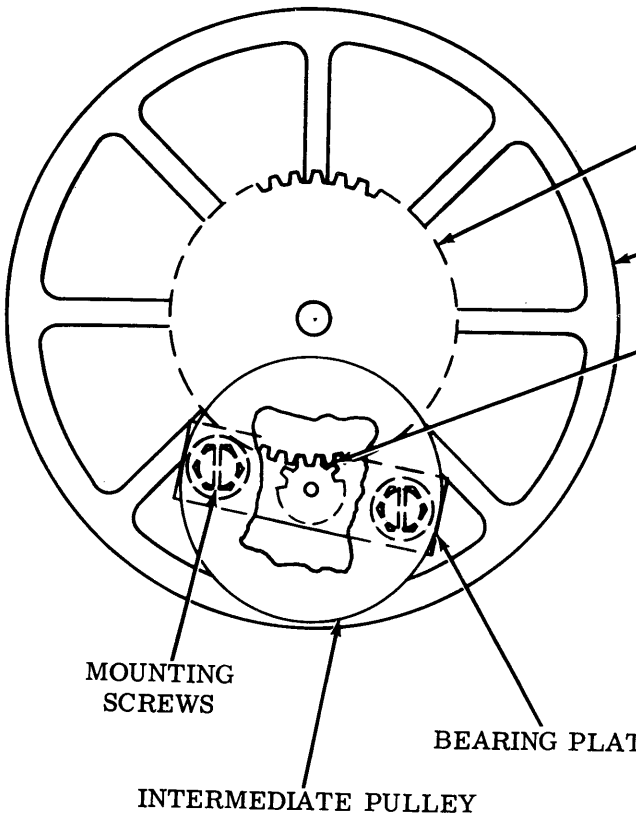
BIN FULL CONTACT ACTUATING ARM

Requirement
The bin full contact actuator arm should be on a line through the center of the tape stuffer blade hub, as gauged by eye.

To Adjust
Bend contact actuator arm.

HIGH SPEED TAPE HANDLING STAND (FLAT BELT WINDER)

2.20 Tape Drive Mechanism



PINION-REEL DRIVE GEAR MESH

Requirement
With take-up reel in position, there should be barely perceptible backlash between pinion and reel drive gear at point where backlash is least.

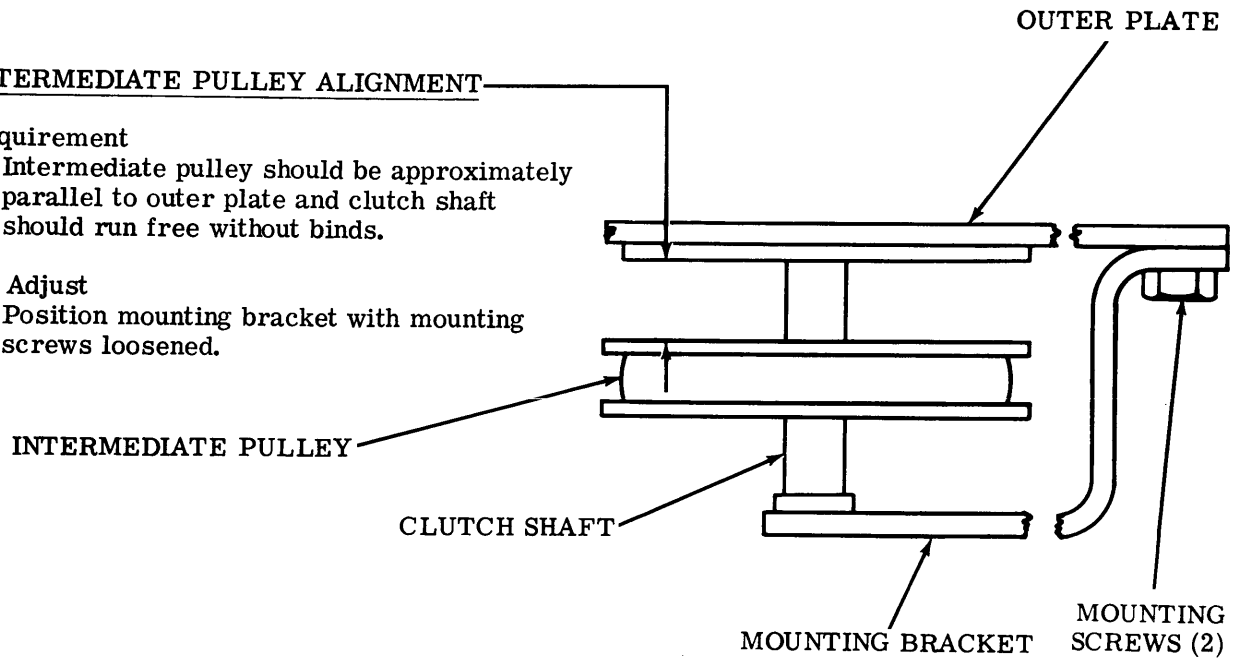
To Adjust
With mounting screws loosened, position bearing plate by pivoting it about right hand mounting screw.

Note: This adjustment should be re-checked if take-up reels are interchanged between units.

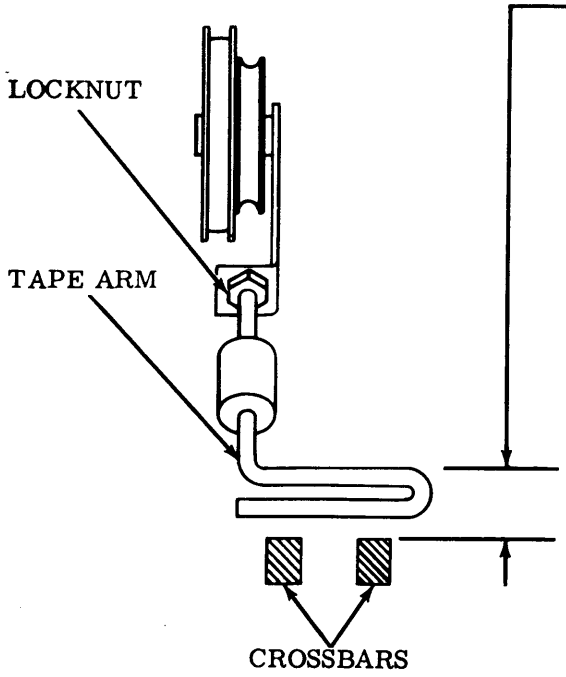
INTERMEDIATE PULLEY ALIGNMENT

Requirement
Intermediate pulley should be approximately parallel to outer plate and clutch shaft should run free without binds.

To Adjust
Position mounting bracket with mounting screws loosened.



2.21 Tape Control Mechanism



TAPE ARM

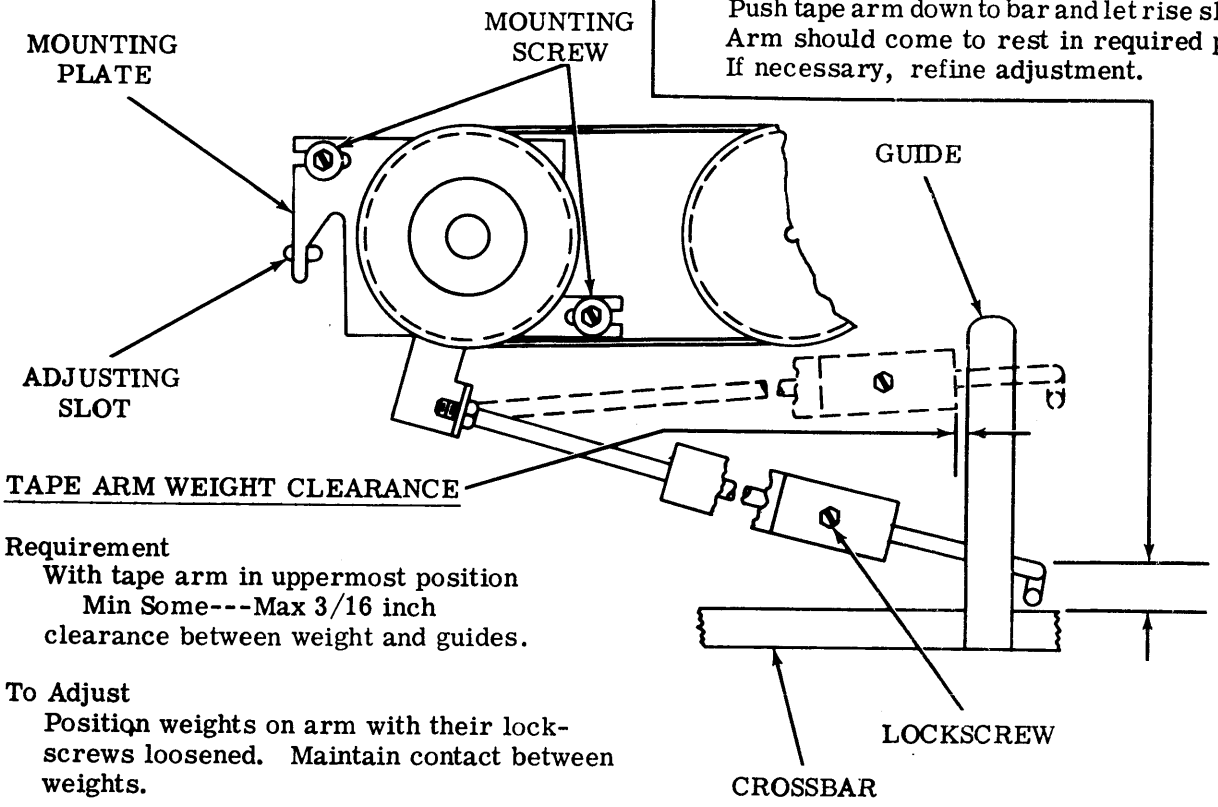
Requirement
Upper edge of tape arm should be approximately parallel to top of crossbars.

To Adjust
Position tape arm with locknut loosened.

TAPE ARM CLEARANCE

Requirement
With take-up reel removed
Min 1 inch---Max 1-1/2 inch
from top edge of tape arm to top of bar.

To Adjust
Loosen mounting screws. Insert screwdriver in adjusting slot and position mounting plate so top of tape arm is approximately 1-3/4 inches above bar. Tighten mounting screws. Push tape arm down to bar and let rise slowly. Arm should come to rest in required position. If necessary, refine adjustment.

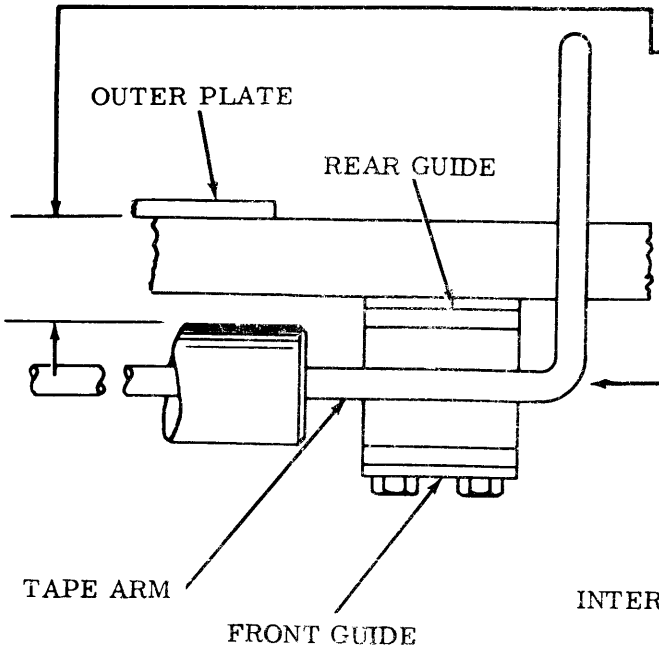


TAPE ARM WEIGHT CLEARANCE

Requirement
With tape arm in uppermost position
Min Some---Max 3/16 inch
clearance between weight and guides.

To Adjust
Position weights on arm with their lock-screws loosened. Maintain contact between weights.

2.22 Tape Control Mechanism (continued)



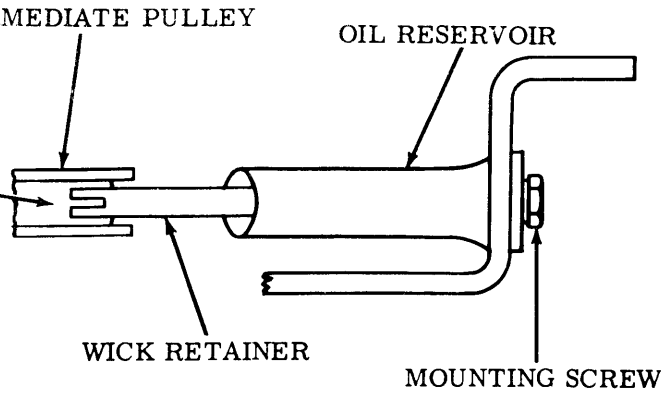
TAPE ARM GUIDE CLEARANCE

(1) Requirement
With tape arm held against rear guide
Min 1/16 inch
clearance between weight and outer plate.

To Adjust
Bend rear guideplate.

(2) Requirement
Tape arm should be approximately centered between guides.

To Adjust
Bend tape arm.



OIL RESERVOIR

(1) Requirement
Wick retainer should be approximately centered on intermediate pulley groove.

To Adjust
Position oil reservoir with mounting screw loosened.

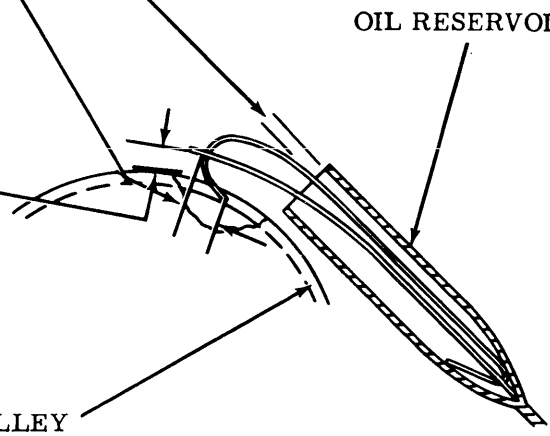
(2) Requirement
With retainer in its normal position at bottom of reservoir there should be some clearance between wick and top of reservoir.

(3) Requirement
Portion of wick which rides pulley should protrude approximately 7/8 inch.

To Adjust
Remove wick from retainer notches and position to meet requirements.

(4) Requirement
Min 0.125 inch---Max 0.250 inch
clearance between wick retainer and intermediate pulley.

To Adjust
Form wick retainer.



2.23 Tape Control Mechanism (continued)

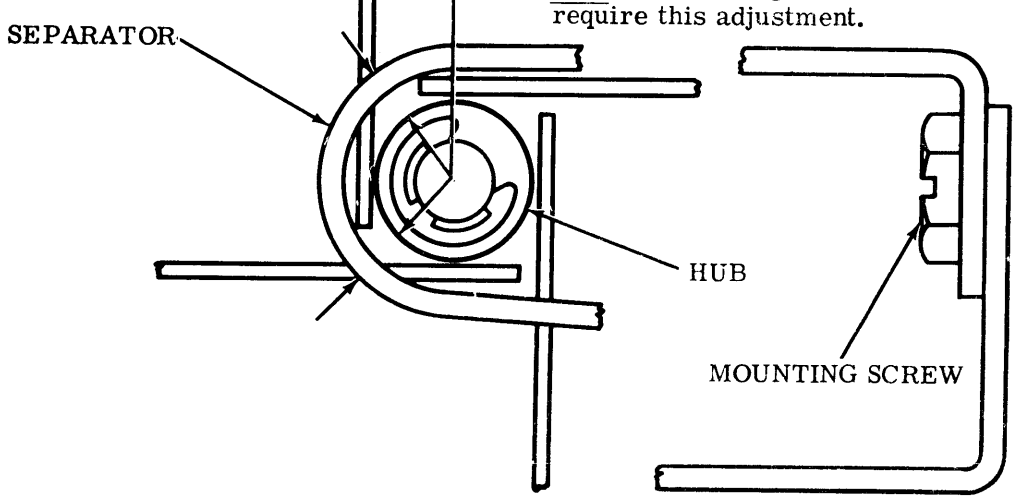
TAPE SUPPLY REEL SHAFT ENDPLAY - SEE 2.07
TAPE SUPPLY REEL ALIGNMENT - SEE 2.08
TAPE STORAGE BIN SUPPORT BRACKET - SEE 2.09
STORAGE BIN DETENT SPRINGS - SEE 2.09

SEPARATOR POSITION

Requirement
Hub approximately centered within curved portion of separator.

To Adjust
Position separator with mounting screw loosened.

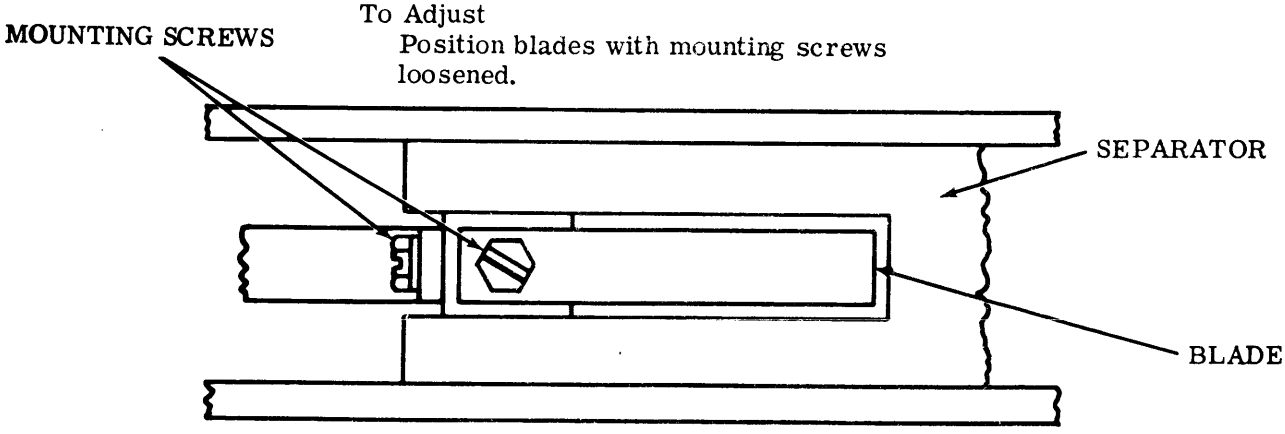
Note: Units using a TP176402 flat washer do not require this adjustment.



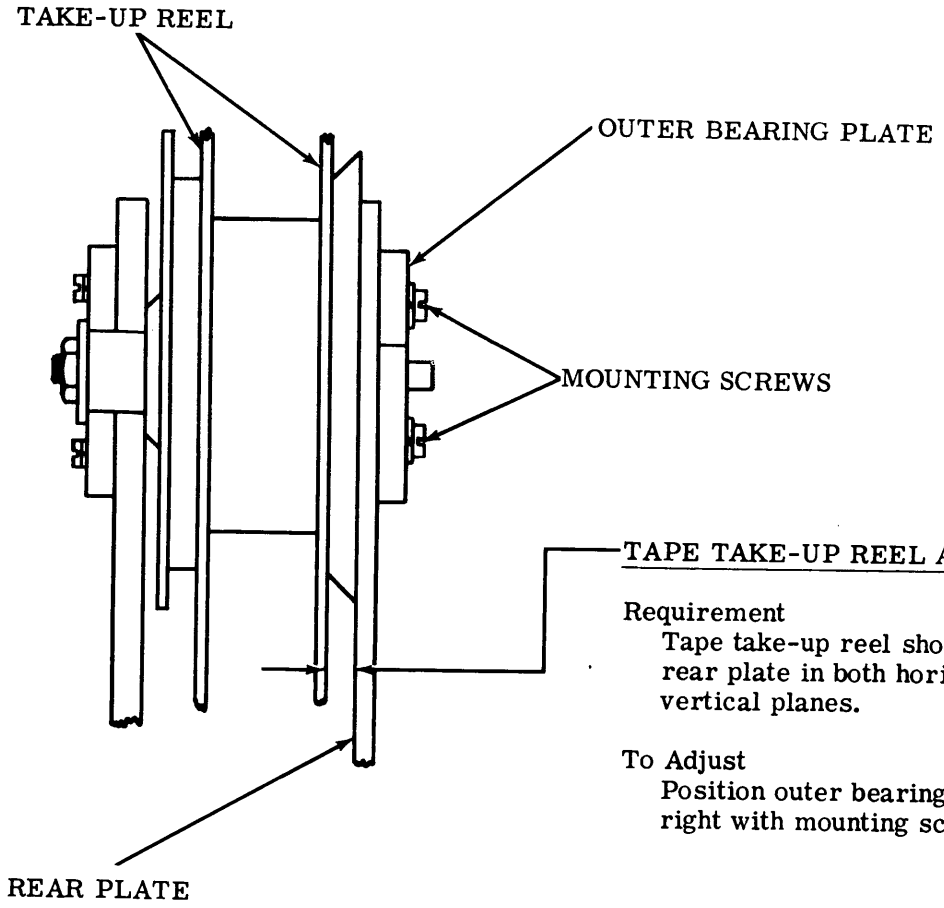
BLADE POSITION

Requirement
Blades should be approximately centered in slot in separator. Check four blades.

To Adjust
Position blades with mounting screws loosened.



2.24 Tape Control Mechanism (continued)



TAPE TAKE-UP REEL ALIGNMENT

Requirement
Tape take-up reel should be parallel to rear plate in both horizontal and vertical planes.

To Adjust
Position outer bearing plate to left or right with mounting screws loosened.

2.25 Tape Control Mechanism (continued)

CONTACT LEAF SPRINGS

Note: While making the following adjustments position detent bracket so protruding posts do not interfere with bakelite extension on leaf spring "D."

(1) Requirement
Leaf spring "D" should be approximately parallel to switch bracket.

To Adjust
Bend leaf spring "D."

(3) Requirement
Gap between nylon button on leaf spring "B" and bakelite extension on leaf spring "D"
Min Some---Max 0.015 inch

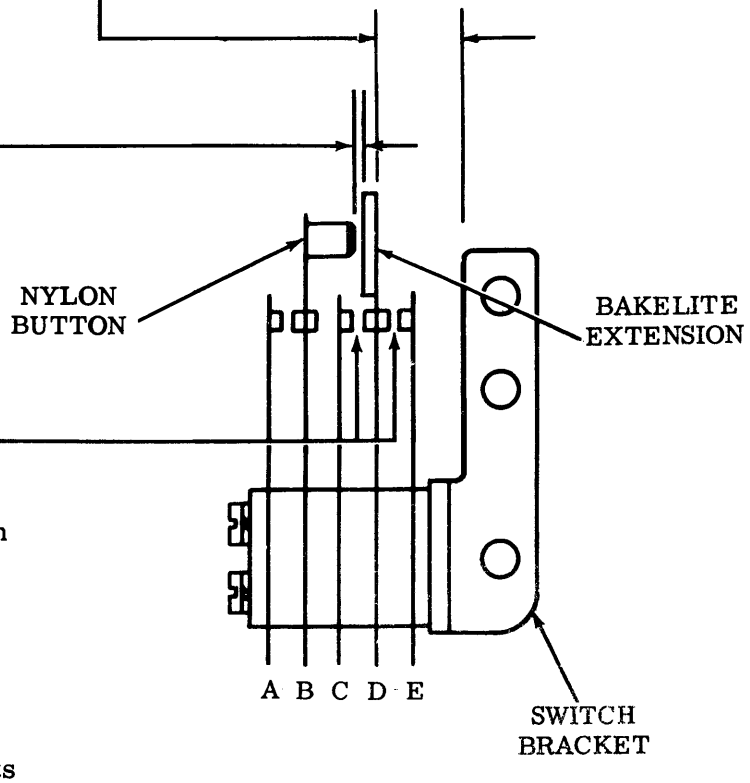
To Adjust
Bend leaf spring "B."

(2) Requirement
Gap between leaf spring contacts "C-D" and "D-E"
Min 0.035 inch---Max 0.045 inch

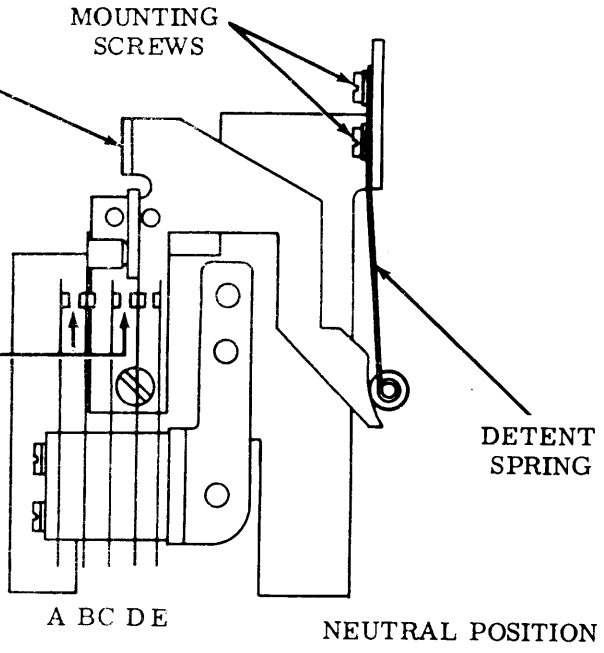
To Adjust
Bend leaf springs "C" and "E."

(4) Requirement
When bakelite extension on leaf spring "D" is moved to left, contacts "A-B" and "C-D" should close simultaneously (within 0.010 inch).

To Adjust
Bend leaf spring "A."



2.26 Tape Control Mechanism (continued)



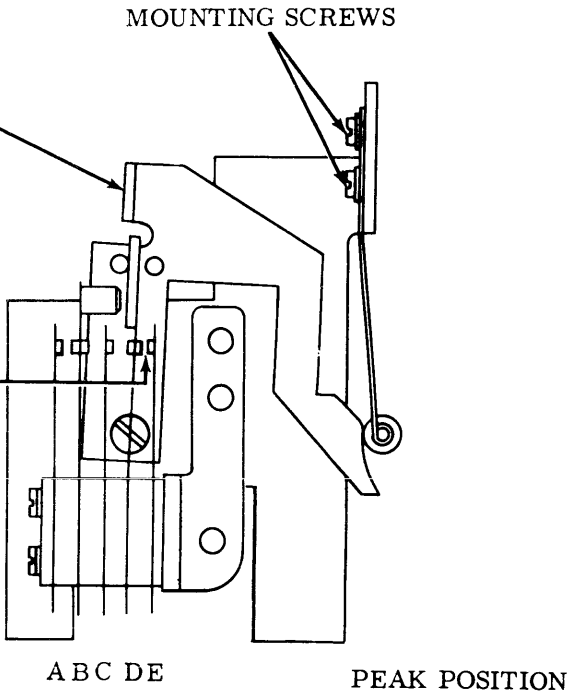
DETENT SPRING

Note: Preceding adjustments should be made prior to following adjustments.

(1) Requirement
With detent roller in neutral position (roller on low portion of detent lever camming surface), gap between contacts "A-B" and "C-D"
Min 0.010 inch---Max 0.020 inch

To Adjust
Position by moving detent spring vertically with its mounting screws loosened.

CAUTION: PRIOR TO TIGHTENING DETENT SPRING MOUNTING SCREWS, CHECK THAT ROLLER RIDES FULLY ON DETENT LEVER CAMMING SURFACE.



(2) Requirement
When roller is on peak of detent lever camming surface, gap between leaf spring contacts "D-E"
Min 0.010 inch---Max 0.035 inch

To Adjust
Bend leaf spring "E."

TIGHT-TAPE ALARM-PRELIMINARY - SEE 2.12

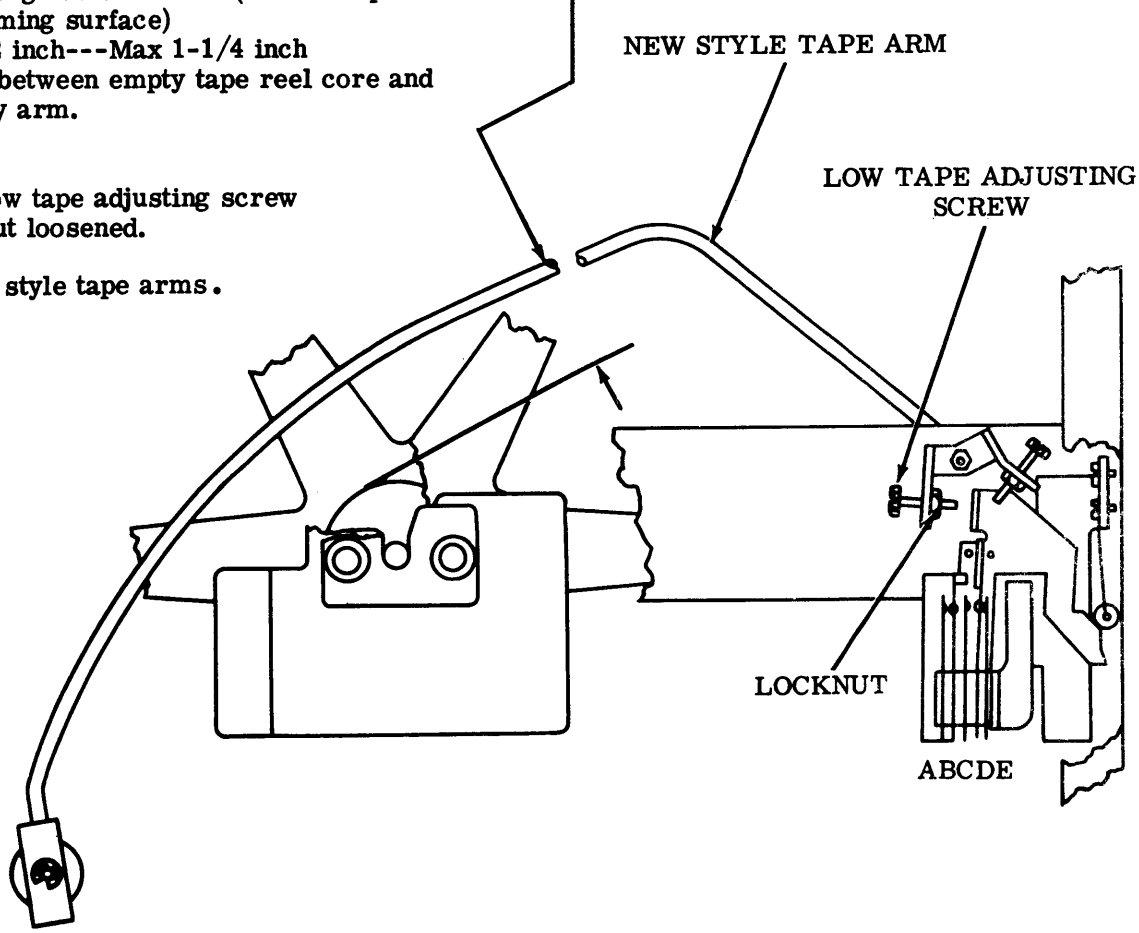
2.27 Tape Control Mechanism (continued)

*LOW TAPE ALARM

Requirement
When low tape adjusting screw just closes contacts "D-E" through detent action (roller on peak of detent lever camming surface)
Min 1/2 inch---Max 1-1/4 inch
clearance between empty tape reel core and tape supply arm.

To Adjust
Position low tape adjusting screw with locknut loosened.

*Old and new style tape arms.



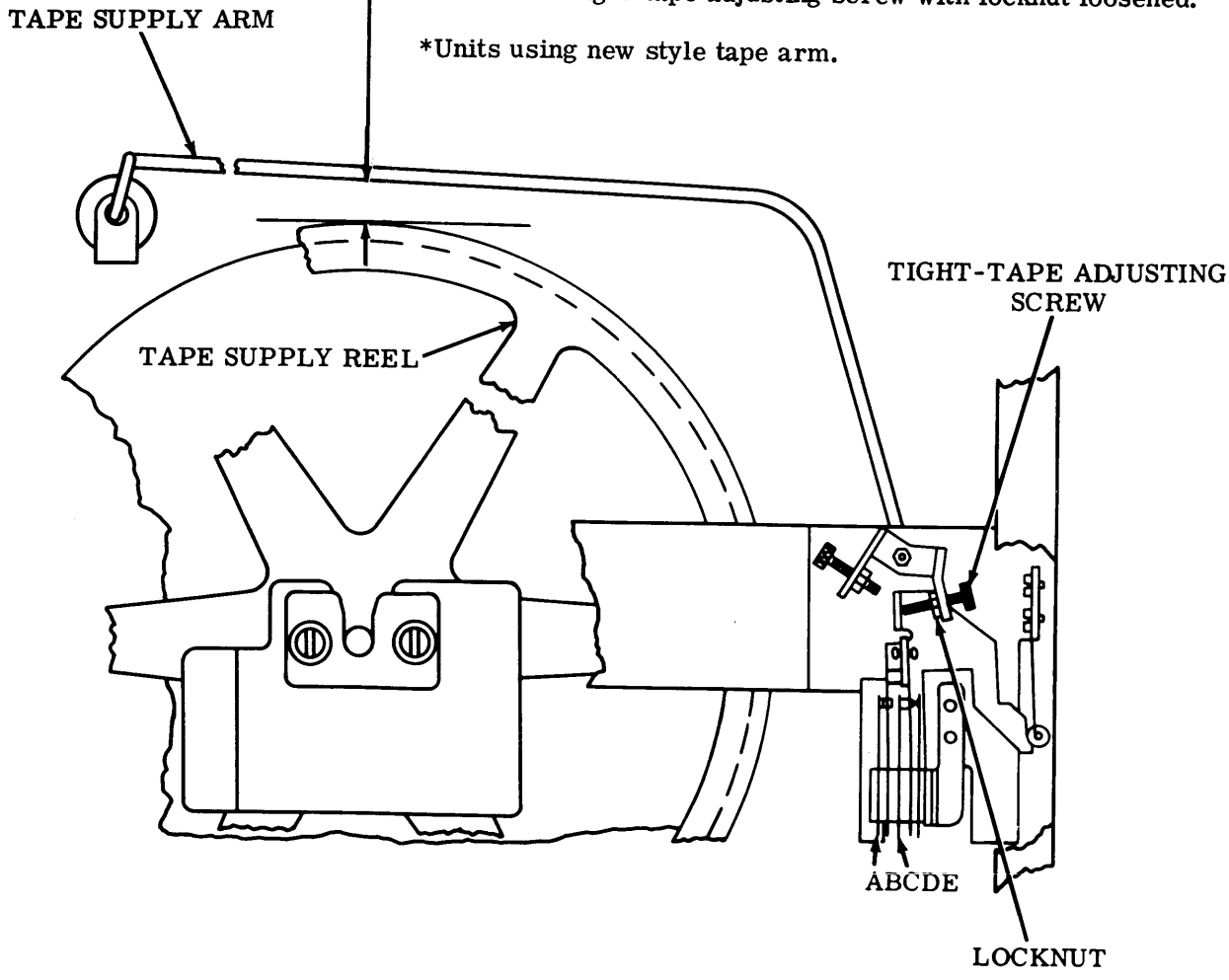
2.28 Tape Control Mechanism (continued)

TIGHT-TAPE ALARM (Flat Belt Drive)

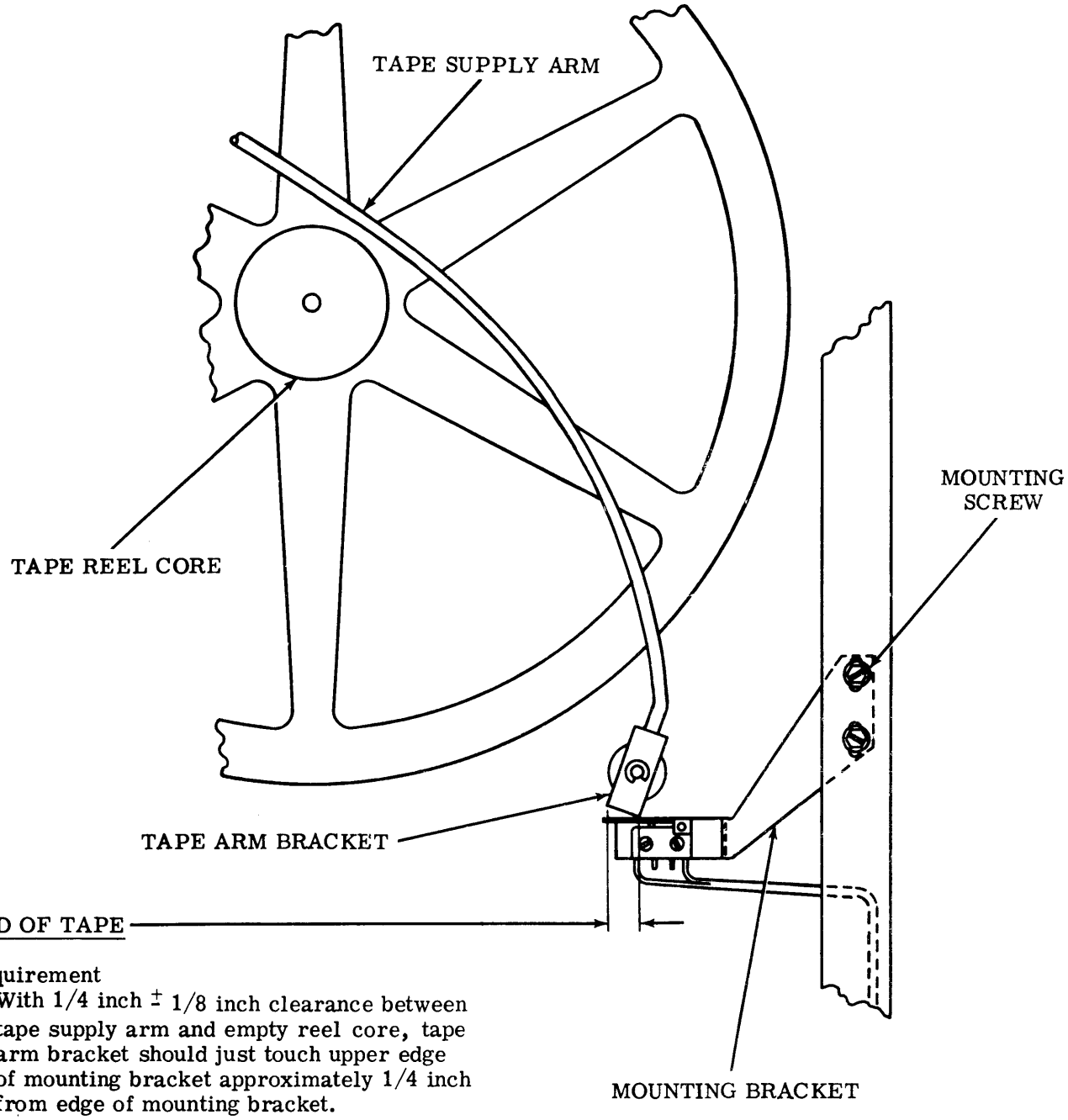
Requirement
When tight-tape adjusting screw just closes contacts "A-B" and "C-D" of switch
Min 3/4 inch---Max 1 inch
*Min 2-1/4 inch---Max 2-1/2 inch
clearance between edge of tape reel and tape supply arm.

To Adjust
Position tight-tape adjusting screw with locknut loosened.

*Units using new style tape arm.



2.29 Tape Control Mechanism (continued)



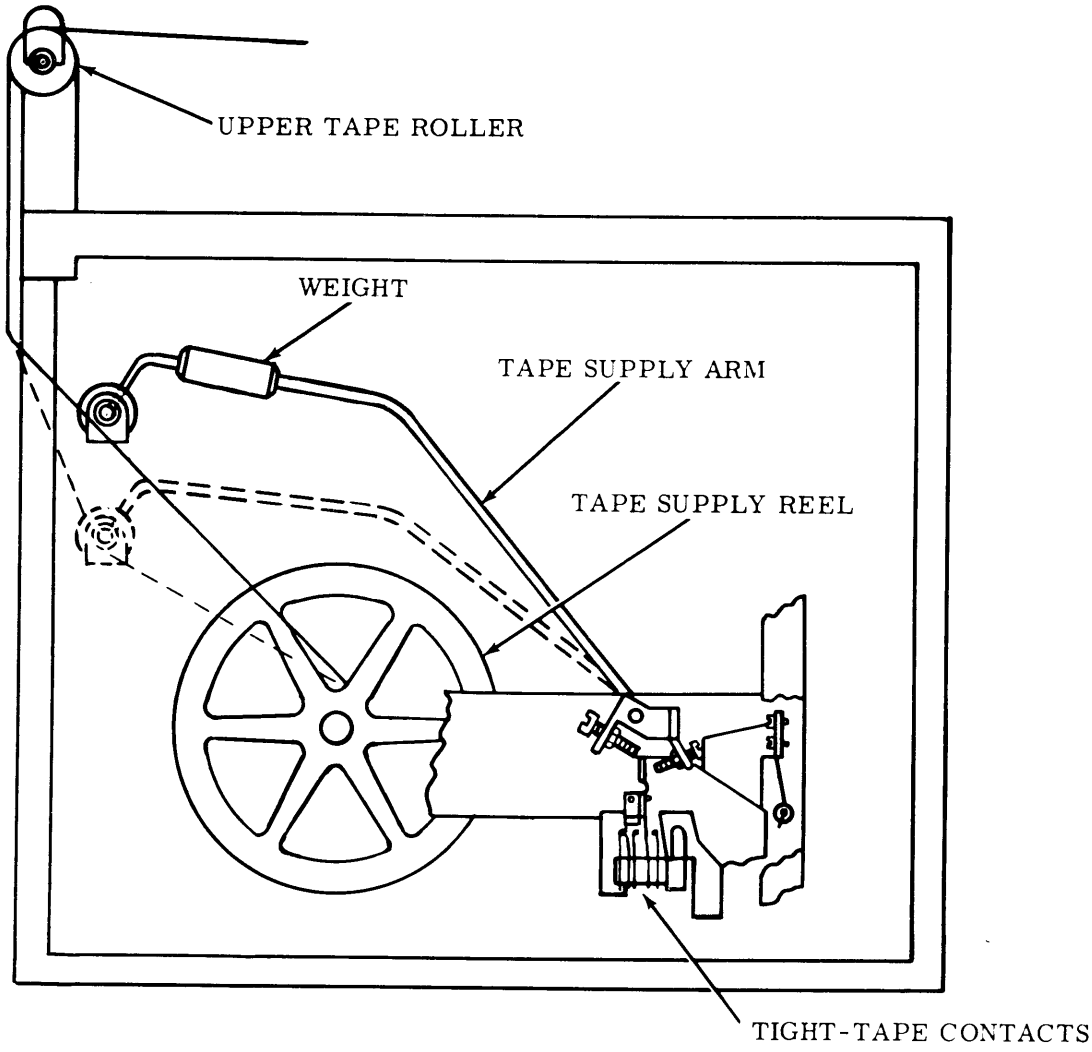
Requirement

With 1/4 inch ± 1/8 inch clearance between tape supply arm and empty reel core, tape arm bracket should just touch upper edge of mounting bracket approximately 1/4 inch from edge of mounting bracket.

To Adjust

With mounting screws loosened, position mounting bracket up or down to meet requirement. Slight bending of tape arm may be necessary.

2.30 Tape Control Mechanism (continued)



TIGHT-TAPE ALARM (HIGH-TO-LOW SPEED)

(1) Requirement

With tape routed as in 5.03, HIGH TO LOW SPEED REPERFORATOR TRANSMITTER SET, cause a taut tape condition between upper roller and empty roll of tape on the tape supply reel. Lower tape supply arm by loosening tape held at upper tape roller by about five character lengths (5/10 inch). At this position, tight-tape alarm contacts must be closed. Loosen tape an additional three character lengths (3/10 inch). Contacts should open.

To Adjust

Loosen tight-tape switch adjusting screw locknut. Position adjusting screw to meet requirement. Tighten locknut.

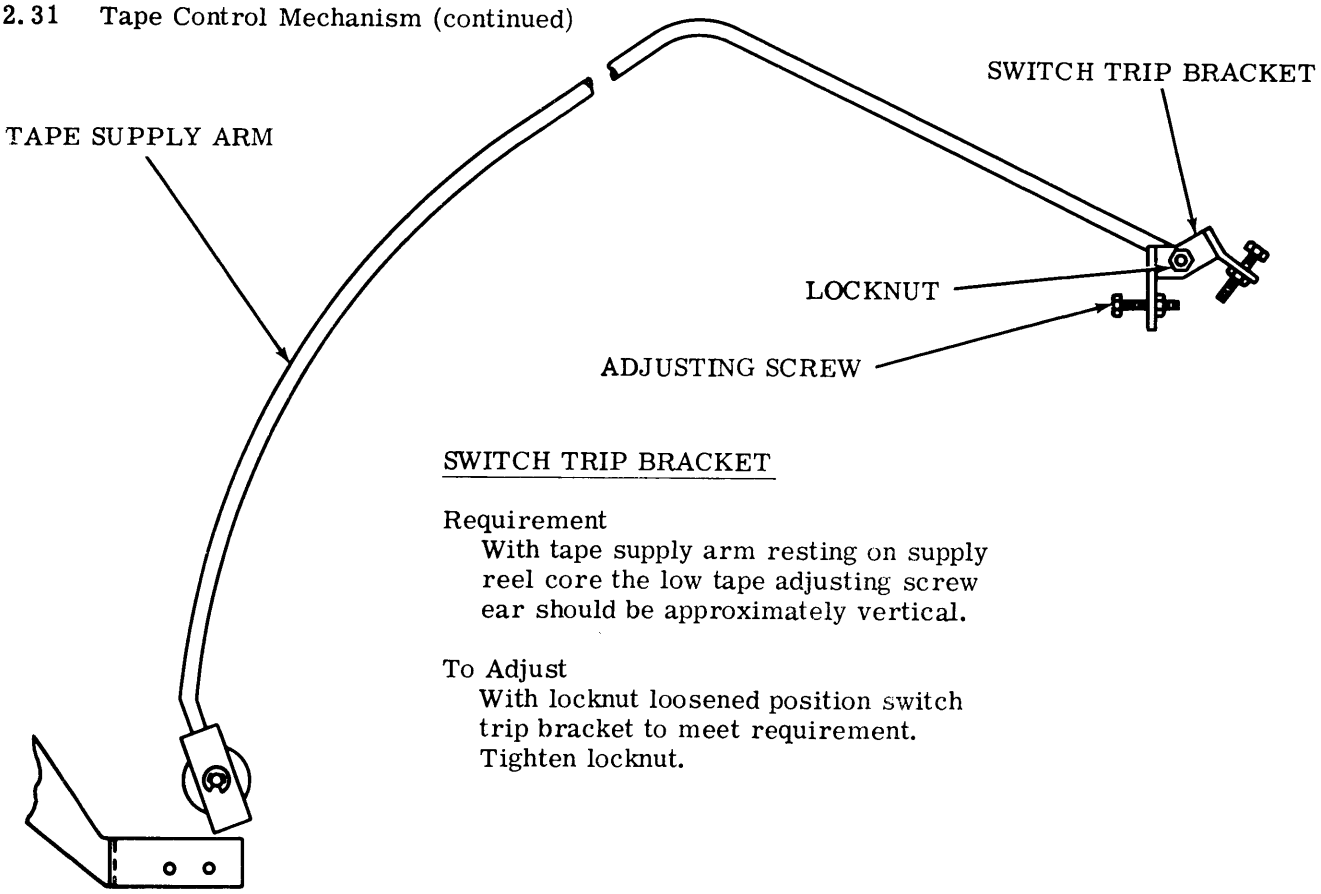
(2) Requirement

Tight-tape alarm condition should not occur when the reperforator pulls tape from a full tape supply reel.

To Adjust

Loosen screw on weight. Position weight toward roller to meet requirement. Tighten screw.

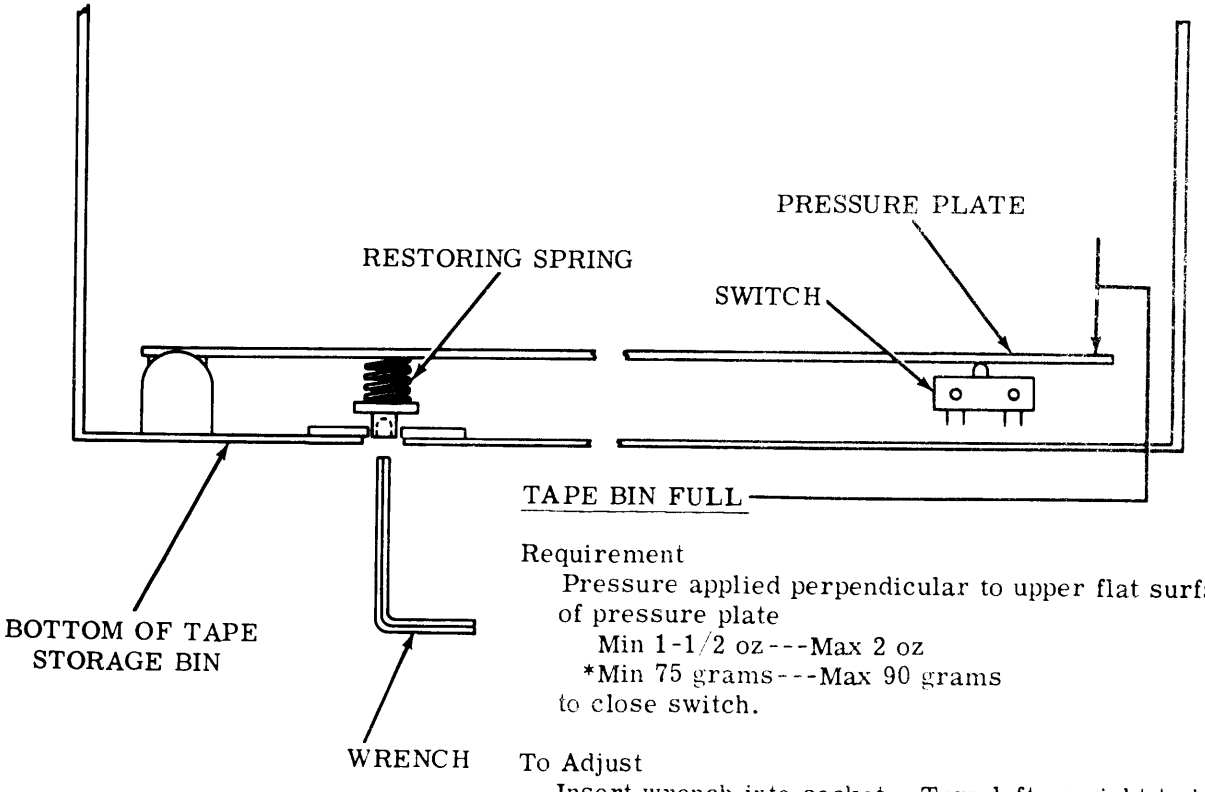
2.31 Tape Control Mechanism (continued)



SWITCH TRIP BRACKET

Requirement
With tape supply arm resting on supply reel core the low tape adjusting screw ear should be approximately vertical.

To Adjust
With locknut loosened position switch trip bracket to meet requirement. Tighten locknut.



TAPE BIN FULL

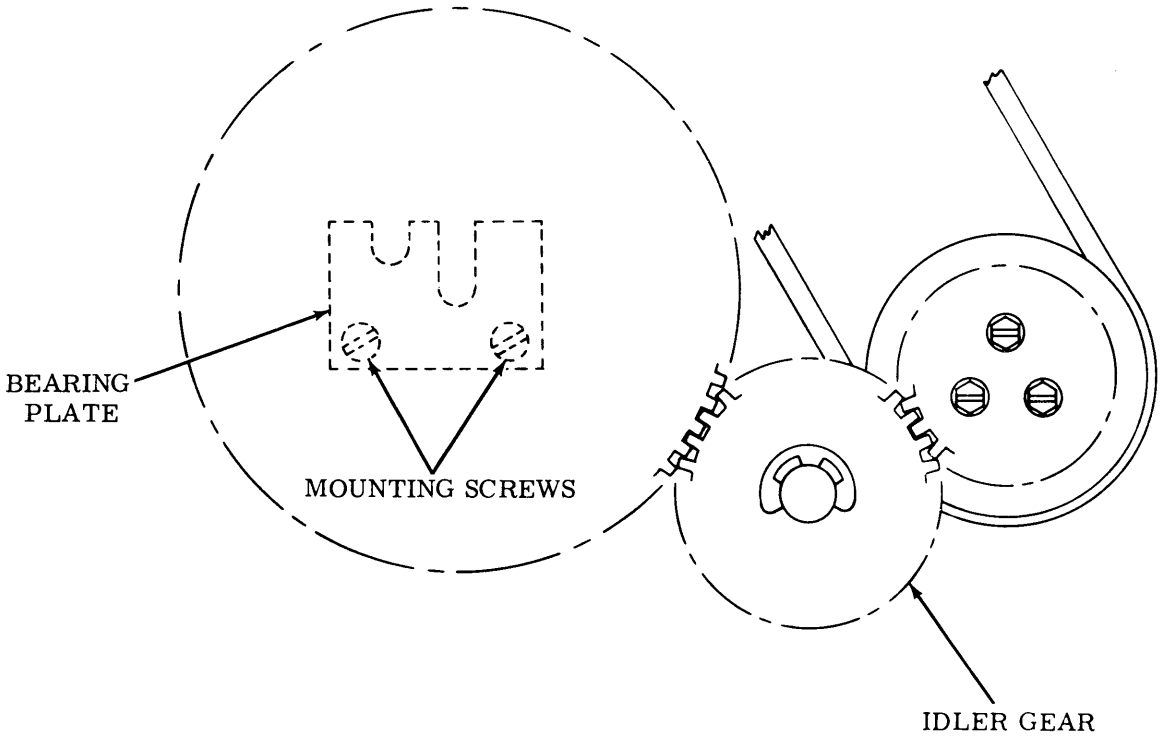
Requirement
Pressure applied perpendicular to upper flat surface of pressure plate
Min 1-1/2 oz---Max 2 oz
*Min 75 grams---Max 90 grams
to close switch.

To Adjust
Insert wrench into socket. Turn left or right to increase or decrease force bearing against pressure plate.

*Units with V belt drive.

HIGH SPEED TAPE HANDLING STAND (V BELT WINDER)

2.32 Tape Drive Mechanism



(Right Side View)

TAPE TAKE-UP REEL ASSEMBLY GEAR AND IDLER GEAR MESH

Requirement

With take-up reel in position, there should be a barely perceptible amount of backlash between tape reel assembly gear and idler gear at point where backlash is least.

To Adjust

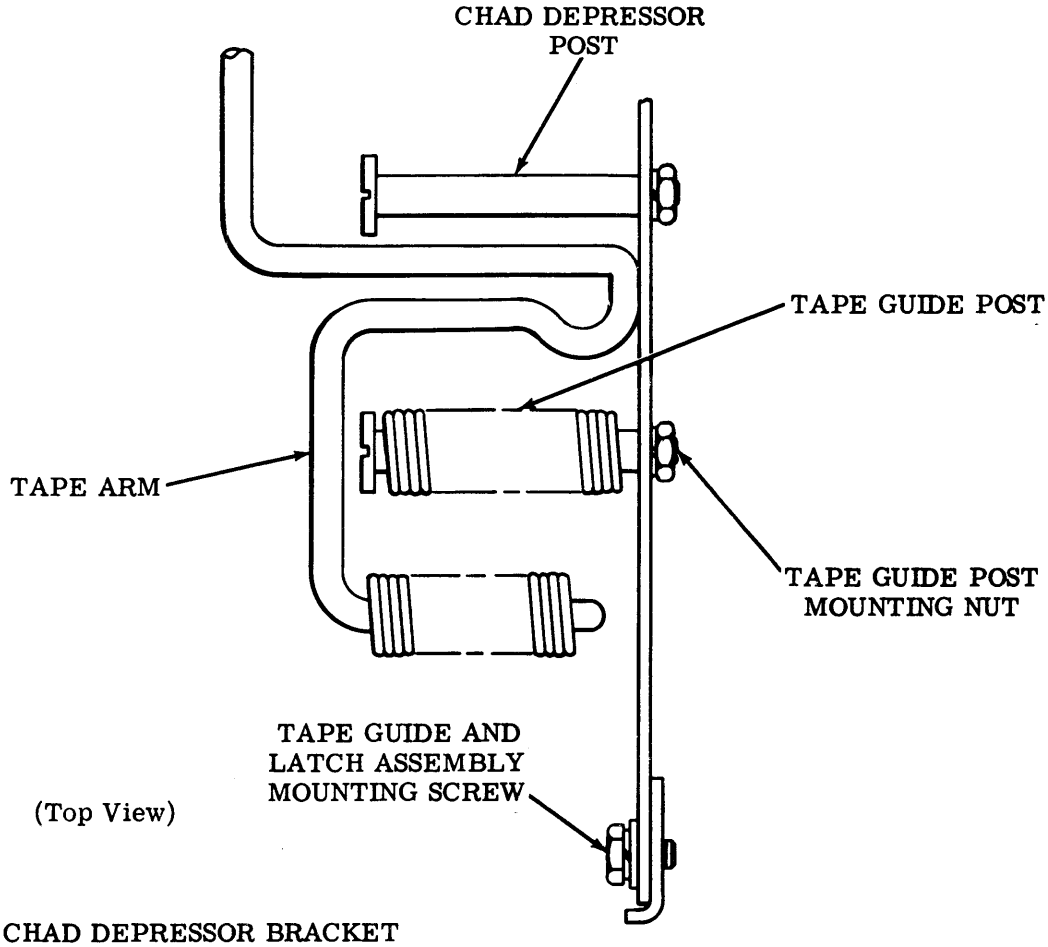
With mounting screws loosened, position bearing bracket (attached to left side frame) to meet requirement.

2.33 Tape Control Mechanism

TAPE ARM

Requirement
Tape guiding edge of tape arm should be approximately parallel to tape guide posts.

To Adjust
Bend tape guide arm to meet requirement.



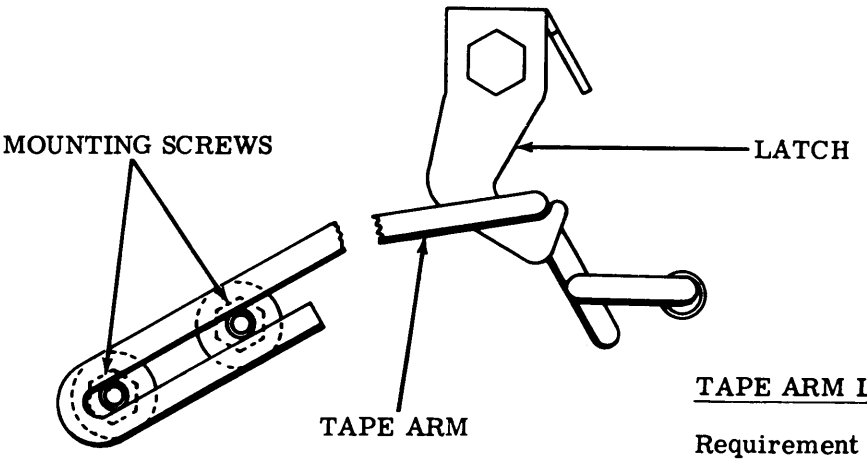
(Top View)

TAPE GUIDE AND CHAD DEPRESSOR BRACKET

Requirement
Align tape guiding edges of tape arm with chad depressor post and tape guide post. The edges of tape arm and posts should be equally spaced from each other, as gauged by eye.

To Adjust
Loosen tape guide post mounting nut. Position tape guide post to meet requirement. If requirement cannot be met, loosen tape guide and latch assembly mounting screws and move assembly up or down to meet requirement. Recheck tape arm latch adjustment.

2.34 Tape Control Mechanism (continued)



(Left Side View)

TAPE ARM LATCH

Requirement
When tape arm is moved upward against its stop and then released, the tape arm should be fully engaged by its latch.

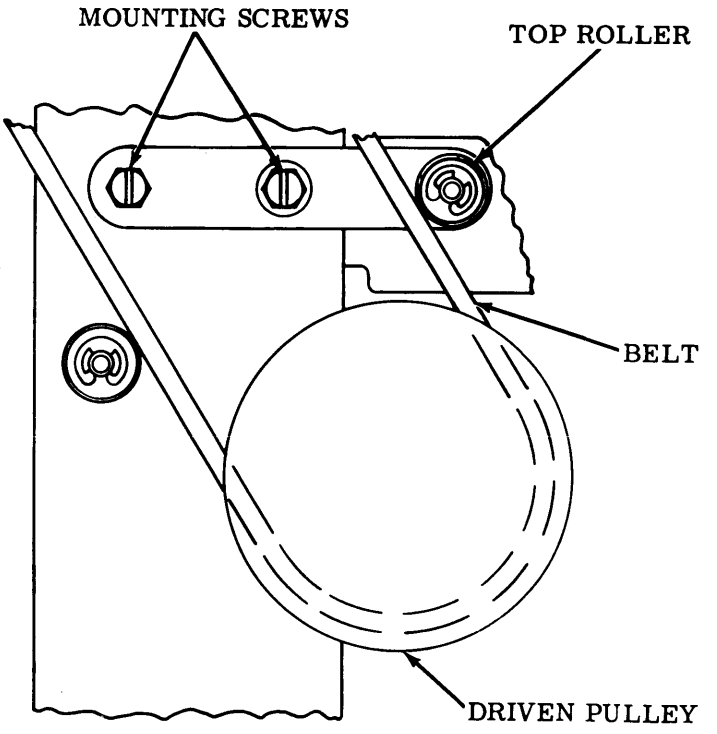
To Adjust
With tape arm mounting screws loosened, slide tape arm in or out to obtain full engagement.

2.35 Tape Drive Mechanism (continued)

DRIVEN PULLEY BELT GUIDE ROLLER

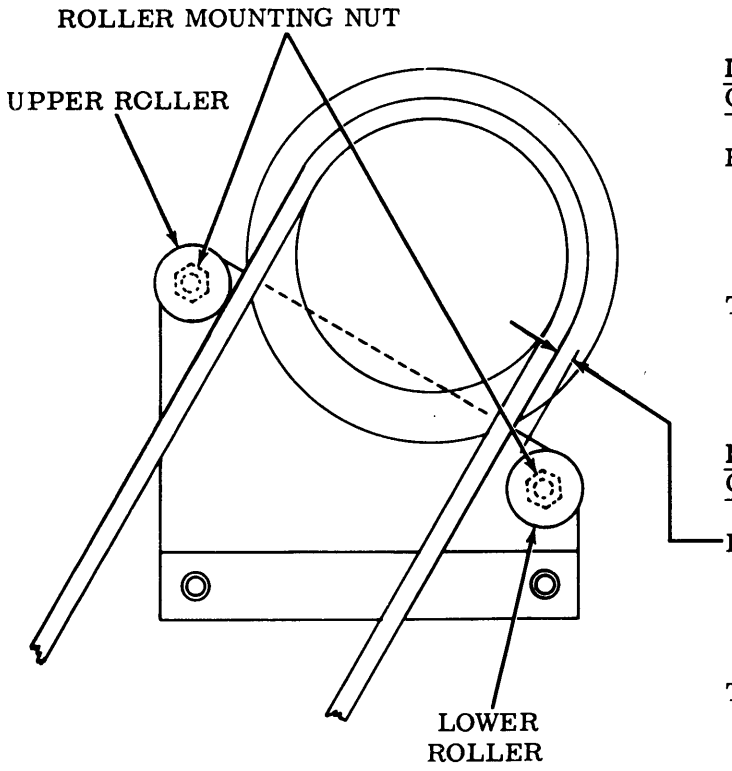
Requirement
With V belt held taut, top driven pulley belt guide roller should just touch outer surface of belt.

To Adjust
Loosen guide roller arm mounting screws. Rotate roller arm to meet requirement.



(Right Side View)

2.36 Tape Drive Mechanism (continued)



(Left Side View)

DRIVER PULLEY BELT UPPER GUIDE ROLLER

Requirement
With V belt held taut, upper driver pulley belt guide roller should just touch outer surface of belt.

To Adjust
Loosen roller mounting nut. Position roller to meet requirement.

DRIVER PULLEY BELT LOWER GUIDE ROLLER

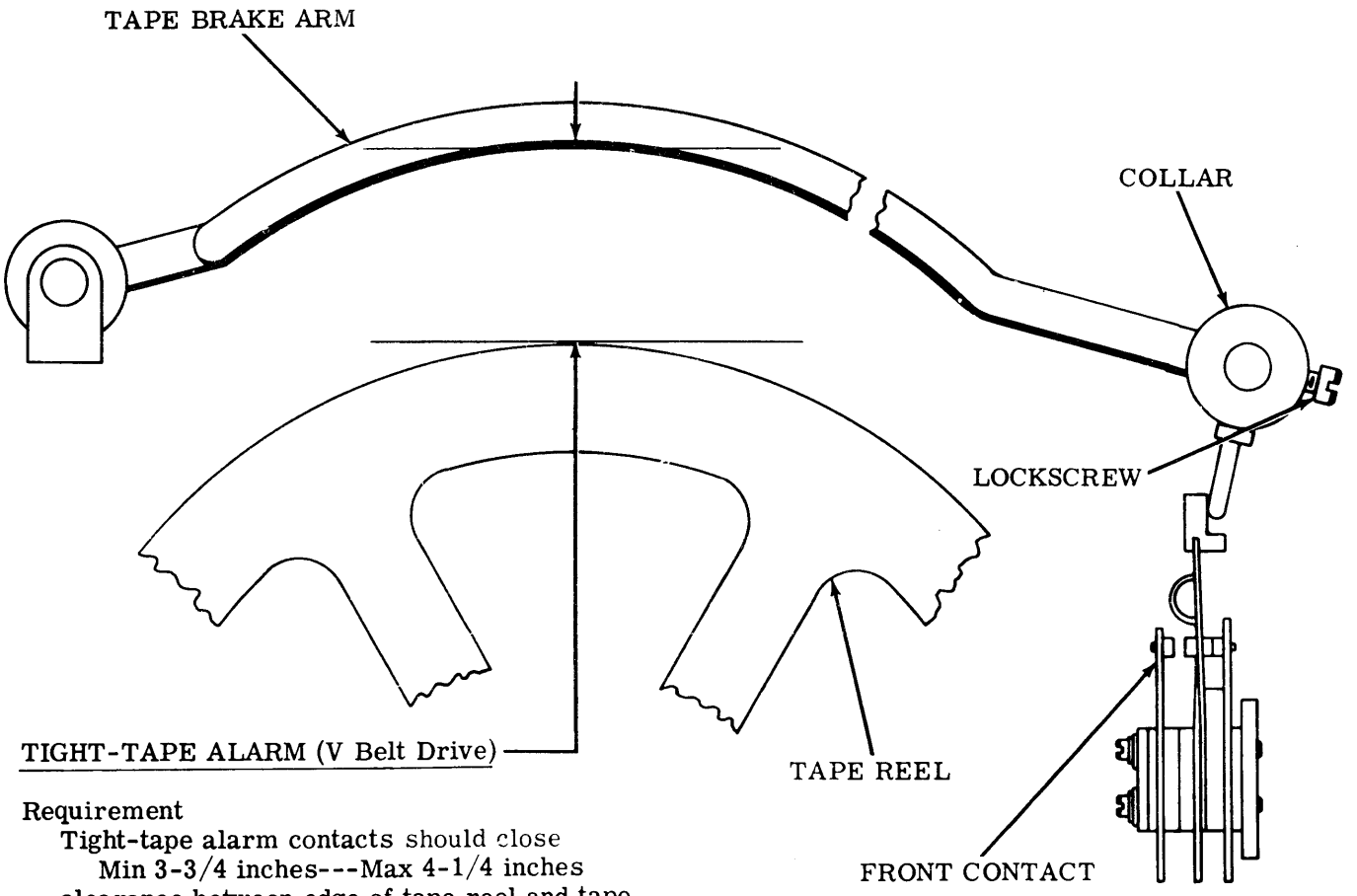
Requirement
With V belt held taut, driver pulley belt lower guide roller should be approximately 1/16 inch from outer surface of belt.

To Adjust
Loosen roller mounting nut. Position roller to meet requirement.

TAPE SUPPLY REEL ALIGNMENT - SEE 2.08

TAPE SUPPLY REEL SHAFT ENDPLAY - SEE 2.07

2.37 Tape Control Mechanism (continued)



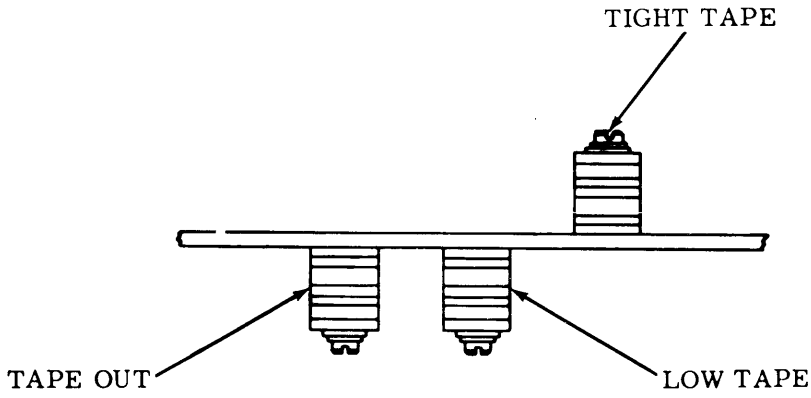
(Right Side View)

Requirement

Tight-tape alarm contacts should close Min 3-3/4 inches---Max 4-1/4 inches clearance between edge of tape reel and tape brake arm.

To Adjust

With tight-tape contact operating post collar lockscrew loosened, position post so that swinger contact transfers from front contact to rear contact. Tighten lockscrew.



(Rear Top View)

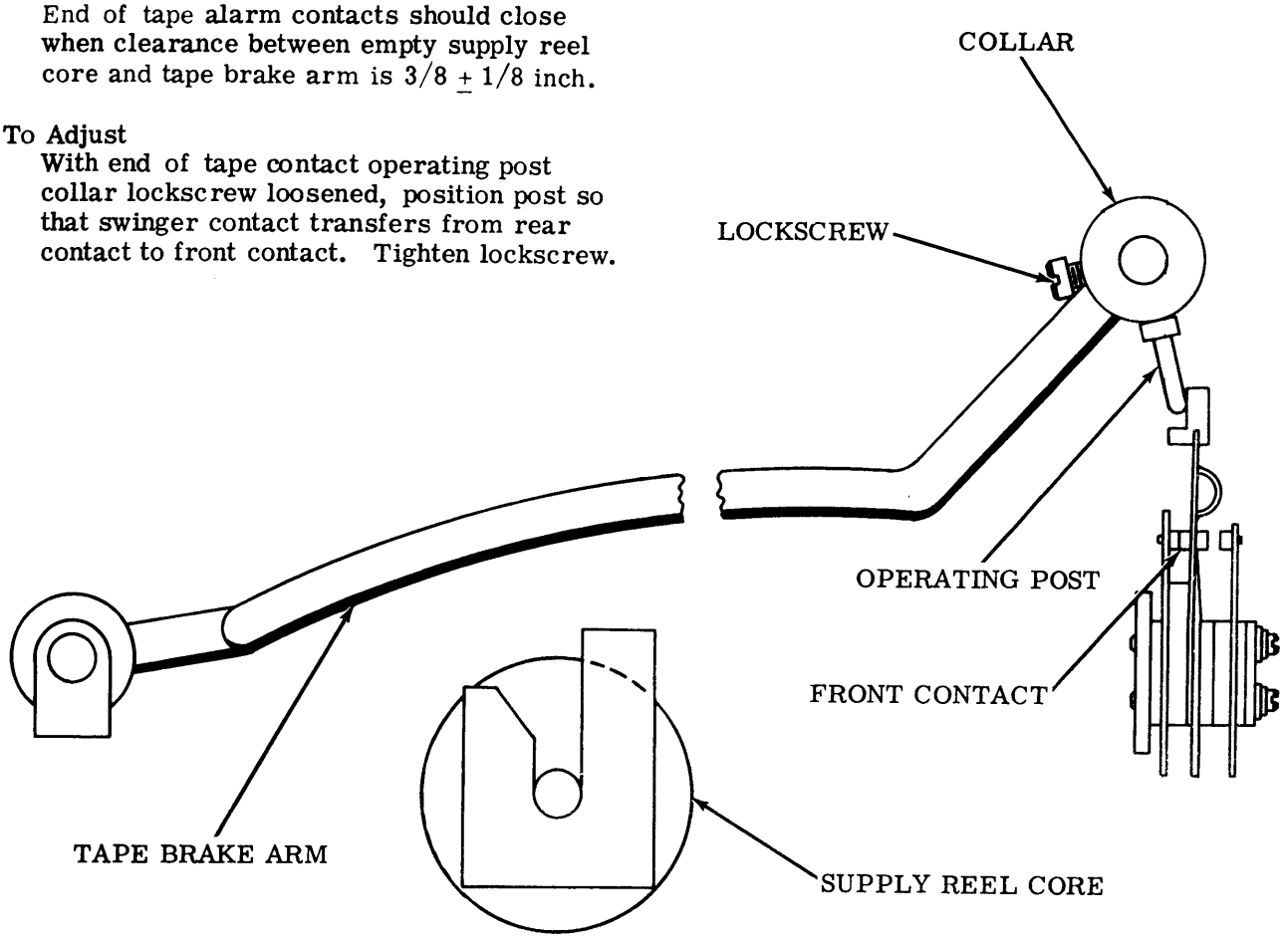
TAPE CONTACT ARRANGEMENT

2.38 Tape Control Mechanism (continued)

END OF TAPE CONTACT

Requirement
End of tape alarm contacts should close when clearance between empty supply reel core and tape brake arm is 3/8 ± 1/8 inch.

To Adjust
With end of tape contact operating post collar lockscrew loosened, position post so that swinger contact transfers from rear contact to front contact. Tighten lockscrew.



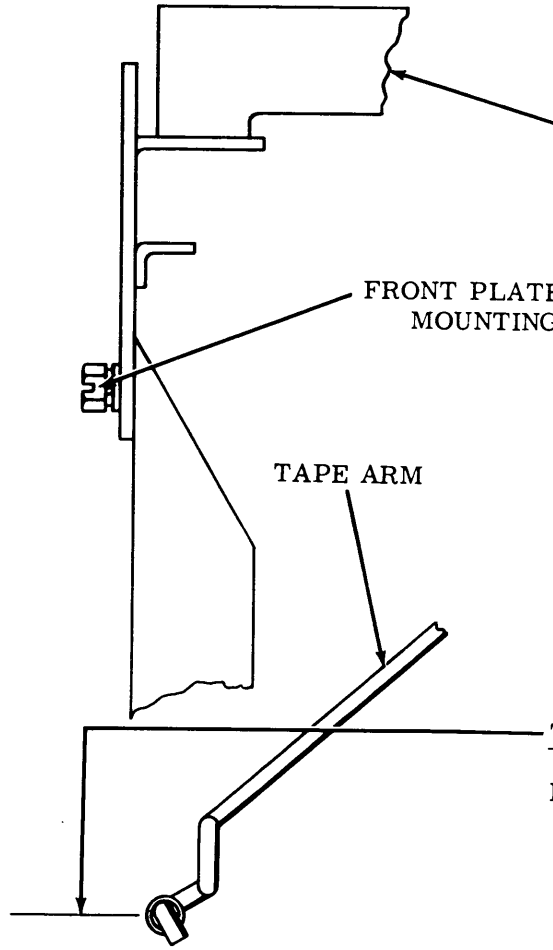
(Right Side View)

LOW TAPE CONTACT

Requirement
Low tape alarm contacts should close
Min 1/2 inch---Max 1-1/4 inches
clearance between empty supply reel core and tape brake arm.

To Adjust
With low tape contact operating post collar lockscrew loosened, position post so that swinger contact transfers from rear contact to front contact. Tighten lockscrew.

2.39 Tape Control Mechanism (continued)

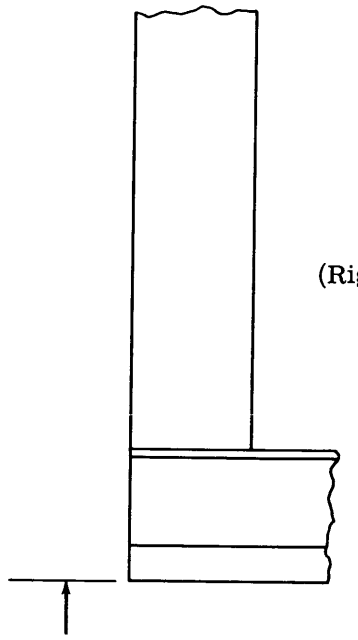


Requirement

With empty take-up reel in its driving position and tape arm latched, take-up reel should not rotate. Release tape arm from its latch, the reel should begin to rotate when front of tape arm is approximately 17 inches from base of stand.

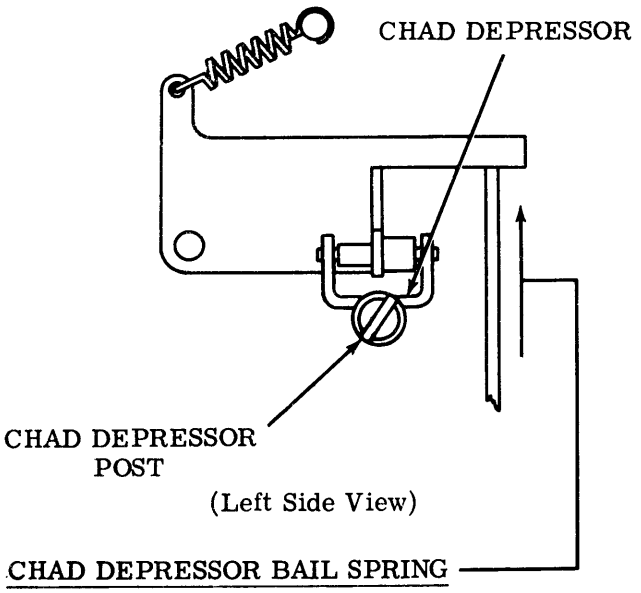
To Adjust

With front plate bracket mounting screws loosened, position bracket to meet requirement. If requirement cannot be met it may be necessary to bend tape arm. Recheck tape arm adjustments.

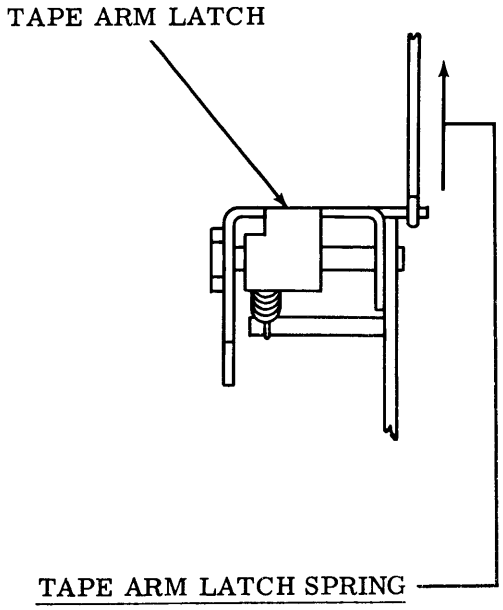


(Right Side View)

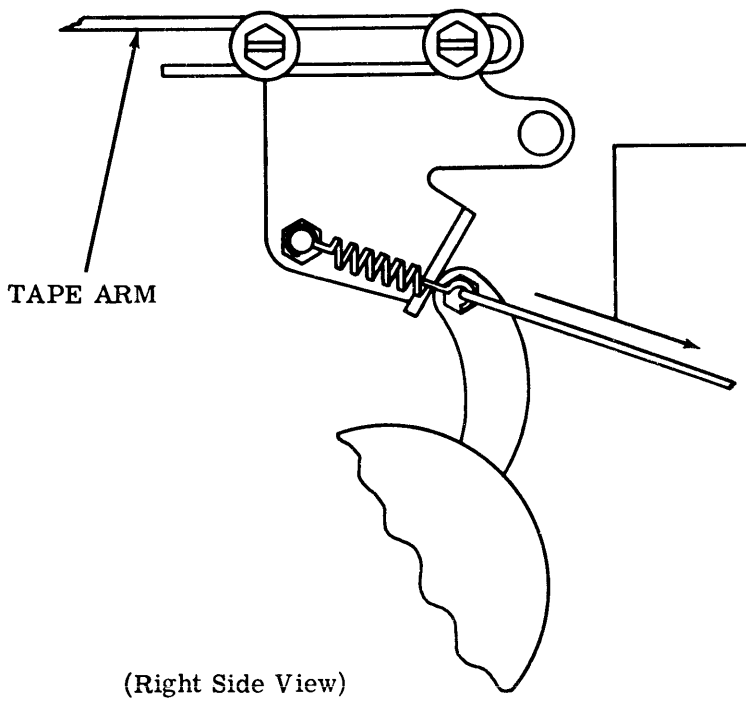
2.40 Tape Control Mechanism (continued)



Requirement
Min 6 oz---Max 10 oz
to pull depressor away from
downstop post.



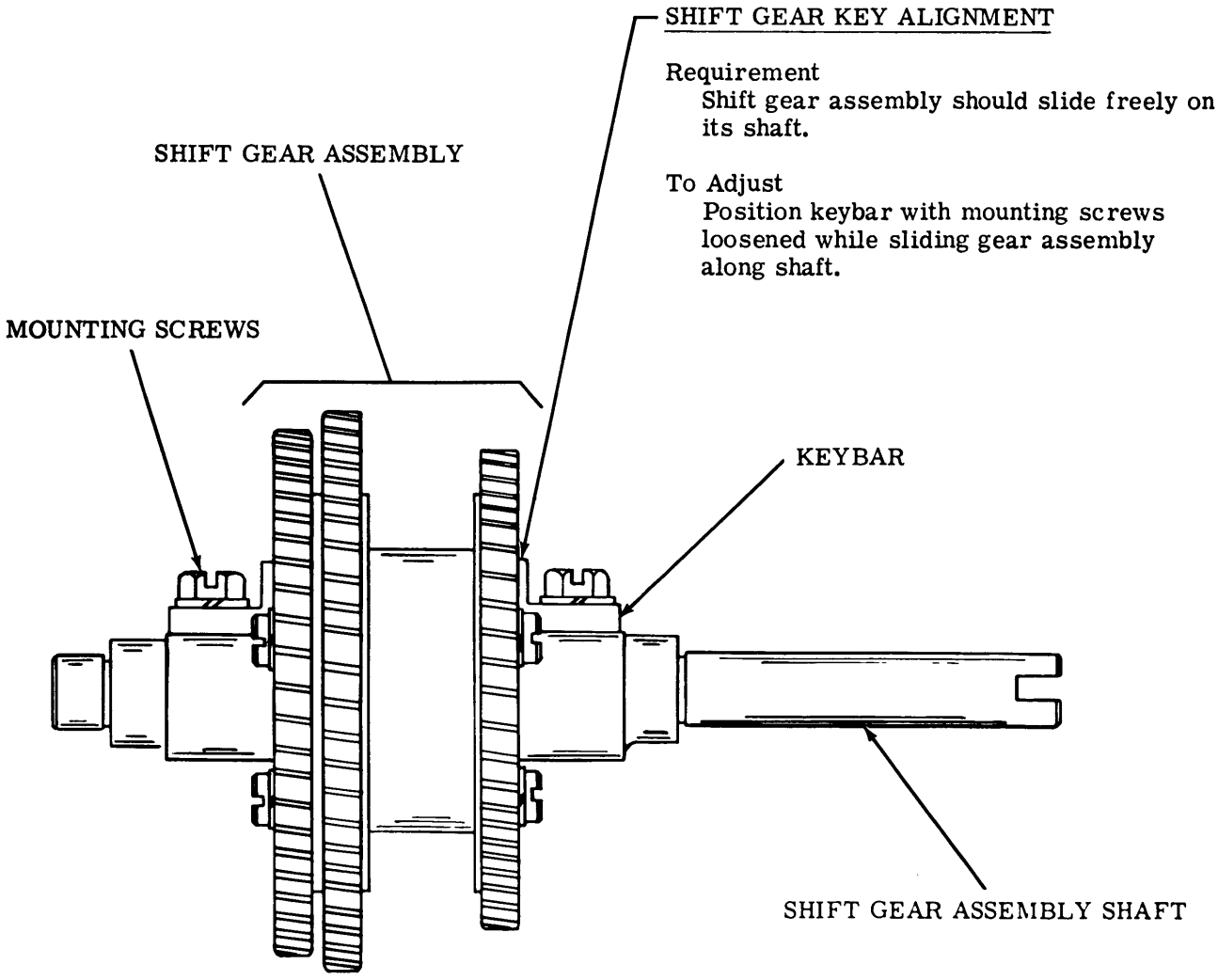
Requirement
Min 1-1/2 oz---Max 2-1/2 oz
to start latch moving.



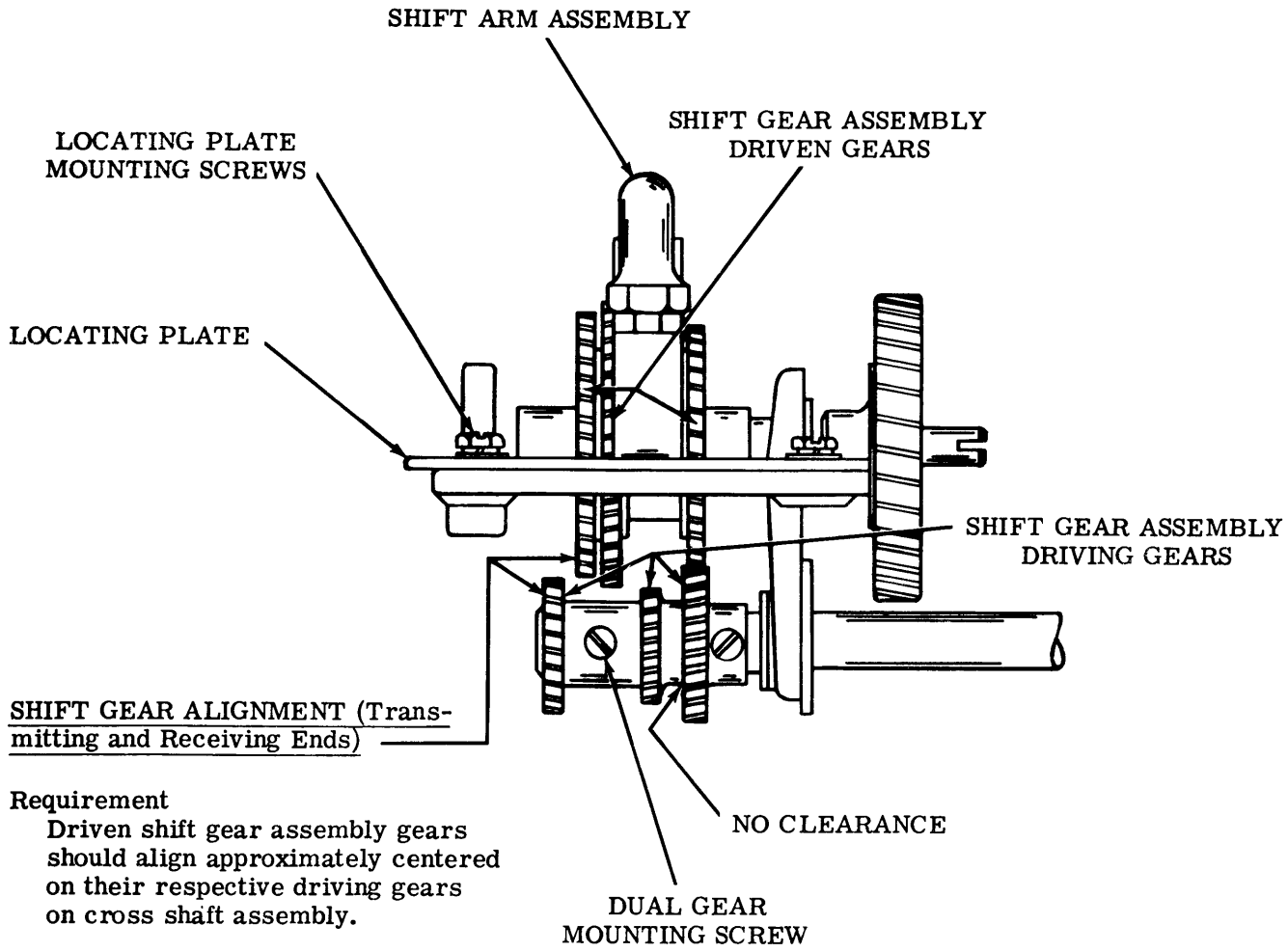
Requirement
Min 18 oz---Max 22 oz
to pull spring to its operating
length.

3. REPERFORATOR TRANSMITTER BASE

3.01 Tape Drive Mechanism



3.02 Tape Drive Mechanism (continued)



Requirement

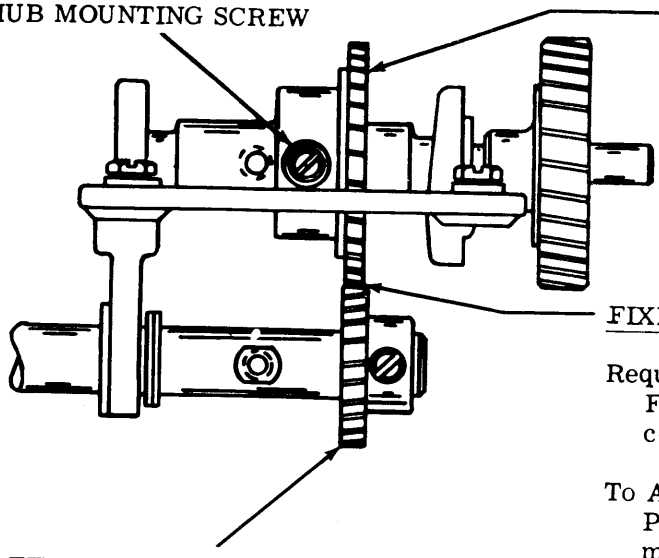
Driven shift gear assembly gears should align approximately centered on their respective driving gears on cross shaft assembly.

To Adjust

Position locating plate with mounting screws loosened. Check three shift positions.

Note: Make certain that the two portions of the shift gears on the cross shaft assembly are mounted with no clearance between them. If there is clearance, loosen dual gear mounting screw and eliminate clearance before making above adjustment.

3.03 Tape Drive Mechanism (continued)



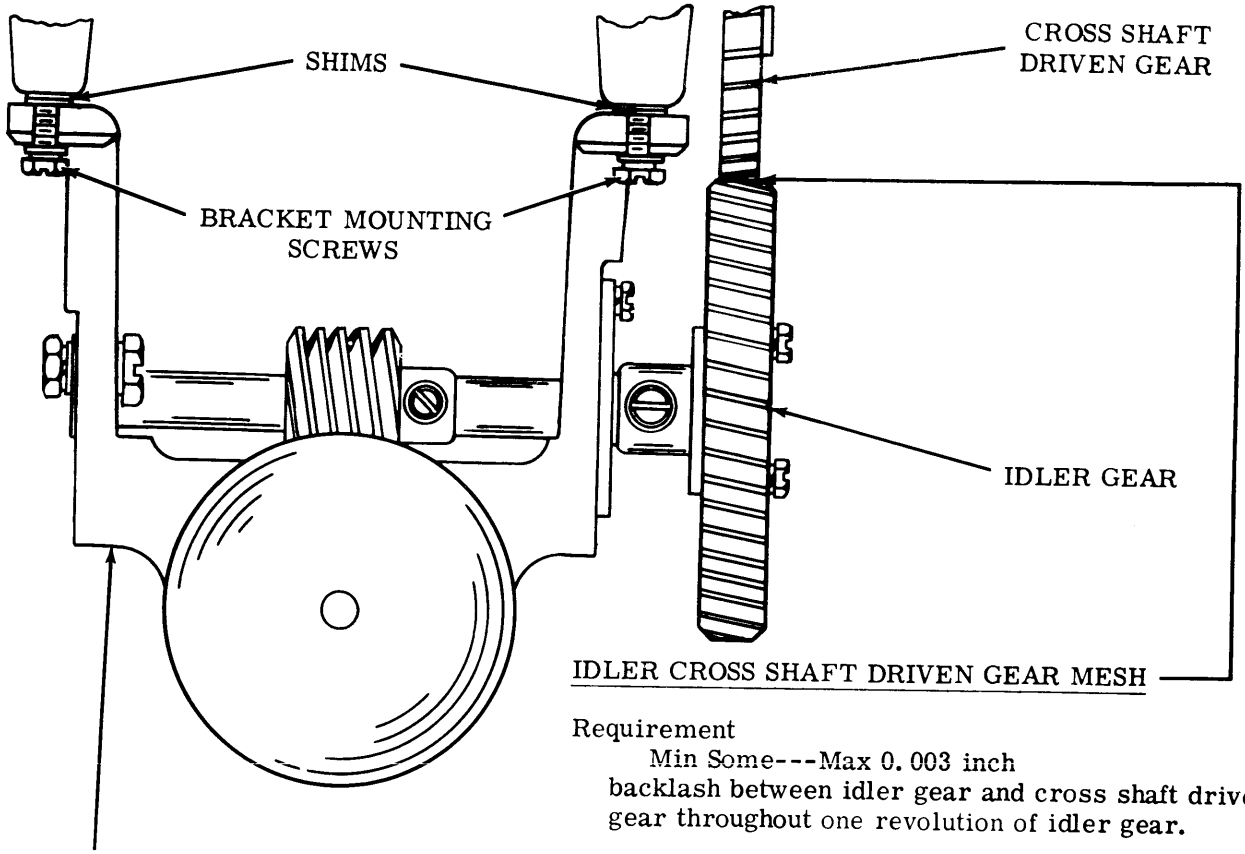
FIXED SPEED GEAR ALIGNMENT (Receiving End)

Requirement

Fixed speed driven gear should be approximately centered on fixed speed driving gear.

To Adjust

Position fixed speed driven gear with hub mounting screw loosened.



IDLER CROSS SHAFT DRIVEN GEAR MESH

Requirement

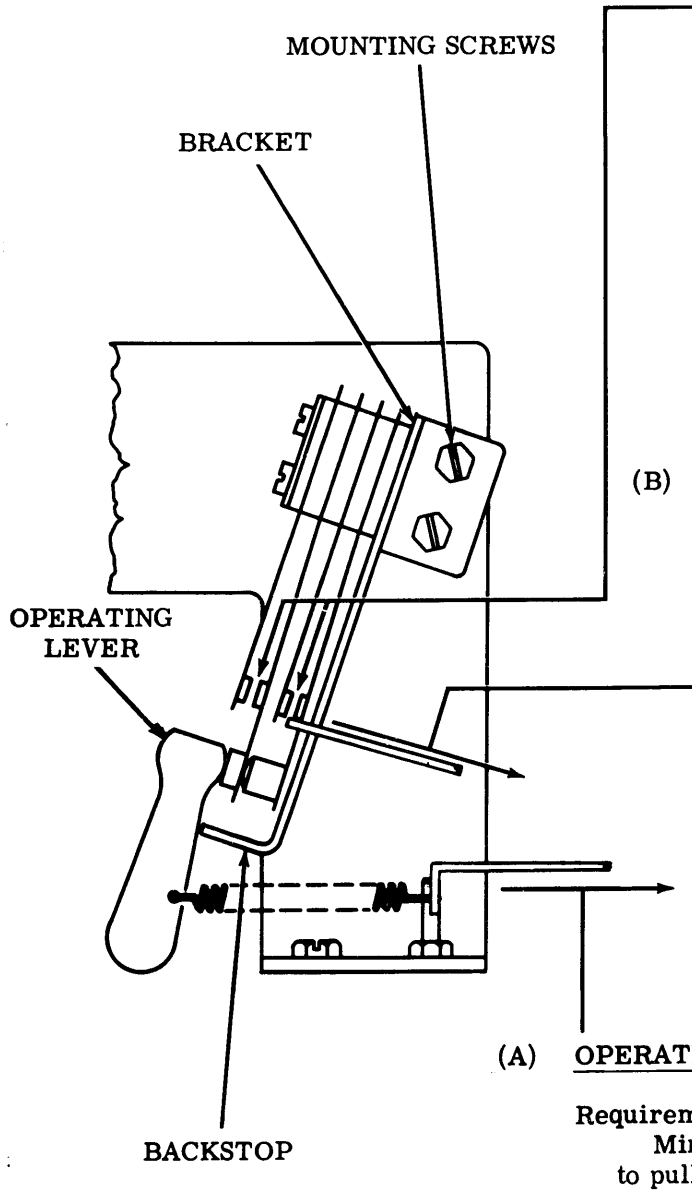
Min Some---Max 0.003 inch backlash between idler gear and cross shaft driven gear throughout one revolution of idler gear.

To Adjust

Add or remove shims between base and tape winder drive bracket. Keep equal number of shims on each side.

3.04 Tape Control Mechanism

Note: Adjustments on this page pertain only to high to low speed units, ie, those capable of receiving data at 1000 wpm and transmitting at standard line speeds of 60, 75, or 100 wpm



(C) TIGHT-TAPE CONDITION CONTACT GAP

(1) Requirement
With operating lever resting against nylon button
Min 0.010 inch
gap between contacts.

(2) Requirement
With operating lever forced against backstop
Max 0.050 inch
gap between contacts.

To Adjust
Position contact assembly with its mounting screws loosened.

(B) TIGHT-TAPE CONDITION CONTACT

(1) Requirement
Leaf springs should be approximately parallel to mounting bracket (gauge by eye).

(2) Requirement
Min 1 oz---Max 1-1/2 oz
to just separate each pair of contacts.

Note: Hold off other pair of contacts when measuring.

To Adjust
Bend contact leaf springs.

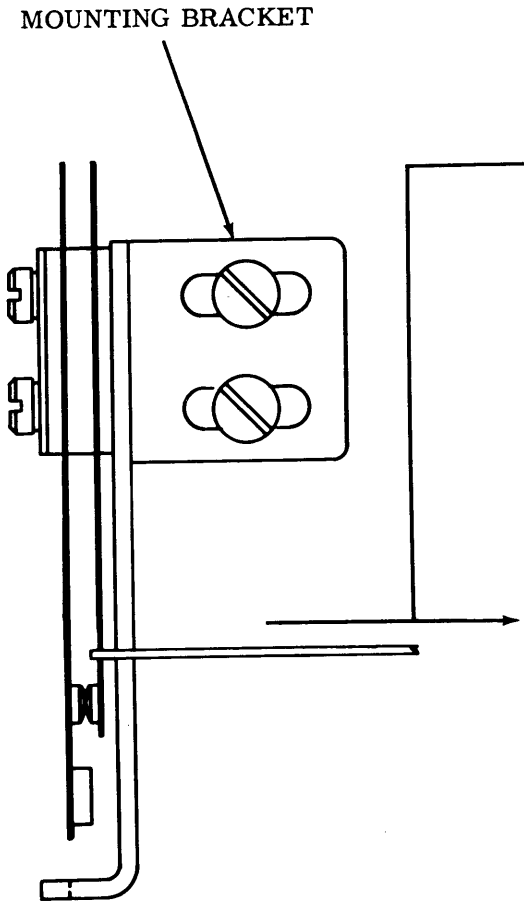
(A) OPERATING LEVER SPRING

Requirement
Min 9 oz---Max 11 oz
to pull spring to installed length.

(View From Rear of Unit)

3.05 Tape Control Mechanism (continued)

Note: Adjustments on this page pertain only to high to low speed units, ie, those capable of receiving data at 1000 wpm and transmitting at standard line speeds of 60, 75, or 100 wpm



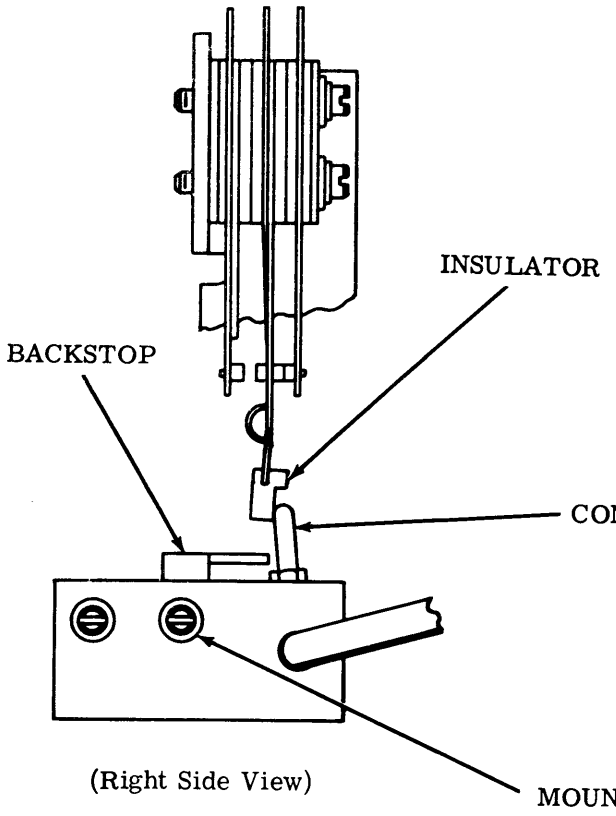
TIGHT-TAPE EMERGENCY CONTACTS

(1) Requirement
Leaf springs should be approximately parallel to mounting bracket (gauge by eye).

(2) Requirement
Min 2 oz---Max 3 oz
to just separate contacts.

To Adjust
Bend contact leaf springs.

3.06 Tape Control Mechanism (continued)



(Right Side View)

TIGHT-TAPE CONTACT BACKSTOP

Requirement

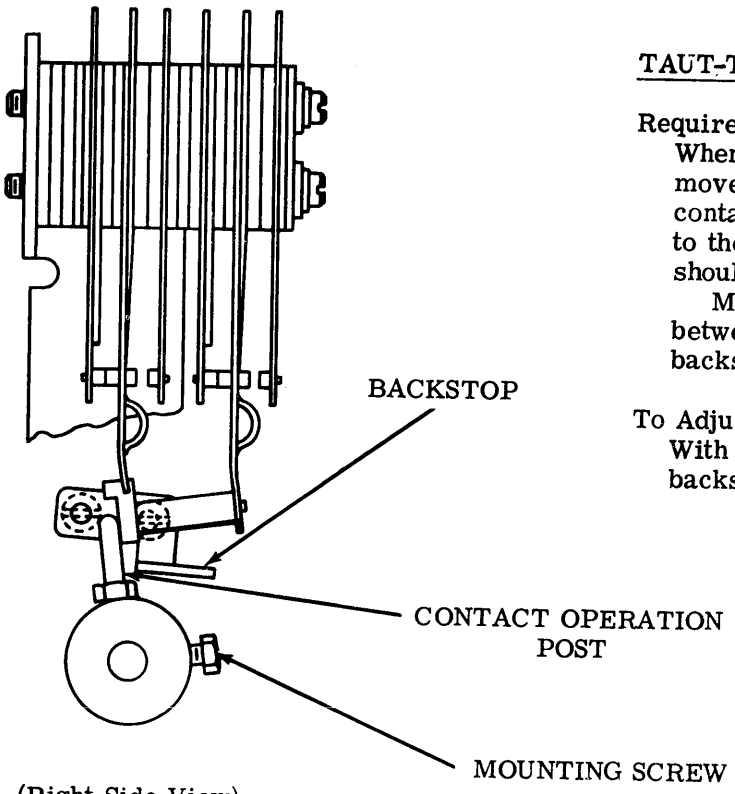
When tight-tape contact operating post is moved against insulator on operating swinger so that contacts transfer from left (unoperated) to right (operated) position, there should be

Min Some---Max 0.010 inch

clearance between contact operating post and its backstop.

To Adjust

With mounting screws loosened, position backstop to meet requirement.



(Right Side View)

TAUT-TAPE CONTROL

Requirement

When taut-tape contact operating post is moved against insulator on swinger so that contacts transfer from their right (operated) to the left (unoperated) position, clearance should be

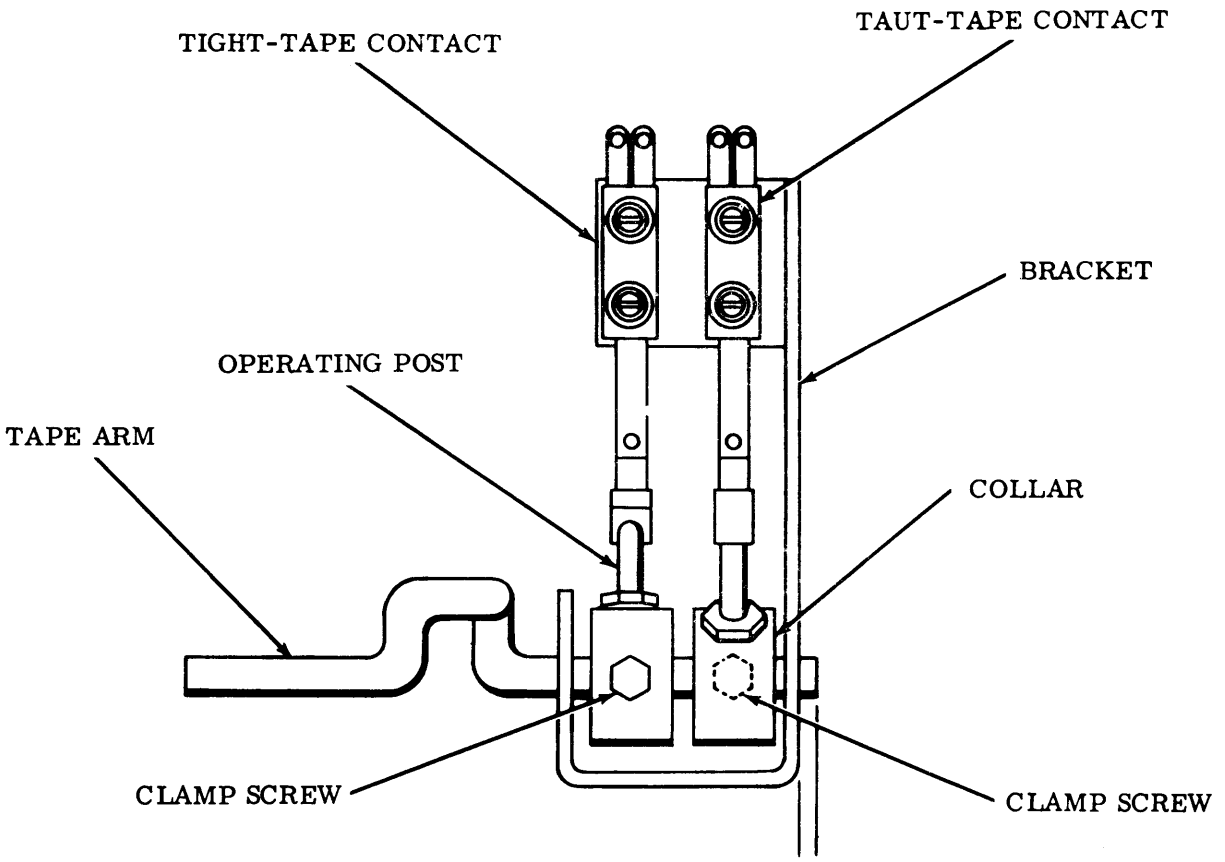
Min Some---Max 0.010 inch

between contact operating post and its backstop.

To Adjust

With mounting screws loosened, position backstop to meet requirement.

3.07 Tape Control Mechanism (continued)



TAPE ARM

Requirement

Tape arm should extend beyond the long formed section of the bracket by approximately 1/16 inch. Tape follower end of tape arm should be in line with center of bearing holes in bracket.

To Adjust

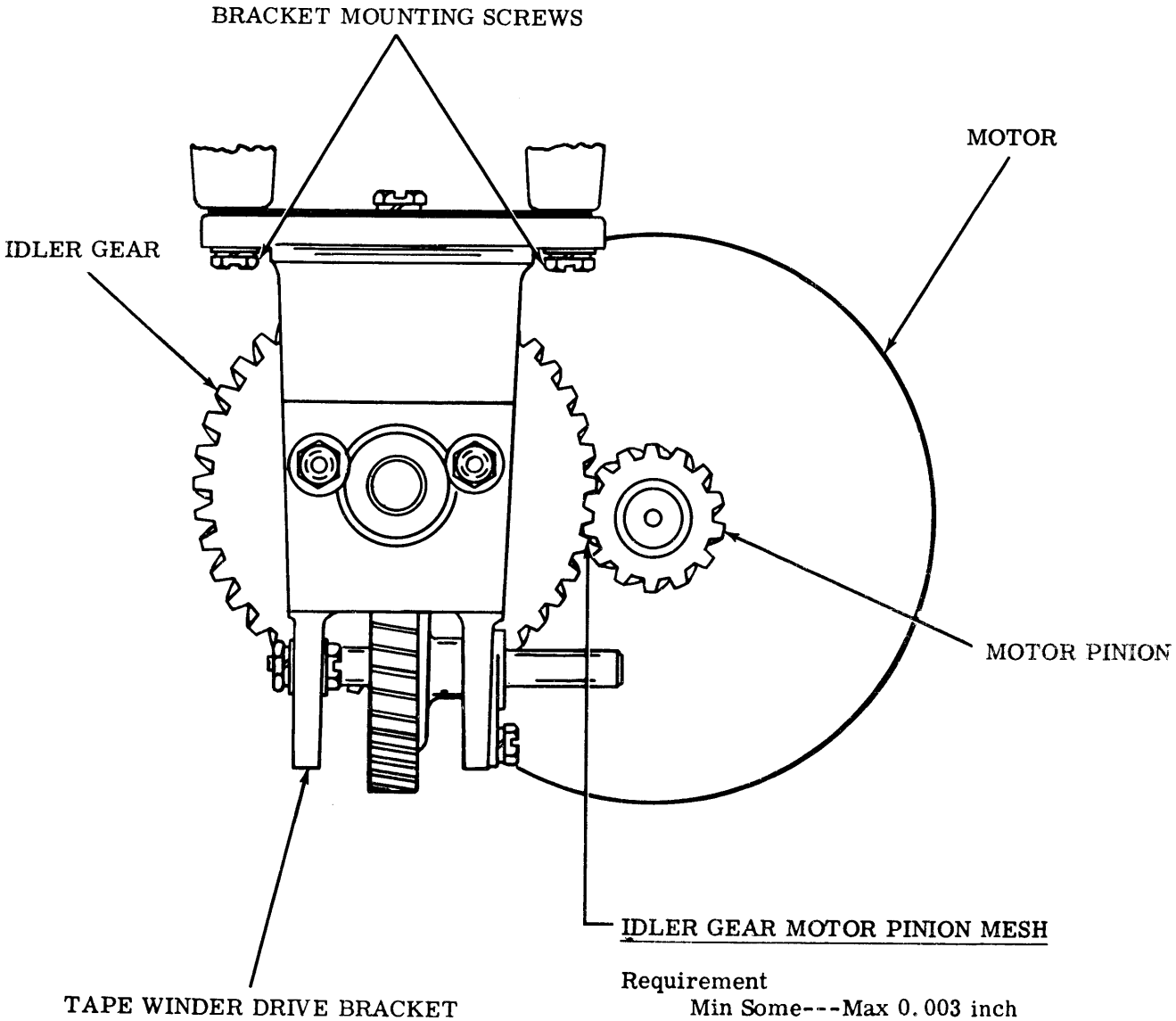
With contact operating post collar clamp screw loosened, hold taut-tape contact operating post against its backstop as far as it will go toward the long formed end of the bracket. Position tape arm to meet requirement. Tighten contact operating post collar clamp screw.

4. INTERRELATED ADJUSTMENTS

STANDARD SPEED REPERFORATOR TRANSMITTER SET

4.01 Motor to Tape Winder

Note: The adjustments in this paragraph cover the relationship between the transmitter distributor and the typing or nontyping reperforator.



IDLER GEAR MOTOR PINION MESH

Requirement

Min Some---Max 0.003 inch between idler gear and motor pinion throughout one revolution of idler gear.

To Adjust

Position tape winder drive bracket with mounting screws loosened.

4.02 Transmitter Distributor to Reperforator

VERITCAL ALIGNMENT OF PIVOTED SENSING HEAD AND PUNCH

Requirement

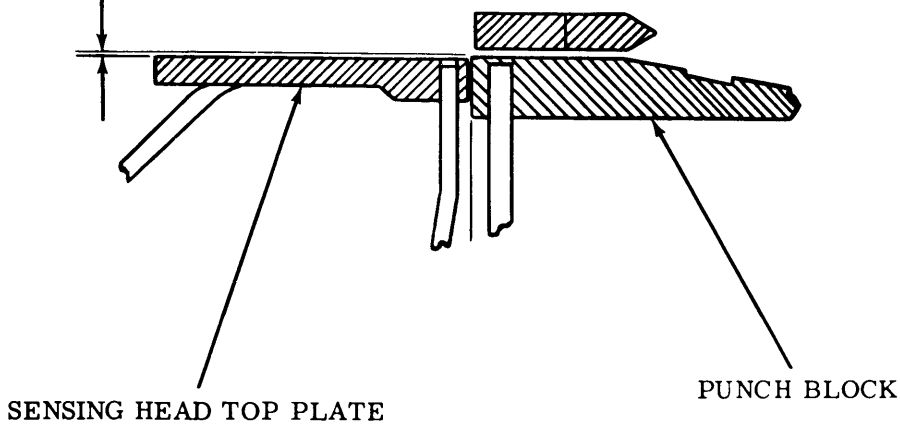
With pivoted sensing head against punch block, top plate of sensing head should be

Min Flush---Max 0.010 inch

below bottom surface of tape slot in punch block.

To Adjust

Position height adjusting screw, on sensing end of unit, with locknut and mounting screw loosened.



4.03 Transmitter Distributor to Reperforator (continued)

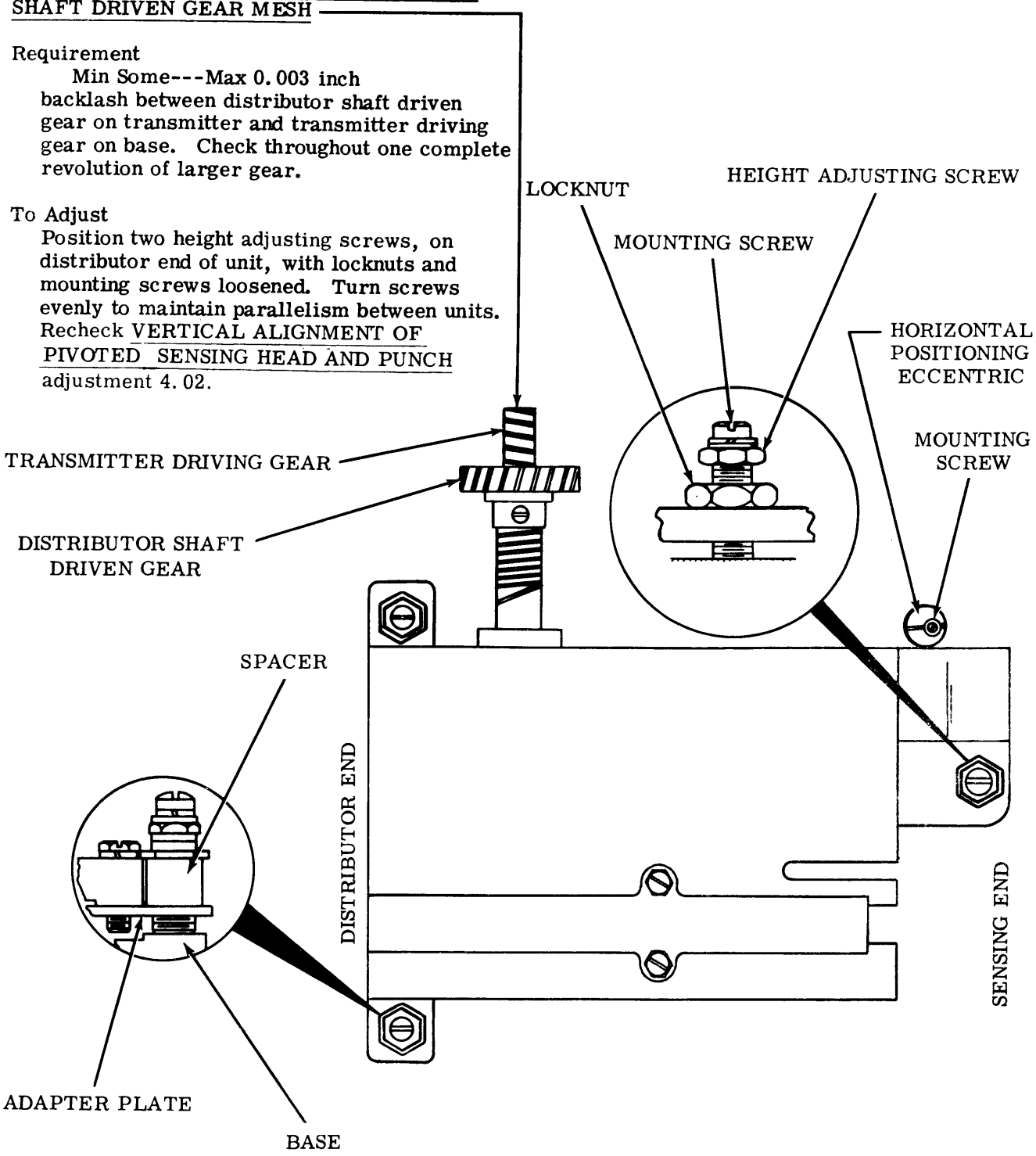
TRANSMITTER DRIVING AND DISTRIBUTOR SHAFT DRIVEN GEAR MESH

Requirement

Min Some---Max 0.003 inch backlash between distributor shaft driven gear on transmitter and transmitter driving gear on base. Check throughout one complete revolution of larger gear.

To Adjust

Position two height adjusting screws, on distributor end of unit, with locknuts and mounting screws loosened. Turn screws evenly to maintain parallelism between units. Recheck VERTICAL ALIGNMENT OF PIVOTED SENSING HEAD AND PUNCH adjustment 4.02.



4.04 Transmitter Distributor to Reperforator (continued)

HORIZONTAL ALIGNMENT OF PIVOTED SENSING HEAD AND PUNCH

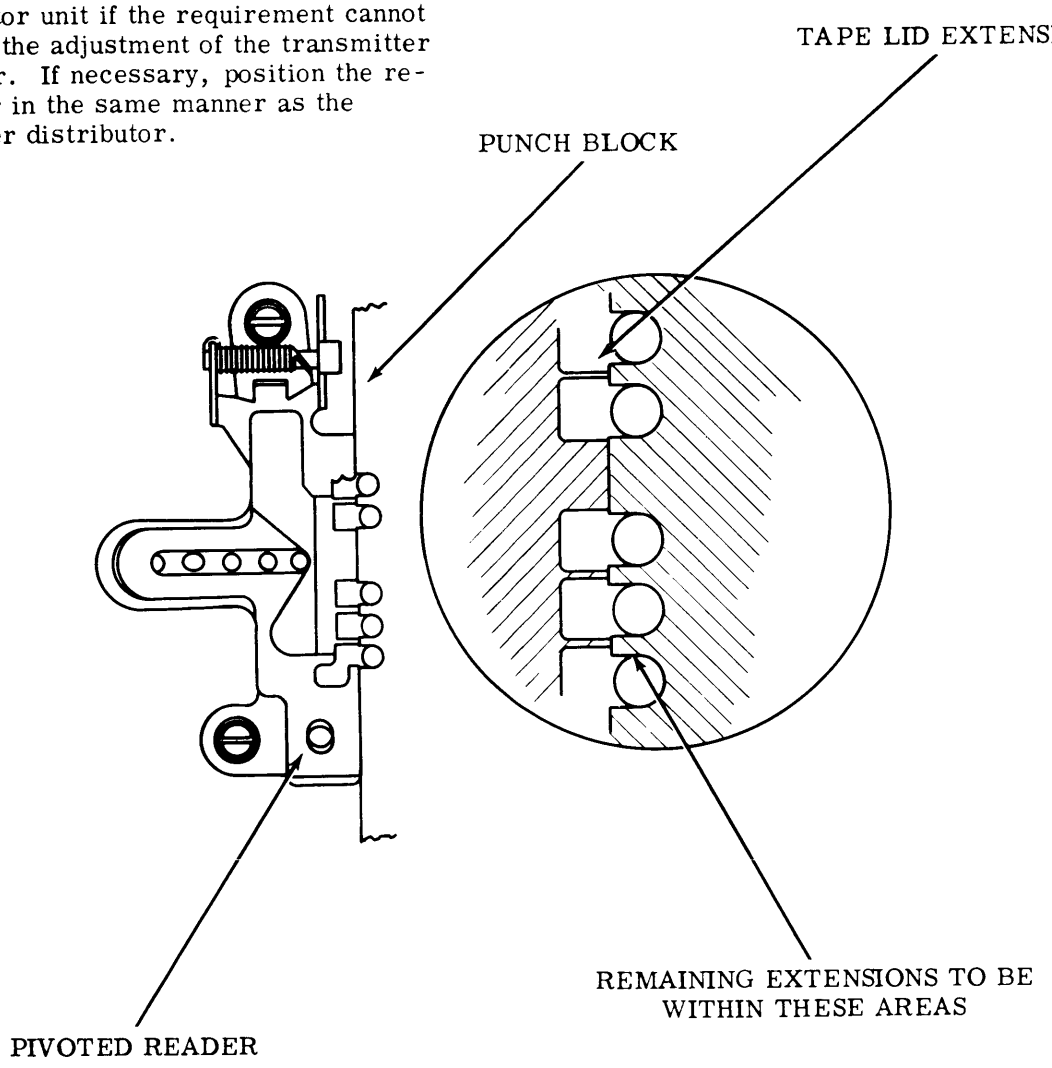
Requirement

When one tape lid extension is centered on respective area between punch pin slots, remaining extensions should be fully within their respective areas.

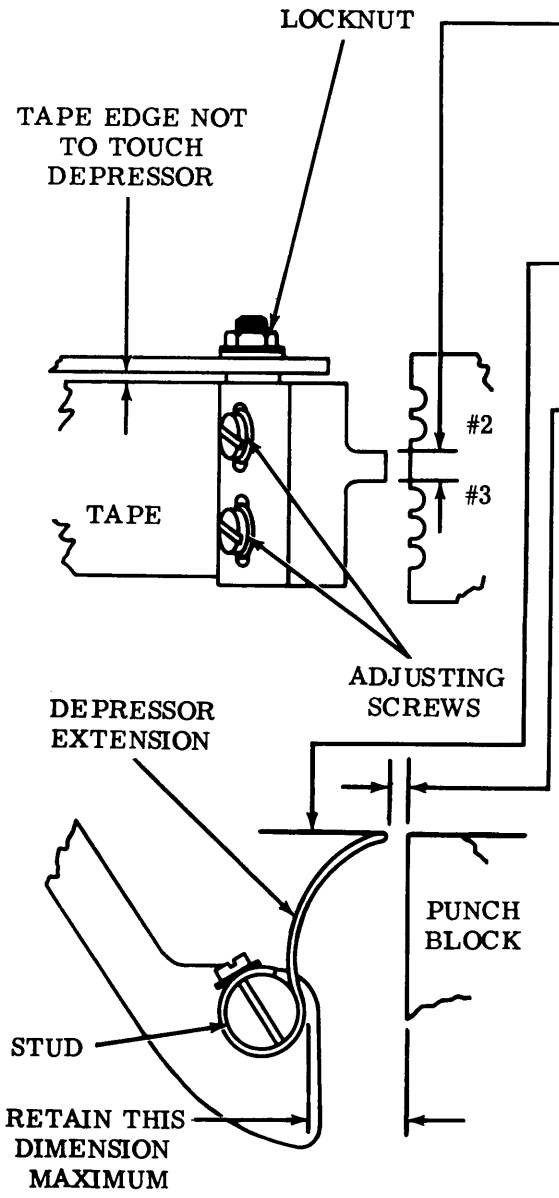
To Adjust

Loosen transmitter distributor and horizontal positioning eccentric mounting screws. Shift unit to meet requirement. Tighten unit mounting screws. Position eccentric against rear plate of transmitter distributor and tighten its mounting screw.

Note: It may be necessary to position the reperforator unit if the requirement cannot be met by the adjustment of the transmitter distributor. If necessary, position the reperforator in the same manner as the transmitter distributor.



4.05 Transmitter Distributor to Reperforator (continued)



TAPE DEPRESSOR

(1) Requirement

Tip of depressor extension should be centered between #2 and #3 punch pin slots in punch block.

To Adjust

Position depressor extension with its two adjusting screws loosened.

(2) Requirement

Depressor extension should be positioned
Min Flush---Max 0.060 inch
below top surface of punch block.

(3) Requirement

Clearance between tape depressor extension and punch block
Min 0.040 inch---Max 0.080 inch

To Adjust

Position by moving tape depressor extension angularly and/or horizontally with locknut on depressor loosened.

Note: If requirement (2) is still not met, rotate bar at top of transmitter distributor (to which depressor bracket is secured) with four mounting screws of bar assembly loosened. Make sure clearance between punch block and depressor extension (at mounting stud) is maximum possible while still meeting requirement.

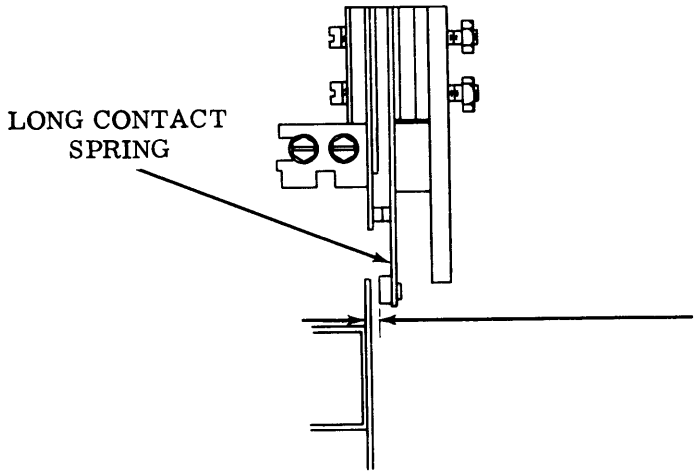
(4) Requirement

With tape following normal path, and pivoted head approximately 15 characters from punch block, tape edge should not touch depressor.

To Adjust

Refine TAPE DEPRESSOR adjustment as prescribed in Section 573-127-700TC.

4.06 Transmitter Distributor to Reperforator (continued)



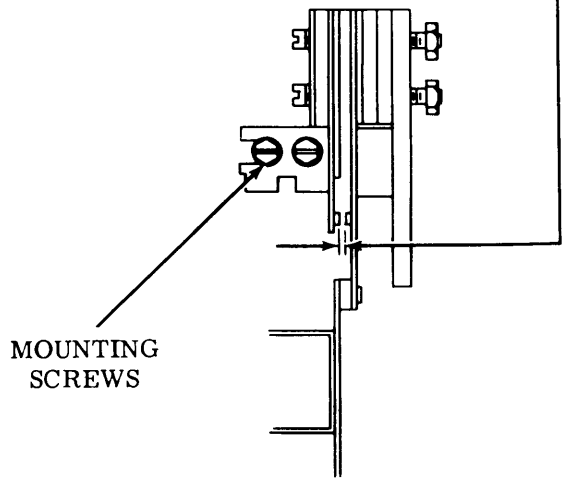
PIVOTED SENSING HEAD
ONE CHARACTER AWAY

LAST CHARACTER CONTACT SWITCH

(1) Requirement
With contact switch cover removed, tape inserted in punch unit and pivoted sensing head, and pivoted sensing head positioned one character away from punch block, there should be
Min 0.010 inch---Max 0.015 inch
clearance between tape deflector ear and insulator on long contact spring.

(2) Requirement
With pivoted sensing head against punch block, there should be
Min 0.005 inch
gap between contacts.

To Adjust
Position contact bracket with mounting screws loosened.



PIVOTED SENSING HEAD
AGAINST PUNCH BLOCK

4.07 Tape Control Mechanism

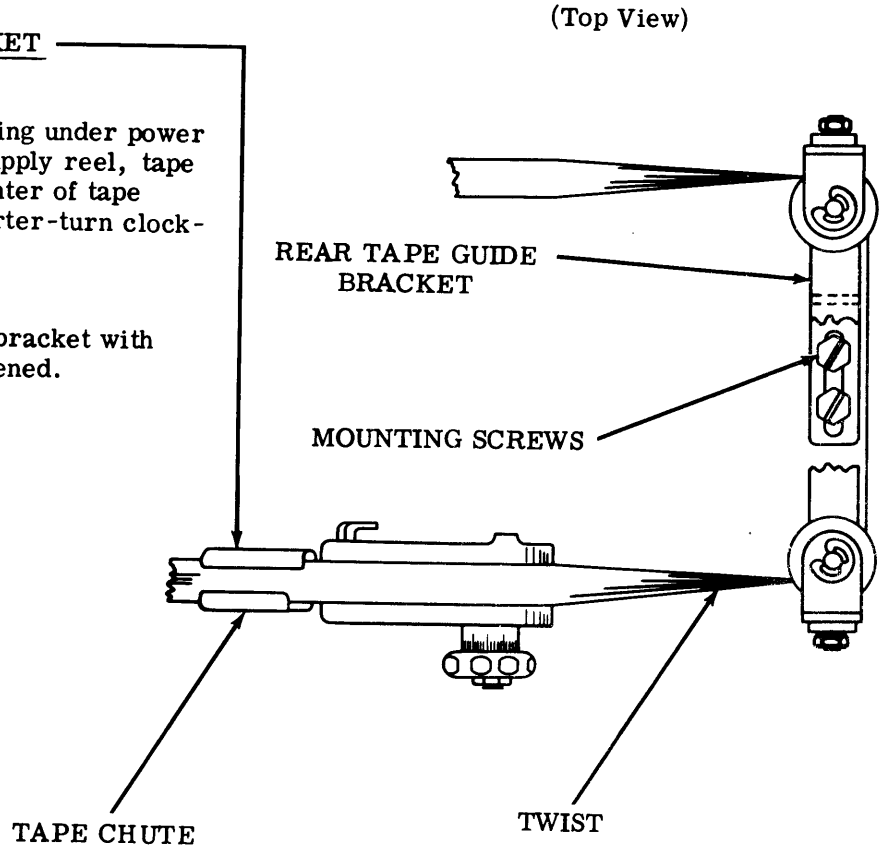
(A) REAR TAPE GUIDE BRACKET

Requirement

With reperforator operating under power and drawing tape from supply reel, tape should squarely enter center of tape chute (tape twisted a quarter-turn clockwise as it enters chute).

To Adjust

Position rear tape guide bracket with its mounting screws loosened.



(B) REAR TAPE GUIDE ROLLER

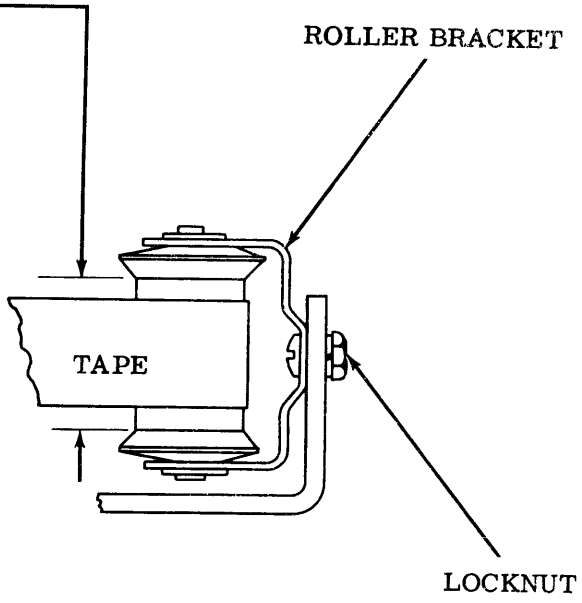
Requirement

Tape should ride approximately centered on tape rollers when reperforator is operating under power as in (A) REAR TAPE GUIDE BRACKET.

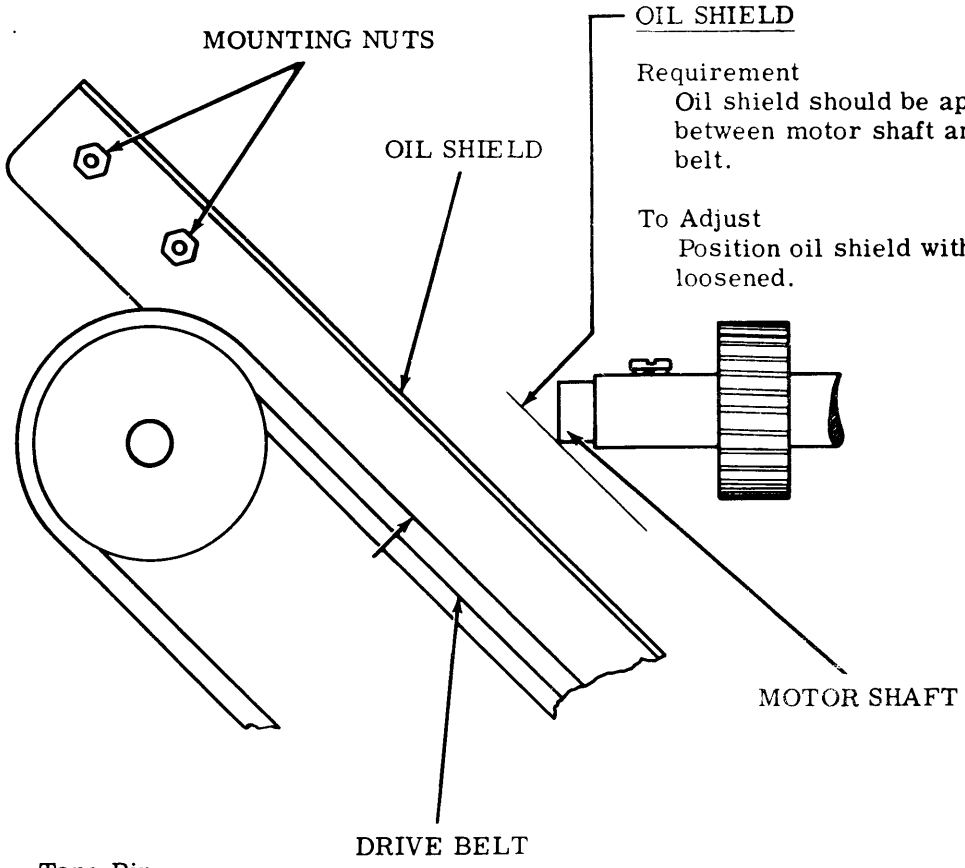
To Adjust

Loosen roller bracket locknut and position bracket while tape is in motion.

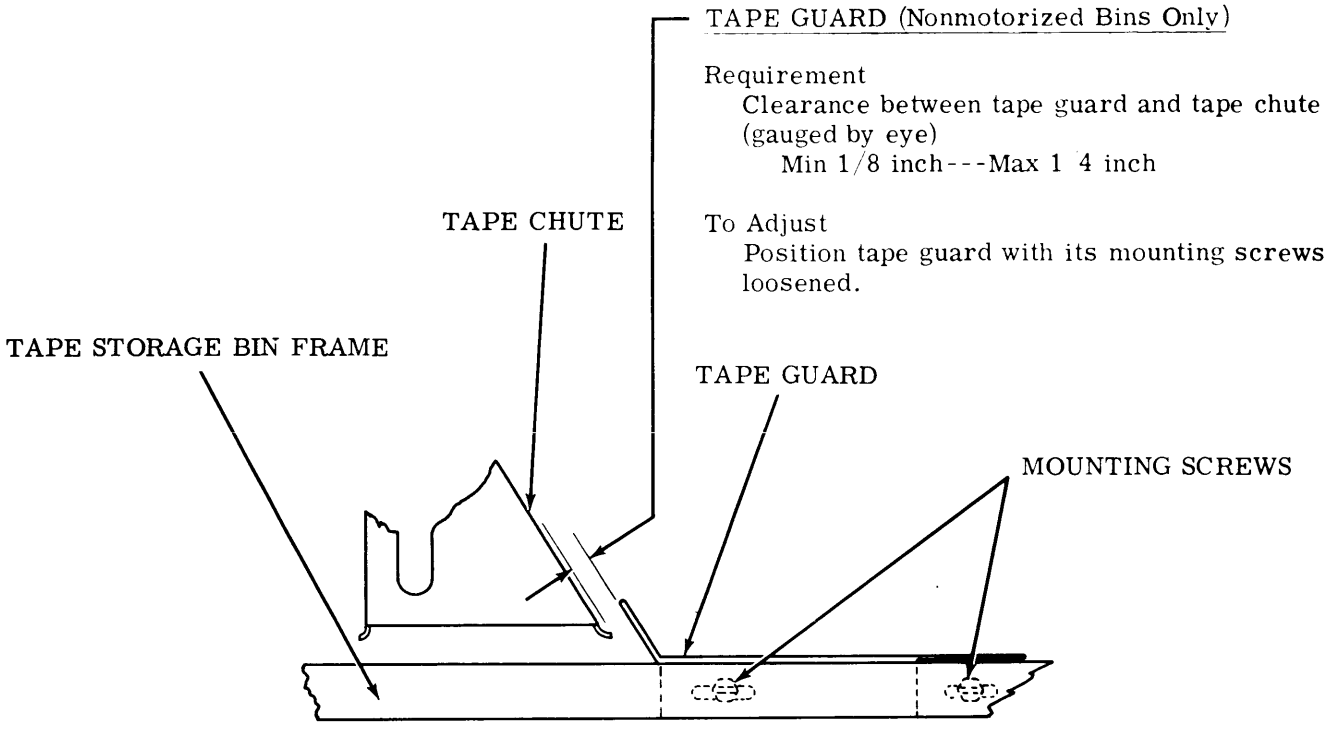
Note: Recheck REAR TAPE GUIDE BRACKET adjustment.



4.08 Tape Drive Mechanism

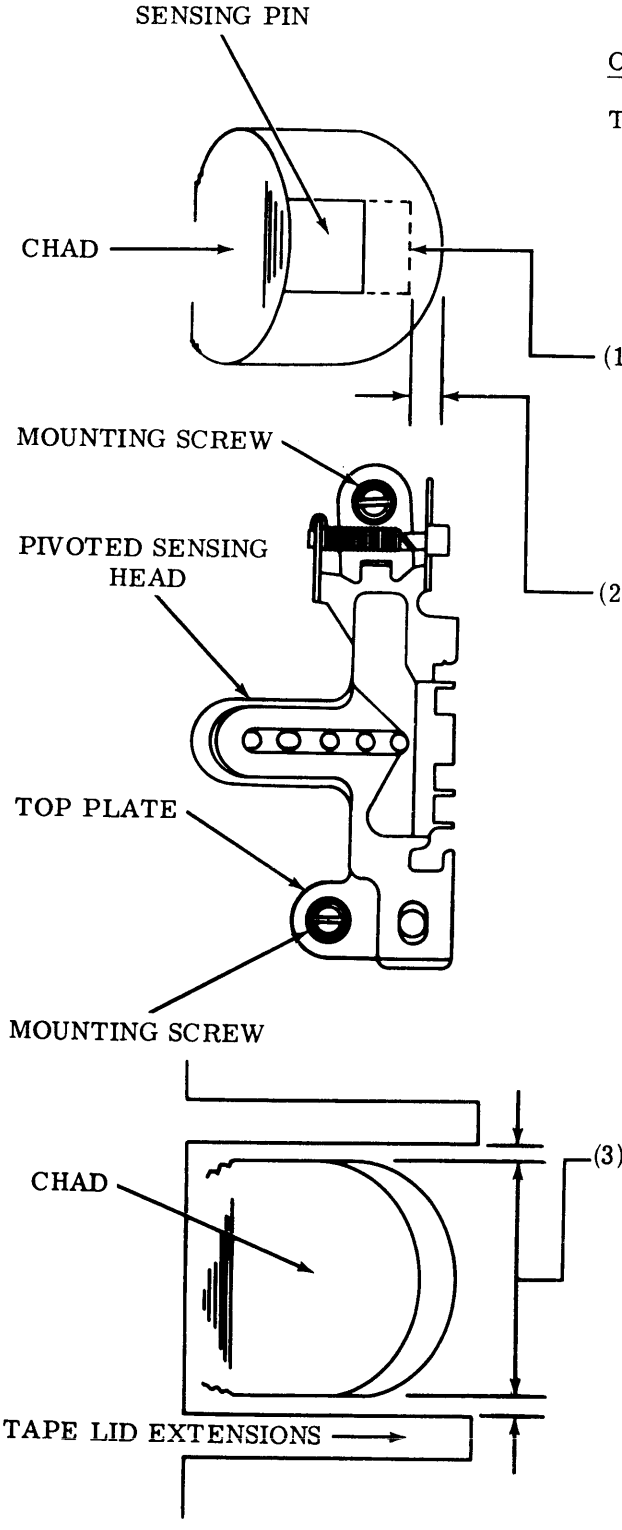


4.09 Tape Bin



4.10 Transmitter Distributor to Reperforator (continued)

Note: All preceding adjustments between transmitter distributor and typing or nontyping reperforator should be completed and requirements met before proceeding with following final adjustments.



CODE HOLE SENSING PIN ALIGNMENT

To Check

With a loop of letters tape (perforated under power by the reperforator) between reperforator and transmitter distributor, and pivoted sensing head resting against its backstop, manually trip sensing shaft clutch and rotate shaft until sensing pins are in their uppermost position.

(1) Requirement

The sensing pins should be approximately centered laterally on code holes.

To Adjust

Refine punch FEED HOLE LATERAL ALIGNMENT as prescribed in Section 573-118-700TC.

(2) Requirement

Sensing pins should be positioned toward rear edge of code hole.

Min 0.008 inch

clearance between pin and rear edge. Check five places.

To Adjust

Check tape quality for compliance with TP156011 tape gauge and, if necessary, refine DETENT adjustment as prescribed in Section 573-118-700TC.

Note: If requirement still is not met, position pivoted sensing head top plate in required direction with its mounting screws loosened. Recheck LAST CHARACTER CONTACT SWITCH (4.06) adjustment.

(3) Requirement

As code holes are opened by sensing pins, there should be some clearance between sides of chad and tape lid extensions. Check ten places.

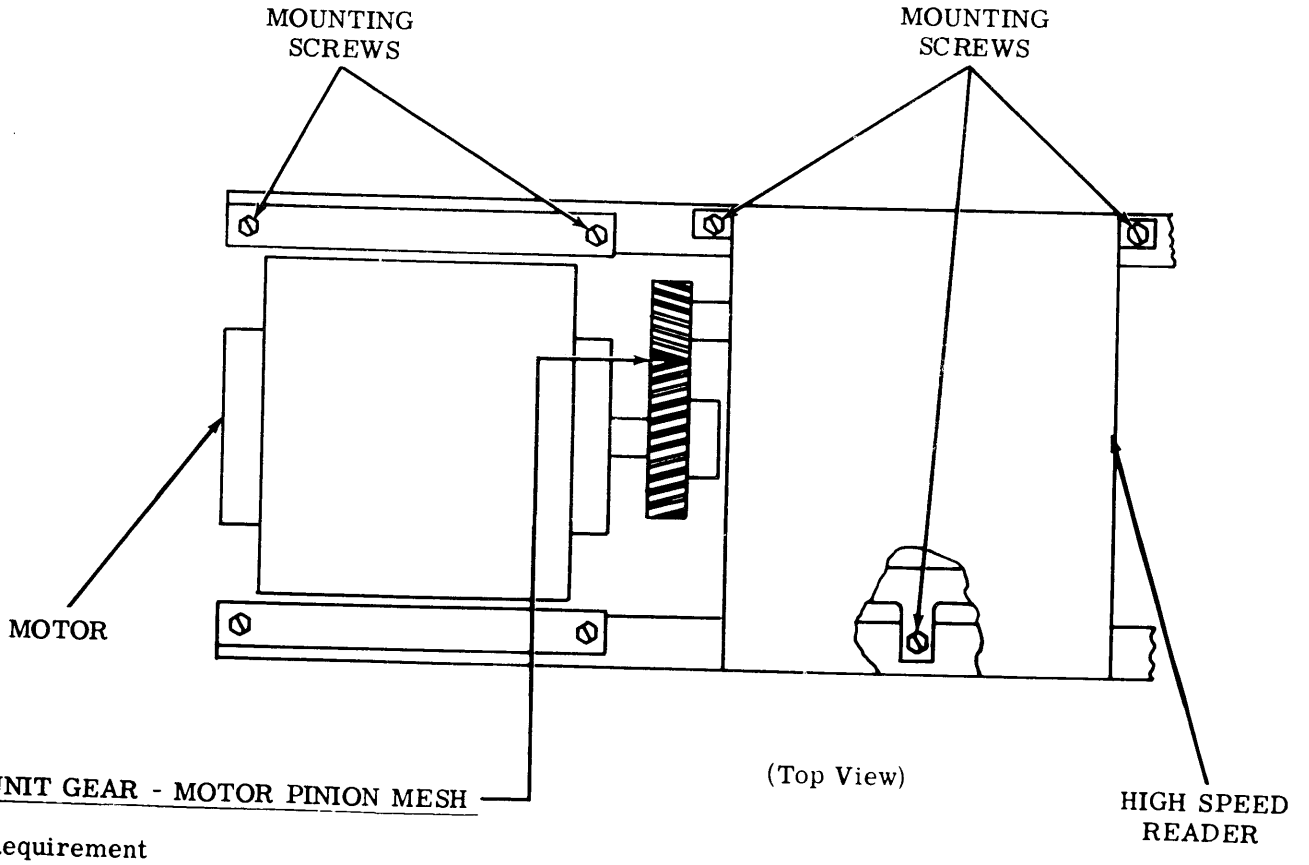
To Adjust

Position pivoted sensing head top plate laterally with its mounting screws loosened. Recheck requirement (2).

LOW TO HIGH SPEED REPERFORATOR TRANSMITTER SET

4.11 Motor to Transmitter Distributor

IDLER GEAR MOTOR PINION MESH - SEE 4.01



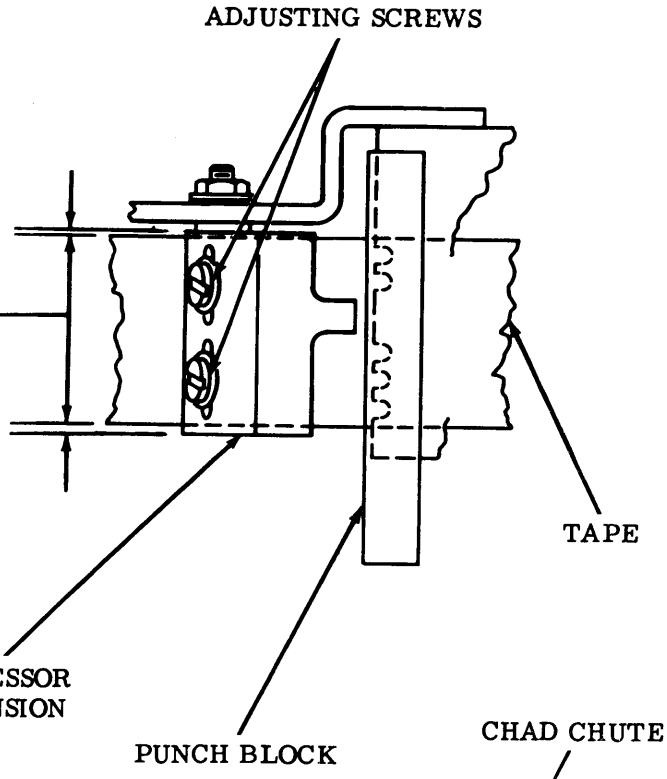
Requirement

Min Some---Max 0.003 inch backlash between unit gear and motor pinion throughout one revolution of unit gear.

To Adjust

Position high speed tape reader and its motor with mounting screws loosened.

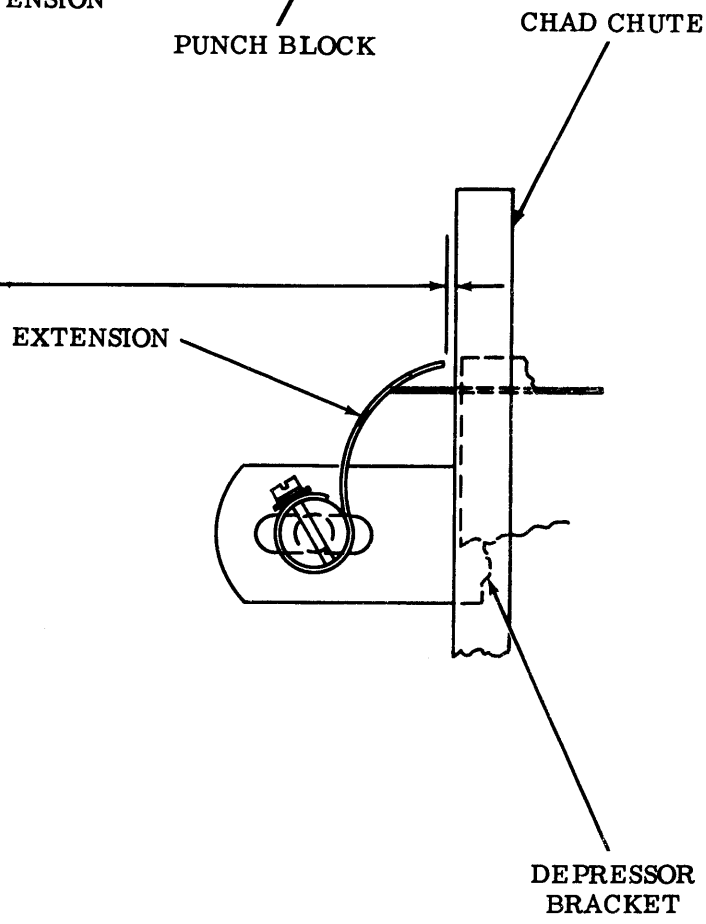
4.12 Transmitter Distributor to Reperforator



TAPE DEPRESSOR

(1) Requirement
With tape in punch block, there should be approximately 1/16 inch between edges of tape and depressor extension.

To Adjust
Position tape depressor extension with its adjusting screws loosened.



(2) Requirement
Min Some---Max 0.040 inch clearance between tape depressor extension and chad chute.

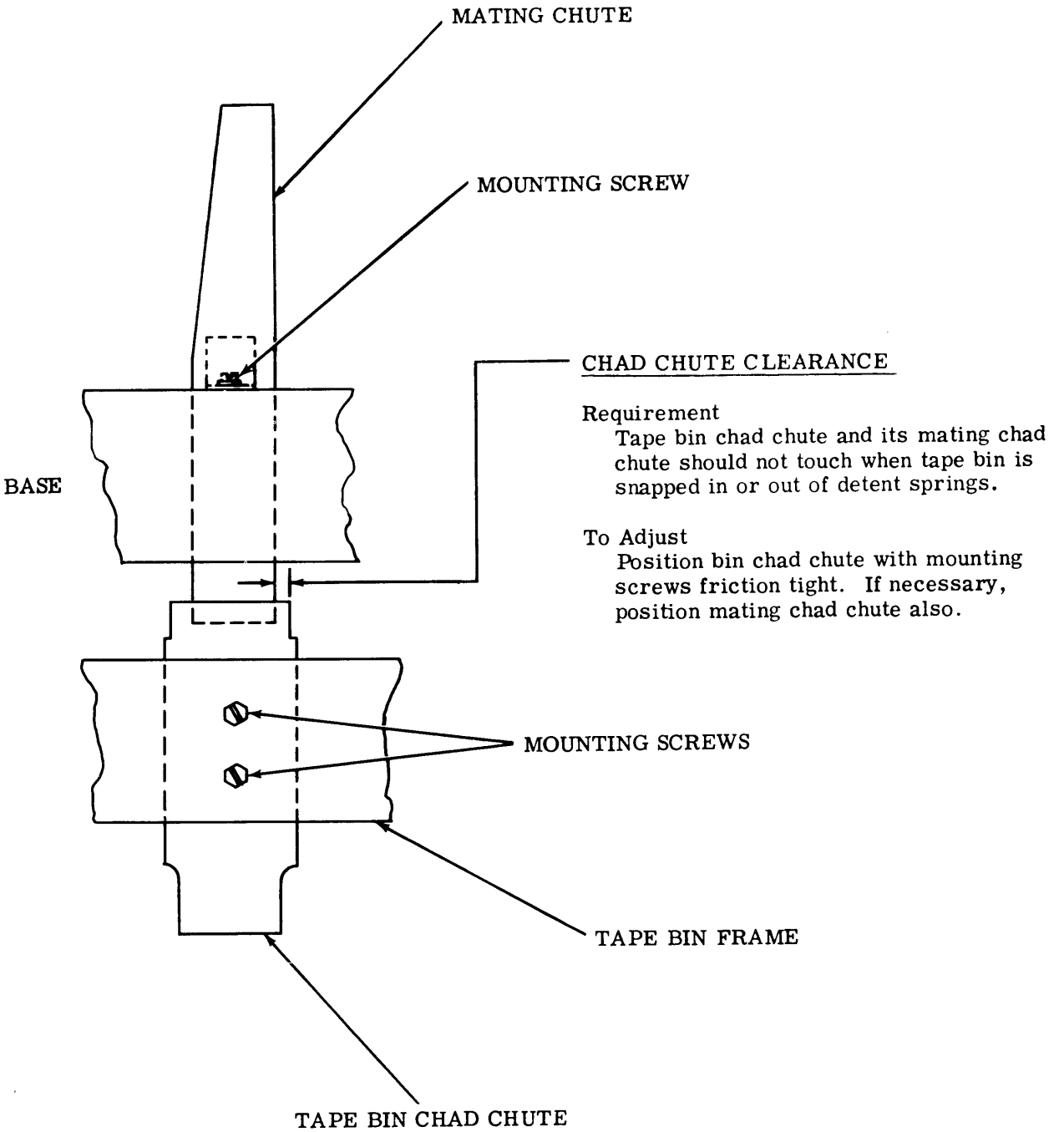
(3) Requirement
Shoulder of tape depressor extension should be above a piece of tape as the leading edge is fed straight out of the punch block.

To Adjust
Position tape depressor extension angularly and/or horizontally with its locknut loosened.

4.13 Tape Bin

REAR TAPE GUIDE BRACKET - SEE 4.07

REAR TAPE GUIDE ROLLER - SEE 4.07



CHAD CHUTE CLEARANCE

Requirement
Tape bin chad chute and its mating chad chute should not touch when tape bin is snapped in or out of detent springs.

To Adjust
Position bin chad chute with mounting screws friction tight. If necessary, position mating chad chute also.

HIGH TO LOW SPEED REPERFORATOR TRANSMITTER SET

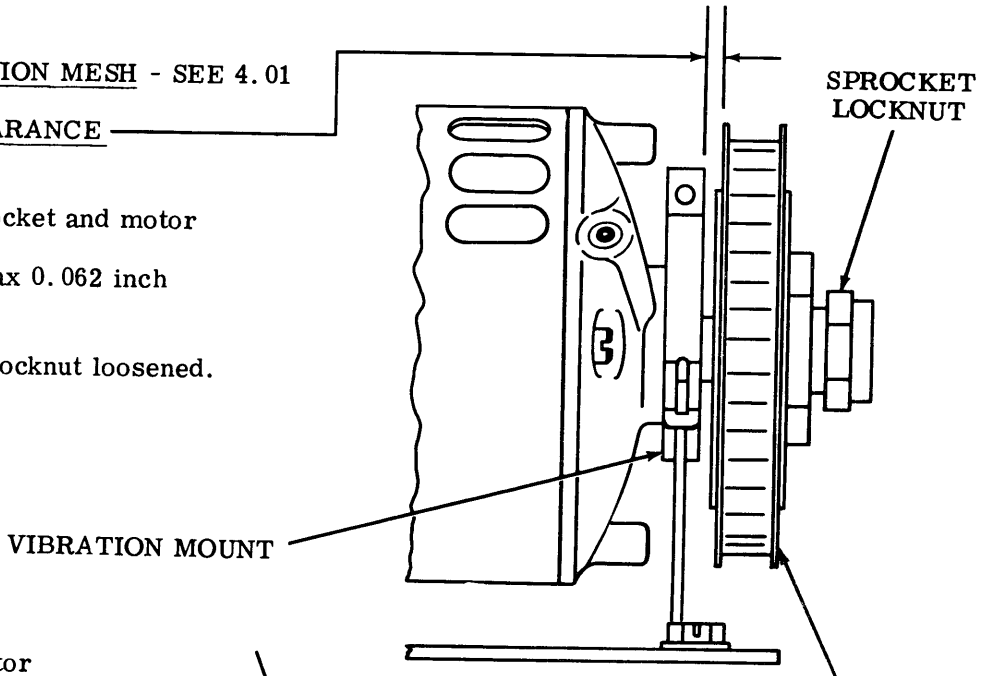
4.14 Sprocket to Motor

IDLER GEAR MOTOR PINION MESH - SEE 4.01

MOTOR SPROCKET CLEARANCE

Requirement
Clearance between sprocket and motor vibration mount
Min 0.031 inch---Max 0.062 inch

To Adjust
Position sprocket with locknut loosened.



(Left Side View)

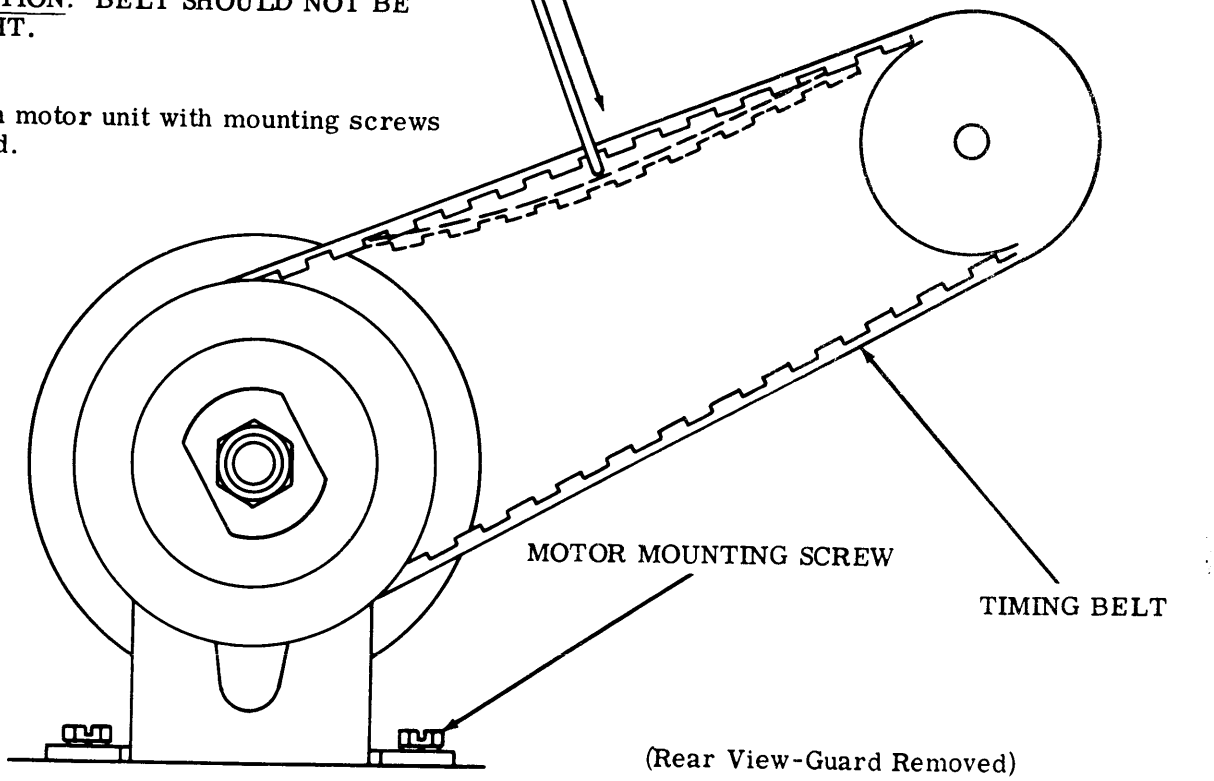
4.15 Motor to Reperforator

TIMING BELT

Requirement
A 5 ounce pressure at center of span should deflect belt 0.250 inches.

CAUTION: BELT SHOULD NOT BE TIGHT.

To Adjust
Position motor unit with mounting screws loosened.



(Rear View-Guard Removed)

4.16 Sprocket to Reperforator

(A) SPROCKET CLEARANCE

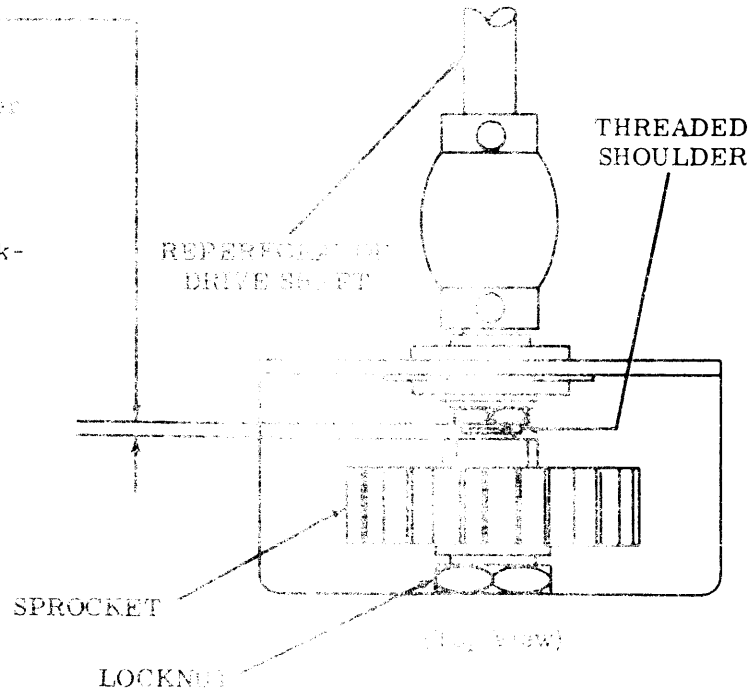
Requirement
Clearance between threaded shoulder on drive shaft and sprocket
Min Some---Max 0.031 inches

To Adjust
Position sprocket with sprocket locknut loosened.

(B) DRIVE SHAFT ALIGNMENT

Requirement
Reperforator drive shaft should be in line with sprocket drive shaft on opposite side of rubber coupling.

To Adjust
Position bearing bracket with its three mounting screws loosened. (gauge by eye from top of unit).



4.17 Tape Control Mechanism

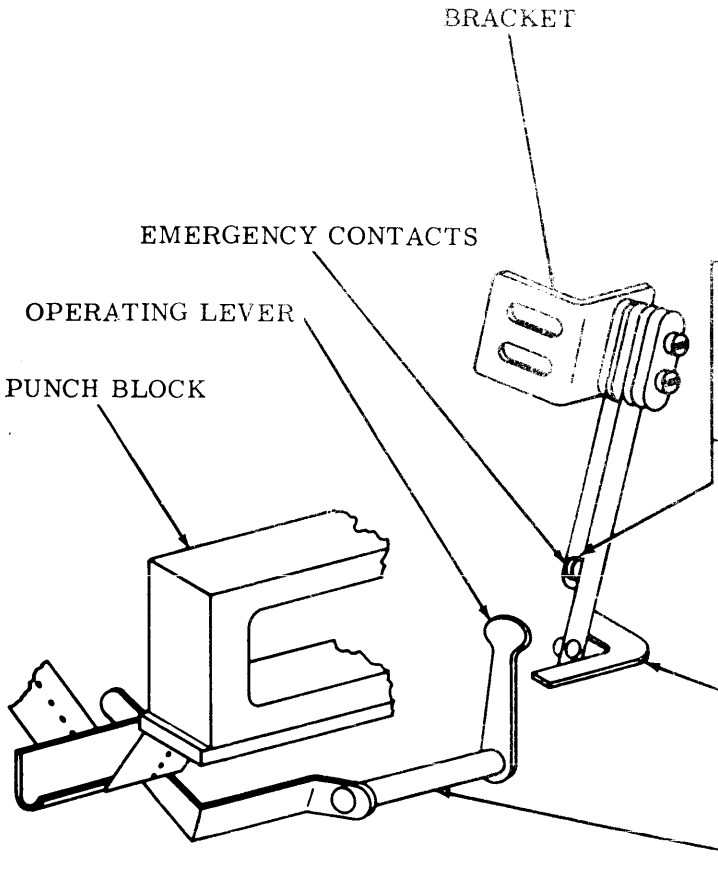
TIGHT-TAPE EMERGENCY CONTACT GAP

To Check
Thread length of perforated tape between transmitter distributor and reperforator. Place transmitter distributor in free wheeling position and manually draw tape through head until tight-tape arm begins to lift.

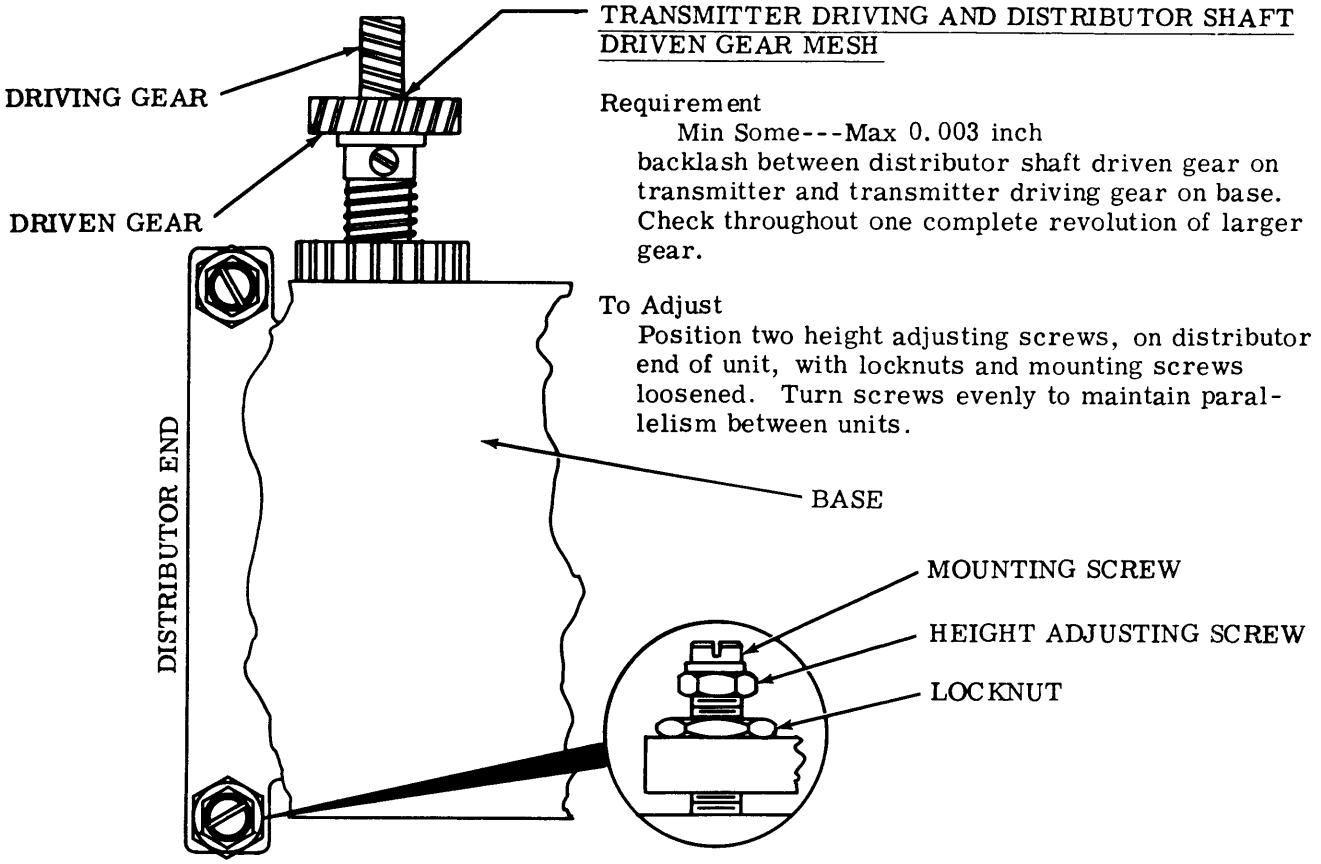
(1) Requirement
With operating lever forced against contact assembly backstop
Max 0.050 inch
gap between contacts.

(2) Requirement
Moving the tape an additional 5 or 7 characters should just separate contacts.

To Adjust
Position bracket by moving it in slotted holes with its mounting screws loosened.



4.18 Tape Drive Mechanism



TRANSMITTER DRIVING AND DISTRIBUTOR SHAFT DRIVEN GEAR MESH

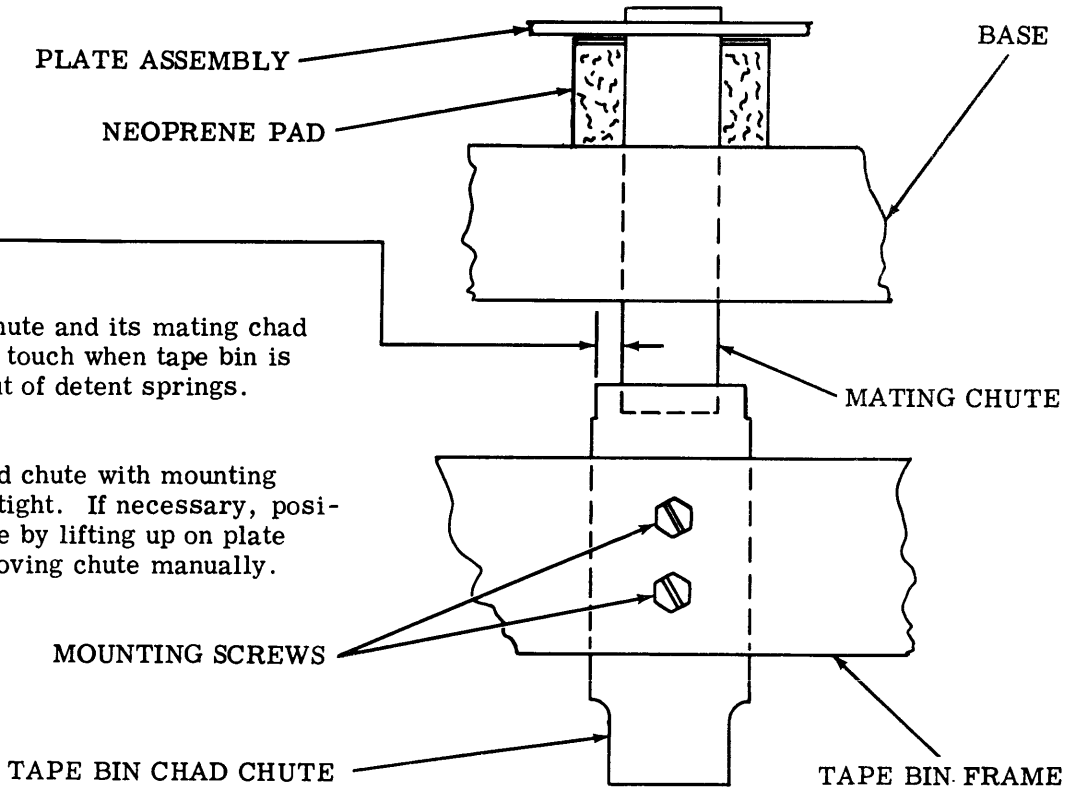
Requirement

Min Some---Max 0.003 inch backlash between distributor shaft driven gear on transmitter and transmitter driving gear on base. Check throughout one complete revolution of larger gear.

To Adjust

Position two height adjusting screws, on distributor end of unit, with locknuts and mounting screws loosened. Turn screws evenly to maintain parallelism between units.

4.19 Tape Bin



CHAD CHUTE

Requirement

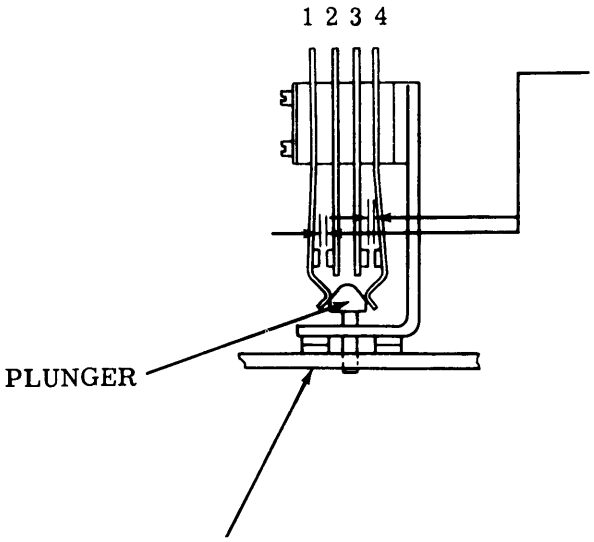
Tape bin chad chute and its mating chad chute should not touch when tape bin is snapped in or out of detent springs.

To Adjust

Position bin chad chute with mounting screws friction tight. If necessary, position mating chute by lifting up on plate assembly and moving chute manually.

4.20 Cabinet to Tape Handling Stand

CONTACT SPRINGS

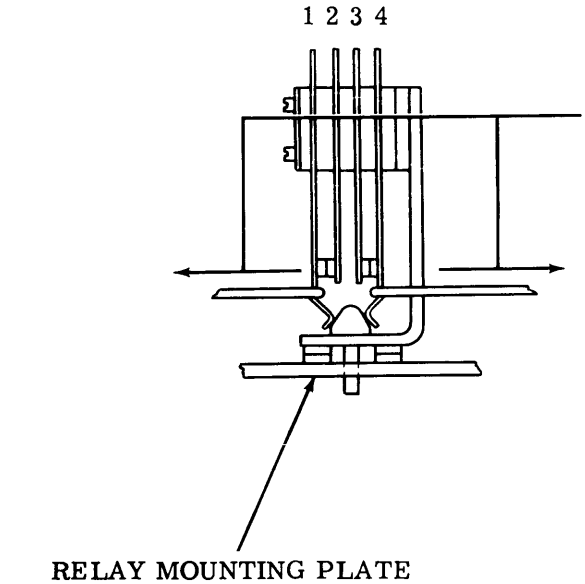


LINE SHUNT CONTACTS

Requirement
With bakelite plunger held flush with relay mounting plate, there should be a gap between the #1 and #2 contacts and between the #3 and #4 contacts.
Min 0.010 inch---Max 0.015 inch

To Adjust
Bend the #2 and #3 contact springs.

CONTACT SPRINGS

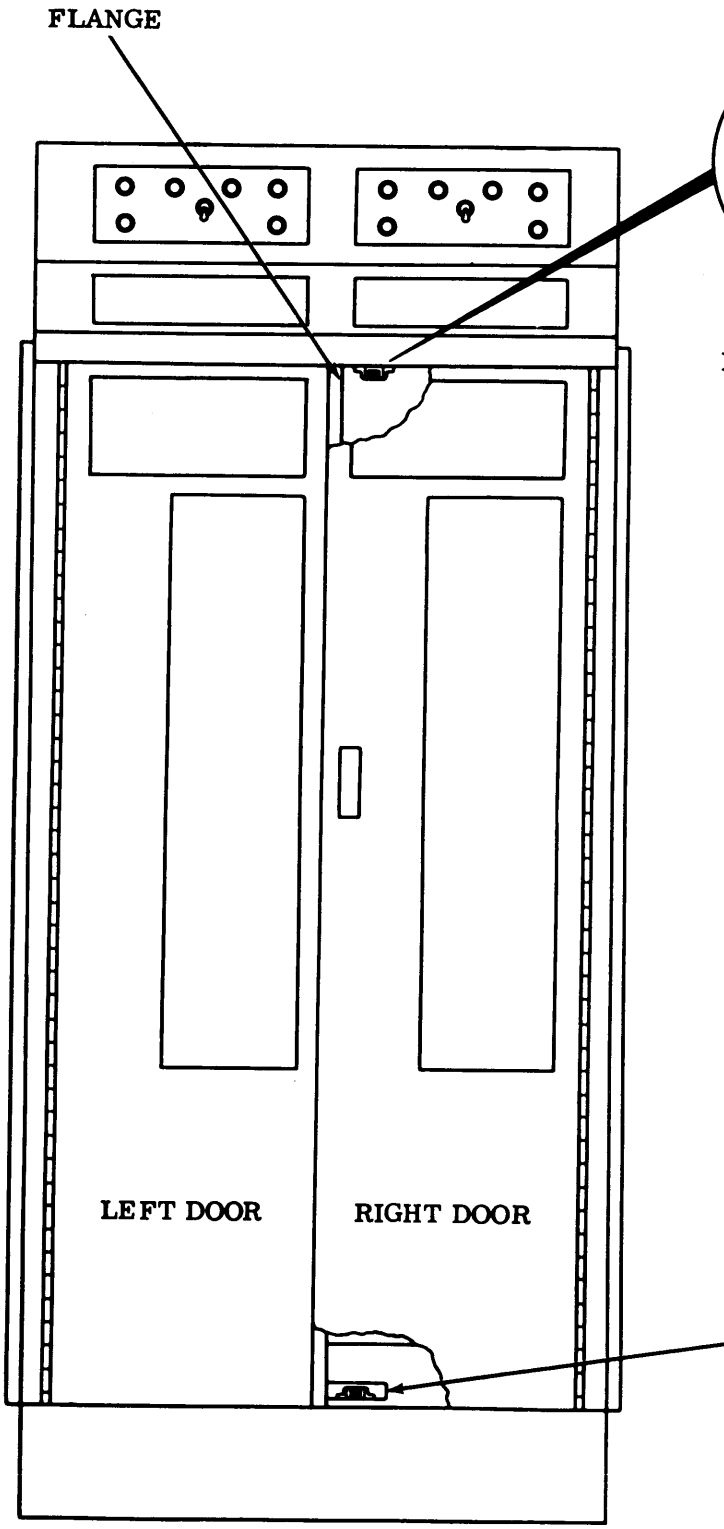


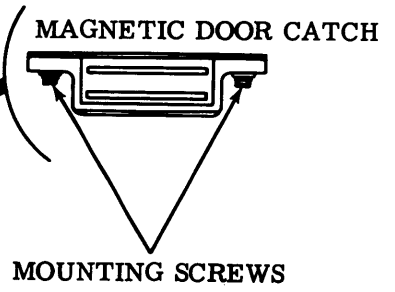
LINE SHUNT CONTACTS SPRING

Requirement
Min 5 oz---Max 7 oz
to separate contacts.

To Adjust
Bend #1 and #4 contact springs.

4.21 Cabinet Door Latch





FRONT DOOR

Requirement
When fully closed, doors should be flush with structural members of cabinet.

To Adjust
Bend flange at upper and/or lower right-hand corner of left door.

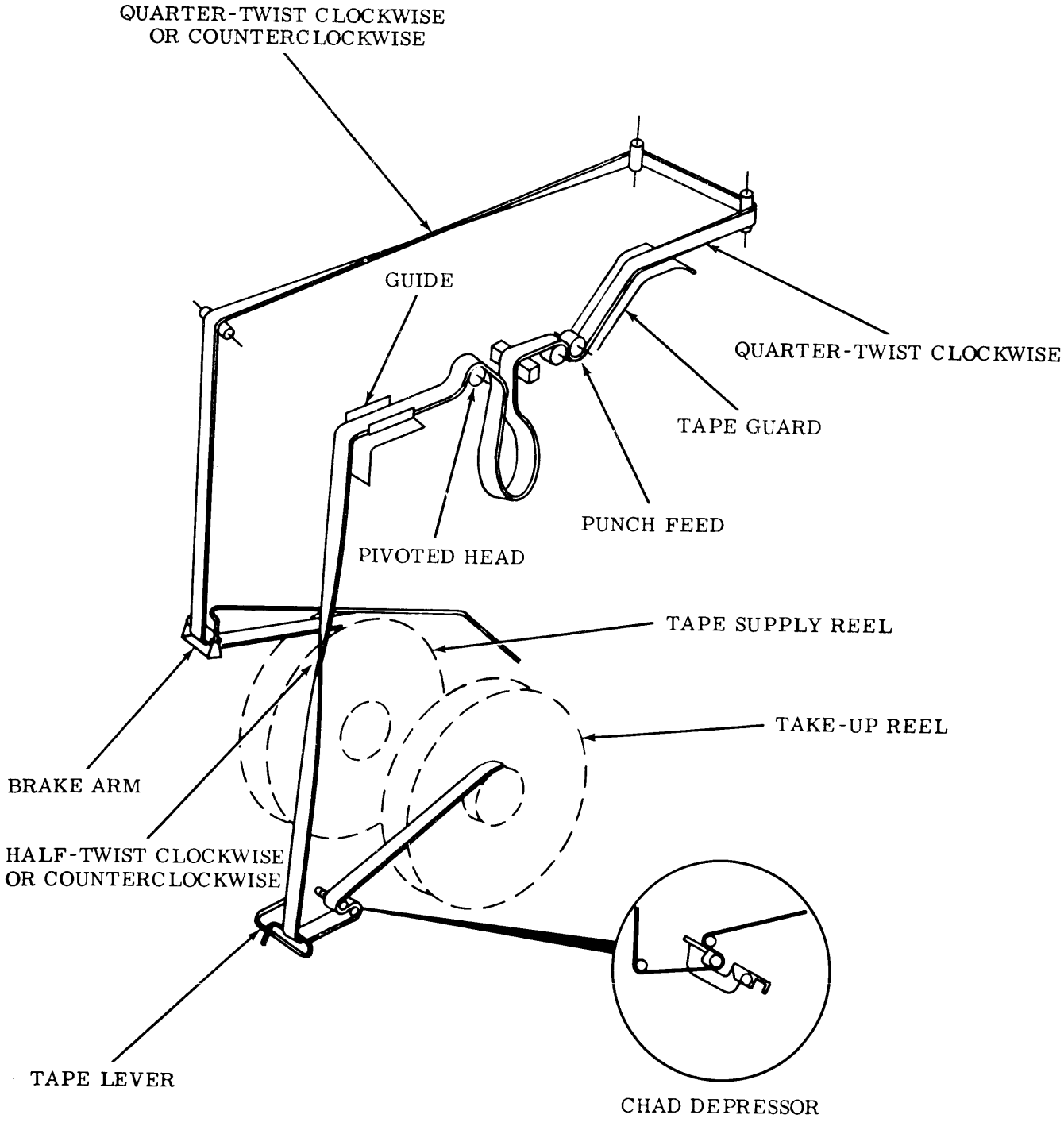
FRONT DOOR CATCHES

Requirement
When closed, doors should fit firmly against magnetic catches.

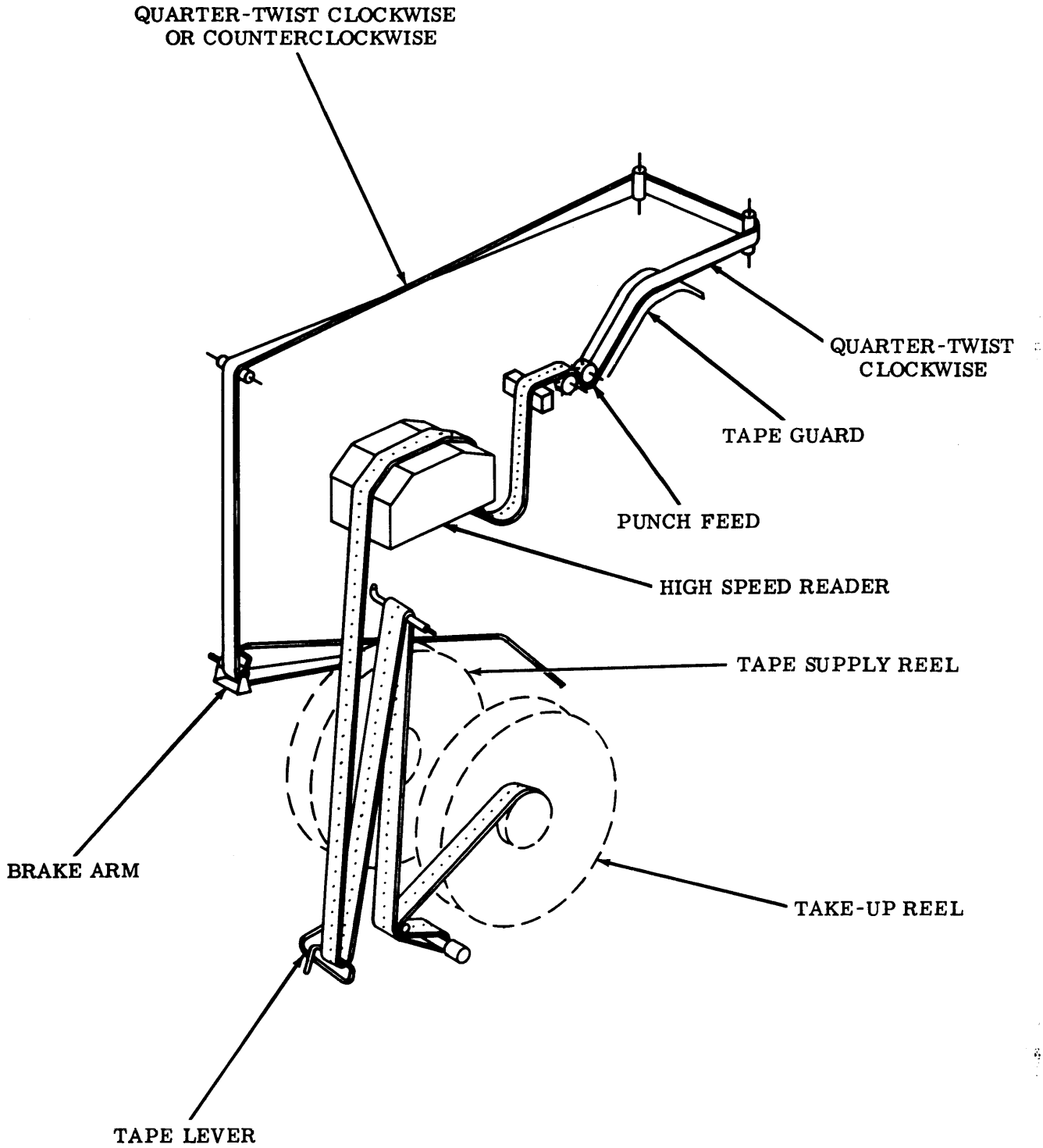
To Adjust
Position catches with mounting screws loosened.

5. TAPE ROUTING

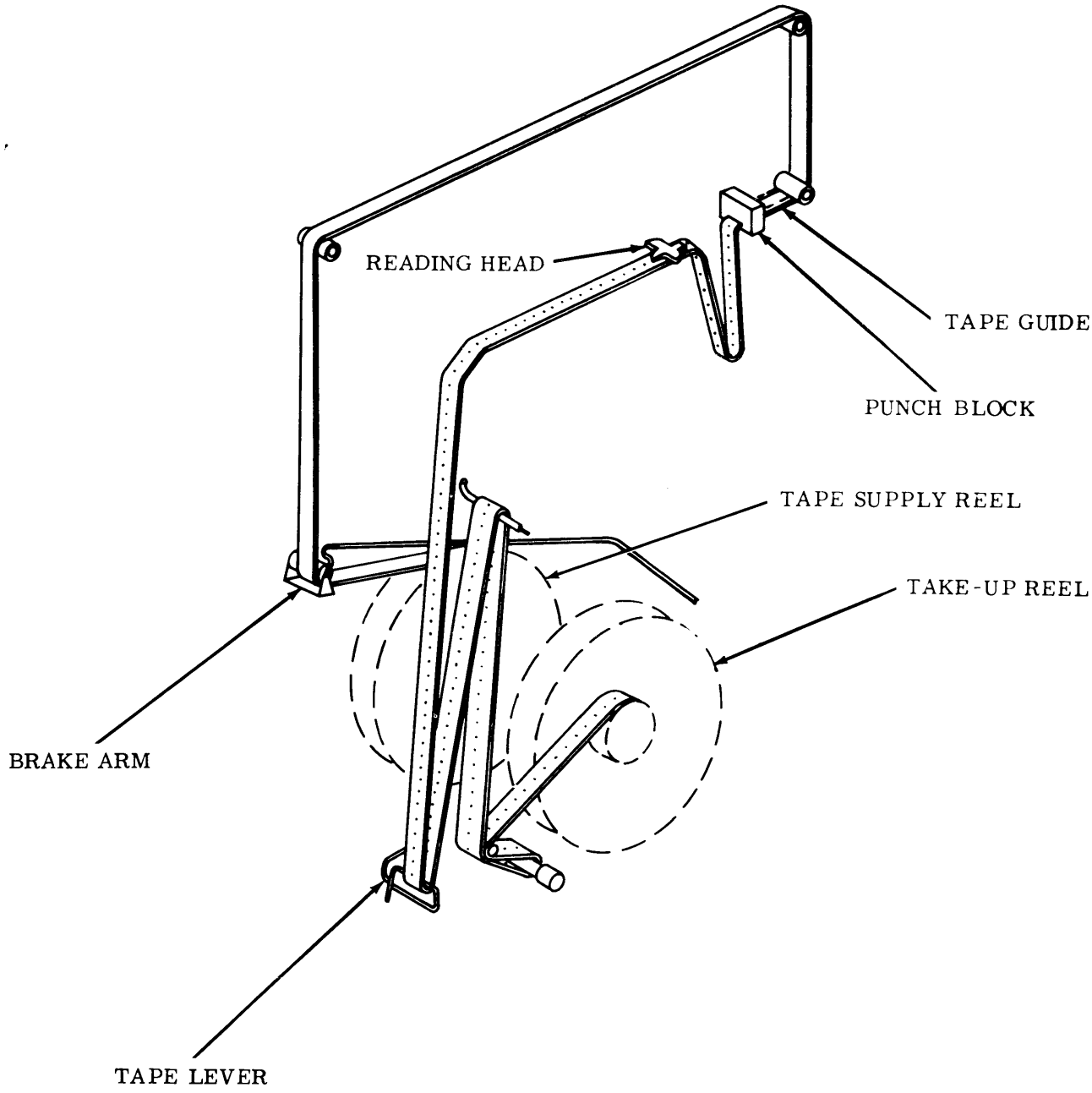
5.01 Standard Speed Reperforator Transmitter Set



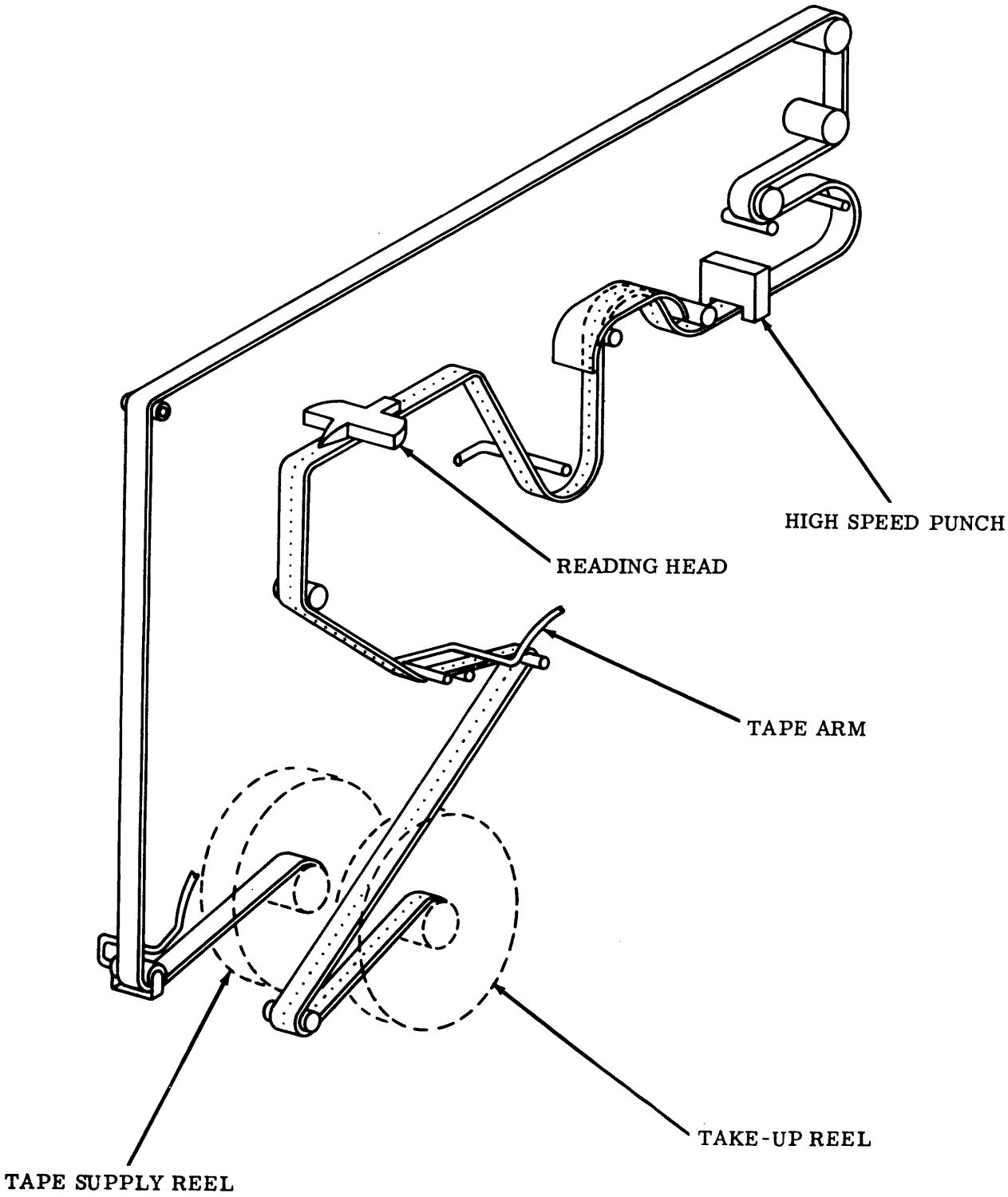
5.02 Low to High Speed Reperforator Transmitter Set



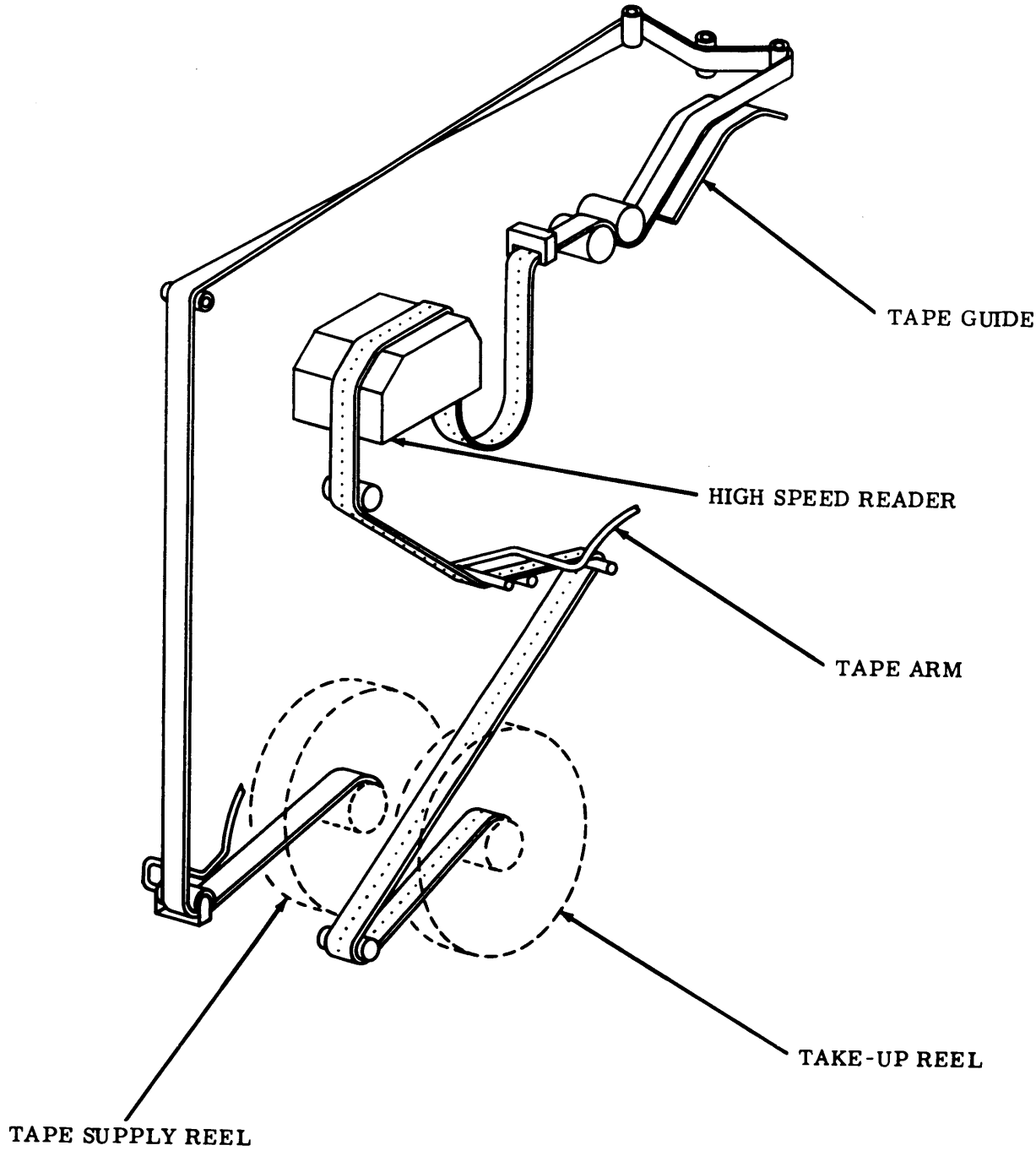
5.03 High to Low Speed Reperforator Transmitter Set



5.04 High to Low Speed Reperforator Transmitter Set (V Belt Drive)



5.05 Low to High Speed Reperforator Transmitter Set (V Belt Drive)



TELETYPE CORPORATION
Skokie, Illinois, U.S.A.

SECTION 573-104-701TC
Issue 1, September 1968

28 TAPE HANDLING STAND (LTHS) AND REPERFORATOR TRANSMITTER BASE (LRXB) LUBRICATION

CONTENTS

1. GENERAL

1.01 The tape handling stand and reperforator transmitter base should be lubricated as directed in this section. The figures indicate points to be lubricated and the kind and quantity of lubricant to be used. Lubricate the tape handling stand and reperforator transmitter base prior to storing or placing it in service. After a few weeks in service relubricate to make certain that all points receive lubrication. Thereafter, the following schedule should be followed:

Operating Speed (WPM)	Lubrication Interval
60	3000 hr or 1 yr*
75	2400 hr or 9 mo*
100	1500 hr or 6 mo*
1000	150 hr or 1 mo*

*Whichever occurs first.

1.02 Use KS7470 oil at all locations where the use of oil is indicated. Use KS7471 grease on all surfaces where grease is indicated.

1.03 All spring wicks and felt oilers should be thoroughly lubricated. However, overlubrication, which will permit oil or grease to drip or be thrown on other parts, should be avoided.

CAUTION: DO NOT LUBRICATE THE TAPE WINDER REEL DRIVE GEAR OR PINION, OR THE TAPE WINDER AND TAPE SUPPLY REEL SHAFT BEARINGS ON THE TAPE HANDLING STAND. DO NOT LUBRICATE THE TAPE PULLER SHAFT NYLON BEARINGS IN THE TAPE STORAGE BIN.

1.04 Apply a thick film of grease to all gears and the spacing clutch reset cam plate.

1.05 Apply oil to all cams, including the camming surfaces of each clutch disc.

CAUTION: SPECIAL CARE MUST BE TAKEN TO PREVENT ANY OIL OR GREASE FROM

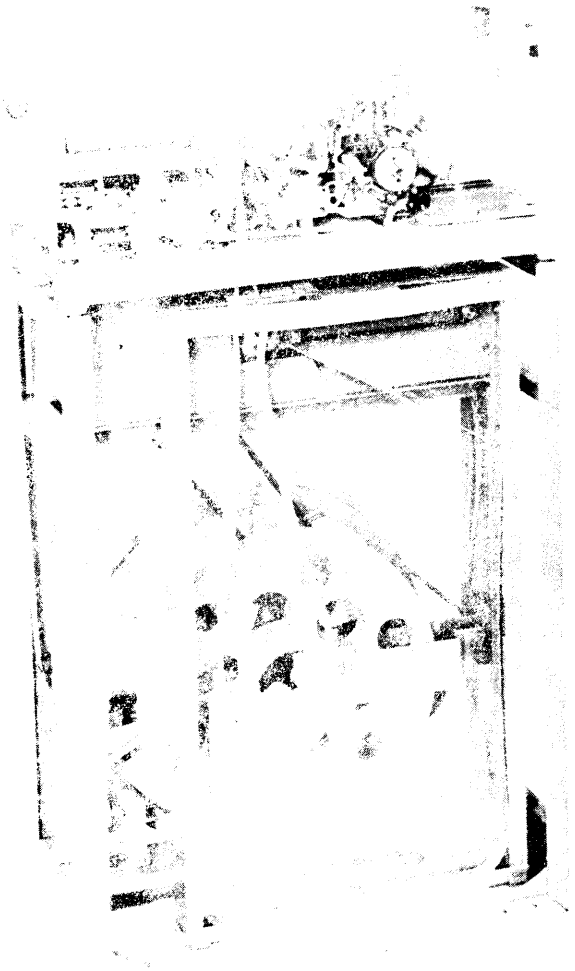
GETTING BETWEEN THE SELECTOR ARMATURE AND ITS MAGNET POLE FACES. KEEP ALL ELECTRICAL CONTACTS FREE OF OIL AND GREASE.

1.06 The photographs show the paragraph numbers referring to particular line drawings of mechanisms and where these mechanisms are located on the unit. Parts in the line drawings are shown in an upright position unless otherwise specified.

Note: References made to left, right, top, bottom, front, or rear apply to the typing unit in its normal operating position as viewed by the operator facing the unit.

1.07 The following list of symbols apply to the specific lubrication instructions given in each paragraph.

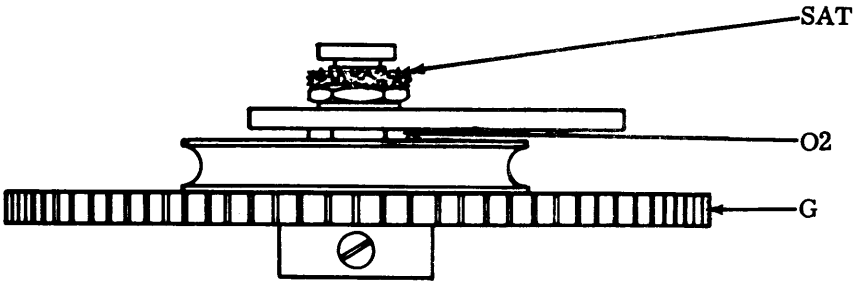
Symbol	Meaning
O1	Apply one drop of oil.
O2	Apply two drops of oil.
O3	Apply three drops of oil, etc.
G	Apply thin film of grease.
SAT	Saturate (felt oilers, washers, wicks) with oil.



Model 28 Reperforator Transmitter Set

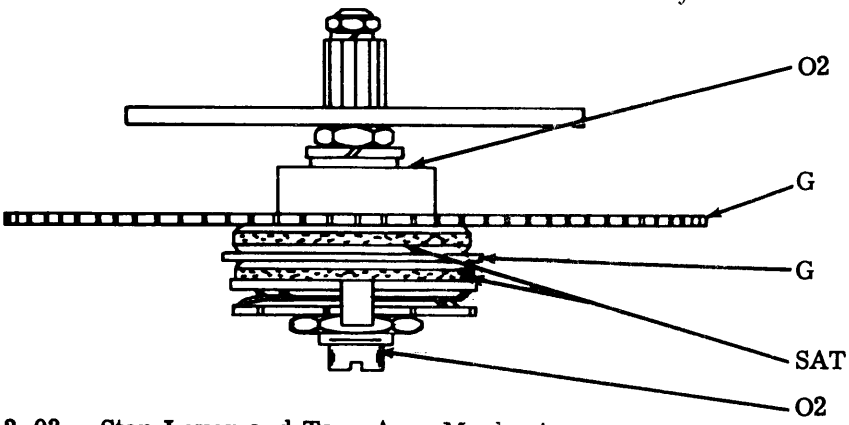
2. TAPE HANDLING STANDS

2.01 Drive Shaft Assembly



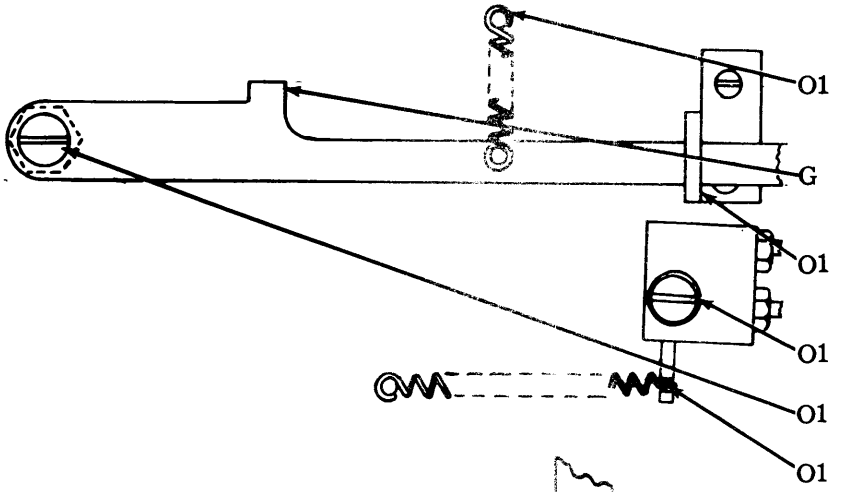
SAT	Felt Washer	Drive Shaft Bearing
O2	Bearing	Drive Shaft
G	Gear Teeth	Drive Shaft Gear

2.02 Clutch Shaft and Intermediate Gear Assembly



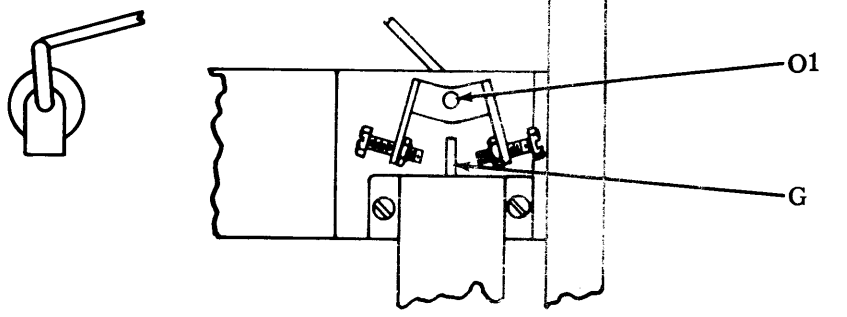
O2	Ball Bearing	Clutch Shaft Bearing
G	Gear Teeth	Intermediate Gear
G	Camming Surface	Stop Cam
SAT	Felt Washers	Clutch
O2	Bearing Surfaces (2 Places)	Clutch Shaft

2.03 Stop Lever and Tape Arm Mechanism



O1	Loops - Each End	Stop Lever Spring
G	Engaging Surface	Stop Lever Projecting Ear
O1	Guide Surface	Stop Lever Guide
O1	Pivot	Tape Arm
O1	Pivot	Stop Lever
O1	Loops - Each End	Tape Arm Spring

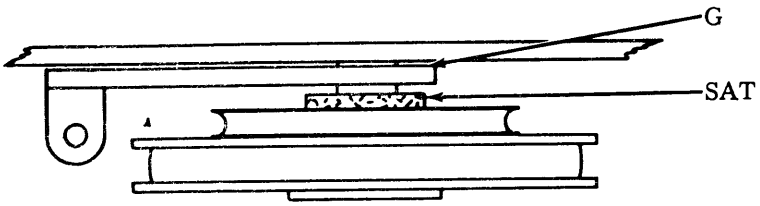
2.04 Tape Alarm Mechanism



O1	Pivots (2 Places)	Tape Supply Arm
G	Insulator (Both Sides)	Tape Alarm Switch

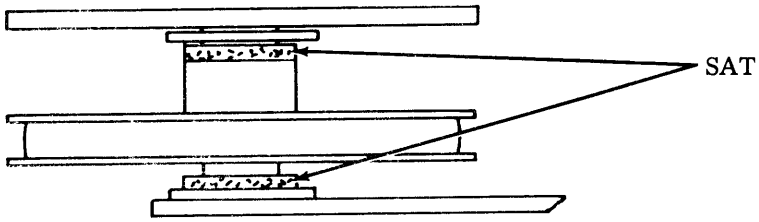
3. TAPE HANDLING STAND (HIGH SPEED ONLY)

3.01 Drive Shaft Assembly



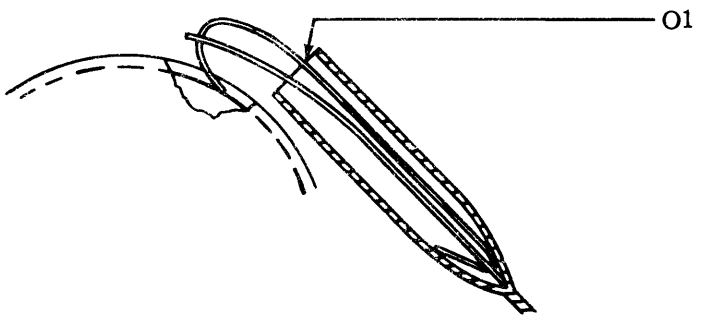
G	Surface	Tape Arm Lever
SAT	Felt Washer	Drive Shaft Bearing

3.02 Reel Drive Shaft Assembly



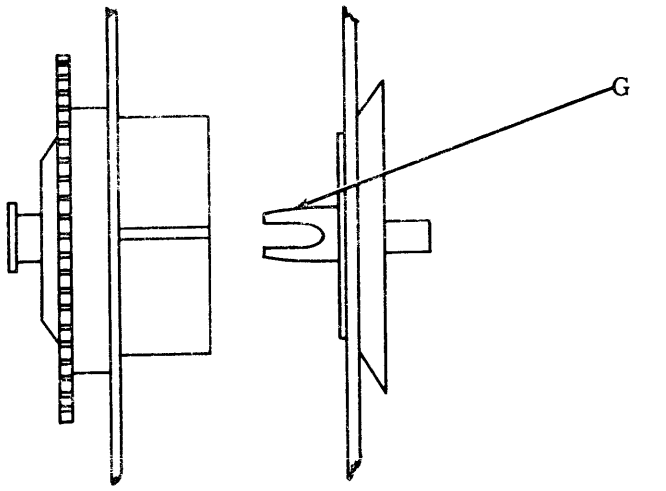
SAT	Felt Washers	Reel Drive Shaft Bearing

3.03 Oil Reservoir



O1	Oil Reservoir	Fill With Oil

3.04 Tape Winder Reel Assembly

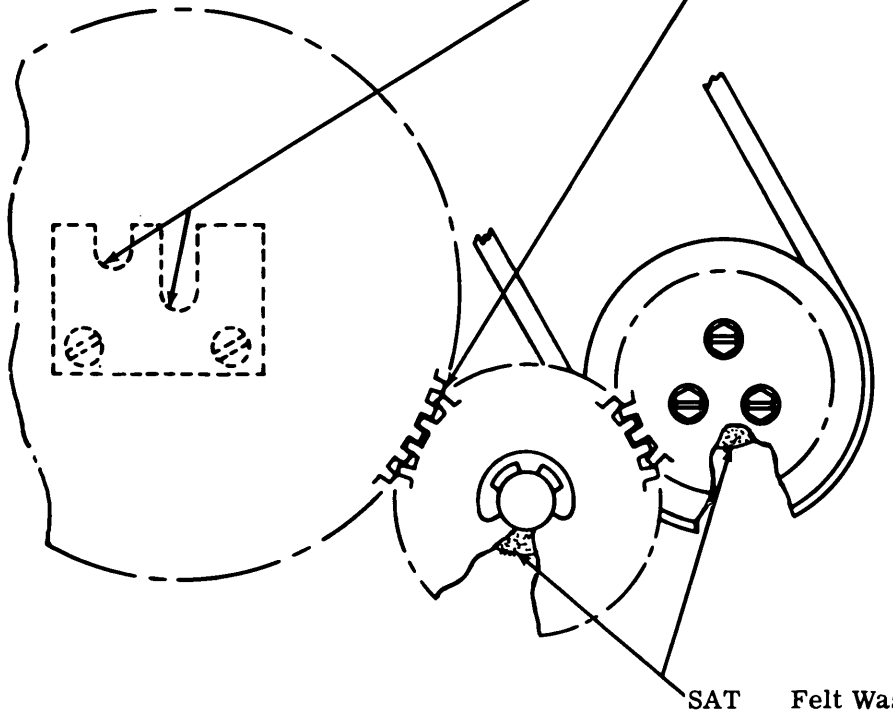


G	Camming Surface	Tape Winder Reel

3.05 Tape Alarm Mechanism - See 2.04, Tape Alarm Mechanism

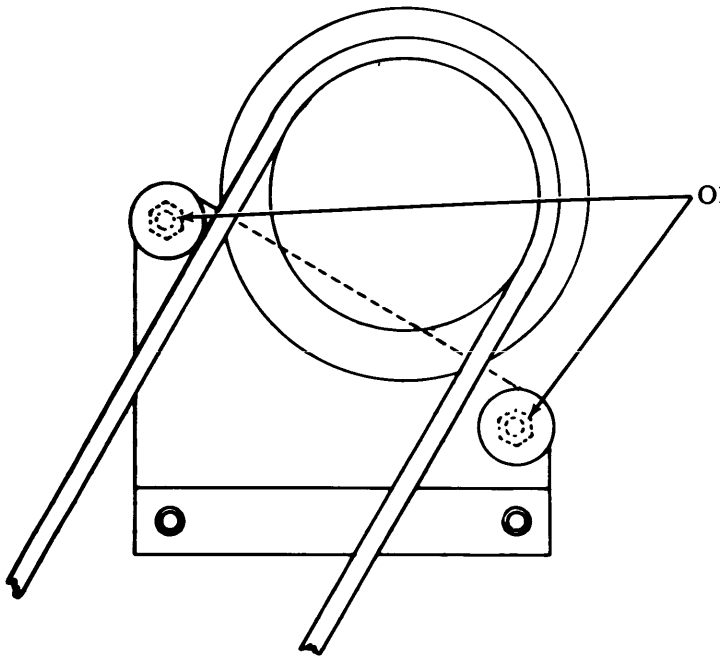
4. TAPE HANDLING STAND (V BELT DRIVE)

4.01 Take-Up Reel



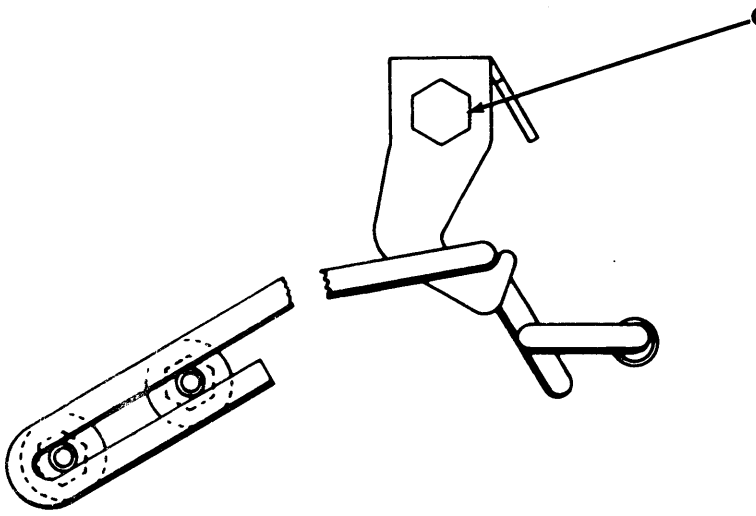
G	Bearing Plate	Tape Take-Up Reel
G	Gear Teeth	Tape Take-Up Reel
SAT	Felt Washer	Idler Gear

4.02 Upper Pulley Assembly



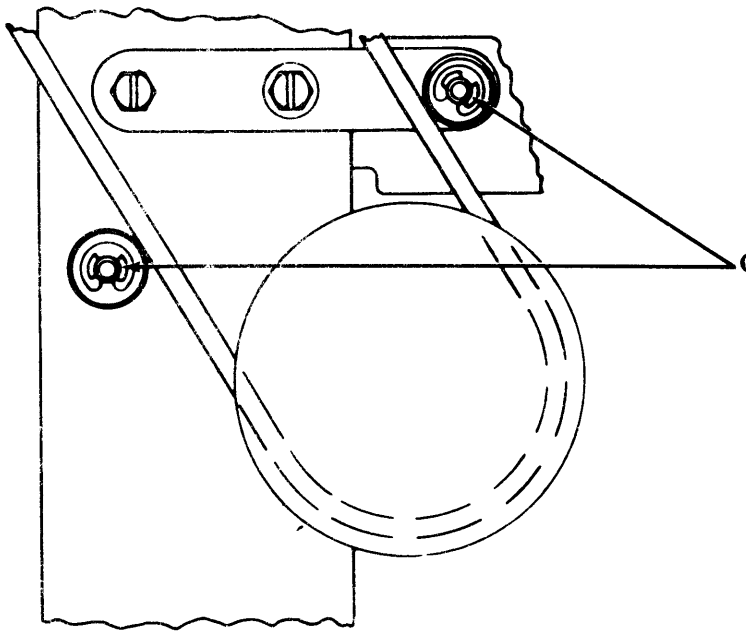
O1	Roller	Pulley Belt Rollers

4.03 Tape Arm Latch



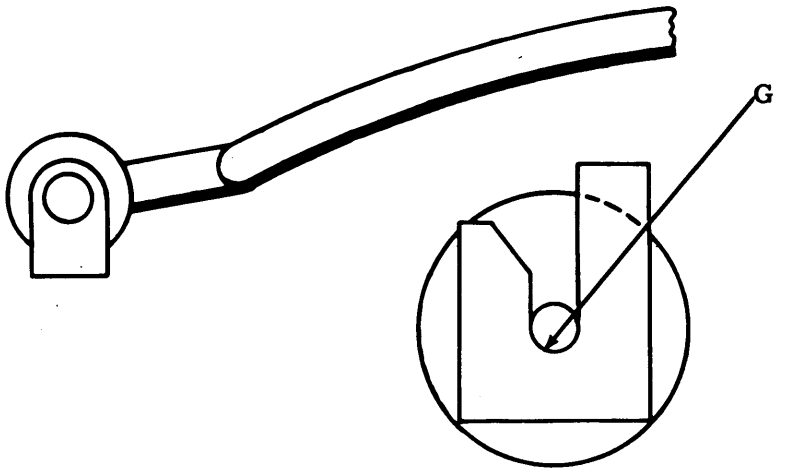
O1	Latch	Tape Arm Latch

4.04 Lower Pulley Assembly



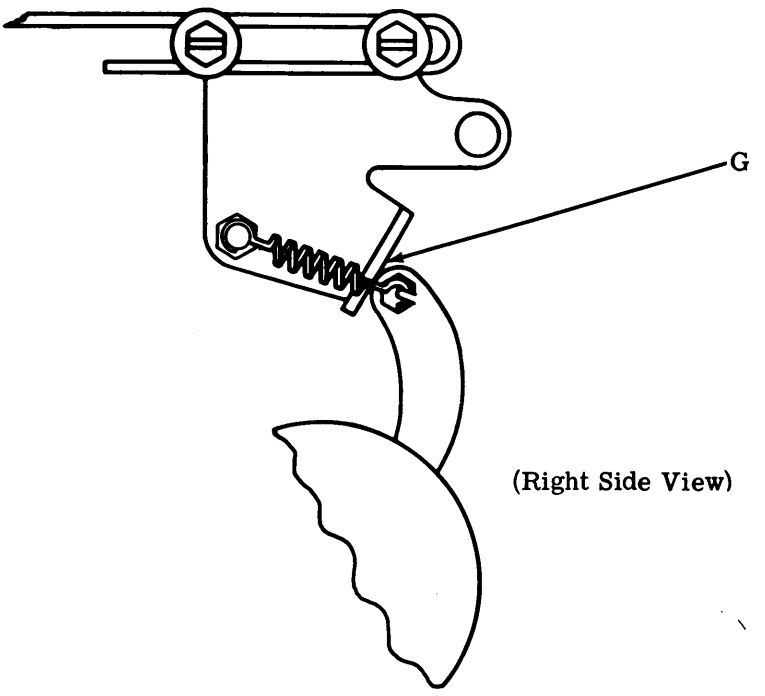
O1	Roller	Pulley Belt Rollers

4.05 Supply Reel



G Bearing Plate Supply Reel

4.06 Tape Arm Bail

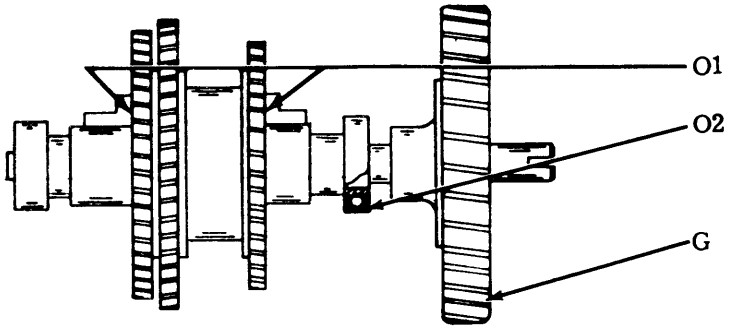


G Bearing Surface Tape Arm Bail

(Right Side View)

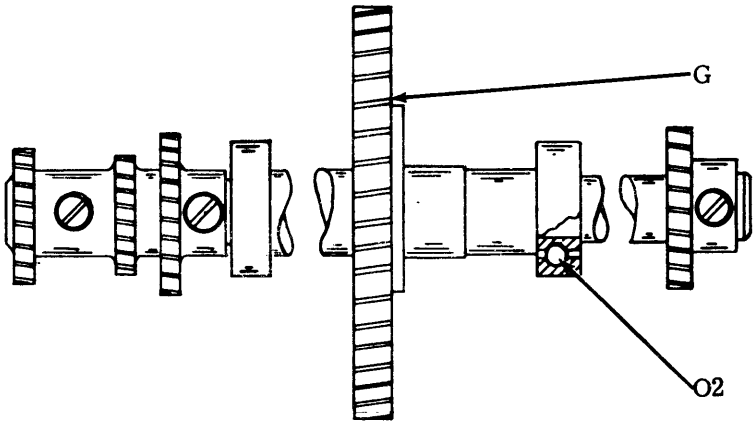
5. REPERFORATOR TRANSMITTER BASE

5.01 Shift Gear Shaft Assembly



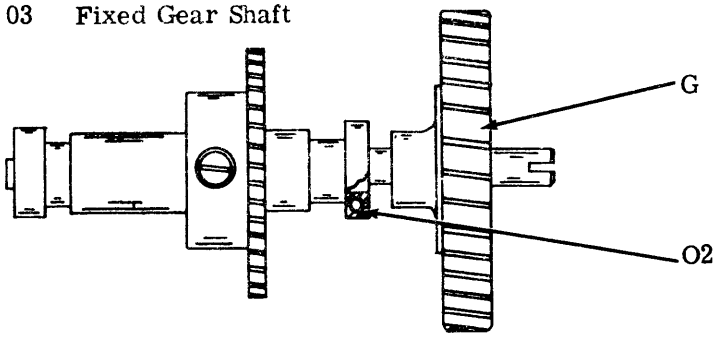
O1	Guiding Surfaces	**Keybar**
O2	Ball Bearings (2 Places)	**Shift Gear Shaft Bearings**
G	Gear Teeth (4 Gears)	**Shift Gear Shaft Gears**

5.02 Cross Shaft Assembly



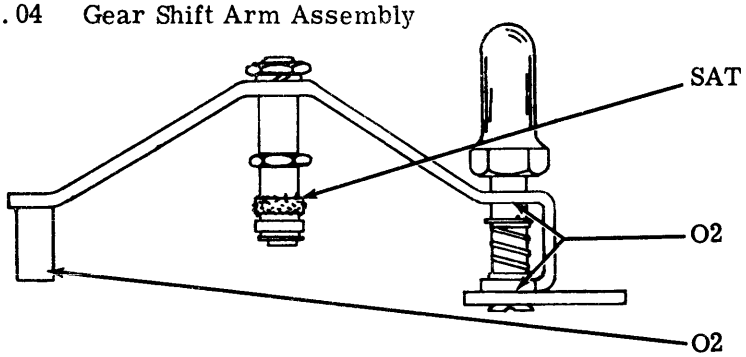
G	Gear Teeth (5 Gears)	Cross Shaft Gears
O2	Ball Bearings (2 Places)	Cross Shaft Bearings

5.03 Fixed Gear Shaft



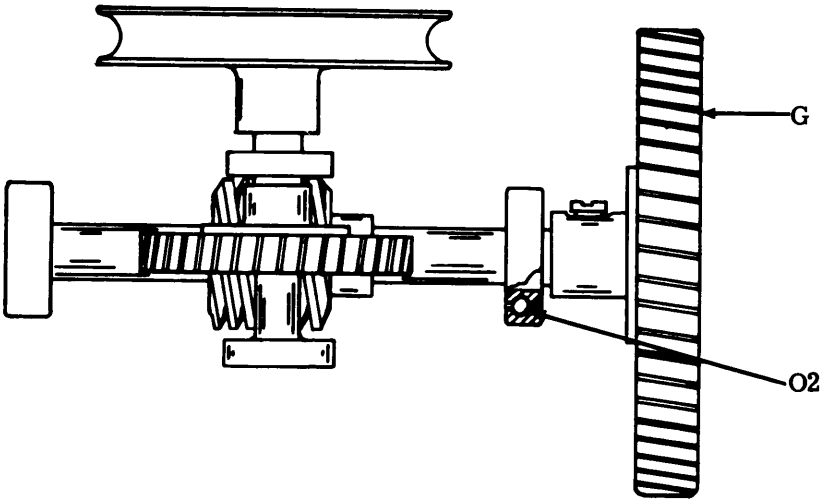
G	Gear Teeth (2 Gears)	**Fixed Gear Shaft Gears**
O2	Ball Bearings (2 Places)	**Fixed Gear Shaft Bearings**

5.04 Gear Shift Arm Assembly



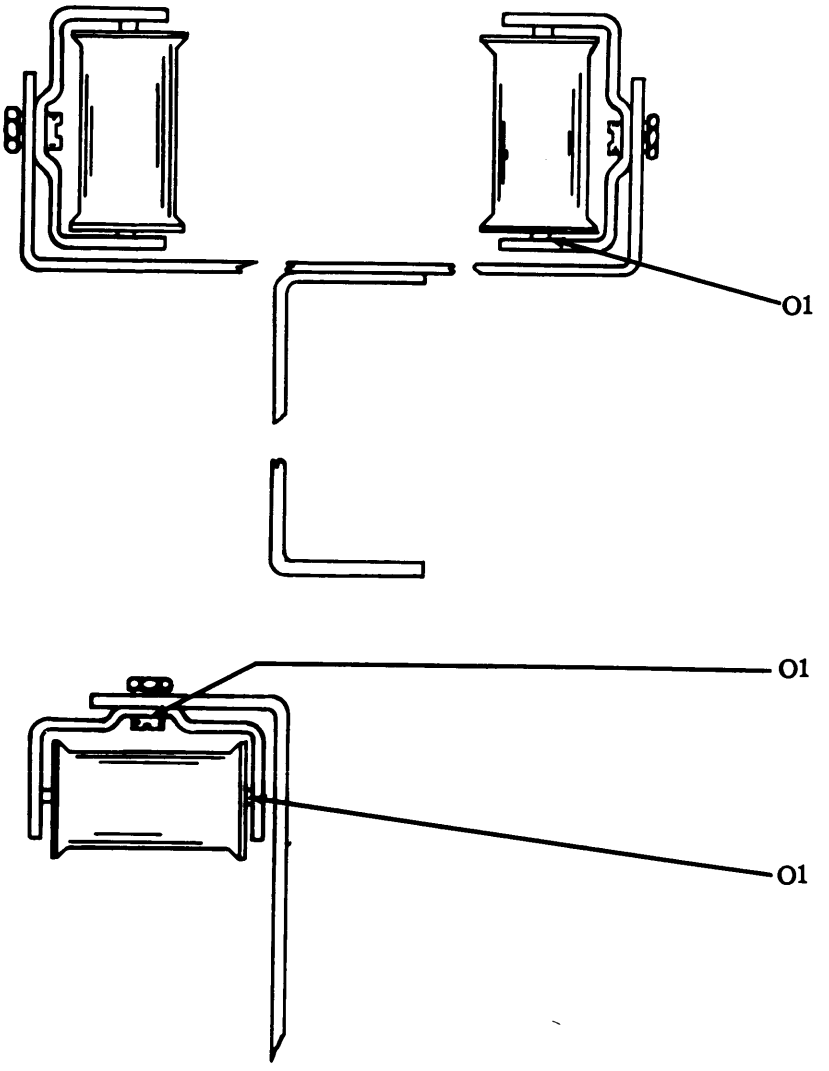
SAT	Felt Oiler	Gear Shift Arm Roller
O2	Bearing Surfaces	Gear Shift Arm Stud
O2	Pivot	Gear Shift Arm

5.05 Tape Winder Drive Bracket Assembly



G	Gear Teeth (3 Gears)	Tape Winder Drive Bracket Gears
O2	Ball Bearings (4 Bearings)	Tape Winder Drive Bracket Bearings

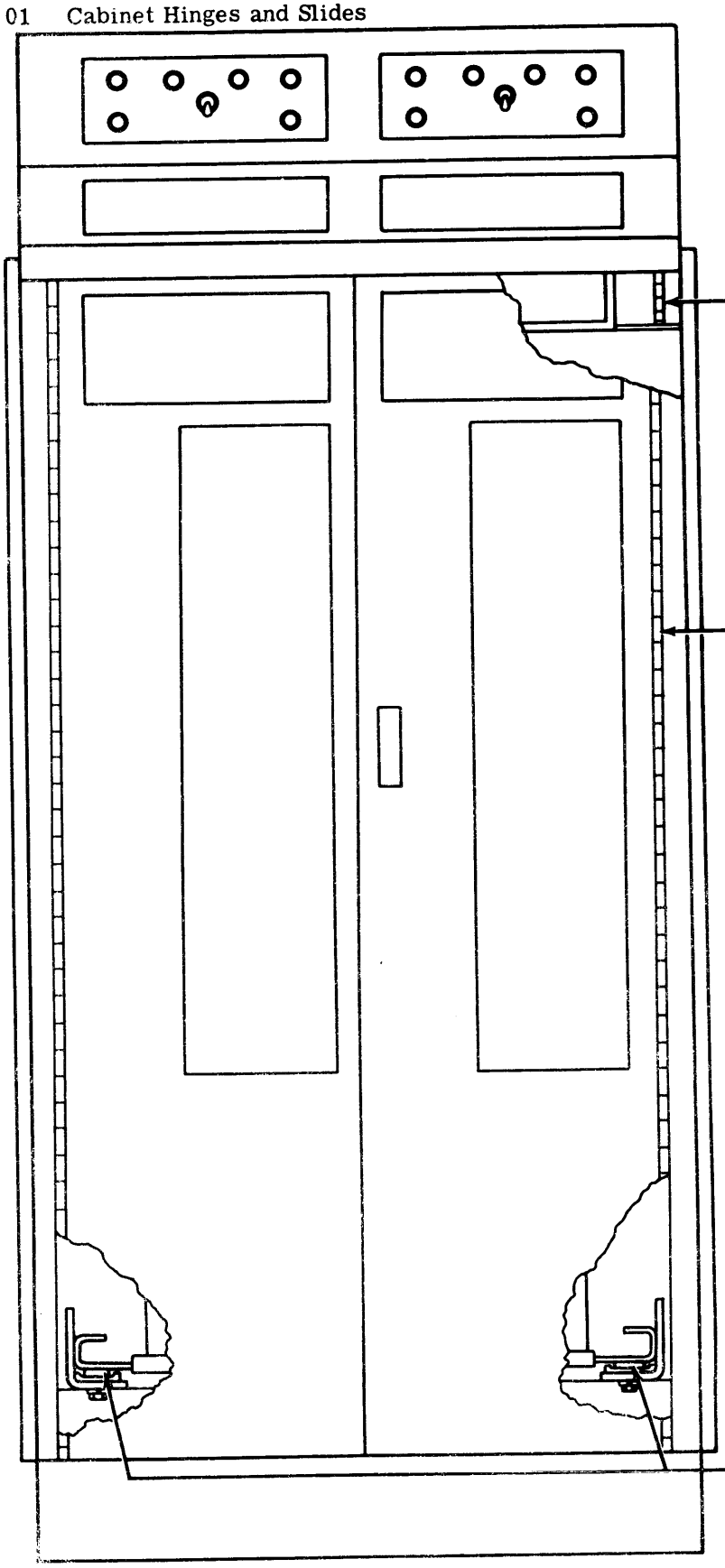
5.06 Tape Bracket Rollers and Shaft



O1	Bearing Surface - Each End (2 Rollers)	Rear Tape Bracket Rollers
O1	Pivot	Front Tape Bracket
O1	Bearing Surface - Each End	Front Tape Bracket Roller

6. CABINET

6.01 Cabinet Hinges and Slides



28 TAPE HANDLING STAND (LTHS) AND REPERFORATOR TRANSMITTER BASE (LRXB) DISASSEMBLY AND REASSEMBLY

CONTENTS PAGE

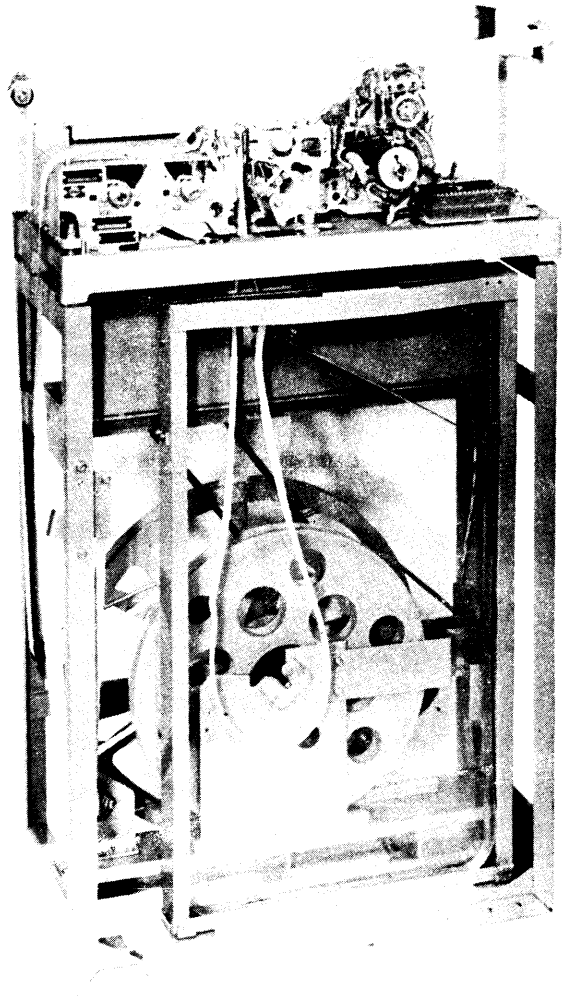
1. GENERAL

1.01 This section is issued to describe the disassembly and reassembly procedures for the 28 tape handling stand and reperforator transmitter base. Disassembly covers a procedure for removing the principal subassemblies which make up the unit.

1.02 Reference should be made to the exploded views found in the appropriate parts literature for an illustration of the mechanism to be disassembled, for location and visual identification of parts, and detailed disassembly and reassembly features.

1.03 Disassembly should be confined to subassemblies, which can, in some cases, be removed without disturbing adjustments. When reassembling the subassemblies, be sure to check all associated adjustments, clearances, and spring tensions.

1.04 If a part that is mounted on shims is removed, the number of shims used at each of its mounting screws should be noted so that the same shim pile-up can be replaced when the part is remounted.



Model 28 Reperforator Transmitter Set

1.05 Retaining rings are made of spring steel and have a tendency to release suddenly when attempting to remove them. Loss of these retainers can be minimized as follows: Hold the retainer with the left hand to prevent it from rotating. Place the blade of a suitable screwdriver in one of the slots of the retainer. Rotate the screwdriver in a direction to increase the diameter of the retainer for removal.

1.06 Avoid loss of springs in disassembly by holding one spring loop with the left hand while gently removing the opposite loop with a spring hook. Do not stretch or distort springs when removing them.

Note: Disconnect power before starting any disassembly procedures.

1.07 When removing a subassembly from the unit, the procedure followed and the location from which parts are removed must be carefully noted so that reassembly can be done correctly. Where no specific instructions are given for reassembly, reverse the procedure used in removing it.

Note: Check the adjustments outlined in Section 573-104-700TC, whenever the reperforator or transmitter distributor has been remounted to the base.

2. DISASSEMBLY AND REASSEMBLY

REPERFORATOR TRANSMITTER - STANDARD SPEED SET

2.01 To remove reperforator unit from the base:

(a) Remove the mounting screw that secures the tape alarm cable clamp.

(b) Remove the hex mounting nut that secures the reperforator cable clamp adjacent to the reperforator 32-point connector.

(c) Remove the mounting screws that secure the 32-point connector.

(d) Remove the mounting screw that secures the TP156183 or TP156184 anchor bracket to the base. Remove the three mounting screws that secure the reperforator frame to the base. Lift the reperforator from the base.

(e) To replace the reperforator unit on its base:

(1) Place the reperforator unit on its base so that its three mounting holes line up with those in the base. Loosen the screw that secures the TP156183 or TP156184 anchor bracket to the punch assembly frame. Thread the previously removed mounting screw through the anchor bracket and into the tapped hole in the base, but do not tighten the screw. Start the remaining three mounting screws through the reperforator frame mounting holes into the tapped holes in base, but do not tighten the screws. Press the anchor bracket against the base and tighten the screw that secures the bracket to the punch assembly frame. Tighten the screw that secures the bracket to the base. Tighten the three screws that secure the reperforator frame to the base.

(2) Replace the 32-point connector and cable clamps removed during disassembly.

2.02 To remove transmitter distributor from the base:

(a) Disconnect the line shunt cable connectors.

(b) Remove the two screws that secure the two transmitter distributor cable clamps.

(c) Remove the mounting screws that secure the 32-point connector.

(d) Remove the transmitter gear guard from the base.

(e) Remove the three mounting screws that secure the transmitter to the base. Lift the transmitter from the base.

(f) To replace the transmitter distributor, reverse the disassembly procedure. See 1.07 note before replacing cable clamps and 32-point connector.

Note: If it is necessary to readjust the vertical alignment of pivoted sensing head and punch, do not replace the cable clamps and 32-point connector for the transmitter distributor until the adjustment is completed.

2.03 To remove the reperforator transmitter base from the tape handling stand:

(a) Remove the tape winder drive belt from the tape winder drive pulley.

(b) Disconnect all plugs from their connectors on the tape handling stand frame.

(c) Loosen the three captive screws securing the base to the stand, and lift the base from the stand.

2.04 To remove tape winder drive bracket assembly:

(a) Remove the four mounting screws, lockwashers, and flat washers that secure the TP158748 tape winder drive bracket to the base.

(b) Remove the bracket and note the number of TP158750 shims between the bracket and the base.

2.05 To remove the cross shaft assembly:

(a) Remove the screw and lockwasher that secure the TP158745 bearing clamp.

(b) Remove the cross shaft bearing retaining screws, washers, and nuts.

(c) Remove the cross shaft driven gear hub mounting screw and lockwasher.

(d) Slide cross shaft assembly sideways out of bearing seats and remove shaft assembly from base.

2.06 To remove gear bracket assembly (fixed speed or shift gears):

(a) Remove the transmitter and reperforator gear covers.

(b) Remove the three gear bracket mounting screws and washers, and remove the gear bracket assembly.

REPERFORATOR TRANSMITTER BASE - LOW TO HIGH SPEED SET

2.07 To remove reperforator unit from the base:

(a) Remove the 36-point connector.

(b) Remove the two mounting screws and washers that secure the gear cover, and remove the gear cover.

(c) Remove the three mounting screws and washers securing the reperforator.

(d) Lift the reperforator from the base.

(e) To replace the reperforator unit, reverse the disassembly procedure.

2.08 To remove high speed tape reader from the base:

(a) Remove the three mounting screws and washers that secure the gear guard, and remove the gear guard.

(b) Remove the three mounting screws and lockwashers that secure the casting to its mounting plate.

(c) Remove the reader from the base.

(d) To replace the high speed tape reader, reverse the disassembly procedure.

2.09 To remove the reperforator transmitter base from the tape handling stand:

(a) Remove the four screws and washers securing the alarm plug to the tape handling stand connector plate.

(b) Remove the four screws, spacers, and washers that secure the connector plate to the tape handling stand.

(c) Remove the tape winder drive belt from the tape winder drive pulley.

(d) Remove the tape bin motor plug and loosen the three captive base mounting screws. Lift the base from the stand.

2.10 To remove tape winder drive bracket assembly: See 2.04 in this section.

2.11 To remove cross shaft assembly: See 2.05 in this section.

2.12 To remove gear bracket assembly: See 2.06 in this section.

REPERFORATOR TRANSMITTER BASE - HIGH TO LOW SPEED SET

2.13 To remove high speed reperforator unit from the base:

(a) Remove the 36-point male plug.

(b) Remove the two screws and washers that secure the 36-point female plug to its mounting bracket.

(c) Loosen the setscrews securing the rubber coupling between the sprocket drive shaft and the high speed reperforator drive shaft.

(d) Remove the five mounting screws and washers securing the reperforator to its mounting bracket and remove the reperforator.

(e) To replace the reperforator unit, reverse the disassembly procedure.

2.14 To remove transmitter distributor from the base:

(a) Loosen the screw that secures the mounting bracket at the reader end of the transmitter distributor, and swing the bracket clear of the casting.

(b) Remove the three screws and washers that secure the gear housing.

(c) Remove the two mounting screws and washers at the distributor end of the unit, and lift the transmitter distributor from the base.

2.15 See 2.09, 2.10, 2.11, and 2.12 in this section for remaining disassembly procedure.

REPERFORATOR TRANSMITTER BASE - HIGH TO LOW SPEED SET (UNITS WITH V BELT DRIVE)

2.16 To remove high speed reperforator unit from the base:

(a) Remove the 25-point male plug.

(b) Remove the two screws and washers that secure the 25-point female plug to its mounting bracket.

(c) Remove the four mounting screws and washers securing the reperforator to its mounting bracket, and remove the reperforator.

(d) To replace the reperforator unit, reverse the disassembly procedure.

2.17 To remove transmitter distributor from the base:

(a) Loosen the screw that secures the mounting bracket at the reader end of the transmitter distributor, and swing the bracket clear of the casting.

(b) Remove the three screws and washers that secure the gear housing.

(c) Remove the two mounting screws and washers at the distributor end of the unit, and lift the transmitter distributor from the base.

2.18 See 2.09, 2.10, 2.11, and 2.12 of this section for remaining disassembly procedure.

STANDARD SPEED TAPE HANDLING STAND

2.19 Remove the tape supply and take-up reels and the intermediate tape storage bin.

2.20 To remove tape winder assembly:

(a) Remove the two screws and lockwashers that secure the TP158995 capacitor bracket to the tape winder base plate.

(b) Remove the two screws, lockwashers, and flat washers that secure the TP159214 support bracket to the TP158972 bracket.

(c) Remove the four screws, lockwashers, and flat washers that secure the tape winder assembly to stand frame.

(d) Unhook the tape supply arm.

(e) Remove the tape winder assembly from the stand.

2.21 To remove clutch shaft assembly:

(a) Remove the intermediate gear hub mounting screw and lockwashers, and remove the intermediate gear and hub.

(b) Remove the drive belt.

(c) Unhook the stop lever spring.

(d) Remove the two screws, lockwashers, and flat washers that secure the TP158983 intermediate gear bracket to the TP158972 bracket and remove the intermediate gear bracket with stop lever attached.

(e) Remove the two screws, lockwashers, and flat washers that secure the TP158986 outer clutch bearing bracket to the TP126902 outer plate, and remove the bracket.

(f) Remove the two screws, lockwashers, and flat washers that secure the TP160191 inner bearing plate to the TP126902 outer plate and remove the clutch shaft assembly.

HIGH SPEED TAPE HANDLING STAND

2.22 Remove the tape supply and take-up reels and the intermediate tape storage bin.

2.23 To remove tape winder assembly:

(a) Remove the four screws and washers that secure the two TP170828 crossbars to the tape handling stand frame.

(b) Remove the two screws and washers that secure the TP170827 "U" bracket to the TP170826 bracket at the rear of the winder assembly.

(c) Remove the tape winder assembly.