35 TRANSMITTER-DISTRIBUTOR (MULTICONTACT)

ADJUSTMENTS

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Prepared for American Telephone and Telegraph Company by Teletype Corporation

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1. GENERAL

1.01 This section provides adjustments and requirements for the 35 transmitter-distributor (multicontact). The section has been revised to include recent engineering changes and additions and to rearrange the text. Since this is a general revision, marginal arrows ordinarily used to indicate changes and additions are omitted.

1.02 The adjustments are arranged in a sequence that should be followed if a complete readjustment is undertaken. A complete adjusting procedure should be read before attempting to make the adjustment. After an adjustment is completed, be sure to tighten any nuts or screws that may have been loosened, unless otherwise instructed.

1.03 The adjusting illustrations indicate tolerances, positions of moving parts, spring tensions and the angle at which scales should be applied. The tools required to make adjustments and check spring tensions are not supplied with the equipment, but are listed in Section 570-005-800. Springs which do not meet the requirements, and for which there are no adjusting procedures, should be discarded and replaced by new springs.

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

1.05 When the requirement calls for a clutch to be disengaged, the clutch shoe lever must be fully latched between its trip lever and latchlever so that the clutch shoes release their tension on the clutch drum. When engaged, the clutch shoe lever is unlatched and the clutch shoes are wedged firmly against the clutch drum.

Note: When rotating either the sensing or distributor shaft by hand, the respective clutch may not fully disengage upon reaching its stop position. To disengage the clutch, rotate the clutch to its stop position, apply a screwdriver to the cam disc stop-lug, and move the disc in the normal direction of the shaft rotation until the latchlever seats in its notch in the disc.

1.06 The covers may be removed for inspection and minor repair of the unit. However, when more extensive maintenance is to be undertaken, it is recommended that the unit be removed from its subbase to disconnect the power and to permit it to be inverted.

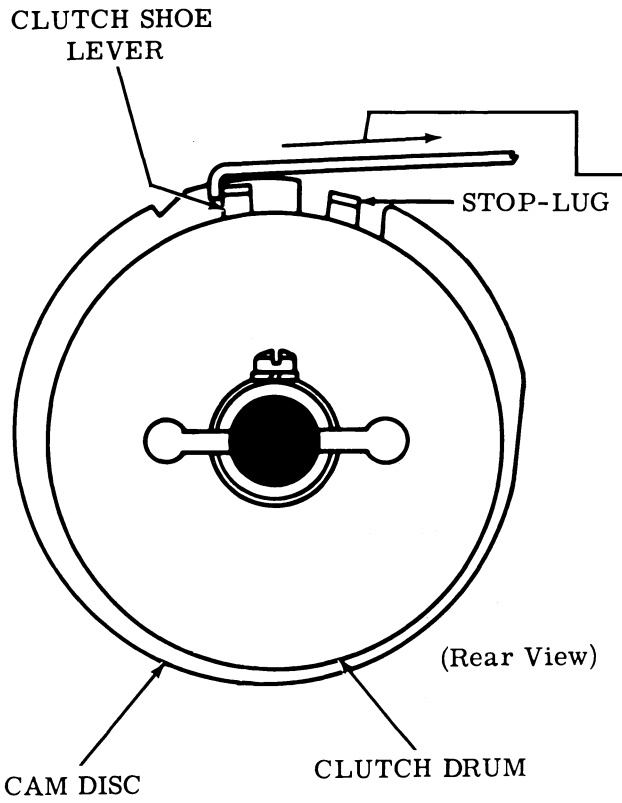
1.07 All electrical contact points should meet squarely. Contacts with the same diameter should not be out of alignment more than 25 percent of the contact diameter. Check contacts for pitting and corrosion and clean or burnish them before making specified adjustment tolerance measurement. Avoid sharp kinks or bends in the contact springs.

Note: Keep all electrical contacts free of oil and grease.

1.08 References made to left or right, up or down, front or rear, etc, apply to the unit in its normal operating position as viewed from the operator position in front of the unit.

2. BASIC UNIT

2.01 Clutch Mechanism



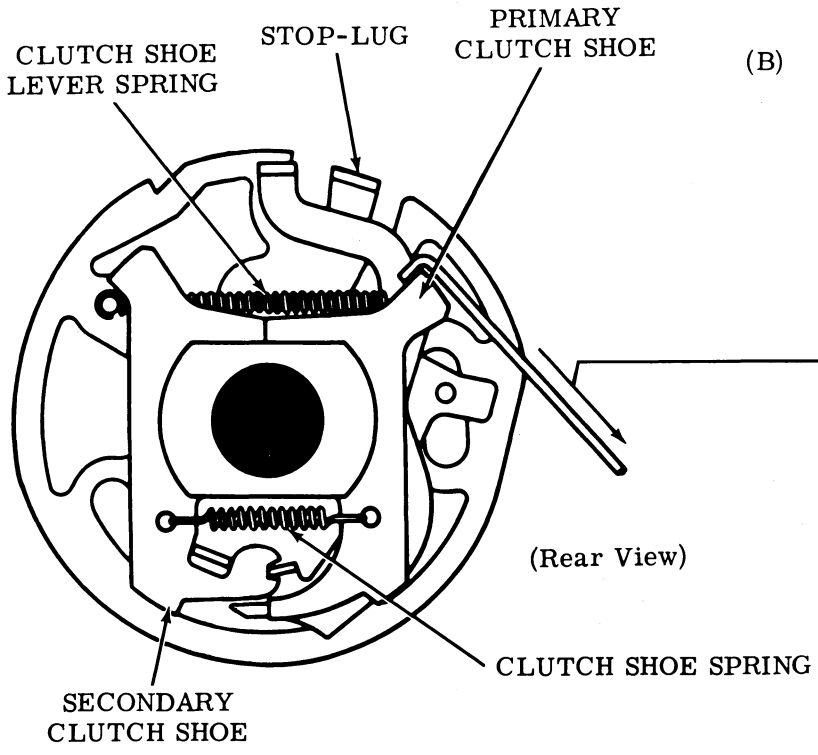
(A) CLUTCH SHOE LEVER SPRING

Requirement

Clutch engaged and cam disc held to prevent turning. Scale pulled at tangent to clutch.

Min 15 oz---Max 20 oz to move clutch shoe lever in contact with stop-lug.

Note: Requirements (A) and (B) are adjusted at the factory and should not be disturbed unless associated mechanisms have been removed for servicing or there is reason to believe that the requirements are not met. Requirements (A) and (B) apply to both the sensing clutch and distributor clutch.



(B) CLUTCH SHOE SPRING

Note: It is necessary to remove the clutch from the main shaft to facilitate this check.

Requirement

Clutch drum removed. Scale applied to primary shoe at a tangent to the friction surface.

Min 3 oz---Max 5 oz to start primary shoe moving away from secondary shoe at point of contact.

2.02 Cam Shafts

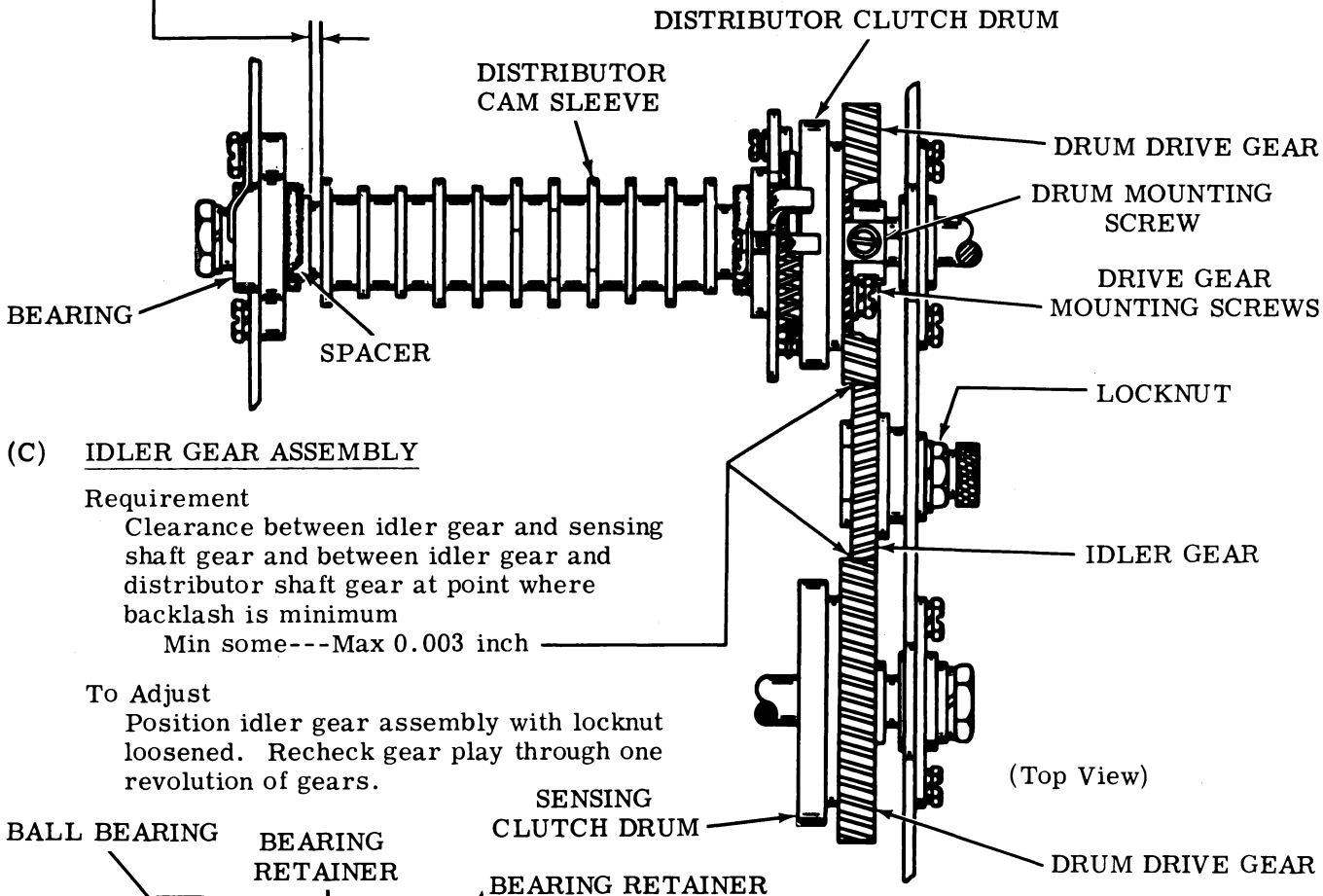
Note: The following adjustments apply to both the distributor and sensing cam sleeves. These mechanisms should not be disturbed unless there is reason to believe the requirements are not met.

(A) CAM SLEEVE ENDPLAY

Note: Make this adjustment prior to assembling gear.

Requirement
Min some---Max 0.010 inch play between sleeve and spacer.

To Adjust
Remove clutch drum drive gear and loosen drum mounting screw. Release clutch and position cam sleeve. Tighten cam sleeve mounting screw and reinstall drive gear.

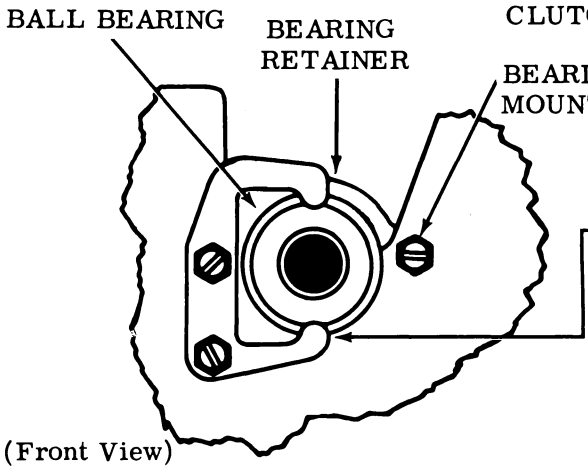


(C) IDLER GEAR ASSEMBLY

Requirement
Clearance between idler gear and sensing shaft gear and between idler gear and distributor shaft gear at point where backlash is minimum
Min some---Max 0.003 inch

To Adjust
Position idler gear assembly with locknut loosened. Recheck gear play through one revolution of gears.

(Top View)



(Front View)

(B) CAM SHAFT BEARING RETAINER

Requirement
When mounting shaft assembly, bearing should seat properly. (No clearance permissible between bearing and mounting surface.)

To Adjust
Rotate bearing retainer 180 degrees and position by pushing downward firmly.

2.03 Clutch Trip Mechanism

Note: Adjustments apply to both clutch trip mechanisms.

(A) CLUTCH ARMATURE AIR GAP

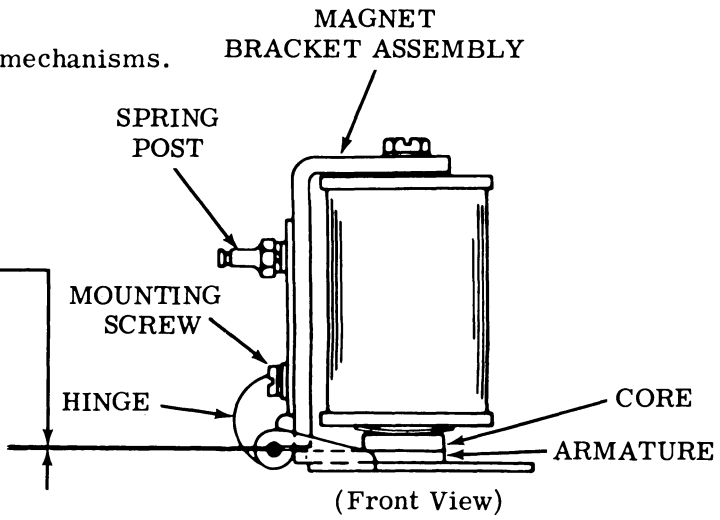
Requirement

Air gap between armature and magnet assembly bracket should be

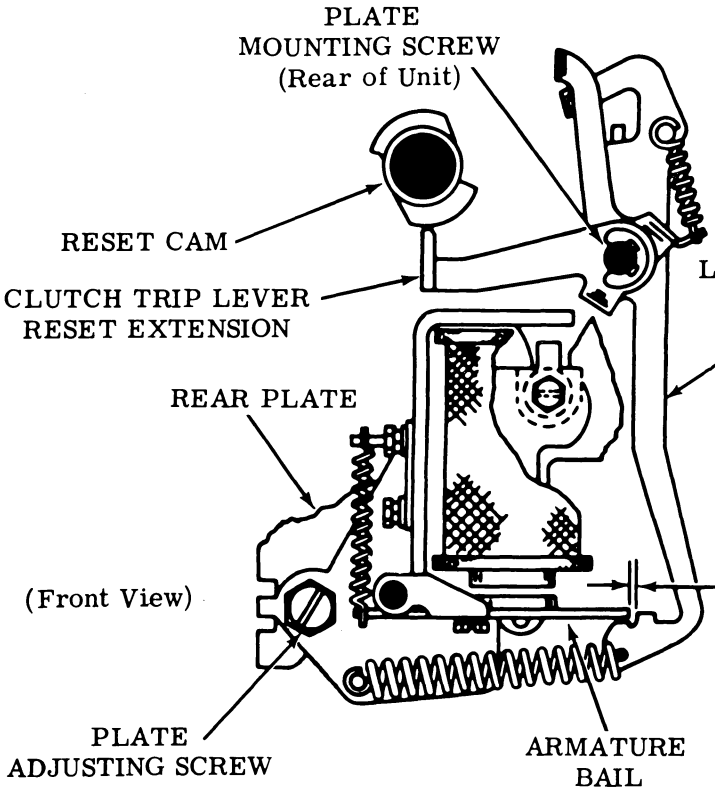
Min 0.004 inch---Max 0.008 inch with armature flush against magnet core.

To Adjust

Remove armature extension spring. Position hinge with spring post and hinge mounting screw loosened. Recheck air gap and replace spring.



(Front View)



(Front View)

(B) CLUTCH TRIP ASSEMBLY MOUNTING PLATE

Requirement

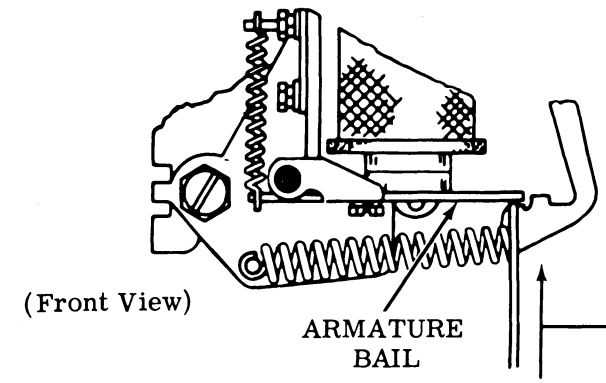
Clearance between end of armature bail and latching surface of clutch trip lever lower extension with clutch trip lever reset extension on high part of cam

Min 0.020 inch---Max 0.030 inch

(Take up play in parts for minimum clearance.)

To Adjust

Position plate with screwdriver in lower adjusting slot with plate adjusting screw and plate mounting screw loosened. (Take up play in trip lever in direction of cam.)



(Front View)

(C) ARMATURE BAIL SPRING

Requirement

Trip lever reset extension on high part of cam. Scale applied to latching end of armature bail

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

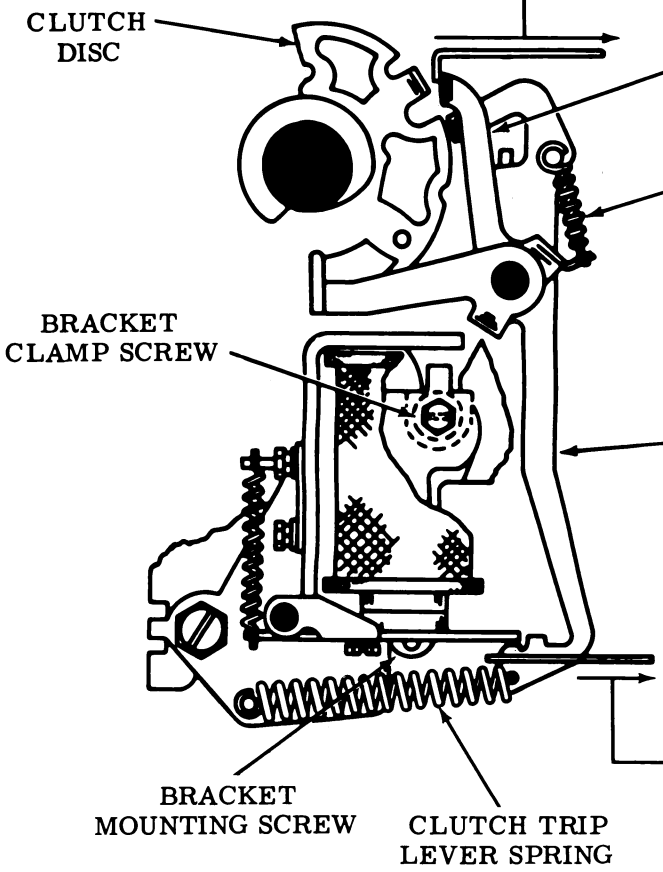
to start armature bail moving.

2.04 Clutch Trip Mechanism (continued)

Note: Refer to adjustments in 2.03.

(A) CLUTCH LATCHLEVER SPRING

Requirement
Clutch latchlever on low part of clutch disc and unit upright. Scale applied to bent ear of latchlever horizontally.
Min 2-1/2 oz---Max 4-1/2 oz
to start latchlever moving.



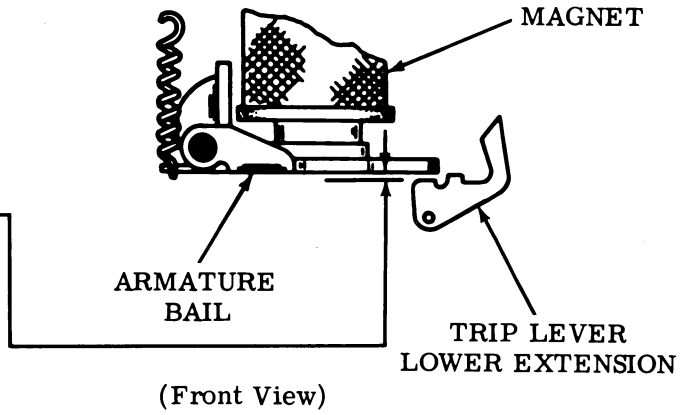
(B) CLUTCH TRIP LEVER SPRING

Requirement
With clutch just tripped, hold armature against core. Scale applied to trip lever lower extension in line with spring.
Min 2 oz---Max 3-1/2 oz
to start trip lever lower extension moving.

(C) MAGNET BRACKET

Requirement
Clearance between armature bail and top edge of trip lever lower extension with clutch trip lever reset extension on high part of cam and armature flush against core
Min 0.030 inch---Max 0.040 inch
(Take up play for minimum clearance.)

To Adjust
With bracket mounting screw and clamp screw loosened, insert screwdriver in upper slot and pivot bracket.

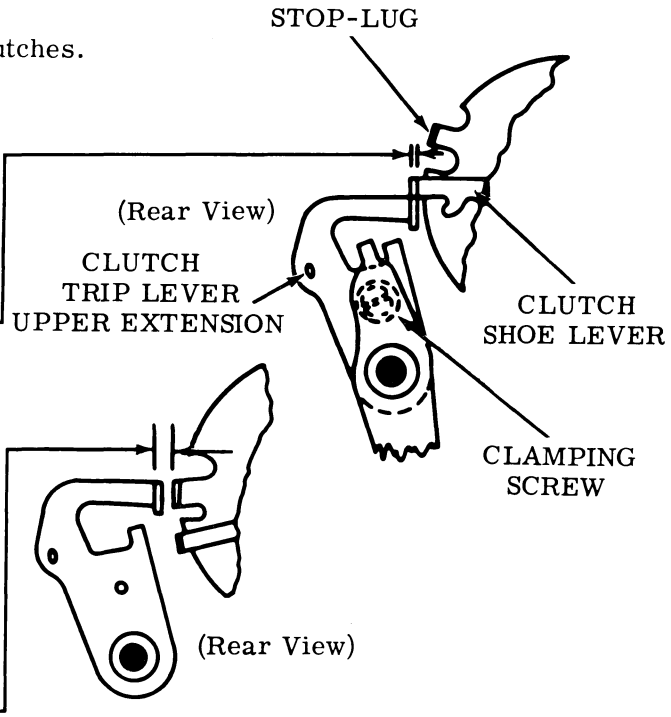


2.05 Clutch Mechanism (continued)

Note: Adjustments (A) and (B) apply to both clutches.

(A) CLUTCH TRIP LEVER UPPER EXTENSION

(1) Requirement
Clutch trip lever latched (Clutch in stop position). Clutch trip lever upper extension should fully engage clutch shoe lever.



To Adjust
Position upper extension, with clutch trip lever clamping screw loosened.

(2) Requirement
With armature in attracted position, there should be some clearance between clutch trip lever upper extension and stop-lug when clutch is rotated to make clearance a minimum.

To Adjust
Refine requirement (1), if necessary, so that clutch trip lever upper extension is under or over flush with stop-lug by not more than 0.015 inch.

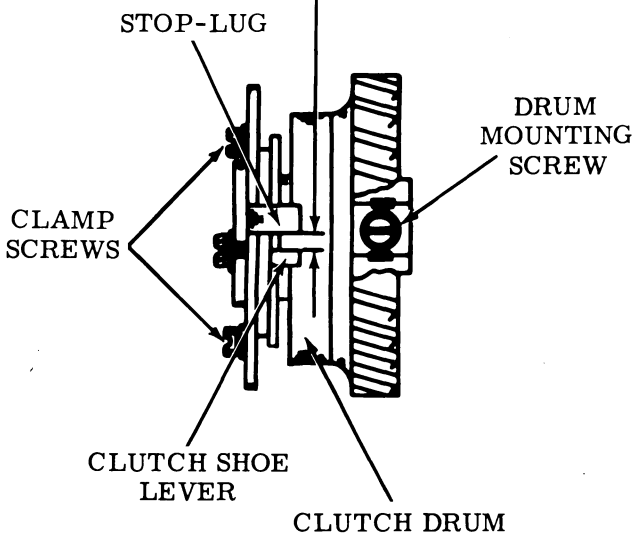
(B) CLUTCH SHOE LEVER

(1) To Check
Disengage clutch. Measure clearance.

(2) To Check
Align head of clutch drum mounting screw with stop-lug. Engage clutch. Manually press shoe lever and stop-lug together and allow to snap apart. Measure clearance.

Requirement
Clearance between shoe lever and stop-lug
Min 0.055 inch---Max 0.085 inch greater when clutch engaged (2) than when disengaged (1).

To Adjust
Engage wrench or screwdriver with lug on adjusting disc. Rotate disc with clamp screws loosened.



(Top View)

2.06 Distributor Contact Mechanism

Note: Remove oil reservoir and distributor block assembly to facilitate adjustment.

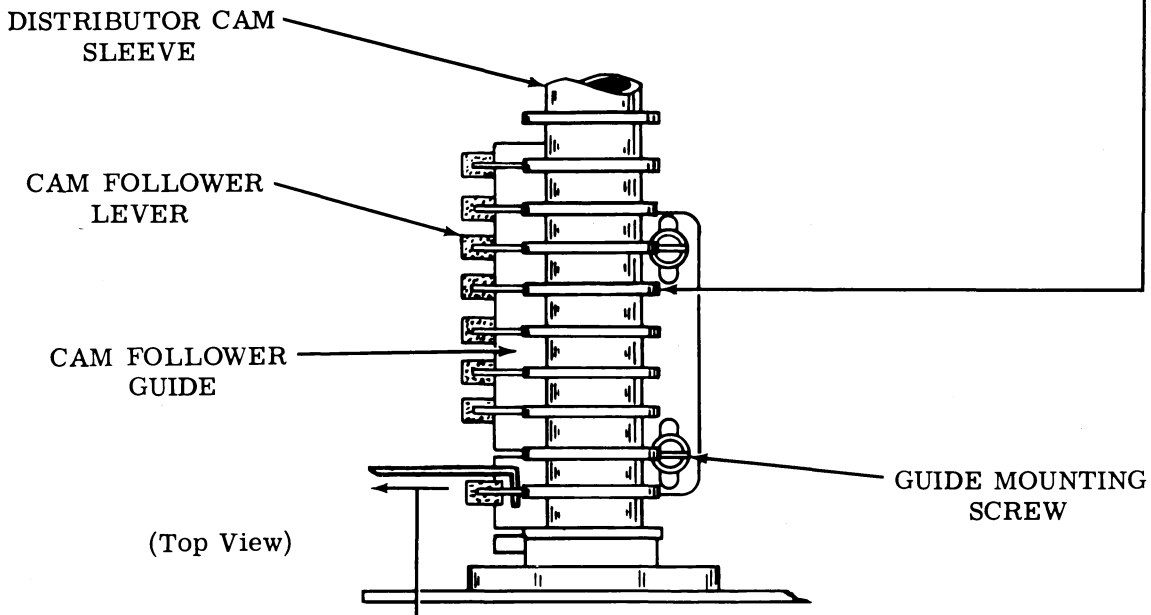
(A) CAM FOLLOWER GUIDE

(1) Requirement
Center cam follower engages cam by full thickness of follower when moved from side to side in its guide slot.

(2) Requirement
In manner similar to requirement (1), other follower should engage cam by at least 75 percent of follower thickness.

(3) Requirement
All followers should move freely in their guide slots.

To Adjust
Position cam follower guide with its mounting screws loosened.



(B) CAM FOLLOWER LEVER SPRING

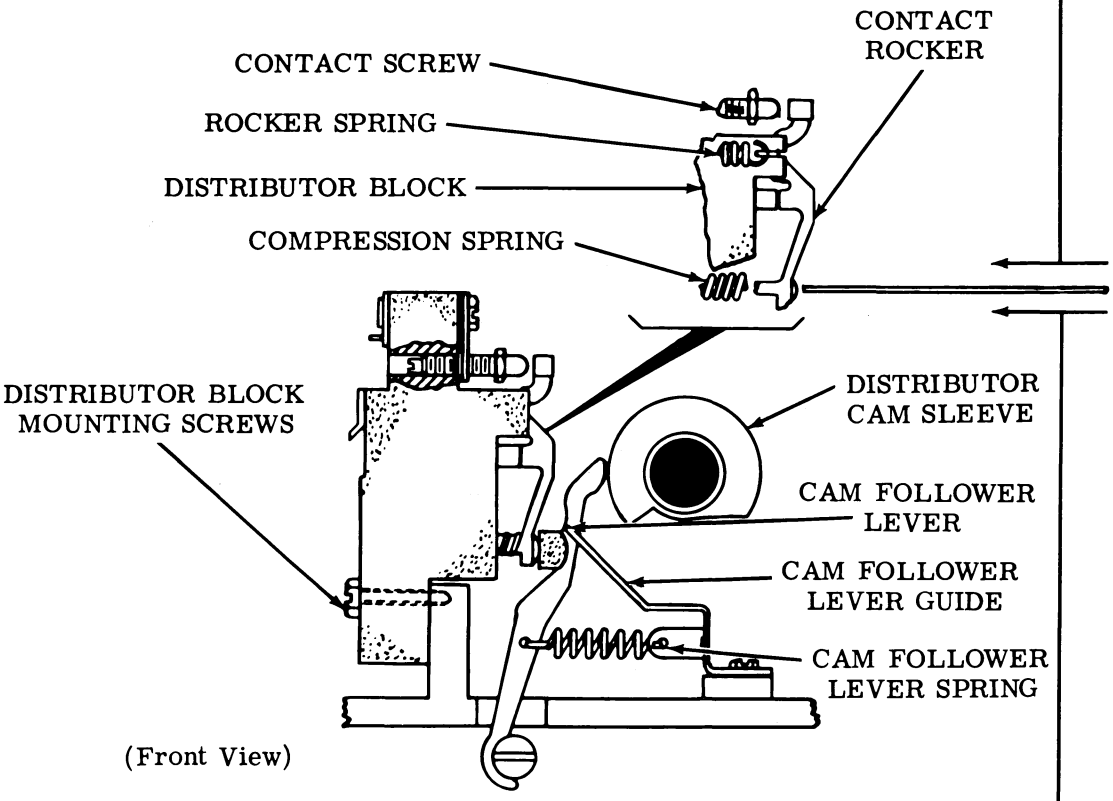
Requirement
Cam follower lever on high part of cam. Scale applied just below sliding surface of lever horizontally.
Min 1/2 oz---Max 1-1/2 oz to start each lever moving.

2.07 Distributor Contact Mechanism (continued)

(A) DISTRIBUTOR ROCKER SPRING

To Check
Position each contact screw so its contact surface is about 1/32 inch from edge of block.

Requirement
With compression springs removed, hold distributor block in horizontal position. Push spring scale downward (vertically).
Min 3-1/2 oz---Max 4-1/2 oz
to separate contacts.



(Front View)

(B) DISTRIBUTOR ROCKER COMPRESSION SPRINGS

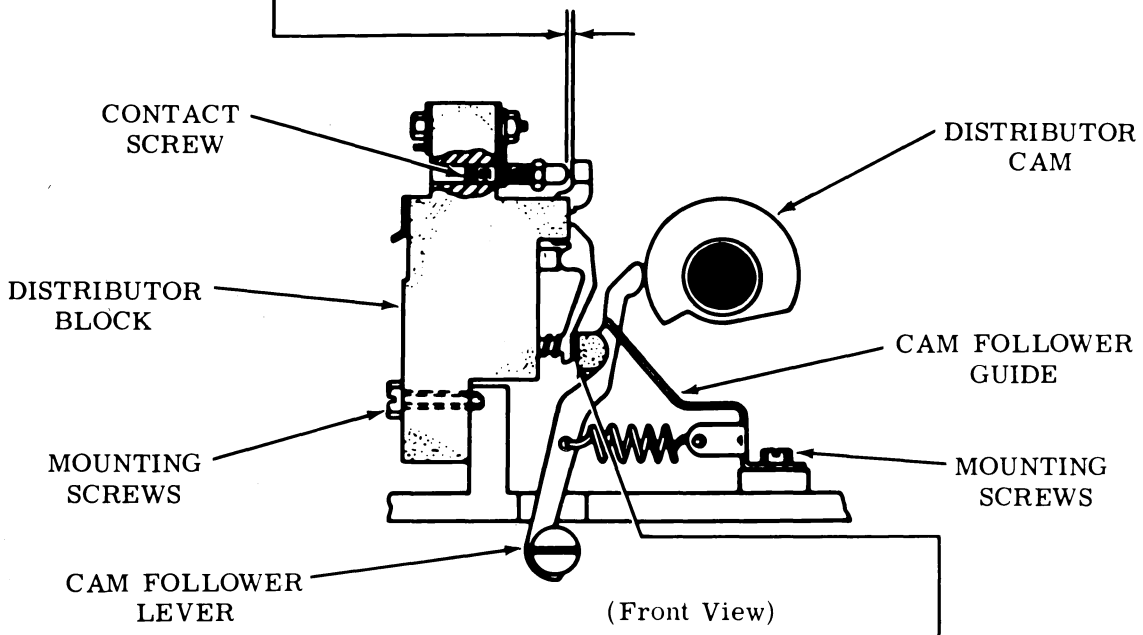
Requirement
With compression springs installed, and block in a horizontal position, apply spring scale at lower end of rocker and push downward.
Min 6-1/2 oz---Max 9-1/2 oz
to separate contacts.

2.08 Distributor Contact Mechanism (continued)

(D) DISTRIBUTOR CONTACT GAP

Requirement
With cam follower on high part of cam, contact gap should be
Min 0.020 inch---Max 0.030 inch

To Adjust
Trip clutch manually to position cam. Turn contact screw to adjust. Check all contacts.



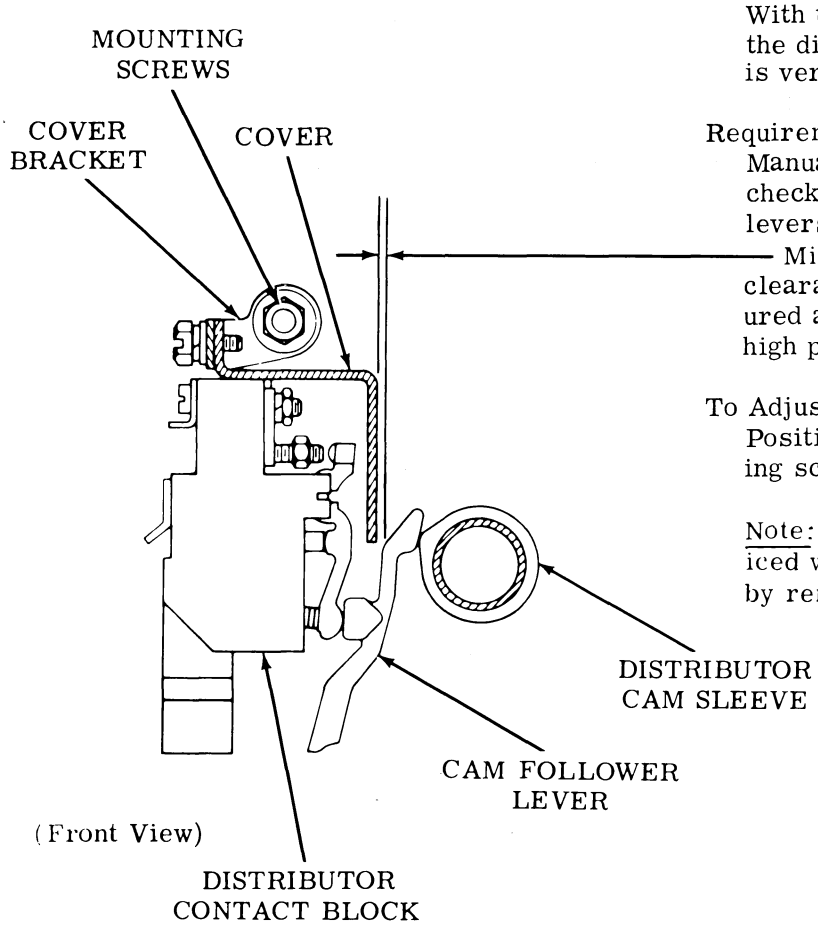
(C) DISTRIBUTOR BLOCK ASSEMBLY

Requirement
Rockers should fully engage insulated portions of respective cam follower levers.

To Adjust
Position distributor or block with mounting screws loosened.

Note: For refinement of distributor adjustments, refer to Part 3, CONTACT STROBING.

2.09 Distributor Contact Mechanism (continued)



DISTRIBUTOR COVER BRACKET POSITIONING

To Check

With the cover held flat against the top of the distributor block so that the right side is vertical as gauged by eye.

Requirement

Manually rotate the distributor shaft and check the two outermost cam follower levers.

Min 0.025 inch---Max 0.040 inch clearance between cover and levers measured at closest point when levers are on high part of their cams.

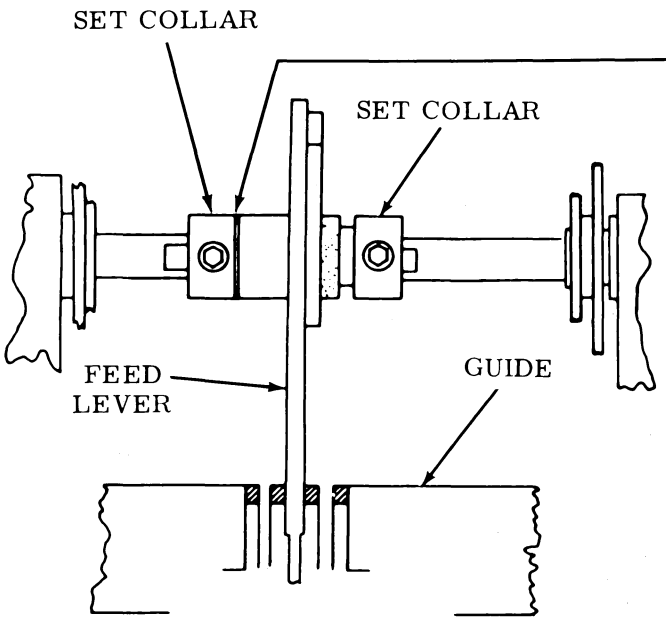
To Adjust

Position the cover bracket with its mounting screws friction tight.

Note: Distributor contacts can be serviced without disturbing this adjustment by removing cover from bracket.

2.10 Feed Lever Mechanism

(A) FEED LEVER SET COLLAR



(Top View)

Requirement

Clearance between feed lever and collar should be

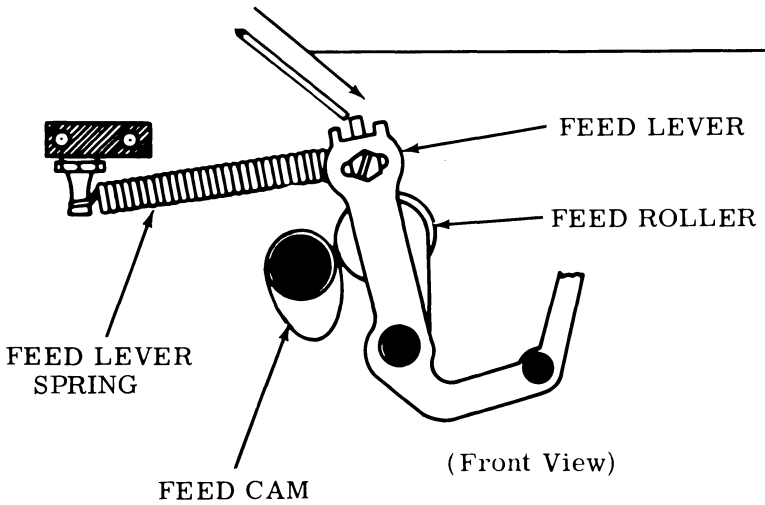
Min some---Max 0.015 inch when feed lever is free in its guide slot.

To Adjust

Position feed lever with set collar screws loosened. Feed lever should move freely without binding at guide or collars.

Note: After tightening setscrews, recheck adjustment for binds between feed lever and collars, and between feed lever and guide.

(B) FEED LEVER SPRING



(Front View)

To Check

Rotate sensing shaft until clutch is in stop position.

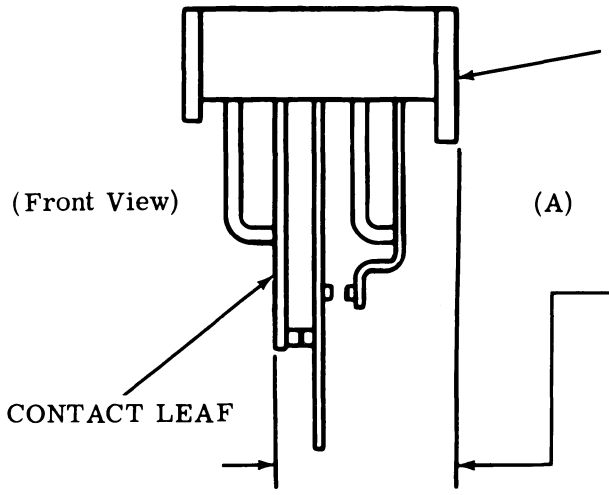
Requirement

Min 10 oz---Max 17 oz to move feed lever away from cam.

Note: This adjustment is made with the feed lever cam follower roller on the low part of the sensing cam.

2.11 Transfer Type Storing Switch Mechanism

Note: The following five adjustments (A thru E) are to be made with the contact assemblies removed from the unit. Use a TP172060 adjusting tool to bend the contacts. For each adjustment start with the contact pile-up farthest from the handle of the bending tool to avoid disturbing completed adjustments.



(A) NORMALLY CLOSED CONTACT BACKSTOP

Requirement
Five or eight normally closed contact leafs parallel to mounting plate and in line with each other as gauged by eye.

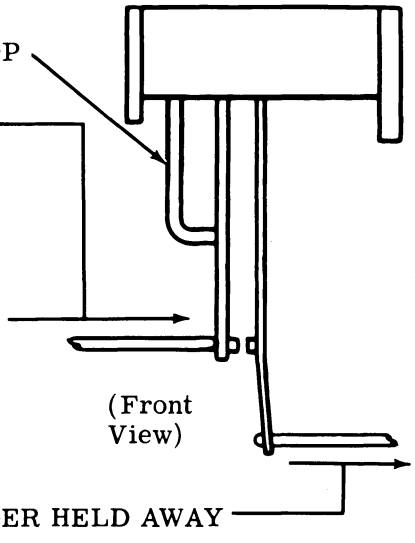
To Adjust
Bend backstop.

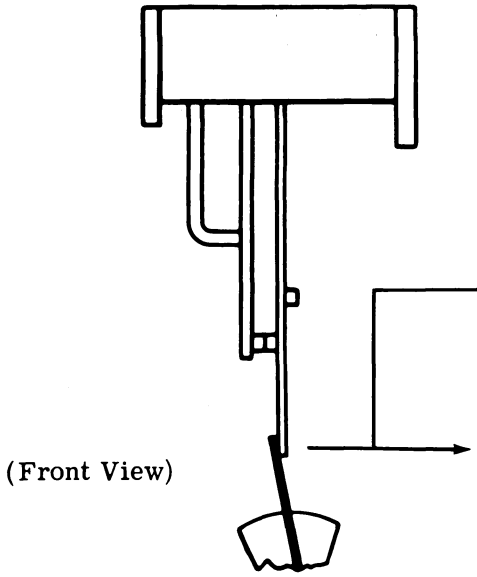
(B) NORMALLY CLOSED CONTACT SPRING

Requirement
With swinger contact held away
Min 2 oz---Max 6 oz
to move each normally closed leaf away from backstop.

To Adjust
Bend normally closed leaf spring.

Note: To increase tension of normally closed leaf, it may be necessary to bend backstop away from leaf, bend leaf, and then remake adjustment (A).



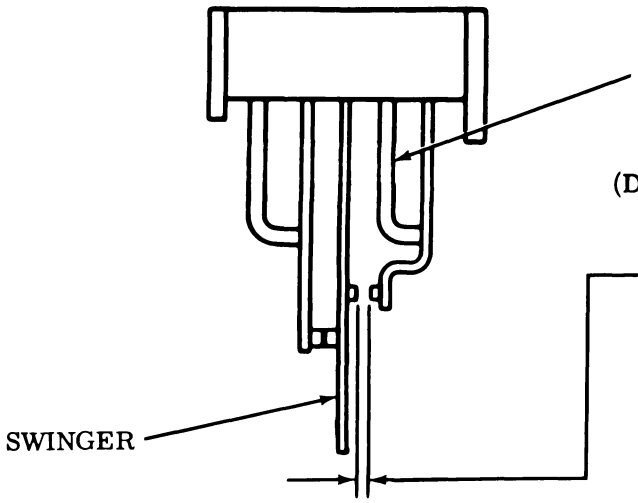


(C) SWINGER SPRING

Requirement
Min 35 grams---Max 50 grams
to open normally closed contact.

To Adjust
Bend swinger leaf.

2.12 Transfer Type Storing Switch Mechanism (continued)

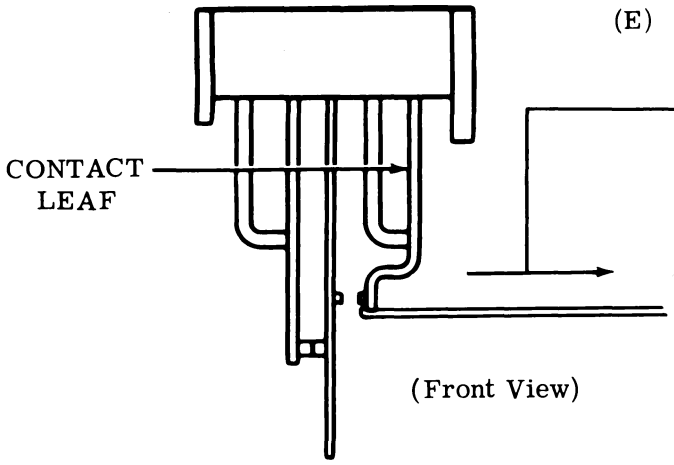


(Front View)

(D) NORMALLY OPEN CONTACT GAP

Requirement
Min 0.010 inch---Max 0.015 inch clearance between contact points.

To Adjust
Bend normally open contact backstop.



(Front View)

(E) NORMALLY OPEN CONTACT SPRING

Requirement
Min 35 grams---Max 50 grams to move each normally open leaf away from its backstop.

To Adjust
Bend normally open leaf spring.

Note: To increase tension of normally open leaf spring, it may be necessary to bend backstop away from leaf, bend leaf, and then remake adjustment (D).

2.13 Transfer Type Storing Switch Mechanism (continued)

INSTRUCTIONS FOR REPLACING AND POSITIONING STORING SWITCH ASSEMBLY (TRANSFER TYPE)

Place switch assembly on lower surface of main casting. Exercise care in seating slide levers against pusher levers and latchlevers in appropriate slot of slide lever guide.

STORING SWITCH ASSEMBLY

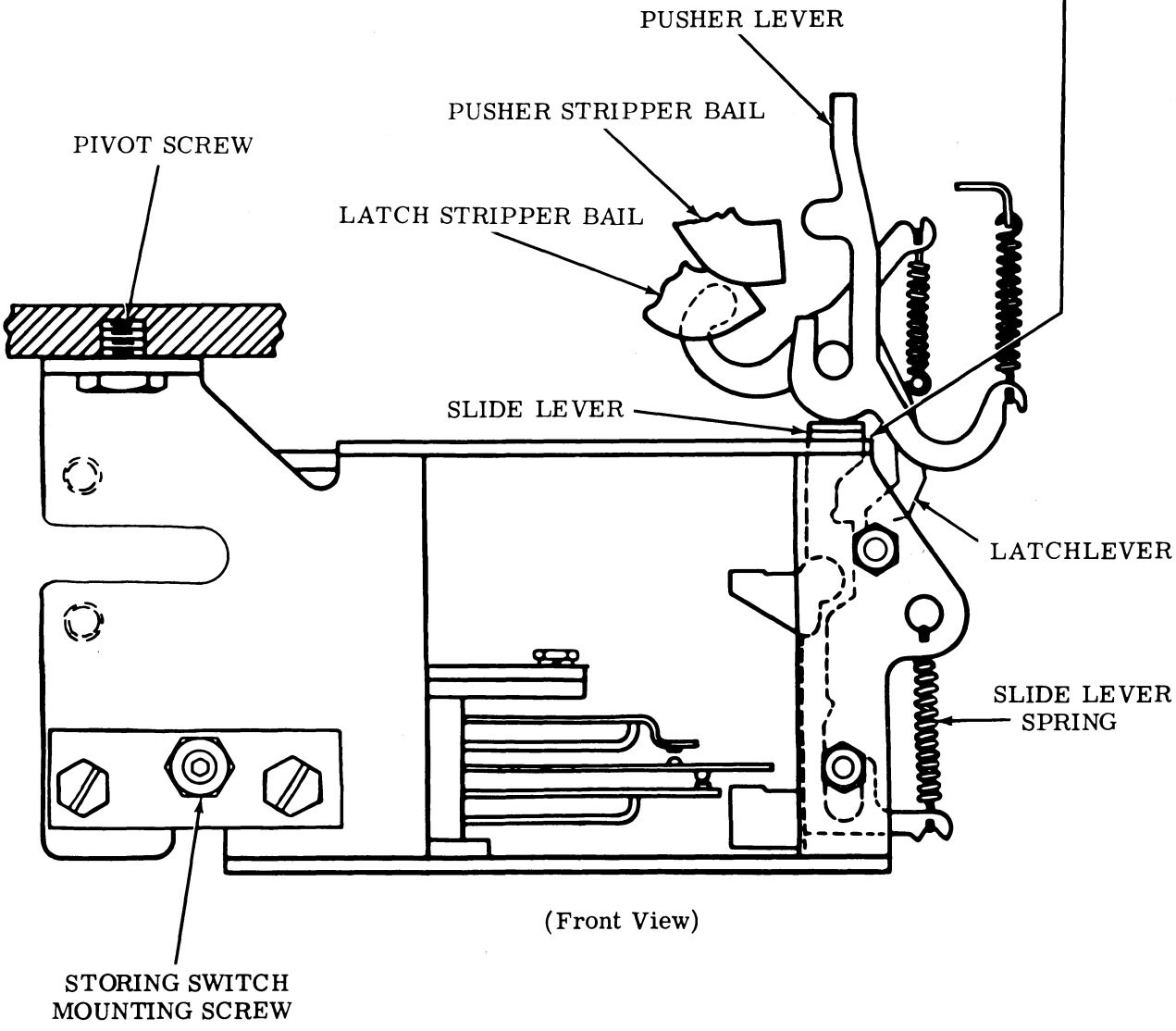
Requirement

With top plate in place, select a RUBOUT-NULL-RUBOUT combination and observe latch and pusher lever action. Storing switch should align with latchlever so that latchlevers and slides function without binding.

To Adjust

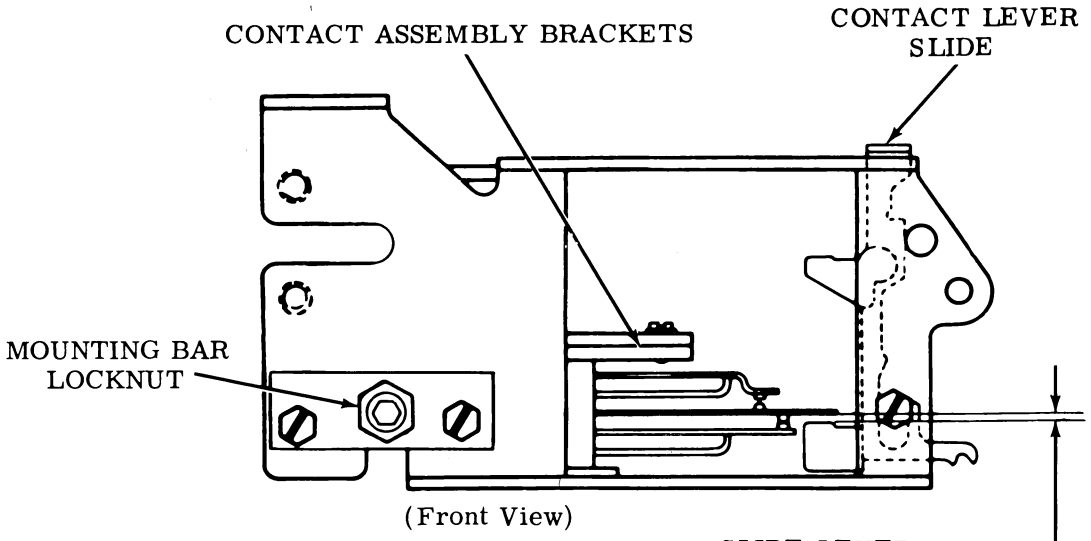
Position switch assembly with its mounting screws loosened. Recheck requirement after tightening screws.

Note: A minor adjustment of the sensing pin and pusher lever guide may be necessary.



(Front View)

2.14 Transfer Type Storing Switch Mechanism (continued)

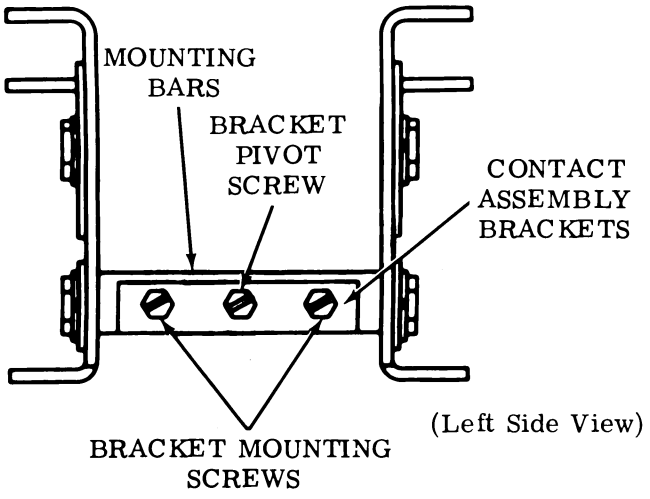


SLIDE LEVER

To Check
Storing switch assembly installed (see 2.13).
Sensing slides selected and latched.

Requirement
Clearance between all sensing slides and contact swingers should be
Min 0.005 inch---Max 0.020 inch

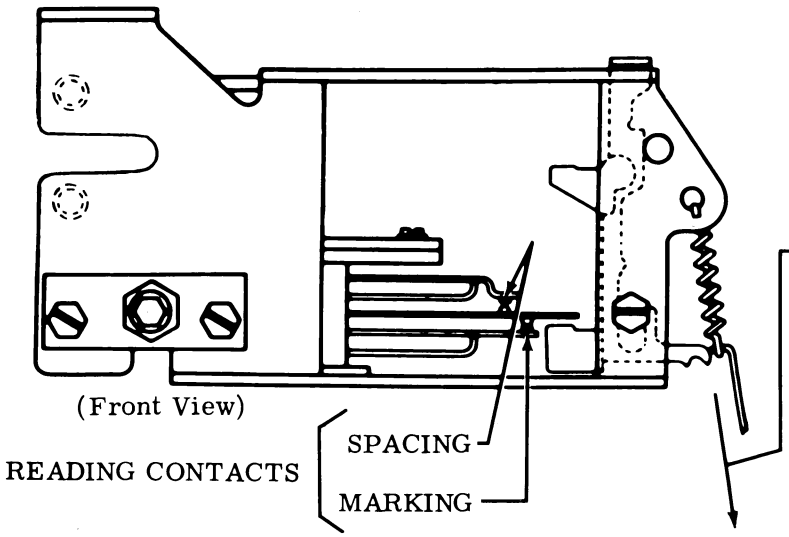
To Adjust
Loosen mounting bar locknuts and bracket mounting screws to friction tight. Insert a hex wrench in end of contact assembly mounting bar. Position contact assembly by rotating bar to pivot contact assembly. Check at all swingers.



SLIDE LEVER SPRING

To Check
Place slide levers in uppermost position (NULL selected, latches stripped). Hook spring scale in the spring loop.

Requirement
Min 6 oz---Max 9 oz
to pull each spring to its installed length.



2.15 Tape Lid Mechanism

TAPE LID

Note: Remove top and tape guideplates. Lubricate mating surfaces prior to adjustment.

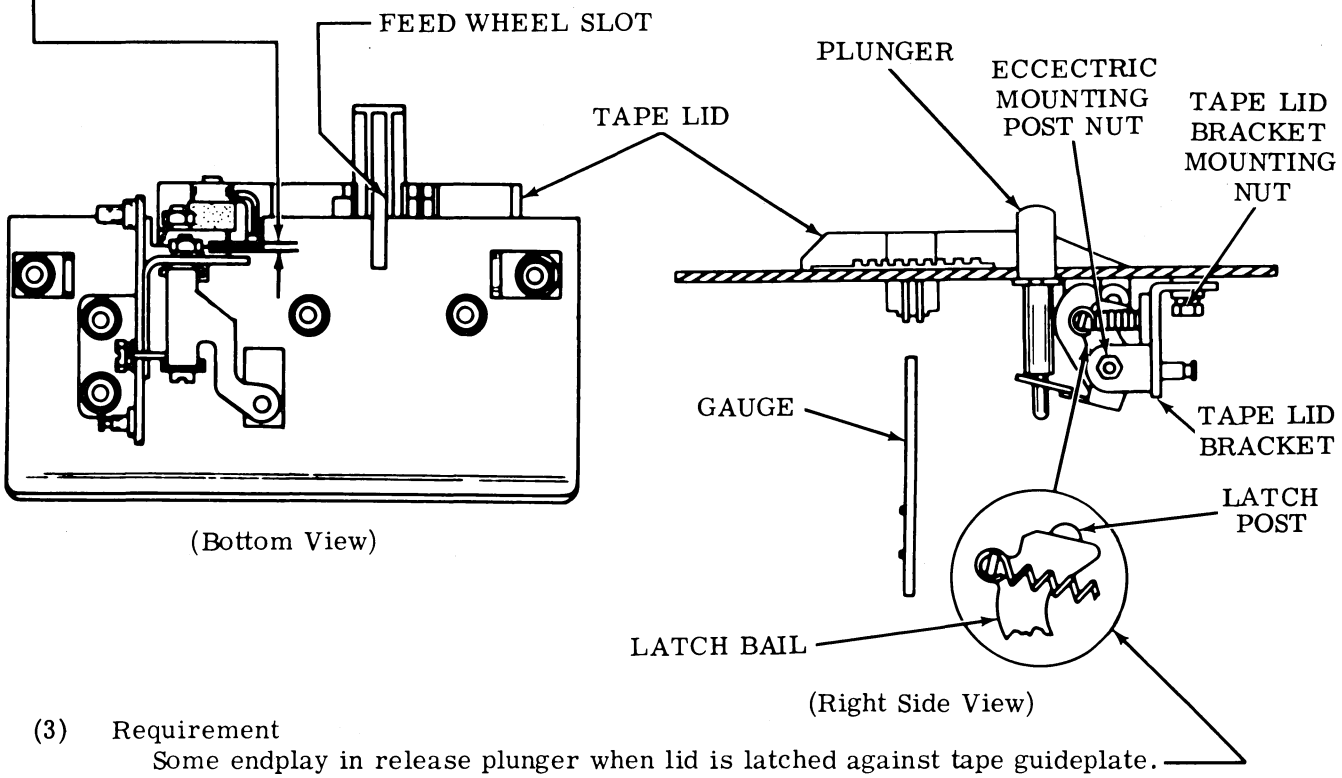
(1) Requirement

Clearance between pivot shoulder and tape lid should be
Min some---Max 0.010 inch
when lid is pressed against notch in tape guideplate, and feed wheel slots and tape-out pin holes are lined up.

To Adjust

Loosen tape lid bracket mounting nuts. Using a TP156743 gauge, line up feed wheel groove in tape lid with slot in tape guideplate. Position tape lid bracket to meet requirement. Tighten nuts.

(2) Requirement - (See 2.16).



(Bottom View)

(Right Side View)

(3) Requirement

Some endplay in release plunger when lid is latched against tape guideplate.

To Adjust

With eccentric mounting post nut friction tight and tape lid raised, rotate high part of eccentric post towards mounting bracket. Close tape lid. Rotate eccentric counterclockwise (as viewed from slotted end of eccentric post) until flat of latch post fully engages latch bail flat. Rotate eccentric clockwise to take up all play in parts, and to seat open end of tape lid against tape guideplate.

To Check

With tape lid held down manually, latch tip should clear latch post when release button is operated. With tape lid latched, tip of latch should project beyond flat of latch post, and there should be some endplay in release button.

2.16 Tape Lid Mechanism (continued)

TAPE LID (continued)

(2) Requirement

With tape lid front bearing surface touching tape guideplate, clearance between tape lid and tape guideplate should be

Min 0.010 inch---Max 0.018 inch

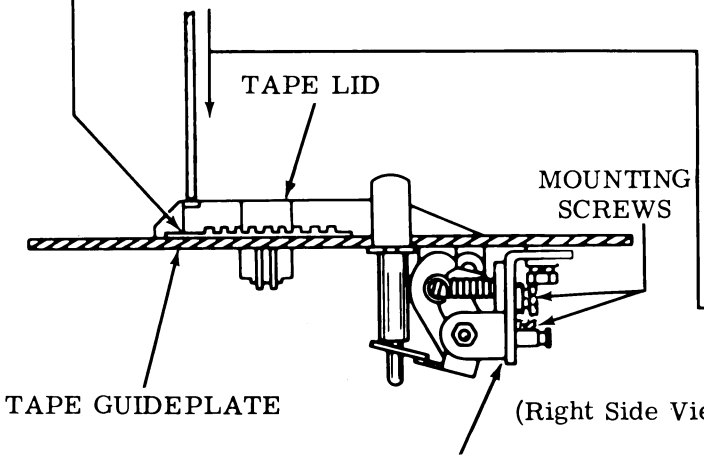
measured at tape lid fin in line with rear tape guide (second fin from rear).

Note: When both top and tape guideplates are assembled on unit, left edge of lid may touch top plate and some change in this clearance may be expected.

To Adjust

With tape lid bearing bracket mounting screws friction tight, and tape lid pressed against tape guideplate, position bearing bracket. Recheck requirement (1).

(1) and (3) requirements - (See 2.15).



TAPE LID SPRING

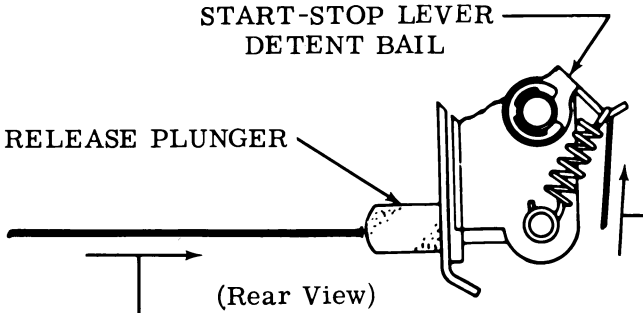
To Check

Open tape lid. Hold unit so tape guideplate is horizontal. Apply scale at top of lid immediately left of tape-out pin hole. Hold plunger fully depressed.

Requirement

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

to move open end of tape lid against tape guideplate.



START-STOP LEVER DETENT SPRING

To Check

Place start-stop lever in run position.

Requirement

Min 14 oz---Max 22 oz

to start detent bail moving away from control lever detent.

TAPE LID RELEASE PLUNGER SPRING

To Check

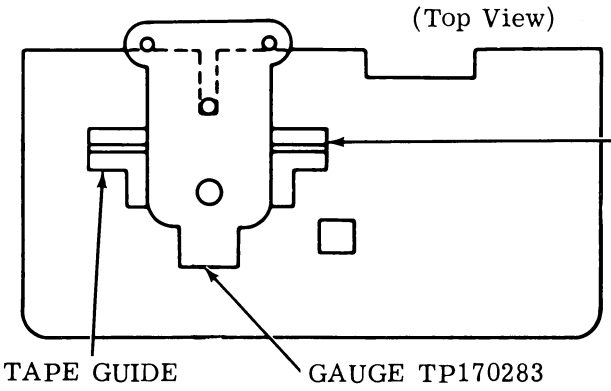
Hold tape guideplate so top surface is horizontal.
Open tape lid.

Requirement

Min 28 oz---Max 48 oz

to start tape lid bail moving.

2.17 Tape Guideplate



TAPE GUIDE

Requirement
With gauge properly positioned
Min some---Max 0.003 inch
between gauge and tape guides.

To Adjust
Loosen tape guide mounting nuts to friction tight. Properly position gauge on tape guideplate. Position tape guides to meet requirement.

TAPE GUIDEPLATE

(1) Requirement
Shoulder of feed wheel post should not interfere with top plate or tape guideplate mounting brackets.

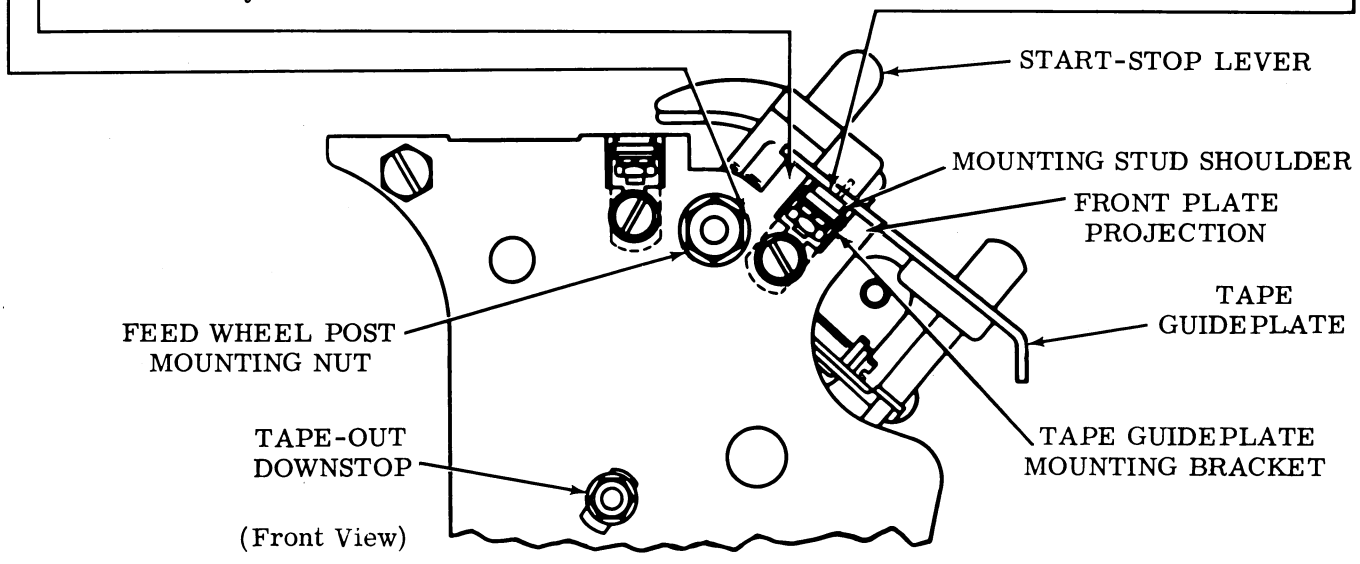
To Adjust
Rotate feed wheel post with its mounting nut loosened.

(2) Requirement
Tape guideplate should rest firmly against at least three projections of the front and rear plate.

To Adjust
With tape-out downstop in its lowermost position, and tape guideplate mounting bracket (front and rear) nuts friction tight, trip clutch and rotate shaft until sensing pins are in their uppermost position. With tape lid raised and start-stop lever in run position, press tape guideplate into position. Guide mounting screws into notch of front and rear plate, and place sensing pins adjacent to left edge of guideplate. Place tape-out pin into its hole. Tighten each bracket mounting.

(3) Requirement
Outer edges of mounting brackets and outer edges of mounting stud shoulders should align and project equally on front and rear brackets.

To Adjust
Move tape guideplate toward front or rear. Tighten nuts only after TOP PLATE (2.18) is adjusted.



2.18 Top Plate Assembly

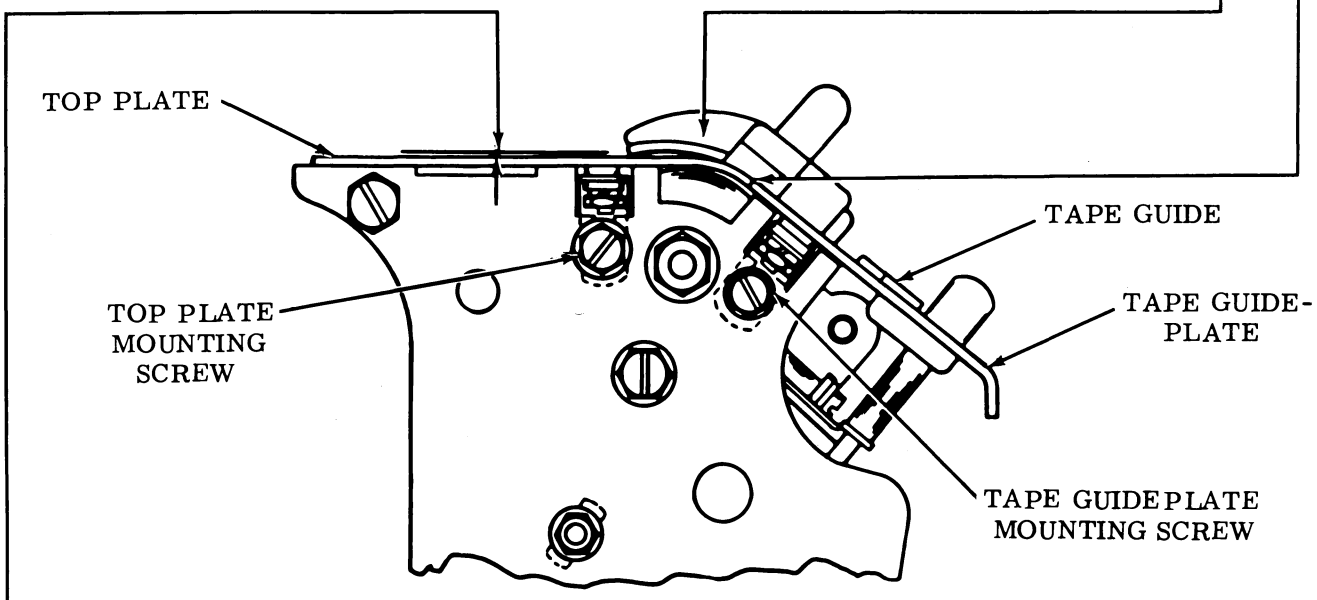
TOP PLATE

(1) Requirement
Top plate flush to 0.003 inch under flush with tape guideplate within width of tape lid.

To Adjust
Loosen mounting bracket nuts until brackets are friction tight. Press top plate into position. Top plate should rest on at least three projections of side plates. Make sure the tight-tape arm extension is under the top plate.

(2) Requirement
Feed wheel slot and tape guide plate slot should line up.

To Adjust
Move top plate to line up feed wheel slot. Do not disturb requirement (2) of TAPE GUIDEPLATE (2.17) adjustment.



(Front View)

(3) Requirement
With tape lid latched, clearance between tape lid extension covering feed wheel slot and top plate should be
Min 0.010 inch---Max 0.020 inch
measured at curved portion of top plate and
Min 0.010 inch---Max 0.025 inch
measured at flat portion of top plate. Also, clearance between tape lid and tape guideplate should be
Min 0.010 inch---Max 0.018 inch
measured in area between tape guides (play in tape lid taken up toward tape guide-plate).

To Adjust
Loosen two screws holding tape lid mounting brackets together and position tape lid. Recheck TAPE LID (2.15) adjustment, requirements (1) and (2).

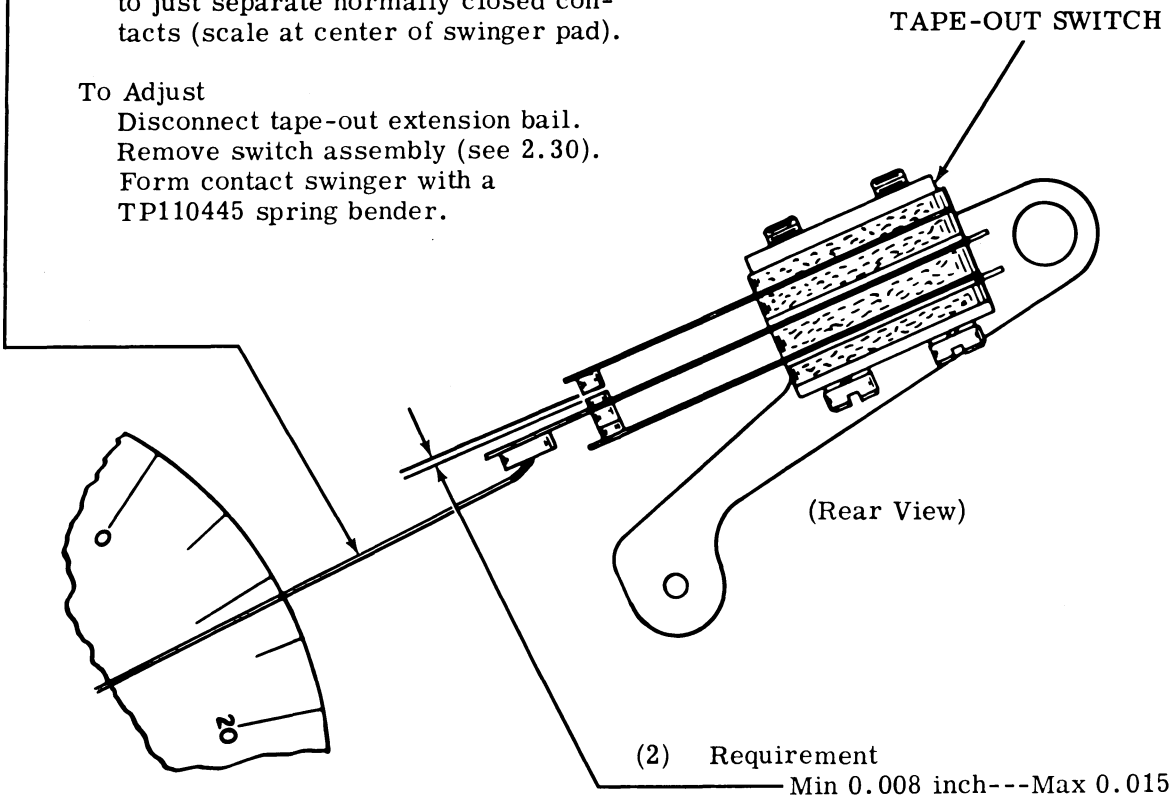
2.19 Tape-Out Switch Assembly

(A) TAPE-OUT SWITCH

To Check
Remove cover and top plate. Loosen tape-out spring adjusting bracket. Position bracket so tape-out extension is not touching swinger pad.

(1) Requirement
Min 8 grams---Max 15 grams to just separate normally closed contacts (scale at center of swinger pad).

To Adjust
Disconnect tape-out extension bail. Remove switch assembly (see 2.30). Form contact swinger with a TP110445 spring bender.



(2) Requirement
Min 0.008 inch---Max 0.015 inch clearance between normally open contacts.

To Adjust
Form upper contact leaf with a TP110445 spring bender.

Note: When replacing switch assembly, make sure contact swinger is over tape-out pin extension, and extension bail spring clip is kept horizontal.

2.20 Tape-Out Switch Assembly (continued)

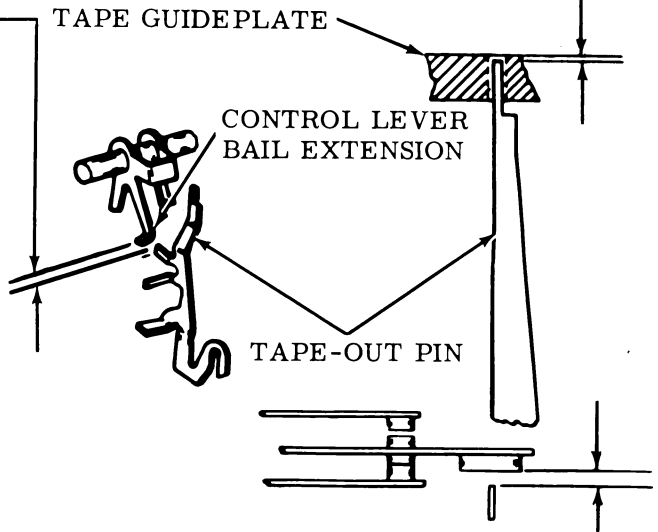
(B) TAPE-OUT PIN

(1) Requirement
When start-stop lever is in free wheel or stop position, tape-out should be flush to 0.010 inch below surface of tape guideplate.

To Adjust
Position tape-out pin downstop with its mounting nut loosened. Refer to adjustments in 2.21, Tape-Out Switch Assembly.

(2) Requirement
With control lever in run position
Min 0.055 inch clearance between tape-out pin extension and control lever bail extension.

To Adjust
Position extension bail with its spring post screw loosened. Tighten spring post screw. Refer to adjustments in 2.21, Tape-Out Switch Assembly.



(Front View)

(C) TAPE-OUT SWITCH BRACKET

To Check
Insert piece of unperforated tape under tape lid.

Requirement
Min 0.006 inch---Max 0.020 inch clearance between tape-out pin extension and contact swinger pad.

To Adjust
Position switch bracket with its mounting screw loosened. Refer to adjustments in 2.21, Tape-Out Switch Assembly.

2.21 Tape-Out Switch Assembly (continued)

(A) TAPE-OUT BAIL YIELD SPRING

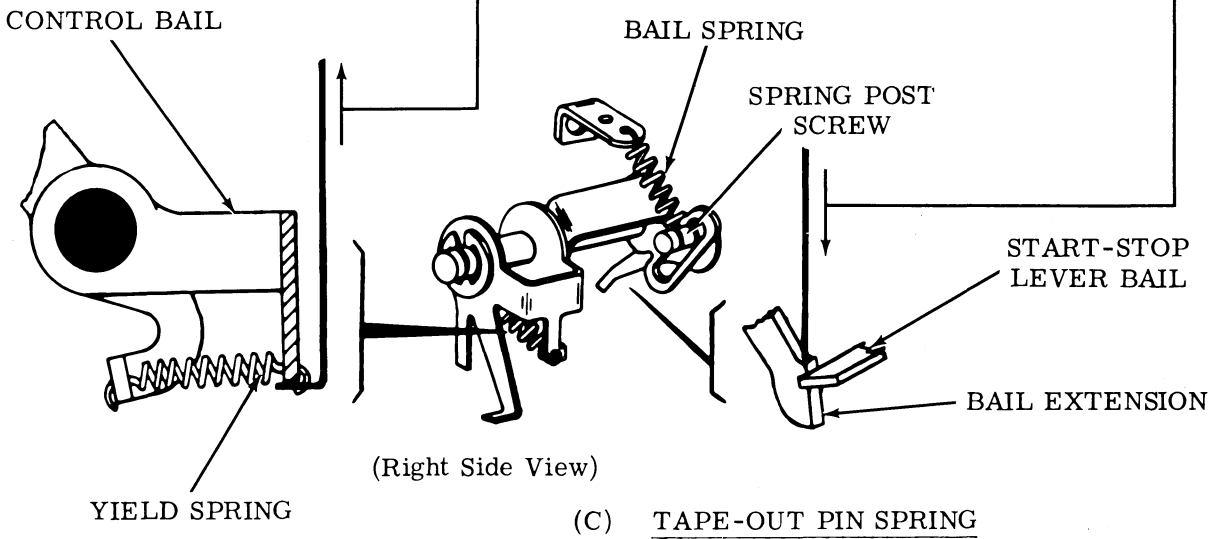
To Check
Place start-stop lever in run position.

Requirement
Min 3 oz---Max 5 oz to separate bails.

(B) TAPE OUT EXTENSION BAIL SPRING

To Check
Place start-stop lever in run position.

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



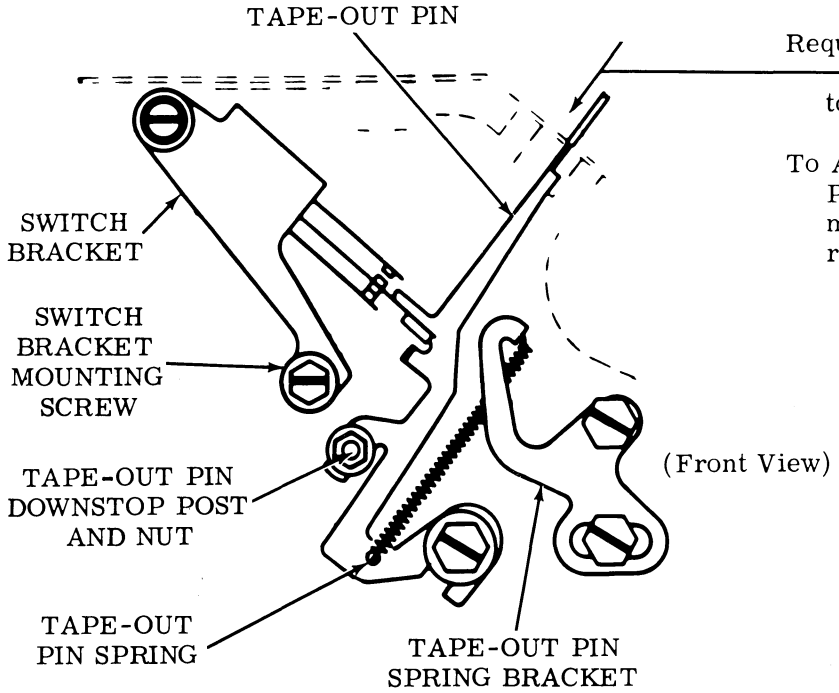
(Right Side View)

(C) TAPE-OUT PIN SPRING

To Check
Place start-stop lever in run position.

Requirement
Min 38 grams---Max 45 grams to move pin flush with tape guideplate.

To Adjust
Position spring bracket with its mounting screws loosened. Recheck requirement.



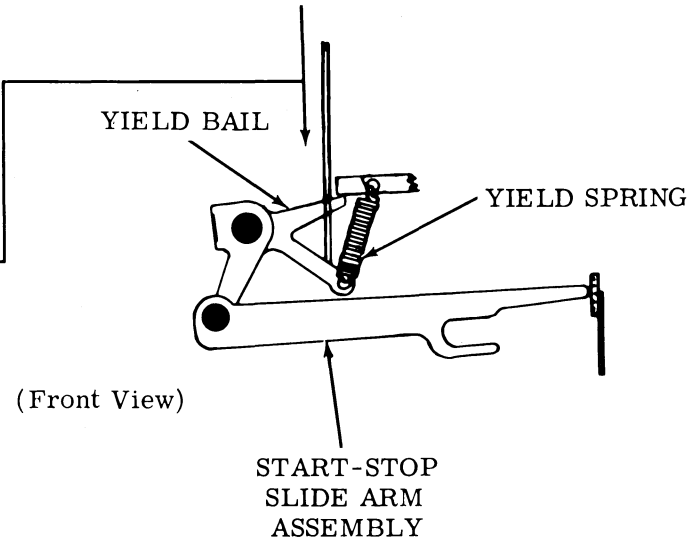
(Front View)

2.22 Start-Stop Switch Assembly

START-STOP BAIL YIELD SPRING

To Check
Place start-stop lever in run position.

Requirement
Min 4 oz---Max 6 oz to separate bails.



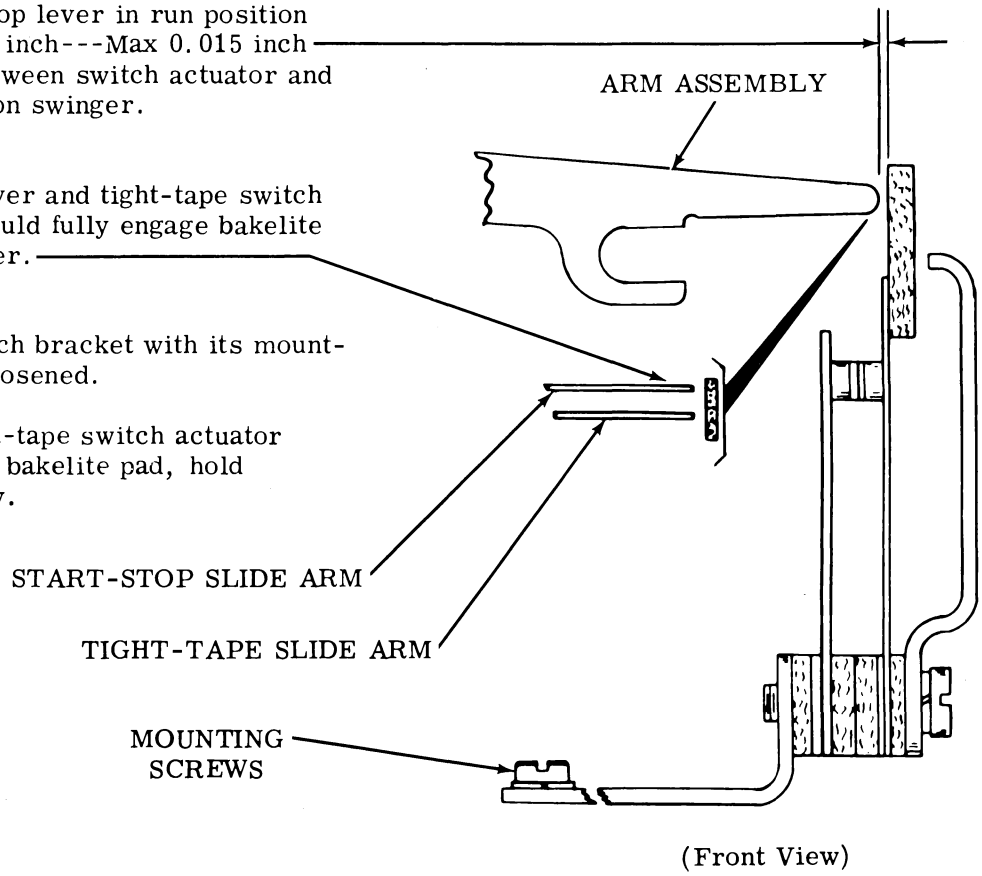
CONTROL LEVER SWITCH BRACKET

(1) Requirement
With start-stop lever in run position
Min 0.006 inch---Max 0.015 inch clearance between switch actuator and bakelite pad on swinger.

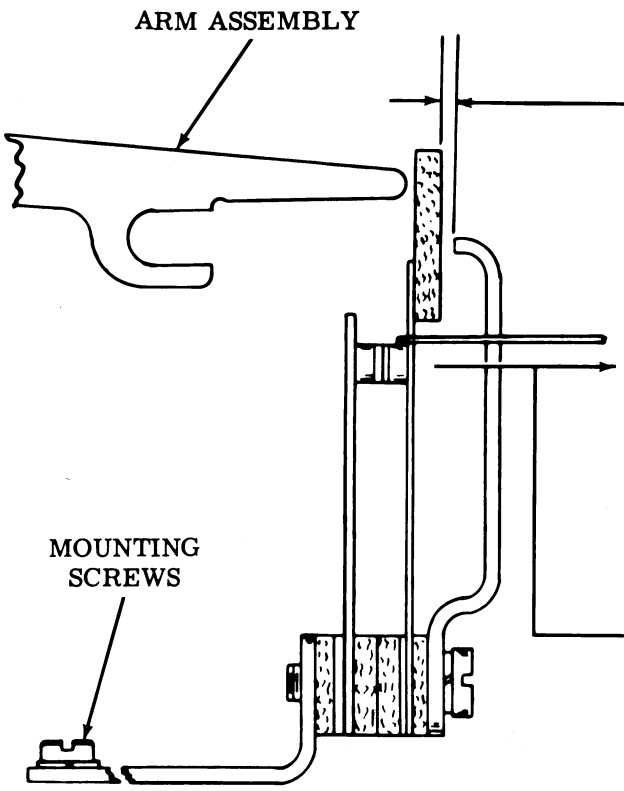
(2) Requirement
Start-stop lever and tight-tape switch actuators should fully engage bakelite pad on swinger.

To Adjust
Position switch bracket with its mounting screws loosened.

Note: If tight-tape switch actuator rests against bakelite pad, hold actuator away.



2.23 Tight-Tape Mechanism



(Front View)

(A) TIGHT-TAPE, CONTROL LEVER SWITCH

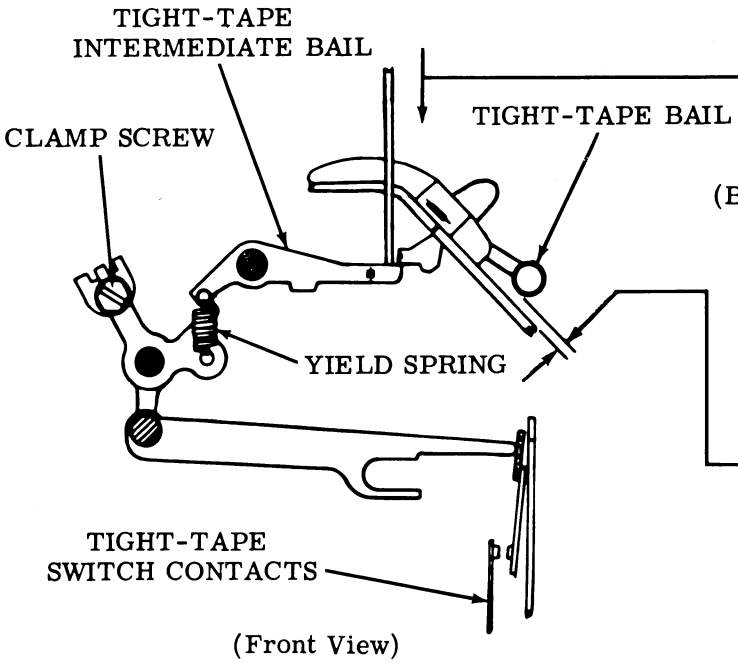
(2) Requirement
With start-stop lever in run position
Min 0.050 inch
Max 0.070 inch
clearance between switch backstop and bakelite pad on swinger when switch contacts are closed.

To Adjust
Bend switch backstop with TP110445 spring bender.

Note: Make requirement (1) adjustment before assembling switch to unit.

(1) Requirement
Min 3 oz---Max 4 oz
to just separate contacts.

To Adjust
Bend contact swinger with a TP110455 spring bender.



(Front View)

(C) TIGHT-TAPE BAIL YIELD SPRING

To Check
Open tape lid. Operate start-stop lever to free-wheeling position.

Requirement
Min 2 oz---Max 3-1/2 oz
to separate bails.

(B) TIGHT TAPE ARM

To Check
Operate start-stop lever to run position.

Requirement
Tight-tape switch contacts should open when tight-tape arm is raised.
Min 0.090 inch---Max 0.120 inch
above tape guideplate.

To Adjust
With clamp screw friction tight, position bails, by means of pry point, to meet requirement.

2.24 Sensing Pin Assembly

(A) SENSING BAIL SPRINGS

To Check
Remove top plate. With blank tape under tape lid, trip clutch magnet and manually rotate shaft until sensing bail is in uppermost position. Apply scale to bail between springs.

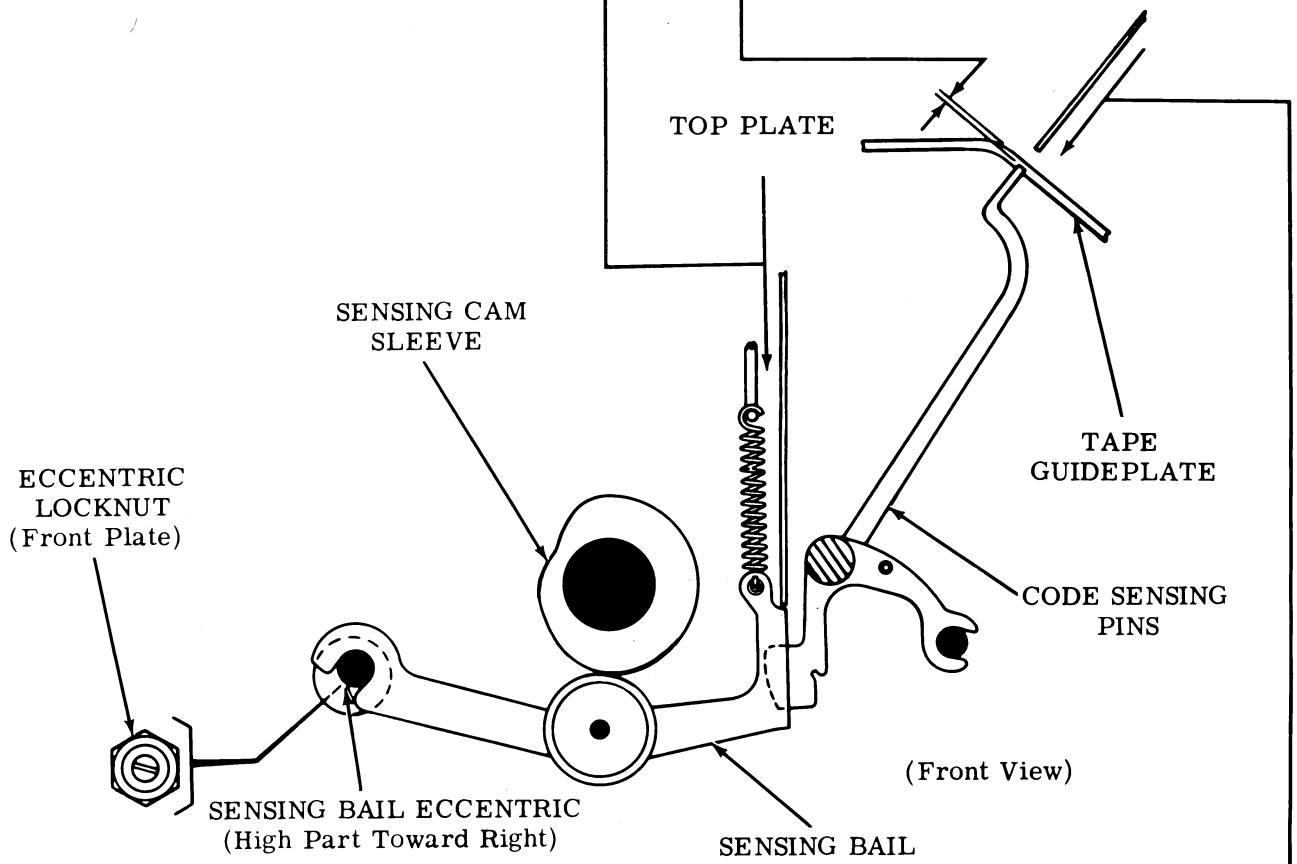
Requirement
Min 1/4 oz---Max 2 oz to start bail moving.

(C) SENSING PIN

To Check
Replace top plate. Disengage sensing clutch.

Requirement
With sensing bail eccentric indent toward right, tip on highest sensing pin should be flush to 0.005 inch below top surface of tape guideplate.

To Adjust
Loosen eccentric shaft locknut and position eccentric. Recheck requirement after locknut is tightened.

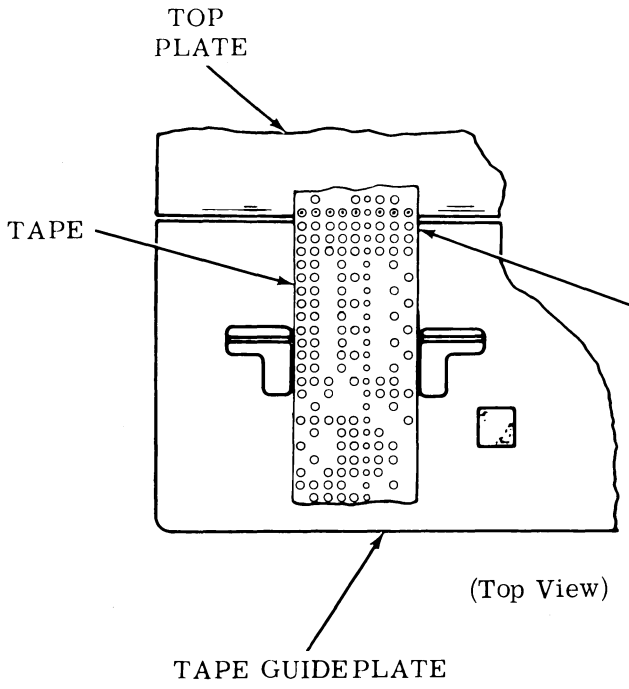


(B) SENSING PIN SPRING

To Check
Trip sensing clutch and rotate shaft until sensing pins are in their uppermost position. Hold pusher levers away manually.

Requirement
Min 2 oz---Max 3 oz to move each pin flush with top surface of tape guideplate.

2.25 Tape Feed Mechanism



(A) FEED WHEEL DETENT

Note: Place start-stop lever in stop position.

To Check

Place a RUBOUT perforated tape over feed wheel, taking up play in feed holes toward the right.

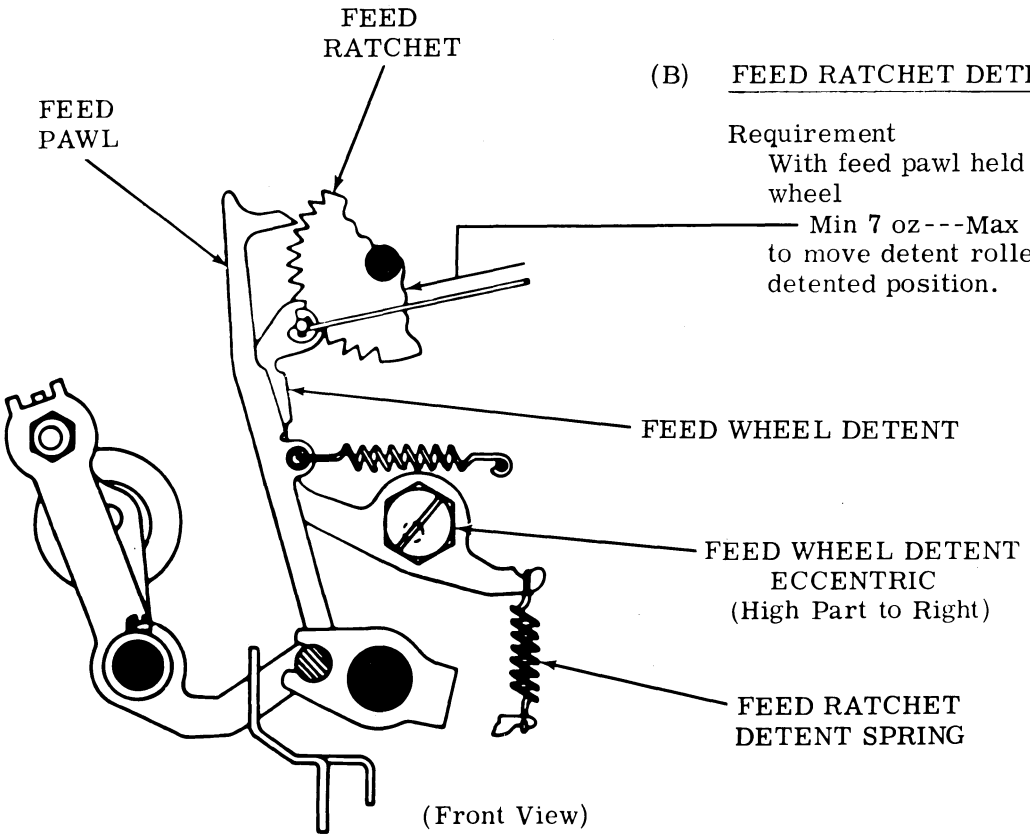
Requirement

Sensing pins centrally located in code holes.

To Adjust

Position feed wheel detent eccentric with its lockscrew friction tight. High part of eccentric should be toward right. Hold eccentric and tighten guidepost and lockscrew. Recheck adjustment.

Note: Hold feed pawl away to facilitate adjustment.



(B) FEED RATCHET DETENT SPRING

Requirement

With feed pawl held away from ratchet wheel

Min 7 oz---Max 13 oz

to move detent roller away from fully detented position.

2.26 Tape Feed Mechanism (continued)

(B) FEED PAWL SPRING

To Check
Place start-stop lever in stop position. Remove top plate. Disengage clutch.

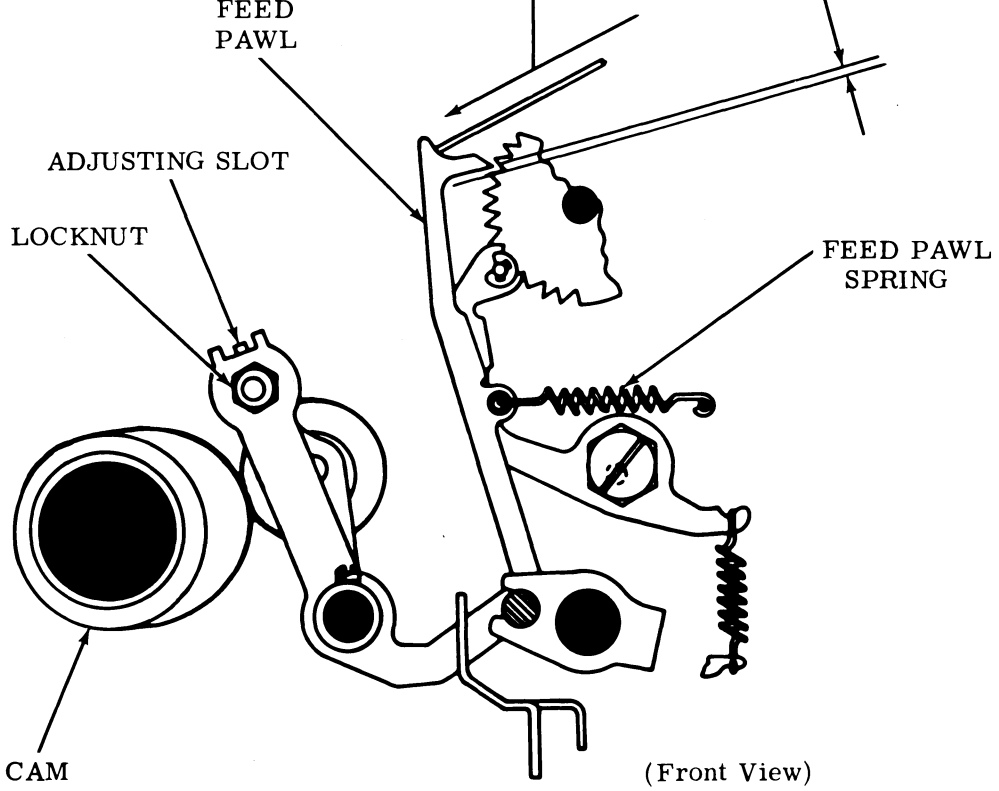
Requirement
Min 1/4 oz---Max 1-1/2 oz to start feed pawl moving.

(A) FEED PAWL

To Check
Place start-stop lever in run position. Remove top plate. Trip clutch, and rotate cam shaft until feed roller is on high part of cam. Rotate ratchet wheel until oil hole is up. Take up play by pressing down lightly on right end of feed pawl bail.

Requirement
Min some---Max 0.003 inch clearance between feed pawl and ratchet tooth.

To Adjust
Position feed lever by means of the adjusting slot with its locknut loosened.



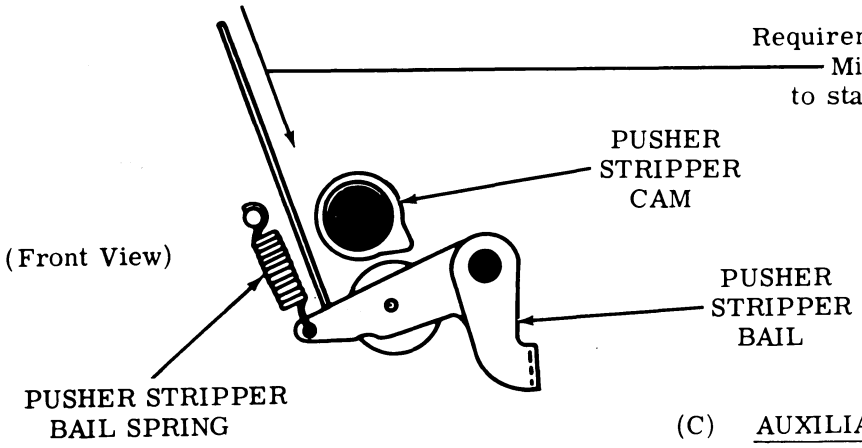
(Front View)

2.27 Sensing Mechanism

(A) PUSHER STRIPPER BAIL SPRING

To Check
Select NULL combination. Trip clutch and rotate shaft to stop position.

Requirement
Min 7 oz---Max 11 oz
to start bail moving away from cam.



(C) AUXILIARY LEVER SPRING

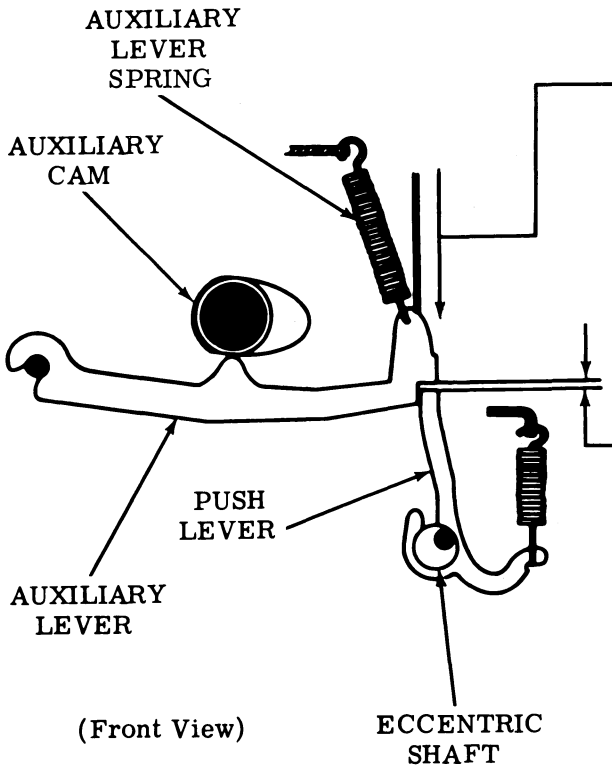
To Check
Each auxiliary lever on low part of its cam. Scale applied to lever just right of spring. Pusher lever held away.

Requirement
Min 1/2 oz---Max 3 oz
to start auxiliary lever moving.

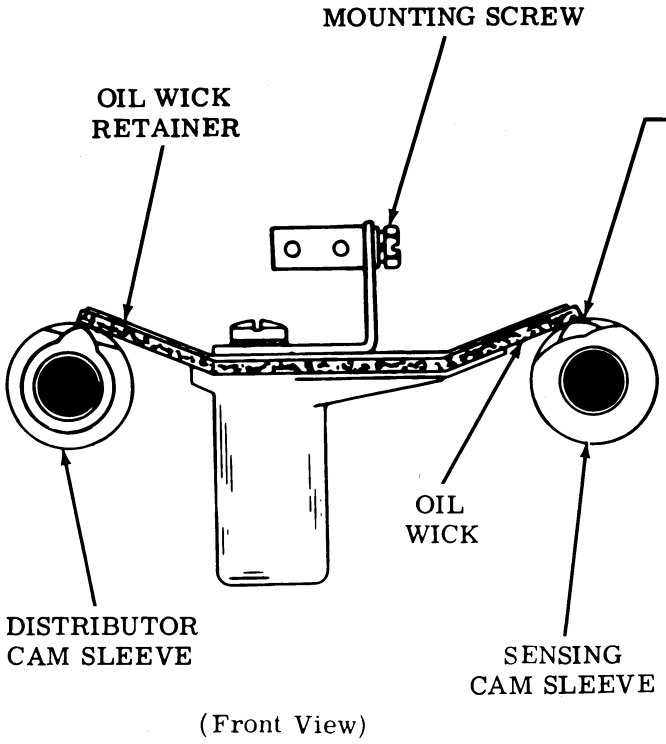
(B) PUSH LEVER

Requirement
With first one and then the other of the two auxiliary levers on the low part of the cam, the auxiliary lever with the least clearance should clear the tip of its push lever by
Min 0.020 inch---Max 0.045 inch

To Adjust
With push lever eccentric shaft locknut (front plate) loosened and high part of eccentric located toward the upper right, rotate eccentric toward right or left.



2.28 Sensing Mechanism (continued)



(Front View)

(B) OIL RESERVOIR

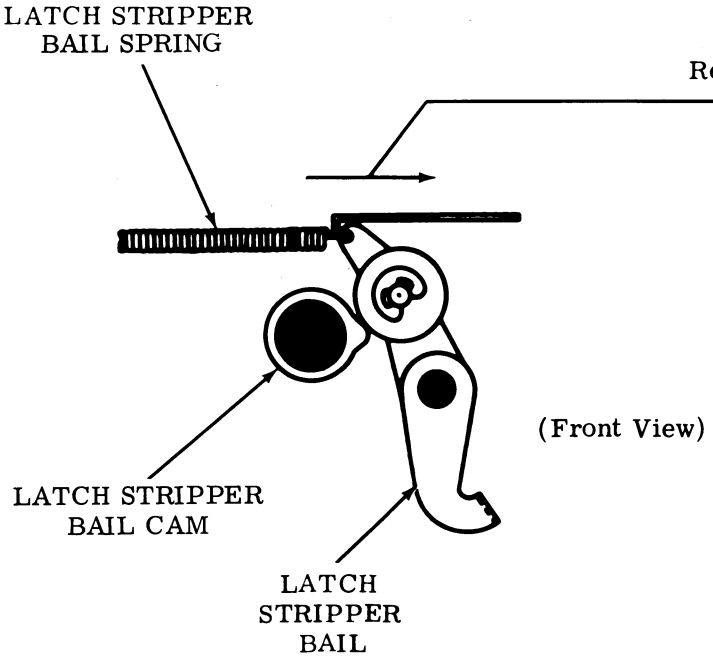
Requirement
Each oil wick rests lightly on high parts of front and rear cam of each cam sleeve.

To Adjust
Trip both armatures and rotate shaft until high part of front and rear cam of each sleeve is under its wick. Position oil reservoir assembly with its mounting screws (4) loosened. When cam sleeve is rotated, teeth of wick retainer should not deflect upward more than 1/32 inch (gauge by eye). Refine adjustment by slightly bending teeth on wick comb spring.

(A) LATCH STRIPPER BAIL SPRING

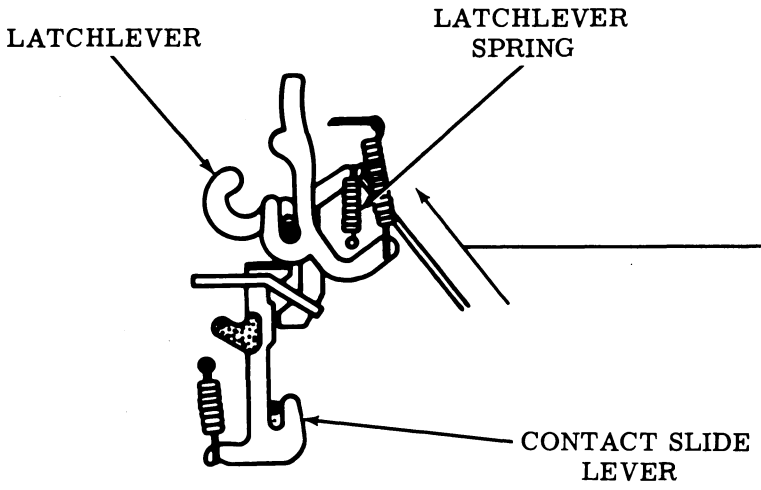
To Check
Trip clutch, rotate shaft so latch bail follower roller is on low part of cam. Apply scale to top of latch stripper bail.

Requirement
Min 2-3/4 oz---Max 6 oz
to start latch stripper bail moving.



(Front View)

2.29 Sensing Mechanism (continued)



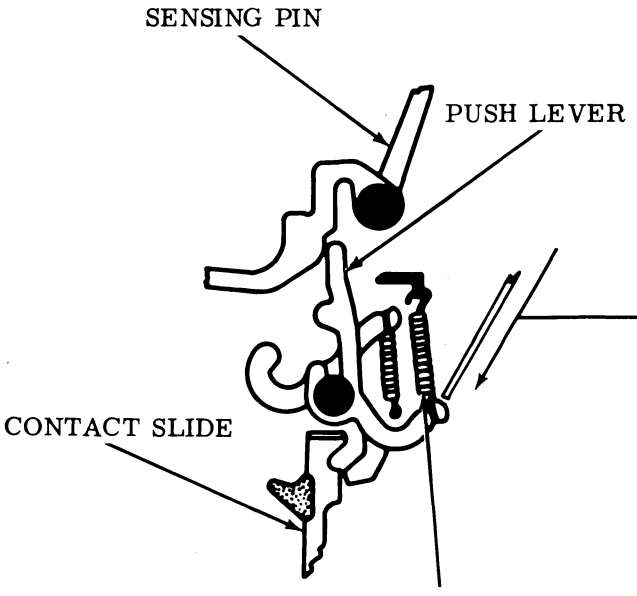
(Front View)

LATCHLEVER SPRING

To Check
Select NULL combination. Trip sensing clutch and rotate shaft to stop position. Slide levers should be in uppermost position.

Requirement
Min 1 oz---Max 3 oz
to start latchlever moving.

Note: Take care not to damage push lever springs in checking requirement.



(Front View)

PUSH LEVER SPRING

To Check
Select RUBOUT combination, and latch sensing clutch. Trip clutch and rotate shaft until push levers are stripped.

Requirement
Min 1/4 oz---Max 1-1/2 oz
to start push lever moving.

Note: Be sure contact slides do not interfere with movement of push levers.

2.30 Cover and Panel Assembly

(A) COVERPLATE

(1) Requirement
Coverplate held flush against top plate by detent action.

(2) Requirement
Coverplate rests on at least three side frame projections.

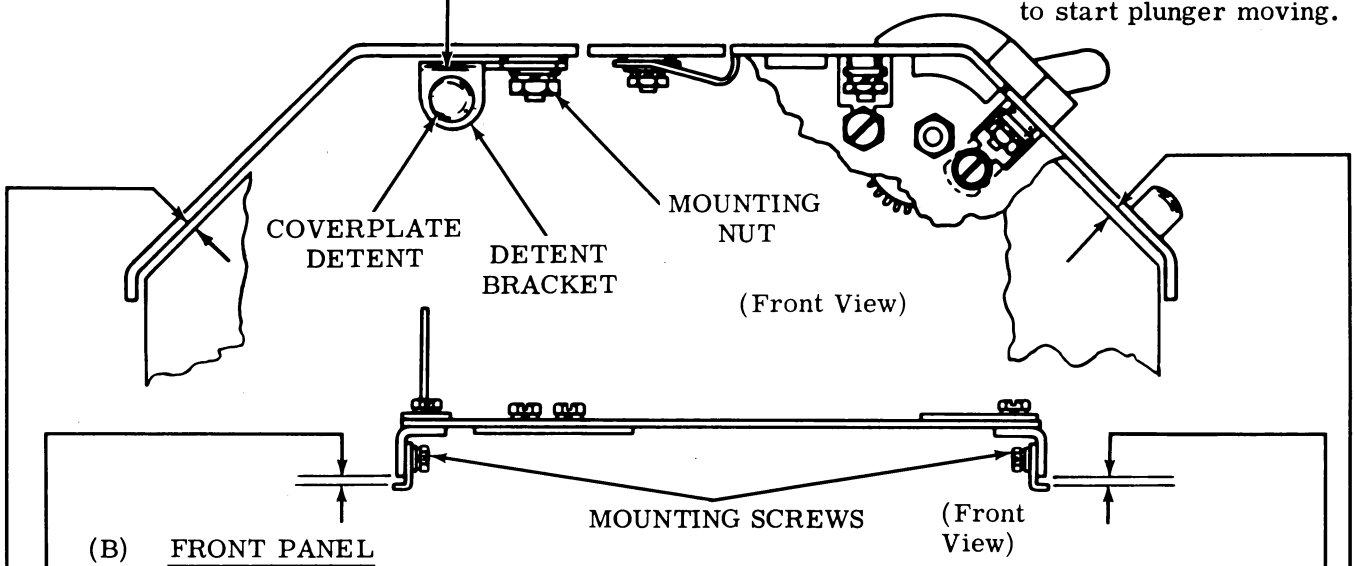
(3) Requirement
Front edge of cover and top plates in line.

To Adjust
Loosen detent nuts on side frames, and move them to extreme lower right position. Tighten nuts. Loosen four bracket mounting nuts on coverplate. Place cover into position, and position to meet requirements. Tighten nuts. Recheck and refine requirements.

(C) COVERPLATE DETENT SPRING

To Check
Remove coverplate.

Requirement
Min 28 oz---Max 48 oz
to start plunger moving.



(B) FRONT PANEL

Note: Remove coverplate prior to installing or removing front panel. Panel slides should engage guides on base so that top edge of panel passes under tape guideplate.

(1) Requirement
Front panel latches securely at lower right and left corners, and panel slides fully engage base guides.
Min 0.085 inch---Max 0.105 inch
clearance between bottom edge of base rail and panel guide flange.

To Adjust
Remove transmitter from base. Use shims to obtain lateral position of panel slides, and position guides vertically (place unused shims under head of mounting screw). Replace transmitter on base.

(2) Requirement
Min 0.015 inch---Max 0.060 inch
clearance between panel top edge and front edge of cover and tape guideplates. The upper panel sides should not touch the cover and tape guideplate eaves.

To Adjust
With front panel in place, loosen panel guide mounting screws and position the guide. To facilitate adjustment, remove the four vibration mounting nuts and swing subbase away.

2.31 Tape-Out and Tape Lid Switch Assembly

Note: Make this adjustment before assembling switch to unit.

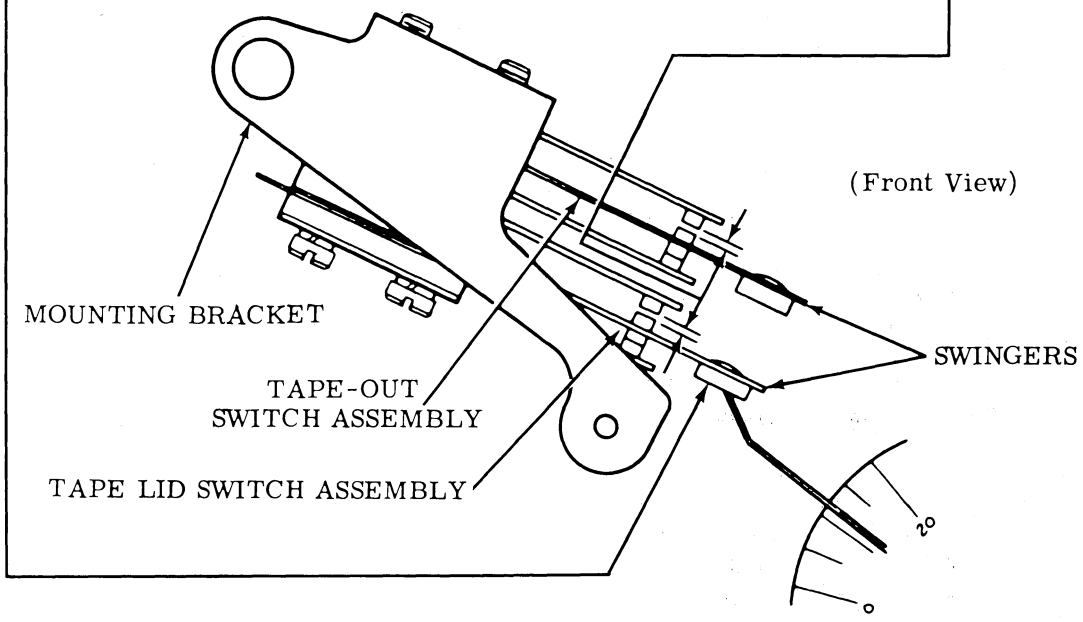
TAPE-OUT AND TAPE LID SWITCH

(1) Requirement
Min 8 grams---Max 15 grams
to just separate normally closed contacts (apply scale to center of nylon pad).

To Adjust
Bend contact swinger with a TP110445 spring bender.

(2) Requirement
Min 0.008 inch---Max 0.015 inch
gap between normally open contacts.

To Adjust
Bend upper contact leaf with a TP110445 spring bender.



INSTRUCTIONS FOR REMOVING TAPE-OUT AND TAPE LID SWITCH ASSEMBLY

Remove the cover and top plate. Remove the guide post at the top on which the switch assembly pivots. This is accomplished by removing the TP111342 spring and partially removing the screw that secures the post to the rear plate. Remove the nut and washer from the front end of the post. The post can now be removed far enough to release the switch assembly. Remove the adjusting screw from the lower end of the switch bracket. Withdraw the switch assembly, taking care not to distort the switch members. To replace the tape-out and tape lid switch assembly, reverse the procedure followed in removal. Take precaution not to disrupt the adjustments.

2.32 Tape-Out and Tape Lid Pin Mechanism

(B) TAPE-OUT PIN SPRING BRACKET

Requirement
Min 38 grams---Max 45 grams to depress tape-out pin until flush with tape guideplate.

To Adjust
Position tape-out pin spring bracket with its mounting screws friction tight. Tighten screws and recheck requirement.

(A) TAPE-OUT AND TAPE LID SWITCH BRACKET

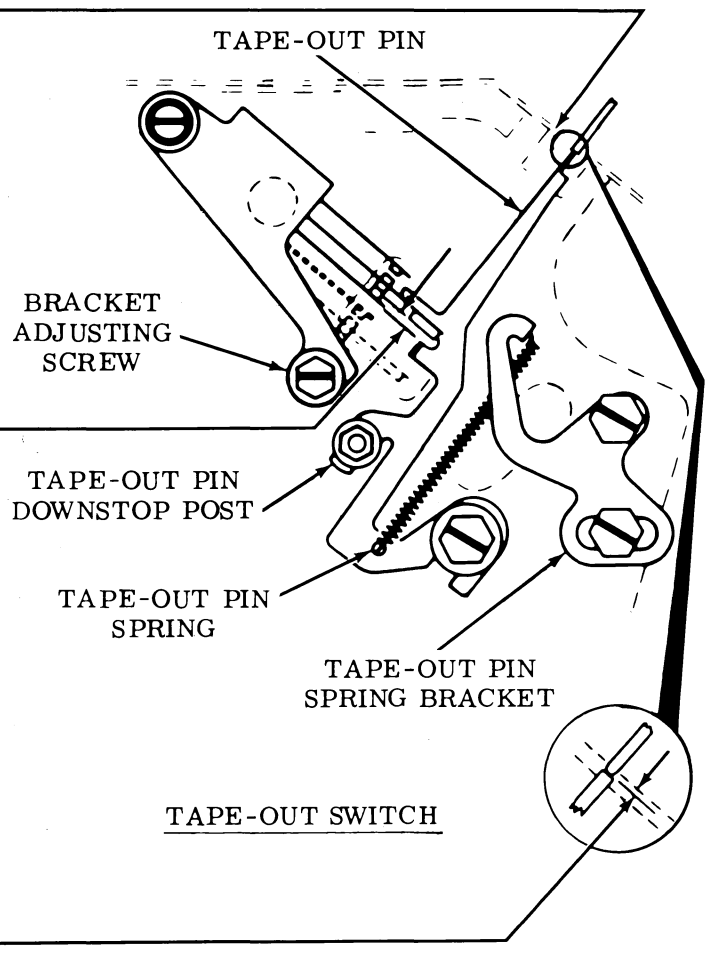
Requirement
Min 0.006 inch---Max 0.020 inch clearance between tape-out pin extension and contact swinger insulator when tape-out pin is held down.

To Adjust
Insert a length of unperforated tape under tape lid. Adjust switch bracket with its mounting screw loosened.

(C) TAPE-OUT AND TAPE LID PIN DOWNSTOP

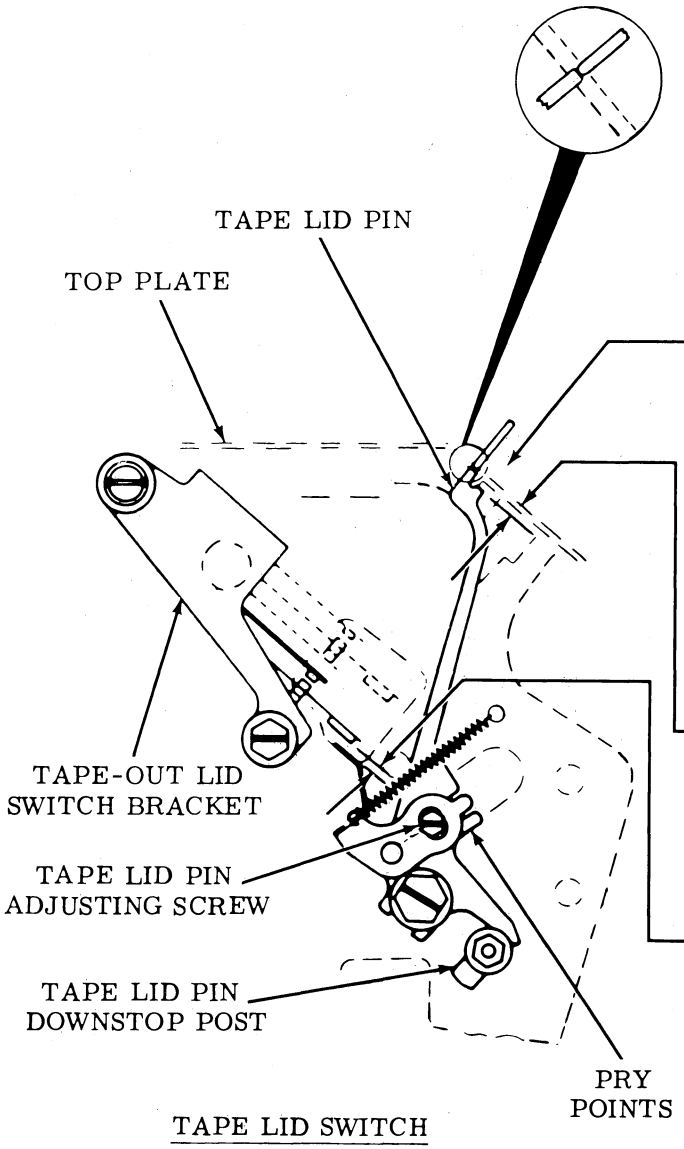
Requirement
When depressed to their lowermost positions, tape-out and tape lid pins should be flush to 0.005 inch below surface of tape guideplate.

To Adjust
Position respective downstop post with its mounting nut loosened.



(Front View)

2.33 Tape-Out and Tape Lid Pin Mechanism (continued)



TAPE LID SWITCH

(Front View)

(D) TAPE LID PIN SPRING

Requirement
Min 1-1/2 oz---Max 3 oz to move tape lid pin flush with top surface of top plate.

(E) TAPE LID PIN

To Check
Remove coverplate.

(2) Requirement
With tape lid open, and normally open contacts closed by tape lid pin
Min 0.010 inch clearance between shoulder on pin and bottom surface to tape guideplate.

(1) Requirement
With tape lid closed
Min 0.005 inch clearance between tape lid pin and swinger insulator.

To Adjust
Loosen clamp screw to friction tight and adjust tape lid pin by means of its pry point.

3. CONTACT STROBING

3.01 Distributor Contacts

Note: Use a 7.42 unit code distortion test disc for checking all contacts. Refer to Paragraph 3.05 if an 11 unit distortion test set disc is available.

DISTRIBUTOR CONTACTS (See Figures 1 and 2)

(a) Stop Contact

(1) With a Distortion Test Set (DXD) operating at the same speed as transmitter-distributor, load the unit with NULL perforated tape.

(2) Adjust the stop contact adjusting screw so that stop pulse length is 135 scale divisions.

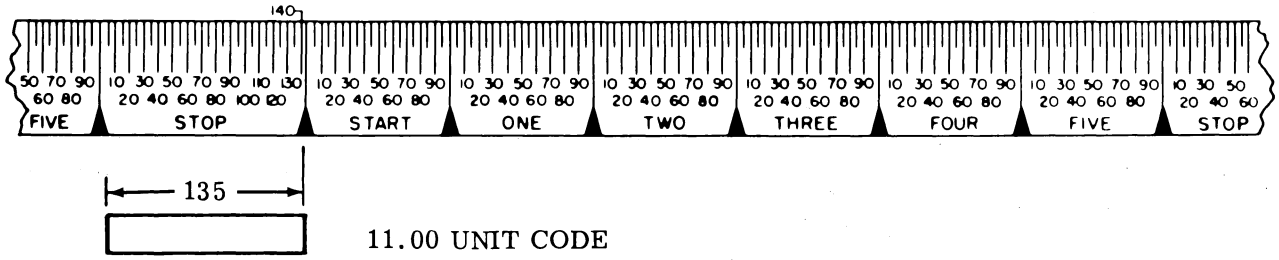


Figure 1

(b) Contacts #1 - #8

(1) Load the transmitter-distributor with tape punched in levels 1, 3, 5, and 7. Align the end of the stop pulse with the 142 scale division on the stop segment of the test scale.

(2) Adjust the distributor contact screws so that images are 67.5 scale divisions in total length, within ±3 percent on each end.

(3) Repeat the above procedures for levels 2, 4, 6, and 8.

Note: It may be necessary to hold stop contact open to determine length of #8 pulse.

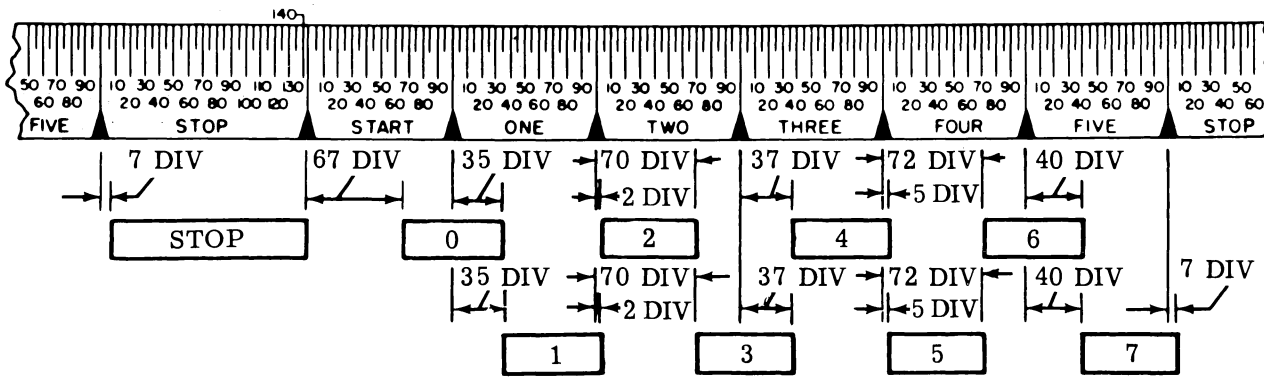


Figure 2

3.02 Distributor Contacts (continued)

EIGHT-LEVEL PULSE IMAGE TRANSITION POINTS

ON FIVE-LEVEL TEST SET SCALE - 11.00 UNIT CODE

CODE PULSE	END AT SCALE DIVISION	BEGIN AT SCALE DIVISION
STOP	7 IN STOP SEGMENT	142 IN STOP SEGMENT
1	67 IN START SEGMENT	35 IN #1 SEGMENT
2	35 IN #1 SEGMENT	2 IN #2 SEGMENT
3	2 IN #2 SEGMENT	70 IN #2 SEGMENT
4	70 IN #2 SEGMENT	37 IN #3 SEGMENT
5	37 IN #3 SEGMENT	5 IN #4 SEGMENT
6	5 IN #4 SEGMENT	72 IN #4 SEGMENT
7	72 IN #4 SEGMENT	40 IN #5 SEGMENT
8	40 IN #5 SEGMENT	7 IN STOP SEGMENT

DISTRIBUTOR AUXILIARY CONTACT (See Figures 3 and 4)

(a) Align end of stop pulse image with 142 mark on test scale stop segment. Adjust the auxiliary contact to:

Close at 110, ±5 divisions in stop segment.
Open at 31, ±8 divisions in stop segment.

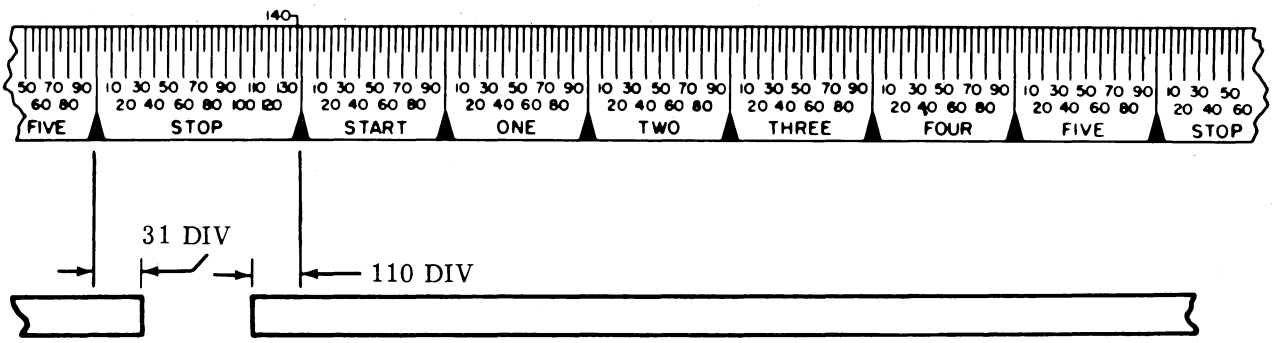


Figure 3

3.03 Distributor Contacts (continued)

(b) Transmitter Contacts: With unit sensing RUBOUT tape, and end of stop pulse aligned with 142 mark on test scale stop segment, the beginning and end of each contact trace should occur:

Before 80 divisions in start segment.
After 20 divisions in stop segment.

To adjust, position respective contact screw or refine transfer contact adjustments as necessary.

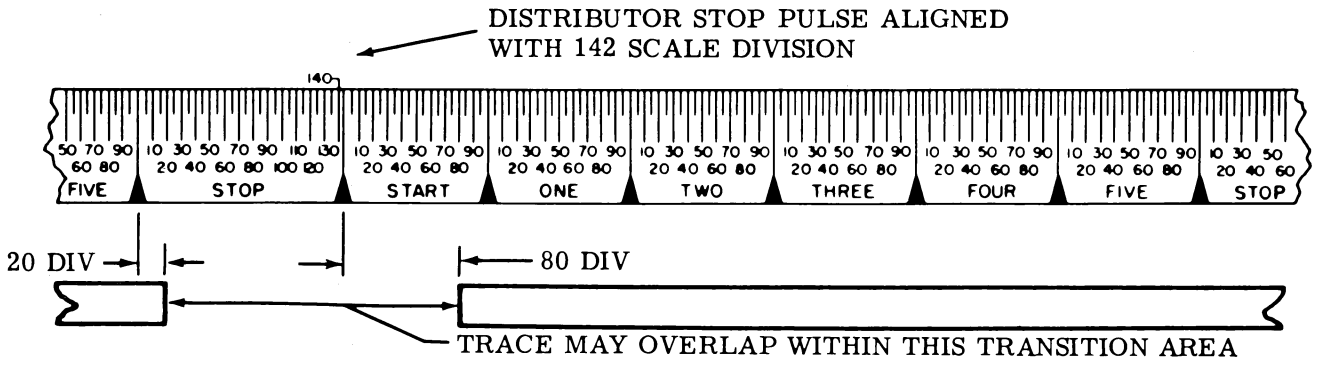


Figure 4

(c) Sensing Auxiliary Contacts (See Figures 5 and 6)

(1) Both magnets de-energized, distributor and transmitter shaft clutches latched and in the stop position. Turn motor off.

(2) Hold distributor and transmitter shaft gears against rotation. Energize both clutch trip magnets.

(3) Release gears and turn motor on.

(4) Align the end of the distributor stop pulse image with the 142 scale division on the stop segment of the test set scale.

(5) Clutch trip marking contacts should:

Close at 90 +10 divisions in start segment.
Open at 64 $\pm$20 divisions in #2 segment.

(6) Clutch trip spacing contacts should:

Open at 80 +10 divisions in start segment.
Close at 74 $\pm$20 divisions in #2 segment.

(7) Auxiliary marking contacts should:

Close at 80 +10 divisions in #2 segment.
Open at 31 $\pm$20 divisions in stop segment.

3.04 Distributor Contacts (continued)

(8) Auxiliary spacing contacts should:

Open at 72 ±10 divisions in #2 segment.
Close at 41 ±20 divisions in stop segment.

To adjust, refine transfer contact adjustment as necessary.

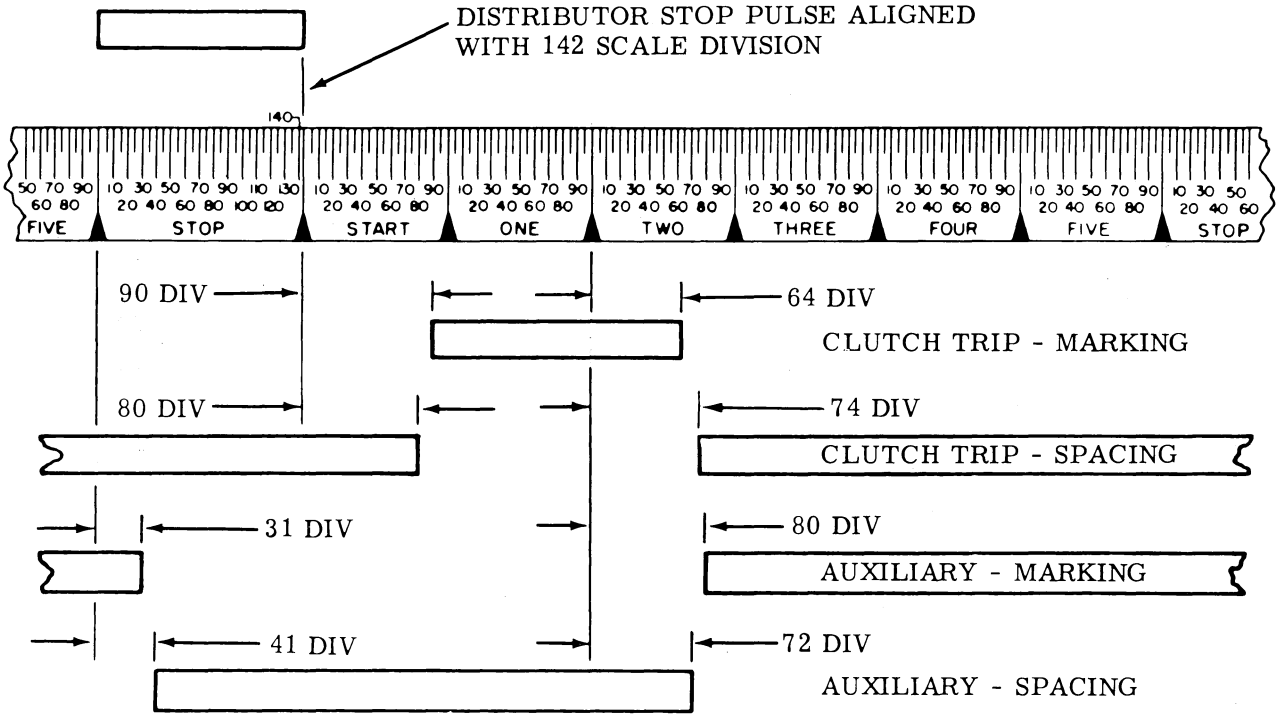


Figure 5

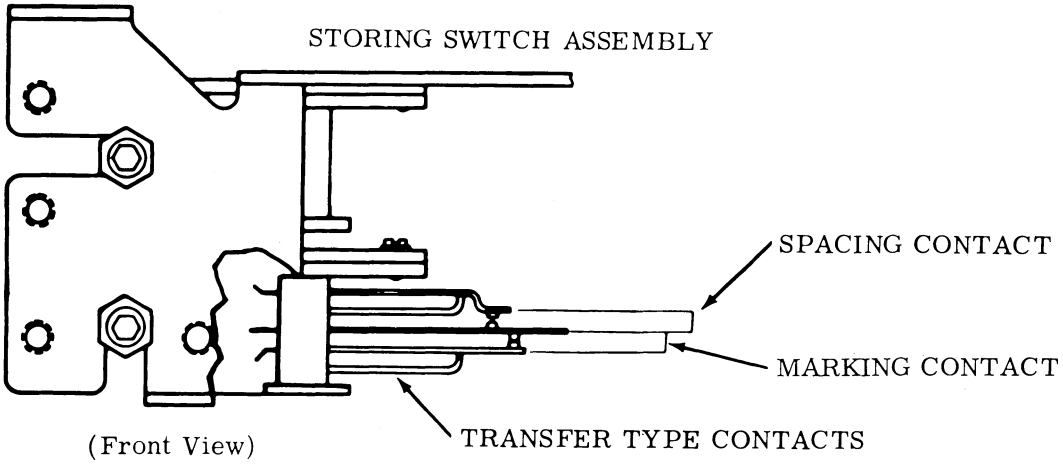


Figure 6

FINAL OPERATING REQUIREMENTS

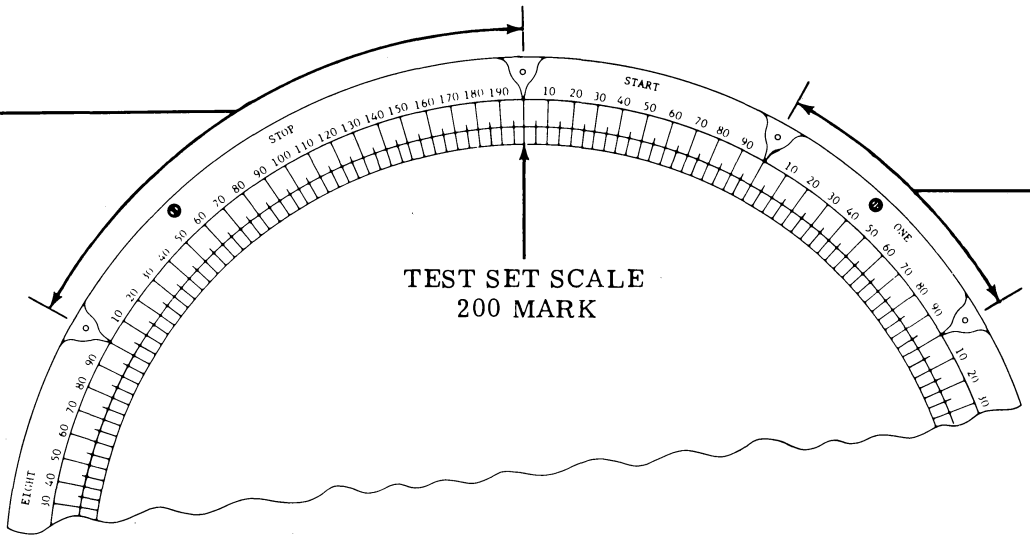
(a) There should be no breaks in the transmitted signal pulses.

(b) The beginning and end of the transmitted pulses should not deviate more than ±3 percent.

(c) The tape-out contact should operate from the normally closed position with tape in unit. With no tape in the unit, the tape-out contact should operate from the open position.

3.05 Distributor Contacts (continued)

Note: An 11-unit code distortion test set disc is now available for checking all contacts. Refer to Paragraph 3.01 when using a 7.42 unit distortion test set disc.



DISTRIBUTOR CONTACTS

(a) Stop Contact

(1) With a distortion test set (DXD) operating at the same speed as the transmitter distributor, load the unit with a NULL perforated tape. Operate the distributor shaft clutch magnet.

(2) Adjust the contact adjusting screw so that stop pulse length is 200 scale divisions (11-unit code).

(b) Contacts #1 - #8

(1) Remove the NULL tape and load the transmitter distributor with tape punched in levels 2, 4, 6 and 8. Align the end of the stop pulse with the 200 scale division on the stop segment of the test scale.

(2) Adjust the 2, 4, 6, and 8 distributor contact adjusting screws so that the image lengths are 100 scale divisions in total length within ±5 percent on each end of the image. The same procedure is used when the 1, 3, 5, and 7 code is selected and adjusted.

(3) In order to determine the end of the number 8 pulse image, it is necessary to hold the stop contact open.

DISTRIBUTOR AUXILIARY CONTACT

(1) Align the end of the stop pulse image with 200 mark on test scale stop segment and adjust the auxiliary contact.

(2) The distributor auxiliary contact should:

Close at 155, ±6 divisions in stop segment.
Open at 45. ±10 divisions in stop segment.

TRANSMITTER CONTACTS - Refer to 3.03 (b).

SENSING AUXILIARY CONTACTS - Refer to 3.03 (c).

FINAL OPERATING REQUIREMENTS - Refer to 3.04.