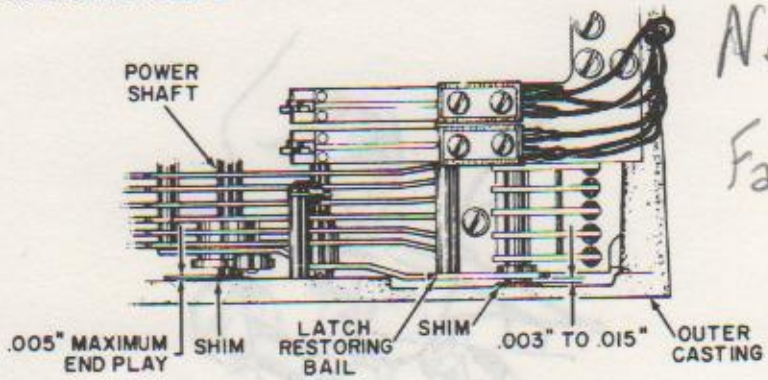
PERFORATORE

Friden 2200/2300 SERIES MACHINES

PUNCH

ADJ. 1 LATCH RESTORING BAIL & POWER SHAFT END PLAY



Non si fa mai

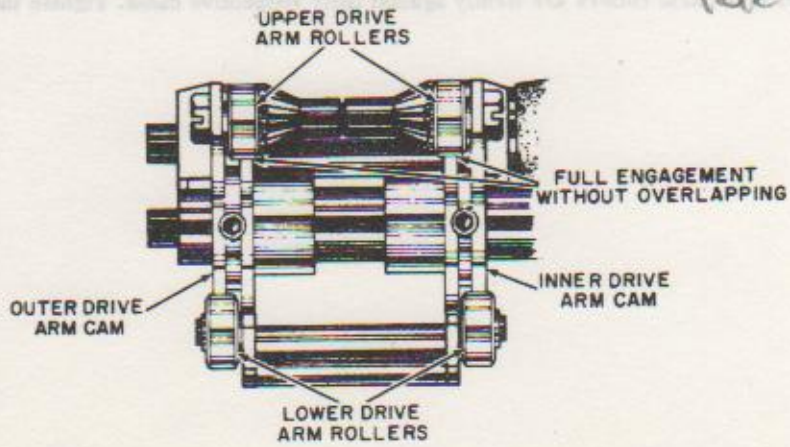
1. Latch restoring bail - .003" to .015".

2. Power shaft - .005" maximum.

To accomplish the above adjustments, remove the outer punch casting and shim each shaft as required to obtain the necessary end play. The power shaft must rotate freely after adjustment.

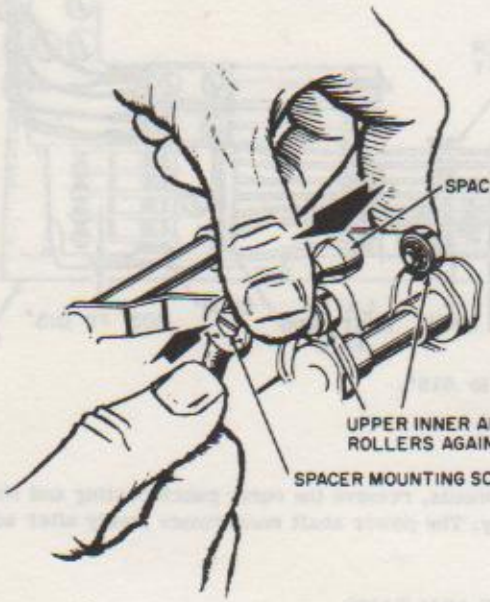
ADJ. 2 INNER & OUTER DRIVE ARM CAMS

idem



Loosen the setscrews on the inner and outer drive arm cams and laterally position the cams so that they fully engage the upper and lower drive arm rollers without overlapping. Tighten the setscrews.

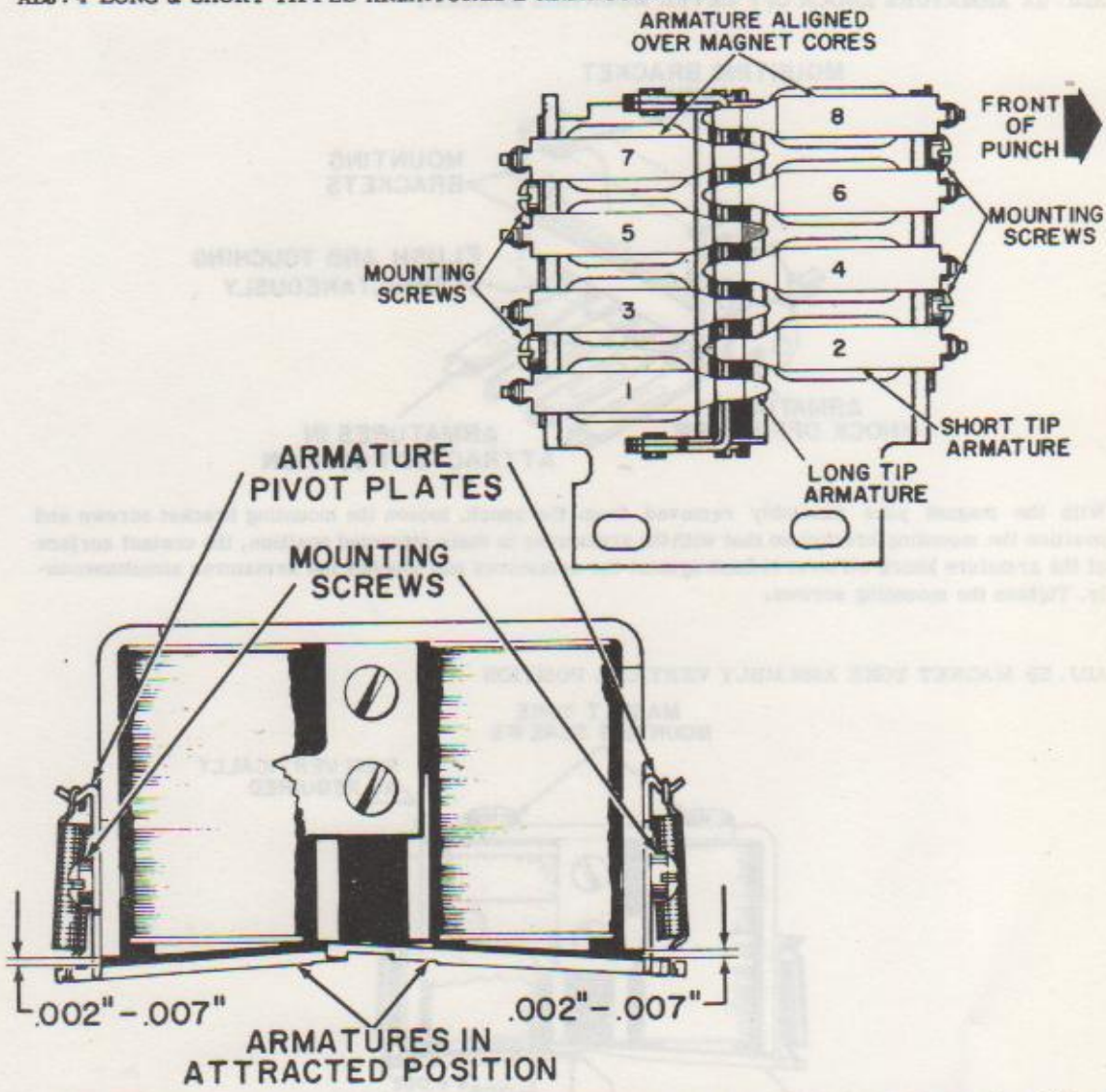
ADJ. 3 DRIVE ARM ALIGNMENT



Idem

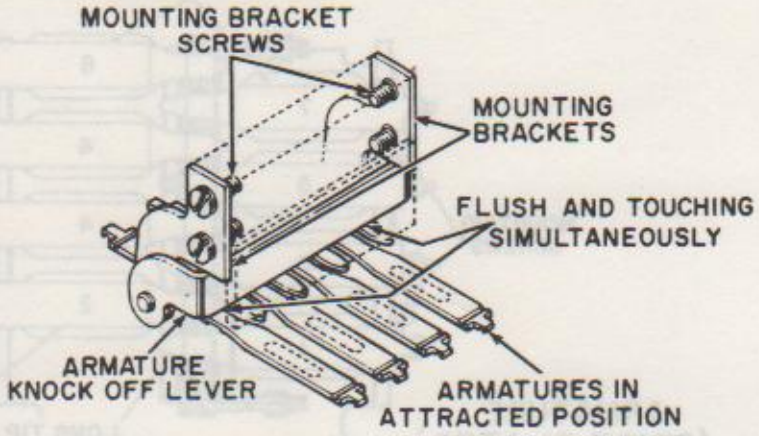
Loosen the spacer mounting screw and press down on the inner and outer drive arms simultaneously so that the upper drive arm rollers are firmly against their respective cams. Tighten the screw.

ADJ. 4 LONG & SHORT TIPPED ARMATURES & ARMATURE PIVOT



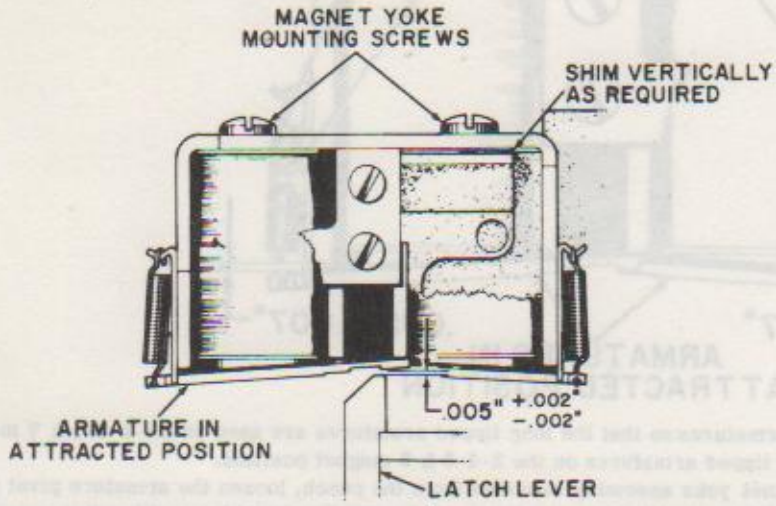
1. Position the armatures so that the long tipped armatures are used on the 1-3-5 & 7 magnet positions and the short tipped armatures on the 2-4-6 & 8 magnet position.
2. With the magnet yoke assembly removed from the punch, loosen the armature pivot plate mounting screws and with the armatures in their attracted position, vertically position the armature pivot plate to provide a clearance of .002" to .007" using Feeler Gauges T-18451 and T-18455. Position the armature pivot plates horizontally so that the armatures are aligned with the centers of the magnet cores. Tighten the mounting screws.

ADJ. 5A ARMATURE KNOCK OFF LEVER MOUNTING BRACKET



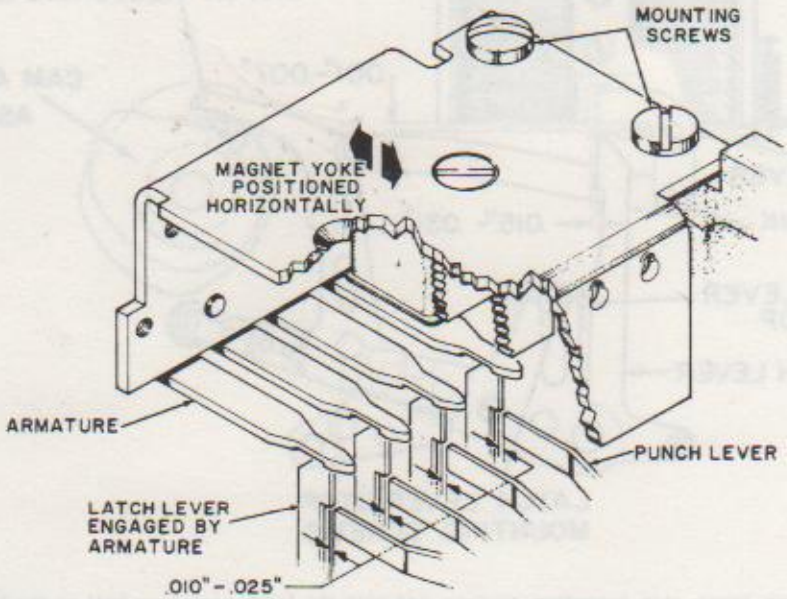
With the magnet yoke assembly removed from the punch, loosen the mounting bracket screws and position the mounting bracket so that with the armatures in their attracted position, the contact surface of the armature knock off lever is flush against the armatures and touches the armatures simultaneously. Tighten the mounting screws.

ADJ. 5B MAGNET YOKE ASSEMBLY VERTICAL POSITION



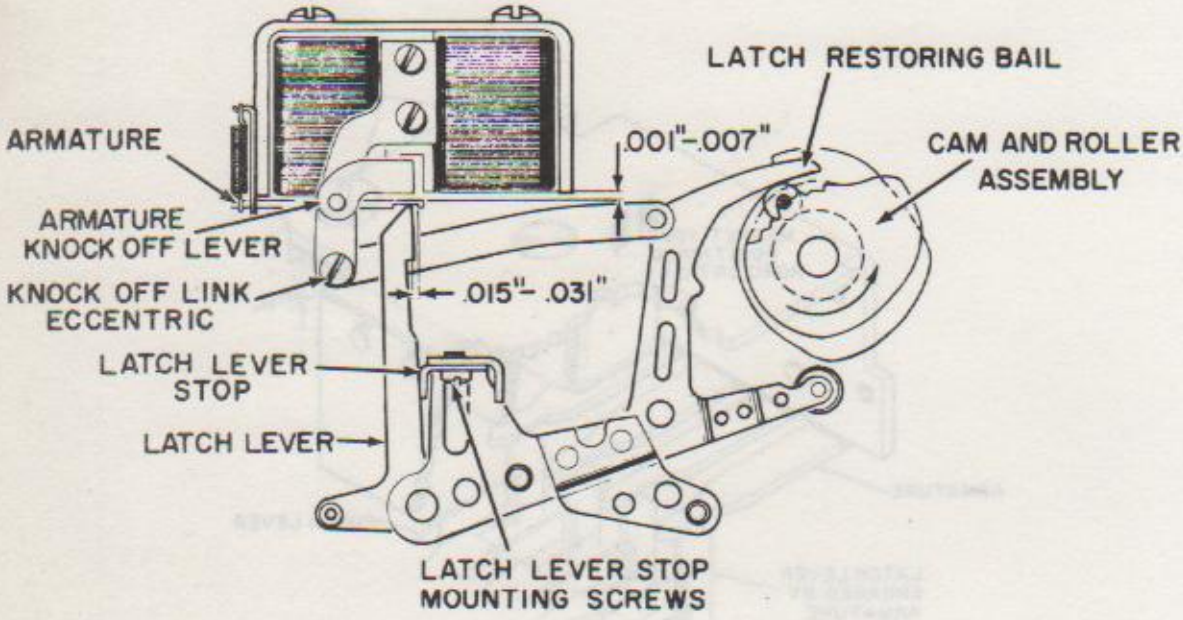
Loosen the magnet yoke assembly mounting screws and with the clutch in home position and the armatures in their attracted position (latch levers unlatched) shim the magnet yoke assembly vertically as required for a clearance of .005" ± .002" between all the latch levers and armatures. Tighten the mounting screws.

ADJ. 5C MAGNET YOKE ASSEMBLY HORIZONTAL POSITION



With the latch levers engaged by the armatures, loosen the magnet yoke assembly mounting screws and position the magnet yoke assembly horizontally to obtain a .010" to .025" clearance as equally as possible between all the front edges of the latch levers and the rear edges of the punch levers. Tighten the mounting screws.

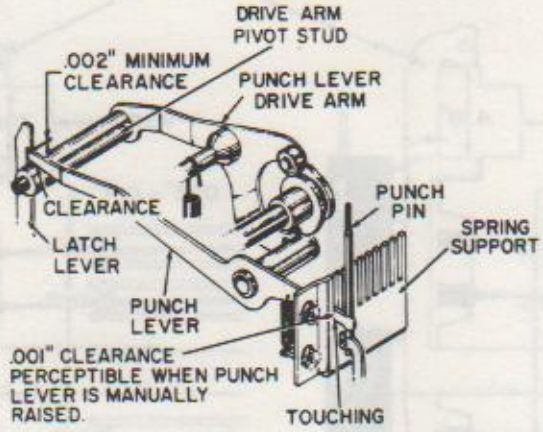
ADJ. 5D LATCH LEVER STOP & KNOCK OFF LINK ECCENTRIC



1. Loosen the latch lever stop mounting screws and with the latch restoring bail on the high point of the cam and roller assembly, position the latch lever stop to allow an over travel clearance of .015" to .031" between the forward edge of the latch levers and the latched surface of the armatures. Tighten the mounting screws.

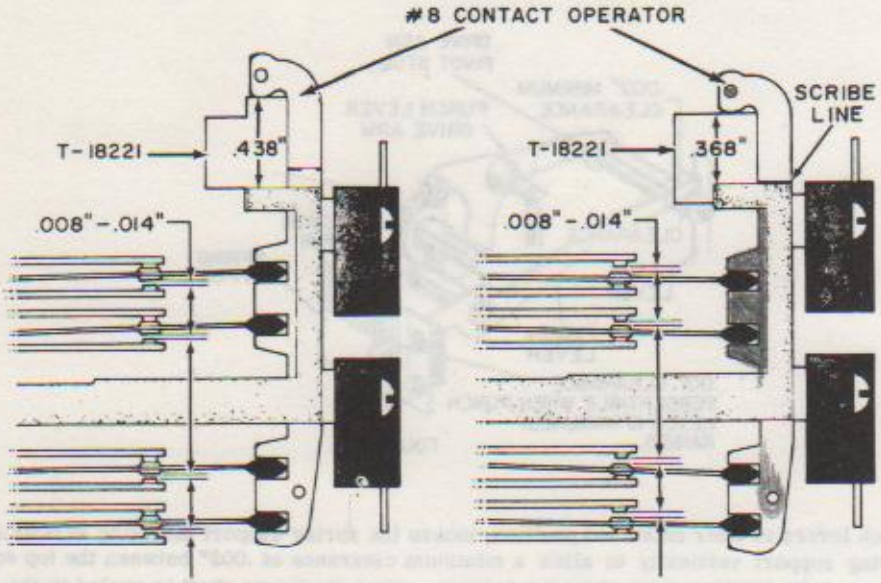
2. Loosen the knock off link eccentric and with the latch restoring bail on the high point of the cam and roller assembly, adjust the eccentric to allow an equal clearance of .001" to .007" between the armatures and the contact surface of the armature knock off lever so that the armatures restore fully without choking off.

ADJ. 6A SPRING SUPPORT



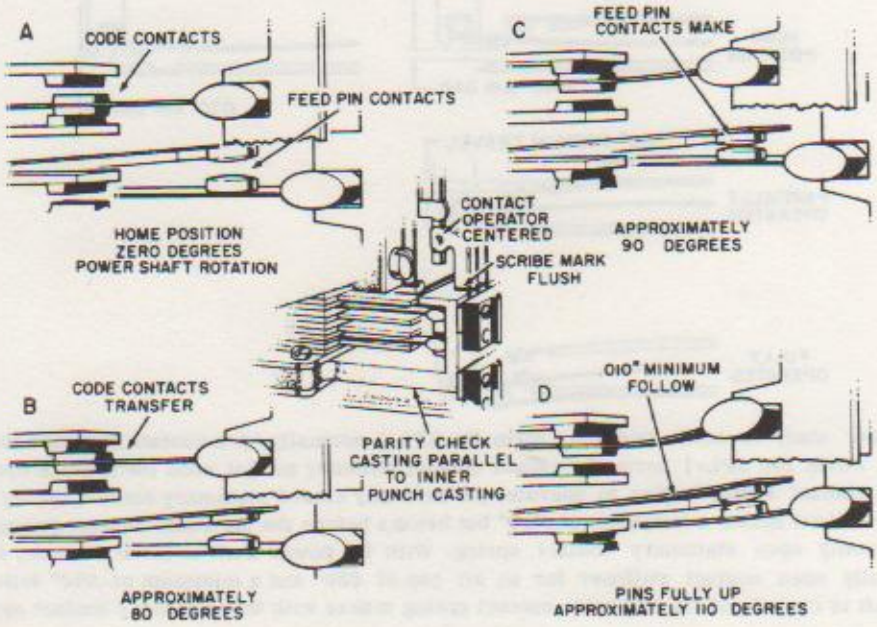
With the latch levers in their unlatched position, loosen the spring support mounting screws and position the spring support vertically to allow a minimum clearance of .002" between the top edge of the punch levers and the latching point of the latch levers, when the power shaft is cycled to the point just before the punch lever begins to travel upwards. Also maintain a perceptible movement of .001" between the lower edge of the punch levers and the bottom of the slots in the spring support (home position) with the spring support in an even vertical position, so that the punch levers do not bind in the slots and a clearance is maintained between the lower edge of the punch levers and the drive arm pivot stud. Tighten the spring support mounting screws.

ADJ. 6B PARITY CHECK CONTACT ASSEMELY



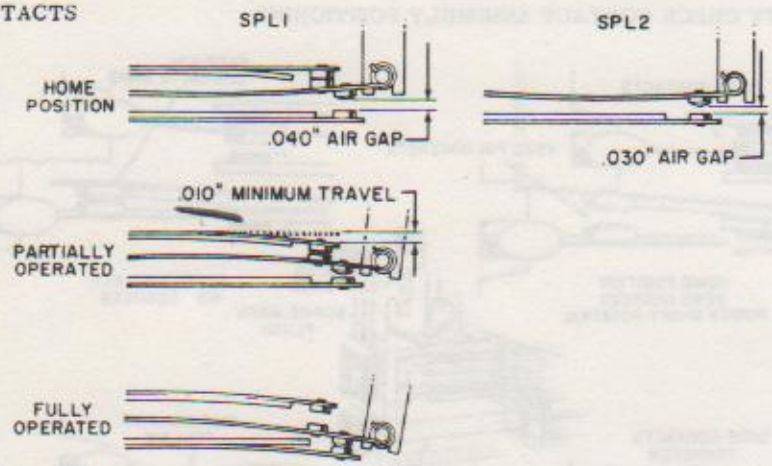
With the parity check contact assembly removed from the inner punch casting and using gauge T-18221, simultaneously hold all the contact operators tightly against the .368" side of the gauge and form the upper stationary contact springs to allow an .008" to .014" clearance to the moveable contact springs. With the contact operators simultaneously held against the .368" side of the gauge, the scribe mark on the #8 contact operator should be flush to the upper most surface of the parity check casting. With the contact operators simultaneously held against the .438" side of the gauge, form the lower stationary contact springs to allow an .008" to .014" clearance to the moveable contact springs.

ADJ. 6C PARITY CHECK CONTACT ASSEMBLY POSITIONING



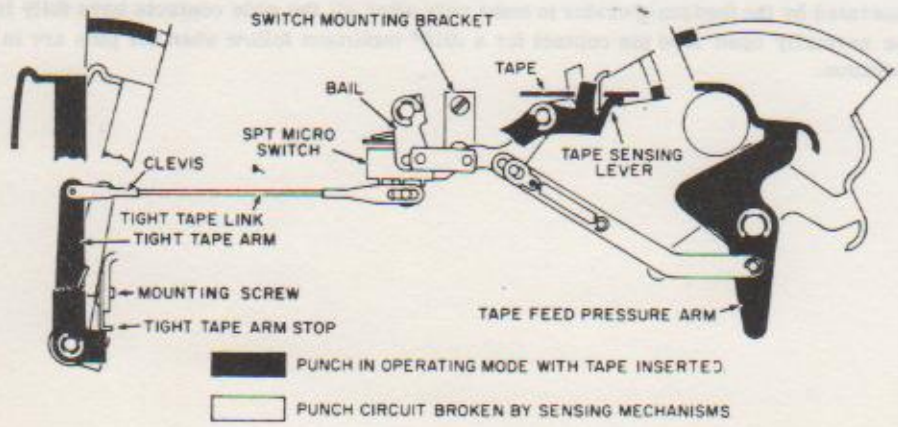
With the power shaft in home position, loosen the parity check contact assembly mounting screws and position the parity check casting so that it is parallel with the lower edge of the inner punch casting with the top of the contact operators centered in the punch pin slots and the scribe mark on the No. 8 contact operator flush with the upper most surface of the parity check casting. Adjust the normally open contact operated by the feed pin operator to make only after all the code contacts have fully transferred. Check the normally open feed pin contact for a .010" minimum follow when the pins are in their most upward position.

ADJ. 7 SPL CONTACTS



With the power shaft in home position, form the SPL-1 normally open contact stiffener for an air gap of .040". Form the SPL-1 normally closed contact stiffener so that when the shaft is cycled and the moveable contact spring begins to operate, the normally closed stationary contact spring follows the moveable contact spring a minimum of .010" but breaks before the moveable contact spring makes with the normally open stationary contact spring. With the power shaft in home position, form the SPL-2 normally open contact stiffener for an air gap of .030" and a minimum of .010" follow when the power shaft is cycled and the moveable contact spring makes with the stationary contact spring.

ADJ. 8 SPT MICRO SWITCH BRACKET, TIGHT TAPE ARM STOP AND LINK - TAPE PUNCH



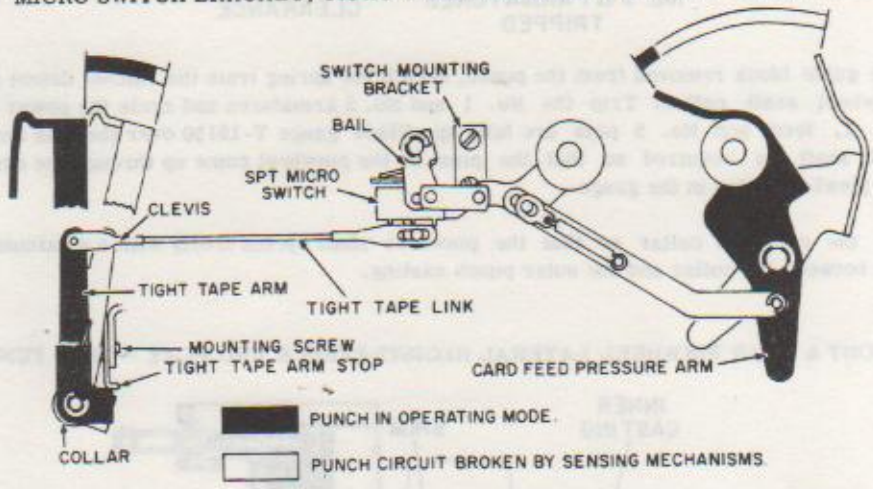
1. Loosen the switch mounting bracket mounting screws and position the switch mounting bracket so that the tape sensing lever operates the SPT micro switch when it is not held down by tape and allows the micro switch to fully restore with tape in the punch. (It may be necessary to dis-

connect the tight tape link to check the adjustment as the link may be maladjusted and interfere with operation of the tape sensing lever). Tighten the mounting screws. Also check that the SPT micro switch operates before the tape feed pressure arm is fully lowered, and that the micro switch restores before the tape feed pressure arm is fully raised.

2. Loosen the tight tape arm stop mounting screw and position the stop so that the tight tape arm is in a vertical position. Tighten the mounting screw.

3. With a length of tape in the punch, detach the tight tape arm link from the arm and adjust the clevis so that the link operates the SPT micro switch approximately 1/32" before the tight tape arm bottoms, but does not prevent the micro switch from restoring. With the tape removed from the punch, the link should not prevent full operation of the micro switch by the tape sensing lever when the sensing lever is in its upward position.

ADJ. 9 SPT MICRO SWITCH BRACKET, TIGHT TAPE ARM STOP AND LINK - CARD PUNCH

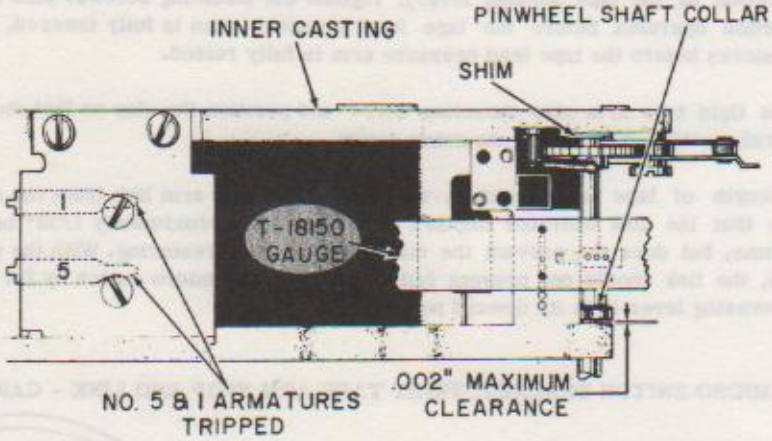


1. Loosen the switch mounting bracket mounting screws and position the switch mounting bracket so that the SPT micro switch operates before the tape feed pressure arm is fully lowered and the micro switch restores before the tape feed pressure arm is fully raised. Tighten the mounting screws.

2. Loosen the tight tape arm stop so that the tight tape arm is in a vertical position. Tighten the mounting screw.

3. With a length of tape in the punch, detach the tight tape arm link from the arm and adjust the clevis so that the link operates the SPT micro switch approximately 1/32" before the tight tape arm bottoms but does not prevent the micro switch from restoring.

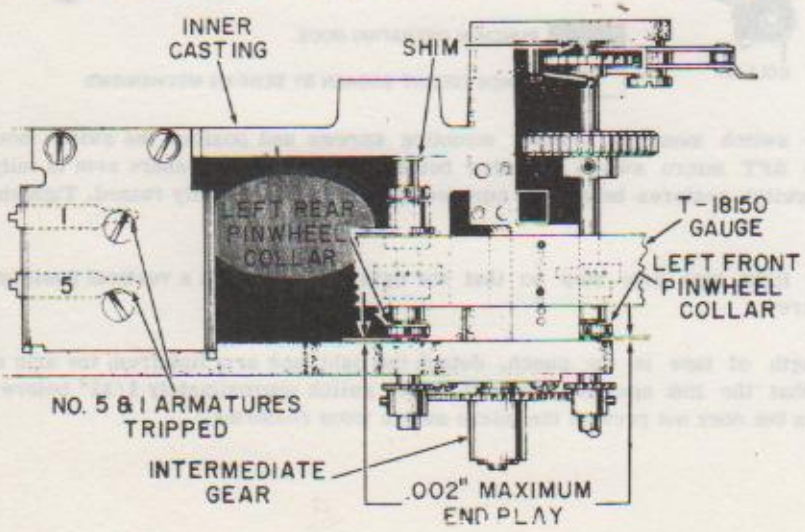
ADJ. 10 FRONT PINWHEEL LATERAL REGISTRATION - TAPE PUNCH



1. With the guide block removed from the punch, detach the spring from the ratchet detent and loosen the pinwheel shaft collar. Trip the No. 1 and No. 5 armatures and cycle the power shaft until the No. 1, feed and No. 5 pins are fully up. Place gauge T-18150 over the pins and shim the pinwheel shaft as required so that the pins on the pinwheel come up through the center of the forward pinwheel holes in the gauge.

2. Position the pinwheel collar so that the pinwheel shaft cycles freely with a maximum of .002" end play between the collar and the outer punch casting.

ADJ. 11 FRONT & REAR PINWHEEL LATERAL REGISTRATION & END PLAY - CARD PUNCH



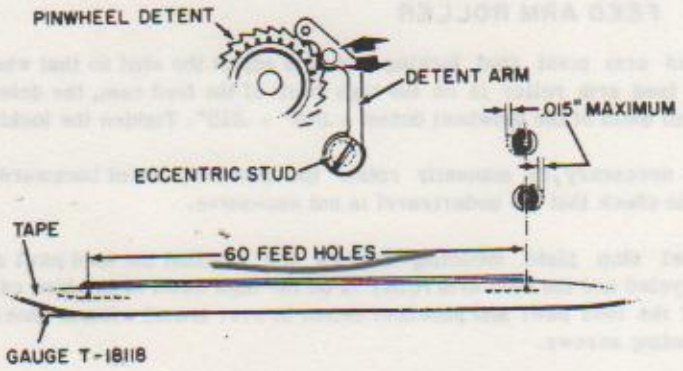
1. With the guide block removed from the punch, detach the spring from the ratchet detent and loosen the front pinwheel shaft collar. Trip the No. 1 and No. 5 armatures and cycle the power shaft until the No. 1, feed and No. 5 pins are fully up. Place gauge T-18150 over the pins and shim the front pinwheel shaft as required so that the pins on the front pinwheel come up through the center of the forward pinwheel holes in the gauge.

2. With the card guide assembly and guide block removed from the punch, detach the spring from the ratchet detent and loosen the rear pinwheel shaft collar. Trip the No. 1 and No. 5 armatures and with the intermediate gear disengaged, cycle the power shaft until the No. 1, feed and No. 5 pins are fully up. Place gauge T-18150 over the pins and shim the rear pinwheel shaft as required so that the pins on the rear pinwheel come up through the center of the pinwheel holes in the gauge.

3. Position the front pinwheel collar so that the front pinwheel shaft cycles freely with a maximum of .002" end play between the collar and the outer punch casting.

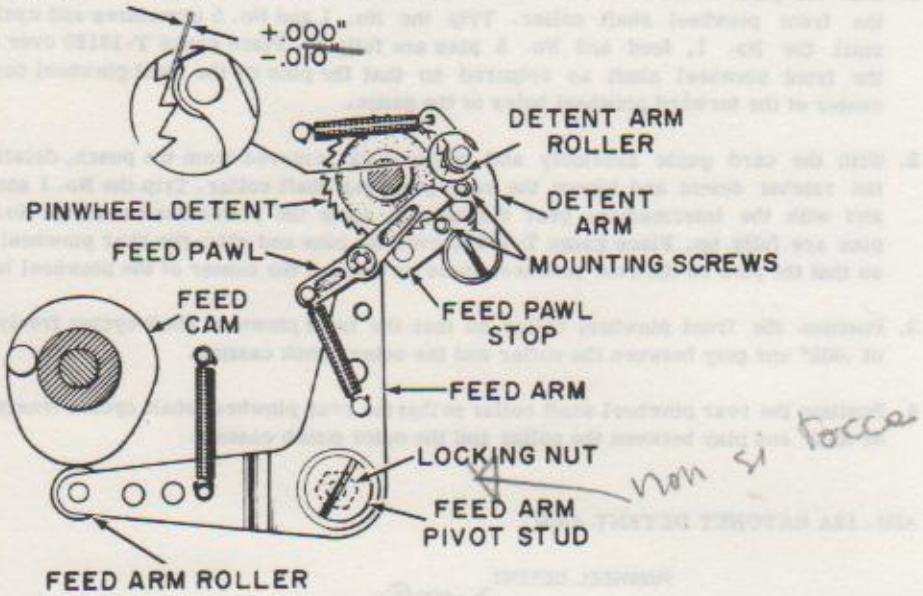
4. Position the rear pinwheel shaft collar so that the rear pinwheel shaft cycles freely with a maximum of .002" end play between the collar and the outer punch casting.

ADJ. 12A RATCHET DETENT ARM



Place a length of tape on registration gauge T-18118 and note the alignment. If the registration is incorrect, loosen the eccentric stud locking nut and turn the eccentric slightly as required to advance or retard the ratchet detent arm. Tighten the mounting nut. Feed an additional length of tape through the punch and check the registration on the gauge. When the longitudinal registration is correct, there should be 60 code holes in 6" of tape ±.015".

ADJ. 12B FEED ARM PIVOT STUD & FEED PAWL STOP

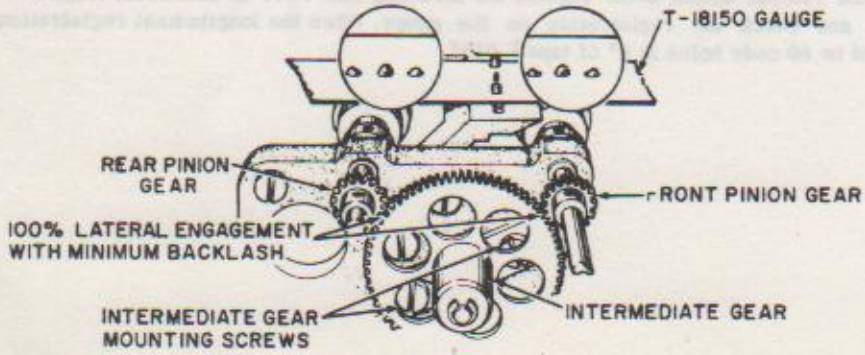


1. Loosen the feed arm pivot stud locking nut and adjust the stud so that when the power shaft is cycled and the feed arm roller is on the high dwell of the feed cam, the detent arm roller comes to rest on one full tooth of the pinwheel detent + .000" - .010". Tighten the locking nut.

NOTE: It may be necessary, to manually rotate the pinwheel detent backward (till it limits on the feed pawl) to check that the undertravel is not excessive.

2. Loosen the pawl stop plate mounting screws and position the feed pawl stop so that when the power shaft is cycled and the feed arm roller is on the high dwell of the feed cam, the stop prevents any tendency of the feed pawl and pinwheel detent to over travel without choking off the feed pawl. Tighten the mounting screws.

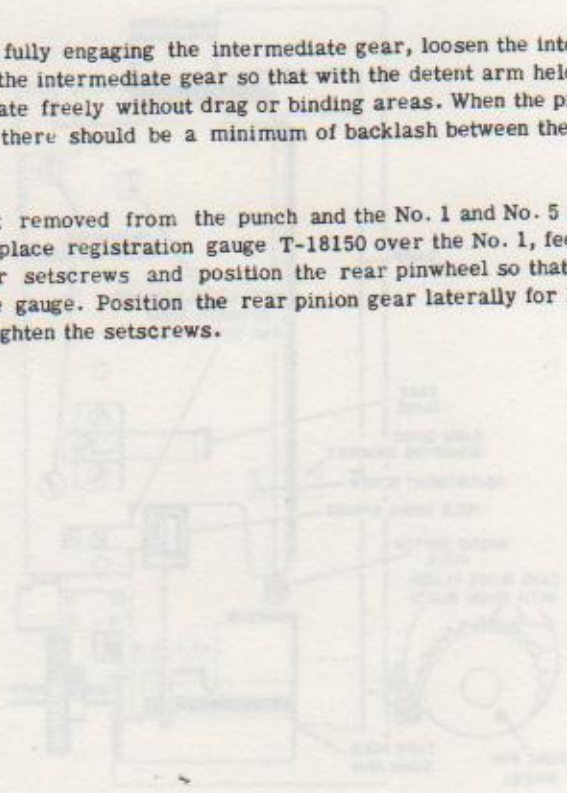
ADJ. 13 FRONT PINION GEAR, INTERMEDIATE GEAR & REAR PINION GEAR - CARD PUNCH



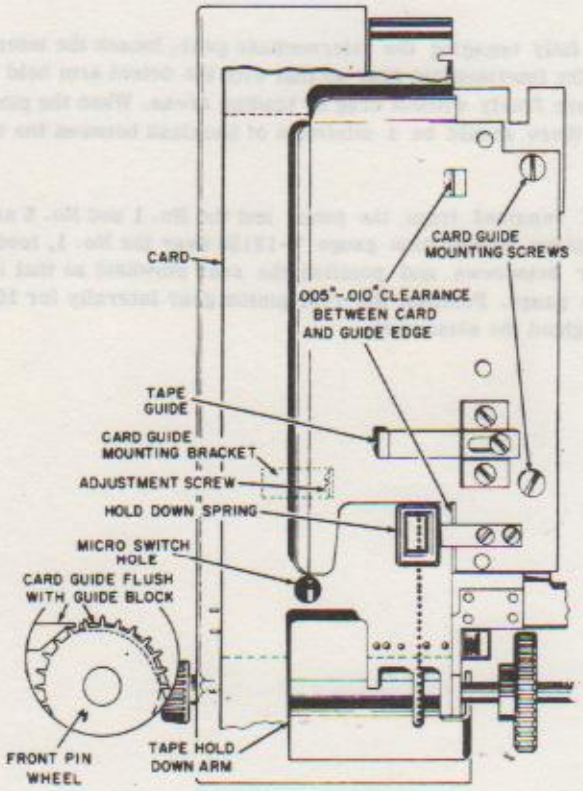
1. Loosen the setscrews on the front pinion gear and position the gear to engage the intermediate gear 100%.

2. With the front pinion fully engaging the intermediate gear, loosen the intermediate gear mounting screws and position the intermediate gear so that with the detent arm held away from the pinwheel detent, the gears rotate freely without drag or binding areas. When the pinwheel detent is engaged by the detent arm, there should be a minimum of backlash between the three gears. Tighten the mounting screws.

3. With the guide block removed from the punch and the No. 1 and No. 5 armatures tripped, cycle the power shaft and place registration gauge T-18150 over the No. 1, feed and No. 5 pins. Loosen the rear pinion gear setscrews and position the rear pinwheel so that it is engaged by the rear pin feed holes in the gauge. Position the rear pinion gear laterally for 100% engagement with the intermediate gear. Tighten the setscrews.



ADJ. 14A CARD GUIDE REGISTRATION, HEIGHT & CARD HOLD DOWN SPRING - CARD PUNCH

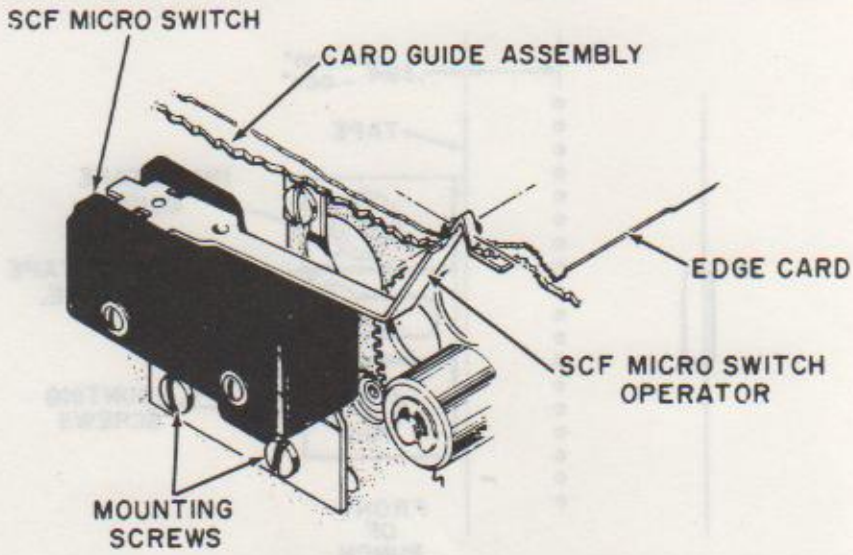


1. With an edge card inserted in the card guide, loosen the card guide mounting screws and card guide bracket adjustment screw and position the card guide laterally to allow a .005" to .010" clearance between the edge card and the guide edge. Maintaining this clearance, position the card guide forward or rearward so that the curvature of the card guide is concentric to and as near flush as possible but not above the base of the pins in the pinwheel. Tighten the screws.

2. Loosen the card guide mounting bracket screw and position the card guide so that the surface of the card guide is flush to .005" below the surface of the guide block.

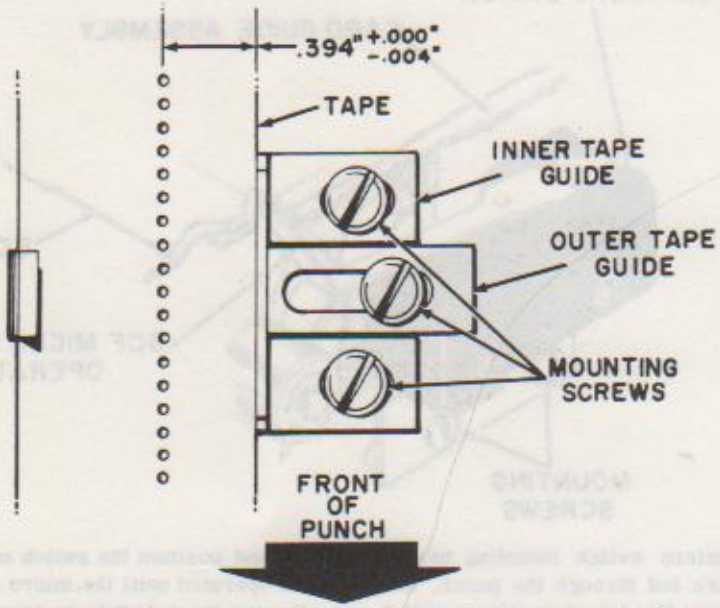
3. Loosen the card hold down spring mounting screws and form the spring so that it is flush against the surface of the card guide and has sufficient tension to hold the pinfeed holes in an edge card over the pins in the pinwheel for good registration. Position the spring so that the rectangular opening is centered over the pinwheel. Tighten the screws.

ADJ. 14B SCF MICRO SWITCH - CARD PUNCH



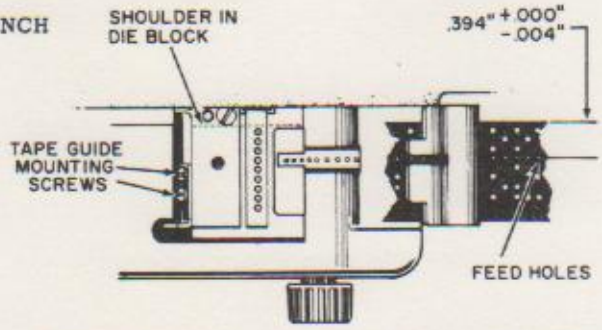
Loosen the micro switch mounting bracket screws and position the switch so that when a series of edge cards are fed through the punch, the switch is operated until the micro switch hole in the edge cards pass over the top of the micro switch arm allowing the switch to restore. The top of the switch arm should be centered in the edge card hole.

ADJ. 14C INNER & OUTER TAPE GUIDES - CARD PUNCH



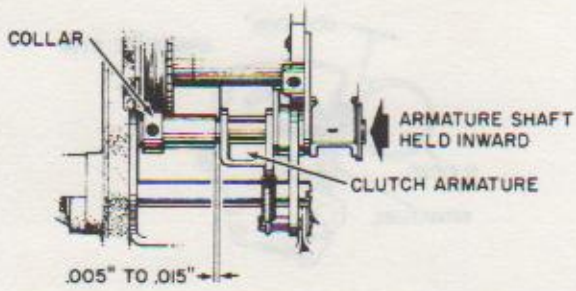
Feed a length of tape through the punch and check it on registration gauge T-18118. The distance between the center of the feed holes and the guide edge of the tape must be .394" plus .000" minus .004". To correct a poor condition, loosen the inner tape guide screws and the outer tape guide screw and position the inner guide left or right, positioning the outer tape guide simultaneoulsy so that the tape flows freely with a minimum of side play. Tighten the screws.

ADJ. 15 TAPE GUIDE - TAPE PUNCH



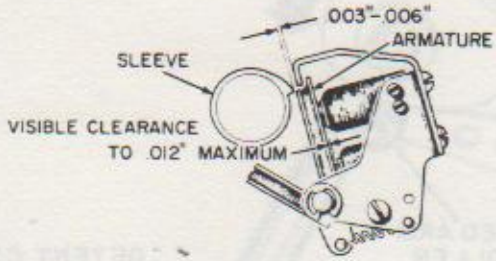
Feed a length of tape through the punch and check it on registration gauge T-18118. The distance between the center of the feed holes and the inner edge of the tape must be .394" plus .000" minus .004". To correct a poor condition, loosen the tape guide mounting screws and with the inner tape edge against the shoulder on the lower surface of the die block, position the tape guide simultaneously towards the outer edge of the tape but allowing the tape to flow freely with a minimum of side play. Tighten the screws.

ADJ. 16 ARMATURE SHAFT COLLAR



Loosen the setscrew on the armature shaft collar and position the collar to limit the armature side play .005" to .015". Tighten the setscrews.

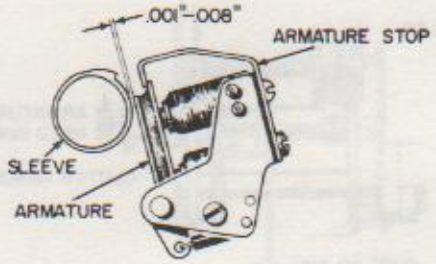
ADJ. 17A LOWER COIL CLEARANCE & MAGNET YOKE ASSEMBLY



1. While holding the armature flat against the upper magnet core, there should be a visible clearance to .012" maximum between the armature and the lower coil core. A clearance in excess of .012" indicates replacement of the upper coil and/or the armature.

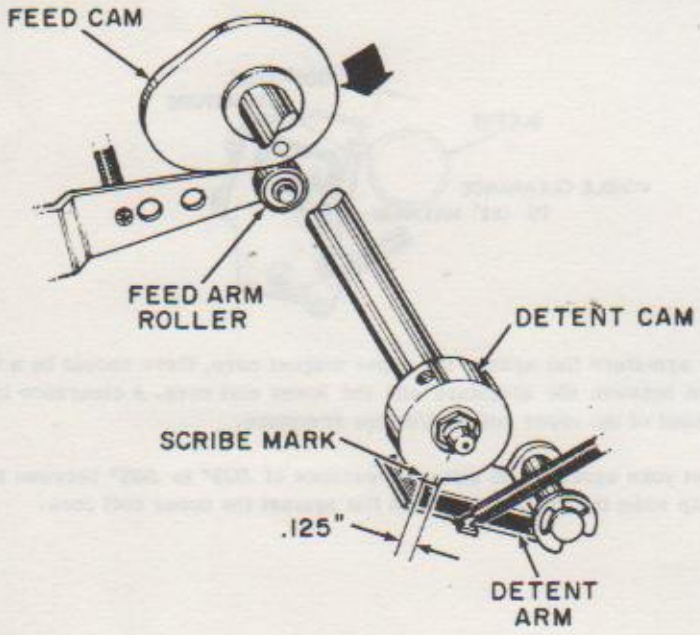
2. Position the magnet yoke assembly to allow a clearance of .003" to .006" between the armature and the clutch sleeve lip when the armature is held flat against the upper coil core.

ADJ. 17B ARMATURE STOP



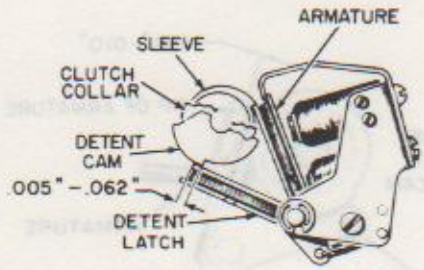
Form the armature stop to allow a clearance of .001" to .008" between the armature and the low surface of the clutch sleeve when the armature is in its non-attracted position.

ADJ. 17C CLUTCH HOME POSITION & PULLEY END PLAY



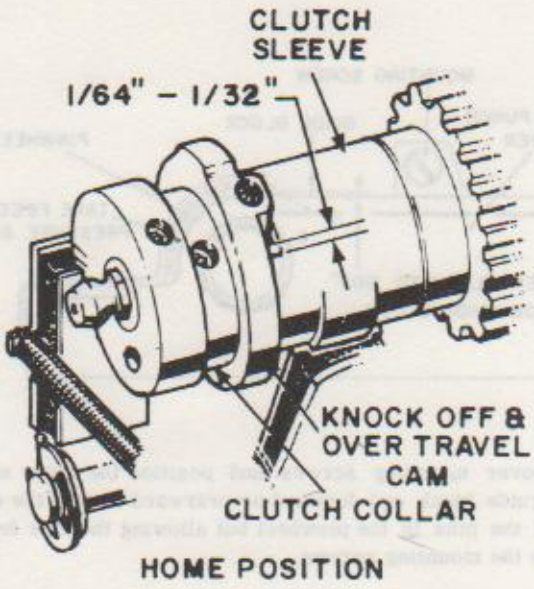
To obtain the clutch home position, rotate the power shaft to the point where the tape feed arm roller just reaches the low dwell of the feed cam. Loosen the detent cam setscrews and position the cam so that it is .125" (scribe mark on cam) short of engaging the detent latch. Maintain .003" to .008" end play at the pulley and tighten the setscrews.

ADJ. 17D CLUTCH COLLAR



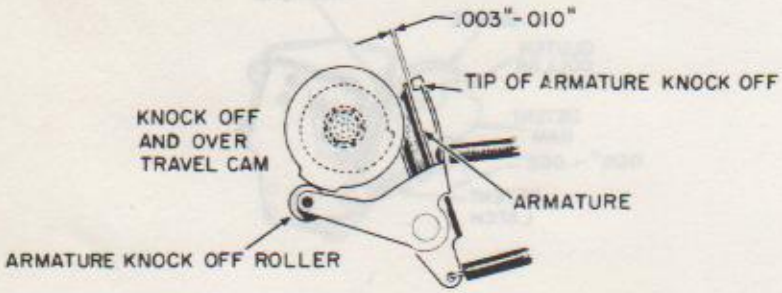
Loosen the clutch collar setscrews and position the collar so that as the clutch sleeve lip touches the armature, the detent cam is still .005" to .062" short of latching on the detent latch. Pull the collar towards the detent cam while tightening the setscrews.

ADJ 17E KNOCK OFF & OVER TRAVEL CAM



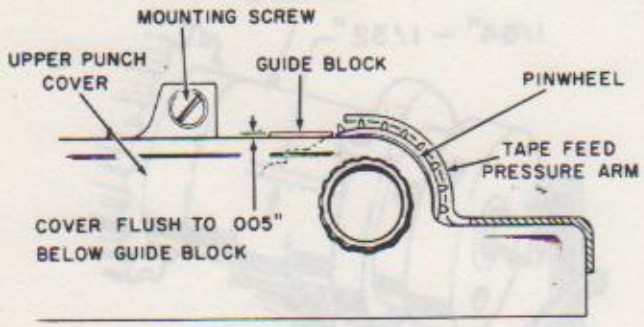
With the clutch in home position, loosen the setscrews on the knock off and over travel cam. Rotate the cam towards the lower end of the cutout in the clutch sleeve and allow a gap of 1/64" to 1/32". This should allow sufficient over travel distance between the detent cam and the detent latch. Pull the cam towards the clutch collar while tightening the setscrews.

ADJ. 17F ARMATURE KNOCK OFF



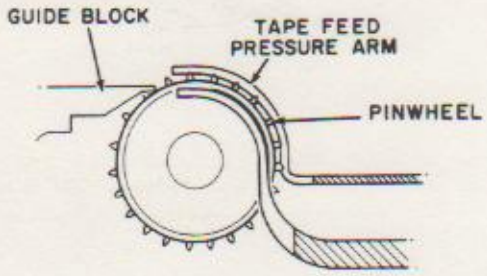
Form the armature knock off to allow a .003" to .010" clearance between the tip of the armature knock off and the armature when the armature knock off is on the high dwell of the knock off and over travel cam.

ADJ. 18 UPPER PUNCH COVER - TAPE PUNCH



Loosen the upper punch cover mounting screws and position the cover so that it is flush to .005" below the surface of the guide block and forward or rearward so that the curvature of the cover is concentric with the base of the pins in the pinwheel but allowing the tape feed pressure arm to bear against the pinwheel. Tighten the mounting screws.

ADJ. 19 TAPE FEED PRESSURE ARM



Form the tape feed pressure arm so that the inside surface of the arm is concentric with the pinwheel and the slot is centered over the pinwheel with the rear edge above the guide block.