Teletype Corporation
Chicago, Illinois, U.S.A.

CHANGES AND ADDITIONS TO BULLETIN 185, ISSUE 1, TO INCORPORATE DESCRIPTIVE AND ADJUSTING INFORMATION FOR TRANSMITTER DISTRIBUTOR BASES MXB9, MXB10, MXB11, MXB12, MXB16, MXB17, MXB18, MXB19, MXB20, MXB201**, MXB202**; TRANSMITTER DISTRIBUTORS MXD12, MXD13, MXD16; TRANSMITTING DISTRIBUTORS MFD4 AND MFD5

1. GENERAL

The units listed above differ from those described in Bulletin 185 as follows:

a. MULTIPLE TRANSMITTER DISTRIBUTOR BASES

(1) MXB9 is like MXB8 (368 o.p.m.) except that it is furnished with an extra motor pinion and shaft driving gear for 600 o.p.m. It is finished in gray-green wrinkle and accommodates two MXD8 and one MXD9 transmitter distributors.

(2) MXB10 is equipped with a 115 volt, 60 cycle synchronous motor geared for 600 o.p.m., a multiple conductor cable with 27-prong plug and three plug receptacles to accommodate the cable from each individual distributor. It is finished in gray-green wrinkle and accommodates two transmitter distributors MXD12 and one transmitting distributor MFD4.

(3) MXB11 is like MXB10 (600 o.p.m.) except that it is geared for 368 o.p.m. It accommodates two transmitter distributors MXD13 and one transmitting distributor MFD5.

(4) MXB12 is like MXB11 (368 o.p.m.) except that it has a top cover with a tape chute for the distributor unit in the extreme right position. It accommodates three MXD13 units.

(5) MXB16 is like MXB10 (600 o.p.m.) except that it has a top cover with a tape chute for the unit in the extreme right position and is geared to operate at 460 o.p.m. It accommodates three MXD13 units.

(6) MXB17 is like MXB10 (600 o.p.m.) except that it has a cover with a tape chute for the distributor unit in the extreme right position. It accommodates three MXD12 units.

(7) MXB18 is like MXB8 (368 o.p.m.) except that it is equipped with a 115 volt D.C. motor for operation at 368 o.p.m. It accommodates three MXD8 units.

(8) MXB19 differs from MXB8 (368 o.p.m.) in that it is geared to a synchronous motor for 390 o.p.m. (7 unit transmission). Line connections are made through a multiple conductor cable with 12-prong plug. Finish is gray-green wrinkle. It accommodates three MXD16 units.

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(9) MXB20 is like MXB8 (368 o.p.m.) except that it is equipped with a 115 volt 60 cycle synchronous motor for operation at 368 o.p.m. Finish is gray-green wrinkle. It accommodates two MXD10 units and one MXD11 unit.

(10) MXB201** is similar to MXB11 (368 o.p.m.) except that it includes three sets of relays and tape reels to control and facilitate message numbering and has a current limiting resistor for the clutch magnet circuit. A 27-conductor cable and multiple-prong plug are provided. It accommodates three MXD17 units. See Paragraph 2b for the theory of automatic message numbering.

(11) The double asterisk (**) in the apparatus codes referred to herein designate a two-letter suffix which indicates the paint finish. The four standard wrinkle finishes are now available:

AA - Black
AB - Gray-Green
AC - Light-Brown
AD - Dark-Brown

(12) MXB202** is similar to MXB11 (368 o.p.m.) except that it incorporates a 27-conductor signal cable with multiple prong plug, clutch magnet resistors, and a 3-conductor power cord. Paint finishes are available in the four standard shades listed above. It accommodates three MXD13 units.

(13) MXB203** is like MXB8 (368 o.p.m.) except that it is equipped with 60 cycle synchronous motor. It accommodates two MXD10 and one MXD11.

(14) MXB204** is like MXB203** (368 o.p.m.) except for wiring. It accommodates two MXD10 and one MXD11.

b. MULTIPLE TRANSMITTER DISTRIBUTORS

(1) MXD10 is like MXD8 described in Bulletin 185 except that it is equipped with parts to permit operation at 600 o.p.m. (cam sleeve 368 o.p.m. type). It operates in conjunction with MXB9, MXB203**, and MXB204**.

(2) MXD11 is like MXD10 except that it is equipped with a letters-sensing mechanism. It operates in conjunction with MXB9, MXB203**, and MXB204**.

(3) MXD12 differs from MXD8 (368 o.p.m.) described in Bulletin 185 in that it is arranged for operation at 600 o.p.m. (special cam sleeve included) and is equipped with a multiple-prong plug connector and adjustable screws which serve as backstops for the transmitting contacts. It operates in conjunction with MXB10 and MXB17.

(4) MXD13 is like MXD12 (600 o.p.m.) except that it is arranged to operate in conjunction with MXB11, MXB12 or MXB202** at 368 o.p.m., or with MXB16 at 460 o.p.m.

(5) MXD16 is like MXD8 (368 o.p.m.) except that it is arranged for 390 o.p.m. (7 unit transmission). It operates in conjunction with MXB19.

(6) MXD17 is like MXD13 except for wiring and the addition of letters-sensing mechanism. It operates in conjunction with MXB201**.

c. MULTIPLE TRANSMITTING DISTRIBUTORS

The multiple transmitting distributor (MFD) is utilized to transmit signals originating on circuits external to the MFD unit. It includes a transmitting cam sleeve and individually-insulated transmitting contacts. An auxiliary timing contact is also provided. No tape-sensing or tape-feeding mechanisms are required.

(1) MFD4 is basically similar to MXD12. It is arranged for operation at 600 o.p.m., adjustable screws serve as backstops for contacts and individual radio-interference suppression filters are provided for each contact. It operates in conjunction with MXB10.

(2) MFD5 is like MFD4 except that it is arranged for operation at 368 o.p.m. It operates in conjunction with MXB11.

2. AUTOMATIC MESSAGE NUMBERING

a. GENERAL

This feature is facilitated by the use of a multiple transmitter distributor set consisting of a MXB201** base and three MXD17 multiple transmitter distributors. The MXB201** base is equipped with three sets of transmission control relays and three mechanisms for the take-up and rewinding of tape. Each set of relays co-ordinates the action of one of the MXD17 numbering transmitter distributors and an external message transmitter so that a message number, station identification, etc. may be transmitted from the numbering transmitter prior to message transmission from each section of torn tape.

b. THEORY OF OPERATION

When the manual control contact of the numbering transmitter (Figure 1) is closed, to the left (release bar in upward position), relay 2 becomes energized by a circuit through the manual control contact and contact 1-2 of relay 1. If a numbering tape is in the numbering transmitter, the automatic stop contact will be closed, and relay 1 will be energized by a circuit through the manual control contact and the automatic stop contact upon the closure of contact 7-8 on relay 2. Relay 1 locks through its contact 6-5 and automatic stop contact of the numbering transmitter. Opening of contact 1-2 on relay 1 releases relay 2. Relay 1 remains operated until a numbering cycle is completed. When a message tape is inserted in the message transmitter and its manual start contact is closed, a circuit is established through the manual control contact of the numbering transmitter, contact 3-4 of relay 1, 2-1 of relay 2, automatic stop contact and manual start contact of the message transmitter. This circuit energizes the clutch magnet of the numbering transmitter and starts transmission of the identification group of characters and functions typical of which are - CARRIAGE RETURN, LINE FEED, STATION IDENTIFICATION, FIGS, MESSAGE NUMBER, CARRIAGE RETURN, LINE FEED, LTRS. Transmission of LTRS function causes the automatic stop contact of the numbering transmitter to open momentarily and break the locking circuit of relay 1. Opening of contact 3-4 on relay 1 de-energizes the clutch magnet of the numbering transmitter and stops transmission. Closure of contact 1-2 on relay 1 causes relay 2 to operate and lock through its contact 3-4 and the manual control contact of the numbering transmitter. Closure of contact 5-6 on relay 2 provides a circuit through the manual control contact of the numbering transmitter,

automatic stop contact and manual start contact of the message transmitter, that energizes the clutch magnet of the message transmitter and starts message transmission. Closure of contact 7-8 on relay 2 re-energizes relay 1 which again locks through its contact 6-5 and the automatic stop contacts of the numbering transmitter. The numbering transmitter remains idle during message transmission since its clutch-magnet circuit is open at contact 1-2 of relay 2. Opening of the automatic stop contact on the message transmitter, occasioned by the ending of tape, releases relay 2 and leaves the system in readiness for the next numbering cycle to be initiated by the insertion of another tape in the message transmitter.

3. ADJUSTMENTS

a. GENERAL

This correction sheet is intended to bring the requirements of Bulletin 185 and previous correction sheets into conformance with present adjusting procedures and make them applicable to multiple transmitter distributors and bases covered in the title (including MFD4 and MFD5 insofar as corresponding features are present) except as indicated below:

b. PAGE 5 - CLUTCH SPRING COMPRESSION

Change this requirement to read 12 to 15 ozs. instead of 9 to 12 ozs. and add the following note:

NOTE

A new compression spring 117901 (formed with .040" diameter wire) is available to replace the old 80471 compression spring (formed with .038" diameter wire).

c. PAGE 6

Add the following Note after "ARMATURE SPRING TENSION" requirement:

NOTE

It will be necessary to supply .100 amp. D.C. for satisfactory operation of the start magnet.

The following requirement applies to MFD units only and should be added after ARMATURE SPRING TENSION requirement:

CAM CYLINDER DETENT-LEVER SPRING TENSION

With the transmitting cam sleeve in the stop position and the detent lever roller resting on the low part of its cam, hook an 8 oz. scale to the detent lever just above the spring hole and pull at a right angle to the detent lever. It should require 6 to 8 ozs. to start the detent lever moving.

d. PAGE 9 - FEED WHEEL DETENT ADJUSTMENT

Change this adjustment to read as follows:

"Select a piece of tape (regular or chadless tape) with a series of LETTERS perforations checked for 10 holes to the inch. With the detent roller resting in an indent between two teeth of the feed wheel ratchet, rotate the cam sleeve until the tape pins are flush with the bottom of the tape. Engage the feed perforations of the tape with the feed wheel so that the LETTERS perforations are directly over the tape pins. When the play of the tape on the feed wheel is taken up in the direction of rotation of the feed wheel, the tape sensing pin with the minimum clearance in its code hole should just clear the trailing edge of its code hole. To adjust, hold the feed pawl away from the ratchet and position the detent eccentric, keeping the high part toward the rear of the unit.

e. PAGE 15

The following requirements apply only to multiple transmitter distributor bases (MXB-201**) equipped with tape-winder mechanism (Figure 2) and transmission control relays. and should follow DISTRIBUTOR UNIT POSITION ADJUSTMENT.

NOTE

Unless otherwise indicated, the following relay adjustments apply to both 117760 and 117761 relays (Figure 3).

CAUTION

Remove power before attempting any of the relay adjustments.

(1) All contact springs should be free from sharp bends or kinks and should be approximately parallel with the heelpiece. The contact points should be in alignment.

(2) HEEL-PIECE GAP ADJUSTMENT (Figure 4)

With the residual screw in its approximately correct setting and the relay electrically operated, there should be some clearance, not more than .004", at the closest point between the armature and the heel piece. The armature should also be reasonably parallel with the heel piece. To adjust, loosen armature clamping screws and position armature. Tighten the armature clamping screws. Recheck clearance.

(3) RESIDUAL SCREW ADJUSTMENT (Figure 4)

With the relay electrically operated, there should be some clearance, not more than .004", at the closest point between the armature and the core. To adjust, loosen residual-screw lock nut and position the screw. Tighten the lock nut.

(4) ARMATURE BACKSTOP ADJUSTMENT (Figure 4)

With the armature resting against the backstop, there should be from .004" to .012" between the insulator on the armature arm and the swinger of the first break combination. To adjust, bend the armature backstop.

(5) MAXIMUM ARMATURE TRAVEL ADJUSTMENT (Figure 4)

With the proper* gage between the armature residual screw and the magnet core and the armature operated by hand, the first BREAK contact should not break. To adjust, bend the heavy break spring or if necessary bend the armature. Recheck (4) above.

*For 117760 relay (slow operating) use .015" gage.
For 117761 relay use .013" gage.

(6) CONTACT ADJUSTMENTS (Figure 4)

(a) There should be a minimum of .010" contact separation between the MAKE contacts with the relay unoperated.

(b) When the armature is slowly operated by hand, there should be at least a slight movement of the heavy BREAK spring, and the MAKE springs should also move at least .010". Gage by eye. The BREAK contact should break before any MAKE contact makes.

(c) There should be a minimum clearance of .010" between the non-contacting surfaces of adjacent contact springs.

(d) To adjust, bend the contact springs or if necessary, bend the armature arm in the thin portion near its free end while holding the armature firmly against the core. Recheck (4) and (5) above.

(7) ELECTRICAL REQUIREMENTS

	Operate Current	Non-Operate Current
117760 Relay (slow operating)	17MA	14.8MA

Increase or decrease tension in the contact springs to meet this requirement. Recheck (4), (5), and (6) after adjusting.

Electrical requirements for the 117761 relay are unnecessary.

NOTE

The following tape winder requirements apply only to multiple transmitter distributor bases equipped with tape-winder mechanisms.

(1) TAPE-WINDER SHAFT BEARING ALIGNMENT

The tape-winder shaft should spin freely when rotated in a clockwise direction as viewed from the right-hand end. To adjust, set the left bearing plate (Figure 2) squarely and at approximate center of its vertical adjustment. Then position the right bearing plate squarely and up or down until the shaft spins freely. Tighten the mounting screws.

(2) CHECK PAWL SPRING TENSION

Hook an 8 oz. scale in the spring hole of the check pawl (Figure 3) and pull in line with the spring. It should require 1/2 to 1-1/2 ozs. to start the pawl moving.

(3) FEED PAWL SPRING TENSION

Hook an 8 oz. scale in the spring hole of the feed pawl (Figure 3) and pull at a right angle to the pawl. It should require 1 to 2 ozs. to start the pawl moving.

(4) RATCHET-HUB END PLAY ADJUSTMENT

There should be some end play, not more than .005", between the ratchet hub and bearing hub. To adjust, position the collar (Figure 2) at the bearing by means of its set screw.

(5) TAKE-UP REEL CLUTCH TORQUE ADJUSTMENT

With the motor running and the tape reel assembly operating, hook a 32 oz. scale in the hole of the reel disc and pull at a right angle to the radius of the reel and vertically upward against the rotation of the reel. It should require from 7 to 9 ozs. to hold the reel stationary. To adjust the clutch torque, loosen the adjustable disc lock nut (Figure 2) and turn the disc clockwise (viewed from motor end of base) to increase the torque, and counter-clockwise to decrease it. Hold the disc by means of a 76289 wrench and tighten the lock nut. Adjust each take-up reel in the same manner.

(6) CHECK PAWL ADJUSTMENT

With the motor running and one tape reel held stationary, the other two reels should rotate with as little backward motion as possible. To adjust, loosen the lock nut on the check-pawl eccentric mounting post (Figure 2) and rotate the post to provide the least amount of overtravel between the check pawl and a tooth on the ratchet without the check pawl failing to drop into each notch. Check throughout one complete revolution of the ratchet.

(7) TAKE-UP REEL POSITION ADJUSTMENT

The take-up reels should be centered as nearly as possible with the feed wheel of the MXD units. To adjust, position the clutch sleeves (Figure 2) by means of the enlarged mounting holes.

(8) PIVOT ARM ADJUSTMENT

There should be some end play, not more than .005", between the pivot-arm hub (Figure 2) and tne clutch sleeve. To adjust, loosen the collar set screw and position the collar. Tighten the set screw.

(9) PIVCT-ARM LATCH ADJUSTMENT

The pivot arm should latch securely as its rear post drops into the hole of the pivot-arm latch. To adjust, position the tape-snubber assembly (Figure 2) by means of its mounting screws. To refine the adjustment it

may be necessary to reposition the spring latch by means of its mounting screws.

f. PAGE 16

After the last line add the following:

(D) TAPE WINDER LUBRICATION

(1) Sleeve bearings

(2) Pivot arm hub

(3) Ratchet hub and drive arm

(4) Detent pawl

(5) Drive pawl

(6) Ratchet teeth - thin film of grease

(7) Eccentric hub and drive arm - film of grease on hub, drive pin, and fork.

NOTE

So that oil does not run onto the numbering tape and shorten its life, do not oil the felt washers of the clutches on the take-up reels.

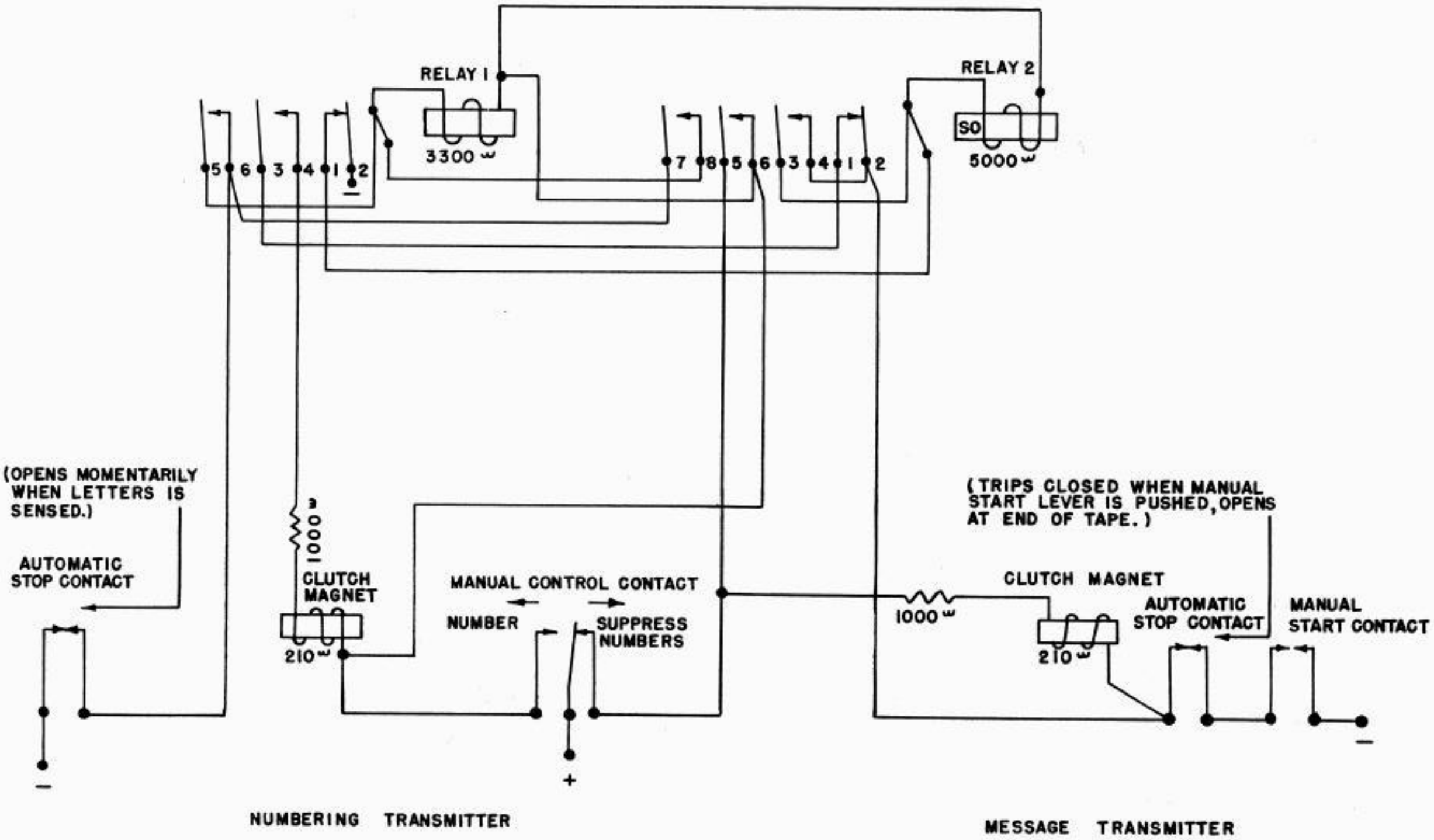
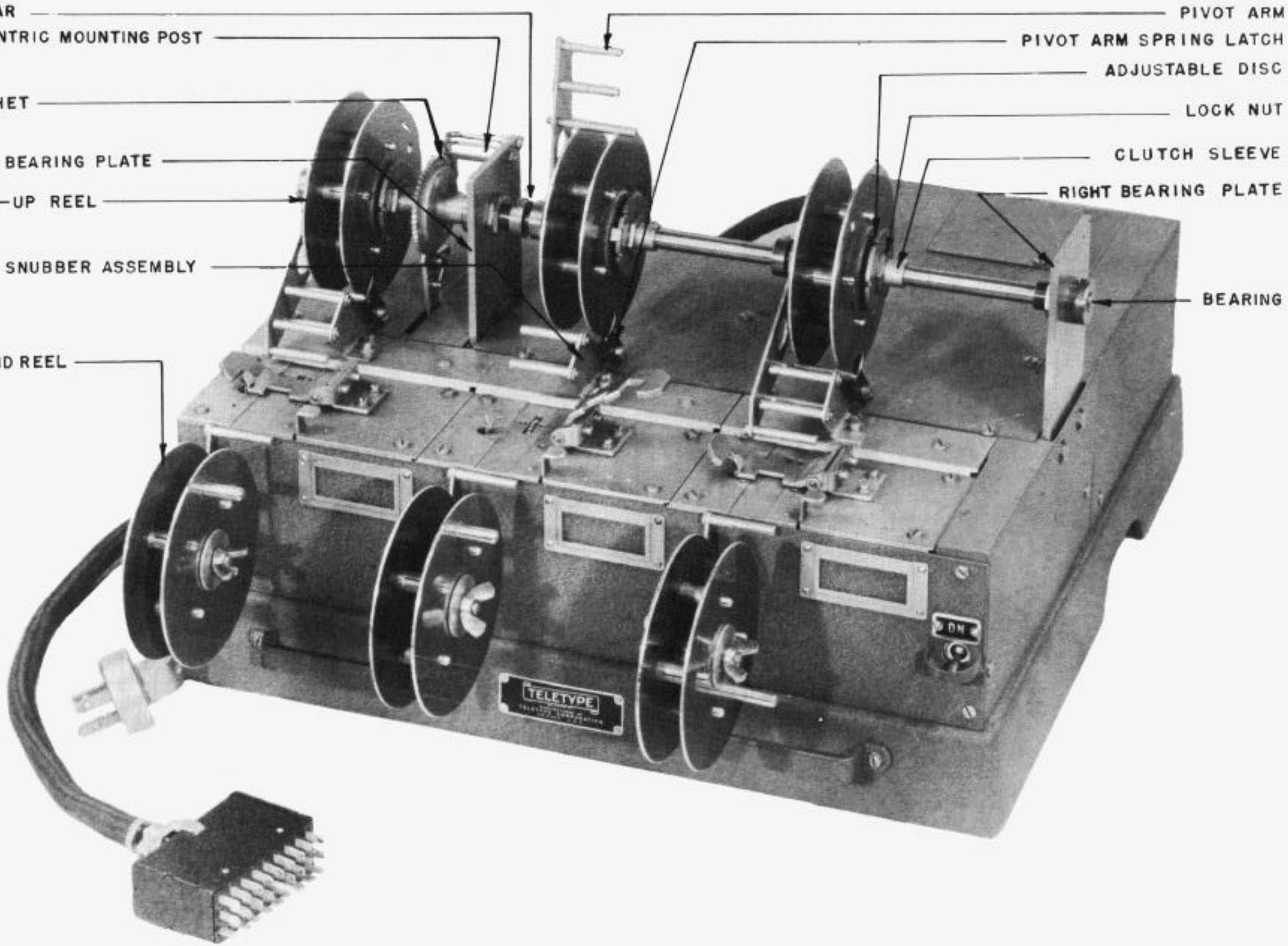
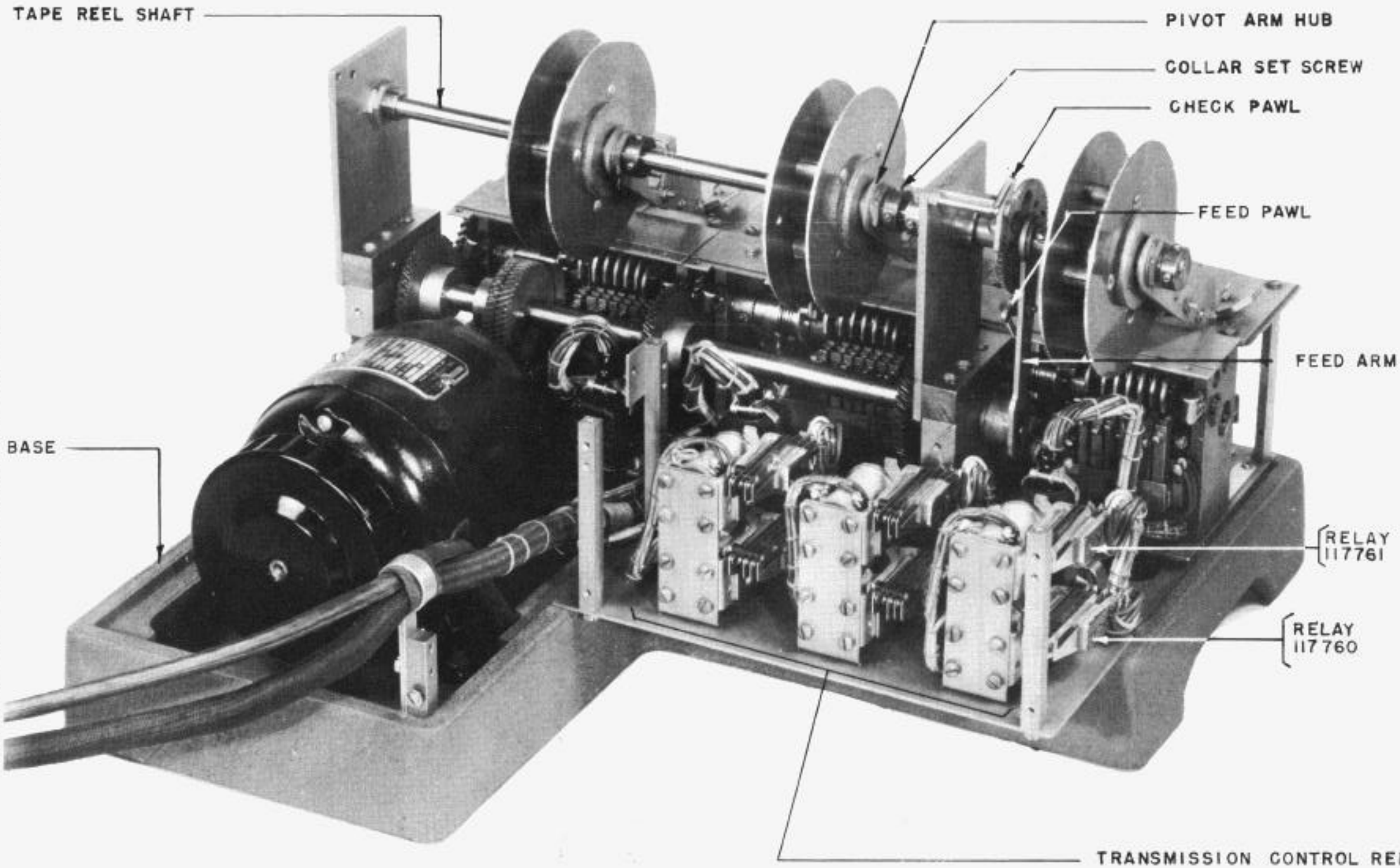

RELAY 1
3300 ω
RELAY 2
SO
5000 ω
5 6 3 4 1 2
7 8 5 6 3 4 1 2
(OPENS MOMENTARILY WHEN LETTERS IS SENSED.)
AUTOMATIC STOP CONTACT
1000 ω
CLUTCH MAGNET
210 ω
MANUAL CONTROL CONTACT
NUMBER
SUPPRESS NUMBERS
(TRIPS CLOSED WHEN MANUAL START LEVER IS PUSHED, OPENS AT END OF TAPE.)
1000 ω
CLUTCH MAGNET
210 ω
AUTOMATIC STOP CONTACT
MANUAL START CONTACT
NUMBERING TRANSMITTER
MESSAGE TRANSMITTER

FIGURE 1



MULTIPLE TRANSMITTER-DISTRIBUTOR SET-NUMBERING
(FRONT VIEW)
FIGURE 2



MULTIPLE TRANSMITTER-DISTRIBUTOR SET - NUMBERING
(REAR VIEW LESS COVERS)
FIGURE 3

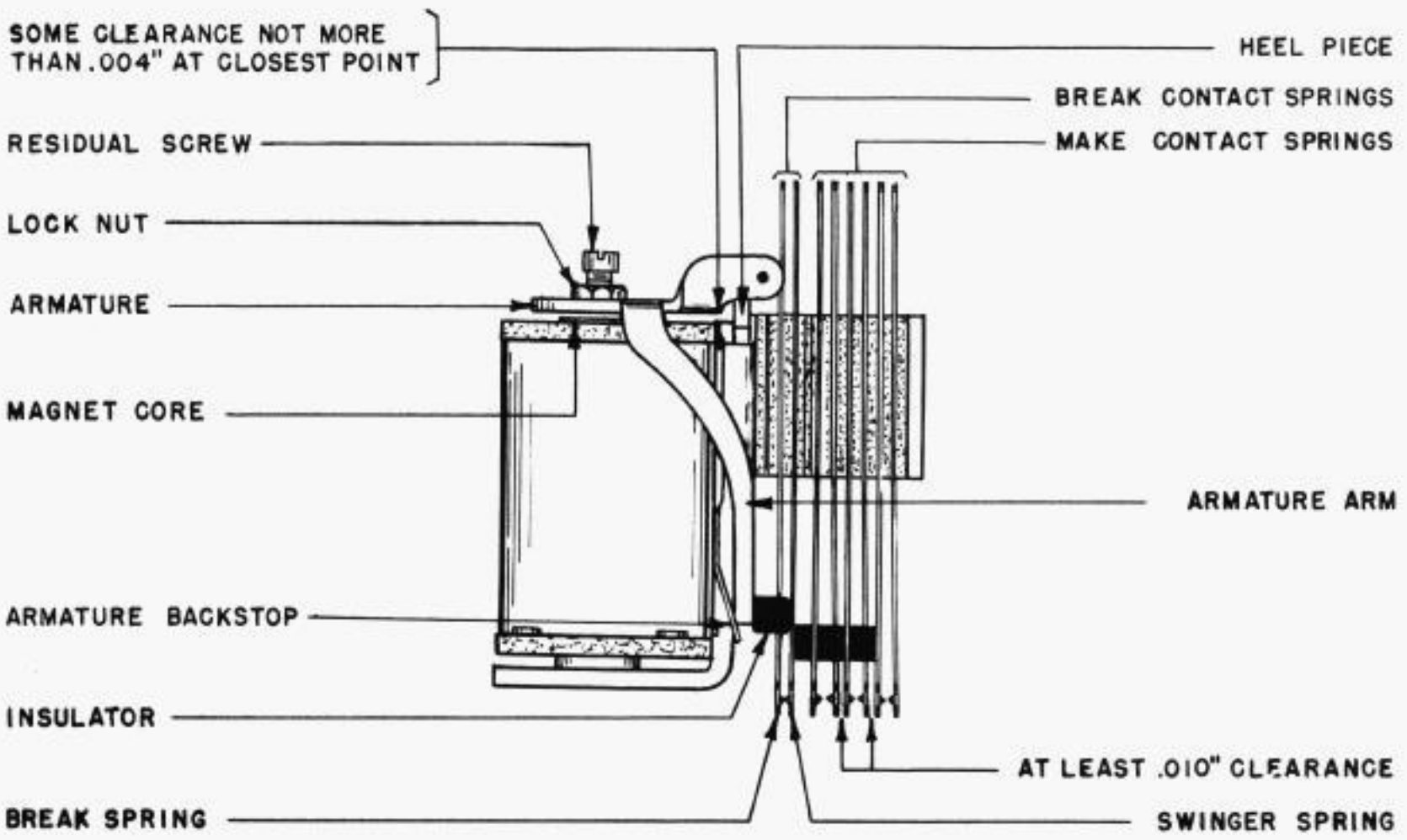

SOME CLEARANCE NOT MORE THAN .004" AT CLOSEST POINT
RESIDUAL SCREW
LOCK NUT
ARMATURE
MAGNET CORE
ARMATURE BACKSTOP
INSULATOR
BREAK SPRING
HEEL PIECE
BREAK CONTACT SPRINGS
MAKE CONTACT SPRINGS
ARMATURE ARM
AT LEAST .010" CLEARANCE
SWINGER SPRING

FIGURE 4