

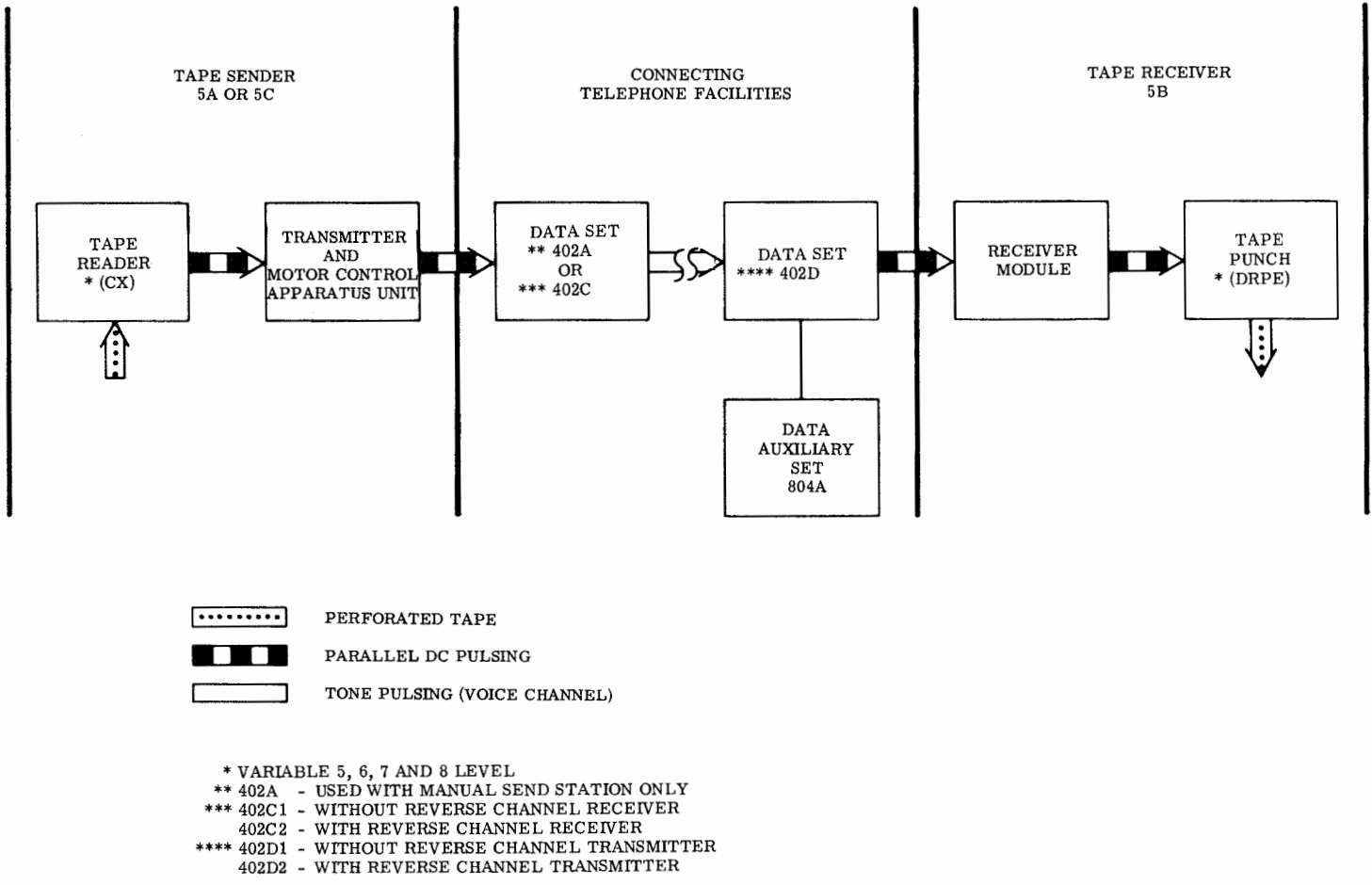
DATASPEED TAPE-TO-TAPE SYSTEM

TAPE RECEIVER 5B

DESCRIPTION AND OPERATION

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STANDARD OPERATION	4	1. GENERAL	
ENERGIZING	4	1.01 This section provides description, oper- ating procedure, and principles of oper- ation for the DATASPEED Tape Receiver 5B. It is reissued to add a figure, information on service arrangements, and to revise the sche- matic diagram. Since it is a general revision, marginal arrows ordinarily used to indicate changes and additions are omitted.	
INSERTING TAPE	4	1.02 Installation, trouble shooting, adjust- ments, lubrication, as well as informa- tion on apparatus unit options, can be found in appropriate sections.	
RECEIVING CALLS	7	1.03 The following designations cover the Receiver and option unit combinations:	
INITIATING REQUEST FOR DATA	7	5B. Floor Mounted Receiver without options.	
LOW TAPE	7	5B-1. Floor Mounted Receiver with TP199784 Identifier Apparatus Unit Option.	
4. PRINCIPLES OF OPERATION	7	5B-2. Floor Mounted Receiver with TP199788 Unattended Send-Receive Apparatus Unit Option.	
CABINETS	7	5B-3. Floor Mounted Receiver with TP199784 Identifier and TP199788 Unattended Send-Receive Apparatus Unit Options.	
TAPE PUNCH	7	1.04 Table 1 indicates the various types of operation available with the Receivers and provides information on equipment required.	
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Figure 1 - System Block Diagram



The section covering installation and checkout for the Receivers provides information on wiring options and strapping plugs.

1.05 The Receiver cabinet is of sheet metal, steel reinforced construction. The basic cabinet shell is 16 inches wide, 24-3/8 inches deep, and 54-1/4 inches high. The standard model Receiver without options and data set weighs 196 pounds.

1.06 Power required to operate the Receiver is obtained from the power supply (4.26) mounted in the Receiver module. This power supply requires a 115 ± 10 v ac 60 cps input.

2. DESCRIPTION

2.01 The 5B Tape Receiver is used as an output terminal in a medium speed (750 wpm) tape-to-tape data transmission system. These Tape Receivers are particularly well suited to collective type data systems (ie, a number of Senders operating with a single Receiver).

2.02 It is also possible to connect a Tape Sender and Tape Receiver, at a particular site, to a common telephone line. This arrangement constitutes a "send-receive" station. When operated in this manner, the data auxiliary set 804A, normally mounted in the Tape Receiver, is not required.

2.03 Fundamentally, these systems operate in the following manner. Punched paper tape in five-, six-, seven-, or eight-level format is placed in the tape reader at the Sender (Figure 1). The perforations in the tape are converted to parallel dc pulsing by the reader and applied to the transmitter circuit, which lengthens each pulse to the required character width. The pulses are then routed from the Sender circuits to a data set 402C where they are converted to parallel audio tone signals, and applied to the carrier lines. The tone signals are received at the 5B Tape Receiver site, converted from tone to dc pulsing by a data set 402D, amplified, and used to drive the tape punch unit within the Tape Receiver.

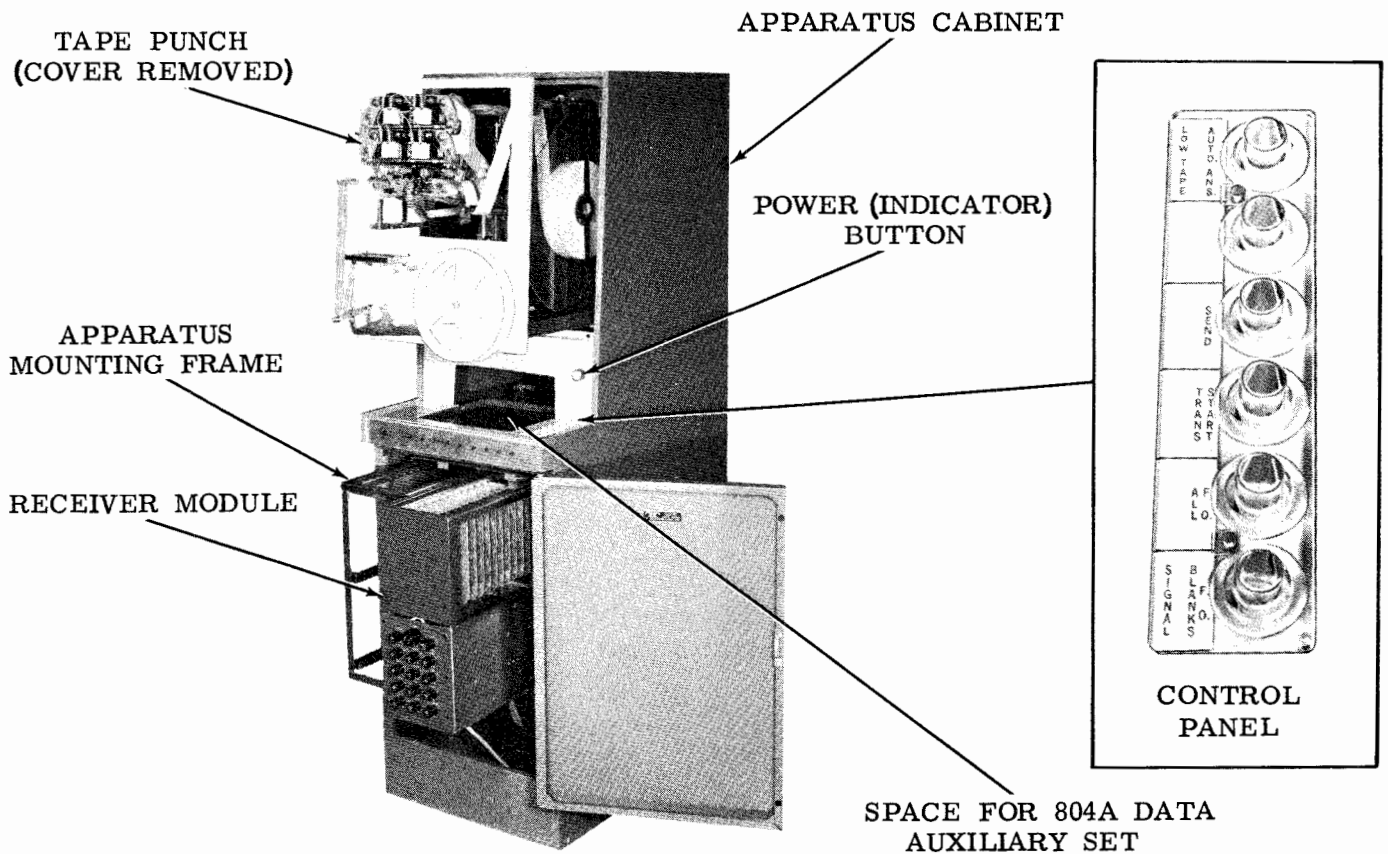


Figure 2 - Tape Receiver 5B, Components

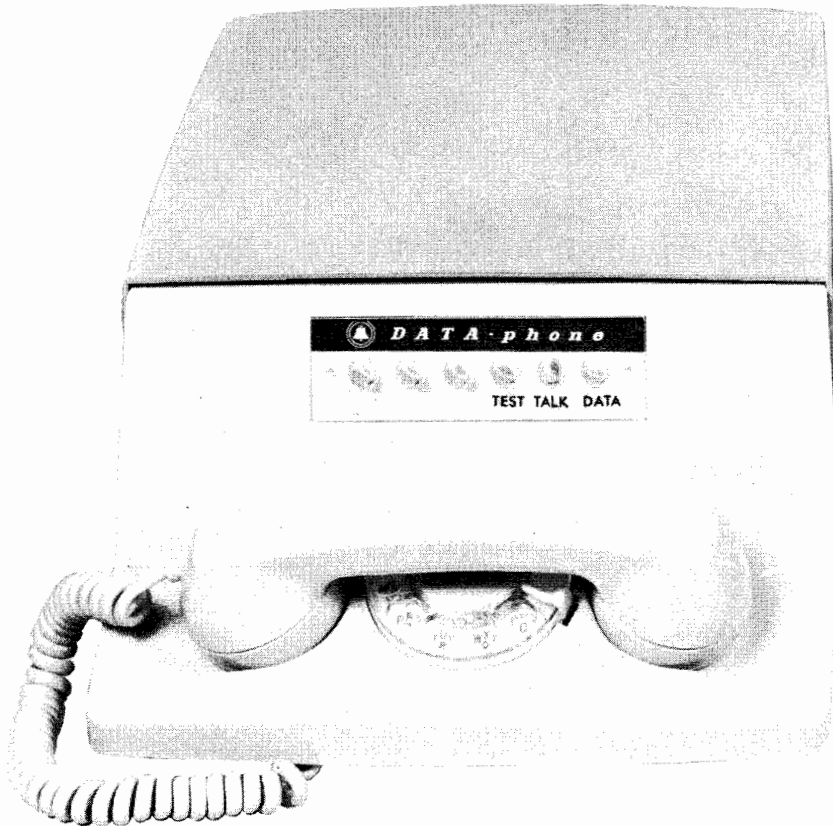


Figure 3 - Data Auxiliary Set 804A

2.04 Tape Receiver 5B (Figure 2) is a floor mounted unit having essentially the same cabinet design as the 5C Tape Sender. The tape punch equipment is mounted on a sliding drawer at the top of the cabinet. A receiver module is slide mounted in the lower half of the cabinet. The receiver module includes the receiver, punch driver and power supply circuits. Space is provided to the left of the receiver module to accommodate optional circuitry. A hinged door covers the lower half of the cabinet. Space is provided at the bottom of the cabinet for the data set 402D. A shelf near the center of the cabinet accommodates the data auxiliary set 804A (Figure 3).

3. OPERATING PROCEDURE

STANDARD OPERATION

3.01 The following procedure assumes that the Tape Receiver 5B is a standard model without optional accessories. Optional features and related procedures are covered in Part 5.

ENERGIZING

3.02 Press the white power (indicator) button on the front of the data set mounting panel below, and to the right of the punch.

CAUTION: THE EQUIPMENT IS DESIGNED FOR 24-HOUR OPERATION. TURNING THE POWER OFF AFTER EACH CALL WILL CAUSE THE ESCAPEMENT PAWL TO ADVANCE THE FEED WHEEL ONE-HALF STEP AND THEREFORE WILL CAUSE A LACK OF ONE FEED HOLE IN THE TAPE.

INSERTING TAPE

3.03 The tape insertion procedure is as follows (see Figures 4 and 5).

- (1) Withdraw the punch mounting panel to gain access to the tape supply bin.
- (2) Place the tape supply reel on the fixed supply reel spindle so that it unwinds in a clockwise direction.

- (3) Position the tape container door (Figure 5) for the proper tape roll width in late designed equipment.
- (4) Close the mounting panel and remove the transparent tape punch cover by lifting the cover slightly and pulling forward. The cover is secured by magnetic latches.

- (5) Thread the tape through the rollers and punch as shown in Figure 4. It will be necessary to turn on the equipment power to retract the punch pins.
- (6) With blank tape threaded through the punch, hold down the BLANK F. O. key while pulling the free end of the tape, until the tape is capable of feeding normally under

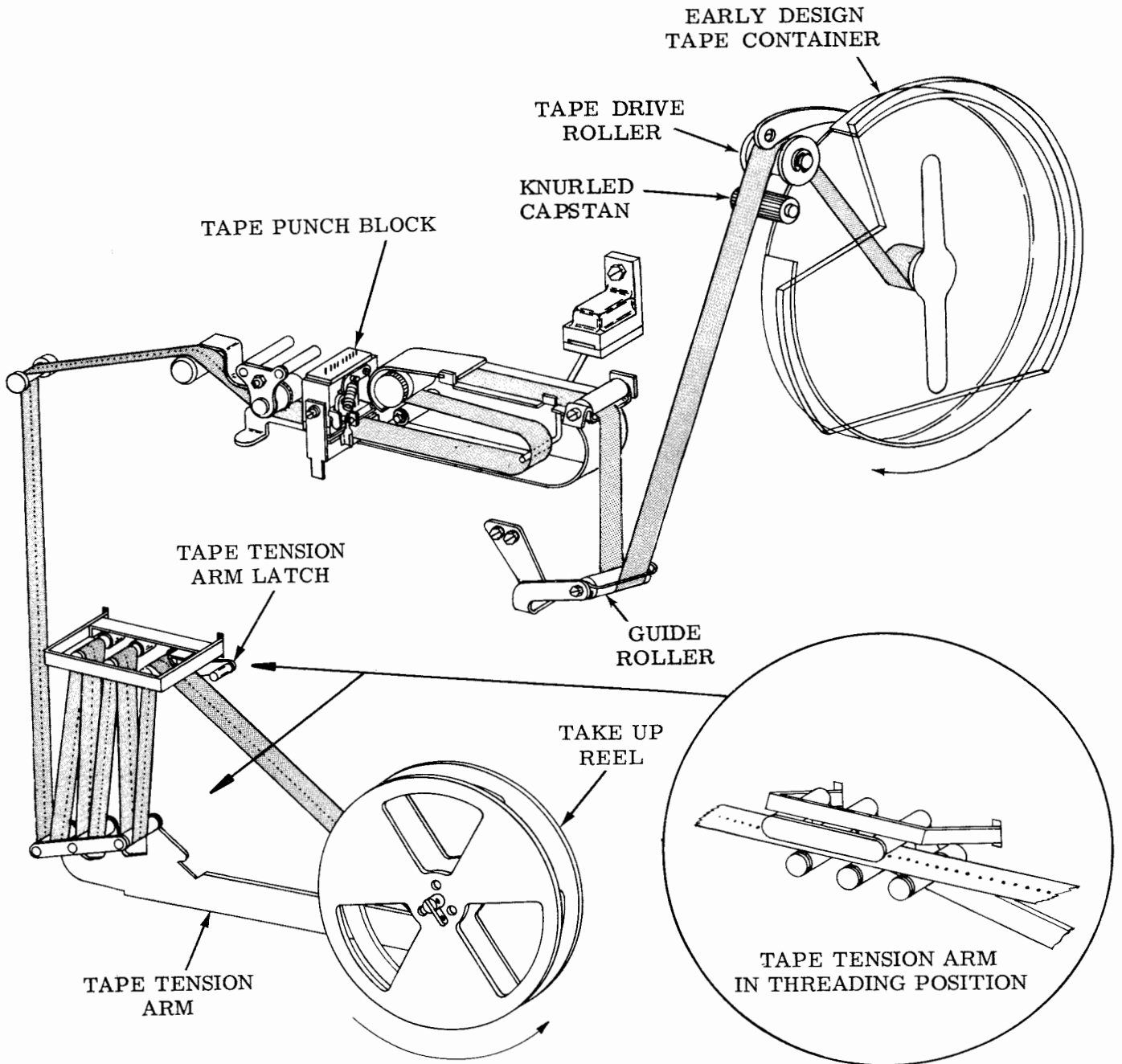


Figure 4 - Tape Path

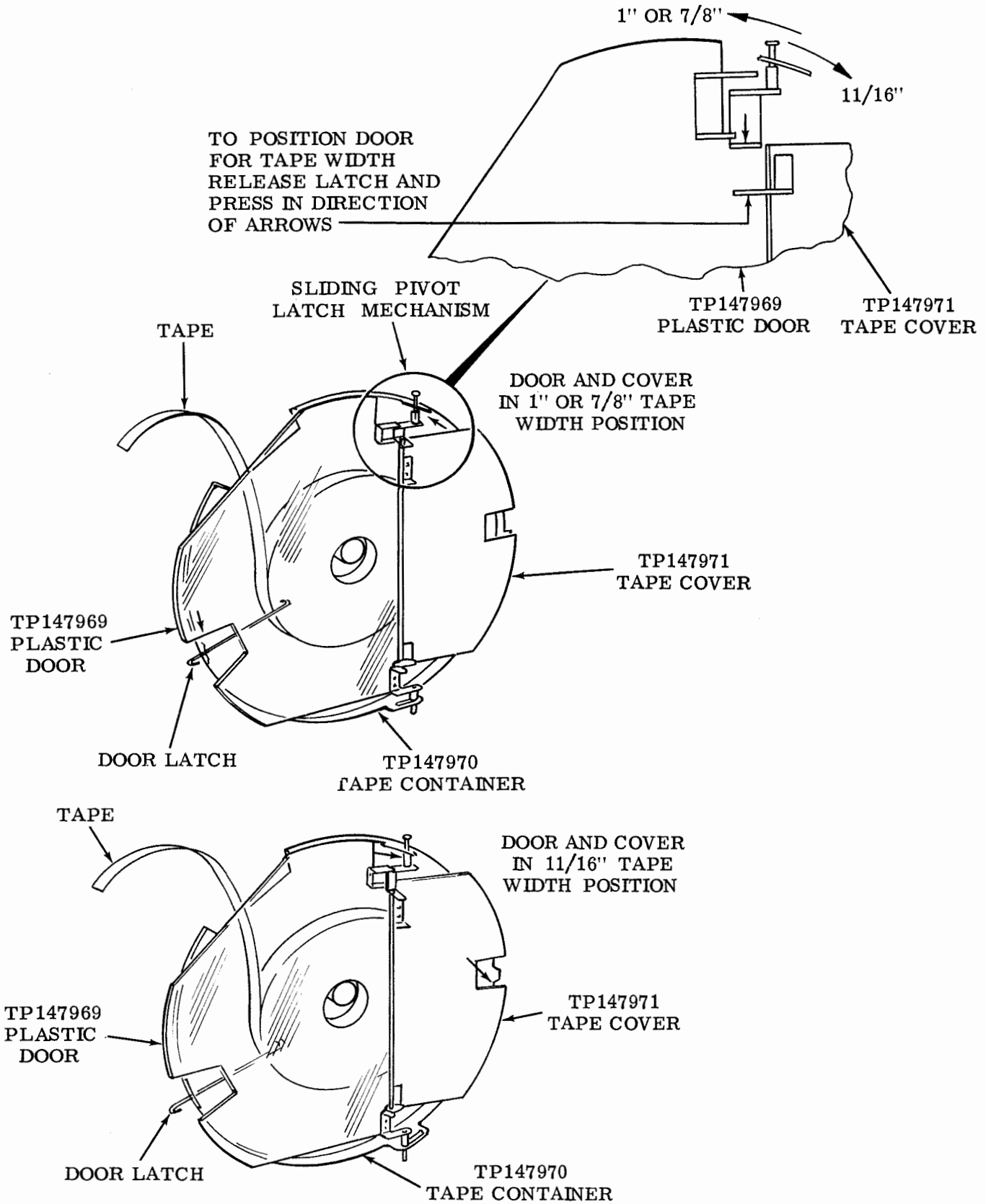


Figure 5 - Late Design Tape Container

control of the punch. Feed out approximately 3 feet of tape.

- (7) Lift the tape-tension arm until it latches in the up position, and thread tape between the posts on the tension arm and the u-shaped stationary posts as shown.
- (8) Hold the free end of the tape tight. Release, the tape-tension arm latch and allow the tension arm to return to its original position.
- (9) Place the free end of the tape in the take-up reel and put the reel on its hub. Engage the driving dog on the winder hub and turn the reel counterclockwise to start the tape on the reel.
- (10) Press the ALL F. O. button and observe that all levels are punched and the tape is being properly spooled.
- (11) Replace the punch cover.

RECEIVING CALLS

- 3.04 The following steps outline the procedure used in receiving data transmission.
 - (1) An incoming call is signaled by the bell on the data auxiliary set 804A. Press the TALK button at the auxiliary set and pick up the handset.
 - (2) Comply with the Sender operator's request, and press the DATA button. Hang up the handset.
 - (3) The punch will record the incoming message, then stop. At the end of the message the Sender operator will press the TALK button at the Sender site. This will light the SIGNAL lamp at the Receiver. The Receiver operator should then press the TALK button to extinguish the SIGNAL lamp.

INITIATING REQUEST FOR DATA

- (1) Press the TALK button and pick up the handset.
- (2) Dial the number of the desired Tape Sender and make request for data.
- (3) Press DATA button and hang up. The punch will record the incoming data and light the SIGNAL lamp as discussed previously.

LOW TAPE

3.05 A LOW TAPE lamp at the control panel is lighted whenever the punch tape supply is low. A low tape condition also causes the power switch indicator lamp to flash.

4. PRINCIPLES OF OPERATION

CABINETS

4.01 The cabinet housing Tape Receiver 5B is a floor mounted unit. The tape punch, chad collecting apparatus, and tape spooling mechanisms are mounted in the upper half of the cabinet. The lower half of the cabinet houses the Receiver module. In-cabinet cabling is shown on diagram 6448WD in the related "Schematic and Actual Wiring Diagrams" section.

4.02 The tape punch is described in standard literature. Operation of the cabinet (excluding the Receiver module) is thus restricted to tape spooling.

4.03 Tape from the supply reel is threaded over the tape drive roller and under a guide roller to the tape punch. When the punch demands tape, the tape pulls the drive roller down to engage a continuously running knurled capstan. The system is thus made to feed a predetermined length of tape. When the tape punch is satisfied, a spring pulls the drive roller away from the knurled capstan, to stop tape feed out. A pivoted arm rides the periphery of the tape supply reel. When the tape supply falls to a predetermined level, the arm closes a set of low tape contacts lighting a LOW TAPE indicator lamp.

4.04 The tape take-up reel is driven by a motor and reduction gear assembly mounted on the rear of the drawer panel. A mercury switch on the tape-tension arm (Figure 4) controls the take up spool motor. As the tape punch operates it will introduce slack tape at the punch output, allowing the tape-tension arm to drop. The mercury switch is adjusted to complete the motor operate circuit when the tape-tension arm drops to a predetermined level. The take-up reel then rotates to take up slack and shuts off as the slack is taken up.

TAPE PUNCH

4.05 The tape punch used in the Tape Receiver is of standard design and is covered in the standard tape punch literature. Refer to related sections for information regarding the operation of the tape punch.

RECEIVER MODULE

A. General

4.06 The Receiver module performs the following functions:

- (1) Transforms the low level data set input into a signal of sufficient energy to drive the high speed punch.
- (2) Supplies control signals to and receives control signals from the data set.
- (3) Provides an alarm indication when the tape supply runs low.
- (4) Supplies dc power to the entire assembly.

4.07 The Receiver module can be broken down functionally into three circuits: the punch driver circuits, the control and low tape alarm circuits, and the power supply circuits. These circuits are discussed separately in the following paragraphs. The partial schematics included in this section were taken directly from the overall schematic diagrams 6403WD and 6405WD found in the "Schematic and Actual Wiring Diagrams" section. Refer also to that section for schematic diagrams and operation of the circuit cards (EC's). Note that the following discussion pertains to a standard (without options) Tape Receiver. Those circuits which operate with optional features are covered in the material supplied with those features. (See Paragraph 5.)

B. Punch Driver Circuits

Overall (Figure 6)

4.08 The eight data level and the feed level contact closures from the data set are converted to 0 volt (mark) and -6 volts (space) signals at divider Z103. The data signals are applied to magnet driver circuits Z104, Z105, Z106, Z107, Z108, Z109, Z110, and Z111.

4.09 In the nonoperated condition, each magnet driver is in such a state that its associated punch magnet is energized. The "sample" input, a positive going pulse for each character, is applied to pin 3 of integrator-pulse shaper Z113. The integrator-pulse shaper removes any line noise present on the incoming sample pulse. The pulse shaper output (pin 7) is used to strobe all magnet drivers. Each magnet driver whose prime (pin 15) is in the 0 volt mark condition will respond to the positive going sample pulse strobe by cutting off the

current to its associated punch magnet. The magnet will release the punch reed causing the tape to be punched at that level. Note that the prime input to Z112 (feed level magnet driver) is permanently grounded. The driver will respond to all "sample" inputs punching a feed hole for each character.

4.10 Each time the feed level driver is placed in the mark condition (ie, every character) the output at pin 24 goes from 0 to -6 volts. This -6 to 0 volts transition is applied to pin 13 of the gated oscillator circuit (Z113). The gated oscillator responds to the negative input at pin 13, and is "turned on" after a 1.9 milliseconds time out. The oscillator will provide a series of 6 volt positive pulses placed about 10 milliseconds apart (pin 5) until the input (pin 13) is returned to its normal 0 volt level. The first pulse however, will return all magnet drivers to their quiescent "spacing" state, allowing current to flow in the punch magnets. The punch reeds are thus recovered. In the quiescent state, the 0 volt level at pin 24 of Z112 and pin 13 of Z113 will also be restored thereby turning off the oscillator.

4.11 The circuit provides either all blank or all marking tape feed out. Pressing the BLANK FEED OUT button places 0 volt at pin 32 of feed out generator Z113. With 0 volt at pin 32 the generator output (pin 28) is a series of positive going feed out drive pulses which are applied to pin 3 of feed level magnet driver Z112. Each positive feed out drive pulse triggers the magnet driver causing the feed hole to punch. Pressing the ALL FEED OUT button applies the feed out drive pulses to all magnet drivers. The tape will thereby be perforated in all levels.

Inverter-Divider (Schematic Diagram 303605)

4.12 Circuit card EC 605 (Z103) contains bias resistors and clamp diodes which convert the eight-wire contact closure signals from the data set 402D to voltage-level signals. These signals are 0 volt (mark) when the contacts are closed or -6 volts (space) when they are open. The timing signal from the data set is also converted to voltage levels and is then inverted for use as a sample signal to the punch driver. This signal is gated at the data set with a carrier on condition. The inverter includes a feed back integrating capacitor which prevents data set contact bounce from causing double punching. The timing signal from the data set is normally 5 milliseconds in duration, so that the punch command is given about 5 milliseconds after a new character appears on the data leads.

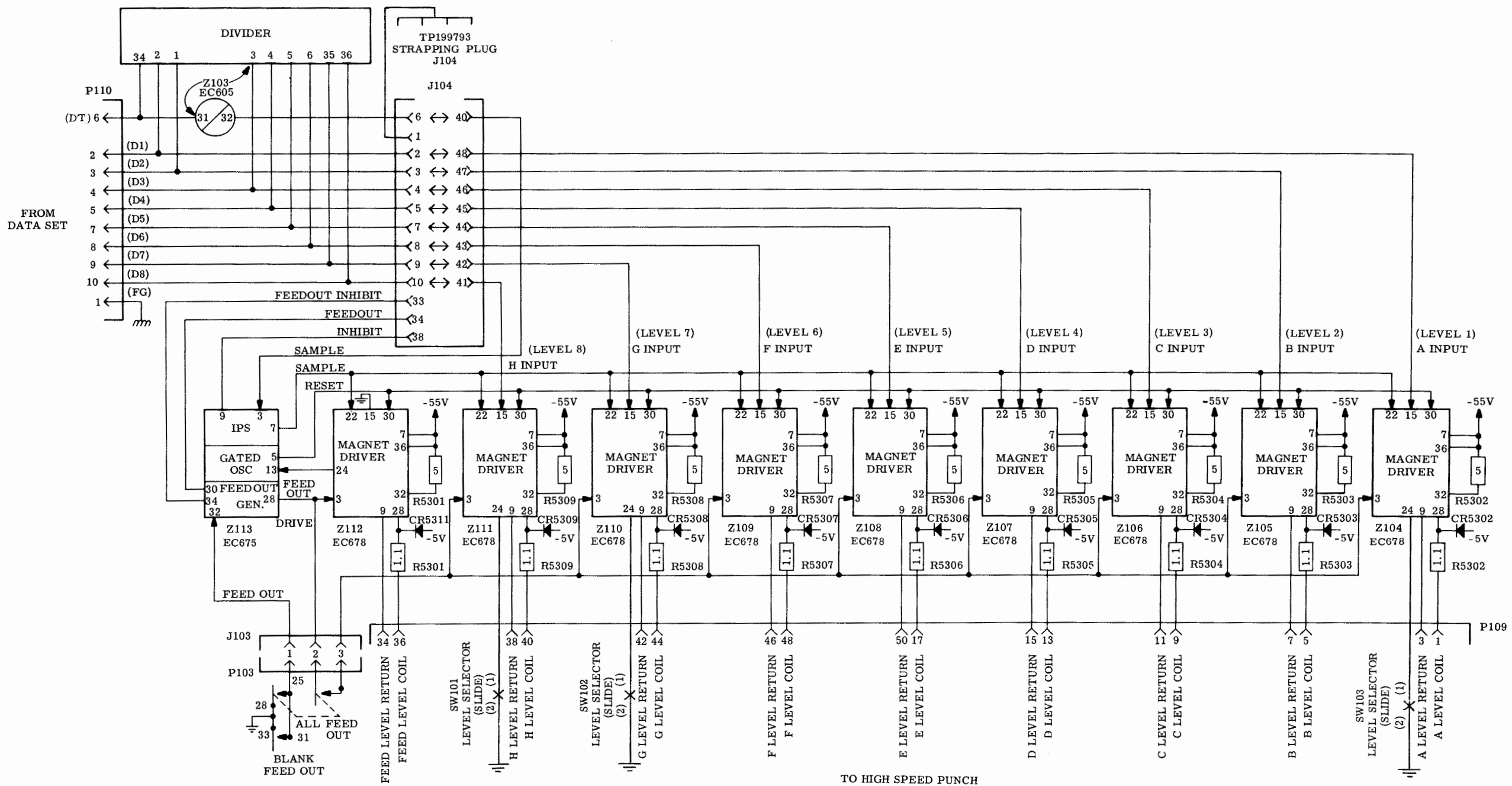


Figure 6 - Punch Driver Circuits

Magnet Driver (Diagram 303678)

4.13 The following discussion is based on schematic diagram 303678. Note that the external components on that diagram do not carry the same reference designations as those used in the Receiver. Their actual counterparts, however, (schematic diagram 6403WD) can easily be identified.

4.14 The magnet driver circuit has two stable states. In the normal state, the magnet (L1) is energized. A positive pulse at pin 3 or pin 22 will set the circuit and de-energize the magnet. If pin 15 is -6 volts, a positive pulse on pin 22 will be blocked and will have no effect on the circuit. A positive pulse on pin 24 will reset the magnet driver, causing current to flow in the punch magnet. In the quiescent condition, Q5, Q1, Q3 and Q4 are saturated. This allows current to flow through CR8, R16, L1, and Q4. Magnet L1 is therefore energized. A positive pulse on pin 3 or on pin 22 (when pin 15 is grounded) will turn Q1 off turning Q2 on. This turns Q3 and Q4 off de-energizing the magnet. If pin 15 is at -6 volts, a positive pulse on pin 22 will have no effect on the circuit. A positive pulse on pin 30 will turn Q2 off causing Q1, Q3 and Q4 to turn on. When Q4 is turned on, current can again flow through L1. When Q1 is turned on by a pulse at pin 30, a positive pulse is coupled to Q5. This turns Q6 and Q7 on. A current path is thus formed from -55 volts through R17, Q7, R16, L1 and Q4. The relatively high voltage (-55 volts) will cause the current through the magnet to build up fast, for rapid operation of the magnet reed. The time that the -55 volt source is used to attract the reed is determined by an RC circuit made up of R13, R14, and C2. Transistor Q5 is turned on when its base returns to a minus voltage. This turns off Q6 and Q7. Holding current is then supplied by the -5 volt supply through CR8.

Integrator Pulse Shaper (Diagram 303675)

4.15 The integrator pulse shaper is used to block high frequency noise on the sample input. It will also inhibit punching by blocking sample signals. If pin 9 is -6 volts the output at pin 7 will be -6 volts regardless of the input at pin 3. If pin 9 is open or grounded, the output will follow the input at pin 3 except that the output transitions will be delayed about 50 microseconds. When pin 9 is at -6 volts Q1 will be turned on and Q2 will be turned off. The output will be -6 volts. With 0 volt applied to point 3, Q1 will cut off after a time delay of approximately 50 microseconds. This turns Q2 on

causing its collector potential to rise to 0 volt. Similarly -6 volts at pin 3, when pin 9 is at 0 volts will cause an output of -6 volts after a 50 microsecond delay.

Gated Oscillator (Diagram 303675)

4.16 The gated oscillator is used to time out a reset pulse 1.9 milliseconds after the feed level magnet driver goes to the marking condition. Normally pin 13 will be at 0 volt and the output at pin 5 will be a steady -6 volts. Pin 5 will have a 6 volt positive pulse 1.9 milliseconds after pin 13 becomes -6 volts. The pulses will continue until pin 13 is returned to 0 volt. With pin 13 at 0 volt, Q3 is cut off, timing capacitor C2 is prevented from charging, since it is shorted by R16 and CR1. Transistor Q5 is cut off and the output of pin 5 is -6 volts. When pin 13 is -6 volts, Q3 is turned on, back biasing CR1. This allows C2 to charge positively until Q8 triggers. When Q8 triggers, a negative pulse is coupled to the base of Q5 which turns Q5 on, causing a positive pulse at pin 5. The circuit will continue to oscillate until pin 13 is returned to 0 volt. At this time, Q3 is turned off allowing C2 to discharge through R16 and CR1.

Feedout Generator (Diagram 303675)

4.17 Unijunction transistor Q7 is connected as a free running oscillator. Capacitor C3 attempts to charge to +6 volts but forward biases Q7 when it reaches about -3 volts. The transistor provides a discharge path for C3 returning it to its uncharged state. As the capacitor discharges, Q7 is again cut off and the cycle repeats. The oscillator output, taken across R26 is a series of positive going pulses spaced about 10 ms. With 0 volt at pin 32, the oscillator output will be inverted by Q6 and amplified by Q4 appearing as a series of positive going pulses at pin 28.

C. Control and Low Tape Alarm Circuits (Figure 7)

Control Circuits

4.18 Attended Message Reception Only (ZB option disconnected)

- (a) Depressing the DATA key at the data auxiliary set will initiate a few seconds of on-line tone, then place a ground at pin 13 of P110 (IK). This IK ground is carried through strapping connector J104 to pin 3 of K102-L-A (RC), and pin 11 of K102-U-A

(CN). This ground, carried through contact 11 of CN, enables relay K104(RS) to begin its 30 second time-out. Contacts of K104, however, have no affect in attended operation since a permanent RR ground is supplied through contact 2 of the AUTO ANSWER switch (in the attended position).

(b) In receipt of an all level spacing signal from a calling station, the data set applies a ground to pin 21 of P110 (CN). Once the ground has been initiated by an all spacing signal, it will be maintained for as long as any carrier signal is present at the data set. The (CN) ground is carried through the strapping connector J104 to the coil (pin 1U) of K102-U-A (CN). The CN relay thus energizes.

(c) Contact 9 of CN opens, breaking any possible path to the auxiliary signal circuit. Contact 11 of the CN relay closes to apply the IK ground pin 20 (DM) of P110. In the basic units the DM lead is permanently grounded through the strapping plug J104. This permanent ground is removed when the Receiver is used with certain options. The relay ground, in those instances, serves to prevent accidental opening of the DM ground during reception, which could otherwise result from operator error.

(d) No further action takes place until the incoming carrier is removed. The data set then removes the CN ground from pin 21 of J104, allowing the CN relay to de-energize.

(e) Contact 8 of the CN relay provides a ground to the SIGNAL lamp through contact 4 of the RC relay (still energized).

(f) Contact 9 of CN and 1 of RC now close the auxiliary signal circuit at TB104 advising the operator that the sending station has concluded transmission (ie, carrier removed).

(g) The operator will then restore the data set to the talk mode, causing the IK ground at pin 13 of J104 to be removed. The RC relay is thus released and the circuit restored to its original condition.

4.19 Unattended Answering (ZB option connected)

(a) Placing the AUTO ANSWER switch in the AUTO position removes the permanent ground on the RR (remote release) lead mak-

ing the RR lead dependent upon the 30 second RS time delay relay (pin 5) for a ground.

(b) Pins 5 and 6 of the AUTO ANSWER switch complete a ground path from contact 11 of the LT relay (normally unoperated), through contact 1 of the PO relay (normally operated) to the RO (remote operate) lead.

(c) If the system is to be used in a rotary hunting group the ZA wiring option will be employed. A ground on the OS lead from the Receiver will make the data set appear as "out of service" to any incoming call. In the normal condition, the PO relay energized, and the LT relay de-energized, lead OS will be ungrounded and the data set will be "in service."

(d) With the RR and RO leads grounded, and the OS lead ungrounded, an incoming call at the data set will ground the IK lead. As in attended operation, in receipt of an all levels spacing signal the data set will ground pin 21 of P110 energizing the CN and RC relays. Note that if the all spacing signal does not follow the application of the ground by the data set, the data set will remain off hook (by virtue of the RR ground) until the calling station disconnects. Note too that application of an IK ground by the data set will complete the current path through the heater of K104. If an all spacing signal is not sensed within 30 seconds, contact 5 of the RS relay will open breaking the RR ground and placing the data set on-hook. Sensing of an all spacing signal before the 30 second time-out will energize CN, breaking the current path through the heater of K104, and the sequence will proceed as previously outlined.

(e) When the data set senses removal of carrier it removes the ground from the CN lead causing the CN relay to de-energize. Contact 11 of the CN relay closes and starts RS timing OUT and in 30 seconds opens RR. The data set will then go on hook immediately, breaking the ground at the IK and restoring the circuit to its original condition (Par. 4.18(g)).

4.20 Send-Receive Control: A SEND switch is provided for use when a data set 402C (Sender) and data set 402D (Receiver) are connected to a single telephone line (send-receive station). Normally the TR (transmit-receive) lead to the data set 402D (Receiver) is grounded, connecting this set to the line. Pressing the

SEND key opens the TR lead causing the data set 402C (Sender) to be connected to the line.

4.21 **Optional Provisions:** The TRANSSTART and SPARE CHECK switches are provided to accommodate optional features.

Low Tape Alarm Circuit

4.22 Relay K102-U-B (LT) is operated by a low tape switch which closes whenever the tape supply falls below a given level. Contact 9 of the LT relay completes the current path through the LOW TAPE lamp informing the operator of the low tape condition.

4.23 Contact 11 of the LT relay opens to interrupt the RO ground path. When ZB wiring is employed (ie, the Receiver is to operate automatically) the absence of ground on the RO lead will prevent the data set from responding to an incoming call.

4.24 Contact 8 of the LT relay closes. If the Receiver is not receiving (CN relay not energized) closure of LT contact 8, will complete the ground path from contact 8 of CN to the OS lead placing the data set out of service. If the Receiver is operating at the time the LT relay operates, the data set will be placed out of service when the transmission in progress is completed and the CN relay de-energizes.

4.25 Contact 10 of the LT relay opens breaking the shunt across the flasher unit DS104. The flasher circuit will alternately make and break the current path through the POWER lamp advising the operator of a low tape situation.

D. Power Supply Circuit (Diagram 6405WD)

4.26 The power supply uses four pairs of diodes connected across the transformer secondary as four full-wave rectifiers. These rectifiers provide dc at +6 volts, -5 volts, -12 volts, and -55 volts. A zener diode and resistor are used as a voltage divider to provide a -6v regulated output from the -12 volt supply. Capacitor filtering is employed throughout. All outputs are appropriately fused.

REMOVAL OF FACTORY INSTALLED RECEIVER OPTIONS

A. Out of Service Wiring Option ZA (Figure 7)

4.27 The ZA wiring in the TP199793 strapping plug enables the Receiver to appear out of service to the Sender if Receiver power is

not turned on or if a low tape condition exists at the Receiver. To remove the ZA wiring option from the strapping plug in the Receiver and disable this out of service feature, it is necessary to remove the plug, remove the plug cover, remove either pin 23 or pin 39 from the plug and tape the pin removed. Replace cover and plug.

B. Unattended Answer Wiring Option ZB (Figure 7)

4.28 The ZB wiring in the TP199793 strapping plug enables the Receiver to answer unattended if the power is turned on and a low tape condition does not exist. To remove the ZB wiring option from the strapping plug in the Receiver and disable this unattended answer feature, it is necessary to remove the plug, remove the plug cover, remove either pin 15 or pin 28 from the plug and tape the pin removed. Replace cover and plug.

C. Changing from 8 to 7, 6 or 5 Level Operation

4.29 Early design 5B Receivers are wired for 8-level operation. These Receivers require the addition of straps for 5-, 6- or 7-level operation. Late design Receivers have three-level switches (Figure 6) on the front panel to select or omit levels numbered 8, 7 and 1 (from left to right) respectively. Add straps or position switches for the various levels as indicated below.

- (a) 8 Level - No straps or all switches positioned up in PUNCH LEVEL SELECTION position.
- (b) 7 Level - Add strap between pins 1 and 24 on XZ111 (see 6403WD and 6404WD in Wiring Diagram section) or position 8-level switch down to OMIT position.
- (c) 6 Level - Add straps between pins 1 and 24 on XZ111 and on XZ110 or position 8- and 7-level switches down to OMIT positions (6403WD and 6404WD).
- (d) 5 Level - Add straps between pins 1 and 24 on XZ111, XZ110 and XZ104 or position level switches 8, 7 and 1 down to OMIT positions (6403WD, 6404WD and drawing 303678).

5. OPTIONAL FEATURES

Note: The following paragraphs are concerned with those options which are not part of the standard Receiver. Information con-

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cerning the "standard" options (ie, ZA and ZB wiring options) has been integrated in the foregoing paragraphs.

TP199784 STATION IDENTIFIER APPARATUS UNIT OPTION

5.01 The TP199784 station identifier is essentially a code signal generator. Installed in a Receiver, the identifier enables the Receiver to generate a coded identification signal. This signal will start (automatically) those Tape Senders which have a similarly coded "recognizer" circuit. The combination of a station identifier at the Receiver and a recognizer at the Sender, thus provides protected unattended answering.

5.02 The identifier feature is discussed fully in a related section.

TP199633 BLANK PANEL

5.03 When a Sender and Receiver are connected as a send-receive station (Paragraph 2.02) the data auxiliary set 804A, normally mounted in the Receiver, is not required. The TP199633 blank panel can then be installed in place of the TP149782 control panel, and the TP149783 cover panel which accommodate the data auxiliary set in the standard Receiver. The replacement panel has no opening for the data auxiliary set.

TP199788 UNATTENDED SEND-RECEIVE APPARATUS UNIT OPTION

CAUTION: WHEN TERMINAL IS USED AS AN UNATTENDED SEND-RECEIVE STATION AND TRANSMITTER HAS GONE TO THE TAPE OUT CONDITION, A NEW MESSAGE TAPE MAY BE PLACED IN THE READER WHILE THE RECEIVER IS PUNCHING TAPE ONLY IF:

(1) TAPE READER CONTROL LEVER IS PLACED IN STOP POSITION BEFORE PUTTING TAPE IN THE READER.

(2) THE TAPE READER CONTROL LEVER MUST BE RETURNED TO THE RUN POSITION AFTER PUNCH HAS STOPPED PUNCHING.

5.04 When a Sender and Receiver are connected as a send-receive station (Paragraph 2.02), the Receiver may be equipped with the TP199788 unattended send-receive option. When the Receiver is so equipped, and the Sender is equipped with a TP198002 recognizer apparatus unit (see appropriate section) a calling station may direct the send-receive station to send or receive at will. Note that a calling Receiver must have a properly coded TP199784 station identifier (Paragraph 5.01) to activate the send-receive station's Sender.

5.05 The unattended send-receive option is discussed more fully in a related section.

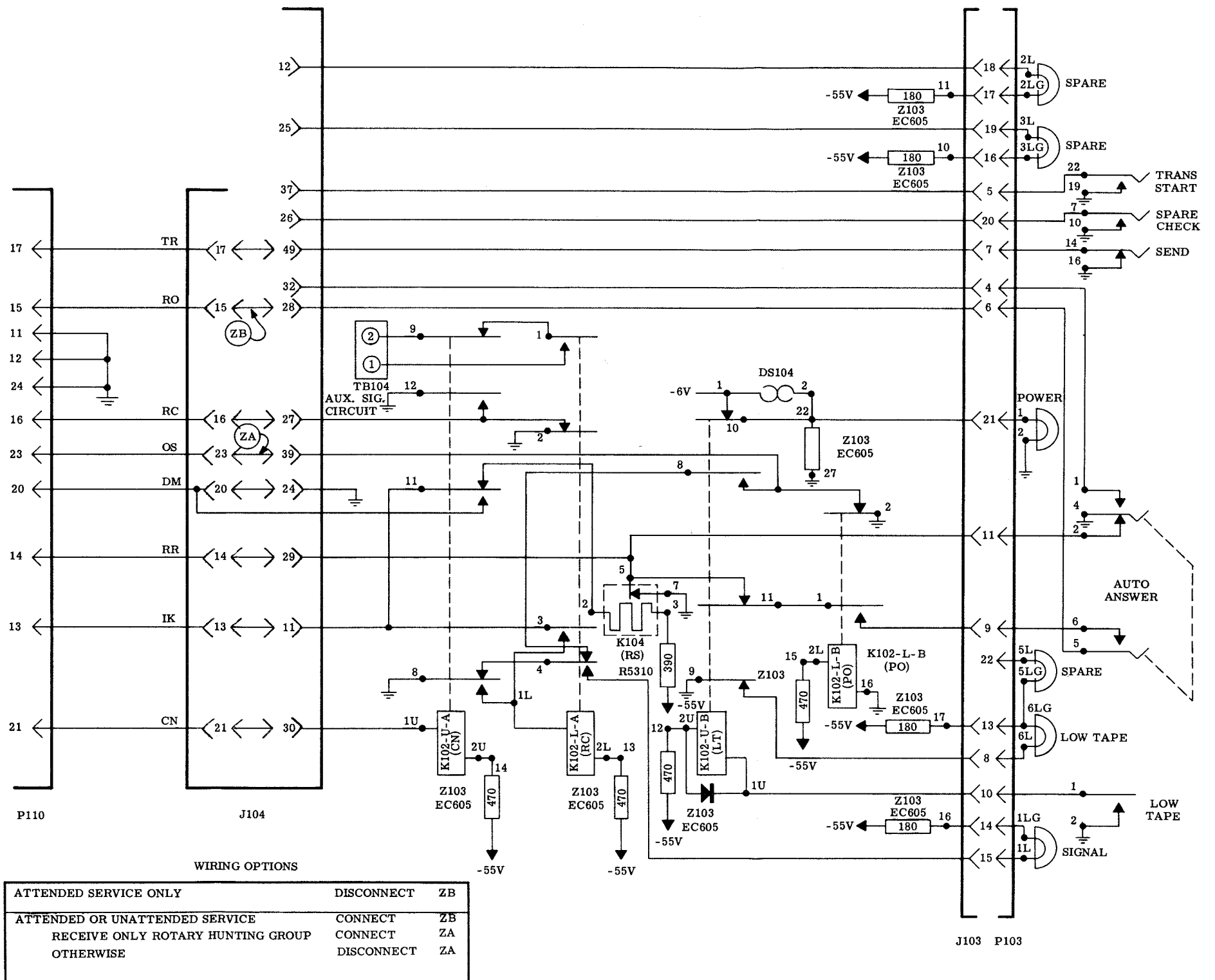


Figure 7 - Control and Low Tape Alarm Circuits

TABLE 1
SERVICE ARRANGEMENTS

The following table summarizes the apparatus required for various types of service arrangements. The use of suffixes in the coding scheme permits initial ordering of the arrangements needed. The addition of apparatus unit options to existing standard equipments can provide the same arrangements.		
SERVICE	SENDER APPARATUS STATION 1	RECEIVER APPARATUS STATION 2
Attended at both stations	5A or 5C Sender data set 402C or 402A	5B Receiver data set 402D and data auxiliary set 804A
Sender attended Receiver unattended	5A or 5C Sender data set 402C or 402A	5B Receiver - use auto answer feature in data set 402D and data auxiliary set 804A
Sender unattended Receiver attended	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-1 Receiver data set 402D and data auxiliary set 804A
Unattended send-receive stations	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-2 Receiver - use auto answer and send-receive features in data set 402D
Unattended send-receive stations. Receiver in manual condition and capable of calling unattended Sender	5A-1 or 5C-1 Sender - use auto answer feature in data set 402C	5B-3 Receiver - use auto answer and send-receive features in data set 402D
<p>For the table-mounted Sender, the TP198002 recognizer option for discrete calling and unattended service mounts beside the other apparatus units in the wall mounted apparatus box. For the floor mounted Sender, this unattended service apparatus unit option is mounted in a space provided in the equipment cabinet.</p> <p>Unattended Send/Receive Station</p> <p>This station consists of a Sender arranged for unattended service and a Receiver containing an unattended send/receive apparatus unit option (TP199788). The send/receive station will automatically arrange itself to send or receive as appropriate to the type of calling station. A send/receive station used in placing a call can be manually switched to function as a Sender or as a Receiver; and a remote unattended send/receive station will follow these switching operations.</p>		

Note: Refer to text paragraphs covering options.