"DATASPEED® " MAGNETIC TAPE SET

GENERAL DESCRIPTION

CONTENTS

1. GENERAL

1.01 This section provides a general description of the 4200 Series Dataspeed Magnetic Tape Sets. It is reissued to include information on DATASPEED 40 serial EIA interface, and information presented in TCN 1826. Changes and additions are indicated by marginal arrows. However, arrows are omitted from 4.45 through 4.54 all of which are added in this issue.

Figure 1 - Magnetic Tape Set for Stand-Alone Operation or Adjunct to 33, 35, 37, or 40 Teletypewriters

Prepared for American Telephone and Telegraph Company by Teletype Corporation

1.02 There are two versions of the magnetic tape set. They differ in cabinet styling, control panel arrangement, and electronic circuitry. Figure 1 shows the tape set designed for stand-alone operation or for use as an adjunct to 33, 35, 37, or 40 teletypewriters. The cabinet style matches the 33, 35, 37, or 40 cabinetry, and the control panel includes all controls required in the intended services. The electronic circuitry is compatible with 33, 35, 37, or 40 teletypewriters and with appropriate data set for stand-alone operation. A data set compartment is provided in the cabinet.

1.03 Figure 2 shows the tape set designed for use with parallel interface devices, such as the CDT. The cabinet style matches the CDT cabinetry. The control panel provides the operator controls required in this service, and the electronic circuitry is compatible with the circuits of the related terminals. Since the tape set is under control of the related terminal in this application, no provisions are made for a data set in the cabinet.

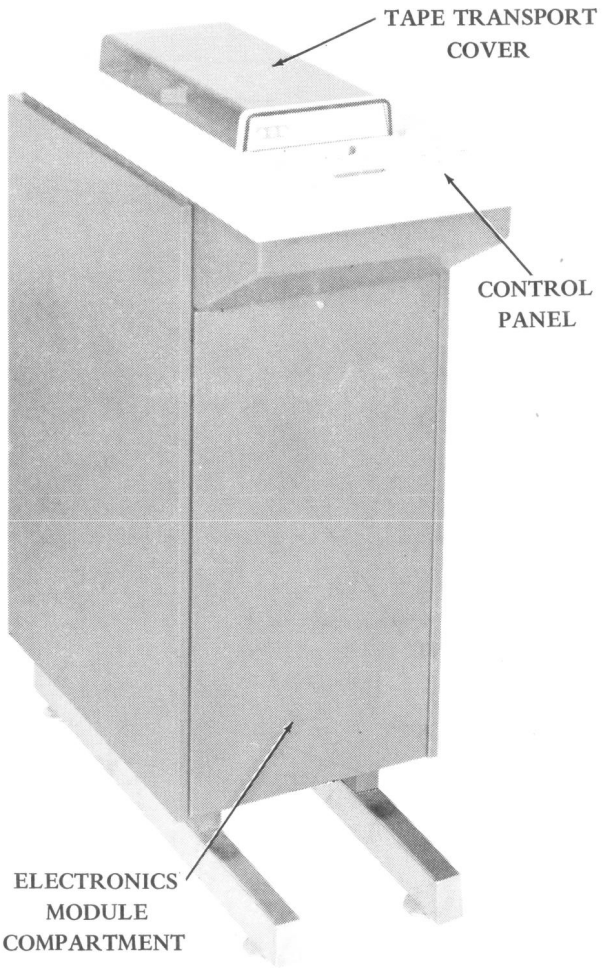


Figure 2 - Magnetic Tape Set Adjunct to Parallel Interface Device

1.04 In this section, general descriptions apply to all models of the magnetic tape set. Information that applies to only one or the other version, or to specific applications of that version, are so indicated. Detailed descriptions and principles of operation are presented in Section 578-300-110. Methods of interconnecting the tape set to its related equipment are detailed in Section 578-300-200. Wiring diagrams and circuit descriptions for the majority of the tape set circuits are contained in wiring diagram package WDP0247. Wiring diagrams and circuit descriptions for the special interface circuitry required in the CDT version of the tape set are contained in wiring diagram package WDP0304.

2. DESCRIPTION

2.01 The 4200 series magnetic tape set can be used in 100 to 2400 words per minute data communications systems using conventional telephone lines. Provisions are made for serial or parallel interfacing, and a particular set may be equipped with either a low or high speed interface or both. The magnetic tape set will transmit data from magnetic tape or receive and record data on magnetic tape in half-duplex operation. The magnetic tape set may be used for point-to-point data gathering or distribution; for exchanging data (from outlying stations) with a central data processing terminal such as a computer; for local or on-line message preparation, transmission, and recording in conjunction with a local teletypewriter terminal; and for linking high and low speed data communication facilities.

2.02 The data medium used is one-half inch wide computer grade magnetic tape having eight data levels. The magnetic tape is provided in a cartridge with a 159,000 character capacity (Figure 3). The magnetic tape set is not code sensitive, ie, the coding scheme used to represent data may be arbitrarily chosen by the user with the exception of certain built-in control codes.

Figure 3 - Magnetic Tape Cartridge

2.03 The magnetic tape set can be used in attended or unattended applications. Unattended applications are limited primarily to high speed on-line data transmission in conjunction with a 200 series data set (or equivalent).

2.04 Typical applications for a station incorporating a magnetic tape set are as follows:

(a) Storage of messages prepared off-line for later on-line transmission at higher speeds.

(b) Storage of data for later use or retransmission.

(c) Storage of letters, notices, etc for on-line transmission.

(d) Verification of previously prepared messages.

(e) Receipt of data for numerical control of production machines.

(f) Storage of information for assistance in message transmission.

(g) Transmission of accumulated logged data.

(h) Receipt of messages at a line speed higher than can be accommodated by the local printer.

(i) Receipt of messages on one system for later introduction to another (manual refile).

PHYSICAL AND ELECTRICAL CHARACTERISTICS

2.05 The physical and electrical characteristics of the magnetic tape sets are as follows:

FEATURE	CHARACTERISTIC
Cabinet	Stand-Alone or 33/35/37/40 ← Styling: 12 inches wide, 29 to 30 inches high (adjustable), 23 inches deep Parallel Device (CDT) Styling: 12 inches wide, 32 inches high, 24 inches deep
Weight	97 pounds (less data set)
Mounting	Floor
Data Storage Medium	1/2-inch wide magnetic tape (computer grade) contained in a cartridge 3 inches wide, 3 inches deep, 1 inch high
Tape Handling	In-line threading; automatic unload
Average AC Power Consumption	180 watts (less data set)
Voltage	117 v ac ± 10%, 60 Hz ±0.5 Hz
Power Cord	Three-wire grounded type – 10 feet long
Current	11 amp start; 2-1/2 amp run
Teletypewriter Signal Interface	33/35 adjunct: 20 ma @ +20 v dc 37/40 adjunct: RS-232-C ←
Data Set Interface	RS-232-C ←
Parallel Device Interface	0 and 5 v dc parallel
CDT Interface (With PTI Accessory Module)	0 and 25 ma parallel
Max Acceptable Receiving Distortion (Serial Data)	40%
Max Sending Distortion (Serial Data)	5%
Operating Temperature	+40° F to 110° F

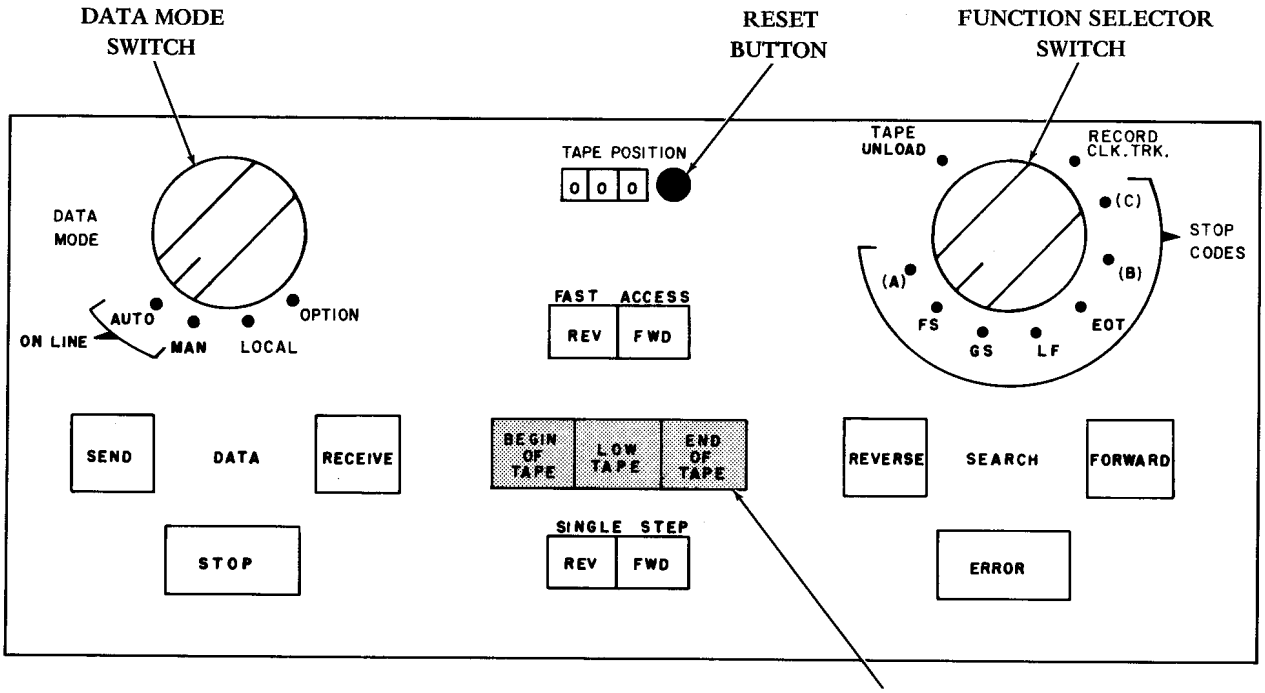
CAUTION: THIS EQUIPMENT IS INTENDED TO BE OPERATED WITHIN THE TEMPERATURE RANGE OF 40° F TO 110° F. SERIOUS DAMAGE CAN RESULT IF THIS RANGE IS EXCEEDED. PARTICULAR CAUTION SHOULD BE EXERCISED IN USING ACOUSTICAL OR OTHER ENCLOSURES.

COMPONENTS

2.06 The components of the 4200 series magnetic tape sets are interchangeable modular elements which provide variable features required for various applications.

A. Control Panel

2.07 The control panel includes all switches and indicators necessary for operator control of the magnetic tape set. The panel of Figure 4 is used in tape sets designed for stand-alone service or as adjuncts to 33, 35, 37, or 40 ← teletypewriters. The panel of Figure 5 is used in tape sets designed for use with parallel devices such as the CDT.



Note: Early design panels do not have OPTION setting on data mode switch. Also, positions (A), (B), and (C) may not be marked on function selector switch.

Figure 4 - Control Panel of Tape Sets Designed for Stand-Alone Operation or Adjunct to 33, 35, 37, or 40 Teletypewriters

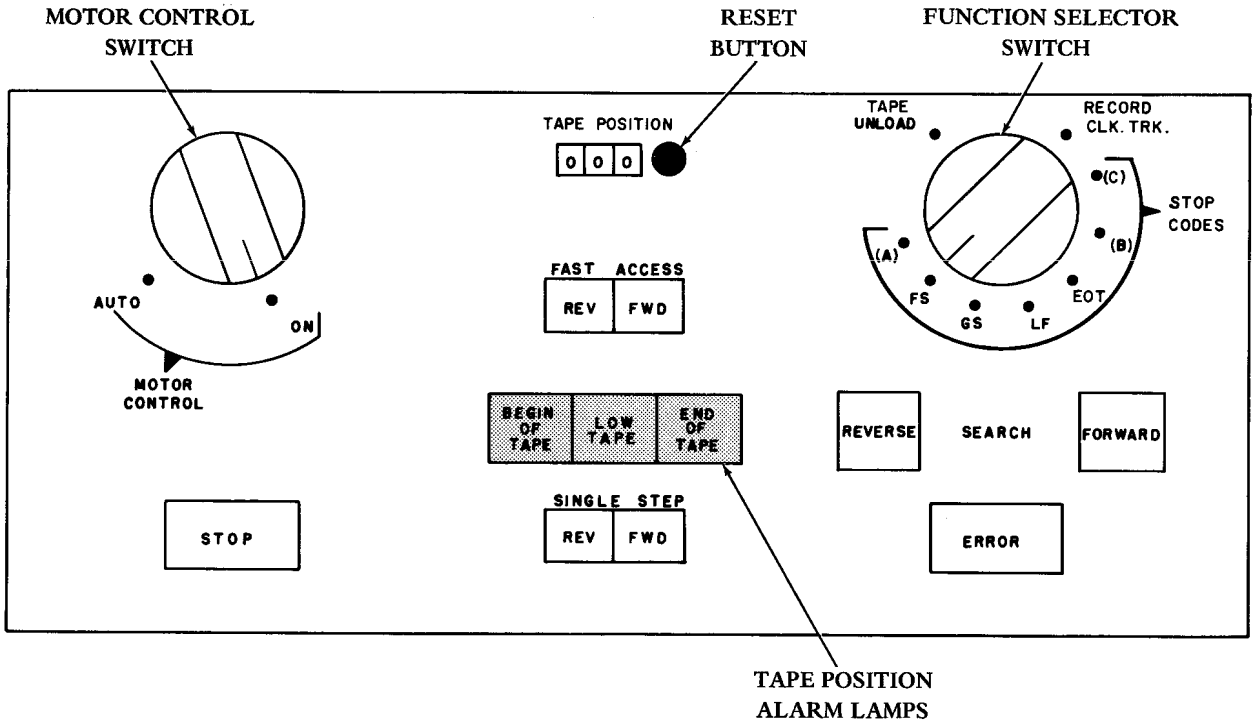


Figure 5 - Control Panel for Tape Sets Used With Parallel Interface Devices

2.08 The functions of the controls and indicators are described in the following paragraphs. Controls and indicators not required in both versions of the control panel are so indicated.

DATA MODE Switch (Stand-Alone or 33/35/37/40 Adjunct ← Only)

2.09 ON LINE AUTO: When placed in this position, the set is conditioned for on-line high speed unattended operation. Incoming calls will be answered automatically if one of the DATA pushbuttons has been preselected. If in the off-line mode, the switch can be momentarily positioned to AUTO to turn the set motor off.

2.10 Tape sets equipped with the auto rewind for local print-out circuit card can be set up to rewind and provide a local print-out of data received in the on-line auto mode. The function selector is placed in the (A) position to exercise this feature. When an EOT character is detected, the tape set reverse searches to an FS character, switches to the local send mode, and sends the message to the associated teletypewriter. At the end of the message the tape set switches back to the on-line mode to await incoming data.

Note: This feature cannot be used in a tape set operating as an adjunct to a 37 KSR to provide ASR operation (MTTAG or MTTBG) or as an adjunct to a CDT or other parallel device.

2.11 ON LINE MAN: When placed in this position, the set is conditioned for on-line high speed attended operation.

2.12 OPTION (Functional only when tape set is used as adjunct to 37 KSR for ASR operation): When placed in this position, the tape set motor is under control of the 37 KSR. With the SEND DATA or RECEIVE DATA pushbutton preselected, a Reader On or Punch On signal, respectively, at the teletypewriter will supply a signal to turn on the tape set motor. A Reader Off or Punch Off signal will turn off the motor.

Note: The OPTION position is not available on early design units.

2.13 LOCAL: With the mode selector switch in this position, off-line tape preparation and editing can be accomplished when the magnetic tape set is used with an associated teletypewriter set.

DATA Pushbuttons (Stand-Alone or 33/35/37/40 Adjunct ← Only)

2.14 DATA SEND: When this pushbutton is momentarily depressed, the lamp lights and transmission is initiated. If either ON LINE position is selected (DATA MODE switch) and a data connection is established, high speed transmission is initiated. If the LOCAL position (or OPTION position on late design units) is selected, transmission is initiated to the associated teletypewriter set.

2.15 DATA RECEIVE: When this pushbutton is momentarily depressed, the lamp lights and the set is conditioned to receive data. If either ON LINE position is selected (DATA MODE switch), the set is conditioned to receive data at high speed. If the LOCAL position (or OPTION position on late design units) is selected, the set is conditioned to receive data from the associated teletypewriter set.

MOTOR CONTROL Switch (Parallel Device Adjunct Only)

2.16 When this switch is placed in the AUTO position, the tape set motor is turned on and off by the adjunct terminal. When placed in the ON position, the tape set motor remains on regardless of the state of the adjunct terminal.

STOP Pushbutton

2.17 The STOP lamp flashes when the set is placed in the record clock track, send, receive, single step, fast access, unload, or search mode. If the STOP pushbutton is momentarily depressed to end the send, receive, or search functions, the set reverts to idle and the lamp remains lit.

Tape Position Alarm Lamps

2.18 BEGIN OF TAPE: The lamp lights to indicate that the beginning of a tape is positioned at the read/write head. When the lamp is lighted, all reverse tape movement is inhibited except UNLOAD. However, use of UNLOAD during this condition may result in a tape jam; it is therefore recommended that the tape be moved forward a few feet before UNLOAD is selected.

2.19 LOW TAPE: The lamp lights to indicate that there is approximately 6 feet of tape remaining (approximately 9000 characters). A call in process will continue after the lamp lights, but no new calls can be received.

2.20 END OF TAPE: The lamp lights to indicate that the end of the tape is positioned at the read/write head. When the lamp is lighted, all forward tape movement is inhibited.

SINGLE STEP Switch

2.21 SINGLE STEP REV/FWD (Reverse/Forward): Depressing REV moves the tape backward one character, but does not transmit the character. Depressing

FWD moves the tape forward one character, and if the set is in local, transmits the character. Single step may be selected in the stop (idle) or receive mode. If the set is in the receive mode when SINGLE STEP FWD is depressed, the STOP light (and the SEND light in a stand-alone or 33/35/37/40 adjunct set) flashes to indicate that the character is transmitted, and the set then returns to the receive mode.

FAST ACCESS Switch

2.22 FAST ACCESS REV/FWD (Reverse/Forward): Tape will move forward at high speed (approximately 33 inches per second) as long as FWD is held depressed (or until END OF TAPE is indicated). Tape will move in reverse at high speed as long as REV is held depressed (or until BEGIN OF TAPE is indicated).

TAPE POSITION Indicator (Counter) and Reset Button

2.23 The counter indicates the approximate position of the tape (ten counts represent approximately one foot of tape). Depressing the reset button sets the counter at zero.

Function Selector Switch

2.24 RECORD CLK. TRK. (Record Clock Track); A new tape (not previously recorded) must have the clock track recorded before it can be used. To do this, thread the tape at the beginning and set the function selector switch to RECORD CLK. TRK. Depress FAST ACCESS FWD for approximately 5 seconds or until the tape drive shifts to low speed. Approximately 6-1/2 minutes are required to completely prepare a tape. The tape stops automatically at END OF TAPE.

2.25 TAPE UNLOAD: Placing the function selector switch in this position causes the tape to rewind into the cartridge at high speed (approximately 33 inches per second). The motor automatically turns off approximately 2 seconds after the tape is completely rewound. The STOP lamp flashes until the function selector switch is moved from TAPE UNLOAD.

2.26 STOP CODES (FS, GS, LF, EOT): These ASCII (American National Standard Code for Information Interchange) control characters are used in the following manner:

(a) FS (File Separator): With the function selector switch at this position, depressing either the SEARCH FORWARD or REVERSE pushbutton will cause the tape to move (approximately 400 characters per second) in the direction selected to the nearest FS code recorded in the tape. FS is used at the beginning of a single message or a series of messages that are to be sent together and ended with EOT.

(b) GS (Group Separator): Operation of the GS character is the same as described for the FS character. GS is used in an FS code area to indicate the beginning of each of the individual messages within the series.

(c) LF (Line Feed): Operation of the LF character is the same as described for the FS character.

(d) EOT (End of Transmission): Operation of the EOT character is the same as described for the FS character. In addition, a basic function of the tape set is to stop upon recognition of EOT in the send mode.

2.27 If the set is equipped with a character recognition expander circuit card, up to three additional search characters can be selected, with an option to search for parity error. When this circuit card is used, the desired search characters (including a parity error option) are programmed by the installer. They are then available at positions (A), (B), and (C) of the function selector switch. If used, the parity error option is assigned to position (B). Options are provided on this circuit card to determine how the set will respond when the selected character is recognized. Details of operation, and methods of programming, are presented in Section 578-300-200.

Note: The A, B, and C settings are not labeled on early design control panels. However, these settings are available at the positions shown in Figure 4, and may be so marked by the installer.

2.28 In tape sets equipped with the auto rewind for local print-out circuit card, the (A), (B), and (C) settings of the function switch are used to select the operating features of the TP322485 card. Position (A) provides the automatic rewind and local print-out as described in 2.10. Depending on the options selected, it can also be used to rewind the tape to the beginning of a message in process and await a new call in the event of a premature channel disconnect, or to provide on-line "data blocking" in conjunction with the rewind feature. Position (B) can be used for on-line testing of a remote terminal equipped with an auto rewind card. Position (C) provides on-line "data blocking" under control of either an RS or $\wedge$ character, programmable by the user, and also provides an additional search character (RS or $\wedge$) in the search mode.

SEARCH Pushbuttons

2.29 SEARCH REVERSE: With the function selector switch positioned to either FS, GS, LF, or EOT (or to one of the additional characters if the expander feature of 2.27 is used), momentarily depress SEARCH REVERSE (lamp lights). The tape reverses at approximately 400 characters per second until the code indicated by the function selector switch is located, or either a STOP or

BEGIN OF TAPE signal is received. Searching can be performed either off-line or on-line when the set is in the idle condition.

2.30 SEARCH FORWARD: Operation for SEARCH FORWARD is the same as described for SEARCH REVERSE except that tape movement is in the forward direction, and END OF TAPE will stop the tape.

ERROR Pushbutton

2.31 The ERROR lamp lights when an odd parity character is read or written on the tape while the functions send, search, single step, or receive are operating. Depressing the ERROR pushbutton extinguishes the lamp.

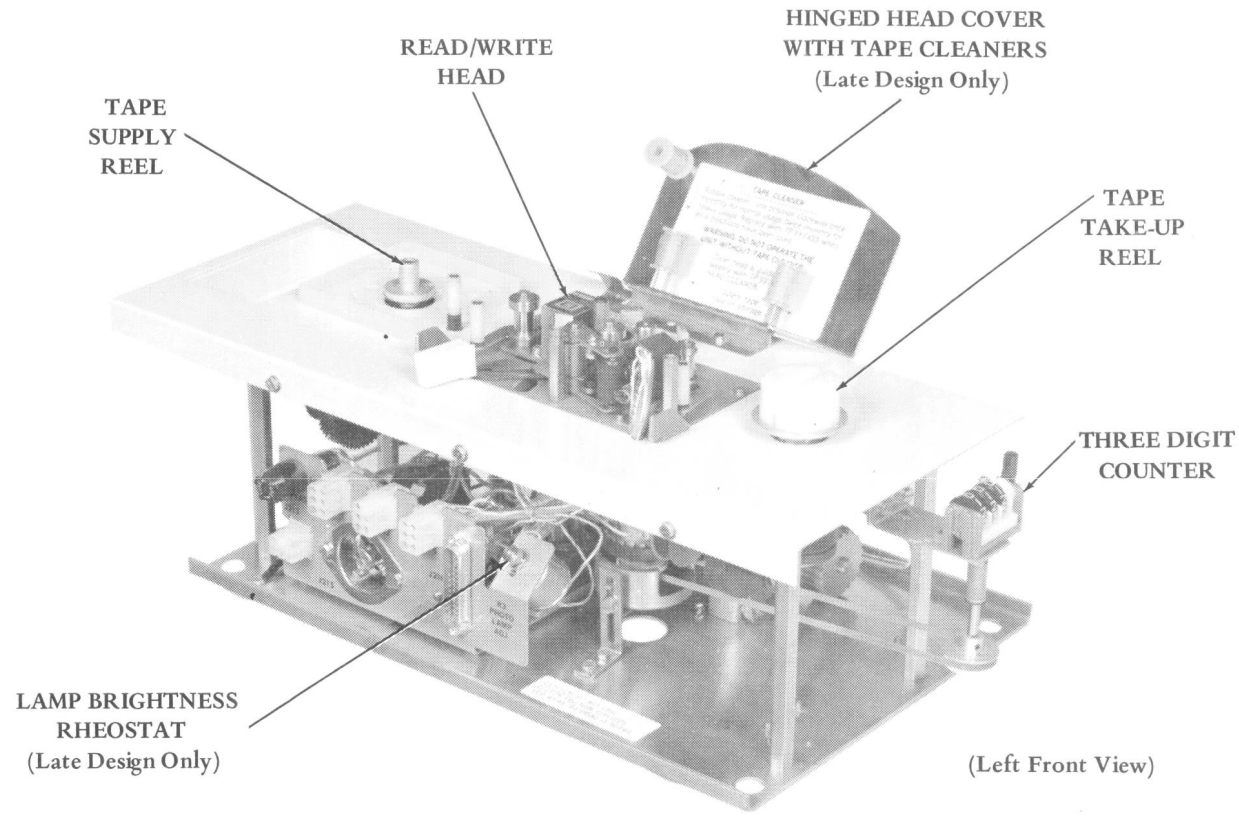
Note: If the expander card is present (2.27) and is programmed to recognize parity errors in the (B) setting of the function selector, a parity error in the search mode will cause the ERROR lamp to light and, if so programmed, transmission to stop until the ERROR pushbutton is depressed to reset the circuit.

B. Tape Transport

2.32 The tape transport (Figure 6) contains all the mechanics associated with tape movement including the motor, gear shift assemblies, three-digit counter, capstan and pinch roller, tape take-up reel, tape tensioning and guide apparatus, and the nine channel read/write head. Also, it includes the tape position photosensors and motor control circuitry.

2.33 With proper electronics, the tape transport is capable of transmitting or recording on-line asynchronous data at speeds up to 2400 words per minute. Incremental stepping is accomplished in the forward or reverse direction at speeds up to 400 steps per second (internal local functions).

2.34 The tape transport measures approximately 8-5/8 inches wide, 6-1/2 inches high, and 18 inches deep. It weighs approximately 20 pounds.



Note: Late design transport shown has lamp brightness rheostat and hinged head cover with tape cleaners not present on early design units. Also, tape feeding assembly differs slightly from that in early design units.

Figure 6 - Tape Transport

C. Electronics Module

2.35 The electronics module (Figure 7) contains the power supply, connector board and circuit cards (up to 14 circuit cards); and includes all the logic circuitry. It is interconnected to the other components of the system by appropriate cable assemblies.

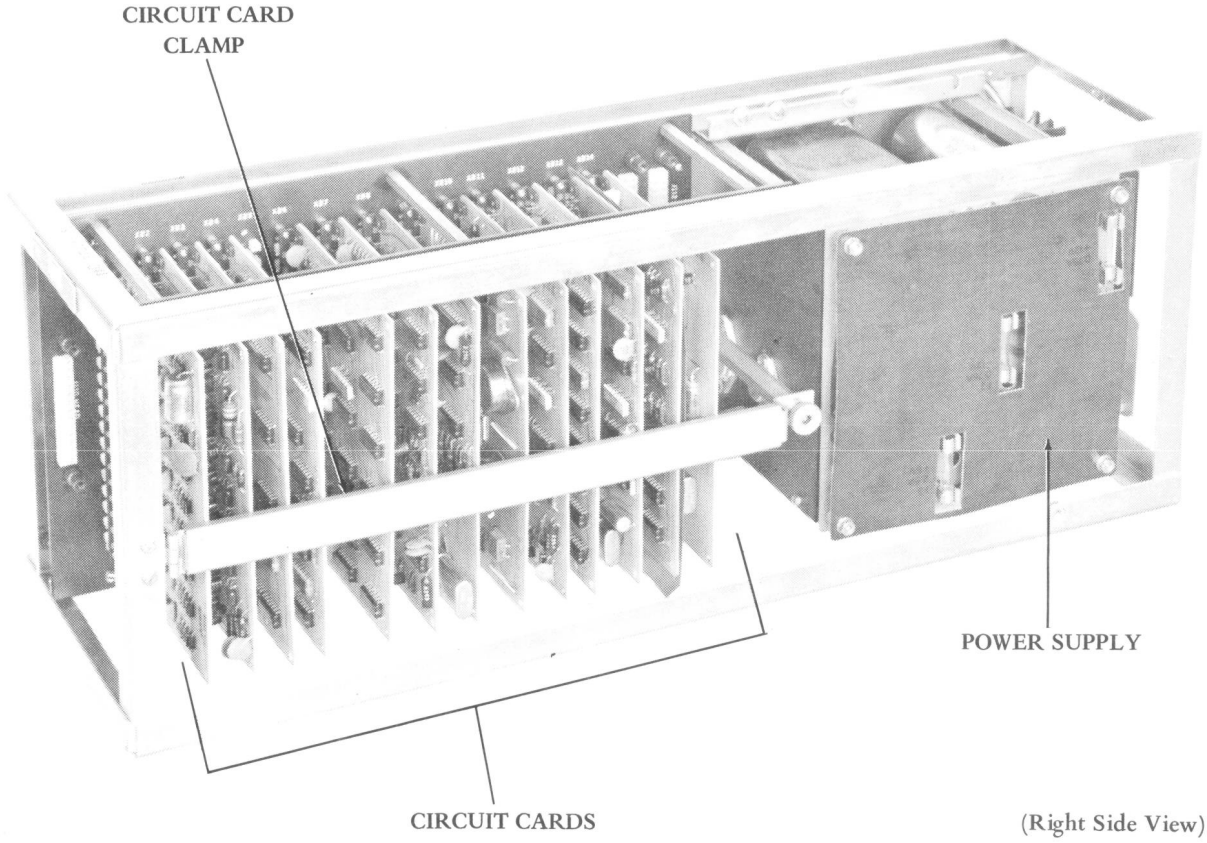
Note: Tape sets used as CDT adjuncts include an accessory module mounted piggyback on the basic module. The accessory module contains two circuit cards which interface the voltage-sensitive circuits of the tape set to the current-sensitive circuits of the CDT.

D. Cabinet

2.36 The components of the magnetic tape set are housed in an appropriate cabinet. As explained, one cabinet (Figure 1) is designed for stand-alone operation →or for use with 33, 35, 37, or 40 teletypewriters; the other (Figure 2) is designed for use with parallel interface devices such as a CDT or cluster controller.

2.37 In both cabinet styles, the tape transport and control panel mount in the top section of the cabinet. A compartment is provided in the lower section for the electronics module.

→2.38 In the stand-alone or 33/35/37/40 adjunct unit, a compartment in the center section of the cabinet accommodates a 202C data set or a 202D data set and 804A data auxiliary set (or equivalents). In applications where a 201 type data set is used in conjunction with an 804A data auxiliary set, only the data auxiliary set can be accommodated in the cabinet, and the data set must be mounted externally.



Note: Module shown has hinged circuit card clamp. Later design units have removable clamp.

Figure 7 - Electronics Module

2.39 The cabinet designed for use with parallel devices does not include a data set compartment. The tape set operates through the associated terminal, and no provisions are required for data set installation.

3. STATION ARRANGEMENTS

3.01 Numerous station arrangements are possible using conventional telephone lines (Figure 8). The magnetic tape set provides low or high speed, send or receive operations using half-duplex facilities. Transmission or reception may be under manual control of the operator; or may be unattended in some applications. Data communications systems may be arranged for either point-to-point local or remote data gathering, or for data distribution. Magnetic tape sets may also be used at outlying points to exchange data with a central data processing terminal such as a computer.

3.02 The 4200 series magnetic tape set can be interfaced to a 200 series data set (or equivalent) to become a self-contained, stand-alone terminal; or, the magnetic tape set and data set can be interfaced to a DATASPEED 40. Either interface combination is capable of high speed on-line transmission and reception. Operating speed is from 1050 to 2400 words per minute, depending on the data set used.

3.03 The tape set may also be interfaced to a 33, 35, or 37 teletypewriter terminal. Then, in addition to high speed transmission capabilities, the magnetic tape set provides 100 or 150 words per minute data transmission. With the magnetic tape set as an adjunct to the 33, 35, or 37 terminal, it is capable of transmitting data to or receiving data from the 33, 35, or 37 terminal apparatus (page printer, keyboard, or paper tape reader), or on the low speed line at 100 or 150 words per minute via the low speed terminal on-line interface (if present). If the 200 series data set (or equivalent) is deleted from this equipment arrangement, the magnetic tape set may be used strictly as a low speed accessory to the low speed terminal in local and on-line operation.

3.04 When used as an adjunct to a parallel interface terminal, such as a CDT, the tape set sends data to or receives data from the adjunct terminal at speeds up to 1200 words per minute. In this service, the tape set is effectively a "slave" to the adjunct terminal and has no provision for on-line operation. However, data from the tape set may be supplied to the line, or incoming data from the line may be supplied to the tape set, by the interface circuitry of the adjunct terminal.

CAPABILITIES

3.05 The following capabilities (as referred to in Figure 8) are provided by the 4200 series magnetic tape set:

(a) A 200 series data set (or equivalent):

(1) Data from a magnetic tape cartridge may be transmitted on-line at 1050, 1200, 2000, or 2400 words per minute (as determined by the particular speed option included in the set).

(2) Data may be received on-line and recorded on a magnetic tape cartridge at 1050, 1200, 2000, or 2400 words per minute (as determined by the particular speed option included in the set).

(3) Attended calls may be initiated or received by the magnetic tape set in either the send or receive mode.

(4) Unattended calls may be received by the magnetic tape set by selecting the on-line/auto mode and preselecting either the send or receive mode. The magnetic tape must be prepositioned such that the message to be transmitted, or the area which is to be recorded, is at the read/write head. If an unattended message (sent) ends with the control character EOT, the magnetic tape set will stop sending and revert to the receive mode (the called station initiates turn-around). Answer or return data will be recorded by the magnetic tape set, or the call can be terminated by the calling station.

(5) Automatic disconnect is provided.

(b) Associated with a 33, 35, 37, or 40 teletypewriter set:

(1) Data may be transmitted from a magnetic tape cartridge to the receiving apparatus in the local teletypewriter set at 100 or 150 words per minute. Page copy of the transmitted data is provided by the local teletypewriter printer.

(2) Data may be received and recorded on a magnetic tape cartridge from the transmitting apparatus (keyboard or paper tape reader) in the local teletypewriter set. Page copy of the recorded data is provided by the local teletypewriter printer.

(c) Associated with a 33, 35, or 37 teletypewriter set with a 100 series data set (or equivalent):

(1) All capabilities in 3.05 (b) are provided.

(2) Data may be transmitted or received by the magnetic tape set on-line via the local teletypewriter terminal on-line interface at 100 or 150 words per minute.

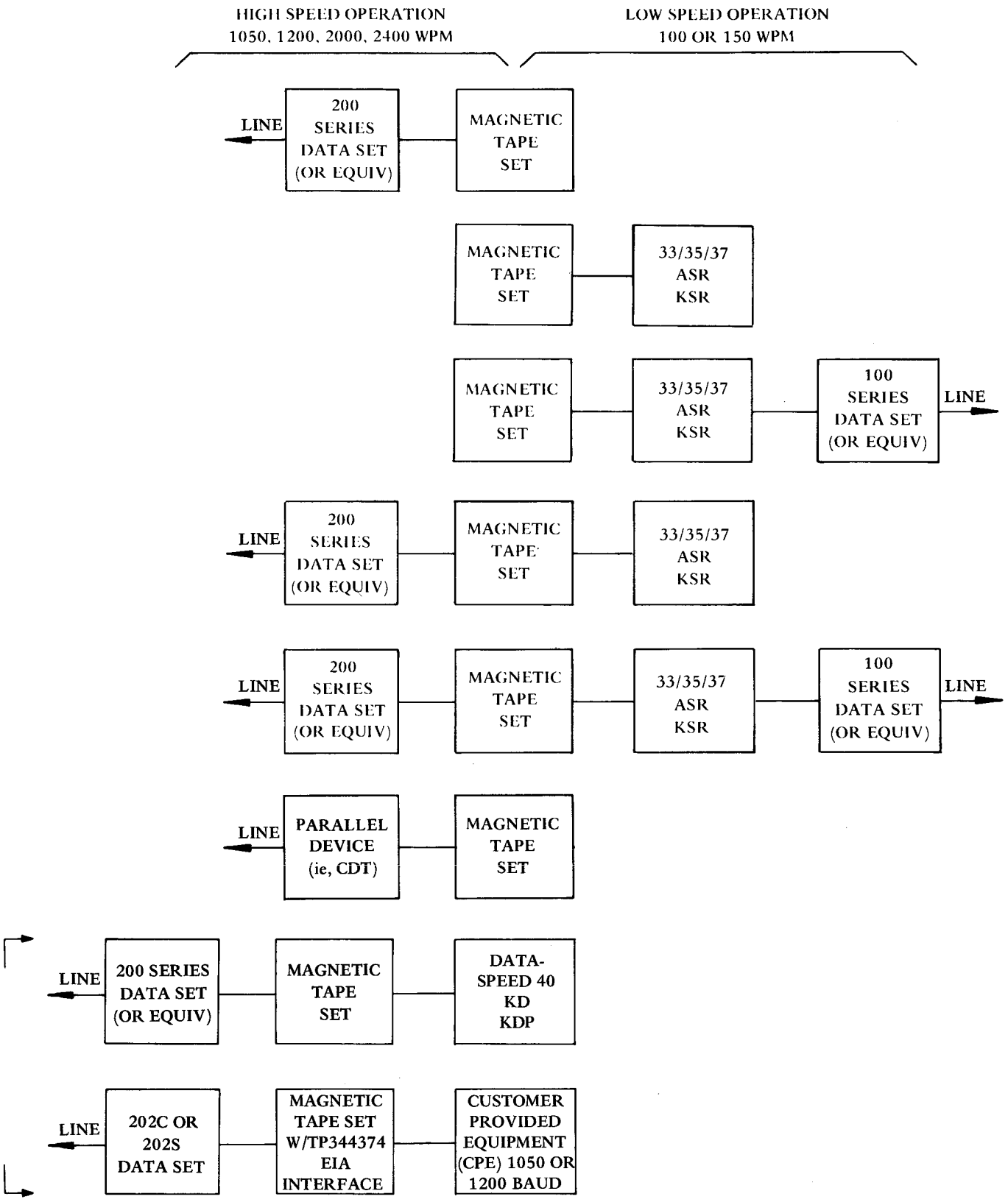


Figure 8 - Typical Magnetic Tape Station Arrangements

(d) Magnetic tape set with a 200 series data set (or equivalent) associated with a 33, 35, 37, or 40 teletypewriter set: All capabilities in 3.05 (a) and 3.05 (b) are provided.

(e) Magnetic tape set with a 200 series data set (or equivalent) associated with a 33, 35, or 37 teletypewriter set with a 100 series data set (or equivalent): All capabilities in 3.05 (a), 3.05 (b), and 3.05 (c) are provided.

(f) Associated with a parallel interface terminal such as a CDT:

(1) Data may be transmitted from a magnetic tape cartridge to the readout element (ie, the cathode ray tube of a CDT) at speeds up to 1200 words per minute.

(2) Data may be received from the adjunct terminal logic and recorded on magnetic tape at speeds up to 1200 words per minute.

Note: If the associated terminal has on-line capabilities, data may be transmitted to or received from the line via the on-line facilities of the associated terminal. If no such facilities are provided (for example, if the tape set is used only as a storage device for a CDT or cluster controller installation), data communications take place on a local basis only.

TYPES OF OPERATION

A. Attended

3.06 High speed on-line operation of a stand-alone or 33/35/37/40 adjunct tape set (Figures 9 and 10) is possible via an associated 200 series data set (or equivalent). When attended, the operator can elect to auto-answer incoming calls in the same manner as unattended operation (3.07), or establish voice contact prior to proceeding to the data mode. The ON LINE MAN position of the DATA MODE switch can be used in conjunction with the DATA SEND and RECEIVE pushbuttons for either incoming or outgoing calls. After a data connection has been established, the operator can select the message to be transmitted or the portion of tape to be used for receiving data by using the search or fast access controls. In addition, the LOCAL position can be selected for keyboard preparation (local teletypewriter set) of additional data or readout of previously received traffic without loss of the on-line data connection. The magnetic tape set control logic will not provide automatic disconnect in the manual on-line mode. To terminate a call, the operator must return to the talk mode (on the data set) and place the handset on-hook.

B. Unattended

3.07 On-line high-speed unattended operation (Figures 11 and 12) of a stand-alone or 33/35/37/40 adjunct tape set is accomplished by selecting the ON LINE AUTO position on the DATA MODE switch, and depressing either the DATA SEND or DATA RECEIVE pushbutton. If neither data pushbutton (SEND or RECEIVE) is selected, the set will not auto-answer incoming calls.

3.08 When the tape set is preselected as a sender, an incoming call will initiate transmission. Transmission will continue until EOT is recognized in the text. When EOT is transmitted, the magnetic tape set will stop sending and will automatically revert to the receive mode. Disconnect will be initiated by an unattended magnetic tape set in the auto/on-line mode if data is not received or transmitted for a given time interval (2 minutes in early design units or 45 seconds in late design units).

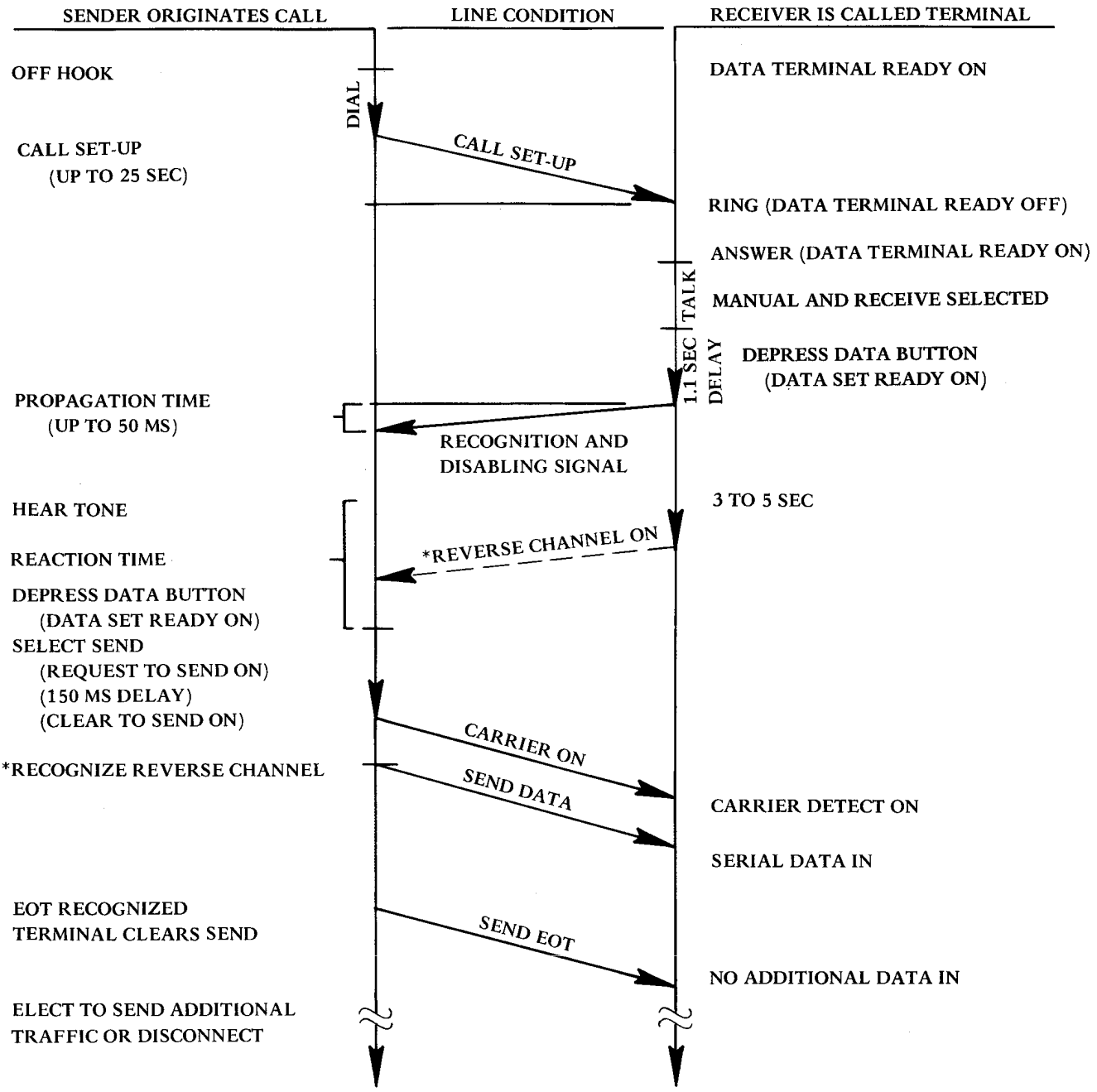
3.09 The magnetic tape set, when preconditioned as a receiver, will record incoming messages on magnetic tape, in the order received, until the end of tape is reached. If low tape occurs during a transmission (LOW TAPE alarm indicator lights), data will continue to be recorded until the message has been completed or the end of tape is reached.

3.10 If the tape set is associated with a 33 or 35 teletypewriter, there are no provisions for unattended send operation over low speed lines. However, teletypewriter stunt box call-in of a magnetic tape set preselected as a sender is possible on a wiring basis that is locally engineered. If the magnetic tape set is preselected as a receiver in the local mode, all low speed data received by an unattended teletypewriter terminal, which is interfaced to the magnetic tape set, will be recorded on tape until the end of tape is reached.

3.11 If the tape set is associated with a 37 KSR for ASR operation, the DATA MODE switch can be placed in the OPTION position to provide unattended operation. With the DATA RECEIVE pushbutton preselected, the tape set is turned on or off by a Punch On or Punch Off signal from the 37 KSR. If the DATA SEND pushbutton is preselected, the tape set is turned on or off by a Reader On or Reader Off signal.

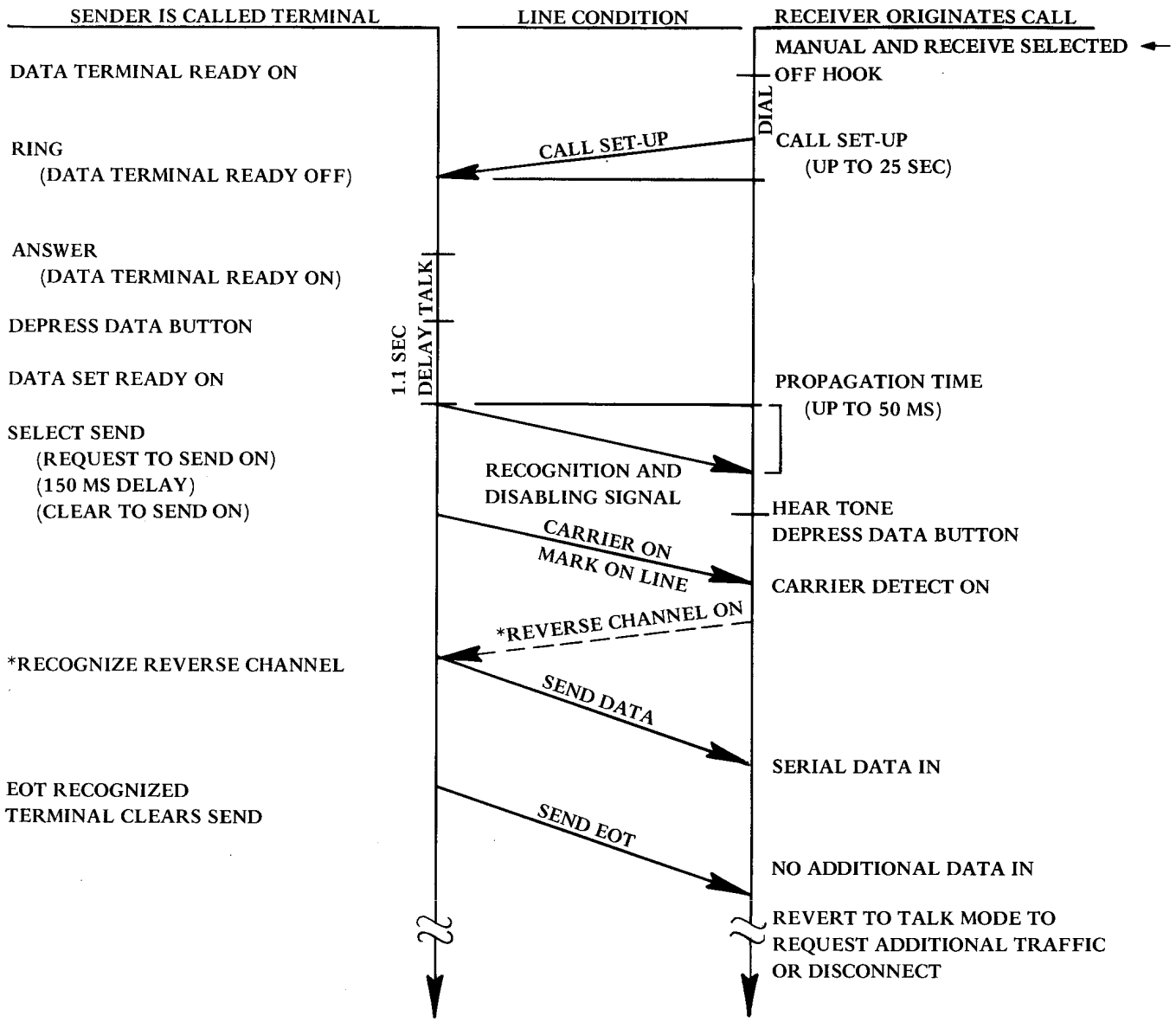
Note: This feature is not available on early design units which do not have the OPTION position on the DATA MODE switch.

3.12 When the tape set is associated with a parallel interface terminal, the tape set is controlled by the associated terminal. If the tape set is selected as a sender for



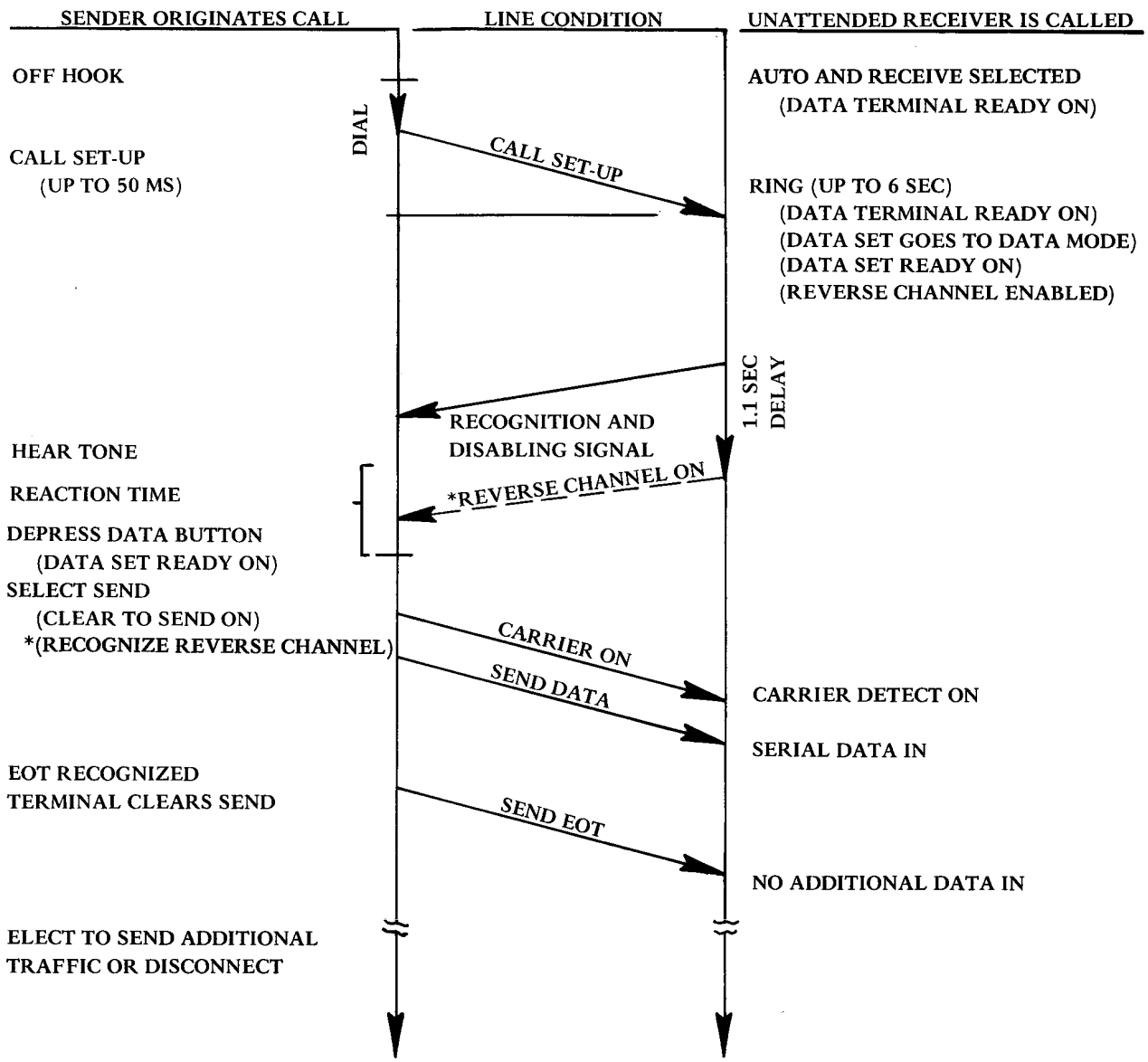
*FOR APPLICATIONS WHERE THE REVERSE CHANNEL SIGNAL IS USED.

Figure 9 - Attended Operation – On-Line Via 200 Series Data Set (or Equivalent) – Sender Originates Call



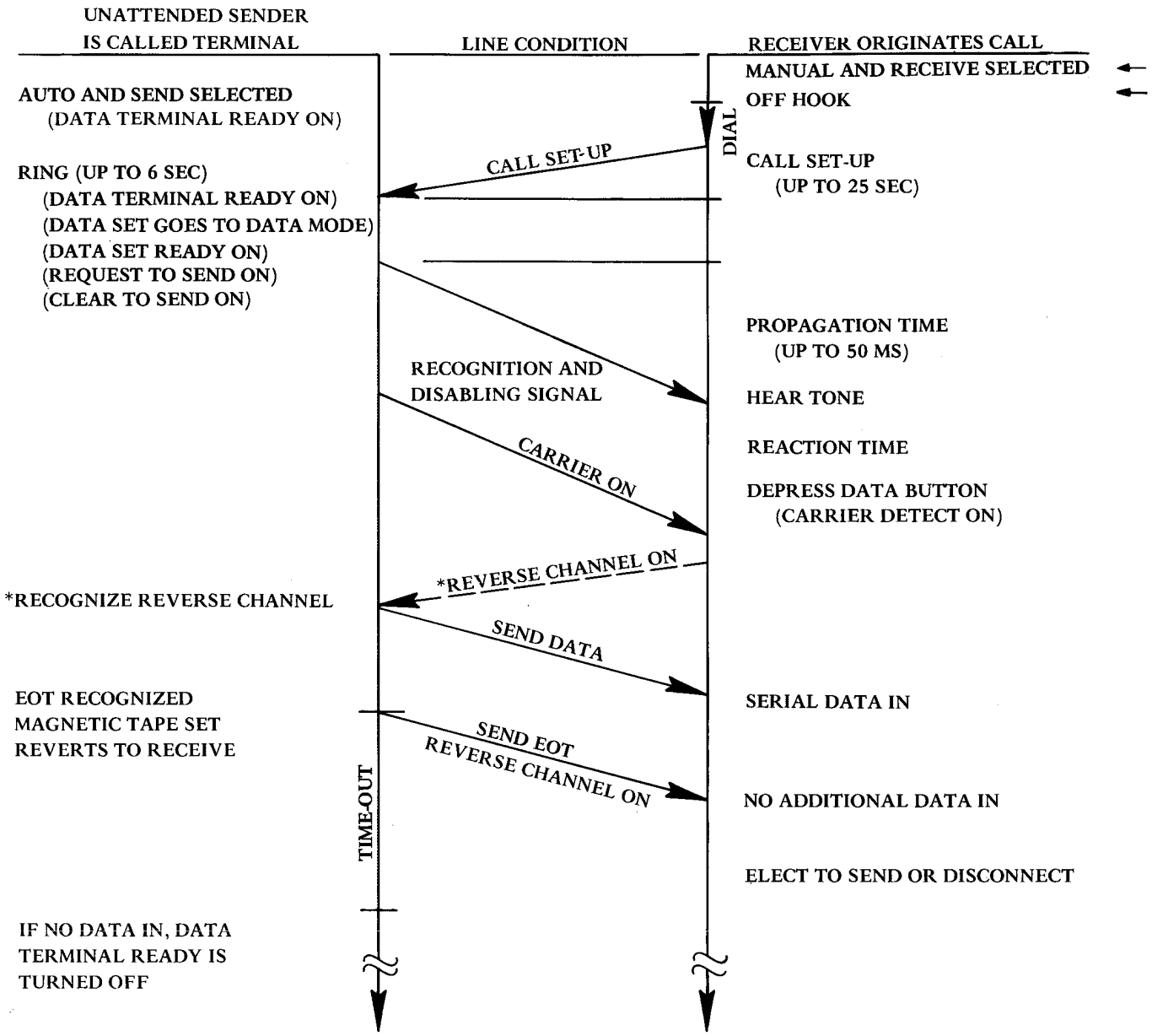
*FOR APPLICATIONS WHERE THE REVERSE CHANNEL SIGNAL IS USED.

Figure 10 - Attended Operation – On-Line Via 200 Series Data Set (or Equivalent) – Receiver Originates Call



*FOR APPLICATIONS WHERE THE REVERSE CHANNEL SIGNAL IS USED.

Figure 11 - Unattended Receiver Operation – On-Line Via 200 Series Data Set (or Equivalent) – Sender Originates Call



*FOR APPLICATIONS WHERE THE REVERSE CHANNEL SIGNAL IS USED.

Figure 12 - Unattended Sender Operation – On-Line Via 200 Series Data Set (or Equivalent) – Receiver Originates Call

on-line transmission, a stored message will be sent until an EOT character is transmitted. The terminal will then turn around so that it is available to receive incoming messages. However, the tape set will remain in the send mode and will not record any incoming messages. When a second EOT character is detected by the terminal logic, the next "block" of recorded data will be sent on-line from the tape set. Thus, recorded data is sent each time a remote station requests data under control of the adjunct terminal.

4. INTERFACE INFORMATION

4.01 Facilities for one or two interfaces are provided in the magnetic tape sets (Figure 8). Low speed serial and parallel interface facilities are optionally provided for applications where the magnetic tape set is to be interfaced to equipment such as 33, 35, 37, or 40 teletypewriter sets. High speed serial or parallel interface facilities are optionally provided for applications where the magnetic tape set is to be interfaced to equipment such as a 200 series data set (or equivalent) for direct on-line communication or to a parallel interface terminal such as a CDT.

Note: The tape set requires an accessory interface module when used with a CDT.

4.02 Data to be recorded on magnetic tape can be received locally from the adjunct terminal, it can be received on-line directly through a 200 series data set (or equivalent), or it can be received through the on-line interface of the adjunct terminal (if so equipped). Data from the magnetic tape set can be transmitted locally through the interface provided to the local receiving apparatus of the associated terminals, and on-line if the associated terminal is in an on-line mode, or on-line through the associated 200 series data set (or equivalent).

DATA SET INTERFACE

4.03 Interface of a magnetic tape set to a 200 series data set (or equivalent) is accomplished through the use of a circuit card (TP322473) in the magnetic tape set and a cable assembly (TP337380) which connects to the data set (Figures 13, 14, and 15). The leads shown in Chart 1 are provided at the connector which connects to the data set (EIA RS-232-B).

4.04 Standard EIA voltages are used at the magnetic tape set for data and control functions. These functions are as follows:

Binary State	1	0
Signal Condition	Marking	Spacing
Control Function	Off	On
EIA Voltage	-3v to -25v	+3v to +25v
Normal Signal Voltage	0v	+5v

4.05 Reverse channel is transmitted over the supervisory data channel. When selected as a receiver, the magnetic tape set applies the reverse channel signal (on or off) to the Supervisory Transmitted Data lead and it is received by a high speed sender (including a magnetic tape set) on the Supervisory Received Data lead.

4.06 When selected as a sender at 1050 or 1200 words per minute, the magnetic tape set uses its own internal clock (if selected as a receiver, it operates start-stop directly from the Received Data signal). After standard data set procedures for establishing a call have been completed, the sender must normally receive reverse channel before it will begin transmitting. As a wiring option, the reverse channel input may be ignored allowing transmission to begin when Clear to Send is recognized. As a receiver, the terminal is ready to receive when carrier is detected.

LOCAL 33 OR 35 TELETYPEWRITER INTERFACE

4.07 The magnetic tape set provides a local serial-in/serial-out data interface to 33 and 35 KSR and ASR teletypewriter sets for operation at 100 words per minute (Figure 13). Several interconnecting cables and interface circuit cards are available for different applications. The cables, circuit cards, and applications are shown in Chart 2.

4.08 The following leads are available, at a 26-pin connector (J113), in the magnetic tape set for interfacing to the 33 and 35 teletypewriter sets:

PIN NO.	FUNCTION
A2	Keyboard Output
A3	Send Local
A4	+20 v
A5	-20 v
A12	Break Detect
A13	Special Character Hold
B6	Receive Local
B13	Signal Ground

4.09 The 33/35 interface allows a local interchange of data between the 33 or 35 KSR or ASR set and the magnetic tape set. The signal line from the output of the keyboard is gated through the magnetic tape interface to the input of the printer (and to the low speed line if so provided in the 33 or 35 terminal) via the Send Local Data lead. The Receive Local Data signal is a monitor lead for data entering the teletypewriter.

4.10 The magnetic tape set interface to the teletypewriter set does not interact with the local teletypewriter data signals when the magnetic tape set is in either the local mode (send or receive mode not selected) or the high

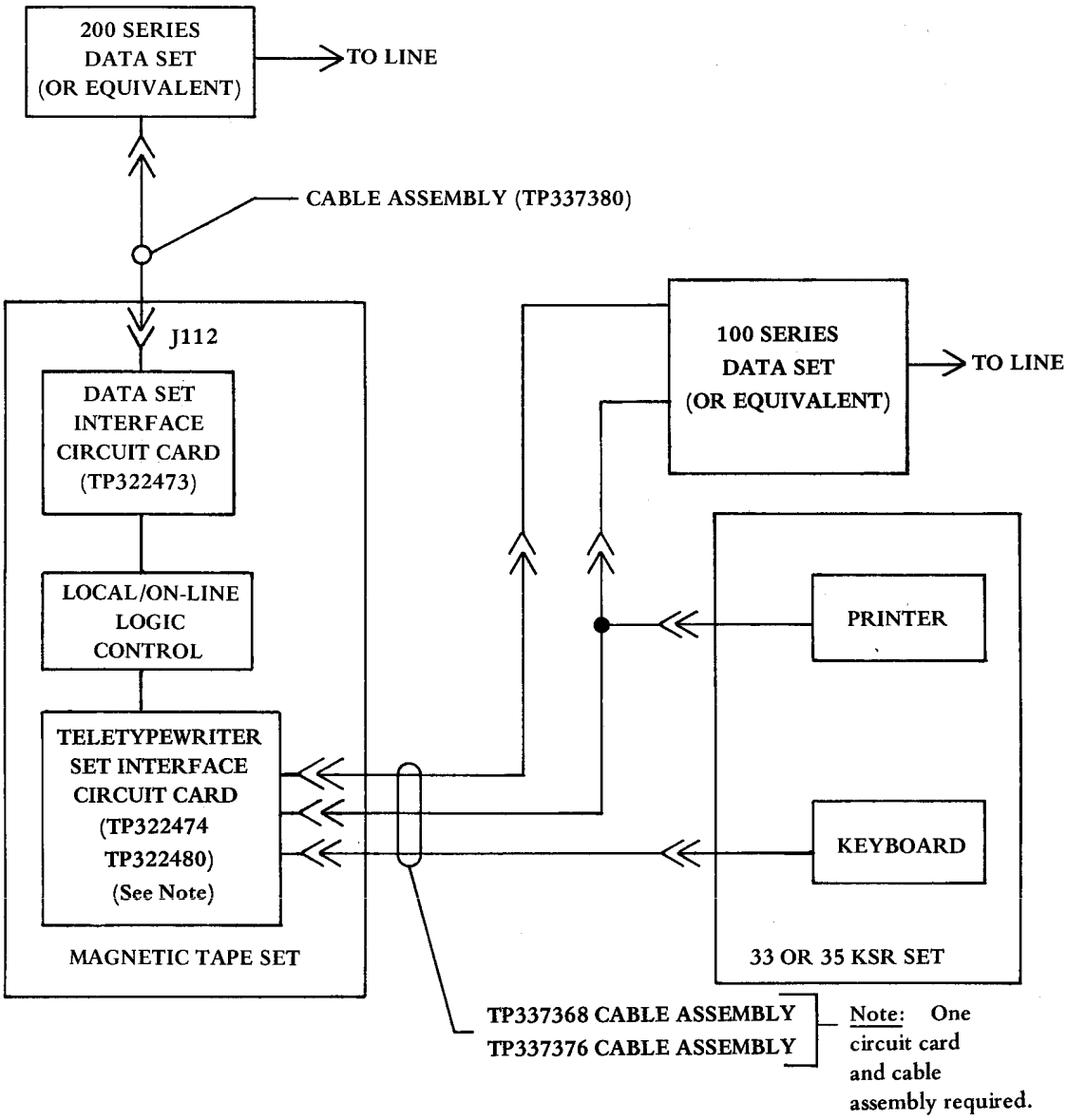


Figure 13 - Interconnection Diagram for Magnetic Tape Set to 33 or 35 Teletypewriter Set

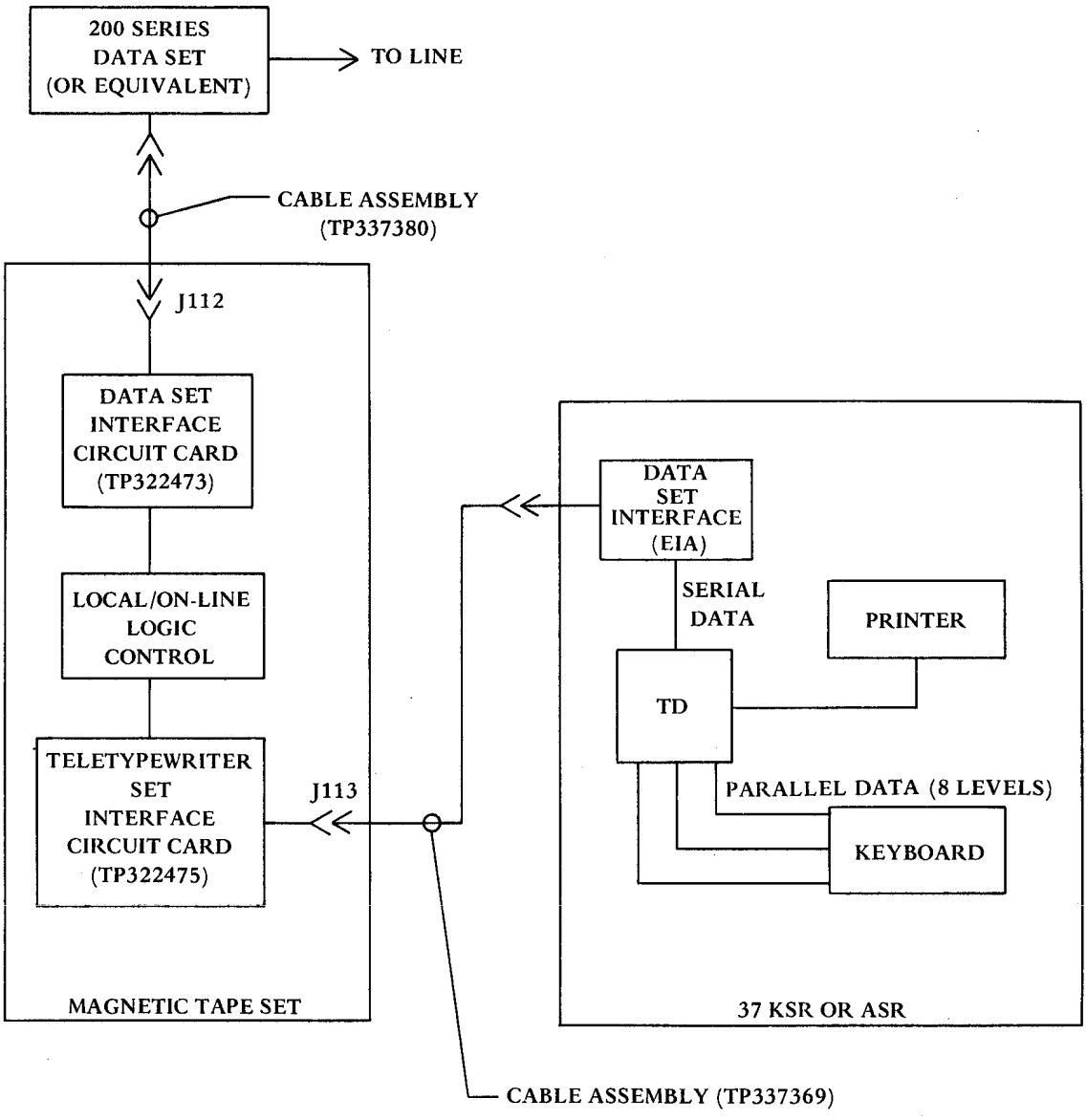


Figure 14 - Interconnection Diagram for Magnetic Tape Set to 37 KSR or ASR Teletypewriter Set for Off-Line Operation (EIA Interface)

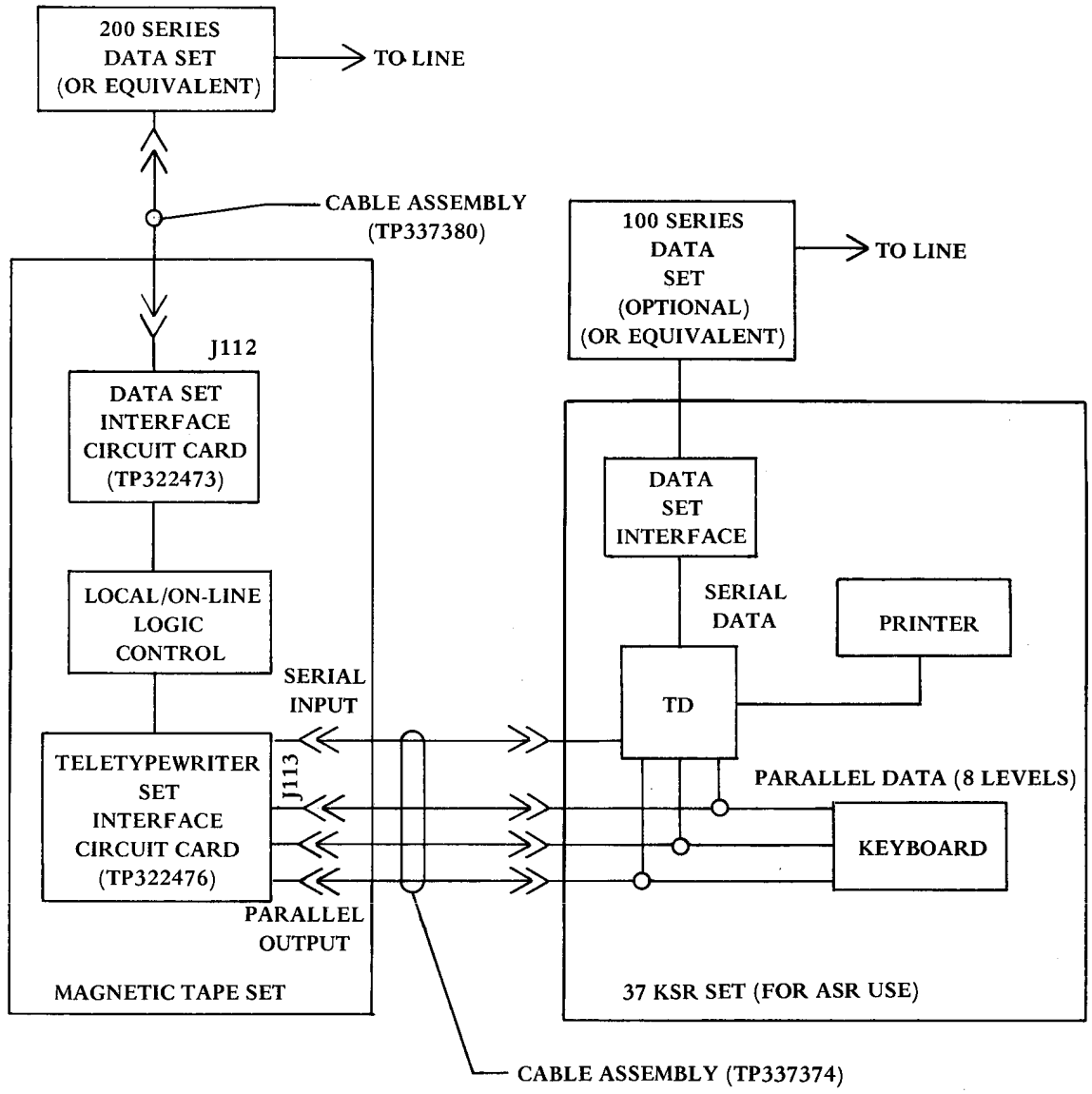


Figure 15 - Interconnection Diagram for Magnetic Tape Set to 37 KSR Teletypewriter Set (for ASR Operation)

CHART 1

DATA SET CONNECTOR LEADS

PIN NO.	FUNCTION	ABBREV.	CIRCUIT
1	Protective Ground	PG	AA
2	Transmitted Data	TD	BA
3	Received Data	RD	BB
4	Request to Send	RTS	CA
5	Clear to Send	CTS	CB
6	Data Set Ready	DSR	CC
7	Signal Ground	SG	AB
8	Data Carrier Detector	RLSD	CF
11	Supervisory Transmitted Data	SRTS	SCA
12	Supervisory Received Data	SDCD	SCF
15	Serial Clock – Transmit	SCT	
17	Serial Clock – Receive	SCR	
20	Data Terminal Ready	DTR	CD
22	Ring Indicator	RI	CE

CHART 2

33 OR 35 TELETYPEWRITER

INTERFACE APPLICATIONS

CIRCUIT CARD	CABLE ASSEMBLY	MAGNETIC TAPE SET ADJUNCT TO
TP322474	TP337368	33 or 35 using 101 data set (or equivalent)
TP322480	TP337376	33 or 35 with UCC29 call control unit

speed on-line mode. This allows all standard operation of the teletypewriter set, such as the transfer of data from the keyboard (or tape reader) to the printer (or punch).

4.11 Data emanating from the teletypewriter set is recorded on magnetic tape when the magnetic tape set is in the local receive mode. In the local send mode, data from the magnetic tape set is transmitted to the teletypewriter printer (or punch), or on-line if the local teletypewriter set is equipped with a data set and is in the on-line mode. In the interface arrangements using a 101 data set (or equivalent), the keyboard output is blinded during the local send mode (magnetic tape set) to prevent keyboard data from causing garble.

4.12 The Break Detect signal is provided in some teletypewriter arrangements for on-line communication. When a break signal from the line is detected, data transmission from the magnetic tape terminal is inhibited until the alarm condition is removed.

4.13 The Special Character Hold signal is provided to inhibit transmission from the magnetic tape set (for the duration of the signal) upon recognition of the teletypewriter stunt box character generated functions (such as VT – Vertical Tab, FF – Form Feed or SO – Shift Out).

LOCAL 37 TELETYPEWRITER EIA INTERFACE FOR OFF-LINE OPERATION

4.14 A local interface is provided for connecting the magnetic tape set to a 37 KSR or ASR teletypewriter unit operating off-line only (Figure 14). This arrangement requires a TP322475 circuit card in the magnetic tape set and a TP337369 cable between the tape set and the unused data set cable of the teletypewriter. The signals at the various connector pins of the cable are listed in Chart 3.

CHART 3

PIN ASSIGNMENTS ON CABLE CONNECTOR TO EIA INTERFACE OF 37 KSR OR ASR

PIN NUMBER	FUNCTION	ABBREVIATION
2	Send Data	SD
3	Receive Data	RD
4	Request to Send	RTS
5	Clear to Send	CTS
6	Data Set Ready	DSR
7	Signal Ground	SG
13	Special Char Hold	
20	Data Terminal Ready	DTR

4.15 Standard EIA voltages are used at the magnetic tape set for data and control functions. These functions are as follows:

Binary State	1	0
Signal Condition	Marking	Spacing
Control Function	Off	On
EIA Voltage	-3v to -25v	+3v to +25v
Normal Signal Voltage	0v	+5v

4.16 To interchange data between the magnetic tape set and the 37 teletypewriter, the tape set must be in the local mode and the teletypewriter must simulate an on-line mode.

4.17 The magnetic tape set provides a steady "on" signal to the Data Set Ready lead into the teletypewriter set in response to an "on" condition of the Data Terminal Ready lead. Data will be transmitted to the teletypewriter set when the tape set is placed in the send mode. Data may be transmitted from the keyboard of the teletypewriter set to the tape set if the PROCEED button on the teletypewriter is depressed, and the tape set is placed in the receive mode. A Request To Send signal generated by the teletypewriter is strapped in the interface of the tape set to the Clear To Send input of the teletypewriter.

4.18 An EOT character in the recorded message sent to the teletypewriter will reset the PROCEED button and cause the Data Terminal Ready lead to turn off. This will turn off the Data Set Ready lead through the interface of the tape set, also turning off the Request To Send and Clear To Send leads. When Data Set Ready turns off, the Data Terminal Ready logic is reset, turning this lead back on and causing Data Set Ready to turn back on in readiness for another message.

4.19 When the magnetic tape set is switched to its high-speed on-line mode, Data Set Ready is held off to blind the teletypewriter interface. The teletypewriter can be operated without interference from the tape set by setting it to its local mode.

LOCAL 37 KSR FOR ASR OPERATION TELETYPEWRITER INTERFACE

4.20 A local interface circuit card (TP322476) and cable (TP337374) are used for interfacing the magnetic tape set to 37 KSR sets for ASR operation (Figure 15). These sets incorporate an R/T interface which is serial into the magnetic tape set and parallel out of the magnetic tape set. The pin number assignments for the connector to the KSR set are shown in Chart 4.

4.21 The interchange of data between the magnetic tape set and the 37 set can take place with the magnetic tape set in the local mode with the send or receive mode selected. Operation is at 150 baud. In addition, communication to and from a 150 baud line can occur using the data set in the 37 set.

Note: On late design units, the DATA MODE switch provides an OPTION setting which places the tape set motor under control of the 37 teletypewriter. With the OPTION mode selected the tape set motor will turn on only when data is to be interchanged between the tape set and teletypewriter, and will turn off when the tape set is in the idle state. This feature is not included on early design units.

4.22 When in the local send mode, the magnetic tape set generates the Sender Selectable signal, then recognizes the Send Message signal from the 37 set, and generates the Sender Ready signal. In response to the Present Next Character signal, which is the request for a character, the magnetic tape set transmits on eight data leads for parallel transfer of data.

CHART 4

PIN ASSIGNMENTS ON R/T CABLE CONNECTOR
OF MODEL 37 KSR

PIN NO.	FUNCTION	ABBREV.	CONDITION
1	Receiver Selectable	RS	Magnetic tape set receive mode on.
2	Receive Message	RM	37 teletypewriter set send mode on.
3	Receiver Ready	RR	On when magnetic tape set is ready to receive.
4	Serial Receive Data	–	Normal +5 v for mark. Data at 150 baud +5 v mark, 0 v space.
19	Sender Selectable	SS	Magnetic tape send mode on.
20	Send Message	SM	37 set receive mode selected.
21	Sender Ready	SR	On when magnetic tape set is ready to send.
22	Present Next Character	PNC	Request from 37 set to magnetic tape set to send one character.
23	Send Character Available	SCA	Turns on when magnetic tape set is presenting a character to the 37 set on the Send Data leads. Turns off when PNC is turned off.
24	Send Data Bit 1		
25	Send Data Bit 2		
26	Send Data Bit 3		
27	Send Data Bit 4		
28	Send Data Bit 5		Parallel Send Data
29	Send Data Bit 6		
30	Send Data Bit 7		
31	Send Data Bit 8		
32	Run		When tape set is in OPTION mode, a low from 37 set turns on tape set motor, and a high turns off motor. Note: Early design tape sets which do not have OPTION position on DATA MODE switch do not provide this feature.
33	Manual Stop		Informs 37 set that tape set is capable of sending.
35	Ground		

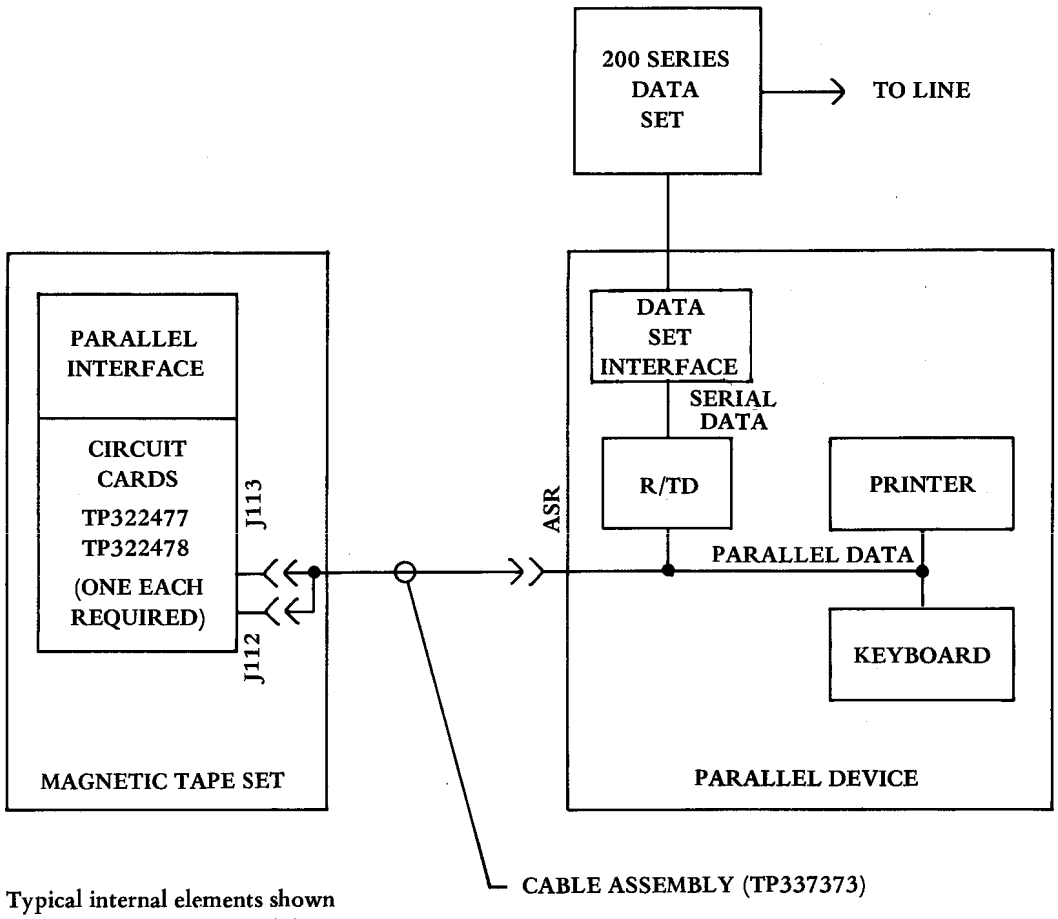
4.23 When in the local receive mode, the magnetic tape set generates the Receiver Selectable signal, then recognizes the Receive Message signal from the 37 set, and generates the Receiver Ready signal. Eight-level ten-unit serial data at 150 baud received from the 37 set is recorded on the magnetic tape.

4.24 When the magnetic tape set is in the high speed on-line mode, the Sender Selectable or Receiver Selectable signal is not presented to the 37 set. The magnetic tape set can be operated at high speed on-line and the 37 set can be operated independently in its local or on-line modes. Similarly, when the magnetic tape set is in the local mode, but the send or receive mode is not selected, the 37 set can be operated independently.

PARALLEL DEVICE INTERFACE

4.25 The magnetic tape set is interfaced to a terminal with a high-speed parallel interface through the use of two circuit cards (TP322477 and TP322478) in the tape set and a cable assembly (TP337373) (Figure 16). The pin assignments of Chart 5 are used in the cable connector which plugs into the tape unit connector on the external terminal. Additional leads in the cable permit auxiliary control as required for special applications.

4.26 In this installation, send/receive switching and data transfer rate are controlled by the associated terminal. This interface permits parallel send or receive operation at the maximum speed of the magnetic tape set (2400 wpm) or associated terminal, whichever is slower.



Note: Typical internal elements shown in parallel device with on-line capabilities. Actual elements vary with type of device.

Figure 16 - Interconnection Diagram for Magnetic Tape Set to Device With High Speed Parallel Interface

CHART 5

PIN ASSIGNMENTS ON TAPE UNIT CONNECTOR OF PARALLEL DEVICE

PIN NO.	FUNCTION	ABBREV.	CONDITION
1	Receive Data – Level 1	RDL1	Input Data Leads
2	Receive Data – Level 2	RDL2	
3	Receive Data – Level 3	RDL3	
4	Receive Data – Level 4	RDL4	
5	Receive Data – Level 5	RDL5	
6	Receive Data – Level 6	RDL6	
7	Receive Data – Level 7	RDL7	
8	Receive Data – Level 8	RDL8	
9	Request Next Character	RNC	Turns on when magnetic tape set can record a character. Turns off when tape set is in process of recording character.
10	Receive Character Available	RCA	On when a character is presented to magnetic tape set. Must turn off when RNC is off.
18	Receiver Selectable	RS	Indicates no alarms; local functions not selected; SM is off.
19	Receive Message	RM	On from associated terminal enables receive mode of magnetic tape set.
20	Receiver Ready	RR	Disables local controls of magnetic tape set. Occurs 1 second after RS and RM turn on.
21	Send Data – Level 1	SDL1	Output Data Leads
22	Send Data – Level 2	SDL2	
23	Send Data – Level 3	SDL3	
24	Send Data – Level 4	SDL4	
25	Send Data – Level 5	SDL5	
26	Send Data – Level 6	SDL6	
27	Send Data – Level 7	SDL7	
28	Send Data – Level 8	SDL8	
36	Sender Selectable	SS	Indicates no end-of-tape alarm; local functions not selected; RM is off.
37	Send Message	SM	On from associated terminal enables send mode of magnetic tape set.
38	Sender Ready	SR	Disables local controls of magnetic tape set. Occurs 1 second after SS and SM turn on.
39	Present Next Character	PNC	On from associated terminal commands magnetic tape set to send one character.
40	Send Character Available	SCA	Turns on when magnetic tape set is presenting a character.

4.27 To interface with the magnetic tape set logic, the associated terminal must meet the following signal requirements:

ON (space)	- 0.5 v to +0.54 v
OFF (mark)	+2.6 v to +6.6 v

All circuits must change states in 1 to 50 microseconds.

4.28 The interchange of control signals which permits the magnetic tape set to transmit data to the associated terminal is diagrammed in Figure 17. To begin the control transfer, the tape set must be conditioned as a sender by the associated terminal. If there are no alarm conditions, the tape set turns on its Sender Selectable (SS) lead. When the associated terminal turns on its Send Message (SM) lead, the tape set responds by turning on its Sender Ready (SR) lead.

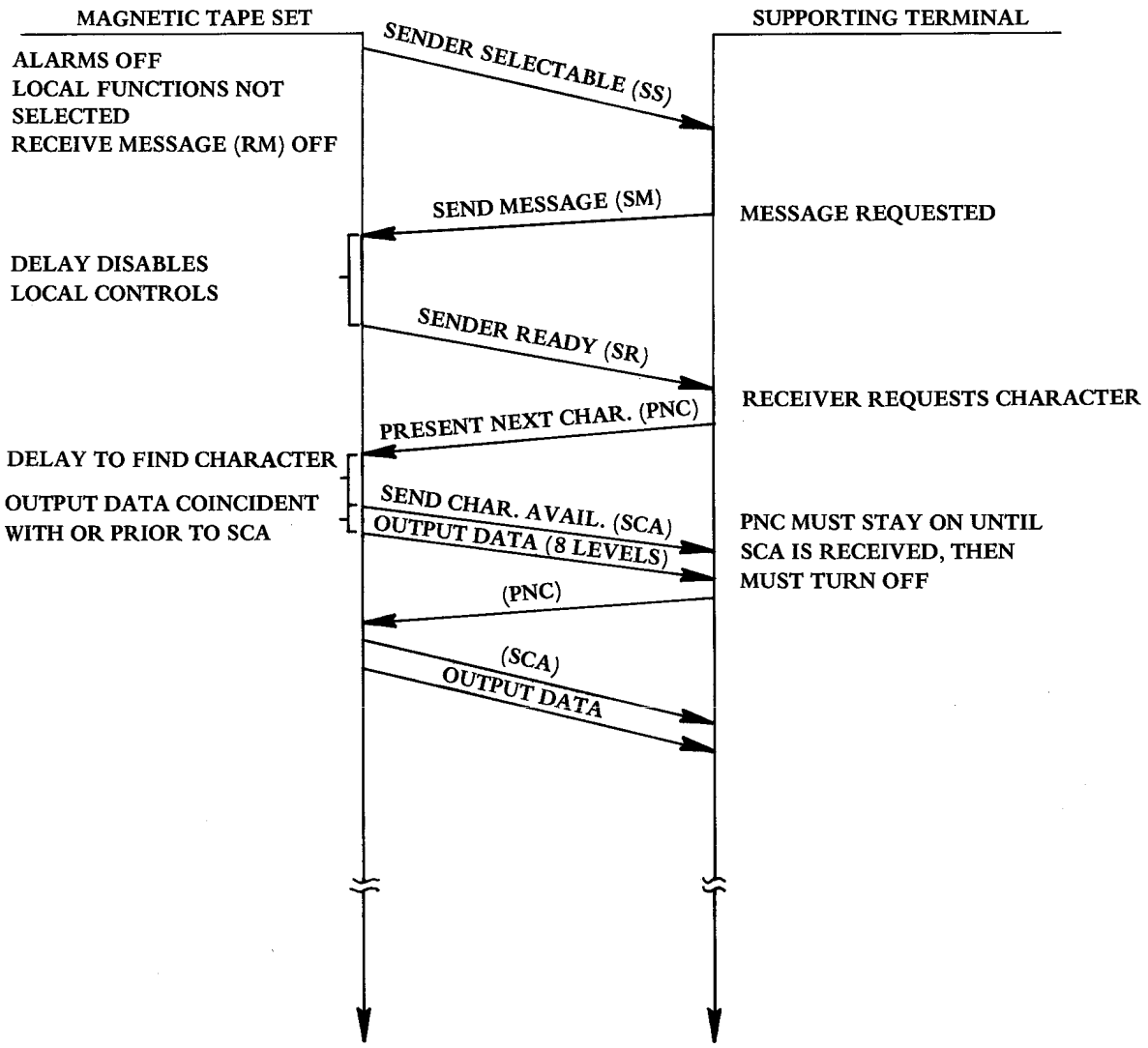


Figure 17 - Typical Send Operation – Parallel Interface

4.29 The associated terminal requests a character by turning on its Present Next Character (PNC) lead, causing the tape to advance to its next character position. The character stored on the tape is placed on the data leads, and the tape set turns on its Send Character Available (SCA) lead to indicate that a character is available. The associated terminal acknowledges receipt of the character by turning off its PNC lead causing the tape set to turn off its SCA lead. The cycle repeats for each character in the message.

4.30 If the end of tape is reached, the SS and SR leads will be held off so that further requests for characters are ignored.

4.31 Figure 18 outlines the control interchange that permits the magnetic tape set to receive messages from a parallel interface terminal. With no alarm condition, and with the tape set conditioned into the receive mode by the associated terminal control logic, the tape set turns on its

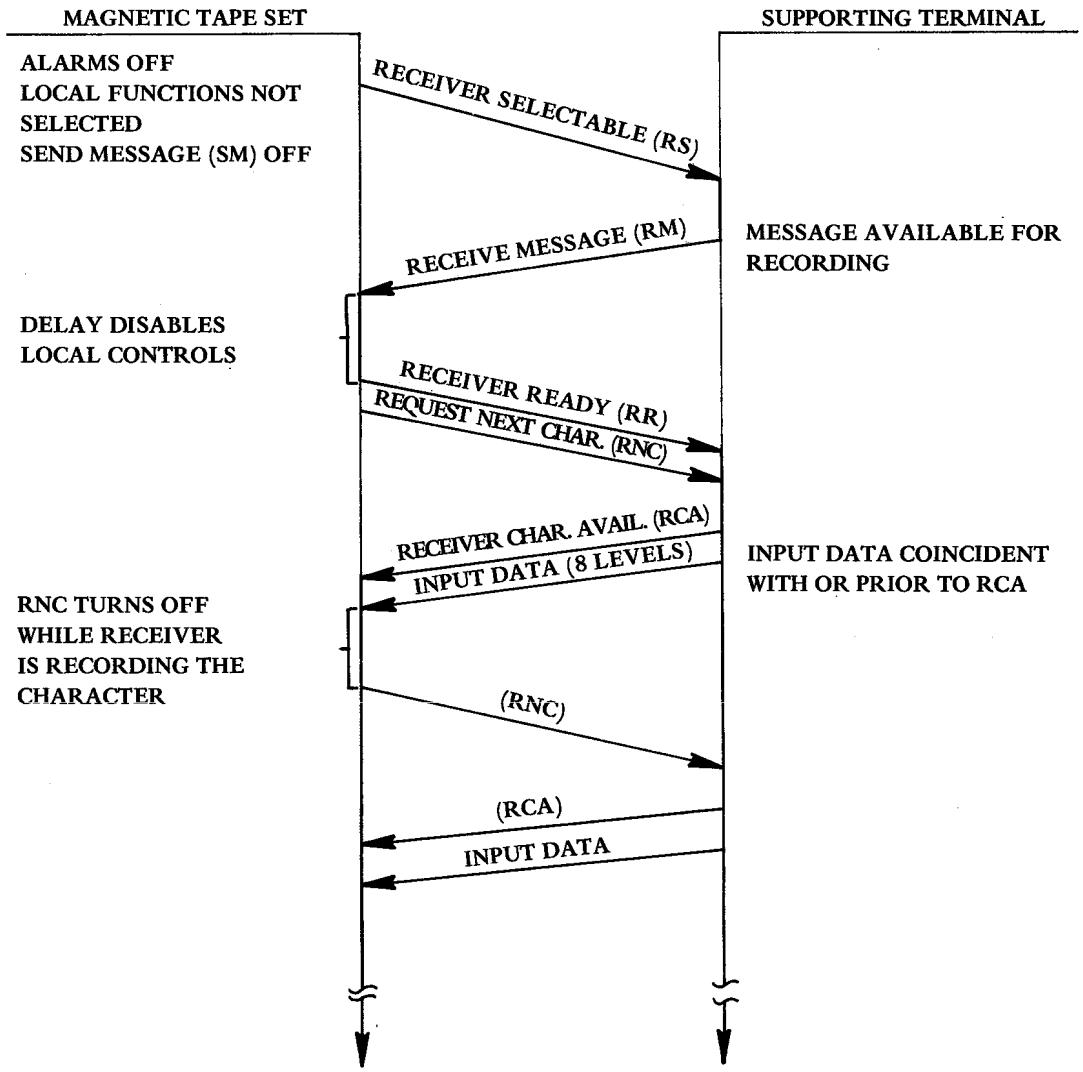


Figure 18 - Typical Receive Operation – Parallel Interface

Receiver Selectable (RS) lead. If the associated terminal has a message, it turns on its Receive Message (RM) lead. The tape set responds by turning on its Receiver Ready (RR) and Request Next Character (RNC) leads.

4.32 In response to a request for a character, the associated terminal places the character on its data leads and turns on its Receive Character Available (RCA) lead. The tape set turns off its RNC lead while it records the transmitted character. The cycle repeats for each character presented by the associated terminal.

4.33 When low tape is sensed by the magnetic tape set, data transfer is permitted to continue until end of tape at which time the RS and RR leads turn off to prevent any further requests for characters. If low tape is sensed before the receive mode is initiated, the RS lead is held off to inhibit the receive mode.

CDT INTERFACE

4.34 The magnetic tape set is interfaced to a Communications Display Terminal (CDT) through two circuit cards (TP322477 and TP322478) in the basic module, a Parallel Terminator Interface (PTI) accessory module, and a set of cables. The accessory module, which is mounted piggyback on the basic module, contains two circuit cards (TP322976 and TP322969) which adapt the voltage-sensitive parallel interface of the tape set to a current-sensitive signalling interface compatible with the related terminal.

4.35 The interconnections for this installation are shown in Figure 19. The accessory module connects to the basic module through a TP337446 cable assembly. The accessory module is connected to the external terminal by one of two cable assemblies, depending on the type of installation. If the tape set is used with a CDT only, a TP337448 cable assembly is used to connect the accessory module to the CDT. If the tape set is part of a cluster controller installation (a bank of CDTs controlled by a cluster controller), a TP337447 cable assembly is used to connect the PTI accessory module to the cluster controller and to the supervisory CDT of the installation.

4.36 Pin assignments for the signal leads of the TP337446 or TP337448 cable are indicated in Chart 6. For the TP337446 cable (used with a CDT only), the pin numbers are those of the PTI connector, which mates with an appropriate connector from the CDT. For the

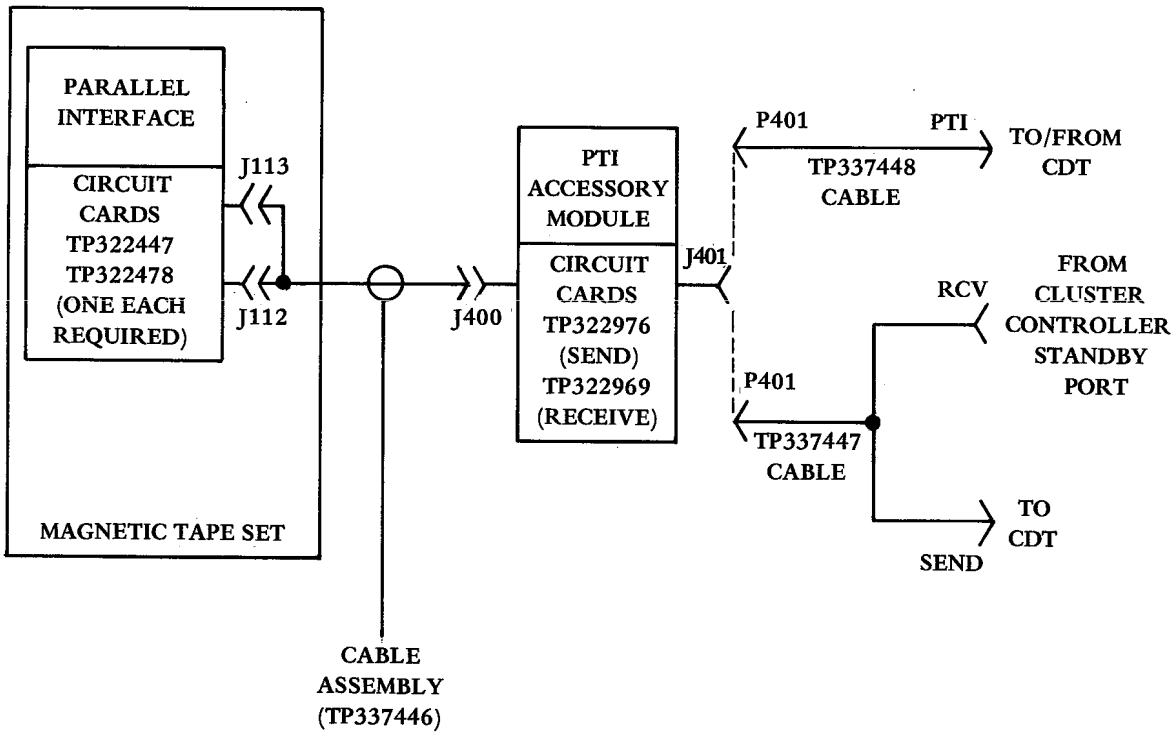


Figure 19 - Interconnection Diagram for Magnetic Tape Set to CDT or CDT/Cluster Controller

CHART 6

PIN ASSIGNMENTS ON CONNECTOR OF PTI ACCESSORY MODULE

PIN NO.	FUNCTION	ABBREV.	CONDITION
1	Receive Bit 1	RB1	Input Data Leads
2	Receive Bit 2	RB2	
3	Receive Bit 3	RB3	
4	Receive Bit 4	RB4	
5	Receive Bit 5	RB5	
6	Receive Bit 6	RB6	
7	Receive Bit 7	RB7	
8	Receive Bit 8	RB8	
9	Receiver Selectable	RS	Tape set is capable of being selected as a receiving device.
10	Receive Message	RM	Command from the CDT that the tape set is to be activated to receive data.
11	Receiver Ready	RR	Indication that the tape set has been selected to receive, and is ready to receive.
12	Request Next Character	RNC	Indication that the tape set is capable of accepting and recording a character when presented on its data leads.
13	Receive Character Available	RCA	Command from the CDT that a character has been presented on the receive data leads.
31	Send Bit 1	SB1	Output Data Leads
32	Send Bit 2	SB2	
33	Send Bit 3	SB3	
34	Send Bit 4	SB4	
35	Send Bit 5	SB5	
36	Send Bit 6	SB6	
37	Send Bit 7	SB7	
38	Send Bit 8	SB8	
39	Sender Selectable	SS	Tape set is capable of being selected as a sending device.
40	Send Message	SM	Command from the CDT that the tape set is to be activated to send data.
41	Sender Ready	SR	Indication that the tape set has been selected to receive, and is ready to receive.
42	Present Next Character	PNC	Command from the CDT that the tape set is to place a character on its data leads.
43	Send Character Available	SCA	Indication that the tape set has a character on its data leads.

TP337448 cable (used with a CDT and cluster controller), pins 1 to 13 are on the RCV connector to the cluster controller, and pins 31 to 43 are on the SEND connector to the supervisory CDT.

4.37 The voltage requirements for the data bits and control signals between the tape set and PTI accessory module are:

Data	Control	Voltage
1 (high)	Off	+5 v (+4.5 v to +5.5 v)
0 (low)	On	0 v (1.2 v max)

4.38 The corresponding current requirements between the PTI accessory module and CDT installation are:

Data	Control	Voltage
1 (high)	Off	No current (3 ma max)
0 (low)	On	Current (25 ma typical)

4.39 The signal interchange of Figure 17 is used to control the transfer of data when the tape set is serving as the sender. If there are no alarm conditions, the tape set turns on its Sender Selectable (SS) lead. This signal is applied to the PTI connector of a CDT only installation, or to the SEND connector of a cluster controller/CDT installation. When the CDT turns on the Send Message (SM) lead, the tape set responds by turning on its Sender Ready (SR) lead.

4.40 With SR on, the CDT requests a character by turning on the Present Next Character (PNC) lead. This command for a character is passed on to the tape set which advances the tape to the next character position, places a character on its data leads, and turns on its Send Character Available (SCA) lead. When the CDT detects the SCA lead on, it samples the character on the data leads and turns off PNC. This causes the tape set to turn off SCA. The next character is transferred in the same way when the CDT again turns on its PNC lead.

4.41 If the end of tape is reached, the SS and SR leads will be held off so that further requests for characters are ignored.

4.42 The signal interchange for receive operation of the tape set is illustrated in Figure 18. With no alarms, and with the tape set conditioned to the receive mode by the external terminal, the tape set indicates it is capable of receiving data by turning on the Receiver Selectable (RS) lead. The RS signal is applied to the PTI connector in a CDT only installation, or the RCV connector in a cluster controller/CDT installation. If the external terminal has a message, it turns on its Receive Message (RM) lead. Detection of RM on activates the tape set, which turns on its Receiver Ready (RR) and Request Next Character (RNC) leads.

4.43 The CDT (or cluster controller) places the character on the data leads, and turns on the Receive Character Available (RCA) lead. When the tape set detects RCA on, it samples the character on the data leads and turns off the RNC lead to indicate that a character is being recorded. When the tape set is ready for the next character, it turns on the RNC lead to begin another character transfer.

4.44 When low tape is sensed by the tape set, data transfer continues until end of tape at which time the RS and RR leads turn off to prevent any further requests for characters. If low tape is sensed before the receive mode is initiated, the RS lead is held off to inhibit the receive mode.

"DATASPEED" 40 SERIAL EIA INTERFACE

4.45 The DATASPEED Magnetic Tape Terminal is interfaced locally to a DATASPEED 40 Keyboard-Display (KD) or Keyboard-Display-Printer (KDP) through the use of a TP322484 circuit card in the tape terminal, seven TP344373 jumper straps to effect wiring changes in the tape terminal, and a TP344375 cable assembly to interconnect the tape terminal and the DATASPEED 40 Terminal (see Figure 20). The signals at the various connector pins of the cable assembly are listed in Chart 7.

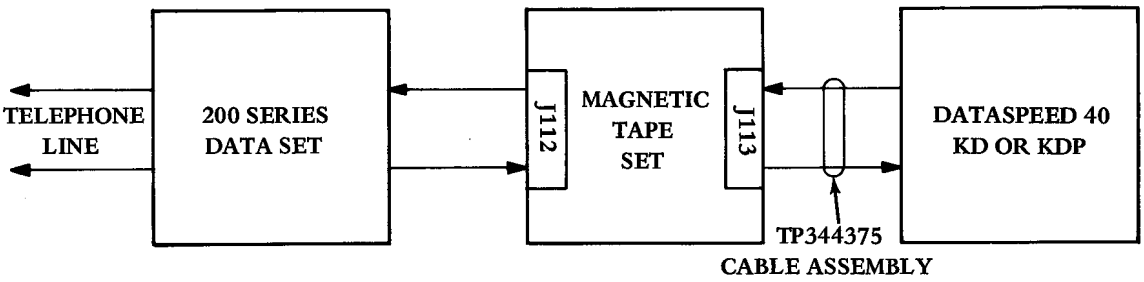


Figure 20 - Interconnection Diagram for Magnetic Tape Set to DATASPEED 40 KD or KDP Set for Off-Line Operation

4.46 Standard EIA voltages are used at the magnetic tape set for data and control functions. These functions are as follows:

Binary State	1	0
Signal Condition	Marking	Spacing
Control Function	Off	On
EIA Voltage	-3 v to -25 v	+3 v to +25 v
Normal Signal Voltage	0 v	+5 v

4.47 This station arrangement will enable a DATASPEED 40 KD or KDP to batch (accumulate) messages "off line" into a tape terminal for subsequent "on line" transmission or display. In addition, when used with a KDP, the tape terminal prevents data stacking. Therefore, an unlimited number of short lines can be received without the printer having to ignore the new line character and print the graphic characters serially, line after line, until the minimum line length or time fill is received.

4.48 In the LOCAL SEND mode and with the function selector switch in "A" position, the tape terminal will send locally when the DATASPEED 40 is in the RECEIVE mode. When the tape terminal reads a "GS," "ETX," or "EOT" character, it will inhibit transmitting these characters to the DATASPEED 40 (will hold steady MARK for duration of character). This will prevent the DATASPEED 40 from going to LOCAL. Thus, the DATASPEED 40 Printer will continuously print data from the tape terminal without stopping each time a "GS," "ETX," or "EOT" character is read. When the tape terminal reads a "DLE-EOT" character sequence, it will go out of the SEND mode and stop sending.

4.49 In the LOCAL SEND mode and the function selector switch not in "A" or "EOT" position, the tape terminal will send locally when the DATASPEED 40 is in the RECEIVE mode. When the tape terminal reads a "GS," "ETX," or "EOT" character, it will stop sending if the DATASPEED 40 is programmed to go to LOCAL (reverse channel off) and will restart sending when the DATASPEED 40 goes back to RECEIVE (reverse channel on). If the DATASPEED 40 is not optioned to go to LOCAL on these characters, the tape terminal will continue sending. When the tape terminal reads a "DLE-EOT" character sequence, it will go out of the SEND mode and stop sending. If the "EOT" switch position is selected, the tape terminal will stop on EOTs regardless of the DATASPEED 40 response.

4.50 In the LOCAL RECEIVE mode, independent of function selector switch position, the tape terminal, upon receiving a "DLE-EOT" character sequence, will record it and go out of the RECEIVE mode. All other characters will be recorded normally.

4.51 In the ON LINE AUTO mode, the tape terminal will go to the RECEIVE mode after sending an "EOT" character. It will stay in the RECEIVE mode after receiving an "EOT" character. The tape terminal will disconnect (turn off DATA TERMINAL READY to data set) and go to RECEIVE mode after sending a "DLE-EOT" sequence, or disconnect and stay in RECEIVE mode after receiving a "DLE-EOT" sequence.

4.52 In the ON LINE MANUAL mode, the tape terminal will go out of the SEND mode after sending an "EOT" character and out of the RECEIVE mode after receiving an "EOT" character and will hold connection (will not turn off DATA TERMINAL READY to data set). The tape terminal will go out of the SEND or RECEIVE mode after sending or receiving a "DLE-EOT" character sequence. Also, it will disconnect call (will turn off DATA TERMINAL READY to data set).

CHART 7

PIN ASSIGNMENTS ON CABLE CONNECTOR TO EIA INTERFACE OF "DATASPEED" 40 KD OR KDP

PIN NUMBER	FUNCTION	ABBREV
2	Send Data	SD
3	Receive Data	RD
4	Request to Send	RTS
5	Clear to Send	CTS
6	Data Set Ready	DSR
7	Circuit Common	CC
8	Carrier Detect	CD
11	Reverse Channel Send	RCS
12	Reverse Channel Receive	RCR
20	Data Terminal Ready	DTR
22	Ring Indicator	RI
* 23	Magnetic Tape Character Control	MTCC

*Special interface lead (non-RS232) – Use when DATASPEED 40 has an associated SSI printer.
+3 to +25 volts – Magnetic Tape SEND ON
-3 to -25 volts – Magnetic Tape SEND OFF

CUSTOMER PROVIDED EQUIPMENT INTERFACE

4.53 The DATASPEED Magnetic Tape Terminal equipped with the TP344374 serial EIA interface modification kit is capable of being interfaced locally to terminals other than a DATASPEED 40 (as shown in Figure 8). Any customer provided equipment (CPE) terminal, with a 1050 or 1200 baud rate, that interfaces to a 202C or 202S Data Set (RS-232-C) with reverse channel control of the sender, can be used.

4.54 In the 202S Data Set, no contact interfaces are provided as in 202C Data Sets. Also, the EIA Standard RS-232-C is met by having the signal Secondary Request to Send present at pin 19 (SCA). The same signal is present at pin 11 (SCA 1) to be compatible with 202C and 202D Data Sets.