

MANUAL Update

silent 700[®] electronic data terminals

Model 733 ASR/KSR Operating Instructions

USASCI! Code

MANUAL NO. 959227-9701
ISSUED 1 OCTOBER 1973

ADDENDUM

Please add the following sections to your copy of the Operating Instructions for the Silent 700[®] Model 733 ASR/KSR.

APPENDIX B MODEL 733 OPTIONS

B-4	Automatic Device Control (Revised)
B-6.3	Strap ETX-Character to Initiate Recording (Add)
B-7	Automatic Answer Control (Add)
B-8	Automatic Search Control (Add)
B-9	Remote Device Control (Add)
B-10	Numeric Keyboard (Add)
B-11	1200-Baud Transmit/Receive Interface (Add)



B-4 AUTO DEVICE CONTROL (ASR MODEL ONLY).

The Automatic Device Control (ADC) option (TI Part No. 971481) accommodates control characters DC1, DC2, DC3, DC4, and EOT. An earlier version of the ADC (TI Part No. 960891) accommodates control characters DC1, DC2, DC3, and DC4 only. When the DC1, DC2, DC3, or DC4 are received from the communication line or generated by the terminal keyboard, the record and playback tape transports respond as follows:

<u>Full ASCII Keyboard</u>	<u>Standard ASCII Keyboard</u>	<u>Action</u>
DC1	(X-ON)	Playback ON
DC2	(TAPE)	Record ON
DC3	(X-OFF)	Playback OFF
DC4	(TAPE)	Record OFF
*EOT		Disconnect

When the playback transport reads a DC3 (playback OFF) character, the next character after the DC3 is read and transmitted before the playback transport is stopped (unless the DC3 character is the last character within the block, in which case the transport stops reading and transmitting immediately after the DC3 character).

On terminals equipped with the Auto Device Control option, consult Section B-9.1 for recording precautions concerning data terminals which do not have the ETX option (Section B-6.3) implemented.

NOTE

In local operation all keyboard data is ignored while the playback transport is ON. This means the DC3 control character cannot be generated from the keyboard to switch OFF the playback transport. The playback cassette will be stopped either by pressing the playback control (CONT) STOP or by reading a DC3 character on tape.

An ADC ON/OFF switch (on the new version only), accessible through the lower unit card cage cover, permits disabling of all functions (except EOT decode, for auto disconnect with Auto Answer Control option, Part No. 960885). This feature is particularly useful when recording

*The EOT function is operable on terminals equipped with both the Auto Answer Control option (TI Part No. 960885) and the latest version of the ADC option (TI Part No. 971481).

tapes in which the DC1, DC2, DC3, and DC4 characters are to be recorded (i.e. format tapes, tape duplication).

It is possible for the Automatic Device Control to ignore or respond to the DC1, DC2, DC3, and DC4 characters coming from received, transmitted, or local data. These options are implemented by pencil switches on the new ADC PC card (971481) or by strappable resistors on the older version (960891). To implement these enabling options, see Table B-4.1 (new version) or Table B-4.2 (earlier version) as appropriate.

The Automatic Device Control is valuable for recording or playing back tapes from an unattended data terminal. Unattended operation is possible on terminals equipped with the Automatic Answer Control option. Before leaving the terminal unattended, set up the terminal as follows:

- a. REWIND and LOAD the cassette to be recorded (must have write tab installed).
- b. REWIND and LOAD the cassette to be played back.
- c. Select the desired TAPE FORMAT (CONT or LINE).
- d. On the ASR lower switch row the recommended settings are:
 - (1) KEYBOARD to OFF
 - (2) PLAYBACK to LINE
 - (3) RECORD to LINE
 - (4) PRINTER to LINE or OFF as desired.
- e. Set the terminal ON LINE/OFF switch to ON LINE.

On single-cassette ASR models, the tape may be only recorded or played back, depending upon the mode selected before leaving the terminal unattended.

It is recommended that the cassette being read (played back) be made a read only tape by removing the write tab for that side (see paragraph 4-4.1).

The terminal may be programmed to respond to the control character EOT only if the Automatic Answer Control

option is installed in the data terminal. Upon receipt of the EOT control character, the terminal will be disconnected from the communications line.

For further information on the Automatic Device Control option, refer to the Silent 700 Models 732/733 Maintenance Manual (TI Manual No. 960129-9701).

TABLE B-4.1. AUTO DEVICE CONTROLLER ENABLING OPTIONS
(for Part No. 971481)

Control Function	Enabling Switch Section		
	To Enable When Transmitting	To Enable When Receiving	To Enable When in Local
DC1, DC3 (Playback ON/OFF)	S2-1 (DC3 only)	S2-2	S2-3
DC2, DC4 (Record ON/OFF)		S2-4	S2-5

NOTE

Control characters DC1 through DC4 function in the selected operating modes shown above. Close the appropriate switch section on S2 to enable the corresponding function. When the ADC ON/OFF switch is in the OFF position, all ADC functions are disabled except the automatic disconnect on receipt of the EOT character (if the Auto Answer Option is installed).

TABLE B-4.2. AUTO DEVICE CONTROLLER (EARLIER MODEL) ENABLING OPTIONS
(Part No. 960891)

Control Function	To Enable When Transmitting	To Enable When Receiving	To Enable In Local
DC1 (Playback ON) Resistor Between	R1 J1-J2	R2 J3-J4	R3 J5-J6
DC2 (Record ON) Resistor Between	R7 J13-J14	R8 J15-J16	R9 J17-J18
DC3 (Playback OFF) Resistor Between	R4 J7-J8	R5 J9-J10	R6 J11-J12
DC4 (Record OFF) Resistor Between	R10 J19-J20	R11 J21-J22	R12 J23-J24

NOTE: All resistors are 10 ohm, 0.25 watt, 5 %.

B-6.3 STRAPPABLE ETX CHARACTER TO INITIATE RECORDING. The optional Dual-Format Record Buffer PC card (962285-0001) may be strapped to permit use of the ASCII ETX control character to initiate tape recording of the contents of the record buffer when the TAPE FORMAT switch is set to CONT. The ETX control character then serves to initiate recording in CONT format the same as the carriage return code does in LINE format.

When transmitting on-line in the CONTInuous tape format, it is important to send the ETX character last in the data stream, just before the DC4 character, to ensure that all transmitted data will be recorded on tape.

The ETX option may be enabled by removing R8 (10 ohms) between J3 and J4 on the Dual Format Record Buffer PC card (position XA-5, upper unit) and reinstalling R8 as R13 between J1 and J2. No tools are required to move R8.



B-7 AUTO ANSWER CONTROL (300 BAUD).

The Auto Answer Control option (TI Part No. 960984) permits a 300 baud terminal to automatically answer a call through the Bell System DDD network. Two versions of this option provide interface to either a Bell CBS Data Access Arrangement (or equivalent) with the Answer Mode Modem option or a Bell 103A Data Set (or equivalent) with Auto Answer Control. The two versions require different interface cables. This option offers the following features:

- * (1) Automatic triggering of the Answer-Back Memory (if installed) when the call is answered. The Answer-Back Memory is triggered after a standard delay of 1.28 seconds from the carrier detect, but the delay can be adjusted by installing a 10-ohm resistor jumper between the points listed in Table B-7.1.
- (2) The terminal is automatically disconnected from the line, and the data line is blinded from receiving or transmitting any further data if any of the following conditions occur.
 - (a) A carrier from the originating station is not received within 10 seconds after a call is answered.
 - (b) The carrier from the originating station is lost for at least 50 msec during a call.
 - (c) The disconnect character (usually EOT) is received from the originating station [if a Remote Device Control or an Automatic Device Control (971481) option is installed].
 - (d) A continuous space of at least 1.28 seconds without a mark is received from the originating station.
- (3) Indicator lamps on the keyboard option panel display the following:

RING INDICATOR: blinks 2 seconds on and 4 seconds off with the ringing indicator of the 103A or DAA (or equivalent). The indicator glows steadily after the call is answered until the carrier is received from the originating station.

TERMINAL READY: illuminates when the terminal ON-LINE/OFF switch is set to ON-LINE, indicating that the terminal will answer an incoming call.

LINE-READY: illuminates when the terminal has answered the call, received the carrier from the originating station, and is ready to transmit or receive.

The interface signals for both versions of the Auto Answer Control option are compatible with EIA Standard RS232C. The interface cable pin assignments and functions are listed in Tables B-7.2 and B-7.3. Operation with either the DAA or 103 series is selectable as follows:

	<u>Install</u>	<u>Remove</u>
To implement with the DAA	R2	R1
To implement with the 103	R1	R2

TABLE B-7.1. ANSWER-BACK MEMORY TRIGGER DELAY ADJUSTMENTS

Delay	Install ¹ Resistor	Between
10.24 sec	R15	J10 & J16
5.12 sec	R16	J9 & J14
2.56 sec	R17	J8 & J1
1.28 sec	R18 ²	J7 & J15
640 msec	R19	J6 & J17
320 msec	R20	J5 & J15
160 msec	R21	J4 & J14
80 msec	R22	J3 & J1
0.6-1.9 msec	R23	J2 & J16

NOTES

- ¹ Only one 10-ohm resistor is installed.
- ² R18 is standard setting for trigger delay.

*Requires either an RDC (971483 M/L, 973901 M/W) PC card or an ADC (971481) PC card.

TABLE B-7.2. 300 BAUD AUTO ANSWER CONTROL PIN ASSIGNMENTS AND FUNCTIONS
FOR THE 103A SERIES (OR EQUIVALENT) DATA SETS
(CABLE, TI PART NO. 971555-0001)

Connector Pin Numbers		Pin Function
Data Terminal	Data Set	
A	1	Protective GND ¹
H	2	Transmitted Data ²
10	3	Received Data ³
8	5	Clear to Send ³
9	6	Data Set Ready ³
7	7	Signal GND ¹
K	8	Carrier Detect ³
E	20	Data Terminal Ready ²
D	22	Ring Indicator ³

NOTES

1. Common Signal From both Terminal and Data Set
2. Signal From Terminal
3. Signal From Data Set

TABLE B-7.3. 300 BAUD AUTO ANSWER CONTROL PIN ASSIGNMENTS AND FUNCTIONS
FOR THE CBS-DAA SERIES (OR EQUIVALENT) DATA COUPLERS*
(CABLE, TI PART NO. 971557-0001)

Terminal Pin No.	Wire Color at Spade Lug	DAA Terminal Lugs	Description
7	Black	SG	Signal Ground
E	Red	OH	Off Hook
D	Green	RI	Ring Indicator
5	White	CCT	Coupler Cut Through
6	Brown	DA	Data Transmission
C	Orange	DT	Data Tip
3	Yellow	DR	Data Ring
4	Blue	SH	Switch Hook

*Used only with built-in internal Answer Modem option.

B-8 AUTOMATIC SEARCH CONTROL.

The Automatic Search Control (ASC) option provides the capability to search a cassette tape for previously recorded data, using from 1 to 16 printable characters as an identity code. The search rate depends on which of various configurations and modes is used. The minimum rate* is 250 characters per second (CPS).

B-8.1 LOCAL ASC OPERATION.

B-8.1.1 Initiating a Search. To initiate automatic tape search in local standalone operation, prepare the data terminal as follows.

- a. On the ASR switch panel lower row, set
 - (1) KEYBOARD to LOCAL
 - (2) PLAYBACK to LOCAL
 - (3) *RECORD to OFF
 - (4) PRINTER to LOCAL.
- b. Insert the cassette to be searched into the cassette 1 transport, rewind and load, and set the RECORD/PLAYBACK switch to PLAYBACK for that cassette.
- c. Press the ESC key and then the \$ key. The data terminal will respond with a line feed and a carriage return.
- d. Type in the information to be located on the playback cassette. This information is stored in a memory on the ASC PC card and must be from 1 to 16 printable ASCII characters in length. This information becomes the search identity (ID); it will be retained in memory until a new ID is entered or POWER is switched OFF. If more than 16 printable characters are entered, the printer is automatically inhibited and the memory retains only the first 16 printable characters entered.

Control characters, including carriage return and line feed, are ignored if entered in the search ID or in the data on tape. The search ID must be information known to be recorded on the cassette tape (e.g., name, part number, account number, header, trailer, etc.) including

spaces and punctuation. When the tape cassettes are recorded, it is useful to give each file (record) a header which can later be used as the search ID. Be sure the header is from 1 to 16 printable characters in length and is unique from all other data on the tape.

- e. Start the search using one of the following methods:
 - (1) Press CONT START; this causes the cassette to be searched continuously.
OR
 - (2) Press BLOCK FWD; this causes the cassette to be searched one data block each time the switch is pressed.
OR
 - (3) Terminals equipped with the Automatic Device Control (ADC) option or the Remote Device Control (RDC) option may use the DC1 (X-ON) control character entered from the keyboard to start the search. This produces the same action as pressing CONT START. Depending on the intended use of the data terminal, the ADC or RDC options may have been set to ignore the DC1 (X-ON) control character in the local mode of operation (a selectable option). This precludes starting a search from the keyboard; the search must be started by pressing CONT START.

The printer is inhibited and the DC1 through DC4 functions are ignored while the playback cassette is being searched. When the desired data is located on the tape, the terminal responds with a line feed and a carriage return, and the terminal enables the printer and stops the playback cassette.

- f. To play back the searched-for data:
 - (1) If the search ID selected occurs just before the desired information, press CONT START (or BLK FWD or CHAR FWD). The search process halts when the last character of the search ID is located,

*In the local mode the search rate is contingent on the record status; i.e., if record is ON-LINE and READY, the search rate is maximum (326 CPS). For all others (i.e., record *not* ON-LINE and READY) the search rate is a maximum 250 CPS.

and in this case the desired information will be readily available from the tape.

- (2) If the search ID selected was part of the desired data, press BLOCK REV several times (this ensures that most of the data will be printed, since the data may be contained in more than one consecutive block). Then press CONT START, BLOCK FWD, or CHAR FWD as desired.

B-8.1.2 Reinitiating a Search. If the desired data is contained on the playback cassette more than once, it is not necessary to re-enter the search ID. The search may be restarted simply by entering the activate code (ESC and \$), and then press CONT START, BLOCK FWD, or CHAR FWD as desired.

B-8.1.3 Termination of a Search. To terminate a search, press the BREAK key*. The ASR will respond by causing a line feed and a carriage return. The cassette in the playback mode will stop, and the printer will be automatically activated. The contents of the ASC memory will not be altered.

B-8.1.4 Tape Editing and Duplication. The ASC is a very useful and time-saving aid in editing and duplicating tapes. Editing is faster with ASC since it is not necessary to stop the play back and approach the error using BLOCK FWD's and CHAR FWD's as in the conventional method of editing tapes (described in Section 5-1.7). Tape duplication at the full search speed is possible while a search is in progress. Tape editing is easier if the tape is recorded in LINE tape format and the duplicate (copy) tape also is recorded in LINE tape format. If desired, a CONTinuous format tape can be recorded after editing is complete. This procedure is described in Section 5-1.5.

To duplicate and edit proceed as follows:

- a. Complete steps B-8.1.1 a. and b.
- b. Insert a blank tape cassette (with write tabs in place) into the CASSETTE 2 transport. (CASSETTE 1 can be used, but CASSETTE 2 is described to simplify the explanation.)

- (1) Press CASSETTE 2 REWIND.

- (2) When the END lamp lights, press LOAD/FF. The READY lamp should light after a few seconds.

- c. Set the TAPE FORMAT switch to LINE.
- d. Enter the activate code: ESC and \$.
- e. Type in the search ID. For editing purposes the search ID can be the desired text identifier.
- f. Press the RECORD CONTROL/ON switch. The ON lamp should light.
- g. Press CONT START. CASSETTE 2 will duplicate CASSETTE 1 while the search is in progress. The DC1 (X-ON) character should not be used to start the search because the character will be recorded on the tape.
- h. When the search ID is located on the playback cassette (CASSETTE 1), the data terminal will respond with a line feed and a carriage return.
- i. Press the RECORD CONTROL/PRINT switch. This will cause display and printing of the contents of the record buffer. The search ID characters will be the last characters printed. For example, suppose the search ID was a misspelled word; therefore, the last word printed is misspelled. The TAPE (backspace) key can be pressed as many times as necessary until the printhead moves back just over the incorrect character. The correct character(s) can then be typed in. The TAPE (forward space) key is pressed to return to the point where the printing was stopped. Pressing BLOCK FWD will put the remainder of that line in the record buffer and on tape the same as the carriage return character. If more editing is necessary, press RECORD CONTROL/OFF. Repeat the above process, starting with entering the activate code (step d. above), until editing is complete. When the last error is corrected, normal duplication procedures, as described in section 4-9.1 may be used to complete the duplication process.

*More than one line feed may result from pressing the BREAK key because of key switch contact bounce; however, no other operations are affected.

For another example, suppose the search ID is a word to be eliminated from the text. The TAPE (backspace) key is repeatedly pressed until the printhead just covers the first letter of the word. Pressing BLOCK FWD will cause the remainder of the line to be printed and recorded after a carriage return on the duplicate tape (cassette 2). The resulting line on cassette 2 will have the word eliminated.

B-8.1.5 Tape Search Abort. A search in progress will be automatically and unconditionally terminated if any of the following conditions occur.

- a. The data cassette in the PLAYBACK mode reaches clear leader.
- b. The cassette door is opened.
- c. The status of the cassette in the PLAYBACK mode is changed; i.e., switched to OFF or LINE.

B-8.1.6 Playback Errors During a Search. The following indications and actions occur when the cassette under search encounters a playback error.

- a. If the stop-on-error option is implemented on the Playback Control PC card, when an error occurs the ERROR lamp on the upper panel will glow and the tape will stop on the error block until the error is cleared. The error can be cleared only from the ASR (upper unit) control panel. The error is cleared as follows:

- (1) Press CONT START; this will cause the block in error to be fully read and searched with the possibility of missing the desired data which may be contained in the error block.

OR

- (2) Press BLOCK FWD; this will cause the ASR to read and search the *next* sequential block, bypassing the error block. Again, the possibility of missing the desired data exists.

OR

- (3) Press BLOCK REV, then press BLOCK FWD or CONT START; the block-in-error will be reread, and the data will be recovered if the error is not permanent.

- b. If the stop-on-error option is not implemented, the error block will be searched and the possibility of missing desired data exists if it is contained in the error block.

B-8.2 REMOTE ASC OPERATION. When the data terminal is equipped with both the ASC and the Remote Device Control (RDC) options, the ASC also may be activated by data received over the communications line. Usually, this data is transmitted to the terminal by a computer (CPU) or another data terminal.

B-8.2.1 Local Preparation. The RDC permits remote selection of cassette 1 or cassette 2 in the playback mode. It also will activate rewinding and loading of the cassettes. The conditions necessary at the *local* terminal to permit search by a remote controller are the following.

- a. On the ASR (upper unit) switch panel, set
 - (1) KEYBOARD to OFF
 - (2) PLAYBACK to LINE
 - (3) RECORD to LINE
 - (4) PRINTER to LINE
 - (5) Terminal ON LINE/OFF to ON LINE
- b. Place cassette(s) to be searched in the tape transport(s).
- c. Switch the RDC to ON (it must be enabled to respond to DC1 on received data).

The terminal will then permit a remote tape search.

B-8.2.2 Conducting a Search from a Remote Location. The controlling device may request status of the terminal if desired (see the Remote Device Control instructions in Section B-9 for the procedure to request status of a terminal and the interpretation of the status characters). The cassette tape to be searched must be loaded and ready before the search can begin. If the status is not correct for a search to be conducted, consult the Remote Device Control operation instructions (section B-9) and perform the steps necessary to load and ready the tape cassette to be searched.

- a. The search is activated upon receipt of the ESC and \$ signals by the terminal via the communication line.

CAUTION

To ensure that the status character does not become a part of the search ID, always request status either before transmitting ESC and \$ or after the search is initiated.

- b. The search ID is entered via the communication line. This may be from 1 to 16 printable characters in length. The search ID may be selected as described in Section B-8.1.

NOTE

Control characters (including carriage return and line feed) entered in the search ID field are ignored.

- c. The X-ON (DC1) character then is entered via the communication line. The search will then be conducted. During the search all control characters are ignored.

NOTE

A character-by-character or block-by-block search cannot be performed from a remote location.

- d. The controlling device may determine if the search is complete by requesting status as described in Section B-9.4. Bit 7 (playback ON) of the status character indicates the status of the search. When it is a logic ONE, the search is complete. When Bit 7 is a logic ZERO, the search is being conducted.

NOTE

The RDC is normally set up to force bit 7 to a logic ONE when status is requested. This switch-selectable option must be ON for the playback-ON feature of the status character to be enabled (see Section B-9.4).

No indication will be given at the searched terminal (i.e., no line feed and carriage return) when the search is completed.

- e. When it is determined that the search is completed, the two-character control code for block reverse (DLE and 8) is entered. The block

reverse should be performed several times to ensure that all desired data is transmitted.

NOTE

Data should normally be recorded on tape so that one BLOCK REV is sufficient, or the desired data may be recorded immediately after the search ID so that only a CONT START or BLOCK FWD is necessary.

- f. The desired data is now located, and it may be played back as desired (i.e., CONTinuously or a block at a time; see the RDC instructions, Section B-9, for command codes).

B-8.2.3 Reinitiation of Remote Search. The tape cassette may be searched again for the same data (using the same search ID) by receipt of ESC, then \$, and then DC1 (X-ON) via the communication line.

B-8.2.4 Termination of a Remote Search. The operator (or CPU) controlling the remote-search may cancel the search while it is being executed. This is accomplished by transmitting the DLE character and the ? character via the communication line. This action causes termination of the remote search. No indication of search cancel is given at the searched terminal (i.e., no line feed and carriage return).

A new search ID may be entered (following ESC, \$) if desired. Rewind and load the playback cassette if the desired data has passed during the previous search.

B-8.2.5 Tape Duplication. Remote control of the tape duplication process is not possible.

B-8.2.6 Tape Search Abort. The search in progress, regardless of mode or configuration, will be automatically and unconditionally terminated if any of the following conditions occur.

- a. The data cassette in the playback mode reaches clear leader.
- b. The data terminal is switched OFF-LINE while a remote search is in progress.
- c. The cassette door is opened.
- d. The status of the cassette in the playback mode is changed; i.e., switched to OFF or LOCAL.

B-8.2.7 Playback Error During Search. The error status and indications for the ASC with RDC in on-line mode are as follows:

- a. If the stop-on-error option is implemented and an error occurs during a search, the playback cassette will be stopped immediately and the CAN character will automatically be transmitted to the line (if the CANcel option is implemented on the RDC card). The responsibility for clearing the error belongs to the search initiator.

The methods used to clear the error in the remote mode are identical to those used in the local mode, but instructions to the terminal are transmitted by codes defined in the Remote Device Control operators instructions (see Section B-9).

- b. If the stop-on-error option is not implemented, the search will continue, and the possibility exists that the error block may contain the desired data. Again, the RDC will unconditionally transmit the CAN character if this option is implemented on the RDC PC card.

B-9 REMOTE DEVICE CONTROL.

The Remote Device Control (RDC) option permits a remote device to control the functional operating modes of the Model 733 ASR Data Terminal. All functions controlled by the Remote Device Control are performed upon receipt of specific ASCII characters. Five functions are controlled by single ASCII characters; the remaining functions require a sequence of two ASCII characters.

B-9.1 REMOTE DEVICE CONTROL COMMANDS. The single-character functions and the standard characters to activate these functions are as follows.

Function	Character
1. PLAYBACK ON	-DC1 (X-ON)
This code switches ON the Playback Control if the playback cassette transport is READY.	
2. PLAYBACK OFF	-DC3 (X-OFF)
This code switches OFF the Playback Control. When the playback transport reads a DC3 (X-OFF) character, the next character after the DC3 is read and transmitted before the	

playback transport is stopped. If the DC3 character is the last character within the block, the transport stops reading and transmitting immediately after the DC3 character.

- 3. RECORD ON -DC2 (TAPE)
This code switches ON the Record Control if the record cassette transport is READY.
- 4. RECORD OFF -DC4 (TAPE)
This code switches OFF the Record Control. The DC4 character will be the last character in the record buffer. All characters following the DC4 will be written into the same buffer location (overpunched). Thus, it is impossible to predict the resulting character. It is recommended that a RUBOUT (DEL) be sent following the DC4 to ensure the overpunched character will not cause subsequent system problems.

NOTE

The contents of the record buffer are not recorded on the cassette tape when the RECORD OFF (DC4, TAPE) command is received. When recording in LINE tape format, a carriage return will ensure that the data is recorded on the cassette tape. When recording in CONTinuous tape format, it is recommended to send at least 86 filler characters, usually delete (DEL), to the terminal after the last data entry and before the RECORD OFF (DC4) command is transmitted. If the terminal is equipped with the ETX option (described in section B-6.3) and the terminal is recording in CONTinuous tape format, the following procedure is recommended. After the last data entry, the ETX character should be sent to initiate recording the final contents of the buffer on tape.

The playback ON/OFF and/or record ON/OFF functions can be enabled or disabled from local, received, or transmitted data by switches located on the RDC printed circuit card. The functions of these switches are listed in Table B-9.1. All other functions are enabled on received-data only.

NOTE

DC3 is the only control character acted upon during transmission.

TABLE B-9.i. RDC SWITCH OPTIONS

Switch S2	Description
1	Enable DC2 and DC4 in LOCAL
2	Enable DC2 and DC4 from received data
3	Enable DC1 and DC3 in LOCAL
4	Enable DC1 and DC3 from received data
5	Enable DC3 from transmitted data
6*	Enable playback OFF indicator to bit 7 of status character
7*	Enable automatic CAN character on playback error option

*These functions are normally disabled (switch in OFF position).

5. Auto Disconnect -EOT
 When used with the 300-baud Auto Answer Control option, this code disconnects the terminal from the communication line (i.e., 'hangs up the phone') when the EOT character is received from the line.

The remaining functions require a sequence of two ASCII characters. The first character of the sequence is the data link escape control character (DLE).

NOTE

The printer is automatically disabled from printing the first character following the DLE character. Data to the recorder is not affected.

All two-character functions are enabled from *received data only*. The two-character functions and the *second* character of the code sequence are the following:

- | Function | Characters (DLE plus . . .) |
|---|-----------------------------|
| 1. Rewind Cassette 1 | -1 |
| This code rewinds cassette 1 to the clear leader at the beginning of the tape when the character sequence DLE and 1 is received. If a rewind is issued for cassette 1 and it is already on clear leader, the RDC is automatically disabled (including EOT decode) for 1.5 seconds. The RDC is not disabled if cassette 1 was not on clear leader. | |
| 2. Rewind Cassette 2 | -2 |
| This code rewinds cassette 2 (dual-cassette models only) to the clear leader at the beginning of the tape when the character | |

sequence DLE and 2 is received. If a rewind command is issued for cassette 2 and it is already on clear leader, the RDC card is automatically disabled (including EOT decode) for 1.5 seconds. The RDC card is not disabled if cassette 2 was not on clear leader.

- | | |
|--|----|
| 3. Load Cassette 1 | -3 |
| When the character sequence DLE and 3 is received, cassette 1 is loaded if on BOT clear leader. If cassette 1 is not on clear leader when this command is received, a fast forward (F/F) will result. If the cassette is on EOT clear leader when the command is received, no action occurs. | |
| 4. Load Cassette 2 | -4 |
| When the character sequence DLE and 4 is received, cassette 2 is loaded if on clear leader (dual-cassette models only). If cassette 2 is not on clear leader when this command is received, a fast forward (F/F) will result. If the cassette is on EOT clear leader when the command is received, no action occurs. | |

NOTE

A fast forward CANNOT be stopped by a remote command. The fast forward will stop when clear leader is reached at the end of the tape.

- | | |
|--|----|
| 5. Cassette 1 in Record Mode | -5 |
| On all models the character sequence DLE and 5 places cassette 1 in the record mode. On dual-cassette models this command also | |

automatically places cassette 2 in the playback mode.

6. **Cassette 1 in Playback Mode** -6
On all models the character sequence DLE and 6 places cassette 1 in the playback mode. On dual-cassette models, this function also automatically places cassette 2 in the record mode.

CAUTION

To prevent either loss of data intended for recording or a resultant read error, allow at least 0.5 second for the first block following a load command and 0.25 second for all other blocks before issuing a RECORD/PLAYBACK mode change (i.e., DLE 5 or DLE 6). The RECORD/PLAYBACK mode change command (DLE 5 or DLE 6) is ignored if the RECORD and/or PLAYBACK is ON when the command is received. When recording in CONTinuous tape format, do not use these commands unless the ETX option is enabled, because any data in the record buffer will be lost.

7. **Block Forward (BLOCK FWD)** -7
This code causes the next block of data on the playback cassette to be read and played back (or the remainder of a block if the playback of that block has been stopped).
8. **Block Reverse (BLOCK REV)** -8
This code causes the playback tape transport to reverse one block of data and stop in the interrecord gap. This action consumes 0.4 second.
9. **Printer ON** -9
This code enables the printer to receive data from the communications line (if the printer is in the LINE mode) after having been disabled (number 10 below).
10. **Printer OFF** -0 (zero)
When the terminal receives the character sequence DLE and 0 (zero) from the communications line, the printer is disabled from printing (receiving) line data. If the character sequence is received when the printer

is in either the LINE or LOCAL modes the printer is disabled in the LINE mode only. This function is reset and reverts to the printer-ON condition when the terminal is switched OFF LINE, when the power is turned OFF, or when the RDC PC card is switched OFF.

11. **Auto Device Control ON** -: (colon)
This code enables the playback ON, playback OFF, record ON, and record OFF functions on received data after having been disabled by the Auto Device Control OFF function (number 12 below).
12. **Auto Device Control OFF** -; (semicolon)
This code disables the playback ON, playback OFF, record ON and record OFF functions (on received data only). This function is particularly useful when recording data from the line containing the playback ON/OFF or record ON/OFF characters (DC1, DC2, DC3, and DC4). This function is reset and reverts back to the ON condition when the terminal is switched OFF LINE, power is switched OFF and ON, or the RDC PC card is switched OFF.
13. **Request Status** < (less-than symbol)
This code enables the terminal to send a status character. It is particularly useful in determining when a rewind, load, etc. function has been completed. See paragraph B-9.4 below for an interpretation of status characters.
14. **ASC Remote Cancel** -? (question mark)
When used with the Automatic Search Control option, this code cancels a remote search once it has been started. This is the ON-LINE equivalent to the local search operation BREAK key. During an on-line search, the DC3 (playback OFF) control character is ignored if encountered. No data is transmitted during an on-line search except status (if it has been requested) or the CAN character if a playback error is made and the CAN character option is enabled.

B-9.2 LOCAL OPERATION. In the local (off-line) mode of operation, the only functions the RDC can execute are the following:

Playback ON	-DC1 (X-ON)
Playback OFF	-DC3 (X-OFF)
Record ON	-DC2 (TAPE)
Record OFF	-DC4 (TAPE)

The conditions recommended for using the Remote Device Control in the local mode are

- (1) *RDC switch to ON
- (2) KEYBOARD to LOCAL
- (3) PLAYBACK to LOCAL
- (4) RECORD to LOCAL
- (5) PRINTER to LOCAL (if desired).

NOTE

When the playback is ON (playback ON lamp illuminated) and the keyboard is in the same mode as the playback (i.e., LINE or LOCAL), the keyboard is "locked out" and all data from the keyboard is ignored.

B-9.3 INITIAL SETUP. All functions (except EOT) of the RDC may be either enabled or disabled via a switch accessible under the terminal cover. When this switch is in the ON position, all functions are enabled. When this switch is in the OFF position, the auto disconnect (EOT) is the only function enabled.

The conditions recommended to permit a 733 ASR Data Terminal to be controlled by a remote device are the following:

- (1) *RDC switch to ON
- (2) KEYBOARD to OFF
- (3) PLAYBACK to LINE
- (4) RECORD to LINE
- (5) PRINTER to LINE
- (6) Terminal ON LINE/OFF switch to ON LINE
- (7) Tape cassette(s) in the transport(s)
- (8) DC1 through DC4 functional pencil switches on the RDC PC card enabled to line data (received and/or transmitted data) as listed in Table B-9.1.

NOTE

Remote commands to the terminal must allow adequate time between commands to permit execution of each command. For example, a cassette-1 rewind command (DLE plus 1) cannot

immediately be followed with a load cassette-1 command (DLE plus 3). If cassette 1 has not completed the rewind, the load command is ignored. See Table B-9.2 for a list of command execution times.

Status may be requested at any time except for 1.5 seconds after a rewind command with the cassette on clear leader. This is useful if the remote controller is uncertain a command has been completely executed (e.g., rewind).

B-9.4 RDC STATUS CHARACTERS. The status character transmitted by the terminal as a result of a status request command is a single ASCII character, the data bits of which indicates the status of the playback, record, and printer functions.

B-9.4.1 Status Character Bits. The status information indicated by each bit of the status character is as follows:

Bit 1 — (Least significant bit) indicates that the playback function is ready when bit 1 is a logic ONE. If bit 1 is a logic ZERO, playback is not ready for one or more of the following reasons:

- (1) Cassette door open or cassette not in place.
- (2) Cassette on clear leader.
- (3) Playback not in LINE mode.
- (4) Other operations being performed (i.e., rewind and load).

Bit 2 — indicates a playback error has been made if bit 2 is a logic ONE. A logic ZERO indicates a playback error has not been made. If the playback is strapped to *not* stop on an error, bit 2 will indicate a ONE only while a block with an error is being (or waiting to be) transmitted.

NOTE

A playback error may be cleared either by using the remote control codes or locally by using the manual controls; i.e., playback ON, BLOCK REV, or BLOCK FWD (see Section 4-8).

*The RDC ON/OFF switch is labeled ADC ON/OFF on the PC card rack cover.

Bit 3 – indicates cassette 1 is on the clear leader at either end of tape if bit 3 is a logic ONE. A logic ZERO indicates cassette 1 is not on clear leader.

Bit 4 – same as bit 3 except applied to cassette 2.

Bit 5 – indicates that the record function is ready to be enabled with the record-ON function when bit 5 is a logic ONE. If bit 5 is a logic ZERO, record is not ready for one or more of the following reasons:

- (1) Cassette door open or cassette not in place.
- (2) Cassette on clear leader.
- (3) Record not in LINE mode.
- (4) Other operation being performed (i.e., rewind and load).

(5) Write-enable tab removed from the tape cassette.

Bit 6 – indicates that the printer is ready when bit 6 is a logic ONE. If bit 6 is a logic ZERO, the printer is not ready for any of the following reasons:

- (1) Printer not in LINE mode.
- (2) Printer is OFF as a result of a printer-OFF command or while the ASC is searching.

Bit 7 – always a logic ONE to force the status character out of the control character subset. This bit may be optionally strapped to indicate playback-ON status. In this case a logic ZERO indicates the playback is ON (i.e., playback either

TABLE B-9.2. MODEL 733 ASR COMMAND EXECUTION TIMES

Command	Maximum Time
¹ REWIND	60 sec
² LOAD	3 sec
BLOCK REVERSE	400 msec
³ RECORD-OFF (When followed by a RECORD/PLAYBACK mode change)	$T = 0.4 + 0.25 (N-1)$ (for $N > 0$) $T = 0$ for $N = 0$

¹Time to rewind from the right end of the tape. A status request may be used to determine when a rewind is complete (the cassette will be on clear leader).

²Status may be requested to determine completion of this command. The cassette will become ready.

³T = time in seconds

N = In LINE tape format (or CONT tape format with ETX option) the number of carriage returns (or ETX's when in CONT tape format) received by the terminal within 250 msec immediately before receiving RECORD OFF. The very first block on the tape requires 0.250 sec additional time.

reading tape or transmitting data), and a logic ONE indicates playback is not ON. This option is particularly helpful in determining when the Automatic Search Control option has completed a search. If this option is used, the status character will *not* be excluded from the control character subset.

EXAMPLE: If the playback is ready, a playback error has not been made, cassette 1 is not on clear leader, cassette 2 is on clear leader, record is not ready, and printer is ready; the status character would be

b ₁ - ONE	}	= the USASCII character "i"
b ₂ - ZERO		
b ₃ - ZERO		
b ₄ - ONE		
b ₅ - ZERO		
b ₆ - ONE		
b ₇ - *ONE		

*strapped to logic ONE

A complete list of status characters is contained in Table B-9.3.

B-9.4.2 Use of Status Character Information. In addition to the specific status indicated by each bit of the status character, combining specific commands with the status information reveals certain facts. For example:

- (1) If both cassettes are on clear leader following a rewind, issuing a load command to either cassette and verifying whether PLAYBACK or RECORD comes ready provides "mode" status for each of the cassettes.
- (2) If a rewind command is issued when a cassette is on clear leader and the clear leader status does not change within 1.5 seconds, the cassette is at beginning-of-tape clear leader (not end of tape). Similarly, if a "load" command is issued and the PLAYBACK or RECORD (whichever is appropriate) does not come ready, the cassette is on end-of-tape clear leader.
- (3) After a rewind command is issued, the clear leader status will indicate when the rewind is complete.
- (4) After a load command, the PLAYBACK or RECORD ready status will indicate when the load operation is complete.

B-9.5 ERROR DETECT. The automatic error-detect feature causes transmission of the CAN (cancel) character when a playback error occurs. This option is strappable and allows the system to recover from playback error in minimal time in cases where the Model 733 ASR is strapped to stop-on-error. See Table B-9.1 for information to enable the error-detect option.

B-9.5.1 Non-Stop-On-Error Operation. If a playback error occurs and the stop-on-error option is not incorporated on the Playback Control PC card (see Section B-6.2 for further details), the CAN (cancel) control character will be transmitted before the erroneous block of data is transmitted. The erroneous block will consist of true data to the point in the block at which the read error occurred and the NUL (null) control character from that point to the end of the block (a total of 86 characters: true data and nulls).

B-9.5.2 Stop-On-Error Operation. If a playback error occurs and the stop-on-error option is incorporated on the Playback Control PC card (see Section B-6.2), the CAN control character will be transmitted after the last block of "good" (no playback error) data. The CAN character indicates that the next block of data on tape contains a playback error. No more taped data will be transmitted until the playback error is cleared.

The playback error may be cleared using one of the following methods.

a. Replaying the Block

- (1) Send a block reverse command (DLE and 8).
- (2) After sufficient time for this command to be executed has elapsed (typically 400 milliseconds), send a block forward command (DLE and 7). This causes the block of data to be reread. If the error recurs, the CAN character will again be transmitted by the terminal.

If there was no playback error, the block of data will be transmitted and playback may be resumed.

b. Reading (Transmitting) the Block With an Error

Send the playback ON command (DC1). The erroneous block will then be transmitted in the mode (playback ON or block forward) in effect.

TABLE B-9.3. REMOTE DEVICE CONTROL STATUS CODES AND CHARACTERS

Status Character	Status Code								Status Code								
	Parity	High (ONE) or Playback OFF	Printer Ready (ONE)	Recorder Ready (ONE)	Clear Leader Cassette-2	Clear Leader Cassette-1	Playback Error (ONE)	Playback Ready (ONE)	Status Character	Parity	High (ONE) or Playback OFF	Printer Ready (ONE)	Recorder Ready (ONE)	Clear Leader Cassette-2	Clear Leader Cassette-1	Playback Error (ONE)	Playback Ready (ONE)
	b 8	b 7	b 6	b 5	b 4	b 3	b 2	b 1		b 8	b 7	b 6	b 5	b 4	b 3	b 2	b 1
@	P	1	0	0	0	0	0	0	\	P	1	1	0	0	0	0	0
A	P	1	0	0	0	0	0	1	a	P	1	1	0	0	0	0	1
C	P	1	0	0	0	0	1	1	c	P	1	1	0	0	0	1	1
D	P	1	0	0	0	1	0	0	d	P	1	1	0	0	1	0	0
E	P	1	0	0	0	1	0	1	e	P	1	1	0	0	1	0	1
G	P	1	0	0	0	1	1	1	g	P	1	1	0	0	1	1	1
H	P	1	0	0	1	0	0	0	h	P	1	1	0	1	0	0	0
I	P	1	0	0	1	0	0	1	i	P	1	1	0	1	0	0	1
K	P	1	0	0	1	0	1	1	k	P	1	1	0	1	0	1	1
L	P	1	0	0	1	1	0	0	l	P	1	1	0	1	1	0	0
P	P	1	0	1	0	0	0	0	p	P	1	1	1	0	0	0	0
Q	P	1	0	1	0	0	0	1	q	P	1	1	1	0	0	0	1
S	P	1	0	1	0	0	1	1	s	P	1	1	1	0	0	1	1
T	P	1	0	1	0	1	0	0	t	P	1	1	1	0	1	0	0
X	P	1	0	1	1	0	0	0	x	P	1	1	1	1	0	0	0
SOH	P	0	0	0	0	0	0	1	!	P	0	1	0	0	0	0	1
ETX	P	0	0	0	0	0	1	1	#	P	0	1	0	0	0	1	1
ENQ	P	0	0	0	0	1	0	1	%	P	0	1	0	0	1	0	1
BEL	P	0	0	0	0	1	1	1	/	P	0	1	0	0	1	1	1
HT	P	0	0	0	1	0	0	1)	P	0	1	0	1	0	0	1
VT	P	0	0	0	1	0	1	1	+	P	0	1	0	1	0	1	1
DC1	P	0	0	1	0	0	0	1	1	P	0	1	1	0	0	0	1
DC3	P	0	0	1	0	0	1	1	3	P	0	1	1	0	0	1	1

*Bit 7 (b7) is normally held in the logic ONE state. If the playback-OFF indication option is used (S2-7 in ON position), a logic ONE indicates the playback function is OFF and a logic ZERO indicates the playback function is ON. When the playback OFF option is used, some of the status characters may be control characters as indicated by the shaded characters.

before the error occurred. The data transmitted from an erroneous block consists of true data to the point in the block at which the read error occurred and NUL (null) control characters from that point to the end of the block (total of 86 characters: true data and nulls).

c. Skipping the Block With an Error

Send a block forward command (DLE and 7). Playback will bypass the erroneous data block and continue playback in the mode (playback ON or block forward) in effect before the error occurred.

B-10 NUMERIC KEYBOARD.

The Numeric Keyboard shown in Figure B-10.1 is a separate keyboard which is attached by cable to a Model 733 KSR or ASR Data Terminal. It operates as an extension of the main keyboard and assumes the same mode (LOCAL/OFF/LINE) as the main keyboard. The Numeric Keyboard option provides basic numerals and appropriate graphic and control characters configured similar to an adding machine to facilitate rapid entry of numerical data. The following characters are provided on the numeric keyboard option:

Numerals zero through nine	(0-9)
Number sign	#
Slant	/
Comma	,
Period (decimal point)	.
Hyphen (minus)	-
Plus	+
Line feed	
Carriage return	

The characters on the numeric keyboard are generated regardless of the mode (SHIFT, CTRL) of the terminal keyboard. On 733 models, the cable to the terminal may be disconnected (terminal power OFF) at the numeric keyboard to permit storing the cable in the basic terminal.



FIGURE B-10.1. NUMERIC KEYBOARD

B-11 1200 BAUD INTERFACE.

The 1200 Baud Interface option permits a Model 733 ASR Data Terminal to transmit and receive data to and from the tape cassettes at the rate of 120 characters per second (1200 baud). There are several physical differences between a Model 733 ASR equipped with the 1200 Baud Interface option and a standard Model 733 ASR equipped for 300 baud (maximum) operation. The standard line interface with the 1200-Baud option is the EIA RS232C which is compatible with the Bell Systems' 202D, 202R, 202C, and 202S (or equivalents) data sets. Interface cable pin functions are listed in Table B-11.1. The 1200-Baud equipped terminal includes the following:

- (1) A HIGH/LOW speed switch is added to the left of the ON-LINE/OFF switch.
- (2) The PARITY switch is located on the Transmitter PC card, the rearmost PC card in the left row of the lower unit PC card rack.

The printer is normally disabled from printing line data, but the 1200 baud data terminal has a strappable option which enables the printer when the terminal is operating at 1200 baud with the PRINTER switch in the LINE position. Implementation of this strappable option is not recommended unless the terminal is also equipped with the Remote Device Control option (see Section B-11.4).

B-11.1 1200 BAUD OPERATION. To operate the data terminal in 1200-baud mode, the following steps are recommended.

- (1) Set the PARITY switch under the terminal cover as desired (even, odd, or continuous marking).
- (2) Select either HALF or FULL duplex operation as required by the communication line. HALF duplex must be selected unless four-wire transmission is used.
- (3) Set the HIGH/LOW speed switch to HIGH.
- (4) Set the terminal ON-LINE/OFF switch to ON-LINE.
- (5) Set the KEYBOARD to OFF or LOCAL.
- (6) Set PLAYBACK to LINE.
- (7) Set RECORD to LINE.

TABLE B-11.1. 1200-BAUD, EIA INTERFACE CABLE, PIN FUNCTIONS

Connector Pin Numbers		Pin Function
Terminal	Data Set	
6	20	Data Terminal Ready ¹
7	7	Signal Grounds
8	5	Clear to Send ²
9	6	Data Set Ready ³
10	3	Received Data
A	1	Protective Grounds
F	4	Request to Send ¹
H	2	Transmitted Data
K	8	Data Carrier Detects ⁵

NOTES:

- ¹Held to an ON condition by data terminal.
- ²Held to an ON condition by data set during transmission; required by terminal for transmission.
- ³Held to an ON condition when data set is operative; required for terminal operation.
- ⁴All are used only with external modem.
- ⁵Held to an ON condition by modem when carrier is received; required by terminal for data reception.

(8) Set PRINTER to OFF or LOCAL.

The terminal is now ready to transmit (play back) or receive (record) information at 120 characters per second (1200 baud). Information may be recorded on tape from the communication line at the 1200 Baud rate and later printed locally (OFF-LINE) at 30 characters per second.

B-11.2 CONTINUOUS VERSUS LINE FORMAT. The 1200-Baud transmitter section uses a 64-character first-in/first-out (FIFO) buffer (temporary storage) which stores data from the data bus before transmission to the communications line. This permits the transmitter to operate at virtually 100 percent line efficiency. To achieve such high line efficiency it is necessary for the data to be played back so the FIFO is never empty. Therefore, data to be transmitted should be recorded in CONTInuous tape format before it is transmitted at 1200 baud. This will ensure high communications line efficiency.

If the data transmitted to the line is recorded in LINE tape format, at least 33 characters must be recorded in each block of LINE-formatted tape data to achieve 100 percent communication line efficiency. A lower efficiency will result if fewer than 33 characters are in a block of LINE-formatted data.

If the 1200 Baud Interface option is used in conjunction with the Automatic Device Control (ADC) or Remote Device Control (RDC) options, the following situation may occur in FULL DUPLEX operation. When the DC3 (playback OFF) command is received from the line, the contents of the FIFO are transmitted before the transmission halts. Therefore, up to 64 characters may be transmitted before data transmission stops.

When recording in the LINE tape format, each data block must consist of at least 40 characters to prevent overflowing the record buffer. For this reason, recording in CONTInuous tape format is recommended. (See Section 4-5.2 for further information).

B-11.3 LOW SPEED OPERATION. The 1200-Baud option equipped data terminal may also operate on-line at a selected lower speed (110, 150, or 300 baud) as determined by the speed switch located under the terminal cover. The speed switch settings and baud rates correspond as follows:

<u>Speed</u>	<u>Baud</u>	<u>Characters per Second</u>
LOW	110	10
MED	150	15
HIGH	300	30

After the speed has been selected, set the HIGH/LOW speed switch to LOW. The terminal will operate as a standard 300-baud Model 733 Data Terminal. Low speed, full duplex operation requires a type 103 or 113 series data set (or equivalent) to operate on a communication line.

NOTE

The 1200 Baud option, when used in either the 300-baud or 1200-baud mode in HALF-DUPLEX, has a 20-millisecond request-to-send delay time. This means the terminal will not accept line data until 20 milliseconds have elapsed following transmission of the last character of data.

When using the 1200 Baud option in HALF-DUPLEX in either the 1200 or 300 baud modes, and using an EIA interface directly (such as to a computer), the user should be aware of the 20-msec delay time before the receiver is enabled to receive line data. In modem-type interfaces (e.g., the 202 series or equivalent) the modem turnaround time is concurrent with this delay and, hence, is transparent to the system.

B-11.4 PRINTING IN 1200 BAUD MODE. The printer normally is disabled when the terminal is in the 1200-baud mode and it is ON LINE. However, a strappable option permits the printer to be enabled in the 1200-baud mode. This is accomplished by removing R-10 from J1 and J2 (no tools required) of the 1200-Baud Receiver PC card (TI Part No. 962291, slot A5 in the lower ASR unit). It is recommended that this strappable option not be implemented unless the terminal is also equipped with the Remote Device Control (RDC) option. If the printer is enabled, the following procedure must be used to simulate 300 baud transmission for proper response of the terminal printer:

- a. Each character must be followed by three filler characters [usually delete (DEL)].

- b. Each carriage return and line feed (except from column 1; i.e., printhead at left margin) must be followed by 22 filler characters [usually delete (DEL)].
- c. If carriage return only is sent, 23 filler characters after the carriage return should be sent.

This compensates for

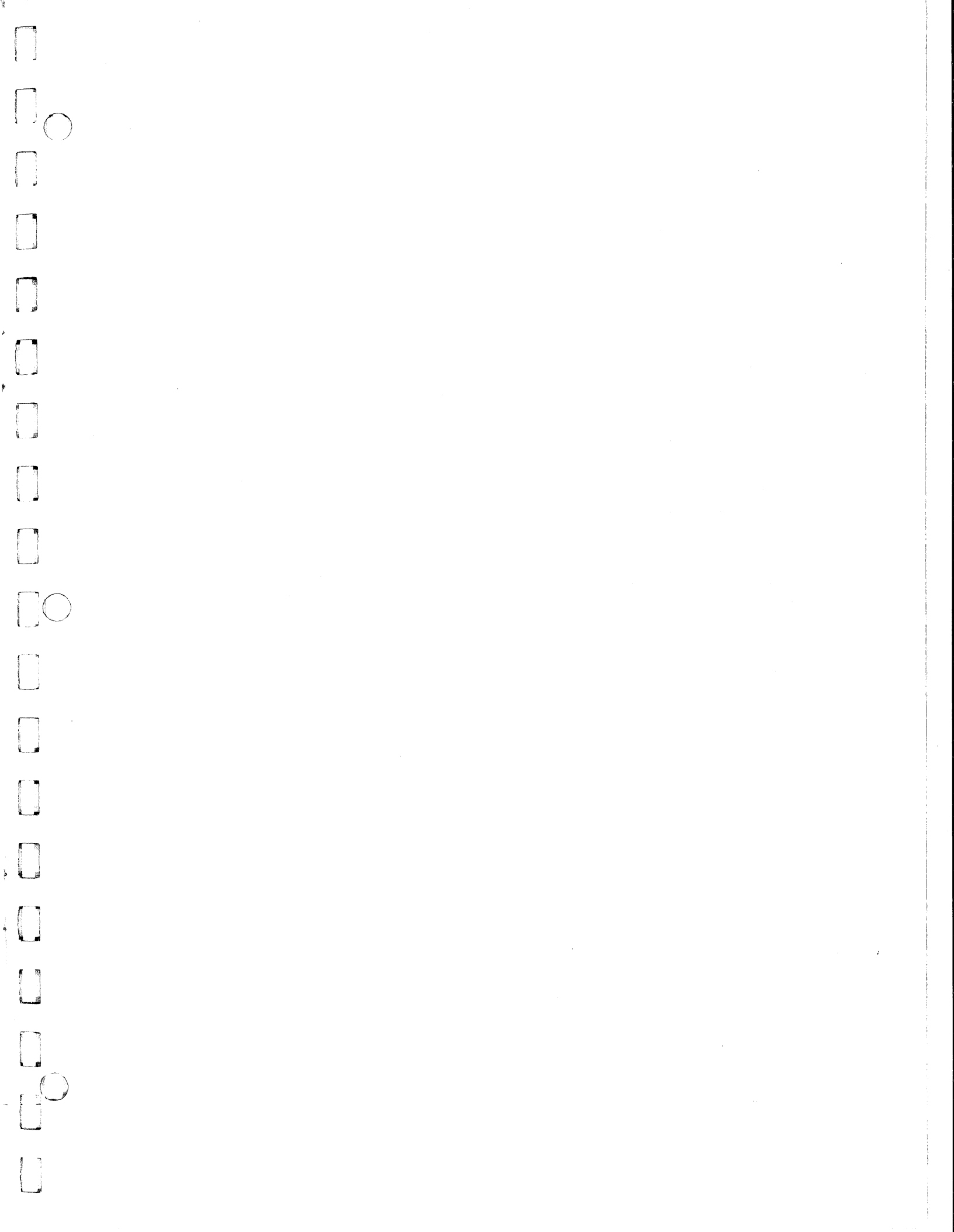
- (1) The 33 millisecond print cycle
- (2) The 195 millisecond carriage return delay time (a carriage return from column 1 only causes a 1-character time delay of 33 milliseconds).

The printer may be selectively turned ON or OFF if the terminal is equipped with the Remote Device Control (RDC) option and the 1200 baud print option is implemented (R10 removed).

NOTE

While recording in CONTINUOUS tape format, it is desirable to have the ETX control character initiate the recording of a block of data. This is possible only on terminals equipped with the Dual-Format Record Buffer (962285). See Section B-6.3 for further information

On Terminals equipped with either the Automatic Device Control or Remote Device Control options, see Section B-9.1 for recording precautions concerning data terminals which do not have the ETX option.



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