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RC855
IBM3780 BSC Emulator
User's Guide

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Abstract:

This manual describes the use and operating of the RC855 IBM3780 BSC Emulator.

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APPENDIX:

1. INTRODUCTION 1.

1.1 General 1.1

The RC855 IBM3780 BSC Emulator performs the following functions:

1) Connection and disconnection of the communication line.

2) Transmission of console commands from the keyboard and data from diskette (CP/M files - unit A and B are supported).

3) Receival of data (print or punch), on printer or on diskette (CP/M files - unit A and B are supported).

The terminal program can run on up to 8 terminals connected via RC-CIRCUIT (1 primary and 7 secondaries. From the secondaries it is only possible to transmit files.

1.2 Communication Line 1.2

The communication line is a point to point (leased) or switched (dial up) connection, with synchroneus modems. Maximum speed is 9600 bps. The line protocol is the Binary Synchroneous Communication (BSC) procedures as described in IBM GA273004 and Component Information for the IBM3780 Data Communication Terminal IBM GA273063.

The transmission code is EBCDIC.

The blocksize on the communication line is 512 bytes.

Transparency, Terminal identification (ID), Spacecompression, Printer horizontal format control (HT), Escape Sequences (CCW) and component select are supported.

1.3 Handling of Records in Transmit Mode 1.3

Data can be transmitted in 2 modes: transparent and non-transparent (see 1.5.1 and 2.2.1).

When data is transmitted from the diskette (CP/M file) in non-transparrent mode, each record is converted from ASCII to EBCDIC and transmitted as 1 record of 80 bytes. A record on the diskette is terminated by CR, NL, FF, SUB or any possible combination of these 4 characters. The termination character(s) is(are) not converted and transmitted. If a record is less than 80 bytes, it is filled with spaces. If a record is greater than 80 bytes it is split into a number of 80 bytes records (the last filled with spaces). The transmission is terminated when a SUB-character (X'1A) or physical end of file is met.

When data is transmitted from the diskette (CP/M file) in transparent mode, all data (including CR, NL, FF and SUB) are transmitted without conversion. The data is split into records of 80 bytes. The transmission is terminated at physical end of file.

1.4 Handling of Records in Receive Mode 1.4

Received data is handled different whether it is non-transparent or transparent or it is print- or punch-data. Non-transparent data is always converted from EBCDIC to ASCII. Transparent data is not converted.

Non-transparent print-data:
1 transmission-line record is written as 1 record on the print-device (CP/M file on diskette or lineprinter - see subsection 1.5.1) if the 2 first characters are an Escapesequence (CCW to the printer) it is interpreted as follows:

ESC M	space 0 lines	CR
ESC /	space 1 line	CR.NL
ESC S	space 2 lines	CR.NL.NL
ESC T	space 3 lines	CR.NL.NL.NL.
ESC A	skip to channel 1	CR.FF
ESC <everything else>	vertical tab.	CR.VT
no ESC	space 1 line	CR.NL

The ESC-sequence is not written on the printdevice but the record is terminated with the sequence of CR.NL.VT or FF (in the following called the termination characters) as the ESC-sequence is interpreted as.

If the printdevice is a CP/M file on diskette a SUB-char (X'1A) is inserted after the last record. If the printdevice is a CP/M file on diskette and print-size (see subsection 1.5.1) is different from zero, the record is padded with spaces/truncated to the given print-size. Padding/truncating is done immediately before the termination characters.

Non-transparent punch-data:
1 transmission-line record is written as 1 record on the punch device (CP/M file on diskette or lineprinter - see subsection 1.5.1). After each record CR-NL are inserted as termination characters.

If the punch device is a CP/M file on diskette a sub-char (X'1A) is inserted after the last record.

If the punch device is a CP/M file on diskette and punch-size (see subsection 1.5.1) is different from zero, the record is padded with spaces/truncated to the given punch-size. Padding/truncating is done immediately before the termination characters.

Transparent print- and punch-data:
Data is written on the print-/punch-device (should be CP/M file on diskette as transparent is normally binary data which would be nonsense on the printer) exactly as it is received from the line. No termination characters are inserted. The last block on the CP/M file is padded out with binary zeroes.

1.5 Configuration File 1.5

The configuration file is a CP/M file with the name C3780.TXT. This file should be on the CP/M diskette mounted in drive A. The file contains the initial values of the parameters (see subsec-

tion 1.5.1). The file must have the following format:

```
<parameter1> = <VALUE><CR><NL>
<parameter2> = <VALUE><CR><NL>
.
.
.
<parametern> = <VALUE><CR><NL>
<SUB>
```

The file can be created and written with the CP/M editor. Note that the alphalock key should be pressed when writing this file. The file is not necessary if the default values of the parameters (see subsection 1.5.1) are used.

1.5.1 Parameters 1.5.1

The parameters are used to control the execution of the emulator. The parameters can be changed during runtime (see subsection 2.2.9). The parameters and their default values are as follows:

PRINT-DEV	=	LST:
PUNCH-DEV	=	LST:
PRINT-SIZE	=	0
PUNCH-SIZE	=	0
WAIT-TIME	=	0
TRANSPARENCY	=	OFF
RECEIVE-ID	=	NONE
TRANSMIT-ID	=	NONE

PRINT-DEV:
The name of the device on which print-data should be written. Possible values are LST: (lineprinter) or a CP/M filename.

PUNCH-DEV:
The name of the device on which punch-data should be written. Possible values are LST: (lineprinter) or a CP/M filename.

PRINT-SIZE:
Specifies a fixed size that all print-records should be written with (only if PRINT-DEV is a CP/M file). The size is the total size of the record (data characters + termination characters). Possible values are 0-255. 0 means that the records are written as they are received. See section 1.4.

PUNCH-SIZE:
Specifies a fixed size that all punch-records should be written with (only if PUNCH-DEV is a CP/M file). The size is the total size of the record (data characters + termination characters). Possible values are 0-255. 0 means that the records are written as they are received. See section 1.4.

WAIT-TIME:
Is the number of minutes to wait for data to arrive when the terminal has entered waiting for receival state. If nothing has arrived after WAIT-TIME minutes, the command-file (see subsection 2.2.1.2) AUTOO.TXT is executed (this could be automatic signoff and disconnection of the line). Possible values are 0-255. 0 means infinite wait for data (AUTOO.TXT is never executed).

TRANSPARENCY:
Possible values ON and OFF.

When transparency is OFF, data transmitted from the terminal will be non-transparent.

When transparancy is ON, data transmitted from the terminal will be transparent.

It is always possible to receive both non-transparent and transparent data.

REVEIVE-ID:
TRANSMIT-ID:

RECEIVE-ID and TRANSMIT-ID are the terminal identification used when receiving and transmitting.

NONE means no id is used. A terminal identification is 1-15 characters. When initializing these parameters, giving more than 15 characters - the first 15 are used and the rest are skipped. Giving no characters (receive-id =) means no id.

If a receive-id is specified, it is checked that the terminal/host computer sending data to this terminal is using this identification, otherwise it will be rejected.

If a transmit-id is specified, the terminal will use this identification when transmitting.

Note that these parameters cannot be changed or seen during runtime, but only initiated from the configuration file.

1.5.2 Example of the Configuration File 1.5.2

```
PUNCH-DEV   = B:PUNCH.TXT<CR><NL>
PRINT-DEV   = PRINT.TXT<CR><NL>
RECEIVE-ID  = <CR><NL>
TRANSMIT-ID = RC01<CR><NL>
WAIT-TIME   = 3<CR><NL>
<SUB>
```

After this configuration file the parameters will have the following values:

```
PRINT-DEV    = PRINT.TXT        (CP/M file PRINT.TXT on unit A)
PUNCH-DEV    = B:PUNCH.TXT      (CP/M file PUNCH.TXT on unit B)
PRINT-SIZE   =            0
PUNCH-SIZE   =            0
WAIT-TIME    =            3
TRANSPARENCY =          OFF

RECEIVE-ID   =         NONE
TRANSMIT-ID  =         RC01
```

1.6 NVM-Parameters 1.6

This is only a list of the NVM-parameters that is used by the IBM3780 emulator.

Primary:

PLS Printer Line Speed

CF Printer Character format

CS Character Set

CP Cursor Presentation

KBL Keyboard Lock

Secondary:

SA Secondary Address

CP Cursor Presentation

KBL Keyboard Lock

It is advisable to set KBL to 1 (Keyboard remains in alphalock) as all commands to the IBM, changing parameters and filenames for transmission must be given with upper case characters.

1.7 Signon File 1.7

The signon file is a CP/M file with the name S3780.TXT. After load of the emulator (primary or stand-alone version) this file will be transmitted if it exists on the diskette mounted in drive A. The file contains the signon-record.

The file must have the following format:

<signon-record><CR><NL>

<SUB>

The file can be created and written with the CP/M editor. Note that the alphalock key should be pressed when writing this file.

2. OPERATING 2.

2.1 System LOAD/RUN 2.1

The 3780 emulator is loaded from CP/M by typing the name of the file in which the code is (this file is created with the P80SAVE-utility). The filenames could be A3780 for the stand-alone version, P3780 for the primary and S3780 for the secondary. The stand-alone version is the same as the primary version except that it does not support secondaries. It is possible to give 1 parameter to the 3780 emulator when loading it. This parameter should be the name of a command-file (see subsections 2.2.1.1 and 2.2.1.2).

Primary System:

When the system is loaded the text:
RC855 IBM3780 TERMINAL
will appear on the screen.

The configuration file will be read, and the initial value of the parameters is displayed.

Then different things may happen:
1) If a signon-file exists it is transmitted.
2) If a command-file was given as parameter it is executed.
3) If neither a signon-file exists nor a command-file was given, the text:

   Terminal is disconnected
   SELECT FUNCTION
   will appear. In this state one of the below mentioned functions (receive data, transmit data etc.) must be selected by pressing the associated function key. The terminal is always displaying what it is doing.

   The line is not connected (DTR (data terminal ready) is not set) until it is needed (receive or transmit function selected).

Secondary system:

When the system is loaded the text:
RC855 IBM3780 TERMINAL
SECONDARY STATION
will appear on the screen.

The configuration file will be read and the initial value of the parameters is displayed. Then the secondary station is automatically trying to establish connection to the primary. When this connection is established one of two things may happen:

1) If a commandfile was given as parameter it is executed.
   or
2) The text
   Terminal is idle
   SELECT FUNCTION
   will appear. In this state one of the below mentioned functions (transmit data, display status etc.) must be selected by pressing the associated function key. The terminal is always displaying what it is doing.

When a function, which needs more information from the operator, is selected (on primary or secondary), the operator is guided through by questions from the terminal (filenames for transmission etc.).

2.2 Functions on Primary 2.2

2.2.1 Transmission of DATAFILES/COMMAND FILES 2.2.1

Function key PA1.
This function can be selected when the terminal is disconnected, idle or waiting for receival. This function makes it possible to transmit 1-32 files from a CP/M diskette. When the transmission is finished the terminal goes into receive mode as if PA4 was selected.

After selection of PA1, the display is cleared and the following text appears:

PA1 Transmit selected

Max. 32 filenames <UNIT>:<FILENAME> RETURN can be selected. Press an extra RETURN after the last name to start the transmission. To stop and return to idle state press PF11.

TYPE THE FILENAMES:

The filenames can either be the actual filenames or the name of one command-file (see subsections 2.2.1.1 and 2.2.1.2). Note that it is not possible to mix filenames and command-files.

When the transmission is started, 3 lines are displayed for each file (1 in the beginning and 2 at the end of the file):

Terminal is transmitting file <filename>

End of file <filename>
Number of records = NNNNN

NNNNN is number of records transmitted from file <filename>. If some records on the diskette are greater than 80 bytes, they are counted as number of the records they are split into (see section 1.3).

Function key PF1, PF2, ..., PF9.
One of these functions can be selected when the terminal is disconnected, idle or waiting for receival. These are automatic transmit-functions which means that no filenames shall be given but there is associated a fixed command-file (see subsection

2.2.1.2) to each key:

function key	command-file name
PF1	AUTO1.TXT
PF2	AUTO2.TXT
PF3	AUTO3.TXT
PF4	AUTO4.TXT
PF5	AUTO5.TXT
PF6	AUTO6.TXT
PF7	AUTO7.TXT
PF8	AUTO8.TXT
PF9	AUTO9.TXT

When using an AUTO-file it must be on unit A.

2.2.1.1 Filenames 2.2.1.1

A filename must have the following format:

<unit:<name>/<special>

<unit>: is the diskette unit on which the file is. Possible values A and B. Default value is A.

<name>: is the actual name of the file. The name is from 1 to 12 characters. If more than 12 characters are given the rest is skipped.

/<special>: is used to indicate special actions for this file.

files to transmit from:

/NT this file must be sent non-transparent whether the parameter transparency is on or off.

/T this file must be sent transparent whether the parameter transparency is on or off.

With this possiblity one can mix transparent and non-transparent data in one transmission (JCL cards in non-transparent and binary data in transparent).

/C means that this is the name of a command-file (see subsection 2.2.1.2).

files to receive in:

/C means that it is possible to continue receiving in this file after EOT. This means that several transmissions from the remote site can be received in one file. Default is only 1 transmission/file.

It is not allowed to put in spaces between <unit>:, <name> and /<special>.

Example of filenames:

TRANS.TXT
A:TRANS.TXT
B:X01.COM
TRANS.TXT/NT
B:TRANS.TXT/T
TR01.COM/C
A:TR01.COM/C
B:TR02.TXT/C

2.2.1.2 Command-Files

A command-file contains filenames of files to be transmitted and special commands to control the transmission (max. 32 filenames + commands). A command-file is a CP/M file in the following format:

<filename or special command 1><CR><NL>
<filename or special command 2><CR><NL>
.
.
.
<filename or special command n><CR><NL>
<SUB>

n is max 32.
The file can be created and written with the CP/M-editor. Note that the alphalock key should be pressed when writing command-files.

Filenames have the format described in subsection 2.2.1.1. Except that /C (a command-file in a command-file) is not allowed.

Special commands are:

TERM When the last block in the file given just before this command is transmitted, it is terminated by ETX instead of ETB (normally only the last block in the last file is terminated by ETX).

DISC Disconnect the line (send DLE-EOT and remove DTR Data Terminal Ready). This command is only allowed after a TERM-command. This command is dummy in a secondary (only the primary can connect/disconnect the line). But it must be given if the next command is wanted.

EXIT A reset of the RC855 is made (cold boot of CP/M). This command is only allowed after a DISC-command.

Example of command files:

1) JCL1.TXT
   B:DATA.TXT/T
   JCL2.TXT
   TERM
   A:JCL1.TXT/NT
   B:DATA.TXT/T
   A:JCL2.TXT/NT

   The following will happen:

   File JCL1.TXT on unit A will be transmitted in mode according to the parameter transparency. File DATA.TXT on unit B will be transmitted in transparent mode.

File JCL2.TXT on unit A will be transmitted in mode according to the parameter transparency, the last block will be terminated by ETX.

File JCL1.TXT on unit A will be transmitted in non-transparent mode.

File DATA.TXT on unit B will be transmitted in transparent mode.

File JCL2.TXT on unit A will be transmitted in non-transparent mode. The last block will be terminated by ETX (because it is the last file to be transmitted).

2) SIGNOFF.TXT/NT
TERM
DISC
EXIT

The following will happen:

File SIGNOFF.TXT on unit A will be transmitted in non-transparent mode, the last block will be terminated by ETX.

The line is disconnected.

A reset (CP/M cold boot) is made.

2.2.2 Transmission of CONSOLE-COMMANDS 2.2.2

Function key PA2 or PA3.
This function can be selected when the terminal is disconnected, idle or waiting for receival. This function makes it possible to transmit 1 line keyed in from the keyboard.

When the transmission is finished, the terminal goes into receive mode as if PA4 was selected. If PA2 the receival will be on the printdevice as normally, but if PA3 the receival will only be on the display.

After selection of PA2/PA3, the display is cleared and the following text appears:

PA2/PA3 Transmit console command selected
TYPE COMMAND:

Type in the command (max. 80 characters terminated by return). To return to idle mode without sending a command, press PF11.

2.2.3 Receival of Data 2.2.3

Function Key PA4.
This function can be selected when the terminal is disconnected or idle. The function is automatically selected after succesful transmission of datafiles (PA1/PF1-PF9) or console commands (PA2).

This function makes it possible to receive data on the print-device or punch-device depending on the received component select character.

If data arrives to the print- or punch-device and the device is not specified (when one file has been received and the file was not a continue-file (/C) the device is set to not specified).

The terminal asks the question:

SELECT PRINT-DEV:
or
SELECT PUNCH-DEV:

Type in the wanted file-name or LST: for the lineprinter. Lineprinter (LST:) is always assumed to be a continous file.

If the file to receive data in does not exist, it is created and the writing is started from the beginning of the file.

If the file to receive data in already exists, one of two things may happen:

1) the file is a continous file (/C is specified): writing is started at the file termination character SUB (X'1A) if received data is non-transparent or after physical end of file if received data is transparent

2) the file is not a continous file: writing is started from the beginning of the file.

The terminal will remain in receive mode until another function is selected or the line is disconnected from the other end or timeout if the parameter WAIT-TIME is used (see section 1.5).

It is always possible to see the received data on the screen, whether the PRINT/PUNCH-device is printer or CP/M file. This is done by activating the USM-key. To stop the displaying of received data, deactivate the USM-key. This activation/de-activation of the USM-key can always be done and has no influence on the received/transmitted data.

2.2.4 Display TERMINAL STATUS 2.2.4

Function Key PF10.
This function can always be selected.

When selected, current state of the terminal and parameter values will be displayed.

This function does not change the state of the terminal.

2.2.5 STOP 2.2.5

Function Key PF11.
This function can always be selected.

When selected, current activity is interrupted immediately. If the line was not yet connected, the terminal will go into disconnected state. If the line was connected, the terminal will go into idle state after having aborted a possible transmission/ receival by sending EOT (end of transmission).

2.2.6 DISCONNECT 2.2.6

Function Key PF12.
This function can always be selected.

When selected, current activity is interrupted immediately. The line will be disconnected by sending DLE-EOT and removing the modem signal DTR (data terminal ready).

The terminal will enter the disconnected state.

2.2.7 CONNECT 2.2.7

Function Key PF13.
This function can be selected when the terminal is in disconnected state.

The function is automatically selected when a transmit/receive function is selected and the line was disconnected.

The line will be connected, by setting the modem signal DTR (data terminal ready) and waiting for the modem signal DSR (dataset ready).

When the line is connected the terminal will enter the idle state, or the selected transmit/receive state.

2.2.8 WAIT CONNECTION

Function Key PF14.
This function can be selected when the line is not yet connected (terminal is disconnected or terminal is connecting the line).

This function makes it possible to run the terminal in an "automatic" mode. (E.g. if the terminal is connected to a host-computer that during night-time calls the terminal to receive data from and/or transmit data to it).

In "automatic" mode there are two possibilities:

1) Receive data
   The terminal waits for a call (dial up).

   The call causes the connection of the line. (The terminal waits for CI (calling indicator), sets DTR (Data Terminal Ready) and waits for DSR (Data Set Ready)).

   When the line is connected, the terminal enters the receive mode as if PA4 was selected. The terminal will remain in receive mode until the line is disconnected from the other end (DLE-EOT is received), or timeout if the parameter WAIT-TIME is used (see section 1.5).

   This is what happens if only PF14 is selected.

2) Transmit data - Receive data
   The terminal waits for a call as in 1).

   When the line is connected, some files from a CP/M diskette are transmitted. (Depending on which function was selected (PA1/ PF1-PF9). After the transmission the terminal enters receive mode as in 1).

   This is what happens when the operator selects PA1/PF1-PF9 after PF14 (while the terminal is waiting for the call).

2.2.9 CHANGE PARAMETERS 2.2.9

Function Key PA5.
This function can be selected when the terminal is disconnected or idle.

This function makes it possible to change the parameters. When the parameters are changed, PF11 must be given to return to disconnected or idle state.

After selection of PA5, the display is cleared and the following text appears:

```
1 PARAMETER NAME = <CURRENT VALUE>
2 PARAMETER NAME = <CURRENT VALUE>
.
.
.
N PARAMETER NAME = <CURRENT VALUE>

TYPE PARAMETER = NEWVALUE OR PARAMETER NUMBER = NEWVALUE:
```

To change a parameter type in the name of the parameter followed by = and then the new value, terminated by return. No spaces are allowed before and after the = sign. Instead of typing the name of the parameter, it is possible to type the parameter number (1, 2 ... N). When a parameter is changed the new value will be displayed, and it is possible to change a parameter again or terminating by PF11.

For a more detailed description of parameters see section 1.5.

2.2.10 Reset (CP/M Cold Boot) 2.2.10

Function Key CLEAR.
This function can be selected when the terminal is in disconnected mode.

This function makes it possible to reset the system. If the system diskette is the CP/M system diskette, it is a cold boot of the CP/M system.

2.3 Functions from Secondary 2.3

2.3.1 Transmission of DATAFILES/COMMAND FILES 2.3.1

See subsection 2.2.1.

2.3.2 Display TERMINAL STATUS 2.3.2

Function Key PF10.
This function can always be selected.

When selected, current state of the terminal and parameter values will be displayed. If the state is idle then the state of the communication line is displayed (disconnected, idle or busy). This requires information from the primary. Trying to get this information can force the secondary terminal into disconnect mode if the primary gives no response. In this case the text "Waiting for primary" will appear, and the secondary will automatically try to get connection to the primary.
When the line is idle, it is possible to transmit files from the secondary terminal.

2.3.3 STOP 2.3.3

See subsection 2.2.5.

2.3.4 CHANGE PARAMETERS 2.3.4

See subsection 2.2.9. Only parameter number 1 (transparency) exists in the secondaries.

2.3.5 Reset (CP/M Cold Boot) 2.3.5

Function Key CLEAR.

This function can be selected when the terminal is in idle mode.

See subsection 2.2.10.

3. MESSAGES 3.

3.1 Informative Messages 3.1

The informative messages are messages telling the operator what the terminal is doing and messages telling that the operator has given some illegal commands etc. The operator need not take any action on informative messages.

The informative messages are self explaining, but a few of them which need a further explanation are listed below (in alphabetic order):

PRIMARY:

Abort received

The remote site has aborted the current transmission by sending EOT. The terminal automatically enters the idle state.

Contention

The terminal and the remote site are both bidding for the line by sending ENQ. (To receive the data, the remote site wishes to send press PF11 and PA4).

Dataset not ready

The modem signal dataset ready is off. The terminal automatically enters the disconnect state.

Illegal id received

The remote site is using another terminal identification than the one specified in parameter receive-id. To allow the remote site to transmit the receive-id check can be removed by setting the parameter receive-id to nothing.

Line disconnected remote

The remote site has disconnected the line by sending DLE-EOT. The terminal automatically enters the disconnect state.

Rvi received

The remote site has sent an RVI (reverse interrupt) while the terminal is transmitting data. This means that the remote site has something to send. The terminal continues to transmit. The operator can stop the transmission with PF11 and receive the data from the remote with PA4.

Terminal is bidding for the line

The terminal is requesting the line by sending ENQ. The terminal will repeat ENQ until the remote site answers ACK0 or the operator interrupts with PF11 (STOP) or PF12 (DISCONNECT).

SECONDARY:

Primary disconnected

The connection to the primary has been disconnected due to an error on the circuit, while a transmission was going on. The transmission is interrupted and the terminal is automatically trying to get connection to the primary.

Terminal is bidding for the line

The secondary is requesting the primary for permission to use the communication line for transmission of data. The secondary will repeat requesting until the primary gives permission or the operator interrupts with PF11.

Transmission stopped by primary

The current transmission has been stopped by the primary either by the operator or due to an event on the communication line (dataset not ready, abort, remote disconnect etc.).

Transmission stopped after error

The current transmission has been stopped due to an error on the connection to the primary, or because the operator has not reacted to an error message concerning the diskette unit within 5 minutes.

Terminal is waiting for the primary

The connection to the primary has been disconnected, and the terminal tries to reestablish the connection.

3.2 Error Messages 3.2

Error messages are messages telling the operator that an error has occurred, which need an action to be taken. All error messages are listed below:

Messages concerning the printer:

Printer is offline

The printer is off-line (off-line, no paper, no power etc.). Repair the erroneous condition and set the printer on-line. The printing wil automatically continue.

Messages concerning the diskette:

All these messages are terminated by: "Select PF11 to stop anything else means continue". Continue is repeat (try again) except if it is a file which does not exist, then skip this file and continue with the next.

Diskette crc error
Diskette full
Diskette off line
Diskette write lock
} self explaining

Diskette hard error

Hard error on the diskette, most likely to error in address mark (the diskette need reformatting).

Diskette unreadable

The diskette cannot be read, probably wrong type of diskette.

File does not exist <filename>

The file <filename> does not exist on the mounted diskette.

Other messages:

Data format error

This message should not occur. Save information about what the terminal was doing, when it occurred. The terminal automatically enters the idle state.

A. LIST OF FUNCTIONS A.

PRIMARY

PF1-PF9	Execute the command-files AUTO1.TXT-AUTO9.TXT
PA1	Transmit 1-32 CP/M-files from diskette or execute 1 command-file
PA2	Transmit console command, get reply on print-device
PA3	Transmit console command, get reply on screen
PA4	Receive data on print/punch-device
PA5	Change parameters
PF10	Display Terminal status
PF11	Stop (enter idle/disconnected state)
PF12	Disconnect (stop and disconnect the line)
PF13	Connect (connect the line)
PF14	Wait Connection (automatic mode)
CLEAR	RESET (CP/M cold boot)
USM	Switch on/off displaying of received data

SECONDARY

PF1-PF9	Execute the command-files AUTO1.TXT-AUTO9.TXT
PA1	Transmit 1-32 CP/M-files from diskette or exeucte 1 command-file
PA5	Change parameters
PF10	Display Terminal Status
PF11	Stop (enter idle state)
CLEAR	RESET (CP/M cold boot)

RETURN LETTER

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