



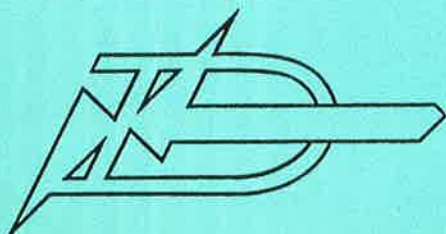
NORD

COMPUTER SYSTEMS

NORD IDT GERTS-115

Operator's Guide

January 1973



A/S NORSK DATA-ELEKTRONIKK

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1 INTRODUCTION

The NORD IDT GERTS-115 is a remote batch terminal to the Honeywell Bull 6000 systems, communicating through a Datanet 355 or 305 communications processor. The normal configuration is a NORD-20 computer with 4K words of core memory, modem interface, and with card reader, line printer and Teletype as peripherals. The terminal may also be equipped with other peripherals, such as mag. tape stations, paper tape equipment, etc.

To run the terminal, the operator uses a set of commands which are described in detail in Section 3.1. The terminal is equipped with a set of extra functions, such as local card listing, input of batch jobs from the console, logging of job numbers, local and remote console messages. A look at the list of operator commands and messages (Chapter 3), will give further information on this.

This manual describes the basic and optional functions which the operator should know to run this terminal efficiently. For more detailed information, see the following manuals:

- NORD IDT GERTS-115, System Description
- Honeywell Bull, Remote Terminal System (GRTS)
Series 600/6000 GCOS

2 START-UP PROCEDURES

2.1 Teletype Start-up

- Turn the front switch to on-line position. Type BREAK if the automatic start/stop switch is in position ON.

2.2 Card Reader Start-up

- Turn the card reader on by operating the power switch located on the lower left, front panel of the unit. The indicator marked PWR on the operator panel should now light.
- Load the hopper with maximum 600 cards, face down, 9-edge towards rear of hopper.
- If any alert lights (red) is on, press CLEAR button.
- Press the ON LINE switch on the operator panel. The indicator marked RDY should now light up and the card reader be ready.

2.3 Line Printer Start-up

- Ensure that there is an adequate supply of paper, and that the paper is correctly loaded in the printer.
- Power up the printer by pressing the POWER ON button.
- Press the START button. When the START indicator lights, the printer is ready.

2.4 Modem Start-up

2.4.1 Dial-up Line

- Lift handset and wait for dial tone.
- Dial the number.
- When the high pitched tone is received, switch the Telephone/Data switch to Data and replace the handset.

2.4.2 Private Line

No call-in sequence is needed. The line is connected as soon as the modem is powered up.

2.5 Loading the System

Check if the system is operative by typing :EM← on the console.
The start-up message

**NORD IDT GERTS-115 IS RUNNING!

is displayed on the console if the system is O. K.

If the system has to be loaded, the following procedure should be followed:

- Turn NORD-20 on by pressing the POWER button or turning the key.
- Place NORD IDT GERTS-115 card deck in card reader and start it up. (See Section 2. 2.)
- Press LOAD button on the NORD-20 control panel.
- Start Teletype and make sure it is in "Line Mode". Place the bootstrap in the TTY tape reader and start it.
- The bootstrap should now be read into core by a hardware loader in NORD-20. When finished, this program should start loading the NORD IDT GERTS-115 system from the card reader. When the system is loaded, the following text is written on the Teletype:

**NORD IDT GERTS-115 IS RUNNING!

The system is now ready for operation.

Note: The system is destroyed if:

- The load button is operated again.
- Power fails or is switched off.
- Serious program or machine error occurs.

3 CONSOLE COMMANDS AND MESSAGES

3.1 Operator Commands

All local commands are preceded by colon and terminated by carriage return or space. Each command consists of two letters. If more letters are typed, all but the two last are neglected. The following commands are implemented:

Communications Control Commands

- :SS - Start communication
- :TE - Terminate communication
- :DS - Disconnect the line
- :MS - Send a message to central site operator. The message is typed after the command, and it is preceded by # and terminated by carriage return.

System Command

- :EM - Empty buffers (restart)

Commands affecting the Batch Input Stream

- :CO - Copy; start reading of cards for local listing
- :HL - Halt card reader after current job
- :SC - Stop card reader after current card
- :RC - Restart card reader after fault or stop by command
- # - Precedes each record from the console to central site

Commands affecting the Batch Output Stream

- :SL - Stop line printer
- :RL - Restart line printer
- :FA - File abort (abort output file)
- :FB - File backspace (backspace output file)

(The :CO command also affects the line printer).

When a command is given that is not permitted at the moment, the computer will answer by printing ? on the Teletype.

Example: Giving :SC when the card reader is not running.

Detailed description of the commands:

- :CO** This command may be used when the terminal is in idle mode, i. e. , not communicating with the central site. If the card reader and the line printer are ready, it will start reading cards and printing the card images.
- If the terminal is not idle, the question mark is displayed and the command is neglected.
- The :EM command should normally be issued before the :CO command.
- :DS** This command sends a request to central site to disconnect the line.
- :EM** This command sets the terminal to initial state. The effect is the same as pushing the RESET button on the NORD-20 control panel.
- :FA** This command sends a "File Abort" to central site. It causes the current output file to be aborted.
- :FB** This command sends a "File Backspace" to central site. It causes the current output file to be backspaced.
- The :FA and :FB commands should only be used when the terminal is in output mode.
- :HL** This command halts the card reader when the current job is read, i. e. , when a correct \$ ENDJOB card is read. The message "**C-R HALTED" is then printed on the console and input to central site may be typed from the console (each record preceded by #). The card reader may as usual be restarted by the :RC command.
- If the card reader is already halted or another halt request has been issued but not yet implemented, the question mark is displayed and the command is neglected.

:MS This command is used in batch input mode to transmit a message from the terminal operator console to the operator console on central site. The message itself is typed after the command, and it is preceded by `/*` and terminated by carriage return.

The command sends a special job from memory in the terminal to central site. The job has four control records:

SNUMB - IDENT - MSG1 - ENDJOB

Only the first part of the MSG1 record is fetched from terminal memory. The last part of this record is the message typed from the console. The SNUMB number is as normal displayed on the console when the record is scheduled for transmission.

:RC This command restarts the card reader. It may be used for restarting after a card reader error or when the card reader has been empty or stopped by commands. The card reader must be ready when the `:RC` command is issued, else the command is neglected without any error report.

The question mark is displayed if the card reader is not in halt mode when the command is issued.

:RL This command restarts the line printer. It is used when the printer has been stopped by the command `:SL` or by the system itself. This occurs when the central system has sent a "form shift" message to the terminal. The operator should then shift to the indicated paper type and give his O. K. by the command `:RL`.

A question mark is displayed if the line printer is not in halt mode when the command is issued.

:SC This command stops the card reader almost immediately, that is when reading of the current card is completed. If input from console is wanted, the `:HL` command should instead be used. The `:SC` command is recommended only for card removal or adding cards when the level of cards in the hopper is low.

:SL This command stops the line printer. The printer is restarted by the command `:RL`.

:SS This command establishes the logical connection with central site, from the terminal. The effect is that the terminal sends a message to the central site, which says that it wants to send data. The terminal is set to initial state before the message is sent.

When the connection is established, the message " ** READY TO SEND " is displayed. If the card reader is ready, reading of cards is started. Else input to central site may be typed from the console (each record preceded by #A). In either case, the first record after the :SS-command must be the terminal identification (#A SID - - - - card). More details on page 4-2.

:TE This command terminates the batch input sequence, and the terminal goes idle.

This sign precedes each record typed from the console with destination central site. The character following the # sign is the first character that is transmitted to central site. Each record is terminated by carriage return, and a line feed is returned on the console if the record is accepted (i. e. the terminal is in send mode).

If the # sign is typed when the terminal is not in send mode or the card reader is not in halt mode, a question mark is displayed, and the # sign is neglected.

3.2 Local Console Messages

Messages from the terminal are always written on the operators console. They are distinguished from messages from central site by the double asterisk. (The only exception to this is the question mark.) There are two types of these messages. The information messages are:

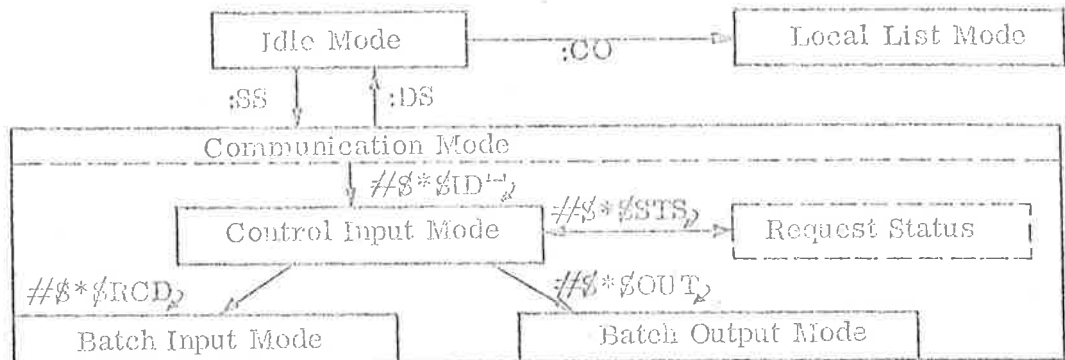
<u>Message</u>	<u>Explanation</u>
** NORD IDT GERTS-115 IS RUNNING!	Terminal is ready after start-up.
** C-R HALTED	Answer to :HL command when the last card of the current job is read.
** ALL CARDS LISTED	Card reader is empty or not ready in local list mode.
** SNUMB nnnnn	Logging of job number where nnnnn is the job number.
** READY TO SEND	This message is displayed when send mode is established (after :SS command).
** TERMINAL IDLE	This message is displayed when the terminal goes idle after a terminate or disconnect message is received.

The error messages are:

<u>Message</u>	<u>Explanation</u>
** DN355 IS SLEEPING	Time-out has occurred (no reply from Datnet within 12 seconds).
** REREAD LAST CARD	Read error.
** NEXT CARD IS BAD	Feed error.
?	Non-existent or at the moment illegal command.
*****	Fatal error. The system is stopped and the core dump program should be read into core.

4 RUNNING THE TERMINAL

To run the terminal efficiently, the operator should know the meaning of the different modes of the terminal. The modes are:



In the different modes, different functions described below are available.

4.1 Idle Mode

The terminal is in idle mode when the program is loaded, when the restart button is operated, when the :EM command is issued and when a terminate or disconnect message is received from central site. In the latter case the local message

****TERMINAL IDLE**

is displayed on the console.

From idle mode, local list mode or communication mode may be established (:CO or :SS commands).

4.2 Local List Mode

When the terminal is in idle mode, local listing of cards may be done. Type the :CO command when the card reader and the printer are ready. To ensure that the command is accepted, the :EM command should be issued before the :CO command.

Most of the card reader and line printer commands, messages, and functions legal in batch input mode are valid for local list mode as well. (Not :FA and :FB of course.)

When the last card is read, the message

****ALL CARDS LISTED**

is displayed, and the terminal returns to idle mode.

Note: If the reader stops due to card error, the error should be corrected and the reader restarted by the :RC command.

4.3 Communication Mode

When the terminal is in idle mode, communication mode is established by typing the :SS command. As soon as a valid reply (transmit data message) is received from central site, the message

**READY TO SEND

is displayed on the console.

The host computer now expects to receive the terminal identification record, which may be typed from the console if the card reader is not ready:

#\$ID *)

where ID is your special two letter terminal identification. Remember to terminate this record with space and carriage return.

The terminal is now in control input mode.

Note: If the card reader is ready when the :SS command is issued, reading of cards is started at once. In this case the appropriate control records (ID and RCD) must be punched on cards and precede the first job deck in the card reader.

4.3.1 Control Input Mode

Control input mode is a communication mode when the host computer expects to receive any of the GERTS control records but the identification record. These control records are:

\$*ABT	- Abort a job
\$*DIS	- Disconnect the line
\$*STS	- Request status about jobs
\$*RCD	- Establish batch input mode
\$*OUT	- Establish batch output mode

Some of the control records may have parameters. For details, see the Honeywell Bull publication "Remote Terminal System (GRTS), Series 600/6000 GCOS".

Any other records in control input mode will cause the line to be terminated and the terminal goes idle.

*) The reader should be aware that all records typed from the console with destination central site, is preceded by #. If the same record is punched on a card, the # sign must not be included.

The use of the legal control records is described:

Abort a job

Type

`#S*SABTmmmm`

where *mmmm* is the job number. If the job is not finished, it will be aborted and a message is returned to the line printer. If the job is finished, its output may be initiated and the output file aborted by the :FA command (see batch output mode).

Disconnect the line or terminate the communication

Type

`#S*SDIS`

and the host computer will disconnect the line, and the terminal goes idle.

As the `#S*SDIS` record is valid only in command input mode, the commands

:DS - disconnect, and

:TE - terminate

may in any communication mode be used to return to idle mode. When the terminal goes idle, the message

**TERMINAL IDLE

is displayed on the console.

Request status about jobs

Type

`#S*SSSTS`

The status about the job(s) for this terminal is returned to the line printer. The terminal system remains in control input mode after the status request.

If the terminal is not in control input mode, different procedures may be followed to request status:

Example 1: Status request when reading cards:

Type

:HL [␣]	When the current job is read, the message
**C-R HALTED	is displayed and the terminal is in control
	input mode. Then type
##\$*SSTS ₂	(status about all jobs), or
##\$*SSTSK0123	(status of job K0123). If there are more
	jobs in the reader, then type
##\$*SRCD ₂	to initiate batch input mode, and type
:RC [␣]	to continue reading of cards.

Note: If the card reader becomes empty and the last card was a SENDJOB card, the terminal returns to control input mode, and status may be requested directly by typing the ##\$*SRCD₂ record.

Example 2: Status request in batch output mode:

Type

:TE [␣]	to terminate the communication. Wait
**TERMINAL IDLE	for the message. Then type
:SS [␣]	to establish communication again. Wait
	for the message
**READY TO SEND	Then type your terminal identification
##\$*SID [␣] ₂	and the status request(s)
##\$*SSTS ₂	After the last status request, type
##\$*SOUTC ₂	The message
**TERMINAL IDLE	is displayed, and the interrupted output
	continues provided that the new terminal
	identification is equal to the identification
	when the :TE command was issued to
	interrupt the output.

Example 3: Status request in idle mode:

Type

:SS [␣]	to establish communication mode. Wait
	for the message
**READY TO SEND	Then type the identification
##\$*SID [␣] ₂	and the status request(s)
##\$*SSTS ₂	(for all jobs)
##\$*SSTSK0222 ₂	(for job no. K0222)

The terminal remains in control input mode.

Establish batch input mode

From control input mode, batch input is initiated by typing

```
##$*SRCDD
```

The host computer is now ready to receive one or more job decks.
See Section 4.3.2.

Establish batch output mode

From control input mode, batch output is initiated by typing

```
##$*SOUT                (output any jobs)
##$*SOUTmmmm           (output job no. mmmmm)
```

The host computer first terminates the line and the message

```
**TERMINAL IDLE
```

is displayed on the console before the printer starts printing.
See Section 4.3.3.

4.3.2 Batch Input Mode

When the \$*SRCDD record has been input, the terminal system is in batch input mode, and one or more jobs may follow.

If the \$*SRCDD record was typed from the console (as ##\$*SRCDD), the card reader should be made ready and started by the command :RC. The job deck is now read.

The first record in a job is \$SNUMBmmmm (job number) and the last record is \$ENDJOB. When a \$SNUMB record is prepared for sending, the job number preceded by **SNUMB is displayed on the console.

After a \$ENDJOB record, another job may follow or any control records legal in control input mode may be input. In the latter case, return to control input mode or idle mode is made, dependent on the control record.

During input of many jobs, it may be convenient to stop the card reader after the current job to send a control record. For this purpose the :HL command is available. (See example 1, page 4-4.)

If any control records (status requests) are typed when the card reader is halted, the control record ##\$*SRCDD must be typed before batch input continues. The card reader is restarted by typing the :RC command.

Card codes

The terminal reads both IBM-029 and H-6000 card code. While IBM-029 is default, one has to put a special Switch Code Card in front of a H-6000 deck. To switch back to IBM-029 one has to put in a different Switch Code Card. These cards are the following multi-punched cards:

Switch to H-6000 card code	:	12-11-0-9	punch
Switch to IBM-029 card code	:	12-11-0	punch

The codes must be punched in column 1 and any text on the same card is ignored.

It is the user's responsibility to ensure correct translation by using the correct code switch card.

Message from terminal operator console to operator console on central site.

When the terminal is in batch input mode, and the card reader halted, type the command

:MS [␣]	Wait for a **SNUMB message to be displayed on the console.
**SNUMBMSG01	Then type your message.
##message _␣	(Remember to enclose the message by ## and carriage return.)

After carriage return, the terminal is still in batch input mode, and a job from the card reader may follow (type :RC when the reader is ready), or control records may be input.

See the description of the :MS command.

Error recovery during batch input

Two card reader error messages may occur:

**REREAD LAST CARD

Put the last read card back to reader hopper. When the card reader is ready, type the :RC command and input continues.

**NEXT CARD IS BAD

Check the bottom card in the hopper for damage. Correct it, and put it back. Make the card reader ready and type the :RC command, and input continues.

When the card reader becomes empty during batch input, any input may be typed from the console, or the card reader may be loaded and made ready and started by the :RC command. (This is no error situation.)

If any error condition makes the terminal go idle during batch input (i. e., if the **TERMINAL IDLE message occurs), the job deck identified by the last **SNUMB message should be put back into the reader, and batch input must be re-initiated from idle mode. (:SS command, terminal identification record, \$*SRCD record.)

4.3.3 Batch Output Mode

Batch output mode is started from control input mode by sending the \$*SOUT control record, either by card reader or from the console. The host computer terminates the line before the requested output is sent, and the console message

**TERMINAL IDLE

should be neglected.

During output, central site may send a \$REPORT record with a message that tells the operator to change to a specified paper format on the line printer. When this record is detected by the terminal, the message is printed on the console and the line printer stops. When the change has been made, the operator gives his O.K. by typing the command :RL on his console. The output will then proceed.

The output file may be backspaced by the :FB command, or aborted by the :FA command.

If it is desirable to interrupt an output activity (for instance due to status request or batch input), the :TE[←] command may be used to put the terminal idle. The wanted activity may now be initiated, and when the terminal returns to control input mode, the \$*SOUTC record may be input. This causes the interrupted output file to be backspaced, and the output continues. (See example 2, page 4-4.)

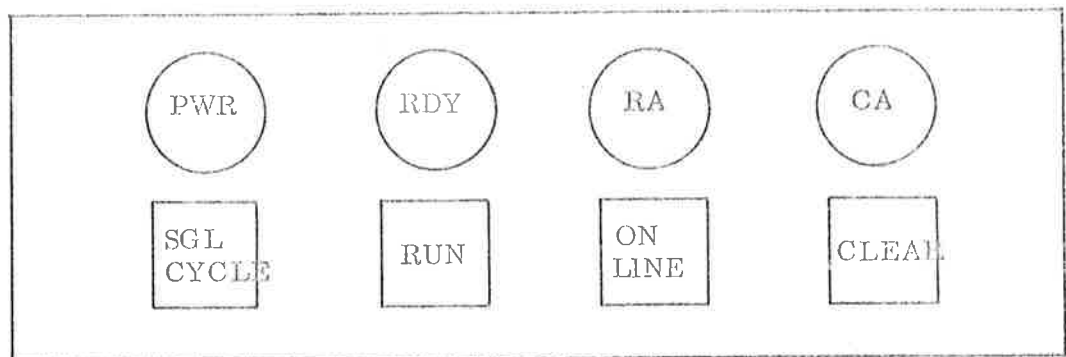
5 SHORT DESCRIPTION OF CARD READER AND PRINTER

5.1 The Card Reader

The following is a short description of the card reader controls and the operation procedure. For further information, see the manufacturers manual.

Controls and Indicators:

Note: The power switch is located on the lower left, front panel, not on the operator panel.



Operator Panel

Switch/IndicatorFunction

ON LINE
Pushbutton, alternate action

When engaged, connects the card reader to the computer and disables the RUN and SGL CYCLE switches.

SGL CYCLE (Single Cycle)

When the ON LINE switch is disengaged, pressing and releasing the SGL CYCLE switch initiates one card cycle.

CLEAR
Pushbutton, momentary

Clears logic circuits of all alerts and pre-sets them for operation.

RUN
Pushbutton, alternate action

When pressed once with the ON LINE switch disengaged, feeds cards continuously through the unit. Card feeding stops when the RUN switch is pressed again.

<u>Switch/Indicator</u>	<u>Function</u>
PWR (power) Indicator.	Lights when power is on.
RDY (Ready) Indicator	Lights when the unit is on-line, power is on and no Card Alert or Read Alert condition exists.
CA (Card Alert) Indicator	Lights to indicate a Jam, Stacker Full or Empty Hopper condition.
RA (Read Alert) Indicator	Lights to indicate a read check error.

Card Loading:

Cards are loaded face down, 9-edge towards rear of hopper. The maximum number of cards in hopper at a time is 600. Cards may be added to the hopper if the card level is above the 200 cards mark. Removal of the card weight when less than 200 cards in hopper may result in permanent card damage, so the :SC command should first be issued to stop the card reader. Restart with the :RC command.

Card Unloading:

Cards may be removed from the stacker during operation while less than 250 cards are in the stacker. When more than 600 cards are in the stacker, card feeding stops until the cards are removed and the logic circuits are cleared by pressing the CLEAR switch on the operator panel.

5.2 The Line Printer

The following is a short description of the line printer controls and indicators. For further information about the printer, see the manufacturers manual.

Controls and Indicators:

<u>Switch/Indicator</u>	<u>Function</u>
POWER OFF Non-indicating, momentary pushbutton	Removes power from all internal circuits and applies a Master Clear signal to the logic circuits.

Switch/IndicatorFunction

POWER ON
Indicating, momentary
pushbutton

Powers up the line printer and triggers the Master Clear cycle of the internal logic circuits. Initial Power On clear, takes from 3 to 5 seconds. When the indicator is lighted, power is on. The POWER ON button may now be pressed at any time to produce a Master Clear.

STOP
Indicating, momentary
pushbutton

Pressing the STOP button causes the printer to go Not Ready when the current input cycle is completed. When the indicator is lighted the printer is Not Ready.

START
Indicating, momentary
pushbutton

Pressing the START button causes the printer to go Ready if all conditions for Ready are present. When the indicator is lighted the printer is ready.

PAGE EJECT
Non-indicating,
momentary pushbutton

Pressing the PAGE EJECT button advances the form to top of next page if the printer is in Not Ready mode. (STOP button pressed earlier.)

Phasing Control
Wheel Knob

Rotating the phasing control knob causes the printer to change the phasing between characters on the drum and the firing of the hammers. Correct phasing adjustment prevents clipping of tops or bottoms of characters. Readjustment may be needed when a different paper weight is introduced.

6

SHUT-DOWN

Disconnect the terminal by giving the command :DS. Power down the peripherals. If the NORD-20 is left on, new loading of the system should not be needed. Else the NORD-20 is powered down by pushing the power button or turning the key.



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COMMENT AND EVALUATION SHEET

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NORD IDT GERTS-415
Operator's Guide

In order for this manual to develop to the point where it best suits your needs, we must have your comments, corrections, suggestions for additions, etc. Please write down your comments on this pre-addressed form and post it. Please be specific wherever possible.

FROM

ND-60.041.01

