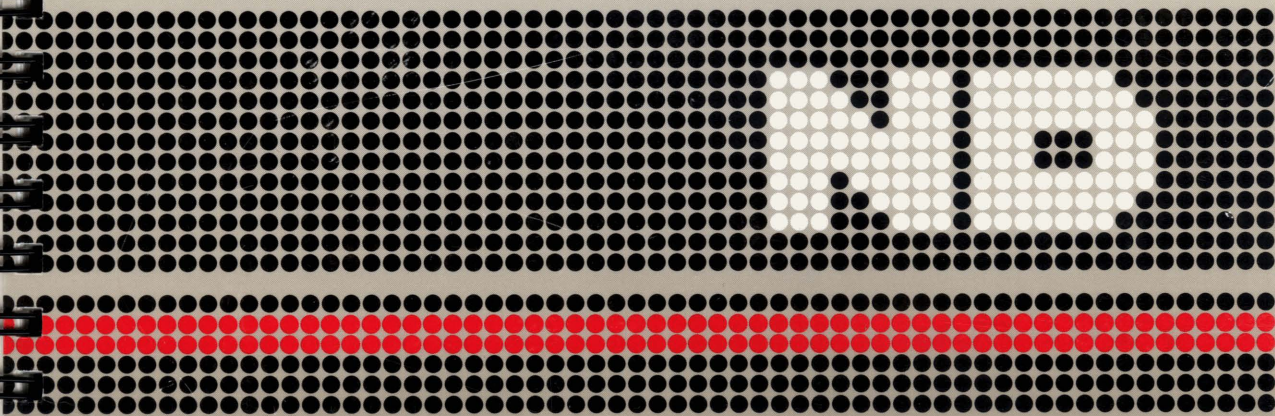


ND-100 COMPACT Operator Guide

ND-30.031.3 EN



Preface

THE PRODUCT

The ND-100 Compact Computer System is a physically compact computer based on the design and technology of the ND-100 and is intended for office use. It is small, quiet and easy to operate. It has a floppy disk station and usually also a cartridge tape (streamer). A valuable service available for this machine is Telefix, which makes it possible to analyse and correct faults in customers' computers directly from Norsk Data's Service Center via the telephone network.

The following Compact models are available:

ND-100 Compact Model 11	ND-3291
ND-100 Compact Model 12	ND-3292
ND-100 Compact Model 13	ND-3293
ND-100 Compact Model 14	ND-3294

THE READER

This manual is written primarily for those who are responsible for the operation of the computer.

PREREQUISITE KNOWLEDGE

No previous computer knowledge is necessary to understand this manual.

THE MANUAL

This manual is intended as a practical guide for people who operate the computer. The first three chapters are for the user, and the rest is for the system supervisor. The following operator procedures are described:

- Starting and stopping the ND-100 Compact Computer
- How to go on when the computer is started

- Handling floppy diskettes
- Taking backup to a floppy diskette and reading back from the diskette
- Handling simple errors
- Taking backup to a streamer tape and reading back from the tape
- Preventive maintenance of the streamer

RELATED MANUALS	ND-60.125	SINTRAN III Introduction Manual
	ND-60.128	SINTRAN III Reference Manual
	ND-30.003.6 EN	SINTRAN III System Supervisor
	ND-99.030.1 EN	How to use the Operator Panel ND-323163 (Reference card)
	ND-60.250.1 EN	Backup User Guide

CHANGES FROM
PREVIOUS VERSIONS This manual has been revised to include the
following new features :

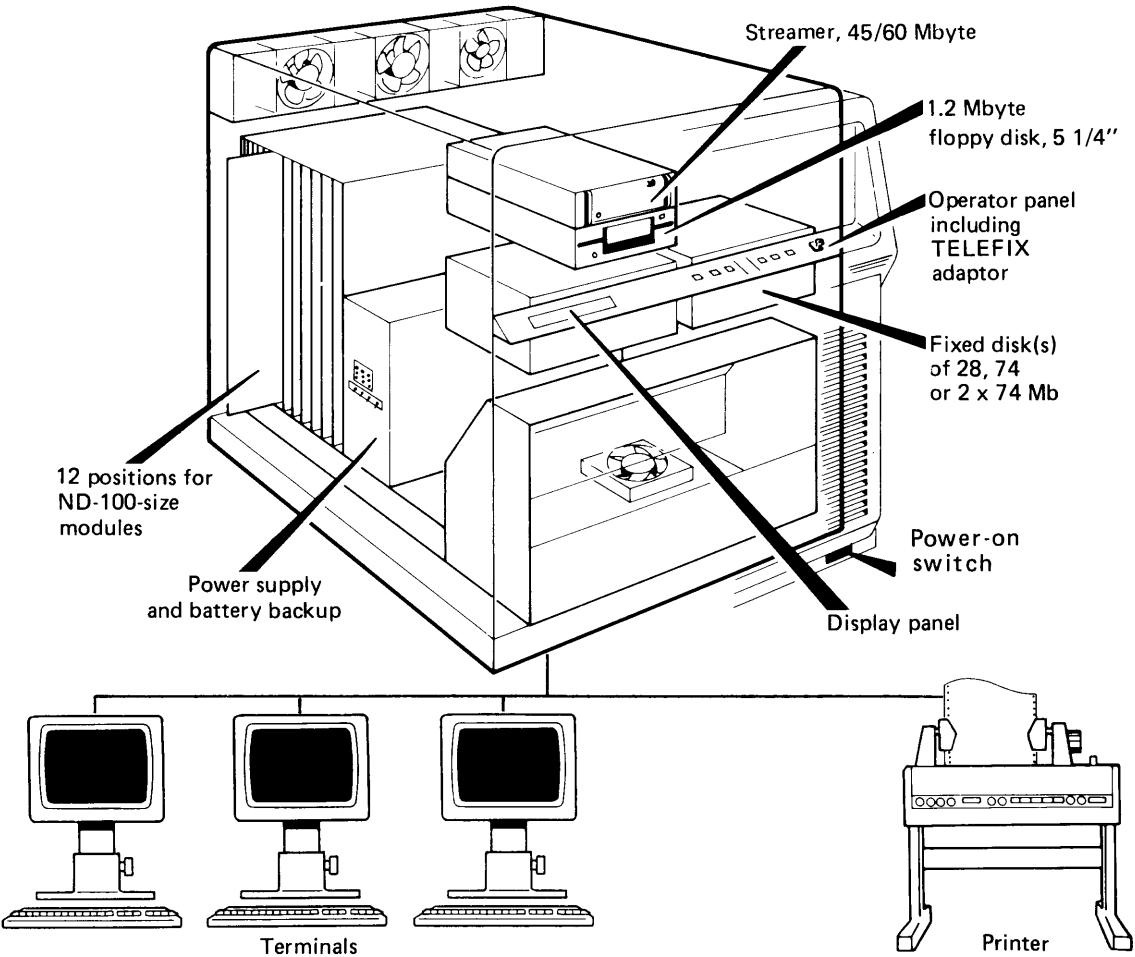
- The new ND-100 Compact operator's panel
- The streamer cartridge
- How to use Telefix

CHAPTER 1 Typical configuration

The ND-100 Compact Computer cabinet contains all the necessary equipment (with the exception of terminals and printers) for a fully operational computer system.

NOTE

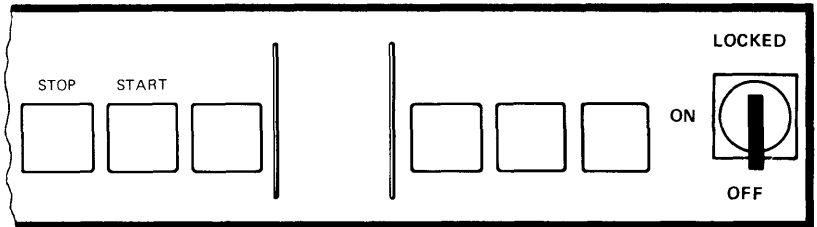
Some of the words used in this manual are explained in appendix B.



CHAPTER 2 How to start and stop the ND-100 COMPACT computer

2.1 Starting the ND-100 COMPACT computer

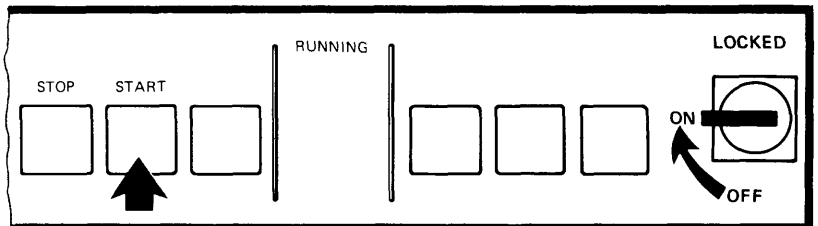
When the power switch is turned on for the ND-100 Compact computer, the panel looks like this:



To start the computer you must:

1. Turn the key-switch to the ON position
2. Push the START button

After a few seconds, the computer is running and the panel looks like this:



If you turn the key-switch the LOCKED position, the panel is locked. Only RUNNING is lit.

If the key switch is in the LOCKED position when the power is turned on, the startup procedure is carried out automatically. Only RUNNING is lit.

NOTE

For more detailed information on using the operator panel, see the reference card "HOW TO USE OPERATOR PANEL ND 323163", ND-99.030.01 EN

2.2 What to do after the computer is started

To continue, you must get in touch with the SINTRAN III operating system. This system makes it possible for you to communicate with the computer via the terminal.

NOTE

Everything to be written by you is shown underlined in this manual. Example:

ENTER USER-NAME ↵

_____ *_____*

↑ *↑*

Written by *Written by you*

the computer

You get in touch with the operating system as follows:

Press the key marked

ESC

The word ENTER appears on the screen. Type in your user name followed by return. (If you do not know your user name, ask the system supervisor.)

ENTER YOUR-USER-NAME ↵

The word PASSWORD appears on the screen. If you do not have a password, just press the return key.

PASSWORD: ↵

(or)

PASSWORD: YOUR-PASSWORD ↵

By using a password you can prevent other users from logging in falsely under your user name. When you type in your password it will not be visible on the screen. (How to create a password is described in the manual: ND-60.128 SINTRAN III Reference Manual.)

If your computer uses an accounting system, the words PROJECT PASSWORD appears. If you do not have a project password, simply press the return key.

PROJECT PASSWORD: ↵

(or)

PROJECT PASSWORD: YOUR-PROJECT-PASSWORD ↵

OK

@

The screen responds 'OK'. On the next line @ (the SINTRAN SIGN) appears. This indicates that the operating system SINTRAN is waiting for your instructions. Detailed information about SINTRAN III is given in the SINTRAN III Introduction Manual ND-60.125.

2.3 Stopping the ND-100 COMPACT computer

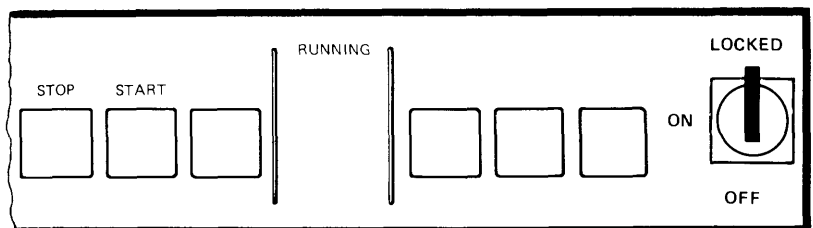
The ND-100 Compact Computer has a battery which keeps the system alive for approximately 12 minutes in the event of power failure.

CAUTION

If there is a main power switch for the entire office and this is turned off, the computer battery will be discharged. It is therefore recommended that the ND-100 Compact has its own power circuit.

Do not turn the ND-100 Compact computer OFF !

When the computer is running, the operator panel looks like this:

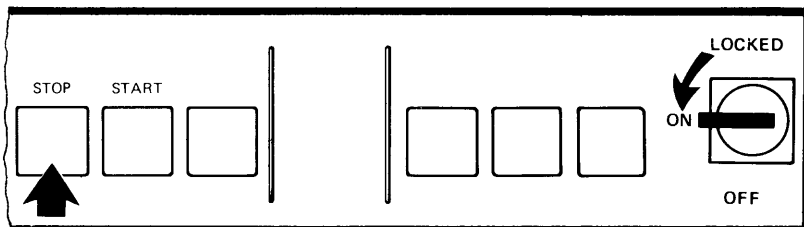


Normally, it is unnecessary to stop the computer. However, if you must stop the computer, follow this procedure:

1. Turn the key-switch to the ON position

2. Press the STOP button

After you have done this, the computer stops and the operator panel looks like this:



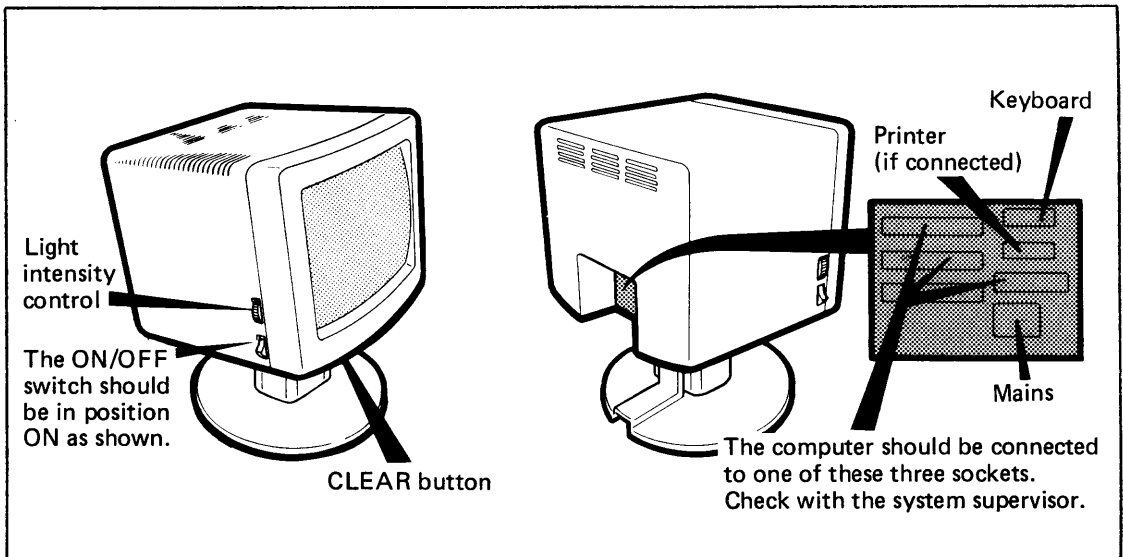
2.4 Correcting simple errors when something is wrong with your terminal

If something is wrong with your terminal, there are a few details you should check out before contacting the system supervisor.

If the terminal is "dead", then:

- Check that the socket plugs are in
- Check that the terminal is switched ON
- Check the light intensity
- Press the CLEAR button under the terminal

If something is still wrong, contact the system supervisor.



CHAPTER 3 Personal backup — writing to and reading from diskettes

3.1 General

To take a "personal backup" means to make a copy of your files using a floppy diskette. Backup can also be taken onto the streamer tape, but this is usually the responsibility of your system supervisor and is described in chapter 5.

Each user should be responsible for taking personal backup of his own user files. Each user has a "user area" where the user's personal files are stored. For example, if there is a user whom SINTRAN recognizes as user ANNE, ANNE's files are stored in ANNE's user area. When ANNE takes personal backup she copies one or more of ANNE's files from the user area to a floppy diskette.

If you are using a new floppy diskette, you have to go through the following steps:

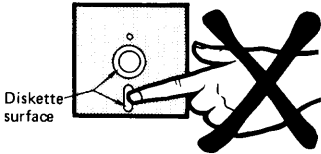
- 1) Label the floppy diskette (section 3.3)
- 2) Format the floppy diskette (section 3.4)
- 3) Create a volume on the floppy diskette (section 3.5)
- 4) Copy your files (section 3.5)

Next time you use this floppy diskette you only have to:

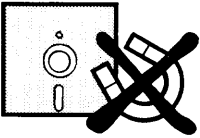
- 1) Update the label
- 2) Copy your files

3.2 Guidelines for handling diskettes

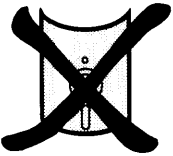
Good diskette habits minimize the risk of losing data. For your own benefit, ALWAYS FOLLOW THESE RULES:



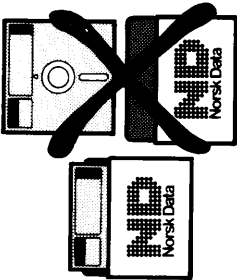
- Hands off the diskette surface!



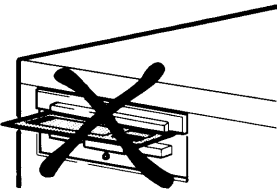
- Keep the diskettes away from magnetic fields. Do not place them on top of your terminal or other equipment.



- Do not bend or fold the diskettes.



- Keep the diskettes in their jackets when not in use.



- Be careful when inserting the diskette in the floppy drive. NEVER leave it halfway inserted in the open door.
- AND FINALLY: Avoid dropping the diskette on the carpet. If you do, PICK IT UP IMMEDIATELY. The static electricity in the carpet may damage the data.

3.3 Labelling the floppy diskette

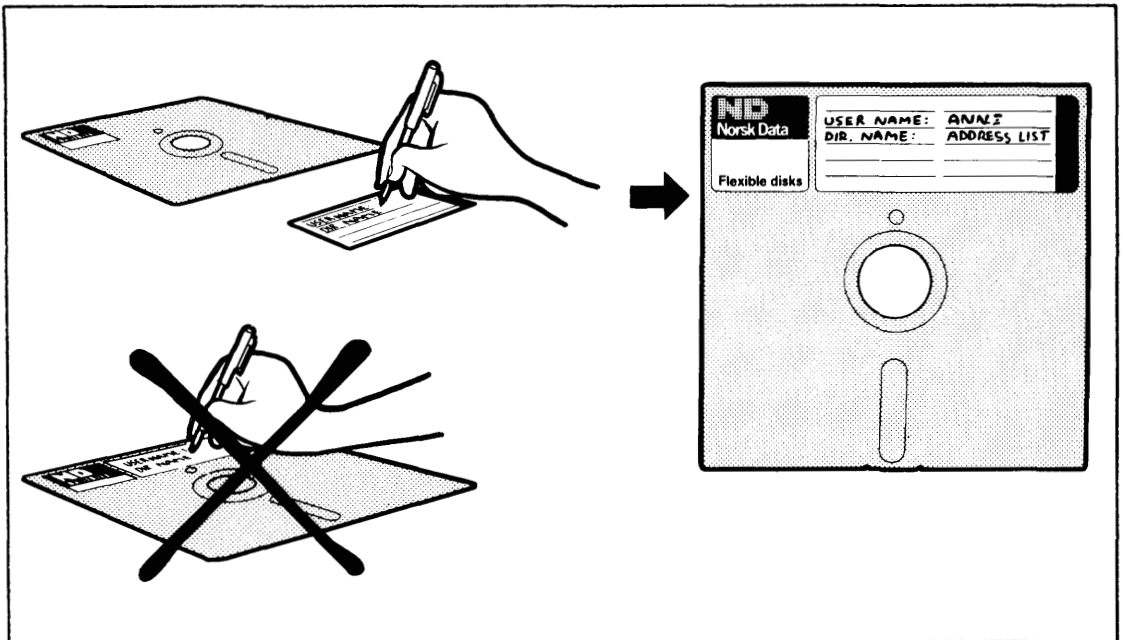
For future reference it is very important to label the floppy diskette so that you will know what has been stored on it. This will help you later when you want to read data from the floppy or copy files to your user area. Labels are included in the floppy diskette cartons. BEFORE placing the label on the floppy diskette write

USER NAME

and

DIRECTORY NAME

on the label.



3.4 Formatting the floppy diskette

To format a diskette means to prepare it for data storage. In the formatting process, control data is written on it and it is divided into numbered sectors. Diskettes from Norsk Data A.S are formatted prior to delivery. If you buy the diskettes from another supplier, you must format them yourself.

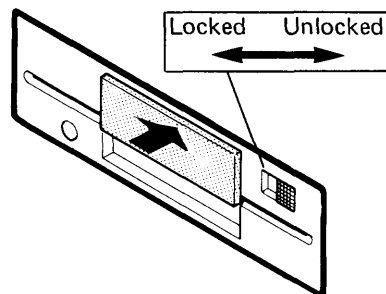
CAUTION

If a diskette that is being formatted contains stored data, that data is automatically deleted.

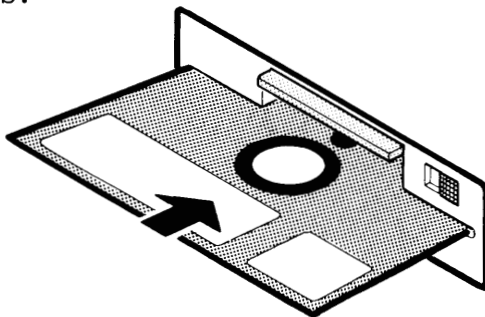
Insert the floppy diskette as follows:

Make sure that the door is unlocked (red mark means locked).

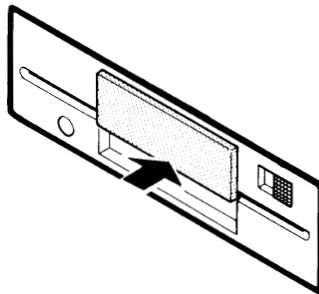
Press the upper side of the door. The door opens.



Insert the diskette as shown. Push it in as far as it goes.



Close the door. Lock the door if you want.



At your terminal, carry out the following procedure:

Push the key marked ESC

When logging in, type your user name - in this example ANNE.

ENTER ANNE ↵

Type in your password if you have one, if not just press the ↵ key.

PASSWORD: ↵

Prior to formatting the floppy, the floppy format must be set.

Type DEVICE-FUNCTION followed by ↵.

@DEVICE-FUNCTION ↵

Type Floppy as filename followed by ↵.

FILENAME:Floppy ↵

NOTE

If your computer has two floppy drives, they will be marked by the system supervisor as floppy 1 and floppy 2. Depending on which floppy drive you use you must answer either

FLOPPY-1 (for floppy unit 0)
or
FLOPPY-2 (for floppy unit 1)

Type SET-FLOPPY-FORMAT followed by ↵.

FUNCTION:SET-FLOPPY-FORMAT ↵

Set the floppy format by typing 17 and ↵ behind "FORMAT". The @-sign now appears again.

FORMAT:17 ↵

Type DEVICE-FUNCTION followed by ↵.

@DEVICE-FUNCTION ↵

Give the file name FLOPPY (or FLOPPY-1 or FLOPPY-2 if the computer has two floppy drives).

FILE NAME:FLOPPY ↵

Type FORMAT-FLOPPY followed by ↵. The floppy in the floppy drive will now be formatted.

FUNCTION :FORMAT-FLOPPY ↵

You also use the FORMAT-FLOPPY command if you want to 'erase' the old contents of a floppy diskette and store new data on it. Remember that you do not have a directory name for a diskette that is erased in this way.

3.5 Taking backup to a floppy diskette

To take backup to a floppy diskette means to read files from a specified area on the internal disk, and store them on a floppy diskette

There are two ways of organizing your files on the floppy diskette. You can either separate your files in different DIRECTORIES, or you can store them all in a VOLUME. Only volume storage is explained here. If you want to use directories, see the manual "SINTRAN III, System Supervisor", ND-30.003.6 EN, chapters 3 and 13.

Example:

Suppose that user ANNE wants to take backup of her file "LETTER:TEXT" from her user area to a floppy diskette.

Log in as a user:

Press the key marked ESC

Type in your user name - in this example ANNE.

ENTER ANNE ↵

Type in your password if you have one, if not just press the return key.

PASSWORD: ↵

In the following, we show you which instructions to type when taking backup. Some of the instructions can be abbreviated, as long as the abbreviations are unambiguous. The words BACKUP-SYSTEM can, for instance, be abbreviated to BA-SY.

Start by typing BACKUP-SYSTEM, or just Ba-Sy. The backup system starts.

@BACKUP-SYSTEM ↵

Before taking backup, you must create a VOLUME;
that is reserve space on the floppy diskette.

Ba-sy: CREATE-VOLUME ↵

You must give this space a name. You can, for example, choose the name you logged in under. Six is the maximum number of letters allowed in the name. The name ANNE is chosen as an example here.

Volume name: ANNE ↵

If at another time you take backup on THE SAME diskette, you can use the volume ALREADY CREATED.

You must now specify which type of device you want the volume created on, in this case a floppy diskette.

Device name: FLOPPY-DISK-1 ↵

Type RETURN to choose the default device unit.

Device unit '0': ↵

WHAT IS 'DEFAULT'?

In the following, the computer will ask you several questions, and to make it easier for you it sometimes suggests an answer (a default answer). The computer writes the suggested answer in single quotation marks (') immediately after the question, and you can choose it simply by pressing the ↵ key.

EXAMPLE: You want to make a list of the files you have copied. The computer then asks where you want the list by responding:

Output file 'TERMINAL' :

Here the computer suggests that you might want the list displayed on you terminal. If so, you can just press ↵. If not, you must specify where you want the list, for example on a printer.

(Wait for a few seconds while the volume is created)

When you have created a volume, you must specify the DESTINATION of the file you intend to copy. The destination is the space (volume) you just created on your diskette.

When "Ba-Sy:" comes up, type COPY-USER-FILES, followed by ↵.

Ba-sy: COPY-USER-FILES ↵

Type VOLUME as destination type, followed by ↵.

Destination type : VOLUME ↵

Destination volume name: ANNE ↵

Type FLOPPY-DISC-1 as destination device name, followed by ↵.

Destination device name: FLOPPY-DISC-1 ↵

Use the default destination unit number by just pressing ↵.

Destination unit number '0': ↵

Answer "destination file generation" by just pressing ↵.

Destination file generation: ↵

The message "default destination generation:1" appears.

DEFAULT DESTINATION GENERATION:1

You must also specify the source of the copying,
i.e. the file or files you wish to copy.

Source type: D ↵

Answer "Source directory name" by just pressing ↵.

Source directory name '' : ↵

Use the default source user name by just
pressing ↵.

Source user name 'ANNE': ↵

If you do not specify a file, but simply press ↵,
ALL your files will be copied. In the example here,
all files whose name begin with LETTER (ie. LETTER-
1, LETTER-2 etc.) will be copied. To copy just one
file, you must type THE WHOLE file name.

Source file name: LETTER ↵

Manual selection: Y ↵

(Wait while the backup is taking place)

When 'Ba-sy' appears, the backup copying is
completed. You can now check that your file or
files have been transferred to the diskette by
making a list of the files on the diskette.

Ba-sy: LIST-VOLUME ↵

Device name: FLOPPY-DISC-1 ↵

Answer ↵ to use default for device unit.

Device unit '0' : ↵

Answer ↵ for file name.

File name ' ' : ↵

Answer ↵ to get the output to your terminal.

Output file 'TERMINAL' : ↵

The selected volume name, the "owner" of the volume
and the file name is now displayed on the screen.

VOLUME NAME : ANNE
OWNED BY : ANNE
FILE 1: (ANNE)LETTER:TEXT;1

Type EXIT to go out of the backup system.

Ba-sy: EXIT ↵

3.6 Reading from a floppy diskette

To read from a floppy diskette means to read a file from a floppy diskette, and store it on a specified area on the internal disk.

Insert the floppy diskette as shown earlier. At the terminal, you follow this procedure:

Press the ESC key

When logging in, type your user name. In this example ANNE.

```
ENTER ANNE ↵
```

Type in your password if you have one, if not just press ↵.

```
PASSWORD: ↵
```

Type "Backup system".

```
@BACKUP-SYSTEM ↵
```

The backup system starts. Abbreviations can be used.

Type COPY-USER-FILE (or CO-US-FI).

```
Ba-sy: CO-US-FI ↵
```

Type D for Disk followed by ↵ as an answer to "destination type".

```
Destination type: D ↵
```

Answer to "destination directory name".

Destination directory name':

Answer to the question "destination user name" if you wish to use the default user name.

Destination user name 'ANNE':

Type V for Volume followed by .

Source type: V

Answer "source volume name" with the volume name on the diskette. In our example ANNE.

Source volume name: ANNE

Answer by just pressing if you wish to use the default source device name.

Source device name 'FLOPPY-DISC-1':

Answer by pressing if you wish to use the default source device unit.

Source device unit '0':

Answer by pressing if you wish to use the default source file generation.

Source file generation '':

In this example, you want all files with names beginning with LETTER to be copied back.

Source file name: LETTER

If you do not specify a source file name, but simply press , ALL the files on the floppy diskette will be copied back.

Answer Y (yes) to the question "Manual selection".
You can now make a manual selection of the files to
be copied.

Manual selection: Y ↵

(Wait while the copying takes place)

During the copying, the files are listed one by
one. Answer Y (yes) if you want the file copied, or
N (no) if not.

Type EXIT to go out of the Backup system.

Ba-sy: EXIT ↵

3.7 Unit occupied (someone has forgotten to release directory)

Even if the use of DIRECTORIES is not explained in this book, we think it is important for you to know how to tackle the situation when someone else has forgotten to release a directory.

From time to time you will find that users forget to terminate their session with the backup-system by using the

@RELEASE-DIRECTORY

command. The next user who tries to use the

@ENTER-DIRECTORY

command on the floppy disk drive gets the error message UNIT OCCUPIED. There are two ways to solve this problem.

If you know who used the floppy drive last time, you insert that person's floppy diskette with the correct directory name and just release it by typing release-directory followed by ↵ .

@RELEASE-DIRECTORY ↵

You may then insert your diskette and enter its directory.

If you do not know who used the floppy drive last time, the procedure is a bit more complicated.

- a) Find out which directory was entered in the floppy disk drive.

@LIST-DIRECTORIES-ENTERED,,, ↵

DIR INDEX 0: DISC-45MB UNIT 0: PACK-ONE
DIR INDEX 1: DISC-45MB UNIT 0: PACK-ONE
DIR INDEX 2: FLOPPY-DISK-1 UNIT 0: ADDRESS-LIST

The directory ADDRESS-LIST was entered and must be released.

- b) Insert a blank diskette (unused or with no directory).
- c) Release the directory, even if the "wrong" floppy is in the drive:

@RELEASE-DIRECTORY ADDRESS-LIST ↵

DIRECTORY NOT ON SPECIFIED UNIT

In spite of this error message, the ADDRESS-LIST directory is released.

- d) You can now to enter the new directory. This is done by simply inserting the diskette containing the new directory, and typing:

@ENTER-DIRECTORY,,F-D ↵

CHAPTER 4 Responsibilities for the system supervisor

4.1 General

The following chapters give information mainly for the system supervisor. What is a system supervisor?

A System Supervisor is a person responsible for the daily operation of the system. He or she is the resource person for all users, and performs the following functions:

- Starting up the system and installing programs
- Creating users and giving them space on the disk
- Taking regular backup of the disk onto the streamer tape
- Handling error situations
- Knowing the conditions in the service contract, if any
- Being ND's contact person

The manual SINTRAN III, System supervisor, ND-30.003.6 provides all the necessary information for a system supervisor.

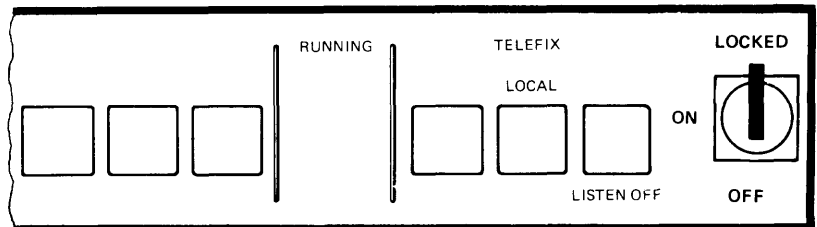
We will look at different backup procedures, give information on how to use TELEFIX, and give some maintenance hints for the streamer drive and cartridge.

4.2 How to use TELEFIX

TELEFIX makes it possible to trace and correct faults in your computer directly from Norsk Data's Service Center.

It is only possible to enter the TELEFIX mode, if the TELEFIX driver (the interface between the telephone modem and the CPU) receives a carrier from the ND-TELEFIX Center. This means that you must first call the ND-TELEFIX Center.

When the TELEFIX driver receives a carrier from the ND-TELEFIX Center, the operator panel looks like this:



To change the state of the TELEFIX-driver, unlock the panel (key-switch to ON), and use the two rightmost buttons on the panel. They both have a toggle function, and will change state each time they are pressed. One button sets the LOCAL/REMOTE function, and the other the LISTEN ON/LISTEN OFF function.

Functions for the combinations of the two TELEFIX-buttons:

LOCAL and LISTEN OFF

The normal working condition. There is no connection to the TELEFIX modem.

LOCAL and LISTEN ON

The computer is controlled from site. The ND-TELEFIX Center can "listen to" what is going on.

REMOTE and LISTEN OFF

The computer is controlled from the ND-TELEFIX Centre.

REMOTE and LISTEN ON

The computer is controlled from the ND-TELEFIX Centre. The local console can "listen in".

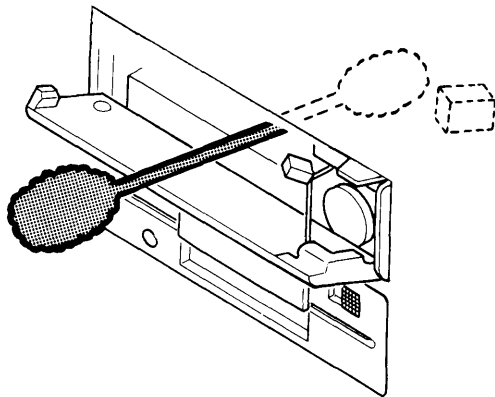
4.3 Treatment of streamer and cartridge

In the following pages, we will look at all the essential precautions that must be taken when handling streamer drives and cartridges.

4.3.1 Cleaning the read/write heads

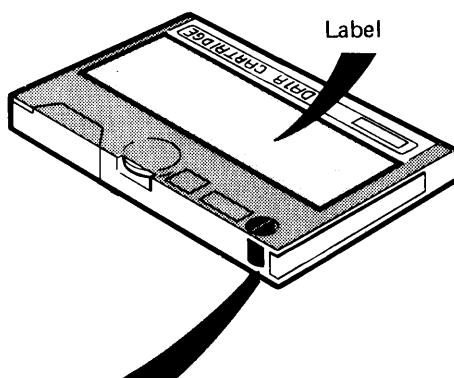
It is extremely important to clean the heads regularly. They gather dust and dirt, which will prevent them from writing and reading data properly.

If backup is taken daily, you must clean the read/write heads once a week. If backup is taken weekly, you must clean the heads once a month. To clean the heads you can use Tandberg Data's kit No.7566, " TDC Cleaning Cartridge". Follow the instructions provided with the kit.



4.3.2 Labelling the tape cartridge

It is very important to label the tape cartridge so that you will know what has been stored on it. Always write the date and the name of the disk unit from which the backup was taken.

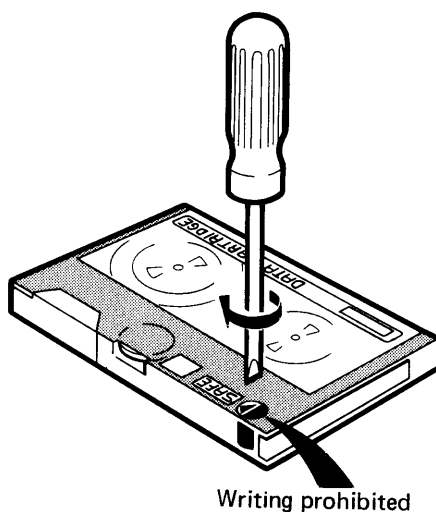


NOTE

Do NOT fasten the label to the metal plate on the underside of the cartridge (see drawing). The thickness of the label will force the cartridge out of its correct position.

4.3.3 Protecting the tape cartridge from accidental erasure

You can protect existing data on a tape cartridge from accidental overwrite by turning the write protect plug to the SAFE position. This prohibits writing on any track.



4.3.4 Tape quality

Rewrite/read
counter

When the copying process is finished, an extended status is read from the streamer. A message with the rewrite/read counter and the over/underrun counter is also read, and, if these are larger than zero, this will be written out.

Bad tape

If the rewrite counter increases every time backup is taken, it may be an indication of a bad tape. Try to clean the read/write heads or change to a new tape.

CHAPTER 5 How to take device backup from disk to streamer

5.1 General

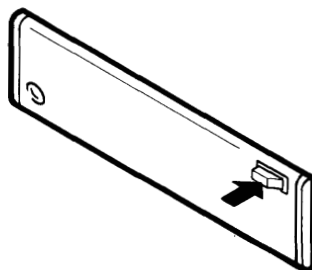
Device backup should only be taken by the system supervisor. This involves copying all the contents of the disk to the streamer.

There are two ways of doing this backup.

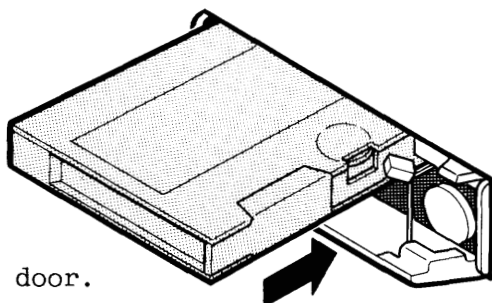
- under SINTRAN with the BACKUP SYSTEM (as in chapter 4 "Personal Backup ...")
- with a "stand-alone" program named DIR-BACKUP (SINTRAN is not running when a stand-alone program is used)

Insert the cartridge in the streamer drive for the backup - remember that one backup recording takes one cartridge or, if you have a 74 Mb disk, two cartridges.

Open the door by pushing the knob.



Slide the cartridge in as shown until it stops.



Close the door.

5.2 Taking backup with the backup system

If, in the following procedure, you are ever in doubt about which command or parameter to use, type a question mark. The screen will then display additional information.

CAUTION

Make sure that you are copying in the correct direction. Otherwise you will overwrite the current disk contents.

Start the backup system by typing the command BACKUP-SYSTEM followed by ↵. You can type only BA-SY.

@ BACKUP-SYSTEM ↵

BACKUP-SYSTEM / VERSION X

Start the function that copies from one device to another by typing DEVICE-COPY followed by ↵. If you type HELP instead of DEVICE-COPY, you get a list of all the commands in the backup system.

Ba-sy: DEVICE-COPY ↵

If you are copying to a streamer, answer the question "Destination device name" with STREAMER-TAPE-1 followed by ↵.

Destination device name: STREAMER-TAPE-1 ↵

Specify the device unit. In this case 0 (zero).

Destination device unit: 0 ↵ (zero)

Specify from which unit the copy shall be taken. In this case the DISK. If a 74 Mb disc is mounted, the command should be DISC-74MB-1.

Source device name: DISC-74MB-1 ↵

Specify the source device unit. In this case 0 (zero).

Source device unit: 0 ↵ (zero)

Specify the copy function by typing the command COPY and ↵. The data will then be copied without changing anything.

Function: COPY ↵

Prior to the copying, the system gives information about how many pages there are to copy and provides an estimate of the length of time it will take.

Pages to copy: 22032
Estimated total time in minutes: 20

The system is copying the files when the message "Copying" appears on the screen.

Copying

When the message "Compare" comes on the screen, the system is comparing the source data with the copied data to verify whether or not the files have been correctly copied.

Compare

If one streamer cartridge cannot take all the files on the disk, you will get a message that asks you to change the streamer cartridge.

-OK

The backup is ok.

Type EXIT to go back to SINTRAN.

Ba-Sy: EXIT ↵

@

5.3 Taking backup with the stand- alone program DIR- BACKUP

Before stopping the system, which you must do before the streamer backup system can be loaded into the ND-100 Compact computer, make sure that the system is not being used by anyone. To do this, you must use the command WHO after you have logged-in - see below.

Press the ESC key.

```
ENTER SYSTEM ↵
```

```
PASSWORD: SYSTEM-PASSWORD ↵
```

```
OK
```

Type "Who-is-on" or just "Who". This is done to see if the system is in use. You can read more about this, and other commands, in the SINTRAN III Reference Manual ND-60.128.

```
@ WHO-IS-ON ↵
```

Below is an example showing the type of information the WHO-IS-ON command gives you. In this example you have to ask the two users KATE and BOB to log out before you stop the system.

```
===>      1   SYSTEM
           68   KATE
           49   BOB
```

When the system is available, go to the console terminal and carry out the following procedure :

Type STOP-SYSTEM followed by ↵ to stop the system.

```
@ STOP-SYSTEM ↵
```

Type MACL (masterclear) followed by ↵ when the fence (#) sign comes up.

```
#MACL ↵
```

Now load the program by doing the following:

Insert the floppy diskette with the DIR-BACKUP program into FLOPPY-DISK-1 (Unit 0). From the console terminal type 1560& after the double fence sign. Do NOT type ↵.

```
##1560&
```

Start the program DIRECTORY BACKUP by typing DIR followed by ↵.

```
*DIR ↵
```

When the screen picture below appears, the backup program is loaded from the floppy and started. You can now take out the floppy diskette from the disk drive. A heading with title, date and time is written out on the console terminal. See below.

```
=====
=          Directory backup for          =
=      Winchester-disc and Streamer      =
=                                         =
=   Started : Date/Month-Year   hh:mm:ss   =
=====
```

```
DIR-BACKUP - Version :COO - <month> dd, year
```

The command HELP gives you a list of the commands for the program.

If the date and time are incorrect, you can correct them with the UPDAT command (see appendix A).

Continue as follows :

>MODE ↵

MODE

Give your disk type (D-45 if you have a 45 MB disk).

Disk configuration.....: D-45 ↵

The system answers.

DISK -45MB

Running on a screen terminal (Yes/No): Y ↵

If you answer Yes here, it will count up the number of pages. If you answer No, you can press the two keys:

CTRL

V

simultaneously to see how many pages are copied. (Type V while holding the CTRL key down.) This must be done after you have received a message telling you that the copying has started (see section 7.2)

Restart SINTRAN after backup (Yes/No): No ↵

Answer "Yes" to the question "Compare after copy" if you want the contents on the cartridge to be verified by comparison with the contents on the disk.

Compare after copy..... (Yes/No): Yes ↵

Answer "No" to the question "Abort when compare error" if you wish to prevent the operation from being aborted if a compare error occurs.

Abort when compare error (Yes/No): No ↵

Answer "No" to the question "Disable ESC function" if you want to be able to use the ESC key to interrupt the program.

Disable ESC function..... (Yes/No): No ↵

Automatic start of backup command(Yes/No):No ↵

System name or number.:Not defined my-system ↵

Press the ESC key to leave the program.

Type the command BACKUP followed by ↵. When this command is given, it assumes that a cartridge for this backup has been inserted.

>BACKUP ↵

Answer "Streamer system" by 1 and "Unit" by 0 (zero).

BACKUP

TO STREAMER system (1-2 (Dec.)) 1 ↵

Unit.....(0-3 (Dec.)) 0 ↵

If you type HELP, the available disks will be listed. The default disk has a * beside it. Default indicates that when you press the return key (↵), the computer will understand DISC-NAME to be the disk type previously specified by you, in this case DISC-45MB-1.

FROM DISC-NAME: HELP ↵

- 1) DISC-14MB-1
- 2) DISC-14MB-2
- 3) DISC-21MB-1
- 4) DISC-21MB-2
- 5) DISC-23MB-1
- 6) DISC-23MB-2
- 7) *DISC-45MB-1
- 8) DISC-45MB-2
- 9) DISC-74MB-1
- 10) DISC-74MB-2

Answer "Disc-name" with one of the disks from the list. You can use an abbreviation. Just press ↵ if you want the default disk.

DISC-NAME: D-4-1

DISC-45MB-1

Answer "Unit" by 0 (zero) followed by ↵.

Unit.....(0-3 Oct.): 0

Screen messages indicates what is happening.
These messages may appear as in the example below :

```
== hh:mm:ss Initialize disc and streamer ==
== hh:mm:ss Copy from disc TO STREAMER ==
```

You may now press the two keys

CTRL	V
------	---

to see how many pages have been copied. (Type V while holding the CTRL key down.) If you do this, you get the following message:

```
==BAC02=> Pages copied to streamer: xxxxxx
```

```
== hh:mm:ss Copy finished ==
```

```
== hh:mm:ss Compare disc and streamer ==
```

```
== hh:mm:ss Compare finished ==
```

These two messages will not appear if you answer NO to the question: "compare after copy" while in the MODE command.

```
>
```

When the prompt > appears, the backup is finished. When taking BACKUP with the COMPARE command, the operation takes about 22 minutes from a 45 Mb disk.

The COMPARE command performs the same function as in the MODE command when you answer YES to the question: "compare after copy". It compares the contents of the cartridge with the contents of the disk.

If the backup was unsuccessful, the screen responds with an error message in the following format:

```
==BAC44=> FATAL ERROR, operation aborted,  
Time hh:mm:ss
```

This error message means that the backup has failed.

If, in addition, this error message is displayed:

```
=====>BAD CARTRIDGE
```

you should try to clean the read/write heads and/or insert a new cartridge.

More information about the different messages may be found in appendix B.

CHAPTER 6 Reading from streamer to disk

There are two ways of
reading from a streamer to a disk:

- with the Backup System (under SINTRAN)
- with the stand-alone program "Directory Backup"

Insert the cartridge as shown in section 5.1

6.1 Reading from streamer to disk using the backup system

If, in the following procedure, you are ever in
doubt about which command or parameter to use, type
a question mark. The screen will then display
additional information.

Start the backup system by typing BACKUP-SYSTEM
followed by ↵ after the @ sign. You can type only
BA-SY.

```
@ BACKUP-SYSTEM ↵
```

```
BACKUP-SYSTEM / VERSION X
```

Start the function that copies from one device to
another by typing DEVICE-COPY followed by ↵ . If
you type HELP instead of DEVICE-COPY, you get a
list of all commands in the backup system.

```
Ba-sy: DEVICE-COPY ↵
```

Specify the unit from which the copy is to be
taken. In this case the 45 Mb DISK.

```
Destination device name: DISC-45MB-1 ↵
```

Specify the device unit. In this case 0.

```
Destination device unit: 0 ↵ (zero)
```


For copying to streamer, type STREAMER-TAPE-1 followed by ↵.

Source device name: STREAMER-TAPE-1 ↵

Specify the source device unit.

Source device unit: 0 ↵ (zero)

Specify the COPY function. The data is copied without changing anything.

Function: COPY ↵

Answer "Yes" to the question COPY TO DIRECTORY. OK?

Copy to directory. OK?(YES/NO): YES ↵

The system now gives information on the number of pages there are to copy and provides an estimate of the length of time it will take . The numbers 22032 and 20 are examples.

Pages to copy:22032

Estimated total time in minutes:20

The system will then copy the files.

Copying

When the copy is finished, the system compares the source data with the copied data to verify that the copy is correct.

Compare

If the text "-OK" appears on the screen, the backup is verified and found correct.

-OK

Type EXIT followed by ↵ to go back to SINTRAN.

Ba-Sy: EXIT ↵

6.2 Reading from streamer to disk using DIR-BACKUP

To restore the contents of a disk from your backup, you must use the command

RECOVER

CAUTION

When you use the RECOVER command, all of the present disk contents are overwritten, and there is no protection mechanism against this.

The RECOVER command is similar in use to the BACKUP command.

>RECOVER ↵

Type help followed by ↵ to see actual disk names.

```
RECOVER
TO
DISC-NAME.....:HELP ↵
1) DISC-n14MB-1
2) DISC-14MB-2
3) DISC-21MB-1
4) DISC-21MB-2
5) DISC-23MB-1
6) DISC-23MB-2
7) *DISC-45MB-1
8) DISC-45MB-2
9) DISC-74MB-1
10) DISC-74MB-2
```

Type D-4-1 followed by ↵ to select DISC-45MB-1.

DISC-NAME.....: D-4-1 ↵
DISC-45MB-1

Type the unit number of the disk, followed by ↵.

Unit..... (0-3 Oct.): 0 ↵

Type the system number of the streamer, followed by ↵.

FROM STREAMER system (1-2 Oct.): 1 ↵

Type the unit number of the streamer, followed by ↵.

Unit..... (0-3 Oct.): 0 ↵

== hh:mm:ss Initialize disc and streamer ==

==BAC08=> This backup is recorded

Date/Month-Year hh:mm

=====> From DISC-xxMB-x Unit 0

== hh:mm:ss Copy TO DISC from streamer ==

== hh:mm:ss Copy finished ==

== hh:mm:ss Compare disc and streamer ==

== hh:mm:ss Compare finished ==

These messages will occur only if you use the MODE command, and answer YES to question: "compare after copy"

Messages which show the time occur as the different sequences of the operation start or finish. Messages which do not occur every time a command is given have a special format, as illustrated in the following example.

```
==BACxy=> message  
=====> additional text
```

x has the following meaning :

- 0 : Message to inform (No error.)
- 1 : Start of something
- 2 : End of something
- 3 : Error message (Information about the status that caused the error.)
- 4 : System error (Fatal errors - the system was unable to perform the operation.)
- 5 : Operator break

→ Not in use

y is a message number in group x.

Example :

```
==BAC02=> Pages copied to streamer : xxxxxx
```

0 indicates that this is just a message to inform you about something.

NOTE

You can read more about the different messages in appendix B.

APPENDIX A Commands available in the DIR-BACKUP program

The following commands are available:

Monitor Commands :

Parameters :

> <u>EXPLAIN-COMMAND</u> ↵	<Command (def.(default) PROGRAM PURPOSE)>
> <u>LIST-SPECIAL-COMMANDS</u> ↵	<Command (def. PROGRAM COMMANDS)>
> <u>HELP</u> ↵	<Command (def. ALL COMMANDS)>
> <u>TERMINAL-MODE</u> ↵	<Capital letters (def. current)> <Delay after CR (def. current)> <Stop on full page (def. current)> <Log out on missing carrier (def. current)>
> <u>EXIT</u> ↵	
> <u>PRINT-NOTE</u> ↵	<Note (def. ALL)> No notes exist.
> <u>UPDAT</u> ↵	<Minute (def. 0)> <Hour (def. 0)> <Day (def. 0)> <Month (def. 0)> <Year (def. 0)>
> <u>DATCL</u> ↵	
> <u>PROGRAM-STATUS</u> ↵	
> <u>BACKUP</u> ↵	<To STREAMER system (def. 1)> <Unit (def. 0)> <From DISC-NAME (def. DISC-45Mb-1)> <Unit (def. 0)>

Program commands:

Parameters:

> <u>RECOVER</u> <u>↵</u>	<To DISC-NAME (def. DISC-45Mb-1)> <Unit (def. 0)> <From STREAMER system (def. 1)> <Unit (def. 0)>
> <u>COMPARE</u> <u>↵</u>	<DISC-NAME (def. DISC-45Mb-1)> <Unit (def. 0)> <STREAMER system (def. 1)> <Unit (def. 0)>
> <u>RESTART-SINTRAN</u> <u>↵</u>	<DISC-NAME> (def. DISC-45Mb-1) <Unit > (def. 0)
> <u>MODE</u> <u>↵</u>	<Running on CRT (def. current)> <Compare after copy (def. current)> <Status info on error (def. current)> <Abort when compare error (def. current)> <Abort on ESC (def. current)>

APPENDIX B Messages in the DIR-BACKUP program

B.1 Messages to inform

(X=0)

```
==BAC00=> Current disc page : xxxxxxx - yyyyyy
```

This message tells you

Where the program was operating on the disk when the error occurred. xxxxxxx and yyyyyy are octal numbers.

This message is displayed if

you answer 'yes' to the question 'status info on error' while in the MODE command, and an error on the streamer occurs during copying.

```
==BAC00=> Pages compared to disc : xxxxxxx
```

This message tells you

how many pages are compared to the disk. It is a page counter, and xxxxxxx is an octal number.

This message is displayed if

you simultaneously press the two keys during the compare operation.



==BAC01=> Current streamer page : xxxxxx-yyyyyy

This message tells you

where the program was operating on the streamer when the error occurred. xxxxxx and yyyyyy are octal numbers.

This message is displayed if

you answer 'yes' to the question 'status info on error' while in the MODE command, and an error on the disk occurs during copying.

==BAC01=> Pages copied to disc : xxxxxx

This message tells you

how many pages are copied to the disk. It is a page counter, and xxxxxx is an octal number.

This message is displayed if

you simultaneously press the two keys during the compare operation.



==BAC02=> Pages copied to streamer : xxxxxx

This message tells you

how many pages are copied to the streamer. It is a page counter, and xxxxxx is an octal number.

This message is displayed if

you simultaneously press the two keys during the compare operation.




```
==BAC03=> Driver status = xxxxxx
```

This message tells you

the octal number xxxxxx which is the last status from the SINTRAN driver.

This message is displayed if

you answer 'yes' to the question 'status info on error' while in the MODE command, and an error occurs during any operation on the disk or the streamer.

The message includes a decoding of the error code and status bits. It is also read as an Extended status (26 words data). If the error occurred on the streamer, this is printed out with several lines of word and bit decoded information in the format:

```
=====> <extended status>
=====> .....
=====> ...
```

```
==BAC05=> Operation was : AAAAAAAAAA on BBBBBBBB
```

This message tells you

What operation was performed (AAAAAAAAAA), read or write, on either disk or streamer (BBBBBBBBBB).

This message is displayed if

you answer yes to the question 'status info on error' while in the MODE command, and an error on disk or streamer occurs during any operation.

```
==BAC06=> There has been xxx blocks rewrite on tape  
==BAC06=> There has been xxx blocks reread on tape
```

(xxx is a decimal number)

These messages tell you

A rewrite on the tape happens when the streamer drive is not able to write a block of data successfully and then writes it again. Every time this is done it counts rewrites.

No data is lost, but a high rewrite count indicates that the tape is bad or the read/write heads should be cleaned.

A backup, recover or compare operation is finished, and an extended status is read from the streamer interface to get various items of information.

When writing to the streamer, a count of the number of rewrites done on the tape is printed out if it is larger than zero.

When reading from the streamer it counts rereads. This is when the drive was not able to recover a block of data from the tape. The tape motion is stopped and the tape rewound before the data block is read again. Every time this is done it counts rereads.

```
==BAC07=> There has been x underrun on streamer drive  
==BAC07=> There has been x overrun on streamer drive
```

These messages tell you

When writing to the streamer, underrun occurs if the program/interface is unable to transmit data at a rate that is fast enough for the streamer drive. This causes the tape to stop.

When reading from the streamer, overrun occurs if the program/interface is not able to accept data at

the rate it is transmitted from the streamer drive. This results in a full buffer drive, causing the tape motion to stop.

This message is displayed if

the count of the over/underrun status is larger than zero after a backup/recover or compare operation is finished.

```
==BAC08=> This backup is recorded dd/mm-yyy hh:mm  
=====> From DISC-xxMB-y Unit z
```

This message tells you

The date, the time and which disk system the backup was taken from

This message is displayed

while in recover or compare command.

B.2 Error messages

(X=3)

```
==BAC32=> COMPARE ERROR  
=====> Page : xxxxxx xxxxxx
```

This message tells you that

when a compare error occurs during the compare operation, a table showing the erroneous pages is written out.

What to do now :

You should try again, but it may also be a hardware failure.

B.3 System errors

(X=4)

```
==SIN40=> SINTRAN ERROR  
=====> <Sintran error message>
```

'DIR-BACKUP' runs under RTP-SINTRAN. It picks up error messages from SINTRAN and writes them out in this standard format.

This error message may come, but may not necessarily have anything to do with what 'DIR-BACKUP' is doing at the time. It is a SINTRAN message that would normally be written to the error device in SINTRAN.

```
==BAC44=> FATAL ERROR, operation ABORTED.  
Time hh:mm:ss
```

hh:mm:ss is the time when the error occurred.

This message appears when an error occurs that is fatal for the operation which is in progress. Additional information will be printed out if, while in the MODE command, you answered yes to the question : 'status info on error'. If you answered no to this question, only these four errors are printed out :

```
=====> Bad cartridge
```

You should try to clean the read/write heads and/or insert a new cartridge.

```
=====> No cartridge installed
```

You have forgotten to put the cartridge into the streamer.

```
=====> End-Of-Medium, Cartridge full
```

```
=====> Write protected cartridge
```

Check that you really want to write something onto this cartridge - if you want to, you must turn the write protect plug from the safe position (see figure 10).

B.4 Operator break

(X=5)

```
==BAC53=> ESCAPE at hh:mm:ss ==  
=====> Programs aborted ==  
=====> Devices cleared ==
```

This message occurs when you press the ESC key during any operation.

APPENDIX C Explanation of some words used in this manual

Backup	A copy of one or more files which is stored in case the original is destroyed.
Bootstrap program	In SINTRAN a program which runs in an otherwise empty computer and controls the loading and execution of another program.
Buffer	Temporary storage used to balance different operating speeds of devices.
Cartridge	Magnetic tape cassette used for storing data.
Console terminal	Terminal 1 connected to the CPU card. Used for communication. Usually a terminal which acts as an error device.
CPU	Central Processing Unit. It controls the computer's interpretation and execution of the processing instructions.
CRT	Cathode Ray Tube - the screen on the terminal.
Floppy disk drive	The unit which you put the floppy diskette into to read/copy data to/from the computer's memory.
Floppy diskette	A storage unit in the form of a flexible magnetic plate.
Formatting	Preparation of a floppy diskette for storing data and programs.
Interface	A shared boundary between two units. It is often used as adaptation equipment which makes it possible to link two different units together.
Load into	Read something from mass storage (e.g. a program) into the main memory.
Log in	The procedure you follow in order to start a dialog with the computer.

Operating system	A program controlling the execution of other programs or commands in the computer. It makes it possible for you to communicate with the computer. With ND computers the operating system is called SINTRAN III.
Operator	A person who operates the computer and its processing systems.
Overrun	When reading from the streamer, the program/interface is not able to accept data at the rate it is transmitted from the streamer drive. This results in a full buffer drive, causing the tape motion to stop.
Password	- A set of characters used for identification when communicating with the computer. It prevents other users from logging in falsely under your user name.
Rereads	The drive was not able to recover a block of data from the tape. The tape motion is stopped, and the tape rewound, before the block of data is read once more.
Rewrites	A rewrite on the tape means that the streamer drive is unable to write a block of data successfully and then attempts to write it once more.
SINTRAN	The ND operating system.
System supervisor	The person who is responsible for the daily operation of the system.
Telefix	ND's tool for diagnosis and correction of faults in customers' computers directly from the service center via the telephone network.
Terminal 1	See 'Console terminal'.
Underrun	When writing to the streamer, failure of the program/interface to transmit data at a rate that is fast enough for the streamer drive. This causes the tape to stop.
User area	A registered area on the disk where the computer stores your files.
User name	A registered name the computer uses to identify the user.

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