

Norsk Data

Documentation Catalogue

ND-40.004.06



Documentation Catalogue

ND-40.004.06

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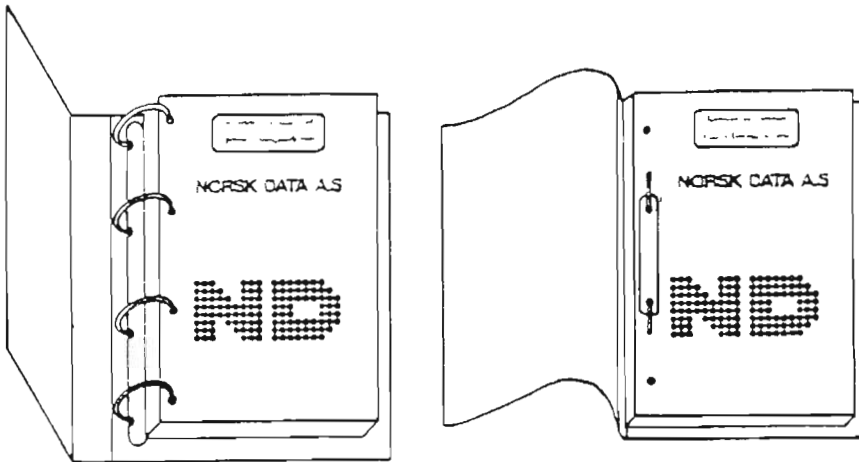
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Manuals can be updated in two ways, new versions and revisions. New versions consist of a complete new manual which replaces the old manual. New versions incorporate all revisions since the previous version. Revisions consist of one or more single pages to be merged into the manual by the user, each revised page being listed on the new printing record sent out with the revision. The old printing record should be replaced by the new one.

New versions and revisions are announced in the ND Bulletin and can be ordered as described below.

The reader's comments form at the back of this manual can be used both to report errors in the manual and to give an evaluation of the manual. Both detailed and general comments are welcome.

These forms, together with all types of inquiry and requests for documentation should be sent to the local ND office or (in Norway) to:

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0621 Oslo 6, Norway

Preface:

THE PRODUCT

This manual describes user documentation available for Norsk Data computer systems.

User documentation is documentation relating to the use of both hardware and software. It includes all information necessary to load, start, and use these systems. It also includes information on maintaining, modifying, and adding to these systems if this can be done by the user.

THE READER

This manual is written for all users of Norsk Data computer systems.

THE MANUAL

The manual gives first some general information about user documentation types, numbers, and versions.

It then presents overview diagrams of all manuals, showing the products they describe, the type of readers they are written for, and the relationships between the manuals. This section can also be used to obtain an overview of hardware and software products produced by Norsk Data.

Each manual is then described in some detail.

Finally, a price list is included.

RELATED MANUALS

The Education Department has a variety of courses in the use of Norsk Data systems. These courses are described in the

Course Catalogue

An overview of software for Norsk Data computers developed and supported by users and software houses can be found in the

Software Catalogue

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C H A P T E R I

INTRODUCTION

- *MANUAL CATAGORIES.*
- *READER TYPES.*
- *MANUAL TYPES.*
- *SUBJECT TYPES.*
- *NORSK DATA'S MANUAL NUMBERING SYSTEM.*
- *VERSIONS AND REVISIONS.*
- *THE MANUAL PREFACE.*
- *ORDERING MANUALS.*

1 INTRODUCTION

This catalogue describes the documentation available to users of Norsk Data computer systems. All manuals in the catalogue can be ordered from the ND documentation department. A list of available manuals, their version numbers and prices, is published every month in the ND-Bulletin. This catalogue is published once a year.

1.1 MANUAL CATEGORIES

The individual manuals have been placed in categories and the relationships between them indicated. The most common categories depend on the subject covered (subject type), the type of reader the manual is intended for (reader type) and the way the subject matter is presented (manual type). Manual type and reader type are often closely related.

1.1.1 READER TYPES

Most readers belong to one or more of the following groups:

Managers

Managers are usually interested in general information about a product to decide if it is of interest, and if it is, how the company can profit by acquiring it. Detailed technical descriptions are usually of less interest.

End Users

These are non-computer-professionals who use a computer-based system without having to program it themselves. The programs are already written and the user needs instructions on how to use them and information to help him understand the general design of the system.

Programmers

Programmers have a general knowledge of computer systems and how to program them, but may have little knowledge of the particular programming system in use. They require detailed instructions on how to program using this system.

Operators	Operators are responsible for the daily operation of a computer system. They need to know how to start and stop the system, how to keep the system running correctly and how to handle simple errors.
Supervisors	Supervisors require more detailed knowledge as they usually have the main responsibility for a system. S/he must be able to configure the system, make necessary changes to it and handle more difficult error situations.
Service	Service personnel must be able to locate and repair errors. This requires an understanding of error messages and symptoms, diagnostic tools, error removal procedures etc. Service is generally carried out by Norsk Data employees, but some service documentation is also available to customers.

1.1.2 MANUAL TYPES

The manual type determines which information is presented and how. This often depends on the intended readership.

Introductory Information

This type of manual contains a general functional description of a system, highlighting the main features. Brief technical details may be presented and hardware and software requirements mentioned. It is written for all types of users. It may be the only type of documentation necessary for managers and other users can read it before going on to more detailed documentation.

Reference Manual

The reference manual presents a detailed description of features and facilities available to the user. It should be accurate, complete and structured so that it is easy to find information quickly. It is mainly intended for experienced users who need to look up the precise syntax of a command and its parameters, the precise meaning of an error message etc.

User Guide	A user guide is written mainly for new users of the system and is intended to tutor the reader in the use of the system. It explains the features of the system and how to use them efficiently it should take the reader step by step through the use of the various features. It is intended to be read from beginning to end, beginning simply and introducing new concepts gradually.
Operator Manual	This type of manual is written specifically for operators, i.e. those responsible for the daily operation of a system. It contains the information necessary to carry out this task and may also contain information for supervisors, such as ordering and installing the system, making limited changes to it and handling serious error situations.
Maintenance Manual	This type of manual is written specifically for service personnel. It contains the information necessary to identify and repair errors in the field, either by correcting the error or by replacing the unsatisfactory component.
Internal System Documentation	This shows the internal construction of a hardware or software product. It provides a detailed description of implementation, giving the reader comprehensive understanding and possibly the ability to modify the product.

1.1.3 SUBJECT TYPES

Manuals are usually divided according to their subject. The main division is into hardware, software and those covering a combination; hardware is subdivided into different types of hardware. This division is reflected in the Norsk Data manual numbering system which is described in the following section.

1.2 NORSK DATA'S MANUAL NUMBERING SYSTEM

The numbering system for Norsk Data manuals consists of three numbers, as follows:

ND-xx.yyy.zz

These numbers indicate the following:

xx gives the subject type.

Hardware

02 = PIOC hardware

05 = NORD-5, NORD-50, ND-500 CPUs

06 = NORD-1, NORD-10, NORD-10/S, ND-100 CPUs

11 = Data storage equipment

12 = I/O interfaces

13 = Miscellaneous hardware

Mixed hardware/software

30 = Operating, diagnostic, maintenance

40 = Miscellaneous

50 = Hardware/software system descriptions

70 = Documentation packages

Software

60 = General software

63 = NOTIS software

Reference cards

99 = All reference cards

yyy is a sequential identification number.

zz is the version number.

In addition there may be revisions to the manual as described below. These are identified by letters (revision A, revision B, etc.).

1.3 VERSIONS AND REVISIONS

Manuals can be updated by revisions or by new versions.

Revisions consist of one or more single pages which the reader inserts into the old manual. Each revised page is listed on the new printing record which accompanies the revision. The old printing record should be replaced by the new one. Revisions are used to correct small errors in the manual or to document small changes in the product.

Revisions are indicated by letters, such as revision A to version 02.

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New versions consist of a complete new replacement manual. They incorporate all revisions since the previous version. The printing record shows all old versions and revisions and the new version number. They are issued when changes to the manual involve more than a few minor revisions.

Versions are indicated by the last part of the manual number.

1.4 THE MANUAL PREFACE

The preface should help the reader decide if this manual is relevant to his current needs. It should contain the following information:

1. Identification of the product(s) documented in the manual, their ND or PD number and version number.
2. A definition of intended readership.
3. The knowledge required to understand the manual and where this can be found in other manuals.
4. A brief description of contents, structure and how to use the manual.
5. A list of related manuals, how they are related and a recommended reading order where applicable.
6. Changes from the previous version, if the manual is an update.

1.5 ORDERING MANUALS

Customers receiving new hardware or software products or new versions will also receive the relevant documentation, so it is unnecessary to order this separately.

However users wanting additional manuals, or documentation for other products, can order these separately from Norsk Data. If a manual is updated with a new version or a revision, this will not be automatically sent out to those with the old manual, but must be ordered separately. New versions and revisions are announced in the ND Bulletin.

All manuals can be ordered from the local Norsk Data office or (in Norway) from:

Graphic Center
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P.O. Box 25, Bogerud
0621 Oslo 6, Norway

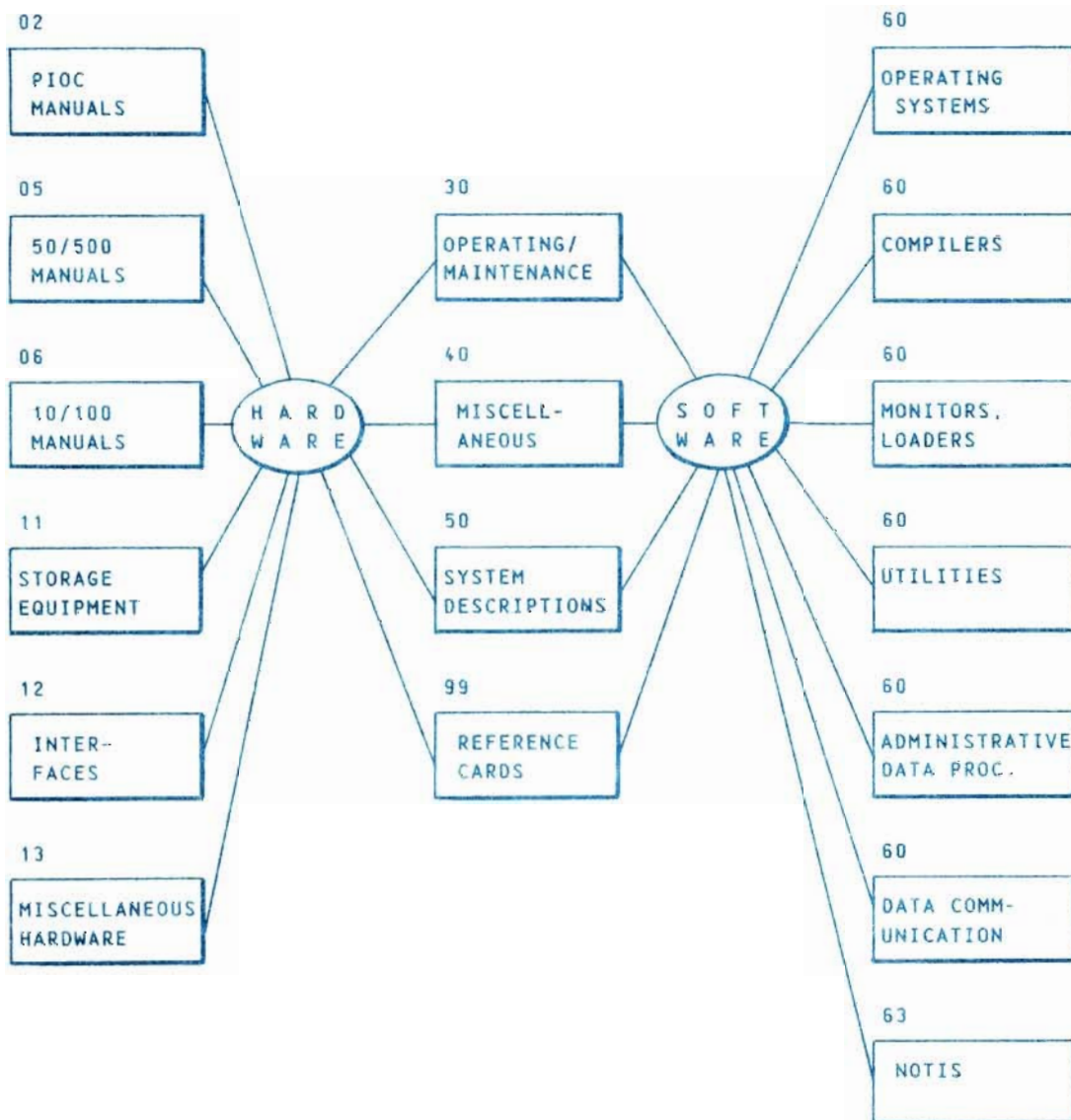


Figure 1. Manual Categories

CHAPTER I I

SURVEY OF MANUALS

- *HARDWARE DOCUMENTATION.*
- *DATA STORAGE AND INTERFACES.*
- *MIXED HARDWARE/SOFTWARE DOCUMENTATION.*
- *SOFTWARE DOCUMENTATION.*
- *OPERATING SYSTEMS.*
- *COMPILERS'S MONITORS AND LOADERS.*
- *UTILITY PROGRAMS.*
- *ADMINISTRATIVE DATA PROCESSING AND DATA BASES.*
- *DATA COMMUNICATIONS.*

2 SURVEY OF MANUALS

The numbering system described above shows a general division of Norsk Data manuals into three main categories, based on the subject matter:

- Hardware
- Mixed hardware/software
- Software

Figure 1 shows how these categories are further subdivided.

**2.1 HARDWARE
DOCUMENTATION**

Figure 2a shows the hardware manuals available for the following CPUs produced by Norsk Data:

NORD-10/S
NORD-50
ND-100
ND-500
PIOC

The manuals are arranged by CPU type and by manual type. The manual types are, from left to right:

Introductory information
Reference manuals
Internal documentation

The corresponding operating, maintenance and diagnostic (test program) documentation for these CPUs is shown in figure 2b.

**2.1.1 DATA STORAGE
AND INTERFACES**

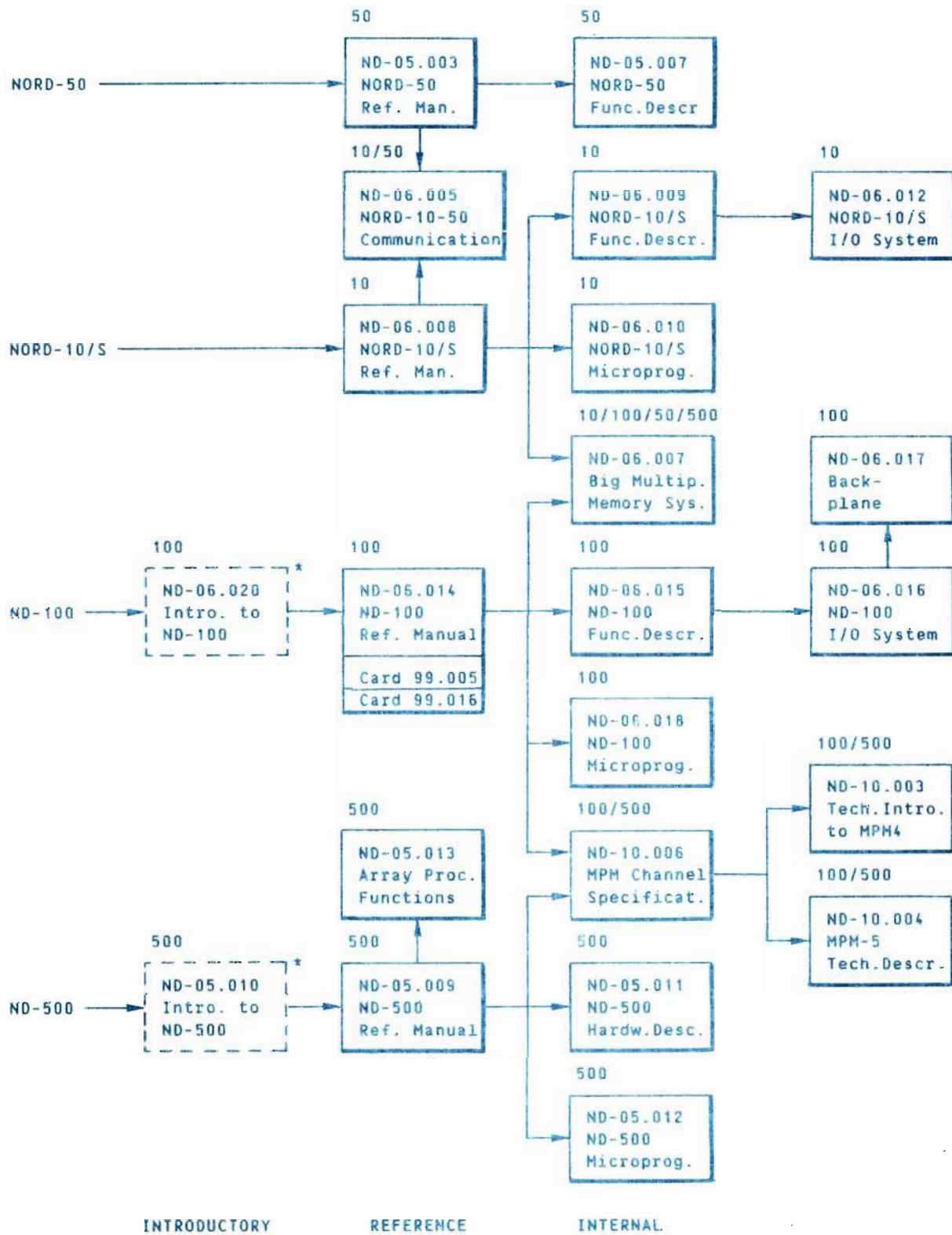
Figure 3 shows manuals covering storage equipment and interfaces. It also shows some miscellaneous hardware documentation.

2.2 MIXED
HARDWARE/SOFTWARE
DOCUMENTATION

Most of the manuals in this category belong to the types:

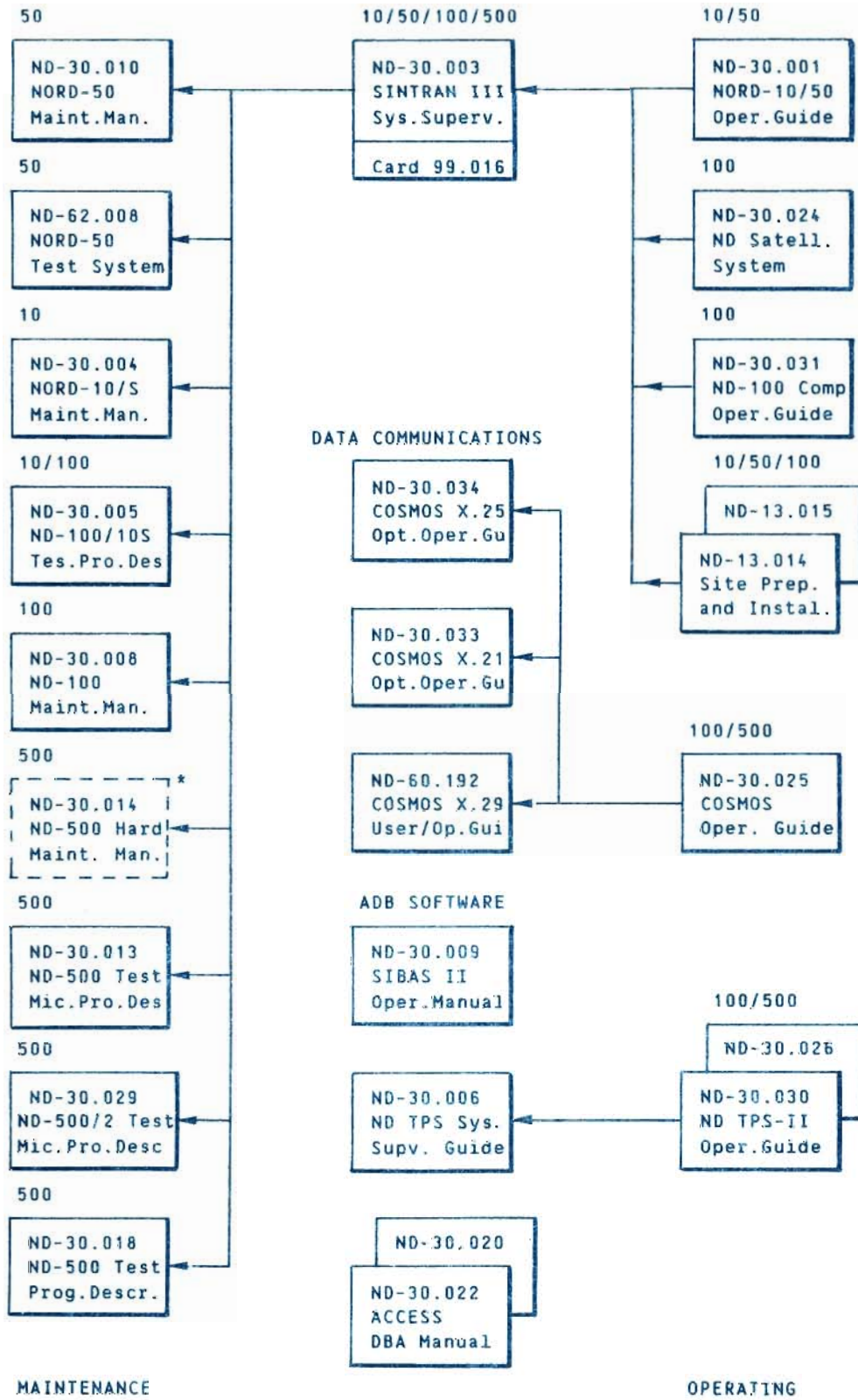
- Operating and supervising
- Test program and maintenance

Figure 2b shows how these manuals are related to the hardware manuals for the same CPUs.



* Not yet available

Figure 2a. CPU Hardware Manuals



* Not yet available

Figure 2b. Operating and Maintenance Manuals

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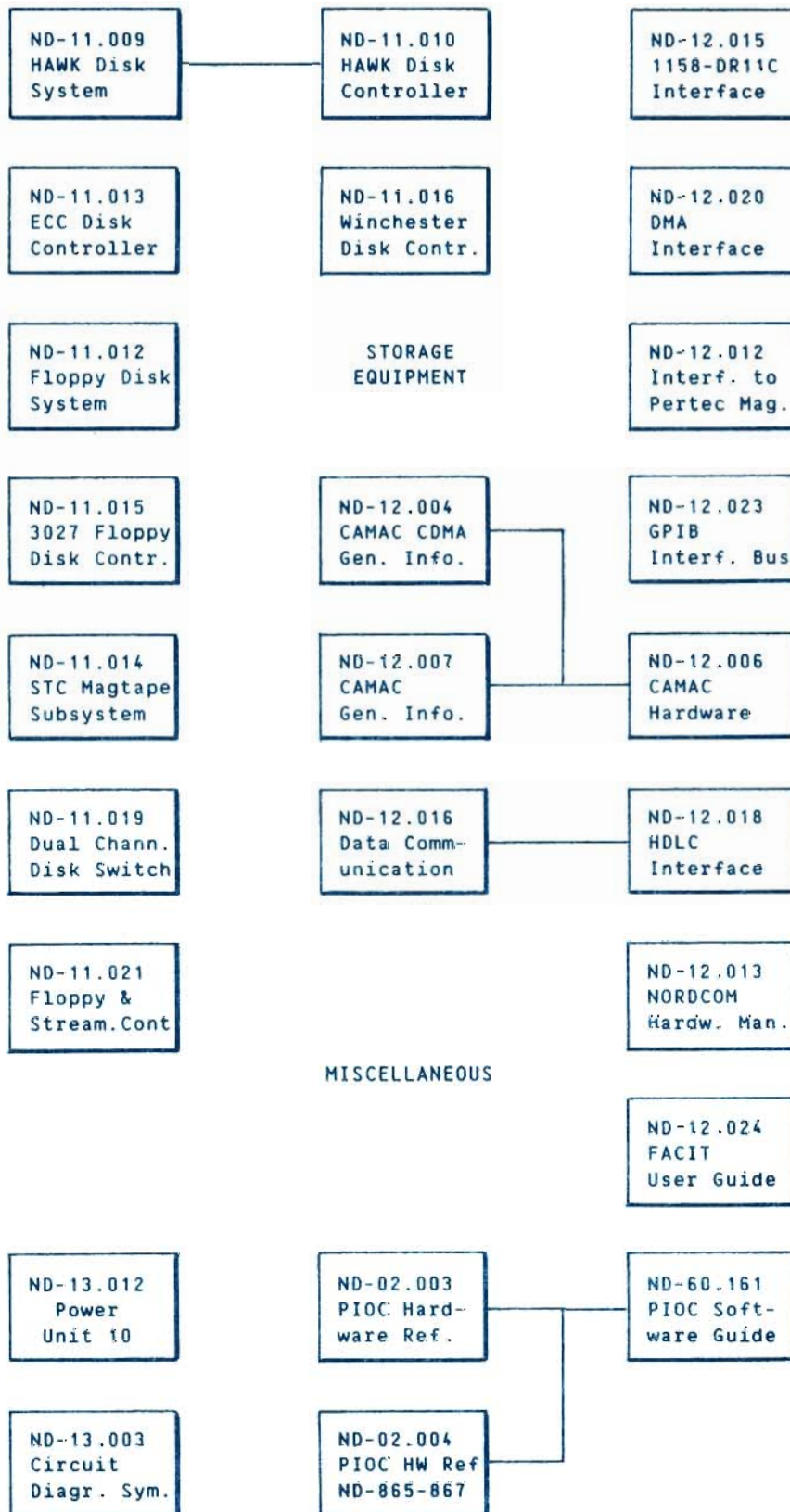


Figure 3. Storage Equipment and Miscellaneous Hardware

2.3 SOFTWARE DOCUMENTATION

All software documentation has a number in the 60 series. It is divided into the following groups:

- Operating systems
- Compilers
- Monitors, loaders
- Utilities
- Data communication
- Administrative data processing, data bases
- Office automation

2.3.1 OPERATING SYSTEMS

The operating system in most common use at present is SINTRAN III/VS, the disk version of SINTRAN III. The set of manuals required to provide a comprehensive description is divided as follows:

- Introduction
- User guides
- Reference manuals
- Operator/supervisor manuals
- Internal system documentation

The version that does not use a disk, SINTRAN III/RT, is much simpler and is described in the SINTRAN III/Core User's Guide.

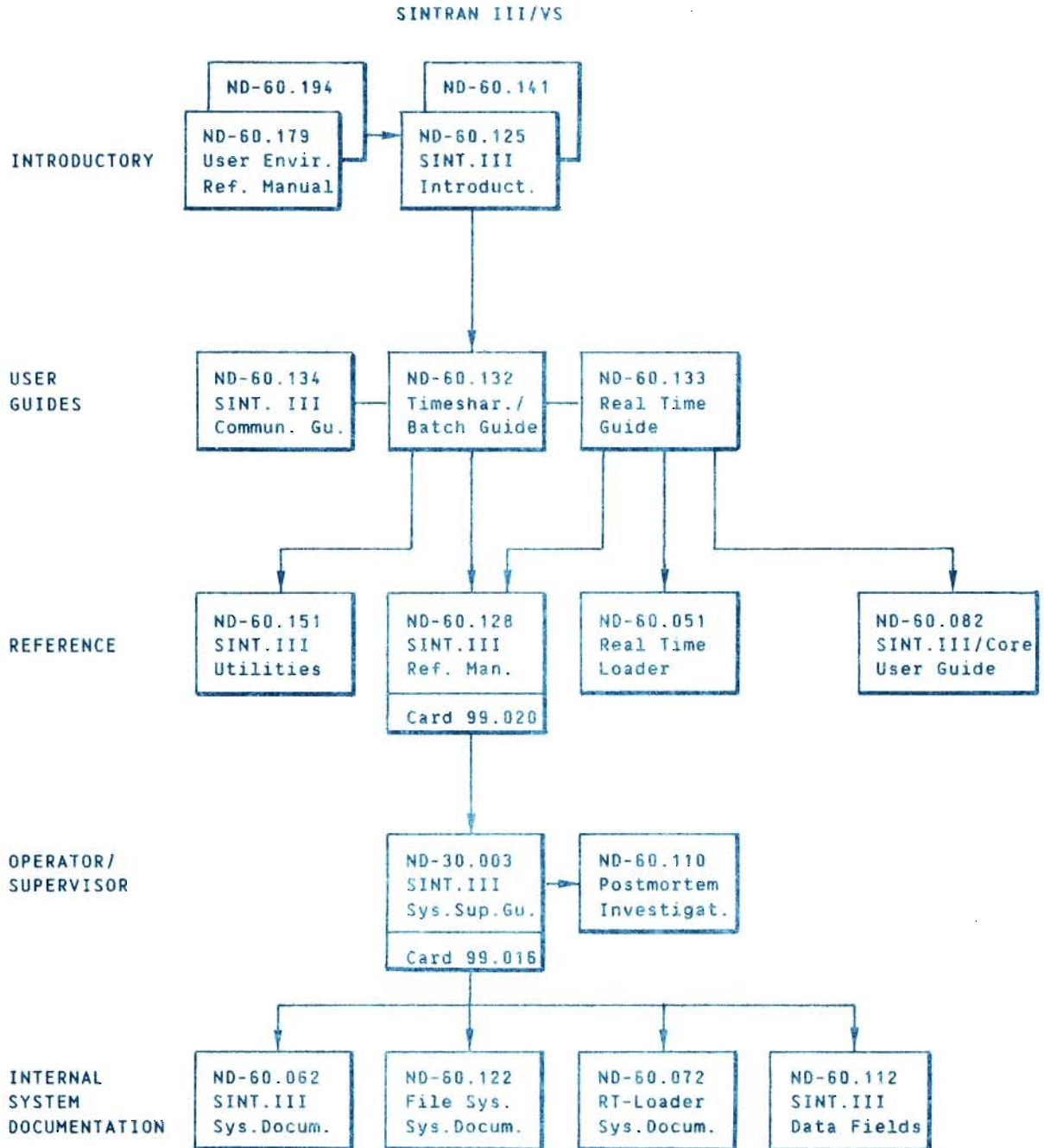


Figure 4. Operating Systems

2.3.2 COMPILERS, MONITORS AND LOADERS

Figures 5 and 6 show the compiler, monitor and loader manuals available for the different CPUs. The NORD-10 and ND-100 are completely software compatible, whereas the NORD-50 and ND-500 need special compilers and loaders. The NORD-50 and ND-500 also use special monitors under SINTRAN III; these are not necessary for the NORD-10 and ND-100.

Some of the compiler manuals can be used for both ND-100/10 and ND-500 compilers, as shown in figure 6.

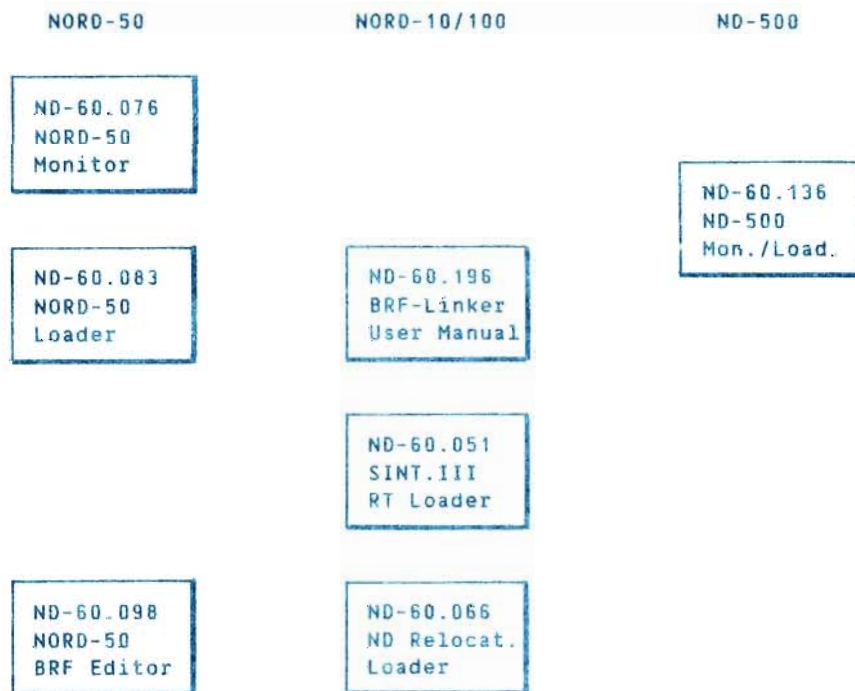


Figure 5. Monitors and Loaders

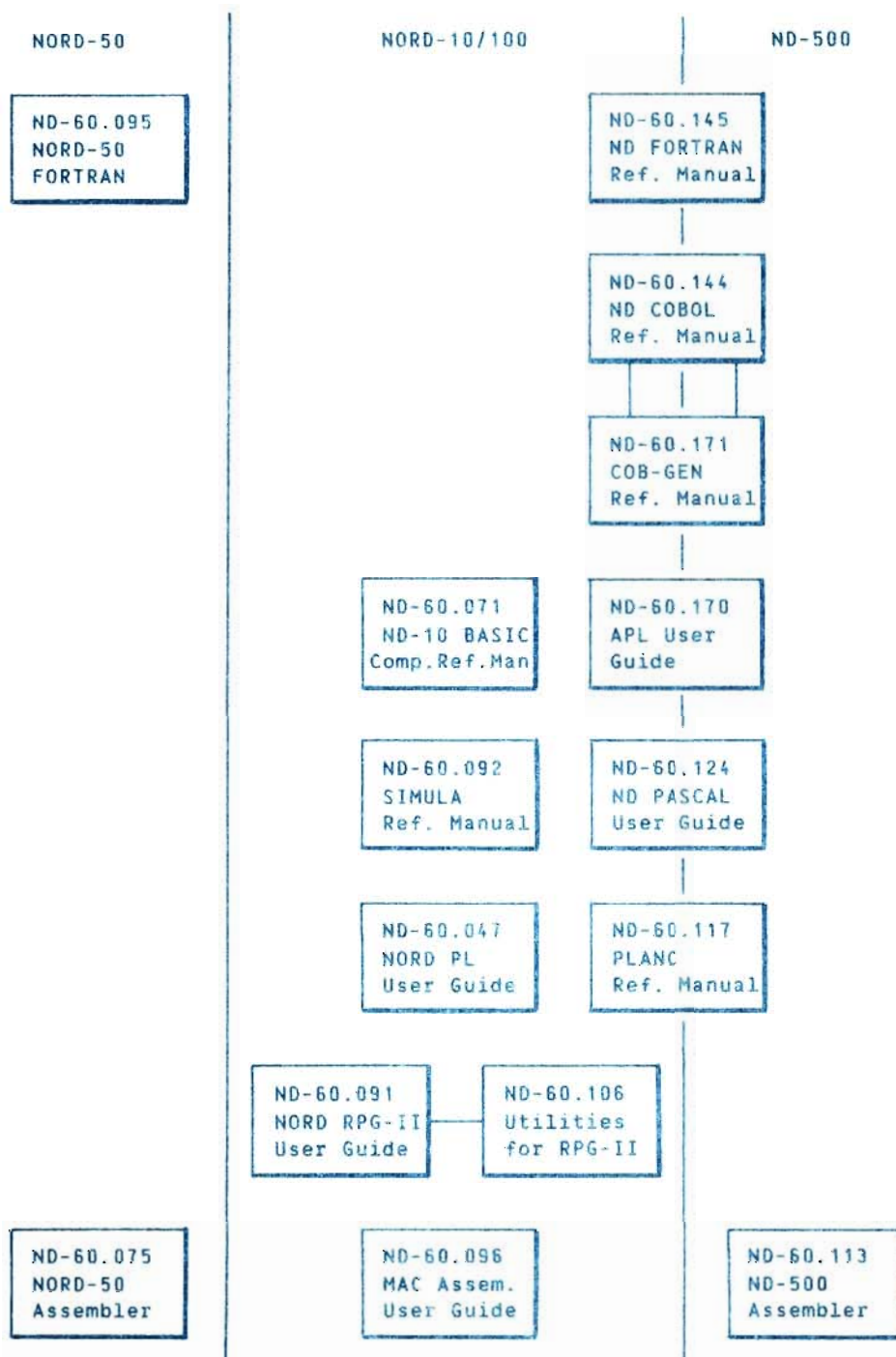


Figure 6. Compilers

2.3.3 UTILITY PROGRAMS A variety of utility programs are available:

- ND-bench tools
- File utilities
- Editors
- Special input/output routines
- Scientific subroutines
- Debugger

These are shown in figure 7.

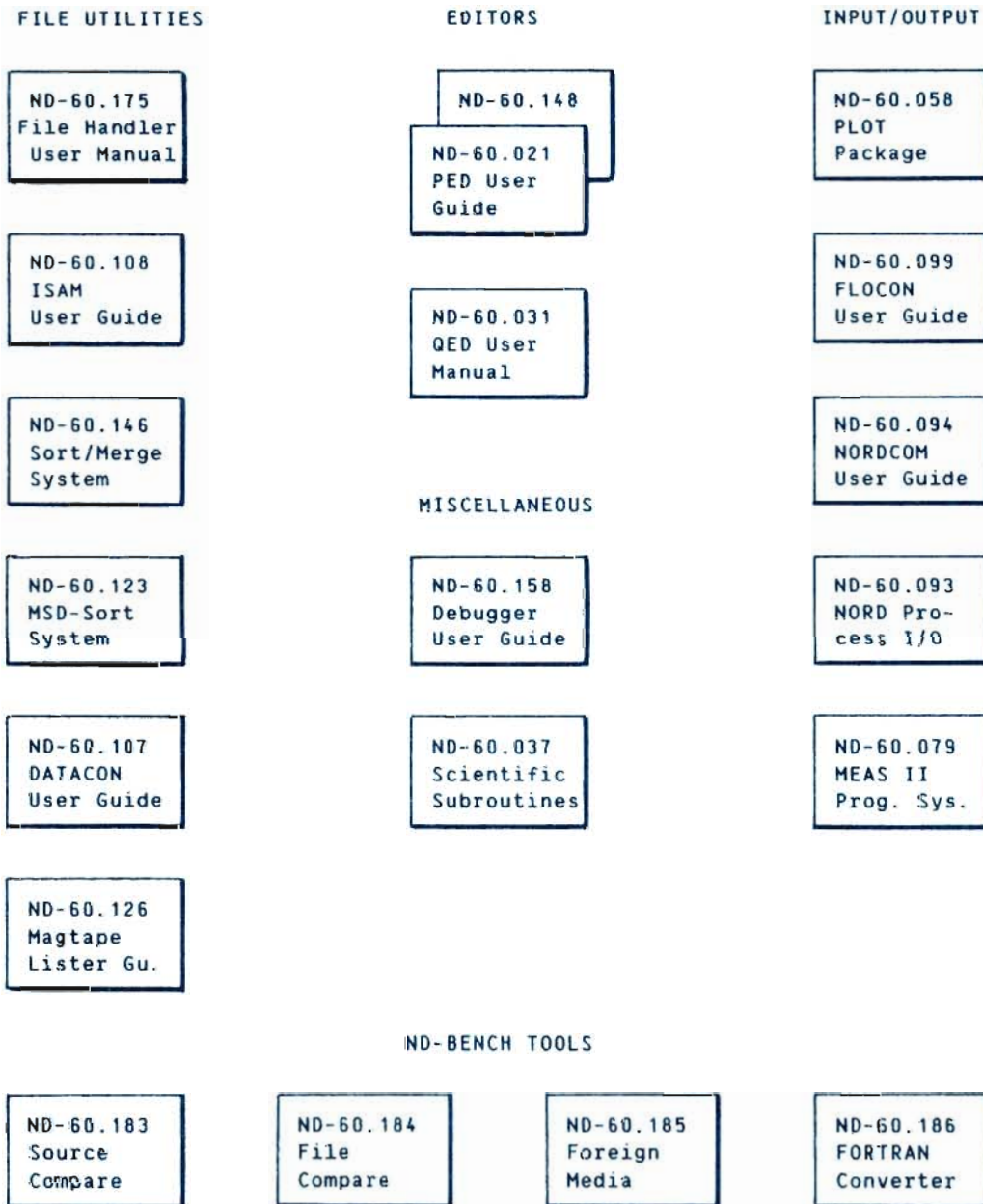
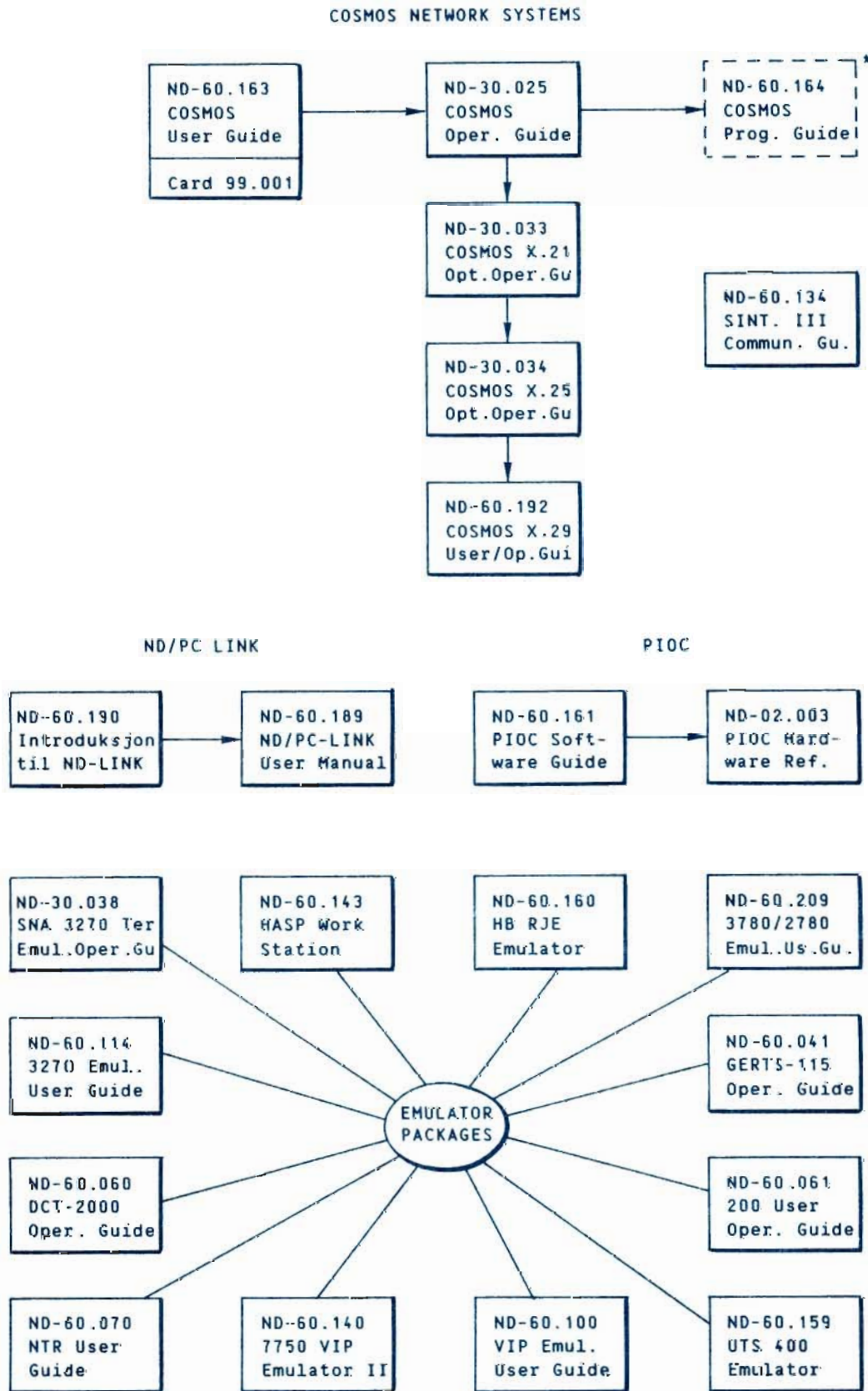


Figure 7. Utilities

2.3.4 DATA COMMUNICATION

The documentation available for data communication consists mainly of manuals for the COSMOS network and the various emulator packages. In addition, the SINTRAN III Communication Guide describes some data communication systems and there are some separate manuals for PIOC and ND-LINK, as shown in figure 8.

COSMOS Network Systems
SINTRAN III Communication Guide
ND/PC LINK
PIOC
Emulator packages



* Not yet available.

Figure 8. Data Communications.

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**2.3.5 ADMINISTRATIVE
DATA PROCESSING
AND DATA BASES**

The documentation relating to administrative data processing, shown in figure 9, can be subdivided as follows:

PROGRAMMING SYSTEMS

- Data base management
- Screen handling
- Transaction processing
- Data dictionary

END USER SYSTEMS

- User environment
- ACCESS
- UNIQUE
- MERCUR
- Data entry
- ND/PC LINK

OFFICE AUTOMATION

- Word processing
- Report generation
- Information retrieval
- Spreadsheet
- Business graphics
- Telex

Those manuals to the left of figure 9 require little technical knowledge, those to the right require a high degree.

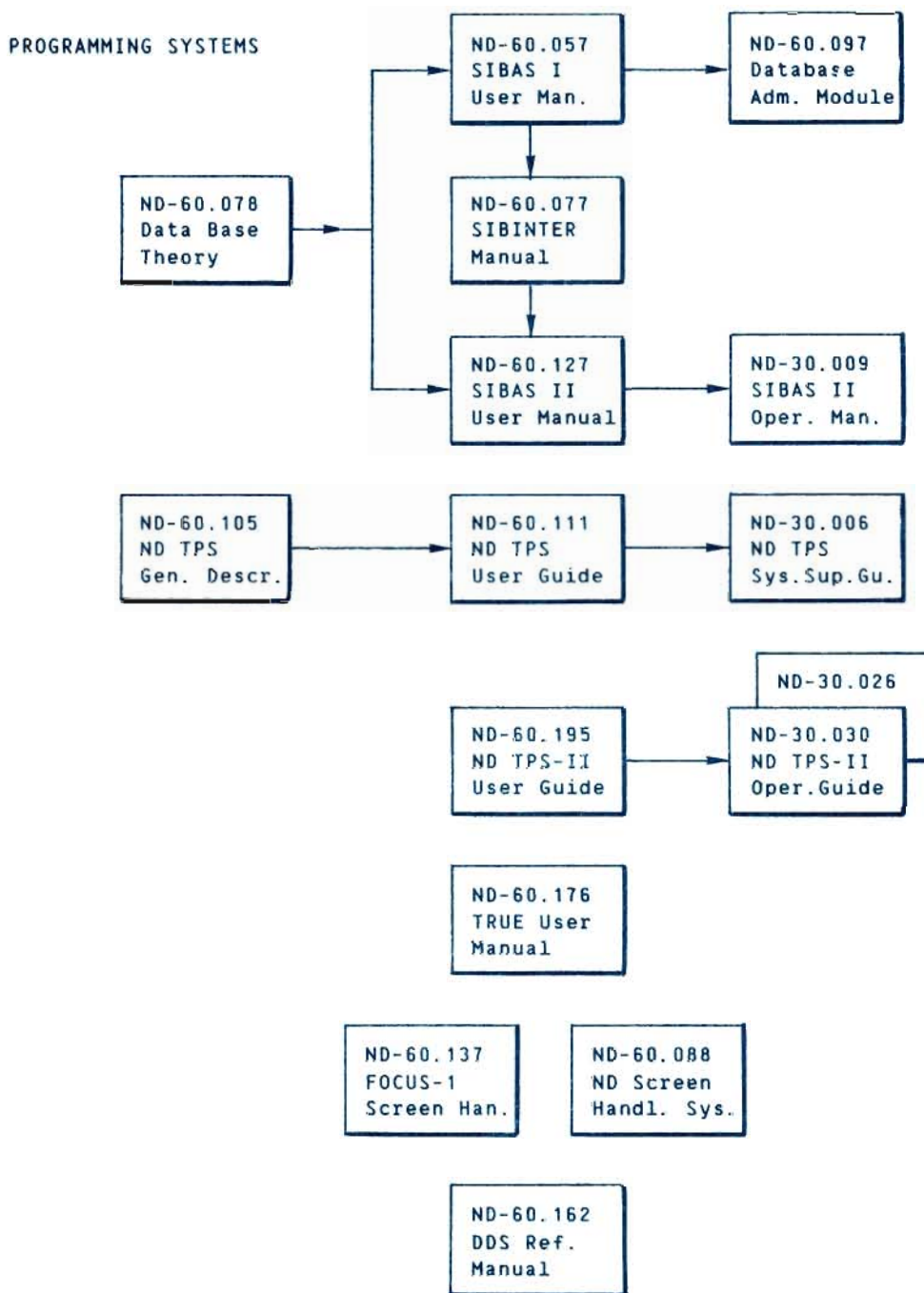


Figure 9a. Administrative Data Processing

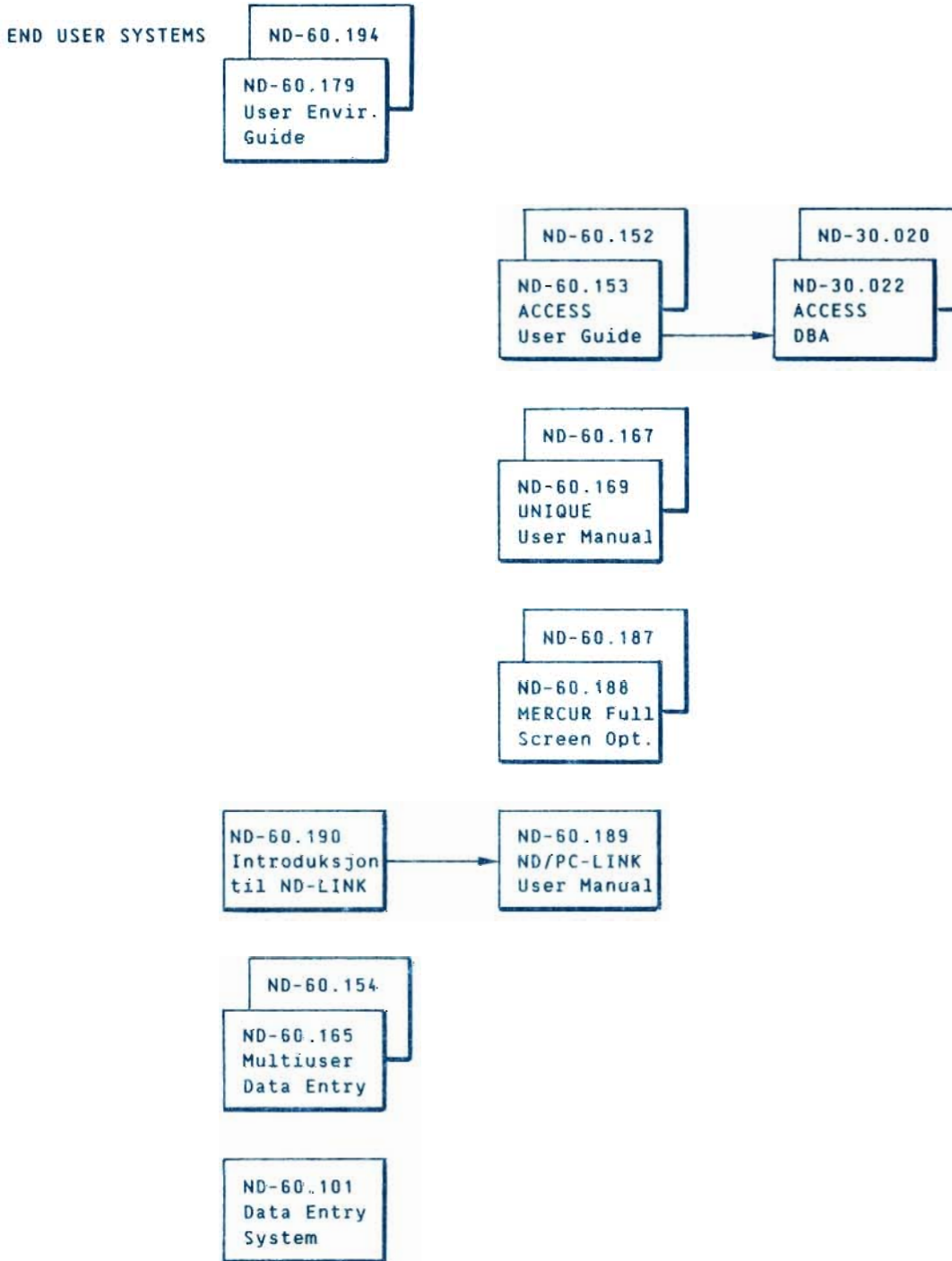


Figure 9b. Administrative Data Processing

NOTIS SYSTEMS

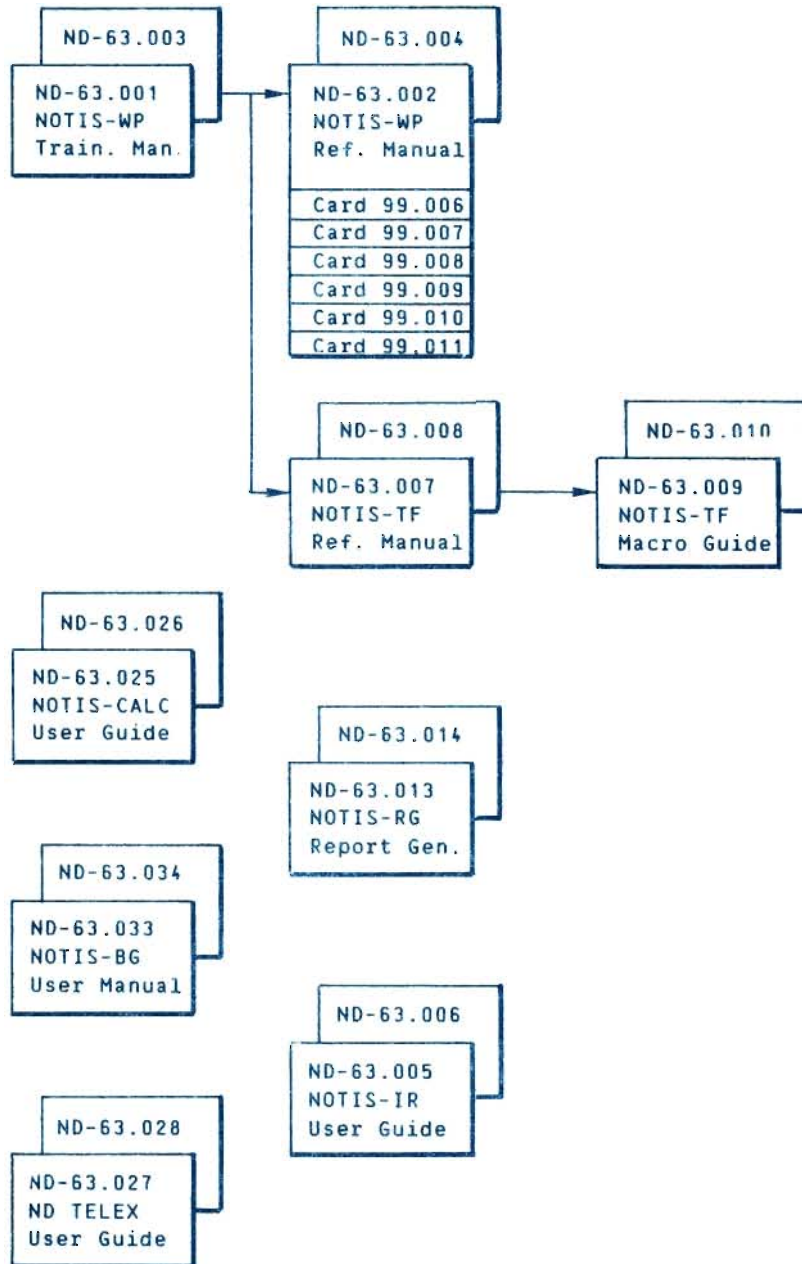


Figure 9c. Administrative Data Processing

C H A P T E R I I I

M A N U A L A N D R E F E R E N C E C A R D D E S C R I P T I O N S

- *NORSK DATA'S MANUALS DESCRIBED IN NUMERICAL ORDER.*
- *NORSK DATA'S REFERENCE CARDS DESCRIBED IN NUMERICAL ORDER.*

3 MANUAL AND REFERENCE CARD DESCRIPTIONS This chapter contains a short description of each manual and reference card.

MANUAL DESCRIPTIONS The descriptions are in numerical order and contain the following information:

- Manual number
- Manual name
- Subject and manual type
- Reader type
- Prerequisite knowledge

For information about versions, revisions and prices, see chapter 4.

ND-02.003**PIOC HARDWARE
REFERENCE MANUAL**

PIOC, the Programmable Input Output Controller is an ND-100 interface card capable of handling 4 full duplex serial communication lines. The hardware is built around an MC 68000 microprocessor and 128 kbytes of Random Access Memory (RAM) with error correction logic.

The new PIOC print (number 3108C) is called PIOC EXP., which means PIOC EXPANDED. The added function is X.21 Clear Detection in hardware for line 0 and 1

The print is produced in two versions called PIOC 64 and PIOC 256 depending on local memory size in kwords. If the PIOC print is equipped with 64 kbit memory chips, the memory size is 128 kbytes. When 256 kbit chips are used, the memory size is 512 kbytes.

The manual is intended for hardware engineers and other personnel performing maintenance on ND products. Basic knowledge of the ND-100 computer system is recommended.

The manual contains 6 chapters and 4 appendixes. Chapter 1 contains an introduction and gives some specifications. Chapter 2 explains the PIOC ND-100 communication and chapter 3 the Local Interrupt. Chapter 4 describes the memory and chapter 5 the Local I/O. Chapter 6 contains the logic diagrams. Appendix A describes the interrupt controller, appendix B the DMA controllers, appendix C the timing controller, appendix D the serial controllers and appendix E external cables and test plugs. 90 pages.

ND-02.004**PIOC HARDWARE
REFERENCE MANUAL
ND-865-867**

This is the same manual as the PIOC Hardware Reference Manual, ND-02.003, except that it contains a local memory with the size of 256K words. 60 pages.

ND-05.003**NORD-50
REFERENCE MANUAL**

This manual gives a detailed description of the NORD-50 registers and instruction set. It is written for programmers and operators. The part concerning registers should be of interest to technical and maintenance personnel. Readers should be familiar with the NORD-50 CPU at the level described in the NORD-50 Functional Description. 44 pages.

ND-40.004.06

ND-05.007
NORD-50
FUNCTIONAL
DESCRIPTION

This manual describes the main building blocks of the NORD-50 and their functions, from a hardware point of view. It is written for technical and maintenance personnel requiring detailed information about the NORD-50 and should also be of interest to software personnel. Some knowledge of digital techniques and computer systems in general is recommended. Knowledge of the NORD-50 instruction set as found in the NORD-50 Reference Manual is necessary. 163 pages.

ND-05.009
NORD-500
REFERENCE MANUAL

This manual describes the general design, instruction set and addressing modes of the ND-500. It is organized as a reference manual. It is written for ND-500 assembler programmers, system programmers needing to know the exact format of the generated code and anybody needing a description of the ND-500 architecture. The manual is required by programmers wanting to fully utilize the trap handling system and memory management system in any programming language. No previous knowledge of the ND-500 is required. General knowledge of computer architecture is desirable and assembly language experience is required for those using the manual to program in the ND-500 assembler language. 300 pages.

ND-05.010*
INTRODUCTION
TO ND-500

This manual gives a survey of ND-500 hardware and software. It is written for those wanting general information about the ND-500. Basic computer knowledge is recommended but not required.

* Not yet available

ND-05.011
ND-500
HARDWARE DESCRIPTION

The manual is written for all service and maintenance personnel. It should also be used when attending ND-500 hardware courses. The manual consists of 12 chapters and 1 appendix. The chapters contain information on the following:

- architecture
- data flow
- instructions and their formats
- prefetch processor
- ND-100/ND-500 communication
- description of CACHE
- description of the memory management system
- the control logic
- the trap system
- the floating arithmetic

The appendix includes module descriptions.

The reader should be familiar with the ND-100 computer systems. 200 pages.

ND-05.012
ND-500
MICROPROGRAMMING
GUIDE

This manual gives a short introduction to ND-500 microprogramming and will state rules for the use of some of the commands available in the ND-500 mnemonic symbols. The document is addressed to people writing microprogram routines for the ND-500 and to people working with ND-500 hardware. Some knowledge about the ND-500 architecture and detailed knowledge about the ND-500 hardware is required to use the manual. 60 pages.

ND-05.013
ND-500
ARRAY PROCESSING
FUNCTIONS

This manual describes the array processing functions implemented in microcode on the ND-500 computer. It is intended as an introduction to the array processing functions implemented on the ND-500 and ND-570 for people who want programs with array processing to run faster on these systems.

The reader is assumed to be familiar with FORTRAN and should have some knowledge of the ND-500 assembler. 75 pages.

ND-06.005
NORD-10/NORD-50
COMMUNICATION
SYSTEM

This manual describes the operation of the communication hardware in the NORD-10/ NORD-50 system. It gives a general description of memory communication, describes communication instructions and simulated memory programming. It is written for technical and maintenance personnel and communication system programmers. Familiarity with the NORD-10 and NORD-50 at the level described in the NORD-10/S and NORD-50 Functional Descriptions is required, also knowledge of NORD-10/S and NORD-50 instruction sets, which can be found in the NORD-10/S and NORD-50 Reference Manuals. 19 pages.

ND-06.007
BIG MULTIPOINT
MEMORY SYSTEM

This manual gives a general and detailed description of the Big Multipoint Memory System architecture, including memory, service and control channel specifications, and installation. It is written for technical and maintenance personnel needing a good understanding of this system, and installation personnel. Familiarity with the NORD-10, ND-100 and NORD-50 at the level described in their Functional Descriptions is required. 113 pages.

ND-06.008
NORD-10/S
REFERENCE MANUAL

This manual gives a detailed explanation of NORD-10/S architecture and principles from a hardware point of view, and a detailed description of the NORD-10/S instruction set. It is written for technical and maintenance personnel needing detailed information about the NORD-10/S and should also be of interest to programmers and operators. General computer knowledge is recommended. 169 pages.

ND-06.009
NORD-10/S
FUNCTIONAL
DESCRIPTION

This manual describes the main building blocks of the NORD-10/S and their functions, from a hardware point of view. It is written for technical and maintenance personnel requiring detailed information about the NORD-10/S and should also be of interest to software personnel. Some knowledge of digital techniques and computer systems in general is recommended. Knowledge of the NORD-10/S instruction set as found in the NORD-10/S Reference Manual is necessary. 235 pages.

-
- ND-06.010**
NORD-10/S
MICROPROGRAM
- This manual describes the exact format of the NORD-10/S microinstructions and the microformat of the NORD-10/S macroinstructions. It is written for microprogram writers and those wanting more detailed understanding of the NORD-10/S CPU. Detailed knowledge of the NORD-10/S system and a thorough understanding of the NORD-10/S CPU are necessary. This information is given in the NORD-10/S Functional Description. Some experience with digital techniques is recommended. 80 pages.
-
- ND-06.012**
NORD-10/S
INPUT/OUTPUT SYSTEM
- This manual describes the NORD-10/S Input/Output system architecture and principles from a hardware point of view, those parts of the I/O system common to all device controllers, the DMA data flow and the I/O interrupt system. It is written for technical and maintenance personnel requiring a good understanding of the connection of I/O interfaces to the NORD-10/S computer system and software personnel who program I/O interfaces. Familiarity with the NORD-10/S CPU at the level described in the NORD-10/S Functional Description is required, along with some knowledge of the NORD-10/S instruction set and assembly programming, which can be found in the NORD-10/S Reference Manual. 144 pages.
-
- ND-06.014**
ND-100
REFERENCE MANUAL
- This manual describes the main building blocks of the ND-100 and their functions. It describes the ND-100 instruction set in detail. It is written for technical and maintenance personnel requiring detailed information about the ND-100 and should also be of interest to programmers and operators. General computer knowledge is recommended. 250 pages.
-
- ND-06.015**
ND-100
FUNCTIONAL
DESCRIPTION
- This manual describes the main building blocks of the ND-100 and their functions, from a hardware point of view. It is written for technical and maintenance personnel needing detailed information about the ND-100 and should also be of interest to software personnel. Some knowledge of digital techniques and computer systems in general is necessary, along with knowledge of the ND-100 instruction set and assembly programming, which can be found in the ND-100 Reference Manual and MAC Assembler User's Guide. 340 pages.

ND-06.016
ND-100
INPUT/OUTPUT SYSTEM

This manual describes the ND-100 Input/ Output system architecture and principles from a hardware point of view, and those parts of the I/O system common to all device controllers. It gives the background necessary to understand fundamental design concepts of the ND-100 I/O system. It is written for technical and maintenance personnel requiring a good understanding of the connection of I/O interfaces to the ND-100 computer system and software personnel who program I/O interfaces. Familiarity with the ND-100 CPU at the level described in the ND-100 Functional Description is required, along with some knowledge of the ND-100 instruction set and assembly programming, which can be found in the ND-100 Reference Manual and MAC Assembler User's Guide. 222 pages.

ND-06.017
ND-100
BACKPLANE

Provides a brief description of the backplane adopted by ND for use in bus organized systems using a triple Euroboard standard. The bus backplane is primarily oriented towards input/output, but accommodates processing elements and memory modules as well. 18 pages.

ND-06.018
ND-100
MICROPROGRAMMING

This manual describes how to microprogram the ND-100 to take full advantage of the writable control store. It is written for technical personnel writing their own microprogram and will be useful for those requiring more detailed understanding of the microprogrammed structure of the ND-100 CPU. Detailed knowledge of the ND-100 system and thorough understanding of the ND-100 CPU are recommended. This information is given in the ND-100 Functional Description. Some experience with digital techniques is recommended. 73 pages.

ND-06.020*
INTRODUCTION
TO ND-100

This manual gives a survey of ND-100 hardware and software. It is written for those wanting a general description of the ND-100. Basic computer knowledge is recommended but not required.

* Not yet available

ND-10.003
**TECHNICAL INTRODUCTION
TO MULTIPOINT 4**

The manual describes the multipoint system used in ND-100 and ND-100/ND-500 multiprocessor configurations. The manual shows some MPM-4 features and the new MPM-4 modules, and it gives some examples of configuring with the new MPM-4 backplanes. The reader should be familiar with the ND-100 architecture and physical implementation. Knowledge of the principles of the big multipoint memory system is an advantage. 37 pages.

ND-10.004
**MULTIPOINT MEMORY 5
TECHNICAL DESCRIPTION**

This manual is a hardware description of the following products in the MPM-5 system:

RAM 1Mb Memory Module	ND-382
Twin 16-bit Port Module	ND-383
Line Driver Module	ND-384
RAM 4Mb Memory Module	ND-387

In addition, the manual also contains a programming guide, start-up and initialization instructions and information on error messages and fault-finding.

The manual is primarily intended for service personnel, system and hardware designers and others who require a detailed explanation of the MPM-5 modules and their functions. 90 pages.

ND-10.006
**MULTIPOINT MEMORY
CHANNEL SPECIFICATIONS**

This manual gives an introduction to the Multipoint Memory concept in general, and describes the Multipoint section as seen from the outside. Multipoint Memory is a shared memory system which expands memory capacity and allows for multiprocessor operation. The system is very flexible with regard to memory capacity and number of access sources.

Norsk Data A.S. supports three models of Multipoint Memory: Big Multipoint Memory, Multipoint Memory 4 and Multipoint Memory 5. The manual contains an introduction to the multipoint memory, and interface specifications for all three models.

The information in this manual is primarily intended for service personnel, system designers and others who might work with the Multipoint Memory section. It may also be read by anyone who requires an introduction to Multipoint Memory. The reader of this manual should be familiar with the ND-100 Functional Description (ND-06.015.01) and the ND-500 Hardware Description (ND-05.011.01). 40 pages.

ND-11.009
HAWK - DISK SYSTEM

This manual is a reference manual and user's guide for the HAWK-disk system. It describes the major components and basic principles of read/write, including the read/write assembly, interface signals, power distribution system, seek operations, sectoring, read/write/erase operations and fault handling and detection. Knowledge of the hardware associated with the HAWK-Disk system is required. 133 pages.

ND-11.010
NORD-10/HAWK
DISK CONTROLLER

This manual is a reference manual and user's guide for the NORD-10/HAWK - Disk Controller. It describes NORD-10/HAWK programming specifications, the interface signals, disk addressing, the write and read operation, interrupt generation and handling, status generation, and the control word. Knowledge of the HAWK-Disk System is required. 76 pages.

ND-11.012
FLOPPY DISK SYSTEM

This manual is a reference manual and user's guide for the Floppy Disk System. It describes the system itself, the interface and the formatter. General knowledge of the purpose and functioning of floppy systems is required. 183 pages.

ND-11.013
NORD-10/S ERROR
CORRECTION CONTROL
(ECC) DISK CONTROLLER

This manual describes the ECC disk controller. It contains information and a general description. The programming specifications are given and the interface is described in detail. Some troubleshooting advice is also included along with logic diagrams. 100 pages.

ND-11.014
STC MAGTAPE SUBSYSTEM

This manual is a reference manual on the STC magtape subsystem. It describes how STC magnetic tapes are connected to a ND-100 computer and what the 3020 STC magtape controller looks like. It is written for field service engineers and technical personnel directly involved with the operation or maintenance of magnetic tapes. It is especially useful during testing and installation. The manual contains a short description of the subsystem functions, how they are organized in a ND-100 system and a detailed description of the 3020 module. Programming specifications for the controller itself and for its

driver routine are included along with a user's guide for test programs. Knowledge of the functioning and operation of magnetic tape systems is required. 96 pages.

ND-11.015
FLOPPY DISK
CONTROLLER - 3027

This manual gives a general description of the Floppy Disk Controller-3027. It contains general information on the hardware and the self test feature plus explains the read write operations and their associated commands. 50 pages.

ND-11.016
8 INCH WINCHESTER
DISK CONTROLLER
ST506 & FINCH

The eight inch Winchester Disk Controller consists of one 3038 card controlling one or two Winchester disk drives. The 5 1/4 inch, ST506, Winchester Disk Controller consists of the 3041 card.

This manual gives an introduction and a description of the disk drive, the controller and the handling of bad tracks. The manual gives the programming specifications and contains a detailed description of the hardware. Test procedure, block diagrams and logic diagrams are included. There is a short description of the Fairchild circuit 9401 and layout of components and the cable signal definition is also shown.

Basic knowledge of the ND-100 and or NORD-10 computer systems is recommended. The manual is intended for hardware engineers and others performing maintenance on ND equipment. 50 pages.

ND-11.019
DUAL CHANNEL
DISK SWITCH

Disk drives is connected to and can be selected from either of two controllers. However, the drive is capable of responding to only one controller at a time and the controllers must compete for use of the drive. For this reason a dual channel disk switch is connected between the controllers and the disk drives to take care of this selection.

This manual contains maintenance information about the dual channel disk switch. It describes the drives for which the switch can be used, the programming specifications, the functions controlling dual channel selection, the switch settings and circuit functions and the installation. 25 pages.

ND-11.021
**FLOPPY AND STREAMER
CONTROLLER 3106/3112**

This manual gives a detailed description of the Floppy and Streamer Controller. It describes the 8" F & S Controller - card no. 3106, and the 8" and the 5 1/4" F & S Controller - card no. 3112. This manual is written for maintenance, workshop and other personnel needing a description of the Floppy and Streamer Controller. 130 pages.

ND-12.004
CAMAC CDMA NORD-10

This manual gives a detailed description of the principles of operation. It contains a summary of the programming specifications and includes diagrams of the timing and the logic. It is written for those who want to use CAMAC, or to know how it works. No previous knowledge is required. 20 pages.

ND-12.006
**CAMAC CC-NORD-10
HARDWARE**

This manual is written for CAMAC users. It describes the programming specifications and contains logic diagrams, parts list and signal definition list. 50 pages.

ND-12.007
**CAMAC CC-NORD-10
INTERFACE**

This manual gives general information on the operation of the CC-NORD-10 crate controller which interfaces CAMAC crates directly to the input/output bus of the NORD-10 computer. It contains information on the physical and electrical specifications, interrupt handling, LAM handling and Link Bus characteristics. It gives information about addressing and data formats and the programmable operations on CC-NORD-10. It should be of interest to all those who want to understand how CAMAC works. 17 pages.

ND-12.012
**INTERFACE TO PERTEC
MAGNETIC TAPE**

This manual deals mainly with the signals between 1123 and 1124. It contains programming specifications and a description of the formatter. It also gives hardware information and contains logic diagrams. 60 pages.

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- ND-12.013**
NORDCOM COLOUR
TERMINAL
- This manual contains information on the ND676 NORDCOM colour terminal. It has a product description and programming and interface specifications. Block diagrams and logic diagrams have been included along with test procedures. It is written as a maintenance manual and requires no special knowledge of ND systems. It should be of special interest to service personnel. 160 pages.
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- ND-12.015**
1158 DR-11-C
INTERFACE
- The manual gives an introduction to the 1158 DR-11-C interface. It contains hardware descriptions and programming specifications. Various test possibilities are given along with block diagrams and logic diagrams. 20 pages.
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- ND-12.016**
DATA COMMUNICATION
- This manual contains general information on data communication. It describes different networks, explains multiplexing and describes modems in general. Various communication procedures and data terminal equipment are discussed. It is written for those who want an introduction to data communication hardware. No previous knowledge is required. 150 pages.
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- ND-12.018**
HDLC INTERFACE
- This manual gives a functional description of the High Level Data Link Control interface. It contains various standards and procedures and gives programming specifications. It has logic diagrams for the HDLC and a detailed description of the Multiprotocol Communication Controller is given. 100 pages.
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- ND-12.020**
UNIVERSAL DMA
INTERFACE ND852
- This manual is a user's guide to interfacing and programming the ND852 Universal DMA Interface. It describes the hardware and defines electrical, mechanical and programming specifications. It includes circuit schematics and plug lists. Basic knowledge of the ND-100 computer systems is recommended. 40 pages.

ND-12.023

**GENERAL PURPOSE
INTERFACE BUS (GPIB)
USER GUIDE**

The ND system controller for the GPIB is used to connect and control programmable instrumentation and non-programmable instrumentation like plotters and printers. These peripheral devices must be compatible with the GPIB-standard. The official standards describing the GPIB are called IEEE-488 and IEC-625, and the ND system controller is compatible with both of these. The end-user oriented software in the product consists of a GPIB MONITOR and a GPIB LIBRARY. The GPIB MONITOR consists of commands for direct control of GPIB devices. The GPIB LIBRARY consists of subroutines, callable from FORTRAN, for control of GPIB devices. The manual is intended for both new and experienced users of a GPIB system. The user should have some basic knowledge of ND's operating system - SINTRAN III. Programmers must know how to create and run FORTRAN programs on an ND computer. 110 pages.

ND-12.024

**FACIT 4420/ND
USERS GUIDE**

The manual describes the FACIT 4420/ND Video Terminal, a low-cost word-processing work-station. The introductory chapters, Part 1, do not require any computer knowledge. They are written to guide the terminal users in how to get the best out of their terminal. Part 2 is intended for programmers, and supplements the manual FACIT 4420 Technical description, Edition 2, published by FACIT Data Products. 65 pages.

ND-13.003

**CIRCUIT DIAGRAM
SYMBOLS**

This is a reference manual containing the symbols used on Norsk Data circuit diagrams. It describes the rules used in obtaining logic expressions. It contains definitions of logic signals and the symbols used to represent logic elements in Norsk Data circuit diagrams. General knowledge of circuit diagrams is essential. 62 pages.

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- ND-13.012**
NORD-10 POWER UNIT
- This is a reference/maintenance manual for the NORD Power Unit 10. It is written for field service engineers and technical personnel directly involved with maintaining CPUs using this power unit. It contains a description of the power unit, maintenance instructions for the replacement of batteries and the control panel, and adjustment procedures for the setting of the battery comparators. General knowledge of the power unit is required. 26 pages.
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- ND-13.014**
**SITE PREPARATION AND
INSTALLATION MANUAL**
- This is a reference manual for technical personnel and customers actively involved in the preparation of a computer site for Norsk Data equipment. It is used as a reference document by the System Integration Department of Norsk Data. It applies to all Norsk Data equipment configurations, the NORD-10/S, the NORD-50, the ND-100 and the ND-500. It should only be used by a customer after after consultation with the System Integration Department, Norsk Data. 46 pages.
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- ND-13.015**
**PLANLEGGING OG
INSTALLASJONS MANUAL**
- This manual is a Norwegian language version of manual ND-13.014, Site Preparation and Installation Manual and contains exactly the same information. 46 pages.
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- ND-30.001**
**NORD-10/NORD-50
OPERATOR'S GUIDE**
- This manual is an introduction to the operation and maintenance of the NORD-10/S and the NORD/50. It is written mainly for operators who need basic information about how to run the NORD-10/S and NORD-50 and how to handle simple error situations. No previous knowledge of ND computers is necessary but the reader should be familiar with the general principles of computer operation and preferably have some experience in this field. 134 pages.

ND-30.003

**SINTRAN III
SYSTEM SUPERVISOR**

This manual is a guide for system supervisors administering data centers implemented under SINTRAN III. It is written for operators controlling the daily operation of the system and for system supervisors who program and operate the system. No previous knowledge is required for operators. System supervisors should have a general knowledge of SINTRAN III from a user's point of view. This manual should be used together with the following manuals:

SINTRAN III Time Sharing/Batch Guide (ND-60.132)
SINTRAN III Reference Manual (ND-60.128)

300 pages.

ND-30.004

**NORD-10/S HARDWARE
MAINTENANCE MANUAL**

This manual has been prepared for the ND Service department. It is written for field service engineers and technical personnel maintaining NORD-10/S CPUs. It contains a technical description and physical layout of the CPU input/output system and memory, hardware maintenance services, module substitution precautions, error symptoms and troubleshooting procedures, and maintenance information on the CPU, character oriented devices, DMA controllers, the memory and the power system. A basic knowledge of NORD-10/S hardware is required. 200 pages.

ND-30.005

**TEST PROGRAM
DESCRIPTIONS**

This manual describes the test programs used on the computers ND-100, NORD-10/S, NORD-10 and NORD 12. The manual is divided into three sections. The first chapter in section 1 gives a detailed description of the FLOPPY MONITOR and the TEST PROGRAM MONITOR. The following 15 chapters describe the 15 tests contained on test floppy 1, ND-10324E. These are the tests most frequently used.

Section 2 contains information on the 27 tests on test floppy 2, ND-10325B, and section 3 describes the tests on test floppy 3, ND-10326B. These tests are not so frequently used.

The manual is intended for those connected with maintaining the ND-100 and/or the NORD-10 series computers. The reader should have basic knowledge of the hardware in these computer systems. 250 pages.

ND-40.004.06

ND-30.006**ND TPS SYSTEM
SUPERVISOR'S GUIDE**

This manual is a guide for operators and system supervisors of the ND Transaction Processing System, a general transaction processing system that initiates and controls transactions between various input/output devices and application programs. TPS provides facilities for handling terminals, data communications, data bases, etc. The manual is written for operators with responsibility for the daily operation of TPS and system supervisors with responsibility for planning, installing and modifying TPS. Operators require a basic understanding of the SINTRAN III operating system and the SIBAS data base system. System supervisors should be thoroughly familiar with TPS, SINTRAN III, SIBAS, FOCUS, NSHS and XMSG communication. 200 pages.

ND-30.008**ND-100 HARDWARE
MAINTENANCE MANUAL**

The manual covers the ND-100 computer and associated peripherals. The manual is intended as an aid to people involved with maintaining and troubleshooting the ND-100 computer system. The manual describes typical configurations, preventive maintenance duties and fault isolation procedures. A brief description of the various ND-100 hardware units and procedures for running test programs against these units is also provided. The appendices contain cross reference lists for ND-100 cards, a list of the latest issued testprograms, known but not corrected errors, and the ND-100 bus backplane signals. General knowledge of ND-100 hardware and familiarity with the SINTRAN III operating system are required. 200 pages.

ND-30.009**SIBAS II
OPERATOR'S MANUAL**

This manual is intended as a practical guide for people who operate the D version of the SIBAS II Database Management System. It gives the recommended or standardized ways of carrying out the various procedures for which the operator is responsible. It includes:

- The responsibilities of the operator to ensure smooth running and availability of the data base system.
 - Instruction on taking BACKUP, LOGGING and Recovery
 - Controlling the Data Base Control System (DBCS).
 - Starting and stopping the data base.
 - Error diagnosis and correction.
 - Maintaining, checking and changing the size of files and realms.
 - Mode files for facilitating the operator's tasks.
- 76 pages.

ND-40.004.06

ND-30.010
**NORD-50 HARDWARE
MAINTENANCE MANUAL**

This manual has been prepared for the Norsk Data service department. It is written for field service engineers and technical personnel maintaining NORD-50 CPUs. It describes the racks and operators panel, the NORD-50 monitor, NORD-50 error messages, test program information, the NORD-50 memory system, NORD-50 memory expansion and the power system. General knowledge of NORD-10/S hardware, including the input/output and memory systems and familiarity with the SINTRAN III operating system are required. 200 pages.

ND-30.013
**TEST MICRO PROGRAM
DESCRIPTIONS
FOR ND-500**

This manual describes the test programs used with the ND-500 CPU. It is written for field service engineers and technical personnel testing or maintaining ND-500 CPUs. It contains details of the contents and structure of each test program and the procedure for their implementation. The manual is the central reference document on these test programs. An in-depth knowledge of ND-500 is required for proper utilization of the manual. 116 pages.

ND-30.014*
**ND-500 HARDWARE
MAINTENANCE MANUAL**

This manual will be prepared for the ND service department. It is intended for field service engineers and technical personnel maintaining ND-500 CPUs in various ND-500 configurations. General knowledge of ND-500 hardware and familiarity with SINTRAN III is required.

ND-30.018
**TEST PROGRAM
DESCRIPTION - ND-500**

This manual describes the ND-500 DESMODUR verification system. Part 1 of the manual describes the various tests to check and verify the ND-500 instructions (microcode) and the hardware. Part 2 gives a more detailed description and is written to make it easier to extend with new testprograms. The manual is mainly written for the ND-500 system integration and service staff. 108 pages.

ND-30.020
ACCESS DBA HANDBOK

This is a Norwegian version of the ACCESS DBA Manual, ND-30.022, described below. 55 pages.

* Not yet available

ND-30.022**ACCESS DBA MANUAL**

This is a reference manual for the Data Base Administrator or supervisor responsible for an ACCESS system. ACCESS is a tool for retrieving information in a usable form from data registers. Some knowledge of data processing is required. It requires a good knowledge of SINTRAN and ACCESS itself. 90 pages.

ND-30.024**SATELLITE INSTALLATION
AND OPERATION GUIDE**

The manual replaces the manual ND SATELLITE SYSTEM, ND-30.024. It provides a guide to all the stages, from unpacking the system, to actually using it. The manual describes installation, how to connect terminals and printers, the start-up procedure and the loading of the operating system. It also shows how to maintain the system, backup, personal backup, and hints for the system supervisor. The manual is mainly written for the Satellite system supervisor at the users site. S/he need no prerequisite knowledge to read it, but the manual also contains references to other manuals, frequently used by system supervisors on Norsk Data computers. 70 pages.

ND-30.025**COSMOS
OPERATOR GUIDE**

This manual replaces the manual COSMOS System Supervisor, ND-30.025. It has been completely rewritten and reorganized. The manual documents the installment and operation procedures of the network facilities in the:

COSMOS Basic Module	ND 10374
and IS XMSG	ND 10373

as implemented under SINTRAN III version I or later. Only the facilities of IS XMSG that are required to operate and run COSMOS Basic Module are described in this manual.

The manual is intended for the system supervisor or network supervisor, who needs a guide for the communication facilities of COSMOS, as implemented under SINTRAN III.

The reader should have a broad knowledge of the SINTRAN III operating system. In addition, familiarity with the different facilities offered by the COSMOS Basic Module at both the programmer's level and the end user's level is recommended. A general understanding of data communication is also helpful.

ND-40.004.06

The functions are ordered by functional category as opposed to the SINTRAN III Reference Manual where most of the functions are documented in alphabetical order. 100 pages.

ND-30.026

**NORDRIFT - HÅNDBOK
FOR DRIFTSOPERATØRER**

This is the Norwegian version of the Operator's Guide for TPS-II. It documents the product:
ND 10342 ND Transaction Processing System - TPS-II

The manual is intended for the operator of a TPS-II installation. This operator is a person who does not need to have any prior EDP knowledge, but needs to have a thorough understanding of the applications the system will be used for. The manual gives a detailed description of the operator's functions. 110 pages.

ND-30.029

**TEST MICROPROGRAM
DESCRIPTIONS
FOR ND-500/2**

This manual gives a short introduction to ND-500/2 microprogramming and also includes the usage of the available test microprograms. Descriptions on how to load and start the ND-500/2 test microprograms are included in this manual. It is written for the ND-500/2 production and service staff and for people who intend to write their own microprogram testing routines. The test programs may be run by persons without detailed knowledge of the ND-500/2, however some knowledge of the ND-500 and the ND-500/2 hardware and architecture is required when writing your own microprograms. 110 pages.

ND-30.030

**ND TPS-II
OPERATOR GUIDE**

This manual describes the TPS-II system (Transaction Processing System), which is based on NORDRIFT. NORDRIFT was originally developed for the Norwegian National Insurance Institution. The system makes it possible to install and run a computer system that covers a wide and advanced range of problems in a local environment.

This manual contains all information necessary to run a computer system based on TPS-II. The person responsible of a TPS-II installation must have thorough knowledge of the administrative problems that can be solved by the system, but no special data processing knowledge is necessary.

The Norwegian version of this manual, NORDRIFT Håndbok for driftsoperatører, ND-30.026, has already been released. 105 pages.

ND-30.031**ND-100 COMPACT
OPERATOR GUIDE**

The ND-100 Compact Computer System is a physical compact computer based on the technology of the ND-100 and is intended for use in office premises. It is small, quiet and easy to operate. It has both a floppy disk station and usually also a cartridge tape (streamer). Telefix, which was created to permit analysis of error situations in customers' computers directly from Norsk Data's Service Center, is available.

This manual is intended as a practical guide for people who operate the ND-100 Compact computer. It contains a description of the operator's panel, how to go on when the computer is started, how to format and handle floppy diskettes, writing and reading backup from the floppy diskette and the streamer cartridge, how to handle some simple errors, preventive maintenance of the streamer and messages you may get when using the streamer. 54 pages.

ND-30.033**COSMOS X.21 OPTION
OPERATOR GUIDE**

This manual describes the product COSMOS X.21 Option, ND-10403. This manual is intended for system operators (supervisors) in charge of installing, loading, testing and maintaining the product COSMOS X.21 Option.

Detailed knowledge of the operating procedures of SINTRAN III (version H or later) and the COSMOS Basic Module with Inter System XMeSsage (IS XMSG) is necessary. Familiarity with the basic requirements in the CCITT X.21 recommendation is helpful, but not required. 60 pages.

ND-30.034**COSMOS X.25 OPTION
OPERATOR GUIDE**

This manual describes the product COSMOS X.25 Option, ND 10573. The manual is intended as a guide for system operators/supervisors. It is divided into two parts. The first gives a sequential introduction to the necessary procedures of loading and operating/maintaining the COSMOS X.25 network system.

The second part, the appendices, provides reference documentation for the same functions covered in the first part. These appendices also include additional advanced functions which are not necessary for the day to day operation. 110 pages.

ND-40.004.06

ND-30.038

**SNA 3270 TERMINAL
EMULATOR OPERATOR
GUIDE**

The manual describes the ND SNA 3270 Terminal Emulator program which allows the ND-100, with attached display stations and printers, to appear as an IBM 3270 Control Unit. The product numbers are:

ND 10741 - SNA Gateway Single Line
ND 10742 - SNA Terminal Emulator

The first chapter of this manual is an introduction to the ND SNA 3270 Terminal Emulator. Chapter two describes how the program is implemented and started. In chapter three the operation of the system is explained. Chapter four explains the functions of the ND 246 NOTIS keyboard as opposed to the IBM 3278 keyboard.

The manual is intended for operators and others using the ND 246 NOTIS terminal. No previous knowledge is required, however familiarity with the ND-100 computer systems and the operating system of the host computer is recommended. 50 pages.

ND-40.005*

NORSK DATA GLOSSARY

This glossary is intended to help in understanding ND manuals and should be of interest to everybody using ND equipment. Special ND terms and common computer terms with a slightly different meaning in the ND manuals, constitute the main portion of the glossary. ND abbreviations are also listed. Some general computer terms, words and acronyms used in the documentation are explained, mainly to help readers with limited dataprocessing background in understanding the introductory manuals. Terms and abbreviations used only in the same chapter, or close to their definitions, are omitted. The main purpose of this glossary however, is not to define, but to explain in everyday language. Many explanations in this glossary require little or no knowledge of computers or data processing. However, some knowledge of computers is essential to the understanding of the more complicated explanations.

* Not yet available

ND-40.004.06

ND-60.031**QED USER MANUAL**

This manual is a users guide and reference manual for the QED text editing program. The program is designed to maintain source program files such as FORTRAN, COBOL, BASIC, MAC or NPL but is also suitable for all kinds of text editing. The manual is written for programmers using the editor as a standalone program or as a subsystem under an operating system, the TSS timesharing system, or the SINTRAN III real time, timesharing and multibatch operating system. For general text editing purposes, familiarity with computers or programming is not necessary. 40 pages.

ND-60.037**SCIENTIFIC SUBROUTINE
PACKAGE**

This manual describes the individual subroutines in the Scientific Subroutine Package which contains FORTRAN routines for performing statistical and mathematical functions, including matrix manipulation, integration, root finding and special functions like Bessel and Gamma functions. It is written for programmers who need a comprehensive description of the available routines. Familiarity with FORTRAN is required. 288 pages.

ND-60.041**NORD IDT GERTS-115
OPERATOR'S GUIDE**

This manual describes the basic and optional functions of the ND IDT GERTS-115. It is intended as an operator's guide and should be of interest to those who want to run the terminal as efficiently as possible. The manual contains information on starting and running the system and discusses the console commands and messages. It includes load procedures for various systems and systems running under SINTRAN III. 30 pages.

ND-60.047**NORD PL
USER'S GUIDE**

This manual describes the NORD PL language in textbook style. It contains the definition of the language, compiler operating procedures and error message explanations, and a set of exercises for use in a teaching environment. It is written for programmers who will use NORD PL for writing programs, system analysts reading the ND-100/10 system programs and operators who make patches and modifications to system software. NORD PL users should have experience using the MAC assembly language and be familiar with the architecture of the ND-100/10 computers. 102 pages.

ND--40.004.06

ND-60.051
SINTRAN III
REAL TIME LOADER

This is a reference manual of the commands in the real time loader, used to load real time programs in SINTRAN III. It is written for experienced users of SINTRAN III. Familiarity with the SINTRAN III Real Time Guide is required. 72 pages.

ND-60.057
THE DATA BASE SYSTEM
SIBAS I USER'S MANUAL

This manual was written for the original SIBAS system, now replaced by SIBAS II (see ND-60.127). It describes the implementation of a data base, explaining all necessary parameters, the calls to be used in programs, error reports etc. In SIBAS II the practicality of establishing the data base is completely different, but most of the contents are still valid. The manual is written for programmers and supervisors on systems where SIBAS is implemented. Basic knowledge of SINTRAN and data processing is required and some programming experience is valuable. 370 pages.

ND-60.058
NORD PLOT PACKAGE

This is the documentation of the library routines in the plot package used to drive drum type incremental plotters. Calls may be made from FORTRAN, BASIC or MAC programs. It is written for programmers. 46 pages.

ND-60.060
NORD IDT DCT-2000
OPERATOR'S GUIDE

This manual is an operator's guide to the ND IDT DCT-2000. It gives an introduction to the terminal and describes local commands and messages. It also describes the loading and start-up procedures of the ND IDT DCT-2000 program. It contains information on error recovery, general commands for ND IDT terminals and load procedures for various systems. 25 pages.

ND-60.061
NORD IDT 200-USER
OPERATOR'S GUIDE

This manual contains information on the ND IDT 200-USER, a remote batch terminal operating with CDC Cyber/6000 series computers. It is an operator's guide and describes the commands and responses, start-up procedures and batch processing. Some attention is given to special functions and interactive processing. The appendices contain information on error recovery, general commands and various load procedures. 30 pages.

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- ND-60.062**
SINTRAN III
SYSTEM DOCUMENTATION
- This is the main documentation for the implementation of SINTRAN III. It is written for those responsible for maintenance of SINTRAN III software. Familiarity with the external functions as documented in the reference and installation management manuals is required. 240 pages.
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- ND-60.066**
ND RELOCATING LOADER
- This manual is a user's guide containing a general introduction to loading and descriptions of the NRL commands, the overlay mechanism and the Binary Relocatable Format (BRF). Error messages generated by NRL are described. The manual is required by ND-10/100 programmers and anybody who needs a description of the BRF format for maintaining BRF libraries or generating code to be loaded by NRL. No previous experience with loaders is required; however a minimum of knowledge of SINTRAN III is necessary. 59 pages.
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- ND-60.067**
NORD IDT 3780
OPERATOR'S GUIDE
- The ND IDT 3780 is a remote batch terminal operating with IBM 360/370 systems. The manual describes the start-up procedures and the batch processing. It is written as a user's guide and describes the local and general commands and gives information on the load procedures for NORD-20, NORD-10/20/100 stand alone systems and for systems running under SINTRAN III. 25 pages.
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- ND-60.070**
NORD IDT NTR
USER'S GUIDE
- The ND IDT NTR is a program system in a NORD-10/12/100 computer for remote batch communication with a Univac 1100-series computer. The manual is a user's guide describing system features, initiating and running the system, commands, responses and load procedures. 40 pages.
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- ND-60.071**
NORD-10 BASIC COMPILER
REFERENCE MANUAL
- This manual is written for programmers using BASIC. It is suitable as a self-study guide to programming in general, using BASIC as a tool. It explains BASIC features and its interactive use, and contains a complete description of available commands, statements and functions. No previous experience of programming languages or hardware is required. 236 pages.

ND-60.072 The manual describes the implementation of the real time loader. It is written for system programmers working in support and development. Familiarity with the SINTRAN III Real Time Loader manual is required. 40 pages.

**SINTRAN III
REAL TIME LOADER
SYSTEM DOCUMENTATION**

ND-60.075 This manual describes the NORD-50 assembler operating procedure, the assembler directives, macro usage and external program representation. The appendixes contain tables of instructions, BRF directives generated by the assembler and numeric opcodes. It is written for users of the NORD-50 assembler. Familiarity with assembler programming and sufficient SINTRAN III experience to run the assembler is required. Details of the instruction set are given in the NORD-50 Reference Manual, ND-05.003. 52 pages.

NORD-50 ASSEMBLER

ND-60.076 The first three chapters of this manual describe how to run NORD-50 programs. All available commands are explained, including those reserved for the system supervisor. File access and the use of monitor calls from the NORD-50 are described. Chapters four to six contain the monitor system architecture and describe how to implement monitor and system documentation. This manual should be read by NORD-50 users. The first three chapters are intended for users who execute programs on the NORD-50. A working knowledge of SINTRAN III and familiarity with NORD-50 FORTRAN are required. These can be obtained from the SINTRAN III Timesharing/Batch Guide ND-60.132 and NORD-50 FORTRAN Reference Manual ND-60.095. Chapters four to six are not required reading in order to use the monitor, but should be read by system programmers and analysts and by system supervisors installing the monitor. Thorough knowledge of the internal operation of SINTRAN III and/or the underlying hardware is required. Less detailed information is required by users reading these chapters as a general description of the monitor. 92 pages.

**NORD-50 MONITOR
USER'S GUIDE AND
SYSTEM DOCUMENTATION**

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- ND-60.077**
SIBINTER
- This manual describes the software product SIBINTER (ND Interactive Information Processing and Report Generating System), the tool for processing records interactively (from terminals) in the data base. All access methods used in programs are also available from SIBINTER. Knowledge of the structure of SIBAS data bases and programming experience are recommended, along with study of the SIBAS II User's Manual. 54 pages.
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- ND-60.078**
DATA BASE THEORY AND DESIGN
- This manual covers the main concepts of data bases, not their implementation on ND computers. The two principle methods of record access, by index or random, are discussed and illustrated by examples. The manual is a suitable introduction for anybody setting up a data base. No previous knowledge of data bases or programming is required, but some elementary experience of data processing is useful. 104 pages.
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- ND-60.079**
MEAS II - AN ANALOG PROGRAM SYSTEM FOR PROCESS CONTROL USER'S MANUAL
- MEAS II is an analog program system for real time process control. This manual describes how to run the MEAS program system under SINTRAN III. It is written for application programmers, but the program calls themselves are documented in MEAS II - An Analog Input Program System for Process Control, Application Manual, SINTEF Report STF48 A73023. 66 pages.
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- ND-60.082**
SINTRAN III-CORE USER'S GUIDE
- This manual documents the external functions of a special version of SINTRAN III. The SINTRAN III/RT operating system is a simplification of SINTRAN III/VS. It does not include memory management and the file system. It is primarily written for end-users and programmers. Knowledge of the SINTRAN III/VS system as found in the SINTRAN III Introduction is required. 134 pages.
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- ND-60.083**
NORD-50 LOADER USER'S GUIDE
- This manual gives a brief introduction to the loading process. It describes how to use the NORD-50 loader, how to load an overlaid program, how to define the communication between NORD-50 and NORD-10, the relocatable code (BRF5) format and the error messages produced by the loader. It is written

for all programmers using the NORD-50. It is also recommended for system supervisors who maintain a library of relocatable modules for the NORD-50 with the NORD-50 BRF Editor. No previous knowledge of loaders is required. Familiarity with the NORD-10/NORD-50 system is of great advantage for understanding more advanced use of the loader. 25 pages.

ND-60.088
ND SCREEN
HANDLING SYSTEM

The Screen Handling System NSHS is a system for handling video display terminals. It uses two main features, pictures and programs. The first part of the manual describes how to create pictures which are used by the application programs. The second part contains the calls/parameters available for the programming. The third part is the user's guide and contains practical examples for the user, starting with defining pictures, writing and executing programs. There is additional information about points which have previously proved difficult. The manual is written for programmers and supervisors. Experience of interactive data processing and programming, preferably FORTRAN, is required. 186 pages.

ND-60.091
NORD RPG II
USER'S GUIDE

This is a user's guide for the ND RPG II system, describing compiler operating procedure, external representation and file access from RPG programs. It describes compiler and run time error messages and differences from other RPG systems. It is written for ND RPG II programmers who know the RPG language. Basic knowledge of SINTRAN III and the file system is required. 52 pages.

ND-60.092
ND-100 SINTRAN III
SIMULA REFERENCE
MANUAL

This is a reference manual describing extensions to and differences between the ND-100 SINTRAN III SIMULA and the SIMULA Common Base Language. It also describes the use of the compiler and the external program representation. It is intended as a reference text for the ND-100 implementation, not as a tutorial text on SIMULA. It is written for programmers writing SIMULA programs for the ND-100. Thorough knowledge of the language itself and familiarity with SINTRAN III are required. 58 pages.

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- ND-60.093**
NORD PROCESS I/O
SOFTWARE GUIDE
- The manual describes calls to library routines for:
ND-820 AD converter
Noratom-Norcontrol process equipment
the digital I/O monitor calls DIW and DOLW
ND-810 digital input
ND-811 digital output
CAMAC
direct digital control (DDC)
FORTRAN or MAC can be used. The manual is written for application programmers who should be familiar with the input/output system in SINTRAN III. 56 pages.
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- ND-60.094**
NCT - NORD COLOUR
TERMINAL USER'S GUIDE
- The manual covers the main design specification and the external functions of the NCT service program. 42 pages.
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- ND-60.095**
NORD-50 FORTRAN
REFERENCE MANUAL
- This is a reference manual describing the NORD-50 implementation of FORTRAN. It also describes external program representation, compiler operating procedure and file access under the SINTRAN III operating system. Appendixes include error message explanations, summaries of loader and monitor commands and a short description of internal data representation and procedure call conventions for interfacing to other languages. The manual is written for FORTRAN programmers of the NORD-50. Familiarity with elementary FORTRAN and SINTRAN III usage are recommended but the manual contains all the information required to write, compile, load and execute a FORTRAN program on the NORD-50. 182 pages.
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- ND-60.096**
MAC INTERACTIVE
ASSEMBLY AND DEBUGGING
SYSTEM USER'S GUIDE
- This manual describes the MAC assembler for ND-100/10 computers. It contains the assembler commands, specifications for the external representation of assembly programs, assembler operating procedures and a description of the hardware environment. Standard and optional extensions to MAC and the special versions of MAC (MACF, MACM) are presented. The appendix has a list of machine instructions but the NORD-10 or ND-100 CPU Reference Manual is required to describe instruction formats and addressing modes. Basic knowledge of assemblers and the architecture of ND-100/10 is required, but detailed knowledge of the computer hardware or previous MAC experience is unnecessary. 134 pages.

ND-60.097 This manual describes supervision of data bases under the old SIBAS system. It is not valid for SIBAS II, where it is replaced by chapter 6 of the SIBAS II User's Manual ND-60.127. 120 pages.

DATABASE ADMINISTRATOR MODULE

ND-60.098 This manual describes the commands available in the NORD-50 BRF editor to maintain and modify NORD-50 BRF files and to disassemble the BRF directives and machine instructions. It is written for those maintaining libraries of relocatable NORD-50 modules, including system supervisors, advanced programmers and system programmers. Some knowledge of the internal BRF format (BRF5) is required. This can be found in the NORD-50 Loader User's Guide ND-60.083, which also gives the required background information about loading NORD-50 segments. 6 pages.

NORD-50 BRF EDITOR

ND-60.099 The manual describes the functions of the floppy disk converting system which converts data to SINTRAN III compatible files. It is written for programmers and end users. Familiarity with floppy disk formatting and running programs under SINTRAN III is required. 44 pages.

FLOCON USER'S GUIDE

ND-60.100 This manual is a user's guide that describes how to generate and run the 7750 VIP emulator under the SINTRAN III operating system. The 7750 VIP emulator communicates with a Honeywell Bull host computer. 18 pages.

7750 VIP EMULATOR USER'S GUIDE

ND-60.101 The Data Entry System consists of the Data Entry Compiler and the Data Entry Editor. Data Entry uses parts of the Screen Handling System (invisible to the user). The editor is used for calling pictures, entering data to the fields and transporting records between screen and disk files. It can also be used for control reading of records (verifying), search on a key, etc. The compiler is a special language used for writing 'applications' used for designing record output, checking data and grouping pictures to be called from the same application. The manual is a typical reference manual for those already familiar with the system but is not recommended as a textbook. It contains no practical examples. 52 pages.

NORD DATA ENTRY SYSTEM REFERENCE MANUAL

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- ND-60.105**
ND TPS
GENERAL DESCRIPTION
- This manual is an introduction to the ND Transaction Processing System, a general transaction processing system that initiates and controls transactions between various input/output devices and application programs. It provides facilities for handling terminals, data communications, data bases, etc. The manual contains introductory information and should be of interest to data processing managers, systems analysts, programmers and operators. The system is described as it appears to a user, programmer or operator. No previous knowledge of ND TPS or transaction processing is required, but some knowledge of the SINTRAN III operating system, the SIBAS data base system and the ND Screen Handling System is recommended. 50 pages.
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- ND-60.106**
REFERENCE TO UTILITY
PROGRAMS FOR THE
RPG II USER
- This manual contains the information required to convert RPG II files and systems from other RPG II installations to ND RPG II. It is useful to RPG II programmers and operators making such conversions and should be regarded as a supplement to ND RPG II User's Guide, ND-60.091. 10 pages.
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- ND-60.107**
DATACON USERS GUIDE
- This manual describes DATACON, a data conversion utility system capable of converting data files from one data representation to another using user defined alphabet tables and record descriptions. The system includes a simple report generation feature, an inspection tool for use on files being converted. The manual is required by programmers and system supervisors when data are exchanged between ND computers and other computer systems and for data file conversion. General knowledge of SINTRAN III is required. 18 pages.
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- ND-60.108**
ND INDEXED SEQUENTIAL
ACCESS METHOD
REFERENCE MANUAL
- This manual describes ND ISAM, a file structure which uses a separate index file when searching in a large sequential file. It is a reference guide to the subroutines available to handle such files, but contains sufficient introductory information to serve as a guide for the first time user of ND ISAM. The manual is written for programmers experienced in a high level language, who want to reduce average access time to large files of sequentially ordered

data. The application program must be written in a language allowing calls to external FORTRAN routines. Familiarity with the file system is required and previous knowledge of ISAM structured files is helpful. The new version also covers the latest release of the ISAM software, including an example of using ISAM from a Pascal program. 65 pages.

ND-60.109 This manual has been included in the SINTRAN III Utilities Manual, ND-60.151. 33 pages.
**GPM - GENERAL PURPOSE
MACRO GENERATOR**

ND-60.110 The SINTRAN III postmortem investigator program system is developed to aid those debugging SINTRAN. It is part of the installation management documentation and familiarity with manuals documenting SINTRAN III implementation is required, particularly the SINTRAN III System Documentation, ND-60.062. 30 pages.
**SINTRAN III
POSTMORTEM
INVESTIGATOR
USER'S GUIDE**

ND-60.111 This manual is a combined programmer's guide and reference manual for the ND Transaction Processing System, a general transaction processing system that initiates and controls transactions between various input/output devices and application programs. TPS provides facilities for handling terminals, data communications, data bases, etc. The manual is written for programmers writing application programs to be run under ND TPS. These programs can be written in FORTRAN, COBOL, NPL, MAC and SIBAS. It will also interest system designers who design applications to be run under TPS. Previous knowledge of ND TPS or transaction processing is not required, but some knowledge of the SINTRAN III operating system, the SIBAS data base system and the ND Screen Handling System is necessary. 200 pages.
ND TPS USER'S GUIDE

ND-60.112 This manual documents the layout of data fields in SINTRAN III used for controlling devices. It is written for system programmers working in support and development and for supervisors who control system configuration. Familiarity with the SINTRAN III System Documentation manual, ND-60.062 is required. 100 pages.
**SINTRAN III SYSTEM
DOCUMENTATION
APPENDIX A-DATA FIELDS**

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- ND-60.113**
NORD-500 ASSEMBLER
REFERENCE MANUAL
- This manual briefly describes the ND-500 Assembler operating environment, and describes commands and directives to the assembler and assembler operating procedure. It is a user's guide, but will also serve as a reference manual for the ND-500 assembler. The appendix gives a list of machine instructions, but the ND-500 CPU Reference Manual, ND-05.009, is required to describe instruction formats and addressing modes. The manual is written for programmers using the ND-500 Assembler. Familiarity with assemblers in general is required, but no previous experience with the ND-500 is expected. 100 pages.
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- ND-60.114**
NORD IDT 3270 EMULATOR
USER'S GUIDE
- This manual contains the details required to implement a ND 3270 terminal system and to operate a ND 3270 terminal unit. It is written for system users and programmers responsible for system implementation. No previous knowledge is required, but some knowledge of the SINTRAN III operating system is recommended. Familiarity with the program system residing in the central site (host) computer is required and a basic knowledge of 3270 terminal systems is recommended for system programmers. The manual contains a general description, brief functional and operational description and describes special features and load procedures, diagnostic features, message formats and control characters. System error messages etc. are explained in the appendixes. 100 pages.
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- ND-60.115**
NORD COMPUTERS IN
ADMINISTRATIVE
DATA PROCESSING
APPLICATIONS
- This manual surveys the most important software tools available to users of ND computers, not only those especially related to administrative processing. It includes an introduction and coverage of SINTRAN III, QED text editor, NORD-10 COBOL, NORD-10 FORTRAN, the ND relocating loader, SIBAS, NSHS, Data Entry System, TPS, Sort Systems and ISAM. It is written for programmers and end users with experience of data processing. 112 pages.
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- ND-60.117**
PLANC REFERENCE MANUAL
- This manual is primarily for reference, but chapter 1 gives a survey of the whole language for less experienced programmers, or users who only require a reading knowledge of PLANC programs. PLANC (Programming Language ND Computers) is designed as a high-level systems programming language. It is a member of the ALGOL/PASCAL family of block

structured languages. PLANC is used mainly for writing systems software such as operating systems and compilers. It has been defined in a machine-independent manner and machine-dependent features (eg. data allocation strategies, interfaces to programs in other languages) for particular machines are specified in this manual. 305 pages.

ND-60.121
PED USER'S GUIDE

This manual is a combined user's guide and reference manual which describes the ND Program-Editor, a VDU page mode editor for asynchronous terminals connected to ND computers running the SINTRAN III operating system. The Program-Editor is used to create a program or data file which can then be copied to an output device. A program file may be compiled by the program COMPILE. The appendixes are devoted to error messages, the editor menus, the help structure and an ASCII conversion table. This manual is written for anyone needing a program editor to edit programs or data files. General knowledge of the timesharing facilities of NDs operating system, SINTRAN III is recommended. 130 pages.

ND-60.122
**NORD FILE SYSTEM -
SYSTEM DOCUMENTATION**

This manual documents the implementation of the file system in SINTRAN III. It is written for system programmers working in support and development. Familiarity with the external functions of the file system, as documented in the reference and installation management manuals, is required. 100 pages.

ND-60.123
MSD SORT SYSTEM

The MSD-Sort System is a program package enabling the user to sort mass storage file (magnetic tapes included) containing fixed length records (but not variable length). The package is available in the following two forms:

- SINTRAN III interactive subsystem
- Subroutine callable from a user program

25 pages.

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- ND-60.124**
ND-PASCAL
USER'S GUIDE
- This manual describes the Pascal compilers for the ND-100 and the ND-500. The ND-100 Pascal compiler is delivered in both a 32-bit and a 48-bit floating point hardware version. As the three compilers differ only in machine-dependent respects, they are described in the same manual. The manual describes mainly the extensions compared to and differences between ND-Pascal and Standard Pascal as described in Jensen and Wirth: Pascal User Manual and Report. Thus, it is intended for the user who has some knowledge of Pascal and of how to load and execute a compiled program under the SINTRAN III operating system. 60 pages.
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- ND-60.125**
SINTRAN III
INTRODUCTION
- This is an introduction to the ND operating system SINTRAN III. It is written for users with no or little experience with ND computers, and who will use SINTRAN III as an aid in their daily work with text processing, information retrieval and other ADB jobs. It contains tutorial style information arranged sequentially. In addition to explaining the basics of a computer system, it also includes many examples of useful commands and recipes for performing specific jobs. These include file handling, taking backups on floppy disks, programming of push-keys on the NOTIS terminal, etc. 77 pages.
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- ND-60.126**
MAGTAPE-LISTER PROGRAM
USER'S GUIDE
- This manual describes the commands available in the MAGTAPE-LISTER subsystem, which is used to generate an octal dump or line printer/disk file listing of IBM, KV, Univac or Honeywell Bull formatted magnetic tapes. It describes the commands available and the error messages that may be generated by the program. The manual is required by programmers and operators who transfer data on magnetic tape between ND and other computers. Familiarity with the formats used on the tapes to be converted is required, but no other special knowledge. 11 pages.
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- ND-60.127**
THE DATABASE SYSTEM
SIBAS II USER'S MANUAL
- This manual covers all aspects of the SIBAS data base system, replacing the old SIBAS manual ND-60.057. The Data base administrator may choose the relevant chapters as indicated below. Chapters 1 and 2 are a general introduction to data base principles and give the background for the remaining;

chapters. No knowledge of data processing is required and these chapters are recommended as an introduction. The following chapters describe the definition/redefinition of data bases and calls/parameters to be used in application programs. The section on how to administer and operate the data base is of special importance to supervisors. Chapter 6 describes the utility programs, the Data Base Maintenance Module and SIBAS Service Program which replace the old Data base Administrator Module. The next chapter explains Error and Exception Conditions and appendices A-F give summaries of calls and statements. 256 pages.

ND-60.128

**SINTRAN III
REFERENCE MANUAL**

This manual details the commands and monitor calls of SINTRAN III in alphabetical order. Each function is described in a standard format. It is for experienced users who want to look up the precise details of commands and monitor calls. Familiarity with the SINTRAN III Introduction and the SINTRAN III user's guides is recommended. 476 pages.

ND-60.132

**SINTRAN III
TIMESHARING/BATCH
GUIDE**

This manual documents the H version of SINTRAN III VS, VSE and VSE-500. The manual gives a description of the functions available. The commands available to the timesharing and batch users are grouped and explained according to their function. This manual is intended for the user who requires an explanation of the timesharing and batch facilities in SINTRAN III. 140 pages.

ND-60.133

**SINTRAN III
REAL TIME GUIDE**

This manual describes commands and monitor calls available for real time programming of SINTRAN III. The material is ordered according to functional category, not alphabetically as in the SINTRAN III Reference Manual. It is written as a user guide and has sufficient detail of the interrupt and memory management hardware to be self contained for RT programmers. A reading knowledge of FORTRAN is required and familiarity with the ND-100 instruction set is helpful. It is written for the user who needs an explanation of the real time facilities in SINTRAN III. 360 pages.

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- ND-60.134**
SINTRAN III
COMMUNICATION GUIDE
- This manual contains information on NORDNET, Remote Job Entry (RJE), X-message (XMSG), High Level Data Link (HDLC) DMA (OPTION) and the X.21 Communication Protocol. It is written for timesharing users needing a guide to the communication functions of SINTRAN III. Familiarity with the SINTRAN III Timesharing/Batch Guide, ND-60.132 is required. 140 pages.
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- ND-60.136**
ND-500 LOADER/MONITOR
- This manual describes the available commands in NLL (ND Linkage Loader) and the ND-500 Monitor. NLL is used to build segments to be executed by the ND-500 and the monitor controls their execution. The manual is organized as a user's guide, but serves as a reference manual to commands and error messages. There is a short description of the internal structure. This manual is written for programmers and operators who want to load and run programs on the ND-500. Previous knowledge of the ND-500, the ND-100 and the SINTRAN III operating system is required. The ND-500 CPU Reference Manual ND-05.009 provides a sufficiently detailed description of the ND-500 architecture for advanced users. The Loader/Monitor manual alone is sufficient for most ND-500 users. 102 pages.
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- ND-60.137**
FOCUS SCREEN
HANDLING SYSTEM
REFERENCE MANUAL
- This manual describes the FOCUS Screen Handling System which is a high level system accessed through easy-to-use subroutines. It is primarily intended for application programmers who wish to use FOCUS as a programming tool. FOCUS consists of two parts:
1. FOCUS-DEF, in which forms (screen pictures) are defined interactively. The forms can be used at runtime to enter and display data which are used by the application program.
 2. The FOCUS runtime library, consisting of calls from COBOL, FORTRAN and PLANC.
- Enclosed with the manual is the "NOTIS reference card for non-NOTIS terminal" (ND-63.031.Q01) which gives non-NOTIS equivalents for the NOTIS keys. 145 pages.

ND-60.140
7750 VIP EMULATOR II
USER'S GUIDE

This manual describes how to generate, load and run the 7750 VIP EMULATOR on an ND computer running under SINTRAN III. The ND 7750 VIP emulates the Honeywell Bull 7750 VIP terminal. It is a remote interactive terminal which communicates with a Honeywell Bull host computer. The manual is written for operators and application programmers. Some knowledge of SINTRAN III is necessary. 40 pages.

ND-60.141
SINTRAN III
INTRODUKSJON

This is the Norwegian version of the SINTRAN III Introduction, ND-60.125, and it contains exactly the same information. 50 pages.

ND-60.143
HASP-II WORK
STATION USER'S GUIDE

The NORD IDT HASP-II WORK STATION is used to send jobs from an ND computer to a remote IBM computer and to receive output from these jobs. The NORD IDT HASP-II CONNECT PROGRAM connects the user to the HASP-II WORK STATION. This manual is intended mainly as a reference manual for operators of the HASP-II WS, but it should also be of interest to data processing managers and system analysts. It describes all the commands of the NORD HASP-II WORK STATION in detail. It contains introductory information and instructions for loading and starting the emulator. Previous knowledge of SINTRAN III is recommended and also familiarity with the basic components used in data communications. 140 pages.

ND-60.144
ND COBOL
REFERENCE MANUAL

This manual describes COBOL (Common Business Oriented Language) which is a programming language, based on English and developed for use in commercial data processing. ND COBOL is COBOL for both ND-100 and the ND-500. The manual is intended for programmers using ND COBOL who require a detailed and formal explanation of the product as well as an account of the features and facilities available to the user.

The manual is intended for reference purposes and is organized as follows: Part I describes ND-COBOL in general terms and gives specific rules for the writing of COBOL source programs. There is a chapter for each COBOL division. Part II contains an account of each 'other feature' or special topic requiring a section of its own. Supplemental information is given in the appendixes at the end. 275 pages.

ND-60.145
ND FORTRAN
REFERENCE MANUAL

This manual describes the ND implementation of the FORTRAN language for the ND-100 and ND-500 computers. Language extensions and implementation dependent features, compiler operating procedures and the use of subroutines in other languages are described. The manual is intended for reference purposes and is not a FORTRAN textbook. It is written for programmers using FORTRAN for programming ND computers. The manual applies to the new ND-100 FORTRAN compiler as well as the ND-500 compiler. The Exception Handling System is available for both the ND-100 and ND-500. 300 pages.

ND-60.146
ND-SORT/MERGE SYSTEM

This manual describes the use of the ND-Sort/Merge system, a general system for sorting data contained on mass storage. The system is available as an interactive SINTRAN III subsystem and as a subroutine package; both are described. There is a short survey of the method used. The manual is written for interactive subsystem users and programmers wanting to call the subroutines from their own programs. No previous experience with SINTRAN III or programming is necessary, but understanding of the record layout in the file to be sorted is required. The subroutine package uses the standard FORTRAN call conventions, and the programmer is expected to write his application program in FORTRAN or a language supporting subroutines written in FORTRAN, and must know how to declare and load external FORTRAN subroutines. 40 pages.

ND-60.148
PED BRUKERVEILEDNING

This is the Norwegian version of the PED User's Guide, ND-60.121. 35 pages.

ND-60.149
NOTIS-IR USER'S GUIDE

This manual describes NOTIS-IR, a General Retrieval, Archival and Filing System, part of the ND Text and Information System NOTIS. It is a combined User's Guide and Reference Manual, and has been extended to include installation instructions. NOTIS-IR has parts for form definition, document registration, retrieval by form and retrieval by search language. It is intended later to include a part for report generation output. NOTIS-IR contains a complete

screen handling system. The user interface is so closely related to that of the ND Text-Editor that it will fit well into office environments and will be easily learnt by operators familiar with NOTIS-1. 65 pages.

ND-60.150

**NOTIS-IR
BRUKERVEILEDNING**

This is a Norwegian version of the NOTIS-IR User's Guide, ND-60.149, and it contains exactly the same information. 65 pages.

ND-60.151

**SINTRAN III
UTILITIES MANUAL**

This manual contains information previously published in several different manuals. There are sections covering the BACKUP-SYSTEM, the PERFORM subsystem, the General Purpose Macro Generator, the JEC system, the MAIL subsystem and the LOOK-FILE and FILE-EXTRACT subsystems. MAIL is a system to send messages to other users. PERFORM is a simple macro processing system to create mode files. JEC is a system to control the execution of mode and batch jobs. The BACKUP-SYSTEM is used to copy files between mass storage devices. LOOK-FILE is used to inspect and modify the bytes in a file. FILE-EXTRACT is a system to handle records in a file. GPM is a general purpose macrogenerator. It is a reference text for more advanced users of SINTRAN III and familiarity with the operating system is required. 60 pages.

ND-60.152

**ACCESS
BRUKERVEILEDNING**

This is a Norwegian version of the ACCESS User Guide, ND-60.153, and it contains exactly the same information. 135 pages.

ND-60.153

ACCESS USER GUIDE

This manual describes the ND query language ACCESS, an end user system tool for retrieving information in a usable form from data registers. The data base can be both queried and updated through the use of simple tables. It describes the functions of ACCESS as seen by an end user and also contains information on creating and maintaining the data base through the data dictionary. This guide is intended for the ordinary user of the system, and requires no special previous knowledge. The data base administrator must be familiar with the principles of data bases and know the particular data base system being used i.e., SIBAS. 140 pages.

ND-60.154
DATA ENTRY SYSTEM II
NORSK VERSJON

This is a Norwegian version of the Data Entry System II ND-60.165.02 and contains exactly the same information. (NSHS appendix is written in English.) 75 pages.

ND-60.158
SYMBOLIC DEBUGGER
USER'S GUIDE

This manual describes how to use the Symbolic Debugger, an interactive tool for testing programs written in higher level languages, FORTRAN, COBOL and PLANC, available on the ND-100 and ND-500. The debugger has facilities for setting breakpoints, where the program will stop under certain conditions. Then the user can interactively examine or change information, eg. values of program variables or the path and frequency of subprogram calls, before continuing program execution. This may enable the user to find several bugs during one execution of the program. Testing may be adequately completed for some parts of a program despite bugs present in other parts. 30 pages.

ND-60.159
UTS-400 EMULATOR
USER GUIDE

This manual describes the NORD UTS-400 emulator system. It gives an introduction and general description of the emulator. The required programs and files are listed and the installation procedure is given. This manual also contains a description of the usage. 20 pages.

ND-60.160
HONEYWELL BULL REMOTE
JOB ENTRY EMULATOR
USER'S GUIDE

This manual describes the ND GRTS RJE-terminal on an ND computer running under SINTRAN III. It contains a survey of the system, command syntax rules, instructions for unskilled operators and system supervisors, details of all commands available and system program documentation. It is written for all RJE-terminal users, particularly system supervisors. Operators require no previous knowledge but programmers should be familiar with SINTRAN III and the operating system of the Honeywell Bull H6000. 65 pages.

ND-60.161

PIOC SOFTWARE GUIDE

PIOC (Programmable Input/Output Controller) is a ND-100/-500 interface card built around a MC68000 microprocessor, capable of handling fast I/O through four full duplex serial communication lines. The manual describes the software, version A - March 1983, supplied with the basic PIOC. It is written for programmers who have a good understanding and experience in use of the following topics:

Real Time programming in SINTRAN III
The SINTRAN III Real Time Loader
The PLANC High-Level Programming Language
The ND-500 Loader/Monitor

The manual discusses the available calls to the PIOC operating system (PIOCOS), process communication/synchronization, input/output to the communication lines. It also describes the PIOC monitor for debugging and supervising purposes and the possibility for an installation to tailor the PIOCOS operating system to suit different types of line protocols. It contains psedu-examples, complete examples and also reference material, such as symbol name tables, error messages and exception vector assignments. It describes the XMSG system allowing PIOC tasks to communicate with ND-100 tasks. The manual is intended for system programmers having good knowledge of the ND-100/500 computers, SINTRAN III real-time programming, the PLANC programming language, and the Motorola MC 68000 microprocessor. The manual has a word-list and an index with 275 references. 130 pages.

ND-60.162

**DATA DICTIONARY SYSTEM
REFERENCE MANUAL**

The Data Dictionary System is a tool for developing and maintaining application programs in connection with SIBAS data bases and the Screen Handling system (NSHS). DDS should not be mixed up with the Data Dictionary (DDI), used in connection with the software product ACCESS. The manual is an introduction to and also a detailed description of the product, and should be of interest to everybody involved in data bases and screen handling; data processing managers, system analysts and programmers. The first three chapters contain a general description and do not require any specific ADB knowledge. However, the reader of the detailed description should be familiar with either FORTRAN or COBOL and know something about SIBAS and NSHS. 150 pages.

ND-60.163
COSMOS USER GUIDE

This manual is an end user's guide to the remote log in and file transfer facilities of the new ND communication concept, COSMOS. The manual may be used as a training manual. The functions are ordered by functional category as opposed to the SINTRAN III Reference Manual, for example, where most of the functions are documented in alphabetical order. It contains chapters that describe how to connect to remote computer systems, transfer files to and from remote systems, and how to access files on remote systems in various ways. Spooling in COSMOS is also explained. Examples of all the most common commands are given. The appendixes explain the most common error messages, how to generate ASCII 0 on most terminals, and provide a list of all SINTRAN commands that may access remote files. The manual contains a small glossary of computer terms and a comprehensive index. 82 pages.

ND-60.165
DATA ENTRY SYSTEM II

This is a user's guide for the Data Entry System II (DES). The first three chapters describe the main subprograms of DES, handling data input, preparation and administration of data and file handling. Chapter four is intended especially for supervisors and describes the various tasks involved in running the (standard) data base. Programming or data processing experience is useful but not essential. 100 pages.

ND-60.167
UNIQUE BRUKERHÅNDBOK

This is a Norwegian version of the UNIQUE User Manual, ND-60.169. 50 pages.

ND-60.169
UNIQUE USER MANUAL

UNIQUE is a 4th generation programming tool which simplifies the development of applications for processing administrative data. The manual is written for systems analysts and programmers who are working with data base applications in administrative data processing. The manual contains an introduction to the UNIQUE application structure, start and stop and maintenance. Chapter 2 is written for end users who will be running UNIQUE applications. The Norwegian version of this chapter is also included in this manual. In addition the manual gives a complete example which illustrates the theoretical explanation of the possibilities in UNIQUE. 100 pages.

ND-60.170

APL USER GUIDE

This manual describes the ND-100 implementation of the APL language. The manual assumes a working knowledge of APL and is primarily to show users how use the APL interactive environment on the ND-100 and the necessary related SINTRAN facilities. For users requiring an introduction to APL, reference is made to some relevant books which should be used in conjunction with this manual. 60 pages.

ND-60.171

**COB-GEN
REFERENCE MANUAL**

This manual describes the facilities of the COB-GEN utility which is an aid, for COBOL programmers, to setting up screen input/output and reports. COB-GEN is used interactively to specify screen and report layouts, and then generates COBOL source code which is to be included in the relevant COBOL programs. The manual describes all the commands available in COB-GEN and has a complete example showing the use of COB-GEN, the generated source code, the COBOL program with the included COB-GEN generated source code and finally the executing program. 50 pages.

ND-60.173

**VIRTUAL DISK DRIVE
(VDD) SYSTEM
DOCUMENTATION**

The Virtual Disk Driver is an option that may run on the following systems: SINTRAN III VSE or VSX; SINTRAN III VSE 500 or VSX 500. The VDD is software by means of which two (or more) CPUs can share a disk. One of the CPUs has normal access to the disk and is defined to 'own' the disk. This CPU (which runs the virtual disk processor) executes all of the physical disk transfers requested by the diskless CPUs. This manual describes the purpose of the VDD and its use by SINTRAN III (for swapping) and the file system. The implementation of the VDD within SINTRAN III and its functions are described. The manual is intended for system programmers who need a thorough description of the Virtual Disk Drive facilities in SINTRAN III. System supervisors and anyone generating, loading or maintaining systems with the VDD option should also be familiar with this manual. The reader should be familiar with SINTRAN III architecture and the file system. 20 pages.

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- ND-60. 175**
FILE-HANDLER
USER'S MANUAL
- The manual documents the FILE-HANDLER, which is replacing the older FILE-EXTRACT. This program can be used to retrieve and reformat data records from large data files, to generate test files, to inspect files containing numeric data, to produce reports or smaller files that can be used in further data processing. Chapters 1, 2, and 3 in the manual are intended for ordinary ADP users, and cover selection, sorting and report generation. Chapter 4 contains advanced material intended for programmers. 35 pages.
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- ND-60. 176**
TRUE USER'S MANUAL
- This manual describes the transaction processing system, TRansaction User Environment (TRUE). TRUE is a general transaction processing system that initiates and controls transactions between various input/output devices and application programs. TRUE provides facilities for handling terminals, data communications and data bases. Standard versions of some useful application programs are delivered with TRUE. The program versions require the FOCUS Screen Handling system. The customer is, however, free to implement his own versions of these application programs. This manual is intended as a guide for programmers who write application programs to be run under TRUE. These programs may be written in FORTRAN, COBOL, Pascal, BASIC or any other language which can call FORTRAN subroutines. 50 pages.
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- ND-60. 179**
USER ENVIRONMENT
REFERENCE MANUAL
- This manual documents various aspects of the new menu driven user interface to the SINTRAN operating system. The first chapter is for inexperienced computer users who are to carry out tasks using the menu facilities. Chapters 2 and 3 are for experienced users using the menu facilities. Chapters 4, 5 and 6 are for supervisors who are administering a computer system and its users under the control of user environment. Chapter 7 is for programmers writing programs to be accessed via menu facilities. 87 pages.
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- ND-60. 183**
SOURCE COMPARE
- This manual describes SOURCE COMPARE which is an ND-500 tool for software developers. This utility compares two FORTRAN source programs and describes their differences. Given two versions of a FORTRAN source program as input, SOURCE COMPARE will analyze

them and describe the differences between them. The program discovers where lines of source have been changed, inserted, or deleted, and it can be instructed to report this in different ways. 18 pages.

ND-60.184

FILE COMPARE

This manual describes FILE COMPARE which is a tool for software developers. This utility compares two sets of data on mass storage and irrespective of the data format and record organization, it will describe the differences between them. FILE COMPARE is an ND-500 program that can handle different data formats and record organizations. The program may be used, for example, to check the resulting output (formatted or unformatted) from two versions of a program, or even to compare relocatable or absolute code. 20 pages.

ND-60.185

FOREIGN MEDIA

This manual describes FOREIGN MEDIA which is part of a group of products which provide various tools for software developers. This version of FOREIGN MEDIA provides facilities for reading non-ND magnetic tapes and contains useful file and file handling information; like how to copy different file types, and how to handle large volumes. The current version of FOREIGN MEDIA is limited, and can only read magnetic tapes written in the most commonly used format on VAX 11 computers. 22 pages.

ND-60.186

FORTRAN CONVERTER

This manual describes the ND FORTRAN CONVERTER, a tool which translates programs written in non-ND FORTRAN to ND FORTRAN 77. The system recognizes and identifies non-ND FORTRAN constructs. Some constructs may be translated into equivalent ND FORTRAN syntax. Others are diagnosed, and messages are given in the listing, indicating the problem. 45 pages.

ND-60.187

**MERCUR
FULLSKÄRMSHANTERING
ANVÄNDARHANDBOK**

This is the Swedish version of the MERCUR Full Screen Handling User Guide, ND-60.188, and it contains exactly the same information. 30 pages.

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- ND-60.188**
**MERCUR FULL SCREEN
HANDLING USER GUIDE**
- This manual describes the Full Screen Option in the MERCUR system for financial planning and budgeting. By means of special application programs written by the user, forms can be called to the screen. The forms may contain data which can be changed, giving accordingly new values for defined resulting figures. 30 pages.
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- ND-60.189**
**ND/PC-LINK
USER MANUAL**
- This manual is a guide for the ND-LINK.EXE (ND-10563A) and the PC-LINK:PROG (ND-10561A) programs which establish communication between the ND-PC and an ND host computer. The manual contains two sections. The first is an end user guide to the ND-LINK which enables the ND-PC to emulate a NOTIS terminal and facilitates file transfers between the PC and the host computer. The second section is a reference guide to the ND-LINK and PC-LINK programs and contains technical information necessary for installation and maintenance. Appendixes contain ND-PC/NOTIS key equivalents, error information and cabling instructions. 57 pages.
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- ND-60.190**
**INTRODUKSJON
TIL ND-LINK**
- This is the Norwegian version of the first part of the ND/PC-LINK User Manual, ND-60.189. This manual is an end user guide to the ND-LINK which enables the ND-PC to emulate a NOTIS terminal and facilitates file transfers between the PC and the host computer. 40 pages.
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- ND-60.194**
BRUKERMILJØ HÅNDBOK
- This is the Norwegian version of the User Environment Reference Manual, ND-60.179, and contains exactly the same information, save for an extra appendix that documents which NOTIS function keys are used by the program File Manager. 100 pages.

ND-60.195

**ND TPS-II
USER'S GUIDE**

This manual describes the ND Transaction Processing System TPS-II which is an extended version of the general ND Transaction Processing System ND-TPS. TPS is a general transaction processing system that initiates and controls transactions between various input/output devices and application programs. TPS provides facilities for handling terminals, data communication, data bases, etc. TPS-II also provides facilities for application system configuration, user access control, report production, control and printout, disk-to-disk backup, data base recovery, etc. 75 pages.

ND-60.196

**BRF-LINKER
USER MANUAL**

This manual describes the BRF-Linker which is a new loader to be used on the ND-100. It replaces both of the products ND Relocating Loader (NRL) and BRF-Editor. The manual is intended to be used both at a reference manual and a user guide. It is written for programmers who require the usage of a loader when loading their programs, however, experience is not a requirement. 70 pages.

ND-62.008

NORD-50 TEST SYSTEM

This manual describes the test programs used with the NORD-50 CPU. It is written for field service engineers and technical personnel testing or maintaining NORD-50 CPUs. It contains details of the contents and structure of each test program and the procedure for their implementation. The manual is the central reference document on these test programs. In-depth knowledge of the function of the NORD-50 CPU is required. 43 pages.

ND-63.001

**INTRODUCTION TO
NOTIS-WP**

This is a completely new version of the NOTIS-WP Training Manual. It is intended to be used as a textbook for courses in ND's Education department. It can also be used as an introductory, self study guide to the word processing system for inexperienced people. It does not document all the functions, but is meant to be an introduction to the J version of NOTIS-WP (SUT 10079 J) and should be used with the NOTIS-WP Reference Manual-Editor, (ND-63.002). It is intended for use with the ND 246 (TDV 2200/9) terminal, but has an appendix which is a guide for users of other terminals. 125 pages.

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- ND-63.002**
**NOTIS-WP REFERENCE
MANUAL - EDITOR**
- The manual is a complete reference manual which describes the editor part of the ND text processing system NOTIS-WP. The NOTIS-WP is a VDU page mode text editor for asynchronous terminals connected to ND computers running the SINTRAN operating system. NOTIS-WP is a self-contained word processor incorporating extensive editing and formatting functions. Its user friendliness is optimal on the NOTIS terminal TDV-2200/9, which has special function keys for most of the current text editing operations. The system can be used alone, or in conjunction with the NOTIS-TF Text Formatting system. The manual contains detailed information on the system, including all editor commands and print directives. The manual is written for experienced users of the the NOTIS-WP text processing system. It is helpful to have some knowledge of the principles of electronic text processing. The NOTIS-WP editor can be used alone, and has all the facilities needed for the the editing and instant formatting of documents in current use. It can also be used in conjunction with the NOTIS-TF Text Formatter described in manual no. ND-63.007, to obtain very sophisticated formatting of complex documents. This manual has been written mainly for users of PHILIPS GP300 printers. 245 pages.
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- ND-63.003**
**INTRODUKSJON TIL
NOTIS-WP**
- The manual is the Norwegian version of Introduction to NOTIS-WP ND-63.001, and contains exactly the same information. 125 pages.
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- ND-63.004**
**NOTIS-WP
HÅNDBOK - EDITOR**
- This is a Norwegian version of the NOTIS-WP Reference Manual - Editor, ND-63.002, and it contains exactly the same information. 245 pages.
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- ND-63.005**
NOTIS-IR USER GUIDE
- The manual describes the NOTIS-IR system, which is a computerized document storage and retrieval system. NOTIS-IR has been developed jointly by Norsk Data and the Government Institution of Organization and Management within the framework of the SISU - project (a joint Government-Industry project for system development), and is available on ND-10 and ND-100 under the SINTRAN III operating system. It is primarily intended for system users or operators, but can also be used in connection with installation, running and maintenance. The reader

should be familiar with SINTRAN III and it would be helpful to be acquainted with the text processing system, NOTIS-WP. There are 12 chapters and three appendixes. Beginning with chapter one, there is a step by step introduction to the functions and commands in NOTIS-IR. Chapters 9 through 12 are of interest only to those who carry out qualified system operations. The appendixes contain a complete list of expressions used in the manual, a list and a brief explanation of the commands and a list and description of the control commands. 150 pages.

ND-63.006 This is a Norwegian version of the NOTIS-IR User Guide, ND-63.005, and contains exactly the same information. 130 pages.
**NOTIS-IR
BRUKERVEILEDNING**

ND-63.007 The manual is a combined user's guide and reference manual, describing the ND Text Formatter NOTIS-TF. NOTIS-TF is a mode in the ND word processing system NOTIS-WP and a subsystem under SINTRAN III. It takes one or more unformatted files as input, and produces as output a formatted file which can be inspected in the screen in Inspect mode. The input file contains both the text and the formatting directives, and may have been created with one of the ND editors, or with any other program. The manual describes the directives and macro library in NOTIS-TF, as well as Inspect mode in NOTIS-WP. 110 pages.
**NOTIS-TF
REFERENCE MANUAL -
TEXT FORMATTER**

ND-63.008 This is a Norwegian version of the NOTIS-TF Reference Manual, ND-63.007, and contains exactly the same information. 110 pages.
**NOTIS-TF HÅNDBOK -
TEKSTFORMATERER**

ND-63.009 This is the English version of the NOTIS-TF Makro-Veiledning, ND-63.010, and it contains exactly the same information. 110 pages.
NOTIS-TF MACRO GUIDE

ND-63.010
NOTIS-TF
MAKRO-VEILEDNING

This manual covers the use of user defined macros in the NOTIS-TF text formatting system. A macro is a collection of commands/directives, defined with a unique name, which is used to simplify time-consuming and trivial tasks. Macros are particularly useful for describing a standard format which is used throughout a document or in several documents. The manual describes how and when macros can be used, how they are defined and called, and the different types of macros that exist are explained in detail. A lot of examples have been included, and one chapter explains in detail a number of the macros in the standard NOTIS-TF macro library. This manual is written in Norwegian. The English version will be available next month. 110 pages.

ND-63.013
NOTIS-RG
REFERENCE MANUAL

NOTIS-RG is a high-level Report Generator system. Its interactive user interface and advanced reporting features make NOTIS-RG a powerful tool in the hands of both the end user and the application programmer. NOTIS-RG's application areas include advanced list processing, mail merge operations, financial reporting, invoicing and accountancy. The manual describes: NOTIS-RG REPORT GENERATOR MODULE ND 10193. This manual is intended for users with little or no experience with NOTIS-RG. This is a preliminary reference manual and user guide. It contains the reference material on commands, functions and parameters in NOTIS-RG. There are four appendixes. Appendix A includes the error messages from the production system and explanations for how to correct the errors. Appendix B describes different type if FLAT input files. Appendix C is a description of the installation of NOTIS-RG. Appendix D is a step by step tutorial on how to produce a report using NOTIS-RG. At the end of the manual, there is an index. 250 pages.

ND-63.014
NOTIS-RG HÅNDBOK

This is the Norwegian version of the NOTIS-RG Reference Manual, ND-63.013, and it contains exactly the same information. 250 pages.

ND-63.025
NOTIS-CALC
USER GUIDE

This is the English version of the NOTIS-CALC Brukerhåndbok, ND-63.026, and it contains exactly the same information. 115 pages.

ND-63.026

**NOTIS-CALC
BRUKERHÅNDBOK**

This manual describes the spreadsheet program NOTIS-CALC. NOTIS-CALC uses extensively both the attributes and keyboard of the NOTIS terminal, ND 246. It will therefore work most efficiently with this terminal, but it can also be run from other terminals that use ND VTM. This is an end-user manual and no special computer knowledge is required. The user should be familiar with NOTIS-WP, since features shared with NOTIS-WP are not as thoroughly explained as those which are unique to NOTIS-CALC. Some knowledge of financial mathematics might be helpful when using the financial functions. 110 pages.

ND-63.033

NOTIS-BG USER MANUAL

NOTIS Business Graphics (NOTIS-BG) is a new product that allows NORD users to produce line graphs, bar charts and pie charts on a terminal screen, printer or plotter. NOTIS-BG uses diagram files containing instructions and data to generate plots. The user may determine exactly how the plot will appear, or rely on defaults. There are many possible variations. Diagram files may be created with PED or WP. This manual explains how to use NOTIS-BG, and contains numerous examples of diagram files and the corresponding plots. The manual and the product are oriented towards non-programmers, but it is an advantage to have some experience of WP or PED. 40 pages.

ND-63.034

**NOTIS-BG
BRUKERVEILEDNING**

This is the Norwegian version of NOTIS-BG User Manual, ND-63.033, and it contains the same information. 40 pages.

**REFERENCE CARD
DESCRIPTIONS**

The descriptions are in numerical order and contain the following information:

- Card number, new and old numbering system
- Card name
- Card usage

For information regarding versions and revisions, see chapter 4.

ND-99.001
(old ND-60.177)
COSMOS USER CARD

This reference card covers the end user commands used to access remote files, transfer files, connect to other computer systems and the commands to use COSMOS Spooling.

ND-99.005
(old ND-06.021)
**ND-100
INSTANT INSTRUCTION
CODES**

This is a reference card giving the mnemonic, meaning and octal values of the ND-100 assembly language. This includes Memory Reference Instructions, Execute Instructions, Bit Instructions, Shift Instructions, System Control Instructions, Transfer Instructions, Register Operations, Floating Conversion, Memory Examine/Deposit Instructions, Sequencing Instructions, Privileged Instructions, Input/Output Control, Register Block Instructions, Argument Instructions, Physical Memory Read/Write Instructions and Instruction in the CX-Option. You will also find ASCII codes in octal form.

ND-99.006
(old ND-63.015)
**NOTIS-WP REFERENCE
CARD FOR TDV-2200/9-
ND-NOTIS TERMINALS**

This reference card covers the most commonly used commands and special keys in NOTIS-WP, and the alternative character sets (graphics, Greek, mathematical characters and letters with accents).

ND-99.007
(old ND-63.016)
**NOTIS-WP OPPSLAGSKORT
FOR TDV-2200/9-
ND-NOTIS TERMINALER**

This is the Norwegian version of the NOTIS-WP Reference Card, ND-99.006, and contains exactly the same information.

ND-99.008
(old ND-63.019)
**NOTIS-WP REFERENCE
CARD FOR FACIT-4420-
ND-NOTIS TERMINALS**

This reference card covers the most commonly used commands and special keys in NOTIS-WP, and the alternative character sets (graphics, Greek, mathematical characters and letters with accents).

ND-99.009
(old ND-63.020)
**NOTIS-WP OPPSLAGSKORT
FOR FACIT-4420-
ND-NOTIS TERMINALER**

This is the Norwegian version of the NOTIS-WP Reference Card, ND-99.008, and contains exactly the same information.

ND-99.010
(old ND-63.031)
**NOTIS REFERENCE CARD
FOR NON-NOTIS
TERMINALS**

This card's purpose is to facilitate the use of all NOTIS products on non-NOTIS terminals, especially TDV-2115. It lists all special keys on the NOTIS terminals, and the equivalent key sequences for non-NOTIS terminals.

ND-99.011
(old ND-63.032)
**NOTIS OPPSLAGSKORT FOR
IKKE-NOTIS TERMINALER**

This is the Norwegian version of the NOTIS Reference Card for Non-NOTIS Terminals, ND-99.010, and contains exactly the same information.

ND-99.016
(old ND-06.022)
**ND-100 OPERATOR'S
COMMUNICATION
INSTRUCTION SURVEY**

This is a reference card giving the Control Functions, Display Functions and Monitor Functions. You will also find the ND-100 Memory Reference Instructions, Execute Internal Registers and their Bit Assignment.

ND-99.020
(old ND-60.174)
**SINTRAN III
QUICK REFERENCE CARD**

This folded reference card covers the most frequently used SINTRAN commands and monitor calls. The following information is listed: is

- System supervisor commands
- All user categories of the file system and basic commands
- Parameters of the command @DEVICE-FUNCTION
- COSMOS file name syntax
- SINTRAN-SERVICE-PROGRAM commands
- Monitor calls
- Real-Time commands
- Backup System commands

CHAPTER IV

PRICE LIST



- **ALPHABETICAL LIST OF MANUALS AND REFERENCE CARDS WHICH INCLUDES VERSION NUMBERS AND PRICES.**

4 PRICE LIST

The following pages give a list of the available manuals and reference cards, their version numbers and prices. An up-to-date version of this list is published every month in the ND Bulletin. Since new manuals, new versions and revisions are constantly being printed, the reader is referred to the latest issue of the ND Bulletin for the most recent list of information on available manuals and prices.

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
ACCESS Brukerveiledning	ND-60.152	03	September 1984	100	10185C
ACCESS DBA Håndbok	ND-30.020	03	September 1984	75	10185C
ACCESS DBA Manual	ND-30.022	03	August 1984	75	10185C
ACCESS User Guide	ND-60.153	03	September 1984	100	10185C
ALFA Dokumentasjon - norsk. Pr. sett kr.				300	
ALFA Adresseringssystem — Brukerveiledning	ND-61.020	01	January 1983	25	
ALFA Standard Faktura — Brukerveiledning	ND-61.013	01	January 1983	50	
ALFA Standard Fakturering — Systemdokumentasjon	ND-61.014	01	January 1983	50	
ALFA Standard Lønn — Brukerveiledning	ND-61.015	02	July 1983	50	
ALFA Standard Regnskap — Brukerveiledning	ND-61.012	01	September 1982	75	
ALFA Standard Regnskap — Programdokumentasjon	ND-61.016	01	January 1983	50	
ALFA Supervisor — Brukerveiledning	ND-61.018	01	January 1983	50	
SUF/CUFTT Brukerveiledning	ND-61.019	01	January 1983	50	
Økonomisk analyse og simulering	ND-61.017	01	January 1983	50	
APL - ND APL User Guide	ND-60.170	02	July 1984	75	10196A
Big Multiport Memory System	ND-06.007	01	August 1978	175	146
BRF-LINKER User Manual	ND-60.196	01	August 1984	75	
Brukermiljø Håndbok	ND-60.194	01	February 1984	125	
CAMAC — CC-NORD-10 General Information	ND-12.007	01	September 1974	100	800
CAMAC — CC-NORD-10 Hardware	ND-12.006	01	June 1974	100	800
CDMA — NORD-10 General Information	ND-12.004	01	June 1974	100	—
Circuit Symbols and Logic Diagrams	ND-13.003	02	May 1982	275	—
COB-GEN Reference Manual	ND-60.171	01	October 1983	75	10536B
COBOL Reference Manual	ND-60.144	02	August 1982	150	10177A 10176E 10189E 10176G 10189G 10177G
Revision A			July 1983		
Revision B			June 1984		
COSMOS Operator Guide	ND-30.025	02	July 1984	125	
COSMOS User Card	ND-99.001	01			
COSMOS User's Guide	ND-60.163	03	February 1984	125	10374B
COSMOS X.21 Option Operator Guide	ND-30.033	01	June 1984	125	
COSMOS X.25 Option Operator's Guide	ND-30.034	01	January 1984	125	10573A

ND-40.004.06

DOCUMENTATION CATALOG
Price List

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Data Communication	ND-12.016	01	March 1978	225	—
Data Dictionary System (DDS) Reference Manual	ND-60.162	02	April 1983	100	10371C
Data Entry System	ND-60.101	03	January 1979	75	10053G
Data Entry System II - Norsk versjon	ND-60.154	03	June 1983	100	10195C
Data Entry System II - English version	ND-60.165	03	June 1983	100	10195C
Database Administrator Module	ND-60.097	01	October 1977	75	
Database Theory & Design	ND-60.078	01	December 1976	125	—
DATA'CON User's Guide	ND-60.107	01	September 1978	50	10072B
DCHT — Data Channel Test Program	ND-62.005	01	May 1974	25	—
DDPP Håndbok (Only in Norwegian)	Kan kjøpes i Universitetsbokhandelen				10142B
Documentation Catalogue	ND-40.004	05	August 1983	0	
Dual Channel Disk Switch	ND-11.019	01	February 1984	125	
1158 — DR-11-C Interface	ND-12.015	01	April 1978	50	814 815
ECC — (Error Correction Control) Disk Controller, NORD-10/S	ND-11.013	02	September 1982	175	558
FACIT 4420/ND User's Guide	ND-12.024	01	March 1983	100	
FILE Compare	ND-60.184	02	March 1984	50	10603A
File Handler User's Manual Revision A	ND-60.175	01	May 1983 February 1984	50	10516B
File System - System Documentation	ND-60.122	02	January 1980	125	
FLOCON User's Guide	ND-60.099	02	March 1982	100	10021F 10014F
Floppy and Streamer Controller 3106/3112	ND-11.021	01	August 1984	125	
Floppy Disk Controller 3027	ND-11.015	01	May 1982	75	
Floppy Disk System	ND-11.012	01	October 1976	175	355
FOCUS Screen Handling System Reference Manual	ND-60.137	04	March 1984	75	10188E 10341E 10567E 10568E
Foreign Media	ND-60.185	02	April 1984	50	10604A
FORTTRAN Converter	ND-60.186	02	March 1984	50	10605A
FORTTRAN — ND FORTTRAN Reference Manual	ND-60.145	06	March 1984	150	10191D 10190H 10510H 10511B 10186D
General Purpose Interface Bus (GPIB) User Guide	ND-12.023	02	August 1984	75	
HAWK Disk Controller	ND-11.010	01	March 1976	150	551
HAWK Disk System	ND-11.009	01	December 1975	200	510 511

ND-40.004.06

Title	Publ.No.	Version	Last Release	Price NOK	Reference to Product No.:
HDLIC - High Level Data Link Control Interface	ND-12.018	01	November 1978	150	720, 721 722, 723
Interface to Pertec Magtape with Formatter	ND-12.012	01	February 1977	75	556
ISAM - ND Indexed Sequential Access Method Reference Manual	ND-60.108	05	December 1983	75	10073H 10343H
MAC User's Guide	ND-60.096	01	March 1978	100	10400A
Magtape-Lister Program User's Guide	ND-60.126	01	March 1979	25	
MEAS II - An Analog Program System for Program Control	ND-60.079	01	January 1977	100	10036A
MERCUR Full Screen Handling User Guide	ND-60.188	01	January 1984	75	10611A
MERCUR Fullskärmshantering Användarhandbok - Swedish	ND-60.187	01	January 1984	75	10145A
MPM 5 Technical Description	ND-10.004	01	June 1984	75	
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Multiport Memory Channel Specifications	ND-10.006	01	March 1984	125	
NCT - NORD Colour Terminal Users Guide	ND-60.094	02	Februar 1978	75	10046C
ND Link, Introduksjon til	ND-60.190	01	April 1984	50	
NORD Computers in Administrative Data Processing Applications Revision A Revision B	ND-60.115	01	August 1979 December 1979 August 1980	100	
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IBM 3780/2780 Emulator User Guide	ND-60.209	01	October 1984	100	
NTR User's Guide Revision A	ND-60.070	02	December 1976 November 1977	75	10056B 10029B
SNA 3270 Terminal Emulator Operator Guide	ND-30.038	01	August 1984	100	
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NORDCOM Colour Terminal Hardware Manual Revision A	ND-12.013	02	October 1979 December 1979	225	680
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PIOC Hardware Reference Manual ND-865 & ND-867	ND-02.004	01	July 1984	150	
PIOC Software Guide	ND-60.161	02	April 1984	125	10493B
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PLOT Package	ND-60.058	03	July 1975	75	10010A
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SIBAS II User Manual	ND-60.127	04	August 1984	175	10166D 10167A 10340D
SIMULA Reference Manual - NORD-100	ND-60.092	03	December 1980	75	10058P
SINTRAN III Communication Guide	ND-60.134	02	November 1981	125	10373H 10048H 10130H 10174H 10175H
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Test Program Description for ND-500	ND-30.018	01	April 1982	75	
TPS - NORD TPS General Description	ND-60.105	03	December 1982	100	10054D 10342A
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