

DATA COMMUNICATIONS

GCOS 7

DPS 7 Network Administrative Supplement

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Subject : This manual describes DPS 7 front-end processor management and is intended for DPS 7 host site personnel.

Special Instructions : This Revision 1 is valid for GCOS 7 Release V2 users.
It replaces Revision 0 dated May 1984, which remains valid for GCOS 7 Release V1 users.

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Suggestions and criticisms concerning the form, content, and presentation of this manual are invited. A form is provided at the end of this manual for this purpose.

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PREFACE

This manual describes DPS7 front-end processor management, and is intended for all DPS7 host site personnel responsible for front-end processor operations, either locally or remotely.

Section I provides a brief introduction to the manual, giving details of the various publications referred to during the text.

Section II describes the principal elements of front-end processor management; namely, general file management as well as the three major FEP functions SYSGEN, Load and DUMP.

Section III gives a more detailed treatment of the various system files used during FEP operations.

Section IV deals with the DSA Administrative Storage Facility (i.e., ASF), and provides examples of both test loading and routine remote loading of an FEP, as well as the card syntax applicable to commands in the Scenario File. The ASF Function is associated with Distributed System Access & Control (i.e., DSAC) which is the subject of a separate manual. For further details of the ASF Function, the reader should therefore refer to the DSAC User Guide.

Suggestions and criticisms concerning the form, content and purpose of this manual, are invited. A Technical Publications Remarks Form is included at the end of the manual for this purpose.

Each section of this document is structured according to the heading hierarchy shown below, each heading indicating the relative level of the text which follows it:

Level	Heading Format
1 (highest)	<u>ALL CAPITAL LETTERS, UNDERLINED</u>
2	<u>Initial Capital Letters, Underlined</u>
3	ALL CAPITAL LETTERS, NOT UNDERLINED
4 (lowest)	Initial Capital Letters, Not Underlined

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SECTION I

INTRODUCTION

This manual complements the following manuals, which describe DPS7 communications and networking, and the relevant associated elements:

- 47A2 01UC Communications Overview
- 47A2 02UC Network Generation User Guide
- 47A2 02US System Installation and Updating Manual
- 47A2 04UC Terminal Operations User Guide
- 47A2 05UC Network Control Terminal Operations User Guide
- 47A2 10UC Network Administration Utilities User Guide

In addition, the reader's attention is drawn particularly to the following new manual, to which reference should be made for information covered formerly in Section 4 of Revision 0 of the present manual, as well as for further details of the Distributed System Access & Control function associated with the DSA standard ASF function covered in the present Section IV:

- 47A2 15UC DSAC User Guide

For further explanations of DSA and DATANET operations, the following manuals should be consulted:

- 15A2 8023 LN7100 System Operation Manual (for DNS B2)
- 39A2 9799 DN7100 System Operations (for DNS C)
- 15A2 8024 LN7100 System Generation (for DNS B2)
- 39A2 9807 DN7100 System Generation (for DNS C)
- 39A2 8849 Network Administration Guide
- 39A4 9726 DSA Documentation Directory.

The objective of this manual is specifically to describe:

- LPS7 front-end processor management, from an administrative point of view:
 - Generation
 - Loading
 - Dump.
- DPS 7 support for the DSA standard ASF function.

All references to GCOS presuppose the operating system running on the user's DPS7; i.e., GCOS7.

SECTION 2

FRONT-END PROCESSOR MANAGEMENT

INTRODUCTION

GCOS may support up to four Latanet front-end processors, managed through OCL commands via either the DPS7's system console or the network control terminal.

Principal functions include system generation (SYSGEN), loading and dumps of a specified front-end system. Two service jobs are launched automatically for each function required.

Firstly, ADM is responsible for system dialog via Cross-Network Protocol (CNP) as well as for interaction with the second job NASF, which provides file access facilities. Both jobs run in the scheduling class "S", with a high despatching priority in order to meet time constraints imposed on the PSI (i.e., Peripheral Standard Interface) dialog. For this reason, the user is strongly recommended to preinitialize the NASF load module, with "PLM H_NASF". During operation, the high despatching priority is reduced once the "critical period" has been completed.

There are as many occurrences of ADM and NASF jobs as there are concurrent executions of load, dump, and SYSGEN functions.

The transport function, launched through the ST command, is performed by another service job, FNPS (Front-end Network Processing System). There are as many occurrences of FNPS as there are active FEPs.

GCOS does not support the LSA automatic load function, at initialization or power-up of the FEP Latanet. Before starting the telecommunications session with "ST", the operator must perform MTF to load or run SYSGEN.

The FEP's "resident" facility, for notifying "attention" events via a programmed link, should not therefore be used on the PSI between the DPS7 and the Latanet FEP.

Once transport has been launched by the OCL command ST, with an FEP already loaded by an explicit MTF, any FEP failures are handled automatically whenever possible. The necessary operations of dumping the FEP, reloading it, and relaunching transport, are all performed without any operator intervention. This continues until such time as the OCL command TT is given.

It should be noted that, if a failure occurs, any subfile arguments used with MTF commands are lost: the subsequent load operation is automatically performed according to the FEP's default configuration.

Normal and abnormal messages, associated with execution of ADM and NASF, are documented in the Network Control Terminal Operations manual.

Normal functioning of the FEP is checked each time an MTF (i.e., Modify Telecom Front-end) command is launched for loading, dump, or SYSGEN. The CNC configuration command FNP's parameters "NLOAD" and "RMTLOAD" are interpreted as follows:

NLOAD specifies that the DPS7 concerned may not issue commands for Datanet loading, dump, or SYSGEN. If attempted, such commands will be rejected. This option is useful where a given Datanet is shared between two host systems, with only one of them having the right to modify the status of the FEP.

RMTLOAD specifies that the LPS7 concerned is to initiate loading, dump, and SYSGEN on the Datanet, from the Datanet's own diskette.

These two keywords are mutually exclusive. If both of them are omitted from the CNC statement, however, these functions are performed using the relevant GCOS system libraries and subfiles.

FEP FILE MANAGEMENT

General

Certain system files and subfiles are required to be present for execution of LN7100 administrative functions. All these FEP files are created with the TAILOR function, which is covered in the System Installation and Updating manual. These files may be divided into two categories; i.e., those which, respectively:

- 1) Must be resident
- 2) Do not necessarily have to be resident.

The following information is provided for each file concerned:

- File name
- The subfile concerned, together with details of its contents and permitted usage
- The network control command needed to activate the function which accesses the subfile in question.

The name of a subfile, denoted by the format "<fsys-name>x", represents a concatenated subfile name, where:

- "<fsys-name>" is the front-end system as declared with the FSYS command at network generation.
- "x" is an alphanumeric character which qualifies the subfile's contents.

FSYS is a configuration language object which replaces the earlier NODE object. Note that in GCOS7-V2, the CNC utility supports this NODE command originating from the configuration language applicable in previous releases.

A subfile name, depicted in the format:

- "<UPPER-CASE-STRING>", represents the real name that must be used
- "<lower-case-string><UPPER-CASE>", represents a subfile name, with a maximum length of 16 characters, which is concatenated from:
 - A "free" part
 - A "fixed" part.

Examples:

<fsys-name>1 DN201 in SYS.FPDUMP
<fsys-name>2 DN202 in SYS.FPDUMP
IMAEXCOPT IMAEXCOPT in SYS.FPCONF
<subfile-name> V24DN20I in SYS.FPCORE
<subfile-name>OPT V24LN20IOPT in SYS.FPCONF.

FILE NAMES

All files referenced by DATANET functions are interpreted in the GCOS environment as follows:

- The first four characters of the DATANET file's name string are concatenated at the end of the "SYS.FP" string to form the corresponding GCOS file name
- The remainder of the DATANET file name is interpreted as the name of the subfile in the file concerned.

Examples:

- The PATCH1 function in the configuration command file;
"PATCH1 CONFPATCH1" is interpreted by GCOS as:
 - Library SYS.FPCONF
 - Subfile PATCH1 in this library.
- The END function in the configuration command file;
"END -SAVE COREV24DN20I -START" is interpreted by GCOS as:
 - Library SYS.FPCORE
 - Subfile V24DN20I in this library.
- The AF function in the configuration command file;
"AF ADMI AFT ... -DIR TEST ..." is interpreted by GCOS as the library SYS.FPTEST, without any explicit subfile reference.

Figure 2-1: Summary - Datanet Configuration Commands & GCOS Files

(1) The GCOS files referenced by each of the principle SYSGEN Datanet "configuration commands":

<u>Datanet Command</u>	<u>GCOS File Referenced</u>
DIR UNCS	SYS.FPUNCS
LKFL CONFCHXMOD *	SYS.FPCONF, subfile CHXMOD
PATCH2 PTCHPATCH2 *	SYS.FPPTCH, subfile PATCH2
PATCH1 CONFPATCH1 *	SYS.FPCONF, subfile PATCH1
END -SAVE CORE<subfile-name>	SYS.FPCORE, subfile <subfile-name>

* Note that these GCOS names, from the 5th. character onwards, may be changed if the corresponding subfile in fact carries another name.

(2) Datanet "GO" Command at SYSGEN:

<u>Datanet Command</u>	<u>GCOS File</u>
GO CONF<sf-name1> -SVPAT2 CORE<sf-name2>	SYS.FPCORE, subfile: <sf-name2>
-GOFIELD CONF<sf-name3>	SYS.FPCONF, subfile: <sf-name1> subfile: <sf-name3>
-PAT2 PTCHPATCH2 *	SYS.FPPTCH, subfile: PATCH2

(3) Datanet "GO" Command at Loading:

<u>Datanet Command</u>	<u>GCOS File Referenced</u>
GO -GOFIELD CONF<subfile-name>	SYS.FPCONF, subfile <subfile-name>
GO -PAT2 PTCHPATCH2*	SYS.FPPTCH, subfile PATCH2

(4) Administrative Functions:

<u>Datanet Command</u>	<u>GCOS File Referenced</u>
AF ... TLD -FILE CONF<subfile-name>	SYS.FPCONF, subfile <subfile-name>
AF ... AFT -DIR TEST	SYS.FPTEST

FRONT-END PROCESSOR GENERATION: SYSGENOCL Command Syntax

```
MTF  fsys-name
     SYSGEN[.<subfile-name>[:<volume-name>:<device-class>]]
```

Parameter Description

fsys-name as defined in the FSYSTEM command (which has replaced the NOLE from previous releases) at network generation.

subfile-name identifies the subfile, containing the source LN7100 configuration, in SYS.FPCONF. The user must specify this subfile name explicitly, when generating from any subfile other than "<fsys-name>C".

:volume-name:device-class defines the volume associated with the source file concerned. If SYS.FPUNCS or SYS.FPSGEN is not resident, this parameter must be supplied and the corresponding volume mounted before the command to SYSGEN is issued.

Example 1:

```
S: MTF  DN20 SYSGEN.V24LN20C
    10.13 X891 STARTED ADM OPERATOR S
    10.13 X892 STARTED NASF OPERATOR S
    CC46 LN20 SYSGEN STARTED
    CC46 DN20 SYSGEN COMPLETEL
    CC20 LN20 TERMINATED
    10.20 X892.1 COMPLETED NASF OPERATOR S
    10.20 X891.1 COMPLETEL ADM OPERATOR S
```

All files are resident and the input configuration is to be from the subfile "V24LN20C".

Example 2:

```
S: MTF   LN20 SYSGEN:K410:MS/M452
      10.31 X905 STARTED ADM OPERATOR S
      10.31 X906 STARTED NASF OPERATOR S
```

SYS.FPSGEN and SYS.FPUNCS have been allocated on the non-resident volume "K410". The configuration is to be input from the SYS.FPCONF subfile "DN20C".

Example 3:

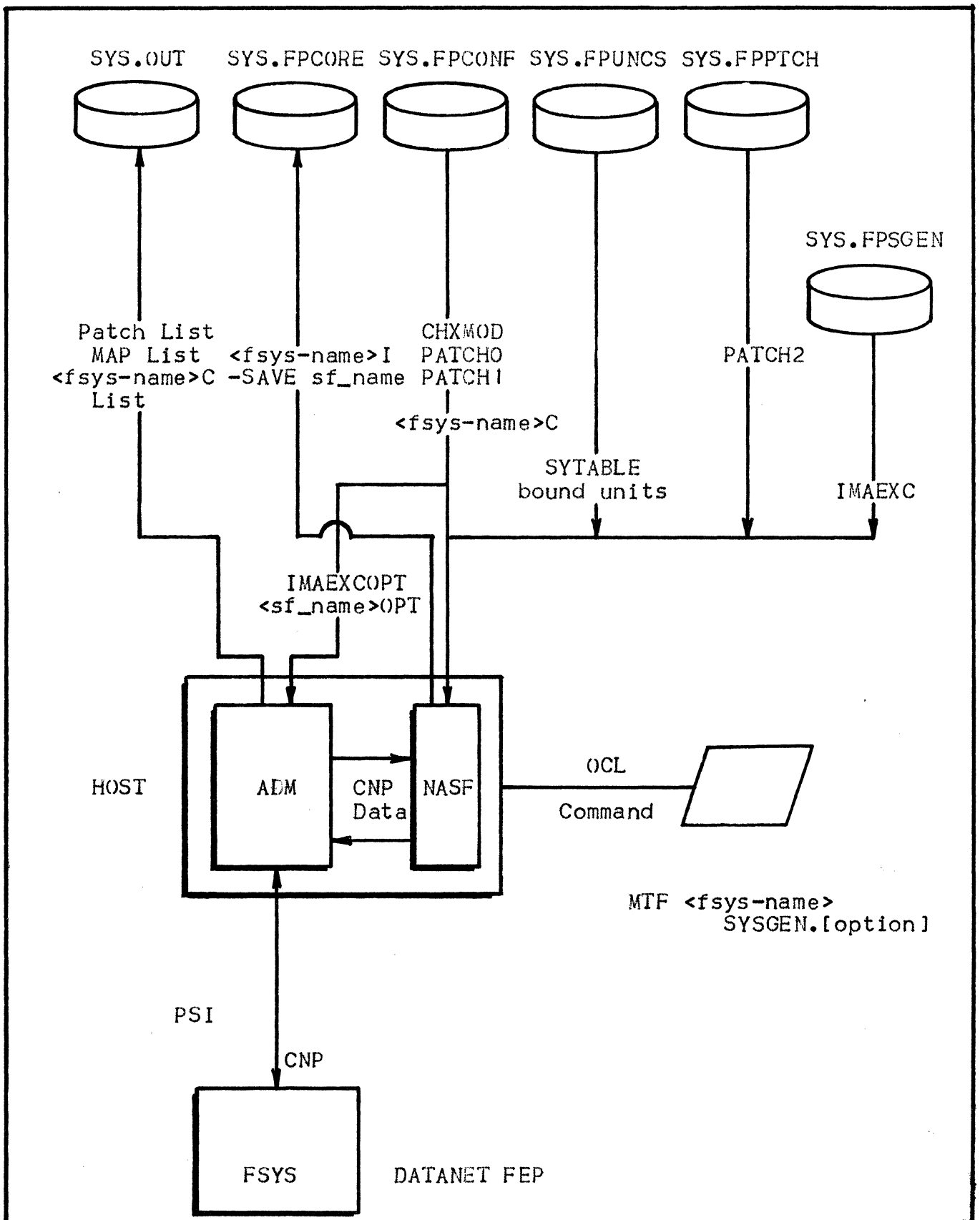
```
S: MTF   DN04 SYSGEN.V24DN04C:K410:MS/M452
      07.45 X918 STARTED ADM OPERATOR S
      07.45 X919 STARTED NASF OPERATOR S
      CC46  DN04 SYSGEN STARTED
      CC46  DN04 SYSGEN COMPLETED
      CC20  DN04 TERMINATED
      07.50 X919.1 COMPLETED NASF OPERATOR S
      07.50 X918.1 COMPLETED ADM OPERATOR S
```

This example represents a "mixture" of the two preceding ones. The subfile to be input from SYS.FPCONF is "V24DN04C". SYS.FPSGEN and SYS.FPUNCS are non-resident files. Note that:

- A "START" keyword in the END command, in the FEP configuration command file, starts the system generated. MTF is thus superfluous for loading the DN7100 after a SYSGEN of this type.
- When SYS.FPSGEN and SYS.FPUNCS are non-resident, these files must be mounted before the operator enters the MTF command.

For an overview of Datanet "configuration commands", and their relationships with GCOS files, refer to Figure 2-1, on page 2.6, above. For the semantics associated with using these files, refer to pages 3.1 to 3.2.

Figure 2-2: SYSGEN Data Flow



FRONT-END PROCESSOR LOAD FUNCTIONOCL Command Syntax

```
MTF  fsys-name { [subfile-name]
                  AUTO
                  AUTO.subfile-name }
```

Parameter Description

fsys-name as defined in the FSYSTEM (alternative to NOLE) command at network generation.

subfile-name identifies the subfile containing the memory image to be loaded to the DN7100. Necessary for loading the software, this name is applied as follows:

- "<fsys-name>I" by default
- If explicitly specified by the user, the subfile may bear any name, and there may be as many versions of DN7100 software as there are subfiles created in previous SYSGEN runs.

In either case, the subfile used must exist in the SYS.FPCORE library.

A special convention enables the user, if required, to launch transport synchronously AFTER loading of the Datanet:

- If a subfile is specified, it must be prefixed by the character string "AUTO"; i.e.:

```
MTF fsys-name AUTO.subfile-name
```

- If the default subfile is being used, the "fsys-name" must be followed by the character string "AUTO"; i.e.:

```
MTF fsys-name AUTO
```

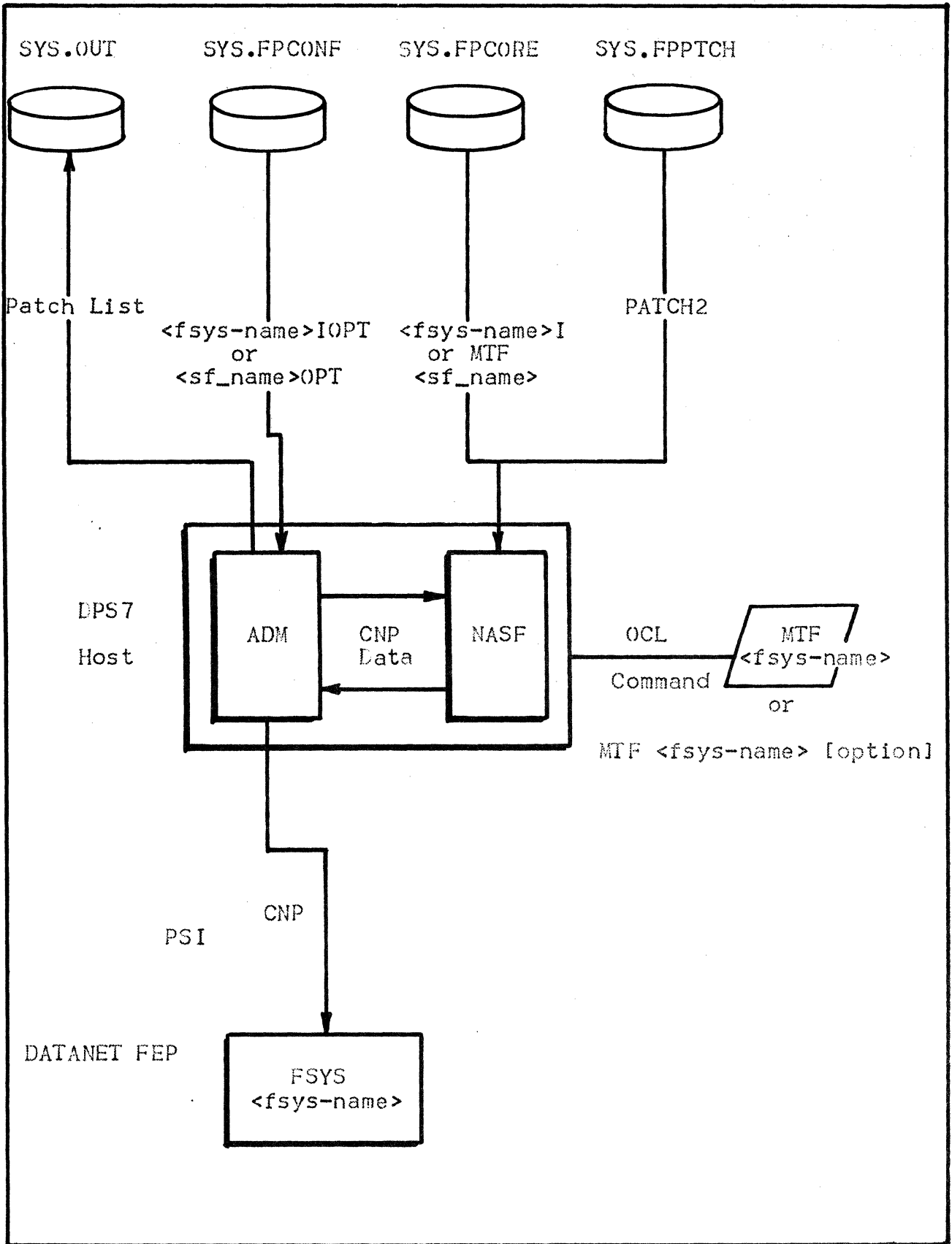
Note that use of this convention EXCLUDES the naming of an IMA as "AUTO".

The file naming conventions used with the MTF load command, may be found on pages 3.1 to 3.5, in Section 3 "Description of Files and Subfiles", where the contents of all subfiles are described in relation to the OCL commands used.

Example:

```
S: MTF   LN04 V24LN04I
      10.14 X893 STARTED ADM OPERATOR S
      10.14 X894 STARTED NASF OPERATOR S
      CC46 LN04 LOAD STARTED
      CC46 LN04 LOAD COMPLETED
      CC20 LN04 TERMINATED
      10.15 X894.1 COMPLETED NASF OPERATOR S
      10.15 X893.1 COMPLETED ADM OPERATOR S
```

Figure 2-3: Load Data Flow



FRONT-END PROCESSOR DUMPOCL Command Syntax

```
MTF fsys-name DUMP
```

Parameter Description

fsys-name as defined in the FSYSTEM command at network generation. Refer to the Network Generation Manual.

LUMP specifies that the DN7100 be forced to take a dump. As soon as the DN7100 receives the "dump" command, its CPU is stopped prior to the core image being dumped by a permanent routine in the MMPB. The corresponding FNPS service job is aborted with a dump.

The DN7100 memory image is dumped to either subfile "<fsys-name>1", or subfile "<fsys-name>2", in the resident library SYS.FPDUMP. The size of this library should be large enough to accomodate two dumps for each FEP present. Such a dump always erases the oldest existing member in the library concerned.

DN7100 dumps may be edited with the DNS Dump Editor utility DSADUMP, described in the Network Administration Utilities manual.

Example 1:

```
S: MTF DNO4 LUMP
  10.16 X895 STARTED ADM OPERATOR S
  10.16 X896 STARTED NASF OPERATOR S
  CC33 DNO4 DUMP STARTED ON DNO41
  CC46 DNO4 DUMP COMPLETED
  CC20 DNO4 TERMINATED
  10.17 X889.1 COMPLETED ADM OPERATOR S
  10.17 X896.1 COMPLETED NASF OPERATOR S
```

This example shows a successful dump of the FEP "DNO4" to the subfile "DNO41".

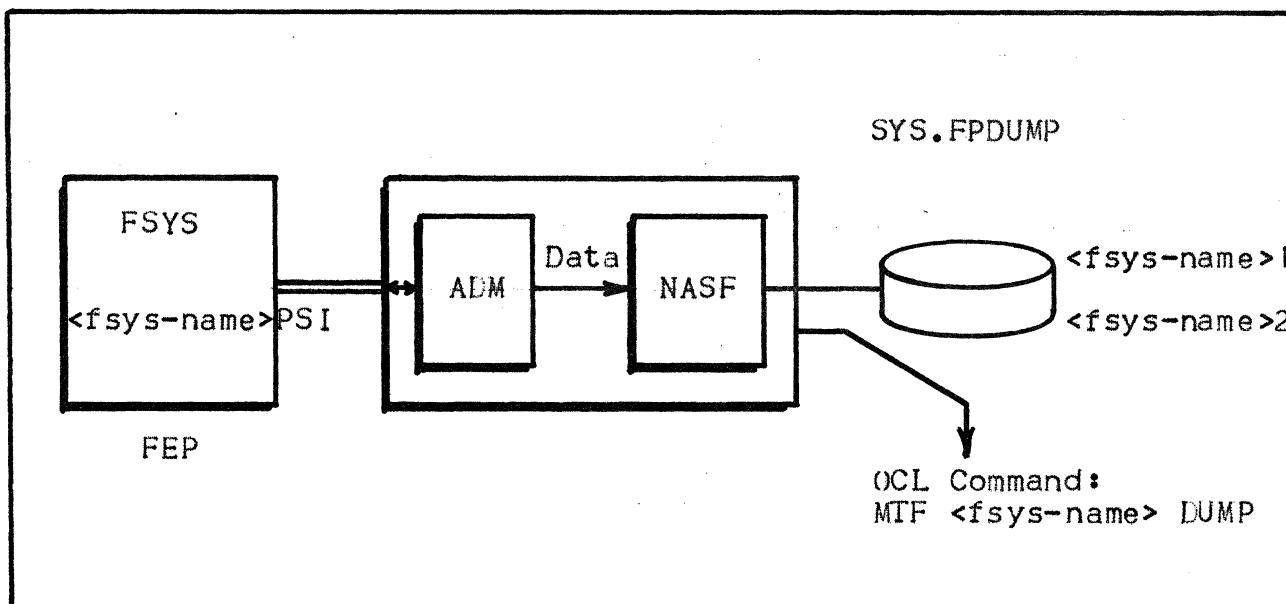
Example 2:

```

S: MTF DNO4 DUMP
  10.42 X907 STARTED ADM OPERATOR S
  10.42 X908 STARTED NASF OPERATOR S
  CC22 DNO4 DUMP STARTED ON DNO42
  CC14 UNABLE TO ACCESS (PUT) SYS.FPDUMP/DNO42
        RC=4DC20027->DSEQL 2,DATALIM
  CC20 NASF TERMINATED ABNORMALLY
  CC14 UNABLE TO ACCESS (NASF) ENDED/STATUS= 07
        RC=83BF00C8->FADM 63,CHECK
  CC20 DNO4 TERMINATED
  10.43 X908.1 ABORTED NASF OPERATOR S SEV3
  10.43 X907.1 COMPLETED ADM OPERATOR S
    
```

The above example shows an unsuccessful dump to subfile "DNO42", due to SYS.FPDUMP not being large enough.

Figure 2-4: DUMP Data Flow



SECTION 3

DESCRIPTION OF FILES AND SUBFILES

FILES USED ONLY BY THE SYSGEN FUNCTION

These files need not necessarily be located on resident volumes. If they are non-resident, the MTF SYSGEN command must specify "`:<volume-name>:<devclass>`".

For file creation, refer to the TAILOR function which is covered in the GCOS System Installation and Updating manual.

The library SYS.FPSGEN contains a subfile IMAEXC, which is a bootstrap for the DN7100 system software used at generation.

SYS.FPUNCS contains the subfile YTABLE, and the "bound units" used for generating the DN7100's software image.

Example 1:

```
MTF DN20 SYSGEN
```

All these files are resident.

Example 2:

```
MTF DN20 SYSGEN:K410:MS/M452
```

In this case, SYS.FPSGEN and SYS.FPUNCS have been allocated on volume "K410".

RESIDENT FILES USED BY THE LOAD AND SYSGEN FUNCTIONS

Library SYS.FPCONF

SYS.FPCONF contains two kinds of subfile:

- 1) Configuration subfiles used by the SYSGEN function, containing:
 - o Source configuration input
 - o Link commands
 - o Patches.
- 2) Option subfiles, for use in starting a load or SYSGEN with specific parameters, using the DN7100 command GO (which must be the first record in each of the subfiles).

SOURCE CONFIGURATION INPUT SUBFILE

The default name for this subfile is "<fsys-name>C", for use when no subfile argument is entered with the MTF command; e.g.:

```
MTF DN20 SYSGEN
MTF DNO4 SYSGEN:K410:MS/M452
```

- where "DN20" is generated with subfile DN20C, and "DNO4" with subfile DNO4C, in SYSPCONF.

When specified explicitly, the subfile name is used for reading the configuration input. A set of different configurations may thus be managed, through use of MTF's optional subfile argument. The objective of this facility is to enable testing of new configuration subfiles; e.g.:

"MTF FSYI SYSGEN" is equivalent to MTF FSYI SYSGEN.FSYIC

"MTF FSYI SYSGEN.FSYI_OLD" and

"MTF FSYI SYSGEN.FSYI_NEW" - where "FSYI_OLD" and "FSYI_NEW" are two subfiles in SYS.FPCONF, containing two different version of the configuration for the DN7100 "FSYI".

OTHER SUBFILES USED AT SYSGEN

PATCHO is the subfile containing patches for the SYSGEN software module IMAEXC.

PATCHI is the subfile containing patches for the DN7100's "bound units" (comparable with compile units, in GCOS terminology). These updates are performed at SYSGEN time; the two subfiles are not referenced at each load function.

CHXMOD is the subfile containing commands, used to link SYS.FPUNCS modules optionally, depending on configuration functions.

The SYSGEN function searches for an option subfile named either:

IMAEXCOPT when SYSGEN is not required from a specific configuration input subfile

<subfile-name>OPT when SYSGEN is required from the subfile specified in the MTF command.

If no such subfile exists, the default value assumed by GCOS, depending on the MTF command, is either:

"GO CONF<fsys-name>C -PATCH CONFPATCHO"

"GO CONF<subfile-name> -PATCH CONFPATCHO".

OPTIONS SUBFILES USED AT LOADING TIME

The load function searches for the existence of a subfile named either:

- `<fsys-name>IOPT` when the load is not required from an explicitly specified subfile
- `<subfile-name>OPT` when the load is required from a subfile specified in the MTF command.

If it exists, such a subfile must contain the Datnet "GO" command as its first record. This record is limited to a maximum length of 160 characters; in the event of needs greater than this, the GO command parameter "-GOFILE" should be used.

If no such subfile exists, the default assumed by GCOS is:

"GO -PAT2 PTCHPATCH2".

Examples:

- "MTF FSY1" - where the SYS.FPCONF subfile FSY1IOPT is searched
- "MTF FSY1 FSY1_OLD" - where the SYS.FPCONF subfile FSY1_OLDOPT is searched.

Library SYS.FPCORE

Should be preallocated as a BINary library. Objects in a BIN-type SYS.FPCORE library are in IMA (i.e. Image Memory Address) format. This library is used for saving the generated image, depending on the END command in the source configuration subfile, and for fetching the DATANET image at each load.

SYSGEN FUNCTION

The generated image is saved in a subfile the name of which may be specified in the two DATANET commands:

"END -SAVE CORE<subfile-name>" - in the configuration input

"GO CONF<source-subfile-name> -SVPAT2 CORE<subfile-name>" - in the SYSGEN function's options subfile.

To use the MTF load command's default value, "<fsys-name>I" should be specified on both commands when saving the image, either:

- o Before PATCH2 is applied (i.e., "END -SAVE")
- o After PATCH2 has been applied (i.e., "GO -SVPAT2").

In the second of these two alternatives, the GO command of the load function should be specified in an options subfile with the keyword "-NOPAT2". An exception is when a new patch increment is to be applied; i.e. "-PAT2 PTCH<increment>".

Note that a GO command, found in an options subfile, overrides the whole default value assumed by GCOS:

- o The input configuration must be specified
- o It is recommended that the same configuration subfile be specified as in the MTF command
- o The parameter "-PATCH CONFPATCHO" should be specified as shown above, because the default value assumed by the LN7100 is not compatible with GCOS.

Example:

```
C: PRINT V24DNO4COPT;  
O GO CONFV24DNO4C -PAT2 PTCHPATCH2 -SVPAT2 COREV24DNO4I -PATCH  
CONFPATCHO
```

LOAD FUNCTION

The subfile containing the IMA of the LN7100 to be loaded, has a default name of "<fsys-name>I", which is used whenever no subfile is specified in the MTF command; e.g.:

"MTF DN20" - where DN20I is referenced to load the subfile "DN20".

When specified, the referenced "<subfile-name>" is used to read the DATANET's memory image. This allows test IMAs to be managed; e.g.:

"MTF DN20 V24LN20I" - where "V24LN20I" must have been specified in "END -SAVE COREV24DN20I".

Example:

```
LMN BIN LIB = SYS.FPCORE;
>>>08:04 LIBMAINT 35.00 58 -1
C: LIST *;
MEMBERS
      --CREATED-----MODIFIED----MOD--TYPE--LINES-VERSION
DNO4I      02/25/83 10:57 02/25/83 10:57 00   IMA   0   0.0
LN20I      03/18/83 10:06 03/18/83 10:06 00   IMA   0   0.0
V24DN04I   03/24/83 08:01 03/24/83 08:01 00   IMA   0   0.0
V24DN20I   03/24/83 07:46 03/24/83 07:46 00   IMA   0   0.0

NUMBER OF MEMBERS : 4
C: QUIT;
<<<08:05
```

Resident Library SYS.FPPTCH

Contains patches used for updating the generated DN7100 image at each load function, when:

- No options subfile is stated at load time, "PATCH2" is assumed to be the subfile name
- An options subfile is stated, the GO command should specify one of:
 - -PAT2 PTCH<subfile-name>
 - -PAT2 PTCHPATCH2
 - -NOPAT2.

EXAMPLE:

```
C: PRINT *OPT;
  DNO4IOPT
    O GO -NOLIST -PAT2 PTCHPATCH2
  DN20IOPT
    O GO -NOLIST -PAT2 PTCHPATCH2
  V24DN04COPT
    O GO CONFV24LN04C -PAT2 PTCHPATCH2 -SVPAT2 COREV24DN04I
    -PATCH CONFPATCH0
  V24DN04IOPT
    O GO -NOPAT2 -NOLIST
```

- shows option subfiles and their usage, where:

"DNO4IOPT" and
"DN20IOPT" are executed at load time for the FEPs "DN04" and "DN20", with the images "DNO4I" and "DN20I" respectively.

"V24DN04COPT" is executed at SYSGEN, in the second example on page 2.8. The image V24DN04I is saved after the PATCH2 file has been applied.

"V24DN04IOPT" is executed at load (see the example on page 2.11), with:

- "-NOLIST"
- "-NOPAT2".

Resident Library SYS.FPLUMP

Required to be resident, SYS.FPLUMP contains the two latest dumps for each DN7100 FEP. The subfile name to which the dump is written, is specific to an FSYS name. The oldest existing subfile is erased before the current dump is written.

When using the DSADUMP utility with a concurrent "MTF <fsys-name> DUMP" command, caution should be exercised in avoiding both functions accessing the same subfile. Should this happen, however, one of the two functions will receive the "OPENS" return code and terminate abnormally.

SECTION 4

DSA ADMINISTRATIVE STORAGE FACILITY

INTRODUCTION

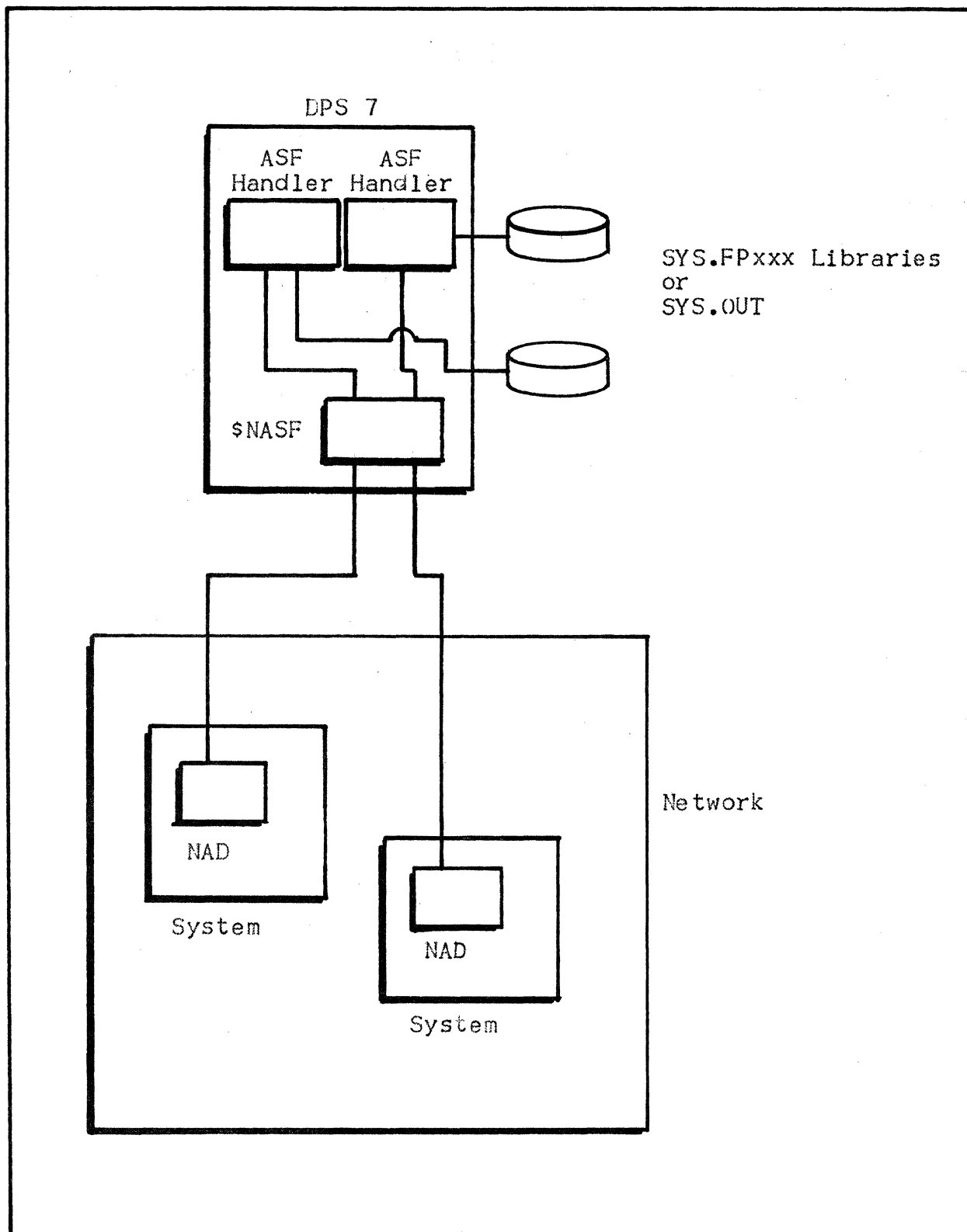
ASF enables the system to receive incoming administrative sessions from correspondents, on the standard \$NASF mailbox, and provides the capability of exchanging sequential files between administrative correspondents in the network.

The maximum record length supported is 200 bytes.

The ASF facility is enabled automatically, as soon as an MTF command is issued and a primary link is established in the network, independently of the type of this link (through either a DN7100 or a DCC); i.e., at the first ST command.

Up to ten ASF connections may be supported concurrently.

Figure 4-1: ASF Flow



FUNCTIONALITY

Supported Files

Files are transmitted sequentially, record by record. Record maximum length is 200 bytes, including the record header. These files include:

- SYS.OUT in WRITE mode; i.e., writing from the ASF Handler to SYSOUT.
- Any subfiles belonging to libraries named SYS.FPxxxx, in either WRITE or READ mode.

Record Format

A LSA 200 AEP-like record format is used. Record types supported include:

- OPEN FILE:
 - Sequentially accessed
 - READ or WRITE
 - File name in either ASCII or EBCDIC
 - File name = SYS.OUT, in WRITE mode only, with standard delivery from SYSOUT to the ASF Handler
 - File name "xxxxyyyyyy" in either READ or WRITE mode, where:
 - "xxxx" is of fixed length (i.e., 4 characters)
 - "yyyyyy" may be of variable length.
 - File name specifies = library SYS.FPxxxx
subfile yyyyyy
- DATA
- EOF

ASF Handler Start-up and Execution

ASF is automatically enabled as soon as an MTF command is issued and a primary link is established with the network. The ASF Handler is packaged in the NASF job and launched automatically, upon each network connection made with the \$NASF mailbox. Potentially, there may be several ASF Handlers active concurrently (i.e., as many as there are concurrent administrative sessions open on the \$NASF mailbox). An administrative correspondent may access several files consecutively within the same session, e.g.:

15.36 X191 STARTED NASF OPERATOR S

- indicates the automatic launching of the NASF job in order to make a test, dump, or load to a remote DN7100

15.36 X191.1 COMPLETED NASF OPERATOR S

- indicates the end of the test, dump, or load (as appropriate).

Usage of the ASF Function

- DN7100 on-line test load from an experimental library on DPS7. An example of this may be found on pages 4.6 through 4.8, below.
- DN7100 Remote Load/Dump/SYSGEN Support.

For remote load, the DN7100 reads the image and the patches applicable; and sends output deliveries to files on the DPS 7. For remote dump, the core image of the Datanet is written away. The scenario files used for remote load/dump must be created in subfiles of SYS.FPCONF.

COMMANDS

"DT \$NASF" gives the number of NADs currently connected to the \$NASF mailbox. This number corresponds to the number of ASF Handlers active on DPS7; e.g.:

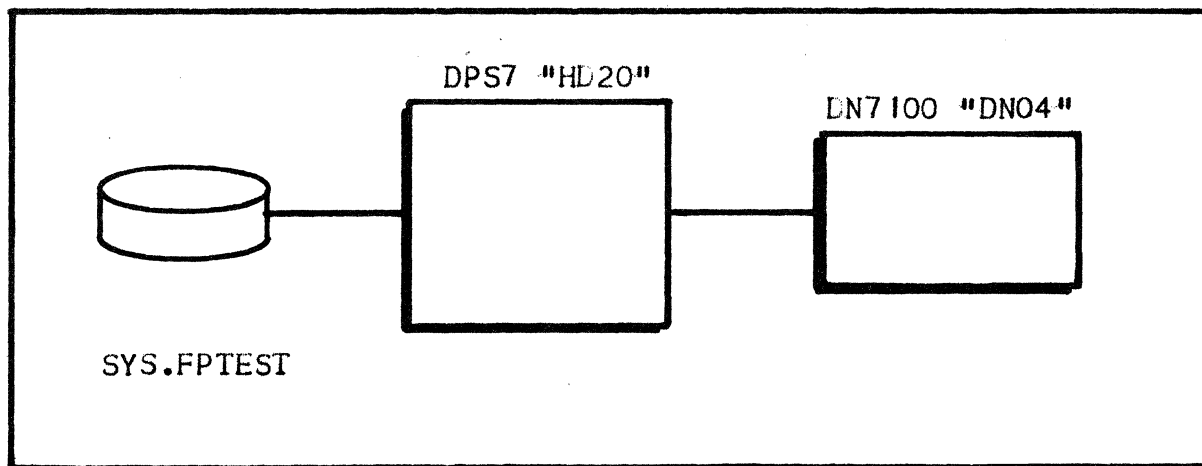
```
S: DT $NASF
   CC07 $NASF MB DYN ON CNCT:2/10 WAITING:0/0
```

- indicates that two NADs are connected to the \$NASF Handler, hence two active ASF Handlers.

EXAMPLE: DN7100 ON-LINE TEST LOADING FROM A DPS7 LIBRARY

The DN7100 runs on DNS B2 software:

Figure 4-2: Test Loading Example



Prerequisites

ON THE DPS7

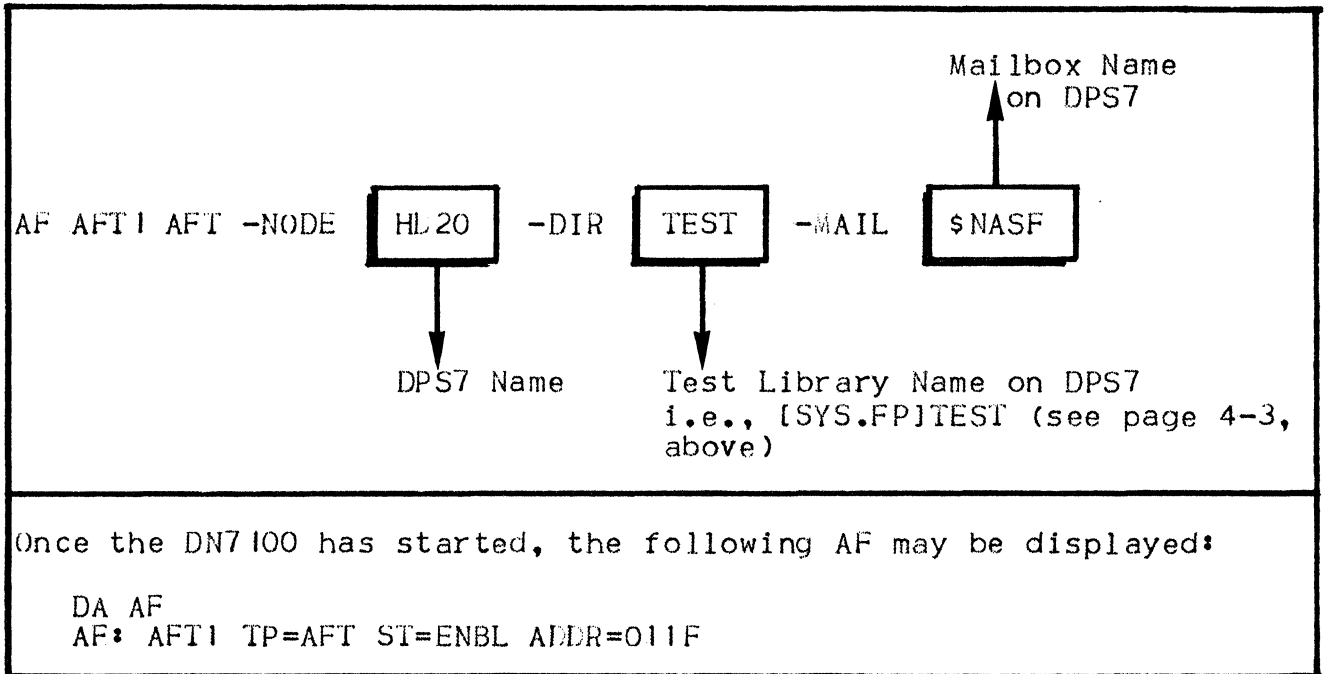
The SYS.FPTEST library contains as many subfiles as there are tests to be launched; i.e.:

- Asynchronous lines:
 - LASY00
 - LASY01, ...
- HDLC lines:
 - LHDLOO
 - LHDLO1, ...
- Etc.

ON THE DN7100

Configuration of a test-type administrative function.

Figure 4-3: Test Administrative Function on Datanet



Running The Test

Execution of LASY00 sends asynchronous line testing instructions to the DN7100 console.

1. Test Launch on DN7100 Console, after connection to the NOI (i.e., Network Operator Interface):

```
??EX TL LASY00
```

The Datanet Administrative Module opens a session on the \$NASF mailbox on HL20, in order to retrieve the corresponding test. The file requested (in the OPEN record's protocol) is:

```
TESTLASY00
```

- where "TEST" is from the AF, and "LASY00" is from the "EX TL" command. This will be interpreted on the DPS7 as:

- Library SYS.FPTEST
- Member LASY00

2. An NASF job is spawned automatically on the DPS7, to transfer the corresponding subfile and then terminate:

```
15.52 X205 STARTED NASF OPERATOR S
15.52 X205.1 COMPLETED NASF OPERATOR S
15.52 X205 OUTPUT COMPLETED NASF OPERATOR
```

Figure 4-4: Test Execution on DN7100

```
NODE=DNO4 TIME=: 15:52:18:1983:2:28 NW-TEST
  TL: LASY EXTL ACCEPTED
SOFTWARE COMPATIBILITY
  LASY REV5 SOFT DNS 2.6

HARDWARE COMPATIBILITY
  BMLC001B-008 (FW 000C)
BMLF.1018-001
ASYNCHRON LINE TEST: NUMBER OF PROG. = 1
      : NUMBER OF ROUT. = 2
      : ROUT1 =SHORT MESSAGE
      : ROUT2 =LONG MESSAGE
RULES TO EXECUTE THIS TEST TYPE ADAPTOR 2108 2118
  1. CHOICE LOOP BACK MODE :
      A = AUTOMATIC (INTERNAL LOOP BACK)
      B = BRANCH CABLE (EXTERNAL LOOP BACK)
      C = COMMUTATION LOCAL OR REMOTE MODEM
  IF SKEY OPTION = 0001 NO RELEASE CONTROL

NODE=DNO4 TIME=: 15:52:3:1983:3:28 NW_TEST
  TL: TYPE=1 CODE=20
END O OF LASY : OK
```

REMOTE LOADING EXAMPLE

When operating as an FEP, a Datnet runs on either DNS B2 or DNS C software. The DPS7's standard ASF Handler is used to fetch and return the various components used. This also applies to a neighboring (i.e., remote) Datnet operating another neighboring Datnet. These components include:

- The commands in the scenario files to be executed by the Datnet Loader
- The IMA to load the (remote) neighboring Datnet
- The source configuration, bound units, and patches needed to generate the neighbor
- The IMA generated after SYSGEN, or patched after a load
- The output delivered when the operation is complete, including listings, errors, etc.

Figure 4-5: Remote Operations Example

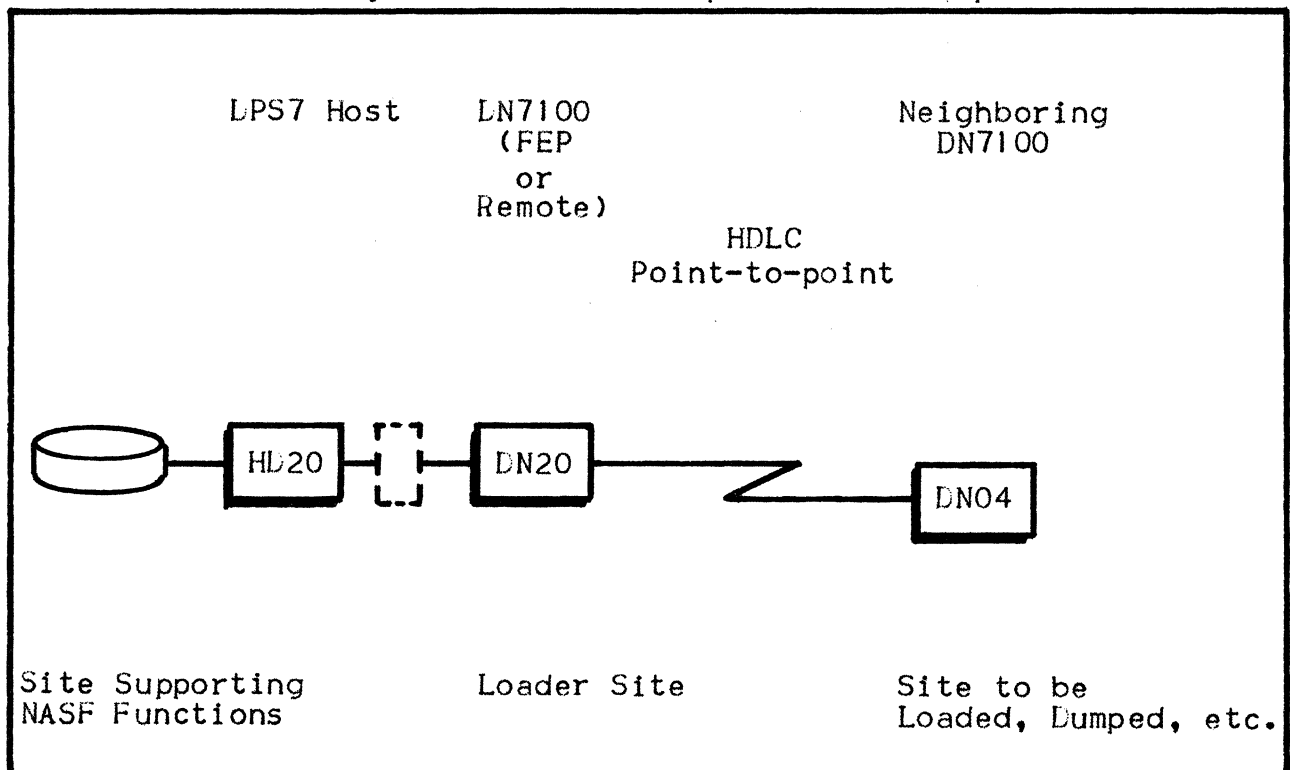


Figure 4-6:

Loader Configuration: Administrative Function TLD (i.e., Teleload)

```

& *****
DN7100 V24DN20C -EOS %5PFEL5ZGB8$TDBB8$#QW3%UC$TIL_8EISLH5#IFBN88
& *****
DIR UNCS
LKFL CONFCHXMOD
TBFL UNCSYTABLE
PATCH1 CONFPATCH1
PATCH2 PTCHPATCH2
& *****
& ***** LOCAL SITE *****
ND DN20 LOC -ADDR 1:131
&
//
AF AF1 LOG -NODE HD20 -OPTN -LV 0
MB $DEBUG -PSSW UNCP
AF NO11 NOI -NODE DN20 -NEED -LVL 0
AF AFT1 AFT -NODE HL20 -DIR TEST -MAIL $NASF
AF TLLD TLD -TLLND DNO4 -NSFND HD20 -LL HLL1 -FILE CONFV24SDNO4C
-MAIL $NASF -AUT
LINK -FOR DEBUG
END -START -SAVE COREV24DN20I
    
```

Figure 4-7: Scenario Executed by the Loader Site

Note that this scenario comes from the scenario subfile, introduced with an "AF ... TLD" command, on the site supporting NASF functions.

```

C: PRINT V24SLNO4C
      10 NODE DNO4 B
      20 SCEN B
Load   30 LOAD COREVTESTSVPAT2 MAP SYS.OUT
      40 GO -NOLIST

Lump   50 SCEN A
      60 DUMP DUMPLNO41

Sysgen 70 SCEN C
      80 LOAD SGENIMAEXC MAP SYS.OUT
      90 GO CONFVTESTIDNO4C -PATCH CONFPATCHO -SVPAT2
          COREVTESTSVPAT2
    
```

Figure 4-8: Remote Site to be Loaded and Generated

```

R: R VTESTDNO4C
R: IO, I50L
 10 & ****
 20 LN7100 TESTO4C -EOS RJB9DV%QVIZFWI IEUKC5*ZM3*%##RQJN4RK47RKXB238
 30 & ****
 40 &
 50 & ****
 60 DIR UNCS
 70 LKFL CONFCHXMOD
 80 TBFL UNCSYTABLE
 90 PATCH1 CONFPATCH1
100 PATCH2 PTCHPATCH2
110 & ****
120 & ***** LOCAL SITE *****
130 NL DNO4 LOC -ADDR 1:138
140 &
150 & ***** LOCAL TELETYPE *****

R: $-IO, $L
2510 AF NOI1 NOI -NODE DNO4 -NEED -LVL 0
2520 AF AFT1 AFT -NODE HD20 -DIR TEST
2530 AF TLLD TLD -NSFND HD20 -TLDND DN20 -SEM -LL HDL3 -FILE
      CONFSCEN2TEST
2540 LINK -FOR DEBUG
2550 END -START -SAVE COREVTESTDNO4I

```

```

      |
      |
      |-----VTESTDNO4I: Memory image before PATCH
      |                    processing
      |
      |-----VTESTSVPAT2: Memory image after PATCH2
      |                    processing from line 90 in
      |                    scenario

```

MEMBERS	-----CREATED-----	-----MODIFIED-----	MOD	TYPE	LI
DNO4I	02/25/83 10:57	02/25/83 10:57	00	IMA	
LN20I	03/18/83 10:06	03/18/83 10:06	00	IMA	
VTESTDNO4I<-----	03/25/83 09:54	03/25/83 09:54	00	IMA	
VTESTSVPAT2<-----	03/25/83 09:57	03/25/83 09:57	00	IMA	
V24DNO4I	03/24/82 17:36	03/24/82 17:36	00	IMA	
V24DN20I	03/24/83 07:46	03/24/83 07:46	00	IMA	

NUMBER OF MEMBERS: 6

CARD SYNTAX FOR COMMANDS IN SCENARIO FILES

All items are separated by one blank.

1. NODE Card

- NODE <name> <scen>
- "<name>" = the name of the DN7100 to be loaded (4 characters)
- "<scen>" = the name of the scenario used in automatic mode. This scenario must be the first in the list of scenarios (1 character).

2. SCEN Card

- SCEN <name>
- "<name>" = the name of the scenario described in the following cards, (1 character).

3. DUMP Card

- DUMP <file>
- "<file>" defines the file in which the dump is to be written; this file name consists of "DUMP<subfile-name>", where "subfile-name" is the name of the subfile defined in SYS.FPLUMP.

4. LOAD Card

- LOAD <file-1> [MAP (SYS.OUT!<file-2>)]
- "<file-1>" defines the file containing the memory image to be loaded in the remote node, with one of the following values:
 - "CORE<subfile-name>", if teleloading is to be performed, where "<subfile-name>" is the name of the subfile defined in SYS.FPCORE
 - "SGENIMAEXC", if SYSGEN is to be performed.
- "<file-2>" optionally gives the name of the file in which the MAP will be started.
- The LOAD card must be followed by a GO card (below).

5. GO Card

- GO <parameters>
- The GO card follows the LOAD card.
- The parameters are those defined for the generation.

6. * Card

- * <comment>
- Any string may be put as a comment.

APPENDIX A

GCOS SYSTEM FILES FOR DN7100 SUPPORT

This appendix gives a resume of the system files together with each of their subfiles, which must be present in GCOS software to execute DN7100 administrative functions.

These files may be located on any resident P-set disk of the DPS 7.

All these files are sized at system initialization by TAILOR; refer to the System Installation and Updating Manual.

SYS.FPLUMP files may be edited using the GCOS DSADUMP utility.

For a detailed description of the GCOS utilities DSALOG and DSADUMP, refer to the Network Administration Utilities User Guide.

Note that, for the list of tests contained by the file SYS.FPTEST, the user should refer to the In/On Line Tests Operator Guide.

GCOS System Files for DN7100 Support

<u>FILE NAME</u>	<u>SYS.FPCONF</u>
Subfile Name	CHXMOD
Contents and Usage	Contains the list of uncs-modules to be used as input to NASF during DN7100 software generation.
Command	MTF fsys-name SYSGEN
Subfile Name	(IMAEXC!<subfile-name>)OPT
Contents and Usage	Contains the DN7100 GO commands to be used as input to ADM during DN7100 software generation.
Command	MTF fsys-name SYSGEN
Subfile Name	PATCH0
Contents and Usage	Contains the patches for the subfile IMAEXC of the file SYS.FPSGEN, to be used as input to NASF during DN7100 software generation.
Command	MTF fsys-name SYSGEN
Subfile Name	PATCH1
Contents and Usage	Contains the patches of DN7100 bound units to be used as input to NASF during DN7100 software generation.
Command	MTF fsys-name SYSGEN
Subfile Name	(<fsys-name>C!subfile-name)
Contents and Usage	Contains the generation deck to be used as input to NASF during DN7100 software generation, in order to generate the image on the subfile (<fsys-name>I!subfile-name) of the SYS.FPCORE file.
Command	MTF fsys-name SYSGEN

Subfile Name	<fsys-name>I;<subfile-name>OPT
Contents and Usage	Contains the DN7100 GO command to be used as input to ADM when "loading" the DN7100.
Command	MTF fsys-name [AUTO]

<u>FILE NAME</u>	<u>SYS.FPCORE</u>
Subfile Name	<fsys-name>I;subfile-name
Contents and Usage	Contains the generated image of the DN7100 software: <ul style="list-style-type: none"> ● Output by NASF during DN7100 software generation ● Input to NASF when "loading" the DN7100.
Command	Output from NASF: MTF fsys-name SYSGEN Input to NASF: MTF fsys-name [AUTO]

<u>FILE NAME</u>	<u>SYS.FPDUMP</u>
Subfile Name	<fsys-name>(1;2)
Contents and Usage	Contains the last 2 images of the DN7100 memory dumps. NASF always starts with the subfile <fsys-name>1 at the beginning of the dump session, then moves to <fsys-name>2 once <fsys-name>1 is full, et seq.
Command	MTF fsys-name DUMP

<u>FILE NAME</u>	<u>SYS.FPPTCH</u>
Subfile Name	PATCH2
Contents and Usage	<p>Contains the patches for the image of the DN7100 software in memory, to be used dynamically as input to NASF:</p> <ul style="list-style-type: none"> ● During DN7100 software generation ● When "loading" the DN7100.
Command	MTF fsys-name (SYSGEN:[AUTO])

<u>FILE NAME</u>	<u>SYS.FPSGEN</u>
Subfile Name	IMAEXC
Contents and Usage	<p>Contains the image of the bootstrap for the DN7100 system software to be used as input to NASF during DN7100 software generation.</p>
Command	MTF fsys-name SYSGEN

<u>FILE NAME</u>	<u>SYS.FPTEST</u>
Subfile Name	test-name
Contents and Usage	Contains on-line tests which are launched either automatically by the DN7100, or at the request of the DN7100's network control operator.
Command	DN7100 Operator Command: EX TL xxxx - where "xxxx" is the test-name.
Note	This method of "calling" the test from the DPS 7, enables in-line testing of the DN7100. The DN7100 does not have to stop its normal operational function, to "load" and execute the appropriate test. Instead, the appropriate test, having been "called" from the DPS 7, is "multitasked" with the normal operational function of the DN7100.

<u>FILE NAME</u>	<u>SYS.FPUNCS</u>
Subfile Name	YTABLE
Contents and Usage	Contains the directory, and includes the bound units of DN7100 software image to be used as input to NASF during DN7100 software generation.
Command	MTF fsys-name SYSGEN

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