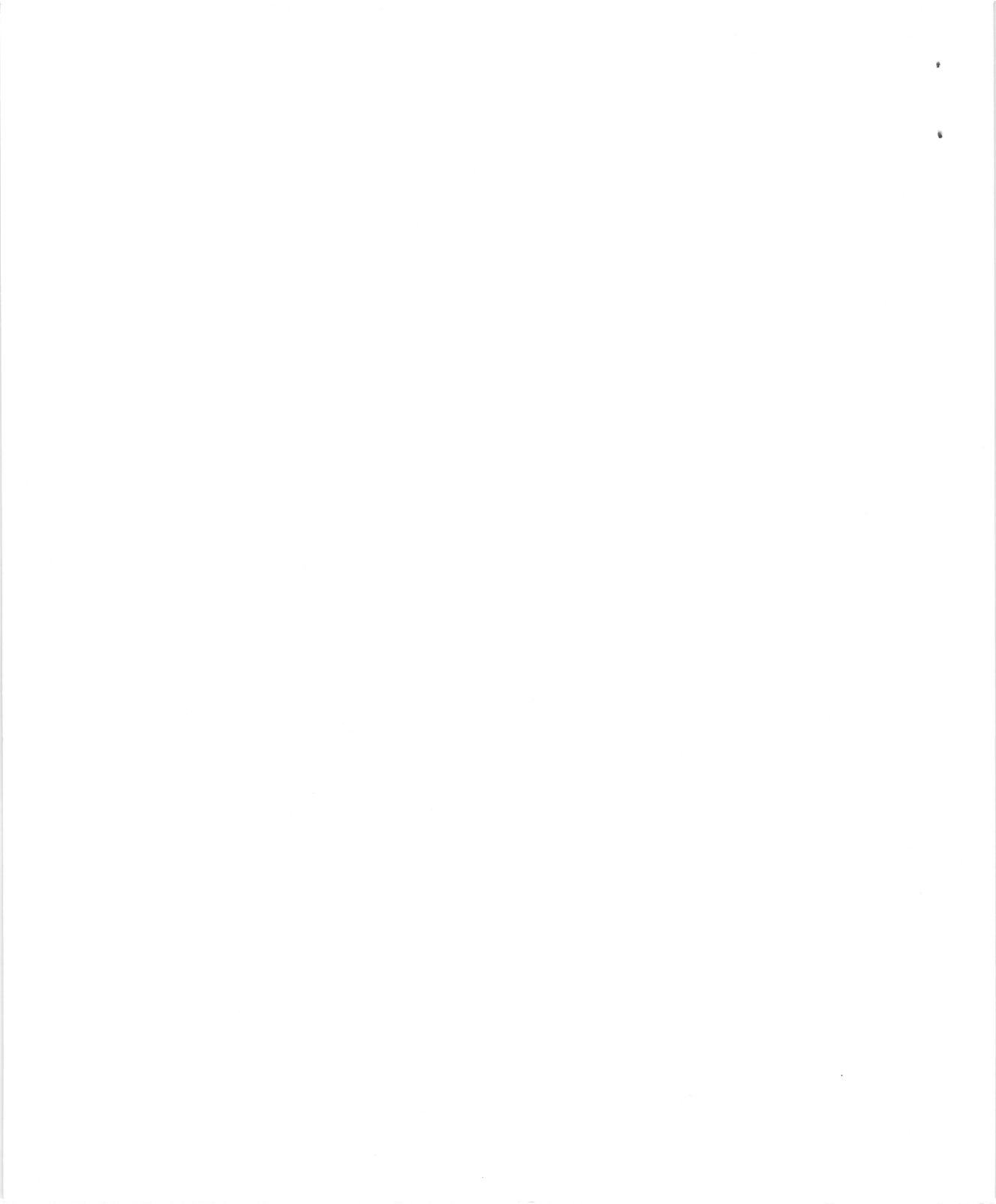


INSTALLATION GUIDE

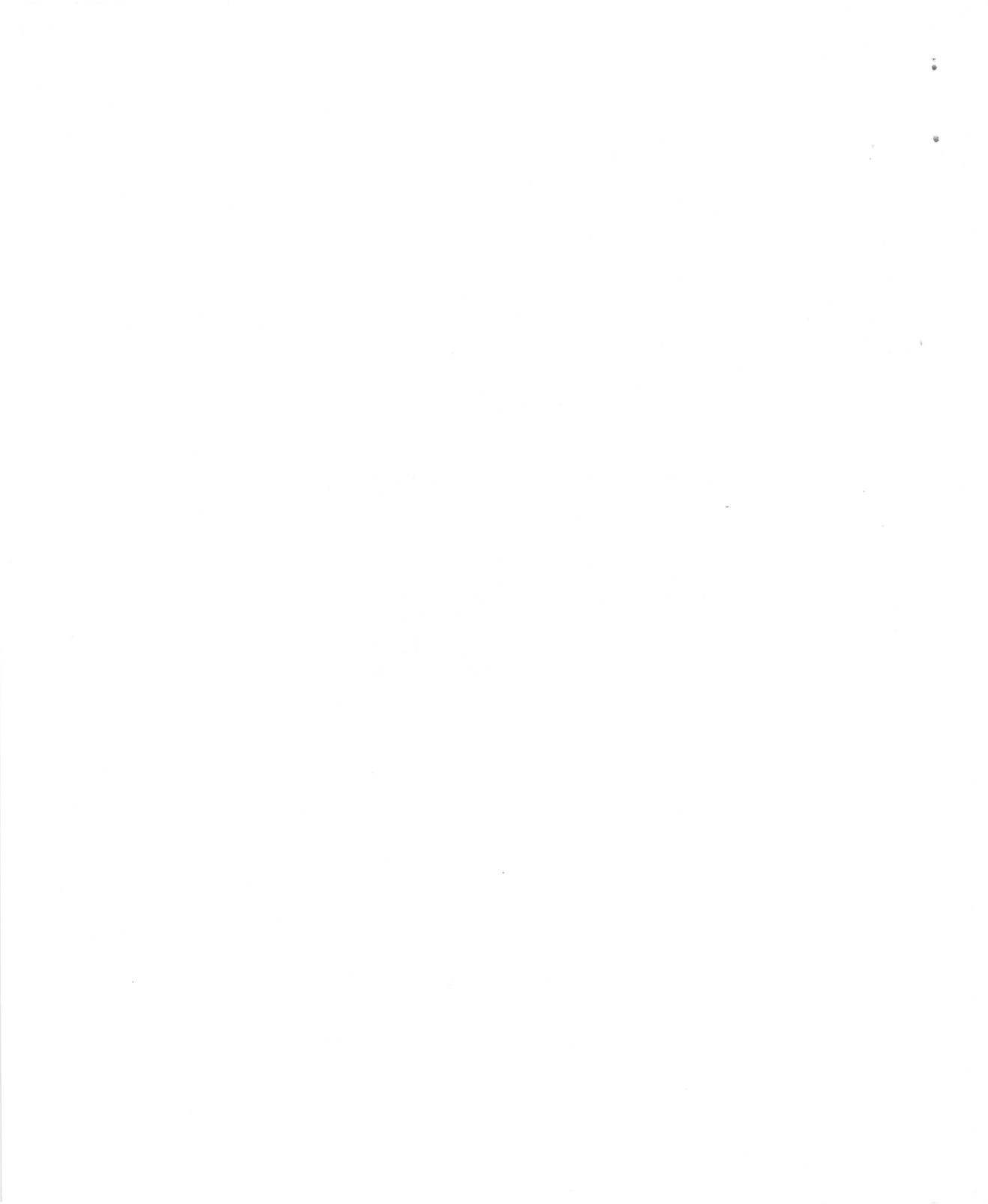


PRODUCT : D902-3205-0000 RELEASE : 03.70.00.



RELEASE BULLETIN
FOR
ITX/SNA 3270 DSC WITH LU3 PRINTER
RELEASE 3.70.00

Product Identifiers: D902-3205-0000
D902-5205-0000
D902-6205-0000
D902-7205-0000
D902-8205-0000



4.0 INTRODUCTION

1.1 PRODUCT OVERVIEW

The ITX/SNA 3270 DSC with LU3 Printer Software provides emulation services, which allow an ITX processor to appear as a 3276 cluster controller with attached 3278 terminals and 3270 data stream printers.

The 3270 DSC application and the 3270 LU3 Printer application each occupy an ITX process and execute concurrently with other ITX applications. They use the logical unit type 2 (LU2) services provided by the ITX/SNA DPN Base software.

The ITX/SNA 3270 DSC application provides the ITX user with an interactive facility to access an IBM host. The ITX customer can share the use of the NCR terminal between local ITX applications and IBM host based applications designed to interact with the 3270 display subsystem. This release of ITX/SNA 3270 DSC supports the ADDS NCR 4920/SNA terminal in addition to the NCR 7910-0103 terminal.

ITX/SNA 3270 DSC is a prepackaged solution requiring no further user programming. A user can install ITX/SNA 3270 DSC, assign an NCR terminal to the application, and be able to immediately interface to existing IBM host applications as an IBM 3276 controller with 3278 Model 2 display terminals.

The ITX/SNA 3270 LU3 printer program is an IBM 3270 LU3 Printer emulation package. It allows an ITX processor functioning as a physical unit type 2 (PU-T2) in an SNA network, to receive files (for printing) from application programs at the host. The ITX/SNA 3270 LU3 printer program was specifically designed to emulate an IBM 3270 data stream printer attached to an IBM 3276 control unit.

1.2 PRODUCT COMPONENTS

The ITX/SNA 3270 DSC product consists of the following:

- 1) DSC3101: ITX/SNA 3270 DSC object code
- 2) RUNDSC31 and XDSC31: start up control strings

Example control strings (RUNDSC31 and XDSC31) are included on the release media. Both control strings will need to be modified to match your installation (see Section 6.0 Installation Procedure).

The ITX/SNA 3270 LU3 printer product consists of the following data and object files:

- 1) LU3SOD0101: start-of-day object code
- 2) LU3EOD0101: end-of-day object code
- 3) STARTLU3: start-of-day control string
- 4) STOPLU3: end-of-day control string

2.0 FEATURES OF THE PRODUCT

2.1 PRODUCT DESCRIPTION

The main functions of ITX/SNA 3270 DSC can be stated briefly as follows:

- Feature compatible with IBM 3276 Model 12 controller and 3278 Model 2 display terminal.
- Provides menu driven screen for local operations.
- Utilizes the ADDS 4920/SNA terminal and/or the NCR 7910-0103 terminal.
- Allows sharing of a single terminal resource between local (ITX based) and remote (IBM host based) applications.
- Supports up to 16 users concurrently.
- Full PF/PA key support.
- Allows access to CICS/TSO/IMS.
- Each terminal represents a separate LU to IBM host applications.

The features of the ITX/SNA LU3 Printer are summarized below :

- Processes 3270 data stream format text sent by host applications.
- Utilizes any ASCII printer that is supported by the ITX operating system.
- Allows spooled output to be saved.
- Provides logging and trace information.
- Provides international code set support.
- Supports application buffer sizes 480 through 3584 characters.

The 3270 DSC and LU3 printer programs can run in both the SNA and SNA/X.25 (QLLC) combined node configuration.

2.3 KEYBOARD LOCK AND DSC TERMINATION

The DSC keyboard can lock for one of two reasons. The keyboard will lock if the user inadvertently strikes two or more keys (or commits some other type of functional error). The keyboard is also locked by the DSC application following each transmission. With the ADDS NCR 4920/SNA terminal keyboard lock is indicated on the top status line. With the NCR 7910-0103 terminal the "locked" state is indicated by a lock symbol on the DSC status line at the bottom of the screen.

If a host or link error occurs during this "locked" state, the keyboard will remain locked until it is cleared by the user.

To unlock the ADDS NCR 4920/SNA keyboard following an operator error or host/link problem:
Enter reset (key 43)

To unlock the NCR 7910-0103 keyboard following an operator error:
Enter reset (key 106)

To unlock the NCR 7910-0103 keyboard following a host/link problem:
Enter local mode (keys 53 and 69)
Enter reset (key 106)
Enter block mode (keys 55 and 69)

2.4 3270 DSC UNCONDITIONAL TERMINATION

If you are unable to terminate the DSC application in an orderly fashion use the following sequence to unconditionally terminate the DSC application:

On the ADDS 4920/SNA terminal:

Enter QUIT twice consecutively (key 93) - This will cause a shutdown request to be sent to the host.
If this is not successful, enter U-QUIT twice consecutively (keys 44 and 93)

On the NCR 7910-0103:

Enter PF9 (keys 53 and 89)
Enter PF0 (keys 53 and 76)

2.5 LU3 PRINTER SPOOL OPTIONS

2.5.1 OPTIONS AVAILABLE FOR EACH DEVICE

For each device LP, DLP, and DI (Autospooler, Dedicated Printer, and Disk) specific options can be used to control ITX printer output. Please refer to the SCL ASSIGN command description in your ITX Operating System Reference Manual for a complete description of these options.

The following options are valid when the device is "LP" autospooler.

OPTIONS FOR LP ONLY

CO=XX	Number of copies must be from 1 to 65.
PA=XXXXX	Number of pages must be from 1 to 65535.
FID=ccccccccc	Form Id must be from 1 to 10 characters.
NOF	No purge, keep the file after it is printed.
TR=ccccccccc	Print train must be from 1 to 10 characters.
DE	Number of lines per page from 1 to 255.
CFF	Continuous form, suppress the auto form feed.
BNR1=ccccccccc	
BNR2=ccccccccc	Banners 1, 2, and 3 must be from 1 to characters
BNR3=ccccccccc	
HAS	Hold autospooler, holds file in autospooler

For "DLP" dedicated line printer the following options are supported:

OPTIONS FOR DLP ONLY

TR (Print train)
DE (Depth)
CFF (Continuous form)

Please note that these options have the same format as above (autospooler). When DLP is used a dedicated printer must be available before the program is started. If the specified printer is attached to the autospooler, it must be detached by the ITX SCL COMMAND, DET(lp,nnn), before the LU3 program is started. Failure to have the printer detached will result in a fatal error in assigning the printer, and the LU3 program will be terminated.

When the device is DI (disk), option NS (number of sections) can be specified.

OPTION FOR DI ONLY

NS-xxxx Must be a positive (nonzero) number. Has the default value of 100.

If an option is specified with a device that does not support that option an error message is generated. For example if the device is DLP and option NS is chosen, the following error message is generated, and the LU3 program is terminated.

ERROR:OPTION (NS-xxxx) MUST BE USED WITH DISK UNIT ONLY

If an illegal value is given to an option, for example Fid=morethanten assigns a strings of 11 characters where only up to 10 characters are allowed, an error message will result and the LU3 program terminates.

ERROR: OPTION (FID) must be between 1 to 10 characters

Using any other option which was not specified here will cause an error and program termination. Please see section 2.5.5 for a complete list of error messages. Note that Assign options NE (new), OW (own), SP (spool), AP (approximate), and KE (keep) are not user definable. NE,OW,SP,AP are set to TRUE by the LU3 program, while option KE (keep) is set to FALSE.

2.5.2 SPECIFYING OPTIONS ON THE EXECUTION LINE.

The LU3 program can still be used without specifying any options. The new spool options are implemented as an optional feature. A new parameter has been introduced which can be specified on the execution line.

LPOPTIONS=(OP1,OP2,...,OP3)

where "LPOPTIONS=" is a key word

- "(" indicates the start of options.
- "OpI" is one of the options listed in section 2.5.1.
- "," separates the options.
- ")" indicates the end of the options parameter.

no spaces may appear within the LPOPTIONS parameter.

for example : LPOPTIONS=(CO=4,FID=IBM,NOP,TR=PAY-ROLL)

When lpoptions are too long to put on the execution line, a new line may be started by using the line continuation character "!", in this case the LPOPTIONS parameter must be begin on the second line. For example:

```
line1: EX LU3SODxxxx(unit) luname (LP.ANY) !  
line2: LPOPTIONS=(CO=4,FID=SNEAK,PA=10,DE=50,TR=PAY-ROLL,NOP)
```

Please note that spaces separate each argument. "luname", "(LP.ANY)", "!" are all separated by spaces. The Character "!" continues line2 as if it was still line1. The last argument of this example "LPOPTIONS=(CO...." is given on one line with no spaces.

If all the desired options do not fit on one single line, options may be broken into two lines using the syntax outlined by the following rules:

- i) the first line of the options must end with a ","
- ii) ITX line continuation "!" follows the "," in (i) above after at least one blank space.
- iii) the second line starts with an option and ends with the ")"
- iv) the ")" in (iii) above is followed by at least one blank space, and "END" follows the blank(s)

The following example demonstrates the correct usage :

```
lineA: EX LU3SODxxxx(unit) luname (LP.ANY) !  
lineB: LPOPTIONS=(CO=4,PA=10,DE=50,TR=PAY-ROLL,NOP, !  
lineC: BNR1=PAY-ROLL1,BNR2=PAY-ROLL2,BNR3=FRIDAY,HAS) END
```

NOTE: "lineB" is the first line of the options, referenced in (i), and (ii) above, and "lineC" is the second line referenced in (iii) and (iv). Breaking LPOPTIONS into two lines as the next example will show is NOT ALLOWED and will cause an ERROR.

The following example is an error:

```
line1: EX LU3SODxxxx(unit) luname (LP.ANY) LPOPTIONS=( !  
line2: CO=4,FID=SNEAK,PA=10,DE=50,TR=PAY-ROLL,NOP)
```

.POPTIONS are restricted to two lines only. Exceeding this restriction will cause an error message to be generated and LU3 program terminates.

2.5.3 FILE NAMES WHEN LPOPTIONS ARE USED

File names sent to LU3 program for printing when LPOPTIONS and the autospooler have been specified have the following format : LU3xxxxNii , where xxxx is the process id of the LU3 program and ii is a number from 1 to 99 which uniquely identifies the file received from the remote host. Therefore if the process id is 25.08 the first file received will have the name LU32508N1, the eleventh file received will be LU32508N11, and the 100th file received will once again be LU32508N1 since after 99 the unique file identifier is reset back to one. When autospooling the file name can be displayed by the ITX SCL command "DI SP " (the PFID field will contain the file name), and the file name is printed on the banner page.

2.5.4 WARNING MESSAGES WHEN LPOPTIONS ARE USED

This section describes the specific warning messages which notify the user of a possible problem when LPOPTIONS are used.

When the "PA" option is specified, only a few pages of the file may be printed. In this case a WARNING is sent to the console and to the log file. This warning should be ignored if it was the user's intent to print only part of the file.

WARNING FILE=LU3xxxxNii NOT PRINTED COMPLETELY

LU3 only allows a maximum of 130 characters per line. In the event that a line of greater length is encountered, the line will be truncated to the 130th character. A WARNING will be sent to operators console and to the log file for each such line encountered.

WARNING LINE TOO LONG FOR PRINTING IN FILE=LU3xxxxNii

2.5.5 ERROR MESSAGES

The following are error messages which can occur when LPOPTIONS are not specified correctly. All of these errors will cause the program to terminate.

SYNTAX ERROR IN SPECIFYING LPOPTIONS WAS DETECTED.

LPOPTIONS WERE NOT ENTERED CORRECTLY

ERROR:NO OPTION WAS SPECIFIED

UNKNOWN OPTION WAS DETECTED IN:.....

ERROR:OPTION (NS-XXXX) MUST BE USED WITH DISK UNIT ONLY.

ERROR:OPTION (CO-XX) MUST BE USED WHEN AUTOSPOOLING ONLY.

ERROR:OPTION (PA-XXXXXX) MUST BE USED WHEN AUTOSPOOLING ONLY.

ERROR:OPTION (DE-XXX) MUST BE USED WHEN DEVICE IS A PRINTER ONLY.

ERROR:OPTION (NOP) MUST BE USED WHEN AUTOSPOOLING ONLY.

ERROR:OPTION (FID=ccccccccc) MUST BE USED ONLY WHEN AUTOSPOOLING.

ERROR:OPTION (TR=ccccccccc) MUST BE USED WITH PRINTER ONLY.

ERRPR:OPTION (BNR=ccccccccc) MUST BE USED ONLY WHEN AUTOSPOOLING.

ERROR:OPTION(NS) MUST BE A POSITIVE (NONZERO) NUMBER.

ERROR:OPTION(HAS) MUST BE USED ONLY WHEN AUTOSPOOLING.

ERROR:OPTION(CFF)MUST BE USED WITH PRINTER ONLY.

ERROR:NUMBER OF COPIES MUST BE BETWEEN 1 TO 65.

ERROR:OPTION (PA) MUST BE BETWEEN 1 TO 65535.

ERROR:OPTION (DE) MUST BE BETWEEN 1 TO 255.

ERROR:OPTION (FID) MUST BE BETWEEN 1 TO 10 CHARACTERS.

ERROR:OPTION (TR) MUST BE BETWEEN 1 TO 10 CHARACTERS.

ERROR:OPTION(BNR) MUST BE BETWEEN 1 TO 10 CHARACTERS.

The following error messages indicate system level errors encountered when processing the LPOPTIONS functionality. They also result in termination of the LU3 program.

JP_ERR 10 DD_HH:MM:SS LU3PRINTER (DDD,UUU) LIO-ASSIGN.NO-iii

JP_ERR 20 DD_HH:MM:SS LU3PRINTER (DDD,UUU) LIO-OPEN .NO-iii

JP_ERR 30 DD_HH:MM:SS LU3PRINTER (DDD,UUU) LIO-WRITE .NO-iii

JP_ERR 50 DD_HH:MM:SS LU3PRINTER (DDD,UUU) LIO-CLOSE .NO-iii

here DD_HH:MM:SS is the Day.Hour.Minute.second iii is the error number which is returned by the operating system, and DDD is the device on unit number NNNN. The operating system errors (iii) are listed in the last section of this document.

3.0 DEPENDENCIES

The following software is needed for ITX/SNA 3270 DSC with LU3 Printer:

-ITX Operating System (ITX 7.0)

-ITX/SNA DPN Base Software (\$DPNDM)

ITX/SNA 3270 DSC with LU3 Printer require the following hardware configuration:

- An ITX processor.
- An Extended Arithmetic Chip (EAC).
- NCR 7910-0103 terminal (VSTATY1 Release 3.04.00 or later) for DSC.
- ADDS NCR 4920/SNA terminal for DSC.
- Format 10 disk (for multi-section files).
- ITX printer for LU3.

4.0 SOFTWARE PROBLEMS

There are no known software problems at this time.

5.0 DOCUMENTATION

The technical publications in the MIRS library that pertain to the ITX/SNA 3270 DSC with LU3 Printer product are:

RM-0486: ITX/SNA 3270 Data Stream Compatibility (DSC)
D1-1378-A: ITX/SNA 3270 LU3 PRINTER

6.0 INSTALLATION PROCEDURE

6.1 CONTENTS OF THE RELEASE MEDIA

The release media contains the following files:

- 1) DSC3101: 3270 DSC object file
- 2) RUNDSC31: 3270 DSC start up control string
- 3) XDSC31: 3270 DSC start up control string
- 4) LU3SOD0101: start-of-day object file
- 5) LU3EOD0101: end-of-day object file
- 6) STARTLU3: start-of-day control string
- 7) STOPLU3: end-of-day control string
- 8) NDL61: example NDL

6.2 INSTALLING 3270 DSC AND LU3 PRINTER ON YOUR SYSTEM

Following are the steps necessary to move the 3270 DSC product from the release media to your system:

```
AS A DSC3101(DEVICE,UNIT)          [release media]
AS B DSC(DEVICE,UNIT)NE 600 AP      [destination]
MOV A B

AS A XDSC31(DEVICE,UNIT)           [release media]
AS B XDSC(DEVICE,UNIT)NE 400 AP     [destination]
MOV A B

AS A RUNDSC31(DEVICE,UNIT)         [release media]
AS B RUNDSC(DEVICE,UNIT)NE 400 AP   [destination]
MOV A B
```

Consult the installation section of the ITX/SNA 3270 DSC user publication in order to complete the installation procedure.

The following steps are required to move the 3270 LU3 printer product to your system:

```
AS A LU3SOD0101(device,unit)       [release media]
AS B LU3SOD0101(device,unit)NE. 600, AP [destination]
MOV A B

AS A LU3EOD0100(device,unit)       [release media]
AS B LU3EOD0100(device,unit)NE. 400, AP [destination]
MOV A B

AS A STARTLU3(device,unit)         [release media]
AS B STARTLU3(device,unit)NE. AP    [destination]
MOV A B

AS A STOPLU3(device,unit)          [release media]
AS B STOPLU3(device,unit)NE. AP     [destination]
MOV A B
```

To complete the installation you will need to update the START/STOP LU3 control strings. Consult the ITX/SNA 3270 LU3 PRINTER user publication for a complete description of the installation process.

The example NDL from the release media, NDL61. (or equivalent) will also require modification.

6.3 DSC/LU3 INSTALLATION/OPERATION NOTES

- 1) Request leased or dialed access to the IBM host. Both leased and dialed lines will require installation of a modem at the IBM and ITX site. It is important that you verify (prior to installation) that the modems selected are compatible. Leased lines may require special conditioning depending on the line speed and type of modem in use. Consult the modem manufacturer regarding line conditioning.
- 2) Describe your remote configuration to the IBM system programmer. Specifically, the total number of 3270 DSC, LU3, and RJE applications you plan to run (e.g. three 3270 DSC's, one 3270 LU3, and one RJE workstation). Each 3270 DSC terminal, 3270 LU3 Printer, and RJE application will require (or represent) a logical unit (LU) to the IBM host. Make sure the system programmer is aware that the various types of ITX SNA applications exist in the same physical unit (PU). To the IBM host, the ITX processor is the PU (also called a controller). The system programmer will need to code and include NCP/VTAM line, PU, and LU macros for the ITX controller. To ensure compatibility between the IBM and NCR hosts, you should request that the following NCP/VTAM parameters be coded as follows:

```
NCP LINE MACRO: NRZI = NO (synchronous modems)
NRZI = YES (asynchronous modems or modemless operation)
VTAM PU MACRO: MAXDATA = 265
VTAM LU MACRO: BATCH = YES (RJE LU only)
```

- 3) Request the logon information required to access host applications (e.g. CICS, NCCF, TSO, etc.). If you require access to CICS, consult the ITX/SNA 3270 DSC installation document regarding updates the CICS DFHTCT macro.
- 4) If you are not familiar with the operational characteristics of the (DSC 3270) host application you should inquire (at the host site) about available training tutorials and documentation.
- 5) Using the NDL (Network Definition Language) file included on the release media as an example (and the example contained in the installation documents), code the NDL file required for your installation. You will need to obtain the following information from the IBM system programmer in order to complete your NDL:

For RJE only, the name of the IBM Job Entry Subsystem (as known to VTAM) at the IBM site. This name is required for the JES remote correspondent definition. The JES application name is specified in the remote host section of the NDL using the correspondent parameter program. See the RJE PLU (Primary Logical Unit) correspondent in the example NDL included on the distribution media.

The secondary station address (this is the address of the ITX controller as known to the IBM host). The secondary station address is specified at the host site using the VTAM PU macro parameter ADDRESS. The secondary station address is specified in the NDL using the link parameter DLC-ADDR. See the LINK statement in the example NDL included on the distribution media.

The DSC, LU3, and/or RJE logical unit address(es). The logical unit address is specified at the host site using the VTAM LU macro parameter ADDRESS. The logical unit address is specified in the NDL using the correspondent parameter ADDRESS. See the DSC logical unit, LU3 logical unit, and RJE logical unit CORrespondents in the example NDL included on the distribution media.

The DSC, LU3, and/or RJE logical unit name(s). The logical unit name is specified at the host site using the VTAM LU macro (the logical unit name is the identifier which precedes each LU macro). The logical unit name is specified in the NDL using the CORrespondent parameter PROGRAM. See the DSC logical unit, LU3 logical unit, and RJE logical unit correspondents in the example NDL included on the distribution media.

- 6) If you are using a dialed (switched) line, code the following link parameters:
RTS-ON = NO
TWS = NO (half-duplex)
- 7) An SNA dialed line requires that the ITX processor respond to the XID command as part of the SDLC link establishment procedure. The XID response is used to identify the calling PU (the ITX controller) to the IBM host. The XID response is specified at the IBM host using the VTAM PU macro parameters IDBLOCK and IDNUM. To specify the XID response to TAM, code the following LINK parameter:

```
XID = 0200XXXXYYY where XXX is the IDBLOCK, YYYYY is the IDNUM
```

- 8) If you are using a leased (non-switched) line, code the following LINK parameters:
RTS-ON = YES (for point-to-point)
RTS-ON = NO (for multi-drop)
TWS = YES (full-duplex)
- 9) Once you have completed the NDL file that describes your configuration, you will need to compile the NDL file creating an EDF (Environment Definition File). The EDF is the file used by TAM which describes the hardware and software components that comprise your communications environment. Compile the NDL using the STCM command "GO EDI".

- 10) To start TAM and the DPN software use the \$TCM command "GO TAM".
- 11) If you are using a dialed line, dial the host at this time. If you are using a leased line and the host is polling (at the host, your PU should be in a pending connection state), the link should now become active.
- 12) The LU3 correspondent parameter SNA-PRODUCT-ID described in the ITX/SNA 3270 LU3 PRINTER user publication NDL example should be LU2.3270 not LU3.3270.

SNA-PRODUCT-ID = LU2.3270, is correct
- 13) In the START/STOP LU3 control strings there can be no space between LU3SOD0101 or LU3EOD0100 and the unit number.

EX LU3SOD0101(UNIT) luname (LP.ANY) is correct
EX LU3SOD0101 (UNIT) luname (LP.ANY) will cause an error.
- 14) If your ITX system support representative requests a trace of LU3 program activity, include the word "TRACE" in the start control string (STARTLU3).

EX LU3SOD0101(unit) luname (ddd.unit) TRACE

The LU3 trace file is a multi-section file with a section size of 100 sectors. The trace file is named LU3TRnnnn, where nnnn is LU3 printer program process id. The trace file resides on the same disk unit as the LU3 printer program.
- 15) If the LU3 printer program is unable to open the log file (LU3LOGnnn) or the trace file (LU3TRnnnn) one of the following message is displayed on the operator's console:

LU3_92 DD-HH:MM:SS UNABLE TO OPEN THE LOG FILE. THERE WILL BE NO LOGGING
LU3_72 DD-HH:MM:SS UNABLE TO OPEN THE TRACE FILE. THERE WILL BE NO TRACING
- 16) If the LU3 printer program is unable to open the disk print file (LU3TXTnnnn) the following message is displayed on the operator's console:

LU3_97 DD-HH:MM:SS LU3TXTnnnn OPEN ERROR. OSSTAT = TT
- 17) If the LU3 printer program is unable to write to the log (LU3LOGnnnn), the trace (LU3TRnnnn), or disk print (LU3TXTnnnn) file, the file is closed and the following message is displayed on the operator's console:

LU3_98 DD-HH:MM:SS LU3ccnnnn WRITE ERROR. OSSTAT = TT
- 18) If the LU3 printer program is unable to open the physical printer the following message is displayed on the operator's console:

LU3_96 DD-HH:MM:SS LU3 PRINTER ERROR (ddd.uuu), OSSTAT = TT

The LU3 printer program will return a negative response (081C) to the host and no data will be printed.
- 19) If the LU3 printer program is unable to write to the system spool file the following message is displayed on the operator's console:

LU3_98 DD-HH:MM:SS LU3nnnn WRITE ERROR. OSSTAT = TT

The LU3 printer program will return a negative response (081C) to the host and printing will be terminated.
- 20) When printing to a dedicated line printer (DLP) and a printer error occurs (paper jam, out of paper, etc.), the following message is displayed on the system console:

W101 ATTENTION REQUIRED BY (uuu.LP), CANCEL = X
ENTER RESPONSE:

Resolve the error and enter <NL> to retry the write operation. If the error cannot be resolved enter <X> to abort the LU3 printer program.
- 21) In the event of an undetermined processing error or a fatal program error (causing the LU3 process to abort) the user should examine the SYSOUT file associated with the submitted LU3 process. The SYSOUT file contains a record of all displayed/logged LU3 messages. See the SCL SUBMIT command (SPO parameter) description in your ITX Operating System Reference Manual.
- 22) The following LU3 error messages are no longer displayed/logged:

LU3_63 DD-HH:MM:SS WRITE TO FILE FAILED. OSSTAT = TT

LU3_WW DD-HH:MM:SS WARNING. REFER TO THE LU3LOG FILE FOR MORE INFORMATION
LU3_FF DD-HH:MM:SS FATAL ERROR. REFER TO THE LU3LOG FILE MORE INFORMATION

6.4 ITX/SNA 3270 DSC TRANSLATION TABLES

The following national code translations are supported for 4920 operation.

parameter value	national code
0	Standard ASCII
2	Danish/Norwegian
3	Finish/swedish
4	French
5	German
9	Spanish
11	U.K -English

The parameter values associated with these national codes are consistent with the code translation tables for the NCR SNA 3270 LU3 Printer application. The NCR SNA 3270 DSC Display Workstation application is restricted to seven codesets (compared with the 13 for lu3), since ADDS 4920 terminal supports only the following international keyboard layouts:

- Standard ASCII
- France
- Denmark/Norway
- Sweden/Finland
- Germany/Switzerland
- Spain/Portugal
- United Kingdom

The tables within this appendix detail the translation performed by the DSC application for the various country codes. In those cases where an exact character mapping is not possible the standard ASCII hexadecimal mapping is used, and the "substitution" character for the 4920 is listed.

STANDARD ASCII CODE SET (0)					
Printed Character	EBCDIC Code	ASCII Code	Printed Character*	EBCDIC Code	ASCII Code
[	4A	5B	s	A2	73
.	4B	2E	t	A3	74
<	4C	3C	u	A4	75
(	4D	28	v	A5	76
+	4E	2B	w	A6	77
!	4F	21	x	A7	78
&	50	26	y	A8	79
]	5A	5D	z	A9	7A
\$	5B	24	(	C0	7B
*	5C	2A	A	C1	41
)	5D	29	B	C2	42
:	5E	3B	C	C3	43
-	5F	5E	D	C4	44
_	60	2D	E	C5	45
/	61	2F	F	C6	46
|	6A	7C	G	C7	47
.	6B	2C	H	C8	48
*	6C	25	I	C9	49
~	6D	5F	)	D0	7D
>	6E	3E	J	D1	4A
?	6F	3F	K	D2	4B
'	79	60	L	D3	4C
:	7A	3A	M	D4	4D
#	7B	23	N	D5	4E
@	7C	40	O	D6	4F
'	7D	27	P	D7	50
-	7E	3D	Q	D8	51
-	7F	22	R	D9	52
a	81	61	\	E0	5C
b	82	62	S	E2	53
c	83	63	T	E3	54
d	84	64	U	E4	55
e	85	65	V	E5	56
f	86	66	W	E6	57
g	87	67	X	E7	58
h	88	68	Y	E8	59
i	89	69	Z	E9	5A
j	91	6A	0	F0	30
k	92	6B	1	F1	31
l	93	6C	2	F2	32
m	94	6D	3	F3	33
n	95	6E	4	F4	34
o	96	6F	5	F5	35
p	97	70	6	F6	36
q	98	71	7	F7	37
r	99	72	8	F8	38
-	A1	7E	9	F9	39

EBCDIC code set is International I/O Interface Code.

DANISH/NORWEGIAN CODE SET (2)							
IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code	IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code
#		4A	23	s		A2	73
.		4B	2E	t		A3	74
<		4C	3C	u		A4	75
(		4D	28	v		A5	76
+		4E	2B	w		A6	77
!		4F	21	x		A7	78
@		50	26	y		A8	79
X	A	5A	5D	z		A9	7A
A		5B	5D	æ		C0	7B
*		5C	2A	å		C1	41
)		5D	29	B		C2	42
:		5E	3B	C		C3	43
'		5F	5E	D		C4	44
-		60	2D	E		C5	45
/		61	2F	F		C6	46
ø		6A	7C	G		C7	47
.		6B	2C	H		C8	48
å		6C	25	I		C9	49
		6D	5F	å		D0	7D
>		6E	3E	J		D1	4A
?		6F	3F	K		D2	4B
'		79	60	L		D3	4C
:		7A	3A	M		D4	4D
æ		7B	5B	N		D5	4E
ø		7C	5C	O		D6	4F
'		7D	27	P		D7	50
-		7E	3D	Q		D8	51
'		7F	22	R		D9	52
a		E1	61	\	ø	E0	5C
b		82	62	S		E2	53
c		83	63	T		E3	54
d		84	64	U		E4	55
e		85	65	V		E5	56
f		86	66	W		E6	57
g		87	67	X		E7	58
h		88	68	Y		E8	59
i		89	69	Z		E9	5A
j		91	6A	0		F0	30
k		92	6B	1		F1	31
l		93	6C	2		F2	32
m		94	6D	3		F3	33
n		95	6E	4		F4	34
o		96	6F	5		F5	35
p		97	70	6		F6	36
q		98	71	7		F7	37
r		99	72	8		F8	38
u		A1	7E	9		F9	39

EBCDIC code set is Danish/Norwegian I/O Interface Code.

*Because of variations in national codes and differences in the terminal character sets, not all of the above character symbols can be displayed. The "S" (ASCII hex 24) and the "ø" (ASCII hex 40) characters on the 4920 Denmark/Norway keyboard will be translated to a space (EBCDIC hex 40), since these characters are not represented by the EBCDIC Danish/Norwegian I/O Interface Code set.

FINNISH/SWEDISH CODE SET (3)							
IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code	IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code
\$	Å	4A	5B	s		A2	73
.		4B	2E	t		A3	74
<		4C	3C	u		A4	75
(		4D	28	v		A5	76
+		4E	2B	w		A6	77
!		4F	21	x		A7	78
o		50	26	y		A8	79
e		5A	24	z		A9	7A
Å		5B	5D	ı		C0	7B
*		5C	2A	ä		C1	41
)		5D	29	å		C2	42
:		5E	3B	ä		C3	43
-	0	5F	5E	D		C4	44
-		60	2D	E		C5	45
/		61	2F	F		C6	46
ö		6A	7C	G		C7	47
.		6B	2C	H		C8	48
*		6C	25	I		C9	49
~		6D	5F	Å		D0	7D
˘		6E	3E	J		D1	4A
?		6F	3F	K		D2	4B
é		79	60	L		D3	4C
:		7A	3A	M		D4	4D
Å		7B	5B	N		D5	4E
0		7C	5C	O		D6	4F
.		7D	27	P		D7	50
=		7E	3D	Q		D8	51
"		7F	22	R		D9	52
a		81	61	E		E0	40
b		82	62	S		E2	53
c		83	63	T		E3	54
d		84	64	U		E4	55
e		85	65	V		E5	56
f		86	66	W		E6	57
g		87	67	X		E7	58
h		88	68	Y		E8	59
i		89	69	Z		E9	5A
j		91	6A	0		F0	30
k		92	6B	1		F1	31
l		93	6C	2		F2	32
m		94	6D	3		F3	33
n		95	6E	4		F4	34
o		96	6F	5		F5	35
p		97	70	6		F6	36
q		98	71	7		F7	37
r		99	72	8		F8	38
u		A1	7E	9		F9	39

EBCDIC code set is Finnish/Swedish I/O Interface Code.

*Because of variations in national codes and differences in the terminal character sets, not all of the above character symbols can be displayed. The "#" (ASCII hex 23) character of the 4920 will be translated to a space (EBCDIC hex 40), since this character is not represented by the EBCDIC Finnish/Swedish I/O Interface Code set.

FRENCH CODE SET (4)							
IBM Char.	ADD5* Char.	EBCDIC Code	ASCII Code	IBM Char.	ADD5* Char.	ASCII Code	
.		4A	5B	s		A2	73
,		4B	2E	t		A3	74
<		4C	3C	u		A4	75
(		4D	28	v		A5	76
+		4E	2B	w		A6	77
!		4F	21	x		A7	78
&		50	26	Y		A8	79
\$		5A	5D	z		A9	7A
§		5B	24	é		C0	7B
*		5C	2A	A		C1	41
)		5D	29	B		C2	42
;		5E	3B	C		C3	43
-		5F	5E	D		C4	44
_		60	2D	E		C5	45
/		61	2F	F		C6	46
ù		6A	7C	G		C7	47
,		6B	2C	H		C8	48
*		6C	25	I		C9	49
_		6D	5F	è		D0	7D
>		6E	3E	J		D1	4A
?		6F	3F	K		D2	4B
.		79	60	L		D3	4C
:		7A	3A	M		D4	4D
£		7B	23	N		D5	4E
à		7C	40	O		D6	4F
'		7D	27	P		D7	50
-		7E	3D	Q		D8	51
-		7F	22	R		D9	52
a		81	61	ç		E0	5C
b		82	62	S		E2	53
c		83	63	T		E3	54
d		84	64	U		E4	55
e		85	65	V		E5	56
f		86	66	W		E6	57
g		87	67	X		E7	58
h		88	68	Y		E8	59
i		89	69	Z		E9	5A
j		91	6A	0		F0	30
k		92	6B	1		F1	31
l		93	6C	2		F2	32
m		94	6D	3		F3	33
n		95	6E	4		F4	34
o		96	6F	5		F5	35
p		97	70	6		F6	36
q		98	71	7		F7	37
r		99	72	8		F8	38
..		A1	60	9		F9	39

EBCDIC code set is French I/O Interface Code.

*Because of variations in national codes and differences in the terminal character sets, not all of the above character symbols can be displayed. The "" (ASCII hex 7E) character of the 4920 will be translated to a space (EBCDIC hex 40), since this character is not represented by the EBCDIC French I/O Interface Code set.

GERMAN CODE SET (5)							
IBM Char.	ADDS Char	EBCDIC Code	ASCII Code	IBM Char.	ADDS Char.	EBCDIC Code	ASCII Code
À		4A	5B	ä		A2	73
.		4B	2E	t		A3	74
<		4C	3C	u		A4	75
(		4D	28	v		A5	76
+		4E	2B	w		A6	77
!		4F	21	x		A7	78
ä		50	26	y		A8	79
0		5A	5D	z		A9	7A
š		5B	24	š		C0	7B
*		5C	2A	A		C1	41
)		5D	29	B		C2	42
:		5E	3B	C		C3	43
-		5F	5E	D		C4	44
-		60	2D	E		C5	45
/		61	2F	F		C6	46
ö		6A	7C	G		C7	47
.		6B	2C	H		C8	48
*		6C	25	I		C9	49
ü		6D	5F	ü		D0	7D
>		6E	3E	J		D1	4A
?		6F	3F	K		D2	4B
.		79	60	L		D3	4C
:		7A	3A	M		D4	4D
#		7B	23	N		D5	4E
š		7C	40	O		D6	4F
'		7D	27	P		D7	50
"		7E	3D	Q		D8	51
"		7F	22	R		D9	52
a		81	61	0		E0	5C
b		82	62	S		E2	53
c		83	63	T		E3	54
d		84	64	U		E4	55
e		85	65	V		E5	56
f		86	66	W		E6	57
g		87	67	X		E7	58
h		88	68	Y		E8	59
i		89	69	Z		E9	5A
j		91	6A	0		F0	30
k		92	6B	1		F1	31
l		93	6C	2		F2	32
m		94	6D	3		F3	33
n		95	6E	4		F4	34
o		96	6F	5		F5	35
p		97	70	6		F6	36
q		98	71	7		F7	37
r		99	72	8		F8	38
B		A1	7E	9		F9	39

EBCDIC code set is Austrian/German I/O Interface Code.

SPANISH CODE SET (9)							
IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code	IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code
[	!	4A	5B	s		A2	73
.		4B	2E	t		A3	74
<		4C	3C	u		A4	75
(		4D	28	v		A5	76
+		4E	2B	w		A6	77
|	!	4F	21	x		A7	78
&		50	26	y		A8	79
]	!	5A	5D	z		A9	7A
\$		5B	24	(		C0	7B
*		5C	2A	A		C1	41
)		5D	29	B		C2	42
:		5E	3B	C		C3	43
-		5F	5E	D		C4	44
/		60	2D	E		C5	45
n		61	2F	F		C6	46
n		6A	7C	G		C7	47
.		6B	2C	H		C8	48
&		6C	25	I		C9	49
>		6D	5F	)	v	D0	7D
?		6E	3E	J		D1	4A
?		6F	3F	K		D2	4B
:		79	60	L		D3	4C
:		7A	3A	M		D4	4D
N		7B	5C	N		D5	4E
e		7C	40	O		D6	4F
'		7D	27	P		D7	50
-		7E	3D	Q		D8	51
-		7F	22	R		D9	52
a		81	61	\	N	E0	5C
b		82	62	S		E2	53
c		83	63	T		E3	54
d		84	64	U		E4	55
e		85	65	V		E5	56
f		86	66	W		E6	57
g		87	67	X		E7	58
h		88	68	Y		E8	59
i		89	69	Z		E9	5A
j		91	6A	0		F0	30
k		92	6B	1		F1	31
l		93	6C	2		F2	32
m		94	6D	3		F3	33
n		95	6E	4		F4	34
o		96	6F	5		F5	35
p		97	70	6		F6	36
q		98	71	7		F7	37
r		99	72	8		F8	38
..	/	A1	7E	9		F9	39

EBCDIC code set is Spanish I/O Interface Code.

*Because of variations in national codes and differences in the terminal character sets, not all of the above character symbols can be displayed. The '#' (ASCII hex 23) character of the 4920 will be translated to a space (EBCDIC hex 40), since this character is not represented by the EBCDIC Spanish I/O Interface Code set.

J.K.- ENGLISH CODE SET (11)						
IBM Char.	ADDS* Char.	EBCDIC Code	ASCII Code	Printed Character*	EBCDIC Code	ASCII Code
\$		4A	24	s	A2	73
.		4B	2E	t	A3	74
<		4C	3C	u	A4	75
(		4D	28	v	A5	76
+		4E	2B	w	A6	77
|	:	4F	21	x	A7	78
&		50	26	y	A8	79
!		5A	21	z	A9	7A
£		5B	23	(	C0	7B
*		5C	2A	A	C1	41
)		5D	29	B	C2	42
:		5E	3B	C	C3	43
]		5F	5E	D	C4	44
-		60	2D	E	C5	45
/		61	2F	F	C6	46
:		6A	7C	G	C7	47
.		6B	2C	H	C8	48
*		6C	25	I	C9	49
>		6D	5F	)	D0	7D
?		6E	3E	J	D1	4A
'		6F	3F	K	D2	4B
:		79	60	L	D3	4C
#		7A	3A	M	D4	4D
e	£	7B	23	N	D5	4E
		7C	40	O	D6	4F
		7D	27	P	D7	50
		7E	3D	Q	D8	51
		7F	22	R	D9	52
a		81	61	\	E0	5C
b		82	62	S	E2	53
c		83	63	T	E3	54
d		84	64	U	E4	55
e		85	65	V	E5	56
f		86	66	W	E6	57
g		87	67	X	E7	58
h		88	68	Y	E8	59
i		89	69	Z	E9	5A
j		91	6A	0	F0	30
k		92	6B	1	F1	31
l		93	6C	2	F2	32
m		94	6D	3	F3	33
n		95	6E	4	F4	34
o		96	6F	5	F5	35
p		97	70	6	F6	36
q		98	71	7	F7	37
r		99	72	8	F8	38
-		A1	7E	9	F9	39

EBCDIC code set is English (U.K.) I/O Interface Code.

*Because of variations in national codes and differences in the terminal character sets, not all of the above character symbols can be displayed. The "[" (ASCII hex 5B) and "]" (ASCII hex 5D) characters of the 4920 will be translated to a space (EBCDIC hex 40), since these characters are not represented by the EBCDIC English (U.K.) I/O Interface Code set.

6.5 ITX/SNA 3270 LU3 PRINTER STATUSES

Following are the 'OSSTAT' (operating system status) error codes returned by the ITX/SNA 3270 LU3 printer program.

another mag tape file open	169	record area too short
bad VLI	170	record not found
blank tape	171	rewind required
boundary condition	172	sequence error
boundary condition warning	173	tape mark
boundary violation	174	time out
clear trailer	175	unclosed files
deadlock	176	unsuccessful I/O
device currently in use		
device not mounted		
directory space exhausted		
duplicate key		
duplicate key warning		
duplicate logical file id		
end of file		
end of page		
end of reel eot		
entry type inaccessible		
file already assigned		
file already exists		
file already open		
file locked		
file not assigned		
file not closed		
file not extendable		
file not found		
file not on tape		
file not opened		
file organization mismatch		
file space unavailable		
illegal access mode		
illegal block size		
illegal buffer length		
illegal class unit number		
illegal device class		
illegal file organization		
illegal generation number		
illegal index key descriptor		
illegal label type		
illegal logical file id		
illegal open mode		
illegal physical file id		
illegal possession		
illegal process id		
illegal record length		
illegal record size		
illegal record type		
illegal relative block number		
illegal request		
illegal terminal page limits		
illegal unit number		
insufficient buffer space		
insufficient memory		
internal error		
invalid directory entry		
invalid directory header		
invalid key		
invalid section label		
master spool file depleted		
memory depleted		
MT file already exists		
new file unopened		
not an ITX file		
non-terminated I/O		
not locked		
permanently downed device		
physical block length error		
printer not available		

6.6 OPERATING SYSTEM STATUSES

Following are the 'OSSTAT' (operating system status) error codes returned by the ITX/SNA 3270 LU3 printer program for messages LU3_54, LU3_55, LU3_56, LU3_57, LU3_58, LU3_59, LU3_60, LU3_61, LU3_62, LU3_69, LU3_70, LU3_71, OP_ERR_10, OP_ERR_20, OP_ERR_30, and OP_ERR_40 :

another mag tape file open	067	link is busy
bad variable length indicator	068	master spool file depleted
tape or cassette blank	069	mcs-disable output failed
file boundary encountered	070	mcs-enable output failed
approaching the end of file	071	en/dis able output rejected
mcs-bsc output timeout	072	mcs message too long
direct io-buffer in the stack	073	mag tape file already exists
clear trailer on cassette	074	new file unopened
mcs-data lost error	075	non itx file
file sector busy(deadlock)	076	mcs-no resource available
mcs-destination disabled	077	number or parameter error
io-device configuration failed	078	mcs-outbound monolog dissolved
non-sharable device in use	079	mcs-output queue size exceeded
device not mounted	080	max input message exceeded
key already exists	081	pending ios
duplicate logical file id	082	permenatly downed device
mcs-encountered break key	083	program not cancellable
encountered reverse interrupt	084	program not found
end of file	085	mcs-previous disable output done
end of reel	086	mcs-previous enable input failed
file already assigned	087	mcs-previous enable output done
file already exists	088	mcs-previous send failed
file already open	089	mcs-previous send successful
file not assigned	090	mcs-previous send uninitiated
file not extendable	091	mcs-previous send voided
file not found	092	printer not available
file not on type	093	program location error
file not open	094	program not defined
file organization mismatch	095	program not enabled
file space unavailable	096	program not replicatable
illegal access mode	097	program specification error
illegal block size	098	record area too short
illegal buffer length	099	record not found
illegal character	100	recovery in progress
illegal class unit number	101	recursion attempted
illegal device class	102	response number already in use
illegal file organization	103	response number not assigned
illegal generation number	104	rewind required
illegal key descriptor	105	message too long
illegal label type	106	error on write to index file
illegal logical file id	107	mcs-source, dest, or Q unknown
illegal open mode	108	subprogram overflow
illegal physical file id	109	tam not running
illegal pointer	110	tape mark encountered
illegal possession	111	text too long
illegal record length	112	mcs-too many sends to host
illegal record size	113	file not closed
illegal record type	114	unexpected system error
illegal relative block number	115	unsuccessful io
illegal request	116	mismatch detected-assign aborted
illegal response number	117	unknown status number
illegal sip release num	118	no available time out
illegal unit number	119	all user switches in use
mcs-inbound monolog dissolved	120	illegal swtich id
mcs-input error	121	lock count exceeded
input timeout	122	retry reqest later
input too large	123	time out
mcs-input transmissionn error	124	switch locked byu other process
insufficient buffer space	125	switch not locked
insufficient memory	126	execution flag is off
integer value out of range	127	enable input terminal done
internal error	128	mcs-bsc eot received on input
invalid directory entry	129	mcs-bsc invalid state for rvi
invalid directory header	130	illegal queue id
invalid partial segment	131	no available queue
invalid password	132	receiving area too small

3 invalid syscon unit no
4 invalid syscon unit no
5 sysout file error
5 pendeing process kill already
7 lilegal process id
3 unkillable process
9 terminal numbers mismatch
0 program alreay preloaded
1 program in use
2 process info not available
3 system access file corrupted
4 mcs-link request rejected
5 emul table are not initialized
5 emulation table not defined
7 illegal program type
3 illegal signal no
9 no main program found
0 no signal handeler found
1 not in main program
2 function name does not exist