

APPLICATION

REVISIONS

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RELEASE INFORMATION, DX10 3270 INTERACTIVE COMMUNICATIONS SOFTWARE (ICS), RELEASE 2.2.0-990

TEXAS INSTRUMENTS  
 INCORPORATED  
 DATA SYSTEMS GROUP

drawing number  
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REV. \*E SHEET 1 OF 30

## SECTION 1

## Hardware Considerations

## 1.1 931 Terminal Configurations

The 931 is a state-of-the-art video display terminal (VDT) that may be used as an ICS station. The 931 VDT can be attached to the TI computer as a local, leased (non-switched), or a dialup (switched) terminal. The 931 VDT can also be configured with an attached printer. The 931 VDT General Description Manual, (part # 2229228-0001) discusses how to configure the 931 for communication with the host computer.

## 1.2 940 Terminal Configurations

If the 940 EVT is included in your DX10 system generation then you must make some changes to the local (940) programmer configuration. The 940 EVT Installation and Operation Manual, (part # 2250368-9701) discusses how to program the 940 configuration. Reconfiguration is required for operation of the Print key with ICS. The options required to operate the 940 EVT as an ICS video station include:

1. SPEED- set speed to match DX10 system generation parameter
2. PARITY- set to ODD
3. DUPLEX- set to FD
4. DEVICE TYPE- see above referenced manual
5. DEV CTRL- set to HOST
6. CHR MODE- set to ECHO\*

All other parameters should be set to their default values.

The 940 EVT can be attached to the TI computer as a local, leased (non-switched), or a dialup (switched) terminal. The 940 EVT can

also be configured with an attached printer. Any 940 configuration can be used with ICS.

### 1.3 Business System Terminal Configurations

If the DX10 system generation is performed on a Business System 300, you must make some changes to the local (Business System Terminal) programmer configuration. The Business System 300 Operators Guide, (part # 2533318-9701) discusses how to program the Business System terminal configuration. Reconfiguration is required for operation of the Print key with ICS. The options required to operate the Business Systems terminal as an ICS station include;

1. SPEED- set speed to match DX10 system generation parameter
2. PARITY- set to ODD
3. DUPLEX- set to FD
4. DEVICE TYPE- see above referenced manual
5. DEV CTRL- set to HOST
6. CHR MODE- set to ECHO\*

All other parameters should be set to their default values.

The Business Systems terminal can be attached to the Business System 300 computer as a local, leased (non-switched), or a dialup (switched) terminal using the asynchronous communications port. The ICS communications line uses the synchronous communications port. The Business System 300 can also be configured with an attached printer.

During the ICS installation process there may be problems pertaining to lack of disk space to write files. Most of these problems can be prevented by carefully examining the contents of the system disk on the Business System 300 computer before installation and moving any files that are not required in the system generation and ICS installation processes to another media. After moving the files to another media delete them from the system disk. If the system disk is too fragmented it may be necessary to compress the space on the system disk before beginning the installation process.

If you receive the 3270 ICS Object Installation media on a 8 " floppy you must copy this to another type media of larger capacity before attempting to install the 3270 ICS software.

#### 1.4 Four Channel Communications Controller Considerations

Users who are running 3270 ICS and some other communications package on the same Four Channel Communications Controller (FCCC) or CP503 will want to use channel 0 of the FCCC for 3270. This provides somewhat better system performance than the other combinations.

FCCC boards used for 3270 must be revision level 'P' or later. Earlier revision levels will cause the Communications Download utility to report 'OS error >26'. Error 26 can also occur if repeated downloads are attempted, as may error >29 (out of memory).

#### 1.5 Download 3270 ICS Bisync Character Detect

All releases of the FCCC (CP503) and BCAIM (CP501) or (CP502) communication interface boards require downloading of the 3270 bisync character detect routines. This step should be performed during system IPL in the IS command procedure as documented in the DX10 3270 ICS Object Installation Guide, (part # 2250942-9701\*D).

#### 1.6 DX10 COMMUNICATION SUBSYSTEM CONSIDERATIONS

The subjects that are discussed in this section are special features or considerations that may be important for the proper installation and operation of the communication products. These considerations revolve around the inherent characteristics of the operating system, the communications software, and the communications firmware and hardware.

1.6.1 TI 990 INTERFACE MODULES. The supported communication controllers are BCAIM, COMIF, X.21 BCAIM, and FCCC for the communications on the 990/10 or 990/12. The Communications interface used by the S300 is called the ALPHA or CI421 port. The S300 does not support any other communications interface.

1.6.1.1 ALPHA (CI421): S300 COMM OPTION MODULE. The ALPHA port is the 9903 port of the CI421 communication module. When used it must be genned at CRU address >0B00 with an interrupt of three (3). To connect a modem or modem eliminator to the ALPHA port, use the EIA connector on the back of the S300 labeled 'COMM'. The CI421 module also has a 9902 port, which is asynchronous and is not supported by this communications package. Since the S300 can have at most one ALPHA port, only one synchronous communication package can be supported in a single system generation. For a detailed description of the board, refer to the BUSINESS SYSTEM 300 SYSTEMS DESCRIPTION MANUAL (Part Number 2533308-9701). The interrupt level for the comm option board is three (3) and the CRU address is >0B00. Note that there is no internal ACU interface for this communications port. Some limited auto-call support is available with the DX10 3780/2780 Emulator package.

1.6.1.2 COMIF (CI401): COMMUNICATIONS INTERFACE MODULE. The communication function causes more interrupts and the requirement for service response to these interrupts is greater than for other devices normally serviced by the DX10 operating system. For this reason, the choice of interrupt priority for the communications interface module, COMIF (CI401) is important. The basic rule to follow in choosing the communications interrupt priority is to choose the highest priority not in use. The recommended interrupt level for the COMIF module is four (4) at CRU address >0040. For systems without card readers, CRU address >0040 and priority 4 will generally be available and should be utilized. For systems with card readers, the first choice of interrupt priority should be three (3). In any case, the Communications Interface Module should be assigned an interrupt priority logically higher than a floppy diskette controller, which is generally at priority seven (7).

#### NOTE

The higher the interrupt priority, the lower its numerical value (interrupt priority 6 is higher than interrupt priority 15).

USE WITH INTERNAL MODEM. When running with an internal modem, (Part Number 946120-0001, Rev. H or later), the 990 FAMILY COMMUNICATION SYSTEMS FIELD REFERENCE MANUAL, Part Number 2276579-9701, states the COMIF needs to have the clocking switch, S4-1, on the internal modem turned ON. It is not necessary to have the switch ON. For compatibility, the switch should remain in the OFF position for any revision level of an internal modem.

1.6.1.3 FCCC (CP503): FOUR CHANNEL COMMUNICATIONS CONTROLLER. The Four Channel Communications controller, FCCC (CP503) occupies one full slot in the 990 chassis. Refer to the FCCC INSTALLATION AND OPERATION MANUAL (Part Number 2263878-9701) for a detailed description of the board and its appropriate slot position and interrupt level. The recommended interrupt level for the FCCC module is 8 at TILINE address >F900. Note that the TILINE address is switch selected on the FCCC board regardless of which slot it occupies in the chassis.

CORRECT CABLE BETWEEN FCCC AND EXTERNAL MODEM. Use communications interface cable, PN 946117-0001, or -0002 when connecting an FCCC channel to an external modem. Pin 24 may still need to be cut with some external modems, i.e. External 201A.

USE OF INTERNAL MODEM WITH FCCC. When running with an internal modem (Part Number 946120-0001, Rev. H or later), the FCCC should have the clocking switch, S4-1, on the internal modem OFF. If the internal modem is not at revision level H, pin 24 should be cut, disabling the external transmit clock.

FCCC BOARD PROBLEMS. The following are noted problems which may occur when using the FCCC:

- \* The board is broken.
- \* The board has been genned incorrectly.
- \* The interrupt for the board is not enabled.

The FCCC board should be checked to see if it is processing interrupts correctly, thus eliminating a mis-match between the address or interrupt on the board and the system configuration. If problems persist, the FCCC board should be tested using diagnostics.

1.6.1.4 BCAIM (CP501). The Bit-Oriented, Character-Oriented Asynchronous Interface Module, BCAIM (CP501) occupies a half slot in the 990 chassis. Refer to the BCAIM INSTALLATION AND OPERATION MANUAL (Part Number 2263886-9701) for a detailed description of the board and its appropriate slot position and interrupt level. The recommended interrupt level for the BCAIM module is seven (7).

#### NOTE

When ordering the BCAIM Communications Interface kit (2303091-0002), the kit will

include either cable 2303070-0002 or 2303079-0002.

USE OF INTERNAL MODEM WITH BCAIM. When running with an internal modem (Part Number 946120-0001, Rev. H or later), the BCAIM should have clocking switch, S4-1, on the internal modem turned OFF. If the internal modem is not at revision level H, pin 24 should be cut, disabling the external transmit clock.

1.6.1.5 X.21 BCAIM (CP502). The X.21 Bit-Oriented, Character-Oriented Asynchronous Interface Module, X.21 BCAIM (CP502) occupies a half slot in the 990 chassis. Refer to the X.21 BCAIM INSTALLATION AND OPERATION MANUAL (Part Number 2263883-9701) for a detailed description of the board and its appropriate slot position and interrupt level. The recommended interrupt level for the X.21 BCAIM module is seven (7).

#### NOTE

When ordering the X.21 BCAIM Communications Interface kit (2265184-0002), the kit will include either cable 2303070-0002 or 2303079-0002.

USE OF INTERNAL MODEM WITH X.21 BCAIM. When running with an internal modem (Part Number 946120-0001, Rev. H or later), the X.21 BCAIM should have clocking switch, S4-1, on the internal modem turned OFF. If the internal modem is not at revision level H, pin 24 should be cut, disabling the external transmit clock.

1.6.2 SYSTEMS USING A COMBINATION OF 990 INTERFACE MODULES. In 990 systems where a combination of the above boards are present, the COMIF should occupy the highest interrupt level of the three, the BCAIM/X.21 BCAIM the second highest, and the FCCC the lowest. In general, the load placed upon the CPU is directly related to the number of interrupts. Interrupt levels, interrupt rates and the number of devices being supported are all factors to be considered when configuring an operating system.

1.6.3 USE WITH BELL 201A, 201B, OR SYNTEK MODEMS. The BELL data set interface kit (Part Number 946104-0002) does not operate properly with the BELL 201A or 201B modem or SYNTEK modems unless the cable (PN 946117-0001) is modified by cutting the wire connected to pin 24 of the male cable connector. Mark the cable to indicate this modification.



## SECTION 2

## ICS Operational Information

## 2.1 Introduction

This section discusses several subjects not included in the DX10 ICS Users Guide, the DX10 DSR Common Communications Guide, and the DX10 3270 ICS Object Installation that may effect the operation of ICS for particular user installations. The section titled Preinstallation Procedures contains information about updating the installation process that must be performed prior to all ICS installations. Topics discussed in other sections are PSC link control streams, XPSC limitations, optional patches, DX10 spooler directory .S\$PRINT, and additional information about generating object media from source media and placing object on DSDD, modification of timeouts, modification of log messages and terminal messages, and modification of the EBCDIC/ASCII translation tables.

## 2.2 Operating System Requirements

Systems containing 3270 ICS Release 2.2 must be generated on and run under a DX10 OS Release 3.6 or later.

## 2.3 Preinstallation Procedures

Before beginning the ICS installation process be sure that you have received all the current patch files and release information documentation. One of the patch files you should receive has a pathname called <patch volume name>.DX03270.PPR3270. When you receive this file replace the old file, accessed using the pathname, DX03270.DXCM0.D3270.P.PPR3270, with the new file. This file contains fixes for command procedures, link streams, and any other types of problems that must be fixed prior to attempting the installation process. These fixes are applied to the installation process by executing the procedure ICC as described in the DX10 3270 ICS Object Installation Guide.

## 2.4 PASCAL LINK CONTROL FILE FOR PSC

The PSC object library size has increased in size from 15 to 27 making use of aliases for automatic symbol resolution. This means that if the PSC object library is included in the link control stream, the link editor will include only those modules required for the user written PSC program. The pre-linked PSC subroutine module IC\$OPN is now an alias so a specific include on this module only, without using the PSC object library, will NOT resolve references to the other runtime routines. In order to link a Pascal program with the PSC subroutines, one of the two following methods can be used:

With automatic symbol resolution:

```

FORMAT IMAGE,REPLACE,3           ;PRIORITY MUST MATCH ICSPSC
LIBRARY .TIP.OBJ                 ;TIP OBJECT MUST BE FIRST
LIBRARY DX03270.OBJ             ;DX03270 MUST BE LAST
TASK IPSC                        ;USER'S TASK NAME
INCLUDE (MAIN)                   ;TIP MODULE
INCLUDE TIMIX.IPSC.IPSCOBJ       ;USER'S OBJECT MODULE
END

```

Without automatic symbol resolution:

```

FORMAT IMAGE,REPLACE,3           ;PRIORITY MUST MATCH ICSPSC
LIBRARY .TIP.OBJ                 ;TIP OBJECT MUST BE FIRST
TASK IPSC                        ;USER'S TASK NAME
INCLUDE (MAIN)                   ;TIP MODULE
INCLUDE TIMIX.IPSC.IPSCOBJ       ;USER'S OBJECT MODULE
INCLUDE DX03270.OBJ.PSCPAT       ;PSC PATCH MODULE
INCLUDE DX03270.OBJ.IFSOPN       ;FORTRAN/Pascal INTERFACE
INCLUDE DX03270.OBJ.ICSOPN       ;ICS PSC OPEN ROUTINE
INCLUDE DX03270.OBJ.ICSFIL       ;ICS PSC FILL ROUTINE
INCLUDE DX03270.OBJ.ICSGET       ;ICS PSC GET ROUTINE
INCLUDE DX03270.OBJ.ICSXMT       ;ICS PSC TRANSMIT ROUTINE
INCLUDE DX03270.OBJ.ICSATR       ;ICS PSC RETREIVE ATTRIBUTES ROUTIN
INCLUDE DX03270.OBJ.ICSCLS       ;ICS PSC CLOSE ROUTINE
INCLUDE DX03270.OBJ.ICSTMO       ;ICS PSC TIME-OUT ROUTINE
INCLUDE DX03270.OBJ.IPCSUB       ;ICS IPC ROUTINES
INCLUDE DX03270.OBJ.THCBAS       ;ICS PSC TASK VARIABLES
INCLUDE DX03270.OBJ.THCONS       ;ICS PSC TASK CONSTANTS
END

```

## 2.5 COBOL Link Control file for PSC

In order to link a COBOL program with the PSC subroutines, one of the two following methods can be used:

With automatic symbol resolution:

```

FORMAT IMAGE,REPLACE,3                ;PRIORITY 3
PROC COBOLRTM
INCLUDE .S$SYSLIB.RCBPRC                ;COBOL INTERPRETER
TASK TNEWS
INCLUDE .S$SYSLIB.RCBTSK                ;COBOL
INCLUDE .S$SYSLIB.RCBMPD                ;COBOL
LIBRARY .S$SYSLIB.C$SUBS
LIBRARY DXO3270.OBJ                    ;ICS PSC LIBRARY
INCLUDE USERDISK.USER.OBJ.PROGRAM      ;USER'S OBJECT MODULE
END

```

Without automatic symbol resolution:

```

FORMAT IMAGE,REPLACE,3
PROC COBOLRTM
INCL .S$SYSLIB.RCBPRC                    ;COBOL INTERPRETER
TASK TNEWS
INCL .S$SYSLIB.RCBTSK                    ;COBOL
INCL .S$SYSLIB.RCBMPD                    ;COBOL
LIBRARY .S$SYSLIB.C$SUBS
INCL USERDISK.USER.OBJ.PROGRAM          ;USER'S OBJECT MODULE
INCLUDE DXO3270.OBJ.PSCPAT                ;PSC PATCH MODULE
INCLUDE DXO3270.OBJ.IC$OPN                ;COBOL/Assembly INTERFACE
INCLUDE DXO3270.OBJ.ICSOPN                ;ICS PSC OPEN ROUTINE
INCLUDE DXO3270.OBJ.ICSFIL                ;ICS PSC FILL ROUTINE
INCLUDE DXO3270.OBJ.ICSGET                ;ICS PSC GET ROUTINE
INCLUDE DXO3270.OBJ.ICSXMT                ;ICS PSC TRANSMIT ROUTINE
INCLUDE DXO3270.OBJ.ICSATR                ;ICS PSC RETREIVE ATTRIBUTES ROUTIN
INCLUDE DXO3270.OBJ.IC$CLS                ;ICS PSC CLOSE ROUTINE
INCLUDE DXO3270.OBJ.IC$TMO                ;ICS PSC TIME-OUT ROUTINE
INCLUDE DXO3270.OBJ.IPC$SUB                ;ICS IPC ROUTINES
INCLUDE DXO3270.OBJ.THCBAS                ;ICS PSC TASK VARIABLES
INCLUDE DXO3270.OBJ.THCONS                ;ICS PSC TASK CONSTANTS
END

```

## 2.6 XPSC Limitations

PSC user tasks that are activated using the XPSC command procedure will not have access to synonyms, the DX10 terminal local file, or parameters that are usually passed in the PARMS

argument of the SCI .BID statement of the language task activation procedures for the languages supported by ICS. These procedures include XT, XCT, XFT, and XPT. This information is not available, because with XPSC, the ICS PSC emulator bids the user task as a background task with no associated station. This limitation should be considered when writing tasks in COBOL, which requires passing some runtime information before activating the task. In other words, do not activate your COBOL PSC application using XPSC. This also means that COBOL PSC applications are unable to use the PSC Open call with the 'do not activate' option and the PSC Close call with the 'do not terminate' option. This limitation does not prohibit using COBOL or any other PSC supported language but only limits the method in which the user task is activated.

## 2.7 OPTIONAL PATCHES

Occasionally problems might be encountered with a particular host application or host system. For these special instances a patch is released but the modification process is disabled by commenting out the patch. If, after reading the description of the 'optional patch', you decide that your site requirements will be satisfied by applying the patch then remove the asterisks by text editing the file before running the process that applies the changes.

Presently there is only one patch, located on the 3270 ICS task patch file DX03270.PAT.TSK3270, which is an optional patch. Patch #2247, enables host sensitive applications to retain embedded null characters rather than have ICS translate the embedded null character to blanks before transmitting the modified field.

## 2.8 LISTING DIRECTORY

The listing directory used during ICS DSR installation and patching must have at least five available entries. System directories, such as DXCMO and .SS\$SYSGEN, are not recommended choices for the listing directory.

If you are installing ICS on a Business System 300 do not assign the listing directory for the BET (Build Emulator Task) or IDC (Install Communication DSR Commands) command procedures to the floppy diskette object media.

## 2.9 DX10 SPOOLER

Before using the DX10 spooler as the ICS OUTPUT PATHNAME or PRINT KEY PATHNAME be sure that the directory .S\$PRINT has been created.

## 2.10 MODIFICATION TO ICS XICP AND XICC TIMEOUTS

The ICS printer task is installed with a variable timeout which is used when the printer emulator task is unable to direct the output to the OUTPUT PATHNAME prompt value in the XICP command procedure. The default value for timeout of printer devices assigned during DX10 system generation is 30 seconds. ICS uses the sysgen'ed value together with the value of the last (fifth) parameter of the PARMS list in the XICP command procedure as a retry count. The installed value is 3 for this parameter. If the DX10 device timeout for a printer is 30 seconds and the last (fifth) parameter has a value of 3 then the ICS printer device timeout is 30 minutes, which can be computed as follows:

$$30 \text{ seconds} \times 3 \text{ (parm 5)} \times 20 \text{ (constant)} = 1800 \text{ sec (or 30 min)}$$

After the timeout expires the ICS printer emulator will write the current page to the local format file, if installed, write a message to the system log, and then terminate. The printer may become inoperable because of out-of-paper or off-line conditions. Once the printer becomes operational the page that was saved on the local format file can be printed by activating the ICS printer emulator at the device address reserved for the printer that was previously terminated. If ICS has not been installed with local format then the current page will be lost. To change the timeout value, text edit the XICP command procedure and enter the desired value in the last(fifth) parameter of the PARMS list.

There is also a timeout value used by the ICS controller task (XICC), measured in 50 millisecond intervals, which is the delay between checking for any read completions, (new data) from the communications line and processed reads by the emulators to be returned to the pool of available reads for a single communications line. The installed value is 40,  $40 \times 50$  milliseconds = 2 seconds. To change the timeout value, text edit the XICC command procedure and enter the desired value in the fifth parameter of the PARMS list.

## 2.11 MODIFY INTERACTIVE COMMUNICATIONS ADDRESS -- MICA

This ICS command procedure is used in conjunction with the ICS XPA (Execute ICS 3270 Poll Analyzer) command procedure to disable or enable address detect on the communications interface boards. Normal operation is to not disable (enable) address detect. This permits the downloaded character detect to pass only the polls and data related to its controller address to the 990 CPU and ignore messages for other poll addresses. MICA alone is not very useful, but with XPA it can permit the operator to see the polls for all control unit addresses on a multidrop line.

## 2.12 MODIFICATIONS TO ICS SYSTEM LOG MESSAGES

There exist source modules that contain the text for the system log messages written by various ICS tasks located on the DX10 3270 ICS Release 2.2 Object Installation media. You may wish to change the text of the message to suit your installation requirements. However, the ICS tasks that reference these modules are dependent on the positions of the variant information, usually self evident by inspection of the message. Consequently, there is little room for changing the text of the message. However, the messages can be changed by observing some of the following rules:

1. Variant information cannot be rearranged (in fact, variant information must appear in the exact character positions in the message text).
2. Messages cannot be added or deleted.
3. Message lengths are fixed.
4. The order in which messages appear in the source file must remain the same. Most messages are shorter than one line which is evident by the blanks padded at the end. This may be an area for editing, as well as the text already displayed.

The modules are located on the emulator object media (DX03270) under the directory .SRC; the file names are:

CTLMSG	(XICC system log messages)
PRTMSG	(XICP system log messages)

## PSCMSG (XPSC system log messages)

To make changes perform the following steps:

1. Install the ICS emulator object medium (DX03270).
2. Text edit the appropriate file with desired changes.
3. Execute the 990 Assembler using the text edited file as as the SOURCE ACCESS NAME, DX03270.OBJ.<message file name> as the OBJECT ACCESS NAME, and assign the LISTING ACCESS NAME to a pathname of your choice.
4. If there are no errors in the assembly process, repeat steps 1 thru 3 for any other modules that require changes.
5. Reinstall the ICS tasks by following the procedures discussed in the section of this document Reinstalling ICS 3270 at a Later Date.

## 2.13 MODIFICATIONS TO ICS TERMINAL MESSAGES

There exist source modules that contain the text for ICS messages that are written to the operators terminal that can be changed to meet the requirements of a particular installation. These modules are located on the ICS object installation media (DX03270) under the .SRC directory. The modules of interest to the user are:

MM\$I30	(XICC,XICP,XPSC,MCUA terminal messages)
MM\$I31	(LICC terminal messages)
MM\$I32	(MICC terminal messages)
MM\$I33	(XICT terminal messages)
MM\$I34	(LICS terminal messages)
MM\$I35	(QICT terminal messages)
MM\$I36	(MICA terminal messages)

No messages can be added or removed from the message files, but the content of the text can be rearranged, lengthened, or shortened by observing the following restrictions. You will observe by inspecting these files that there are several statements that begin with MSGENT or MSG and TEXT that identify each message. It is important that the messages remain in the order they originally appear. The text follows the MSGENT or MSG, and TEXT combinations is the message text that is written to your terminal. Within this text may be one or more variants

identified by ?n, where n, an integer, represents a particular variant. It is in this position of the message that the actual value of the variant is substituted by a subroutine included in the ICS task. Messages can be altered to suit your requirements by text editing these lines, reassembling the modules, and reinstalling the ICS tasks using the same instructions described under Modifications to ICS System Log Messages.

Example of change to message in MM\$I32:

```
Original Message:  '*MICC- ERROR ?1 IN ACCESS TO PARAMETER ?2'
Displayed as:      '*MICC- ERROR 901B IN ACCESS TO PARAMETER 5'

New Message:      '*MICC- PARMS # ?2, SCI ERROR: ?1'
Displayed as:      '*MICC- PARMS # 5, SCI ERROR: 901B'
```

The same variant information associated with ?1 and ?2 in the original message appears in the new message but in a different order and with different textual information. Follow the same steps outlined in the discussion Modifications to ICS System Log Messages to install the changes.

#### 2.14 MODIFICATION TO EBCDIC/ASCII TRANSLATION TABLES

It may be necessary to change the character translation tables, particularly for non-domestic users. On the DX10 3270 ICS Release 2.2 Object Installation media there is a source file, DX03270.SRC.XLATEUS that contains the tables used in the translation process. Make the necessary modifications to one or both tables by text editing this file. Be sure to preserve the original copy of this file in case you need to refer to it. Then follow the procedures discussed in the section of this document titled Reinstalling 3270 ICS at a later date.

#### 2.15 BUILDING OBJECT MEDIA ON DSDD FROM SOURCE MEDIA

When executing the batch stream DXS3270.BAT.DSDD you may encounter an error reported in the batch listing concerning attempts to exclude copying files from the media which the object was originally generated to the floppy diskette. The user should ignore this error because during the source installation batch stream these temporary files were deleted. The document referred to is the DX10 3270 ICS Source Installation Guide, (part no. 2250946-9701\*D).



## SECTION 3

## Reinstalling 3270 ICS at a Later Date

There may be reasons for having to reinstall 3270 ICS that may require execution of only parts of the installation process, thereby saving considerable time. These reasons are listed below:

1. Increase the receive buffer pool size
2. Add or remove the local format feature
3. Change the initial printer pathname for any of the terminal addresses.
4. Alter the EBCDIC/ASCII and ASCII/EBCDIC translation tables
5. Modify the ICS Terminal Messages or ICS System Log Messages.

If you need to update the current ICS configuration for any of the above reasons then reinstalling the ICS tasks is all that is required. Follow the instructions in Section 4 (Installing the 3270 ICS Tasks) of the DX10 3270 ICS Object Installation Guide, (part no. 2250942-9701\*D). When the reinstallation is complete, without errors, it will be necessary to IPL the TARGET SYSTEM (if it is currently loaded in memory).

There may also be reasons for reinstallation of 3270 ICS in which installing the 3270 ICS tasks can be omitted but all other steps must be followed:

1. Changes to RTS/915 configuration
2. Changes to other communications packages
3. Changes to the system configuration which do not include adding or deleting a 3270 ICS communications device(s), or cause a change to the 3270 ICS communication device name(s).

If you need to update the current system for any of the above reasons then follow all the steps in the DX10 3270 ICS Object Installation Guide and the DX10 Common Communications DSR Object Installation but omit the steps describing the 3270 ICS task installation.

Any other reason for reinstallation such as adding another ICS communications line, changing the ICS communications line name, or adding terminal addresses to an existing ICS communications line will require reexecuting the complete installation process.

## SECTION 4

## ICS Directories and Files Located on the Target System

There are a several directories and files that are generated during ICS installation that must be present when running ICS. The following discussion is only intended to identify these.

All ICS procedures are located in the .S\$PROC directory. These include:

- \* XICC
- \* XICP
- \* XICT
- \* XPSC
- \* XPA
- \* MCUA
- \* MICC
- \* MICA
- \* LICC
- \* LICS
- \* QICT
- \* M\$ICS

The local format directory is located on the .S\$ICS directory and has file names of the form .CMnnTMy where CMnn represents the ICS communication line and yy is the two character decimal representation for the terminal address. The total number of entries generated is at least equal to the sum of the number of all the terminals on all the ICS communications lines.

The ICS controller task (bid by XICC) and the XPA procedure use the directory named .S\$ICSDMP. Filenames for the controller task are of the form CMnn and filenames for XPA are of the form .TMP and .XPACMnn, where CMnn represents the ICS communication line. The controller task uses the file to dump pertinent information if it terminates abnormally. XPA procedure uses files to temporarily store intermediate results (poll samples).

All the ICS tasks are installed on the .S\$COMMPF program file.

The ICS memory resident procedure is installed as procedure >Fl on the .S\$PROGA program file and is shared by all the ICS tasks.

If your ICS communications device is an FCCC (CP503), BCAIM (CP501), or X.21 BCAIM (CP502), then the directory .S\$COMM must be present. It will have a program file .S\$COMMPF which contains the download utilities, download character detect, and any download patch modules. There will also be a number of CONTROL FILES present under .S\$COMM, which are input to the download process. The download utility command procedures are located on the .S\$PROC command library. These include: CDL(Comm Download); CLM(Comm List Memory); CMM(Comm Modify Memory); and CRMS(Comm Read Reserved Memory Status).

## SECTION 5

## Interactive Programmed Station Control Utility

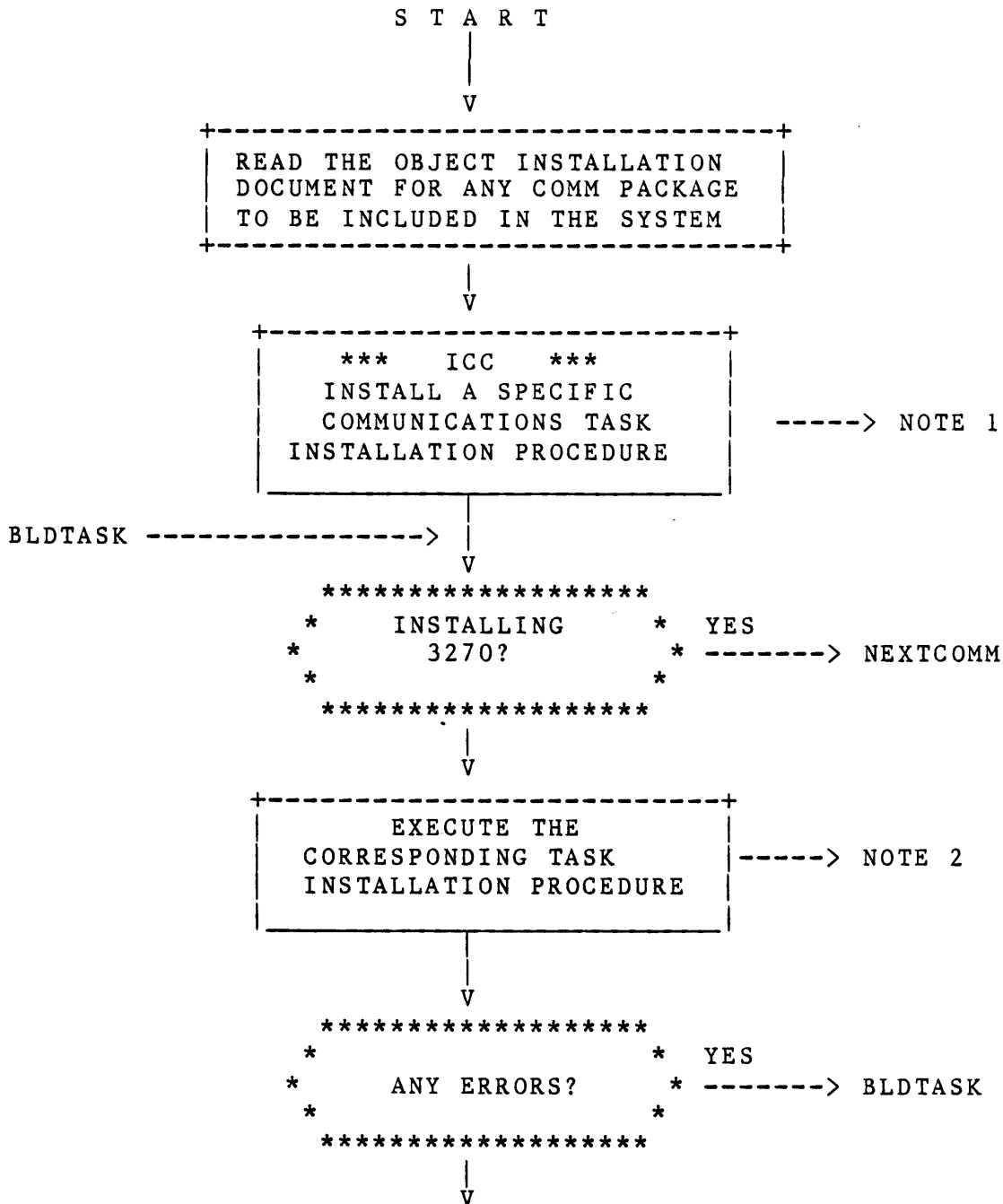
A utility program is available from TIMIX, the TI user's group, called Interactive Programmed Station Control (IPSC), which is very useful in developing PSC applications. It is a menu-driven application that allows you to call any of the PSC subroutines with parameters that are specified interactively, and to visually inspect the results. It is highly recommended for both experienced and inexperienced PSC programmers.

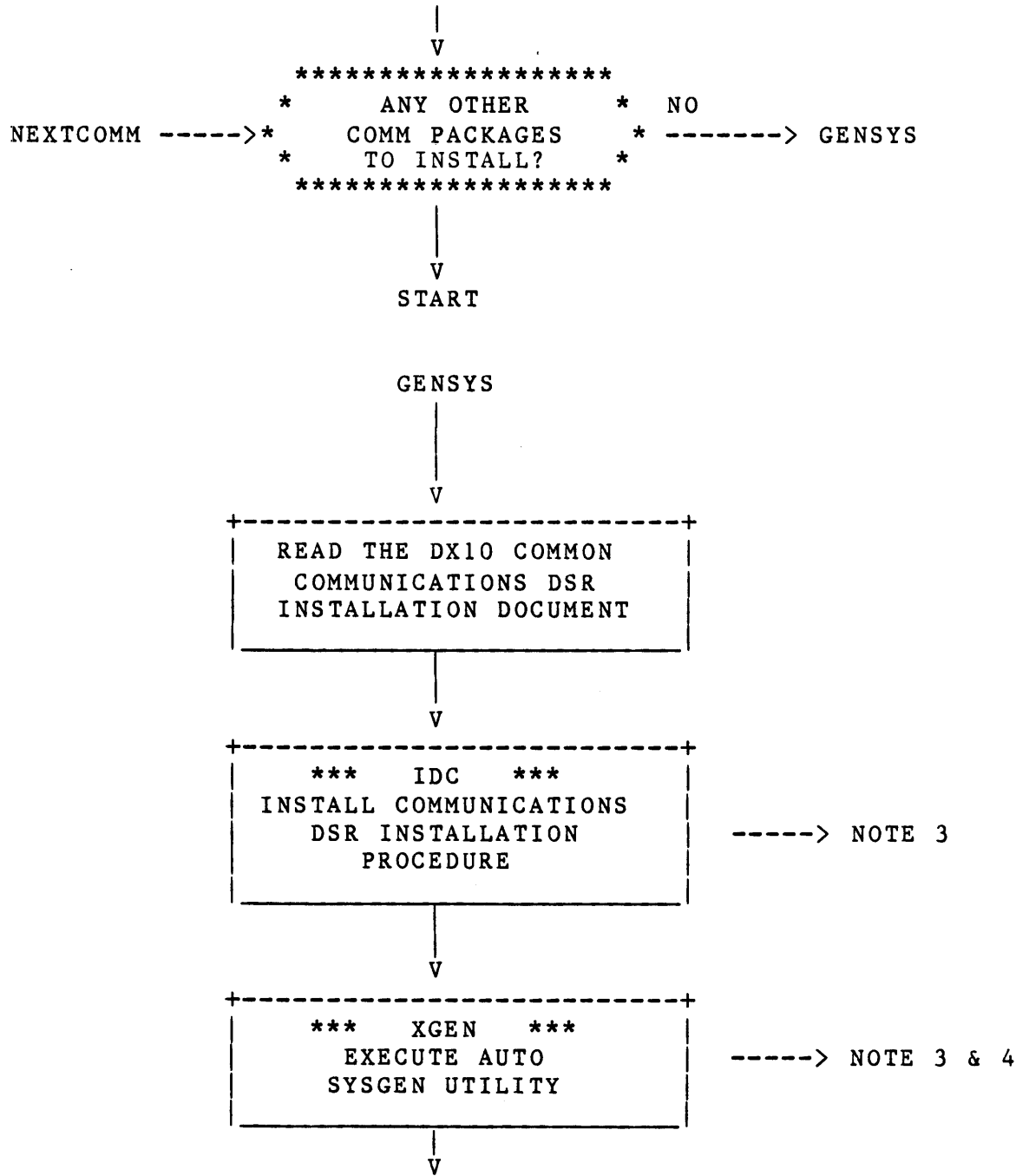
SECTION 6

Flowchart for Generating a System with Communications Support

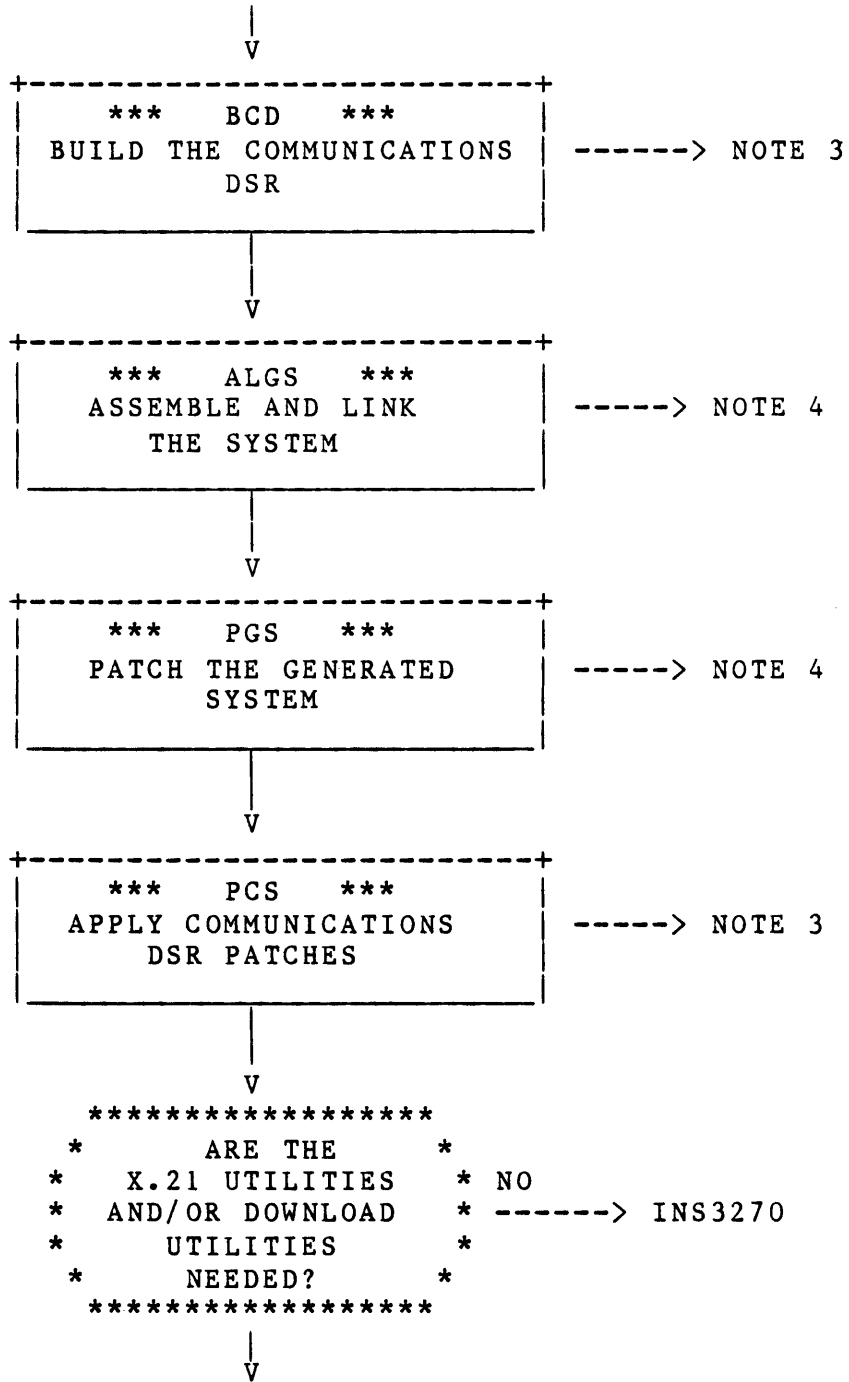
The following flowchart serves to outline the steps described in the DX10 Common Communications DSR Object Installation Guide and supporting DX10 communications packages installation guides and can be used as a guide to aid in completion of the installation support for one or more communications packages.

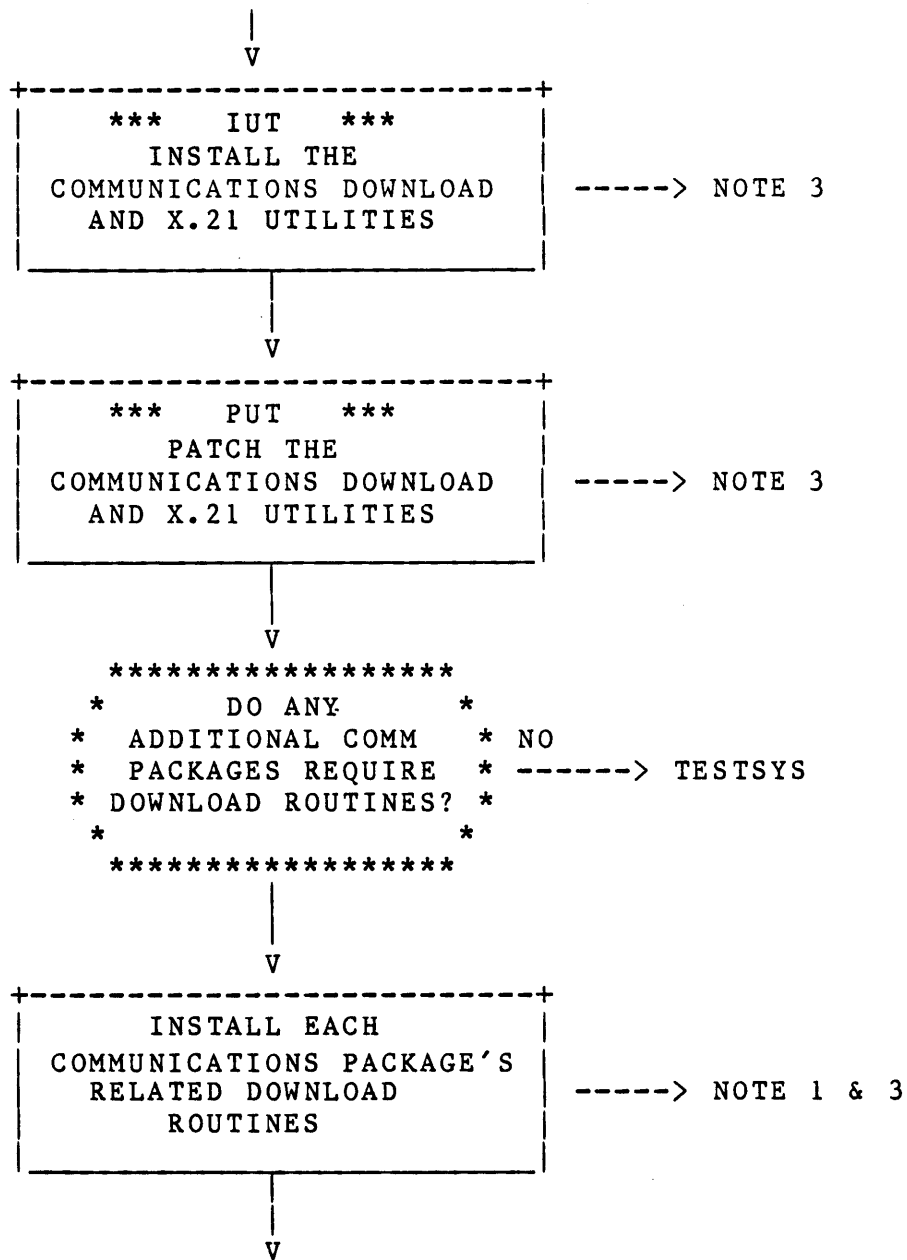
GENERATE A SYSTEM WITH COMMUNICATIONS SUPPORT

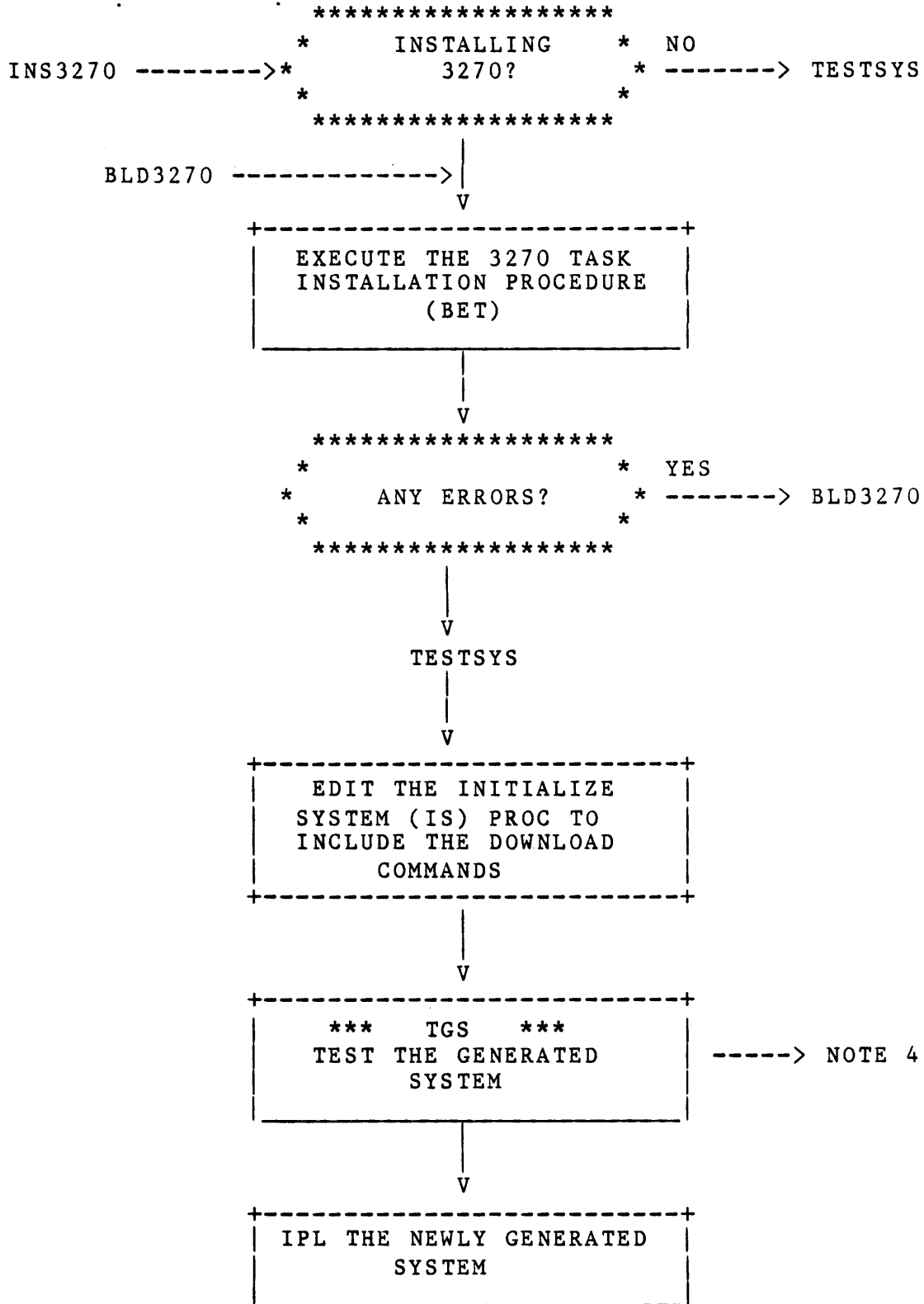












NOTES:

1. Refer to the corresponding installation guide for each comm package being installed.
2. Some communication packages may execute their task installation procedures at a different step during the system generation process.
3. Refer to the DX10 Common Communications DSR Object Installation Guide (part no. 2302696-9701).
4. Refer to the DX10 Operating System Systems Programming Guide Volume V (part no. 946250-9705).

## SECTION 7

## Outstanding Problems

## 7.1 3270 ICS OUTSTANDING PROBLEMS

Currently there are no known problems with the 3270 DSR. There are some problems with the PSC emulator related to timing. When a user task performs a rapid series of PSC opens and closes, the emulator may abort and the user task may receive an FF PSC error code.

## 7.2 DX10 COMMUNICATION SUBSYSTEM PROBLEMS

Problems described here affect the Communication subsystem. Patches to correct any problems in the subsystem will be furnished in the patch files: DPTCMON, DPTCOMM, and DPTCOMA. These patch files are applied during the Comm DSR generation process when the proc, PCS, is executed.

## NOTE

The Comm DSR patch files must be applied whenever the system is linked even if no changes have been made to any of the Comm DSR's.

7.2.1 SYSTEM HANGS MAY OCCUR WHILE RUNNING 3270. While running 3270 on systems that have memory contention, a system hang may occur. Forced crash shows the global TILINE I/O count (SCB) to be non-zero and an opcode 8 request waiting for end record

processing, (i.e. on the CPDNER end record queue in the comm pdt.) This problem is prevented by patch 3035 in the patch file DPTCOMM.