



SPIN-X/ CENTRAL
Installation Guide
for the Xerox LPS Printer Support Feature
Version 4R5

The SPIN-X Central software provides on-line access to IBM 3211 printer environments from Unisys Series 1100 or 2200 computers via a byte or block multiplexor, or FIPS channel.

This installation guide will help you install the SPIN-X software on your Unisys Series 1100 or 2200 computer.

The following documents are included with the SPIN-X software:

- *SPIN-X Installation Guide.*
- *SPIN-X Reference Guide.*
- *SPIN-X Operator Guide.*

This installation guide assumes the Installation Administrator has access to the following Unisys documents (for EXEC Level 39R3 or higher):

- *Series 2200 Operating System Installation and Configuration Guide (7830 7915-012)*
- *OS2200 Exec System Software Executive Control Language (7830 7949-004)*
- *OS2200 Exec System Software Administrative Reference Manual (7831 0323-007).*

The SPIN-X Central software package provides on-line access to IBM 3211 printer environments from Unisys Series 1100/2200 mainframe computers via a byte or block multiplexor, or FIPS channel. This *Installation Guide* contains information needed to install the SPIN-X software on your Unisys Series 1100/2200 systems.

- The Xerox 9700, 9790, 8700, 8790, 4090, 4050, 4650, 4850 and 4135 Laser Printing Systems (LPS) will be referred to as **Xerox LPS** in this manual.
- The term "IBM 3211 environment" will be used in this document to refer to any device which emulates an IBM 3211 printer. The **Xerox LPS** emulates an IBM 3211 printer for its on-line interface. The term "IBM 3211 environment" is used at some points in this guide to discuss Unisys 1100/2200 to Xerox LPS placement options.

The user should refer to the General Information section of this book for information on differences between this SPIN-X version and previous versions.

1.1 Overview of Installation

The SPIN-X software consists of two sections:

1. The SPIN-X software for the Unisys 1100/2200 -
 - Is located on the SPIN-X Release Tape for the 1100/2200,
 - Is installed using the procedures given in Section 4.1,
 - Performs print queue manipulation,
 - Print file interpretation,
 - Channel program generation, and
 - Error recovery.
2. The SPIN-X code for the Xerox LPS -
 - Is provided on either diskette or tape in Xerox format,
 - Is installed using the procedures given in Section 4.3,
 - Defines the on-line environment for the printer,
 - Contains Xerox PDL and FSL for SPIN-X,
 - Interprets the information sent by the Unisys 1100/2200,

The software for the 1100/2200 is copied from the SPIN-X Release Tape for the 1100/2200 to disk using a Unisys ECL addstream. Once this software has been placed in the appropriate files and your system configuration has been genned to define the printer, SPIN-X may be started with an **ST** console keyin. Section 4.1 describes the installation of the SPIN-X software for the 1100/2200 in detail.

The purpose of the SPIN-X 3 foot bus and tag cable adapter is to overcome a Unisys to IBM environment incompatibility; this incompatibility is explained in Section 4.2.

If you have a Xerox LPS:

- The SPIN-X code for the Xerox LPS must be installed, follow the installation procedures described in Section 4.3.
- The code for the Xerox LPS is copied from either the SPIN-X Release Tape for the Xerox or the Xerox formatted diskette.
- If your printer has a tape drive, then the Xerox code can be copied directly from the Release Tape for the Xerox (which is discussed in Section 4.3.2).
- If your printer does not include a tape drive, but does have a diskette drive, then the Xerox code may be installed from the 5.25 inch floppy diskette provided.
- Note that the code for the 1100/2200 and the SPIN-X bus and tag cable adapter must be completely installed and functional before Hostcopy may be used. (However, the SPIN-X bus and tag cable adapter is not required for printers connected to a FIPS channel.)

Section 5 defines a procedure to follow in order to verify the installation of SPIN-X.

Appendix A provides an installation checklist.

1.2 Restrictions

- The SPIN-X 4R5 software requires Unisys Series 1100/2200 EXEC Level 39R3 or above.
- **For the Xerox 9700/8700 LPS, SPIN-X requires Xerox OSS Version 10 or above.**
- For the Xerox 9790/8790/4050 LPS, SPIN-X requires Xerox OSS Version 2 or above.
- For the Xerox 4090/4650 LPS, SPIN-X requires Xerox OSS Version 3 or above.
- If a daisy-chain is being used to connect from the 1100/2200 to your printer, then the printer must be placed after the last Unisys device in the chain. This restriction is discussed in more detail in Section 4.2. (This restriction does not apply to FIPS channels.)
- The Unisys 061 print controls are currently not supported.

1.3 Update Installation

If an earlier version of SPIN-X is already installed at your site you will want to perform an update installation only. This assumes that your printer is already installed and configured to your system and that your Xerox resident files and Format Definition Program input parameters are already tailored to your site's specifications. All that is needed is to copy the new SPIN-X absolutes from the installation tape and execute the new FDP program using your existing format definitions.

See Section 4.1.1.1 "File Transfer for Update Installation" for instructions on how to use an addstream which copies only those files needed for an update installation. Then refer to Chapter three of the *SPIN-X Reference Manual* which explains how to run the Format Definition Program.

Note that beginning with version 4R3 the Format Definition Program (FDP) has been modified to create and assign all needed files internally and no longer requires an addstream to run it. For sites upgrading to SPIN-X 4R5 from a release prior to 4R1 it should be noted that a different Xerox banner page form and format are used beginning with version 4R1. This is to provide for two new fields on the banner page which are required for input printtape support.

1.4 Technical Support

If you require technical assistance regarding SPIN-X please call the telephone number below between 8:30 A.M. - 5:00 P.M. Eastern Time, Monday-Friday, and request "SPIN-X technical assistance".

(404)-651-4567

(404)-651-4579-FAX

Any regular mail correspondence should be sent to:

SPIN-X Project
Georgia State University
Computer Center
University Plaza
Atlanta, Georgia 30303-3083 USA

For weekday courier delivery use the following address:

SPIN-X Project
Georgia State University
Computer Center
95 Decatur Street
5th Floor
Atlanta, Georgia 30303-3083 USA

For all hours courier delivery use the following address:

SPIN-X Project
Georgia State University
Computer Center
103 Decatur Street
Room G-8
Atlanta, Georgia 30303-3083 USA

Bulletin Board sign up:

(404)-651-2661 @ a BAUD rate between 2400 - 57,600

TERMINAL SETTINGS

- Data length of 8 bits
- NO parity
- 1 stop bit
- no local echo
- ANSI or TTY terminal protocols (ANSI preferred)

The above number is for new user sign ups. A series of prompts is provided for firstname, lastname and password. If time is critical, use the TEMPCLIENT method shown below.

Dial (404)-651-2661 @ a BAUD rate between 2400 - 57,600
Enter TEMPCLIENT to the firstname prompt and hit return
hit return for the lastname prompt
Enter TEMPCLIENT to the password prompt and hit return

2.1 Hardware Requirements

This section explains what physical hardware requirements are necessary for the SPIN-X software.

2.1.1 Processors

The SPIN-X software may be installed on any of the following Unisys Series mainframe computers:

- 1100/60 1100/70 1100/80 1100/90
- 1100/50 (System 11)
- 2200/200 2200/400 2200/600
- 2200/500 2200/900

2.1.2 Printers

This SPIN-X Installation Guide is for use with the following printers:

- Xerox 9700, 9790, 8700, 8790, 4050, 4850, 4650, 4090, or 4135 LPS

2.1.3 Bus and Tag Cables

- For the Unisys 1100 series

Connection is made from the Unisys 1100 through a 48-pin byte or block multiplexor channel (depending on the 1100 processor type) and a standard Unisys 48-pin to 48-pin bus and tag cable to the 3 foot SPIN-X bus and tag cable adapters.

If you are routing through an old-style Channel Transfer Switch (type 2521), use a Unisys 48-pin to 55-pin bus and tag cable from the I/O processor to the CTS and a Unisys cable from the CTS to the 3 foot SPIN-X bus and tag cable adapters.

- For the Unisys 2200 series

Connection is made from the Unisys 2200 through a 48-pin byte multiplexor channel and a standard Unisys 48-pin to 48-pin bus and tag cable to the 3 foot SPIN-X bus and tag cable adapters.

2.1.4 Storage

The minimum main storage requirements for the SPIN-X software on the 1100/2200 are as follows:

IBANK + DBANK + PCT size = 132K words.

The above figure reflects the main storage necessary to control one printer. Add 26K words for each additional printer.

The minimum mass storage requirement for SPIN-X on the 1100/2200 is 250 tracks.

The SPIN-X code for the Xerox requires 45 (Xerox disk) sectors.

2.2 Software Requirements

- SPIN-X requires Unisys Series 1100/2200 EXEC Level 39R3 or above.
- SPIN-X requires any applicable Unisys EXEC PCR(s) from Appendix B.
- The SPIN-X run will have QUOTA requirements depending on the level of QUOTA you currently have configured (refer to Section 2.4 for details).
- SPIN-X requires several security privileges as discussed in the next section.
- SPIN-X 4R4 requires PCIOS to be installed in its common bank form.
- For the Xerox 9790/8790/4050/4135 LPS, SPIN-X requires Xerox OSS 2 or above.
- For the Xerox 9700/8700 LPS, SPIN-X requires Xerox OSS 10 or above.
- For the Xerox 4090/4135/4650 LPS, SPIN-X requires Xerox OSS 10 or above.

2.3 Security Requirements

Because SPIN-X interfaces with the EXEC to perform many of its specialized functions, it requires several security privileges.

If your Unisys 1100/2200 system does not have security configured (SENTRY_CONTROL = FALSE), then the userid under which SPIN-X runs must be the Security Officer's userid.

If your Unisys 1100/2200 has security configured (SENTRY_CONTROL = TRUE), then the userid under which SPIN-X runs must have the ER privilege and operation privileges indicated below.

- Privileged ER:

MODP\$\$ - Modify Privileged State.

Allows SPIN-X to perform ER MODP\$\$ in order to modify its privileged state.

- Privileged operations (if secured):

If SENTRY is being used, then use the indicated privilege mnemonics; if SIMAN is being used, then use the privilege explanation listed at the right of the privilege mnemonic, as shown below:

SSBPC - Bypass Private File Check.

Permits SPIN-X to assign a private file regardless of the projectid or account number under which the file was created.

SSBRWK - Bypass Read/Write Key Check.

Allows SPIN-X to assign a file that is read and/or write protected without specifying the keys on the @ASG control statement.

SSLOGER - Allow EXEC Log Entries.

Permits SPIN-X to make symbiont log entries.

SSADID - Allow Absolute Device-ID Assignment.

Permits SPIN-X to assign symbiont controlled devices.

SSBYCL - Bypass Clearance Level Validation.

Indicates that clearance level enforcement is not in effect for SPIN-X.

SSBAFC - Bypass ACR Evaluation.

Permits SPIN-X to avoid Access Control Record evaluation.

SSCONSOLE - Allow ER KEYIN\$ and Privileged ER COM\$ Functions.

Permits SPIN-X to execute ER KEYIN\$ and ER COM\$ with routing information to be sent to remote consoles with specification of runids for logging of the console messages.

SSSMOQUE - Allow the use of Privileged ER SMOQUE\$ Functions.

Permits SPIN-X to perform the Change Entry function and to use restricted mode bits associated with ER SMOQUE\$.

2.4 Account Number Requirements

The SPIN-X run will have QUOTA requirements depending upon the level of QUOTA you currently have configured. When satisfying the requirements for a certain QUOTA level it is assumed that the requirements for earlier levels have been satisfied. The QUOTA requirements for SPIN-X are described below:

- If QUOTA level 1 is configured, an acceptable account number must be supplied for SPIN-X.
- If QUOTA level 3 is configured, the account number chosen for SPIN-X must be able to exceed the SUA QUOTA limits specified in the basic accounting block.
- If QUOTA level 4 is configured, an appropriate QUOTA set must be assigned to the account number given to SPIN-X, which allows the following:
 - a. Absolute device assignments, and
 - b. Real-time capability of 33

For detailed information on QUOTA, see the *Series 1100/2200 Operating System Installation Reference*.

3

Release Package Contents

This section describes the contents of the release package that you receive. Every package contains a SPIN-X Release Tape for the 1100/2200, a bus and tag cable adapter and documentation. If you have a Xerox 97xx/87xx/4090/4050/4135 LPS then a SPIN-X Release Diskette for the Xerox is included. If you have a Xerox 9700/8700 LPS, then a SPIN-X Release Tape is included instead.

3.1 The SPIN-X Release Tape for the Unisys 1100/2200

The SPIN-X Release Tape for the Unisys 1100/2200 was created at 1600 BPI and contains the following files in "@COPY,G" format:

Type Legend: 1-Symbolic 2-Relocatable 3-Absolute 4-Omnibus 5-Data

File	Contents	Type	Description
1	COPYRIGHT	1	Contains the copyright notification for the SPIN-X code
2	SPIN-X	3	The SPIN-X absolute
	FORMS-DEF	5	The SPIN-X Format Definition File in an internal format
	LOAD/HOST-FILES	1	An addstream which catalogues necessary files and copies the rest of the SPIN-X Release Tape for the 1100/2200
	UPDATE/HOST-FILES	1	An addstream which copies only those files needed for updating SPIN-X to a newer release level on the 1100/2200
3	FDP	1,3	The SPIN-X Format Definition Program absolute
	FDP/TOPRODUCTION	1	An addstream which is used to copy the Format Definition File and its related database files to the production version of these files
	MASMSUBS	1,2	Two MASM routines used by FDP for its processor call line and certain I/O functions
4	FDP-INPUT	1	The input file which was used to generate the Format Definition File and its related database files

Table 3-1 Description of the SPIN-X Release Tape for the 1100/2200 (continued on next page)

File	Contents	Type	Description
5	SRI\$DATABASE	5	A component of the SPIN-X Database
6	SRI\$FLATFILE	5	A component of the SPIN-X Database
7	SPIN-X-RUN\$	1	A symbolic runstream that starts SPIN-X and should be copied to SYSS\$LIBS*RUN\$.SPIN-X
8	SPIN-X	2	The SPIN-X software for the 1100/2200 in a relocatable form
	MAP	1	The collector statements necessary to link user exits
	UXRBANPG	1	An example of a banner page user exit routine
	UXRTRAPG	1	An example of a trailer page user exit routine
	UXRFORSL	1	An example of a format selection user exit routine
	UXRBEGPC	1	An example of a beginning print control user exit routine
	UXRENDPC	1	An example of an ending print control user exit routine
	UXASTAS	1	An example of an ASCII to ASCII translate table
	UXASTEBA	1	An example of an ASCII to EBCDIC translate table
	AED	1,4	The A\$EDIT Packet data structure
	FCT	1,4	The File Control Table data structure
	FDT	1,4	The Format Definition Table data structure
	PCB	1,4	The Printer Control Block data structure
	PCR	1,4	The Printer Control Record data structure
	SQE	1,4	The SMOQUES\$ Entry data structure
	DDT	1,4	The Device Descriptor Table
	LCN	1,4	The Location Counter Equates
	EQUATES	1,4	The SPIN-X Equates
	DEVICES	1,4	The device definitions supported by SPIN-X

Table 3-1 Description of the SPIN-X Release Tape for the 1100/2200 (continued on next page)

File	Contents	Type	Description
9	TRANSLATE/ASCII-EBCDIC	3	A utility program which will translate an ASCII SDF file to an EBCDIC SDF file
	INSTALL/XEROX-FILES	1	An addstream which is used to install the SPIN-X code for the Xerox
	READ/XEROX-FILE	3	A utility program which will read a Xerox formatted file and place it in the Hostcopy format
	TYPE	3	A utility program which is used in various addstreams in order to type to the screen
	CLEANQ	1,3	An unsupported utility program which may be used to clear in-progress bits for SMOQUE entries
	SMOQUETEST	1,3	A utility program which is used to test SMOQUES compatibility relative to SPIN-X
	FILECOPY	1,3	A utility program which is used to download files to the Xerox using the FILE DJDE
10	TESTPRINT	1	A test print file which may be used to verify installation
11	ON1100-JSL/ASCII	1	The SDF source for the corresponding files on the SPIN-X Release Diskette for the Xerox
	P1100-JSL/ASCII	1	The SDF text source for the corresponding PDE files on the SPIN-X Release Diskette for the Xerox
	SP2BNR-JSL/ASCII	1	The SDF text source for the corresponding banner page PDE file on the SPIN-X Release Diskette for the Xerox
	BANNER-FSL/ASCII	1	The SDF text source for the banner page for SPIN-X versions prior to 4R1
	BANNR2-FSL/ASCII	1	The SDF text source for the banner page used with SPIN-X versions 4R1 and up
	GRABAR-FSL/ASCII	1	The SDF text source for the Xerox form overlay used with format LS132G

Table 3-1 Description of the SPIN-X Release Tape for the 1100/2200

3.2 The SPIN-X Release Files for the Xerox LPS

Sites with a floppy diskette drive configured to their Xerox printer should use the 5-1/4" Xerox formatted diskette provided. A complete description of this diskette is given in Table 3-2. The SPIN-X Release Tape for the Xerox LPS will only be included if you have a Xerox LPS with a tape drive. This tape was created at 1600 BPI and is in Xerox format. The files on this tape are the same as those listed in Table 3-2. Listings of these files are provided in Appendix C of this guide.

File	Contents	Description
1	ON1100.JSL	The Xerox Job Source Language for the Job Descriptor Library used to interpret print files
2	P1100.JSL	The Xerox Job Source Language for the Page Descriptor Entries used to interpret print files
3	SP2BNR.JSL	The Xerox Job Source Language for the Page Descriptor Entry used with BANNR2.
4	BANNER.FSL	The Xerox Forms Source Language for the banner page used by versions of SPIN-X prior to 4R1
5	BANNR2.FSL	The Xerox Forms Source Language for the banner page used by SPIN-X versions 4R1 and later.
6	GRABAR.FSL	The Xerox Forms Source Language for the shaded 'gray-bar' overlay form used with format LS132G
7	ENDFIL.END	The Xerox End of Tape file
8	ON1100.JSL	The concatenated single file version of all previously listed Xerox files (provided on tapes only)

Table 3-2 Description of the SPIN-X Release Files for the Xerox LPS

3.3 The Bus and Tag Cable Adapters

Included within the SPIN-X Release Package contents are the 3 foot bus and tag cable adapters, which are needed for the Unisys to IBM 3211 environment interface (see Section 4.2 for information regarding the installation of the bus and tag cable adapters).

3.4 Attachments

The following attachments are included in the SPIN-X Release Package:

- The *SPIN-X Installation Guide* (this document)
- The *SPIN-X Operator's Guide*
- The *SPIN-X Reference Guide*

This section describes the entire installation procedure for SPIN-X in detail. Section 4.1 (the installation of the SPIN-X software for the 1100/2200) and Section 4.2 (the installation of the SPIN-X bus and tag cable adapters) will always be performed. The steps for installing the Xerox LPS software are provided in Section 4.3.

No modifications such as installing SPIN-X user exits should be attempted until Section 5 (Verification of Installation) has been successfully completed.

4.1 SPIN-X Installation on the Unisys 1100/2200

This section explains the procedures necessary for installing SPIN-X on your Unisys Series 1100/2200 computer.

4.1.1 File Transfer from the SPIN-X Release Tape

The following ECL commands will copy the contents of the SPIN-X Release Tape for the Unisys 1100/2200 to disk:

NOTE: If you are performing an update installation see 4.1.1.1 instead.

```
@CAT SYS$PRINTER$*SPIN-X.,///512           .Catalog the file for SPIN-X code
@ASG,A SYS$PRINTER$*SPIN-X.                .Assign the file
@ASG,TJ TAPE.,tape type,reel number,,NORING .Assign the Release Tape
@MOVE TAPE.,1                               .Skip to the 2nd file
@COPY,G TAPE.,SYS$PRINTER$*SPIN-X.         .Copy 1 file
@QUAL qualifier                           .Qualifier for generation versions of file
@ADD,PL SYS$PRINTER$*SPIN-X.LOAD/HOST-FILES
@                                           .Above addstream copies remaining files
@ADD,L *FDP.FDP/TOPRODUCTION
@ . The FDP/TOPRODUCTION addstream creates production database files.
```

The qualifier **SY\$PRINTER\$** will be used by the addstream LOAD/HOST-FILES to catalogue production versions of the SPIN-X files. The "production" versions of the files are those used by the SPIN-X program. This addstream will also create files needed to tailor SPIN-X to your site's current or future requirements. These "next generation" files may be catalogued under any valid qualifier other than SY\$PRINTER\$ by specifying an @QUAL command as shown in the ECL above. We recommend using "SPIN-X" as the qualifier in the @QUAL command above.

The following files are cataloged.

```
*COPYRIGHT
*FDP-INPUT
*FDP
*FONTFILE
*SPIN-X-RUN$
*SRI$DATABASE
*SRI$FLATFILE
*SRO
*TESTPRINT
*UTILITY
*XEROX-FILES
```

4.1.1.1 File Transfer for Update Installation Only

The following ECL commands will copy the contents of the SPIN-X Release Tape needed for an update installation if a previous release of SPIN-X is already installed at your site.

```
@ASG,A SYS$PRINTERS$*SPIN-X.          .Assign the file
@ASG,TJ TAPE., tape type ,reel number,,NORING .Assign the Release Tape
@MOVE TAPE.,1                          .Skip to the 2nd file
@COPY,G TAPE.,SYS$PRINTERS$*SPIN-X.    .Copy 1 file
@QUAL qualifier                        .Qualifier generation versions of files
@ADD,PL SYS$PRINTERS$*SPIN-X.UPDATE/HOST-FILES
@                                       .Copy the files needed for an update installation
```

The qualifier **SY\$PRINTERS\$** must be used for the **SPIN-X** file. A listing of this addstream is shown in Appendix C.

NOTE: Be sure to recompile your FDP-INPUT file using the new @FDP program as described in section 3.4 of the *SPIN-X Reference Guide*.

4.1.2 Configuring the Printer for Exec

This section provides information for configuring the printer to Exec depending upon the 1100/2200 model and System Base level. Section 4.1.3 provides the Exec DEVICE SGS that must be included for both M-Series and C-Series systems.

4.1.2.1 Printer Configuration for C-Series thru SB 5R2

The following example SGS's should be included in the Exec system configuration:

```
NODE IOMODO IS CHBMX AND CONNECTS TO IOPO VIA CHANNEL 0
NODE CULX IS SYMSUB AND CONNECTS TO IOMODO VIA SUB-CHANNEL 6
NODE LX IS SYMDEV AND CONNECTS TO CULX VIA DEVICE-ADDRESS 0
. LX is a Xerox Laser Printing System
TERM CULX BYTEMUX
```

For additional information on configuring devices to the Exec, see the *Unisys Series 1100/2200 System Generation User Guide*.

4.1.2.2 Printer Configuration for C-Series with SB 5R3 or Higher

The following example SGS's should be included in the Exec system configuration:

```
NODE IOMODO IS CHBMX AND CONNECTS TO IOPO VIA CHANNEL 0
NODE CULX IS ARBCU AND CONNECTS TO IOMODO VIA SUB-CHANNEL 6
NODE LX IS ARBDEV AND CONNECTS TO CULX VIA DEVICE-ADDRESS 0
. LX is a Xerox Laser Printing System
TERM CULX BYTEMUX
```

For additional information on configuring devices to the Exec, see the *Unisys Series 1100/2200 System Generation User Guide*.

4.1.2.3 Printer Configuration for M-Series

The NODE SGSs for the printer control unit (formerly SYMSUB) and printer device (formerly SYMDEV) are replaced by arbitrary device configuration declarations via SCMS. The printer control unit "CULX" is type ARB-CU, and the printer device "LX" is type ARB-DEV. For information on configuring the printer as an arbitrary device see *2200 Series Site Configuration Management System Administration Guide, Volume 1*.

4.1.3 DEVICE SGS for Both M-Series and C-Series Systems

The following example DEVICE SGS should be included in the Exec sysgen:

```
DEVICE LX,0,CULX PRINTER, 770 PRI, 00 66,132,6,6,3
```

4.1.4 Example Exec Queues for Both M-Series and C-Series Systems

The following example OUTPUT SGS's correspond to the Formats provided on the Central Release Tape:

```
OUTPUT PR LX
OUTPUT LS132 LX
OUTPUT LS132G LX
OUTPUT LD132 LX
OUTPUT LD132G LX
OUTPUT LD150 LX
OUTPUT PS80 LX
OUTPUT PD80 LX
OUTPUT PS95 LX
OUTPUT PD95 LX
OUTPUT PD106 LX
OUTPUT PD132 LX
OUTPUT PD132T LX
OUTPUT LABELS LX
```

In the future, you may choose to make a print queue your default print queue (for @SYM commands that have no format name specified) by adding the PRINT option to its OUTPUT SGS.

A site may choose to define STATION LOCAL's for prints that require special Operator intervention for printing. An example STATION LOCAL SGS follows:

```
STATION PKEYIN LOCAL
```

Central prints from STATION LOCAL queues only when directed by the Operator via the following keyin:

```
L* LX P PKEYIN
```

The Exec limits the number of OUTPUT queues for a device to 63. To overcome this limitation, up to 63 STATION LOCAL's may be grouped together in a single OUTPUT SGS. The Operator can print from all these STATION LOCAL's in the OUTPUT queue group via the Central L* "P" keyin as shown following:

Example:

```
STATION SPLS1 LOCAL
STATION SPLS2 LOCAL
STATION SPLS3 LOCAL
STATION SPLS4 LOCAL
STATION SPLS5 LOCAL
OUTPUT SPGRP1 SPLS1,SPLS2,SPLS3,SPLS4,SPLS5
```

```
L* LX P SPGRP1
```

See the *Central Operator Guide* for more information on SPIN-X keyins.

4.1.5 Changing the Format Definition File

A processor is provided on the 1100/2200 Release Tape to define the printing environment to SPIN-X; this processor is the Format Definition Program (FDP). FDP accepts keyword oriented commands that define to SPIN-X the devices to be serviced and the "print Formats". A print Format defines for SPIN-X the printing attributes to be used for files obtained from a particular queue. FDP reads its commands from the SDF file named *FDP-INPUT. This file, as supplied from the 1100/2200 Release Tape, defines a single Xerox LPS printer with device mnemonic **LX**, and contains some example print format definitions.

You may need to update the *FDP-INPUT file to specify the printer device mnemonic and the print Formats for your site. The SPIN-X device mnemonic must match the name defined to Exec in Section 4.1.2. A SPIN-X print Format should be defined for each OUTPUT and STATION LOCAL queue defined to the Exec in Section 4.1.2. (Chapter 3 of the SPIN-X *Central Reference Guide* provides information on the FDP Format command.) After updating the file *FDP-INPUT, the FDP program must be executed to compile the commands for output to the Central database. Executing FDP is discussed in section 3.4 of the *Central Reference Guide*.

NOTE: Whenever the Format Definition Program is used to successfully change the SPIN-X configuration, the output files generated must be copied to their corresponding production versions under the SYS\$PRINTER\$ qualifier. The addstream FDP/TOPRODUCTION is provided to copy the newly generated files to the appropriate production files. After this addstream is performed, the SPIN-X program must be brought down (if active) and back up for the changes to take effect. Refer to Chapter 3 of the *SPIN-X Reference Guide* for information about using the Format Definition Program.

4.1.6 Modifying SYSSLIB\$*RUN\$.SPIN-X

The file *SPIN-X-RUN\$.SPIN-X-RUN\$*, which is provided from the SPIN-X Release Tape for the 1100/2200, contains the runstream that will be used when SPIN-X is started from the 1100/2200 console. This element should be copied to **SYSSLIB\$*RUN\$.SPIN-X**. The following modifications should be made to this runstream:

1. As discussed in Section 2.3, SPIN-X requires certain security privileges in order to function properly, therefore an appropriate userid (depending on whether or not your 1100/2200 has extended security configured) must be chosen for SPIN-X to run under. Add this userid and an account number to the **@RUN** statement of the SPIN-X runstream.
2. You may desire to add one or more options to the **@TPF\$.SPIN-X** processor call. The following processor call options are available to control SPIN-X execution:

Option	Description
A	- Use paper from the auxiliary bin for the banner page (Xerox laser printers only).
C	- UCS compatibility. Treats the UCS COBOL margin controls like the ACOB controls, (no blank lines generated).
D	- Display-only message. If the D option is set, then intervention required messages will be display-only and not type and read.
E	- Use SPIN-X ASCII to EBCDIC translation table for Xerox LPS output data. Warning: SPIN-X is not tested with the E option. This option will prevent the proper functioning of graphics printing and file downloading to the Xerox LPS. Therefore, it is recommended that SPIN-X not be utilized with the E option set.
F	- Suppress consecutive page ejects. If the F option is set and there are consecutive top of form requests, only the first request will be honored.
H	- If the H option is set SPIN-X will scan for DJDE commands in the data stream. Any spacing request associated with a DJDE command will be performed. Spacing requests for the image after the DJDE will also be honored. Also, a Xerox DJDE command will not be counted as a line of text. This option is meaningless for TAPE devices. For printing to tape, see the FDP DEVICE statement.
I	- If the I option is set, SPIN-X will ignore the "S" 060 control image. This will suppress the control special forms message.
K	The K option is used in conjunction with the L option below. Using the K option will cause the L option to print out an extra field containing the banner field from the @SYM statement. If this field has not been specified the runid will be printed.
L	- The L option informs SPIN-X to write a one line entry to PRINT\$ after each file is printed. Information in this entry includes the date and time, userid, account, runid, filename, printer, pages printed, and the average number of bytes per page. This information provides an alternative to searching the system logfile to obtain a listing of the files printed. A sample listing of this data is included in Appendix H of the <i>SPIN-X Reference Guide</i> .
M	- For 3800 feature only. Causes vertical bars to be printed on separator pages between print files for easier report separation. This option results in five pages ejecting between reports.
N	- If the N option is set, SPIN-X will never display intervention required messages on the 1100/2200 console.

- O** - Omit the banner page and ignore any banner page user exit.
- P** - If the P option is set, then the NULL-CCW appended to each CCW string will be suppressed. Use with Paradyne equipment to avoid random timeout problems.
- R** - doesn't do the 'ER RT\$' to go real-time.
- Q** - Doesn't put an '*' at the end of each keyin.
- S** - Suppress format selection and ignore any format selection user exit.
- T** - A channel program trace is written to SPIN-X's PRINT\$ file. This option is intended for debugging only; it should not normally be activated because of the increased overhead and performance reduction.
- U** - Lower case letters are converted to upper case. This option is normally used for impact printers with upper-case print bands only.
- W** - Assumes a type 060 "A" print control image was issued for each print.
- X,Y,Z** - Reserved for the user exit programmer for processing options.

An example of a processor call with the "A" option is shown below:

```
@TPF$.SPIN-X,A
```

4.1.7 Modifying the BOOTELT

This section suggests a method you may use to start SPIN-X when booting the 1100/2200.

For Unisys EXEC levels above 39R5, there is an element within SYS\$LIB\$*RUN\$ named AUTO\$START which is used to start site-dependent runstreams on all system boots (on EXEC levels 39R3-39R5 this element is named AUTO\$RUN). In order to start the SPIN-X run on each boot add the following @START statement to the element in SYS\$LIB\$*RUN\$:

```
@START SYS$LIB$*RUN$.SPIN-X,,,account/userid
```

If you choose to start SPIN-X using this method, then the @RUN card for SPIN-X should **not** contain the **R** option.

4.2 Installation of the Bus and Tag Cable Adapters

This section explains installation procedures for the SPIN-X bus and tag cable adapters, which are included with the release package that you receive.

The SPIN-X bus and tag cable adapters consist of a pair of 48-pin cables approximately three feet in length. The cable adapters open the pins carrying the 1100/2200 6 volt Propagate Select Out (PSO) signal. Some Unisys devices require the 6 volts, but IBM compatible devices cannot tolerate this signal. **Therefore, if your site daisy chains Unisys devices with IBM compatible devices, then all IBM compatible devices must follow the Unisys devices in the chain to ensure that the Unisys devices receive the PSO signal.** In this case, the bus and tag cable adapter must be placed between the Unisys devices and the IBM compatible devices in the chain.

In general, the bus and tag cable adapter must be placed immediately after the Unisys 1100/2200 environment, but immediately before entrance to the IBM compatible environment. This organization is illustrated by Figure 4-1. Note, in the special case where intermediate boxes (such as IBM compatible channel extenders and channel interface switches) are used, the bus and tag cable adapter must be placed before any boxes of this type.

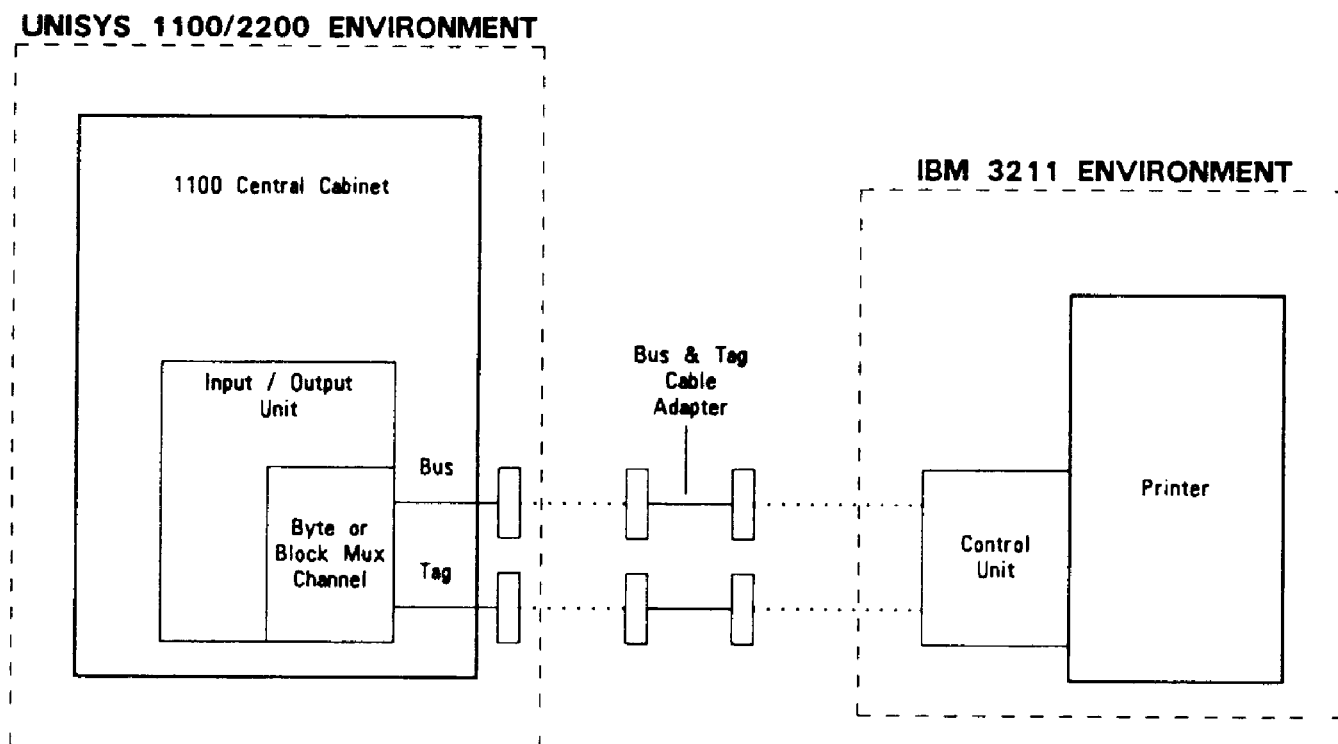


Figure 4-1 The Basic 1100/2200 to 3211 Environment Connection

NOTE: By examining the SPIN-X bus and tag cable adapter, you will notice that one end is grey and the other end is black. When the adapter is installed, the grey end of the adapter should be oriented toward the IBM compatible device, whereas the black end should be oriented toward the 1100/2200. The bus and tag cable adapters are interchangeable between the bus and tag cables.

NOTE: The SPIN-X bus and tag cable adapters are not needed for printers attached to a FIPS channel.

The placement of the bus and tag cable adapters varies depending on the type of connection (The *SPIN-X Reference Guide* discusses various ways to connect the Unisys 1100/2200 to IBM compatible printers). If your connection...

- is direct from the 1100/2200 to the printer then one end of the bus and tag cable adapter is attached to a 48-pin connector of a Unisys bus and tag cable, while the other end is connected to the printer's controller.
- is via a Unisys Byte Channel Transfer Switch (BCTS) then one end of the bus and tag cable adapter is attached to a 48-pin connector of a Unisys bus and tag cable leading from the BCTS, while the other end connects directly to the printer's controller.
- is a channel interface switch then the bus and tag cable adapter is placed after the Unisys bus and tag cable but immediately before any switch of this type.
- is via some form of channel extension then the bus and tag cable adapter must be placed after the Unisys cable but before the channel extension device.
- involves multiple hosts and/or printers then refer to *section 5.3.5* of the *SPIN-X Reference Guide*.

4.3 Configuration Settings on the Xerox Electronic Printer

This section describes the configuration settings the Xerox Field Engineer (FE) must set on the printer during installation from information supplied by the Unisys System Administrator. Two switches need to be set on the printer control unit: ADDRESS and MODE.

4.3.1 Setting the Xerox Printer's MODE Switch

The Xerox FE should set both the "3211" and "SIX BYTE" switches "on" for the MODE switch.

4.3.2 Setting the Xerox Printer's ADDRESS Switch

The device address assigned to the printer is defined to Exec by SCMS (M-Series) or NODE SGS's (C-Series). The Xerox FE will set the device address on the printer, but (s)he must be informed by the System Administrator of the device address to be used. This section discusses equating Unisys device addresses in decimal with printer device addresses in hex.

The following example shows a printer control unit and printer that are defined by two NODE SGS's:

```
NODE CULX IS SYMSUB AND CONNECTS TO IOMOD0 VIA SUB-CHANNEL 6
NODE LX IS SYMDEV AND CONNECTS TO CULX VIA DEVICE-ADDRESS 0
```

In the above example, the printer control unit address is six and the device address is zero; both values are expressed in decimal. These combine to form the complete device address "60" in hex; the printer control unit (SUB-CHANNEL) address is the most significant digit and the device address the least significant digit. In this example, the device address is "six-zero".

As mentioned above, the addresses on the host are specified in decimal. However, IBM environments usually express addresses in hex. Therefore, we need to equate host addresses in decimal to their hex equivalents; for example, a host printer control unit address ten or above would be expressed with the corresponding hex digit, e.g. "A". The example following illustrates:

```
NODE CULX IS SYMSUB AND CONNECTS TO IOMOD0 VIA SUB-CHANNEL 14
NODE LX IS SYMDEV AND CONNECTS TO CULX VIA DEVICE-ADDRESS 0
```

The printer control unit address, 14 in decimal, equates to "E" in hexadecimal; the hexadecimal complete device address is "E0". Therefore, "easy-zero" should be configured by the Xerox FE on the printer."

4.4 Software Installation on the Xerox Laser Printer

These instructions are for the System Administrator to install the SPIN-X software on the printer.

4.4.1 Loading the Xerox Resident Files

There are several SPIN-X support files which must be copied onto the Xerox printer's disk. These include the Job Source Language used to define the printing environment and different print formats used by SPIN-X, and the Format Source Language used to define the banner page and a 'graybar' form. These files are available in two different media; 5.25 inch floppy diskette and Xerox formatted tape. A complete listing of these files is contained in Appendix C of the *SPIN-X Reference Guide*.

The easiest and most common method of installing these files is by diskette. If your printer is configured with a diskette drive refer to Section 4.4.1.1 of the *SPIN-X Reference Guide* on how to copy these files from diskette. If your Xerox does not have a diskette drive but does have a tape drive, then proceed to Section 4.4.1.2. If your printer has neither, or if these input devices are inoperable, the Xerox files can still be downloaded to the printer from the Unisys using the Xerox Hostcopy utility as described in Section 4.4.1.3. After the files have been copied to the Xerox disk proceed to Section 4.4.2 for instructions on compiling the Xerox resident files.

CAUTION: Before copying and compiling any files on the Xerox, the SPIN-X installer should be sure that no existing files of the same name will be replaced. Refer to Section 3.2 for a list and description of the Xerox files provided.

4.4.1.1 Loading the Xerox Files From Floppy Diskette

After making sure that the Xerox system is in an off-line idle state, place the diskette in the Xerox LPS diskette drive. The files may be copied to disk using the command:

FLOPPY RESTORE ALL

The Xerox console should display the messages:

```
RESTORING FILE ON1100.JSL
RESTORING FILE P1100.JSL
RESTORING FILE SP2BNR.JSL
RESTORING FILE BANNR2.FSL
RESTORING FILE GRABAR.FSL
RESTORING FILE BANNER.FSL
```

After this has been done refer to Section 4.4.2 for instructions on compiling the Xerox files.

4.4.1.2 Loading the Xerox Files From Tape

This section is applicable if your Xerox laser printer is configured with a tape drive, which allows you to copy the Xerox files directly from the SPIN-X Release Tape for the Xerox. Otherwise, if your printer also is without a diskette drive, the Xerox files must be copied from the SPIN-X Release Tape for the Xerox to the Unisys disk and transferred to the Xerox disk using the Xerox Hostcopy utility, which is covered in the next section.

Mount the Xerox Release Tape on the Xerox tape drive, and copy the files onto its disk with the following commands:

```
COPY TAPE READ LABEL ALL  
TAPE UNLOAD
```

After this has completed, the Xerox files are ready to compile. The instructions for compiling the Xerox files are given in Section 4.4.2.

4.4.1.3 Loading the Xerox Files Using Hostcopy

This section applies if neither tape nor diskette input is available for loading files onto the Xerox disk. **The SPIN-X software for the Unisys and the bus and tag cable adapter must be installed and operational before the Xerox Hostcopy utility can be used (This restriction does not apply to FIPS channels).** More information about transferring files via the Hostcopy utility can be found in the *Xerox LPS Reference Manual* and *Section 5* of the *SPIN-X Reference Guide*.

The Xerox Hostcopy utility provides a means of transferring files from the Unisys host to the Xerox's disk. For our purposes, it will be used to transfer the Xerox files (six in all) from the Unisys to the Xerox. The eighth and last file on the Xerox Release Tape is a concatenation of the 6 files needed for the Xerox. This is the file that must be transferred. To transfer this file from the Xerox Release tape to the Unisys and then to the Xerox, follow the steps below:

1. Make sure that the laser printer is reserved (*RV'd*) on the Unisys host and then

ST SPIN-X

2. Boot the Xerox in Hostcopy mode (do this by depressing the BOOT switch, typing in *BD* and then *H* to choose Hostcopy mode). This causes any file (in the proper format) sent down the on-line channel to be stored on the Xerox disk.
3. Copy the eighth (concatenated) file from the Xerox Release Tape and place it on the appropriate print format queue. This can be done with the Unisys ECL addstream provided in the UTILITY file from the SPIN-X Release Tape for the Unisys (which should have already been copied to the Unisys disk in Section 4.1.1). In order to invoke this addstream type the following commands:

```
@QUAL qual
@CAT HOST$COPY.,///100 . Catalogue the file to transfer
@ADD *UTILITY.INSTALL/XEROX-FILES
```

...where *qual* is the qualifier used to catalogue the UTILITY file in Section 4.1.1. The contents of this addstream are shown below:

```
@ASG,TJ TAPE.,U9V/////Q,XEROX1 . Assign the Release Tape
@MOVE TAPE.,7 . Skip to the concatenated file
@USE 12,TAPE. . Tape link for @XQT
@USE 13,HOST$COPY. . File link for @XQT
@XQT *UTILITY.READ-TAPE . Read tape & write transfer file
@SYM,U HOST$COPY.,1,PS80 . Transfer the file
```

This addstream will request the Xerox Release Tape to be mounted, read the concatenated Xerox file (which is in a format that Hostcopy will recognize), and place it on the format queue, **PS80**, via the @SYM command.

4. Finally, once it is verified that the concatenated file is in the format queue, PS80, and that it has 1st priority in this queue, then it is ready to transfer to the Xerox. Do this by issuing the following SPIN-X keyin:

L* device P PS80

If you are successful, the Xerox console should display the messages...

```

CREATING FILE ON1100.JSL
CREATING FILE P1100.JSL
CREATING FILE SP2BNR.JSL
CREATING FILE BANNER.FSL
CREATING FILE BANNR2.FSL
CREATING FILE GRABAR.FSL

```

Answer 'NO' when the Xerox asks if another file is to be sent, which should cause SPIN-X to respond with a device error on the 1100/2200 console. Respond to this error with a 'T' which will delete the file's queue entry and lock out the printer. Then, re-boot the Xerox with the standard booting procedure.

After these 4 steps have been completed successfully, the Xerox files are ready to compile. The instructions for compiling the Xerox files are given in Section 4.4.2.

In the future, if modification to the Xerox code is desired, then the Unisys format Xerox files can be edited on the Unisys, translated to EBCDIC using the UTILITY.TRANSLATE/ASCII-EBCDIC program, and sent to the Xerox using the Hostcopy utility. The Xerox files may also be modified using the Xerox editor. Information regarding the transfer of Unisys and Xerox created files using Hostcopy can be found in Chapter 4 of the *SPIN-X Reference Guide*.

4.4.2 Compiling the Xerox Files

Once the Xerox files have been stored on the Xerox disk the Job Source Language files (ON1100.JSL, P1100.JSL) must be compiled using the *PDL* command. The form overlay files should be compiled using the *FDL* command. Note that by default SPIN-X calls for the banner form called BANNR2.

The following example illustrates how to compile the JSL files.

```

PDL ON1100
PD1050 EXITING PDL TO PRINT
OS1000 READY FOR COMMANDS hh:mm:ss
OS1010 STARTING JOB xxxxx
OS1020 JOB xxxxx HAS COMPLETED INPUT PHASE.
OS1020 RESUMING OUTPUT.
OS1000 READY FOR COMMANDS hh:mm:ss
OS1030 JOB xxxxx HAS COMPLETED PRINTING.
OS1000 PDL TERMINATED
OS1000 READY FOR COMMANDS hh:mm:ss

```

```

PDL P1100
PD1050 EXITING PDL TO PRINT
OS1000 READY FOR COMMANDS hh:mm:ss
OS1010 STARTING JOB xxxxx
OS1020 JOB xxxxx HAS COMPLETED INPUT PHASE.
OS1020 RESUMING OUTPUT.
OS1000 READY FOR COMMANDS hh:mm:ss
OS1030 JOB xxxxx HAS COMPLETED PRINTING.
OS1000 PDL TERMINATED
OS1000 READY FOR COMMANDS hh:mm:ss

```

To verify that the Xerox files have successively been compiled, proceed to Chapter 5 (Verification of Installation).

4.4.3 Update Installation on the Xerox

Beginning with version 4R1 of SPIN-X a new banner page form and format were used which include two new fields: "PARTNAME -" and "PARTNUMBER -". These fields are used with the print tape input feature of SPIN-X. By default, SPIN-X now calls for a banner page form named BANNR2 and a PDE named SP2BNR. To insure that these files are installed on the Xerox without overwriting existing files, use the following procedure:

1. Copy the new files to the Xerox disk. If using diskette type:

```
FLOPPY RESTORE BANNR2.FSL  
FLOPPY RESTORE SP2BNR.JSL
```

If using the Xerox release tape use the commands:

```
COPY TAPE READ LABEL BANNR2.FSL  
COPY TAPE READ LABEL SP2BNR.JSL
```

2. Compile the new files with the commands:

```
FDL BANNR2  
PDL SP2BNR
```

If any local changes have been made to the earlier banner form, BANNER.FSL, then these changes should be merged into BANNR2.FSL and this file should be recompiled.

The purpose of this section is to verify that the installations of SPIN-X and the printer are successful. **No modifications such as installing user exits should be attempted until this section has been completed.** This approach facilitates the diagnosis of any problems that may occur during the installation process.

Follow Section 5.1 to verify installation for the Xerox LPS printers.

5.1 Installation Verification for the Xerox LPS

Follow the steps below:

1. Queue the test file, which was installed from the SPIN-X Release Tape for the 1100/2200, by issuing the following *@SYM* command:

```
@SYM,U TESTPRINT.,1,PD95
```

2. At the Unisys console, reserve the laser printer with the **RV** *device* keyin, and then **ST SPIN-X** if SPIN-X is not already running.
3. At the Xerox LPS console, bring the Xerox on-line and start the ON1100.JSL program with your default format specified. This can be done with the following Xerox LPS commands:

```
ONLINE  
START DFLT,ON1100
```

The Xerox LPS console should respond with the message:

```
"ON-LINE" INPUT IS WAITING FOR DATA.
```

4. At the Unisys console, initialize the printer with the **L*** *device* **P PD95** keyin. If print files are being successfully transferred, the following message should appear on the Xerox LPS console:

```
"ON-LINE" INPUT IS RECEIVING DATA.
```

Then, lock out the printer with the **L*** *device* **L** keyin.

5. At the Xerox LPS console, end the print job by typing:

```
END
```

6. Inspect the printed output and compare it with Appendix D of this document. If the results are identical, then you have installed the software correctly.

After this section has been completed, modifications such as creating user exits can be made (see the SPIN-X Reference Guide for details).

1. Hardware Checklist

- ___ Order and install the Unisys bus and tag cables.
- ___ Install the SPIN-X BUS and TAG cable adapters.
- ___ Make sure the lighter ends of the cable adapters point toward the printer, and the darker ends point toward the host.
- ___ Set the Address and Mode switches on the Xerox
- ___ Make sure the BUS cable is attached to the BUS-IN connector and the TAG cable is attached to the TAG-IN connector on the printer's control unit.
- ___ Make sure the BUS terminator is attached to the BUS-OUT connector and the TAG terminator is attached to the TAG-OUT connector on the printer's control unit (if applicable).

2. The Unisys Interface Checklist

- ___ Transfer the SPIN-X software for the Unisys from the SPIN-X Release Tape to disk.
- ___ Update your EXEC by adding the appropriate Type 2 Onsite-Configuration and Symbiont class SGS's.
- ___ Apply the Unisys EXEC PCR(s), if any, that are specified in Appendix B.

3. The Xerox LPS Interface Checklist (if applicable)

- ___ Perform a SYSGEN on the Xerox LPS if needed.

If your Xerox LPS has a diskette drive:
 - ___ Transfer the SPIN-X code for the Xerox LPS from the 5.25 inch Xerox diskette provided to the Xerox hard disk. Skip the following step for installing from a tape drive.

If your Xerox LPS has a tape drive:
 - ___ Transfer the SPIN-X code for the Xerox LPS from the SPIN-X Release Tape for the Xerox LPS to the printer's fixed disk using its tape drive.

5. Compile the SPIN-X code for the Xerox LPS.**6. Verification of Installation Checklist**

- ___ Print the test file (provided on the SPIN-X Release Tape for the 1100/2200) and verify that it matches the sample given in Appendix D.

B

Unisys Problem List Entries

If you are on System Base Release SB4 and your operating system is Execlevel 43R8 or higher, or on SB5 with Exec level 44R4 or higher, the following PLE's are already resolved. Otherwise, the appropriate PCRs for the following PLEs should be installed.

Problem List Entry (PLE) Time 13:42:41 Date 960111

```

Number: 16336238      Product   : EXEC           Est Comp Date:
Status: CLOSED       Component: X8 CNS        Date Updated  : 950824
Type  : RELEASED     Revision  : 31           Date Prepared: 940906
Form  : TROUBLE REPORT Class    : SOFTWARE
Internal Use :                               Organization : EXECUTIVE-SYSTEMS
Originator  : UNISYS                               Responsibility: UNISYS
Error Source :                               Location    : ROS
Criticality :
Host Processor:
Replaced By  :
Replaces    :
  
```

----- Description Section -----

```

Headline      :
EXERR-410 after termination of a run registered for keyins via ER-KEYIN$.
Product Level : 43R5      43R6      43R7      43R7*QS
                43R7X    44R1      44R2      44R3
Keyword: 2200/500      2200/900      CONSOLE
          ER-KEYIN$    EXERR-410      M-SERIES
  
```

Symptoms: Symptoms Updated: 940906
 After entering a termination keyin for a run utilizing ER-KEYIN\$ keyin registration, the system stops with an EXERR-410.

Internal Conditions:

Jumpstacks from the dump will indicate that UKEYIN has encountered a class 8 interrupt (reference violation). This occurs in location counter 58 code on a 'BT X7,BPKT,*A2,BLEAS,0' where BPKT=B8 and BLEAS=B14.

Technical Explanation:

During the processing of an ER-KEYIN\$ deregistration function UKEYIN will acquire a stack frame and copy the users packet to that stack frame. To accomplish that task the users packet is based on BPKT (B8).
 After the packet has been based on B8 the code goes on to process the request. During this processing UKEYIN will call a routine named STORSTAT. STORSTAT will repoint the waiting activity via a CRQRAL call. This is done so that a status of 2000 can be placed in the waiting activities packet. This CRQRAL call executes a LBED instruction which will alter the activity level BDTP (bank descriptor pointer). This altering of the activity level BDTP forces the hardware to scrub the activity level bank base registers B1-B15. This leaves base register B8 for UKEYIN void.
 A later reference to B8 to copy the Exec's working copy of the user packet back to the users packet causes the reference violation and the EXERR-410.

Dependencies:

This is dependent on 2200/900 and 2200/500 hardware, (M-series).

A second dependency is that the run must be utilizing activity level banks.

PLE to UCF : 77983748
 PLE ref CONTACT : 78143734

----- Workaround Section -----
 Workaround Description: Workaround Type :

----- Resolution Section -----

Resolution Comments:

Code will be added to UKEYIN to save and restore the necessary
 VA address and to reload the base register.

Fixed in System : SB4R8 SB5R4

Resolution for Level : 43R5
 Resolution Status : FIX RELEASED Final Resolution Date: 950331
 Closure Code : SD
 PLE to CHG : 00006-62540-PCR
 Fixed in Release : EXEC-43R8

Resolution for Level : 43R6
 Resolution Status : FIX RELEASED Final Resolution Date: 950331
 Closure Code : SD
 PLE to CHG : 00006-62540-PCR
 Fixed in Release : EXEC-43R8

Resolution for Level : 43R7
 Resolution Status : FIX RELEASED Final Resolution Date: 950331
 Closure Code : SD
 PLE to CHG : 00006-62540-PCR
 Fixed in Release : EXEC-43R8

Resolution for Level : 43R7*QS
 Resolution Status : FIX RELEASED Final Resolution Date: 950331
 Closure Code : SD
 PLE to CHG : 00006-62540-PCR
 Fixed in Release : EXEC-43R8

Resolution for Level : 43R7X
 Resolution Status : FIX RELEASED Final Resolution Date: 950331
 Closure Code : SD
 PLE to CHG : 00006-62540-PCR
 Fixed in Release : EXEC-43R8

Resolution for Level : 44R1
 Resolution Status : FIX RELEASED Final Resolution Date: 950824
 Closure Code : SD
 PLE to CHG : 00006-62570-PCR
 Fixed in Release : EXEC-44R4

Resolution for Level : 44R2
 Resolution Status : FIX RELEASED Final Resolution Date: 950824
 Closure Code : SD
 PLE to CHG : 00006-62570-PCR
 Fixed in Release : EXEC-44R4

Resolution for Level : 44R3
 Resolution Status : FIX RELEASED Final Resolution Date: 950824
 Closure Code : SD
 PLE to CHG : 00006-62570-PCR
 Fixed in Release : EXEC-44R4
 Number : 16336238 ~~~~~

Problem List Entry (PLE) Time 13:42:41 Date 960111

```

Number: 16385719      Product   : EXEC           Est Comp Date:
Status: CLOSED       Component: X8 CNS        Date Updated  : 951212
Type  : RELEASED     Revision  : 40           Date Prepared: 941102
Form  : TROUBLE REPORT Class    : SOFTWARE
Internal Use  :                               Organization : EXECUTIVE-SYSTEMS
Originator   : UNISYS                               Responsibility: UNISYS
Error Source  :                               Location     : ROS
Criticality   :
Host Processor:
Replaced By  :
Replaces     :
    
```

----- Description Section -----

Headline :

EXERR-410 in UKEYIN referencing a non-existent switchlist.

Product Level	: 43R5	43R6	43R7	43R7*QS
	43R7X	44R1	44R2	44R3
Keyword:	ER-KEYIN\$	EXERR-410	KEYINS	
	UKEYIN	UNSOLICITED-KEYIN		
Symptoms:				Symptoms Updated: 941102

EXERR-410 in UKEYIN, referencing an activity that is listed in a registration queue buffer as waiting for a console keyin, but has already terminated.

Internal Conditions:
 Technical Explanation:

A user has registered to receive unsolicited console keyins via ER-KEYIN\$.

The operator enters an unsolicited keyin that is to be handled by this program, but the program has yet to retrieve it.

The program issues an ER-KEYIN\$ with a 'wait' function, specifying the keyins for which it wants to wait.

ER-KEYIN\$ processing searches the registration queue buffer (RQB) for this run. For each keyin indicated, a check is made for an outstanding keyin: if there is one, the user activity is reactivated after being passed the keyin. If there is no keyin outstanding, the user switchlist is indicated as waiting for this keyin.

If, after finding no outstanding messages for several keyins, an outstanding keyin is found *AND* this keyin is too large to fit in the user buffer, an error is given to the ER-KEYIN\$ caller but the previously initialised entries, indicating that a switchlist is waiting, are not cleared. If another console keyin, that is to be handled by this same run, is entered, we attempt to reference the switchlist that is indicated as waiting but which has, in the case seen, already terminated. An EXERR-410 was the result, but other symptoms can only be guessed at.

Dependencies:
 PLE to UCF : 78005728
 PLE ref CONTACT : 78143734

----- Workaround Section -----

Workaround Description: Workaround Type :

----- Resolution Section -----

Resolution Comments:

If an error occurs when the user issues a 'wait' function and a keyin is found to process, clean up any other entries that have already been initialised in the registration queue buffer.

Also remove an extraneous jump instruction, change a hard-coded wait bit to use the standard definition and correct a range check.

```

Fixed in System      : SB4R8                      SB6

Resolution for Level : 43R5
Resolution Status    : FIX RELEASEED              Final Resolution Date: 950331
Closure Code         : SD
PLE to CHG           : 00006-63281-PCR
Fixed in Release     : EXEC-43R8

Resolution for Level : 43R6
Resolution Status    : FIX RELEASEED              Final Resolution Date: 950331
Closure Code         : SD
PLE to CHG           : 00006-63281-PCR
Fixed in Release     : EXEC-43R8

Resolution for Level : 43R7
Resolution Status    : FIX RELEASEED              Final Resolution Date: 950331
Closure Code         : SD
PLE to CHG           : 00006-63281-PCR
Fixed in Release     : EXEC-43R8

Resolution for Level : 43R7*QS
Resolution Status    : FIX RELEASEED              Final Resolution Date: 950331
Closure Code         : SD
PLE to CHG           : 00006-63281-PCR
Fixed in Release     : EXEC-43R8

Resolution for Level : 43R7X
Resolution Status    : FIX RELEASEED              Final Resolution Date: 950331
Closure Code         : SD
PLE to CHG           : 00006-63281-PCR
Fixed in Release     : EXEC-43R8

Resolution for Level : 44R1
Resolution Status    : FIX RELEASEED              Final Resolution Date: 951211
Closure Code         : SD
PLE to CHG           : 00006-63282-PCR
Fixed in Release     : EXEC-45R1

Resolution for Level : 44R2
Resolution Status    : FIX RELEASEED              Final Resolution Date: 951211
Closure Code         : SD
PLE to CHG           : 00006-63282-PCR
Fixed in Release     : EXEC-45R1

Resolution for Level : 44R3
Resolution Status    : FIX RELEASEED              Final Resolution Date: 951211
Closure Code         : SD
PLE to CHG           : 00006-63282-PCR
Fixed in Release     : EXEC-45R1
Number              : 16385719 ~~~~~
    
```

B.1 PLEs For Older Exec Levels

If you are running on Exec level 41 or higher, the following PLE's have already been resolved. Otherwise, the appropriate PCR's must be installed for the following PLE's. Xpress and Central users will be able to use some of the PCRs mentioned below. Higher Exec levels are required for running LPR/LPD.

```

Problem List Entry (PLE)                               Time 13:53:12   Date 960111
-----
Number: 10531535      Product:   EXEC           Est Comp Date:
Status: CLOSED       Component: X8 SYI        Date Updated:  900807
Type:  RELEASED      Form:      TROUBLE REPORT  Date Prepared: 860418
Class:

```

```

Originator:      HENDRICKS L S      Responsibility: DAB
Location:        Coordinator:      RGJ
Internal Use:    Manager:
Criticality:     Organization:     EXECUTIVE SYSTEMS

```

```

----- Description Section -----
Headline:
  Exerr 063 or 042 when SMUPQ calls ACT before DECSWPLKXPT
Product Level: 39R3B      39R3C      39R3D      39R4
                39R5      40R1
Keyword: ARCHIVE-FROM-PRIMUS  ER-RT$      ER-SMOQUE$
          EXERR-042          EXERR-063    MP
          PRINT-FILE        REALTIME       SYMBIONT
Symptoms:
  Exerr-042 or exerr-063.
Symptoms Updated:

```

Internal Conditions:

The stop is in DECSWPLKXPT. If STPAUL is on, the system takes the 042 stop at line 635,653/61. If STPAUL is off, the system will take Exerr-063 shortly thereafter. Register X11 shows that SMUPQ called ACT before calling DECSWPLKXPT. Register X8 contains a 31-word Expool buffer acquired by SMOQUE. Word 1,,H2 of this buffer contains the address of a buffer that was just released by TERM.

Technical Explanation:

A real-time program does an ER-SMOQUE\$ with the deactivate function. When someone queues the file that the program is waiting for, SMUPQ loads the program's switchlist address from its work buffer and calls ACT to activate the switchlist. This switchlist gets control immediately because it has a higher priority than SMUPQ. Then this activity does an ER EXIT\$ and its switchlist is released. Then SMUPQ gets control again, loads the switchlist address from the work buffer, loads the PCT address from the switchlist, and calls DECSWPLKXPT. The released switchlist no longer contains the PCT address. Therefore the system stops in DECSWPLKXPT.

Dependencies:

On a unit processor, this will only happen if the SMOQUE\$ program is real-time. On a multiprocessor, this will sometimes happen even if the program is not real-time.

```

PLE to UCF:      11427511
Marketing CONTACT: 55046786  59194054  59197487  59204190  59258583

```

```

----- Resolution Section -----
Resolution Comments:
  PLE 10561582 describes a similar problem.

```

```

Fixed in System: FER-1R3      SBR-1R1A
                  SR-1R1      SR-2R2

```

```

Resolution for Level: 39R3B          39R3C          39R3D
Resolution Status:   FIX RELEASED          Send To CSC:
PLE to CHG:         00006-29881-PCR
Fixed in Release:   EXEC-39R3E

Resolution for Level: 39R4
Resolution Status:   FIX RELEASED          Send To CSC:
                                           Final Resolution Date: 890330
PLE to CHG:         00006-29881-PCR
Fixed in Release:   EXEC-39R6

Resolution for Level: 39R5
Resolution Status:   FIX RELEASED          Send To CSC:
                                           Final Resolution Date: 890330
PLE to CHG:         00006-29881-PCR
Fixed in Release:   EXEC-39R6

Resolution for Level: 40R1
Resolution Status:   FIX RELEASED          Send To CSC:
                                           Final Resolution Date: 890330
PLE to CHG:         00006-29882-PCR
Fixed in Release:   EXEC-40R2
Number: 10531535 ~~~~~
    
```

Problem List Entry (PLE) Time 13:53:32 Date 960111

```

Number: 10561582      Product:   EXEC          Est Comp Date:
Status: CLOSED       Component: X8 SYI      Date Updated: 900807
Type:  RELEASED     Form:      TROUBLE REPORT  Date Prepared: 860723
Class:
    
```

```

Originator:   WA          Responsibility: BB-WCA
Location:     Coordinator: RGJ
Internal Use: Manager:
Criticality:  Organization: EXECUTIVE SYSTEMS
Host Processor: 1100/91
    
```

----- Description Section -----

```

Headline:
  042 STOP IN DECSWPLKXPT
Product Level: 39.567.9      39R5          39R6          39R7
                   40R1          40R2
Keyword: ARCHIVE-FROM-PRIMUS DECSWPLKXPT      ER-RT$
         ER-SMOQUE$          EXERR-042      EXERR-063
         EXERR-410          PRINT-FILE     REALTIME
         SYMBIONT
    
```

```

Symptoms:                               Symptoms Updated:
  EXERR-042 or EXERR-063
    
```

```

Internal Conditions:
  The stop is in DECSWPLKXPT. If STPAUL is on, the system takes the 042 stop.
  If STPAUL is off, the system will take an EXERR-063 shortly thereafter.
    
```

```

Technical Explanation:
  A real-time program does an ER-SMOQUE$ with the deactivate function.
  When another activity issues an ER-SMOQUE$ to activate it, SYISMOQUE loads
  the programs switchlist address from its work buffer and calls ACT to
  activate the switchlist. The switchlist gets control immediately because
  it has a higher priority than SYISMOQUE. Then this activity does an ER EXIT$
  and its switchlist is released. Then SYISMOQUE gets control again, loads the
  switchlist address from the work buffer, loads the PCT address from the
    
```

switchlist, and calls DECSWPLKXPT. The released switchlist no longer contains the PCT address. therefore the system stops in DECSWPLKXPT.

Dependencies:

On a unit processor, this will only happen if the SMOQUE\$ program is real-time. On a multiprocessor, this will sometimes happen even if the program is not real-time.

PLE to UCF: 11464271 13374406 13379831 13601178 20125951 20189711
 59194674
 Marketing CONTACT: 53069631 53551343 53702376 55140847 55150486 55286281
 55289441 55305781 55311650 55389152 55718113 56237755
 59211013 59258583

----- Resolution Section -----

Resolution Comments:

PLE 10531535 describes a similar problem.

Fixed in System: FER-1R5-1 SBR-2R1

Resolution for Level: 40R1

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330

PLE to CHG: 00006-30779-PCR

Fixed in Release: EXEC-40R3

Resolution for Level: 40R2

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330 PLE to

CHG: 00006-30779-PCR

Fixed in Release: EXEC-40R3

Resolution for Level: 39R5

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330

PLE to CHG: 00006-30780-PCR

Fixed in Release: EXEC-39R8

Resolution for Level: 39R6

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330

PLE to CHG: 00006-30780-PCR

Fixed in Release: EXEC-39R8

Resolution for Level: 39.567.9

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330

PLE to CHG: 00006-30780-PCR

Fixed in Release: EXEC-39R8

Resolution for Level: 39R7

Resolution Status: FIX RELEASED

Send To CSC:

Final Resolution Date: 890330

PLE to CHG: 00006-30780-PCR

Fixed in Release: EXEC-39R8

Number: 10561582 ~~~~~

C.1 ECL to Load SPIN-X Software from Tape (LOAD/HOST-FILES)

```

@ . This element, LOAD/HOST-FILES, is an addstream which is used
@ . during the initial installation of SPIN-X. It copies the necessary
@ . files from the SPIN-X Release Tape for the 1100/2200 to the disk
@ . files which are catalogued below. These files are catalogued using
@ . the qualifier indicated on the @QUAL statement as discussed in
@ . section 4.1.1 of the SPIN-X Installation Guide. If desired, this
@ . element may be removed from SYS$PRINTER$*SPIN-X after successful
@ . installation of SPIN-X.
@ .
@CAT *COPYRIGHT.
@CAT *FDP.
@CAT *FDP-INPUT.
@CAT *SRI$DATABASE(+1).,///1024
@CAT *SRI$FLATFILE(+1).,///1024
@CAT *FONTFILE.
@CAT *SPIN-X-RUN$.
@CAT *SRO.
@CAT *UTILITY.
@CAT *TESTPRINT.
@CAT *XEROX-FILES.
@CAT SYS$PRINTER$*SRI$DATABASE(+1).,///1024
@CAT SYS$PRINTER$*SRI$FLATFILE(+1).,///1024
@CYCLE *SRI$DATABASE.,2
@CYCLE *SRI$FLATFILE.,2
@CYCLE SYS$PRINTER$*SRI$DATABASE.,2
@CYCLE SYS$PRINTER$*SRI$FLATFILE.,2
@ASG,A *COPYRIGHT.
@ASG,A *FDP.
@ASG,A *FDP-INPUT.
@ASG,A *FONTFILE.
@ASG,A *SPIN-X-RUN$.
@ASG,A *SRO.
@ASG,A *UTILITY.
@ASG,A *TESTPRINT.
@ASG,A *XEROX-FILES.
@ASG,A SYS$PRINTER$*SRI$DATABASE.
@ASG,A SYS$PRINTER$*SRI$FLATFILE.
@REWIND TAPE.
@COPY,G TAPE.,*COPYRIGHT.
@MOVE TAPE.,1
@COPY,G TAPE.,*FDP.
@COPY,G TAPE.,*FDP-INPUT.
@COPY,G TAPE.,SYS$PRINTER$*SRI$DATABASE.
@COPY,G TAPE.,SYS$PRINTER$*SRI$FLATFILE.
@COPY,G TAPE.,FONTFILE.
@COPY,G TAPE.,*SPIN-X-RUN$.
@COPY,G TAPE.,*SRO.
@COPY,G TAPE.,*UTILITY.
@COPY,G TAPE.,*TESTPRINT.
@FREE TAPE.

```

C.2 ECL to Perform an Update Installation (UPDATE/HOST-FILES)

. This element, UPDATE/HOST-FILES, is an addstream which is used for
. updating SPIN-X files. It copies the necessary files from the SPIN-X
. Release Tape to the disk files which have been previously catalogued.
. These files are copied to the qualifier indicated on the @QUAL statement
. as discussed in the SPIN-X Installation Guide. If desired, this element
. may be removed from SYS\$PRINTER\$*SPIN-X after successful updating of
. SPIN-X files.

```
.  
@ASG,A *FDP.  
@ASG,A *SRO.  
@ASG,A *UTILITY.  
@ASG,A *TESTPRINT  
@ASG,A *XEROX-FILES.  
@REWIND TAPE.  
@MOVE TAPE.,2  
@COPY,G TAPE.,*FDP.  
@MOVE TAPE.,4  
@COPY,G TAPE.,SRO.  
@COPY,G TAPE.,UTILITY.  
@COPY,G TAPE.,TESTPRINT.  
@COPY,G TAPE.,XEROX-FILES.  
@FREE TAPE.
```

C.3 ECL to Run SPIN-X (SPIN-X-RUN\$)

```
@RUN,/KL SPINX,/,SPIN-X
@ . FILL-IN APPROPRIATE account#/userid FOR YOUR SITE ON @RUN ABOVE
@FREE TPF$.
@ASG,T TPF$.,/32//4096
@COPY,A SYS$PRINTER$*SPIN-X.SPIN-X,TPF$.SPIN-X
@ASG,T FORMSDEF.,/32//4096
@COPY *FORMS-DEF.,FORMSDEF.
@ASG,AZXQ SYS$PRINTER$*SRI$DATABASE.
@ASG,AZXQ SYS$PRINTER$*SRI$FLATFILE.
@USE SRI$DATABASE,SYS$PRINTER$*SRI$DATABASE.
@USE SRI$FLATFILE,SYS$PRINTER$*SRI$FLATFILE.
@TPF$.SPIN-X
@PMD,PE
@FIN
```

