CONTROL DATA®
CYBER 70/MODEL 76 COMPUTER SYSTEM
7600 COMPUTER SYSTEM

SCOPE 2
INSTALLATION HANDBOOK
<table>
<thead>
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<th>DESCRIPTION</th>
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<td>A</td>
<td>Original printing.</td>
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Address comments concerning this manual to:
Control Data Corporation
Technical Publications Dept.
4201 North Lexington Avenue
Arden Hills, Minnesota 55112
or use Comment Sheet in the back of this manual.
PREFACE

This manual provides information needed to install and modify the SCOPE 2.0 operating system. It is assumed that the analyst has at least six months of experience with a 7600 or CYBER 70 computer.

The SCOPE 2.0 Installation Handbook has the following format.

Part I  List of all materials (such as tapes and cards) released with SCOPE 2.0, its product set members, and stations.
         A flow chart and general description of the process of installing and modifying the SCOPE 2.0 operating system that includes the purchased product set and stations.

Part II  The procedures for deadstarting standard stations and SCOPE 2.0.

Part III The standard installation options, procedures to modify, and detailed description of jobs necessary to modify each of the stations, product set members, and SCOPE 2.0.

Part IV  Information related to installation, such as installation cautions, installation messages, and memory requirements.

SCOPE 2.0 is intended to be installed and configured only as described in this installation handbook. Therefore, Control Data is only responsible for the proper functioning of features or parameters described in this manual.
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LIST OF PRODUCTS

1.1 RELEASED PRODUCTS FOR SCOPE 2.0
The following products are released with the SCOPE 2.0 operating system.

SCOPE 2.0 Maintenance Package
System Maintenance Monitor 3.0 (SMMB)
SCOPE 2.0
   ANALYZE
   LIBEDIT
   Loader
   Record Manager
   UPDATE 2.0
COMPASS 2.0
Diagnostic Control Program (DCP)

One or more of the following stations is required.

CONTROL DATA 7611-1 I/O Station Version 2
CONTROL DATA 7611-2 Magnetic Tape Station Version 2
CONTROL DATA 6000 CYBER 70 Series SCOPE 3.4 Station Version 2

1.2 OPTIONAL PRODUCTS
The following products may also be purchased separately to be used with SCOPE 2.0.

FORTRAN Extended 2.0
FORTRAN Run 2.0
COBOL 1.0
Sort/Merge 1.0
2.1 SCOPE 2.0 MAINTENANCE PACKAGE

Tapes

MODTAPE

7-track tape file with the following characteristics: labeled, 556 bpi, odd parity, BT=I, RT=W, and MRL=5120. MODTAPE*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 1 for more detail.

Partition 1 MODPL Modifications to released system in an OLDP format (*=/).

Partition 2 SYSDECKS Installation, modification, and utility decks for SCOPE 2.0 in an OLDP format (*=$).

2.2 SYSTEM MAINTENANCE MONITOR 3.0 (SMMB)

Materials other than the SMMB deck are available to the customer engineer through the SMM Software Availability Bulletin (SAB).

Cards

SCPSMM SMMB binary deck configured for SCOPE 2.0.

2.3 7611-1 I/O STATION

Tapes

STALIB

7-track tape file with the following characteristics: unlabeled, 800 bpi, odd parity, BT=C, RT=S, and MBL=5120; contains all 7611-1 system routines in binary format and is used to deadstart the station.

STA0PL

7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120; STAREL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 3 for more detail.

Partition 1 STA0PL Source code in UPDATE format for STALIB.

Cards

STATDS One deadstart binary card that initializes the station disk pack from the STALIB tape.

STADDS One deadstart binary card that initializes the station from its disk pack.
2.4 7611-2 MAGNETIC TAPE STATION

Tapes

MTSLIB  7-track tape file with the following characteristics: unlabeled, 556 bpi, odd parity, BT=I, RT=W, and MBL=5120; contains the binary deadstart for the station.

MTSOPL  7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120; MTSREL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 4 for more detail.

Partition 1  MTSOPL  Source code in UPDATE format for MTSLIB tape.

Cards

MTSTDS  A binary card deck of the program to be loaded into the FLPP to initialize the 7611-2 station disk pack from the MTSLIB tape.

MTSDDS  A binary card deck of the program to be loaded into the FLPP to initialize the 7611-2 station from the 7611-2 station disk pack. This program is also on the SCPLIB tape under program name FDS and is loaded by the SCOPE 2.0 system when the system is installed.

2.5 6000 OR CYBER 70 SERIES SCOPE 3.4 STATION

The SCOPE 3.4 station release materials are described in the 6000 SCOPE 3.4 Installation Handbook, Pub. No. 60307400.

2.6 SCOPE 2.0

Tapes

SCPLIB  7-track tape file with the following characteristics: unlabeled, 556 bpi, odd parity, BT=C, RT=W, and MBL=5120; contains the SCOPE 2.0 operating system and is used to deadstart SCOPE 2.0. This tape contains the binary of UPDATE, COMPASS, and diagnostic control package.

SCPOPL  7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120. SCPOPL2.0 is the file identifier in the HDR1 label. Refer to part III, section 6 for more detail.

Partition 1  SCPOPL  Source code in UPDATE format for the SCPLIB tape. The source for UPDATE is in this partition, but COMPASS and the diagnostic control package have separate OPLs.

Partition 2  DBUGBIN  Binary code for the DBUGLIB system library.
SCPSID

SCOPE 2.0 deadstart deck. Only the following binary decks of DS1 and the FLPP drivers are included in the release materials. The other cards are installation dependent and are described in part II, section 6.2.

The following SCPSID binary decks are released.

<table>
<thead>
<tr>
<th>Card</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS1</td>
<td>Deadstart binary deck</td>
</tr>
<tr>
<td>CPL</td>
<td>FLPP binary deck for 6000 SCOPE 3.4 station</td>
</tr>
<tr>
<td>DSC</td>
<td>FLPP binary deck for 7611-2 magnetic tape station</td>
</tr>
<tr>
<td>DSK</td>
<td>FLPP binary deck for system mass storage device</td>
</tr>
<tr>
<td>MMD</td>
<td>FLPP binary deck for on-line tape unit</td>
</tr>
</tbody>
</table>

2.7 COMPASS 2.0

Tape

CM2REL

7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120. CM2REL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 7 for more detail.

<table>
<thead>
<tr>
<th>Partition</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CMPOPL</td>
<td>Source code in UPDATE format for CMPBIN.</td>
</tr>
<tr>
<td>2</td>
<td>CMPBIN</td>
<td>Absolute binary image of COMPASS assembler.</td>
</tr>
</tbody>
</table>

2.8 FORTRAN EXTENDED 2.0

Tape

FN2REL

7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120. FN2REL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 8 for more detail.

<table>
<thead>
<tr>
<th>Partition</th>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FTN0PL</td>
<td>Source code in UPDATE format for FTN0BIN.</td>
</tr>
<tr>
<td>2</td>
<td>FTN0BIN</td>
<td>Absolute overlay of FORTRAN Extended.</td>
</tr>
</tbody>
</table>

2.9 FORTRAN RUN 2.0

Tape

RN2REL

7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120. RN2REL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 9 for more detail.
Partition 1  RUNOPL  Source code in UPDATE format for RUNBIN.
Partition 2  RUNBIN  Absolute overlay of the FORTRAN Run compiler.

2.10 FORTRAN OBJECT TIME ROUTINES

Tape
FCLOPL  7-track tape file (SCOPE 3.4 tape) with the following characteristics: labeled, 556 bpi, odd parity, BT=C, RT=S, and MBL=5120. FTNLIBS*3P4 is the file identifier in the HDR1 label. Refer to part III, section 10 for more detail.

Partition 1  FCLOPL  Source code in UPDATE format for the system libraries FORTRAN and RUNLIB.

2.11 COBOL 1.0

Tape
COBREL  7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=L, RT=W, and MBL=5120. COBREL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 11 for more detail.

Partition 1  COBOPL  Source code in UPDATE format for COBREL and COBBIN.
Partition 2  COBBIN  Absolute overlay of the COBOL compiler.
Partition 3  COBREL  COBOL relocatable binary subroutines.

2.12 SORT/MERGE 1.0

Tape
SRTREL  7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=L, RT=W, and MBL=5120. SRTREL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 12 for more detail.

Partition 1  SROTOPL  Source code in UPDATE format for SRTBIN, SRTREL, and SRTMAC.
Partition 2  SRTBIN  Absolute overlay of Sort/Merge.
Partition 3  SRTREL  Sort/Merge relocatable binary subroutines.
Partition 4  SRTMAC  Sort/Merge macros in XTEXT format.
2.13 Diagnostic Control Program

Tape

DIAREL

7-track tape file with the following characteristics: labeled, 800 bpi, odd parity, BT=I, RT=W, and MBL=5120. DIAREL*SCP2.0 is the file identifier in the HDR1 label. Refer to part III, section 13, for more detail.

Partition 1   DIAOPL       Source code in UPDATE format for DCP and diagnostic programs CT73 and MEMC.

Partition 2   DIABIN       Absolute binaries of decks DCP, CT73, and MEMC.
SUMMARY OF PROCEDURES TO INSTALL OR MODIFY A CONFIGURED SYSTEM AND PRODUCT SET

The installation and modification of the SCOPE 2.0 operating system involves five general steps. These steps are summarized in this section and are presented in detail in part III, section 1. The sequence is also reflected in the flowchart in Figure I-3.2.

<table>
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<tr>
<th>General Procedure</th>
<th>Summary, Part I</th>
<th>Detail, Part III</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Establish base system materials from the materials issued at release time.</td>
<td>section 3.1</td>
<td>section 1.2</td>
</tr>
<tr>
<td>2. Build a production release system that contains the customer's product set either as released or modified according to installation parameters.</td>
<td>section 3.2</td>
<td>section 1.3</td>
</tr>
<tr>
<td>3. Apply customer modifications, if any, to materials created in step 2.</td>
<td>section 3.3</td>
<td>section 1.4</td>
</tr>
<tr>
<td>4. Create back-up copies of production materials that contain the product set and customer modifications.</td>
<td>section 3.4</td>
<td>section 1.5</td>
</tr>
<tr>
<td>5. Generate maintenance information.</td>
<td>section 3.5</td>
<td>section 1.6</td>
</tr>
</tbody>
</table>

3.1 ESTABLISH BASE SYSTEM MATERIALS

To establish base system materials the following tapes and decks must be available and at least PRDLIB must be cataloged as a permanent file.

The heart of the procedures to install or modify the system is the set of decks called SYSDECKS in partition 2 of MODTAPE (part III, section 1). These decks require that tapes, decks, and permanent files with special names, labels, permissions, and IDs be used to install a customer's system. If these materials do not exist, the person installing the system must either create them or modify the contents of SYSDECK.

3.1.1 TAPES NECESSARY FOR A BASE SYSTEM

Release materials for operating system and products as described in part I, section 2.

A deadstart tape (SCPLIB) containing at least UPDATE and COMPASS.

A LOADPF/DUMPF tape containing permanent files (cataloged with ID=PRDLIB) for product set libraries, product set core image binaries, and operating system core image binaries, (part III, section 1.2).
3.1.2 DECKS NECESSARY FOR A BASE SYSTEM

SMMB deck to install SMMB 3.0 at the MCU (part II, section 2)
SCPSID, the deadstart deck for SCOPE 2.0 (part II, section 6.2)
Deadstart cards for all stations at the customer site (part II, sections 3.1, 4.1, and 5.1)
Any required decks from SYSDECK (part III, section 1.2.3)

3.1.3 PROCEDURES TO BUILD BASE MATERIALS

Following is an overview of procedures to create a base system.

1. Construct the SCPSID deck (part II, section 6.2).
2. Deadstart SMMB, available stations, and SCOPE 2.0 as they are released (part II, sections 2.2, 3.2, 4.2, 5.2, and 6.1).
3. Use MODCAT to catalog MODPL and SYSDECK, and list SYSDECKS MEMO at the same time (part III, section 1.2.3).
4. Use PUNCHDKS to punch SYSDECK decks to be used to install or modify the system (part III, section 1.2.3).
5. For an initial installation, run the OPRDLIB job to catalog COMPASS and DCP from the SCPLIB tape as a dummy PRDLIB PF.
6. For subsequent installations, run the LDIDPRD job to execute a LOADPF on the ID=PRDLIB DUMPF tape (part III, section 1.6). Or, if in a production environment (running jobs), verify that files are cataloged using AUDIT (part III, section 1.2.4).

3.1.4 CAUTION IF BUILDING A SYSTEM DURING PRODUCTION

The procedures in this handbook assume that the installation or modification does not occur during production time. Some SYSDECK jobs create files that are used by other jobs. These permanent files may conflict with production permanent files. For example, the FTN object library permanent file causes problems if a SYSLIBE job that attaches the highest cycle is run.

The detailed procedures in part III, section 1 contain batch notes that indicate possible problems and ways to avoid these problems. The customer must evaluate each of the solutions in terms of his special circumstances.

3.2 BUILD A PRODUCTION RELEASE SYSTEM

A production release system contains the operating system, as released or with modified installation parameters (part III, section 6.2). It also contains products the customer has purchased, either as they are released or modified according to product configuration parameters in part III.
The basic steps in building the production release system are:

1. Run the xxxMOD or xxxGEN job (xxx is the product abbreviation) to update, assemble, and catalog the binaries for the products purchased by the customer and for which modifications exist on the MODPL (part III, sections 1.3.1 and 1.3.2). Refer to part I, section 3.6 for product dependencies.

Or, run the xxxINS job to copy the product's binary from the release tape and catalog the binary (part III, sections 1.3.1 and 1.3.2).

2. For subsequent installations, run the FTNLIBM job to update the old FCLOPL tape and to create a new FCLOPL tape (part III, section 1.3.3).

3. Run the NPRDLIBM job to update the PRDLIBM file. Binaries for products not modified in current PSR summary are retained from the previous system (part III, section 1.3.2).

4. Run the FLIBGEN and RLIBGEN jobs to update, assemble, and catalog the binary for the FTN and RUN object libraries (part III, section 1.3.3).

5. Run the SCPRMOD or SCPCGEN job to modify SCOPE 2.0, create a library of SCOPE 2.0 code, add the product set from PRDLIB, and create a new deadstart tape (part III, section 1.3.4).

6. Run the DBUGINS job to catalog the DBUGLIB permanent file (part III, section 1.3.4).

3.3 ADD CUSTOMER MODIFICATIONS

The procedures in SYSDECK assume that customer modifications are contained on a permanent file called USERMODPL, which is an ODLPL (with the master control character set to /) with one deck for each released product's program library (that is, one deck for the COMPASS program library, one deck for the FTN program library, etc.). SYSDECK contains a set of xxxUSR decks that update the release materials created by the xxxMOD decks. FTNLIBM adds customer modifications to the FORTRAN object libraries. The procedure to include customer modifications is similar to the procedure to apply PSR modifications.

3.4 CREATE BACK-UP MATERIALS

When the final tapes and decks are created, make copies of tapes and decks so that back-up materials are available. There are several SYSDECK jobs to copy the tapes and decks (part III, section 1.5).

3.5 GENERATE MAINTENANCE INFORMATION

There are several jobs on SYSDECK to produce maintenance information, such as listings of the system and various cross references of overlays, macros, and symbols (part III, section 1.8).
3.6 **TABLE OF INSTALLATION DEPENDENCIES**

The following table lists the elements, other than COMPASS and UPDATE, that are necessary to build the product (column 1) and also those elements necessary to use the product once it is built (column 2). The order of installation jobs is discussed in detail in part III, section 1.

In the following table, DBUGLIB is the object time library used by the TRAP utility; COBLIB is the object time library used by COBOL; FORTRAN and RUNLIB are the object libraries used by FTN and RUN respectively. SRTMACS is an XTEXT file containing COMPASS Sort macros.

<table>
<thead>
<tr>
<th>Product</th>
<th>Required Elements To:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Build (xxxGEN or xxxMOD)</td>
</tr>
<tr>
<td>SCOPE 2.0</td>
<td>FTN Compiler FTN Compiler</td>
</tr>
<tr>
<td>ANALYZE</td>
<td>FORTRAN Library</td>
</tr>
<tr>
<td>LIBEDT</td>
<td>FTN Compiler FTN Compiler</td>
</tr>
<tr>
<td>TRAP</td>
<td>FORTRAN Library</td>
</tr>
<tr>
<td>COMPASS 2.0</td>
<td></td>
</tr>
<tr>
<td>SORTMRG 1.0</td>
<td></td>
</tr>
<tr>
<td>COBOL 1.0</td>
<td>SRTLIB Library</td>
</tr>
<tr>
<td>FORTRAN Extended 2.0</td>
<td>SRTLIB Library</td>
</tr>
<tr>
<td>FORTRAN Run 2.0</td>
<td></td>
</tr>
<tr>
<td>FORTRAN Library</td>
<td>RUNLIB Library</td>
</tr>
<tr>
<td>RUNLIB</td>
<td>FTN Compiler</td>
</tr>
</tbody>
</table>

Figure 1-3.1. Table of Installation Dependencies
Figure I-3.2. Flowchart of Installation
ADDITIONAL MANUALS

Refer to the following publications for hardware, operating system, and product set information. Those with an asterisk (*) are combined SCOPE 2.0 and SCOPE 3.4 manuals.

Control Data Publications

<table>
<thead>
<tr>
<th>SCOPE 2.0 Manuals</th>
<th>Pub. No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCOPE 2.0 Reference Manual</td>
<td>60342600</td>
</tr>
<tr>
<td>SCOPE 2.0 User's Guide</td>
<td>60372600</td>
</tr>
<tr>
<td>*Loader Reference Manual</td>
<td>60344200</td>
</tr>
<tr>
<td>*Record Manager Reference Manual</td>
<td>60307300</td>
</tr>
<tr>
<td>SCOPE 2.0 Diagnostic Handbook</td>
<td>60344100</td>
</tr>
<tr>
<td>On-line Diagnostics Reference Manual</td>
<td>60405900</td>
</tr>
</tbody>
</table>

Hardware Manual

CONTROL DATA® CYBER 70/Model 76 Reference Manual 60367200

Station Manuals

| 7611-1 I/O Station Version 2 Operator's Reference Manual | 60343600 |
| 7611-2 Magnetic Tape Station Version 2 Operator's Reference Manual | 60343700 |
| 6000 and CYBER 70 Series SCOPE 3.4 Station Version 2 Operator's/Reference Manual | 60343800 |
| 6000 SCOPE 3.4 Installation Handbook                   | 60307400 |

SCOPE 2.0 Support Manuals

System Maintenance Monitor Version 3 Reference Manual 60312400
System Maintenance Monitor Version 3 Operator's Guide 60373800

Product Set Manuals

*COBOL Reference Manual 60384200
*COMPASS Reference Manual 60279900
FORTRAN Run Reference Manual Version 2 60360700
*FORTRAN Extended Reference Manual 60305600
*Sort/Merge Reference Manual 60343900
*UPDATE Reference Manual 60342500
Since the SCOPE 2.0 maintenance package is only used to modify the system and not to deadstart, it is described only in part III, section 1.
2.1 REQUIREMENTS

The SMMB initialization card deck is released in absolute (ABS) format. The first card is a 77 (prefix) card. The last card is a lace card that contains binary data.

![Diagram of SMMB card deck](image)

Figure II-2.1. SMMB Deck as Viewed from Back to Show Card Formats

It is the customer engineer's responsibility to install and maintain SMM 3.0. SMMB installation information is included in this manual because SMM is a requirement to dead-start and run SCOPE 2.0. Refer to the System Maintenance Monitor Version 3.0 Operator's Guide for SMM operating procedures and interface specifications.

2.2 DEADSTART PROCEDURE

Perform the following operations to deadstart the MCU and load the MCU operating system monitor program from the card reader.

1. Load the SMMB card deck as formatted in section 2.1 into the MCU card reader.
2. Press the deadstart button (ON-LINE/OFF-LINE button) on the card reader.
3. Press MOTOR POWER switch on the MCU card reader.
4. Press AUTO/MAN switch so that MAN lights.

5. Press the READY switch on the card reader operator panel.

The MCU reads in the card deck and initiates execution of the MCU monitor program in the MCU.

A successful deadstart of the MCU is indicated when the following information appears on the console: COPYRIGHT CONTROL DATA CORPORATION 1971 on the right screen and SMMB3000® on the lower left screen.

NOTE
If SMMB is restarted after SCOPE 2.0 is installed, it is necessary to reestablish communication with the CPU by typing in or reading in by card:

   CN 10730, 10460, 5344, 10540.

Part IV section 3.2.3 describes each of these parameters. Refer to the SMM Operator's Guide for a detailed description of the CN command and the SMM MCU/CPU communication block.
3.1 REQUIREMENTS

SMMB must be installed, as in part II, section 2. The installation of the 7611-1 I/O Station involves:

1. Transferring the 7611-1 I/O Station system from the STALIB tape to the station disk pack (section 3.2.1)
2. Deadstarting the 7611-1 I/O Station from disk (section 3.2.2)

The following materials are needed to perform this installation.

- STATDS: Card to transfer the 7611-1 I/O Station system from tape to disk
- STADDS: Card to initialize the 7611-1 I/O Station from disk
- STALIB: Tape containing the 7611-1 I/O Station library
- STACLR: Card to clear memory and channel

Additional instructions included in this section are:

- Procedures to read the SCOPE library (SCPLIB) tape from the 7611-1 I/O Station (section 3.2.3)
- Procedures to log in the station (section 3.2.4)

3.2 PROCEDURES

3.2.1 TAPE DEADSTART

1. Turn on all I/O station peripheral equipment. For turn-on procedures, refer to the reference/CE manual for each device. (It isn't necessary to turn on the punch to deadstart the station.)

2. Place the 7611-1 disk pack to be used for the new system on the I/O station disk drive; ready the unit.

3. Mount the 7611-1 I/O Station library tape (STALIB) on tape unit 0; ready the unit at 800 bpi.

4. Place STATDS (tape deadstart card) in the 7611-1 I/O Station card reader.

5. Press MOTOR POWER switch on the card reader operator panel.

6. Press deadstart button (ON-LINE/OFF-LINE button) on the inside panel of the card reader.

7. Press AUTO/MAN switch so that MAN lights.
8. Press READY switch on the operator panel.

9. After the card is read\textsuperscript{†}, press the END OF FILE switch twice.

PPUs 0, 3, 4, and 5 are deadstarted. (The disk pack is initialized which requires about three minutes. To avoid addressing the pack, type TERM 4 and press CR.) PPU 5 reads the tape and displays every program name. The system builds the station disk pack from the binaries on the STALIB tape.

The initialization operation is complete when the system rewinds the tape and turns off the selection unit light. Deadstart the disk using the procedure in section 3.2.2.

3.2.2 DISK DEADSTART

1. Turn on all I/O station peripheral equipment. For turn on procedures, refer to the reference/CE manual for that device.

2. Place the disk pack (created in section 3.2.1) on the I/O station disk drive; ready the unit.

3. Place STADDS (disk deadstart card) in the card reader.

4. Press MOTOR POWER switch on the card reader operator panel.

5. Press the deadstart button (ON-LINE/OFF-LINE button) on the inside panel of the card reader.

6. Press the AUTO/MAN switch so that MAN lights.

7. Press the READY switch to read the card.

8. After the STADDS card is read\textsuperscript{†}, press END OF FILE switch twice; the system deadstarts PPU's 0, 3, and 4 and brings up the INITL. display.

9. Deadstart the remaining PPUs using the AUTO command.

Type AUTO.
Press CR

The deadstart operation is complete when the SFNT display appears on the console.

10. Turn off any printer that isn't useable.

3.2.3 DEADSTART SCOPE 2.0 FROM THE 7611-1 I/O STATION

To deadstart the SCOPE 2.0 system from the 7611-1 station, follow the procedures in part II, section 6.1, noting these exceptions:

1. Specify the 7611-1 I/O Station as the system source device (part II, section 6.3.4).

\textsuperscript{†}If the STATDS or STADDS card does not perform its function, it may be necessary to clear memory and channel. Read in the STACLR card using the same procedure as to read in the STATDS or STADDS cards.
2. The following messages appear in the PPU5 message buffer area on the station console.
   a. DEADSTART 7000 SCOPE 2.0 indicates that the SCPLIB tape is being read.
   b. DEADSTART COMPLETE WAITING FOR LOGIN appears while the tape is rewinding and until the deadstart process is complete.
   c. CPU REQUESTS LOGIN appears when the deadstart process is complete.

3.2.4 LOG IN

When SCOPE 2.0 is installed, log the station in with the following procedure.

1. Press the / key to select CENTRAL mode; **CENTRAL** is displayed at the bottom of the display area.

2. To allow communication between the I/O station and central:
   Type LOGIN, ggg.
   
   ggg Optional three-alphanumeric-character station identifier; if omitted, the default station parameter IOS is used.
   
   Press CR

Refer to part II, section 6.1 for the procedures to ready the station for communication with central, to designate a SYSTEM OPERATOR station, and to assign the number of jobs to multiprogram in central.
4.1 REQUIREMENTS

The procedures in section 4.2 describe the installation of the 7611-2 Magnetic Tape Station.

SMMB must be installed as in part II, section 2.

Materials to install the station are:

- **MTSTDS**: Deck to initialize the station disk pack from tape; it is also on the SCPLIB tape as TDS.
- **MTSLIB**: Tape containing the station system library.
- **MTSDDS**: Card deck that initializes the station from disk; it is also on the SCPLIB tape as FDS to initialize the station at SCOPE 2.0 installation time.

Refer to the 7611-2 Magnetic Tape Station Version 2 Operator's Reference Manual for operating procedures.

4.2 PROCEDURES

Use the procedure in section 4.2.1, tape deadstart, for the initial deadstart of the station. These procedures load the station system from the MTSLIB tape to a disk pack and then load the system from the disk pack into the 7611-2.

The disk pack does not need to be loaded with the station system each time the station is deadstarted. After the system has been placed on the 7611-2 disk pack, use the procedure in section 4.2.2 to deadstart the station from disk either at SCOPE 2.0 installation time or after SCOPE 2.0 is already installed. However, if the system has been lost (because of disk errors, for example), the disk pack must be reloaded.

4.2.1 TAPE DEADSTART

1. Turn on the peripheral equipment. For turn-on procedures, refer to the reference/CE manual for the device.
2. Master clear the CC522 station console (maintenance panel) and select the left display page; turn up intensity on display.
3. Place a disk pack on the 857 disk drive.
4. Mount the MTSLIB tape on unit 0 at 800 bpi; ready the unit.
5. Load the MTSTDS deck into the MCU card reader; the format of the deck is as follows.
xx. FLPP connected to the 7611-2 Magnetic Tape Station
DPxx. Deadstarts the designated FLPP
LPxx,0. Loads the binary cards in MTSTDs in the FLPP specified starting at location 0
RUxx,100. Executes the program in the designated FLPP starting at address 100

6. Press the AUTO/MAN switch so that AUTO lights.
7. Press the MOTOR POWER switch so that the motor runs.
8. Press READY switch (operator panel).
   The system reads the MTSTDs deck and loads the station system on the disk pack.
   The following message appears on the station display while the disk is addressed.
   \begin{center}
   \textbf{INITIALIZING DISK}
   \end{center}
   Then
   \begin{center}
   \textbf{CREATING LIBRARY}
   \end{center}
   \noindent appears; the tape is read and written in a scratch portion of the station disk.
   The following message appears as the routines are placed in the proper portion on the disk (xxx = routine name).
   \begin{center}
   \textbf{CREATING LIBRARY xxx}
   \end{center}
9. The installation of the station is completed during the installation of SCOPE 2.0.
   When installing SCOPE 2.0, insert a CHQ card describing the station in the dead-start reply deck (section 6.3.3).
When the deadstart deck SCPSID is read, the station receives a bootstrap called FDS that reads the library from its disk pack. FDS deadstarts the multiplexer PPU (XPP) in the station and sends it a deadstart program. The XPP deadstarts the remaining station PPUs. SCOPE 2.0 must be installed. The station is now capable of performing blank labeling functions and diagnostic operations.

4.2.2 DISK DEADSTART

If SCOPE 2.0 has been installed and the station system is on a disk pack, use the following procedure to deadstart the station (unless the system library is lost because of disk errors).

If SCOPE 2.0 and the station are to be installed at the same time, use only steps 1 through 3 and then proceed with the SCOPE 2.0 installation procedures (part II, section 6.1).

1. Turn on the peripheral equipment. For turn-on procedures, refer to the reference/CE manual for the device.

2. Master clear the CC522 station console (maintenance panel) and select the left display page; turn up the density on the display.

3. Place the disk pack containing the station system on the 857 disk drive.

4. Load the MTSDDS deck into the MCU card reader in the following format.

   ![Diagram of MTSDDS deck]

   - **xx.** FLPP connected to the station
   - **DPxx.** Deadstarts the designated FLPP
   - **LPxx,0.** Loads the binary cards in MTSDDS into the FLPP specified starting at location 0

5. Press the AUTO/MAN switch so that AUTO lights.

6. Press the MOTOR POWER switch so that the motor runs.
7. Press the READY switch on the operator panel.

The system reads the FDS program contained in MTSDDS and reads the library from its disk pack. FDS deadstarts the multiplexer PPU (XPP) in the station and sends it a deadstart program. The XPP deadstarts the rest of the station PPUs. The station is now capable of performing blank labeling functions and diagnostic operations.

4.2.3 DEADSTART SCOPE 2.0 FROM 7611-2 MAGNETIC TAPE STATION

To deadstart the SCOPE 2.0 system from the 7611-2 magnetic tape station, follow the procedures in part II, section 6.1 noting the following:

1. Specify the 7611-2 Magnetic Tape Station as the system source device (part II, section 6.3.4).

2. n.LOG IN THE STATION appears on the station display console when the deadstart process is complete.

4.2.4 LOG IN

1. When SCOPE 2.0 is ready to communicate with the station, it sends an initiate message and the station displays the following message on the console display.

   n.LOG IN THE STATION

2. Type n.LOGIN ggg

   Press CR

   n          Same number as in preceding message
   ggg        Optional three-alphanumeric-character station identifier; if omitted, the default station identifier MTS is used.

The station is operational when the data appears in the upper right-hand corner of the unit status display.
5.1 REQUIREMENTS

Refer to the SCOPE 3.4 Installation Handbook for installation of the 6000 SCOPE 3.4 Station and to the 6000 and CYBER 70 Series SCOPE 3.4 Station Version 2 Operator's Reference Manual for operating procedures.

5.2 PROCEDURES

5.2.1 INSTALLATION AND LOG IN

1. Install the 6000 SCOPE 3.4 operating system using the installation instructions in the 6000 SCOPE 3.4 Installation Handbook. To indicate that the 6000 computer system is to be used as a station, insert *DEFINE,STATION in the UPDATE record of the SCOPE1 deck. (Remove the card from the deck when a configured program library is created.)

2. To bring the station to control point after SCOPE 3.4 is deadstarted and is executing:

Type n.STATggg
Press CR

n Control point number assigned to 6000 station

ggg Optional three-alphanumeric-character station identifier; first character must be alphabetic. If parameter is omitted, the default station identifier CCP is used.

3. If SCOPE 2.0 is already deadstarted and executing, log in occurs automatically; if the SCOPE 2.0 deadstart tape SCPLIB is to be read from the 6000 station, log in of the 6000 station occurs when SCOPE 2.0 deadstart initialization or recovery is complete; if SCOPE 2.0 is not deadstarted and executing, the following message appears at the 6000 station control point.

WAITING FOR 7000

5.2.2 DEADSTART SCOPE 2.0 FROM 6000 3.4 STATION

To read the SCPLIB file from the 6000 station, use the following procedure.

1. Complete the preceding LOG IN procedure (section 5.2.1).

2. Use the SCOPE 2.0 installation procedure (part II, section 6.1) assigning the 6000 station channel as the channel through which the system library is to be sent (source command in part II, section 6.3.4).
3. After receiving the deadstart signal from the 7000, the 6000 station searches for a permanent file named DEADST (a default file name set by an assembly option) to transfer it to the SCOPE 2.0 system. If that permanent file is found, the SCPLIB file is copied from the 6000 station to the SCOPE 2.0 system disk. (Procedures to catalog SCPLIB on permanent file DEADST are in the Operator's Reference Manual for the SCOPE 3.4 Station.)

4. If the default file DEADST cannot be found as a permanent file, the following message appears on the SCOPE 3.4 system B display.

REQUEST DEADSTART FILE, LAST ASSIGN NOT FOUND

5. If the deadstart file is on tape:

   Type n.ASSIGN uu.
   Press CR

   n    Control point number assigned to the 6000 Station
   uu    6000 equipment status table (EST) ordinal of the tape unit uu

   Type DSFILE,uu,dd.†
   Press CR

   uu    Deadstart file is on tape at EST ordinal uu
   dd    LO, HI, HY for 7-track tape density; if omitted, default is HI for 7-track. This parameter is ignored for 9-track tapes.

6. If the deadstart file is another permanent file (other than DEADST):

   Type DSFILE,pfn.†
   Press CR

   pfn    Deadstart file is a permanent file with file name pfn.

7. The SCPLIB is copied from the 6000 station to the SCOPE 2.0 system disk. When SCOPE 2.0 is deadstarted, it sends a station initiate message to all stations known in the system.

Continue with SCOPE 2.0 installation in part II, section 6.1.

†The DSFILE command can be entered after the n.STATggg (section 5.2.1, step 2) but before the SCOPE 2.0 deadstart procedure (section 5.2.2). In this case the REQUEST DEADSTART FILE message does not occur.
Deadstart is the process that prepares a computer system for running jobs. With SCOPE 2.0 there are two kinds of deadstart.

Deadstart initialization

The DS1 module is loaded into SCM from the MCU card reader; the system library to be initialized is either on a tape or is one of five cycles of the system library permanent file resident on the system disk.

Procedure is in section 6.1.

Deadstart recovery

The DS1 module is loaded into SCM from the system disk; the system library to be recovered is either on a tape or is one of five cycles of the system library permanent file resident on the system disk.

Procedure is in section 6.4.

The functions of the deadstart program during the deadstart process are described in part IV, section 3.6.7. The following figure identifies the information that can be recovered from the previous deadstart.

<table>
<thead>
<tr>
<th>Deadstart Option</th>
<th>Deadstart Initialization</th>
<th>Deadstart Recovery</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EST, LIB, SYS, FLS, FLL, and CHQ</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>recovered?</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>Permanent files</td>
<td>optional</td>
<td>optional</td>
</tr>
<tr>
<td>recovered?</td>
<td>automatic</td>
<td>automatic</td>
</tr>
<tr>
<td>Flaw table (in volume label group)</td>
<td>automatic if</td>
<td>automatic</td>
</tr>
<tr>
<td>recovered?</td>
<td>permanent file recovery selected</td>
<td></td>
</tr>
<tr>
<td>T.MAXS, T.MAXL, and T.MAXBUF</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>recovered?</td>
<td>no</td>
<td>yes</td>
</tr>
<tr>
<td>SFT I/O files recovered?</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td>recovered?</td>
<td>no</td>
<td>optional</td>
</tr>
<tr>
<td>SIF LCM buffers recovered?</td>
<td>no</td>
<td>no</td>
</tr>
<tr>
<td></td>
<td>automatic if SFT I/O</td>
<td></td>
</tr>
<tr>
<td></td>
<td>files recovered</td>
<td></td>
</tr>
</tbody>
</table>

Figure II-6.1. Diagram of Deadstart Options
6.1 DEADSTART INITIALIZATION PROCEDURE

This section contains a brief description of the deadstart initialization procedure with references to other sections for detailed information.

NOTE
Read all information contained in part II, sections 6.1 through 6.4 before attempting to use this procedure. It is necessary to know the hardware assignments (such as channel and FLPP assignments) before beginning the installation.

1. Construct the SCPSID deck to reflect the site's configuration.                  part II, section 6.2

2. Deadstart the MCU.                                                            part II, section 2

3. Deadstart the stations that are to be used in the deadstart process.          part II, sections 3.2, 4.2, and 5.2

4. If the system library is on tape, mount the SCPLIB tape on either a 7611-1 station, 7611-2 station, 6000 station, or on-line tape unit; ready the unit. The default values for the 7611-1 and 7611-2 station and on-line tapes are: unit 0, 556 bpi, 7-track tape. A 6000 station tape unit must be assigned to the station control point. part II, sections 3.2.3, 4.2.3, or 5.2.2

5. Place the SCPSID deck in the MCU card reader.
   a. Press the AUTO/MAN switch so that AUTO lights.
   b. Press the MOTOR POWER switch so that the motor runs.
   c. Press the READY switch on the operator panel.

The cards are read; if the card reader does not begin to read cards, begin again with step 2 or refer to the EP command in part IV, section 3.2.4.

6. Reply to the deadstart requests at the MCU display console. (The sequence of requests and replies are in the flowchart in section 6.5.1). part II, section 6.3

7. Log in the stations.                                                           part II, sections 3.2.4, 4.2.4, and 5.2.1

8. Ready the 7611-1 and 6000 stations for communication with central.
   Type ONSTAT.
   Press CR
9. Designate one SYSTEM OPERATOR station.
   Type SETOP.
   Press CR
   Type ONOP.
   Press CR

10. At the SYSTEM OPERATOR station, assign the number of jobs to be executed in multi-programming mode.
    Type JCB,n
    Press CR

11. If a permanent file dump tape of the system libraries exists, run the LDIDPRD job.

12. Run the SYSLIB job to specify the object libraries to the operating system.

   part IV, section 3.6.3

6.2 FORMAT OF SCPSID DEADSTART DECK

The purpose of this section is to describe the structure of the deadstart deck. (Its function is described in part IV, section 3.6.7.) The deck contents and the SMM commands necessary in the deadstart deck are described in sections 6.2.1 through 6.2.4. Refer to the System Maintenance Monitor Version 3 Reference Manual for a more detailed description of each SMM command.

NOTE
Keypunch errors in the deadstart deck may cause deadstart to abort.

SCPSID contains the following decks and control cards.
6.2.1 FLPP DECKS

Place a FLPP card deck in the SCPSID deck to initialize each FLPP in the site's hardware configuration.

Deck Format for FLPPs Used to Deadstart SCOPE 2.0

Construct a deck similar to the following for each FLPP to be used for the deadstart process.

<table>
<thead>
<tr>
<th>DPxx</th>
<th>Loads resident program and deadstarts the designated PPU</th>
</tr>
</thead>
<tbody>
<tr>
<td>KPxx</td>
<td>Clears the entire FLPP memory, except for resident</td>
</tr>
<tr>
<td>CExx</td>
<td>Clears parity errors for designated FLPP</td>
</tr>
<tr>
<td>LPxx,0</td>
<td>Loads binary program to the FLPP specified starting at location 0; all load addresses given to SMM for all FLPPs are 0.</td>
</tr>
</tbody>
</table>

FLPP binary module

FLPP binary programs used to deadstart SCOPE 2.0; deck names are:

- CPL 6000 station deck
- DSC 7611-2 Magnetic Tape Station deck
- DSK System mass storage device decks
- MMD On-line tape unit device (MTD is COMPASS ident)

The 7611-1 I/O station does not have an FLPP.

MPxx₁, xx₂ If there is more than one FLPP driver for a given device in the system, an FLPP deck is necessary for each driver. Since the binary deck for each is identical, the MP (move) command can be used to move the contents of FLPPxx₁ to FLPPxx₂.
Deck Format for Other FLPPs

Construct a deck in the following format for each FLPP not part of the deadstart process.

\[ \begin{align*}
&\text{CExx}, \\
&\text{KPxx}, \\
&\text{DPxx},
\end{align*} \]

\[ \text{DPxx.} \quad \text{Loads resident program and deadstarts the designated PPU} \]
\[ \text{KPxx.} \quad \text{Clears the entire PPU memory, except for resident} \]
\[ \text{CExx.} \quad \text{Clears parity errors for designated PPU} \]

6.2.2 DS1 DECK

The DS1 deck must consist of the following cards.

\[ \begin{align*}
&\text{CON 10730,10460,5344,10540.} \\
&\text{DC.} \\
&\text{78.} \\
&\text{DS1 binary module} \\
&\text{LCD.} \\
&\text{Kfwa,lwa+1,data, (optional card)} \\
&\text{KCO, fls, 0.} \\
&\text{CF.} \\
&\text{HC.} \\
&\text{BX.} \\
&\text{AX.}
\end{align*} \]
AX. Commands SMM to bring up an X format display of SCM on the A screen

BX. Commands SMM to bring up an X format display of SCM on the B screen

Forcing of an SCM display during the initial (noninterruptable) phase of DS1 prevents SMM from displaying LCM. Avoid displaying LCM while the CPU is executing in noninterruptable mode, because the MCU stops communicating with the CPU after a period of time.

HC. Applies the deadstart signal to the CPU until an RD or DC command is given or until a reference to LCM is required

CE. Clears parity error indicators for SCM and LCM

The CF. and KC0,fls,0. commands are needed after running off-line diagnostics in the CPU to prevent the DS1 binary deck from writing over the MCU/CPU communication area in SCM.

The CF. command directs the MCU to stop monitoring the MCU/CPU communication area and to stop writing parity status into the communication area.

KC0,fls,0. Sets SCM from 0 to fls-1 to zeros. fls is length of SCM: 1000008 for half-sized SCM or 2000008 for full-sized SCM.

KL fwa,lwa+1, data. Sets LCM from fwa to lwa to value of data; optional

LC0. Loads binary module DS1 to SCM starting at location 0

DS1 binary module The module must end with a 7/8/9 card

DC. Deadstarts the CPU; the CPU exchange jumps to location 0

CN 10730, 10460, 5344, 10540. Directs the MCU to monitor the MCU/CPU call block for CPU calls and to store FLPP and SCM/LCM status in the communication area. The parameters specify the locations of the communication area, the EEA exchange package, and addresses required by the SMM SY command. Whenever ORE or ORL changes are made, check the CN parameters for accuracy. Refer to part IV, section 3.2.3 for a detailed description of the CN parameters.
6.2.3 DEADSTART REPLY DECK

The deadstart reply deck is constructed in the following way.

The 8/9 punch in column 1 indicates to SMM that this is a reserve control card. SC2 is an identifier to DS1 to signal the beginning of the SCOPE 2.0 deadstart reply deck. This card is necessary even if there are no requests entered by card (when all are entered through the MCU console).

Optional; if replies are to be included in the SCPSID deck:

Replies must be in the same order as presented in section 6.3. BCD text on the card begins in column 1.
Up to 40 hollerith characters are allowed per card.
Terminate the text with an 11/12 punch to indicate end of reply. (This corresponds to the carriage return when submitting requests at the MCU console.)
Comments may be added after the 11/12 punch.

The 8/9 punch indicates to DS1 that this is a reserve control card. END indicates the last card in the deadstart reply deck. It is necessary even if no deadstart request replies are in the deadstart deck.

6.2.4 SAMPLE SCPSID DECK STRUCTURE

Following is the SCPSID deck as it would be constructed for the typical configuration described in sections 6.3.1 and 6.3.3. There are two examples of deadstart reply decks, the first for a deadstart initialization without permanent file recovery and the second for a deadstart recovery with permanent file recovery.

Only FLPP decks necessary to deadstart the system are required in the SCPSID. FLPPs are reloaded automatically by deadstart. In the following example all possible decks are included.

! indicates an 11/12 punch; * indicates optional cards.
FLPP and DS1 Decks

AN.
BN.
DP2.
KP2.
CE2.
LP2, 0.
DSK (Disk FLPP binary driver) 7/8/9
DP3.
KP3.
CE3.
LP3, 0.
DSK (Disk FLPP binary driver) 7/8/9
or MP2,3.
DP4.
KP4.
CE4.
DP5.
KP5.
CE5.
DP6.
KP6.
CE6.
DP7.
KP7.
CE7.
DP10.
KP10.
CE10.
LP10, 0.
CPL (6000 FLPP binary driver) 7/8/9
DP11.
KP11.
CE11.
LP11, 0.
MMD (On-line tape FLPP binary driver) 7/8/9
DP12.
KP12.
CE12.
LP12, 0.
DSC (7611-2 FLPP binary driver) 7/8/9
DP14.
KP14.
CE14.
LP10, 0.
CPL (6000 FLPP binary driver) 7/8/9
or MP10,14.
DP15.
KP15.
CE15.
AX.
BX.
HC.
CE.
CF.
KC0, fls, 0
*KL.
LC0.
DS1 binary module
7/8/9
DC.
CN 10730, 10460, 5344, 10540.

Deadstart Reply Decks

The following example is a deadstart reply deck for deadstart initialization without permanent file recovery and the source of the system library on tape.

8/9SC2
FLS=200000, FLL=1764000
LIB=205!
EST=1, DT=AF/PP/SY, CH=2, UN=0!
EST=2, DT=AF, CH=3/2, UN=1!
EST=3, DT=AF, CH=4/5, UN=0!
EST=4, DT=AF, CH=6/7, UN=1!
EST=40, DT=MT, CH=11, UN=0!
EST=41, DT=MT, CH=11, UN=1!
EST=42, DT=MT, CH=11, UN=2!
! END OF EST ENTRIES
CHQ=2, DT=AF/2P, FC=01043276
CHQ=3, DT=AF/2P, FC=01047632
CHQ=4, DT=AF/4P, FC=01043200
CHQ=5, DT=AF/4P, FC=01040032
CHQ=6, DT=AF/4P, FC=01043200
CHQ=7, DT=AF/4P, FC=01040032
CHQ=10, DT=6ST, FC=01200000
CHQ=11, DT=MT, FC=01003200
CHQ=12, DT=MTS, FC=01320000
CHQ=13, DT=6ST, FC=01200000, PP=14!
CHQ=16, DT=7ST, FC=0!
CHQ=17, DT=7ST, FC=0!
! END OF CHQ ENTRIES
T12! GIVE SYSTEM SOURCE REPLY
N! NO PERMANENT FILE RECOVERY
20, 5, 1! FLAW ON TRACK 20 OF C2, U0 (SYSTEM RESIDENT DEVICE)
! END OF FLAWS ON C2, U0, TRACK 20
1200! OTHER FLAWS ON C2, U0
35, 0, 12! OTHER FLAWS ON C2, U0
37, 1, 1! OTHER FLAWS ON C2, U0
! END OF FLAWS ON C2, U0
AUTO! GO REPLY
*STORE 340, L, T. MAXBUF!

*STORE 0, L, T. SPF!
*STORE 160000, L, T. MAXS!

*STORE 1400000, L, T. MAXL!

GCM!
!
NO FLAWS ON TRACK 20 of C3, U1
!
NO OTHER FLAWS ON C3, U1
!
NO FLAWS ON TRACK 20 OF C4, U0
!
NO OTHER FLAWS ON C4, U0

60344000 A
20,8,1! FLAWS ON TRACK 20 OF C6, U1
145,12! OTHER FLAWS ON TRACK 20 OF C6, U1
8/9 END

The following example is a deadstart reply deck for a deadstart recovery with permanent file recovery. The system library is on tape. The next command to appear after using this deck is the request for the disk address of the volume label group.

8/9SC2
FLS=200000, FLL=1764000!
LIB=205!
EST=1, DT=AF/PF/SY, CH=2/3, UN=0!
EST=2, DT=AF, CH=3/2, UN=1!
EST=3, DT=AF, CH=4/5, UN=0!
EST=4, DT=AF, CH=6/7, UN=1!
EST=40, DT=MT, CH=11, UN=0!
EST=41, DT=MT, CH=11, UN=1!
EST=42, DT=MT, CH=11, UN=2!
END OF EST ENTRIES

CHQ=2, DT=AF/2P, FC=01043276!
CHQ=3, DT=AF/2P, FC=01047632!
CHQ=4, DT=AF/4P, FC=01043200!
CHQ=5, DT=AF/4P, FC=01040032!
CHQ=6, DT=AF/4P, FC=01043200!
CHQ=7, DT=AF/4P, FC=01040032!
CHQ=10, DT=6ST, FC=01200000!
CHQ=11, DT=MT, FC=01003200!
CHQ=12, DT=MTS, FC=01320000!
CHQ=13, DT=6ST, FC=01200000, PP=14!
CHQ=16, DT=7ST, FC=0!
CHQ=17, DT=7ST, FC=0!
CHQ CONFIRMATION

T12! GIVE SYSTEM SOURCE REPLY
Y! PERMANENT FILE RECOVERY
8/9 END

6.3 DEADSTART REQUESTS AND REPLIES FOR DEADSTART INITIALIZATION

Information defining the site's hardware configuration can be partially submitted in the SCPSID deck. All information not provided in this deck is requested at deadstart time at the MCU console with the request messages noted in this section. The first request displayed at the MCU console when the SCPSID deck is read is the one that follows the last reply supplied in the deadstart deck.

The following possibilities are available to the person installing the system.

- Answering all requests at the MCU console by only submitting the 8/9SC2 and the 8/9END cards in the SCPSID deck to represent the deadstart reply deck.
- Submitting some replies in the SCPSID deck with the following restrictions.

If permanent files are not to be recovered from the previous deadstart, replies in sections 6.3.1 through 6.3.11 (up to but not including the volume label group) can be entered by card.
If permanent files are to be recovered from the previous deadstart, only replies in sections 6.3.1 through 6.3.5 can be submitted by card.

If any reply is entered incorrectly, an ERROR message appears. Refer to part IV, section 2.6 for corrective action.

6.3.1 EQUIPMENT STATUS TABLE (EST)

The EST contains the on-line equipment settings. They are set as each reply is received through the card reader or the MCU console.

Display Format

<table>
<thead>
<tr>
<th>NO.</th>
<th>TYPE</th>
<th>STATUS</th>
<th>CHANNELS</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIBRARY BUFFERS</td>
<td></td>
<td></td>
<td>220</td>
</tr>
<tr>
<td></td>
<td>SYSTEM TABLES</td>
<td></td>
<td></td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>FLS</td>
<td></td>
<td></td>
<td>100000</td>
</tr>
<tr>
<td></td>
<td>FLL</td>
<td></td>
<td></td>
<td>0764000</td>
</tr>
</tbody>
</table>

NO.         EST entry ordinal
TYPE        Device type
STATUS      Not used
CHANNELS    FLPP primary and secondary channels
UNIT        Unit number
LIBRARY BUFFERS Number of 1000g word library buffers; to modify released value of 220 refer to section 6.3.2
SYSTEM TABLES Number of 1000g word system tables; to modify released value of 40 refer to section 6.3.2
FLS          Field length for SCM; to modify released value of 100000 refer to section 6.3.2
FLL          Field length for LCM; to modify released value of 0764000 refer to section 6.3.2

Reply Format

A single carriage return when information is typed in (or 11/12 punch in column 1 when the information is on card) confirms that the EST is accurate and/or that EST input is completed.

To add to or modify the EST, submit the following information by card in the deadstart reply deck or at the MCU console when the EST display appears. The on-line equipment is set in the EST as each reply is received and the display is updated.
During a deadstart initialization with permanent file recovery only changes to the magnetic tape entries (MT and NT) can be made. Do not make any additions, deletions, or modifications to the system mass storage entries. They must be the same as in the last successful deadstart or recovery.

```
EST=ord,DT=dt,CH=cc1/2,UN=unit
```

**ord**
EST entry ordinal; 1 through NE.EST-1 (NE.EST=1008 in released system)

**dt**
Device type and device characteristics when necessary. AF indicates that the equipment is a mass storage disk; SY indicates that the system library is read onto that file during deadstart; PF indicates that the equipment is for permanent file directory (PFD) and permanent file catalog (PFC).

- **AF** Mass storage device
- **AF/PF** Mass storage device; available for PFD and PFC.
- **AF/PF/SY** Mass storage device; available for PFD, PFC, and system library file.
- **AF/SY** Mass storage device; system library file residence
- **MT** 7-track magnetic tape
- **NT** 9-track magnetic tape

**cc1/2** FLPP primary (cc1) and secondary (cc2) channels when necessary; 2 through 178

**unit** Physical unit number; 0 through 778

To delete EST entries type or submit by card the following (ord is the ordinal of the equipment to be deleted):

```
EST=ord
```

**Example:**

The sample EST entries for the typical configuration in figure II-6-2 are:

- EST=1, DT=AF/PF/SY, CH=2/3, UN=0!
- EST=2, DT=AF, CH=3/2, UN=1!
- EST=3, DT=AF, CH=4/5, UN=0!
- EST=4, DT=AF, CH=6/7, UN=1!
- EST=40, DT=MT, CH=11, UN=0!
- EST=41, DT=MT, CH=11, UN=1!
- EST=42, DT=MT, CH=11, UN=2!
6.3.2 MEMORY SIZE

As an option at anytime during the building of the EST, the number of library buffers, the number of system tables, and the size of SCM and/or LCM buffer areas can be allocated. When submitting this information as part of the SCPSID deck, these cards should precede the EST cards. This information is displayed at the bottom of the EST display as shown in part II, section 6.3.1.

Reply Format for Library Buffers

Library buffers are allocated in LCM and are partially filled during deadstart with system overlays and directories. During system running, additional library buffers are used when the SYSLIBE function adds an LCM resident library. If the number of library buffers allocated is overflowed during the deadstart operations, the fatal error message LIB BUFFERS EXCEEDED is displayed. In this case, deadstart again with a larger number of library buffers specified.

Type or submit by card in the deadstart reply deck the following information.

```
LIB=xxx
```

xxx 3-digit number of library buffers; each buffer is 1000\(^8\) in length; default is in IP.LIB

Reply Format for System Table Definition

System tables are used by the system as a data area for FATs, PREs, and other temporary tables.

Type or submit by card in the deadstart reply deck the following information.

```
SYS=xxx
```

xxx 1 to 3 digit number of system tables; each table is 1000\(^8\) words in length; default is in IP.SYS
Reply Format for FLS and FLL

Type or submit by card in the deadstart reply deck the following information.

```
| FLS=xxxxxx,FLL=yyyyyyy |
```

xxxxxx 1 to 6 digit field length for SCM; default is 100000B (IP. SCMSI in part III, section 6.2.12)

yyyyyy 1 to 7 digit file length for LCM; default is 764000B (IP. LCMSI in part III, section 6.2.12)

6.3.3 CHANNEL QUEUE TABLE (CHQ)

The channel queue table contains the characteristics of each hardware I/O channel.

Display Format

```
<table>
<thead>
<tr>
<th>CHANNELS</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO.</td>
</tr>
<tr>
<td>00</td>
</tr>
<tr>
<td>01</td>
</tr>
</tbody>
</table>

NO. CHQ entry ordinal number

TYPE Device type and characteristics; REJ refers to an unused channel

SC Maximum number of subchannels for a station channel; cannot be modified during deadstart

BL Hardware I/O buffer length; cannot be modified during deadstart

QL Maximum number of requests for a station channel; cannot be modified during deadstart

FC Channel function code for FLPP initialization

Reply Format

To add to or amend the CHQ, type at the MCU console or submit on cards in the deadstart reply deck the following information. As each reply is processed, the CHQ display is updated.
During a deadstart initialization with permanent file recovery, do not make any changes that would affect the EST and CHQ mass storage device assignments.

\[
\begin{array}{c}
\text{CHQ} = \text{ord}, \text{DT} = \text{dt}, \text{FC} = \text{channel}, \text{PP} = \text{flpp}
\end{array}
\]

ord  CHQ entry ordinal; must be the I/O multiplexer channel (MUX) number to be described (2 through 17).

dt  Device type and characteristics when necessary

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AF/2P</td>
<td>Mass storage device, 2 PPU configuration</td>
</tr>
<tr>
<td>AF/4P</td>
<td>Mass storage device, 4 PPU configuration</td>
</tr>
<tr>
<td>MT</td>
<td>7-track magnetic tape</td>
</tr>
<tr>
<td>NT</td>
<td>9-track magnetic tape</td>
</tr>
<tr>
<td>MT/2P</td>
<td>7-track magnetic tape</td>
</tr>
<tr>
<td></td>
<td>2 PPU configuration</td>
</tr>
<tr>
<td>NT/2P</td>
<td>9-track magnetic tape</td>
</tr>
<tr>
<td></td>
<td>2 PPU configuration</td>
</tr>
<tr>
<td>6ST</td>
<td>6000 or CYBER 70 Station</td>
</tr>
<tr>
<td>7ST</td>
<td>7611-1 I/O Station</td>
</tr>
<tr>
<td>MTS</td>
<td>7611-2 Magnetic Tape Station</td>
</tr>
</tbody>
</table>

channel Channel configuration for FLPP initialization. The first four characters are data in direct address 6; the last four characters are data in direct address 7.

For system mass storage file driver (2 PPU configuration)
For system mass storage file driver (4 PPU configuration)

**Lower numbered PPU**

<table>
<thead>
<tr>
<th></th>
<th>11</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT ADDRESS 6</td>
<td>0 FOR MCU CHANNEL</td>
<td>1 FOR MUX CHANNEL</td>
</tr>
<tr>
<td>DIRECT ADDRESS 7</td>
<td>DISK UNIT DATA CH.</td>
<td>DISK UNIT CONTROL CH.</td>
</tr>
</tbody>
</table>

**Higher numbered PPU**

<table>
<thead>
<tr>
<th></th>
<th>11</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT ADDRESS 6</td>
<td>0 FOR MCU CHANNEL</td>
<td>1 FOR MUX CHANNEL</td>
</tr>
<tr>
<td>DIRECT ADDRESS 7</td>
<td>0 FOR UNUSED</td>
<td>0 FOR UNUSED</td>
</tr>
</tbody>
</table>

**For station driver**

<table>
<thead>
<tr>
<th></th>
<th>11</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIRECT ADDRESS 6</td>
<td>0 FOR MCU CHANNEL</td>
<td>1 FOR MUX CHANNEL</td>
</tr>
<tr>
<td>DIRECT ADDRESS 7</td>
<td>STATION B DATA CHANNEL</td>
<td>STATION B DEADSTART CHANNEL</td>
</tr>
</tbody>
</table>
For on-line tape driver

<table>
<thead>
<tr>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>FOR MCU CHANNEL</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>FOR MUX CHANNEL</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>FOR UNUSED</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>FOR UNUSED</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>DATA CHANNEL A</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>FOR UNUSED</td>
</tr>
<tr>
<td>0</td>
</tr>
<tr>
<td>FOR UNUSED</td>
</tr>
</tbody>
</table>

flpp Optional FLPP number; must be entered only when the FLPP number differs from the number of the CPU channel to which the FLPP is attached. For example, if CPU MUX channel 13 is connected to FLPP14, the parameters would be PP=14 on the CHQ=13,... reply.

REJ as type on the display indicates unused channel. Change a channel to unused channel by typing or submitting by card:

```
CHQ=ord
```

A single carriage return when information is typed in (or an 11/12 punch in column one when the information is on cards) indicates that the CHQ is confirmed and/or that CHQ input is completed.

Before confirming the CHQ, the operator may display the EST. To do so, type EST and press CR. Return to the CHQ display by typing CHQ and pressing CR.

Example:
The CHQ entries for the typical configuration in Figure II-6.2 are:

- CHQ=2, DT=AF/2P, FC=01043276!
- CHQ=3, DT=AF/2P, FC=01047632!
- CHQ=4, DT=AF/4P, FC=01043200!
- CHQ=5, DT=AF/4P, FC=01040032!
- CHQ=6, DT=AF/4P, FC=01043200!
- CHQ=7, DT=AF/4P, FC=01040032!
- CHQ=10, DT=6ST, FC=01200000!
- CHQ=11, DT=MT, FC=01003200!
- CHQ=12, DT=MTS, FC=01320000!
- CHQ=13, DT=6ST, FC=01200000, PP=14!
- CHQ=16, DT=7ST, FC=0!
- CHQ=17, DT=7ST, FC=0!

The EST entries for this typical configuration are in section 6.3.2.
Figure II-6.2. Diagram of Typical Configuration
6.3.4 GIVE SYSTEM SOURCE

This message requests the CPU channel through which the system library will be sent.

Display Format

GIVE SYSTEM SOURCE

Reply Format

If a new system is to be loaded from an on-line or station tape, type at the MCU or submit by card in the deadstart reply deck the following information. Defaults do not pertain to 6000 station.

Tchannel,unit,density,type

channel 2-digit CPU channel number through which the system library is to be sent. The channel must contain either an on-line tape driver or a station from which to read the tape (SCPLIB).

unit Optional 1-digit physical unit number. If a 7611-1, 7611-2, or on-line tape unit is used to read the tape, the default is unit 0. If it is to be read from the 6000 station, the tape unit must be assigned to the station control point.

density Optional 2-digit deadstart tape density: LO, HI, HY, or PE; HI (556 bpi) is default value when parameter is omitted.

type Optional 1-digit tape type: 7 or 9; 7 is default value when parameter is omitted.

If the system library source is an existing cycle of the system file on disk, type at the MCU or submit by card in the deadstart reply deck the following:

D

6.3.5 PERMANENT FILE RECOVERY Y/N

This is displayed only when the system library source is tape; it is displayed in order to determine if the system should attempt the recovery of permanent files. Permanent file recovery is automatically attempted when the system library source is disk.
Display Format

PERMANENT FILE RECOVERY Y/N

Reply Format

To attempt permanent file recovery, type or submit by card:

Y

To specify that permanent files are not to be recovered, type or submit by card:

N

6.3.6 ENTER DISK ADDRESS

If permanent files are recovered, the following message is displayed requesting the track and sector address of the volume label group on the system mass storage device. Also, if permanent files are recovered, type all remaining replies, including this one.

Display Format

ENTER DISK ADDRESS
OF VOLUME LABEL GROUP
TTTTSS TTTT=TRACK SS=SECTOR

Reply Format

track sector

The track and sector address is that of the volume label group as presented in the previous deadstart (section 6.3.13). This address is 2000 (track 20, sector 00) if no flaws exist on track 20.
6.3.7 ENTER FLAW

Requests for flaws on mass storage devices can occur at different times during deadstart, depending upon whether permanent files are recovered. Refer to the flowchart for the precise sequence of requests. The following description applies to flaw requests for both deadstart initialization and recovery.

If permanent files are recovered:

Flaws are requested on devices according to the following order.

System resident mass storage device
Mass storage devices containing permanent files in order of EST ordinals
All other mass storage devices in EST ordinal order

A permanent file recovery recovers the track flaw table in the volume label group; therefore, all flaws from the previous deadstart are recovered. The request for track 20 flaws does not appear.

1. The first request occurs before loading the system library. It requests any flaws not specified during the previous deadstart on the mass storage device that contains the system library.

2. The second request occurs after loading the system library. It requests any flaws not specified during the previous deadstart on any other mass storage devices that contain permanent files.

3. The third request displayed is for flaws not specified on other mass storage devices in the previous deadstart.

If permanent files are not recovered:

1. The first request occurs before loading the system library. It requests all flaws that exist on track 20 of the system resident mass storage device. (With deadstart recovery, track 20 flaws are not requested.) When this reply is entered, then another request is displayed for all other flaws on the system resident device.

2. After the system library is loaded, flaw requests are displayed for all other mass storage devices in the order in which they appear in the EST. First the request for flaws on track 20 of a device is displayed (only if deadstart initialization), then the request for flaws on all other tracks on that device.

As each reply is received, the device allocation map for each unit is updated until a carriage return (or an 11/12 punch in column 1 of a card) is received. If entering flaws through the console, enter a carriage return after the last track 20 flaw and again after the last flaw on the remaining tracks.

A disk I/O error message (described in part IV, section 2.6.1) that may occur is:

DISK I/O ERROR
Cchannel Uunit TRACKtrack SECTORsector
Display Format

ENTER FLAW Channel Unit TT, SS, NN (TRACK 20)

channel  Channel number; 1 through 17
unit  Unit number; 0 or 1

Reply Format

track, sector, no.

track  1 to 2 digit track number of flaw (20 in first reply); calculate the track number in the following way:

For example: position 257 of stack 1 in head group 1 is equivalent to track number 1277:

sector  1 to 2 digit initial sector number (0 to 47) of flaw; if omitted, sector 0 is assumed

no.  1 to 2 digit total number of consecutive sectors (1 to 50) that are flawed; if omitted, the remainder of track is assumed to be flawed.

Examples:
20, 10, 1  Only sector 10 is flawed on track 20
20, 10  All sectors 10 and above are flawed on track 20
20  All of track 20 is flawed
6.3.8 SYSTEM PFN AND CYCLE REQUEST

If permanent files are to be recovered, the following message is displayed. If permanent files are not recovered, the first system deadstarted is entered into cycle 1 of the permanent file named 7000 SCOPE VERSION 2.0.

Display Format

SYSTEM PFN AND CYCLE

Reply Format

To specify a cycle of the current pfn, type:

CYCcycle

cycle One of the five cycles of the current pfn that is to be recovered or entered into. The cycle number must be a value from 1 to 5 of the permanent file 7000 SCOPE VERSION 2.0. Deadstart from a user cataloged file is not allowed.

If the system library is from tape, the deadstart program catalogues the system library under the specified cycle. If the system library is from disk, the deadstart program recovers the specified cycle of the system.

To recover the current cycle of the system pfn, press CR. If the system library is from disk, the deadstart program uses the same cycle of the system permanent file as in the previous deadstart. If the system library is from tape, the deadstart program replaces the existing system library with one from tape so it has the same cycle of the system permanent files as in the previous deadstart.

6.3.9 ENTER FLAW (FOR PERMANENT FILE DEVICES)

Flaw requests at this point in deadstart initialization are displayed if permanent files are recovered to determine if there are additional flaws not specified in the previous deadstart on mass storage devices containing permanent files.

Refer to section 6.3.7 and the flowchart in section 6.5 for a detailed explanation.

6.3.10 SYSTEM PFN and CYCLE (MESSAGE)

If permanent files are recovered, the following informative message is displayed to indicate the cycle recovered.
Display Format

SYSTEM PFN AND CYCLE
CYCLE cycle
PFN

Reply Format

Press CR to continue deadstart initialization.

6.3.11 GO

The GO request is displayed twice. The first request requires a response of AUTO which is the command module to be processed by DS2. The second request is displayed when resident SCM and LCM have been retrieved from the system library. This request indicates that installation parameters can be inserted using the STORE command. Terminate this sequence with the GCM command.

Display Format

GO

Reply Format

Type at the MCU or submit by card in the deadstart reply deck the following:

AUTO

AUTO Name of the command module in the released system

Display Format

GO
Reply Format

Type or submit by card STORE command(s).

```
STORE value, memory, parameter
```

value 1 to 7 character default setting of parameter
memory L=LCM; S=SCM
param 1 to 7 character name of parameter to be set; parameter must be defined in
      OST

The following parameters in LCM resident (ORL) may be set with a STORE command
during deadstart.

```
T.MAXBUF
T.MAXS
T.MAXL
T.SYSABT
T.BUFCHK
T.SPF
```

All of these parameters are defined in part III section 6.2.13.

The sample SCPSID deck in part II, section 6.2.4 includes the following STORE cards.

```
STORE 340, L, T.MAXBUF  Maximum number of buffers that can be allocated to
                        a job
STORE 0, L, T.SPF       SFT disk write is inhibited
STORE 160000, L, T.MAXS Maximum user FLS; optional for full size machine
STORE 140000, L, T.MAXL Maximum user FLL; optional for full size machine
```

After submitting STORE commands, type or submit by card the following command.

```
GCM
```

6.3.12 ENTER FLAW (FOR REMAINING MASS STORAGE DEVICES)

Requests for flaws at this point occur to determine if there are any flaws on mass
storage devices not containing permanent files.

Refer to section 6.3.7 and the flowchart in section 6.5 for a detailed description.
6.3.13 VOLUME LABEL GROUP RESIDES

Display Format

```
VOLUME LABEL GROUP RESIDES
CH aa u bb TRK cccc SECTOR
```

aa       Channel number
bb       Unit number
cccc     Track number
dd       Sector number

This is an informative message providing the physical disk address of the deadstart volume label group. (Part IV, section 3.6.5 contains two diagrams showing the location of the volume label group on mass storage after deadstart.) Retain the information in this message for validation during recovery (part II, section 6.4).

Reply Format

Press CR at the MCU console.

6.3.14 STATION COMMUNICATION CHANNELS

Display Format

```
STATION COMMUNICATION CHANNELS xx xx xx
xx xx xx
```

This is an informative message that provides information to the operator about the CPU channels on which the station initiate message is sent when the deadstart of SCOPE 2.0 is complete.

Reply Format

If no changes are necessary to the channels displayed at the MCU console (which is usually the case), press CR.
If changes are necessary to the information displayed, type the following at the MCU console.

```
Iaa Dbb cc
```

aa     Channel number to be inserted
bb cc  Channels to be deleted; more than one channel can be specified

6.3.15 DATE

Display Format

```
DATE MM/DD/YY or DATE DD/MM/YY
```

Reply Format

Type at the MCU console:

```
mm/dd/yy or dd/mm/yy
```

mm     Month
dd     Day
yy     Year

If the installation parameter IP.YMD is set to 1, the format of the date is dd/mm/yy; if it is set to 0, the format is mm/dd/yy. The released system is set to 0.

6.3.16 OPERATOR COMMENT

The following message is displayed so that the person deadstarting can enter a comment in the SIF at deadstart. The comment cannot be in SMM command format. The first 60 characters will be entered in a system information file message, record code SISDS6 which also contains information about recovery type, EST, CHQ, and values of certain parameters such as FLL and FLS.
Display Format

OPERATOR COMMENT

Reply Format

Type at the MCU console any text within previously noted limitations. Press CR if there are no comments to be entered.

6.3.17 TIME

Display Format

TIME HH,MM,SS

Reply Format

Type at the MCU console:

hh:mm:ss

hh       Hour
mm       Minute
ss       Second

6.3.18 DEADSTART COMPLETE

The following message indicates that the deadstart initialization is completed and that the operator can now log in or initialize the various stations before loading the permanent files and libraries.

Display Format

DEADSTART COMPLETE
LOAD LIBRARY AND PERMANENT FILES
6.4 DEADSTART RECOVERY PROCEDURE

Displays and the possible replies during deadstart recovery are described as follows, in order of occurrence with references to detailed descriptions in section 6.3. Enter all replies at the MCU console; none can be entered on cards. Press CR after each entry.

The purpose of system recovery is to reestablish the operating system after system failure. During recovery, the system to recover may be specified as being on tape or a permanent file on mass storage. If recovery is to be from tape, the deadstart routine must be the same as with the initial deadstart. The system may be reconfigured as during initialization; permanent files and I/O queues may be reestablished. All error messages in part IV, section 2.6 pertain to recovery.

A flowchart of deadstart recovery follows with references to the detailed descriptions in section 6.5.

Recovery from tape may fail if changes were made in installation parameters, SCM resident (ORE), or LCM resident (ORL) since the previous deadstart.

If communication with SMM needs to be reestablished, at the MCU console type:

```
| - - - - - - - - |
| CN 10730,10460,5344,10540 |
| - - - - - - - - |
```

The parameters for the CN command are described in part IV, section 3.2.3.

1. Type the following information to initiate deadstart recovery.

```
| - - - - - - - - |
| RSpp, addr, c, d |
| - - - - - - - - |
```

pp 1- or 2-digit FLPP number of system disk (FLPP with lowest number)
addr Physical disk address (track and sector address) of volume label group that is supplied during deadstart initialization (section 6.3.13)
c Disk control channel; default value is 2
d Disk data channel; default value is 3

Example: RS4,2000

2. The initial action of deadstart recovery is to attempt the recovery of the SIF buffers that have not been written to system mass storage before recovery. If the relevant pointers and counts in LCM indicate that a recovery attempt might not be possible, the attempt is aborted and the following message appears on the MCU display.

```
| - - - - - - - - |
| SIF LCM BUFFERS RECOVERY ABORTED |
| - - - - - - - - |
```

60344000 A II-6-29
Dump LCM, SCM, and/or FLPPs when necessary (part IV). Continue the recovery process after the dump by typing the RS command to restart recovery.

3. The EST display (section 6.3.1) appears on the console. It is formatted from the deadstart copy in the volume label group on system mass storage.

The number of library buffers, the number of system tables, FLL, and FLS are recovered to the value of the previous initialization or recovery. The formats for changing these values are in section 6.3.2.

a. To add or amend EST entries, type:

```
EST=ord,DT=dt,CH=cc1/cc2,UN=unit
```

<table>
<thead>
<tr>
<th>ord</th>
<th>EST entry ordinal; 1 through NE.EST-1 (NE.EST=100, in released system)</th>
</tr>
</thead>
<tbody>
<tr>
<td>dt</td>
<td>Device type and device characteristics when necessary as described in section 6.3.1</td>
</tr>
<tr>
<td>cc1/cc2</td>
<td>FLPP primary (cc1) and secondary (cc2) channels when necessary; 2 through 17, 8</td>
</tr>
<tr>
<td>unit</td>
<td>Physical unit number; 0 through 77, 8</td>
</tr>
</tbody>
</table>

b. To delete EST entries shown in the EST display, type:

```
EST=ord
```

| ord | EST ordinal to be deleted |

c. To confirm the EST as displayed, press CR.

4. The CHQ display (section 6.3.3) is displayed on the console. It is formatted from the copy retrieved with DSI from the volume label group.

a. To confirm the CHQ as displayed, press CR.

b. To add or amend any CHQ entries, type:

```
CHQ=ord,DT=dt,FC=channel,pp=flpp
```

| ord | CHQ entry ordinal; MUX channel number; 0 through 17, 8 |
| dt  | Device type and characteristics as defined in section 6.3.3 |
channel Channel configuration as described in section 6.3.3
flpp Optional FLPP number; enter when FLPP differs from the number of the CPU channel to which it is attached

c. To specify a channel as unused, type:

```
CHQ=ord
```

5. The following message requests whether recovery is to be from tape or from mass storage.

```
GIVE SYSTEM SOURCE
```

a. To recover the system library from disk, type:

```
D
```

The disk can be dumped at this time.

b. To recover the system library from tape, type:

```
Tchannel,unit,density,type
```

channel 2-digit channel number through which the system library is to be sent
unit Optional 1-digit unit number; default value is 0. If a 7611-1, 7611-2, or on-line tape unit is used to read the tape, it will be unit 0. If it is to be read from the 6000 station, the tape unit must be assigned (part II, section 5.2.2).
density Optional 2-digit tape density; LO, HI, HY, or PE; HI is the default value
type Optional 1-digit tape type; 7 or 9; 7 is the default value

If the driver for the FLPP or station at which the system library tape is to be read is not running, it must be loaded and initialized before typing the T command. Reload and initialize drivers or stations as follows.
a. If the system library is to be read from a 7611-1 station tape unit, type AUTO.
in STATION mode and press CR before typing the T command.

b. If the system library is to be read from an on-line, 7611-2, or 6000 station
tape unit and the FLPP is not running, reload the FLPP driver (section 6.2.1)
at the MCU card reader using the following deck structure.

6. The following message is displayed only when the system library source is tape;
it is displayed in order to determine if the system should attempt the recovery
of permanent files. (Permanent file recovery is automatically attempted when the
system library source is on disk.)

- - - - - - PERMANENT FILE RECOVERY Y/N - - - - - -

a. To attempt permanent file recovery, type:

- - - - - - Y - - - - - -

An attempt is made in this case to retrieve the PFD from the system library unit
and to set the DAMs for all FATs.
b. To specify that permanent files are not to be recovered, type:

```
N
```

7. The flaw request is displayed for flaws on the system resident mass storage device. Enter any flaws not indicated in the previous deadstart for tracks other than track 20 on this device.

The display is:

```
Enter flaw channel/unit 1T,SS,NN
```

- **channel**: Channel number; 1 through 17
- **unit**: Unit number; 0 or 1

a. To confirm existing flaws, press CR on the MCU console.
b. To enter new flaws, type:

```
track,sector,nn
```

- **track**: Track number as described in section 6.3.7
- **sector**: Initial sector as described in section 6.3.7
- **no.**: Consecutive sectors as described in section 6.3.7

8. If permanent files are to be recovered, the following message is displayed. If permanent files are not recovered, the first system deadstarted is entered into cycle 1 of the permanent file named 7000 SCOPE VERSION 2.0.

```
System PFN and cycle
```
To specify a cycle of the current pf颇，type:

```
    CYCcycle
```

cycle One of the five cycles of the current pf颇 that is to be recovered or entered into. The cycle number must be a value from 1 to 5 of the permanent file 7000 SCOPE VERSION 2.0. Deadstart from a user catalogued file is not allowed.

If the system library is from tape, the deadstart program catalogues the system library under the specified cycle. If the system library is from disk, the deadstart program recovers the specified cycle of the system.

To recover the current cycle of the system pf颇, press CR. If the system library is from disk, the deadstart program uses the same cycle of the system permanent file as in the previous deadstart. If the system library is from tape, the deadstart program catalogues the system library as the same cycle of the system permanent files as in the previous deadstart.

9. During a deadstart recovery with permanent file recovery, additional flaw requests may occur at this time for tracks other than track 20 if any permanent files are resident on a disk other than the system disk unit. Refer to step 7 for reply format.

10. After permanent file recovery is performed, the following informative message is displayed to indicate the cycle recovered.

```
    SYSTEM PFN AND CYCLE
    CYCLE cycle
    pf颇
```

x Cycle

pf颇 Permanent filename

Continue recovery by pressing CR.

11. The following display requests the command module name.
a. Type:

AUTO

b. The following display message reappears.

GO

T.MAXS, T.MAXL, and T.MAXBUF are the only parameters set with STORE commands that are recovered from the previous deadstart initialization or recovery. These values (as well as values for T.SYSABT, T.BUPCHK, and T.SPF) may be changed at this time with the store command; values are defined in section 6.5.11.

STORE value, memory, parameter

c. To continue or if no changes are made with the STORE command, type:

GCM

12. If there are any mass storage devices not containing permanent files, a request for flaws (on tracks other than track 20) is displayed at this time. Refer to step 7 for reply format.

13. The following message is displayed only during a recovery of a system library from disk. The reply specifies whether to recover SFT I/O files. (There is no attempt to recover the SFT during a recovery of a system library from tape.)

SYSTEM FILE TABLE RECOVERY Y/N
a. If recovery of SFT I/O files is not wanted, type:

\[N\]

b. To recover SFT I/O files, type:

\[Y\]

A warning message is displayed for each SFT file that cannot be recovered. The message includes the SFT file job name and a reason for it not being recovered. These messages are defined in part IV, section 2.6.1. A job that is a member of a dependency string is not recovered by deadstart recovery.

A copy of the SFT is written to system mass storage periodically during system operation. (T, SPF controls the frequency with which the SFT is written to disk.) Recovery retrieves the SFT and determines its validity. If recovery finds indicators that are erroneous, the recovery of the SFT is aborted. Output files are rewound to beginning of information. Input files for which transmission was complete are recovered. Partially transmitted spooled input files must be retransmitted.

14. Save the following information to use in the next recovery (RS command) or in next deadstart initialization (VOLUME LABEL GROUP request).

\[
\text{VOLUME LABEL GROUP RESIDES}
\]
\[
\text{CH aa bb TRK cccc SECTOR dd}
\]

To continue with recovery, press CR.

15. The following message is displayed to verify that the station channels given during the last deadstart are correct (section 6.3.14). When recovery is completed, a station initiate message is sent on the CPU channels listed.

\[
\text{STATION COMMUNICATION CHANNELS xx xx xx}
\]
\[
\text{xx xx xx}
\]
a. To continue recovery, press CR.

b. To insert (aa) and/or delete (bb cc) channels, type:

```
1aa Dbb cc
```

16. The following message is displayed.

```
DATE HH/DD/YY or DATE DD/MM/YY
```

Type:

```
mm/dd/yy or dd/mm/yy
```

17. The following message is displayed so that the person deadstarting can enter a comment in the SFT at deadstart. It cannot be the same format as an SMM command. The first 60 characters are entered in a system information file message, record code SISDSD which also contains information about recovery type, EST, CHQ, and values of certain parameters such as FLL and FLS.

```
OPERATOR COMMENT
```

Type at the MCU console any text within the previously noted limitations.

18. The following message is displayed.

```
TIME HH.MM.SS
```

Type:

```
hh:mm:ss
```
19. The following display indicates end of recovery process and requires no reply.

```
RECOVERY COMPLETE
```

The information supplied by the SYSLIBE operation in the previous deadstart is not recovered; the SYSLIB job must be run again to recover object libraries. Refer to part IV, section 3.6.3.

### 6.5 FLOWCHARTS

The following flowcharts summarize the possible requests and replies during deadstart. It may aid in constructing a deadstart reply deck or in determining the sequence of events at the MCU console when the SCPSID deck is read at the MCU card reader.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Symbol" /></td>
<td>Replies that can be inserted by card in the SCPSID deck or typed at the MCU console</td>
</tr>
<tr>
<td><img src="image2" alt="Symbol" /></td>
<td>Replies that can only be typed at the MCU console</td>
</tr>
<tr>
<td><img src="image3" alt="Symbol" /></td>
<td>It is assumed that the person installing will press CR after typing any entry (or enter an 11/12 on card). When the press CR, 11/12 symbol occurs in the chart, it means that CR must be pressed again or 11/12 entered on card again in order to continue with the next request. A section reference next to a display or reply symbol refers to a description of that step in the previous sections.</td>
</tr>
</tbody>
</table>

### 6.5.1 DEADSTART INITIALIZATION

The following flowchart pertains to deadstart initialization.
Figure II-6.3. EST Through CHQ
Figure II-6.4. System Library on Tape; No Permanent File Recovery
Figure II-6-4. System Library on Tape; No Permanent File Recovery (Continued)
Figure II-6-5. System Library on Tape or Disk; Permanent File Recovery
Figure II-6-6. Volume Label Group Through End
6.5.2 DEADSTART RECOVERY

The following flowchart pertains to deadstart recovery. All replies must be typed at the MCU console.

![Recovery Flowchart]

Figure II-6-7. Recovery Flowchart
Figure II-6-7. Recovery Flowchart (Continued)
Figure II-6-7. Recovery Flowchart (Continued)
Figure II-6-7. Recovery Flowchart (Continued)
Figure II-6-7. Recovery Flowchart (Continued)
Figure II-6-7. Recovery Flowchart (Continued)
Figure II-6-7. Recovery Flowchart (Continued)
1.1 MODTAPE

The SCOPE 2.0 maintenance package is on the release tape labeled MODTAPE.

1.1.1 CONTENTS

This tape contains the following code.

- Corrections to SCOPE 2.0 and product program libraries
- Job decks to make these corrections to the released program libraries and to create new program libraries
- Job decks to perform other functions needed to install and maintain the system
- A worksheet that contains the procedures necessary to initially install or to subsequently update the system

1.1.2 FUTURE RELEASES OF MODTAPE

MODTAPE is part of the initial SCOPE 2.0 release package. Every two weeks after receiving the initial release materials, the customer receives a Programming System Report (PSR summary). This PSR summary lists customer inquiries concerning the system and product set as well as answers to some inquiries. The PSR summaries are numbered consecutively.

When the customer receives the odd-numbered PSR summary (every fourth week), he also receives a new MODTAPE containing corrective code to update the release materials to the current PSR level. All code on the new MODTAPE has been published in the preceding even-numbered PSR summary or in the accompanying odd-numbered summary.

However, some code published in the summaries may cause problems that are identified only after extensive testing. This problem usually occurs only with code presented in even-numbered summaries because this code has not undergone a full system test. Therefore, the retraction of code is usually noted in the odd-numbered summaries, and of course, is not included in that MODTAPE. The MODTAPE represents a fully tested system with no known regressions.

The installation decks on updated MODTAPEs are modified to reflect the current PSR summary level and any necessary changes in build procedures.

1.1.3 STRUCTURE

MODTAPE contains two partitions: MODPL which contains corrections to the released software and SYSDECK which contains installation decks.
MODPL

This partition contains modifications to the released software in UPDATE format with the master control character set to /+. Its structure is as follows.

There is a /DECK on MODPL for each product's UPDATE program library. These /DECKs are named xxxPSR with xxx identifying the program library.

<table>
<thead>
<tr>
<th>xxx</th>
<th>Deck Name</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA</td>
<td>STAPSR</td>
<td>7611-1 I/O Station</td>
</tr>
<tr>
<td>MTS</td>
<td>MTSPSR</td>
<td>7611-2 Magnetic Tape Station</td>
</tr>
<tr>
<td>SO</td>
<td>SOPSR</td>
<td>SCOPE 2.0 operating system</td>
</tr>
<tr>
<td>CM2</td>
<td>CM2PSR</td>
<td>COMPASS 2.0</td>
</tr>
<tr>
<td>FN2</td>
<td>FN2PSR</td>
<td>FORTRAN Extended 2.0</td>
</tr>
<tr>
<td>RN2</td>
<td>RN2PSR</td>
<td>FORTRAN Run 2.0</td>
</tr>
<tr>
<td>FCL</td>
<td></td>
<td>FORTRAN object time routines; located on the SCOPE 3.4 modification tape</td>
</tr>
<tr>
<td>COB</td>
<td>COBPSR</td>
<td>COBOL 1.0</td>
</tr>
<tr>
<td>SRT</td>
<td>SRTPSR</td>
<td>Sort/Merge 1.0</td>
</tr>
<tr>
<td>DIA</td>
<td>DIAPSR</td>
<td>Diagnostic Control Program</td>
</tr>
</tbody>
</table>

The corrective code for each PSR is in its own /COMDECK. Each product's xxxPSR deck contains /CALLs to all the /COMDECKs that contain corrective code for that product's program library.

There are also /DECKs with the name of the individual PSRs that call the same /COMDECKs.

For example, for a MODPL containing three PSRs for product xxx (xxx0001, xxx1200, and xxx1342), there are three /COMDECKs (Dxxx0001, Dxxx1200, and Dxxx1342) and three /DECKs (xxx0001 containing a /CALL to Dxxx0001, xxx1200 containing a /CALL to Dxxx1200, and xxx1342 containing a /CALL to Dxxx1342). The xxxPSR deck calls the /COMDECKs for all three PSRs. A similar structure is repeated for each product's program library. The /IDENT contained in each /COMDECK usually has the same name as the /COMDECK, but they need not always be the same.

SYSDECK

This partition contains job decks in UPDATE format with the master control character set to $. These job decks are used to update and generate materials during the normal system integration activities by SCOPE 2.0 development and are categorized in the Pricing Manual as level 3 support. SYSDECK contains the following kinds of jobs.

Installation decks using the binaries from released program libraries and optionally

General decks to generate binaries from released program libraries and optionally incorporate modifications (either from MODPL or from the customer) to produce new release materials

Utility decks to generate the configured system

Decks to verify that the installation is complete and correct
Decks to produce listings useful in maintaining the system

Decks to produce a description of the installation and modification procedures described in this section

1.1.4 PROCEDURE

The procedure in sections 1.2 through 1.6 describe the installation process as:

1. Initial installation using the initial set of release materials that are referred to in sections 1.2.1, 1.2.2, and 1.2.3 and the procedures described in section 1.2.4

2. Installation of PSR corrections that are on the monthly MODTAPES according to information in section 1.3; this results in a new set of release materials updated to the current PSR summary level

3. Installation of customer modifications to create new materials as described in section 1.4

4. Creation of back-up materials as described in section 1.5

5. Creation of maintenance listings, such as source listings, symbol and macro cross reference listings, and system overlay listings as described in section 1.6

The use of this procedure requires the customer to build a new system with each MODTAPE, even if the new system is not used for production. This is necessary because each subsequent system is built using the one which immediately preceded it.

The basic building of the system should not occur in a batch (production) environment. However, there are batch notes in this section that specify areas that require modification in order to run in a batch environment. There are also several housekeeping hints to expedite installation.

In the following sections, the phrase product set refers to any part of the system that executes primarily or entirely in the user field length. Therefore, it includes the products that are unbundled (priced separately) as well as COMPASS and DCP. The products that are part of the SCPOPL, such as LIBEDT, UPDATE, and ANALYZE, are not product set members.

1.2 ESTABLISH BASE SYSTEM MATERIALS

1.2.1 TAPES

The initial release tapes described in part I, section 2 are necessary to build a base system. New release tapes (production release tapes) are created using the build procedure in section 1.2.4.

One additional tape is required, a DUMPF/LOADPF tape of all files cataloged with ID=PRDLIB; refer to the permanent files description in section 1.2.2. The worksheet referred to in part III, section 1.7 contains detailed information on all tapes that can be used in the build procedure.
1.2.2 PERMANENT FILES

The use of the SYSDECK procedure outlined in section 1.1.4 requires that various permanent files be created and/or modified. The IDs for these permanent files are:

<table>
<thead>
<tr>
<th>ID</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRDLIB</td>
<td>Use for files containing executable binary for the system.</td>
</tr>
<tr>
<td>S20CPOPL</td>
<td>Use for files containing program libraries for the product set.</td>
</tr>
<tr>
<td>S20 OPSOPL</td>
<td>Use for files containing program libraries for the operating system.</td>
</tr>
<tr>
<td>S20O PSMOD</td>
<td>Use for the SCOPE 2.0 maintenance package.</td>
</tr>
<tr>
<td>TOOLS</td>
<td>Use for files containing utility programs.</td>
</tr>
<tr>
<td>SCPS CRM</td>
<td>Use for temporary files only during the build procedure.</td>
</tr>
</tbody>
</table>

These IDs are used so that files may be manipulated using the permanent file ID feature. With the exception of PRDLIB files, all permanent files are recreated (if desired) during each system build. They are not used as input to the next build.

**PRDLIB**

The files cataloged with ID PRDLIB contain the binaries of the SCOPE 2.0 operating system and product set. Subsequent installations of the system create higher cycles of these files; the lower cycles of these replaced files are purged. Make a DUMPF tape containing the highest cycle of each file for back-up purposes.

The procedure to build the LOADPF tapes for ID=PRDLIB requires that each system be built using the system which immediately preceded it. The LOADPF procedure is:

1. Load the LOADPF tape (ID=PRDLIB) from the previous installation.
2. Build new cycles of files for products to be modified.
3. Execute ATTACH cards for the highest cycles (cycle parameter omitted).
4. Execute a DUMPF (MO=3, IN=2, PW=TYPE3, ID=PRDLIB) to purge inactive files (in this case files which are not the highest cycles).
5. Create a DUMPF tape containing files (each of which is the highest cycle) for use in a batch environment and for use as input to the next modification build.

This LOADPF procedure is not possible in a batch environment. Step four must be delayed until after production when there are no more references to the old files. The old files may be purged with a constructed job deck or by rerunning the SYSDECK job called DPIDPRD. DPIDPRD performs steps three through five with a GO/DROP pause before step four. If a DROP is entered, the job proceeds to step five immediately.

The permanent files with ID=PRDLIB are described as PRDLIB, object libraries, SRTMACS, and SYSLIB.
PRDLIB Permanent File: The permanent file PRDLIB is a library that contains the core image binaries for the product set. For an initial installation, use the OPRDLIB job to create the PRDLIB file. OPRDLIB generates a library from the COMPASS and DCP binaries on the release SCPLIB tape.

For subsequent installations, load the PRDLIB file from the PRDLIB LOADPF tape. As the products are installed, the temporary libraries (xxxLEL) are built. When all of the products are installed, create a new PRDLIB using the NPRDLIB job which updates the old PRDLIB from all of the xxxLELS.

Batch notes: With various cycles of PRDLIB cataloged, it is possible to use editions of the product set other than the one on the deadstart tape. Use the following procedure to pretest new compilers in a batch environment or to use past editions of the compilers. Again be sure that the correct cycle of PRDLIB is attached during the installation process. The following sequence compiles and executes code using the compiler from PSR summary 47 and the object library from PSR summary 45.

    ATTACH(PRDLIB, PRDLIB, ID=PRDLIB,
    CY=47)
    LIBRARY(PRDLIB)
    FTN.
    ATTACH(IOLIB, FTNIOLIB, ID=PRDLIB,
    CY=45)
    LIBRARY(IOLIB)
    LGO.
    LIBRARY.

Object Library Permanent Files: The object time routine libraries corresponding to the various compilers are individual permanent files, each one with ID=PRDLIB. Catalog these files and use SYSLIB to merge them into the running system after all deadstarts to satisfy external references in compiler generated binaries before execution.

For an initial installation, create these files by passing relocatable binary copies from release tapes through LIBEDT and cataloging the libraries that are produced.

To produce the FORTRAN common library (which SCOPE 3.4 and SCOPE 2.0 share), update, assemble, compile, pass through LIBEDT, and catalog the binary.

For subsequent installations, replace each library by cataloging a higher cycle of the permanent files.

Batch notes: Running system generation jobs in a batch environment conflicts with jobs that attach the object library permanent file and omit the cycle number; therefore, they attach the highest cycle.

To use a different permanent file name of ID for accounting purposes, change the permanent file control statements in the installation, generation, and SYSLIBE decks. Also, since the COBOL build procedure attaches the SORTMRG object library and the SCOPE 2.0 build procedure attaches the FORTRAN Extended object library, modify these jobs.

Make similar modifications for ID changes. Unless all PRDLIB IDs are changed to a single, different ID, the customer must also devise ways to create back-up tapes and to reload files for subsequent installations.

SRTMACS Permanent File: The permanent file SRTMACS contains an XTEXT file that may be used to assemble COMPASS code containing SORT macros. To use the SRTMACS file, attach it to COMPASS specifying it as an XTEXT file.
Batch notes: The problems noted with object library permanent files also pertain to SRTMACS except that only the decks involving Sort need to be changed.

SYSLIB Permanent File: The SYSLIB permanent file contains the binary of SCOPE 2.0 as assembled from SCPOPL. This file may be used to build variations of the released system, such as a system containing accounting overlays.

Batch notes: Customer decks should attach SYSLIB using specific cycle numbers.

S20CPLOPL

There are job decks on SYSDECK that catalog each product set program library with the ID=S20CPLOPL. There is also a deck to create a DUMPF tape for this ID. Execution of these decks is completely optional and is not required for system installation. The decks are provided as a convenience to customers who reference these files frequently enough to warrant their existence as permanent files.

Batch notes: Refer to the cycle number caution described in previous batch notes.

S20OPSOPL

The job deck SCPPL catalogs SCOPE 2.0 with the ID S20OPSOPL. There is also a deck to create a DUMPF back-up of this ID. Creation of this file is optional; but it is necessary to create maintenance listings. Refer to part III, section 1.8.

Batch notes: Refer to the cycle number caution described in previous batch notes.

S20OPSMOD

Catalog the MODPL and SYSDECK program libraries with the ID S20OPSMOD. Both files are required during execution but may be purged afterwards. Both files are discussed in detail throughout this section.

Another file that may be cataloged with this ID is USERMODPL. It is intended to contain customer modifications (other than installation parameters) to the operating system and the product set. USERMODPL is an UPDATE program library (master control character set to /) containing one /DECK for each OPL in the release materials. The deck name format is /DECK xxxMOD. xxx identifies the product.

<table>
<thead>
<tr>
<th>xxx</th>
<th>Deck Name</th>
<th>Product</th>
</tr>
</thead>
<tbody>
<tr>
<td>STA</td>
<td>STAMOD</td>
<td>7611-1 I/O Station</td>
</tr>
<tr>
<td>MTS</td>
<td>MTSMOD</td>
<td>7611-2 Magnetic Tape Station</td>
</tr>
<tr>
<td>SCP</td>
<td>SCPMOD</td>
<td>SCOPE 2.0 operating system</td>
</tr>
<tr>
<td>CM2</td>
<td>CM2MOD</td>
<td>COMPASS 2.0</td>
</tr>
<tr>
<td>FN2</td>
<td>FN2MOD</td>
<td>FORTRAN Extended 2.0</td>
</tr>
<tr>
<td>RN2</td>
<td>RN2MOD</td>
<td>FORTRAN Run 2.0</td>
</tr>
<tr>
<td>FCL</td>
<td>FCLMOD</td>
<td>FORTRAN object time routines</td>
</tr>
<tr>
<td>COB</td>
<td>COBMOD</td>
<td>COBOL 1.0</td>
</tr>
<tr>
<td>SRT</td>
<td>SRTMOD</td>
<td>Sort/Merge 1.0</td>
</tr>
<tr>
<td>DIA</td>
<td>DIAMOD</td>
<td>Diagnostic Control Program</td>
</tr>
</tbody>
</table>
The contents of each deck should be UPDATE directives (master control character set to *) to apply customer modifications to the products. The generation decks may be tailored to attach USERMODPL and to apply customer modifications to the newly created release materials to produce a modified system.

If using USERMODPL and adding new decks, use a *ADDFILE lfn, deckname directive only if lfn is UPIN or a local scratch file.

The decks on SYSDECK assume that modifications come from a file called UPIN, for example, UPDATE (I=UPIN,...). Do not attempt to execute the ADDFILE directive from the INPUT File.

TOOLS

There are utility programs on SYSDECK written in FORTRAN Extended and COMPASS code. During the build process these programs are compiled and the binaries are cataloged. TOOLS is the ID. For more detail refer to part III, section 1.6.

1.2.3 CARD DECKS

The following card decks must be available to install the system.

Binary Deadstart Decks

These decks are part of the SMMB and station release materials described in part I, section 2. New versions of these decks are generated during a modification of the system.

SCOPE 2.0 SCPSID Deadstart Deck

The SCPSID deck is described in part II, section 6.2. It consists of FLPP and DS1 binary decks and the deadstart reply deck. The binary decks depend upon the PSR summary level of the software and are generated during each system modification. The deadstart reply deck depends upon the hardware system (memory sizes, channels, equipment, flaws) and is not changed for each system modification. It is useful, therefore, to create a single reply deck that may be used with the binary decks for several different systems. Back-up copies are advantageous. It is also useful to have several deadstart reply decks if the customer has several 7000 mainframes.

SYSDECK Job Decks

The MODCAT job catalogs the maintenance package, and the PNCCHDKS job is used to specify options.

MODCAT: Run the MODCAT job to catalog MODPL and SYSDECK as permanent files, list the SYSDECK worksheet, and punch the PNCCHDKS deck from SYSDECK. The following job reflects the MODCAT version on SYSDECK containing the correct cycle numbers.
MOUCAT, CP7, 11001MTU
COMMENT, *SVUW, 07155, 363930, SOMILLER
COMMENT, *
COMMENT, **********************************************
COMMENT, *
COMMENT, * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT, *
COMMENT, * BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT, *
COMMENT, * FOR PSM SUMMARY LEVEL S1 (SEE SYSDECK DESCRIPTION)
COMMENT, *
COMMENT, * STAGE HAS BEEN DEFINED
COMMENT, *
COMMENT, * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT, * SCOPE 2.0 INTEGRATION AMH24H
COMMENT, * 4201 LEXINGTON AVE., N.
COMMENT, * ST PAUL, MINN. 55112
COMMENT, * (NO PSRS)
COMMENT, **********************************************
COMMENT, *
COMMENT, ATTACH(MODULE, ID=S20UPSMOD, Pw=SCPCN, CY=51)
COMMENT, PURGE(A)
COMMENT, EXIT(U)
COMMENT, RETURN(A)
COMMENT, ATTACH(A, SYSDECK, ID=S20UPSMOD, Pw=SCPCN, CY=51)
COMMENT, PURGE(A)
COMMENT, EXIT(U)
COMMENT, RETURN(A)
COMMENT, REWIN(D, CT=FU1)
COMMENT, LABEL(MONTAPE, L=SMONTAPESCP2.0)
COMMENT, STAGE(MONTAPE, MT=HIE, PRF, VSN=CY51)
COMMENT, COPY(MONTAPE, MODPL)
COMMENT, COPY(MONTAPE, SYSDECK)
COMMENT, **********************************************
COMMENT, *
COMMENT, * CATALOG MODPL AND SYSDECK
COMMENT, *
COMMENT, **********************************************
COMMENT, CATALOG(MODPL, MODPL, ID=S20UPSMOD, Pw=SCPCN, CN=SCPCN, EX=SCPEX, MD=SCPMOD, CY=51)
COMMENT, CATALOG(SYSDECK, SYSDECK, ID=S20UPSMOD, MD=SCPMOD-CN=SCPCN, EX=SCPEX, Pw=SCPCN, CY=51)
COMMENT, UNLOAD(MOPL, SYSDECK)
COMMENT, **********************************************
JOE DECK  MODCAT

COMMENT. *
COMMENT. * LIST THE MEMO AND WORKSHEETS FROM SYSDECK. THE MEMO LISTS PHOUCIS *
COMMENT. * FOR WHICH MODS EXIST ON THE MODPL, AND NOT IF THOSE MODS WHICH MAY *
COMMENT. * HAVE UNUSUAL IMPACT ON THE USER. SIGNIFICANT CHANGES TO SYSDECK *
COMMENT. * WILL ALSO BE NOTED. THE WORKSHEETS SERVE AS A TOOL FOR INSTALLATION. *
COMMENT. *
COMMENT. ***********************************************
ATTACH(OLUPL,SYSDECK,LU=5200PSMOD,
CY=51)
(UPDATE(FTPQ01,K,L=A134,*=55555)
COMP=SS(TIP=LISTER,L=LIST)
LISTEN(I,P=0,TD=4,CU=5,FM=0,L=MEMO,
CY=51)
REWIND(NKMO)
COPY(MEMO,OUTPUT)
COMMENT. ***********************************************
COMMENT. * PUNCH (AND LIST) PNCMDK5 - THE JOB USED TO LIST AND PUNCH ALL OTHER *
COMMENT. * DECKS NEEDED FOR INSTALLATION. PNCMDK5 MAY NEED TO BE MODIFIED *
COMMENT. * TO TAILOR THE DECKS AS DESIRED. NOT ALL DECK WILL BE NEEDED *
COMMENT. *
COMMENT. ***********************************************
LISTEN(I,L=P,DECK,S=INS,
CY=51)
FAUSF: MPJOJ1 - JOB COMPLETED SUCCESSFULLY... TYPE X,GO
EXIT.
PAUSE: MPJOJ1 - JOB FAILED... TYPE X,GO
--- EOS --- 7/8/8
+11 MODCATSUP
$/ A UFO STAGE CARD WILL CAUSE UFO STAGE CARDS TO BE PLACED IN PNCMDK5
$/ WHICH WILL CAUSE DECKS PUNCHED BY PNCMDK5 TO HAVE STAGE CARDS INSTEAD
$/ OF REQUESTED CARDS FOR ON-LINE TAPES.
$/
$/
$/ UFO STAGE
$C LISTER
$C MEMO  INTRODUCTION TO MODPLTAP, DESCRIPTION OF MODPL AND SYSDECK
$C WORKSHEET
$C PNCMDK5
--- END --- 6/7/98
PNCHDKS: The worksheet indicates which program libraries the PSR summary is to modify. Only punch the jobs that are needed to install the system by pulling out the unnecessary $C cards in the PNCHDKS job. There are four updates in the PNCHDKS job.

Installation
The decks in this section are related to an initial installation. Included are various utility decks that are also useful in installing PSR updates to the release materials.

PSR modification
The decks in this section apply PSR updates to previous release materials to create new release materials.

Customer modification
The decks in this section apply customer modifications to the release materials with the current PSR summary level modifications.

Utilities
The decks in this section are of a general utility nature. Included are decks to copy tapes, copy decks, catalog files, create DUMPF back-up tapes, and produce maintenance listings.

The decks are discussed in more detail in sections 1.3 through 1.6 of part III.

After determining which decks are required, select the options necessary to tailor the decks. Generation decks (decks that assemble or compile the source to produce the binary for the corresponding element of the system) may be modified using $DEFINE options. Select these options by placing a $DEFINE card into the input section of the appropriate UPDATE in PNCHDKS. The options are:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$DEFINE LIST</td>
<td>If this option is defined, all generation decks (xxxGEN, xxxMOD, and xxxUSR) produce assembly listings, with the exception of SCPGEN. To produce SCOPE 2.0 listings, use the volume listing decks described in part III, section 1.6. If it is not defined, assemblies and compilations do not produce listings.</td>
</tr>
<tr>
<td>$DEFINE NONEWPL</td>
<td>If defined, all generation decks omit the creation of a new program library on tape. If not defined, the decks create new program libraries.</td>
</tr>
<tr>
<td>$DEFINE EXTEND</td>
<td>If defined, all generation decks attach and extend existing permanent files. If not defined, new cycles of permanent files are cataloged.</td>
</tr>
<tr>
<td>$DEFINE STAGE</td>
<td>If defined, all REQUEST statements are replaced in the job decks with STAGE statements.</td>
</tr>
<tr>
<td>$DEFINE MODTAPEMD</td>
<td>If defined, generation decks take PSR modifications from the MODPL permanent file.</td>
</tr>
<tr>
<td>$DEFINE USERRMODS</td>
<td>If defined, generation decks take customer modifications from the USERRMODPL permanent file.</td>
</tr>
</tbody>
</table>
Combinations of $DEFINE cards produce decks for specific purposes.

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST, NONEWPL</td>
<td>Regenerates binary from a program library producing a listing; catalogs binary as a new file.</td>
</tr>
<tr>
<td>MODTAPEMD, STAGE</td>
<td>Updates a previous release tape from MODPL to produce a new release tape (staging both tapes); creates binary without an assembly listing; catalogs results as a new permanent file.</td>
</tr>
<tr>
<td>USERMODS, EXTEND, NONEWPL</td>
<td>Updates a current release tape (on-line tape) from USERMODPL to produce a COMPIL e file but not a new program library; assembles without listings; and extends an existing permanent file of the binary with the new binary.</td>
</tr>
</tbody>
</table>

There are two other $DEFINE options: ARHOPS and XPRD. They tailor the jobs for CDC use. The customer is not required to use these options.

Do not define USERMODS and MODTAPEMD at the same time.

The following conventions apply to job names. Most job names are of the form xxxyyy. xxx is the mnemonic for the product as previously described, and yyy indicates the action. The yyy values for SYSDECK jobs are:

<table>
<thead>
<tr>
<th>yyy</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>GEN</td>
<td>Job assembles code with installation options changed. A new program library may or may not be created. Neither USERMOD or MODTAPEMD are defined.</td>
</tr>
<tr>
<td>MOD</td>
<td>Job applies PSR modifications before assembling code. A new program library is usually generated. MODTAPEMD is defined.</td>
</tr>
<tr>
<td>USR</td>
<td>Job applies customer modifications before assembling code. A new program library may be generated. USERMODS is defined.</td>
</tr>
<tr>
<td>INS</td>
<td>Job copies binary from a release tape and processes it.</td>
</tr>
<tr>
<td>CPY</td>
<td>Job copies release tape.</td>
</tr>
<tr>
<td>PL</td>
<td>Job catalogs release program library.</td>
</tr>
<tr>
<td>DCK</td>
<td>Job creates a deadstart deck for product.</td>
</tr>
<tr>
<td>VFY</td>
<td>Job verifies installation of product.</td>
</tr>
</tbody>
</table>

Housekeeping hint: Job cards created with $DEFINE STAGE still have the MT parameter defined on the job card. For installation with a small number or no tapes, change the job cards.
Housekeeping hint: Permanent file CATALOG cards in SYSDECK jobs are constructed to catalog a file regardless of the existence of a previous cycle. This is done by both defining the passwords (EX=, MD=, etc.) and specifying them (PW=) and the cycle number. The SCOPE 2.0 permanent file manager uses the password definition if no previous cycle exists and uses the password specification if previous cycles exist. The passwords for all files cataloged by SYSDECK jobs are: EX=SCPEX, MD=SCPMD, CN=SCPCN. The passwords for RD and TK are null.

1.2.4 PROCEDURES

The procedures to establish a base system with the initial release materials are:

1. Deadstart the MCU with the SMMB deck (part II, section 2).
2. Deadstart stations (part II, sections 3, 4, and 5).
3. Deadstart the 7600 with the latest SCOPE 2.0 system (part II, section 6). For an initial installation, construct the deadstart SCPSID deck (part II, section 6.2).
4. Run the MODCAT job to catalog MODPL and SYSDECK, assemble the MEMO LISTER utility, print the formatted MEMO, and list and punch a card copy of PNCHDKS.
5. Modify and run the job PNCHDKS to list and punch the required installation decks from SYSDECK.
6. For an initial installation, run the OPRDLIB job to create an initial copy of the PRDLIB permanent file.
7. For subsequent applications of PSR updates, run the LDIDPRD job to catalog the object libraries, SRTMACS, PRDLIB, and SYSLIB.

Proceed with the next sections to install and configure the base system.

Batch notes: Each SYSDECK job calls two common decks: ACCOUNT and EXIT. ACCOUNT is called immediately after the job card in each job. If the jobs are to be run with a batch system and an ACCOUNT card is required, insert appropriate ACCOUNT cards into the common deck and it will be punched out in each deck. The common deck EXIT is called in most jobs at the end of the control statement section. It contains a PAUSE indicating a successful completion, followed by an EXIT, and then a PAUSE indicating failure. This allows job completion to be noted when using the worksheet. It may not be desirable to do this in a batch environment. To eliminate the pauses, delete the contents of EXIT (but not the common deck itself).

Housekeeping hint: Use the LISTER program to format listings of SYSDECK installation decks and the SYSDECK worksheets. This program accepts several keyword parameters that control the number of lines per page, depth of detail in the table of contents, and page ejects on section headers. For more detail refer to the listing of LISTER.

Housekeeping hints: Since there are so many decks punched by PNCHDKS, the user can reduce the number of cards by deleting the contents of the common decks ACCOUNT, COMMENTB, and COMMENTE. These decks only contain comment cards. This should not be done without a complete familiarity with the SYSDECK procedures. The only manual action required is to replace the 7/8/9 17 cards with 6/7/8/9 cards. Minimally, interpret the job cards.
1.3 BUILD A PRODUCTION RELEASE SYSTEM

Building a release system suitable for production involves one or more of the following procedures for each element of the system.

- Generate binary from a program library with modified installation parameters using xxxGEN job
- Generate binary from a program library updated from PSR modifications using xxxMOD job
- Process existing binary to produce a production format using the xxxINS job

The worksheets described in part III, section 1.7 list the tapes and permanent files that are required and created by these jobs as well as the order of execution that is necessary.

These procedures are described more specifically for the stations in section 1.3.1, for the product set in section 1.3.2, for the FORTRAN object library in section 1.3.3, and for the SCOPE 2.0 operating system in section 1.3.4.

1.3.1 STATIONS

Both the generation jobs (STAGEN and MTSGEN) and modification jobs (STAMOD and MTSMOD) allow the setting of installation parameters. Both create deadstart tapes for initial deadstarts. An initial deadstart copies the deadstart tape to the station disk pack. After the initial deadstart, the station software may be deadstarted from the station disk pack.

1.3.2 PRODUCT SET MEMBERS

The first step for each product set member in building a production release system is to catalog the core image binary as an xxxXEL library file (ID=SCPSCR). There are three ways to do this.

1. Use the xxxINS job to copy the binary from the release tape to mass storage, pass it through LIBEDT, and catalog it.
2. Use the xxxGEN job to update the released program library (defining new installation parameters), assemble or compile it, load it if necessary, pass it through LIBEDT, and then catalog it (run SRTGEN before running COBGEN and COBMOD).
3. Use the xxxMOD job to update the previous release program library from the PSR modifications on MODPL (with possible changes to installation parameters), assemble or compile it, load it if necessary, and then catalog it. The xxxMOD job takes its corrective code from the /DECK xxxPSR (run SRTMOD before running COBMOD or COBGEN).

The next step is to run the NPRDLIB job to combine the separate libraries into one product library PRDLIB (ID=PRDLIB). This file is then used to create a deadstart tape.

For the COBOL and Sort/Merge products, catalog the associated object libraries or XTEXT files. xxxXINS jobs process existing binaries; xxxGEN jobs regenerate new copies of the binaries; and xxxMOD jobs apply PSR updates to create new binaries. COByy creates the COBOL object library COBLIB; SRTyy creates the Sort/Merge object library SRTLIB and the SRTMACS XTEXT files. All IDs are PRDLIB.
1.3.3 FORTRAN OBJECT LIBRARY

FCLOPL contains the source for the FORTRAN object library. This source is common to both 6000 SCOPE 3.4 and 7000 SCOPE. Customers who use both of these systems should maintain a single version of the program library.

The release tape does not contain binaries for the product because the two systems are not completely compatible at the binary level. Therefore, there is no installation job either. For an initial installation, generate the binary from the FCLOPL tape.

Actually, there are two versions of the SCOPE 2.0 binary. One is assembled to be used with FORTRAN Extended code, the other to be used with FORTRAN Run code.

The procedure to build the FORTRAN object libraries is:

1. If needed, run the FTNLIB7 job to apply PSR modifications to the release program library. The modifications to this program library are on the SCOPE 3.4 modification tape. This job produces a new release tape. A similar procedure may also be used under SCOPE 3.4.

2. Run RLIBGEN to create the permanent file RUNIOLIB (ID=PRDLIB) from the current program library.

3. Run FLIBGEN to create the permanent file FTNIOLIB (ID=PRDLIB) from the current program library. Do not run this job until the file PRDLIB is cataloged.

1.3.4 SCOPE 2.0

Use the following procedure to create a new SCOPE 2.0 deadstart tape that contains the binary of the product set.

1. Run the SCPINS job to update an existing deadstart tape from the PRDLIB file, produce a new deadstart tape, and create a permanent file SYSLIB (ID=PRDLIB) containing the operating system binary.

2. Run the SCPOPL job to update SCPOPL with PSR modifications to produce a new release tape, assemble the system, catalog the binary as the permanent file SYSLIB, and produce a deadstart tape by combining SYSLIB with PRDLIB.

3. Run the SCPGEN job to generate binary from the release tape, catalog the binary as SYSLIB, and create a deadstart tape by combining SYSLIB with PRDLIB.

The SCPINS job adds product set binary to the release deadstart tape SCPLIB, adds new compilers to an old system, or adds old compilers to a new system. The SCPOPL job updates release materials. Either the SCPOPL or the SCPGEN job may be used to redefine installation parameters.

After running the SCPxxx job, run the DBUGINS job to catalog the object library DBUGLIB which is necessary to use the TRAP feature of the SCOPE 2.0 loader.

1.4 ADD CUSTOMER MODIFICATIONS

There may be customer modifications to the operating system and product set. As noted in section 1.2.3, the decks to make these modifications may be punched from SYSDECK by defining the USERMODS parameter in the PNCHDKS input. These decks assume that customer modifications are in the file USERMODPL in UPDATE format with the master control character set to /.

The USERMOD job creates this file.
Jobs punched with USERMODS defined should also have EXTEND defined. The assumption is that PSR modifications are applied to produce new release materials (if needed) and then the xxxUSR jobs are run to update existing permanent file libraries using EXTEND. If customer modifications are to be made, do not run the PURGSCR job until after the xxxUSR jobs are complete. Executing the jobs in this way produces updated PSR summary level deadstart tape and a customer modified tape. The release tape may be useful to determine the cause of either a CDC software or customer modification bug.

An alternate way to apply customer modifications is to run each xxxUSR job immediately after running the corresponding xxxMOD, xxxGEN, or xxxINS job. The binaries produced, including the deadstart tape are the modified versions. However, since this procedure does not produce a production release deadstart tape, this procedure is not recommended.

Another SYSDECK option to consider is $DEFINE NONEWPL. Customer modifications may be very small and may not warrant separate program libraries in addition to the release program library.

1.5 CREATE BACK-UP MATERIALS

When the release system is generated, it is recommended that additional copies of tapes, permanent files, and card decks be made for back-up purposes. Several SYSDECK jobs are available to create these materials. They are described in sections 1.5.1 through 1.5.3.

1.5.1 TAPES

xxxCPY jobs copy release materials. MDTCPY copies MODTAPE. All of these jobs create correctly labeled and formatted tapes. The PRDCPY job copies any permanent file DUMP/LOADPF tape. The SDTCPY job copies 7611-1 I/O Station deadstart tapes. The DSLCPY job copies the 7611-2 Magnetic Tape Station deadstart tape and the SCOPE 2.0 deadstart tape.

1.5.2 PERMANENT FILES

There is a set of xxxPL jobs that catalog release program libraries as permanent files. The following jobs create DUMPF back-up tapes for permanent files with the specified ID,

<table>
<thead>
<tr>
<th>ID</th>
<th>Job Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRDLIB</td>
<td>DPIDPRD</td>
</tr>
<tr>
<td>S20CPL</td>
<td>DPPLS</td>
</tr>
<tr>
<td>S20CPSO</td>
<td>DPPOPL</td>
</tr>
<tr>
<td>S20CPSMOD</td>
<td>DPOSOPL</td>
</tr>
<tr>
<td>TOOLS</td>
<td>DPTOOLS</td>
</tr>
<tr>
<td>(ALL)</td>
<td>DUMPF</td>
</tr>
</tbody>
</table>
1.5.3 CARD DECKS

The DSBCPY job punches copies of the SCOPE 2.0 deadstart binary from a deadstart tape. The STADCK and MTSDCK jobs assemble and punch deadstart cards and decks for the 7611-1 and 7611-2 stations respectively. The STADMP job assembles and punches the 7611-1 dump deck. The P80CPY job copies any card deck including the binary of SMMB.

1.6 CREATE MAINTENANCE INFORMATION

After the system is installed and back-up materials are created, there are two more steps: verify installation and generate maintenance listings.

1.6.1 VERIFY INSTALLATION

There is a set of jobs on SYSDECK named xxxVFY. These jobs are to be run against the newly created system to verify that the installation is successfully completed. Use the following steps.

1. Deadstart the new system using the new deadstart tape and new deadstart deck. The most efficient way is to do an initial deadstart specifying that permanent files be recovered (part II, section 6.2).

2. If permanent files were lost, load the PRDLIB tape.

3. Run the SYSLIB job. This job specifies the files from which to satisfy the externals of compiler generated code (part IV, sections 3.6.2 and 3.6.3).

4. Run the SIFACCT job to retrieve the SIF file and establish the master SIF file. This job works under almost any situation and may be used as a model for a similar installation job.

5. Run the verification jobs. These are mostly self-checking.

1.6.2 GENERATE MAINTENANCE LISTINGS

There are several SYSDECK jobs and programs that produce listings containing information useful in the understanding and maintenance of SCOPE 2.0.

The use of these decks is not required to install the system but, if used, produce useful system maintenance information. Each of the decks require the use of products such as FORTRAN Extended and Sort/Merge which are purchased separately from SCOPE 2.0.

CROSS

CROSS produces a cross reference listing of the SCOPE 2.0 system. As punched from SYSDECK it produces two copies of the listing that contains two parts. The first part lists system symbols from OST, overlay names, field names, macros, and OPDEFs in alphabetical order with the references to each one by overlay (for example, T.XYZ is referenced by overlays OE.A, OU.B, OS.C). The second part is a list of overlays and the symbols, overlay names, field names, macros, and OPDEFs referenced by that overlay.
The procedure used to create this listing is:

1. Apply temporary modifications to COMPASS so that COMPASS outputs a file called MACROS that contains the raw data.

2. Compile and execute a FORTRAN Extended program (PRESORT) to convert the raw data into formatted display code records.

3. Sort the records by item type, name, and then overlay name.

4. Compile and execute a FORTRAN Extended program (POSTSRT) to list the records in a formatted report.

5. Resort the records by overlay name.

6. Execute POSTSRT to list the records in a formatted report. The POSTSRT job reads a card from the INPUT file which indicates the style of the sorted input (O - item by ident, I - ident by item) and a title for page headings.

Source Listings

To obtain source listings of all program libraries, punch the xxxGEN jobs with NONEWPL and LIST defined but without MODTAPEMD or USERMODS defined. Remove CATALOG statements if the product is not to be installed while producing listings.

The exception is SCOPE 2.0 which is described as follows.

SCOPE 2.0 Listings

Part of the information on SYSDECK is a SCOPE 2.0 routine data base with each entry containing the following:

Overlay or service routine name
Overlay index
Level
Overlay number in level
Entry point number
Listing volume number
UPDATE deck name
Miscellaneous flags
Descriptive comments

There is at least one entry in the data base for each UPDATE deck, each overlay name or entry point, and utility program.

There are several programs and decks that list and manipulate the data base. These jobs are DBLIST, OVLVOL, TXTVOL, UTLVOL, and FTNVOL.
DBLIST

This job executes a program that updates the data base (MERGE is the program name), sorts it (SORTMRG), and lists it by overlay number, by UPDATE deck name, by volume number, and by indexes (REPORT is the program name).

It produces two copies of the output. The SCOPE 2.0 program library must be cataloged by the SCPPL job to execute this program.

OVLVOL

This job uses REPORT to selectively generate *COMPILE cards on a file called UPIN according to an input volume number. The job updates V2OPL using the *COMPILE cards to produce a listing of the overlays in the volume. The volume number appears on the first two columns of the input card. An input card for each appropriate volume is included. The job should be run once for each data card in the deck. At the beginning of each volume is a report listing the overlays in the volume.

The format of the data base cards and the correction cards is discussed in the documentation of the UPDATE program MERGE. The suggested procedure is to run the program to get listings of the release system, punch corrective cards to update the data base according to any customer modifications, and rerun the job to produce a corrected data base.

TXTVOL

This job updates V2OPL and lists OST, V2TEXT, the table description common decks, and the deadstart text partition AUTO.

UTLVOL

This job duplicates the function of OVTVOL for utility code assembled with V2TEXT.

FTNVOL

This job duplicates the function of OVTVOL for FORTRAN Extended code.

1.7 SYSDECK WORKSHEET

Run the MODCAT job (part III, section 1.1) to print the worksheets.
Information concerning the modification of SMMB is available through the Customer Engineering Division.
3.1 REQUIREMENTS

The following materials are necessary to build the 7611-1 I/O Station.

3.1.1 TAPES

STAOPPL

Described in part I, section 2.3.

3.1.2 PERMANENT FILES

MODPL (ID=S20OPS.MOD) Necessary for application of PSR updates only (STAMOD job)

USERMODPL (ID=S20OPS.MOD) Necessary for application of local customer modifications only (STAUSR job)

3.1.3 DECKS

STAGEN Regenerates a STALIB tape from STAOPPL

STAMOD Creates a new STAOPPL from the old STAOPPL and MODPL, then generates a new STALIB tape when assembled.

STAUSR Creates a new STAOPPL from the old STAOPPL and USERMODPL, then generates a new STALIB tape when assembled.

STADCK Assembles and punches the 7611-1 deadstart decks STATDS, STADDS, and STACL from STAOPPL

STADM First Assembles and punches the 7611-1 deadstart dump deck from STAOPPL

3.1.4 DEPENDENCIES

None.

3.2 CONFIGURATION PARAMETERS

None.
3.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
3.3.1 STADMMP

JOB DECK STADMMP

STADMMP,CPC7,1090,MTU1.

COMMENT...SVU,%8753,36R30,SDMILLER

COMMENT...********************************************************************

COMMENT... THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED

COMMENT... BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA

COMMENT... FOR PSR SUMMARY LEVEL S1 (SEE SYSDECK DESCRIPTION)

COMMENT... NOMEPL HAS BEEN DEFINED

COMMENT... STAGE HAS BEEN DEFINED

COMMENT... PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO

COMMENT... SCOPE 2.0 INTEGRATION AHW248

COMMENT... 4201 LEXINGTON AVE. N.

COMMENT... ST PAUL, MINN. 55112

COMMENT... (NO PSRS)

COMMENT...********************************************************************

COMMENT... THIS JOB WILL PUNCH THE STATION DUMP DECK. AN EASIER WAY TO DO

COMMENT... THIS IF THE 7611-1 STATION IS UP, IS TO PUNCH THE DECK FROM THE

COMMENT... STATION DISK. THIS CAN BE DONE BY TYPING (IN STATION MODE) ****

COMMENT... PUNCH DUPLMP P98A (CR)

COMMENT... (FOR PRINTER1 (PPU1) LOADER BOOTSTRAP CARD)

COMMENT... PUNCH DUPLMP P98B (CR)

COMMENT... (FOR PRINTER2 (PPU2) LOADER BOOTSTRAP CARD)

COMMENT... PUNCH DUPLMP P98C (CR)

COMMENT... (FOR THE ACTUAL DUMP PROGRAM)

COMMENT...********************************************************************

LABEL(STAOPPL,L=$STAOPPL@SCP2.0$)

START(SIAOPPL,L=MT,ALY,LPW);

VSN=CYS1.

UPDATE(P=STAOPPL,Q)

COMPASS(I)

DISPUSE(I,GR,P)

PUNCH 90 COLUMN BINARY

PAUSE... M9900 = JOB COMPLETED SUCCESSFULLY... TYPE X.G0

EXIT.

PAUSE... M9901 = JOB FAILED ... TYPE X.G0

---EOS--- 7/8/84

*D DUMP

*/ PRINTER1 (PP1) BOOTSTRAP CARD

*C (DUMP)

*/ PRINTER2 (PP2) BOOTSTRAP CARD
JMP DECK STRUMP

*C DUMP P2
*7 DUMP PROGRAM
*C IMPRINT
--- E01--- 6/7/80/9
3.3.2 STAMOD

J04 DECK STAMOD

STAMOD,CP76,7200,MT01
COMMENT, *SVUV,07155,3663U,SDMILLER
COMMENT, *
COMMENT, **************************************************
COMMENT, *
COMMENT, * THIS IS A SCOPE 2.0 INSTALLATION DECK AS CREATED
COMMENT, *
COMMENT, * BY SCOPE 2.0 INTEGRATION - AMDEN HILLS, MINNESOTA
COMMENT, *
COMMENT, * FOR PSM SUMMARY LEVEL 51 (SEE SYSDUDEK DESCRIPTION)
COMMENT, *
COMMENT, *
COMMENT, * MODIFICATIONS HAVE BEEN DEFINED
COMMENT, *
COMMENT, * STAGE HAS BEEN DEFINED
COMMENT, *
COMMENT, *
COMMENT, * PLFAF SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT, * SCOPE 2.0 INTEGRATION ARM 248
COMMENT, *
COMMENT, * 4201 LEXINGTON AVE, N.
COMMENT, *
COMMENT, * ST PAUL, MINN. 55112
COMMENT, *
COMMENT, *
COMMENT, * ( NO PSFS )
COMMENT, **************************************************
COMMENT, *
LABEL(STAOPL,L=STAOPL*SCP2.C8)
STAGF(STAOPL,MT,N,F,85=Y=CY=7)
COMMENT, **************************************************
COMMENT, *
COMMENT, * UPDATE MVUPL TO GET LATEST CDC MVDS
COMMENT, *
COMMENT, **************************************************
ATTACH(MVUPL,MVUPL,1U=5200PSMVU,
CY=51)
UPDATE(P=MVUPL,N=D,R,4=11,C=UP1N)
RETURN(MVUPL)
COMMENT, **************************************************
COMMENT, *
COMMENT, * UPDATE 7611-1 OLDOPL, CREATE SEQUENTIAL NEWPL
COMMENT, *
COMMENT, **************************************************
UPDATE(P=STAUOPL,F,C=0,N=STANPLL,I=UPIN)
UNLOAD(STAUOPL)
COMMENT, **************************************************
COMMENT, *
COMMENT, * DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT, * IS VALID, THE OLDOPL IS MODIFIED CREATING A TEMPORARY NEWPL -
COMMENT, * RANDPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL = NEWPL.
COMMENT, * FAILURE TO DO THIS COULD RESULT IN LOSS OF USER NAMES AND AN
COMMENT, * IMPROPER ORDERING OF DECKS (WHEN DFCS ARE ADDED OR PURGED).
COMMENT, *

60344000 A

III-3-5
J0H DECK STAMOND

COMMENT: ************************************************************
UPDATE (P=RELGTAL, F=0, C=0, N=I=NULL)
RETURN (MANUPL)
COMMENT: ************************************************************
COMMENT: *
COMMENT: * UPDATE NEWPL INSERTING CURRENT CYCLE INDICATOR
COMMENT: * AND PRODFC COMPONENT FILE
COMMENT: *
COMMENT: ************************************************************
UPDATE (P=RELGTAL, F=0)
COMMENT: ************************************************************
COMMENT: *
COMMENT: * CREATE NEW STAILR TAPE (7611-1 DEADSTART TAPE)
COMMENT: *
COMMENT: ************************************************************
FILE (STAILR+MT=)
STAGE (STAILR+MY=MY+POST,
VSN=CY51)
COMPASS (1#=STAILR+L=LIST)
UNLOAD (STAILR)
COMMENT: ************************************************************
COMMENT: *
COMMENT: * CREATE NEW STAUPL TAPE
COMMENT: *
COMMENT: ************************************************************
LABEL (NEWSTA=L=STAUPL+CP2, 01)
STAGE (NEWSTA+MT=MY+POST,
VSN=CY51)
REWIND (NEWPL+NEWSTA)
COPY (NEWPL+NEWSTA)
COMMENT: ************************************************************
COMMENT: *
COMMENT: * TEST NEW TAPE VIA UPDATE
COMMENT: *
COMMENT: ************************************************************
UNLOAD (NEWSTA)
STAGE (NEWSTA+MT=MY+PHF,
VSN=CY51)
UPDATE (F=IE, STA+N=SCAT, C=0, I=NULL)
UNLOAD (NEWSTA+SCAT)
PAUSE* M000 - JOH COMPLETED SUCCESSFULLY... TYPE X+GO
FAIL*
PAUSE* M0001 - JOH FAILED... TYPE X+GO
---END--- 7/6/79
/C STAPSFP
---END--- 7/6/79
*10 CYCLE 96
*U CYC51,1 CYCLE INDICATOR
DATA 1H5,1R1 CYC51 51

---END--- 6/7/8/7
3.3.3 STADCK

JOB DECK STADCK

STADCK,T100,CP70,MT01.

COMMENT, *
COMMENT, * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT, * BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT, * FOR ISP SUMMARY LEVEL 51 (SEE SYSOCK DESCRIPTION)
COMMENT, *
COMMENT, * NONENCL HAS BEEN DEFINED
COMMENT, * STAGE HAS BEEN DEFINED
COMMENT, *
COMMENT, * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT, * SCOPE 2.0 INTEGRATION AB24
COMMENT, * 4201 LEXINGTON AVE, N.
COMMENT, * ST PAUL, MN, 55117

( NO DS07 )

COMMENT, *
COMMENT, * THIS JOB WILL PUNCH THE 7611-1 DISK DS AND TAPE DS PRIMARY CARDS.
COMMENT, * THIS JOB ALSO PUNCHES STADLC - THE CHANNEL CLEAR CARD. THESE
COMMENT, * CARDS WILL BE PUNCHED IN ORDER - AN EASIER WAY TO DO THIS IF
COMMENT, * THE 7611-1 STATION IS UP, IS TO PUNCH THE CARDS FROM THE STATION
COMMENT, * DISK, THIS CAN BE DONE BY TYPING (IN STATION MODE) ****
COMMENT, * PUNCH DS0 PASS (CP)
COMMENT, * (FOR THE DISK HEADSTART CARD)
COMMENT, * PUNCH DS0 PASS (CP)
COMMENT, * (FOR THE TAPE HEADSTART CARD)
COMMENT, * PUNCH CLC PASS (CR)
COMMENT, * (FOR CHANNEL CLEAR CARD)

LABEL(STANUL,LET=STANUL*222,0)  
STAGE(STANUL,MT,HY,E,ORE, 
VWNY=91)  
FEWNO(STANUL)  
UPDTS=STANUL,0)  
COMMENT(I)
PICOPS(LOO,PA) PUNCH AN COLUMN BINARY
FAUS, 4000 - JOB COMPLETED SUCCESSFULLY... TYPE X,GO
EXIT.
FAUS, 40001 - JOB FAILED ... TYPE X,GO
---EOS--- 7/8/9
*TD STAT
*/* DISK DS PRIMARY CARD
*/* DISC
*/* TAPE DS PRIMARY CARD
*/* SDOC
*/* CHANNEL CLEAR CARD
*/* CLC
---EOI--- 4/7/8/9

60344000 A
4.1 REQUIREMENTS

The following materials are necessary to build the 7611-2 Magnetic Tape Station.

4.1.1 TAPES

MTSOPL

Described in part I, section 2.4

4.1.2 PERMANENT FILES

MODPL (ID=S20OPSMOD)

Necessary for application of PSR updates only (MTSMOD job)

USERMODPL (ID=S20OPSMOD)

Necessary for application of local customer modifications only (MTSUSR job)

4.1.3 DECKS

MTSGEN

Regenerates a MTSLIB tape from MTSOPL

MTSMOD

Creates a new MTSOPL from the old MTSOPL and MODPL, then generates a new MTSLIB tape when assembled

MTSUSR

Creates a new MTSOPL from the old MTSOPL and USERMODPL, then generates a new MTSLIB tape when assembled

MTSDCK

Assembles and punches the 7611-2 deadstart decks MTSSTD and MTSDDS from MTSOPL

4.1.4 DEPENDENCIES

None.

4.2 CONFIGURATION PARAMETERS

4.2.1 MODIFICATIONS TO MTSLIB AND MTSOPL TAPES

XPP (Multiplexer PPU) Modifications

The XPP program must reside in PPU0.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHPAR</td>
<td>0</td>
<td>Parity and deadstart channel number</td>
</tr>
<tr>
<td>CHFI</td>
<td>0</td>
<td>FLPP to XPP channel</td>
</tr>
<tr>
<td>CHFO</td>
<td>6</td>
<td>XPP to FLPP channel</td>
</tr>
<tr>
<td>CHS</td>
<td>4</td>
<td>Channel between XPP and SPP</td>
</tr>
<tr>
<td>CHD1</td>
<td>1</td>
<td>Channel between XPP and driver 1</td>
</tr>
<tr>
<td>CHD2</td>
<td>2</td>
<td>Channel between XPP and driver 2</td>
</tr>
<tr>
<td>CHD3</td>
<td>3</td>
<td>Channel between XPP and driver 3</td>
</tr>
<tr>
<td>CHD4</td>
<td>5</td>
<td>Channel between XPP and driver 4</td>
</tr>
</tbody>
</table>

**SPP (System PPU) Modifications**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>XP</td>
<td>0</td>
<td>XPP channel number</td>
</tr>
<tr>
<td>DP1</td>
<td>1</td>
<td>DPP channel number</td>
</tr>
<tr>
<td>DP2</td>
<td>2</td>
<td>DPP2 channel number</td>
</tr>
<tr>
<td>DP3</td>
<td>3</td>
<td>DPP3 channel number</td>
</tr>
<tr>
<td>DP4</td>
<td>5</td>
<td>DPP4 channel number</td>
</tr>
<tr>
<td>DA</td>
<td>6</td>
<td>Disk function/status channel</td>
</tr>
<tr>
<td>DB</td>
<td>7</td>
<td>Disk data channel</td>
</tr>
<tr>
<td>S</td>
<td>4</td>
<td>Display channel</td>
</tr>
<tr>
<td>PSTAT</td>
<td>see significance</td>
<td>DPP status table</td>
</tr>
</tbody>
</table>

**Released DPP Table**

- DH=0, DSU=2, DOF=0
- DH=0, DSU=1, DOF=0
- DH=0, DSU=4, DOF=1
- DH=0, DSU=3, DOF=1

**Driver**

- 1
- 2
- 3
- 4

For each DPP driver to be modified:

1. Set DH to 1 if driver PPU is disconnected; set to 0 if connected.
2. Set DSU to PPU number (1 to 4) that is connected to other half of 2 x 8 controller (a 2 x 8 controller is connected to two PPUs); set to 0 if 1 x 8 controller.
3. Set DOF to 1 if DPP is OFF; set to 0 if ON.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>USTAT</td>
<td>see significance</td>
<td>Unit status table</td>
</tr>
</tbody>
</table>

**Released USTAT Table**

<table>
<thead>
<tr>
<th>Unit</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>UNT=0, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>UNT=0, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>UNT=1, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>UNT=1, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>UNT=0, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>UNT=1, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>UNT=0, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>UNT=0, UOF=0, U2C=1, UDC=1</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>UNT=1, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>UNT=1, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>UNT=1, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>UNT=0, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>UNT=1, UOF=0, U2C=1, UDC=3</td>
<td></td>
</tr>
</tbody>
</table>

For each unit to be modified:

1. Set UNT to 1 for 9-track; set to 0 for 7-track.
2. Set UOF to 1 if unit is OFF; set to 0 if ON.
3. Set U2C to 1 if unit is a 2 x 8 controller; set to 0 if 1 x 8 controller.
4. Set UDC to DPP number (1 to 4) that is connected to unit; if unit is connected to two DPPs, set to lower DPP number.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHCH</td>
<td>see significance</td>
<td>PPU channel table</td>
</tr>
</tbody>
</table>

**Released CHCH Table**

<table>
<thead>
<tr>
<th>PPU</th>
<th>CON</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>CON</td>
<td>XPMD4+1</td>
</tr>
<tr>
<td>1</td>
<td>CON</td>
<td>DP1-XP</td>
</tr>
<tr>
<td>2</td>
<td>CON</td>
<td>DP2-DP1</td>
</tr>
<tr>
<td>3</td>
<td>CON</td>
<td>DP3-DP2</td>
</tr>
<tr>
<td>5</td>
<td>CON</td>
<td>DP4-DP3</td>
</tr>
</tbody>
</table>

NOTE

The DPPs that can be connected to a 2 x 8 controller are DPP1 and DPP2 or DPP3 and DPP4.
### DPP (Driver PPU) Modifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHF</td>
<td>6</td>
<td>PPU to controller function/status channel; see CHD</td>
</tr>
<tr>
<td>CHD</td>
<td>7</td>
<td>PPU to controller data channel.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The CHF and CHD may be changed for each of the following overlay routines.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>BLB W7U</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LBP W7L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>LDC W9U</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R7U W9L</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R7L RER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R9U WER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>R9L POS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If fewer than four driver PPUs are to be used, assemble all overlays and the resident programs for the drivers to be used. For example, if only driver 4 is to be used, assemble only DP4 and all of the overlays; do not assemble DP1, DP2, or DP3.</td>
</tr>
</tbody>
</table>

### READ error recovery parameters:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIM</td>
<td>6</td>
<td>Number of single backspace attempts for read error recovery</td>
</tr>
<tr>
<td>LIMF</td>
<td>6</td>
<td>Number of read recovery attempts without operator intervention</td>
</tr>
</tbody>
</table>

### WRITE error recovery parameter:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIM</td>
<td>6</td>
<td>Number of write recovery attempts without operator intervention</td>
</tr>
</tbody>
</table>

### 7611-2 Dump Program Modifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHXPP</td>
<td>3</td>
<td>Data subchannel to XPP</td>
</tr>
<tr>
<td>CHDS</td>
<td>2</td>
<td>Deadstart channel</td>
</tr>
<tr>
<td>CHFLPO</td>
<td>6</td>
<td>XPP to FLPP data subchannel</td>
</tr>
<tr>
<td>CHDSS</td>
<td>0</td>
<td>Station deadstart line</td>
</tr>
<tr>
<td>CHDD</td>
<td>7</td>
<td>Dead dump channel</td>
</tr>
</tbody>
</table>

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60344000 A
4.2.2 MODIFICATIONS TO MTSDDS AND MTSTDS DECKS

The following modifications apply to both MTSDDS and MTSTDS.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Value</th>
<th>Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLDS</td>
<td>2</td>
<td>FLPP deadstart channel</td>
<td></td>
</tr>
<tr>
<td>XPP</td>
<td>3</td>
<td>FLPP to PPU0 channel</td>
<td></td>
</tr>
<tr>
<td>DP1</td>
<td>1</td>
<td>Channel to DPP1</td>
<td></td>
</tr>
<tr>
<td>DP2</td>
<td>2</td>
<td>Channel to DPP2</td>
<td></td>
</tr>
<tr>
<td>DP3</td>
<td>3</td>
<td>Channel to DPP3</td>
<td></td>
</tr>
<tr>
<td>DP4</td>
<td>5</td>
<td>Channel to DPP4</td>
<td></td>
</tr>
<tr>
<td>SP</td>
<td>4</td>
<td>Channel to SPP</td>
<td></td>
</tr>
<tr>
<td>DD</td>
<td>7</td>
<td>PPU0 dead dump channel</td>
<td></td>
</tr>
<tr>
<td>DS</td>
<td>0</td>
<td>PPU0 deadstart channel</td>
<td></td>
</tr>
<tr>
<td>XP</td>
<td>0</td>
<td>Channel to XPP</td>
<td></td>
</tr>
<tr>
<td>FL</td>
<td>0</td>
<td>FLPP to XPP channel</td>
<td></td>
</tr>
<tr>
<td>FLO</td>
<td>6</td>
<td>XPP to FLPP channel</td>
<td></td>
</tr>
<tr>
<td>CH</td>
<td>77B</td>
<td>Bit configuration of station PPUs; 12-bit word</td>
<td></td>
</tr>
<tr>
<td>CHF</td>
<td>6</td>
<td>DDP1 tape function channel</td>
<td></td>
</tr>
<tr>
<td>CHD</td>
<td>7</td>
<td>DPP1 tape data channel</td>
<td></td>
</tr>
<tr>
<td>DA</td>
<td>6</td>
<td>SPP disk function/status channel</td>
<td></td>
</tr>
<tr>
<td>DB</td>
<td>7</td>
<td>SPP disk data channel</td>
<td></td>
</tr>
<tr>
<td>S</td>
<td>4</td>
<td>SPP 522 display channel</td>
<td></td>
</tr>
<tr>
<td>RBS</td>
<td>DP1</td>
<td>SPP library binary input channel (DP1 is released as 1)</td>
<td></td>
</tr>
<tr>
<td>DPN</td>
<td>see significance</td>
<td>Table indicating which driver is reading the STALIB tape</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Released DPN Table</th>
<th>PPU</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>DPN CON xxxx</td>
<td>1</td>
<td>Tape deadstart xxxx=DTDS (in TDS) or INMC</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CON INMC 2</td>
<td>Not used</td>
</tr>
<tr>
<td></td>
<td>CON INMC 3</td>
<td>Not used</td>
</tr>
<tr>
<td></td>
<td>CON SDS 4</td>
<td>SPP deadstart</td>
</tr>
<tr>
<td></td>
<td>CON INMC 5</td>
<td>Not used</td>
</tr>
</tbody>
</table>

4.2.3 CROSS REFERENCES

If DP1, DP2, DP3, and DP4 are to be modified in SPP, change the following:

1. CHD1, CHD2, CHD3, and CHD4 in XPP
2. CHCH and PSTAT in SPP
If fewer than four drivers are in the configuration, change the following:

1. DP1, DP2, DP3, DP4, CHK, PSTSTA, and USTAT in SPP
2. CHD1, CHD2, CHD3, and CHD4 in XPP
3. DP1, DP2, DP3, DP4, and DPN in MTSDDS and MTSTDS

If the channel connects between the DPPs and the controllers are to be modified, change the following:

1. CHF and CHD in DPP overlays
2. CHF and CHD in MTSTDS and MTSDDS
3. CHF and CHD in MTSCPU (in SCOPE 2.0 FLPP binary deck)

4.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
4.3.1 MSTMOD

JOB DECK "TSMOD"

*SMODGCPV11054MT01*

COMMENT *SUUV071538A302SMILLER*

COMMENT

COMMENT *THIS IS A SCOPE 2.0 INSTALLATION DECK AS CREATED*

COMMENT *BY SCOPE 2.0 INTEGRATION - ANDEN HILLS, MINNESOTA*

COMMENT *FOR PSN SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)*

COMMENT *MONITORING HAS BEEN DEFINED*

COMMENT *STATE HAS BEEN DEFINED*

COMMENT *PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO*

COMMENT *SCOPE 2.0 INTEGRATION ANW24R *

COMMENT 4201 Lexington Ave. N.

COMMENT ST PAUL, MN, 55112

COMMENT

COMMENT *(NO PSN)*

COMMENT

LABEL (MTXPL1=SMTSUPL*SCP2.0$)  
STATE (MTXPLMTMY*CPRF)*

EDIT (CY577)

COMMENT

COMMENT *UPDATE MUXPL TO GET LATEST CUC MODS*

COMMENT

COMMENT

ATTACH (MODEL=MODEL1=22;UHSMOD; CY51)

UPDATE (P=MUXPL, O=**/**/C=UPIN)

RETURN (MUXPL)

COMMENT

COMMENT *UPDATE MUXPL CREATE SEQUENTIAL NEWPL*

COMMENT

COMMENT

UPDATE (P=MUXPL, F=**/C=XANPPL, E=UPIN)

RETURN (MTXPL)

COMMENT

COMMENT *UUF TO A DEFICIENCY IN UPDATE TO INSURE THAT THE NEWPL CREATED*

COMMENT *IS VALID, THE OUPPL IS MODIFIED CHEATING A RANDOM TEMPORARY NEWPL -*

COMMENT *HANDPL WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL = NEWPL*.

COMMENT *FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN*

COMMENT *IMPROPER ORDERING OF DECKS WHEN DECKS ARE ADDED OR PURGED.*

COMMENT

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UPDATE (P=RNUPPL, F=0, C=0, N=I=0) RETURN (RNUPPL)

COMMENT

COMMENT * UPDATE RNUPPL INSERING CURRENT CYCLE INDICATOR
COMMENT * AND PRODUCE COMPIL FILE
COMMENT *

COMMENT UPDATE (P=RNUPPL, F=0)

COMMENT *

COMMENT * PRODUCE MTS BINARIES

COMMENT *

SKIP (COMPILE)

COMMENT * REQUIRED

SKIP (COMPILE)

COMMENT *

SNAP (COMPILE)

COMMENT *

UNLOAD (COMPILE)

COMMENT *

COMMENT * CREATE NEW MTSLIH (MTS US TAPE)

COMMENT *

COMMENT *

STAGE (MTSLIH+MT+H1+PST, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

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STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)

COMMENT *

STAGE (NE+MTSLIH+MTSLIH, VSN=CY91)
UNLOAD (NEWMTS)
UNLOAD (NEWMTS, SCHAT)
PAUSE. MP000 = JOH COMPLETED SUCCESSFULLY... TYPE X+GO
EXIT.
PAUSE. MP001 = JOH FAILED... TYPE X+GO
---EJS--- 7/8/9
/C MTSPSR
---EJS--- 7/8/9
#10 CYCLF NU
#0# MT002A.1
 DATA 1H5,1M1 CYCLE 51
---EUL--- 6/7/9/9
4.3.2 MTSOCX

MTSOCX,OPT0,T100,M700.

COMMENT,
COMMENT, *
COMMENT, * THIS IS A SCOPE2.O INSTALLATION DECK AS CREATED
COMMENT, *
COMMENT, * BY SCOPE2.O INTEGRATION - ADDEN HILLS, MINNESOTA
COMMENT, *
COMMENT, * FOR DSC SUMMARY LEVEL 51 (SEE SYSDCK DESCRIPTION)
COMMENT, *
COMMENT, * NEWDCL HAS BEEN DEFINED
COMMENT, *
COMMENT, * STAGE HAS BEEN DEFINED
COMMENT, *
COMMENT, * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT, * SCPE 2.0 INTEGRATION ABH244
COMMENT, * 4201 LEVINGTON AVE. "M"
COMMENT, * ST PAUL, MINN. 55112
COMMENT, *
COMMENT, *
COMMENT, *

-----------------------------------------------

LABEL (NEWSOC,L=SCOPEL0,0*)
STAGE (NEWSOC,MT,HY,E,PRE,
      VHCY=E31)
UPDATE (D=NEWSOC,D)
COMPASS (T,M=PUN,L=LIST)
RENTRY (PUN)
COPY (PUN,PUNCH)
PAUSE, 42200 - JOB COMPLETED SUCCESSFULLY... TYPE Y,GO
EXIT.
PAUSE, 42000 - JOB FAILED ... TYPE Y,GO

---ECC--- 7/9/83
*T0 MT5
*/ TAPE OS DECK --MTS001--
*/ TOS
*/ DISK OS DECK --MTS000--
*/ FDS
---ECS--- 7/9/83
*/ RELAY AOE CARDS FOR ADDITIONAL COPIES OF BINARY OS DECKS
RETRY (PUN)
COPY (PUN,PUNCH)
RETRY (PUN)
COPY (PUN,PUNCH)
---DET--- 6/7/83

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All modifications to SCOPE 3.4 are described in the 6000 SCOPE 3.4 Installation Handbook, Pub. No. 60307400, except for the following station parameter.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
</table>
| CNTMLO    | 512_{10}               | The number of loops occurring in the CPL program (station FLPP) before the station logs out. Present setting of 512 causes 512 loops in CPL which is about one minute. Equation is: 
Value=(8.53)(wait time in seconds)  
512=(8.53) (60 seconds) |
6.1 REQUIREMENTS

The following materials are necessary to build the SCOPE 2.0 operating system.

6.1.1 TAPES

SCPOPL  
Described in part I, section 2.6.

6.1.2 PERMANENT FILES

MODPL (ID=S2OOPSMD)  
Necessary for application of PSR updates only (SCPMD job)

USERMODPL (ID=S2OOPSMD)  
Necessary for application of local customer modifications only (SCPUSR job)

FTNIOLIB (ID=PRDLIB)  
Necessary to satisfy FTN generated externals in LIBEDT and ANALYZE

PRDLIB (ID=PRDLIB)  
Necessary to add product set binary to deadstart tape and provide the FTN compiler for building LIBEDT and ANALYZE

6.1.3 DECKS

SCPGEN  
Regenerates SCPLIB tape and SCPSID binary deck from SCPOPL; catalogs SYSLIB (ID=PRDLIB)

SCPMOD  
Creates a new SCPOPL from the old SCPOPL and MODPL, then generates a new SCPLIB tape and a SCPSID binary deck from the new SCPOPL; catalogs SYSLIB (ID=PRDLIB)

SCPUSR  
Creates a new SCPOPL from the old SCPOPL and USERMODPL, then generates a new SCPLIB tape and a SCPSID binary deck from the new SCPOPL; catalogs SYSLIB (ID=PRDLIB)

SCPINS  
Replaces product set only; punches SCPSID and catalogs SYSLIB (ID=PRDLIB)

DSBCPY  
Punches SCOPE 2.0 SCPSID binary deck from a SCPLIB

DBGINS  
Catalogs binary from SCPOPL as DBGULIB (ID=PRDLIB)
6.1.4 DEPENDENCIES

FTN and FCL must be installed before building SCOPE 2.0; or at least PRDLIB must contain a FTN compiler updated to the current PSR summary level and FTNIOLIB must be updated to the current PSR summary level.

6.2 CONFIGURATION PARAMETERS

Parameters for configuring the SCOPE 2.0 system are defined in decks IPARAMS in OSL and ORL. These decks are on the SCPOPL tape. Unless specified otherwise, the parameters described are in the IPARAMS common deck, which can be listed by assembling the deck OSL (system text) using a *COMPILE OSL UPDATE directive.

The cross references are the routines affected by the parameter.

6.2.1 DEBUGGING

None that can be changed by the user.

6.2.2 LIBRARIES

None that can be changed by the user.

6.2.3 SYSTEM CONTROL

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.DRMGT</td>
<td>1</td>
<td>Assemble static resource management (on-line tape) accounting code which is the tape I/O message TAPE, SECONDS in the accounting summary.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 No dayfile message</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Message dayfile</td>
</tr>
</tbody>
</table>

The scheduler uses the following parameters to determine time slices and to select the next job for execution. Factors important to selecting a job include: job status (X1, X2, X3, W1, W2, W3), resource utilization (SCM, LCM, mass storage, on-line tapes), and external priority.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.LCMW</td>
<td>1</td>
<td>Weight of LCM for computing scheduling value when job is in X1 or X2 status†.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value=(LCM allocated/1000B<em>2</em>IP.LCMW)</td>
</tr>
<tr>
<td>IP.IOWT</td>
<td>2000B</td>
<td>Weight of I/O rate in scheduling value when job is in X1 or X2 status†.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Value=[(1/2 CPU time allocated / CPU time used)] *IP.IOWT</td>
</tr>
</tbody>
</table>

†When a job is in X1 or X2 status, the scheduling value is determined by the LCM value plus the I/O value plus the external priority specified on the job card.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.AUWT</td>
<td>1000B</td>
<td>When a job is rolled out to disk (X3 status†), value is increased by au*IP.AUWT where au is allocatable devices such as tapes.</td>
</tr>
<tr>
<td>IP.MINT</td>
<td>3</td>
<td>Minimum job time slice in clock cycles (3.6 milliseconds); refer to IP.TSWT for SCM execution.</td>
</tr>
<tr>
<td>IP.MAXT</td>
<td>20D</td>
<td>Maximum job time slice in clock cycles (3.6 milliseconds); refer to IP.TSWT.</td>
</tr>
<tr>
<td>IP.TSWT</td>
<td>1</td>
<td>A job's time slice is the amount of time the job is assigned the CPU. At the completion of a time slice, the scheduler interrupts and assigns a new time slice to another job or to the same job. The size of the time slice is expressed in clock cycles (3.6 milliseconds). time slice = (priority+777B/1000B*2**IP.TSWT) The range is further restricted by: IP.MINT&lt;time slice&lt;IP.MAXT If IP.MINT is the same as IP.MAXT, all time slices are equal.</td>
</tr>
<tr>
<td>IP.SCVI</td>
<td>4000B</td>
<td>Interval in clock cycles at which SCHL (the scheduler) ages jobs in X2 and X3 status.</td>
</tr>
<tr>
<td>IP.LCMI</td>
<td>510B</td>
<td>Interval in clock cycles at which an X2 job is forced from LCM into SCM.</td>
</tr>
<tr>
<td>IP.ROLI</td>
<td>12000B</td>
<td>Interval in clock cycles at which SCHL attempts to swap an X3 job into LCM from disk.</td>
</tr>
</tbody>
</table>

6.2.4 JOB MANAGEMENT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.DJMGT</td>
<td>1</td>
<td>Determines whether job management accounting code is to be assembled.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Code not assembled</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Code assembled</td>
</tr>
</tbody>
</table>

†When a job is in X3 status, the scheduling value is determined by the au value plus the external priority specified on the job card.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.MAXBJ</td>
<td>420B</td>
<td>Maximum number of I/O buffers for a job. When the maximum number of buffers is exceeded, the job is unconditionally aborted. This value is reduced by deadstart based on the number of I/O buffers physically available. Refer to T.MAXBUF in part III, section 6.2.13.</td>
</tr>
<tr>
<td>IP.MSCT</td>
<td>1000D</td>
<td>Maximum number of user daftfile messages for a job. When this parameter is exceeded, the job is aborted, but may be reprieved. Cross references: OS.CCMM, OS.STYY</td>
</tr>
<tr>
<td>IP.SCM</td>
<td>1000B</td>
<td>SCM field length to which the user field length is reduced between job statements. Cross references: OE.INJ, OE.SAM, OS.EXP, OS.TRJ2, OU.NOUN</td>
</tr>
<tr>
<td>IP.MPR</td>
<td>7000B</td>
<td>Maximum external priority. If the Pnnn parameter on the job card exceeds this value, priority is reduced to IP.MPR. Cross references: OE.ACJ2, OE.AGE, OE.INJ</td>
</tr>
<tr>
<td>IP.PRTY</td>
<td>1000B</td>
<td>Default external priority, if not specified on the job card. Cross references: OE.ACJ2, OE.FINP</td>
</tr>
<tr>
<td>IP.TIL</td>
<td>10B</td>
<td>Job default time limit in seconds; if not specified on the job card. Cross reference: OE.ACJ2</td>
</tr>
<tr>
<td>IP.MWJ</td>
<td>24000B</td>
<td>Default mass storage limit ( x (10,000_8) ) in words. The maximum amount of mass storage space that can be allocated to a job specified in units of 4096 words. The job aborts if mass storage limit is exceeded. This limit may be changed with the LIMIT statement. Cross reference: OE.INJ</td>
</tr>
<tr>
<td>Parameter</td>
<td>Released Default Value</td>
<td>Significance</td>
</tr>
<tr>
<td>-----------</td>
<td>-----------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>IP.TPD</td>
<td>3</td>
<td>If tape density is defaulted on a REQUEST card, it is set to IP.TPD; possible values are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>IP.STG</td>
<td>1</td>
<td>Cross reference: OU.RQM</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If tape staging direction is defaulted on a STAGE card, it is defaulted to IP.STG; possible values are:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

6.2.5 DEVICE MANAGEMENT

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.RTC</td>
<td>10D</td>
<td>Retry count for tape parity errors on on-line tapes. A read or write operation on tape is tried IP.RTC times before the parity error is declared unrecoverable.</td>
</tr>
</tbody>
</table>

Cross references: OE.TQI, OE.TQO

6.2.6 PERMANENT FILES

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.DP</td>
<td>4</td>
<td>Defines the number of PFD pages as a power of two. In other words, the number of pages is 2**IP.DP. It is used in hashing the permanent file name.</td>
</tr>
<tr>
<td>IP.OVP</td>
<td>4</td>
<td>Cross references: AUDIT, DUMPF, LOADPF, OU.ATT1, OU.CG1</td>
</tr>
</tbody>
</table>

Total number of PFD overflow pages; each PFD overflow page represents a 512-word block on the disk.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>The size of the overflow area is a function of how evenly the permanent file name hash is distributed. It is recommended that the number of overflow pages be at least one quarter of the number of PFD pages.</td>
</tr>
<tr>
<td>IP, PFRP</td>
<td>1</td>
<td>Default retention period (in days) for permanent files; values may be from 0 to 999. Value 999 is interpreted as indefinite retention. When modifying this parameter, consider the amount of mass storage available.</td>
</tr>
<tr>
<td>IP, PPP</td>
<td>0</td>
<td>Determines the type of privacy procedure that is used. 0 Standard privacy procedure is used 1 Installation privacy procedure in overlay OS, IPPP is called via a GOTO. OS, IPPP checks file privacy and must be added to the system.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Input to OS, IPPP can be obtained through calling the common deck named PFPARAM. Location PFN is the beginning of the file definition block (FDB). On returning, OS, IPPP must set the permission bits right justified in register B3. OS, IPP is called when an ATTACH or new cycle CATALOG occurs and must do its own password checking. The PP parameter is available to OS, IPPP in the FDB parameter area.</td>
</tr>
<tr>
<td>IP, CY</td>
<td>3</td>
<td>Average number of cycles per unique permanent file name; used to determine the amount of disk space reserved for PFC during deadstart initialization. Value may be from 1 to 5 but in most cases should be 3 or greater.</td>
</tr>
<tr>
<td>IP, UVPM</td>
<td>17B</td>
<td>Determines which permissions are granted when the universal password is submitted. Submitting the universal password may cause either one or a combination of permissions to be granted.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Released Default Value</td>
<td>Significance</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>UVPM Bit Position</td>
<td>Permission</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Read</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Extend</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Modify</td>
<td></td>
</tr>
<tr>
<td>10B</td>
<td>Control</td>
<td></td>
</tr>
<tr>
<td>17B</td>
<td>All</td>
<td></td>
</tr>
</tbody>
</table>

The released system defines the universal password as QZUYVXW. It may be modified by reassembling the deck OSPWCK using the following UPDATE directive.

*DELETE OSPWCK.167 PASSWD DIS,*UNIVERSAL* *COMPILE OSPWCK

Cross reference: OS.PWCK

**L.APF** 512D

Length of the attach permanent file table (APF); determines the number of permanent files that may be attached at a given time. The permanent file manager uses the first two APF words for communication information. The remainder of the APF contains one word entries. Every permanent file attached has an APF entry. There are no limitations on the size of the table.

Cross references: ORL, OS.CAPF, OS.SAPF, OS.UCL, AUDIT, LOADPF, ODS

**L.UD** 0

Number of words reserved by the installation in the PFD entry. This space begins at word LE.PFD of each entry.

Cross references: AUDIT, LOADPF, DUMPF, OSCG4, OS.CPFC, OU.EXD1, OS.PFSR, OS.DPF, ODS, OV.FPDP

**L.UC** 0

Number of words reserved by the installation in the PFC entry. This space begins at word LE.PFC of each entry.

Cross references: AUDIT, LOADPF, DUMPF, OS.EXD2, ODS, OU.FPDP
6.2.7 LOADER

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.MAP</td>
<td>2</td>
<td>Map options</td>
</tr>
<tr>
<td></td>
<td>Bit Positions</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>No map</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>S type map</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>B type map or partial map</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>E type map</td>
<td></td>
</tr>
<tr>
<td>10B</td>
<td>X type map or map is on</td>
<td></td>
</tr>
</tbody>
</table>

Cross reference: OS.CO

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.LDPRS</td>
<td>0</td>
<td>Loader option to preset core image before loading</td>
</tr>
<tr>
<td></td>
<td>Bit Positions</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>No presetting</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Zeros</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Ones</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Indefinite</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Infinite</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Negative indefinite</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Negative infinite</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Alternating zeros (2525252525)</td>
<td></td>
</tr>
<tr>
<td>10B</td>
<td>Alternating ones (5252525252)</td>
<td></td>
</tr>
</tbody>
</table>

Cross references: OS.CO, OS.CAL4, OS.EXP

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.LDRWD</td>
<td>1</td>
<td>Option for rewinding of load files</td>
</tr>
<tr>
<td></td>
<td>Bit Positions</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>No rewind</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Rewind</td>
<td></td>
</tr>
</tbody>
</table>

Cross reference: OS.CO

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.LDER</td>
<td>2</td>
<td>Set level of errors at which loader aborts</td>
</tr>
<tr>
<td></td>
<td>Bit Positions</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>All</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Fatal</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>None</td>
<td></td>
</tr>
</tbody>
</table>

Cross references: OS.CO, OS.EXP

6.2.8 INFORMATION ROUTING

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.FCAUS</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

File copies default input allocation unit size for unit record input, 6000, attached permanent file, and staged tape input.

III-6-8

60344000 A
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Value</td>
<td>Sectors Per Allocation Unit</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>5 or 1/8 track</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>12 or 1/4 track</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>24 or 1/2 track</td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>50 or 1/1 track</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>120 or 2-tracks</td>
</tr>
</tbody>
</table>

Cross references: OE.SFBH, OS.FRBF

IP.SFTIJ 100B
Indicates the maximum number of SFT entries that may be allocated to input jobs at one time. All input SFT entry requests attempting to exceed this maximum are rejected.

Cross references: OE.SSOM, ORL

IP.SPFTH 1
The number of SFT events that occur before the SFT is written to disk for recovery. An SFT entry is defined as one of the following:

- Unit record input file suspended (I/O de-link received from station)
- Unit record output file SFT entry created
- End of volume on unit record input or output
- Unit record SFT entry is returned to the system

A unit record input file is not submitted to job acceptance, nor is an output file announced to a station until its SFT entry has been written to the disk to be made permanent. Refer to the following example under IP.SPFREQ.

Cross reference: ORL

IP.SPFREQ 5000D
Indicates the frequency in clock interrupts that SFT activity is monitored. The SFT event count is compared to IP.SPFTH at the interval specified. If the two values differ and a write is not in progress, the SFT is written to disk. If the current event count is identical to IP.SPFTH, nothing occurs until the next interval is reached.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>For example, if IP.SPFTH were three and IP.SPFRQ were 5000D, after 5000D clock interrupts the SFT would be checked for activity. If during that time only two events occurred, the SFT would be written to disk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cross references: OE.SPFE, OE.RSFT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### 6.2.9 SYSTEM STATISTICS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.SIFNB</td>
<td>1</td>
<td>Number of system I/O buffers permanently assigned to the SIF after deadstart is equal to IP.FCLRF+3+IP.SIFNB. Under normal SIF usage, IP.SIFNB should be set to zero. However, when performance measurement is being done or when large quantities of output to the SIF is expected, set IP.SIFNB to higher values. One check on the validity of this value is the SIF reject count supplied by the ATRVSIF operation. If this value is large (consistently over 1), IP.SIFNB should be increased. If it is zero, IP.SIFNB should be decreased.</td>
</tr>
<tr>
<td>Cross references: OE.SFQM, ORL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP.SIFSC</td>
<td>100D</td>
<td>The current SIF buffers being filled as well as an updated FAT are written to disk when their number equals IP.SIFSC or IP.FURSI, whichever is less. In the released system IP.FURSI is 5. If IP.SIFSC is set greater than IP.FURSI-1, it has no effect. Setting it to less than IP.FURSI-1 causes the SIF buffers to be written to disk more often.</td>
</tr>
<tr>
<td>Cross reference: OE.SFBF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP.QUEA</td>
<td>1</td>
<td>Determines whether system queue is maintained and logged to the system information file. If IP.QUEA=1, information is gathered. If IP.QUEA#1, no information is gathered.</td>
</tr>
<tr>
<td>IP.JACCT</td>
<td>1</td>
<td>Extended accounting</td>
</tr>
<tr>
<td>0</td>
<td>Summary entries for tape and mass storage time are not entered in the job dayfile at job termination; they are sent to the SIF.</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Tape and mass storage time are printed.</td>
<td></td>
</tr>
<tr>
<td>Parameter</td>
<td>Released Default Value</td>
<td>Significance</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>IP.JACTL</td>
<td>0</td>
<td>ACCOUNT statement</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>ACCOUNT statement is not required and may appear anywhere in the job control statements.</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>ACCOUNT statement is required and must appear immediately after the job control statement. The ACCOUNT statement may also appear elsewhere in the job control statements unless the installation supplied code in OS.ACRD flags it as an error.</td>
</tr>
</tbody>
</table>

6.2.10 RECORD MANAGER

The first four record manager parameters control the conditional assembly of accounting code and the output of a particular message in the dayfile accounting summary. If the parameter is set to 0, the accounting code is not assembled and no dayfile message is printed. If the parameter is set to 1, the code is assembled (to update a field in JSBCM, the job supervisor LCM area) and a dayfile message is printed.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.FLA</td>
<td>1</td>
<td>Accounting of number of open/close calls accumulated.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dayfile message is RM771, file open and close requests.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The JSBCM field updated is JS0CC.</td>
</tr>
<tr>
<td>IP.RMA</td>
<td>1</td>
<td>Accounting of the data transfer calls and number of data words moved.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dayfile message is RMT772, data transfer requests.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The JSBCM field updated is JSBTC.</td>
</tr>
<tr>
<td>IP.BMA</td>
<td>1</td>
<td>Accounting of the number of buffer manager data transfer calls, manager control or positioning calls, queue manager calls, and recall calls.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The dayfile message is RM774, buffer manager data transfer requests.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>The JSBCM field updated is JSBMC.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Released Default Value</td>
<td>Significance</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------</td>
<td>------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>IP.FMA</td>
<td>1</td>
<td>Accounting of the time waiting for mass storage; it is a means to calculate utilization.</td>
</tr>
<tr>
<td>IP.LDEN</td>
<td>0</td>
<td>Specifies tape label density for 7-track tapes</td>
</tr>
<tr>
<td></td>
<td>0 Same as user file density</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 200</td>
<td>For compatibility with 6000 SCOPE</td>
</tr>
<tr>
<td></td>
<td>2 556</td>
<td>3.4 and earlier versions</td>
</tr>
<tr>
<td></td>
<td>3 800</td>
<td></td>
</tr>
</tbody>
</table>

### 6.2.11 DEADSTART PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.YMD</td>
<td>0</td>
<td>Date format for the date request at deadstart time</td>
</tr>
<tr>
<td></td>
<td>0 DATE IS MM/DD/YY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 DATE IS DD/MM/YY</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cross reference: DS2</td>
<td></td>
</tr>
<tr>
<td>IP.LIB</td>
<td>220B</td>
<td>Number of library buffers</td>
</tr>
<tr>
<td></td>
<td>Cross reference: DS1</td>
<td></td>
</tr>
<tr>
<td>IP.SYS</td>
<td>40B</td>
<td>Number of system table buffers</td>
</tr>
<tr>
<td></td>
<td>Cross reference: DS1</td>
<td></td>
</tr>
</tbody>
</table>

### 6.2.12 TEMPORARY PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP.SCMSI</td>
<td>100,000B</td>
<td>SCM size for half size SCM; full size SCM is 200,000B.</td>
</tr>
<tr>
<td>IP.LCMSI</td>
<td>764,000B</td>
<td>LCM size for half size LCM; full size LCM is 1,764,000B.</td>
</tr>
</tbody>
</table>
6.2.13 ORL PARAMETERS

The following parameters are in ORL. They can be modified (except for L ZERO) with STORE statements during deadstart initialization and deadstart recovery. But the values specified during deadstart are only recovered with a deadstart recovery, not with a deadstart initialization.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.SPF</td>
<td>IP.SPFTH=1</td>
<td>System permanent file (SFT) recovery; value is in IP.SPFTH (section 6.2.8)</td>
</tr>
<tr>
<td>T.MAXBUF</td>
<td>IP.MAXBJ=4208</td>
<td>Maximum number of I/O buffers for a job; value is in IP.MAXBJ (section 6.2.4). If the number of maximum buffers is set too high for the system, deadstart sets T.MAXBUF to the smaller of the two following values.</td>
</tr>
</tbody>
</table>

1. T.MAXBUF as set by a STORE command during deadstart or the default value (a STORE setting overrides the default value).

2. \( n-(r+s+4) \)

- \( n \) Total number of system I/O buffers physically available.
- \( s \) Number of buffers reserved for SIF. This value is IP.SFN+IP.FCLR+F (8 in released system).
- \( r \) Number of buffers reserved for SCM image of job to be rolled to disk, the largest integer not greater than \( \left\lceil \frac{T.MAXS+1js+777B}{1000B} \right\rceil \).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>T.MAXL</td>
<td>400,000B</td>
<td>Maximum user LCM field length for a half size machine. The value for a full size machine would be 1,400,000B.</td>
</tr>
<tr>
<td>T.MAXS</td>
<td>60,000B</td>
<td>Maximum user SCM field length for a half size machine. The value for a full size machine would be 160,000B.</td>
</tr>
<tr>
<td>T.LCMCHK</td>
<td>7</td>
<td>The number of LCM words to ensure that the resident loader checks so that no system overlay has written into low LCM. Refer to part IV, section 3.6.6, System Debug.</td>
</tr>
<tr>
<td>Parameter</td>
<td>Released Default Value</td>
<td>Significance</td>
</tr>
<tr>
<td>------------</td>
<td>------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>T.BUFCHK</td>
<td>0</td>
<td>A flag word indicating whether or not the buffer check code is to be executed. Refer to part IV, section 3.6.6, System Debug for further information.</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>Code not executed</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Code is executed; system aborts if buffer release problem is detected.</td>
</tr>
<tr>
<td></td>
<td><strong>CAUTION</strong></td>
<td>System performance is degraded by as much as fifteen per cent when BUFCHK is activated.</td>
</tr>
<tr>
<td>T.SYSABT</td>
<td>0</td>
<td>Defines the conditions under which a system error results in a system halt (crash). (The SAVE/RESTORE and CALL stacks are preserved on all crashes.)</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>No crash</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>Crash on system EEA exits only. That is: an EEA exit (such as program range error or direct range errors) in the systems interchange, interrupt handlers, executive, or job supervisor results in a crash.</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>Crash on system EEA and error exits. That is: an EEA or error exit (such as via ABORTJ macro) in the systems interchange, interrupt handlers, executive level, or job supervisor results in a crash. There is not a system halt on user program EEA or error exits.</td>
</tr>
</tbody>
</table>

The following parameter is in ORL but can only be modified by reassembling ORL.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>L.ZERO</td>
<td>1000B</td>
<td>The first L.ZERO words in LCM are set to zero. (The system has been run with L.ZERO set to 200B and 1000B.)</td>
</tr>
</tbody>
</table>

6.2.14 UPDATE

The following parameters are in *DECK UPDATE.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>DECLKEY</td>
<td>1</td>
<td>Enables DECLARE directive</td>
</tr>
<tr>
<td>CHAR 64</td>
<td>1</td>
<td>Supports full 64-character set</td>
</tr>
</tbody>
</table>

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### Parameter Released Default Value Significance

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>PMODKEY</td>
<td>1</td>
<td>Enables G option and PULLMOD card</td>
</tr>
<tr>
<td>AUDITKEY</td>
<td>1</td>
<td>Allows audit functions</td>
</tr>
<tr>
<td>EDITKEY</td>
<td>1</td>
<td>Allows merge and edit</td>
</tr>
<tr>
<td>OLDPLKEY</td>
<td>1</td>
<td>Enables UPDATE to read both old style and new style old program libraries</td>
</tr>
<tr>
<td>EXTOVLP</td>
<td>1</td>
<td>Enables detection of four types of overlap involving two or more cards in a correction set</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1. Cards refer to same card</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. Card activates already active card</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3. Card deactivates already inactive card</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4. Insert refers to inactive card</td>
</tr>
<tr>
<td>DYNAMFL</td>
<td>1</td>
<td>Dynamic field length; field length is expanded as necessary.</td>
</tr>
</tbody>
</table>

#### 6.2.15 DSC DECK IN FLPP DECK

The DSC deck is on the SCOPE 2.0 library. It is part of the FLPP deck during installation when the 7611-2 Magnetic Tape Station is part of deadstart. If no parameters are changed, the driver is assumed to be in PPU1.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLDS</td>
<td>2</td>
<td>FLPP deadstart channel</td>
</tr>
<tr>
<td>CHXP</td>
<td>3</td>
<td>Channel from FLPP to PPU0</td>
</tr>
<tr>
<td>CHSCM</td>
<td>1</td>
<td>Channel from FLPP to SCM</td>
</tr>
<tr>
<td>CHDS</td>
<td>0</td>
<td>Channel to deadstart all other PPU in the station</td>
</tr>
<tr>
<td>CHDR1</td>
<td>1</td>
<td>Driver→XPP channel, XPP program</td>
</tr>
<tr>
<td>CHFP</td>
<td>6</td>
<td>XPP→FLPP channel</td>
</tr>
<tr>
<td>CHXPP</td>
<td>0</td>
<td>Driver→XPP channel, driver program</td>
</tr>
<tr>
<td>CHF</td>
<td>6</td>
<td>PPU tape controller function/status channel</td>
</tr>
<tr>
<td>CHD</td>
<td>7</td>
<td>PPU tape controller data channel</td>
</tr>
</tbody>
</table>

#### 6.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are decks released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
6.3.1 SCPINS

J07 DECK SCPINS

SCPINS,CIP7C,MT01,T1000.
COMMENT, *SV04,07155,36830,SUMILER
COMMENT,
COMMENT,******************************************************************************
COMMENT,* THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT,* BY SCOPE2.0 INTEGRATION - AMEND HILLS, MINNESOTA
COMMENT,* FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT,* STAGE HAS BEEN DEFINED
COMMENT,*
COMMENT,* PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT,* SCOPE 2.0 INTEGRATION AMH248
COMMENT,* 4201 LEXINGTON AVE. N.
COMMENT,* ST PAUL, MINN. 55112
COMMENT,*
COMMENT,* ( NO PSK )
COMMENT,******************************************************************************
COMMENT*,
COMMENT,******************************************************************************
COMMENT,* THIS J07 TAKES AN EXISTING DEADSTART TAPE AND REPLACES THE PRODUCT
COMMENT,* SET FROM PHOLIH (CREATED BY PHOLIH) AND PRODUCES A NEW DEAD START
COMMENT,* TAPE
COMMENT,*
COMMENT,*
FILE (USTAPE,MT=MT,HT=CT)
STAGE (USTAPE,MT=MT,HI=PRE,
VSN=CY51)
REWINU (USTAPE)
COPY (USTAPE,SCP,LIH)
UNLOAD (USTAPE)
ATTACH (PHOLIH,PHOLIH,IO=PHOLIH)
LIREDU (HI)
FILE (NEWLIH,PO=SO)
FILE (NOUSTAPE,RT=RT,AT=CT)
STAGE (NOUSTAPE,MT=MT,HI=POST,
VSN=CY51)
COPY (NEWLIH,NOUSTAPE)
UNLOAD (NOUSTAPE)
COMMENT,******************************************************************************
COMMENT,* CATALOG SYSLIH (SYSTEM LIBRARY WITHOUT PHOLIH SET)
COMMENT,*
COMMENT,*
EXIT (C)
CATALOG (SYSLIH,SYSLIH,IO=PHOLIH,PM=SCPCN,CM=SCPCN,MD=SCPCN,EX=SCPFX)
JOB DECK SCPINS

CY=51
PAUSE MPD02 - NEW FILE CATALOGED SUCCESSFULLY.. TYPE X*GO
EXIT
PAUSE MPD04 - NEW PROCEDURE CYCLE EXISTS. TYPE X*GO TO REPLACE
ATTACH(A,SYSLIB,ID=PROLLIB,PW=SCPCN,
CY=51)
PURGE(A)
RETURN(A)
CATALOG(SYSLIB,SYSLIB,ID=PROLLIB,PW=SCPCN,CN=SCPCN,EX=SCPEX,MD=SCPMO;
CY=51)
PAUSE MPD03 - JOB COMPLETED SUCCESSFULLY.. TYPE X*GO
FAIL
PAUSE MPD01 - JOB FAILED... TYPE X*GO
---EOI--- 7/3/9
LIBRARY(NEWLIB,NEW=2500)
OLDLIB(SCPLIB)
REPLACE(NEWLIB,LIB)
FINISH
LISTLIB(*NEWLIB,N=1)
/ CREATE SYSLIB FROM SCPLIB
LIBRARY(SYSLIB,NEW=2500)
OLDLIB(SCPLIB)
/ DELETE PRODUCT SET = ERROR(SKIP) USED TO PREVENT ABORT BECAUSE OF A DELETE
/ ON A PRODUCT NOT ON THE ORIGINAL DEADSTART TAPE
ERROR(SKIP)
DELETE(RUN*ADG)
DELETE(COMPASS*COMP14**%)
DELETE(FTN*PASS14**%)
DELETE(COMP*COMPS1)
DELETE(SORTNG*SORT2U)
DELETE(DCP/MEC/CT73)
ERROR(ABORT)
FINISH
LISTLIB(*SYSLIB,N=1)
---EOI--- 7/7/A/Y

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6.3.2 DBUGINS

JOB DECK UHUGINS

DBUGINS,CP70,T100,MT01
COMMENT, *SVUV,07155,36R3D,SMILLER
COMMENT,
COMMENT, ************************************************************
COMMENT,
COMMENT, THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT,
COMMENT, BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT,
COMMENT, FOR PSK SUMMARY LEVEL 51 (SEE SYSDCK DESCRIPTION)
COMMENT,
COMMENT, STAGE HAS BEEN DEFINED
COMMENT,
COMMENT, PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT,
SCOLE 2.0 INTEGRATION AFFILIATE
4201 LEXINGTON AVE. N.
ST PAUL, MINN. 55112
COMMENT,
COMMENT, (NO PSRS)
COMMENT, ************************************************************
COMMENT,
COMMENT, ************************************************************
COMMENT, * OBTAIN DBUG OBJECT TIME BINARIES FROM SCPOPXL
COMMENT,
COMMENT, ************************************************************
LABEL (NEW=SCPL=SCPOPXL2.03)
STAGE (NEWSCP=MT,HY,EPH,
VSN=CY51)
DO SISCHT (DEPSC)
COPYF (NEWSCP=OLDPL)
UNLOAD (OLDPL)
COPYF (NEWSCP=DBUGBIN)
H=INDURJ(USJLN)
COMMENT, ************************************************************
COMMENT, ************************************************************
COMMENT, * CREATE LIST FORMATTED LIBRARY OF DBUG OBJECT TIME BINARIES
COMMENT, ************************************************************
COMMENT, ************************************************************
COMMENT, * CATALOG UHUGLIB7 (DEBUG OBJECT TIME LIBRARY)
COMMENT, ************************************************************
COMMENT, CATALOG (HUGLIB,UHUGLIB7,LU=PRD,LIB=CN=SCPCN,EA=SCPEA,MD=SCPMO,PW=SCPCN,
CT=SL)
UNLOAD (HUGLIB)
PAUSE, WHEN = JOB COMPLETED SUCCESSFULLY ... TYPE A+GN
JAH DECK DEBUGINS

BEGIN
PAUSE MPJU = JAH FAILED *** TYPE X, GO
---END--- 7/9/9
LIBRARY(DHUGLR, NEW=2000)
REPLACE(*, UHUGRAIN)
FINISH
LISTLIB(*, UHUGLIB*, N=1)
---END--- 7/7/8/9
6.3.3 SCPMOD

JOB DECK SCPMOD

SCPMD,17000,CP70,M162.
COMMENT. *PUR,07155,36830,SDMILLEK
COMMENT. *
COMMENT. *************************************************************************
COMMENT. *
COMMENT. THIS IS A SCOPEZ.0 INSTALLATION DECK AS CREATED
COMMENT. *
COMMENT. BY SCOPEZ.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT. *
COMMENT. FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT. *
COMMENT. * MONTAPEX HAS BEEN DEFINED
COMMENT. *
COMMENT. STAGE HAS BEEN DEFINED
COMMENT. *
COMMENT. *
COMMENT. PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT. SCOPE Z.0 INTEGRATION AMH54R
COMMENT. 4201 LEXINGTON AVE., N.
COMMENT. ST PAUL, MINN. 55112
COMMENT. *
COMMENT. *
COMMENT. ( NO PSKS )
COMMENT. *
COMMENT. *************************************************************************
COMMENT. *
COMMENT. *
COMMENT. UPDATE MODPL TO GET LATEST CDC MODS
COMMENT. *
COMMENT. *
COMMENT. *************************************************************************
COMMENT. *
COMMENT. ATTACH(MODPL, MODPL, ID=SCVUPSMDV, CY=51)
COMMENT. UPDATE(*=MODPL, QID=*, S=*, C=UPIN)
RETURN(MODPL)
COMMENT. COPY(ST, SUP)
RENAME(SUP)
COMMENT. COPY(ST, SUP)
RENAME(SLIR)
COPY(ST, SUPFLIR)
RENAME(SLIR)
LABEL(SCPOPL, L=SCPOPLZ.0$R)
STAGE(SCPOPL, MT=HYX+PHF)
VSN=CY47
COMMENT. *
COMMENT. *
COMMENT. UPDATE SCPOPL, CREATE SEQUENTIAL NEWPL
COMMENT. *
COMMENT. *
COMMENT. UPDATE(*=SCPOPL, F*, C=*, I=UPIN, F=RANPL)
UNLOAD(SCPOPL)
COMMENT. *
COMMENT. *
**COMMENT:** * DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CHEATED *
**COMMENT:** * IS VALID, THE OLDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL- *
**COMMENT:** * MANPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL.*
**COMMENT:** * FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN *
**COMMENT:** * IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).*
**COMMENT:** *
**COMMENT:** UPDATE (PERMANPL,F,H,C=0,N,S=NULL)
**COMMENT:** RETURN(MANPL)
**COMMENT:** UPDATE NEWPL INSERTING SYSTEM HEADER INFORMATION,
**COMMENT:** ALLOCATION #6 IS USED FOR COMPARE TO AVOID FILE OVERFLOW
**COMMENT:** *
**REQUEST (COMPILE,A4,T3)
UPDATE (F=NEWPL,F,F=SEP)
**COMMENT:** *
**COMMENT:** ASSEMBLE OST
**COMMENT:** *
**COMPASS (T,N,N,REInforme,A)
**COMMENT:** *
**COMMENT:** ASSEMBLE SYSTEM OVERLAYS
**COMMENT:** *
**COMPASS (T,Y,N,REInforme,L0,A)
**COMMENT:** *
**COMMENT:** ASSEMBLE V2TEXT
**COMMENT:** *
**COMPASS (T,Y,Y,V2TEXT,L0,A)
**COMMENT:** *
**COMMENT:** ASSEMBLE SYSTEM UTILITIES
**COMMENT:** *
**COMPASS (T,Y,Y,V2TEXT,L0,A)
**COMMENT:** *
**COMMENT:** ASSEMBLE DEBUG LIBRARY
**COMMENT:** *
**COMPASS (T,Y,Y,V2TEXT,L0,A)
**COMMENT:** *
**COMMENT:**
JOB DECK SCFMON

COMMENT * COMPILE ANALYZE AND LIBEDT
COMMENT * USING LATEST FIN COMPILER (ON HIGHEST CYCLE OF PROLIB)
COMMENT *
COMMENT *****************************************************
ATTACH (PRDLIB,PROLIB,UNPRULIB)
LIBRARY (PROLIB)
FIN (L=COMPIL,UNL=LIBANLGO)
LIBRARY.
REWINU (LIBANLGO)

COMMENT *****************************************************
COMMENT * SAVE AUTO MODULE FROM COMPIL
COMMENT *
COMMENT *****************************************************
CUPYS(COMPIL,AUTO7)
RETURN (COMPIL)
REWINU (AUTO7)

COMMENT *****************************************************
COMMENT * CREATE NEW SCHML TAPE FIRST PARTITION= NEWSPL
COMMENT * SECOND PARTITION= DEBUG LIBRARY MINHIFS
COMMENT *
COMMENT *****************************************************
LABEL (NEWSPL,L=SCPPLZ,0)
STAGE2 (NEWSPL,MT,MY,NPOST,VS=CY5)
REWINU (NEWSPL,DEBUGIN)
CUPY (NEWSPL,NEWSCP)
UNLOAD (NEWSPL)
CUPY (DEBUGIN,NEWSPL)

COMMENT *****************************************************
COMMENT * TEST NEW TAPE VIA UPDATE
COMMENT *
COMMENT *****************************************************
UNLOAD (NEWSCP)
STAGE2 (NEWSPL,MT,MY,PKF,VS=CY5)
REWINU (NEWSCP)
CUPY (NEWSCP,OLNPL)
CUPY (NEWSCP,NEWHIN)
UNLOAD (NEWSCP)
UPDATE (PINX1ST,CO=0,I=NULL)
RETURN (OLNPL)
RETURN (DEBUGIN,NEWHIN)
UNLOAD (NEWSCP)

COMMENT *****************************************************
COMMENT *
COMMENT * BUILD LIBEDT AND ANALYZE FROM MELOCATABLE BINARY.

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60344000 A
JOB DECK  SCPMOD

COMMENT  *  1. BUILD A LIBRARY CONTAINING RELOCATABLE CODE.
COMMENT  *  2. DO A LRLIB AND NOGO FOR EACH PROGRAM SATISFYING
COMMENT  *  EXTERNALS FROM THE LIBRARY IN STEP 1.
COMMENT  *
COMMENT  ************************************************************
LIBREAL(I=FLIRAM)
ATTACH(FNLIX,FIMICLM,II=PRDLIB)
COMMENT  ************************************************************
COMMENT  *  SATISFY EXTERNALS FOR DOING I/O FROM LATEST FORTRAN OBJECT LIBRARY
COMMENT  *
COMMENT  ************************************************************
LIBRARY(H1REL,FNL18X)
APTON
LIBLOAD(U1REL,OSULIB)
AUG0(LIBFU7,LIREDT,CONTENT,COPIE,EDITLIR)
LIBLOAD(U1REL,ANLYSIS)
AUG0(ANAL7,ANALYZE)
FININD(UTLLOGO)
LIBRARY*
COMMENT  ************************************************************
COMMENT *
COMMENT  *  BUILD SYSTEM USING LIBLET, PICK UP PRODUCTS FROM PRDLIB.
COMMENT  *  PUNCH BINARIES FOR DEAUSTART DECK
COMMENT  *  CATALOG SYSLIBR (SYSTEM LIBRARY WITHOUT PRODUCT SET)
COMMENT *
COMMENT  ************************************************************
LIBREAL(I=SLIRAM)
COMMENT *
COMMENT *
COMMENT  *  CREATE NEW DEAUSTART TAPE
COMMENT *
COMMENT *
COMMENT  ************************************************************
FILE(NEWSTP,RT=991,CF=90)
STAPE(NEWSTP,TMON,POST,
VSN=SYS)
*E+NV(NEWSTP)
FILE(NEWMT,WK=90)
COPY(NEWMT,NEWSTP)
LIBLOAD(NEWSTP)
CATALOG(SYSLIB,SYSLIB,IN=PRDLIB,PN=SCPCN,CH=SCPCN,EX=SCPFX,AD=SCPMO,
CY=1)
PAUSE  ** JOB COMPLETED SUCCESSFULLY *** TYPE X.GO
EXIT.
PAUSE  ** JOB FAILED *** TYPE X.GO
---F05--- //X/O
C STOP
---F05--- //X/O
C/  **************************** SET  HEA**.
SET SYSTEM IDENTIFICATION
(41-50 CHARACTER DATA STRING)

SET INSTALLATION IDENTIFICATION - DATA CARD MUST BE REPLACED
(41-50 CHARACTER DATA STRING)

DATA M$0 (THIS CARD SHOULD BE REPLACED WITH INSTALL.ID)

************** SET RUFCHK **************

THE FOLLOWING 2 CARDS WILL CAUSE RUFCHK TO CHECK FOR UNRELEASED
BUFFERS AND CRASH THE SYSTEM IF ONE SHOULD BE DETECTED
D 80163AB 260/1 ABORT IF BUFFER RELEASE BUG

************** SET INSTALLATION PARAMETERS **************

************** MAKE INSTALLATION CHANGES **************

---EOS--- 7/8/9
LIBRARY(*UTLREL,NEW=1200)
REIND(*ULLLGU,LRANLGO)
TYPE(REL)
REPLACE(*,UTLLGO)
REPLACE(*,LRANLGO)
FINISH,
LISTLIB(*,UTLREL,N=1)
---EOS--- 7/8/9
LIBRARY(*SYSLIB,NEW=2500)
REIND(*,OVLLGU,VZTEXT,UTLLGU,ANAL7,LIHED17)
REPLACE(*ST,UST)
REPLACE (* CVLLGO)
REPLACE (* V2TFAT, V2TFAT)
REPLACE (* AU07)
REPLACE (* XDPRML, * COPYHR, * UTLLG6)
REPLACE (* PUAFT, * UTLLG6)
REPLACE (* ANAL7)
REPLACE (* LIBHR17)
REPLACE (* LIBHR17)

/* PUNCH BINARIES FOR US DECK - 2 COPIES
COPY USR/CPLMTD/USC/USR1, PUNCHR
COPY USR/CPLMTD/USC/USR1, PUNCHR
FINISH
LISTLIN(* SYSTIM N=1)
LIBRARY(NELIB, NEW=-500)
CLLIM(* SYSTIM)
REPLACE(* SYSTIM+LIB)

/*
/* USE THE DIRECTIVE ... DELETE(F1N=*PASS14**... IF FORTRAN EXTENDED
/* IS NOT AN INSTALLED PRODUCT (USED ONLY FOR SYSTIM AND PRODUCT MAINTENANCE)
/*
/*
FINISH
LISTLIN(* SYSTIM N=1)
---FOS--- //5/C
---R1--- @7/R/4
6.4 SYSTEM INFORMATION FILE (SIF)

The SIF is generated by SCOPE 2.0 during the execution of the system and serves as a general log of hardware, system, and job activities. The installation may also add code to the system to collect a variety of information associated with other activities such as debugging and performance measurement. Section 6.4.2 gives details and an example of adding information classification to the SIF. The user obtains the contents of the current SIF by executing the RTRVSIF control statement. The ANALYZE control statement enables the user to extract and reduce the information desired. Section 6.4.1 defines the RTRVSIF parameters and section 6.5 gives instructions on how to add any directives for ANALYZE. Section 6.4.3 details the content of SIF as released. Two macros, SIFX and SIFJ, add data to the SIF. The SIFX adds data from the executive level. The SIFJ adds data from the job supervisor level.

SCOPE 2.0 formats data in the SIF as type W records. Other format conventions are given in the following paragraphs.

The first word (word 0) of each record contains date and time consisting of the following three fields.

- Bits 59 through 51: Year in binary
- Bits 50 through 42: Day in year in binary
- Bits 41 through 00: Time of day expressed in clock periods

The first two fields constitute a Julian date. The contents of word 0 are generated as the result of the SIFX/J macro call.

Various parts of SCOPE 2.0 format the rest of the record, depending on the part of the system that creates or captures the data. For example, an I/O queue manager discovers an error and formats a record including room for word 0 and issues a SIFX/J macro to add the record to the SIF.

The SIF follows mainly a binary code format. Each SIF record of an installation format is identified by a unique 6-bit number between 00 and 77 octal. Each record written to the SIF contains the value of this 6-bit record code which identifies the format of the record. An installation must establish a unique record code for any added installation defined record formats. The record code appears in word 3 (bits 59 through 54) of each record. The record code also classifies the general contents of the record and indicates the prefix to be used for all field location symbols associated with the record. The four classifications are as follows.

<table>
<thead>
<tr>
<th>Record Code (Octal)</th>
<th>Symbol</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>00 through 17</td>
<td>SIFxxx</td>
<td>Hardware information</td>
</tr>
<tr>
<td>20 through 37</td>
<td>SISxxx</td>
<td>System information</td>
</tr>
<tr>
<td>40 through 57</td>
<td>SIJxxx</td>
<td>Job information</td>
</tr>
<tr>
<td>60 through 77</td>
<td>SIXxxx</td>
<td>Miscellaneous information</td>
</tr>
</tbody>
</table>

There are four common decks (SIH, SIS, SIJ, SIX) which contain the various descriptions of records in the corresponding classification. For example, an installation could add a record that documents an error in drum I/O by calling the record SIHDHM, giving it a record format value of 10B and placing the record in the SIH common deck. Similarly, an installation might add a debugging record called SIXDBG, with a record format value of 70B, and appearing in the SIX common deck.
Macros are available to describe the format of added records. These macros also supply individual fields (and the record format as a whole) with unique field location symbols which may be used to construct the record and later analyze it via the program ANALYZE (refer to the SCOPE 2.0 Reference Manual). These macros are discussed in detail in section 6.4.2.

6.4.1 RTRVSIF - RETRIEVE SYSTEM INFORMATION FILE

The RTRVSIF control statement retrieves the current contents of the SIF and begins a new SIF. The current contents of the SIF are cataloged as a permanent file before being made available to the job. The file lfn must not exist before this function. For a detailed description of the SIF, refer to section 6.4.2.

\[ \text{RTRVSIF(lfn,pfn,p_1,p_2,\ldots,p_n)} \]

Parameters:

- lfn: Logical file name, required parameter
- pfn: Permanent file name, required parameter

Optional parameters:

- PP: Privacy procedure. Written PP=procedure↑
- RP: Retention period. Written RP=number (0 through 999)
- CY: Cycle number. Written CY=number (0 through 63)
- TK: Turnkey password. Written TK=password↑
- CN: Control password. Written CN=password↑
- MD: Modify password. Written MD=password↑
- EX: Extend password. Written EX=password↑
- RD: Read password. Written RD=password↑
- ID: Creator identification. Written ID=name↑
- PW: Password list (has meaning only when new cycle is cataloged. Written PW=list↑)

6.4.2 SIF DEFINITION FORMAT AND MACROS

As an introduction to the detailed content of the released SIF and as a guide to an installation adding record classifications, the following macros are described. The macros define the format of the SIF record.

1. RECHDR defines the name of the record and the code that identifies the record format. This macro must precede all of the field definitions for the record. The macro is written:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>symbol</td>
<td>RECHDR</td>
<td>value</td>
</tr>
</tbody>
</table>

↑From 1 to 9 alphanumeric characters
symbol  Section 6.4.3
value  Octal code from section 6.4.3

2. FIELD defines an individual field in a record. The macro is written:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE_SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>symbol</td>
<td>FIELD</td>
<td>wp, lb, rb</td>
</tr>
</tbody>
</table>

symbol  Name of field (it must begin with the same prefix as the record name)
wp  Word offset
lb  Upper bit
rb  Lower bit of the field

3. OCTNUM, DECNUM, DISPLAY define how the ANALYZE directive LIST is to display the field. Each of the macros is written:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE_SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>symbol</td>
<td>macro</td>
<td></td>
</tr>
</tbody>
</table>

symbol  Corresponding FIELD macro. The FIELD must occur after the OCTNUM, DECNUM, or DISPLAY macro.
macro  OCTNUM, DECNUM, or DISPLAY

4. RESEND terminates the description of the record. This macro must follow all of the field definitions. The name field and parameter fields are ignored.

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE_SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RESEND</td>
<td></td>
</tr>
</tbody>
</table>
The general format of a SIF record description is:

```
TITLE S1qxxx - title for record
*
*  Description of record including
*  General contents, how, and why
*  Placed in the SIF
*
S1qxxx    RECHDR    num
  S1qaaa    FIELD    ...
  S1qbbb    FIELD    ...
  ...
RECNEND
```

To illustrate, an installation might add a new record to collect information about the progress of jobs through the system by outputting a record at each major milestone in the processing of a job. The record would be described as follows.

```
TITLE SISJOB - JOB MILESTONE RECORD
*
*  THIS RECORD IS OUTPUT WHENEVER A JOB PASSES
  A MILESTONE IN ITS PROCESSING
*
  SISJOB    RECHDR 30B
  SISJNM    DISPLAY
  SISJNM    FIELD 1,59,18    JOB NAME
  SISJCD    FIELD 1,17,00    MILESTONE CODE
  =00 - BEGIN INPUT FROM STATION
  =01 - END INPUT FROM STATION
  =02 - BEGIN JOB
  =03 - END JOB
  =04 - BEGIN OUTPUT TO STATION
  =05 - END OUTPUT TO STATION
  SISJAM    FIELD 2,59,00    ADDITION INFORMATION
  SISJRF    FIELD 3,59,54    RECORD CODE (=30B)
RECNEND
```
For this example, the installation places this code in the common deck SIS. The installation then adds code to the appropriate parts of the operating system to place the operating data in the fields of this record. Refer to operating system listing for additional detail and examples. The routines building the record must include UPDATE *CALLS for the common decks SIFMACR (which defines all of the macros in this section except FIELD) and SIS, in that order.

In order to use the symbol field locations defined in the record, the deck OSUANLZ must be reassembled with the modified common deck SIH and ANALYZE rebuilt (section 6.5). It is not necessary to do this, however, if the user needs nothing more than octal dumps. It is also possible to copy records based on an absolute nonsymbolic record format number.

Example:

\[
\text{RTRVSIF(SIFDATA,SIF,CY=10, PW=SPECIAL)}
\]

Retrieval and catalog current contents of SIF as cycle 10 of permanent file SIF.

For another example, the following program can be used to dump the dayfile from the system information file. In addition it creates a permanent file (PFILF) from the current contents of the SIF.

\[
\begin{align*}
\text{JOHN, CP70.} \\
\text{PASSWRD(BLANKET)} \\
\text{RTRVSIF(MYFILE,PFILF)} \\
\text{ANALYZE(M)} \\
7/8/9 \\
\text{SIF(MYFILE,R)} \\
\text{LIST(RTYPE=SIJJDF)} \\
6/7/8/9 \\
\end{align*}
\]

If further information were to be retrieved from this same portion of the SIF it would have to be retrieved from the permanent file (PFILF). For example, to get a second dump of the same dayfile dumped previously, the following program is required.

\[
\begin{align*}
\text{JOHN, CP70.} \\
\text{ATTACH(MYFILE,PFILF)} \\
\text{ANALYZE(M)} \\
7/8/9 \\
\text{SIF(MYFILE,R)} \\
\text{LIST(RTYPE=SIJJDF)} \\
6/7/8/9 \\
\end{align*}
\]
### 6.4.3 STANDARD RECORD FORMATS IN THE RELEASED SCOPE 2.0

<table>
<thead>
<tr>
<th>Octal Code</th>
<th>Symbol</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>SIHMCU</td>
<td>MCU keyword entry record</td>
</tr>
<tr>
<td>02</td>
<td>SIHGCP</td>
<td>Diagnostic control program message</td>
</tr>
<tr>
<td>03</td>
<td>SIHCEP</td>
<td>Central parity error record</td>
</tr>
<tr>
<td>04</td>
<td>SIHDSK</td>
<td>Disk error record</td>
</tr>
<tr>
<td>05</td>
<td>SIHTAP</td>
<td>Tape error record</td>
</tr>
<tr>
<td>06</td>
<td>SIHPEP</td>
<td>FLPP error record</td>
</tr>
<tr>
<td>07</td>
<td>SIHSTN</td>
<td>Unit record station record</td>
</tr>
<tr>
<td></td>
<td>14 through 17</td>
<td>Reserved for installation</td>
</tr>
<tr>
<td>20</td>
<td>SISFLR</td>
<td>File router error record</td>
</tr>
<tr>
<td>21</td>
<td>SISETO</td>
<td>Event table overflow record</td>
</tr>
<tr>
<td>22</td>
<td>SISTIM</td>
<td>Time snapshot record</td>
</tr>
<tr>
<td>23</td>
<td>SISQIN</td>
<td>Queue snapshot record</td>
</tr>
<tr>
<td>24</td>
<td>SISSNP</td>
<td>System information snapshot</td>
</tr>
<tr>
<td>25</td>
<td>SISCHQ</td>
<td>Channel queue information</td>
</tr>
<tr>
<td>26</td>
<td>SISDSD</td>
<td>Deadstart and recovery information</td>
</tr>
<tr>
<td></td>
<td>33 through 37</td>
<td>Reserved for installation</td>
</tr>
<tr>
<td>40</td>
<td>SIJJDF</td>
<td>Job dayfile record</td>
</tr>
<tr>
<td>41</td>
<td>SIJACT</td>
<td>Job accounting record</td>
</tr>
<tr>
<td>42</td>
<td>SIJPFM</td>
<td>Permanent file report record</td>
</tr>
<tr>
<td>43</td>
<td>SIJDST</td>
<td>Data Manager statistics record</td>
</tr>
<tr>
<td></td>
<td>54 through 57</td>
<td>Reserved for installation</td>
</tr>
<tr>
<td></td>
<td>67 through 75</td>
<td>Reserved for installation</td>
</tr>
<tr>
<td>76</td>
<td>SIXTIM</td>
<td>General debugging/timing record</td>
</tr>
</tbody>
</table>

### 6.4.4 SIH, SIS, SIJ, SIX RECORD FORMATS

The SIF record formats and field descriptions are contained in common decks on the SCOPE 2.0 OLDPDL. A current listing of all the SIF records can be obtained by listing the common decks SIH, SIS, SIJ, SIX along with the SIF macro common deck SIFMACR.

Run the TXTVOL job on the MODTAPE (described in part III, section 1.6.2) to accomplish this.
6.5 MODIFICATION OF ANALYZE

This section describes the steps to modify the ANALYZE utility by the installation. The directives of the released version of ANALYZE are general and apply to a variety of record formats. However, the installation may add directives. The following section gives the steps to add a new directive.

1. Identify the new directive for the system
2. Code function for the new directive
3. Add new code to ANALYZE deck

The installation may reference further detail and examples if needed by obtaining a listing of the released ANALYZE module.

6.5.1 IDENTIFYING THE FUNCTION

The verb table VRBTAB contains one entry per function. The entry supplies the basic information needed by the general directive scan routine. Most new directives only require modification to the deck OSUANLZ (in the verb table) and to the ANALYZE generation deck (to include new decks in the load). Where nonstandard processing of a directive is required, the deck OSUAN1 may have to be modified.

The verb table entry is generated by a VERB macro entry which is written:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>name</td>
<td>VERB</td>
<td>program, space, ftndx, numfld, numval, prendx</td>
</tr>
</tbody>
</table>

- **name**: Verb symbol, 1 to 7 characters, none of which is an ANALYZE delimiter.
- **program**: Name of the entry point with a FORTRAN Extended calling sequence which performs the processing for the verb.
- **space**: Storage space required by the function in the array FUNARY in the labeled common FUNCOM. All variables which must be maintained between the processing of individual records must be stored in FUNARY within the area indicated by space. This area should include words indicated by numfld and numval; if n variables are to be accumulated then space must be n + numfld + numval.
- **ftndx**: Value of a constant to be placed in the function common variable FUNQAL to identify the verb where two or more verbs map to the same entry point. The value may not exceed 12 bits.
- **numfld**: Number of variable field inputs to the verb. If numfld is 2, then FIELD/1 and FIELD/2 must both appear.
- **numval**: Maximum number of constant inputs to the function. If numval is 1, then at most VALUE/1 may appear.
- **prendx**: If other than zero, this indicates that the function is to be called during the cracking of the directive. In such a case FUNSEQ is set to minus one (-1).
Example:

AVERAGE VERB AVERAGE, 6, 1, 2

In the case of AVERAGE the example specifies: that the entry point AVERAGE processes the function indicated by the directive verb AVERAGE, that the function accumulates six local variables above and beyond the standard contents of the common FUNCOM, that one FIELD/1 parameter is required in the parameter field of the directive, and that up to two VALUE/1 parameters may be present.

6.5.2 CODING THE FUNCTION

Because ANALYZE does most of the processing, the coding for directives may be very simple. The records are read, unpacked, and tested to see if the records should be processed. If a record is determined to be part of the input set for the directive, the copy of the function common FUNCOM is moved from LCM to SCM and the function is executed. Upon entry, the following variables are set.

FUNSEQ

Set by ANALYZE to facilitate initialization and final report generation. If PRGNDX is set in the VERB table, the function is called with FUNSEQ equal to minus one. The directive at this point is cracked into arrays FIELD and VALUE in the labeled common ANLCOM where it may be processed by the function.

Upon initial entry with the first record, FUNSEQ is set to 0. Initialization and processing of the first record can then occur. For all other records, FUNSEQ is set to 1. To indicate the end of the ANALYZE run, FUNSEQ is set to 2, and the function is executed one more time with no input record. This last execution is to complete the function output and print reports, graphs, etc.

FUNQAL

Set by ANALYZE from the verb table, FUNQAL is the function qualification value. This field would only be used if several verbs were processed by the same entrypoint, to determine the verb.

FUNCNT

Maintained by ANALYZE to indicate the number of records processed by the function.

The fields in RECOM that are set by ANALYZE for the function include:

RECNAM

The name of the current record, determined by looking the record code up in the symbol table. If the record code is not found, RECNAM is set to UNKNOWN.

RECODE

The current record code

RECBJD

The binary Julian date from the current record

RECWCT

The binary wall clock time of the current record in clock periods

RECLTH

The binary length of the current record in words

RECORD

The actual record, as read from the SIF
Upon initial entry to the function (FUNSEQ=0), the following variables are set in the array FUNARY in the labeled common FUNCOM.

FUNARY(i) through FUNARY(numfld) inclusive hold the indexes to RECOM for each unpacked (right justified, zero filled unless DISPLAY which is left justified, zero filled) input variable. If FIELD/i=a, then RECOM(FUNARY(i)) is the value of a, from the current record.

FUNARY(numfld+1) through FUNARY(numfld+numval) hold the constants specified by the VALUE/i parameter. If no VALUE/i parameter was specified, then the word would contain -1.

To prevent confusion it is suggested that the function code equivalence meaningful names to these locations.

There are many useful utility routines available to a new function. Specifically the installation should look at OSUXCV, OSUXSV, OSUXHT, and OSUXPL for the routines and the calling sequences. The following are of general interest.

1. CALL OSUDPT (0) prints directive of the current function, plus */ comments preceding the directive.
   0 Double space before print
   1 Eject before print

2. WALTYYM(n) where n is the time of day in clock periods, as logged in each SIF record header (RECWCT). Output is Δhh.mm.ssΔ in display code.

3. CALDAT(n) where n is the calendar Julian date in binary as logged in each SIF record header (RECBJD). Output is Δmm/dd/yyΔ in display.

SYMNDX (6Lname) where name is display code (left justified, zero filled) for the desired record field. SYMNDX returns the index to RECFLD where that field was unpacked.

Example:

   JOB = RECFLD(SYMNDX (6LSIJNM))

The user should not use the index unless the user knows RECFLD contains the record in which the filed occurs.
If the name is not known, a negative value is returned.

SYMVAL (6Lname) where name is the display code of the symbol of the desired record field. SYMVAL returns the value of the unpacked field. If the field name is unknown, a negative one is returned. If the field is not available because the associated record is not in memory, a negative two is returned.

To enable access to FUNCOM and RECCOM, the two common decks should be called in the function. The decks are:

```
CALL OSUAFCC  ANALYZE FUNCTION COMMON
CALL OSUARC   ANALYZE RECORD COMMON
```

Example:

1. Place SUM verb in verb table located in deck OSUANLZ.

```
SUM       VERB       =XSUM,3,,1,1
```

2. Code SUM function

```
SUBROUTINE SUM
  *
  ANALYZE FUNCTION TO COMPUTE THE SUM
  *
  AND AVERAGE OF A SPECIFIED FIELD
  *
  (FIELD/1) WITH ONE CONVERSION
  *
  FACTOR (VALUE/1).
  *
  CALL OSUAFCC
  *
  CALL OSUARC

INTEGER FIELD1, VALUE1, TOTAL
  *
  ANALYZE/FUNCTION COMMUNICATION S
  EQUVALENCE (FIELD1,FUNARY(1)),
  *
  (VALUE1, FUNARY(2)),
  *
  SAVE CUMMULATIVE TOTAL FOR EACH RTYPE SUM
  *
  (TOTAL,FUNARY(3))
  *
  INITIAL ENTRY POINT -
  *
  .... CHECK ENTRY CONDITION
  IF (FUNSEQ-1) 1000,2000,3000
  *
  *
  INITIAL ENTRY - INITIALIZE FUNCTION
  *
  1000
  TOTAL = RECCOM(FIELD1)
  *
  CHECK FOR DEFAULTED VALUE/1
  IF(VALUE1, LE.0) VALUE1=1
  RETURN
```
INTERMEDIATE RECORD INPUT-PROCESS IT

2000 TOTAL = TOTAL + RECCOM (FIELD1)
RETURN

TERMINATION PROCESSING

3000 TOT = FLOAT (TOTAL)/FLOAT(VALUE1)
AVRG = TOT/FLOAT (FUNCNT)
PRINT DIRECTIVE AND COMMENTS
CALL OSUDPT(0)
PRINT SUM AND AVERAGE
PRINT 9000, FUNCNT, TOT, AVRG
9000 FORMAT(*NUMBER OF RECORDS PROCESSED=*,
*,I10/*SUM OF RECORD=*,F15.6,
*/AVGVERAGE VALUE=*,F15.6)
RETURN
END

With this code assembled in ANALYZE, a sample directive would be:

SUM(FIELD/1+SIJAJT, VALUE/1+CPSEC, RTYPE=SIJACT, SIJAJT=CPSEC+CPHR)

This gives the sum of job times greater than one second and less than one hour, as well as the average time of those jobs in seconds.

6.5.3 WRITING A LIST SUBFUNCTION

In the released version of ANALYZE there is a LIST function. For those record formats which are known, the printout of each record consists of a header (record name, length, time of day, and date entered into the SIF) and each field symbol along with the value of the symbol printed in octal, decimal, or display as described with the macros of section 6.4.2. If the record format is unknown, LIST merely dumps the record contents.

An exception to this is a LIST of the dayfile records. A special sublist routine lists these records just as they appear at the end of each job's output.

To add a new special list program for a specific record type to be called by the LIST directive, the installation should include a LISTER macro at the end of the deck OSUANLZ. The macro is written:

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>OPERATION</th>
<th>VARIABLE SUBFIELDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>program</td>
<td>LISTER</td>
<td>recode</td>
</tr>
</tbody>
</table>

III-6-36 60344000 A
program  Gives entry point name of subfunction
recde    Record format value or a symbol equated to it selected from
         section 6.4.3

Example:

DSKLST  LISTER  SIHDSK

Causes the routine DSKLST to be called whenever an SIHDSK record is the input of the
LIST function.
7.1 REQUIREMENTS

The following materials are necessary to install COMPASS 2.0.

7.1.1 TAPES

CM2REL

Described in part I, section 2.7

7.1.2 PERMANENT FILES

MODPL (ID=S20OPSMD)

Necessary for application of PSR updates only (CM2MOD jobs)

USERMODPL (ID=S20OPSMD)

Necessary for application of local customer modifications only (CM2USR job)

7.1.3 DECKS

CM2GEN

Regenerates COMPASS binary from CM2REL and catalogs CM2REL (ID=PRDLIB)

CM2MOD

Creates a new CM2REL from the old CM2REL and MODPL, then generates the binary from the new CM2REL and catalogs CM2LEL (ID=PRDLIB)

CM2USR

Creates a new CM2REL from the old CM2REL and USERMODPL, then generates the binary from the new CM2REL and catalogs CM2LEI (ID=PRDLIB)

CM2INS

Catalogs binary from a CM2REL as CM2LEL (ID=PRDLIB)

7.1.4 DEPENDENCIES

None.

7.2 CONFIGURATION PARAMETERS

None.

7.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0
7.3.1 CM2INS

JOB DECK CM2INS

CM2INS, CP78, PT61, T1100
COMMENT * SVDV, 07155, 3830, SUMILLER
COMMENT *
COMMENT * THIS IS A SCOPE 2.0 INSTALLATION DECK AS CREATED
COMMENT *
COMMENT * BY SCOPE 2.0 INTEGRATION - AHLEN HILLS, MINNESOTA
COMMENT *
COMMENT * FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT *
COMMENT * STAGE HAS BEEN DEFINED
COMMENT *
COMMENT * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT *
COMMENT * SCOPE 2.0 INTEGRATION AMH29B
COMMENT *
COMMENT * 4201 LEXINGTON AVE. N.
COMMENT *
COMMENT * ST PAUL, MINN. 55112
COMMENT *
COMMENT * ( NO PSRS )
COMMENT *
COMMENT *
COMMENT *
COMMENT *
COMMENT * INSTALL COMPASS FROM RELEASE TAPE
COMMENT *
COMMENT *
LABEL(CM2HEL$=CM2HEL$CP2.0$)
STAGE(CM2HEL$MT, HY, LF, HF, VSN=CY51)
REWIND(CM2HEL)
COPY(CM2HEL$CM2HEL$)
COPY(CM2HEL$CM2BIN$)
COMMENT *
COMMENT * CREATE LINEUT FORMAT LIBRARY OF COMPASSbinaries
COMMENT *
COMMENT *
LINEUT(M)
COMMENT *
COMMENT *
COMMENT * CATALOG CM2LFL (USED BY NPROLIB)
COMMENT *
COMMENT *
CATALOG(CM2LFL$CM2LFL$ID=SCPSCK, CN=SCPCN, EX=SCPEX, MD=SCPMOD, PW=SCPCN, CY=51)
RETURN(CM2LFL)
PAUSE * MP00 - JOB COMPLETED SUCCESSFULLY... TYPE X.GO
EXIT *
PAUSE * MP001 - JOB FAILED ... TYPE X.GO
JOB DECK   CM2INS

---EOS---  7/8/9
LIBRARY(CM2FEL,*NEW=2000)
REWIND(CMPBIN)
REPLACE(*,CMFAIN)
FINISH.
LISTLIB(*,CM2FEL,N=1)
---EO1---  6/7/9/9
7.3.2 CM2MOD

JVR DECK CM2MOD

CM2MOD
CP7U,11000,1111.
COMMENT: 5SVU7,07155,35300,SUMILLER
COMMENT: 1
COMMENT: THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT: 1
COMMENT: BY SCOPE2.0 INTEGRATION - AMIDEN HILLS, MINNESOTA
COMMENT: 1
COMMENT: FOR PSM SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT: 1
COMMENT: MODILAPEND HAS BEEN DEFINED
COMMENT: 1
COMMENT: STAGE HAS BEEN DEFINED
COMMENT: 1
COMMENT: PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT: 1
COMMENT: SCOPE 2.0 INTEGRATION AM424A
COMMENT: 1
COMMENT: 4201 LEXINGTON AVE. N.
COMMENT: 1
COMMENT: ST PAUL, MINN. 55112
COMMENT: 1
COMMENT: ( NO PSRS )
COMMENT: 1
COMMENT: 1
COMMENT: 1
COMMENT: ATTACH(MODPL,MODPL,10=>20,UPSMOD,
CT=51)
UPDATE(P=MODPL,0*08=*/*C=UP11)
RETURN(MODPL)
COMMENT: 1
COMMENT: 1
COMMENT: UPDATE COMPASS UDLPL, CREATE SEQUENTIAL NEWPL
COMMENT: 1
COMMENT: 1
LABEL(CMP2HEL,*CM2HEL*SCP2,0$)
STAGE(CM2HEL,MT,MY,PEF,
VSN=CY45)
UPDATE(P=CM2HEL,*F,C=0,N=HANDPL,I=UP11)
UNLOAD(CM2HEL)
COMMENT: 1
COMMENT: 1
COMMENT: VUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT: 1
COMMENT: IS VALID THE OLDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL-
COMMENT: 1
COMMENT: HANDPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL.
COMMENT: 1
COMMENT: FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT: 1
COMMENT: IMPROPER ORDERING OF DECKS WHEN DECKS ARE ADDED OR PURGED).
COMMENT: **********************************************
UPDATE(P=RHANPL,F=CMN,=I=11
RETURN(RHANPL)
COMMENT: **********************************************
COMMENT: * ******************************************
COMMENT: * ASSEMBLE COMPASS BINARIES
COMMENT: * ******************************************
COMMENT: **********************************************
COMPASS(I=BMPR1I11,A=Y=LIST)
RETURN(COMPILE)
COMMENT: **********************************************
COMMENT: * ******************************************
COMMENT: * CREATE LIBEDIT FORMAT LIBRARY OF COMPASS BINARIES
COMMENT: * ******************************************
COMMENT: **********************************************
LIBEDIT(M)
COMMENT: **********************************************
COMMENT: * ******************************************
COMMENT: * CATALOG CM2LEL (USED BY NPRLIR)
COMMENT: * ******************************************
COMMENT: **********************************************
CATALOG(CM2LE1,CM2LEL,LD=SCPSR,CN=SCPCN,EX=SCPEX,MD=SCPMD,PW=SCPCN,
CY=S1)
RETURN(CM2LEL)
COMMENT: **********************************************
COMMENT: **********************************************
COMMENT: ** ******************************************
COMMENT: ** CREATE NEW CM2HEL TAPE....FIRST PARTITION= NEWPL,
COMMENT: ** SECOND PARTITION= COMPASS OVERLAY
COMMENT: ** ******************************************
COMMENT: **********************************************
LABEL(NEWCMPI1=L=CM2HEL@CP2.0$)
STAGE(NEWCMPI1,MT,=NYN,POST,
VSN=CYS1)
REWIND(NEWCMPI1,CMPHIN)
COPYP(NEWPL,NEWCMPI1)
COPYP(CMPHIN,NEWCMPI1)
COMMENT: **********************************************
COMMENT: * ******************************************
COMMENT: * TEST NEW TAPE VIA UPDATE
COMMENT: * ******************************************
COMMENT: **********************************************
UNLOAD(NEWCMPI1)
STAGE(NEWCMPI1,MT,=NYE,PRE,
VSN=CYS1)
REWIND(NEWCMPI1)
COPYP(NEWCMPI1,OLDPL)
COPYP(NEWCMPI1,NEWH1N)
UNLOAD(NEWCMPI1)
UPDATE(P,N=SCRT,W,C=0,YI=11
NULL)
RETURN (GLEDF, SCPT, NFWMS)
PAUSE. MP460 - JOB COMPLETED SUCCESSFULLY... TYPE X,GO
FAIL.
PAUSE. MP461 - JOB FAILED... TYPE X,GO
---E05--- 7/8/9
/ C CHEPSF
---E15--- 7/8/9
LIBRARY (CMCLES, MOD=Z900)
REWIND (CMPSIN)
REPLACE (CMPPRT)
FLUSH.
LISTLIN (CMZ2LP, N=1)
---EO1--- 6/17/94
8.1 REQUIREMENTS

The following materials are necessary to install FORTRAN Extended 2.0

8.1.1 TAPES

FN2REL  
Described in part I, section 2.8

8.1.2 PERMANENT FILES

MODPL (ID=S20OPSMOD)  
Necessary for application of PSR updates only (FN2MOD job)

USERMODPL (ID=S20OPSMOD)  
Necessary for application of local customer modifications only (FN2USR job)

8.1.3 DECKS

FN2GEN  
Regenerates FTN binary from FN2REL and catalogs FN2LEL (ID=PRDLIB)

FN2MOD  
Creates a new FN2REL from the old FN2REL and MODPL, then generates the binary from the new FN2REL and catalogs FN2LEL (ID=PRDLIB)

FN2USR  
Creates a new FN2REL from the old FN2REL and USERMODPL, then generates the binary from the new FN2REL and catalogs FN2LEL (ID=PRDLIB)

FN2INS  
Catalogs binary from FN2REL as FN2LEL (ID=PRDLIB)

8.1.4 DEPENDENCIES

None.

8.2 CONFIGURATION PARAMETERS

The following assembly options and parameters are defined in deck FTN.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCABT</td>
<td>1</td>
<td>Option to abort the job if there is an error on the FTN control card.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 No abort</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Abort on control card error</td>
</tr>
<tr>
<td>CTIMO</td>
<td>1</td>
<td>Option to issue compilation time message to dayfile at completion of an FTN compilation.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 No message</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Issue dayfile message for CPU compilation time</td>
</tr>
<tr>
<td>DEF.DFL</td>
<td>60000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>FTN raises the SCM field length to this value in system controlled field length mode and aborts the job in user controlled field length mode if less than MIN.DFL is supplied for an FTN D option compilation. DEF.DFL may not be set to less than MIN.DFL.</td>
</tr>
<tr>
<td>DEF. FL</td>
<td>50000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>FTN raises the SCM field length to this value in system controlled field length mode and aborts the job in user controlled field length mode if less than MIN. FL is supplied for an FTN compilation. DEF. FL may not be set to less than MIN. FL.</td>
</tr>
<tr>
<td>LMAX</td>
<td>57D</td>
<td>The source listing from an FTN compilation contains LMAX lines per page; does not apply to intermixed COMPASS programs.</td>
</tr>
<tr>
<td>MIN. DFL</td>
<td>57000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>Minimum SCM field length necessary for an FTN compilation if the D option is selected on the FTN control card. MIN. DFL may not be set to less than MIN. FL + 17000B.</td>
</tr>
<tr>
<td>MIN. FL</td>
<td>40000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>Minimum SCM field length necessary for an FTN compilation. IP. MNFL may not be set to less than 40000&lt;sub&gt;8&lt;/sub&gt;.</td>
</tr>
</tbody>
</table>

### 8.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
8.3.1 FN2INS

JOB DECK FN2INS

FN2INS,CP70,T1000,MT01.

COMMENT. *SVVUO,T150,36A3U,SUMILLER

COMMENT. ***********************************************

COMMENT. * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED

COMMENT. * BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA

COMMENT. * FOR PSN SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)

COMMENT. * STAGE HAS BEEN DEFINED

COMMENT. * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO

COMMENT. * SCOPE 2.0 INTEGRATION ARH248

COMMENT. * 4201 LEXINGTON AVE. N.

COMMENT. * ST PAUL, MINN. 55112

COMMENT. 

COMMENT. (NO PSN)

COMMENT. ***********************************************

COMMENT. ***********************************************

COMMENT. * INSTALL FTN FROM RELEASE TAPE

COMMENT. *

COMMENT. ***********************************************

LABEL(FN2REL+L=FN2HEL+SCP2.0S)

STAGE(FN2REL+MT,MY,LY,PHF,

VSN=CY47)

REWIND(FN2REL)

COPYP(FN2REL+OLDPL)

COPYP(FN2REL+FTN)

REWIND(FTN)

COMMENT. ***********************************************

COMMENT. *

COMMENT. * CREATEN LREDETT FORMAT LIBRARY OF FTN OVERLAY

COMMENT. *

COMMENT. ***********************************************

LREDETT(M)

COMMENT. ***********************************************

COMMENT. *

COMMENT. * CATALOG FN2LFL (USED BY NPROLIA)

COMMENT. *

COMMENT. ***********************************************

CATALOG(FN2LFL,FN2LFL,ID=SCPSCH,CN=SCPCN,EX=SCPEX,MD=SCPMOD,W=SCPCN,

CY=51)

UNLOAD(FN2LFL)

PAUSE. MP400 - JOB COMPLETED SUCCESSFULLY... TYPE X*60

EXIT.
PAUSE  MP01 - J0H FAILED ... TYPE X.GO
---EOS---  1/4/0
LIBRARY(FNGLF1.NEW=2.0)
REWIND(F1N)
REPLACE(F1N)
FINISH
LISTLIB(*+FNGLF1+N=1)
---END---  6/7/4/9
8.3.2 FN2MOD

JUM DECK FN2MOD

FN2MOD.LP70,11000,M101
COMMENT. U5UV,7155,36830,SUMILLER
COMMENT. *****************************************************
COMMENT. * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT. *
COMMENT. * BY SCOPE2.0 INTEGRATION - AMIDEN HILLS, MINNESOTA
COMMENT. *
COMMENT. * FOR PSK SUMMARY LEVEL 51 (SEE SYSDK DESCRIPTION)
COMMENT. *
COMMENT. *
COMMENT. * MONTAPEMU HAS BEEN DEFINED
COMMENT. * STAGE HAS BEEN DEFINED
COMMENT. *
COMMENT. * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT. * SCOPE 2.0 INTEGRATION AMIDEN
COMMENT. * 4201 LEXINGTON AVE. N.
COMMENT. * ST PAUL, MINN. 55112
COMMENT. *
COMMENT. * ( NO PKS )
COMMENT. *****************************************************
COMMENT. LABEL(FN2REL.L=FN2HEL+SCP2.0$)
STAGE(FN2REL+MT,MY+PRE,
VSN=CY45)
COMMENT. *****************************************************
COMMENT. *
COMMENT. * UPDATE MODPL TO GET LATEST CIC MODS
COMMENT. *
COMMENT. *
COMMENT. ATTACH(MODPL,MODPL,ID=UPDPSM0U,
CY=51)
UPDATE(P=M0DPL,O,D,B,E,F,C=UPIN)
RETURN(M0DPL)
COMMENT. *****************************************************
COMMENT. *
COMMENT. * UPDATE FTI LOPL, CREATE SEQUENTIAL NEWPL
COMMENT. *
COMMENT. *
COMMENT. *****************************************************
COMMENT. UPDATE(P=FN2HEL,F,C=0,N=RANDPL,I=UPIN)
UNLOAD(FN2HEL)
COMMENT. *****************************************************
COMMENT. *
COMMENT. * DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT. *
COMMENT. * IS VALID, THE OLDPL IS MODIFIED CHEATING A RANDOM TEMPORARY NEWPL
COMMENT. *
COMMENT. * RONGPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL
COMMENT. *
COMMENT. * FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT. *
COMMENT. * IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).
COMMENT. *
COMMENT
UPDATE(P=NEWPL,C=F)
RETURN(NEWPL)
COMMENT
UPDATE(P=NEWPL,C=F)
RETURN(NEWPL)
COMMENT
UPDATE(P=NEWPL,C=F)
RETURN(NEWPL)
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UPDATE(P=NEWPL,C=F)
RETURN(NEWPL)
COMMENT
INDEX
LIBRARY(M)
COPYL(DHGSKEL,SYSSMAIN,SYSCDHG)
RETURN(DHGSKEL)
REWINI(SYSSMAIN,SYSCDHG)
COPYP(SYSSMAIN,SYSFTN)
SKIP(SYSSFTN)
COPYP(SYSS15,SYSSFTN)
SKIP(SYSSFTN)
COPYP(SYSCDHG,SYSSFTN)
RETURN(SYSSMAIN,SYSS15,SYSCDHG)
REWINI(SYSSFTN)
COMMENT.  ##############################################################
COMMENT. *
COMMENT. * PRODUCE FTN OVERLAY
COMMENT. *
COMMENT. ######################################################
LOAD(SYSSFTN)
NOGO.
REWINI(FTN)
COMMENT.  ##############################################################
COMMENT. *
COMMENT. * CREATE LREUT FORMAT LIBRARY OF FTN OVERLAY
COMMENT. *
COMMENT. ##########################################################
LREUT(M)
COMMENT.  ##############################################################
COMMENT. *
COMMENT. * CATALOG FN2LEL (USED BY NPHULIB)
COMMENT. *
COMMENT. ##########################################################
CATALOG(FN2LEL,FN2LEL,ID=SCPSCH,CN=SCPCN,EX=SCPLEX,MD=SCPMOD,PW=SCPCN,
CT=51)
UNLOAD(FN2LEL)
LABEL(NEWFTN+L+$FN2KEL*SCP2.0$)
STAGE(NEWFTN+MT,MY+N+POST)
VSN=CY47)
COMMENT.  ##############################################################
COMMENT. *
COMMENT. * CREATE NEW FN2REL TAPE...FIRST PARTITION - NEWPL
COMMENT. * SECOND PARTITION - FTN OVERLAY
COMMENT. *
COMMENT. ##########################################################
REWINI(NEWFTN+FTN)
COPYP(NEWPL,NEWFTN)
COPYP(FTN,NEWFTN)
COMMENT.  ##############################################################
COMMENT. *
COMMENT. * TEST THE NEW TAPE VIA UPDATE
COMMENT. *
COMMENT. ##########################################################
UNLOAD (NEWFIN)
SAVE (NEWFIN*MT, HY, *PHE*,
VSN=CY47)
REWIN (NEWFIN)
COPYP (NEWFIN*OLDPL)
COPYP (NEWFIN*NEWFIN)
UNLOAD (NEWFIN)
UPDATE (P+N=SCRAT+O,C=O,T=FULL)
RETURN (OLDPL, SCRAT, NEWFIN)
PAUSE. MP60V: JOB COMPLETED SUCCESSFULLY... TYPE X*GO
EXIT.
PAUSE. MP611: JOB FAILED ... TYPE X*GO
---EOS--- 7/8/9
/C FN2P5P
---EOS--- 7/8/9
#10 CYCLE#0
#1 CYCLE=2
#CYN8 VEUMIC 47
---EOS--- 7/8/9
LIBRARY (NEWFIN*NEW=2000)
REWIN (*FTN)
REPLACE (*FTN)
FINISH.
---EOS--- 7/8/9
LIBRARY (**FNL+NEW=2000)
REWIN (**FTN)
REPLACE (**FTN)
FINISH.
LISTL11 (**FNL*N=1)
---E01--- 6/7/8/9
9.1 REQUIREMENTS

The following materials are necessary to install FORTRAN Run 2.0.

9.1.1 TAPES

RN2REL
Described in part I, section 2.9

9.1.2 PERMANENT FILES

MODPL (ID=S20OPSMD) Necessary for application of PSR updates only (RN2MOD job)
USERMODPL (ID=S20OPSMD) Necessary for application of local customer modifications only (RN2USR job)

9.1.3 DECKS

RN2GEN Regenerates FORTRAN Run binary from RN2REL and catalogs RN2LEL (ID=PRDLIB)
RN2MOD Creates a new RN2REL from the old RN2REL and MODPL, then generates the binary from the new RN2REL and catalogs RN2LEL (ID=PRDLIB)
RN2USR Creates a new RN2REL from the old RN2REL and USERMODPL, then generates the binary from the new RN2REL and catalogs RN2LEL (ID=PRDLIB)
RN2INS Catalogs binary from RN2REL as RN2LEL (ID=PRDLIB)

9.1.4 DEPENDENCIES

None.

9.2 CONFIGURATION PARAMETERS

The following installation parameters are defined in deck RUN.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP. DMSZ</td>
<td>54000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>If less than IP. MINMS is supplied for a RUN compilation, RUN raises the SCM field length to this value; cannot be set smaller than IP. MINMS.</td>
</tr>
<tr>
<td>IP. MINMS</td>
<td>45000&lt;sub&gt;8&lt;/sub&gt;</td>
<td>Minimum SCM field length required for a RUN compilation; cannot be set to less than 45000&lt;sub&gt;8&lt;/sub&gt;.</td>
</tr>
<tr>
<td>IP. PGSZ</td>
<td>58</td>
<td>The source listing from a RUN compilation contains IP. PGSZ lines per page; does not apply to intermixed COMPASS programs. This parameter is defined twice, in the 0, 0 and the 1, 0 overlays.</td>
</tr>
</tbody>
</table>

### 9.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
9.3.1 RN2INS

JOB DECK RN2INS

RN2INS.CP74.H10111600.
COMMENT. *YVUV,07155,36A3U,SUMILLER
COMMENT.
COMMENT. **************************************************************
COMMENT. * THIS IS A SCOPE2,U INSTALLATION DECK AS CREATED
COMMENT. * BY SCOPE2,U INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT. *
COMMENT. * FOR PSK SUMMARY LEVEL 51 (SEE SYSDICS DESCRIPTION)
COMMENT. *
COMMENT. * STAGE HAS BEEN DEFINED
COMMENT. *
COMMENT. * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT. * SCOPE 2.0 INTEGRATION ANH24R
COMMENT. *
COMMENT. * 4201 LEXINGTON AVE. N.
COMMENT. *
COMMENT. * ST PAUL, MINN. 55112
COMMENT. *
COMMENT. * ( NO PSK5 )
COMMENT. **************************************************************
COMMENT. *
COMMENT. **************************************************************
COMMENT. *
COMMENT. * INSTALL RUN FROM RELEASE TAPE
COMMENT. *
COMMENT. *
COMMENT. **************************************************************
LABEL (RN2REL*LSRN2HEL*SCP2,0$R)
STAGE (RN2REL*MT,HI,Y,L,PRF, VSN=CY47)
REWINU (RN2HEL)
COPY (RN2REL*OLDPL)
COPY (RN2REL*ZYX)
COMMENT. **************************************************************
COMMENT. *
COMMENT. * CREATE LIHELD FORMAT LIBRARY OF RUN OVERLAY
COMMENT. *
COMMENT. *
COMMENT. **************************************************************
LIHELI(M)
COMMENT. *
COMMENT. *
COMMENT. * CATALOG RNZPLEL (USED BY NPROLIR)
COMMENT. *
COMMENT. *
COMMENT. **************************************************************
CATALOG (RNZPLEL,RNZPLEL,IN=SCPSCK,CN=SCPBN,EX=SCPEX,MD=SCPMD,FW=SCPCN, CY=51)
UNLOAD (RNZPLEL)
PAUSE. * MP000 = JOB COMPLETED SUCCESSFULLY... TYPE A*GO
EXIT.
PAUSE. * MP010 = JOB FAILED ... TYPE A*GO
LIBRARY (DOLEL1, NEW=COOK)
RENAME (ZYA)
REPLACE (ZYA)
FINISH.
LISTLIB (0+HNL1, wn=1)
--END-- 6/7/1979
9.3.2 RN2MOD

JUR DECK RN2MOD

RN2MOD*CP70*1100U*H101*
COMMENT.*SVUV07155,38430,SDMILLER
COMMENT.*
COMMENT.*=================================================================
COMMENT.* THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT.*
COMMENT.* BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT.*
COMMENT.* FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT.*
COMMENT.* MODTAPEDU HAS BEEN DEFINED
COMMENT.* STAGE HAS BEEN DEFINED
COMMENT.*
COMMENT.* PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT.* SCOPE 2.0 INTEGRATION ARM24A
COMMENT.* 4201 LEXINGTON AVE. N.
COMMENT.* ST PAUL, MINN. 55112
COMMENT.*
COMMENT.* (NO PSK*)
COMMENT.*=================================================================
COMMENT.*
LABEL(RN2REL1L=$RN2HEL*SCP2.05*R)
STAGE($RN2HEL*MT*HY*LP*RF,
VSN=CY45)
COMMENT.*=================================================================
COMMENT.*
COMMENT.* UPDATE MODPL TO GET LATEST CUC MODS
COMMENT.*
COMMENT.*
ATTACH(MODPL,MODPL,ID=SP20PSMOD,
CT=51)
UPDATE(P=MODPL,Q=09881**,C=UPIN)
RETURN(MODPL)
COMMENT.*=================================================================
COMMENT.*
COMMENT.* UPDATE RUN ULDPL, CREATE SEQUENTIAL NEWPL
COMMENT.*
COMMENT.*
UPDATE(P=RHN2HEL,F,C=U,N=RANKPL,I=UPIN)
UNLOAD(RN2HEL)
COMMENT.*=================================================================
COMMENT.*
COMMENT.* DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CHEATED
COMMENT.* IS VALID, THE OLDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL-
COMMENT.* NEWPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL.
COMMENT.* FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT.* IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).
COMMENT.*
JUM-DECK PERIOD

COMMENT. ***********************************************************
UPDATE (PERIOD,FILE=NEWPL,SM=NONE)
REPORT (NEWPL,PL)
COMMENT. * ***********************************************************
* COMMENT * UPDATE NEWPL INSERTING CURRENT CYCLE INDICATOR     *
* COMMENT * AND PRODUCE COMPILED FILE
* COMMENT. *
* COMMENT. ***********************************************************
(UPDATE(FACE=FL,CFILE))
COMMENT. ***********************************************************
* COMMENT * ASSEMBLE TO CREATE RELOCATABLE MACHINES                *
* COMMENT. *
* COMMENT. ***********************************************************
COMPASS(NULL)=COMPILE(REMIND,MACH=LIST)
COMMENT. ***********************************************************
* COMMENT * PRODUCE RUN OVERLAY ON FILE ZYA
* COMMENT. *
* COMMENT. ***********************************************************
REWIND (PRIN)
LREAD (PRIN)
UNIT
COMMENT. ***********************************************************
* COMMENT * CREATE LINKED OBJECT OF RUN OVERLAY                   *
* COMMENT. *
* COMMENT. ***********************************************************
LINKED
COMMENT. ***********************************************************
* COMMENT * CATALOG HH2LF. (USED BY NEWPL1H)
* COMMENT. *
* COMMENT. ***********************************************************
CATALOG (HH2LF,RH2LF,ID=SCPSCH,CN=SCPSCH,FA=SCPSCH,MO=SCPSCH,PW=SCPSCH,
CTY=51)
UNLOAD (HH2LF)
LABEL (RH2LF,RH2LF,PL2,PL2,PL2,PL2,PL2)
STAGE (RH2LF,MT,MY,MB,MB,MB)
VSR=CTY)
COMMENT. ***********************************************************
* COMMENT * CREATE NEW NEWPL TAPE * FIRST PARTITION - NEWPL.      *
* COMMENT * SECOND PARTITION - RUN OVERLAY
* COMMENT. *
* COMMENT. ***********************************************************
REWIND (NEWPL,ZYA)
COPY (NEWPL,NEWRUN)
JOH DECK  RN2MON

COPYP(*LYX,*NEWRUN)
COMMENT. #################################################################
COMMENT. *
COMMENT. # TEST THE NEW TAPE VIA UPDATE
COMMENT. *
COMMENT. #################################################################
UNLOAD(*NEWHUN)
STAGE(*NEWRUN,*MT,*MY,*LYX,*PMF,*NEWHUN)
VSN=CY47)
REWIND(*NEWHUN)
COPYP(*NEWRUN,*OLDPL)
COPYP(*NEWRUN,*NEWBIN)
UNLOAD(*NEWHUN)
UPDATE(F,N=SCRAT,w,C=0,i=NULL)
RETURN(*OLDPL,SCRAT,*NEWBIN)
PAUSE. MP000 - JOB COMPLETED SUCCESSFULLY... TYPE X*GO
EXIT.
PAUSE. MP101 - JOB FAILED ... TYPE X*GO
---EOS--- 1/8/9
/C RN2PSR
---EOS--- 7/8/9
*10 RN2CYC
*U COPYR1*
U DATA 10L CYCLE 47
---EOS--- 7/8/9
LIBRARY(RN2LEL,NEW=2000)
REWIND(*LYX)
REPLACE(*LYX)
FINISH.
LISTLIB(*+RN2LEL,N=1)
---EOS--- 6/7/8/9
10.1 REQUIREMENTS

The following materials are necessary to install the FORTRAN object time routines.

10.1.1 TAPES

FCLOPL  SCOPE 3.4 release tape described in SCOPE 3.4 Installation Handbook
MODS3P4  SCOPE 3.4 modification tape described in SCOPE 3.4 Installation Handbook

10.1.2 PERMANENT FILES

USERMODPL (ID=S20OPSMD) Necessary for application of local customer modifications only (FTNLIBX job)
PRDLIB (ID=PRDLIB) Necessary to compile part of FTNIOLIB

10.1.3 DECKS

FTNLIB7 Creates a new FCLOPL from the old FCLOPL and MODS3P4
FLIBGEN Generates and catalogs the binary as FTNIOLIB (ID=PRDLIB), FTN object time routines, from an FCLOPL; requires use of PRDLIB (ID=PRDLIB)
RLIBGEN Generates and catalogs the binary as RUNIOLIB (ID=PRDLIB), Run object time routines, from an FCLOPL
FTNLIBX Creates a new FCLOPL from the old FCLOPL and USERMODPL

10.1.4 DEPENDENCIES

FORTRAN Extended must be installed before FCL at least to the extent that PRDLIB contains a FTN compiler updated to the current PSR summary level.

10.2 CONFIGURATION PARAMETERS

The following parameter is in common deck LIBMAC.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL</td>
<td>0</td>
<td>Indicates which library to assemble.</td>
</tr>
</tbody>
</table>

0  FTN object library  
1  RUN object library

10.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
10.3.1 FTNLIB7

JOB DECK +FTNLTR7

FTNLIB7,CP70,T1060,MT02,
COMMENT,*SVVU,67155,36380,SDMILLER
COMMENT,*
COMMENT,* **********************************************
COMMENT,*
COMMENT,* THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT,*
COMMENT,* BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA
COMMENT,*
COMMENT,* FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT,*
COMMENT,*
COMMENT,* MODTAPEMD HAS BEEN DEFINED
COMMENT,*
COMMENT,* STAGE HAS BEEN DEFINED
COMMENT,*
COMMENT,*
COMMENT,* PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT,*
COMMENT,* SCOPE 2.0 INTEGRATION AMH248
COMMENT,*
COMMENT,* 4201 LEXINGTON AVE. N.
COMMENT,* ST PAUL, MINN.  55112
COMMENT,*
COMMENT,*
COMMENT,* ( NO PSK )
COMMENT,*
COMMENT,* **********************************************
COMMENT,*
COMMENT,* THIS JOB APPLIES MOUS FROM THE SCOPE 3.4 MODTAPE (OR USEMODDPL) TO
COMMENT,* THE FORTRAN COMMON OBJECT LIBRARY PRODUCING A NEWPL TO BE USED BY
COMMENT,* FLIRGEN AND/OR RLIBGEN TO GENERATE BINARIES
COMMENT,*
COMMENT,*
COMMENT,* **********************************************
FILE(MODS3P4,RT=S)
STAGE(MODS3P4,MT=HI,EPRE)
UPDATE(P=MODS3P4,G=+,C=UPIN,S,D)
UNLOAD(MODS3P4)
FILE(OLDPL,RT=S)
LABEL(OLDPL,L=FTNLIBS3P4S)
STAGE(OLDPL,MT=HI,EPRE,
VSN=CT45)
LABEL(NEWPL,L=FTNLIBS3P4S)
FILE(NEWPL,RT=S)
STAGE(NEWPL,MT=HI,NPOST,
VSN=CT51)
UPDATE(P,F,C=0,N=RANDPL,I=UPIN)
UNLOAD(OLDPL)
COMMENT,*
COMMENT,* DUE TO A DEFICIENCY IN UPDATE, 10 INSURE THAT THE NEWPL CREATED
COMMENT,* IS VALID, THE OLDP DPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL-
COMMENT,* RANPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL-
COMMENT,* FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN

60344000 A

III-10-3
CURRENT. * IMPROVER OWNERSHIP OF DECKS (WHERE DECKS ARE AMENDED OR PURGED).
CURRENT. *
CURRENT.  ************************************************************************************************************************************************************************
UPDITE (F=NULL, F+H=I, H+I=NULL)
PL (FORM, HANDEL)
CURRENT.  *************************************************************************CURRENT. *
CURRENT. * TEST ME FOR TAME VIA UPDATE
CURRENT. *
CURRENT.  ************************************************************************************************************************************************************************
UNLOAD (INF=PPL)
LABEL (INF=PPL, L=STMT, LHS=3P45)
FILE (INF=PPL, H=5)
STAGE (INF=PPL, NT, HI, H+FRE, VSN=CY45)
UPDITE (F=INF=PPL, N=SCAT+F, ++CCO, I=NULL)
PAUSE* MP=10 - JOB COMPLETED SUCCESSFULLY... TYPE X*AN FAIT
PAUSE* MP=11 - JOB FAILED... TYPE X*GO
---$5--- 8/M/9

// THE FOLLOWING EXTRACT FROM COMMON OBJECT LIBRARY MONS (IF ANY)
// FROM 3P03P4 (3.4 MONTAPE)
// FCL
---$1--- 8/M/9
10.3.2 FLIBGEN

JOB DECK FLIBGEN

FLIBGEN,CP74,T1600,MT01.
COMMENT, *SVUV,A7155,36830,SDMILLER
COMMENT, *
COMMENT, ****************************************************************************************************
COMMENT, *
COMMENT, * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT, *
COMMENT, * BY SCOPE2.0 INTEGRATION - AKDEN HILLS, MINNESOTA
COMMENT, *
COMMENT, * FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT, *
COMMENT, * STAGE HAS BEEN DEFINED
COMMENT, *
COMMENT, * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT, * SCOPE 2.0 INTEGRATION AMH-24B
COMMENT, * 4201 LEXINGTON AVE. N.
COMMENT, * ST PAUL, MINN. 55112
COMMENT, *
COMMENT, *( NO PSRS )
COMMENT, *
COMMENT, ****************************************************************************************************
FILE (OLDPL,RI=5)
LABEL (OLDPL,L=$FTNLIBS*3P4$)
STAGE (OLDPL,MT,HIE,PRC,
VSN=CY51)
REWINU (OLDPL)
COMMENT, *
COMMENT, * USING THE 3.4 RELEASE TAPE FOR THE FORTRAN COMMON OBJECT LIBRARY
COMMENT, * (FCL) OR AN UPDATED VERSION OF THAT TAPE PRODUCED BY FTNLIB7,
COMMENT, * FTNLIBX OR THE 6000 SCOPE 3.4 FCL MAINTAINENCE DECK - GENERATE
COMMENT, * THE FORTRAN SYSTEM LIBRARY (FORTRAN EXTENDED OBJECT LIBRARY)
COMMENT, *
FILE (OLDPL,RI=5)
LABEL (OLDPL,L=$FTNLIBS*3P4$)
STAGE (OLDPL,MT,HIE,PRC,
VSN=CY51)
REWINU (OLDPL)
COMMENT, *
COMMENT, * UPDATE OLDPL ADDING CYCLE INDICATOR AND PLACE SOURCE FOR FORTRAN
COMMENT, * OBJECT LIBRARY ON FTNSRC
COMMENT, *
COMMENT, * UPDATE (P,F,C=FTNSRC)
UNLOAD (OLDPL)
COMMENT, *
COMMENT, * ASSEMBLE FTNSRC (COMPILE USING LATEST FTN COMPILER)
COMMENT, *
COMMENT, * CUMPASS (F=FTNSRC+6=FTNLIB+A,*=LIST1)
ATTACH (PRDLIB,PRDLIB,4U=PRDLIB,
JOB DECK LINRGN

/*S1*/
LIBRARY(PROLIN)
FIN(*=FMCNSHC,OPT=2,M=FNTLIN,A,L=LIST)
LIBRARY.
RETURN(FTNSRC)
COMMENT.*****************************************************************************
COMMENT./*
COMMENT./* CREATE LINEOUT FORMAT LIBRARY OF FORTRAN OBJECT TIME BINARIES
COMMENT./*
COMMENT.*****************************************************************************
REWIND(FNTLIN)
LINEDT(M)
COMMENT.*****************************************************************************
COMMENT./*
COMMENT./* CATALOG FNTLINLIB (FORTRAN OBJECT LIBRARY)
COMMENT./*
COMMENT.*****************************************************************************
CATALOG(FTN0,FNTLINLIB,ID=PROLIN,CN=SCPNC,EX=SCPEX,MU=SCPMN,PW=SCPCN,
CY=51)
RETURN(FTN0)
PAUSE. MP00U - JOB COMPLETED SUCCESSFULLY... TYPE X*GO
EXIT.
PAUSE. MP001 - JOB FAILED ... TYPE X*GO
---EOS--- 7/8/9
*IDENT CYCLNUM
*I MODUL*2
MODUL MICRO 1,* 51
SUBVL MICRO 1,*
---EOS--- 7/8/9
LIBRARY(FTN0,N=2000)
REPLACE(*,FNTLIN)
FINISH.
LISTLIB(*,FNTN0,N=1)
---EOI--- 6/7/8/9
10.3.3 RLIBGEN

JOB DECK RLIBGEN

RLIBGEN,CP70,T1000,MT01.
COMMENT *SVGV,07155,36B30,SDMILLER
COMMENT *
COMMENT *==================================================================*
COMMENT * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED*
COMMENT * BY SCOPE2.0 INTEGRATION - ARDEN HILLS, MINNESOTA*
COMMENT * FOR PSR SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)*
COMMENT *
COMMENT * STAGE HAS BEEN DEFINED*
COMMENT *
COMMENT * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO*
COMMENT * SCOPE 2.0 INTEGRATION ARH248*
COMMENT * 4201 LEXINGTON AVE. N.*
COMMENT * ST PAUL, MINN. 55112*
COMMENT *
COMMENT ( NO PSRS )

FILE(OLDPL,RI=S)
LABEL(OLDPL,L=$FNLIBS*3P4$)
STAGE(OLDPL,MT,HI,E,PRE,
VSN=CYS1)
REWIND(OLDPL)
COMMENT *
COMMENT * USING THE 3.4 RELEASE TAPE FOR THE FORTRAN COMMON OBJECT LIBRARY*
COMMENT * (FCL) OR AN UPDATED VERSION OF THAT TAPE PRODUCED BY FTNLIBB,
COMMENT * FNLIBS OR THE 6000 SCOPE 3.4 FCL MAINTAINENCE DECK, GENERATE*
COMMENT * THE RUNLIB SYSTEM LIBRARY (FORTRAN RUN OBJECT LIBRARY)
COMMENT *
COMMENT *
FILE(RUNSRC)
LABEL(RUNSRC,L=RUNLIBR)
STAGE(RUNSRC,MT,HI,E,PRE,
VSN=CYS1)
REWIND(RUNSRC)
COMMENT *
COMMENT * UPDATE OLDPL ADDING CYCLE INDICATOR AND PLACE SOURCE FOR RUNLIB*
COMMENT * OBJECT LIBRARY ON RUNSRC
COMMENT *
COMMENT *
COMMENT * UPDATE(F,C=RUNSRC)
UNLOAD(OLDPL)
COMMENT *
COMMENT * ASSEMBLE RUNSRC
COMMENT *
COMMENT *
COMMENT * CUMPASS(T=RUNSRC,B=RUNLIBR,A,L=LIS1)
SKIPF(RUNSRC)
COM-PASS (I=HUNSRC,H=HUNLIR,A,L=LIST)
RETURN (RUNSRC)
COMMENT: *********************************************************************
COMMENT: *
COMMENT: * CREATE LIBEDIT FORMAT LIBRARY OF HUNLIB OBJECT TIME BINARIES *
COMMENT: *
COMMENT: *********************************************************************
REWIND (RUNLIB)
LIBEDIT (M)
COMMENT: *********************************************************************
COMMENT: *
COMMENT: * CATALOG HUNLIB (RUNLIB OBJECT LIBRARY) *
COMMENT: *
COMMENT: *********************************************************************
CATALOG (RUN1,PUNLIR1,ID=PRDLIR,CN=SCPCN,FX=SCFX,FU=SCPMD,FW=SCPCN,
CY=51)
RETURN (RUN10)
PAUSE: MP090 - JOH COMPLETED SUCCESSFULLY... TYPE X*GO
EXIT.
PAUSE: MP091 - JOH FAILED... TYPE X*GO
---EOS--- 1/6/9
IDENT CYCLNUM
*1 MOULVL *
MODULVL *MICR 1, 51
SUBLVL *MICR 1,**
SU LLYMAC, 745
CALL 745 1
---EOS--- 1/6/9
LIBRARY (RUN1,NEW=2000)
REPLACE (*,HUNLIR).
FINISH.
LISTLIB (*,HUNLIR,N=1)
---F01--- 6/7/8/9
11.1 REQUIREMENTS

The following materials are necessary to install COBOL 1.0.

11.1.1 TAPES

COBREL

Described in part I, section 2.11

11.1.2 PERMANENT FILES

MODPL (ID=S20OPSMOD)

Necessary for application of PSR updates only (COBMOD job)

USERMODPL (ID=S20OPSMOD)

Necessary for application of local customer modifications only (COBUSR job)

SRTLIB (ID=PRDLIB)

Necessary to satisfy externals in COBOL compiler

11.1.3 DECKS

COBGEN

Regenerates COBOL from COBREL and catalogs COBLEL and COBLIB7 (both jobs' ID=PRDLIB)

COBMOD

Creates a new COBREL from the old COBREL and MODPL, then generates the binary from the new COBREL and catalogs COBLEL and COBLIB7 (both jobs' ID=PRDLIB)

COBUSR

Creates a new COBREL from the old COBREL and USERMODPL, then generates the binary from the new COBREL and catalogs COBLEL and COBLIB7 (both jobs' ID=PRDLIB)

COBINS

Catalogs binary from COBREL as COBLEL (both jobs' ID=PRDLIB)

11.1.4 DEPENDENCIES

Sort/Merge must be installed before COBOL, or at least SRTLIB7 must be updated to the latest PSR summary level.
### 11.2 CONFIGURATION PARAMETERS

The following installation parameters are in common deck CBLTEXT, which also contains all of the COBOL assembly parameters.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP. DOPT</td>
<td>0</td>
<td>If fatal errors are encountered in a COBOL compilation, COBOL aborts the LGO file only if the D parameter is or is not present on the COBOL control card, depending upon the value of this symbol.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0 Abort the LGO file only if the D parameter is specified.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1 Abort the LGO file only if the D parameter is not specified.</td>
</tr>
<tr>
<td>IP. LCMDF</td>
<td>1000000₈</td>
<td>If less than IP. MNLCM is supplied for a COBOL compilation, COBOL raises the LCM field length to this value; cannot be set to less than IP. MNLCM.</td>
</tr>
<tr>
<td>IP. MNLCM</td>
<td>40000₈</td>
<td>Minimum LCM field length necessary for a COBOL compilation; cannot be set to less than 40000₈.</td>
</tr>
<tr>
<td>IP. MNSCM</td>
<td>40000₈</td>
<td>Minimum SCM field length necessary for a COBOL compilation; cannot be set to less than 40000₈.</td>
</tr>
<tr>
<td>IP. SCMDF</td>
<td>40000₈</td>
<td>If less than IP. MNSCM is supplied for a COBOL compilation, COBOL raises the SCM field length to this value; cannot be set to less than IP. MNSCM.</td>
</tr>
</tbody>
</table>

### 11.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
11.3.1 COBINS

J070 DECK COBINS

COBINS,CP70,MT07,11000.

COMMENT. *SVUV,07155,3MR30,SUMIYER
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. * THIS IS A SCOPEZ.0 INSTALLATION DECK AS CREATED
COMMENT. *
COMMENT. * HY SCOPEZ.0 INTEGRATION - AMHERST HILLS, MINNESOTA
COMMENT. *
COMMENT. * FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT. *
COMMENT. * STAGE HAS BEEN DEFINED
COMMENT. *
COMMENT. * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT. * SCOPE 2.0 INTEGRATION AMH24R
COMMENT. * 4201 LEXINGTON AVE. N.
COMMENT. * ST PAUL, MINN. 55112
COMMENT. *
COMMENT. * ( NO PSKS )
COMMENT. ******************************************************
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. * INSTALL COHOL FROM RELEASE TAPE
COMMENT. *
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. * LABEL (CORREL=COHREL,SCP2.0$)
COMMENT. * STAGE (CORREL=MT,MY,P,MF,
COMMENT. * VSN=CY=7)
COMMENT. *
COMMENT. * REWIN(COHREL)
COMMENT. *
COMMENT. *
COMMENT. * COPY (COHREL:OLDPL)
COMMENT. *
COMMENT. *
COMMENT. * COPY (COHREL:COROL)
COMMENT. *
COMMENT. *
COMMENT. * REWIN(COHREL:COROL)
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. * CREATE LIEU5T FORMAT LIBRARY OF COHOL OVERLAY
COMMENT. *
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. LIEU5T(M)
COMMENT. *
COMMENT. *
COMMENT. * CATALOG COHREL (USED MY NPROLIX)
COMMENT. *
COMMENT. *
COMMENT. ******************************************************
COMMENT. *
COMMENT. * CATALOG (COHREL,COLREL,IN=SCP5CK,CN=CPACN,EX=CPLEX,MD=CPMD,PA=CPACN,
COMMENT. * CT=51)
COMMENT. *
COMMENT. *
COMMENT. ******************************************************
COMMENT. *

60344000 A

III-11-3
JON DECK CUMINS

COMMENT. * CREATE LISTED FORMAT LIBRARY OF OBJECT TIME BINARIES *
COMMENT. *
COMMENT. ********************************************************************************************
LIBEUL(*M)
COMMENT. ********************************************************************************************
COMMENT. *
COMMENT. CATALOG COHLIB7 (COBOL OBJECT TIME LIBRARY) *
COMMENT. *
COMMENT. ********************************************************************************************
CATALOG(COHLIB7,COHLIB7,CM=PRDLIB,CN=SCPCLN,ET=SCEX,MD=SCPMQ,PW=SCPCN,
   CY=51)
UNLOAD(COHLIB7)
PAUSE. MP000 - JOB COMPLETED SUCCESSFULLY... TYPE A,GO
EXIT.
PAUSE. MP001 - JOB FAILED ... TYPE X,GO
---EOS--- 7/8/79
LIBRARY(COHLIB,NEW=2000)
REPLACE(*,COBOL)
FINISH.
LISTLIB(*,COHLIB,N=1)
---EOS--- 7/8/79
LIBRARY(COHLIB7,NEW=2000)
REPLACE(*,COBOL)
FINISH.
LISTLIB(*,COHLIB7,N=1)
---END--- 6/7/8/79
11.3.2 COBMOD

JOB deck COMMON

COMMON,CP70,11300,M101.
COMMENT.*SVUV,07155,36830,SDMILLER
COMMENT.
COMMENT.******************************************************************************
COMMENT.*  THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT.*  BY SCOPE2.0 INTEGRATION - ARDEN MILLS, MINNESOTA
COMMENT.*  FOR PSR SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT.*  MONTAPEND HAS BEEN DEFINED
COMMENT.*  STAGE HAS BEEN DEFINED
COMMENT.*
COMMENT.*  PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT.*  SCOPE 2.0 INTEGRATION ARH24R
COMMENT.*  4201 LEXINGTON AVE. N.
COMMENT.*  ST FAUL, MINN.  55112
COMMENT.*
COMMENT.*  ( NO PSRS )
COMMENT.******************************************************************************
COMMENT.
LABEL(COMREL*L=%COMREL*SCP2.0$)
STAGE(CORREL*,H*,E*,PHF*,
VSN=CY45)
COMMENT.******************************************************************************
COMMENT.*
COMMENT.*  UPDATE MODPL TO GET LATEST CDC MODS
COMMENT.*
COMMENT.*
ATTACH(MODPL,MODPL,IN=SP0PSMOD, CY=51)
UPDATE(P=MODPL,O=I8,IS=1,C=UPIN)
RETURN(MODPL)
COMMENT.******************************************************************************
COMMENT.*
COMMENT.*  UPDATE COMPL ULDPL, CREATE SEQUENTIAL NEWPL
COMMENT.*
COMMENT.*
UPDATE(P=COMREL,F,C=F,N=RANDPL,I=UPIN)
UNLOAD(COMREL)
COMMENT.******************************************************************************
COMMENT.*  DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT.*  IS VALID: THE ULDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL-
COMMENT.*  RANDPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL.
COMMENT.*  FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT.*  IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).
COMMENT.*
JOB DECK COMMON

COMMENT

UPDATE (P(RHANUPL,F,N=0,NI=NULL))
RETURN (RHANUPL)

COMMENT

COMMENT UPDATE NEWPI INSERTING CURRENT CYCLE INDICATOR

COMMENT AND PRODUCE Compile FILE

COMMENT

COMMENT

UPDATE (PID=PLFC,F=PL)

COMMENT

COMMENT ASSEMBLE COHOL OBJECT TIME ROUTINES

COMMENT

COMMENT

COMPASS (J=C,OLF,A=1,LIST)

COMMENT

COMMENT ASSEMBLE COHOL COMPILER

COMMENT

COMMENT

COMPASS (J=C,OLF,A=1,LIST)

COMMENT

COMMENT BUILD OVERLAY ON FILE COHOL, SATISFY CERTAIN

COMMENT EXTERNALS FROM SORT MERGE LIBRARY

COMMENT

COMMENT

ATTACH (SPTLIBA,SRTLIBA,10=PRDLIB)

LIBRARY (SKELIBX)

LOAD (COHCP)

NUG0.

LIBRARY.

REIND (CONUL,CONOR)

COMMENT

COMMENT CREATE LINEOUT FORMAT LIBRARY OF COHOL OVERLAY

COMMENT

COMMENT

LIBED (M)

COMMENT

COMMENT CATALOG COHLEL (USED BY NRDILIB)

COMMENT

COMMENT CATALOG (COHLEL,COHLEL,ID=SCPSCR,CN=SCPCN,EX=SCPEX,M0=SCPM0,PM=SCPCN+CT=5)

UNLOAD (COHLEL)

COMMENT

III-11-6 60344000 A
COMMON

COMMENT. *
COMMENT. * CREATE LIBRARY FORMAT LIBRARY OF OBJECT TIME BINARIES
COMMENT. *
COMMENT. #################################################################

LIBFOM(H)
COMMENT. #################################################################
COMMENT. * CATALOG COHLTH7 (COHOL OBJECT TIME LIBRARY)
COMMENT. *
COMMENT. #################################################################
CATALOG(COH1H7,COHLTH7,1D=PROLH,CN=SCP1CN,EX=SCPEX,MD=SCPM,PR1=SCP1CN;
CY=51)
UNLOAD(COH1H7)

LABEL(NEWCUB,L=SCHKHEL*SCP2,05)
STAGE(NEWCUB,MT,MY,MP,POST, VSN=CY47)
COMMENT. #################################################################
COMMENT. *
COMMENT. * CREATE NEW CORHEL TAPE...FIRST PARTITION - NEWPL,
COMMENT. * SECOND PARTITION - COBOL OVERLAY, THIRD PARTITION -
COMMENT. * COROL OBJECT TIME BINARIES
COMMENT. *
COMMENT. #################################################################
REINIV(NEWCUB,COHOL,COBCH)
COPYP(NEWPL,NEWCUB)
COPYP(COROL,NEWCUB)
COPYP(COROL,NEWCUB)
COMMENT. #################################################################
COMMENT. *
COMMENT. * TEST THE NEW TAPE VIA UPDATE
COMMENT. *
COMMENT. #################################################################
UNLOAD(NEWCUB)
STAGE(NEWCUB,MT,MY,MP,PRF, VSN=CY47)
REINIV(NEWCUB)
COPYP(NEWCUB,OLDPL)
COPYP(NEWCUB,NEWWAS)
COPYP(NEWCUB,NEWREL)
UNLOAD(NEWCUB)
UPDATE(P,N=SCRAT,W,CN,T=1,N=T10)
RETURN(OLDPL,SCRAT,NEWWAS,NEWREL)
FAIL+ - MP,2D - TYPE A+G0 TO CAT FILES FOR AHMOPS, HACK-TAPE
FAIL(G)
COMMENT. #################################################################
COMMENT. *
COMMENT. * HLCATALOG CORPL, COBIBIN AND CREATE COBREL BACKUP TAPE
COMMENT. *
COMMENT. #################################################################
ATTACH(A,CUNPL,PW=SCPCN,VU=S20CPL0PL,
CY=51)
 PURGE(A)
 EXIT(U)
 RETURN(A)
 ATTACH(A,CUNPL1,ID=S20CPL0PL,PW=SCPCN,
 CY=51)
 PURGE(A)
 EXIT(U)
 RETURN(A)
 CATALOG(U,NE=PL,CUNPL1,ID=S20CPL0PL,CN=SCPCU, MU=SCPM,EX=SCPEX,
PW=SCPCN,
 CY=51)
 CATALOG(U,CUNPL,CN=SCPCU, MU=SCPM,EX=SCPEX,
PW=SCPCN,
 CY=51)
 LAHELE(N=SCPYL=SCHEL=SCPY=0)
 STAGE(N=SCPY+MT,MY,N=POST1,
 VSN=CY+7)
 NEWIND(U,NEWPL+COPL,CUNPL,CUNCP,NEWCPY)
 CUPY(Y,NEWPL,NEWCPY)
 CUPY(Y,COPL,NEWCPY)
 CUNCP(NEWCPY)
 UNLOAD(NEWCPY)
 STAGE(N=SCPY+MT,MY,N=PRE1,
 VSN=CY+7)
 NEWIND(NEWCPY)
 CUPY(NEWCPY+MLDPL)
 CUPY(NEWCPY+NEWHCS)
 CUPY(NEWCPY+NEWHEL)
 UNLOAD(NEWCPY)
 UPDATE(F,N=SCRAT#,C=0,T=FULL)
 PAUSE* MP600 - JOB COMPLETED SUCCESSFULLY... TYPE X,GO
 EXIT*
 PAUSE* MP601 - JOB FAILED ... TYPE X,GO
 ---F05--- 7/9/9
 /C COBPS3
 ---E05--- 7/9/9
 *ID CYCKNU
 QT CY37*1
 EDITION #ICHO 13,CY472
 ---E05--- 7/9/9
 LINKRHY(COPL6L,NEW=2000)
 REPLACE(*,COBOL)
 FINISH*
 LISTLIB(*,COBOL6L,N=1)
 ---E05--- 7/9/9
 LINKRHY(CMRLIB7,NEW=2888)
 REPLACE(*,COBOL)
 FINISH*
 LISTLIB(*,COBOL87,N=1)
 ---E01--- 5/7/9/9

III-11-8 60344000 A
12.1 REQUIREMENTS

The following materials are necessary to install Sort/Merge 1.0.

12.1.1 TAPES

SRTREL

Described in part I, section 2.12

12.1.2 PERMANENT FILES

MODPL (ID=S20PSMOD)

Necessary for application of PSR updates only (SRTMOD job)

USERMODPL (ID=S20PSMOD)

Necessary for application of local customer modifications only (SRTUSR job)

12.1.3 DECKS

SRTGEN

Regenerates Sort/Merge binary from SRTREL and catalogs SRTLEL, SRTLIB7, and SRTMACS (all have ID=PRDLIB)

SRTMOD

Creates a new SRTREL from the old SRTREL and MODPL, then generates the binary from the new SRTREL and catalogs SRTLEL, SRTLIB7, and SRTMACS (all have ID=PRDLIB)

SRTUSR

Creates a new SRTREL from the old SRTREL and USERMODPL, then generates the binary from the new SRTREL and catalogs SRTLEL, SETLIB7, and SRTMACS (all have ID=PRDLIB)

SRTINS

Catalogs binary from SRTREL as SRTLEL, SRTLIB7, and SRTMACS (all have ID=PRDLIB)

12.1.4 DEPENDENCIES

None.

12.2 CONFIGURATION PARAMETERS

The following parameters are in deck SMSRTX and common deck SMCONCN.
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>IP, FLSD</td>
<td>40000B</td>
<td>The default field length (SCM) for the Sort/Merge directive version; refer to the IP, FLSM parameter.</td>
</tr>
<tr>
<td>IP, FLSM</td>
<td>14000B</td>
<td>The minimum field length (SCM) in which Sort/Merge executes for the directive call version. If the field length is less than IP, FLSM when the SORTMRG call is made, the default (IP, FLSD) field length is requested by Sort/Merge.</td>
</tr>
<tr>
<td>IP, IDMX</td>
<td>144B (100D)</td>
<td>The maximum number of names in the IDNAME and the SQNAME tables; that is, each table may contain this many names. IDNAME contains field (key) names and SQNAME contains sequence names. Attribute tables for these names are also set in length by this parameter.</td>
</tr>
</tbody>
</table>
| IP, LCBM  | 25000B (10752D)        | This is the IP, LCMB used if the user declares an LCMSB parameter in the range:  
|            |                        | $1 \leq \text{LCMSB} \leq \text{IP, LCBM}$  
|            |                        | This is the minimum IP, LCBM. |
| IP, LCMB  | 141520B (50000D)       | Total LCM buffer area for record manager for all intermediate scratch files; that is, all files developed internally by Sort/Merge. The default (IP, LCMB) is used if the user does not declare the LCMSB parameter or if he declares LCMSB = 0. |
| IP, ORDL  | 2                      | Minimum merge order for LCM resident intermediate merge files (sort strings). |
| IP, ORDM  | 6                      | Merge order; the number of files that are merged in one merge pass, although more files may be available for merging. |
| IP, PRGD  | 24000B                 | This is the default SCM used by the relocatable version of Sort/Merge; refer to the IP, PRGM parameter. |
| IP, PRGM  | 22000B                 | The minimum SCM required by the relocatable (macro callable) version of Sort/Merge. This parameter is the length of the Sort/Merge program plus a reasonable work area. The user may restrict available SCM within his field length by selecting the 'COMMON'
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Released Default Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>parameter within a Sort/Merge macro call sequence. Sort/Merge calculates available core with respect to the COMMON parameter. If the available SCM is less than this minimum, Sort/Merge requests a field length that provides for the default (IP, PRGD) SCM program and work area.</td>
</tr>
</tbody>
</table>

12.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
12.3.1 SRTINS

JOIN DECK SRTINS

SRTINS CP7M AT T11009

COMMENT *SUVD, 05/15/58.3900. SDMILLER
COMMENT *---------------------------------------------------------------------
COMMENT * THIS IS A SCOPE 2.0 INSTALLATION DECK AS CREATED
COMMENT * BY SCOPE 2.0 INTEGRATION - ANDEN HILLS, MINNESOTA
COMMENT * FOR PSR SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT *
COMMENT * STAGE HAS BEEN DEFINED
COMMENT *
COMMENT * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT * SCOPE 2.0 INTEGRATION AM 4248
COMMENT * 4201 LEXINGTON AVE. N.
COMMENT * ST PAUL, MINN. 55112
COMMENT *
COMMENT * ( AND PSRS )
COMMENT *---------------------------------------------------------------------
COMMENT *
COMMENT *---------------------------------------------------------------------
COMMENT *
COMMENT * INSTALL SORT MERGE FROM RELEASE TAPE
COMMENT *
COMMENT *---------------------------------------------------------------------
COMMENT * LABEL(SRTHEL=L=SRTHEL*SCP2.03)
COMMENT * STAGE(SRTHEL=MT, HY, E, PKE, VSN=C145)
COMMENT * REWIND(SRTHEL)
COMMENT * COPYP(SRTHEL, QLPL)
COMMENT * COPYP(SRTHEL, SORTIV)
COMMENT * COPYP(SRTHEL, RFLH)
COMMENT * COPYP(SRTHEL, SRTMACS)
COMMENT * REWIND(SORTIV)
COMMENT *---------------------------------------------------------------------
COMMENT *
COMMENT * CREATE LINEDIT FORMAT LIBRARY OF SORT OVERLAY
COMMENT *
COMMENT *---------------------------------------------------------------------
COMMENT * LINEDIT(M)
COMMENT *---------------------------------------------------------------------
COMMENT *
COMMENT * CATALOG SRTLFL (USED BY NPROLIB)
COMMENT *
COMMENT *---------------------------------------------------------------------
COMMENT * CATALOG SRTLEL, SRTLEL, IN=SCPSCH, CN=SCPCNE, EX=SCPEX, MD=SCPMND, PH=SCPCN
COMMENT * CYS51)
COMMENT * UNLOAD(SRTLEL)
12.3.2 SRTMOD

John Nuck

SRTMOD CP7111009.M101
COMMENT. *SRTV057155.838A3D8.53MILLER
COMMENT.
COMMENT. *-----------------------------------------------------------------------------
COMMENT. *
COMMENT. * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT. *
COMMENT. * HY SCOPE2.0 INTEGRATION - HOMER HILLS, MINNESOTA
COMMENT. *
COMMENT. * FOR PSH SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT. *
COMMENT. *
COMMENT. * MODTAPMENU HAS BEEN DEFINED
COMMENT. *
COMMENT. * STAGE HAS BEEN DEFINED
COMMENT. *
COMMENT. *
COMMENT. * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT. * SCOPE 2.0 INTEGRATION AMH2AP
COMMENT. *
COMMENT. * 4201 LEXINGTON AVE. N.
COMMENT. *
COMMENT. * ST PAUL, MINN. 55112
COMMENT. *
COMMENT. *
COMMENT. * (NO PSHE)
COMMENT. *
COMMENT. *-----------------------------------------------------------------------------
COMMENT.

LABEL(SHTECH.L=*SRTECHoS(P2.03))
STAGE(SHTECHLMT.HY.E.PHF,
VSN=CY=5)
COMMENT. *-----------------------------------------------------------------------------
COMMENT. *
COMMENT. * UPDATE MODPL TO GET LATEST CUC MODS
COMMENT. *
COMMENT. *
COMMENT. *-----------------------------------------------------------------------------
ATTACH(MODPL,MODPL.IU=SPOOSMODU,
CY=51)
UPDATE(PS=MODPL,0408N=/>C=UPIN)
RETURN(MODPL)
COMMENT. *-----------------------------------------------------------------------------
COMMENT. *
COMMENT. * UPDATE SORT/MERGE OLDP, CREATE SEQUENTIAL NEWPL
COMMENT. *
COMMENT. *
COMMENT. *-----------------------------------------------------------------------------
COMMENT. *
UPDATE(PS=SHTECHLST.CFUVN=HANDEPL.1=UPIN)
UNLOAD(SRTECH)
COMMENT. *-----------------------------------------------------------------------------
COMMENT. *
COMMENT. * DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT. *
COMMENT. * IS VALID, THE OLDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL-
COMMENT. *
COMMENT. * HANDEPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL.
COMMENT. *
COMMENT. * FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT. *
COMMENT. * IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).

III-12-6

60344000 A
COMMENT: * CREATE LI-EDT FORMAT LIBRARY OF SORT OBJECT TIME RINARIES

COMMENT: *

COMMENT: ************************************************************

REWIND (RFLN)

LI-EDT (M)

COMMENT: ************************************************************

COMMENT: *

COMMENT: * CATALOG SRTLIB1 (SORT/MERGE OBJECT TIME LIBRARY)

COMMENT: *

COMMENT: ************************************************************

CATALOG (SRTLIB1,SRTLIB7, ID=DBDLIB, CN=SCHCN, MD=SCPMD, EX=SCPFX, PW=SCPCHN+
CY=51)

UNLOAD (SRTLIB7)

COMMENT: ************************************************************

COMMENT: *

COMMENT: * CATALOG SRTMACS

COMMENT: *

COMMENT: ************************************************************

COPYU (CUMP,SRTMACS)

CATALOG (SRTMACS,SRTMACS, ID=DBDLIB, CN=SCHCN, EX=SCPFX, MD=SCPMD, PW=SCPCHN+
CY=51)

COMMENT: ************************************************************

COMMENT: *

COMMENT: * CREATE NEW SRTMEL TAPE...FIRST PARTITION= NEWPL,

COMMENT: * SECOND PARTITION= SORT OVERLAY, THIRD PARTITION=

COMMENT: * OBJECT TIME RINARIES, FOURTH PARTITION= SORT MACROS

COMMENT: *

COMMENT: ************************************************************

LABEL (NEWSHIT,YL=SRTMLEL,SCPZ,0)

SLAGE (NEWSHIT,MY,N,POST, VSN=CY45)

REWIND (NEWSHIT,RELH,SORTOV,SRTMACS)

COPYP (NEWPL,NEWSHIT)

COPYP (SORTOV,NEWSHIT)

COPYP (HELH,NEWSHIT)

COPYP (SRTMACS,NEWSHIT)

COMMENT: ************************************************************

COMMENT: *

COMMENT: * TEST THE NEW TAPE VIA UPDATE

COMMENT: *

COMMENT: ************************************************************

UNLOAD (NEWSHIT)

SLAGE (NEWSHIT,MY,E,PHF, VSN=CY45)

REWIND (NEWSHIT)

COPYP (NEWSHIT,OLDPL)

COPYP (NEWSHIT,NEWARS)

COPYP (NEWST1,NEWREL)

COPYP (NEWST1,NEWMAC)
LOAD(NFSR1)
UPDATE(P,N=SCH1*,C=N=1=1=NULL)
RETURN(TOUP,SMRAT,N=NEWREL*,NEWMAC)
PAUSE: MP=91 = JOB COMPLETED SUCCESSFULLY *** TYPE X*GO
FAIL:
PAUSE: MP=91 = JOB FAILED *** TYPE X*GO
---EOS--- 7/7/77
/* SRTPSH
---EOS--- 7/7/77
*/ COMPIL CLNCS FOR RELOCATABLE SFR
data STRUCT SMRELUC
SSEH SMREIA,* 1/7
SMRELUC
1/7
SSEH SMRITH,SMRITX 4/7
SSEH SMREACP,SMRELP 5/7
SSEH SMREMD,SMREMT 6/7
SSEH SMRECD,SMRETC,SMRENS,SMRETM 7/7
---EOS--- 7/7/77
LIBRARY(SMREL,NEW=2000)
PLACE(*,SMTON)
FINISH.
LISTLIB(*,SMREL,NEW=1)
---EOS--- 7/7/77
LIBRARY(SMREL,NEW=2000)
PLACE(*,SMELB)
FINISH.
LISTLIB(*,SMREL,NEW=1)
---EOS--- 7/7/77

60344000 A

III-12-9
13.1 REQUIREMENTS

The following materials are necessary to install the Diagnostic Control Package.

13.1.1 TAPES

DIAREL

Described in part I, section 2.13

13.1.2 PERMANENT FILES

MODPL (ID=S20OPSMOD)

Necessary for application of PSR updates only (DIAMOD job)

USERMODPL (ID=S20OPSMOD)

Necessary for application of local customer modifications only (DIAUSR job)

13.1.3 DECKS

DIAGEN

Regenerates DCP binary from DIAREL and catalogs DIALEL (ID=PRDLIB)

DIAMOD

Creates a new DIAREL from the old DIAREL and MODPL, then generates the binary from the new DIAREL and catalogs DIALEL (ID=PRDLIB)

DIAUSR

Creates a new DIAREL from the old DIAREL and USERMODPL, then generates the binary from the new DIAREL and catalogs DIALEL (ID=PRDLIB)

DIAINS

Catalogs binary from DIAREL tape and catalogs DIALEL (ID=PRDLIB)

13.1.4 DEPENDENCIES

None.

13.2 CONFIGURATION PARAMETERS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTEGM</td>
<td>0</td>
<td>Location that indicates if integer multiply is installed.</td>
</tr>
</tbody>
</table>

60344000 A III-13-1
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>If location is 0, there is no integer multiply; if it is not 0, integer multiply installed.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cross reference: CT73</td>
</tr>
</tbody>
</table>

13.3 REPRESENTATIVE DECKS

The following decks are included to indicate the format of the released decks. They are decks released with the initial release of SCOPE 2.0 and may be modified in subsequent modifications of SCOPE 2.0.
13.3.1 DIAINS

JOB DECK DIAINS

DIAINS,CP7,item01.
COMMENT: *SBW,3/156,1383U,SDMILLER
COMMENT: **********************
COMMENT: *
COMMENT: * THIS IS A SCOPE2.0 INSTALLATION DECK AS CREATED
COMMENT: *
COMMENT: * BY SCOPE2.0 INTEGRATION - ANDEN HILLS, MINNESOTA
COMMENT: *
COMMENT: * FOR PSK SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT: *
COMMENT: * STAGE HAS BEEN DEFINED
COMMENT: *
COMMENT: * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT: * SCOPE 2.0 INTEGRATION AMMP4R
COMMENT: *
COMMENT: * 4201 LEXINGTON AVE. N.
COMMENT: *
COMMENT: * ST PAUL, MINN. 55112
COMMENT: *
COMMENT: ( NO PSKS )
COMMENT: *
COMMENT: ****************************
COMMENT: *
COMMENT: *
COMMENT: ****************************
COMMENT: *
COMMENT: * INSTALL DIAGNOSTIC LIBRARY FROM RELEASE TAPE
COMMENT: *
COMMENT: *
COMMENT: ****************************
COMMENT: *
COMMENT: LABEL DIAINS,=%DIAINS%SCP2,0%)
COMMENT: STAGE DIAINS,MT,MY,MPHE,;
COMMENT: VSN=CT51)
COMMENT: Rewind(DIAINS)
COMMENT: Copy(DIAINS,OLDPL)
COMMENT: Copy(DIAINS,UCP)
COMMENT: Rewind(UCP)
COMMENT: ****************************
COMMENT: *
COMMENT: * CREATE L1NET FORMAT LIBRARY OF UCP OVERLAY
COMMENT: *
COMMENT: *
COMMENT: ****************************
COMMENT: *
COMMENT: LIHE31(M)
COMMENT: ****************************
COMMENT: *
COMMENT: *
COMMENT: * CATALOG DIALFL (USE) BY NPROLH)
COMMENT: *
COMMENT: *
COMMENT: ****************************
COMMENT: *
COMMENT: CATALOG(DIALFL,DIALFL,IN=SCPSCN,CN=SCPCN,EX=SCPEX,MD=SCPMOD,Pw=SCPCN,
COMMENT: CY=51)
COMMENT: CY=IN)
COMMENT: Unload(DIALFL)
COMMENT: Pause. MP600 = JOB COMPLETED SUCCESSFULLY... TYPE A*GO

60344000 A        III-13-3
EXIT.
PAUSE. MPJ01 - JOB FAILED ... TYPE X*GO
---EOS-- 7/8/9
LIBRARY(DIALEL,NEW)
REPLACE(*DCH)
FINISH.
LISTLIB(*DIALEL,N=1)
---EO1--- 6/1/8/9
DIAMOND_CP70,T1900,MT1L
COMMENT *SVUV,07155,35P3U,SUMILLER
COMMENT
COMMENT **********************************************
COMMENT *
COMMENT * THIS IS A SCOPE 2.0 INSTALLATION DECK AS CREATED
COMMENT *
COMMENT * BY SCOPE 2.0 INTEGRATION - ANDON HILLS, MINNESOTA
COMMENT *
COMMENT * FOR PSI SUMMARY LEVEL 51 (SEE SYSDECK DESCRIPTION)
COMMENT *
COMMENT * MONTAPEMD HAS BEEN DEFINED
COMMENT * STAGE HAS BEEN DEFINED
COMMENT *
COMMENT * PLEASE SEND SUGGESTED CORRECTIONS AND MODIFICATIONS TO
COMMENT * SCOPE 2.0 INTEGRATION AMH248
COMMENT *
COMMENT * 4201 LEXINGTON AVE N.
COMMENT * ST PAUL, MINN. 55112
COMMENT *
COMMENT *
COMMENT * ( NO PKS )
COMMENT **********************************************
COMMENT
LABEL(UIAKEL,L=UIAKEL,SCP2.05)
STAGE(UIAKEL,MT,HT,E,IPR)
VSN=CY47
COMMENT **********************************************
COMMENT *
COMMENT * UPDATE MODULE TO GET LATEST CDC MODS
COMMENT *
COMMENT *
ATTACH(MODULE,MODULE,1U=320(UPSM00,
CY=51))
UPDATE(P=MODULE,Q=N,B=/**,C=UPIN)
RETURN(MODULE)
COMMENT **********************************************
COMMENT *
COMMENT * UPDATE DIAGNOSTIC OLDPL, CREATE COMPILE FILE
COMMENT *
COMMENT * PRODUCE A SEQUENTIAL NEWPL
COMMENT *
COMMENT *
UPDATE(P=UAIKEL,C=0,F,N=RANDPL,I=UPIN)
UNLOAD(UITAPEL)
COMMENT **********************************************
COMMENT *
COMMENT * DUE TO A DEFICIENCY IN UPDATE, TO INSURE THAT THE NEWPL CREATED
COMMENT * IS VALU, THE OLDPL IS MODIFIED CREATING A RANDOM TEMPORARY NEWPL
COMMENT * RANDPL - WHICH IS THEN UPDATED CREATING A SEQUENTIAL NEWPL - NEWPL
COMMENT * FAILURE TO DO THIS COULD RESULT IN LOSS OF DECK NAMES AND AN
COMMENT * IMPROPER ORDERING OF DECKS (WHEN DECKS ARE ADDED OR PURGED).
JOB DECK DIAMON

COMMENT

COMMENT

UPDATE(P=UPUPL,C=N=FLU,L=NULL)
RETURN(INDUPL)

COMMENT

COMMENT

PRODUCE DIAGNOSTIC RELUCATABLE BINARIES

COMMENT

COMMENT

CALCULATE(T,=UAGREY, L=LIST)
RETURN (COMPILE)
REIND(DIAGR)
LOAD (DIAGR)
NOR
REIND(DCP)

COMMENT

COMMENT

COMMENT

CREATE LINEDT FORM LINARY OF DCP OVERLAY

COMMENT

COMMENT

LIHED1(M)

COMMENT

COMMENT

COMMENT

CATALOG D1AFL (USED MY NPROLH)

COMMENT

COMMENT

CATALOG (N1AFL,E1AFL,IN=SCPSR,CH=SCPCN,EX=SCPEX,MW=SCPMD,PW=SCPCN,
C1T=5)

CY=NN

UNLOAD(D1AFL)

COMMENT

COMMENT

COMMENT

COMMENT

CREATE NEW D1AFL TAPE...FIRST PARTITION= NEWPL

COMMENT

COMMENT

COMMENT

LABEL (NEWDIA=FL,DIAGR=SCP2.05)
STAGE (NEWDIA,MT,HY,N,POST)
VSW=CY51)
REWIND (NEWDIA,DCP)
COPY (NEWPL,NEWDIA)
COPY (DCP,NEWDIA)

COMMENT

COMMENT

COMMENT

COMMENT

UNLOAD(NEWDIA)
STAGE (NEWDIA,MT,HY,E,PRF)
VSN=CY$1
REMIND (NEWINI)
COPY (A*OLDPL)
COPY (NEW*NEWINI)
UNLOAD (NEWUT4A)
UPDATE (PN=SCRATW,C=0,I=NULL)
RETURN (OLDPL*SCRAT*NEW*IN)
PAUSE* MP070 - JOB COMPLETED SUCCESSFULLY... TYPE X*GO
EXIT.
PAUSE* MP071 - JOB FAILED ... TYPE X*GO
---EOS--- 7/8/9
/C DIAPSR
---EOS--- 7/8/9
LIBRARY(DIALEL,NEW)
REPLACE(*,DCP)
FINISH.
LISTLIB(*,DIALEL,N=1)
---EOI--- 6/7/8/9
1.1 HARDWARE

1.1.1 MINIMUM CONFIGURATION

The minimum configuration that SCOPE 2.0 requires is:

- One 7600 central computer system
- One 7638 mass storage file
- Six FLPPs
- One MCU with card reader and CRT display
- One 6000 station or one 7611-1 I/O Station

1.1.2 FCO LEVELS

The released version of SCOPE 2.0 and its product set were tested on a CDC® CYBER 70/Model 76 with the following FCOs installed.

<table>
<thead>
<tr>
<th>Serial 7 (AA102A08)</th>
<th>Serial 12 (AA102A01)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27240</td>
<td>24512</td>
</tr>
<tr>
<td>28004</td>
<td>25648</td>
</tr>
<tr>
<td>29050</td>
<td>25139</td>
</tr>
<tr>
<td>27008</td>
<td>26669</td>
</tr>
<tr>
<td>27240</td>
<td>27240</td>
</tr>
<tr>
<td>28004</td>
<td>28004</td>
</tr>
<tr>
<td>29030</td>
<td>29030</td>
</tr>
<tr>
<td>26353</td>
<td>26353</td>
</tr>
</tbody>
</table>

1.2 MEMORY

Minimum memory requirements to use SCOPE 2.0 are:

- 32K words of SCM
- 256K words of LCM
- 8 million characters of mass storage
2.1 SCOPE 2.0 MAINTENANCE PACKAGE

The following messages may appear during the execution of SYSDECK jobs as comments on PAUSE cards.
Message | Significance | Action
--------|-------------|--------
MP000   | Job has completed successfully. | Note this fact on the SYSDECK worksheets. Type X.GO to obtain output.
JOB COMPLETED SUCCESSFULLY... TYPE X.GO

MP001   | Job failed. | Note this fact on the SYSDECK worksheets. Type X.GO to obtain output.
JOB FAILED... TYPE X.GO

MP002   | A cycle of PRDLIB has been cataloged successfully. | NOTE this on worksheet. Type X.GO to continue.
NEW FILE CATALOGED SUCCESSFULLY... TYPE X.GO

MP003   | The job OPRDLIB was run to create PRDLIB, but the file already exists. | Type X.GO to replace it; otherwise, type X.DROP.
OLD PRDLIB CYCLE EXISTS. TYPE X.GO TO REPLACE

MP004   | The job NPRDLIB was run to create a new cycle of PRDLIB, but the cycle already was cataloged. | Type X.GO to replace it; otherwise, type X.DROP.
NEW PRDLIB CYCLE EXISTS. TYPE X.GO TO REPLACE

MP005   | The job DPIDPRD is running. | Type X.GO to begin a MO=3 DUMPP of inactive files cataloged with ID=PRDLIB. This eliminates files which have been replaced in this build.
TYPE X.GO TO PURGE INACTIVE ID=PRDLIB FILES

Type X.DROP to skip this step.
<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
<th>Action</th>
</tr>
</thead>
</table>
| **MP006**  
TYPE X, RERUN FOR MORE COPIES  
ELSE X, GO | Pause at completion of DUMPF by ID jobs. | Type X, RERUN to rerun the job in order to produce another copy of the DUMPF tape. |
| **MP007**  
TYPE X, GO TO PURGE CERTAIN INACTIVE FILES | Pause for operator action. | Type X, GO to terminate the job. |
| **MP008**  
TYPE X, GO TO PURGE INACTIVE ID=S20OPS0PL | Pause for operator action. | Type X, DROPS to skip the step. |
| **MP009**  
TYPE X, DROPS AT THE MTS | Pause in verification job for 7611-2 station. | Type X, DROPS at the 7611-2 station for the job. |
| **MP010**  
TYPE X, GO...  
VERIFICATION GOOD IF MTS | Message appears at 7611-2 display. Test is successful. | Type X, GO to continue. |
| **MP011**  
SET SENSE SW.  
X. ONSW, NN. THEN X, GO | | Type X, ONSW, NN, Type X, GO. |
| **MP012**  
VERIFY SENSE SW. THEN X, GO. | | Verify that sense switch set in response to MP011 is on. Type X, GO to continue. |
<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP013</td>
<td></td>
<td>Type X. OFFSW, NN. to turn off the sense switch set in response to MP011.</td>
</tr>
<tr>
<td>SET SENSE SW. X. OFFSW, NN. THEN X. GO</td>
<td></td>
<td>Type X. GO to continue.</td>
</tr>
<tr>
<td>MP014</td>
<td></td>
<td>Verify that sense switch set in response to MP013 is off. Type X. GO to continue.</td>
</tr>
<tr>
<td>VERIFY SENSE SW OFF. THEN X. GO</td>
<td></td>
<td>Bring up J display for job. Type X. GO to continue.</td>
</tr>
<tr>
<td>MP015</td>
<td></td>
<td>Type X. ENPR, nnn. to change job priority (nnnn is new priority). Type X. GO to continue.</td>
</tr>
<tr>
<td>J-DISPLAY PLEASE. THEN X. GO</td>
<td></td>
<td>Verify that priority set in response to MP016 is correct. Type X. GO to continue.</td>
</tr>
<tr>
<td>MP016</td>
<td></td>
<td>Type X. ENTL, xxxx to change time limit (xxxx = new time limit); value of 20 is suggested. Type X. GO to continue.</td>
</tr>
<tr>
<td>CHANGE JOB PRIORITY X. ENPR, NNNN. THEN X. GO</td>
<td></td>
<td>Verify that cards are punched. Type X. GO to continue.</td>
</tr>
<tr>
<td>MP017</td>
<td></td>
<td>Type X. COMMENT. Inspect J display to verify that message is displayed. Type X. GO to continue.</td>
</tr>
<tr>
<td>VERIFY NEW PRIORITY PLEASE. THEN X. GO</td>
<td></td>
<td>Type X. RERUN. Verify that job is rerun.</td>
</tr>
<tr>
<td>MP018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHANGE JOB TIME LIMIT X. ENTL, XXXX. THEN X. GO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP019</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VERIFY CARDS PUNCHED AT COMPLETION. X. GO</td>
<td>Job punches cards.</td>
<td></td>
</tr>
<tr>
<td>MP020</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENTER - X. COMMENT. VERIFIED. THEN X. GO</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP021</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLEASE RERUN JOB. X. RERUN.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Message  | Significance                                                                 | Action                       
---       |------------------------------------------------------------------------------|------------------------------
MP022     | TYPE X, GO TO CAT FILES FOR ARHOPS, BACK-TAPE                                | Message is only for CDC use. |

The following messages are from LISTER, the program that formats the DECK, MEMO, and WORKSHEETS.

MP101     | NO PARAMETERS                                                               | Specify at least CY and either DECK or MEMO. |

MP102     | BAD PUNCTUATION                                                             | Refer to MP120.               |

MP103     | UNKNOWN PARAMETER                                                           | Refer to MP120.               |

MP104     | VALUE OUT OF RANGE                                                          | Correct the value and rerun.  |

The following ranges are in effect.

<table>
<thead>
<tr>
<th>Keyword</th>
<th>Usage</th>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>CY</td>
<td>Cycle</td>
<td>1</td>
<td>200</td>
</tr>
<tr>
<td>PS</td>
<td>Page Size</td>
<td>30</td>
<td>60</td>
</tr>
<tr>
<td>TD</td>
<td>Title Depth</td>
<td>2</td>
<td>10</td>
</tr>
<tr>
<td>CD</td>
<td>Content Depth</td>
<td>3</td>
<td>10</td>
</tr>
</tbody>
</table>

MP105     | NULL FIELD                                                                | Correct and rerun. Refer also to MP120. |

MP106     | CONFLICT IN PARAMETERS                                                     | Remove one and rerun. Refer also to MP120. |

MP107     | NEITHER DECK OR MEMO SPECIFIED                                              | Specify input type and rerun. Refer also to MP120. |
<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>MP110</td>
<td>Unknown value of SET keyboard.</td>
<td>Refer to MP120.</td>
</tr>
<tr>
<td>INVALID DECK SET</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP111</td>
<td>CY parameter is required for all calls to LISTER.</td>
<td>Refer to MP120.</td>
</tr>
<tr>
<td>NO CYCLE SPECIFIED</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MP120</td>
<td>This message is printed after all MP101 through MP111 messages. The value xxx indicates the keyword being processed at the time when the error was discovered. If xxx is ALL, the error concerns all of the parameters.</td>
<td></td>
</tr>
</tbody>
</table>
2.2 SYSTEM MAINTENANCE MONITOR 3.0 (SMMB)

None.

2.3 7611-1 I/O STATION

<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAPE ERROR</td>
<td>There is an error on the deadstart tape.</td>
</tr>
</tbody>
</table>

2.4 7611-2 MAGNETIC TAPE STATION

The following tape error messages may appear during the 7611-2 Magnetic Tape Station tape deadstart process. To reinitialize the disk and read the deadstart tape from the beginning respond with:

Type GO
Press CR

<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAD TAPE FORMAT</td>
<td>The tape mounted is not in the correct format. (Record size may have exceeded 512 words.)</td>
</tr>
<tr>
<td>BLANK TAPE</td>
<td>There is no data written on the mounted tape.</td>
</tr>
<tr>
<td>RPE UNRECOVERED</td>
<td>The driver is unable to recover from a read parity error.</td>
</tr>
<tr>
<td>TAPE UNIT MALF</td>
<td>The tape unit and/or controller is not working properly.</td>
</tr>
</tbody>
</table>

2.5 6000 OR CYBER 70 SERIES SCOPE 3.4 STATION

None.

2.6 SCOPE 2.0

2.6.1 DEADSTART INITIALIZATION AND RECOVERY MESSAGES

If a fatal or nonfatal error condition occurs during deadstart of SCOPE 2.0, one of the following error messages is displayed at the MCU console. Continuation of the deadstart process depends upon the nature of the error.
Message | Significance | Action
--- | --- | ---
DEADSTART EEA EXIT | Deadstart encountered an EEA condition. Possible problems may be: DS2 from the system library does not align with the DS1 from cards or disk, and a jump to an invalid address occurs. This could occur, for example, when a deadstart recovery is attempted with a system cycle different than the deadstart tape. DS2 from the system library is zero length indicating a problem during creation of the library. | To determine the cause of the error, examine the deadstart EEA exchange package at the SCM location T, EEAXPA (10460). If the PSD at location 10463 indicates an SCM or LCM parity error (in bits 46 and 47), the problem is a hardware problem. (An SCM or LCM parity error is also displayed.) If the problem is not a parity error, examine the P address (or the location before that address) from the EEA XP. These should normally indicate the cause of the crash. |
DISK AREA EXHAUSTED | All the area on the designated system disk unit is allocated or flawed. | If recovery is attempted, do not recover the SFT (spooled files). If there are any permanent files, they can be recovered. To recover, clear the LCM locations 0-20000g using the KL command before attempting the recovery. When the request SYSTEM FILE TABLE RECOVERY Y/N is typed, reply with N. If the problem is still evident, a deadstart initialization is necessary. |
DISK I/O ERROR | An irrecoverable I/O error occurred on the unit, track, and sectors specified. | Possible actions are: The CE could run diagnostics against the suspected disk area and/or punch a flaw card for the bad area and continue with deadstart initialization or deadstart recovery. |
<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS2 NOT IN LIBRARY</td>
<td>DS2 module cannot be located during a search of the system library directory.</td>
<td>Determine cause of fault, correct fault; reattempt dead-start initialization.</td>
</tr>
<tr>
<td>SIF LCM BUFFER RECOVERY ABORTED</td>
<td>Recovery of the SIF LCM buffers is aborted because the validation of pointers and tables in LCM indicated erroneous information.</td>
<td>Continue recovery by pressing carriage return.</td>
</tr>
<tr>
<td>ERROR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ERROR TYPE-IN OR REREAD CARD TO RESUME READING, TYPE CARRIAGE RETURN</td>
<td>All deadstart reply entries are checked for format errors. When the reply is typed at the MCU console, this message appears at the end of the current display.</td>
<td>The format error is ignored; reenter the corrected reply.</td>
</tr>
<tr>
<td>INPUT FILE fn NOT RECOVERABLE FILE IN TRANSIT CARRIAGE RETURN TO CONTINUE</td>
<td>All deadstart reply entries are checked for format errors. When the reply is by card, the message appears with the current display.</td>
<td>Card reading stops. Type any number of entries; resume reading of cards by pressing CR.</td>
</tr>
<tr>
<td>INPUT FILE fn NOT RECOVERABLE ILLEGAL SFT ORDINAL CARRIAGE RETURN TO CONTINUE</td>
<td>Input file not completely transferred from station.</td>
<td>Press CR to continue deadstart; SFT entry is lost.</td>
</tr>
<tr>
<td>INPUT FILE fn NOT RECOVERABLE INVALID FAT ADDRESS CARRIAGE RETURN TO CONTINUE</td>
<td>SFT ordinal for this entry is invalid</td>
<td>SFT entry is lost; press CR to continue deadstart.</td>
</tr>
<tr>
<td>INPUT FILE fn NOT RECOVERABLE JOB NOT RE-RUNNABLE CARRIAGE RETURN TO CONTINUE</td>
<td>Disk address of FAT is invalid.</td>
<td>SFT entry is lost; continue deadstart by pressing CR.</td>
</tr>
<tr>
<td>INPUT FILE fn NOT RECOVERABLE JOB NOT RE-RUNNABLE CARRIAGE RETURN TO CONTINUE</td>
<td>No rerunnable bit set for this input file.</td>
<td>SFT entry is lost; press CR to continue deadstart.</td>
</tr>
<tr>
<td>Message</td>
<td>Significance</td>
<td>Action</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-----------------------------------------------------------------------------</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>INPUT FILE Ifn NOT RECOVERABLE</td>
<td>SFT entry has zero station ID.</td>
<td>SFT entry is lost; press CR to continue.</td>
</tr>
<tr>
<td>NO STATION ID</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CARRIAGE RETURN TO CONTINUE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I/O ACTION TIME OUT</td>
<td>Indicates a deadstart hang. A tape or disk I/O device with which deadstart is attempting to communicate cannot accept I/O activity, such as not ready.</td>
<td></td>
</tr>
<tr>
<td>INVALID RMS UNIT</td>
<td>When permanent files are being recovered, an illegal entry in the PFD or the FAT is found. This is usually a result of a disk area being inadvertently overwritten.</td>
<td>Dump the PFD from disk; redeadstart without permanent file recovery.</td>
</tr>
<tr>
<td>INVALID TIME DATE</td>
<td>The text of the time or date entry is invalid.</td>
<td>Press CR, then reenter date and time with correct text.</td>
</tr>
<tr>
<td>LABEL ERROR</td>
<td>Occurs during a deadstart initialization with permanent file recovery; a correct SCOPE 2.0 volume label group was not found at the specified address.</td>
<td>Deadstart initialize entering correct address of volume label group; or, deadstart initialize without permanent file recovery.</td>
</tr>
<tr>
<td>LIB BUFFERS EXCEEDED</td>
<td>The overlays and directories from the system library overflowed the number of library buffers allocated. The default number of library buffers is specified by IP, LIB or by a LIB card that may be included in the SCPSID deck.</td>
<td>If the problem occurs during a deadstart initialization, increase the specification on the LIB card by at least 108 buffers and deadstart initialize again. If the problem occurs during a deadstart recovery, specify the number of library buffers when the CHQ display occurs during the next recovery.</td>
</tr>
<tr>
<td>Message</td>
<td>Significance</td>
<td>Action</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>MORE THAN 8 RMS DEVICES</td>
<td>Occurs at deadstart initialization when an attempt is made to install more than eight mass storage units through the EST card. The system does not allow more than eight units.</td>
<td>Deadstart initialize assigning the allowed number of mass storage units with the EST replies.</td>
</tr>
<tr>
<td>NBR PFD PAGES CHANGE</td>
<td>Deadstart has been assembled with a systems text value for the number of PFD pages (NE, NP) that conflicts with the actual number of PFD pages or disk or the number indicated on a system disk.</td>
<td>Reassemble deadstart (ODS), and punch a new DS1 deck.</td>
</tr>
<tr>
<td>NO SYSTEM DEVICE</td>
<td>No system rotating mass storage device has been specified in the EST.</td>
<td>Specify system device and reattempt deadstart initialization or recovery.</td>
</tr>
<tr>
<td>OUTPUT FILE 1 fn NOT RECOVERABLE ILLEGAL SFT ORDINAL CARRIAGE RETURN TO CONTINUE</td>
<td>SFT ordinal for this entry is invalid.</td>
<td>SFT entry is lost; press CR to continue deadstart.</td>
</tr>
<tr>
<td>OUTPUT FILE 1 fn NOT RECOVERABLE INVALID FAT ADDRESS CARRIAGE RETURN TO CONTINUE</td>
<td>Disk address of FAT is invalid.</td>
<td>SFT entry is lost; continue deadstart by pressing CR.</td>
</tr>
<tr>
<td>OUTPUT FILE 1 fn NOT RECOVERABLE NO STATION ID CARRIAGE RETURN TO CONTINUE</td>
<td>SFT entry has zero station ID.</td>
<td>SFT entry is lost; press CR to continue.</td>
</tr>
<tr>
<td>OUTPUT FILE 1 fn NOT RECOVERABLE SPOOLED TO STATION CARRIAGE RETURN TO CONTINUE</td>
<td>Output file has already been transferred to station.</td>
<td>SFT entry is lost; press CR to continue deadstart.</td>
</tr>
<tr>
<td>Message</td>
<td>Significance</td>
<td>Action</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>PF CYCLE NOT FOUND</td>
<td>This situation occurs only during deadstart recovery; it indicates that the cycle of the system permanent file specified by the operator or by the default does not exist.</td>
<td>Repeat deadstart recovery using the correct cycle to the SYSTEM PFN AND CYCLE request. If subsequent attempts produce the error message, deadstart initialize.</td>
</tr>
<tr>
<td>PFD POINTERS FULL</td>
<td>This problem occurs only during a deadstart recovery from tape. The new system is to be entered in the next available entry of the PFD entry of the current or specified permanent file name; but all five cycle entries are full.</td>
<td>Repeat deadstart recovery and specify that the new system replace one of the five existing cycle entries.</td>
</tr>
<tr>
<td>SFT RECOVERY ABORTED</td>
<td>Recovery of the SFT was aborted because the validation of appropriate indicators, pointers, etc., indicate erroneous information. The SIF is lost.</td>
<td>If acceptable and no action is to be taken to get a copy of the SIF from dis, press CR.</td>
</tr>
<tr>
<td>SST LABEL NOT FOUND</td>
<td>The label operand specified cannot be located in the system text.</td>
<td>This is a fatal error indicating a faulty system library requiring recreation of the system library.</td>
</tr>
<tr>
<td>SST mod NOT FOUND</td>
<td>The specified SST module (OST) name cannot be located in the system library.</td>
<td>This is a fatal error indicating a faulty system library requiring recreation of the system library.</td>
</tr>
<tr>
<td>TAPE INPUT FAULTY</td>
<td>The driver transmitting the deadstart tape forwarded a status response indicating a tape error was detected, such as parity error. Deadstart automatically tries five times to have the tape contents transmitted correctly. If a fault still exists after the fifth attempt, this message is displayed.</td>
<td>Recreate the deadstart tape, and reattempt deadstart initialization.</td>
</tr>
</tbody>
</table>
2.6.2 HARDWARE ERROR PROCESSING MESSAGES

SC100
SCM TRANSIENT
PARITY address/bits

SCM parity error at specified location. The error does not recover upon rewriting and reading the specified location.

<table>
<thead>
<tr>
<th>address</th>
<th>SCM parity error address</th>
</tr>
</thead>
<tbody>
<tr>
<td>bits</td>
<td>Section error bits</td>
</tr>
</tbody>
</table>

When set, the bits indicate bad parity for the following portions of the SCM word.

```
0 1 1 1 1
```

Bits 0-11
Bits 12-23
Bits 24-25
Bits 36-47
Bits 48-59

If the address of the error is within the following areas, the system hangs.
1. 0 1777B
2. 10000B beginning of user area (SCM address of File router job - FRJCB)

Restart the system by doing a deadstart recovery.

If the address of the error is within the field length of the currently active job, including the job supervisor, then parity error processing for the job is initiated. The job is either repressed or rerun (if possible).

If the address of the error is in the SCM I/O buffer area, 20000B - 7777B, or if none of the above, the error is ignored. No action to be taken.

If the address of the error is less than the first system I/O buffer, the system hangs.

Restart the system by doing a deadstart recovery.

If the address is within the LCM field length of the currently active job, the parity error processing for the job is initiated.
Message

When set, the bits indicate bad parity for the portions of the LCM word:

0 0 1 1 1

| Bits 0-14 | Bits 15-29 | Bits 30-44 | Bits 45-59 |

SC104
TAPE CHANNEL chan
FLPP flpp ERROR status

chan CPU channel FLPP is driving
flpp FLPP with error
status FLPP status bits from SMM

When set, the bits have the following meaning.

Bit Meaning
0 PPU has not been contacted by the MCU (SMM) in 77778 attempts (approximately 1 minute)
1 Parity error in stack 00
2 Parity error in stack 02
3 Parity error in stack 01
4 Parity error in stack 03
5 Error stop status
6 7638 disk driver (DSK) partner PPU time out
7 Illegal SMM call number

Then error processor automatically issues DP and CE commands to deadstart the FLPP and to clear parity. The operator must reload the FLPP program from cards as in the next column,

Action

All other errors are ignored.

At the MCU card reader:

Reload the FLPP program from cards using the following deck structure. Refer to part II, section 6.2.1 for a complete description of the deck. The EP cards are added.

DPxx,
KPxx,
CExx,
LPxx, 0.
FLPP binary deck
EPxx, 6, channel.
EPxx, 7, channel.

Initialize the flpp channel configuration by setting cells 6 and 7.
xx flpp number
channel same as values on numbers
FC parameter on
CHQ card (part II, section 6.3,3)

RUxx, 100.
8
7

At the system operator station:

Turn on the channel so that the system issues further requests to the FLPP. Type ONCH, chan.
<table>
<thead>
<tr>
<th>Message</th>
<th>Significance</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC105 DISK CHANNEL chan FLPP flpp ERROR status</td>
<td>Chan: CPU channel FLPP is driving; Flpp: FLPP with error; Status: FLPP status bits from SMM; Refer to SC104 status description.</td>
<td>At the MCU card reader: Reload the FLPP program from cards using the deck structure in the SC104 action column. Reload both the failing FLPP and its partner FLPP.</td>
</tr>
<tr>
<td></td>
<td>The error processor automatically issues DP and CE commands to deadstart the FLPP and to clear parity for both the failing FLPP and its partner FLPP. The operator must reload the FLPP program from cards as in the next column.</td>
<td>At the system operator station: Turn on channel so that the system can issue further requests to the FLPP. Type ONCH, chan.</td>
</tr>
<tr>
<td>SC106 STATION CHANNEL chan FLPP flpp ERROR status</td>
<td>Chan: Channel FLPP is driving; Flpp: FLPP with error; Status: FLPP status bits from SMM; refer to SC104 status information</td>
<td>At the MCU card reader: Reload the FLPP program from cards using the deck structure in the SC104 action column.</td>
</tr>
<tr>
<td></td>
<td>The error processor automatically issues DP and CE commands to deadstart the FLPP and to clear parity. The operator must reload the FLPP program from cards as in the next column.</td>
<td>At the system operator station: CPU-FLPP communication automatically resumes. Log in all stations connected to that FLPP.</td>
</tr>
<tr>
<td>SC107 MCU ERROR status</td>
<td>Status: Error status bits from SMM. Indicates a FLPP 0 (the MCU FLPP) error.</td>
<td>Reload and reinitiate SMM in the MCU. Enter the CN command with parameters as set in deadstart SCPSID deck. If the error reoccurs, call customer engineering.</td>
</tr>
<tr>
<td>Message</td>
<td>Significance</td>
<td>Action</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>SC110 SCM RECURRENT PARITY address/bits</td>
<td>Hard memory parity error.</td>
<td>Call customer engineer.</td>
</tr>
<tr>
<td>SC111 LCM RECURRENT PARITY address/bits</td>
<td>Hard memory parity error.</td>
<td>Call customer engineer.</td>
</tr>
</tbody>
</table>

- **Significance**
  - **address**: SCM address of error
  - **bits**: Section error bits; refer to SC100 description
  - **address**: LCM address of error
  - **bits**: Section error bits; refer to SC101 description
2.7 COMPASS 2.0
None.

2.8 FORTRAN EXTENDED 2.0
None.

2.9 FORTRAN RUN 2.0
None.

2.10 FORTRAN OBJECT TIME ROUTINES
None.

2.11 COBOL 1.0
None.

2.12 SORT/MERGE 1.0
None.

2.13 DIAGNOSTIC CONTROL PROGRAM
None.
3.1 SCOPE 2.0 MAINTENANCE PACKAGE

None.

3.2 SYSTEM MAINTENANCE MONITOR 3.0 (SMMC)

3.2.1 SYSTEM HANG

If the system is hung in monitor mode, type HC (and press CR) before trying any of the following:

- Displaying LCM (LAD, LBD, LAM, etc.)
- Clearing LCM (KL)
- Taking a 7000 dump of LCM

3.2.2 SMMC and SMMD

The SMMC Version 3.0 Operator's Guide describes the SMMC and SMMD Version 3.0 MCU monitor programs in detail. Refer to this manual also for details concerning SMM operating procedures and the interface between SMM and SCOPE 2.0.

SMMC is the MCU monitor program released with SCOPE 2.0; it does not require that the 857 disk pack be installed at the MCU.

The SMMD MCU monitor program is released through customer engineering to be installed on the MCU 857 disk pack by the customer engineers at an installation site. The SMMD monitor has all SMMC monitor capabilities plus additional features. The customer can use any of these additional features available under SMMD in the following situations.

The use of SMMD is restricted to less than ten percent of the available 857 storage capability. The remaining ninety percent of the 857 storage is reserved for customer engineering use.

The use of SMMC is for improved reliability, availability, and maintainability of the hardware.

The use of SMMD does not result in the system being dependent on 857 availability. The system must at all times be capable of operating with only the features provided by SMMC.
3.2.3 CN COMMAND

Following is a detailed description of the CN command that is required in the DS1 deck. The format is:

CN 10730, 10460, 5344, 10540.

This command directs the MCU to monitor the MCU/CPU call block for CPU calls and to store FLPP and SCM/LCM status in the communication area. The parameters specify the locations of the communication area, the EEA exchange package, and LCM addresses required by the SMM SY command. The last two parameters are optional. Whenever ORE or ORL changes are made, check the CN parameters for accuracy.

10730 MCOVL is the location of the MCU's SCM data block. This block has the tag T. MCOVL and contains the areas for LCM I/O buffers, SCM/LCM parity error recording, and PPU error recording. These areas start at T.MCOVL (10700) + 30 in the released system. Therefore, MCOVL=10730.

10460 EEAXP is the address of the EEA exchange package. SMM sets this address into EEA in the LCM I/O exchange package that is used for LCM displays etc. The package tag is T. EEAXPA and is equal to 10460 in the released system.

5344 Optional parameter; add to ensure the proper functioning of the SY command.

SYKEY is the address to which SMM transfers the keyboard line when processing a SY command. The value of SYKEY is: (P.LMCDCP)+W.LMCKJ1. Therefore, in the released system:

\[
\begin{align*}
(P.LMCDCP) &= 5320 \\
W.LMCKJ1 &= 24 \\
SYKEY &= 5344
\end{align*}
\]

SYKEY is an address in the LCM table; it may change if the fixed tables in ORL are altered in length. W.LMCKJ1 is defined in CTEXT MCL and should not change. Check PLMCDCP for a change if ORL is modified. Installation parameter changes may alter ORL or ORE.

10540 Optional parameter; add to ensure the proper functioning of the SY command.

SYEXCH is the address of the MCU interrupt exchange package called when executing a SY command. The package tag is III. MCU; its value in the released system is 10540. This package is copied to SCM0000 before interrupting the CPU during processing of the SY command.

MCOVL, EEAXP, and SYEXCH does not change unless the exchange package areas are moved in ORE.

3.2.4 MCU CARD READER NOTES

If the MCU card reader fails to read a deck and there is a deadstart message displayed on the MCU console, press the clear key (CLR) on the keyboard to read the cards.
If the MCU card reader fails to read a deck after an aborted deadstart, type the following entry at the MCU keyboard to allow SMM to read the cards.

Type EP 0 5 0
Press CR

If the MCU (or any other card reader) fails to read a deck for no apparent reason, check the panel inside the lower left door of the card reader for any circuit breakers that are improperly positioned.

3.3 7611-1 I/O STATION

To refresh displays, type the RDON command and press CR.

3.3.1 PUNCH DEADSTART AND DUMP CARDS

To punch a new STATDS card, type the following in STATION mode:

PUNCH SCDC P80B

To punch a new STADDS card, type the following in STATION mode:

PUNCH DSC P80B

To punch cards necessary to dump the 7611-1 station, type any of the following pertinent commands in STATION mode.

PUNCH DDUMP1 P80B  To punch bootstrap card for PPU1 (PRINTER1) loader
PUNCH DDUMP2 P80B  To punch bootstrap card for PPU2 (PRINTER2) loader
PUNCH DDPRINT P80B  To punch dump program deck

These cards (and assembly listings) may also be generated with the SYSDECK jobs STADCK and STADMP.

3.3.2 DUMP CPU AT 7611-1 I/O STATION

Dump the contents of the CPU memory at the 7611-1 I/O Station using the following procedure.

1. Read the dump card deck into the system through the MCU card reader in AUTO mode. Directions to obtain this deck are in part IV, section 3.3.1.

2. Deadstart the 7611-1 I/O Station if it is not active (part II, section 3.2).

3. Deadstart PPU5

Type DS 5
Press CR

4. In STATION mode, type CPU

Press CR
5. In CENTRAL mode, type ON
   Press CR

   This command causes the 7611-1 I/O Station to begin communicating with the CPU.
The message DEAD DUMP PROGRAM RUNNING IN THE CPU is displayed under
PPU5 on the station display console.

6. Enter the range of the dump with the following command.

   Type DUMP mem sa la fname
   Press CR

   mem     S for SCM; L for LCM
   sa       Starting address
   la       Last address
   fname   Pseudo file name used temporarily during the dump procedure

   The range of core dumps should be limited to 100K maximum per file. The size
   of the station mass storage disk and the expansion encountered in converting from
   binary to line printer code requires the 100K maximum per file limit. No more
   than 300K should be at the station at one time.

3.3.3 DUMP THE 7611-1 I/O STATION

1. Deadstart the 7611-1 station using the bootstrap card for the printer to which the
   station is to be dumped. (Refer to part IV, section 3.3.1 for directions to obtain
   the bootstrap card needed.) If a dump of one of the printer drivers is desired,
   use the other printer for dumps. Deadstart procedures are in part II, section 3.

2. Read the dump card deck at the 7611-1 card reader in AUTO mode.

3. With the selected printer in READY mode, press the SINGLE SPACE switch n
   times, n is the number of the 7611-1 PPU that is to be dumped. Do not press
   SINGLE SPACE at all for a dump of PPU0.

4. Press the PAGE EJECT switch to dump the PPU selected.

5. Repeat steps 3 and 4 for each PPU dump desired.

6. Change the printer status to not ready to terminate a PPU dump in progress;
   press PAGE EJECT several times to remove the dump from the printer after
   taking dumps.

   The format of the dump is 9 columns wide. The first digit of the first column is
   the PPU number; the next 4 digits are the address of the first location of that
   row. The next 8 columns are the contents of the locations beginning with the
   address in column 1.

3.4 7611-2 MAGNETIC TAPE STATION

3.4.1 DUMP 7611-2 MAGNETIC TAPE STATION

The 7611-2 station dump program transfers the memory of the 7611-2 station PPU
specified in the control cards into the FLPP so that it can then be dumped to the
6000 station or the 7611-1 station.
1. Punch the dump program from the MTSOPL using the following deck.

MTS, CM57000, T500, CP76.
COMMENT.
STAGE(MTSOPL, MT, PRE, HI, VSN=MTSOPL, ST=MTS)
REWIND(MTSOPL)
UPDATE(P=MTSOPL, Q)
REWIND(COMPILE)
COMPASS(I=COMPILE, B=PUNCHB, D)
7/8/9
*IDENT MODS
   installation changes
*COMPILE DMP
  6/7/8/9

2. At the MCU card reader, read the following deck.

   RUxx, 100.
   EPxx, 77, y.
   6/7/8/9
   dump program
   LPxx, 5.
   DPxx.

   xx  FLPP number
   y Number of PPU that is to be dumped (0 to 5)

3. Dump the FLPP for each station PPU desired, using the dump procedures in the
   7611-2 Magnetic Tape Station Operator's Guide.

   To dump the entire station, dump the FLPP first, then the XPP (PPU0), and
   then the other PPUs in any order.

3.4.2 UNIT ASSIGNMENTS

Unit assignments vary with assignments noted as follows.

Two 7629-2 controllers:

   The first controller is on drivers 1 and 2 with logical units 0 through 7.
   The second controller is on drivers 3 and 4 with logical units 10 through 17.
One 7629-2 controller:

This controller is on drivers 1 and 2 with logical units 0 through 7.

One 7629-1 controller:

This controller is on driver 1 with logical units 0 through 7.

One 7629-2 controller and one 7629-1 controller:

The 7629-2 controller is on drivers 1 and 2 with logical units 0 through 7.
The 7629-1 controller is on driver 3 with logical units 10 through 17.

Two 7629-1 controllers:

The first controller is on driver 1 with logical units 0 through 7.
The second controller is on driver 4 with logical units 10 through 17.

One 7629-2 and two 7629-1 controllers:

The 7629-2 controller is on drivers 1 and 2 with logical units 0 through 7.
The first 7629-1 controller is on driver 3 with logical units 10 through 13.
The second 7629-1 controller is on driver 4 with logical units 14 through 17.

or

The first 7629-1 controller is on driver 1 with logical units 0 through 3.
The second 7629-1 controller is on driver 2 with logical units 4 through 7.
The 7629-2 controller is on drivers 3 and 4 with logical units 10 through 17.

Three 7629-1 controllers:

The first 7629-1 controller is on driver 1 with logical units 0 through 7.
The second 7629-1 controller is on driver 2 with logical units 10 through 13.
The third 7629-1 controller is on driver 3 with logical units 14 through 17.

3.5 6000 OR CYBER 70 SERIES SCOPE 3.4 STATION

3.5.1 6000 STATION FLPP OPERATION

Occasionally attempts to communicate between the 6000 station and SCOPE 2.0 may fail because of a problem with the 7683 satellite coupler. Usually the FLPP for the 6000 station will display one of the following messages (each described in detail in the SCOPE 3.4 Operator's Reference Manual) if a coupler problem occurs.

TOO MANY WORDS FROM COUPLER
NO INPUT WD FLAG FROM COUPLER DURING TRANSFER
REC FLAG RECV'D DURING BLOCK INPUT FROM COUPLER
NO REC FLAG FROM COUPLER
WORD COUNT FROM STATION TOO LARGE
END XMT, OUT WD FLAG TO COUPLER WONT DROP

If one of the preceding messages is displayed at the MCU, press CR. The FLPP attempts to communicate with the 6000 station. If the message reappears:
1. At the MCU:
   Type    HT ppu.
   Press   CR

2. Drop the station; at the 6000 console:
   Type    X.DROP
   Press   CR

   Type    X.GO
   Press   CR

3. Press MASTER CLEAR switch on the coupler (if the coupler has the software master clear FCO installed).

4. At the 6000 station:
   Type    X,STATCCP.
   Press   CR

5. AT the MCU:
   Type    RUppu 102
   Press   CR

If the situation persists with either no communication at all or the FLPP continuing to display the coupler error message, write an EOR on the coupler.

3.5.2 DUMP PROCEDURES

The detailed procedures to dump the SCM, LCM, and FLPPs are in the SCOPE 3,4 Station Operator's Reference Manual.

3.6 SCOPE 2.0

The SCOPE 2.0 operating system requires that SMMB be loaded and running in the MCU and that it be in CPU ON state in relation to the CPU (refer to the CN command in part IV, section 3.2.3). If this is not true, the SCOPE 2.0 operating system may hang, waiting for a SMM response, whenever any of the following conditions occur: SCM or LCM parity error; FLPP parity, error stop, or time-out error; or SMM request from on-line diagnostic overlays.

3.6.1 DUMP CONTENTS OF MASS STORAGE INTO LCM

During deadstart recovery (before typing the system source) the following command can be used to dump disk information into LCM starting at location 0.

The format of the command is:
DISK cc uu tt, ss, no

cc Two-digit channel number of disk
uu One-digit unit number of disk
ttt One to four-digit number of track to be dumped; 0 to 37778
ss One to two-digit number of the first sector to be dumped; 0 to 478
no One to two-digit number indicating total number of sectors to be dumped;
     1 to 508

Repeat this command until all necessary information is dumped. Each sector when
dumped requires 1008 LCM locations.

Use any LCM station dump procedure to dump the contents of LCM.

3.6.2 PASSWRD CONTROL STATEMENT

The PASSWRD control statement enables a job with the proper system password to
perform special privileged functions relating to activities such as system maintenance.
The privileged status continues until the end of the job. Only one job can have
privileged status at one time.

The format of the PASSWRD statement is:

\[
\text{PASSWRD (key)}
\]

key Password key of 1 to 7 alphanumeric characters.

3.6.3 SYSLIBE CONTROL STATEMENT AND USE

Control Statement Format

The SYSLIBE control statement dynamically modifies the system libraries. A job using
SYSLIBE to modify the libraries must have privileged status through use of the PASSWRD
statement (part IV, section 3.6.2).

SYSLIBE adds or replaces a library in the system library table (SLT) for use by the
relocatable loader in satisfying external symbols. The residence of the file being added
or replaced is specified on the SYSLIBE control statement. The residence of an exist-
ing file in the SLT may be changed with SYSLIBE control statement.

The format of the SYSLIBE statement is:

\[
\text{SYSLIBE(libname=ln, RES=r)}
\]

libname Library name as it appears in the system library table (such as
        DBUGLIB, COBLIB, FTKLIB, and SRLIB).

ln Name of a permanent file attached to the job as a local closed file
     written in library format and containing code for the library. The
     file must have read only permission. If no ln is specified, the
     residence of the file already specified for the library is changed by
     the RES parameter.
Residence desired for the file

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>LCM</td>
<td>File is made resident in LCM</td>
</tr>
<tr>
<td>RMS</td>
<td>File is resident in system mass storage</td>
</tr>
</tbody>
</table>

The job is aborted if the library name (libname) is not found in the system library table.

The job is aborted if the file specified by lfn is empty.

The file specified by lfn is no longer available to the user when the SYSLIBE function is completed. Only the loader can then access the file.

The specification of system libraries is not recovered by deadstart. Thus, the SYSLIBE statement must be executed after every deadstart initialization or recovery. The best way to accomplish this is to create a job that attaches the required files and executes a SYSLIBE statement for each of them. After an initial deadstart, the SYSLIB job (a sample of which is on SYSDECK) should be entered into the input queue, and given a priority of 7777B. Such a priority causes the job to return to the input queue with a priority of 0000B upon job termination. As long as the job has a priority of zero it does not begin execution. During a recovery this job is recovered and may be rerun by entering a priority of 7777B.

Use

To add system libraries to the SCOPE 2.0 system using the SYSLIBE procedure, use the following instructions.

1. Change or enter new libraries in the libraries section of OST. These symbols are defined with the TEQU macro. They must be in the same order and of the same length as the system library tables in ORL.

2. Insert the SLT entries in the libraries sections of ORL.

3. Reassemble the system.

The format of the SLT entry in ORL is:

```
T.SLTxxx EQU *
VFD 56/nL libname
VFD 4/1
BSSZ LE.SLT-1
```

The parameters are:

- `xxx` Three-character mnemonic for library
- `n` Length of name (in characters)
- `libname` Name of library

Sample ORL entry:

```
T.SLTCOB EQU *
VFD 56/6L COBLIB
VFD 4/1
BSSZ LE.SLT-1
```
Sample OST entry:

T. SLTCOB TEQU *, LE. SLT

Sample SYSLIBE control statement format:

ATTACH(COBLIB7, COBLIB7, ID=SCOPE 2)
SYSLIBE(COBLIB=COBLIB7, RES=RMS)

3.6.4 DUMPQ AND LOADQ CONTROL STATEMENTS

DUMPQ Description

DUMPQ is a SCOPE 2.0 utility that saves all or part of the input and/or output queue. The result of the DUMPQ operation is a W-format file called DPQFILE (described at the end of this section) that can be disposed in the following ways:

- Staged tape: STAGE and/or LABEL statement or macro must precede DUMPQ control statement.
- On-line tape: REQUEST and/or LABEL statement or macro must precede DUMPQ control statement.
- Catalog: DPQFILE may be cataloged at either the 6000 station or at central.

If none of these are used, DPQFILE defaults to an unblocked mass storage file and is lost in job termination.

DPQFILE is always rewound when opened and is always closed and rewound at the conclusion of the dump.

All other files used by DUMPQ are opened and closed without rewinding.

Unless specified by a REQUEST statement, DPQFILE is assumed to have A0 allocation style and T0 transfer size.

DUMPQ Control Statement Format

\[
\text{DUMPQ(FT=type, ST=st, FC=forms, L=list, I=in, PF=pfn)}
\]

All parameters are optional and may appear in any order.

- **type**
  - **FT** (file type) option that may have the following values:
  - omitted: Dump all files that fulfill the requirements of the other options.
  - I: Dump all input files.
  - O: Dump all output files; this includes all files of PR, P1, and P2 disposition.
  - PR: Dump only files of PR disposition.
  - P1: Dump only files of P1 disposition.
P2  Dump only files of P2 disposition.
P  Dump all punch files; this includes all the disposition
   mnemonics that follow.
PU  Dump only files of PU disposition.
PB  Dump only files of PB disposition.
P8  Dump only files of P8 disposition.
FR  Dump only files of FR disposition.
FL  Dump only files of FL disposition.
HR  Dump only files of HR disposition.
HL  Dump only files of HL disposition.
PT  Dump only files of PT disposition.

id  ST (station) option; may have the following values.
   omitted  Dump files regardless of station id.
   ggg(ttt)  Dump files from station ggg(ttt).
            ggg     Station id
            ttt     Terminal id

forms  FC (forms code) option; may have the following values.
   omitted  Dump files regardless of forms code.
   alphanum  Dump only those files of indicated forms code; alphanum
             is a maximum of 12 bits in length (2 display coded
             characters or from 1 to 4 octal digits).

   Specification of the FC parameter overrides the FT specification unless
   FT=I, which is fatal.

list  L (list) option; may have the following values.
   omitted  Full listing appears on file OUTPUT.
   lfn1  Full listing appears on file specified by lfn1.
   0  Partial listing appears on file OUTPUT.

   The full list option includes the following information for each file dumped;
   file name, station id, file type, priority, forms code, allocation style,
   and file length. The partial list option contains only the file names
   dumped.
I (input) option; may have the following values.

omitted Dump files regardless of file name.

I Read file INPUT for list of file names to be selectively dumped from DPQFILE.

lno Read file lno for list of file names to be selectively dumped to DPQFILE.

The file names appearing on file INPUT or lno may have leading blanks, which are ignored. However, all blanks after the first nonblank character are converted to zeros. The file names may not exceed seven characters.

PFN (permanent file name) option; may have the following values.

omitted If a system failure occurs during the DUMPQ, the result of the dump is lost.

PFN A unique 1 to 7 character permanent file name. A permanent file is created and expanded as each file in an I/O queue is dumped.

DUMPQ Operating Procedures

When dumping input queues after DUMPQ begins execution, type JCB, 0. This ensures that input files are not executed during the dump.

To dump output queues, either log out the station to which the output files are to be sent or use the OFFST command to eliminate sending output files to the station.

When DUMPQ cannot find files to be dumped, the message DUMP - LOOKING FOR FILES - TYPE DROP TO DISCONTINUE appears. If the dump is complete, drop the DUMPQ job using the DROP statement. The job proceeds to an EXIT statement, if one is present, for further processing of DPQFILE.

The DUMPQ job should never be killed. This causes files that were to be dumped to remain in a locked status until another DUMPQ is attempted. That is, INPUT files are not executed and OUTPUT files are not spooled to the station.

LOADQ Description

LOADQ is a SCOPE 2.0 utility that restores all or part of the input and/or output queues. LOADQ requires as input a W-format file called DPQFILE.

DPQFILE is always rewound when opened and is always closed and rewound at the conclusion of the load. All other files used by LOADQ are opened and closed without rewind.

Unless specified in a REQUEST statement, DPQFILE is assumed to have A0 allocation style and T0 transfer.
LOADQ Control Statement Format

\[
\text{LOADQ}(\text{FT}=\text{type}, \text{ST}=\text{id}, \text{L}=\text{list}, \text{FC}=\text{forms}, \text{I}=\text{in})
\]

All parameters are optional and may appear in any order.

type \hspace{1cm} FT (file type) option; may have the following values.

omitted \hspace{1cm} Load files regardless of file type.
I \hspace{1cm} Load all input files.
O \hspace{1cm} Load all output files; includes all files of PR, P1, and P2 disposition.
PR \hspace{1cm} Load only files of PR disposition.
P1 \hspace{1cm} Load only files of P1 disposition.
P2 \hspace{1cm} Load only files of P2 disposition.
P \hspace{1cm} Load all punch files; includes files whose disposition is one of the following.
PU \hspace{1cm} Load only files of PU disposition.
PB \hspace{1cm} Load only files of PB disposition.
P8 \hspace{1cm} Load only files of P8 disposition.
FR \hspace{1cm} Load only files of FR disposition.
FL \hspace{1cm} Load only files of FL disposition.
HR \hspace{1cm} Load only files of HR disposition.
HL \hspace{1cm} Load only files of HL disposition.
PT \hspace{1cm} Load only files of PT disposition.

id \hspace{1cm} ST (station) option; may have the following values.

omitted \hspace{1cm} Load files regardless of station id.
ggg(ttt) \hspace{1cm} Dump files from station ggg(ttt)

id \hspace{1cm} Station id
id \hspace{1cm} Terminal id

list \hspace{1cm} L (list) option; may have the following values.

omitted \hspace{1cm} Full listing appears on file OUTPUT.
ln_n \hspace{1cm} Full listing appears on file ln_n.
0 \hspace{1cm} Partial listing appears on file OUTPUT.
forms FC (forms code) option; may have the following values.

omitted Load files regardless of forms code.

alphanum Load only those files of indicated forms code; alphanum is a maximum of 12 bits in length (2 display coded characters or from 1 to 4 octal digits).

FC specification overrides the FT parameter.

in I (input) option; may have the following values.

omitted Load files regardless of file name.

I Read file INPUT for list of file names to be selectively loaded from DPQFILE.

Ifn2 Read file Ifn2 for list of file names to be selectively loaded from DPQFILE.

The file names appearing on file INPUT or Ifn2 may have leading blanks, which are ignored. However, all blanks after the first nonblank character are converted to zeros. The file names may not exceed seven characters.

DUMPQ Examples

The following is an example of a DUMPQ job that dumps the input files belonging to station ggg to an on-line tape.

    SAVE, CM4000, T100, MT01.
    REQUEST(DPQFILE, MT)
    DUMPQ(FT=I, ST=GGG, L=0)
    6/7/8/9

The following is an example of a DUMPQ job that dumps the output files that have P2 disposition and PK forms code belonging to station CDC. Following the dump, DPQFILE is cataloged at station CDC and at central.

    SAVE, CM4000, T100.
    DUMPQ(ST=CDC, FT=P2, FC=PK, L=LIST)
    EXIT,
    CATALOG(DPQFILE, OUTPUTQ, ST=CDC)
    CATALOG(DPQFILE, OUTPUTQ)
    6/7/8/9

LOADQ Examples

The following is an example of a LOADQ job that restores the input queue of station AAA from a staged tape.

    RESTORE, CM4000, T100.
    STAGE(DPQFILE, PRE, ST=AAA)
    LOADQ(ST=AAA, FT=I)
    6/7/8/9
The following is an example of a LOADQ job that selectively restores the output queue of station QED. DPQFILE is a blocked permanent file; FX0002L and FTNXOLG are the files to be loaded.

```
RESTORE, CM4000, T100.
FILE(DPQFILE, RT=W, BT=I)
ATTACH(DPQFILE, OUTPUTQ)
LOADQ(FT=O, ST=QED, L=LIST, I)
7/8/9
FX0002L
FTNXOLG
6/7/8/9
```

DUMPQ and LOADQ Examples

The following jobs save and restore both the SCOPE 2.0 input and output queues.

```
SAVE, CM4000, T100.
STAGE(DPQFILE, POST, VSN=DP1)  dumps SCOPE 2.0 I/O queues
DUMPQ
6/7/8/9
RESTORE, CM4000, T100.
STAGE(DPQFILE, PRE, VSN=DP1)  restores SCOPE 2.0 I/O queues
LOADQ.
6/7/8/9
```

DUMPQ and LOADQ Error Handling

When an error occurs while writing a file that is being dumped, DUMPQ pauses for operator intervention. If the operator chooses to continue, the file in error is discarded and dumping continues.

When an error occurs while reading DPQFILE, LOADQ determines if DPQFILE is W formatted and I blocked. If not, loading terminates at the point of the error. If so, LOADQ pauses for operator intervention. If the operator chooses to continue, LOADQ attempts to continue loading with the next file.

DUMPQ and LOADQ File Format

When a file is jumped to DPQFILE, the file is read with RT=U and written to DPQFILE with RT=W. Thus, the original W records are preserved and another set of W records is superimposed on all files dumped.

Each file dumped to DPQFILE is preceded by a W record that describes the file attributes. Following this header record is a set of W records of length 1000B that contains the data for the dumped file. Following the file data is an end-of-section and a trailing W record used for data verification.

Since DPQFILE consists of two levels of W records, the file itself cannot be directly printed. DPQFILE must be read by LOADQ, the output queue rebuilt, and the files sent to the station before proper results can be expected.
Figure IV-3.1. DUMPQ/LOADQ File Format
Figure IV-3.2. DUMPQ/LOADQ File Header Record Format

Figure IV-3.3. DUMPQ/LOADQ File Check Record Format
3.6.5 SYSTEM MASS STORAGE FORMAT

The following figure illustrates the contents (by track) of the system mass storage file device following system installation. Note that there are fixed areas in the beginning, middle, and end of the file that are reserved for preventive maintenance (diagnostic testing). The Permanent File Directory and Catalog (PFD and PFC) positions may vary and are located by position pointers in the volume label group. Likewise, the beginning of the system library file image may vary. The remainder of mass storage by sectors is indicated as allocatable through the Device Allocation Map or flawed (and not allocatable) through the Track Flaw Table.

- **Track 0**: RESERVED FOR PREVENTIVE MAINTENANCE USE
- **Track 17**: VOLUME LABEL GROUP
- **Track 20&21**: PERMANENT FILE DIRECTORY {PFD} {LENGTH DEPENDS ON PERMANENT FILE INSTALLATION PARAMETERS}
- **Track 22**: AVAILABLE FOR ALLOCATION
- **Track 115**: PERMANENT FILE CATALOG {PFC} {LENGTH DEPENDENT ON PERMANENT FILE PARAMETERS}
- **Track 116**: AVAILABLE FOR ALLOCATION
- **Track 211**: SYSTEM LIBRARY FILE {ALLOCATED AS REQUIRED}
- **Track 212**: AVAILABLE FOR ALLOCATION
- **Track 1773**: RESERVED FOR PREVENTIVE MAINTENANCE USE
- **Track 1774**: AVAILABLE FOR ALLOCATION
- **Track 2007**: RESERVED FOR PREVENTIVE MAINTENANCE USE
- **Track 2010**: AVAILABLE FOR ALLOCATION
- **Track 3763**: RESERVED FOR PREVENTIVE MAINTENANCE USE
- **Track 3764**: AVAILABLE FOR ALLOCATION
- **Track 3777**: RESERVED FOR PREVENTIVE MAINTENANCE USE

Figure IV-3.4. System Mass Storage File Allocation After Deadstart
### Figure IV-3.5. Volume Label Group (Track 20 and 21)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sector 0</td>
<td>Volume Label Information</td>
</tr>
<tr>
<td>Word 4</td>
<td>Voltabl Offset In Volume Label Group</td>
</tr>
<tr>
<td>Word 5</td>
<td></td>
</tr>
<tr>
<td>Word 6</td>
<td>Sector Address of Track Flaw Table</td>
</tr>
<tr>
<td>Word 7</td>
<td>Sector Address of Device Allocation Map</td>
</tr>
<tr>
<td>Word 8</td>
<td>Sector Address of Permanent File Dir.</td>
</tr>
<tr>
<td></td>
<td>Sector Address of Permanent File Catalog</td>
</tr>
<tr>
<td>Word 9</td>
<td>System Code</td>
</tr>
<tr>
<td></td>
<td>Mass Storage PPU Bootstrap Driver</td>
</tr>
<tr>
<td>Word 10</td>
<td>Deadstart Module 1 Code (DS1)</td>
</tr>
<tr>
<td></td>
<td>Unused to End of Sector N</td>
</tr>
<tr>
<td>Word 11</td>
<td></td>
</tr>
<tr>
<td>Word 12</td>
<td>Track Flaw Table</td>
</tr>
<tr>
<td>Word 13</td>
<td></td>
</tr>
<tr>
<td>Word 14</td>
<td>Device Allocation Map</td>
</tr>
<tr>
<td></td>
<td>Unused to End of Track 21</td>
</tr>
</tbody>
</table>

#### 3.6.6 SYSTEM DEBUG AIDS

SCOPE 2.0 contains validity checks which are described as follows. However, they are not standard features and may be modified or deleted at any time if necessary.

The locations defined in LCM (ORL) that activate or deactivate the debug code can be set in any of the following ways:

- By assembling ORL with the debug flag locations set when the system is generated.
- By using a STORE command in the deadstart reply deck during deadstart initialization.
- By typing a STORE command during deadstart recovery.
- By manually setting the contents of the location from the MCU console with the EL command after deadstart.
SCOPE 2.0 validity checks are as follows.

1. The first L.ZERO (1000B) locations in LCM are defined as zero by the operating system (ORL). The job supervisor resident loader checks the first n words of LCM (n is specified by location T.LCMCHK) to ensure that no system overlay has written into low LCM. This check occurs before each job supervisor overlay is loaded for a CALL or GOTO; the check does not occur when a job supervisor overlay is reloaded following a RETURN. T.LCMCHK is described in part III, section 6.2.13.

2. All LCM buffers allocated to a job must subsequently be released by a job; otherwise, there is a buffer release problem that causes LCM buffers to be lost to the system. If the buffer check code detects a problem (such as a buffer allocated to a JCB and that job should not have buffers allocated) a system halt (crash) occurs through IH, DMP. The LCM location T.BUFCHK is a flag word indicating whether or not the buffer check code is to be executed. Refer to part III, section 6.2.13 for description of T.BUFCHK.

T.BUFCHK also controls the execution of code to ensure that all buffers allocated to the file router are known to the file router, (that is, contained in PREs).

If T.BUFCHK is set to 1 when deadstart completes, the file router buffer release code is activated. Setting T.BUFCHK to 0 inhibits execution of the file router buffer release checks. However, resetting T.BUFCHK to 1 when the system is executing does not activate the file router buffer release checks.

3. T.SYSABT in LCM specifies the conditions under which a system error results in a system halt (crash). In prereleases of SCOPE 2.0, the SCM location 13176B, (HALTFLG), was used in a similar way. T.SYSABT is described in part III, section 6.2.13.

4. A user program can dump the job supervisor LCM area by executing the DMPJSL control statement.

5. A user program can dump the JCB (job control block) and SFT (system file table entry) for the job by executing the DMPJT control statement. There are no parameters.

6. The deck queue manager (OE.DQM) halts the system on an illegal PRE (system table) chain.

7. The record manager (OS.CFL) halts the system on an illegal PRE (system table) address.

3.6.7 DESCRIPTION OF DEADSTART INITIALIZATION AND RECOVERY

SCOPE 2.0 deadstart and recovery are accomplished by one program. This program exists in the two modules DS1 and DS2. It defines the system equipment, initializes the central system and the FLPPs, and synchronizes the programs running in the system hardware. This section describes the functions of DS1 and DS2 during dead-start and recovery and is not part of the installation procedure.
DS1

The DS1 binary module is loaded into SCM by the SCPSID deck from the MCU card reader at system deadstart time, or it is loaded from the system mass storage device via a special bootstrap driver at system recovery time.

DS1 performs the following functions.

1. Configures SCOPE 2.0 according to system hardware.
2. Obtains the system library from tape (SCPLIB) that is mounted either on a 7611-1, 7611-2, 6000, or on-line tape unit (through a controller to a FLPP), with a common interface being used by DS1 to read the tape (tape format is that of a system library file copied to tape with W-format records and C blocking).
3. Establishes this system library as a permanent file on the system mass storage device and the system directory in LCM.
4. Locates the system library entry for DS2, reads DS2 from the system mass storage device to SCM, and passes control to DS2.

DS2

DS2 is a partition on the system library. After DS1 establishes the system library as a permanent file in system mass storage, it locates the system library entry for DS2, reads DS2 to SCM, and then passes control to DS2. The AUTO command module on the system library controls the execution of DS2.

DS2 performs the following functions during installation.

1. Interfaces with SMM (the MCU resident program) to interpret the replies in the deadstart reply deck (part of SCPSID deck) and any replies the operator enters through the MCU console
2. Constructs LCM and SCM resident programs
3. Establishes LCM system buffers
4. Builds overlay libraries and directories
5. Deadstarts and loads the FLPPs indicated by the CHQ card when applicable
6. Creates the device allocation maps (DAMs)
7. Creates or recovers (operator option) the permanent file directory (PFD), the permanent file catalog (PFC), and the track flaw tables for each mass storage device on the system disk
8. Formats and writes the volume label groups to system disk
9. Passes control to SCOPE 2.0
Recovery

The purpose of system recovery is to reestablish the operating system after system failure. Recovery of the system is accomplished by the two phases of execution DS1 and DS2. DS1 is given control after it is read from system mass storage by the special bootstrap driver supplied by SMM.

When the RSxx, addr, c, d command is typed, the system response is:

1. SMM transfers a system disk bootstrap driver from its own field length in the MCU to the FLPP specified by xx.
2. This bootstrap driver transfers the first sector of the deadstart volume label group from the disk address specified by addr to location 0 of the specified FLPP. It contains a recovery disk driver and part of DS1.
3. The bootstrap driver transfers control to the recovery disk driver program.
4. The recovery disk driver requests SMM to transfer the DS1 information from the FLPP to location 0 in SCM.
5. Then the recovery disk driver requests SMM to transfer the rest of the volume label group (which contains the rest of DS1 and the standard System disk driver) from system mass storage to SCM.
6. The deadstart disk driver requests SMM to drop a deadstart signal on the CPU. This initiates an exchange jump to location 0 which is the location of DS1.

During the recovery process, various displays may appear on the MCU console. These displays along with possible operator replies are listed in part II, section 6.3 in the order in which they occur. All replies must be entered through the MCU console during deadstart recovery.

Using these replies, one of up to five cycles of a system library permanent file may be indicated as the system to recover, or the system may be specified as residing on tape as during initialization. The system hardware may be defined as during deadstart. Permanent files and I/O queues may be reestablished at the option of the system operator.

The second part of recovery, DS2, functions the same as in deadstart.

Completion of system recovery leaves a running SCOPE 2.0 operating system in the CPU and FLPPs.

3.6.8 OVERLAY NAMING AND NUMBERING CONVENTIONS

To add an overlay to the system:

1. Find an available overlay number in the appropriate level, job supervisor, E1, E2, E3, IH.
2. In deck OST equate the overlay name to a five digit index having the following format.

    x y zzz

zzz    Overlay number; 0 through 777B
y      Overlay level

<table>
<thead>
<tr>
<th>Level Number</th>
<th>Level of System</th>
<th>Overlay Prefix</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Job supervisor</td>
<td>OU., OS.</td>
</tr>
<tr>
<td>1</td>
<td>E1, executive level 1</td>
<td>OE.</td>
</tr>
<tr>
<td>2</td>
<td>E2, executive level 2</td>
<td>OE.</td>
</tr>
<tr>
<td>3</td>
<td>E3, executive level 3</td>
<td>OE.</td>
</tr>
<tr>
<td>7</td>
<td>Pseudo channel</td>
<td>OI.</td>
</tr>
<tr>
<td></td>
<td>interrupt handler</td>
<td></td>
</tr>
</tbody>
</table>

x      Entry point

0      Main overlay
1 through 7     Alternate entry points

OU. overlays can be called by both the user and system overlays. OS. overlays can be called by the system only. OU. overlay names must be the main overlay. A user cannot call an alternate entry point.

Overlays reserved for the user are as follows.

Job supervisor  740B through 777B
All others       340B through 377B  (E1, E2, E3, IH)

3.6.9 RESTARTING THE ON-LINE TAPE FLPP

If an on-line tape job hangs the system because a unit drops ready status, it is possible to abort the job using the following procedure.

1. Ready the unit.

2. Restart the on-line tape FLPP at location 104B

    Type RUxx, 104  (xx is the FLPP number)

    Press CR
3.7 COMPASS 2.0
None.

3.8 FORTRAN EXTENDED 2.0
None.

3.9 FORTRAN RUN 2.0
None.

3.10 FORTRAN OBJECT TIME ROUTINES
None.

3.11 COBOL 1.0
None.

3.12 SORT/MERGE 1.0
None.

3.13 DIAGNOSTIC CONTROL PROGRAM

The job calling the diagnostic control program must have at least 10K of LCM. If more is allocated, DCP verifies the proper functioning of that LCM.
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MANUAL TITLE  SCOPE 2.0 Installation Handbook

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