PERKIN-ELMER

OS/32 8.1

Software Installation Guide

TABLE OF CONTENTS

1 PRODUCT IDENTIFICATION

Product Title: OS/32 R08-01 Software Package |

Sales Order Number:

                                        Group I License:
S71-016   3203   Processor |
                                        3205   Processor

                                        Group II License:
S72-016   3210   Processor
                                        3220   Processor
                                        3220A   Processor
                                        3230   Processor
                                        7/32   Processor
                                        8/32   Processor

                                        Group III License:
S73-016   3240   Processor
                                        3250   Processor
                                        3250XP Processor
                                        3260   Processor |
                                        3200MPS Processor

Perkin-Elmer Part Number: 04-082 R16 |

2 GENERAL INFORMATION

This document describes the OS/32 R08-01 object package and |
installation procedures. Section 5 contains information on the
documentation package, S70-016-BCM (04-082M99R16), Section 6 |
lists the supplied files with their corresponding part numbers
and descriptions; Section 7 describes the unpackaging and
installation procedures required to make OS/32 8.1 operational. |

The revision level of each of the component programs is indicated
in this document. In general, earlier revisions of these
programs will not execute properly with OS/32 8.1. |

Certain standard Perkin-Elmer software packages require revisions
to execute properly within the OS/32 8.1 environment. The |
minimum revision level of these programs is given in Section 4 of
this document. Again, the user is warned against executing an
earlier revision of any of these programs within the OS/32 8.1 |
Operating System environment.

| The following major changes in OS/32 R08-01 Software Package are described in Appendix B of this document:

| o Support for 3200IOP

| o Enhancement to Indexed File Manager

| o Support for 3203 processor

| o New drivers for IPC based Winchester disk drive and the
| streaming tape drive

| o Virtual Console Facility

| o Miscellaneous Enhancements such as:

| o E-Task Relocation Support

| o Enhancements to the following utilities

| - Sysgen/32

| - Error Report Utility

| - Discdump

| - Backup

| - Fastchek

| - Fastback

| - Copy/32

| - OSAIDS

| - Link/32

| - Patch/32

| - Cal/32

| o New Utility called IPC Archive and Tape Maintenance

| o The Basic Data Communications Driver Library (ITBDLIB.LIB)
| now contains the ZBID and Ethernet drivers.

3 AVAILABLE PACKAGES

The OS/32 R08-01 Object Software Packages currently available |
are:

Order Number	Part Number	Package Description
S7x-016-ABB*	04-082M31R16	OS/32 R08-01 Software Package | Functional Programs (9-track 800 BPI Magnetic Tape) and Documentation Package
S7x-016-ABC*	04-082M71R16	OS/32 R08-01 Software Package | Functional Programs (9-track 1600 BPI Magnetic Tape) and Documentation Package
S7x-016-ABP*	04-082MD1R16	OS/32 R08-01 Software Package | Functional Programs (16Mb Disk) and Documentation Package
S7x-016-ABQ*	04-082MG1R16	OS/32 R08-01 Software Package | Functional Programs (16Mb w/IDC Disk) and Documentation Package
S7x-016-ABU*	04-082MJ1R16	OS/32 R08-01 Software Package | Functional Programs (25Mb Disk) and Documentation Package
S71-016-ABW	04-082ML1R16	OS/32 R08-01 Software Package | Functional Programs (1/4" streaming tape) and Documenta- tion Package.
S70-016-BCM	04-082M99R16	OS/32 R08-01 Software Documen- | tation Package

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*Where S7x will be one of the three license categories as defined
in Section 1 of this document.

| 4 RELATED SOFTWARE/HARDWARE REQUIREMENTS

| 4.1 SOFTWARE REQUIREMENTS

| The software packages listed below must be of the proper
| revisions to execute within an OS/32 8.1 environment. The
package number and minimum revision level of each is as
indicated:

Software	Marketing Number	Software Package Number
MTM (R08-01)	S80-017	04-083 R10
2780/3780 RJE	S70-031	04-117 R05
OS/32 TEXT	S7x-020	04-100 R04
BSC/3270 Emulator	S70-084	04-190 R01
Perkin-Elmer 3200 Series WCS Support	N/A	04-174 R01
BSC/3270 Terminal Support	S70-087	04-203 R01
Mirror Disk	S70-071	04-197 R01
Resilient Systems	S70-070	04-196 R01
SNA/SDLC RJE Emulation	S7x-082	04-171 R01
SNA/SDLC DSX Support	S7x-086	04-173 R00
SNA/SDLC HCF Support	S7x-085	04-233 R01
SNA/SDLC Base Emulation	S7x-080	04-169 R02
SNA/SDLC 3270 Emulation	S7x-081	04-170 R02
SNA/SDLC 3270 Support	S7x-088	04-172 R00

4.2 HARDWARE REQUIREMENTS

The information here is for 3200MPS customers to document the latest APU hardware revision levels and their relation to IOP support. For 3200MPS customers with APUs and no IOPs, the latest APU A-board and APU microcode part number/revision level is:

APU A-board	35-849 F03
APU microcode	05-094 R03

For 3200MPS customers with IOPs, the processors that are to be IOPs must have the following A-board and microcode:

IOP A-board	35-849 F04
IOP microcode	05-107 R01

Note: 3200MPS customers with IOPs should have all their APUs upgraded to the same processor A-board and microcode as their IOPs to take full advantage of the I/O capability of OS/32 R08-01. However, for customers with the APU-only versions described in the first paragraph, any IOP acquired will be operational but operating system overhead on the CPU is greater.

5 DOCUMENTATION

| The documentation package, S70-016-BCM (04-082M99R16), contains the following user manuals which describe the operating system and related utility programs:

| Volume I - Operations

Publication Title	Part Number
Software Installation Guide	04-082 M95 R16
Operations Primer	48-076 F00 R01
Operator Reference Manual	48-030 F00 R03
Operator Pocket Guide	48-003 F00 R06
Environment Control Monitor Reference Manual	48-065 F00 R01
Environment Control Monitor Reference Manual (updt)	48-065 F01 R01

| Volume II - System Planning and Maintenance

Publication Title	Part Number
Sysgen 32 Reference Manual	48-037 F00 R03
Patch Reference Manual	48-016 F00 R01
Patch Reference Manual (updt)	48-016 F01 R01
Library Loader Reference Manual	48-020 F00 R00
Source Updater Reference Manual	S29-630 F00 R02

| Volume III - Operations Support Utilities - Part 1

Publication Title	Part Number
Utilities Reference Manual	48-031 F00 R03
SPL/32 Reference Manual	48-056 F00 R00
SPL/32 Reference Manual (updt)	48-056 F01 R00

Volume IV - Operations Support Utilities - Part 2 |

Publication Title	Part Number	
Fastback Reference Manual	48-063 F00 R01	
Fastcheck Reference Manual	48-064 F00 R00	

Volume V - General Purpose Utilities |

Publication Title	Part Number	
Copy User Guide	48-101 F00 R00	
Copy User Guide (updt)	48-101 F01 R00	
Edit User Guide	48-008 F00 R02	
Edit User Guide (updt)	48-008-F01 R02	

Volume VI - Programming - Part 1 |

Publication Title	Part Number	
Application Level Program Reference Manual	48-039 F00 R02	
Application Level Program Reference Manual	48-039 F01 R02	
Link Reference Manual	48-005 F00 R03	
Aids User Guide	48-087 F00 R00	
OS/32 System Support RTL Manual	48-152 F00 R00	
Mini I/O Subsystem Manual	29-485 F00 R00	

Volume VII - Programming - Part 2 |

Publication Title	Part Number	
System Level Prog Reference Manual	48-040 F00 R03	
SVC Reference Manual	48-038 F00 R02	
SVC Reference Manual (updt)	48-038 F01 R02	

Volume VIII - Programming - Part 3 |

Publication Title	Part Number	
Guide to Writing OS/32 Drivers	48-190 F00 R00	

| Volume IX - Common Assembly Language Reference Manual

| Publication Title   Part Number

| CAL/32 Reference Manual   48-050 F00 R03

CAL MACRO/32 Proc Macro Library Utility   48-057 F00 R00

OS/32 System Macro Library   48-006 F00 R02
Reference Manual

OS/32 System Macro Library   48-006 F01 R02
Reference Manual

| OS/32 System Macro Library   48-006 F02 R02
| Reference Manual (updt)

| Volume X - Telecommunication & Networking

Publication Title   Part Number

Basic Data Communications Reference   48-077 F00 R00
Manual

| Basic Data Communications Reference   48-077 F01 R00
| Manual (updt)

Network Drivers Manual   48-079 F00 R00

Asynchronous Reference Manual   48-047 F00 R00

Character Sync Reference Manual   29-543 F00 R02

Character Sync Reference Manual (updt)   29-543 F01 R02

6 FILE PROGRAM PACKAGE

In addition to the OS/32 files listed below, this package also
| contains the following general file:

INFORM.CSS   -   A restricted rights disclosure

| Filename   Part Number   Rev   File Description

ACCT.TSK   03-241   M08 R01-01   OS/32 Accounting Report
                                             Utility Task (image)

ACCTC.OBJ   03-241 F03 M00 R01-01   OS/32 Accounting Report
                                             Utility Task CAL Library
                                             (object)

ACCTF.OBJ   03-241 F01 M00 R01-01   OS/32 Accounting Report
                                             Utility Task FORTRAN
                                             (object)

Filename	Part Number		Rev	File Description
AFDCP.OBJ	03-244		M00 R00-03	OS/32 Accouting Facility Data Collection Program (object)
AFDCP.TSK	03-244		M08 R00-03	OS/32 Accounting Facility Data Collection Program (image)
BACKUP.HLP	03-153		M09 R04-01	OS/32 Disk Backup Help Text (source)
BACKUP.OBJ	03-153		M00 R04-01	OS/32 Disk Backup (object)
BACKUP.TSK	03-153		M08 R04-01	OS/32 Disk Backup (image)
BOOT32.OBJ	03-074		M00 R06-01	OS/32 Bootstrap Loader (object)
BTPCH32.OBJ	03-070		M00 R03-01	OS/32 Bootstrap Puncher (object)
BTPCH32.TSK	03-070		M08 R03-01	OS/32 Bootstrap Puncher (image)
CAL32.OBJ	03-338		M00 R01-01	Common Assembler Language (object)
CAL32.TSK	03-338		M08 R01-01	Common Assembler Language (image)
CLU.OBJ	03-931		M00 R00-01	Compatible LINK Utility (object)
CLU.TSK	03-931		M08 R00-01	Compatible Link Utility (image)
COPY32.OBJ	03-215		M00 R01-03	OS/32 COPY (object)
COPY32.TSK	03-215		M08 R01-03	OS/32 COPY (image)
COPY32.HLP	03-215		M09 R01-03	OS/32 COPY Help Text (source)
DISCDUMP.OBJ	03-089		M00 R05-01	OS/32 Disk Dump (object)
DISCDUMP.TSK	03-089		M08 R05-01	OS/32 Disk Dump (image)
DRIVER.LIB	07-474		M00 R08-01	OS/32 General Purpose Driver Library (object)
DVRM.MLB	07-474	F99	M00 R08-01	OS/32 Driver Macro Library (object)

Filename	Part Number		Rev	File Description
DUMPRINT.OBJ	03-095	M00	R08-01	OS/32 Dump Print (object)
DUMPRINT.TSK	03-095	M08	R08-01	OS/32 Dump Print (image)
ECM.MSG	03-463		R00-01	ECM/32 Messages
ECM.TSK	03-353		R00-03	ECM/32 Task
ECMCONF.IMG	03-354		R00-02	ECM/32 1251 Terminal Configuration Options Data
EDIT32.OBJ	03-145	M00	R04-01	OS/32 EDIT (object)
EDIT32.TSK	03-145	M08	R04-01	OS/32 EDIT (image)
EDIT32.HLP	03-145 F02	M09	R04-01	OS/32 EDIT Help File (source)
EDITR081.SEG	03-145 F01	M08	R04-01	OS/32 EDIT Shared Segment (image)
EGU.OBJ	03-245	M00	R00-01	Environment Generation Utility (object)
EGU.TSK	03-245	M08	R00-01	Environment Generation Utility (image)
ERRORC.OBJ	03-234	M00	R01-04	OS/32 Error Report Program Library (object)
ERRORF.OBJ	03-234	M00	R01-04	OS/32 Error Report Program Library Fortran (object)
ERROR.TSK	03-234	M08	R01-04	OS/32 Error Report Program (image)
F7OS52.RTL	07-386 F01		R00-00	OS/32 Support FORTRAN RTL with no argument checking
F7OS52A.RTL	07-386 F02		R00-00	OS/32 Support FORTRAN RTL with argument checking
F7RT51OS.ERR	03-954	M09	R00-00	OS/32 High Level Language RTL for Error Messages (source)
F7RT51OS.OBJ	07-348	M00	R00-00	OS/32 RTL for FORTRAN Routines (object)

Filename	Part Number		Rev	File Description	
FASTBACK.OBJ	03-345	M00	R02-00	OS/32 Fastback - OS/32 High Speed Disk-to-Tape Tape-to-Disk Utility Program (object)	|
FASTBACK.TSK	03-345	M08	R02-00	OS/32 Fastback - OS/32 High Speed Disk-to-Tape Tape-to-Disk Utility Program (image)	|
FASTCHEK.OBJ	03-344	M00	R00-04	OS/32 FASTCHEK - Disk Checking, Renaming and Initializing Utility Program (object)	|
FASTCHEK.TSK	03-344	M08	R00-04	OS/32 FASTCHEK - Disk Checking, Renaming and Initializing Utility Program (image)	|
FMSP.OBJ	03-217	M00	R00-00	OS/32 File Manager Support Utility Program (object)	| |
FMSP.TSK	03-217	M08	R00-00	OS/32 File Manager Support Utility Program (image)	|
FXH.OBJ	03-972	M00	R00-01	Series 7000 File Transfer Utility Handler (object)	| |
FXH.TSK	03-972	M08	R00-01	Series 7000 File Transfer Utility Handler (image)	| |
FXM.OBJ	03-971	M00	R00-01	Series 7000 File Transfer Utility Monitor (object)	| |
FXM.TSK	03-971	M08	R00-01	Series 7000 File Transfer Utility Monitor (image)	| |
HELPR081.OBJ	07-237	M00	R03-00	OS/32 Help (object)	|
HELPR081.SEG	07-237	M08	R03-00	OS/32 Help Segment (image)	|
INIT.CSS	03-217 F02	M09	R00-00	OS/32 File Manager Support Utility Program (source)	
IPCARCH.TSK	03-629	M08	R00-00	IPC Archive Utility (image)	|
ITBDLIB.LIB	07-221	M00	R08-01	Basic Data Communications System Library (object)	|

Filename	Part Number		Rev	File Description
ITBSYS.LIB	07-220	M00	R08-01	Basic Data Communications System Library (object)
ITMS.MLB	07-231	M00	R08-01	Basic Data Communications Macro Library (object)
LIBLDR.OBJ	03-065	M00	R04-02	OS/32 Library Loader (object)
LIBLDR.TSK	03-065	M08	R04-02	OS/32 Library Loader (image)
LINK.OBJ	03-242	M00	R01-03	OS/32 Link (object)
LINK.TSK	03-242	M08	R01-03	OS/32 Link (image)
LINK0103.HLP	03-242	M09	R01-03	OS/32 Link Help File (source)
LINK0101.HLP	03-242	M09	R01-01	OS/32 CLU Help File (source)
MACRO32.OBJ	03-339	M00	R00-01	Macro/32 Processor (object)
MACRO32.TSK	03-339	M08	R00-01	Macro/32 Processor (image)
MLU32.OBJ	03-340	M00	R00-01	Macro Library Utility (object)
MLU32.TSK	03-340	M08	R00-01	Macro Library Utility (image)
OSAIDS.OBJ	03-064	M00	R07-00	OS/32 AIDS (object)
OSGEN.CSS	03-355	M09	R08-01	OS/32 System Generation Procedures (source)
OSSRCUP.OBJ	03-090	M00	R04-03	OS/32 Source Updater (object)
OSSRCUP.TSK	03-090	M08	R04-03	OS/32 Source Updater (image)
PASRTL10.OBJ	07-349	M00	R00-00	OS/32 Package RTL for Pascal Routines
PATCH.OBJ	03-196 F01	M00	R02-01	OS/32 Patch (object)
PATCH.TSK	03-196 F01	M08	R02-01	OS/32 Patch (image)
PATCH.HLP	03-196 F02	M09	R02-01	OS/32 Patch Help File (source)

Filename	Part Number	Rev	File Description
RELLDR.OBJ	03-067 F02	R06-00	32-Bit Relocation Loader (object)
SPL32.LIB	03-590 M00	R01-01	Commercial Spooler SPL/32 (object)
SPL32.TSK	03-590 M08	R01-01	Commercial Spooler SPL/32 (image)
SPL32OV.LNK	03-590	R01-01	Commercial Spooler SPL/32 (overlaid version)
SPL32.LNK	03-590	R01-01	Commercial Spooler SPL/32 (non-overlaid version)
SPLDISPL.MES	03-594 M09	R01-01	Commercial Spooler Messages (source)
SPLERROR.MES	03-595 M09	R01-01	Commercial Spooler Error Messages (source)
SPL32IN.LIB	03-591 M00	R01-01	Commercial Spooler Input Program (object)
SPLINPUT.TSK	03-591 M08	R01-01	Commercial Spooler Input Program (image)
SPL32INO.LNK	03-591	R01-01	Commercial Spooler Input Program (overlaid version)
SPL32IN.LNK	03-591	R01-01	Commercial Spooler Input Program (non-overlaid version)
SPL32OUT.LIB	03-592 M00	R01-01	Commercial Spooler Output Program (object)
SPLOUT.TSK	03-592 M08	R01-01	Commercial Spooler Output Program (image)
SPL32OT.LNK	03-592 F01 M09	R01-01	Commercial Spooler Output Program Link Commands (non-overlaid version – source)
SPL32OTO.LNK	03-592 F02 M09	R01-01	Commercial Spooler Output Program LINK Commands Overlaid Version (source)

Filename	Part Number	Rev	File Description
SPL32C.LIB	03-593	M00 R01-01	Commercial Spooler Control Task (object)
SPLC.TSK	03-593	M08 R01-01	Commercial Spooler Control Task (image)
SPL32COV.LNK	03-593	R01-01	Commercial Spooler Control Program Link Commands (overlaid version)
SPL32C.LNK	03-593	R01-01	Commercial Spooler Control Program Link Commands (non-overlaid version)
SPL32IC.LIB	07-323	M00 R01-01	Commercial Spooler Intercept Program (object)
SPLINTER.TSK	07-323	M08 R01-01	Commercial Spooler Intercept Task (image)
SPL32IC.LNK	07-323	R01-01	Commercial Spooler Intercept Program (non-overlaid version)
SPOOLER.OBJ	03-152	M00 R03-01	OS/32 Spooler (object)
SPOOLER.TSK	03-152	M08 R03-01	OS/32 Spooler (image)
SYS.LIB	07-058	M00 R08-01	OS/32 System Module Library (object)
SYSGN32C.OBJ	03-358	M00 R08-01	OS/32 System Generation CAL Subroutines (object)
SYSGEN32.OBJ	03-356	M00 R08-01	OS/32 System Generation Program (object)
SYSGEN32.TSK	03-356	M08 R08-01	OS/32 System Generation Program (image)
SYSGEN32.MLB	03-361	M00 R08-01	OS/32 System Generation Macro Library (object)
SYSGEN32.CNV	03-362	M09 R08-01	OS/32 System Generation Dialog Text (source)
SYSGEN32.HLP	03-363	M09 R08-01	OS/32 System Generation Help Text (source)

Filename	Part Number	Rev	File Descriptor
SYSMACRO.MLB	07-199	M00 R08-01	OS/32 Internal OS Macro Library (object)
SYSMAC32.MLB	07-217	M00 R08-01	OS/32 System Macro Library (object)
SYSSTRUC.MLB	07-200	M00 R08-01	OS/32 Data Structure Macro Library (object)
TAPLBL.OBJ	03-149	M00 R00-02	Tape Labeller Program (object)
TAPLBL.TSK	03-149	M08 R00-02	Tape Labeller Program (image)
UBOT.OBJ	07-067	M00 R08-01	OS/32 UBOT (object)
VCF.OBJ	03-547	M00 R00-00	Virtual Console Facility (object)
VCF.TSK	03-547	M08 R00-00	Virtual Console Facility (image)
VTM32.OBJ	03-443	M00 R01-00	Virtual Task Manager Support Module (object)
OS32MTS1.001	03-120 F01	M08 R08-01	OS/32 Starter 1 (image)
OS32MTS2.OS	03-120 F02	M08 R08-01	OS/32 Starter 2 (image)
OS32MTS3.OS	03-120 F03	M08 R08-01	OS/32 Starter 3 (image)
OS32MTS4.OS	03-120 F04	M08 R08-01	OS/32 Starter 4 (image)
OS32MTS5.OS	03-120 F05	M08 R08-01	OS/32 Starter 5 (image)
AUTO.OS	03-120 F07	M08 R08-01	OS/32 Starter 7 (image)
DEFAULT.OS	03-120 F08	M08 R08-01	OS/32 Starter 8 (image)
OS32MTS1.SYS	03-120 F01	M09 R08-01	OS/32 Starter 1 SYSGEN/32 Input Statements (source)
OS32MTS2.SYS	03-120 F02	M09 R08-01	OS/32 Starter 2 SYSGEN/32 Input Statements (source)
OS32MTS3.SYS	03-120 F03	M09 R08-01	OS/32 Starter 3 SYSGEN/32 Input Statements (source)
OS32MTS4.SYS	03-120 F04	M09 R08-01	OS/32 Starter 4 SYSGEN/32 Input Statements (source)
OS32MTS5.SYS	03-120 F05	M09 R08-01	OS/32 Starter 5 SYSGEN/32 Input Statements (source)

| AUTO.SYS   03-120 F07 M09 R08-01   OS/32 Starter 7 SYSGEN/32
| Input Statements (source)

| DEFAULT.SYS 03-120 F08 M09 R08-01   OS/32 Starter 8 SYSGEN/32
| Input Statements (source)

See Appendix A of this document for the Link options for those
programs provided in both object and image format.

7 UNPACKAGING AND INSTALLATION

Users of OS/32 7.2 and prior releases may proceed to Section 7.7 |
to unpackage the program files. New users are provided with a
magnetic tape to ensure that loadable OS, BACKUP and FASTCHEK
tasks are available to restore the disk from the tape copy.

7.1 Magnetic Tape Organization

The magnetic tape supplied to 3203 customers is a streaming tape |
and has a different format from the magnetic tape supplied to the |
customers of other models. Follow the procedure below depending |
on which tape type is provided. |

7.1.1 Streamer Tape Organization |

Entirely new users of OS/32 will need the following information |
before unpackaging their files to disk; each package contains an |
IPC streamer tape. The tape contains the starter systems and the |
software package in backup format. Refer to Section 8 for |
applications. The tape is organized as follows: |

```
     AUTO.OS                                                           |
      -FM-                                                             |
     FASTCHEK.TSK                                                      |
      -FM-                                                             |
     BACKUP.TSK                                                        |
      -FM-                                                             |
     OS/32 8.1 Package (in BACKUP format)                             |
      -FM-                                                             |
      -FM-                                                             |
```


7.1.2 9-Track Magnetic Tape Organization |

Entirely new users of OS/32 will need the following information
before unpackaging their files to disk; each tape package, 800
and 1600 bpi, consists of two tapes. The first tape contains the
files for the software package in backup format. The second tape
contains starter systems. Refer to Section 8 for applications of
the starters provided. The contents and procedures are the same
for either package. The starter system tape is organized as
follows:

```
     BOOT32
     OS32MTS1.001
      -FM-
     OS32MTS2.OS
      -FM-
     OS32MTS3.OS
      -FM-
     OS32MTS4.OS
      -FM-
```

```
OS32MTS5.OS
 -FM-
FASTCHEK.TSK
 -FM-
BACKUP.TSK
 -FM-
 -FM-
```

7.2 Start-up Procedures

A detailed explanation on loading the BOOT32, LSU Loader and
starter system for a 7/32 or 8/32 is contained in Chapter 2 of
the OS/32 Operator's Reference Manual, Publication Number 48-030
R03. A "cookbook" summary of the general unpackaging and
installation procedure is described below for the convenience of
the user:

7.2.1 7/32 and 8/32 Systems

1. Load the 32-bit Bootstrap Loader (BOOT32).

2. Using the Bootstrap Loader, load OS32MTS1.001.

3. Running under the STARTER1 system (OS32MTS1.001), load
    BACKUP from the starter tape, mount tape with package
    files and backup files to the selected disk.

7.2.2 Perkin-Elmer 3200 Family Processors

1. Initialize the processor to display the system menu on
    the console. Select the proper device and load the
    starter for the target machine.

2. Running under the Starter system, load BACKUP from the
    starter tape, mount the tape with the package files and
    backup files to the selected disk.

7.3 System Initialization

7.3.1 7/32 and 8/32 Systems

o   Load the 32-bit Bootstrap Loader from the magnetic tape by
    executing the "50 Sequence". Initialize the following memory
    locations:

Location	Contents
X'34'	X'0000'
X'36'	X'0000'
X'50'	X'D500'
X'52'	X'00CF'
X'54'	X'4300'
X'56'	X'0080'
X'78'	X'NNA1' (NN=Device address of magnetic tape)
X'7A'	N'ZZDD' (ZZ=Device address of magnetic tape)
	(DD=40 for 800 BPI tapes; 41 for 1600 BPI tapes)
X'7C'	X'NNZZ' (NN=device address of magnetic tape)
	(ZZ=selch address of magnetic tape)
X'7E'	X'0001'
X'84'	X'5000'
X'86'	X'6000'

o   Clear the PSW

Enter:

DTA-0-FN-1.

o   To load the Bootstrap Loader, start   execution   at   location
    X'50.'

Enter:

DTA-50-ADD-RUN.

The tape is now positioned to a filemark preceding
OS32MTS1.001.   The STARTER1 OS (OS32MTS1.001) will be loaded
automatically from the tape by the Bootstrap Loader. Proceed
to section 7.3.4 now for the remaining common steps.

7.3.2   3203 Processor Auto Load Feature

The 3203 is equipped with an LSU that can automatically search each of the IPC devices for an OS image (DEFAULT.OS). The devices are searched starting with the first winchester disk, then the second, and finally the streaming tape. If the default OS is not found on any of these devices, the LSU will present the user with a menu of possible choices depending on the current configuration.

To load the starter package, place the 8.1 package streamer tape in the tape drive and press the init button. The following responses should appear on the console:

```
BASIC CONFIDENCE TEST COMPLETE
PERKIN-ELMER INITIAL PROGRAM LOAD
IPC INITAL CONFIGURATION CHECK OK
DEV=50MB WINCHESTER 1
DISK NOT INITIALIZED
DEV=50MB WINCHESTER 2
DISK NOT INITIALIZED
DEV=60MB CART. TAPE
FILEMARKS =
```

Once this is displayed, the LSU will wait 16 seconds before attempting to read the tape. At that time the auto load of OS/32 AUTO.OS will proceed.

The tape supplied includes an installation OS which will automatically install OS/32 on the target system. This procedure will present a warning, informing the user that the installation will take place, and that both IPC winchester disks will be initialized. At this time the procedure can be continued ($CONTINUE - see section 7.3.2.1) or aborted ($CLEAR). If the procedure is aborted it may be necessary to follow the manual boot procedure. (See section 7.3.2.2).

Once the system is installed the DEFAULT.OS should be booted. Follow the startup procedure in section 7.2. The DEFAULT OS will be placed on the first winchester disk by the installation, and will be found by the LSU on subsequent IPL's.

7.3.2.1   Steps for the Perkin-Elmer 3203 Processor

1.   When the starter system is loaded, the OS prompt is output on the console:

```
**********************************************************************
*                                                                    *
*          PERKIN-ELMER OS/32    3203 INSTALLATION OS                 *
*                                                                    *
*                         WARNING                                     *
*                        _____                                     *
*                                                                    *
* This OS will re-initialize both IPC disks at address's             *
* X'D9', and X'DA'.  If you wish to abort enter $CLEAR,              *
* if you wish to continue, set the time and enter $CONTINUE.         *
*                                                                    *
*           *SET TIME MM/DD/YY,HH:MM                                  *
*           *$CONTINUE                                                *
*                                                                    *
**********************************************************************
```

```
*[Set the time here]
*[$CONTINUE]
```

The following messages should appear on the console:

```
Loading FASTCHECK from streamer tape, please wait ...
Fastchek loaded, please wait while initializing IPCO:
Attempting to initialize IPC1:, please wait ...
Attempting to load BACKUP from streamer tape, please wait
Load successful
Backup of system files to IPCO:  in progress, please wait
System is up, system files are on IPCO:
FASTCHEK and BACKUP are resident
Here you go!
```

2.   Refer to Chapter 2 of the OS/32 Operator's Reference Manual,
     Publication Number 48-030 R03, and Appendix F of this
     document if:

     -     any errors have occured

     -     the STARTER has to be patched to change the console
           device address or type.

     -     The STARTER requires any reconfiguration to match the
           machine.

3.   The OS/32 8.01 package contains a DEFAULT.OS which may be
     used to generate a custom OS. The DEFAULT OS supplied
     should be sufficient for most standard systems.

7.3.2.2   3203 Manual Boot

At any time during the initialization sequence, pressing the
break key will cause the LSU to abort the auto-load and present
the user with a customized device menu. A list of devices that
are normally configured at each device, controller, and selch are
displayed.   If one of these devices is the desired choice, enter
its number in response to the "NUMBER CHOICE = " prompt.

example:

```
        CODE
        HEX (DEC)  DEV  CONT SELCH
    1   2A (42)    0FC  0FB  0F0  19.8MB  REMOVABLE
    2   2B (43)    0FC  0FB  0F0  19.8MB  FIXED
    3   2C (44)    0FC  0FB  0F0  300MB  WINCHESTER
    4   2E (46)    0FC  0FB  0F0  135MB  WINCHESTER
    5   35 (53)    0FC  0FB  0F0  67MB  REMOVABLE
    6   36 (54)    0FC  0FB  0F0  256MB  REMOVABLE
    7   38 (56)    0FC  0FB  0F0  68.7MB  W.HPT
    8   3A (58)    0FC  0FB  0F0  67.2MB  WO/HPT
    9   3B (59)    0FC  0FB  0F0  13.5MB  REMOVABLE
   10   3C (60)    0FC  0FB  0F0  13.5MB  FIXED
   11   3D (61)    0FC  0FB  0F0  40.4MB  FIXED
   12   3E (62)    0FC  0FB  0F0  67.3MB  FIXED
   13   55 (85)    0DE  0FB  0D8  60MB  CART. TAPE
   14   58 (88)    0D9  0FB  0D8  50MB  WINCHESTER 1
   15   58 (88)    0DA  0FB  0D8  50MB  WINCHESTER 2
NUMBER CHOICE =
```

To boot the installation OS from the streamer tape enter the corresponding number for the "60MB CART. TAPE" (shown here as 13). You will then be prompted to enter the number of file marks. Since the OS is the first file on the tape, enter a 0. The LSU should then proceed to load the OS image.

7.3.2.3 Streamer Tape Unpackaging

The OS/32 files are supplied on an IPC Streamer tape. The unpackaging procedure involves copying the files from tape to a user disk utilizing OS/32 BACKUP.

NOTE

Before unpackaging, the **new** user should load FASTCHEK.TSK from the starter tape to initialize his selected disk.

After selecting a disk onto which the files are to be copied, review the disk filenames to ensure that they do not conflict with the filenames in this package as listed in Section 6 of this document. Rename any conflicting filenames to some other appropriate name.

NOTE

The supplied OS/32 8.01 files must **not be renamed** because the OS command substitution (CSS) files require specific filenames as listed in Section 6 of this document.

To unpackage the files from the system console, mount the
supplied OS 8.01 streamer tape and run OS/32 BACKUP Utility via
the following commands:

```
REW ind dev1:
FF devl:  ;* Skip past the OS image
FF devl:  ;* Skip past FASTCHEK
L oad BACKUP,dev1:
FF devl:  ;* Skip to start of package
ST art ,IN=dev1:,OUT=dev2:,LIST=dev3:,NOREWIND
```

where:

dev1	is the device name for the IPC streamer tape drive
dev2	is the device name for the IPC disk drive
dev3	is the device name for the printer or list device

Note that all device names have the standard OS/32 format. They
are dependent on the particular configuration of the user system
and can be determined by entering the OS/32 command 'DISPLAY
DEVICES' at the console or terminal.

NOTE

The procedure for running backup from a Multi-Terminal
Monitor (MTM) terminal is identical to the one
described above for the system console, with the
exception that the user must sign on to an account
having bare disk access and file account privileges.
Account 255 will always have these privileges.

For further information on BACKUP, see Chapter 5 of the OS/32
System Support Utilities Reference Manual, Publication Number
48-031 R03.

7.3.3 Perkin-Elmer 3200 Family Processor (except 3203)

If your system contains a 2Kb or 8Kb LSU, refer to Chapter 2,
Sections 2.4.3 and 2.4.4 of the OS/32 Operator's Reference
Manual, Publication Number 48-030 R03, for system initialization.

7.3.3.1 Procedure for a Matching Hardware Configuration

After the device mnemonics are displayed on the system console,
the LSU responds with this prompt:

- Prompt: Device=

Response: MGNN   (magnetic tape name displayed on the
system console.)

- Prompt: Filemarks=

Response: NNN   (NNN represents the decimal number
                  of filemarks to be skipped on the
                  tape for the OS/32 file to be loaded.)

        NNN=1 for STARTER2 (OS32MTS2.OS)
        NNN=2 for STARTER3 (OS32MTS3.OS)
        NNN=3 for STARTER4 (OS32MTS4.OS)
        NNN=4 for STARTER5 (OS32MTS5.OS)

When the number of filemarks is entered followed by a carriage
return, the LSU loads OS/32.

7.3.3.2 Procedure for a Non-Matching Hardware Configuration

- Prompt: Device=

Response: OTHR

- Prompt: Device #=

Response: NNN   (NNN represents three hexadecimal
                  numbers indicating the device number
                  of the device containing OS/32.)

- Prompt: Code=

Response: CC   (CC represents two hexadecimal numbers
                  indicating the device code of the
                  device containing OS/32. For 6250 tape
                  drives, the device code must be entered
                  in decimal (68).)

- Prompt: SLCH=

Response: SSS   (SSS represents three hexadecimal numbers
                  indicating the selch number of the
                  magnetic tape or disk device containing
                  OS/32.)

- Prompt: Filemarks

Response: NNN   (NNN represents three decimal number
                  indicating the number of filemarks
                  to be skipped on the tape for the
                  OS/32 file to be loaded.)

        NNN=1 for STARTER2 (OS32MTS2.OS)

```
NNN=2 for STARTER3 (OS32MTS3.OS)
NNN=3 for STARTER4 (OS32MTS4.OS)
NNN=4 for STARTER5 (OS32MTS5.OS)
```

NOTE

If the 8Kb LSU Loader is used, refer to Appendix D (Known Problems/Avoidance Procedures), Section 2.

7.3.4 Common Steps for the 7/32, 8/32 and the Perkin-Elmer 3200 Family Processor

1. When the starter system is loaded, the OS prompt is output on the console:

    ```
    OS32MT08-01.OS32MTSn        (n is 1, 2, 3, 4 or 5)        |
      ENTER TIME AND DATE         corresponding to version
                                  of STARTER)
    ```

2. Issue a SET TIME command:

    ```
    SET TIME mm/dd/yy,hh:mm:ss
    ```

3. Refer to Chapter 2 of the OS/32 Operator's Reference Manual, Publication Number 48-030 R03, and Appendix F of |
   this document if: |

   - any errors have occurred

   - the STARTER has to be patched to change the console device address or type.

   - the STARTER requires any reconfiguration to match the machine.

4. If there is insufficient dynamic systems space available for running SYSGEN32 procedures to generate an OS, the user may receive an error message such as "ASGN-ERR TYPE=BUFF". The user can increase the available dynamic system space by using the "SET SYS" command.

7.4 Unpackaging to a New (Empty) Disk

In order to prepare a disk pack for use by OS/32, the pack must be formatted by the stand-alone Common Disk Test/Formatter Program, 06-173, or the Common Mass Storage Media Disk Formatter, 06-201. Appendix E summarizes the use of these programs.

7.5 Additional Options

The primary function of the unpackaging procedure is to run the
BACKUP utility. Optionally, the output disk will be initialized
and cleared using the FASTCHEK utility. The OS/32 System Support
Utilities Reference Manual, Publication Number 48-031 R03, and
the OS/32 FASTCHEK Reference Manual, Publication Number 48-064
F00 R00, provide detailed descriptions of the BACKUP and FASTCHEK
programs. The versions of BACKUP and FASTCHEK provided for
unpackaging should only be used with the STARTER systems, or a
user-generated OS/32 8.1 system. They may not function correctly
with a previous version of the OS.

7.6 System Generation (SYSGEN)

Following the successful unpackaging of OS/32 8.1, several
additional steps are recommended to complete the installation.
First, take time to review the OS/32 Operator's Reference Manual,
Publication Number 48-030 R03, and the OS/32 System Generation
Reference Manual, Publication Number 48-037 R03.   An
understanding of the information in these documents is required
for the successful completion of the activities to be performed.

7.6.1 SYSGEN32

A System Generation Procedures Package (OSGEN) is provided to
assist in the system generation process. These procedures are
described in the OS/32 System Reference Manual, Publication
Manual 48-037 R03. OSGEN provides standard procedures for system
generation processes.   To install OSGEN, mark the disk on line,
and set the system volume to the disk volume name.   Execute the
OSGEN.CSS procedures as follows:

        Mark   dn:,ON,,CD=ALL/200
        Vol   Voln
        OSGEN

Next, perform a custom generation of OS/32 to match the desired
machine configuration.   Execute the SYSGEN.CSS procedure to
prepare and process the configuration statements to obtain a
boot-loadable OS image.   The SYSGEN32 input statements for
Starter systems are provided as a model.   Upon the successful
generation of the new OS, proceed to Section 7.6.2.

7.6.2 Start Custom OS

Shut down the STARTER system by ENDing or CANCELing any tasks in
memory, and MARKing all disks OFF. Use the Bootloader or Loader
Storage Unit (LSU) to load the OS/32 system just built.

7.7 Unpackaging Files

7.7.1 Disk Unpackaging

The files are supplied on 16 and 25Mb disks. The 16 and 25Mb |
disks are labelled "MT8A". There is no unpackaging procedure for |
the disk packages as they are immediately usable.

7.7.2 Magnetic Tape Unpackaging

The OS/32 files are supplied on an 800 or 1600 BPI magnetic tape
in OS/32 BACKUP Utility format. The unpackaging procedure
involves copying the files from tape to a user disk utilizing
OS/32 BACKUP.

NOTE

Before unpackaging, the new user should load FASTCHEK.TSK
from the starter tape to initialize his selected disk.

After selecting a disk onto which the files are to be copied,
review the disk filenames to ensure that they do not conflict
with the filenames in this package as listed in Section 6 of this
document. Rename any conflicting filenames to some other
appropriate name.

NOTE

The supplied OS/32 8.1 files must not be renamed because |
the OS command substitution (CSS) files require specific
filenames as listed in Section 6 of this document.

To unpackage the files from the system console, mount the
supplied OS 8.1 magnetic tape and run OS/32 BACKUP Utility via |
the following commands:

    LOAD BACKUP
    TASK BACKUP
    START   ,IN=dev1:,OUT=dev2:,LIST=dev3:,VERIFY

where:

    dev1   is the device name for the magnetic tape drive
    dev2   is the device name for the disk drive
    dev3   is the device name for the printer or list device

Note that all device names have the standard OS/32 format. They are dependent on the particular configuration of the user system and can be determined by entering the OS/32 command 'DISPLAY DEVICES' at the console or terminal.

NOTE

The procedure for running backup from a **Multi-Terminal Monitor (MTM) terminal** is identical to the one described above for the system console, with the exception that the user must sign on to an account having bare disk access and file account privileges. Account 255 will always have these privileges.

For further information on BACKUP, see Chapter 5 of the OS/32 System Support Utilities Reference Manual, Publication Number 48-031 R03).

7.7.3 Post-Installation Procedures

Before using the installed software, it is recommended that the following procedures be executed:

o   The software should be copied for archival purposes using the OS/32 BACKUP Utility.

o   The following CSS command should be entered:

    INFORM [list-device:]

    Information regarding this product will then be displayed on the system console by default, or to an optional device, list-device, specified in the CSS call.

8   STARTER SYSTEMS

For 3203 systems, one starter (DEFAULT.OS) operating system is
provided in the package.

For non-3203 systems, five pre-generated operating systems are
provided in the package for use in unpackaging and system
generation. The STARTER systems provide the minimum environment
necessary to perform a custom system generation.

NOTE

    With the release of OS/32 8.1, a starter may be used to
complete the unpackaging procedure as described in this
document for any system supporting DIOS or extended
addressing ranges.

Refer to Appendix F for the STARTER system   configuration
statements and maps.

DEFAULT.OS (3203 package)

This OS is designed for 3203 systems.

Devices Supported:

    Model 3203 CPU
    Model 33 TTY Keyboard/Printer (console)
    Line Printer
    1 Streamer Tapes
    2 IPC Disks

The packaging tape for non-3203 systems contains the following
five starter OS's.

OS/32 STARTER1 (OS32MTS1, Part # 03-120 F01)

STARTER1 is designed for 8/32 and 7/32 systems.

Devices Supported:

    Model 8/32 or 7/32 CPU
    Model 33 TTY Keyboard/Printer (console)
    Card Reader with software conversion
    Line Printer
    800 bpi Magnetic Tape
    1600 bpi Magnetic tape
    6250 bpi Magnetic tape
    2 Cassette Tapes
    Non-editing CRT
    Dual FLOPPY Disk
    2.5Mb Disk
    5Mb Disk (fixed and removable)
    40Mb Disk (removable)
    67Mb Disk (removable)(IDC/MSM)
    256Mb Disk (removable)(IDC/MSM)

OS/32 STARTER2 (OS32MTS2 Part # 03-120 F02)

STARTER2 is designed for 3220 systems.

Devices Supported:

    Perkin-Elmer Model 3220 CPU
    Model 550 CRT as a console device
    Card Reader with software conversion
    Line Printer
    800 bpi Magnetic Tape
    1600 bpi Magnetic Tape
    6250 bpi Magnetic Tape
    Non-editing CRT
    Dual Floppy Disk
    2.5Mb Disk
    5Mb Disk (fixed and removable)
    40Mb Disk (removable)
    67Mb Disk (removable)(IDC/MSM)
    256Mb Disk (removable)(IDC/MSM)

OS/32 STARTER3 (OS32MTS3 Part # 03-120 F03)

STARTER3 is designed for 3210, 3230, 3240 and 3250 systems.

Devices Supported:

    Perkin-Elmer Model 3210, 3230, 3240 or 3250 CPU
    Model 550 CRT as a console device
    Card Reader with software conversion
    Line Printer
    800 bpi Magnetic Tape
    1600 bpi Magnetic Tape
    6250 bpi Magnetic Tape
    Non-editing CRT
    Dual Floppy Disk
    2.5Mb Disk
    5Mb Disk (fixed and removable)
    16Mb Disk (fixed and removable)
    40Mb Disk (removable)
    48Mb Disk (fixed)
    67Mb Disk (removable)
    80Mb Disk (fixed)
    256Mb Disk (removable)(IDC/MSM)
    300Mb Disk (fixed)(IDC/MSM)

OS/32 STARTER4 (OS32MTS4 Part # 03-120 F04)

STARTER4 is designed for 3200MPS systems.

Devices Supported:

    Perkin-Elmer Model 3200MPS CPU
    Model 550 CRT as a console device
    Card Reader with software conversion
    Line Printer
    800 bpi Magnetic Tape
    1600 bpi Magnetic Tape
    6250 bpi Magnetic Tape
    Non-editing CRT
    Dual Floppy Disk
    2.5Mb Disk
    5Mb Disk (fixed and removable)
    16Mb Disk (fixed and removable)
    40Mb Disk (removable)
    48Mb Disk (fixed)
    67Mb Disk (removable)
    80Mb Disk (fixed)
    256Mb Disk (removable)(IDC/MSM)
    300Mb Disk (fixed)(IDC/MSM)

OS/32 STARTER4 supports up to nine Auxiliary Processing Units (APUs) and up to 255 Logical Processing Units (LPUs).

OS/32 STARTER5 (OS32MTS5 Part # 03-120 F05)

STARTER5 is designed for a 3205 CPU system.

Devices Supported:

```
Perkin-Elmer 3205 CPU
Model 550 CRT as a console, with BIOC
Card reader with software conversion
Line printer
800 bpi mag tape
1600 bpi mag tape
6250 bpi mag tape
Non-editing CRT, with BIOC
Dual floppy disk
2.5Mb disk
5Mb disk (fixed and removable)
40Mb disk (removable)
67Mb disk (removable)
300Mb disk (fixed)
16Mb disk (fixed and removable)
48Mb disk (removable)
80Mb disk (removable)
Dual Lark disk (fixed and removable)
```

APPENDIX A
TASK ESTABLISHMENT OPTIONS

As a convenience to the user, programs used in the unpackaging and/or system generation procedures are provided in image format. The table below indicates the LINK commands and options which were used in establishing those tasks. Options imbedded in the object code are noted below by a preceding "+". Any options not explicitly stated assume the default. If any particular option needs to be changed or overridden, the user need only insert an option command with the desired parameter after the "Include" for the object modules and before the "Build". Refer to the OS/32 Link Reference Manual, Publication Number 48-005 R03, for complete information on OS/32 LINK.

The following support libraries are supplied in this package so one can link programs written in a higher level language:

    F7RT51OS.OBJ   -   FORTRAN Run Time Library R05-01

    PASRTL10.OBJ   -   Pascal Run Time Library R01-00

Two FORTRAN run time support libraries are also included. The routines in these libraries can be used by FORTRAN programs on 3200MPS systems to control the APU's. One must replace the equivalent routines contained in the FORTRAN run time libraries released with FORTRAN R05-01. The libraries are:

    F7OS52.RTL   -   FORTRAN 3200MPS run time library
                      with no argument checking

    F7OS52A.RTL   -   FORTRAN 3200MPS run time library
                      with argument checking

The following procedures can be used to update FORTRAN R05-01 run time libraries:

```
REN F7RTL51.OBJ,F7RTL51.OLD
AL F7RTL51.OBJ,IN,126/16
LO .BG,LIBLDR
T .BG
AS 1,F7RTL51.OLD,SRO
AS 2,F7OS52.RTL,SRO
AS 3,F7RTL51.OBJ
AS 5,CON:
ST
>DUPE 1,3 IRTCNT
>FIND 1   ISHFT
>DUPE 2,3
>DUPE 1,3
>END
```

The support library F7RT51OS.OBJ is the updated FORTRAN R05-01 run time library with no argument checking.

NOTE: The following commands require the use of LINK
R01 or higher revision.

Program Name   LINK Commands

| Link commands for any program not requiring special
| Link Sequence.

| LOG CON:
| TITLE program
| ESTABLISH TASK
| INCLUDE program
| MAP CON:
| BUILD program
| END

OS/32 Disk   LOG CON:
Backup   TITLE BACKUP
                  ESTABLISH TASK
                  INCLUDE BACKUP
| +OPT SYSSPACE=XFFFFF,WORK=(X4800,X80000)
| +OPT LU=9,IOB=3
| +OPT XSVC1
| +OPT DISC,ACP,NKEY,SEG,NROLL
| INCLUDE HELPR081.OBJ
                  MAP CON:
                  BUILD BACKUP
                  END

OS/32 Copy   LOG CON:
                  TITLE COPY32
                  ESTABLISH TASK
                  INCLUDE COPY32
                  +OPT SEG,WORK=X3200,SYSSPACE=XFFFFF,ACP
| RESOLVE HELPR081.SEG
                  MAP CON:
                  BUILD COPY32
                  END

Program Name	Link Commands
*Help SEG	LOG CON:
	TITLE HELPR081
	ESTA IMAGE
	INCLUDE HELPR081
	MAP CON:
	BUILD HELPR081.SEG
	END
*OS/32 Edit SEG	LOG CON:
	TITLE EDITR081.SEG
	ESTA IMAGE,ADDR=XC0000
	RESOLVE HELPR081.SEG,ADDR=XE0000
	INCLUDE EDIT32,EDIT32A
	MAP CON:
	BUILD EDITR081.SEG
	END
OS/32 Edit	LOG CON:
	TITLE EDIT32
	ESTABLISH TASK
	INCLUDE EDIT32,DR
	+OPT XSVC1,SYSSPACE=XFFFFF,ACP
	INCLUDE EDIT32,EDIMP
	RESOLVE EDITR081.SEG
	MAP CON:
	BUILD EDIT32
	END

----

* IMPORTANT: If the HELPR081 and EDITR081.SEG segment
files are re-established as shown and the original .SEG
files are deleted or renamed, the following utilities
must be re-established:

        1. COPY/32   4. LINK
        2. EDIT/32   5. CLU
        3. SYSGEN/32

Program Name	Link Commands
SYSGEN32	LOG CON: TITLE SYSGEN32 ESTABLISH TASK INCLUDE SYSGEN32.OBJ LIB PASRTL10.OBJ INCLUDE SYSGN32C +OPT SYS=XFFFFF,WORK=XA000 +OPT FLOAT,DFLOAT,NXSVC1 INCLUDE EDIT32,EDIMP RESOLVE EDITR081.SEG,ADDR=XC0000 MAP CON: BUILD SYSGEN32 END
Common Assembler Language	LOG CON: TITLE CAL32 ESTABLISH TASK OPT WORK=X5000,SYS=XFFFFF,SEG INCLUDE CAL32 MAP CON: BUILD CAL32 END
OS/32 Spooler	LOG CON: TITLE SPOOLER ESTABLISH TASK INCLUDE SPOOLER +OPT WORK=X1000,SYSSPACE=XFFFFF,NROLL,XSVC1 +OPT COMMUNICATE,DISC,ACPRIVILEGE,NKEYCHECK +OPT LU=18,IOB=8 MAP CON: OPT IOB=n BUILD SPOOLER END

$n=2*$(number of physical printers + number
        of physical card reader-punches.)

NOTE: This task is supplied in image format with a
default number of 8 IOB's.

Program Name	Link Commands
OS/32 Error Report	LOG CON: TITLE ERROR ESTABLISH TASK INCLUDE ERRORF INCLUDE ERRORC +OPT FLOAT,DFLOAT,SEG,VFC +OPT SYS=XFFFFF,WORK=X1000 LIB F7RT51OS.OBJ MAP CON: BUILD ERROR END
OS/32 LINK	LOG CON: TITLE LINK ESTABLISH TASK INCLUDE LINK +OPT SYS=XFFFFF,WORK=(X8000,XA0000),ACP,SEG RESOLVE HELPR081.SEG,ADDRESS=E0000,ACCESS=RE MAP CON:,ADDR BUILD LINK END
OS/32 Compatible LINK Utility	LOG CON: TITLE CLU32 ESTABLISH TASK INCLUDE CLU OPT SEG,WORK=(X8000,XA0000),SYS=XFFFFF,ACP RESOLVE HELPR081.SEG,ADDRESS=E0000,ACCESS=RE MAP CON:,ADDR BUILD CLU END
Accounting Report Utility	LOG CON: TITLE ACCT ESTABLISH TASK INCLUDE ACCTF.OBJ INCLUDE ACCTC.OBJ +OPT FLOAT,DFLOAT,SEG,VFC,DISC,ACP,NKEY +OPT SYS=XFFFFF,WORK=X1000 LIB F7RT51OS.OBJ MAP CON: BUILD ACCT END

Program Name	Link Commands
FASTCHEK Disk Initializer & Disk Integrity Check Utility	LOG CON: TITLE FASTCHEK ESTABLISH TASK MAP CON: INCLUDE FASTCHEK +OPT ABS=0 +OPT SYSSPACE=XFFFFF +OPT WORK=(X4000,XB0000) +OPT SEGMENTED,UT +OPT DISC,ACP +OPT NROLL +OPT LU=9,IOBLOCKS=1 +OPT NFLOAT,NDFLOAT BUILD FASTCHEK END

NOTE

LINK will give a warning message because the absolute space is less that 100, and on completion, will terminate with EOT (End-of-Task) Code 2. See Appendix E in OS/32 FASTCHEK Reference Manual, Publication Number 48-064 F02 R00, for further details.

Program Name	Link Commands
FASTBACK	LOG CON: TITLE FASTBACK ESTABLISH TASK MAP CON: INCLUDE FASTBACK +OPT ABS=0 +OPT SYSSPACE=XFFFFF +OPT WORK=(XA000,X80000) +OPT SEGMENTED,UT +OPT DISC,ACP +OPT NROLL,NKEY +OPT LU=9,IOBLOCKS=3 +OPT NFLOAT,NDFLOAT +OPT XSVC1 BUILD FASTBACK END

NOTE

LINK will give the same warning and end-of-task code as FASTCHEK. See the OS/32 Fastback Reference Manual, Publication Number 48-063 F01 R00, for further details.

Commercial Spooler

The five tasks comprising the commercial spooler, SPL/32, are distributed with LINK command files. Each task has two associated command files, a standard overlaid version and a full memory version. These command files must be used for the spooler product to execute properly.

Task Name	Command File Name	
SPL32.TSK	SPL32OV.LNK	- overlaid version
	SPL32.LNK	- non-overlaid version
SPLINPUT.TSK	SPL32INO.LNK	- overlaid version
	SPL32IN.LNK	- non-overlaid version
SPLOUT.TSK	SPL32OTO.LNK	- overlaid version
	SPL32OT.LNK	- non-overlaid version
SPLC.TSK	SPL32COV.LNK	- overlaid version
	SPL32C.LNK	- non-overlaid version
SPLINTER.TSK	SPL32IC.LNK	- non-overlaid version

Refer to the appropriate user documentation for Link Options for the remainder of the programs within the package.

APPENDIX B
CONVERSION REQUIREMENTS
AND
NEW FEATURES

1 CONVERSION REQUIREMENTS

Any and all tasks which reference OS internal structures (DCBs, TCBs, etc.) and any user written drivers or OS modules must be reassembled with the 8.1 structure library.

The following are new system structures in SYSTRUC.MLB:

$VSTE	$CSTE	$SSUB
$SVC1MTE	CDS	$CDSERL$
$CDSHDR	$REL	$UNER
$CTL	$PSC	$CMM
$SBI	$CTIM	$CABINET
$CMMADR	$REQSTAT	$SMSG
$RREL	$UNSL	$CDRQ
$CDQ	$QCH	$QCB
$IPB	$XMB	$ACTC
$ACTCL$	$ACTCD$	

The following system structures have been modified in SYSTRUC.MLB:

$SOPT	$PSW	$$SPT
$IVT	$STE	$PDCB
$EVN	$SDE	$TCB
$TSW	$TPRV	$LIB
$PFCB	$FCB	$DFLG
$SVCIERR	$SVCTEXT	$UDL
$IOB	$GERC	$MERC
$APB	$APS	$LLE

2 NEW FEATURES

The OS/32 R08-01 release is comprised of the the following major features:

o   3260 Support

o   The 3200IOP And Distributed I/O Processing: The 3200IOP is an APU based product which handles physical I/O to all the devices configured on its bus. This product is derived from the APU by adding new microcode features to the APU A board to enable the resulting processor to execute OS/32 I/O software.

The operating system is divided so that relevant portions of the I/O subsystem are executed by the CPU, APUs and IOPs; This provides a distributed I/O capability amongst the

processors comprising the 3200MPS. The following paragraphs describe some of the salient features of I/O in a 3200MPS system.

o   The 3200IOP provides high performance I/O support by processing all physical I/O to the devices configured on its bus. It also executes all calls to the Contiguous File Manager.

o   All indexed file requests originating on the CPU are examined to determine if physical I/O is necessary and if not, they are processed on the CPU. Otherwise, I/O requests are passed on to an IOP for processing.

o   All I/O requests originating from an APU are evaluated by the APU to determine if they are indexed file I/O operation. If so, the APU processes the I/O further if it is a logical I/O that does not require a physical I/O. Otherwise, the request is passed on to the CPU or IOP depending on which processor the disk resides. This is an enhancement to the current functionality of an APU.

o   When the IOP completes the I/O transaction, it passes the completion status back to the CPU for subsequent task updating and dispatching.

o   All device drivers will execute from a single copy of code, regardless of whether the driver is running on the CPU or an IOP, deriving any necessary differences from information contained in the DCB. Exceptions to this are support for ITAM based devices and the system console. They will execute on the CPU only.

o   3203 Support

o   Device Drivers: New drivers are provided to support the 5.25 inch winchester disk drive and streaming tape drive configured under the Intelligent Peripheral Controller (IPC). These drivers interface with the device controllers via the on-board software provided in the IPC.

The IPC disk driver is totally compatiple with respect to the current user interface. It supports all SVC1 I/O data transfer and command function requests that are currently supported by the MSM and IDC drivers including mirror disk support. The interface to SVC1 and the status returned to the user are unchanged.

The new command 'COPY' will be implemented in the IPC disk driver to invoke the IPC on-board device to device copy utility to do a whole or a partial copy without further CPU intervention. The user task may invoke the COPY function by issuing an extended SVC1 request.

The IPC tape driver is not compatible with the existing
tape drivers due to the characteristics of the
streaming tape drive. One major difference between the
streamer and other drives is that the streamer supports
only 512 bytes fixed length blocks and therefore, a
record, as currently defined, has to be in multiples of
512 byte blocks.

The other limitation of the streamer is its inability
to support Back Space of the tape. Therefore, all Back
positioning commands except REWIND are unsupported. In
addition, command function requests for Software
Density selection and Gapless Mode transfer are
unsupported.

o   Miscellaneous

   o   Virtual Console Facility (VCF): The Virtual Console
       Facility (VCF) intercepts all I/O from/to the Physical
       Console and re-directs it to a "Virtual Console". The
       VCF provides for any terminal on the system to access
       the VCF environment from ECM or from MTM. Only one
       terminal may access the Virtual Console at one time as
       there is only a single System Console stream to be
       intercepted and redirected.

       The only special System Generation consideration
       necessary to use the VCF is to provide two DCBs for the
       console to be used also as an application terminal.
       VCF is a Utility Task which is loaded by an operator
       command or by a CSS (e.g., system startup CSS).

   o   E-Task Relocation: This support in the OS provides the
       ability to relocate absolute address references (RX3
       instructions) in E-Tasks. This is achieved by
       modifying the Task and Segment Loader module (EXLD) to
       relocate RX3 instructions in an E-Task by adding a task
       start address based on a table generated at linkage
       time in the task image. The overlay relocation is also
       supported. Shared segment relocation is not supported.

   o   A number of Utilities and other support software have
       been modified to support R08. They are as follows:

       o   Sysgen/32
       o   Error Report Utility
       o   Discdump
       o   Backup
       o   Fastcheck
       o   Fastback
       o   Copy/32
       o   OSAIDS
       o   Link/32
       o   Patch/32
       o   Cal/32

A new utility called <u>IPC</u> <u>Archive</u> <u>And</u> <u>Tape</u> <u>Maintenance</u> Utility is provided to support the 5.25" disk and the streaming tape under an IPC. This utility works in conjunction with the IPC's on-board Image Copy software and can be used for archiving data from disk to streaming tape and conversely restore disk from tape.

o   Sysgen/32

Functional Changes:
- For 3200MPS support: recognition of IOP parameter in MAXAPU...ENDAPU statement, recognition of IOP= designator in DEVICES...ENDD statement, recognition of QCB= statement, and recognition of 3260 as a processor type.

- For 3203 support: recognition of 3203 as processor type, and recognition of new IPC device codes 85 and 88 (tape and disk).

- TCOM statement recognizes up to 254 global segments for 3200 series processors (14 for 7,8/32).

o   Error Report

Functional changes:

- Bulk device I/O error report modified for IPC support; if device code is within IPC device range (85-95), the report expects 3 additional words of data; the information in this 3 word block is IPC status byte, IPC sense key, LBA, and number of ECC corrections.

- The "SAVE" command, when directed to a mag tape, appends the error listing to the tape by default; the append requires the tape to back file over the filemark which is illegal on streaming tape drive; "NEW" option must be used to save the error listing at the beginning of the tape else an error is returned.

- Two new errors are added due to the IOP: type 11 indicates an IOP software queue is full (possible overflow occurred) and type 12 indicates that the QCB pool is empty.

- For 3280 systems, support added for new memory error log format and unsolicited messages produced by CDS.

o   Discdump

Functional Changes:

- Support added for the 5.25" Winchester disk and the streaming tape.

- Back record and back file commands are illegal to
  the streaming tape.

o   Backup

Functional Changes:

- Support IPC devices: extended SVC 1, special
  initialization, special EOM logic, special FIB
  search logic added to support streaming tape.

- IPC devices added to device table.

- Added restrictions due to streaming tape: APPEND,
  POSITION, IOERR=DELETE options are illegal.

- "Insufficient Memory" error expanded to give the
  required load size increment.

- "BLOCK=" command.

o   Fastchek

Functional Changes:

- Support added for the 5.25" Winchester disk.

o   Fastback

Functional Changes:

- Full tape Expiry Date handling.

- More control over deletion of "matching" disk files.

- Recovery from tape errors during backup operation.

- Run time status is available.

- Automatic tape unloading (for 6250).

- More efficiency due to removal of paranoia checks.

o   Copy/32

Functional Changes:

- Error message if user attempts a back record or back
  file command to a streaming tape.

- Forward record command must calculate the correct
  number of 512-byte blocks to skip on the streaming
  tape.

o   OSAIDS

Functional Changes:

-   Enhanced to recognize the new instructions supported
    on the 3280 processor.

o   Link

Functional Changes:

-   Ability to build a relocatable E-task is added.

o   Patch

Functional Changes:

-   Support for relocatable E-tasks added.

o   CAL/32

Functional Changes:

-   Added support for new 3280 instructions.

-   Added support for new IOP-only instructions.

o   IPC Archive

Functional Changes:

-   Utility supports the on-board copy function of the
    IPC; user allowed to dump from 5.25" Winchester disk
    to the streaming tape and vice versa.

-   Streaming tape maintenance capability; "RETENSION",
    "ERASE", and "REWIND" commands provided.

APPENDIX C
KNOWN PROBLEMS/AVOIDANCE PROCEDURES

1. **Series 3200 2K LSU Boot Loader**

   The Series 3200 2K LSU Boot Loader will not load an OS/32 image from magnetic tape at 6250 BPI.

2. **Series 3200 8K LSU Boot Loader**

   When using the 'OTHR' option for 6250 tape drives, the device code must be entered in decimal (68).

3. **Magnetic Tape Driver**

   a. The supplied magnetic tape driver will not support drives operating under the special 1600 BPI tape controller (#99-690). If it is not possible to replace this controller, please re-assemble the driver supplied with OS/32 R06-01 and use it.

   b. Under the R06-01 magnetic tape driver, there was a software fix installed to prevent the CPU being tied up and locking the users out while "Forward Space Record" was in progress. Under R06-02, this software fix was removed because there are engineering change notices (ECNs) available for the hardware.

      On 6250 BPI drivers, two controller problems have ECN fixes; the first involves incorrect error detection. If the ECN is not installed, data transfer errors may be reported as partial reads (status=X'8301') rather than as recoverable errors (status=x'82FA'). The second involves the Ignore Data Transfer Errors Read function. Without the necessary ECN, encountering a parity error may terminate the data transfer rather than continuing until the entire record has been read.

      The following ECNs should therefore be installed:

Tape Drive	ECN Number
====================	================
800 BPI	4695
1600 BPI	4933
800/1600 BPI	4945
800/1600/6250 BPI	5346

The user should make certain that the proper ECN is installed for his configuration.

4. **MPS**

   a. Intensive use of an RSCH 1 instruction in a task executing on an APU queue with priority discipline degrades the OS response.

   b. APU recovery in case of a fatal error (local power failure, parity error on an APU signal) is not 100% dependable. It is suggested that if an APU is to be shut down for maintenance purposes, the APU is stopped first and its task paused then continued on another processor or queue.

   c. When changing the queue discipline frequently, a 640 crash can occur. MTMLLE does issue an SVC 13 to change the queue discipline.

   * The following object patch has **ALREADY** been applied to the respective software in this package. The patch has been assigned number **8104**. A listing of the patch is being supplied solely for documentation purposes.

   Object patch:

   ```
   *LO PATCH; ST
   >OBJ SYS.LIB,SYS.NEW,LIB
   >GET APSV.F02,COPY
   >BI 0:I
    *IMPURE BIAS          0
   >EXA 36F0
         36F0:I 2135
   >MOD 36F0,2335
   >SAVE COPY,TERM
   >END
   ```

   Source patch using source updater (OSSRCUP):

   ```
   MOD ASV05918
             BZ      SETQ.E3          YES - WE ARE OK
   ENDUP
   ```

5. **Intercept of SVC-1 I/O Proceed Request**

   The PENNET program xxxxMP creates a pseudo device which can be added to MTM as a terminal. If xxxxMP is canceled, the OS does not terminate the proceed I/O or remove the pseudo device. The result is that subsequent attempts to create the pseudo device fail, and the user remains signed in to .MTM.

Source patch using source updater (OSSRCUP):

```
REP INC00035
        $SVC1$
/*
DEL INC00040
DEL INC01948,INC01950
MOD INC03056
        LI    EE,SV1E.IFC        ILLEGAL FUNCTION STATUS
MOD INC03263
        LI    EE,SV1E.IFC        ILLEGAL FUNCTION STATUS
ENDUP
```

* The following object patch has **ALREADY** been applied to the respective software in this package. The patch has been assigned number **8101**. A listing of the patch is being supplied solely for documentation purposes.

Object patch:

```
*LO PATCH; ST
>OBJ SYS.LIB,SYS.NEW,LIB
>GET INTC.F02,COPY
>BI 0:I
 *IMPURE BIAS         0
>EXA 1334
     1334:I 2134
>MOD 1334,0200
>EXA 1E26
     1E26:I 8282
>MOD 1E26,C000
>EXA 20A0
     20A0:I 8282
>MOD 20A0,C000
>SAVE COPY,TERM
>END
```

6| 903 Crashes on 3260MPS

Spurious 903 crashes may occur on a 3260MPS system with IOP support.

* The following object patch has **ALREADY** been applied to the respective software in this package. The patch has been assigned number **8105**. A listing of the patch is being supplied solely for documentation purposes.

Object patch:

```
*LO PATCH; ST
>OBJ SYS.LIB,SYS.NEW,LIB
>GET EXIO.F13,COPY
>BI 0:I
 *IMPURE BIAS          0
>EXA 1052
     1052:I 2306
>MOD 1052,2304
>SAVE NOCOPY
>GET EXIO.F14,COPY
>BI 0:I
 *IMPURE BIAS          0
>EXA 10EA
     10EA:I 2306
>MOD 10EA,2304
>SAVE COPY,TERM
>END
```

Source patch to EXIO.MAC using source updater (OSSRCUP):

```
MOD EIO03041
         B      H1RIOB              COMMON CODE ->
ENDUP
```

7| 124 Crashes

A 124 crash results from certain types of load errors. This problem is inherent for all system configurations. This update is provided for this release only.

* The following object patch has **ALREADY** been applied to the respective software in this package. The patch has been assigned number **8102**. A listing of the patch is being supplied solely for documentation purposes.

```
OBJ SYS.LIB,sysnew.lib,LIB
GET EXMY.F51,COPY
VER 1244:I,E200,0000,0124
```

```
MOD 1244:I,48ED,003C,2206
SAVE NOCOPY
GET EXMY.F53,COPY
VER 15C8:I,E200,0000,0124
MOD 15C8:I,48ED,003C,2206
SAVE COPY,TERMINATE
END
```

Source Patch

```
MOD EMY04677
          BZ      REL.S30
INS EMY04698
REL.S20   EQU     *
/*
REP EMY04704
REL.S30   EQU     *
          LH      UE,SDE.NSUB(UD)              PICK-UP SSUB COUNT
          B       REL.S20
/*
```

8. 609 Crashes

The following patch is for avoiding the undefined results of a
task being loaded on an MPS system with an LPU number which
exceeds the maximum LPU. For non-MPS systems, this problem has
no effects on system integrity. For MPS systems with SAFETY
checks enabled, this error would cause a 609 crash.

*   The following object patch has ALREADY been applied to the
    respective software in this package. The patch has been
    assigned number 8103. A listing of the patch is being
    supplied solely for documentation purposes.

```
OBJ SYS.LIB,sysnew.lib,LIB
GET EXLD.F52,COPY
EXPAND I,22
     PATCH AREA pppp:I 22
VER 616:I,D2BA,028C,08BB,2334,24B4,75BA,0080
RANGE 61E,pppp
     RANGE: rrrrrr
MOD 616:I,08BB,2336,73C0,0062,4180,rrrr,0200
BI pppp:I
MOD 0,58CC,017C,D4BC,0002,0228,D2BA,028C,24B4,75BA,0080,0308
SAVE NOCOPY
GET EXLD.F53,COPY
EXPAND I,22
     PATCH AREA pppp:I 22
BI 0:I
VER 656:I,D2BA,028C,08BB,2334,24B4,75BA,0080
```

```
|    RANGE 65E,pppp
|    MOD 656:I,08BB,2336,73C0,0062,4180,rrrr,0200
|    BI pppp:I
|    MOD 0,58CC,017C,D4BC,0002,0228,D2BA,028C,24B4,75BA,0080,0308
|    SAVE COPY,TERMINATE
|    END
```

| Source Patch

```
|    REP ELD00832,ELD00834
|            LR    UB,UB
|            BZ    LDR.C23L              DEFAULT LPU=0
|            L     UC,SPT.LPMT           A(LPMT)
|            CLB   UB,LPMT.LPU(UC)       CHECK AGAINST MAXIMUM LPU
|            BP    LDR.C23L              EXCEEDS, FORCE LPU=0
|            STB   UB,TCB.LPU(UA)        SET LPU ASSIGNMENT
|    /*
```

9| VCF Console Hang

| * The following object patch has **ALREADY** been applied to the
| respective software in this package. The patch has been
| assigned number **8106**. A listing of the patch is being
| supplied solely for documentation purposes.

```
|    >OBJ   VCF.OBJ,NEW.OBJ
|    >GET   *OBJ
|    >VER   3354:I,0,2E98
|    >VAR   %X
|    >EXP   I,16,%X
|    >MOD   3354:I,I,0,%X
|    >MOD   PATCH,2400
|    >RAN   NEXT,32BC,%X
|    >MOD   NEXT,5000,%X
|    >RAN   NEXT,2E98,%X
|    >MOD   NEXT,4300,%X
|    >SAVE  COPY,TERM
|    >END
```

| Source Patch

```
|    DEL   VCF00898                    MULT. DEF. EQU
|    DEL   VCF03192                    MULT. DEF. EQU
|    DEL   VCF03193                    MULT. DEF. EQU.
|    INS   VCF03204                    INSURE LOGMODE RESET BEFORE EXIT
|            LIS    R0,0               INSURE LOGMODE RESET BEFORE EXIT
|            ST     R0,LOGMODE
|    /*
|    ENDUP
```

APPENDIX D
TABLES OF OBJECT LIBRARIES

1. OS/32 System Library (SYS.LIB)

APSV.F01	EXAC.F03	EXSP.F53	FMS7.F33
APSV.F02	EXCC.F01	EXSV.F01	FMA7.F31
CDVR.F01	EXCC.F04	EXSV.F52	FMA7.F33
CMDB.F31	EXIN.F51	EXSV.F53	FMA7.F34
CMDB.F32	EXIN.F53	EXTI.F01	FMB7.F31
CMDB.F33	EXIO.F11	EXTI.F02	FMB7.F33
CMEX.F33	EXIO.F12	EXTM.F50	FMUT.F31
CMIR.F01	EXIO.F13	EXTM.F51	FMUT.F32
CMIR.F02	EXIO.F14	EXTM.F52	FMUT.F33
CMON.F01	EXLD.F52	EXTM.F53	INTC.F01
CMSP.F33	EXLD.F53	FLTP.F02	INTC.F02
ERRC.F01	EXMR.F52	FLTP.F03	MCHK.F01
ERRC.F02	EXMR.F53	FLTP.F04	MCHK.F02
ERRC.F03	EXMY.F51	FMCO.F33	MIRR.F01
ERRC.F04	EXMY.F53	FMIN.F33	SVC0.F01
EXAC.F01	EXMY.F54	FMS7.F31	DUMP.F01
EXAC.F02			

2. General Purpose Driver Library (DRIVER.LIB)

INITTYKP	INITM62E	INITRA29	INITDIOV
INITYKH	INITCASS	INITRA26	INITMBSW
INITYKX	INITPTRP	INITRE29	INITVFCS
INITBIOC	INITTYRP	INITRE26	INITSUBS
INITMHD	INITCARD	INITLPTR	INITCRT
INITMMD	INITCDRP	INITL8	INITCRTH
INITDCM	INITPA29	INITDMUX	INITCRTX
INITLARK	INITPE29	INITRTAS	INITIDSC
INITFLPY	INITPA26	INITAIDV	INITITAP
INITMAGS	INITPE26	INITAODV	

3. Basic Data Communications System Library (ITBSYS.LIB)

ITAM.M01	INITMSUP	BAEP.TOP	ASERW.XT
ITFM.M00	ADIOSTOP	ASYNCTOP	BDIOSPLS
ITFM.M01	BDIOSTOP	BDIOSE2A	DL2U.XLT
IOH.XASY	BEBC.TOP	BEBC.EBC	L2UC.XLT
IOH.SVCF	BAOP.TOP	ASORW.XT	BSPLCS
HSUP			

4. Basic Data Communications Driver Library (ITBDLIB.LIB)

INITDASY	INITPSM	INITDZBD	INITDETH
INITDIOS	INITMSM	PB	IOH.ETHR
INITCSYC	INITMASY		

APPENDIX E
FORMATTING DISKS FOR USE WITH OS/32

In order to prepare a disk pack for use by OS/32, the pack must be formatted by the stand-alone Common Disk Test/Formatter Program 06-173F02 or the Common Mass Storage Media (MSM) Disk Formatter, 06-201.

Disk packs do not require formatting if they were previously formatted for OS/32 or OS/16. Packs purchased from Perkin-Elmer should not require formatting as they have been formatted prior to shipment. MSM packs should not be formatted unless absolutely necessary.

o To format a 2.5Mb, 10Mb or 40Mb disk, proceed as follows:

1. Mount the pack.

2. Switch the controller FORMAT switch to FMT, and ensure the drive is not write-protected.

3. Enter the following data into the memory locations indicated:

Location	Content	
50	D500	
52	00CF	
54	4300	
56	0080	
78	1399	(Formatter on Paper Tape)
	85A1	(Formatter on Magnetic Tape)
	0294	(Formatter on TTY Paper Tape Reader)
	45A1	(Formatter on Cassette)

4. Load the Formatter program by placing the Formatter program into the appropriate device and starting execution at location X`50'.

5. Start formatter at address X'A00'.

o Formatting of 2.5, 10, and 40Mb disks

1. The following is output at the console:

    "COMMON DISC FORMATTER 06-173R00F02"

2. Enter the following sequence of commands at the console:

    ```
    *PACTYP 1
    *FILE n
    *LOCYL 0
    *HICYL h
    *DISCON c
    *TIMCON 140   (for 7/32)
      or
    *TIMCON 1A0   (for 8/32)
    *FMREAD 2
    *DEFSEC 1
    *FMTWP 0
    *RUN
    ```

    where the values of n, h, and c are reflected by the
    following table:

DISK TYPE

Option	2.5Mb	10Mb Fixed 5	10Mb Removable	40Mb
n	3	1	2	4
c	B6	B6	B6	F8
h	CA	197	197	195

o Formatting of 67 and 256Mb disks

1. Set Format switch on controller to zero,
    and ensure that the drive is not write-protected.

2. The following is output at the console: "Common
    MSM Disk Formatter 06-201R00".

3. Enter the following sequence of commands
    at the console:

```
                  *PACTYP  n      (for 67Mb n=0, for 256Mb n=1)
                  *LOCYL   0
                  *HICYL   336
                  *DRIVE   0
                  *TIMVAL  t      (7/32)F0
                  *SELCH   nn     (Default X`F0')
                  *DISCON  nn     (Default X`FB')
                  *RUN
```

The values for t (TIMVAL) are:

CPU	t
7/32	F0
8/32	1E0
3220	
3240	

Any sector flagged as defective, causes a message to be printed indicating the defective sector.

After formatting, move the controller format switch out of the FMT (0) position.

Once the disk pack has been formatted, it must be initialized.

Disk initialization can be accomplished using the OS/32 Disk Initializer program. An image version of Disk Initializer is included in the package.

o **Formatting CDD Discs (form formatted sizes 13.5,40.5,67.5)**

1. Set the format switch on the controller to zero and ensure that the drive is not write-protected.

2. The following message is output at the console:

    "MC CDD DISC FORMATTER 06-262".

3. Enter the following sequence of commands at the console:

```
        *PACTYP  n         n=0 for 13.5Mb removable
                           n=1 for 67.5Mb fixed
                           n=2 for 40.5Mb fixed
                           n=3 for 13.5Mb fixed
        *LOCYL 0
        *HICYL 336
        *DRIVE 0
        *SELCH nn           (Default = X'F0')
        *DISCON nn          (Default = X'EB')
        *RUN
```

Starter systems are provided to enable a first time user to
generate an OS which matches their own hardware device
configuration. Only one tape drive and one disk drive is
actually needed to unpackage and perform a system generation.
It is not possible to support all possible disk and tape
devices on all possible addresses. Therefore a selected
group of devices which are commonly used on the processor
type supported by the given starter system are configured at
standard addresses.

One may need to modify the the device, controller, and selch
addresses within the DCB for the device to be used. To
obtain the address of a DCB enter the Display Devices command
as follows:

        D D,,D

The device name is displayed on the left and the DCB address
is displayed on the right. The following list relates a
device name to device type as used in the starter systems.

device name	device code	selch addr	contr addr	device addr	description
MAG1	64	F0	0	85	800 BPI tape
MAG2	65	F0	1	C5	1600 BPI tape
MAG3	68	F0	2	85	6250 BPI tape HPTD-125
MAG4	69	F0	3	85	6250 BPI tape STC
MAG5	70	F0	4	85	6250 BPI tape Telex
DSC0	49	F0	B6	C8	2.5 MB disk (removeable)
DSC1	51	F0	B6	C6	5 MB disk (removeable)
DSC2	50	F0	B6	C7	5 MB disk (fixed)
DSC3	52	F0	FB	FC	40 MB disk (removeable)
DSC4	53	F0	FB	FC	67 MB disk (removeable)
DSC5	54	F0	FB	FC	256 MB disk (removeable)
DSC6	59	F0	FB	FC	16 MB disk (removeable)
DSC7	60	F0	FB	FC	16 MB disk (fixed)
DSC8	61	F0	FB	FC	48 MB disk (fixed)
DSC9	62	F0	FB	FC	80 MB disk (fixed)
DSCA	44	F0	FB	FC	300 MB disk (fixed)
LRK1	42	F0	FB	FC	Lark disk (removeable)
LRK2	43	F0	FB	FC	Lark disk (fixed)
LRK3	42	F0	FB	FD	Lark disk (removeable)
LRK4	43	F0	FB	FD	Lark disk (fixed)
DIS0	88	F0	D8	D9	IPC disk
DIS1	88	F0	D8	DA	IPC disk
MAGN	85	F0	D8	DE	IPC tape (streamer)

No single starter system contains all of the above devices.

The following are OS/32 8.1 DCB offsets for non-standard

| device address modifications:

DCB Tag	Offset	Content Description & Length	
DCB.DN	X'1A'	Device Number	HW
DCB.SDN	X'BC'	Selch Device Number	HW
DCB.CDN	X'BE'	Controller Device Number	HW
DCB.STRT	X'D0'	Sectors/track	HW
DCB.TCYL	X'D2'	Tracks/Cylinder	HW
DCB.SIZE	X'B0'	No. of Sectors on Disk	FW

In rare casses, one may have to change the system console device type. To do so, one must obtain the address of the device mnemonic table (DMT) as follows:

1) examine the halfword at X'62' to obtain the address of the system pointer table (SPT)

2) add X'48' to the address of the SPT

3) examine the fullword from above to obtain the address of the DMT

4) refer to chapter 2 of the OS/32 Operator's Reference Manual, Publication Number 48-030 R03.