DEC-15-ODAPA-A-D

DOS-15 ASSEMBLY PARAMETERS

First Printing August, 1974

The HOW TO OBTAIN SOFTWARE INFORMATION page, located at the back of this document, explains the various services available to DIGITAL software users.

The postage prepaid READER'S COMMENTS form on the last page of this document requests the user's critical evaluation to assist us in preparing future documentation.

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PREFACE

This document describes the source file components which make up the version 3 PDP-15 Disk Operating System, DOS-15 V3A, and explains the steps which must be taken to assemble a binary from the source and to incorporate it into an existing DOS-15 V3A system.

To follow the steps outlined in this document the reader should be familiar with the following utility programs:

Program	As Described in Manual
DOSSAV	DOS User's Manual, DEC-15-ODUMA-B-D
MACRO-15	MACRO 15 Assembler Programmer's Reference Manual, DEC-15-LMACA-B-D
MACRO-11	MAC11 Assembler Programmer's Reference Manual, DEC-15-LMCMA-A-D
PATCH	PATCH Utility Program, DEC-15-UPATA-A-D
PIP	PIP DOS Monitor Utility Program, DEC-15-UPIPA-A-D
SGEN	SGEN-DOS Utility Program, DEC-15-USGNA-A-D
UPDATE	UPDATE Utility Program, DEC-15-YWZB-DN7

INTRODUCTION

Source files for DOS-15 V3A are available on DECtapes or 7 or 9 track magtape. The steps required for each source are listed either in Table 1, Table 2, or Table 3.

The first step of assembling, in some cases, is to rename the file prior to assembly. This is not a necessity but in this document it simplifies the explanation of command strings required to install the assembled binaries. However, the user can perform the renaming process after assembly or, when making binary input to the PATCH utility program, forego renaming altogether.

The second step is to assemble the source using the proper assembler. Most of the sources are assembled using the MACRO-15 assembler (Table 1). A few are assembled using MACRO-11 (Table 2). Some are to remain as source files and others are to be compiled by FORTRAN (Table 3).

There are two programs which cannot be assembled by the user under DOS-15: they are the sources which make up the PDP-11 code for the MACRO-11 assembler and the source for the ABSL11 paper tape loader. This is explained in the notes.

Some source files are conditionally coded to produce several different binaries based either on the existence or nonexistence of definitions for given symbols or on their defined values.

The type of binary produced by the assemblers will vary. For MACRO-15 output in Table 1 there is a column which shows either BIN (relocatable binary), ABS (absolute binary) or HRM (hardware readin mode). BIN and ABS files can be produced on a directoried device such as disk. HRM files must be assembled directly onto paper tape.

It is standard practice with MACRO-15 BIN files to shorten them by using the UPDATE utility program with the S option.

In Table 2, output from the MAC11 assembler is listed as OBJ which means OBJECT MODULE. Object modules are converted to load modules by a linker. Load modules and object modules are provided as absolute binary code on paper tape.

Table 1

Sources Assembled Under MACRO-15

Source File Name		Rename It To		Desired Version	Assembly Parameters	Type of Binary	Footnote
ABSL11	Ø14	-		-	-	HRM	10
CD.DOS	Ø31	CDB.	Ø31	CRØ3B*/Ø29**	-	BIN	1
		CDB.	Ø31	CRØ3B/Ø26	DECØ26=Ø	BIN	1
		CDB.	Ø31	CR15/Ø29	CR15=Ø	BIN	1
		CDB.	Ø31	CR15/Ø26	CR15=Ø DECØ26=Ø	BIN	1
		CDB.	Ø31	CRØ1E/CRØ2B Ø29	NOTGDI=Ø	BIN	1
		CDB.	Ø31	CRØ1E/CRØ2B Ø26	NOTGDI=Ø DECØ26=Ø	BIN	1
		CDB.	Ø31	CR11/Ø29 Spooled***	UC15=Ø	BIN	1
		CDB.	Ø31	CR11/Ø26 Spooled***	UC15=Ø DECØ26=Ø	BIN	1
		CDB.	Ø31	CR11/Ø29 Unspooled***	UC15=Ø NOSPL=Ø	BIN	1
		CDB.	Ø31	CR11/Ø26 Unspooled***	UC15=Ø DECØ26=Ø NOSPL=Ø	BIN	1
CHAIN	154	-		-	-	ABS	2
CREF	Ø2Ø	-		-	-	ABS	2
DDT	Ø12	-		PAGE MODE	-	BIN	4
				BANK MODE	PDP9=Ø	BIN	4
DOSBCD	ØØ5	-		All Versions	BCDSTA=xxxxx BCDADR=yyyyy	-	12
		BCDB.	ØØ5	CRØ3B*/Ø29**	-	ABS	6,12
		BCDB.	ØØ5	CRØ3B/Ø26	DECØ26=Ø	ABS	6,12
		BCDB.	ØØ5	CRØ1E/CRØ2B Ø29	NOTGDI=Ø	ABS	6,12
		BCDB.	ØØ5	CR01E/CRØ2B Ø26	NOTGDI=Ø DECØ26=Ø	ABS	6,12
DTA.	Ø23	-		-	-	BIN	1
DOSNRM	Ø74	DOS15	Ø74	NO UC15	-	BIN	5
				HAVE UC15	UC15=Ø	BIN	5

*Type of controller.
**Type of card code.
***Spooled and unspooled refer to how the device is handled when the UNICHANNEL-15 spooler is turned on.

Table 1 (Cont.)

Sources Assembled Under MACRO-15

Source File Name		Rename It To		Desired Version	Assembly Parameters	Type of Binary	Footnote
DOSPIP	1Ø3	PIP	1Ø3	-		BIN	5
DOSRFA	14Ø	DKA.	14Ø	DKA.	-	BIN	1
		DKB.	14Ø	DKB.	%BVERS=Ø	BIN	1
		DKC.	14Ø	DKC.	%CVERS=Ø	BIN	1
		DKL.	14Ø	DKL.	%LVERS=Ø	ABS	6
		RKA.	14Ø	RKA.	%RKØ5=Ø %RPØ2=Ø	BIN	1
		RKB.	14Ø	RKB.	%RKØ5=Ø %RPØ2=Ø %BVERS=Ø	BIN	1
		RKC.	14Ø	RKC.	%RKØ5=Ø %RPØ2=Ø %CVERS=Ø	BIN	1
		RKL.	14Ø	RKL.	%RKØ5=Ø %RPØ2=Ø %LVERS=Ø	ABS	6
		DPA.	14Ø	DPA.	%RPØ2=Ø	BIN	1
		DPB.	14Ø	DPB.	%RPØ2=Ø %BVERS=Ø	BIN	1
		DPC.	14Ø	DPC.	%RPØ2=Ø %CVERS=Ø	BIN	1
		DPL.	14Ø	DPL.	%RPØ2=Ø %LVERS=Ø	ABS	6
DOSSAV	065	-		-	-	HRM	-
DTC.	ØØ3	-		-	-	BIN	1
DTCOPY	Ø1Ø	-		-	-	BIN	5
DTD.	ØØ6	-		-	-	BIN	1
DTE.	ØØ6	-		-	-	BIN	1
DTF.	ØØ7	-		-	-	BIN	1
DUMP	Ø14	-		No CLOSE on every oper.	-	ABS	2
DYLDR	ØØØ	-		CLOSE on every oper.	UC15=Ø	BIN	3
EDIT15	Ø22	EDIT	Ø22	EDIT	-	BIN	5
		EDITVP	Ø22	EDITVP	EDITVP=Ø	BIN	5
		EDITVT	Ø22	EDITVT	EDITVT=Ø	BIN	5

Table 1 (Cont.)

Sources Assembled Under MACRO-15

Source File Name	Rename It To	Desired Version	Assembly Parameters	Type of Binary	Footnote
EXECUT Ø5Ø	-	PAGE MODE	-	BIN	4
		BANK MODE	PDP9=Ø PDP15=Ø	BIN	4
FNEW ØØ4	-	-	-	BIN	4
FOCAL Ø25	-	PAGE MODE	-	BIN	4
		BANK MODE	%PDP9=Ø %PDP15=Ø	BIN	4
FORT ØØ2	-	-	-	BIN	3
FORTRAN OTS	-	-	-	-	8
F4P1 Ø49	SEE F4P2	-	-	-	-
F4P2 Ø49	F4 Ø49	F4X	-	BIN	8,5
	F4 Ø49	FPF4X	%FPP=Ø	BIN	8,5
	F4 Ø49	F4X9	%PDP9=Ø	BIN	8,5,13
INSTRC ØØ2	-	-	-	BIN	4
LKA. ØØØ	-	-	-	BIN	1
.LOAD Ø28	-	PAGE MODE	-	BIN	4
	-	BANK MODE	PDP9=Ø	BIN	4
LPA.09 ØØ4	LPA. ØØ4	-	-	BIN	1,13
LPA.15 Ø49	LPA. Ø49	FORM FEED ON .CLOSE	-	BIN	1
	LPA. Ø49	NO FORM FEED ON .CLOSE	NOFF=1	BIN	1
LPU. Ø2Ø	LPA. Ø2Ø	FORM FEED ON .INIT,.CLOSE, COUNT OF 58 LINES	-	BIN	1
	LPA. Ø2Ø	OTHER LINE COUNT	FFCNT=OCTAL COUNT	BIN	1
	LPA. Ø2Ø	AND HANDLER - GENERATED FROM FEED	NOFF=Ø	BIN	1
	LPA. Ø2Ø	UNSPOOLED* OPERATION	NOSPL=Ø	BIN	1

*If the UNICHANNEL-15 spooler is turned on, this version of the line printer handler will run unspooled.

Table 1 (Cont.)

Sources Assembled Under MACRO-15

Source File Name		Rename It To		Desired Version	Assembly Parameters	Type of Binary	Footnote
LP.647	ØØ2	LPA.	ØØ2	TAB STOP=8	-	BIN	1,13
		LPA.	ØØ2	TAB STOP=1Ø	TAB1Ø=Ø	BIN	1
LTORPB	ØØ2	-		-	-	BIN	3
LTX.	ØØØ	-		-	-	BIN	16
MACIMG	ØØ6	-		FOR 8K PDP-11	-	BIN	9
				FOR 4K PDP-11	LM4K=Ø	BIN	9
				FOR 12K PDP-11	LM12K=Ø	BIN	9
MACINT	Ø14	MAC11	Ø14	FOR 8K PDP-11	-	ABS	9
				FOR 4K PDP-11	LM4K=Ø	ABS	9
				FOR 12K PDP-11	LM12K=Ø	ABS	9
MACR15	Ø86	MACRO	Ø86	-	-	ABS	2
MTA.	ØØ4	-		-	-	BIN	1
MTC.	ØØØ	-		-	-	BIN	1
MTDUMP	ØØ5	-		-	-	BIN	5
MTF.	Ø12	-		-		BIN	1
NUVAL	ØØØ	-		-	-	BIN	3
PATCH	Ø18	-		-	-	ABS	2
PPA.	ØØ1	-		-	-	BIN	1
PPB.	ØØ1	-		-	-	BIN	1
PPC.	ØØ1	-		-	-	BIN	1
PRA.	ØØØ	-		-	-	BIN	1
PRB.	ØØØ	-		-	-	BIN	1
QFILE	Ø1Ø	-		-	-	BIN	5

Table 1 (Cont.)

Sources Assembled Under MACRO-15

Source File Name	Rename It To	Desired Version	Assembly Parameters	Type of Binary	Footnote
RESMON Ø84	-	No UC15	-	ABS	2,6,12,15
		UC15	UC15=Ø	ABS	2,6,12,15
		UC15 No LP TCB	UC15=Ø LPTCB=Ø	ABS	2,6,12,15
		UC15 No CD TCB	UC15=Ø CDTCB=Ø	ABS	2,6,12,15
		UC15 No XY TCB	UC15=Ø XYTCB=Ø	ABS	2,6,12,15
		UC15 No spare TCB's (Call delete)	UC15=Ø TCB=Ø	ABS	2,6,12,15
		UC15 No Spare #1 TCB	UC15=Ø TCB1=Ø	ABS	2,6,12,15
		UC15 No Spare #2 TCB	UC15=Ø TCB2=Ø	ABS	2,6,12,15
		UC15 No Spare #3 TCB	UC15=Ø TCB3=Ø	ABS	2,6,12,15
RFBOOT Ø14	-	-	-	HRM	-
	-	UC15 Option	UC15=Ø	HRM	-
RKBOOT Ø14	-	-	-	HRM	-
RPBOOT ØØ6	-	-	-	HRM	-
	-	UC15 Option	UC15=Ø	HRM	-

Table 1 (Cont.)

Sources Assembled Under MACRO-15

Source File Name		Rename It To		Desired Version	Assembly Parameters	Type of Binary	Footnote
SGEN	Ø45	-		-	-	BIN	5
SGNBLK	Ø2Ø	-		RF SYSTEM	-	ABS	6
		-		RK SYSTEM	RKØ5=Ø	ABS	6
		-		RP SYSTEM	RPØ2=Ø	ABS	6
SPLIMG	ØØ2	-		-	SPOLSZ=SIZE OF SPOL11 PROGRAM	BIN	9
SPOL15	Ø23	SPOOL	Ø23	-	FB=FIRST BLOCK NUMBER OF SPOOL PROGRAM SPOLSZ=SIZE OF SPOL11 PROGRAM	ABS	9
SRCCOM	Ø11	-		-	-	BIN	5
SYSBLK	Ø13	-		RF SYSTEM	-	ABS	2
		-		RK SYSTEM	RKØ5=Ø	ABS	2
		-		RP SYSTEM	RPØ2=Ø	ABS	2
.SYSLD	Ø53	-		-	-	ABS	2,6
TRACK	ØØ3	-		-	-	BIN	3
UPDATE	ØØ5	-		-	-	ABS	2
VPA.	Ø13	-		VPA.	-	BIN	1
		-		VPA.S	VPA.S=Ø	BIN	1
VTA.	ØØ4	-		-	-	BIN	1
VTPRIM	ØØ4	-		-	-	BIN	3
VWA.	ØØ3	-		-	-	BIN	1
XYU.	Ø32	XYA.	Ø32	XY11 PLOTTER	-	BIN	1
		XYA.	Ø32	XY11 PLOTTER, UNSPOOLED OPERATION	NOSPL=Ø	BIN	1
8TRAN	ØØ1	-		-	-	BIN	5
89TRAN	ØØ1	-		-	-	BIN	5

Table 2

Sources Assembled Under MACRO-11

Source File Name	Rename It To	Desired Version	Assembly Parameters	Type of Binary	Footnote
LM4K MAC	-	-	-	OBJ	9
LM8K MAC	-	-	-	OBJ	9
LM12K MAC	-	-	-	OBJ	9
MACRO1 MAC	-	-	-	OBJ	9
MACRO2 MAC	-	-	-	OBJ	9
MACRO3 MAC	-	-	-	OBJ	9
MACRO5 MAC	-	-	-	OBJ	9
MCIOCH MAC	-	-	-	OBJ	9
MEMSIZ MAC	-	-	-	OBJ	9
PIREX 117	-	No Devices	-	OBJ	11
	-	With CR11	$CD=2ØØØØ	OBJ	11
	-	With DECtape	$DT=Ø	OBJ	11,14
		With LP11/LS11/ LV11	$LP=Ø4ØØØØ	OBJ	11,14
		With LV11	$LV=Ø	OBJ	11,14
		With XY11 Off-line switch	$PL=1ØØØØ	OBJ	11,14
		With XY11 No Off-line Switch	$PL=1ØØØØ $NOSW=Ø	OBJ	11,14
		With RKØ5	$RK=1ØØØØØ	OBJ	11
		With XY311 inches scale	$PL=Ø1ØØØØ $PL311=Ø	OBJ	11,14
		With XY311 metric scale	$PL=Ø1ØØØØ $PL311=Ø $UNIT=Ø	OBJ	11,14
PST MAC	-	-		OBJ	9
SPOL11 *23		With CR11	$CD=Ø2ØØØØ	OBJ	9
		With LP11/LS11	$LP=Ø4ØØØØ	OBJ	9
		With XY11	$PL=Ø1ØØØØ	OBJ	9

*See footnote 9. The * in the file name extension represents several possible characters, as explained in the footnote.

Table 3

Miscellaneous Sources

Source File Name		Desired Version	Special Instructions	Type of Binary	Footnote
CIRCLE	SRC	-	COMPILE WITH FORTRAN	BIN	3
INSALL	ØØ4	NO UC15	RENAME IT TO INSALL SRC	N/A	4
INSALL	UØ5	HAVE UC15	RENAME IT TO INSALL SRC	N/A	4
INSERR	ØØ2	-	RENAME IT TO INSERR SRC	N/A	4
ROTATE	SRC	-	COMPILE WITH FORTRAN	BIN	3
VECTOR	SRC	-	COMPILE WITH FORTRAN	BIN	3

The type of binary produced affects the method by which it is incorporated into an existing system. The last column in each table references an explanatory note which describes the method of binary installation.

EXPLANATORY NOTES

First, the disk system must be restored to the disk using DOSSAV. Then, after assembling the code, one of the following steps must be performed as indicated in the footnotes to Tables 1, 2, and 3.

1. Nearly all relocatable binary I/O handlers should be transferred, using PIP, to the <IOS> directory, e.g.,

```
>T␣DK␣<IOS><DK␣<SCR>␣CDB.␣BIN)
```

2. With the exception of a few PDP-11 programs, all programs which are to be core image (SYS) files are installed by using the PATCH program. The following example is for assembled binaries whose file extension is ABS:

```
PATCH    Vnn
>CHAIN)
>READ␣CHAIN)
>
```

3. Some relocatable binary routines are kept in the <PER> directory. They can be transferred there using PIP, e.g.,

```
>T␣DK␣<PER><DK␣<SCR>␣CIRCLE␣BIN)
```

4. The BANK and PAGE mode versions of these programs should be transferred, respectively, to the <BNK> and <PAG> directories using PIP with commands similar to those above. Although FNEW is not conditionalized, it goes hand in hand with FOCAL. Thus, a copy of FNEW BIN should be transferred to both directories. INSTRC BIN, INSERR SRC, and INSALL SRC should be transferred to both the <BNK> and <PAG> directories using PIP. INSTRC BIN is the program which implements the Monitor's $INSTRUCT command and INSERR SRC and INSALL SRC are its data files.

5. With the exception of a few PDP-11 programs, all programs which are to be core image (SYS) files are installed by using the PATCH program. The following example is for assembled binaries whose file extension is BIN:

```
PATCH    Vnn
>DOS15)
>READR␣16077␣DOS15)
>
```

For the programs in this category, the following numeric arguments are needed in the READR command:

PIP	17600
DOS15	16077
EDIT	17143
EDITVP	17075
EDITVT	17122
MTDUMP	17600
QFILE	17477
SGEN	16122
8TRAN	17600
89TRAN	17600
DTCOPY	17600
F4	17600
SRCCOM	17600

6. A few programs with ABS file extensions are installed using PATCH into programs with dissimilar names. For example,

```
PATCH  Vnn
>RESMON)
>READ␣SGNBLK)
>
```

The file SGNBLK is patched into RESMON. Files in this category are:

File	is Patched into	
DKL.	.SYSLD	Choose one of the three as a function of which disk is the system device (DKL. is for the RF15/RSØ9 Disk).
RKL.	.SYSLD	
DPL.	.SYSLD	
SGNBLK	RESMON	
BCDB.	RESMON	

7. There is no conditional assembly required for MACRO-15. It determines whether or not to run as the page mode version (MACRO-15) or the bank mode version (BMACRO-15) by a dynamic test at run time.

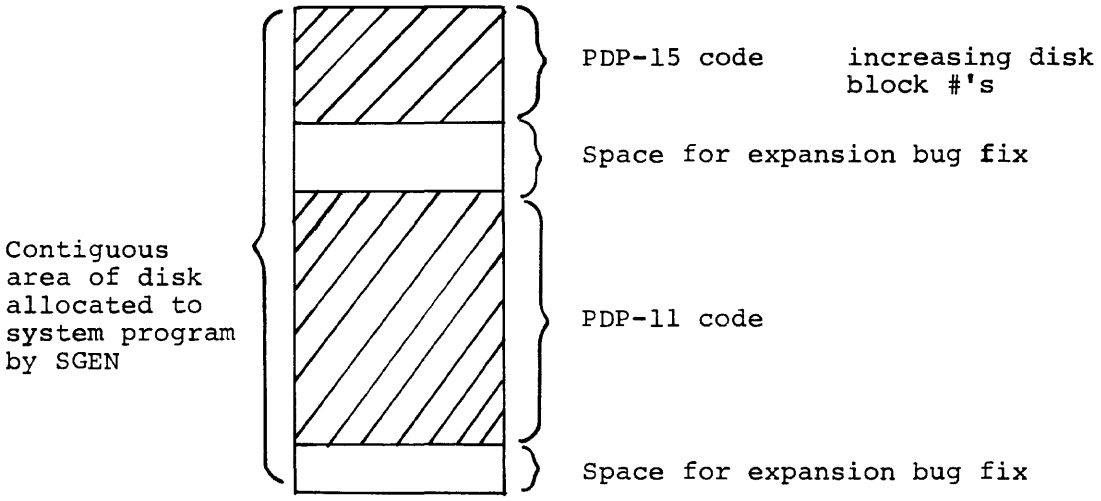
8. Assembly instructions for the FORTRAN OTS routines are given in an appendix to the manual PDP-15 FORTRAN IV OPERATING ENVIRONMENT, DEC-15-LFEMA-A-D.

   Assembly of the compiler, because it is in two parts, requires a special command string to MACRO-15, e.g.,

   >FZ←F4P1␣044,F4␣044)

   with additional command characters as necessary. After assembling the compiler, see note 5.

9. SPOOL and MAC11 are PDP-11 programs that exist as PDP-15 system programs. Each of these system programs contains some PDP-15 code at the beginning; this code is the system interface. Both these system programs are laid out on the disk as indicated below:



   In order to build the image of both these programs, space on the system disk has to be reserved through SGEN, using the following information.

MAC11*	no overlays, 2 buffers 40 blocks (octal) -12 and -11 .DAT slots

*See Appendix on UC15 Options in Unichannel-15 Software Manual (DEC-15-XUCMA-A-D) for further details.

SPOOL no overlays or buffers
       45 blocks (octal)

After creating the system programs via SGEN the images can be built as follows:

MAC11:

a. Assemble MACIMG ØØ6 using MACRO-15 to produce MACIMG BIN.

b. Assemble the different pieces of MAC11, as indicated below, using MACRO-11 under DOS-11 (a step which cannot be done by the PDP-15 customer).

```
#MCUCX,LP:/CRF<LM8K,MEMSIZ,MACRO1,
              MCIOCH,MACRO2
```

if a CREF listing is required, otherwise null string

```
#MCUCA,LP:/CRF<LM8K,MEMSIZ,MACRO1,
              MCIOCH,MACRO3,MACRO5
```

The above 2 assemblers will produce the object modules MCUCX.OBJ and MCUCA.OBJ for an 8K UC15 system. For 4K and 12K UC15 systems use LM4K and LM12K respectively instead of LM8K.

```
#MCUPST,LP:/CRF<LM8K,PST
```

c. To produce the load module of MAC11 on papertape the above 3 object modules have to be linked by the DOS-11 linker (not available to PDP-15 customers), i.e.,

```
#PP:MCUC15/SQ,LP:<MCUCX,MCUCA,MCUPST/B:Ø/E
```

for a load map

d. GLOAD on DOS-15 (load and execute) MACIMG BIN after loading the MAC11 object module on the high speed paper tape reader and issuing API OFF. A 'DONE' message is printed on the console when the image of MAC11 has been successfuly built on the disk in the area reserved by SGEN. MACIMG performs its own I/O; hence, it does not require assignments to .DAT slots.

e. Rename MACINT Ø14 to MAC11 Ø14, assemble with MACRO-15 and then use PATCH as shown in note 2, to install it into MAC11.

SPOOL:

a. Assemble SPOL11 *28 under MAC11 to produce the SPOL11 load module on papertape. The * in the file name extension can be any of the following, which indicate which assembly parameters are defined internally in the source code. To change assembly parameters one must edit the source file.

    * = 1 for null task
      = A for LP11/LS11 task only
      = B for CR11 task only
      = C for LP11/LS11 and CR11 tasks only
      = D for XY11 task only
      = E for LP11/LS11 and XY11 tasks only
      = F for XY11 and CR11 tasks only
      = G for LP11/LS11, XY11 and CR11 tasks only

    For example,

    SPOL11 C22 should be the name of the source file when the spooled devices are to be LP11/LS11 and the CR11.

b. Assemble SPLIMG ØØ2 under MACRO-15.

c. Issue an API OFF command to DOS then, GLOAD SPLIMG BIN after loading the SPOL11 object module in the high speed paper tape reader. A "DONE" message is printed on the console when the image of SPOL 11 has been successfully built on the disk.

d. Rename SPOL15 Ø23 to SPOOL Ø23, assemble with MACRO-15 and then use PATCH, as shown in note 2, to install it into SPOOL.

10. The ABSL11 loader cannot be assembled with the version of MACRO-15 supplied to customers. It requires a special version of MACRO-15, called MACRO-D, used to generate PDP-15 Diagnostic programs. The difference is in the load addresses for HRM tapes: 1772Ø for MACRO-15 and 177ØØ for MACRO-D.

11. PIREX is conditionalized so that code for only existing devices need be assembled. The output from MAC11 to paper tape is an absolute binary object module which is loaded into the PDP-11 by the ABSL11 loader as described in the Unichannel-15 Software Manual, (DEC-15-XUCMA-A-D). The conditionalization for DECtape and LV11 is listed for the user's convenience. These devices are not software supported by DEC.

12. DOSBCD, the batch card reader handler, is part of the resident monitor. The position in core memory occupied by DOSBCD depends upon the size of the resident monitor (RESMON). Thus the

start address of DOSBCD, BCDSTA, is a variable which can be defined as an assembly parameter. Also, certain addresses in DOSBCD must be supplied to RESMON at a specific address, BCDADR, to insure proper operation. Both parameters are defined from values obtained from an assembly listing of RESMON. The value to be assigned to BCDSTA should be the same as the value of the parameter CD, defined by the line CD=., in RESMON. The value for BCDADR should be set equal to the location one higher than the address tap DATL1 in RESMON.

For RESMON ØØ4 these values are:

	NO UC15	HAVE UC15
BCDSTA	6463	7572
BCDADR	11726	13041

13. The steps taken to produce the DOS-15 tapes distributed by DEC vary from those outlined in the tables in a few cases:

    a. The F4X9 version of the FORTRAN compiler was made by renaming the source file F4P2 Ø49 to F4X9 Ø49, rather than to F4 Ø49 as shown in Table 1. The resulting binary file after assembly is F4X9 BIN rather than F4 BIN. This was done so that this particular version of the compiler could readily be identified in the disk's <PER> UFD. The code produced either way is identical.

    b. The LPØ9 line printer handler was not renamed to LPA. ØØ4, as indicated in Table 1, so that the binary file in the disk's <PER> UFD can be identified as LPA.Ø9 BIN.

    c. The 647 line printer handler was not renamed to LPA. ØØ2, as indicated in Table 1, so that the binary file in the disk's <PER> UFD can be identified as LP.647 BIN.

14. OFFLINE SWITCH

The CALCOMP plotter does not have an offline switch. This leads to difficulty in stopping the plotter to refill pen, take off plots, etc. Bit 2 switch of the PDP-11 console switches is to be used as the offline switch for the CALCOMP. If you do NOT wish this feature define $NOSW=Ø.

Note, for $PL311, this is automatically disabled, do not define!!

Conditional Assembly for XY11 or XY311 Plotter Interface

$PL311 if defined will generate the control bytes required for CALCOMP's 936. If undefined, the control bytes for CALCOMP's 500 series are generated. If $PL311 is defined then the units for the plotter step size should be specified. $UNITS defined generates a metric plotter. Undefined gives one in inches.

15. The UC15 version of the RESMON contains six special buffers utilized as PIREX/DOS TCB's. These buffers are utilized as follows:

1. A 117 word Line Printer TCB.
2. A 65 word Card Reader TCB.
3. A 117 word Plotter TCB.
4. A 24 word Spare TCB.
5. A 120 word Spare TCB.
6. A 170 word Spare TCB.

The spare TCB's are available for the use of customer programs desiring communication with PIREX.

If any of these TCB's are not needed - they can be deleted by utilizing the appropriate assembly parameter.

16. LTX. is a dummy handler. See the SGEN-DOS UTILITY PROGRAM MANUAL. (DEC-15-USGNA-A-D) for more details about the use of LTX.

HOW TO OBTAIN SOFTWARE INFORMATION

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