

THE SOFTWARE DISPATCH PDP-9 and PDP-15

JUNE 1975

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THE SOFTWARE DISPATCH

THE SOFTWARE DISPATCH PDP-9 and PDP-15

JUNE 1975

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DEC-15-XSDIA-E-D

and

DEC-15-XSDAA-E-D

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digital

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The Software Dispatch is published monthly by Software Communications, Digital Equipment Corporation, Box F, Maynard, MA 01754.

Purpose: The Software Dispatch serves the DIGITAL software user. It publishes new and revised software announcements, programming notes, software problems and solutions, patches and documentation corrections.

The format allows it to be reassembled by the customer into a customized reference notebook for his special interests. The basic document with procedures for this effort is the Software Dispatch Review issued with the software purchase.

Subscription: The Software Dispatch for the PDP-9/15 is provided to all DIGITAL customers authorized to use the software product for three months after purchase. Thereafter it is available as part of the software maintenance service.

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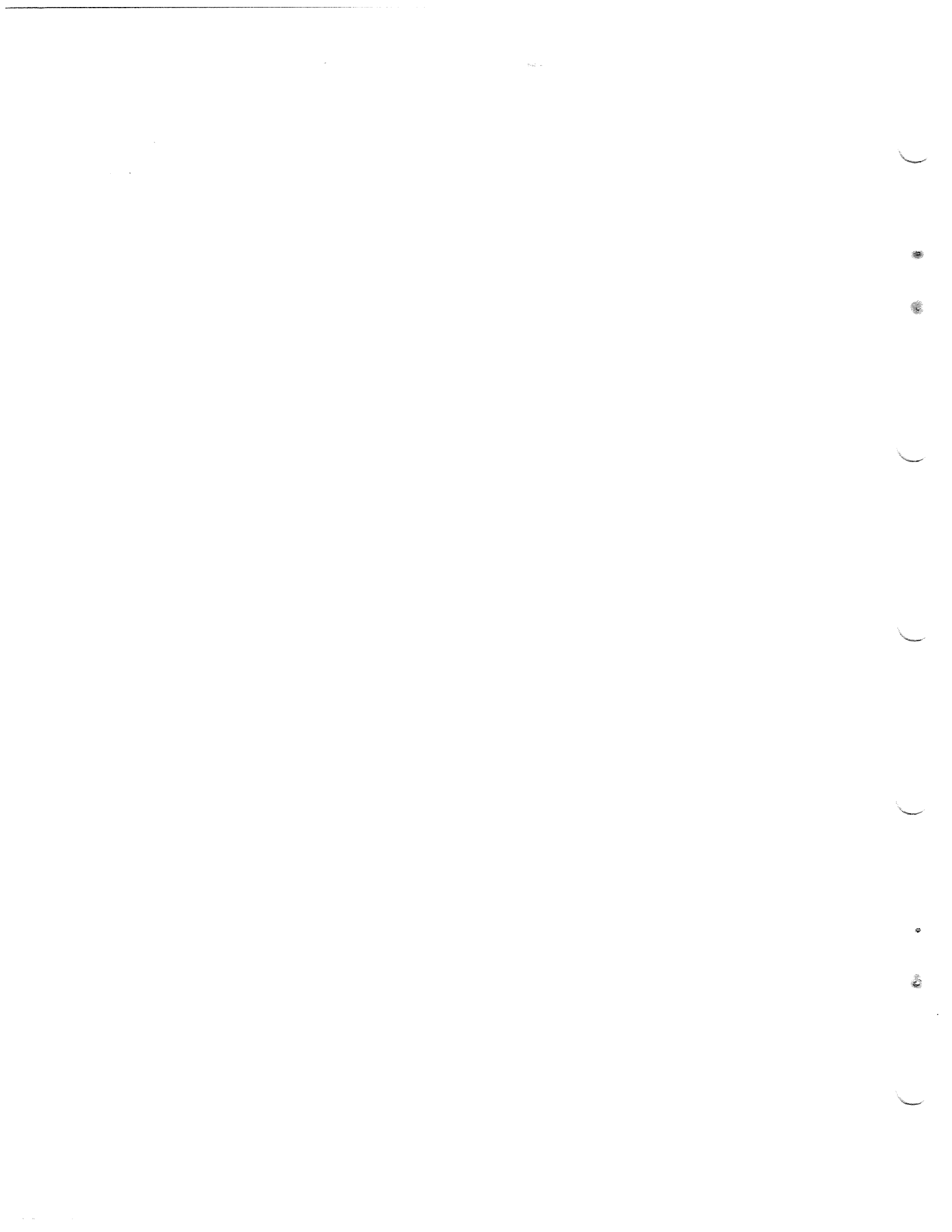
RSX PLUS III

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Reassembly for More Than Four Random Access Files 5

NOTE: There are no incoming SPRs this month. All problems reported have been resolved.

*Article contains patch
†Replacement article

OUR NEW LOOK: As you can see, we've updated the cover of the Software Dispatch to reflect the PDP-15/76 and the recent versions of DOS and RSX PLUS III--the hardware and software of today.



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Disk Errors Handled Improperly

PROBLEM:

DOSSAV is unable to restore a system to a DECdisk that has physically bad blocks and will not process a parity error correctly.

SOLUTION:

The following source edit to DOSSAV 067 corrects the problem. Note that this correction, with the exception of the edit number, is the same for DOSSAV V3A (EDIT 065).

① → / / / / /
065 EK 15-JUL-74 CHANGE SIGNON NUMBER
066 SK 16-DEC-74 SPR:15-874 BUG FIX
067 JMW 8-JAN-75 CHANGE SIGNON MESSAGE.
068 JMW 3-APR-75 CORRECT DISPATCH TO RF ERROR PROCESSOR.

SOFTWARE PRODUCT	VERSION	
DOS-15	V3B	
COMPONENT	VERSION	EDIT
DOSSAV	V3B001	068
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE	PAGE OF
	2	1 2
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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Disk Errors Handled Improperly

```

RFRTRY LAC BUFSZE
DAC* RFWC /W.C.
LAC BUFF
TAD LH1
DAC* RFBUF
DSCC /CLEAR DISK.
LAC RFTRCK
DLAL /TRACK, SECTOR ADDR.
LAC PLATER /DISK NUMBER.
DLAM
LAC RFI0F /LOAD FUNCTION REGISTER.
DSCF!DSCN!DSFX /CLEAR AND LOAD AND GO.

```

```

/
/ THE 10-BIT STATUS REGISTER REFLECTS THE STATE
/ OF THE DEVICE AFTER IT HAS PERFORMED ITS SPECIFIED
/ OPERATION. ANY TIMING OR PARITY ERRORS THAT HAVE
/ OCCURRED DURING THE OPERATION ARE INDICATED HERE.
/

```

```

/ RFI5 DISK STATUS REGISTER.
/ 0=ERROR FLAG.*
/ 1=DISK HARDWARE ERROR (FREEZE).
/ 2=ADDRESS PARITY ERROR (FREEZE).
/ 3=MISSSED TRANSFER.
/ 4=WRITE CHECK ERROR.
/ 5=DATA PARITY ERROR.
/ 6=WRITE LOCK OUT.
/ 7=NON-EXISTANT DISK.
/ 8=DCH TIMING ERROR (0 NOT SET).
/ 9=PROGRAM ERROR (0 NOT SET).
/ 10=TRANSFER COMPLETE.*
/ * CAUSES API OR PI.
/

```

```

DSSF
JMP .-1 /WAIT FOR DISK FLAG.
DSRS /READ DISK STATUS.

```

```

DAC RFSTAT
SPA!KTL
JMP RFERRS / (000:JMW) ERROR FLAG UP.
DSCD /CLEAR DISK STATUS.
LAC RFI0F /WAS THIS A WRITE?

```

```

/ TTY MESSAGES,
/

```

```

TITLE .SIXBT 'DOSSAV V3B001'

```

SOFTWARE PRODUCT		VERSION	
DOS-15		V3B	
COMPONENT		VERSION	EDIT
DOSSAV		V3B001	068
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE	PAGE OF
NEW		2	2 2
REPLACEMENT ARTICLE		ORIGINAL DATE	
<input checked="" type="checkbox"/>		<input type="checkbox"/>	

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Reassembly to Support More Than 208 DAT Slots

PROBLEM:

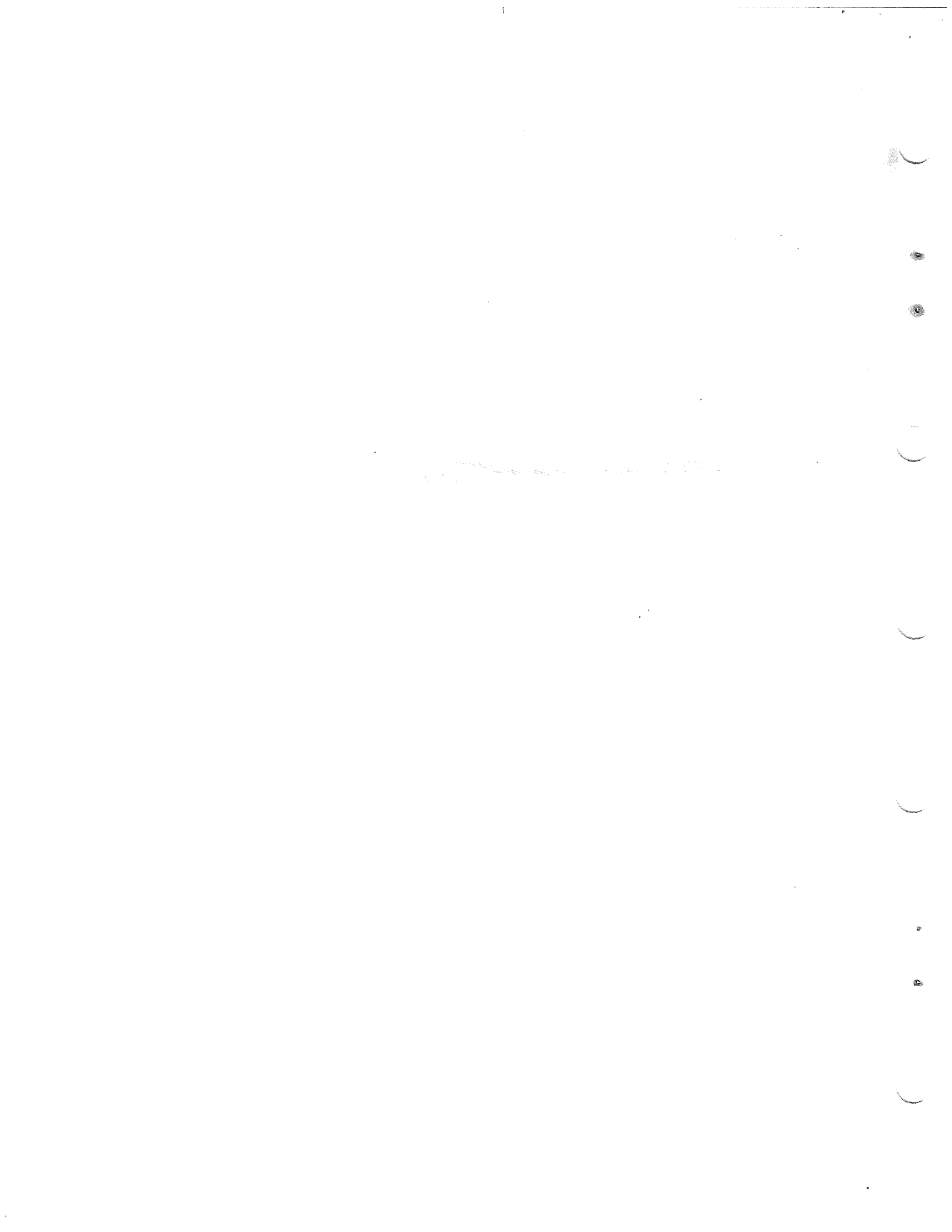
The distributed FORTRAN libraries are assembled to support the default number of positive DAT slots: 208. If use of a DAT slot greater than 208 is desired, the routines .FLTB, FIOPS, and STOP must be reassembled and the libraries updated.

If more than four random access files are to be simultaneously open, the routine DEFINE must be reassembled and inserted in the libraries.

DISPOSITION:

Refer to the PDP-15 FORTRAN IV Operating Environment Manual (DEC-15-LFEMA-A-D), Appendix F, for the proper assembly parameters.

SOFTWARE PRODUCT	VERSION	
DOS-15	V3B	
COMPONENT	VERSION	EDIT
FORTRAN OTS	V3B000	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE	PAGE OF
I/O Modules	6	1 1
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	



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June 1975

Correction for Improper Handling of Protection Codes in a Copy Operation

PROBLEM:

PIP V3A000 will change protection codes occasionally during a COPY (with no switches) operation.

SOLUTION:

The following binary patch, which creates PIP V3A001, corrects the problem.

```
PATCH V3A000
>PIP
>LR 5353
>07554/207436<05235>JMP #+1000
>LR 1000
>03201/000000>LAC #+5435
  03202/000000>AND #+15203
  03203/000000>DAC #+5435
  03204/000000>LAC #+5235
  03205/000000>JMP #+5354
>LR 1034
  03235/006400>106400
>EXIT
```

SOFTWARE PRODUCT DOS-15	VERSION V3A	
COMPONENT PIP	VERSION V3A000	EDIT 104
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1	PAGE OF 1 1
NEW <input type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/> 1	ORIGINAL DATE December 1974

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June 1975

Large Word Pair Count

PROBLEM:

Lines which are retyped while using the G switch during a transfer operation have a word pair count so large that the Editor is unable to accept them.

SOLUTION:

The following binary patch, which creates PIP V3A002, corrects the problem:

```
$PATCH  
  
PATCH V3A000  
>PIP  
>LR 7004  
>11205/741100>SZA  
>LR 1034  
>03235/106400<04177>206400  
>EXIT
```

SOFTWARE PRODUCT		VERSION	
DOS-15		V3A	
COMPONENT		VERSION	EDIT
PIP		V3A001	104
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE	PAGE OF
		2	1 OF 1
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE	
<input type="checkbox"/>	<input type="checkbox"/> 1	December 1974	

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SOFTWARE DISPATCH

PDP-9/15

June 1975

Correction to DOS-15 V3B Update Procedure

PROBLEM:

Due to an error in the distribution of DEC-15 V3A RESTORE DECTAPE #1 for RP02 (DEC-15-ORPRA-A-UC1), the complete error-free installation of DOS-15 V3B is not possible.

The error IOPS 74 is given while attempting to execute the following line found on page 7-7 of the DOS-15 V3B Update Document (DEC-15-OD3BA-A-D):

```
>T DP <BNK> .LOAD BIN ← DT.LOAD BNK )
```

This command replaces DOS V3A .LOAD with DOS V3B .LOAD

SOLUTION:

There are two possible solutions to the problem.

1. DO NOT execute the above line. Replacement of .LOAD is not really necessary, because differences between DOS V3A .LOAD and V3B .LOAD are insignificant.
2. This solution allows replacement of .LOAD.

PATCH DOS-15 V3A000 RP02 restore tape (DEC-15-ORPRA-A-UC1) as follows:

- a. Put the DECTape (DEC-15-ORPRA-A-UC1) on drive #0, write enabled.
- b. Do the following:

```
DOS-15 V3A000  
$A DT -14 )  
$PATCH  
PATCH V3A000  
>B 1077  
>L 200  
>00200/000000>775  
00201/000000>1000
```

SOFTWARE PRODUCT	VERSION	
DOS-15	V3B	
COMPONENT	VERSION	EDIT
SYSTEM INFORMATION	N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE	PAGE OF
	4	1 3
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	

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June 1975

Correction to DOS-15 V3B Update Procedure

```

00202/000000>1003
00203/000000>1006
00204/000000>1011
00205/000000>1101
>L 376
00376/000000>1011
00377/000000>777777
>EXIT
    
```

Now the restore tape has the correct data.

- c. Use DOSSAV and restore DEC-15-ORPRA-A-UC1 and DEC-15-ORPRA-A-UC2 to the RP02.
- d. Now build DOS-15 V3B by following completely the directions in the DOS-15 V3B Update Document (DEC-15-OD3B-A-D).

SOFTWARE PRODUCT		VERSION	
DOS-15		V3B	
COMPONENT		VERSION	EDIT
SYSTEM INFORMATION		N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE	PAGE OF
		4	2 3
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		

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Correction to DOS-15 V3B Update Procedure

3. This solution allows the replacement of .LOAD by PATCHing the disk to correct .LOAD RIB. Solution 3 avoids the necessity to rebuild the system from the restored DECTapes. Patch the DOS-15 V3A000 system on RP02 as follows.

- a. Do the following:

```
DOS-15 V3A000
$MICLOG SYS
$PATCH
PATCH V3A000
>B 1101
>L 200
>00200/000000>775
00201/000000>1000
00202/000000>1003
00203/000000>1006
00204/000000>1011
00205/000000>1101
>L 376
00376/000000>1011
00377/000000>777777
>EXIT
```

- b. Now build DOS-15 V3B by following completely the directions in the DOS-15 V3B Update Document (DEC-15-OD3B-A-D).

SOFTWARE PRODUCT DOS-15		VERSION V3B	
COMPONENT		VERSION	EDIT
SYSTEM INFORMATION		N/A	N/A
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE	PAGE OF
		4	3 3
NEW <input checked="" type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/>	ORIGINAL DATE	

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Phantom Partition/Global Ownership Interlock

PROBLEM:

A phantom partition (one whose principal device is unlocked) with global switch ownership waiting to relock its principal device during an emergency close may interlock with a partition owning the principal device and seeking global switch ownership, causing an interminable stalemate.

SOLUTION:

/ COPYRIGHT (C) 1974, BY DIGITAL EQUIPMENT CORPORATION

.EJECT

M U M P S
= = = = =
VERSION V11

COPYRIGHT 1971, 1972, 1973
BY
DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS, U.S.A.

EDIT 46 3/19/75 JAH

EDITS: (1) 10/23/73 = ADD MODIFY COMMAND

(C) → / (44) 2/20/75 (JAH) CORRECT CUSTOMIZED SW CODE (SPDLQ)
/ (11-45) 3/4/75 (JAH) ALLOW MORE THAN READ ALL ON ONE COMMAND LINE
(I) → / (11-46) 3/19/75 (JAH) ELIMINATE INTERLOCK BETWEEN PHANTOMS & DSKACT

SOFTWARE PRODUCT MUMPS-15	VERSION V11A	
COMPONENT MUMP16 SRC	VERSION V11A	EDIT 46
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 7	PAGE OF 1 3
NEW <input checked="" type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/>	ORIGINAL DATE

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Phantom Partition/Global Ownership Interlock

```

(I) → STEMP      0      /TEMP VAR FOR SLPCHK ROUTINE
      STAMP2     0
      EMERG      0      /*11JAH46* EMERGENCY SWITCH (6) INDICATOR
                        /*11JAH46* 0=OFF, 1=ON
      DDTSM      0      /CONSOLE TELLY SWITCH: 0=MONITOR, NON=0 OUT

      /
      STACH4     IAC      /BUMP STATUS TABLE POINTER, AND
                  SAD      /IF END-OF-TABLE,
                  LAC      /WRAP AROUND TO BEGINNING.
                  DAC      (STAT1
                  SCOUNT
                  LAS
                  DZM      EMERG      /READ SWIS DIRECTLY FOR EMG HALT
                  SAD      (4000      /*11JAH46* INDICATE SWITCH 6 NOT SET
                  JMP      STACH7      /CHECK IF EMERGENCY HALT = SWITCH 6
      (C) → STACH9 LAC+     SCOUNT      /YES,
                  XOR      (1          /*11JAH46* NU, CHECK STATUS
                  AND      (4377
                  SZAICLL
                  JMP      STACH3      /PARTITION RUNNABLE?
                  LAC      PRTNMB      /NOT RUNNABLE
                  SZA
                  JMP      .+3          /FIRST RUNNABLE?
                  LAC      SCOUNT      /NO
                  DAC      PRTNMB
                  LAW      17377       /CHECK IF PRIORITY RUN
                  INTOFF
                  AND*     SCOUNT
                  SAD*     SCOUNT
                  JMP      STACH3
                  DAC*     SCOUNT
      STACH2     LAC      SCOUNT      /NO
                  DAC      PRTNMB      /YES, RESET PRIORITY BIT.
                  JMP      EXFC

      (I) → STACH7 ISZ      EMERG      /*11JAH46* INDICATE SWITCH 6 IS ON
                  LAC      DSKACT      /*11JAH46* GLOBAL DATA
                  SZA
                  JMP      STACH9      /*11JAH46* SWITCH OWNED?
      (C) → LAC+     SCOUNT      /*11JAH46* YES, NU EMERGENCY CLOSE NOW
                  SZAICLL      /*11JAH46* DU EMERGENCY CLOSE
                  JMP      STACH2      / IS PARTITION ACTIVE
                                          /YES, RUN IT REGARDLESS OF STATUS

```

SOFTWARE PRODUCT MUMPS-15		VERSION V11A	
COMPONENT MUMP16 SRC		VERSION V11A	EDIT 46
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE 7	PAGE OF 2 3
NEW <input checked="" type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/>	ORIGINAL DATE	

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Phantom Partition/Global Ownership Interlock

```

© → [ SWPOK  LAC  EMFRG      /*11JAN46* EMERGENCY CLOSE?
      SZA      /*11JAN46* (SWITCH 6)
      JMP      /YES.
      SWPOK2  LAC  SWPIN2    /NO, MAKE OUT PRINT
      DAC      (JMP XOUT
      SWPIN1  LAC  OUT+1
      AC      /RESTORE AC
  
```

SOFTWARE PRODUCT MUMPS-15		VERSION V11A	
COMPONENT MUMPI6 SRC		VERSION V11A	EDIT 46
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE 7	PAGE OF 3 OF 3
NEW <input checked="" type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/>	ORIGINAL DATE	

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Paper Tape Interrupt Mode

PROBLEM:

The paper tape interrupt routine can be entered while in bank or page mode.

SOLUTION:

Since MUPT11 can be loaded so that it overlaps page boundaries, all code within the module should be executed in bank mode.

```
 / COPYRIGHT (C) 1974, BY DIGITAL EQUIPMENT CORPORATION
```

```
 .EJECT
```

```
 COPYRIGHT 1971,1972,1973  
 BY  
 DIGITAL EQUIPMENT CORPORATION  
 MAYNARD, MASSACHUSETTS, U.S.A.
```

```
 EDIT 9 3/19/75 JAH
```

```
 /EDIT 4 9/4/73  
 /EDIT 5 3/4/74 INSERT API  
 /EDIT 6 5/10/74 ADJUST PITCHER TO BE AT LEAST AS LONG AS STRING LENGTH  
 /EDIT 7 7/9/74 ADD DISCLAIMER & ELIM EXCESS REG STORAGE  
 /EDIT 8 10/18/74 REMOVE DBA AT START OF INTERRUPT PROCESSING  
 /***VERSION 11 RELEASED THROUGH SOFTWARE DISTRIBUTION CENTER***  
 /((11-9) 3/19/75 JAH - INSERT DBA AT START OF INTERRUPT PROCESSING
```

```
 PTRIN=.
```

```
 .IFPNZ API
```

```
 @
```

```
 INTOFF
```

```
 EBA
```

```
 DAC INYPTC
```

```
 /!!!! SINCE AT PRESENT MQ, LR, & XR ARE NOT USED DURING INTERRUPT
```

```
 /*11JAH9* WE DO NOT WANT PAGE MODE, SINCE  
 /*11JAH9* THIS MODULE MAY OVERLAP PAGE BOUNDARIES
```

SOFTWARE PRODUCT		VERSION	
MUMPS-15		V11A	
COMPONENT		VERSION	EDIT
MUPT11 SRC		V11A	9
SUBPROGRAM OR ADDITIONAL INFORMATION		SEQUENCE	PAGE
		1	1 OF 1
NEW	REPLACEMENT ARTICLE	ORIGINAL DATE	
<input checked="" type="checkbox"/>	<input type="checkbox"/>		



SOFTWARE DISPATCH

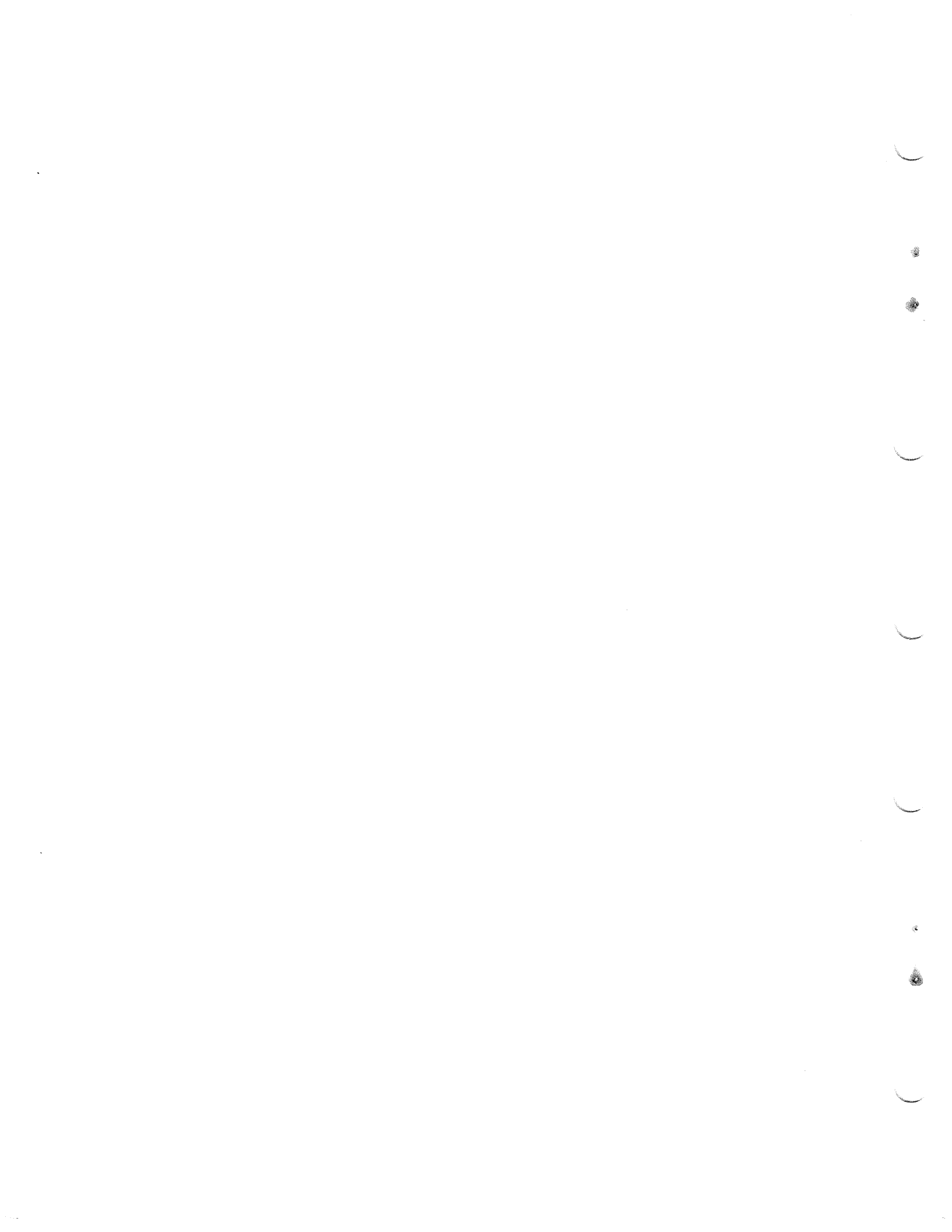
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Reassembly for More Than Four Random Access Files

If more than four random access files are desired to be simultaneously open, DEFINE must be reassembled. The parameter %TBSI% should be equal to the maximum number of open random access files required.

SOFTWARE PRODUCT RSX PLUS III	VERSION V1B	
COMPONENT FORTRAN OTS	VERSION V3B	EDIT N/A
SUBPROGRAM OR ADDITIONAL INFORMATION DEFINE	SEQUENCE 5	PAGE OF 1 1
NEW <input checked="" type="checkbox"/>	REPLACEMENT ARTICLE <input type="checkbox"/>	ORIGINAL DATE



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