Digital Software News

PDP-8

MARCH 1976

DEC-08-XSMAD-A-D

The material in this document is for information purposes only and is subject to change without notice. Digital Equipment Corporation assumes no responsibility for any errors which may appear in this document. Software binaries and sources are provided only under licenses. The standard terms and conditions, OEM Agreement, and/or quantity discount agreement contain the licenses for all binaries other than for the DECsystem-10.

digital

SOFTWARE SERVICES

PDP-8 DIGITAL SOFTWARE NEWS

Published by Software Communications
Digital Equipment Corporation
P.O. Box F
Maynard, MA 01754

(617) 897-5111, ext 5411

The monthly Digital Software News serves those licensed to use DIGITAL software for the PDP-8. It publishes new and revised software descriptions, programming notes, software problems and solutions, and documentation corrections. Much of the material is developed from answers to customer Software Performance Reports significant to the general audience.

The Digital Software News is directed to the software contact at each software installation. (The software contact is that person directly responsible for the operation of the software.) There is to be only one software contact per software installation. No mailing will be made to addresses without a software contact name.

The format of the Digital Software News allows it to be reassembled into a customized reference notebook for a customer's software interest.

The PDP-8 Digital Software News supports these products:

```
OS/8 V3 & V3B
  Ext (BASIC, BATCH, TECO) V3 & V3B
  FORTRAN IV V2 & V2B
  FORTRAN IV Plotter V1
  Industrial BASIC V3
  PAMILA V1
  RTS-8 V1 & V2

CAPS-8 V1

COS-300 V3.07
  Foreground/Data Entry V3.07
  MTS (Multi) V3.10
  COS-300/2780 RDCP V5.06

COS-310 V5.05
  COS-310/2780 V5.05

EduSystems
  20 V4
  25 V3
  50 V8.22 & V8.24
```

Betty A. Steinfeld, Editor
Carol Bibbins, Publications Coordinator

PDP-8

Sequence

Cumulative Index through March 1976

PRODUCT ANNOUNCEMENT: RTS/8 Version 2, Real-Time Operating System

COS-300

COS-310

EDU-50 TSS/8

OS/8

* Article contains a patch.
† Article is a replacement.

* Article contains a patch.
† Article is a replacement.

CUMULATIVE INDEX

Missing sequence numbers have been retracted
Articles dated before Sep 75 will be found in the COS-300 Software Performance Summary
* Article contains a patch

Component	Sequence	Mon/Yr
COS-300		
MCOMP		
Incorrectly Determined Core Requirements	1*	Apr 75
Symbol Table Overflow Incorrectly Handled	2*	Apr 75
MONITOR		
Directory Commands	1*	May 74
Number of Filler Characters After a Carriage Return, Linefeed	3*	Sep 74
Turning Off the Numeric Keypad	4*	Sep 74
Incorrect Buffer Pointer With Multivolume Files	5*	Apr 75
Writing Files with Full Directory	6*	Nov 75
Directory Characteristics	7	Mar 76
MULTI		
Runtime Errors in the COS-300 MULTITERMINAL DIBOL	1*	Jan 75
EOF Marking Upon Closing Files	2*	Jan 75
Unlock May Fail	3*	Apr 75
RETURN WITHOUT CALL Error	4*	Jul 75
CTRL/C May Hang System	5*	Aug 75
Record Locks	6*	Jan 76
PIP		
Loss of File Space	1*	Apr 75
Writing Files with Full Directory	2	Nov 75
SYSGEN		
Running Foreground/Background	1*	Sep 74
I/O Errors	2*	Jan 75

CUMULATIVE INDEX

Missing sequence numbers have been retracted
* Article contains a patch
COS-310 articles dated before Jan 76 will be found in the COS-310 Software Performance Summary

CUMULATIVE INDEX

EDUSYSTEM 50 articles dated before Dec 75 will be found in EDU-50 TSS/8 Software Performance Summary.

* Article contains a patch.

CUMULATIVE INDEX

Missing sequence numbers have been retracted.
Articles dated before Jan 76 will be found in the OS/8
Software Performance Summary
* Article contains a patch.

Component	Sequence	Mon/Yr	
OS/8			
BUILD			
BUILD V4 Fails to Zero Location SOFSET	1*	Nov 74	
Unable to Boot BUILD After ?Name Error	2*	Nov 74	
Building OS/8 from Paper Tapes	3	Feb 75	
System Device Length	4*	Mar 75	
SIZE Command for BUILD	5*	Apr 75	
CCL			
Incorrect Date and Error Messages	1*	Jan 75	
Source Changes to CCL	2*	Aug 74	
Default Extensions for TECO	3*	Apr 75	
EDIT Command	4*	Apr 75	
Edit Command Incorrectly Handled	5*	Feb 76	
CREF			
Conflict in /E Option	1*	May 75	
Missing Form Feed	2*	Oct 75	
Output at End of Pass 1	3*	Mar 76	
Changing the Number of Lines Per Page	4*	Mar 76	
FIXMRI Patch to CREF	5*	Mar 76	
Dollar Sign Patch to CREF	6*	Mar 76	
JSW Patch to CREF	7*	Mar 76	
Long Line Patch to CREF	8*	Mar 76	
DIRECT			
Problem with Default Device Name in DIRECT	1*	Aug 74	
Erroneous Messages Indicate TTY Handler Missing	2*	Feb 75	
EDIT			
Erroneous Message Output	1*	Mar 75	
EDIT /A Option Removed	2	Apr 75	
Rubout Algorithm Does Not Always Work Correctly	3*	Mar 76	%
EPIC			
Chaining to EPIC	1*	Oct 75	
FORMATTERS AND COPIERS			
Formatting Multiple DECtapes	1*	Aug 74	
DTCOPY May Not Work	2A*	May 75	
TDCOPY Reliability Improvement	2*	Jan 76	

% Article temporarily withdrawn.

Component	Sequence	Mon/Yr	
OS/8			
FORTRAN II			
Adding Modules to the Library	1	Aug 73	
Literal Pool Overflow	2*	Oct 74	
DECtape I/O Routines	3	Dec 74	
Incorrect Calculation of Line Numbers	4A*	Feb 75	
FORTRAN II Trig Package Inaccuracy	4	Dec 75	
Chaining to LOADER	5*	Jul 75	
Using TTY Output With SABR	6*	Jun 75	
Software Core Size	7*	Jul 75	
Implied DO Loops	8*	Feb 76	
FORTRAN IV			
Scaling in the FACTOR Routine	1*	Jan 75	
Possible Erroneous Statement Number in Error Traceback	2	Oct 74	
CLRPLT and PLOT on LAB-8/e Systems	3*	Oct 74	
Undetected SF Error	4*	Oct 75	
Errors in FORTRAN IV	5*	May 75	
Temporary Variables in ASF	6*	May 75	
Mysterious FORTRAN IV Load Map Codes	7	Apr 75	
Software Core Size Restrictions	8*	Aug 75	
Chaining to RALF	9	Dec 75	
Format Statement Mishandled	10*	Oct 75	
Call TIME Error	12	Nov 75	
Use of Pause Statement	13	Nov 75	
Failure of Fatal Error Handler in RALF	14*	Nov 75	
Use of EAE Mode A Under FRTS	15	Nov 75	
Passing Arguments	16*	Dec 75	
LIBRA /I Option Fails	17*	Dec 75	
DEXP Function Restriction	18	Jan 76	
Failure in DATA Statements	19*	Jan 76	%
END Statement Required	20	Feb 76	
DN Error Message Issues Wrong Statement Number	21	Feb 76	
Multiple File Input	22*	Feb 76	
Error in SINH Function	23*	Feb 76	
Error in AINT, INT, and IFIX	24*	Feb 76	
FOTP			
Response to MONITOR ERROR 6	1*	Mar 75	
Additional Information Words	2*	Feb 76	

% Article temporarily withdrawn.

Component	Sequence	Mon/Yr
OS/8		
HANDLERS		
Improvement to TD8E Nonsystem Handlers	1*	Mar 75
Interaction Between the RK8E System Handler and the RK8E Nonsystem Handler	2*	Apr 75
Response to CTRL/C	3*	Sep 75
RK8E Status Register	4	Dec 74
Shortening the Length of the RF08 System Disk	5*	Apr 75
System DF32 and RF08 Handlers Reference SOFSET	6A*	Apr 75
Use of Auxiliary Teletype	6*	Nov 75
Magnetic Tape	7A	Apr 75
Floppy Disk Bootstrap	7*	Mar 76
NULL Handler	8	Apr 75
Creating a System Handler	9A	Apr 75
Optional Patch to NULL Handler	10*	Mar 76
Patchable Location in Null Handler	11	Mar 76
KS33 Use of Up-Arrow	12	Mar 76
INDUSTRIAL BASIC		
Guideline for INDUSTRIAL BASIC Floppy System	2*	Jan 76
MCPIP		
Erroneous Image Mode Transfers	1*	Sep 74
MONITOR		
Error in Handling a Monitor Error	1*	Apr 75
CHAIN fails for Full Field Saves	2*	Jun 75
PAL8		
Use of Conditionals	1*	Aug 74
Problem with the /B Switch in PAL8	2*	Aug 74
The /C Option and the Default Temporary File	3*	Sep 74
Use of the XLIST Pseudo-op	4	Dec 74
/F Option Does Not Disable Extra Zero Fill	5*	Feb 75
PAL8 Will Not Restart Properly	6*	Apr 75
Seventh Level Bit in First Frame of Check Sum	7*	Mar 75
/W Option Fails	8*	Oct 75
Revision to /F Option Patch	9A*	Apr 75
Switching Between Nonresident Handlers	9*	Jan 76
PIP		
Wrong Length for RF08	1*	Apr 75
Incorporating RX01 Support in PIP	2*	Oct 75
PIP10		
PIP10 Date Overflows	1	Jun 75

Component	Sequence	Mon/Yr
OS/8		
RESORC		
Identifying Paper Tape and Cassette Handlers	1*	Nov 74
Wrong Length for RF08	2*	Apr 75
TECO		
Pointer Moves Beyond Buffer	1*	Aug 75
TECO Uses Wrong Arguments	2*	Oct 75
MANUALS		
INTRODUCTION TO PROGRAMMING		
Introduction to Programming	1	Sep 74
OS/8 HANDBOOK		
Handbook Errors	1	Apr 75
Handbook Errors	2	May 75
Nonstandard File Names	3	Dec 75
PAL8 Permanent Symbol Table	6	Feb 75
Magnetic Tape	10A	Apr 75
Exponentiation of Negative Numbers	10	Sep 75
OS/8 SOFTWARE SUPPORT MANUALS		
Fragmented Directory Segments	1	Pre 73
SMALL COMPUTER HANDBOOK		
DR8-EA 12-Channel Buffered Digital I/O	1	Mar 75
OP Code Error	2	Sep 74
Loading Constants into the Accumulator	3	Dec 74

OUT OF TOUCH WITH YOUR HARDWARE? TRY DIGITAL HARDWARE DOCUMENTATION.

If you're a long-time small computer user, you know how complex hardware has become. You may be up-to-date on hardware developments but still a bit vague about subassembly details. You probably feel out of touch with the machines around you but you don't know where to look for help. Useful hardware documentation is hard to come by. Unless it's from DIGITAL.

We have hundreds of titles in stock for all our hardware, its components and peripherals: user reference manuals, operator handbooks, even maintenance manuals and print sets. This is the documentation that is used by our field service people so you can be sure it's up-to-date, technically accurate, and comprehensive.

And because we're committed to satisfying our customer needs, we're making these documents available to you at low prices (substantial quantity discounts reduce prices even further).

If you want to learn more about your hardware, we have the working tools you need. Just contact your nearest DIGITAL field office for a catalog listing our hardware documentation, abstracts of our most popular handbooks, and complete ordering information.

digital

Software Product Description

PRODUCT NAME: RTS/8, Version 2, Real-Time Operating System SPD 4.20.3

DESCRIPTION:

RTS/8 is the Real-Time Operating System for the PDP-8 family (excluding the PDP-8/S) and for the PDP-12. It allows up to 63 tasks to run concurrently while competing for resources on a fixed priority basis. RTS/8, once generated under OS/8, can be entirely memory resident or have non-memory resident tasks.

RTS/8 is an event driven multitasking, multiprogramming real-time operating system which in large configurations can become a development system with OS/8 as well. The RTS/8 Executive module (task) is entirely memory resident. The size of the executive typically ranges from 640 to 1K words of memory, depending upon the number of tasks. Other features of RTS/8 include the following:

- Maximum of 63 foreground tasks and one background (the OS/8 module) task.
- Fixed priority of task.
- Tasks can be scheduled by themselves, by another task, or by the operator.
- Tasks can be scheduled for execution immediately, at a fixed interval from the time requested or at a specific time of day.
- Tasks can be swapped into memory when required.
- Tasks can be written onto mass storage prior to being swapped out.
- The RTS/8 executive provides facilities for tasks to communicate with other tasks.

The following modules (tasks) are provided by Digital in a format which, when tailored by the user, constitutes a specialized RTS/8 system.

- RTS/8 Executive (monitor)

  Controls task execution
  Schedules events (if a clock is available on the system)
  Sends messages to system tasks
  Suspends task execution

- Swap Module

  This module actually swaps tasks into or out of memory. SWAP determines whether a task is already in memory, or whether it must be first written onto mass storage before another task may reside in its partition (area of memory), or whether a new task can be swapped into memory without regard to what was in the partition previously.

- Monitor Console Routine (MCR) Module

  The Monitor Console Routine provides the operator/programmer with functions to control, inspect, debug, suspend, schedule and print the status of tasks within the system.

- Mass Storage Modules

  This group of drivers accepts the same request message format to read or write blocks on the following storage devices:

  RX8 - Floppy Disk
  RK8-E - Cartridge Disk
  RK08 - Cartridge Disk
  DF32/RF08 - Fixed Head Disk
  TC08 - DECtape
  LINCtape

- OS/8 Files Module

  This module provides the user the ability to look-up, create and delete files in OS/8 directories from a foreground task. This module, when used in conjunction with one or more of the previously mentioned mass storage modules, allows the programmer the capability to read or write OS/8 files onto the previously mentioned storage device.

- OS/8 Background Module

  The combination of the previously mentioned device drivers and the OS/8 Background Module allows the execution of any of the OS/8 operating system utilities (i.e., PAL8, BASIC*, EDITOR, TECO, BATCH) to run under the RTS/8 executive. OS/8 is run in the top two or more memory fields under control of the KT8-E (standard on PDP-8/E,F,M with 8K or more core memory) or time shared eight (KT8-I or KT08) hardware option. One of these options are required for OS/8 Background execution. In addition, a background terminal must be dedicated to the OS/8 system execution.

*Excluding Industrial BASIC

Included in the module is:

- Clock Module

  It accepts requests (in the form of RTS/8 messages) to perform actions after a specified time has elapsed.

- Console Terminal Module
- Non-Console Terminal Module

  These drivers handle a single terminal in either line or character mode. Input in line mode is terminated by a carriage return or an ALTMODE character, and may be edited with a RUBOUT or CRTL/U character. In character mode, input is not echoed and is terminated by overflow of a specified character count.

- Line Printer Module

  The RTS/8 line printer supports an LE-8, LS8-F or LV-8 Line Printer. Its structure is identical to line mode in the terminal module.

- Cassette Module

  The RTS/8 cassette driver is used with the TA8-E/TU60 DECcassette drives to allow the user to read or write data on cassette.

- Cassette File Module

  This module allows the user to look-up, enter and delete files from a DECcassette. When used with the cassette driver, the user can read or write standard CAPS-8 format data files on DECcassettes.

- Power Fail/Auto-Restart Module

  This driver provides the mechanism by which the system can recover from a power failure. If a power low condition occurs, the processor state is saved and the processor is halted. When power is restored, the processor state is restored and control is transferred to the power fail drive.

Universal Digital Controller (UDC-8)/Industrial Controller Subsystem (ICS-8)

This driver gives the user the capability of controlling all the various types of UDC/ICS modules. The driver performs two types of actions: immediate and deferred. Immediate actions include reading and sending Digital values to appropriate UDC/ICS modules. Deferred actions may be linked to specified events within the UDC/ICS (i.e., counters overflowing, switches being thrown).

MINIMUM HARDWARE REQUIRED:

1. Minimum RTS/8 configuration for a Run-Time system is as follows:

   A. Without OS/8 or OS/12 background support
   - Any PDP-8 family processor (except a PDP-8/S) or a PDP-12 with 4K words of memory.
   - Console Terminal
   - DECtape or DECcassette or LINCtape

   B. With OS/8 or OS/12 background support
   - Any PDP-8 family processor (except a PDP-8/S) or a PDP-12 with 12K words of memory
   - (2) Terminals
   - RX8, TC08, RK05, LINCtape (PDP-12)

   C. With OS/8 or OS/12 background support running BATCH
   - Same as B above, but with 16K words of memory.

2. Minimum RTS/8 development configuration is OS/8 or OS/12 Version 3 or later which requires a PDP-8 or PDP-12 with 8K words of memory, 64K words of mass storage and a terminal (VT50 or LA36).

OPTIONAL HARDWARE SUPPORTED:

Additional memory (up to 32K words system total)
DK8-EA, DK8-EC, DK8-EP Clocks
LA30-PA, VT05 Terminals (up to 2400 baud with KL8-JA)
TC08 DECtape only
DF32, RF08, RK08, RK8-E Disk or RX8 Floppy Disk
DP8-E powerfail/auto-restart
TA8-E Cassette
UDC-8/ICS-8 Industrial Control Subsystems
LE-8, LS8-F, LV-8 Line Printer
LINCtape
VT50, VT52 Video Terminal (teletype level support)
LT33, LT35 Teletypewriters
LA30, LA36 Serial DECwriters

PREREQUISITE SOFTWARE:

OS/8 or OS/12, Version 3 or later.

OPTIONAL SOFTWARE SUPPORTED:

None.

TRAINING CREDITS:

None.

SUPPORT CATEGORY:

B, Software Support will be provided as listed in the Software Support Categories Addendum to this SPD.

UPDATE POLICY:

Software Updates, if any, released by Digital during the one year period following installation, will be provided to the customer on one of the standard distribution media listed in the SPD, at the then current update price. After the first year, updates, if any, will be made available according to the then prevailing Digital policies.

ORDERING INFORMATION:

This software is furnished under a license for use on a single CPU and can be copied and modified (with inclusion of Digital's copyright notice) only for use on such CPU, except as may otherwise be provided in writing by Digital.

A license agreement for Digital Software Program Sources must be in effect before a source or listings package may be obtained.

The following key (A,B,C,N,Y) represents the distribution media available for the product and must be specified at the end of the "Q" number, i.e., QF020-XC = sources on DECtape.

A - LINCtape
B - Paper Tape
C - DECtape
N - DECcassette
Y - Floppy Disk

Source Options

QF020-X– Single-use license, sources, listings, documentation, Support Services (media: B,C,N,Y).
QK020-X– Single-use license, sources, listings, documentation, Support Services (media: A).
QF021-X– Single-use license, sources, listings, documentation, includes OS/12 Version III binaries, Support Services (media: B,C,N,Y).
QK021-X– Single-use license, sources, listings, documentation, includes OS/12 Version III binaries, Support Services (media: A).

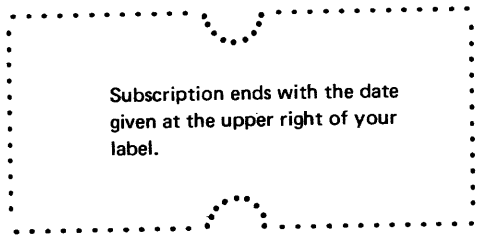
Update Options

The update is distributed in source form on the appropriate medium but includes no installation or other services unless specifically stated otherwise.

QF020-N– RTS/8 Update Kit, updates Version I to Version II (media: B,C,N,Y).
QK020-N– RTS/8 Update Kit, updates Version I to Version II (media: A).
QF021-N– RTS/8 Update Kit (with OS/8) (media: B, C,N,Y).
QK021-N– RTS/8 Update Kit (with OS/12) (media: A).

SOFTWARE CONTACT CHANGE?

If that person responsible for your DIGITAL software has changed, attach the most recent address label here.



New Software Contact: _____

Prior Software Contact: _____

Software Product: _____

Software Monthly: _____

Allow 6 to 8 weeks for change of name or new subscription to become effective. To avoid interruption of service, notify your mailroom or Post Office before relocation of installation. In the U.S., the Post Office will forward Third Class periodicals . . . for a fee.

Monthlies damaged in mailing will be replaced if the damaged copy is returned.

MAIL TO:

Software Communications . Box F . Maynard, MA 01754

Request for subscription information should be addressed to your DIGITAL field office.

DAFT Will Not Access Records Past Number 1000

PROBLEM:

DAFT will not access records past number 1000 during a GOTO in input mode. Also, the record number displayed after a search is three positions.

SOLUTION:

This patch will allow a GOTO up to record number 99,999 and will display five positions after a search. The version number of DAFT becomes 3.07B.

```
COS MONITOR 3.07G

.FE DAFTA
.240 RECNO,    D5
.585 FNOM,     D5
.WR DAFTA/Y
.FE DAFTB
.2370 VERSION, XMIT(TTY,"DAFT VERSION 3.07B ')
.WR DAFTB/Y
.R COMP,DAFTA,DAFTB/N

COS MONITOR 3.07G

.SA DAFT/Y

COS MONITOR 3.07G
```

SOFTWARE PRODUCT	VERSION
COS-300	V3.07
COMPONENT	**VERSION**
DAFT	V3.07A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 2 * / **PAGE OF** 1 1
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Directory Characteristics (SPR 8-1798)

PROBLEM:

A NO ROOM message is output from the COS monitor when the directory implies there is room.

DISPOSITION:

An RK05 disk has 406 segments. There are 16 blocks per segment, so the total blocks per RK05 is 6496. However, all of this is not available for program storage. 4096 is the largest number that can be represented by a 12-bit word, and only one word is reserved for the size of the file in a directory entry. Therefore, 2400 blocks are beyond the range of the file storage area. The Monitor, without systems programs (see diagram), resides in the first 96 blocks (block Ø through block 95). The next 3999 blocks (block 96 through block 4095) are the maximum number that can be accessed by the directory. The remaining blocks, from 4096 on, are unavailable for program file storage though they can be assigned as logical units. In addition, when Sysgen is run, some of the space normally reserved for files may be automatically reassigned to the logical unit area if necessary.

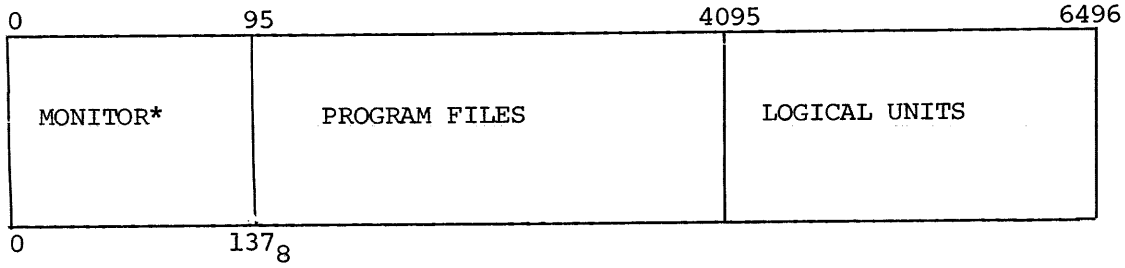
The directory is six blocks in length, each block being 256 words. Each file entry takes six words, and each free entry takes two words. Approximately four words of each block is header information

SOFTWARE PRODUCT	VERSION
COS-300	V3.07
COMPONENT	**VERSION**
MONITOR	V3.07G
SUBPROGRAM OR ADDITIONAL INFORMATION COS 300/310 System Reference Manual DEC-08-OCOSA-E-D	**SEQUENCE** 7 | **PAGE** 1 OF 2
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Directory Characteristics (SPR 8-1798)

which leaves room for approximately 41 entries in each block. This gives a total of approximately 246 entries in the directory. This total may vary slightly depending on how files were written and deleted while filling up the directory.

A directory that has 245 entries actually contains 245 files plus one free entry at the end for the number of free blocks remaining. The NO ROOM message received in this case indicates that the directory is full even though there are free blocks remaining.



*See page 6-3 of the COS 300/310 System Reference Manual (DEC-08-OCOSA-E-D) for the breakdown of the Monitor.

SOFTWARE PRODUCT	VERSION
COS-300	V3.07
COMPONENT	VERSION
MONITOR	V3.07G
SUBPROGRAM OR ADDITIONAL INFORMATION COS 300/310 System Reference Manual DEC-08-OCOSA-E-D	SEQUENCE 7 | PAGE 2 OF 2
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

DAFT Will Not Access Records Past Number 1000

PROBLEM:

DAFT will not access records past number 1000 during a GOTO in input mode. Also, the record number displayed after a search is three positions.

SOLUTION:

This patch will allow a GOTO up to record number 99,999 and will display five positions after a search. The version number of DAFT becomes 3.07B.

```
COS MONITOR  5.05D

.FE DAFTA
.240 RECNO,    D5
.585 FNOM,     D5
.WR DAFTA/Y
.FE DAFTB
.2370 VERSION, XMIT(TTY,"DAFT VERSION 3.07B ')
.WR DAFTB/Y
.R COMP,DAFTA,DAFTB/N

COS MONITOR  5.05D

.SA DAFT/Y

COS MONITOR  5.05D
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05
COMPONENT	**VERSION**
DAFT	V3.07A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 10* | **PAGE OF** 1 1
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

System Crashes

PROBLEM:

The following problems exist in COS-310 V5.05A and SYSGEN V5.05.

1. The system crashes if an interrupt is received while the RUN command processor is overlaying page Ø, field Ø.

2. The DIRECTORY COMMAND puts out ASCII codes without the parity bit set.

3. The VTØ5 handler provides insufficient delay after control characters.

4. Control does not return to the monitor when leaving a DIBOL program.

SOLUTION:

The following patch corrects these problems. The version number of the monitor is changed to V5.Ø5B and the version of SYSGEN is changed to V5.05A.

Immediately after performing this patch, the system should be restarted using the hardware bootstrap, and the SYSGEN/C should be run to install the patched portion of SYSGEN.

For systems without printers, COS-310 sequence number five should be installed as part of COS-310 sequence number four to avoid system lock-up. Just before exiting from the PATCH program during sequence number four, install sequence number five.

SOFTWARE PRODUCT	VERSION
COS-310	V5.05
COMPONENT	VERSION
SYSGEN	V5.05
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
MONITOR V5.05A	4* / 1 4
NEW / REPLACEMENT ARTICLE	ORIGINAL DATE
[ ] / 3	October 1975

System Crashes

```
COS MONITOR 5.05A
.R PATCH
COS PATCH SYSTEM     VERSION 5.05
FILE NAME: /N
PATCHING MONITOR
BLOCK: 13
LOCATION : 364
OLD VALUE: 5765
NEW VALUE: 6001
LOCATION : 365
OLD VALUE: 0200
NEW VALUE: 5771
LOCATION : END
RELATIVE CHECKSUM: 5605
NEW BLOCK PATCHED OK
BLOCK: 14
LOCATION : 224
OLD VALUE: 4512
NEW VALUE: 1365
LOCATION : 225
OLD VALUE: 5612
NEW VALUE: 5353
LOCATION : 353
OLD VALUE: 0000
NEW VALUE: 4512
LOCATION : 354
OLD VALUE: 0000
NEW VALUE: 5612
LOCATION : 365
OLD VALUE: 0000
NEW VALUE: 0200
LOCATION : END
RELATIVE CHECKSUM: 7140
NEW BLOCK PATCHED OK
BLOCK: 20
LOCATION : 147
OLD VALUE: 0000
NEW VALUE: 343
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05
COMPONENT	**VERSION**
SYSGEN	V5.05
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** / **PAGE OF**
MONITOR V5.05A	4* / 2 4
NEW / **REPLACEMENT ARTICLE**	**ORIGINAL DATE**
[ ] / 3	October 1975

System Crashes

```
LOCATION : 343
OLD VALUE: 0000
NEW VALUE: 6002
LOCATION : 344
OLD VALUE: 0000
NEW VALUE: 5745
LOCATION : 345
OLD VALUE: 0000
NEW VALUE: 7756
LOCATION : END
RELATIVE CHECKSUM: 4270
NEW BLOCK PATCHED OK
BLOCK: 25
LOCATION : 161
OLD VALUE: 7765
NEW VALUE: 7771
LOCATION : 216
OLD VALUE: 5773
NEW VALUE: 5547
LOCATION : END
RELATIVE CHECKSUM: 7560
NEW BLOCK PATCHED OK
BLOCK: 26
LOCATION : 106
OLD VALUE: 7201
NEW VALUE: 7300
LOCATION : 160
OLD VALUE: 7435
NEW VALUE: 7441
LOCATION : END
RELATIVE CHECKSUM: 0103
NEW BLOCK PATCHED OK
BLOCK: 27
LOCATION : 111
OLD VALUE: 4200
NEW VALUE: 4300
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05
COMPONENT	**VERSION**
SYSGEN	V5.05
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** / **PAGE OF**
MONITOR V5.05A	4* / 3 4
NEW / **REPLACEMENT ARTICLE**	**ORIGINAL DATE**
[ ] / [3]	October 1975

System Crashes

```
LOCATION : END
RELATIVE CHECKSUM: 0100
NEW BLOCK PATCHED OK
BLOCK: END
06 BLOCK(S) PATCHED IN THIS FILE
FILE NAME: SYSGEN
BLOCK: 6
LOCATION : 347
OLD VALUE: 7650
NEW VALUE: 7710
LOCATION : 371
OLD VALUE: 7771
NEW VALUE: 7776
LOCATION : 373
OLD VALUE: 7566
NEW VALUE: 7540
LOCATION : END
RELATIVE CHECKSUM: 0017
NEW BLOCK PATCHED OK
BLOCK: 16
LOCATION : 270
OLD VALUE: 0000
NEW VALUE: 4200
LOCATION : END
RELATIVE CHECKSUM: 4200
NEW BLOCK PATCHED OK
BLOCK: END
02 BLOCK(S) PATCHED IN THIS FILE
FILE NAME: /X
EXIT

COS MONITOR 5.05B
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05
COMPONENT SYSGEN	VERSION V5.05
SUBPROGRAM OR ADDITIONAL INFORMATION MONITOR V5.05A	SEQUENCE 4* | PAGE OF 4 4
NEW [ ] REPLACEMENT ARTICLE [3]	ORIGINAL DATE October 1975

Changing System Device

PROBLEM:

When changing the system device in SYSGEN, the appropriate handlers are not correctly installed by SYSGEN.

SOLUTION:

This patch will update SYSGEN and also fix any handlers currently installed in the Monitor. The patch also changes the version number of SYSGEN to V5.05B.

```
.R  PATCH
COS PATCH SYSTEM    VERSION 5.05
FILE NAME: SYSGEN
BLOCK: 16
LOCATION : 270
OLD VALUE: 4200
NEW VALUE: 7777
LOCATION : END
RELATIVE CHECKSUM: 3577
NEW BLOCK PATCHED OK
BLOCK: 1
LOCATION : 2
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : 302
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : 310
OLD VALUE: 7676
NEW VALUE: 7675
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05C
COMPONENT	**VERSION**
SYSGEN	V5.05A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 9* / **PAGE OF** 1 3
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Changing System Device

```
LOCATION : END
RELATIVE CHECKSUM: 7775
NEW BLOCK PATCHED OK
BLOCK: 2
LOCATION : 116
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : 315
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : END
RELATIVE CHECKSUM: 7776
NEW BLOCK PATCHED OK
BLOCK: 3
LOCATION : 344
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : END
RELATIVE CHECKSUM: 7777
NEW BLOCK PATCHED OK
BLOCK: 4
LOCATION : 166
OLD VALUE: 7676
NEW VALUE: 7675
LOCATION : END
RELATIVE CHECKSUM: 7777
NEW BLOCK PATCHED OK
BLOCK: 16
LOCATION : 270
OLD VALUE: 7777
NEW VALUE: 4300
LOCATION : END
RELATIVE CHECKSUM: 4301
NEW BLOCK PATCHED OK
BLOCK: END
06 BLOCK(S) PATCHED IN THIS FILE
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05C
COMPONENT SYSGEN	VERSION V5.05A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 9* / PAGE OF 2 3
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Changing System Device

THE FOLLOWING IS A CONTINUATION OF THIS PATCH. YOU WILL EXAMINE SEVEN LOCATIONS, BUT WILL MAKE CHANGES TO A MAXIMUM OF TWO OF THEM. EACH OF THE SEVEN LOCATIONS WILL BE EXAMINED FOR AN OLD VALUE OF 7676. IF AN OLD VALUE OF 7676 IS FOUND AT ANY OF THE LOCATIONS, A NEW VALUE OF 7675 WILL BE ENTERED, OTHERWISE ENTER THE SAME VALUE AS OLD VALUE AND CONTINUE TO THE NEXT LOCATIONS.

```
LOCATIONS TO BE EXAMINED:
002
005
135
205
363
373
374


FILE NAME: /N
BLOCK: 11
LOCATION: A          (WHERE A IS EQUAL TO THE ABOVE LISTED LOCATIONS)
OLD VALUE: B         (IF B = 7676 THEN C = 7675, OR
NEW VALUE: C          IF B ≠ 7676 THEN C = B .)
LOCATION: END        (ENTER END WHEN ALL 7 LOCATIONS HAVE BEEN EXAMINED)
RELATIVE CHECKSUM: D
                    WHERE D IS THE APPROPRIATE CHECKSUM FROM BELOW:

                       IF 2 VALUES CHANGED    D = 7776
                       IF 1 VALUE CHANGED     D = 7777
                       IF 0 VALUE CHANGED     D = 0000
NEW BLOCK PATCHED OK
BLOCK: END
01 BLOCK(S) PATCHED THIS FILE
FILE NAME:
EXIT


COS MONITOR 5.05D
.
```

SOFTWARE PRODUCT	VERSION
COS-310	V5.05C
COMPONENT	**VERSION**
SYSGEN	V5.05A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 9* / **PAGE OF** 3 3
NEW X / **REPLACEMENT ARTICLE**	**ORIGINAL DATE** March 1976

PIP Creates Invalid BASIC Files

PROBLEM:

Sometimes output at the end of a BASIC paper tape looks like a line number to PIP or PUTR. The result is that an invalid file is created. When BASIC is asked to RUN the program, it may get stuck in a loop and gradually use up disk space.

SOLUTION:

Cut off output at the end of BASIC tapes, leaving only blank tape after the end of the ASCII code.

SOFTWARE PRODUCT	VERSION
EDU-50 TSS/8	V8.24
COMPONENT	VERSION
BASIC	V8.24
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Incorrect Values Produced for Numeric Constants (SPR 8-1628)

PROBLEM:

The Basic Compiler produces incorrect values for numeric constants with more than 10 significant digits.

SOLUTION:

This patch fixes this problem with the restriction that a numeric constant with more than 10 significant digits will be truncated.

```
 GET SYS BCOMP

.OD

5005/3137 4144
5016/3355 4151
144/0000 0;3137;1162;3161;5544
151/0000 0;3763;2161;5551;7040;3161;5560
160/0000 5014;0;7765;5155
↑C
.SA SYS BCOMP
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
BASIC	V3
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** / **PAGE OF**
BCOMP	20* / 1 1
NEW / **REPLACEMENT ARTICLE**	**ORIGINAL DATE**
[ ] / [1]	January 1976

BCOMP/K Switch (SPR 8-1776)

PROBLEM:

1. BCOMP does not always produce an executable core image.
2. Location zero of the highest field is not loaded correctly.
3. The JSW was not set correctly for a save.
4. CCB double words were not correct.
5. TD8e was not swapped correctly, and CDFs were not right for field two.

SOLUTION:

This patch corrects the problems.

```
.GET SYS BLOAD
.ODT

00453/ 3335 3336
00454/ 1335 1336
00455/ 3344 3342
00457/ 2314 5353
00501/ 1335 1336
00503/ 1335 1336
00521/ 3346 3340
00530/ 1314 7000;7000;7000

00535/ 5311 3314
00536/ 3455 5311
00537/ 2055 1455
00540/ 2056 7402;3456;7402;1314;3455;2055
00546/ 7402 7000;2056;5333;6201;5715;1360
00554/1267  3301;1360;3303;5260;1276
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
BASIC	V3
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 22* / PAGE 1 OF 2
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

BCOMP/K Switch (SPR 8-1776)

```
02524/ xxxx 1323;3727;5730;7746;7315

02632/ 0302 0355;3356;1356;3410;1356;7041

02755/ xxxx 7400;0000
02761/ 7315 2524
↑C

.SAVE SYS BLOAD
```

This patch supersedes all other BCOMP/K patches.

```
.GET SYS BASIC
.OD
1322/xxxx 2321
↑C
.SA SYS BASIC
```

This raises the BASIC SYSTEM to patch level 2Ø.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
BASIC	V3
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 22* / PAGE OF: 2 OF 2
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: March 1976

Cannot Move BATCH Input File (SPR 8-1732)

When running BATCH, moving the BATCH input file is not permitted. In particular, the device containing the BATCH input file should not be SQUISHed. Moving the BATCH input file while BATCH is running will lead to unpredictable results.

In addition, moving SYS:BATCH.SV while BATCH is running must be avoided.

If it is necessary to SQUISH SYS under BATCH, place BATCH input file at the beginning of SYS so it will not move.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
BATCH	V5A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** / **PAGE OF**
OS/8 Handbook DEC-S8-OSHBA-A-D	5 / 1 1
NEW ☐ **REPLACEMENT ARTICLE** 1	**ORIGINAL DATE** February 1976

Edit Command Incorrectly Handled (SPR 8-1712)

PROBLEM:

CCL does not handle the Edit Command correctly.

The patch for this problem has been withdrawn.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CCL	VD
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 5 / PAGE 1 OF 1
NEW [ ] / REPLACEMENT ARTICLE [2]	ORIGINAL DATE January 1976

Output at End of Pass 1

PROBLEM:

The /M switch to CREF sometimes produces output after the last good symbol at the end of pass 1.

With certain memory restrictions and certain size listings, CREF shuffles the references during pass 1, overwriting the permanent symbols whose names occur in the alphabet later than LG. CREF, however, thinks these permanent symbols are still there, and consequently meaningless output is printed.

DISPOSITION:

The following patch shortens the permanent symbol table of CREF during pass 1 of a mammoth listing so as to only include permanent symbols up to LG. This patch updates CREF Version 3A to CREF Version 3B:

```
.GET SYS CREF
.ODT
2576/Ø1Ø1 1Ø2
4353/xxxx 1356;3Ø42;5235;35
45Ø7/5767 5755
4555/xxxx 4353
↑C
.SAVE SYS CREF
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
CREF	V3A
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 3* | **PAGE** 1 OF 2
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Output at End of Pass 1

Although this patch solves some CREF problems, there may be others. Any user encountering one should save the source or listing file which causes the problem and send an SPR with the following information:

1. the amount of memory used during the fatal CREF
2. the version number of CREF used (or the listing)
3. the type of system device and output device used
4. the complete set of switches passed to CREF

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CREF	V3A
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE * 3 / PAGE OF 2 2
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE
	March 1976

Changing the Number of Lines Per Page (SR)

As of patch A to CREF, when outputting to a terminal, CREF always produces dashes at the end of each page. These dashes are always a fixed distance away from each other, thereby permitting the user to cut along the dashes and thus create a booklet with pages of the same size.

However, some users may be using terminals which take paper which already has creases in it to form pages. In such cases, it would be nice to have the page size output by CREF be the same as the user's physical page size. If the default page size currently used by CREF is not adequate, the user can change this size by modifying both locations 77 and 2564 in CREF.SV. These locations affect the page size and are currently set to 77Ø6. For example, if you want two more lines per page, then the following patch will accomplish this:

```
.GET SYS CREF
.ODT
77/77Ø6 77Ø4
2564/77Ø6 77Ø4
↑C
.SAVE SYS CREF
```

Note: This patch does not apply to OS/8 V3C (i.e., CREF V4 or later).

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CREF	V3
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 4* / PAGE 1 OF 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

FIXMRI Patch to CREF (SR)

PROBLEM:

In certain circumstances, if the first symbol defined on a line following a FIXMRI pseudo-op has fewer than five characters in its name, then at some later date in the CREF output CREF will output an erroneous symbol followed by a large number of spurious references.

ANALYSIS:

The FIXMRI processor in CREF fails to call the RESET subroutine after collecting a symbol name.

DISPOSITION:

The following patch corrects this problem and updates CREF from V3B to CREF V3C:

```
.GET SYS CREF
.ODT
2576/Ø1Ø2 1Ø3
6Ø16/1Ø36 531Ø
611Ø/xxxx 4713;1Ø36;5217;741
↑C
.SAVE SYS CREF
```

SOFTWARE PRODUCT OS/8	VERSION V3
COMPONENT CREF	VERSION V3B
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 5* / PAGE OF 1 2
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

FIXMRI Patch to CREF (SR)

REMARKS:

We believe that with patches B and C, we have solved all problems in which CREF listings blow up with a large number of erroneous references. Users knowing of any such problems which these patches do not remedy should send DIGITAL a tape containing the source or listing file which exhibits the problem.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CREF	V3B
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
	5* / 2 2
NEW / REPLACEMENT ARTICLE	ORIGINAL DATE
X /	March 1976

Dollar Sign Patch to CREF (SR)

PROBLEM:

When the CREF output device is a terminal, there are several cases wherein CREF will get the line count wrong, thus producing the wrong number of lines per page. In the worst cases, CREF may produce thousands of line feeds after the listing but before the CREF references. Two of the known causes are:

a. in certain cases where the listing file does not contain a dollar sign; for example, when the source language was SABR or RALF.

b. in other cases where there are many lines in the listing file which begin with an alphabetic character in column one. (This can happen in the case of SABR and RALF code but can also happen with PAL listings which contain a large number of error messages.)

ANALYSIS:

a. When no $ is present (or no END statement in the case of SABR), control fails to transfer to location DOLL1. The code at this dollar sign processor is crucial to other portions of CREF which keep track of the line count.

b. When a line beginning with an alphabetic character is found, CREF properly ignores the line and increments the line count by one. However, it increments this line count during non-listing passes too, thus making the line count wrong.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CREF	V3C
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 6* | PAGE 1 OF 2
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Dollar Sign Patch to CREF (SR)

DISPOSITION:

All instructions which increment the line counter must be zeroed at the end of Pass one. The following patch does this, thereby solving the problem. This patch upgrades CREF to version 3D.

```
.GET SYS CREF
.ODT
Ø1Ø7/xxxx 3512;3513;55Ø6;413;431
3242/5564 5355
3355/xxxx 41Ø6;5564
5623/3776 41Ø6
2576/Ø1Ø3 1Ø4
↑C
.SAVE SYS CREF
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
CREF	V3C
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 6* | **PAGE** 2 **OF** 2
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

JSW Patch to CREF (SR)

PROBLEM:

CREF incorrectly sets unused bits in the OS/8 Job Status Word. This is not very serious and should not affect most users.

DISPOSITION:

This patch fixes the problem and upgrades CREF from V3D to V3E:

```
.GET SYS CREF
.ODT
2576/Ø1Ø4 1Ø5
43ØØ/Ø145 2Ø1;1144
↑C
.SAVE SYS CREF
```

Note: This problem has already been fixed in CREF V4 (OS/8 V3C).

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
CREF	V3D
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 7* / PAGE OF 1 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Long Line Patch to CREF (SR)

PROBLEM:

If a line in a listing file is too long, CREF correctly truncates characters from the end. However, it fails to output a carriage return at the end of the line in the CREF listing.

ANALYSIS:

Once the line buffer fills up, CREF ignores all further characters in the line, including the carriage return.

DISPOSITION:

This patch corrects the problem by changing the way CREF forms the output line. The new algorithm is to ignore the carriage return in the input line, and upon encountering the end of the input line, to move both a carriage return and a line feed to the output line buffer. This patch upgrades CREF to V3F.

```
.GET SYS CREF
.ODT
2576/Ø1Ø5 1Ø6
3254/765Ø 745Ø
3256/1Ø1Ø 1161;7650;5273;1Ø1Ø;1372;77ØØ
3264/1Ø23 5267;1Ø23;45Ø4;1Ø23;1114
Ø114/xxxx 7564
↑C
.SAVE SYS CREF
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
CREF	V3E
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 8* / **PAGE OF** 1 2
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Long Line Patch to CREF (SR)

Note: CREF considers carriage return to mean end-of-input line and ignores linefeeds in the input line. This was part of the CREF design and this patch does not alter this algorithm.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	**VERSION**
CREF	V3E
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 8* / **PAGE** 2 **OF** 2
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

DEXP Function Restriction (SPR 8-1363)

PROBLEM:

The DEXP function returns a constant result for arguments >88.Ø28. Values of the function in this range do not return the original arguments when used in their inverse functions LOG or DLOG.

DISPOSITION:

There is an erroneous restriction programmed into the DEXP function. Correction of this problem requires a simple source change :

1. Remove the code from locations DEXLIM through DEXLIM+6.
2. Remove the instruction at DEX2+1.
3. Change the instruction at DEX2+2 to read
   JA DEX4

Assemble the new DEXP.RL module using RALF and insert it into a new FORTRAN IV library using LIBRA.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
FORTRAN IV	V2
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
FORLIB	18 / 1 1
NEW / REPLACEMENT ARTICLE	ORIGINAL DATE
[ ] / [1]	January 1976

Floppy Disk Bootstrap

The following is the bootstrap for the RX01 floppy disk. To boot an RX01 system that does not have hardware bootstrap, enter these instructions and start at location 33.

```
            ØØ24        *24                 /ORIGIN of bootstrap

ØØ24        7126    Boot, STL  RTL
ØØ25        1Ø6Ø        TAD UNIT            /GET a READ command on
ØØ26        6751        LCD                 /The proper unit and load it
                                            /into the command register

ØØ27        72Ø1        CLA  IAC
ØØ3Ø        4Ø53        JMS LOAD            /READ SECTOR ONE
ØØ31        4Ø53        JMS LOAD            /OF TRACK ONE.
ØØ32        71Ø4        CLL RAL             /SET AC=2 as flag saying
                                            /we read Track 1

                    Start,                  /**Bootstrap start address**
ØØ33        6755        HANGG, SDN          /DO a figure-8 Skip -
ØØ34        5Ø54        JMP LOAD +1         /DONE flag will come up
ØØ35        6754        SER                 /ANY ERRORS?
ØØ36        745Ø        SNA                 /OR is this the initial dummy
ØØ37        761Ø        SKP CLA             /wait?

ØØ4Ø        5Ø46        JMP GOODRD          /GO READ the sector buffer
ØØ41        1060        TAD UNIT            /Come here on read errors
ØØ42        7Ø41        CIA                 /Flip the unit number
ØØ43        1Ø61        TAD X6Ø3Ø           /In "unit"
ØØ44        3Ø6Ø        DCA unit
ØØ45        5Ø24        JMP Boot
ØØ46        6751    GOODRD, LCD             /Load the empty sector buffer
ØØ47        4053      LP,   JMS Load        /Get a word from sector buffer
ØØ5Ø        3ØØ2        DCA BOOTST          /Secondary Boot Loads into LOCS.3-51
ØØ51        2Ø5Ø        ISZ.-1              /Bump store address
ØØ52        5Ø47        JMP LP

ØØ53        ØØØØ    Load, Ø
ØØ54        6753        STR                 /Do a figure-8 loop waiting
                                            /for transfer
ØØ55        5033        JMP HANGG           /OR DONE flags to come up
ØØ56        6752        XDR                 /TRANSFER flag up - TRANSFER a word
ØØ57        5453         JMP I LOAD
ØØ6Ø        7024    UNIT,  7Ø24             /7ØØ4 = DRIVE Ø, 7Ø24 = DRIVE 1
ØØ61        6Ø3Ø    X6Ø3Ø, 6Ø3Ø             /Constant needed to flip unit
                                             -7ØØ4 + 7Ø24
```

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
HANDLERS	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
RX01	7* / 1 1
NEW / REPLACEMENT ARTICLE	ORIGINAL DATE
[ ] / [1]	January 1976

Optional Patch to NULL Handler (SR)

The NULL handler, on input, zeroes the user buffer and signals an immediate end of file. Some OS/8 CUSPs, especially those expecting only ASCII input (e.g., TECO), expect to find a CTRL/Z in the input buffer, even after an end of file.

The following optional patch changes NULL so that on input it inserts a CTRL/Z at the beginning of the user buffer and zeroes the remainder of the buffer:

```
.RUN SYS BUILD
$ALTER RF,Ø
ØØØØ/232
$ ↑ C
.SAVE SYS BUILD
```

Note: This patch does not change the NULL version number since the patch is optional and is probably not needed by the average user.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
HANDLERS	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
NULL Handler	10* / 1 OF 1
NEW / REPLACEMENT ARTICLE	ORIGINAL DATE
[ ] / [1]	February 1976

Patchable Location in Null Handler

The Null handler can be patched to permit it to insert a CTRL/Z in the user's buffer. As distributed, NULL merely zeroes the buffer and returns end-of-file.

To cause NULL to insert a CTRL/Z at the beginning of the buffer, change the relative location Ø in the null handler from a Ø to a 232.

Some applications require this patch. For example, the command

```
.MUNG NULL:
```

will not work without it.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT	VERSION
HANDLERS	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE / PAGE OF
Null Handler	11 / 1 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE
	March 1976

KS33 Use of Up-Arrow (SR)

The description of the low speed reader handler (KS33) in appendix G of the OS/8 Handbook is incorrect. The sentence at the top of page G-2 should read as follows:

The operation of this handler is exactly the same as that for the high speed reader/punch except that after the up-arrow is printed, all the operator need do is load the paper tape in the reader and then turn it on. There is no need for the operator to strike a character on the keyboard.

SOFTWARE PRODUCT	VERSION
OS/8	V3
COMPONENT HANDLERS (KS33 Handler)	VERSION
SUBPROGRAM OR ADDITIONAL INFORMATION OS/8 Handbook DEC-S8-OSHBA-A-D	SEQUENCE 12 | PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Trouble With Clock Queue (SR)

PROBLEM:

If a clock entry times out while a new entry is being added to the active list, then the new entry is incorrectly added to the free list instead.

SOLUTION:

This occurs very infrequently; however, the following source change fixes this problem:

(a) At location GETICK+5 place the instruction

```
DCA  I  CLIPTR
```

This should fall between the instruction DCA CLKXR and the instruction ISZ I CLKXR .

(b) At location CLKQT+4 add the instructions

```
STA
DCA  I  CLIPTR   /PUT -1 BACK
```

This should fall between the instructions POSTDS and TAD (CLKEF .

Note: This problem has already been fixed in the CLOCK task in RTS-8 version 2.

SOFTWARE PRODUCT	VERSION
RTS-8	V1
COMPONENT	**VERSION**
Clock Task	
SUBPROGRAM OR ADDITIONAL INFORMATION	**SEQUENCE** 1 / **PAGE OF** 1 1
NEW [X] **REPLACEMENT ARTICLE** [ ]	**ORIGINAL DATE** March 1976

Some Time-Of-Day Requests Run 24 Hours Late (SR)

If a time-of-day is specified using an @ on an MCR Request command which is earlier in the day than the time the request is entered, then the task requested to run is supposed to run at the specified time but on the following day. This in fact does not happen. The MCR will schedule the task to run at an incorrect time which is 24 hours later than the desired time. This incorrect time may be less, depending on the value of HERTZ and SHERTZ.)

The following source change should be made to the file MCR.PA and corrects the problem:

At location SAVTIM-1, replace CDF CUR by JMS I (FUDGE

After location TENCNT , insert the following code:

```
FUDGE, Ø
       CDF CUR
       SZL                 /DID THE LAST SUBTRACT OVERFLOW?
       JMP I     FUDGE     /NO, RETURN
       TAD       (FUDGEL   /YES
       JMP I     (DBLSUB   /SUBTRACT 24 HOURS
       JMP I     FUDGE     /RETURN
```

SOFTWARE PRODUCT	VERSION
RTS-8	V1
COMPONENT	VERSION
MCR	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1* / PAGE OF 1 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Using OS/8 Support

1. An RTS-8 system containing the OS/8 Support Task must be loaded from OS/8; that is, the binary cannot be punched out on paper tape and then loaded on a bare machine with the binary loader. However, the OS/8 file Support Task can be run without OS/8.

2. When running the OS/8 Support Task, the background OS/8 system device must be the same as the OS/8 system device used by the OS/8 system which is loading RTS-8.

3. There is a minor problem with the OS/8 Support Task. If it is run on a machine in which all but 4K is used by OS/8 and if OS/8 uses at least 12K, then the EXIT command of the MCR will not work properly. To solve this problem temporarily, hit HALT on the console and then manually rebootstrap into OS/8 to return to OS/8.

4. To run BATCH in the background, assign at least 12K (three fields) to OS/8. Be especially sure that none of these fields assigned to OS/8 are used by any RTS-8 tasks.

SOFTWARE PRODUCT	VERSION
RTS-8	V1
COMPONENT	VERSION
OS/8 Support Task	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 3 / PAGE 1 OF 1
NEW [ ] REPLACEMENT ARTICLE [1]	ORIGINAL DATE February 1976

Cannot Free Partition With WAITM (SR)

Under RTS-8 Version 2, there is no provision for a task to be able to free its partition when it executes a WAITM. This is to be considered a permanent restriction under V2 since it requires a major change to the Executive to include such a capability.

SOFTWARE PRODUCT	VERSION
RTS-8	V2
COMPONENT	VERSION
Executive	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE OF 1 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE
	March 1976

Some Time-Of-Day Requests Run 24 Hours Late (SR)

If a time-of-day is specified using an @ on an MCR Request command which is earlier in the day than the time the request is entered, then the task requested to run is supposed to run at the specified time but on the following day. This in fact does not happen. The MCR will schedule the task to run at an incorrect time which is 24 hours later than the desired time. This incorrect time may be less, depending on the value of HERTZ and SHERTZ.)

The following source change should be made to the file MCR.PA and corrects the problem:

At location SAVTIM-1, replace CDF CUR by JMS I (FUDGE

After location TENCNT insert the following code:

```
FUDGE, Ø
       CDF CUR
       SZL                 /DID THE LAST SUBTRACT OVERFLOW?
       JMP I    FUDGE      /NO, RETURN
       TAD      (FUDGEL    /YES
       JMP I    (DBLSUB    /SUBTRACT 24 HOURS
       JMP I    FUDGE      /RETURN
```

SOFTWARE PRODUCT	VERSION
RTS-8	V2
COMPONENT	VERSION
MCR	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1* / PAGE OF 1 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Using OS/8 Support

1. An RTS-8 system containing the OS/8 Support Task must be loaded from OS/8; that is, the binary cannot be punched out on paper tape and then loaded on a bare machine with the binary loader. However, the OS/8 file Support Task can be run without OS/8.

2. When running the OS/8 Support Task, the background OS/8 system device must be the same as the OS/8 system device used by the OS/8 system which is loading RTS-8.

3. There is a minor problem with the OS/8 Support Task. If it is run on a machine in which all but 4K is used by OS/8 and if OS/8 uses at least 12K, then the EXIT command of the MCR will not work properly. To solve this problem temporarily, hit HALT on the console and then manually rebootstrap into OS/8 to return to OS/8.

4. To run BATCH in the background, assign at least 12K (three fields) to OS/8. Be especially sure that none of these fields assigned to OS/8 are used by any RTS-8 tasks.

SOFTWARE PRODUCT	VERSION
RTS-8	V2
COMPONENT	VERSION
OS/8 Support Task	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 2 / PAGE OF: 1 of 1
NEW: ☐ / REPLACEMENT ARTICLE: 1	ORIGINAL DATE: February 1976

Communicating Between OS/8 and RTS-8

RTS-8 V2 OS/8 support contains a mechanism by which OS/8 can talk to an RTS-8 task.

To perform this communication, the OS/8 system must be configured to have a handler called RTS8. This can be a dummy; it need not do anything. In fact, it can be some other handler to which the name RTS8 has been assigned.

The OS/8 support task will trap all calls to this handler. The arguments which are passed to the RTS-8 handler by an OS/8 program will be passed to an RTS-8 task called OS8COM. It is the user's responsibility to write this OS8COM task.

The OS8COM task does an RTS-8 RECEIVE and it will then receive a message anytime an OS/8 program reads or writes to the RTS8 handler. This message looks like any other message to a mass storage device. OS8SUP does make one change to the arguments. Bits 6 through 8 of the function word originally contain the field of the buffer. This was the field where OS/8 expected the buffer to be. When OS8COM gets control, these bits give the actual field that contains the buffer. OS8COM can return information to OS/8 through these arguments.

SOFTWARE PRODUCT	VERSION
RTS-8	V2
COMPONENT	VERSION
OS/8 Support Task	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE: 3 / PAGE OF: 1 OF 1
NEW: X / REPLACEMENT ARTICLE:	ORIGINAL DATE: March 1976

Deficiency in TTY Task

PROBLEM:

The TTY task in RTS-8 V2 assumes that text coming to it is line oriented. When the width of the terminal is exceeded, TTY automatically outputs a carriage return line feed.

DISPOSITION:

There is no way to use this handler to output a line which has more than 4Ø95 ASCII characters not including a line feed.

In order to accomplish this, the user must use the V1 handler. The V1 handler is obtained from the V2 source by setting OLDTTY=1 in the parameter file.

SOFTWARE PRODUCT	VERSION
RTS-8	V2
COMPONENT	VERSION
TTY Task	
SUBPROGRAM OR ADDITIONAL INFORMATION	SEQUENCE 1 / PAGE OF 1 1
NEW [X] / REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

Subroutine BEGFIX (RC 8D-718 RE)

On page 6-47, add the following note to the first paragraph concerning the subroutine BEGFIX:

The accumulator must be cleared before referencing BEGFIX. If the AC is not cleared, the C(AC) will be loaded into AC2 of the Floating-Point AC.

MANUAL NAME	SEQUENCE
CASSETTE PROGRAMMING SYSTEM USER'S GUIDE	1
DEC ORDER NO. DEC-8E-OCASA-A-D	PAGE 1 OF 1
NEW [X] REPLACEMENT ARTICLE [ ]	ORIGINAL DATE March 1976

SOFTWARE PROBLEMS OR ENHANCEMENTS

Questions, problems, and enhancements to Digital software should be reported on a Software Performance Report (SPR) form and mailed to the SPR Center at one of the following Digital Offices: (SPR forms are available from the SPR Center.)

Areas Covered	SPR Center
Australia/New Zealand	Digital Equipment Australia Pty. Ltd. 123-125 Willoughby Road, P.O. Box 491 Crows Nest New South Wales, Australia 2065
Brazil	Digital Equipment Comercio E Industria LTDA Rua Batatais, 429 (Esq. Al. Campinas) 01423-Jardim Paulista São Paulo-SP-Brazil
Canada	Digital Equipment of Canada, Ltd. Software Services P.O. Box 11500, K2H 8K8 Ottawa, Ontario, Canada
Caribbean	Digital Equipment Latin America, Inc. 407 del Parque Street Santurce, Puerto Rico 00912
France	Digital Equipment France 18, rue Saarinen Centre Silic - CIDEX L225 F-94533 Rungis, France
Israel	DEC-sys Computers Ltd. 7 Habakuk Street IL-Tel Aviv 63505, Israel
Italy	Digital Equipment S.P.A. Corso Garibaldi 49 I-20121 Milano, Italy
Japan	Digital Equipment Corp. Intl. Kowa Building 25 (3d Floor) 8-7 Sunban-Cho Chiyoda-ku, Tokyo 102, Japan
Mexico	Equipo Digital, S.A. de C.V. 109 Concepcion Beistegui Mexico 12, D.F.
The Netherlands	Digital Equipment B.V. Kaap Hoorndreef 38, P.O. Box 9064 NL-Utrecht - Overvecht, The Netherlands
Nordic	Digital Equipment AB Englundavägen 7 S-17141 Solna Sweden
Switzerland Spain Portugal Greece Bulgaria Romania Yugoslavia	Digital Equipment Corp. SA 20, Quai Ernest Ansermet Case Postale 23, CH-1211 Geneva 8 Switzerland
United Kingdom	Digital Equipment Co. Ltd. Fountain House, Butts Centre GB-Reading RG1 7QN, England
West Germany Austria East Germany Russia Hungary Poland Czechoslovakia	Digital Equipment GmbH D-8000 München 40 Wallensteinplatz 2 West Germany
United States; remainder of Far East, Middle East, Africa, Latin America	Software Communications P.O. Box F Maynard, MA 01754

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASSACHUSETTS 01754
European Headquarters: 81 route de l'Aire, 1211 Geneva 26. Switzerland
Digital Equipment of Canada Ltd., P.O. Box 11500 Ottawa, Ontario K2H8K8.

DIGITAL EQUIPMENT CORPORATION, Component Group Headquarters: 1 Iron Way, Marlborough, Mass. 01752, Telephone: (617) 481-7400

DIGITAL EQUIPMENT CORPORATION, Corporate Headquarters: Maynard, Massachusetts 01754, Telephone: (617) 897-5111
SALES AND SERVICE OFFICES
DOMESTIC – ARIZONA, Phoenix and Tucson • CALIFORNIA, Los Angeles, Monrovia, Oakland, Ridgecrest, San Diego, San Francisco (Mountain View), Santa Ana, Sunnyvale, and Woodland Hills • COLORADO, Englewood • CONNECTICUT, Fairfield and Meriden • DISTRICT OF COLUMBIA, Washington (Latham, Md.) • FLORIDA, Orlando • GEORGIA, Atlanta • ILLINOIS, Chicago (Rolling Meadows) • INDIANA, Indianapolis • IOWA, Bettendorf • KENTUCKY, Louisville • LOUISIANA, Metairie (New Orleans) • MASSACHUSETTS, Marlborough and Waltham • MICHIGAN, Detroit (Farmington Hills) • MINNESOTA, Minneapolis • MISSOURI, Kansas City and St. Louis • NEW HAMPSHIRE, Manchester • NEW JERSEY, Fairfield, Metuchen and Princeton • NEW MEXICO, Albuquerque • NEW YORK, Albany, Huntington Station, Manhattan, Rochester and Syracuse • NORTH CAROLINA, Durham/Chapel Hill • OHIO, Cleveland, Columbus and Dayton • OKLAHOMA, Tulsa • OREGON, Portland • PENNSYLVANIA, Philadelphia (Bluebell) and Pittsburgh • TENNESSEE, Knoxville • TEXAS, Austin, Dallas and Houston • UTAH, Salt Lake City • WASHINGTON, Bellevue • WISCONSIN, Milwaukee (Brookfield) • INTERNATIONAL – ARGENTINA, Buenos Aires • AUSTRALIA, Adelaide, Brisbane, Canberra, Melbourne, Perth and Sydney • AUSTRIA, Vienna • BELGIUM, Brussels • BOLIVIA, La Paz • BRAZIL, Puerto Alegre, Rio de Janeiro and São Paulo • CANADA, Calgary, Halifax, Montreal, Ottawa, Toronto and Vancouver • CHILE, Santiago • DENMARK, Copenhagen • FINLAND, Helsinki • FRANCE, Grenoble and Paris • GERMANY, Berlin, Cologne, Hannover, Hamburg, Frankfurt, Munich and Stuttgart • HONG KONG • INDIA, Bombay • INDONESIA, Djakarta • ISRAEL, Tel Aviv • ITALY, Milan and Turin • JAPAN, Osaka and Tokyo • MALAYSIA, Kuala Lumpur • MEXICO, Mexico City • NETHERLANDS, Utrecht • NEW ZEALAND, Auckland • NORWAY, Oslo • PHILIPPINES, Manila • PUERTO RICO, Santurce • SINGAPORE • SPAIN, Barcelona and Madrid • SWEDEN, Gothenburg and Stockholm • SWITZERLAND, Geneva and Zurich • TAIWAN, Taipei and Taoyuan • UNITED KINGDOM, Birmingham, Bristol, Dublin, Edinburgh, Leeds, London, Manchester and Reading • VENEZUELA, Caracas • YUGOSLAVIA, Ljubljana •