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NOTICE OF CHANGES TO THE SYSTEM

Our newest system marks the installation of level 13 KRONOS, the last release by Control Data. The level 13 modset consists of roughly 12000 lines of new code. Areas most heavily modified include PFDUMP, PFLOAD, MAGNET, LMT and TELEX. Except for TELEX, the installation was straight forward and without difficulties. CDC chose to rewrite LOGIN and RECOVER processing in TELEX which happens to overlap with three large UCC features, BRIEF mode, NOTICE/NOTIFY and ROTARY usage validation. While installing the level 13 TELEX, Don Mears discovered a significant bug in a local modification to TELEX which probably caused many of the TELEX crashes over the last several months. In all, 23 local modsets were deleted from JPL while 37 were changed amounting to 11000 lines of local code which had to be re-installed. New features were not intentionally held to a minimum but nevertheless are few in number. Only those changes unrelated to the installation of level 13 are mentioned below.

Tim Salo installed several cosmetic changes to the banner page, one of which repairs the "pick up at" bin number field for diverted output. Tim also changed DELAY job processing so that job origin and ID would not be set from FET+6 if LDI or the SUBMIT macro were used to enter the job. Additionally, the PDP-11 loader, PDP, was changed to be inaccessible to non-system origin jobs. Tim also rewrote a portion of SUPPIO which transfers data from ECS.

Don Mears contributed a new common deck, COMCSBC, which performs a generalized single buffer, 2 FET, file to file copy.

N.L. Reddy installed the level 13 version of COMPASS with two new features and a correction.

1. By specifying U on the COMPASS statement, MACTEXT is used as the systems text. MACTEXT is a short systems text consisting only of COMCMAC (see DSN 3, 4 p. 4 and DSN 3, 5 p. 7).
2. If the LN parameter is specified, COMPASS will print line numbers as referenced by the cross reference table on the right hand side of the listing.
3. COMPASS will now correctly interpret a command of the form: 1,COMPASS.

Bill Elliott altered EXPLIB so that a user no longer needs to permit himself in order to write on his own tape.

Bill Sackett repaired a problem with protected permanent files which appeared when CATLISTing an alternate usernumber. The passwords of protected files would appear as \*'s when nothing should have appeared. Bill also installed a critical PSR from CDC which corrects system behavior during an FNT full condition.

Kevin Matthews repaired the PURGALL command so that a PURGALL request does not abort if NA is not specified and protected permanent files are present.

Bob Zalusky installed some minor changes to USERS (DSD).

1. ACCESS was erroneously showing up as the last command in the T-display in certain situations.
2. USERS (DSD) can now run from a local file.

Brian Hanson changed the OVERLAY macro in CPCOM to accommodate his recent enhancements to the LDR call block (see DSN 2, 23 p. 5 and DSN 2, 19 p. 4). Brian also installed a change to LINK which should speed up short FT3LIB loads by 50%.

Marisa Riviere installed a level 13 version of UPDATE. Marisa also installed several changes to CALLPRG.

1. The error message issued by WRITEUP when a subwriteup cannot be found will now include the name specified by the user.
2. The command, WRITEUP., will now result in a copy of WRITEUP documentation rather than the WRITEUP index.
3. CALLPRG type requests which require an XMIT and then a tape request now work correctly.
4. CALLPRG will now request memory according to the FL parameter on the index entry provided the required field length is within validated limits (see DSN 3, 4 p. 4).

Tim Hoffmann installed his proposed change to the ENQUIRE utility. The ENQUIRE (OP=F or FN=) report will now include the device name and number (see DSN 3, 4 p. 3). Tim also changed COPYU documentation to indicate that 200 characters is the maximum unit record length allowed by COPYU. Tim also changed COMCSNP so that each SNAP call displays the current FL.

## PROPOSED CHANGES TO THE SYSTEM

The UCCSGSSFL (UCC Systems Group Special Subcommittee on Field Length) has produced a 34-page report/proposal which is much too large to print here. Copies will be provided for all systems group members and any others on request. - ed.

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### All Disks Are Not Created Equal - by R.A. Williams

Historically, many users have been partial to a particular tape unit or brand of magnetic tape because of their personal experiences with it. With the ever increasing use of disk storage, one must recognize the logical extension. The user also deserves to know what brand or vintage of 844 disk is being used to save their files.

I propose that the month and year of 844 pack purchase plus the brand be stored on the hardware manufacturing data track of each pack. This information would then be made available to the user job. The mechanics are simple indeed.

At initialization, CMS could request the manufacturer information (a ten character ID) and then record it or, better yet, the SMM program FMT could save the information. Then, at deadstart time, RMS could retrieve this data and place it in the installation area of the MST (words ISGL and I2GL are open). The user could then use a new KCL function to test for the proper manufacturer and identification. Mnemonics like DPM (disk pack maker) and DPD (disk pack date) are possible but I will leave this up to the system group (e.g., IF(DPD(TAPE1).LT.0203B)EXIT.).

You may feel that this idea lacks generality but clearly it may be extended to the other disks (808 made by CDC in May, 1802, for instance), and consider the value to those who have had the handle fall off their private pack. With this useful feature they can avoid that brand in the future.

There is no doubt that this mod is mandatory and must be approved. Future enhancements could include ability, through ASSIGN, to select a particular characteristic.

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### More About the Writeup Index Reformatting, Etc. - by M. Riviere

This proposal amends and complements the Writeup index format proposal published in the last DSN (Vol. 3, No. 5).

The response to my proposal shows that there is a need for shortening, whenever possible, the printing of the Writeup index and that many users may not wish to list the full index to have a small amount of information concerning a particular writeup.

To accomplish the first task, that is to shorten the index list, I will attempt to print only an entry of one line for each writeup and include in that line the description field if its size is within 30 characters. I will use a second line only if the writeup description is longer than 30 characters. In this case I will print the whole description field in the second line.

The writeup description fields should be restricted to no longer than 30 characters, as long as that could be possible without affecting meanings or formats.

To accomplish the second task, besides the introduction of an abbreviated list option (LO=A) of only writeup names as it was suggested in last Systems meeting, I also would like to add a writeup name option (WN=name). The WN option, when used, will produce only the printing of the line(s) describing the requested writeup.

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In response to popular demand, Bill Wells has agreed to, henceforth, present all envisioned changes to XEDIT as proposals in the DSN. The following article recaps all of the new features in the FUTURE version of XEDIT - ed.

#### New Features in XEDIT - by B. Wells

1. BATCH Mode - XEDIT cleans up MESSAGES by copy shifting all messages by one space. However, user text being verified or printed is not shifted.
2. SYNTAX ERROR PROCESSING - If XEDIT encounters any SYNTAX ERROR in a command, XEDIT now voids the remaining commands in the Y/Z list and/or delimited command sequence, returning to prompt for a new command (if in BATCH mode, XEDIT aborts).
3. Ø Parameter On . (dot) and - (dash) Commands - If Ø is used, XEDIT will not advance the line pointer before processing the . or - command.
4. "CIRCULAR" Line Number Searches - XEDIT will now automatically return to the top of the file if searching for a line number smaller than the current line number. This also affects "RESTORE" as this is considered to be a "TRIP TO THE TOP."
5. Output/null Files on COPY/COPYD - Users may now view or delete large segments of text based upon a unique string in the last line of the area for scan. Thus, Fortran users can view an entire subroutine by "COPY OUTPUT/SUBROUTINE/
6. <CR> on I,IB&R - The specified line count on INSERT,INSERTB and REPLACE COMMANDS are now overridden by an empty carriage return.
7. \$ on DLBLANKS - The DLBLANKS command now has a count parameter. This change makes the syntax conform to the new XEDIT standard syntax of:  
PREFIX - LINE NUMBER - COMMAND - POSTFIX - PARAMETER(S) - COUNT  
(POSTFIX characters discussed later)
8. + PARAMETER - All toggles and flag setting commands now allow a + (on) or a - (off) parameter to enable the user to be certain of the setting of the toggle (TRIM, TEOR, TEOF, etc.) or flag (VERIFY, BRIEF, etc.).
9. Ø Option on String Searches - If a Ø is specified on any command involving a string search, XEDIT will not advance the pointer scanning for the string if the string is not located in the current line.

10. The "P" parameter now also attempts to "ATTACH" direct access files (in write mode only) in addition to attempting a "GET" of the file.
11. "C" Option on QUIT, FILE and END - XEDIT now accepts a "C" option (QUIT,,C) on the QUIT, FILE and END commands. This parameter instructs XEDIT to rewind the specified file and copy the changes onto it. In addition, this parameter is default for direct and mag tape files. XEDIT also checks in advance and properly handles execute only files and files with write lockout (mag tapes excepted).
12. Because of 10 and 11, XEDIT now processes direct access files properly.
13. STATUS MACRO USAGE - XEDIT now uses the status macro to determine the presence of a file. Thus, XEDIT will not create a file in the case of a mistype.
14. XEDIT does not allow alphabets as command delimiters.
15. ...on CHANGE - XEDIT will now accept a CHANGE command of the form C/STR1...STR2/STR3/ which will change all characters in STR1 and STR2 and all characters between to STR3.
16. --- Option - In addition to the ... allowed on string searches, (which means to locate STR1 followed by STR2 in the same line), XEDIT now allows --- to be used in place of ..... This form will locate a line containing STR1 but not followed by STR2.
17. "FR" CONTROL CARD PARAMETER - Instructs XEDIT to scan the first line of the EDIT file for the initial command (useful for resetting tabs, etc.). By assuming that the command begins with first non-blank character occurring after two consecutive blanks, XEDIT allows the command to be placed in the comment field of most source decks.
18. "NOBELLS" Command - The new NOBELLS command causes XEDIT to remove the bells from the XEDIT ERROR MESSAGES.
19. "EXPLAIN" Command - Will attempt to explain the reason behind the last XEDIT ERROR MESSAGE. The EXPLAIN command must be used immediately after the command giving the message.
20. The "FINDLN" (FLN) command form has been removed; however, the line number only form of the command still remains.
21. + Prefix - Users can now instruct XEDIT where to obtain the data for commands such as ADD, INSERT, etc. Without the +, XEDIT will obtain the data from the delimited command sequence. With the +, XEDIT will obtain the data from the Input file.
22. "WMARGIN" and "W" and "A" Postfix Characters - XEDIT now allows users to set a column window via the window command. String search commands, when used with the "W" or "A" postfixes, will limit their searches to a limit region of the line.

The "W" postfix requires that all characters contained in the string(s) reside within the window.

The "A" postfix requires that only the first character of the first string (L/STR1...STR4) reside in the window.

23. CHANGE NULL STRINGS - The CHANGE command now allows a change of the null string. By definition, XEDIT assumes the presence of a null string immediately before the first character available for search.
24. INPUT/EDIT Commands and the INPUT Mode Escape Character - The addition of the INPUT and EDIT commands now expands the capabilities of INPUT mode. By specifying an "escape" character on the INPUT command (INPUT,\$) and using that character for the first character of an Input file, XEDIT will "escape" from INPUT mode (into EDIT mode) for that one command line. After which, the user returns to INPUT mode. This feature allows for easy corrections of text being entered. One limitation--the commands being processed cannot move the pointer. BATCH mode users--INPUT mode can only be entered and exited by using the commands INPUT,\$ and \$EDIT respectively.
25. Default Line Length Processing of 160 Characters - XEDIT now always processes lines of 160 characters without truncation.
26. RMARGIN Command - This command replaces the WIDTH command. The RMARGIN (right margin) sets a value for use by the various margin commands.
27. FINDLL Command - Used to scan the file for lines containing more characters than the setting of RMARGIN.
28. TRUNCATE Command - Used to truncate (to margin) and number lines.

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#### IMPLEMENTATION OF SPICE - by K. Fjelsted

A short while back UCC received a program package called SPICE from the University of California at Berkeley. SPICE is a circuit simulation program designed to be used as both a learning and development tool by electrical engineers. The documentation for this program consists of a users manual, and a machine retrievable document supplied by the University of California. I propose that this program should be placed on CALLPRG as a new package maintained by Kevin Fjelsted of the Applications Group.

#### SYSTEM MAINTENANCE: People and Procedures

##### Last Week's Systems Group Meeting - by T.W. Lanzatella

1. The following proposals were rejected or accepted.
  - a. NLR withdrew his punch file line length proposal (see DSN 3, 5 p. 2) since CDC in level 13 is changing LCD to punch unit records of any length in 80 character chunks. For some odd reason, the systems group decided that punch files should be truncated when a unit record longer than 80 characters is encountered. NLR (after the meeting - since he wasn't present when the proposal was discussed) said this was foolish. The user will never be informed that his file was truncated. The subject isn't dead yet.
  - b. NLR's proposed renovation of the XMIT/SEND mechanism was rejected as not really solving any problems (see DSN 3, 5 p. 3).

- c. KCM's proposal to preset disk equipment driver channels in SLL was accepted (see DSN 3, 5 p. 3).
  - d. KCM's proposal to expand the way ECS access in the system is defined was accepted (see DSN 3, 5 p. 4).
  - e. KCM's proposal to add system sectors to user dayfiles was accepted (see DSN 3, 5 p. 5).
  - f. Don Mears' proposal to expand the selection of commands available while a program is interrupted was accepted (see DSN 3, 5 p. 5).
  - g. Jeff Drummond's proposal to change the way the DISSJ function treats programs with SSJ blocks was approved (see DSN 3, 5 p. 6).
  - h. Marisa Riviere's proposal to change the format of the WRITEUP index when listed on a TTY was approved (see DSN 3, 5 p. 6). We decided, however, that we should attempt to constrain the information for each writeup to a single line.
2. Operations presented a list of promised features which the systems group has failed to keep.
- a. A method of packing holes in the indirect permanent file chain without dumping and reloading the device.
  - b. Where is the DECWRITER to be used to monitor I/O and for tape assignments?
  - c. N.RERUN doesn't work.
  - d. Users are driving the operators nuts with enquiries about AUTODIVERTed files.
  - e. N-display offers no way to skip to end of displayed file.
  - f. Operations would like a flashing console message when SUPIO aborts.
  - g. Operators would like to be able to specify unit number on the AUTOUNLOAD command.
  - h. When is the new EXPORT coming?
  - i. IMPORT needs work.
  - j. LPT needs work.
  - k. EBR tapes with no data get processed and the previous user is billed. Could we write an EOF at the beginning of these tapes before they are written?
3. Larry Liddiard brought up the following topics.
- a. A job encountering a time limit is reprieved an infinite number of times. We fixed this problem once before level 10. Will fix it again.

- b. Long jobs which are initiated during low rate hours but which cannot finish before end-of-operations are being dropped and costing a great deal in credit. We must get the bugs out of CHKPT/RESTART and promote it.

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The Annual Admonition - by R.A. Williams

This is a reminder that all actions taken on the 6400 during operating hours and any actions pertaining to operations taken during system time should be recorded with time and your initials in the daily report.

This includes performance of end of operations, changing of disk packs, installation of new deadstart tapes, and hardware malfunctions you observe. A good rule to follow is that if you are unsure as to the significance of an action, enter it in the report anyway.

You also should remember that use of the console during operating hours should be restricted to that required for operations and that the privacy of user files is not to be compromised by UCC staff (i.e., there is to be no access of private user files)!

Thank you for your help.

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A Preposterous Proposal - by R.A. Williams

Lest my ludicrous proposal concerning disk identification, which appears elsewhere in this newsletter, be accepted, I hereby retract it with the following explanation.

I have been bothered for several months by the sheer volume of feature code that is being added to the system by our group. Proposals for additions abound and seem to be accepted or rejected in a hit or miss, almost whimsical manner. While I acknowledge my generally conservative outlook in the area of system mods, I ask that you recognize that this treatise is presented with constructive motives.

My concern is predicated on the view that any additional code in the system increases the chance of error, regardless of the care with which it is written and tested. I also find it somewhat puzzling that we have a list of known system errors that has existed for some time while new feature code is regularly developed and installed. Granted, these bugs are minor for the most part and development work can't be stopped just because it may cause a system crash, but I feel a subtle reorganization of priorities is called for.

I have tried to outline the factors involved in evaluating new feature code. This outline follows with a short discussion of my proposed priority shifts below:

- A. External Factors
  - 1. Feature Name
  - 2. Documentation
  - 3. Compatibility
  - 4. Future Implications
  - 5. Value
    - a. Users
    - b. System Staff

B. Internal Factors

1. Ease of Implementation
2. Space Required (Memory)
3. Computer Time Required
4. Aesthetics
5. Chance of Error
6. Future Implications

In the external area it is clear that we spend most of our time discussing names and parameters (PURGALL or EXPUNGE). In conjunction with this, all other areas but one are investigated in passing. The question of value seems to get pushed aside on many occasions. How many times do we say, "I could probably use that" to justify its implementation. Perhaps an analysis of what the users or operators currently make use of or desire is more appropriate.

The internal area often is reduced to the questions of ease of implementation and aesthetics, including implications for the future. Computer time and memory requirements at times are mentioned briefly. The question of chance for error is tied to ease of implementation but, I submit, not entirely. Ten routines may need two line changes each, an easy mod to make, but equally easy to cause errors if one package is missed.

I am probably more at fault than anyone. How many times I have daydreamed through the passage of some proposal. This is an appeal for thoughtful analysis of new feature code with emphasis on its merits. I feel that mods should be viewed with a heavy presumption against their value in place of the current "worthwhile until proven otherwise" posture. More of the suggested changes should come from operations and user services and those should receive priority.

The system group is charged with providing a usable, reliable, efficient system to our customers. I feel we can better achieve this through increased emphasis on quality and efficiency in system modifications.

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Miscellaneous Products Program Library - by M. Riviere

I started to build a Modify program library of miscellaneous products which, due to their nature or their function, are not included in any one of the System OPLS (MPL,WPL).

This miscellaneous products OPL, called MISCOPL is available on YZE6081 on the SYSTEM pack. MISCOPL contains very few decks now but I plan to extend it as I receive new ones.

The existence of MISCOPL will make the sources of several system products that are mainly installed as CALLPRG products easily available to any UCC staff member and also will provide some security about the eventual loss or replacement of sources.

I would also like to extend the contents of MISCOPL to include local modification decks to CDC products and decks containing lists of the tape VSN's describing where CDC products and large system packages not contained in the OPL itself can be found.

I need for this work collaboration from all the UCC members who are in charge of maintaining the different products not included in the system program's libraries. I need to ask everyone to give me their products in Modify OPL decks formats. When a product is modified I will take again the full new deck, not just the modifications. The decks will not necessarily have to be resequenced to be resubmitted.

I plan to update MISCOPL approximately once a month and have it available on the System pack. I also will be keeping a few back-up copies on tape.

Going roughly through the list of CALLPRG packages I selected a few names that are the ones which I would like to start assembling first. The decision is based mainly in the package's size and usage. I would like to start by including in MISCOPL the following decks. PFMANIP (ABCLIST, CHANGER, GETSAVE, PURGER), CATLSYS, DTIME, LPKODE, UPWRITE, VIEW, WHO, PP, REFORM, ARCHIVE, DECODE, DMP2ARC, UNPAGE, LOADSD, DRESS, POLISH, COPYM, COUNTU, CHEAP31, PLOT31, and TIDY. The products STRATEN, FOCAL, SQUEEZ, AMEND, DUMPECS and REBLOCK are already included. I also would like to have UCC modification decks to CDC products such as COMPASS, FTN, UPDATE, LOADER, COBOL, etc.

This list is only an initial approach since I believe that for many products the decision about placing them on MISCOPL will have to be taken individually considering the product's size, first "officiality," its type as Past, current, Future or Fetch and several other factors. Very large packages should not be included in order to maintain MISCOPL within a reasonable size. I do not want, if possible, to maintain decks for past and future version. Past and Future decks, when included in MISCOPL will have to be renamed and this will cause enough inconvenience to avoid their inclusion. The inclusion of Past and Future OPLS should be done only when some products are replaced by completely different ones and the source of the current version does not contain enough information about the others.

I will appreciate suggestions from anyone in the Systems Group about the format and contents of MISCOPL.

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CALLPRG - Library Tape Changes - by M. Riviere

On March 15, I changed the CALLPRG Index upon an emergency request from M. Frisch to switch TYPESET versions. Michael replaced the current version of TYPESET with a new one and made the current version past. The change took place on both machines.

On March 29, the following changes will be taking place among CALLPRG files and Library Tape products.

The version of FORTRAN available now as FUTURE FORTRAN will become current. This library is still CDC level 12 but has changes introduced in UCC sections during the winter quarter.

I will also place a new version of FUTURE, FORTRAN in CALLPRG containing changes in the PROCLIB section submitted by Brian Hanson. Brian is modifying the routine PROCPFM in order to re-add the missing modification which introduced the SETSOB macro, to make PROCPFM a function that returns PFM error codes and to include in it a file protection parameter. Similar changes will take place on FT3LIB in the Library Tape.

I will replace STRATEN in CALLPRG by a version supplied by Tim Hoffmann where he corrected a problem with the M parameter (modify mode).

Tim Hoffmann will be introducing a new version of CATLSYS as future type. This version has a slightly different output format from the current one and many new parameters. Tim placed the documentation of this version on Writeup by making CATLSYS an indexed file having the documentation about the future version retrieved when the WRITEUP(CATLSYS=FUTURE) is used. This new version may be replacing the current one during the spring quarter.

I will be replacing SYSLIB in the Library Tape with a new library created from the level 13 common decks. I will also be adding the relocatable versions of the three new UCC common decks COMCPSB, COMCFET and COMCFSV.

Kevin Fjelsted will be introducing a new CALLPRG package, SPICE, either as control card callable or as fetch type. Kevin's proposal of SPICE is included in this DSN and the package type will be up to the Systems Group approval.

J. Strait will be rotating PASCAL and its library. The future one will become current in the Library Tape and the current one will become a past CALLPRG file. John is also introducing a new future version of those products.

Also on March 29, L. Liddiard will rename the batcher style BASIC compiler (FETCH and FUTURE) to BASICB and I will introduce CDC level 12 BASIC as FUTURE BASIC. CDC level 12 BASIC was available until now as FETCH NBASIC and accepts only 72 character input lines. Announcement of this change was made in the February and March UCC Newsletters.

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Cyber 74 Deadstart Dump Analysis - by K.C. Matthews

7 March 1977 - 20 March 1977

Friday, 11 March

12:28 (DD-1)  
1MT hung on channel 33. WJE looking at the problem.

Sunday, 13 March

22:00 (DD-2)  
The Operators tried to use the skip forward function in BATCHIO, which hung LCD. Tim Salo looking.

23:52 (DD-3)  
CIO hung trying to function the DDP. Either a hardware problem or the DDP channel was left active by another PPU (not likely). No resolution on this one. KCM looked.

Monday, 14 March

19:05 (DD-4)  
1TD hung the system trying to call a dumb program name into all available PPU's. DWM looking.

Thursday, 17 March

09:29 System hung trying to reload PDP-11 for SUPIO. No dump taken.

21:26 (DD-7)  
Bad exchange package in CPUMTR. KCM looking.

Friday, 18 March

11:57 System hung trying to bring up plotter on the wrong PDP-11 channel.

12:27 (DD-13)  
The plotter and link test hung.

13:08 (DD-14)  
CPUMTR error exit. KCM looking unsuccessfully.

Saturday, 19 March

05:20 One disk device was not available because PFDUMP had aborted trying to load a bad file from the device. A recovery fixed the problem, but the bad file is a symptom of a serious disk problem.

Sunday, 20 March

Four recovery deadstarts and a level 0 trying to bring up level 13. We hope the problem in CIO that D.W. Mears found was the cause.

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6400 Dump Analysis - by R.A. Williams

<u>Date</u>	<u>Description</u>	<u>Tape</u>
770309	The 6676 multiplexer on channel 5 was sending bad data to terminals as a result of a hardware problem.	Fixed
770311	A phantom PP hung message appeared at the system control point on entry of M4,1000000. The system did not go down but the problem should be fixed. It did not happen under level 7.	N.A.
770314	The scopes went blank for unknown reasons and nothing touched the console this time. There has been a marked increase in scope blankings since conversion to level 12 on the 6400!	DDT-13
770314	When TELEX was dropped, 1CJ hung on an RTCM because neither the first or current track of TELEX's output file was reserved in the TRT.	DDT-4
770316	The system went down and the files on 844 permanent file device 40 were clobbered. It looks like the data chain was partially dropped. There are four possible causes in order of decreasing likelihood: 1) The old dropped data chain problem the Cyber experienced in January, 2) The destruction of the device during system time, 3) The use of PFPACK on the disk, 4) Errors in routines on an experimental performance measurement deadstart tape that was in use.	DDT-12