TR79F

TRDP USER MANAUL
MD-11-DMQXA-A

EP-DMQXA-A-DL-A

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IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DMQXA-A-0

PRODUCT NAME: TRDP USER MANUAL

DATE RELEASED: JANUARY 1977

MAINTAINER: DIAGNOSTIC GROUP

THE TRDP USER MANUAL CONSISTS OF THE FOLLOWING SECTIONS:
SECTION 1.   TRDP INTRODUCTION

SECTION 2.   TRDP GENERAL USE DOCUMENTATION

SECTION 3.   TRDP UPDATE PROGRAM (UPD2TR)

SECTION 1. TRDP INTRODUCTION

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1.   WHAT IS TRDP

2.   TRDP REQUIREMENTS

3.   DISCLAIMERS

4.   CONTENTS OF A TRDP PACKAGE

5.   THE TRDP PACKAGE

1.   WHAT IS TRDP

TRDP IS A NAME FOR A PDP-11 DIAGNOSTIC PACKAGE AVAILABLE
ON MULTIMEDIA,INCLUDES TR79F DIAGNOSTIC PACKAGE (9 TRACK
MAGTAPE).

THE TRDP PACKAGES CONTAIN PDP-11 FAMILY DIAGNOSTIC PROGRAMS ON
MEDIA OTHER THAN PAPER TAPE. TRDP PACKAGES HAVE THE FOLLOWING ADVANTAGES:

A. MORE COMPACT STORAGE MEDIA.
B. EASY AND CONVENIENT MEANS OF LOADING PROGRAMS UNDER KEYBOARD CONTROL.
C. MEANS ARE PROVIDED FOR UPDATING AND MODIFYING PROGRAMS.
D. POSSIBLE TO SEQUENTIALLY RUN A SERIES OF PROGRAMS THROUGH USE
   OF THE "CHAIN MODE" FEATURE. (PROGRAMS MUST BE CHAINABLE).

2.   TRDP REQUIREMENTS

2.1   ALL TRDP PACKAGES REQUIRE:

A. PDP-11 PROCESSOR WITH AT LEAST 16K STORAGE.
B. CONSOLE DEVICE
C. TR79F DIAGNOSTIC PACKAGE MEDIA:

THE ABOVE REQUIREMENTS ARE FOR LOADING AND RUNNING DIAGNOSTIC PROGRAMS
ALREADY STORED IN THE DIAGNOSTIC PACKAGE MEDIA. THEY ARE ALSO
SUFFICIENT FOR IMPLEMENTING PERMANENT PATCHES ON PROGRAMS WHEN REQUIRED.

2.2   TO UPDATE A DIAGNOSTIC PACKAGE, THAT IS ADD NEW PROGRAMS OR NEW
       VERSIONS OF PROGRAMS TO THE PACKAGE, THE FOLLOWING HARDWARE IS REQUIRED:

       A. PC11 HIGH SPEED READER, OR
       B. ASR 33 OR ASR 35 TELETYPE.

2.3   OPTIONAL HARDWARE:

       A. BOOTSTRAP ROM FOR THE TR79F
          IT MAKES LOADING THE TRDP MONITOR MORE CONVENIENT.

3.   DISCLAIMERS

3.1   THE TRDP PACKAGES HAVE BEEN DESIGNED FOR DIAGNOSTIC PURPOSES ONLY.
       THE TRDP SOFTWARE IS NOT INTENDED TO BE COMPATIBLE WITH ANY OTHER
       PDP-11 FAMILY SOFTWARE. ANY NON-DIAGNOSTIC USES OF THE SOFTWARE, OR
       USES OF THE SOFTWARE IN OTHER THAN THE MANNER DESCRIBED IN THIS
       DOCUMENT ARE NOT SUPPORTED.

3.2   THE TRDP PACKAGES ARE BINARY PACKAGES ONLY. THEY PROVIDE THE PDP-11
       FAMILY DIAGNOSTIC PROGRAMS IN THE MEDIA DESCRIBED. DOCUMENTATION
       FOR EACH OF THE PROGRAMS STORED IN A TRDP PACKAGE MUST BE OBTAINED
       SEPARATELY, FROM SOFTWARE DISTRIBUTION CENTER (SDC). HOWEVER, THIS
       DOCUMENTATION MUST BE OBTAINED AT THE SAME TIME AS THE PACKAGE, IN
       ORDER TO INSURE THAT THE DOCUMENTS AND THE PROGRAMS ARE AT THE SAME
       REVISION LEVEL.

4.   CONTENTS OF A TRDP PACKAGE

       THE BASIC PARTS OF A TRDP PACKAGE ARE:

       A. A CONTROL PROGRAM REFERRED TO AS THE "MONITOR". THE MONITOR PROVIDES
          THE MEANS TO LOAD PROGRAMS UNDER KEYBOARD CONTROL, TO OBTAIN A
          DIRECTORY OF CONTENTS OF THE TRDP MEDIUM (DECTAPE, MAGTAPE, ETC).

       B. TRDP UPDATE PROGRAM #2 (UPD2TR). A 6.5K PROGRAM THAT PROVIDES A MORE COMPREHENSIVE
          SET OF COMMANDS THAT PROVIDE MORE CONVENIENCE AND EASE OF UPDATING
          THE TRDP PACKAGE.

5.   THE TRDP PACKAGE

       THE TRDP PACKAGE PROVIDES THE PDP-11 FAMILY DIAGNOSTICS ON 9
       TRACK MAGTAPE (TR79F). THE PACKAGE CONSISTS OF THE FOLLOWING ITEMS
       THAT MUST BE ORDERED INDIVIDUALLY:

       MAINDEC-11-DMQXA   TRDP USER MANUAL (THIS DOCUMENT).

       MAINDEC-11-DMZZH-A-MB9 TRDP-TRDP TR79F DIAGNOSTIC PACKAGE (9 TRACK).

SECTION 2. TRDP GENERAL USE DOCUMENTATION

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1.4   LOADING TRDP MONITOR

THE TRDP MONITOR CAN BE LOADED BY BMB873-S1,
OR VIA A "TOGGLE-IN" PROCEDURE.
THE TOGGLE-IN PROCEDURE IS ONLY VALID FOR THE TR79F.

1.4.1   VIA BOOTSTRAP LOADER

A. MOUNT THE TRDP TAPE ON DRIVE 0 AND MAKE READY.
B. REWIND DRIVE 0 TO "BOT" AND SET "ON-LINE"
C. LOAD BMB873-S1 STARTING ADDRESS 173540
D. PRESS START
E. GO TO 1.4.3 STEP A.

FO1

1.4.2   VIA "TOGGLE-IN" PROCEDURE

    A. MOUNT TRDP TAPE ON DRIVE 0 AND MAKE READY.
    B. REWIND DRIVE 0 TO "BOT" AND SET "ON-LINE".
       DRIVE SHOULD BE a LOAD PIONT
    C. TOGGLE IN PROGRAM
    D. STARTING ADDRESS AT LOCATION 10000
    E. WAIT UNTILL DRIVE & CPU HALT
    F. LOAD START ADDRESS AT LOCATION ZERO (0) PRESS START KEY

```
10000   012700   164000   START:   MOV    #164000,R0           ;MTCR
10004   012701   164002            MOV    #164002,R1           ;MTSR
10010   012702   164004            MOV    #164004,R2           ;MTWCR
10014   012703   164006            MOV    #164006,R3   ;MTBAR
10020   000005                     RESET
10022   004737   010116            JSR    PC,READY
10026   005011            BURST:   CLR    aR1
10030   010012                     MOV    R0,aR2
10032   012710   000005            MOV    #5,aR0
10036   004737   010116            JSR    PC,READY
10042   032711   000020            BIT    #20,aR1
10046   005011                     CLR    aR1
10050   012710   000005            MOV    #5,aR0
10054   004737   010116            JSR    PC,READY
10060   005004            1$:       CLR    R4
10062   010413            REED:    MOV    R4,aR3
10064   012712   174000            MOV    #-2048.,aR2
10070   005011                     CLR    aR1
10072   012710   000005            MOV    #5,aR0
10076   004737   010116            JSR    PC,READY
10102   010405            3$:       MOV    R4,R5
10104   112524            PACK:    MOVB   (R5)+,(R4)+
10106   005205                     INC    R5
10110   020513                     CMP    R5,aR3
10112   001374                     BNE    PACK
10114   000000                     HALT
10116   032710   000200   READY:   BIT    #200,aR0
10122   001775                     BEQ    READY
10124   032710   100000            BIT    #100000,aR0
10130   001404                     BEQ    RTN
10132   032711   011000            BIT    #11000,aR1
10136   001001                     BNE    RTN
10140   000000            TAPERR:  HALT
10142   000207            RTN:     RTS    PC
```

1.4.3   COMMON PROCEDURE

    A. THE MONITOR IS LOADED FROM MEDIUM.
    B. THE MONITOR TYPES THE FOLLOWING MESSAGE AND IS THEN READY
       TO ACCEPT KEYBOARD COMMANDS.

G01

```
XXXXX-X TRDP - TR79F MONITOR NNK  RESTART: XXXXXX
(HELP MESSAGE)
.
```

```
WHERE: NNK IS THE SYSTEM'S STORAGE UP TO 28K,
       XXXXXX IS THE MONITOR'S RESTART ADDRESS.
       THE DOT (.) INDICATES THE MONITOR IS READY TO ACCEPT COMMANDS.
```

C. THE HELP MESSAGE MAY BE ELIMINATED BY TYPING CTL C.
D. GO TO SECTION 2. USE PROCEDURES.

NOTE: <CR> MEANS PRESSING THE "RETURN" KEY ON KEYBOARD.

2. USE PROCEDURES

THE USE PROCEDURES THAT FOLLOW APPLY TO TRDP

2.1 SET THE FILL COUNT

THE TTY OUTPUT ROUTINE OF THE UPDATE PROGRAM NORMALLY OUTPUTS
14(8) FILLER CHARACTERS AFTER A CARRIAGE RETURN. IN ORDER TO INSURE
THAT THE LA30S TERMINAL PRINTS CORRECTLY, HOWEVER, ON TERMINALS OTHER
THAT THE LA30S THE FILLER CHARACTERS ARE NOT REQUIRED AND ARE TIME
CONSUMMING AND ANNOYING. THE NUMBER OF FILLER CHARACTERS OUTPUT CAN
BE CHANGED BY MEANS OF THE "F" COMMAND. THE F COMMAND SHOULD
BE THE FIRST COMMAND ISSUED IN ORDER TO PROPERLY SET UP THE CONSOL. TYPE:

```
F<CR>

000C14  1             ;THE 000014 IS TYPED BY THE PROGRAM AND
                      ;INDICATES THE CURRENT FILLER COUNT. THE  1
                      ;INDICATES THE USER TYPED A FILLER COUNT OF 1.
```

2.2 OBTAINING A DIRECTORY

TO OBTAIN A DIRECTORY TYPE ONE OF THE FOLLOWING:

```
D<CR>          TO OBTAIN DIRECTORY ON CONSOLE TERMINAL, OR

D/F<CR>        TO OBTAIN SHORT DIRECTORY ON CONSOLE TERMINAL,

D/L<CR>        TO OBTAIN DIRECTORY ON LINE PRINTER. LINE PRINTER
               MUST BE PRESENT ON SYSTEM. NO CHECK IS MADE FOR IT.
```

THE DIRECTORY CONTAINS THE FOLLOWING INFORMATION:

```
FILNAM.EXT     PROGRAM NAME AND EXTENSION ASSIGNED. .BIN,.BIC,
               AND .SAV, ARE THE ONLY VALID EXTENSIONS FOR
               TRDP MONITOR USE.

NOTE:          .BIN IS A BINARY FILE
               .BIC IS A CHAINABLE BINARY FILE
               .SAV IS A CORE IMAGE FILE.
```

LENGTH   NUMBER OF BLOCKS USED. DECIMAL NUMBER. (DISK AND DECTAPE).

START   STARTING BLOCK NUMBER. OCTAL NUMBER. (DISK AND DECTAPE).

DATE   DATE WHEN PROGRAM WAS PUT ON MEDIUM.

2.3   LOADING AND RUNNING PROGRAMS

A. TYPE "R" AND THE PROGRAM NAME (UP TO 6 CHARACTERS). DO NOT TYPE THE
   EXTENSION (.BIN,.BIC,).
   THIS WILL LOAD AND RUN THE PROGRAM. TO JUST LOAD THE PROGRAM
   TYPE "L" AND THE PROGRAM NAME. ONCE LOADED TYPING A "S"
   WILL START THE PROGRAM.

B. DEPRESS THE CTL AND C KEYS.

   IF A TYPING ERROR IS MADE, DEPRESS THE CTRL AND C KEYS AT SAME TIME.
   A DOT (.) WILL BE TYPED. RETYPE "R" AND THE PROGRAM NAME.

C. THE DESIRED PROGRAM IS LOADED, A DOT TYPED, AND,

   1. THE PROGRAM SELF STARTS IF IT IS SELF STARTING, OR
   2. THE PROGRAM IS STARTED AT LOC 000200 IF THE PROGRAM NAME WAS
      ENDED WITH AN ALTMODE CHARACTER, OR
   3. THE MONITOR WAITS FOR ANOTHER COMMAND. THE PROGRAM JUST LOADED
      MUST BE STARTED MANUALLY BY TYPING S PROGRAM NAME <CR>.

D. TO LOAD ANOTHER PROGRAM AFTER RUNNING THE PREVIOUSLY LOADED PROGRAM,
   RESTART THE MONITOR AT THE RESTART ADDRESS, OR RELOAD THE MONITOR
   AS DESCRIBED IN SECTION 1.

E. POSSIBLE ERRORS ARE DESCRIBED IN SECTION 3.

CAUTION: WHEN LOADING DIAGNOSTICS THAT TEST THE TRDP MEDIUM CARE MUST
         BE TAKEN TO INSURE THAT THE MEDIUM IS NOT ACCIDENTALLY
         DESTROYED. THAT IS THE REASON THAT THE MEDIUM MUST BE WRITE-
         LOCKED. REMOVE IT IF IT IS DESIRED TO TEST THAT DRIVE.

2.4   CHAIN MODE OPERATION

CHAIN MODE OPERATION CONSISTS OF THE SEQUENTIAL EXECUTION OF PROGRAMS
WITHOUT OPERATOR INTERVENTION. ONLY PROGRAMS THAT HAVE BEEN MODIFIED
TO RUN IN CHAIN MODE CAN BE CHAINED. CHAINABLE PROGRAMS ARE
IDENTIFIED IN THE DIRECTORY BY THE EXTENSION .BIC.
NOTE: .BIC IS A CHAINABLE BINARY FILE.

TO RUN CHAIN MODE, THE TRDP MONITOR REQUIRES A FILE INDICATING
THE PROGRAMS TO RUN, AND THE NUMBER OF TIMES EACH PROGRAM MUST
EXECUTE BEFORE GOING ON TO THE NEXT PROGRAM IN THE TABLE.

A CHAIN FILE MAY BE GENERATED BY USING THE XTECO TEXT EDITOR,
AND THE USER MUST PUT A .CCC EXTENSION ON THE CHAIN FILE.

TO SUMMARIZE:

1. CHAIN MODE RUNS CHAINABLE PROGRAMS ONLY. (.BIC EXTENSIONS).
2. A CHAIN FILE INDICATES THE PROGRAMS TO RUN AND THEIR PASS COUNTS.
3. ONLY PROGRAMS RESIDENT ON THE SAME MEDIUM DRIVE CAN BE CHAINED.
4. THE CHAIN FILE MUST BE ON THE SAME MEDIUM WITH A .CCC EXTENSION.

NOTE: THE .CCC EXTENSION INDICATES A CHAIN FILE

 CHAIN MODE IS ENTERED BY TYPING:

C FILENAME<CR>   (WHILE IN MONITOR MODE).
WHERE:
C IS THE "CHAIN" COMMAND
FILENAME IS THE VALUE OF THE ASCII FILE THAT CONTAINS THE MONITOR
COMMANDS TO BE EXECUTED. THE FILE MUST HAVE A ".CCC"EXTENSION.

2.4.1   MAKING A CHAIN ASCII FILE

THE CHAIN ASCII FILE MAY BE CREATED BY RUNNING THE XTECO PROGRAM AND
USING THE TEXT EDITOR TO CREATE THE ASCII CHAIN FILE. THE CHAIN FILE
MAY CONTAIN ANY OF THE COMMANDS SUPPORTED UNDER THE TRDP MONITOR. THE
COMMANDS IN THE ASCII FILE ARE EXECUTED IN THE ORDER IN WHICH THEY ARE
ENTERED AND RUN AS A BATCH MODE.
EXAMPLE OF A CHAIN FILE;

```
;CPU.CCC
;THIS CHAIN FILE EXERCISES THE XYZ PROCESSOR WITH T1-T13..
;
R DOAA/1000          ;RUN T1 1000 TIMES<CR>
R DOBA/1000          ;RUN T2 1000 TIMES<CR>
R DOCA/1000          ;RUN T3 1000 TIMES<CR>
R DODA/1000          ;RUN T4 1000 TIMES<CR>
R DOEA/1000          ;RUN T5 1000 TIMES<CR>
R DOFA/1000          ;RUN T6 1000 TIMES<CR>
R DOGA/1000          ;RUN T7 1000 TIMES<CR>
R DOHA/1000          ;RUN T8 1000 TIMES<CR>
R DOJA/1000          ;RUN T9 1000 TIMES<CR>
R DOKA/1000          ;RUN T10 1000 TIMES<CR>
R DOLA/1000          ;RUN T11 1000 TIMES<CR>
R DOMA/1000          ;RUN T12 1000 TIMES<CR>
L DONA               ;LOAD T13<CR>
S/1000<CR>           ;START IT, RUN 1000 TIMES<CR>
C CPU                ;RESUBMIT CHAIN FILE AGAIN.
```

2.4.2   RUNNING A CHAIN

TO EXECUTE A CHAIN FILE THE USER TYPES;

C FILNAM<CR>   OR
C FILNAM/QV<CR>

IN THE FIRST CASE THE PASS COUNT SPECIFIED IN THE CHAIN FILE
IS USED BY THE TRDP MONITOR TO DETERMINE THE NUMBER OF PASSES TO
EXECUTE EACH PROGRAM.IN THE SECOND CASE THE PASS COUNT
IS NOT USED AND EACH PROGRAM IS EXECUTED ONLY ONCE. THE /QV SWITCH
PROVIDES A SINGLE EXECUTION MODE OF OPERATION OR "QUICK VERIFY".

THE CHAIN FILE TO BE EXECUTED MUST HAVE AN EXTENSION OF .CCC.

THE CHAIN FILE AND THE OBJECTIVE PROGRAMS TO BE RUN MUST RESIDE IN
THE SAME TRDP MEDIUM AND MUST BE MOUNTED ON DRIVE 0 OF TRDP DEVICE

WHEN IN CHAIN MODE SWITCH REGISTER OR SOFTWARE SWITCH REGISTER SHOULD BE SET TO 000000.

THE TRDP MONITOR WILL TYPE EACH COMMAND THAT IT EVALUATES AND THEN
PROCEED TO EXECUTE IT.

IF THE MONITOR ENCOUNTERS A PROGRAM THAT DOES NOT HAVE A .BIC
EXTENSION IT TYPES "NEXFIL". THEN IF THE ERROR RESULTED FROM A R
(RUN COMMAND) ONLY, IT WILL CONTINUE WITH THE CHAIN FILE COMMAND,
OTHERWISE IT TERMINATES THE CHAIN OPERATION.

WHEN THE LAST COMMAND OTHER THAN ANOTHER "C" COMMAND HAS BEEN EXECUTED
 THE TRDP MONITOR TERMINATES CHAIN MODE AND TYPES A DOT(.),
READY TO ACCEPT ANOTHER COMMAND FROM THE CONSOLE.

IF THE USER WISHES TO TERMINATE CHAIN MODE BEFORE ITS NORMAL TERMINATION
HE MAY DO SO BY REPEATEDLY TYPING CTL C (↑C) AT THE CONSOLE UNTIL
THE MONITOR ACCEPTS IT AT THE END OF A PROGRAM PASS.

3.   ERRORS

3.1   TRDP RESIDENT MONITOR ERRORS

        INVCMD/SW   INVALID COMMAND AND/OR SWITCH. CHECK COMMAND
                                JUST GIVEN.

        DEVERR   DEVICE ERROR ON EITHER INPUT OR OUTPUT DEVICE.
                                CHECK THAT OUTPUT DEVICE IS WRITE-ENABLED.

        EOM   END OF MEDIUM. OCCURS DURING INPUT OPERATIONS
                                WHEN THE PROGRAM ATTEMPTS TO INPUT AND THE FILE
                                IS AT AN END. SERIOUS PROBLEM. FILE IN STOR-
                                AGE IS PROBABLY WIPED OUT.

        INVADR   INVALID ADDRESS. MUST BE EVEN WITHIN EXISTING
                                LOCORE AND HICORE LIMITS, AND MUST NOT BE WITHIN
                                UPDATE PROGRAM.

        CKSMER   CHECKSUM ERROR DURING "LOAD" COMMAND.

        POFLO   PROGRAM TOO LARGE TO LOAD WITHIN EXISTING CORE
                                SPACE.

        INVNAM   INVALID CHARACTER TYPED FOR FILE NAME.

        NEXFIL   NON-EXISTENT FILE. IF IN CHAIN MODE
                                THE PROGRAM TO BE RUN DOES NOT HAVE
                                .BIC EXTENSION.

        APPENDIX A. TRDP RESIDENT MONITOR COMMANDS

```
F<CR>           SET CONSOLE FILL COUNT.

D<CR>           DIRECTORY ON THE TTY CONSOLE.

D/F<CR>         SHORT DIRECTORY ON THE TTY CONSOLE.

D/L             DIRECTORY ON THE LINE PRINTER.

D/L/F           SHORT DIRECTORY ON LINE PRINTER.

R COPY          STARTS THE COPY PROGRAM.

R FILENAME      STARTS INDICATED PROGRAM.

L FILENAME      LOADS DESIRED PROGRAM.

S FILENAME      STARTS DESIRED PROGRAM WHICH WAS LOADED UNDER "L" COMMAND.

S ADDR          STARTS PROGRAM AT SPECIFIED ADDRESS.

C FILENAME      RUNS DESIRED CHAIN TABLE.

C FILENAME/QV   RUNS DESIRED CHAIN IN QUICK VERIFY.

E O<CR>         ENABLE DRIVE O(TADP)

E 1<CR>         ENABLE DRIVE 1(TADP)
```

SECTION 3. TRDP UPDATE PROGRAMS #2 (UPD2TR)

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APPENDIX A. UPD2TR COMMANDS

APPENDIX B. PERIPHERALS SUPPORTED BY UPDATE PROGRAMS

APPENDIX C. PROGRAM NAMING CONVENTIONS

1. ABSTRACT

EACH TRDP PACKAGE CONTAINS PROGRAM CALLED UPD2TR.BIN.
THIS PROGRAMS IS USED TO ADD, DELETE, RENAME, OR PATCH PROGRAMS ON TRDP
PACKAGES, AND IN GENERAL, PROVIDE FILE MAINTENANCE SERVICES.

UPD2TR IS A 8K PROGRAM WHICH RELOCATES ITSELF TO THE TOP 8K OF
MEMORY, LEAVING LOWER STORAGE FREE FOR OTHER PROGRAMS. IT IS
CAPABLE OF PERFORMING OPERATIONS ON ALL TRDP MASS STORAGE DEVICES.

3. LOADING AND STARTING PROCEDURE

UPD2TR IS LOADED VIA THE TRDP MONITOR BY TYPING R UPD2TR<CR>.
ONCE LOADED, IT OUTPUTS THE FOLLOWING MESSAGE:

XXXXX-X - TRDP UPDATE PROGRAM #2 21-FEB-76
DATE:

TYPE THE DATE ACCORDING TO FOLLOWING FORMAT:

DATE:DD-MMM-YY<CR>

DD IS THE DAY OF THE MONTH, MMM IS JAN, FEB, MAR, APR, MAY,
JUN, JUL, AUG, SEP, OCT, NOV, DEC, AND YY IS BETWEEN 70 AND 99.

TEST IS MADE TO MAKE SURE NO MONTH HAS MORE THAN 31 DAYS. BUT
DATES LIKE FEB 30, APR 31, ETC., WILL NOT BE DETECTED AS ERRORS
BUT WILL BE STORED AWAY AS FEB 30, APR 1, ETC.

THE PROGRAM WILL TYPE BACK THE DATE FOLLOWED BY:

PROGRAM RELOCATED TO:YYYYYY   ;INITIAL ADDR WHERE PROGRAM RELOCATED TO.
RESTART: XXXXXX   ;UPD1 RESTART ADDRESS.
*   ;* INDICATES READY FOR KEYBOARD COMMANDS.

4. COMMAND DESCRIPTIONS

4.1   IN THE COMMAND DESCRIPTIONS THAT FOLLOW, AN INDICATION IS PROVIDED
AS TO THE AVAILABILITY OF THE COMMAND UNDER UPD2TR.

4.2   THE FILL COMMAND   (UPD2TR)

THE CONSOLE TERMINAL OUTPUT ROUTINE OF THE UPDATE PROGRAM NORMALLY OUTPUTS
14(8) FILLER CHARACTERS AFTER A CARRIAGE RETURN, IN ORDER TO INSURE
THAT THE LA30 TERMINAL PRINTS CORRECTLY. HOWEVER, ON TERMINALS OTHER
THAN THE LA30 THE FILLER CHARACTERS ARE NOT REQUIRED AND ARE TIME
CONSUMMING AND ANNOYING. THE NUMBER OF FILLER CHARACTERS OUTPUT CAN
BE CHANGED BY MEANS OF THE "FILL" COMMAND. THE FILL COMMAND SHOULD
BE THE FIRST COMMAND ISSUED IN ORDER TO PROPERLY SET UP THE CONSOLE. TYPE:

FILL<CR>

```
000014 1                    ;THE 000014 IS TYPED BY THE PROGRAM AND
                            ;INDICATES THE CURRENT FILLER COUNT. THE 1
                            ;INDICATES THE USER TYPED A FILLER COUNT OF 1.
```

THE FILLER COUNT SHOULD BE SET TO A 1 FOR ASR33 AND ASR35 TERMINALS.
FOR OTHER TERMINALS, SET THE NUMBER TO WHATEVER PRODUCES CORRECT
PRINTING AFTER A CARRIAGE RETURN, WITHOUT UNDUE DELAY.

4.3   THE "CLR" COMMAND   (UPD2TR)

THE "CLR" COMMAND IS USED TO CLEAR TO ZEROES ALL CORE STORAGE BELOW
THE UPDATE PROGRAM. IT IS PROVIDED IN CASE THE USER WISHES CORE
STORAGE TO BE "ZEROED" PRIOR TO LOADING A PROGRAM. TYPE:

CLR<CR>

THE PROGRAM RESPONDS WITH *

4.4   LOAD COMMAND   (UPD2TR)

THE LOAD COMMAND IS USED TO LOAD FILES STORED IN ABS FORMAT.
(FILES WITH EXTENSIONS OF .BIN, .BIC, OR OTHER EXTENSIONS KNOWN
TO INDICATE ABS FORMAT).

LOAD DEV: FILNAM.EXT   ;COMMAND FORMAT

IF THE DEVICE HAS NO DIRECTORY, THEN THE FILE NAME AND EXTENSION
SHOULD BE OMITTED.

```
LOAD PR:                 ;USER COMMAND TO LOAD FROM PAPER TAPE.
XFRADR: 000050  CORE: 000000,017670
*
```

XFRADR: INDICATES THE STARTING ADDRESS OF THE PROGRAM LOADED. IF
        IT IS 000001 OR ODD, THE PROGRAM IS NOT SELF-STARTING.

CORE: LEFT NUMBER INDICATES THE LOWEST LOCATION LOADED INTO DURING
        THE LOAD. THE RIGHT NUMBER INDICATES THE HIGHEST LOCATION
        LOADED INTO DURING THE LOAD. THE LEFT AND RIGHT NUMBERS
        IN EFFECT INDICATE THE CORE LIMITS OF THE PROGRAM.

4.5   DUMP COMMAND   (UPD2TR)

THE MEMORY CONTENTS CAN BE WRITTEN TO A TRDP MEDIUM IN ABS FORMAT BY THE
DUMP COMMAND.

DUMP DEV: FILNAM.EXT   ;COMMAND FORMAT

PROCESSING STARTS FROM PROGRAM'S LOW CORE LIMIT AND PROCEEDS TO
AND INCLUDES THE PROGRAM'S HIGH CORE LIMIT.

```
*DUMP DKO:XXX.BIN        ;DUMP PROGRAM ONTO DKO:. CALL IT XXX.BIN
*DIR DKO:

12-JAN-76
ENTRY#          FILNAM  .EXT    DATE            LENGTH          START
000001          XXX     .BIN    26-AUG-72       17              000105
000002          2               2-AUG-72        12C             000172
000003          3               2-AUG-72        12C             000206
FREE FILES: 445

*
```

4.6   THE "XFR" COMMAND   (UPD2TR)

ONCE A PROGRAM HAS BEEN LOADED INTO CORE VIA THE "LOAD" COMMAND, IT
CAN BE MADE SELF-STARTING OR NOT SELF-STARTING AT THE USER'S DISCRETION.
AS DESCRIBED UNDER "LOAD COMMAND", THE LOAD ROUTINE TYPES: XFRADR :XXXXXX
INDICATING WHETHER A PROGRAM IS OR IS NOT SELF-STARTING. THE USE OF "XFR" IS:

```
XFR<CR>             ;REQUEST CURRENT TRANSFER ADDRESS.
000001  000050      ;000001 IS THE CURRENT XFR ADDRESS. 000050 IS THE
                    ;NEW XFR ADDRESS ENTERED BY THE USER.
```

NOTE: DIAGNOSTIC PROGRAMS ARE PURPOSELY MADE NOT SELF-STARTING.

4.7   THE "START" COMMAND   (UPD2TR)

THE "START" COMMAND IS USED TO BEGIN EXECUTION OF A PROGRAM IN CORE.

START<CR>   ;USED TO START A SELF-STARTING PROGRAM.

START ADR<CR>   ;USED TO A START A PROGRAM AT A SPECIFIC LOCATION.

NOTE: IF THE COMMAND START<CR> IS GIVEN FOR A NON-SELF-START PROGRAM,
THE PROCESSOR WILL TRAP OUT WITHOUT AN ERROR MESSAGE.

4.8   THE SAVE COMMAND   (UPD2TR)

THE CONTENTS OF CORE ARE WRITTEN ONTO THE OUTPUT DEVICE AS A SINGLE
BLOCK OF DATA, STARTING AT LOC 000000 AND PROCEEDING TO THE HIGH
LIMIT OF THE PROGRAM IN CORE. THE SAVE COMMAND IN EFFECT, SAVES
A "CORE IMAGE" OF THE CONTENTS OF CORE. FOR TRDP PURPOSES THE ONLY
VALID EXTENSION FOR SAVED PROGRAMS IS .SAV.

THE ONLY CURRENT USE OF THE SAVE COMMAND IS TO
PLACE A CORE IMAGE OF THE TRDP MONITOR ON CASSETTE
AND MAGTAPE. TRDP PACKAGES DO NOT CONTAIN ANY OTHER
CORE IMAGE FILES

B02

NOTE: .SAV IS A CORE IMAGE FILE.

SAVE DEV: FILNAM.EXT   ;COMMAND FORMAT.

```
#SAVE DK0: UPDATE.SAV
#DIR DK0:

12-JAN-76
ENTRY#          FILNAM .EXT    DATE          LENGTH        START
000001          UPDATE .BIN    26-AUG-72     17            000105
000002          2              2-AUG-72      12C           000172
000003          UPDATE .SAV    26-AUG-72     12C           000247
FREE FILES: 445
*
```

4.9   THE GET COMMAND (UPD2TR)

THE GET COMMAND PLACES THE "SAVED" PROGRAM INTO CORE STARTING AT LOC 000000.

GET DEV:FILNAM.EXT

```
↑C
#GET DK0:UPDATE.SAV
*
```

NOTE: SAVE CORE IMAGE FILES (.SAV FILES) ARE NO
        LONGER IN USE, THE "GET" COMMAND IS NO
        LONGER VERY USEFUL.   IT HAS BEEN LEFT AS
        THE COMPLEMENTARY COMMAND FOR THE SAVE COMMAND.

4.10   THE MOD COMMAND (UPD2TR)

ONCE A PROGRAM IS LOADED IT CAN BE PATCHED BY THE MOD COMMAND.

MOD ADR   CAUSES UPDATE TO PRINT THE FOLLOWING:

ADR   CONTENTS OF ADR,

AND WAITS FOR USER RESPONSE.

THE USER MAY TYPE IN AN OCTAL NUMBER AND A TERMINATOR, OR JUST
A TERMINATOR.

IF A NUMBER IS TYPED, IT IS USED AS THE NEW CONTENT OF ADR.

THE TERMINATOR CAN BE EITHER A CARRIAGE RETURN OR A LINE FEED.
CARRIAGE RETURN TAKES THE PROGRAM BACK TO COMMAND MODE, WHEREAS
THE LINE FEED CAUSES THE NEXT WORD (ADR+2) TO BE OPENED FOR
MODIFICATION

```
*MOD 50
000050  000005  3 <LF>
000052  012737  4 <LF>
000054  000340  5 <CR>
*MOD 50
```

```
000050 000003   <LF>
000052 000004   <CR>
*
```

THE MOD COMMAND WILL NOT ALLOW THE USER TO GO BEYOND THE PROGRAM'S
PROTECTION LIMIT, AN "INVCOR" ERROR WILL OCCUR. (SEE SECTION 4.13)

4.11   THE CORE COMMAND   (UPD2TR) ·

THE CORE COMMAND CAUSES THE LOWER AND UPPER LIMITS OF THE PROGRAM
IN CORE TO BE TYPED:

```
*CORE<CR>
000000,014776           ;LEFT NUMBER IS THE LOWER CORE LIMIT.
                        ;RIGHT NUMBER IS THE UPPER CORE LIMIT.
```

4.12   THE "LOCORE" COMMAND   (UPD2TR)

THE "LOCORE" COMMAND IS USED TO CHANGE THE LOWER LIMIT OF THE PROGRAM IN CORE:

```
*LOCORE ADR<CR>         ;WHERE ADR IS THE NEW LOW CORE LIMIT.  IT IS RECOMMENDED
                        ;THAT ADDRESS BE EVEN.
```

4.13   THE "HICORE" COMMAND   (UPD2TR)

THE "HICORE" COMMAND IS USED TO CHANGE THE UPPER LIMIT OF THE PROGRAM IN CORE:

```
*HICORE ADR<CR>         ;WHERE ADR IS THE NEW HIGH CORE LIMIT.  RECOMMEND THAT
                        ;ADDRESS BE EVEN, BUT MUST BE HIGHER THAN THE LOWER
                        ;LIMIT, AND MUST BE LOWER THAN START OF UPDATE PROGRAM.
```

TYPICALLY, THE HICORE COMMAND IS USED TO RESERVE AN AREA FOR PATCHING
A PROGRAM. THE UPDATE PROGRAM WILL NOT ALLOW MODIFICATION OF CORE
OUTSIDE THE UPPER AND LOWER CORE LIMITS. THEREFORE, THE NEW LIMITS
MUST BE SET FIRST. THIS PROTECTS THE CORE OUTSIDE THE PROGRAM FOR THE USER.

4.14   THE DIRLP AND DIR COMMANDS

```
DIR    (UPD2TR)
DIRLP  (UPD2TR)
*DIRLP DEV:     ;COMMAND FORMAT
COMMAND EXAMPLES;
UPD2TR ONLY
----------
*DIR DEV:*.BIN          ;GIVES A DIRECTORY OF ALL FILES
                        WITH A ".BIN" EXTENSION.
*DIR DEV:*.BI?          ;GIVES A DIRECTORY OF ALL FILES
                        WITH AN EXTENSION BEGINING WITH
                        "BI" AND ANY OTHER CHARACTER
                        SUCH AS BIN OR BIC.
DIR DEV:ZTC???.BI?      ;GIVES A DIRECTORY OF ALL FILES
                        WITH THE FIRST THREE CHARACTERS
                        OF THE FILENAME BEING "ZTC"
                        AND HAVING AN EXTENSION BEGINING
                        WITH "BI". EXAMPLES; ZTCA.BIN,
```

NOTE: AT THE END OF THE DIRECTORY THE FREE FILES AND FREE BLOCKS WILL BE
      INDICATED ONLY ON RANDOM ACCESS DEVICES.

NOTE: DIR IN UPDATE #1 GIVES ONLY THE SHORT DIRECTORY (NO LENGTH, NO START).

      DIRLP CAUSES THE DIRECTORY OF DEV: TO PRINTED ON LINE PRINTER. IF
      DIR IS USED, THE DIRECTORY IS TYPED ON CONSOLE DEVICE. DO NOT USE
      DIRLP UNLESS A LINE PRINTER EXISTS, AS NO CHECK IS MADE FOR ITS
      EXISTENCE.   THE PROGRAM WILL PROBABLY TRAP.

      *DIR DK0:
      12-JAN-76

ENTRY#	FILNAM	.EXT	DATE	LENGTH	START
000001	1		2-AUG-72	14	000105
000002	2		2-AUG-72	12C	000172
000003	3		2-AUG-72	12C	000206
000004	5		2-AUG-72	12C	000222

      FREE FILES: 444
      *

      LENGTH IS THE NUMBER OF BLOCKS (10) THE FILE OCCUPIES. A "C" AFTER
      THE FILE LENGTH INDICATES THE FILE IS CONTIGUOUS.

      START IS THE ADDR OF FIRST BLOCK OF FILE. OCTAL NUMBER.
      DATE IS THE FILE CREATION DATE.

4.15   THE DELETE COMMAND   (UPD2TR)

       DEL DEV:FILNAM.EXT

       CAUSES THE FILE NAMED TO BE DELETED FROM THE DIRECTORY.

       *DEL DK0:1
       *DIR DK0:

       12-JAN-76

ENTRY#	FILNAM	.EXT	DATE	LENGTH	START
000002	2		2-AUG-72	12C	000172
000003	3		2-AUG-72	12C	000206
000004	5		2-AUG-72	12C	000222

       FREE FILES: 444
       *

4.16   THE ZERO COMMAND   (UPD2TR)

       ZERO DEV:

       DESTROYS THE DIRECTORY. AS FAR AS UPDATE IS CONCERNED, THERE IS
       NOTHING ON THE DEVICE. THIS SHOULD BE DONE ON A BRAND NEW TAPE
       OR CARTRIDGE SINCE UPDATE USES THE ZERO COMMAND TO RESERVE SOME
       ROOM FOR USE BY THE TRDP MONITOR. VALID FOR ALL MASS STORAGE DEVICES.

       *ZERO DK0:
       *DIR DK0:

26-AUG-72

FILNAM.EXT   LENGTH START   DATE

FREE FILES: 448
*

4.17   THE BOOT   (UPD2TR)

4.17.1 BOOT DEV:

        CAUSES BLOCK 0 OF DEV TO BE LOADED INTO MEMORY, STARTING AT LOC 000000.
        BLOCK 0 IS ASSUMED TO HAVE A BOOT LOADER. THE PROGRAM THEN JUMPS TO
        LOC 000000 TO START THE BOOT LOADER.

        EXAMPLE:

        BOOT DK0:<CR>   ;BOOTS IN THE RKDP MONITOR.

        BOOT MT0:<CR>   ;BOOTS IN THE TRDP MONITOR.

4.17.2 SAVM DEV:*****[(NOT USED IN UPD2TR)]*****

        CAUSES THE FIRST 4K TO BE WRITTEN IN .SAV FORMAT (CORE IMAGE)
        STARTING AT THE MONITOR CORE IMAGE BLOCK OF THE DEVICE.
        THIS COMMAND IS USED TO WRITE THE TRDP MONITOR ON THE
        DEVICE AS A CORE IMAGE THAT IS BOOTABLE.

        *LOAD DK1:RKDP.BIN   ;LOAD RKDP MONITOR.
        *SAVM DK0:   ;SAVE IT AS CORE IMAGE ON DK0:

        THE SAVM COMMAND IS VALID ONLY ON RANDOM ACCESS DEVICES.

        NOTE: SAVM IS NOT A DIRECTORY ENTRY IT WILL NOT SHOW
               ON DIRECTORY.
4.18   THE RENAME COMMAND   (UPD2TR)*****[(NOT USED)]*****
        ----

        *REN DEV:NEWNAM.EXT+DEV:OLDNAM.EXT

        RENAMES THE OLD FILE. THE DEVICES MUST BE THE SAME. NOT ALLOWED
        ON MAGTAPE OR CASSETTE.

        *DIR DK0:

        12-JAN-76
        ENTRY#   FILNAM .EXT   DATE   LENGTH   START
        000001   ASD   .123   26-AUG-76   16C   000105
        FREE FILES: 447

        *REN DK0:123.ASD+DK0:ASD.123
        *DIR   DK0:

```
12-JAN-76
ENTRY#          FILNAM .EXT   DATE       LENGTH        START
000001          123    .ASD   26-AUG     16C           000105
FREE FILES: 447
*
```

4.19   PIP COMMAND   (:UPD2TR)

PIP IS USED TO COPY A LINKED FILE FROM ANY DEVICE THAT CAN INPUT
TO ANY DEVICE THAT CAN PERFORM OUTPUT OPERATIONS. FILE DATA IS
NOT CHECKED FOR FORMAT OR CHECKSUMS.

PIP DEV1:FILNAM.EXT←DEV2:FILNAM.EXT

```
PIP PP:←PR:       (COPIES PAPER TAPE)
*PIP DK0:123.456<PR:     ;PAPER TAPE TO DISK
*PIP PP:<DK0:123.456           ;DISK TO PAPER TAPE PUNCH.
*DIR DK0:
```

```
12-jan-76
entry#          filnam .ext   date         length        start
000001          123    .asd   26-aug-72    16c           000105
000002          123    .456   26-aug-72    3             000125
free files: 446
*
```

THE USER SHOULD MAKE SURE THAT THE OUTPUT FILE NAME DOESN'T EXIST
ALREADY ON THE OUTPUT DEVICE DIRECTORY.

```
PIP     DK0:A←DK0:A    ;IS A NO NO.
DELOLD                 ;CAUSES THIS ERROR. DELETE OLD FILE 1ST.
```

PIP HAS OTHER USEFUL FEATURES:

PIP PP:←PR: COPIES A PAPER TAPE.

important!!!

a program that has been "pipped" to a TRdp device
must be loaded immediately via the "load" command
to insure that no errors have occurred during the
"pip" command as the pip command does not checksum
input data!

4.20   THE "FILE" COMMANDS   (UPD2TR)

UPD2TR INCLUDES A GROUP OF COMMANDS WHICH CAN EXECUTE ON MULTIPLE
FILES WITHOUT REQUIRING THE NAME OF EACH FILE TO BE INDIVIDUALLY
LISTED IN THE COMMAND STRINGS. THESE ARE THE "FILE" COMMANDS,
INCLUDING FILE, FILEF, FILEL, FILEG, FILED, AND FILET. FOLLOWING
THIS GENERAL DESCRIPTION, THEIR DIFFERENCES WILL BE INDIVIDUALLY
EXPLAINED. NOTE THAT THE "FILE" COMMANDS IN GENERAL, CAN NOT BE USED
WITH NON-DIRECTORY DEVICES (SUCH AS PR, PP, LP).

THE "FILE" COMMANDS RECOGNIZE TWO SPECIAL CHARACTERS IN THE FILE NAME
AND EXTENSION. THESE CHARACTERS, THE ASTERISK (*) AND THE QUESTION-
MARK (?) ALLOW A SINGLE NAME TO REFERENCE SEVERAL FILES.

NOTE THAT FILE NAMES ARE ALWAYS RECORDED AS HAVING 6 CHARACTERS,
AND EXTENSIONS ALWAYS HAVE 3 CHARACTERS. THEY ARE LEFT-JUSTIFIED
WITH TRAILING BLANKS ADDED, AND THE BLANKS ARE PART OF THE NAME.

BECAUSE THE "FILE" COMMANDS CAN HANDLE SEVERAL FILES PER COMMAND
ISSUED, THEIR TREATMENT OF ERROR CONDITIONS SHOULD BE NOTED. IF A
DEVICE ERROR OCCURS IN THE PROCESS OF FINDING A FILE (I.E. WHEN THE
DIRECTORY IS REFERENCED IN THE CASE OF DISK OR DECTAPE, OR THE BLOCKS
ARE SCANNED IN THE CASE OF CASSETTE OR MAGTAPE), THE "FILE" COMMAND
IS ABORTED AND THE ERROR IS PRINTED. IF A DEVICE ERROR, CHECKSUM
ERROR, OR END OF MEDIUM ERROR OCCURS WHILE READING A FILE (FILEL,
FILEG, AND FILET) THE ERROR IS REPORTED AND THEN PROCESSING
OF THE COMMAND IS CONTINUED.

THE "FILE" COMMANDS LIST THE DESCRIPTIVE INFORMATION ABOUT EACH
FILE AS IT IS PROCESSED, INCLUDING FILE NAME, TRANSFER ADDRESS,
AND LOCORE AND HICORE VALUES. THE /N AND /LP SWITCHES ARE INCLUDED
TO ALTER THIS IF DESIRED.

4.21   THE "ASTERISK" CONSTRUCTION

THE "ASTERISK" CONSTRUCTION PERMITS REFERENCE TO ALL FILES HAVING A
DESIRED EXTENSION (ANY FILENAME), TO ALL FILES HAVING A DESIRED
FILENAME (ANY EXTENSION), OR TO ALL FILES ON A DEVICE. ITS USE IN
THE FILENAME POSITION MEANS "ANY FILENAME" AND IN THE FILE EXTENSION
POSITION MEANS "ANY EXTENSION".

        TO REFER TO ALL FILES HAVING A DESIRED EXTENSION (ANY
        FILENAME), AN ASTERISK IS TYPED FOR THE FILENAME:

            DK0:*.OBJ   MEANS ALL FILES ON DISK 0 WITH
                             A .OBJ EXTENSION

            DT3:*.P11   MEANS ALL FILES ON DECTAPE 3 WITH
                             THE EXTENSION .P11

        TO REFER TO ALL FILES WITH A DESIRED FILENAME (ANY EXTENSION),
        AN ASTERISK IS TYPED FOR THE EXTENSION:

            DK0:UPD2TR.*   MEANS ALL FILES ON DISK 0 WITH THE
                             FILENAME UPD2TR, SUCH AS UPD2TR.P11,
                             UPD2TR.LST, AND UPD2TR.DOC

            DT1:SYSTST.*   MEANS ALL FILES ON DECTAPE 1 WITH
                             THE FILENAME SYSTST, SUCH AS
                             SYSTST.V1,SYSTST.LST, AND SYSTST.OBJ

        TO REFER TO ALL FILES ON A DEVICE (ANY FILENAME, ANY EXTENSION),
        ASTERISKS ARE TYPED FOR BOTH THE FILENAME AND THE EXTENSION:

            MT3:*.*   MEANS ALL FILES ON MAGTAPE 3

            CT0:*.*   MEANS ALL FILES ON CASSETTE 0

4.22   THE "WILD CHARACTER" CONSTRUCTION

THE "WILD CHARACTER" CONSTRUCTION PERMITS REFERENCE TO ALL FILES
WHOSE FILE NAMES DIFFER IN SPECIFIC CHARACTER POSITIONS. WHEN
SEARCHING FOR FILES CORRESPONDING TO THE NAME IN THE COMMAND STRING,
ANY CHARACTER IS ACCEPTED AS MATCHING A QUESTION MARK. FOR EXAMPLE:

        DK0:UPD?.DOC   MEANS ANY FILE WHOSE NAME BEGINS WITH "UPD",
                        HAS ANY CHARACTER NEXT (INCLUDING A BLANK)
                        AND THEN TWO BLANKS, WITH A .DOC EXTENSION.
                        UPD1.DOC AND UPD2TR.DOC WOULD BOTH QUALIFY.

        DT1:TEST??.P11 WOULD INCLUDE ANY FILES ON DT1 WHOSE FILENAMES
                        BEGIN WITH "TEST" AND WHOSE EXTENSIONS ARE
                        .P11, SUCH AS TEST2.P11, TEST34.P11, AND
                        TEST.P11.

        CT1:SYSTST.V?   INCLUDES ANY FILE ON CASSETTE 1 WHOSE FILENAME
                        IS "SYSTST" AND WHOSE EXTENSION BEGINS WITH "V"
                        AND ENDS WITH A BLANK. THUS, SYSTST.V1 AND
                        SYSTST.VA WOULD QUALIFY, BUT SYSTST.V14 AND
                        SYSTST.LST WOULD NOT.

4.23   THE FILE COMMAND   (UPD2TR)

THE FILE COMMAND IS USED TO DO BULK TRANSFERS FROM ONE DEVICE TO
ANOTHER. IT IS SIMILAR TO A PIP COMMAND EXCEPT THAT IT CAN UTILIZE
THE "ASTERISK" AND "WILD CHARACTER" CONSTRUCTIONS. IF A FILE OF THE
SAME NAME ALREADY EXISTS ON THE OUTPUT DEVICE, THE FILE COMMAND
(UNLIKE THE PIP COMMAND) WILL DELETE THE OLD FILE. NOTE ALSO THAT
THE FILE COMMAND CAN TRANSFER BOTH LINKED AND CONTIGUOUS (CORE-
IMAGE) FILES.

FILE DEV:<DEV:FILNAM.EXT   ;COMMAND FORMAT

WHERE THE DEVICE NAME ON THE LEFT IS THE OUTPUT DEVICE AND
THAT ON THE RIGHT IS THE INPUT DEVICE.

4.24   THE FILEF COMMAND   (UPD2TR)

THE FILEF COMMAND IS USED TO DO FAST TRANSFERS ONTO ALL DIRECTORY DEVICES.
FOR MAG TAPE LOGICAL END OF TAPE IS FOUND AND ALL THE REQUESTED
FILES ARE TRANSFERRED SEQUENTIALLY ONTO THE TAPE STARTING AT THAT
POINT. THIS FAST TRANSFER COMMAND ELIMINATES THE CHECK OF THE TAPE
DIRECTORY WHICH IS MADE BEFORE EACH FILE TRANSFER IF THE FILE COMMAND
IS USED.

FOR RANDOM ACCESS DEVICES THE FILE IS TRANSFERED TO THE FIRST
AVAILABLE SPACE ON THE DEVICE.

FILEF   DEV:<DEV:FILNAM.EXT   ;COMMAND FORMAT

4.25   THE FILED COMMAND   (UPD2TR)

THE FILED COMMAND DELETES THE FILES NAMED FROM THE DEVICE'S DIRECTORY.

```
FILED   DEV:FILNAM.EXT                    ;COMMAND FORMAT
```

UPD2TR NOW PERMITS THE USE OF THE DEL(ETE) COMMAND WITH * AND WILD CHARACTER
FILENAME CONSTRUCTION. EXAMPLE:

```
DEL DKO:*.BIN                    ;DELETES ALL FILES IN DKO: WITH .BIN
                                 ;EXTENSION.
```

CAUTION!!!   THE UPD2TR PROGRAM DOES NOT REQUIRE VERIFICATION OF A MASS
                DELETION COMMAND. THE USER MUST BE CAREFUL NOT TO
                SPECIFY A DELETE THAT HE DOES NOT REALLY MEAN TO OCCUR.
                IF IT SHOULD, TYPING CONTROL C WILL ABORT THE COMMAND
                AT THE EARLIEST OPPORTUNITY.

4.26   THE FILEL COMMAND   (UPD2TR)

THE FILEL COMMAND SEQUENTIALLY LOADS INTO CORE EACH FILE REFERENCED.
IT ASSUMES THAT ALL REFERENCED FILES ARE ABS FORMAT (IF NOT A CKSMER
OR EOM ERROR WILL OCCUR). ITS PURPOSE IS TO SHOW THAT ALL ABS
FORMATTED FILES CAN BE CORRECTLY LOADED (CHECKS FOR DEVICE AND
CHECKSUM ERRORS). IF AN ERROR OCCURS, IT WILL IDENTIFY THE TYPE OF
ERROR AND THE DEVICE.

```
FILEL   DEV:FILNAM.EXT                    ;COMMAND FORMAT
```
THE LOAD COMMAND MAY ALSO BE USED IN UPD2TR TO PERFORM THE SAME FUNCTIONS
AS THE FILEL COMMAND.

4.27   THE FILEG COMMAND   (UPD2TR)

THE FILEG (FILE GET) COMMAND IS SIMILAR TO THE FILEL COMMAND EXCEPT
THAT IT LOADS AND CHECKS CONTIGUOUS (CORE-IMAGE) FILES INSTEAD OF
ABS FORMAT FILES. DEVICE ERRORS AND SIZE ERRORS WILL BE REPORTED.

```
FILEG   DEV:FILNAM.EXT                    ;COMMAND FORMAT
```

THE GET COMMAND MAY ALSO BE USED IN UPD2TR TO PERFORM THE SAME FUNCTIONS
AS THE FILEG COMMAND.

4.28   THE FILET COMMAND   (UPD2TR)

THE FILET COMMAND TESTS ALL FILES NAMED BY READING THEM INTO A BUFFER
TO MAKE CERTAIN THAT NO DEVICE ERRORS OCCUR. ANY DEVICE ERRORS ARE
LISTED AS THEY OCCUR.

```
FILET   DEV:FILNAM.EXT                    ;COMMAND FORMAT
```

4.29   THE /LP AND /N SWITCHES (UPD2TR)

THE "FILE" COMMANDS NORMALLY CAUSE PRINTING OF THE NAMES OF THE FILES
CHECKED, THEIR TRANSFER ADDRESSES, AND LOCORE AND HICORE VALUES,

ON THE CONSOLE TERMINAL. THE /LP SWITCH CAUSES THIS INFORMATION TO BE
OUTPUT ON THE LINE PRINTER INSTEAD. THE /N SWITCH INHIBITS PRINTING
OF THIS INFORMATION, SO THAT ONLY ERROR PRINTOUTS ARE OUTPUT. SWITCHES MUST
NOW BE SPECIFIED AT END OF THE COMMAND STRING.

```
          FILET DKO:*.*/LP          ;TEST ALL FILES ON DKO AND PRINT
                                     ;THE FILE INFORMATION AND ERROR
                                     ;INFORMATION ON THE LINE PRINTER

          FILEG DT1:*.SA?/N          ;DO A CORE-IMAGE LOAD OF ALL THE
                                     ;.SAV FILES ON DECTAPE 1,
                                     ;REPORTING ONLY ERROR INFORMATION

          FILEL /N MT2:*.BIN/LP      ;LOAD ALL .BIN FILES FROM MAGTAPE 2,
                                     ;REPORTING ONLY ERROR INFORMATION
                                     ;ON THE LINE PRINTER

          DEL DKO:*.TXT/LP           ;DELETE ALL .TXT FILES FROM DKO: AND
                                     ;PRINT DELETED FILES ON LINE PRINTER.
```

4.30   THE "EOT" COMMAND   (UPD2TR)

THE "EOT" COMMAND IS PROVIDED AS A MEANS OF PLACING AN "END-OF-TAPE"
MARK OR SENTINEL FILE AT A SELECTED SPOT ON MAGTAPE OR CASSETTE. APPLICATIONS
OF THIS COMMAND INCLUDE REPLACING AN "EOT" MARK WHEN IT HAS BEEN
ACCIDENTALLY DESTROYED, OR WHEN THE USER WISHES TO DELETE FILES AT THE
END OF THE MEDIUM, AND STILL BE ABLE TO USE THE SPACE TAKEN UP BY
THOSE DELETED FILES.

THE PROCEDURE TO BE USED IS AS FOLLOWS:

A. POSITION THE MAGTAPE BY PERFORMING A FILET COMMAND ON THE FILE
   PRECEDING THE SPOT WHERE THE "EOT" IS TO BE PLACED. IN PRACTICE,
   IF AN "EOT" HAS BEEN LOST, THE USER SHOULD FILET THE NEXT TO THE
   LAST FILE, SINCE THE LAST FILE MAY BE UNRECOVERABLE.

B. PERFORM AN "EOT" COMMAND.

   EXAMPLE:

```
       #FILET MTO:ZQRADO.BIN<CR>    ;READS FILE ZQRADO.BIN AND STOPS.
       #EOT<CR>                     ;WRITES EOT.
```

4.31   THE TEXT COMMAND   (UPD2TR)

UPD2TR INCLUDES THE FACILITY TO EXECUTE A SEQUENCE OF COMMANDS
CONTAINED IN AN ASCII TEXT FILE. THIS ASCII TEXT FILE IS CREATED
VIA THE TEXT COMMAND. ALSO SEE SECTION 4. XTECO TEXT EDITOR.

```
TEXT DEV:FILNAM.EXT                    ;COMMAND FORMAT
```

WHEN THE TEXT COMMAND IS ISSUED UPD2TR OPENS THE NAMED FILE FOR
OUTPUT AND RESPONDS WITH A QUOTATION MARK (") TO INDICATE ITS
READINESS TO ACCEPT TEXT. ANY ASCII CHARACTER (EXCEPT CONTROL C AND
RUBOUT) WILL BE ACCEPTED AS INPUT TO THE TEXT FILE. CONTROL C (↑C)
WILL ABORT TEXT MODE, RETURNING TO COMMAND MODE AND CLOSING
THE OUTPUT FILE. CONTROL Z (↑Z) IS THE STANDARD TERMINATOR FOR INPUT
TO THE TEXT FILE. RUBOUT CAN BE USED TO DELETE CHARACTERS ON THE

CURRENT LINE (BUT NOT ON PRECEDING LINES).

THREE CHARACTERS, THE POUND SIGN (#), THE SEMICOLON (;), AND THE DOLLAR
SIGN ($), HAVE SPECIAL SIGNIFICANCE IN THE TEXT FILE. THE # SIGN AND ; ARE
USED TO START A COMMENT WHICH IS TO BE PRINTED DURING COMMAND FILE
EXECUTION. THE $ SIGN IS USED TO START A COMMENT WHICH IS TO BE PRINTED
AND FOLLOWED BY A HALT DURING COMMAND FILE EXECUTION (SUCH AS "$PRESS CONT
WHEN READY").

4.32   THE PRINT COMMAND   (UPD2TR)

THE PRINT COMMAND OUTPUTS A FILE ON THE LINE PRINTER. IT IS
USED TO PRINT TEXT FILES, AND WILL OUTPUT TO THE LINE PRINTER.
AFTER THE TEXT FILE IS PRINTED THE PROGRAM OUTPUTS 10 CARRIAGE RETURNS
AND LINE FEEDS TO SIMULATE A FORM FEED. NOTE THAT BOTH PRINT AND TYPE
COMMANDS ACCEPT * AND WILD CHARACTER CONSTRUCTION IN FILENAMES, SO
THAT MULTIPLE TEXT FILES MAY BE PRINTED WITH ONE COMMAND.

PRINT DEV:FILNAM.EXT   ;COMMAND FORMAT

PRINT DEV:*.TXT

WHERE DEV IS THE SOURCE DEVICE ON WHICH THE FILE RESIDES.

NOTE THAT NO CHECK IS MADE OF FILE PRINTABILITY.

4.33   THE TYPE COMMAND   (UPD2TR)

SAME AS THE PRINT COMMAND EXCEPT THAT IT OUTPUTS TO THE CONSOLE
TERMINAL INSTEAD OF TO THE LINE PRINTER.

TYPE DEV:FILNAM.EXT   ;COMMAND FORMAT

4.34   THE DO COMMAND   (UPD2TR)

THE DO COMMAND IS USED TO CAUSE THE EXECUTION OF A COMMAND FILE.
THE FILE MUST BE ON ONE OF THE TRDP STORAGE MEDIA (DECTAPE, MAGTAPE,
CASSETTE, OR DISK). THE FILE IS EXECUTED LINE BY LINE, AND MUST
BE TERMINATED BY A ↑Z (CONTROL Z). EXECUTABLE FILES ARE CREATED
VIA THE TEXT COMMAND, OR VIA THE XTECO TEXT EDITOR PROGRAM (SEE SECTION 4.)
FOR NOTES ON THE FILE'S FORMAT AND THE USE OF SPECIAL CHARACTERS,
SEE THE PRECEEDING TEXT COMMAND DESCRIPTION.

DO DEV:FILNAM.EXT   ;COMMAND FORMAT

4.35   THE ASG (ASSIGN) COMMAND   (UPD2TR)

THE ASG (ASSIGN) COMMAND ALLOWS THE USE OF LOGICAL DEVICE NAMES IN
COMMAND FILES. ALLOWED LOGICAL DEVICE NAMES ARE 1,2,3,4, AND SYS.
A COMMAND FILE MAY USE A LOGICAL NAME SUCH AS "1" INSTEAD OF
SPECIFYING, FOR EXAMPLE, DK0 OR DK1. THEN, BEFORE EXECUTING
THE COMMAND FILE, THE USER CAN ASSIGN THE DESIRED PHYSICAL DEVICE
TO THE LOGICAL NAME, PERMITTING USE OF ANY AVAILABLE UNIT.

ASG PHYSICAL DEV = LOGICAL DEV   ;COMMAND FORMAT

REVERSAL OF PHYSICAL AND LOGICAL DEVICE NAMES IN THE COMMAND STRING
RESULTS IN "INVDEV" ERROR MESSAGE. THE COMMAND IS NOT PERFORMED.

        ASG DK1: = 2:   ;ASSIGNS DISK 1 TO LOGICAL DEVICE "2"

        ASG DT3: = SYS: ;ASSIGNS DECTAPE 3 TO LOGICAL DEVICE "SYS"

4.37   THE PATCH COMMAND   (UPD2TR)

THE PATCH COMMAND ENABLES THE USER TO PATCH A PROGRAM ON ANY DIRECTORY-
ORIENTED (RANDOM ACCESS) TRDP SUPPORTED DEVICE. NO OUTPUT
DEV: FILE SPECIFICATION IS REQUIRED OR PERMITTED, THE INPUT DEVICE
IS ASSUMED TO BE THE DESIRED OUTPUT DEVICE.

THE FILE(S) TO BE PATCHED MUST BE IN ABS FORMAT
BINARY FILE. THE PATCH ROUTINE DOES NOT CHECK IN ADVANCE
FOR CORRECT FILE FORMAT. THE FOLLOWING EXTENSION
ARE FOR TRDP ABS FORMAT FILES; .BIN, .BIC, .MPG.

CARRIAGE-RETURN OR LINE-FEED ARE THE ONLY CHARACTERS WHICH MAY BE USED
FOR TERMINATING A TYPED ENTRY. THE LINE-FEED MAY BE THOUGHT OF AS AN
"ADVANCE" KEY, WHICH WILL GO TO THE NEXT ADDRESS. THE RUBOUT KEY MAY
BE USED TO CORRECT TYPING MISTAKES MADE ON INPUT. ALL ADDRESSES ENTERED MUST
BE EVEN. IF AN ADDRESS IS TYPED (IN RESPONSE TO A PROMPT) WHICH IS ODD, THE
PROMPT WILL BE RE-ASKED.

IF AN ADDRESS IS TYPED WHICH IS NOT WITHIN THE CORE LOAD LIMITS OF THE FILE
BEING OPERATED UPON, THE UNKNOWN CONTENTS OF THE SPECIFIED ADDRESS WILL
BE INDICATED BY "XXXXXX". THE PROGRAM WILL THEN GIVE THE USUAL "?"
PROMPT, ASKING IF MODIFICATION IS DESIRED.

IN RESPONSE TO THE "ADDR?" PROMPT, IF A CARRIAGE-RETURN OR A
LINE-FEED IS TYPED AS THE ONLY THING ON THE INPUT LINE, THE EXIT
SEQUENCE WILL BE ENTERED, AT SUCH TIME, THE USER IS ASKED TO WRITE-ENABLE
THE OUTPUT DEVICE AND CONFIRM THE FACT THAT THE PATCHES SHOULD BE ENTERED
INTO THE SPECIFIED FILE.

IF A FILE IS MODIFIED BY THE USE OF THE "PATCH" COMMAND, THE DATE AND
LENGTH OF THE FILE OPERATED UPON ARE UPDATED IN THE DEVICE DIRECTORY AS
REQUIRED.

IF THE FILE BEING PATCHED CONTAINS REPRESENTATIONS OF ISOLATED SINGLE-BYTE
DATA, FOR EXAMPLE THOSE GENERATED BY THE FOLLOWING ASSEMBLY
CODE SEQUENCES;

A.   .=24
        .BYTE 120
        .EVEN   ;GENERATES ONLY 1 BYTE OF DATA

B.   .=413
        .BYTE-1

```
        .EVEN            ;GENERATES ONLY 1 BYTE OF DATA

C.      .ODD
        .BYTE 6
        .=.+1            ;GENERATES ONLY 1 BYTE OF DATA
```

THE CONTENTS OF THE DATA BYTE REPRESENTED IN THE FILE WILL BE PROPERLY
REPORTED IF EXAMINED USING THE "PATCH" COMMAND, BUT THE CONTENTS
OF THE ADJACENT DATA BYTE WHICH OCCUPIES THE SAME WORD ADDRESS WILL BE
REPORTED TO BE O'S, SINCE IT IS NOT REPRESENTED IN THE FILE.
FOR EXAMPLE, IN THE CASE OF A ABOVE,

```
        ADDR? 24 <CR>
        000024 000120
               ↑↑↑---- NOTE THAT THE CONTENTS OF THE
                       UPPER BYTE ARE ACTUALLY UNKNOWN.
```

AND B

```
        ADDR? 412 <CR>
        000   177400
                 ↑↑----NOTE UNKNOWN DATA IN LOW BYTE
                       REPRESENTED BY O'S.
```

5.   ERRORS

   INVCMD   INVALID COMMAND. CHECK COMMAND JUST GIVEN.

   INVDEV   INVALID DEVICE SPECIFIED FOR COMMAND GIVEN.

   INVADR   INVALID ADDRESS. MUST BE EVEN, WITHIN EXISTING LOCORE
                   AND HICORE LIMITS, AND MUST NOT BE WITHIN UPDATE PROGRAM.

   INVNAM   INVALID FILE NAME. NO SPECIAL CHARACTERS ALLOWED.
                   A THROUGH Z, AND 0 THROUGH 9 ARE ONLY VALID CHARACTERS.
                   ALSO OCCURS IF * OR WILD CHARACTER CONSTRUCTION FILENAMES
                   ARE SPECIFIED TO A COMMAND THAT DOES NOT ALLOW IT.

   NEXFIL   NON-EXISTENT FILE. FILE DOES NOT EXIST IN DEVICE DIRECTORY.

   DELOLD   DELETE OLD FILE BEFORE GIVING COMMAND THAT WOULD CREATE
                   FILE WITH SAME NAME.

   DEVERR   DEVICE ERROR ON EITHER INPUT OR OUTPUT DEVICE. CHECK
                   THAT OUTPUT DEVICE IS WRITE-ENABLED.

   NOTRDY   PAPER TAPE DEVICE IS NOT READY. MAKE IT READY.

   CKSMER   CHECKSUM ERROR DURING "LOAD" COMMAND.

   EOM   END OF MEDIUM. OCCURS DURING INPUT OPERATIONS WHEN THE
                   PROGRAM ATTEMPTS TO INPUT AND THE FILE IS AT AN END.
                   SERIOUS PROBLEM. FILE IN STORAGE IS PROBABLY WIPED OUT.
                   REFER TO SECTION 4 FOR MEDIUM TESTING COMMANDS.

   DEVFUL   DEVICE FULL. APPLIES TO DECTAPE AND DISK. NO MORE FILE
                   STORAGE AVAILABLE. DELETE UNNECESSARY FILES AND TRY
                   AGAIN, OR USE ANOTHER MEDIUM.

   INVCOR   HIGH CORE LIMIT LOWER THAN LOWER CORE LIMIT. CORRECT

CORE LIMITS. OCCURS DURING DUMP COMMAND.

DIRERR   INVALID NAME IN DEVICE DIRECTORY.

DELERR   BIT MAP ERROR DURING DELETE OPERATION ON DECTAPE OR DISK.
                NOT USUAL UNLESS MEDIUM HAS BEEN WIPED OUT. TRANSFER
                FILES TO OTHER MEDIUM. (SEE SECTION 4.).

POFLOW   PROGRAM TOO LARGE TO LOAD WITHIN EXISTING CORE SPACE.

INVSW   INVALID SWITCH SPECIFIED IN COMMAND STRING.

DUMP ERROR   ACT MODE ONLY (SEE SECTION 7). OCCURS DURING DUMP
                COMMAND WHEN DATA DUMPED ON OUTPUT DEVICE DOES NOT MATCH
                DATA IN CORE.

5.1   ERRORS UNIQUE TO THE FILCMP COMMAND

UNEQUAL FILE TYPES   INDICATES THE TWO FILES BEING COMPARED
                                    ARE NOT OF SIMILAR STRUCTURE.

UNEQUAL FILE SIZES   INDICATES THE TWO FILES BEING COMPARED
                                    ARE NOT THE SAME SIZE.

SCRATCH FILE SHORTER THAN MASTER FILE
                                    THE SCRATCH FILE IS THE FILE ON THE
                                    DEVICE WHICH IS ON THE LEFT OF THE
                                    BACK ARROW IN THE COMMAND STRING.

SCRATCH FILE LONGER THAN MASTER FILE
                                    THE SCRATCH FILE WHICH IS ON THE
                                    LEFT OF THE BACK ARROW IS LONGER
                                    THAN THE FILE ON THE RIGHT.

BLOCK COMPARE ERROR XTH BLOCK, YTH BYTE
                                    THIS INDICATES THERE WAS AN ERROR IN
                                    THE COMPARE, X AND Y INDICATE THE
                                    BLOCK NUMBER AND BYTE NUMBER WHERE THE
                                    ERROR OCCURRED.

6.   UPDATING TRDP MEDIA

UPDATING TRDP MEDIA CONSISTS OF:

A. PATCHING EXISTING PROGRAMS (DEPO), OR
B. REPLACING PROGRAMS WITH NEWER VERSIONS, OR
C. ADDING NEW PROGRAMS.

WHEN FIRST BECOMING ACQUAINTED WITH THE USE OF THE UPDATE PROGRAMS
THE USER SHOULD MAKE EXTRA SURE THAT A BACKUP FOR THE MEDIUM TO
BE MODIFIED EXISTS, IN ORDER TO BE ABLE TO RECOVER FROM FATAL ERRORS.
(ZEROING THE MEDIUM, DELETING THE WRONG FILE, ETC.).

6.1   PATCHING EXISTING PROGRAMS

PATCHING A PROGRAM IN A TRDP MEDIUM CONSISTS OF:

A. LOADING EXISTING PROGRAM INTO MEMORY (LOAD COMMAND)
B. MAKING MODIFICATIONS (PATCHING - MOD COMMAND)
C. DELETING OLD PROGRAM (DEL COMMAND)
D. STORING MODIFIED PROGRAM (DUMP COMMAND).

AN ALTERNATE, SAFER, PROCEDURE WOULD STORE THE PATCHED PROGRAM FIRST,
AND THEN AFTER TRYING THE MODIFIED PROGRAM, THE OLD PROGRAM WOULD
BE DELETED.

EXAMPLE:

```
↑C
*LOAD MTO:DOSAO.BIN              (LOAD PROGRAM)
*MOD 3450                        (MODIFY PROGRAM)
003450  012737  000000
*MOD 3766
003766  012737  000000
003770  000005  000000
*DEL MTO:DOSAO.BIN               (DELETE OLD PROGRAM)
*DUMP MTO:DOSA1.BIN              (STORE MODIFIED PROGRAM)
*LOAD MTO:DOSA1.BIN              (LOAD NEW PROGRAM)
*START 200                       (TRY OUT NEW PROGRAM)
```

IT IS IMPORTANT WHEN IMPLEMENTING DEPO'S THAT THE NAME OF THE
PROGRAM REFLECT THE DEPO LEVEL OF THE PROGRAM. SEE APPENDIX D.
PROGRAM NAMING CONVENTIONS.

6.2   REPLACING PROGRAMS WITH NEWER VERSIONS, OR

        ADDING NEW PROGRAMS

TO REPLACE A PROGRAM, OR TO ADD A NEW ONE:

A. DELETE OLD PROGRAM IF REPLACING IT,
B. LOAD NEW PROGRAM INTO MEMORY,
C. DUMP PROGRAM ONTO DEVICE.

EXAMPLE 1:

```
*DEL MTO:DOSA1.BIN               (DELETE OLD PROGRAM)
*LOAD PR:                        (LOAD NEW PROGRAM )
*DUMP MTO:DOSBO.BIN              (STORE NEW PROGRAM)
*LOAD MTO:DOSBO.BIN              (LOAD NEW PROGRAM)
*START 200                       (TRY NEW PROGRAM)
```

EXAMPLE 2:

```
DEL MTO:DOSA1.BIN       ;DELETES OLD PROGRAM.
LOAD PR:               ;LOADS NEW PROGRAM FROM PAPER TAPE.
DUMP MTO:DOSBO.BIN     ;ADDS NEW PROGRAM.
LOAD MTO:DOSBO.BIN     ;CHECKS THAT PROGRAM LOADS CORRECTLY.
```

NOTE: DELETING A PROGRAM FROM CASSETTE OR MAGTAPE DOES NOT PHYSICALLY
REMOVE THE PROGRAM FROM THE MEDIUM. IT STILL TAKES UP SPACE. TO
CLEAN UP THE CASSETTE OR MAGTAPE, IT MUST BE COPIED VIA ITS TRDP
MONITOR'S COPY ROUTINE, WHICH COPIES ONLY "GOOD" FILES.

```
*PIP MTO:OVLY.BIN←PR:          (PIP TO MTO: FROM PR:)
*LOAD MTO:OVLY.BIN            (LOAD OVERLAY)
```

RELOADING OF A PROGRAM THAT HAS BEEN "PIPPED" DIRECTLY TO A DEVICE
IS IMPORTANT, TO INSURE THAT NO READING ERRORS HAVE OCCURRED.
THE PIP COMMAND DOES NOT CHECKSUM INPUT DATA.

6.3 GENERATING A TRDP MEDIUM

IT MAY BE DESIRABLE TO CREATE A CUSTOM MADE MEDIUM CONTAINING ONLY
THOSE PROGRAMS REQUIRED TO TEST A PARTICULAR SYSTEM. AS AN EXAMPLE,
SUCH A MEDIUM COULD CONTAIN:

A. PROCESSOR TESTS
B. MEMORY TESTS
C. I/O PROGRAMS FOR THAT SYSTEM

WITH SUCH A MEDIUM, THE ENTIRE SYSTEM COULD BE TESTED USING THE
CHAIN MODE OF OPERATION, WITHOUT HAVING TO SWITCH DECTAPES, OR CASSETTES.

THE PROCEDURES FOR GENERATING A NEW MEDIUM FOLLOW.

6.3.1 CREATING A NEW TRDP MAGTAPE

A. MOUNT "NEW" MAGTAPE ON DRIVE 0
B. PERFORM THE FOLLOWING COMMANDS:

```
     FOR A TR79F

     ZERO: MTO:
     LOAD DKO:TRDP.BIN
     SAVE MTO:TRDP.SAV
     DUMP MTO:TRDP.BIN
     LOAD DKO:UPDTR.BIN
     DUMP MTO:UPDTR.BIN
```

6.3.9 CREATING A TRDP MEDIUM - COMMON PROCEDURE

ONCE THE MONITOR HAS BEEN SAVED ON THE MEDIUM, UPD1.BIN AND UPD2TR.BIN
SHOULD BE SAVED:

```
     FILEF DEV1:<DEVO:UPD?.BIN        ;TRANSFERS UPD1.BIN AND UPD2TR.BIN
```

CONTIGUOUS (CORE-IMAGE) FILES SHOULD BE TRANSFERRED NEXT (TO GUARANTEE
ROOM ON THE MEDIUM). THIS CAN BE DONE VIA THE FILEF COMMAND:

```
     FILEF DEV1:<DEVO:A.SAV           ;TRANSFER A.SAV
```

FROM THIS POINT ON, THE DESIRED PROGRAMS ARE TRANSFERRED FROM THE
INPUT MEDIA TO THE OUTPUT MEDIUM VIA THE FILEF COMMAND. USE OF THE
SPECIAL FEATURES CAN CONSIDERABLY DECREASE THE NUMBER OF COMMANDS
REQUIRED. FOR EXAMPLE, TO TRANSFER ALL DECTAPE DIAGNOSTICS TO THE

NEW MEDIUM A SINGLE FILEF COMMAND WILL SUFFICE:

```
FILEF DEV1:<DEV0:XTC???.*        ;TRANSFERS ALL PROGRAMS WHOSE
                                 ;NAMES START WITH "XTC"
```

AFTER ALL THE DESIRED FILES HAVE BEEN STORED ON THE NEW MEDIUM,
IT SHOULD BE TESTED VIA THE FILET, FILEL, AND FILEG COMMANDS:

```
FILET  DEV1:*.*/LP        ;READ EVERY FILE ON THE NEW MEDIUM,
                          ;LISTING ALL INFORMATION ON THE
                          ;LINE PRINTER
FILEL  DEV1:*.BI?/N       ;LOAD ALL ABS FORMAT FILES
                          ;TO VERIFY THAT NO ERRORS
                          ;OCCUR. LIST ERRORS ONLY.
FILEG  DEV1:*.SA?/N       ;LOAD ALL CONTIGUOUS FILES TO
                          ;VERIFY THAT NO ERRORS OCCUR.
                          ;LIST ERRORS ONLY.
```

IT IS ALSO A GOOD IDEA TO DUPLICATE THE NEW MEDIUM TO PROVIDE A
BACKUP.

APPENDIX B. UPD2TR PROGRAM COMMANDS

Command	Description
FILL<CR>	SETS UP TERMINAL FOR CORRECT PRINT AFTER CRLF.
CLR<CR>	CLEARS CORE BELOW UPDATE PROGRAM
XFR<CR>	PERMITS MAKING PROGRAM SELF-STARTING, OR NON SELF-STARTING.
DUMP DEV:FILNAM.EXT	WRITES MEMORY CONTENTS IN ABS FORMAT
LOAD DEV:DILNAM.EXT	LOADS ABS FORMAT PROGRAM (.BIN, .BIC)
PIP DEV1:FILNAM.EXT+DEV2:FILNAM.EXT	COPIES FILE FROM ONE DEVICE TO ANOTHER.
SAVE DEV:FILNAM.EXT	WRITES MEMORY CONTENTS ONTO CONTIGUOUS BLOCKS
GET DEV:FILNAM.EXT	LOADS CORE IMAGE PROGRAM
MOD ADR	MODIFIES CORE CONTENTS
CORE	TYPES PROTECTION LIMITS
LOCORE ADR	ENTERS LOW PROTECTION LIMIT
HICORE ADR	ENTERS HIGH PROTECTION LIMIT
DIR DEV:	TYPES DEV DIRECTORY ON TTY
DIRLP DEV:	TYPES DEV DIRECTORY ON LINE PRINTER.
DEL DEV:FILNAM.EXT	DELETES FILE FROM DEV DIRECTORY
ZERO DEV:	ZEROES DEVICE DIRECTORY
BOOT DEV:	LOADS BLOCK 0 OF DEV STARTING AT LOC 000000

```
SAVM DEV:                        WRITES 4K ONTO DEV STARTING AT BLOCK 30

START                            STARTS PROGRAM AT LOC 000000

START ADR          .             STARTS PROGRAM AT ADR

ACT                              PUTS UPD2TR PROGRAM IN "ACT MODE"

NOTACT                           TAKES UPD2TR PROGRAM OUT OF "ACT MODE"

FILE DEV:<DEV:FILENAM.EXT         COPIES FILE(S) FROM ONE DEVICE TO
    .                            ANOTHER, DELETING FILE OF SAME NAME
                                 BEFORE DOING THE TRANSFER

FILEF DEV:<DEV:FILNAM.EXT         SAME AS FILE EXCEPT THAT WITH CASSETTE OR
                                 MAGTAPE FAST TRANSFERS ARE PERFORMED (NO DIR CHECKING)

FILET DEV:FILNAM.EXT              READS FILE AND CHECKS FOR DEVICE
                                 ERRORS (FILE "TEST")

FILEL DEV:FILNAM.EXT              LOADS FILES (ASSUMES ABS FORMAT)
                                 CHECKING FOR DEVICE AND CHECKSUM ERRORS

FILEG DEV:FILNAM.EXT              LOADS FILES (ASSUMES CONTIGUOUS FORMAT)
                                 CHECKING FOR DEVICE AND FILE SIZE ERRORS

FILED DEV:FILNAM.EXT              DELETES NAMED FILES

FILCMP DEV:<DEV:FILNAM.EXT        COMPARES TWO FILES AGAINST
                                 EACH OTHER ON TWO TRDP MEDIUMS.

PATCH                            ENABLE THE USER TO PATCH A
                                 PROGRAM.
TEXT DEV:FILNAM.EXT              CREATES TEXT FILE FOR PRINTING
                                 OR FOR COMMAND EXECUTION

PRINT DEV:FILNAM.EXT             OUTPUTS A FILE TO THE LINE PRINTER
                                 (ASSUMES IT ENDS WITH A ↑Z)

TYPE DEV:FILNAM.EXT              OUTPUTS A FILE TO THE CONSOLE TERMINAL

DO DEV:FILNAM.EXT                EXECUTES A COMMAND FILE.

ASG PHYSICAL = LOGICAL           ASSIGNS A PHYSICAL DEVICE TO A
                                 LOGICAL DEVICE NAME

EOT                              WRITES END OF TAPE MARK (FILE) ON MAGTAPE
                                 OR CASSETTE AFTER TAPE HAS BEEN POSITIONED.

PATCH DEV:FILNAM.EXT             ENABLES PATCHING CAPABILITIES
                                 TO A FILE ON THE TRDP MEDIA.

FILCMP DEV:=DEV:FILNAM.EXT        COMPARES TWO FILES WITH
                                 EACH OTHER.

↑C (CONTROL C)                   RETURNS TO COMMAND MODE (OPEN OUTPUT FILE
                                 IS CLOSED).
```

↑Z (CONTROL Z)   ENDS INPUT TO A TEXT FILE

*   USED FOR FILE NAMING TO MEAN "ANY"
                                        (ANY FILE NAME OR ANY FILE EXTENSION)

?   USED FOR FILE NAMING TO INDICATE A WILD
                                        CHARACTER (ANY CHARACTER WILL MATCH IT)

OR ;   USED IN A FILE OF EXECUTABLE COMMANDS
                                        TO START A COMMENT LINE WHICH IS TO
                                        BE TYPED DURING EXECUTION

$ SAME AS # BUT CAUSES A HALT AFTER
                                        THE COMMENT IS PRINTED

APPENDIX C. PERIPHERALS SUPPORTED BY UPDATE PROGRAMS

TRDP SUPPORTS OR WILL SUPPORT THE FOLLOWING DEVICES:

PR: PC11 HIGH SPEED PAPER TAPE READER   (UPD2TR)

PP: PC11 HIGH SPEED PAPER TAPE PUNCH   (UPD2TR)

KB: TTY KEYBOARD, OR LOW SPEED READER   (UPD2TR)

PT: TTY PRINTER AND PUNCH   (UPD2TR)
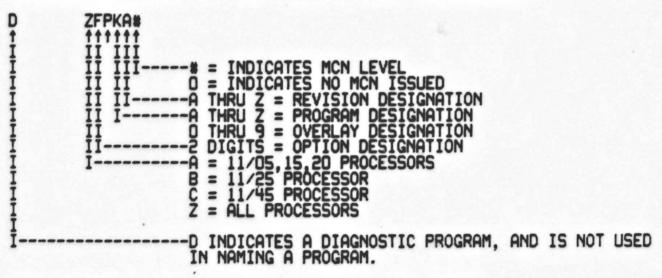

DKN: RK11/RK05 DISK   (UPD2TR, N=0-3)

MTN: TR79F MAGTAPE 9 TRACK   (UPD2TR, N=0)

CTN: TA11 CASSETTE   (UPD2TR, N=0 OR 1).
APPENDIX D. PROGRAM NAMING CONVENTIONS

THE FOLLOWING PROGRAM NAMING CONVENTION HAS BEEN USED FOR TRDP.
ITS USE WILL PERMIT USERS TO DETERMINE BOTH THE VERSION, AND THE
MCN LEVEL OF THE STORED PROGRAMS. CONTINUED USE OF THIS SCHEME WHEN
PROGRAMS ARE UPDATED IN THE FIELD IS HIGHLY RECOMMENDED.

```
D       ZFPKA#
I       ↑↑↑↑↑↑
I       II III
I       II III-----# = INDICATES MCN LEVEL
I       II II       0 = INDICATES NO MCN ISSUED
I       II II------A THRU Z = REVISION DESIGNATION
I       II I-------A THRU Z = PROGRAM DESIGNATION
I       II         0 THRU 9 = OVERLAY DESIGNATION
I       II---------2 DIGITS = OPTION DESIGNATION
I       I----------A = 11/05,15,20 PROCESSORS
I                  B = 11/25 PROCESSOR
I                  C = 11/45 PROCESSOR
I                  Z = ALL PROCESSORS
I
I------------------D INDICATES A DIAGNOSTIC PROGRAM, AND IS NOT USED
                   IN NAMING A PROGRAM.
```

.BIN EXTENSION USED TO STORE PROGRAM IN ABS FORMAT.

.SAV EXTENSION USED TO STORE PROGRAM IN CORE IMAGE FORMAT.
.BIC EXTENSION INDICATES ABS FORMAT CHAINABLE PROGRAM.

7.   HELP ASCII REDRENCE FILE

        THIS FILE RESIDENT TO THE DIAGNOSTIC DISTRIBUTION
        MIEDIA IS FOP QUICK COMMAND STRING REFRENCE.
        THE FILE CAN BE TYPED/PRINTED OUT BY USING STANDARD
        UPDATE COMMANDS.

· DETAILED CMM'D DISCRIPTION REFRENCE TRDP USER MANUAL M-11-DMQXA

TRDP RESIDENT MONITOR COMMANDS

F<CR>   SET CONSOLE FILL COUNT
D<CR>   DIRECTORY ON THE TTY CONSOLE
D/F<CR>   SHORT DIRECTORY ON THE TTY CONSOLE
D/L<CR>   DIRECTORY ON THE LINE PRINTER
D/L/F<CR>   SHORT DIRECTORY ON THE LINE PRINTER
R FILENAME<CR>   STARTS THE INDICATED PROGRAM
L FILENAME<CR>   LOADS THE INDICATED PROGRAM
S FILENAME<CR>   STARTS THE DESIRED PROGRAM THAT WAS LOADED UNDER "L" COMMAND.
S ADDR<CR>   STARTS PROGRAM AT SPECIFIED ADDRESS
C FILENAME<CR>   RUNS DESIRED CHAIN TABLE
C FILENAME/QV<CR>   RUNS DESIRED CHAIN IN QUICK VERIFY

XXDP RESIDENT MONITOR ERRORS

INVCMD/SW   INVALID COMMAND AND/OR SWITCH, CHECK COMMAND JUST GIVEN.
DEVERR   DEVICE ERROR ON INPUT DEVICE.
EOM   END OF MEDIUM, OCCURS DURING INPUT OPERATIONS WHEN
                    THE PROGRAM ATTEMPTS TO INPUT AND THE FILE IS AT
                    AN END. SERIOUS PROBLEM. FILE IN STORAGE IS PROBABLY
                    WIPED OUT.
INVADR   INVALID ADDRESS. MUST BE EVEN.
CKSMER   CHECKSUM ERROR DURING "LOAD" COMMAND.
POFLO   PROGRAM TOO LARGE TO LOAD WITHIN AVAILABLE CORE SPACE.
INVNAM INVALID CHARACTER USED FOR FILE NAME
NEXFIL   NON-EXISTENT FILE, FILE DOES NOT EXIST ON MEDIUM

UPD2 PROGRAM COMMANDS

FILL<CR>   SETS UP TERMINAL FOR CORRECT PRINT
                                    AFTER CRLF.
CLR<CR>   CLEARS CORE BELOW UPDATE PROGRAM
XFR<CR>   PERMITS MAKING PROGRAM SELF-STARTING,
                                    OR NON SELF-STARTING.
DUMP DEV:FILNAM.EXT ADR   WRITES MEMORY CONTENTS IN ABS FORMAT
LOAD DEV:FILNAM.EXT   LOADS ABS FORMAT PROGRAM (.BIN, .BIC)
PIP DEV1:FILNAM.EXT+DEV2:FILNAM.EXT COPY FILE FROM DEVICE TO DEVICE
SAVE DEV:FILNAM.EXT ADR   WRITES MEMORY CONTENTS ONTO CONTIGUOUS BLOCKS
GET DEV:FILNAM.EXT   READ CONTIGUOUS BLOCKS INTO MEMORY

```
MOD ADR                         MODIFIES CORE CONTENTS
CORE                            TYPES PROTECTION LIMITS
LOCORE ADR                      ENTERS LOW PROTECTION LIMIT
HICORE ADR                      ENTERS HIGH PROTECTION LIMIT
DIR DEV:                        TYPES DEV DIRECTORY ON TTY
DIRLP DEV:                      TYPES DEV DIRECTORY ON LINE PRINTER.
DEL DEV:FILNAM.EXT              DELETES FILE FROM DEV DIRECTORY
ZERO DEV:                       ZERO DEVICE DIRECTORY
BOOT DEV:                       LOADS BLOCK 0 OF  DEV STARTING AT LOC 000000
SAVM DEV:                       WRITES 4K ONTO DEV STARTING AT BLOCK 30
START                           STARTS PROGRAM AT ITS TRANSFER ADDRESS
START ADR                       STARTS PROGRAM AT ADR
ACT                             UPD2  "ACT MODE"
NOTACT                          UPD2  OUT OF "ACT MODE"
FILE DEV:<DEV:FILENAM.EXT       COPIES FILE(S) FROM ONE DEVICE TO
                                ANOTHER, DELETING FILE OF SAME NAME
                                BEFORE DOING THE TRANSFER
FILEF DEV:<DEV:FILNAM.EXT       SAME AS FILE EXCEPT THAT WITH CASSETTE OR
                                MAGTAPE FAST TRANSFERS ARE PERFORMED (NO DIR CHECKING)
FILET DEV:FILNAM.EXT            READS FILE AND CHECKS FOR DEVICE
                                ERRORS (FILE "TEST")
FILEL DEV:FILNAM.EXT            LOADS FILES (ASSUMES ABS FORMAT)
                                CHECKING FOR DEVICE AND CHECKSUM ERRORS
FILEG DEV:FILNAM.EXT            LOADS FILES (ASSUMES CONTIGUOUS FORMAT)
                                CHECKING FOR DEVICE AND FILE SIZE ERRORS
FILED DEV:FILNAM.EXT            DELETES NAMED FILES
TEXT DEV:FILNAM.EXT             CREATES TEXT FILE FOR PRINTING
                                OR FOR COMMAND EXECUTION
PATCH DEV:FILNAM.EXT<CR>        ENABLES THE USER TO PATCH AN ABS FORMAT PROGRAM
                                ON ANY XXDP RANDOM ACCESS DEVICE.
PRINT DEV:FILNAM.EXT            OUTPUTS A FILE TO THE LINE PRINTER
TYPE DEV:FILNAM.EXT             OUTPUTS A FILE TO THE CONSOLE TERMINAL
DO DEV:FILNAM.EXT               EXECUTES A COMMAND FILE.
ASG PHYSICAL = LOGICAL          ASSIGNS A PHYSICAL DEVICE TO A
                                LOGICAL DEVICE NAME
EOT                             WRITES END OF TAPE MARK (FILE) ON MAGTAPE
                                OR CASSETTE AFTER TAPE HAS BEEN POSITIONED.
↑C (CONTROL C)                  RETURN TO COMMAND MODE (OPEN OUTPUT FILE IS CLOSED).
↑Z (CONTROL Z)                  ENDS INPUT TO A TEXT FILE
*                               USED FOR FILE NAMING TO MEAN "ANY"
                                (ANY FILE NAME OR ANY FILE EXTENSION)
?                               USED FOR FILE NAMING TO INDICATE A WILD
                                CHARACTER (ANY CHARACTER WILL MATCH IT)
# OR ;                          USED IN A FILE OF EXECUTABLE COMMANDS
                                TO START A COMMENT LINE WHICH IS TO
                                BE TYPED DURING EXECUTION
$                               SAME AS # BUT CAUSES A HALT AFTER
                                THE COMMENT IS PRINTED
/LP                             LINE PRINTER OUTPUT
/N                              ABORTS TYPE OUTS


ERRORS
------

INVCMD           INVALID COMMAND
INVDEV           INVALID DEVICE
INVADR           INVALID ADDRESS
INVNAM           INVALID FILE NAME
NEXFIL           NON-EXISTENT FILE
DELOLD           DELETE OLD FILE BEFORE GIVING COMMAND
DEVERR           DEVICE ERROR ON EITHER INPUT OR OUTPUT DEVICE
```

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```
NOTRDY          PAPER TAPE DEVICE IS NOT READY
CKSMER          CHECKSUM ERROR
EOM             END OF MEDIUM
DEVFUL          DEVICE FULL
INVCOR          HIGH CORE LIMIT LOWER THAN LOWER CORE LIMIT
DIRERR          INVALID NAME IN DEVICE DIRECTORY
DELERR          BIT MAP ERROR DURING DELETE OPERATION ON DECTAPE OR DISK
POFLOW          PROGRAM TOO LARGE TO LOAD WITHIN EXISTING CORE SPACE
INVSW           INVALID SWITCH SPECIFIED IN COMMAND STRING
DUMP ERROR      ACT MODE ONLY DATA DUMPED ON OUTPUT DEVICE DOES  NOT MATCH
```

PERIPHERALS SUPPORTED BY UPDATE PROGRAMS

```
PR:     PC11 HIGH SPEED PAPER TAPE READER          (UPD2)
PP:     PC11 HIGH SPEED PAPER TAPE PUNCH           (UPD2)
KB:     TTY KEYBOARD, OR LOW SPEED READER          (UPD2)
PT:     TTY PRINTER AND PUNCH   (UPD2)
DKN:    RK11/RK05 DISK   (UPD2, N=0-3)
MTN:    TR79F    (UPD2, N=0)
```

CREATING A NEW XXDP DECPACK

```
ZERO DK1:
LOAD DK0:RKDP.BIN
SAVM DK1:
DUMP DK1:RKDP.BIN
LOAD DK0:UPD1.BIN
DUMP DK1:UPD1.BIN
LOAD DK0:UPD2.BIN
DUMP DK1:UPD2.BIN
```

CREATING A NEW XXDP MAGTAPE (TR79F)

```
ZERO: MT0:
LOAD DK0:TRDP.BIN
SAVE MT0:TRDP.SAV
DUMP MT0:TRDP.BIN
LOAD DK0:UPDTR.BIN
DUMP MT0:UPDTR.BIN
```

```
↑Z
%
        .END
```