B01

EOF1DMQUFBSEQ	00010000	770325	PDP10 411	HDR1DMQXABSEQ	00010000	770325

```
                        .REM    %
```

IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DMQXA-B-D

PRODUCT NAME: TRDP USER MANUAL

DATE RELEASED: MARCH 1977

MAINTAINER: DIAGNOSTIC GROUP

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                SECTION 1.      TRDP INTRODUCTION

                SECTION 2.      TRDP GENERAL USE DOCUMENTATION

                SECTION 3.      TRDP UPDATE PROGRAM (UPD2TR)
```

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60                          SECTION 1. TRDP INTRODUCTION
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76                  1.      WHAT IS TRDP
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78
79                  TRDP IS A NAME FOR A PDP-11 DIAGNOSTIC PACKAGE AVAILABLE
80                  ON MULTIMEDIA,INCLUDES TR79F DIAGNOSTIC PACKAGE (9 TRACK
81                  MAGTAPE).
82
83                  THE TRDP PACKAGES CONTAIN PDP-11 FAMILY DIAGNOSTIC PROGRAMS ON
84                  MEDIA OTHER THAN PAPER TAPE. TRDP PACKAGES HAVE THE FOLLOWING ADVANTAGES:
85
86                  A. MORE COMPACT STORAGE MEDIA.
87                  B. EASY AND CONVENIENT MEANS OF LOADING PROGRAMS UNDER KEYBOARD CONTROL.
88                  C. MEANS ARE PROVIDED FOR UPDATING AND MODIFYING PROGRAMS.
89                  D. POSSIBLE TO SEQUENTIALLY RUN A SERIES OF PROGRAMS THROUGH USE
90                     OF THE "CHAIN MODE" FEATURE. (PROGRAMS MUST BE CHAINABLE).
91
92
93
```

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 (DISK, MAGTAPE, ETC).

B. TRDP UPDATE PROGRAM #2 (UPD2TR). A 6.5K PROGRAM THAT PROVIDES A MORE COMPREHE 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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211
212                                 1.1     LOADING TRDP MONITOR
213                                         --------------------
214
215                                         THE TRDP MONITOR CAN BE LOADED BY BMB873-S1,
216                                         OR VIA A "TOGGLE-IN" PROCEDURE.
217                                         THE TOGGLE-IN PROCEDURE IS ONLY VALID FOR THE TR79F.
218
219                                 1.1.1   VIA BOOTSTRAP LOADER
220                                         ----------------------------
221
222                                         A. MOUNT THE TRDP TAPE ON DRIVE 0 AND MAKE READY
223                                         B. REWIND DRIVE 0 TO "BOT" AND SET "ON-LINE"
224                                         C. LOAD BMB873-S1 STARTING ADDRESS 173536
225                                         D. PRESS START
226                                         E. GO TO 1.4.3 STEP A.
227
```

1.1.2 VIA "TOGGLE-IN" PROCEDURE

A. MOUNT TROP TAPE ON DRIVE 0 AND MAKE READY.
B. REWIND DRIVE 0 TO "BOT" AND SET "ON-LINE"
   DRIVE SHOULD BE @ 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

```
010000  012700  164000          START:  MOV     #164000,R0
010004  012701  164002                  MOV     #164002,R1
010010  012702  164004                  MOV     #164004,R2
010014  012703  164006                  MOV     #164006,R3      ;MTBAR
010020  012706  077776                  MOV     #77776,SP
010024  000005                          RESET
010026  004767  000070                  JSR     PC,READY
010032  005011                  BURST:  CLR     @R1
010034  010012                          MOV     R0,@R2
010036  012710  000005                  MOV     #5,@R0
010042  004767  000054                  JSR     PC,READY
010046  032711  000020                  BIT     #20,@R1
010052  005011                          CLR     @R1
010054  012710  000005                  MOV     #5,@R0
010060  004767  000036                  JSR     PC,READY
010064  005004                  1$:     CLR     R4
010066  010413                  REED:   MOV     R4,@R3
010070  012712  174000                  MOV     #-2048.,@R2
010074  005011                          CLR     @R1
010076  012710  000005                  MOV     #5,@R0
010102  004767  000014                  JSR     PC,READY
010106  010405                  3$:     MOV     R4,R5
010110  112524                  PACK:   MOVB    (R5)+,(R4)+
010112  005205                          INC     R5
010114  020513                          CMP     R5,@R3
010116  001374                          BNE     PACK
010120  000000                          HALT
010122  032710  000200          READY:  BIT     #200,@R0
010126  001775                          BEQ     READY
010130  032710  100000                  BIT     #100000,@R0
010134  001404                          BEQ     RTN
010136  032711  011000                  BIT     #11000,@R1
010142  001001                          BNE     RTN
010144  000000                  TAPERR: HALT
010146  000207                  RTN:    RTS     PC
```

1.1.3 COMMON PROCEDURE

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

```
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>

```
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.
```

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).
START	STARTING BLOCK NUMBER. OCTAL NUMEER. (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 TROP 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 TROP 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 STORAGE 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 0<CR>	ENABLE DRIVE 0(TADP)
E 1<CR>	ENABLE DRIVE 1(TADP)

SECTION 3. TRDP UPDATE PROGRAMS #2 (UPD2TR)

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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 DK0:XXX.BIN       ;DUMP PROGRAM ONTO DK0:. CALL IT XXX.BIN
*DIR DK0:

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             00020E
                                        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
                                        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,
                                                                ZTCB.BIN, ZTCC.BIC.
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:       (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 ,T WILL NOT SHOW
                            ON DIRECTORY.
                4.18    THE RENAME COMMAND      (UPD2TR)
                        ------------------

                        *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 DETICES (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

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

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

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.

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
```

```
1181                            4.25    THE FILED COMMAND       (UPD2TR)
1182                                    ----------------
1183
1184                                    THE FILED COMMAND DELETES THE FILES NAMED FROM THE DEVICE'S DIRECTORY.
1185
1186                                    FILED   DEV:FILNAM.EXT                  ;COMMAND FORMAT
1187
1188                                    UPD2TR NOW PERMITS THE USE OF THE DEL(ETE) COMMAND WITH * AND WILD CHARACTER
1189                                    FILENAME CONSTRUCTION. EXAMPLE:
1190
1191                                    DEL DK0:*.BIN                   ;DELETES ALL FILES IN DK0· WITH .BIN
1192                                                                    ;EXTENSION.
1193
1194                                    CAUTION!!!      THE UPD2TR PROGRAM DOES NOT REQUIRE VERIFICATION OF A MASS
1195                                                    DELETION COMMAND. THE USER MUST BE CAREFUL NOT TO
1196                                                    SPECIFY A DELETE THAT HE DOES NOT REALLY MEAN TO OCCUR.
1197                                                    IF IT SHOULD, TYPING CONTROL C WILL ABORT THE COMMAND
1198                                                    AT THE EARLIEST OPPORTUNITY.
1199
1200                            4.26    THE FILEL COMMAND       (UPD2TR)
1201                                    ----------------
1202
1203                                    THE FILEL COMMAND SEQUENTIALLY LOADS INTO CORE EACH FILE REFERENCED.
1204                                    IT ASSUMES THAT ALL REFERENCED FILES ARE ABS FORMAT (IF NOT A CKSMER
1205                                    OR EOM ERROR WILL OCCUR). ITS PURPOSE IS TO SHOW THAT ALL ABS
1206                                    FORMATTED FILES CAN BE CORRECTLY LOADED (CHECKS FOR DEVICE AND
1207                                    CHECKSUM ERRORS). IF AN ERROR OCCURS, IT WILL IDENTIFY THE TYPE OF
1208                                    ERROR AND THE DEVICE.
1209
1210                                    FILEL   DEV:FILNAM.EXT                  ;COMMAND FORMAT
1211                                    THE LOAD COMMAND MAY ALSO BE USED IN UPD2TR TO PERFORM THE SAME FUNCTIONS
1212                                    AS THE FILEL COMMAND.
1213
1214
1215                            4.27    THE FILEG COMMAND       (UPD2TR)
1216                                    ----------------
1217
1218                                    THE FILEG (FILE GET) COMMAND IS SIMILAR TO THE FILEL COMMAND EXCEPT
1219                                    THAT IT LOADS AND CHECKS CONTIGUOUS (CORE-IMAGE) FILES INSTEAD OF
1220                                    ABS FORMAT FILES. DEVICE ERRORS AND SIZE ERRORS WILL BE REPORTED.
1221
1222                                    FILEG   DEV:FILNAM.EXT                  ;COMMAND FORMAT
1223
1224                                    THE GET COMMAND MAY ALSO BE USED IN UPD2TR TO PERFORM THE SAME FUNCTIONS
1225                                    AS THE FILEG COMMAND.
1226
1227                            4.28    THE FILET COMMAND       (UPD2TR)
1228
1229                                    ----------------
1230
1231                                    THE FILET COMMAND TESTS ALL FILES NAMED BY READING THEM INTO A BUFFER
1232                                    TO MAKE CERTAIN THAT NO DEVICE ERRORS OCCUR. ANY DEVICE ERRORS ARE
1233                                    LISTED AS THEY OCCUR.
1234
1235                                    FILET   DEV:FILNAM.EXT                  ;COMMAND FORMAT
1236
```

```
1237                            4.29    THE /LP AND /N SWITCHES (UPD2TR)
1238                                    ------------------------
1239
1240                                    THE "FILE" COMMANDS NORMALLY CAUSE PRINTING OF THE NAMES OF THE FILES
1241                                    CHECKED, THEIR TRANSFER ADDRESSES,AND LOCORE AND HICORE VALUES,
1242                                    ON THE CONSOLE TERMINAL. THE /LP SWITCH CAUSES THIS INFORMATION TO BE
1243                                    OUTPUT ON THE LINE PRINTER INSTEAD. THE /N SWITCH INHIBITS PRINTING
1244                                    OF THIS INFORMATION, SO THAT ONLY ERROR PRINTOUTS ARE OUTPUT. SWITCHES MUST
1245                                    NOW BE SPECIFIED AT END OF THE COMMAND STRING.
1246
1247                                            FILET DK0:*.*/LP        ;TEST ALL FILES ON DK0 AND PRINT
1248                                                                    ;THE FILE INFORMATION AND ERROR
1249                                                                    ;INFORMATION ON THE LINE PRINTER
1250
1251
1252                                            FILEL /N MT2:*.BIN/LP   ;LOAD ALL .BIN FILES FROM MAGTAPE 2,
1253                                                                    ;REPORTING ONLY ERROP INFORMATION
1254                                                                    ;ON THE LINE PRINTER
1255
1256                                            DEL DK0:*.TXT/LP        ;DELETE ALL .TXT FILES FROM DK0: AND
1257                                                                    ;PRINT DELETED FILES ON LINE PRINTER.
1258
1259                            4.30    THE "EOT" COMMAND       (UPD2TR)
1260                                    ----------------
1261
1262                                    THE "EOT" COMMAND IS PROVIDED AS A MEANS OF PLACING AN "END-OF-TAPE"
1263                                    MARK OR SENTINEL FILE AT A SELECTED SPOT ON MAGTAPE OR CASSETTE. APPLICATIONS
1264                                    OF THIS COMMAND INCLUDE REPLACING AN "EOT" MARK WHEN IT HAS BEEN
1265                                    ACCIDENTALLY DESTROYED, OR WHEN THE USER WISHES TO DELETE FILES AT THE
1266                                    END OF THE MEDIUM, AND STILL BE ABLE TO USE THE SPACE TAKEN UP BY
1267                                    THOSE DELETED FILES.
1268
1269                                    THE PROCEDURE TO BE USED IS AS FOLLOWS:
1270
1271                                    A. POSITION THE MAGTAPE BY PERFORMING A FILET COMMAND ON THE FILE
1272                                       PRECEDING THE SPOT WHERE THE "EOT" IS TO BE PLACED. IN PRACTICE,
1273                                       IF AN "EOT" HAS BEEN LOST, THE USER SHOULD FILET THE NEXT TO THE
1274                                       LAST FILE, SINCE THE LAST FILE MAY BE UNRECOVERABLE.
1275
1276                                    B. PERFORM AN "EOT" COMMAND.
1277
1278                                       EXAMPLE:
1279
1280                                            *FILET MT0:ZQRADO.BIN<CR>       ;READS FILE ZQRADO.BIN AND STOPS.
1281                                            *EOT<CR>                        ;WRITES EOT.
1282
1283                            4.31    THE TEXT COMMAND        (UPD2TR)
1284                                    ----------------
1285
1286                                    UPD2TR INCLUDES THE FACILITY TO EXECUTE A SEQUENCE OF COMMANDS
1287                                    CONTAINED IN AN ASCII TEXT FILE. THIS ASCII TEXT FILE IS CREATED
1288                                    VIA THE TEXT COMMAND. ALSO SEE SECTION 4. XTECO TEXT EDITOR.
1289
1290                                    TEXT DEV:FILNAM.EXT                     ;COMMAND FORMAT
1291
1292                                    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"
```

4.37 THE PATCH COMMAND (UPD2TR)

THE PATCH COMMAND ENABLES THE USER TO PATCH A PROGRAM ON ANY DIRECTORY-ORIENTED (RANDOM ACCESS) TROP 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 TROP 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

```
1405                                    REQUIRED.
1406
1407                                    IF THE FILE BEING PATCHED CONTAINS REPRESENTATIONS OF ISOLATED SINGLE-BYTE
1408                                    DATA, FOR EXAMPLE THOSE GENERATED BY THE FOLLOWING ASSEMBLY
1409                                    CODE SEQUENCES;
1410
1411                                    A.      .=24
1412                                            .BYTE 120
1413                                            .EVEN           ;GENERATES ONLY 1 BYTE OF DATA
1414
1415                                    B.      .=413
1416                                            .BYTE-1
1417                                                    CORE LIMITS. OCCURS DURING DUMP COMMAND.
1418
1419                                    DIRERR          INVALID NAME IN DEVICE DIRECTORY.
1420
1421                                    DELERR          BIT MAP ERROR DURING DELETE OPERATION ON DECTAPE OR DISK.
1422                                                    NOT USUAL UNLESS MEDIUM HAS BEEN WIPED OUT. TRANSFER
1423                                                    FILES TO OTHER MEDIUM. (SEE SECTION 4.).
1424
1425                                    POFLOW          PROGRAM TOO LARGE TO LOAD WITHIN EXISTING CORE SPACE.
1426
1427                                    INVSW           INVALID SWITCH SPECIFIED IN COMMAND STRING.
1428
1429                                    DUMP ERROR      ACT MODE ONLY (SEE SECTION 7). OCCURS DURING DUMP
1430                                                    COMMAND WHEN DATA DUMPED ON OUTPUT DEVICE DOES  NOT MATCH
1431                                                    DATA IN CORE.
1432
1433
```

```
1434
1435                                5.      ERRORS
1436                                        ------
1437
1438
1439                                        INVCMD          INVALID COMMAND. CHECK COMMAND JUST GIVEN.
1440
1441                                        INVDEV          INVALID DEVICE SPECIFIED FOR COMMAND GIVEN.
1442
1443                                        INVADR          INVALID ADDRESS. MUST BE EVEN, WITHIN EXISTING LOCORE
1444                                                        AND HICORE LIMITS, AND MUST NOT BE WITHIN UPDATE PROGRAM.
1445
1446                                        INVNAM          INVALID FILE NAME. NO SPECIAL CHARACTERS ALLOWED.
1447                                                        A THROUGH Z, AND 0 THROUGH 9 ARE ONLY VALID CHARACTERS.
1448                                                        ALSO OCCURS IF * OR WILD CHARACTER CONSTRUCTION FILENAMES
1449                                                        ARE SPECIFIED TO A COMMAND THAT DOES NOT ALLOW IT.
1450
1451                                        NEXFIL          NON-EXISTENT FILE. FILE DOES NOT EXIST IN DEVICE DIRECTORY.
1452
1453                                        DELOLD          DELETE OLD FILE BEFORE GIVING COMMAND THAT WOULD CREATE
```

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 MT0:DOSA0.BIN              (LOAD PROGRAM)
*MOD 3450                        (MODIFY PROGRAM)
003450  012737  000000
*MOD 3766
003766  012737  000000
003770  000005  000000
*DEL MT0:DOSA0.BIN               (DELETE OLD PROGRAM)
*DUMP MT0:DOSA1.BIN              (STORE MODIFIED PROGRAM)
*LOAD MT0: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:DOSB0.BIN             (STORE NEW PROGRAM)
*LOAD MTO:DOSB0.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:DOSB0.BIN      ;ADDS NEW PROGRAM.
LOAD MTO:DOSB0.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,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:<DEVO: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

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 000CJ0
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 CHE

```
                                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 TROP 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 TROP 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
```

```
1754
1755
1756
```

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       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.

```
1812
1813                                    7.      HELP ASCII REDRENCE FILE
1814                                            ------------------------
1815
1816
1817
1818                                            THIS FILE RESIDENT TO THE DIAGNOSTIC DISTRIBUTION
1819                                            MIEDIA IS FOP QUICK COMMAND STRING REFRENCE.
1820                                            THE FILE CAN BE TYPED/PRINTED OUT BY USING STANDARD
1821                                            UPDATE COMMANDS.
1822
1823                                    DETAILED CMM'D DISCRIPTION REFRENCE TRDP USER MANUAL M-11-DMQXA
1824
1825                                    TRDP RESIDENT MONITOR COMMANDS
1826                                    ------------------------------
1827                                    F<CR>               SET CONSOLE FILL COUNT
1828                                    D<CR>               DIRECTORY ON THE TTY CONSOLE
1829                                    D/F<CR>             SHORT DIRECTORY ON THE TTY CONSOLE
1830                                    D/L<CR>             DIRECTORY ON THE LINE PRINTER
1831                                    D/L/F<CR>           SHORT DIRECTORY ON THE LINE PRINTER
1832                                    R FILENAME<CR>      STARTS THE INDICATED PROGRAM
1833                                    L FILENAME<CR>      LOADS THE INDICATED PROGRAM
1834                                    S FILENAME<CR>      STARTS THE DESIRED PROGRAM THAT WAS LOADED UNDER "L" COMMAND.
1835                                    S ADDR<CR>          STARTS PROGRAM AT SPECIFIED ADDRESS
1836                                    C FILENAME<CR>      RUNS DESIRED CHAIN TABLE
1837                                    C FILENAME/QV<CR>           RUNS DESIRED CHAIN IN QUICK VERIFY
1838
1839
1840                                    XXDP RESIDENT MONITOR ERRORS
1841                                    ----------------------------
1842                                    INVCMD/SW           INVALID COMMAND AND/OR SWITCH, CHECK COMMAND JUST GIVEN.
1843                                    DEVERR              DEVICE ERROR ON INPUT  DEVICE.
1844                                    EOM                 END OF MEDIUM, OCCURS DURING INPUT OPERATIONS WHEN
1845                                                        THE PROGRAM ATTEMPTS TO INPUT AND THE FILE IS AT
1846                                                        AN END. SERIOUS PROBLEM. FILE IN STORAGE IS PROBABLY
1847                                                        WIPED OUT.
1848                                    INVADR              INVALID ADDRESS. MUST BE EVEN.
1849                                    CKSMER              CHECKSUM ERROR DURING "LOAD" COMMAND.
1850                                    POFLO               PROGRAM TOO LARGE TO LOAD WITHIN AVAILABLE CORE SPACE.
1851                                    INVNAM  INVALID     CHARACTER USED FOR FILE NAME
1852                                    NEXFIL              NON-EXISTENT FILE, FILE DOES NOT EXIST ON MEDIUM
1853
1854
1855                                    UPD2 PROGRAM COMMANDS
1856                                    ---------------------
1857                                    FILL<CR>                                SETS UP TERMINAL FOR CORRECT PRINT
1858                                                                            AFTER CRLF.
1859                                    CLR<CR>                                 CLEARS CORE BELOW UPDATE PROGRAM
1860                                    XFR<CR>                                 PERMITS MAKING PROGRAM SELF-STARTING,
1861                                                                            OR NON SELF-STARTING.
1862                                    DUMP DEV:FILNAM.EXT ADR                 WRITES MEMORY CONTENTS IN ABS FORMAT
1863                                    LOAD DEV:FILNAM.EXT                     LOADS ABS FORMAT PROGRAM (.BIN, .BIC)
1864                                    PIP DEV1:FILNAM.EXT=DEV2:FILNAM.EXT     COPY FILE FROM DEVICE TO DEVICE
1865                                    SAVE DEV:FILNAM.EXT ADR                 WRITES MEMORY CONTENTS ONTO CONTIGUOUS BLOCKS
1866                                    GET DEV:FILNAM.EXT                      READ CONTIGUOUS BLOCKS INTO MEMORY
1867                                    MOD ADR                                 MODIFIES CORE CONTENTS
```

```
1868                    CORE                        TYPES PROTECTION LIMITS
1869                    LOCORE ADR                  ENTERS LOW PROTECTION LIMIT
1870                    HICORE ADR                  ENTERS HIGH PROTECTION LIMIT
1871                    DIR DEV:                    TYPES DEV DIRECTORY ON TTY
1872                    DIRLP DEV:                  TYPES DEV DIRECTORY ON LINE PRINTER.
1873                    DEL DEV:FILNAM.EXT          DELETES FILE FROM DEV DIRECTORY
1874                    ZERO DEV:                   ZERO DEVICE DIRECTORY
1875                    BOOT DEV:                   LOADS BLOCK 0 OF  DEV STARTING AT LOC 000000
1876                    SAVM DEV:                   WRITES 4K ONTO DEV STARTING AT BLOCK 30
1877                    START                       STARTS PROGRAM AT ITS TRANSFER ADDRESS
1878                    START ADR                   STARTS PROGRAM AT ADR
1879                    ACT                         UPD2  "ACT MODE"
1880                    NOTACT                      UPD2  OUT OF "ACT MODE"
1881                    FILE DEV:<DEV:FILENAM.EXT   COPIES FILE(S) FROM ONE DEVICE TO
1882                                                ANOTHER, DELETING FILE OF SAME NAME
1883                                                BEFORE DOING THE TRANSFER
1884                    FILEF DEV:<DEV:FILNAM.EXT   SAME AS FILE EXCEPT THAT WITH CASSETTE OR
1885                                                MAGTAPE FAST TRANSFERS ARE PERFORMED (NO DIR CHECKING)
1886                    FILET DEV:FILNAM.EXT        READS FILE AND CHECKS FOR DEVICE
1887                                                ERRORS (FILE "TEST")
1888                    FILEL DEV:FILNAM.EXT        LOADS FILES (ASSUMES ABS FORMAT)
1889                                                CHECKING FOR DEVICE AND CHECKSUM ERRORS
1890                    FILEG DEV:FILNAM.EXT        LOADS FILES (ASSUMES CONTIGUOUS FORMAT)
1891                                                CHECKING FOR DEVICE AND FILE SIZE ERRORS
1892                    FILED DEV:FILNAM.EXT        DELETES NAMED FILES
1893                    TEXT DEV:FILNAM.EXT         CREATES TEXT FILE FOR PRINTING
1894                                                OR FOR COMMAND EXECUTION
1895                    PATCH DEV:FILNAM.EXT<CR>    ENABLES THE USER TO PATCH AN ABS FORMAT PROGRAM
1896                                                ON ANY XXDP RANDOM ACCESS DEVICE.
1897                    PRINT DEV:FILNAM.EXT        OUTPUTS A FILE TO THE LINE PRINTER
1898                    TYPE DEV:FILNAM.EXT         OUTPUTS A FILE TO THE CONSOLE TERMINAL
1899                    DO DEV:FILNAM.EXT           EXECUTES A COMMAND FILE.
1900                    ASG PHYSICAL = LOGICAL      ASSIGNS A PHYSICAL DEVICE TO A
1901                                                LOGICAL DEVICE NAME
1902                    EOT                         WRITES END OF TAPE MARK (FILE) ON MAGTAPE
1903                                                OR CASSETTE AFTER TAPE HAS BEEN POSITIONED.
1904                    ↑C (CONTROL C)              RETURN TO COMMAND MODE (OPEN OUTPUT FILE IS CLOSED).
1905                    ↑Z (CONTROL Z)              ENDS INPUT TO A TEXT FILE
1906                    *                           USED FOR FILE NAMING TO MEAN "ANY"
1907                                                (ANY FILE NAME OR ANY FILE EXTENSION)
1908                    ?                           USED FOR FILE NAMING TO INDICATE A WILD
1909                                                CHARACTER (ANY CHARACTER WILL MATCH IT)
1910                    # OR ;                      USED IN A FILE OF EXECUTABLE COMMANDS
1911                                                TO START A COMMENT LINE WHICH IS TO
1912                                                BE TYPED DURING EXECUTION
1913                    $                           SAME AS # BUT CAUSES A HALT AFTER
1914                                                THE COMMENT IS PRINTED
1915                    /LP                         LINE PRINTER OUTPUT
1916                    /N                          ABORTS TYPE OUTS
1917
1918                    ERRORS
1919                    ------
1920                    INVCMD          INVALID COMMAND
1921                    INVDEV          INVALID DEVICE
1922                    INVADR          INVALID ADDRESS
1923                    INVNAM          INVALID FILE NAME
```

```
                                NEXFIL          NON-EXISTENT FILE
                                DELOLD          DELETE OLD FILE BEFORE GIVING COMMAND
                                DEVERR          DEVICE ERROR ON EITHER INPUT OR OUTPUT DEVICE
                                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/RKDS 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
                                %
                                        .ENABLE ABS
000001                                  .END
```

```
.MAIN.  MACY11 27(732)  01-MAR-77  10:39  PAGE 48
DMQXAB.M11      SYMBOL TABLE

PC     =%000007          R1     =%000001          R3     =%000003          R5     =%000005          .      = 000000


 ERRORS DETECTED:  0
 DEFAULT GLOBALS GENERATED:  0

 *,DMQXAB.SEQ/SOL=DMQXAB.M11
 RUN-TIME:  1  3  0 SECONDS
 RUN-TIME RATIO: 108/4=23.6
 CORE USED:  5K  (9 PAGES)

EOF1DMQXABSEQ              00010000      770325          PDP10 411       7
```