

TR79F

TRDP USER MANUAL
MD-11-DMQXA-A

EP-DMQXA-A-DL-A
COPYRIGHT © 1977
FICHE 1 OF 1

MAR 1977
digital
MADE IN USA

B01

EDF10MQU0000 411

00010000

%770225

PDP10 411

THDR10MQXAASEQ

00010000

770225
SEG 0001

IDENTIFICATION

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

PRODUCT NAME: TRDP USER MANUAL

DATE RELEASED: JANUARY 1977

MAINTAINER: DIAGNOSTIC GROUP

THE INFORMATION IN THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT CORPORATION. DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR ANY ERRORS THAT MAY APPEAR IN THIS DOCUMENT.

THE SOFTWARE DESCRIBED IN THIS DOCUMENT IS FURNISHED UNDER A LICENSE AND MAY ONLY BE USED OR COPIED IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE.

DIGITAL EQUIPMENT CORPORATION ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS SOFTWARE ON EQUIPMENT THAT IS NOT SUPPLIED BY DIGITAL.

COPYRIGHT (C) 1977

DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASS.

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

SEQ 0002

SECTION 2. TRDP GENERAL USE DOCUMENTATION

SECTION 3. TRDP UPDATE PROGRAM (UPD2TR)

SECTION 1. TRDP INTRODUCTION

TABLE OF CONTENTS

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:

SEQ 0003

- 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

TABLE OF CONTENTS

- 1. LOADING PROCEDURES
- 1.1 LOADING TRDP MONITOR
- 2. USE PROCEDURES
- 2.1 SETTING THE CONSOLE FILL COUNT
- 2.2 OBTAINING A DIRECTORY
- 2.3 LOADING AND RUNNING PROGRAMS
- 2.4 CHAIN MODE OPERATION
- 2.4.1 CHAIN PROGRAM COMMANDS
- 2.4.2 MAKING A CHAIN
- 2.4.3 RUNNING A CHAIN
- 3. ERRORS
- 3.1 TRDP RESIDENT MONITOR ERRORS

APPENDIX A. TRDP RESIDENT MONITOR COMMANDS

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.

F01

1.4.2 VIA "TOGGLE-IN" PROCEDURE

SEQ 0005

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

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

1.4.3 COMMON PROCEDURE

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

GO1

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

SEQ 0006

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 THAN THE LA30S THE FILLER CHARACTERS ARE NOT REQUIRED AND ARE TIME CONSUMING 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.

SEG 0007

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 DOJJA/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)

TABLE OF CONTENTS

1. ABSTRACT
2. REQUIREMENTS
3. LOADING AND STARTING PROCEDURE.
4. COMMAND DESCRIPTIONS
5. ERRORS
6. UPDATING TRDP MEDIA
7. HELP ASCII REFERENCE FILE

APPENDIX A. UPD2TR COMMANDS

APPENDIX B. PERIPHERALS SUPPORTED BY UPDATE PROGRAMS

SEQ 0011

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 BK PROGRAM WHICH RELOCATES ITSELF TO THE TOP BK 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)

SEQ 0012

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 CONSUMING 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)

NO1

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

SEQ 0013

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

NOTE: .SAV IS A CORE IMAGE FILE.

SAVE DEV: FILNAM.EXT :COMMAND FORMAT.

*SAVE DKO: UPDATE.SAV

*DIR DKO:

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 DKO: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>
 *

SEQ 0015

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.

SEQ 0016

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 DKO:
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 DKO:1
*DIR DKO:
```

```
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 DKO:
*DIR DKO:
```

26-AUG-72

SEQ 0017

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 DKO:<CR> ;BOOTS IN THE RKDP MONITOR.

BOOT MTD:<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 DKO: ;SAVE IT AS CORE IMAGE ON DKO:

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:NEWMAM.EXT+DEV:OLDNAM.EXT

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

*DIR DKO:

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

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

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

FREE FILES: 447
*

4.13 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 DKO:123.456<PR: ;PAPER TAPE TO DISK
 *PIP PP:<DKO:123.456 ;DISK TO PAPER TAPE PUNCH.
 *DIR DKO:

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 DKO:A+DKO: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:

DKO:*.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:

DKO: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

CTO:*. * 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:

DKO: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 DK0:*.BIN ;DELETES ALL FILES IN DK0: 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.

SEQ 0022

```

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 MACTAPE 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 MTD: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 TROP 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 PRECEDING 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, DKO 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

SEA 0024

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 0'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 0'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:DOSA0.BIN          (LOAD PROGRAM)
*MOD 3450                    (MODIFY PROGRAM)
003450 012737 000000
*MOD 3766
003766 012737 000000
003770 000005 000000
*DEL MTO:DOSA0.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: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 TROP 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 C
- 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:<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 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).

018

1Z (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 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-----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
 MEDIA IS FOR QUICK COMMAND STRING REFERENCE.
 THE FILE CAN BE TYPED/PRINTED OUT BY USING STANDARD
 UPDATE COMMANDS.

DETAILED CMM'D DISCRIPTION REFERENCE 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: FILNAM.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

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
 INYSW 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 DKO:RKDP.BIN
 SAVM DK1:
 DUMP DK1:RKDP.BIN
 LOAD DKO:UPD1.BIN
 DUMP DK1:UPD1.BIN
 LOAD DKO:UPD2.BIN
 DUMP DK1:UPD2.BIN

CREATING A NEW XXDP MAGTAPE (TR79F)

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

↑Z
 %

.END

J03