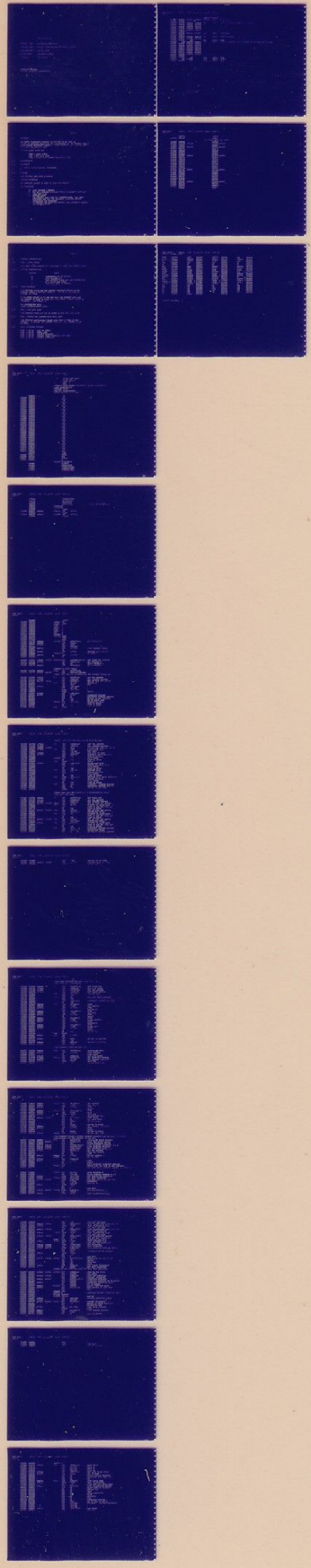


BM792YC

CARD READER BOOTSTRAP
MD-11-DZBMC-A
LOADER

EP-DZBMC-A-DL
COPYRIGHT © 1972
FICHE 1 OF 1

MAY 1978
digital
MADE IN USA



IDENTIFICATION

PRODUCT CODE: MAINDEC-11-DZBMC-A-D
PRODUCT NAME: BM792YC (CARD READER BOOTSTRAP LOADER)
DATE CREATED: JAN 15, 1972
MAINTAINER: DIAGNOSTIC GROUP
AUTHOR: JOHN ADAMS

COPYRIGHT © 1972
DIGITAL EQUIPMENT CORPORATION

1. ABSTRACT

THE DEBMC DIAGNOSTIC PROGRAM IS WRITTEN TO BE USED AS AN AID TO HARDWARE DEBUGGING AND MAINTENANCE OF THE BM792YC MODULE (CARD READER BOOTSTRAP LOADER). THESE PROGRAMS MAY ALSO BE USED AS A DATA RELIABILITY TEST.

THE AVAILABLE TESTS ARE

- PRG0 • LOGIC TESTS
- PRG1 • ROM DATA DUMP
- PRG2 • SINGLE ROM ADDRESS READ DATA LOOP

2. REQUIREMENTS

2.1 EQUIPMENT

- A. PDP 11 FAMILY CENTRAL PROCESSOR
- B.

2.2 STORAGE

THIS PROGRAM USES CORE 0-4040(8)

3. LOADING PROCEDURE

THE ABSOLUTE LOADER IS USED TO LOAD THE PROGRAM

4. USE PROCEDURE

- A1 LOAD ADDRESS • 000200
- B1 SET SR • DESIRED STANDARD PDP-11 DIAGNOSTIC OPTIONS (SEE SECT 6.0)
- C1 DEPRESS START
THE PROGRAM WILL TYPE OUT INSTRUCTIONS, ALL USER RESPONSES ARE VIA THE KEYBOARD (CARRIAGE RETURN TERMINATES THE RESPONSE)
- D1 TO RESTART THE SELECTED PROGRAM LOAD ADDRESS • 000210 AND DEPRESS START

5. PROGRAM DESCRIPTIONS

5.1 PRG0 - LOGIC TESTS

THE LOGIC TESTS CONSIST OF 4 ROUTINES TO TEST THE M792-Y8 LOGIC

5.1.1 ROUTINE DESCRIPTIONS

ROUTINE	TESTS
T1	ADDRESSABILITY OF BM792YC
T2	DATA RELIABILITY
T3	THAT BM792YC TIMES OUT WHEN REFERENCED BY A DATIP BUS CYCLE
T4	THAT DATA READ IS CORRECT

5.1.2 ERROR PRINTOUT

IF A ROUTINE FAILS AND THE INHIBIT PRINTOUT SWITCH IS NOT ENABLED (SR13) A PRINTOUT RESULTS, THE PC AT THE TIME OF FAILURE IS TYPED.

IF AN ERROR OCCURS IN T4 THE ROM DATA AND CORRECT DATA AND THE ADDRESS OF EACH IS TYPED OUT (THE ERROR TYPEOUT CANNOT BE DISABLED), THE FORMAT IS

ROM ADDRESS/ROM DATA
IMAGE ADDRESS*CORRECT DATA

5.2 PRG1 - ROM DATA DUMP

THIS PROGRAM TYPES OUT THE 32 WORDS OF ROM DATA AND HALTS.

5.3 PRG2 - SINGLE ROM ADDRESS READ DATA LOOP

THIS PROGRAM CONTINUOUSLY READS DATA FROM A TYPED IN ROM ADDRESS, TO CHANGE THE ADDRESS TYPE IN A NEW ADDRESS. (MUST BE EVEN)

6.0 PDP11 STANDARD OPTIONS

SW15 1 OR UP HALT ON ERROR
SW14 1 OR UP SCOPE LOOP
SW13 1 OR UP INHIBIT PRINTOUT
SW12 1 OR UP INHIBIT TRACE TRAPPING (NOT USED)
SW11 1 OR UP INHIBIT ITERATION

TEST DZBMC
DZBMCA

MACY11 V775 17-JAN-72 16:26 PAGE 1-1

177566
177776
177570
000500
000060
000062
000200
000200 000167 000622
000210 000210
000210 000167 000652
001000

TPDBR=177566
PSW=177776
SR=177570
STKPTR=500
TKINTA=60
TKINTP=62
START1: JMP PRMTRS
START3: JMP RESTART
 ,=200
 ,=210
 ,=1000

INITIAL STACK SETTING

```

001000 001000          ,01000
001000 000040      WORDS: 32,
001002 004000      IMAGE: 4000
001004 000000      DUMP: 0
001006 000000      LAST: 0
001010 000000      CHAR: 0
001012 000000      TERM: 0
001014 000000      SRT: 0
001016 000000      ROMADD: 0
001020 001100      PRGTAB: PRG0
001022 001572          PRG1
001024 001720          PRG2
001026 012700 000500      PRMTRS: MOV  #STKPTR,X6      ;SET STACK PTR
001032 005067 000020      CLR  PRGNUM
001036 009737 177570      TST  #SR
001042 001411          BEO  RESTART
001044 004567 000740      JSR  5,TYPEH      ;TYPE MESSAGE 'PRG#'
001050 002534          MO  #
001052 004567 001050      JSR  5,RECD      ;RECEIVE DATA AND PUT
001056 000000          PRGNUM: 0      ;IT HERE
001060 004567 000732      JSR  5,TYPEH
001064 002560          MO  #

001066 012767 173200 177722  RESTART:MOV  #173200,ROMADD ;GET FIRST ROM ADDRESS
001074 016700 177750          MOV  PRGNUM,X0      ;GET PROGRAM #
001100 006300          ASL  X0      ;SHIFT PROGRAM #
001102 000170 001020          JMP  @PRGTAB(0) ;GO TO PROGRAM

;PROGRAM # LOGIC TESTS
PRG0:  MOV  #STKPTR,X6
      MOV  #RESTART,RETURN
;TEST1 TEST ABILITY TO REFERENCE ROM WITHOUT TIMING OUT

T1:   MOV  ROMADD,X0      ;GET ROM ADDRESS
      MOV  WORDS,X1      ;GET ADDRESS COUNTER
      MOV  #ERROR1,4     ;SET UP TIME OUT VECTOR
T1A:  MOV  (0),X3      ;REFERENCE
      TST  (0)+
      ADD  -(0),DUMP
      CMP  (0),(0)
      BITB (0)+,(0)+
      RESET
      SUB  -(0),DUMP
      ADD  #2,X0      ;INCREMENT POINTER
      DEC  X1      ;DECREMENT ADDRESS COUNTER
      BNE  T1A      ;BRANCH IF NOT FINISHED
      BR  T1B      ;GO TO SCOPE LOOP
ERROR1: CMP  (6)+,(6)+ ;REPOSITION STACK
      HLT
      BR  T1A      ;HERE IF ERROR
T1B:  SCOPE ;LOOP ON ERROR

```

!TEST2 TEST THAT ROM DATA CAN BE READ RELIABLY,

001202	016700	177610		T2I	MOV	ROMADD,X2	!GET ROM ADDRESS
001206	016701	177560			MOV	WORDS,X1	!GET ADDRESS COUNTER
001212	012767	000000	176564		MOV	#6,4	!INITIALIZE TIME OUT VECTOR
001220	005067	177560		T2A:	CLR	DUMP	!INITIALIZE DUMP
001224	011003				MOV	(0),X3	!GET DATA
001226	062067	177552			ADD	(0)+,DUMP	!ADD DATA TO DUMP
001232	166703	177540			SUB	DUMP,X3	!SUBTRACT DATA FROM DATA
001236	001402				BEO	T2B	!BRANCH IF EQUAL
001240	104000			ERROR2:	HLT		!DATA ERROR
001242	000766				BR	T2A	!LOOP ON ERROR
001244	000005			T2B:	RESET		!DELAY
001246	044067	177532			BIC	-(0),DUMP	!CLEAR DUMP BITS
001252	001402				BEO	T2C	!BRANCH IF EQUAL TO 0
001254	104000				HLT		!DATA ERROR
001256	000772				BR	T2B	!LOOP ON ERROR
001260	021010			T2C:	CMP	(0),(0)	!COMPARE DATA
001262	001402				BEO	T2D	!BRANCH IF EQUAL
001264	104000				HLT		!DATA ERROR
001266	000774				BR	T2C	!LOOP ON ERROR
001270	122040			T2D:	CMPS	(0)+,-(0)	!COMPARE DATA (BYTE OPERATION)
001272	001402				BEO	T2E	!BRANCH IF EQUAL
001274	104000				HLT		!DATA ERROR
001276	000774				BR	T2D	!LOOP ON ERROR
001300	005720			T2E:	TST	(0)+	!INCREMENT ADDRESS POINTER
001302	005301				DEC	X1	!DECREMENT ADDRESS COUNTER
001304	001345				BNE	T2A	!RETURN IF NOT DONE
001306	104400				SCOPE		

!TEST3 TEST THAT ROM TIMES OUT IF REFERENCED BY OTHER
!THAN DATA BUS CYCLE

001310	012706	000500		T3I	MOV	#STKPTR,X6	!SET STACK PTR
001314	016700	177476			MOV	ROMADD,X0	!GET ROM ADDRESS
001320	016701	177454			MOV	WORDS,X1	!GET ADDRESS COUNTER
001324	012767	001340	176452	T3AA:	MOV	#T3B,4	!SET UP TIME OUT VECTOR
001332	010010			T3A:	MOV	X0,(0)	!ATTEMPT TO ALTER DATA
001334	104000				HLT		!HERE IF DID NOT TIME OUT
001336	000775				BR	T3A	!LOOP ON ERROR
001340	012767	001356	176436	T3B:	MOV	#T3D,4	!SET UP TIME OUT VECTOR
001346	022626				CMP	(6)+,(6)+	!REPOSITION STACK
001350	005210			T3C:	INC	(0)	!ATTEMPT TO ALTER DATA
001352	104000				HLT		!HERE IF DID NOT TIME OUT
001354	000775				BR	T3C	!LOOP ON ERROR
001356	012767	001376	176420	T3D:	MOV	#T3F,4	!SET UP TIME OUT VECTOR
001364	022626				CMP	(6)+,(6)+	!REPOSITION STACK
001366	005077	177424		T3E:	CLR	#ROMADD	!ATTEMPT TO ALTER DATA
001372	104000				HLT		!HERE IF DID NOT TIME OUT
001374	000774				BR	T3E	!LOOP ON ERROR
001376	005720			T3F:	TST	(0)+	!INCREMENT ADDRESS POINTER
001400	022626				CMP	(6)+,(6)+	!REPOSITION STACK
001402	005301				DEC	X1	!DECREMENT ADDRESS COUNTER

TEST DZBMC
DZBMCA

MACY11 V775 17-JAN-72 16126 PAGE 3-1

001404 001347
001406 012737
001414 104400

000006 000004

BNE T3AA
MOV #6,004
SCOPE

;RETURN IF NOT DONE
;RESTORE TIME OUT TRAP
;SCOPE LOOP

THIS TEST COMPARES ROM AND IMAGE DATA
AND TYPES OUT DIFFERENCES

001416	012706	000500	T4I	MOV	#STKPTR,X6	ISSET STACK PTR
001422	016701	177352		MOV	WORDS,X1	IGET # OF WORDS
001426	016700	177364		MOV	ROMADD,X0	IGET ROM ADDRESS
001432	016703	177344		MOV	IMAGE,X3	IGET IMAGE ADDRESS
001436	021013		T4B:	CMP	(0),(3)	ICOMPARE DATA
001440	001004			BNE	T4D	
001442	005301		T4C:	DEC	X1	IALL DATA BEEN COMPARED
001444	001437			BEG	T4E	
001446	022023			CMP	(0)+,(3)+	IINCREMENT ADDRESS POINTERS
001450	000772			BR	T4B	
001452	010067	000700	T4D:	MOV	X0,D2BTYP	ITYPE
001456	004767	000676		JSR	7,02A	IROM ADDRESS
001462	004567	000330		JSR	5,TYPEH	ITYPE
001466	002644			M10		ISEPARATOR
001470	011067	000662		MOV	(0),D2BTYP	ITYPE
001474	004767	000660		JSR	7,02A	IROM DATA
001500	004567	000312		JSR	5,TYPEH	ITYPE
001504	002560			M0		ICR/LF
001506	010367	000644		MOV	X3,D2BTYP	ITYPE
001512	004767	000642		JSR	7,02A	IIMAGE ADDRESS
001516	004567	000274		JSR	5,TYPEH	ITYPE
001522	002652			M12		ISEPARATOR
001524	011367	000626		MOV	(3),D2BTYP	ITYPE
001530	004767	000624		JSR	7,02A	IIMAGE DATA
001534	004567	000256		JSR	5,TYPEH	ITYPE
001540	002560			M0		ICR/LF
001542	000737			BR	T4C	IGO TO T4C
001544	104400		T4E:	SCOPE		
001546	004567	000244	END:	JSR	5,TYPEH	
001552	002652			M12		
001554	005737	000042		TST	0042	IRETURN TO MONITOR?
001560	001402			BEG	,+6	
001562	013707	000042		MOV	0042,X7	IRETURN TO MONITOR
001566	000167	177314		JMP	PRG0	

THIS PROGRAM TYPES OUT ROM DATA

001572	012706	000500	PRG1:	MOV	#STKPTR,X6	IINITIALIZE STACK
001576	004567	000214		JSR	5,TYPEH	ITYPE MESSAGE
001602	002544			M7		I'ROM DATA'
001604	016701	177170		MOV	WORDS,X1	IGET # OF WORDS
001610	016700	177202	PRG1A:	MOV	ROMADD,X0	IGET STARTING ADDRESS
001614	012702	000012		MOV	#12,X2	IGET ADDRESS INDICATOR
001620	105767	175740		TSTB	TPCSR	IWAIT FOR
001624	100375			BPL	,+4	ITELEPRINTER FLAG

001626	010067	000524		PRG1B1	MOV	X0, DZBTYP	I GET ADDRESS
001632	004767	000522			JSR	7, 02A	I AND TYPE IT
001636	004567	000154			JSR	5, TYPEM	I TYPE
001642	002560				MO		I CR/LF
001644	012067	000506		PRG1C1	MOV	(0)+, DZBTYP	I TYPE
001650	004767	000504			JSR	7, 02A	I DATA
001654	105767	175704			TSTB	TPCSR	I WAIT FOR
001660	100375				BPL	,=4	I TELEPRINTER FLAG
001662	012767	000040	175670		MOV	#1, TPOBR	I TYPE SPACE
001670	005301				DEC	X1	I ALL DATA TYPED
001672	001410				BEG	PRG1D	I GO TO FINISH
001674	005302				DEC	X2	
001676	001362				BNE	PRG1C	I RETURN TO PRG1B
001700	012702	000012			MOV	#12, X2	I GET ADDRESS INDICATOR
001704	004567	000100			JSR	5, TYPEM	I TYPE
001710	002560				MO		I CR/LF
001712	000745				BR	PRG1B	I RETURN TO PRG1B
001714	000167	177100		PRG1D1	JMP	PRNTRS	I GO GET NEXT TEST
<p>I THIS PROGRAM CYCLES A SINGLE ADDRESS (ADDRESS MUST BE EVEN) TO CHANGE I THE ADDRESS TYPE NEW ADDRESS ON THE TTY.</p>							
001720	012706	000500		PRG2:	MOV	#STKPTR, X0	I INITIALIZE STACK POINTER
001724	012737	002012	000004		MOV	#PRG2C, 004	I LOAD TRAP ERROR VECTOR
001732	005067	176040			CLR	PSW	I CLEAR PROCESSOR STATUS
001736	012767	001770	176114		MOV	#PRG2A, TKINTA	I LOAD KEYBOARD INTERRUPT VECTOR
001744	012767	000340	176110		MOV	#340, TKINTP	I LOAD KEYBOARD PRIORITY
001752	012767	000100	175600		MOV	#100, TKCSR	I SET INTERRUPT ENABLE BIT
001760	016700	177032			MOV	ROMADD, X0	I GET ROM ADDRESS
001764	005710				TST	(0)	I READ ROM ADDRESS
001766	000776				BR	,=2	I LOOP
001770	004567	000140		PRG2A1	JSR	5, RECD	I GO GET ADDRESS &
001774	000000			PRG2B1	B		I PUT IT HERE
001776	016700	177772			MOV	PRG2B, X0	
002002	004567	000010			JSR	5, TYPEM	I TYPE
002006	002560				MO		I CR/LF
002010	000002				RTI		I EXIT KEYBOARD INTERRUPT SERVICE
002012	104000			PRG2C1	HLT		I ERROR! DID YOU TYPE AN ODD ADDRESS?
002014	000777				BR	.	I SIT HERE UNTIL CORRECT ADDRESS IS TYPED IN
<p>I SAVE REGISTER 0 I PLACE MESSAGE ADDRESS IN R0 I GET TERMINATOR CHARACTER I GET NEXT CHARACTER I WAS NEXT CHARACTER THE TERM I CHARACTER I RESTORE R0</p>							
002016	010026			TYPEM1	MOV	X0, (6)+	
002020	012500				MOV	(5)+, X0	
002022	112067	176764			MOV	(0)+, TERM	
002026	112067	176756		TYPEMA1	MOV	(0)+, CHAR	
002032	126767	176752	176752		CHPB	CHAR, TERM	
002040	001005				BNE	TYPEMB	
002042	014600				MOV	-(6), X0	
002044	105767	175514			TSTB	TPCSR	
002050	100375				BPL	,=4	
002052	000205				RTS	5	I AND EXIT
002054	126727	176730	000045	TYPEMB1	CHPB	CHAR, #'X	I WAS CHARACTER X
002062	001015				BNE	TYPEMC	
002064	105767	175474			TSTB	TPCSR	I TEST TELEPRINTER FLAG

002070	100375			BPL	,=4		IAND WAIT FOR DONE
002072	012767	000215	175460	MOV	#215,TPD9R		ILOAD TELEPRINTER WITH CAR; RET
002100	105767	175460		TSTB	TPCSR		I TEST TELEPRINTER FLAG
002104	100375			BPL	,=4		IAND WAIT FOR DONE
002106	012767	000212	175452	MOV	#212,TPD9R		ILOAD TELEPRINTER WITH LINE FEED
002114	000744			BR	TYPEMA		I GET NEXT CHARACTER
002116	105767	175442		TYPEMC:	TSTB	TPCSR	I TEST TELEPRINTER FLAG
002122	100375			BPL	,=4		IAND WAIT FOR DONE
002124	016767	176660	175434	MOV	CHAR,TPD9R		ILOAD TELEPRINTER BUFFER
002132	000735			BR	TYPEMA		IAND GET NEXT CHARACTER
002134	005015			RECD:	CLR	(5)	I CLEAR OUT OLD DATA
002136	105767	175416		RECD:	TSTB	TKCSR	I TEST KEYBOARD FLAG
002142	100375			BPL	,=4		IAND WAIT FOR CHARACTER
002144	116767	175412	176630	MOV	TKD9R,CHAR		I GET CHARACTER
002152	016767	176632	175400	MOV	CHAR,TPD9R		I ECHO CHARACTER
002160	126727	176624	000215	CHPB	CHAR,#215		I HAS CHARACTER CARRIAGE RETURN
002166	001005			BNE	RECD		
002170	005725			TST	(5)+		I INCREMENT RETURN ADDRESS
002172	105767	175366		TSTB	TPCSR		
002176	100375			BPL	,=4		
002200	000205			RYS	5		IAND EXIT
002202	042767	177770	176600	RECD:	BIC	#177770,CHAR	I STRIP AWAY ALL BUT 3 LSB
002210	006315			ASL	(5)		I ROTATE
002212	006315			ASL	(5)		I PREVIOUS
002214	006315			ASL	(5)		I DATA
002216	056715	176566		BIS	CHAR,(5)		IAND INSERT CHARACTER
002222	000745			BR	RECD		I GET NEXT CHARACTER
ISCOPE OR/AND ITERATION LOOP FOR EACH TEST 100,TIMES							
002224	032767	040000	175330	SCOPE:	BIT	#40000,SR	I TEST SR FOR SCOPE
002232	001023			BNE	SCOPE		I YES SCOPE
002234	032767	004000	175320	BIT	#4000,SR		I TEST FOR ITERATION
002242	001007			BNE	SCOPE		I INHIBIT ITERATION
002244	026767	000026	000022	CHP	SCOPE,ICOUNT		I ITERATION COMPLETE
002252	001403			BEO	SCOPE		I ITERATION COMPLETE GO TO SCOPE
002254	005267	000016		INC	SCOPE		I INCREMENT ITERATION COUNT
002260	000410			BR	SCOPE		I GO TO SCOPE
002262	005067	000010		SCOPE:	CLR	SCOPE	I CLEAR ITERATION COUNT
002266	011667	000006		MOV	%6,RETURN		I GET ADDRESS OF NEXT TEST
002272	000002			RTI			I EXIT
002274	000144			ICOUNT:	100,		
002276	000000			SCOPE:	0		I CONTAINS SUBTEST ITERATION COUNT
002300	001066			RETURN:	RESTART		
002302	005726			SCOPE:	TST(6)+		I POP PC
002304	012667	175466		MOV	(6)+,PSW		I RESTORE CONDITION CODES
002310	000177	177764		JMP	0RETURN		
002314	036727	175250	020000	ERROR:	BIT	SR,#20000	I INHIBIT PRINTOUT?
002322	001401			BEO	,+4		I BRANCH IF ERROR PRINT OUT
002324	000002			RTI			I RETURN TO TEST
002326	004567	177464		JSR	X5,TYPEH		I TYPE ERROR MESSAGE
002332	002464			ERRORM			I PC
002334	011667	000016		MOV	(6),DZBTYP		I TYPE PROGRAM COUNTER
002340	004767	000014		JSR	7,02A		
002344	005767	175220		TST	SR		I HALT ON ERROR?

TEST DZBMC
DZBMCA

MACY11 V775 17-JAN-72 16126 PAGE 5-2

002350 100001
002352 000000
002354 000002

BPL ,04
HALT
RTI

I
IYES HALT
IRETURN TO TEST

002356	000000		DZBTYP: 0		
002360	016746	175200	02A1	MOV	TPCSR, -(6)
002364	010246			MOV	X2, -(6)
002366	010146			MOV	X1, -(6)
002370	010046			MOV	X0, -(6)
002372	016700	177760		MOV	DZBTYP, X0
002376	012701	000000		MOV	#6, X1
002402	005002			CLR	X2
002404	006100			ROL	X0
002406	006102			ROL	X2
002410	002702	000260	02AA1	ADD	#260, X2
002414	105767	175144		TSTB	TPCSR
002420	100375			BPL	, -4
002422	010267	175140		MOV	X2, TPDBR
002426	005002			CLR	X2
002430	006100			ROL	X0
002432	006102			ROL	X2
002434	006100			ROL	X0
002436	006102			ROL	X2
002440	006100			ROL	X0
002442	006102			ROL	X2
002444	005301			DEC	X1
002446	001360			BNE	02AA
002450	012600			MOV	(6)+, X0
002452	012601			MOV	(6)+, X1
002454	012602			MOV	(6)+, X2
002456	012667	175142		MOV	(6)+, TPCSR
002462	000207			RTS	7

ISAVE	TPCSR
ISAVE	R2
ISAVE	R1
ISAVE	R0
IGET	DATA TO BE TYPED
IGET	COUNTER
ICLEAR	WORKING REGISTER
IMOV	FIRST BIT (MSB) INTO
IR2	
IFORM	ASCII CODE
ITEST	TELEPRINTER
IFLAG	AND WAIT UNTIL DONE
ILOAD	TELEPRINTER BUFFER
ICLEAR	WORKING REGISTER
IRotate	THE
INEXT	
IOctal	CHARACTER
IINTO	
IREGISTER	
ITWO	
IDECREMENT	COUNTER
IGO	TO 02AA IF NOT 0
IFINISHED	, RESTORE REGISTERS
I	
I	
IAND	TPCSR
IAND	EXIT

```

      IASCII MESSAGES
022464 022500 050040 036503 ERRORM: ,ASCII '0X PC= 0'
022472 040040
022474 022500 054524 042520 M5I      ,ASCII '0XTYPE MATRIX STARTING ADDRESS 0'
022502 046440 052101 044522
022510 020130 052123 051101
022516 044524 043516 040440
022524 042104 042522 051523
022532 040040
022534 022500 051120 021507 M6I      ,ASCII '0XPRG=0'
022542 040075
022544 022500 047522 020119 M7I      ,ASCII '0XROM DATA0'
022552 040504 040524 040045
022560 022500      100 M8I      ,ASCII '0X0'
022563      100 051045 046517 M9I      ,ASCII '0XROM ADDRESS/IMAGE ADDRESS ROM DATA=IMAGE DATA0'
022570 040440 042104 042522
022576 051523 044457 040519
022604 042507 040440 042104
022612 042522 051523 051040
022620 046517 042040 052101
022626 025101 046511 043501
022634 020109 040504 040524
022642 040045
022644 027500      100 M10:     ,ASCII '0/0'
022647      100 040040 M11:     ,ASCII '0 0'
022652 025100      100 M12:     ,ASCII '000'

```

TEST DZBMC
DZBMCA

MACY11 V775 17-JAN-72 16:26 PAGE 8

003776	000000		,03776
003776	000000		,WORD
			DATA CUT INTO THE M792YC
004000	000005		000005
004002	012700	177160	012700,177160
004006	010001		010001
004010	032721	001400	032721,001400
004014	001371		001371
004016	005210		005210
004020	005003		005003
004022	005004		005004
004024	031027	040000	031027,040000
004030	001372		001372
004032	105710		105710
004034	100373		100373
004036	000303		000303
004040	151103		151103
004042	005104		005104
004044	100772		100772
004046	121761	000001	121761,000001
004052	001405		001405
004054	003002		003002
004056	010302		010302
004060	000757		000757
004062	010322		010322
004064	000755		000755
004066	031027	040000	031027,040000
004072	001775		001775
004074	000005		000005
004076	000113		000113
	000001		,END

CHAR	001010	DUMP	001004	DZBTYP	002350	END	001546
ERROR	002314	ERRORM	002404	ERROR1	001172	ERROR2	001240
HLT	= 104000	ICOUNT	002274	IMAGE	001002	LAST	001000
M10	002644	M11	002647	M12	002652	M5	002474
M6	002534	M7	002544	M8	002560	M9	002563
O2A	002360	O2AA	002410	PRGNUM	001050	PRGTAB	001020
PRG0	001106	PRG1	001572	PRG1A	001610	PRG1B	001626
PRG1C	001644	PRG1D	001714	PRG2	001720	PRG2A	001770
PRG2B	001774	PRG2C	002012	PRMTRS	001026	PSW	= 177776
RECD	002134	RECDA	002136	RECDB	002202	RESTAR	001066
RETURN	002300	ROMADD	001016	SCOPE	= 104400	SCOPEB	002302
SCOPEC	002224	SCOPEF	002276	SCOPEG	002262	SR	= 177570
SRT	001014	START1	000200	START3	000210	STKPTR	= 000500
TERM	001012	TKCSR	= 177560	TKDBR	= 177562	TKINTA	= 000060
TKINTP	= 000062	TPCSR	= 177564	TPDBR	= 177566	TYPEM	002016
TYPEMA	002026	TYPEMB	002054	TYPEMC	002110	T1	001120
T1A	001136	T1B	001200	T2	001202	T2A	001220
T2B	001244	T2C	001260	T2D	001270	T2E	001300
T3	001310	T3A	001332	T3AA	001324	T3B	001340
T3C	001350	T3D	001356	T3E	001366	T3F	001376
T4	001416	T4B	001436	T4C	001442	T4D	001452
T4E	001544	WORDS	001000	,	= 004100		

ERRORS DETECTED: 0