

DFC-11A

OFF-LINE EXERCISER
MD-11-DZDFA-C

EP-DZDFA-C-DL-B

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FICHE 1 OF 1

DEC 1976

digital

MADE IN USA

The image shows a grid of 20 columns and 15 rows of small, illegible data tables or charts. Each cell in the grid contains a small table with multiple columns and rows of text, which is too small to read. The tables appear to be organized in a structured manner, possibly representing a data matrix or a series of related exercises. The overall layout is dense and repetitive.

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IDENTIFICATIONS

PRODUCT CODE: MAINDEC-11-DZDFA-C-D
PRODUCT NAME: DU11/DFC11 & DP11/DFC11 OFFLINE EXERCISOR
DATE: DECEMBER 1976
MAINTAINER: DIAGNOSTIC GROUP
AUTHOR: R. OCHESTER/J. EGOLF/O. CHOATE

FIRST PRINTING, APRIL, 1975

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1.0 ABSTRACT

THIS MAINDEC CONSISTS OF TWO PROGRAMS TO CHECK OUT THE DFC11A. FIRST A DP11A/DFC11 EXERCISER WHICH IS RUN WITH A DF11 TEST CONNECTOR IN PLACE OF THE MODEM. THE FUNCTION OF THIS TEST IS TO CHECK OUT THE DFC11A AND CABLE.

SECOND, THERE IS A DU11/DFC11 EXERCISER WHICH IS RUN WITH AN H315 TEST CONNECTOR IN PLACE OF THE MODEM. THE FUNCTION OF THIS TEST IS TO CHECK OUT THE DFC11A AND CABLE.

THESE TWO PROGRAMS ARE TOTALLY INDEPENDENT OF EACH OTHER AND ONLY ONE PROGRAM NEED BE RUN. THE INTENT IS TO HAVE ONLY ONE LISTING AND DOCUMENTATION.

THE TWO PROGRAMS OPERATE (MONITOR-WISE) LIKE THEIR DP11 OR DU11 DIAGNOSTIC COUNTERPARTS-- THE "MONITOR" OF EACH WILL FUNCTION SWITCH-WISE OR CONVERSATION-WISE IDENTICALLY.

2.0 REQUIREMENTS

2.1 ANY PDP11 FAMILY CPU WITH 4K MINIMUM
** WITH OR WITHOUT A HARDWARE SWITCH REGISTER (LOC. 177570)

- . A TTY OR EQUIVALENT
- . A DFC11A
- . EITHER A DP11A OR DU11
- . EITHER A DP11 CABLE TERMINATOR OR H315 CONNECTOR RESPECTIVELY
- . MODEM CABLE

2.2 STORAGE

MINIMUM OF 4K

3.0 LOADING PROCEDURE

THE PROGRAM MAY BE LOADED LIKE ANY OTHER PROGRAM SUCH AS: PAPER TAPE, DECTAPE, MAGTAPE, CASSETTE, DISC ETC. MOST COMMON WILL BE PAPER TAPE LOADING THROUGH THE USE OF ABSOLUTE LOADER.

3.1 DFC11A TESTING

THIS PROGRAM(S) WILL EXERCISE DFC11A
METHOD: INSERT DU11 OR DP11 AS REQUIRED
INSERT DFC11 AND REQUIRED CABLE.

INSERT PROPER TEST CONNECTOR ON END
OF DFC11 CABLE PER SECTION 1.0.

4.0 STARTING PROCEDURE

****IF THE SOFTWARE SWITCH REGISTER IS SELECTED THEN THE FOLLOWING
WILL BE TYPED AFTER THE PROGRAM IDENTIFIES ITSELF:
SWR=XXXXXX NEW= (REFER TO SECTION 4.1 FOR OPERATOR'S OPTION)****

4.1 CONTROL SWITCH SETTINGS

IF THE DIAGNOSTIC IS RUN ON A CPU WITHOUT A SWITCH
REGISTER THEN A SOFTWARE SWITCH REGISTER IS USED WHICH ALLOWS
THE USER THE SAME SWITCH OPTIONS AS THE HARDWARE SWITCH REGISTER.
IF THE HARDWARE SWITCH REGISTER DOES NOT EXIST OR IF ONE DOES
AND IT CONTAINS ALL ONES (177777) THEN THE SOFTWARE SWITCH
REGISTER (LOC. 176) IS USED.

CONTROL:

THIS PROGRAM ALSO SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH
REGISTER (LOC. 176) FROM THE TTY. THIS CAN BE ACCOMPLISHED BY
DOING THE FOLLOWING:

- 1) TYPE CONTROL G (1G): THIS WILL ALLOW THE TTY TO ENTER DATA INTO
LOC. 176 AT SELECTED POINTS WITHIN THE PROGRAM.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS
OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE "NEW=" HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE
OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A (CR).
(ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS
WILL BE ALLOWED)
IF A (CR) IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH
REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U (1U) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU
BACK TO STEP 2.
- 2) THE MACHINE WILL THEN TYPE: SWR=XXXXXXNEW= (XXXXXX IS THE OCTAL CONTENTS
OF THE SOFTWARE SWITCH REGISTER.)
- 3) AFTER THE "NEW=" HAS BEEN TYPED THEN THE OPERATOR CAN DO ONE
OF THE FOLLOWING AT THE TTY:
 - A) TYPE A NUMBER TO BE LOADED INTO LOC. 176 FOLLOWED BY A (CR).
(ONLY NUMBERS BETWEEN 0-7 WILL BE ACCEPTED AND ONLY 6 NUMBERS
WILL BE ALLOWED)
IF A (CR) IS THE FIRST KEY DEPRESSED THE SOFTWARE SWITCH
REGISTER CONTENTS WILL NOT BE CHANGED.
 - B) IF A CONTROL U (1U) IS DEPRESSED THEN THE PROGRAM WILL SEND YOU
BACK TO STEP 2.

FOR THE DP11A/DFC11A

SWITCH 07 = 1 INDICATES SINGLE DP11 MODE WHEN STARTING
(PLACE RESPECTIVE LINE NUMBER AND VECTOR
IN SWR WHEN PROGRAM HALTS)
= 0 INDICATES CYCLE MODE (MORE THAN ONE)
LOC "BASCSR" AND "BASVEC" ARE USED TO PICK UP
FIRST DP11 CSR + VECTOR. THIS MODE WILL BE USED
WHEN UNDER ACT-11. NOTE: ALL DP11'S IN SYSTEM
MUST BE CONFIGURED THE SAME IN THIS MODE OF OPERATION.

FOR THE DU11/DFC11A

SWITCH 00 = 1 INDICATES RE-SELECT ADDRESSES AND VECTORS.
(THIS IS A FLOATING ADDRESS DEVICE - MORE THAN
LIKELY YOU SHOULD ALWAYS START WITH SW00= 1 AND
ANSWER THE RESPECTIVE QUESTIONS.)
= 0 NORMAL DEFAULT START OR RESTART.

4.2 STARTING ADDRESSES

200 = START ADDRESS FOR DU11/DFC11 TEST - CABLE & RESPECTIVE
TERMINATOR MUST BE ON.

210 = START ADDRESS FOR DP11/DFC11 TEST - CABLE & RESPECTIVE
TERMINATOR MUST BE ON.

1000 = RESTART FOR PRODUCTION RUNNING DU/DFC

SEE DFC11-A DOCUMENTATION FOR CORRECT JUMPERS & SWITCH
SETTINGS FOR DU11 OR DP11. THIS IS IMPORTANT!!!!

4.3 OPERATOR ACTION

4.3.1 DP11A/DFC11A

IF SWITCH 07 WAS LEFT UP THE PROGRAM WILL HALT WITH
THE SWITCH REG. IN THE DATA LIGHTS. (EXCLUDING 1105 &
11/10 CPU) AND REQUIRE THE FOLLOWING OPERATOR ACTION:

A. SW00-SW08 MUST BE SET TO THE VECTOR ADDRESS OF THE
FIRST DP11. NOTE FIRST DP11 VECTOR, NOT
THE LINE SELECTED UNLESS IT IS LINE 0.

B. SW09-SW15 MUST BE SET TO THE OCTAL LINE NUMBER OF
THE DP11 TO BE TESTED. E.G. THE FIRST
DP11 IS LINE 0.

PRESS CONTINUE, RESET SWR AS PER 5.1.1. SWITCH SETTINGS.
PRESS CONTINUE, THIS STARTS PROGRAM. ALL DP11 ADDRESSES
SHALL BE ASSIGNED FROM 774400 TO 774770 (CONTIGUOUSLY)

C. SEE SECTION 4.3.2 PARAGRAPHS D,E, AND F FOR BAUD RATE AND
SWITCH LOOP EXPLANATIONS.

D. SEE SECTION 8.3

4.3.2 DU11/DFC11-A

IF SWITCH 00 WAS ASSERTED AFTER LOADING ADDRESS 200; THE PROGRAM WILL ASK THE FOLLOWING QUESTIONS:

- A. FIRST DEVICE CSR ADDRESS: EG: TYPE 160040(160010 TO 164000)
- B. DEVICE VECTOR: EG: TYPE 300(300 TO 776)
- C. ARE YOU RUNNING MULTIPLE DEVICES(Y OR N): EG TYPE N
IF YES WAS ANSWERED THE MONITOR WILL ASK FOR LAST DEVICE'S CSR ADDRESS. EG. TYPE 160060 THUS 3 DEVICES WILL BE RUN.
IF WRONG ANSWERS WERE TYPED -- RESPECTIVE ERROR MESSAGES WILL BE TYPED. NOTE: UP TO 16 DU11/DFC11'S CAN BE RUN.
- D. DO YOU WANT TO RUN BAUD RATE TEST (Y OR N) EG: TYPE Y
IF YES, THEN WILL ASK IF AC LINE IS 60 HERTZ (Y OR N) EG: ANSWER Y
AT THIS POINT THERE WILL BE A 5 SECOND DELAY BEFORE THE BAUD RATE OR AN ERROR MESSAGE IS TYPED. NOTE: THE BAUD RATE CHECK CAN ONLY BE RUN ON ONE DEVICE.
- E. LOWER CONSOLE SWITCHES WITH THE EXCEPTION OF ERROR SWITCHES.
- F. IF RUNNING IN CLOCK RECOVERY MODE ABOVE 9600 BAUD PUT JP SW03 = 1 TO ELEIMINATE ERRONEOUS INTERMITTANT ERRORS.
- G. SEE SECTION 8.3

5.0 OPERATING PROCEDURE

5.1.1 SWITCH SETTINGS (APPLICABLE TO BOTH TESTS)

SW15 = 1 HALT ON ERROR
 SW14 = 1 SCOPE LOOP FOR WHOLE CURRENT TEST
 SW13 = 1 INHIBIT ERROR PRINTOUT
 SW12 = 1 INHIBIT ALL PRINTOUT, BELL ON ERROR
 SW11 = 1 INHIBIT ITERATIONS
 SW10 = 1 ESCAPE TO NEXT TEST ON ERROR (DP11 ONLY)
 SW07 = 1 SINGLE DP11 MODE (DP11 ONLY ON START UP)
 ALSO ASKS IF BAUD RATE CHECK IS WANTED.
 SW03 = 1 PREVENT ERRONEOUS ERRORS WHEN RUNNING DU/DFC
 IN CLOCK RECOVERY ABOVE 9600 BAUD.
 SW01 = 1 RETURN TO BAUD RATE TEST AFTER EOP. (SW11 MUST ALSO BE UP)
 SW00 = 1 RESELECT ADDRESS & VECTORS AND ASKS IF BAUD RATE TEST
 IS WANTED (DU11 ONLY ON START UP). ANY
 RESTARTS NEED NOT START WITH SW01 =1 SINCE THE PROGRAM
 WILL REMEMBER ANSWERS.

6.0 ERRORS

6.1 ERROR PRINTCUT

PRINTS ALL ERRORS UNLESS INHIBITED BY SW13 OR SW12

HALT PC: XXXXX THIS IS MEMORY ADDRESS +2 LOCATION. BACK UP 2 TO FIND ERROR IN LISTING

DEPENDING ON THE ERROR AN ADDITIONAL MESSAGE MAY BE TYPED OUT

6.2 ERROR RECOVERY

- A. IF IN A SCOPE LOOP, SET SW14
- B. TO RECOVER FROM HALT ON ERROR, DEPRESS CONTINUE
- C. IT MAY BE DESIRABLE TO SET SW13 OR SW12 IN AN ERROR CONDITION SO THAT AN OSCILLOSCOPE CAN BE PLACED ON LOGIC.

7.0 RESTRICTIONS

7.1 STARTING RESTRICTIONS

MOST LIKELY START:

START@ LOC 200 WITH SW00=1 FOR STARTING OF DU11/DFC11A
SW00=0 FOR RESTART
START@ LOC 210 WITH SW07=1 FOR SINGLE DP11A/DFC11A
SW07=0 FOR ACT-11 & CYCLE MODE

SEE SECTIONS 4.1, 4.3.1, AND 4.3.2

8.0 MISCELLANEOUS

THE MONITORS ARE "CARBON COPIES" OF THE DP11 & DU11 DIAGNOSTICS. THIS WAS TO KEEP UNIFORMITY IN THE OPERATING PROCEDURES, SINCE THE CHECK OUT OF THE DFC11A IS LARGELY DEPENDENT ON THE DEVICE DRIVING IT. KEEP IN MIND THAT THIS PROGRAM IS JUST AN EXERCISOR FOR THE DFC11A. FOR DETAILED TROUBLE-SHOOTING EXTENSIVE SCOPING WILL BE REQUIRED.

8.1 MULTIPLE DP11A/DFC11A

REFER TO DP11A DIAGNOSTICS

8.2 MULTIPLE DU11/DFC11A

REFER TO DU11 DIAGNOSTIC

8.3 SWITCH SETTINGS FOR THE DFC11A

THE FOLLOWING APPLIES:

- A. MAKE SURE THAT THE PROPER MODEM JUMPERS ARE IN FOR THE RESPECTIVE DEVICE THAT IS DRIVING IT. IE DP11 OR DU11.
- B. SELECT APPROPRIATE BAUD RATE (S2). THE BAUD RATE CAN BE SOFTWARE CHECKED IF A KW11 IS INSTALLED IN THE SYSTEM. USE AN OSCILLOSCOPE IF NO KW11 IS AVAILABLE. IF THE SOFTWARE BAUD RATE CHECK IS MADE, A DELAY OF FIVE SECONDS WILL OCCUR AND THEN THE APPROPRIATE MESSAGE WILL BE TYPED OUT.
- C. SELECT APPROPRIATE OPTION MODES (S1). BY CAREFUL ANALYSIS OF THE RESPECTIVE PROGRAM, WRONG (S1) SWITCH

H01

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SEQ 0008

SETTINGS WILL CAUSE A PREDETERMINED ERROR. IE
S1-2 & S1-8 =0 WILL FAIL TO CLOCK DATA IN OR OUT.

- D. MAKE SURE THE DFC11/CABLE IS CORRECTLY TERMINATED.
- E. TYPICAL SWITCH & OPTION MODE SELECTIONS OF THE
DFC11A ARE INCLUDED IN THE LISTING FOR QUICK REFERENCE.

9.0 PROGRAM DESCRIPTION

SEE LISTING FOR THE DETAILS, HOWEVER THE DP11 & DU11 PROGRAMS
BASICALLY CHECK EIA LINES AND INSURE THAT DATA IS TRANSMITTED &
RECEIVED CORRECTLY.

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SEQ 0009

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:DU11 AND DP11A ----DFC11A INTERFACE EXERCISER
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:MAYNARD, MASSACHUSETTS 01754
:PROGRAMMER: R.CHESTER J.EGCLF

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.REM a
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THE FOLLOWING DESCRIBES THE SWITCH SETTINGS FOR THE DFC11-A
.....HOWEVER READ ENGINEERING'S BLURBS FOR THE STRAIGHT SKINNY
+++++
BAUD RATE SELECTION NOTE 1: A SCOPE LOOP IS AVAILABLE
TO VERIFY BAUD RATE IF NO KW11
IS AVAILABLE.

S2-4=1 150 BAUD
S2-3=1 300 BAUD
S2-6=1 600 BAUD
S2-5=1 1200 BAUD
S2-8=1 2400 BAUD
S2-10=1 4800 BAUD NOTE 2: ALL OTHERS MUST BE ZERO
S2-7=1 9600 BAUD FOR THE BAUD RATE SELECTION
S2-9=1 19200 BAUD

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OTHER SWITCH SELECTIONS
S1-1=1 REC CLK TURNED ON BY OFF TO ON CARRIER TRANSITION
S1-1=0 NO EFFECT BY CARRIER TRANSITION

S1-2=1 ENABLE DFC-11A
S1-2=0 DISABLE DFC-11A

S1-3=1 REC CLK TURNED ON BY 1ST MARK TO SPACE TRANSITION
S1-3=0 NO CLK DATA HAS NO EFFECT

S1-4=1 REC CLK RESYNCD BY ANY MARK TO SPACE TRANSITION
S1-4=0 NOT SYNCHRONIZED

S1-5=1 REC CLK TURNED OFF BY ON TO OFF CARRIER TRANSITION
S1-5=0 TIME OUT AFTER NO DATA FOR .5 SEC

S1-8=1 EXTERNAL CLK
S1-8=0 NOTHING

S1-9=1 CTS NO DELAY
S1-9=0 CTS WITH DELAY BASED UPON THE SWITCH SETTINGS OF S1-6 & S1-7

S1-6	S1-7	
0	0	CTS DELAY =0 NOT APPLICABLE
0	1	CTS DELAY= .2 SEC
1	0	CTS DELAY= .1 SEC
1	1	CTS DELAY= .3 SEC

NOTE::::::::::S1-8 & S1-2 SWITCH SETTINGS ARE INTERACTIVE !!!!!!!

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TYPICAL DFC11 SWITCH SETTINGS FOR THE DU11 AND DP11 ARE AS FOLLOWS:::

	DU11	DP11
S1-1,2,3,4,5,6,7,8,9,10		S1-1,2,3,4,5,6,7,8,9,10
1,1,1,1,1,0,0,0,1,1		1,1,1,1,1,0,0,0,1,1

K01

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*= CUSTOMER OPTION

SET S2-1 THRU S2-10 FOR DESIRED BAUD RATE

T1: DFC11 MODEM JUMPERS SHALL BE CONFIGURED AS FOLLOWS:

NOTE: 0= JUMPER REMOVED
1= JUMPER IN

JUMPER		FOR DU11/DFC11	FOR DP11/DFC11
NO.	NAME		
W1	EIA	0	0
W2	202	1	1
W3	EIA	0	0
W4	202	1	1
W5	811	0	0
W6	BSY	1	1
W7	301	1	1
W8	301	1	1

TERMINATOR:::THESE MUST BE ON THE DFC11 !!!!!!!
DU11:: THE DFC11 SHALL BE TERMINATED WITH H315 CONNECTOR

DP11:: THE DFC11 SHALL BE TERMINATED WITH DP11 TERMINATOR

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;DP11/DU11-DFC11A
;COPYRIGHT APRIL 1975, DIGITAL EQUIPMENT CORP., MAYNARD, MASS. 01754
;REVISED 21-JUNE-76 BY O.CHOATE
; A)SUPPORTS SOFTWARE SWITCH REGISTER
; B)SUPPORTS THE DYNAMIC LOADING OF THE SOFTWARE SWITCH REGISTER
; BY <↑G>.

; STARTING PROCEDURE
; LOAD PROGRAM
; LOAD ADDRESS 000200
; PRESS START OR PRESS START WITH SW00=1 TO RESELECT
; ADDRESSES AND VECTORS
; THIS IS FOR THE DU11/DFC11 TEST

; LOAD ADDRESS 000210
; PRESS START
; THIS IS FOR THE DP11/DFC11 TEST

; FOR MORE INFORMATION SEE THE
; DOCUMENTATION IN FRONT OF THE LISTING

;SWITCH REGISTER OPTIONS

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SEG 0012

469			
470	100000	SW15=100000	:=1, HALT ON ERROR
471	040000	SW14=40000	:=1, LOOP ON CURRENT TEST
472	020000	SW13=20000	:=1, INHIBIT ERROR TYPEOUT
473	010000	SW12=10000	:=1, DELETE TYPEOUT/BELL ON ERROR.
474	004000	SW11=4000	:=1, INHIBIT ITERATIONS
475	002000	SW10=2000	:=1, ESCAPE TO NEXT TEST ON ERROR
476	001000	SW09=1000	
477	000400	SW08=400	:=1, LOOP ON ERROR
478	000200	SW07=200	:=1, SINGLE SELECTED DP11. =0 CYCLE ALL DP11S
479	000100	SW06=100	
480	000040	SW05=40	
481	000020	SW04=20	
482	000010	SW03=10	
483	000004	SW02=4	
484	000002	SW01=2	:=1, BAUD RATE TEST RESELECT - SW11 MUST ALSO BE JP.
485	000001	SW00=1	:=1, RESELECT ADDRESSES & VECTORS

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;REGISTER DEFINITIONS

000000	RO=%0	; GENERAL REGISTER
000001	R1=%1	; GENERAL REGISTER
000002	R2=%2	; GENERAL REGISTER
000003	R3=%3	; GENERAL REGISTER
000004	R4=%4	; GENERAL REGISTER
000005	R5=%5	; GENERAL REGISTER
000006	SP=%6	; PROCESSOR STACK POINTER
000007	PC=%7	; PROGRAM COUNTER

;LOCATION EQUIVALENCIES

177570	DSWR=177570	; CONSOLE SWITCH REGISTER
177570	DLIGHTS=177570	; PDP-11/45 DISPLAY REGISTER
177776	PS=177776	; PROCESSOR STATUS WORD
001050	STACK=1050	; START OF PROCESSOR STACK
000200	CRLF=200	

;INSTRUCTION DEFINITIONS

005746	PUSH1SP=5746	; DECREMENT PROCESSOR STACK 1 WORD
005726	POP1SP=5726	; INCREMENT PROCESSOR STACK 1 WORD
010046	PUSHRO=10046	; SAVE RO ON STACK
012600	POPPO=12600	; RESTORE RO FROM STACK
024646	PUSH.SP=24646	; DECREMENT STACK TWICE
022626	POP.SP=22626	; INCREMENT STACK TWICE
	.EQUIV EMT,ERROR	; BASIC DEFINITION OF ERROR CALL

100000	BIT15=100000
040000	BIT14=40000
020000	BIT13=20000
010000	BIT12=10000
004000	BIT11=4000
002000	BIT10=2000
001000	BIT9=1000
000400	BIT8=400
000200	BIT7=200
000100	BIT6=100
000040	BIT5=40
000020	BIT4=20
000010	BIT3=10
000004	BIT2=4
000002	BIT1=2
000001	BIT0=1

592	001106	000000	TEMP1:	0	: TEMPORARY STORAGE
593	001110	000000	TEMP2:	0	: TEMPORARY STORAGE
594	001112	000000	TEMP3:	0	: TEMPORARY STORAGE
595	001114	000000	TEMP4:	0	: TEMPORARY STORAGE
596	001116	000000	TEMP5:	0	: TEMPORARY STORAGE
597	001120	000000	TEMP10:	0	
598	001122	000000	TEMP11:	0	
599	001124	000000	TEMP12:	0	
600	001126	000000	TEMP13:	0	
601	001130	000000	SAVR0:	0	: R0 STORAGE
602	001132	000000	SAVR1:	0	: R1 STORAGE
603	001134	000000	SAVR2:	0	: R2 STORAGE
604	001136	000000	SAVR3:	0	: R3 STORAGE
605	001140	000000	SAVR4:	0	: R4 STORAGE
606	001142	000000	SAVR5:	0	: R5 STORAGE
607	001144	000000	SAVSP:	0	: STACK POINTER STORAGE
608	001146	000000	SAVPC:	0	: PROGRAM COUNTER STORAGE
609	001150	000000	SAVSR1:	0	: NEW DEVICE STORAGE
610	001152	000000	TMPDAT:	0	: DP DATA STORAGE
611	001154	000000	SLIM:	0	
612	001156	000000	BPC:	0	
613	001160	000000	TSYNC:	0	: SYNC CHARACTER STORAGE
614	001162	000000	XLINEX:	0	: LINE NUMBER STORAGE
615	001164	000000	CABLE:	0	
616	001166	000000	TDATA:	0	: TRANSMITTER DATA STORAGE
617	001170	000000	RDATA:	0	: RECEIVE DATA STORAGE
618	001172	000000	CHLEN:	0	: CHARACTER LENGTH STORAGE
619	001174	000000	LIMIT:	0	: END OF DATA STORAGE
620	001176	000000	SCNT:	0	: SYNC COUNT STORAGE
621	001200	000000	SAVSR2:	0	: CONSOLE SWITCH STORAGE
622	001202	000000	TIME:	0	
623	001204	000000	TP:	0	
624	001206	000000	RP:	0	
625	001210	000000	BACK:	0	: PROGRAM RTI RETURN STORAGE
626	001212	000000	CONT.:	0	: RETURN TO BEGIN TEST STORAGE
627	001214	000000	DEVICE:	0	
628	001216	000000	NC.CLOCK:	0	: CLOCK STORAGE
629	001220	000	CPSFLG:	.BYTE 0	: 50/60 HERTZ STORAGE
630	001221	000	FLG19.2:	.BYTE 0	: HF CRYSTAL PROGRAM CONTROL STORAGE
631	001222	000	BAUDFLG:	.BYTE 0	: BAUD RATE TEST STORAGE
632	001223	000	INIF.A:	.BYTE 0	: ONCE ONLY CODE STORAGE
633	001224	000	BDRFLG:	.BYTE 0	: BAUD RATE FLAG STORAGE
634	001225	000	BDRSTFLG:	.BYTE 0	: BAUD RATE TEST STORAGE
635				.EVEN	
636	001226	000000	CHCNT:	.WORD 0	: CHARACTER COUNT STORAGE
637	001230	000000	CLKSET:	.WORD 0	: PRESET CYCLE COUNT STORAGE FOR KW11
638	001232	000000	INTCNT:	.WORD 0	: INTERRUPT COUNT STORAGE
639	001234	000000	CLKSTATUS:	.WORD 0	: KW11 CSR STORAGE
640	001236	000000	DD.A:	.WORD 0	: START OF TEST STORAGE
641	001240	000000	TAG:	.WORD 0	: CONTROL STORAGE FOR BAUD RATE TEST
642	001242	000000	PSTART:	.WORD 0	: POWER FAIL CONTROL STORAGE

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:PROGRAM CONTROL FLAGS

INIFLG: .BYTE 0 :PROGRAM INITIALIZATION FLAG
STFLG: .BYTE 0 :TEST START FLAG
ERRFLG: .BYTE C :ERROR OCCURED FLAG
LOKFLG: .BYTE 0 :LOCK ON CURRENT TEST FLAG
:PROGRAM CONVERSATIONAL PARAMETERS
SYMCNO: .BYTE 377 :# OF SYNC CHARS REQ'D FOR SYNC'ZATION
SEXMIT: .BYTE 377 :SEC XMIT JUMPER "IN"
SEREC: .BYTE 377 :SEC REC JUMPER "IN"
OPTCLR: .BYTE 377 :OPTIONAL JUMPER CLR "IN"
MULTD: .BYTE 0 :NO MULTIPLE DEVICE FLAG
JMRBY: .BYTE 377 :EXTERNAL MODEM BYPASS JUMPER "IN"
.EVEN


```

658
659 ;PROGRAM MULTIPLE DEVICE PARAMETERS
660 001256 000000 BASEADD: 0 ;PROG CONTROLLED 1ST DEVICE ADDR
661 001260 000000 KEEPADD: 0 ;SAVED 1ST DEVICE ADDR
662 001262 000000 LASTADD: 0 ;LAST DEVICE RXCSR ADDR
663 001264 000000 BASEIV: 0 ;PROG CONTROLLED IV
664 001266 000000 KEEPIV: 0 ;SAVED INTR VECTOR
665 001270 00000C ACTREG: 0 ;ACTIVE REGISTER, MODIFY THIS
666 ;LOCATION TO DISQUALIFY OR QUALIFY
667 ;DEVICES (1= RUN, 0= DON'T RUN)
668 001272 000000 RCTADD: 0 ;ROTATING POINTER FOR ACTREG..POINTS
669 ;TO DEVICE PRESENTLY UNDER TEST WHEN RUNNING MULTIPLE DEVICES
670
671 ;PROGRAM CONTROL FLAGS
672
673
674 000000 $Y=0
675
676 ;DEFINITIONS FOR TRAP SUBROUTINE CALLS
677 ;POINTERS TO SUBROUTINES CAN BE FOUND
678 ;IN THE TABLE IMMEDIATLY FOLLOWING THE DEFINITIONS
679
680
681 *****
682 *****
683 001274 TRPTAB:
684 001274 104400 SCOPE=TRAP+0 ;CALL TO SCOPE LOOP AND ITERATION HANDLER
685 001276 007650 .SCOPE
686 001276 007574 DELAY=TRAP+1 ;CALL TO DELAY FOR SPEC. TIME.
687 001300 104402 .DELAY
688 001300 010154 TYPE=TRAP+2 ;CALL TO TELETYPE OUTPUT ROUTINE
689 001302 104403 .TYPE
690 001302 010760 SAVOS=TRAP+3 ;CALL TO REGISTER SAVE ROUTINE
691 001304 104404 .SAVOS
692 001304 011020 RESOS=TRAP+4 ;CALL TO REGISTER RESTORE ROUTINE
693 001306 104405 .RESOS
694 001306 010560 CONVRT=TRAP+5 ;CALL TO DATA OUTPUT ROUTINE
695 001310 104406 .CONVRT
696 001310 010564 CNVRT=TRAP+6 ;CALL TO DATA OUTPUT ROUTINE WITHOUT CR/LF.
697 001312 104407 .CNVRT
698 001312 011266 INSTR=TRAP+7 ;CALL TO ASCII STRING INPUT ROUTINE
699 001314 104410 .INSTR
700 001314 011052 PARAM=TRAP+10 ;CALL TO NUMERICAL DATA INPUT ROUTINE
701 001316 104411 .PARAM
702 001316 011436 SETFLG=TRAP+11 ;CALL TO FLAG SET ROUTINE
703 001320 104412 .SETFLG
704 001320 011404 INSTER=TRAP+12 ;CALL TO INPUT ERROR HANDLER
705 001322 104413 .INSTER
706 001322 011506 CKSWR=TRAP+13 ;CALL TO SEE IF IG STRUCK
707 001324 104414 .CKSWR
708 001324 011562 GTSWR=TRAP+14 ;CALL TO TYPE 'OLD' VALUE AND GET 'NEW' VALUE
709 .GTSWR
710
711 *****
712 *****
713 ;RXCSR BIT DEFINITIONS
714 100000 CSC=BIT15 ;DATA SET CHANGE

```

E02

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0018

714	040000	RING=BIT14	:RING
715	020000	CTS=BIT13	:CLR TO SEND
716	010000	CARDET=BIT12	:CARRIER DETECT
717	004000	REACT=BIT11	:REC ACTIVE
718	002000	SRD=BIT10	:SEC REC DATA
719	001000	DSR=BIT9	:DATA SET RDY
720	000400	STPSYN=BIT8	:STRIP SYNC
721	000200	RxDONE=BIT7	:REC DONE
722	000100	RINTEN=BIT6	:REC INTR ENABLE
723	000040	DSINTE=BIT5	:DSC INTR ENABLE
724	000020	SYNSCH=BIT4	:SYNC SEARCH
725	000010	STD=BIT3	:SEC XMIT DATA
726	000004	RTS=BIT2	:REQ TO SEND
727	000002	DTR=BIT1	:DATA TERM RDY
728	000001	VCID=BIT0	

```

729          :RXDBUF BIT DEFINITIONS
730          100000 RXERR=BIT15          :REC ERROR
731          040000 OVRUN=BIT14         :OVERRUN
732          020000 FRMERR=BIT13        :FRAME ERROR
733          010000 PARER=BIT12         :PARITY ERROR
734          :PARCSR BIT DEFINITIONS
735          001000 PAREN=BIT9           :PARITY ENABLE
736          000400 EVPAR=BIT8          :EVEN PARITY SENSE
737          :PARCSR WRD DEFINITIONS
738          030000 SYNINT=30000         :SYNC EXTERNAL MODE
739          020000 SYNEXT=20000        :SYNC INTERNAL MODE
740          030000 ISYMOD=0            :ISOC MODE
741          000000 FIVE=0              :WORD LENGTH 5 BITS
742          002000 SIX=2000           :WORD LENGTH 6 BITS
743          004000 SEVEN=4000         :WORD LENGTH 7 BITS
744          006000 EIGHT=6000        :WORD LENGTH 8 BITS
745          000000 NOPAR=0            :NO PARITY
746          001000 ODDPAR=1000        :ODD PARITY
747          001400 EVEPAR=1400        :EVEN PARITY
748          :TXCSR BIT DEFINITIONS
749          100000 DNA=BIT15            :DATA NOT AVAILABLE
750          040000 MTDATA=BIT14        :MAINT DATA
751          020000 CLK=BIT13           :CLK
752          002000 BITW=BIT10          :BIT WINDOW
753          000400 MRESET=BIT8         :MASTER RESET
754          000200 TXDONE=BIT7         :XMIT DONE
755          000100 TXINTE=BIT6        :XMIT INTR ENABLE
756          000040 DNAINTE=BIT5       :DNA INTR ENAB
757          000020 SEND=BIT4          :SEND
758          000010 HDXEN=BIT3         :HDX/FDX
759          000001 BREAK=BIT0         :BREAK

```

```

760                                     ;TXCSR WRD DEFINITIONS
761         000000         USER=0         ;USER MODE
762         004000         MINT=4000      ;MAINT INT MODE
763         010000         MEXT=10000    ;MAINT EXT MODE
764         014000         SYSTST=14000   ;SYSTEM TEST MODE
765
766
767         ;*****
768
769         0C1326 000001     DPRS:  .BLKW 1         ;DP11 RECEIVER STATUS
770         001330 000001     DPRB:  .BLKW 1         ;DP11 RECEIVER BUFFER
771         001332 000001     SYNC:  .BLKW 1         ;SYNC BUFFER
772         001334 000001     DPTS:  .BLKW 1         ;DP11 TRANSMITTER STATUS
773         0C1336 000001     DPTB:  .BLKW 1         ;DP11 TRANSMITTER BUFFER
774         001340 000001     SEXT:  .BLKW 1         ;DP11 SYNC EXTENSION
775
776
777         ;*****
778         001342 000001     DPRIV: .BLKW 1         ;DP11 RECEIVER INTERRUPT VECTOR
779         001344 000001     DPRP:  .BLKW 1         ;DP11 RECEIVER PRIORITY
780         001346 000001     DPTIV: .BLKW 1         ;DP11 TRANSMITTER INTERRUPT VECTOR
781         001350 000001     DPTP:  .BLKW 1         ;DP11 TRANSMITTER PRIORITY
782         0C1352 000300     BASVEC: 300           ;THIS IS THE FIRST VECTOR. PATCH FOR YOUR FIRST VECTOR.
783         001354 174770     BASCSR: 174770        ;FIRST CSR ADDRESS.MAKE IT YOURS.
784
785         ;*****
786
787
788                                     ;DU11 REGISTER POINTERS
789
790         ;*****
791         ;DEFAULT DU ADDRESSES
792         001356 160040     RXCSR:  160040
793         001360 160042     RXDBUF: 160042
794         001362 160042     PARCSR: 160042
795         001364 160044     TXCSR:  160044
796         001366 160046     TXDBUF: 160046
797         ;DEFAULT DU VECTORS
798         001370 000770     DURIV:  770           ;REC INTR VECTOR
799         001372 000772     DURIS:  772           ;REC INTR STATUS
800         001374 000774     DUTIV:  774           ;XMIT INTR VECTOR
801         001376 000776     DUTIS:  776           ;XMIT INTR STATUS

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H02

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802
803
804 001400
805 001400 000005
806 001402 012706 001050
807 001406 012737 000340 177776
808 001414 012737 001400 001242
809 001422 012737 002404 001064
810 001430 012737 002404 001066
811 001436 012737 011712 010406
812 001444 105037 001223
813 001450 005137 001240
814 001454 005037 001074
815 001460 005037 001104
816 001464 105037 001244
817 001470 005037 001102
818 001474 012737 000912 001072
819 001502 004737 010040
820 001506 005327
821 001510 000001
822 001512 001002
823 001514 104402 012146
824 001520 105777 177324
825 001524 100005
826 001526 004737 006330
827
828
829 001532 004737 006036
830 001536 000404
831 001540 004737 006330
832 001544 004737 006106
833 001550
834 001550 012737 001642 001212
835 001556 105737 001244
836 001562 001013
837 001564 105137 001244
838 001570 104407
839 001572 014101
840 001574 104411
841 001576 001225
842 001600 105737 001225
843 001604 001402
844 001606 000137 002654
845 001612 012737 002404 001064
846 001620 032777 000002 177222
847 001626 001403
848 001630 012737 002654 001064
849 001636 000177 177222
850 001642 105737 001150
851 001646 100740
852 001650 000733
853

;*****PART2 DB255 CONNECTOR TEST SECTION*****
DP11:
RESET
MOV #STACK, SP ;SET UP STACK POINTER
MOV #340, PS ;SET PROCESSOR PRIORITY = 7
MOV #DP11, PSTART ;SETUP POWER FAIL
MOV #DP11.A, RETURN ;SETUP FOR REGULAR TEST
MOV #DP11.A, NEXT ;DITTO
MOV #EDP11, WHO ;DP PROGRAM SETUP
CLRB INIF.A ;DITTO
COM TAG ;DITTO
CLR LPCNT ;DITTO
CLR LSTERR ;DITTO
CLRB INIFLG ;DITTO
CLR ERRCNT ;DITTO
MOV #10., ICOUNT ;#OF ITERATIONS
CALL TSTSAR ;ARE WE USING THE HARD OR SOFT SWITCH REGISTER?
DEC (PC)+ ;ONCE ONLY
.WORD 1
BNE IS
TYPE DPTITLE
TSTB JSAR ;TEST FOR CHANGE IN DP ADRS
BPL BGNOA ;BRANCH IF NO CHANGE
JSR PC, CLRVEC ;LOAD ENTIRE VECTOR AREA WITH
; +2
; HALT
; FETCH LINE NUMBER FROM SWR
JSR PC, LINE.N
BR PART2
BGNOA: JSR PC, CLRVEC ;CLEAR OUT VECTOR AND GET NEW NUMBER
JSR PC, LINE.X ;GET NEW LINE NUMBER
PART2:
MOV #DP.UPDATE, CONT. ;SETUP FOR RETURN
TSTB INIFLG ;FIRST TIME?
BNE PART3 ;NO
COMB INIFLG ;YES
INSTR ;OUTPUT MESSAGE & GET INPUT STRING
MBDTEST ;MESSAGE
SETFLG ;SET FLAG BASED UPON INPUT STRING
BDTSTFLG ;THIS FLAG
TSTB BDTSTFLG ;DO YOU WANT TO RUN BAUD TEST?
BEQ PART3 ;NO
JMP BAUD ;YES
PART3: MOV #DP11.A, RETURN ;SETUP FOR RETURN TO START PROGRAM
BIT #SW01, JSAR
BEQ IS
MOV #BAUD, RETURN
IS: JMP RETURN ;GO START
DP.UPDATE: TSTB SAVSR1 ;NEW DEVICE?
BMI PART2 ;NO
BR BGNOA ;YES
  
```

```

***** PART3 *****
DU11: RESET
854 855 001652 000005
856 856 001654 012737 003126 001064 MOV #DU11.A,RETURN ;SETUP FOR REGULAR TEST
857 857 001662 012737 003126 001066 MOV #DU11.A,NEXT ;DITTO
858 858 001670 013737 001356 001214 MOV RXCSR,DEVICE ;SETUP FOR EOP MESSAGE
859 859 001676 005037 001240 CLR TAG
860 860 001702 105037 001223 CLRB INIF.A ;CLEAR OUT FOR FIRST TIME THRU
861 861 001706 012737 000340 177776 MOV #340,PS ;SET PROCESSOR PRIORITY = 7
862 862 001714 012706 001050 MOV #STACK,SP ;SETUP STACK POINTER
863 863 001720 012737 001652 001242 MOV #DU11,PSSTART ;SET UP POWER FAIL
864 864 001726 012737 003126 001236 MOV #DU11.A,DD.A ;SET UP FOR RETURN TO START OF TEST
865 865 001734 005037 001104 CLR LSTERR ;CLEAR LIST
866 866 001740 005037 001102 CLR ERRCNT ;CLEAR ERROR COUNT
867 867 001744 005037 001074 CLR LPCNT
868 868 001750 012737 002014 001212 MOV #ONCE,CONT. ;SETUP FOR REPEAT
869 869 001756 012737 000012 001072 MOV #10.,ICOUNT ;SET ITERATIONS = 10
870 870 001764 004737 010040 CALL TSTSWR ;ARE WE USING THE HARD OR SOFT SWITCH REGISTER?
871 871 001770 012737 011736 010406 MOV #EDU11,WHO
872 872 001776 105737 001244 TSTB INIFLG ;CHECK FOR FIRST TIME
873 873 002002 001004 BNE ONCE ;NO
874 874 002004 104402 012064 TYPE DUTITLE ;YES
875 875 002010 105137 001244 COMB INIFLG
876 876 002014 032777 000001 177026 ONCE: BIT #SW00,DSWR ;CHECK FOR CONVERSATIONAL
877 877 002022 001017 BNE AAA ;YES
878 878 002024 032777 000002 177016 BIT #SW01,DSWR ;CHECK FOR BAUD RATE
879 879 002032 001404 BEQ 1$ ;NO
880 880 002034 012737 004316 001064 MOV #START,RETURN
881 881 002042 000405 BR 2$
882 882 002044 104402 012622 1$: TYPE .MR ;LET OPERATOR KNOW TEST IS RUNNING
883 883 002050 012737 003126 001064 MOV #DU11.A,RETURN ;GO TO START
884 884 002056 000177 177002 2$: JMP @RETURN

```

885	002062				AAA:						
886	002062	104407				INSTR					; OUTPUT MESSAGE & GET INPUT STRING
887	002064	012251				MREGAD					; MESSAGE
888	002066	104410				PARAM					; CONVERT STRING
889	002070	160000				160000					; LOW LIMIT
890	002072	167776				167776					; HIGH LIMIT
891	002074	007312				DUBASE					; STORE AT THIS LOCATION
892	002076	001			.BYTE	1					; MASK
893	002077	001			.BYTE	1					; HOW MANY TIMES + 2
894	002100	004737	006356			JSR	PC,OKADR				; CHECK FOR VALID ADDRESS
895	002104	013737	007312	001260		MOV	DUBASE,KEEPADD				; SAVE
896	002112	004737	007222			JSR	PC,DUADDR				; GET ADDRESS
897	002116	013737	001260	001256		MOV	KEEPADD,BASEADD				; RESTORE FOR ROTATION
899	002124	104407				INSTR					; OUTPUT MESSAGE & GET INPUT STRING
899	002126	012230				MVECTO					; MESSAGE
900	002130	104410				PARAM					; CONVERT STRING
901	002132	000300				300					; LOW LIMIT
902	002134	000776				776					; HIGH LIMIT
903	002136	001370				DURIV					; STORE AT THIS LOCATION
904	002140	001			.BYTE	1					; MASK
905	002141	004			.BYTE	4					; HOW MANY TIMES + 2
906	002142	013737	001370	001266		MOV	DURIV,KEEPIV				; SAVE
907	002150	013737	001370	001264		MOV	DURIV,BASEIV				; SET UP FOR ROTATION
908	002156	104407				INSTR					; OUTPUT MESSAGE & GET INPUT STRING
909	002160	012331				MMULT					; MESSAGE
910	002162	104411				SETFLG					; SET FLAG BASED UPON INPUT STRING
911	002164	001254				MULTD					; THIS FLAG
912	002166	105737	001254			TSTB	MULTD				; ARE THERE MULTIPLE DEVICES
913											; ON THE SYSTEM ?
914	002172	100406				BMI	BBB				; YES,ASK NEXT QUESTION
915	002174	005037	001270			CLR	ACTREG				
916	002200	005037	001272			CLR	ROTADD				; CLEAR POINTER
917	002204	000137	002350			JMP	DDD				; JUMP AROUND NEXT QUESTION
918	002210				BBB:						
919	002210	104407				INSTR					; OUTPUT MESSAGE & GET INPUT STRING
920	002212	012407				MLASTD					; MESSAGE
921	002214	104410				PARAM					; CONVERT STRING
922	002216	160000				160000					; LOW LIMIT
923	002220	167776				167776					; HIGH LIMIT
924	002222	001262				LASTADD					; STORE AT THIS LOCATION
925	002224	001			.BYTE	1					; MASK
926	002225	001			.BYTE	1					; HOW MANY TIMES + 2
927											; THE FOLLOWING ROUTINE SETS UP ACTREG FOR THE FIRST TIME
928	002226	012737	000001	001272	1\$:	MOV	#1,ROTADD				; SET UP POINTER
929	002234	005037	001270			CLR	ACTREG				; CLR ACTIVE REGISTER
930	002240	053737	001272	001270	2\$:	BIS	ROTADD,ACTREG				; MAKE THIS DEVICE ACTIVE
931	002246	000241				CLC					
932	002250	006137	001272			ROL	ROTADD				; SET UP POINTER
933	002254	103421				BCS	3\$; ARE YOU OUT OF RANGE ?
934	002256	062737	000010	001256		ADD	#10,BASEADD				; SET UP BASE ADDRESS
935	002264	023737	001262	001256		CMP	LASTADD,BASEADD				; IS THIS THE LAST DEVICE ?
936	002272	101362				BHI	2\$; NO DO IT AGAIN
937	002274	053737	001272	001270		BIS	ROTADD,ACTREG				; THIS ASSUMES THAT THERE ARE AT
938											; LEAST TWO DEVICES WHEN YOU ANSWER YES TO
939											; MULTIPLE DEVICE QUESTION
940	002302	012737	000001	001272		MOV	#1,ROTADD				; SET UP FOR LATER USE IN END OF PASS ROUTINE

K02

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SEG 0024

941	002310	013737	001260	001256		MOV	KEEPADD,BASEADD	;DITTO
942	002316	000425				BR	OUTMUL	;CONTINUE QUESTIONS
943	002320	013737	001260	001256	3\$:	MOV	KEEPADD,BASEADD	;RESTORE
944	002326	104407				INSTR		;OUTPUT MESSAGE & GET INPUT STRING
945	002330	012535	=			MRANGE		;MESSAGE
946	002332	104410				PARAM		;CONVERT STRING
947	002334	160000				160000		;LOW LIMIT
948	002336	167776				167776		;HIGH LIMIT
949	002340	001262				LASTADD		;STORE AT THIS LOCATION
950	002342	001				.BYTE	1	;MASK
951	002343	001				.BYTE	1	;HOW MANY TIMES + 2
952	002344	000137	002226			JMP	1\$;DO IT AGAIN
953	002350				DDC:			
954	002350	104407				INSTR		;OUTPUT MESSAGE & GET INPUT STRING
955	002352	014101				MBDTEST		;MESSAGE
956	002354	104411				SETFLG		;SET FLAG BASED UPON INPUT STRING
957	002356	001225				BDTSTFLG		;THIS FLAG
958	002360	105737	001225			TSTB	BDTSTFLG	;DO YOU WANT TO RUN BAUD TEST?
959	002364	001402				BEQ	OUTMUL	;NO
960	002366	000137	004316			JMP	START	;YES
961	002372	012737	003126	001064	OUTMUL:	MOV	#DU11.A,RETURN	;GO START REGULAR TEST
962	002400	000177	176460			JMP	@RETURN	
963								

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983 002404
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990 002404 012737 000001 001076
991 002412 104413
992 002414 012737 003142 001066
993 002422 012737 001642 001212
994 002430 012737 002404 001064
995 002436 012737 007746 001066
996 002444 005077 176664
997 002450 005077 176652
998 002454 005002
999 002456 012700 013000
1000 002462 010277 176650
1001 002466 017701 176642
1002 002472 042701 164777
1003 002476 022701 013000
1004 002502 001406
1005 002504 005202
1006 002506 001367
1007 002510 104001
1008
1009 002512 012737 000005 001124
1010 002520 005002
1011 002522 005202
1012 002524 001376
1013 002526 032777 013000 176600
1014 002534 001404
1015 002536 005337 001124
1016 002542 001366
1017 002544 104000
1018

```

```

;CABLE TEST WITH OUT EXERCISING THE SOFTWARE CLOCK.
;IN THIS TEST FUNCTIONS OF THE CABLE WILL BE
;TESTED WITHOUT THE SOFTWARE CLOCK. THE CLOCK MUST BE
;SUPPLIED BY THE DFC11.

```

```

; DFC11-A TEST!!!
;VERIFY THAT LOADING THE TRANSMITTER BUFFER
;BRINGS UP "REQUEST TO SEND" WHICH IN TURN WILL
;BRING UP "CLEAR TO SEND" AND "MODEM READY".
;VERIFY ALSO THAT THEY GO AWAY.
;NOTE: THE DFC11 CLOCK IS NECESSARY FOR
;THIS TEST TO WORK.

```

```

*****:
; DP11 TEST FOR THE DFC11-A
;*****

```

DP11.A:

```

*****
;
; TEST 1
;
*****

```

```

TST1:  MOV      #1,TSTNO
        CKSWR
        MOV      #TST2,NEXT
        MOV      #DP.UPDATE,CONT.      ;SET FOR RETURN AT END PASS
        MOV      #DP11.A,RETURN      ;SET RETURN ADDRESS.
        MOV      #.EOP,NEXT      ;GOTO END PASS AT END OF TEST.
        CLR      @DPTS      ;CLEAR THE TX STATUS
        CLR      @DPRS      ;CLEAR THE RX STATUS.
        CLR      R2      ;SET TIME OUT
        MOV      #13000,R0
        MOV      R2,@DPTB      ;LOAD THE TX BUFFER
15:    MOV      @DPTS,R1
        BIC      #1<13000>,R1
        CMP      #13000,R1
        BEQ      2$
        INC      R2      ;UPDATE DELAY
        BNE      1$      ;IS IT DONE?
        ERROR    1      ;ERROR REQUEST TO SEND,CLEAR TO
                        ;SEND AND MODEM READY NOT UP.

```

```

        MOV      #5,TEMP12
2$:    CLR      R2      ;SET FOR TIME OUT
3$:    INC      R2      ;DELAY
        BNE      3$
        BIT      #13000,@DPTS      ;ARE THEY GONE?
        BEQ      4$
        DEC      TEMP12
        BNE      2$
        ERROR

```

M02

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEG 0026

```

1019                                     ;VERIFY THAT THE SETTING OF "TERMINAL READY" BRINGS
1020                                     ;UP "RING" AND "CARRIER DOWN" ALSO VERIFY THAT
1021                                     ;CLEARING "TERMINAL READY" BRINGS DOWN "RING"
1022                                     ;AND "CARRIER DOWN".
1023
1024 002546 012777 000001 176560 4$:   MOV     #BIT0,ADPTS      ;SET TERMINAL READY
1025 002554 104401 001500             DELAY   1500           ;WAIT
1026 002560 017701 176550             MOV     ADPTS,R1      ;GET WORD
1027 002564 042701 153776             BIC     #1C<24001>,R1 ;CLEAR UNWANTED BITS
1028 002570 022701 024001             CMP     #24001,R1    ;DID RING AND CARRIER DOWN SET?
1029 002574 001401                   BEQ     5$           ;YES
1030 002576 104001                   ERROR   1            ;NO--TYPE ERROR
1031 002600 042777 000001 176526 5$:   BIC     #BIT0,ADPTS   ;CLEAR TERMINAL READY
1032 002606 104401 001500             DELAY   1500           ;WAIT
1033 002612 022777 120000 176514     CMP     #120000,ADPTS ;DID THEY CLEAR?
1034 002620 001401                   BEQ     6$           ;YES
1035 002622 104000                   ERROR   6            ;NO--TYPE ERROR
1036
1037                                     ;NOW TEST THAT DATA CAN BE TRANSFERED.
1038                                     ;A BINARY COUNT PATTERN WILL BE TRANSMITTED AND RECEIVED
1039                                     ;WITH OUT THE USE OF THE SOFTWARE CLOCK.
1040
1041 002624 005037 001106 6$:   CLR     TEMP1        ;CLEAR OUT INFO
1042 002630 005037 001110             CLR     TEMP2        ;DITTO
1043 002634 004737 006472             JSR     PC,SEQ.DATA  ;GO RUN SEQUENTIAL DATA TEST
1044 002640 104400             SCOPE
  
```

N02

DZDFA-B MACY11 27(1006) 22-OCT-76 13:09 PAGE 27
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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEG 0027

```

1045 ;THIS IS THE SETUP FOR THE BAUD RATE TEST USING THE DP
1046 ;*****
1047 002642 012737 000372 001230 NOT60: MOV #250.,CLKSET ;250 HERTZ SETUP
1048 002650 000137 004504 JMP KWSETUP
1049 002654 012737 000340 177776 BAUD: MOV #340,PS ;SET PROCESSOR STATUS = 7
1050 002662 012706 001050 MOV #STACK,SP ;SET UP STACK
1051 002666 000005 RX: RESET
1052 002670 012777 003022 176444 DPSETUP: MOV #CON.RX,ADPRIV ;SETUP RX VECTOR
1053 002676 012777 000340 176440 MOV #340,ADPRP ;PROCESSOR STATUS = 7
1054 002704 012777 003034 176434 MOV #N.TRAP,ADPTIV ;SETUP TX TRAPCATCHER
1055 002712 012777 000340 176430 MOV #340,ADPTP ;PROCESSOR STATUS = 7
1056 002720 012737 177777 001232 MOV #-1,INTCNT ;ONCE ONLY
1057 002726 112777 000100 176372 MOVB #100,ADPRS ;TURN ON RECEIVER
1058 002734 112777 000252 176370 TX: MOVB #252,ASync ;SET SYNC CHARACTER
1059 002742 112777 000252 176366 MOVB #252,ADPTB ;LOAD TX BUFFER
1060 002750 005037 001226 CLR CHCNT ;CLEAR CHARACTER COUNTER
1061
1062 002754 004737 005500 JSR PC,CLOCK ;FIND OUT IF KW11 IS AVAILABLE
1063 002760 005737 001216 TST NO.CLOCK
1064 002764 001002 BNE 1$ ;YES
1065 002766 000137 003060 JMP TST.Z ;NO,CHECK SW 14 FOR SCOPE LOOP
1066 002772 1$:
1067 002772 104407 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1068 002774 013142 MCPS ;MESSAGE
1069 002776 104411 SETFLG ;SET FLAG BASED UPON INPUT STRING
1070 003000 001220 CPSFLG ;THIS FLAG
1071 003002 105737 001220 TSTB CPSFLG ;IS AC 50 OR 60 HERTZ
1072 003006 001715 BEQ NOT60 ;50 HERTZ
1073 003010 012737 000454 001230 MOV #300.,CLKSET ;60 HERTZ
1074 003016 000137 004504 JMP KWSETUP ;GO SETUP KW
1075
  
```



```

1076 :THIS IS THE BAUD RATE INTERRUPT SVC ROUTINE
1077 :*****
1078 003022 005237 001226 CON.RX: INC CHCNT ;COUNT FOR BAUD RATE CHECK
1079 003026 005777 176276 TST @DPRB ;CLR BUFFER
1080 003032 000002 RTI
1081 003034 011637 006034 N.TRAP: MOV (SP),TRP.PC ;TRAPCATCHER FOR TX INTERRUPT
1082 003040 104010 ERROR 10
1083 003042 000002 RTI
1084 003044 032777 040000 175776 SW14.B: BIT @BIT14,@SWR ;FIND OUT IF BAUD RATE CHECK IS WANTED
1085 003052 001402 BEQ TST.Z ;NOT YET
1086 003054 000137 003110 JMP OUT.PT ;YES
1087 003060 TST.Z:
1088 003060 104407 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1089 003062 013224 MRBAUD ;MESSAGE
1090 003064 104411 SETFLG ;SET FLAG BASED UPON INPUT STRING
1091 003066 001222 BAUDFLG ;THIS FLAG
1092 003070 105737 001222 TSTB BAUDFLG ;DO YOU STILL WANT TO RUN BAUD TEST?
1093 003074 001412 BEQ SWMP ;NO
1094 003076 104402 013100 TYPE .MSCOPBAUD ;YES,FIND OUT IF SWITCH 14 IS JP
1095 003102 000000 HALT ;WAIT FOR OPR TO PUT JP SW 14
1096 003104 000137 003044 JMP SW14.B
1097 003110 112777 000103 176216 OUT.PT: MOVB @103,@DPTS ;TURN ON TRANSMITTER
1098 003116 000137 003044 JMP SW14.B
1099 003122 000137 005722 SWMP: JMP MAINPR

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003126 032777 000010 175714
003134 001402
003136 000137 003532
003142
003142 012737 000002 001076
003150 104413
003152 012737 003532 001066
003160 052777 000400 176176
003166 012777 000000 176166
003174 052777 000400 176162
003202 012777 006026 176152
003210 042777 003010 176140
003216 012700 073016
003222 013737 001356 001114
003230 012737 040000 001112
003236 052777 000016 176112
003244 005337 001112
003250 001002
003252 104002
003254 000406
003256 017701 176074
003262 042701 104761
003266 020001
003270 001365
003272 112777 000025 176066
003300 012777 003400 176062
003306 012777 000340 176056
003314 005037 177776
003320 013737 001360 001114

```
::*****  
::DU11 TEST FOR THE DFC-11A  
::*****  
::THIS TEST VERIFYS THAT THE DFC-11A IS CLOCKING DATA  
::IN & OUT OF THE DU11 IT ALSO VERIFY THAT RING,CARRIER,  
::CLEAR TO SEND,DATA TERMINAL READY,AND REQUEST TO SEND  
::SIGNALS ARE WORKING CORRECTLY  
::NOTE: THE BCOSC MODEM CABLE MUST BE ATTACHED TO  
::THE DFC-11A AND MUST BE TERMINATED WITH H315 CONNECTOR  
::MODE: ISYMOD (:ISOCRONOUS)  
::LENGTH: EIGHT  
::THIS TEST USES BOTH THE RECEIVER & TRANSMITTER LOGIC OF THE DU11  
DU11.A: BIT #BIT3,DSWR :TEST BIT 3  
BEG 64$  
JMP DU11.B ;JUMP AROUND  
64$:  
*****  
TEST 2  
*****  
*****  
TST2: MOV #2,TSTNO  
CKSWR  
MOV #TST3,NEXT  
BIS #MRESET,@TXCSR ;MASTER RESET  
MOV #ISYMOD,@PARCSR ;LOAD THE MODE  
BIS #MRESET,@TXCSR ;MASTER RESET  
MOV #ISYMOD,EIGHT!NOPAR!26,@PARCSR ;LOAD THE MODE.  
;# OF BITS PER CHAR,PARITY SENSE(NO PARITY),  
;#SYNC CHARACTER (26)  
BIC #SRD!DSR!STD,@RXCSR  
MOV #RING!CTS!CARDET!SRD!DSR!STD!RTS!DTR,RO ;SET UP FOR ERROR MSG  
MOV RXCSR,TEMP4 ;DITTO  
MOV #40000,TEMP3 ;SET UP FOR CABLE DELAY + CTS DELAY  
;OF .3 SEC MAX.  
BIS #DTR!RTS!STD,@RXCSR ;SET DTR & RTS & STD  
15: DEC TEMP3  
BNE 25  
ERROR 2 ;RING,CTS,CARDET,SRD,DSR,STD,RTS,OR DTR FAILED TO SET  
;CHECK THE BCOSC CABLE  
BR 35 ;GO RUN THE TEST ANYWAY!  
25: MOV @RXCSR,R1 ;SAVE ACTUAL  
BIC #<RING!CTS!CARDET!SRD!DSR!STD!RTS!DTR>,R1 ;STRIP JUNK  
CMP RO,R1 ;GOT THEM YET?  
BNE 15 ;NO NOT YET MAYBE THE BCOSC  
;CABLE IS NOT ON OR TERMINATED WITH H315  
35: MOVB #25,@TXDBUF ;LOAD THE CHAR  
MOV #65,@DURIV ;SET UP TRAPCATCHER  
MOV #340,@DURIS ;SET LEVEL 7  
CLR PS ;ALLOW INTERRUPTS  
MOV RXDBUF,TEMP4 ;SET UP FOR ERROR MESSAGE
```

D03

DZDFA-B MACY11 27.10061 22-OCT-76 13:09 PAGE 30
 DZDFAC.P11 20-SEP-76 14:36 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEG 0030

```

1156 003326 012700 000025      MOV      #25,R0      ;EXPECTED
1157 003332 012777 000020 175024      MOV      #USER!SEND, @TXCSR ;OK NOW LOAD SEND & USER MODE
1158 003340 052777 000120 176010      BIS      #SYNSCH!RINTEN, @RXCSR ;SET SEARCH SYNC &
1159                                     ;RECEIVER INTERRUPT
1160                                     ;ENABLE & WAIT FOR INTERRUPT
1161 003346 005037 001116      CLR      TEMPS
1162 003352 005002      4$: CLR      R2
1163 003354 005202      5$: INC      R2      ;WAIT FOR INTERRUPT
1164 003356 001376      BNE     S$
1165 003360 005237 001116      INC     TEMPS
1166 003364 022737 000003 001116      CMP     #3, TEMPS
1167 003372 002367      BGE     4$
1168 003374 104004      ERROR  4      ;INTERRUPT DID NOT OCCUR
1169 003376 000422      BR     7$
1170
1171                                     ;THE FOLLOWING IS THE INTERRUPT SVC ROUTINE
1172 003400 012737 000340 177776      6$: MOV     #340,PS ;PREVENT INTERRUPTS
1173 003406 017704 175744      MOV     @RXCSR,R4 ;SAVE
1174 003412 017701 175742      MOV     @RXDBUF,R1 ;ACTJAL
1175 003416 013777 001372 175744      MOV     @DURIS, @DURIV ;RESTORE TRAPCATCHER
1176 003424 005077 175742      CLR     @DURIS
1177 003430 012716 003474      MOV     #8$, (SP) ;SET UP RETURN
1178 003434 042777 000100 175714      BIC     #RINTEN, @RXCSR ;CLR INTERRUPT ENABLE
1179 003442 000002      RTI
1180
1181 003444 042777 000100 175704      7$: BIC     #RINTEN, @RXCSR ;CLR INTERRUPT ENABLE
1182 003452 012737 000340 177776      MOV     #340,PS ;PREVENT INTERRUPTS
1183 003460 013777 001372 175702      MOV     @DURIS, @DURIV ;RESTORE TRAPCATCHER
1184 003466 005077 175700      CLR     @DURIS
1185 003472 000416      BR     -10$
1186
1187 003474 020001      8$: CMP     R0,R1
1188 003476 001401      BEQ     9$
1189 003500 104002      ERROR  2      ;CHARACTERS DID NOT MATCH
1190                                     ;IF DU/DFC ARE RUNNING IN CLOCK
1191                                     ;RECOVERY ABOVE 9600 BAUD AND THIS
1192                                     ;ERROR OCCURS PUT SW03 = 1. THIS
1193                                     ;ERROR IS LEGITIMATE ONLY IF BELOW
1194                                     ;9600 BAUD.
1195 003502 013737 001356 001114      9$: MOV     RXCSR,TEMP4 ;SETUP FOR ERROR MESSAGE
1196 003510 012700 000200      MOV     #RXDONE,R0 ;EXPECTED
1197 003514 010401      MOV     R4,R1 ;ACTUAL
1198 003516 042701 177577      BIC     #1<RXDONE>,R1 ;SAVE ONLY RXDONE
1199 003522 020001      CMP     R0,R1
1200 003524 001401      BEQ     10$
1201 003526 104006      ERROR  6      ;FALSE INTERRUPT
1202
1203 003530 104400      10$: SCOPE
  
```

E03

DZDFA-B MACY11 27.1006 22-OCT-76 13:09 PAGE 31
DZDFAC.P11 20-SEP-76 14:36

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0031

```

1204      :: THIS TEST VERIFYS THAT THE DFC11A IS CLOCKING DATA IN & OUT
1205      :: OF THE DJ11
1206      :: NOTE: THE BC05C MODEM CABLE MUST BE ATTACHED TO THE DFC11A
1207      :: & MUST BE TERMINATED WITH H315 CONNECTOR
1208      :: MODE: SYNINT
1209      :: LENGTH: EIGHT
1210      :: THIS TEST USES BOTH THE RECEIVER & TRANSMITTER LOGIC
1211      :: *****
1212      003532  DU11.B:
1213      :: *****
1214      :: *
1215      :: TEST 3
1216      :: *
1217      :: *****
1218      :: *****
1219      003532  012737  000003  001076  TST3:  MOV     #3,TSTNO
1220      003540      104413      CKSWR
1221      003542  012737  007746  001066  MOV     #.EOP,NEXT
1222      003550  052777  000400  175606  BIS     #MRESET,@TXCSR ;MASTER RESET
1223      003556  012777  030000  175576  MOV     #SYNINT,@PARCSR ;SET THE MODE
1224      003564  052777  000400  175572  BIS     #MRESET,@TXCSR ;MASTER RESET
1225      003572  012777  000020  175564  MOV     #USER!SEND,@TXCSR ;SET USER MODE AND SEND
1226      003600  012777  036026  175554  MOV     #SYNINT!EIGHT!NOPAR!26,@PARCSR ;SET SYNC INTERNAL,
1227      :: ;EIGHT BITS PER CHAR,NO PARITY,
1228      :: ;AND "26" FOR THE SYNC CHARACTER
1229      003606  052777  000436  175542  BIS     #SYNSCH!STPSYN!DTR!RTS!STD,@RXCSR ;SET SEARCH SYNC &
1230      :: ;STRIP SYNC SO THAT RXDONE ASSERTS
1231      :: ;WHEN CHAR "25" ARRIVES AND NOT BEFORE...
1232      :: ;THEREFORE,SET STRIP SYNC
1233      :: ;ALSO SET DTR,RTS,& STD FOR THE DFC11A
1234      ::
1235      ::
1236      ::
1237      003614  005037  001116      CLR     TEMPS
1238      003620      005002      $: CLR     R2
1239      003622      005202      2$: INC     R2 ;WAIT
1240      003624      001376      BNE     2$
1241      003626      005237  001116      INC     TEMPS
1242      003632      022737  000003  001116  CMP     #3,TEMPS
1243      003640      002367      BGE     1$ ;GO BACK TO CLR R2 AND WAIT SOME MORE
1244      003642  012777  004044  175520  MOV     #6$,@DURIV ;SET UP TRAPCATCHER
1245      003650  012777  000340  175514  MOV     #340,@DURIS ;SET PROCESSOR STATUS = 7
1246      003656  012777  004122  175510  MOV     #7$,@DUTIV ;SET UP TRAPCATCHER
1247      003664  012777  000340  175504  MOV     #340,@DUTIS ;SET PROCESSOR STATUS = 7
1248      003672      005037  177776      CLR     PS ;ALLOW INTERRUPTS
1249      003676  013737  001360  001114  MOV     RXDBUF,TEMP4 ;SET UP FOR ERROR MSG
1250      003704  012700  000025      MOV     #25,R0 ;EXPECTED CHAR
1251      003710  012737  000003  001112  MOV     #3,TEMP3 ;# OF SYNC CHARS TO GET INTO
1252      ::
1253      003716  052777  000100  175432  BIS     #RINTEN,@RXCSR ;SET INTERRUPT ENABLES
1254      003724  052777  000100  175432  BIS     #TXINTE,@TXCSR
1255      003732  000137  003750      JMP     4$ ;THE FIRST XMIT INTERRUPT SHOULD COME
1256      :: ;FROM TXDONE = 1 AFTER A MASTER RESET

```

F03

DZDFA-B MACY11 27,1006) 22-007-76 13:09 PAGE 32
 DZDFA-C.F11 20-SEP-76 14:36 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0032

```

1257 003736 112777 000026 175422 3$:   MOVB   #26, @TXDBUF   ;LOAD SYNC CHAR
1258 003744 005037 001116           CLR    TEMPS
1259 003750 005002           4$:   CLR    R2           ;WAIT FOR INTERRUPT
1260 003752 005202           5$:   INC    R2
1261 003754 001376           BNE    5$           ;CONTINUE TO WAIT
1262 003756 005237 001116           INC    TEMPS
1263 003762 022737 000003 001116           CMP    #3, TEMPS   ;DONE YET?
1264 003770 002367           BGE    4$           ;GO BACK, NOT YET
1265 003772 012737 000340 177776           MOV    #340, PS    ;PREVENT INTERRUPTS
1266 004000 042777 000100 175356           BIC    #TXINTE, @TXCSR ;CLR INTR ENABLES
1267 004006 042777 000100 175342           BIC    #RINTEN, @RXCSR ;DITTO
1268 004014 013777 001372 175346           MOV    @DURIS, @DURIV ;RESTORE TRAPCATCHER
1269 004022 005077 175344           CLR    @DURIS
1270 004026 013777 001376 175340           MOV    @DUTIS, @DUTIV ;RESTORE INTEPRUPT CATCHER
1271 004034 005077 175336           CLR    @DUTIS
1272 004040 104003           ERROR  3           ;TXDONE INTERRUPT FAILED TO OCCUR
1273                               ;WATCH OUT HERE::: THIS FAILURE MAY
1274                               ;ALSO BE CAUSED BY TRANSMIT DATA NOT
1275                               ;BEING CLOCKED OUT. I.E. TXDONE
1276                               ;NOT RE-ASCERTING SO THAT THE 2ND
1277                               ;SYNC CHARACTER CAN BE LOADED
1278 004042 000521           BR     14$         ;GET OUT OF THE TEST
1279
1280                               ;THE FOLLOWING IS THE RECEIVER INTERRUPT SVC ROUTINE
1281 004044 6$:
1282 004044 017704 175306           MOV    @RXCSR, R4   ;SAVE
1283 004050 017701 175304           MOV    @RXDBUF, R1 ;ACTUAL
1284 004054 013777 001372 175306           MOV    @DURIS, @DURIV ;RESTORE TRAPCATCHER
1285 004062 005077 175304           CLR    @DURIS      ;CLEAR OUT INTERRUPTS
1286 004066 013777 001376 175300           MOV    @DUTIS, @DUTIV
1287 004074 005077 175276           CLR    @DUTIS
1288 004100 012716 004252           MOV    #12$, (SP)  ;SET JP RETJRN LOCATION
1289 004104 042777 000100 175244           BIC    #RINTEN, @RXCSR ;CLR INTERRUPT ENABLES
1290 004112 042777 000100 175244           BIC    #TXINTE, @TXCSR ;DITTO
1291 004120 000002           RTI
1292                               ;END OF RECEIVER INTERRUPT SVC ROUTINE
1293                               ;... THE FOLLOWING IS THE XMITTER INTERRUPT SVC ROUTINE
1294 004122 005337 001112 7$:   DEC    TEMP3       ;# OF SYNC CHARACTERS LEFT
1295 004126 100403           BMI    8$
1296 004130 012716 003736           MOV    #3$, (SP)   ;SET UP RETURN LOCATION
1297                               ; (LOAD SYNC CHARACTER AGAIN)
1298 004134 000002           RTI
1299 004136 012716 004144 8$:   MOV    #9$, (SP)   ;SET UP RETURN LOCATION
1300 004142 000002           RTI
1301                               ;END OF XMITTER INTERRUPT SVC ROUTINE
1302 004144 112777 000025 175214 9$:   MOVB   #25, @TXDBUF ;LOAD CHARACTER
1303 004152 042777 000100 175204           BIC    #TXINTE, @TXCSR ;CLR INTR ENABLE
1304 004160 005037 001116           CLR    TEMPS
1305 004164 005002           10$:  CLR    R2          ;WAIT FOR INTERRUPT(RECEIVER)
1306 004166 005202           11$:  INC    R2
1307 004170 001376           BNE    11$         ;CONTINUE TO WAIT
1308 004172 005237 001116           INC    TEMPS
1309 004176 022737 000003 001116           CMP    #3, TEMPS   ;DONE YET?
1310 004204 002367           BGE    10$        ;GO BACK, NOT YET
1311 004206 012737 000340 177776           MOV    #340, PS    ;PREVENT INTERRUPTS
1312 004214 042777 000100 175134           BIC    #RINTEN, @RXCSR ;CLR INTR ENABLE

```

G03

DZDFA-B MACY11 27(1006) 22-007-76 13:09 PAGE 33
 DZDFAC.P11 20-SEP-76 14:36 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0033

1313	004222	013777	001372	175140		MOV	DURIS,ADURIV	;RESTORE TRAPCATCHER
1314	004230	005077	175136			CLR	ADURIS	
1315	004234	013777	001376	175132		MOV	DUTIS,ADUTIV	
1316	004242	005077	175130			CLR	ADUTIS	
1317	004246	104004				ERROR	4	;RECEIVER INTR FAILED TO OCCUR
1318	004250	000416				BR	14\$;GET OUT OF TEST
1319	004252	020001			12\$:	CMP	R0,R1	
1320	004254	001401				BEQ	13\$	
1321	004256	104002				ERROR	2	;CHARACTERS DID NOT MATCH
1322	004260	013737	001356	001114	13\$:	MOV	RXCSR,TEMP4	;SET UP FOR ERROR MSG
1323	004266	012700	000200			MOV	#RXDONE,R0	;EXPECTED RXDONE
1324	004272	010401				MOV	R4,R1	;ACTUAL
1325	004274	042701	177577			BIC	#1C<RXDONE>,R1	;SAVE ONLY RXDONE
1326	004300	020001				CMP	R0,R1	
1327	004302	001401				BEQ	14\$	
1328	004304	104006				ERROR	6	;FALSE INTERRUPT
1329	004306	012737	000340	177776	14\$:	MOV	#340,PS	;INHIBIT INTERRUPTS
1330	004314	104400				SCOPE		

H03

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DZDFAC.P11 20-SEP-76 14:36

PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEG 0034

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1362

::*****

:: BAUD RATE TEST

::*****

:: THIS TEST DETERMINES THE BAUD RATE OF THE DFC USING
:: A KW11-L/P AND DU/DP-11 AND PRINTS OUT THAT RATE. THE
:: TEST ALSO GIVES AN ERROR TYPEOUT IF THE BAUD RATE IS
:: OFF BY MORE THAN 10%.
:: MODE: IDLE SYNC
:: LENGTH: EIGHT
:: THIS TEST USES BOTH TRANSMITTER AND RECEIVER LOGIC.
:: A SCOPE LOOP IS AVAILABLE BY USING SWITCH 14.
:: MAKE SURE THE PROPER CONNECTOR IS INSTALLED!!!!!! SEE
:: SECTION 1.0!!!!!!

004316	012737	000340	177776	START: MOV	#340,PS	:PREVENT INTERRUPTS
004324	012706	001050		MOV	#STACK,SP	:SET UP STACK
004330	000005			TXSETUP:RESET		
004332	005037	001226		CLR	CHCNT	
004336	012737	177777	001232	MOV	#-1,INTCNT	
004344	052777	000400	175012	BIS	#MRESET,@TXCSR	:MASTER RESET TRANSMITTER
004352	012777	026252	175002	MOV	#026252,@PARCSR	:LOAD THE MODE,WORD LENGTH
004360	000240			NOP		:PARITY SENSE AND SYNC CHARACTER
004362	012777	000040	174774	MOV	#40,@TXCSR	:ASSERT DMA INTEB
004370	042777	000100	174766	BIC	#100,@TXCSR	:CLR TXINTEB
004376	112777	000252	174762	MOVB	#252,@TXDBUF	:LOAD SYNC CHAR INTO BUFFER


```

1363 004404 052777 000122 174744 RXSETUP: BIS #122, @RXCSR ;SET UP RECEIVER
1364 004412 012777 006012 174750 DUSETUP: MOV #CNT.RX, @DURIV ;SET
1365 004420 012777 000340 174744 MOV #340, @DURIS ; UP
1366 004426 012777 006024 174740 MOV #NO.TRAP, @DUTIV ; FOR DU
1367 004434 012777 000340 174734 MOV #340, @DUTIS ; INTERRUPTS
1368
1369 004442 004737 005500 JSR PC,CLOCK ;GO CHECK FOR CLOCK
1370 004446 005737 001216 TST NO.CLOCK ;IS IT THERE?
1371 004452 001002 BNE 1$ ;NO,CHECK IF SCOPE LOOP WANTED
1372 004454 000137 005656 JMP SW14A
1373 004460 1$:
1374 004460 104407 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1375 004462 013142 MCPS ;MESSAGE
1376 004464 104411 SETFLG ;SET FLAG BASED JPON INPUT STRING
1377 004466 001220 CPSFLG ;THIS FLAG
1378 004470 105737 001220 TSTB CPSFLG ;TEST FOR 50/60 CYCLES
1379 004474 001500 BEQ NO60CPS ;50 CYCLE MACHINE
1380 004476 012737 000454 001230 MOV #300, CLKSET ;SETUP FOR 60 CYCLE COUNT
1381 004504 022737 177546 001216 KWSETUP: CMP #177546, NO.CLOCK ;FIND OUT WHICH CLOCK
1382 004512 001402 BEQ KW11L ;KW11L SETUP
1383 004514 000137 005614 JMP KW11P ;KW11P SETUP
1384 004520 012737 004574 000100 KW11L: MOV #INTSVC, @#100 ;SET UP SERVICE ROUTINE
1385 004526 012737 000340 000102 MOV #340, @#102 ;SET UP LEVEL 7
1386 004534 012737 177546 001234 MOV #177546, CLKSTATUS ;KW11L CSR
1387 004542 012777 000100 174464 MOV #100, @CLKSTATUS ;SETUP FOR CLOCK INTERRUPT
1388 004550 005037 177776 BEGIN: CLR PS ;ALLOW INTERRUPTS
1389 004554 005000 CLR RO
1390 004556 012701 000005 MOV #5, R1 ;WAIT FOR INTERRUPTS
1391 004562 005300 1$: DEC RO ;SO THAT WE CAN
1392 004564 001376 BNE 1$ ;SYNC UP KW AND DEVICE
1393 004566 005301 DEC R1
1394 004570 001374 BNE 1$
1395 004572 10-000 ERROR ;TOOK TOO LONG---TIME OUT!!!!
    
```

```

1396 004574 042777 000200 174432 INTSVC: BIC #200,CLKSTATUS :CLEAR THE MONITOR
1397 004602 005237 001232 INC INTCNT :COUNT INTERRUPTS
1398 004606 001015 BNE EEE :FIRST TIME?
1399 004610 005737 001240 TST TAG :DP OR DU?
1400 004614 001404 BEQ INTS.A :DU
1401 004616 052777 000003 174510 BIS #3,DPDTS :YES, START OUTPUT OF DP
1402 004624 000403 BR INTS.B :KEEP GOING WITH TEST
1403 004626 112777 000020 174530 INTS.A: MOVB #20,DTXCSR :YES, START OUTPUT OF DU
1404 004634 012716 004550 INTS.B: MOV #BEGIN,(SP) :CONTINUE TO RUN TEST
1405 004640 000002 RTI
1406 004642 023737 001230 001232 EEE: CMP CLKSET,INTCNT :ARE WE DONE?
1407 004650 001403 BEQ IS :YES
1408 004652 012716 004550 MOV #BEGIN,(SP) :NO,CONTINUE TO TEST
1409 004656 000002 RTI
1410 004660 042777 000101 174346 IS: BIC #101,CLKSTATUS :SHUT OFF CLOCK
1411 004666 012716 004710 MOV #BDTAG,(SP) :GO DETERMINE BAUD RATE
1412 004672 000005 RESET
1413 004674 000002 RTI
1414 004676 012737 000372 001230 N060CPS: MOV #250,CLKSET :50 CYCLE SETUP
1415 004704 000137 004504 JMP KWSETUP
1416 004710 BDTAG:
1417 004710 012737 013451 004754 MOV #M19200,65$
1418 004716 023727 001226 031620 CMP CHCNT,#13200. :COMPARE TO THIS HIGH END
1419 004724 101404 BLOS 64$ :ANSWER IS TOO HIGH
1420 004726 104402 013544 TYPE ,MWRONGRT
1421 004732 000137 005656 JMP $W14A
1422 004736 023727 001226 025060 64$: CMP CHCNT,#10800. :COMPARE TO THIS LOW END
1423 004744 103410 BLO 66$ :NOT HERE
1424 004746 104402 013643 TYPE ,MBAUDRT :TYPE THIS RATE
1425 004752 104402 TYPE
1426 004754 000000 65$: 0
1427 004756 104402 013670 TYPE ,MRITE
1428 004762 000137 005722 JMP MAINPR
1429 004766 66$:
1430 004766 012737 013451 005032 MOV #M9600,68$
1431 004774 023727 001226 014710 CMP CHCNT,#6600. :COMPARE TO THIS HIGH END
1432 005002 101404 BLOS 67$ :ANSWER IS TOO HIGH
1433 005004 104402 013544 TYPE ,MWRONGRT
1434 005010 000137 005656 JMP $W14A
1435 005014 023727 001226 012430 67$: CMP CHCNT,#5400. :COMPARE TO THIS LOW END
1436 005022 103410 BLO 69$ :NOT HERE
1437 005024 104402 013643 TYPE ,MBAUDRT :TYPE THIS RATE
1438 005030 104402 TYPE
1439 005032 000000 68$: 0
1440 005034 104402 013670 TYPE ,MRITE
1441 005040 000137 005722 JMP MAINPR
1442 005044 69$:
1443 005044 012737 013470 005110 MOV #M4800,71$
1444 005052 023727 001226 006344 CMP CHCNT,#3300. :COMPARE TO THIS HIGH END
1445 005060 101404 BLOS 70$ :ANSWER IS TOO HIGH
1446 005062 104402 013544 TYPE ,MWRONGRT
1447 005066 000137 005656 JMP $W14A
1448 005072 023727 001226 005214 70$: CMP CHCNT,#2700. :COMPARE TO THIS LOW END
1449 005100 103410 BLO 72$ :NOT HERE
1450 005102 104402 013643 TYPE ,MBAUDRT :TYPE THIS RATE
1451 005106 104402 TYPE
    
```

K03

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SEQ 0037

1452	005110	000000			71\$:	0			
1453	005112	104402	013670			TYPE	,MRITE		
1454	005116	000137	005722			JMP	MAINPR		
1455	005122				72\$:				
1456	005122	012737	013477	005166		MOV	#M2400,74\$		
1457	005130	023727	001226	003162		CMP	CHCNT,#1650.	;COMPARE TO THIS HIGH END	
1458	005136	101404				BLOS	73\$;ANSWER IS TOO HIGH	
1459	005140	104402	013544			TYPE	,MWRONGRT		
1460	005144	000137	005656			JMP	\$W14A		
1461	005150	023727	001226	002506	73\$:	CMP	CHCNT,#1350.	;COMPARE TO THIS LOW END	
1462	005156	103410				BLO	75\$;NOT HERE	
1463	005160	104402	013643			TYPE	,MBAUDRT	;TYPE THIS RATE	
1464	005164	104402				TYPE			
1465	005166	000000			74\$:	0			
1466	005170	104402	013670			TYPE	,MRITE		
1467	005174	000137	005722			JMP	MAINPR		
1468	005200				75\$:				
1469	005200	012737	013506	005244		MOV	#M1200,77\$		
1470	005206	023727	001226	001471		CMP	CHCNT,#825.	;COMPARE TO THIS HIGH END	
1471	005214	101404				BLOS	76\$;ANSWER IS TOO HIGH	
1472	005216	104402	013544			TYPE	,MWRONGRT		
1473	005222	000137	005656			JMP	\$W14A		
1474	005226	023727	001226	001243	76\$:	CMP	CHCNT,#675.	;COMPARE TO THIS LOW END	
1475	005234	103410				BLO	78\$;NOT HERE	
1476	005236	104402	013643			TYPE	,MBAUDRT	;TYPE THIS RATE	
1477	005242	104402				TYPE			
1478	005244	000000			77\$:	0			
1479	005246	104402	013670			TYPE	,MRITE		
1480	005252	000137	005722			JMP	MAINPR		
1481	005256				78\$:				
1482	005256	012737	013515	005322		MOV	#M600,80\$		
1483	005264	023727	001226	000635		CMP	CHCNT,#413.	;COMPARE TO THIS HIGH END	
1484	005272	101404				BLOS	79\$;ANSWER IS TOO HIGH	
1485	005274	104402	013544			TYPE	,MWRONGRT		
1486	005300	000137	005656			JMP	\$W14A		
1487	005304	023727	001226	000521	79\$:	CMP	CHCNT,#337.	;COMPARE TO THIS LOW END	
1488	005312	103410				BLO	81\$;NOT HERE	
1489	005314	104402	013643			TYPE	,MBAUDRT	;TYPE THIS RATE	
1490	005320	104402				TYPE			
1491	005322	000000			80\$:	0			
1492	005324	104402	013670			TYPE	,MRITE		
1493	005330	000137	005722			JMP	MAINPR		
1494	005334				81\$:				
1495	005334	012737	013523	005400		MOV	#M300,83\$		
1496	005342	023727	001226	000317		CMP	CHCNT,#207.	;COMPARE TO THIS HIGH END	
1497	005350	101404				BLOS	82\$;ANSWER IS TOO HIGH	
1498	005352	104402	013544			TYPE	,MWRONGRT		
1499	005356	000137	005656			JMP	\$W14A		
1500	005362	023727	001226	000251	82\$:	CMP	CHCNT,#169.	;COMPARE TO THIS LOW END	
1501	005370	103410				BLO	84\$;NOT HERE	
1502	005372	104402	013643			TYPE	,MBAUDRT	;TYPE THIS RATE	
1503	005376	104402				TYPE			
1504	005400	000000			83\$:	0			
1505	005402	104402	013670			TYPE	,MRITE		
1506	005406	000137	005722			JMP	MAINPR		
1507	005412				84\$:				

L03

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0038

```
1508 005412 012737 013531 005456      MOV      #M150,86$
1509 005420 023727 001226 000147      CMP      CHCNT,#103.      ;COMPARE TO THIS HIGH END
1510 005426 101404                BLOS     85$              ;ANSWER IS TOO HIGH
1511 005430 104402 013544      TYPE    ,MWRONGRT
1512 005434 000137 005656      JMP     SW14A
1513 005440 023727 001226 000125 85$:      CMP      CHCNT,#85.      ;COMPARE TO THIS LOW END
1514 005446 103410                BLO     87$              ;NOT HERE
1515 005450 104402 013643      TYPE    ,MBAUDRT        ;TYPE THIS RATE
1516 005454 104402                TYPE
1517 005456 000000                0                          86$:
1518 005460 104402 013670      TYPE    ,MRITE
1519 005464 000137 005722      JMP     MAINPR
1520 005470                87$:
1521 005470 104402 013544      TYPE    ,MWRONGRT      ;EITHER DEVICE DIDN'T TURN ON
1522 005474 000137 005656      JMP     SW14A          ;OR COUNT WAS OFF BY MORE THAN 10 PERCENT
1523
1524
1525
1526
```

M03

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0039

```

1527      ;ROUTINE TO FIND OUT IF E1. 9 KW11-P OR
1528      ;KW11-L EXIST. ENTERED BY JSR PC,CLOCK"
1529      ;*****
1530      005500 013746 000004      CLOCK:  MOV    2#4,-(SP)      ;SETUP FOR INTERRUPTS
1531      005504 013746 000006      MOV    2#6,-(SP)      ;IN THIS ROUTINE
1532      005510 012737 005546 000004      MOV    2#2,2#4      ;SETUP TO SEE IF KW11P
1533      005516 012737 000340 000006      MOV    2#340,2#6     ;PREVENT INTERRUPTS
1534      005524 005037 001216      CLR    NO.CLOCK
1535      005530 005737 177546      1$:   TST    2#177546     ;KW11-L CSR
1536      005534 000240      NOP
1537      005536 012737 177546 001216      MOV    #177546,NO.CLOCK;THIS IS THE ONE
1538      005544 000416      BR    4$
1539      005546 012737 005574 000004      2$:   MOV    2#3,2#4      ;SETUP TO CHECK KW11P
1540      005554 022626      CMP    (SP)+,(SP)+   ;POP STACK
1541      005556 005737 172540      TST    2#172540     ;KW11-P CSR
1542      005562 000240      NOP
1543      005564 012737 172540 001216      MOV    #172540,NO.CLOCK;THIS IS THE ONE
1544      005572 000403      BR    4$
1545      005574 104402 013052      3$:   TYPE   MNOCLOCK    ;THERE IS NO CLOCK
1546      005600 022626      CMP    (SP)+,(SP)+   ;POP STACK
1547      005602 012637 000006      4$:   MOV    (SP)+,2#6     ;RETURN ADDRESSES 4 AND 6 TO NORMAL
1548      005606 012637 000004      MOV    (SP)+,2#4     ;DITTO
1549      005612 000207      RTS
1550      005614 012737 004574 000104      KW11P: MOV    #INTSVC,2#104  ;SETUP FOR INTSVC RTN
1551      005622 012737 000340 000106      MOV    2#340,2#106   ;PREVENT INTERRUPTS
1552      005630 012737 177777 172542      MOV    #177777,2#172542 ;PRESET COUNT SET BUFFER
1553      005636 012737 172540 001234      MOV    #172540,CLKSTATUS ;KW11P CSR
1554      005644 012777 000135 173362      MOV    #135,2#CLKSTATUS ;SETUP INTER EN AND STATE
1555      005652 000137 004550      JMP    BEGIN         ;GO START BAUD RATE CHECK
  
```

N03

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0040

```

1556 005656 032777 040000 173164 SW14A: BIT #BIT14,ASWR ;FIND OUT IF SCOPE LOOP IS WANTED
1557 005664 001402 BEQ TESTZ
1558 005666 000137 005726 JMP OUTPUT ;RUN BAUD SCOPE LOOP
1559 005672 TESTZ:
1560 005672 104407 INSTR ;OUTPUT MESSAGE & GET INPUT STRING
1561 005674 013224 MRBAUD ;MESSAGE
1562 005676 104411 SETFLG ;SET FLAG BASED UPON INPUT STRING
1563 005700 001222 BAUDFLG ;THIS FLAG
1564 005702 105737 001222 TSTB BAUDFLG ;WANT TO RUN BAUD TEST?
1565 005706 001405 BEQ MAINPR ;NO
1566 005710 104402 013100 TYPE ,MSCOPBAUD
1567 005714 000000 HALT ;WAIT FOR OPR TO PUT UP SW 14
1568 005716 000137 005656 JMP SW14A
1569 005722 000177 173310 MAINPR: JMP ADD.A ;JUMP TO MAIN PROGRAM
1570 ;IF DU GO TO DU11.A,IF DP GO TO DP11.A
1571 005726 005737 001240 OUTPUT: TST TAG ;DP OR DU?
1572 005732 001404 BEQ 1$ ;DU
1573 005734 052777 000103 173372 BIS #103,ADPTS ;START OUTPUT OF DP
1574 005742 000403 BR 2$ ;KEEP GOING WITH TEST
1575 005744 012777 000020 173412 1$: MOV #20,ATXCSR ;TURN ON TRANSMITTER OF DU
1576 005752 032777 040000 173070 2$: BIT #BIT14,ASWR ;MAKE SURE SW 14 IS SET
1577 005760 001374 BNE 2$
1578 005762 000005 RESET
1579 005764 000177 173246 JMP ADD.A ;GO RUN NORMAL TESTS
1580 005770 013451 XXTABLE: M19200 ;MESSAGE SETUPS
1581 005772 013461 M9600 ;DITTO
1582 005774 013470 M4800 ;DITTO
1583 005776 013477 M2400 ;DITTO
1584 006000 013506 M1200 ;DITTO
1585 006002 013515 M600 ;DITTO
1586 006004 013523 M300 ;DITTO
1587 006006 013531 M150 ;DITTO
1588 006010 013537 M75 ;DITTO
1589 006012 005237 001226 CNT.RX: INC CHCNT ;UPDATE COUNTER
1590 006016 005777 173336 TST ARXDBUF ;CLR RX DONE
1591 006022 000002 RTI
1592 006024 011637 006034 NC.TRAP: MOV (SP),TRP.PC ;IN CASE TX TURNS ON
1593 006030 104010 ERROR 10 ;ERROR MESSAGE
1594 006032 000002 RTI
1595 006034 000001 TRP.PC: .BLKW 1
1596

```

```

1597 ;LINE.N SUBROUTINE TO FETCH THE LINE
1598 ;NUMBER AND FIRST DP11 VECTOR ADDRESS FROM
1599 ;THE CONSOL SWITCHES
1600 ;SW0-SW8=VECTOR ADDRESS OF FIRST DP11
1601 ;SW9-SW15=LINE NUMBER OF DP11 SELECTED FOR TEST
1602
1603 006036 005037 001102 LINE.N: CLR ERRCNT ;CLEAR ERROR COUNT
1604 006042 017737 173002 001150 MOV @SWR,SAVSR1 ;SAVE CONSOL SWITCH SETTINGS
1605 006050 017700 172774 MOV @SWR,R0
1606 006054 000000 HALT ;SET SWR TO LINE NUMBER
1607 ;LOW BYTE = FIRST DP VECTOR
1608 ;HIGH BYTE = LINE NUMBER(9)
1609 006056 017737 172766 001200 MOV @SWR,SAVSR2 ;SAVE CONSOL SWITCHES
1610 006064 017700 172760 MOV @SWR,R0
1611 006070 000000 HALT
1612 006072 005001 CLR R1
1613 006074 113701 001201 MOVB SAVSR2+1,R1 ;SAVE LINE NUMBER
1614 006100 042701 000001 BIC #1,R1
1615 006104 000405 BR XTAG
1616 006106 013701 001162 LINE.X: MOV XLINEX,R1
1617 006112 005037 001150 CLR SAVSR1
1618 006116 006301 ASL R1
1619 006120 006201 XTAG: ASR R1 ;CLEAR LSB
1620 006122 010137 001162 MOV R1,XLINEX
1621 006126 006301 ASL R1 ;SCALE LINE NUMBER TO ADDRESS
1622 006130 006301 ASL R1 ;MODULE 10(8)
1623 006132 006301 ASL R1
1624 006134 005777 173214 TST @BASCSR ;DOES LINE 0 REALLY EXIST??
1625 006140 000240 NOP
1626 006142 105737 001150 TSTB SAVSR1
1627 006146 100403 BMI 1$
1628 006150 012737 006262 000004 1$: MOV @35,@#4
1629 006156 013702 001354 MOV BASCSR,R2 ;SET R2 = LINE 0 ADDRESS
1630 006162 160102 SUB R1,R2 ;MANUFACTURE DEVICE ADDRESS
1631 006164 012703 001326 MOV @DPRS,R3 ;R3 = ADDRESS OF RCV STATUS ADRS
1632 006170 010223 MOV R2,(R3)+ ;LOAD RCV STATUS ADRS
1633 006172 005722 TST (R2)+ ;INC TO RCV BUFFER ADRS
1634 006174 010223 MOV R2,(R3)+ ;LOAD RCV BUFFER ADRS
1635 006176 005202 INC R2 ;INC TO SYNC BUFFER ADRS
1636 006200 010223 MOV R2,(R3)+ ;LOAD SYNC ADRS
1637 006202 005202 INC R2 ;INC TO XMIT STATUS ADRS
1638 006204 010223 MOV R2,(R3)+ ;LOAD TRANSMITTER STATUS ADRS
1639 006206 005722 TST (R2)+ ;INC TO XMIT BUFFER
1640 006210 010223 MOV R2,(R3)+ ;LOAD XMIT BUFFER ADRS
1641 006212 005202 INC R2 ;INC TO SYNC EXTENTION
1642 006214 010223 MOV R2,(R3)+ ;LOAD SYNC EXTENSION ADRS
1643 006216 013702 001200 MOV SAVSR2,R2 ;SET UP VECTOR ADDRESS
1644 006222 042702 177000 BIC #1C(777),R2 ;CLEAR LINE NUMBER FROM VEC ADRS
1645 006226 105737 001150 TSTB SAVSR1
1646 006232 100402 BMI 2$
1647 006234 013702 001352 MOV BASVEC,R2
    
```



```

1648 006240 060102      25:  ADD    R1,R2      ;SET VECTOR ADDRESS TO LINE NUMBER
1649 006242 010223      MOV    R2,(R3)+    ;LOAD RCV VECTOR ADRS
1650 006244 005722      TST   (R2)+       ;INC TO NEXT VECTOR
1651 006246 010223      MOV    R2,(R3)+    ;LOAD RCV PRIORITY ADRS
1652 006250 005722      TST   (R2)+       ;INC TO NEXT VECTOR
1653 006252 010223      MOV    R2,(R3)+    ;LOAD XMIT VECTOR ADRS
1654 006254 005722      TST   (R2)+       ;INC TO NEXT VECTOR
1655 006256 010213      MOV    R2,(R3)     ;LOAD XMIT PRIORITY ADRS
1656 006260 000414      BR    55
1657 006262 005037 001162  35:  CLR    XLINEX
1658 006266 013701 000042  MOV    #42,R1
1659 006272 001405      BEQ   45
1660 006274 000005      RESET
1661
1662      ;*****
1663      ;DP11 LOGICAL ENDING
1664      ;*****
1664 006276 004711      JSR   PC,(R1)
1665 006300 000240      NOP
1666 006302 000240      NOP
1667 006304 000240      NOP
1668 006306 022626      45:  POP   SP
1669 006310 000676      BR    LINE.X
1670 006312 012737 000006 000004 55:  MOV    #6,#4
1671 006320 013737 001326 001214  MOV    DPRS,DEVICE ;SET FOR END PASS MSG.
1672 006326 000207      RTS   PC
1673
1674      ;*****CLRVEC*****
1675
1676      ;CLRVEC,ROUTINE TO FILL COMMUNICATION VECTOR AREA WITH .+2,HALT
1677 006330 012702 000300  CLRVEC: MOV    #300,R2 ;R2 COMM VECTOR AREA ADRS
1678 006334 012701 000302  MOV    #302,R1 ;INIT R1 WITH ADRS OF HALT
1679 006340 010122  15:  MOV    R1,(R2)+ ;MOV .+2 TO PC
1680 006342 005022      CLR   (R2)+       ;MOV HALT TO PC
1681 006344 022121      CMP   (R1)+,(R1)+ ;INC TO NEXT VECTOR AREA
1682 006346 022701 000776  CMP   #776,R1     ;END OF VECTOR AREA
1683 006352 001372      BNE  15           ;NO
1684 006354 000207      RTS   PC         ;RETURN
1685
1686
1687
    
```

```

1688                                     :*****OKADR*****
1689                                     :OKADR, ROUTINE TO CHECK FOR VALID DU ADDRESS
1690
1691 006356 013746 000004          OKADR: MOV      2#4,-(SP)      :SETUP FOR INTERRUPTS
1692 006362 013746 000006          MOV      2#6,-(SP)      :DITTO
1693 006366 012737 006412 000004  MOV      2#5,2#4      :SETUP TO CHECK ADDR YOU SELECTED
1694 006374 012737 000340 000006  MOV      2#40,2#6     :PREVENT INTERUPTS
1695 006402 005777 000704          TST      2DUBASE     :ADDRESS
1696 006406 000240          NOP                     :WAIT
1697 006410 000405          BR       2$           :ADDRESS OK
1698 006412 104402 013333 1$:     TYPE     MNODEV      :ADDRESS NG--LET OPR KNOW
1699 006416 022626          CMP      (SP)+,(SP)+ :POP STACK
1700 006420 000000          HALT                    :WAIT FOR OPR TO DECIDE IF ADR IS OK
1701 006422 000777          BR       .              :IF ADDR WAS OK THEN RUN DU DIAGNOSTIC
1702                                     :IF ADDR WRONG RESTART TEST AND ANS QUESTIONS
1703 006424 012637 000006 2$:     MOV      (SP)+,2#6     :RETURN ADDRESS 4 AND 6 TO NORMAL
1704 006430 012637 000004          MOV      (SP)+,2#4     :DITTO
1705 006434 000207          RTS      PC
1706
1707
1708
1709
1710
1711                                     :POWER FAIL ROUTINE
1712
1713 006436 012737 006446 000024 .PFAIL: MOV      #PWRUP,24  :LOAD PFAIL VECTOR FOR POWER UP
1714 006444 000000          HALT                    :
1715 006446 000005          PWRUP: RESET          :WAIT TTY TO COME UP
1716 006450 012706 001050          MOV      #STACK,SP     :REINIT STACK POINTER
1717 006454 012737 006436 000024  MOV      #.PFAIL,24    :LOAD PFAIL VECTOR FOR POWER DOWN
1718 006462 104402          TYPE
1719 006464 011762          MPOWER
1720 006466 000177 172550          JMP      2PSTART
1721
1722
  
```

E04

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PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEQ 0044

1723	006472				SEQ.DATA:	
1724	006472	012737	006704	001210	MOV	#48, BACK
1725	006500	105077	172634		CLRB	QSEXT
1726	006504	005037	001170		CLR	RDATA
1727	006510	005037	001166		CLR	TDATA
1728	006514	005077	172606		CLR	QOPRS
1729	006520	005077	172610		CLR	QOPTS
1730	006524	052777	000001	172574	BIS	#BIT0, QOPRS
1731	006532	012737	000400	001172	MOV	#400, CHLEN
1732	006540	032737	000400	001150	BIT	#BIT8, SAVSR1
1733	006546	001414			BEQ	15
1734	006550	012737	010000	001174	MOV	#10000, LIMIT
1735	006556	052777	002000	172542	BIS	#BIT10, QOPRS
1736	006564	012737	000426	001160	MOV	#426, TSYNC
1737	006572	105277	172542		INCB	QSEXT
1738	006576	000406			BR	25
1739	006600	012737	000400	001174	MOV	#400, LIMIT
1740	006606	012737	000026	001160	MOV	#26, TSYNC
1741	006614	012777	006706	172524	MOV	#TV18, QDCTIV
1742	006622	012777	007014	172512	MOV	#RV18, QDPRIV
1743	006630	012737	000200	177776	MOV	#200, PS
1744	006636	012737	000004	001176	MOV	#4, SCNT
1745	006644	113777	001160	172460	MOVB	TSYNC, QSYNC
1746	006652	052777	000100	172446	BIS	#BIT6, QOPRS
1747	006660	052777	000301	172446	BIS	#301, QOPTS
1748						: TRANS INT ENB
1749						: TRANS DONE
1750	006666	005237	001106		INC	TEMP1
1751	006672	001375			BNE	35
1752	006674	005337	001110		DEC	TEMP2
1753	006700	001372			BNE	35
1754	006702	104000			ERROR	
1755	006704	000207			RTS	PC
1756						
1757						
1758						


```

1782          ;RECEIVE SEQUENTIAL DATA
1783
1784 007014 105777 172306 RV18: TSTB 2DPRS ;RECEVIER DONE??
1785 007020 100401 BMI 1$ ;YES
1786 007022 104000 ERROR ;REPORT ERROR
1787 007024 013700 001170 1$: MOV RDATA,R0
1788 007030 017701 172274 MOV 2DPRB,R1
1789 007034 023777 001170 172266 CMP RDATA,2DPRB ;CORRECT DATA
1790 007042 001404 BEQ 2$
1791 007044 017737 172260 001152 MOV 2DPRB,TMPDAT ;STORE DATA
1792 007052 104001 ERROR 1 ;REPORT ERROR
1793 007054 042777 000001 172244 2$: BIC #BIT0,2DPRS ;CLEAR STRIP SYNC
1794 007062 005237 001170 INC RDATA ;NEXT CHARACTER
1795 007066 023737 001174 001170 CMP LIMIT,RDATA
1796 007074 001037 BNE 3$
1797 007076 005037 001170 CLR RDATA
1798 007102 005037 001166 CLR TDATA
1799 007106 006237 001174 ASR LIMIT ;DECREASE LIMIT TO 7 BITS
1800 007112 012777 006706 172226 MOV #TV18,2DPTIV ;SET UP SYNC TRANSMISSION
1801 007120 012737 000004 001176 MOV #4,SCNT ;SYNC COUNT =4
1802 007126 052777 000001 172172 BIS #BIT0,2DPRS ;STRIP SYNC
1803 007134 042777 004000 172164 BIC #BIT11,2DPRS ;CLEAR RCV ACTIVE
1804 007142 052777 000301 172164 BIS #301,2DPTS
1805 007150 053777 001172 172150 BIS CHLEN,2DPRS ;CHANGE CHAR LENGTH
1806 007156 062737 000400 001172 ADD #400,CHLEN ;DECREASE CHAR LENGTH
1807 007164 022737 001400 001172 CMP #1400,CHLEN ;HAVE ALL LENGTHS BEEN TESTED
1808 007172 001401 BEQ 4$ ;YES
1809 007174 000002 3$: RTI ;NO
1810 007176 005077 172132 4$: CLR 2DPTS ;CLR TRANSMITTER STATUS
1811 007202 005077 172120 CLR 2DPRS ;CLR RECEIVER STATUS
1812 007206 042737 000040 177776 BIC #BITS,PS ;PRIORITY = 4
1813 007214 013716 001210 MOV BACK,(SP)
1814 007220 000002 RTI
    
```

```

1815                                     :NEW DU ADDRESSES
1816 007222 013737 007312 001356 DUADDR: MOV DUBASE,RXCSR ;XXX0
1817 007230 013737 001356 001214 MOV RXCSR,DEVICE
1818 007236 062737 000002 007312 ADD #2,DUBASE
1819 007244 013737 007312 001360 MOV DUBASE,RXDBUF ;XXX2
1820 007252 013737 007312 001362 MOV DUBASE,PARCSR ;XXX2
1821 007260 062737 000002 007312 ADD #2,DUBASE
1822 007266 013737 007312 001364 MOV DUBASE,TXCSR ;XXX4
1823 007274 062737 000002 007312 ADD #2,DUBASE
1824 007302 013737 007312 001366 MOV DUBASE,TXDBUF ;XXX6
1825 007310 000207 RTS PC
1826 007312 000000 DUBASE: 0
1827
1828

```

```

1829 ;THE FOLLOWING CALCULATES THE NEXT DEVICE ADDRESS AND ASSOCIATED
1830 ;VECTOR ADDRESSES IF RUNNING MULTIPLE DEVICES (DU11...DFC11'S)
1831
1832 007314 105737 001254 DL.UPDATE: TSTB MULTD ;ARE YOU RUNNING MULTIPLE DEVICES ?
1833 007320 001510 BEQ CCC ;NO JUMP AROUND
1834 007322 005737 001270 TST ACTREG ;ARE ANY DEVICES ACTIVE ?
1835 007326 001007 BNE RUNIT ;YES
1836 007330 104402 012467 TYPE MCOV ;NO
1837 007334 013700 001270 MOV ACTREG,RO ;DISPLAY ACTREG
1838 007340 000000 HALT ;SELECT SOMETHING TO RUN @ ACTREG:
1839 ;SELECT SWITCHES & HIT CONTINUE (PUT SW00 =1)
1840 007342 000137 001652 JMP DU11 ;START OVER AGAIN.....YOU DESELECTED EVERYTHING
1841 007346 062737 000010 001256 RUNIT: ADD #10,BASEADD ;NEXT BLOCK (ADDRESSES)
1842 007354 062737 000010 001264 ZERO: ADD #10,BASEIV ;NEXT BLOCK (VECTORS)
1843 007362 000241 CLC
1844 007364 006137 001272 ROL ROTADD ;UP DATE ROTATING POINTER
1845 007370 103412 BCS IS ;IS IT THE LAST DEVICE
1846 ;TO BE TESTED IN THIS PASS ?
1847 007372 033737 001272 001270 BIT ROTADD,ACTREG ;TEST THIS DEVICE FOR ACTIVE STATUS
1848 007400 001762 BEQ RUNIT ;IF NOT ACTIVE, TRY NEXT ADDRESS
1849 007402 004737 007446 JSR PC,REPLAY ;CALCULATE NEW PARAMETERS
1850 007406 004737 006356 JSR PC,OKADR ;CHECK FOR GOOD ADDRESS
1851 007412 000137 007562 JMP ARESTRT ;YES IT WAS ACTIVE, TEST THIS DEVICE
1852 007416 012737 000001 001272 IS: MOV #1,ROTADD ;OK! NOW SET UP ROTATING
1853 ;POINTER FOR NEXT MULTIPLE PASS
1854 007424 013737 001260 001256 MOV KEEPADD,BASEADD ;RESTORE BASE ADDRESS
1855 007432 013737 001266 001264 MOV KEEPIV,BASEIV ;RESTORE BASE INTERRUPT VECTORS
1856 007440 004737 007446 JSR PC,REPLAY ;CALC NEW PARAMETERS
1857 007444 000436 BR CCC ;JUMP AROUND REPLAY
1858 007446 013737 001256 007312 REPLAY: MOV BASEADD,DUBASE ;SET UP FOR NEW ADDRESSES
1859 007454 004737 007222 JSR PC,DUADDR ;CREATE NEW ADDRESSES
1860 007460 013737 001264 001370 MOV BASEIV,DURIV ;CREATE DURIV
1861 007466 062737 000002 001264 ADD #2,BASEIV
1862 007474 013737 001264 001372 MOV BASEIV,DURIS ;CREATE DURIS
1863 007502 062737 000002 001264 ADD #2,BASEIV
1864 007510 013737 001264 001374 MOV BASEIV,DUTIV ;CREATE DUTIV
1865 007516 062737 000002 001264 ADD #2,BASEIV
1866 007524 013737 001264 001376 MOV BASEIV,DUTIS ;CREATE DUTIS
1867 007532 013737 001370 001264 MOV DURIV,BASEIV ;RESTORE
1868 007540 000207 RTS PC
1869
1870
1871 007542 CCC:
1872 007542 013701 000042 MOV #42,R1 ;CHECK FOR ACT-11 OR DDP
1873 007546 001405 BEQ ARESTRT ;IF NOT, CONTINUE TESTING
1874 007550 000005 RESET
1875 007552 004711 LOGICAL: JSR PC,(R1)
1876 007554 000240 NOP
1877 007556 000240 NOP
1878 007560 000240 NOP
1879 007562 012737 000340 177776 ARESTRT: MOV #340,PS ;PREVENT INTERRUPTS (PRIO: 7)
1880 007570 000177 171416 JMP @CONT.
    
```


J04

DZDFA-B MACY11 27(1006) 22-OCT-76 13:09 PAGE 49
 DZDFAC.P11 20-SEP-76 14:36 PROGRAM PARAMETERS, VARIABLES, AND TRAP CALLS.

SEG 0049

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1881
1882 007574 017637 000000 001112 .DELAY: MOV 2(SP),TEMP3 ;SET UP COUNT
1883 007602 062716 000002 ADD #2,(SP)
1884 007606 011637 001114 MOV (SP),TEMP4
1885 007612 022626 POP.SP
1886 007614 005037 177776 CLR PS
1887 007620 162737 001112 SUB (PC)+,TEMP3 ;FOR A SMALLER DELAY TIME
1888 007624 LESS.TIME: ;PUT A NUMBER IN HERE TO BE
1889 007624 000000 000 ADD ;SUBTRACTED FROM TOTAL.
1890 007626 062737 001112 ADD (PC)+,TEMP3 ;FOR A LONGER DELAY TIME
1891 007632 MORE.TIME: ;PUT A NUMBER IN HERE TO BE ADDED
1892 007632 000000 000 SUB ;TO THE TOTAL TIME.
1893 007634 162737 000001 001112 IS: #1,TEMP3 ;TIME OUT
1894 007642 001374 BNE IS ;NO
1895 007644 000177 171244 JMP 2TEMP4
  
```

K04

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1896
1897
1898
1899 007650 104413 .SCOPE: CKSWR ;SEE IF ↑G STRUCK (SOFT SWITCH REGISTER)
1900 007652 032777 040000 171170 TTST: 9IT #BIT14,2SWR
1901 007660 001401 BEQ 1$
1902 007662 000424 BR 3$
1903 007664 032777 004000 171156 1$: BIT #SW11,2SWR
1904 007672 001006 BNE 2$
1905 007674 005237 001074 INC LPCNT
1906 007700 023737 001074 001072 CMP LPCNT,ICOUNT
1907 007706 001012 BNE 3$
1908 007710 105037 001246 2$: CLRB ERRFLG
1909 007714 005037 001074 CLR LPCNT
1910 007720 012737 000062 001072 MOV #50,ICOUNT
1911 007726 013737 001066 001064 MOV NEXT,RETURN
1912 007734 013716 001064 3$: MOV RETURN,(SP)
1913 007740 000002 RTI
1914 007742 001407 BRW: 1407
1915 007744 000432 BRX: 432
1916
1917 ;END OF PASS
1918 ;TYPE "END OF PASS CSR: XXXXXX"
1919 ;UPDATE PASS COUNT
1920 ;UPDATE LINE NUMBER
1921 ;IF IN CYCLE MODE
1922 ;RESTART TEST
1923
1924 007746 005037 001104 .EOP: CLR LSTERR ;CLEAR LAST ERROR PC
1925 007752 105037 001246 CLRB ERRFLG ;CLEAR ERROR FLAG
1926 007756 005237 001100 INC PASCNT ;UPDATE PASS COUNT
1927 007762 104402 TYPE
1928 007764 011777 MEPASS
1929 007766 104406 CNVRT
1930 007770 010032 XCSR
1931 007772 105737 001150 TSTB SAVSR1
1932 007776 100402 BMI 64$
1933 010000 005237 001162 INC XLINEX
1934 010004 013737 001100 001052 64$: MOV PASCNT,LIGHTS ;DISPLAY PASS COUNT
1935 010012 005737 001240 TST TAG ;DP OR DU
1936 010016 001002 BNE RESTR ;DP
1937 010020 000137 007314 JMP DU.UPDATE ;DU
1938 010024 104413 RESTR: CKSWR
1939 010026 000177 171160 JMP 2CONT. ;CONTINUE TO TEST APPRO. DEVICE
1940 010032 000001 XCSR: 1
1941 010034 006 002 .BYTE 6,2
1942 010036 001214 DEVICE
1943
1944 010040 012737 177570 001050 TS*SWR: MOV #DSWR,SWR ;MOV HARDWARE SWR TO SWR
1945 010046 012737 177570 001052 MOV #DLIGHTS,LIGHTS ;MOV DISPLAY LIGHTS TO LIGHTS
1946 010054 013746 000006 MOV 2#6,-(SP) ;SAVE VECTORS
1947 010060 013746 000004 MOV 2#4,-(SP)
1948 010064 012737 010104 000004 MOV #64$,2#4 ;SET UP FOR TIMEOUT
1949 010072 022777 177777 170750 CMP #-1,2SWR ;REFERENCE HARDWARE SWITCH REGISTER
1950 010100 001402 BEQ 65$
1951 010102 000407 BR 66$

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```

1952 010104 022626          64$:  CMP      (SP)+,(SP)+      ;ADJUST STACK
1953 010106 012737 000176 001050 65$:  MOV      #SWREG,SWR      ;POINT TO SOFTWARE SWITCH REG
1954 010114 012737 000174 001052      MOV      #DISPREG,LIGHTS ;POINT TO SOFT DISPLAY REG
1955 010122 012637 000004          66$:  MOV      (SP)+,@#4      ;RESTORE VECTORS
1956 010126 012637 000006          MOV      (SP)+,@#6
1957 010132 005737 000042          TST      @#42          ;UNDER MONITOR
1958 010136 001005          BNE      67$
1959 010140 022737 000176 00105C      CMP      #SWREG,SWR      ;IS SWREG USED
1960 010146 001001          BNE      67$
1961 010150 104414          GTSWR
1962 010152 000207          67$:  RETURN
1963
1964          ;TELETYPE OUTPUT ROUTINE
1965
1966 010154 010046          .TYPE: MOV  RD,-(SP)          ; SAVE RD
1967 010156 017600 000002      MOV      @2(SP),RD      ; GET ADDRESS OF ASCIZ STRING
1968 010162 005737 011504      TST      @#RDSW        ; ?CALLED BY GTSWR ROUTINE?
1969 010166 001004          BNE      1$            ; IF YES, DON'T INHIBIT TYPEOUT
1970 010170 032777 010000 170652      BIT      #SW12,@SWR    ; INHIBIT ALL TYPEOUTS?
1971 010176 001020          BNE      4$            ; YES- GET OUT
1972 010200 112046          1$:  MOVB     (RD)+,-(SP)    ; PUSH CHAR TO BE TYPED ONTO STACK
1973 010202 001415          BEQ      3$            ; NULL AT END OF MESSAGE
1974 010204 122716 000200      CMPB     #CRLF,(SP)    ; IS IT A CODED <CRLF>
1975 010210 001004          BNE      2$            ; IF NOT MOVE ON
1976 010212 005726          TST      (SP)+        ; POP OFF CODED <CRLF>
1977 010214 104402 012061      TYPE     ,CR.LF        ; AND TYPE THE REAL THING
1978
1979 010220 000767          BR       1$            ; GET NEXT CHARACTER
1980
1981 010222          2$:
1982 010222 105777 170632      TSTB     @TPCSR        ; READY TO PRINT
1983 010226 100375          BPL      2$            ; WAIT
1984 010230 112677 170626      MOVB     (SP)+,@TPDBR  ; PRINT IT
1985 010234 000761          BR       1$            ; GET NEXT CHAR
1986 010236 005726          3$:  TST      (SP)+        ; CLEAN UP STACK
1987 010240 012600          4$:  MOV      (SP)+,RD      ; PUT RD BACK
1988 010242 062716 000002      ADD      #2,(SP)      ; ADJUST RETURN PC
1989 010246 000002          RTI
1990
1991          ;ERROR HANDLER
1992
1993 010250 104413          .ERROR: CKSWR
1994 010252 032777 010000 170570      BIT      #SW12,@SWR
1995 010260 001406          BEQ      XB$
1996 010262 105777 170572      TSTB     @TPCSR
1997 010266 100003          BPL      XB$
1998 010270 112777 000207 170564      MOVB     #207,@TPDBR
1999 010276 032777 020000 170544      XB$:  BIT      #SW13,@SWR
2000 010304 001067          BNE      HALTS
2001 010306 021637 001104      CMP      (SP),LSTERR
2002 010312 001404          BEQ      1$
2003 010314 011637 001104      MOV      (SP),LSTERR
2004 010320 105037 001246      CLRB     ERRFLG
2005 010324 104403          1$:  SAVOS
2006 010326 011605          MOV      (SP),R5
2007 010330 162705 000002      SUB      #2,R5
    
```

M04

DZDFA-B MACY11 27(1006) 22-007-76 13:09 PAGE 52
 DZDFAC.P11 20-SEP-76 14:36

;TEST TO SEE IF USING HARD OR SOFT SWITCH REGISTER

SEQ 0052

2008	010334	011504							MOV	(R5),R4
2009	010336	006304							ASL	R4
2010	010340	061504							ADD	(R5),R4
2011	010342	006304							ASL	R4
2012	010344	042704	177001						BIC	#177001,R4
2013	010350	062704	014164						ADD	#.ERRTAB,R4
2014	010354	012437	010434						MOV	(R4)+,ERRMSG
2015	010360	012437	010446						MOV	(R4)+,DATAHD
2016	010364	011437	010460						MOV	(R4),DATABP
2017	010370	105737	001246						TSTB	ERRFLG
2018	010374	001403							BEQ	TYPMSG
2019	010376	005737	010460						TST	DATABP
2020	010402	001022							BNE	TYPDAT
2021	010404	104402						TYPMSG:	TYPE	
2022	010406	000001						WHO:	.BLKW	1
2023	010410	104402							TYPE	
2024	010412	012043							MERRPC	
2025	010414	104406							CNVRT	
2026	010416	010552							ERTAB0	
2027	010420	104402							TYPE	
2028	010422	012057							MCRLF	
2029	010424	112737	177777	001246					MOVB	#-1,ERRFLG
2030	010432	104402							TYPE	
2031	010434	000000						ERRMSG:	0	
2032	010436	005737	010446						TST	DATAHD
2033	010442	001402							BEQ	TYPDAT
2034	010444	104402							TYPE	
2035	010446	000000						DATAHD:	0	
2036	010450	005737	010460					TYPDAT:	TST	DATABP
2037	010454	001402							BEQ	RESREG
2038	010456	104405							CONVRT	
2039	010460	000000						DATABP:	0	
2040	010462	104404						RESREG:	RES05	
2041	010464	005777	170360					HALTS:	TST	2SWR
2042	010470	100005							BPL	EXITER
2043	010472	010046							PUSHRO	
2044	010474	016600	000002						MOV	2(SP),R0
2045	010500	000000							HALT	
2046	010502	012600							POPPO	
2047	010504	104413						EXITER:	CKSWR	
2048	010506	005237	001102						INC	ERRCNT
2049	010512	032777	000400	170330					BIT	#SW08,2SWR
2050	010520	001007							BNE	1\$
2051	010522	032777	002000	170320					BIT	#SW10,2SWR
2052	010530	001407							BEQ	2\$
2053	010532	013737	001066	001064					MOV	NEXT,RETURN
2054	010540	012706	001050					1\$:	MOV	#STACK,SP
2055	010544	000177	170314						JMP	2RETURN
2056	010550	000002						2\$:	RTI	
2057	010552	000001						ERTAB0:	1	
2058	010554	006	002						.BYTE	6,2
2059	010556	001146							SAVPC	
2060										
2061										;CONVERT OCTAL NUMBER TO ASCII AND OUTPUT TO TELEPRINTER
2062										
2063	010560	104402						.CONVR:	TYPE	

2064	010562	012057				MCRLF
2065	010564	017601	000000			MOV 2(SP),R1
2066	010570	013737	014310	001112	.CNVRT:	MOV TEMP,TEMP3
2067	010576	062716	000002			ADD #2,(SP)
2068	010602	012137	010752			MOV (R1)+,WRDCNT
2069	010606	112137	010754		1\$:	MOVB (R1)+,CHRCNT
2070	010612	112137	010755			MOVB (R1)+,SPACNT
2071	010616	013137	010756			MOV 2(R1)+,BINWRD
2072	010622	013704	010756		2\$:	MOV BINWRD,R4
2073	010626	113705	010754			MOVB CHRCNT,R5
2074	010632	012700	014310			MOV #TEMP,R0
2075	010636	010403			3\$:	MOV R4,R3
2076	010640	042703	177770			BIC #177770,R3
2077	010644	062703	000260			ADD #260,R3
2078	010650	110320				MOVB R3,(R0)+
2079	010652	000241				CLC
2080	010654	006004				ROR R4
2081	010656	000241				CLC
2082	010660	006004				ROR R4
2083	010662	000241				CLC
2084	010664	006004				ROR R4
2085	010666	005305				DEC R5
2086	010670	001362				BNE 3\$
2087	010672	012703	014352			MOV #MDATA,R3
2088	010676	114023			4\$:	MOVB -(R0),(R3)+
2089	010700	105337	010754			DECB CHRCNT
2090	010704	001374				BNE 4\$
2091	010706	105737	010755			TSTB SPACNT
2092	010712	001405				BEQ 6\$
2093	010714	112723	000240		5\$:	MOVB #240,(R3)+
2094	010720	105337	010755			DECB SPACNT
2095	010724	001373				BNE 5\$
2096	010726	105013			6\$:	CLRB (R3)
2097	010730	104402				TYPE
2098	010732	014352				MDATA
2099	010734	005337	010752			DEC WRDCNT
2100	010740	001322				BNE 1\$
2101	010742	013737	001112 014310			MOV TEMP3,TEMP
2102	010750	000002				RTI
2103	010752	000000				WRDCNT: 0
2104	010754	000000				CHRCNT: 0
2105		010755				SPACNT=CHRCNT+1
2106	010756	000000				BINWRD: 0
2107						
2108						;SAVE PC OF TEST THAT FAILED AND RO-R5
2109						
2110	010760	016637	000004	001146	.SAVOS:	MOV 4(SP),SAVPC
2111						
2112						;SAVE RO-R5
2113						
2114	010766	010537	001142		SVOS:	MOV R5,SAVR5
2115	010772	010437	001140			MOV R4,SAVR4
2116	010776	010337	001136			MOV R3,SAVR3
2117	011002	010237	001134			MOV R2,SAVR2
2118	011006	010137	001132			MOV R1,SAVR1
2119	011012	010037	001130			MOV R0,SAVR0

:TEST TO SEE IF USING HARD OR SOFT SWITCH REGISTER

SEQ 0054

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2120 011016 000002
2121
2122
2123
2124
2125 011020 013700 001130
2126 011024 013701 001132
2127 011030 013702 001134
2128 011034 013703 001136
2129 011040 013704 001140
2130 011044 013705 001142
2131 011050 000002
2132
2133
2134
2135 011052 010546
2136 011054 010446
2137 011056 016605 000004
2138 011062 012537 011256
2139 011066 012537 011260
2140 011072 012537 011262
2141 011076 112537 011264
2142 011102 112537 011265
2143 011106 010566 000004
2144 011112 005005
2145 011114 012704 014414
2146 011120 122714 000015
2147 011124 001420
2148 011126 121427 000060
2149 011132 002415
2150 011134 121427 000067
2151 011140 003012
2152 011142 142714 000060
2153 011146 152405
2154 011150 122714 000015
2155 011154 001414
2156 011156 006305
2157 011160 006305
2158 011162 006305
2159 011164 000760
2160 011166 122714 000015
2161 011172 001003
2162 011174 005737 011504
2163 011200 001023
2164 011202 104412
2165 011204 000742
2166
2167
2168 011206 020537 011260
2169 011212 101365
2170 011214 020537 011256
2171 011220 103762
2172 011222 133705 011264
2173 011226 001357
2174
2175

```

RTI

:RESTORE R0-R5

```

.RE505: MOV SAVR0,R0
MOV SAVR1,R1
MOV SAVR2,R2
MOV SAVR3,R3
MOV SAVR4,R4
MOV SAVR5,R5
RTI

```

:CONVERT ASCII STRING TO OCTAL

```

.PARAM: MOV R5, -(SP)
MOV R4, -(SP)
MOV 4(SP), R5
MOV (R5)+, LOLIM
MOV (R5)+, HILIM
MOV (R5)+, DEVAOR
MOV (R5)+, LOBITS
MOV (R5)+, ADRCNT
MOV R5, 4(SP)

```

```

PARAM1: CLR R5
MOV #INBUF, R4
CMPB #15, (R4)
BEQ PARERR
IS: CMPB (R4), #60
BLT PARERR
CMPB (R4), #67
BGT PARERR
BICB #60, (R4)
BISB (R4)+, R5
CMPB #15, (R4)
BEQ LIMITS
ASL R5
ASL R5
ASL R5
BR 1$

```

PARERR: CMPB #15, (R4) :IS FIRST CHARACTER A <CR>

TST #RDSW :IS CKSWR ROUTINE BEING USED

```

120$: BNE PARTI
INSTER
BR PARAM1

```

:TEST TO SEE IF NUMBER IS WITHIN LIMITS

```

LIMITS: CMP R5, HILIM
BHI PARERR
CMP R5, LOLIM
BLO PARERR
BITB LOBITS, R5
BNE PARERR

```

:STORE NUMBER AT SPECIFIED ADDRESS

```

2176
2177 011230 013704 C11262
2178 011234 010524
2179 011236 062705 000002
2180 011242 105337 011265
2181 011246 001372
2182 011250 012604
2183 011252 012605
2184 011254 000002
2185 011256 000000
2186 011260 000000
2187 011262 000000
2188 011264 000000
2189 011265
2190
2191
2192
2193 011266 010346
2194 011270 010446
2195 011272 017637 000004 011310
2196 011300 062766 000002 000004
2197 011306 104402
2198 011310 000000
2199 011312 012704 014414
2200 011316 012703 000007
2201 011322 105777 167526
2202 011326 100375
2203 011330 117714 167522
2204 011334 142714 000200
2205 011340 121427 000025
2206 011344 001003
2207 011346 104402 012057
2208 011352 000755
2209 011354 122427 000015
2210 011360 001423
2211 011362 117777 167470 167472
2212 011370 105777 167464
2213 011374 100375
2214 011376 005303
2215 011400 001350
2216 011402 000402
2217 011404 010346
2218 011406 010446
2219 011410 104402
2220 011412 012615
2221 011414 005737 011504
2222 011420 001402
2223 011422 104402 012057
2224 011426 000727
2225 011430 012604
2226 011432 012603
2227 011434 000002
2228
2229
2230
2231

```

```

MOV DEVAOR,R4
1$: MOV R5,(R4)+
ADD #2,R5
DECB ADRCNT
BNE 1$
PARTI: MOV (SP)+,R4
MOV (SP)+,R5
RTI
LOIM: 0
HILIM: 0
DEVAOR: 0
LOBITS: 0
ADRCNT=LOBITS+1

```

:ASCII STRING INPUT ROUTINE

```

.INSTR: MOV R3,-(SP)
MOV R4,-(SP)
MOV #4(SP),MSG
ADD #2,4,SP)

```

```

.INST1: TYPE 0
.MSG:
MOV #INBUF,R4
MOV #7,R3

```

```

1$: TSTB @TKCSR
BPL 1$
MOVB @TKD9R,(R4)
BICB #200,(R4)
CMPB (R4),#25
BNE 200$
TYPE,MCRLF

```

:IS IT <IG>

```

200$: CMPB (R4)+,#15
BEQ INSTR2
MOVB @TKDBR,@TPDBR
2$: TSTB @TPCSR
BPL 2$
DEC R3
BNE 1$
BR .INSTG

```

```

.INSTE: MOV R3,-(SP)
MOV R4,-(SP)
.INSTG: TYPE
MQM
TST @RDSW
BEQ 400$
TYPE,MCRLF
400$: BR .INST1
INSTR2: MOV (SP)+,R4
MOV (SP)+,R3
RTI

```

```

:COMPARE THE FIRST CHARACTER IN THE TELETYPE INPUT
:BUFFER TO THE CHARACTERS "N" AND "Y".
:IF THE CHARACTER IS "N" CLEAR THE FLAG

```

D05

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;TEST TO SEE IF USING HARD OR SOFT SWITCH REGISTER

SEG 0056

```

2232
2233
2234 011436 017605 000000 .SETFLG:MOV 2(SP),R5
2235 011442 122737 000116 014414 CMPB 0'N,INBUF ;IS IT "N" ?
2236 011450 001002 BNE 15
2237 011452 105015 CLAB (R5) ;000
2238 011454 000406 BR 25
2239 011456 122737 000131 014414 15: CMPB 0'Y,INBUF ;IS IT "Y" ?
2240 011464 001005 BNE 35
2241 011466 112715 177777 MOVB 0-1,(R5) ;377
2242 011472 062716 000002 25: ADD 02,(SP)
2243 011476 000002 RTI
2244 011500 104412 35: INSTER ;RETRY
2245 011502 000755 BR .SETFLG
2246
2247 ;CHECK SWITCH REGISTER ROUTINE. CHECKS FOR 1G TO ALLOW CHANGING
2248 ;OF LOC.176.
2249 ;LOCATIONS USED:
2250 011504 000000 RDSW: .WORD 0
2251
2252
2253 011506 005737 000042 .CKSWR: TST 0#42
2254 011512 001042 BNE OUT
2255 011514 022737 000176 001050 CMP 0SWREG,SWR ;SOFTWARE SWITCH REGISTER PRESENT
2256 011522 001036 BNE OUT ;NO, GET OUT
2257 011524 105777 167324 TSTB 0TKCSR ;YES, WAIT FOR
2258 011530 100033 BPL OUT ;READY, GET CHARACTER
2259 011532 017737 167320 011310 MOV 0TKDBR,.MSG ;AND STRIP OFF
2260 011540 042737 177600 011310 BIC 0177600,.MSG ;THE GARBAGE
2261 011546 122737 000007 011310 CMPB 07,.MSG ;IS IT A (1G)
2262 011554 001021 BNE OUT
2263 011556 104402 011634 TYPE,$CNTG
2264 011562 005137 011504 .GTSWR: COM 0#RDSW
2265 011566 104402 011640 TYPE,$MSWR
2266 011572 104406 011626 CNVRT,$WREGC
2267 011576 104407 011647 INSTR,$MNEW
2268 011602 104410 PARAM
2269 011604 000000 0
2270 011606 177777 177777
2271 011610 000176 SWREG
2272 011612 000 001 .BYTE 0,1
2273 011614 104402 012057 TYPE,MCRLF
2274 011620 005037 011504 OUT: CLR 0#RDSW
2275 011624 000002 RTI
2276 011626 000001 SWREGC: 1
2277 011630 006 002 .BYTE 6,2
2278 011632 000176 SWREG
2279 011634 057377 000107 $CNTG: .ASCIZ <377>/1G/
2280 011640 051777 051127 020075 $MSWR: .ASCIZ <377>/SWR= /
2281 011646 000
2282 011647 040 047040 053505 $MNEW: .ASCIZ / NEW= /
2283 011654 020075 000
2284 011660 .EVEN
2285 ;TRAP DISPATCH SERVICE
2286 ;ARGUMENT OF TRAP IS EXTRACTED
2287 ;AND USED AS OFFSET TO OBTAIN POINTER

```


E05

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:ROUTINES TO CHECK FOR TG AND TO GET 'NEW' VALUES
:TO SELECTED SUBROUTINE

SEG 0057

2288
2289
2290
2291
2292
2293
2294
2295
2296
2297
2298
2299
2300
2301
2302

011660	011646	
011662	162716	000002
011666	017616	000000
011672	006316	
011674	042716	177001
011700	062716	001274
011704	017616	000000
011710	000136	

.TRPSR: MOV (SP) -(SP)
SUB #2 (SP)
MOV @ (SP), (SP)
TRPOK: ASL (SP)
BIC #177001 (SP)
ADD #.TRPTAB (SP)
MOV @ (SP), (SP)
JMP @ (SP)+

:GET PC OF RETURN
:=PC OF TRAP
:GET TRAP
:MULTIPLY TRAP ARG BY 2
:CLEAR UNWANTED BITS
:POINTER TO SUBROUTINE ADDRESS
:SUBROUTINE ADDRESS
:GC TO SUBROUTINE

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:ROUTINES TO CHECK FOR IG AND TO GET 'NEW' VALUES

SEQ 0058

2301
2302
2303
2304
2305

:*****
:TTY MESSAGES
:*****

011712	042200	030520	027461	EDP11:	.ASCIZ	<CRLF>?DP11/DFC11-A TEST ?
011736	042200	030525	027461	EDU11:	.ASCIZ	<CRLF>?DU11/DFC11-A TEST ?
011762	050200	051127	043040	MPOWER:	.ASCIZ	<CRLF>/PWR FAILED /
011777	007	103007	047105	MEPASS:	.ASCIZ	<?><?><CRLF>/END PASS CSR: /
012021	200	042524	052123	MTSTN:	.ASCIZ	<CRLF>/TEST NO. /
012034	044514	042516	020072	MLINE:	.ASCIZ	/LINE: /
012043	200	051105	047522	MERRPC:	.ASCIZ	<CRLF>/ERROR PC: /
012057	200	000		MCRLF:	.ASCIZ	<CRLF>
012061	015	000012		CR.LF:	.ASCIZ	<:5><12>
012064	005200	042504	044526	DUTITLE:	.ASCII	<CRLF><12>/DEVICE UNDER TEST-DU11 &DFC11A /<CRLF>
012126	042115	030455	026461		.ASCIZ	/MD-11-DZDFA-B /<CRLF>
012146	005200	042504	044526	DPTITLE:	.ASCII	<CRLF><12>/DEVICE UNDER TEST-DP11 &DFC11A /<CRLF>
012210	042115	030455	026461		.ASCIZ	/MD-11-DZDFA-B /<CRLF>
012230	053200	041505	047524	MVECTO:	.ASCIZ	<CRLF>/VECTOR ADDRESS-/
012251	200	051461	020124	MREGAD:	.ASCIZ	<CRLF>/1ST DEVICE: RECEIVER CONTROL REGISTER ADDRESS-/
012331	200	051101	020105	MMULT:	.ASCIZ	<CRLF>/ARE YOU RUNNING MULTIPLE DEVICES ? (Y OR N)-/
012407	200	040514	052123	MLASTD:	.ASCIZ	<CRLF>/LAST DEVICE:RECEIVER CONTROL REGISTER ADDRESS-/
012467	200	027040	027056	MCOW:	.ASCIZ	<CRLF>/...SELECT SOMETHING TO RUN @ACTREG /
012535	200	052517	020124	MRRANGE:	.ASCIZ	<CRLF>/OUT OF RANGE:RETYPE LAST DEVICE RXCSR ADDRESS-/
012615	040	037440	000040	MMQ:	.ASCIZ	/ ? /
012622	051200	000040		MR:	.ASCIZ	<CRLF>/R /
012626	051200	043505	020056	EM1:	.ASCIZ	<CRLF>/REG. ADDRESS /
012646	052200	040522	051516	EM2:	.ASCIZ	<CRLF>/TRANSMITTER /
012665	200	042522	042503	EM3:	.ASCIZ	<CRLF>/RECEIVER /
012701	200	047125	054105	EM4:	.ASCIZ	<CRLF>/UNEXPECTED INTERRUPT /
012730	054105	042520	052103	DHO:	.ASCIZ	/EXPECTED RECEIVED /
012754	040506	046111	042105	DH1:	.ASCIZ	/FAILED TO INTERUPT. /
013001	111	052116	051105	DH2:	.ASCIZ	/INTERRUPTED UNEXPECTEDLY. /
013033	200	051124	050101	DH3:	.ASCIZ	<CRLF>/TRAPPED FROM /

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;ROUTINES TO CHECK FOR IG AND TO GET 'NEW' VALUES

SEQ 0059

013052	051600	051531	042524	MNOCLOCK:	.ASCII	<CRLF>/SYSTEM HAS NO CLOCK!!/
013100	050200	052125	052440	MSCOPBAUD:	.ASCIZ	<CRLF>/PUT UP SWITCH 14 FOR SCOPE LOOP /
013142	044600	020123	044124	MCP5:	.ASCIZ	<CRLF>/IS THE AC LINE INPUT 60 CYCLES? (Y OR N) --- /
013224	042200	020117	047531	MRBAUD:	.ASCIZ	<CRLF>/DO YOU STILL WISH TO RUN BAUD TEST USING SCOPE LOOP? (Y OR N) -
013333	200	044124	051105	MNODEV:	.ASCIZ	<CRLF>/THERE IS NO DEVICE PRESENT AT THE ADDRESS YOU SELECTED---PLEASE R
013451	061	031071	030060	M19200:	.ASCIZ	/19200 /
013461	071	030066	020060	M9600:	.ASCIZ	/9600 /
013470	034064	030064	020040	M4800:	.ASCIZ	/4800 /
013477	062	030064	020060	M2400:	.ASCIZ	/2400 /
013506	031061	030060	020040	M1200:	.ASCIZ	/1200 /
013515	066	030060	020040	M600:	.ASCIZ	/600 /
013523	063	030060	020040	M300:	.ASCIZ	/300 /
013531	061	030065	020040	M150:	.ASCIZ	/150 /
013537	067	020065	000040	M75:	.ASCIZ	/75 /
013544	041600	047101	052047	MWRONGRT:	.ASCII	<CRLF>/CAN'T DETERMINE RATE--PUT JP/<CRLF>
013602	053523	030440	020064		.ASCIZ	/SW 14 IF SCOPE LOOP IS WANTED. /
013643	200	047531	051125	MBAUDRT:	.ASCIZ	<CRLF>/YOUR BAUD RATE IS /
013670	041040	052501	027104	MWRITE:	.ASCIZ	/ BAUD. IF NOT CORRECT, USE A SCOPE!!/
013736	042200	020117	047531	MBDRT:	.ASCIZ	<CRLF>/DO YOU WISH TO CHECK BAUD RATE? (Y OR N) --- /
014020	054600	052517	052040	MTSTM:	.ASCIZ	<CRLF>/YOU TOOK TOO LONG TO SCOPE OR DFC FAILED TEST. /
014101	200	047504	054440	MBOTEST:	.ASCIZ	<CRLF>/DO YOU WANT TO RUN BAUD RATE TEST? (Y OR N) --- /
014164						.EVEN

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;ROUTINES TO CHECK FOR IG AND TO GET 'NEW' VALUES

SEQ 0060

	014164	000000		.ERRTAB:		
2306	014164	000000		0		
2307	014166	000000		0		
2308	014170	000000		0		
2309	014172	012057		MCRLF		
2310	014174	012730		DH0	;HALT 1	
2311	014176	014252		DT0		
2312						
2313	014200	012626		EM1		
2314	014202	012730		DH0	;HALT 2	
2315	014204	014264		DT1		
2316						
2317	014206	012646		EM2		
2318	014210	012754		DH1	;HALT 3	
2319	014212	000000		0		
2320						
2321	014214	012665		EM3		
2322	014216	012754		DH1	;HALT 4	
2323	014220	000000		0		
2324						
2325	014222	012646		EM2		
2326	014224	013001		DH2	;HALT 5	
2327	014226	000000		0		
2328						
2329	014230	012665		EM3		
2330	014232	013001		DH2	;HALT 6	
2331	014234	000000		0		
2332						
2333	014236	012057		MCRLF		
2334	014240	014020		MTSTM	;HALT 7	
2335	014242	000000		0		
2336						
2337	014244	012701		EM4		
2338	014246	013033		DH3	;HALT 10	
2339	014250	014302		DT2		
2340	014252	000002		2		
2341	014254	006	004	.BYTE	6,4	
2342	014256	001130	004	SAVRO		
2343	014260	006	002	.BYTE	6,2	
2344	014262	001132		SAVRI		
2345						
2346	014264	000003		DT1:	3	
2347	014266	006	010	.BYTE	6,8.	
2348	014270	001114		TEMP4		
2349	014272	006	004	.BYTE	6,4	
2350	014274	001130		SAVRO		
2351	014276	006	002	.BYTE	6,2	
2352	014300	001132		SAVRI		
2353						
2354	014302	000001		DT2:	1	
2355	014304	006	002	.BYTE	6,2	
2356	014306	006034		TRP.PC		
2357	014310	000000		TEMP:	0	
2358		014352		.=. +40		
2359	014352	000000		MCATA:	0	
2360		014414		.=. +40		

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;ROUTINES TO CHECK FOR IG AND TO GET 'NEW' VALUES

SEG 0061

2361 014414 000000
2362 014456
2363 000001

INBUF: 0
. = +40
.END

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DZDFA-B MACY11 27.1006 22-OCT-76 13:09 PAGE 65
 DZDFAC.P11 20-SEP-76 14:36 CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0064

DU11.B	003532	1117	1212#																
EDP11	011712	811	2305#																
EDU11	011736	871	2305#																
EEE	004642	1398	1406#																
EIGHT =	006000	744#	1132	1226															
EM1	012626	2305#	2313																
EM2	012646	2305#	2317	2325															
EM3	012665	2305#	2321	2329															
EM4	012701	2305#	2337																
ERRCNT	001102	587#	817*	866*	1603*	2048*													
ERRFLG	001246	648#	1908*	1925*	2004*	2017	2029*												
ERRMSG	010434	2014*	2031#																
ERTAB0	010552	2026	2057#																
EVEPAR=	001400	747#																	
EVPAR =	000400	736#																	
EXITER	010504	2042	2047#																
FIVE =	000000	741#																	
FLG19.	001221	630#																	
FRMERR=	020000	732#																	
GTSWR =	104414	707#	1961																
HALTS	010464	2000	2041#																
HOXEN =	000010	758#																	
HILIM	011260	2138*	2168	2186#															
ICOUNT	001072	583#	818*	869*	1906	1910*													
INEUF	014414	2144	2199	2235	2239	2361#													
INIFLG	001244	646#	816*	835	837*	872	875*												
INIF.A	001223	632#	812*	860*															
INSTR=	104412	703#	2163	2244															
INSTR =	104407	697#	838	886	898	908	919	944	954	1067	1088	1374	1560	2267					
INSTR2	011430	2210	2225#																
INTCNT	001232	638#	1056*	1356*	1397*	1406													
INTSVC	004574	1384	1396#	1550															
INTS.A	004626	1400	1403#																
INTS.B	004634	1402	1404#																
ISYMOD=	000000	740#	1129	1132															
IMPBY	001255	656#																	
KEEPAD	001260	661#	895*	897	941	943	1854												
KEEPIV	001266	664#	906*	1855															
KWSETU	004504	1048	1074	1381#	1415														
KWILL	004520	1382	1384#																
KWILP	005614	1383	1550#																
LASTAD	001262	662#	924	935	949														
LESS.T	007624	1888#																	
LIGHTS	001052	572#	1934*	1945*	1954*														
LIMIT	001174	619#	1734*	1739*	1777	1795	1799*												
LIMITS	011206	2154	2168#																
LINE.N	006036	829	1603#																
LINE.X	006106	832	1616#	1669															
LOBITS	011264	2140*	2172	2188#	2189														
LOCK	001070	582#																	
LOGICA	007552	1875#																	
LOKFLG	001247	649#																	
LOLIM	011256	2137*	2170	2185#															
LPCNT	001074	584#	814*	867*	1905*	1906	1909*												
LSTERR	001104	588#	815*	865*	1924*	2001	2003*												
MAINPR	005722	1099	1428	1441	1454	1467	1480	1493	1506	1519	1565	1569#							

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CROSS REFERENCE TABLE -- USER SYMBOLS

SEQ 0065

MBAUDR	013643	1424	1437	1450	1463	1476	1489	1502	1515	2305#
MBDRT	013736	2305#								
MBOTES	014101	839	955	2305#						
MCOM	012467	1836	2305#							
MCPS	013142	1068	1375	2305#						
MCRLF	012057	2028	2064	2207	2223	2273	2305#	2309	2333	
MDATA	014352	2087	2098	2359#						
MEPASS	011777	1928	2305#							
MERRPC	012043	2024	2305#							
MEXT =	010000	763#								
MINT =	004000	762#								
MLASTD	012407	920	2305#							
MLINE	012034	2305#								
MMULT	012331	909	2305#							
MNOCLD	013052	1545	2305#							
MNODEV	013333	1698	2305#							
MORE.T	007632	1891#								
MPOWER	011762	1719	2305#							
MOM	012615	2220	2305#							
MR	012622	882	2305#							
MRANGE	012535	945	2305#							
MRBAUD	013224	1089	1561	2305#						
MREGAD	012251	887	2305#							
MRESET=	000400	753#	1128	1131	1222	1224	1357			
MRITE	013670	1427	1440	1453	1466	1479	1492	1505	1518	2305#
MSCOPB	013100	1094	1566	2305#						
MTDATA=	040000	750#								
MTSTM	014020	2305#	2334							
MTSTN	012021	2305#								
MULTD	001254	655#	911	912	1932					
MVECTC	012230	899	2305#							
MWRONG	013544	1420	1433	1446	1459	1472	1485	1498	1511	1521 2305#
M1200	013506	1469	1584	2305#						
M150	013531	1508	1587	2305#						
M19200	013451	1417	1580	2305#						
M2400	013477	1456	1583	2305#						
M300	013523	1495	1586	2305#						
M4800	013470	1443	1582	2305#						
M600	013515	1482	1585	2305#						
M75	013537	1588	2305#							
M9600	013461	1430	1581	2305#						
NEXT	001066	581#	810*	857*	992*	995*	1127*	1221*	1911	2053
NOPAR =	000000	745#	1132	1226						
NOT60	002642	1047#	1072							
NO.CLO	001216	628#	1063	1370	1381	1534*	1537*	1543*		
NO.TRA	006024	1366	1592#							
NO60CP	004676	1379	1414#							
N.TRAP	003034	1054	1081#							
ODPAR=	001000	746#								
OKADR	006356	894	1691#	1850						
ONCE	002014	868	873	876#						
OPTCLR	001253	654#								
OUT	011620	2254	2256	2258	2262	2274#				
OUTMUL	002372	942	959	961#						
OUTPUT	005726	1558	1571#							
OUT.PT	003110	1086	1097#							

E06

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CROSS REFERENCE TABLE -- MACRO NAMES

SEQ 0070

ERROR	5158	1007	1017	1030	1035	1082	1143	1168	1189	1201	1272	1317	1321	1328	1395
	:593	1754	1771	1774	1786	1792									
SBAUD	18	1417	1430	1443	1456	1469	1482	1495	1508						
SCATCH	18	536													
SCONVR	18	2060													
SDELAY	18	1882													
SEOP	18	1916													
SEORR	18	1990													
SETEFL	18	838	908	954	1066	1087	1373	1560							
SETPA	18	886	898	918	944										
SERDE	18	444													
SHELPE	18														
SINSTR	18	2190													
SPARAM	18	2131													
SREG	18	2107													
SSCOPE	18	1896													
SSETEFL	18	2228													
SSWITC	18	357													
SSWJIA	18	2246													
SSYMB0	18	467													
STRAPS	18	674													
STRPOE	18	683	685	687	689	691	693	695	697	699	701	703	705	707	
STRPSR	18	2285													
STSTN	18	984	1119	1213											
STSTSW	18	1943													
STYPE	18	1963													
SVARIA	18	567													

. ABS. 014456 000

ERRORS DETECTED: 0
 DEFAULT GLOBALS GENERATED: 0

DZDFAC, DZDFAC/SOL/CRF/CPU:20+DZDFAC.MAC, DZDFAC.P11
 RUN-TIME: 13 22 2 SECONDS
 RUN-TIME RATIO: 53/39=1.3
 CORE USED: 14K (28 PAGES)

