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San Antonio, Tex. 78216

INTRODUCTION

As had been promised to our 6800 Computer System owners, this is the first copy of our SWTPC 6800 Newsletter. It is our intention in this newsletter to bring all of our customers up to date on the availability of both hardware and software for the SWTPC 6800 Computer System. If you do not already have a SWTPC 6800 Computer System or CT-1024 Terminal System and would like some information on them, drop us a card requesting the same and we will send you a brochure. This newsletter is being sent free of charge to all of our SWTPC 6800 Computer System owners, computer hobbyist clubs and selected publications. Until further notice it is being sent free of charge at an interval dependent upon the amount of information we have compiled and the time we have to edit and print the same. We would like to urge each of our readers to keep us informed of 6800 hardware and software which would be of interest to the other SWTPC 6800 users. We will do our best to share this information with all SWTPC owners thru the newsletter. Game programs are of special interest to most of the SWTPC 6800 owners.

Some of the highlights of this newsletter include the announcement of our audio cassette interface, line printer, graphics terminal; a list of our national dealers; the release of our editor/assembler package; source listings of a Line Numbering Editor and Microbasic Interpreter.

SWTPC COMPUTER PERIPHERALS

Sent along with this newsletter you should find a copy of the SWTPC Computer Peripherals brochure. It contains detailed information on our new AC-30 Audio Cassette Interface, PR-40 Line Printer, and GT-61 Graphics Terminal. Delivery on each of these items should be around 30 days from the receipt of the order. As noted in the brochure, these peripherals have been designed to be compatible with all computer systems and not just the SWTPC 6800.

SWTPC COMPUTER EQUIPMENT DEALERS

We would like to welcome those of you who live near any of our local dealers to go by and say hello. The stores listed below have received their initial shipments of SWTPC computers and peripheral equipment and most have demonstration systems. More dealers are being appointed and we will have an updated list in each edition of our newsletter.

A. VID Electronics Co.
1655 E. 28th St.
Long Beach, Ca. 90806

Computerware
284 S. Aspenwood Lane
Encinitas, Ca. 92024

The Byte Shop Computer Store
3400 El Camino Real
Santa Clara, Ca. 95051

The Computer Store
820 Broadway
Santa Monica, Ca. 90401

Microcomputer Systems Inc.
144 S. Dale Mabry Ave.
Tampa, Florida 33609
(813) 879-4301

Marsh Data Systems
5405 B. Southern Comfort Blvd.
Tampa, Fl. 33614

American Microprocessor
Chicagoland Airport Box 515
Prairie View, Ill. 60269

The Computer Workshop Inc.
11308 Hounds Way
Rockville, Md. 20852

American Used Computer Co.
712 Beacon St.
Boston, Mass. 02215

Control Concepts
Box 272
Needham Heights, Mass. 02194

The Computer Store, Inc.
120 Cambridge St.
Burlington, Mass. 01803

Computer Mart of New York, Inc.
314 Fifth Ave.
New York, N.Y. 10001

ELS Systems
2209 N. Taylor Rd.
Cleveland Heights, Oh. 44112

The Micro Store
634 South Central Expressway
Richardson, Tex. 75080

The Entryphone Company LTD
172 Ifield Rd.
London, SW 109AG
England

SWTPC'S ATTITUDE ON SOFTWARE

Unlike some of our competitors, we at SWTPC have realized for some time that you can't profitably sell software to hobbyists. Of course, you can always sell a few copies, but before you know it there will be five to ten copies in existence for every one sold. The best alternative as we see it is to absorb the cost of the software within the selling price of the computer itself and only charge that amount necessary to cover the expense of program duplication and handling; and that's just what we've done. None of the programs available from SWTPC are proprietary. Where available, you may either purchase a tape and instruction manual from us or copy them from a friend. We don't care.

We encourage program writing and will do our best to offer on tape or print actual listings of outstanding programs submitted to us within future issues of our 6800 Computer Newsletter. We will also acknowledge worthy outside sources of 6800 software when brought to our attention, so keep us informed.

EDITOR/ASSEMBLER SOFTWARE

The SWTPC 6800 Editor/Assembler package is now ready for distribution. The non-coreresident package is Motorola mnemonic compatible and requires 8K of memory to run. We have eliminated our memory purchase requirement so anyone may purchase it from us. We are making the object listing available in both paper tape and audio cassette tape. Both versions sell for \$14.95 ppd. in the US and since they are different, you must specify at the time you order which version you want. The paper tape version has been written for teletypes while the audio cassette version has been written for "Kansas City" compatible audio cassette systems with motor control, such as our new AC-30 Audio Cassette Interface.

"TINY" BASIC FOR THE SWTPC 6800

In addition to the Microbasic Interpreter listed within this newsletter, a twelve command "Tiny" Basic package which includes a paper tape object listing and twenty-four page user's guide is available for \$5.00 from:

Tom Pittman
PO BOX 23189
San Jose, Ca. 95153

When ordering be sure to specify that it's for a SWTPC 6800 Computer. To run "Tiny" Basic, the computer system should be outfitted with at least 4K of RAM memory. This is enough to accommodate the interpreter as well as over 100 lines of user program.

GAME PROGRAMS FOR THE SWTPC 6800

If you are interested in game programs for the SWTPC 6800, check out the list below. Each program with the exception of "Space Voyage" will run in the minimal 2K system. "Space Voyage" requires 4K of memory. These programs are being sold on a cost of documentation basis. You receive a commented, assembled source listing (no tape) so the program itself has to be loaded manually the first time.

1. HANGMAN - word guessing game \$3.25
2. ACEY-DUCEY - card game \$3.25
3. CRAPS - casino craps game \$3.25
4. FLOATING POINT PACKAGE \$5.00
5. SPACE VOYAGE \$10.00
6. KLINGON CAPTURE \$4.75
7. LINE EDITOR \$4.00
8. STOCK MARKET \$3.50
9. RANDOM NUMBER GENERATOR \$1.50
10. MASTERMIND - guessing game \$3.00
11. CARD SHUFFLE AND DEAL \$2.75
12. NUMBER GUESS I \$1.50
13. NUMBER GUESS II \$2.00
14. HURKLE - find game \$2.00
15. ROVER - find game \$2.50
16. SWITCH - skill game \$2.00
17. CHOMP - 2 player game \$2.00
18. SUBROUTINE PACKAGE \$3.00

* SPECIAL PACKAGE DEALS *

- I. Contains programs 1,2,3,6,9,10 \$13.50
- II. Contains programs 1,2,3,9,10,
11,12,13,14,15,16,17 \$18.95
- III. Contains programs in I and
II plus programs 4 and 7 \$29.50

These programs are not available from SWTPC. You may order them from the address below. Be sure to specify that they are for a SWTPC 6800. More details on the programs may be found within their brochure.

Technical Systems Consultants.
PO BOX 2574
West Lafayette, Ind. 47906

WHO'S WRITING PROGRAMS?

If you are an enthusiastic programmer, and are looking for some interesting projects to work on, the following would be of great interest to SWTPC 6800 Computer System owners:

1. An elaborate Spacewar/Startrek program using the CT-1024 Terminal System and/or the GT-61 Graphics Terminal.
2. A twelve or twenty-four hour digital clock program with the time displayed on the CT-1024 Terminal System or the GT-61 Graphics Terminal.
3. A HP-65 type programmable calculator program using the CT-1024 Terminal System or teletypewriter for I/O.

4. A chess program using either the GT-61 or the CT-1024 Terminal System for display and I/O.

We at SWTPC are doing our best to acquire higher level software and should have 8K Basic and possibly some other higher level languages by the middle of this summer.

SWTPC'S LETTER TO COMPUTER HOBBYISTS CLUBS

One of the ways we at SWTPC are able to find out what's going on in the hobbyist computer world is to read what few hobbyist club newsletters we receive. It is from these newsletters that we can see new hardware and software developments, what equipment you are using, what problems you're having, and what products you would like to see. It is with this data that we are better able to conceive and design computer related products for you, the potential customer.

It will be our policy to give priority to computer hobbyists clubs for all forthcoming computer related new product releases and Newsletters. We in return would like to ask that those clubs already sending us their newsletters please continue to do so and those not sending it, consider us. They are well read and greatly appreciated by the technical staff at SWTPC. Just for the record, the AC-30 Cassette Interface, PR-40 Alphanumeric Printer and GT-61 Graphics Terminal described within the SWTPC Computer Peripherals Brochure were first announced and demonstrated at the May 15, 1976 meeting of The Computer Hobbyist Group of North Texas.

OPTIONAL BAUD RATE KIT FOR THE CT-1024

We now offer the optional baud rate kit for the CT-S Serial interface on our CT-1024 Terminal System for those of you that do not already have this option installed. With the kit the terminal is operable at 110, 150, 300, 600 and 1200 baud. This baud rate option will be necessary if you will be using the AC-30 Audio Cassette Interface described in this newsletter since it is operable at 300 baud only. The kit includes the crystal, integrated circuits, and other components necessary to update the board. It is called a CT-S0 and sells for \$14.75 ppd. in the US.

SWTPC 6800 PROBLEMS AND BUGS

We are happy to say that after having delivered the SWTPC 6800 system for over five months now, we have run across no problems on the system. There are, however, some mistakes in the MP-M and MP-MX instructions on some of the earlier kits. The corrections are as follows:

On the Memory Address Assignment Table (Hex) the last line of the MP-M/MP-MX Memory Assignment Map should read:

Quadrant 4 (4K) IC25 IC39 IC37
IC35 IC33 IC31 IC29 IC27

Please note also that the numbering on the MP-M schematic concerning these IC's is incorrect. IC39, IC37, IC35, IC33, IC31, IC29, IC27 and IC25 on the schematic should be changed to IC25, IC39, IC37, IC35, IC33, IC31, IC29 and IC27 respectively. These numbering changes can be helpful when troubleshooting a memory board using the ROBIT diagnostic.

OPERATING THE SWTPC 6800 AT HIGHER BAUD RATES

When using optional MP-S serial interfaces with the computer system, baud rate clocks for up to 9600 baud are available from the baud rate generator on the MP-A Microprocessor/System board. The table below shows the baud rates available and from which pin of IC4 on the MP-A microprocessor/System board they are derived. These 16X baud rate clocks are best fed back to the interface boards via the user defined lines provided on the mother board. These baud rates of course are in addition to the 110, 150, 300, 600, 1200 baud clocks already provided on the mother board.

<u>BAUD RATE</u>	<u>MP-A IC4 PIN #</u>
75	9
200	6
1800	15
2400	3
3600	16
4800	2
7200	17
9600	1

INFORMATION ON MICROCOMPUTERS

For those of you who want to learn more about microcomputer hardware and software, you would do well to get yourself a subscription to BYTE magazine. This Magazine is written for the hobbyist and has articles for both the beginner and the expert. Subscriptions are \$12 a year and you probably won't have any luck finding a copy at a newsstand.

BYTE Magazine
70 Main St.
Peterborough, N.H. 03458

An excellent paperback book called "An Introduction to Microcomputers" is available for those individuals wishing to learn about microcomputers and their associated microprocessor chips. You can order a copy from:

Osborne & Associates, Inc.
2950 Seventh St.
Berkeley, Ca. 94710
(415) 548-2805

The price is \$7.50.

SWTPC 6800 Tic-Tac-Toe Modifications

The following patches should be made to the TICTAC-1 program supplied with the System Documentation Notebook to make the skill changing part of the program work correctly:

<u>Location</u>	<u>New Data</u>	<u>Location</u>	<u>New Data</u>
0087	00	0254	4B
0088	00	0255	49
0089	53	0256	4C
008A	4B	0257	4C
008B	49	0258	3A
008C	4C	0259	20
008D	4C	025A	30
008E	3D	025B	2D
008F	39	025C	4C
0090	20	025D	4F
0091	04	025E	57
		025F	2C
0246	10	0260	20
0247	16	0261	54
0248	00	0262	4F
0249	00	0263	20
024A	54	0264	39
024B	59	0265	2D
024C	50	0266	48
024D	45	0267	49
024E	20	0268	47
024F	4E	0269	48
0250	45		
0251	57	053A	8F
0252	20		
0253	53	0571	23
		0572	02

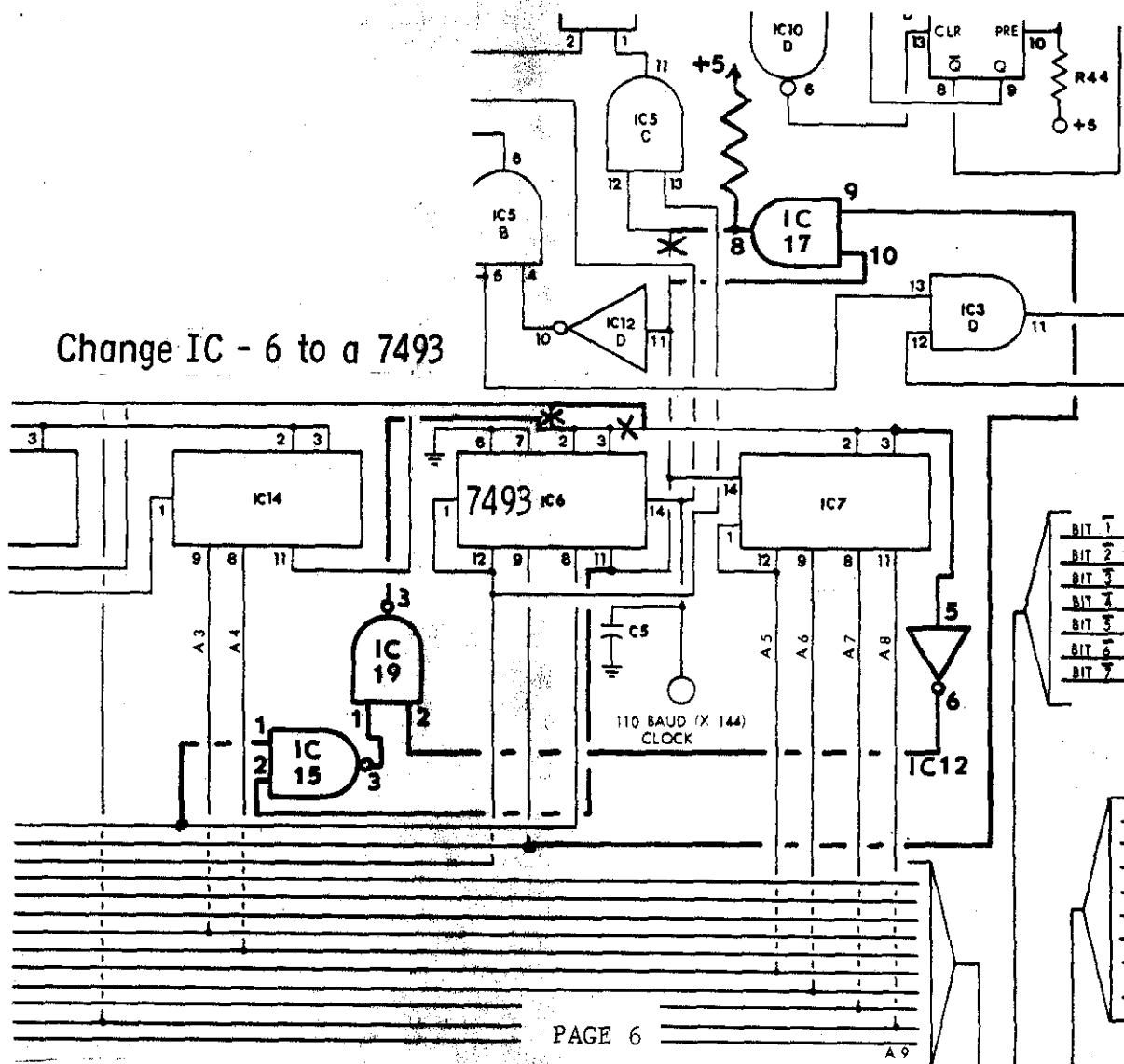
After the patches have been made the program can be initiated and played as before. To change your ability to win against the computer type in an "S" after the computer responds "YOUR PLAY" the first time after a new game starts. The computer will then ask for a new skill when may be any interger from 0 to 9. A 0 skill makes it very easy to beat the computer while a 9 usually results in ties or the computer winning.

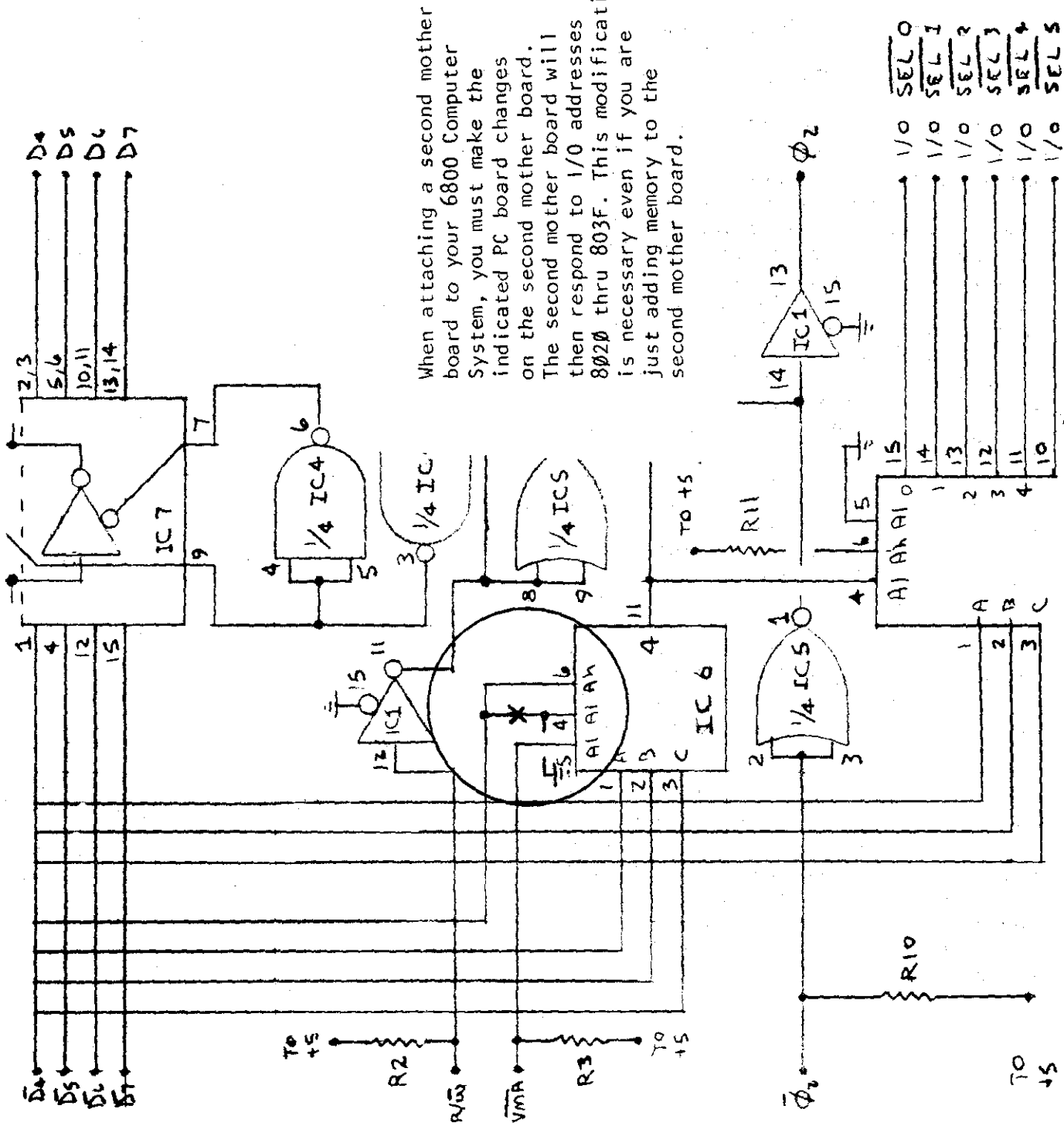
Wiring the SWTPC 6800 for 220 VAC Operation

The SWTPC 6800 Computer System transformer can be wired for either 110 V or 220 VAC operation. To wire for 220 VAC operation connect the BLACK transformer wire and the YELLOW/BROWN transformer wire together. Solder and insulate. The BROWN transformer lead now should be connected to TS-1 A and the RED/BLACK transformer lead should be connected to F3 B of the computer.

Modifying the CT-1024 for 625 line, 50 Hz Operation

The following are several modifications suggested by our customers for 625 line, 50 Hz operation. Note the changed schematic supplied. All gates necessary are spare ones already on the CT-1024 board. Be sure to break connections in all cases denoted by ~~X~~ and add the additional circuitry denoted by the heavy drawn-in lines on the schematic. When using the existing gates on the board be sure to remove any foil that ties the input high or low and be sure to use a 1K ohm 1/4 watt pull-up resistor on pin 8 of IC17.





When attaching a second mother board to your 6800 Computer System, you must make the indicated PC board changes on the second mother board. The second mother board will then respond to I/O addresses 8020 thru 803F. This modification is necessary even if you are just adding memory to the second mother board.

Schematic - MP-B Mother Board

SWTPC 6800 Memory Dump Program MEMDMP-1

This memory dump program allows one to display or print the contents of specified half page (128₁₀ word) blocks of computer memory on the serial video control terminal or teletypewriter. The data is displayed in hexadecimal form with sixteen lines of eight bytes of data per line. The starting address of each data line is printed at the beginning of each of the sixteen lines for easy identification. Once a block of data has been selected and is being displayed simple one character commands allow one to select and display the 128 word block of data immediately preceeding or following the block being displayed. A three character entry allows the user to reselect and display a 128 word block of data located anywhere in computer memory.

The program itself consumes 91₁₀ words of memory and is meant to be loaded within the 128 word RAM used by the MIKBUG[®] operating system on the MP-A Microprocessor/System board. This makes the program totally independent of the MP-M/MP-MX RAM memory boards where programs and data are normally stored. The MEMDMP program may be loaded from either tape or from the control terminal, instruction by instruction using MIKBUG[®] starting from address A014 thru A07F. The program must be loaded in two parts to avoid interfering with the system's push-down stack. Since the program counter is set when the program is initially loaded, the routine is initiated after loading according to the "Go To User's Program" section of the Engineering Note 100 in the Operating System section of the System Documentation Notebook. Once initiated, the program can be stopped only by depressing the "RESET" button. The program may then be re-started after setting the program counter to A01A₁₆ at A048 and A049 as described in the "Display Contents of MPU Registers Function" section of the Engineering Note 100.

Once the program is initiated you should enter the character "N" followed by the most significant hexadecimal byte of the memory address block you wish to display. The other two commands which the program will respond to are "F" to display the next forward memory block and "B" to display the adjacent backward memory block. Any of these commands may be entered at the completion of a memory block display. The program will work with either a teletypewriter or video terminal system. Control characters 10₁₆ and 16₁₆ are sent out by the program to perform home-up and erase to end-of-frame functions on those systems using the SWTPC CT-1024 terminal system with the CT-CA Computer Controlled Cursor option. The following is a typical display:

*G N00

0000 FF 7F 3F FF BF FE DF DA
0008 5F D9 5F DB 3F FB 7B 7B
0010 3F DD 7D 79 6D 5F 3F 1B
0018 3F 1F 3F 9F 3F 9F DF FF
0020 EF BB BF B3 BF D3 BF FE
0028 BF DE BF D3 DF DB F7 F3
0030 BF FB B7 FB FF D3 1F F3
0038 1F DB FF DE 9F D7 8B FF
0040 FF F7 FF DB FF F3 ED DD
0048 6F DF 7F 9B 9F DE ED DB
0050 3F DB BD DD DF FF 3F FF
0058 BF FB BF DF AF FF BF FF
0060 AF B3 BF 13 EF 9B 1F 93
0068 FF DB BF 9B 3F 9B AD 93
0070 2F DB 6F FF 3F DB 7E DF
0078 3F FB 77 F3 BF FB 9F FF F

0080 EF FF BF FF 9F FF FF FE
0088 3F DB BF DF 3F DF FF DF
0090 BF DB BD FF FF FF DF FB
0098 BF FF 1F FF EF FB FF FF
00A0 FF 97 BF D3 EF 93 AF F3
00A8 BF D9 3F 93 3F 73 B7 DB
00B0 3F DB 37 F3 BF DE 3F F3
00B8 3F F3 BB D3 2F FB 2F FF
00C0 FF FF BF DE BF DF BF 7F
00C8 3F DF BF DB ED 77 2F FF
00D0 2F FF BD 5F DF 3F FF
00D8 3F FF BA FF BD FF BF FF
00E0 FF 33 EF B3 3F D3 2F D3
00E8 37 33 3F 9B BF D3 3F F3
00F0 3F 33 3F D3 BF DB 27 D2
00F8 17 F3 0F F3 37 DF AF FF B

0000 FF 7F 3F FF BF FB DF DA
0008 5F D9 5F DE 3F FB 7B 7B
0010 3F DD 7D 79 6D 5F 3F 1B
0018 3F 1F 3F 9F 3F 9F DF FF
0020 EF BB BF B3 BF D3 BF FE
0028 BF DB BF D3 DF DB F7 F3
0030 BF FB B7 FB FF D3 1F F3
0038 1F DB FF DE 9F D7 8B FF
0040 FF F7 FF DE FF F3 ED DD
0048 6F DF 7F 9B 9F DE ED DB
0050 3F DB BD DD DF FF 3F FF
0058 BF FB BF DF AF FF BF FF
0060 AF B3 BF 13 BF 9B 1F 93
0068 FF DB BF 9B 3F 9B AD 93
0070 2F DB 6F FF 3F DB 7E DF
0078 3F FB 77 F3 BF FB 9F FF

MIKBUG[®] is a registered trademark of Motorola INC.

MEMDMP-1

A014	0D		Carriage return
A015	0A		Line feed
A016	0A		Line feed
A017	10		Home on terminal
A018	16		Erase terminal screen
A019	04		End of string
A01A	5F	START	CLR B
A01B	37		PSH B
A01C	BD		JSR INEE
A01D	E1		
A01E	AC		
A01F	81		CMP A #'F
A020	46		
A021	27		BEQ NEWFRM
A022	30		
A023	81		CMP A #'B
A024	42		
A025	26		BNE SKIP1
A026	23		
A027	CE		LDX #SA00C
A028	A0		
A029	0C		
A02A	4F		CLR A
A02B	AB		ADD A 1,X
A02C	01		
A02D	A7		STA A 1,X
A02E	01		
A02F	86		LDA A #\$FF
A030	FF		
A031	A9		ADC A 0,X
A032	00		
A033	A7		STA A 0,X
A034	00		
A035	20		BRA NEWFRM
A036	1C		

A048	A0		Program Counter MSB
A049	1A		Program Counter LSB
A04A	BD	SKIP1	JSR BYTE
A04B	E0		
A04C	55		
A04D	B7		STA A XHI
A04E	A0		
A04F	0C		
A050	7F		CLR XLOW
A051	A0		
A052	0D		
A053	CE	NEWFRM	LDX #SA014
A054	A0		
A055	14		
A056	BD		JSR PDATA1
A057	E0		
A058	7E		
A059	CE	OUTADR	LDX #SXHI

A05A	A0			
A05B	0C			
A05C	BD		JSR	OUT4HS
A05D	E0			
A05E	C8			
A05F	5F		CLR B	
A060	FE		LDX	XHI
A061	A0			
A062	0C			
A063	BD	LOOP1	JSR	OUT2HS
A064	E0			
A065	CA			
A066	5C		INC B	
A067	C1		CMP B	#\$08
A068	08			
A069	26		BNE	LOOP1
A06A	F8			
A06B	FF		STX	XHI
A06C	A0			
A06D	0C			
A06E	33	PUL B		
A06F	5C			
A070	C1		CMP B	#\$10
A071	10			
A072	27		BEQ	START
A073	A6			
A074	37		PSH B	
A075	CE		LDX	#\$A07D
A076	A0			
A077	7D			
A078	BD		JSR	PDATA1
A079	E0			
A07A	7E			
A07B	20		BRA	OUTADR
A07C	DC			
A07D	0D			Carriage return
A07E	0A			Line feed
A07F	04			End of string

- END -