

How to save your programs -- and have a PROM programmer, too

Cromemco's popular BYTESAVER™ memory board gives you two of the most-wanted features in microcomputer work:

- (1) a simple, easy way to store your computer programs in programmable read only memory (PROM).
- (2) a PROM memory board with the capacity for a full 8K bytes of PROM memory storage.

ECONOMICAL

The BYTESAVER™ is both a place and a way to store programs economically. It transfers programs from the non-permanent computer RAM memory to the permanent PROM memory in the BYTESAVER™. Once your program is in the BYTESAVER™, it's protected from power turn-offs, intentional or accidental. The PROMs used with BYTESAVER™ are UV erasable and can be used again and again.

The BYTESAVER™ itself plugs directly into your Altair 8800 or IMSAI 8080.

PROM PROGRAMMER

Many people are surprised to learn that in the BYTESAVER™ you also have your own PROM programmer. But

it's so. And it saves you up to hundreds of dollars, since you no longer need to buy one separately.

The built-in programmer is designed for the 2704 and 2708 PROMs. The 2708 holds 1K bytes, four times the capacity of the well-known older 1702 PROM (yet cost-per-byte is about the same). The 2708 is also fast — it lets your computer work at its speed without a wait state. And it's low-powered. With 2708's in all 8 sockets, the BYTESAVER™ is still within MITS bus specifications, drawing only about 500 mA from the +8V bus. A complement of 2708 PROMs gives the BYTESAVER™ its full 8K capacity.

HOLDS LARGE PROGRAMS

The BYTESAVER's™ 8K-byte capacity lets you store the larger and more powerful programs. 8K BASIC, for example, easily fits in the BYTESAVER™ capacity of 8 PROMs. One 1K PROM will hold many games such as Cromemco's DAZZLER-LIFE or DAZZLE-WRITER.

NO KEYBOARD NEEDED

The BYTESAVER™ comes with special software programmed into a 2704 PROM. This software controls transfer of the computer RAM content to the BYTESAVER™ PROM.

So you are ready to go. You don't

even need a keyboard. Just set the computer sense switches as instructed in the BYTESAVER™ documentation.

Transfer of memory content to PROM ("burning") takes less than a minute. The BYTESAVER™ software controls computer lights to verify complete and accurate transfer of memory content.

The software also programs any of the other 7 PROM positions in the BYTESAVER™ as readily as the first.

And when used to transfer information from the BYTESAVER™ PROMs to RAM, the special design of the software allows loading a large program such as 8K BASIC in one second.

AVAILABLE NOW — STORE/MAIL

The BYTESAVER™ is sold at computer stores from coast to coast. Or order by mail from Cromemco. Cromemco ships promptly. You can have the BYTESAVER™ in your computer within a week after your order is received.

BYTESAVER™ kit \$195
(Model 8KBS-K)

BYTESAVER™ assembled \$295
(Model 8KBS-W)

Shipped prepaid if fully paid with order.

California users add 6% sales tax.

Mastercharge and BankAmericard accepted with signed order.



Cromemco
Specialists in computer peripherals

One First St., Los Altos, CA 94022 • (415) 941-2967

BYTESAVER

ASSEMBLY MANUAL



Cromemco

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BYTESAVER ASSEMBLY INSTRUCTIONS

The Cromemco BytesaverTM kit can be assembled in about one evening. All components are mounted on the component side of the pc board (the side with the printed legend) and soldered on the opposite side. Be sure to use high-quality rosin core solder for the assembly and a fine-tipped low wattage soldering iron.

() Solder in position the 10 14-pin IC sockets, the 6 16-pin IC sockets, and 8 24-pin IC sockets.

() Solder in position the $\frac{1}{4}$ watt resistors:

R1	47K	yellow-violet-orange
R2	10K	brown-black-orange
R3	180	brown-gray-brown
R4	1K	brown-black-red
R5	9.1K	white-brown-red
R6	1.5K	brown-green-red
R7	1K	brown-black-red
R8	47	yellow-violet-black
R9	1K	brown-black-red
R10	10	brown-black-black
R11	5.6K	green-blue-red
R12	5.6K	green-blue-red
R13	10K	brown-black-orange
R14	5.6K	green-blue-red
R15	180	brown-gray-brown
R16-R39	18K	brown-gray-orange

() Next install the 1N914 diodes. NOTE we recommend that no diode be installed in the diode position just below transistor Q0. When using the Bytesaver we recommend that the PROM containing the Bytemover software be inserted in PROM position zero. By not installing this diode there will be no chance of accidentally programming this PROM.

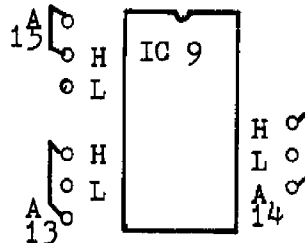
When installing the diodes be careful to orient them properly, noting the position of the cathode (banded) end. Due to the close spacing of the holes in the pc board, the diodes should be mounted on end.

() Now install the 23 capacitors as shown on the pc board. Be careful that the electrolytic capacitors are oriented with the positive (+) end as shown.

() Now solder the transistors in place taking care to orient them properly. Note that Q8 and Q9 are 2N3906 transistors, and Q10 is a type MPS6560. All other transistors are type 2N3904.

() Install the pc board switch, SW1, in the upper left corner of the board.

- () Install the Cromemco high-speed pulse transformer, model XT8K, in position T1. Note that the leads are asymmetrically positioned so that there is only one correct orientation of the transformer.
- () Now install IC14, the positive twelve volt regulator IC, using a 6-32 X $\frac{1}{4}$ screw and nut.
- () Next install the heatsink in the upper right corner of the board just starting the nuts on the 6-32 x 3/8 screws. Install IC12 and IC 13 being sure to place the insulating washer between IC13 and the heat sink. The nylon screw must be used to hold IC13 in place. (The insulating washer supplied may have to be trimmed with a pair of scissors to clear the protrusions of the heatsink.) Tighten the nuts on the screws in the heatsink assembly only after all screws have been inserted. Take care that the leads on the voltage regulators do not come in contact with sides of the openings in the heatsink.
- () Next install three jumper wires to select where the Bytesaver is to reside in memory space. Each of the three high order address lines (A15, A14, and A13) may be tied either to the corresponding "H" or "L" terminal. For the Bytesaver to reside in the top 8K of memory space, for example, the three jumper wires would be installed as shown:



- () Now install the ICs in their sockets being careful to orient pin one of each IC as shown by the small white dot on the pc board at each IC position. Install a PROM containing Bytemover software in PROM position 0.

The assembly of your Bytesaver is now complete. Detailed operating instructions are given in the Bytemover software manual.

PROM AVAILABILITY: Additional 2704 and 2708 PROMs are available from Cromemco. The 2704 is \$50 each, and the 2708 is \$75. Our PROMs are factory fresh, full speed devices that we purchase directly from the manufacturer.

WAIT STATE: Should you wish to use low speed 2704 or 2708 PROMs in your Bytesaver (with access times greater than 450 ns) there is a provision for a wait state. Simply insert a jumper wire, as shown, between IC10 and IC11. No jumper wire need be inserted here when using full-speed PROMs.

REPAIR: If for any reason you need service on your Bytesaver, you may return it to Cromemco along with a check for \$35. The \$35 covers the cost of repair and return postage. We reserve the right to not repair any Bytesaver that we judge to be unserviceable.

BYTESAVER PARTS LIST

C1 - C8 0.1 uF
C9 - C15 10uF 50v.
C16 .005
C17 680 pF
C18 .01 uF
C19 680 pF
C20 220 pF
C21 - C23 0.1 uF

D1 - D19 1N914

Q0 - Q7 2N3904
Q8, Q9 2N3906
Q10 MPS6560
Q11, Q12 2N3904

R1 47K
R2 10K
R3 180
R4 1K
R5 9.1K
R6 1.5K
R7 1K
R8 47
R9 1K
R10 10
R11 5.6K
R12 5.6K
R13 10K
R14 5.6K
R15 180
R16-R39 18K

SW1 pc board switch

T1 Cromemco XT8K high-speed pulse transformer.

Sockets

10 14 pin
6 16 pin
8 24 pin

IC1 74123
IC2 7474
IC3 7402
IC4 7406
IC5 7406
IC6 7402
IC7 7406
IC8 7442
IC9 74LS04
IC10 74LS10
IC11 74LS04
IC12 340T-5.0
IC13 320T-5.0
IC14 ~~340T-12~~ 7812
IC15 7432
IC16 74367
IC17 74367
IC18 74367
IC19 74367

Hardware

3 #6 X 3/8 screws
1 #6 X 1/4 screw
1 #6 X 3/8 nylon screw
5 #6 nuts
1 Heatsink

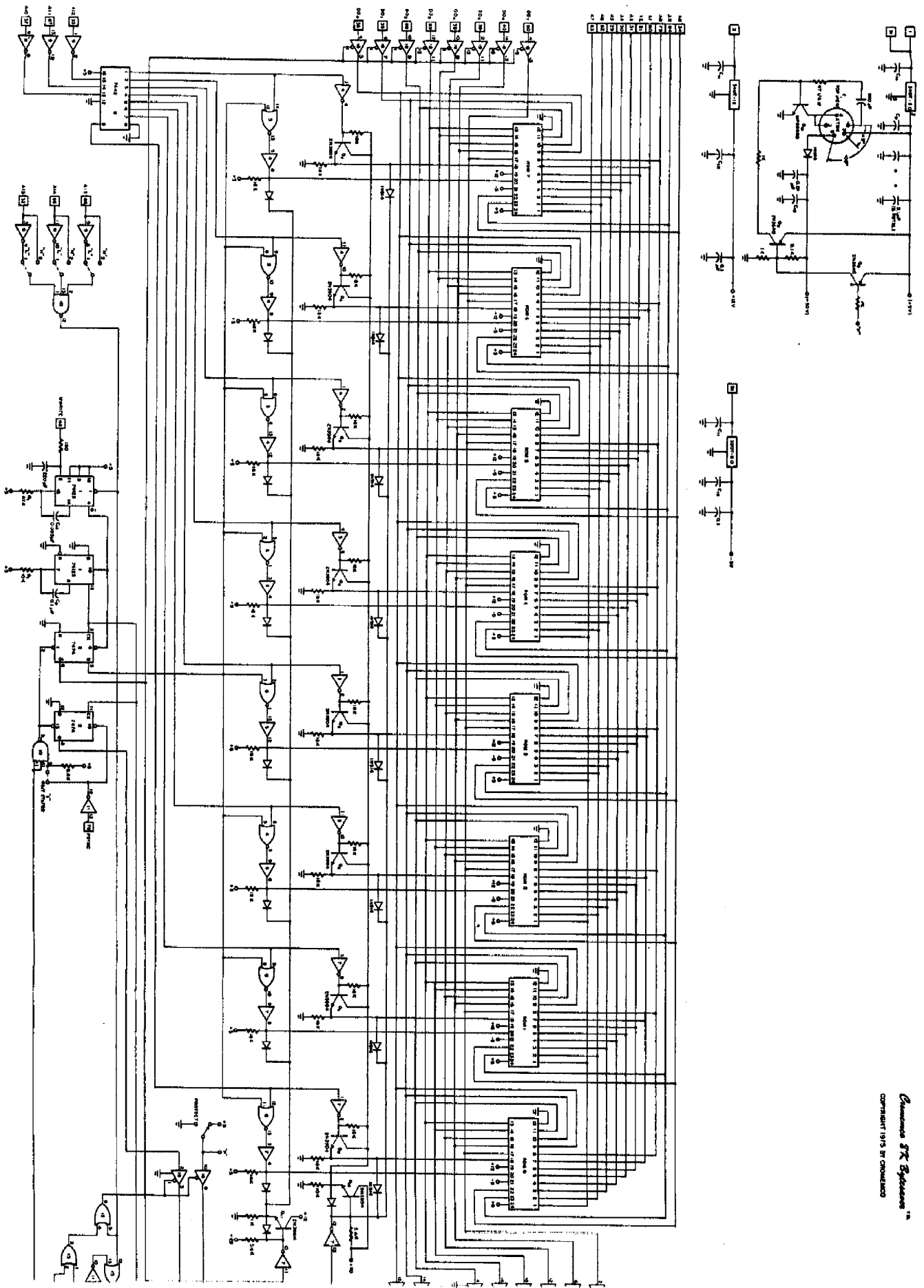
Documentation

Assembly manual
Bytemover manual
Schematic diagram

Other

Insulating washer to be used under IC13

Bytesaver pc board



General Systems
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BYTEMOVER

SOFTWARE SUPPLIED WITH THE BYTESAVER

CROMEMCO
ONE FIRST STREET
LOS ALTOS, CALIFORNIA
94022

BYTEMOVER 3.0 OPERATING INSTRUCTIONS

THE CROMEMCO BYTESAVERTM is supplied with BYTEMOVERTM software. This software is pre-programmed into the 2704 PROM that comes with the BYTESAVER.

The 2704 PROM containing the Bytemover software is normally inserted into PROM location 0 on the Bytesaver board. The Bytemover software can be used to program a PROM in any of the PROM locations on the Bytesaver board. The Bytemover software can also be used to transfer programs from PROM to RAM. The operation of the Bytemover software is controlled by the setting of the front panel sense switches on the Altair computer. To use the Bytemover software there must be a RAM board in the Altair beginning at location zero in memory; further, this RAM board must be unprotected for proper execution of the Bytemover software.

STEP-BY-STEP INSTRUCTIONS

- 1) Before using the Bytesaver you must install three jumper wires to set the location of the Bytesaver in memory space. This is shown in Figure 1. The assembled Bytesaver comes with A13, A14, and A15 each tied to the corresponding "Hi" pad to position the board at the very top of memory. In the following instructions it is assumed that this is the jumper connection used.
- 2) With the Altair 8800 power turned off, plug the Bytesaver board into the computer.
- 3) Be sure that the program power on the Bytesaver is turned OFF (program power switch in the down position.)
- 4) Turn on the Altair. Raise the reset switch, then raise the stop switch, and then raise the reset switch once again to initialize the Altair.
- 5) Raise address switches A15, A14, and A13. All other address switches should be down.
- 6) Raise the examine switch. You are now examining the contents of the first byte of PROM in PROM location zero of the Bytesaver memory board (memory location 340 000). If the PROM supplied with your Bytesaver is in this PROM location the data lights will read "061", the first byte of the Bytemover program.

EXAMPLE: Transfer the Bytemover program from PROM to RAM beginning at location zero in RAM.

- 1) Raise the reset switch.
- 2) Depress the unprotect switch (on the Altair front panel).
- 3) Raise A15, A14, and A13. Raise the examine switch. The data lights should read "061" octal.

4) Now set the sense switches for the task to be done, referring to Fig. 2.

A15 - Down	to transfer from PROM to RAM
A14 - Down	for the transfer of 1K bytes.
A13 - Down	All down since we are transferring from the same PROM that contains BYTEMOVER (PROM 0)
A12 - Down	
A11 - Down	
A10 - Down	
A9 - Down	All down for storage to begin at location zero in RAM.
A8 - Down	

5) Push the run switch. In less than one second the contents of PROM will be transferred to RAM. (Of course the contents of the PROM are unaffected by this operation.)

6) Raise the STOP switch.

7) Raise the reset switch. Note that the data lights read "061".

EXAMPLE: Program a 2708 PROM inserted in PROM location 1. This PROM is to be programmed with the contents of the first 1K bytes of RAM beginning at location zero in memory. The Bytemover software is still in the PROM in PROM location zero on the Bytesaver board.

1) Raise the reset switch.

2) Depress the unprotect switch (on the Altair front panel)

3) Raise A15, A14, and A13. Raise the examine switch. The data lights should read "061" octal.

4) Raise the protect switch on the Bytesaver board (i.e. program power switch to the ON position). The protect light on the Altair front panel should go off when this switch is raised.

5) Now set the sense switches for the task to be done:

A15 - Up	to program a PROM
A14 - Down	(always down for PROM programming)
A13 - Down	To select the PROM 1K higher in memory than the PROM that contains BYTEMOVER
A12 - Down	
A11 - Up	
A10 - Down	All down for transfer to begin at location zero in RAM.
A9 - Down	
A8 - Down	

6) Push the RUN switch. Note that panel light A9 is blinking at a rate of about twice per second. When this light stops blinking the PROM programming is complete.

7) Raise the STOP switch.

8) Now note the INTE light on the Altair front panel. If this light is on, the BYTEMOVER VERIFIER has verified that the contents of the programmed PROM are indeed identical to the contents of the selected 1K bytes of RAM. If this light is off, the PROM has not programmed correctly; this could be due, for example, to a defective PROM.

EXAMPLE: Altair 8K BASIC can be stored in seven 2708 PROMs. Given that these seven PROMs are in PROM locations 1 through 7 on the BYTESAVER board, 8K BASIC can easily be transferred into RAM using the following procedure:

- 1) Raise the RESET switch.
- 2) Depress the unprotect switch (on the Altair front panel).
- 3) Raise A15, A14, and A13. Raise the examine switch. The data lights should read "061" octal.
- 4) Now set the sense switches for the task to be done:
 - A15 - Down to transfer from PROM to RAM.
 - A14 - Up for a 7K transfer
 - A13 - Down
 - A12 - Down
 - A11 - Up
 - A10 - Down
 - A9 - Down
 - A8 - DownTo begin transfer from the PROM 1K higher in memory than the BYTEMOVER program.
All down for storage to begin at location zero in RAM.
- 5) Push the RUN switch. In less than one second BASIC will be loaded into RAM (it sure beats paper tape!). Raise the STOP switch.

EXAMPLE: If you do not have BYTEMOVER in PROM, you can program a PROM with BYTEMOVER that is stored in RAM. The BYTEMOVER software (a listing of which is attached) must first be loaded into RAM beginning at location zero in memory. The BYTEMOVER software can then be burned into a PROM using the following procedure:

- 1) Raise the reset switch.
- 2) Depress the unprotect switch (on the Altair front panel).
- 3) Insert an erased PROM into PROM location 0 on the BYTESAVER board.
- 4) Examine location 000 240 in memory.
- 5) Raise the program power switch on the BYTESAVER board.
- 6) Set the sense switches with A15 and A14 and A13 up.
- 7) Push the RUN switch. When light A9 stops blinking the programming is complete. The INTE light will be on to verify correct programming.
- 8) Turn off PROM program power by depressing the switch on the BYTESAVER.

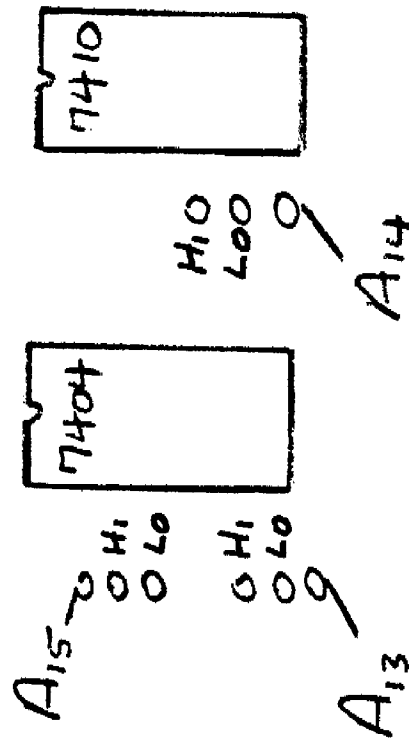


Fig. 1. How to set the Bytesaver address in memory. The built Bytesaver comes with A15, A14, and A13 connected to the corresponding "Hi" terminals so that memory address occurs when these three bits are high. Any or all of these address lines may be connected to the corresponding "Lo" terminal to move the memory board lower in memory. There are thus eight positions in memory that this board can be used.

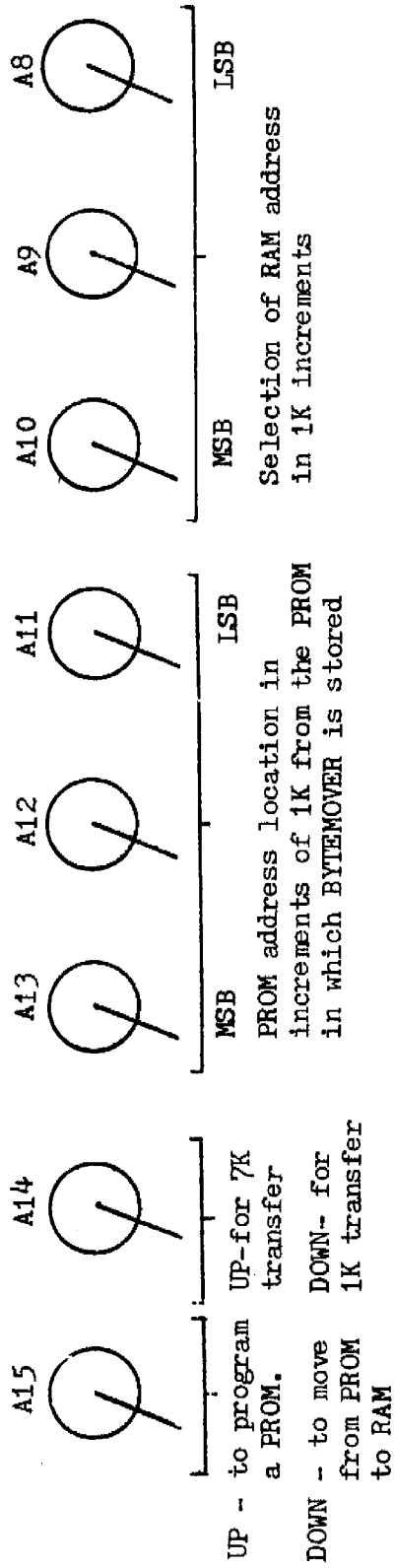
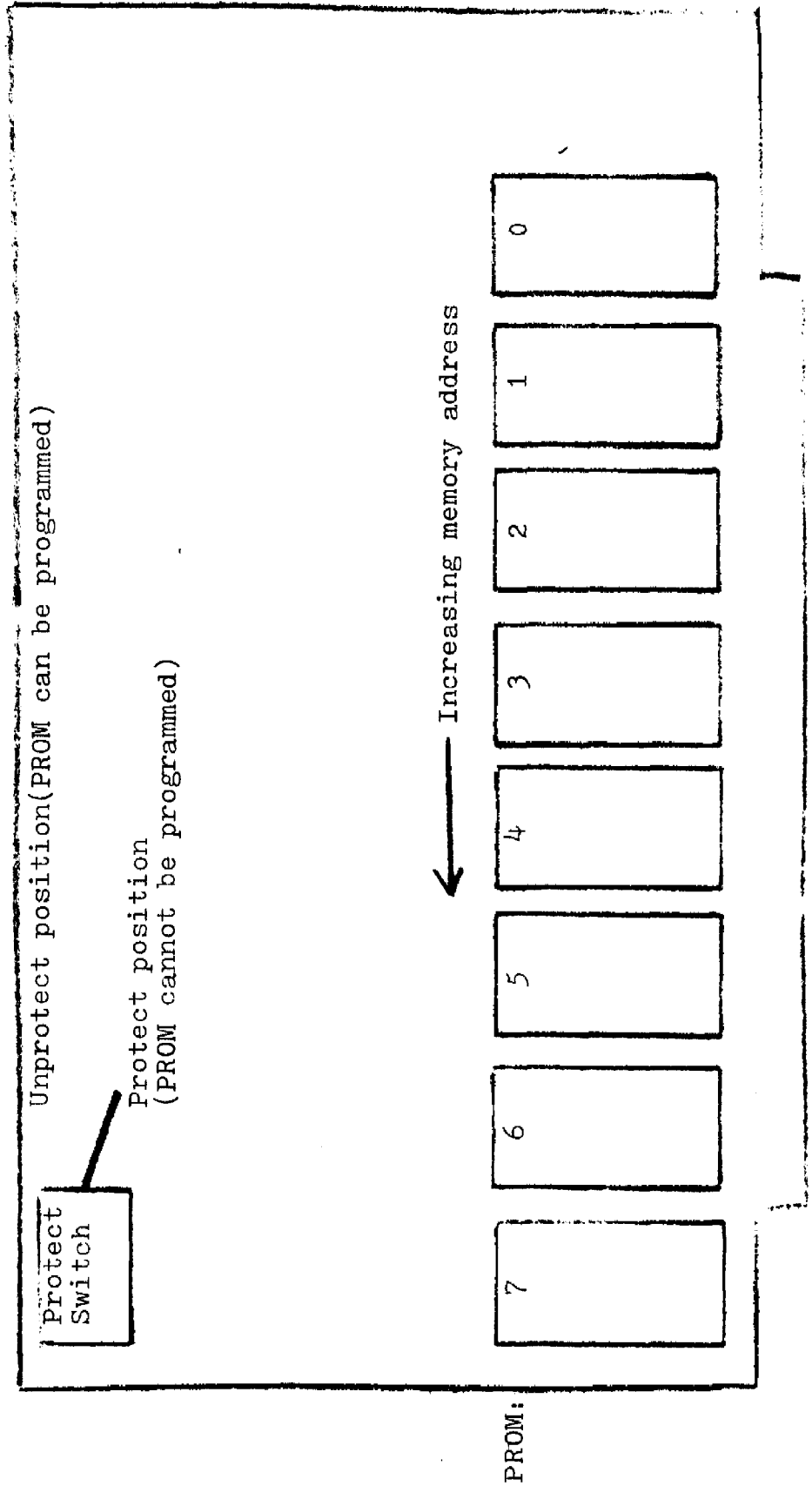


FIGURE 2. FUNCTION OF THE SENSE SWITCHES IN THE BYTEMOVER PROGRAM.

Fig. 3. Bytesaver physical layout.



BYTESAVER ASSEMBLY LANGUAGE LISTING

0000		0000	* BYTESAVER (T.M.) SOFTWARE FOR
0000		0001	* CR08MFC0 8K BYTESAVER (T.M.)
0000		0002	* VERSION 3.0
0000		0003	* SELF-RELOCATING SOFTWARE LOCATABLE AT AN
0000		0004	* 1024 BYTE (1K) BOUNDARY IN MEMORY
0000		0009	* ROUTINE TO FIND ONESELF IN MEMORY
0000		0010	SP EQU 6
0000	31 00 00	0019	* DEFINE FIRST 4 BYTES IN MEMORY AS STACK
0003		0020	LXI SP, 0
0003	01	0029	* SAVE FIRST FOUR BYTES IN REGISTERS
0004	D1	0030	POP B
0005		0040	POP D
0005	2F 09	0049	* REPLACE BYTE 0 WITH A 'RETURN'
0007	00	0050	MVI L, 0C9H
0008	55	0051	NOP
0009	F5	0060	PUSH H
000A	00	0070	PUSH H
000B	00	0080	NOP
000C	00	0081	NOP
000D	31 04 00	0082	NOP
0010	0D 00 00	0090	LXI SP, 4
0013		0100	CALL 0
0013	31 02 00	0101	* ROM LOCATION NOW IN BYTE 3
0016	F1	0110	LXI SP, 2
0017		0120	POP H
0017	31 04 00	0129	* RETURN BYTES 0-3
001A	D5	0130	LXI SP, 4
001B	C5	0140	PUSH D
001C		0150	PUSH B
001C	F9	0159	* STORE ROM LOCATION IN SP
001D	0F 00	0160	SPL
001E	59	0170	MVI C, 0
0020	69	0180	MOV F, C
0021		0190	MOV L, C
0021	0B FF	0199	* INPUT SENSE SW COMMANDS
0023	57	0200	IN 255
0024		0210	MOV D, A
0024	F6 07	0219	* STRIP RAM ADDRESS
0026	07	0220	ANI 7
0027	07	0230	RLC
0028		0240	RLC
0028	47	0249	* STORE RAM ADDRESS IN BC
0029	7A	0250	MOV B, A
002A		0260	MOV A, D
002A	F6 38	0269	* STRIP ROM ADDRESS
002C	0F	0270	ANI 56
0030	00	0280	RRC
002F	67	0290	NOP
002E	39	0300	MOV H, A
		0310	DAD SP

```

0030 2E 00
0032 7A
0033 FB
0034
0034 F6 80
0036 0F
0037 0F
0038 C6 20
003A 21 00 00
003D 6F
003E 39
003F F9
0040
0040 F9
0041 21 0B 00
0044 39
0045 FB
0046 F9
0047 FB
0048 11 00 00
004B
004B
004B 3B
004C
004C F1
004D 02
004F
004F 03
004F
004F 13
0050 7A
0051 F6 04
0053 07
0054 07
0055 00
0056 85
0057 6F
0058 F9
0059 00
005A 00
005B
005B 3F 56
005D 85
005E 6F
005F F9
0060
0060 00
0061
0061 69
0062 7C
0063 60
0064
0064 F9
0065 67
0066 2F 6B
006B
006B 01 00 00
006B

```

```

0320 MVI L, 0
0330 MOV A,D
0340 XCHG
0341 * ADDRESS OF ROM BEING PROCESSED IN DF
0349 * BRANCH TO TRANSFER OR PROGRAM ROUTINE
0350 ANI 128
0360 RRC
0370 RRC
0380 ADI 45
0390 LXI H, 0
0400 MOV L,A
0410 DAD SP
0420 PCHL
0500 * ROUTINE TO TRANSFER ROM TO RAM
0510 SPHL
0520 LXI H, 11
0530 DAD SP
0550 XCHG
0560 SPHL STACK CONTAINS ROM LOCATION
0570 XCHG H&L CONTAIN LOOP ADDRESS
0580 LXI D, 0
0588 * START OF TRANSFER LOOP
0589 * INCREMENT ROM ADDRESS
0590 DCX SP
0599 * MOVE DATA FROM ROM TO RAM
0600 POP 6
0610 STAX B
0619 * INCREMENT RAM ADDRESS
0620 INX B
0629 * INCREMENT BYTE COUNT
0630 INX D
0640 MOV A,D
0650 ANI 4
0660 RLC
0670 RLC
0680 NOP
0690 ADD L
0700 MOV L,A
0710 PCHL
0716 NOP
0717 NOP
0719 * JUMP TO 00B1 FROM TRANSFER ROUTINE
0720 MVI A, 56H
0725 ADD L
0730 MOV L,A
0740 PCHL
1000 * ROUTINE TO PROGRAM ROM
1010 NOP
1019 * MOVE RAM ADDRESS INTO HL
1020 MOV L,C
1030 MOV A,H
1040 MOV H,B
1049 * MOVE RAM ADDRESS INTO SP
1050 SPHL
1060 MOV H,A
1070 MVI L, 107
1079 * INCREMENT RAM ADDRESS
1080 LXI B, 0
1089 * INCREMENT RAM ADDRESS

```

006B	39	1090	DCX SP
006C		1098	* USE STAX AND POP 6 (PSW)
006C		1099	* TO MOVE DATA FROM ROM TO RAM
006C	F1	1100	POP 6
006D	12	1110	STAX D
006E		1119	* INCREMENT ROM ADDRESS
006E	13	1120	INX D
006F		1129	* INCREMENT BYTE COUNT
006F	03	1130	INX B
0070		1138	* R STORES TWO CONSTANTS
0070		1139	* # COMPLETE PASSES & IN ROM CNT
0070	78	1140	MOV A,B
0071		1149	* # PASSES = 32 ?
0071	FE FC	1150	CPI 259
0073	3F	1160	CMC
0074	1F	1170	RAR
0075	1F	1180	RAR
0076		1198	* SET 64 TO 0 FOR TWO MINUTE TIMER VERSION
0076	E6 40	1200	ANI 64
0078		1201	* A=64 IF COMPLETED 32 PASSES
0078	2E 7D	1205	MVI L, 7DH
007A	85	1210	ADD L
007B	6F	1220	MOV L,A
007C	F9	1225	PCHL
007D	2E 6B	1226	MVI L, 6BH
007E	78	1230	MOV A,B
0080	E6 04	1240	ANI 4
0082		1241	* A=4 IF END OF 1024 BYTE PASS
0082	07	1250	RLC
0083	07	1260	RLC
0084	07	1270	RLC
0085	85	1280	ADD L
0086	6F	1290	MOV L,A
0087		1291	* GO BACK TO 1090 UNLESS OVERFLOW
0087		1292	* THEN GO TO 1380 FOR
0087		1293	* ADDRESS SUBTRACTION
0087		1294	* OR 2135 FOR QUIT
0087	F9	1300	PCHL
0088	00	1350	NOP
0089	00	1360	NOP
008A	00	1370	NOP
008B		1378	* ANOTHER PROGRAM PASS TO BE DONE
008B		1379	* ADJUST ROM AND RAM ADDRESSES
008B	7C	1380	MOV A,H
008C	21 00 FC	1390	LXI H, 64512
008E		1399	* SUBTRACT 1024 FROM ROM ADDRESS
008E	39	1400	DAD SP
0090	F9	1410	SPHL
0091	21 00 FC	1420	LXI H, 64512
0094		1429	* SUBTRACT 1024 FROM RAM ADDRESS
0094	19	1430	DAD D
0095	FB	1440	XCHG
0096	67	1450	MOV H,A
0097	2E 6B	1460	MVI L, 107
0099	78	1470	MOV A,B
009A	E6 FB	1480	ANI 248
009C		1489	* INCREMENT PASS COUNTER BY ONE
009C	06 08	1490	ADI R
009E	47	1495	MOV B,A
009E		1499	* GO BACK TO 1090
009E	F9	1500	PCHL


```

00A0
00A0 DB FF
00A2 47
00A3 E6 E0
00A5 1E 00
00A7 48
00A8 57
00A9 78
00AA F6 1F
00AC 47
00AD 67
00AE 2E 60
00B0 E9
00B1
00B1 C6 1A
00B3 6F
00B4 DB FF
00B6 F6 40
00B8 0F
00B9 0F
00BA 85
00BB 6F
00BC E9
00BD
00BD
00BD 7C
00BE 21 00 FC
00C1 39
00C2 E9
00C3 2E CD
00C5 67
00C6 E9
00C7 00
00C8 00
00C9 00
00CA 00
00CB
00CB EB
00CC E9
00CD
00CD
00CD 7C
00CE 21 00 FC
00D1 19
00D2 EB
00D3 2F F1
00D5 67
00D6 01 00 00
00D9 E9
00DA 00
00DB
00DB D6 20
00DD 6F
00DE 7A
00DF C6 04

```

```

2000 * ROUTINE TO LOAD BYTEMOVER INTO ROM
2010 IN 255
2020 MOV B,A
2030 ANI 224
2040 MVI E, 0
2050 MOV C,E
2060 MOV D,A
2070 MOV A,B
2080 ANI 31
2090 MOV B,A
2100 MOV H,A
2110 MVI L, 96
2120 PCHL
2121 * CHECK FOR 7K TRANSFER OF ROM TO RAM
2122 ADI 1AH
2123 MOV L,A
2124 IN 255
2125 ANI 64
2126 RRC
2127 RRC
2128 ADD L
2129 MOV L,A
2130 PCHL
2133 * PROGRAMMER VERIFICATION ROUTINE
2134 * PART 1
2135 MOV A,H
2145 LXI H, 64512
2155 DAD SP
2165 SPHL
2175 MVI L, 0CDH
2185 MOV H,A
2195 PCHL
2205 NOP
2210 NOP
2215 NOP
2220 NOP
2229 * ROM TO RAM TRANSFER STOP ROUTINE
2230 FI
2240 PCHL
2248 * PROGRAMMER VERIFICATION ROUTINE
2249 * PART 2
2250 MOV A,H
2260 LXI H,64512
2270 DAD D
2280 XCHG
2290 MVI L, 0F1H
2300 MOV H,A
2310 LXI B, 0
2320 PCHL
2625 NOP
2629 * 7K TRANSFER COMPLETION CHECK
2630 SUI 90H
2640 MOV L,A
2650 MOV A,D
2660 ADI 4

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00E1	57	2670	MØV D, A
00E2	FE 38	2680	CPI 56
00E4	3F	2685	CMC
00E5	3F 00	2690	MVI A, 0
00E7	1F	2700	RAR
00E8	85	2710	ADD L
00E9	6F	2720	MØV L, A
00EA	E9	2730	PCHL
00EB		2879	* RØM PRØGRAMMER STØP RØUTINE
00EB	00	2880	NØP
00EC	00	2881	NØP
00ED	EB	2885	EI
00EE	E9	2890	PCHL
00EF	E9	2900	PCHL
00F0	E9	2906	PCHL
00F1		2918	* PRØGRAMMER VERIFICATION RØUTINE
00F1		2919	* PART 3
00F1	3B	2920	DCX SP
00F2	F1	2930	PØP 6
00F3	EB	2940	XCHG
00F4		2949	* CØMPARE FØR GREATER
00F4	BE	2950	CMP M
00F5	EB	2960	XCHG
00F6	17	2970	RAL
00F7	F6 01	3000	ANI 1
00F9	2F	3010	CMA
00FA	3C	3011	INR A
00FB	85	3015	ADD L
00FC	6F	3020	MØV L, A
00FD	3B	3030	DCX SP
00FE	3B	3040	DCX SP
00FF		3050	* CØMPARE FØR LESSER
00FF	F1	3055	PØP 6
0100	2F	3056	CMA
0101	EB	3058	XCHG
0102	86	3059	ADD M
0103	EB	3060	XCHG
0104	C6 07	3061	ADI A, 1
0106	3F	3065	CMC
0107	17	3070	RAL
0108	F6 01	3090	ANI 1
010A	2F	3100	CMA
010B	3C	3101	INR A
010C	85	3105	ADD L
010D	6F	3110	MØV L, A
010E	03	3130	INX R
010F	13	3140	INX D
0110	78	3150	MØV A, R
0111	F6 04	3180	ANI 4
0113	2F	3190	CMA
0114	3C	3191	INR A
0115	85	3195	ADD L
0116	6F	3200	MØV L, A
0117	E9	3210	PCHL

BYTEMOVER 3.0 OCTAL LISTING

BYTEMOVER VERSION 3.0

OCTAL LISTING

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061 000 000 301 321 056 311 000 345 345 000 000 000 061 004 000
315 000 000 061 002 000 341 061 004 000 325 305 371 016 000 131
151 333 377 127 346 007 007 007 107 172 346 070 017 000 147 071
056 000 172 353 346 200 017 017 306 055 041 000 000 157 071 351
371 041 013 000 071 353 371 353 021 000 000 073 361 002 003 023
172 346 004 007 007 000 205 157 351 000 000 076 126 205 157 351
000 151 174 140 371 147 056 153 001 000 000 073 361 022 023 003
170 376 374 077 037 037 346 100 056 175 205 157 351 056 153 170
346 004 007 007 007 205 157 351 000 000 000 174 041 000 374 071
371 041 000 374 031 353 147 056 153 170 346 370 306 010 107 351
333 377 107 346 340 036 000 113 127 170 346 037 107 147 056 140
351 306 032 157 333 377 346 100 017 017 205 157 351 174 041 000
374 071 371 056 315 147 351 000 000 000 000 373 351 174 041 000
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004 127 376 070 077 076 000 037 205 157 351 000 000 373 351 351
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057 353 206 353 306 007 077 027 346 001 057 074 205 157 003 023
170 346 004 057 074 205 157 351 000 000 000 000 000 000 000 000
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