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STD-XT
871A EPROM PROGRAMMER CARD





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SECTION 1
INTRODUCTION

871 OVERVIEW 1–1

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871 OVERVIEW

The 871 EPROM Programmer Card is designed for use in program development with Octagon CPU cards that contain STD BASIC III software. It has an on–card EPROM programmer to program 27256 or 27512 EPROMs. A parallel printer port is included for documenting programs, data logging, etc. This port is compatible with printers having a Centronics interface. A program voltage LED provides visual feedback to show when an EPROM is being programmed.

The major features of the 871 are listed below:

* EPROM programmer for 27256 and 27512 EPROMs
* Parallel printer port
* ZIF (Zero Insertion Force) programming socket
* EPROM programming voltage under software control
* Hardware supports fast programming algorithm
* Program voltage LED

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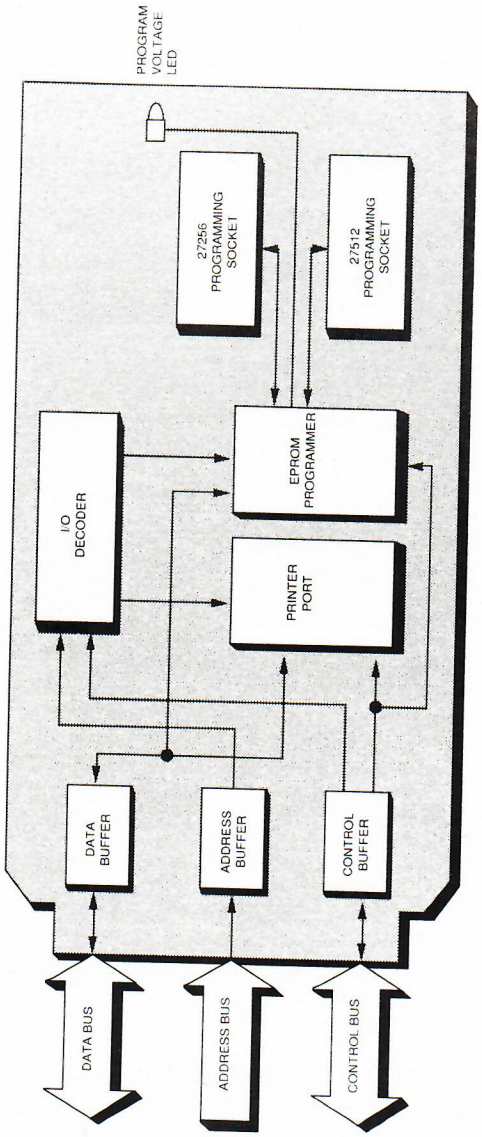


Figure 1–1 **871 Block Diagram**

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INSTALLATION AND OPERATION

EQUIPMENT YOU WILL NEED

The following is a list of equipment necessary to use the 871. Your application will determine the exact requirements for some of the equipment (power supply and card cage size, for example).

Equipment	Description:
Processor card	Any Octagon CPU card specifying the 871 card
Power Supply	+5V at 2 amps +12.6V at 1 amp
EPROMs	27256 type (32K). 27512 type (64K).

OPERATING PRECAUTIONS

1) Do not remove or insert the 871 with power applied.

2) Do not insert or remove components on the 871 when power is applied.

INSTALLATION INTO A CARD CAGE

The 871 is designed to be used on the STD Bus. It requires one card slot and plugs directly into the STD Bus backplane. The 871 can be placed in any slot in the card cage.

Care must be taken to ensure that the 871 is correctly positioned in the card cage. The power and ground signals must match those on the STD Bus backplane.

If you are using a table–mount card cage, orient it feet side down. Make sure the card ejector is facing up. The component side of the 871 should face left if the card is properly positioned. The +5V supply is on the top of the card.

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CONNECTING TO A PRINTER

The 871 can interface to printers via printer port P2. This port is compatible with printers that have a Centronics interface. The standard Centronics protocol is supported. In addition to the data lines, the data Strobe (STR*), Printer Error (PE*), Initialization (INIT*), Select (SE) and busy (BUSY) lines are supported.

The printer is connected to the 871 with an Octagon PC–1 printer cable.

Octagon CPU cards expect to find the following printer status signals to indicate that the printer is ready to accept data:

--low on busy (BUSY) line
--high on select (SEL) line
--low on Paper Error (PE) line

NOTE: The printer port on the 871 is not supported by the 8500

Refer to Section 3, Connector Pinouts, for a description of printer port (P2) pinouts and corresponding Centronics pins. Some Centronics defined lines are not supported on the 871. This should not affect printer operation.

CALIBRATION

The only adjustment on the programmer is the voltage reference for the EPROM. This reference normally will not need adjustment unless some of the reference components are replaced.

R11 is adjusted so that the voltage at pin 28 of U1 and U6 is 6.0V ±2%. To make this adjustment, execute the following command from STD BASIC III:

```
>OUT 238,255
```


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After adjusting the voltage to 6.0V, install jumper A. The voltage should then drop to about 5V. Make certain that sockets U1 and U6 are not populated during this setup. When you are finished, remove jumper A.

PROGRAMMING EPROMS

The method used for programming EPROMs with the 871 card varies. Octagon CPU cards allow for two methods: a command in the resident STD BASIC III, or a command in the resident Debug Monitor. See the system programming guide available for your CPU for more information.

In addition, DISK.COM can be run under DOS in an 8500–based system to translate floppy disks to ROM disks using the 871 card.

Regardless of the method used, the following steps can serve as a general guideline for programming EPROMS:

1. Be sure that the 871 card is properly installed in your card cage and that your power supply supplies the necessary voltages. Set the 12.0 volt supply to 12.6 volts.

   NOTE: The 12.6V supply is critical for proper operation. The card will not work properly if this voltage drops below 12.6 Volts.

2. Apply power to your system.

3. If LED 1 is illuminated, reset the system. Do not place an EPROM in one of the 871's sockets if this LED is lit. This indicates that the programming voltage is applied to the socket.

4. Follow the instructions supplied with your programming guide or software manual to program the EPROM (using either a 27256 in socket U6 or a 27512 in socket U12). Refer to ***Figure 2–1*** for socket and component location.

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5. During programming, LED 1 will be illuminated. When programming has finished, the LED will go out and the EPROM may be removed.

WARNING: Never remove or insert an EPROM when LED 1 is illuminated or the EPROM may be damaged.

IN CASE OF DIFFICULTY

If you have difficulty getting your system to function properly, Remove all peripheral cards except the CPU card and the 871 and use the following check list.

Power Supply:
The power supply voltage should be in the 4.8V to 5.3V range measured at the connector pins. The 12V supply must be in the range of 12.6V to 12.4V. The power supply ripple should be less than 50 mV. If you are using a 'Switching' power supply, excessive high frequency noise may cause erratic operation. The noise plus the DC level must not exceed the power supply levels given in 1., not even instantaneously.

Jumper Options:
The 871 is shipped jumpered for use with Octagon systems (no jumper positions jumpered). It will run as shipped. This manual contains a table of the default jumper positions. In case of difficulty, you should return the system to its default mode.

Bus Loading:
Improper external circuitry on the STD Bus can cause unpredictable operation. When connecting custom circuitry, follow the loading guidelines given in the STD Bus definition section. Do not put capacitors from bus lines to ground. Do not run bus lines away from the backplane.

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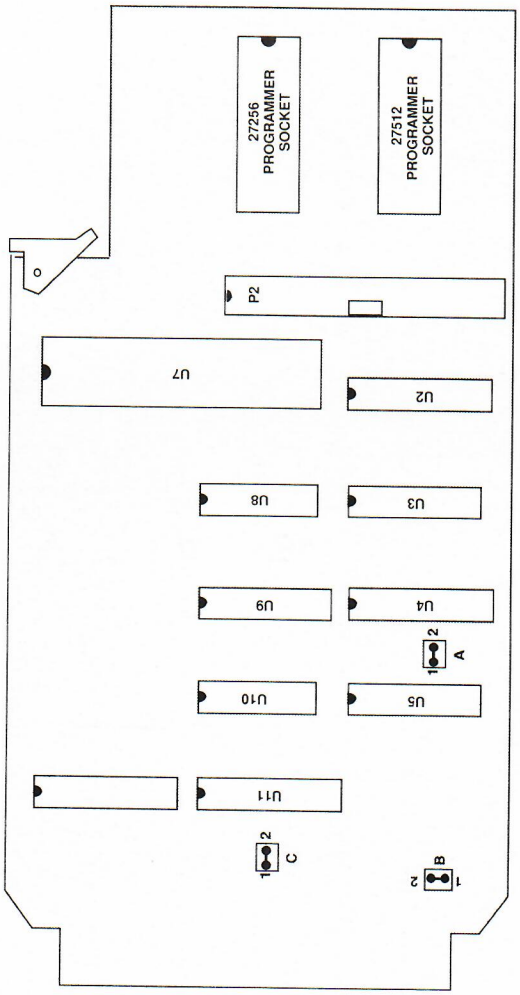


Figure 2–1 **871 Component Diagram**

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Technical Assistance:
If you cannot get your system to operate properly after performing the above checks, call the Technical Assistance Department. Try to run as many tests as possible so that the Technical Assistance Department has adequate data with which to make a judgment.

FOR TECHNICAL ASSISTANCE HOURS AND PHONE NUMBER, SEE THE BACK COVER.

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TECHNICAL SPECIFICATIONS

Printer Port:
Parallel Centronics compatible.

EPROM Programmer:
Programs 27256 and 27512 EPROMs.

Programming Voltage:
12.6V.

Programming Time:
50 mS per byte max., software dependent.

Port Addressing:
Uses an 8 byte I/O address block (68H–6FH or default addresses E8H–EFH).

Indicator:
EPROM programming supply.

Power Requirements:
4.75V to 5.25V 150 mA typical, 200 mA max.

Size:
4.5" x 8.75". Requires 0.625" center card slot.

Bus Compatibility:
For use with all CPU cards exhibiting general STD Bus compatibility.

DEFAULT JUMPER POSITIONS

Refer to ***Figure 2–1*** for default jumper positions.

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871 JUMPER DESCRIPTION

The 871 provides several permanent 0.025" square post headers to provide flexibility in mapping and optional features. Jumpering is done with slip–on, slip–off connectors.

NOTE: Default settings for the 871 are indicated by ' * '.

JUMPER BLOCK	FUNCTION
A	**FACTORY CALIBRATION JUMPER** *Jumper A open
B	**AUXILIARY +12V SUPPLY GROUND SELECT** Jumper B only for systems where the Aux (+12V) supply ground is not already connected to the 5V ground.
C	**ADDRESSING JUMPER** Jumper C is not jumpered for Octagon systems. This jumper determines the address of the card (normally E8H). Jumpering C will change the card address to 68H.

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CONNECTOR PINOUTS

Parallel I/O Port (P2)				
P2 Pin #	Centronics Pin #	Descr.	P2 Pin #	Descr.
1	1	STR*	2	Ground
3	2	Data 0	4	Ground
5	3	Data 1	6	Ground
7	4	Data 2	8	Ground
9	5	Data 3	10	Ground
11	6	Data 4	12	Ground
13	7	Data 5	14	Ground
15	8	Data 6	16	Ground
17	9	Data 7	18	Ground
19		ACK*	20	Ground
21	11	BUSY	22	Ground
23	12	PE*	24	Ground
25	13	SEL	26	INIT*
27		Ground	28	Ground
29			30	Ground
31		Ground	32	Ground
33		Ground	34	Ground

* = Active Low

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STD Bus Edge			
Pin #	Signal Line	Pin #	Signal Line
1	+5V	2	+5V
3	Ground	4	Ground
5	VBATT	6	DC PWRDWN*
7	D3/A19	8	D7/A23
9	D2/A18	10	D6/A22
11	D1/A17	12	D5/A21
13	D0/A16	14	D4/A20
15	A7	16	A15
17	A6	18	A14
19	A5	20	A13
21	A4	22	A12
23	A3	24	A11
25	A2	26	A10
27	A1	28	A9
29	A0	30	A8
31	WR*	32	RD*
33	IORQ*	34	MEMRQ*
35	IOEXP	36	MEMEX
37	INTRQ1*	38	MCSYNC*
39	STATUS 1*	40	STATUS 0*
41	BUSAK*	42	BUSRQ*
43	INTAK*	44	INTRQ*
45	WAITRQ*	46	NMIRQ*
47	SYSRESET*	48	PBRESET*
49	CLOCK*	50	INTRQ2*
51	PC0	52	PC1
53	AUX GND	54	AUX GND
55	AUX +V	56	AUX –V

* = active low

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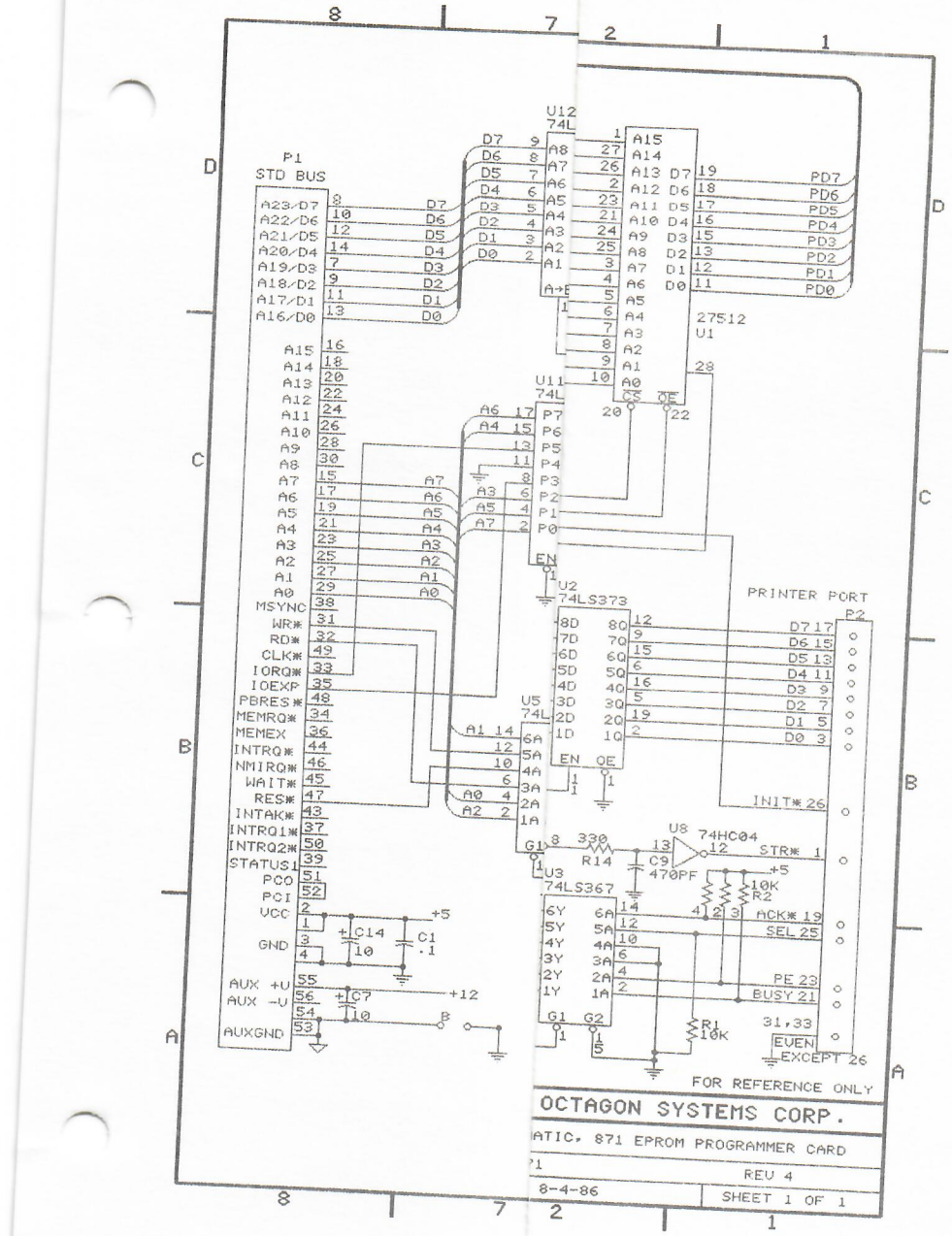
871 SCHEMATICS





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Octagon Systems Corporation (Octagon), warrants that its standard hardware products will be free from defects in materials and workmanship under normal use and service for the current established warranty period. Octagon's obligation under this warranty shall not arise until Buyer returns the defective product, freight prepaid to Octagon's facility or another specified location. Octagon's only responsibility under this warranty is, at its option, to replace or repair, free of charge, any defective component part of such products.

LIMITATIONS ON WARRANTY

The warranty set forth above does not extend to and shall not apply to:

1. Products, including software, which have been repaired or altered by other than Octagon personnel, unless Buyer has properly altered or repaired the products in accordance with procedures previously approved in writing by Octagon.
2. Products which have been subject to power supply reversal, misuse, neglect, accident, or improper installation.
3. The design, capability, capacity, or suitability for use of the Software. Software is licensed on an "AS IS" basis without warranty.

The warranty and remedies set forth above are in lieu of all other warranties expressed or implied, oral or written, either in fact or by operation of law, statutory or otherwise, including warranties of merchantability and fitness for a particular purpose, which Octagon specifically disclaims. Octagon neither assumes nor authorizes any other liability in connection with the sale, installation or use of its products. Octagon shall have no liability for incidental or consequential damages of any kind arising out of the sale, delay in delivery, installation, or use of its products.

SERVICE POLICY

1. Octagon's goal is to ship your product within 48 hours of receipt.
2. If a product should fail during the warranty period, it will be repaired free of charge. For out of warranty repairs, the customer will be invoiced for repair charges at current standard labor and materials rates.
3. Customers that return products for repairs, within the warranty period, and the product is found to be free of defect, may be liable for the minimum current repair charge.

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WARRANTY

RETURNING A PRODUCT FOR REPAIR

Upon determining that repair services are required, the customer must:

1. Obtain an RMA (Return Material Authorization) number from the Customer Service Department, 303-426-8540.
2. If the request is for an out of warranty repair, a purchase order number or other acceptable information must be supplied by the customer.
3. Include a list of problems encountered along with your name, address, telephone, and RMA number.
4 Carefully package the product in an antistatic bag. (Failure to package in antistatic material will VOID all warranties.) Then package in a safe container for shipping.
5. Write RMA number on the outside of the box.
6. For products under warranty, the customer pays for shipping to Octagon. Octagon pays for shipping back to customer.
7. Other conditions and limitations may apply to international shipments.

NOTE: PRODUCTS RETURNED TO OCTAGON FREIGHT COLLECT OR WITHOUT AN RMA NUMBER CANNOT BE ACCEPTED AND WILL BE RETURNED FREIGHT COLLECT.

RETURNS

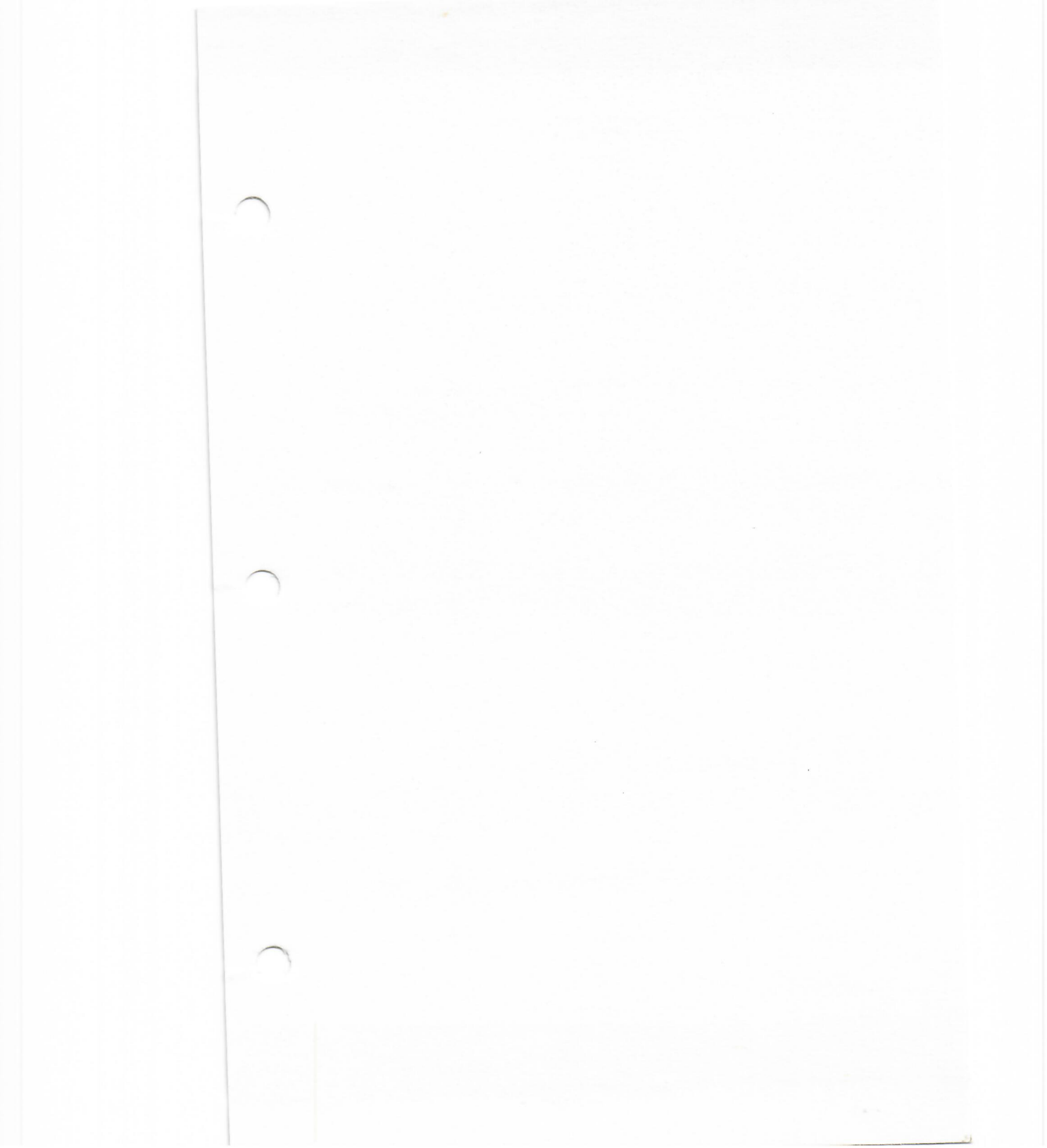
There will be a 20% restocking charge on returned product that is unopened and unused, if Octagon accepts such a return. Returns will not be accepted 30 days after purchase. Opened and/or used products, non-standard products, software and printed materials are not returnable without prior written agreement.

GOVERNING LAW

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