

# CAVEMAN NINJA<sup>tm</sup>

CONVERSION KIT



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## FCC WARNING

This equipment generates and uses radio frequency energy and if not installed and used properly, i.e. in strict accordance with this instruction manual, may cause harmful interference to radio communications. This equipment has been tested and found to comply with the limits for a class A computing device pursuant to Subpart J of Part 15 of the FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment.

Operation of this equipment in a residential environment is likely to cause interference in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

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## FBI WARNING

Federal law provides severe civil and criminal penalties for the unauthorized reproduction, distribution, or exhibition of copyrighted audio-visual works and video games. The Federal Bureau of Investigation investigates allegations of criminal copyright infringement.

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## COPYRIGHT NOTICE

CAVEMAN NINJA™ is Copyright 1990, DATA EAST USA, INC., sold exclusively in the United States of America and Canada by DATA EAST USA, INC. All rights reserved.

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## ENVIRONMENTAL DATA

This product is intended for indoor use only! Power requirements are 105-125 volts AC, 50 - 60 Hz. This equipment requires a three (3) wire grounded outlet.

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## SERVICE PROCEDURES

To obtain replacement parts and technical service, contact the authorized Data East Distributor in your area. If you require referral or further technical assistance, you may contact Data East's Customer Service Department during the hours of 8:00 AM to 5:00 PM, Pacific Time, at (408) 286-7080.

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## AAMA WARNING

DATA EAST USA, INC., in cooperation with the American Amusement Machine Association (AAMA), has installed an "AAMA PROTECT" certification label on each CAVEMAN NINJA™ PCB manufactured for legal sale in the United States of America.

If you are offered a CAVEMAN NINJA™ PCB that does not have the "AAMA PROTECT" certification label, or if the PCB serial number (located on the "Original Product Seal" has been tampered with, you should suspect that the board is not legal, and should contact DATA EAST USA, INC. at (408) 286-7080, or contact the AAMA directly at (703) 548-8044.

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# CAVEMAN NINJA™ CONVERSION KIT

## 1. A. SPECIFIC REQUIREMENTS

Thank you for purchasing a DATA EAST game. We hope that it will give you many years of profitable enjoyment. Your CAVEMAN NINJA™ game conversion kit is intended to be installed into an existing video game cabinet, and comes with all the necessary components to make the converted unit look and play like a new, dedicated game.

### THE GAME TO BE CONVERTED MUST MEET THE FOLLOWING REQUIREMENTS

MONITOR:                    Horizontal, RGB, Negative Composit Sync Input

POWER SUPPLY:        + 5VDC @ 10 amp, +12VDC @ 1 amp

## 1. C. REPLACEMENT PARTS LIST

The following items are provided with your CAVEMAN NINJA™ generic kit. When ordering replacement parts, please be sure to provide the complete description and part number.

Part Number	Description	Remarks
036-0158-02	Hrns, JAMMA - GENERIC KIT	
180-0024-00	Pushbutton w/microswitch	
180-0024-02	Pushbutton w/microswitch	
180-0024-06	Pushbutton w/microswitch	
406-0003-00	Label, FCC Warning	
406-0180-27	Tag, Pushbutton ID, "Left Player"	
406-0180-28	Tag, Pushbutton ID, "Right Player"	
406-0180-07	Tag, Pushbutton ID, "Jump"	
406-0180-16	Tag, Pushbutton ID, "Attack"	
450-0015-51	Joystick, 8 way Happ Controls	
510-0195-00	PCB set, CAVEMAN NINJA	
660-0001-08	Plex, Clear, 26 1/16 X 9 X .125	(for marquee)
780-0184-00	Manual, Inst., Kit, Caveman Ninja	
800-0054-00	Overlay, Ctrl Panel	
810-0046-00	Underlay, Monitor w/instructions	
820-0040-00	Decal, Side, Generic	blue DATA EAST
800-0050-00	Overlay, Marquee, Caveman Ninja	

# CAVEMAN NINJA™ CONVERSION KIT

## 2. C. *INSTALLATION INSTRUCTIONS*

When selecting a game to convert, make sure that the Power Supply, the Monitor and the Coin Acceptors are functional. There is nothing more frustrating than installing a conversion kit and having it not operate due to a faulty monitor or power supply. You should not expect the new logic PCB to be defective. It has been thoroughly tested and 'burned-in' at the factory.

It is mandatory that the cabinet be wired to conform with all National and Local electric codes before the conversion is attempted. The primary power input section must have adequate noise filtering on the AC line to prevent undesirable conducted radio frequency interference (RFI). "Adequate" is defined as a filter with both common mode and differential mode filtering and a minimum current capacity of 2.5 Amp.

The Federal Communications Commission (FCC), and certain regulatory agencies, require that every video game be clearly labeled with the Name and Address of the Original Manufacturer, Date of Manufacture (or Serial Number), Power requirements, Suitability for indoor or outdoor use, and the Model number of the unit. In addition, the FCC requires that, after conversion, the unit must be labeled with a suitable warning stating that radio frequency interference may result from use in a residential area. An acceptable label is included with this kit.

IT IS THE RESPONSIBILITY OF THE PERSON INSTALLING  
THIS KIT TO COMPLY WITH ALL LABELING REQUIREMENTS!

### 2. C. 1. *TAKING IT APART*

Performing a few simple tasks when preparing a game to be converted can save you much time and effort when you are installing the conversion kit.

Find the Wiring Diagram of the game to be converted. You will need to identify the required DC power supply output wires and the monitor video and sync wires. Note the color coding of these wires, or better yet, label them as to their function. This kit contains a new Main Harness, but you will need to splice it into the existing power supply and video wiring.

Remove the existing game harness parts that will not be used in this conversion. NOTE: You are modifying only the secondary (DC from power supply) and I/O (video, speaker, and controls) sections of the wiring. DO NOT MODIFY OR REMOVE THE PRIMARY AC WIRING. The original manufacturer should have designed and built it to comply with Local and National Electrical Codes and FCC regulations. IT MUST NOT ALTERED.

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2. C. 1. *TAKING IT APART (continued)*

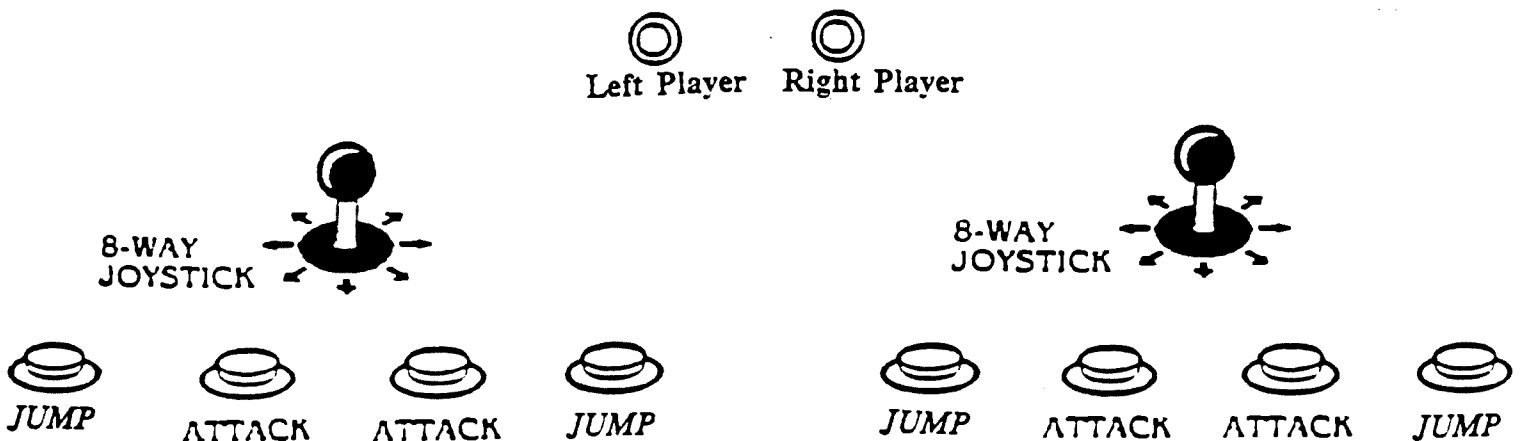
Remove the original game PCB from the cabinet. Remove all exterior decals, and repair any cabinet damage. Repaint the cabinet if necessary. Remove the Monitor Plex (or glass). If your plex has silkscreened art work on it, you will need to strip it off, or replace it with a new piece cut to the same size. Using the old Monitor Plex as a template, cut the Monitor Underlay card, supplied with this kit, to the same size as the old plex. NOTE: Be certain that the opening in the Underlay Card lines up with the monitor screen.

Remove the Marquee Plex from the game and use it as a template to cut the new Marquee Plex down to the correct size. Remove the control panel from the game and remove all controls and graphics from it. Drill and/or punch any required new holes for the control panel. CAVEMAN NINJA™ is a one or two player game, and requires two joy sticks. The game requires two "ATTACK" buttons and two "JUMP" buttons, although it is recommended that four of each be installed (to allow the player to 'attack' either left handed or right handed). See the diagram below for a suggested control panel layout. If you are going to cover the control panel with clear plex, you should carefully cut it to fit the control panel at this time. Thoroughly clean the control panel so that the new control panel overlay will adhere to it securely.

2. C. 2. *PUTTING IT TOGETHER*

Install the Control Panel Overlay by peeling off the paper backing and carefully laying the overlay down on the panel. Smooth it out starting in the center and working your way out to the edges, removing all of the trapped air pockets. If possible, cut the edges of the overlay oversize and fold the excess under the panel. Cut out the button and joy stick holes. Install the BUTTON ID labels supplied with the kit.

FIGURE 1 - Suggested Control Panel Layout



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### 2. C. 2 *PUTTING IT TOGETHER (continued)*

You may wish to cover the control panel overlay and button ID labels with clear plex at this time. Install the new buttons and joy stick at this time. Refer to Figure 1 on the previous page for recommended control panel layout.

**GAME PCB:** Mount the Game PCB in a convenient location in the cabinet, using the mounting feet and hardware supplied with the PCB.

**MAIN HARNESS:** The generic, main harness provided with this kit has a standard, 56 pin JAMMA connector. All required RFI filtering is incorporated on the PC Board. No external filtering is required. The Game PCB has a 56 pin, JAMMA connector. Refer to Figure 2, on page 11 for information pertaining to signals and functions as they are found on the game PCB edge connector.

**POWER SUPPLY WIRING:** Separate the DC power wires and route them through the cabinet to the Power Supply. Try to keep the length of these wires to a minimum for best results.

**NOTE:** USE A MINIMUM OF TWO (2) WIRES EACH FOR THE +5 VOLTS AND THE GROUND LINES BETWEEN THE POWER SUPPLY AND THE PCB. Terminate these wires at the power supply as required.

***NOTE: IMPROPER WIRING WILL DAMAGE THE PCB SET AND VOID THE WARRANTY!***

**PLAYER CONTROL WIRING:** Route the push button and joy stick wires up to their proper destinations, cut to length, and terminate as required.

**MONITOR WIRING:** The game outputs are Positive for the Red, Green and Blue signals, and Negative Composite Sync. If your monitor has separate Horizontal and Vertical sync inputs, hook the Composite sync to the negative Horizontal input. This method will work on most monitors. However, some Electrohome models require that the Composite sync signal be hooked up to both the negative Horizontal and Vertical inputs. Contact your distributor for more information if you are uncertain as to how to hook up the monitor wires.

**COIN DOOR:** The coin counter(s) may be the 12 volt or the 6 volt type, as the game PCB utilizes an open collector drive circuit. Hook one coin counter wire to the required positive voltage and the other wire to the coin counter signal wire from the main harness edge connector.

# CAVEMAN NINJA™ CONVERSION KIT

## 2. C. 2. *PUTTING IT TOGETHER (continued)*

GRAPHICS: The monitor underlay card is pre-printed with game instructions. Install the underlay card under a clean, clear plex or glass. Check any marquee lamps for proper operation. Replace any burned out lamps. The CAVEMAN NINJA™ marquee overlay must be installed on a piece of clear plex. Before you do that, use the old plex as a guide for cutting the 26 x 9" clear plex (provided with this kit) to the proper size. Next, remove the protective coverings from the clear plex, and carefully clean it with a good, anti-static cleaner to remove any and all specks of dust, etc, that may have been attracted to it. Then remove the paper backing from the marquee overlay, and affix it to the clear marquee plex. Make sure that the copyright notice is not hidden by any plex retainers when installed. Smooth out any and all bubbles. Install the two DATA EAST side decals.

**IMPORTANT!** Install the "FCC Warning" label to the upper rear of the cabinet.

### THE BIG TEST!

Remove the Main Harness connector from the game PCB. Apply power. Measure the +5 volts at the edge connector of Main Harness (at the point where it would connect to the game Pcb). Adjust to +5.15 VDC using a Digital volt meter. Measure the +12 volts and the -5 volts (if any) to ensure that they are connected properly and are on the correct terminals. **TURN THE POWER OFF!** Now reconnect the Main Harness connector to the game PCB, and apply power once again. The attract mode video should appear on the screen. Adjust the picture size and colors on the monitor to get the optimum appearance. Adjust the Sync and Hold controls on the monitor for a stable picture. Coin it up and give it a try! Test all the controls and check the sound for proper operation.

**CONGRATULATIONS!** You have successfully installed your DATA EAST conversion kit. We hope that it gives you many years of successful operation.



## CAVEMAN NINJA™ CONVERSION KIT

### 2. A. OPERATOR SELECTABLE OPTIONS

The CAVEMAN NINJA™ game allows for operator adjustable pricing, number of lives, difficulty, etc. These are accessed by the two 8 position dipswitches located on the main logic pcb. Tables 1 and 2 outline the available options.

TABLE 1 - Dipswitch 1

		1	2	3	4	5	6	7	8
Game Charge (Right) Coin 1	1 coin = 1 credit	OFF	OFF	OFF					
	1 coin = 2 credit	ON	OFF	OFF					
	1 coin = 3 credit	OFF	ON	OFF					
	1 coin = 4 credit	ON	ON	OFF					
	1 coin = 5 credit	OFF	OFF	ON					
	1 coin = 6 credit	ON	OFF	ON					
	2 coin = 1 credit	OFF	ON	ON					
3 coin = 1 credit	ON	ON	ON						
Game Charge (Left) Coin 2	1 coin = 1 credit				OFF	OFF	OFF		
	1 coin = 2 credit				ON	OFF	OFF		
	1 coin = 3 credit				OFF	ON	OFF		
	1 coin = 4 credit				ON	ON	OFF		
	1 coin = 5 credit				OFF	OFF	ON		
	1 coin = 6 credit				ON	OFF	ON		
	2 coin = 1 credit				OFF	ON	ON		
3 coin = 1 credit				ON	ON	ON			
Screen Rotation - Normal								OFF	
Screen Rotation - Reverse								ON	
If DS #1 - #6 are ON	Standard Coin Credit 2 coins to Start and 1 coin to continue								OFF ON

TABLE 2 - Dipswitch 2

		1	2	3	4	5	6	7	8
Number of lives	3 Lives:	OFF	OFF			A	A		
	4 Lives:	ON	OFF			L	L		
	1 Lives:	OFF	ON			W	W		
	2 Lives:	ON	ON			A	A		
Game Difficulty	Normal:			OFF	OFF	S	S		
	Easy:			ON	OFF				
	Hard:			OFF	ON	O	O		
	Hardest:			ON	ON	F	F		
Life meter restored when big boss is defeated	YES:							OFF	
	NO:							ON	
Attract Mode Sound?	YES:								OFF
	NO:								ON

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**2. B. PCB EDGE CONNECTOR PIN-OUTS**

TABLE 1 - JAMMA Connector

Wire Color	Solder Side Signal	Pin No.	Pin No.	Parts Side Signal	Wire Color
BK	GROUND	A1	B1	GROUND	BK
BK	GROUND	A2	B2	GROUND	BK
RD	+5 VOLTS	A3	B3	+5 VOLTS	RD
RD	+5 VOLTS	A4	B4	+5 VOLTS	RD
BU	-5 VOLTS	A5	B5	-5 VOLTS	BU
OR	+12 VOLTS	A6	B6	+12 VOLTS	OR
VI	BLOCKING KEY COIN COUNTER #2	A7 A8	B7 B8	BLOCKING KEY COIN COUNTER #1	SL
WH/BK	SPEAKER(-)	A9 A10	B9 B10	SPEAKER (+)	BK/WH
GN	VIDEO - GREEN	A11	B11	VIDEO - RED	RD
WH	VIDEO - SYNC	A12	B12	VIDEO - BLUE	BU
YL	SERVICE SWITCH	A13	B13	VIDEO GROUND	BK
RD	COIN SWITCH #2	A14	B14	TEST SWITCH	BK/GN
RD/WH	2 P START	A15	B15	COIN SWITCH #1	GN
YL/WH	2 P UP	A16	B16	1 P START	BN/WH
GN/WH	2 P DOWN	A17	B17	1 P UP	YL
OR/WH	2 P LEFT	A18	B18	1 P DOWN	GN
RD/WH	2 P RIGHT	A19	B19	1 P LEFT	OR
BL/WH	2 P ATTACK	A20	B20	1 P RIGHT	RD
VI/WH	JUMP	A21	B21	1 P ATTACK	BL
PK/WH	(NOT USED)	A22	B22	1 P JUMP	VI
		A23	B23	(NOT USED)	PK
		A24	B24		
		A25	B25		
		A26	B26		
BK	GROUND	A27	B27	GROUND	BK
BK	GROUND	A28	B28	GROUND	BK

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**3. 0. CUSTOMER RESPONSE CARD**

This CAVEMAN NINJA™ Conversion Kit Manual does not include schematic diagrams. However, it should answer most of the technical questions that you may have. Should you require additional, or more detailed information, you should contact the DATA EAST distributor from whom you have purchased the game. His highly qualified staff will, most likely, be able to answer your questions, or give you the proper direction. If, after consulting with your distributor, you still require additional assistance, you may contact the DATA EAST service department at (408) 286-7080, between the hours of 8:00 AM and 5:00 PM Pacific time. When contacting your distributor, or when contacting DATA EAST, please be prepared to provide the serial numbers for the game PCB (printed on the original product seal), the "AAMA PROTECT" sticker, and the game cabinet.

DATA EAST welcomes all constructive feedback, both negative and positive. We would be pleased if you would write us directly with your comments concerning our products and services. Our address is:

DATA EAST USA, INC.  
1850 Little Orchard Street  
San Jose, CA 95125 - 1045

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**CAVEMAN NINJA™ CUSTOMER RESPONSE CARD**

COMPANY NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY: \_\_\_\_\_ STATE: \_\_\_\_\_ ZIP: \_\_\_\_\_

TELEPHONE: \_\_\_\_\_

YOUR NAME: \_\_\_\_\_ TITLE: \_\_\_\_\_

GAME CABINET SERIAL NUMBER \_\_\_\_\_

PCB SERIAL NUMBER \_\_\_\_\_ AAMA # \_\_\_\_\_

(from Original Product Seal)

ADD YOUR COMPANY TO OUR DIRECT MAIL LIST? (circle one) YES NO

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

# WARRANTY INFORMATION

DATA EAST USA, INC., ("Seller"), warrants to the original purchaser ("Buyer"), of its products that the items listed below are free from defects in material and workmanship under normal use and service for the period specified:

**GAME LOGIC PRINTED CIRCUIT BOARD(S)**

**90 DAYS**

No other parts of the Seller's products are warranted.

Warranty periods are effective from date of initial shipment from Seller to Buyer. Seller's sole liability shall be, at its option, to repair or replace products which are returned to Seller during the warranty period specified, provided:

1. Seller is notified promptly upon discovery by buyer that stated products are defective.
2. Such products are properly packaged and then returned freight pre-paid, to a place specified by seller.

This warranty does not apply to products damaged during shipment and/or due to improper handling, or due to improper installation or usage, or alteration. In no event shall Seller be liable for any anticipated profits, loss of profits, loss of use, accidental or consequential damages, or any other losses incurred by the customer in connection with the purchase of a Data East USA, Inc. product.

Except as specifically provided in a written contract between seller and buyer, there are no other warranties, expressed or implied, including any implied warranties of merchantability or fitness for a particular purpose.