IKARI WARRIORS

SERVICE INSTRUCTIONS

TRADEWEST

TRADEWEST, INC.
2400 SOUTH HWY. 75
CORSICANA, TEXAS 75110
214-874-2683
IKARI WARRIORS

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USER INFORMATION - F.C.C.

WARNING

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN ACCORDANCE WITH THE INSTRUCTIONS MANUAL, MAY CAUSE INTERFERENCE TO RADIO COMMUNICATIONS.

IT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS "A" COMPUTING DEVICE PURSUANT TO SUB-PART J OF PART 15 OF F.C.C. RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION AGAINST SUCH INTERFERENCE WHEN OPERATED IN A COMMERCIAL ENVIROMENT.

OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER AT HIS OWN EXPENSE WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.
"IKARI WARRIORS" is a microprocessor based coin-operated electronic game that makes extensive use of digital integrated circuitry and television monitor concepts. This Manual is designed for the use of maintenance technicians who possess a general knowledge of solid-state circuitry and video monitor theory. Any individual NOT knowledgeable in these areas SHOULD NOT attempt repair of the electronic portions of the game.

In addition to this manual and training in electronics, troubleshooting and repair will be facilitated by access to general-type handtools, a multimeter, a 50 or 100 MHZ oscilloscope and a logic probe would be helpful.

Technical assistance is available by calling (214) 872-8477.

Questions or comments concerning "IKARI WARRIORS" are welcome and should be directed to:

TRADEWEST, INC.
2400 South Highway 75
Corsicana, Texas 75110

This Game comes in a cabinet equipped with DYNAMO's Universal Video Hardware System. It provides the needs for additional Game conversion.

With the aid of an Interface Wiring Board (supplied), Game conversion is made by matching and soldering the GAME P.C. Board functions with the Cabinet Universal Video Hardware System. All jumper and wire soldering is done on the Interface Wiring Board. For Interface Wiring Board information refer to Figure 7 of this Manual.

UNIVERSAL CONTROL PANELS FOR GAME CONVERSION ARE AVAILABLE UPON REQUEST THROUGH DYNAMO CORPORATION SALES DEPARTMENT.

CONTACT: Dynamo Corporation
2525 Handley-Ederville Rd.
Richland Hills, Texas 76118
(817) 589-7699

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GAME INSTRUCTIONS

OBJECTIVE: TO REACH THE VILLAGE OF "IKARI". The enemy forces have a strong army of defense, with tanks, amphibious units, helicopters, and ground troops. The ground is further enforced with armored bunkers which must be destroy. Five gates stand in the way along the route. Proceed to the next area by destroying each gate. Use grenade for heavy enemy action and clearing barricades. Remaining bullets are display on the upper left corner. Collect "POW" along the way when bullets are running low. Fuel gage on the left corner indicates remaining fuel. Collect "GAS" to recover fuel. Tank blows-up when fuel is exhausted.

PLAY INSTRUCTIONS

* Second player can join game anytime during play.
* Use Joystick/Rotating Switch Control to move soldiers and direct line of fire.
* Press Grenade button when over friendly tank with "IN" to get into tank.
* Use Fire button to fire tank cannon.
* Use Grenade button to escape from burning tank.
* Game is over when no soldiers remain or all enemies are destroyed.
## Optional Dip Switch Settings

**Dip Switch No. 1 (8P Dip Switch)**

<table>
<thead>
<tr>
<th>Function</th>
<th>SW1</th>
<th>SW2</th>
<th>SW3</th>
<th>SW4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Zap friend with grenade</td>
<td>OFF</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zap friend</td>
<td>ON</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every Bonus point awarded</td>
<td></td>
<td></td>
<td>OFF</td>
<td></td>
</tr>
<tr>
<td>Only 1st &amp; 2nd Bonus points</td>
<td></td>
<td></td>
<td>ON</td>
<td></td>
</tr>
<tr>
<td>Number of Heroes (3)</td>
<td></td>
<td></td>
<td></td>
<td>OFF</td>
</tr>
<tr>
<td>Number of Heroes (5)</td>
<td></td>
<td></td>
<td></td>
<td>ON</td>
</tr>
</tbody>
</table>

## Credits

<table>
<thead>
<tr>
<th>Coin</th>
<th>Plays</th>
<th>SW5</th>
<th>SW6</th>
<th>SW7</th>
<th>SW8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>1</td>
<td>ON</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>6</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>4</td>
<td>ON</td>
<td>OFF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>3</td>
<td>OFF</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>ON</td>
<td>ON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Optional Dip Switch Settings

**Dip Switch No. 2 (8P Dip Switch)**

**Game Level of Difficulty**

<table>
<thead>
<tr>
<th>Level</th>
<th>SW1</th>
<th>SW2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy</td>
<td>1</td>
<td>OFF</td>
</tr>
<tr>
<td>Normal</td>
<td>2</td>
<td>ON</td>
</tr>
<tr>
<td>Hard</td>
<td>3</td>
<td>OFF</td>
</tr>
<tr>
<td>Difficult</td>
<td>4</td>
<td>ON</td>
</tr>
</tbody>
</table>

**Attraction Mode**

<table>
<thead>
<tr>
<th>Mode</th>
<th>SW3</th>
<th>SW4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audio Mode Off</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td>Audio Mode On</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>Stop Video Display</td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td>Continuous Play</td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>

**Bonus**

<table>
<thead>
<tr>
<th></th>
<th>SW5</th>
<th>SW6</th>
</tr>
</thead>
<tbody>
<tr>
<td>First</td>
<td>50,000</td>
<td>60,000</td>
</tr>
<tr>
<td>Every</td>
<td>OFF</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td></td>
<td>OFF</td>
<td>ON</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>ON</td>
</tr>
</tbody>
</table>
INSTALLATION

YOUR GAME WAS SHIPPED FROM THE FACTORY IN READY-TO-PLAY CONDITION.
A BRIEF INSPECTION IS SUGGESTED BEFORE THE MACHINE IS REMOVED
FROM THE CARTON. IF THERE IS DAMAGE TO THE SHIPPING CARTON,
CONTACT THE FREIGHT CARRIER FOR CLAIM PURPOSES. EXTERNAL
DAMAGE COULD INDICATE POSSIBLE DAMAGE TO THE CABINET AND/OR
ELECTRONIC COMPONENTS.

AFTER THE CARTON HAS BEEN SATISFACTORYLY INSPECTED, REMOVE
THE MACHINE FROM THE SHIPPING CARTON.

EXAMINE THE INTERIOR OF THE GAME FOR DISCONNECTED WIRES,
CABLES OR HARNESSES. MAKE SURE THE ELECTRONIC DEVICES ARE
SECURELY MOUNTED IN THEIR SOCKETS, ETC. RECORD ANY PROBLEM
AND CONTACT YOUR CUSTOMER SERVICE REPRESENTATIVE FOR TECH-
NICAL ASSISTANCE.

ELECTRICAL REQUIREMENTS

UNLESS OTHERWISE SPECIFIED, THIS GAME IS SET TO OPERATE AT
110 VOLTS A.C.
ROUTINE MAINTENANCE & SERVICE

Because of the solid state electronic circuitry, this machine should require very little maintenance, and only occasional adjustment. However, it is necessary to take steps to insure this.

The Game volume controls are located on the printed circuit board and can be accessed through the rear cabinet door.

The video monitor was properly adjusted for best color and sharp picture display before shipping. Occassionally minor adjustments are necessary. All adjustment controls for the monitor are located on the rear of the monitor assembly.

This machine should only be adjusted by a "QUALIFIED" Technician. "DO NOT MAKE ANY ADJUSTMENTS ON THIS MACHINE WHILE THE POWER IS ON!"

POWER SUPPLY

The Computer Board in this game operates most efficiently and reliably when the power supply is set so the voltage on the Board is +5.0 volts. To check voltage, place a digital multimeter across +5 volts (pin-1, pin-2) and ground (pin-41, 42, 43, 44) on the P.C. Board edge connector. Adjust, if necessary, the +5 volt Pot (control) located on the power supply so the meter reads between +4.9 and +5.1 volts.

FOR SERVICE INFORMATION CONTACT:

TRADEWEST, INC
SERVICE DEPARTMENT

STEVE GREEN
(214) 874-2683
A manual test may be performed by depressing the "PLAYER 1" START BUTTON DURING POWER-UP. WHEN THE "CROSS-HATCH" PATTERN APPEARS, RELEASE THE BUTTON AND PROCEED AS FOLLOWS:

**Picture 1 "Cross Hatch"**

Adjustment to the monitor may be made to center and/or extend the borders of the picture.

Press "PLAYER 1" button to change to picture 2.

**Picture 2 "Color Test"**

Adjustment of colors on the monitor may be made.

Press "PLAYER 1" button to change to picture 3.
2. LEVER

P1 UP 0 P2 UP 0
P1 DOWN 0 P2 DOWN 0
P1 RIGHT 0 P2 RIGHT 0
P1 LEFT 0 P2 LEFT 0
P1 NOBU 0 P2 NOBU 0
P1 PUSH1 0 P2 PUSH1 0
P1 PUSH2 0 P2 PUSH2 0
COIN 0 PLAY2 0

Picture 3 "Joystick & Switch Test"

The screen will display all switches with a zero (0) to the right. The zero (0) should change to one (1) and increase by one each time Joystick is moved to the right. Moving Joystick to the left decreases each number by one. Inserting coin or pushing service switch increases coin number by one.

Press "PLAYER 1" button to change to picture 4.

3. MODE

DIP1 12345678
00000000
DIP2 12345678
00000000
TYPE TABLE
HERO 3
1 COIN 1 PLAY 1 COIN 2 6 PLAY
BONUS 1 50000 P
BONUS 2 100000 EVERY
LEVEL 1

Picture 4 "Mode Check"

The screen will automatically display all programmable features with their respective settings. Settings should correspond to the position of the dip switches on the P.C. Board. The actual set mode is displayed at the bottom of the screen.

Press "PLAYER 1" button to change to picture 5.
4. FRONT
CHARA CODE 0000-0031
COLOR 00
FRONT CHARACTER

Picture 5 "Front Test"

Check monitor screen for character(s) display.

Press "PLAYER 1" button to change to picture 6.

5. MUSIC

MUSIC CODE = ?
MEDOLY 41-7B
EFFECT 81-BB
STOP 0E

Picture 6 "Sound Test"

Set up Music Code to either 41-7B or 81-BB using Joystick. Push "FIRING" button to set. For no sound, set Music Code to 0E and press "FIRING" button.

Press "PLAYER 1" button to complete test and exit diagnostics.
P.C. BOARD ASSEMBLY

SOUND VOLUME (A)
Turn clockwise to increase all sounds levels.

BALANCE VOLUME (B)
Turn clockwise to increase sound effects.

Turn counter-clockwise to increase back ground music sound.

DIP SWITCHES

TO ROTARY SWITCHES

Player 1
Player 2

COMPONENT SIDE

ROTARY SWITCH ASSEMBLY WIRING

1. To avoid IC damage DO NOT use Multimeter to test Solid-State Modules.

2. Turn Main Power off when inserting or removing edge connectors from P.C. Board.

3. Shorting Reset Terminal (pin-6 of P.C. Board edge connector) to ground will reset CPU. If not used, leave open.

Figure-1
JOYSTICK ASSEMBLY

Knob
base plate
guide (8 way)
guide stopper
micro switch
micro switch mounting plate
"C" ring
flat washers
compression spring
spring stopper
nylon bearing cover
bearing
shaft
rotary switch stopper
rotary switch mounting plate
rotary switch

Figure-2
DISCONNECT 3 PLUGS TO MONITOR
REMOVE 8 SCREWS
ROTATE 90° FOR QUICK VERTICAL ASSY.
REASSEMBLE 8 SCREWS
CONNECT ALL PLUGS

Figure-3
GAME BOARD CONVERSION

WITH HARNESS & COMPONENT LAYOUT
CHASSIS
GROUND
LAYOUT

(7) WIRES (GREEN)
FROM INTERLOCK

TO CONTROL PANEL

PLUG

DOOR INTERLOCK

MONITOR

COIN DOOR CLIP

COIN LIGHTS (2)

POWER SUPPLY

ISOLATION TRANSFORMER

Figure-5
CONTROL PANEL GROUND HARNESS CONVERSION

Figure-6
FOR BUTTON DUPLICATION
(Such as right & left handed control buttons)

DO NOT cut, butt-splice or jumper any wire in the control panel as this will destroy the system for future use. In the event of button duplication, a jumper on the Interface Board to an unused control pad should be used. Remember that all grounds not supplied on the main Logic PCB must be added by jumpering from pins 1, 2, A, B to the line needing ground. An example for coin switch application is shown below together with 1 & 2 player ground and control panel ground.

---SIDE 1---

MATCH GAME BOARD FUNCTION WITH VIDEO HARDWARE SYSTEM & SOLDER

---SIDE A---

INTERFACE WIRING BOARD

Figure-7