Service Instruction Manual

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'STOP'

Read this entire manual before beginning work on this new video conversion! We have carefully included EVERYTHING needed to make this kit more than just a conversion! When finished, this kit should look, play and earn like a brand (spanking) new, dedicated, video game. We have painstakingly prepared a FIRST-CLASS complete kit. First things first. Using the KIT CONTENTS page of this manual, inventory ALL the parts. Make sure you have tham all! Next, carefully read all the various sections of this manual because it is filled with very IMPORTANT information. We want this new game to earn money for you as much as you do! So please, read through all the sections and proceed ONLY after you fully understand them all. Will this game go to an arcade! Or will it go to a street location? There is information concerning that in this manual, so read on . . .

Tools Needed

Paint (black or silver)
Sandpaper
Drill & Bits
Soldering Gun
Resin Core Solder
Various Electronic Connectors
Black or Braid Wire
Wire Ties
Screwdrivers
Pliers
Knife Razor
Marking Pen
Windex (or similar)
Squeegie or Cardboard
Rags/Enthusiastic Attitude
Small File
Coke
Coffee
Snack
Sleep
Masking Tape
Patience
Common Sense

Kit Contents

1 — TECMO Printed Circuit Board
1 — Marquee Plex 9" x 24"
1 — Monitor Card 23¾" x 23¾"
1 — Control Panel Overlay 18" x 24"
1 — Player 1 "START" sticker
1 — Player 2 "START" sticker
2 — "ATTACK" stickers
2 — "JUMP" stickers
2 — Side Decals
1 — Wiring Harness
1 — Joystick – 8 (eight) way
2 — (White) Buttons
2 — (Red) Buttons
2 — (Blue) Buttons
6 — Button Switches
6 — Pal Nuts
1 — Instruction Manual
1 — F.C.C. Sticker
1 — Point of Purchase Display

How To Play

- Control "RYGAR" using eight (8) way joystick.

- Push "ATTACK" button to use weapon.

- Push "JUMP" button to leap over enemies/or onto tree branches, etc . . .

- As rock "HEADSTONES" appear — destroy them with weapon!! Pick up articles that are left to bring out power "SHIELDS."

- Pick up power shields to add or gain special powers.

- Advance through twenty-seven (27) rounds until "RYGAR" reaches enemy temple. Fight Temple Master's Monster to end the adventure . . . !

Controls

OVERHEAD WEAPON

LEFT — RIGHT

DUCK
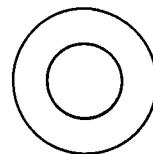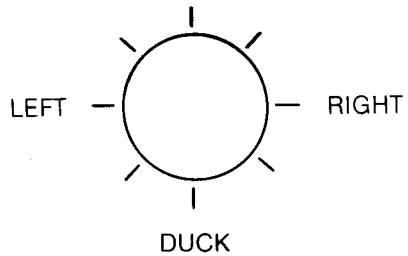
ATTACK
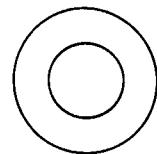
JUMP

Description of Game Play

> "4.5 billion years have passed since earth's creation. Many dominators have ruled in all their glory. But time, their greatest enemy, ultimately defeated their reign. And now, a new dominator's reign begins . . . ."

'RYGAR' is a powerful warrior armed with a mighty weapon. 'RYGAR' can project his weapon in the direction he faces as well as swing it arching above his head. He must defeat all enemies, as well as destroy rock "head-stones" that appear from below ground. These rock "head-stones," when destroyed will leave bottles containing different potions, or stars or "T"'s that award more time. Picking up the bottles and stars secretly brings out "shields". These shields when picked up award new powers to 'RYGAR'. These powers include: extention of weapon reach; powerful overhead attack; ability to defeat multi-enemies within reach of weapon; indestructable for a certain time and ability to defeat enemy by trampling them. 'RYGAR' moves left or right, leaps high into the air and ducks down to a kneeling position. 'RYGAR' can "bounce" on his enemies to temporarily knock them out!! 'RYGAR' can leap up onto tree branches as well as onto rock formations. 'RYGAR' can also "climb" ropes to progress in the game play.

New Feature ! !

TECMO has included an interesting, new feature that many game players have told us they want. When a player "loses" a game life, the new "spare" 'RYGAR' warrior appears at exactly the point where the old one died. The player is not taken back to the beginning of each new round of play, causing an increasing "frustration factor" that will soon cause a player to walk away. 'RYGAR' has twenty-seven (27) rounds of play, unlike 6-10 rounds like many other games, so this feature will certainly be appreciated by your game customers.

"Buy-In Feature"

This exciting new TECMO video game is equipped with a "BUY-IN" feature. When switch #8 on dip-switch #2 is in the "ON" position, the player can "continue" playing the game by inserting an additional coin and pushing the "start" button. When the original game play has ended there are no more spare 'RYGAR' warriors, the game will display "continue" and will count down 9, 8, 7, 6, ... at this time the player can insert more coins and continue playing from where the furthest progress was.

The game player may continue to "BUY-IN" up to round #20 of 27 possible rounds of play. This was done so that players are not able to merely "buy through" the content of the game. In order for a player to complete the game they must develop the necessary skills to achieve the goal from round #20 on.

2 Player Additional Play

TECMO has included a feature that allows a second player the opportunity to begin play (from round #1) while the first player is deep into later rounds. This prevents one player from "tying up" the game without the benefit of the revenue of two players. Turn switch #7 to the "ON" position on dip-switch #2 in order to use this special feature.

F. C. C. Information

This equipment has been tested with a Class A computing device and has been found to comply with PART 15 of the F.C.C. rules and regulations. Operation in a residential area may cause unacceptable interference to radio and TV reception requiring the operator to take whatever steps are necessary to correct the interference.

A required metal shield is included to house the electronic printed circuit board. This metal shield MUST be installed in order to comply with the F.C.C. regulations. NOTICE: THE PRINTED CIRCUIT BOARD MUST BE GROUNDED TO THE ENTIRE ELECTRONIC SYSTEM. An F.C.C. sticker is included with this kit and MUST be installed in a visible location for possible inspection.

Service Information

TECMO, INC. guarantees this product to be free of defects for a period of 30 days after purchase. This warranty is valid only when the enclosed "GAME REGISTRATION CARD" is completely filled out and returned postage-free to TECMO, INC., 18010 SOUTH ADRIA MARU LANE, CARSON, CALIFORNIA 90746. TECMO will repair or replace this product upon our inspection. Proof-of-Purchase may also be required. If you have any questions, please call our out-of-state WATTS number at 1 (800) 457-6050.

Power Requirements

The TECMO printed circuit board included in this kit requires +5 voltage and +12 voltage. The +5 voltage should be exactly 5V for this P.C.B. 5.2V is OK, but no higher than this and not lower than 5.0V. This should be rated at 5 amps. +12V should be rated at 1 amp.

Monitor Requirements

This TECMO printed circuit board requires interfacing with NEG (–) composite sync. Most monitors have provisions for composite sync. Some monitors require that the vertical and horizontal negative sync be tied together in order to achieve a composite signal. For best results consult the monitor manufacturer or the distributor service department where this kit was purchased.

Control Panel Template

The following dimensions are for metal control panels; For wood control panels, drill **a ⅝" hole** completely through, then drill a 1¼" hole to 5/16" depth.

JUMP
BUTTON

ATTACK
BUTTON

1⅛"
DIAMETER

2"

JOYSTICK HOLE 1" DIAMETER

3"

5"

1½"

2⅝"
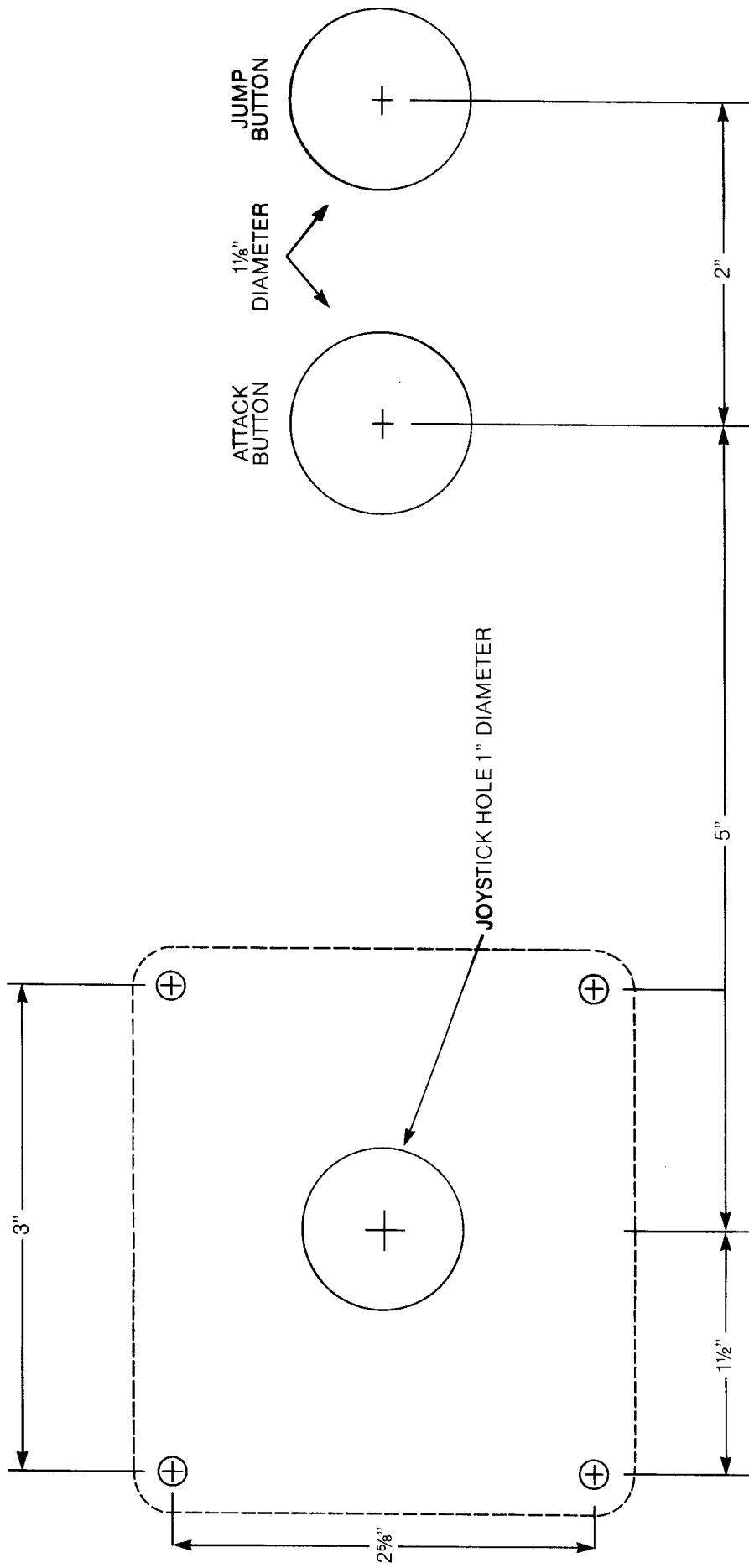
Display Check

ROM Check

When normal, "OK" is displayed and "ERROR" is displayed when there is something abnormal, in the order of ROM 1-4 (NO. 5-2).

When ROM check is OK, there will be an automatic shift to cross hatch. At this time, when pushing the button in the one (1) player side, display stops in the state of cross hatch. When pushing the button again, there will be a shift to "Game Display."

Notice

All control circuits are composed of IC's, and though they have a long service life, they may be instantly broken in the event of mishandling. So, fully observe the following precautions:

1. Be sure to turn power "OFF" when changing parts or pulling/inserting each connector.

2. Don't use the tester to inspect the PC board, since an IC may be broken due to the tester's internal voltage.

3. Be sure never to expose the PC board to direct rays of the sun.

4. When connecting the connector, be careful so that it is correctly directed.

5. When moving the PC board, use a PVC air mat, bubble wrap, etc., so that it is not given a strong shock.

Cabinet Preparation

Cabinet

After you have decided which game cabinet you will use to install this kit into, strip the exterior of all replaceable items. These include: marquee, side decals, control panel, etc... Side decals can be removed using a scraper or by peeling them. The remaining glue may be removed using lacquer thinner. Sand cabinet sides and front using sandpaper and then clean them entirely with soapy water. Rinse with clean water and allow to properly dry. Select an appropriate color of paint (black or silver) and cover with several coats. Let these coats dry properly to insure best results. The cabinet is now ready for completion!!

Side Decals

Take the new 'RYGAR' side decals and peel the backing paper. Spray the decals adhesive side up, with windex (or similar). Spray the cabinet sides thoroughly as well. Position the decals into place and then using a soft squeegie (or piece of cardboard) starting at the middle, slowly and evenly press out the excess foam until you achieve a smooth finish. This procedure has been found to be the most effective way of ensuring the proper positioning of the decals as it creates manuverability of the decal and is an add protection against the decal coming loose or creasing during application. Allow to set 2-3 hours.

Control Panel

Take the control panel previously removed and take off the old buttons, switches, joystick and wiring. Strip off the older lexan overlay and any vinyl button stickers. Using sandpaper, prepare the control panel surface until all remains of the previous material are gone. Lacquer thinner might be necessary if glue is still present. Clean the surface with soapy water, and then thoroughly rinse it. Dry the control panel completely! (Now is a good time for some coffee or a coke). After refreshing yourself, you can begin the next step.

Use the CONTROL PANEL TEMPLATE included in this kit. Lay it on the control panel centering at the joystick location. Mark the necessary holes, then drill as needed. Be sure to file them to a smooth finish. If you are working with a metal control panel, heat it up with a heat gun or a room heater (if possible). Take the overlay and remove the paper backing. Heat it up as well with a heat gun or hair-dryer. Place the overlay carefully over the control panel and firmly bond them together. Using a razor knife, carefully cut out all the holes for the new controls.

*Next, install the button stickers to their proper locations. Install the new buttons, switches and be sure to use the joystick that is provided with this kit. This joystick is perfectly matched to perform properly with this game. The older joystick MAY NOT be suited for this game causing less earnings for you, so install the model that we have included.

After the new buttons and switches are properly installed, and the new joystick has been carefully installed, wiring can proceed. Use the WIRING DIAGRAM section of this manual to match the various functions such as "ATTACK," JUMP," "LEFT," "RIGHT," etc., to the proper switches and then solder them using RESIN core solder. It is always a good idea to solder a continuous BLACK ground wire to all the switches first. After this has been done the control panel is now ready!

Wiring To Power Supply

As mentioned in the section POWER REQUIREMENTS, this game uses +5V and +12V DC. Chances are the cabinet you are converting has a properly working power supply that is able to supply these voltages. If not, it is a good idea to install a new, inexpensive 'switching' power supply available from your local distributor. Locate the +5V leads color coded RED, and install them to the proper position on the power supply. Next, locate the +12V leads color coded YELLOW, and install them to the proper position on the power supply as well. Last, position a BLACK ground wire from the harness and connect it. The game is now wired for power.

Wiring The Speaker

Locate the proper color coded wires for audio output, and solder them to the cabinet speaker. Easy wasn't it!

Wiring The Coin Mech

Locate the WHITE color coded wire at position #19 as well as a BLACK ground wire and connect them to the two coin door switches. First inspect the present wiring and determine if these wires can be 'sliced' together with the new ones in order to avoid complications that can arise from rewiring these switches. The logic here is that most coin switches have three possible wire locations; GND (ground) NC (normally closed) and NO (Normally open). Be sure after connection that the game 'coins' properly.

Cabinet Preparation (continued)

Monitor Connection

This printed circuit board has a separate wiring connector to install to the monitor. Connect it at the rear of the board and match it to the monitor by the color codes; BLUE-BLUE, RED-RED, WHITE-SYNC, etc . . .

Ground System

It is highly recommended that installation of a continuous GROUND wire be installed that is connected to every electronic component, such as: shield to, PCB to, power supply to, coin door to, control panel to, etc . . .

Marquee Plex

This is also referred to as a 'header' or 'logo'. The size we have included in this kit is 9" x 24". This should certainly be ideal for the cabinet you are converting. Using the old marquee from the previous game, lay it on top of the new one. Be sure that none of the title 'RYGAR' is excluded before marking it to the proper size. Once this is done, proceed to cut it. Unless you process the equipment to safely cut the plexiglass, we recommend taking it to a local plastics supply to do the job. They usually charge no more than a couple of dollars and you can insure it will be done right and without breakage. After the plexi is cut, install it!

Now is also a good time to inspect the lighting system. If the bulb(s) is old, replace it! This will insure a 'shining' and bright advertisement to lure paying customers to your newest game.

Monitor Card

We have included an attractive, new monitor cardboard to complete the new game look! Why is it cardboard? Why isn't it plexi-glass!? That's a very good question and it deserves a good answer! First of all, many games come with 'glass' in front of the TV monitor to begin with. Second, plexiglass can quickly 'dull' after repeated cleanings. Third, it would require more 'cuts' to position it properly than the cuts necessary to position the marquee. Hopefully, this answers that question.

Well now, properly position the 'card' under the existing glass and easily cut it using a razor-knife. LOOKS GREAT!!

Final Inspection

Believe it or not, your almost ready to debut your fantastic, new video game!! WAIT, don't power up just yet. Re-check ALL soldered connections. Especially the ones to the power supply! After a final inspection of all connections, turn power on. Listen for audio to be sure the sound is OK. Smell and look for smoke in case something is cooking. If everything is OK, you're ready to play the game. Be sure 'RYGAR' moves in all the proper directions as well as "JUMPS" or "ATTACKS" when proper buttons are pushed!

DIP SWITCH 1		1	2	3	4	5	6	7	8
COIN 1	1 COIN/1 PLAY	OFF	OFF	★					OFF
	2 COINS/1 PLAY	ON	OFF						
	1 COIN/2 PLAYS	OFF	ON						
	1 COIN/3 PLAYS	ON	ON						
COIN 2	1 COIN/1 PLAY			OFF	OFF				
	2 COINS/1 PLAY			ON	OFF				
	1 COIN/2 PLAYS			OFF	ON				
	1 COIN/3 PLAYS			ON	ON				
NUMBER OF RYGAR	3					OFF	OFF		
	4					ON	OFF		
	5					OFF	ON		
	2					ON	ON		
TYPE	COCKTAIL TABLE							OFF	
	UPRIGHT							ON	

SW 8 OF DIP SWITCH 1 IS NOT USED. BE SURE TO KEEP IT OFF.

★ Recommended Operation

DIP SWITCH 2		1	2	3	4	5	6	7	8
EXTRA RYGAR	50,000-20,000 500,000	OFF	OFF	OFF	OFF				
	100,000-300,000 600,000	ON	OFF						
	200,000-500,000	OFF	ON						
	100,000	ON	ON						
DIFFICULTY LEVELS	NORMAL				★	OFF	OFF		
	DIFFICULT 1				☆	ON	OFF		
	DIFFICULT 2					OFF	ON		
	DIFFICULT 3					ON	ON		
PLAYING TIME	NORMAL							OFF	
	2P ADDITIONAL PLAY							ON	
BUY-IN	NORMAL								OFF
	BUY-IN								ON

SW 3, 4 OF DIP SWITCH 2 ARE NOT USED. BE SURE TO KEEP THEM OFF.

★ This difficulty setting is recommended for "street" operation. After 2 weeks of operation, it is recommended to adjust the difficulty to difficulty 1 by turning SW 5 on.

☆ This difficulty setting is recommended for "arcade" operation. After 2 weeks of operation, it is recommended to adjust the difficulty to difficulty 2 by turning SW 5 off and SW 6 to on.

COLOR	PARTS SIDE	NO.	NO.	SOLDER SIDE	COLOR
	+5	36	35	+5	
RED	+5	34	33	+5	RED
	+5	32	31	+5	
YELLOW	+12	30	29	+12	YELLOW
BROWN	SPEAKER	28	27	SPEAKER	WHITE/RED
BLACK	GND	26	25	GND	BLACK
	GND	22	21	GND	
WHITE/YELLOW	COIN 2	20	19	COIN 1	WHITE
GRAY	PLAYER 2 START	18	17	PLAYER 1 START	VIOLET
		16	15		
BLUE	1 PLAYER JUMP	14	13	1 PLAYER ATTACK	PINK
TAN	1 PLAYER DOWN	12	11	1 PLAYER UP	ORANGE
BROWN	1 PLAYER LEFT	10	9	1 PLAYER RIGHT	GREEN
	----- KEY -----	8	7	----- KEY -----	
BLUE	2 PLAYER JUMP	6	5	2 PLAYER ATTACK	PINK
TAN	2 PLAYER DOWN	4	3	2 PLAYER UP	ORANGE
BROWN	2 PLAYER LEFT	2	1	2 PLAYER RIGHT	GREEN

TO TV
CONNECTOR

PARTS SIDE

2   36

1   SOLDER   35
        SIDE

1	BLUE
2	GREEN
3	RED
4	GND
5	SYNC
6	