



GAMECRISTAL OPERATORS MANUAL



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About GAMECRISTAL

Thank you for acquiring this CRISTALTEC product. The aim of this manual is to instruct you of how to operate your system correctly and safely . An incorrect operation of the system might cause problems and malfunctions, hence we ask you to read this manual carefully before starting the exploitation of it.

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Any change and/or alteration to the system GAMECRISTAL with kits or components not provided by CRISTALTEC can stop its guaranty. The removal or alteration of the serial number and/or bar codes that identify the product, imply the cancellation of its manufacturer guaranty.

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Note: This equipment complies the 50081-2 directive for electromagnetic compatibility. Never the less its operation in residential areas can cause interference. It is the operator's responsibility to apply the necessary protections to limit these radiations.

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1. GENERAL INFORMATION

1.1 Manufacturer and system information

Distributor A.u.S.Spielgeräte GmbH
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Austria
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System name GAMECRISTAL
Model EUR

1.2 Legal referencies

The system GAMECRISTAL complies with the following directives for security and electromagnetic compatibility:

- Electromagnetic compatibility directive 89/336/CEE and its amendments 91/263/CEE, 92/32/CEE y 93/68/CEE.
- Low voltage directive 73/23/CEE.

1.3 Technical services

CRISTALTEC and its authorized distributors will provide technical services for the GAMECRISTAL – EUR game system.

1.4 Manufacturers responsibility

Any changes or modifications on the original machine is of the entire responsibility of the operator, that in consequence will be the new manufacturer, hence assuming all responsibilities over the accomplishment of the legal, security and electromagnetic directives.

In case of an accident caused by a defective part, the manufacturer will assume the responsibility if the machine is in its original conditions. Having said this, this responsibility stays limited or is null if the operator does not follows the instructions in this manual, uses non-guaranteed parts or parts not authorised in writing by Cristaltec, or part that don't accomplish the correspondent directives or technical specifications.

2. SPECIFICATIONS

2.1 Description of the system software and hardware

The system runs over the operating system WINDOWS 98 SE using a D3D chipset for direct 3D graphics. The 3D engine is very complete and the handling goes up to 60 frames per second capabilities.

The system is equipped with a stereo 30+30W audio amplifier built in, as well as a 100Mbps Ethernet card.

It is based on the Pentium III 866MHZ processors and is equipped with 256MB of ram, shared in 32MB with video ram.

The software runs from highly reliable IBM server hard drive. It has got 2 USB ports for communication, link or upgrading facilities.

2.2 Dimensions and system weight

Width 170mm Length 170mm height 170mm

Net weight 3,2Kg aprox.

Dimensions and weight of the packed system

Width 220mm Length 220mm height 190mm

Net weight 3,5Kg aprox.

2.3 Power Supply

Switch mode power supply. – Mod: SFX Power: 200W

Mains ac: 220V or 110V 50/60 Hz

2.4 Controls, inputs and outputs

- Audio master volume control
- Audio Stereo/mono selector
- Video mode pushbutton
- 15 pin D-SUB Vga 31KHz output connector
- 100 % JAMMA connector interface
- Mains 110V/240V inputs connector

2.5 Miscellaneous supplied with the packed system

Operators manual	(1)
Mains supply lead	(1)
Fitting brackets	(2)

3. PRECAUTIONS

3.1 System operating environment

This system was designed to be used in closed places, residential or commercial. Under any circumstances this system should be installed in uncovered places or in places with the following characteristics:

- Direct exposure to sunlight or contact with water.
- Dusty areas, with high humidity areas or high temperature zones.
- Places submitted to vibrations.
- Close to ventilation pipes, as rapid changes in temperature might cause malfunctions in the system.
- Close to dangerous substances (inflammable, corrosive, etc.)

3.2 Incorrect operations with the system

Please note the importance of these items, as it points out vital information about its safe operation.

- The system should only be used in residential or commercial areas
- The system should not be used for supporting other objects
- Do not use the system next to areas where there are liquids or liquid dispensers. As a general rule, no liquid should be poured over it.
- The ventilation windows should never be blocked. For this, the system should be installed at least 10cm (4") apart from any obstructing objects
- Do not have the mains cable in areas where people walk by, as it might cause accidents.
- When transporting the system, please avoid strong vibrations as the machine contains sensitive devices.

The system should not be handled by people under the effects of alcohol .

4. HANDLING AND TRANSPORTATION



This product must be handled and installed by authorized technicians. It contains sensitive parts to vibration, which include precision components. For this reason care must be taken when moving or transporting the system.

4.1 Storage

The system should be stored packed in dry and covered areas where the temperature is between +45° C and -5° C

When storing the systems do not stack more than 6 boxes.

4.2 Reception of the system

The cardboard used to pack the system must be inspected prior to the unpacking process, to ensure the machine didn't suffer any damage during its transport, and is in good conditions.

The guaranty can be cancelled by damages caused during the transport. As soon as a damage is detected, one must report it to the distributor or to the transportation company.

5. INSTALLATION AND SWITCHING ON

When you position the system in its place of operation, make sure it is correctly fitted to the cabinet housing. With this will avoid displacement that they can cause damages to it.

5.1 Inspection

Proceed according to the checklist below:

- Perform a visual examination of the system, to check for possible damages.
- Verify the cabinet JAMMA connector and identify the component side of the connector before plugging it to the system.
- If using a VGA monitor, connect the monitor VGA plug into the system VGA OUTPUT port.
- Inspect the Mains cable and make sure that it does not present any breaks or damages.

5.2 Cares before switching on the system

Professional-trained technicians should perform the operations that are described below.

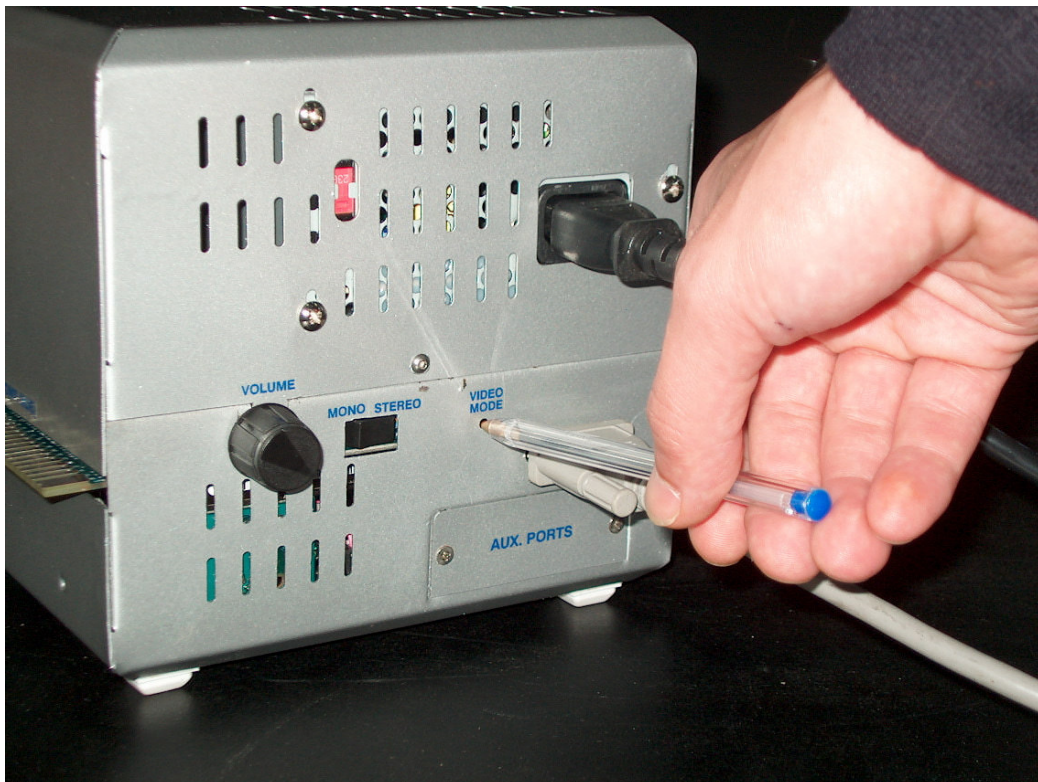
Make sure that the area chosen to service the system is apart from sources from heat and that is not obstructing emergency exits.

- If one must to move the machine by some reason, remember rising the levellers so that they do not grub against the ground.
- If the Mains cable results damaged by some reason, do not use it and replace it by another one with the same specifications.

5.3 Starting the system

Once the system is properly fitted in a cabinet, re-check all connections.

- Switch on the cabinet, monitor, etc.
- The system by default is programmed in VGA video mode. In case you have a PAL 15KHz or an NTSC monitor, please refer to the next item.
- With a pen, pulse the video mode button until you ear a message with your video mode being activated . Ex: PAL VIDEO MODE



- When you ear this, press the cabinet TEST button to save that video mode. The system will restart with the new video mode programmed.

6. SYSTEM PROGRAMMING AND TEST MODE.

6.1 Frontend



The frontend is presented as above. The system by default has got 5 pages for a total of 50 active games.

The games are presented in a intuitive way. The selection of the games buttons is made either through the up and down controls of both player1 and player2 joysticks.

One can see the selected game button highlighted in blue, as well as its correspondent video stream playing on the video frame.

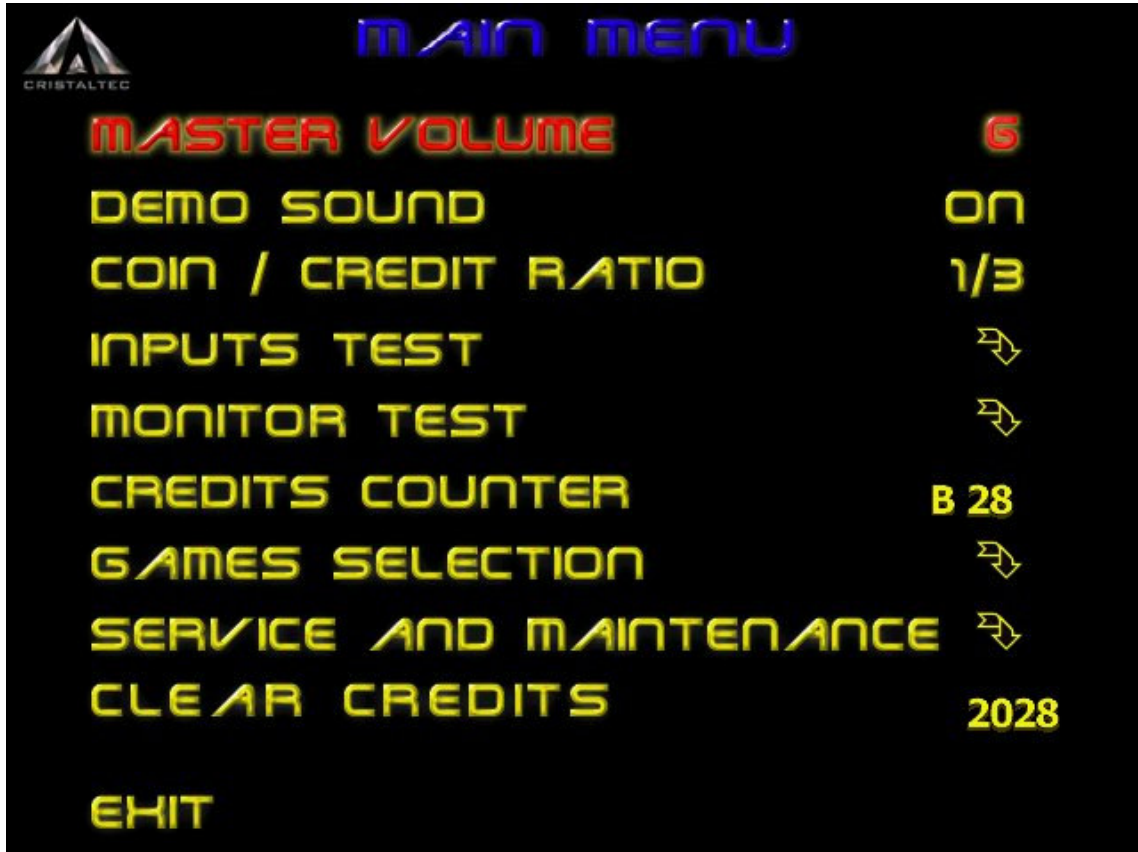
To change pages use left and right controls of the player1 or player2 joysticks.

When a game is being loaded, the load bar will fill with a red "gel" to indicate its progress.

A game will only load if there are credits of the credits counter.

6.2 Technical menu

6.2.1 Overview



6.2.2 Master volume

The master volume control is the main audio level for the system. One can also adjust the Volume at the Volume knob in the system box. This feature is a software controlled volume that goes from 0 to 10, being 0 to 100% of the preset volume at the volume knob.

To change the values, use player1 joystick right to increment and left to decrement.

6.2.3 Demo sound

The demo sound control is to switch off or on the sound during demo. Again, this control is operated with left and right controls of the player1 joystick.

6.2.4 Coin / credit ratio

This control is specially needed when using mechanical coin systems, as it provides both in the frontend or inside the games a multiplication/division factor to the inserted coins.

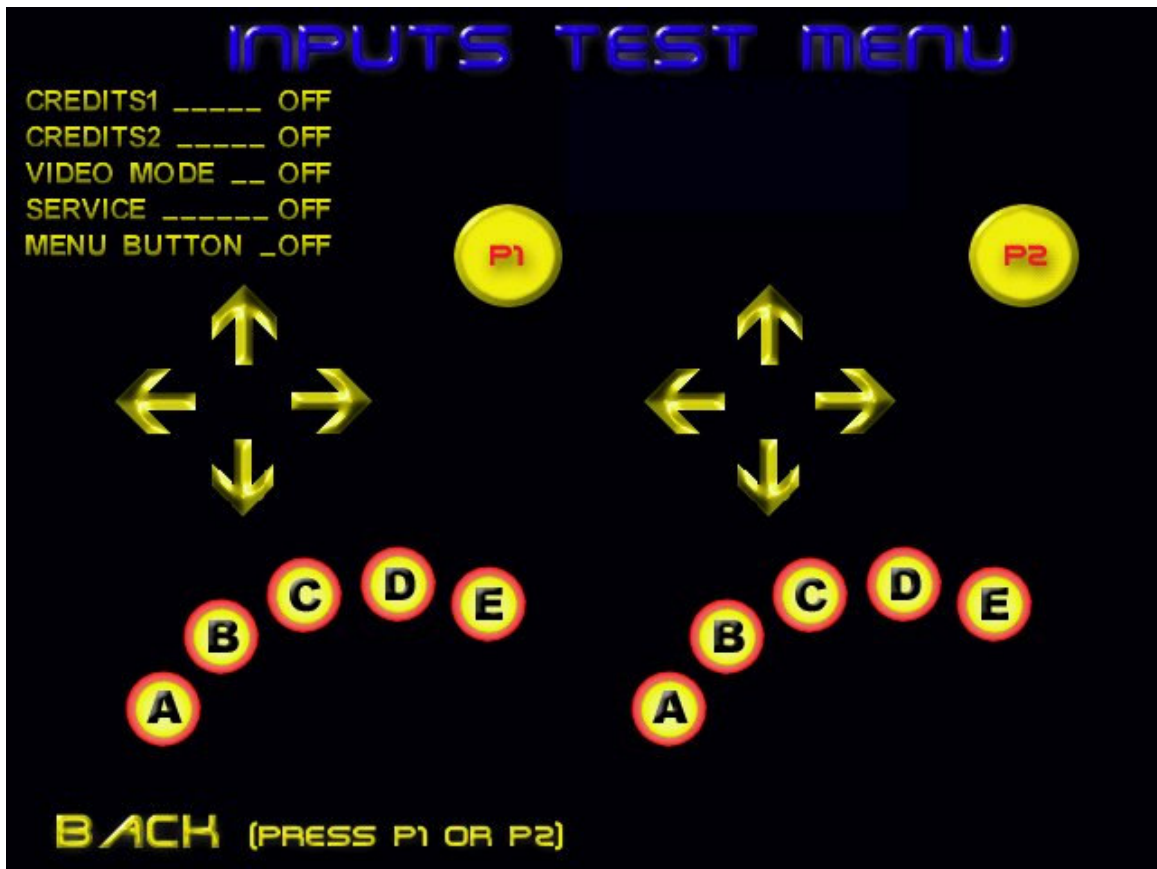
One can select between:

- **5/1** 5 coins for 1 game credit
- **4/1** 4 coins for 1 game credit
- **3/1** 3 coins for 1 game credit
- **2/1** 2 coins for 1 game credit
- **1/1** 1 coin for 1 game credit (*)
- **1/2** 1 coin for 2 game credits
- **1/3** 1 coin for 3 game credits
- **1/4** 1 coin for 4 game credits

(*) – Usually this setting 1/1 is used when the system is fitted with an electronic coin system, as its multiplication factors are provided by the coin system.

In case of division (5/1 to 2/1), an extra window is displayed at the frontend screen, which indicates all partial coin drop insertions.

6.2.5 Inputs test



This screen enables the user to test visually all inputs to the system and check for any faulty micro switch.

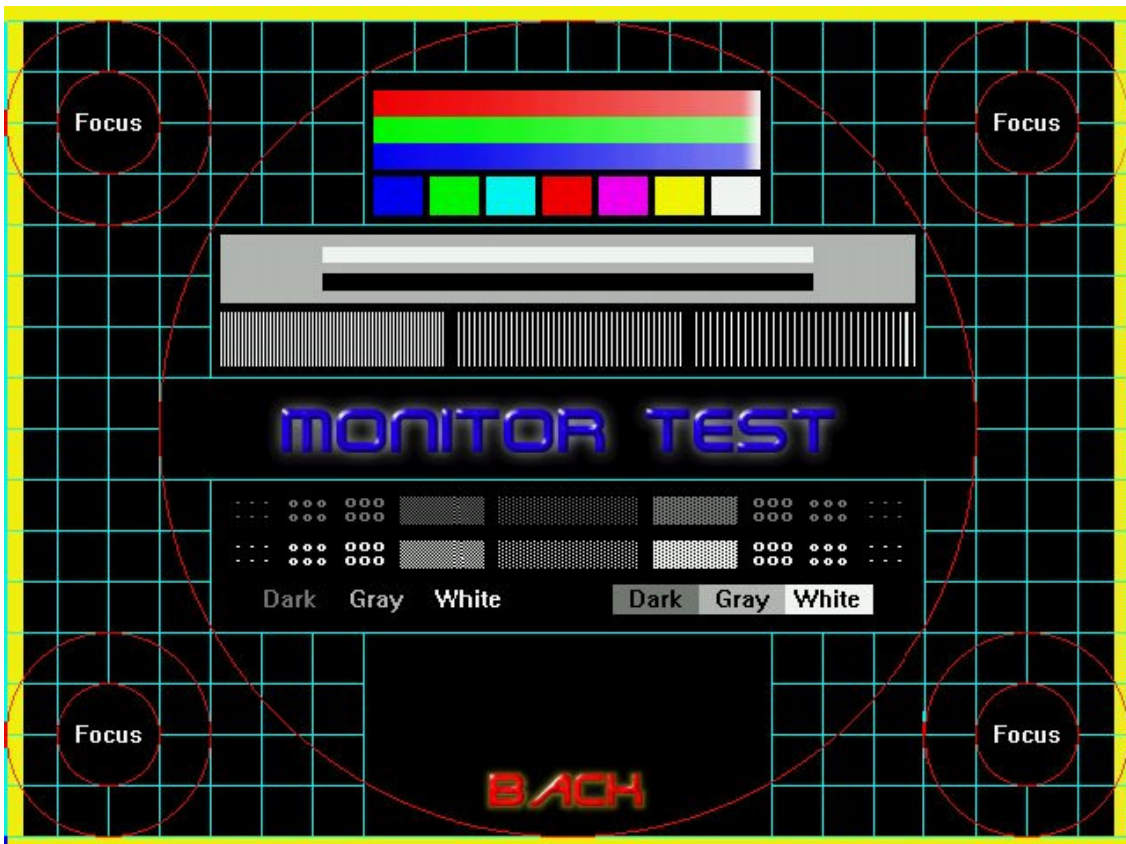
Button E of both players are the same as menu button.

I.e. IF ONE WANTS TO CONNECT A SEPARATE BUTTON FOR MENU SELECTION (EXIT FROM GAME TO FRONTEND) IT CAN BE CONNECTED TO EITHER BUTTON E INPUT OF PLAYER1 OR PLAYER2.

PLEASE REFER TO WIRE DIAGRAM APPENDIX.

The test system is totally independent on the inputs, so one can activate all inputs to the system and see it being highlight on screen in real time.

6.2.6 Monitor test



This screen was made so the user can adjust and calibrate adequately the cabinet monitor, being size, contrast, brightness, etc.

6.2.7 Credits counter

The credits counter option is a total credit counter since the system was first ON. It counts CONSUMED credits over time.

The counter counts from 0 to 12000 credits but displays them with a prefix letter so that:

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000	to	999				
A000	to	A999	.	.	.	1000 to 1999
B000	to	B999	.	.	.	2000 to 2999
C000	to	C999	.	.	.	3000 to 3999
D000	to	D999	.	.	.	4000 to 4999
E000	to	E999	.	.	.	5000 to 5999
F000	to	F999	.	.	.	6000 to 6999
G000	to	G999	.	.	.	7000 to 7999
H000	to	H999	.	.	.	8000 to 8999
I000	to	I999	.	.	.	9000 to 9999
J000	to	J999	.	.	.	10000 to 10999
K000	to	K999	.	.	.	11000 to 11999
000	to	999	.	.	.	12000 to 12999
ETC...						

Note: The counter overflows at 11999 credits

6.2.8 Games selection



The games selection screen is provided so one can change the games from available to active.

The available games are the games that are on memory but not displayed to the player. The active games are the games that are shown to the player, to be played.

To swap around a game, simply select with cursor on the active table the game to be removed, do right on the joystick, select with cursor the wanted game on the available table and press the START1 button.

At this stage the games will swap them selves together with their correspondent information.

The column labelled PC stands for “Partial Credits”. This counter stands for the number of credits consumed by that particular game.

One can reset these counter by selecting the “Clear Partial Credit” option and pressing 6 times on the START1 button.

Every time a game is swapped around, at the frontend, it will appear together with a tag displaying “NEW”. This tag stays active for 15 days and then goes off automatically after this period to indicate a new game has become active.

6.2.9 Service and maintenance

6.2.9.1 Overview



6.2.9.2 Free play

This option is used for exhibitions purposes or demo. The system will display "FREE PLAY" in opposition to "INSERT COIN" or "PRESS START" at the frontend screen.

No credits are required to play a game. Every time the START button is pressed, it will insert 4 credits into the game.

6.2.9.3 No.of Pages

This option is used so that one can customize the machine to its needs. One can set up a machine with only 10 games or group 10 games up to 50 in total, being 5 pages of 10 games each.

Each page contains 10 games, and the number of pages goes from 1 to 5.

6.2.9.4 Update games

This feature was created so that one can decide to change games manually "MANUAL" or let the machine change the games automatically "AUTO" based upon an amount of days period, defined on the next option item.

6.2.9.5 Update period

If the option item above (6.2.9.4) is selected as "AUTO" then in this option one is able to select automatic update every:

- 30 days
- 45 days
- 60 days
- 90 days

6.2.9.6 Menu button

This option was created to prevent old cabinets to be added with an extra button for this feature.

If one decides to add an extra button to make the menu/select operation, it should be connected to Player1 or Player2 button E on the Jamma connector.

If one decides to have one of the existing buttons to make this function, just select it using left or right on the joystick.

The system will detect the end of game, changing the original function of the programmed button to operate as menu/select button.

When the game detects this function it will display on screen the image identifying the button.

6.2.9.7 Difficulty and statistics

6.2.9.7.1 Overview

GAME	APT	DFT
AERO FIGHTERS 2	0	2
ANDRO DUNOS	0	2
BATTLE FLIP SHOT	0	2
BLOCK BLOCK	0	NA
BREAKERS REVENGE	0	2
CAPCOM SPORT CLUB	0	NA
CAPTAIN COMMANDO	0	2
CAPTAIN TOMADAY	0	2
CARRIER AIR WING	0	2
CAVEMAN NINJA	0	2
CHELNOV	0	2
CRUDE BUSTER	0	2
CYBERNETIC WEAPON	0	2
DARKSTALKERS	0	NA
FINAL FIGHT	0	2

DIFFICULTY CONTROL
AUTO

BACK

APT - Average Play Time (Seconds)
DFT - Difficulty Level Button A (-) / Button B (+)
(1 - Easy 2 - Medium 3 - Hard 4 - Hardest)

In this screen one can visualize the APT – Average play time, which is the average time in seconds one play lasts.

The APT indicates if a game is being played too much or very little time. At the column next to it one can edit and change the DFT – Difficulty level independently per game.

The DFT has got 4 levels being:

- 1 – Easy**
- 2 – Medium**
- 3 – Hard**
- 4 – Hardest**

The factory defaults DFT levels is in general (2 – Medium) , depending naturally of the nature of the game.

To increase and decrease the DFT levels, select the correspondent game using the joystick up or down actions, and then use Button A to decrement value and Button B to increment it from 1 to 4.

On the right side of this screen one can set how difficulties are controlled, automatically or manually.

In essence, what this feature brings to the system is that if one selects AUTO, the system will adjust in an independent manner per game its difficulty level, so adjusting it to the player expertises.

The system is programmed with an average play time per game. If the player exceeds the average time over a 1 day period, the game will become automatically more difficult and the other way around. In this mode the machine is constantly adjusting itself to the current player skills once every day.

6.2.9.8 Factory defaults

When this option is selected, pressing START1 will setup all relevant technician menu options to its factory values, being:

MASTER VOLUME	.	.	.	.	7
DEMO SOUND	.	.	.	.	ON
COIN/CREDIT RATIO	.	.	.	.	1/1
FREE PLAY	.	.	.	.	OFF
UPDATE GAMES	.	.	.	.	AUTO
UPDATE PERIOD	.	.	.	.	30 DAYS
MENU/SELECT BUTTON	.	.	.	.	BUTTON D
DIFFICULTY LEVELS	.	.	.	.	2
DIFFICULTY CONTROL	.	.	.	.	AUTO

6.2.9.9 Serial number

The serial number is printed and is important to report to BELCOIN® when upgrading the system with new games.

Relevant instructions will be given when there is need to upgrade the system.

6.2.10 Clear credits

This feature is purely for servicing purposes. If credits are needed to perform a specific test, they can be cleared at any time selecting this option and pressing Button A of Player1.

This feature will ONLY CLEAR THE NON-CONSUMED CREDITS.

It will not clear the TOTAL CREDITS.

7. HOW TO PLAY THE GAMES

The software presents itself in a very intuitive manner. Insert 1 coin to the frontend counter. At this stage the words "INSERT COIN" will change to "PRESS START".

Using the joystick of player1 UP and DOWN controls select the wanted game. Press the START button. One will see the loading progress bar filling with a red gel.

When the load process finishes, on it comes the game. The system will transfer all credits from the frontend onto the game. Once this operation is finished, one can see printed on screen (Bottom centre) a graphic representation of the button programmed to be used as menu/select button.

At this stage the player can press START to initialise the game or can press the relevant menu/select button and exit from the game to the frontend. The system in this case will replace back all credits to the frontend.

In case the player plays the game it will consume 1 credit. **If during the game a coin is inserted, the system will respect the coin/credit ratio programmed at the technician menu to operate the game.**

When the game reaches GAMEOVER or CONTINUE stages, the menu/select button will be displayed so one can exit to the frontend.

The menu/select button is on screen for 15 seconds. After this time the system will return to the frontend screen automatically.

If during a game there is no button activity for a period of 2 minutes, the system will return to the frontend screen.

8. MAINTENANCE

8.1 Upgrading the games

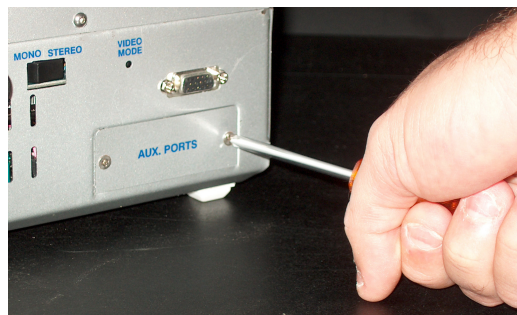
The GAMECRISTAL is equipped with a powerful upgrade engine. This engine is resident at each machine and is capable of transforming the current setup to a completely new one, hence, a new machine can be born with a simple operation.

The system accepts in its auxiliary ports a mass storage USB drive. To upgrade the games, simply contact your BELCOIN® office and ask for the required upgrade.

Provide to BELCOIN® the serial number(s) of the machine(s) to be upgraded. You will be given a USB KEY with your customized updates to license the machines you asked for.

HOW to UPGRADE?

1. Switch off the system or the whole machine the system it is fitted too.
2. Open the little window at the back of the system where it is written "AUX. PORTS", using a small screw driver.



3. Search for one of the USB connectors, and insert your KEY. If you have difficulties in insertion, use the extension cable provided.



4. Switch on the system and wait until it loads.
5. The system will search automatically for the USB KEY and it will display a screen with the words "UPGRADING IN PROGRESS" , "Please Wait..."
6. Once it is finished, the system will restart automatically.
7. You now have your system upgraded with new games.
8. Just as a precautionary measure go into test and check all settings are according to your requirements.

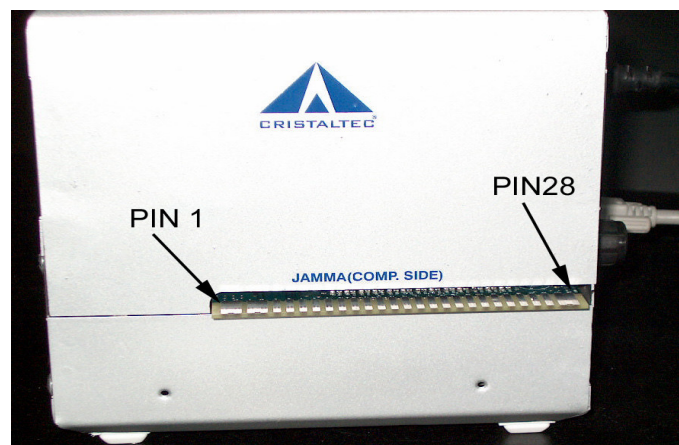
8.2 Troubleshooting

<u>PROBLEM</u>	<u>POSSIBLE SOLUTION</u>
Switch on the machine and Nothing happens	<ul style="list-style-type: none">✓ Verify the mains cable and its connections✓ Verify the entry fuses (filter) at cabinet✓ Test if there are 5VDC and 12VDC in the Jamma connector.
The monitor remains black Or the image is distorted	<ul style="list-style-type: none">✓ Verify monitor connections✓ Verify connection of video cable onto the system.
There is no sound or it is of poor quality	<ul style="list-style-type: none">✓ Enter Test Mode and to prove the sound volume✓ Verify the loudspeakers and its connections✓ Test for +12VDC on the Jamma connector

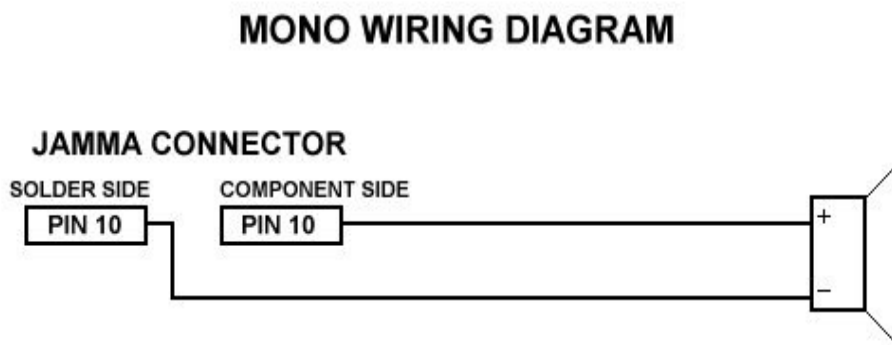
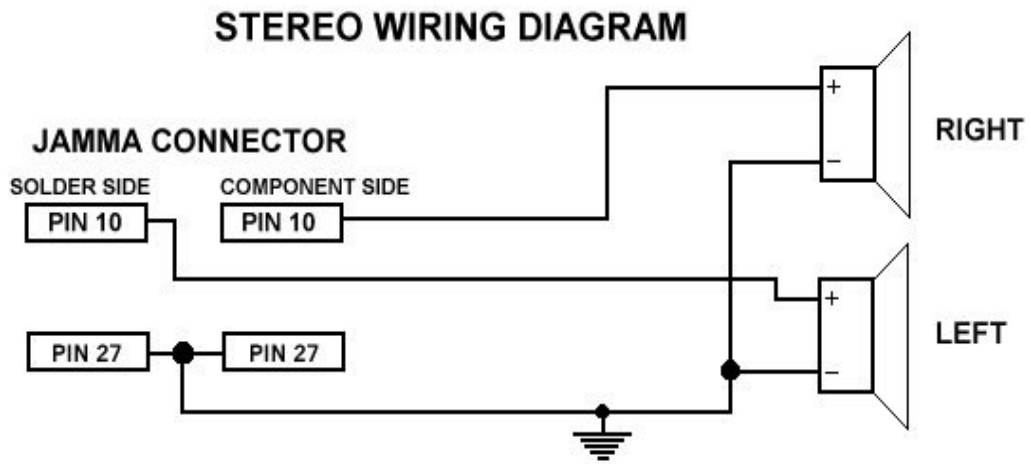
9. APENDIXES

9.1 Wiring diagram (JAMMA)

PLAYER 2	SOLDER SIDE	COMP. SIDE	PLAYER 1
GND	1	1	GND
GND	2	2	GND
+5VCC	3	3	+5VCC
+5VCC	4	4	+5VCC
	5	5	
+12VCC	6	6	+12VCC
	7	7	
COIN COUNTER 2 OUTPUT	8	8	COIN COUNTER 1 OUPUT
	9	9	
AUDIO LEFT +	10	10	AUDIO RIGHT +
GND	11	11	GND
GREEN OUTPUT	12	12	RED OUTPUT
COMPOSITE SYNC OUTPUT	13	13	BLUE OUTPUT
SERVICE	14	14	GND
VIDEO MODE/TILT	15	15	TEST BUTTON
CREDITS 2	16	16	CREDITS 1
START 2	17	17	START 1
UP2	18	18	UP1
DOWN2	19	19	DOWN1
LEFT2	20	20	LEFT1
RIGHT2	21	21	RIGHT1
BUTTON A	22	22	BUTTON A
BUTTON B	23	23	BUTTON B
BUTTON C	24	24	BUTTON C
BUTTON D	25	25	BUTTON D
BUTTON E / MENU / SELECT	26	26	BUTTON E / MENU / SELECT
GND	27	27	GND
GND	28	28	GND



9.2 Wiring diagram (AUDIO SPEAKERS)



9.3 STANDARD ELECTRONIC COIN MECHANISM SETUP

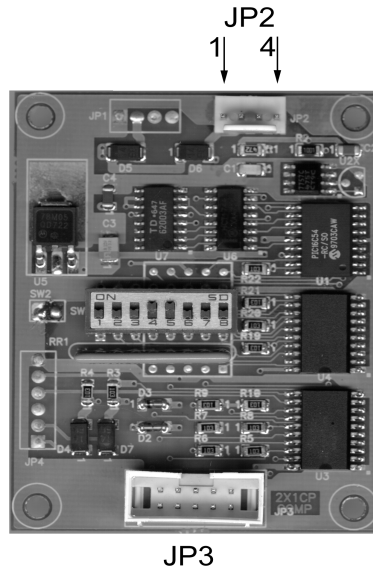
CONNECTORS

JP1: Not used

JP2: Cabinet

JP3: Coin controller

JP4: Not used



Connector JP2

The connector JP2 should be connected to the cable that comes from the cabinet system.

JP2	Description	Values	Source/Destination
Pin 1	Input GND.	GND	GND power supply
Pin 2	Input VCC	+12 VCC	CC power supply
Pin 3	Counter output	0/+5/+12 VDC	Coin counter
Pin 4	Credits output	+5/0 VDC	CPU.

Connector JP3

Input connector of electronic coin controller, programmed per channels.

PIN	Description	Active
1	0V	0V
2	+12VDC	+12VDC
3	Output 5	0V
4	Output 6	0V
5	- - -	
6	Lock	High
7	Output1	0V
8	Output 2	0V
9	Output 3	0V
10	Output 4	0V

Layout view corresponding

9	7	5	3	1
10	8	6	4	2

9.5 DIP-SWITCH SETUP

SW1: Always OFF

SW2: Coin multiplication factor

SW2= OFF (Europe except Spain)	Channel:	1	2	3	4	5	6
	Value:	x 20	x 10	x 5	x 4	x 2	x 1
SW2= ON (Spain and USA)	Channel:	1	2	3	4	5	6
	Value:	x 20	x 10	x 8	x 4	x 2	x 1

SW3:Not used

SW4-SW5: Extra Credits (BONUS)

Combination of these two dip switches is used to program bonus (free games) according to the table below. The table varies according to the game price selected.

SW6-SW7-SW8: Game price

These dip switches are used to choose the game price. Please refer to vendor tables to setup these dip-switches.

NOTES:

