XP2m-PowerBoat MDX
Service Manual

in joy

Injoy Motion Corp.

Shaking Your View & Sonic !!

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PowerBoat MDX Service Manual

TABLE OF CONTENTS

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***PowerBoat MDX* Service Manual**

1. INTRODUCTION

Thank you for purchasing the ***Injoy-PowerBoat MDX*** "*@Motion System*" developed by ***Injoy*** that are well distributed in many markets and territories. This manual will guide you through the set-up and operation of ***Injoy-PowerBoat MDX***, an ultimate game motion system for arcade environments. This unit is different from any other machines of its kind you have ever owned. ***Injoy-PowerBoat MDX*** is a fully interactive coin-operated and swipe card motion simulation that creates a virtual reality environment and provides a truly unique game experience for players. Capable of any motion through 2.0 degrees of freedom (also known as D.O.F.) movement (pitch and roll), this system enables realistic simulation needed for any software program. Rather than pneumatic or hydraulic actuators that require much more maintenance and have been used to power most motion simulators in the past, ***Injoy-PowerBoat MDX*** is powered by electric motors and with ***INJOY MOTION's*** patented design, a powerful, mini-motion based platform with physics-based motion dynamics. Players will experience realism to an extent that they can "feel" all the exciting actions in a synchronized way as they indulge in the game. One of ***Injoy–PowerBoat SDX***'s most unique feature is that the platform can accomodate multiple games on the same unit with one game to play at a time. Future titles will be easily and quickly added giving operators higher profits / earnings.

INJOY MOTION is devoted to offer you the most advanced cost-economical and rewarding motion arcade system available. You are welcome to contact us for any questions you may have or for any service we can be of.

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PowerBoat MDX Service Manual

2. SPECIFICATIONS

An *Injoy-PowerBoat* **MDX** includes a complete **Motion Base**.

The dimensions given below are *Injoy–PowerBoat MDX's* installed footprint.

Injoy–PowerBoat MDX @Motion System Unit

Minimum Installed Footprint   **US & GB:**   63.20" x 43.20"

                                                     Metric: 1.58m   x   1.08m

2.1 *INJOY–PowerBoat MDX* MOTION BASE

No	Item	Specification
Injoy–PowerBoat MDX Motion Base Simulator	
1	Installed Dimensions / Weight (LxWxH)	● 63.20" x 43.20"x 84.40" / 727.65 lbs ● 158 x 108 x 211 cm / 330 kgs
2	Shipping Dimensions (LxWxH) Wooden Case Packaging	● 65.20" x 45.20" x 70.00" / 771.75 lbs ● 163 x 113 x 175 cm / 350 kgs
3	Motion system	● 2.0 degree of freedom (D.O.F.) mini motion base: AC-powered, motor-driven actuators
4	Control inputs/feedback	● Steering wheel ● 4 buttons for Start / Turbo, Weapon and View ● Throttle ● Motion Stop Switch
5	Player Weight Limit	● 280 lbs
6	Center of Gravity	● Directly over 2 axis
7	Motors	● 3Φ220VAC 1/4HP motors
8	Power Requirements – Plugs located at the bottom of the motion base behind the monitor.	● Power requirements in USA: 110 VAC, 16 Amps, 50/60 Hz (Transformer needed) ● Power requirements in EURO: 220 VAC, 10 Amps, 50/60 Hz.
9	Chair	● Deluxe sports car seat. ● Two built-in speakers for surround sound effect.
10	Audio	● Inside chair – 8 watts RMS x 2, 4 ohm
11	Monitor	● 32" LCD Monitor ● 15pin DB Connection
12	Computer System	● Windows Embedded Operating System ● High Resolution Graphics Accelerator Card.

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PowerBoat MDX **Service Manual**

3. INSTALLATION

3.1 SERVICE KIT

The following items should be included with the shipment of your *Injoy–PowerBoat MDX*:

Service Kit	
Description	Qty
Injoy–PowerBoat MDX Service Manual	1
Maintenance Box Key	1
Coin Box Key	1

3.2 SET UP INSTRUCTIONS

3.2.1 PRE-INSTALL PREREQUISITES/CAUTIONS

Injoy–PowerBoat MDX is designed for indoor use only. To ensure trouble-free and safe operation, the following conditions are recommended:

1. The game must be located out of direct exposure to sunlight, high humidity, dust, salt mist, high heat, or extreme cold. If installed in an extremely hot location, allow additional clearance between ventilation slots in the game and any structure or object that would tend to restrict air circulation.

2. The motion system produces tremendous forces onto the motion base, which may be moved around on the floor if not properly installed. Before operating the game, make sure the brackets are tightly installed. If you have questions regarding any installation requirements, contact our tech support (+886-2-2267-6317 Ext. 283 or support@imon.com.tw) at *Injoy* before proceeding.

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PowerBoat MDX **Service Manual**

3.2.2 COIN ACCEPTOR SETTING

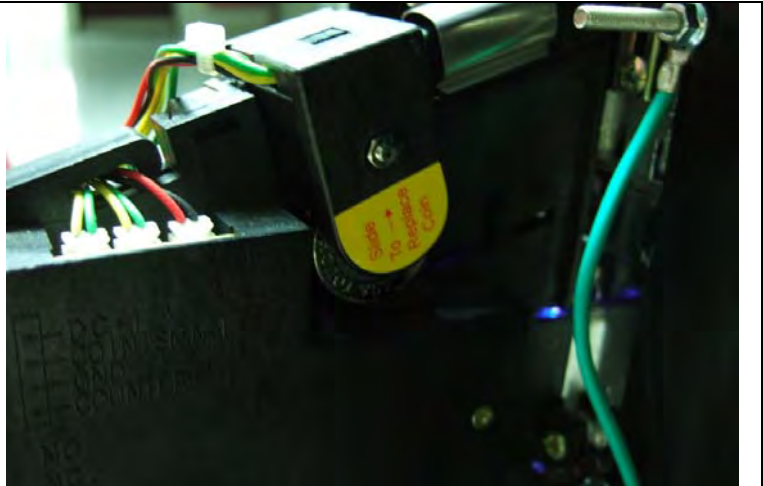Please follow the steps to set up the coin acceptor.

Step	Description	Diagram
1	Pull up the slider on the coin acceptor	
2	Insert the coin you would like the coin acceptor to accept for playing the game.	
3	Push down the slider to fix the coin.	

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PowerBoat MDX **Service Manual**

4	The coin acceptor is set up and can accept the inserted coin.	

3.2.3 SWIPE CARD INSTALL

Figure 1 below illustrates the connection of the swipe card reader.
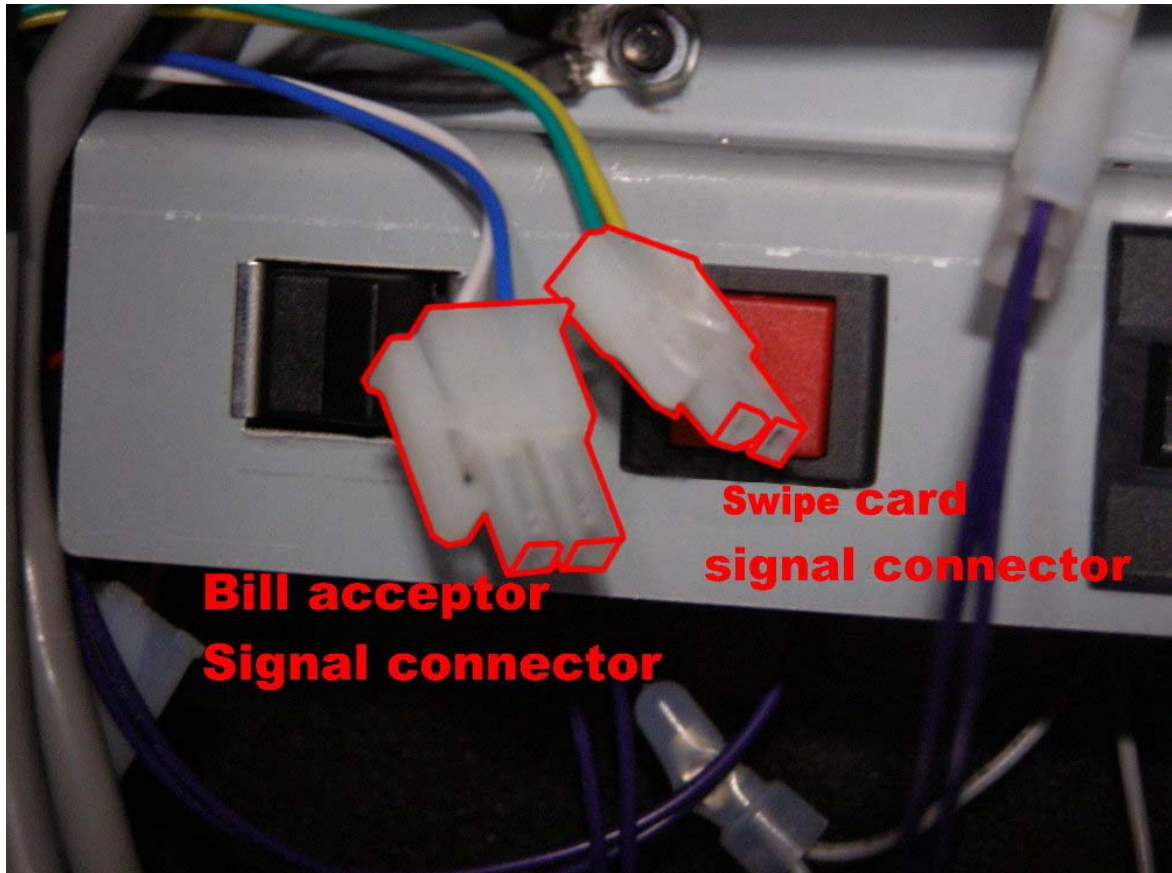
Figure 1 Swipe Card & Bill Acceptor connectors

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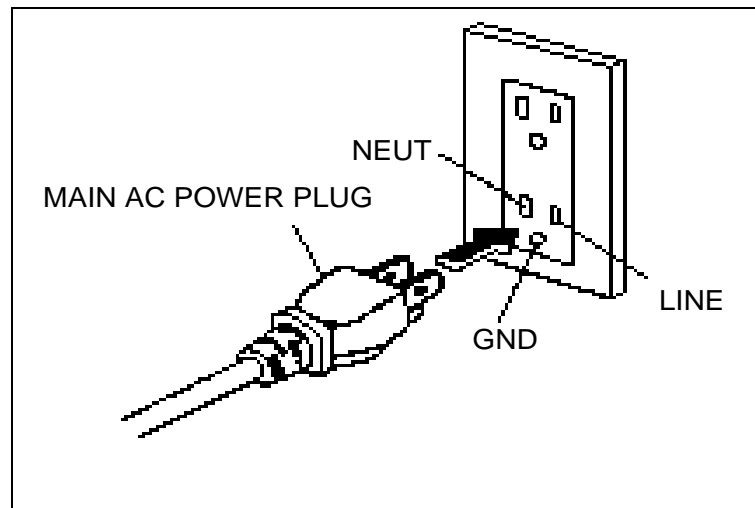*PowerBoat MDX* **Service Manual**

Figure 2 below displays the signal connection.
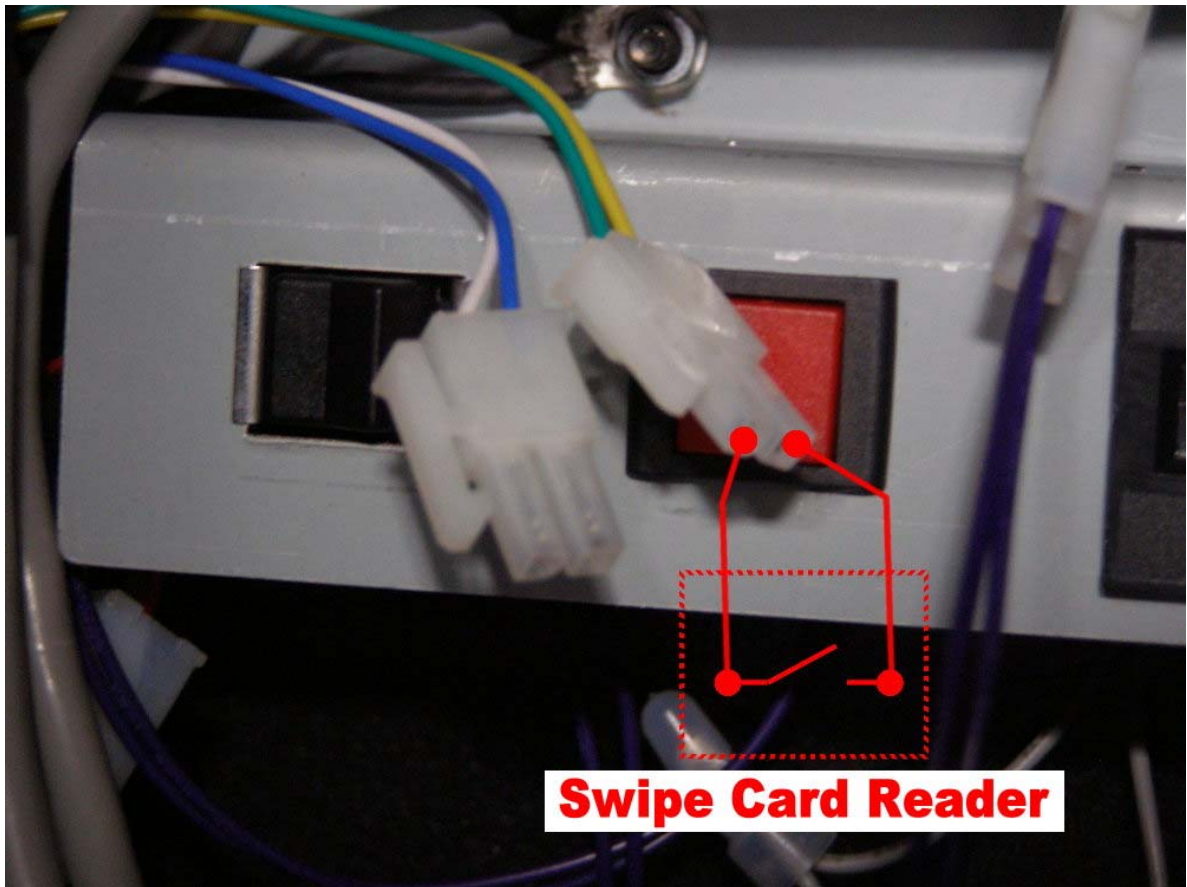
Figure 2 Swipe Card Signal

NOTE: This unit has a single power cord! The motion base requires one dedicated (15-Amp) circuit for (110~125VAC) power source, (16-Amp) for (100VAC) power source and (10-Amp) for (210~240VAC) power source! No other appliance or game should share this power source on this circuit.

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PowerBoat MDX **Service Manual**

4. GAME SETTING AND INTRODUCTION

4.1 GAME SETTING (OPERATOR MENU)

To access OPERATOR MENU, after the Power is switched ON and the screen shows "insert coin", find the OPERATOR SWITCH located inside the coin box door and move to "ON" position (Figure 3), and continue in the OPERATOR MENU mode.
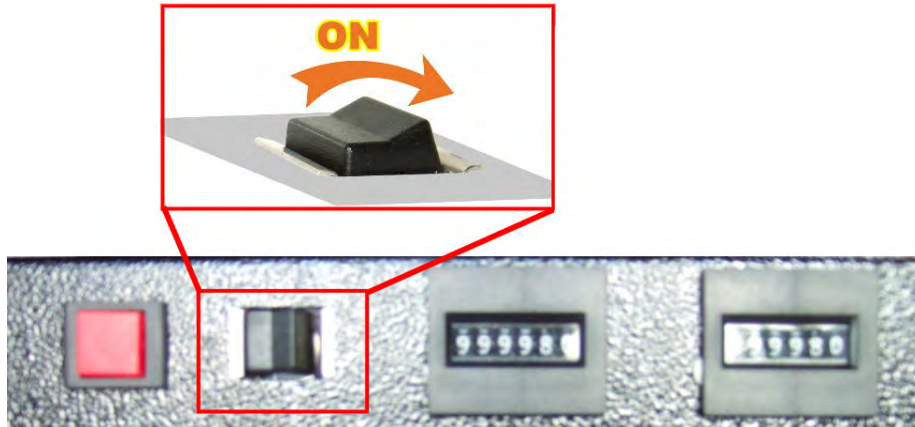
Figure 3 Operator Switch

From the OPERATOR MENU, you have direct access to game and operator settings. From sub-menus (listed below Fig 4), you have access to general game controls. The definitions of select buttons are detailed below on Page 9.

※ After done, please switch off the OPERATOR SWITCH to OFF position, and then turn off the POWER※

Injoy Motion Corp.

***PowerBoat MDX* Service Manual**

Figure 4 Operator Menu

4.1.1 COIN OPTIONS

The **"*Coin Options*"** sub-menu allows you to set all coin options on your ***Injoy- PowerBoat MDX*** (Figure 5).

1. **"*Coins per Play*"** allows you to set the number of coins, you would like a player to start the game with. The factory default setting value is 4 coins per play.

2. **"*Coins per Continue*"** allows you to charge a different price for continue-play than the first game play. The factory default setting value is 4 coins per play.

3. **"*Currency Type*"** is not to select the currency of a country, but allows selection of the forms of currency i.e. coins or bills you wish your ***Injoy-PowerBoat MDX*** accepts. The factory default setting is Coin and another setting is the Bill Acceptor or Debit Cards. The coin acceptor is an industrial standard product.

4. **"*Coins per Pulse (Coin Acceptor 1)* (Figure 6)"** allows you to adapt different currency acceptors that are pulse specific to your ***Injoy-PowerBoat MDX***.   The default value is 1.

5. **"*Coins per Pulse (Coin Acceptor 2)* (Figure 6)"** allows you to adapt different currency acceptors that are pulse specific to your ***Injoy-PowerBoat MDX***.   The default value is 1.
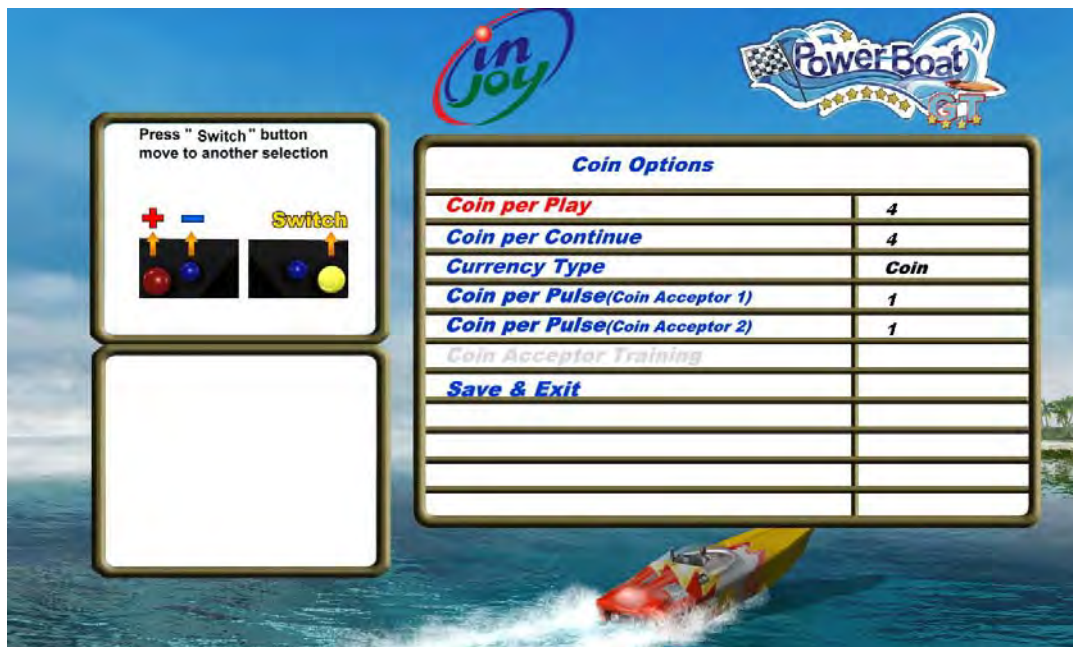
Figure 5 **"*Coin Options*"** sub-menu

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Figure 6 Coin Acceptor Number

4.1.2 GAME OPTIONS

"*Game Options*" sub-menu offers settings that you can adjust for each individual software title installed on your *Injoy-PowerBoat MDX* (Figure 7).

1. **"*Continue Timer Length*"** adjusts the amount of time for the player to decide to continue playing after their game has ended.   This can be adjusted by using the "+" or "-" buttons as shown in Figure 7.

2. **"*Game Show Operation*"** enables free game play by pressing "Switch" button.(Figure 7)

3. **"*Clear High Scores*"** deletes all high scores and returns to the default settings.(Figure 8)
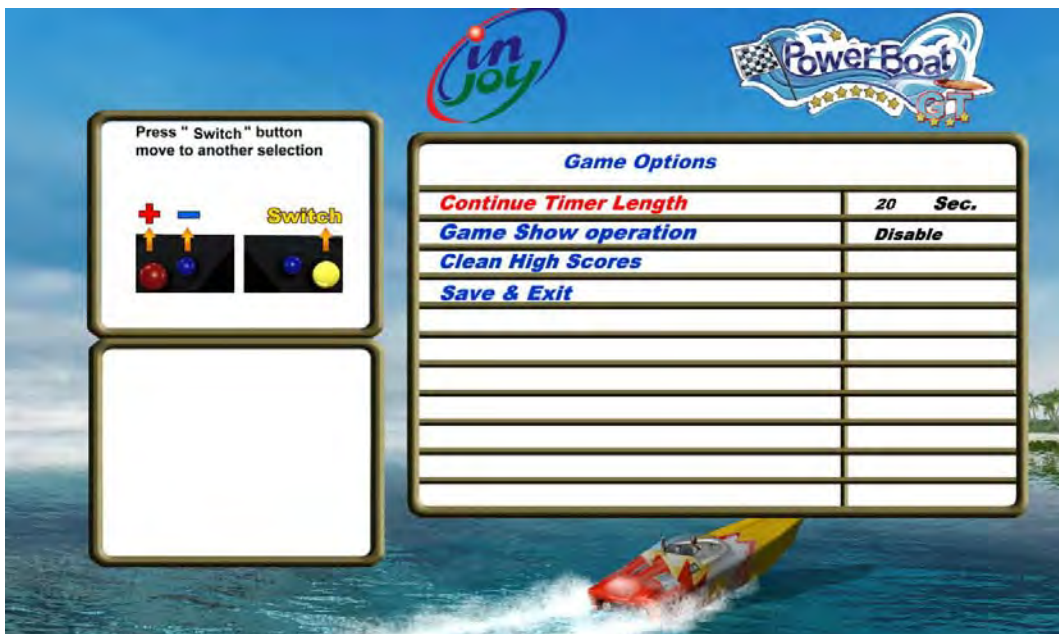
Figure 7 *"Game Options"* sub-menu

10

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PowerBoat MDX **Service Manual**

Figure 8 *"Clear High Scores"* Window

4.1.3 THROTTLE SETTING

To calibrate the Throttle, follow the directions on the screen and go through steps (Fig9 ~ Fig11):

1. Hold the "Calibrate" button on the Panel to calibrate the throttle (Figure 9).

※ Following step "Hold the 'Exit' button for 5 sec. to exit" shown in Figure 9 is to be performed only incase you want to exit while Joystick Setting is in process. ※

2. Push the Throttle to up limit & down limit, and then press the "Next" button (Figure 10).

3. Then Press the "Exit" button to finish Throttle calibration (Figure 11).
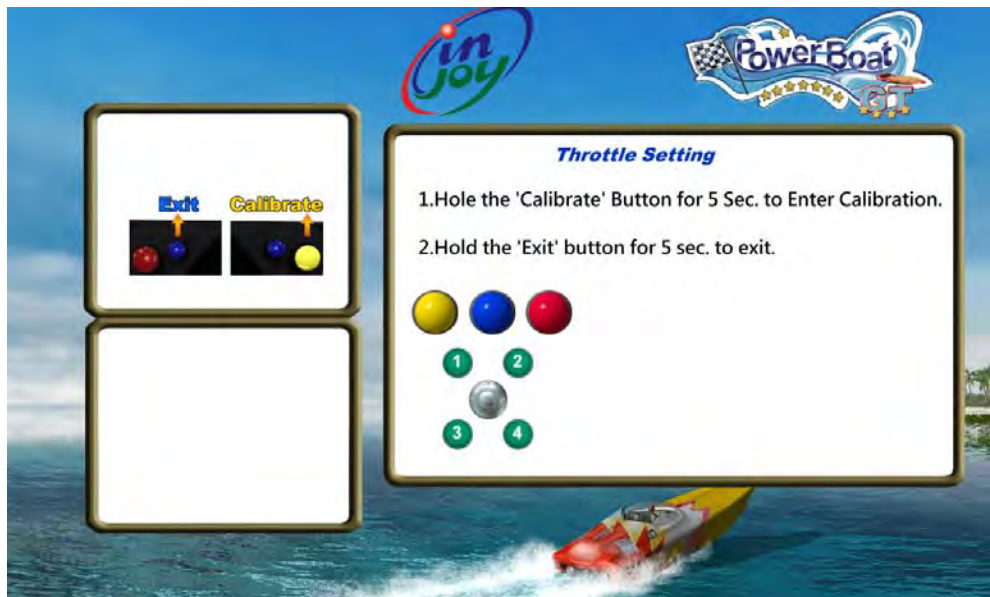
Figure 9 Throttle Setting

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PowerBoat MDX **Service Manual**
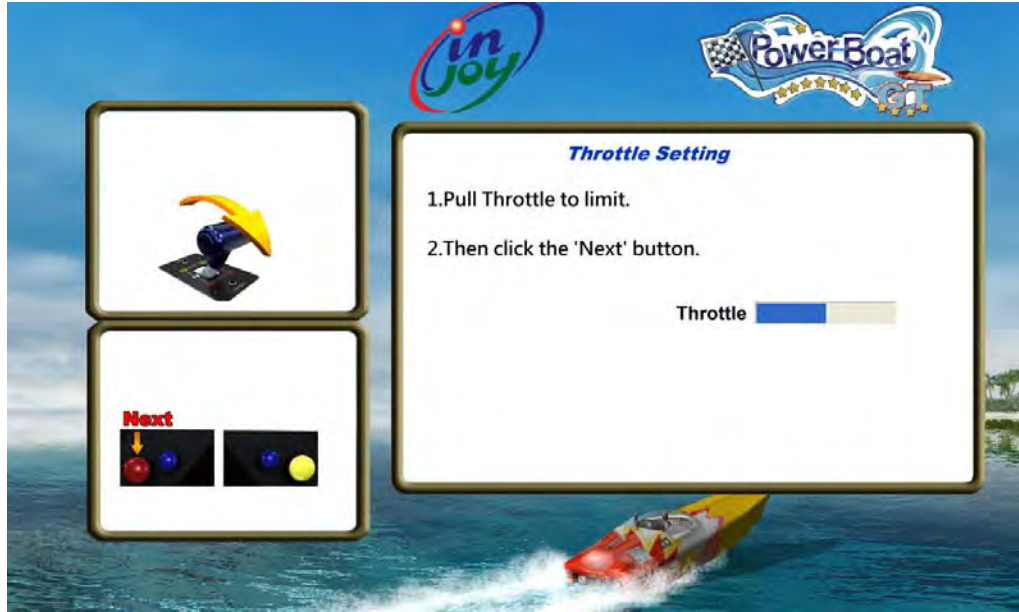
Figure 10 Calibrate Throttle
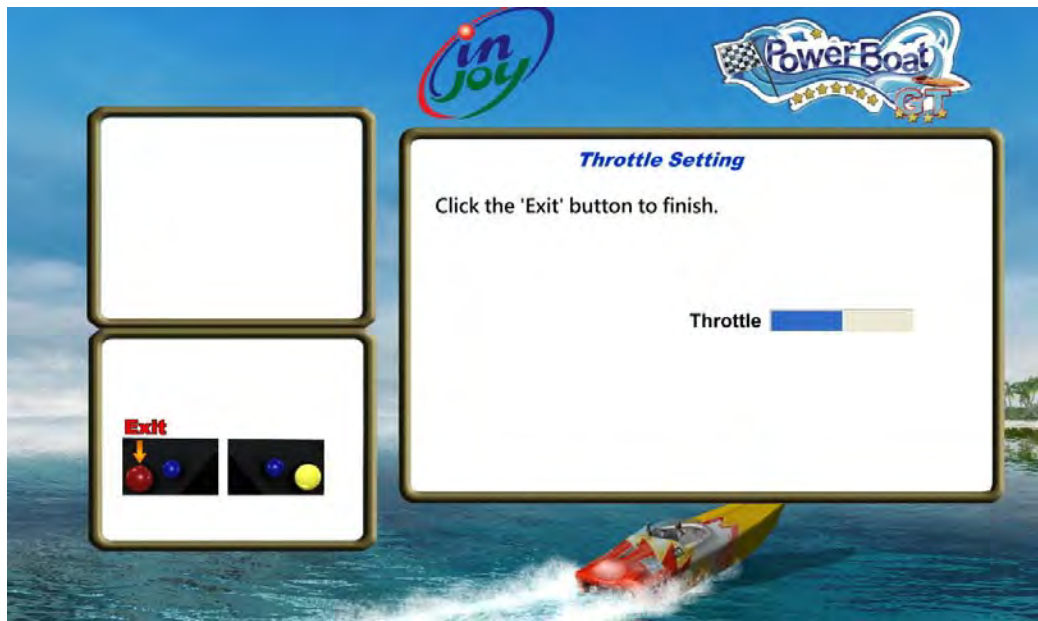
Figure 11 Finish calibration

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PowerBoat MDX **Service Manual**

4.1.4 LANGUAGE SETTING

Language can be adjusted using the "+" or "-" buttons (Figure 12) to change game language. Currently, English and Chinese are available.
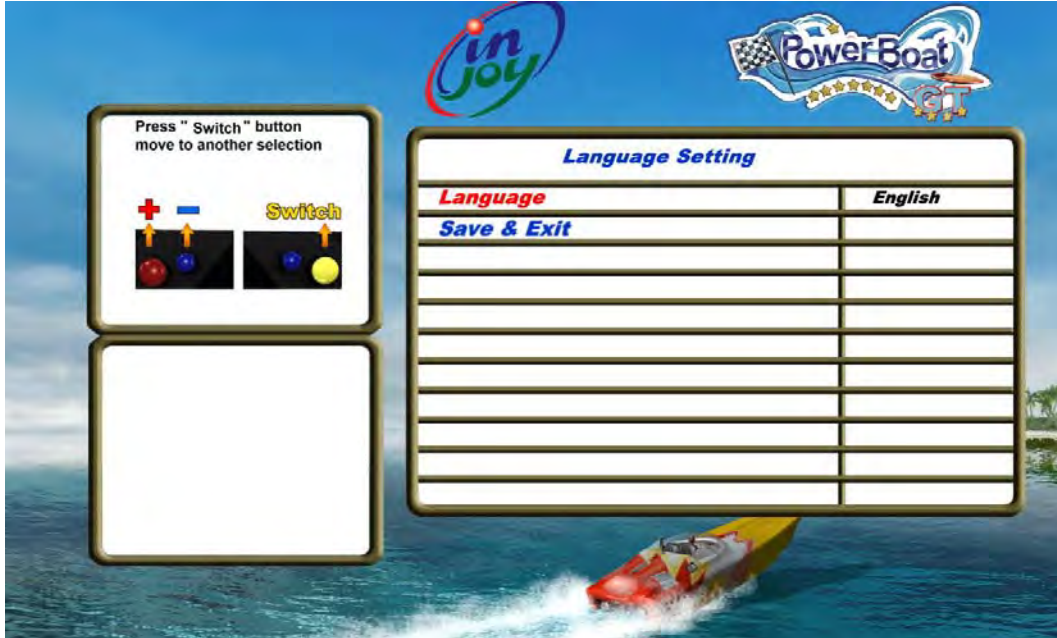
Figure 12 *"Language Setting"* sub-menu

4.1.5 SYSTEM TIME SETTING

Setting the system time can be accomplished using the "switch" button to choose, followed by the "+" or "-" buttons (Figure 13) to change date or time. Time is displayed in 24 hour or military time.
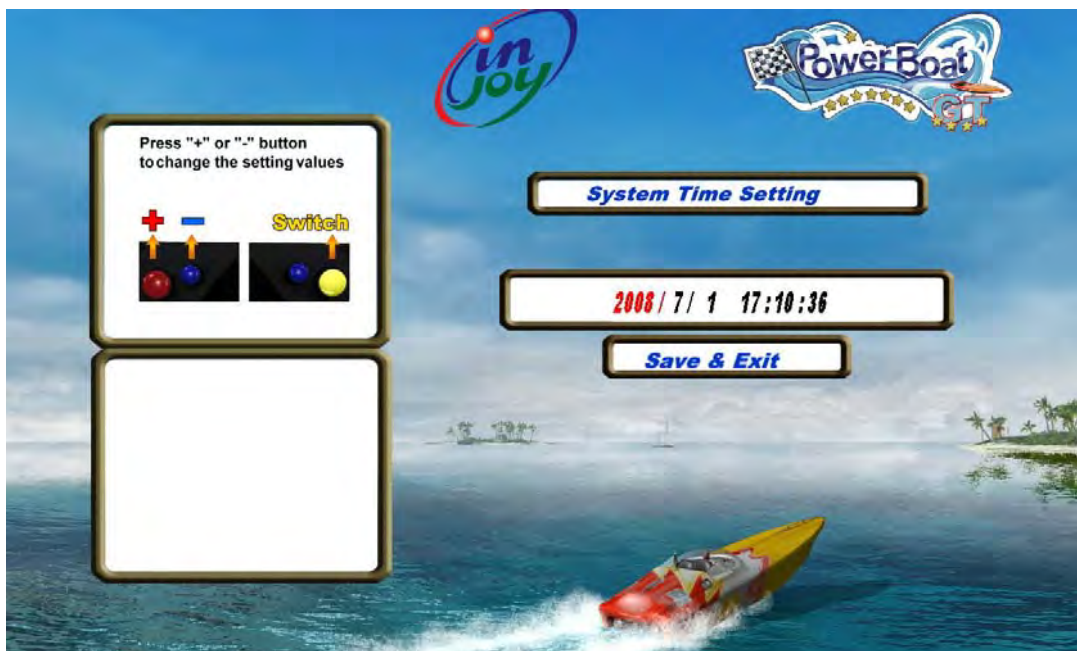
Figure 13 *"System time Setting"* sub-menu

13

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***PowerBoat MDX* Service Manual**

4.1.6 VOLUME SETTING

"*Volume setting*" can adjust the system volume (Figure 14).

Figure 14 "*Volume Setting*" sub-menu

4.1.7 DEVICE TEST

"Device Test" tests whether "**Coin Acceptor**, **Passenger STOP**, **Seat Belt**, **Free Play button**" can work or not (Figure 15).
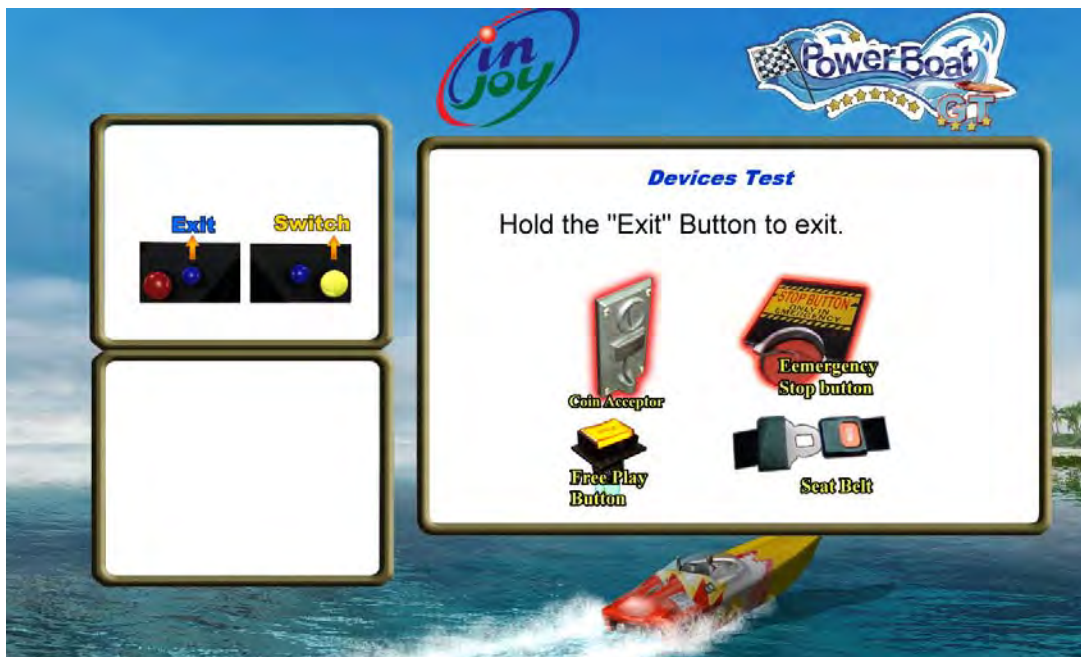
Figure 15 **"*Device Test*"** sub-menu

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PowerBoat MDX **Service Manual**

4.1.8 SOFTWARE UPGRADE

Any software upgrades and/or new software game titles will be downloaded to your *Injoy-PowerBoat MDX* through the use of USB Flash Disk provided by your distributor. The following explains this simple procedure, found in the Operator Menu.

1. Locate the system's PC (Industrial PC): see the computer unit case located at the back side of the machine cover behind the monitor (Figure 16). You can see the PC is installed at the middle plate.
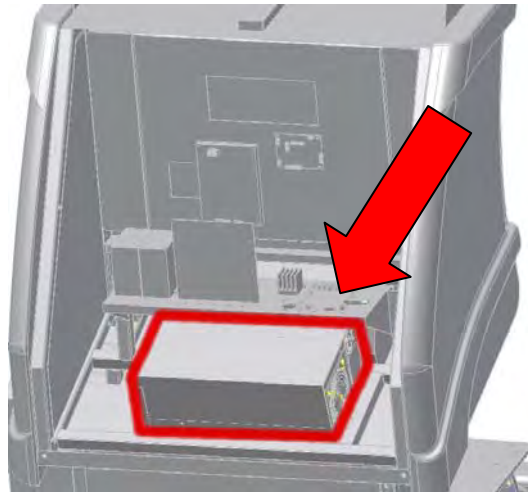
Figure 16

2. Plug in the USB Flash Disk. (Only use the USB Flash Disk provided by *Injoy* or your distributor to upgrade/download the software. The USB Flash Disk from unauthorized sources might seriously damage the system.)

3. On Operator Menu, press the *"select"* button on the panel (please refer to Figure 4) to select "*Software Upgrade*" sub-menu.

4. Press the *"upgrade"* button on the panel (Figure 17), and your software system will begin to upgrade/download the software automatically (Figure 18).

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***PowerBoat MDX* Service Manual**

Figure 17 "*Software Upgrade*" sub-menu
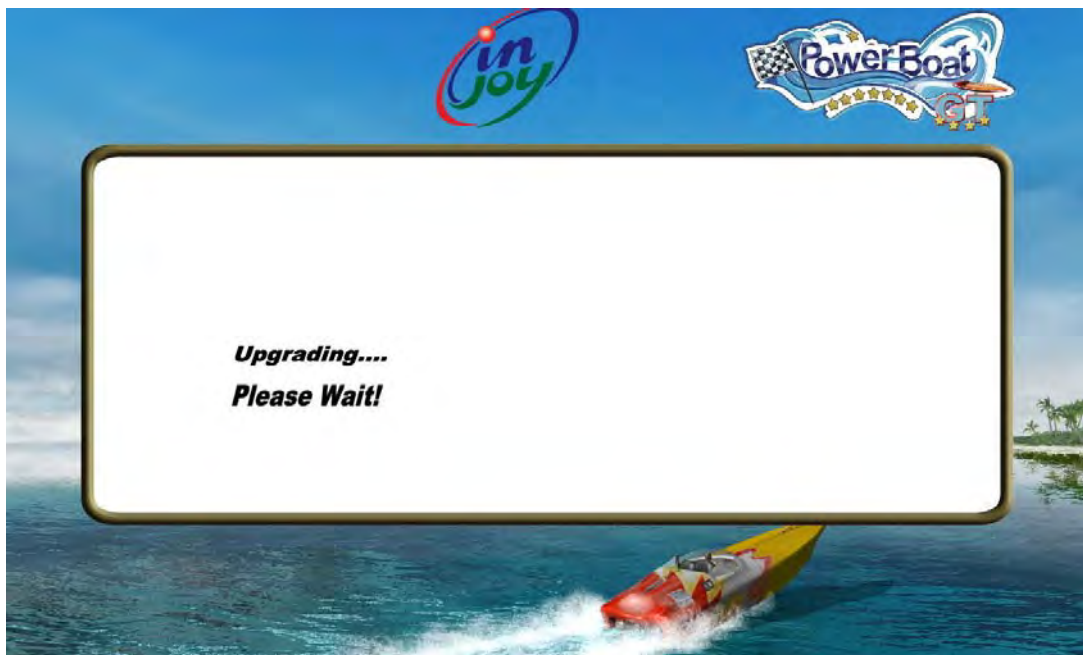
Figure 18 *"Software Upgrading"* Window

5. Progress will be indicated on screen and you will be notified when download is complete (Figure 19). (If you didn't plug the USB Flash Disk onto the PC, it will display an *"Upgrade fails"* window (Figure 20).

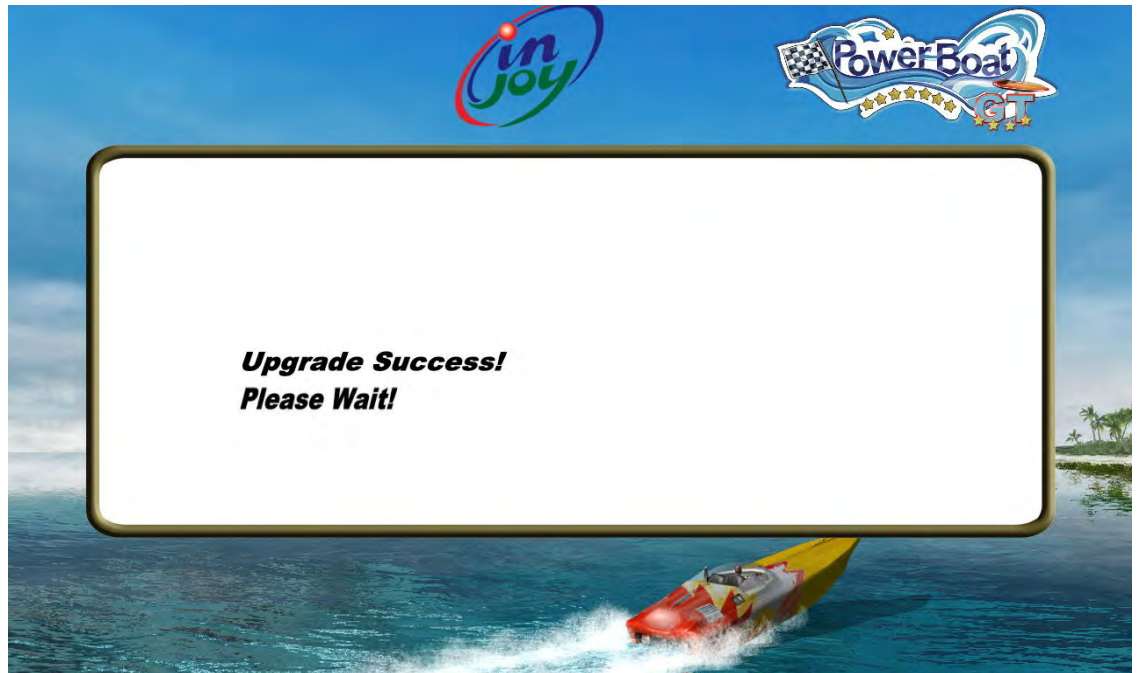*Injoy Motion Corp.*

PowerBoat MDX Service Manual
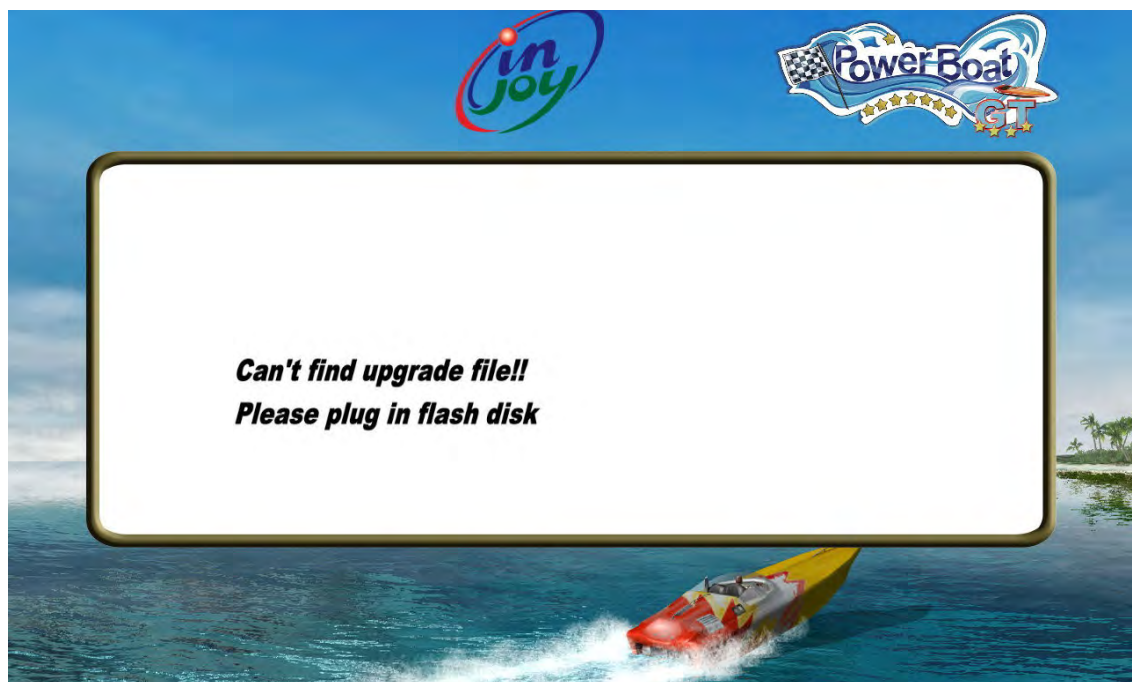

Figure 19 *"Upgrade Success"* Window

Figure 20 Upgrade fails

6. If you wish to cancel upgrade process, press the" Exit" button (Figure 17) to exit "*Software Upgrade*" sub-menu.

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PowerBoat MDX **Service Manual**

4.1.9 STATISTIC

Information related to playing game is shown in the sub-menus of STATISTIC (Figure 21).

1. "Coin Count" to show the amount of coins inserted.

2. "Free Play Count" to show the number of times the Free Play has been pressed.

3. "Total Play" to show the number of times the game has been played (Total Play = Starts + Continues).

4. "Starts" to show the number of time the game has started.

5. "Continues" to show the number of time the game has been continued.

6. "Average Time per Credit" to show the average time per one coin.

7. "Average Time per Player" show the average time per one player.

8. "Clear Statistic" to clear information in "Statistic" (all value is zero after clearing)
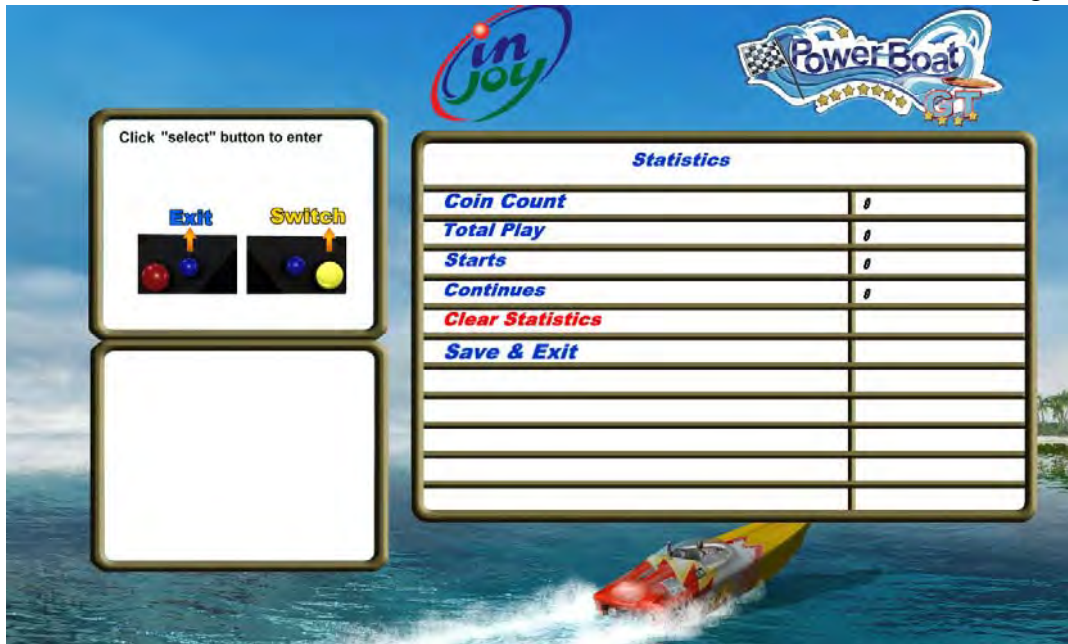
Figure 21 "Statistic" sub-menu

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PowerBoat MDX **Service Manual**

4.1.10 SAVE & EXIT

After the setup is completed, the system needs to exit. Please select "Save & Exit", and then the screen will prompt "Yes" or "NO". If you press "YES" (Figure 23), the system will show" Shutdown…..!! Please turn the Operator switch to OFF position." (Figure 24)
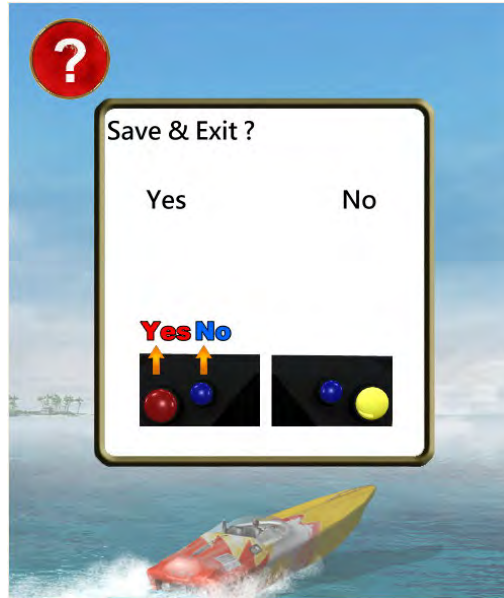
Figure 23 Save & Exit window
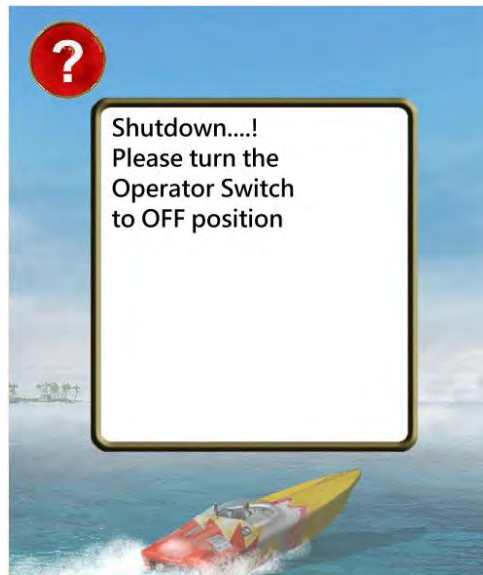
Figure 24 Shutdown prompt

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PowerBoat MDX **Service Manual**

4.2 GAME INTRODUCTION

4.2.1 GAME CONTROL

The player uses the steering wheel, throttle and buttons (Figure 25) to control the boats. Click the yellow button to start the game. While playing, click the yellow button to turbo, click the blue button to fire weapon, click the red button to change View on the Screen.

The Unit control Panel is in the Coin Box show as Figure 26
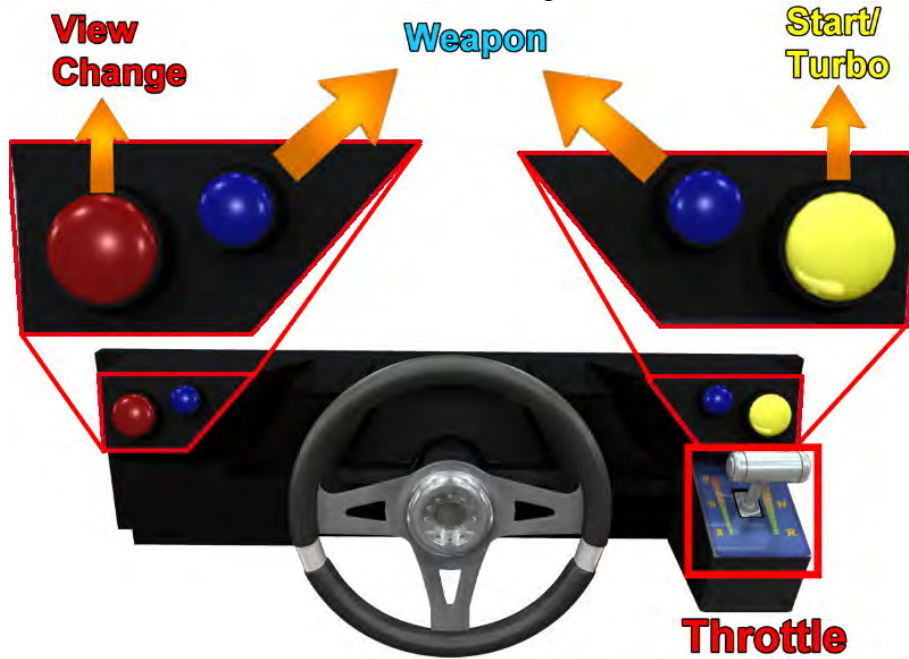
Figure 25 Game control interface
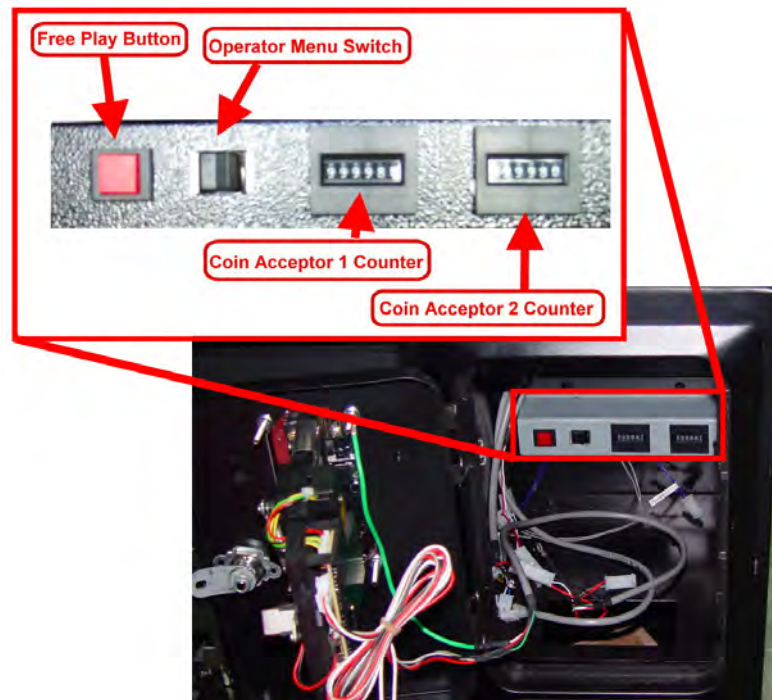
Figure 26 Unit Control Panel

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Game Weapon List

Weapon icon	Introduction
	Turbo enables the boat to speed up for a short period.
	Torpedo chases a boat in front of you
	Dragnet slows down a boat behind you.
	Missiles fire forwards and explode on contact.
	Balloon waits and drops a bomb on passing boats.
	Frogs bounce forwards and explode on contact.
	EMP stops all boats steering
	Depth charge blows boats away from you.

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PowerBoat MDX **Service Manual**

5. ELECTRONIC COMPONENTS & MAINTENANCE

5.1 CHASSIS ELECTRONIC COMPONENTS

Figure 27 are the electronic components of the chassis.

Figure 28 are the control panel of the chassis.

Figure 29 are the Axis-1 and Axis-2 Linear potentiometer.

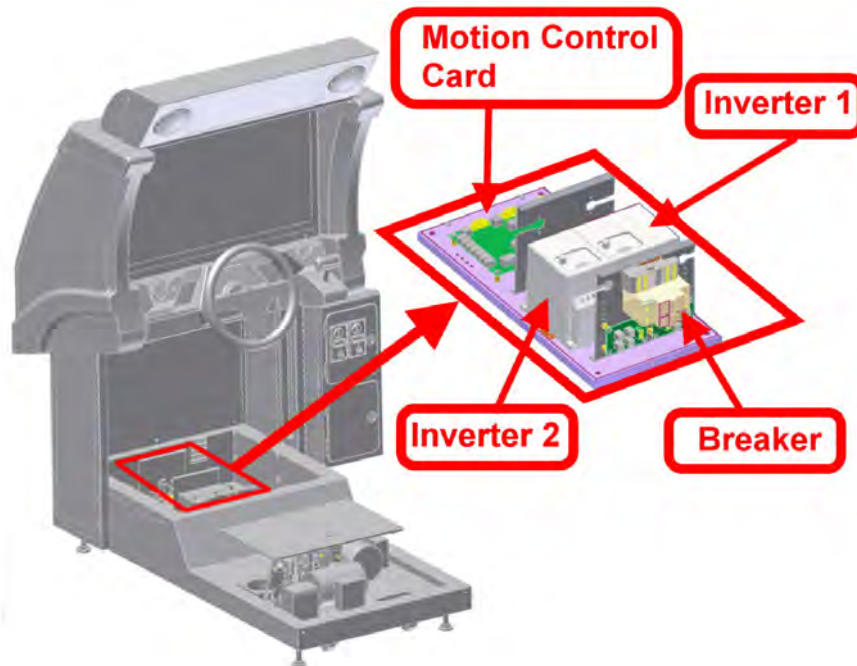Figure 30 are the Axis-1 and Axis-2 Photointerrupter.

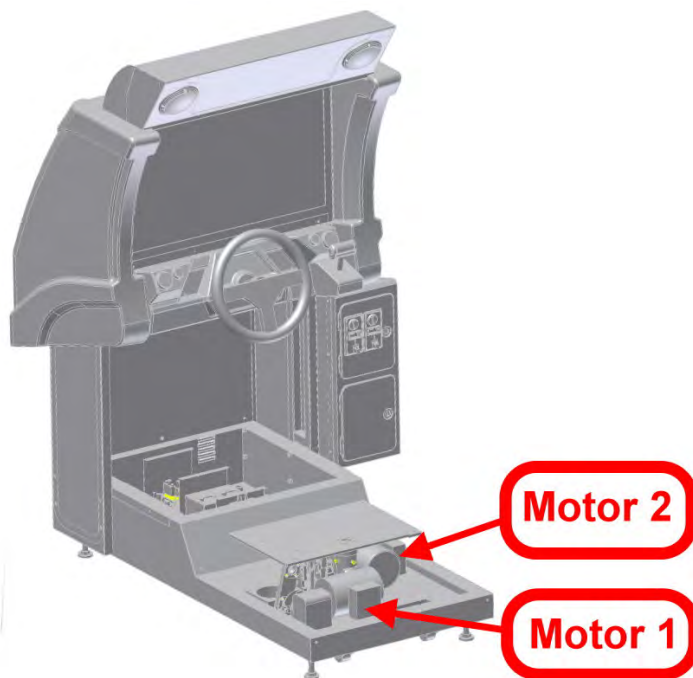Figure 27 Chassis Electronic Components

Figure 28 Control Panel

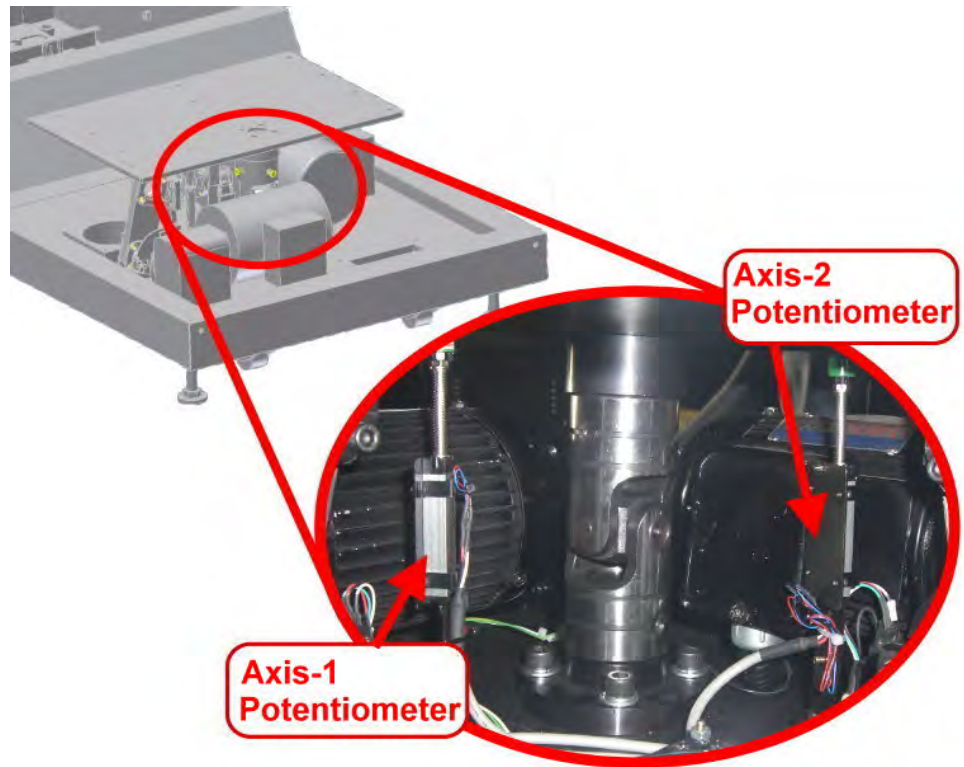# *Injoy Motion Corp.*

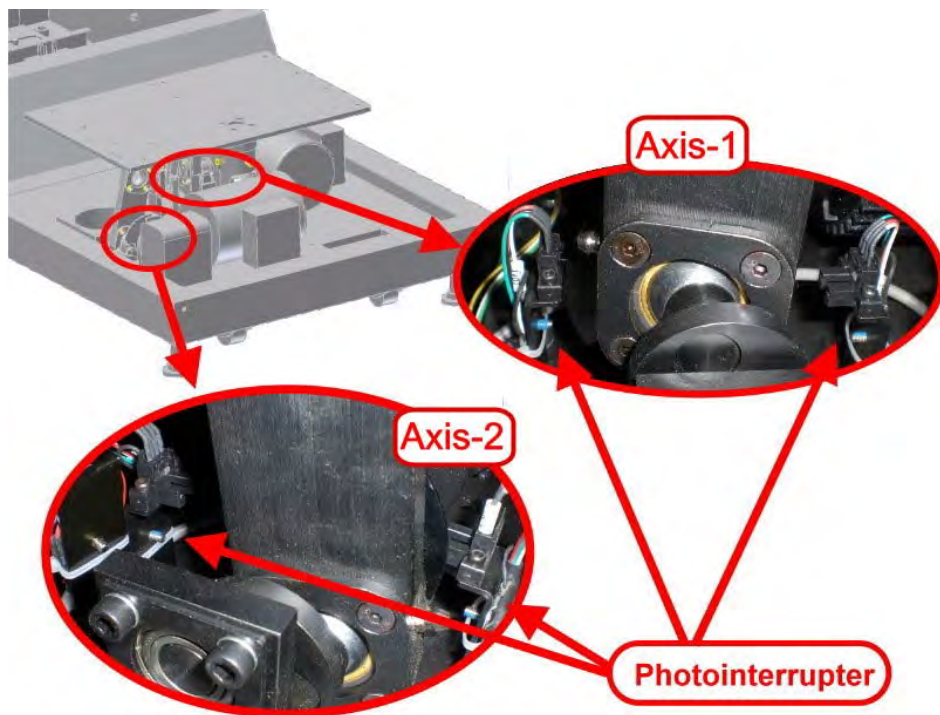## *PowerBoat MDX* **Service Manual**

Figure 29 Linear Potentiometer position

Figure 30 Photointerrupter

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PowerBoat MDX **Service Manual**

5.2 COCKPIT ELECTRONIC COMPONENTS

Figure 31 are the cockpit control panel.

Figure 32 are the cockpit electronic components.

Figure 33 are the devices of the LCD.

Figure 34 are the Steering Wheel electronic components

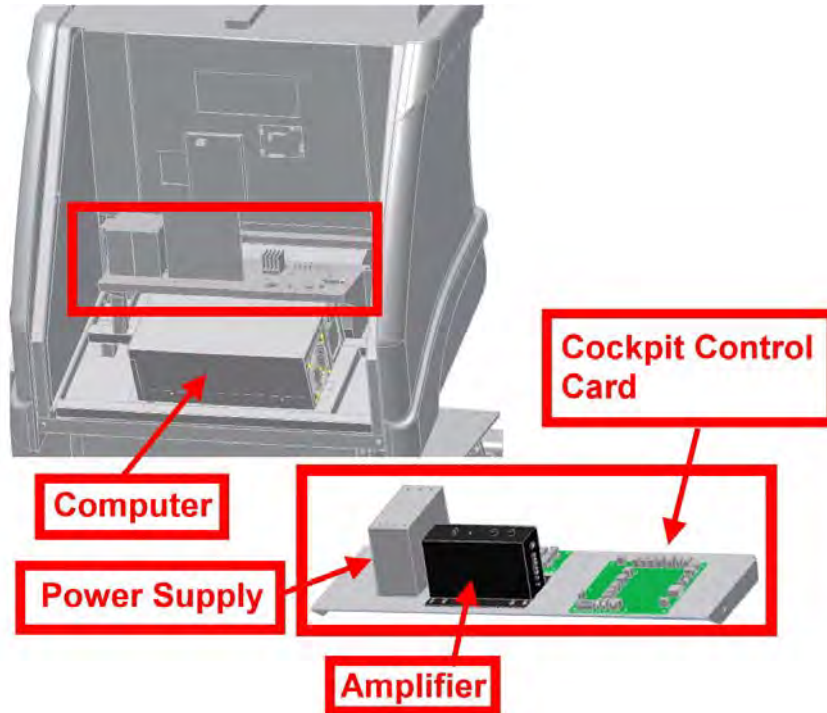Figure 35 are the Throttle electronic component.
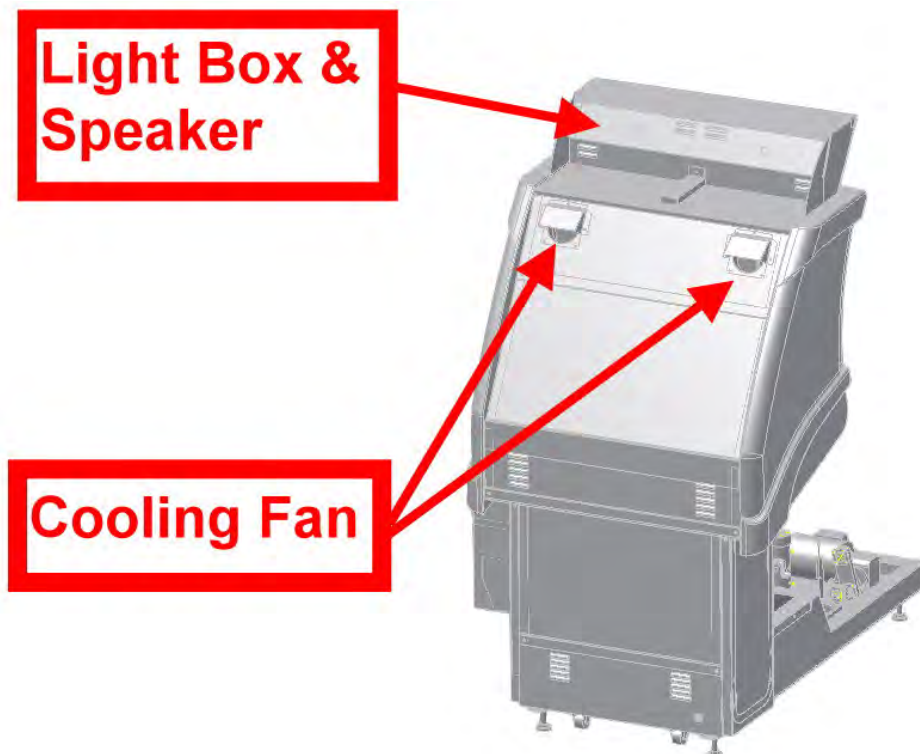

Figure 31 Cockpit control panel

Figure 32 Cockpit electronic components

24

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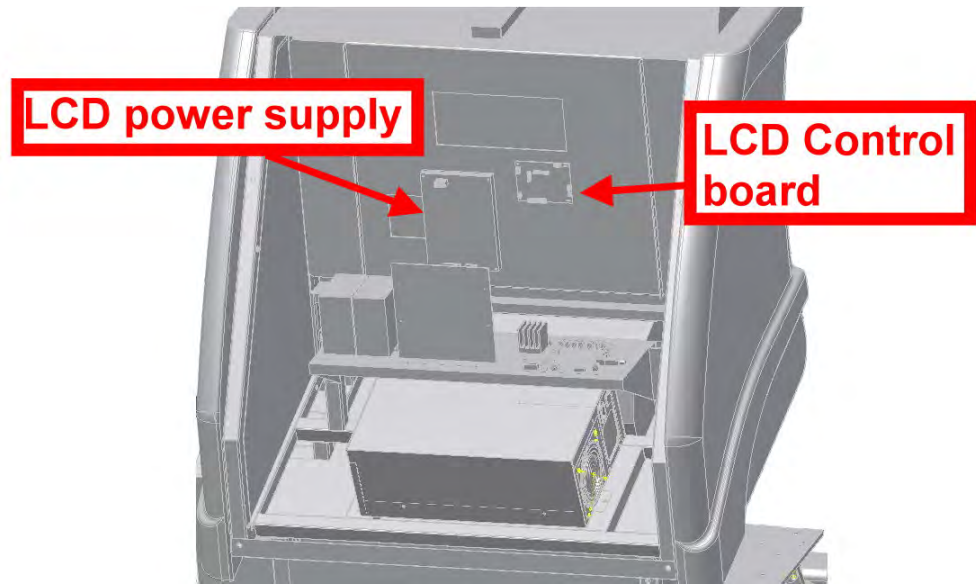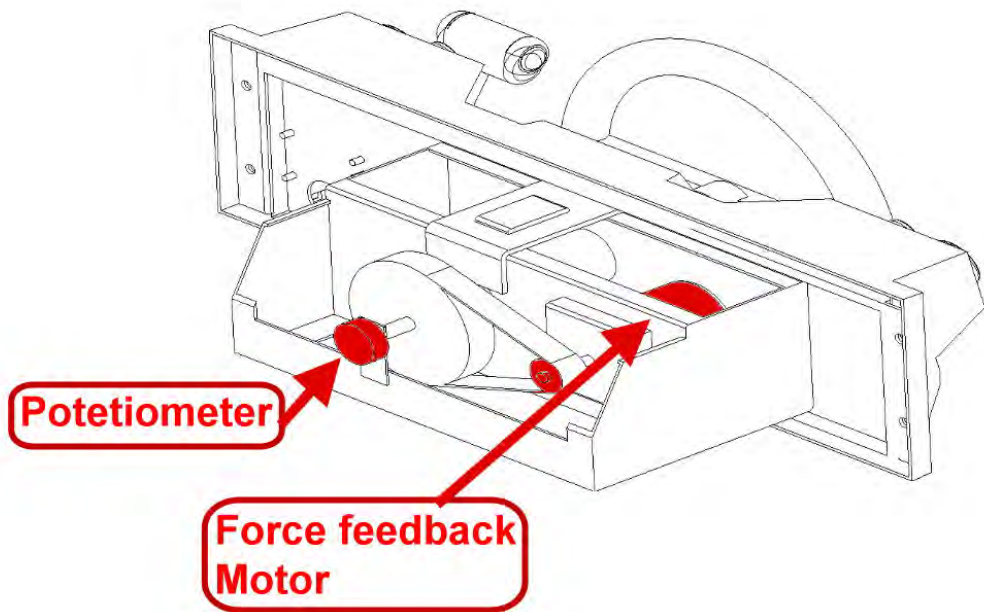## *PowerBoat MDX* **Service Manual**

Figure 33 LCD electronic devices
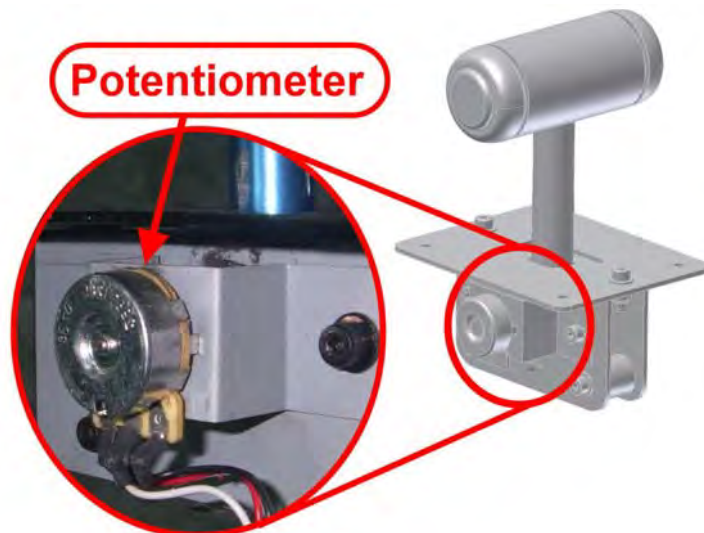

Figure 34 Steering Wheel electronic components

Figure 35 Throttle electronic components

25

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PowerBoat MDX **Service Manual**

5.3 MAINTENANCE

Figure 36 shows the chassis of the *PowerBoat* **MDX**, also known as the "Bearing Rotation Point" which needs to be lubricated every half-year.

"Bearing Rotation Point" is the rotation axis. "Center Stud (Figure 37)" is the Cardan shaft. When the motion starts up, the rotation axis will produce friction, and need lubrication semi-annually.
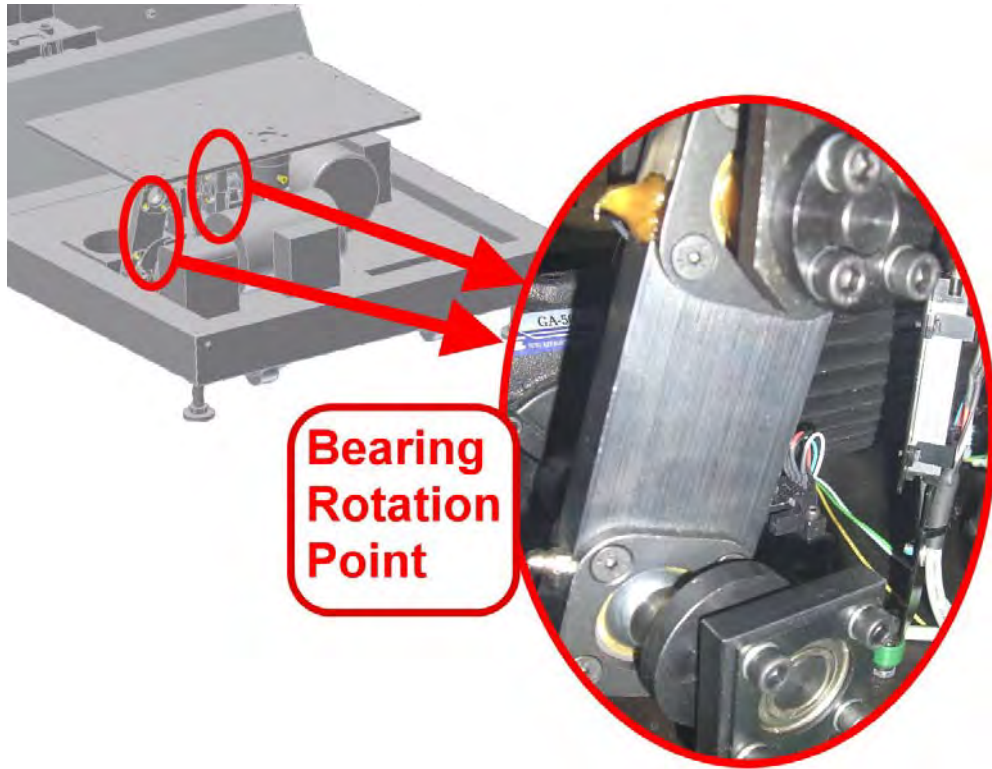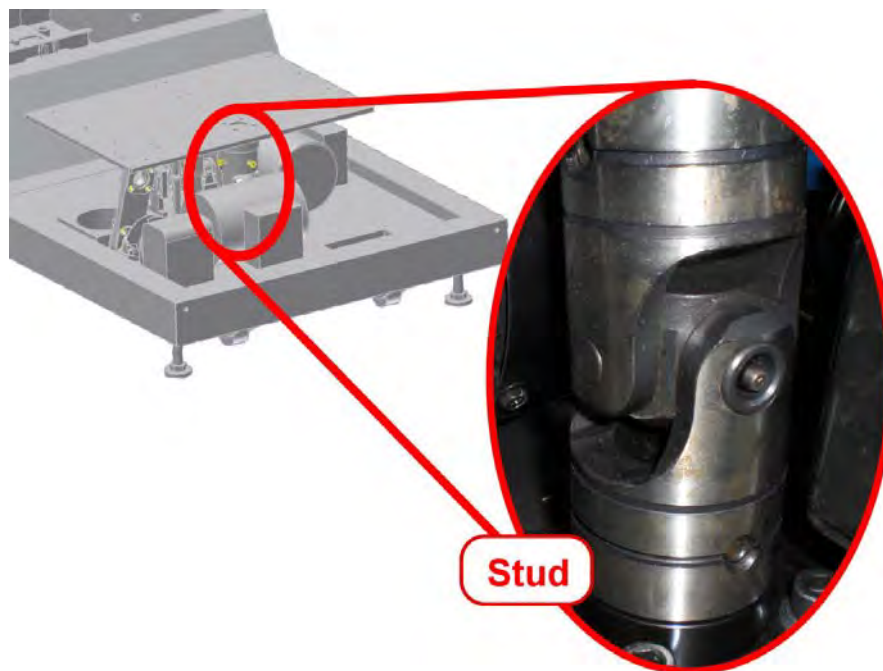
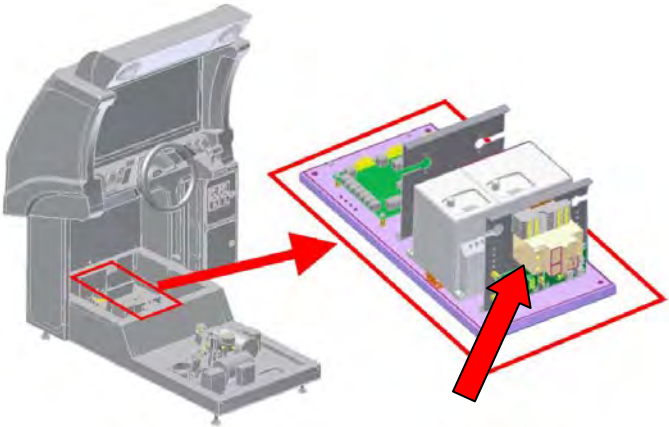Figure 36 Rotation point

Figure 37 Center Stud

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PowerBoat MDX **Service Manual**

6. TROUBLE SHOOTING

After Unit Power on, the system will follow these steps to start up.

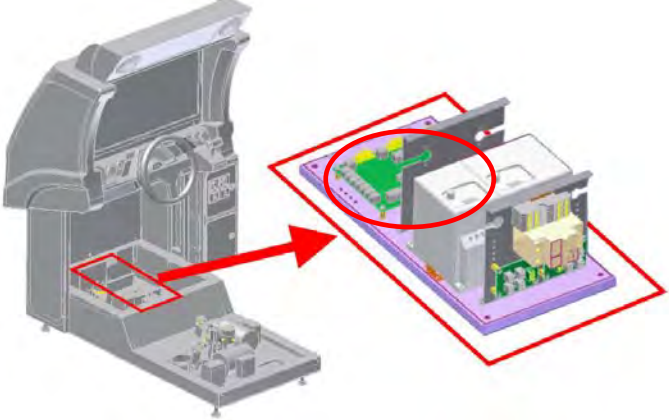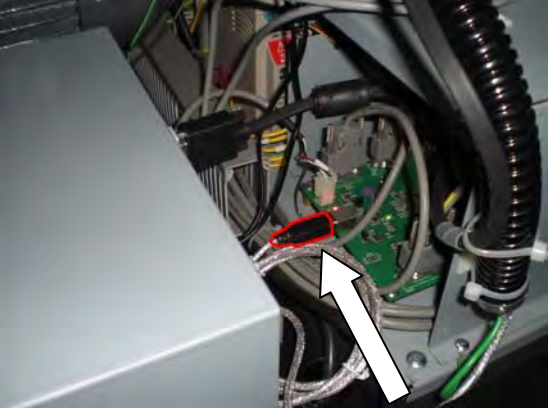| Step	Symptom
1	Computer boot-up, steering wheel rotates to left limit, and rotate to right limit.
2	After 40 seconds, base starts "Homing (base starts rotating and then returns to the center position)".
3	When system finishes Homing, screen will show "Loading…"
4	After Loading is finished, screen will display animation video

1. Power on fail

Step	Trouble shooting Guide
1	Please check the Power Source if 220V AC or not?
2	Please unload the "footrest cover" of the base, and check the power breaker. If the breaker is OFF, please turn it to ON.
3	If the Power Source have 220V AC, and the breaker didn't OFF but the unit is still without Power, Please check if the power wire break off or not?

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PowerBoat MDX **Service Manual**

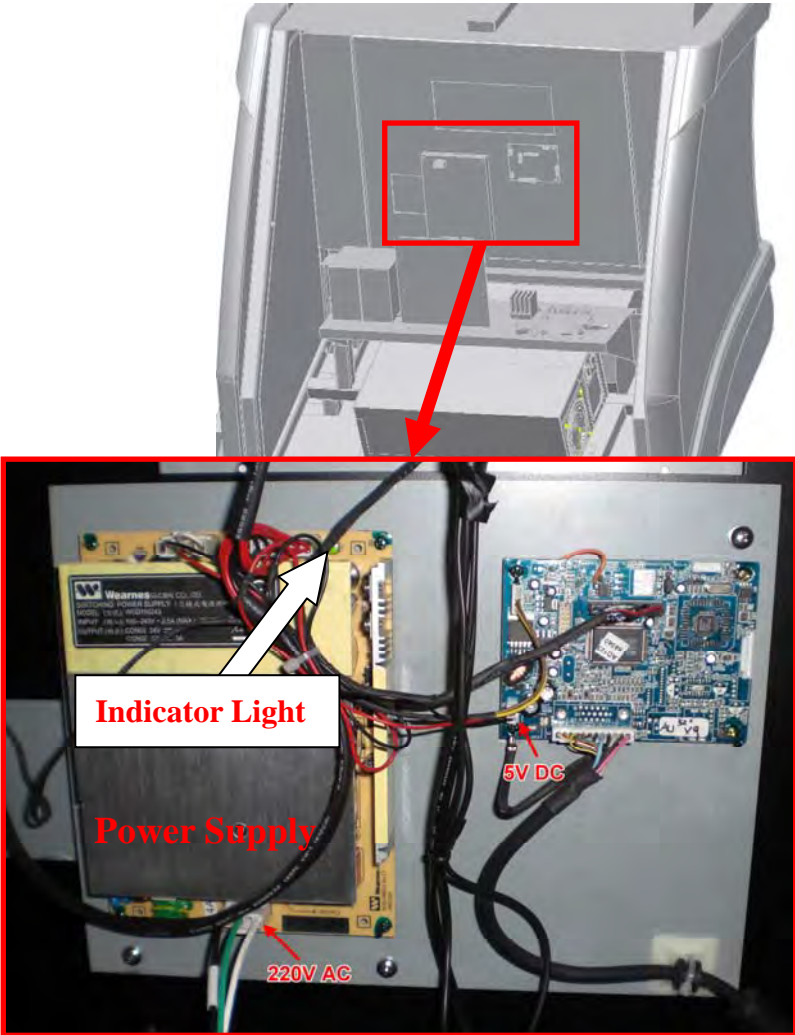2. After Power ON, PC boot up, but base not homing after 40 seconds.

Step	Trouble shooting Guide
1	Please unload the "footrest cover" of the base (please don't power OFF), and check the motion control card.
2	If the control card doesn't have the green light, please check the USB connector.
3	If the control card doesn't have the red light, please check the input power connector.
4	If the problem persists, please contact our Tech Support at: support@imon.com.tw

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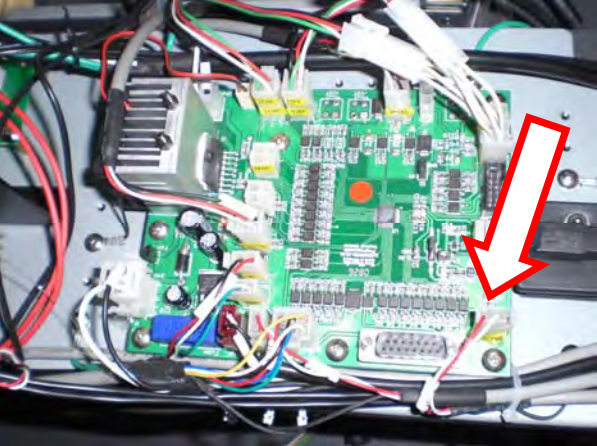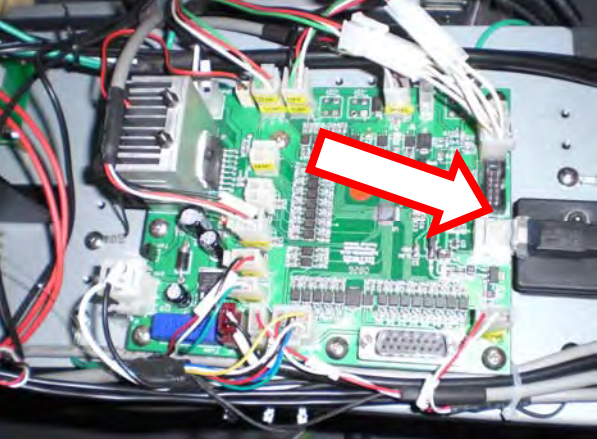
3. After Power ON, IPC turn ON, LCD monitor still dark

Step	Trouble shooting Guide
1	Please check if the power supply input have 220V AC or not? And the LCD control board power has 5V DC or not?
2	1. If the Power supply does not have the input power, please check the front side of the power connector. 2. If the LCD control board does not have the 5V DC power and the Indicator light is not ON, please replace a new power supply.

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PowerBoat MDX **Service Manual**

4. Control interface no respond

Step	Trouble shooting Guide
1	Please unload the back cover of the LCD (Please don't power off the game)
2	Please check the cockpit control board if it has Red light or not? If not, please check the wire and the connectors. If broken or damaged, replace it with new (parts to be provided by INJOY). If found ok, reconnect the wire connectors located on the control board and computer power supply.
3	Please check the cockpit control board if it has Green light or not? If not, please check the USB connector or reconnect the wire connectors located on the computer USB port.

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PowerBoat MDX Service Manual

| | If the problem persist, please replace a new USI |

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PowerBoat MDX **Service Manual**

4	If the problem persists, please make sure no other game shares this power source.
	1. AC Power Wire Diameter must be greater then 2.0mm **2. Earth connect must be indeed** **3. No other appliance or game should share this power source on this circuit, otherwise *PowerBoat* SDX will break down.**
5	Please contact our Tech Support at: support@imon.com.tw, if the problem persists.