



OPERATOR'S MANUAL

1st EDITION

VERSION 1.1



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IT IS THE RESPONSIBILITY OF THE OPERATOR TO CARE ABOUT COSTUMER SAFETY AT ALL TIMES. PLEASE READ AND OBSERVE THE NOTES ON SAFETY DESCRIBED IN THIS MANUAL.

About RING RIDERS

Thank you for purchasing this Gaelco S.A. product. This manual explains how to safely operate your game machine. Failing to operate the machine correctly could result in malfunction or accident, so please read the manual carefully before starting operation, specially the SAFETY NOTES (Section 3).

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Note: Operator's Manual Specifications are subject to change without prior notice

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RING RIDERS has been manufactured in accordance with European Community directives. Any changes or modifications to this machine has to be authorised by Gaelco S.A. and must be in accordance with the CE directives.

Using spear parts that do not fit specifications will void the warranty. Removal of serial numbers and/or bar codes from product or components will void the warranty.

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FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part A of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operating in a commercial environment. This equipment uses, and can radiate radio frequency energy, if not installed and used according to the instruction manual, and may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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GAELCO - RING RIDERS



1. GENERAL INFORMATION

1.1 MANUFACTURER AND MACHINE DATA

Manufacturer	Gaelco, S.A.
Address	Escipión 11
ZIP	08023
City	Barcelona
Country:	Spain
Tel.	34 93 417 36 26
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Technical Service	sat@gaelco.com

Name of the game	RING RIDERS
Model	MOTION

1.2 LEGISLATION REFERENCES

EM EMISSION

- EN 61000-3-2 (1995), Harmonics
- EN 61000-3-3 (1995), Fluctuations
- EN 55022 (1994), Continuous conducted emission (Class A)
- EN 55022 (1994), Radiated emission (Class A)

EM IMMUNITY

- EN 61000-4-2 (1995), ESD
- EN 61000-4-3 (1996) & ENV 50204 (1995), Radiated field of RF
- EN 61000-4-4 (1995), EFT burst
- EN 61000-4-5 (1995), Surges
- EN 61000-4-6 (1996), RF common mode
- EN 61000-4-8 (1993), 50 Hz H-field
- EN 61000-4-11 (1994), Dips, interruptions

ELECTRICAL SAFETY

UNE EN 60335-1 (1997) + Erratum (1997) + A11 (1997) + A12 (1997) + A13 (1999) + A14 (1999) + Erratum (1999).

Note: Test passed in Motion Test mode

1.3 TECHNICAL SERVICE

Gaelco S.A. or its Distributors carry out technical service.

The e-mail for technical assistance is **satring@gaelco.es**

1.4 RESPONSIBILITY

Any modifications made to this machine that are not authorised in writing by the manufacturer will be considered to be at the exclusive responsibility of the operator, who will consequently become the new "manufacturer" and must operate in compliance with the European Community directives.

In case of an accident caused by a defective part, the manufacturer will assume responsibility only if the machine was defective in its original condition. However, this responsibility shall be diminished or even totally annulled if the operator or the player do not follow the instructions provided or if the operator uses spare parts that are not covered by guarantee, are not authorised in writing or do not correspond to the specified technical characteristics.

2. SPECIFICATIONS

GAME DESCRIPTION

RING RIDERS is a motorbike competition, placed in a Theme Park, where up to four players race head to head against the clock. The race challenges the player's ability to control the bike under many different and changing conditions. The score is obtained by getting through rings that appear along the course, though the acrobatics achieved and the finish position are important too.

The player can enjoy a very realistic driving experience thanks to a 2DOF motion system and interactive handlebar.

DIMENSIONS AND WEIGHT

1) Crate dimensions and shipping weight of each module.

	width	depth	height	weight
Monitor cabinet	1200 mm	1000 mm	2300 mm	205 Kg
Platform	1000 mm	1300 mm	1400 mm	225 Kg

2) Dimensions and net weight of each module unpacked.

	width	depth	height	weight
Monitor cabinet	1100 mm	1019 mm	2127 mm	190 Kg
Platform	900 mm	1432 mm	1250 mm	210 Kg

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3) Total dimensions of the machine, installed on site:

width	depth	height
1100 mm	2650 mm	2162 mm

POWER SUPPLY

Operating Power: 220-230 VAC, 50 Hz
Output: +3,3VDC / 15A +5VDC / 12A, +12VDC / 8A

MONITOR

34" Hantarex Polo/2 STAR PH, code 01297790

CPU BOARD

PCB Gaelco RING RIDERS

CONTROLS

- Interactive handlebar
- Start button (placed on the right of the fuel tank)
- View button (placed on the left of the fuel tank)
- Accelerator grip
- Left brake lever
- Emergency Stop button (placed on top of the fuel tank)
- Footrest with safety stop system

MOTION SYSTEM

Degrees of freedom: 2 DOF

Actuators: 1 induction motor (geared), 1.1KW

Control: 1 frequency inverter SE2D200110, input voltage 230V +/-10%, 50/60Hz

ATTACHMENTS

Operator's Manual	(1)	Keys are tied up on the handlebar, close to the brake lever.
Motor driver manual	(1)	
Monitor Manual	(1)	The other attachments are in the coin box.
Coin box keys	(2)	
Monitor cabinet keys	(2)	
Power cord (3m long)	(1)	
Link cable	(1)	
Monitor cable (remote control)	(1)	

3. SAFETY NOTES

In order to use this machine safely please read carefully this Manual BEFORE the installation, use or maintenance of the machine.

This Operator's Manual and others manuals delivered with the machine must be available to the operating and service personnel.

When transporting or reselling the machine, be sure to attach this Manual.

The RING RIDERS machine has been designed for indoor use only, within residential or commercial areas, and must be used exclusively for the purpose intended.

GAELCO S.A. bears no responsibility for accidents, injury or damage resulting for unauthorized changes or improper use of the machine.

WARNING

To avoid accidents or damages, it is imperative to follow the notes on Safety resumed bellow, as well as all those included in the following sections:

- SECTION 4. MATERIAL HANDLING
- SECTION 5. UNPACKING, ASSEMBLING & INSTALLATION
- SECTION 9. TECHNICAL SERVICE

3.1 GENERAL SAFETY CONSIDERATIONS



- Before operating the machine, check that it has been installed correctly and in accordance with this Manual.
- As some parts of the machine move during game play, there are places where the distance between the stationary section and the mobile section changes. Despite the measures implemented to avoid accidents, if the operator feels that a person is in any danger, he should warn that person or stop the machine immediately by using the Emergency Stop button.
- The warning notices (stickers) must be kept in such condition that customers can read them easily.
- Installation, service or routine maintenance should be carried out by qualified personnel.
- Before connecting the machine to the mains supply, verify that it is set for the correct voltage and that the proper fuses are already installed.
- When replacing fuses, use spare fuses of the same type and rating than the originals. The use of other material can cause serious damages on the electronic circuits or even a fire hazard. Check the Parts List to know the exact specifications.
- The machine includes areas of high voltage. Care must be taken at all times to avoid electrical shock whenever inspecting or adjusting the equipment, particularly around the monitor.
- To ensure safe operation, the machine must be grounded with a plug securely connected to Earth.
- Do not turn ON the power switch until the machine has been installed on its dedicated place.

If there is any error or problem with this machine, operation must be stopped immediately.

3.2 SAFETY PRECAUTIONS CONCERNING LOCATION



Do not place the machine where it might be an obstacle in case on emergency (i.e. close to fire extinguishers or emergency exits).

Install and operate the machine in places where appropriate lighting is available, so warning labels can be clearly read by the customers.

This machine has been for indoor use only, within residential or commercial spaces. Absolutely do not set up the machine outdoors or under the following conditions:

- Direct exposure to sunlight, high humidity, water contact, dust, high heat or extreme cold.
- In locations near containers holding liquids or liquid dispensing equipment. In general, precautions should be taken against spilling liquids of any kind whatsoever over the machine
- In a place exposed to vibration. The machine must be installed on a level surface with levellers properly adjusted.
- In locations near ventilating holes. Doing so could cause internal temperature to rise excessively, resulting in equipment failure.
- Near hazardous substances

Furthermore:

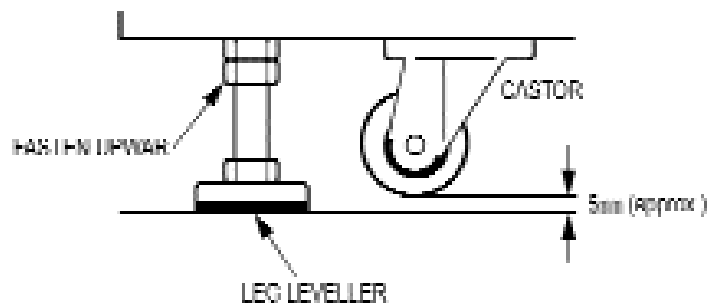
- In order to have easy access to the PSU, CPU and control devices, please make sure that the rear and sides of the machine are separated from the wall or other machines by at least 300mm (12")
- Ventilation slots must be not obstructed, and the machine must be positioned so as to leave a distance of at least 100mm (4") from possible obstructions
- Do not run the power cord across passages where pedestrian's feet could get caught on the cord.
- Ensure that the location's power supply is equipped with an Earth Leakage Breaker rated at 30mA.

GAELCO shall not be held responsible for any damage resulting from the failure to observe these instructions.

3.2.1 SECURING IN PLACE

Ensure that all the leg levellers make firm contact with the surface of the floor. This precaution is crucial for the RING RIDERS version with motion system, because the machine can move of itself, causing an accident.

After making the adjustment of all legs, secure the height of each one by fastening upward the nut.



3.3 PRECAUTIONS TO BE HEEDED WHEN MOVING THE MACHINE



The machine can easily moved by using their castors. When moving the game machine, always retract the levellers to the extreme up position, so the castors can make contact with the floor. Please ensure that the levellers are raised fully when moving the machine, even for short distances. Furthermore:

- Do not use the handlebar or the rear handle to move the platform (rider assembly), unless the levellers are raised fully.
- When moving the machine on slopping or uneven surfaces or across steps, proceed with extreme caution to avoid the risk of being crushed!
- If there are steps or step-like differences in grade, move the machine by separating into each unit. Be sure to catch the bottom part.
- During transportation, pay attention so that de castors do not thread power cords.
- Ensure that there is enough room to get through doors or to avoid any collision with elements hanging from the ceiling. Read section 4 to know the dimensions of the machine.

The two units of the machine are not equipped with lifting rings. It is therefore absolutely prohibited to lift them with ropes or belts!

3.4 PRECAUTIONS TO BE HEEDED DURING OPERATION



Please heed the following indications in order to ensure the safety of the customers when using this game machine. Be sure to read and get a good understanding of each item:

- Before starting the operation, please check if all the level adjusters are in firm contact with the surface of the ground. If they are not, the cabinet can move and cause an accident.
- Do not use the machine as support for other objects.
- Do not put on the machine or near by any kind of receptacle containing chemicals or water.
- Ensure to provide enough space around the machine to avoid the risk of injury or trouble. Insufficient installation space can cause the player to come in contact with spectators or hit them.

In order to avoid injury and accidents, it is not allowed to use the machine to those persons who fall under the following cases:

- Intoxicated persons.
- Persons susceptible to motion sickness.
- Persons who are not in good health, such those having problems of high blood pressure or heart malfunctions.
- Pregnant women
- Persons whose acts do not observe the warning notices.
- Persons who could be unable to support themselves being sitting (disabled people, small children, etc.).

Despite the machine is fitted with protection hoods to avoid access to potentially dangerous places, do not allow customers to put hands, fingers or extraneous matter in any opening of the cabinet.



Playing this game with high-heeled shoes is likely to cause a potentially hazardous situation.

3.5 SAFETY DEVICES CONCERNING THE MOTION SYSTEM

The RING RIDERS / MOTION machine has two dedicated devices that provide additional safety to the player when the game is running:

- An EMERGENCY STOP BUTTON placed on top of the fuel tank, which can be easily activated by the player or the operator at any time. The game keeps running but the motion stops until the button is unlocked manually by turning it clockwise.
- A SAFETY STOP SYSTEM, that stops motion immediately if the player does not press simultaneously both rider footrest. The game still runs but the machine does not move until both footrest are pressed.

The combined action of these two devices reduces the possibility of an accident resulting from sudden sickness or improper use of the machine while it is moving.

4. MATERIAL HANDLING

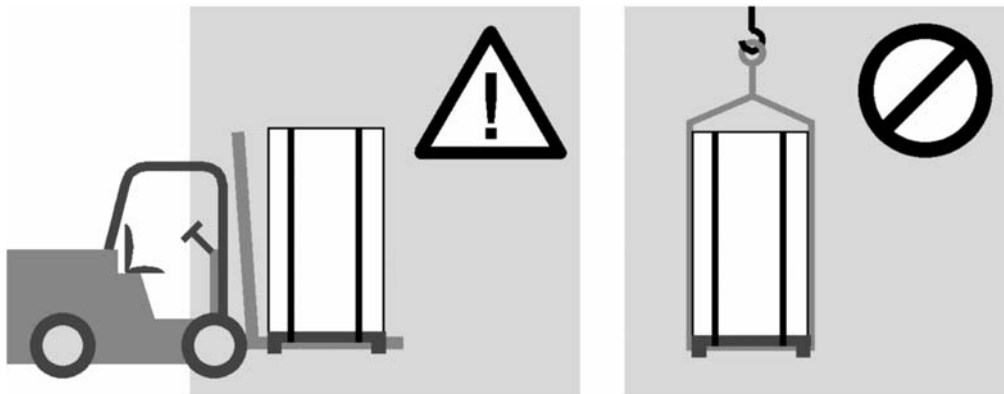


This machine should be transported or moved by trained persons. Failing to do so could result in injury or product damage. Please be very careful.

4.1 TRANSPORT OF PACKAGED UNITS

The packaged machine must be transported in a closed means of transport with sufficient carrying capacity for the gross weight of the machine, which is 205Kg for the monitor cabinet and 225Kg for the platform. The machine must remain packaged on its pallet and must be suitably secured to the means of transport. It is very important that the lifting forks are pushed right to the back of the wooden pallet, to give optimum stability to the load.

CODE	width	depth	height	crate weight
MONITOR CABINET	1200 mm	1000 mm	2300 mm	205 Kg
PLATFORM	1000 mm	1300 mm	1400 mm	225 Kg



It is not allowed to lift the packed machine with ropes or belts, as the package is not equipped with suitable lifting points for this type of transport.

4.2 STORAGE

Store the packed machine in sheltered and dry areas. Temperatures allowed: maximum +45°C / minimum -5°C.

4.3 RECEPTION

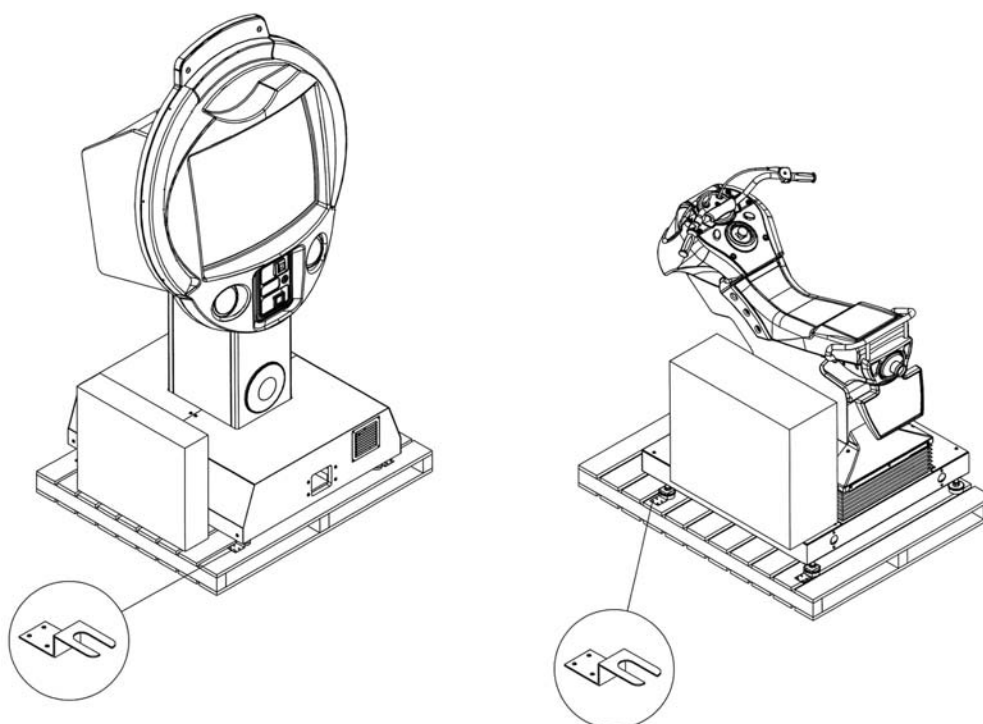
The RING RIDERS packaging should be carefully inspected upon receipt to ensure that the product is delivered in good conditions.

Shipping damage may void warranty. In case of shipping damage, contact your Distributor and the Transportation Carrier immediately. See section 5.1 for further inspection.

5. UNPACKING, ASSEMBLING & INSTALLATION

It is best to unpack the machine where it is going to be used or in a place as near as possible to this. Two people are needed to lift the cardboard packaging over the top of each unit.

Once the packaging is removed, the machine looks as shown in the illustration.



5.1 INSPECTION BEFORE ASSEMBLING

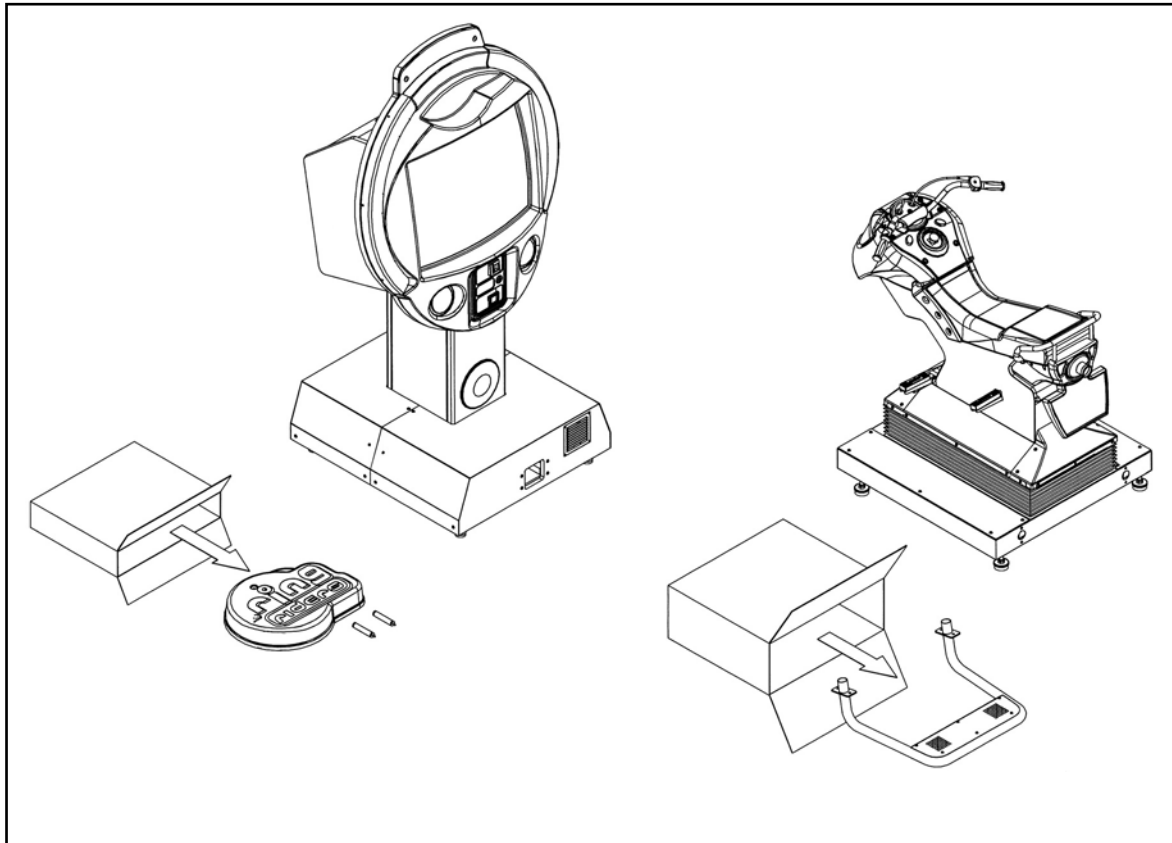
Normally, GAELCO products are ready to assemble immediately after transporting to the location. Nevertheless, some mishandling may occur during transportation. Check the following points to ensure that the machine has been properly delivered:

- Examine the cabinet exterior for dents, chips, or broken parts
 - Verify that castors and levellers are not damaged
 - Inspect the major assemblies, such as the video display monitor, handlebar and seat. Make sure that they are mounted securely and that all ground wires are firmly connected.
 - Ensure that the power supply voltage and frequency requirements meet those of the location.
 - Ensure that the fuses already installed meet the specified rating and type.
 - Inspect the power cable to ensure that it is not damaged.
 - Verify that the keys delivered with the machine open all doors.
 - Check if all the accessories are included.
-

5.2 ASSEMBLING & INSTALLATION

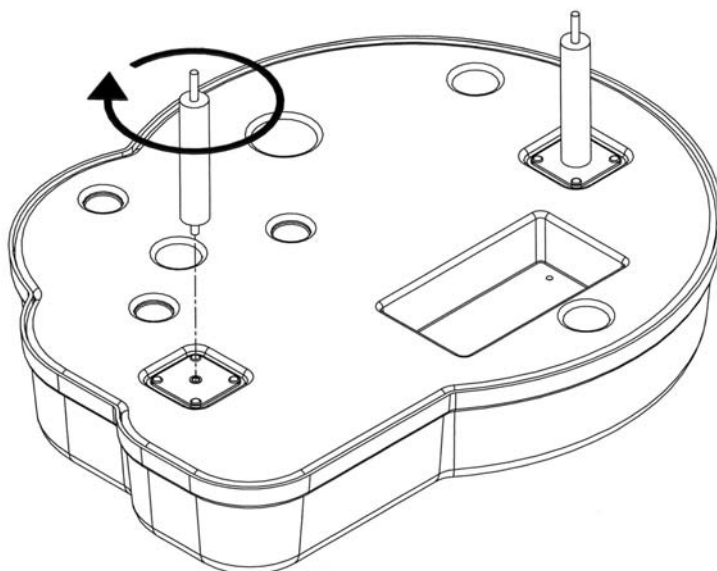
To assemble the machine proceed as follows:

1. Take out the boxes containing the accessories.
2. Remove the metal brackets that fix each unit to its pallet.
3. Raise the leg levellers and put the units down on the floor with the help of a ramp. Be very careful to avoid the risk of being crushed!

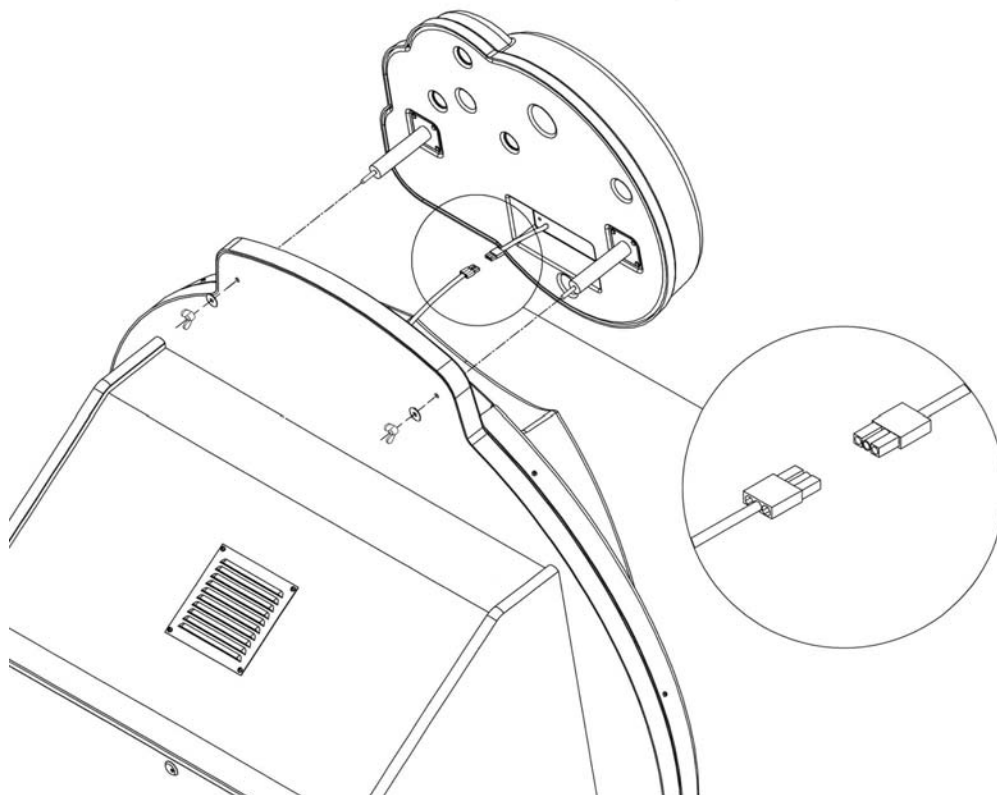


4. Place the monitor cabinet is at its final location and strictly follow the safety instructions described in section 3.2. Ensure that the cabinet is level, then secure the height of the leg levelers by fastening the adjuster nut upwards.

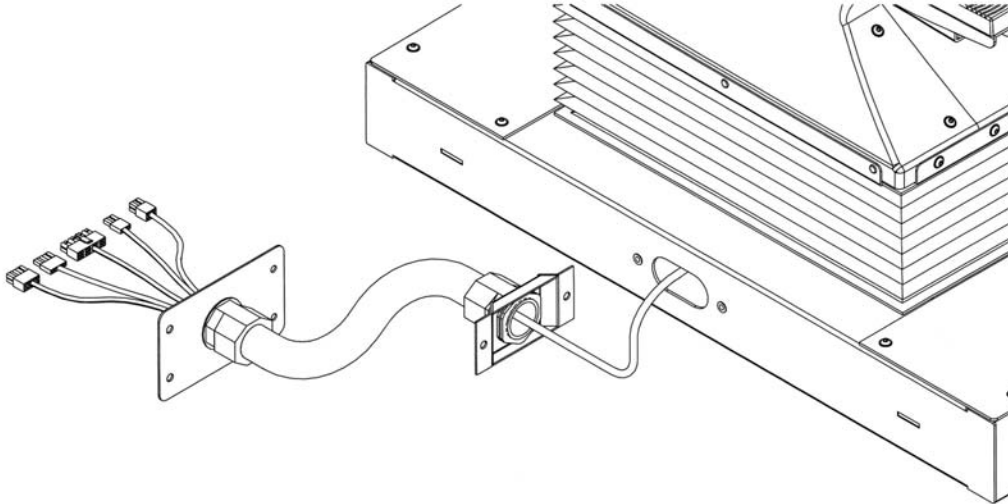
5. Screw the short end of the fixing bars onto the back of the billboard, as indicated in the picture below.



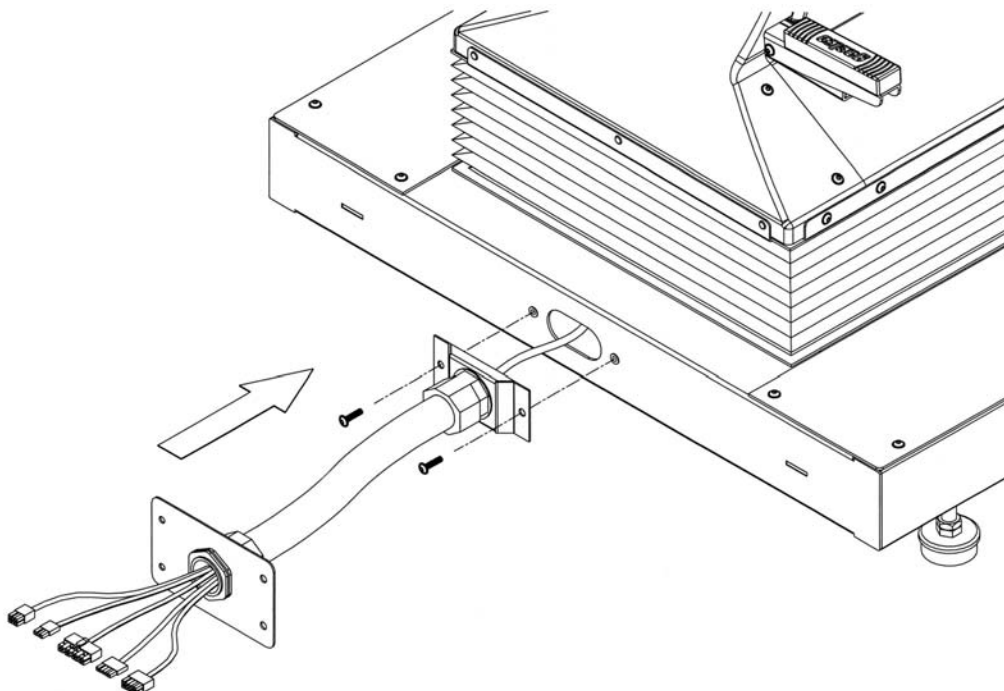
6. Assemble the billboard on the top of the monitor cabinet, **using a step**. Do not climb on the cabinet! Plug the connector of the fluorescent tubes and fix the billboard with the butterfly nuts.



7. The union harness comes with the platform. This part is disassembled for shipping facility, as shown in the picture below. Please fix the harness before to move the platform.



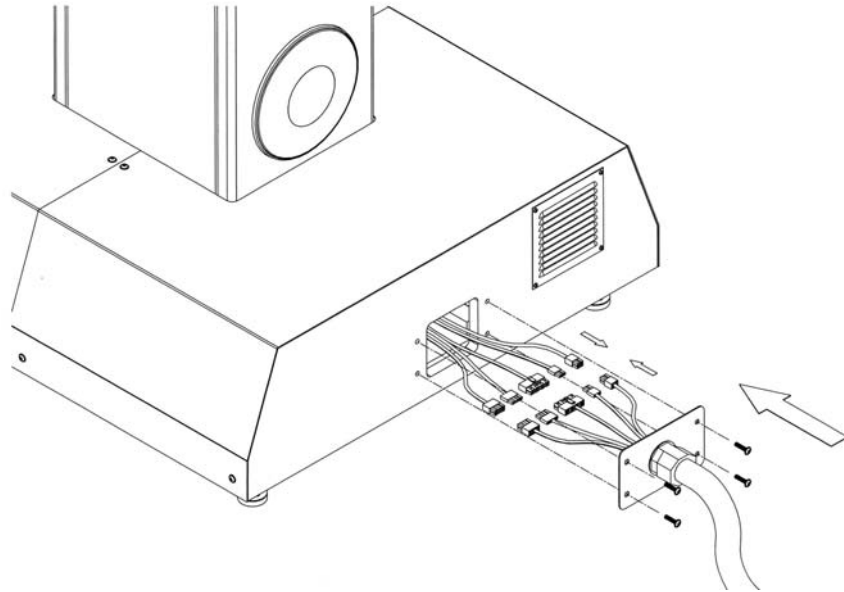
The screws are already mounted on its place. Loose them and screw them again fixing the harness plate.



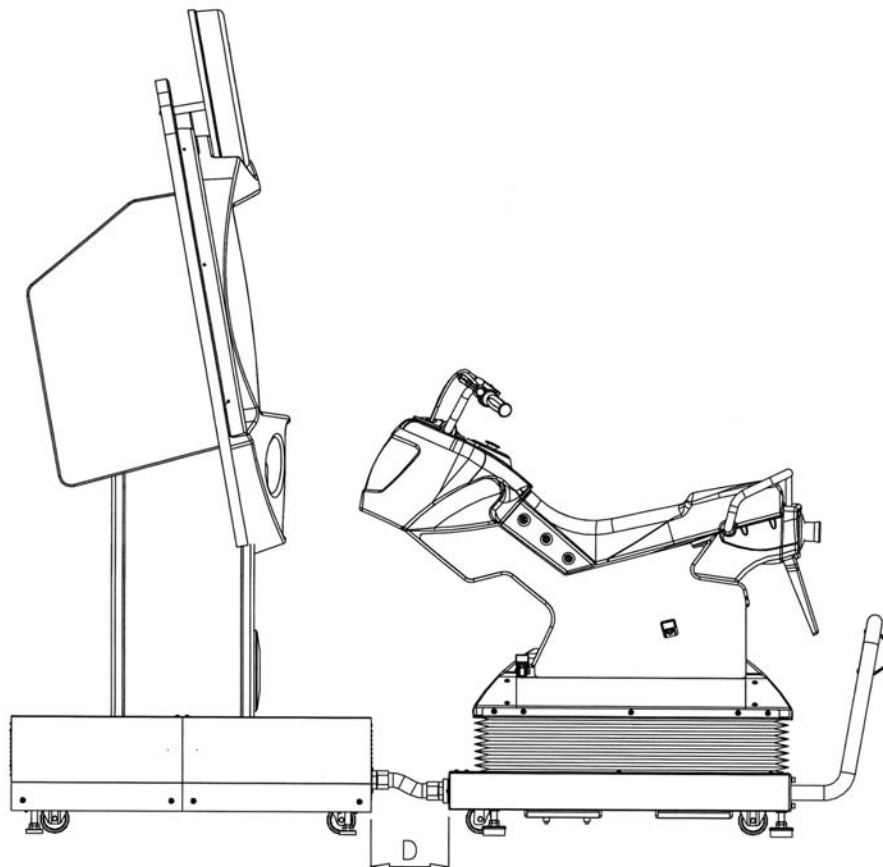
8. Proceed to assemble the two units together. This must be done where the machine is to be used. First of all make sure the monitor cabinet is level. Then approach the two units so you can connect the other end of the harness to the monitor cabinet.

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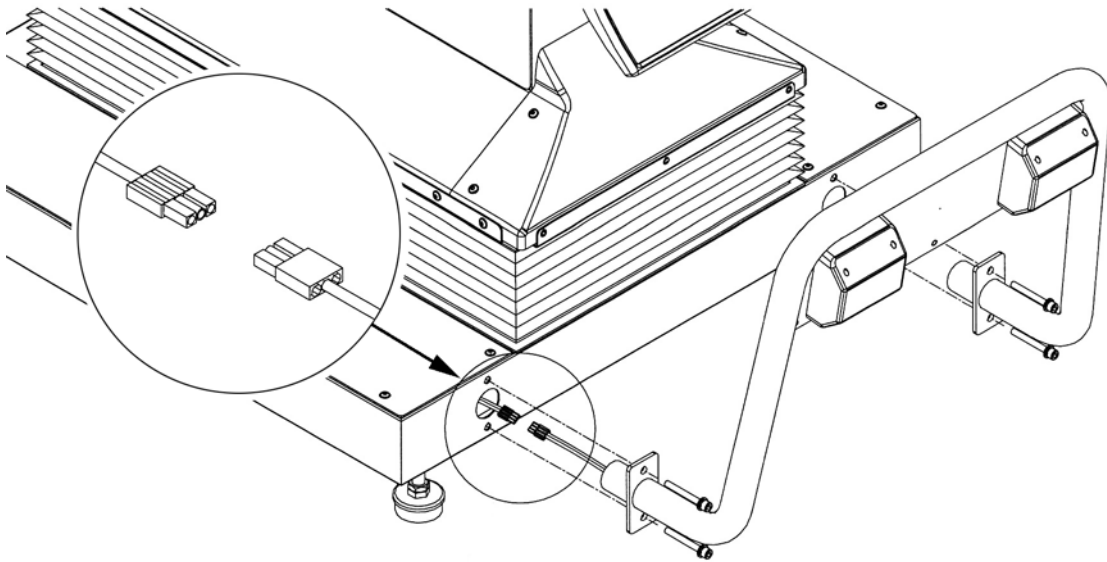
When all connectors are plugged, approach the platform to the cabinet so you can fix the harness plate of that end. The screws are already installed on its place.



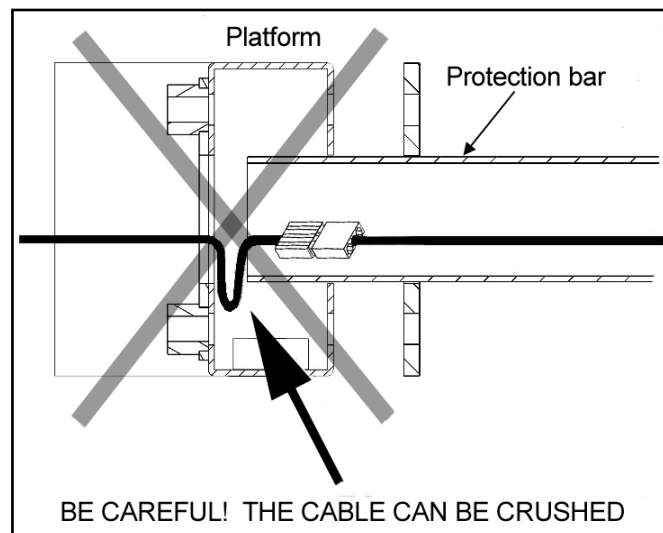
9. The gap (D) between the platform and the monitor cabinet should be 210mm (9") approximately. When this condition is respected, the harness makes a gentle inclination as shown in the picture.



10. Level the platform. Carefully adjust all the levellers so that the whole machine rests firm and level on the floor. (See section 3.2). Remember that the platform contains a motion system!
11. Proceed to assemble the back rail to the platform. First of all connect the cable, then fix the rail. The screws for that purpose are already installed on its place. Loose them and screw them again fixing the rail.



WARNING! If you find some difficulties when inserting the tubes, please do not push hard. Remove the tubes and inspect the cable, as it could be bended and blocking the way.



12. If the machine has to be moved, though a little bit, retract the leg levellers.

To clean the game machine, wipe with a soft cloth damped with a neutral detergent and wrung out. Using organic solvents like thinner may damage the plastic parts.

5.3 GETTING READY TO START



BEFORE SWITCHING ON THE MACHINE, PLEASE CHECK THAT THE INSTALLATION FITS ALL THE REQUIREMENTS DESCRIBED ON CHAPTER 3 (SAFETY NOTES) AND ESPECIALLY THOSE OF SECTION 3.2

The installation of the machine at its final site should be carried out by trained people. Mains power must be always be turned off, and the machine unplugged, before replacing any part or handling connectors. Please check the following points again:

- The area chosen for the machine is well away from heat sources.
- The machine does not obstruct emergency exits.
- The whole machine is level and stable on the floor. The leg levellers are secured in place.
- The power cord can be plugged into a grounded receptacle that provides the specified voltage and frequency.
- The mains supply is equipped with an Earth Leakage Breaker rated at 30mA.

5.4 SWITCHING ON THE MACHINE

The mains switch is located in the compact filter assembly, which also contains the fuse and the socket for the mains cable. It is found in the back of the monitor cabinet.

To start the machine, push the switch to position "I".

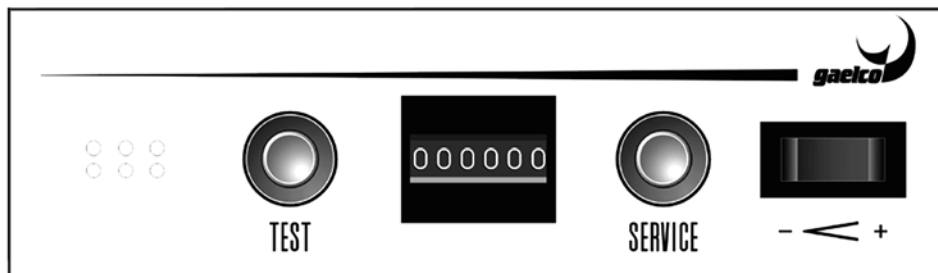
The machine can be switched OFF (position "0") whenever necessary. If a game is in progress on the machine, the credit will be lost.

To avoid possible damage to the electronic components, wait several seconds before turning the machine on again.

6. PROGRAMMING THE MACHINE AND TEST MODE

An automatic check of the memories is made when the machine is switched on. This coincides with the presentation of the Screen Test. After a few seconds, if no error occurs, it automatically goes on to show the game. The interface is also adjusted dynamically each time that a machine is switched on. Any other adjustment should be made in TEST MODE.

The access to the TEST MODE as for the other controls -monitor, sound, etc.- is made from the CONTROL PANEL, which is situated behind the coin box door. This panel consists of a button to access TEST MODE, a coin counter, a SERVICE button, and a commuter to adjust the VOLUME of the loudspeakers.



Pressing the TEST button enters TEST MODE, where the game variables, such as level of difficulty, linkage of machines, etc., can be adjusted. A check of the motion system and other controls can also be made. The SERVICE button allows the technician to introduce game credits without moving the coin counter.

The main menu of TEST MODE offers the following options:

Screen test
Input / Output
Motion system
Sound
Settings
Reset high scores
Book-keeping
Exit and save
Exit without saving

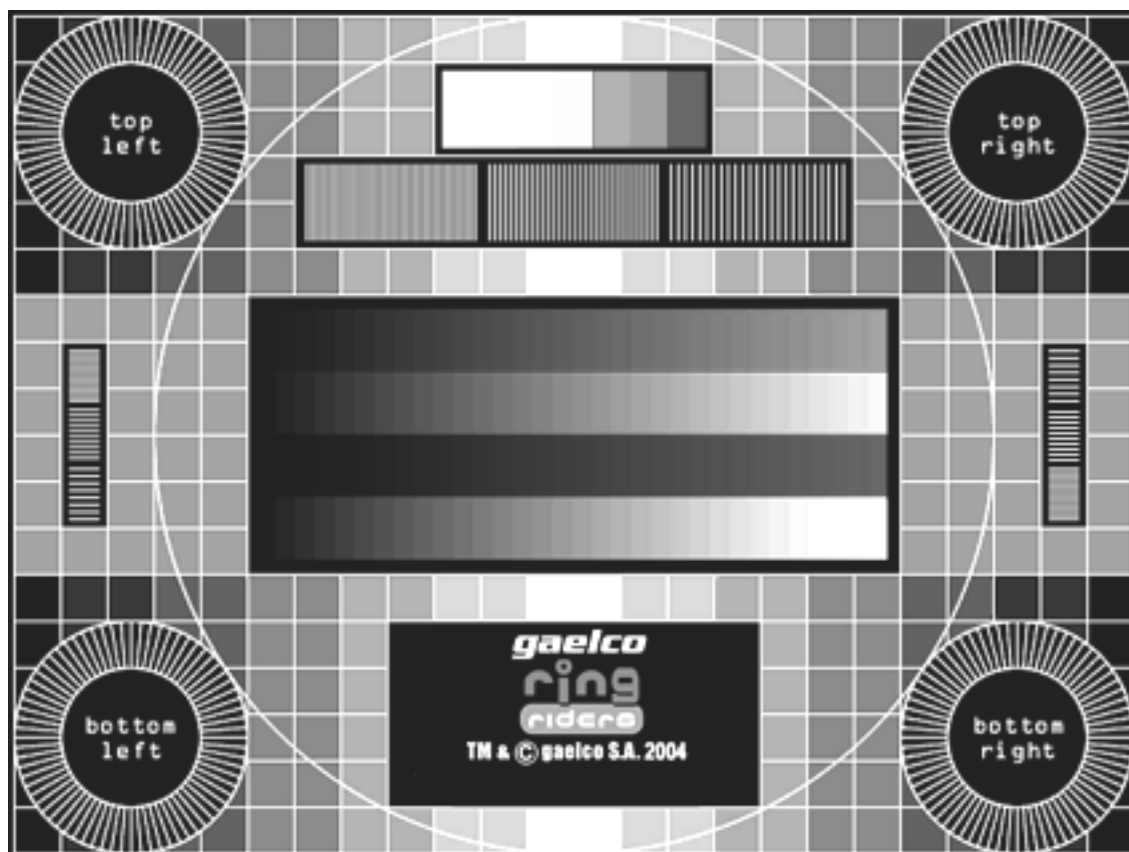
You can choose the option required by pushing the VIEW button (the cursor moves up) or the START button (the cursor moves down). The selection is confirmed when you twist the accelerator grip (throttle).

To make sure that the changes that have been made are kept permanently, you must not switch off the machine without first leaving TEST MODE with the option **Exit and save**.

WARNING! The option **MOTION SYSTEM ERROR LOG** may appear on the main menu if the motor driver detects any fault. The error messages can be read by selecting that option. For more information please refer to sections **6.3** and **9.10** of this manual.

6.1 SCREEN TEST

This screen is the ADJUSTMENT CARD, which should be used to suitably adjust the monitor. It shows you, also, information about the installed software version.



You can return to the Main Menu by pushing the START button placed on the right side of the fuel tank.

6.2 INPUT / OUTPUT TEST

This screen enables you to check the correct functioning of all controls of the machine. The device to be tested is selected by pushing the START and VIEW buttons placed on the fuel tank cover. To return to the main menu you have to push both buttons at once. The status of each signal changes when the related control device is activated.

The INPUT/OUTPUT screen looks like this:

INPUT / OUTPUT		
Handlebar position:	127	-0.004
Throttle:	242	0.898
Brake sensitivity:	000	-1.000
Lateral leaning:	000	-1.000
Light Ring & START:	off	
Brake detection:	off	
Light Ring & View:	off	
Coin:	off	
Coin2:	off	
Service:	off	
Emergency Stop:	off	
Footrest detection:	off	
Test:	off	
Volume Up:	off	
Volume Down	off	
Push VIEW and START buttons to exit		

Handlebar Position

The number on the right goes from -1.000 (top left position) to 1.000 (top right)

Throttle

Accelerator grip. The number on the right goes from 0.000 (no acceleration) to 1.000 (maximum acceleration)

Brake lever

There are two signals related to the brake lever.

The **Brake detection** is a digital signal (ON/OFF).

The signal for **Brake sensitivity** is analogic and goes from -1.000 (wheels free) to 1.000 (wheels blocked).

The brake is working hard (1.000) when there is a gap of about 10mm between the brake lever and the rubber grip.

Lateral leaning

The player can lean the bike laterally. The reading goes from 1.000 (maximum leaning to the left) to 1.000 (maximum leaning to the right)

Start button	Placed on top of the fuel tank (right side). The light ring that surrounds the monitor is activated when pressing this button.
View Button	Placed on top of the fuel tank (left side). The light ring is also activated when pressing this button.
Service Button	Placed on the Control Panel
Test Button	Placed on the Control Panel
Volume Switch	Placed on the Control Panel
Coin & Coin2	Coin Acceptors
Emergency Stop	Red knob placed on top of the fuel tank. When checking this function, the message displayed on the screen is ON when the button is pressed (motion system disabled). <u>Once pushed, the button will remain mechanically locked until you turn the red knob clockwise.</u> The motion system is enabled when the message on the screen is "OFF" (red knob released).
Footrest detection	<u>Front</u> footrests of the bike (back footrests are not active). During the game, the motion system is disabled if the player does not press <u>both</u> front footrests. The emergency stop button must be released (OFF) when checking the Footrest detection . The message is OFF when the motion system is enabled, that is, when both footrests are pressed.
Exit	To return to the main menu, push VIEW and START at once.

6.3 MOTION SYSTEM TEST

This screen enables you to check some functions related to the motion system.

MOTION SYSTEM	
Speed:	0.00
Position:	0
Security:	released)
Forward	
Reverse	
Motion test	
Vibrator test	
Check error log	
Exit	

The system does not move unless the emergency stop button (red knob) is released, but it is not necessary to press the footrests when performing this test.

The options **Forward** and **Reverse** allow you to check the position of the bike for maintenance purposes. The bike can move slowly or fast, depending on the throttle regulation.

The **Motion test** option performs an automatic check of the steering motor and the motion motor. The bike goes up and down while the handlebar turns to the left and to the right. We aware when selecting this option with the throttle, as the handlebar will turn immediately.

The vibrator can be also tested by selecting the **Vibrator test** option and twisting the throttle.

The **Check error log** option allows you to check the last 10 error messages stored in the buffer of the motor driver. The message **UU** is not about a fault, actually. It is just the notice of the voltage drop that occurs each time you switch off the machine. For maintenance purposes, please refer to the section **9.10**.

To return to the main menu, select **Exit** and twist the accelerator grip.

6.4 SOUND TEST

This screen allows you to check the whole sound system.

SOUND	
Volume:	50%
Bass level:	30%
Left loudspeaker:	OFF
Right loudspeaker:	ON
Subwoofer:	OFF
Rear loudspeakers:	OFF
Sample number:	0
Test	
Exit	

The **Volume** is adjusted by the Volume switch placed on the Control Panel.

The remaining options are selected by pushing the START/VIEW buttons, then activated with the throttle. Each loudspeaker can be tested by selecting ON.

The **Bass level** is adjusted by rotating the throttle. Each twist increases 10%.

The **Sample number** option allows you to hear the different sounds used in the game.

The **Test** option reproduces 5 seconds of sound exhibition.

To return to the main menu, select **Exit** and twist the accelerator grip.

6.5 SETTINGS

As for the previous screens, the parameter is selected with the VIEW and SIREN buttons, then changed by a twist of the accelerator grip (throttle).

SETTINGS	
Difficulty:	Easy
Advertising sound:	50%
Free play:	NO
Credits to start:	1
Credits to continue:	1
Coin 1 / credit conversion	
1 coins	
1 credits	
Coin 2 / credit conversion	
1 coins	
1 credits	
Link mode:	NOT LINKED
Language	English
Exit	

Difficulty

This options allows the operator to ajust the level of difficulty of the game. There are three levels: Easy, Medium and Hard difficulty.

Advertising sound

By means of this option you can program the machine for sound production (or not) when it is in exhibition mode. Each twist of the throttle encreases the volume a 25%

Free Play

This option allows you to play without inserting coins.

Credits to start

Here you can program the number of coins required to start the game (1 to 5, selected with the throttle).

Credits to continue

When this option is enabled, the player can start a game from the last stage passed on the previous game (1 to 5)

Coin / credit coversion

On this option you can adjust the number of credits (game price) that the machine gives for a defined number of coins. The machine can work with two coin acceptors (USA)

Link mode

Up to four RING RIDERS machines can be linked together. The link status is detected automatically. When just two machines are linked, you only need the link cable supplied with each machine. This crossed Ethernet cable should be plugged to the RJ45/8 connector of the RIN-364 unit (mains switch and fuse holder). placed on the rear bottom of the monitor cabinet.

When linking more than two machines, it is necessary a NETWORK SWITCH with automatic polarity detection and inversion, working at 100Mbps. In that case all machines could be connected to the network switch.

The Link mode option allows the operator to manually identify each machine for playing purposes. For example, if three machines are linked, it is convenient to label them as 1 (1up), 2 (2up) and 3 (3up).

Language

The "how to play" messages can be displayed in 5 different languages, depending on the selection made with this option. (Deutch, English, Español, Français, Italiano).

Exit

To leave this screen go to the Exit line and twist the accelerator grip.

6.6 BOOK-KEEPING

The data for the activity of the machine are collected on two screens. The first screen shows the following information:

BOOK-KEEPING 1		
Total time	(hh:mm) :	0050:20
Play time	(hh:mm) :	0016:48
Shortest play	(mm:ss) :	01:46
Longest play	(mm:ss) :	11:34
Average play	(mm:ss) :	02:48
Total credits	:	00346
Servicet credits	:	00008
Start games	:	00310
Continue games	:	00046
Next Page		
Reset Book-keeping		
Exit		

Reading from top to bottom:

- Total time the machine is connected in hours and minutes
- Total time the machine is busy in hours and minutes
- Time of the shortest play in minutes and seconds

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- Time of the longest play in minutes and seconds
- Time of the average play in minutes and seconds
- Total number of credits
- Credits entered with the SERVICE button
- Credits owed for the coins entered
- Number of plays using the Continue option
- Go to the next bookkeeping screen
- Reset the information delivered on this screen
- Exit this page and go to the main menu, by rotating the throttle.

The second screen shows additional information about the game incidences on each stage:

BOOK-KEEPING 2			
0:00	-	2:00: 0034	4:30 - 5:00: 0016
2:00	-	2:30: 0156	5:00 - 5:30: 0010
2:30	-	3:00: 0017	5:30 - 6:00: 0020
3:00	-	3:30: 0029	6:00 - 7:00: 0021
3:30	-	4:00: 0027	7:00 - 8:00: 0007
4:00	-	4:30: 0014	8:00 - n.nn: 0008
Next Page			
Reset book-keeping			
Exit			

WARNING: GAELCO is not leable for any accidental lost of data.

To leave this screen and return to the Main Menu, select Exit and twist the accelerator grip.

6.7 LEAVING THE TEST MODE

The last two options of the main menu allows you to leave the test mode and go back to the play mode.

Exit and save
Exit without saving

The selection is made with the VIEW and START buttons. You can leave the Test Mode and save the changes that have been made in the previous screens. In that case you must select the **Exit and save** option. If you want to leave the Test Mode without keeping the changes, you should select the option **Exit without saving** (last line of the menu).

Warning! Whatever the changes that have been selected in the previous screens (SETTINGS & MOTION SYSTEM) will be eliminated unless you exit using the option **Exit and save**, confirmed with the throttle.

7. HOW TO PLAY

Game's Concept

RING RIDERS is a motorbike competition, placed in a Theme Park, where up to four players race head to head against the clock. The race challenges the player's ability to control the bike under many different and changing conditions. The score is obtained by getting through rings that appear along the course, though the acrobatics achieved and the finish position are important too.

Game features

- The player can choose from 20 different characters (10 males and 10 females).
- There are two main circuits, the "Sequake ride" and the "Hurricane ride". Both circuits have diverse ground and weather conditions: sand, water, mud, rain, snow,...
- There are a total of 5 motorbikes available, with different features each. The combination of characters and bikes gives a lot of driving styles.
- There's a realistic driving feedback with 2DOF motion system and interactive handlebar.
- The throttle and the brake allow a very skillful driving to the player, so he/she can achieve awesome acrobatics.
- This is a single player motion machine, which can be linked to 3 more machines. That is, up to 4 RING RIDERS can play together.

Starting the game

To start to play it is necessary to put enough coins to cover the price of at least one credit. The number of coins introduced is shown together with the number of coins necessary to obtain one credit. For example, if the programmed number of coins per credit is two, the displayed message will be, step by step: "Credits 0 / 2", "Credits 1 / 2" and "Credits 1". The cost of a credit is programmed from Test Mode (see section 6.5, SETTINGS).

When the necessary coins have been put in, the message "INSERT COIN" changes to "PUSH START BUTTON". By pushing this button the player can choose the game options.

Game rules

To be classified, the player has to accumulate points by going through as many rings as possible, achieving diverse acrobatics and reaching the finish line in a good position. There are three color rings (red, yellow and green) which different punctuation each. The difficulty of the acrobatics and the length of the jumps are computed to get more points. The final score is defined by the arrival position to the finish line.

The big jumps are achieved when the player gives full throttle for an instant in the right place, taking advantage of the unevenness of the ground.

The player has to earn a certain amount of points to achieve "time extended". This amount is displayed at the beginning of the race, as well as the score to qualify.

8. ADVANCED OPTIONS

8.1 HOW TO LINK THE RING RIDERS MACHINES

RING RIDERS allows you to connect up to four machines, so several players can compete directly. The connection is detected automatically, when the link cable is plugged.

When just two machines are linked, proceed as follows:

1. Switch off the machines.
2. Take one link cable (supplied with each machine) and plug it on the RJ45/8 connector of both machines. This connector is placed on the rear bottom of the monitor cabinet, in the same plastic support where the mains cable is plugged.
3. Switch on the machines.

When more than two machines have to be linked, it is necessary a NETWORK SWITCH with automatic polarity detection and inversion, working at 100Mbps. In that case all machines could be plugged to the network switch. Proceed as follows:

1. Switch off the machines.
2. Take as many cables as machines. If you can't find a network switch with automatic polarity detection, the link cable supplied by Gaelco is not suitable, as it is a crossover Ethernet cable. In that case you have to use normal patch cable.
3. For each machine, plug one end of the link cable to the RJ45/8 connector. The other end is plugged to the network switch.
4. Switch on the network switch.
5. Switch on the machines.
6. On each machine, enter TEST MODE, then the SETTINGS menu and select the LINK MODE option. Assign a number to each machine (1 to 4) in order to facilitate the identification of each competitor during the game.

8.2 SOFTWARE UPDATE

You can upgrade the version of RING RIDERS by downloading it from Gaelco's server. These are the hardware requirements:

- 256MB available on the hard disk
 - Internet connection at 256Kb/s (recommended)
 - USB port
 - USB Memory Sticker of 256MB
-

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To upgrade the version proceed as follows:

1. Plug the USB memory sticker on the USB port of your computer.
2. Open the window labeled as "My Computer": the USB Memory Sticker should be detected as "removable disk" or something like that. Let the window opened.
3. Enter to the Gaelco's ftp server through Internet Explorer, using the line **ftp://ringriders:ringriders@80.32.94.121**
4. Go to the directory of the last version (example: v0.80="rr080")
5. Download all files of the directory to your USB memory sticker, by dragging and dropping from one window to another. The process will take about one hour and a half if your Internet modem is working at 256Kb/s. It will take a lot more time if the modem works at a lower baud rate.
6. When the download is finished, unplug the USB Memory Sticker.
7. Switch off the RING RIDERS machine to be updated. Remove the base cover of the monitor cabinet (RIN-220) so you can access to the CPU.
8. Plug the USB Memory Sticker to one of the USB ports of the RING RIDERS CPU.
9. Switch on the machine. The update begins automatically.

The updating process takes about 6 minutes. When it finishes, the game starts automatically. Then you can remove the USB Memory Sticker without switching off the machine. Finally, put the base cover again.

9. TECHNICAL SERVICE

9.1 PRIOR CONSIDERATIONS

Technical service and maintenance must be carried out by qualified staff.

No modifications shall be made to the machine unless these have been approved by the manufacturer in writing. Failure to observe this requirement may cause damage or accidents and will automatically render the guarantee null and void.

If any task needs to be performed which is not described in this manual, please contact the distributor for instructions. The manufacturer declines any liability for damage and injury arising from failure to comply with this requirement

Do not attempt to repair the CPU. It contains sensitive chips that could easily be damaged by even the small internal voltage of a meter. Always return the CPU to your distributor for any repairs.

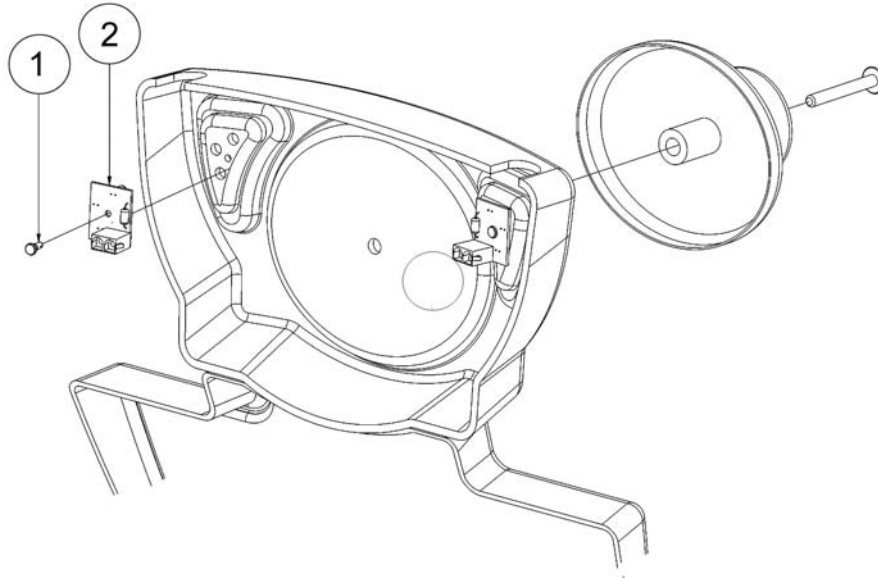
9.2 SAFETY PRECAUTIONS



- Before commencing work on the machine, maintenance staff must read this manual carefully and check that all of the safety norms concerning the installation and use of the RING RIDERS machine. Maintenance staff must advise the operator of any irregularities they observe so that the latter can take the appropriate measures to put matters right.
- The machine must be disconnected from the power supply before beginning any kind of maintenance work (changing parts, repairs, etc.), except where this is confined to a simple check on whether the machine is working properly. Hold the plug when unplugging the machine - DO NOT PULL ON THE CABLE !
- Parts of the power supply unit (PSU) and the monitor remain hot or store high voltage even when the machine has been unplugged. Do not touch these parts as electric shock or burns may result.
- Make sure there is plenty of room for maintenance to be carried out. At least 3 metres should be left free between the machine itself and other objects (e.g. adjacent machines, walls, etc.).
- When parts need replacing, use only those approved by Gaelco S.A. and which meet the relevant specifications.

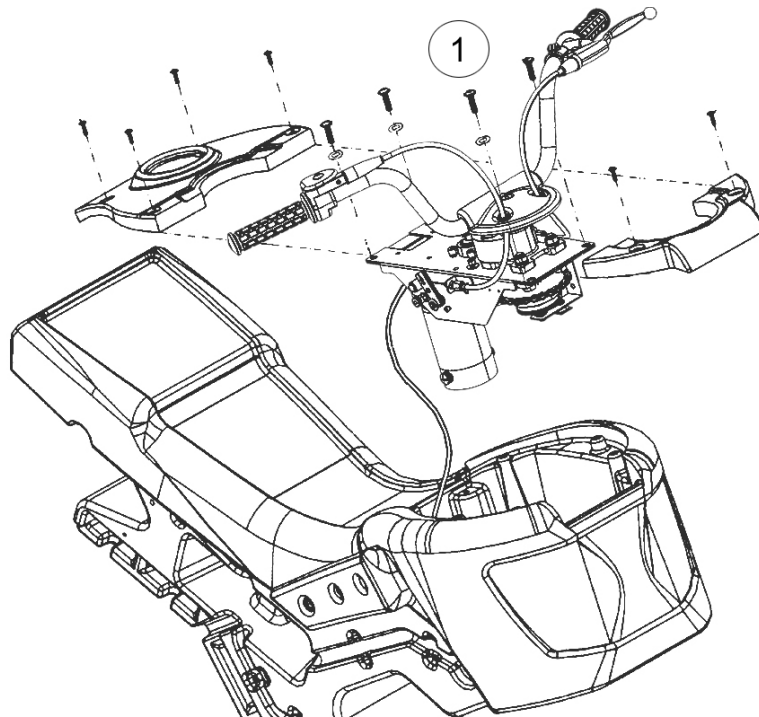
9.3 BRAKE LIGHTS

If the brake lights can be checked by removing the screw that holds the exhaust pipe, as shown in the drawing. The light board (2) is released by pulling the snap rivet (1).



9.4 STEERING MECHANISM

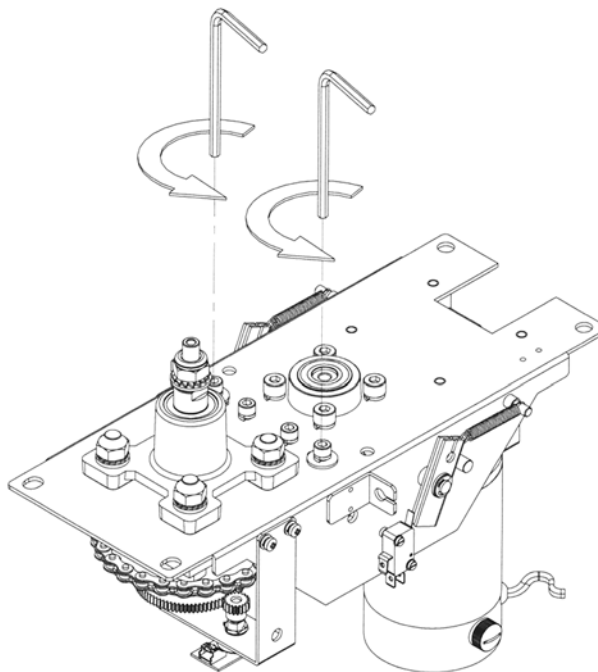
To remove the steering mechanism, loose up the screw (1) that holds the cupola. Then remove the two pieces of plastic which cover the mechanism. Finally, remove the screws that hold the mechanism to the chassis, ensuring that the wires are disconnected before lifting out the assembly.



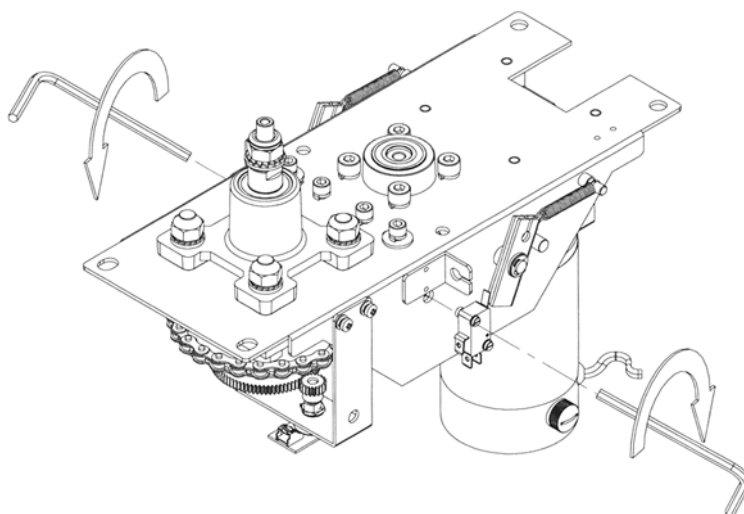
9.4.1 ADJUSTING THE DRIVE CHAIN TENSION

Adjust the chain tension as follows:

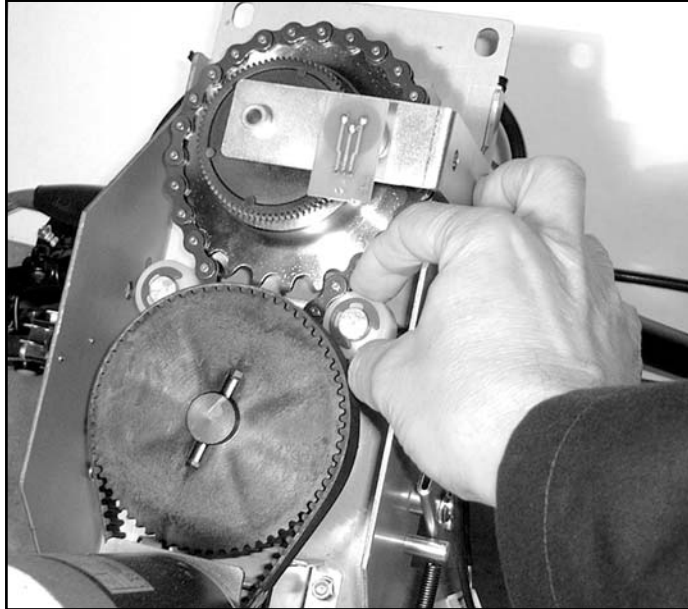
1. Loosen the screws holding the tensing roller shafts (as shown in the drawing). Half a turn should be enough.



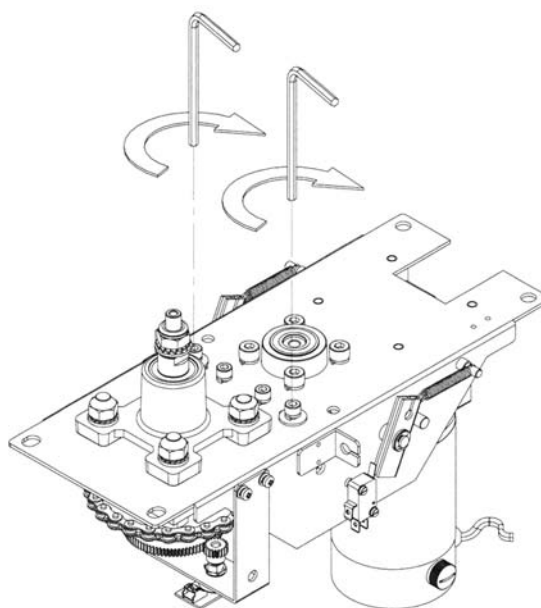
2. Then, adjust the chain tension by tightening the side screws. To check whether the chain is properly tensed: the nylon rollers should press tightly enough against the chain to be difficult to turn by hand but still sufficiently loose to be able to turn despite the friction. **Bear in mind that when the top screws are tightened, the rollers will close and press even more tightly against the chain. This may make the handlebar too hard to turn.**



Checking the rollers



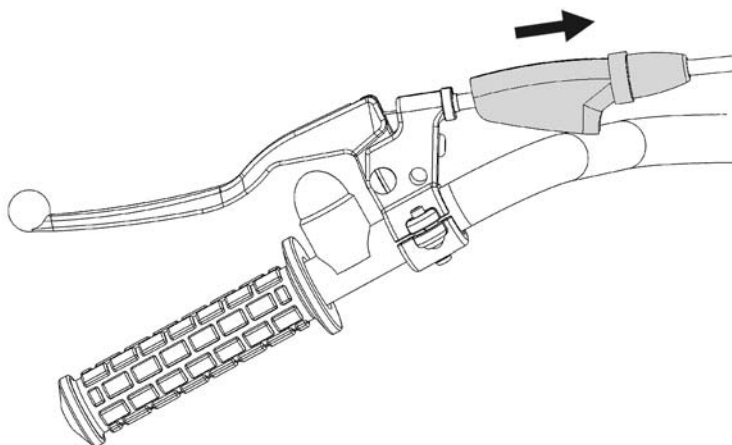
3. Tighten the top screws and re-check the **pressure of the rollers against the chain**. If they cannot be turned by hand, they are pressing too hard against the chain. If this is the case, repeat the process again, this time loosening the side screws a little. Once again, tighten the top screws and check the pressure by turning the rollers by hand. Repeat the process as many times as is required until the criteria set out in Step 2 are met.



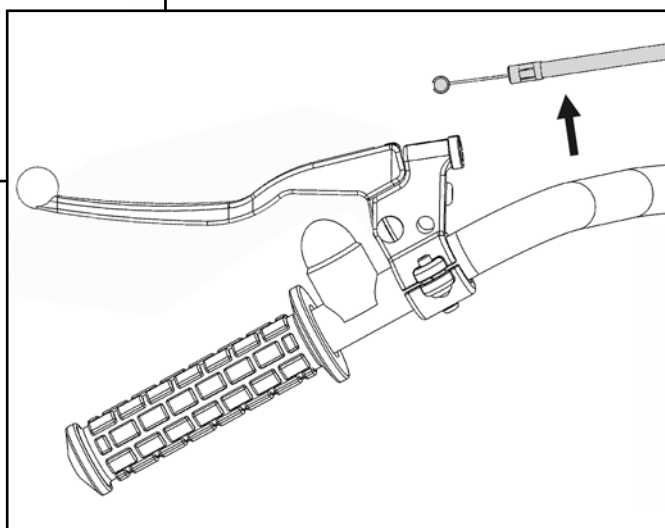
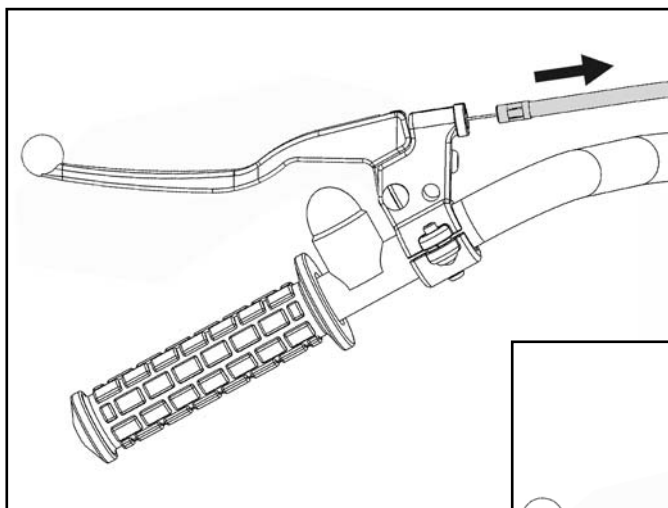
9.4.2 BRAKE CABLE REPLACEMENT

To replace the brake cable, proceed as follows:

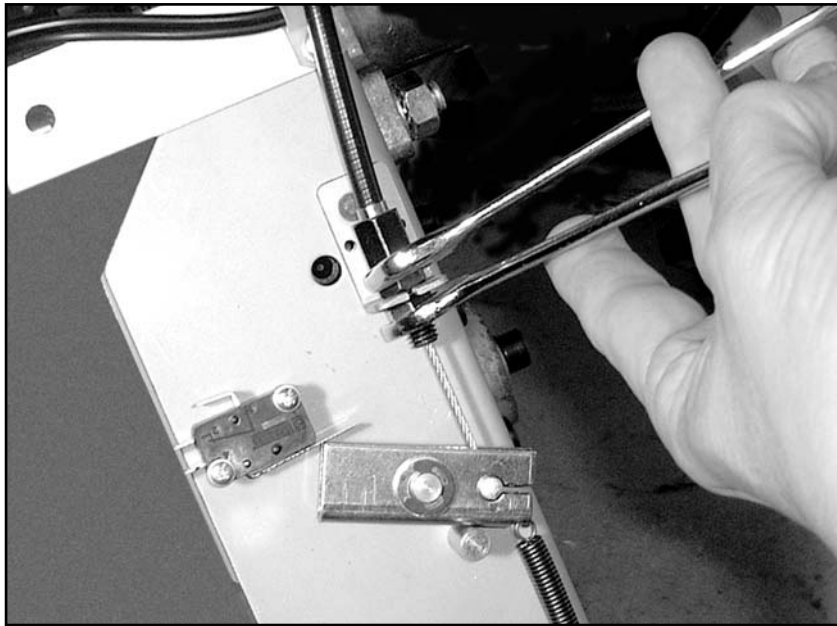
1. To work more easily, remove the steering assembly following the procedure described in the section 9.3 of this chapter.
2. Remove the protective cover from the brake handle.



3. Pull on the cable sleeve and remove the cable from the handle, as shown in the drawings.



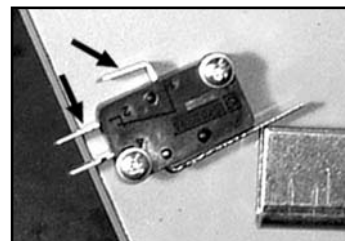
4. Loosen the nuts that hold the cable tensor to the mechanism, using two spans of 12mm. Then release the cable.



5. Lift the cable from the plastic cupola by pulling it upwards.
6. Fit the new cable by following the reverse procedure. First thread the cable into the cupola from the top. Then follow the steps below:
 - Fit the end of the cable in the switch lever.
 - Fit the tensor. Do not tight the nuts yet.
 - Fit the other end of the cable to the brake handle.
 - Adjust the tensor. The cable should be taut, but the lever must touch the stopper when the brake handle is released. Tight the nuts of the tensor.
 - Fit the steering assembly into the chassis. Do not forget to connect the wires.
 - Fit the pastic covers.
 - Fit the cupola.
 - Fit back the rubber protection of the brake handle.
 - Ensure that the brake is working properly, as well as the rest of controls related to the steering assembly (accelerator, steering motor, etc.). All these controls can be tested from the **Input / Output** of Test Mode.

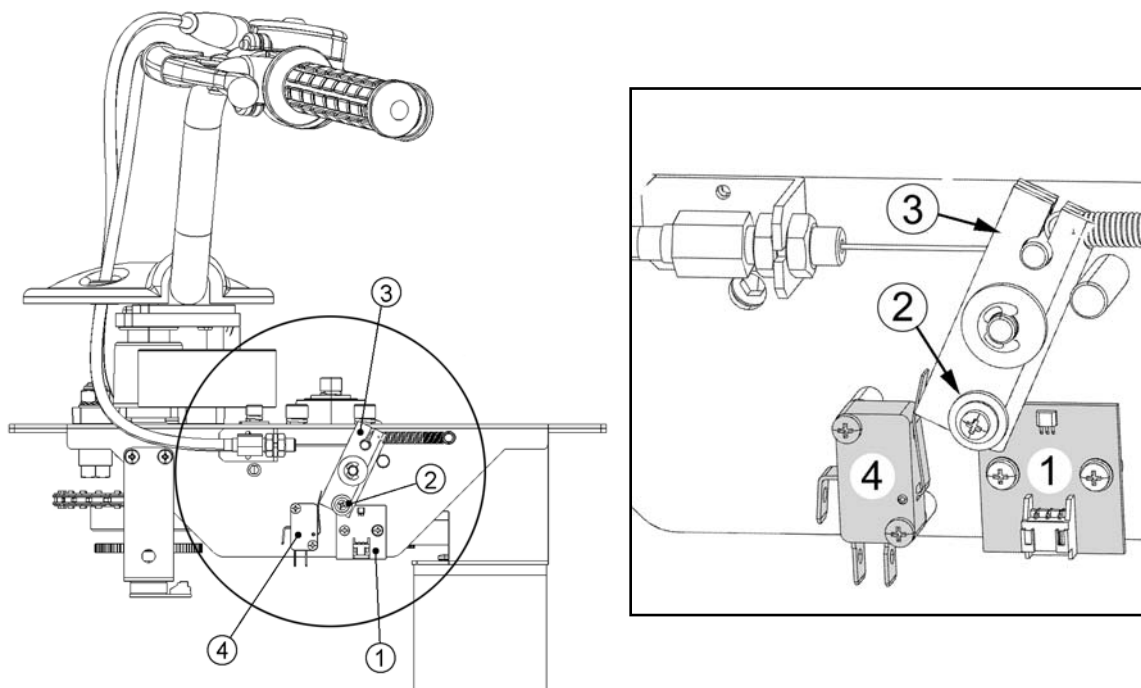
9.4.3 REPLACEMENT OF THE BRAKE MICRO-SWITCH

If the micro-switch is faulty and needs to be replaced, ensure that the common wire is connected to the square terminal while the other wire is connected to the NORMALLY CLOSED terminal (NC). This terminal is the one closest to the square terminal.



9.5 ADJUSTMENT OF THE BRAKE SENSOR

The brake sensor consists of a magnet (2) and a Hall IC (1). The magnet is mounted on the lever (3) that activates the micr-switch (4). The IC is mounted on a printed circuit board including a connector. The drawing below shows all these elements.



9.5.1 INSPECTION

To check the performance of the sensor, proceed as follows:

1. On Test Mode, go to the **Input / Output** screen and select the **Brake sensitivity** option.
2. Press down the brake handle until the distance between the lever and the grip is about **16mm**. In that position, the reading should be between **170** and **180**.

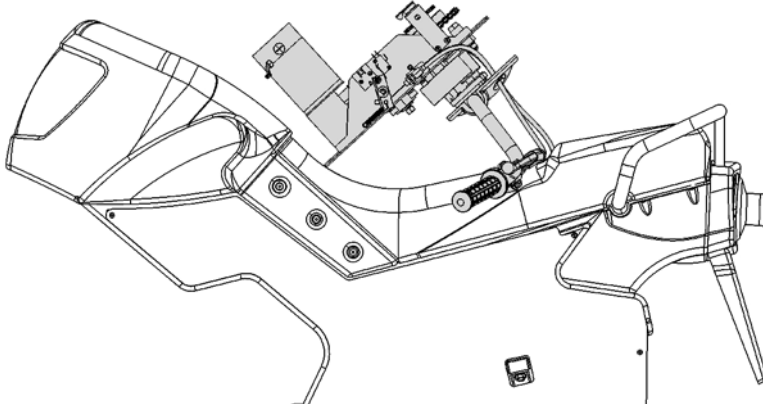
INPUT / OUTPUT		
Handlebar position:	127	-0.004
Throttle:	242	0.898
Brake sensitivity:	175	X.XXX
Lateral leaning:	000	-1.000

A kid should be able to get the maximum brake force, which is: **255 1.000**. That's the simplest way to test the brake sensor.

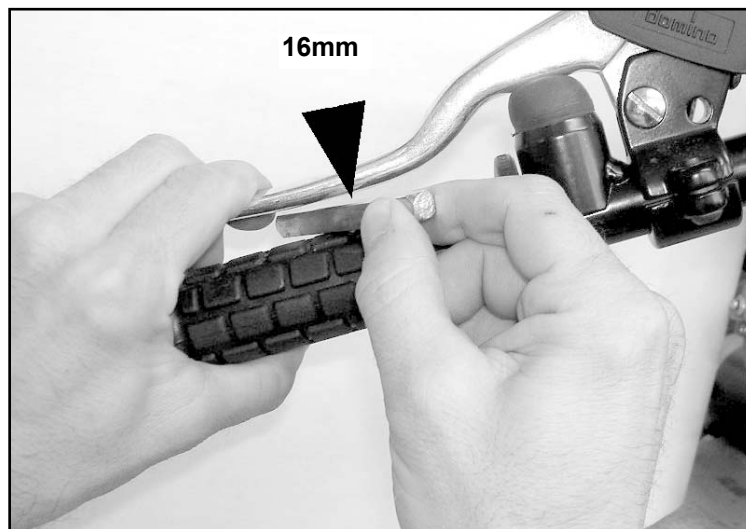
9.5.2 SENSOR ADJUSTMENT

To adjust the sensor proceed as follows:

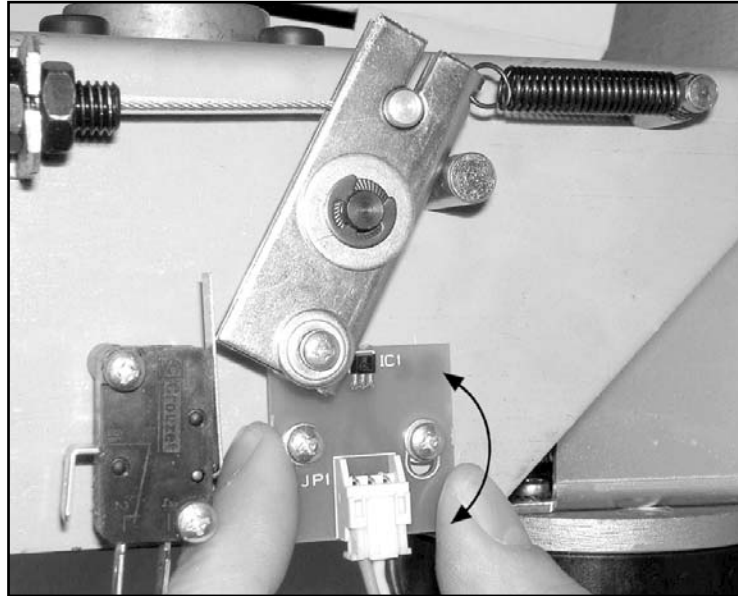
- Switch off the machine.
- Remove the steering mechanism, as explained in section 9.4 of this chapter.



- Loosen -just a bit- the screws that fix the sensor board. The right hole of the board allows you to move it up and down a few millimeters, pivoting on the left screw. The idea is to hold the board in a way that allows you to move it, but the friction force keeps it in any wanted position during the adjustment.
- Connect the sensor board, switch on the machine and select the **Input / Output** screen.
- Press the brake handle until it is **16mm** close to the grip, approximately. Using an object of that thickness can be very helpful during the tuning process.



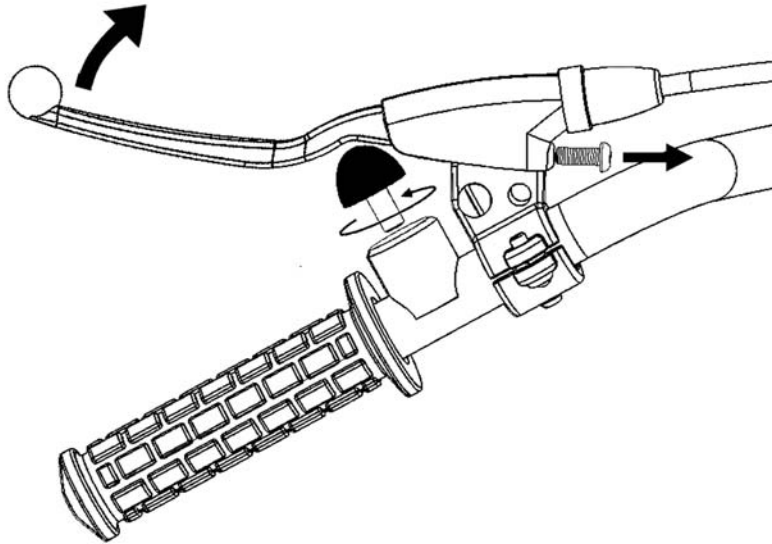
- Keeping the handle pressed, move carefully the sensor board, until you find the position where the reading is any value between **170** and **180**.



- Tighten up the screws and check again the operation of the sensor, following the procedure explained on the previous section (9.5.1).
 - Check that the maximum reading (**255 1.000**) is obtained when the brake handle is 12mm close to the grip, approximately.
-

9.6 REPLACEMENT OF THE STOPPER

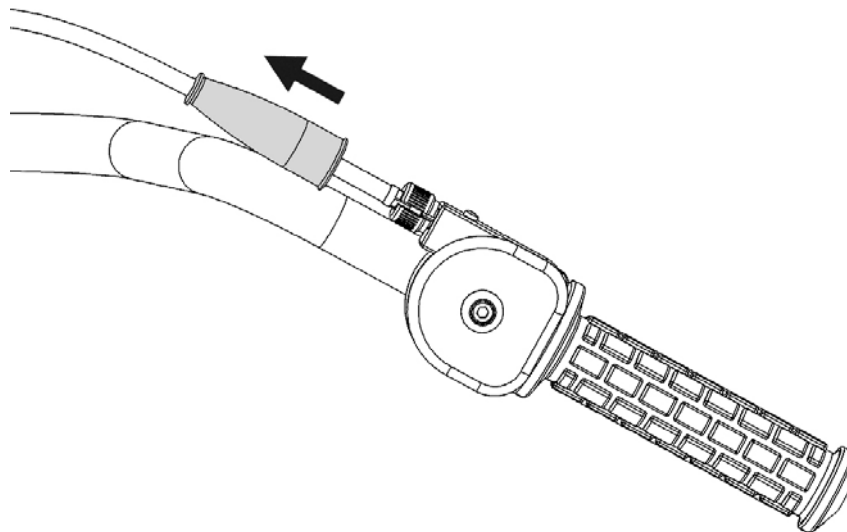
It is not necessary to remove the brake handle for replacing the stopper. Loosen the screw shown in the drawing gives you enough room to take out the stopper. Some force must be applied to unscrew the stopper as it is fixed with medium strength nutlock.



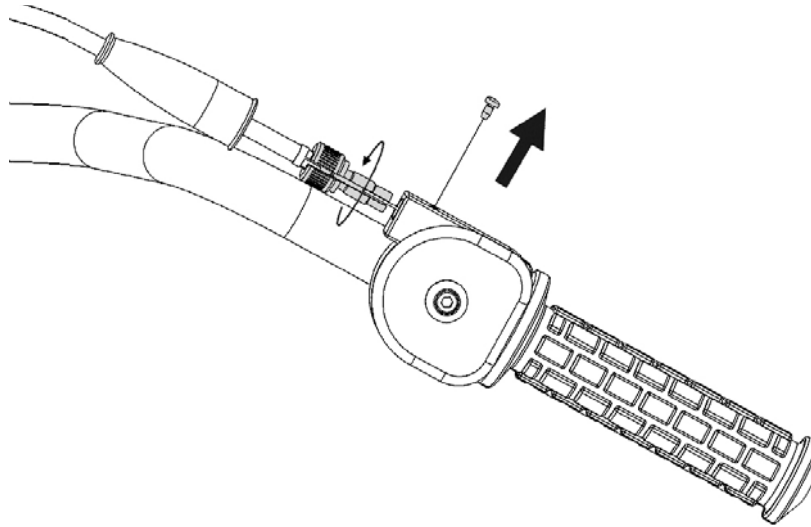
9.7 REPLACEMENT OF THE THROTTLE CABLE

Procedure to replace the throttle cable:

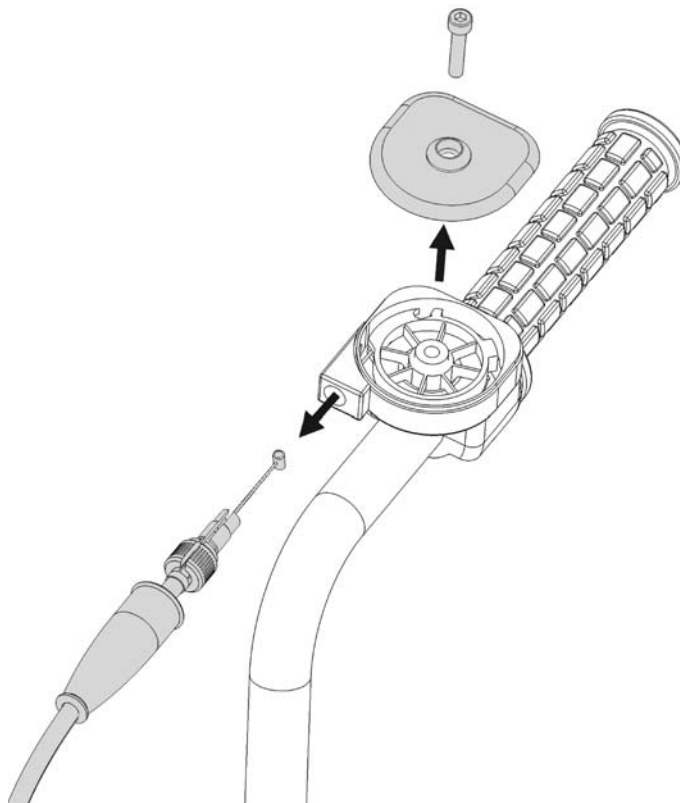
1. Remove the steering assembly following the procedure described in the section 9.3 of this chapter.
2. Remove the cover which protects the tensor of the throttle block.



3. Remove the screw that locks the tensor, then remove the tensor.



4. Remove the screw that holds the cover of the throttle. Use the proper allen key (4mm) as some force is necessary because the screw is fixed with medium strength threadlocker. Then remove the cable from the pulley wheel.



5. The other end of the cable can be released when you slacken the nuts that hold the cable tensor to the mechanism, as explained in section **9.4.2**.
6. Lift the cable from the plastic cupola by pulling it upwards.

7. Fit the new cable by following the reverse procedure. First thread the cable into the cupola from the top. Then follow the steps below:

- Fit the end of the cable in the lever.
- Fit the tensor on the steering mechanism.
- Thread the other end of the cable in the throttle tensor.
- Screw the tensor on the throttle block and lock it.
- Hook the terminal on the pulley wheel.
- Fit the pulley wheel and twist the grip to check that everything works fine.
- Adjust the tensor of the steering mechanism. The cable should be taut, but the lever must touch the stopper when the throttle grip is released. Tight the nuts of the tensor.
- Fit the cover of the pulley wheel. Add a drop of medium strength threadlocker at the end of the screw (the opposite side to the allen head).
- Cover the tensor with the rubber protection.
- Fit the steering assembly into the chassis. Do not forget to connect the wires.
- Fit the pastic covers.
- Fit the cupola.
- Ensure that the brake is working properly, as well as the rest of controls related to the steering assembly (brake, steering motor, etc.). All these controls can be tested from the **Input / Output** of Test Mode.

9.8 MOTION SYSTEM - BLOCK DIAGRAM

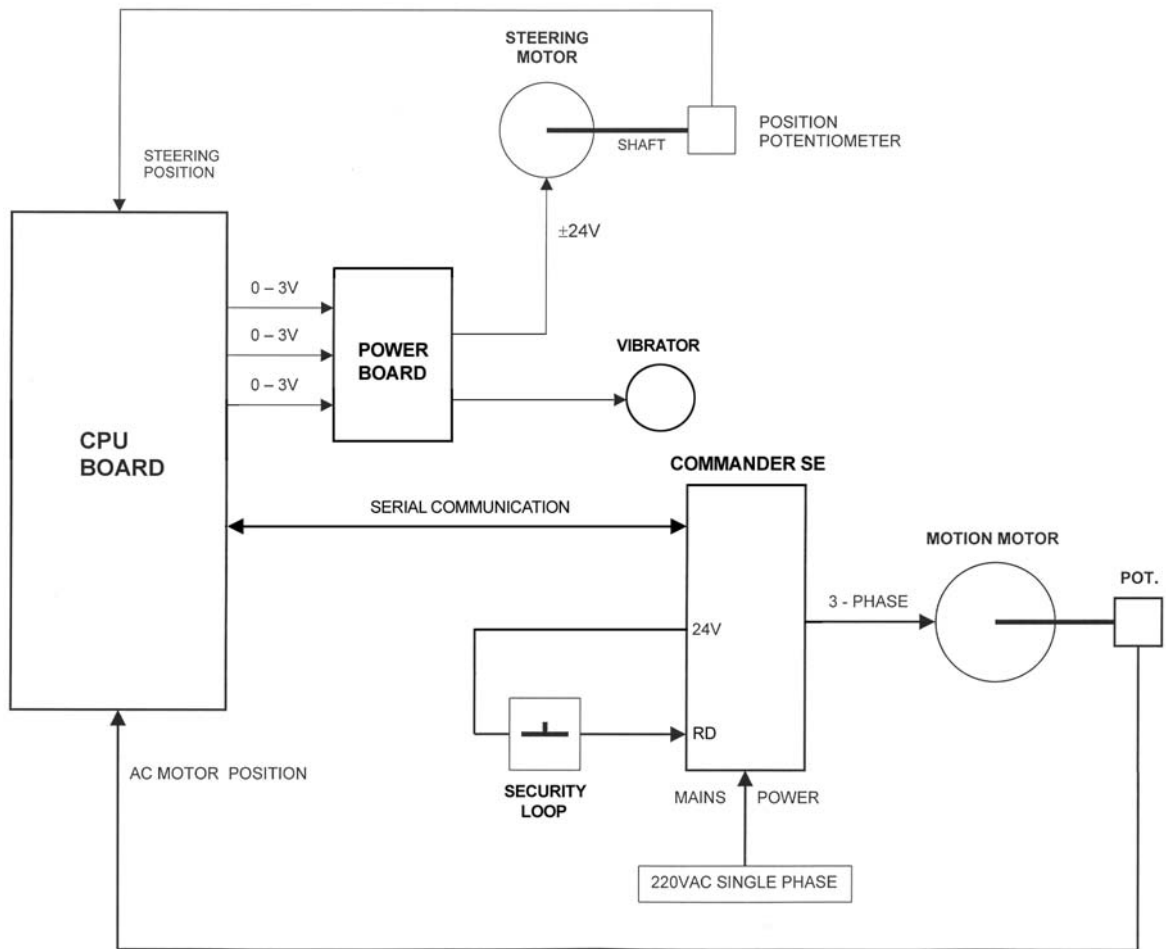
For a better understanding of the motion system, please refer to the diagram shown in the next page.

La CPU Board (RIN-357) provides three analogic signals (0-3V) to the Power Board (RIN-358). Two of them are inputs of the driver which controls the steering motor. The other one is for the vibrator driver.

The AC motor driver (Commander SE / RIN-392) and the CPU Board communicate through a RS-485 serial interface. The CPU sends control signals and receives status signals, including alarms and error messages.

Furthermore, there's a security system that reduces the possibility of an accident resulting from sudden sickness of the player or improper use of the machine while it is moving. Section **9.9** explains the security system in detail.

BLOCK DIAGRAM OF THE MOTION SYSTEM

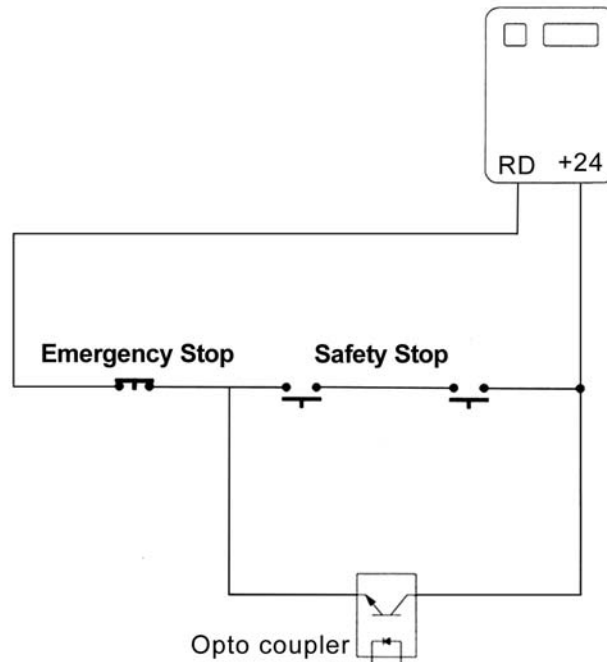


CPU BOARD	RING RIDERS game board (RIN-357)
POWER BOARD	DC motor driver (RIN-358)
COMMANDER SE	AC motor driver (RIN-392)

9.9 SECURITY SYSTEM

The Commander SE has a security loop that goes through an emergency stop switch and two micro-switches installed on the front footrests. If the emergency button is pressed, or any of the footrest switches are released, the “ready” input of the Commander drops to 0V and the motor does not receive any current.

When the CPU performs the **Motion Test**, the opto coupler bypasses the footrest switches (Safety stop).



9.9.1 EMERGENCY STOP

To check the emergency stop circuit, enter the INPUT / OUTPUT screen in Test Mode and select the option **Emergency Stop**: if the red knob is in the rest position (circuit closed, movement possible), the message will read **OFF**. When the red knob is pressed, the message will change to **ON** (motion system disabled). When the knob is turned clockwise, the movement system is ready to operate again.

Actually, the emergency stop button activates two circuits: one runs through the CPU and only serves to give a screen warning that the button has been pressed. The other circuit is the real emergency stop, which does not run through the CPU but acts directly on the frequency converter which drives the AC motor. So, in despite of the message delivered by the CPU, a problem could lie in the direct circuit. To check whether this is the case, select the **Motion Test** from the MOTION SYSTEM screen while in Test Mode. If there's no motion, select the option **Check error log** and check the error messages.

If the red knob is pressed along the play, a warning message is displayed on the screen indicating how to unlock the knob.



When this message is not displayed but the bike does not move, the safety stop circuit should be tested.

9.9.2 SAFETY STOP

To check the safety stop circuit, enter the INPUT / OUTPUT screen in Test Mode and ensure that the emergency stop button is released (OFF). Then check the footrest switches looking at the **Footrest detection** line. The reading on this line should be **OFF** when both footrests are pressed. The reading is **ON** when any of the footrests is released.

If the message is wrong, the technician should check the switches. The circuit is shown in the wiring diagrams.

If any of the footrests is not pressed along the play, the following message will be displayed on the screen.

PLACE FEET ON THE FOOTRESTS

If the security circuit seems to be OK, but the motion system remains disabled, you have to check the error messages provided by the driver. Those messages can be consulted by selecting the option **Check error log** in the MOTION SYSTEM menu.

9.10 ERROR MESSAGES FROM THE MOTOR DRIVER

The RING RIDERS CPU and the motor driver Commander SE (RIN-392) communicate through a RS-485 serial interface. The Commander receives control signals from the CPU and sends status signals.

The Commander generates an alarm message when it detects a malfunction. This message is instantaneous and remains as long as the malfunction is still present. Then the message is stored in a stack memory of 10 positions, so the technician can consult the last ten messages.

If the motion system does not work and the security circuits seem to be OK, you should check the presence of an alarm message by opening the Main Menu of the Test Mode (see Section 6.1). If there is an alarm message, the option **MOTION SYSTEM ERROR LOG** will blink at the bottom line of the Main Menu. By selecting this option, the alarm messages will be displayed on the screen, as well as the last 10 trips of the motor control loop.

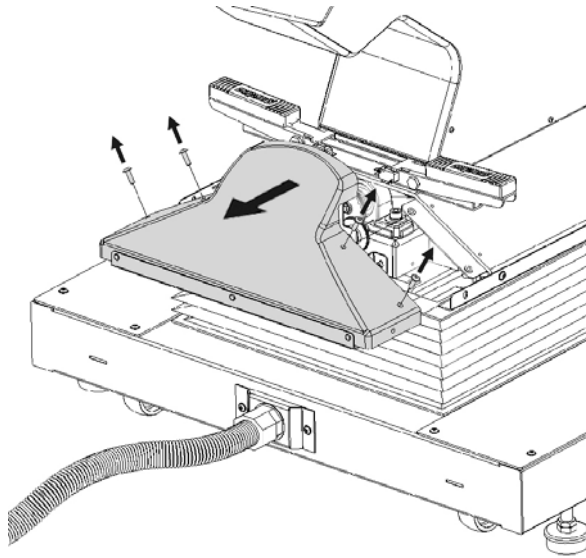
If the option above mentioned is not displayed, it means that the CPU is not receiving any error message in that moment. Anyway, you may consult the previous error messages by selecting the option **Check error log** in the MOTION SYSTEM menu. For diagnosis purposes, please refer to the manual of the Commander SE, supplied with the machine.

In normal conditions, the last ten messages recorded will be all the same (**UU**) because this message is generated each time the machine is switched off. However, the message could be related to an actual problem of the mains supply (i.e. voltage drops or cuts). Any other message should be considered as a malfunction warning that could be helpful when asking for technical assistance. The manual of the Commander SE includes a resume of the possible causes for each error message.

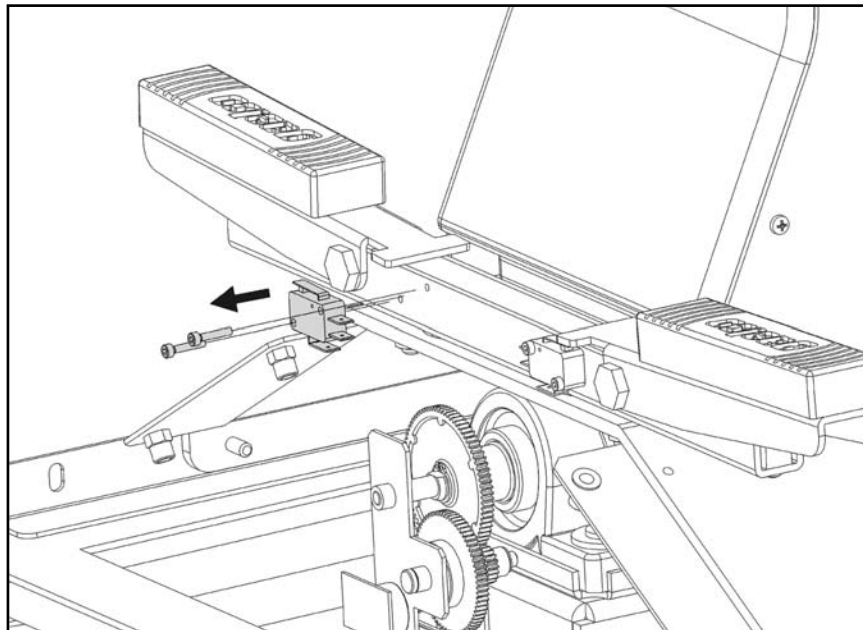
WARNING! If the motor drives has an internal hardware failure, or the communication with the CPU does not work, the CPU will generate the message **Commander faillure or bad connection**. This message can be seen by opening the option **Check error log** of the MOTION SYSTEM menu.

9.11 REPLACEMENT OF THE FOOTREST MICRO-SWITCH

A faulty micro-switch can cause the permanent stop of the motion system, as explained in Section 9.9.2 of this chapter. Removing the front cover allows the access to the footrest micro-switches.



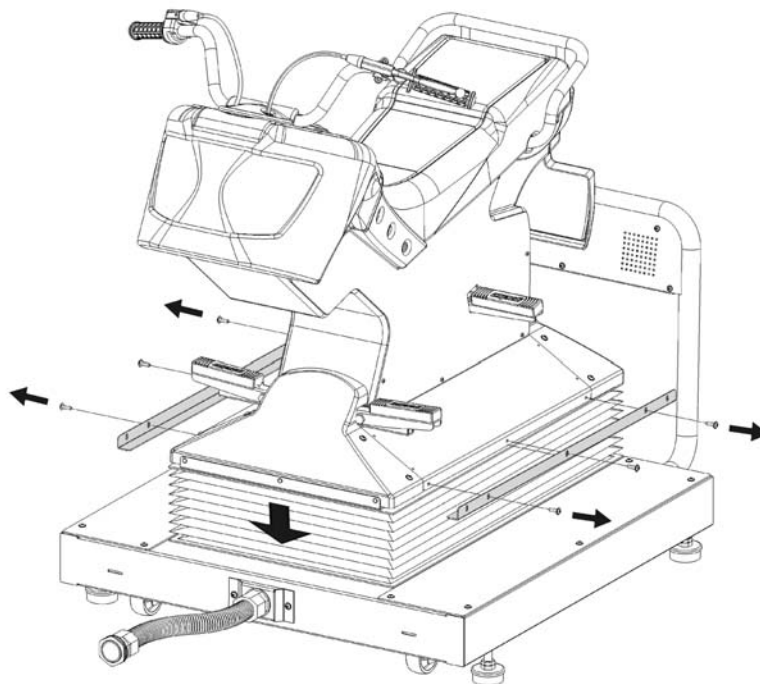
If a micro-switch needs to be replaced, just remove the two screws that fix it to the bracket.



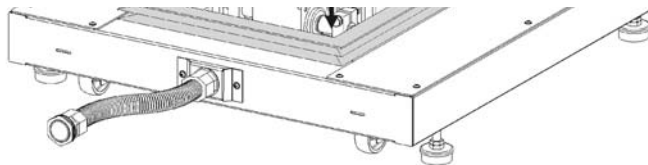
9.12 DISASSEMBLY OF THE PROTECTION HOOD

Proceed as follows when accessing areas covered by the protection hood:

1. Enter the MOTION SYSTEM screen in Test Mode and rise the bike platform up to highest position, using the throttle grip and the options **Forward** / **Reverse**. For more details, consult Section 6.3 of this manual. When the upper position is reached, switch off the machine to avoid the possibility of an accident.
2. Remove the the plastic covers. Then take out the brackets that hold the protection hood, as shown in the drawing.



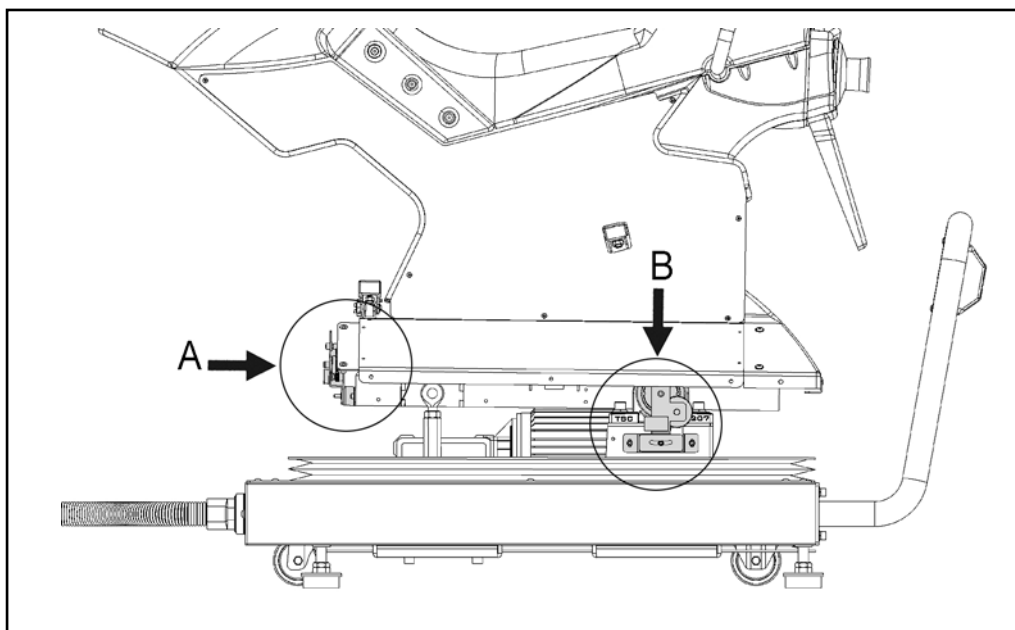
3. The protection hood folds down flat when the brackets are removed, allowing the acces to the actuators and the position potentiometers.



9.13 CHECKING THE POSITION POTENTIOMETERS

If the bike does not move properly, and the troubleshooting leads to a possible fault in the position potentiometer (RIN-850), proceed as follows:

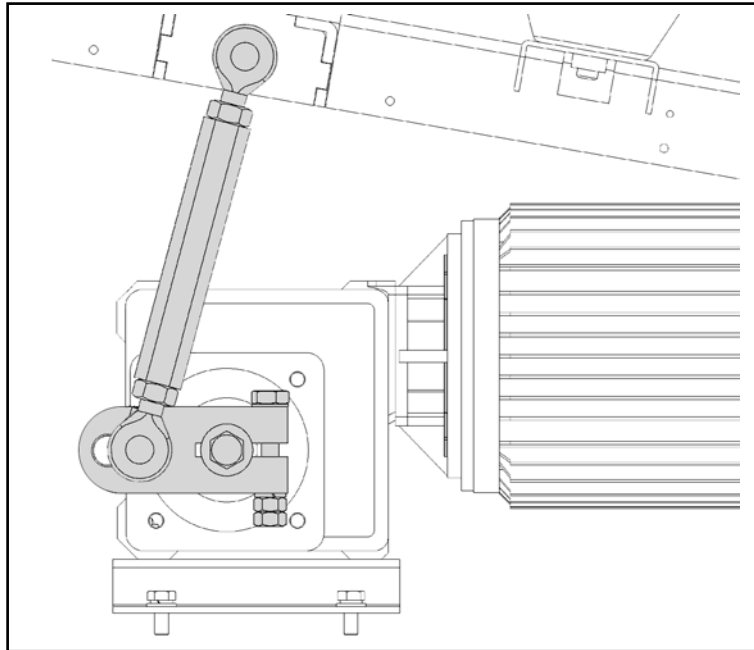
1. Disassembly the protection hood, as explained in the previous section (9.12). The drawing below shows the position potentiometers. The potentiometer **A** detects the lateral leaning made by the player, while the potentiometer **B** detects the pitch position generated by the motor.



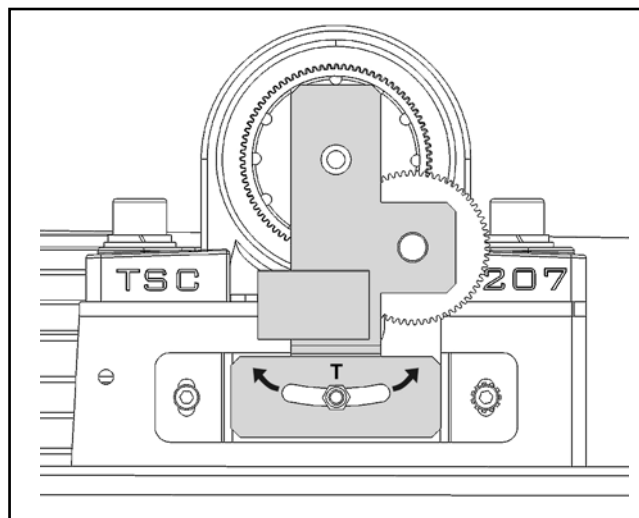
2. To check the potentiometer **B** enter the MOTION SYSTEM screen in Test Mode. Then, using the options **Forward / Reverse** and the throttle grip, put the bike platform in horizontal position. When the shaft crank is positioned as shown in the next page drawing, the reading of the **Position** line should be close to **128**.

MOTION SYSTEM	
Speed:	0.00
Position:	128
Security:	released
Forward	
Reverse	
Motion test	
Vibrator test	
Check error log	
Exit	

3. If the reading is quite different from 128 when the shaft crank is in horizontal position, it is necessary to adjust the potentiometer **B**.



4. To check the potentiometer **A** enter the option **Lateral leaning** of the INPUT / OUTPUT menu. The reading is about **128** when the bike is in vertical position. If this is not the case, the potentiometer should be adjusted.



5. For **A** and **B**, the adjustment is made by loosen the nut **T** and sliding the potentiometer assembly until the position reading is correct according to the actual position of the bike. When the reading is OK, fix the assembly by tightening the nut. When the reading deviation can not be corrected that way, you should take out the assembly and try to get the reading by rotating the gears with your hand, then you have to install again the assembly and follow the previous procedure.

9.14 TROUBLESHOOTING PROCEDURES

1) **PROBLEM:**The machine does not start when the mains switch is thrown.

CHECKS

- Check the mains cable and its connections.
 - Check the fuses. Check that the specifications are met. Check whether the fuses have blown and that they have the correct current rating (10A). The fault may have been caused by an overload current.
 - Check the CPU connections
 - Check there is +5V DC in the power supply.
-

2) **PROBLEM:**There is something wrong with the screen colours and/or image.

CHECKS

- Enter in Test Mode and adjust the monitor settings with the help of the screen test (see Section 6.1)
-

3) **PROBLEM:**The game starts but the bike fails to move.

CHECKS

- Check the emergency stop button is not pressed.
 - Check the player is pressing both footrests correctly.
 - Check the motion system from the MOTION SYSTEM menu (see section 6.3). If the bike moves when you select the option **Motion test**, the problem could be caused by a fault in one of the footrest switches. If the bike does not move on Motion test, go ahead with the next checks:
 - Check that the connections between the monitor casing and the game platform are not loose and that the wires are undamaged.
 - Check that the motor driver works properly, checking the error messages (see section 9.10)
-

4) **PROBLEM:**The bike moves but not in synchronism with the image on the monitor.

CHECKS

- Enter the MOTION SYSTEM screen in Test Mode and check that, when the platform is horizontal, the **Position** reading is near to 128. If this is not the case, check the position potentiometer following the procedure described in Section 9.13.
 - Check that the position potentiometer (B, in section 9.12) is not loosen.
 - Check that the gears of the potentiometer work fine.
-

5) **PROBLEM:**The platform moves very slowly the whole time.

CHECKS

- Check the position potentiometer is working properly (B, in section 9.12) and that none of the connctions are loosen.
-

6) PROBLEM: The throttle does not work.

CHECKS

- Check the throttle operation on the INPUT / OUTPUT screen of Test mode. If the reading does not change when you twist the grip, check the cable.
 - Twist the grip, then leave it: the grip should twist back to the rest position. If this is not the case, check the cable, the spring that pulls it and the pulley wheel.
 - If the mechanic transmission is OK, check the potentiometer placed on the steering mechanism.
-

7) PROBLEM: The machines do not work when they are linked up.

CHECKS

- Check that the link cable properly connects the machines.
 - Follow the instructions in Section 8.
-

8) PROBLEM: There is no sound or it is of poor quality.

CHECKS

- Change the volume on the Control Panel.
 - Carry out a sound test (see Section 6.5)
 - Check the connections.
-

9) PROBLEM: There is no feedback on the handlebar. The vibrator does not work.

CHECKS

- Check the fuses of the Power board (RIN-358). If the fuses are blown, it is likely that the power transistors are damaged.
-

TECHNICAL ASSISTANCE

**e-mail: satring@gaelco.es
tel. 93 4173626**

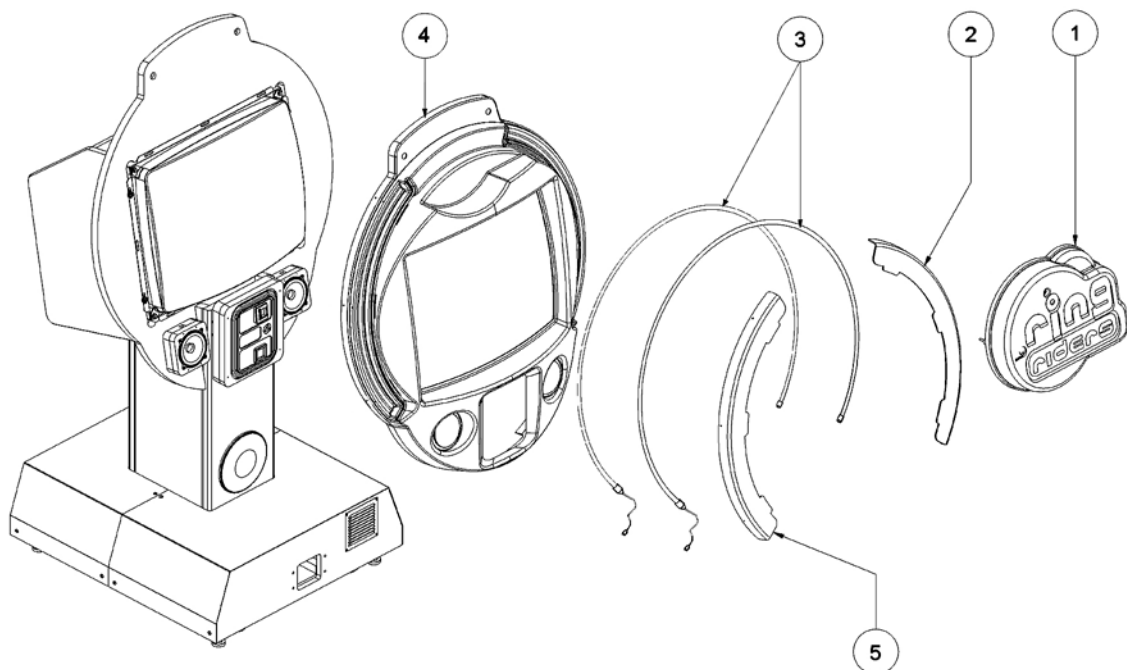
NOTES

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting or typing. There are no margins, text, or other markings on the page.

10. PARTS LIST

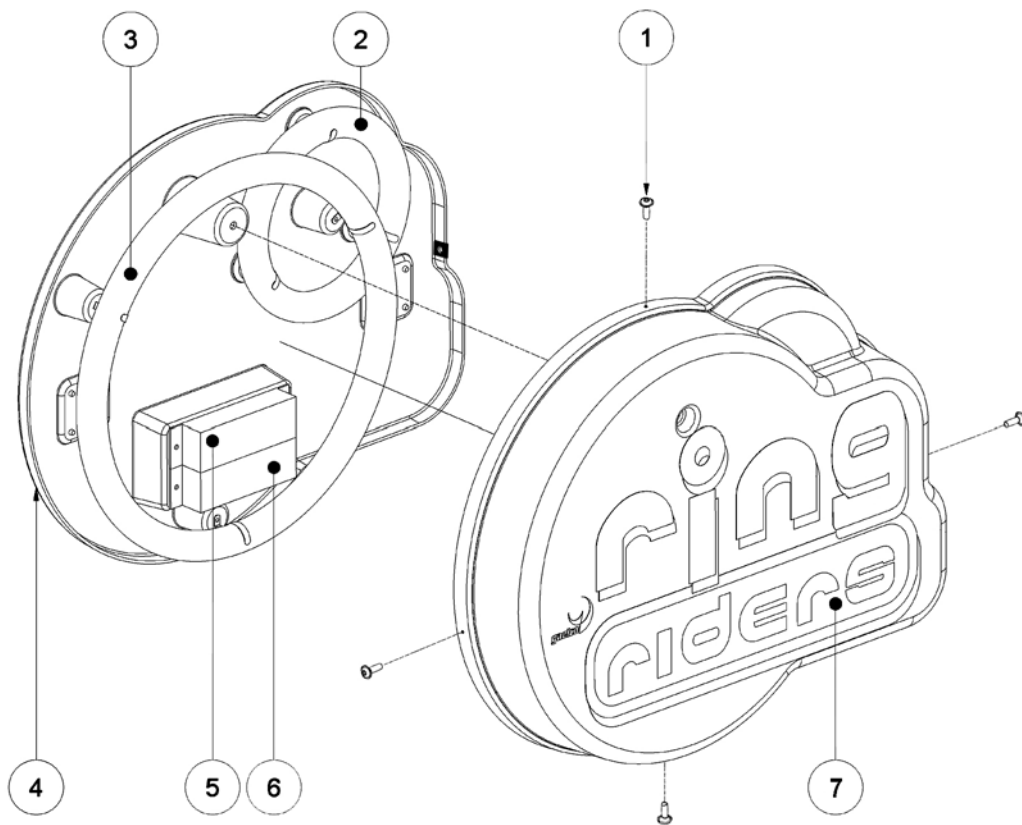
10.1 MONITOR CABINET – DESIGN RELATED PARTS

	CODE	DESCRIPTION
1	RIN-520	BILLBOARD ASSEMBLY
2	RIN-511	TRANSLUCENT COVER - RIGHT
3	RIN-512	LAMP ARRAY TUBE
4	RIN-510	FRONT COVER - BLUE
5	RIN-513	TRANSLUCENT COVER - LEFT



10.2 MONITOR CABINET– BILLBOARD ASSEMBLY

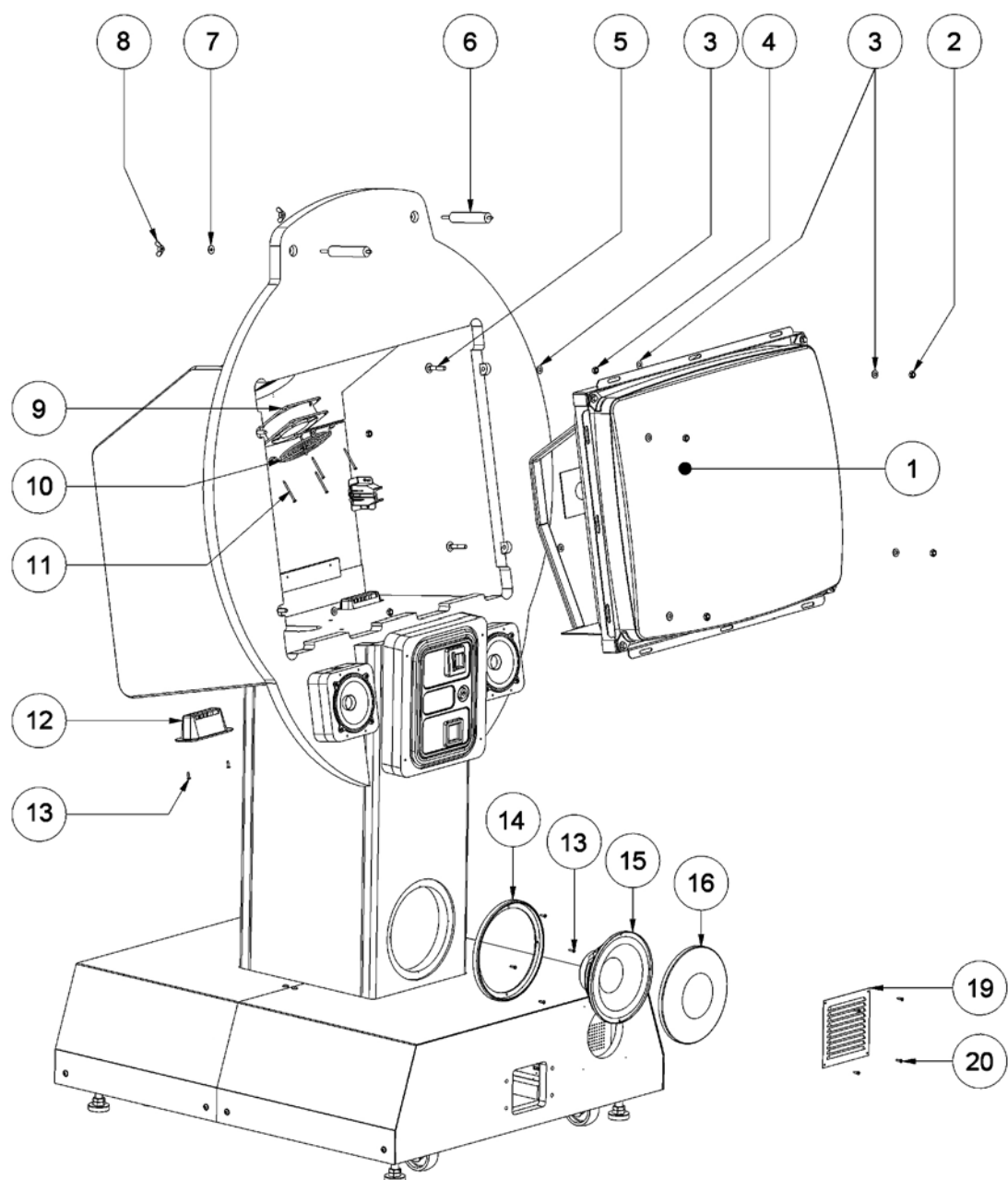
	CODE	DESCRIPTION
1	---	SCREW UM1001 M5X10
2	RIN-524	FLUORESCENT RING Ø220mm
3	RIN-523	FLUORESCENT RING Ø400mm
4	RIN-521	BASE
5	RIN-525	BALLAST 20W / 220V for Ø220mm fluorescent ring
6	RIN-526	BALLAST 40W / 220V for Ø400mm fluorescent ring
7	RIN-522	BILLBOARD COVER



10.3 MONITOR & SUBWOOFER

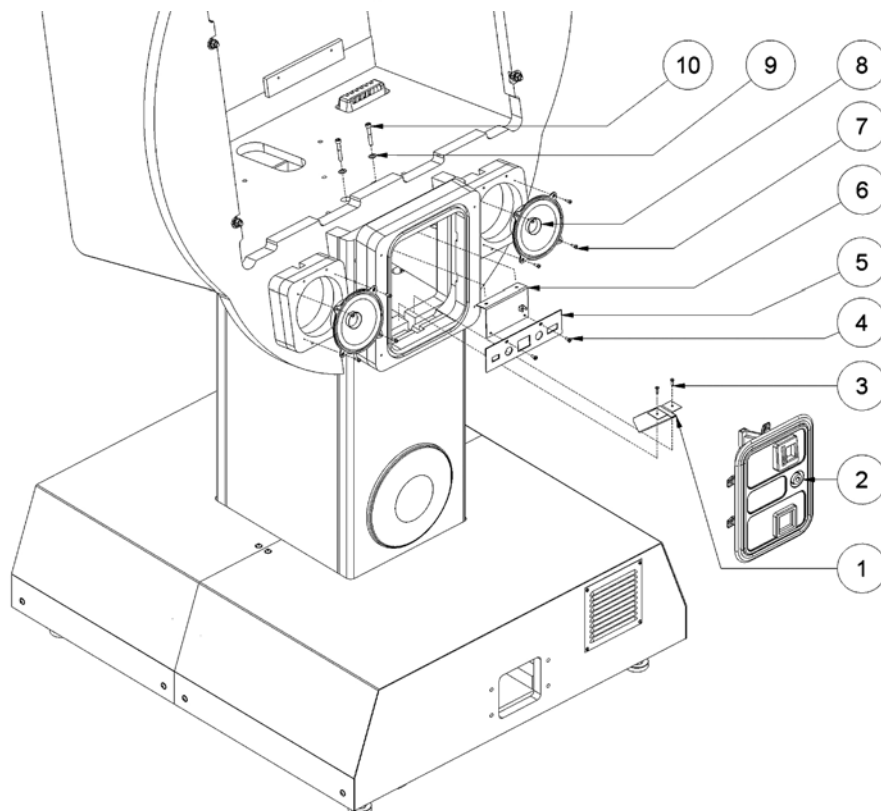
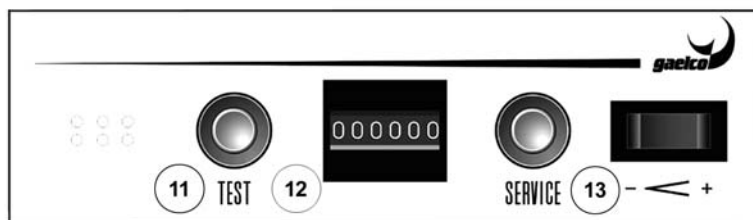
	CODE	DESCRIPTION
1	RIN-350	MONITOR POLO/2 34" STAR PH - 02197790 - CABLE SVGA 600mm
2	---	NUT DIN985 M8
3	---	FLAT WASHER DIN125 M8
4	---	NUT DIN934 M8
5	---	SCREW DIN603 M8X45
6	RIN-231	SPACER, M6 at both ends
7	---	FLAT WASHER DIN125 M6
8	---	BUTTERFLY NUT M6
9	RIN-363	FAN 220V 120X120X38mm
10	RIN-365	METALLIC GRILL, fan
11	--	SCREW 4,1X60
12	RIN-434	GRIP HANDLE
13	--	SCREW 4,1X20
14	RIN-375.1	RING, subwoofer grill
15	RIN-362	8" SUBWOOFER 100W 4Ω
16	RIN-375.2	8" GRILL, subwoofer
19	RIN-367	VENTILATION GRILL, 15X15
18	---	SCREW 3,9X13

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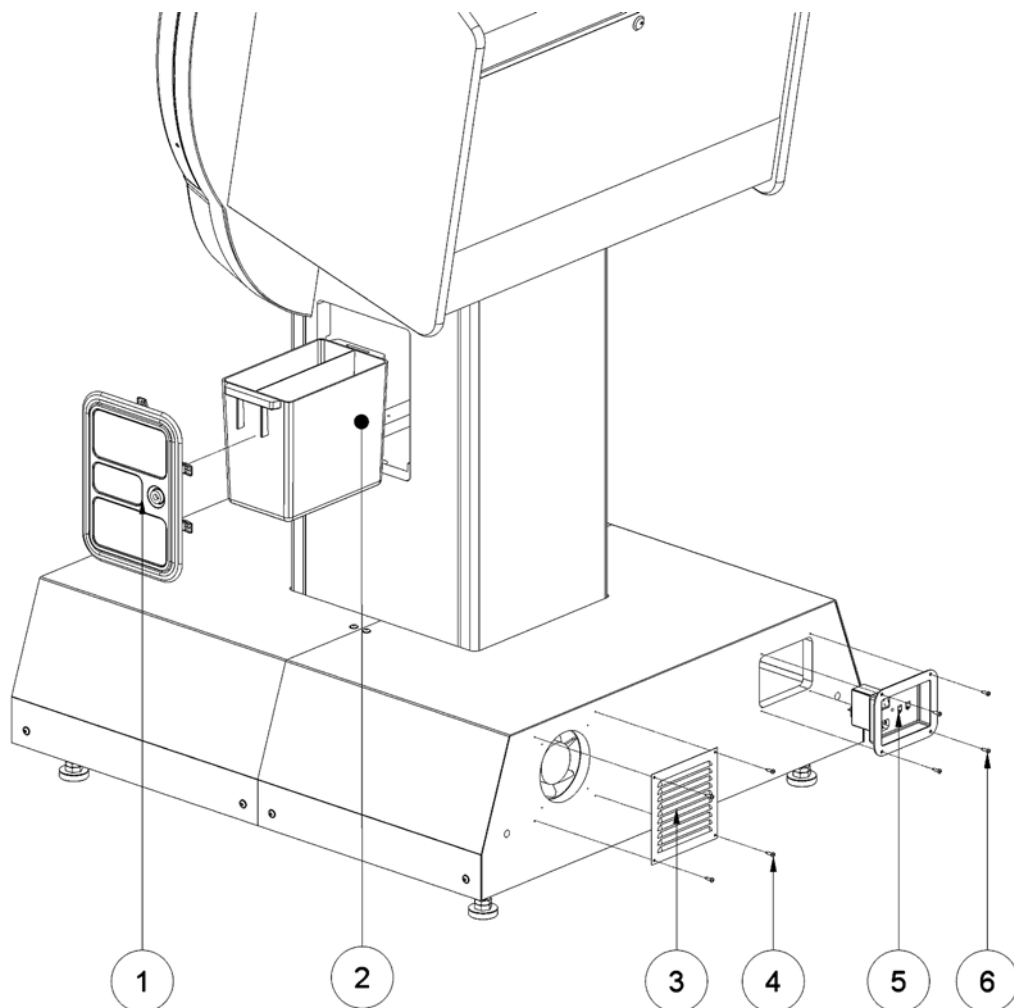
10.4 MONITOR CABINET– COIN DOOR & LOUDSPEAKERS

	CODE	DESCRIPTION
1	RIN-223	COIN ACCEPTOR RAIL
2	RIN-411	MINIDOOR, 1 ENTRY - CODE P10017075101000
3	---	SCREW 3,9X13
4	---	SCREW DIN7985 M4X10
5	RIN-230	SERVICE PANEL
6	RIN-227	BRACKET, service panel
7	---	SCREW 3.9X13
8	RIN-360	5" SHIELDED LODSPEAKER, 60W, 4Ω - CODE 35.1368
9	---	FLAT WASHER DIN125 M6
10	---	SCREW DIN912 M6X40
11	RIN-396	TEST / SERVICE BUTTON - CODE P11.525
12	RIN-399	COUNTER 6V
13	RIN-395	VOLUME SWITCH



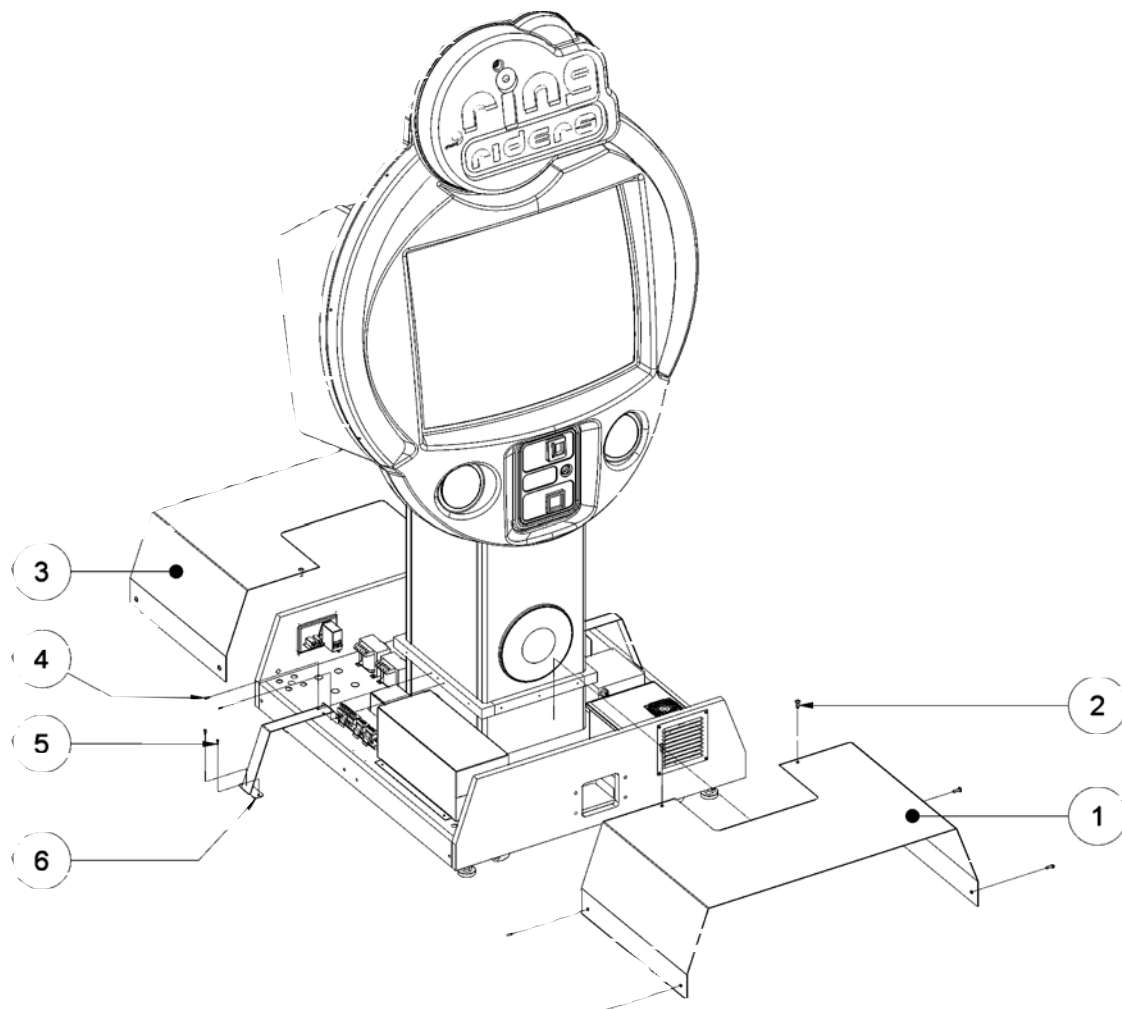
10.5 MONITOR CABINET - COIN BOX & MAINS SWITCH

	CODE	DESCRIPTION
1	RIN-412	MINI BLANK DOOR COB:6133
2	RIN-416	PLASTIC CASH BOX - STANDARD
3	RIN-367	VENTILATION GRILL 15X15
4	---	SCREW 3,9X13
5	RIN-364	MAINS SWITCH & FUSE HOLDER + RJ45/8 CONNECTOR
6	---	SCREW 4,1X20



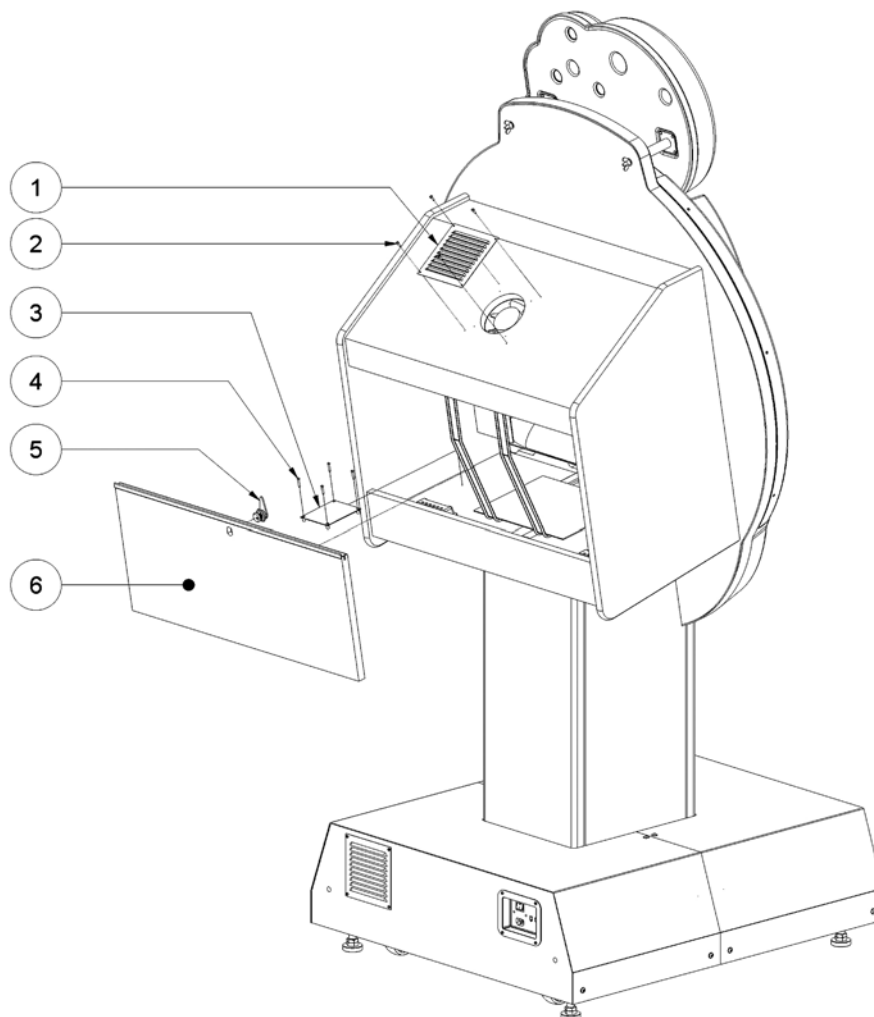
10.6 MONITOR CABINET – BASE COVERS

	CODE	DESCRIPTION
1	RIN-220	METALLIC COVER - FRONT
2	---	SCREW UM1001 M6X16
3	RIN-221	METALLIC COVER - REAR
4	---	SCREW DIN7505D 5X30
5	---	SCREW 4,1X20
6	RIN-222	UNION BRACKET, metallic covers



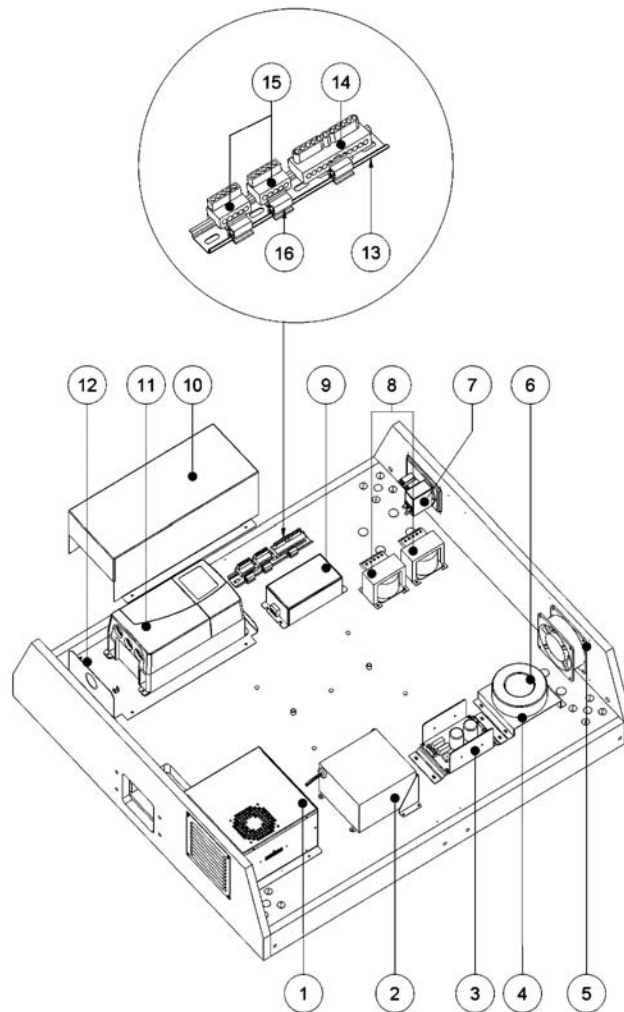
10.7 MONITOR CABINET – REAR PARTS

	CODE	DESCRIPTION
1	RIN-367	VENTILATION GRILL 15X15
2	---	SCREW 3,9X13
3	RIN-353	LIGHT CONTROLLER PCB, lamp array tube
4	---	SCREW 3,5X20
5	RIN-435	DOOR LOCK, AGA 135
6	RIN-105	BACK DOOR, monitor cabinet



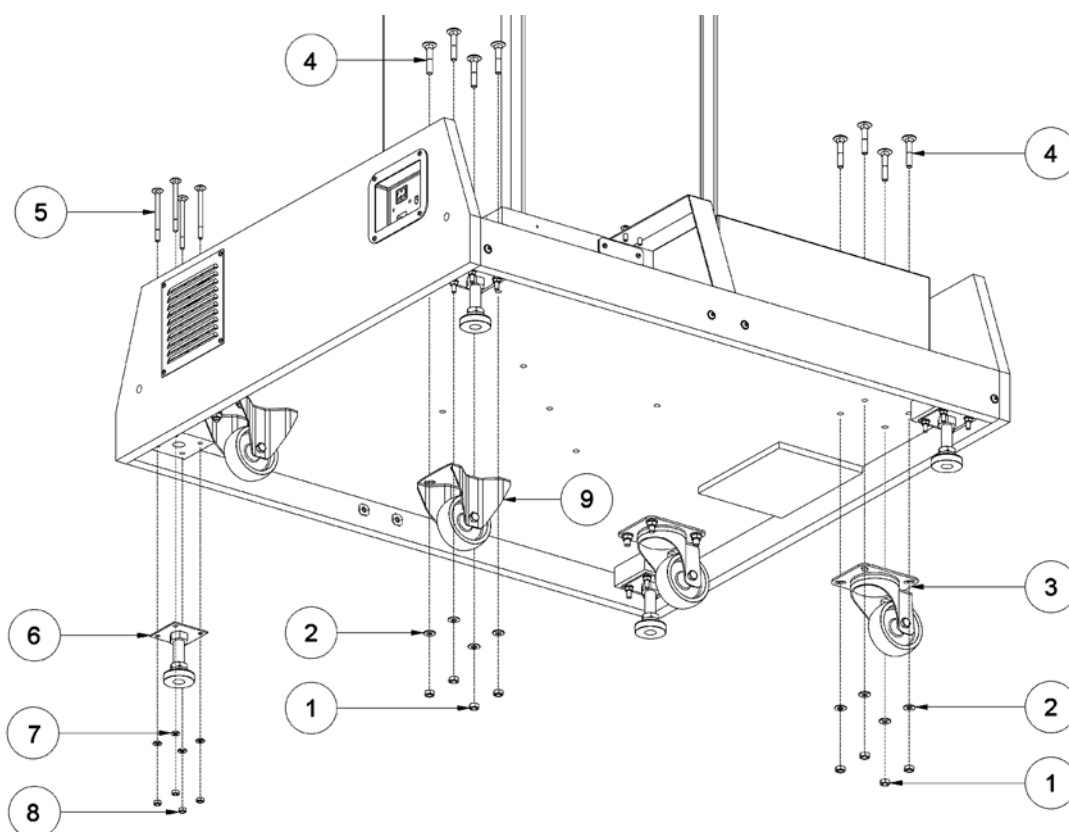
10.8 MONITOR CABINET – ELECTRONIC PARTS

	CODE	DESCRIPTION
1	RIN-357	CPU - RING RIDERS
2	RIN-355	PSU - PSATX10300
3	RIN-358	DC MOTOR DRIVER & DC LEVEL ADAPTOR
4	RIN-224	SUPPORTING PLATE, transformer
5	RIN-363	FAN 220V, 120X120X38mm
6	RIN-370	TOROIDAL TRANSFORMER 220/18-0-18, 160VA
7	RIN-364	MAINS SWITCH, FUSE HOLDER (2X10A) & RJ45/8 CONNECTOR
8	RIN-372	INDUCTANCE 10mH 6.3A
9	RIN-391	SERIAL FILTER 25A
10	RIN-226	FARADAY BOX - COVER
11	RIN-392	AC MOTOR DRIVER SE2D200110
12	RIN-225	FARADAY BOX - BASE
13	RIN-389	FIXING RAIL for terminal blocks
14	RIN-385	GROUND TERMINAL BLOCK BM9982
15	RIN-386	POWER TERMINAL BLOCK BM997
16	RIN-387	FIXING CLIP BM99601



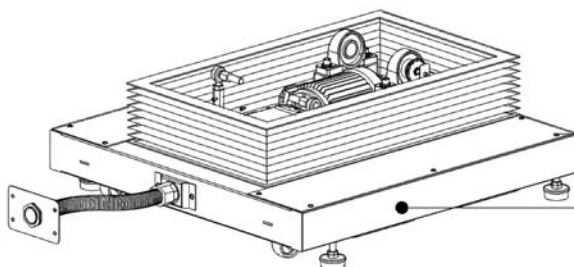
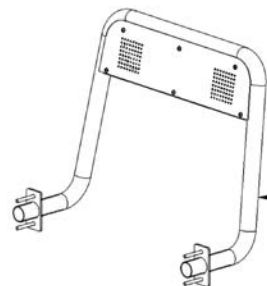
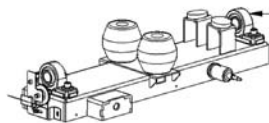
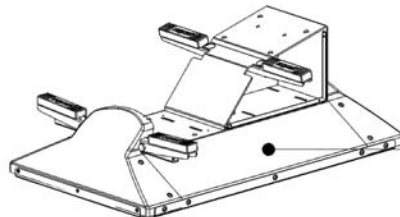
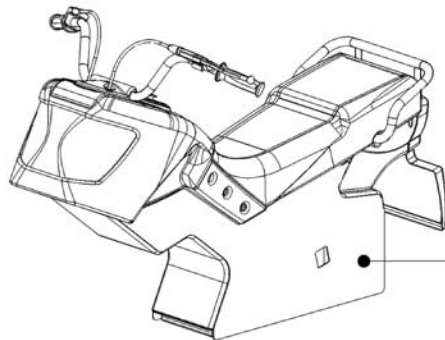
10.9 MONITOR CABINET – BOTTOM PARTS

	CODE	DESCRIPTION
1	---	NUT DIN985 M8
2	---	FLAT WASHER DIN125 M8
3	RIN-433	SWIVELING CASTOR Ø80
4	---	SCREW DIN603 M8X45
5	---	SCREW DIN603 M6X70
6	RIN-431	LEG LEVELLER M16X102 with rubber pad
7	---	FLAT WASHER DIN125 M6
8	---	NUT DIN985 M6
9	RIN-432	CASTOR Ø80



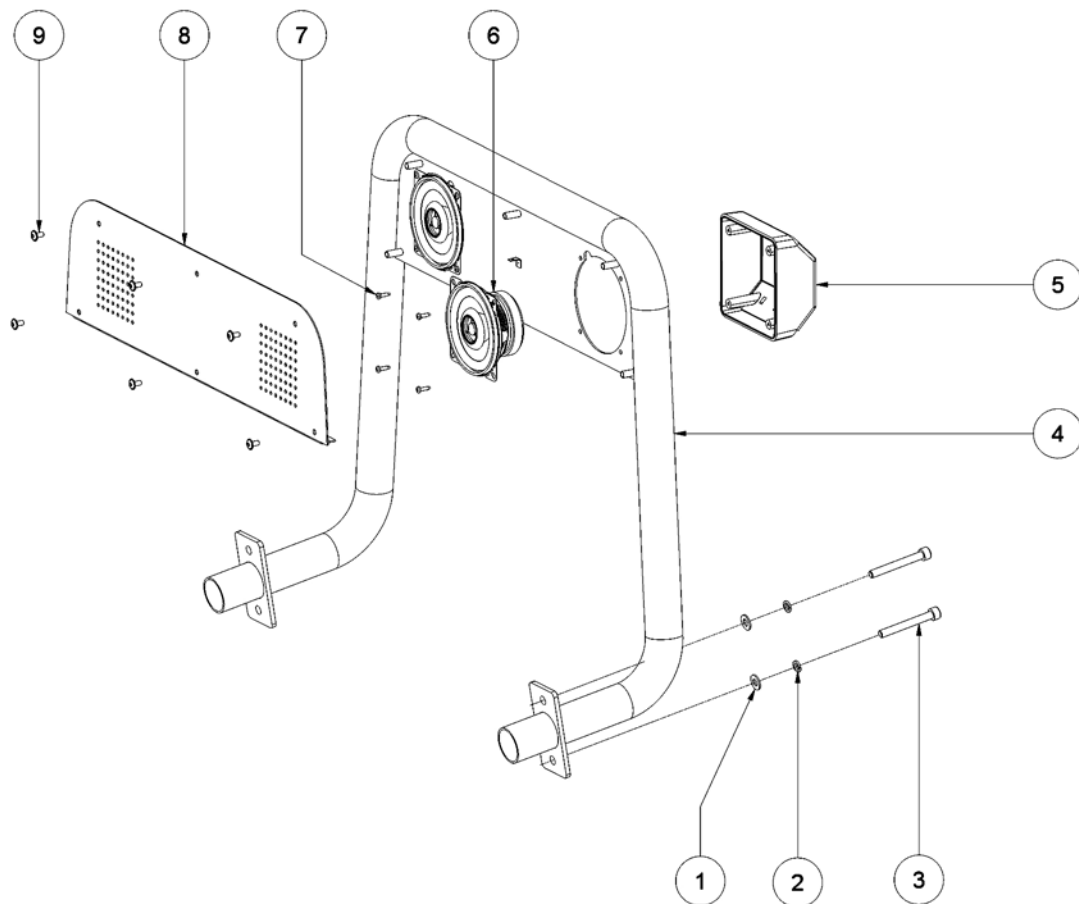
10.10 PLATFORM - MAIN ASSEMBLIES

	CODE	DESCRIPTION
1	--	BIKE ASSEMBLY
2	--	SWIVELING MACHANISM - TOP
3	--	SWIVELING MECHANISM - BOTTOM
4	--	PROTECTION BAR ASSEMBLY
5	--	PLATFORM ASSEMBLY



10.11 PLATFORM - PROTECTION BAR

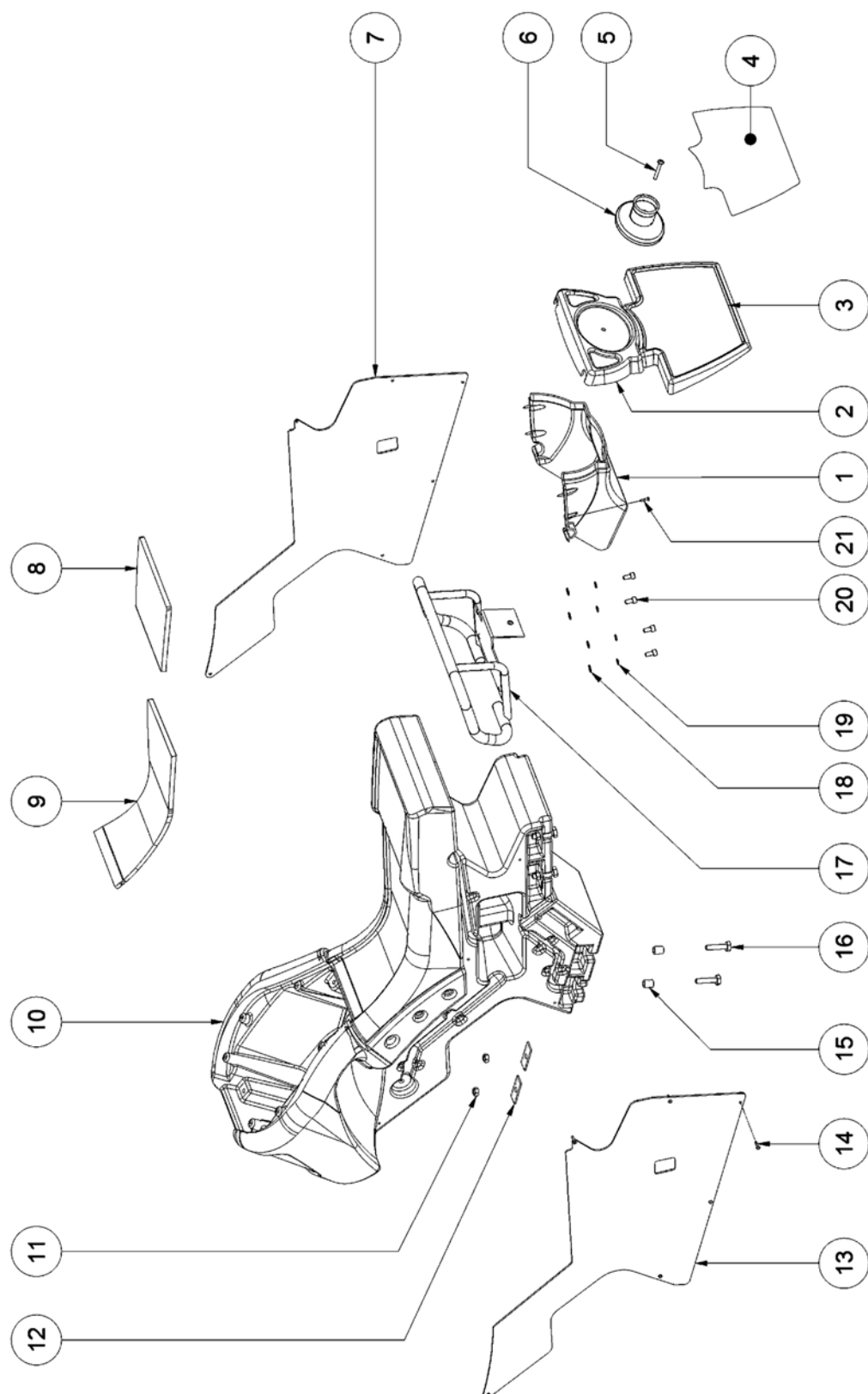
	CODE	DESCRIPTION
1	---	FLAT WASHER DIN125 M8
2	---	SPRING WASHER DIN127 M8
3	---	SCREW DIN912 M8X60
4	RIN-845	PROTECTION BAR
5	RIN-886	PLASTIC COVER, 4" loudspeaker
6	---	SCREW 3.9X13
7	RIN-846	METALLIC COVER, loudspeakers
8	---	SCREW UM1101 M5X10
9	RIN-885	4" LOUDSPEAKER, 4 Ω / 60W



10.12 BIKE ASSEMBLY – DESIGN RELATED PARTS

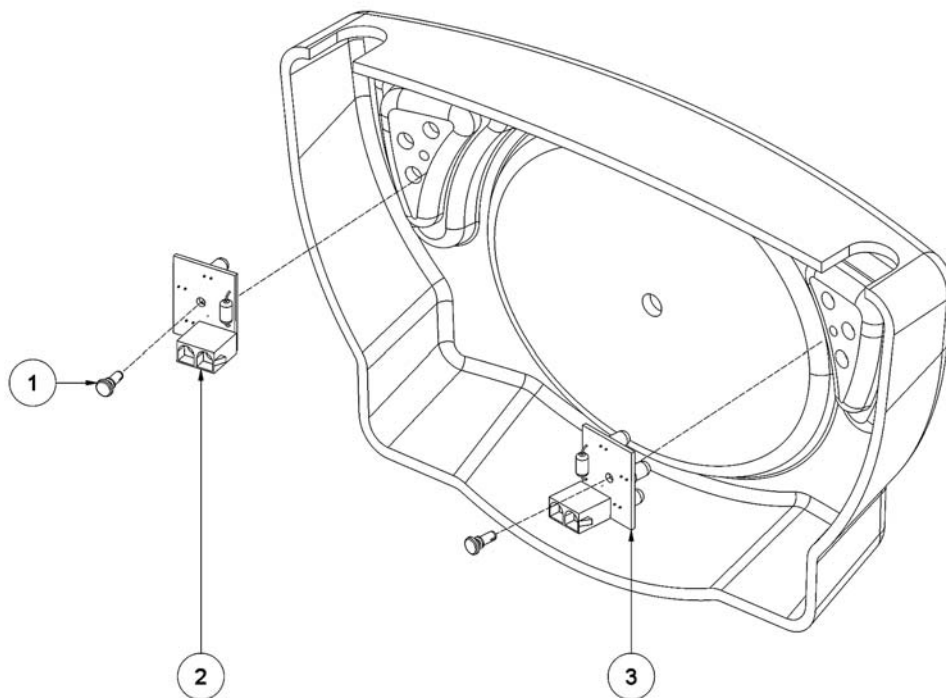
	CODE	DESCRIPTION
1	RIN-809	REAR COVER, handle
2	RIN-811	REAR PLASTIC ASSEMBLY, exhaust pipe & brake light
3	RIN-812	REGISTER PLASTIC
4	RIN-813	REGISTER STICKER
5	---	SCREW UM1001 18X40
6	RIN-866	EXHAUST PIPE
7	RIN-806	SIDE COVER - RIGHT
8	RIN-808	SEAT RUBBER - REAR
9	RIN-807	SEAT RUBBER - FRONT
10	RIN-801	BIKE CHASSIS, blue
11	---	LOCK NUT DIN985 M10
12	RIN-843	SQUARE WASHER
13	RIN-805	SIDE COVER - LEFT
14	---	SCREW 4,1X20
15	RIN-849	SPACER SLEEVE
16	---	SCREW DIN912 M10X40
17	RIN-865	REAR HANDLE
18	---	FLAT WASHER DIN125 M8
19	---	SPRING WASHER DIN127 M8
20	---	SCREW DIN912 M8X16
21	---	SCREW 4,1X20

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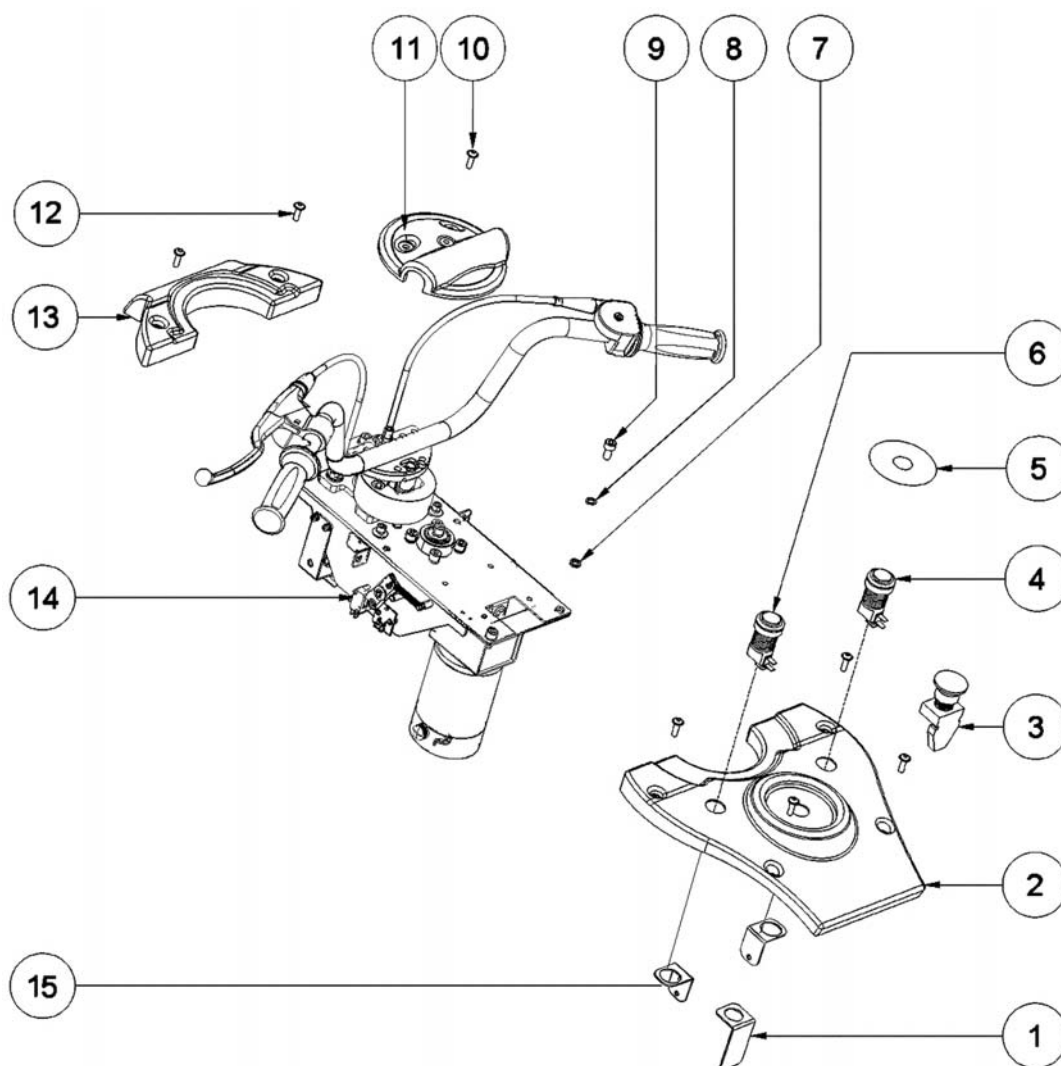
10.13 REAR PLASTIC

	CODE	DESCRIPTION
1	---	SNAP RIVET SR3075
2	RIN-884	BRAKE LIGHT - RIGHT
3	RIN-883	BRAKE LIGHT - LEFT



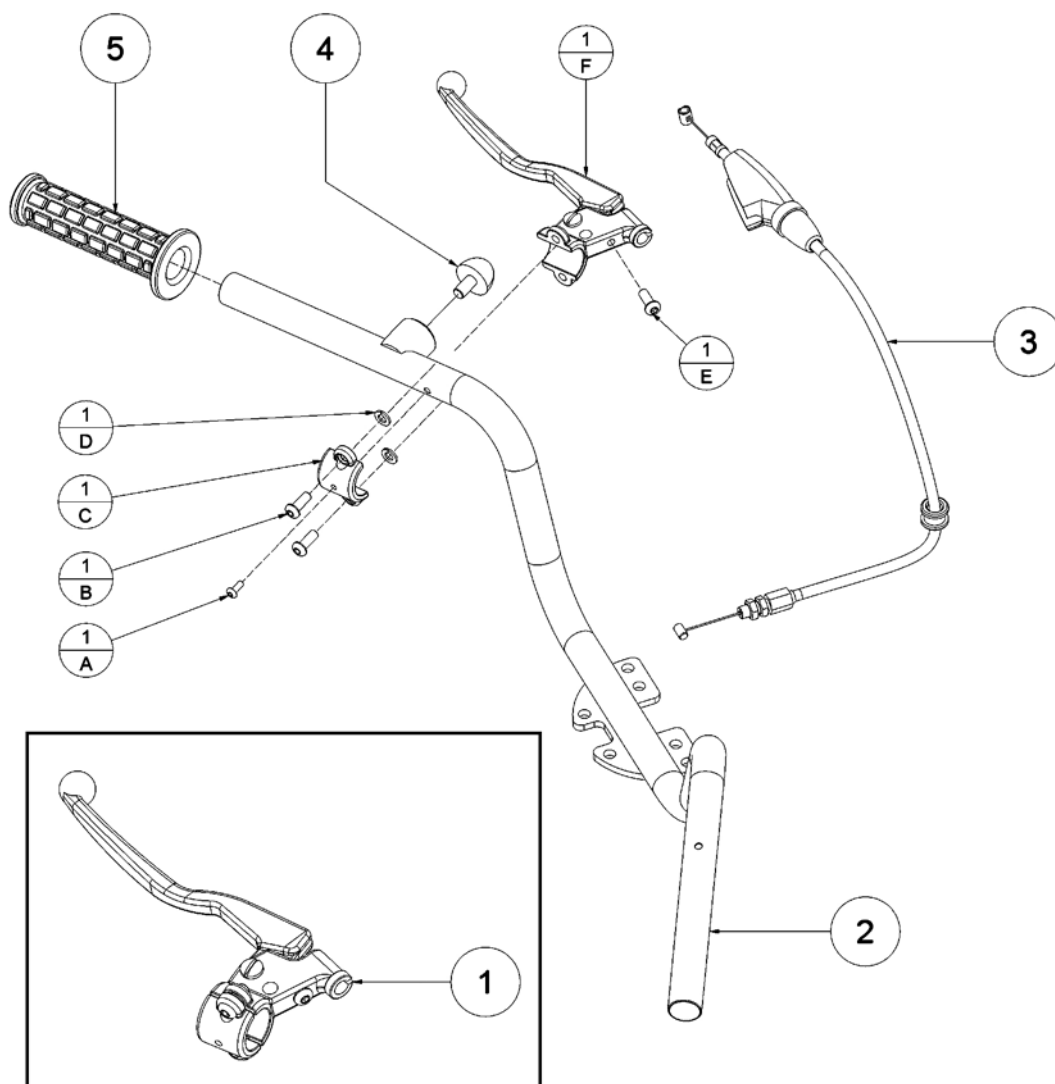
10.14 BIKE ASSEMBLY – PARTS ON TOP

	CODE	DESCRIPTION
1	RIN-848	BRACKET, emergency stop button
2	RIN-802b	FUEL TANK COVER - REAR
3	RIN-817	EMERGENCY STOP BUTTON
4	RIN-819	START BUTTON - RED
5	RIN-818	STICKER, emergency stop button
6	RIN-816	VIEW BUTTON - GREEN
7	---	FLAT WASHER DIN125 M8
8	---	SPRING WASHER DIN127 M8
9	---	SCREW DIN912 M8X16
10	--	SCREW UM1001 M6X10
11	RIN-804	TOP COVER
12	---	SCREW 4,1X20
13	RIN-802a	FUEL TANK COVER - FRONT
14	RIN-300	STEERING ASSEMBLY
15	RIN-847	BRACKET, start & view buttons



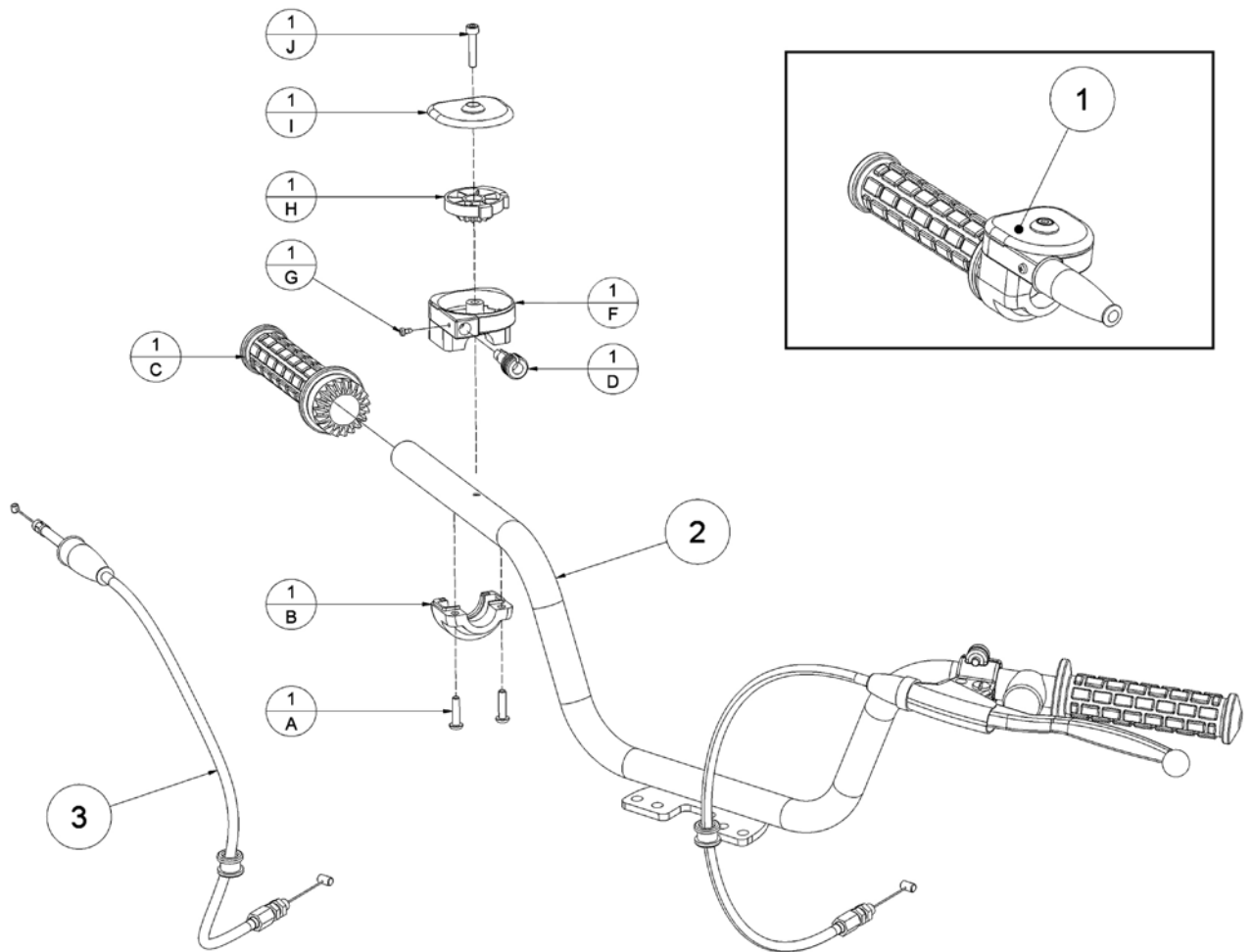
10.15A HANDLEBAR ASSEMBLY - BRAKE PARTS

	CODE	DESCRIPTION
1	RIN-312	BRAKE LEVER (components are not supplied separately)
2	RIN-310	HANDLEBAR
3	RIN-314	BRAKE CABLE
4	RIN-318	LEVER STOPPER



10.15B HANDLEBAR ASSEMBLY - THROTTLE PARTS

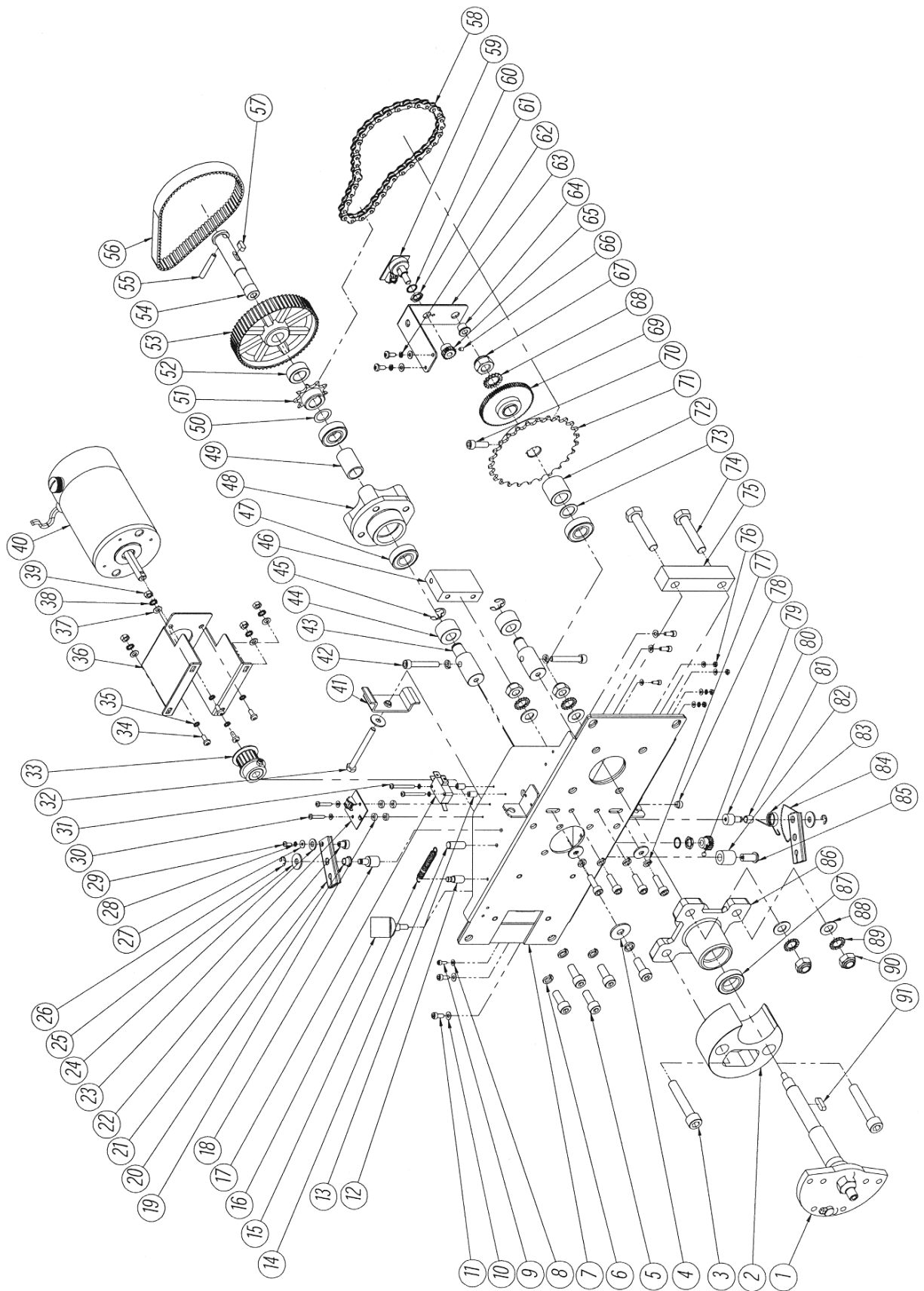
	CODE	DESCRIPTION
1	RIN-320	THROTTLE ASSEMBLY (components are not supplied separately)
2	RIN-310	HANDLEBAR
3	RIN-315	THROTTLE CABLE



10.16 STEERING MECHANISM (SELECTED PARTS)

	CODE	DESCRIPTION
1	S40013406R10	SHAFT & BRACKET ASSEMBLY
2	C-GA-RR02010	STOPPER
15	C-11-404311	TRACTION SPRING
17	C-09-11231	MICROSWITCH
22	C-GA-RR06100	MAGNET IMA 10 SCA-N
23	C-29-40RR10	SENSOR PCB
33	S40013202301	DRIVE PULLEY
36	C-GA-QU01030	BRACKET, steering motor
40	C-29-401582	STEERING MOTOR - UJAQUE CC-1582/1
44	C-GA-QU02030	POLYAMIDE ROLLER
48	C-40-000310	BEARING HOUSING
54	C-GA-QU010200	SHAFT 93X10.5X89.5
56	C-40-085027	DRIVE BELT HTD-400-5M-15
57	C-22-80025512	WOODRUFF KEY DIN6885 (5X5X12)
58	C-GA-QU04010	DRIVE CHAIN
59	C-29-405680	POTENTIOMETER 5K Ω (mounted on PCB, with connector)
65	C-40-401510	PINION, CuZn37
69	C-40-022197	PLASTIC PINION M-0.75 Z80
83	C-11-RR02020	TORSION SPRING
86	C-40-000300	BEARING HOUSING
87	C-GA-QU04060	BEARING Ø32X20
91	C-22-80025518	WOODRUFF KEY 5X5X18

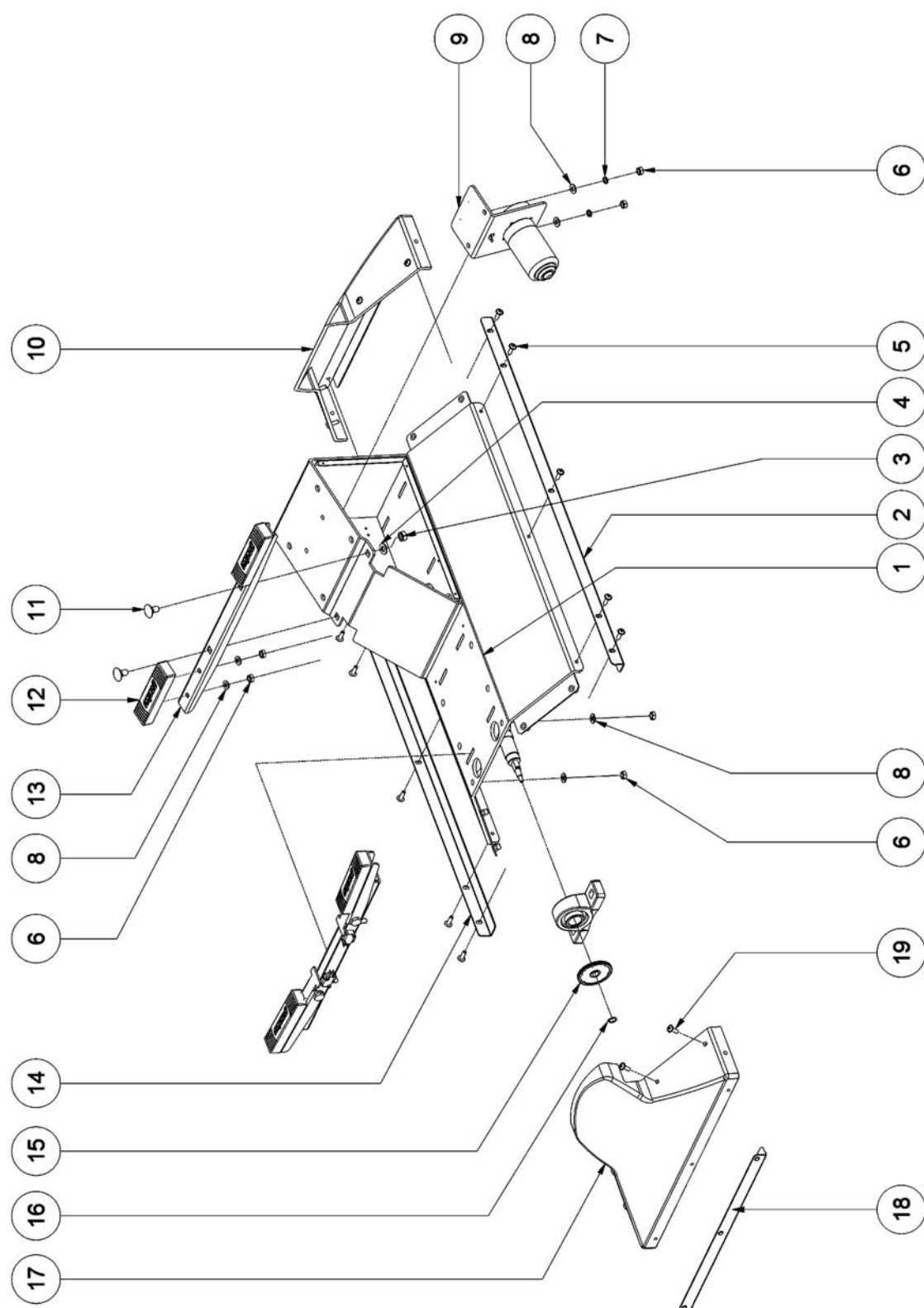
Gaelco - Ring Riders



10.17 MOBILE STRUCTURE - TOP ASSEMBLY

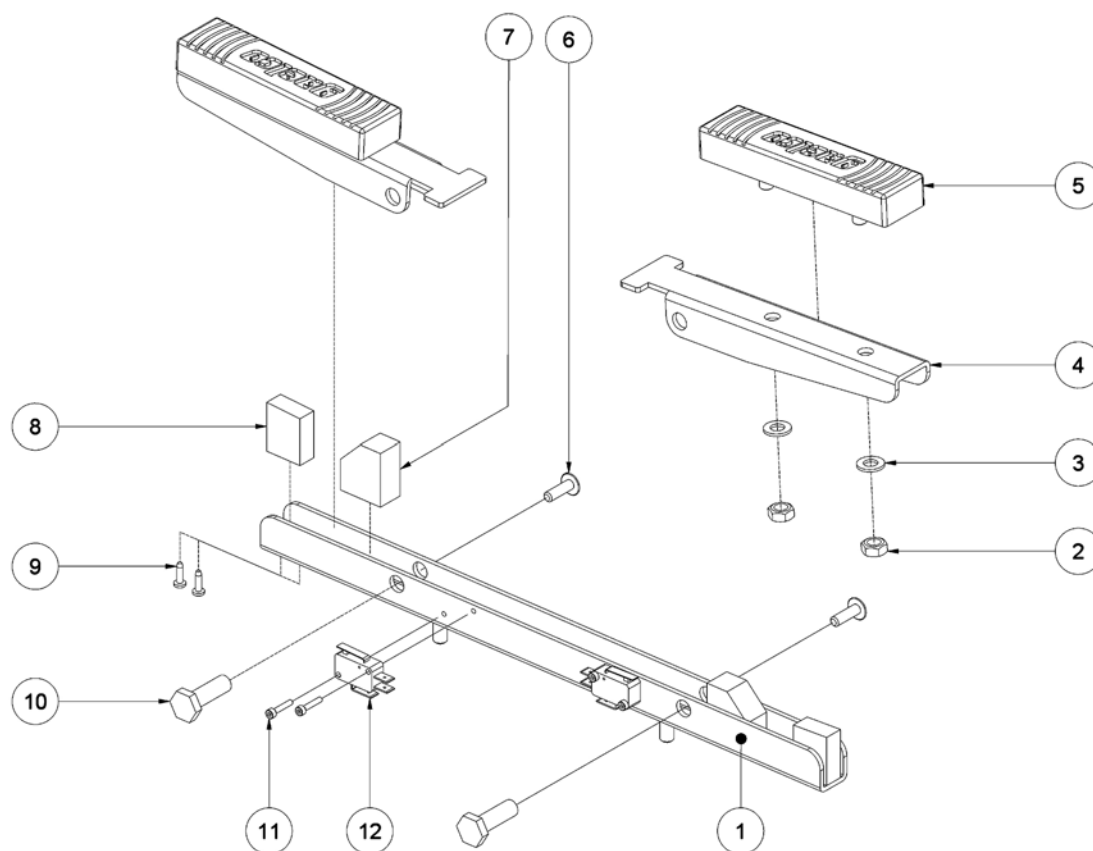
	CODE	DESCRIPTION
1	RIN-835	UPPER PLATE
2	RIN-839	BRACKET, protection folding hood
3	---	LOCK NUT DIN985 M10
4	---	FLAT WASHER M10
5	---	SCREW UM1001 M6X10
6	---	LOCK NUT DIN985 M8
7	---	SPRING WASHER DIN127 M8
8	---	FLAT WASHER DIN125 M8
9	RIN-841	VIBRATOR ASSEMBLY
10	RIN-815	BACK COVER
11	---	SCREW DIN603 M10X20
12	RIN-860	RUBBER, footrest
13	RIN-838	REAR FOOTREST
14	RIN-839	BRACKET, protection folding hood
15	RIN-877	PLASTIC PINION Z-80, with flat
16	---	CIRCLIP DIN471 Ø13
17	RIN-814	FRONT COVER
18	RIN-840	BRACKET, cover
19	---	SCREW UM1001 M6X16

Gaelco - Ring Riders



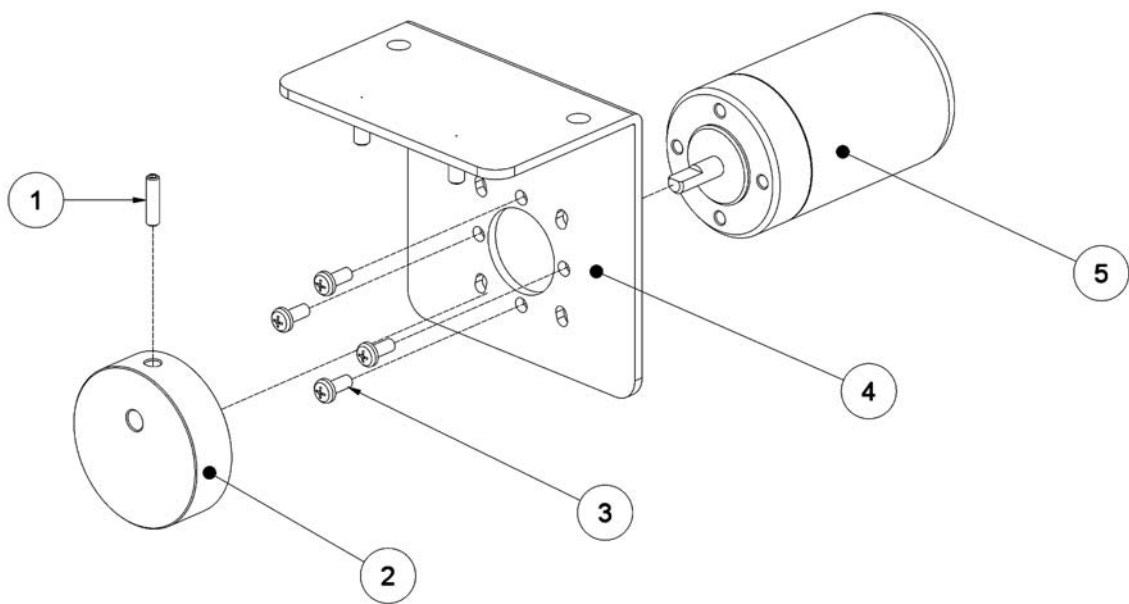
10.18 MOBILE STRUCTURE - FRONT FOOTREST ASSEMBLY

	CODE	DESCRIPTION
1	RIN-836	FOOTREST
2	---	LOCK NUT DIN985 M8
3	---	FLAT WASHER DIN125 M8
4	RIN-837	LEVER
5	RIN-860	RUBBER
6	---	SCREW UM1001 M6X10
7	RIN-858	RUBBER SPRING
8	RIN-857	STOPPER, polyamide
9	---	SCREW 3,9X13
10	RIN-856	SPECIAL NUT
11	---	SCREW DIN7985 M3X16
12	RIN-859	MICROSWITCH C-09-11134



10.19 VIBRATOR ASSEMBLY

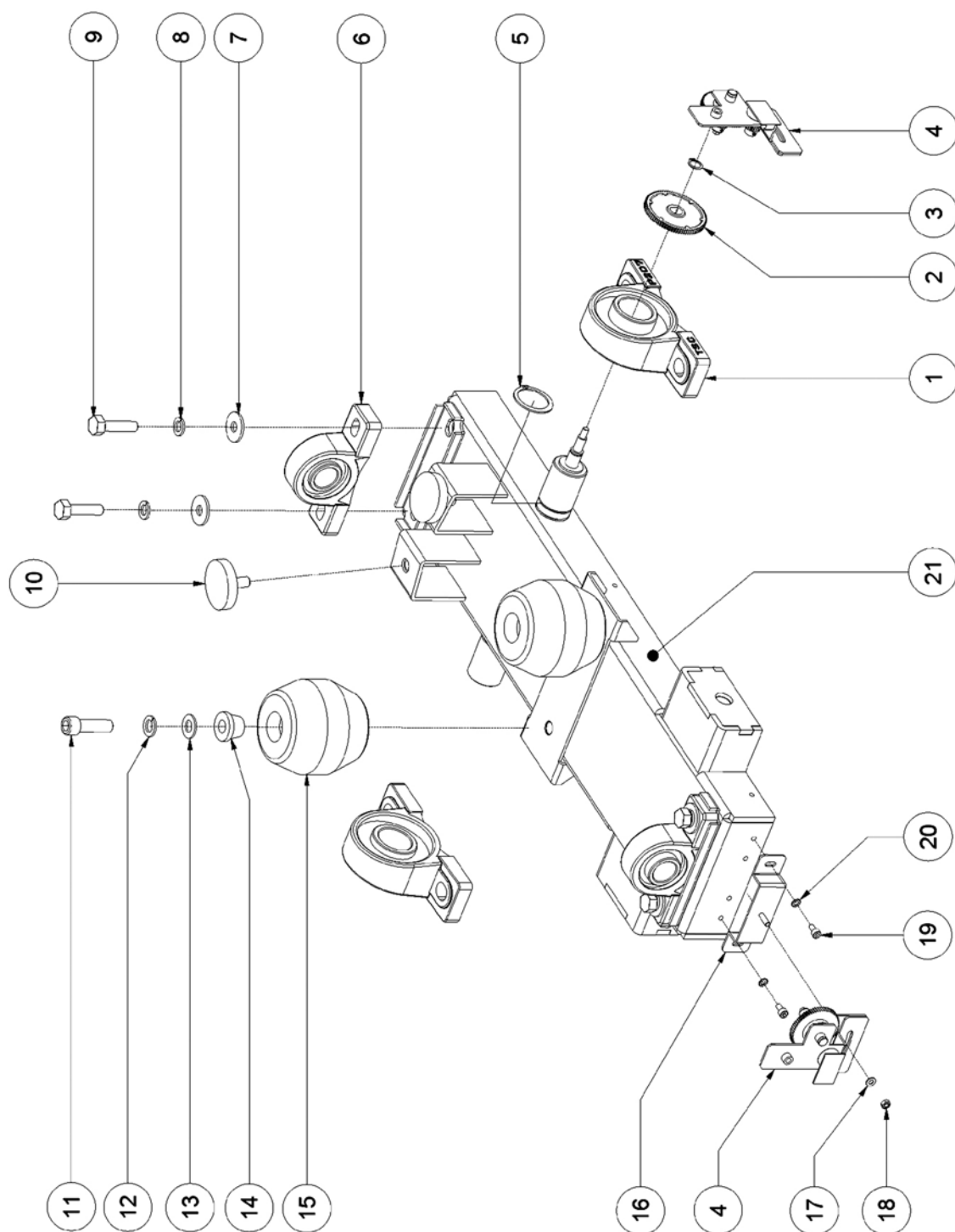
	CODE	DESCRIPTION
1	---	GRUB SCREW DIN913 M6X20
2	RIN-823	ECCENTRIC FLYWHEEL
3	---	SCREW UM1001 M5X12
4	RIN-841	BRACKET
5	RIN-822	MOTOR, vibrator



10.20 MOBILE STRUCTURE - BOTTOM ASSEMBLY

CODE		DESCRIPTION
1	RIN-851	PILLOW BLOCK UNIT UCP-207
2	RIN-877	PLASTIC PINION Z-80 with flat
3	RIN-826	CIRCLIP DIN471 Ø13
4	RIN-850	GEARED POTENTIOMETER 5K
5	RIN-841	CIRCLIP DIN471 Ø35
6	RIN-852	PILLOW BLOCK UNIT UCP-205
7	---	FLAT WASHER DIN125 M12
8	---	SPRING WASHER DIN127 M12
9	---	SCREW DIN933 M10X60 (hexagonal head)
10	RIN-853	RUBBER STOPPER Ø40X10 M10X25 55SH
11	---	FLAT WASHER DIN125 M12
12	---	SPRING WASHER DIN127 M12
14	RIN-854	SLEEVE, rubber spring
15	RIN-855	RUBBER SPRING - EVID-GOM 55SH
16	RIN-844	BRACKET, geared potentiometer
17	---	FLAT WASHER DIN125 M5
18	---	LOCK NUT DIN985 M5
19	---	SCREW DIN912 M5X12
20	---	WASHER DIN6798A 5,1
21	RIN-834	BASE

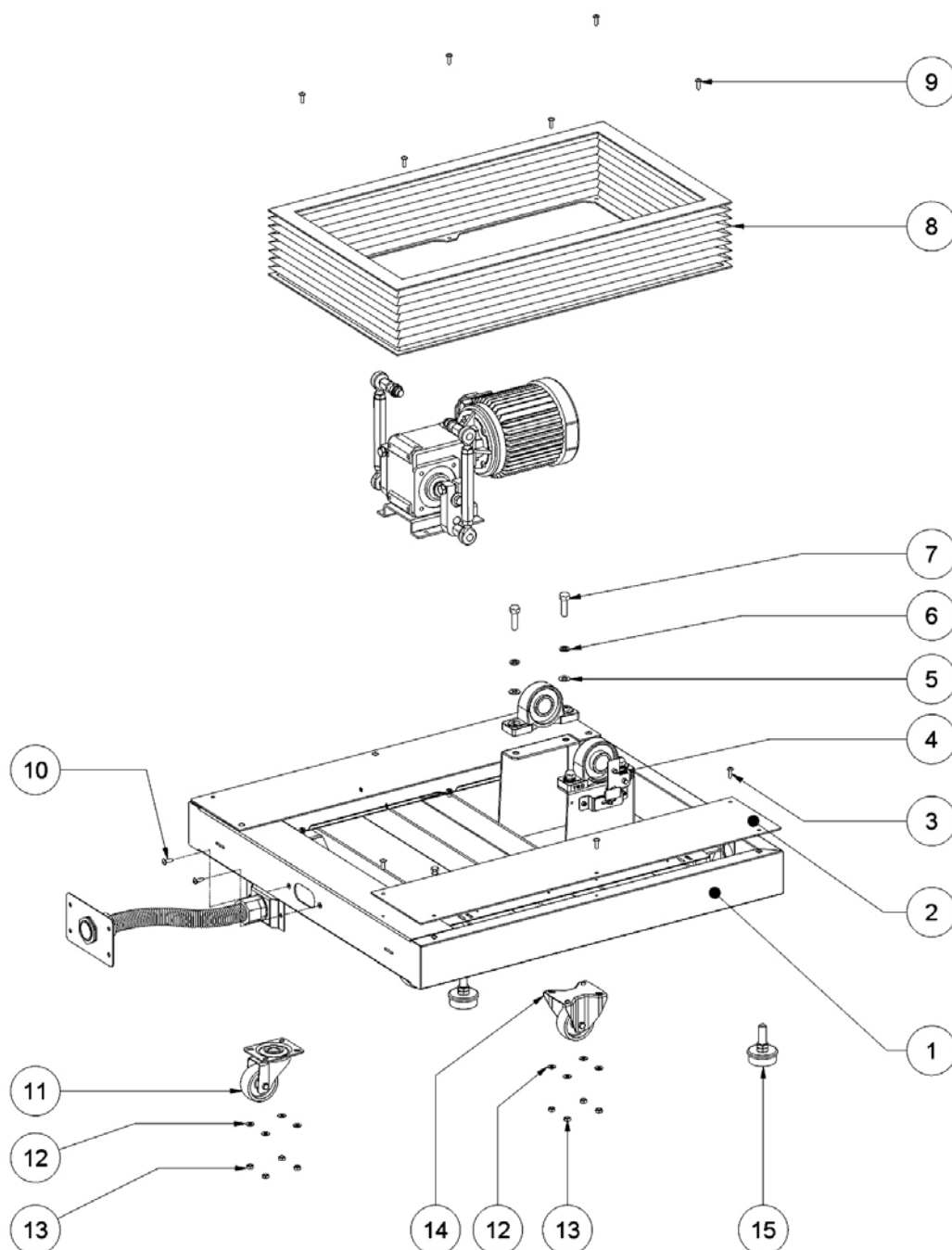
GAELCO - RING RIDERS



10.21 PLATFORM ASSEMBLY

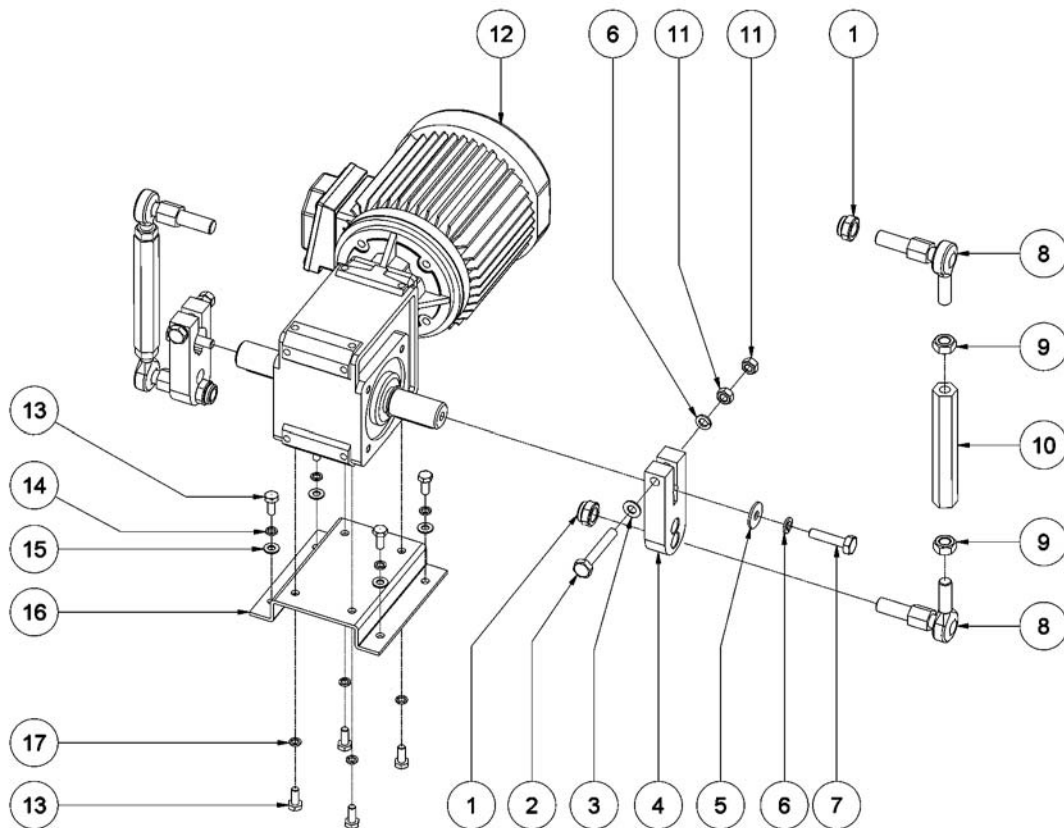
	CODE	DESCRIPTION
1	RIN-831	MAIN STRUCTURE
2	RIN-832	COVER PLATE, aluminium
3	---	SCREW UM1001 M6X10
4	RIN-850	GEARED POTENTIOMETER
5	---	FLAT WASHER DIN125 M12
6	---	SPRING WASHER DIN127 M12
7	---	SCREW DIN933 M12X45
8	RIN-810	PROTECTION FOLDING HOOD
9	---	SCREW UM1001 M6X16
10	---	SCREW UM1001 M6X16
11	RIN-863	SWIVELING CASTOR Ø80
12	---	FLAT WASHER DIN 125 M8
13	---	LOCKNUT DIN985 M8
14	RIN-862	CASTOR Ø80
15	RIN-861	LEG LEVELLER rubber base Ø60, M16X115

Gaelco - Ring Riders



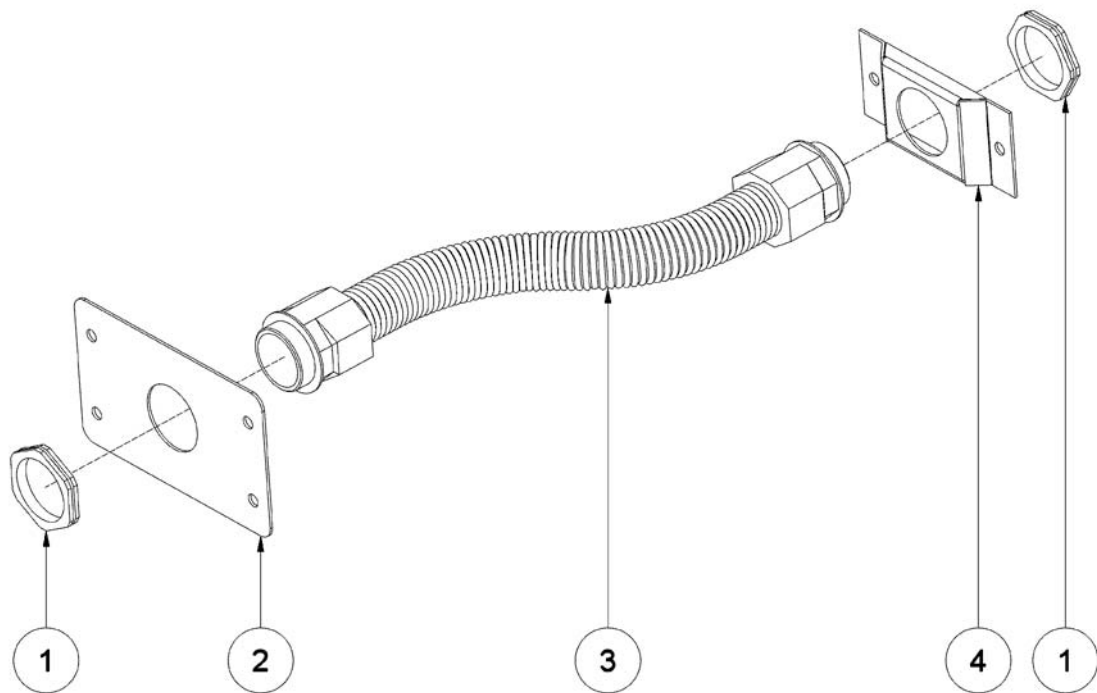
10.22 MOTOR ASSEMBLY

	CODE	DESCRIPTION
1	---	LOCK NUT DIN985 M16
2	---	SCREW DIN933 M10X70
3	---	FLAT WASHER DIN125 M10
4	RIN-827	CRANK, motor transmission
5	---	WASHER DIN9021 M10
6	---	SPRING WASHER DIN127 M10
7	---	SCREW DIN933 M10X30
8	RIN-825	SWIVEL JOINT M14/M16 SBC-0385
9	---	NUT DIN934 M14
10	RIN-826	HEXAGONAL ROD 115mm, motor transmission
11	---	NUT DIN934 M10
12	RIN-820	GEARED MOTOR MB2301-S1-B00C-40-TU-LSMV80L RIGHT
13	---	SCREW DIN933 M8X30
14	---	SPRING WASHER DIN127 M8
15	---	FLAT WASHER DIN125 M8
16	RIN-833	SUPPORTING PLATE, motor
17	---	TOOTH LOCK WASHER DIN6798A 8,2



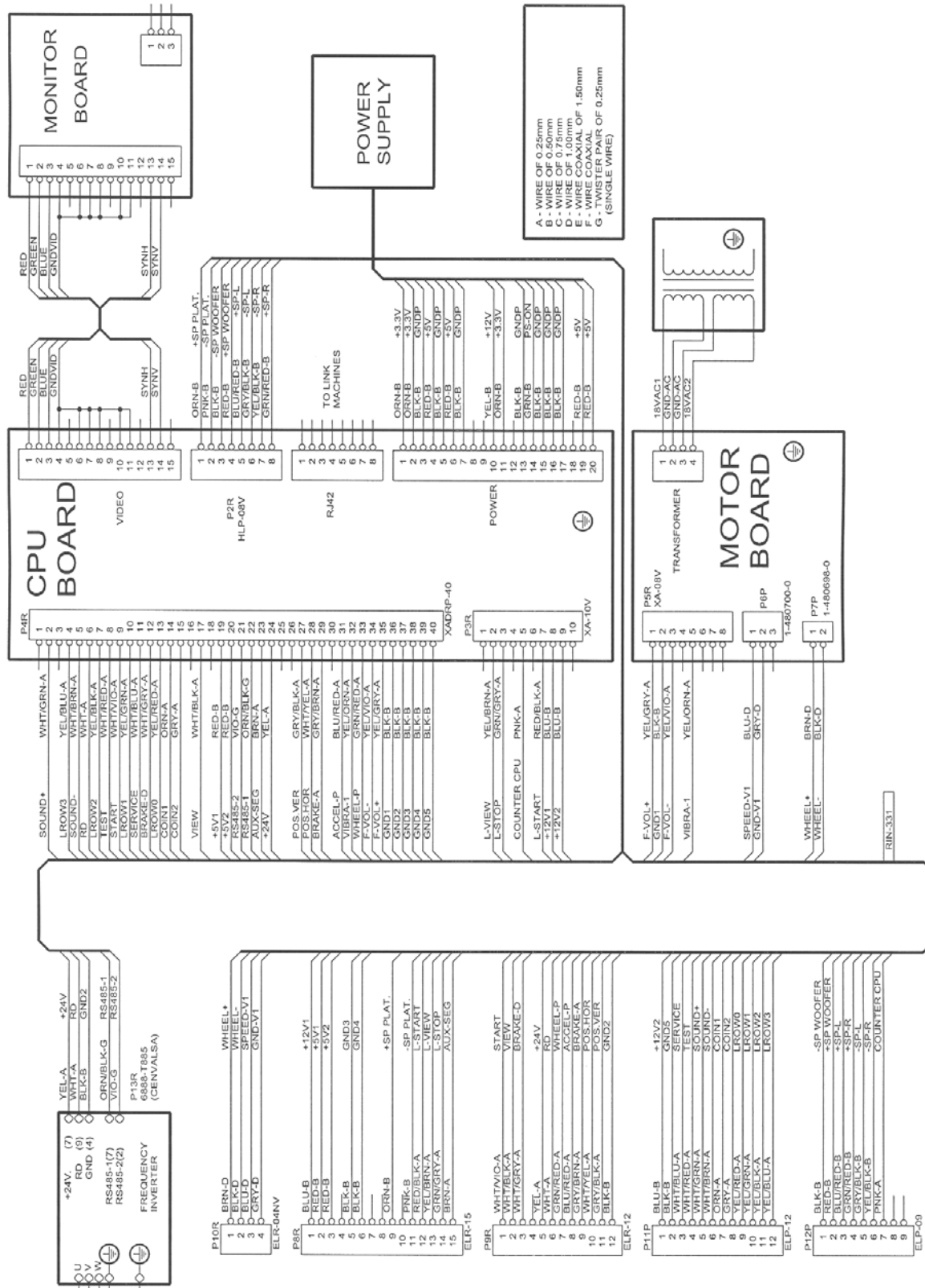
10.23 UNION HARNESS PROTECTION

	CODE	DESCRIPTION
1	RIN-441	LOCK NUT, conduit gland
2	RIN-229	FIXING PLATE - CABINET SIDE
3	RIN-440	CORRUGATED TUBE WITH CONDUIT GLANDS
4	RIN-842	FIXING PLATE - PLATFORM SIDE

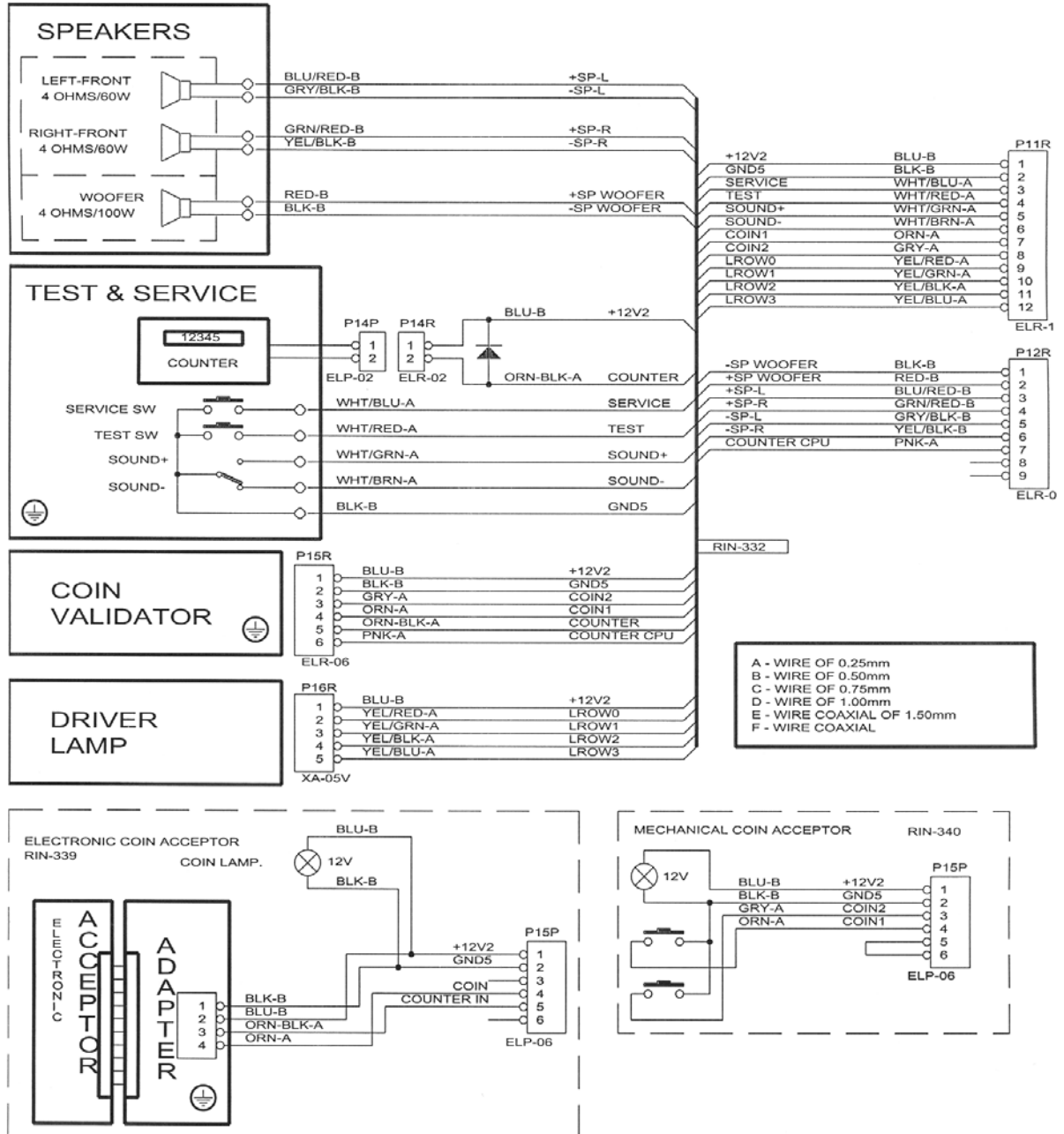


11. WIRING DIAGRAMS

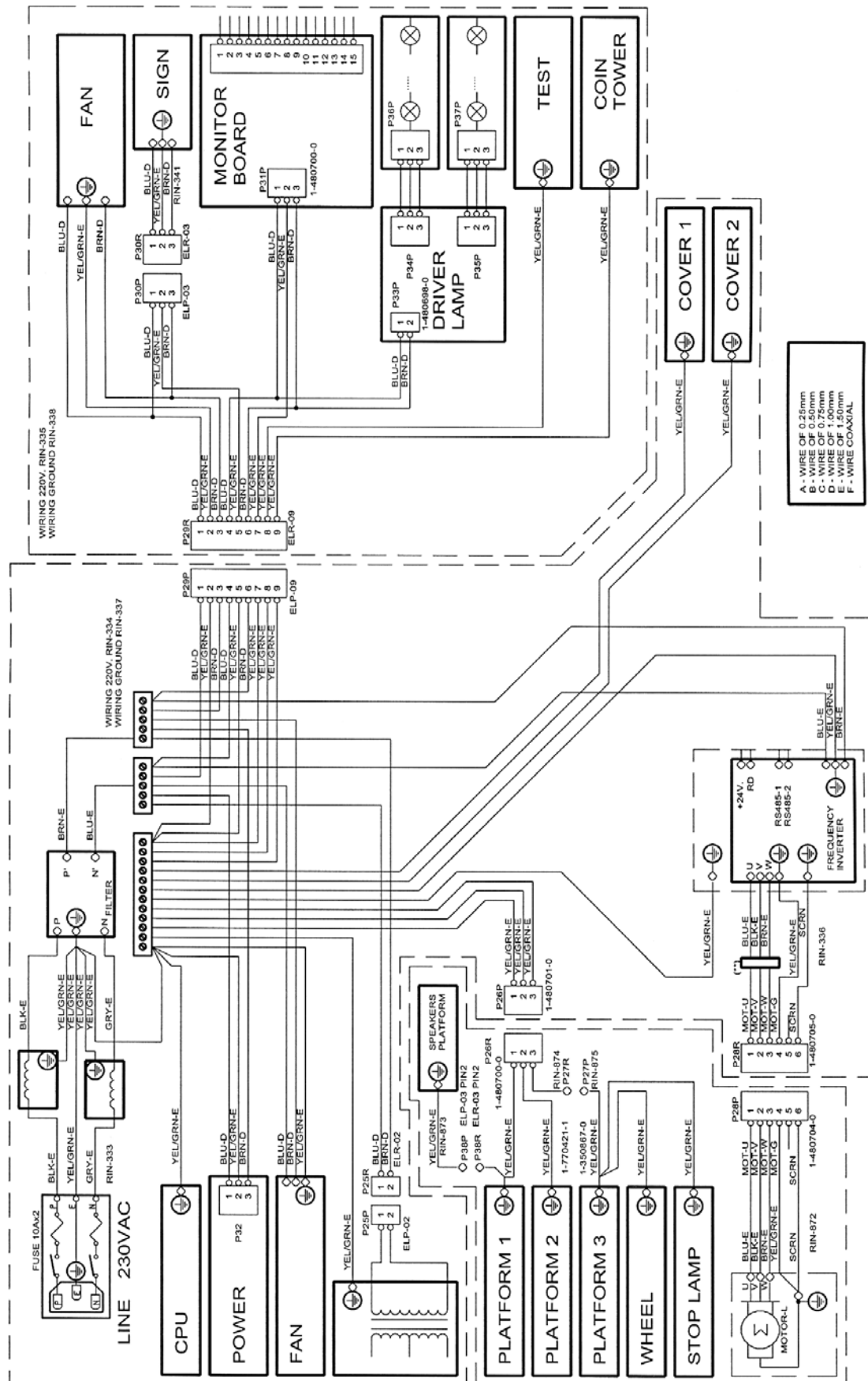
11.1 CABINET WIRING - 1



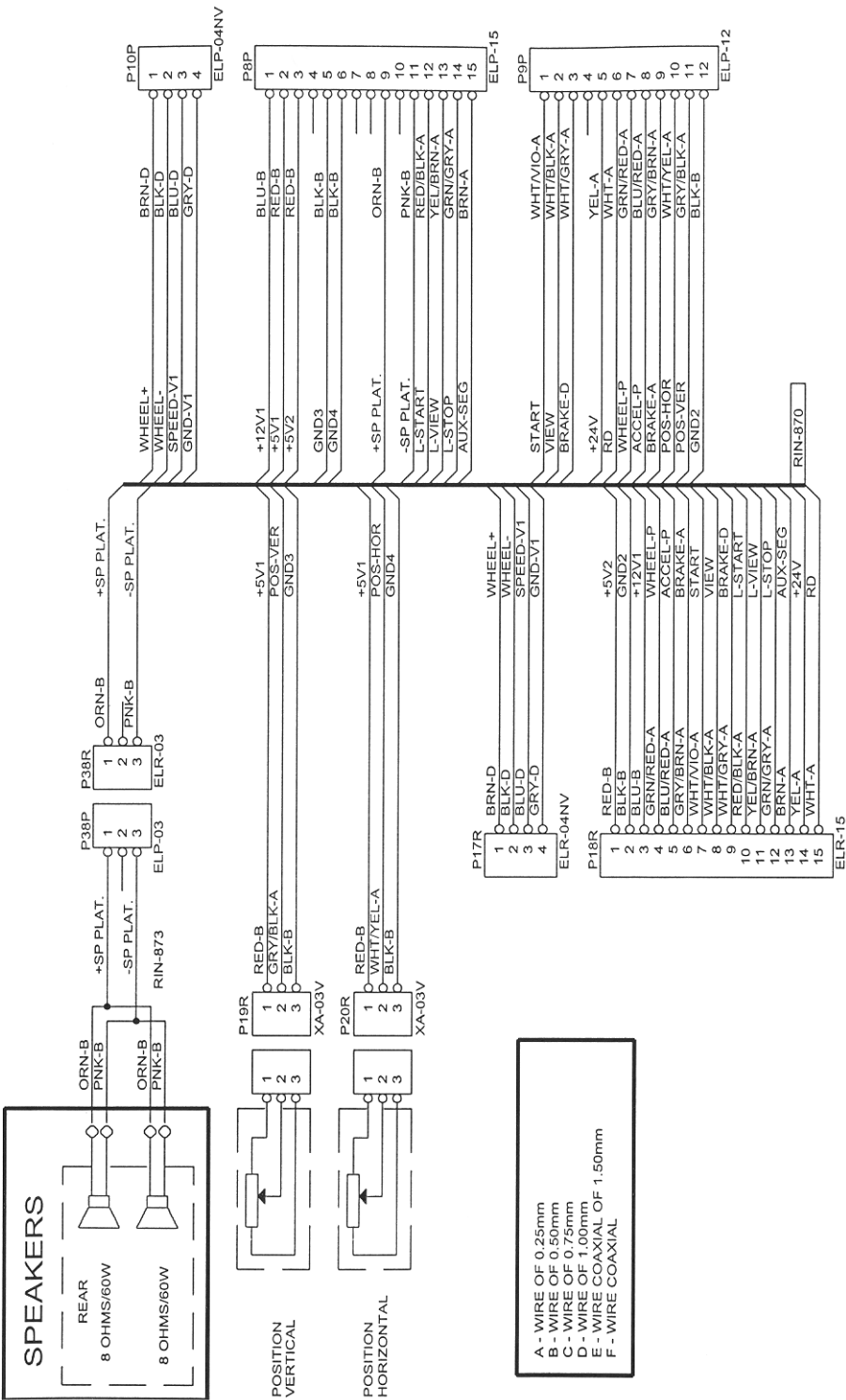
11.2 CABINET WIRING - 2



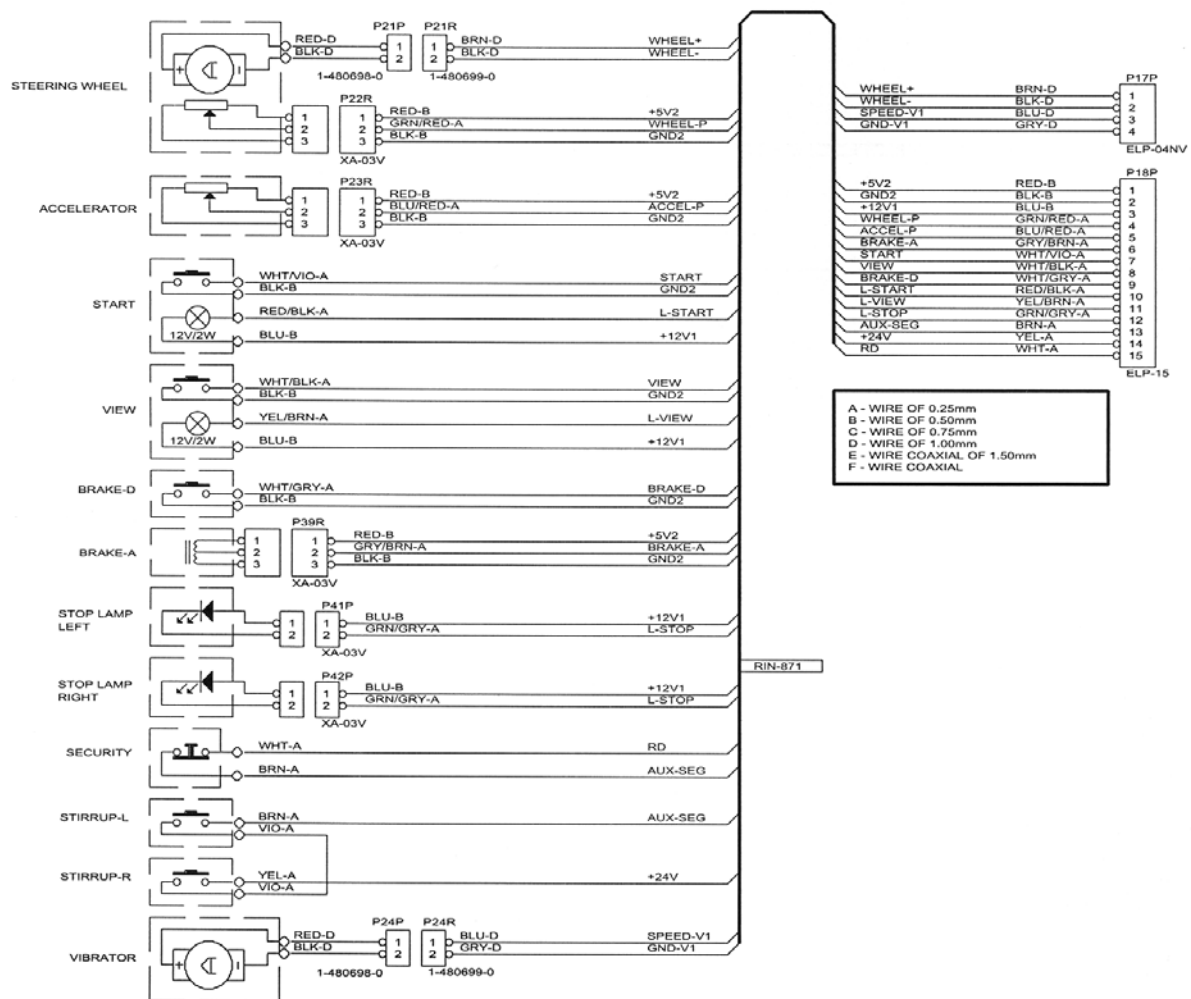
11.3 POWER (220ACV) & GROUND WIRING



11.4 PLATFORM WIRING

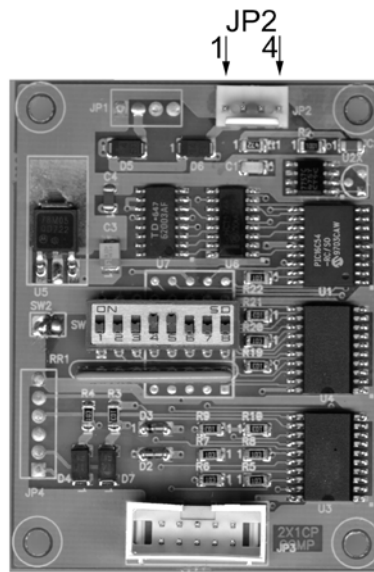


11.5 CHASSIS WIRING



12. CREDIT DISTRIBUTOR SETUP

JP1:Not used
JP2:Cabinet
JP3:Coin controller
JP4:Not used



JP3

Connector JP2: This connector should be connected to ATV PCB wiring

JP2	Description	Values	Source/Destination
Pin 1	Input GND	GND	GND power supply
Pin 2	Input VDC	+12 VDC	DC power supply
Pin 3	Counter output	0/+5/+12 VDC	Coin counter
Pin4	Credits output	+5/0 VDC	Credits for CPU

Connector JP3: Input connector of electronic coin controller. Setup per channel.

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

9	7	5	3	1
10	8	6	4	2

(As seen from components side)

PROGRAMMING OF COIN CONTROLLERS

Controllers supported: COIN CONTROL C-120
NRI G-13.6000
MARS CASHFLOW 330

MARS 330/S 212	OPA	OPB	OPC	OPD	OPE	OPF
NRI G-13.6000	Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6
Coin Control C 120	Coin 1	Coin 2	Coin 3	Coin 4	Coin 5	Coin 6
PIN Controller:	7	8	9	10	3	4
USA	= =	= =	= =	1 \$	50 Ct	25 Ct
Great Britain	= =	1 £	50 Pen	= =	20 Pen	10 Pen
Australia	= =	= =	5 \$	= =	2 \$	1 \$
Switzerland	= =	= =	5 Fr	= =	2 FS	1 FS
Sweden	= =	10 Kr	5 Kr	= =	= =	1 Kr
Norway	20 Kr	10 Kr	5 Kr	= =	= =	1 Kr
EURO €	2€	1€	50c	= =	20c	10c

SWITCH SETUP FOR EUROS

SW1: Always OFF

SW2: Always OFF

SW3: Not used

SW4-SW5: Extra Credits (Bonuses)

Combinations of this two dip switches are used to program bonuses (free games) according to the scale shown in the table. The table varies according to the game price selected.

SW6-SW7-SW8: Game Price

These dip switches are used to choose the game price. The bonus table shows the combination of game prices with the payments that allow the player to obtain extra games (bonuses).

CREDITS table				BONUS table (SW4/SW5)			
SW6	SW7	SW8	Value/Credit	OFF/OFF	ON/OFF	OFF/ON	ON/ON
OFF	OFF	OFF	10c	No bonus	50c	40c	20c
ON	OFF	OFF	20c	No bonus	50c	40c	20c
OFF	ON	OFF	30c	No bonus	*50c	30c	60c
ON	ON	OFF	40c	No bonus	2€	1,6€	80c
OFF	OFF	ON	50c	No bonus	2,5€	2€	1€
ON	OFF	ON	80c	No bonus	2€	1,6€	80c
OFF	ON	ON	1€	No bonus	2,5€	2€	1€
ON	ON	ON	1,2€	No bonus	2€	1,6€	2,4€

(*) Add another credit for the second lap.

APPLICATION EXAMPLES

Game price: 50c, NO BONUS

Switch set up:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON

Game price: 50c, BONUS FOR 2€ (4 credits + 1 credit free)

Switch setup:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
OFF	OFF	OFF	OFF	ON	OFF	OFF	ON

Game price: 1€ , NO BONUS

Switch setup:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
OFF	OFF	OFF	OFF	OFF	OFF	ON	ON

Game price: 1€ , BONUS FOR 2,5€ (2 credits + 1 credit free)

Switch setup:

SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
OFF	OFF	OFF	ON	OFF	OFF	OFF	ON

SWITCH SETUP FOR OTHERS CURRENCIES

SW1: Always OFF**SW2:** Coin multiplication factor

SW2=OFF Euro π , and rest of Europe	Chanel:	1	2	3	4	5	6
	Value:	X20	X10	X5	X4	X2	X1
SW2=ON (USA)	Chanel:	1	2	3	4	5	6
	Value:	X20	X10	X8	X4	X2	X1

SW3: Not used**SW4-SW5: Extra Credits (Bonuses)**

Combinations of these two dip switches are used to program bonuses (free games) according to the scale shown in the table. The table varies according to the game price selected.

SW6-SW7-SW8: Game Price

These dip switches are used to choose the game price. The bonus table shows the combination of game prices with the payments that allow the player to obtain extra games (bonuses).

CREDITS table				BONUS table (SW4/SW5)			
SW6	SW7	SW8	Value/Credit	OFF/OFF	ON/OFF	OFF/ON	ON/ON
OFF	OFF	OFF	1	0	5	4	2
ON	OFF	OFF	2	0	5	4	2
OFF	ON	OFF	3	0	*5	3	6
ON	ON	OFF	4	0	20	16	8
OFF	OFF	ON	5	0	25	20	10
ON	OFF	ON	8	0	20	16	8
OFF	ON	ON	10	0	25	20	10
ON	ON	ON	12	0	20	16	24

(*) Adds another credit for the second lap.

APPLICATION EXAMPLES

Example 1

Switzerland	SW1 =	OFF	SERIAL input. (5 FS via PIN 5) = (Channel 3)
	SW2 =	OFF	Input values x1 x2 — x5
	SW3 =		Not used
	SW4 =	OFF	EXTRA credit on the 20th pulse (=20FF)
	SW5 =	ON	
1 FF = 1 pulse	SW6 =	OFF	5 pulses / 1 credit.
	SW7 =	OFF	
	SW8 =	ON	
RESULTS:	5 FS / 1 credit; 20 FS / 5 credits		

Example 2

Sweden	SW1 =	OFF	SERIAL input. (5 Kr via PIN 5) = (Channel 3)
	SW2 =	OFF	Input values x1 x2 — x5
	SW3 =		Not used
	SW4 =	OFF	EXTRA credit on the 20th pulse (=20FF)
	SW5 =	ON	
1 Kr = 1 pulse	SW6 =	OFF	5 pulses / 1 credit.
	SW7 =	OFF	
	SW8 =	ON	
RESULTS:	5 Kr / 1 credit; 20 Kr / 5 credits		

Example 3

Norway	SW1 =	OFF	SERIAL input. (5 Kr via PIN 5) = (Channel 3)
	SW2 =	OFF	Input values x1 x2 — x5
	SW3 =		Not used
	SW4 =	ON	EXTRA credit on the 25th pulse (=20Kr)
	SW5 =	OFF	
1 Kr = 1 pulse	SW6 =	OFF	10 pulses / 1 credit.
	SW7 =	ON	
	SW8 =	ON	
RESULTS:	10 Kr / 1 credit; 25 Kr / 3 credits		

Example 4

Great Britain	SW1 =	OFF	SERIAL input. (10 Pen via PIN 8) = (Channel 6)
	SW2 =	OFF	Input values x1 x2 — x5
	SW3 =		Not used
	SW4 =	ON	EXTRA credits on the 5th pulse (=50 Pen)
	SW5 =	OFF	and 10th pulse (1 £)
1 Pen = 1 pulse	SW6 =	OFF	3 pulses / 1 credit.
	SW7 =	ON	
	SW8 =	OFF	
RESULTS:	30 Pen / 1 credit; 50 Pen / 2 credits; 1 £ / 5 credits		