



# **OPERATIONS MANUAL**

## **Vest + Laser laser gun- Battery-Charger Control box (CmdBox)**



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## **I. Introduction and contacts:**



Each LASERGAME employee must read this manual in its entirety and sign the organization chart supplied (§ [VI.4](#)).

This chart must be returned to LASER GAME EQUIPMENT as soon as possible.

This operating and maintenance manual will serve as a checklist on all the concepts you have already seen during your training course in Laser Game Equipment offices.

You will find a summary of the various equipment provided (vest, command box, batteries ...), the technical name, as well as the installation diagram, and finally a reminder of how to perform the care and maintenance of your equipment in relation to LASER GAME EQUIPEMENT's staff.

Please pay particular attention to this organization, as it is important to follow the defined procedures, in order to meet your customer's quality requirements. These procedures are optimized to reduce the maximum downtime of your equipment in our offices.

This operating manual is not exhaustive and may not respond to all your questions, or to all the problems you may encounter during the equipment lifetime.

For this reason it is important to contact us (contact list below), rather than to ignore the problem, or perform operations that could cause damage the LASER GAME EQUIPEMENT hardware or software.

### **Contacts and useful links:**

- LASER GAME EQUIPMENT Offices:  
Ph : (+33) 4 76 12 92 66 Fax: (+33) 4 76 12 92 66  
Fax : (+33) 4 76 12 92 67  
Mail : [sav@lasergame-evolution.com](mailto:sav@lasergame-evolution.com)
- Technical responsible:  
  
Xavier Pouillat : +33 620 830 548  
Jean-Louis Parayre : +33 603 490 768
- IT Manager:  
  
Nicolas Jaillet : +33 671 207 921

Available during French business hours, otherwise please refer to the LASER GAME EQUIPEMENT website (<http://lge.lasergame.fr/staff/index.php>) tab "Support" to check the available contact.

Shipping address for maintenance packages:

**LASER GAME EQUIPEMENT  
Service Après Vente  
21 Rue Colonel Dumont**

## **II. Materials and Equipment V2**

### **II.1 Vocabulary:**

#### **II.1.1 Turning on vests:**

When unplugging the vest charger by pressing the 'on' button.

#### **II.1.2 Vest set-up:**

From the 'GestionSalleLGE' software to set-up parameters and game play options (shoulder targets light up the color of the teams).

#### **II.1.3 Starting vests:**

When a game is launched from the PC or control Box button.

#### **II.1.4 Action Code:**

Predefined LASER GAME EQUIPEMENT message. To be used when adding a maintenance request, via the dedicated website.  
You will find all the action codes under § [4.4.1](#).

#### **II.1.5 LGE Vest:**

Composed of the LASER laser gun, VEST and BATTERY.



LASER GUN:



VEST:



BATTERY:

### **II.1.6 Control box:**

(See wiring diagram on paragraph § [III.1](#)).



### **II.1.7 Charger:**

Including: POWER CORD, CHARGER and CHARGER PLUG.



**POWER CORD:**



**CHARGER:**



**CHARGER PLUG**



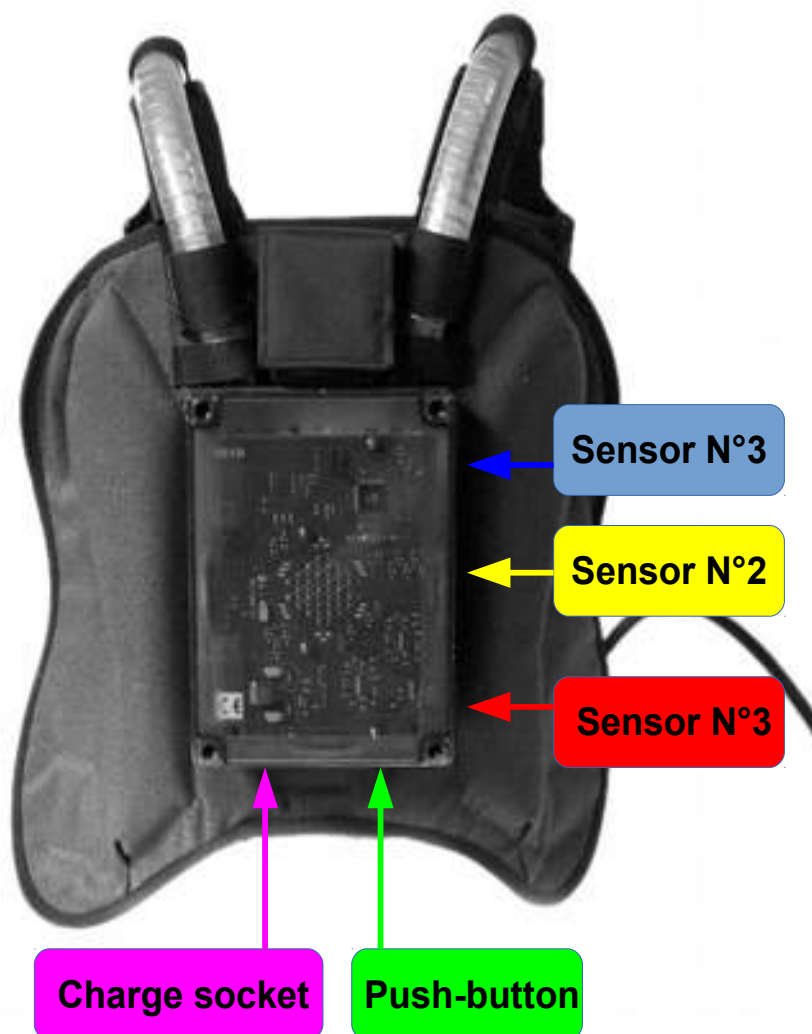
### **II.1.8 maintenance battery charge Adapter:**



### **II.1.9 charger Tester:**



## ***II.2 V2 equipment in use :***



### **II.2.1 Turning the unit on, powering the vest**

This operation is to be performed at the beginning of each day before the opening of your game center. A vest which is not turned on cannot be configured.

To power up the vest :

- ➔ Plug into the charge socket (eg. The small plug supplied).
- ➔ Press the push-button and hold.
- ➔ Remove the plug from the charge socket.
- ➔ Wait 2 seconds and release the push-button

The vest will flash Red, Yellow, Blue for 30 seconds, the display should show the serial number, the software version number and the battery voltage.

## **II.2.2 Sensors N°1, N°2 and N°3 functions:**

- If a magnet is placed **before** turning on the vest and in front of the sensor:
  - N°1: The vest starts in demo mode (Section [II.2.3](#)).
  - N°2: The vest starts in memory signature mode.

Each program version embedded in the vest has a specific signature.

Starting a vest in this mode will help LASER GAME EQUIPEMENT technicians to determine in specific cases if the vest program is operational.

- N°3: The vest starts in re-programming mode (Section [II.2.4](#)).
- If a magnet is placed **after** powering up the vest and in front of the sensor:
  - N°1: The vest starts a 20 minutes game play with red color.
  - N°2: The vest starts a 20 minutes game play with the yellow color.
  - N°3: The vest starts a 20 minutes game play with the blue color.

### **Note:**

Starting the vest in the above mentioned fashion will not allow you to retrieve the results via GestionSalleLGE software.

- If **after** playing a game (launched with the magnet or via GestionSalleLGE software, but without having recovered the results) a magnet is placed in front the sensor:

- N°1: the vest starts a game with a time of 20 minutes in the color of the first game.
- N°2: the vest starts a game with a time of 66% of 20 minutes in the color of its first game.
- N°3: the vest starts a game with a time of 33% of 20 minutes in the color of its first game.

### **Tip:**

If you accidentally start a 20 minutes game play via the software game instead of a requested 40 minutes game, it is possible to restart all vests at the end of the game with the magnet, at sensor 1 level.

To proceed DO NOT end the game at the GestionSalleLGE software. vests keep their original color and will once again be active for 20 minutes.

The time will remain blocked at 0 on the software GestionSalleLGE it will then be necessary to use another method to time the duration of the game play (stopwatch, clock ...).

Once the time is up, you can click on "Endgame" on the game software and you will obtain the result sheets showing the cumulative score of both games.

- If **after** playing a game in a demonstration mode a magnet is placed on the sensor:

- N°1: the vest starts again a game play in demo mode with a duration of 20 minutes.
- N°2: the vest starts again a game play in demo mode with a duration of 66% of 20 minutes.
- N°3: the vest starts again a game play in demo mode with a duration of 33% of 20 minutes.

- If **after** playing a game in memory signature mode a magnet is placed on the sensor:

- N°1: the vest starts a **yellow** game play with a duration of 20 minutes.
- N°2: the vest starts a **yellow** game play with a duration of 66% of 20 minutes.
- N°3: the vest starts a **yellow** game play with a duration of 33% of 20 minutes.

- If a magnet is placed before any sensor during the memory signature mode, or during or after the reprogramming mode, nothing will occur.



In order for proper vest functioning, **never** cover several sensors at the same time with one or more magnets.

### **II.2.3 Starting vests in DEMONSTRATION mode:**

It is useful to start a vest in this mode, for a demonstration during a briefing, or to quickly test a vest during the day, or to perform the weekly vest test procedure described in Section [IV.3.1](#)

To turn the power on the vest in demo mode you must:

- ➔ Connect the plug into the charge socket.
- ➔ **Place a magnet in front of the "Sensor N°1".**
- ➔ Press the on-button and hold.
- ➔ Remove the plug from the socket.
- ➔ Wait 2 seconds and release the on-button

The vest is flashing Red, Yellow, Blue and you may start a game in Red with the following features:

- ➔ Quick Start (2 seconds instead of 20).
- ➔ Color change with each hit (in the order R, Y, B).
- ➔ 2-second hit pause instead of 8-seconds.
- ➔ Sound on the laser gun only on the first hit received on the vest.

A vest started in this mode must be rebooted in normal mode if you want to reuse it normally.

## **II.2.4 Starting the vest in REPROGRAMMING mode:**

This mode will be used to start reprogramming vests, only. No further action is possible on the vest during reprogramming.

This procedure will be requested to update the vests' version, or by explicit LASER GAME EQUIPEMENT staff request.

To power the vest in reprogramming mode:

- ➔ Connect a plug into the charge socket.
  - ➔ **Place a magnet in front of the "Sensor 3."**
  - ➔ Press the pushbutton and hold.
  - ➔ Remove the plug from the socket.
- The vest will flash Red, Yellow, and Blue, then:
- ➔ The rear central target flashes red.
  - ➔ The remaining targets on the vest are off.

A vest started in this mode must be rebooted in normal mode at the end of the reprogramming, if you want to reuse it normally.

### **Notes:**

- ➔ Once you've started reprogramming via GestionSalleLGE software, it is strongly recommended that you do not turn off the vests until it is completed. All vests switched off under these conditions will become unusable until a complete reprogramming session is performed.
- ➔ Reprogramming the vests via GestionSalleLGE software is performed by clicking on the "Tools" menu, then "Reprogramming Vest" option. If a vest number is showing, only the selected vest will be reprogrammed, by default all vests will be reprogrammed.

It is very important to reprogram one or several vests and to turn them on in this mode before using GestionSalleLGE software.

## **II.2.5 Switch off vests:**

To switch off vests:

- ➔ Connect the plug into the charge socket.
- ➔ Remove the plug from the socket.

The vest should switch off when connecting the plug, then remain off.

### **Note:**

If at the end of game play, started via GestionSalleLGE software, a vest is turned off before retrieving results, all the information concerning the played game will be lost.

## **II.2.6 Control box (CmdBox) :**

Used to establish a radio communication link, between the PC and the vest. This box must be installed in the equipment room in order to avoid any risk of falling. Never move it nor leave it accessible to staff, to ensure that they will be able to activate the game play via the buttons:

Depending on the number of rooms available in the game center:

- 1 playfield: Red button activates the game.
- 2 playfields: Red button activates the game in playfield 1  
Blue button activates the game in playfield 2
- 3 playfields: Red button activates playfield 1,  
Yellow activates playfield 2,  
Blue activates playfield 3
- 4 playfields: Red button activates playfield 1  
Yellow activates playfield 2,  
Blue activates playfield 3,  
Green activates playfield 4

The use of the box is necessary only to start game play. By pressing one of the buttons, the PC runs the game play in the corresponding room.

The black button does not start a game, and has no influence in the vest functions, if it is pressed by mistake. It is useful for LASER GAME EQUIPEMENT.

### **Note:**

- x Pressing the wrong button at the start of a game play does not cause any errors; only a message is displayed on the GestionSalleLGE software.
- x All control box equipment is provided in duplicate in order to maintain operations in the game center, in case of failure.



For this reason, it is strongly recommended whenever a problem is found on a command box component element, to immediately inform LASER GAME EQUIPEMENT staff and follow their guidance to commence operations again.

If the second command box also breaks down, it is no longer possible to manage the vests.

### **II.2.7 Charging the battery :**

The batteries must be charged every day. A continuous charging cycle must have a duration between 4 and 5 h.

It is therefore necessary to connect all your vests at the end of your work day, and especially to ensure that each of them have started charging, by verifying that the LED control charger is red.

The autonomy of a complete and new charged battery is ten hours.

In case of a low battery during the day, a twenty-minute recharge allows it to run for about an hour.

With only rare exceptions, a battery should hold a charge all day long. If a problem is recurring concerning the charge of one or more VESTS see § [IV.4.4.](#)

If necessary, do not hesitate to contact us.



Spare batteries **MUST** be charged at least once every two months, if they are not used. This cycle is absolutely necessary to ensure proper battery operation. If used for one or several days, you must charge it every night, like any other battery in your equipment fleet.

**Note:**

To charge the maintenance batteries, use charge adapters supplied by LASER GAME EQUIPEMENT upon delivery of your equipment.

### **II.3 Cleaning:**

LASER GAME EQUIPEMENT recommends the only way to clean the vests is by using a clean damp cloth and a small amount of dish-soap. This allows you to clean the inside and outside surfaces of your vests and plastic casings, cables and ducts on the laser laser guns.



Under no circumstances should you use chemicals on your vests. This could cause the equipment plastic parts to not only degrade and wear prematurely, but also may cause hypoallergenic reactions on your customers who are in direct contact with the vests. Do not take apart the vest for cleaning, or use too much water (do not immerse, shower or spray equipment). Relatively confined, electronic components are not waterproof.

### **III. Procedures and Diagram Assembly:**

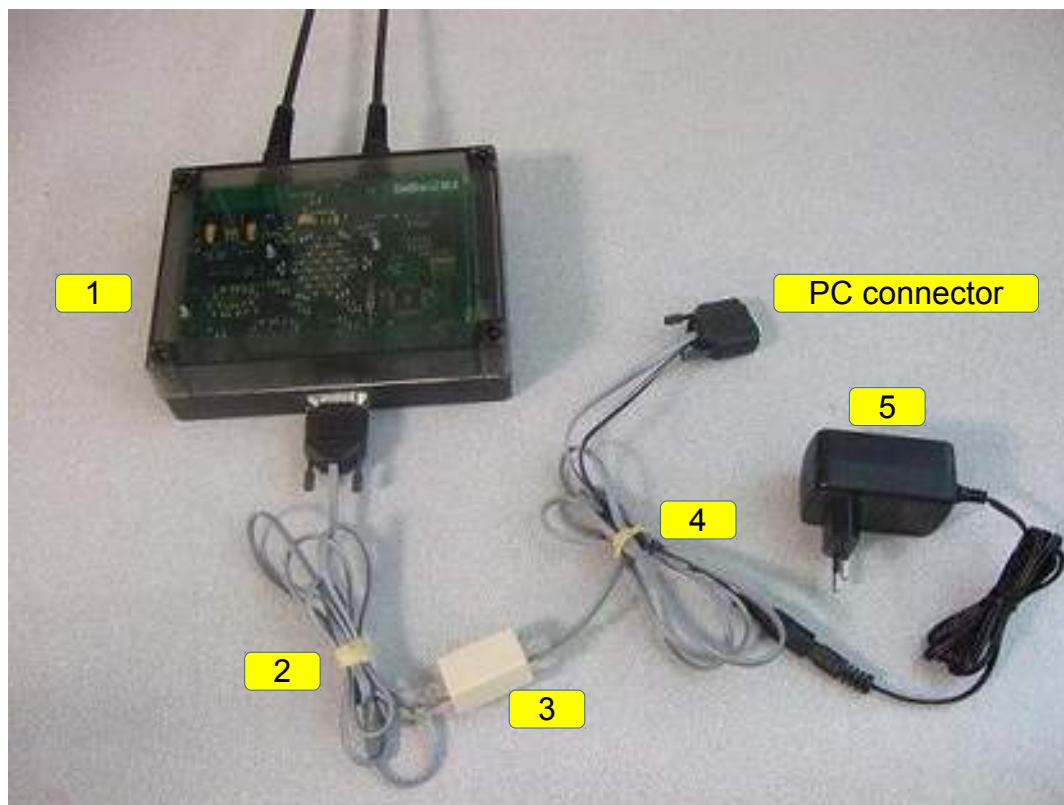
#### **III.1 Control Box (CmdBox):**

To connect the control box to a PC without a serial port, use a USB-serial converter.

##### **III.1.1 Direct connection:**

This connection does not require a wall mount RJ 45 box. However it does require that the PC running the GestionSalleLGE software, be in close proximity to the control box.

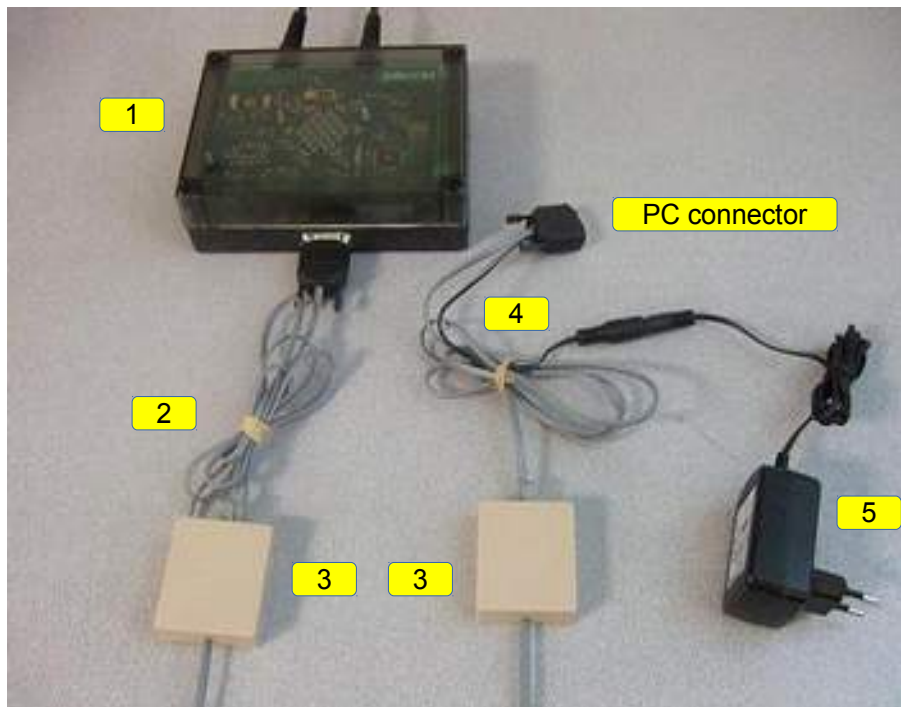
It is composed of: the Control box (CmdBox) (1), a SubD9/RJ45 cable (2), a RJ45 extension (3), a RJ45/SubD9-Female power Cable (4), a 12 volt power supply (5)



### **III.1.2 Connection with RJ 45 wall mount box:**

This connection is via two wall mount boxes, which will increase the distance between the Command Box and the PC running the GestionSalleLGE and requires you to link the cable between the wall mount boxes.

It is composed of: the Control box (CmdBox) (1), a SubD9/RJ45 cable (2), two RJ45 plug Wall mount boxes(3), a RJ45/SubD9-Female power Cable (4), a 12 volt power supply (5)



### **III.2 Tools:**

The tools required to assemble or prepare all materials provided by LASER GAME EQUIPEMENT are:

- a 7 mm socket wrench.
- a Phillips screwdriver.
- a 3 mm hex key.
- An USB-serial converter to connect the RJ45/SubD9-Female power Cable on a USB port on your computer.

Note:

- An electric screwdriver can replace the socket wrench and screwdriver, and is also much more effective.
- In some game centers still equipped with L clips laser guns, an 8mm key may be useful.

## **IV. Maintenance :**

With the aim of encouraging your customers to repeat their visit to your center and always meet their quality requirements, fleet maintenance should be your main priority.

LASER GAME EQUIPEMENT has developed and implemented several tools to identify and more easily repair the most frequently encountered functional errors.

Your help and support is crucial both to identify potential failures, and to clearly describe your problem to us & as accurately as possible. The following procedures will help you in this way.

### **IV.1 Limits on Maintenance:**

LASER GAME EQUIPEMENT contractually agrees to repair:

- Laser laser gun Electronic cards.
- Vest Electronic cards.
- Control Box (CmdBox) electronic card.
- Connectors and cables.
- Laser laser gun triggers.
- Electronics within the laser laser guns.
- Front and back breastplates where the computer cards are embedded.
- Batteries.

Exceptions:

- Malfunctions due to an improper or abnormal use of the equipment.
- Modification, repair on equipment made a third party other than Laser Game Equipment.
- LASER GAME EQUIPEMENT is committed to provide the replacement of the equipment if the time to repair exceeds 10 days after receipt in LGEquipment offices (Only in France).

#### **Note:**

The seams on the vests (scratches, tears or other) are not covered by the maintenance contract.

### **IV.2 Useful maintenance tools:**

#### **IV.2.1 Automatic sending files:**

Each week once you boot the GestionSalleLGE software, and only if your PC is connected to internet, an email containing three files (TblErreurGilet.FIC, TblBat2.FIC and Trace log) is sent to LASER GAME EQUIPEMENT.

These files have a dual role: firstly, it will allow us to detect some failures not always identified by the operator of the center, particularly during vest testing described in paragraphs [IV.3.1](#) and [IV.3.2](#), and secondly they are indispensable tools for LASER GAME EQUIPEMENT to perform a quick and accurate analysis.

If you do not have an internet connection, it is important to send these files by other means, for example by transferring them to a USB key to send the files via another PC with an internet connection.

#### IV.2.1.1 **TblErreurGilet.FIC file:**

This file will allow us to detect early on the most common defaults, which are most of the time communication errors. More specifically, electrical failures on the laser gun cables on the RJ vest, or on the shoulders cables. Such problems are not easily identifiable if the customer does not mention the error at the end of the game play.

#### IV.2.1.2 **TblBat2.FIC file:**

This file, when processed in our office, will, among other things, allow us to have an overview of your fleet of batteries and quickly identify vests that have specific or recurring battery problems.

#### IV.2.1.3 **Trace,log file :**

This file allows us to have a global view of the different software components, CmdBox, Shields and Bases.

### IV.2.2 **Automatic assignment of Vest numbers:**

The software automatically manages GestionSalleLGE vest rotation taking into account the last vest that played the night before. This function allows you to have a good rotation of equipment, avoid premature wear of vest parts or batteries and keep all vests in the same condition.

For all these reasons, do not manually change this rotation, especially at the beginning of the day.

### IV.2.3 **Voltage test of Batteries:**

Each time you run GestionSalleLGE software, it is recommended to perform a battery voltage test. It is essential that the vests be turned on.

This test is a very good indicator of the operational condition of your fleet of batteries and / or chargers. It also provides a quick overview of batteries that have good or low charge overnight. Once the test performed, you can immediately extract from your equipment fleet, vests that are not full charged, which could result in equipment shut-down during game play.

#### **Note**

Extracting a vest from the fleet is made via the GestionSalleLGE software tab "Equipment" then "Vests".

### **IV.3 Vest Tests:**

In order to have an equipment fleet in the best possible condition; not only for the LASER GAME EVOLUTION brand image and respect for others within network, but to always satisfy our customers as well.

It is strongly recommended to perform a complete check-up, at least once a week, of all of your vests to detect any faults and problems before the customer.

The below procedures will allow you to verify that:

- ➔ all laser guns are firing.
- ➔ all speakers on the laser guns are functional.
- ➔ all laser guns vibrate.
- ➔ all laser guns and vest targets light all three colors.
- ➔ all laser guns and vest targets can be hit
- ➔ all the triggers of laser guns are working properly.
- ➔ all LCDs vests have a proper display.

you will find a sheet allowing you to identify the problems of each vest in section [VI.5](#).

If at the end of your tests you have found anomalies or malfunctions, refer to § [IV.4](#) to identify which units must be sent to LASER GAME EQUIPEMENT's maintenance staff.

#### **IV.3.1 Demonstration mode procedure:**

**Advantage: GestionSalleLGE software is not necessary.**

**Disadvantages:**

- ➔ All vests must be started in demo mode.
- ➔ The available time for testing is 20 minutes. After this period, the vest will reactivate with the magnet.

##### **IV.3.1.1 Checking LCD screens:**

While starting the vests in demo mode, check to see that the LCDs are displaying properly.

##### **IV.3.1.2 Vest Test 1:**

- Verify that all targets are illuminated in red.
- Press the trigger without shooting any vest target (in demo mode the laser gun sound turns off after the first hit is received) to ensure the laser gun makes noise & the laser light is continuous and that there is no problem with the trigger function.
- Shoot at the left shoulder target to ensure a proper hit. Also ensure that the laser gun vibrates.
- Verify that all vest targets are illuminated in yellow (if the previous shot has been taken into account).
- Shoot at the right shoulder target to ensure a proper hit.
- Verify that all vest targets are illuminated in blue (if the previous shot has been taken into account).
- With a third laser gun, verify that the vest target (plastron 1) is hit.
- Verify the center front, and right and left side target are hit.
- Verify the rear central, and right side, left and bottom targets are hit.

**Note**

There is no correlation between the ability of a target to be hit and its' color. It is not necessary to test whether a target is hit in all three colors.

**IV.3.1.3      Test the rest of your equipment fleet:**

- Verify that all targets of **ALL VESTS** are illuminated in red.
- Press the trigger without shooting any vest target (in demo mode the laser gun sound turns off after the first hit is received) to ensure the laser gun makes noise & the laser light is continuous and that there is no problem with the trigger function.
- Use vest No. 1 to shoot at all the front targets of the other vests.
- Verify that all the left shoulder targets are hit.
- Check to see that all vest targets are illuminated in yellow (if the previous shot was taken into account).
- Check to see that the right shoulder target is hit.
- Check to see that all targets on all the vests are illuminated in blue (take into account the previous shot).
- At the same time, ensure that the laser gun vibrates.
- Verify that the center front, and right and left side targets are hit, on all the vests.
- Verify that the rear central, and right side, left, and low targets are hit.

**IV.3.2   Procedure using the software GestionSalleLGE:**

**Advantage:** you may pre-set game play longer than 20 minutes.

**Disadvantage:** you must set-up, start and finish three game plays in 3 different colors via GestionSalleLGE software.

**Note:**

For this test it is advisable to disable automatic printing of results from GestionSalleLGE software to save the ink in your printer and result sheets.

**IV.3.2.1      Set the first game play:**

- with GestionSalleLGE software, prepare a free game play with all of your vests in red, with a 2 seconds pause between shots, allowing sound on all laser guns and set game play duration, at your convenience.
- Set and run the game play
- Verify that all vest targets are illuminated in red.
- Press the trigger without shooting any vest target (in demo mode the laser gun sound turns off after the first hit is received) to ensure the laser gun makes noise & the laser light is continuous and that there is no problem with the trigger function.

**IV.3.2.2      Test Plastron 1:**

- Verify that all targets are illuminated in red.
- Press the trigger without shooting any vest target (in demo mode the laser gun sound turns off after the first hit is received) to ensure the laser gun makes noise & the laser light is continuous and that there is no problem with the trigger function.
- Check to see that the left shoulder target is indeed hit when shooting it with the laser gun. At the same, ensure that the laser gun vibrates.
- Check to see that all vest targets are illuminated in yellow (if the previous shot was taken into account).
- Check to see that the right shoulder target is hit.

- Verify that all vest targets are illuminated in blue (if the previous shot has been taken into account).
- With a third laser gun, check to see that the target on the laser gun (vest 1) is hit.
- Verify the center front, and right and left side targets are hit.
- Verify the rear central, and right side, left and bottom targets are hit.

**Note**

There is no correlation between the ability of a target to be hit and its' color.

#### IV.3.2.3      **Test the rest of your equipment fleet:**

- Use vest No. 1 to shoot at the targets on the other vests.
- Check to see that all the left shoulder targets are hit.
- Check to see that all the right shoulder targets are hit.
- Ensure all laser gun targets are hit. Also ensure that the laser guns vibrate.
- Check to see that the center front, and right and left side targets are all hit.
- Check to see that the rear central, and right side, left, and low targets of all vests are hit.

#### IV.3.2.4      **Setting-up the second game play:**

- End the previous game play
- Via GestionSalleLGE software, run a free game play with all your vests in yellow.
- Ensure that all targets are illuminated in yellow.

#### IV.3.2.5      **Setting-up the last game play:**

- End the previous game play
- Via GestionSalleLGE software, run a free game play with all your vests in blue.
- Ensure all targets are illuminated in blue.
- End the game play and set automatic printing of results via Gestion Salle LGE

## **IV.4 Failure Diagnostic procedures:**



Carefully follow the procedures and strive to be rigorous about maintenance, especially with vest testing and on your maintenance requests. The transmission of the TblErreurGilet file allows for a proper equipment rotation and reduces maintenance downtime. With the extra laser guns provided by LASER GAME EQUIPEMENT, you shouldn't have any equipment downtime. Being reactive, as opposed to proactive towards fleet maintenance will delay your centers' operations.



**The procedures that follow, are valid only if you personally have identified the malfunctions.**

When a customer reports a problem with the V2 equipment during or at the end of game play, it is essential to personally verify the error and not rely solely on the customer's assumptions. If you base your malfunction solely on the customers' assumptions, you risk shipping the equipment unit for maintenance unnecessarily. However, if you are unable to verify the malfunction (at the time or after performing a vest Test as described in § [IV.3.1](#) and § [IV.3.2](#)), it is recommended to keep a record, monitor this vest through the GestionSalleLGE software, "Hardware" tab in the main menu and sub-menu "Monitoring Equipment". Record the malfunction, described by the customer, the date and time the problem occurred and inform staff that the vest needs to be monitored. If several customers complain about the same problems and you are unable to conclude after completing the check-list, you will then need to contact us. Together we will agree on how to proceed.



**Before sending a unit to our office for maintenance, you must record the order via the website ( <http://lge.lasergame.fr/staff/index.php> ) to be repaired (see § [IV.5.1](#)).**

With the information you detail on the website, we may already begin our analysis before starting repairs. Shipping a vest or a laser gun with only the information "Out of order" or "not working" will lead to a long time downtime for maintenance. The error may not be exactly the same upon arrival (due to shocks and vibrations during the transport, for example).

Precise information about the malfunctions you encountered will allow us to repair and return your equipment rapidly, not only for your benefit, but for other LASER GAME EVOLUTION centers waiting for maintenance.

The maintenance sheets § [VI](#), and procedures that follow will guide you and will allow you to determine which maintenance units to send us.

For example, if the malfunction concerns just the laser gun, it would be better for you to keep the vest and use the extra maintenance laser gun rather than send us the complete vest for maintenance.

### **Note:**

The maintenance sheets are important tools that allow a precise analysis of the maintenance unit problem. These check-lists should always be kept on hand in a

convenient location for rush shipments (if you are not certain, do not hesitate contact us).

When a failure is detected on a vest, it is essential, via the GestionSalleLGE software, to indicate this vest in a maintenance state. This automatically allows us to extract this vest from the fleet, and no longer supply it to customers.

#### **IV.4.1 Laser guns:**

##### **IV.4.1.1 If a laser gun is requested by e-mail in response to TblErreurGilet.FIC file transmission:**

**Return the laser gun** (see § [IV.5.2.1](#)).

**Action Code:** "laser gun requested by the maintenance service."

##### **IV.4.1.2 If the laser gun no longer fires at all:**

Check to see that the target lights and the laser gun vibrates.

- If the target does not light up and it does not vibrate:

Connect the laser gun to a working vest.

- If the laser gun shoots:

**Return the laser gun** (see § [IV.5.2.1](#))

**Action Code:** "Communication between laser gun and vest is interrupted"

- If the laser gun still does not fire:

**Return the vest** (see § [IV.5.2.2](#))

**Action code:** "communication socket is damaged."

- if the target lights and the laser gun vibrates:

**Return the laser gun** (See § [IV.5.2.1](#))

**Action Code:** "Communication with the vest is OK but no LASER."

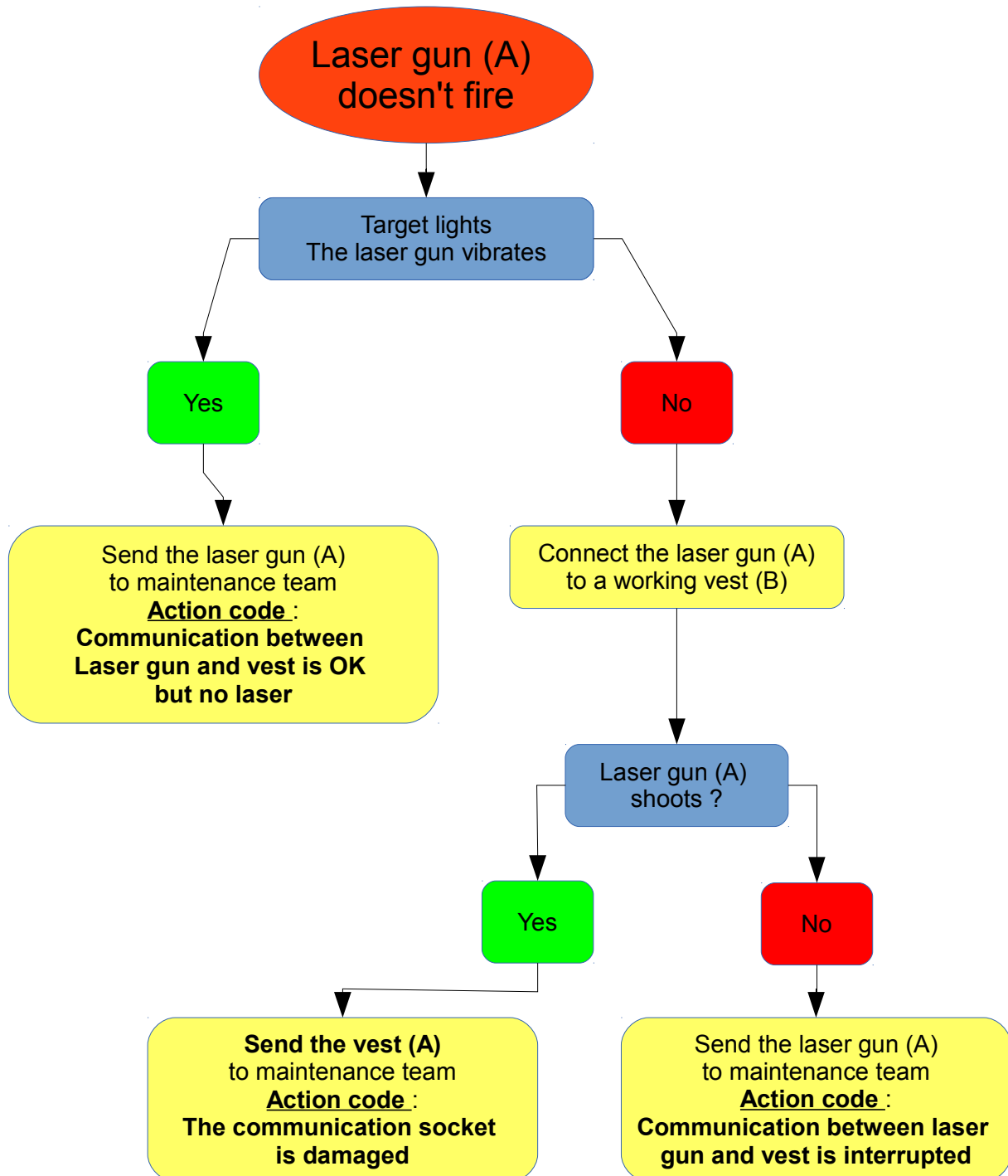


**You can print and keep a copy of the diagram in the next page to make a quick and easily diagnosis**

#### **Diagram 1: If the laser gun no longer fires at all:**

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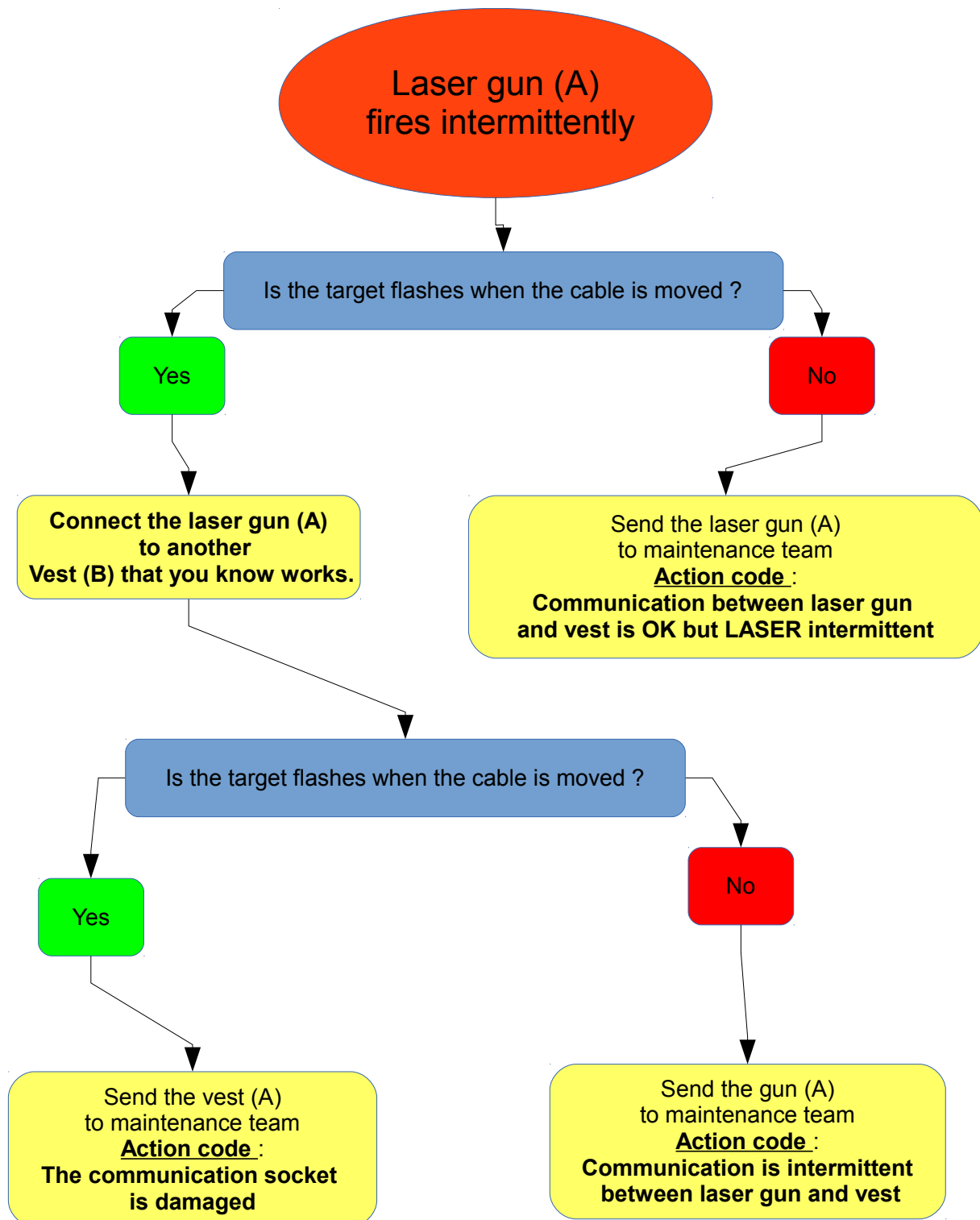
#### IV.4.1.3 If the laser gun fires intermittently:

- If moving the laser gun cable, the target of the laser gun flashes three colors:
- Connect the laser gun to another vest that you know works.
- If moving the laser gun cable, the target of the laser gun continues to flash the three colors:
- **Return the vest** (See § [IV.5.2.2](#))
- **Action code:** "The communication socket is damaged"
- If moving the laser gun and cable, the laser gun's target no longer flashes the three colors:
- **Return the laser gun** (See § [IV.5.2.1](#))
- **Action Code:** "communication is intermittent between laser gun and vest"
- If moving the laser gun cable, the target of the laser gun is not flashing three colors:
- **Return the laser gun** (See § [IV.5.2.1](#))
- **Action Code:** "Communication between laser gun and vest is OK but LASER intermittent"



**You can print and keep a copy of the diagram in the next page to make a quick and easily diagnosis**

**Diagram 2:If the laser gun fires intermittently:**



#### IV.4.1.4 If there is no problem with the laser and the laser gun does not flash all three colors:

**Return the laser gun** (See § [IV.5.2.1](#))

**Examples of action codes:** "The laser gun does not vibrate.", "The laser gun target does not light at all.", "The laser gun target does not light in Red or Blue, or Yellow ... ", "The laser gun target laser gun does not receive hits. ", "There is no sound on the laser gun. ", "The trigger is broken. ", "The laser gun does not easily hit targets on other vests. "...

#### IV.4.2 vests:

##### IV.4.2.1 If the vest does not turn on (front nor back are illuminated)

Put your hand on the battery.

- If the battery is hot:

**Wait a few minutes to cool.**

- If its temperature is normal:

Check the terminal connection or white connectors (depending on how the vest is equipped) between the battery and the vest (for vests fitted with white connectors, push the cables of the battery and vest in the direction of the connectors).

- If the terminals or white connectors are poorly engaged:

**Reconnect terminals or white connectors.**

- if the terminals and white connectors are well connected:

Check the battery voltage.

- the voltage is less than 6 Volts:

**See point IV.4.4. Or diagram 5.**

- If the voltage is greater than 6 Volts:

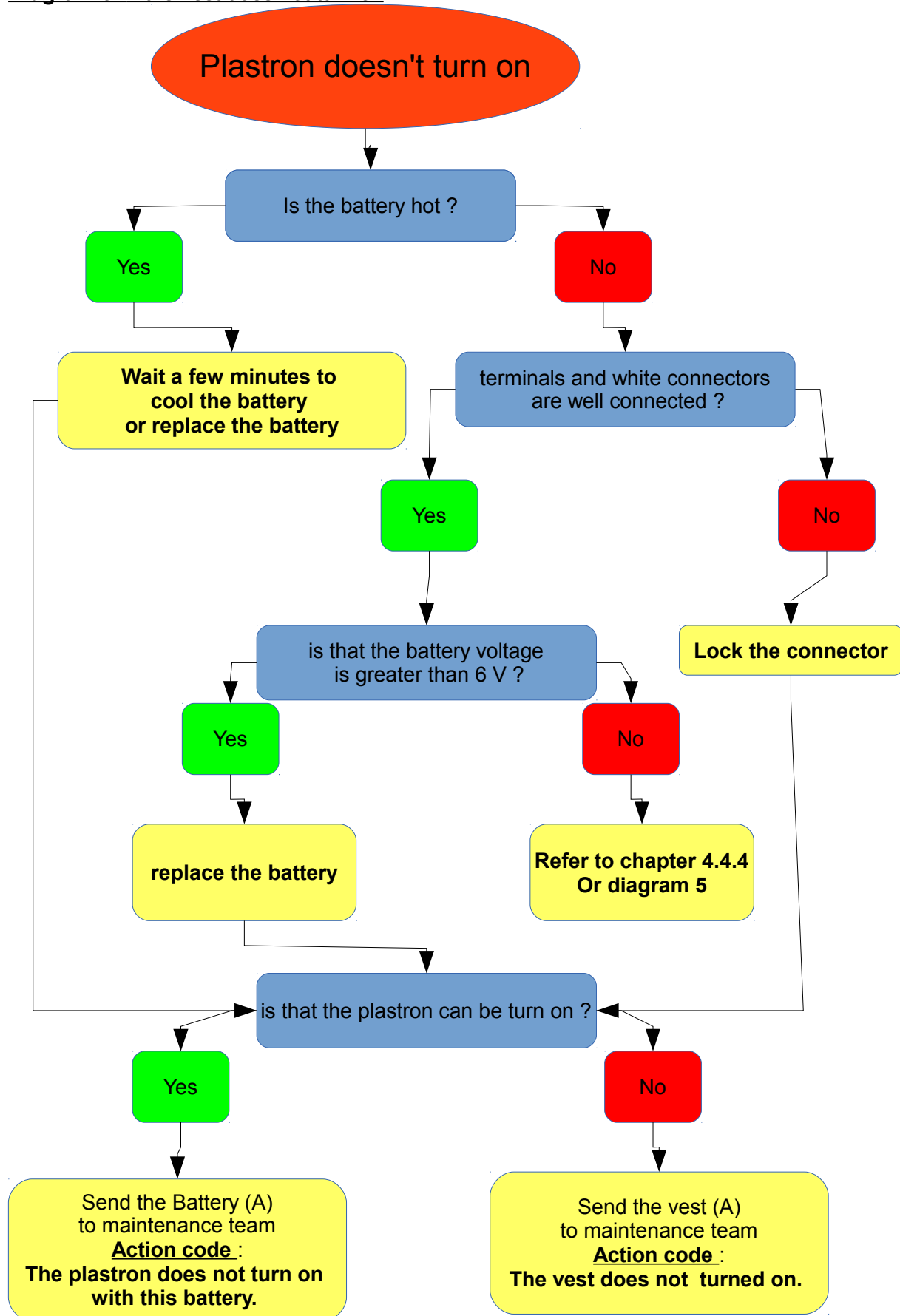
**Replace the battery with another that you know is working.**

- If the vest is turned on with the new battery:
- **Return the battery** (see § [IV.5.2.3](#)).
- **Action Code:** "The vest does not turn on with this battery. "
- If the power is still not on the vest:
- **Return the vest with its battery** (§ [IV.5.2.2](#))
- **Action Code:** "The vest does not turn on."



**You can print and keep a copy of the diagram on the next page to make a quick and easily diagnosis**

**Diagram 3:** If the vest does not turn on



#### IV.4.2.2 If when turning on the vest, only the rear target flashes:

Disconnect the laser gun.

- If the front of the vest does not turn on:

**Return the vest** (See § [IV.5.2.2](#) )

**Action Code:** "Communication does not work on the front."

- If the front of the vest lights:

Connect a laser gun that you know works. Reboot the vest.

- If the front of the vest lights:

**Return the laser gun** (See paragraph [IV.5.2.1](#) )

**Action Code:** "Communication between the laser gun and the vest is blocked."

- If the front of the vest does not turn on:

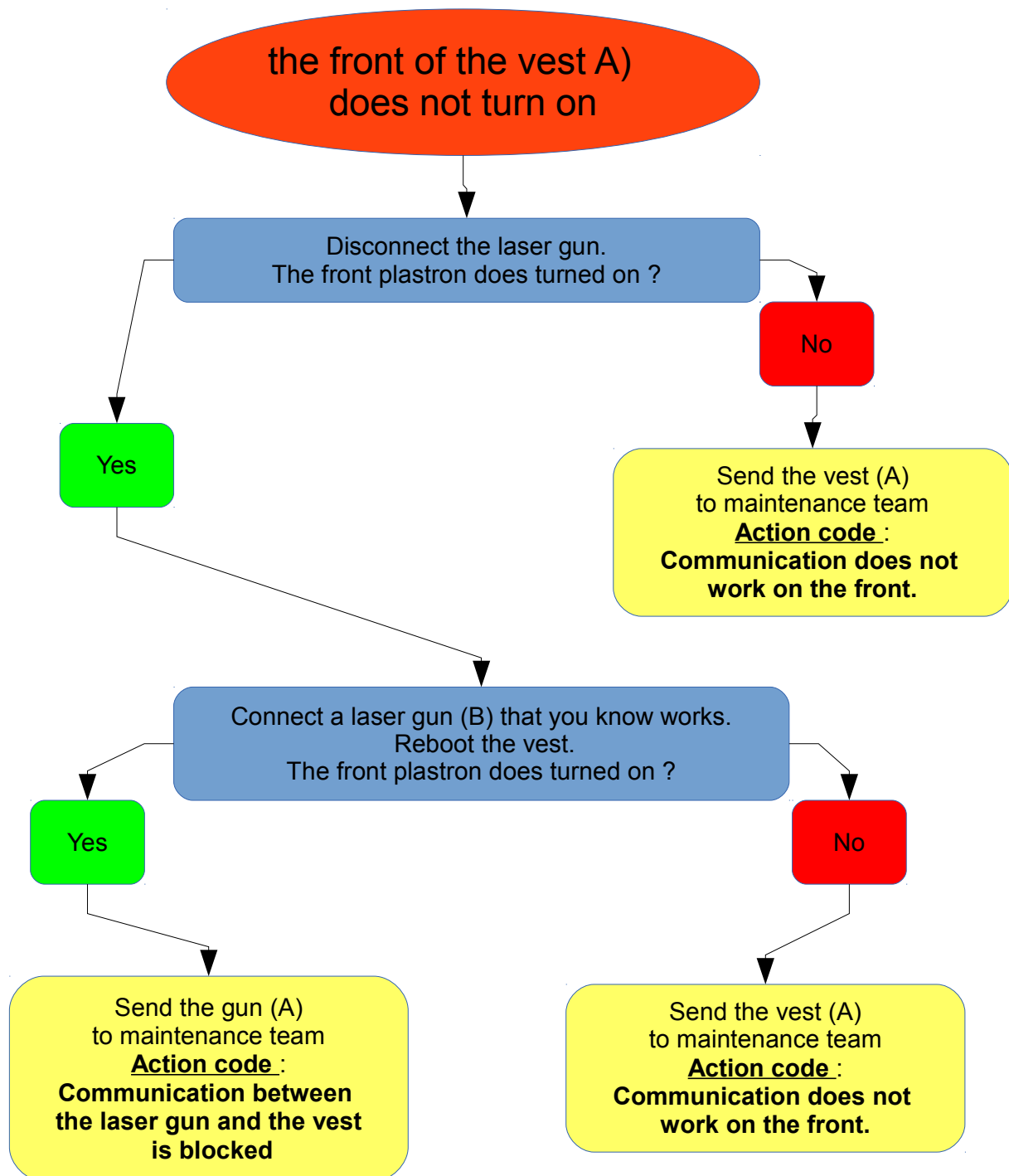
**Return the vest** (See paragraph [IV.5.2.2](#) )

**Action Code:** "Communication does not work on the front."



**You can print and keep a copy of the diagram on the next page to make a quick and easily diagnosis**

**Diagram 4:** If when turning on the vest, only the rear target flashes



#### IV.4.2.3 **If the vest stops working during game play:**

I.e. the display is off, all targets on the vest are off and you are unable to restart it with the magnet:

**Please refer to point [IV.4.2.1](#).**

#### IV.4.2.4 **If the vest is reset or the front sometimes flashes the three colors:**

I.e the vest reacts as if you had turned it off and then turned it on:

**Return the vest** (See § [IV.5.2.2](#))

**Action Code:** "The vest resets or flashes the 3 colors."

#### IV.4.2.5 **Miscellaneous:**

**Return the vest** See § [IV.5.2.2](#))

**Examples of action codes:** "The laser gun clip is no longer functional.", "Shoulder cable clip is no longer functional.", "One or more targets on the vest no longer light up." One or more targets on the vest no longer receives hits. ", " The LCD displays garbled characters. ", " The LCD does not turn on. "

### IV.4.3 **Control box (CmdBox) :**

The CmdBox and wiring are often the source when the software indicates a communication problem.

- If after restarting the software GestionSalleLGE the problem persists:

Check to see if the screen CmdBox is turned on.

- If the screen is not turned on:

Check the connections from the CmdBox to the power, behind the PC.

- If everything is connected:

Turn off the GestionCommerciale software and replace the power supply by the "rescue."

- If the screen does not turn on:

Turn off the software and replace GestionCommerciale CmdBox by the "rescue."

- If the screen does not turn on:

Immediately turn off the CmdBox, turn off GestionCommerciale software and proceed with the direct connection as described on § [III.1.1](#) using **only** the elements in the "rescue briefcase".

- If the screen does not turn on:

Contact LASER GAME EQUIPEMENT.

- Otherwise reconnect concerned cables.



**Without the CmdBox, your operations will be strongly disturbed or completely blocked. Therefore, for each problem on the CmdBox, it is imperative to:**

- **Contact LASER GAME EQUIPEMENT to keep them informed.**
- **Return the concerned item as soon as possible for repair or exchange.**

#### **IV.4.4 Batteries and Chargers:**

If a recurring charge problem is identified on a vest:

Check your charger with the LASER GAME EQUIPEMENT tester.

- If the test is negative for the charger (no light on the white LED):

**Return the charger** (see § [IV.5.2.4](#))

**Action Code:** "Negative test for charger."

- Otherwise, if the test is positive (white light LED lights on)

Remove the vest battery and charge it with an adapter provided by LASER GAME EQUIPEMENT.

- If the battery still does not charge:

**Return the battery** (see § [IV.5.2.3](#))

**Action Code:** "The battery does not charge."

- Otherwise if the battery is charging normally:

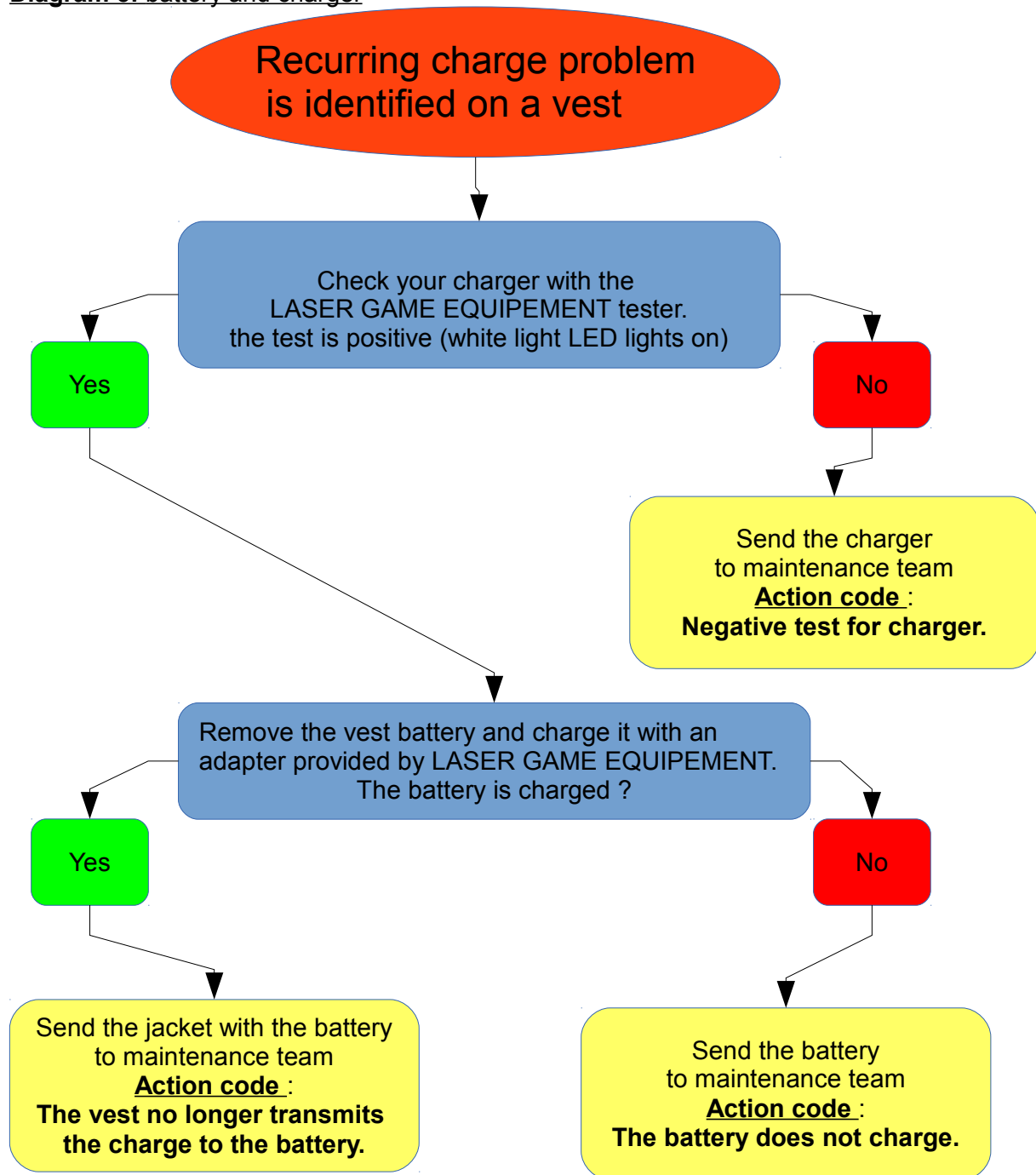
**Return the vest along with the battery** (see § [IV.5.2.2](#)).

**Action Code:** "The vest no longer transmits the charge to the battery."



**You can print and keep a copy of the diagram in the next page to make a quick and easily diagnosis**

**Diagram 5:** battery and charger



## **IV.5 Preparation and reception of the maintenance units:**

### **IV.5.1 Complete maintenance form:**



Before sending any maintenance unit to our office you must fill in the form available on the maintenance website ( <http://lge.lasergame.fr/staff/index.php> ) in order to be submitted.

Login to the website by entering your access code provided by LASER GAME EQUIPEMENT upon delivery of your "open pack".

Click on the "Maintenance" tab, then select the maintenance units concerned, and finally describe the problems via the maintenance forms to guide you. Follow the instructions on the screen.

### **IV.5.2 Preparation of maintenance units:**

#### **IV.5.2.1 Laser laser gun:**

When sending in a laser laser gun for maintenance, the laser gun must always be shipped with its vest clip, either U or L ones:



Laser guns received without their clips cannot be repaired. This clip is an essential element in the process of changing the laser gun cable. You may dismantle it from the vest with the 7 socket wrench and BTR 3 key.

#### **IV.5.2.2 Vest:**

Disassemble the laser gun as above described and send only the vest.



For older vest versions, the tightening strap is not included in the inside of the vest seam. It is therefore important to ensure that it does not go above the shoulder cables and laser gun, but below, to avoid premature wear.

#### IV.5.2.3 **Battery:**

To return a battery for maintenance, unplug the white connector or red terminals.



To prevent premature battery wear, it is necessary to replace it correctly on the back breastplate:

The rubber feet of the battery are placed at bottom, the flat side is facing the inside of the breastplate(1), white connector or red terminals are located on the side of the battery, the battery wiring is located above (2). Finally the battery is lodged inside the slot (3) and the flap is properly fastened (4).

1



2



3



4



#### IV.5.2.4 **Charger:**

Unless requested by LASER GAME EQUIPEMENT, chargers must be returned without their power cord.

#### IV.5.3 **Package receipt from the Maintenance Service:**

Before signing the receipt, it is important to always check that the delivery corresponds to the contents of the package.

If the package contains:

vests: place them in the equipment room on their supports and update your vest fleet in your GestionSalleLGE software.

- Vests: before replacing in the equipment room, connect the laser guns that share the same vest numbers (eg connect vest 18 to laser gun 18). The vest number is displayed on the screen when it is turned on.
- Laser guns: as for the vests, put the right laser gun number with the right vest number. If necessary replace the returned laser gun from repair to the maintenance laser gun.

## **V. Safety and Recycling:**

### **V.1 Safety:**

#### **V.1.1 Laser Compliance:**

The lasers used for the manufacture of laser laser guns are class 2 (class two), this means that the maximum output power of 1 mW (a milli-watt) is in accordance with international standards (see EC DECLARATION OF CONFORMITY and FCC , IC CONFORMITY ).



The production cycle is as follows:

- Verification for each laser for the 1 mW power, upon delivery of the laser by our supplier.
- Mounting laser laser guns.
- Check for each end-product the power produced by the laser.

A file contains the statements of measurements:

At the end of the production cycle (all devices).

Each year (all devices).

- During a maintenance (equipment concerned).

#### **Note:**

A certificate of laser conformity is provided and renewed each year for every center belonging to Laser Game Evolution network to inform and reassure our customers with regard to compliance with the current standards.

### **V.1.2 Low voltage standard:**

The vest is powered by an AC / DC power (see EC DECLARATION OF CONFORMITY AND FCC, IC CONFORMITY).



In case of battery failure it must be replaced with a same type battery and exclusively provided by LASER GAME EQUIPEMENT.

There is a risk of explosion if battery is replaced by an incorrect battery type.

Specifications:

- 6V 4.5 Ah NiMH battery
- Charge the NiMH battery with a compatible charger, to the external socket with the (-) in the center and the (+) around.

### **V.2 Recycling:**

**Professionals generating electrical waste and electronic equipment are now responsible for their disposal.**

#### **LV2 on NiMH batteries:**

defective batteries must be returned to LGE, who will in turn send them back to the supplier. Accordance with the ROHS European directive(see EC DECLARATION OF CONFORMITY.

## **VI. EC DECLARATION OF CONFORMITY**



## DECLARATION OF CONFORMITY

LASER GAME EQUIPEMENT  
21, rue colonel DUMONT  
38000 GRENOBLE  
France

declares that the product reference: PLASTRON LV2

is conforms with the following European Union directives and product specifications list below :

### Electrical safety:

Conforms to European directive 2006/95/EC on the harmonization of the laws of Member States relating to electrical equipment designed for use within certain voltage limits.  
Product specifications : EN 60950-1 :2006 + A1:2010 + A12:2011.

### LASER safety :

Conforms to European directive 2006/25/EC on the minimum health and safety requirements regarding the exposure of workers to risks arising from physical agents (artificial optical radiation) (19th individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)  
Product specifications : EN 60825-1:2008

### CEM:

Conforms to European directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC.  
Product specifications : EN 55024 (1998) , EN 55022 (1998)+A1 (2000)

Conforms to European directive 1999/5/EC on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity.  
Product specifications: ETSI EN 301 489-1 V1.4.1 (2002-08) , ETSI EN 301 489-3 V1.4.1 (2002-08), ETSI EN 300 220-1 V1.3.1 (2000-09), ETSI EN 300 220-3 V1.1.1 (2000-09)

### ROHS:

Conforms to European directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Xavier Pouillat manager of LASER GAME EQUIPEMENT company



## VII. FCC AND IC COMPLIANCE

This device complies with FCC and Industry Canada RF radiation exposure limits set forth for general population (uncontrolled exposure). This device must not be collocated or operating in conjunction with any other antenna or transmitter.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

*Changes or modifications not expressly approved by LASER GAME EQUIPEMENT could void the user's authority to operate the equipment.*

*NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:*

- Reorient or relocate the receiving antenna.*
- Increase the separation between the equipment and receiver.*
- Connect the equipment into an outlet on circuit different from that to which the receiver is connected.*
- Consult the dealer or an experienced radio/TV technician for help.*

## VIII. Annexes :

### **VIII.1 Laser laser gun Maintenance sheet:**

# LASER GUN

|          |  |
|----------|--|
| Number : |  |
| Date :   |  |
| Hour :   |  |

|                                      | yes | no |
|--------------------------------------|-----|----|
| Doesn't fire at all                  |     |    |
| Fires intermittently                 |     |    |
| Is the target reacting to the laser? |     |    |
| Power out                            |     |    |
| Target lights up but not all colors  |     |    |
| Flashes 3 colors                     |     |    |
| Vibrates                             |     |    |
| Produces a sound                     |     |    |
| Problem on the trigger               |     |    |

| Remarks : |
|-----------|
|           |

### **VIII.2 Vest Maintenance sheet:**

# VEST

|          |  |
|----------|--|
| Number : |  |
| Date :   |  |
| Hour :   |  |

|                                                   | yes | no |
|---------------------------------------------------|-----|----|
| Front target doesn't light up at all              |     |    |
| Front target doesn't light up all colors          |     |    |
| Front target doesn't react to hits                |     |    |
| Only certain front targets react to hits          |     |    |
| Rear target doesn't light up at all               |     |    |
| Rear target does not light up at all              |     |    |
| Rear target can't be hit                          |     |    |
| Only certain rear targets are hit                 |     |    |
| Left shoulder target doesn't light up at all      |     |    |
| Left shoulder target doesn't light up all colors  |     |    |
| Left shoulder target can't be hit                 |     |    |
| Right shoulder target doesn't light up at all     |     |    |
| Right shoulder target doesn't light up all colors |     |    |
| Right shoulder target can't be hit                |     |    |
| Display does not light up at all                  |     |    |
| Display lit but not clear to read                 |     |    |
| Display with incorrect characters                 |     |    |
| 3 colors flash on vest front                      |     |    |
| Does the battery voltage light up?                |     |    |
| Is there voltage in the vest?                     |     |    |

|           |
|-----------|
| Remarks : |
|-----------|

## **VIII.3 Battery / Charger Maintenance sheet:**

# BATTERY – CHARGER

|                             | yes | no |
|-----------------------------|-----|----|
| <b>Battery</b>              |     |    |
| Problem with the connection |     |    |
| Wire torn or unhinged       |     |    |
| Voltage                     |     |    |

Remarks :

|                          | Yes | No |
|--------------------------|-----|----|
| <b>CHARGEUR</b>          |     |    |
| Charging plug damaged    |     |    |
| Damaged or bare cable    |     |    |
| Indicator lights working |     |    |

Remarks :

#### VIII.4 Organization Chart:

# Organization chart

All employees are to sign under their respective title. The signature certifies having read the Operating Manual.

|                           |               |
|---------------------------|---------------|
| <b>GAME CENTRE NAME :</b> | <b>DATE :</b> |
|                           |               |

|                                              |
|----------------------------------------------|
| <b>OWNER</b>                                 |
| Name :<br>Surname :<br>Mobile phone number : |

|                                              |
|----------------------------------------------|
| <b>MANAGER</b>                               |
| Name :<br>Surname :<br>Mobile phone number : |

|                                              |
|----------------------------------------------|
| <b>MANAGER</b>                               |
| Name :<br>Surname :<br>Mobile phone number : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

|                                     |
|-------------------------------------|
| <b>EMPLOYEE</b>                     |
| Name :<br>Surname :<br>Position * : |

\* Position: Team leader, Animator, Team Member

### VIII.5 Vest test sheet:

[illegible]