



## RF LOADERBOARD KIT

### Empire RF Loader Board kit Instructions

Thank you for purchasing the Empire RF Loader board Kit! Please read all directions BEFORE starting any work. Any damages caused to your new Empire RF control board or to your loader as a result of attempting to install this upgrade kit are not the responsibility of the manufacturer. If you do not feel comfortable attempting this installation based on these terms, or if you need technical assistance during installation, please contact us at [www.paintballsolutions.com](http://www.paintballsolutions.com).

If you are not comfortable installing this kit, Paintball Solutions will install this kit into your hopper at no additional charge. Send this kit and your hopper prepaid to the address above, along with your name, return address and daytime telephone number.

Tools required for installation:

#1 size Phillips screwdriver and a medium size flat head screwdriver

This kit contains:

- (1) Empire RF/ Sound Control Board
- (1) Empire Back Plate

Getting started:

- 1) Clear a neat space to work. If possible, spread out a large, light-colored towel or paper towels on a flat surface.
  - 2) Remove any paintballs from your hopper. Remove your hopper from your marker.
  - 3) Remove the battery pack from the hopper. Consult your hopper's owners manual for help if necessary. Place battery pack aside where it will not come in contact with any liquids or metal objects during installation.
  - 4) Open the hopper's lid.
  - 5) Use a #1 Phillips screwdriver, loosen and remove the screws in the right side shell. It may be necessary to use one of the long screws to screw through the nuts in the left side shell in order to push out the screws completely. Pay close attention to which screws go into which holes for reassembly. Place screws in a safe place until you're ready to put back in the end.
  - 6) With all screws now completely removed from the holes, begin just slightly separating the two shell halves. As the two halves are separating, all internal components should remain in the left side shell while the right side shell is removed by itself. If necessary, use a very small screwdriver to push the control board back plate and control board toward the left side shell while removing the right side shell. The on/off button of the control board extends through the back plate, so if the control board and back plate are not kept in alignment, the on/off button will snap off and destroy the control board. Remove the right side shell completely.
  - 7) Remove the lid and lid pin, leaving the lid spring in its groove in the shell. . Be careful not to loose the lid spring as it is small and easily lost.
- DO NOT BREAK THE ON/OFF BUTTON ON THE CONTROL BOARD.  
YOU MAY USE THIS BOARD AT A LATER DATE.
- 8) Remove the control board and back plate together now from the left side shell. Unplug the control board from motor harness and sensor harness (Halo only). Place off to the side. These items are no longer needed. We recommend placing them in the package at the end of the installation and placing the package in your original box for safe keeping.
  - 9) Remove the Sensor harness if installing this board on a Halo loader as it will not be used.
  - 10) Plug the motor harness into the new Empire RF control board.

WARNING:

DO NOT BREAK THE ON/OFF BUTTON ON THE CONTROL BOARD. THE BOARD WILL NOT FUNCTION AND WILL NOT BE REPLACED BY THE MANUFACTURER.

11) Install the Empire RF control board and back plate into the left side shell. Be careful not to break the button on your new control board. Start by seating the back plate into the upper and lower grooves in the shell. Then gently fit the control board in under the back plate. Now slide both items in until the circuit board is seated fully into the corner slots in the shell just behind the groove for the back plate.

12) Install the lid and lid pin back into the left side shell.

13) Begin installing the right side shell back onto the left side shell. Holding the left side shell slightly tilted, start by seating the groove of the right side shell onto the back plate. Slide about halfway on, and then seat the hole in the right side shell onto the lid pin. Be sure the right side shell is seating properly onto the drive assembly and that the back plate is still in the groove in both shell halves. Before joining the halves together completely, when there is just about a quarter-inch gap between the two shell halves, it is necessary to tuck the last coil of the anti-jam spring under the lip of the right side shell that meets the top of the drive assembly. To do this, use a medium size flathead screwdriver to push the coil from its right side .It should tuck under the lip of the right side shell and stay there when you remove the screwdriver. Now join the two halves together completely, making sure the nut for the battery door screw seats into both shell halves and there are no gaps.

14) Be sure at this point that the lid spring is acting to keep the lid open with its own force.

15) Insert and tighten just the center screw. The screws do not need to be very tight, just snug enough to join the two shell halves in the area around them. At this point, connect the original battery pack to the battery harness. Turn the unit on as described below and test the loader before fully reassembling it. If the loader is operational, unplug the battery pack. Now insert and tighten the rest of the screws.

16) Plug battery harness into battery pack and insert into loader. Insert battery door so that it aligns tightly to the shell with very little force. Insert screw and tighten. Do not over tighten screw as it can break the battery door.

Powering on the loader

Push and hold in the power button. When you first hold in the power button a green LED will appear. Continue to hold in the power button until the LED changes to red then goes off. Now release the button before the white LED comes on. The white LED will then go off and the loader will spin once to prime the drive cone. The loader will have a green flashing Led when on. When an RF signal is received, the Led will flash blue when on.

Using the loader in Sound mode

When the loader is first turned on it will be in sound mode. It will always be in sound mode until a RF signal is received from your marker. If RF mode is being used you can switch back to sound mode by pushing the power button 1 time and the Led will switch back to flashing green. If the power button is pushed 3 times after the loader is turned on it will lock into sound mode.

Using RF mode

To use the loader in RF mode the RF transmitter has to be installed in your marker correctly. When the loader is in RF mode the Led will flash Blue once a signal is received from your marker. Once the RF mode is on the Sound mode will be deactivated unless turned back on. When the loader is in RF mode the loader will spin every 5 seconds to keep tension on the ball stack.

Synchronizing loader to your marker:

- 1) Turn on the loader.
- 2) While the loader is on, press and hold the power button, the Led will turn Red.
- 3) Continue to hold the Power button while the Led is Red, when the Led changes to amber press the trigger of your marker. If done properly the Led will change to green after the trigger is pulled and your loader is now synchronized to the marker.

## Turning off the RF board

Press and hold the power button until a Red Led appears. Release the power button and your loader is now off. If the loader is left on, it will shut off after 1 hour of inactivity.

## Adjustable settings

There are 3 settings which can be changed in programming mode

- 1) Adjustable motor speed: 6 Levels: increase BPS
- 2) Adjustable sound sensitivity: 6 Levels: Helps detect every shot during rapid firing, increase BPS. Adjust to match your marker. If the sound sensitivity is set too high the loader will feedback a Red Led after shooting. Lower the setting to match your marker. This setting is only used in Sound Activation mode.
- 3) Spring tension monitoring: This feature monitors the drive cone spring tension. This helps prevent ball breaks from overpowering the drive cone. Also this feature determines when the drive cone is empty and motor speed is slowed down to help prevent ball breakage when hopper is very close to empty. Enabling this feature will increase the battery life and reduce ball breaks but may slightly reduce the top speed of the hopper.

## Programming

- 1) Make sure the loader is turned off. Push and hold in the power button. When you first hold in the power button a green LED will appear. Continue to hold in the power button until the LED changes to red then goes off. You may now release the button before the white LED comes on and then press it again when the white LED comes on to enter programming mode, or just continue holding the button until the white LED comes on and it will change to red and you are now in programming mode.
- 2) The Green Led will flash the motors current speed setting (1 slowest - 6 fastest)
- 3) The Orange Led will flash the microphones current sensitivity setting (1 less sensitive - 6 most sensitive)
- 4) The Red Led will flash the current spring tension monitoring setting (1 off - 2 on)
- 5) The Green Led will come on for 1 second. If changing the speed setting is desired press and hold the power button again during this flash. When the Led turns to Red the new setting can be entered. Now push and release the button the number of times necessary based on the setting you desire. Each time the button is pushed a green Led will appear. After the new setting is entered the Green Led will flash the new setting.

6) The Orange Led will come on for 1 second. If changing the sensitivity level setting is desired press and hold the power button again during this flash. When the Led turns to Red the new setting can be entered. Now push and release the button the number of times necessary based on the setting you desire. Each time the button is pushed a green Led will appear. After the new setting is entered the Orange Led will flash the new setting.

7) The Red Led will come on for 1 second. If changing the spring tension setting is desired press and hold the power button again during this flash. When the Led turns to Red the new setting can be entered. Now push and release the button the number of times necessary based on the setting you desire. Each time the button is pushed a green Led will appear. After the new setting is entered the Red Led will flash the new setting.

Note: It is better to have the microphone setting less sensitive and still able to detect the marker firing. Do not set it to 6 if setting 2 detects the marker firing. Only use a higher setting if the lower setting does not detect the marker firing.

## RF transmitter

To use the loader in the RF mode, you must install an Empire RF transmitter in your marker. Please see the RF transmitter instructions included in the RF transmitter kit. (Sold separately)

## Warranty Information

Empire Paintball Products warranties this Empire RF control board from defects in materials and workmanship under normal use and service for a period of 90 days from original purchase date. The manufacturer agrees to repair or replace any part which has been found to be defective. Damage to the circuit board due to disassembly of the product is not covered under this warranty. In the event that this product is defective and needs repair call Paintball Solutions. If are customer service department asks for the loader to be sent in for repair. Place the circuit board inside a box, along with your name, return address, daytime telephone number, a brief description of the problem, and a copy of your original sales receipt.

Send to:

Paintball Solutions  
570 Mantua Blvd.  
Sewell, NJ 08080  
800-220-3222  
[www.paintballsolutions.com](http://www.paintballsolutions.com)

**It is the responsibility of the purchaser to pay for shipping fees of the product to the repair facility during the warranty period.**

**Troubleshooting: If you experience any difficulties with operating this product, and you have not found the solution in this manual, please call 800-220-3222, or visit on the internet at <http://www.paintballsolutions.com>.**

## Warranty Registration

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