#### Gears of War 2 Rapid fire + Perfect Active Reloads Microchip for wireless CG and CG2 controllers

This tutorial is designed to aid you in installation of a console customs Gears of War Rapid fire + Perfect Active Reloads microchip. This chip Requires a CG (common Ground) Controller. There are two types of common ground controllers and a third controller type that is not common ground. The next page Explain how to tell which controller you have an

This installation requires soldering several wires to extremely small confined spaces. We do not advise attempting this installation if you are a beginner at soldering. We recommend reading through all of the instructions and understand them before beginning your installation.

WARNING: Please proceed with this installation at your own risk. We will not be held responsible for any damage to yourself, your controller, your Xbox 360 console or any other equipment.

This tutorial requires opening your controller which will void the warranty of your controller.

#### Tools needed:

- Torx T8 Security/tamper proof driver (For opening wireless controller)
  - Soldering iron (A 15w/30w from radio shack is about \$12)
- Solder (rosin core solder from radio shack works great and there is no need for flux \$4)
  - Wire strippers (that can strip 30ga wire)
    - Wire cutters
    - Hot glue gun
  - 9/64<sup>th</sup> drill bit (or close to it a 1/8<sup>th</sup> will also work)
    - Small pocket knife or razor blade

Please visit our website at www.consolecustoms.com

# **Controller Identification**

• Before you get started you need to make sure that you have the correct controller type for this installation. Our RFX-5X Xtreme Chip requires a CG or CG2 PCB inside your controller. This chip CANNOT be installed into a matrix style controller. The Left side images show the board from behind the battery door (no need to open the controller) and the right side is with the controller open.



#### Matrix PCB

From the battery door area you can see that there is no Capacitor on the left side while the other two versions do have a capacitor.





#### CG PCB

From the battery door area you can see that the Capacitor is horizontally oriented.





#### CG2 PCB

From the battery door area you can see that the capacitor is vertically oriented.



First lets start by looking at what is in your kit.

- You should have the following items in your kit
  - 1. (1) 8 pin PIC microcontroller
  - 2. (2) Buttons
  - 3. (1) 10k Resistor
  - 4. 30ga. Wire (We include multiple colors)



- Step 1: Below is an overview of the Chip on its back (dead bug) with the use of each pin labeled. Note the location of the notch that is on the top of the chip, the pin numbers and their purpose.
- In this installation we will be using all of the pins on the chip.



Step 2: Install the Resistor.

• You will need to solder the included resistor between pins 1 and 4. This will allow the button you will attach to pin 4 later to function properly.



### Step 3: You will now attach the wires to the chip.

#### Left Image

- Pin 1 (red wire) is for Power and should be 2.5 Inches long.
- Pin 2 (White wire) is for the connection to the RB button and should be 3 Inches long.
- Pin 3 (Yellow wire) is for the connection to the Player 3 LED and should be 3 Inches long.
- Pin 4 (Blue Wire) is for the connection to the controllers "Back" button

#### •Right Image

- Pin 5 (red wire) Will go to the button you will install, this should be 3 inches long.
- Pin 6 (Yellow wire) To player 4 LED. This wire should be 2 inches long.
- Pin 7 (blue wire) To Right trigger. This wire should be  $\frac{1}{2}$  inch long.
- Pin 8 (blue wire) To ground. This wire should be 1/2 inch long.
  - tip: Only strip about 1/8" of the wire for soldering. Exposing more bare wire could cause a short.
  - tip: For information on proper soldering visit <u>http://www.curiousinventor.com/guides/How To Solder</u>





### Step 4: Opening the controller

- Remove the 7 screws indicated below. One is behind the small white label.
- The wireless controller requires a T8 Torx security driver. This is a star shaped tip with a hole in the middle of it. It is very difficult to open the wireless controller without this tool. This tool can be purchased from our website.





#### Step 5: Preparing the back button via

- You must connect a wire to the Back button in the controller. The best way to do this is by soldering wires to one of the vias used for the button. A via is a solder pad with a hole though it to connect one side of the board to the other.
- Below are both the CG and CG2 PCB boards with the back button vias pointed out. The vias have a solder mask
  over them that must be scraped clean before you can solder to it. Using a pocket knife or other small knife lightly
  scrape off the green coating from the via to expose the bare copper. When properly cleaned you should see
  shiny copper. Be careful to only scrape clean the via, the checkerboard looking area around the via is a source of
  ground if this area is scraped clean and your wire touches it, it will cause a short and the button will not work
  properly.



# <u>CG</u>



Step 6: Now we will attach the chip to the PCB using hot glue.

- Mount the chip on it's back (dead bug) with hot glue so it is up against the white clip for the trigger and the pins from the rumble motor plug.
- Note the orientation from the location of the notch that is on the top of the chip.



Step 7: Attach the power wire.

• This step is same for both CG and CG2 boards. The power wire from Pin 1 must be soldered to the location shown below. This solder point is part of the headset jack.

Tip: trim you wires so they are only as long as you need, then strip the end and solder into place. Long wires will just create a place for something to snag when closing the controller.



Step 8: Attaching the Ground and trigger wires.

- This step is the same on both CG and CG2 boards.
  - Solder the wire from Pin 8 (ground) to the bottom of the three trigger pins as shown in the left side image.
  - Solder the wire from Pin 7 (trigger wire) to the middle of the three trigger pins as shown in the right side image.

Tip: A common problem that can occur here is that too much solder is used and two of the three connections are bridged together by solder. This will cause the trigger to not function properly. To avoid this be sure to use little or no extra solder on these points as they already have solder on them.

Tip: keep your wires as short as possible so they do not interfere with the buttons when putting the controller back together.





# Step 9: Attaching the back button

- This page shows the connections for the back button on both CG and CG2 controllers. This is the via that you scraped clean in step 5 earlier.
- Solder the blue wire from 4 to the back button via. Be sure to keep the wire out of the Black circles for the buttons.







# Step 10: Solder the Player 3 and 4 LED wires.

- This page shows the connections for the Player 3 and 4 LED wires, this is the same for both CG and CG2 controllers.
- You will need to solder the wire from Pin 6 to the bottom of the player 4 LED and Solder the wire from Pin 3 to the bottom of the player 3 LED.



# Step 11: Solder RB button wire.

- This page shows the connections for the RB button, this is the same for both CG and CG2 controllers.
- You will need to solder the wire from Pin 2 to the small metal tab on the top of the RB button. Run the wire straight down the circuit board and in-between the black circles for the ABXY buttons. Be sure to keep the wire out of the black circles.



# Step 12: Onto the case and button. Here we will drill the hole needed for the button and secure it in place. For stealth installation skip to step 12

• Drill a hole using your drill bit in the spot indicated or where ever you would like to have your button. We prefer keeping it out of the way because you will only need to press it to change modes.

• Next take your button and we are going to remove one pair of legs because we only need one pair. Use the image to the right so you know which legs to remove.

• Next use hot glue to secure the button in place. Do not attempt to use super glue or other adhesives as it will soak into the button mechanism and cause it to stop working. Once the button is secured in place bend the two legs out flat away from the button.

• Finally cut cut another small piece of wire about 2" long and solder to one leg of the button. This will later be connected to the ground of the chip (pin 8).





#### Step 13: We will now connect the wire from the chip to the button.

• flip over the controller PCB and bring it in close to the back half of the case. Take the one wire that you have left (From pin 5) and solder it to the remaining pin of the button.

• Finally flip the PCB over onto the back of the case and attach the final wire from the button to the ground of the chip (pin 8).



### Step 14: Almost done

• Now onto the top of the case. To make it all fit we may have to make a little bit more room. Just to be sure we use a knife or side cutters to remove the plastic support shown in the image in red. This is the angled support for the right side rumble motor. This allows more room for the chip to fit into the controller.

• Depending on your button placement you may also need to remove part of the back support for the rumble motor. This is shown in green in the images.

• The last thing you need to do is reassemble everything. The easiest way we have found to do this is leave the top piece face down so all the buttons do not fall out. And hold the PCB and the back of the controller together, then flip it over on the top of the case. Align the rumble motors so they are in their holders and lay the PCB and back of the case onto the front of the case. Keep it face down and use your finger to work the thumbsticks through the holes and work the case closed. Do not force it you may have wires preventing the case from closing entirely. Just go slow and look at any areas to see what is stopping it from closing all the way.

•Now just screw your controller back together and your done! See the next page for additional information on using your new mod.





### Xbox 360 RFX-GWAR Gears of War 2 Rapid fire + Perfect Active Reloads:

- This mod has many different features and functions which we will explain below. Video tutorials are available for all of these features on our website <u>www.consolecustoms.com</u> or from our youtube page <u>www.youtube.com/consolecustoms</u>.
- First off are the LED modes. Because of the requests from our customers we have made this mod with the ability to change how the LED functions. There are three modes for the LED's described below. To change how the LED works you must hold in the button (or sync button for stealth installs) while you are turning on the controller.
  - **LED MODE 1** (default) Blinking LED, the speed of blinking changes with the speed of rapid fire.
  - LED MODE 2 Blink to solid LED. The LED will blink 1, 2 or 3 times depending on the mode then stay on solid.
  - **LED MODE 3** No LED, the LED will be off all the time. For the ultra stealth look.
- Next is the Rapid Fire. This mod has two rapid fire speeds, one for The hammer burst and one for the pistols. To cycle through the speed settings you only need to tap the button underneath the controller. Once you are in the speed you would like, you will continue to use the trigger for firing as normal.
- Finally are the perfect active reloads. A combination of the RB button and Back button is used to change the Perfect active reload setting. The perfect active reload has 5 different settings. You change to a setting by holding in the back button and pressing the RB button. The player 3 and 4 LED's will flash together based on the mode you switch to. Once you are in the mode you want to use you can quickly turn the perfect active reload on/off by just tapping the back button. The on/off status will be indicated by the player 3 LED.
  - Mode 1: Perfect active reload for Sniper/boomshot (must use RB to fire, Pressing RB will fire once and automatically active reload. All other setting you fire normally with the trigger)
  - Mode 2: Lancer/Hammer Burst
  - Mode 3: Pistols
  - Mode 4: Shotgun
  - Mode 5: OFF

## **CG PCB Installation Diagram using the button**



# 6 I B -112 C32 111 C83 AN 8 274739 94V-0 SUNG WEI 06V0-8 C12 meresoft. -C17 -C16 X817143-006 7 8 5 6 PIC (dead bug) 3 10K Rac 2

## **CG2 PCB Installation Diagram using the button**