

Afterburner™
internal.lighting.kit





Start counting down to the ultimate portable gaming experience!

Congratulations on your purchase of the Afterburner™ kit from Triton Labs. With the aid of our clearly written and meticulously illustrated step-by-step instructions, you will soon have constructed what is undeniably the most powerful handheld gaming system on the planet – an internally lighted Game Boy Advance™ (GBA).

Before jumping directly into the installation process, you may want to visit the Afterburner forums at <http://www.tritonlabs.com/forums> where thousands of other experienced installers will be sharing their collective

modification experiences. Any official changes or updates to the installation process will also be provided at the forums.

For those who are completely new to the soldering process, we highly recommend reading through one of the many excellent soldering guides available on the Internet, accessible from any search engine. Some of these guides also include information on “desoldering”, a valuable technique for reversing soldering blunders.

Take your time with the installation – a few of the steps will take both patience and concentration and must be premeditated for best results. Take a deep breath, relax, and have fun with it!

Afterburner Kit Contents:

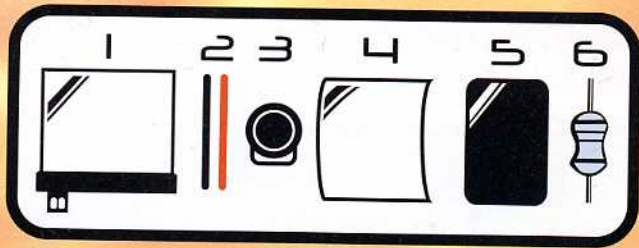
1. Afterburner light

Leave both of the upper/lower protective release liners intact until directed to remove them!

2. One foot of black wire and one foot of red wire
3. One brightness dial (potentiometer)
4. One sheet of anti-reflective film

Leave both of the upper/lower protective release liners intact until directed to remove them!

5. One blank plastic card
6. One 44 ohm resistor



You will also need the following tools which are not included with this kit:

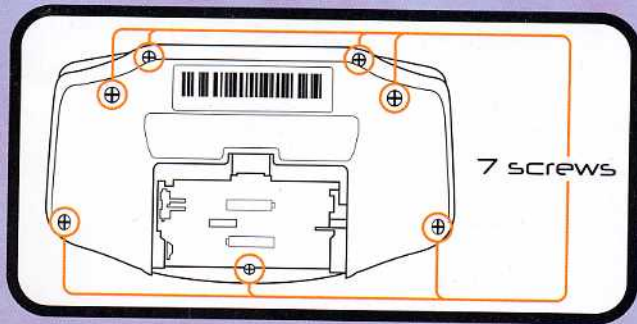
1. A soldering iron and electrical solder
2. Wire strippers (or a pair of scissors)
3. A tri-wing screwdriver or 1/16" flathead screwdriver
4. A plastic-cutting tool (Dremel™ or similar tool recommended, an Exacto™ knife or similar cutting tool will also work)

Do not use one of the aforementioned tools unless you are fully qualified to do so.

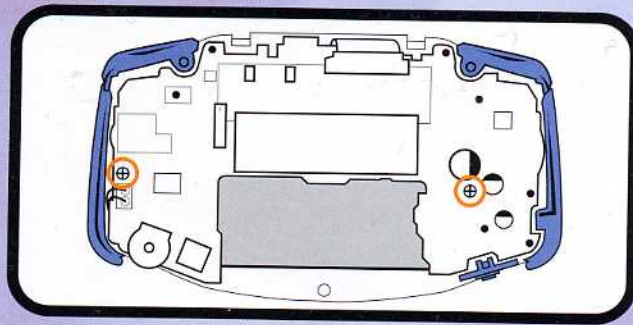
5. Recommended: Flux (for better solder joints)

Flux fumes are toxic, be sure to work in a well ventilated environment during soldering steps!

Installing the Afterburner: Step-by-Step



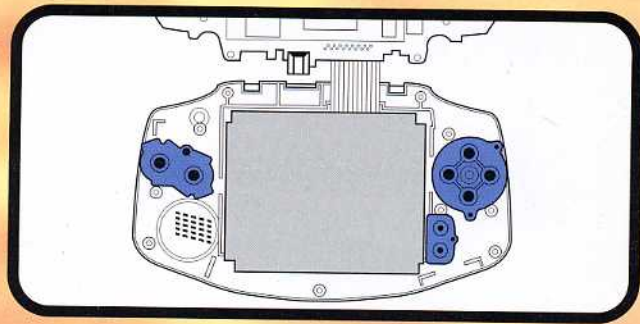
Ensure that there are no batteries or game cartridges in the system. Remove the battery cover. Then remove the six screws from the rear casing of the GBA along with the screw behind the battery cover. Pull the rear casing off of the GBA and set it aside along with the seven screws.



2

Remove the two shoulder buttons, side supports, and start button from the system. Next, remove the **two circled screws** from the GBA mainboard.

Notes: Make a mental note of how the start button fits into the system. Keep the two screws removed in this step separate from the rear casing screws removed in step 1.



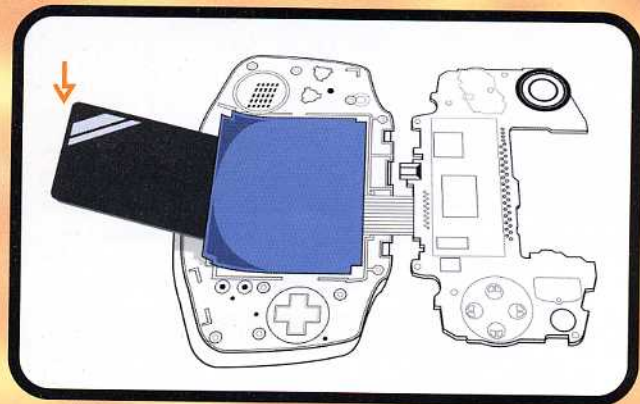
3

Lift the mainboard out of the GBA front casing. Remove the directional pad and a/b buttons, both the rubbery portion and the hard plastic portion of each. Then remove the start/select button.

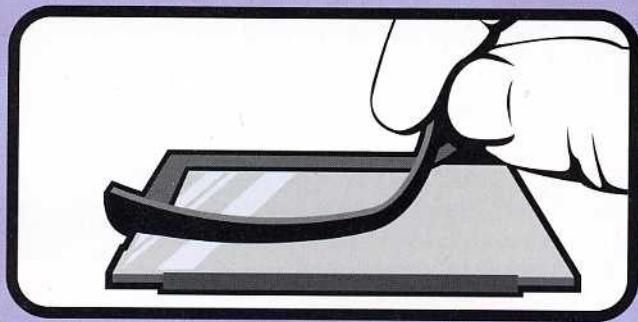
Notes: There is no need to separate the mainboard from the front casing; simply leave the LCD ribbon cable attached.

4

Carefully remove the LCD from the GBA front casing by using the included blank plastic card to gently separate the two as illustrated.



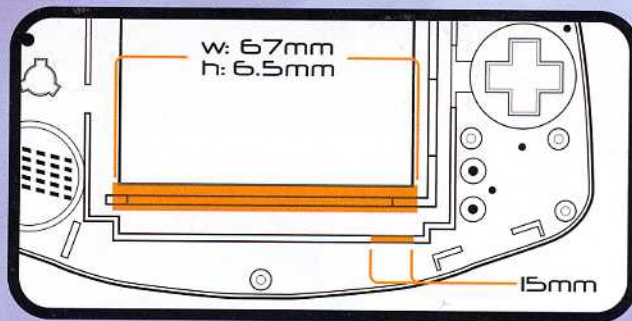
Notes: To remove the LCD, position the plastic card under the edge of the LCD and gently pry it off of the front casing. You may have to push back some of the gray cushioning on the LCD to make room for the plastic card.



5

Peel off the adhesive cushion bordering the face of the LCD and place it aside for a later step. Then push the plastic screen (labeled "Game Boy Advance") cover off of the front casing.

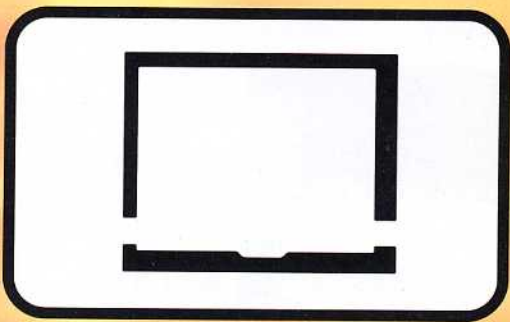
Notes: Carefully set aside the exposed LCD face so it is protected from scratches. Keep the LCD face down and the plastic screen cover face up (so that the "Game Boy Advance" logo is visible) to limit dust exposure.



6

Both sections of plastic, highlighted above, must be cut from the front casing to allow for the Afterburner to fit properly. The larger section should be cut entirely through the front casing. The smaller section should only be trimmed down to the surrounding surface (see diagram from Step 12).

Notes: Perform a physical check after cutting to ensure that the Afterburner fits completely into the modified cavity. **DO NOT** remove the protective release liners from either side of the Afterburner at this time.



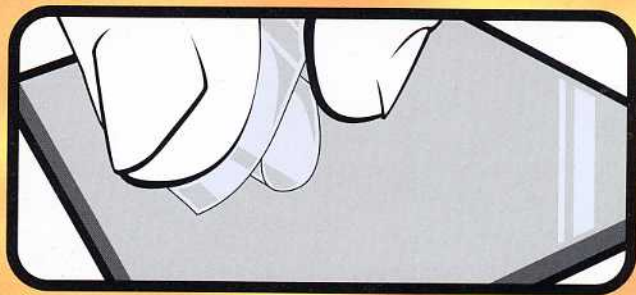
Cut the adhesive cushion as shown. Discard the bottom piece, and replace the upper piece of the cushion into the front casing. Then replace the plastic screen cover onto the front casing (see diagram from Step 12).

Notes: The adhesive cushion borders the rectangular opening on the front casing. In some cases (such as when the plastic cover has been removed multiple times), it may be necessary to use supplementary adhesive on the plastic screen cover to ensure that it stays in place.



Determine which side of the anti-reflective (AR) film is “sticky” without touching that side of the AR film or contaminating it in the process.

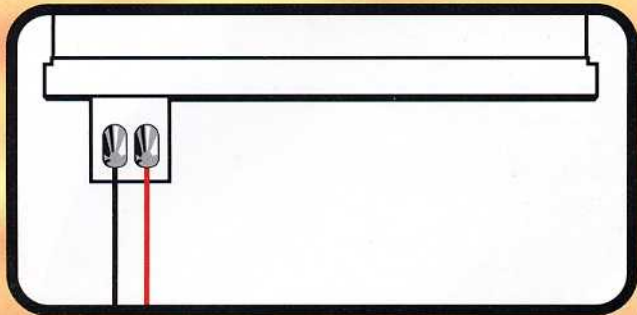
Notes: Both sides of the AR film are protected by “release liners” which must be peeled off at the appropriate time (not yet). To safely determine which surface is sticky, peel off a corner of one of the release liners and briefly press the exposed film against the LCD surface. The side determined to be sticky must be laminated face down against the LCD in the next step.





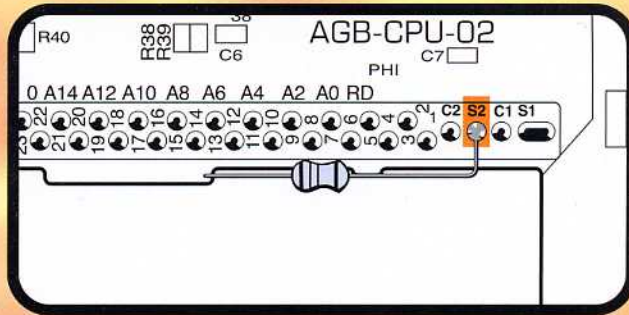
Read the following step in its entirety before continuing:
Before moving on, ensure that the LCD surface is completely free of dust and fingerprints. Then laminate the AR film to the LCD surface so that it completely covers the lighter colored area of the LCD. After the film has been applied, remove the release liner from the upper surface of the AR film.

Notes: Begin the lamination process by peeling off a small portion of the release liner and affixing just the exposed edge of the film face down onto the edge of the LCD screen using the plastic card. Then gradually peel the release liner while following behind with the plastic card, sliding it along the upper surface with even and firm yet gentle pressure to laminate the film onto the LCD. At no time should you touch the sticky side of the AR film with your fingers. We have found that completing this process with one smooth motion delivers a bubble-free result every time.



Solder the red and black wires to the leads at the end of the ribbon cable as shown above. The black wire should be soldered to the left lead of the ribbon cable, and the red wire to the right lead.

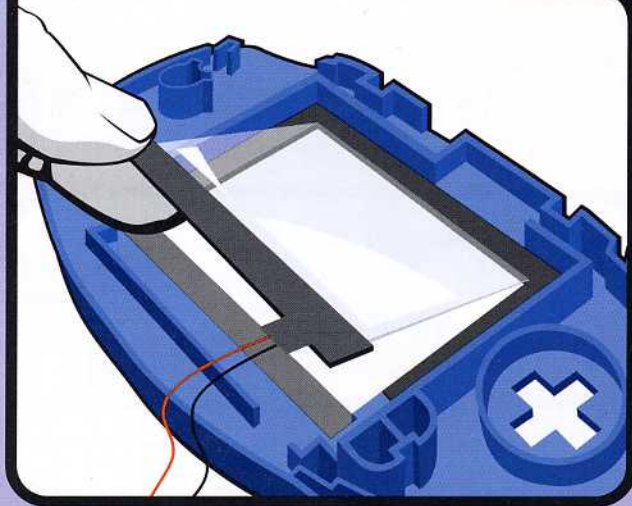
Notes: You must not allow any solder to bridge the gap between these two leads. A small amount of flux to the leads will result in stronger bonds between the wires and the ribbon cable. Tug gently on the wires after the solder has cooled to ensure that your solder joints are strong.



Solder one end of the resistor included with the kit to the lead labeled 'S2' on the GBA mainboard as shown in the above diagram. Position the resistor in the crevice as shown to prevent added internal stress to the LCD when the system is reassembled.

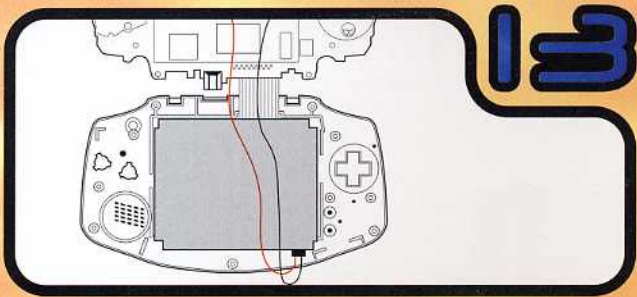
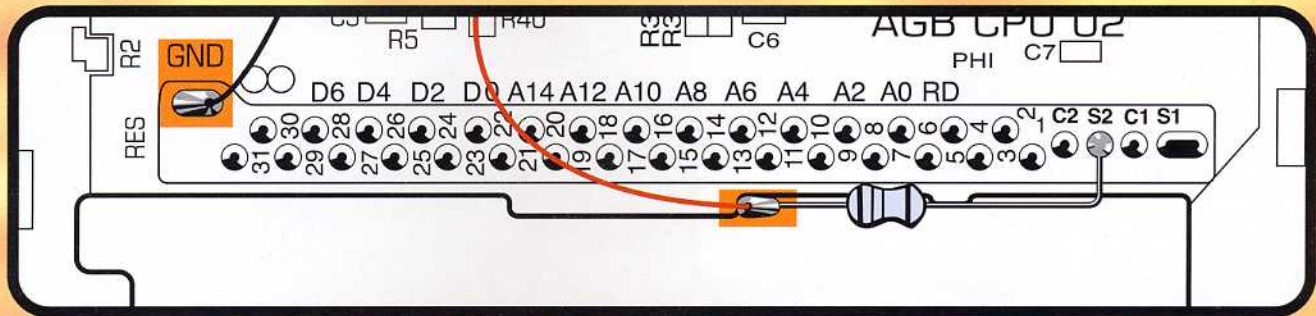
Notes: Again, a small dab of flux onto the end of the resistor can greatly increase the strength of the solder joint (we won't bother mentioning this again). The resistor leads can be cut to a significantly shorter length for a more tidy installation.

12



Read the following step in its entirety before continuing: Ensure that the surfaces of both the plastic screen cover and the LCD screen are free of dust and fingerprints. Remove the protective release liner from the surface of the Afterburner that will be placed into the front casing face down according to the diagram at left. Without touching the Afterburner's exposed surface, place it into the custom cut opening in the front casing. Next, remove the protective film on the opposite side of the Afterburner and replace the LCD directly above it - again without touching any of the Afterburner's exposed surface.

*Notes: Proceed very carefully with this step, but don't waste any time – the longer either of the Afterburner's surfaces is exposed to the air, the higher the chance of dust exposure. Peel the release liner off of the Afterburner while it is being set down into the custom cut cavity; this effectively limits exposure time. The same tactic applies for the replacement of the LCD screen over the Afterburner. **Under no circumstances** should either surface of the Afterburner be wiped down, even with a non-abrasive cloth. Dust should only be removed using "canned dust remover" or similar products.*



IF NO BRIGHTNESS DIAL WILL BE INSTALLED:

Solder the open end of the black wire to the lead labeled "GND" above on the GBA mainboard. Then solder the open end of the red wire to the open lead of the resistor as shown above. Skip to Step 17.

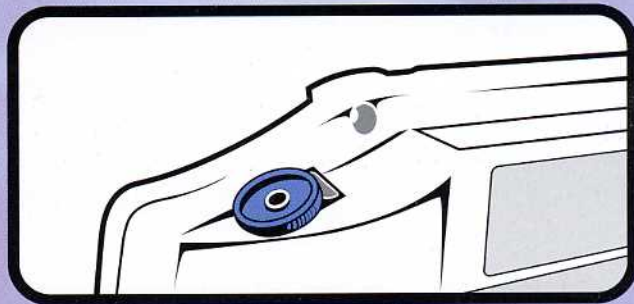
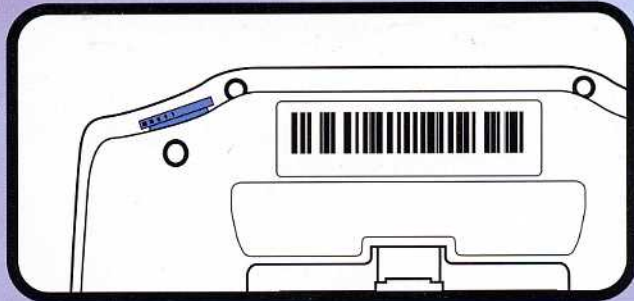
Notes: A brightness dial is not required to operate the Afterburner. If you choose to omit this portion of the installation, your Afterburner will simply remain at 100% brightness at all times. More wire is included with this kit than is necessary; trimming to an appropriate size is a good idea.

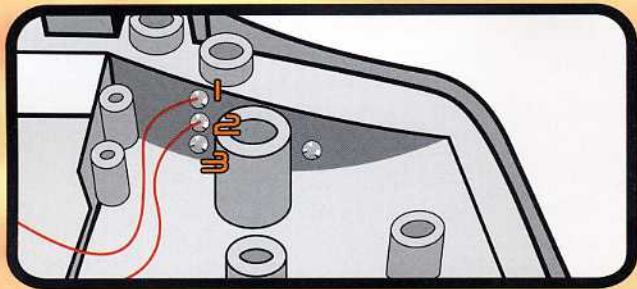
14

IF A BRIGHTNESS DIAL WILL BE INSTALLED:

Choose a location to mount the brightness dial (potentiometer). Our suggested mounting location is shown in the diagram at right. Cut/drill 4 small holes through the GBA rear casing (to match the pin configuration of the potentiometer) at the mounting location of your choice. Push the pins of the potentiometer through the holes, and solder all four leads from the inside of the rear casing to hold it in place.

Notes: Be forewarned that our suggested mounting method leaves a small section of the potentiometer's leads slightly exposed; though this should never be a problem, you may wish to implement a more advanced mounting technique to avoid this issue. Before cutting/drilling four holes for the brightness dial, we recommend marking the hole locations with a pen while holding the dial in the desired location. You may need to remove the metal cartridge support for access to the potentiometer pins – two Philips screws hold it in place. Keep the holes for the brightness dial pins as small as possible – preferably less than 1 mm in diameter.

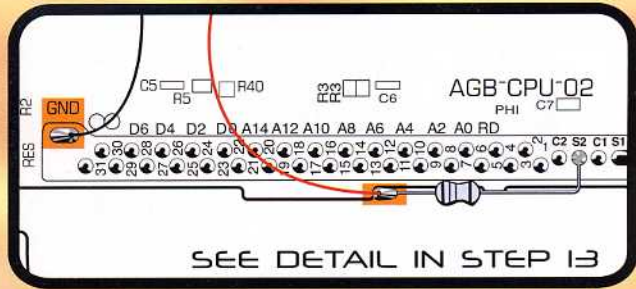




15

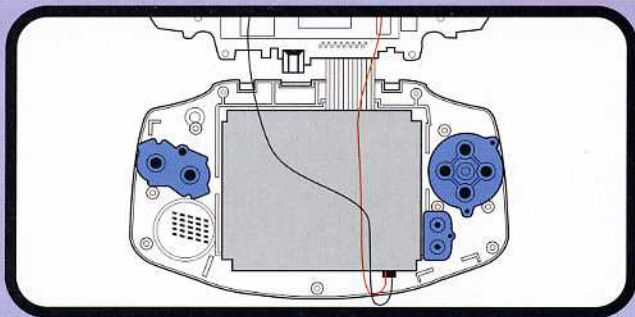
Cut the red wire into two halves and strip each end as necessary. Solder the first red wire (still attached to the Afterburner ribbon cable) to the lead labeled 2 above, and solder the newly cut red wire to lead 1.

Notes: You may notice that only two of the four pins on the dial are used in this circuit. The isolated pin is not functional and is provided for mounting purposes only. You can switch the red wire from the lead 1 to lead 3 – doing so simply reverses the direction of rotation with which the dial increases brightness.



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Solder the only open-ended red wire (from the lead 1 of the potio-meter) to the open end of the resistor and the black wire (still attached to the Afterburner ribbon cable) to the ground (GND) location of the mainboard.



17

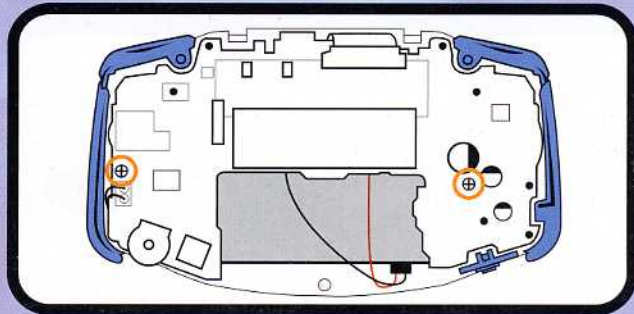
Replace the a/b buttons, start/select buttons, and directional pad. Then reinsert the mainboard into the front casing of the GBA.

Notes: Ensure that both the hard plastic buttons and the soft rubber button supports are replaced, and that the holes in each button line up with the plastic dowels on the GBA casing (e.g., the start/select button has a single dowel to its right to hold it in place). The speaker can only be placed back into the front casing at one angle due to a notch in it; it may be helpful to use a small screwdriver to push it into its correct position.

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Screw the mainboard back into the front casing using the two **circled** screw locations. Replace the shoulder buttons, side-supports, and on/off switch. Lastly, refer to **Step 1** to attach the rear casing.

Notes: Remember that the left and right shoulder buttons will be reversed when the GBA is laying face down. The following diagram reflects an installation without the brightness dial in terms of wire placement/location.



Final Notes:

That's it – you've completed the installation process! Turn your system on to make sure that the light is operational and that your brightness dial is functioning (if one was installed). If either the light or the system is not functioning, check the brief troubleshooting suggestions below:

Neither the system nor the light will power on:

- Verify that fully charged batteries are correctly installed.
- Check all internal connections for solder overflow (two or more leads shorted together) or other types of shorted connections.
- Confirm that all connections follow the instructions of this manual precisely.

The system powers on, but the light remains dark:

- Verify that the brightness dial is not turned to its darkest setting.
- Verify that all internal connections are intact and well soldered.
- Confirm that all connections follow the instructions of this manual precisely.

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