IMPORTANT: Read through entire instructions before proceeding.

If you do not have the ability to install these grips then hire a professional mechanic to do the installation.

End weights or other need to open the ends: You may drill out the outboard ends of the grips for installation of end weights or other purpose, if you use a fine tooth hole saw with a ¼" pilot drill. Wrap tape around the pilot drill so it is a nice fit to the 7/16" hole in the end of our grip, to prevent wobbling and to ensure you are centered. Do NOT use a hacksaw or you will destroy the grip, because there are resistance wires molded into the grip outboard of the handlebar diameter. Rough edges can be smoothed with a hot cylindrical soldering iron or other heated object.

Some bike manufacturer OEM throttle tubes are molded with raised plastic ribs or ridges to help hold the grip in place, for safety. But these will interfere with sliding our heated handgrip over the tube so if there are interfering ribs or edges, they must be trimmed with a coarse file or razor knife until the Hot Grip® slides over them. Do not force the Hot Grip® over the them as the grip cannot stretch and will be damaged if forced on. If any long ridges line up with our long grooves, it is OK to leave them.

These Hot Grips® have a heat output of 8 watts on "low" and 18 watts on "high" per grip. As a pair they will consume 24 watts of electrical power on "low" and 36 watts on "high. They consume more than 8 x 2 on "low" because the resistor consumes a little.

PREPARATION: Remove old grips and any adhesive residue from the handlebars and throttle sleeve with solvent, compressed air, or utility knife. There is a slight variation in throttles and handlebar diameters, example British ones are big, some may be loose, and some may be tight. Better to file until it fits than to force the Hot Grip® over it. DO NOT rely on a press fit since the grips will expand when heated up, and could become loose. They rely on epoxy bonding to remain secure.

Determine the operating range of your throttle twist-action. Make reference marks where the throttle rotation starts and ends. This is to determine how many degrees of rotation you have, perhaps it is 60 or 90 degrees, perhaps it is more or less. You now must determine where you want your heated grip's external lead wires to be throughout that operating throttle rotation. Mark on the throttle tube where the external wires should be located when the throttle is off. This mark will be used when you actually epoxy it in position. You need to visualize the path of the grip's external wire leads during throttle operation, to determine where there will be no interference with your other handlebar controls and switches. Roughen your motorcycle's plastic throttle tube with the edge of a file or coarse sandpaper. This aids in a stronger epoxy bond. Slide the Hot Grip® with the larger inside diameter over the throttle tube (without epoxy) to check the fit. If tight then adjust the diameter of the throttle tube as needed for a slip fit, using a file or rough sandpaper. DO NOT force the grip on if tight, with anything more than hand pressure. (Do
NOT force it on by hitting it with a hammer or block of wood, or it will collapse and be ruined!!!

**EPOXY:** We recommend only slow curing (generally considered 6+ hours, or overnight) two-part epoxy because it is usually rated at 250 degrees F. The quicker curing epoxy is generally rated at 200 degrees F or lower. Do NOT use silicone sealant, crazy glue, at 200 degrees F. Do NOT use other types of adhesives. Do NOT use silicone sealant, crazy glue, superglue, other superglue, other cyanoacrylate adhesives, weather-strip adhesives, or anything else. Just use two-part epoxy of the type we recommend. There are many brands out there, and some of them are DURO, DEVCON, JB WELD, BORDEN, etc. Most are available at auto parts stores, hardware stores, and often found in “Big Box Store” hardware or automotive departments. (The reason we do not want you to use anything other than epoxy is because of the temperature these grips may reach in service, and because other types of adhesives rely on solvent evaporation, which may take a very long time. Most other adhesives will soften with elevated temperatures, and you don’t want these grips to loosen while riding.) Excessive epoxy as seen in photo can be easily thinned with rolled pencil.

After you have pre-determined your grip's external wire orientation in relation to the throttle housing and throttle tube, then you can proceed to use the epoxy. Mix the epoxy per the manufacturer's instructions. It is important to mix in the correct ratio or the epoxy will be weakened. Use a long slender object such as a pencil to get the epoxy spread evenly on the exterior of the throttle sleeve on the motorcycle, BUT NOT INSIDE THE GRIP. The pencil can be rolled around the throttle sleeve to ensure the layer of epoxy is even or uniform thickness. **DO NOT PUT EPOXY IN THE GRIP INTERIOR**, instead allow the epoxy on the throttle sleeve to find it’s way inside the grip as it is pushed on. The epoxy will mesh with the inside ribs, locking the grip in place once the epoxy cures. While aligning the external black wires, push the right grip on the throttle tube fully, and you should clear away epoxy as it is slid on if it builds up excessively as the grip moves fully into position.

**IMPORTANT: DO NOT PULL THE GRIP OFF** at this point because then the epoxy will gum up the throttle action. Again make sure you have enough clearance so no friction or interference will exist with the throttle housing. This is extremely important, since once the epoxy cures, you won't be able to adjust later.

**If You Are In A Hurry,** it is OK to quicken the cure by temporarily wiring the two grips in "parallel" as shown in our wiring diagram, and applying 12 volts using a car battery or battery charger capable of at least 3 amps. Caution: Heated curing epoxy can give off fumes so work with adequate ventilation or do the epoxy curing outdoors. 45 minutes will do it, and do not leave the grips heated unattended. Let it cool for another 15-20 minutes. That heat will have accelerated the cure from the normal 6-8 hours down to about an hour. If the epoxy hasn't cured you may need to give it heat again. If the second time doesn't cure it, then you probably mixed the epoxy in the wrong ratio, which prevents the epoxy from curing. Do NOT test the epoxy bond while it is curing by twisting the grip. If you want to check if the epoxy had cured, check it at the area where a tiny amount of epoxy has squeezed out next to the inboard end of the grip. **Wait until the epoxy is very hard.**

If working in the cold, preheating the epoxy in a hot cup of water will soften the epoxy and make it easier to mix and to spread, and also preheating the handlebar end with a heat gun or hair dryer will help in the same way. Epoxy will set up QUICKLY when pre-warmed- plan accordingly and only mix enough for one grip at a time. Follow similar instructions as above when installing the left clutch grip, although the installation is easier since there is no throttle movement to worry about.

**WIRING:** Follow our wiring diagram, there is no polarity to the two
external wires coming from each grip, no positive nor negative. IMPORTANT: Hot Grips® for THIS model are wired in "Parallel", meaning each grip gets 12 volts. Your ground connection is important, so scrape the paint off directly under the contact point you make. Ground shouldn't be to the handlebars as some are rubber mounted and perhaps electrically isolated from your system. Steering head bearing grease can create electrical resistance, another reason to ground back at the main frame. The wires should be secured to the handlebars, however it is important to form a gentle 180 degree loop from the throttle side grip to the handlebar to minimize strain on the wires during throttle operation. The bigger the radius of the loop the longer the wire will last. 3" radius would be good. Determine the spacing you need on the throttle tube so that there is no interference or friction with the throttle housing. Make a mark on the throttle sleeve for when you later use epoxy.

These two Hot Grips® must be wired in "parallel". Connect one of the two conductors from each grip to positive 12 volts coming off the switch as illustrated, and each remaining wire to ground. Pilot light (not supplied with kit) could be a Radio Shack Part #272-345, #272-334A or #272-331C, and can be installed if you want it. Wire it for 12 v. in parallel as indicated and ground one of the leads of the pilot lamp. 12 volt LEDs are available at Radio Shack or much better deal on eBay.

**Hi-Off-Lo SWITCH:** Locate a suitable site for your switch accessible for your left hand and drill a 1/2" or 13 mm hole in a safe convenient location that does not interfere with anything on the motorcycle. Consider where you can easily get to the underside of the switch. The wiring diagram IS CORRECT, though the switch hookup may appear backwards. When you move toggle to “Hi” it connects the center brass terminal to the **diagonally opposite** brass terminal.

**RESISTOR:** Mount the resistor securely in an area where it can give off some heat. It only functions on "Low" heat, and warms up about 8 watts during "low" heat operation. Ideally mount it on a "pad" of silicone sealant on a metal area and mount it in open air. Secure it with common nylon wire ties as nylon can take the heat. The resistor may be located any distance away from the switch or grips, however do not leave the resistor dangling by it's lead wires, or they will eventually fail. You can use any extra lead wire from the grips to wire the resistor. Solder all connections as a precaution against copper oxidation in the future.

**POWER SOURCE:** Most motorcycles come with an accessory electrical terminal, Ask your motorcycle dealer's service department if in doubt. Often your owner's manual will include a wiring diagram, and may have information on where to obtain power for accessories. You should use a 4, 5, or 6 amp fuse (not included). (The grips draw 3 amps on high). If the power circuit you are using shares power with another device then that fuse will need to be adjusted higher accordingly. Wire into an accessory terminal if available or into a power lead that will not be left "hot" or energized when the ignition is shut off. Otherwise leaving the heated grips on while the engine is off will drain the battery as quickly as if you left your headlight on. Solder all connections to prevent copper oxidation in the future. Do NOT use the crimp-on terminals or 3M Scotch-Lok tap-in type if you want your connections to remain reliable. They tend to oxidize and corrode over time and create later problems. Cover all exposed connections with electrical tape.

**HEAT CONTROL:** The Hot Grips® do not automatically regulate their heat output, and rely on the rider to adjust the heat by moving to "lo" or center-off switch position if the grips get too hot. The grips should not be left on when unattended as they may get too hot. In an unregulated electrical system the heat output may be greater than 9 watts on low and 18 watts on high per grip. These wattage figures assume a voltage regulator is in use. Be sure to check and correct for any interference with vehicle controls and proper throttle operation and throttle return before starting or operating motorcycle. **Pulse-Width-Modulator totally**
variable heat controls are available. We have 2 models at the website, buy on eBay, etc. Plans exist on-line to even build yourself.

**Re-Fitting your Handlebar End-Weights:** When refitting your handlebar end-weights, space them outward as needed to prevent any friction on the throttle tube or throttle grip. Hopefully you ordered flat style spacers or Honda step-spacers as needed from our website. If not, you can use washers or drilled out appropriate diameter coins.

**Future Troubleshooting:** Can be minimized if you do NOT take shortcuts with your connections during installation. We also have troubleshooting tips on our website.

Protected under one or more of the following patents:

USA: 4,471,209 4,937,429 4,990,753 - Canada 1,299,621

Hot Grips® Mfg., Inc. -166 Methodist Hill Rd. - Plainfield, NH 03781 USA

Tel. 603-448-0303 - email: support@hotgrips.com

www.hotgrips.com

**REGISTERED TRADEMARKS:** Hot Grips® is a Registered Trademark listed on the United States Principal Register both as words: "Hot Grips" # 2929362 and Design Plus Words (logo) # 1264872. Hot Grips® is a Registered Trademark in words "Hot Grips" listed at the Canadian Trademark Office Registration #TMA304887.