Installation Instructions for Motorcycles with 1" handlebars (Available in 4.75", 5.25", or 5.75" length)

Typically: Harley Davidson, Japanese Cruiser Bikes: Any with need for 1" i.d. grips

IMPORTANT: Read through entire instructions before proceeding.

Protected under one or more of the following patents: USA: 4,471,209 4,937,429 4,990,753 Canada 1,299,621

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

These Hot Grips® are for any *Motorcycle* with 1.00" handlebars, 1.13" dia. twist-throttle tube, (and available in 3 lengths)

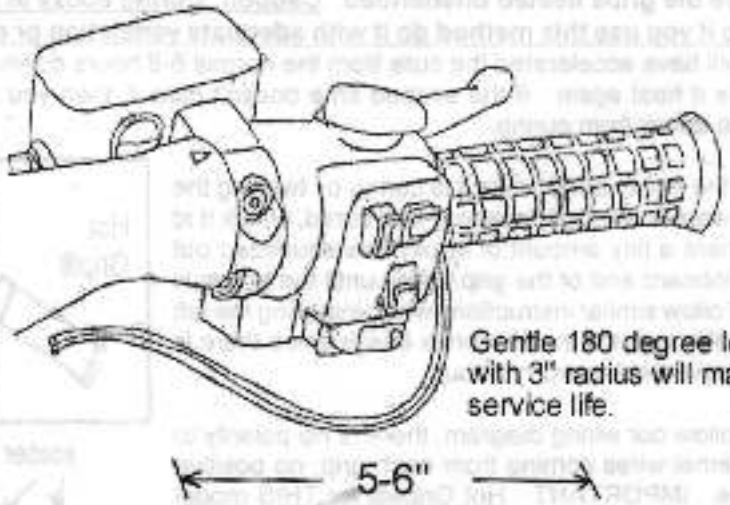
End weights or other need to open the ends: You may drill out the outboard ends of the grips for installation of end weights or other purpose, if you use a fine tooth hole saw and do not go larger than the handlebar's inside diameter. We have molded in a visual guide on the grip's ends, and we recommend 7/8" or at most 1" diameter and be sure to center drill carefully. 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.

Some throttle sleeves are molded with raised plastic ribs or ridges to help hold the original equipment grip in place, but these will interfere with sliding our heated handgrip over the sleeve so if there are interfering ribs, they must be trimmed with a file or razor knife until the Hot Grip® slides over them. **Do not force** the Hot Grip® over the ridges as the grip **cannot stretch** and may be damaged if forced on.

These Hot Grips® have a heat output of 7 watts on "low" and 16 watts on "high" per grip. As a pair they will consume 21 watts of electrical power on "low" and 32 watts on "high. They consume more than 7 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. Drill or puncture a small hole in the center of one of the Hot Grip® ends (unless there is already a hole molded into them) so air can escape when they are installed. There is a slight variation in handlebar diameters, so some may be loose, and some may be tight. Better to file a tight handlebar down 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.

WIRING: 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.



Gentle 180 degree loop with 3" radius will maximize service life.

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 sleeve where the external wires should be located when the throttle is closed or 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 sleeve 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 sleeve (**without epoxy**) to check the fit. If tight, do not force it on with anything more than strong hand pressure. (Do not force it on by hitting it with a hammer or block of wood!!!)

Wire loop radius of minimum 3" is recommended on throttle side for longest wire service life. The conductor strands are small and designed for maximum flexibility but strain on them is to be avoided.

Determine the spacing you will need on the throttle sleeve so that there is no interference or friction with the throttle housing. (With cycles with external handlebar end-weights, if you are using grip that is longer than the stock grips and might cause friction on the throttle against the end-weight, you must space out the end-weights appropriately to prevent throttle friction on end-weight. Make a mark on the throttle sleeve for when you later use epoxy.

EPOXY: We recommend only slow curing (generally considered 6+ hours, or overnight) two-part epoxy because it is generally rated at 250 degrees F. The quicker curing epoxy is generally rated at 200 degrees F. DO NOT use other types of adhesives. DO NOT use silicone sealant, crazy glue, superglue, other cyanoacrylate adhesives, weatherstrip 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, POXY-WELD, JB WELD, Borden, etc. Out of the USA they may be called by another name. They are commonly available at auto parts stores, hardware stores, and often found in 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 tremendous amount of time. Most other adhesives will soften with elevated temperatures, and you don't want these grips to loosen while riding.)*


Use pencil to apply epoxy evenly.

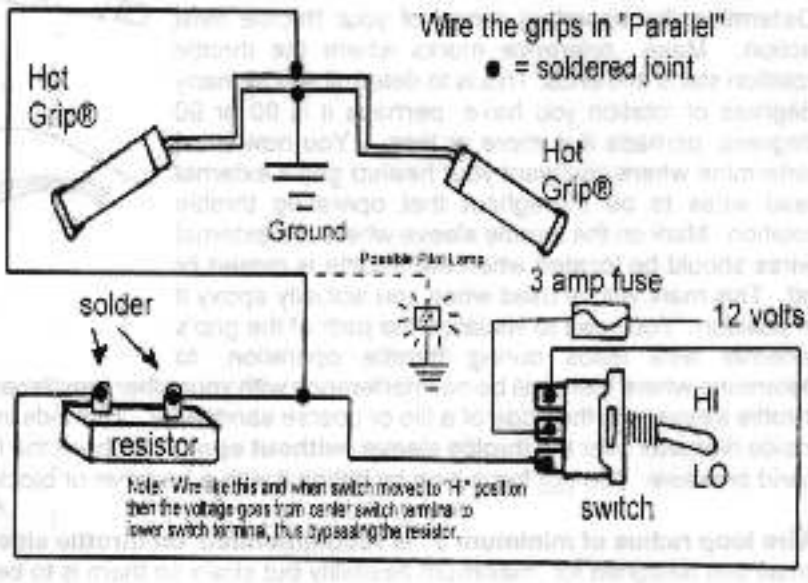
After you have pre-determined your grip's external lead wire orientation in relation to the throttle housing and throttle sleeve, then you can proceed to use the epoxy. (With our 1988 Gold Wing we found it best to have the wire on the bottom range of the throttle to eliminate any interference with the controls on top, but your motorcycle may require a different approach)

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 lead wires where you want them, push the right grip on the throttle sleeve 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 otherwise epoxy will likely gum up the throttle motion. Again make sure you have enough clearance so no friction or interference will exist with the throttle housing. This is very important, since once the epoxy cures, you won't be able to adjust later.

If you are in a hurry for it to cure, 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. 45 minutes will do it, and **do not leave the grips heated unattended. Caution: Curing epoxy in a heated state gives off odors that are potentially harmful, so if you use this method do it with adequate ventilation or do it outdoors.** 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.

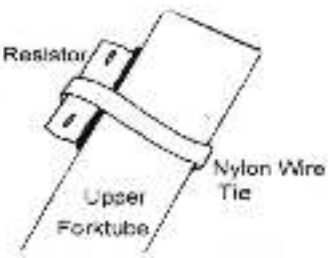
Do not test the epoxy bond while it is curing by twisting the grip. If you want to check if the epoxy had cured, check it at the area where a tiny amount of epoxy has squeezed out next to the inboard end of the grip. Wait until the epoxy is very hard. Follow similar instructions when installing the left 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 immediately under the contact point you make. Ground shouldn't be made to the handlebars because because some are rubber mounted and perhaps electrically isolated from your system. For this model, the 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) is Radio Shack item and can be installed if you want it. #272-345 or #272-334A or #272-331C. Wire it in parallel as shown & ground one of the leads of the lamp.

Hi-Off-Lo SWITCH: Locate a suitable site for your switch and drill a 1/2" or 13 mm hole in a safe convenient location that does not interfere with anything on the motorcycle and can be reached by left hand. In some cases you will have to improvise a mounting area, because a universal switch mounting suggestion or mounting device is not available to fit 100% of all cycles.

RESISTOR: Mount the resistor securely in an area (an example is illustrated) where it can give off some heat, since it warms up during "low" heat operation, not on plastic as it may damage lower temperature plastics. Ideally mount it on a "pad" of silicone sealant on a metal area or mount it in open air. Secure it with plastic wire ties and/or plastic tape. 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. Solder your wires to the two resistor terminals before mounting resistor if you elect to mount as illustrated here, otherwise difficult to get to. Be sure no interference exists during full range of handlebar motion if mounted in such a area. Use care in locating the lead wires to avoid wear.



Power Source: Many 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. In any case you will want a power source that does **not** remain "On or electrically hot" when the ignition switch is turned off.

You should use a 4, or 5 amp fuse. (The grips normally will draw 2.5 to 3 amps on high, depending on model length). 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 if you want your connections to remain reliable. They tend to oxidize and corrode over time and create problems. Cover all exposed connections with vinyl 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. If you want total variable control of heat, we offer a solid state electronic controller. Pricing as of this printing (1-20-2000) is $38.95 plus shipping cost.

Be sure to check and correct for any interference with vehicle controls and proper throttle operation and throttle return before starting or operating motorcycle.

End Weights: You may drill out the outboard ends of the grips for installation of end weights, if you use a fine tooth hole saw and do not go larger than the handlebar's inside diameter. We have molded in a visual guide on the grip's ends, and we recommend at most 7/8" diameter and be sure to center the drill carefully. 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.

REPLACEMENT PARTS: Acceptable replacement resistors are available from Radio Shack stores. Buy their part # 271-131 (two for $.99) and wire them both in "series" to give you 2 ohms. Each of the Radio Shack resistors is rated at 1 ohm/ 10 watts / 10% tolerance. You can also add additional Radio Shack 1 ohm resistors in "series" to further lower the heat output on "low". The more resistors you use, the lower the heat. Optionally installed light-emitting-diode (LED) pilot light as illustrated is available from Radio Shack part #272-331C

REPLACEMENT GRIPS: If you live in the lower 48 states we can UPS ship you a replacement individual grip for $53.00 each, plus $8.00 UPS shipping cost. As of 4-20-2002 a complete packaged set is $110.00 plus $8.00 shipping and handling. You can write, call or fax us with your MasterCard/ Visa, no other charge cards accepted. We will need your card #, expiration date, telephone number, address that UPS can deliver to, not a Post Office Box. Specify overall length of grip you need, whether you need the throttle side right grip, or the clutch side left grip. We cannot ship to Alaska without an additional $15.00 shipping fee because UPS will not ship by ground service to Alaska, only AIR. For Canada or other foreign, we will have to quote you on the freight cost, so fax or email us. We have found it to be generally $14.- $22. For all foreign check with your local postal authorities on any import tariffs or customs duty that you might be responsible for in your country.

Other Models, troubleshooting tips, support all available at website: www.hotgrips.com

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