



User Manual

Version 2

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Introduction

The LegUp system by Chopper Design Services is intended to act as a stabilization system for Harley-Davidson® touring motorcycles. Other motorcycles and models will follow shortly. The system is NOT designed to be a 4-wheeled vehicle; stabilization, safety and convenience are the reasons to purchase and install LegUp! The system allows your bike to function as it always has when underway. Your lean angle is not affected by this system, so you can enjoy motorcycling as you always have, and just get a little help at slow speeds.

If you have been looking for a system that will keep your feet on the pegs, this is NOT the system for you! On the other hand, if a system that will relieve you of the weight of the bike and help you avoid balance problems as you approach a stop, LegUp is what you need.

LegUp is very easy to use, and we will cover user controls in the text below. It is extremely important that you understand the function of the LegUp System, before going out on the road with it. You must also sign and date the release form before using this system. LegUp will help you enjoy your motorcycle more, but,

“YOU STILL ARE RESPONSIBLE FOR THE BALANCE OF THE VEHICLE!!”

There is one set of controls, mounted above your left switch housing that allows you to access the entire functionality of the LegUp System. Please become familiar with these controls and indicators, so you may enjoy the benefits of LegUp to the fullest.

Thanks for choosing LegUp!

Warranty

Chopper Design Services warrants the LegUp system for a period of 120 days from date of purchase. This warranty covers replacement parts and/or manufacturer defects. Incidental damages or costs are the responsibility of the purchaser.

Defective parts are to be returned to Chopper Design at the address below. Purchaser must contact Chopper Design to receive a Return Material Authorization, prior to returning defective parts to Chopper Design.

Abuse, improper installation or use, collisions or accidents, are not covered under this warranty. Replacement parts for this type of damage are available through Chopper Design.

Users of the LegUp system agree that Chopper Design is NOT responsible for personal injuries or damage to property arising from the use of the system. While we believe this system to be safe and reliable, the user is advised that use of LegUp is done so at the users' own risk. Use of the system implies agreement to the above statements. If you can't agree with the above, Chopper Design and its dealers would be happy to refund your full purchase price, before you use the LegUp System.

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User Instructions

The LegUp® system is very easy to use. Please read this Instruction Manual completely for your safety. Remember, LegUp® helps you maintain the balance of you motorcycle; it does **NOT** balance the bike for you!

COMPONENTS:

1) Control Switch Box

The '*Control Switch Box*' is mounted on your left handlebar switch housing. It contains two switches and two LED's. The leftmost switch is the '**Activation**' switch and the rightmost switch is the '**Maintenance**' switch. Between these switches, you'll find the LED's. The top LED, burns Red or Green. It indicates whether the legs are up (Green) or Down (RED). Once the system is turned on, this LED is always on. The bottom LED, which is yellow, during normal operation, is on only when the legs are up, and it is safe to lower the legs.

2) Linear Actuator

The '*Linear Actuator*' is the power to lower and raise the wheels that help you keep the bike upright. It is mounted on the left side of the bike, just in front of the left saddlebag. A combination of the on-board computer, and your input by the switches, allows the actuator to move the legs and wheels up and down as needed. The actuator tells the computer the exact location of the leg system at all times.

3) On-board Computer Module

The '*On-board Computer Module*' is an enclosure usually mounted inside your left saddlebag. It contains an extremely sophisticated computer, and a set of relays to power the Linear Actuator. The computer calculates speed, wheel/leg location and switch input to operate the LegUp® system. It has an on-

board battery that allows the computer to remember specifics about your particular motorcycle.

4) Proximity Sensor

The '*Proximity Sensor*' is an electronic device, mounted on the left leg of the vehicles swing-arm, near the rear axle. It reads the bolts on the rear wheel pulley, to inform the computer about vehicle movement.

5) Center Stand

The '*Center Stand*', is the attachment point for the LegUp® leg/wheel system. It bolts directly to the frame of the motorcycle.

6) Leg/Wheel System

The '*Leg/Wheel System*' is the centerpiece of the LegUp® system. It attaches to the Center Stand, to secure it to the bike. It includes a set of legs, and a set of wheel holders. The wheel holders attach the replaceable wheels and its sophisticated spring system. This spring system allows you the rider to actually lean the vehicle into a turn while the wheels are down, making slow speed turns much more normally than you would on a 3-wheeled motorcycle.

Using the System

Here we will cover how to use the LegUp® System. The basic steps are to turn on the computer, moving the legs up and down, and maintenance mode. Practice each of these different functions before venturing out to use LegUp®.

Turn on the computer:

If you plan on riding the bike, you will need to start the vehicle before starting the computer of the LegUp®. The system is powered by the bike and will only function with the bike in ignition or accessory modes of the key switch. Starting the bike, takes so much battery power, that turning on the system before starting the bike, will likely turn the system off again, so **ALWAYS** start the bike before the system if you are planning to ride.

To turn on the system, make sure the key switch is in the on or accessory position. Press and hold the '*Maintenance Switch*' (the rightmost switch on the '*Control Switch Box*' on the handlebar). Continue to hold the switch down until the top LED is illuminated (red if the legs are down or green if they are up). It takes approximately 3 seconds for this to occur. This feature makes sure that you want to use the system, and others don't accidentally activate the system.

If this is the first time you turn the system on, or the on-board battery has worn out, you **MAY** see both LED's flashing. If this occurs, the on-board computer does not know the settings specific to your bike as to how far up and down to move the legs. If the on-board battery has failed, you can run '*Maintenance Mode*' (covered later) and use the system normally, replacing the battery as soon as you can (NOTE: in this case, every time you start the system '*Maintenance Mode*' will need to be run until the battery is replaced).

Lowering the Wheels:

Once the system is activated, the only switch you will use is the '*Activation Switch*', the leftmost switch. The computer knows if the

legs are up or down and will tell you by a Green LED (UP) or a Red LED (Down). If the motorcycle is on the kickstand, and the legs are up, you can use LegUp® to help you get the motorcycle to stand up straight. Simply press the '**Activation Switch**' one time, and give some power toward the right with your arms or legs, and LegUp® will help you straighten up the bike. Remember; ***At all times when the bike is still and supported by LegUp®, you MUST have your feet on the ground!!*** While the LegUp® system can easily hold the bike upright, **you and you alone** are responsible for the motorcycles' balance. Chopper Design is NOT responsible for damage caused by your motorcycle tipping over at any time! This system will definitely help you keep the rubber side down, but that is all it is designed to do; help. You will find that you will barely have to exert any strength to maintain this balance; that is the beauty of LegUp®.

Now that the bike is upright, you can drive off, push the vehicle around more easily than ever before, or now that it is balanced, manually raise the wheels!

Raising the Wheels:

To manually raise the wheels, another single press of the '**Activation Switch**', will raise the wheels. You may notice that whether lowering or raising the wheels, the top LED will flash Red/Green while the wheels are in motion. This occurs whenever the wheels are moving, something that is VERY handy when you allow LegUp® to automatically raise the wheels.

If you choose to just ride off when the wheels are lowered, you can do just that and raise the wheels in one of two ways. If you choose, as soon as the wheels start to turn and you are comfortable, you can manually raise the wheels as described above. Your other choice is to just drive off normally and allow LegUp® to raise the wheels for you. At approximately six M.P.H., if you are accelerating, LegUp® will automatically raise the wheels. Again the top LED will flash red/green to tell you it is raising the wheels. Once complete, this LED will burn green to tell you the wheels are retracted.

If you find yourself in traffic with the wheels down, you can move the bike at slow speeds with them lowered (remember your legs are down

as well, helping to balance the bike). Be Careful! If you are moving with the legs down and you get over six M.P.H., the legs will raise themselves automatically. You will need to get used to how and when the legs will come up automatically, and monitor the LEDs to make sure where they are.

Normal riding:

During normal operation, LegUp® is unobtrusive. Riding down the road, the system does not get in the way of your lean angles or any other function of your motorcycle.

If you are riding and approaching a stop, you will want to be prepared to lower the wheels. LegUp® will only allow you to bring the wheels down at speeds under 10 M.P.H. The system will tell you by way of illuminating the lower (Yellow) LED on the ***'Control Switch Box'*** when you are at a slow enough speed without any acceleration. Once this LED is lit you can press the ***'Activation Switch'*** one time, and the legs will begin to lower.

At speeds under 20 M.P.H., if you press this switch, the LED will blink, indicating that the system will lower the wheels when your speed is reduced to approximately 9 M.P.H. Let's call this ***'Ready Mode'***. In ***'Ready Mode'*** the yellow LED will blink for as long as you maintain a speed over 10 M.P.H. You can cancel this by pressing the ***'Activation Switch'*** again. The LED will stop blinking. Using ***'Ready Mode'*** let's you tell the system you want the wheels lowered at the next stop, allowing you to concentrate on controlling the motorcycle. Just stop as you normally would, and the wheels will come down in this semi-automatic fashion. It takes approximately two seconds for the wheels to lower.

We suggest making controlled stops, slowly approaching these stops as best you can, to make the transition to wheels down as seamless as possible. Again, if you ask the system to lower the wheels, you **MUST** be prepared to lower your legs as well for safety. A little practice and you will see how easy it is to adapt your riding style to the LegUp® system. Practice; Practice; Practice in a safe area at slow speeds to get used to LegUp®.

As discussed earlier, once stopped and balanced, you can raise the wheels manually if you wish, or leave them down until underway!

If the wheels are down, and your first maneuver under acceleration is a turn, you can lean into this turn a small amount (this avoids what we call trike syndrome) and drive off allowing LegUp® to raise the wheels at the appropriate speed. You may find it takes a little extra nudge for the bike to lean; this is normal as you are asking the springs in the wheels to compress! You will also find that LegUp® only allows a certain amount of lean (plenty for slow, non-aggressive turns), without scraping the wheels system on the ground. Again, this is normal and the wheel system can take a good deal of punishment if you lean too far. Practice will show you how far you can lean into a turn with the wheels down. If this concerns you at all, consider raising the wheels before or as soon as you start moving to avoid this situation. Only you can learn how you might like using LegUp® to best suit your riding style.

In the event you choose to lower the wheels manually as described above (under 10 M.P.H. & Yellow LED Lit), and change your mind (the light changes or you decide to continue forward for whatever reason), another single push of the button, will raise the wheels immediately.

Things to remember:

Top LED Red – Legs are down

Top LED Green – Legs are up

Top LED Flashing – Legs are moving

TOP LED Green, Bottom LED Yellow – Legs are up and can be lowered If you wish.

Top led Green, Bottom LED not lit – Legs are up and you are traveling too fast to lower them.

Top led Green, Bottom LED blinking – Legs are up and you have initiated '**Ready Mode**'. The legs will lower automatically when your speed is reduced sufficiently.

ALWAYS help LegUp® balance your bike!

ALWAYS help LegUp® balance your bike!

Other Features and Operations:

Turn off Computer:

Typically you won't have to turn off the system. It is automatically turned off when you turn off the bike. In the event you wish to turn it off for another reason, it gets turned off in the same manner as it is turned on. Press and hold the '**Maintenance Switch**' (the rightmost switch on the '**Control Switch Box**' on the handlebar). Continue to hold the switch down until the top LED is extinguished. It takes approximately 3 seconds for this to occur.

Maintenance Mode:

Maintenance mode is a system that allows LegUp® to get to know your bike! It is used upon initial installation, whenever changes to the height of your motorcycle occurs (lowered shocks, heavy loads, etc.), or in the event of a computer battery failure (as outlined previously).

The purpose is to allow us to teach the LegUp® system what you consider to be 'Legs Down' and 'Legs Up'.

To enter 'Maintenance Mode', the system must be started. We recommend that you start the bike for this operation. The leg position is based on voltage, and the voltage is different with the bike running than when it is off!! Assuming this is the case, first press and hold the '**Maintenance Switch**' and immediately press and hold the '**Activation Switch**'. Continue holding both switches until both LEDs start flashing, and release both

switches. This double blinking of the LEDs indicates that 'Maintenance Mode' has been started.

The next step is to balance the motorcycle as straight up as you can (get help with this if needed). Now press both buttons simultaneously for just an instant. This should make the lower (yellow) LED blink.

This system is now ready to set the 'Down Stop'. If you press the left button momentarily, the legs will move down for as long as you hold it down. Similarly pressing the right button will raise the legs. Keep your weight off the seat, and set the legs down until it slightly raises the suspension of the bike or stops on its own. This will allow the actuator to press the legs onto the ground firmly during normal operation.

Once you are satisfied with the 'Down Stop', you can set the 'Up Stop'. Momentarily press both buttons. The Top LED should begin to blink. At this point, pressing the right button raises the legs, the left lowers them. We recommend raising the legs until they touch the bottom of your saddlebags (don't worry, a rubber pad protects the paint). By raising the legs as high as possible, you have the best chance to be able to lean your bike over as far as you can without touching part of the LegUp® system in a steep lean.

If you are satisfied with the 'Up Stop', you can leave maintenance mode. **Caution:** the legs can lower unintentionally if you are not cautious, so be prepared for this. If you press both buttons momentarily, the system should return to its normal operating mode.

We recommend that you now sit on the seat, and test both the lower and upper stops while sitting still. If you are satisfied, you are done, if not, just start over as described above.

LegUp® will remember the settings you just made indefinitely, with or without power applied to the system. Only if the computers' battery fails, will these settings be lost. As stated

earlier, in this event, you can run 'Maintenance Mode' and go enjoy your ride, then contact us for a replacement battery.

ENJOY your LegUp® !!!

Using LegUp® as a Kick Stand:

The ‘Actuator’ of the LegUp® system, will remain in whatever position it is in when power is removed. With this in mind, you can store your bike in the upright position if you wish with the following cautions:

A bike with the wheels down **CAN** be pushed over!

We suggest you lower your kickstand, balance the bike, and lower the wheels, then turn your handlebars to the left slightly. Using this method, if something breaks, or the bike is bumped hard, it will land on its’ kickstand.

Using LegUp® to Help you lower the Bike onto the Kickstand:

If you want to let LegUp® help you put the bike on the kickstand, all you need to do is have the wheels down when you get the bike to where you want it to be parked on its’ kickstand. Assuming the system is on, balance the bike, lower the kickstand, and press the left button. LegUp® will lower the bike gently onto the kickstand.

Using LegUp® to Help you raise the Bike off the Kickstand:

If you want to let LegUp® help you raise the bike off the kickstand, all you need to do is have the system on with the bike on its’ stand, and the wheels up. Straddle the motorcycle, press the left button, and lean the bike just a bit to the right. With just a little help from you, LegUp® will raise the bike fully upright!

Pushing your bike with the wheels down:

With Caution, you can push your bike out of parking spots, or move it forward or back to clean the tire/wheels. Understand that LegUp® will hold the bike up, but with the right nudge, over it can go!