



Installation Manual Harley Softail Bikes 1987-Present Version 2

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INTRODUCTION

This manual covers installation of the LegUp Landinggear system by Chopper Design Services. This system should only be installed by a qualified technician, or those with above average mechanical skills. If you are not SURE that you can perform this installation, please contact us and we will help you find a qualified shop to assist you.

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.

Improper installation will void your warranty, so please be very careful!

Thanks for choosing LegUp!

Warranty

Chopper Design Services warrants the LegUp system for a period of one year 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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Installation Instructions

The LegUp® system has many components. Please be sure you have them all before starting your installation.

COMPONENTS:

- 1) **Control Switch Box**
- 2) **Linear Actuator**
- 3) **On-board Computer Module**
- 4) **Proximity Sensor**
- 5) **Leg Support Stand**
- 6) **Leg/Wheel System**
- 7) **Hardware Bag**
- 8) **Actuator Bracket**

If you believe you are missing any parts, please contact Chopper Design at 407-834-5007, and we will rectify the situation.

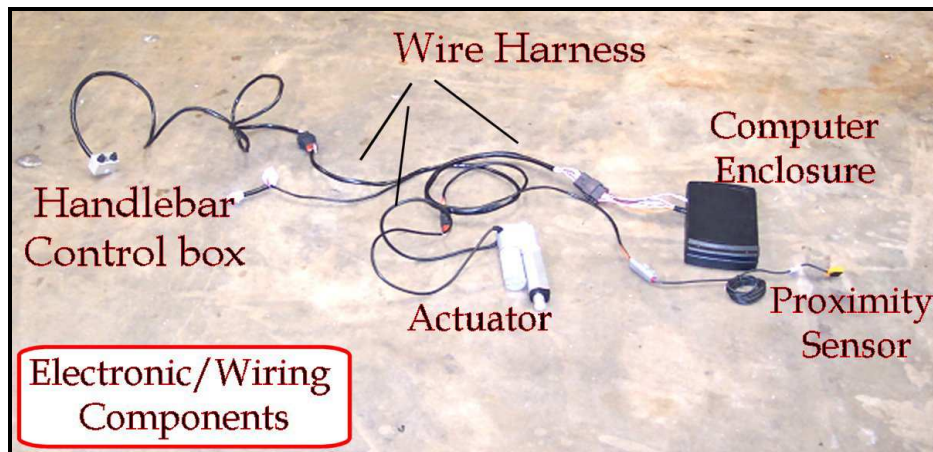


Figure 1

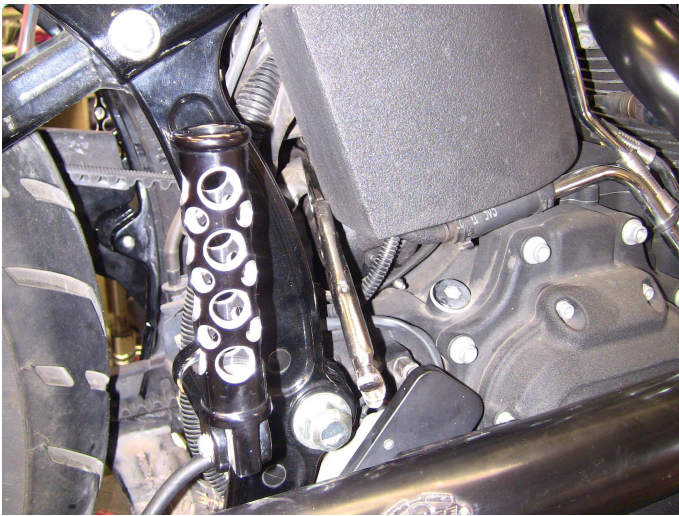
PREPARE FOR INSTALLATION

IMPORTANT! *Harley Softails® must be at STOCK height in order to install LegUp. Saddlebags or a Harley® right-side kidney-shaped toolbox must be installed on the bike. This is Imperative in order to keep the computer module out of the weather.*

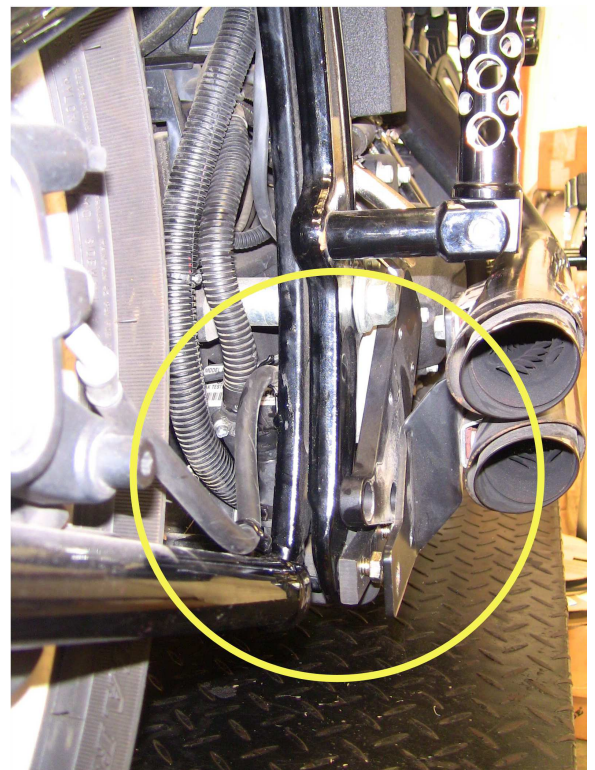
Place the motorcycle on an acceptable bike lift. You will need to keep the bike on its wheels for most of the installation, and jack the rear wheel off the lift for some portion of the installation. Make SURE the motorcycle is secure on the lift!

SPECIAL NOTE FOR SOFTAILS WITH FIXED OIL DRAINS IN THE FRAME!!

If the bike has a fixed, frame-mounted oil drain (Later Models), you have two choices on how to handle this situation. We have supplied a hose and some fittings which will allow you to relocate the oil line away from the LegUp Mounting plate, or you can drop the mounting plate when you change your oil (6 Bolts).



If you wish to relocate your drain (which is what we recommend), take the rear splash pan (just in front of the rear tire off) and expose the drain line.



We used a vice grip to clamp off the oil line at the rubber near the tank, or you can drain the oil if you wish.

Next remove the clamp at the top of the small rubber hose that attaches to the frame. Install the provided hose into the now exposed plastic tube, and secure it with a hose clamp. It is easier to run the new hose from just below the transmission cover, toward the back, to meet the tube.



Once this is accomplished, you can see the line and the drain fitting lying near the frame rail.

This should be tied down with a wire tie, **AFTER** the installation.

To drain your oil, cut the wire tie, and either remove the Allen head plug from the brass fitting, or remove the barbed brass fitting from the hose. Older models have this type of drain hose already!

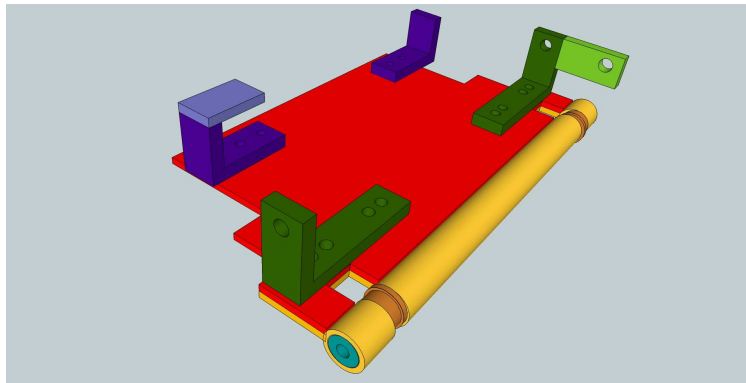
Remove the vice-grip and check for leaks then re-install the rear splash panel.

After you take care of the drain line setup above (if required), remove the seat and saddlebags (if installed), they are not needed until the very end of the installation.

We are now ready to begin!

INSTALL LEG SUPPORT STAND

LegUp has developed a new, stronger attachment system which replaces the Harley-Davidson® center stand previously included in the kit! You will need to remove most all of the exhaust system, in order to install the support stand. Remove the right front floorboard the entire right exhaust pipe, and the left rear floorboard. These need to be removed to allow access to the swing arm pillow block lower bolts, which attach the support stand to the motorcycle.



Leg Support Stand

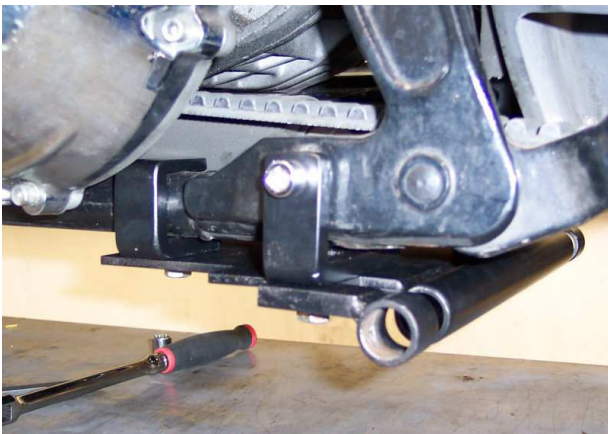
If you haven't already done so (or we didn't do it for you), install the uprights (dark green above) to the plate. ***Please Note: on later model Softails with wide tires, the left rear support must be mounted using the inside hole pair (the one closest to the edge and the one two inches from that!).*** These uprights bolt to the plate on the top with (4) 3/8" bolts and lock washers. The Axle Holder (round pipe above) MUST be below the plate. If not, we screwed up, so install the uprights on the plate so the axle holder is at the bottom. Remove the bolts from the muffler bracket on the right side, and loosen the nuts that attach the exhaust to the cylinder heads just a little to allow the exhaust to pivot. On the left side of the bike, you will have two holes like the ones that hold the exhaust on the right. There may be plastic plugs in these holes. If the plugs are there, remove them (good luck, they are a pain!). Make sure the U-shaped bracket on the front of the plate is loose, as are the upright bolts. Once this is done, use a helper and gently slide the plate (red above) under the bike. It gets located under the frame and lines up with the front bolt on the left side upright, and both holes from the muffler bracket. The U-shaped bracket just slides over the frame on the left side and the L-shaped bracket just rests against the frame on the right. Depending on the bike, you can place the right upright inside or outside of the muffler bracket. This upright has a slot to allow it to move in or out as required. Lift the stand until the holes in the uprights align with the holes in the frame as described above. Install the bolts provided (2 on the right through the muffler bracket, and 1 on the left side) through the uprights into the frame, but leave them loose.

Now align the U-bracket on the frame (you may need to remove the bolt to get this done). All of these bolts need to have some Blue Locktite on them. Once all the bolts are started, verify that

the uprights are exactly vertical and start tightening all the bolts. The bolts that hold the uprights to the plate, the upright to frame bolts, and the bolts that hold both forward brackets on the plate, all need to be VERY snug!

The long stainless steel shaft with the small bolts in the end will slide into the pipe on the support stand. Just set this aside for now.

Once the support stand is installed, we can move onto the installation of the actuator bracket. DO NOT Reinstall the Exhaust System or Floorboard Yet!



Stand Installed - Left Side View



Stand Installed – Right Side View

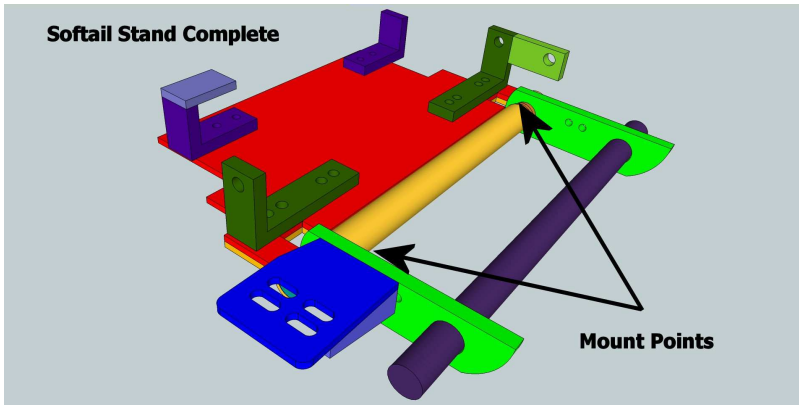
ACTUATOR BRACKET

The actuator bracket mounts to the vehicle on the bolt that holds the left rear passenger peg. Remove the peg and the bolt, install the bracket underneath the peg support, and reinstall the bolt with thread locker. The wings of the bracket should line up with the castings on the frame, keeping the bracket from pivoting under load. This should be a tight fit! If it is too tight, you can file off a small amount if need be. For older bikes, we should have opened the mount hole to ½" for you, and you will have a bolt with a nut behind it (the frame is threaded on newer bikes). Attached to this bracket is the upper actuator mount (brushed aluminum) with the upper actuator axle. This mount is left intentionally loose and will be tightened during the alignment of the actuator. This bracket should fit very snugly. Tug on it to make sure that it will not rotate when the legs are lowered. If you have any problems, please call us immediately.



You may notice a small hole on the bottom of this bracket. If you are installing LegUp on a Heritage, you should have a rubber piece that supported the front bracket of the saddlebags, mounted to a bracket. Carefully remove that rubber piece (it is threaded) from the bracket and install this in the lower hole on the Actuator bracket. Your front saddlebag bracket will be mounted to this later.

LEG/WHEEL ASSEMBLY



First remove the bolts from the stainless steel rod in preparation for mounting the legs. With help from an assistant, slide the Leg/Wheel Assembly around the rear tire (careful of the finish!), and align the Leg Mounting Points (green) with the slots in the Support Stand. If available a very small amount of 'Never Seize' on the shaft is in order here. Then start the

stainless steel shaft in from one side through the tube on the support stand, and through the first leg mounting point and its bushing. The fit is tight, so take your time. Carefully work the shaft through the tube and the second leg mounting point. The shaft is inserted properly when there it is inserted just past (approximately 1/8") the end of the tube. This distance should be about the same on both sides, but it is not critical as long as both sides are inside the tube. If you need to, you can tap lightly on the shaft (brass drift is preferred here). Once the shaft is in place, use a small amount of blue thread locker and install the (2) chrome bolts and washers on the end of the shaft to finish it off.

Make sure the legs move up and down without any binding!



MOUNT ACTUATOR



Remove the axles from both the upper and lower actuator mounts, and set them aside. Align the actuator, motor side (big end) down with the hole in the lower actuator mount, reinstall the axle, and start it threading into the mount. With someone supporting the wheel assembly, raise the legs until the top hole in the actuator is aligned with the upper actuator mount. Install the axle in this mount as well (some wiggling may be required!).

NOTE: If the actuator is too short to reach the other mount you may have to lengthen it using the system. Temporarily plug the wiring harness into the bike, and follow the direction for 'Maintenance Mode' in the

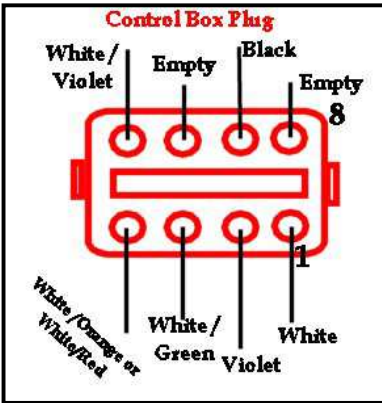
'Initial System Test' section below. Using what would be the left button on the switch box, just add a small amount of length to the actuator so you can align the mounts, then turn the bike back off.

PLEASE NOTE: If you have a late model Softail with the wider frame and installed the left rear upright to the inside holes, the aluminum actuator mount SHOULD be mounted to the outboard holes, otherwise the inboard holes. If the Actuator does not line up, move the aluminum mount appropriately!

At this point you need to make sure that the mounts are in alignment and the actuator is not in any sort of bind! If possible, snug up the actuator mounts in whatever position is the best with the actuator in its mounts. If needed, mark the mounts with a Sharpie, remove the actuator, tighten the mounts and reinstall the actuator. Make sure the axles slide in easily and there is no bind at all. Apply a drop of Blue Loctite to the threads of the axles before tightening them. **MAKE SURE** there is no bind or the actuator will fail prematurely!

CONTROL SWITCH BOX

Remove the bolt on the top of the left switch housing. Find the long chrome bolt, thread it through the Control Switch Box, insert spacer on bolt and (with a drop of Blue Locktite), thread bolt into switch housing. Square the box before tightening the bolt (you may have to re-align the mirror for clearance). Route the wire inside the clutch lever and down the bar. Use wire ties to hold the wire to the bar. On Fairing bikes, route the wire into the fairing along the clutch cable and fish out the bottom left side of the fairing.



On Windshield bikes, route the wire down the bar, and thread it into the Nacelle, fishing it out the bottom left side of the Nacelle (it may be easier to tape the silver plug ends together for this).

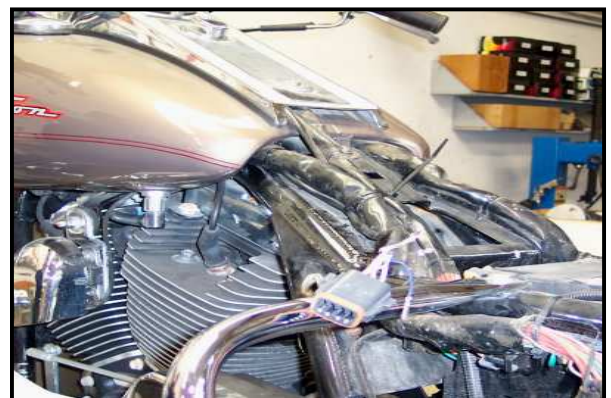


Once the wires are available at the bottom of the fairing or nacelle, thread the wires under the tank to end up under the seat area. On some bikes it is easier to loosen or remove some of the tank mounting bolts. Make sure the wires do not interfere with anything under the tank, and that there is nothing that would chafe the wires. Once the wires are under the seat area, you can assemble the plug according to the picture



above.

NOTE: 95 and earlier models will come with a switch box that is mounted on a bracket that bolts to the bracket that hold the clutch perch to the handlebars. Replacement bolts and spacers are provided for this bracket.



WIRING HARNESS

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE Harness!

The next step is to route the wiring harness. The harness and the plugs are routed mostly under the seat. Different models have different amounts of space in this area, and all the wires are



long enough to allow you to place the connectors in the best place for your bike. What you need to do is get the eight pin plug and the double white plug from the harness to the area under the seat. The large 12 place plug attaches to the Computer Enclosure, and that plug needs to land near the left saddlebag, or the right side toolbox as described earlier. The plug from the Actuator (5-wire) and the plug from the Proximity Sensor (3-wire), need to be routed toward the actuator bracket, and the rear swing arm, respectively. At this point just route the wires into the general area and plan where you would like to tie them up safely. The

Proximity sensor is not mounted yet because we need to have power to make sure it is placed perfectly, so just route the wire for now. You can collect any excess wire under the side cover when the time comes.

Disconnect the fender plug under the seat, and plug the double white plug in-between the plugs from the bike.

NOTE: If you have a pre-1996 bike or a 2010 or later bike, you will have two wires (no white plug) and will need to connect these to switched 12-volt (orange) and ground (black). See Addendum at the end of the manual.



Connect the Control Switch Box plug to its mating connector under the seat, and plug the actuator and proximity sensor plugs to their matching connectors.

Plug the computer enclosure plug in its mating connector as well. Lay the enclosure on the lift or support it somewhere... Don't dangle it by its cord! Don't worry, the plugs only work one way... you can't make a mistake here!

Don't tie down the wires just yet but if you have all the plugs connected, we can do a quick test of the system. There are 2 things we want to check here. We want to make sure the controls work, and we want to check the light on the proximity sensor is functioning.

INITIAL SYSTEM TEST

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.

Turn your bike to **Accessory Mode**. Counter clockwise on dash mounted switches, or all the way clockwise on other bikes. Typically your speedometer or tachometer will illuminate as well as your rear fender light. At this point, have a look at the yellow proximity sensor. The **RED LED** (ON The Sensor) **Should Not Be Lit**. Take a metal object (screwdriver, wrench, etc) and hold it on the flat face of the sensor (it has a circle embossed in it). The LED should light up, and go out when you move the metal away. If not, check all your connections.

Next, press the rightmost pushbutton and hold it for at least 3 seconds. One or both LEDs on the switch panel should light up; we really don't care which at this point. If this occurs, you are doing well. If both LEDs are flashing (maintenance mode) you can skip the next step which is to press both buttons until both LEDs flash.

Next press both buttons for just an instant! If everything is working, the bottom or yellow LED on the switch box should flash, and the top LED should be out. The next step, and be careful here, is to touch the left button for a split second. The legs should move down just a bit. Touch the right button, and they should move up. With the bike on the lift, ***you have to be very careful here!***

If all of the above has occurred, raise the legs. Press and hold the right button until it stops, and turn the ignition switch off!

The test is now complete. Let's move on to mounting the Proximity Sensor.

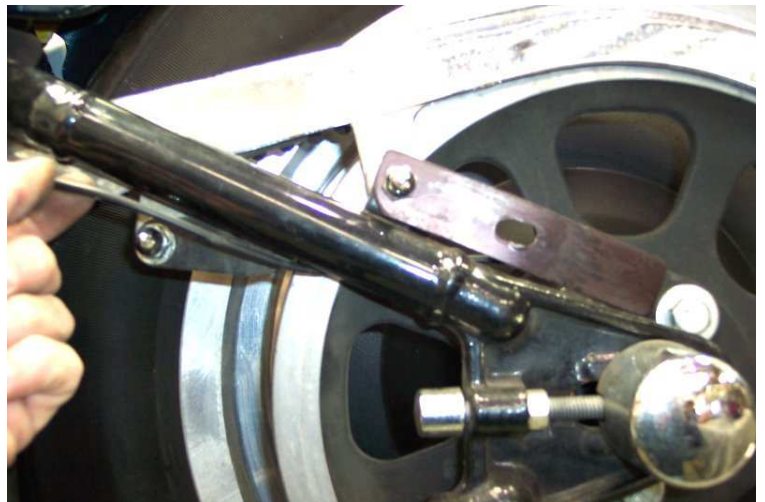
MOUNT PROXIMITY SWITCH

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.

This step is crucial!! Understand it before starting. The proximity sensor tells the system how fast the bike is traveling. The proximity sensor mounts to the swing-arm at the rear pulley. Depending on the year of the bike, it will mount 5MM from the pulley bolts or we will be attaching metal squares to the face of the pulley. No matter what type of pulley is on your bike, you need to jack up the rear wheel so we can spin it to test the sensor and its placement. Make sure the bike is in neutral.

BIKES WITH PULLEY BOLTS

With the bike up as described above, turn the ignition switch to the accessory position. The LED on the sensor should be out. Bolt the proximity bracket to the rear-most bolt on the belt guard, so the sensor aligns near the pulley bolts. Adjust the bracket so the main part of the sensor is aiming at a pulley bolt and is centered on it (you may have to turn the wheel to do this). What we are looking for is for the LED to go bright and OFF as a pulley bolt passes the sensor. Play with this by rotating the wheel back and forth while holding the bracket in place. Once you feel you have the right place, hold the bracket steady and slowly rotate the wheel. Every time a bolt passes, the light should get bright when the bolt is nearby and off after it passes.



If this is not happening, you may need to get the sensor a bit closer to the bolts (5MM is a very small distance!). If you have to move the sensor closer, you may have to bend the bracket a bit. No matter what you need to do, you **MUST** make sure that as the wheel turns, the light works as described above! Once you are certain, tighten the bolts and test again! The automatic retraction of the legs as well as their deployment **RELIES** on this sensor being placed perfectly!

Once satisfied with the mount, skip down to the wire routing instructions below.

WIRE ROUTING

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. The Proximity sensor is NOT part of the LITE system!

Detach the Sensor from its mating plug to allow you to permanently route its wires. Guide the wire from the sensor down to the swing-arm, and using self-adhesive clips or wire ties, route the wire on the bottom of the swing-arm toward the actuator, making sure the wire stays snug (not tight). Usually it is best to join the wire to the leads from the actuator, leaving some slack, to allow movement on the actuator, as well as the swing-arm. Then route these wires into the area under the left side cover, where they will be connected again to their mating plugs. Extreme care must be used here to make sure everything clears the belt and is secure. On some bikes removal of the lower belt guard may be required.



Unplug the Computer Enclosure from the harness, and using the Velcro, attach the enclosure with the wires facing the left (as viewed from the left). Make sure it reaches its mating plug, and that the plug will not rub on anything if the enclosure is disconnected. Also make sure that it is reasonably easy to plug and unplug this connector with the bag loose. We suggest leaving the plug connection inside the bag, but it can be left outside as it is waterproof. On bikes with toolboxes, you will have to find your own way, but we suggest you drill a hole in the back to route the wires into the box. You will need to dismantle and reassemble the plug to do this.



Use wire ties to make sure that all wires will stay where you put them and that they will not come in contact with the belt or anything else that moves.

While you still have the bike raised, turn on the LegUp system (see owners manual). It should start in maintenance mode, but if it doesn't, please enter maintenance mode (again in the manual). Now carefully, lower and raise the legs and make sure the wires are not binding and that they clear everything! Raise the legs most of the way and turn off the bike. Now we are ready to button everything up.

FINISHING UP

Now it is time to tighten the exhaust, and do final checking of everything! Reinstall the saddlebag if you haven't already. We recommend using maintenance mode to get the legs up high but still below the mufflers. How high you can move the wheels up, depends largely on your exhaust system. Turn off the ignition switch when complete so as not to have the computer set it's up and down settings until later. Reinstall the seat making sure all your wires are routed neatly, tied off nicely and don't interfere with the seat installation. If you installed a drain hose extension, make sure you secure it to the frame with a wire tie. Once you are comfortable that everything is correct, double-check all your bolts for tightness, and get the bike off the lift so you can dial in the actuator, and adjust the wheels.

ACTUATOR ADJUSTMENT (Maintenance Mode)

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Skip this section if you have a LITE System.

Once you have the bike on the ground, turn the ignition to the accessory position and start the LegUp System (hold right button for 3 seconds). The system should enter maintenance mode automatically (Both LEDs Flash), but if it does not, enter maintenance mode manually (Both buttons for 3 seconds). With a helper nearby, straddle the bike, and hold it level. Hit both buttons for an instant to get the system in the "DOWN" setting mode (yellow LED flashing). Straddle the bike so your weight is NOT on the seat, hit and hold the left button until the wheels contact the ground and stop. Make sure that the suspension raises a bit as you do this. If not, the legs are not going down far enough, the bottom actuator mount may need to be moved left or right a bit to get the wheels all the way down (Contact LegUp for assistance if you need help with this). Once these wheels are down as described above, try to put both feet on the floorboards. The bike should be reasonably stable and you should be able to lean a bit in both directions without the bike falling over. The DOWN stop is now set!

Hit both buttons for a moment to get into the "UP" stop mode (top LED blinking). Carefully use the right button to raise the legs. Have your helper let you know as you approach anything that may come in contact with the wheels or the legs. You also need to make sure the system clears pipes, clamps etc. If you can't make the clearance to allow the legs to come up all the way, you can set the up stop just below whatever is interfering (if not, you will likely set up a permanent rattle!) Hit both buttons when complete, and you will be done with these adjustment. Now press the left button and the legs should lower. Hit it again and the legs should retract.

If you are satisfied with these limits, you have successfully installed the LegUp System. Time for a test ride!

TEST RIDE

NOTE: If you have a LITE System, Please refer to the addendum at the end of this manual, for differences between a Regular and LITE system. Deployment and Retraction of the wheels is COMPLETELY MANUAL if you have a LITE System.

Get the bike to a clear paved mostly level area where you can test ride it. Start the bike, turn on the LegUp system and lower the legs. The first test should be done in a straight line. Put the bike in gear and slowly accelerate. You may notice that the bike tends to want to steer a small amount left or right. This is normal unless it is severe. Once underway, the top LED should flash at around 6 MPH, meaning the legs are retracting. You can lean on one wheel or the other as you leave to reduce any darting the system may be giving you.

Assuming the legs are retracted, you should try to deploy the wheels. As you come to a stop, the Green LED should be on. As you slow down (**almost stopped**), the Yellow LED should illuminate at the proper speed. Once it does (sometimes hard to see), hit the left button and put your feet down near the ground. The top LED should flash and you should soon feel the wheels deploying underneath you! Make sure you are ready to balance the bike! Uneven ground or lack of familiarity could make the bike want to lean one way or the other. With your feet ready to balance the bike, this should be no big deal. The slower you are going when deploying the wheels, the smoother the transition will be from wheels up to wheels down. Practice these maneuvers until you are comfortable with the wheel adjustments and the system operation.

SEMI-AUTOMATIC DEPLOYMENT: Another way to deploy the legs is to hit the left button while you are running at any speed over 10MPH with the wheels up. The bottom or yellow LED should start to flash. When you slow down to around 8MPH the wheels will start to deploy (see the red/green flash on top LED). Again prepare to put your feet down.

NOTE: The bottom LED Should not be LIT if the legs are up over 10MPH! In the event it is, the wheels will deploy instantly if you try to set them as above; this is dangerous! You MUST re-visit the sections on testing the proximity sensor. You should always be aware that this light should NOT be on if you are traveling at speed, and 'Arming' the system for deployment should only be attempted if the lower LED is Not Lit! Please see the User Manual for more information on Proximity Sensor Failure!

The next thing to try is to make a turn right after a dead stop with the wheels down. As soon as you start the bike moving, try a left or right turn immediately by leaning into that turn. You may find that you have to nudge the bike a little bit more than usual to get the bike to lean, and you won't be able to lean as far as you can with the wheels up. Once into the turn, accelerating will raise the wheels. You will hardly notice the wheels coming up unless you see the top LED blinking!

The next thing to try is slow speed maneuvering with the wheels lowered. In a straight line on level ground, you should be able to keep your feet on the floorboards and move the bike forward at very slow speeds (simulate stop and go traffic). I like keeping my feet near the ground during these maneuvers! You can also try small 'Trike' turns; keeping the bike upright at slow speed and making turns as you would in a parking lot. Be aware that if you get over the speed that the legs come up, they will!!! Another thing I like to do is donuts. Start out slow, lean the bike left or right, and make circles at very slow speeds (throttle on, rear brake on, clutch slipping... you know like the cops do!). This helps you get familiar with the wheels being on the springs and allowing a lean angle!

Practice, practice, practice!! Enjoy your LegUp System!

PRE 1996 AND 2010-UP WIRING ADDENDUM

On bikes older than 1996 and bikes 2010 and later, the plug for the fender wiring cannot be used as it is on other models. Our wiring harness will have two wires where the white plug would normally be. These two wires will be orange and black.

The orange wire **MUST** be hooked up to something that turns on and off with the bike. Usually a wire that is blue or more preferably orange or orange with a white stripe is safe. We recommend you find what you wish to use, test it and cut, solder and heat-shrink the wires for safety.

The black wire can be hooked to any ground; the battery, a screw on the frame, or any black wire in the harness.

LEGUP LITE - ADDENDUM

If you have a Lite System, there are a few differences in the wiring compared to our Regular system.

The plugs and their locations don't change at all! Instead of plugging in the computer to the twelve pin plug, the Relay-Pack gets plugged into this plug. The Relay-Pack will be attached with Velcro as the computer would have been in the same location.

On the LITE system there is no proximity sensor, so ignore the testing and mounting of this sensor, and realize that the three pin plug will be left without a mating connector. We keep this plug in the wiring harness in case you upgrade to a regular system in the future.

Using Your Lite System:

Unlike our Regular System, you don't turn the **LITE** system on, or adjust the legs as described in the '**Maintenance Mode**' section of the manual. When you turn your bike on, the LITE system is ready to go! Press and hold the left button to lower the wheels, press and hold the right button to raise them. No lights will flash; it is up to you to control the system manually!

Please use EXTREME Caution when using the LITE System! Keeping the wheels lowered at speeds over 9MPH can be dangerous. Since the system is manual, please don't allow its' operation to distract you from controlling the vehicle!

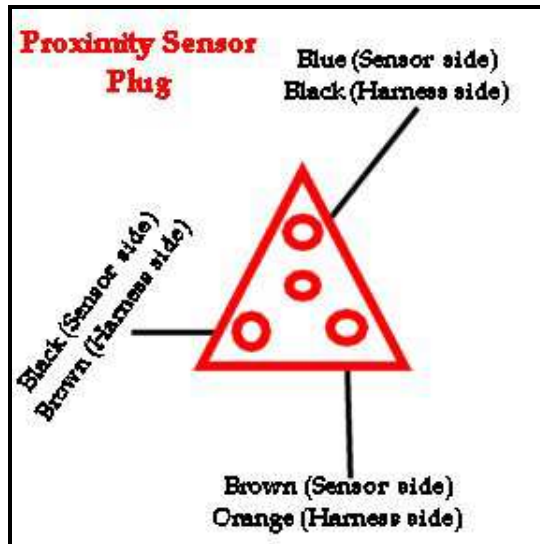
Upgrading Your LITE System:

If you have a LITE System and have chosen to upgrade it to the regular system, there are just a few things you need to do. Unplug the Relay-Pack, and plug the computer in where the Relay-Pack was attached. Run the wire for the proximity bracket and plug it in, test it, and mount it, as described in the '**MOUNT PROXIMITY SWITCH**' section of this manual.

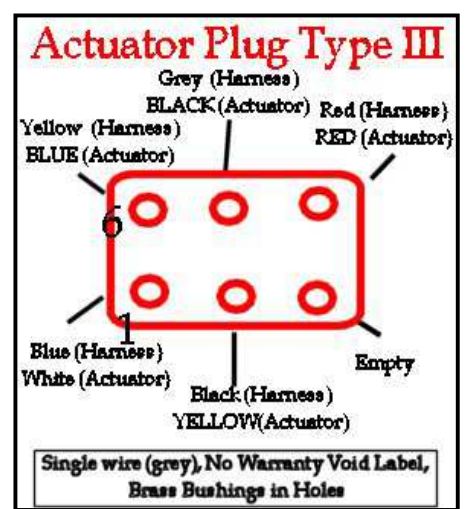
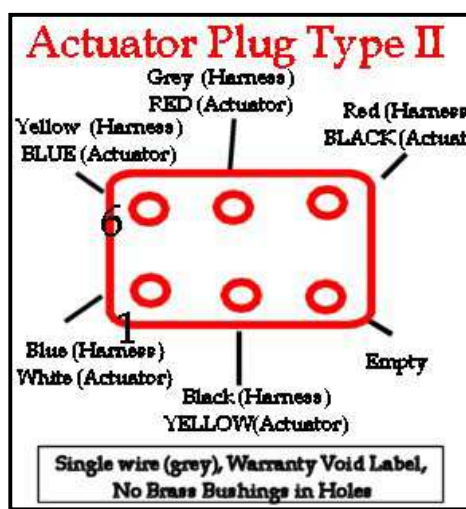
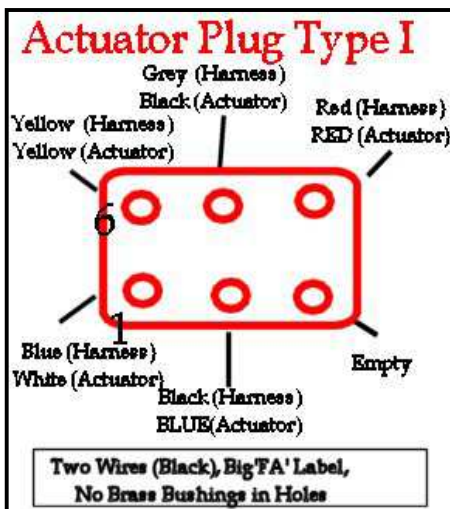
Once the new pieces are attached and plugged in, refer to '**ACTUATOR ADJUSTMENT (Maintenance Mode)**', earlier in this manual to set the lower and upper stops for the computer.

That's all it takes!

ILLUSTRATIONS



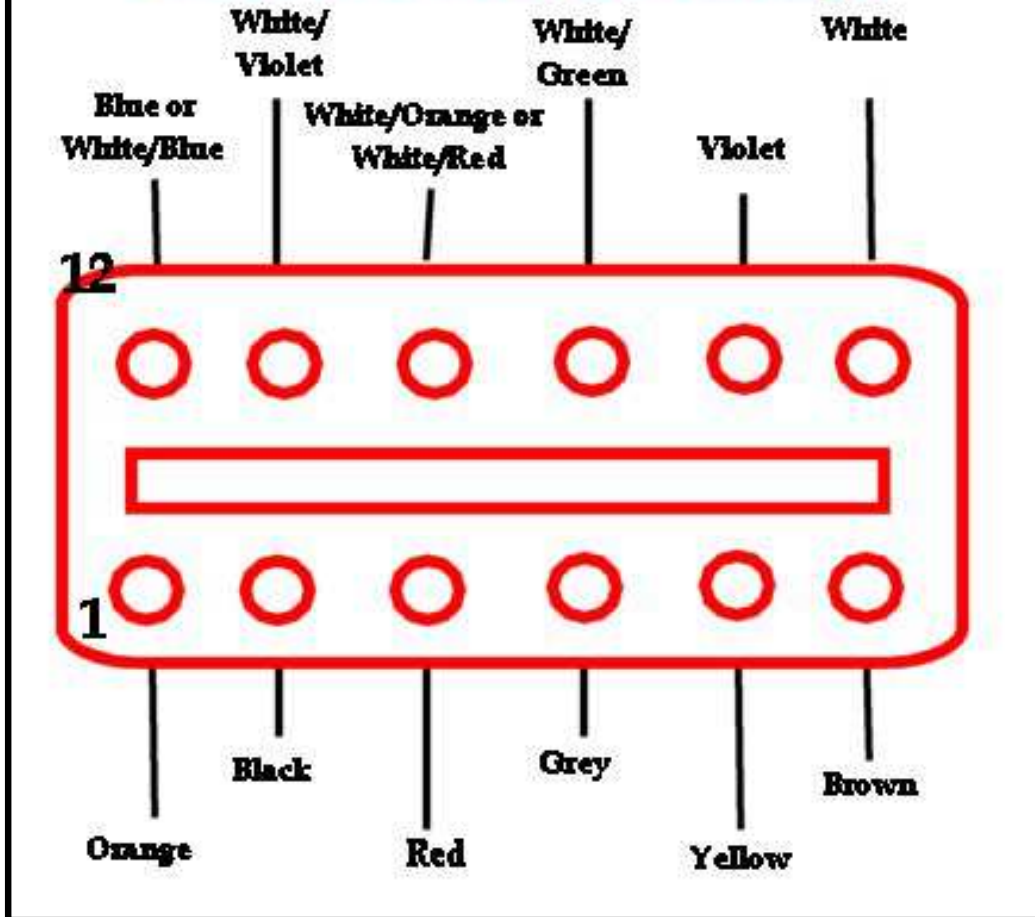
Wiring 1



There are three different types of actuators with three different wiring configurations. Refer to the notes at the bottom of the pictures above so you can match your actuator with its wiring scheme!

Wiring 2

12 Place Enclosure Plug



Wiring 3

Parts List

- (3) 3/8-16 X 1 1/4" Chrome Allens w Split Washers
- (2) 5/16-18 X 3/4" Cad Bolts w Split & Flat Washers
- (4) 3/8-16 X 1 Cad Bolts w Split Washer (& 2 Flat Washers)
- (1) Foot 1/2" Hose with Fittings

Wire Ties & Self Adhesive Straps