

RiderWest

Tip-Over Wing LED Strip Kit for the BMW K1200LT

This kit includes everything you need to add super-bright LEDs to the black tip-over wing covers of your K1200LT. When wired as per these instructions, the LEDs act as both running lights and turn signals, giving you greater conspicuity, especially when turning or changing lanes.

Installation is straightforward—most steps take longer to explain than to actually perform. This document is 13 pages long because the steps are highly detailed and there are a lot of photos.



TIP It's a good idea to read a section all the way through and study the photos before you start drilling, cutting, or crimping so you know what to expect.

If you have any questions about this kit, contact support@riderwest.com.

You can download a full-color version of this document from our Web site: www.riderwest.com.

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What you get

Check the parts that came with your kit before you begin. Your kit should contain:

- (2) Amber LED Strips, 30 cm
- (2) 4' pieces of red and black zip cord (wire)
- Connectors-Bag 1
 - (4) Male connectors, fully insulated, red, crimp-type
 - (4) Female connectors, fully insulated, red, crimp-type
 - (4) Piggy-back adaptors, crimp-type
 - (2) Female connectors, crimp-type
- Connectors-Bag 2
 - (1) T-Tap IDC (Insulation Displacement Connector)
 - (1) Male connector
- (7) Cable ties, 7", black
- Detailed instructions (what you're reading now)

What you need

To install this kit, you need the following tools:

- T-25 Torx wrench (from the LT's toolkit—for removing the tip-over wing covers)
- Philips head screwdriver (for removing the turn signal assemblies)
- Crimping tool (for standard, automotive-type crimp connectors)
- Pliers (for squeezing the T-Tap, if used)
- Wire cutter/stripper
- Drill with 7/64" bit
- Tape
- Silicon caulk

Removing the Tip-Over Wing Covers

1. Use the T-25 Torx wrench to remove the two screws on the bottom of the black Tip-Over Wing cover (see Figure 1). Note that, very early model LTs use Allen screws instead of Torx. Remove the cover.


 **NOTE** If you have a 2005 or newer bike, you must remove the courtesy light (landing light) before removing the cover. Remove the two screws, lower the light from its mounting position, and remove the two wires. Now you can remove the cover.



Figure 1: Screw locations on bottom of 2003 Tip-Over Wing cover. For 2005 and later models, you must also remove the courtesy light from the bottom of the cover.

2. Repeat for the other side of the bike.

Attaching the LED Strip and Drilling Holes

1. Start by placing a piece of tape on the wide end of the tip-over wing. Align the tape with the bend as shown in Figure 2.



Figure 2. Attach tape to wide end of tip-over wing.

2. For one of the LED strips, align the end with the wires with the edge of the piece of tape you applied in Step 1 (see Figure 3). Tape the LED strip in place (see Figure 4).



Figure 3: Aligning the LED strip.



Figure 4. LED strip taped in place.

3. Mark a line on the tape near the wire to indicate the center of the LED strip (see Figure 5).



Figure 5: Marking the center of the LED strip.

4. Remove the LED strip and drill a 7/64" hole about 1/4" from the edge of the tape (the hole will be under the end of the LED strip). See Figure 6.



Figure 6. Hole for wire.

5. Test fit the LED strip. The wire should enter the hold underneath the end of the strip (see Figure 7).



Figure 7. Test fitting the LED strip.

6. When you're happy with the fit of the LED strip, peel off the backing, insert the wire through the hole, and then carefully attach the LED strip to the tip-over wing, making sure the LED strip covers the hole and the wire, and that the LED strip is centered on the tip-over wing.
7. Remove the tape with the center line.
8. Repeat for the other cover.

Running the Wires

1. Remove the chrome tip-over wing cover by removing three screws (two on the bottom and one near the rider's foot position) and disengaging the tab facing upward near the narrow end of the cover (note the lengths of the screws as you remove them—sometimes the screw near the rider's foot is longer than the other two).
2. Run one of the pieces of black/red zip cord from the nose of the bike to one of the tip-over wings. There is a space to the outside of the radiator where you can run the wire. See Figure 8.

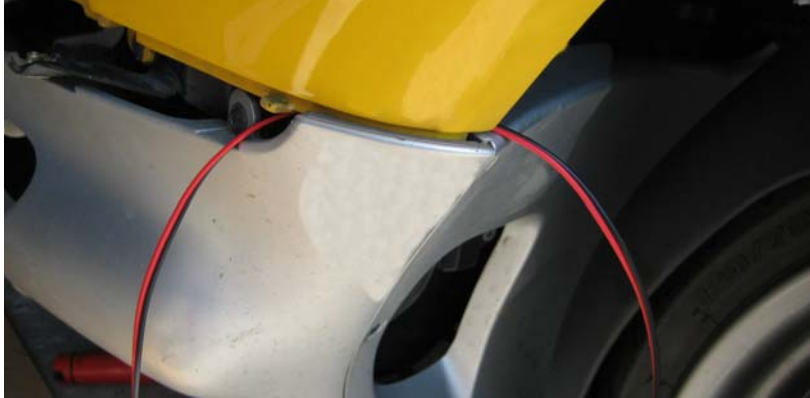


Figure 8: Running the wire from the nose of the bike to the tip-over wing.

3. Thread the wire below the metal bracket and tubing and run it toward the rear of the tip-over wing. See Figure 9.



Figure 9: Running the wire in the tip-over wing.

4. Replace the chrome cover on the tip-over wing (the longer screw, if there is one, goes next to the rider's foot position).
5. On the end of the zip cord in the Tip-Over wing area, separate the ends and strip $\frac{1}{2}$ " of insulation off of each conductor, twist the strands together, and fold back the wire so the copper is doubled that goes into the connector (this makes the connectors crimp more securely).
 - a. Attach a FEMALE connector to the RED wire.

- b. Attach a MALE connector to the BLACK wire (see Figure 10).



Figure 10: Connectors attached to wires in Tip-Over wing.

6. Because the wires attached to the LED strip are very thin, you need to make them thicker so you can crimp on a connector. Cut an inch of wire from the end of the zip cord near the front of the bike.
7. Separate the black and red wires and strip off $\frac{1}{2}$ " of insulation off of one of them.
8. Trim the wires from the LED strip to about 12" and strip off $\frac{1}{2}$ " of insulation. Twist the strands together for each wire. Now twist one of the short wires with one of thin LED strip wires (see Figure 11).

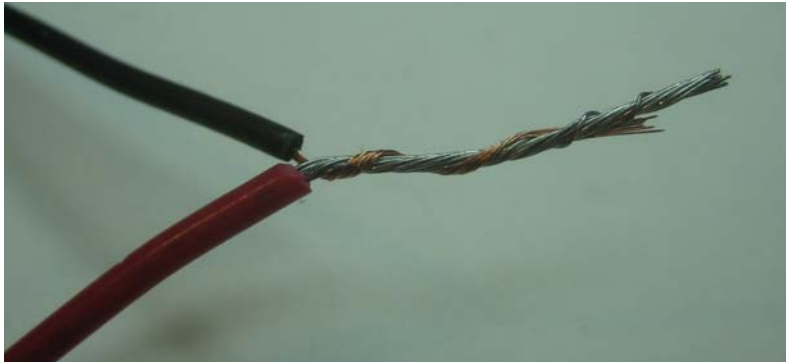


Figure 11. Wires twisted together.

9. Fold back the twisted wire on itself so the copper is doubled that goes into the connector (see Figure 12).



Figure 12. Wire folded over to double its size.

10. Trim the short piece of wire (see Figure 13).

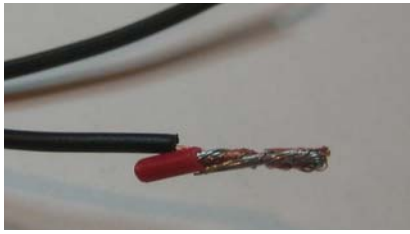



Figure 13. Wires trimmed.

11. Prepare the other thin wire as above (Steps 8-10), and then:
 - a. Attach a MALE connector to the black wire **with** the white stripe (hot wire).
 - b. Attach a FEMALE connector to the BLACK wire **without** the stripe (ground).
12. Push the connectors from the tip over wing together with the connectors on the wire running to the front of the bike (red to black with white stripe and black to black without stripe).
13. Re-install the Tip-Over wing cover, being careful not to pinch the wires. Don't forget the two screws.
14. Repeat for the other side of the bike.

Connecting the Wires to Power (2005 Models or Later)

If your K1200LT is a 2005 or later model, your front turn signals are also running lights. Both wires from the Marker light will go to the turn signal socket.

If you know what you're doing and don't want to follow the step-by-step instructions in this section, the short version is this: connect the RED wires to the "hot" running light wires (terminal 58) and the BLACK wires to the "hot" turn signal wires (terminal 31) on the turn signal sockets. Neither wire is connected directly to ground. For info on why this works, see the Wiring Details document in the Support section of our Web site.

 **NOTE** If you have a 2004 or earlier K1200LT and you (or someone else) modified your turn signals to also be running lights, use the instructions in this section (if your sockets are not numbered, you'll have to figure out which wire is the running light and which is the turn signal—on a 2003, the front turn signal wire is blue with a black stripe). If you have a 2004 or earlier K1200LT and your turn signals are not modified (they are just turn signals), go to the next section.

1. Remove one of the turn signal assemblies by removing the Philips screw and gently pulling the plastic assembly away from the bike. Let it hang by the wires.
2. Pull the zip cord through the hole for the turn signal wires. Trim to about 6".
3. Prepare the wires:
 - a. Separate the end of the zip cord and strip about $\frac{1}{4}$ " of insulation off each conductor. Twist the strands together.
 - b. Attach a piggyback connector to each of the wires. See Figure 14.

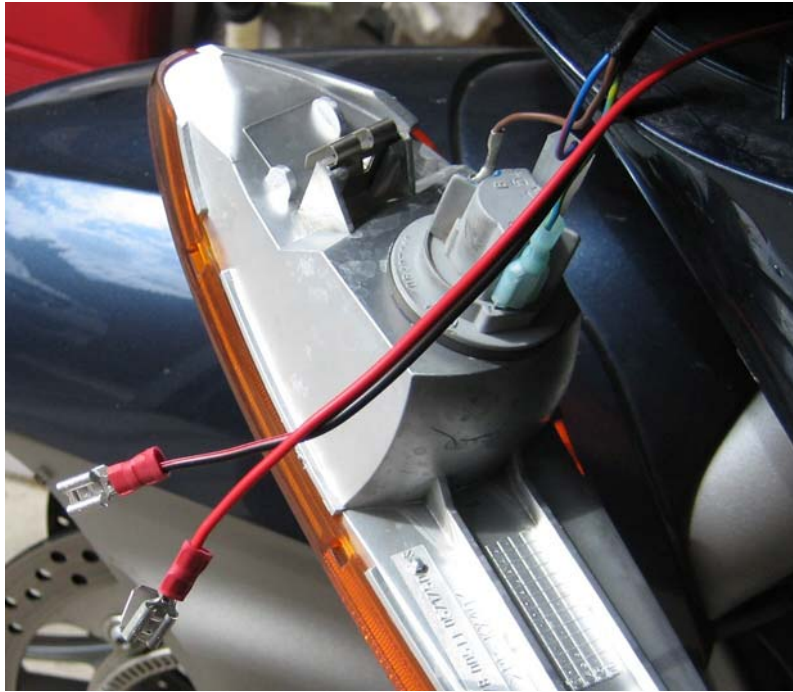



Figure 14: Wires with piggyback connectors—ready to attach to socket.

4. Note that the terminals on the bulb socket are numbered. The running light wire (green with blue stripe) goes to terminal 58. The turn signal wire (blue with red stripe) goes to terminal 31. Terminal 54 (brown wire) is ground. Remove the wires from terminals 58 and 31. See Figure 15.

 **NOTE** This info is from a 2005 LT and should be the same for later model years—however, if your wire colors don't match, keep track which wire comes off which terminal and adjust what you do accordingly.

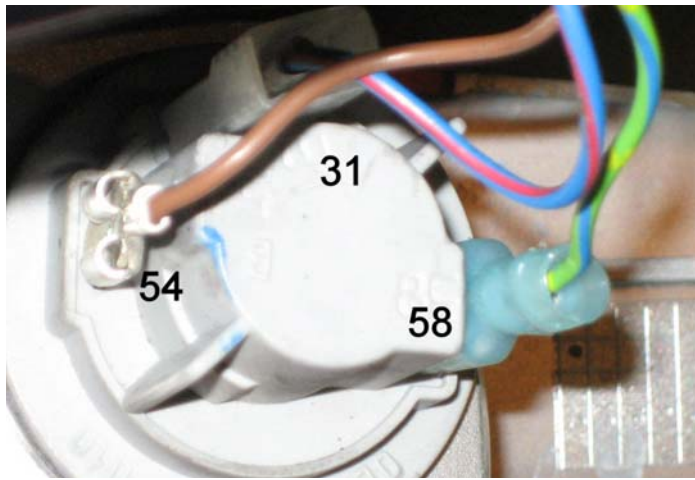


Figure 15: Terminal numbers on socket.

5. The connector on the running light wire is smaller than the standard $\frac{1}{4}$ " type and needs to be replaced. Cut off the connector on the green with blue stripe wire, strip off $\frac{1}{4}$ " of insulation, twist the strands together, and attach one of the non-fully insulated female connectors to the wire.
6. Attach the piggyback connector from the RED zip cord wire to terminal 58 and the other piggyback connector to terminal 31. (Do not connect either wire to the ground terminal.)
7. Attach the original wires you removed to the tabs on the piggyback connectors (green with blue stripe to terminal 58, blue with red stripe to terminal 31). See Figure 16.

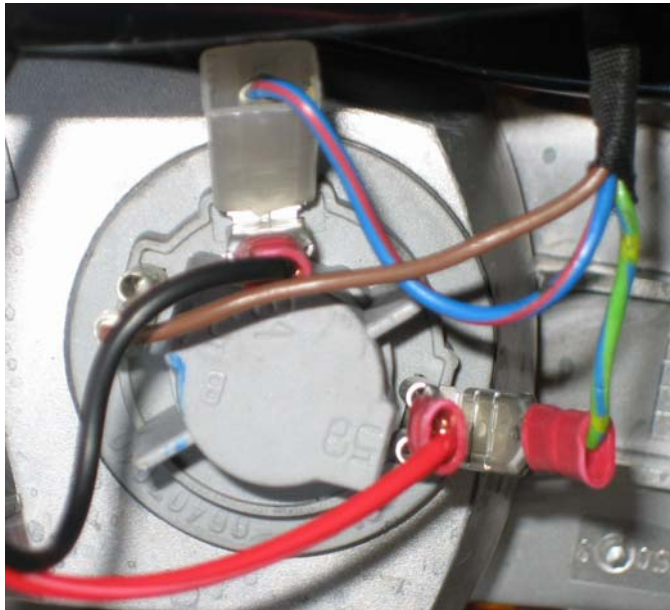


Figure 16: Socket with all wires attached.

8. Replace the turn signal assembly and fasten with the screw you removed earlier.

9. Gently pull the slack out of the wire going to the tip-over wing and use a 7" black cable tie to secure the zip cord to the frame tubing running up along the side of the bike (see Figure 17).



Figure 17: Zip cord secured with 7" black cable tie.

10. If necessary, use cable ties to secure the zip cord near the turn signal for a neat job.
11. Repeat for the other side of the bike.
12. Go to the **Testing your LEDs** section.

Connecting the Wires to Power (2004 Models or Earlier)

If your K1200LT is a 2004 or earlier model, your front turn signals **do not** also act as running lights (if they've been modified and do act as running lights as well as turn signals, go to the previous section).

If you know what you're doing and don't want to follow the step-by-step instructions in this section, the short version is this: connect both RED wires to the gray with black stripe wire coming from the parking light in the headlight (use the enclosed T-Tap and male connector or solder and insulate the wires). Connect the BLACK wires to the "hot" turn signal wires. Neither wire is connected directly to ground. For info on why this works, see the Wiring Details document in the Support section of our Web site.

1. Prepare the wires:
 - a. Separate the ends on one of the zip cords and trim so that the RED wire reaches the wire going to the parking light (the parking light is the small bulb in the headlight assembly) and the BLACK

wire reaches the turn signal (leave enough slack to go through the opening for the turn signal socket).

- b. Strip about $\frac{1}{4}$ " of insulation off each conductor and twist the strands together.
2. On each BLACK wire, attach a piggyback connector.
3. Strip about $\frac{1}{4}$ " of insulation off the RED wires, twist the strands together, and, bringing them near each other, twist the copper strands from both wires together (they're both going into the same male connector).
4. Insert the twisted pair of RED wires into the MALE connector packaged with the T-Tap and crimp.
5. Attach the enclosed T-Tap to the gray with black stripe wire coming from the parking light (you may have to cut back some of the black wrapping covering the wires). To attach the T-Tap, lay the wire in the channel, close the connector and pinch the two halves together with a pliers.
6. Plug the male connector on the RED wires into the T-Tap.
7. Remove one of the turn signal assemblies by removing the Philips screw and gently pulling the plastic assembly away from the bike.
8. Remove the blue wire with the black strip from its terminal.
9. Pull the black zip cord wire through the opening for the turn signal and attach it to the terminal from which you just removed a wire.
10. Connect the original wire to the tab on the piggyback connector.
11. Replace the turn signal assembly (with the screw).
12. Repeat Steps 7 through 11 for the other side of the bike.
13. Gently pull the slack out of the wire going to the tip-over wing and use a 7" black cable tie to secure the zip cord to the frame tubing running up along the side of the bike (see Figure 17, above).
14. If necessary, use the 7" cable ties to secure the wire near the turn signals and/or T-Tap to make a neat job.

Testing your LEDs

1. Turn on your key—everything should light up. Try your turn signals. The Tip-Over wing LEDs should wig-wag with the front turn signals. If anything doesn't work, see the Troubleshooting section, below.



Figure 18: LED strip working.

2. Go for a ride, enjoy, and be safe.

Troubleshooting Tips

- If both sets of Tip-Over wing LEDs don't go on, and you used the T-Tap, then double-check that the connection is good and that the male connector is connected. Also, make sure the parking light works (that the wire is hot). There is a 4-amp fuse that protects the running light circuit—make sure the fuse is good.
- If one tip-over wing doesn't work, check the wiring for that side. Be sure you have a good crimp on the piggy back connectors, and make sure the fully insulated connectors in the tip-over wing are pushed together and making good contact.