INSTALLING ACCESSORY REAR LIGHTING ON THE K1200S/K1300S

by Leo Stemp

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The following is the definitive guide to installing accessory rear lighting on the K1200S/K1300S bikes in order to **enhance rear visibility**.

[Note: The wiring diagram described below would be equally applicable to virtually all other motorcycles, whether CAN-bus or not, the only small difference being in the wire routing.]

If any questions or for better pics, feel free to email me at Leos@cox.net.

From paying attention to other bikes during extensive touring, my observation is that there are **three core ingredients** to maximally improving rear visibility:

1. Add some kind of accessory running/brake light to the stock brake light (eg. Hyperlites or an LED license plate frame);
2. The accessory rear light should flicker with application of the brakes (Hyperlites are the prototypical example); and
3. Convert the rear turn signals to function as additional (yellow) running lights. A lot of people underestimate the importance of this third factor. It's impressive during both day and night, as you can see in the pics below.

On the rear of my K1300S, I have installed three sets of extra lights:

1. Hyperlites
2. Signal Dynamics Corp (SDC) Dual LED License Plate Frame
3. Lite-Buddys

In addition to the extra lighting, I have also installed the following controllers:

1. PDM60 fuse block
2. Stop Alert - makes the red LED lights in the Lite-Buddys flash when the brakes are activated.
3. Blinker Genie - turns the yellow turn signal LEDs of the Lite Buddys into running lights (at a cost of only $29 shipped).

Note that use of an accessory fuse block (I chose the PDM60, but any will do) provides a power source for the extra lighting. But all three extra lights (the Hyperlites, the SDC lic plate frame, and the Lite Buddy's) are low amp LED's (about 250 mA) and can be powered from the stock BMW wiring, get enough juice, and not trigger any faults.

The following is a picture of all the lighting I installed on the rear of my K1300S, in running light mode, without the brakes on:

You should see it though when I hit the brakes. When the hyperlights and LED license plate flash in brake light mode, it's truly a sight to behold.

IMPORTANT NOTES:

1. When mounting the Hyperlites and the LED license plate frame, they should be angled with only a very slight (2-4°) upward bias from straight vertical (see the picture directly below). That maximizes

brightness when viewed from cars following behind. I initially had mine angled much higher and it significantly decreased the brightness of the lights when viewed from a few yards behind.

2. Don't even think of getting started on installing any accessory rear lighting without taking off ALL five pieces of the rear bodywork: The two rear fairing pieces (piece 1 in the pic below), the rear brake light, the rear grab bars with rear luggage rack (piece 2 in the pic below), and the rear cowl (piece 3). If you hurry, you can get all those pieces off in five minutes. The first time you do it, maybe it'll take you ten.

K1300S wiring instructions for rear lights & PDM60 (see routing pictures below):

The overall wiring scheme on my bike is as follows:

- Since I have an accessory fuse block, the switched power source for all the rear lighting comes from the accessory fuse block.

  If you don't use a fuse block, you can take switched power from one of two sources in the rear of the bike: Either the green wire of the alarm plug, or the power wire feeding the license plate light.

- On my bike, I installed the LED lic plate frame so it's controlled by the Hyperlites control module. That way, the lighting pattern of the lic plate frame is the same as the Hyperlites (i.e., in running light mode, the Hyperlites and the lic plate frame are constant on, and when the brakes are activated, both flash rapidly until the brakes are released.)

  The instructions below also direct how to hook up either the Hyperlites or the SDC lic plate frame if you're using one without the other.

- The ground terminal for the fuse block and all the lighting modules is one of the screws into the frame in the back of the bike. I show which screw in one of the pictures below.

PDM60 FUSE BLOCK

circuit 1 [10 amps] - white - to front tank bag SAE plug

circuit 2 [5 amps] - purple - to radar detector and front Clearwater lights

circuit 3 [5 amps] - yellow - not hooked up yet

circuit 4 [15 amps] - red - to front panel-mounted heated gear controller

circuit 5 [20 amps] - brown - to front air horn relay

circuit 6 [5 amps] - orange - switched power to rear lighting:
- to Hyperlites (grey wire)
- to SDC lic plate (2 white wires)
- to Stop Alert (black wire)
- to Blinker Genie (red wire)

black (PDM60 ground wire) - to rear frame ground

gray (switched power trigger to PDM60) - hooked up to green wire of alarm harness

blue (ground trigger) - not hooked up

HYPERLITES FLASHER CONTROL MODULE

gray (switched power) - to orange wire from PDM60

red (brake light trigger) - to brake light power wire

black (ground) - to ground

blue (input power to Hyperlite LED modules)
- to blue wire of Hyperlite LED modules
- to SDC lic plate frame red wires

brown (output from Hyperlite LED modules) - to brown wire of Hyperlite LED modules

SIGNAL DYNAMICS (SDC) DUAL LED LICENSE PLATE

white (switched power) - to orange wire from PDM60

red (brake lite trigger) - to blue wires from Hyperlites (or to brake light power wire if not using Hyperlites)

black (ground) - to ground

LITE-BUDDYS

Black wire (power to the red LEDs) - to Stop Alert blue wire (or to brake light power wire if not using Stop Alert)

Resistors - one end to stock blue wire of each turn signal
- other wire to ground

STOP ALERT

brown (ground) - to ground

black (switched power) - to orange wire from PDM60

grey (brake light trigger) - to brake light power wire

blue (power output) - to Lite-Buddys black wires

BLINKER GENIE (one BG for each side)

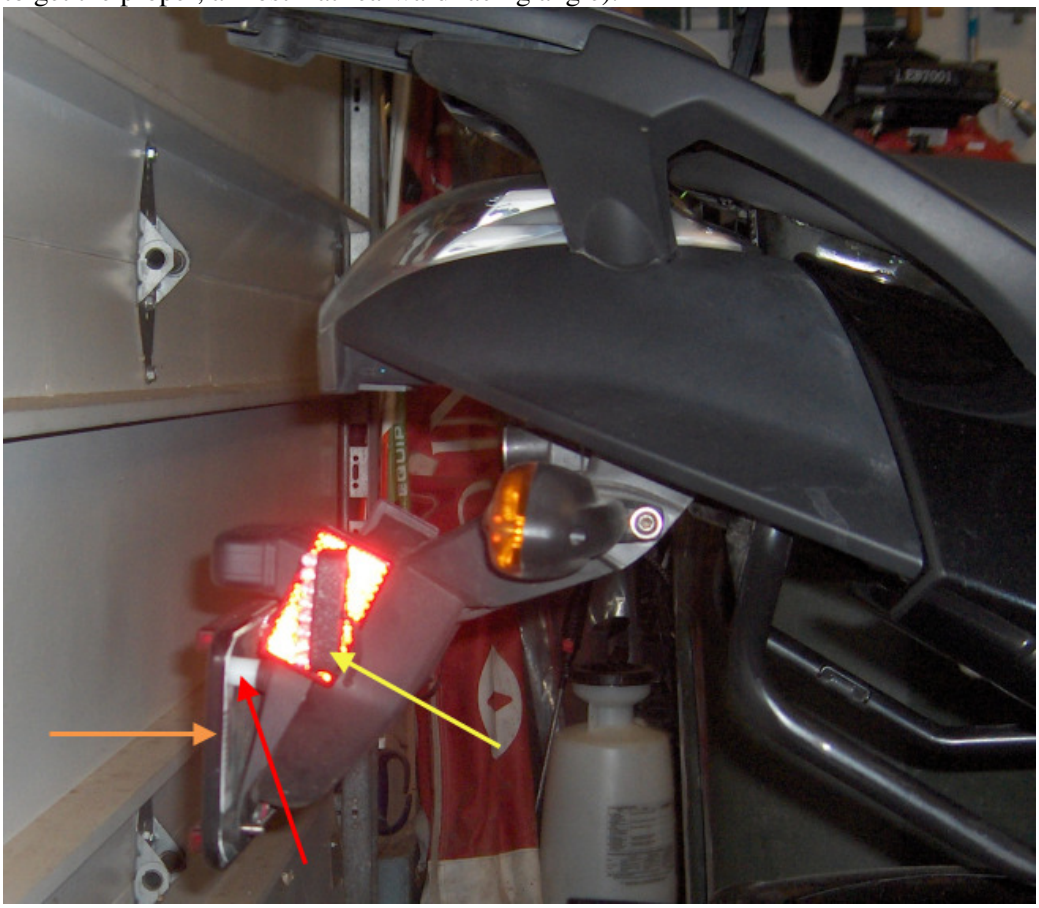
red (switched power) - to orange wire from PDM60

black (ground) - to either ground of bike or spliced into ground wire (brown) of turn signal

The power wire going to the turn signal (blue wire on BMWs) is transected:
white wire of BG - to proximal power wire from bike
yellow wire of BG - to distal power wire going to turn signal

The pics that follow show how I mounted the modules and routed the wiring:

In the pic below, the yellow arrow points to the hyperlight module mounted on the right, and the orange arrow points to the LED lic plate frame. Note that both are mounted almost vertical. (Originally, I had both mounted with a much more upwardly facing angle, as seen in the rest of the pics to follow, so I had to redo the mounting to get the proper, almost-flat rearward facing angle).



In order to mount the lic plate frame vertical, I had to put a spacer (obtained from Home Depot) on the top license plate frame mounting screw -- see the red arrow.

By the way, the four lic plate mounting screws were obtained from SCD when I bought the LED lic plate frame from them. The screws fit the BMW lic plate holder screw holes perfectly, without the need to put bolts on the back of the screws. Worth the few extra dollars.

The Hyperlites come with very sticky double sided tape on the side of each light module that I used to mount them on the side reflectors. Why the heck not? As convenient a mounting location as any.

The next two pics shows the wire routing for the wire from the Hyperlite modules. I drilled a hole in the stock plastic license plate carrier (yellow arrows) to get the wires behind the lic plate and then going up into the rear subframe.

The two pics below show how I brought the wiring from both Hyperlites together in the middle under the subframe, and then covered as much of the wiring as I could with a sleeve or shrink wrap tubing to hide it as best possible.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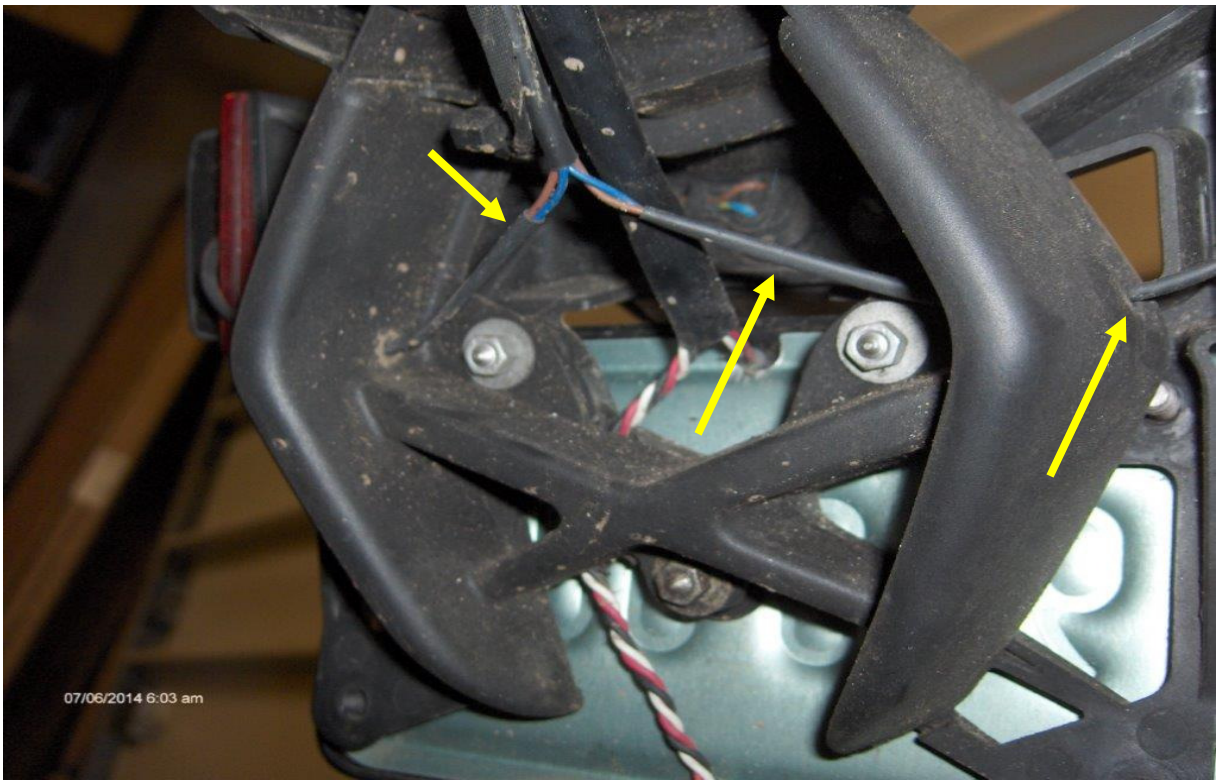
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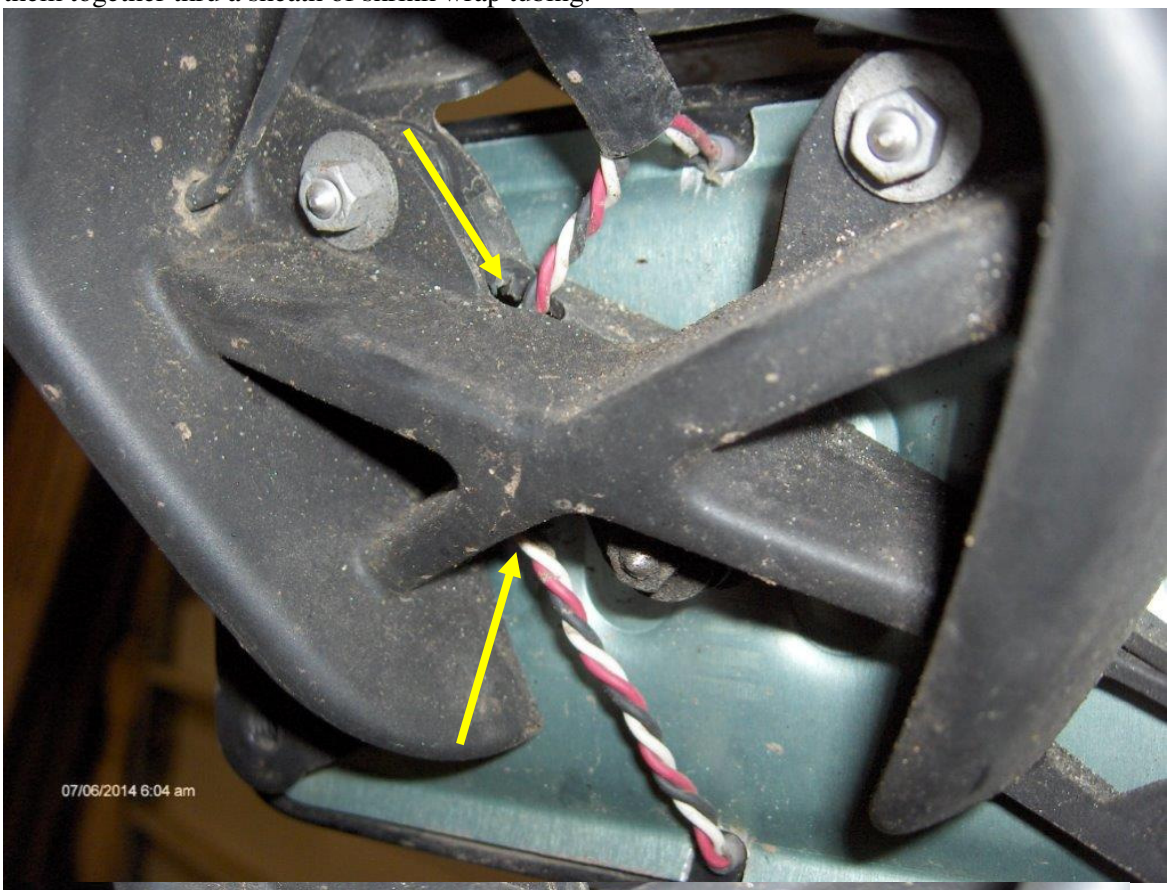
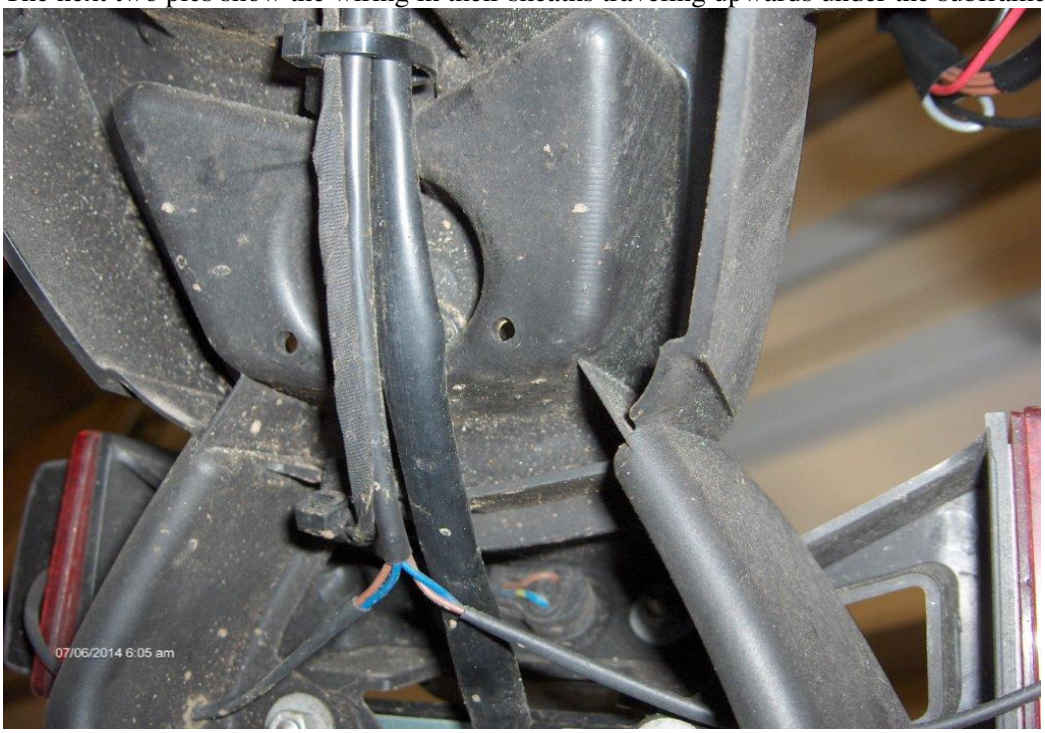
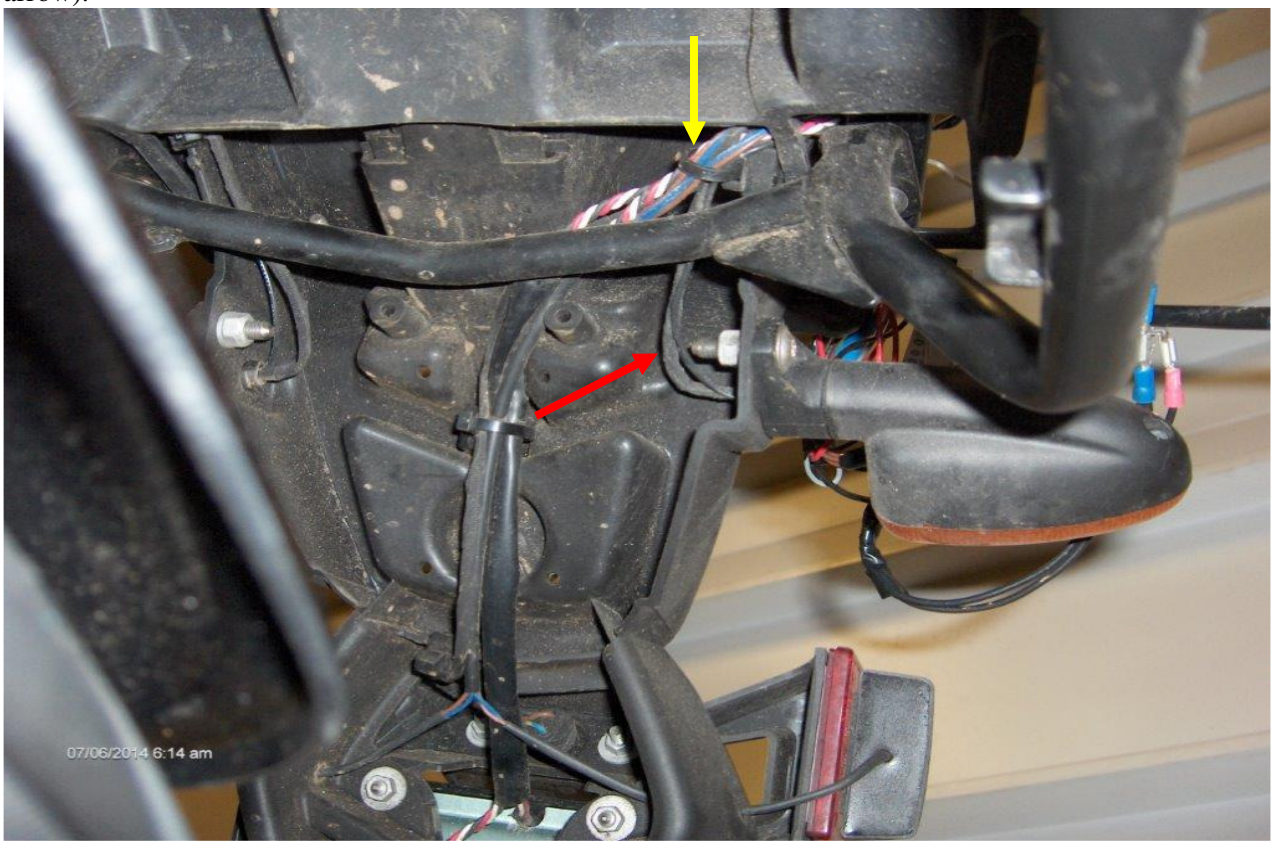
The pictures below show the routing of the wires from the LED lic plate frame. Each row of LED lights (there are two rows, one on top, one on the bottom) has three wires coming out of it: Red, white, and black. Notice how for the bottom row, I drilled about a 5/16" hole (yellow arrows) thru the cross braces of the plastic stock license plate holder to bring the wires up, then I put them together with wires from the top row of LEDs and ran them together thru a sheath of shrink wrap tubing.



The next two pics show the wiring in their sheaths traveling upwards under the subframe.

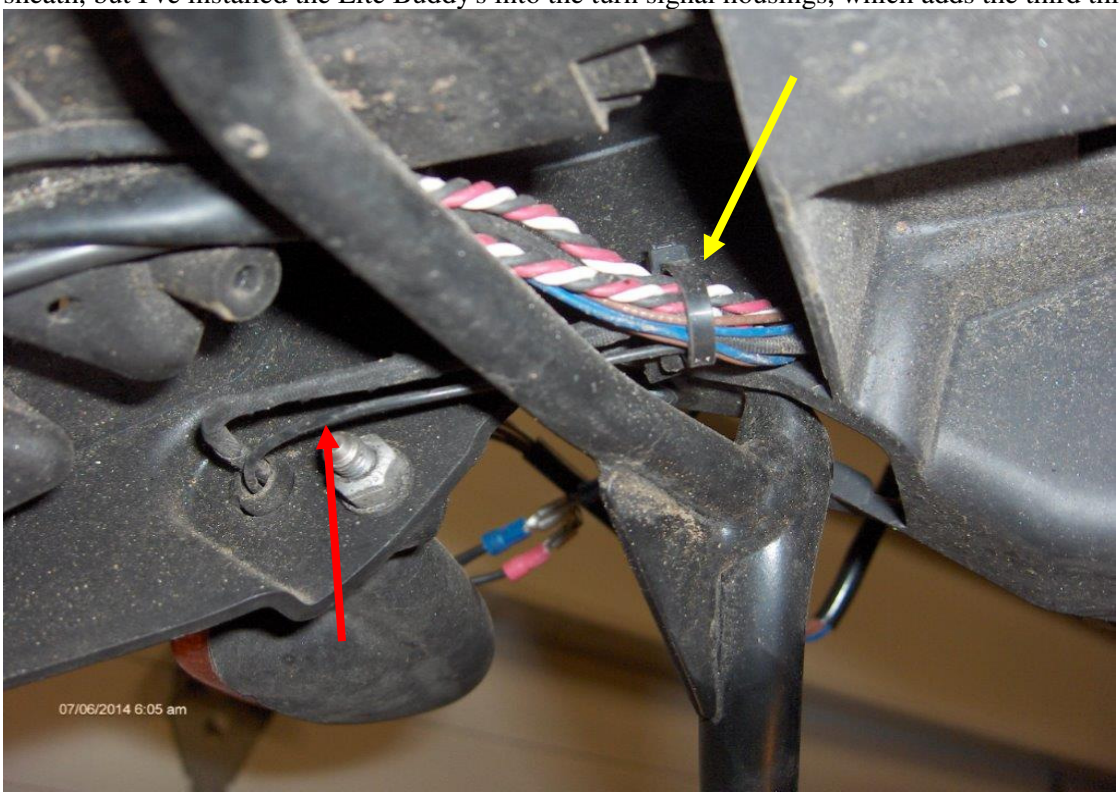


The following pic is taken underneath the subframe, looking from the front of the bike to the rear. Notice that the wiring comes up the middle underneath the subframe, then I swung it over to the left side of the subframe, and zip tied the bunch of wires together (yellow arrow) with the wiring coming from the left rear turn signal (red arrow).

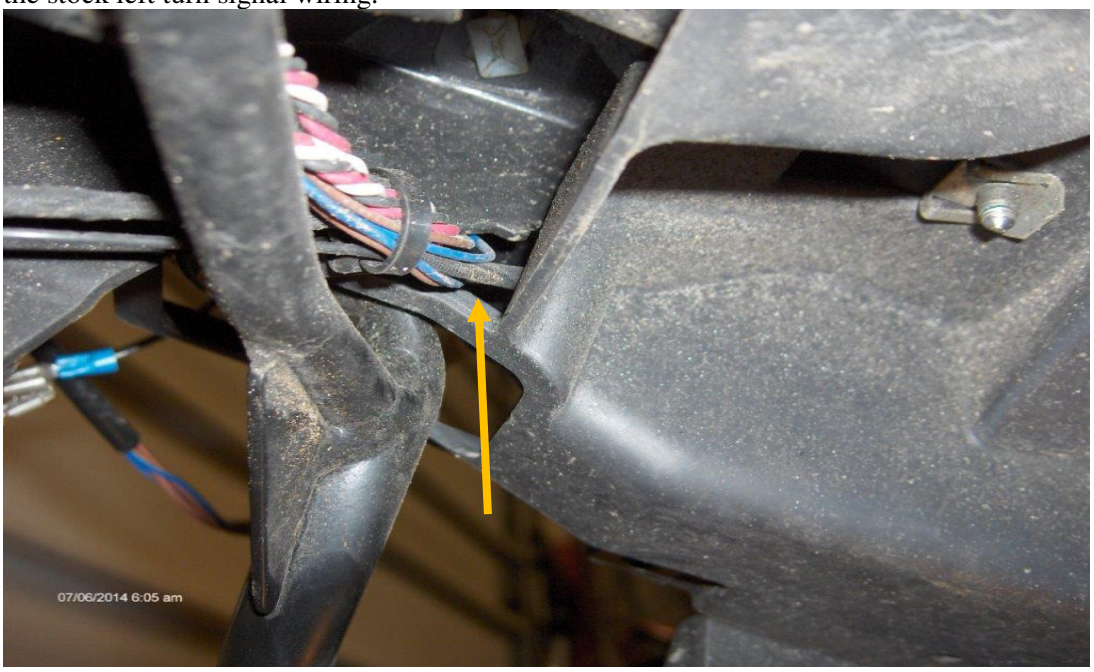


The following pic is a close-up of where that zip tie is (yellow arrow), taken from a vantage point on the right side of the bike underneath the subframe, looking toward the left side.

Also, you can see the wires coming from the left turn signal (red arrow). You can see that there seem to be two wires coming out of the turn signal housing. Actually, the 'big' wire is a sheath that holds two wires, and then there's a single thin black wire, for a total of three wires. Normally, there'd only be the two wires in the sheath, but I've installed the Lite Buddy's into the turn signal housings, which adds the third thin black wire.



So what you can see in the pic below is that all the wiring (from the left turn signal, both Hyperlites, and the LED lic plate) goes up thru the left side of the subframe (orange arrow). That's the same path already taken by the stock left turn signal wiring.



Below you can see all the wiring coming up into the well of the left side of the subframe (yellow arrow). Don't pay attention to the jumble of wiring. That was my initial effort, I subsequently cleaned it up a great deal, once I was sure of how everything went together.

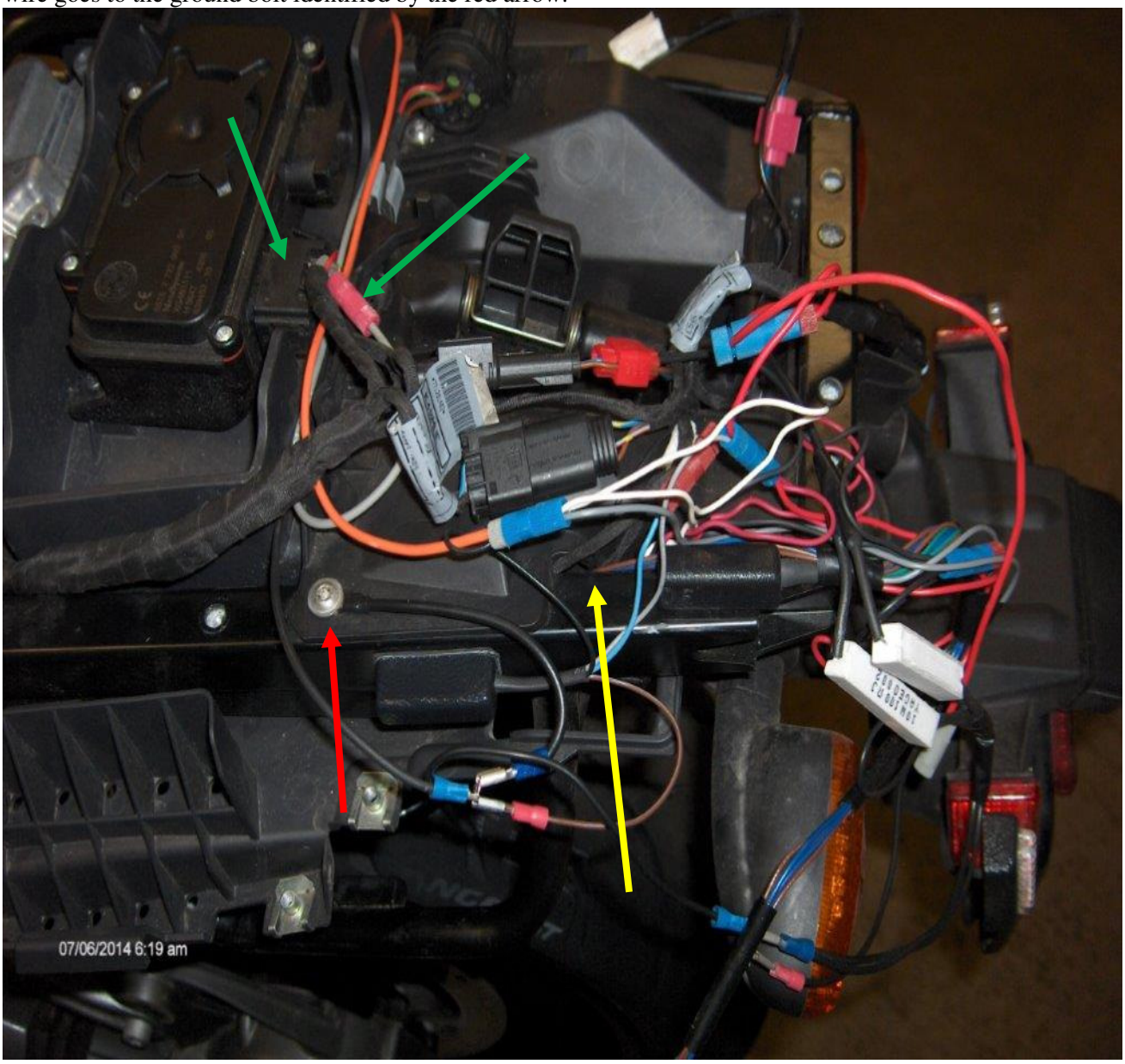
A few other things of note in the photo below. First, the red arrow points to the bolt into the subframe that I used as my grounding point for the PDM60 fuse block and all the rear lighting.

Second, you can see the orange wire that comes from the right of the bike, across the subframe to the left side of the bike. That's the switched power wire from the PDM60 (which is mounted on the right side of the bike -- see the second pic below), and powers all the rear lighting.

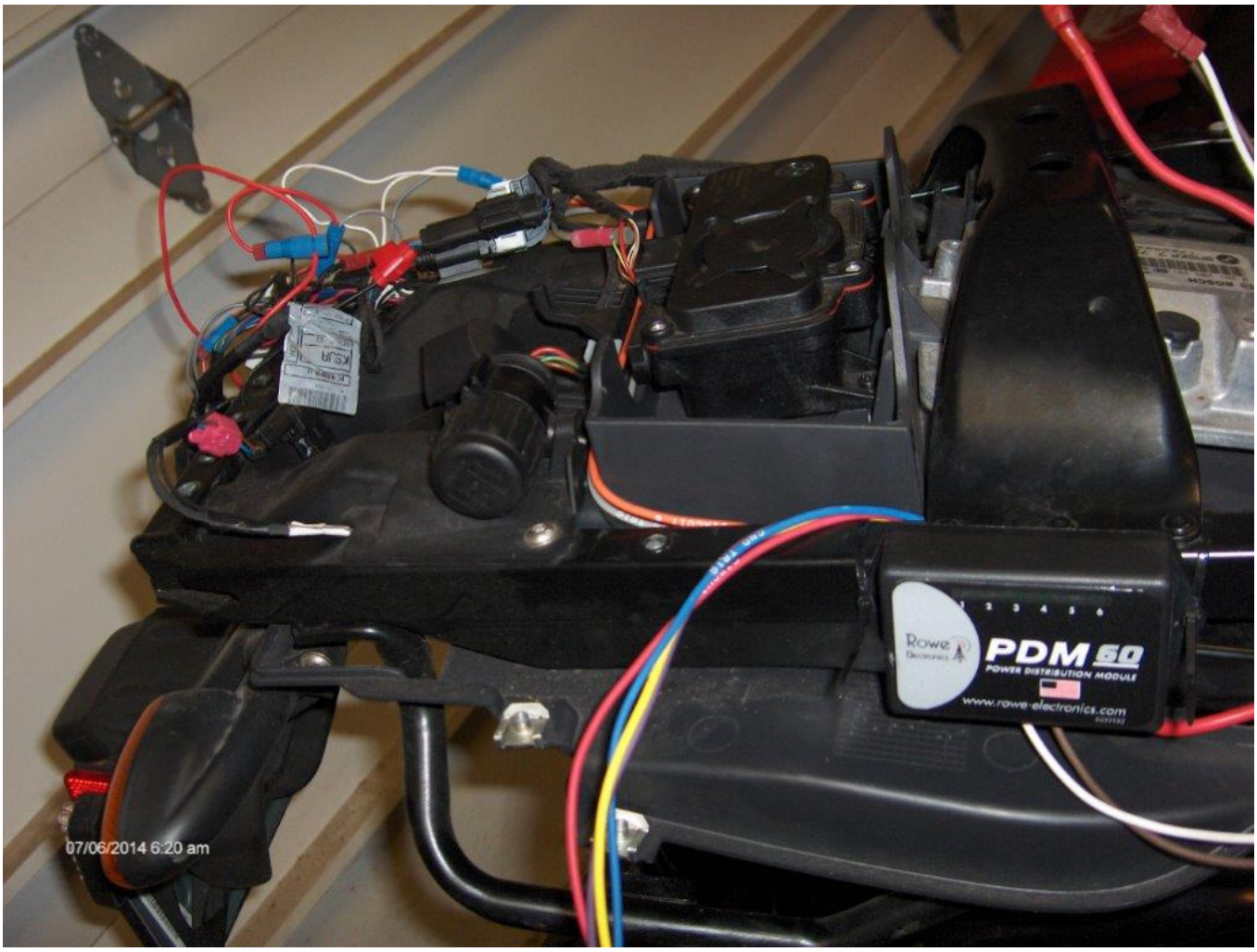
Third, you'll also notice that I used posilocks for many of my connections. They work well.

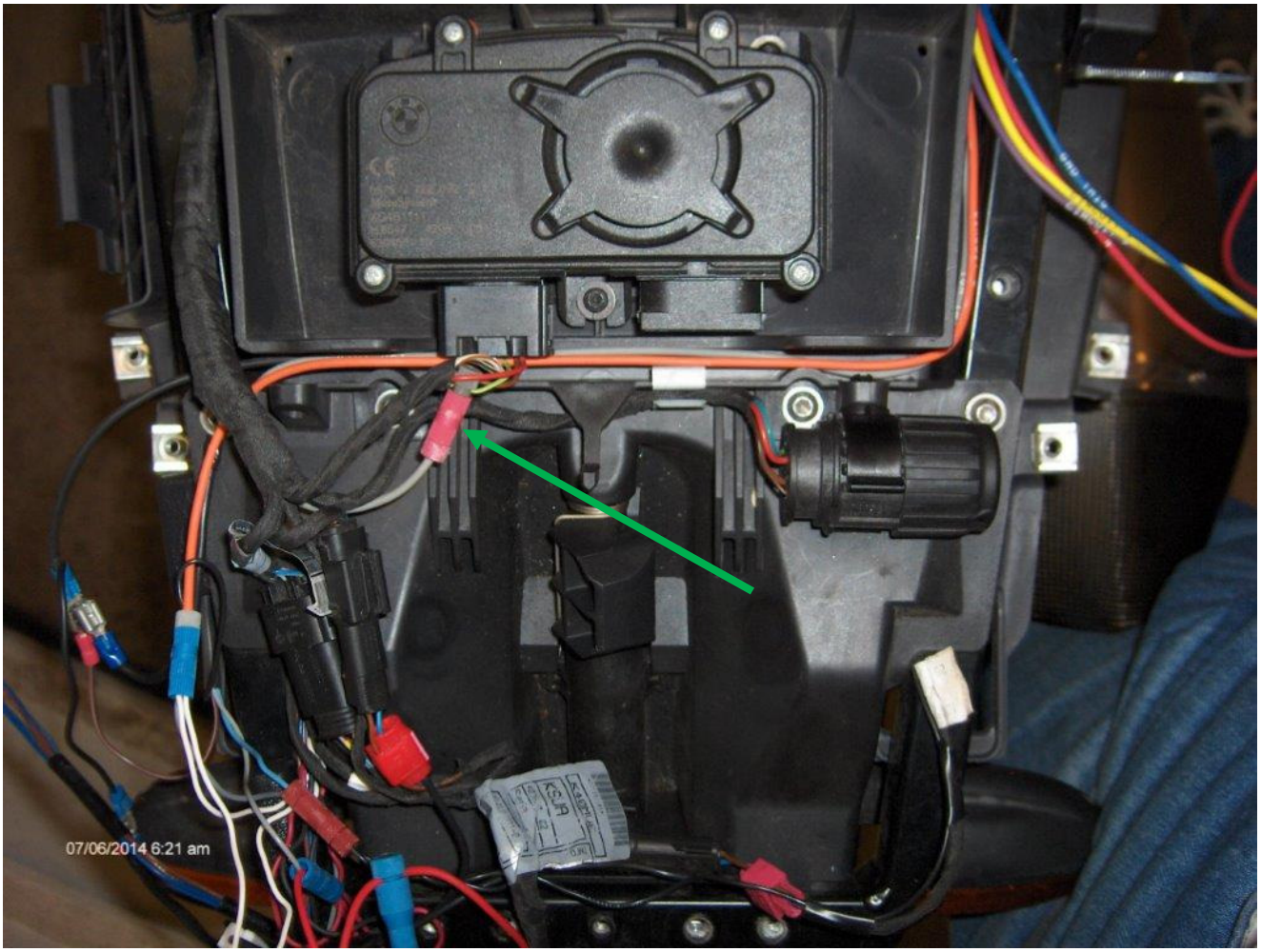
Fourth, you'll notice a gray wire under the orange wire. Using a small posi-tap (green arrow), that gray wire hooks into the green wire that goes into the plug that plugs into the alarm (right side green arrow). That gray wire feeds switched power from the bike to the PDM60. See the third pic below.

Fifth, under the gray wire is a black wire, which is the grounding wire from the PDM60. That grounding wire goes to the ground bolt identified by the red arrow.

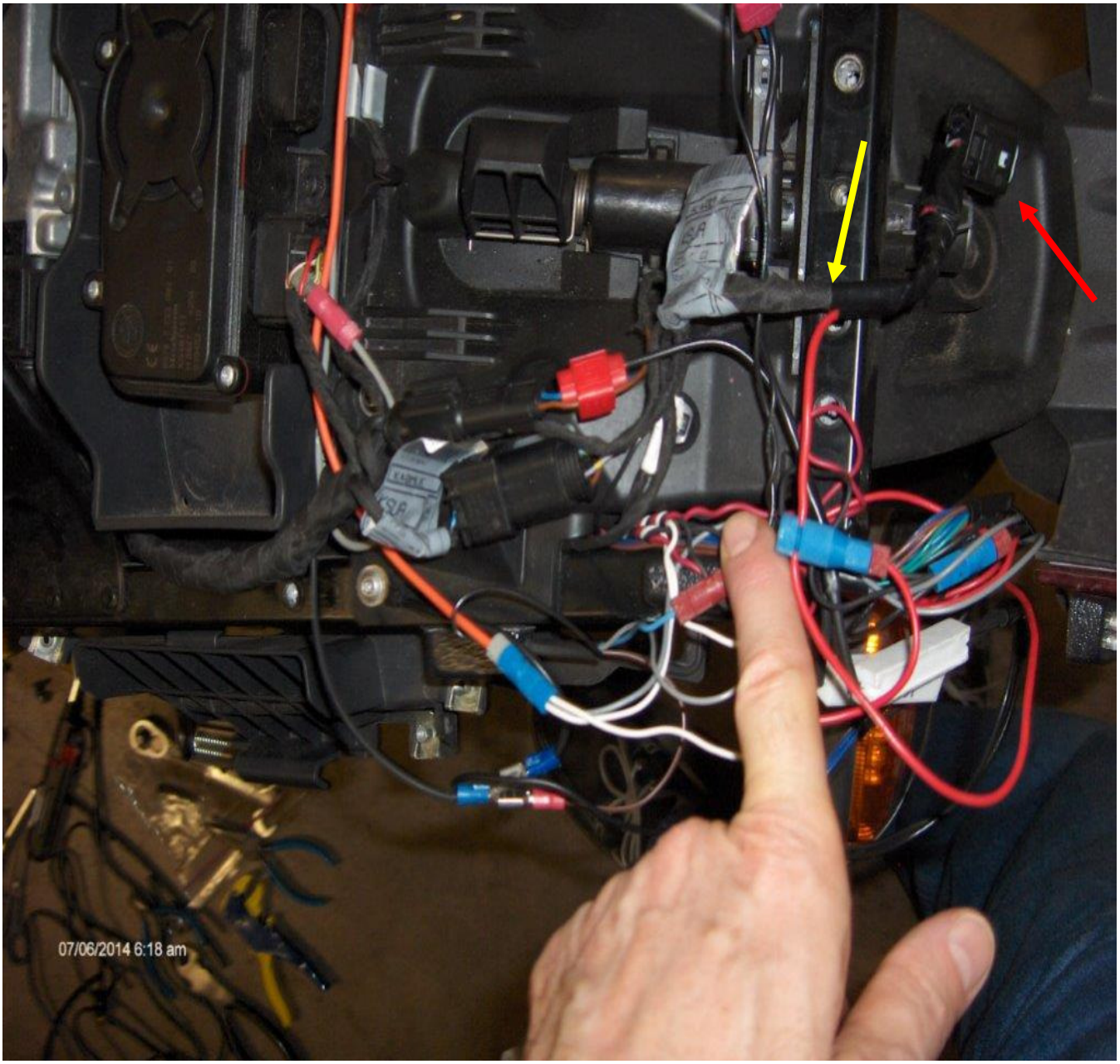


Below are three other pics of all the above.





One more thing you see better in the pic below is the stock wiring cable (yellow arrow) that goes to the stock K1300S brake light. The red arrow points to the plug that plugs into the brake light. (You can see all that better in the fourth picture below.) You'll notice a red wire that comes off that brake light wiring cable just beneath the tip of the yellow arrow. That's where I tapped into the brake light wire to get a brake light trigger wire.



The following two pics show the rear cowl (piece 3 in the earlier picture where I showed the rear bodywork to remove before starting the installation). This cowl fits over the rear subframe. The rear wings of the cowl are hollow (yellow arrows), which is perfect for stuffing all the wiring into.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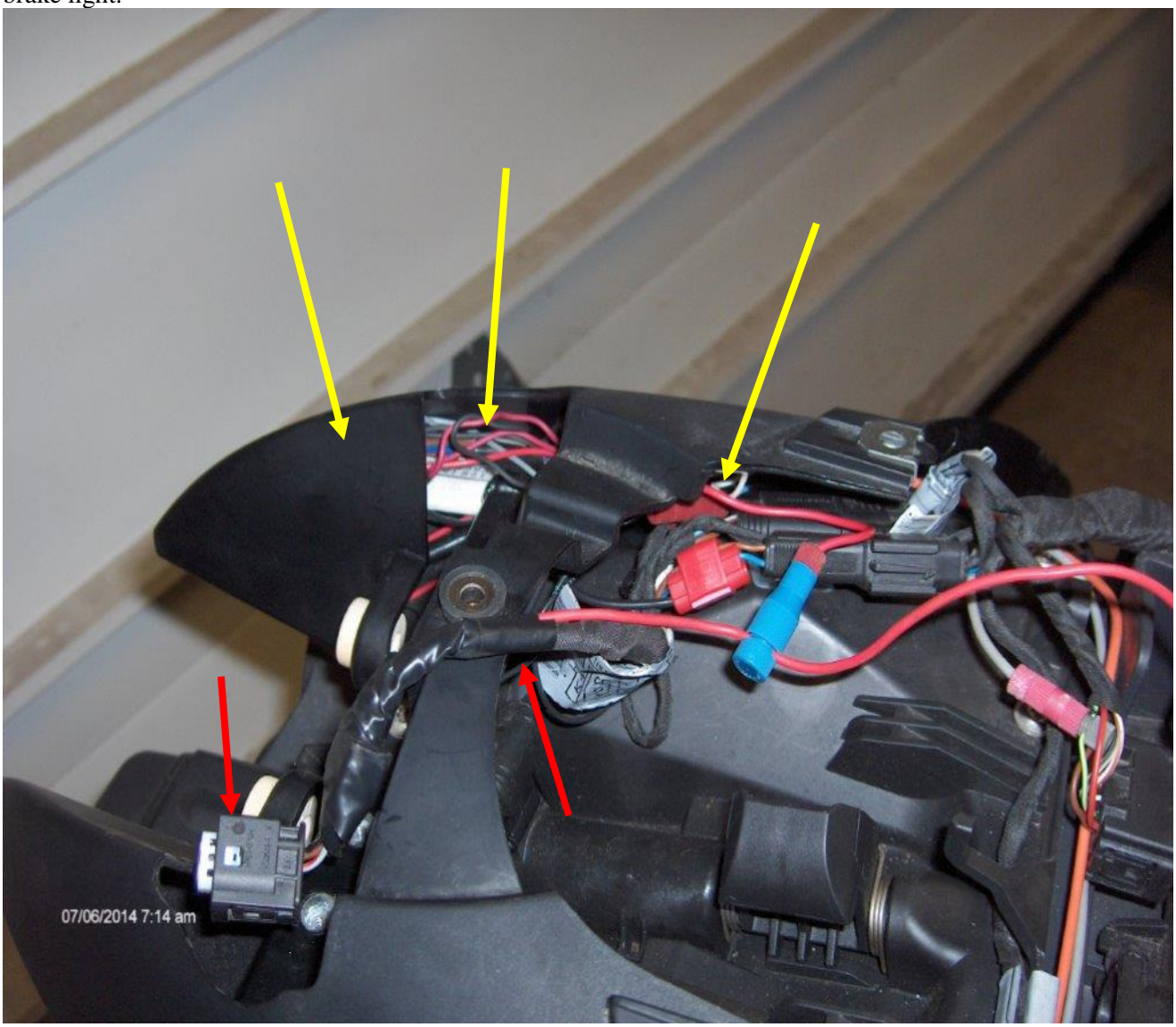
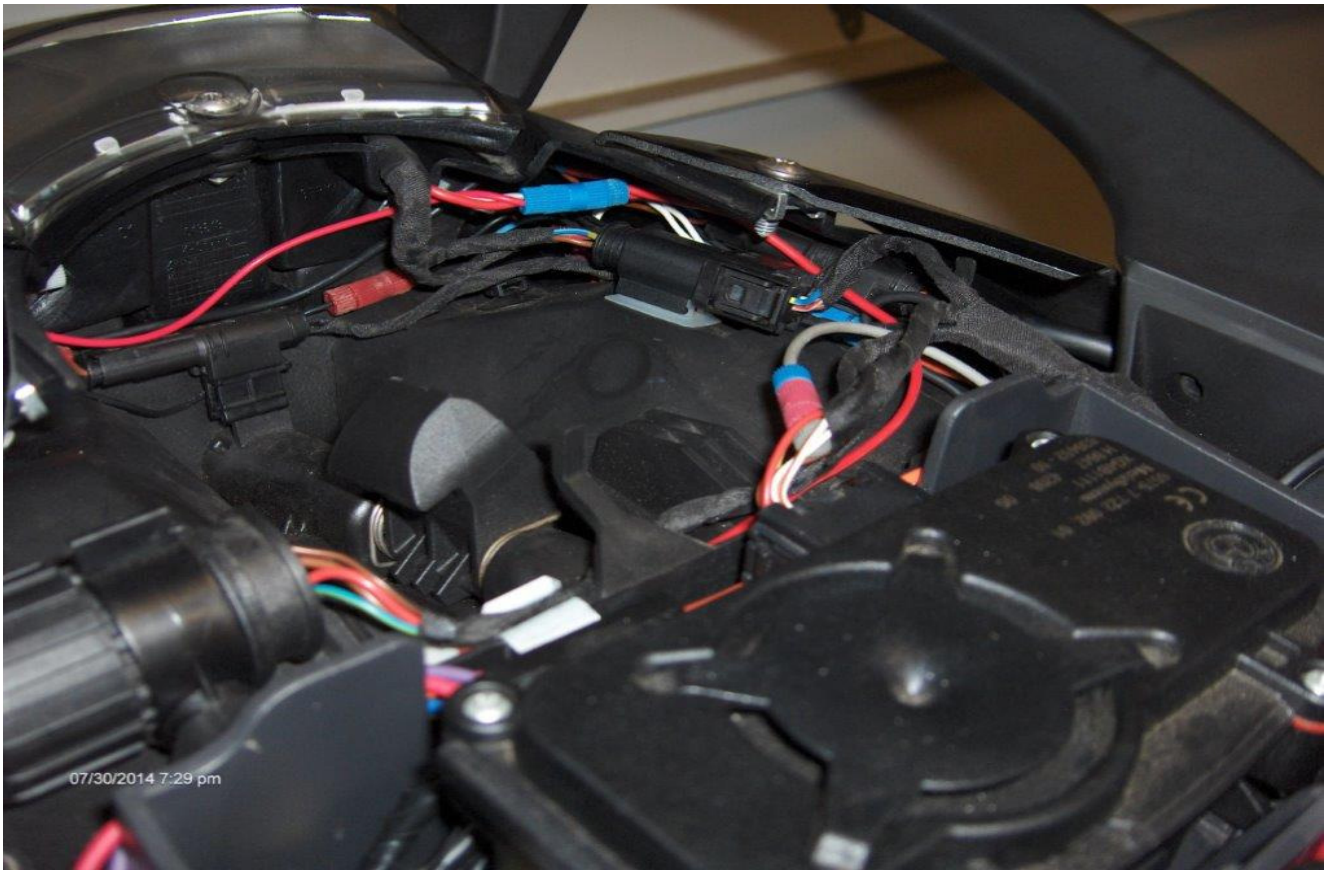
Here is the rear cowl installed, and you can see the wiring stuffed into the wing of the cowl on the left side (yellow arrows). You can also see the stock wiring cable and plug (red arrow) that will attach to the stock rear brake light.



The next two pics show all the rear bodywork back on, with all the wiring tucked into the left side of the cowl and the rear and left side of the well in the subframe.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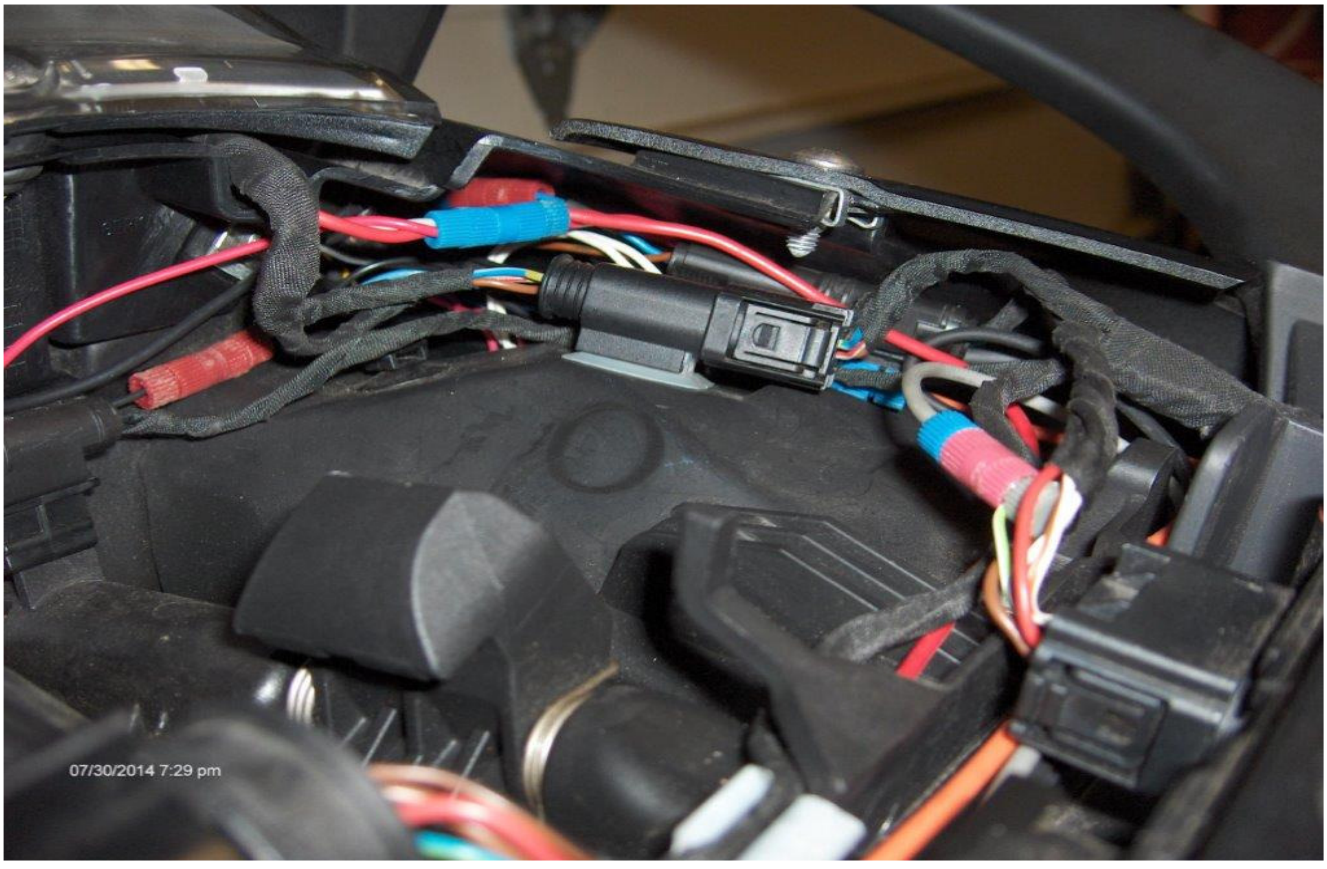
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The next two pics show the finished look from above, with clean wiring.

The last picture shows the PDM60 mounted with the final wire routing.