

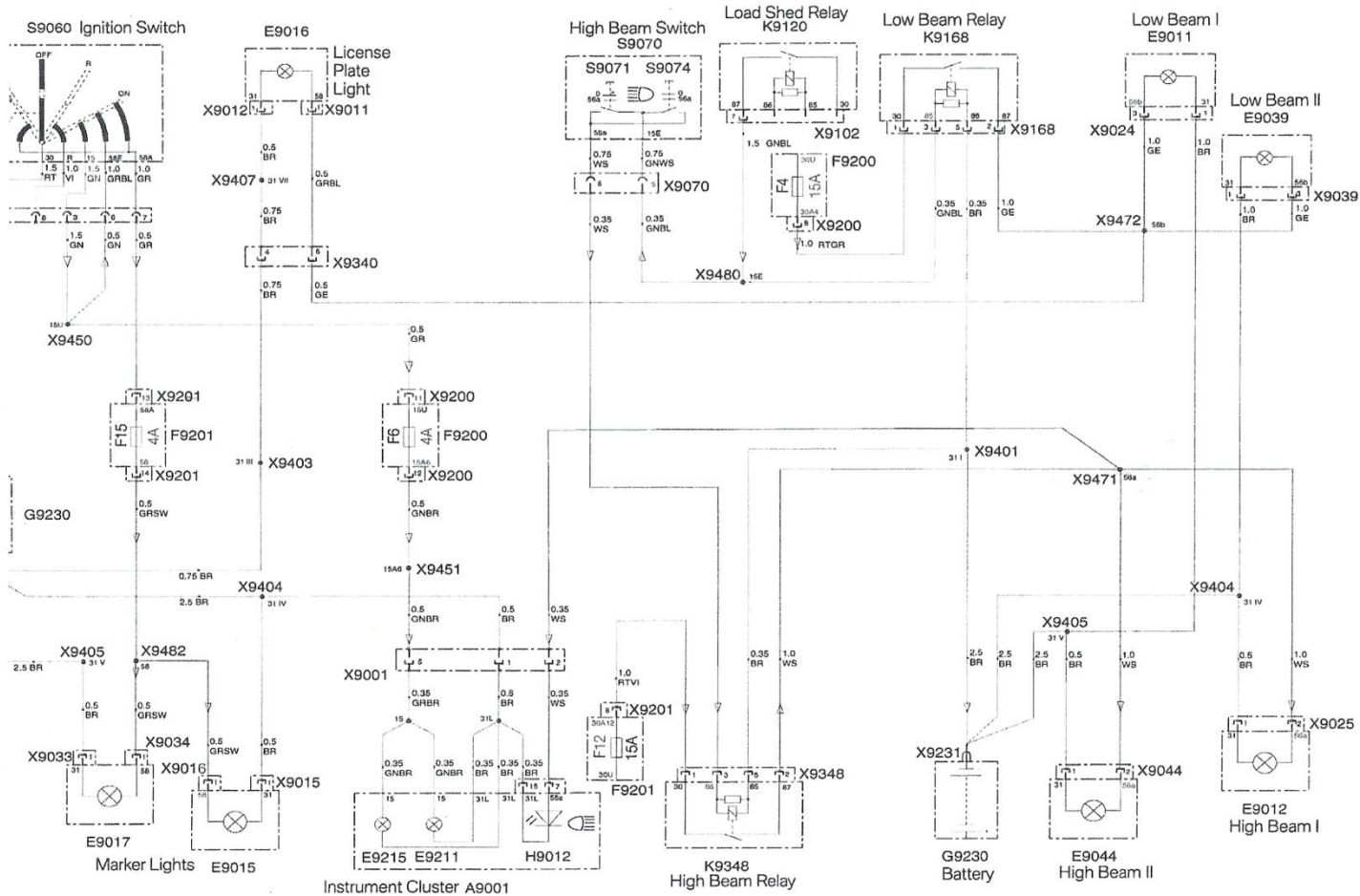
# THINGS YOU SHOULD KNOW ABOUT YOUR MOTORCYCLE LIGHTS

Headlights



A Gold Country Riders Safety Presentation  
by Cindy Giesen , August 19, 2014

# THE SCHEMATICS & AN EXPLINATION OF THE MOTORCYCLE'S ELECTRICAL SYSTEM



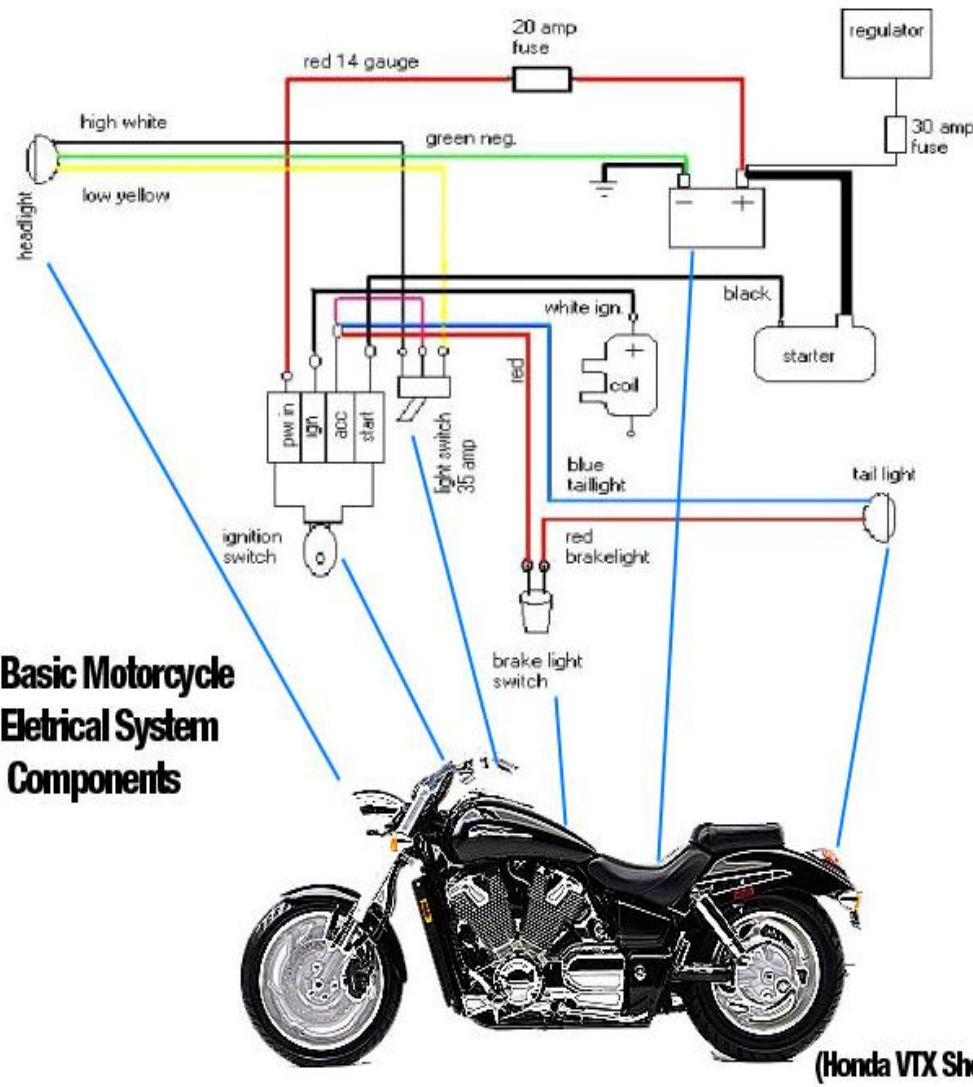
# JUST KIDDING – I'LL KEEP THIS BASIC



1. Trouble Shooting Light Problems.
2. Check & Replace Bad Fuses
3. Check the Wiring
4. Replace and/or Upgrade Lights
5. Do It Yourself ?
6. Headlight Alignment



## Basic Motorcycle Electrical System Components



Battery – 12v power to accessories

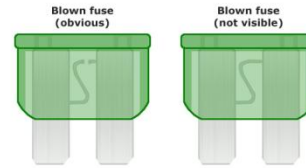
Fuse – Prevents power surge

Wiring Harness – groups of wires that go places. With 2-3 wires that go to each light.

Lights/bulbs get power from the battery, initiated by the ignition, through wires, that are protected by fuses. Switches, you and relays control how and when they behave.

So, if they fail...

# CHECK FUSES



- Know where the fuse box is located on your motorcycle. (Note that some newer motorcycles don't have fuses, as they are computer controlled.)
- Know each fuse's function: Most fuse boxes, or the Owners Maintenance Instructions tell you what part of your bike each fuse protects.
- Have fuse backups and a fuse puller or tweezers. The maintenance tool kit often comes with some extra fuses and a puller.
- **With power off**, visually check the fuse associated with your problem. Is it in secure? Reseat it. Test. Pull it out and look for any residue, dark spots, a break in the wire or clouding. The fuse housing should be completely clear. Do the metal posts look corroded? Replace the fuse if there is any doubt.
- **ONLY** use a fuse of the same amperage when replacing fuses. They are color coded, but still check the amperage marked on the fuse. 4, 10, 15, 20 amps is common.
  - Too big = boom!\$ Too small = frequent replacements.
- Be happy when your fuse blows, as that means it protected you from more major electrical problems. It is a warning!
- Adding aluminum/a wire to bypass a bad fuse may cause **FIRE!** And more costly damage. Try to find the problem.
- Advanced Info: Do a continuity test on the fuse with a millimeter. Beep=good.



## R 1200 CL

### Electrical Components



- Electrical components:
- 1 Blinker/Flasher module
  - 2 Fuel level indicator dampening module
  - 3 High beam relay (yellow)
  - 4 Starter relay
  - 5 Low beam relay (yellow)
  - 6 ABS warning relay
  - 7 Motronic relay
  - 8 Fuel pump relay
  - 9 Horn relay
  - 10 Load Shed Relay
  - 11 Terminal connection for Ignition and light switch

**Not pictured** - located under starter relay is starting system diode

The neatly arranged electrical system is located under the fuel tank and is the basis for operating the electrical components. In addition to the distribution system technology and high quality connectors, the new wiring harness provides the possibility of options such as the Anti Theft System to simply plug into wiring provisions.

The light-emitting diode for the reserve fuel is controlled via an electronic module, which has a time delay of 17 seconds.

The alternator's maximum output is 840 Watt, of which 300 watts is available at engine idle speed. The compact battery has a capacity of 19 Ah.

Overheating the engine is accomplished with



# CHECK WIRING AND CONTACTS

- Wires could get pinched, burnt, or broken and will not allow enough voltage to your problem area. Especially if your motorcycle has recently experienced some trauma (like a drop). Follow the wires.
- The ground wire could be disconnected or flakey (causing random failures).
- Inspect the connections to the bulbs to make sure they are seated securely and that there is no indication of damage.
- See if the housing that holds the bulb is corroded. You can get some electronics cleaner to try to improve the contact.
- Your battery could be too weak to make all the things work properly.
- Switches, relays, igniters and other things in the electrical path could go bad. Troubleshooting these things gets more complicated and costly. Consider hiring or begging a 'professional' for help and for a quicker resolution.
- Advanced Info: Know what to expect electrically and then do voltage, current and resistance tests on the paths, parts and circuits.
- Carry electrical tape (a little wrapped around a pen works) for quick wire fixes.



# CHECK BULBS AND HOUSING

- Non-LED bulbs will burn out over time and need to be replaced. They may just be getting dimmer or may stop working altogether. LED bulbs usually last a very long time, unless they are physically damaged.
- Trauma could cause the bulbs, filaments and/or connections to break. Check them for damage.
- Bad/wrong fuses could allow the bulbs to receive too much power and the lights could become unpredictable or destroyed.
- The access to the bulbs and housing sockets around the bulbs typically require some motorcycle part removals; removal of screws; clamp unlatching; gentle pushes, pulls, and proper twists and turns. Check your manual as to how to get access to the bulb and how to disassemble and reassemble the bulb housing. As well as how to remove and insert the bulb.
- **DO NOT TOUCH THE GLASS OF A NEW BULB** with your oily hands, as the oil may cause overheating and damage. Wrap it with a cloth or your shirt sleeve.
- Could your lights be dimming because the glass is dirty or foggy? Clean it or replace the covers. Try rubbing compounds or toothpaste.
- Check for moisture in the casing and if it's there, let it dry out. Tape the crack.
- Turn signal 'flasher's can go bad, in addition to fuses and bulbs. Odd flashing could indicate a bad ground or power connections or different size bulb might have been added.



# CONSIDER UPGRADING YOUR HEADLIGHTS AND TAILLIGHTS

- Upgrade your stock halogen headlight to hi-output bulbs (typically lower wattage too) HID (3x) or LED systems.
- Consider if your casings are hazy or clear (LED) and if a change will help.
- Tail lights could be improved with a simple change of the dim OEM bulb to LED replacement.
- Headlight + driving lights are for vision & visibility
- Add LED accent lights to become more visible (legal CA colors)





# LOOK FOR MANUALS ON-LINE FOR TIPS

[WWW.R1200CLC.COM/MANUALS/TRAINING/R1200CL\\_TECHNICAL\\_TRAINING\\_HANDBOOK.PDF](http://WWW.R1200CLC.COM/MANUALS/TRAINING/R1200CL_TECHNICAL_TRAINING_HANDBOOK.PDF)

[WWW.R1200CLC.COM/MANUALS/SERVICE/TOC.PHP](http://WWW.R1200CLC.COM/MANUALS/SERVICE/TOC.PHP)

## R 1200 CL

### Headlights



The four round headlights have been integrated in a new arrangement never before used on a BMW Motorcycle. The headlamps are mounted to an adjustable support made of a synthetic material.

They consist of two larger low beam headlights and two smaller high beam headlights positioned one on top of the other.

The low beam headlights work with an H4-light and can be readjusted from the front. The high beam headlights with H1-lights enable wide illumination of the road with their scattered light.

The park lamps with 4-watt conventional bulbs are installed in the low beam headlights. All electric light bulbs can be replaced from the outside after removing each inner trim.

## R 1200 CL

### Headlights

#### Lever Positions:

Horizontal: normal position (shown); Always adjust base setting of headlights with lever in this position.

Flipped down: position for 2 up with luggage (shown on previous page).

The adjustment screw found in the center of the load adjustment lever is used to establish the base headlight position of the total headlamp assembly. This screw simultaneously adjusts the vertical position of all four headlights.



Base setting adjustment screw

The beam distance can be adjusted to compensate for two up riding with the spring-loaded lever located on left side of fairing rear surface. For normal position, lever is up, to adjust flip down (as shown).



Load compensation light beam adjustment lever

Technical Features in Detail

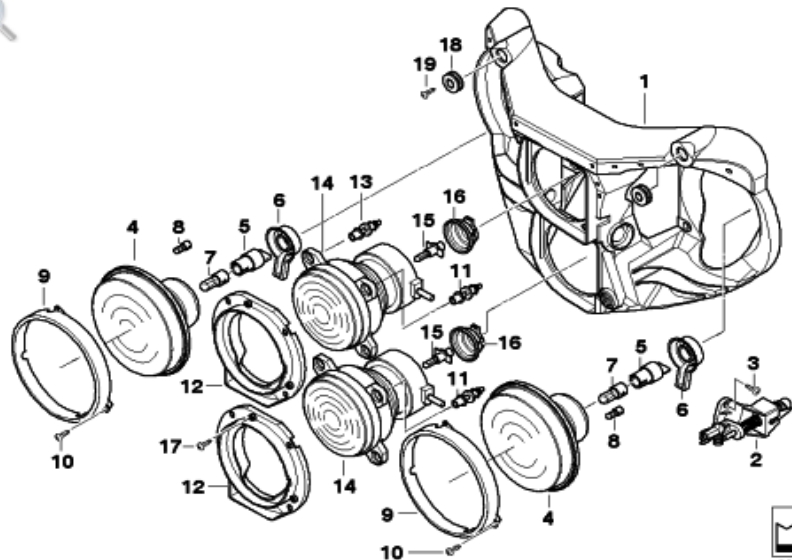


# CONSIDER THIS FIRST... IF YOU TAKE IT APART, CAN YOU GET IT BACK TOGETHER?

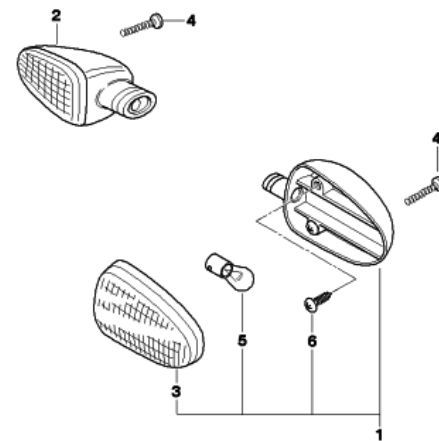
SO, YOU DID IT ANYWAY ?! CHECK OUT THE  
(RE)ASSEMBLY FROM THE ONLINE PARTS CATALOGS

EXAMPLE: [WWW.MAXBMW MOTORCYCLES.COM/FICHE/DIAGRAMSMAIN.ASPX?VID=51572](http://WWW.MAXBMW MOTORCYCLES.COM/FICHE/DIAGRAMSMAIN.ASPX?VID=51572)

63\_0773 - HEADLIGHT



63\_0774 - TURN INDICATOR, REAR

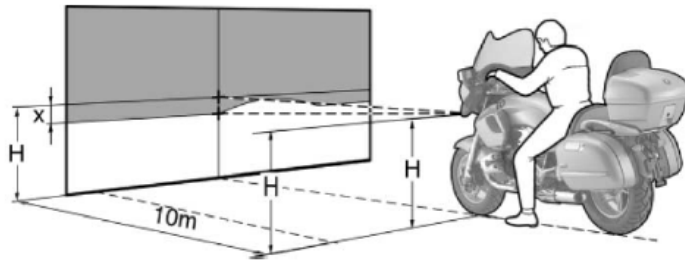


# ALIGN YOUR HEADLIGHTS

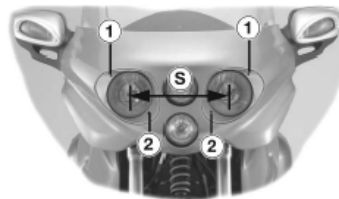
## EVERYTHING IS EASIER WITH THE HELP OF A (185LB) FRIEND

### R 1200 CL

#### PDI Procedures - Check Headlight Alignment



- Set the shock preload to solo mode.
- Place adjustment lever to the horizontal normal position (on back of fairing).
- Check / set the tire inflation pressure.
- Place the motorcycle on a flat surface.
- A rider weighing 85 kg (187lbs) must sit on the motorcycle.
- Measure the distance H from the floor to the low beam headlights center.
- Mark the measured distance H on the wall.
- Then place two crosses on H line that are spaced the same distance that the two low beams are (S in Diagram) which is approximately 30 cm (11 3/4").
- Measure 15mm beneath the H line and mark another cross as well on this line.
- With bike upright and low beam lights on only, check that transition of beams divide between light and dark as shown in diagram on the two crosses between the two lines.
- If necessary, use the single screw on the back of the fairing to move total light assembly up or down to meet this line.
- If necessary, use the adjusting screws (1) and (2) to align the individual low beams to the target areas on the horizontal lines and crosses on the wall.



1=Left/Right, 2=Up/Down for each low beam

- If you have a 2 up option, like many BMWs, set the bike to solo mode.
- Check that the tire pressure is correct and check the glass clarity. Fill/Clean
- Sit on the bike, on a flat surface about 25 feet from wall. Measure the ground to the bulb(s) center. Mark that height(s) on the wall and draw another long line about 2" each .
- The top of the beam should be on the lower line.
- Check low beams, then the high beams.
- Adjust the beam to the target markings on the wall, with the adjusting screws typically on your headlight or in the the back of the fairing.
- **Consult your Maintenance Instructions manual or dealer for your bike's specific alignment details. These are guidelines.**

# THIS BASIC SAFETY LESSON ON MOTORCYCLE LIGHTS IS NOW COMPLETE. ANY QUESTIONS?

