

## Installation instructions for Tonti relay solution

1. Route the wiring such that the bank of four relays is positioned behind the battery. The sheathing should be routed toward the front of the motorcycle.
  - a. The wires connected to the headlight plug should be routed to the headlight bucket.
  - b. The remaining sheath of wires should be routed near the coils/horn.
2. Connect all black wires with ring terminals to ground.
  - a. In the rear of the battery tray area, the three black wires should be grounded to one of the bolts that secures the rear fender to the frame.
  - b. In the front of the battery tray area, the single black wire should be grounded to the battery negative terminal.
  - c. Near the horns, the single black wire should be grounded to an existing frame grounding point.
3. Coil
  - a. Without a side stand switch
    - i. Identify the existing white wire in the main harness that connects to the positive terminal of one of the coils. Disconnect that wire from the coil and plug it into the white wire with the two-way female spade connector.
    - ii. Connect the other white wire back to the coil positive terminal.
  - b. With a side stand switch
    - i. Identify the existing white/black wire in the side stand switch harness that connects to the positive terminal of one of the coils. Disconnect that wire from the coil and plug it into the white wire with the two-way female spade connector.
    - ii. Connect the other white wire back to the coil positive terminal.
4. Horn
  - a. Disconnect the existing wires to the horn.
  - b. Identify the black wire amongst the wires disconnected from the horn. Plug it into the black wire with the two-way female spade connector.
  - c. Connect the provided brown and black wiring to the horns.
5. Headlight
  - a. Route the wiring inside the headlight bucket.
    - i. You will likely need to drill a hole in the plastic cap at the back of the headlight bucket. I do not like to modify original equipment. I can see no way around this modification, as the wiring that exits original holes is already very snug.
    - ii. You will note that the headlight plug may be disconnected from the sheathing, thus necessitating a smaller hole. Likewise, the wires to the plug are terminated with male bullet terminals, also necessitating a smaller hole. The wires that connect to the headlight are all identified with green markers, so that they are not confused with the remaining brown and green wires.

- b. The brown wire (not the one connected to the headlight plug) must be connected to the brown wire that was connected to the original headlight plug.
    - i. If I am providing you with a replacement headlight interconnect, then I will have already terminated the brown wire properly. Simply plug it in.
    - ii. If I am not providing you with a replacement headlight interconnect, then you will need to cut the brown wire that goes directly to the headlight plug and crimp on the terminals I included in the packaging.
  - c. The green wire (not the one connected to the headlight plug) must be connected to the green wire that was connected to the original headlight plug.
    - i. If I am providing you with a replacement headlight interconnect, then I will have already terminated the green wire properly. Simply plug it in.
    - ii. If I am not providing you with a replacement headlight interconnect, then you will need to cut the green wire that goes directly to the headlight plug and crimp on the terminals I included in the packaging.
  - d. The black wire connected to the original headlight plug no longer serves any purpose and it may be removed entirely.
    - i. If I am providing you with a replacement headlight interconnect, then I will have already taken care of this black wire.
    - ii. If I am not providing you with a replacement headlight interconnect, then you will need to cut/remove the black wire. Please note: there are likely additional black wires that must remain grounded. Be sure to maintain those grounds.
6. Connect all red wires with ring terminals to the battery positive terminal.

## Notes

1. I chose to use the same colors for the same functions as Moto Guzzi.
  - a. Horn = Brown
  - b. Coil = White
  - c. Headlight high beam = Brown
  - d. Headlight low beam = Green
2. From left to right, the bank of relays is organized in the following order.
  - a. Horn
  - b. Coil
  - c. Headlight high beam
  - d. Headlight low beam
3. The relays simply plug in to each receptacle. You may remove them to mount the relay or to replace them, should the need ever arise. You may need to wiggle them a bit as you remove them.
4. The relays are standard automotive micro relays. Replacements may be purchased directly from me or from any auto parts store.
  - a. I chose to fit 5 pin relays, but I do not use terminal 87a. A 4 pin replacement relay would work just fine.

- b. I chose 20/35 amp relays. The 20 amp circuit covers terminal 87a (which I do not use). Hence, 35 amp is the sizing I chose for all circuits. This is way more than ample for the devices in use.