# Intercooler Pump and Cooling Fan Re-Wire

**Scope:** This write up is for adding 2 switches under the hood and 2 in the passenger's compartment for controlling the intercooler pump and cooling fan. The switches under the hood are for turning the intercooler pump on or off and the high speed cooling fan on or off while the key is in the off position. These two switches work independent of each other. The switches in the passenger's compartment have the same function, except the switch for the intercooler pump is a three position switch. The three positions are: ON – the pump runs, even with the key off; OFF – the pump does not run at all; and AUTO – the pump runs as controlled by the ECM (this is the factory setting.)

**Parts Needed:** (The part numbers I used are shown in parenthesis.)

- 2 - SPST Toggle Switches Rated for min 10A – (AAT-TSRHDP2T2 from www.performanceunlimited.com/cobravalley)
- 2 – Aircraft Toggle Covers (optional) – (Covers from www.performanceunlimited.com/cobravalley labeled PUMP and FAN)
- 1 – Relay rated for min 50A continuous – (NTE Electronics R51-1D70-12F)
- 1 – Relay socket – (NTE Electronics R95-160A)
- 1 – SPST Rocker Switch rated for min 10A – (AAT-RSRBDP2T2 from www.performanceunlimited/cobravalley)
- 1 – DPDT Rocker Switch with center OFF rated for min 10A – (AAT-RSRBDP2T3 from www.performanceunlimited/cobravalley)
- 12 Gauge Primary Wire – (spool of 50' of Tinned Marine Wire from shop.genuinedealz.com)
- 16 Gauge Primary Wire – (spool of 50' of Tinned Marine Wire from shop.genuinedealz.com)
- 1 – Mounting Bracket for Switches under the Hood – (Lowe's Item #90857 Simpson Strong-Tie)
- 1 – Roll of Electrical Tape
- 1 – Roll of Solder
- Misc. Female Quick Disconnects for the Prongs on the Switches and Ring Connectors for Grounds
- Hardware for Securing the Mounting Bracket
- Replacement Push Fittings for Reinstalling the Inner Fender
- Misc. Wire Ties

**Wire Schematic/Design:**

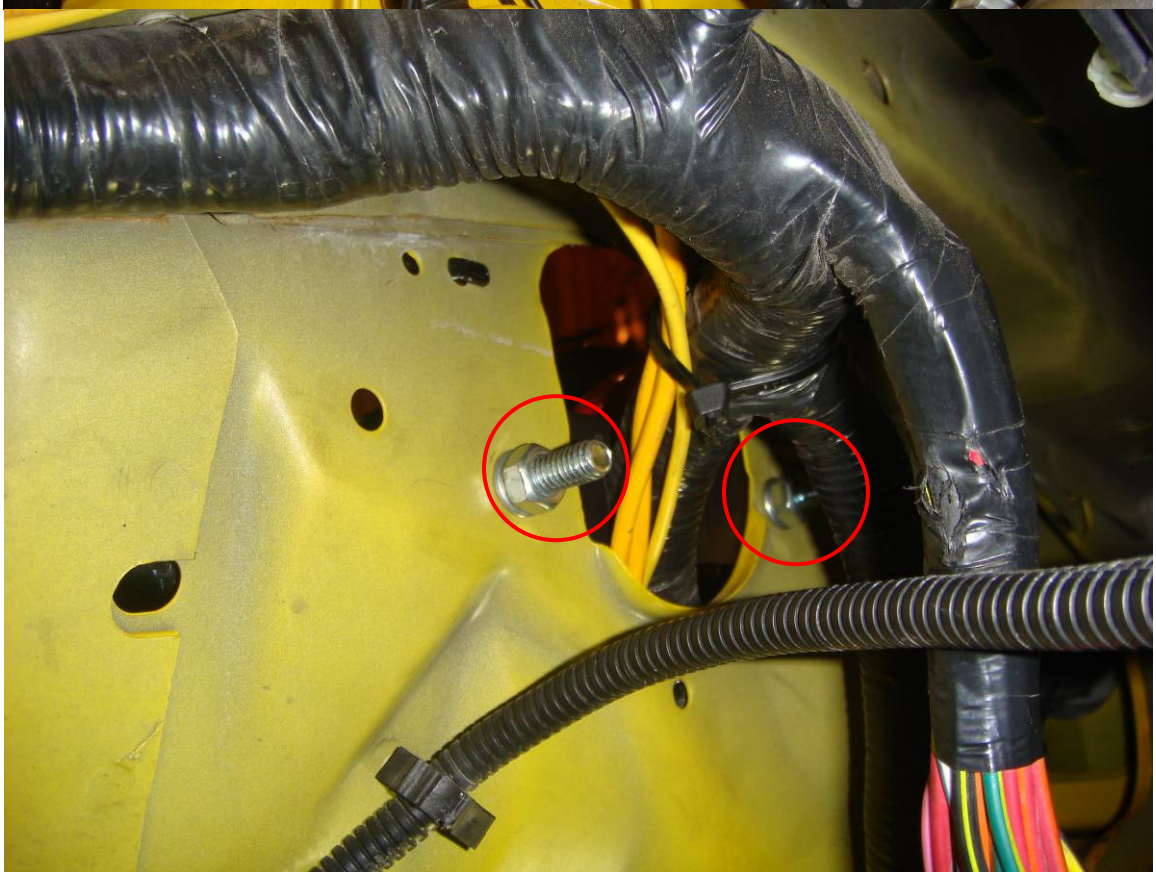
The design and schematics are in files:
- High Speed Fan Rewire.pdf
- Intercooler Pump Rewire.pdf

**Instructions:**

1. Jack up and support the front end of the vehicle. Disconnect the negative battery cable.
2. Remove the passenger's side front tire.
3. Remove the passenger's side inner fender.
4. Remove the mounting screws for the CCRM and let it hang out of the way.


5. Remove the air filter and all intake parts in order to clean out the fender area. Also remove the auxiliary fuse box that is circled in the picture.


6. Fabricate mounting bracket for switches as preferred and determine mounting position.



7. Cut 2 lengths of 12 ga. wire and 1 length of 16 ga. so that you have enough to run from the fender area to the shifter bezel with extra length to spare.

8. Feed the 3 wires from previous step through the rubber grommet inside the passenger's side inner fender. Make sure to drop the glove box out of the way. (I used a metal close hanger and fed it through the top of the grommet and along side the blower motor box.)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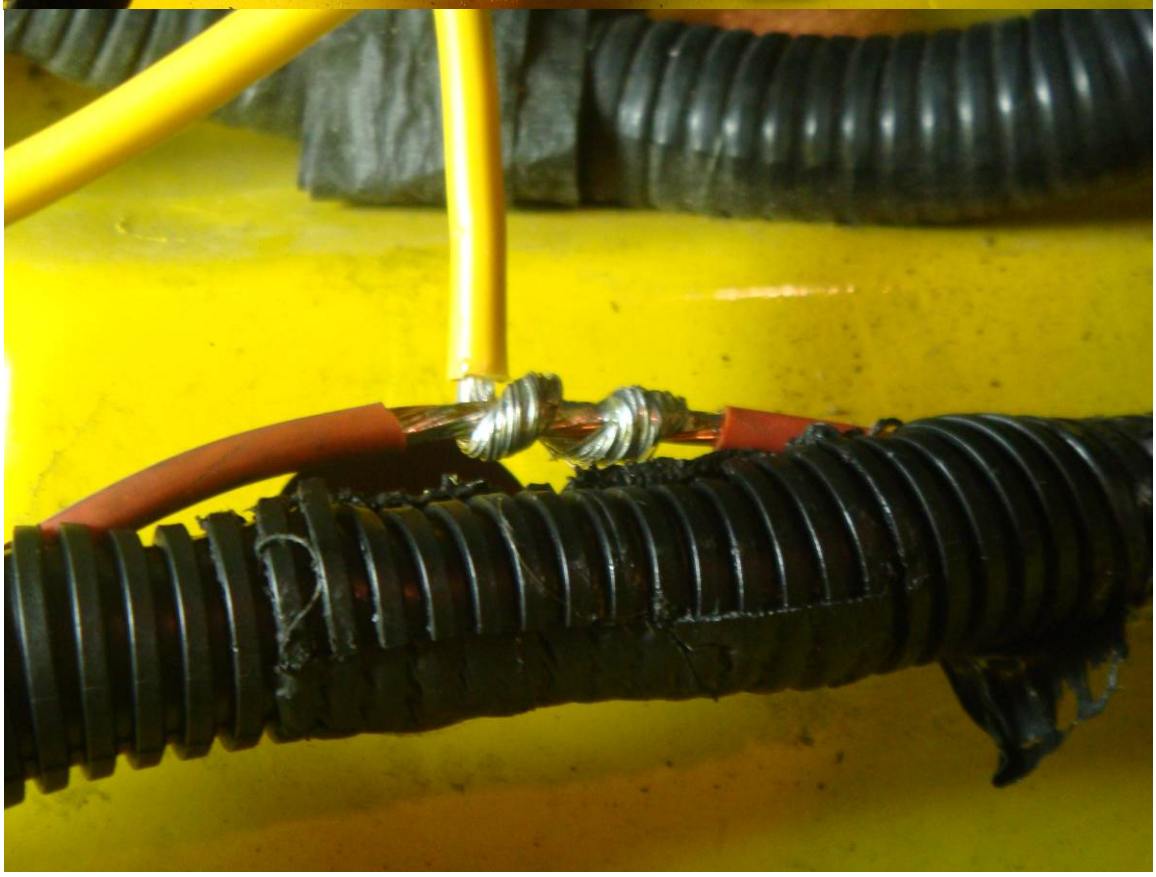
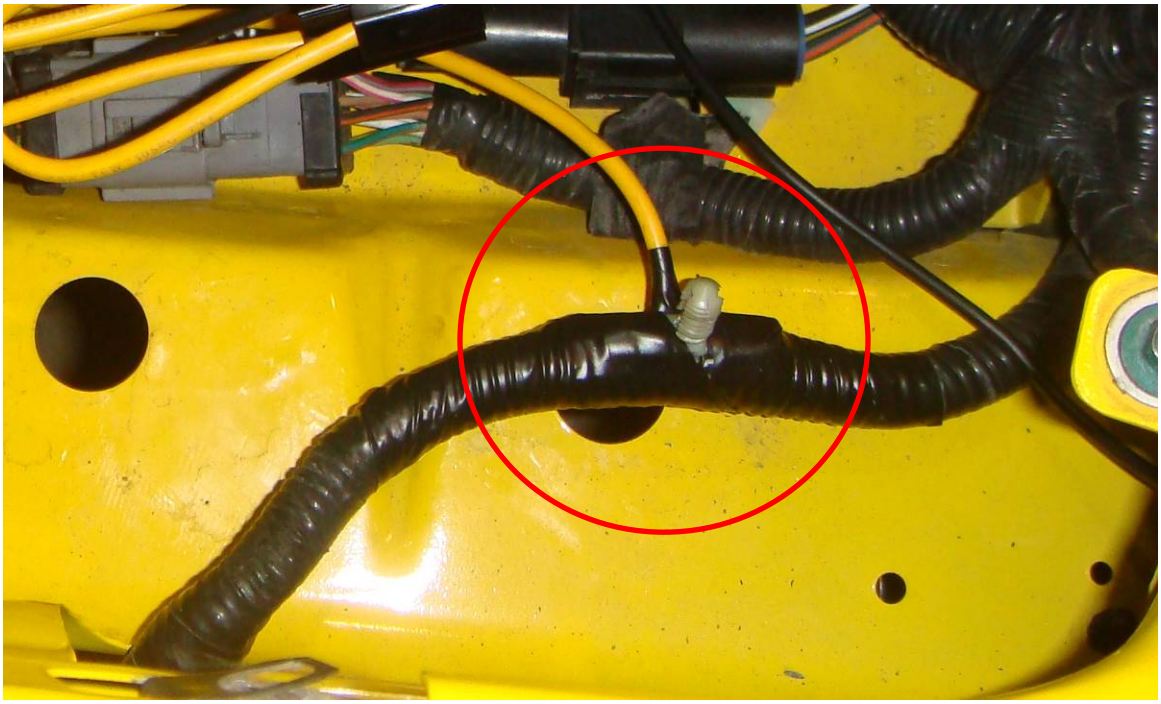
9. Feed the 3 wires through the opening in the inner fender to the engine compartment.

10. Remove the tape and wire loom and locate the **Orange** wire with **Light Blue** stripe. Remove the insulation from the wire and solder a 12 ga. strip of wire to it. This is another new wire and should be cut at least 18 inches long. When done, tape up the soldered connection and then the entire loom.





11. Unplug the black connector that is at the bottom of the fender area and locate **Yellow** wire with the **Black** stripe. Strip the insulation off of the wire and solder a new 12 ga. wire to the wire. This new wire should be cut to be about 18 inches long. When you are done, once again, tape the soldered connection, retape the loom, and reconnect the plug.


12. Determine a mounting position for the new relay. (I chose to wire tie it to one of the wiring harnesses under my switch plate location.)

13. Roughly route and measure the 2 wires that were attached in Steps 10 and 11 to the planned location of the relay. Trim these wires to the correct length.

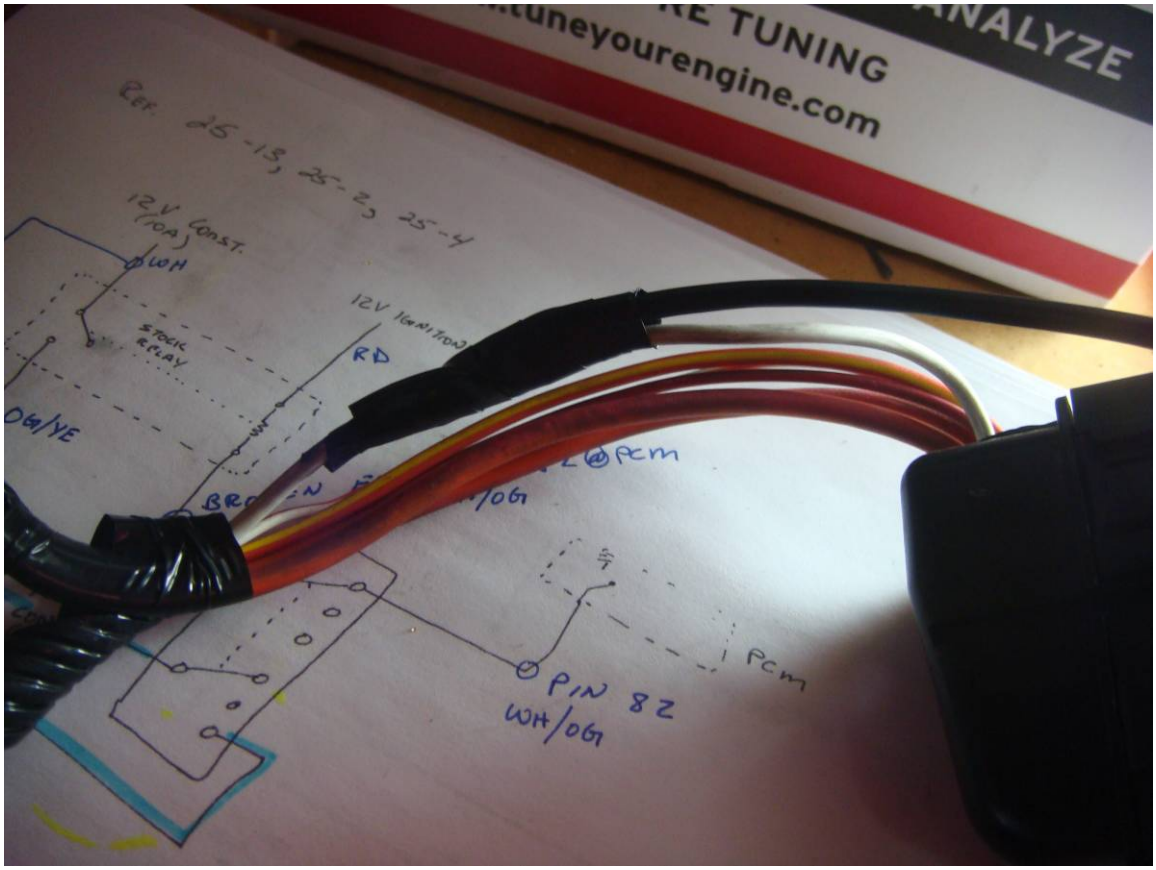
14. The wire from the **Orange**/**Light Blue** wire in Step 10 should be connected to one of the large quick disconnect connector and put in the socket so that it connects to pin 87 on the relay.

15. The wire from the **Yellow**/**Black** wire in Step 11 should be connected to one of the large quick disconnect connectors as well. You will also need to connect a 16 ga. wire to the quick disconnect connector with this wire. Once this connection is complete, it can be put in the socket so that it connects to pin 30 on the relay. The 16 ga wire should have a smaller quick disconnect connector put on it and put in the socket so that it connects to pin 86. This is a basic jumper wire.

16. A 16ga wire long enough to reach from the switch plate to the relay should be cut. One end of the wire should be connected to a small quick disconnect connector and then put in the socket so that it connects to pin 85 on the relay.

17. Insert the relay into the relay socket and mount the relay to its determined location.

18. Remove the tape from the harness leading to the Auxiliary Fuse Box that we removed from the car in Step 5. Locate the **White** wire. Remove the insulation and solder a 12ga wire to it. Retape the connection when finished.




19. On the same harness, remove the insulation on the **Orange** wire with the **Yellow** stripe, solder a 12ga wire to it, and then tape the soldered connection and the entire wiring harness. The 12ga. wire should be about 12 inches long.

20. Reinstall the Auxiliary Fuse Box in the car.

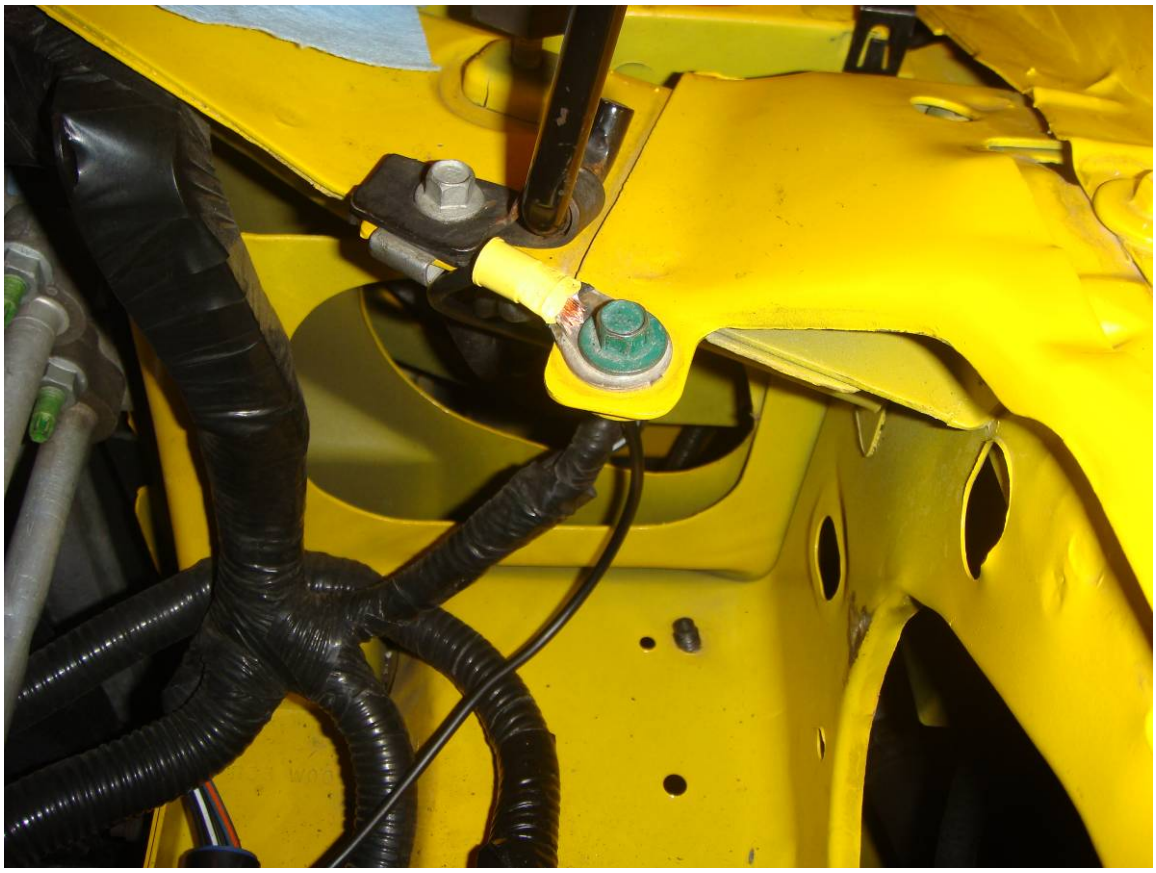
21. Install the switches (and switch covers if using them) on the switch mounting plate.

22. Using a quick disconnect connector, connect the wire from Step 18 (coming from the **White** wire) and one of the 12ga wires running through the rubber grommet from Steps 8 and 9 to one pole of the SPST switch for the Intercooler Pump.

23. Again using a quick disconnect connector, connect the wire from Step 19 (coming from the **Orange**/**Yellow** wire) and the other 12ga wire from Steps 8 and 9 to the second/other pole of the SPST switch for the Intercooler Pump.

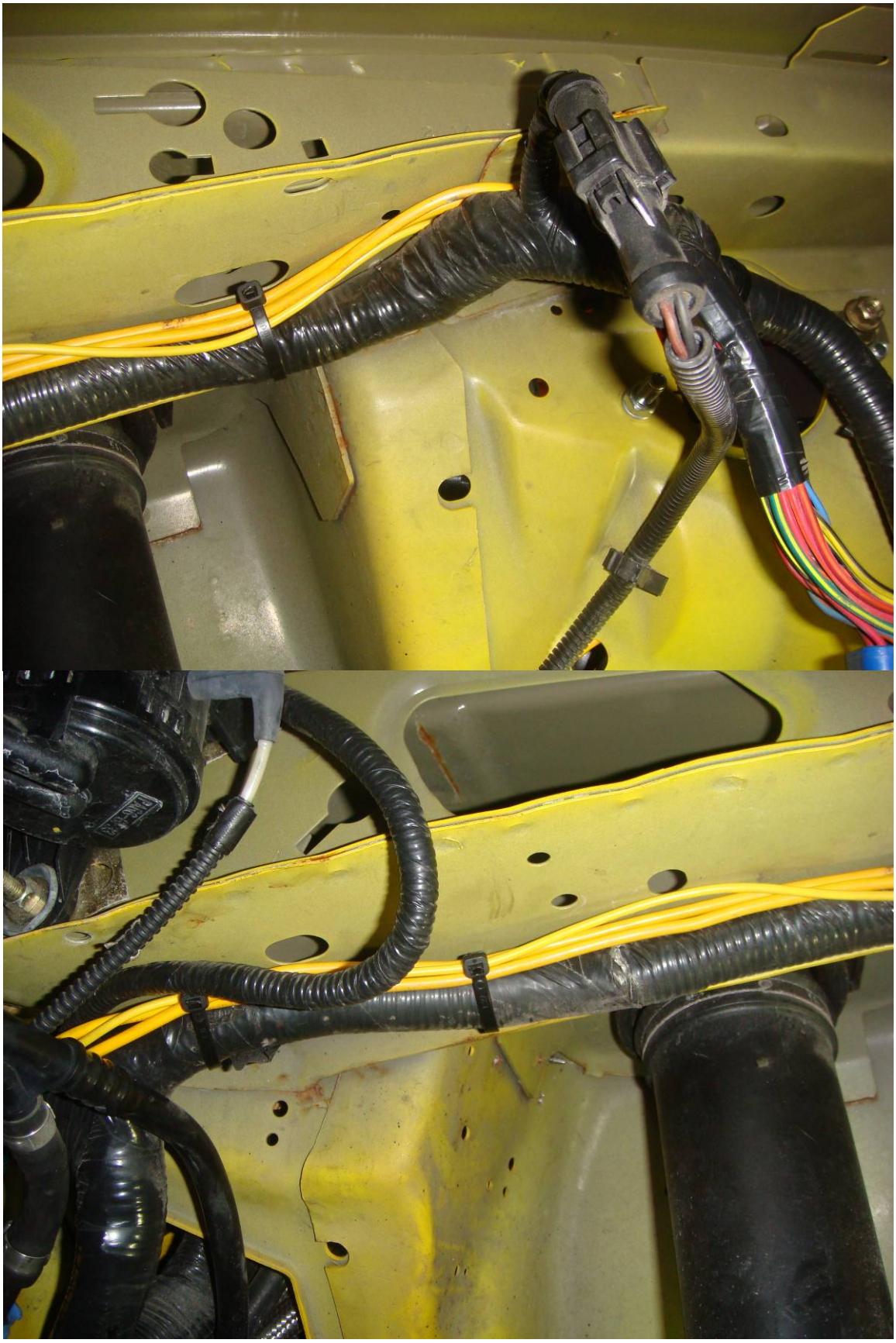
24. With a quick disconnect connector, connect the wire from Pin 85 of the relay in Step 16 and the 16ga wire running through the rubber grommet from Steps 8 and 9 to one pole of the SPST switch for the High Speed Fan.

25. Connect a new 16ga wire with a quick disconnect connector to the second/other pole of the SPST switch for the High Speed Fan. The other end of the wire connects to ground using a ring connector. A good ground location is beside the base of the hood prop on the passenger's side of the car.



26. Clean up the wiring in the fender area using wire ties and electrical tape. All of the wiring is done in this area.

27. Pull the excess of the wires going to the passenger's compartment through the grommet and neatly tuck the wires away in the inner fender.



28. (Optional) Remove the passenger's seat from the car by removing the 4 bolts.

29. Remove the passenger's side sill plates and kick panel.

30. Remove the harness and plug from the computer.

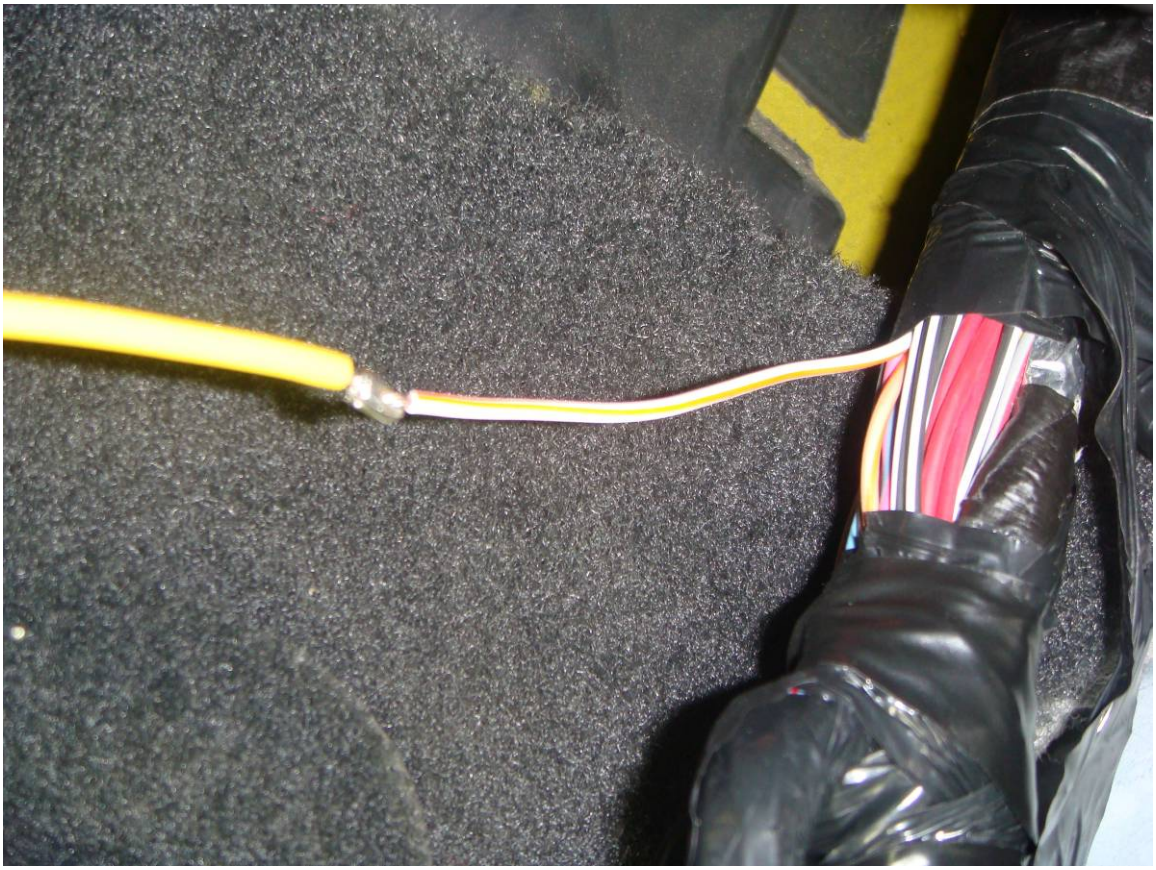
31. Carefully untape the lower part of the harness and remove the black plastic cover on the backside of the plug.

32. Locate the **White** wire with the **Orange** stripe coming from pin 82.

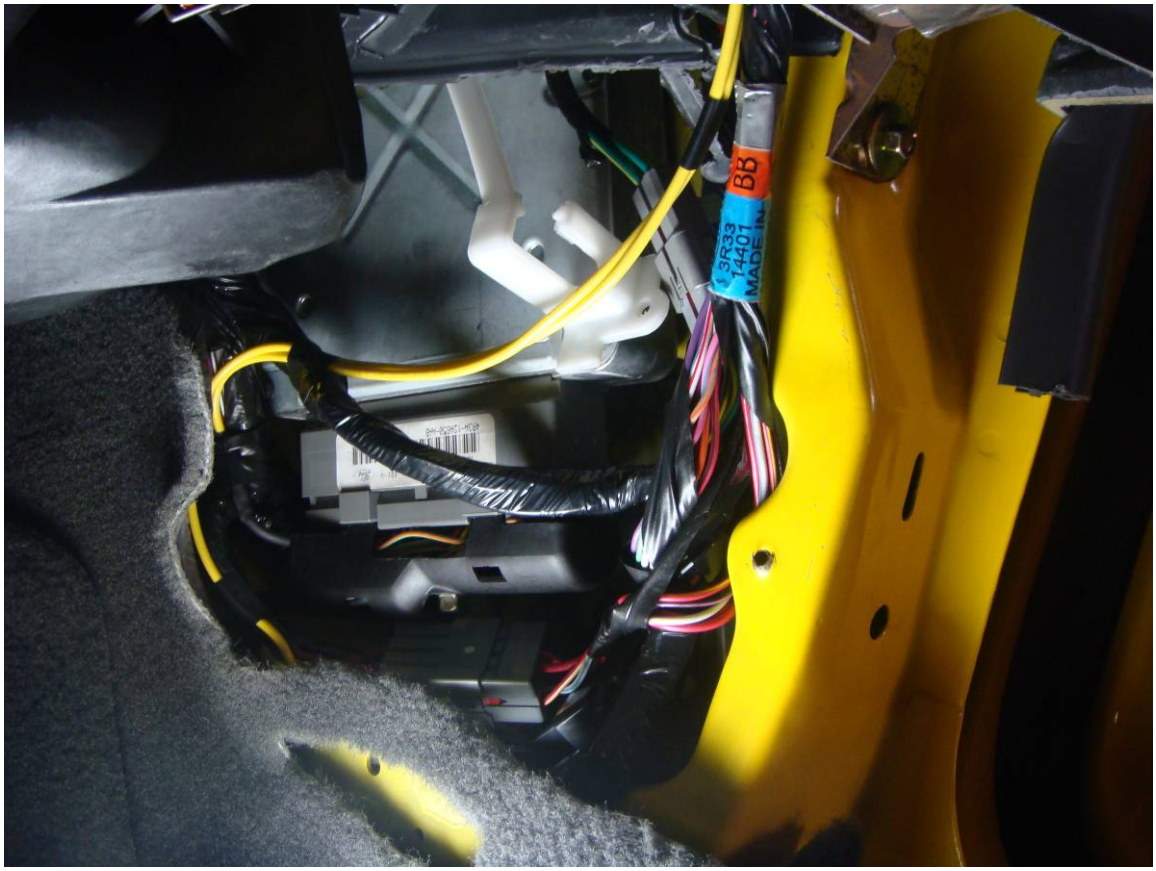
33. Carefully, cut the **White** /**Orange** wire making sure that there is enough exposed wire to solder addition wire to each end.

34. Tape the harness back up, leaving the **White** /**Orange** wire exposed and reattach the plastic cover to the back of the plug, again leaving the **White** /**Orange** wire exposed.

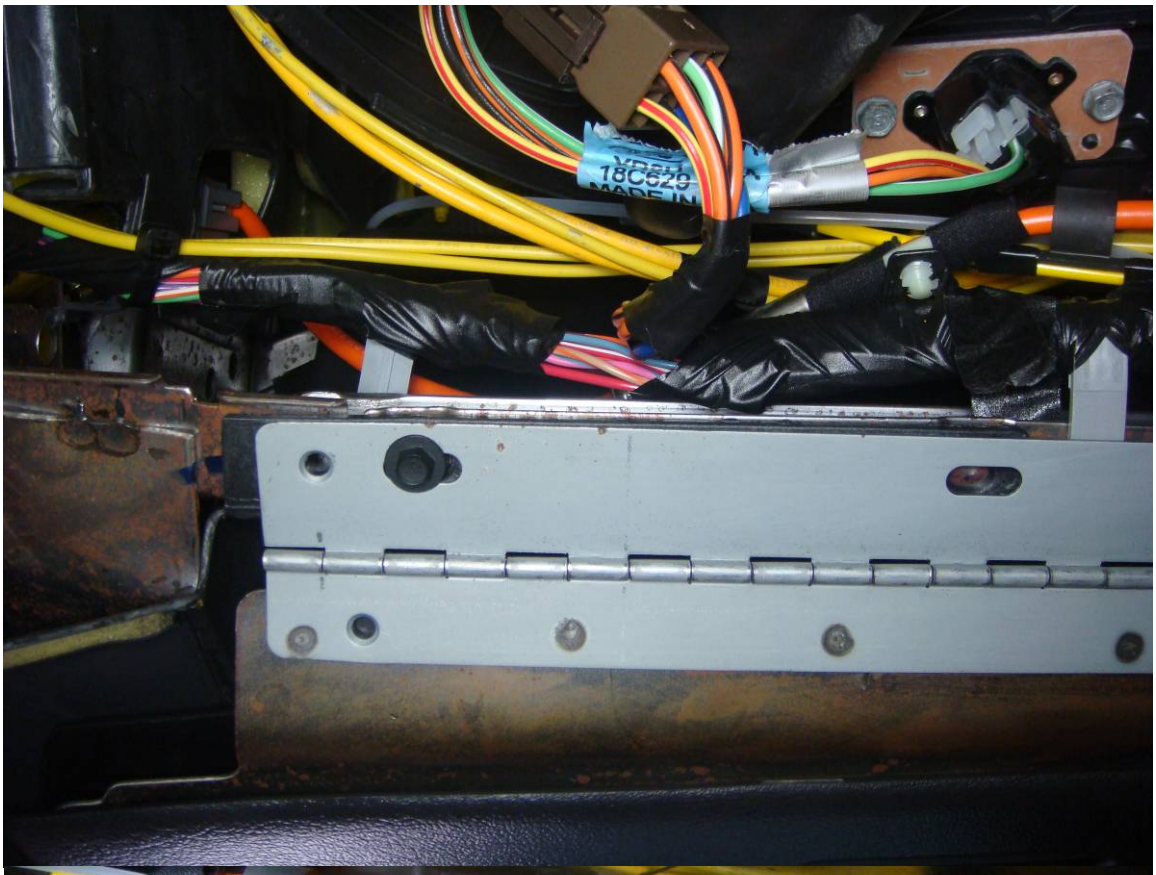
35. Cut 2 new 16ga wires such that they will reach from the computer to the shifter bezel and solder one to each of the exposed ends of the **White** /**Orange** wire. Tape the connections when complete.

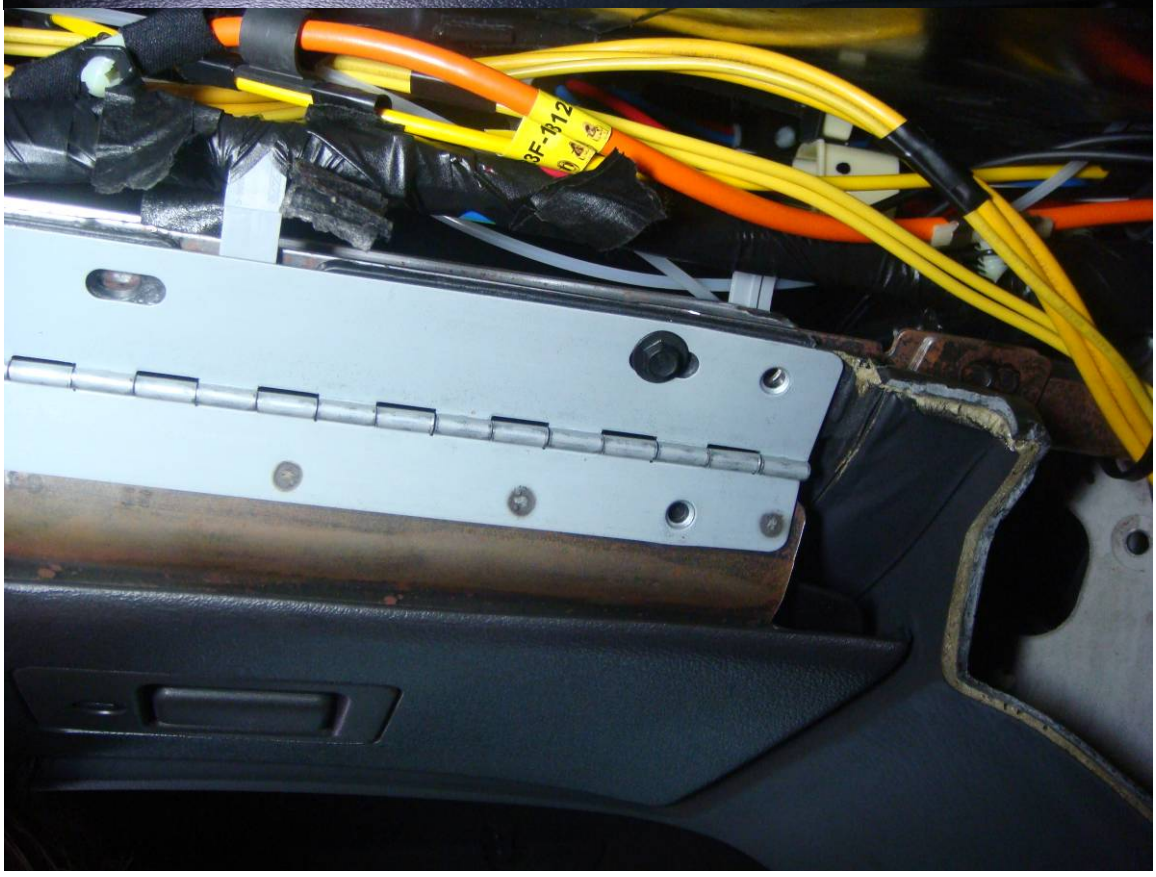


36. Carefully, route the two wires up the kick panel and across the bottom of the dash. Make sure to tape and zip tie the wires securely.



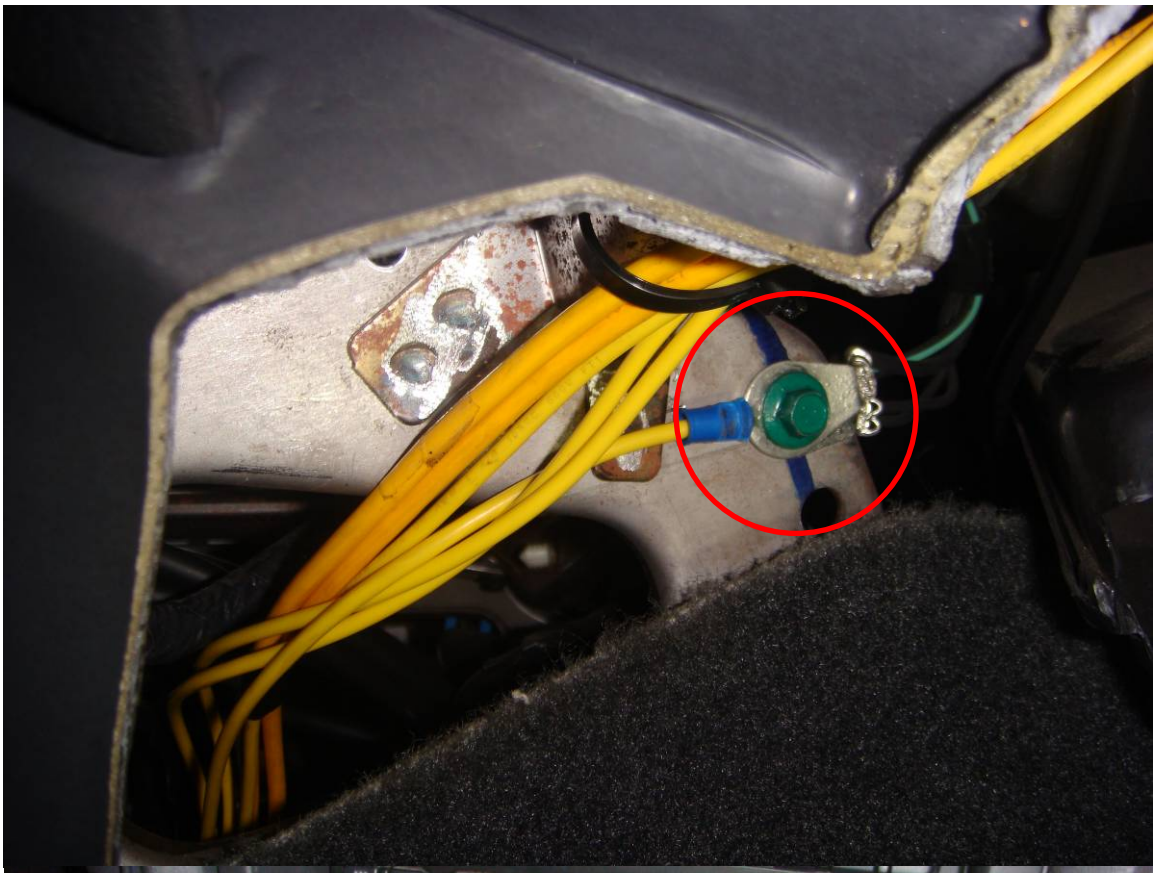
37. Route all of the wires under the dash and over to the center column. Make sure that are support and tucked away. There are now 5 wires in total – 2 from the computer and 3 from the engine compartment.

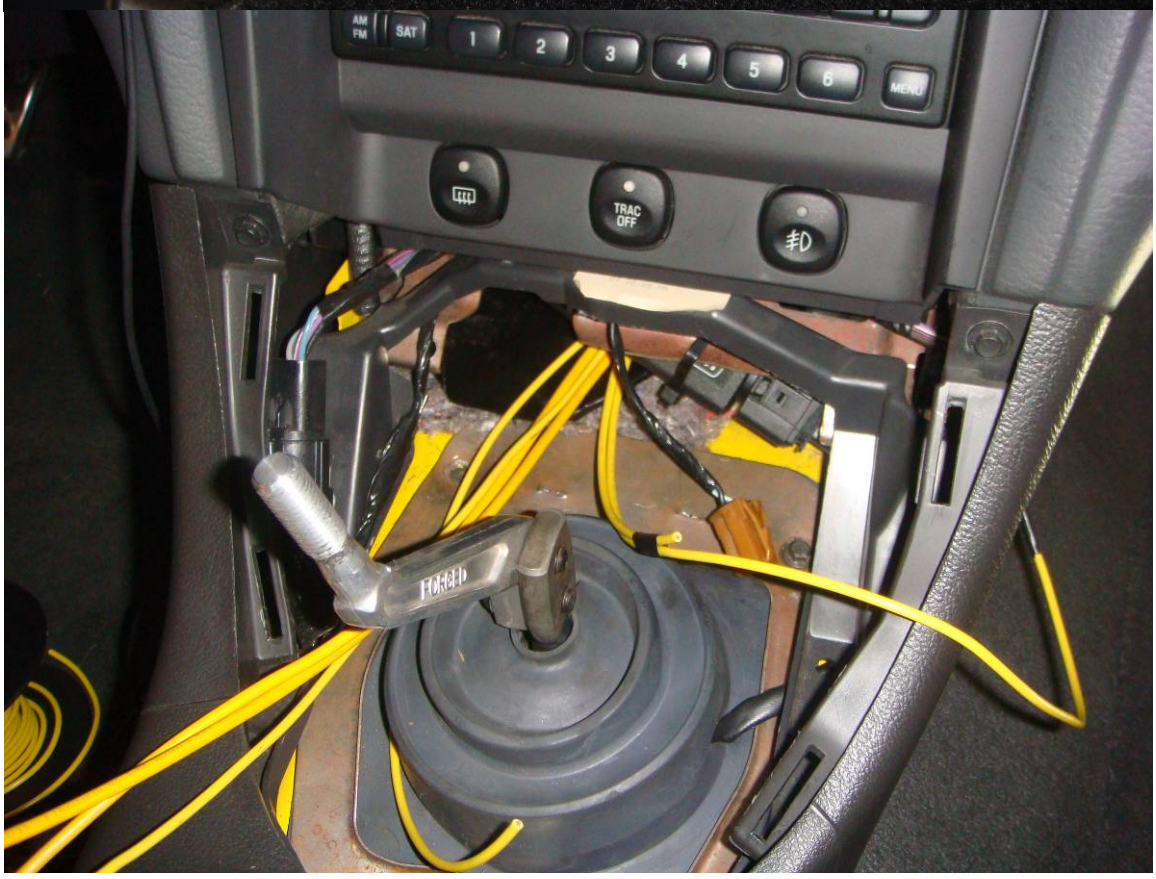




38. Remove the shifter knob and shifter bezel.

39. Route the wires through the center consol and out around the shifter.





40. Connect a new 16ga wire to the ground on the passenger's side of the console using a ring connecter as shown in the picture above. Route the rest of the wire with all of the others.

41. Pull all of the wires out together and cut them all to the same length. Make sure you have about 4-5 inches beyond the shifter bezel.

42. Put quick disconnect connectors on the ends off all of the wires. Make sure you have the right size that matches up with the switches.

43. Drill 2 holes in your shifter bezel for mounting the switches.

44. Route the 16ga wire going to the ground and the 16ga wire going to the engine compartment thru the hole for the High Speed Fan switch. Route the other 4 wires thru the other hole. (I have the Intercooler Pump switch on the left and the High Speed Fan switch on the right.)

45. Connect the 2 wires to opposite poles on the SPST High Speed Fan switch. (I used a DPST switch, so I used the two poles on the right side of the switch.)

46. On the DPDT switch, there are 6 poles, 3 on each side. Connect the 12ga wire coming from the engine compartment and connected in Step 22 to the center pole on the left side. Connect the other 12ga wire coming from the engine compartment and connected in Step 23 to the top pole on the left side of the switch. Connect the 16ga wire coming from the **White** /**Orange** wire away from the computer plug to the center pole on the right side of the switch. The last wire should be the 16ga wire coming from the **White** /**Orange** wire going to the computer plug. Connect this wire to the bottom pole on the right side of the switch.


47. Reinstall the shifter bezel and press the switches into the holes. Make sure that their orientation is the way that you want them. (If you are consistent with top and bottom with my directions and install them that way, normal operation mode would be with both rocker switches in the up position – Fan off and IC pump in ECU control.)


48. Reinstall the rest of the interior – shift knob, kick panel, door sill, passenger's seat, etc.

49. Connect the negative battery cable and check operation.
    a. The IC pump switch in the interior should cause the pump to come on in the full down position. In the middle position the pump should not run at all, even with the car running and hot. The up position should allow the computer to control the operation of the IC Pump.
    b. The Fan switch in the interior should have the fan off in the up position and on in the down position.
    c. The two switches should have everything off in the off position and cause the designated item to run when put in the on position.

50. Reinstall intake and filter.

51. Reinstall the CCRM and inner fender.

52. Reinstall the front wheel.

53. Double check everything, lower the car, and test drive.

Designed, Installed, and Write up by: LTZ MACH

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