

Electrical Instructions for Replacing the Generator with a GM Alternator in a TR2/3/3A/3B

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Also see <http://www.advanceautowire.com/>

Important Note: this entire article assumes a previous conversion to negative ground!

Method One (Utilizing existing wiring)

- At the control box, look for the following wires:
 - Black (2)** Disconnect and tie together, with an insulated connector. Retain ground connection.
 - Small Yellow Yellow/Green-** Disconnect and tie together, with an insulated connector.
 - Large Yellow, Brown/White, Brown/Blue** - Using a large, solder type butt connector, connect all 3 of these wires together, and insulate with heat shrink tubing. Be aware - this connection carries ALL of the current for the car, so it must be a good connection. You do not want a high resistance here. Run the larger wire into one end of the connector, and the other two into the other end.

Remove the control box and, please, save for a friend who is a purist!

- **At the old generator**, you will find two wires, Yellow/Green and Yellow. Disconnect them from the generator and leave in place. Remove and save the generator.
- **At the new alternator**, on the side of the case, you will find two spade lugs recessed into the body. The lugs are identified on the body of the alternator as 1 & 2. You will need a plug (connector) for these. These plugs are readily available at an auto supply store, usually in a package hanging on the pegboard display rack in the electrical section, and usually identified as an alternator extension connector, or something similar. If not, the counter man will know what you are looking for. There will be two short wires already connected to the plug.

On the back of the case, you will find an insulated screw terminal.

Connect the Yellow/Green wire to the plug wire going to the # 1 terminal, using a butt connector, or splice, solder, and insulate with heat shrink tubing. The plug is keyed, and

will only go in one way. Connect the other lead from the plug (#2) to the screw terminal on the back of the alternator case, along with the large Yellow lead from the original harness, using ring terminals. Both the large Yellow wire and the wire from terminal #2 connect to the screw terminal.

Disconnect the ground lead from the battery before proceeding with any electrical work, and, of course, follow all the rules of proper wiring practices. I recommend using solder connections, and covering them with heat shrink tubing, but crimp type connectors will work quite well also. You will need butt connectors for attaching to the plug wires, and a large ring connector for the screw terminal. If you would prefer not to have splices, you can remove the terminals, and the wire, from the plug. Using new terminals of the proper type, connect directly to the existing wires, and insert the terminals into the plug. New terminals can be purchased from British Wiring, (20449 Ithaca, Olympia Fields, IL 60461, 708-481-9050) and The Wire Works (167 Keystone Road, Chester, PA 19013, 800-292-1940), among others.

You are finished!

There are two things, however, to be aware of:

1. Triumph did funny things when they built these cars, so your car might not match the configuration above, and it may well have been modified by a previous owner.

2. You now have an alternator capable of more than twice the output of your old generator, but the wiring capacity has not changed. If you add heavy loads, driving lights, high power stereo, etc, you can exceed the capacity of the wires. Also, If you let the battery discharge completely, the alternator can possibly recharge with enough current to overload the wires. If your battery is completely discharged, recharge it with a charger rather than push starting the car and letting the alternator recharge it. If you must do this, keep a close watch on the ammeter, checking for overcharging. Under all other usages, the wiring should not present a problem. The main advantage of the higher output is the ability to provide a higher charge rate at low RPM and idle. The standard loads on the TR2 through 3B do not require a higher charge current at normal engine speeds, so the alternator will not be called on to provide enough current to overload the wires.

Method Two (Upgraded wiring)

If you wish to upgrade the wiring to take advantage of the higher output, it is really quite simple.

As above, except:

Cut off both ends of the large Yellow wire - at the old generator and at the control box - as close to the wire harness wrapping as possible (or, unwrap the harness, and remove the wire all-together). Connect the Brown/Blue and the Brown /White wires together at the control box.

Instead of connecting the large Yellow wire to the new alternator, add a new wire of at least 10 Ga (8 Ga preferred). Connect one end to the screw terminal at the alternator, and the other end to the terminal on the starter solenoid where the main cable from the battery and a Brown wire are now connected. Leave the existing Brown wire at the solenoid connected. Very carefully route this new wire alongside the existing wiring harness, and use cable ties liberally for support.

Now, the alternator can provide full charging current without worrying about burning up the wiring.

There is one downside to this approach: The charge indicating light will work as before, but the ammeter will only read discharge. It will register the current being drawn by the various loads on the car, but will not indicate if the alternator is charging.

If you wish to add extra loads, such as a high power sound system, connect them directly to the battery, properly fused, of course. Loads connected directly to the battery will not be indicated on the ammeter.

Options

There are several other ways to do the replacement. For example, you may wish to use a larger range ammeter, or you may wish to replace the ammeter with a voltmeter. If so, contact me with your preferences, and I will try to provide the appropriate instructions.

You may also choose to use a different alternator, rather than the GM unit. If so, it will be wired very similarly to the above, only the connections at the alternator itself will be different.

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