



TRA 2023 Stealth Electronics Workshop

Classic Looks but Modern Technology

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How and why to take advantages of electronic upgrades like LED lights, alternators, and electronic ignition with hacks to keep everything looking original

Materials available under TRA 2023 Technical Workshops at <https://www.miamivalleytriumphs.org/tech-articles>



Things to Talk About



- **LED Lights**
 - Safety –If they can't see you or you them then...
 - Hack – Disguising the electronic flasher and TR2-3s
- **Stealth Alternator**
 - More and steadier amps
 - Hack – Modifying the voltage regulator to a fused connector
- **Electronic Ignition**
 - Removes maintenance issues of points and condenser
 - Hack – Pertronix hidden but how to set timing



What's Old is New Again



Some of these modifications have been around a while so why are people still asking questions?

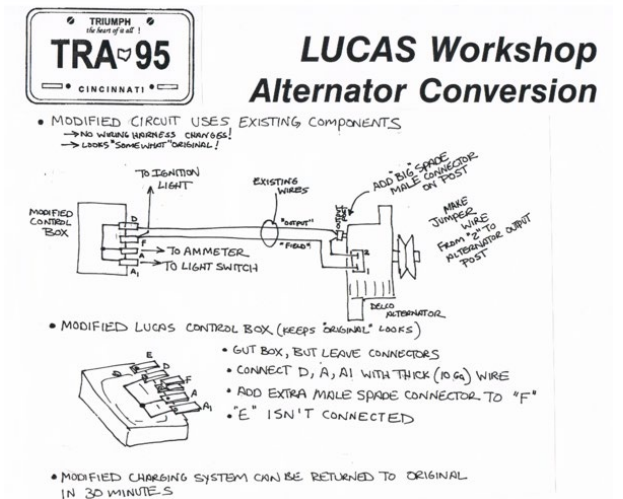
- Bruce's 1995 presentation a TRA 1995:
Lucas Workshop – Alternator Conversion

Currently availability of lots of commercial products

- Too many choices (like LED lights) and variable quality.

Why are not more people using some of these advances?

- Not a lot of clear cut "How To" instructions.
- Some minor electrical/mechanical work a barrier.





LED Lighting



Safety is the PRIMARY REASON to use LED bulbs

- **At the minimum, rear tail/brake should be a LED**
- **Why? The original bulbs are weak and almost invisible in bright daylight. Do you want a SUV/Pickup in your trunk?**

Replacing bulbs is easy, direct replacement

- **Color of bulb should be the same as lens (e.g. red-red)**

LED bulbs draw too little current (an advantage) to operate a mechanical flasher (disadvantage) so need to replace flasher with an electronic one.

- **Electronic flasher direct plug and play replacement but does not match original**

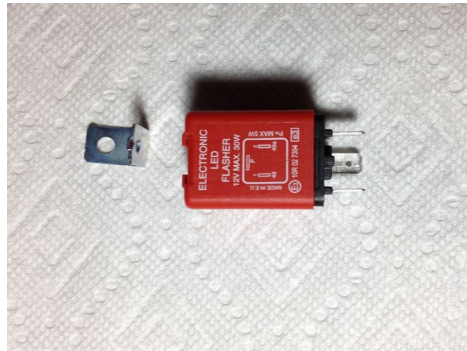
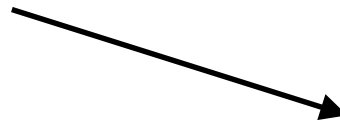


Hack – Flasher



New donor flasher. Remove the bimetallic element from the donor flasher by carefully bending the crimped bottom of the can.

Yep, that's all that is inside the original-style flasher



SuperBrightLed electronic flasher. Remove plastic cover. Just a circuit board.



LiteZupp electronic flasher. Circuits embedded in round potting material





Hack – Flasher



SuperBrightLed - Cut out circle to match can. (can be any non-conductive material – I used circuit board material) Cut slots for tabs and assemble back in can, re-crimp.



LiteZupp – May require some trimming to fit in can. Attach ground inside can and place assembly back in can. Hold in with adhesive of choice and re-crimp



LED Bulbs



1157 - 2 contact
Front parking/directional - white



Instrument lighting
- white



License plate lights- white



1157 2 contact, right angle
Rear parking/brake - red



1156 1 contact
Rear directional - red



7" headlights



Alternators & Stealth Alternators



Some current choices for alternators

- **Bruce's original choice was a '79 Camaro without AC but any period GM alternator will work – look at Summit Racing**
- **Moss Motors, of course, has a conversion kit (130-058)**
- **Mini Denso is the size of your fist and produces 40 amps if you don't want a big sized alternator**
- **Dynamator Alternator – Looks like and fits like original Lucas generator – 45 amp replacement. Available from Accuspark UK and others.**



Alternators & Stealth Alternators



Fits original brackets (may need a washer as spacer for best belt alignment).

Voltage regulator built-in so no need for original (see hack).

Dynamator Alternator



Close to exhaust like original. Could be subject to issues if experiences extreme heat (I cooked one on the way to TRA in the mountains on a 95+ day – they replaced).



Hack

Dummy Voltage Regulator



The voltage regulator is built into new alternators so the original, mechanical one is no longer needed. However, it is best to convert the regulator box into just a connector, even better to add a fuse.

- Again old news – see Bruce’s Lucas presentation for TRA ’95
- You can even buy one from Moss for \$70 (142-004) but what’s the fun in that.
- If you have old one around, it is fairly easy to do yourself.





Hack Dummy Voltage Regulator



Original top



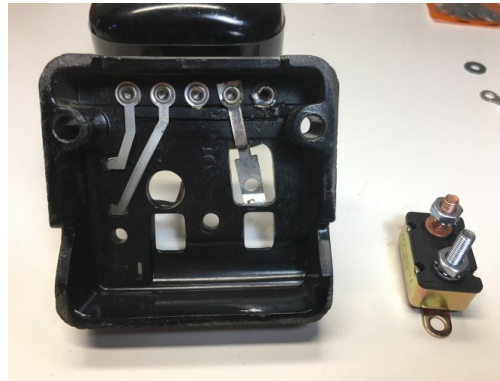
Modified top



**Final empty voltage
regulator with fuse**



Original bottom

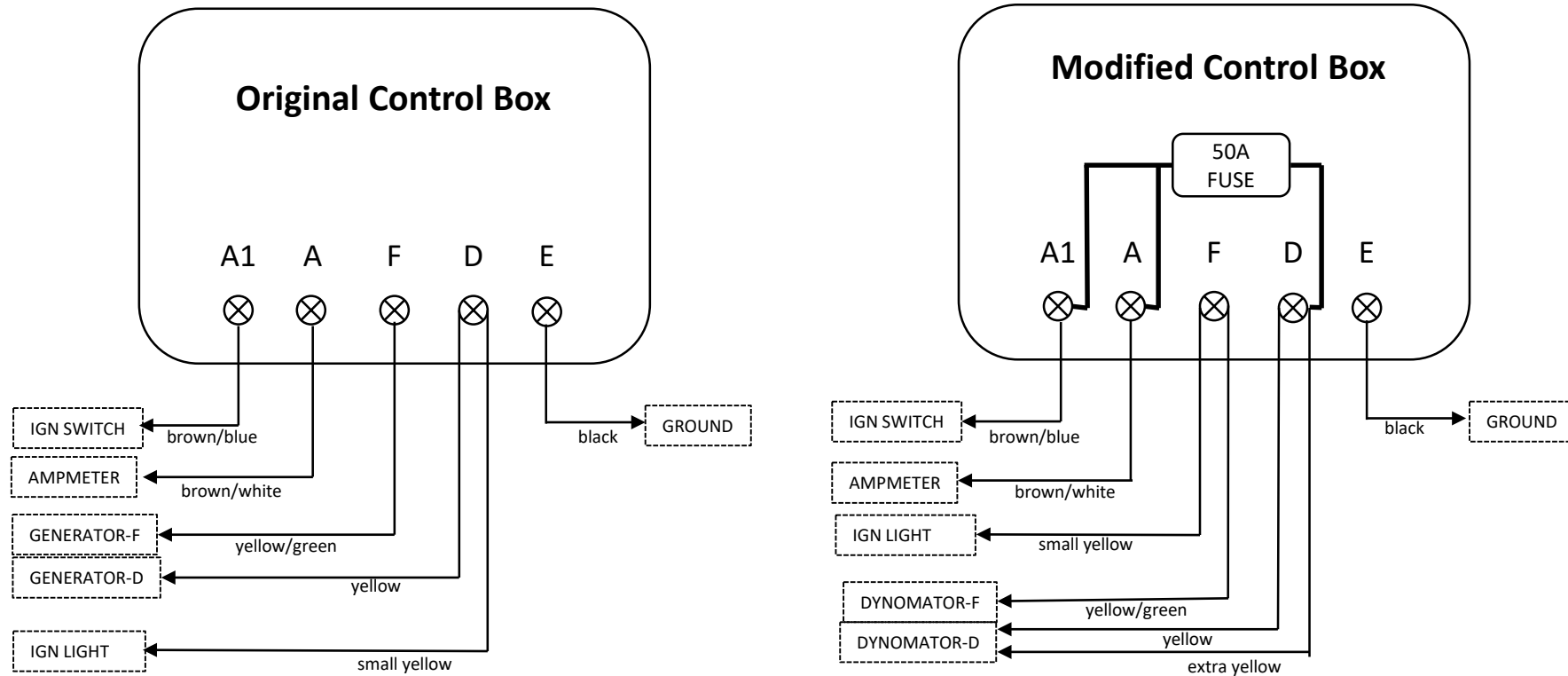


Modified bottom



Hack

Dummy Voltage Regulator



Wiring – Original generator/ voltage regulator and modified dummy for alternator



Electronic Ignition



Several Choices for electronic ignition ranging from internal replacement in original distributor (Pertronix Ignitor) to replacement distributors (Pertronix, Accuspark)

Original look – Pertronix Ignitor

- **Simple replacement of points/condenser**
- **Can not be left with power on and engine not running for 3-5 minutes without overheating**
- **Currently not in TR3 (long story) but 10+ years in Volvo 1800 with no problems**





Electronic Ignition Pertronix Ignitor Timing



Timing on TR2-4A 4-cylinder engines typically is done statically. Timing dynamically (engine running) can be done but difficult due to advance curve characteristics of distributor.

Timing can be done in static mode in the same way as one would time with points in the distributor with test lamp.

Notes: This Pertronix Ignitor is the only one that can be static timed (as opposed to Pertronix Ignitor II and other products) without damage. Also the ignition coil used must have a resistance of 3 ohms.



Summary



Upgrading certain parts of your Triumph can be done with minimum work to new technology with many advantages and, yes some limitations

- **LED lights give enhanced visibility for you and your car, a big safety factor!**
- **A stealth alternator can give more power yet keep original look.**
- **Electronic ignition eliminates need to change/check points**
- **Positive or Negative earth units available for LED lights, stealth alternator, electronic ignition**



References



Reference documents with a lot more “how to” detail can be accessed on the Miami Valley Triumphs website under the tech articles section

<https://www.miamivalleytriumphs.org/tech-articles>

1. For LED lights and especially hiding the electronic flasher in the OEM can.
2. For adding a stealth alternator and especially building a fused connector in the original voltage regulator box
3. For timing the Pertronix Ignitor electronic ignition



Discussion - Questions