TClinic

THE LUCAS R.F. 95 CONTROL BOX
Part One: Wire Connections
by David Edgar, TCMG

Most people shy away from the Lucas 9 post control box or regulator because of all those wires running to it but in actuality it is not mysterious at all if you understand it.

WHAT DOES THE CONTROL BOX DO?

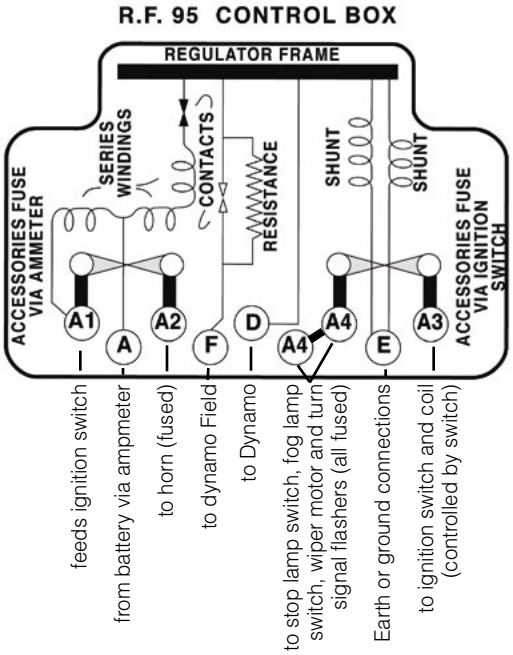
It actually is three components of the electrical system in one neat package - dynamo control, a fuse block and a junction block. But with three functions you will of course have lots of wires to it. Let's split this down into smaller parts. To start with all your A terminals have to do with Accessories. E stands for Earth or ground, D is for Dynao and F is for Field

ELECTRICAL PATHS

Terminals A1, A and A2: These 3 terminals on the left side will (or at least should) have one wire running to each and are hot with 12 volts all the time. The center one of these three (marked A) is the input and is a direct feed from the battery via the Ampmeter on your dash. Next to that is terminal A1. Current to A1 comes from terminal A after it briefly runs into the regulator. The single wire from A1 leads to your ignition and lighting switch. This feeds current to run your ignition system, all your running and dash lamps, plus headlamps. There is no fuse in this circuit. A2 current comes from terminal A1, through the fuse to the A2 terminal. The single wire from the fused A2 goes directly to the horn. Quite simple really except for that brief run into the regulator you say. Yes, current goes into the regulator but nothing in this circuit goes through any points in there or is regulated in any way. The only reason current goes into the regulator is so the regulator can sense if current is flowing so you really have no worries here.

Terminals A3, A4 (and yes a second A4): A3 really does not do much. There are two wires attached, one wire running to it and one away from it. Now this might seem funny but the wire to it comes from the ignition switch. Yes, the same current that went through terminals A and A1 and to the ignition switch comes right back to the control box. Only difference is A3 is after the switch so only is live after the switch is turned on. The wire leading away goes to the ignition coil. As explained in TClinic #61 current to the ignition coil really does not go through the control box a second time, it just uses A3 as a terminal block to join the two wires. Both A4 terminals are the fused part of A3. Because A3 is controlled by the ignition switch, the A4 terminals are as well but have the added bonus of being fused by the fuse between A3 and A4s. Wires from the A4 terminals feed the stop lamp switch, the wiper motor, the fog lamp switch and, if you have some, turn indicator lamp flashers.

Terminal E: Terminal E (your Earth or Ground) is there because the regulator has to be grounded for it to work. One thing about this terminal though is that it does not actually ground to anything itself. It is just a terminal and so a wire has to be run from the terminal to a ground in order for it to do any good. Be sure it is there. But if you look you will see many wires attached here. Since some other components on the TC need a place to ground out as well, Lucas decided to just run wires from those components (petrol pump, wiper motor, and the horn via the horn switch) to this convenient terminal. But the most important wire is the single wire running to ground.



Terminals F & D: Terminals F & D are for the dynamo (generator). These two terminals are the main contacts between the regulator and how it controls the dynamo. Since this TClinic is only going into the wire connections, regulation will be dealt with in a future TClinic under part two.

TROUBLESHOOTING

The use of a test lamp is handy here. With one end to ground, check out all your A terminals (need ignition switch on for A3 and A4 though). If A1 is good but A2 is not then you have a bad fuse or connection. Ditto between A3 and A4. And if you hook one end of test lamp up to hot side of battery or terminal A you can test out terminal E to see if it is grounding OK.

Even if you don't have a test lamp you can still trace out problem areas. If one of your fused components is not working (horn, fog lamp, wiper, turn signals, or stop lamp) you should check the fuse. Even if it looks good it could still be bad or have a bad connection where it clips in.

If the horn or headlamps work but not your ignition, fog lamp, wipers and turn signals, remember that all these are fed via the ignition switch via terminal A3 so problem is at or after the ignition switch.

And in order for a circuit to work properly, you have to have a complete return path (ground). If you are having multiple problems you may want to check out the ground wire from terminal E to ground to make sure both ends are clean and secure.