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BALLAST RESISTOR BYPASS

Many '73 - '76 TR6 owners opt to replace their standard coil with the Lucas Sport coil, to get a hotter spark. Often, though, they neglect to bypass the ballast resistor. Failure to do this will negate the benefit of using the hotter coil, as the Sport coil is designed to be used without a ballast resistor. Refer to chapter 20, Ignition circuit, for a complete explanation of the function and operation of the ballast resistor. This chapter will only cover the means of removing or bypassing the resistor.

PROCEDURE

On a TR6, the ballast resistor is a short length of special resistance wire (pink and white, and looking rather like a shoelace), and is routed in the wiring harness with the other wires. This makes removing the ballast resistor rather difficult. It is much simpler to just leave the ballast resistor in place and bypass it. If you wish to remove it for some reason, you will have to unwrap that portion of the wiring harness to get to it - a lot of work for no real reason.

As for the modifications required to bypass the ballast resistor, it couldn't be simpler - just run a wire from the most convenient white wire you can find (probably at the fuse box), directly to the (+) terminal of the coil (of course, all the rules of good wiring practice should be used, as described in chapter 10, Wiring Harness Repair). There is no need to remove the resistance wire, because it will now be constantly bypassed, just as it was before when cranking. This will work with any model Triumph, but there is an easier way with the '74 - '75 TR6. The resistor bypass wire from the starter relay to the coil (white/yellow) can simply be lifted from the relay terminal and moved to the fuse box terminal where the white wire is attached. The relay is located very close to the fuse box, and, unless someone has modified the car,

there should be a spare terminal by the white wire that can be used.

Figures 1, and 2 below depict the circuit configuration, before and after the ballast resistor is bypassed, for the '73 model.

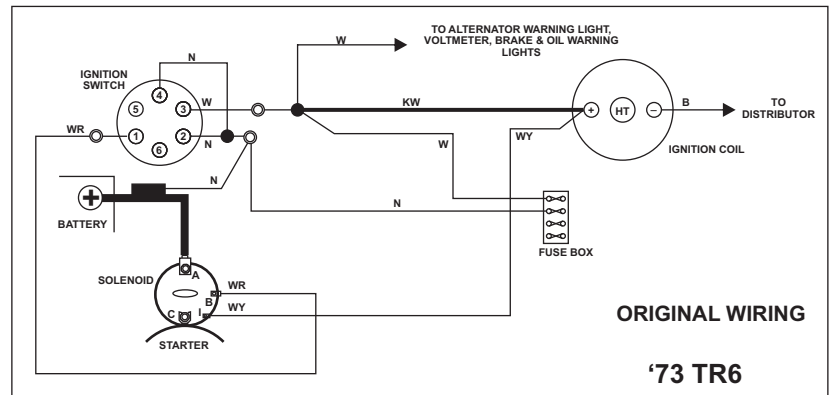


FIGURE 1

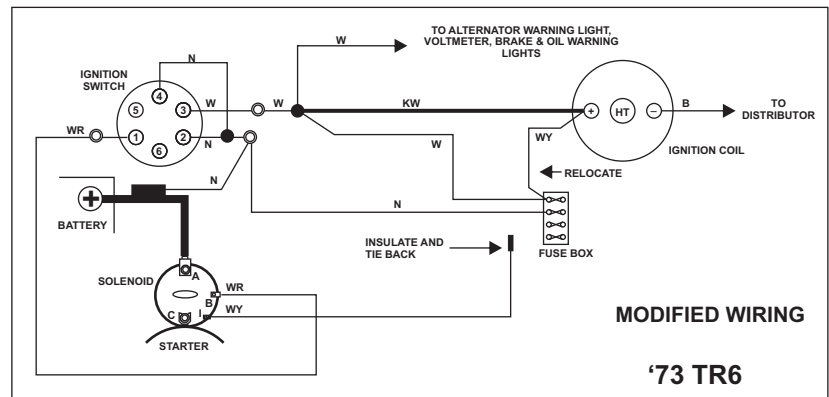


FIGURE 2

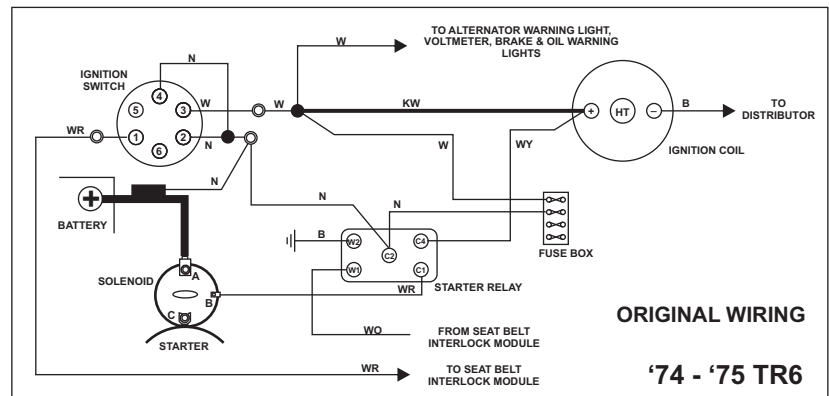


FIGURE 3

Figure 3, previous page, and **figure 4**, right, depict the before and after wiring for the '74 - '75 models. **Figures 5** and **6**, below right, depict the before and after wiring for the '76 model.

NOTE: Although not required from an operational standpoint, I recommend that you cut the WY from the coil on a '73 or a '76 model, insulate it, and tie it back out of the way, for safety reasons. The other end of the WY wire is connected to a terminal on the starter solenoid which is hot any time the starter is operating. If you are doing maintenance work on the car that calls for the starter to be operating, and you are bypassing the ignition key and jumpering directly to the starter as outlined in chapter 25, Starter, the engine will start if the WY wire is still attached to the coil. Of course, just as soon as the engine starts and the starter is off, the engine will immediately die, but it could be quite a surprise, and maybe cause injury, if the engine should start when you are not expecting it to.

SPARK PLUG GAP

Bypassing the ballast resistor is only one of the changes necessary to utilize the full advantage of the Sport coil, or any high output coil for that matter. Unless you also increase the spark plug gap, the plugs will continue to fire at the same coil secondary voltage as before, give or take a little, and will not give the hotter spark that you paid for. The voltage rise at the output of the coil secondary, although rapid, is not instantaneous. As the voltage rises from zero, as soon as it reaches the value high enough to jump the plug gap, it will. As the plugs were firing at 20,000 volts with the old coil, they will still fire at that voltage level regardless of the maximum voltage potential of the new coil. As soon as they fire, and the arc begins, the voltage drops to zero. By widening the gap, the voltage must rise to a higher value to jump the gap. Ideally, the plugs should be gapped to the widest setting that will still allow them to fire under all engine operating conditions. Usually, the coil manufacturer will give recommended gap setting, but these should be used as the starting point, and adjusted from there as experience dictates. Lacking manufacturer's data, 0.035" is a good starting point.

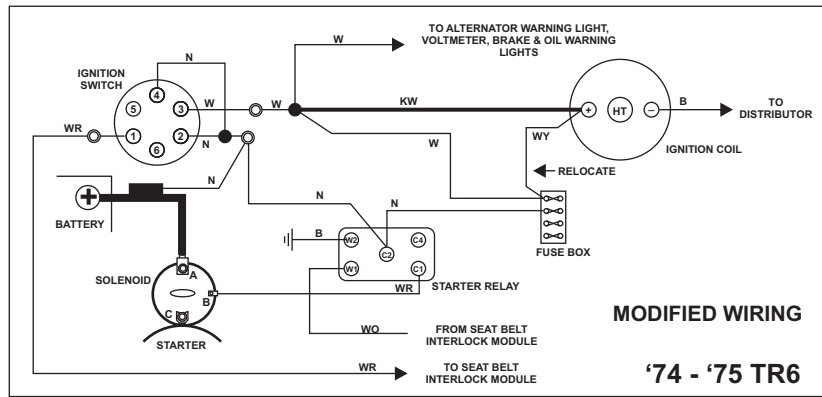


FIGURE 4

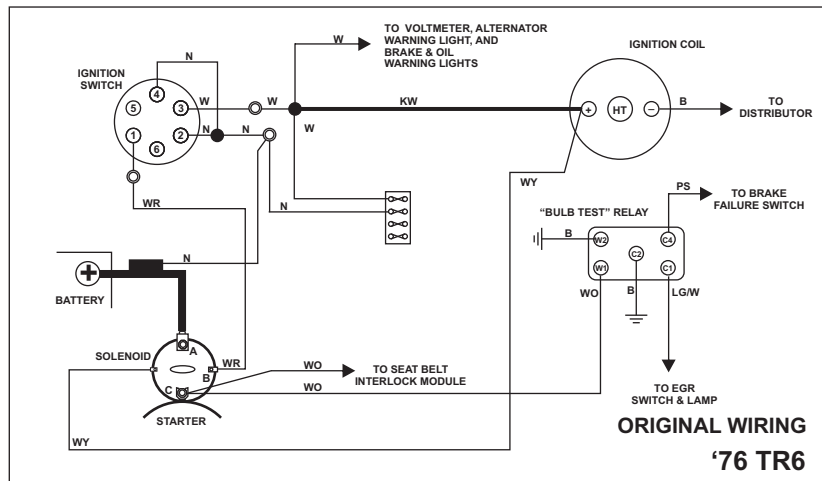


FIGURE 5

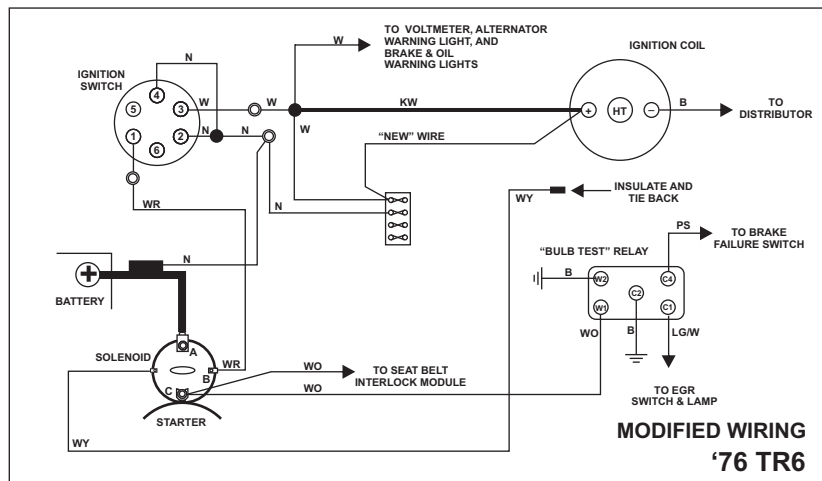


FIGURE 6