16
HEADLIGHTS, PARKING LIGHTS & GAUGE LIGHTS

GENERAL DESCRIPTION

From the TR250 through the '72 TR6, Triumph used a steering column mounted headlight switch, incorporating a "flash to pass" feature, and the high/low selector switch was mounted on the floor. For '73 -'76, the headlight switch was changed to a rocker switch on the dashboard, and the steering column switch was changed to include the high-beam/low-beam selector switch and the "flash to pass" feature. Disregarding these differences, the circuits for all model years are pretty much the same, only the details of the wiring changing from one year to the next. The schematics are depicted in **Figures 1, 2,** and **3** below.

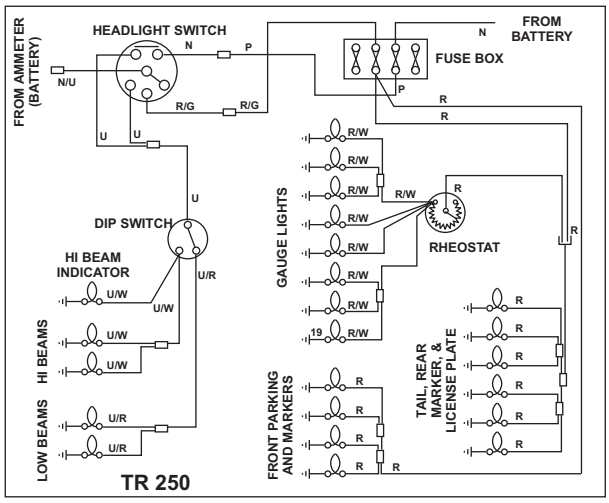


FIGURE 1

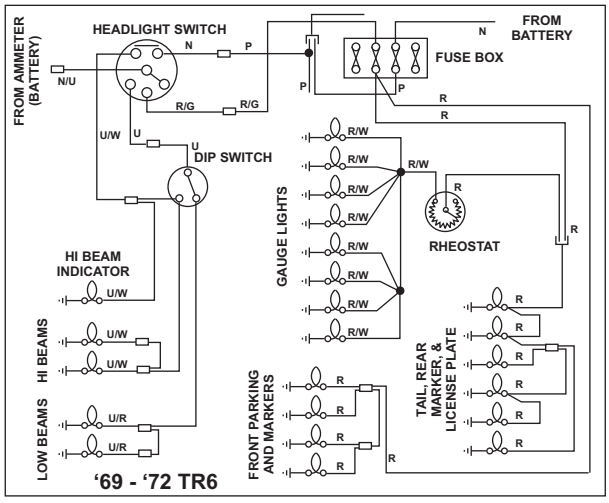


FIGURE 2

There are a couple of points worth noting about these circuits. First of all, notice that the high beams get power from the purple fuse when the "flash-to-pass" feature is used, but receive power directly from the battery or the alternator when they are operated from the main headlight switch. Secondly, notice that the wiring supplying power to the headlights when operated from the main headlight switch is ***NOT*** fused! For an explanation of this, refer to chapter 7, Fuses. As strange as this may seem, not having a fuse in the headlight circuit is really a safety feature.

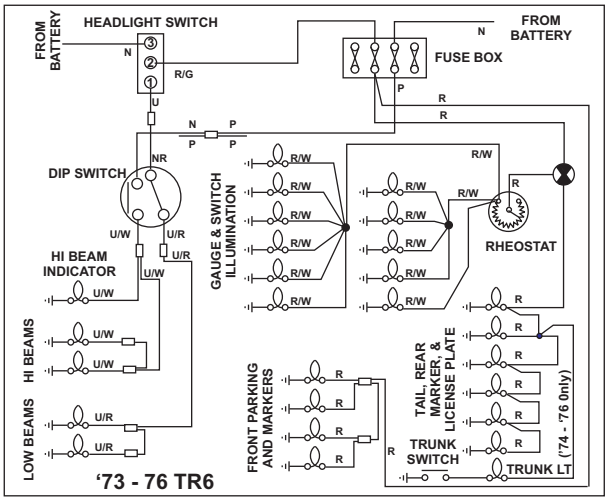


FIGURE 3

CIRCUIT OPERATION:

Figures 4 and **5,** next page, depict the basic operation of the headlight circuits in the TR6 models. **Figure 4** is for the earlier models, while **figure 5** is for later models. The TR250, although very similar, differs in the operation of the "flash-to-pass" feature. This difference will be discussed later, after the TR6 operation has been covered.

Diagram A of each figure shows the power flow when the parking lights are on, but the headlights are off. In this configuration, power flow, shown by the heavy lines, is from the battery to the headlight switch, through the switch to the fuse box, and then to the parking lights, marker lights, and to the dimmer control for the gauge illumination lamps.

Diagram B of each figure shows the power flow when the headlight switch is in the headlight position. In this configuration, power flows to the parking, marker, and

gauge lamps just as before, but power from the battery also flows through the switch to the high-low beam selector switch. Power flows through the high-low beam selector switch (dimmer, or "dip" switch) to the appropriate headlamp filament, depending on the position of the selector switch. As stated before, power to the headlights is not fused.

Diagram C of each figure shows the power flow when the flash-to-pass feature is actuated. In this case, power flow is from the battery to the "purple" fuse, and then directly to the headlight high beam filaments. In this instance, the headlights are fused, as you can well do without the flash-to-pass feature should you blow a fuse.

When the flash-to-pass feature is in operation, it doesn't matter what position the headlight switch is in, but it does matter what position the dimmer switch is in. This feature bypasses the main headlight switch and the dimmer switch, and applies power directly to the high beams. If the headlights are on or off and the dimmer switch is in the low beam setting, the high beams will flash. If the headlights are on and the dimmer switch is in the high beam setting, nothing will happen, as they are already on high. If you are following someone closely enough to pass, you shouldn't be having the high beams on anyway, so this feature isn't needed when the high beams are on.

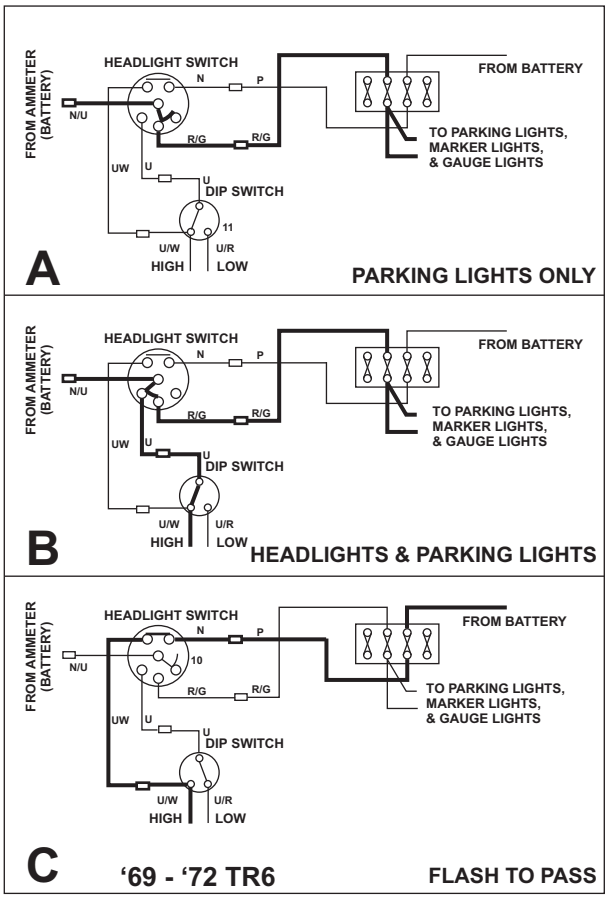


FIGURE 4

TR250: for some strange reason, the flash-to-pass feature doesn't work on the TR250 when it is needed the most - at night with the headlights on! Usually, one blows the horn to pass in the daytime, and flashes the lights for night time passing, but with the TR250, you will have to use the horn at night as well. As can be seen in **figure 6** below, power from the flash-to-pass switch is applied to the blue wire into the dimmer switch, exactly the same as power from the main headlight switch. Flipping the headlight switch to the flash-to-pass position has no effect if the headlight switch has already applied power to this blue wire. If you wish to modify the wiring so that this feature works the same as the later models, just disconnect the blue wire from the headlight switch to the blue wire on the dimmer switch, and reconnect it to the blue/white wire at the dimmer switch.

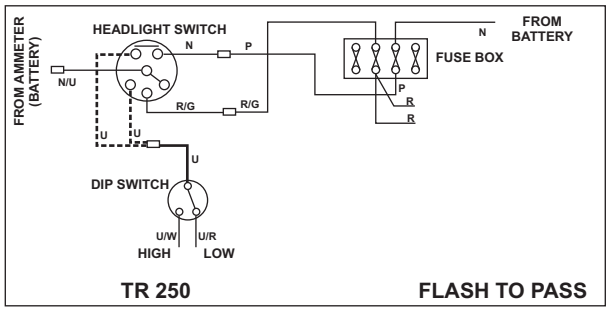


FIGURE 6

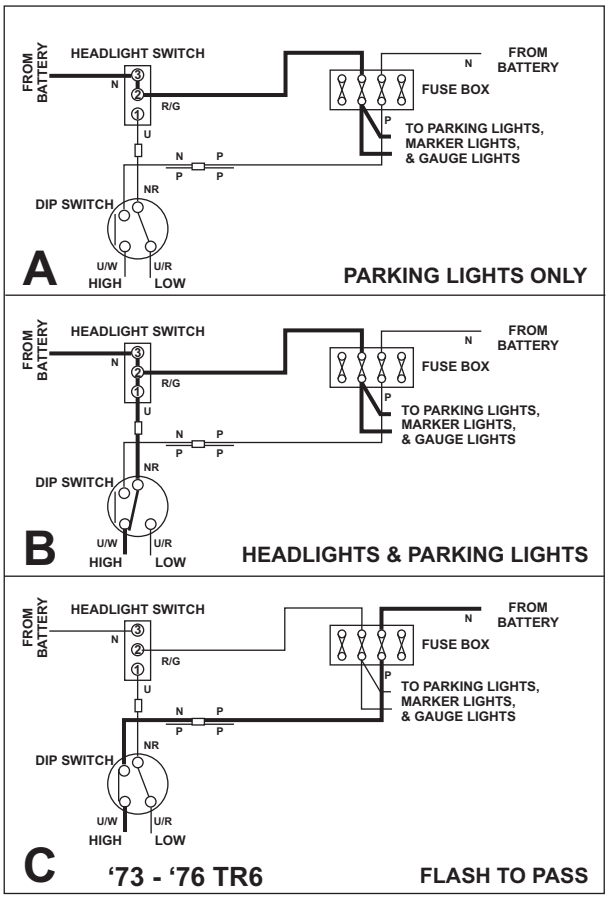


FIGURE 5

TROUBLESHOOTING:

HEADLIGHTS:

Step 1). Do the parking lights, marker lights, or gauge illumination lights work? If any of these circuits work, you know there is power to the headlight switch, so you can proceed to step 2. If not, proceed to step 6.

Step 2). Do either the high beams or the low beams work? If so, you know power is getting through the headlight switch to the dimmer switch, and you can proceed to step 3. If neither the high nor the low beams work, proceed to step 4.

Step 3). Using your voltmeter or test lamp, and with the headlight switch on, check for voltage on the either blue/white wire or the blue/red wire, depending on which beam is working, at the dimmer switch. The U/W wire is for the high beam, and the U/R is for the low. (If you are checking the high beam circuit, look to see if the high beam indicator is working. If it is, then you know power is getting through the dimmer switch, so you won't need to use your meter or test lamp. If the high beam indicator isn't working either, you will need to go ahead and check for voltage at the dimmer switch).

For the TR250 - '72 TR6, the dimmer switch is located on the floor. For the '73 - '76, you will need to locate the U/W and U/R wires as they leave the steering column under the dash. The wires from the column mounted dimmer switch connect to the remaining headlight wiring via bullet/sleeve connectors. For your convenience, I have redrawn the previous figures below as **figures 7, 8,** and **9**, showing just the headlight portion of the wiring.

If you have voltage on these wires, there is a break or bad connection in the wiring to the headlights, which must be repaired. If not, the dimmer switch is bad, and must be repaired or replaced. If the dimmer switch is bad, and it is the column mounted switch from a '73 - '76 model, it may be repairable. See the switch repair section at the end of this chapter for details. If it is the floor mounted switch from the earlier models, you can buy a replacement switch from your local auto supply house. You may have to modify either the switch or the switch housing a bit to get it to physically fit, but it shouldn't require a great deal of modification.

Step 4). Using your voltmeter or test lamp, check for the presence of voltage on the blue wire at the dimmer switch. If you have voltage here, the dimmer switch is bad, and will need to be repaired or replaced. Refer to step 3 above for more info on switch repair. If you don't have voltage on the blue wire, go to step 5.

Step 5). Check for the presence of voltage on the blue wire as it leaves the headlight switch. On the TR250 - '72 TR6, the blue wires from the switch exits the steering column just under the dash, and connects to the rest of the wiring via bullet/sleeve connectors. On the later models, you will have to reach up under the dash to reach the back of the switch to access the blue wire.

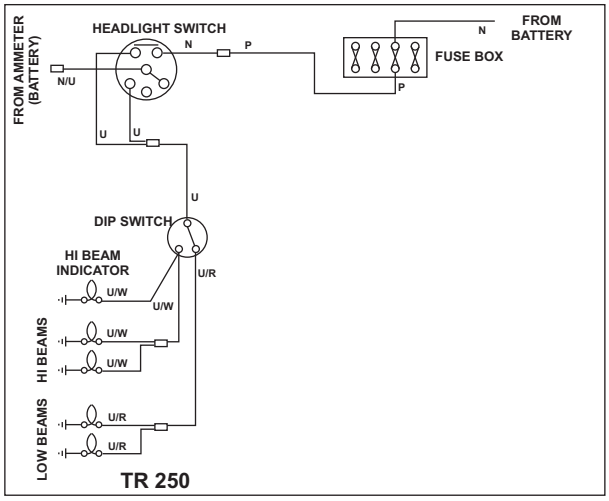


FIGURE 7

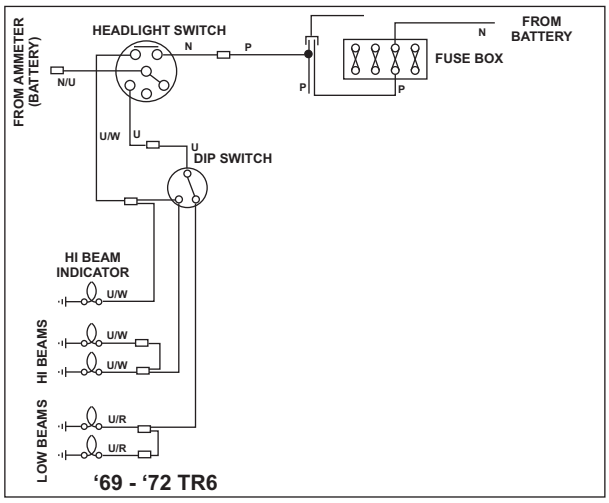


FIGURE 8

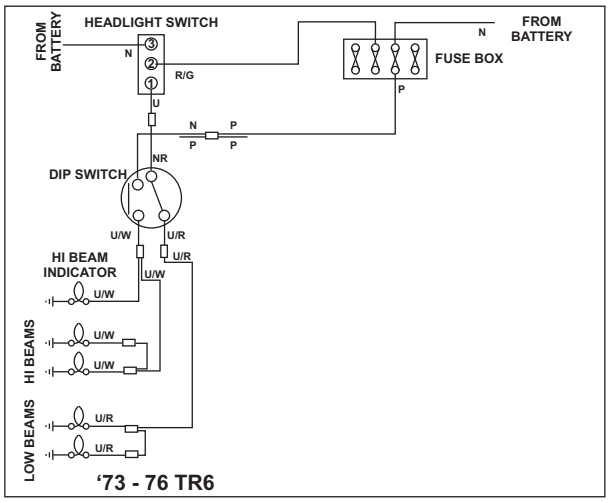


FIGURE 9

If you have voltage here, there is a break or bad connection in the wiring to the dimmer switch that will need repair. If not, the headlight switch will need to be replaced or repaired. Refer to chapter 9, Switches, Relays, and Solenoids, for details on repairing the rocker type switches as used on the later models. For the earlier column mounted switches, see the repair section at the end of this chapter.

Step 6). Do you have power on the brown/blue (TR250 through the '72 TR6),or the brown ('73 through 76 TR6) wire at the headlight switch? If not, there is a break or a bad connection in the wiring from the ammeter or the battery to the switch, which will need to be repaired. If you do have power, the headlight switch is bad. Refer to chapter 9, Switches, Relays, and Solenoids, for details on repairing the rocker type switches as used on the later models. For the earlier column mounted switches, see the repair section at the end of this chapter.

FLASH-TO-PASS:

Step 1). Do the high beams work? If the high beams don't work, you need to go to the headlight troubleshooting section, step 3, and repair this portion of the headlight circuit before proceeding with this section. The flash-to-pass circuit applies power to the high beams at the dimmer switch, so if the high beams don't work, and the flash -to-pass feature doesn't work, the odds are there is a problem in the wiring from the dimmer switch to the high beams. If the high beams do work, go to step 2.

Step 2). Do you have power on the "purple" fuse? This fuse also feeds the horns and the courtesy lights, so if ***ANY*** of these other items work, there is power to the fuse. If ***NONE*** of the other items work, the fuse is probably bad, but you will need to check to be sure. If you have power on the side of the fuse with the purple wire, proceed to step 3. If not, replace the fuse, repair the wiring to the fuse, or repair/clean the fuse holder and contacts.

Step 3). Using your voltmeter or test lamp, check to see if you have power on the purple wire at the headlight switch. On the TR250 - '72 TR6, this purple wire connects to the brown wire from the headlight switch via a bullet/sleeve connector. The brown wire from the headlight switch exits the steering column under the dash, where it connects to the purple wire. The same arrangement is used on the '73 - '76 models, except the brown wire is from the column mounted dimmer switch.

If you have power on this wire, the headlight switch (early model) or the dimmer switch (later models) is bad, and must be repaired or replaced. See the switch repair section at the end of this chapter for repair instruction.

PARKING, MARKER, AND GAUGE LAMPS:

For your convenience, I have redrawn **figures 1 through 4** as **figures 10 through 12**, below, showing only the wiring associated with these light circuits.

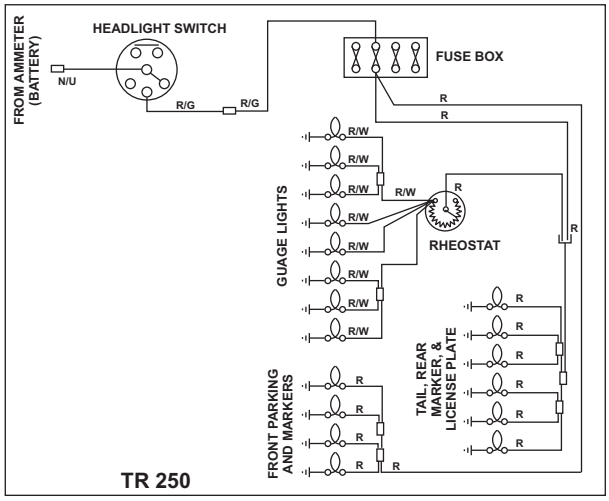


FIGURE 10

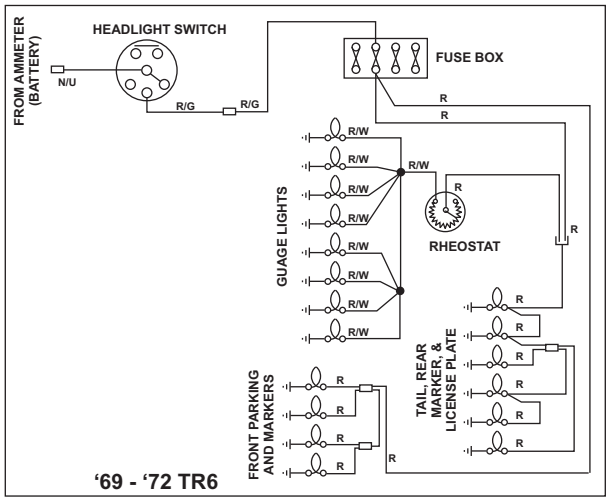


FIGURE 11

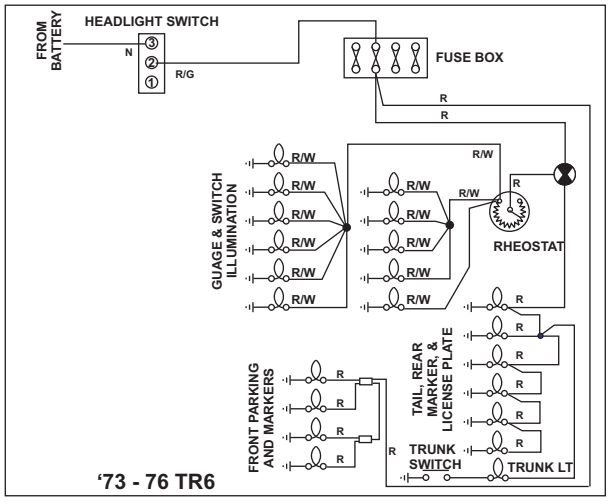


FIGURE 12

Step 1). Do the headlights work? If not, then the problem is most likely in the headlight switch or associated wiring, and this problem should be fixed before proceeding with the parking/marker/gauge light problem. If the headlights do work, proceed to step 2.

Step 2). Do you have power on the "red" fuse? If you don't have power on the red wires at this fuse, check for power on the red/green wires. If you have power on the R/G wires, the fuse or the fuse holder is bad. If you don't have power on the R/G wires, go to step 3. If you have power on the "red" fuse, it's unlikely that all of the lights will be in-operable. If they are, however, follow all of the steps listed below.

a) If the front parking and marker lights are inoperable, go to step 4.

b) If the rear parking and marker lights are inoperable, but the gauge lights work, go to step 5.

c). If the gauge lights are inoperable, but the rear parking and marker lights work, go to step 6.

d). If neither the rear lights nor the gauge lights work, go to both steps 5 and 6.

Step 3). Locate the red/green wire from the headlight switch. On the TR250 - '72 TR6, this wire will exit the steering column just under the dash, and connects with the R/G wire to the fuse box via a bullet sleeve connector. On the '73 - '76 TR6, this wire is routed directly from the back of the dash switch to the fuse box. Using your voltmeter or test lamp, check for voltage on this wire. On the earlier models, check both sides of the connector. If you have power here, there is a break or a bad connection in the wiring to the fuse. If you don't have voltage here, the headlight switch is bad, and must be repaired or replaced. For instructions on repairing the early model column mounted switch, see the repair section at the end of this chapter. For the later models, refer to chapter 9, Switches, Relays, and Solenoids.

Step 4). Power from the "red" fuse goes directly to the front lamp assemblies, with no intervening connectors. The red wire goes first to a double bullet/sleeve connectors on the left side of the car, and then to the right side, and another double connector (refer to **figures 10, 11,** and **12**, previous page, for details). If none of the front lights work, the most likely problem is the first connection, which will probably be bad. Check for voltage on the red wire from the fuse at this point. If you have power, continue testing on out to each individual lamp connection till you find the problem. If you don't have power on this wire, there is a break in the wire somewhere between here and the fuse.

If you have power on all the red wires, look for ground problems. It's a bit unusual to have bad grounds on ***ALL*** of the lights, but it is possible.

Step 5). Power from the fuse goes to the multi-pin connector for the rear wiring harness. One red wire from here goes to the gauge light dimmer control and another goes to the rear parking/marker lights. If the gauge lights don't work, power is not getting to this connection, so there is a break in the wiring from the fuse to this connector. If the gauge lights work, power is getting to this connection, so there must be a break or bad connection in the wire from this connection to the rear lights.

The red wire from the multi-pin connector goes to either a double bullet/sleeve connector or a splice, depending on the year, on the left side of the car, and then more red wires fan out from here to the lights (refer to **figures 11, 12, 13,** and **14**, opposite, for details). If none of the rear lights work, the most likely problem is the first connection, which will likely be bad. Check for voltage on the red wire from the multi-pin connector at this point. If you have power, continue testing on out to each individual lamp connection till you find the problem. If you don't have power on this wire, there is a break in the wire somewhere between here and the fuse.

If you have power on all the red wires, look for ground problems.

Step 6). As stated above in step 5, power from the fuse goes to the multi-pin connector for the rear wiring harness. One red wire from here goes to the gauge light dimmer control and another goes to the rear parking/marker lights. If the rear lights don't work, power is not getting to this connection, so there is a break in the wiring from the fuse to this connector. If the rear lights work, power is getting to this connection, so there must be a break or bad connection in the wire from this connection to the gauge light lights.

The red wire from the multi-pin connector goes to dimmer control for the gauge lights (refer to **figures 10, 11**, and **12**, previous page, for details). Check for voltage on the red wire at the dimmer control. If you don't have voltage on this wire, there is a break in the wire somewhere between here and the multi-pin connector.

If you do have voltage here, make a short test lead with ¼" male spade terminals on each end, pull the red and the red/white wires from the dimmer, and jumper them together. Do the lights work? If so, the dimmer is bad, and must be cleaned, repaired, or replaced. Repair/cleaning instructions for this are given below. If not, there is a break or bad connections in the R/W wires from the dimmer to the individual lamps, or a ground problem. You will need to move from point to point with your voltmeter or test lamp to find the problem.

HEADLIGHT SWITCH REPAIR:

It may be possible to repair the column mounted headlight or dimmer switch, depending on just how bad it is.

Photos 1 and **2** below show a dimmer switch from a later model TR6. **Photo 1** shows the configuration of the switch contacts (in this case, very corroded contacts). As corroded as they are, though, I believe this switch is repairable.

Photo 2 shows the roll pin holding the halves of the switch together, which must be driven out. Once the halves have been separated, cleaning of the contacts is straight forward, using a pencil eraser or similar abrasive tool. If you can find it, a good electrical grease should be applied, but if you can't, just reassemble the switch dry.

On this particular switch there is a spring missing, which is used to return the switch to its normal position after the flash-to-pass feature is actuated. If this spring is missing from your switch, any small spring will do, and can be bought at most good fastener specialty shops or hardware stores.

DIMMER CONTROL REPAIR:

Photo 3 below shows the back of an early ('71, on the right) and a late ('75, on the left) dimmer control. As you can see, the early model is fairly easy to disassemble and reassemble. Just bend back the tabs holding the two halve together and separate. The later model will require a bit of ingenuity to disassemble. The rivets do not go through the front of the case, so you may have to tap the holes left after the rivets are removed and use screws to fasten the halves back together.

Photo 4 shows the resistance wire inside the units. If this is broken, it will be hard to replace (but not impossible), and you will probably just want to get a replacement. If it is just corroded, a good cleaning, using a pencil eraser, may be sufficient. A chemical cleaner may also be required, and can be purchased from an electronic supply house. Don't forget to clean the external terminals as well, while you're at it.

If the dimmer is beyond repair, the best thing to do is put it back for appearance sake, and just bypass it electrically. Just connect the R/W and the R wires together with a good butt connector, and insulate well. Alternately, you can just connect all of the wires to the same terminal of the dimmer control. Either terminal will do.

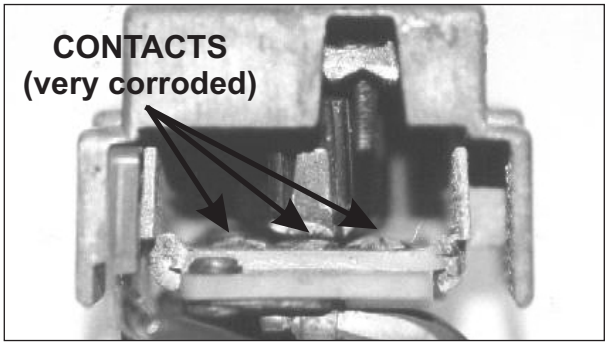


PHOTO 1

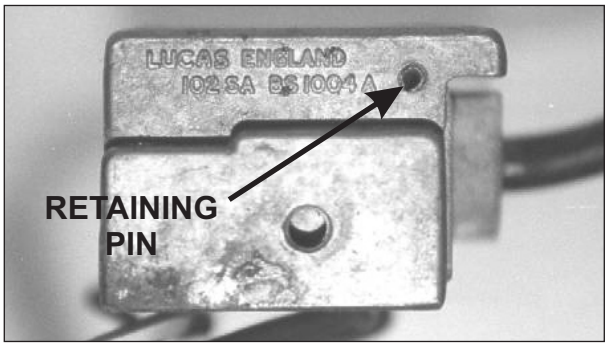


PHOTO 2

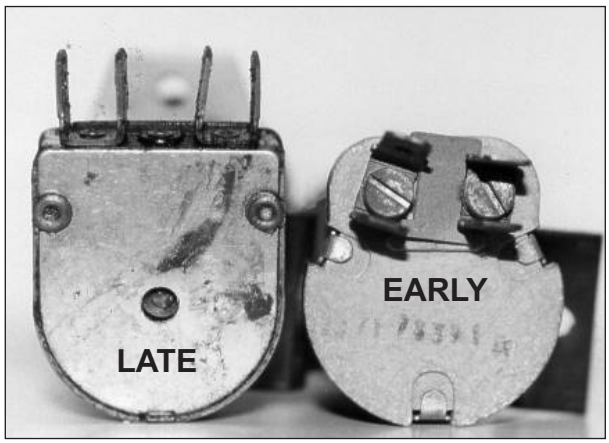


PHOTO 3

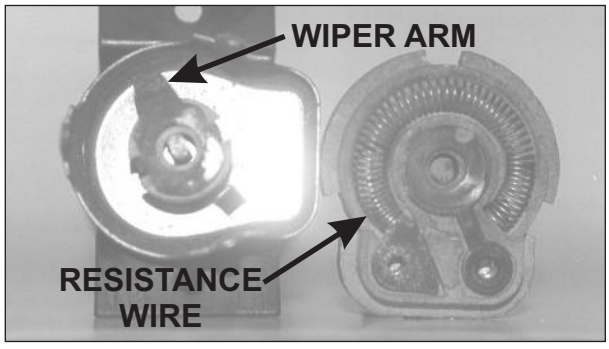
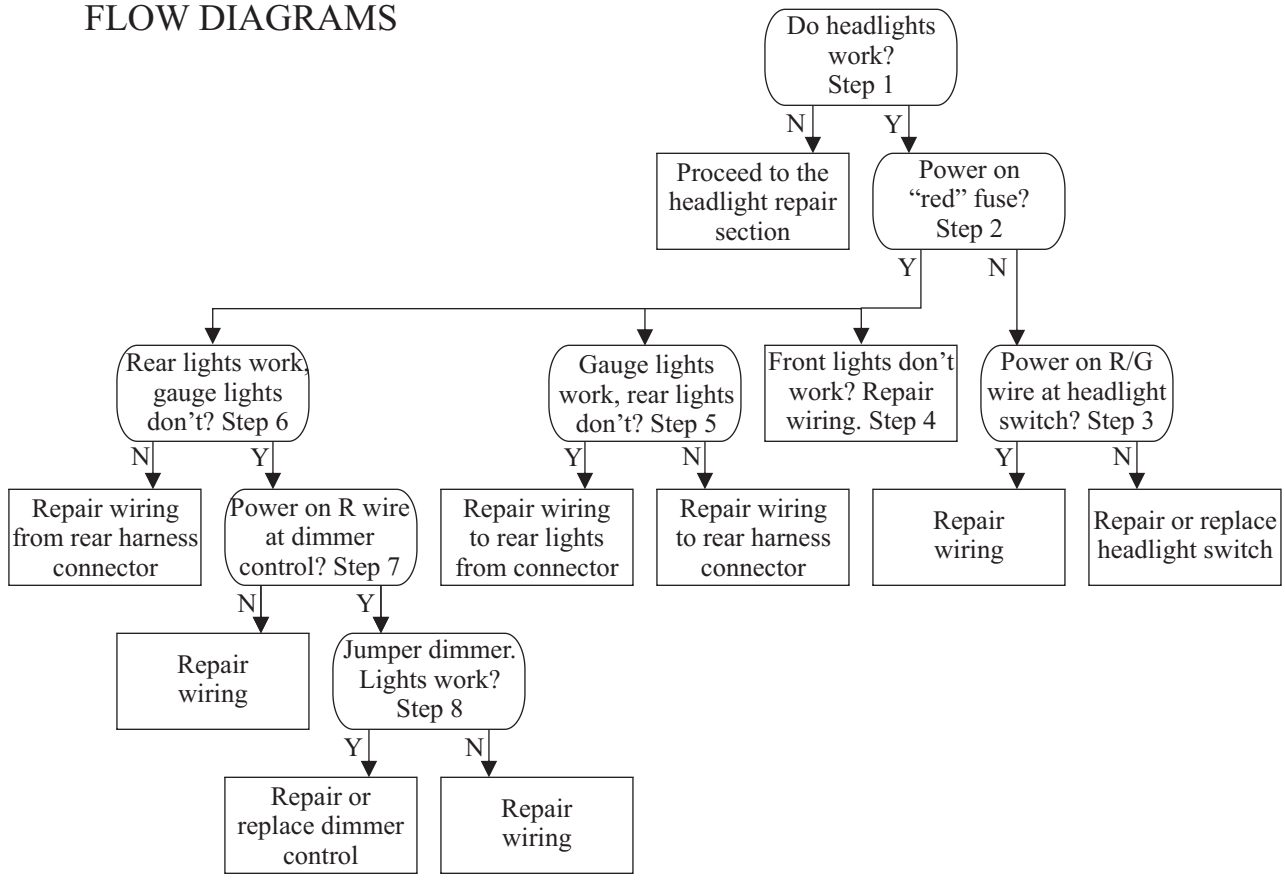


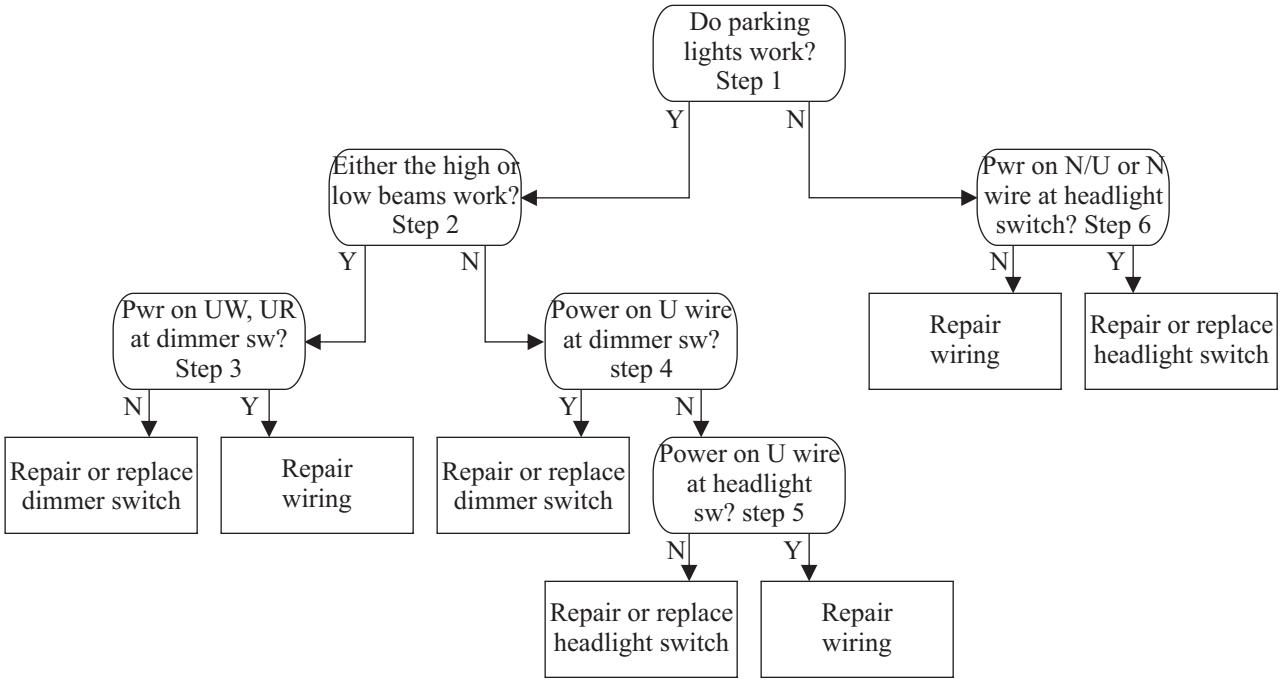
PHOTO 4

TROUBLESHOOTING FLOW DIAGRAMS

PARKING, MARKER, & GAUGE LIGHTS



HEADLIGHTS



TROUBLESHOOTING FLOW DIAGRAMS