

Servicing the Jaguar E-Type Series-1 Turn Signal Switch

Text and Photos by Patrick McLoad

Member, Jaguar Club of Houston

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The Problem(s)

I had two annoying problems in regards to the turn indicator on my '66 OTS E-Type (1E1.445). First, the turn signal indicator lights on the instrument panel were not flashing although the exterior lights did, and, the “detent” or “action spring” device that holds the signal shaft in the upper or lower position (until after a turn is made) was broken. If you’re replacing this part, make sure you have it on hand before starting this procedure as they are somewhat hard to come by from time to time, and you may be waiting months for it to come in. (The SNG-Barratt part number is 54320721, and they call it an “action spring”.)

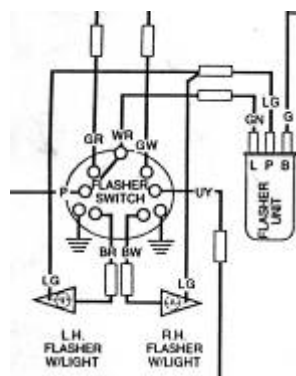


This ***IS*** a job that almost anyone can do with a few simple tools. New (replacement) turn-signal assemblies are available for about \$300, and for all I know, they have re-designed the turn detent mechanism to something that works better. If you need to replace the signal shaft due to peeling chrome, you might be better off to just buy a new replacement assembly. (However, a new shaft CAN be installed if you have access to a small hobby lathe...but that is outside the scope of this article). These turn-signal action springs aren't exactly cheap either...the two or three parts houses show them at \$80 each. (Do not confuse this part with the steel ring on the column whose “finger” resets the turn signal to its neutral position after a turn is made.) But if you want to stay original, then this is the way to go. I would advise you to print and read through this before removing the switch assembly from your E-Type as there are some do's and don'ts you need to know about.

I was puzzled by why my panel indicators weren't working; running down electrical gremlins is not high on my list of favorite things to do. I knew the fuse was okay because the exterior lights blinked. I also deduced that the flasher unit was not going to be the problem because both circuits (R&L) worked fine (besides, it would have been far too easy a fix on an E-Type!!). Next to check were the bulbs themselves, but getting to them is a whole different ballgame. I removed my dash panel to expose the top part of the instrument panel. The turn indicator lamps are in two individual sockets, each of which push into a plastic piece that keeps the lights separate from one another (below).



I pulled out the sockets, unscrewed the bulbs and did a bench test of both and they were good. Each light socket has its own individual ground wire. Knowing that a bad ground is usually the culprit in restored E-Types (due to painted surfaces), I ran a little alligator clip from the socket exterior to a good ground, and sure enough, the indicator lights worked. (Had this grounding test yielded nothing, then I would have to use a volt meter to check the presence of 12 VDC on the center wire.) So I had to hunt down these ground wires....they were not simply black wires that ran over to a convenient terminal on the body. They actually had a color code on them (black/red and black/white) and they ran down to the switch harness.



According to my wiring diagram, a ground to each indicator lamp is provided in the switch itself. So again, I needed to find out why my lamps were not receiving a ground connection as well as to fix the turn signal detent. Unless you have 4 hands, this is really a job for the bench top, so you will need to unplug the 7 turn signal sub-harness wires from the main loom.

Disconnect the battery terminals before proceeding with disassembly!!

Disassembly

First, extend the steering wheel as far up as it will go. Yes, you *CAN* remove the wheel if you like, but whatever you do, **DO NOT withdraw the small brass rod in the center; keep it firmly seated!** This is the horn button contact, and you will be in for a much bigger job getting the brass rod back under the contact located in the lower column.

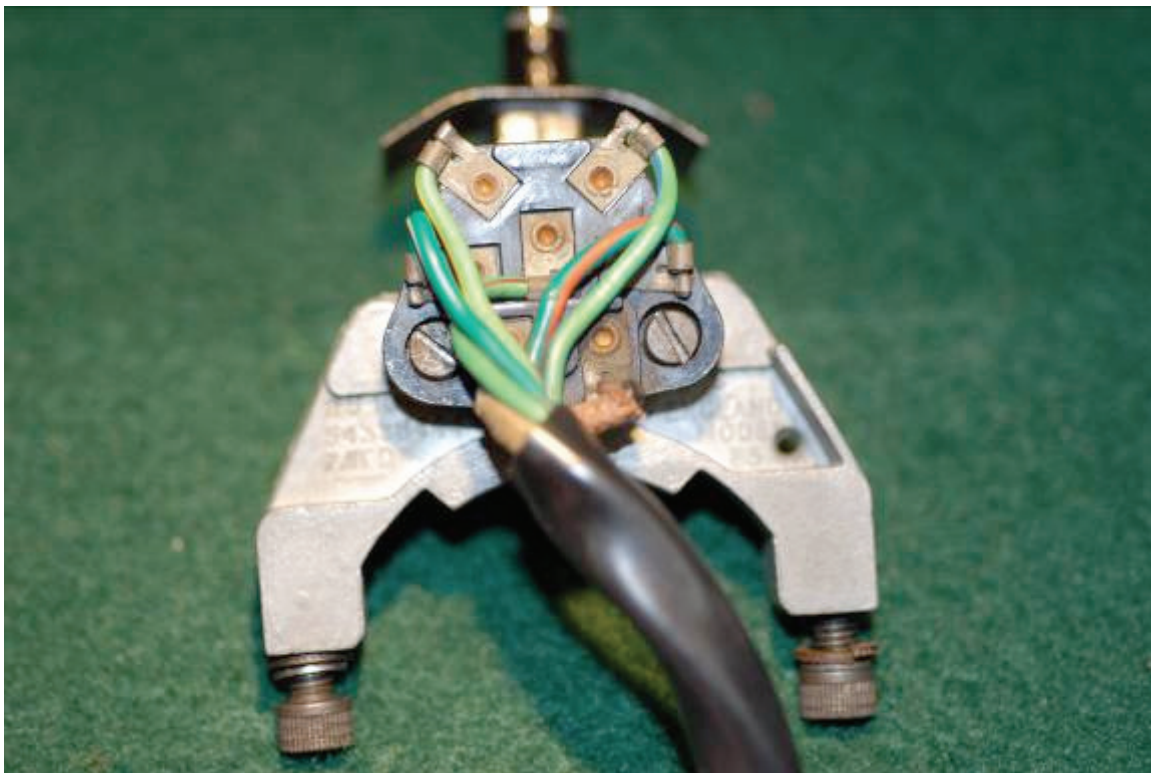
The “short” side of the cover surrounding the switch will separate easily as it is only held on by internal spring tabs (no bolts or screws). Use something wooden or plastic to begin the separation, then a screw driver to pry it off (careful of the paint!!). The internal spring tabs are holding onto the steering column itself. Now you can see two **slotted** screws that hold the other half to the column. Back these off and remove the other part of the cover. Spin the screws and split washers back onto this cover so you don’t lose them.



Now you will see the switch assembly which is being held to the column by two **allen-head** screws. Remove these two screws, and again, spin them back onto the aluminum casting. The switch assembly is now much easier to get to for removal from the car. Just to be on the safe side, make notes on wire color codes and to what color they mate on the main harness.



Now to the bench with the assembly. Make sure to have a large light-colored towel on the bench top to work on. This will help to catch small parts should they fall, and provides a good contrast. **Keep all other clutter away!** Grab another cup of coffee and study the switch mechanism closely. Although you can find a good assortment of springs at a hardware store, you really don't want to lose **any** of these small parts! Putting them in a small plastic bag is a good idea too.



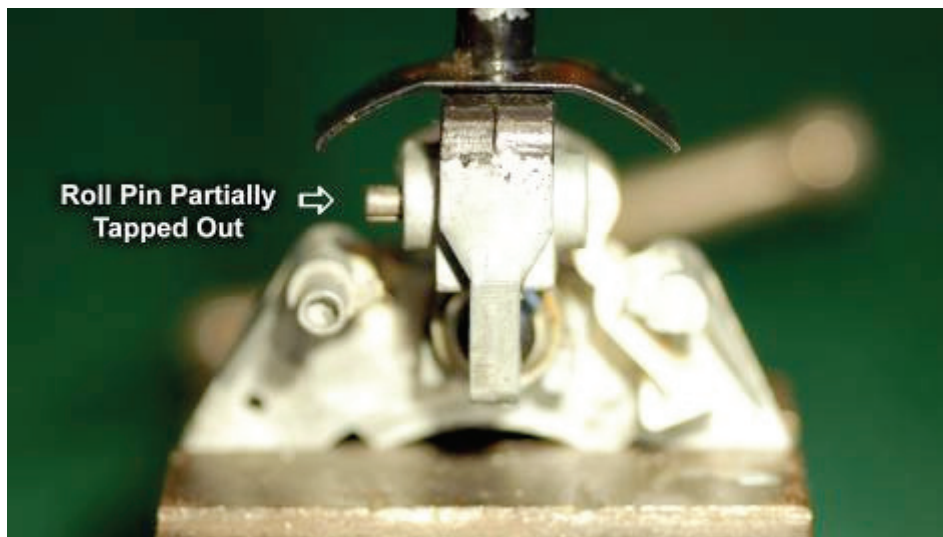
There are two small screws that secure the contacts to the aluminum casting (above). Be advised that there are springs under this contact, so as you back off the screws, keep the contact piece firmly in place (and facing up) with your thumb and forefinger. **Important: Do not subject the two screws to the pressure of the springs as you are unscrewing them. The internal threads in the casting are quite fragile and are likely to strip. This is cast aluminum, not steel!!** Again, keep pressure on this contact plate until the two screws are backed out all the way!



As you carefully remove the contact plate you will see a part that has two springs on both ends, and, a U-shaped contact with a spring under it. The white nylon piece is the turn detent device (action spring).



Check all of the contact buttons for pitting or corrosion (above). You can dress these contacts with 1000 grit wet and dry sandpaper or even a pencil eraser, but they should be clean and shiny. If they appear to be badly pitted or worn down, you might as well just buy a whole new switch assembly. These contacts only experience 12 volts (DC) so pitting from sparks or arcing shouldn't be an issue. However, you'll see two connections down in a hole that lead to thick wires. These are contacts for the headlights flashing feature when the turn-signal shaft is pulled inward. A single metal disc connects these two contacts which turn on the lights. Place the contact piece off to the side as well as the small springs and other parts.



Next, remove the turn signal shaft. Carefully mount the casting in a small machine vise. Tap out the roll pin with a punch or nail set. It shouldn't be in there very tightly, so tap lightly.



Note the black plastic pin that runs through the casting (above). This pin inserts into a spring, which is followed by a plastic disk, a metallic contact, and then another spring. Note the plastic disc has a lip on one side and is flat on the other. The metallic disc always goes on the flat part of the plastic piece. Look at both sides of the metallic disc. The back side seems to have a copper coating, while the front side (that makes contact with the two headlight leads) is brass in appearance. Clean up the brass side with 1000 grit paper or 000 steel wool. If this side is badly pitted for some reason, I suppose you can use the copper side for the contacts.

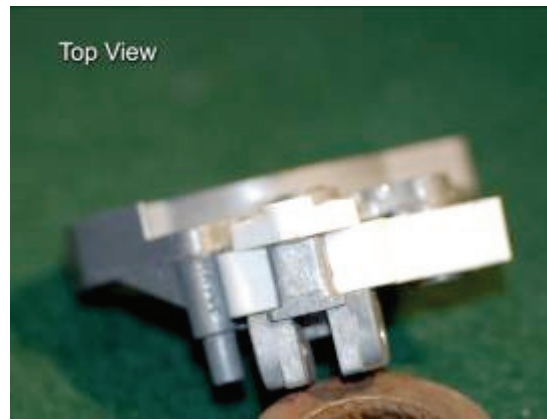


Moving on, the U-shaped contact piece (above) should be clean and free from pits as well. Just don't forget the spring that fits under it! The U-shaped contact only fits one way, so you're pretty safe in getting this right. (There is a round cut-out in the white nylon detent for this spring.) There is also a round, bullet-shaped contact with a spring behind it that will have to be removed. It is supposed to be a slide fit, so if it will come out, that's fine, otherwise you may have to wait until the detent has been removed. (More on this little contact later.)

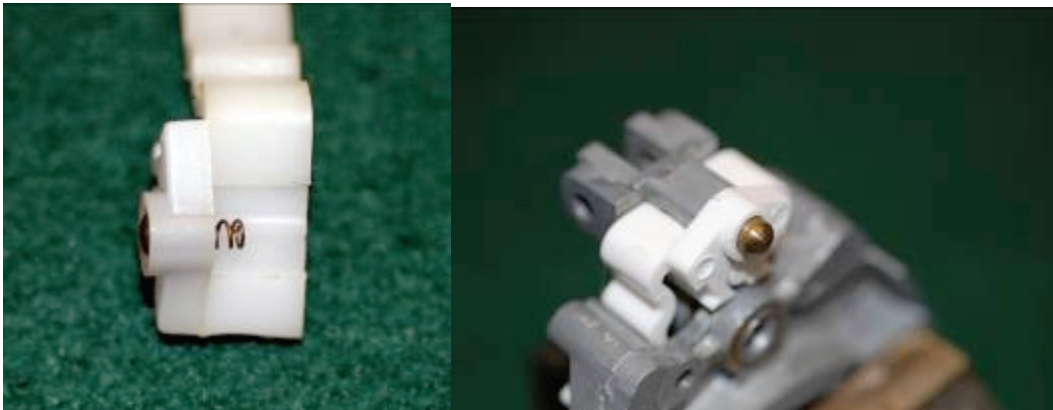


Carefully pry off the old broken action spring (above). With a Q-tip and solvent, clean off any old grease on the casting. Apply a couple of drops of clear machine oil in the moving part. We're now ready for re-assembly.

The detent piece is made of nylon and is a pretty tough customer; it can take a lot of bending without breaking. Here is a photo of how I started the insertion of the new piece. Note that on one side of the casting is a post that is longer than on the other side. Place the detent arm in that space, then work the top part into place...it will take a bit of force. The photo below shows this first step already done.



Lastly, pry the other arm up and over into position. (Now you can see why I avoided the taller post on the left!) You can try a different procedure, but this is the only one I found that works. With a small artist brush, apply white lithium grease in the areas where the detent works against the casting. Put plenty of grease in there and work the mechanism back and forth, but don't get too sloppy with the stuff.

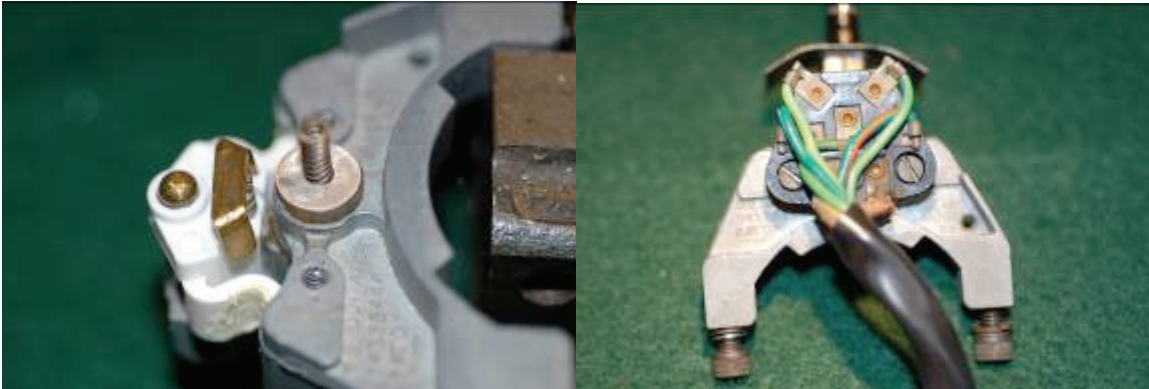


So back to my problem with the indicator lamps, where is the ground in this switch for the instrument panel indicators?? A-ha! There it is! The button contact at the top of the nylon piece has a spring that pushes against the casting body, essentially grounding this button contact. So the whole assembly is the ground...there is no ground wire. **It is important to note that this button contact, working against the small spring, MUST slide freely in the hole!** If it does not, then your detent part is defective.



Assembly

Place the black button/pin back into the hole (above) and reassemble the turn signal shaft onto the casting via the roll pin...tap lightly until flush. If your turn signal shaft needs any paint, do this painting before reassembly.



Now, with the casting facing upward (above left), insert the small spring and balance the U-shaped contact on top of the spring. Insert the 2-spring contact into the hole, remembering that the tip of the black pin inserts into the spring, and, the contact disc faces upward. Offer up the bakelight contact piece (with wires), first lining up the long spring with it's corresponding hole. Press and hold the contact piece firmly to the casting while you thread in the two small screws. **Remember, you DO NOT want the threads of these screws to do the work of pulling this piece down against the springs. If you do, you run the high risk of stripping out the threads!!** *(If this does happen, run a #8-32 tap through the hole(s); use #8-32 screws that are of the EXACT length as the originals; and round off the heads to where they fit into the screw head holes. This is easily done by putting the screws in a drill, and filing down while the screw head spins. 10-32's are too large, so if the 8-32's don't work for some reason, you're SOL and will have to buy a new assembly. [The screw threads-per-inch on the original screws is some weird metric or Whitworth size]).*

With the assembly now back to one piece; check the operation of the turn signal, making sure that all of the contacts are working properly. If you have a volt-ohm meter (VOM) you can check continuity of the headlight flash feature by testing continuity between the two large wires coming off the contact block.

As is often the case on a restored car, everything has been painted. Looking at where my switch assembly (aluminum casting) attaches to the steering column I see.....paint! So I found where there ground problem was occurring...the paint was insulating the switch assembly from coming in contact with a good ground! Remove paint from both sides of the mounting tab so that the casting makes a good electrical (ground) contact.



Reconnect all wires to the main harness. Reinstall the switch assembly to the column using the allen-head screws. Connect the battery and do a test to make sure everything functions properly. If it doesn't, either replace the entire switch assembly, or go back in to find out where the problem is. Disconnect the battery and reassemble the switch covers, steering wheel, dash pad, and other items.

Note that my E-Type is a right-hand drive, 1966 Series 1, OTS. There is no horn button on my turn signal shaft. I do not know how different this switch is from others, but I suspect it's the same design for all Series 1 E-Types. (Series 2 incorporated the horn button).

And for those who are really anal about originality, the turn signal casting DOES have a date on it. Mine shows 10/65 (Oct. '65) for my car that was made in January 1966.



Remember that if YOU don't do this yourself, then someone else will at a relatively high labor rate, in which case it might make more sense (from a monetary standpoint) to just to buy a new turn-signal assembly...but that seems like an awful waste of original equipment to me, especially when a date code is involved. Personally, I get a lot of satisfaction in doing these types of easy bench-top jobs. Not only do I save money, but I now understand what's going on inside that switch every time I use it. After all, this is what owning and maintaining an E-Type is all about!

Should you have any specific questions about this procedure, feel free to contact me at mcload@gmail.com

Cheers!
Patrick McLoad

PS: I mentioned early in this article the job of replacing the turn signal shaft. As you can see in the above photos, it is firmly attached to a cast aluminum piece that I will call the "anvil". To the best of my knowledge, replacement signal shafts do not come with this part attached. So what you will have to do is cut off the old shaft and drill out the material from the anvil socket using a small hobby lathe....the chances of your doing this successfully using a drill press are remote at best due to the thin wall of the socket. The montage below will give you an idea of what is involved.

