Avanti Repair

Ignition Switch design flaw: preventing a disaster

By: Bill Henderson, wfhenderson@yahoo.com

When a new car is being developed and then launched, dozens of little glitches are noted, and in due course engineering changes are made to fix them while production continues along. Our Avanti certainly had its share of these issues, being rushed to market as quickly as it was. I have read with interest in this publication and others, the original factory service bulletins that deal with everything from brake adjustments to water leaks to tie rod grease seals and brake adjustments and interior ventilation.

But there is one fix that was missed that is dangerous if not addressed,and yet is very easy to fix by any Avanti owner.

In his fine book Stan Gundry, Author/Publisher of "What the Shop Manual Won't Tell You: Studebaker Avanti Restoration and Maintenance" (www.AvantiPublishing.com) mentions three places where short circuits can happen beneath the dash. One of these involves the ignition key switch, which is in incredibly close proximity to the one of the very few metal pieces in the Avanti. Sometimes called the "Z Bar" this curved and embossed steel stamping runs underneath the instrument panel across the entire bottom of the dash. At both ends it is tied into the car's frame, serving both as a car's stiffening member and as an electrical ground. All of the car's dash electrics are grounded to the z bar.

In the first photo below, looking up under the dash, you can see how close the ignition key switch sits to the Z-bar. Add to this the fact that the center threaded stud on the switch is connected to an always-hot wire, and that the key switch is mounted on a spring that can be stretched by simply pushing in on the key while turning it—and this is clearly not safe.

Stan recommends simply wrapping the Z-bar in black electrical tape at the point of potential contact, which I had done. One very hot afternoon my Avanti stalled at a traffic light, and in my haste to start it before I caused an accident, I pushed the key a bit harder than normal while turning it; the spring compressed and bezel disconnected from the switch allowing the entire switch assembly to contact the Z Bar. I watched with some horror as the all my senses were alerted: several big blue sparks shoot towards my feet, and crackling sounds were accompanied by a whiff of ozone from the resulting electrical arc.

Luckily I got the car started and got out of that intersection, but I vowed to make a more permanent fix, one that the factory likely would have made if the Avanti had only stayed in production at Studebaker a bit longer.

Something I have learned in my years of driving collector cars: while an oil leak or a rough idle may signal the sign of a beginning problem that might grow worse over time, electrical events are silent, sudden and potentially disastrous. There are a significant number of un-fused circuits in a car's wiring harness, and the wiring in the ignition circuit is among them. A short circuit in an un-fused circuit will generate sudden and very intense heat until something burns through, often igniting anything it contacts: insulation, carpet or fiberglass.

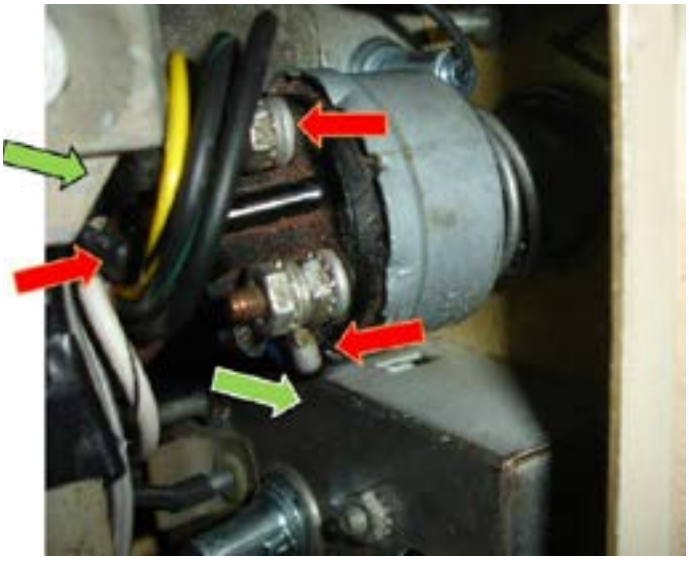
My fix is simple and can be replicated by anyone in less than an hour, and without any cost at all. See the photos below for the easy steps that will make this potential problem area one less thing to ever worry about.

Photo 1: Looking up under the dash, this view shows the back of the ignition switch. The red arrows point to "hot" electrical connections. The green arrows point to grounded points nearby. Any hot point that touches a grounded area will cause a short: a spark at least, a fire at worst.

Photo 2: Removing the ignition switch is perhaps too simple. First, disconnect the battery. Do not work on the electrics of your car while they are "hot" unless you want to cause more trouble than you will want to fix. While holding the front ignition switch bezel tightly with one hand, reach under the dash and grasp the back of the switch assembly; push and twist a half turn counter-clockwise, and the bezel will separate from the switch and pop loose. Gently maneuver it to expose it to view.

Photo 3: A cap from a small aerosol spray can is the perfect size to be a permanent insulator that will provide protection, successfully separating all of the hot terminals from the nearby chassis grounds. using a small hobby knife or sharp pair of scissors, trim the cap so it will slide over the back of the switch. This will require removing most of the inside ring from the cap, as well as cutting a slot in the side for the wire bundle to pass through and punching a hole in the center for the middle terminal's wire.

Photo 4: No further means of connection is required, sliding the cap over the switch and reinstalling it is all that is needed. Notice that I have installed a piece of heat-shrink tubing over the center prong terminal to further insulate this "hot" connection from ever touching grounded metal.



Avanti Repair