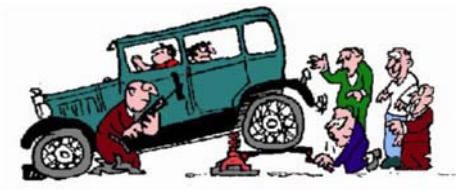
From the Garage -

by Paul Hunter



Electrical Safety in Your Model A Pt 1

by John McMillan Orange County Model A Ford Club

Most of the following are faults and/or safety hazards that I've encountered in Model A's and other less worthy vehicles. The cures are neither expensive nor technically difficult.

BATTERY

Hold Down: Without a hold down, the battery can bounce around, resulting in case cracks and acid leakage or cable shifting and abrasion resulting in a possible short. Easy to correct.

Ground Strap: Attachment to frame should be to BARE METAL. We usually apply lots of paint to the frame and unless some is removed where the ground strap attaches, then a solid ground cannot be achieved. A coat of dielectric grease helps to promote good contact and slows rusting when applied to bare metal. With a poor ground, the starter will turn real slow, and draw far more current than it should. Easy to fix.

Cable Size: Modern cables that you can buy at your local auto shop are too small. Small cables cannot carry the current draw of a starter motor safely. They will overheat and the starter will turn slowly. The cable size should be No. 1. These can be special ordered at the local parts house, or buy them from a vintage Ford dealer.

Caps: Make sure the battery vent caps are not plugged. If they're plugged, and the charge rate is high, the battery can explode from gas buildup inside the battery. Very exciting, very messy and very dangerous. Plugged caps are caused by dirt and, I suspect, by using hard water in the battery. Clean caps and distilled water are the inexpensive answer. I had one blow up in a German Model A (VW) and the clean up alone took about 8 hours.

Cable routing: The negative cable to the starter MUST be routed according to Ford's plan. See illustrations in any of the Ford repair manuals. Other routings most likely will cause cable insulation chafing and a resulting short circuit. Even if you installed a fuse, this is not a fused cable, and a fire is very likely. I've seen this several times, the last time at Big Bear when a member complained of white smoke every time he stepped on the brake. The pedal pushed the battery cable against the bellhousing and shorted out. If a fire starts here, you need to disconnect the battery to stop the fire source. Very hard to get to, you might wind up watching your car burn while you try to remember if your fire insurance is paid up. This kind of fire can also happen after you've parked the car in your garage. Real easy to fix. Note that no safety switch or fuse installation will eliminate this hazard, the only way to cure the problem is to "do it right the first time", and it takes no more effort than to do it wrong.

STARTER

Grounding: Must have a good ground for proper operation. A slow grinding starter is a hot starter and hot cables are not healthy cables. If your starter spins real slow, you may need to add a second ground strap from the starter mounting bolt or a transmission bolt to a bare spot on the frame. If you have Float a Motor mounts, I think this secondary cable is almost required.

Starter Switch: This is one of the items that must have been designed by an incompetent engineer. Check yours for bad insulation and shorting against the body of the switch, both very common faults with this switch. Another fault is that the switch can "weld" itself to the starter contact and keep on cranking even after you've removed your foot from the starter rod. If this happens, reach down and try to pull up on the starter rod. Sometimes this doesn't stop the cranking, and the starter will continue running until the battery dies or the starter burns out. The only way to stop this if you've installed a mater cut off switch, more about this later.

BRAKE LIGHT SWITCH

28-29 Switch: The original switches are usually only a problem in that they can be a pain to adjust so that they work. The reproduction switches are for the most part a real problem. Actually, most that I've seen are a fire waiting to happen. The problem is in the insulation around the studs. A lot of the repops have poor quality red fiber that cracks easily. If this happens on the hot terminal, a short will occur that can set the input wire on fire. Symptom is a discharge reading on the ammeter and poor running engine because all the power is going into melting the wire. If the secondary terminal shorts out you'll see a high discharge reading whenever you step on the brake. To check the switch, remove it, hook an ohmmeter from stud to ground and force the stud in all directions. If it shorts out on either stud, replace the switch. Check new switches as well. I've seen them in failure right out of the box. Sample melted wire available for inspection. This is another fault that can start a fire when your car is parked. A fuse MAY protect you, but 25 amps is still enough to start a fire. I fixed mine by taking it apart and machining new insulators out of delrin plastic.

30-31 Switch: Although not a safety issue, operation can be improved and squeak eliminated by silver brazing and reaming the operating rod hole in the switch body.