

SUBJECT: Vehicle Electrical Systems

TOPIC: Power back feeding

Protocols for dealing with the possibility of power back feeding at RTAs

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It has always been the mindset of fire/rescue personnel that once we either cut or disconnect the battery cables on a crash-damaged vehicle that the airbag capacitor starts to drain down.

The airbag electrical system is essentially 'empty' of electricity. Well, this long-standing concept may have just been shot down by modern vehicle technology.

. You arrive at a crash and cut battery cables or disconnect them as per your protocol. You think the airbag system is now draining down and that the airbag capacitor will be empty in a few moments. From that point on, you think you have a higher degree of safety. After all, the battery is shutdown and the capacitor is draining.

That's where our thinking may actually be wrong.

a portable device such as a laptop DVD player portable consol within the crashed vehicle, something that has its' own battery power supply, which remains plugged into the cigarette lighter port of an automobile, can or may undergo what is being called as "power back feeding".

The device's own portable battery power supply can feed current in reverse, back into the cigarette lighter outlet. Car engineers tell me that this is a design of the electrical system of a modern-day automobile. Auto mechanics buy special power back feeding devices for use in repair shops. Called, an Auto Computer Memory device.

The unit has a cigarette lighter plug, a flexible neck, and attachment points for a small battery. The memory unit plugs into the cigarette lighter and connects to a 9v transistor radio battery. Those 9-volts of electricity are enough electrical power to keep the car's onboard computer, sometimes referred to as the 'black box' charged. With power supplied to the onboard computer, the Service technician can disconnect the real battery to work on the car. When finished, they do not have to reprogram the onboard computer of the car. The auto computer memory unit provided power by back feeding through the cigarette lighter power port. The vehicle's computer remained energized the entire time while the repair work is being carried out..



So what does this all have to do with vehicle rescue, you might ask. Unfortunately for us, one of the circuits that power back feeding will also keep energized is the airbag electrical system.

It takes as little as 7 volts of power to deploy an airbag.

In other words, with an accessory device plugged into the cigarette lighter port at the time of the crash, the airbag capacitor may never drain like we thought it would when we take away the battery power!

We cut the battery out of the electrical system and really nothing gets better as far as the airbag electrical system is concerned. It could be just as energized with the car's battery completely connected as it is without the battery hooked up. Power back feeding is the reason.

Researchers advise that all cigarette lighter accessory power ports on vehicles since approximately 1997 model year have the capability of power back feeding.

With the advent of third row seating and 7-, 8-, or even 9-person capacity vehicles, the power ports at the second and third row seats may also have the ability to power back feed.

The recommendation is to create or revise your department's operating guidelines for extrication incidents. Specify that once the battery power is taken away, someone on that team accomplish the task of pulling all cords out of all power port plugs starting

with the cigarette lighter port. All devices connected into all plugs or power ports throughout the vehicle get pulled. That's true power shut down, has been achieved.