

# Hidden Side of Vehicle Safety – Firematic Concerns of Hybrids & Electric Vehicles

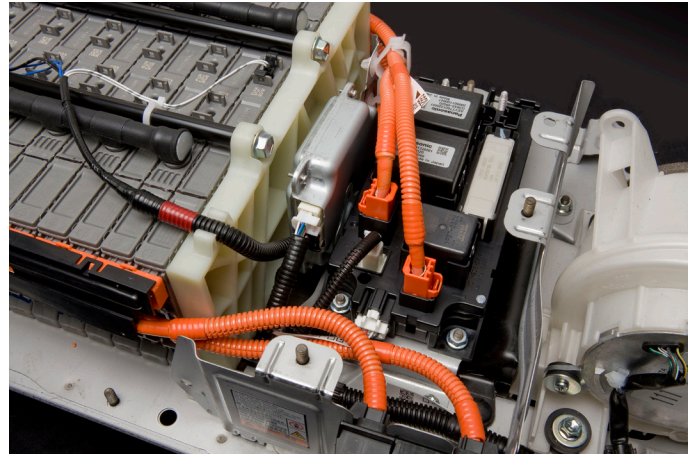


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Now while most incidents involving management of a motor vehicle involves a RTA or a medical emergency, a fire in vehicle today is another story. In ALL vehicles today, be it conventional or alternative fueled drive train carries a significant fire load. Plastics, combustible alloys and components such as gas struts are present in every vehicle however hybrids and all electric vehicles carry even more combustible alloys, composites and a very large high voltage battery pack consisting of Nickel metal Hydride, NiCad or even Lith-Ion battery cells. The combination of ALL these components creates a difficult problem for the firefighter. These changes involve not only tactical considerations on scene but even suppression agents to effectively mitigate such an incident. As time progresses, vehicles will continue to change thus emergency responders need to keep their collective fingers on the “pulse” of the technology on the street. Vehicle fires are a common daily type of emergency however the changes in vehicles especially over the past decade. Motive power has made dramatic changes. While simple application of water is an acceptable methodology to extinguish such fires, hybrids and electric vehicles require copious amounts of water to fully extinguish a fire in such a vehicle. Many times, this simple application of water will exceed what is carried on the apparatus. One area we truly need to revisit is the usage of foam or wetting agents to enhance the suppression properties of water. And even these agents we need to explore some of the new technology out there. Class A & B foam isn't always the best solution. Other agents such as wetting agents as Cold Fire, Fireaide 2000 & FireIce Gel actually work better on Class B & D fires especially if they a 3 dimensional. And all the above agents are biodegradable, leave no residue on the road surface and work well in pressurized water extinguishers as well as tanks in conventional apparatus.

Besides suppression, our crews need to provide access to get a nozzle into areas to mitigate a 3 dimensional fire. Since most vehicle fires begin in the engine compartment our crew will need to make access through the vehicle's hood (bonnet). However the conventional tactics to force hoods can put our crews at risk with hybrids and electric vehicles. One of the tactics to gain some access is to drive the spike of a haligan tool into the corner of the hood, twisting it around and folding it rearwards. This presents a problem as the potential for high voltage components of the vehicle's drive train being in or near those corners. Driving a spike into such a high voltage component might present a shock hazard. Another popular tactic is to utilize a rotary or recip saw and plunge cut into the hood to create an “X” or some sort of space to get the nozzle again into the engine compartment. This tactic presents a greater hazard to cut into high voltage components or even the electric drive train itself. One option that does present itself well is the use of a combi-tool to “tent” the hood on each side basically in line with the vehicle's front suspension. This methodology allows the crews to “see” under the hood, potentially access the hood's hinges to be cut or even use the combi-tool tool to sever the vehicle's front latching mechanism.

Bottom line however whenever possible is this: The best weapon the emergency responder can wield today, following good current



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information on vehicles is power isolation. This is a two step process, first step being to shut the vehicle off and securing the ignition key and placing it in their apparatus. The second step would be locating the primary 12v battery and disconnecting both the positive and negative cables. While difficult for a fully involved vehicle fire this power isolation should be attempted whenever at possible.