



VEHICLE FIRES

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Approved: Chief Rob Vogel

I. PURPOSE

The purpose of this procedure is to provide specific information and procedures for volunteer companies in the South Lyon Fire Department to use in responding to vehicle fires.

II. SCOPE

This procedure applies to all staff operating at emergency scenes.

III. PERSONAL PROTECTIVE EQUIPMENT

- A. Full structural fire fighting personal protective equipment (PPE) shall be utilized for fighting vehicle fires.
- B. Self-contained breathing apparatus (SCBA) shall be utilized when fighting vehicle fires.
- C. Reflective traffic safety vests shall not be utilized while actively fighting fire.

IV. APPARATUS PLACEMENT

- A. To afford protection from hazardous liquids and vapors and to reduce smoke in the work area, apparatus should be placed upwind and uphill of the incident if possible
- B. Consideration must be given to using an apparatus as a barrier, to shield the incident scene and the pump operator from traffic hazards.
- C. Warning lights should be left operating, in conjunction with the use of traffic cones where needed.
- D. Flares can be used to direct traffic flow and warn motorists of hazards. Caution must be used to insure flares are placed so they can not cause a fire or present burn injury hazard.
- E. Traffic cones and traffic delineators can be used to direct traffic flow, close lane (s) and define safe work areas.

V. FIRE ATTACK

- A. A free burning stage fire involving the interior of the vehicle passenger compartment can quickly damage the vehicle beyond repair. As such, the attack plan should consider the vehicle as not salvageable (unless there are victims



entrapped inside the vehicle) and a safe and appropriate approach and fire attack must be implemented.

- B. Where occupants are trapped in the vehicle, water or extinguishing agent should first be applied to protect the occupants and permit rescue.
- C. For a vehicle fire a minimum attack line of 1 1/2" shall be used. A booster line does not provide an adequate volume of water.
- D. When attacking a vehicle fire, responders should approach from a 45 degree angle towards the side of the vehicle. This will reduce the potential of being struck by exploding energy absorbing bumper or hold open devices.
- E. When rescue is not a factor, water should first be applied for several seconds to cool hazard areas, i.e.: fuel tanks, shock absorbing bumpers, tires, etc.
- F. When possible, a chock block should be placed around the tires to prevent the burning vehicle from rolling or lurching forward.

VI. HAZARD AND SAFETY CONSIDERATIONS

- A. Liquid Petroleum Gas (LPG) and Liquid Natural Gas (LNG) are becoming common place as fuel for vehicles. Pressure release devices can create a lengthy "blow torch" effect, or should the pressure relief device fail, a BLEVE may occur. Vehicles may not be marked to identify this fuel hazard. If there is flame impingement on a visible LPG/LNG storage tank, take action to control the fire and cool the tank.
- B. If vapors escaping from the storage tank relief valve have ignited, allow the LPG/LNG to burn while protecting exposures and cooling the tank. Flow of gas through piping can be controlled by shutting off the valve at the storage tank.
- C. Energy Absorbing Bumpers--Consist of gas and fluid filled cylinders that, when heated during a fire, will develop high pressures which may result in the sudden release of the bumper assembly. This could result in serious injury to anyone in its path. Bumper assemblies have been known to travel 25 feet.
- D. Batteries--Explosion hazard due to presence of hydrogen vapors. Avoid contact with battery acid. When the situation is stable, disconnect battery cables (ground cable first).
- E. Combustible Metals--Some vehicles have various parts made of combustible metals, such as engine blocks, heads, wheels, etc. When these metals are burning, attempts to extinguish them with water will usually add to the intensity of the fire. Large quantities of water, however, will cool the metal below its ignition temperature. After some initial intensification, the fire should go out. Dry chemical extinguishers can also be effective.
- F. Trunk/Rear Hatch/Engine Hoods--Hold-open devices may employ, along or in any combination with any of the following: springs, gas cylinders, extending arms, etc. When gas cylinders are exposed to heat, failure or rupture of these devices should be expected. Excessive pressure may develop in lift assists causing a trunk, hatch or hood to fly open with explosive force when the latch mechanism is released. To insure personal safety, be sure to allow sufficient clearance when releasing latches.



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- G. Fires involving the trunk/cargo area should be approached with extreme caution. Contents may include toxic, flammable or other hazardous materials. Expect the worst!
- H. Fuel Tanks--May be constructed of sheet metal or plastic. A rupture or burn-through may occur with these tanks causing a rapid flash fire of the fuel. Do not remove gas cap, as tank may have become pressurized. Do not direct hose stream into tank, as this will cause pressurization of tank, with a possible result of burning fuel spewing from the tank fill opening.
- I. Interior--Well sealed interiors of modern vehicles present the potential for backdraft. Use caution when opening doors or breaking windows. Appropriate approach, ventilation, and safety concerns must be considered. Have a charged handline ready before making entry
- J. Vehicle Stability--Tires or split rims exposed to fire may explode, causing the vehicle to drop suddenly. Expect exploding rim parts or tire debris to be expelled outward from the sides. Approach from the front or rear of the vehicle for maximum protection from potential flying debris. Some larger vehicles, such as buses, employ an air suspension system. When these systems are exposed to heat or flame, they may fail, causing the vehicle to SUDDENLY drop several inches.
- K. Airbags: To avoid injury, firefighters should follow the 5-10-20 rule (airbags can deploy even after the key has been removed and the battery disconnected) for un-deployed airbags:
 - i. Maintain a minimum of 5 inches from side impact airbags
 - ii. Maintain a minimum of 10 inches from frontal airbags
 - iii. Maintain a minimum of 20 inches from passenger side frontal airbags

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Approved by