

CHAPTER II Operations**SUBJECT 3 Emergency Operations****TOPIC 6 Road Vehicle Fires****A. SCOPE**

This topic addresses the handling of fires in most over the road vehicles, including automobiles, buses, postal vehicles, garbage trucks and large commercial vehicles.

B. PRIORITIES

Priorities at the scene of a vehicle fire are:

1. Size-up
2. Safely remove vehicle occupants who are in or near the vehicle.
3. Keep non-response people away from the vehicle for a distance of at least 100 feet in all directions.
4. Control the fire and extinguish.
5. Control fuel spills.
6. Determine if there are alternative fuels or special hazards present

C. PERSONAL PROTECTIVE EQUIPMENT

1. Full Structural Firefighting Protective Clothing including Self- Contained Breathing Apparatus (SCBA) shall be utilized when fighting vehicle fires.
2. All members, i.e. FAOs & Medic Unit personnel, not in Full Structural Firefighting Protective Clothing shall wear the reflective traffic safety vest at all vehicle fires

D. PROCEDURE**1. APPARATUS PLACEMENT**

- a. To afford protection from hazardous liquids and vapors, and to reduce smoke in the work area, the apparatus should be placed upwind and uphill of the incident if possible, unless used for blocking.
- b. Protect personnel from being struck; a minimum of two lanes of traffic

shall be stopped by placing the apparatus as a barrier in a position to stop traffic.

- c. Request police for traffic control.
- d. Warning lights should be left operating, in conjunction with the use of traffic cones and/or flares where needed.

2. WATER SUPPLY

- a. Water of sufficient quantity, flow rate, and pressure should be used to meet suppression objectives and ensure fire fighter safety at all vehicle fire incidents.
- b. Consider the use of Class A foam, as it will increase the efficiency of the water supply.
- c. It may not be necessary to secure a source of water supply when a light duty vehicle is involved in fire.
- d. The Officer shall exercise good judgment in determining the need for a water supply, but will secure a source of water when large vehicles are involved.
- e. If victims are trapped (see topic Vehicle Accidents 203.07) a water supply shall be secured, unless on a limited access highway in which the second engine dispatched can be utilized as a backup source of water.
- f. At vehicle fires in limited access high volume freeways, a second engine is dispatched as a “blocker”, and may be used as a second source of water (see topic Highway Emergencies 203.18).

3. FIRE ATTACK

Prior to fire attack, perform a size-up and determine if there are any special hazards (see #5 of this section), determine type of cargo, and request additional resources if needed.

When attacking a vehicle fire, fire fighters should approach from a 45-degree angle towards the side of the vehicle. This will reduce the potential of being struck by energy absorbing bumpers or trunk / hatchback hold open devices (struts) that may explode.

Chock wheels on both sides of wheel as soon as possible to prevent burning vehicle from rolling or lurching forward or backwards.

a. ENGINE COMPARTMENT FIRES

Engine compartment fires often present access problems and can be difficult to release hood locking mechanisms. Every effort should be made to enter the engine compartment with a minimum amount of

damage.

Some alternative methods to forcing the hood are:

- i. Operating Dry Chemical extinguishers or a hose line into a partially opened hood, ~~containing the fire so the~~ to contain the fire until a secondary release can be operated
- ii. Break a section of the grill out, reach in and manually release the hood.
- iii. Piercing the inner wheel well with a piercing nozzle.
- iv. A stream can be directed from the ground level against underside of hood the engine compartment.

b. PASSENGER COMPARTMENT FIRES

Fires in the passenger compartment will be handled in the same manner as any Class "A" fire. Have an 1 ¾" hose line ready before opening doors unless a rescue is needed. In this case, consider using a portable extinguisher to control the fire while the rescue is made. To gain access, breaking door glass is the preferred method. Fires in the trunk area generally require forcible entry. Consider popping the trunk lid lock or removing the back seat to reduce damage.

c. CARGO COMPARTMENT FIRES (COMMERCIAL VEHICLES)

- i. Consider use of metal blade on a circular saw to make a window to expose cargo for extinguishment.
- ii. Consider piercing nozzle.
- iii. Secure a water source and back-up line.
- iv. Prop open overhead style doors, as they may fail after being involved in fire conditions.

4. OVERHAUL

The cause of the fire must be determined before completing overhaul.

If a vehicle is completely involved in fire or a fire extends from one compartment to involve the other, an incendiary fire should be suspected.

If the fire is in a vehicle that is drivable and the cause cannot be determined or is of a suspicious nature, call a Fire Investigator.

If the fire is in a junk vehicle, notify the Fire Investigation Unit (FIU) at 0700 hours of the next working day. Make a note on the NFIRS (Fire Incident Reporting System) report under Remarks as indicated in 202.04D.

When fires appear suspicious, the Officer should also have individual members complete the FIU Statement Forms and forward to the investigating Fire Investigator.

Upholstered material must be removed and thoroughly extinguished.

The vehicle battery/batteries must be disconnected on all vehicle fires. Always disconnect the ground (Negative) side first.

Take necessary precautions to assure that the vehicle will not present a fire hazard during towing.

5. HAZARDS and SAFETY CONSIDERATIONS

- a. Ruptured Fuel Tank
 - i. Are rare, but must be guarded against.
 - ii. Fuel tanks can be cooled by bouncing a water stream off the ground onto the fuel tanks on the underside of the vehicle.
- b. Liquid Petroleum GAS (LPG) and Liquid Natural Gas (LNG)
 - i. Allow PRVs (Pressure Relief Valves) to perform and vent the fuel if they are operating. If fuel is venting, then the risk of a BLEVE is significantly reduced. The PRV will dissipate most of the fuel in a vehicle tank in under 5 minutes.
 - ii. Cool tanks when possible to reduce risk of a BLEVE.
 - iii. Be Cautious to avoid standing in vapor clouds if present.
- c. Pressurized Flammable Gases
 - i. Hydrogen Fuel Tanks (also have PRVs).
 - ii. Be aware of Flammable or Pressurized Tanks as cargo.
- d. Electric and Hybrid Vehicles
 - i. Orange Cables denote High Voltage- DO NOT CUT.
 - ii. It may take 5 minutes for energy to dissipate, once manually disconnected.
 - iii. High Voltage battery banks are usually found behind the back seat or in trunk.
 - iv. There are several Hybrid Vehicle Extrication Apps, that can assist with the location of the battery bank and high voltage (orange) cable.
- e. Batteries
 - i. Be careful when disconnecting battery cables, these can cause an arc or shock an individual.
 - ii. Avoid contact with battery acid.
 - iii. Batteries can release explosive Hydrogen gases.

- f. Combustible Metals
 - i. Many cars use combustible metals including Magnesium for components of a vehicle (IE dashboard supports and engine blocks).
 - ii. Metals can react violently with water. Fight fire, initially, from a distance using the full reach of the stream.
 - iii. Extinguish using large amounts of water to cool below ignition temperature or use a Dry Chemical Extinguisher.
- g. Energy Absorbing Bumpers and Trunk / Hatchback Hold Open Devices (Struts)
 - i. Some vehicles are equipped with energy absorbing suspension systems and/or bumpers which are capable of violent rupture causing injury.
 - ii. Beware of seat belt pretensioners failing.
- h. Vehicle Stability
 - i. Wheels and suspension systems can fail during and following fire conditions. Attempt to stay clear of underneath of car.
- i. Air Bags
 - i. Even if the battery is disconnected, air bags can still deploy.
 - ii. Attempt to adhere to the 5-10-20 rule
 - maintain a minimum of 5 inches from side impact bags M
 - maintain a minimum of 10 inches from frontal airbags (steering column) M
 - maintain a minimum of 20 inches from passenger side frontal airbags M
- j. Fuel Spills
 - i. May need to use hazorb (or other type of absorbent) and/or sand to control and contain spills.
 - ii. Use Foam to decrease vapors.
- k. Backdraft
 - i. Can occur in passenger and cargo compartments that are well sealed. Take precautions, by standing to the side when venting a window or opening a door.

Special Alternative fuel vehicles are usually marked with a symbol of a diamond with the following abbreviations or wording;

- LPG- Liquefied Petroleum Gas

- CNG- Compressed Natural Gas
- LNG-Liquefied Natural Gas
- Liquefied Hydrogen or Compressed Hydrogen
- EV- Electric Vehicle
- HEV- Hybrid Electric Vehicle
- FCV- Fuel Cell Vehicle



E. SPECIAL VEHICLES

1. Garbage/ Sanitation Trucks

- a. Attempt to extinguish and control fire without dumping load, using access doors. Sometimes these doors may be on top of the vehicle.
- b. If possible follow the truck to a processing center, where they can dump load and use heavy equipment to spread the load out for final extinguishment and overhaul.

2. Postal Vehicles

- a. Following extinguishment, secure Vehicle and notify Postmaster.

3. Buses

- a. Batteries and Alternative Fuel Tanks can be on Roof.
- b. Some buses have Automatic Dry Chemical Extinguishing systems.
- c. Some buses have an electrical interlock that disengages the brakes when the battery is disconnected. Before disconnecting batteries, make sure that the mechanical brake is engaged and wheels are chocked from both sides.

4. Large Commercial Trucks

- a. Identify Cargo from driver, use of ERG (Emergency Response Guide) and/or the Bill of Lading.
- b. Consider requesting Foam Unit(s).