

SCENARIO #9

FIRE INVOLVING BOBTAIL DELIVERY TRUCK



FIGURE 8-33

A bobtail propane delivery truck has been involved in an accident on a two-lane highway. The bobtail stopped at an intersection for a red light and was struck from the rear by a cargo truck. The severe impact produced a liquid propane leak at the rear of the bobtail truck. The propane gas has ignited and flames are impinging on the back of the tank. Two pressure relief valves (PRVs) are intermittently opening and gradually closing down. The wind is blowing toward the bobtail's tank at about 15 mph.

The driver of the cargo truck is still in the cab, slumped down over the steering wheel. The driver of the bobtail truck is not injured and has offered to shut a valve that will extinguish the propane fire.

SUMMARY OF TANK CONSTRUCTION FEATURES

A bobtail propane delivery truck is essentially a bulk storage tank on wheels. It is the primary vehicle used to deliver propane from bulk plants to customers. The average bobtail truck has a capacity of 750 to 6,000 gallons. The basic vehicle consists of two parts: the truck and the propane tank. Pressure relief valves (PRVs) are installed in the vapor space of the tank and are set to function at 250 psi.

The tank is also protected by an excess flow valve, back flow check valve, and emergency shut-offs. Temperature, pressure, and liquid level gauges are installed

on the side or rear head of the tank. Vapor connections are generally in the lower rear of the bobtail truck and communicate with the vapor space by means of a standpipe. They are protected by an excess flow device as well as a valve with a manual mechanism and a fusible link. The main liquid withdrawal appurtenance is generally in the belly (bottom) of the tank and is protected by an internal valve with an excess flow feature to which a pump is attached. The liquid fill line is generally found in the lower rear of the tank near the vapor connections.

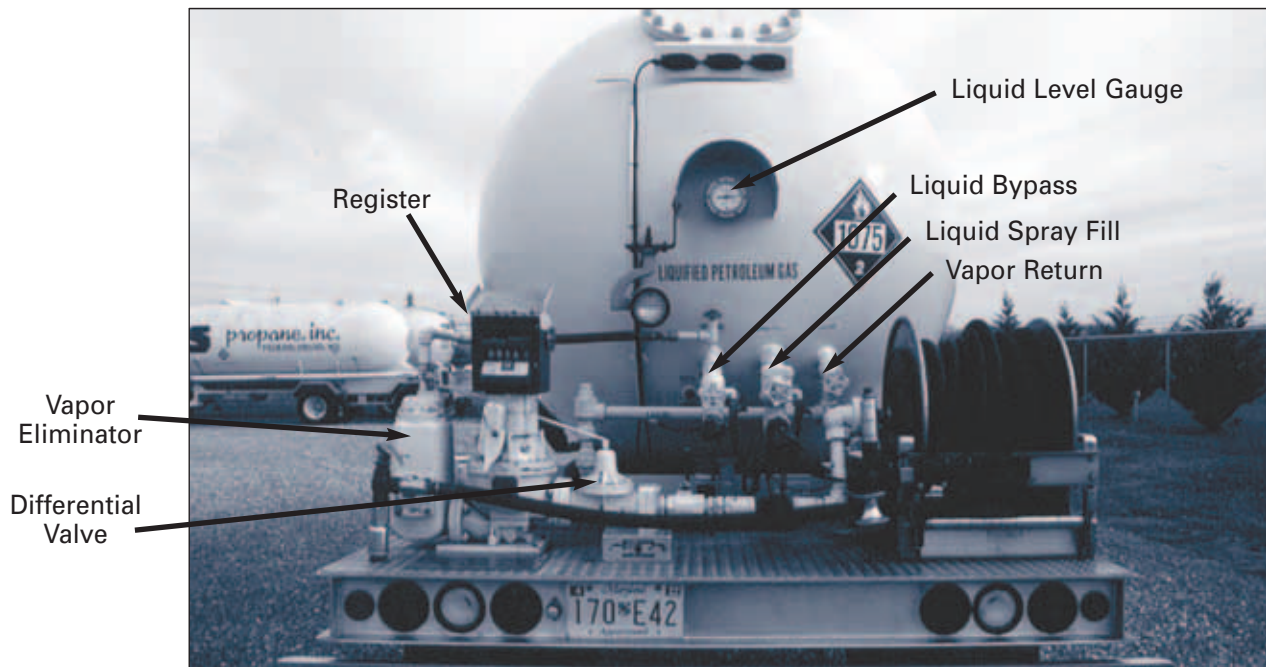


FIGURE 8-34 Features of bobtail (rear view).

INCIDENT ACTION PLAN

TACTICAL OBJECTIVES

The primary tactical objectives for this operation are to control the fire and hold it in check until the driver is rescued and the propane leak can be stopped.

METHODS OF CONTROL AND EXTINGUISHMENT

While a crew is assigned to rescue the driver of the cargo truck, the bobtail driver should be consulted to determine what options there are to stop the flow of propane using the bobtail's valves and safety devices. For example, what is feeding the fire? It is probable that some part of the bobtail's meter or pumping circuit has been damaged by the rear-end collision. In these types of scenarios, less than 10 gallons of propane remains in the pumping system, depending on the hose size and length. The fire should burn no more than 15 minutes before running out of fuel.

The driver should be questioned to confirm that the emergency shut-off has been activated; otherwise the fire may continue to be fed.

Since PRVs work intermittently at their preset pressure of 250 psi, it is likely that the situation will stabilize quickly as soon as the fire has been extinguished. Hoselines should be deployed to control the fire at the rear of the bobtail and protect the rescue crew.

Fire water flows of 200 gpm are adequate for cooling bobtail delivery vehicle tanks with capacities under 5,000 gallons. Streams should be directed at the point of flame impingement and on the upper half of the tank shell of the entire tank. Four 1-3/4 inch or larger handlines are recommended to cover the rescue crew, cool valving and piping at the rear of the truck, extinguish any spot fires, and cool the vapor space on the propane tank. Firefighters should continue cooling the tank shell until the fire is extinguished or the pressure relief valve remains closed or evidence of refrigeration is present. The tank should be cool to touch.

Additional factors to consider for this operation include:

- Another common source of fires on a bobtail involving side or rear low-speed collision accidents is the vehicle's on-board fuel system. Many propane bobtails use propane as a motor fuel. The propane may be taken from a small shut-off valve near the bottom of the front head of the cargo tank. A simple shut-off is located at the tank's entrance. Other variations use a separate motor fuel tank, which is usually mounted on the driver's side frame, just behind the cab. The valve is screwed directly into the tank. Generally, a hose runs under the cab and up to the filter-lock and then into the vaporizer (the mixer and the throttle body of the carburetor or fuel injection system). The line feeds liquid propane to the vaporizer, which changes the liquid to vapor. When the truck's ignition key is turned off, the filter-lock closes off the fuel supply. If the engine stops for any reason, the flow of propane stops. The tank also has an excess flow valve on it. So, if a bobtail is involved in a fire, make sure that the vehicle's ignition system key is turned completely off.
- If a fixed mounted master stream such as a deck gun on a pumper can be quickly placed in service, it should be directed onto the bobtail's burning tank at the point of flame impingement until handlines are deployed.
- It is important that nozzles on the attack crew's handlines match so that there is a constant flow and nozzle patterns are compatible. If variable gallonage nozzles are being used, and are being supplied from two different pumps, the driver/operators must ensure that they are maintaining a coordinated fire flow that is delivering at least 100 gpm to both handlines.
- When possible, handlines from the primary attack crews should be supplied from two different water supplies. If either handline loses its water supply, the crew will still be protected by at least one functioning line.
- Larger diameter hose streams and master streams can be used as an alternative to the use of four handlines.
- Propane tank truck tank valves are right-to-tight, left-to-loosen. Make sure you are turning the valve off, not on. On some bobtails, valves may be quarter turn lever handles.
- Continue to cool the tank until well after the fire has been extinguished. The metal surface should be cool enough to touch. Ensure that adequate water supplies are established to support prolonged cooling operations.
- Contact the bobtail owner for specialized technical expertise in evaluating the damaged vehicle.

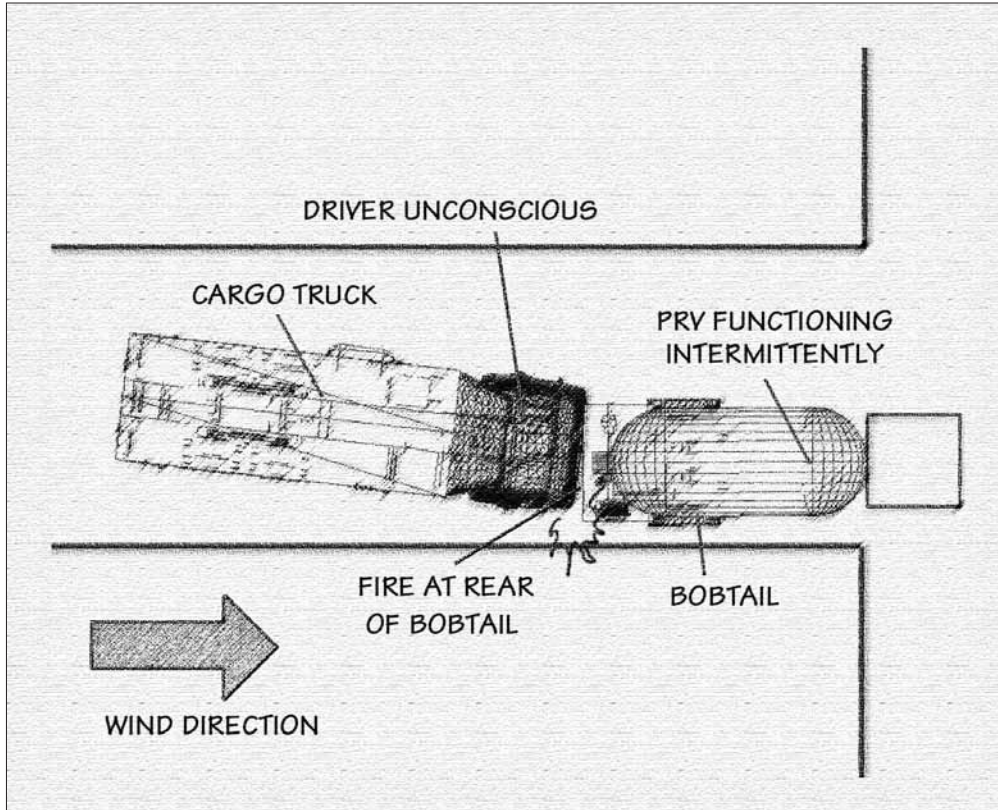


FIGURE 8-35