

November 2003

NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

REDUCING RISK OF POST-CRASH FIRES IN POLICE VEHICLES

Introduction: The National Highway Traffic Safety Administration (NHTSA) is issuing this document to update the law enforcement community on issues and actions currently under way to reduce the risk of rear impact crash fires involving police vehicles. Although issues have been raised regarding alleged defects in Crown Victoria Police Interceptor (CVPI) vehicles manufactured by Ford Motor Company (Ford), this document will focus on actions and practices applicable to all police vehicles.

Police vehicles are often used in high-risk situations that expose them to potential crashes with vehicles traveling at high speeds. Rear impacts at speeds greater than 50 miles per hour can impart enough energy to damage the fuel tank and other fuel system components of the struck vehicle. If the fuel tank is punctured or otherwise damaged, it can leak gasoline, which can be ignited by one of many ignition sources present during a crash and may result in a catastrophic fuel tank explosion. Many of the recent crashes involving CVPI vehicles in which there were fuel leaks appear to have been the result of high speed impacts by other vehicles.

Current Activities: Several committees and groups have been formed to look into ways to reduce the risk of post-crash fires involving police vehicles. Current efforts to address this problem include: (1) vehicle modifications to reduce the likelihood that the fuel tank will be punctured by vehicle components; (2) trunk packing considerations to reduce the likelihood that an item in the trunk will puncture the tank; and (3) operational guidelines to reduce the likelihood of a crash during a traffic stop and to enhance officer safety if such a crash does occur.

IACP: The International Association of Chiefs of Police (IACP), in cooperation with NHTSA, other law enforcement and traffic safety organizations, and the automobile industry, has formed the Law Enforcement Stops and Safety (LESS) subcommittee of the IACP Highway Safety Committee to address officer and public safety when police officers are involved in enforcement or investigative operations on streets and highways. The goal of this subcommittee is to provide information and recommendations to law enforcement administrators concerning best practices and to improve the safety of officers and the public. The subcommittee will focus on three major areas: (1) vehicle safety, including lighting and equipment; (2) officer safety policy and procedures; and (3) highway design and environment, including scene management. The LESS Subcommittee will establish three working groups to address specific issues.

NHTSA representatives will meet regularly with the LESS Subcommittee to assure timely and accurate communication of information on matters relating to safety during roadside operations. In the initial stages of the program, IACP plans to launch a website that will provide the latest information regarding officer and vehicle safety issues.

Included on the website will be information such as bulletins, technical updates from NHTSA and the automobile industry, recommendations of the Blue Ribbon Panel convened by Ford and the State of Arizona (see below) and other studies and information that become available.

The LESS Subcommittee will establish three working groups to address specific issues identified by NHTSA and the law enforcement community: Police Vehicle Safety, including lighting and equipment; Officer Safety; and Highway design and Environment.

Blue Ribbon Panel: A Blue Ribbon Panel made up of representatives from Ford Motor Company, the Arizona Department of Public Safety, the Phoenix Law Enforcement Association, the Florida Department of Highway Safety and Motor Vehicles, and a technical consultant was established in June 2002 with the goal of evaluating fuel system upgrades on the CVPI and identifying “best practices” for police operational procedures.

The following actions have been recommended by the Blue Ribbon Panel as ways to reduce the potential for a fuel tank puncture in a high-speed rear end crash involving CVPI vehicles.

1. Install the Ford Upgrade Kit that consists of shields that blunt many of the vehicle components that can potentially puncture the CVPI fuel tank in high-speed rear crashes. These shields are applied to the rear axle, the differential bolts, and the fuel tank straps. Figure 1 shows these shields installed on a CVPI vehicle.

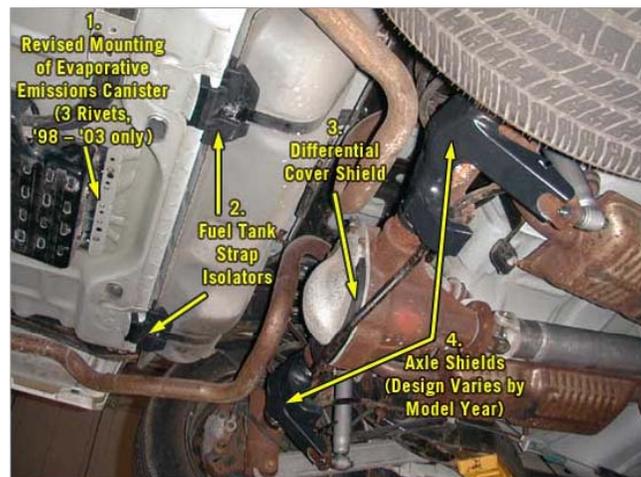


Figure 1

Detailed information can be found regarding this retrofit kit at www.cvpi.com, or by calling Ford at 800-343-5338.

2. Use the Ford Police Interceptor Trunk Pack™. The Trunk Pack is a box that can be placed in the trunk of the CVPI. This box is made of a high-density polyethylene and is designed so that when items are placed in the box, it aligns them laterally in the trunk. The forward wall of the Trunk Pack is lined with Kevlar. These design features reduce the potential for puncturing the fuel tank by

securing objects in the trunk in a high-speed crash. Figures 2 and 3 show the Trunk Pack.



Figure 2



Figure 3

Detailed information can be found regarding the Trunk Pack at www.cvpi.com, or by calling Ford at 800-343-5338.

[The City of Dallas (Dallas), which has initiated litigation against Ford over the safety of the CVPI vehicles, has questioned the efficacy of the Trunk Pack. Dallas has conducted several crash tests of CPVI vehicles equipped with the Trunk Pack. In tests using a Ford Taurus traveling at 75 mph as the striking vehicle, the fuel tank of the CVPI leaked. Ford has stated that these tests did not represent real world operational conditions.]

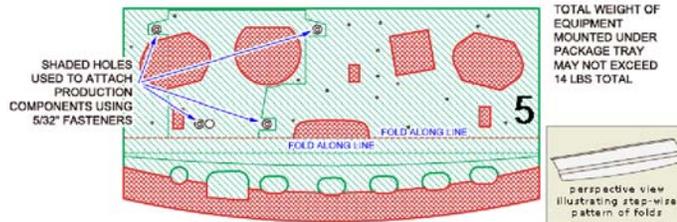
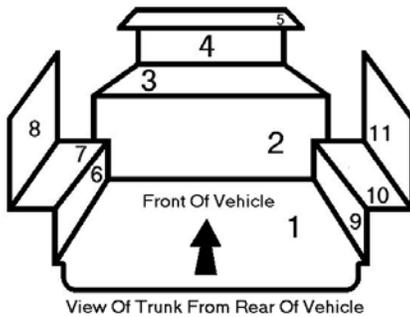
3. Follow the guidelines for mounting and storing equipment in the CVPI trunk using the Ford Trunk Equipment Mounting Template. The guidelines will also reduce the likelihood that an unsecured object in the trunk may puncture the tank of the CPVI vehicle. These recommendations for storing and securing items in the trunk are as follows (See Figure 4):

- Do not carry gasoline in the trunk at any time regardless of the container.
- Do not carry ammunition, flares, fire extinguishers, 4-point lug wrenches, crowbars, axes, or any other similar equipment in the trunk that is not restrained or mounted securely.

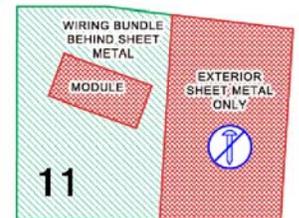
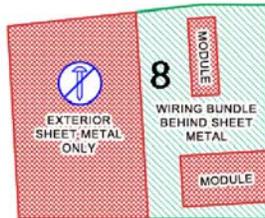
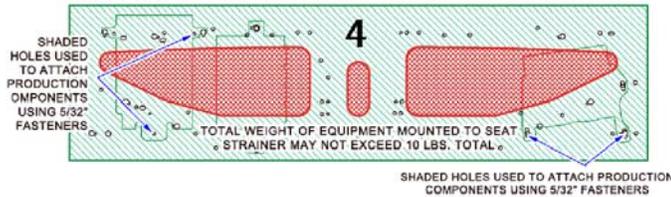
When carrying the following items, make sure that they are secured as noted:

- Fire extinguisher – Fixed
- Lug wrench 4 point - Fixed – Vertical
- Rolotape measuring wheel - Fixed – Vertical
- Safety flares - Lateral orientation – in a container
- Stop Stick - Lateral - Mount on deck lid inner panel
- Shovel - Lateral - Place at rear of trunk

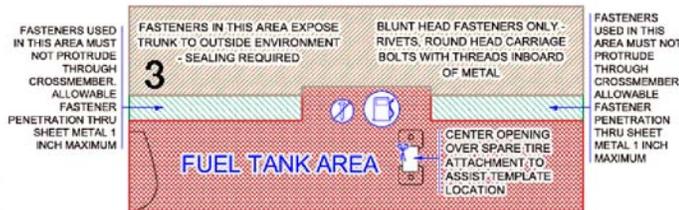
- Shotgun and rifle - Lateral - Store in case
- Baton - Lateral - Place at rear of trunk
- Ammunition – Container
- Flares - Protective storage container (preferably soft sided plastic)
- Spare Tire/Jack/Lug Wrench – Production Location or in Ford Trunk Pack
- Electronic and Other ‘Hard’ Equipment - On the trunk forward package shelf or according to the Ford "Trunk Equipment Mounting Guide"



HOLES NOT USED FOR WIRING RETENSION - AVAILABLE FOR EQUIPMENT ATTACHMENT



FASTENERS IN THIS AREA EXPOSE TRUNK TO OUTSIDE ENVIRONMENT - SEALING REQUIRED 7

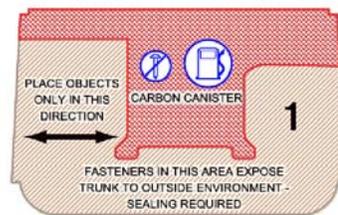


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FASTENERS IN THIS AREA EXPOSE TRUNK TO OUTSIDE ENVIRONMENT - SEALING REQUIRED 9



Panels Not To Scale

Items such as radio and video equipment should be mounted so that sharp edges will not intrude upon the fuel tank during a crash (See Figure 5 for an example of an inappropriate mounting). Consideration should be given to mounting these items on the shelf above the fuel tank area in the trunk.



Figure 5

“Soft” items, such as traffic cones, rope, blankets, etc., have low risk of puncturing the fuel tank even in a high speed rear end crash. However, they should still be arranged in an organized fashion and possibly in the Trunk Pack if available. For examples of how these types of items should be packed, see Figures 6 and 7.



Figure 6



Figure 7

For more detailed information regarding how the Blue Ribbon Panel recommends that the CVPI trunk be packed, see www.cvpi.com

The IACP, vehicle manufactures, and NHTSA are continuing to work on developing and/or assessing safety features that may reduce the risk of rear impact crashes involving police vehicles and the likelihood of fuel leaks and fires following such crashes. These potential safety features include fuel tank bladders, fire suppression systems, and improved police vehicle lighting and marking. A fuel bladder is a flexible liner inside of the fuel tank that would reduce the risk of fuel leak if the tank were punctured. Fire suppression systems would potentially keep a fire from starting or extinguish a fire that has started. Markings and conspicuity of police vehicles are also being investigated to determine if there are better ways to minimize the likelihood that police vehicles will be struck by other traffic.

DISCLAIMER

The recommendations in this brochure were those of the Blue Ribbon Panel and do not necessarily represent the views and policy of the National Highway Traffic Safety Administration.