Airbag Safety in the Police-Fire and EMS Vehicle

Dave Long, Airbag Safety Specialist, North Memorial Medical Center
Mitch Becker, Technical Consultant, ABRA Auto Body & Glass

Washington, D.C. - In August of 2002, National Highway Transportation Safety Administration (NHTSA), Special Crash Investigation Team members announced a nationwide "Aftermarket Communications Equipment Installation" bulletin regarding the safety installation of police type communications equipment installed in the police vehicle. NHTSA SCI Team learned of several cases of officers being injured when equipment (laptop computers) were incorrectly mounted in front of the airbags from cases Dave Long, The Airbag Detective, Minneapolis, Minnesota. Airbags save lives, Dave studies how they are misused and misunderstood, and has tracked several injury cases and mismounts in police vehicles.

With today’s law enforcement/Fire/EMS vehicles coming equipped with the driver and passenger side frontal airbags, some departments may have difficulty in mounting electronic equipment such as cell phones, radios, computer and laptop screens. Since July 2001, at a several Governors Highway Safety Conferences, roughly one third of the law enforcement vehicles I observed appeared to have mismounted equipment in front of the airbags. Here are some examples of actual incidents involving law enforcement officers in vehicle collisions:

- Officer struck in the face by radar wire when airbag deploys, damaging his sight in the right eye.
- Officers rifle weapon knocked loose by deploying airbag and stuck the officer in the head resulting in a concussion.
- Deploying airbags launch laptop screen into side of officer's head causing concussion and head laceration.
- Deploying airbags launch laptop into officers’ face causing broken nose and several damaged teeth.

Officers, law enforcement departments, fire-rescue, EMS, maintenance and fleet managers have a challenge to insure that all equipment is mounted correctly in the police and/or government vehicles. The incidents that are mentioned above were recorded airbag deployments in law enforcement collisions. Since no official data is kept on these incidences, we would expect the number to be much higher. This is a significant loss and can pose significant safety and risk management issues for any law enforcement agency. The latter laptop computer incident listed above now exceeds $100,000.00 in property damage, medical claims and lost productivity time. Improperly mounted equipment in the first responder’s vehicle can cause injury to the officer and/or civilian riders in the vehicle. The mismounted equipment can be violently displaced by the deploying airbags in a collision. Equipment protruding just a few inches into the airbag deployment path can make the difference and expose the officer and/or occupant at risk. It is
critical that all service technicians follow the OEM, Original Equipment Manufacturers instructions for mounting interior equipment in patrol vehicles. No equipment should be mounted in any portion of the airbag deployment path recommended by the vehicle manufacturer. Airbag information diagrams and dimensions for the manufacturer provides mounting of interior police and first responders' equipment. OEM's provide instructions for interior mounting in Supplemental Owners Manuals with each vehicle. Specific instructions on how to mount after market electronic equipment is not provided.

The Ford Motor Company has an interior mounting diagram for all interior equipment in the Fleet Police Interceptor (Crown Victoria) and Special Services Vehicles magazine. Several other vehicles such as the Explorer, Expedition, and Excursion are also available from Ford. Proper mounting of any interior equipment must be followed for any type of service vehicles used for public or government safety service. Since law enforcement fire-rescue and EMS vehicles are equipped with frontal airbags, side impact airbags and curtain airbags (current in these vehicles). Technicians that are mounting equipment on the sides of the interior of these vehicles must use caution to protect themselves during installation and avoid altering a vehicle safety design.

The General Motors Law Enforcement Portfolio for 2002 contains fleet and commercial vehicles for police use. The GM vehicles offered are Impala, Camaro, Tahoe, Express Van and the Hummer. The brochure contains airbag information, airbag dimensions and frequently asked questions about airbags in specialty vehicles used by first responders.

Daimler Chrysler has now produced the police package Dodge Intrepid. In the 2003 intrepid Police Car Supplement Owner's Manual with this vehicle, special-mounting instructions are included for interior police equipment mounting in regards to airbag deployment zones and other information before starting the car.

Vehicle alterations by independent suppliers or other departments must adhere to the manufactures recommendations and guidelines. Airbag mounting diagrams illustrating zones of deployments do change from year to year. All equipment installers must respect the airbag and the airbag deployment path during equipment installation. Special care must be taken when installing devices to insure that the airbag system in the patrol vehicle has not been jeopardized.

Several companies manufacture computer mounts for the responders vehicles. Adaptation of the mount must meet the vehicle OEM specification with the computer hardware used. Some computer mounts are equipped with an adjustable or swivel mounting base. Add on other equipment such as microphone mounts, cell phone, map and reading lights, accessory lights, cameras, radar, makes the dash of the vehicle becomes overcrowded, jeopardizing the safety of the officer. Many officers/drivers prefer to have computer screens as far up as possible allowing them to keep their eyes up while operating the vehicle defensively. Depending upon the mounting, many screens should be closed if they interfere with the deployment path of the airbags.

When installers are unable to mount interior equipment in its location, application and permission for the passenger side airbag to be deactivated or on-off switch installation must be obtained from NHTSA at www.nhtsa.dot.gov or call 800-424-9393. Once NHTSA receives a request form, law enforcement agencies have priority and turn around times for deactivation permission may take only one week according to one NHTSA spokesperson. For law enforcement and first responder agencies, the application must be completed with the specific
reason for deactivation with the VIN numbers of all vehicles involved. Some airbag service vendors can provide templates for approval to NHTSA, which can provide a blanket law enforcement exemption and expedite the process to less than 48 hours.

Considering that airbags are supplemental restraints, disconnecting the passenger side airbag would not afford the same occupant protection safety features for a person seated in that position. Departmental liabilities must also be considered when altering any airbag safety system. Altering these safety systems in this fashion would require training and the proper use of deactivation switches. Failure to do so may increase a department’s liability. Department policies should address the restriction of occupants riding in the right front seat and the use of the on/off switch. Policies and procedures should also address the transportation of passengers, children and infant seats and offer regular training.

One large fleet administrator from a Florida Sheriffs Department reported replacing 180 passenger side airbags in one year. The passenger side seat was unoccupied at the time of the crash. If an On/Off switch was installed in those vehicles, repair costs could have saved the fleet over $290,000. The switch can be worth its investment for a department.

Some dealers may refuse to provide deactivation service even with NHTSA’s permission. Those companies that provide the disconnect service are also found on NHTSA’s web site. Consideration must also be given if the vehicle is sold to another party. Training on the changes made to the supplemental restraint must be provided to all vehicle operators. Airbag Service, a national vendor for the installation of airbag on-off switches provides analysis, eligibility, approval process and installation of airbag and airbag system components call 1-800-2AIRBAG or log on to www.airbagservice.com. Airbag Options Inc., another on-off service vendor and manufacturer of custom wiring harness and the Airbag Options switch, can be contacted at 888-903-0004 or www.AOlelectrical.com

For additional sales and service information Ford Fleet Customer Services can be reached at 1-800-34-FLEET (800-343-5338) or at www.ford.fleet.com. For F series and E Series-Pickups and Ambulances, refer to the Ford Body Builders Layout Book, Occupant Restraint Systems-Airbag Supplemental Restraint System instructions. For GM vehicles, first contact GM Fleet services at their web site www.gmfleet.com. For other GM fleet information call 800-FLEET-OP (800-353-3867). For Daimler/Chrysler fleet questions call 1-800-999-FLEET or www.fleet.chrysler.com. For the latest up to date information or if you would like to schedule the intensive A.L.E.R.T. airbag safety and restraint class, please contact North Memorial Medical Center and ABRA Auto Body & Glass by calling 1-800-994-9780 or visit our web site at www.airbaginstitute.com The A.L.E.R.T. class has been a regular part of training for the Minnesota State Patrol, the Minnesota State Patrol training academy, the Minnesota State Patrol reconstructionists and at several traffic/highway safety conferences.

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Dave Long. Airbag Safety Specialist, R.N., Paramedic, is a national presenter on airbag and restraint safety. He teaches the ALERT class to law enforcement, fire-rescue, EMS, and other medical and first responders. The ALERT class has appeared in 30 states. Dave also speaks on occupant and airbag safety to communities and high school students. Dave and his family live in the Minneapolis area. Dave spoke on Airbags and Equipment Installation at the NAFA Law Enforcement Group Conference in San Antonio, Texas on Aug. 12. All photos by Dave Long.
Mitch Becker, Technical Consultant, ABRA Auto Body & Glass is a founder of the ALERT class on airbag safety. He is an I-CAR Instructor and NGA Master. He regularly speaks to automotive and insurance groups on automotive safety designs. Mitch lives in the Minneapolis.

Photo 1  Police Ford Explorer with properly mounted computer and equipment
Photo 2  Crown Victoria patrol vehicle with cell phone mounted in front of passenger airbag
Photo 3-4-5  Minnesota police officer in pursuit sustained injuries to face and jaw from Laptop after deployment of passenger side airbag
Photo 6  Fire Chief from Minnesota has cellular phone mounted over passenger side airbag
Photo 7  This is prime example of improper mounting of equipment into a Dodge Durango patrol vehicle. Note radar and radar wires and microphone that are in deployment path of passenger airbag.
Photo 8  Crown Victoria patrol vehicle. Note lap top and cell phone that are in the direct line of the live passenger side airbag.
Photo 9  This is a good example of after market mounting of assorted equipment in a “2001” Chevy Impala

Police Ford Explorer with Properly Mounted Computer and equipment.

Crown Victoria With Cell Phone Mounted In Front Of Passenger Side Airbag
Fire Chief from Minnesota has cellular mounted over passenger side airbag

This is a prime example of improper mounting of equipment on a Dodge Durango. Note the radar and radar wires and microphone that are in the direct line of the passenger side airbag.

This is a prime example of improper mounting of equipment into a patrol vehicle. Note the laptop and cell phone and that are in the direct line of the live passenger side airbag.

This is a good example of after market mounting of assorted equipment in a ‘2001’ Chevy Impala.