



Emergency Rescue Guidelines for Air Bag Equipped Vehicles

Important Points to Remember

- Deployed air bags are not dangerous.
- Undeployed air bags can be dangerous.
- Wear gloves and eye protection.
- If there is a fire, use normal fire fighting procedures.

- Check the S.C.E.N.E. for evidence of possible internal injuries to the victim.

Incident With A Deployed Air Bag

Deployed air bags are not dangerous. They are not hot, or about to catch fire. What looks like "smoke" is a powder that keeps the air bag from sticking together while it's stored away in the steering wheel, instrument panel/dashboard, or seat side panel. The powder can spread when the air bag deploys.

- Do not delay medical attention.
- Use normal rescue procedures and equipment.
- Wear hand and eye protection to prevent minor skin and eye irritation that may be caused by the powder that is produced when the air bag deploys.

Incident With An Undeployed Air Bag

Undeployed air bags can suddenly deploy during rescue operations, and this can be dangerous to crash victims and rescue personnel. Should circumstances permit, deactivate the air bag system:

- Turn off the engine, and carefully disconnect both battery cables. Disconnect the negative cable first. The U.S. Fire Administration advises rescue personnel to disconnect the cables whenever possible, since cutting them can cause an electrical arc and fire. In a severe crash, make certain the battery case has not been penetrated with metal body parts that could recomplete the electrical circuit. Battery disconnect can be verified by attempting to turn on the headlamps and tail lights.
- Wait until the air bag system is deactivated. Check the Air Bag Deactivation Times chart to find out how long it takes for the backup system to completely deactivate. Some vehicles may take up to 30 minutes to deactivate, but most vehicles take 10 minutes or less.
- If there is a fire at the scene, use normal fire-extinguishing procedures, and then follow the guidelines above.

Look Beyond the Obvious --- Check the S.C.E.N.E.

Prior to the introduction of air bags and lap-shoulder belts, seriously injured occupants involved in crashes usually had visible injuries (such as bleeding, facial lacerations, abrasions, bruises, and broken facial bones) that were obvious to rescue personnel. Now, occupants protected by these devices do not have as many of the previously visible injuries, but still may need medical attention for internal injuries.

In crashes, serious internal injuries may be present but not be externally apparent. To address this situation and increase the chances that these crash victims receive timely and appropriate emergency care, look beyond the obvious. The following information should be collected and reported to medical personnel to alert them to check for internal injuries:

- **S**teering wheel deformation. Lift the air bag and look for a bent steering wheel rim. This could indicate internal injuries.
- **C**lose proximity of the driver to the steering wheel. Occupants of small stature or large girth sitting close to the steering wheel are at greater risk of internal injuries.
- **E**nergy of the crash. Twenty or more inches of vehicle crush indicate high crash forces that can cause serious internal injuries.

- **N**on-use of seat belts. Non-use of lap or lap/shoulder belts could result in multiple impacts and greater probability of internal injuries.
- **E**yewitness reports. Verbal reports, photos, and video images of the interior and exterior of the crash vehicle graphically conveys the severity of the crash, and can indicate the probability and type of internal trauma.

Relay all information gathered at the crash site to the attending physician at the hospital.

Remember these important points by using S.C.E.N.E.



Questions frequently asked 'By Emergency Personnel'

1. How does an air bag work?

When a frontal, near-frontal, side-impact crash occurs at speeds comparable to a 10 to 14-mile per hour frontal crash into a solid wall, vehicle crash sensors trigger a chemical reaction inside the air bag module, and this causes the air bag (which is folded and packed like a parachute inside the steering wheel, dashboard, or seat side panel) to inflate.

The rapidly inflating bag splits open the cover on the steering wheel, dashboard, seat or side panel, and fully inflates to help protect the driver and passenger(s). This entire inflation sequence takes place in less than 1/10 of a second. Less than one second after inflation, the air bag begins to deflate automatically.



Driver's-side Air Bag Deployment Sequence

2. How do I know if a vehicle has an air bag?

If an air bag has deployed, you will see it drooping from the steering wheel, the dashboard, or the side of the driver's and passenger's seat. If there is no visible air bag, look for the words, Supplemental Inflatable Restraint or Air Bag, or the initials, SIR, SRS, or SIPS printed on the steering wheel hub, instrument panel, dashboard, windshield, driver's side B-post, or on the side or back of the seat when the car is equipped with side air bags.



If you still can't tell whether the vehicle has an air bag or not, you should assume it has one, especially if the vehicle is a newer model.

3. Is a deployed air bag dangerous?

No. Many people think that a recently deployed air bag is hot, or "smoking," or about to catch fire. The "smoke" is actually a powdery substance (like talcum powder or corn starch) that is used to keep the air bag from sticking together while it is packed away in the steering wheel, dashboard, or side seat panel. When the air bag inflates, this powder can vent into the passengers' compartment, and the airborne particles may be deposited as a powdery dust on and around the bag.

This powdery dust may contain small amounts of residue from the chemical reaction that can cause minor irritation to the eyes and skin. But the same gloves and eye protection that rescuers normally wear to protect themselves from sharp edges, glass, or bodily fluids will also protect them from this powdery residue.

4. Is it safe to breathe the passenger compartment air after an air bag has deployed?

Yes. There have been no cases of acute or long-lasting respiratory distress reported by rescue workers

attending to crash victims who were exposed to air bag deployment by-products. There have been a few complaints of minor distress, such as brief coughing spells.

However, simulated tests were conducted with volunteers - chronic asthmatics - who were subjected to long-term exposure (20 minutes) to the atmosphere inside a vehicle with the windows rolled up, after the driver and passenger-side air bags had deployed. In this type of environment, test results revealed that prolonged exposure to this atmosphere can cause significant asthmatic reactions in some people. Therefore, if a crash victim appears to be suffering from acute respiratory distress, rescue workers should consider the possibility of an asthmatic attack, and treat the victim accordingly.

5. Do undeployed air bags pose a danger to rescue personnel and victims?

Although it's rare, an air bag can deploy during rescue operations and create a hazardous operating condition. This can result in injury to rescue personnel and cause furtpants.jury and delay in medical assistance to occupants.

6. Why deactivate the vehicle's electrical system?

Deactivating the vehicle's electrical system prevents deployment of all electrically initiated air bags after a specific time period. See the chart depicting these times on the attached fly leaf.

7. How does one deactivate mechanically operated side or frontal air bags?

Some 1995-97 Volvos (see the list) have side impact air bags, located in both front seats that are independent of each other and the frontal air bag system. Each side air bag is a self-contained mechanical, non-electrical system. In a crash, the side impact air bag will deploy if the seat panel receives sufficient pressure or a hard blow or if the door is closed and there is an object between the door and seat. Therefore, this type of contact with the seat should be avoided after the crash, during victim extrication.

Rescue workers can disarm the Volvo's side air bag system by locating and cutting the black, ribbed cable running from the sensors' unit to the air bag. It can be reached between the bottom and back cushions of the seat.

The side air bags in Mercedes-Benz vehicles are operated by the electrical system and are deactivated with the frontal air bags.

The Jaguar's XJS model (up to model year 1995) has a mechanically activated frontal air bag system that can't be deactivated in the field. Take extreme care to avoid sharp, jolting impacts to the steering column, and try to move the seat backward to aid in the extrication of the victim.

In 1997, BMW will introduce an ITS system (Inflatable Tubular Structure) air bag in some of their vehicles. This is a form of side impact protection for the head. It will be installed above the door frame of the vehicle and will drop down (in a tube shape, diagonally crossing the window) when it deploys. This device will be deactivated with the other electrical air bag systems in the vehicle.



8. What if there is a fire at the scene?

An air bag is designed to inflate in a normal manner if the chemicals sealed inside the air bag module reach a temperature above 350 degrees. In case of a severe fire, the gas generators, after several minutes, may reach 350 degrees and ignite, causing the air bag to deploy. The chemicals or air bags will not explode.

In case of a fire in an air bag-equipped vehicle, any effective fire fighting medium, including water, can be used to extinguish the fire. Use normal fire-extinguishing procedures, and proceed with normal rescue guidelines.

Note: Information in the Air Bag Deactivation Times section of this brochure was provided by the automobile manufacturers. Rescue guidelines were coordinated with the U.S. Fire Administration (USFA) and the automobile manufacturers. Illustrations were supplied by the American Automobile Manufacturer's Association and Volvo Cars of North America.

For further information about a specific vehicle, contact the vehicle manufacturer. For general information about air bag systems, contact the NHTSA Office of Traffic Injury Control Programs, Occupant Protection Division (NTS-12), 400 Seventh St., S.W., Washington, D.C. 20590 or the USFA Office of Firefighters Health and Safety, NECTC; Emmitsburg, MD 21727.

Air Bag Deactivation Times

Acura		Hyundai	
Integra	(MY 87-94) - 1.5 min.	(MY 94-97) - 30 sec.	
	(MY 95-97) - 3 min.		
Legend	(MY 87-88) - 15 sec.	Isuzu Impulse and Stylus (MY 89-94) - 10 min. Rodeo (MY 89-97) - 15 sec. Trooper (MY 89-95) - 2 min. (MY 96-97) - 15 sec.	
	(MY 89-92) - 30 sec.		
	(MY 93-94) - 2 min.		
	(MY 95-97) - 3 min.		
Legend Coupe LS	(MY 91) - 2 min.	Jaguar XJS (Up to MY 96) - Mechanical air bags (MY 97) - 60 sec. Sedan Models (MY 89-97) - 60 sec. X100 (MY 95-97) - 60 sec.	
	(MY 92) - 30 sec.		
	(MY 93-94) - 2 min.		
	(MY 95-97) - 3 min.		
Sedan STD	(MY 94) - 2 min.	Jeep and Eagle Grand Cherokee (Laredo) (MY 89-94) - 2 min. (MY 95-96) - 90 sec. (MY 97) - 15 sec. Cherokee and Wrangler (MY 89-94) - 2 min.	
	(MY 95-97) - 3 min.		
NSX	(MY 91-92) - 30 sec.		
	(MY 93-94) - 90 sec.		
	(MY 95-97) - 3 min.		
Vigor LS	(MY 92-94) - 30 sec.		
	(MY 95-97) - 3 min.		
Vigor GS	(MY 93-94) - 90 sec.		

	(M 95-97) - 3 min.		(MY 95-96) - NA
SLX	(MY 96-97) - 15 sec.		(MY 97) - 15 sec.
Audi		Vision	(MY 89-94) - 2 min.
	(MY 89-95) - 10 sec.		(MY 95-97) - 90 sec.
	(MY 96-97) - 3 sec.	Land Rover	
Bentley and Rolls Royce			(MY 94-97) - 10 min.
	(MY 90-93) - 30 min.	Lincoln	
	(MY 94-97) - 6 min.		(MY 1985-89) - 0 sec.
BMW			(MY 90) - 15 sec.
	(MY 86-93 and MY 94 for the '7-Carline') - 20 min.		(MY 91-97) - 1 min.
	(MY 94 Vehicles made after 9/93) - 1 sec.	Mazda	
Chrysler		MX-5	(MY 95-97) - 10 min.
LHS and Concorde	(MY 89-94) - 2 min.	All others	(MY 89-94) - 10 min.
	(MY 95-97) - 90 sec.		(MY 95-97) - 1 min.
LeBaron Convertible	(MY 89-94) - 2 min.	Mercedes Benz	
	(MY 95) - 90 sec.		(MY 89-97) - 1 sec.
	(MY 96-97) - NA		Side air bags
Town & Country	(MY 89-94) - 2 min.		(MY 95-97) - 1 sec.
	(MY 95-97) - 15 sec.	Mercury	
Sebring Convertible and Sebring Coupe	(MY 89-94) - 2 min.	Villager	(MY 85-89) - 0 sec.
	(MY 95) - NA		(MY 90) - 15 sec.
	(MY 96-97) - 15 sec.		(MY 91-93) - 60 sec.
Dodge			(MY 94-96) - 10 min.
Caravan, Ram Van, and Stratus	(MY 89-94) - 2 min.		(MY 97) - 3 min.
	(MY 95-97) - 15 sec.	Others	(MY 85-89) - 0 sec.
Dakota and Neon	(MY 89-94) - 2 min.		(MY 90) - 15 sec.
	(MY 95-96) - 90 sec.		(MY 91-97) - 1 min.
	(MY 97) - 15 sec.	Mitsubishi	
Intrepid and Ram Pickup	(MY 89-94) - 2 min.		(MY 89-97) - 1 min.
	(MY 95-97) - 90 sec.	Nissan and Infiniti	
Spirit	(MY 89 - 94) - 2 min.		(MY 89-94) - 2 min.
	(MY 95) - 90 sec.		(MY 95-97) - 3 min.
		Plymouth	
		Breeze	(MY 89-94) - 2 min.
			(MY 95) - NA
			(MY 96) - 90 sec.

	(MY 96-97) - NA		(MY 97) - 15 sec.
Viper	(MY 89-94) - 2 min.	Voyager	(MY 89-94) - 2 min.
	(MY 95-96) - NA		(MY 95-97) - 15 sec.
	(MY 97) - 15 sec.	Acclaim	(MY 89-94) - 2 min.
Ferrari			(MY 95) - 90 sec.
456 GT	(MY 1995, Vehicles made up to 12/95) - 30 sec.		(MY 96-97) - NA
	(MY 1996, Vehicles made after 7/96) - 1 sec.	All other models	(MY 89-94) - 2 min.
456 GTA	(MY 1996 -1997, Vehicles made beginning 7/96) - 1 sec.		(MY 96-97) - 15 sec.
F355	(MY 1995, Vehicles made up to 3/96) - 30 sec.	Porsche	
	(MY 1996 -1997, Vehicles made after 3/96) - 1 sec.	944	(MY 90-94) - 20 min.
Ford			(MY 95-97) - 1 sec.
	(MY 85-89) - 0 sec.	968 and 928	(MY 90-94) - 20 min.
	(MY 90) - 15 sec.		(MY 95-97) - 1 sec.
	(MY 91-97) - 1 min.	911	(MY 90-94) - 5 min.
GM and Saturn			(MY 95-97) - 1 sec.
	(All 87-97) - 10 min.	Saab	
Geo		900	(MY 90-93) - 20 min.
	(MY 94-97) - 60 sec.		(MY 94) - 0 sec.
Honda			(MY 95-97) - 20 sec.
Accord Wagon	(MY 91-93) - 45 sec.	9000	(MY 90-93) - 20 min.
	(MY 94) - 2 min.		(MY 94) - 0 sec.
	(MY 95-97) - 3 min.		(MY 95-97) - 20 sec.
Accord Coupe/ Coupe SE	(MY 92-93) - 45 sec.	Subaru	
	(MY 94) - 2 min.		(MY 89-97) - 80 sec.
	(MY 95-97) - 3 min.	Suzuki	
Accord Sedan	(MY 92-94) - 45 sec.	Esteem	(MY 95) - 15 sec.
	(MY 95-97) - 3 min.		(MY 96) - 15 sec.
Civic 3D and 4D	(MY 94) - 90 sec.		(MY 97) - 90 sec.
		Swift	(MY 95) - 10 sec.
			(MY 96) - 15 sec.
			(MY 97) - 90 sec.
		Sidekick-2 door,	(MY 95-96) - 15 sec.
		Sidekick-4 Door, Sidekick Sport, & X-90	(MY 97) - 90 sec.

	(MY 95-97) - 3 min.	Toyota and Lexus	
Civic del Sol, Sedan, Coupe DX and EX, and Hatchback	(MY 89-93) - 30 sec.		(MY 90-91) - 20 sec.
	(MY 94) - 90 sec.		(MY 92-97) - 90 sec.
	(MY 95-97) - 3 min.	Volvo	
			(MY 89-97) - 10 sec.
Honda Passport	(MY 89-94) - 90 sec.	Volkswagon	
	(MY 95-97) - 15 sec.		
Honda Prelude S and Si	(MY 92-93) - 30 sec.	Cabriolet	(MY 90-93) - 20 min.
	(MY 94) - 90 sec.	All other models	(MY 94-97) - 1 sec.
	(MY 95-97) - 3 min.		
All Other Preludes	(MY 92-94) - 90 sec.		
	(MY 95-97) - 3 min.		