

FORD: 1985-1991 TEMPO
1990-1991 CROWN VICTORIA, MUSTANG, TAURUS

LINCOLN: 1989-1991 CONTINENTAL
1990-1991 MARK VII, TOWN CAR

MERCURY: 1985-1991 TOPAZ
1990-1991 GRAND MARQUIS, SABLE
1991 CAPRI

ISSUE

A “Rescuer’s Guide For Ford Motor Company Air Bag Supplemental Restraint Systems” was developed to assist fire and rescue personnel. The guide is published as part of this TSB article to help dealership personnel answer questions that may come from local fire and rescue personnel.

ACTION

No corrective action is required.

NOTE

THIS INFORMATION MAY BE COPIED AND SUPPLIED TO YOUR LOCAL FIRE AND RESCUE PERSONNEL.

OTHER APPLICABLE ARTICLES: None
WARRANTY STATUS: INFORMATION ONLY
OASIS CODES: 104000



Including Information On...

- How the Ford Air Bag Supplemental Restraint System Works
- Fire and Towing Procedures
- Rescue with Undeployed Air Bags
- Rescue with Deployed Air Bags
- Rescue Myths and Facts with Air Bags

RESCUER'S GUIDE FOR FORD MOTOR COMPANY AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM

We, at Ford Motor Company, want Emergency Rescue Personnel to have technically accurate information about Ford vehicles equipped with driver and passenger supplemental air bags.

This guide gives Emergency Rescue Personnel information to handle rescues involving a Ford Motor Company vehicle equipped with a supplemental air bag, **whether or not the air bag has been deployed.** It is also our goal to relieve any unnecessary concern regarding air bag-related rescues.

The most important thing to remember is that occupants and rescuers are **NOT** exposed to harmful levels of chemicals with deployed or undeployed air bags. The gas generant, which contains sodium azide, is securely contained and sealed before deployment and is consumed during a deployment. Our testing shows that there are no detectable levels of sodium azide in the combustion by-products.

This guide is specific to Ford and Lincoln-Mercury air bag Supplemental Restraint Systems (SRS) only. This guide may be copied in its entirety.

For information on other vehicles, call the National Highway Traffic Safety Administration (800) 424-9393 for a copy of the federal government's "Emergency Rescue Guidelines for Air Bag-Equipped Cars."



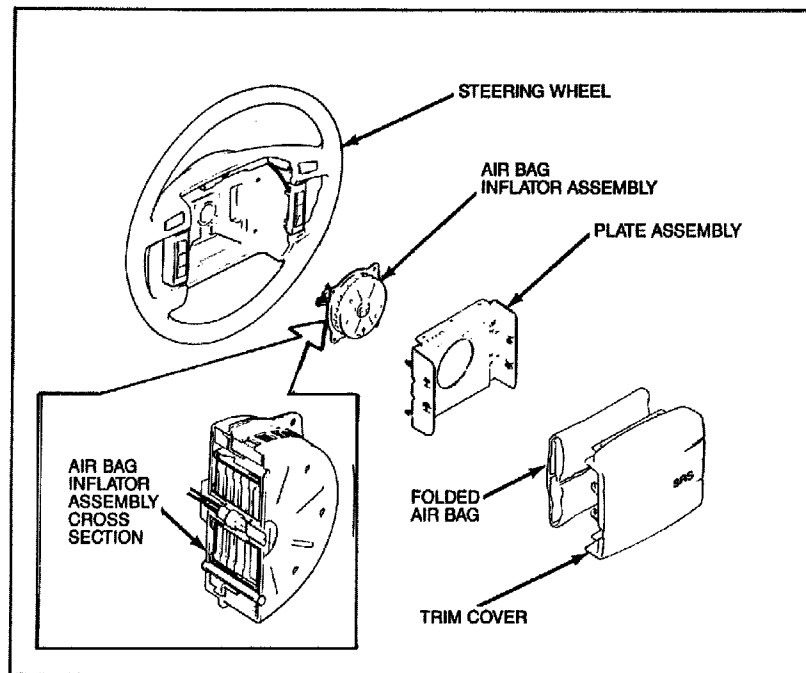
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Figure 1 - Article 90-24-3

HOW THE FORD AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM WORKS

The Ford air bag Supplemental Restraint System (SRS) consists of four major elements:

- The air bag module; includes an inflator, an air bag, and a trim cover
- The electronic diagnostic module; monitors the air bag electrical system for faults and disables the system when certain faults are detected
- Crash sensors; detect sudden deceleration
- A back-up power supply; provides power to the system in case the battery is damaged before the crash sensors operate



The **driver-side** air bag module is located in the hub of the steering wheel. The **passenger-side** air bag module (if the vehicle is so equipped) is in the instrument panel above the glove compartment.

The air bag inflator contains a solid chemical gas generant: solid pellets or disks of sodium azide and an oxidizer, such as copper oxide. The solid chemicals are safely stored in a metal chamber inside the air bag module. Each inflator is sealed to keep out moisture.

Air bags are designed to deploy in moderate to major frontal crashes. The following four steps show how the air bag system works:

1. In a frontal impact, sensors in the vehicle detect the sudden deceleration. When two of the sensors close at the same time, electricity flows to the inflator and causes ignition of the gas generant.
2. The gas generant then rapidly burns in the metal chamber. The rapid burning produces nitrogen gas and small amounts of dust. The nitrogen gas and dust are cooled and filtered, during inflation of the air bag.

3. The inflating air bag splits open the trim cover. The air bag then rapidly unfolds and inflates in front of the occupant.

NOTE: STEPS 1-3 TAKE PLACE IN A FRACTION OF A SECOND.

4. After inflation, the gas is vented through openings in the air bag. Air bags deflate at once and may be pushed aside for occupant removal.

The surface of deployed air bag(s) and the vehicle interior may be dusted with a powdery residue. The powdery residue is corn starch or talcum powder, which is used to lubricate the air bag as it deploys, and sodium compounds, a by-product of the gas generant combustion. The sodium compounds are mostly sodium carbonates (e.g., baking soda), and possibly a very small amount of sodium hydroxide that may be irritating to the skin and eyes.

NOTE: THIS POWDER IS SLIGHTLY ALKALINE BUT IS NOT CONSIDERED TOXIC.

VEHICLE CRASH FIRE PROCEDURES

Use **Standard Fire Extinguishing Procedures First**. Use any type of fire-fighting agent, including water. The sodium azide is sealed in a watertight container.

While air bag modules may deploy in the rare case of an interior occupant compartment fire, the inflator will operate normally. In an intense fire, the air bag module is designed to self-deploy if its internal temperature reaches approximately 350°F. The gas generant rapidly burns, without fragmentation of the inflator.

NOTE: AIR BAGS WILL NOT EXPLODE.

VEHICLE RECOVERY — TOWING

TOWING A VEHICLE WITH AN UNDEPLOYED AIR BAG

Standard towing procedures are unlikely to deploy an air bag. However, as a **precaution** when towing a vehicle with major frontal damage and an undeployed air bag, **safely disconnect the battery**.

TOWING A VEHICLE WITH A DEPLOYED AIR BAG

Follow the deployed air bag precautions on next page.

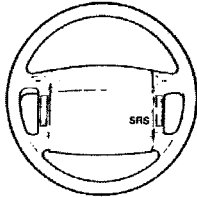
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Figure 2 - Article 90-24-3

RESCUE WITH UNDEPLOYED AIR BAG

Remember air bags deploy only in moderate to major frontal or near-frontal crashes. An air bag is not designed to deploy in side, rear, rollover, or less severe frontal crashes. For this reason, it is likely that you will be involved in a rescue from a vehicle with an air bag that **did not deploy**. Use the guidelines that follow if you think the vehicle might be equipped with an air bag that did not deploy.

1. Determine if vehicle is equipped with air bag(s).
 - a. Check for a larger and more rectangular steering wheel hub, about 6 inches by 9 inches.



- b. Check for "AIR BAG" on Vehicle Identification Number (VIN) plate of Ford air bag-equipped vehicles, except Tempo/Topaz. The VIN plate is located on the top driver-side corner of the instrument panel.



- c. Check the fourth position of Ford VINs for a:
 - "C" if equipped with driver-side only air bag;
 - "L" if equipped with both a driver- and a passenger-side air bag; **OR**
 - "B" or "P" if not equipped with an air bag.
 - d. Check for an "SRS" molded on the trim cover of all Ford passenger-side air bag modules.
2. **DO NOT** place your body or objects/tools on the air bag trim cover or close in front of an undeployed air bag. Except for cutting the steering column (see step 3), rescue operations should begin immediately.

Air bags should not deploy during a rescue. Since two sensors must close at the same time, it is unlikely that rescue operations will result in a deployment. The diagnostic module will also disable the air bag system if it detects crash sensor circuit "shorts" that exist for ten seconds while the ignition is "ON."

3. Safely disconnect or cut a battery cable **before** cutting into the **steering column**. Disconnecting the battery immediately stops all power sources inside the steering column. No power from the back-up power supply should be in the steering column.

Turning the ignition switch to "OFF" **WILL NOT** deactivate the Ford air bag system. The air bag deployment system operates independently of the ignition switch.

4. If the battery cannot be disconnected before working on the steering column:
 - a. **DO NOT** place your body or objects/tools on the air bag trim cover or close in front of air bag.
 - b. **DO NOT** cut into the steering column.
 - c. **DO** perform rescue efforts from the side of the vehicle and away from the potential deployment path of the air bag.
 - d. **DO** move the seat of a stabilized occupant back as far as possible or lower the seat back.

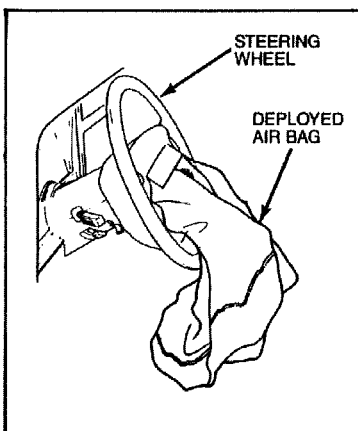
Cutting the **steering wheel rim or spokes** or rolling the **instrument panel** **WILL NOT** deploy an air bag if the battery is still connected.

5. **Never** cut or drill directly into an undeployed air bag module or attempt to take the module apart. This will avoid possible deployment and exposure to toxic chemicals. **Do Not** touch exposed chemicals in the unlikely event the metal inflator canister of an undeployed air bag module is ruptured or cut.

The metal combustion chamber in the module is sealed and protected. It is contained inside a permanently closed metal inflator located under the folded air bag that is behind the air bag module trim cover. It is unlikely that the combustion chamber will rupture during a crash.

RESCUE WITH DEPLOYED AIR BAG

DO NOT DELAY RESCUE



1. **Use Normal Rescue Procedures and Equipment.** There are no hazardous medical consequences for an occupant or rescue personnel from a deployed air bag. Occupants can sustain minor skin redness or abrasions from contact with deploying air bag, e.g., on the inside of the forearm or on the chin.
 2. **Wear** the same gloves and eye protection that rescuers would normally wear. Protective equipment will guard against possible skin or eye irritation from the powdery air bag residue. If gloves are not worn, wash your hands with mild soap and water after handling a deployed air bag.

Avoid getting air bag residue into your eyes or into the occupant's eyes or wounds.
 3. **Be Aware** of hot metal parts **underneath** the deployed air bag fabric. These components are located inside the steering wheel hub or behind the instrument panel when there is a deployed passenger-side air bag. These components are somewhat out of the way and should pose no threat.
- NOTE: THE AIR BAG FABRIC, STEERING COLUMN, AND STEERING WHEEL RIM AND SPOKES WILL NOT BE HOT.**
4. Push deflated air bag aside for occupant removal. Air bags deflate at once after a deployment. There is no need to cover, remove, or repack the air bag during rescue operations.

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Figure 3 - Article 90-24-3

RESCUE MYTHS

MYTH — Air bags contain an Explosive Solid that can react like a cannon in a fire.

FACT — Today's air bag modules are a "Flammable Solid," not an explosive. Rapid burning of the solid chemical inflates the air bag(s) with nitrogen. Air bags do not explode in a crash or a fire.

MYTH — Rescuers must wait 10 to 20 minutes before approaching a vehicle with a deployed air bag, to allow for cooling and venting time.

FACT — Do not delay. The steering wheel rim and column, and air bag fabric **will not** be hot. "Smoke" from a deployment should not be a concern.

MYTH — Rescue personnel may be overcome by highly toxic air bag deployment smoke and dust.

FACT — Air bag deployment "Smoke" is normal. The air bag is not burning or ruptured. Chemical analysis of the smoke and dust shows no reason for concern.

Tests conducted with volunteers, chronic asthmatics highly susceptible to airborne particles, showed that the atmosphere produced by a deployment posed no

respiratory system hazard. Ford has deployed thousands of air bags during its extensive testing. The test engineers and technicians, who regularly handle deployed air bags and test dummies, have not reported ill effects from exposure to the deployments.

MYTH — The vehicle interior, air bag, and occupants will be covered in a hazardous residue.

FACT — Any powdery residue consists of corn starch or talcum powder and sodium compounds, mostly sodium carbonates (e.g., baking soda). Very small deposits of sodium hydroxide are also present. The powdery residue may irritate the skin and eyes, but poses no long term health hazard. The powder is slightly alkaline but is not considered toxic.

MYTH — Disconnecting the battery will deploy the air bag in 15 to 20 minutes

FACT — This is **NOT TRUE**. Disconnecting the battery deactivates the air bag system by discharging to ground any stored energy in a back-up power capacitor. Disconnecting the battery cable **WILL NOT** deploy an air bag.

SUMMARY OF RESCUER'S GUIDE TO FORD AIR BAG SYSTEM

FIRE PROCEDURES*

- USE STANDARD FIRE EXTINGUISHING PROCEDURES FIRST.

VEHICLE RECOVERY, TOWING*

- SAFELY DISCONNECT battery if the vehicle has an undeployed air bag and has sustained major frontal damage.

RESCUE WITH UNDEPLOYED AIR BAG*

An Air Bag Should Not Deploy After the Crash

- DETERMINE if vehicle is equipped with air bag(s):
 - Check for a larger and more rectangular steering wheel hub.
 - Check for "AIR BAG" on VIN plate of Ford air bag equipped vehicles, except Tempo/Topaz.
 - Check for "SRS" above glove box to see if equipped with passenger air bag.
 - **DO NOT** place your body or objects/tools close in front of the undeployed air bag.
- DISCONNECT battery before cutting into the steering column.
- If the battery cannot be disconnected before working with the steering column:
 - **DO NOT** place your body or objects/tools close in front of the undeployed air bag.

- **DO NOT** cut into the steering column. It's OK to cut steering wheel rim or spokes.
- **DO** perform rescue efforts from side of vehicle away from bag deployment path.
- **DO** move a stabilized occupant as far rearward from the air bag as possible.

- NEVER cut or drill directly into an air bag module. **DO NOT** touch exposed chemicals in the highly unlikely event the metal inflator canister of an undeployed air bag is opened.

RESCUE WITH A DEPLOYED AIR BAG*

- USE NORMAL RESCUE PROCEDURES AND EQUIPMENT. Do not delay rescue.
- WEAR gloves and safety glasses, if available. WASH hands after handling air bags.
- AVOID getting air bag dust into your eyes or into the occupant's eyes or wounds.
- BE AWARE of hot parts under the air bag fabric, e.g., inside steering wheel hub. The air bag fabric, steering column and wheel rim are **NOT** hot.
- PUSH deflated air bag aside for occupant removal.

*READ COMPLETE DETAILS INSIDE: RESCUER'S GUIDE FOR FORD MOTOR COMPANY AIR BAG SUPPLEMENTAL RESTRAINT SYSTEM

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