



U.S. Department
of Transportation
**National Highway
Traffic Safety
Administration**

ODI RESUME

INVESTIGATION: PE 02-026
 DATE OPENED: 28-FEB-02 DATE CLOSED: 18-SEP-02
 SUBJECT: Inappropriate Air Bag Deployment
 PROMPTED BY: IE 02-005
 PRINCIPAL ENGINEER: L. Strickland

MANUFACTURER: Ford Motor Company
 MODEL(S): Ford Focus
 MODEL YEARS: 2000-2001
 VEHICLE POPULATION: 576,700

PROBLEM DESCRIPTION: Frontal air bags may deploy due to minor crashes, vehicle undercarriage impact, or in the absence of any type of vehicle impact.

FAILURE REPORT SUMMARY

	ODI	MANUFACTURER	TOTAL
TOT. COMPLNTS	72	232	304
TOT. CRASHES**	37	124	161
TOT. INJ. CRSHS	37	46	83
TOT INJURIES	38	47	85
TOT FAT. CRSHS	0	0	0
NON-CRSH CMPL	25	92	117
UNKWN. CRSHS	10	16	26

** Crash preceded air bag deployment:

ACTION: This Preliminary Evaluation has been closed.

ENGINEER:

L. Strickland

DIV CHF:

[Signature]

OFC DIR:

[Signature]

DATE:

9/17/02

DATE:

9/18/02

DATE:

9-18-02

SUMMARY:

A net total of 304 complaints were received from all sources during this investigation. Of this total, 161 involved a crash of the vehicle with another vehicle or fixed object. These crashes typically resulted in significant amounts of exterior vehicle damage, indicating that the impacts were more than minimal. Of the remaining 143 air bag deployments, 117 are not attributed to crashes, and are instead the results of vehicle undercarriage impacts with various road hazards. In 26 reports, the information is insufficient to determine whether a crash occurred.

(CONT.)

35-120
9/20/02

The complaint data tabulated above include a total of 83 air bag deployments that resulted in injuries to 85 vehicle occupants. Forty-two (42) of the injuries (49.4 % of the total) were reported as burn injuries. Allegations of burn injuries resulting from air bag deployments in the subject vehicles are being reviewed separately under Engineering Analysis (EA02-017). The complaints identified in this PE citing burn injuries are being added to the investigative file for EA02-017. The total of 85 injuries includes 38 that allegedly occurred in non-crash deployments.

Detailed review disclosed that the reasons cited in the 117 non-crash air bag deployments include potholes, raised curbs or road medians, flat tires/damaged wheels, sewer caps/manhole covers, road debris, railroad tracks, dips/bumps in the road, and running into ditches. A cause of deployment is identifiable in 76 of the 117 non-crash incidents. In 29 of these non-crash deployment reports, vehicle owners allege that one or both of the frontal air bags deployed during routine driving maneuvers.

Review of the non-crash deployment incidents failed to identify a unique pattern regarding location of vehicle undercarriage impact or the object reported struck. In some cases, however, information regarding specific incidents disclosed evidence of significant vehicle undercarriage damage. For example, one such non-crash deployment incident disclosed no exterior evidence of vehicle collision. However, closer inspection disclosed a dent in the left front wheel and impact damage to the vehicle undercarriage at the point of attachment of the right front lower control arm to the sub-frame. At that point of impact, the damaged sub-frame was bent rearward approximately 2.5 inches from its normal position. The nature and severity of the undercarriage damage indicates that the vehicle had experienced impact of significant magnitude. Review of the details of all non-crash deployments, however, did not identify a pattern in the location of undercarriage damage that might suggest a unique sensitivity of the air bag system to impact at a specific underbody location. Similarly, no evidence was found that impact of a unique type, or by a specific vehicle undercarriage component, might consistently trigger inappropriate air bag deployment.

The manufacturer's awareness of reports of inappropriate deployments of the subject air bag system pre-dates this PE. In July 2001, Ford initiated a review of the concern that the subject air bags may deploy at speeds equivalent to a barrier impact 25 percent lower than the design intent. That review was closed in January 2002, and Ford found the "low-speed" deployment rate for the subject vehicle group to be significantly less than comparable rates for vehicles recalled by other manufacturers for this problem. Ford concluded that the subject vehicle air bag system calibration was "appropriate for this vehicle and does not appear to pose an unreasonable risk to motor vehicle safety." Ford reopened the issue for internal review upon ODI's initiation of this PE.

The exposure-adjusted non-crash complaint rate for the subject vehicle group is comparable to those found in similar investigations recently closed. The exposure-adjusted complaint rate for the subject vehicles is also significantly lower than that for other vehicles recently recalled to correct inappropriate air bag deployments. One exception to this is the complaint rate in EA97-010, that resulted in the recall of MY 1995-1996 Subaru Legacy models. In that EA, the vehicle's front towing/tie-down hooks were identified as specific components susceptible to impact with a curb, pothole, bump, or dip in the roadway. A second exception occurred in EA98-001 that resulted in the recall of some Chevrolet Cavalier and Pontiac Sunfire vehicles, where investigation disclosed that short duration undercarriage impacts of low mass and high frequency, such as small stones hitting the floor pan, could trigger deployment of the air bags. The manufacturer remedied this problem by recalling the vehicles and recalibrating the air bag sensing and diagnostic module. In the subject investigation, there is no known

evidence of any specific condition that renders the subject vehicle group unique in terms of the location or specific type of undercarriage impact likely to trigger a non-crash deployment.

This investigation has not identified a trend of any kind as a probable cause of non-crash air bag deployments in the subject vehicles. In addition, the data does not suggest that further expenditure of resources is warranted at this time.

The closing of this investigation does not constitute a finding by NHTSA that no safety-related defect exists. The agency reserves the right to take further action if warranted by the circumstances.