

Remote, Redesigned Air Bag Special Study

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Dynamic Science, Inc., Case Number (1998-049-808E)

1998 Ford Taurus

Texas

September/1998

Technical Report Documentation Page

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<p>16. Abstract</p> <p>This remote investigation focused on the redesigned air bag system deployment of a 1998 Ford Taurus four-door. This vehicle was part of a rental fleet. This minor injury crash occurred in September, 1998 in the mid-morning. The weather was clear and the concrete roadway was dry. The crash occurred at a four-leg intersection. The westbound roadway is undivided and is comprised of two westbound and two eastbound travel lanes. The northbound roadway is undivided and is comprised to one northbound and one southbound travel lanes. The speed limit in all directions is 48 km/h (30 mph). The intersection is controlled by tri-color traffic signals. The roadway is level.</p> <p>Vehicle 1, a 1998 Ford Taurus four-door (case vehicles) driven by a 33-year-old male (178 cm/70 in., 68 kg/150 lbs.), was traveling westbound through the intersection. The driver was restrained by the available manual lap/shoulder restraint. He was wearing glasses at the time of the crash. The lights were red for westbound traffic.</p> <p>Vehicle 2, a 1992 Isuzu Rodeo utility vehicle, driven by a 32-year-old male, was traveling northbound. The driver was restrained by the available manual lap/shoulder restraint. The front right seat was occupied by a 31 year-old-male who was restrained by the available manual lap/shoulder restraint. The light was green for northbound traffic.</p> <p>The driver of Vehicle 1 failed to yield at the red light and entered the intersection. The front of the left side of Vehicle 1 (11LYAW2) was struck by the front of Vehicle 2 (82FDEW2). Vehicle 1 sustained a longitudinal delta V of -13 km/h (-8.1 mph) and a lateral delta V of +7 km/h (4.3 mph). Vehicle 2 sustained a longitudinal delta V of -7 km/h (-4.3 mph) and a lateral delta V of -12 km/h (-7.5 mph). As a result of the this impact, the supplemental restraint system (driver's and passenger's side redesigned air bags) of the case vehicle deployed. Vehicle 1 was pushed into a clockwise rotation and came to rest in the intersection facing to the northwest. Vehicle 2 was pushed into a counterclockwise rotation and came to rest facing generally northwest.</p> <p>The driver of Vehicle 1 was transported to an area hospital but no injuries were reported.</p> <p>Both vehicles became disabled due to damage sustained in the crash and were towed from the scene.</p>			
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Summary

This remote investigation focused on the redesigned air bag system deployment of a 1998 Ford Taurus four-door. This vehicle was part of a rental fleet. This minor injury crash occurred in September, 1998 in the mid-morning. The weather was clear and the concrete roadway was dry. The crash occurred at a four-leg intersection. The westbound roadway is undivided and is comprised of two westbound and two eastbound travel lanes. The northbound roadway is undivided and is comprised to one northbound and one southbound travel lanes. The speed limit in all directions is 48 km/h (30 mph). The intersection is controlled by tri-color traffic signals. The roadway is level.

Vehicle 1, a 1998 Ford Taurus four-door (case vehicles) driven by a 33-year-old male (178 cm/70 in., 68 kg/150 lbs.), was traveling westbound through the intersection. The driver was restrained by the available manual lap/shoulder restraint. He was wearing glasses at the time of the crash. The lights were red for westbound traffic.

Vehicle 2, a 1992 Isuzu Rodeo utility vehicle, driven by a 32-year-old male, was traveling northbound. The driver was restrained by the available manual lap/shoulder restraint. The front right seat was occupied by a 31 year-old-male who was restrained by the available manual lap/shoulder restraint. The light was green for northbound traffic.



Figure 1. Exterior, Vehicle 1, 1998 Ford Taurus

Crash Events

The driver of Vehicle 1 failed to yield at the red light and entered the intersection. The front of the left side of Vehicle 1 (11LYAW2) was struck by the front of Vehicle 2 (82FDEW2). Vehicle 1 sustained a longitudinal delta V of -13 km/h (-8.1 mph) and a lateral delta V of +7 km/h (4.3 mph). Vehicle 2 sustained a longitudinal delta V of -7 km/h (-4.3 mph) and a lateral delta V of -12 km/h (-7.5 mph).

As a result of this impact, the supplemental restraint system (driver's and passenger's side redesigned air bags) of the case vehicle deployed.

Vehicle 1 was pushed into a clockwise rotation and came to rest in the intersection facing to the northwest. Vehicle 2 was pushed into a counterclockwise rotation and came to rest facing generally northwest.

The driver of Vehicle 1 was transported to an area hospital but no injuries were reported.

Both vehicles became disabled due to damage sustained in the crash and were towed from the scene.



Figure 2. Exterior, Vehicle 1



Figure 3. Exterior, Vehicle 2, 1992 Isuzu Rodeo

Table 1. Delta V

	Case Vehicle		Other Vehicle	
	km/h	mph	km/h	mph
Total	15	9.3	13	8.1
Longitudinal	-13	-8.1	-7	-4.3
Lateral	7	4.3	-12	-7.5

Exterior of Case Vehicle**Table 2. Vehicle Information**

Model year, make and model	1998 Ford Taurus
VIN	1FAFP52U6WA
CDC	11LYAW2

Table 3. Crush Measurements

Plane of Impact	Field L cm/in.	C1 cm/in.	C2 cm/in.	C3 cm/in.	C4 cm/in.	C5 cm/in.	C6 cm/in.
Mid door	152	0	5	16	11	8	15
	59.8	0	2	6.3	4.3	3.1	5.9

Interior of Case Vehicle

The interior of the Ford Taurus sustained minor damage from occupant contact. There were no areas of intrusion into the passenger compartment. There was occupant contact evidence to the driver's side front air bag.

The case vehicle was equipped with a split bench with separate backs in the front left and the front right seating positions. The front left seat was adjusted to the middle track position. Both front seats were equipped with adjustable head restraints, which were not damaged in the crash. Both seat backs were adjusted to the slightly reclined position. The vehicle was equipped with a tilt steering column which was adjusted to the center position. There was no steering wheel deformation. The second row of the vehicle was equipped bench seats with folding back(s) for both the back left and back right seating positions.



Figure 4. Driver side air bag

Case Vehicle Occupant Protection Systems

The Ford Taurus was equipped with a redesigned air bag system which consisted of front left and front right air bag modules which housed air bags and depowered inflator units.

The front left air bag was housed in the steering wheel hub and was concealed by H-configuration cover flaps. The circular air bag was equipped with two tethers and two vent ports. Contact evidence consisting of what appeared to be blood was found on the bag. The air bag was not damaged.

The front right air bag was housed in the top-instrument panel position and was concealed by cover flap. The rectangular air bag was equipped with one tethers and no vent ports.

Contact evidence consisting of what appeared to be blood was found on the bag. The air bag was not damaged.



Figure 5. Passenger side air bag

Case Vehicle Occupant Demographics

	Occupant 1	
Age/Sex:	33/Male	
Seated Position:	Left front	
Seat Type:	Split bench with separate backs	
Height (cm/in.):	178	70.1
Weight (kg/lbs):	68	150
Pre-existing Medical Condition:	None noted	
Body Posture:	Unknown	
Hand Position:	Unknown	
Foot Position:	Left on floor, right presumably on accelerator	
Restraint Usage:	Lap and shoulder belts used properly	
Air bag:	Deployed	

Occupant Injuries

The driver of Vehicle 1 was transported to an area hospital but no injuries were reported.

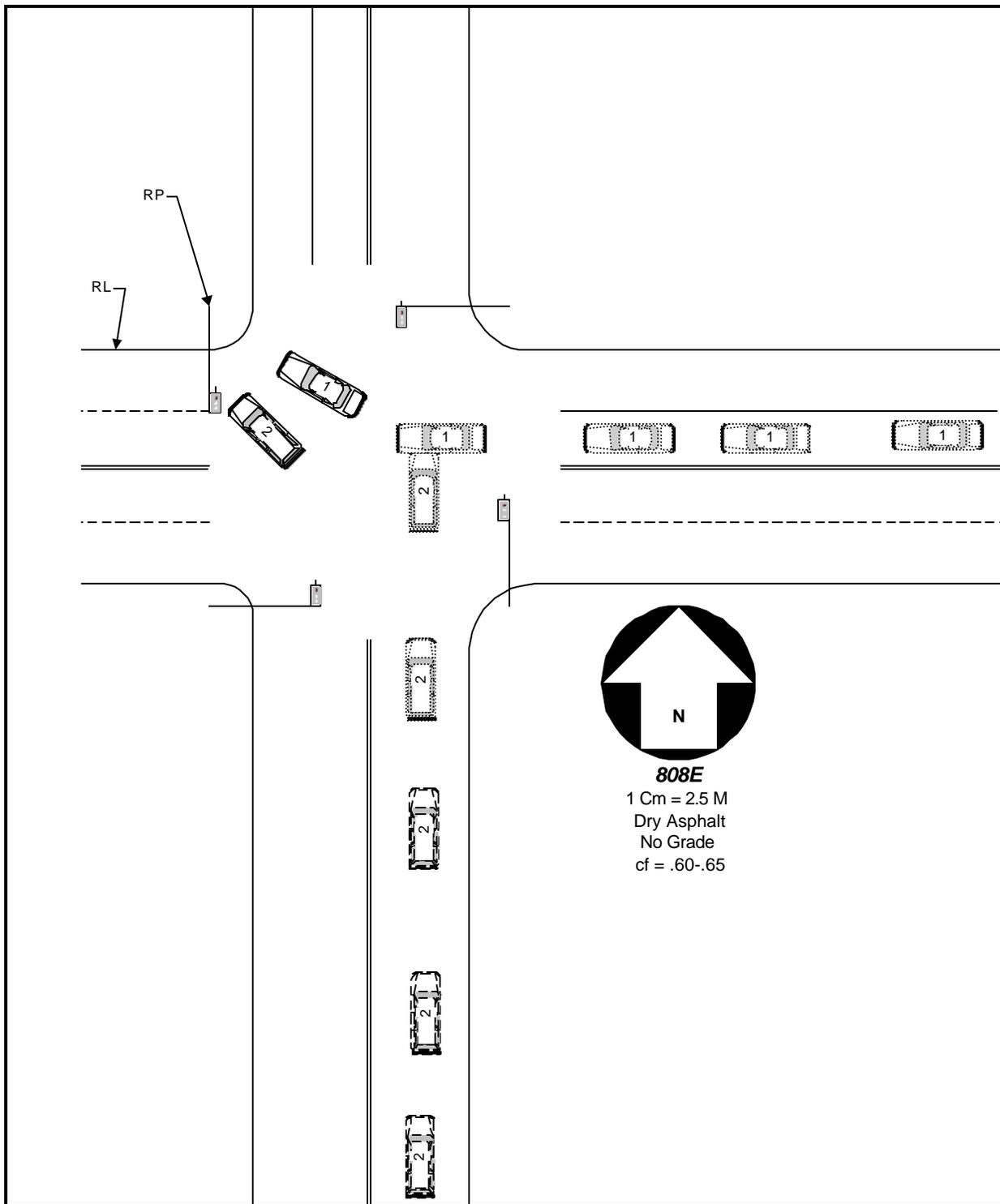


Figure 6. Scene diagram