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**National Highway  
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Administration**



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DOT HS 813 718

February 2026

**Special Crash Investigations:  
On-Site Ambulance Crash  
Investigation;  
Vehicle: 2014 Ford E-350 Type II  
Ambulance;  
Location: Arkansas;  
Crash Date: January 2023**

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**Special Crash Investigations**  
**On-Site Ambulance Crash Investigation**  
**SCI Case No: CR23002**  
**Vehicle: 2014 Ford E-350 Type II Ambulance**  
**Location: Arkansas**  
**Crash Date: January 2023**

## **Background**

This on-site investigation documents the rollover crash of a 2014 Ford E-350 Type II ambulance (Figure 1) that ran off the roadway, struck a road sign and a tree, rolled over, then struck a second tree. The crash resulted in fatal injuries to the unbelted 25-year-old female driver and serious injuries to the unbelted 27-year-old male EMT/front passenger. At the time of the crash, the ambulance was being relocated to a different workstation and was traveling without active emergency lights or sirens. The patient compartment was unoccupied.

The crash was identified by the National Highway Traffic Safety Administration in January 2023 and an investigation of the crash was assigned to the Special Crash Investigations (SCI) team at Crash Research & Analysis, Inc., the same month. SCI contacted the ambulance service in January 2023 and it authorized an inspection of the ambulance. SCI completed the inspections of the ambulance and crash scene in January 2023 and interviewed the EMT in February 2023.



*Figure 1. 2014 Ford E-350 Type II ambulance*

The crash occurred on the roadside of a two-lane, undivided U.S. highway. The ambulance was eastbound and the driver probably fell asleep, which resulted in the vehicle traveling off the roadway's north/left side. The ambulance's front struck a road sign (Event 1), a tree (Event 2), and then rolled over, right-side leading, one quarter turn (Event 3). As the ambulance rolled, the windshield header and front roof bulkhead struck another tree (Event 4) and the vehicle came to final rest on its right-side, facing north. The driver was pronounced deceased 97 minutes post-crash. The EMT was flown to an urban medical center where he was hospitalized for 1 day. The ambulance was severely damaged and removed from the crash scene.

On-site SCI activities included documentation and measurement of the ambulance's exterior and interior damage, identification of occupant contact points, assessment of its manual and supplemental restraint systems, and inspection of the patient compartment. The ambulance had an event data recorder (EDR) that was imaged with the Bosch Crash Data Retrieval (CDR) tool.

Additional activities included documentation of the crash site's physical environment using photographs and a total station mapping system.

### **Ambulance Service Information**

The ambulance service was a private operation that contracted with several government agencies and provided emergency medical services as well as non-emergency transfers. The ambulance service covered an area of approximately 2,590 square km (1,000 sq mi) with a fleet of 19 ambulances, 13 of which were active daily.

The ambulance service required its employees who operated vehicles to complete the Classroom Emergency Vehicle Operations (CEVO 4) ambulance training.<sup>1</sup> This consisted of a 4 to 6 hour class that included classroom as well as actual driving of the emergency vehicle. The involved driver was a full-time employee and had been a certified driver for nearly 3 months. She had taken an EMT course but had not yet passed the national test. Her normal work schedule consisted of a 24-hour shift, followed by 48 hours off. On the day of the crash, she had already worked for 18 hours. She did not work the day before the crash.

The EMT, seated in the front-right seat, was a full-time employee and had been an EMT for the ambulance service for approximately 1 year. His normal work schedule was also a 24/48-hour routine and he had worked 18 hours prior to the crash. He did not work the day before the crash.

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<sup>1</sup> Coaching Systems LLC, Parker, CO. <https://coachingsystems.com/product/cevo-4-ambulance>

## Crash Summary

### Crash Site

The crash occurred at 2:18 a.m. on the roadside of a two-lane, undivided U.S. highway. The environmental conditions were clear skies with no wind and a temperature of 3°C (37°F), according to local weather reports. The roadway was oriented east-to-west and there was one through lane in each direction, each 3.0 m (9.8 ft) wide. The roadway was dry, level, and bituminous with a solid yellow centerline (double and single) and solid white fog lines. The speed limit was 89 km/h (55 mph). A crash diagram is included at the end of this report.

### Pre-Crash

The ambulance was traveling east in its through lane at EDR-reported speeds of 97 km/h (60.3 mph) to 98 km/h (60.9 mph) in the 5 seconds prior to algorithm enable (AE). Forward-looking video provided by the ambulance service showed that the ambulance drifted into the left lane and steered back into the right lane. Six seconds after returning to the right lane, the ambulance drifted into the left lane again (Figure 2) and then continued off the left road edge (Figure 3).



*Figure 2. East view of the travel path off the north road's edge*



*Figure 3. East view, ambulance's roadway departure*

The driver was not restrained by her seat belt. It was buckled but she was sitting on top of it. This is discussed further in the Manual Restraint Systems section below. She was assumed to be in a mostly upright position, but it is likely that she fell asleep given the early morning timeframe of the crash and that she had already worked 18 hours that day. Furthermore, medical records showed that the driver tested positive for zolpidem (trade name Ambien), a sedative-hypnotic used to treat insomnia. The front passenger said during the SCI interview that he was unsure if he was using his seat belt. There was no evidence indicating that it was in use. He further said that he was slumped low and rearward into the seatback with feet and legs forward and was sleeping prior to the crash. Forward-looking video provided by the ambulance service showed the vehicle drifting into the left lane and back into the right lane, then drifting left again and off the roadway.

### Crash

The ambulance traveled off the left road edge along a negative grade of 1.3 percent. The roadside, perpendicular from the roadway, had a negative grade of 50 percent. The ambulance traveled on the roadside for approximately 50 m (164 ft) where the front plane's right aspect struck a road sign (Event 1). The ambulance continued forward, and the front-left corner struck a

tree (Event 2, Figure 4) that had twin trunks measuring 22 and 24 cm (8.7 and 9.4 in) in diameter. The impact uprooted and displaced the tree forward and caused the ambulance to rotate counterclockwise and roll over, right-side leading, one quarter turn (Event 3). As it rolled over, the windshield header and front roof bulkhead struck a second tree (Event 4, Figure 5), 26 cm (10.2 in) in diameter. The ambulance came to final rest on its right side, facing northeast.



*Figure 4. East view, initial and secondary points of impact*



*Figure 5. Northeast view, ambulance at final rest (image provided by ambulance service, used with permission)*

## **Post-Crash**

Police and emergency services were dispatched to the crash scene and arrived 11 minutes later. The front passenger said during the SCI interview that the driver and he were pinned inside the vehicle due to intruded components and that the ambulance's right side was on the ground. The driver was fatally injured prior to removal from the vehicle. Rescue personnel cut a hole in the roof to remove the front passenger from the vehicle. He was then flown to an urban medical center where he was hospitalized for 1 day. The vehicle was removed due to damage.

## 2014 Ford E-350 Type II Ambulance

### Description

The Ford E-350 was a rear-wheel-drive, van-based chassis cab manufactured as an incomplete vehicle in February 2014 with VIN 1FDSS3EL5EDxxxxxx. It had a 5.4-liter, 8-cylinder engine configured on a 351 cm (138.2 in) wheelbase. The cab had multi-stage frontal air bags and front seat belt pretensioners. The vehicle was completed as a Type II ambulance with a patient compartment manufactured by Medix Specialty Vehicles in June 2014.<sup>2</sup> The gross vehicle weight rating was 4,309 kg (9,500 lb) and the manufacturer's recommended tire size was LT245/75R16. The ambulance had Firestone Transforce tires, sized LT225/75R16. The difference in tire sizes was calculated to be 2.5 cm (1.0 in) and did not significantly affect speeds reported by the EDR. Each tire had a tread depth of 4 mm (5/32 in) or greater.

The passenger compartment featured an antler bracket and rail clamp system for fastening and securing the patient cot, rear-facing captain's chair, and bench seat on the right side that could accommodate three passengers or another patient. The patient compartment was unoccupied.

### NHTSA Recalls and Investigations

A search of the NHTSA recall database ([www.nhtsa.gov/recalls](http://www.nhtsa.gov/recalls)) in March 2025 revealed no open recalls or investigations for the ambulance based on its VIN.

### Exterior Damage

The road sign impact (Event 1) was not known at the time of SCI inspection and no damage on the front plane was noted. Based on video received from the ambulance service, the impact involved the front plane's right aspect. The sign impact did not affect the vehicle's speed or travel path. The collision deformation classification (CDC) for this damage event was estimated to be 12FREN1.<sup>3</sup>

The tree impact (Event 2) involved the ambulance's front and left planes (Figure 6). Direct damage began at the left-front bumper corner, 94 cm (37.0 in) left of the centerline and extended 24 cm (9.4 in) to the right. The Field L was 188 cm (74.0 in). The crush measurements were taken at the bumper level and on the lower radiator support and averaged where necessary, per NHTSA field crash investigation vehicle measurement protocols. The maximum residual crush on the structure above the bumper was 109 cm (42.9 in), located 94 cm (37.0 in) left of the center line. The crush values were: C1 = 73 cm (28.7 in), C2 = 46 cm (18.1 in), C3 = 37 cm (14.6 in), C4 = 27 cm (10.6 in), C5 = 15 cm (5.9 in), C6 = 12 cm (4.7 in). The WinSMASH program could not be used to calculate velocity change since yielding objects are out of scope for the program. The calculated barrier equivalent speed was 43 km/h (26.7 mph). The CDC for this damage pattern was 11FLEE7 (340°).

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<sup>2</sup> Medix Specialty Vehicles, Elkhart, IN. [www.medixambulance.com](http://www.medixambulance.com)

<sup>3</sup> SAE J224 May 2022 Recommended practice describing vehicle collision damage in an alphanumeric format.



*Figure 6. Front plane damage on ambulance*

The ambulance rotated counterclockwise and rolled onto its right side (Event 3). There was no significant lateral or vertical crush from the rollover (Figure 7). The WinSMASH program could not calculate the velocity change for this event because non-horizontal impacts are out of scope for the program. The CDC for this damage pattern is 00RDAO2.

As the ambulance rolled onto its right side, the windshield header and front roof bulkhead (Figure 8) struck the second tree (Event 4). The WinSMASH program could not calculate velocity change for this event because non-horizontal impacts are out of scope for the program. The CDC for this damage pattern was 00FDGW99.



*Figure 7. Minimal rollover damage on the ambulance's right side*



*Figure 8. Damage to ambulance front roof bulkhead*

### **Event Data Recorder**

The ambulance's EDR was imaged with version 23.0.2 of the Bosch Crash Data Retrieval software and is reported with version 23.1.2. The SCI imaging was completed via direct connection to the restraints control module, with power supplied by an external battery. The EDR could record deployment and non-deployment events. Deployment events cannot be overwritten or cleared from the restraints control module. Non-deployments could be overwritten by subsequent events. The EDR reported one locked frontal event and no data trouble codes were

reported. The EDR data report is included at the end of this report as an Appendix. Table 1 below shows EDR data reported prior to AE.

*Table 1. Pre-Crash Data (First Record)*

Times (sec)	Speed km/h (mph)	Accelerator Pedal % Full	Service Brake On/Off	Engine rpm	ABS Activity	Stability Control	Traction Control via Brakes	Traction Control via Engine
					(engaged, non-engaged)			
-5.0	97.0 (60.3)	22	Off	1,800	Non-engaged			
-4.5								
-4.0								
-3.5	98.0 (60.9)							
-3.0								
-2.5								
-2.0								
-1.5								
-1.0								
-0.5	14							
0.0	97.0 (60.3)	0	1,700					

The maximum longitudinal and lateral delta Vs were reported to be -1.25 km/h (-0.78 mph) and -0.41 km/h (-0.25 mph). It is the opinion of the SCI investigators that these values do not represent the impact damage sustained by the vehicle. The ambulance’s road departure was the source of the EDR’s AE and the recorded delta V was attributed to the velocity change of the ambulance’s travel over the uneven ground before the impact with the tree.

### Interior Damage

The ambulance’s interior sustained severe intrusion damage during the crash (Figure 9). The left A-pillar intruded longitudinally 88 cm (34.6 in) while the left instrument panel and steering column both intruded longitudinally 74 cm (29.1 in). The front of the ambulance’s cab was catastrophically damaged, and the steering assembly was cut from the vehicle during occupant extrication. The steering wheel and its deployed air bag were found at the crash scene and when examined, blood stains were seen on the air bag’s face as well as cuts to the rim made by rescue personnel. It is probable that the driver contacted the steering wheel rim, despite the post-crash damage. Blood stains were also noted on the intruding A-pillar (Figure 10) indicating contact by the driver. No other discernable occupant contacts were noted. The seatbacks from the right-front passenger’s seat and the rear captain’s chair were cut and removed from the vehicle to ease occupant removal.



*Figure 9. Longitudinal intrusion into the ambulance's front row (image taken through the right-front window; driver's seatback highlighted)*



*Figure 10. Longitudinal intrusion and contacted left A-pillar*

## **Manual Restraint Systems**

The driver's position had a lap and shoulder seat belt with a sliding latch plate, emergency locking retractor, retractor-mounted pretensioner, and adjustable D-ring that was adjusted to the full-down position. The EDR reported the driver seat belt status as "Buckled" yet there was no evidence of usage. The police crash report (PCR) said no seat belt usage, as did personnel from the ambulance service who said that the driver routinely buckled the latch plate and would drive the vehicle with the seat belt buckled behind her. This was seen by ambulance service personnel in video from earlier on the day of the crash. The latch plate was found buckled at the time of the SCI inspection. The pretensioner actuated and retracted the belt webbing such that it became jammed in the latch plate belt guide (Figure 11).



*Figure 11. Jammed seat belt webbing in driver's latch plate (found buckled at time of the SCI inspection)*

The passenger's seat position had a lap and shoulder seat belt, sliding latch plate, switchable locking retractor with pretensioner, and adjustable D-ring that was in the full-down position. The right-front passenger was not restrained by his seat belt. He said during the SCI interview that he was unsure if he used the seat belt. The PCR said he was not belted and there were no load marks

on the belt webbing, latch plate, or D-ring. The EDR did not include belt usage for the front-right passenger. Blood stains were noted on the belt webbing but these likely occurred post-crash since the vehicle was on its right side and the passenger contacted the webbing. The patient compartment was inspected for damage. The patient cot and medical supplies were removed prior to the SCI inspection. Some of the shelving units were ajar due to the impact, but the patient compartment did not show any significant damage from the impact or rollover.

### **Supplemental Restraint Systems**

The ambulance had dual stage driver's and passenger's frontal air bags. Both air bags deployed during the crash. The driver's frontal air bag (Figure 12) was in the steering wheel hub, which had been cut off by rescue personnel and discarded at the crash scene. The wheel rim was also cut (Figure 13). The steering assembly and air bag were later found during the SCI scene inspection and the deflated air bag measured 48 cm (18.9 in) in diameter. Large blood stains were seen on the front and back surfaces. The module cover was a three-flap configuration constructed of pliable vinyl with horizontal and vertical tear seams. Each bottom flap measured 8 cm (3.1 in) wide and 10 cm (3.9 in) high. The top flap was 16 cm (6.3 in) wide and 5 cm (2.0 in) high. There was no damage to the air bag or flaps.



*Figure 12. Deployed driver's frontal air bag*



*Figure 13. Cut steering wheel rim and air bag module, found at crash scene*

The passenger frontal air bag was in the mid-aspect of the right instrument panel. The deflated air bag measured 40 cm (15.7 in) wide and 49 cm (19.3 in) high. Blood stains were noted on the bottom of the air bag.

### **Ambulance Patient Compartment**

The patient compartment was manufactured by Medix Specialty Vehicles in June 2014. No other documentation was found in the vehicle.

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## 2014 Ford E-350 Type II Ambulance Occupants

### Driver Demographics

Age/sex:	25 years/female
Height:	163 cm (64 in)
Weight:	109 kg (240 lb)
Eyewear:	None
Seat type:	Box-mounted seat (i.e., van type) with integral head restraint
Seat track position:	Unknown
Manual restraint usage:	Lap and shoulder belt available; not used
Usage source:	Vehicle inspection, PCR
Air bags:	Driver's frontal available; deployed
Alcohol/drug involvement:	Positive for zolpidem (trade name Ambien)
Egress from vehicle:	Removed by rescue personnel
Transport from scene:	None
Type of medical treatment:	None; fatally injured

### Driver Injuries

Inj. No.	Injury	Injury Severity AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
1	Died of injury without further substantiation of injuries or no autopsy confirmation of specific injuries	099999.9	Injured, unknown source	Unknown

Source: PCR

### Driver Kinematics

The unbelted driver was likely seated in a mostly upright position with the seat belt buckled behind her. Based on medical information, the driver tested positive for zolpidem (trade name Ambien), a sedative-hypnotic used to treat insomnia. Given that she had already worked 18 hours that day and travel occurred at an early morning hour, it is likely that she fell asleep while driving the ambulance. Video provided by the ambulance service showed the vehicle drifting into the left lane, then back to the right, and finally back to the left and off the roadway. As the ambulance traveled off the roadway to the left, and approached the point of impact, the driver was displaced to the cab's left side, possibly against the window or B-pillar. The impact with the tree resulted in intrusions that contacted the driver and pinned her to her seat as the ambulance rolled onto its right side. Her injuries were fatal and there was no medical treatment. No autopsy was performed. The only record received from the medical examiner was a toxicology report stating the driver was negative for alcohol and positive for Zolpidem.

### EMT Demographics (Front-Right Passenger)

Age/sex: 27 years/male  
 Height: 175 cm (69 in)  
 Weight: 104 kg (229 lb)  
 Eyewear: Unknown  
 Seat type: Box-mounted seat (i.e., van type) with integral head restraint  
 Seat track position: Unknown  
 Manual restraint usage: Lap and shoulder belt available; not used  
 Usage source: Vehicle inspection, PCR  
 Air bags: Passenger's frontal available; deployed  
 Egress from vehicle: Extricated by rescue personnel  
 Transport from scene: Air ambulance to Level I trauma center  
 Type of medical treatment: Hospitalized for 1 day

### Front-Right Passenger Injuries

Inj. No.	Injury	Injury Severity AIS 2015	Involved Physical Components (IPC)	IPC Confidence Level
1	Large, 70% right cornea abrasion	240602.1	Isolated Right air bag – Right middle instrument panel	Probable
2	Blunt ocular trauma	240499.1	Isolated Right air bag – Right middle instrument panel	Probable
3	Nondisplaced nose fracture	251000.1	Isolated Right air bag – Right middle instrument panel	Probable
4	Right periorbital hematoma	210402.1	Isolated Right air bag – Right middle instrument panel	Probable
5	Abrasion to right eyelid	210202.1	Isolated Right air bag – Right middle instrument panel	Probable
6	Scattered abrasions over right forehead	210202.1	Isolated Right air bag – Right middle instrument panel	Probable
7	Left hand abrasion	710202.1	Isolated Front – Center instrument panel	Probable

<b>Inj. No.</b>	<b>Injury</b>	<b>Injury Severity AIS 2015</b>	<b>Involved Physical Components (IPC)</b>	<b>IPC Confidence Level</b>
8	Abrasion to left shin	810202.1	Isolated Front – Center lower instrument panel	Probable
9	Left hip contusion*	810402.1	Isolated Front – Center instrument panel	Probable

Source: Hospital record, passenger interview\*

### **Front-Right Passenger Kinematics**

The EMT stated during the SCI interview that prior to the crash he was asleep and slumped down into the seat with his knees and feet moved forward. He was not restrained by his seat belt. As the ambulance ran off the road and traversed the embankment, he was displaced to his left. He said that he was awakened by facial contact to the right instrument panel as the vehicle rolled to its right. His facial injuries included a right corneal abrasion, blunt ocular trauma, a right periorbital hematoma, abrasion to the right eyelid, a nondisplaced nose fracture, and scattered abrasions to the right forehead. These injuries were probably caused by the passenger's frontal air bag. He also sustained abrasions to the left hand and left shin, and a left hip contusion from contact with the center instrument panel. He further said that his right arm was out of the window (partial ejection) but was not injured. He was extricated from the vehicle by rescue personnel and flown to an urban medical center where he was hospitalized for 1 day.

# Crash Diagram



Clear, Dark

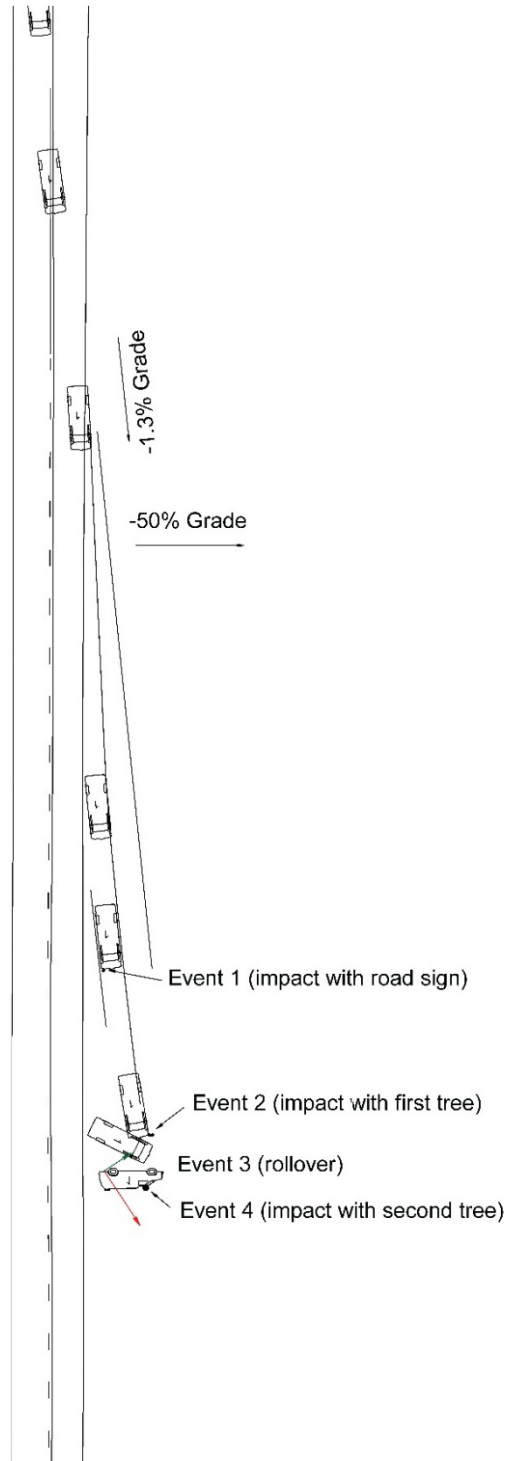
Dry, Level Bituminous

V1: 2014 Ford E-350

Speed Limit: 86 km/h (55 mph)



Meters



<p>Case Number:</p>	<p>CR23002</p>

## **Appendix A: 2014 Ford E-350 Type II Ambulance Event Data Recorder Report<sup>4</sup>**

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<sup>4</sup> The EDR report in this report was imaged using the current version of the Bosch CDR software at the time of the vehicle inspection. The CDR report in the associated Crash Viewer application may differ relative to this report.

IMPORTANT NOTICE: Robert Bosch LLC and the manufacturers whose vehicles are accessible using the CDR System urge end users to use the latest production release of the Crash Data Retrieval system software when viewing, printing or exporting any retrieved data from within the CDR program. Using the latest version of the CDR software is the best way to ensure that retrieved data has been translated using the most current information provided by the manufacturers of the vehicles supported by this product.

## CDR File Information

User Entered VIN	1FDSS3EL5ED*****
User	
Case Number	
EDR Data Imaging Date	01/26/2023
Crash Date	
Filename	CR23002_V1_ACM.CDRX
Saved on	Thursday, January 26 2023 at 16:23:58
Imaged with CDR version	Crash Data Retrieval Tool 23.0.2
Imaged with Software Licensed to (Company Name)	NHTSA
Reported with CDR version	Crash Data Retrieval Tool 23.1.2
Reported with Software Licensed to (Company Name)	NHTSA
EDR Device Type	Airbag Control Module
ACM Adapter Detected During Download	Yes
Event(s) recovered	locked frontal event Fuel cutoff level 1

## Comments

No comments entered.

The retrieval of this data has been authorized by the vehicle's owner, or other legal authority such as a court order or search warrant, as indicated by the CDR tool user on Thursday, January 26 2023 at 16:23:58.

## Data Limitations

### Restraints Control Module Recorded Crash Events:

Deployment Events cannot be overwritten or cleared from the Restraints Control Module (RCM). Once the RCM has deployed any airbag device, the RCM must be replaced. The data from events which did not qualify as deployable events can be overwritten by subsequent events. The RCM can store up to two deployment events.

### Airbag Module Data Limitations:

- Restraints Control Module Recorded Vehicle Forward Velocity Change reflects the change in forward velocity that the sensing system experienced from the point of algorithm wake up. It is not the speed the vehicle was traveling before the event. Note that the vehicle speed is recorded separately five seconds prior to algorithm wake up. This data should be examined in conjunction with other available physical evidence from the vehicle and scene when assessing occupant or vehicle forward velocity change.
- Event Recording Complete will indicate if data from the recorded event has been fully written to the RCM memory or if it has been interrupted and not fully written.
- If power to the Airbag Module is lost during a crash event, all or part of the crash record may not be recorded.
- For 2011 Ford Mustangs, the Steering Wheel Angle parameter indicates the change in steering wheel angle from the previously recorded sample value and does not represent the actual steering wheel position.

### Airbag Module Data Sources:

- Event recorded data are collected either INTERNALLY or EXTERNALLY to the RCM.
  - INTERNAL DATA is measured, calculated, and stored internally, sensors external to the RCM include the following:
    - > The Driver and Passenger Belt Switch Circuits are wired directly to the RCM.
    - > The Driver's Seat Track Position Switch Circuit is wired directly to the RCM.
    - > The Side Impact Sensors (if equipped) are located on the side of vehicle and are wired directly to the RCM.
    - > The Occupant Classification Sensor is located in the front passenger seat and transmits data directly to the RCM on high-speed CAN bus.
    - > Front Impact Sensors (right and left) are located at the front of vehicle and are wire directly to the RCM.
  - EXTERNAL DATA recorded by the RCM are data collected from the vehicle communication network from various

sources such as Powertrain Control Module, Brake Module, etc.

02007\_RCM-RC6\_r002

### System Status at Time of Retrieval

VIN as programmed into RCM at factory	1FDSS3EL5ED*****
Current VIN from PCM	1FDSS3EL5ED*****
Ignition cycle, download (first record)	10,160
Ignition cycle, download (second record)	N/A
Restraints Control Module Part Number	BC24-14B321-AD
Restraints Control Module Serial Number	7158359200000000
Restraints Control Module Software Part Number (Version)	BL84-14C028-AB
Left/Center Frontal Restraints Sensor Serial Number	195CA01A
Left Side Restraint Sensor 1 Serial Number	00000000
Left Side Restraint Sensor 2 Serial Number	00000000
Right Frontal Restraints Sensor Serial Number	00000000
Right Side Restraint Sensor 1 Serial Number	00000000
Right Side Restraints Sensor 2 Serial Number	00000000

### System Status at Event (First Record)

Recording Status	Locked Record
Complete file recorded (yes,no)	Yes
Multi-event, number of events (1,2)	1
Time from event 1 to 2 (msec)	N/A
Lifetime Operating Timer at event time zero (seconds)	36,060.755
Key-on Timer at event time zero (seconds)	13.995
Vehicle voltage at time zero (Volts)	14.094
Energy Reserve Mode entered during event (Y/N)	Yes

**Faults Present at Start of Event (First Record)**

No Faults Recorded
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### Deployment Data (First Record)

Frontal airbag deployment, time to first stage deployment, driver (msec)	1,298.5
Pretensioner (buckle) deployment, time to fire, driver (msec)	1,298.5
Frontal airbag deployment, time to first stage deployment, front passenger (msec)	1,298.5
Pretensioner (buckle) deployment, time to fire, right front passenger (msec)	1,298.5
Maximum delta-V, longitudinal (MPH [km/h])	-0.78 [-1.25]
Time, maximum delta-V longitudinal (msec)	300
Maximum delta-V, lateral (MPH [km/h])	-0.26 [-0.41]
Time, maximum delta-V lateral (msec)	299
Left or center front, satellite Sensor discriminating deployment	Yes
Left or center, front satellite Sensor safing	Yes
Right, front satellite sensor discriminating deployment	Yes
RCM, front sensor discriminating deployment	Yes
RCM, front sensor safing	Yes
Longitudinal Delta-V Time Zero Offset	8.5 ms
Lateral Delta-V Time Zero Offset	8.5 ms
Roll Angle Time Zero Offset	58.5 ms

**Pre-Crash Data -1 sec (First Record)**

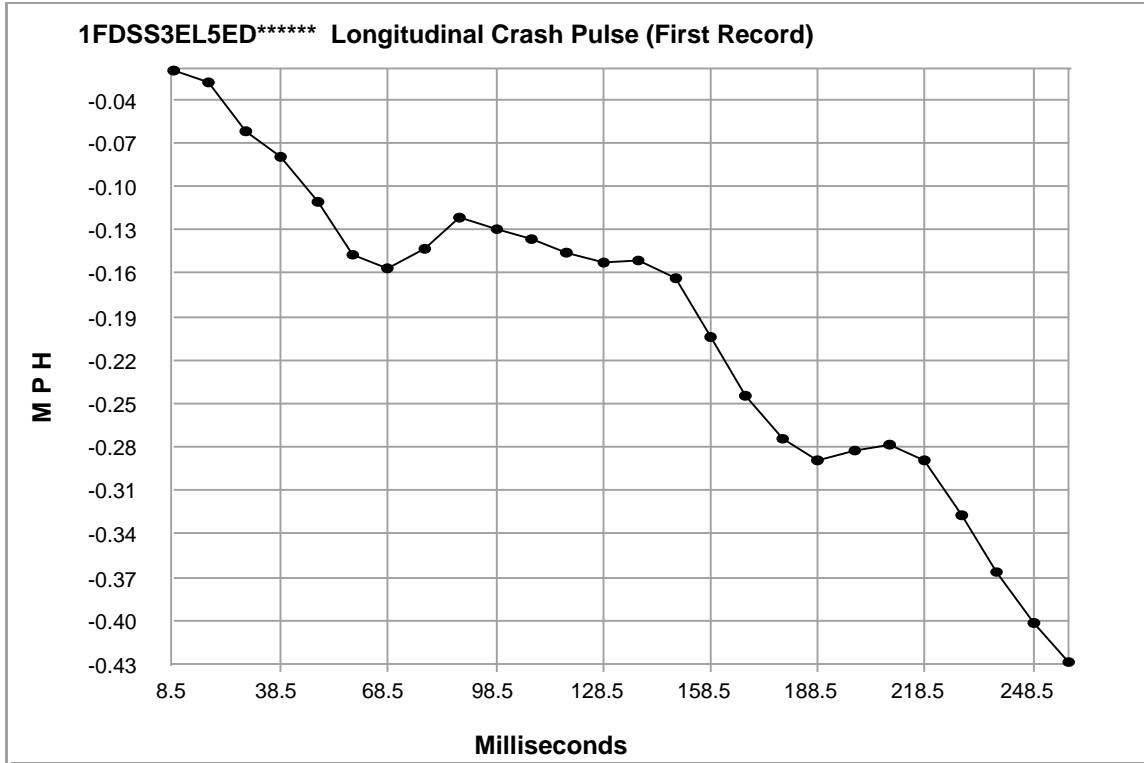
Ignition cycle, crash	10,159
Frontal air bag warning lamp, on/off	Off
Frontal air bag suppression switch status, front passenger	Not Active
Safety belt status, driver	Driver Buckled
Brake Telltale	Off
ABS Telltale	Off
Stability Control Telltale	Off
Speed Control Telltale	Off
Powertrain Wrench Telltale	Off
Powertrain Malfunction Indicator Lamp (MIL)Telltale	On

**Pre-Crash Data -5 to 0 sec [2 samples/sec] (First Record)**

<b>Times (sec)</b>	<b>Speed vehicle indicated MPH [km/h]</b>	<b>Accelerator pedal, % full</b>	<b>Service brake, on/off</b>	<b>Engine RPM</b>	<b>ABS activity (engaged, non-engaged)</b>	<b>Stability control (engaged, non-engaged)</b>	<b>Traction Control via Brakes (engaged, non-engaged)</b>	<b>Traction Control via Engine (engaged, non-engaged)</b>
- 5.0	60.3 [97.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 4.5	60.3 [97.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 4.0	60.3 [97.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 3.5	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 3.0	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 2.5	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 2.0	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 1.5	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 1.0	60.9 [98.0]	22	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
- 0.5	60.9 [98.0]	14	Off	1,800	non-engaged	non-engaged	non-engaged	non-engaged
0.0	60.3 [97.0]	0	Off	1,700	non-engaged	non-engaged	non-engaged	non-engaged

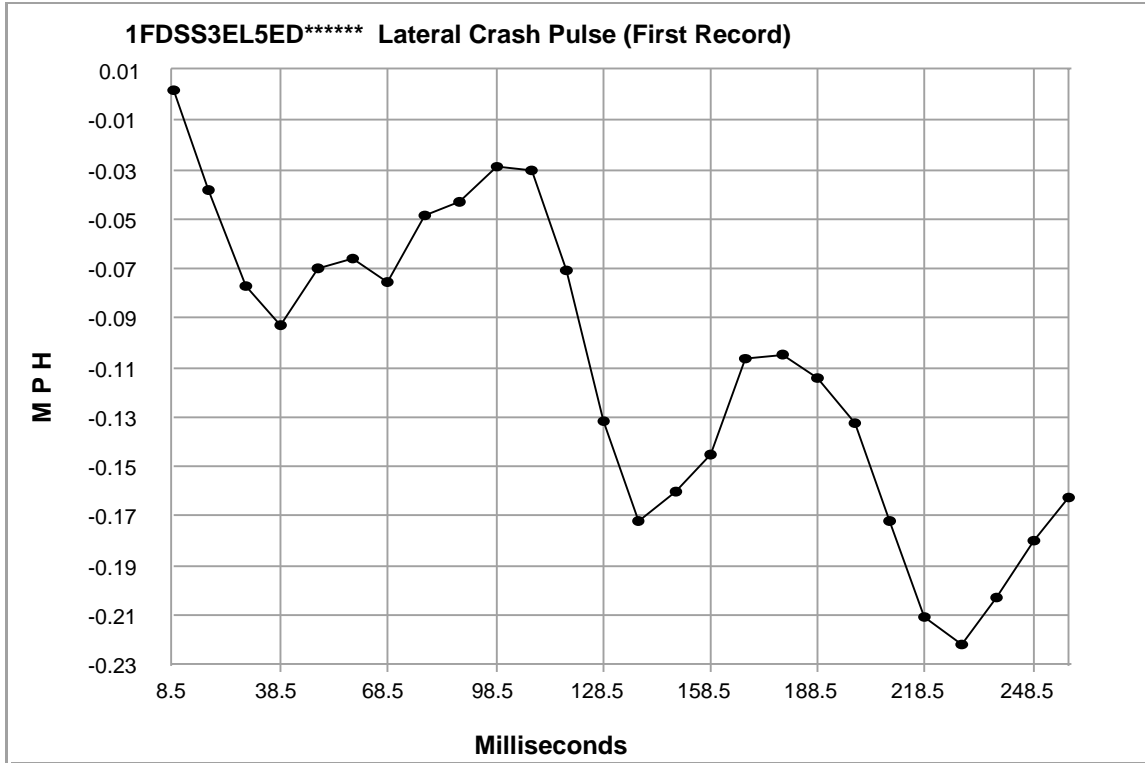
**Pre-Crash Data -5 to 0 sec [10 samples/sec] (First Record)**

Times (sec)	Steering Wheel Angle (degrees)	Stability Control Lateral Acceleration (g)	Stability Control Longitudinal Acceleration (g)	Stability Control Yaw Rate (deg/sec)	Stability Control Roll Rate (deg/sec)
- 5.0	Invalid	-0.089	0.014	-1.0	-0.13
- 4.9	Invalid	0.063	-0.003	-0.12	0.61
- 4.8	Invalid	-0.112	0.011	-0.37	0.61
- 4.7	Invalid	0.011	-0.075	-0.37	0.61
- 4.6	Invalid	-0.015	-0.008	-0.5	-0.13
- 4.5	Invalid	-0.013	-0.003	-0.37	-0.88
- 4.4	Invalid	-0.058	0.034	-0.87	-0.63
- 4.3	Invalid	-0.033	-0.008	-0.62	-2.13
- 4.2	Invalid	0.002	-0.023	-0.75	-0.76
- 4.1	Invalid	-0.019	-0.003	-0.37	-0.38
- 4.0	Invalid	-0.051	-0.003	-0.12	0.99
- 3.9	Invalid	-0.001	-0.003	-1.0	0.36
- 3.8	Invalid	0.016	-0.023	-0.62	-0.01
- 3.7	Invalid	-0.039	-0.003	-0.75	-0.88
- 3.6	Invalid	0.009	-0.042	0.0	-0.76
- 3.5	Invalid	-0.003	-0.003	-0.37	-0.01
- 3.4	Invalid	0.0	0.014	0.0	0.11
- 3.3	Invalid	-0.023	0.014	0.0	-0.38
- 3.2	Invalid	-0.004	-0.023	0.0	0.36
- 3.1	Invalid	0.015	0.004	0.5	0.49
- 3.0	Invalid	-0.011	-0.003	-0.37	0.49
- 2.9	Invalid	-0.011	-0.003	-0.62	-0.01
- 2.8	Invalid	0.006	-0.006	0.0	-0.88
- 2.7	Invalid	0.045	0.014	0.0	-0.63
- 2.6	Invalid	-0.071	0.034	-0.12	-1.13
- 2.5	Invalid	0.025	-0.023	-0.37	-0.63
- 2.4	Invalid	-0.032	-0.003	-0.5	-0.01
- 2.3	Invalid	-0.017	-0.003	0.37	-0.38
- 2.2	Invalid	0.025	-0.023	-0.25	-0.63
- 2.1	Invalid	-0.032	-0.031	0.0	0.11
- 2.0	Invalid	0.019	-0.016	0.12	0.49
- 1.9	Invalid	-0.031	-0.021	0.62	0.36
- 1.8	Invalid	0.004	-0.003	0.0	0.49
- 1.7	Invalid	0.009	-0.036	0.5	-0.26
- 1.6	Invalid	-0.008	0.021	-0.25	-2.26
- 1.5	Invalid	0.105	0.029	0.37	-3.26
- 1.4	Invalid	-0.004	-0.101	0.37	-5.88
- 1.3	Invalid	0.028	-0.042	0.62	-9.38
- 1.2	Invalid	-0.156	-0.028	0.0	-11.51
- 1.1	Invalid	0.037	-0.041	-0.12	-3.13
- 1.0	Invalid	-0.182	-0.033	-0.87	5.74
- 0.9	Invalid	-0.023	-0.042	0.25	8.61
- 0.8	Invalid	-0.15	-0.023	-0.62	-0.13
- 0.7	Invalid	0.085	-0.086	-0.75	-10.88
- 0.6	Invalid	-0.151	0.021	-1.25	-15.88
- 0.5	Invalid	-0.219	-0.187	-2.37	-21.51
- 0.4	Invalid	0.076	-0.165	-1.5	-16.13
- 0.3	Invalid	0.156	-0.06	0.25	-9.13
- 0.2	Invalid	-0.087	-0.042	1.5	-9.63
- 0.1	Invalid	-0.119	0.019	2.62	-17.88
0.0	Invalid	0.103	-0.06	5.75	-22.63



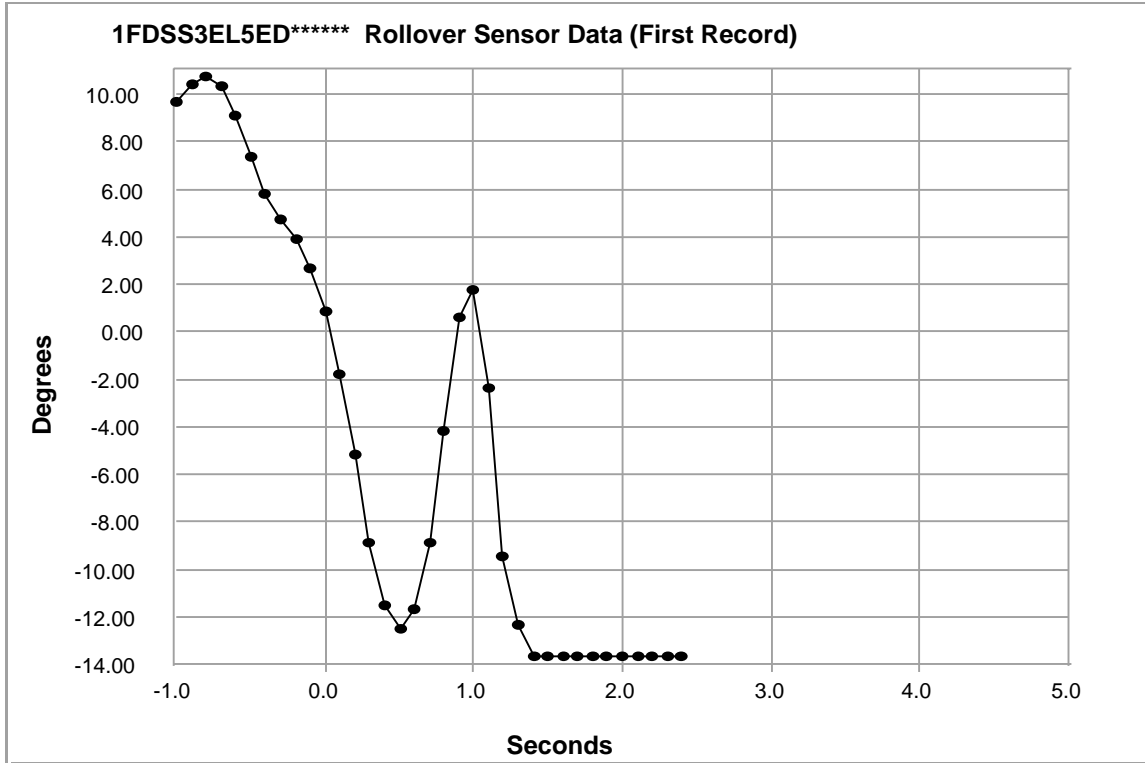
**Longitudinal Crash Pulse (First Record)**

Time (msec)	Delta-V, longitudinal (MPH)	Delta-V, longitudinal (km/h)
8.5	-0.02	-0.03
18.5	-0.03	-0.05
28.5	-0.06	-0.10
38.5	-0.08	-0.13
48.5	-0.11	-0.18
58.5	-0.15	-0.24
68.5	-0.16	-0.25
78.5	-0.14	-0.23
88.5	-0.12	-0.20
98.5	-0.13	-0.21
108.5	-0.14	-0.22
118.5	-0.15	-0.23
128.5	-0.15	-0.25
138.5	-0.15	-0.24
148.5	-0.16	-0.26
158.5	-0.20	-0.33
168.5	-0.24	-0.39
178.5	-0.27	-0.44
188.5	-0.29	-0.47
198.5	-0.28	-0.46
208.5	-0.28	-0.45
218.5	-0.29	-0.46
228.5	-0.33	-0.53
238.5	-0.37	-0.59
248.5	-0.40	-0.65
258.5	-0.43	-0.69



**Lateral Crash Pulse (First Record)**

Time (msec)	Delta-V, lateral (MPH)	Delta-V, lateral (km/h)
8.5	0.00	0.00
18.5	-0.04	-0.06
28.5	-0.08	-0.12
38.5	-0.09	-0.15
48.5	-0.07	-0.11
58.5	-0.07	-0.11
68.5	-0.08	-0.12
78.5	-0.05	-0.08
88.5	-0.04	-0.07
98.5	-0.03	-0.05
108.5	-0.03	-0.05
118.5	-0.07	-0.11
128.5	-0.13	-0.21
138.5	-0.17	-0.28
148.5	-0.16	-0.26
158.5	-0.14	-0.23
168.5	-0.11	-0.17
178.5	-0.10	-0.17
188.5	-0.11	-0.18
198.5	-0.13	-0.21
208.5	-0.17	-0.28
218.5	-0.21	-0.34
228.5	-0.22	-0.36
238.5	-0.20	-0.33
248.5	-0.18	-0.29
258.5	-0.16	-0.26



**Rollover Sensor Data (First Record)**

Time (sec)	Vehicle roll angle (degrees)
-1.0	9.7
-0.9	10.42
-0.8	10.74
-0.7	10.33
-0.6	9.07
-0.5	7.41
-0.4	5.83
-0.3	4.72
-0.2	3.91
-0.1	2.68
0.0	0.89
0.1	-1.78
0.2	-5.2
0.3	-8.91
0.4	-11.53
0.5	-12.48
0.6	-11.7
0.7	-8.89
0.8	-4.15
0.9	0.62
1.0	1.74

Time (sec)	Vehicle roll angle (degrees)
1.1	-2.36
1.2	-9.5
1.3	-12.34
1.4	-13.7
1.5	-13.7
1.6	-13.7
1.7	-13.7
1.8	-13.7
1.9	-13.7
2.0	-13.7
2.1	-13.7
2.2	-13.7
2.3	-13.7
2.4	-13.7
2.5	N/A
2.6	N/A
2.7	N/A
2.8	N/A
2.9	N/A
3.0	N/A
3.1	N/A

Time (sec)	Vehicle roll angle (degrees)
3.2	N/A
3.3	N/A
3.4	N/A
3.5	N/A
3.6	N/A
3.7	N/A
3.8	N/A
3.9	N/A
4.0	N/A
4.1	N/A
4.2	N/A
4.3	N/A
4.4	N/A
4.5	N/A
4.6	N/A
4.7	N/A
4.8	N/A
4.9	N/A
5.0	N/A

## Hexadecimal Data

Data that the vehicle manufacturer has specified for data retrieval is shown in the hexadecimal data section of the CDR report. The hexadecimal data section of the CDR report may contain data that is not translated by the CDR program. The control module contains additional data that is not retrievable by the CDR system.

12 00 00 00

42 43 32 34 2D 31 34 42 33 32 31 2D 41 44 00 00 00 00 00 00 00 00 00 00

37 31 35 38 33 35 39 32 30 30 30 30 30 30 30

42 4C 38 34 2D 31 34 43 30 32 38 2D 41 42 00 00 00 00 00 00 00 00 00 00

19 5C A0 1A 00 00 00 00 00 00 00 00 00 00 00

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31 46 44 53 53 33 45 4C 35 45 44 2A 2A 2A 2A 2A 2A

31 46 44 53 53 33 45 4C 35 45 44 2A 2A 2A 2A 2A 2A 00 00 00 00 00 00 00

## Event Record 1

AF 27 00 00 B0 27 00 00 77 0C 6E 00 EF 0A 00 00 B6 02 00 00 1C FF FF FF CA 97 2A  
FF 03 A4 D5 00 57 F4 FF FF 48 68 D5 00 4F 68 D5 00 6D 68 D5 00 7D 68 D5 00 98 68  
D5 00 B9 68 D5 00 C2 68 D5 00 B5 68 D5 00 A2 68 D5 00 A9 68 D5 00 B0 68 D5 00 B8  
68 D5 00 BE 68 D5 00 BD 68 D5 00 C7 68 D5 00 EC 68 D5 00 10 69 D5 00 2A 69 D5 00  
38 69 D5 00 32 69 D5 00 2E 69 D5 00 37 69 D5 00 59 69 D5 00 7C 69 D5 00 9B 69 D5  
00 B4 69 D5 00 FF 5B 2A FF DB 5B 2A FF B8 5B 2A FF AA 5B 2A FF BF 5B 2A FF C2 5B  
2A FF BA 5B 2A FF D2 5B 2A FF D7 5B 2A FF E3 5B 2A FF E2 5B 2A FF BE 5B 2A FF 88  
5B 2A FF 64 5B 2A FF 6E 5B 2A FF 7C 5B 2A FF 9E 5B 2A FF A0 5B 2A FF 97 5B 2A FF  
87 5B 2A FF 64 5B 2A FF 41 5B 2A FF 37 5B 2A FF 48 5B 2A FF 5D 5B 2A FF 6C 5B 2A  
FF BA 29 94 28 0F 25 66 20 FF 1B E0 18 99 16 29 13 27 0E B0 06 1C FD B7 F2 5D EB  
B4 E8 E9 EA C2 F2 0D 00 63 0D 87 10 0F 05 11 F1 19 E9 49 E5 49 E5 49 E5 49  
E5 49 E5 49 E5 49 E5 49 E5 49 E5 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C  
7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C 7F 2C  
2C 58 2C A6 2B 03 2A 9B 27 35 26 D5 26 D5 28 FE 7F FE 7F FE 7F FE 7F FE 7F  
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1E 46 75 46 37 46 50 46 5C 46 8E 46 50 46 82 46 37 46 75 46 75 46 8E 46 50 46 44  
46 F9 45 69 46 12 46 05 46 D3 45 63 45 BA 45 69 46 E6 46 56 47 8F 48 EC 45 44 46  
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75 3B 75 0A 75 54 75 61 75 61 75 2F 75 D8 74 F1 74 BF 74 F1 74 2F 75 0A 75 F1 74  
3B 75 61 75 54 75 61 75 16 75 4E 74 EA 73 E4 72 86 71 B1 70 F7 73 6E 77 8D 78 23  
75 F0 70 FC 6E C9 6C E3 6E 9F 71 6D 71 34 6E 59 6C 23 75 6D 75 6D 75 6D 75 23 75  
D8 74 F1 74 5B 74 E4 74 0A 75 93 75 25 0A 25 0A 25 0A 25 0A 00 00 00 00 00 00  
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DOT HS 813 718  
February 2026



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



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