CRASH DATA RESEARCH CENTER

Calspan Corporation Buffalo, NY 14225

NOT-IN-TRAFFIC SURVEILLANCE CALSPAN REMOTE FALLING VEHICLE INCIDENT INVESTIGATION

SCI CASE NO.: CA09009

VEHICLE: 1992 FORD TAURUS

LOCATION: FLORIDA

INCIDENT DATE: NOVEMBER 2008

Contract No. DTNH22-07-C-00043

Prepared for:

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The crash investigation process is an inexact science which requires that physical evidence such as skid marks, vehicular damage measurements, and occupant contact points are coupled with the investigator's expert knowledge and experience of vehicle dynamics and occupant kinematics in order to determine the pre-crash, crash, and post-crash movements of involved vehicles and occupants.

Because each crash is a unique sequence of events, generalized conclusions cannot be made concerning the crashworthiness performance of the involved vehicle(s) or their safety systems.

TECHNICAL REPORT STANDARD TITLE PAGE

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A remote investigation of a falling vehicle incident that caused the death of a 51-year-old male non-motorist.

16. Abstract

This remote investigation focused on the cause of death, the type of jacking system, the surface conditions, and the precautions, if any, that were initiated prior to the fall of a vehicle onto a 51-year old male non-motorist. The non-motorist was working on his 1992 Ford Taurus in his backyard and jacked the vehicle on a grass surface. The non-motorist initially jacked the front of the vehicle with a hydraulic floor jack and positioned ratchet-type jack stands under the front lower control arms. He lowered the Ford onto the jack stands and removed the floor jack. At some point during this process, the non-motorist removed the right front tire from the vehicle. He crawled under the vehicle and the Ford apparently rolled rearward causing the vehicle to fall off the jack stands. The non-motorist was discovered by a neighbor several hours after the incident. This person called the emergency response system and requested police and fire assistance. The victim was pronounced deceased at the scene.

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NOT-IN-TRAFFIC SURVEILLANCE CALSPAN REMOTE FALLING VEHICLE INCIDENT INVESTIGATION

SCI CASE NO.: CA09009 VEHICLE: 1992 FORD TAURUS LOCATION: FLORIDA

INCIDENT DATE: NOVEMBER 2008

BACKGROUND

This remote investigation focused on the cause of death, the type of jacking system, the surface conditions, and the precautions, if any, that were initiated prior to the fall of a vehicle onto a 51-year old male non-motorist. The non-motorist was working on his 1992 Ford Taurus in his backyard and jacked the vehicle on a grass surface. The non-motorist initially jacked the front of the vehicle with a hydraulic floor jack and positioned ratchet-type jack stands under the front lower control arms. He lowered the Ford onto the jack stands and removed the floor jack. At some point during this process, the non-motorist removed the right front tire from the vehicle. He crawled under the vehicle and the Ford apparently rolled rearward causing the vehicle to fall off the jack stands. The non-motorist was discovered by a neighbor several hours after the incident. This person called the emergency response system and requested police and fire assistance. The victim was pronounced deceased at the scene.

This falling vehicle incident was identified by NHTSA's Crash Investigation Division through an Internet news search and forwarded to the Calspan Special Crash Investigations (SCI) team on February 23, 2009 for remote follow-up. The SCI team established cooperation with the investigating police officer. A detailed interview regarding the sequence of events was conducted with the officer. The Incident Report was obtained from the police agency and a written request to obtain copies of the images of the vehicle, jack and jack stands, was submitted. The police department refused to release the images to the SCI team. A single image of the Taurus positioned at the incident site was obtained from an Internet-based news source.

SUMMARY

Incident Site

The incident occurred in the backyard of the non-motorist during daylight hours in November 2008. On the morning of this incident, the temperature was 27 degrees C (80 degrees F) with cloudy skies, according to local weather reports. The wind was easterly with average speeds of 21 km/h (13 mph). The back yard was surfaced with grass with a 6x6 m (20'x20') concrete slab that was bordered by the lawn. The investigating officer stated the lawn area of the back yard was level. He further stated the lawn area was soft due to the sandy composition of the soil. All of the surfaces were dry at the time of the incident. The Ford was positioned on the lawn with the front of the vehicle facing the concrete slab.

Non-Motorist

The non-motorist of this falling vehicle incident was a 51-year old male. He lived alone at his residence and was last seen by a neighbor/friend approximately three days prior to this incident. The investigating officer stated that the non-motorist was of average build with a history of diabetes based on prescription medications found in his residence. Prior to working on the Ford, the non-motorist reportedly removed a frozen food item from his freezer and placed in the kitchen sink to thaw. At an unknown time in the morning, the non-motorist proceeded to his back yard to work on the Ford.

Vehicle Data

The involved vehicle was a 1992 Ford Taurus GL, four-door sedan. The Ford was identified by vehicle Identification Number 1FALP52U6NA (production number deleted). The Ford was equipped with a 3.0 liter, V-6 engine linked to an automatic transmission. The Ford was a front-wheel drive configuration with front disc and rear drum brakes. The parking brake was cable activated to the rear brakes and was engaged by a foot pedal located to the left side of the toe pan area. The vehicle manufacturer recommended tire size was 205/70R14. The specific tires and related data for the Ford at the time of the incident are not known.

Jack System

The investigating officer stated the non-motorist used a hydraulic floor jack to raise the front of the vehicle on the grass surface. Jack stand manufacturers typically recommend that the jack stands are to be used only on hard, level surfaces capable of sustaining rated capacity loads. The non-motorist jacked the vehicle to an unknown height and placed two jack stands under the front lower control arms. These jack stands were placed directly on the grass surface. The jack stands utilized a ratchet-type locking system for height adjustment. The officer further noted that the non-motorist failed to set the



Figure 1. Exemplar style floor jack and jack stands.

vehicle's parking brake or chock the rear tires to prevent the vehicle from rolling. **Figure 1** is a view of an exemplar style floor jack and jack stands that were used in this incident.

Incident

The 51-year old male non-motorist used the hydraulic floor jack to raise the front of the vehicle. He positioned the jack stands under the front control arms and released the hydraulic pressure on the jack. The non-motorist removed the floor jack from under the vehicle. The jack was found by the officer approximately 3 m (10') forward of the Taurus. At some point in time, the non-motorist removed the front right tire and wheel from the vehicle. With the jack stands positioned

on the grass surface under the Ford, the non-motorist crawled head-first under the front of the vehicle. His lower extremities extended forward of the front bumper. **Figure 2** is a view of the Ford at rest on the grass surface with the front right tire removed. The Incident Schematic is attached to this report as **Figure 3**.

As the non-motorist was under the Ford in a face-up position, the vehicle rolled rearward and the jack stands fell rearward with respect to the vehicle. The front of the Ford subsequently fell onto the non-motorist with the engine cradle area resting on his chest. At rest, the non-motorist was lying between the jack stands with the stands positioned on their sides parallel to the Ford.

Post-Incident

The neighbor/friend of the non-motorist became concerned as he had not seen him in several days. He walked over to the non-motorist's residence and



Figure 2. Location and post-incident condition of the 1992 Ford Taurus. (Imaged obtained from an Internet-based news site.)

discovered him under the fallen vehicle. This neighbor called the emergency response system and reported the incident.

The investigating officer, Emergency Medical Service (EMS), fire department personnel arrived on scene. They immediately checked the condition of the non-motorist and determined that he was deceased. The fire department personnel raised the vehicle and removed the victim's body. The medical examiner determined that the cause of death was asphyxiation.

The investigating officer conducted his on-scene investigation and made the following observations:

- 1. The Ford was not running and the automatic transmission was placed in the PARK position.
- 2. The non-motorist raised the front the front-wheel-drive sedan and failed to chock the rear wheels or set the parking brake.
- 3. The Ford was parked completely on the grass with the front of the vehicle facing the concrete slab.
- 4. The jack stands appeared to be in proper working condition with no damage noted to the stands.
- 5. Although the time of the incident was not known, the frozen food item that was placed in the sink was partially thawed indicating that is was removed from the freezer on the morning of the incident.

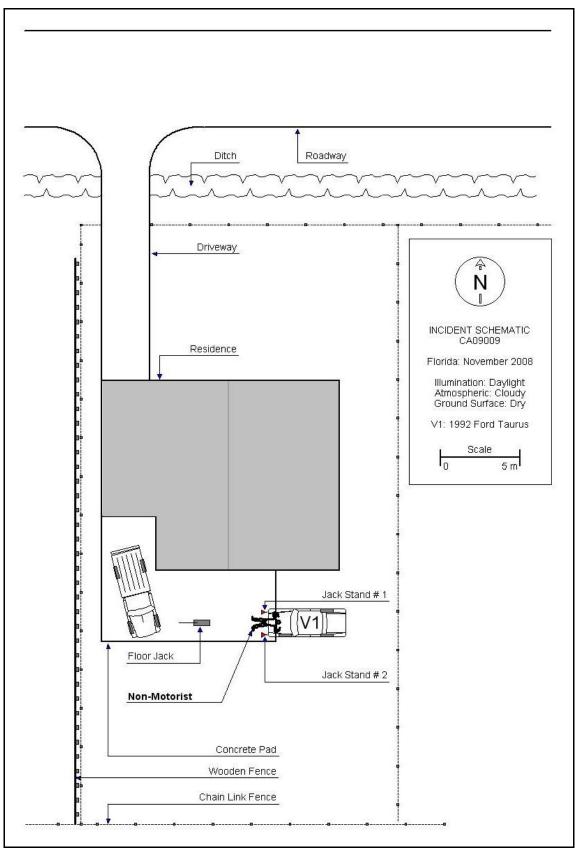


Figure 3: Incident Schematic

Attachment A

NITS Forms

SCENE FORM

	SCENE INFORMATION
Case Number	7. Type of area in which crash occurred (Select all that apply)
	O Single family residential
IDENTIFICATION	O Row houses/townhouses
	O Multi family housing O Commercial
2. Date of Crash/	O Industrial
	O Rural O Unknown
3. Time of Crash	Olikilowii
	8. Driver exterior sightline obstructions
Code reported military time of crash.	(Select all that apply)
NOTE: Midnight = 2400	O None O Utility poles
Unknown = 9999	O Other vehicles O Signs O Building O Glare
	O Trees O Unknown
AMBIENT CONDITIONS	O Shrubbery O No driver present
4. Light Conditions	O Other (specify)
	9. Crash location
O Daylight O Dark	O Driveway O Road / street
O Dark but lighted	O Parking Lot O Roadside / shoulder
O Dawn O Dusk	O Sidewalk O Other (specify)
O Unknown	O Alley O Unknown O Intersection of driveway and sidewalk
- 4	·
5. Atmospheric Conditions (Select all that apply)	Non motorist sightline obstructions (Select all that apply)
O Clear-No adverse conditions O Cloudy	O None O Other vehicles
O Rain	O Building
O Snow O Fog, Smog, Smoke	O Trees O Shrubbery
O Sleet, Hail (freezing rain or drizzle)	O Utility poles
O Blowing Snow	O Signs
O Severe Crosswinds O Blowing Sand, Soil, Dirt	O Glare O Other (specify)
O Other (specify):	O Unknown
O Unknown	+ / - 11. Grade at parked position %
6. Temperature	· · · · — — —
O Below 0 degrees Celsius (Below 32 F)	12. Estimated distance from parked position to impact
O 1-10 degrees Celsius (33-50 F)	m
O >10-24 degrees Celsius (51-75 F) O Over 24 degrees Celsius (Over 75 F)	13. Estimated speed at impactm kmph
O Unknown	+/ -
	14. Grade at impact %
	15. Estimated distance from impact to vehicle final
	rest
	m
	Unknown = 999 Reference Items 11,12, 13, 14, 15

VEHICLE FORM

1. Case Number					
		VEHICLE IDEN	TIFICATION		
2. VIN	·				
3. Model Ye	ear				
4. Vehicle N	Make (specify	/):			_
5. Vehicle N	Model (specif	y):			_
		GLAZI	NG		
Location	Presence (check)	Status (select)	Clarity (select)	Tint (check)	Glazing Obstructions (specify if present)
Windshield		Fixed / Closed / Open / Partially Open / Unknown	Clear / Hazy / Very Dirty / Unknown		
LF		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
RF		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
2 nd Left		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
2 nd Right		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
3 rd Left		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
3 rd Right		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Left Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Right Backlight		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Roof		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
Other (specify)		Fixed / Closed / Open / Partially Open	Clear / Hazy / Very Dirty		
		TIRE D	ATA		
6. Vehicle	Manufactu	rer Recommended Tire Size _			
7. LF Tire	Size	9.	RF Tire Size		
8. LR Tire Size 10. RR Tire Size					

		Seats /		
Seat Position	Seat Type (Select from below)	Head Restraint (Check if available)	Head Restraint Adjustment (select)	NOTES:
Front Left			Full Down / Mid / Full Up	
Front Middle			Full Down / Mid / Full Up	
Front Right			Full Down / Mid / Full Up	
2 nd Left			Full Down / Mid / Full Up	
2 nd Middle			Full Down / Mid / Full Up	
2 nd Right			Full Down / Mid / Full Up	
3 rd Left			Full Down / Mid / Full Up	
3 rd Middle			Full Down / Mid / Full Up	
3 rd Right			Full Down / Mid / Full Up	

Seat Type codes:

0 = No seat or seat folded down

1 = Bucket

2 = Bucket w/ folding back

3 = Bench

4 = Bench with folding back cushions

5 = Bench w/ folding back

6 = Split bench w/ separate back cushions

7 = Split bench w/ separate folding back

8 = Pedestal (i.e. column supported)

9 = Box mounted (i.e. van type)

10= Other seat type (specify)

99= Unknown seat type

VEHICLE MEASUREMENTS				
Clearance Heights	Measurements (all from ground, and in centimeters	NOTES		
Beltline				
Top of trunk/tailgate				
Bottom of bumper				
Trailer hitch (if applicable)				
Undercarriage				
Sway bar				
Axle				
Differential				
Other (specify):				
Sensor Height (if equipped)				
Camera Height (if equipped)				

Back Up / Parking Aid Form

1. Case Number	Video image quality under scene lighting conditions
PARKING AID PRESENCE 2. Type of backing/parking aid present	O None present O Good O Average O Poor (specify): O Unknown
O OEM camera O OEM ultrasonic/radar sensor O OEM combination camera-ultrasonic/radar sensor O OEM Fresnel lens O OEM interior mirrors O Aftermarket camera O Aftermarket ultrasonic/radar sensor O Aftermarket combination camera-ultrasonic radar sensor O Aftermarket Fresnel lens O Aftermarket interior mirrors O Other (specify):	8. Was the camera functioning properly O None present O Yes O No, poor image quality due to glare O No, poor image quality due to atmospheric conditions O No, camera turned off O No, camera inoperable O Unknown ULTRASONIC/RADAR SENSOR Specify object detection range on diagram
CAMERA INFORMATION	System make/model
Specify field of view measurements on diagram	
3. System make/model 4. Video monitor type O None present O LCD (color) O CRT (black & white) O Unknown 5. Video display size cm (Diagonal) 6. Camera location O None present O Bumper O License plate O Trilleto (Latab Trunk	10. Auditory warning illumination O No sensor present O Yes O No O Unknown 11. Number of sensors 12. Sensor locations (Select all that apply) O No sensor present O Left bumper O Center bumper O Right bumper O License plate area O Tailgate/Hatch/Trunk
O Tailgate/Hatch/Trunk O Other (specify):	13. Was warning system functioning properly O No sensor present O Yes, system alerted driver O No, system did not alert driver O No, system turned off O No, system inoperable O Unknown

Spe	ecial Crash Investigations – Not In Traffic Surveill	ance:	: Ba	ck Up	Parkin	g Aid I	Form	Page 2
14.	Did driver react to warning							
	O No sensor present O Yes O No O Unknown							
15.	Did driver report common false warnings							
	O No sensor present O Yes O No O Unknown							

DRIVER FORM

Case Number	10. Driver entry interruption (Select all that apply)
DRIVER PROFILE 2. Driver's Age 99 = Unknown 3. Driver's Sex O Male O Female O Unknown 4. Driver's Height 999 = Unknown	O Direct trip from building to vehicle O Loaded items into vehicle O Spoke with family O Spoke with neighbors O Spoke with contacted nonmotorist O Return trip (backing into driveway/lot) O Other (specify): O N/A Unknown 11. Purpose of backing
5. Driver's Weight 999 = Unknown 6. Driver eyewear worn (Select all that apply) O None O Eyeglasses O Sunglasses O Contacts O Unknown	O Leaving parking space in parking lot O Backing onto roadway from driveway O Entering parking space in parking lot O Backing into driveway from roadway O Other (specify): O N/A Unknown 12. Where was driver going Description:
7. Driver vision deficiency condition (Select all that apply) O None O Near sighted O Far sighted O Astigmatism O Other (specify) O Unknown	13. Driver in a hurry O Yes N/A O No Unknown O Unknown 14. How did driver check behind (rear area of vehicle)
8. Non motorist's relationship to driver O No relationship O Child O Grandchild O Sibling O Neighbor O Friend O Other (specify): O Unknown DRIVER ACTIONS	after vehicle entry (Select all that apply) O Did not look O Checked mirrors O Turned right and looked back O Turned left and looked back Viewed Camera Listened for auditory/visual warning from system
9. Driver approach to vehicle for entry From left front O From left O From left rear O From right rear O From right front O Circled vehicle O Return trip (backing into driveway/lot) O Other (specify): O N/A O Unknown	O Other (specify): N/A Unknown 15. Estimated time between vehicle entry and start of backing O 0-10 Seconds O 11-30 Seconds O 31-60 Seconds Unknown

	gament and a second		
16.	What direction was the driver looking during backing maneuver	19.	Did driver see struck non motorist prior to impact (Select all that apply)
	(Select all that apply) O Straight ahead O Right O Left O Rearward		O No, never saw non motorist O Saw non motorist prior to entering vehicle O Saw non motorist after entering vehicle O Other (specify): Unknown
	O At object inside the car	00	
	O At mirrors O Other (specify):	20.	Est time between start of backing and impact
	O N/A		O <2 or = 1 second O 2-5 seconds
17	Unknown Was the driver distracted during back up		O 6-10 seconds
17.	maneuver		O > 10 seconds
	(Select all that apply)		O N/A Unknown
	O No non-driving activities External	21.	Driver interior sightline obstructions (Select all that apply)
	O Looking at other vehicles O Looking at other non motorist O Looking at intended turn destination		O Pillar O Other occupant O Headrest O Other (specify)
	O External focus, not specified		O Cargo O Unknown None
	O Other external focus (specify): Internal	22.	Recent experience driving this vehicle
	 O Looking at other occupant O Talking to passenger O Dialing phone O Talking on phone O Listening to radio/cd/portable playback device O Adjusting radio/cd player 		O More than 10 times the last three months O 6-10 times the last three months O 2-5 times the last three months O Less than 2 times the last three months O First time driving this vehicle O N/A
	O Adjusting climate controls O Using a device/controls integral to vehicle	23.	Unknown Frequency of driving in this parking lot/driveway
	(specify): O Reading/adjusting navigation system O Eating or drinking O Smoking related O Retrieving fallen object (specify): O Internal focus, not specified O Focused on other internal object		O Daily O Weekly O Several times a month O Monthly O Rarely O First time in lot/driveway O N/A Unknown
	(specify):	24	Driver Impairment
	O N/A Unknown	۷٦.	(Select all that apply)
18.	Driver avoidance actions prior to impact (Select all that apply)		O No drugs or alcohol present O Alcohol present (specify BAC):
	O None O Braking		O Drugs present (specify):O Unknown
	O Steering left O Steering right	25.	Source of alcohol/drug results
	O Accelerating O Other (appoint):		O Police reported
	O Other (specify):O N/A		O Medical record O Other (specify)
	Unknown		O Not Tested
			Unknown if tested

Non Motorist Form

1. Case Number	11. Non-motorist motion
NON-MOTORIST PROFILE	O Not moving O Walking slowly O Walking rapidly
2. Non-motorist's Age Years 99 = Unknown	S O Running or joggingO Skipping/Hopping/JumpingO Falling/Stumbling/Rising
3. Non-motorist's Sex O Male O Female O Unknown	O On skates/skateboard O On bike/scooter O Other (specify): O Unknown
4. Non-motorist's Height cm 999 = Unknown	12. Non-motorist approach relative to rear of vehicle
5. Non-motorist's Weight kg999 = Unknown6. Medical outcome	O Stationary O From left O From right O From behind O Other (specify):
O Not injured O ER only O Hospitalized 1-4 days	O Unknown 13. Non-motorist first avoidance action
O Hospitalized 5 days or moreO Treatment laterO FatalO Unknown	O No avoidance actions O Stopped O Accelerated pace O Ran away (along vehicle path)
7. Source of most severe injury Bumper O Tire O Undercarriage O Other Specify: O Ground	O Jumped O Turned away from vehicle O Turned toward vehicle and braced O Dove or fell away from vehicle O Other (specify): O Unknown
O N/A Unknown	14. Non-motorist primary focus of attention
8. Non-motorist impairment (Select all that apply) O No drugs or alcohol present O Positive for alcohol (specify BAC): O Positive for drugs (specify): O Unknown	O Striking vehicle O Play object O Person O Surrounding traffic O Animal O Handheld electronic (phone, MP3 player, etc.)
Source of alcohol/drug results Police reported Medical Report	O Other Object (specify) O Unknown 15. Were any other Non-motorists present?
O Other (specify) O Not Tested O Unknown if tested	(Select all that apply) O Alone
NON-MOTORIST ACTIONS	O One adult present O One other child present
10. Non-motorist attitude	O Multiple adults present O Multiple children present O Unknown
O Standing O On skates/skateboard O Bending at waist O On bike/scooter O Sitting O Other (specify) O Crouching O Unknown O Kneeling	O Ulikilowii

NON MOTORIST CLOTHING

NOTES:

White

• Specify Color, Fabric and Texture/Weight for outermost layer only

Other (specify)

- Indicate "NONE" if applicable
- Available codes:

<u>Colors</u>		<u>Fabrics</u>	<u>Textures</u>	<u>Weights</u>
Black	Charcoal gray	Natural	Soft	Heavy
Lt gray/silver	Brown	Synthetic	Slick	Medium
Gold/tan	Purple	Blend	Coarse	Light
Dark blue	Light blue			_
Dark green	Light green			
Maroon	Red			
Orange	Yellow			

	Clothing	Color	Fabric	Texture	Weight
H E A D W E A R	Hat				
	Helmet				
	Hood				
	Other (specify):				
UPPER BOD	Short Sleeve				
	Long Sleeve				
	Light Jacket				
	Heavy Jacket				
	Other (Specify):				
Y					
L O W E R B O	Shorts				
	Pants				
	Shoes				
	Other (specify):				
D Y					