14 July 2016

Information Resources of the National Transportation Safety Board

SPEAKERS: Vice Chairman T. Bella Dinh-Zarr, Jeffrey Marcus, & Carol Floyd, National Transportation Safety Board

Transportation Librarians Roundtable
July 14, 2016

National Transportation Safety Board (NTSB) Webinar

Bella Dinh-Zarr, Vice Chairman
Jeffrey Marcus, Safety Recommendations Office
Carol Floyd, Research and Engineering Office

National Transportation Safety Board

- Independent federal agency
- 5 Board Members appointed by President and confirmed by Senate
- Charged by Congress to investigate every civil aviation accident and significant highway, rail, pipeline, and marine accidents in the United States.


NTSB

Our Mission:

Prevent Accidents

Reduce Injuries

Save Lives

What We Do:

- Investigate transportation accidents
- Make safety recommendations
- Assist victims and their families

www.ntsb.gov

National Transportation Safety Board

Information Resources on NTSB Website

Jeff Marcus

Office of Safety Recommendations and Communications

NTSB Website is a library of NTSB information products

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- Reports
  - Accident Investigations
  - Studies
- Recommendations
- Safety Alerts

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- Forums and Board Meetings
  - Presentations
  - Animations
- Press Releases and Speeches
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- Aviation Accident Database
- Accident Dockets
- Statistical Reports

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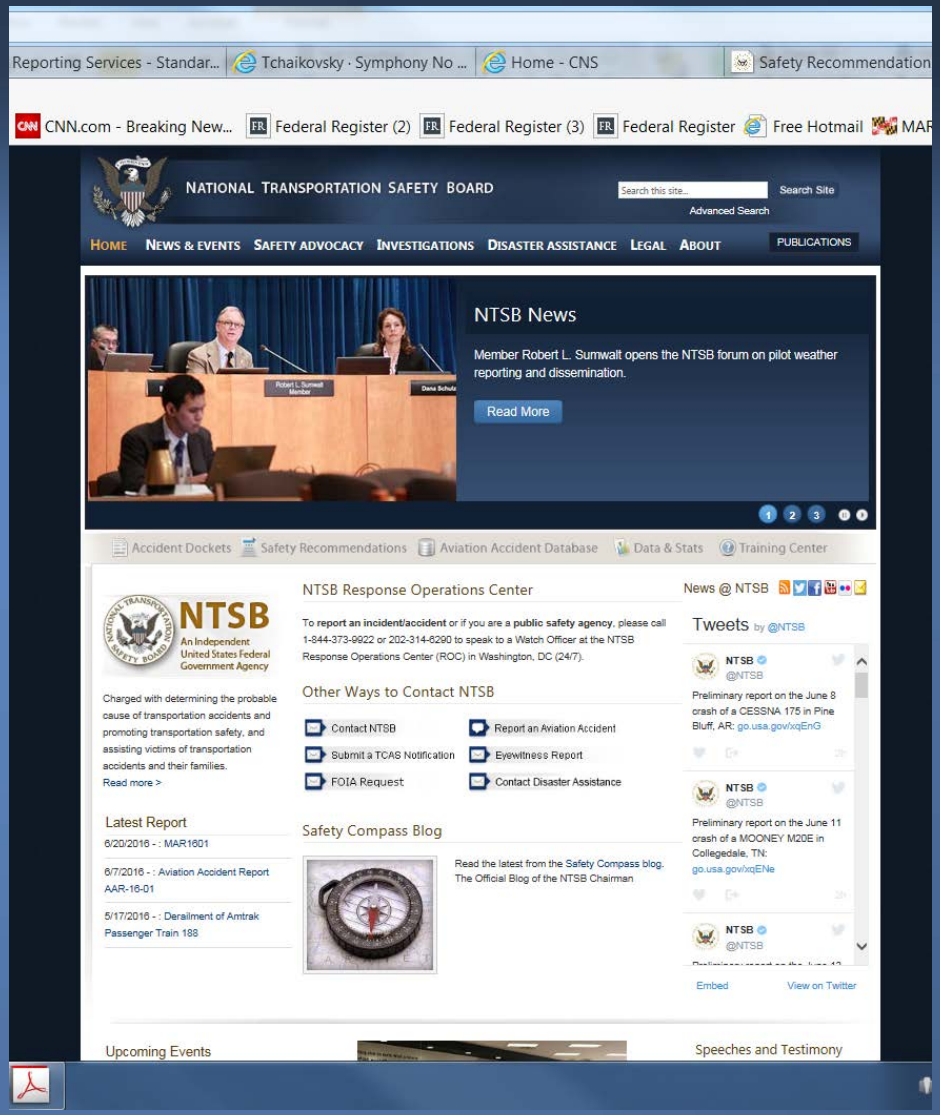
www.ntsb.gov



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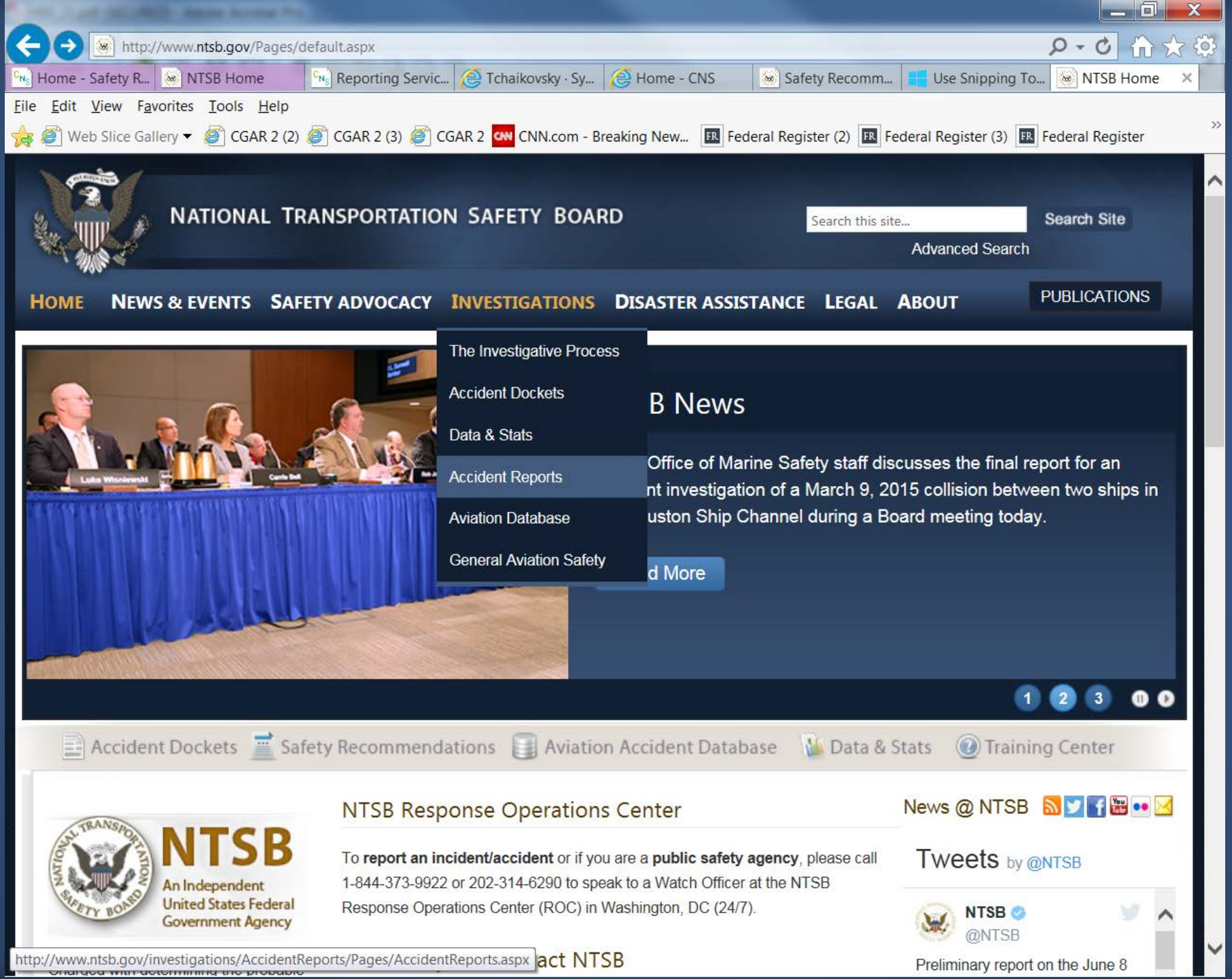
Accident Reports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Home - Safety R...
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CGAR 2 (3)
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HOME
NEWS & EVENTS
SAFETY ADVOCACY
INVESTIGATIONS
DISASTER ASSISTANCE
LEGAL
ABOUT
PUBLICATIONS
The Investigative Process
Accident Dockets
Data & Stats
Accident Reports
Aviation Database
General Aviation Safety
B News
Office of Marine Safety staff discusses the final report for an
nt investigation of a March 9, 2015 collision between two ships in
uston Ship Channel during a Board meeting today.
d More
1
2
3
Accident Dockets
Safety Recommendations
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NTSB Response Operations Center
To report an incident/accident or if you are a public safety agency, please call 1-844-373-9922 or 202-314-6290 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC (24/7).
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Preliminary report on the June 8
http://www.ntsb.gov/investigations/AccidentReports/Pages/AccidentReports.aspx

Accident Reports

Accident Reports are one of the main products of an NTSB investigation. Reports provide details about the accident, analysis of the factual data, conclusions and the probable cause of the accident, and the related safety recommendations. Most reports focus on a single accident, though the NTSB also produces reports addressing issues common to a set of similar accidents.

Most Recent Reports

Report Number	NTSB Title	Accident Date	Report Date	City	State	Country	Other	Report
MAR1601	Collision between Bulk Carrier *Conti Peridot* and Tanker *Carla Maersk* Houston Ship Channel near Morgan's Point, Texas	3/9/2015	6/20/2016	Morgan's Point	TX	USA		PDF
AAR-16-01	Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ	12/8/2014	6/7/2016	Gaithersburg	MD			PDF
RAR-16-02	Derailment of Amtrak Passenger Train 188	5/12/2015	5/17/2016	Philadelphia	PA			PDF
				Knox			Asheville Highway (State Route 9), near John	

http://www.ntsb.gov/investigations/AccidentReports/Pages/railroad.aspx

Reports by Mode

- Aviation Accident Reports
- Hazardous Materials Accident Reports
- Highway Accident Reports
- Marine Accident Reports
- Pipeline Accident Reports
- Railroad Accident Reports

Railroad Accident Reports

The NTSB issues an accident report following the investigation. These reports are available online for reports issued since 1996, with older reports coming online soon. The reports listing is sortable by the event date, report date, city, and state. Click on any of those headings to sort the data.

Showing 1 to 10 of 420 entries

First Previous 1 2 3 4 5 Next Last

Report Number	NTSB Title	Accident Date	Report Date	City	State	Country	NTIS Number	Report
RAR-16-02	Derailment of Amtrak Passenger Train 188	5/12/2015	5/17/2016	Philadelphia	PA		PB2016-103218	PDF
RAR-16-01	Washington Metropolitan Area Transit Authority L'Enfant Plaza Station Electrical Arcing and Smoke Accident	1/12/2015	5/3/2016	Washington	DC		PB2016-103217	PDF
	Preliminary Report: Railroad DCA16FR007	4/3/2016	4/18/2016	Chester	PA	USA		PDF
	Preliminary Report: Railroad DCA16MR004	3/14/2016	4/5/2016	Cimarron	KS	USA		PDF
RAB1601	Railroad Accident Brief: CSXT Petroleum Crude Oil Train Derailment and Hazardous Materials Release	4/30/2014	3/2/2016	Lynchburg	VA	USA		PDF
RAB1508	Railroad Accident Brief:	9/25/2014	12/9/2015	Galva	KS	USA		PDF

Washington Metropolitan Area Transit Authority L'Enfant Plaza Station Electrical Arcing and Smoke Accident

Executive Summary

On January 12, 2015, at 3:15 p.m. eastern standard time, Washington Metropolitan Area Transit Authority (WMATA) southbound Yellow Line train 302, with about 380 passengers on board, stopped after encountering heavy smoke in the tunnel between the L'Enfant Plaza station and the Potomac River bridge in Washington, DC. The operator of train 302 told the Rail Operations Control Center (ROCC) that the train was filling with smoke and he needed to return to the station. The WMATA ROCC allowed train 510, following train 302, to enter the L'Enfant Plaza station, which also was filling with smoke. Train 302 was unable to return to the station before power to the electrified third rail, which supplied the train's propulsion power, was lost. Some passengers on train 302 evacuated the train on their own, and others were assisted in evacuating by first responders from the District of Columbia Fire and Emergency Medical Services Department (FEMS). As a result of the accident, 91 people were injured, including passengers, emergency responders, and WMATA employees, and one passenger died. WMATA estimated the total damages to be $120,000.

The National Transportation Safety Board (NTSB) has been concerned with the safety of the WMATA rail system since 1970, when it conducted a special study of the proposed transit rail system while it was still under construction. The resulting report, NTSB/RSS-70/1, *Study of Washington Metropolitan Area Transit Authority's Safety Procedures for the Proposed Metro System*, resulted in one safety recommendation to WMATA to "develop the capability within WMATA for system safety engineering and apply system safety principles to all aspects of the proposed [rail] system to identify, assess, and correct those deficiencies identified by the analysis." This accident is the 13th WMATA rail accident investigated by the NSTB since WMATA rail began operation in 1976. The NTSB has issued 101 safety recommendations to WMATA since 1970.

Our investigation of this accident revealed a range of safety issues and conditions at WMATA that illustrate the transit organization's lack of a safety culture:

- **WMATA response to smoke report.** A smoke detector near the location of the heavy smoke activated at 3:04 p.m. but was not displayed at the ROCC because of a loose wire that prevented communication with the Advanced Information Management System. Other nearby smoke detectors activated later, and those were displayed at the ROCC, but WMATA had no procedures for response to smoke detector activations. WMATA's

Accident Location: Washington , DC
Accident Date: 1/12/2015
Accident ID: DCA15FR004

Date Adopted: 5/3/2016
NTSB Number: RAR-16-01
NTIS Number: PB2016-103217

Related Report

RAR-16-01

Preliminary Report - WMATA Smoke and Electrical Arcing Accident in Washington, DC

Related Recommendations

R-15-007
R-15-008
R-15-009
R-15-010
R-15-011
R-15-012
R-15-025
R-15-031
R-15-032
R-16-001
R-16-002
R-16-003
R-16-004
R-16-005
R-16-006
R-16-007
R-16-008
R-16-009
R-16-010
R-16-011
R-16-012
R-16-013

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RAB1508	Railroad Accident Brief:	9/25/2014	12/9/2015	Galva	KS	USA		PDF

RAR1601.pdf (SECURED) - Adobe Acrobat Pro

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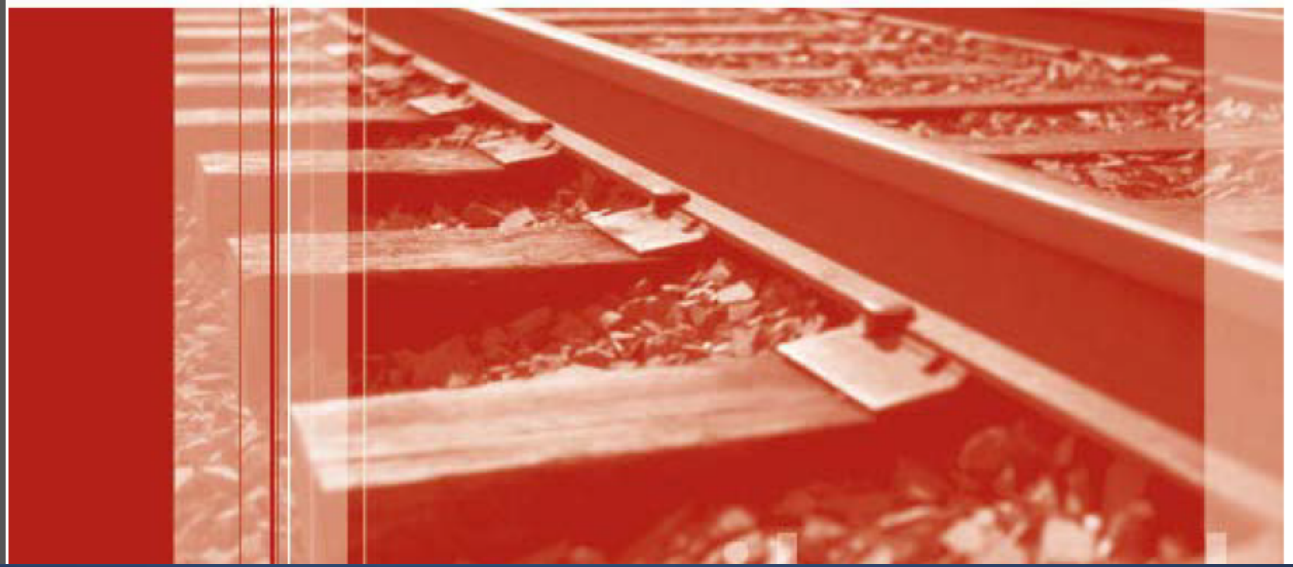
  - Washington Metropolitan Area Transit Authority L'Enfant Plaza Station Electrical
  - Washington, D.C.
  - January 12, 2015
- RAR1601- report
  - Contents
  - Figures and Tables
  - Acronyms and Abbreviations
  - Executive Summary
  - 1. Introduction
    - 1.1 The Accident
    - 1.2 Washington Metropolitan Area Transit Authority
    - 1.3 Tri-State Oversight Committee
    - 1.4 US Department of

Washington Metropolitan Area Transit Authority L'Enfant Plaza Station Electrical Arcing and Smoke Accident
Washington, D.C.
January 12, 2015



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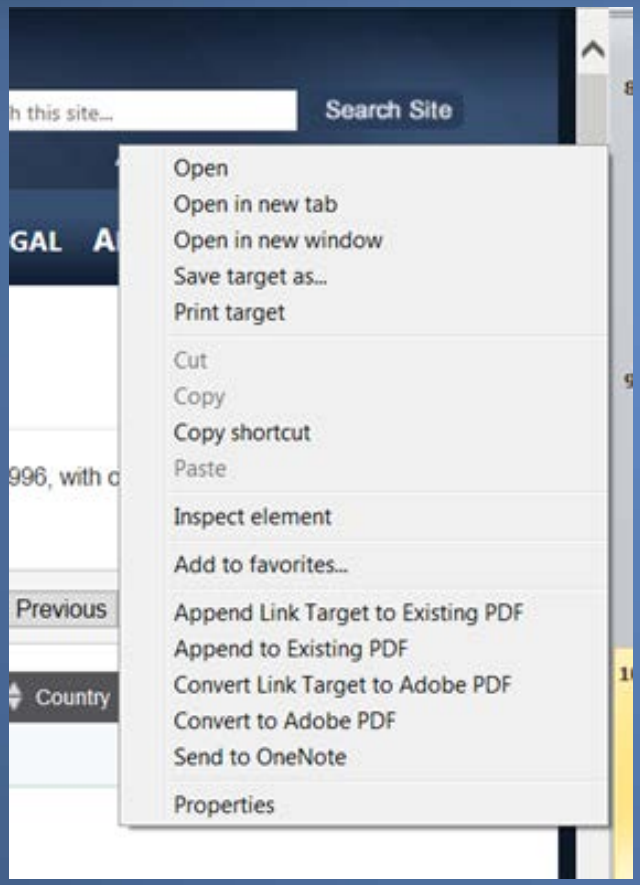

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Studies and Special Investigations

Railroad Accident

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RAB1508	Railroad Accident Brief:	9/25/2014	12/9/2015	Galva	KS	USA		PDF

Safety Studies and Special Reports

Report Title	Report Date	NTSB Office	
Selected Issues in Passenger Vehicle Tire Safety	10/27/2015	Office of Highway Safety	PDF
The Use of Forward Collision Avoidance Systems to Prevent and Mitigate Rear-End Crashes	5/19/2015	Office of Highway Safety	PDF
Commercial Vehicle Onboard Video Systems	3/3/2015	Office of Highway Safety	PDF
Safety Study: Integrity Management of Gas Transmission Pipelines in High Consequence Areas	1/27/2015	Office of Railroad, Pipeline & Hazardous Materials Investigations	PDF
Special Investigation Report: Organizational Factors in Metro-North Railroad Accidents	11/19/2014	Office of Railroad	PDF
Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection	9/24/2014	Office of Railroad	PDF
Drug Use Trends in Aviation: Assessing the Risk of Pilot Impairment	9/9/2014	Office of Aviation Safety	PDF
Special Investigation Report: Parasailing Safety	6/18/2014	Office of Marine Safety	PDF
Special Investigation Report on the Safety of Agricultural Aircraft Operations	5/7/2014	Office of Aviation Safety	PDF
Crashes Involving Single-Unit Trucks that Resulted in Injuries and Deaths	6/17/2013	Office of Highway Safety	PDF
Reaching Zero: Actions to Eliminate Alcohol-Impaired Driving	5/14/2013	Office of Highway Safety	PDF
Highway Special Investigation Report: Wrong-Way Driving	12/11/2012	Office of Highway Safety	PDF

Safety Studies

Safety Studies are examination topics such as the effectiveness of, or need for, actions by a Government agency in reducing transportation losses, the technical aspects of a transportation system, analysis of accident data, or the history and progress of transportation safety improvements. The study results in the issuance of a narrative report on the facts, conclusions and any applicable recommendations.

Special Investigations

Special Investigations can be an information-gathering effort

Highway Special Investigation Report: Wrong-Way Driving

NTSB Number: SIR-12-01
NTIS Number: PB2012-917003
Adopted: 12/11/2012

Summary

Executive Summary

This special investigation report looks at one of the most serious types of accidents that occur on our highways: these are collisions involving vehicles traveling the wrong way on high speed divided highways. The goal of this investigative project is to identify relevant safety recommendations to prevent wrong-way collisions on such highways and access ramps. The investigations included in this report take a focused view of the driver and highway issues affecting wrong-way collisions.

The report is organized into four sections. Section 1, "Wrong-Way Collisions," defines the problem, examines the National Transportation Safety Board (NTSB) history with these types of collisions and generally surveys the data and research concerning wrong-way driving collisions. Section 2, "NTSB Investigations," summarizes nine NTSB wrong-way collision investigations. Section 3, "Characterization of Wrong-Way Driving," considers the components of wrong-way collisions and uses data, research, and NTSB investigative work to summarize these types of collisions. Section 4, "Countermeasures," provides recommendations to address wrong-way collisions. Those countermeasures are organized to address the following safety issues:

- Driver impairment, primarily from alcohol use, with consideration of older driver issues and possible drug involvement
- The need to establish—through traffic control devices and highway design—distinctly different views for motorists approaching entrance and exit ramps

Safety Studies and Special Reports

Report Title	Report Date	NTSB Office	
Selected Issues in Passenger Vehicle Tire Safety	10/27/2015	Office of Highway Safety	PDF
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Safety Study: Integrity Management of Gas Transmission Pipelines in High Consequence Areas	1/27/2015	Office of Railroad, Pipeline & Hazardous Materials Investigations	PDF
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Special Investigation Report on the Safety of Agricultural Aircraft Operations	5/7/2014	Office of Aviation Safety	PDF
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Special Investigations

Special Investigations can be an information-gathering effort

Bookmarks

Wrong-Way Driving

Special Investigation Report

NTSB/SIR-12/01
PB2012-917003

National Transportation Safety Board

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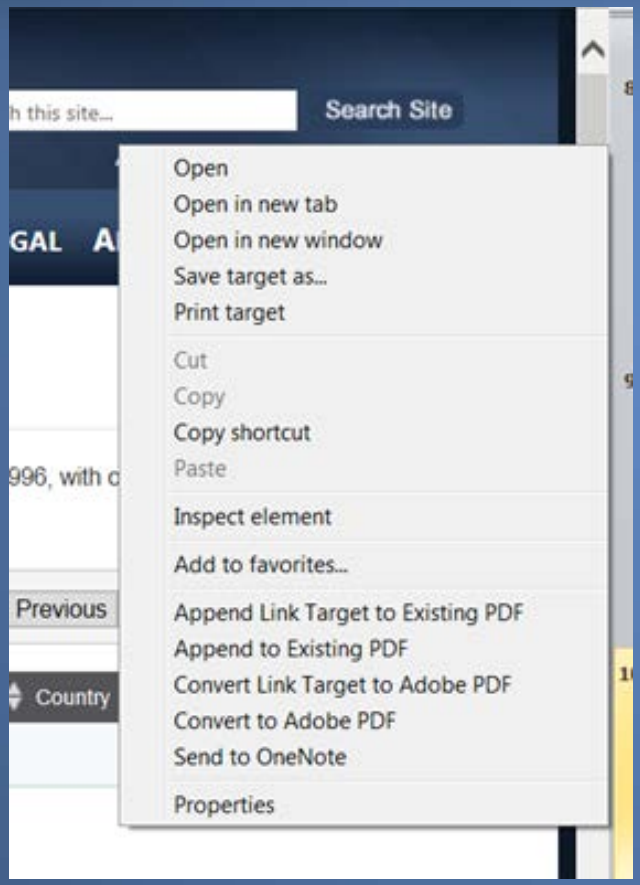

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  - Recommendation language
  - Recommendation classification
  - Accident basis
  - Correspondence

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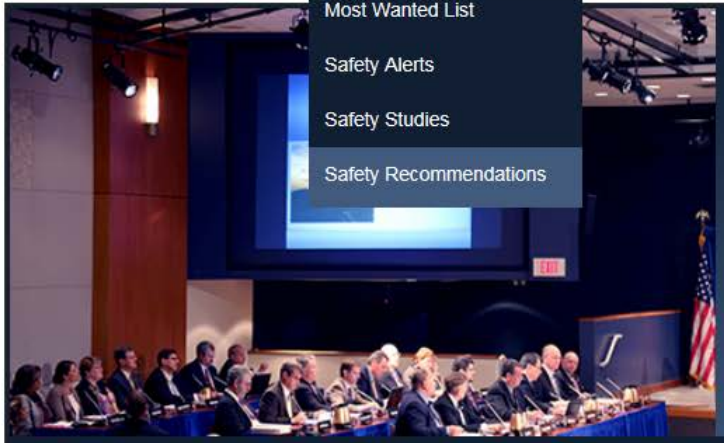
- Safety Studies
- Safety Recommendations



NTSB News

NTSB holds Board meeting to discuss the probable cause of a Dec. 8, 2014, crash of an Embraer EMB-500 Phenom into a neighborhood in Gaithersburg, Maryland.

Read More

1 2 3

Accident Dockets | Safety Recommendations | Aviation Accident Database | Data & Stats | Training Center

NTSB
An Independent United States Federal Government Agency

Charged with determining the probable cause of transportation accidents and promoting transportation safety, and assisting victims of transportation

NTSB Response Operations Center

To **report an incident/accident** or if you are a **public safety agency**, please call 1-844-373-9922 or 202-314-6290 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC (24/7).

Other Ways to Contact NTSB

Contact NTSB | Report an Aviation Accident | Submit a TOAR Notification | Eyewitness Report

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Preliminary report on the June 8 crash of a CESSNA 175 in Pine Bluff, AR: go.usa.gov/xqEnG

3h

http://www.ntsb.gov/safety/safety-recs/_layouts/ntsb.recsearch/RecTabs.aspx

Safety Recommendations

Safety recommendations are issued by the NTSB following the investigation of transportation accidents and the completion of safety studies. Recommendations usually address a specific issue uncovered during an investigation or study and specify how to correct the situation. Letters containing the recommendations are sent to the organization best able to address the safety issue, whether it is public or private.

Use the query below to search the NTSB's Safety Recommendations Database using a variety of criteria, including mode, recommendation number, keywords, accident date or other information. This query displays the text of the NTSB's recommendations, their current status, and correspondence with the recommendation request.

For information on how to use the search and an explanation of statuses View Help.

Recommendation Letter Archive

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1999 | 1998 | 1997 | 1996 | 1995 | 1994 | 1993 | 1992 | 1991 | 1990 |

1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 | 1982 | 1981 | 1980 |

1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 |

1969 | 1968 | 1967 |

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Mode: Aviation

Recommendation #: All

Keywords: All

All

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Accident Date Range: -

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1999 | 1998 | 1997 | 1996 | 1995 | 1994 | 1993 | 1992 | 1991 | 1990 |

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1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 |

1969 | 1968 | 1967 |

NTSB Safety Recommendations Search

Basic Search | Advanced Search | Browse By Mode | Browse By Addressee

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Accident Date Range:

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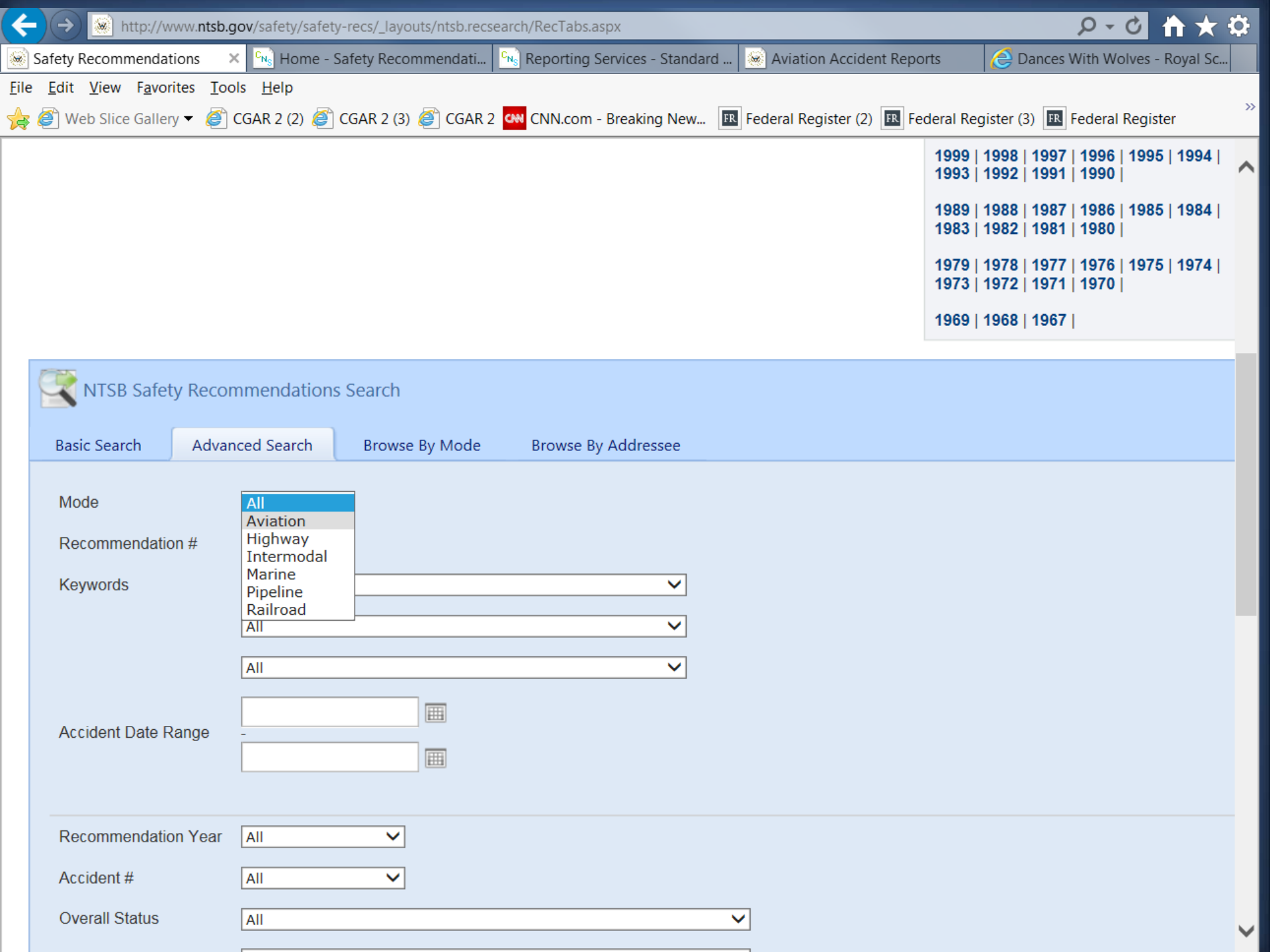
Recommendation Year: All

Accident #: All

Overall Status: All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Safety Recommendations
Home - Safety Recommendati...
Reporting Services - Standard ...
Aviation Accident Reports
Dances With Wolves - Royal Sc...
File Edit View Favorites Tools Help
Web Slice Gallery
CGAR 2 (2)
CGAR 2 (3)
CGAR 2
CNN.com - Breaking New...
Federal Register (2)
Federal Register (3)
Federal Register
1999 | 1998 | 1997 | 1996 | 1995 | 1994 | 1993 | 1992 | 1991 | 1990 |
1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 | 1982 | 1981 | 1980 |
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NTSB Safety Recommendations Search
Basic Search
Advanced Search
Browse By Mode
Browse By Addressee
Mode
All
Aviation
Highway
Intermodal
Marine
Pipeline
Railroad
Recommendation #
Keywords
All
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Accident Date Range
-
Recommendation Year
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Accident #
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Overall Status
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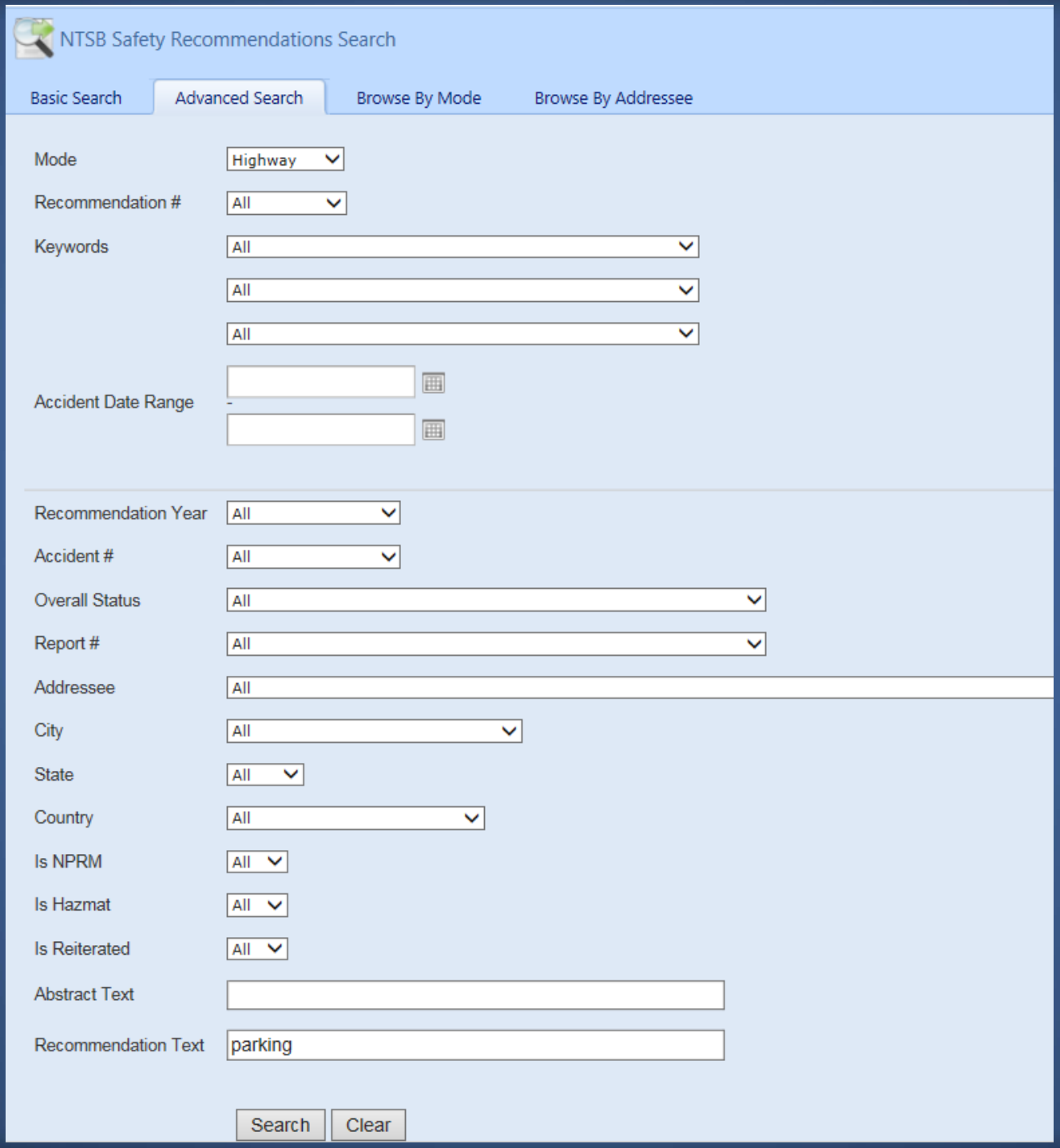
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Basic Search
Advanced Search
Browse By Mode
Browse By Addressee
Mode
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Addressee: All

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State: All

Country: All

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Is Hazmat: All

Is Reiterated: All

Abstract Text:

Recommendation Text: parking

Search Clear

1 2 3 Page size: 10 — 24 items in 3 pages

Recommendation #	Recommendation Year	Accident #	Overall Status	City	State	Country
H-00-003	2000	HWY98MH033	Closed - Acceptable Action	BURNT CABINS	PA	United States
H-00-004	2000	HWY98MH033	Closed - Acceptable Action	BURNT CABINS	PA	United States
H-00-016	2000	80590	Closed - Acceptable Action			United States
H-00-017	2000	80590	Closed - Acceptable Alternate Action			United States
H-00-018	2000	80590	Closed - Acceptable Action			United States
H-00-019	2000	80590	Closed - Acceptable Action			United States
H-00-020	2000	80590	Closed - Acceptable Action			United States
H-00-021	2000	80590	Closed - Acceptable Action			United States
H-00-022	2000	80590	Closed - Acceptable Action			United States
H-00-023	2000	80590	Closed--No Longer Applicable			United States

1 2 3 Page size: 10 — 24 items in 3 pages

Safety Recommendation H-00-003

Details

Synopsis:	About 4:05 a.m. on 6/20/98, a 1997 motor coach industries 47-passenger motorcoach, operated by Greyhound Lines, Inc., was on a scheduled trip from New York City to Pittsburgh, Pennsylvania, traveling westbound on the Pennsylvania turnpike near Burnt Cabins, Huntingdon County, Pennsylvania. As the bus approached milepost 184.9, it traveled off the right side of the roadway into an "emergency parking area," where it struck the back of a parked tractor-semitrailer, which was pushed forward and struck the left side of another parked tractor-semitrailer. Of the 23 people on board the bus, the driver and 6 passengers were killed; the other 16 passengers were injured. The two occupants of the first tractor-semitrailer were injured, and the occupant of the second tractor-semitrailer was injured.
Recommendation:	TO THE PENNSYLVANIA TURNPIKE COMMISSION: Prohibit nonemergency parking in pull-off areas within the highway clear zone.
Original recommendation transmittal letter:	
Overall Status:	Closed - Acceptable Action
Mode:	Highway
Location:	BURNT CABINS, PA, United States
Is Reiterated:	No
Is Hazmat:	No
Is NPRM:	No
Accident #:	HWY98MH033
Accident Reports:	Greyhound Motorcoach Run-Off-The-Road Accident
Report #:	HAR-00-01
Accident Date:	6/20/1998
Issue Date:	1/14/2000
Date Closed:	2/4/2009
Addressee(s) and Addressee Status:	Commonwealth of Pennsylvania, Turnpike Commission (Closed - Acceptable Action)
Keyword(s):	

Safety Recommendation History

From:	NTSB
To:	Commonwealth of Pennsylvania, Turnpike Commission
Date:	2/4/2009
Response:	The Safety Board notes that the Commission has addressed all of the 564 pull-off areas identified throughout the Pennsylvania Turnpike System through either elimination or conversion to Federal Highway Administration (FHWA) regulation-compliant zones. To date, 288 areas have already been eliminated and the Commission plans to eliminate 63 additional areas during future construction projects, as well as designate 11 pull-offs as No Parking areas. The Board further notes that the Commission identified 202 areas that meet established FHWA criteria to be designated with appropriate paint markings and signage as Emergency Pull-Off and Emergency Stopping areas. The Emergency Pull-Off areas allow motorists to park their vehicles beyond the 30-foot recommended clear zone. The Emergency Stopping areas allow vehicles to pull off of the roadway in emergency situations but do not provide sufficient clearance for parking beyond the recommended clear zone and are signed No Parking to prevent motorists from parking vehicles within the recommended clear zone for extended periods of time. Although the Commission originally planned to address these areas on a project-by-project basis, the Board is pleased to note that a reevaluation of the approach has resulted in increased funding and a plan to complete action on this project within 3 to 4 years. As the Commission's actions, both taken and planned, satisfy the intent of this recommendation, Safety Recommendation H-00-3 is classified CLOSED—ACCEPTABLE ACTION.

From:	Commonwealth of Pennsylvania, Turnpike Commission
To:	NTSB
Date:	2/12/2008
Response:	Letter Mail Controlled 2/13/2008 9:19:17 AM MC# 2080060: -From Michael D. Shaak, P.E.: The following is an update on the status of the Commission's implementation of NTSB's Safety Recommendation H-00-03 which suggests that the Commission prohibit non-emergency parking in pull-off areas within the highway clear zone. The Commission reported in our August 29, 2007 letter that 271 of the 564 pull-off areas originally identified had been eliminated with an additional 67 of these areas slated to be eliminated in future projects. The Commission also reported in this letter that 112 pull-off areas were identified throughout the Turnpike which met the criteria established by FHWA for "Emergency Pull-Off" areas and 104 for "Emergency Stopping "areas. These identified "Emergency Pull-Off" areas and "Emergency Stopping "areas require installation of traffic signs and/or line painting. The Commission has recently completed the updated to our pull-off areas inventory list. To date we report the following: • 288 pull-Off areas have been eliminated from the original 564. • 63 pull-off areas are slated to be eliminated in future projects. • 106 pull-off areas have been listed as "Emergency Pull-Off" areas. 11 of the 106 areas have been properly signed and pavement line painted with 95 still requiring installation of traffic signs and line painting. • 96 pull-off areas have been listed for "Emergency Stopping "areas. 4 of the 96 areas have been properly signed with 92 still requiring installation of traffic signs. • 11 pull-Off

Safety Recommendation H-00-003

Details

Synopsis:	About 4:05 a.m. on 6/20/98, a 1997 motor coach industries 47-passenger motorcoach, operated by Greyhound Lines, Inc., was on a scheduled trip from New York City to Pittsburgh, Pennsylvania, traveling westbound on the Pennsylvania turnpike near Burnt Cabins, Huntingdon County, Pennsylvania. As the bus approached milepost 184.9, it traveled off the right side of the roadway into an "emergency parking area," where it struck the back of a parked tractor-semitrailer, which was pushed forward and struck the left side of another parked tractor-semitrailer. Of the 23 people on board the bus, the driver and 6 passengers were killed; the other 16 passengers were injured. The two occupants of the first tractor-semitrailer were injured, and the occupant of the second tractor-semitrailer was injured.
Recommendation:	TO THE PENNSYLVANIA TURNPIKE COMMISSION: Prohibit nonemergency parking in pull-off areas within the highway clear zone.
Original recommendation transmittal letter:	
Overall Status:	Closed - Acceptable Action
Mode:	Highway
Location:	BURNT CABINS, PA, United States
Is Reiterated:	No
Is Hazmat:	No
Is NPRM:	No
Accident #:	HWY98MH033
Accident Reports:	Greyhound Motorcoach Run-Off-The-Road Accident
Report #:	HAR-00-01
Accident Date:	6/20/1998
Issue Date:	1/14/2000
Date Closed:	2/4/2009
Addressee(s) and Addressee Status:	Commonwealth of Pennsylvania, Turnpike Commission (Closed - Acceptable Action)
Keyword(s):	

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: January 14, 2000

In reply refer to: H-00-03 through -05

Mr. John F. Malone, III
Chairman
Pennsylvania Turnpike Commission
Post Office Box 67676
Harrisburg, Pennsylvania 17106

About 4:05 a.m. on June 20, 1998, a 1997 Motor Coach Industries 47-passenger motorcoach, operated by Greyhound Lines, Inc., was on a scheduled trip from New York City to Pittsburgh, Pennsylvania, traveling westbound on the Pennsylvania Turnpike near Burnt Cabins, Huntingdon County, Pennsylvania. As the bus approached milepost 184.9, it traveled off the right side of the roadway into an "emergency parking area,"[1] where it struck the back of a parked tractor-semitrailer, which was pushed forward and struck the left side of another parked tractor-semitrailer. Of the 23 people on board the bus, the driver and 6 passengers were killed; the other 16 passengers were injured. The two occupants of the first tractor-semitrailer were injured, and the occupant of the second tractor-semitrailer was uninjured.[2]

among the responding agencies.

Therefore, the National Transportation Safety Board recommends that the Pennsylvania Turnpike Commission:

> Prohibit nonemergency parking in pull-off areas within the highway clear zone. (H-00-03)
>
> Provide adequate rest areas for nonemergency parking to accommodate vehicles that may be displaced by the prohibition of parking in emergency pull-off areas within the highway clear zone. (H-00-04)
>
> Periodically conduct disaster drills in mass casualty transportation accidents, such as the bus accident near Burnt Cabins, with contracted emergency response departments on the Pennsylvania Turnpike to assess its emergency management plan, to reinforce and evaluate emergency training, and to test communication among the responding agencies. (H-00-05)

Also, the Safety Board issued Safety Recommendations H-00-01 and -02 to the National

on board the bus, the driver and 6 passengers were killed; the other 16 passengers were injured. The two occupants of the first tractor-semitrailer were injured, and the occupant of the second tractor-semitrailer was injured.

Recommendation:	TO THE PENNSYLVANIA TURNPIKE COMMISSION: Prohibit nonemergency parking in pull-off areas within the highway clear zone.
Original recommendation transmittal letter:	
Overall Status:	Closed - Acceptable Action
Mode:	Highway
Location:	BURNT CABINS, PA, United States
Is Reiterated:	No
Is Hazmat:	No
Is NPRM:	No
Accident #:	HWY98MH033
Accident Reports:	Greyhound Motorcoach Run-Off-The-Road Accident
Report #:	HAR-00-01
Accident Date:	6/20/1998
Issue Date:	1/14/2000
Date Closed:	2/4/2009
Addressee(s) and Addressee Status:	Commonwealth of Pennsylvania, Turnpike Commission (Closed - Acceptable Action)
Keyword(s):	

Safety Recommendation History

From: NTSB
To: Commonwealth of Pennsylvania, Turnpike Commission
Date: 2/4/2009
Response: The Safety Board notes that the Commission has addressed all of the 564 pull-off areas identified throughout the Pennsylvania Turnpike System through either elimination or conversion to Federal Highway Administration (FHWA) regulation-compliant zones. To date, 288 areas have already been eliminated and the Commission plans to eliminate 63 additional areas during future construction projects, as well as designate 11 pull-offs as No Parking areas. The Board further notes that the Commission identified 202 areas that meet established FHWA criteria to be designated with appropriate paint markings and signage as Emergency Pull-Off and Emergency Stopping areas. The Emergency Pull-Off areas allow motorists to park their vehicles beyond the 30-foot recommended clear zone. The Emergency Stopping areas allow vehicles to pull off of the roadway in emergency situations but do not provide sufficient clearance for parking beyond the recommended clear zone and are signed No Parking to prevent motorists from parking vehicles within the recommended clear zone for extended periods of time. Although the Commission originally planned to address these areas on a project-by-project basis, the Board is pleased to note that a reevaluation of the approach has resulted in increased funding and a plan to complete action on this project within 3 to 4 years. As the Commission's actions, both taken and planned, satisfy the intent of this recommendation, Safety Recommendation H-00-3 is classified CLOSED—ACCEPTABLE ACTION.

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Recommendation Letters

- Prior to 2012, full background
- Starting 2012, if recommendation is from
  - Major Report - Only recommendation text, and report reference
  - Stand Alone – (Not from major accident report or study) full background

Safety Recommendations

Safety recommendations are issued by the NTSB following the investigation of transportation accidents and the completion of safety studies. Recommendations usually address a specific issue uncovered during an investigation or study and specify how to correct the situation. Letters containing the recommendations are sent to the organization best able to address the safety issue, whether it is public or private.

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2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |

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1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 |

1969 | 1968 | 1967 |

NTSB Safety Recommendations Search

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2011 Recommendations

1 2 3 4 5 6 7 8 9 10 ... Page size: 10

212 items in 22 pages

Mode	Recommendation #	Recommendation Letter
	H-11-005	
Aviation	A-11-018	
Aviation	A-11-019	
Aviation	A-11-020	
Aviation	A-11-021	
Aviation	A-11-022	
Aviation	A-11-023	
Aviation	A-11-024	
Aviation	A-11-025	
Aviation	A-11-026	
Aviation	A-11-027	

2011 Recommendations

Mode	Recommendation #	Recommendation Letter
	H-11-005	
Highway	H-11-005	

National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: September 2, 2011

In reply refer to: H-11-4 through -6

The Honorable Cynthia L. Quarterman
Administrator
Pipeline and Hazardous Materials Safety Administration
1200 New Jersey Avenue, SE
East Building, Second Floor
Washington, DC 20590

On October 22, 2009, about 10:38 a.m. eastern daylight time, a 2006 Navistar International truck-tractor in combination with a 1994 Mississippi Tank Company MC331 specification cargo tank semitrailer (the combination unit), operated by AmeriGas Propane, L.P., and laden with 9,001 gallons of liquefied petroleum gas, rolled over on a connection ramp after exiting Interstate 69 (I-69) southbound to proceed south on Interstate 465 (I-465), about 10 miles northeast of downtown Indianapolis, Indiana.[1]

The truck driver was negotiating a left curve in the right lane on the connection ramp, which consisted of two southbound lanes, when the combination unit began to encroach upon the left lane, occupied by a 2007 Volvo S40 passenger car. The truck driver responded to the Volvo's presence in the left lane by oversteering clockwise, causing the combination unit to veer to the right and travel onto the paved right shoulder. Moments later, the truck driver steered counterclockwise to redirect and return the combination unit from the right shoulder to the right lane.

The truck driver's excessive, rapid, evasive steering maneuver triggered a sequence of

Safety Recommendations

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Recommendation Letter Archive

2016 | 2015 | 2014 | 2013 | 2012 | 2011 | 2010 |

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1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 | 1982 | 1981 | 1980 |

1979 | 1978 | 1977 | 1976 | 1975 | 1974 | 1973 | 1972 | 1971 | 1970 |

1969 | 1968 | 1967 |

NTSB Safety Recommendations Search

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2015 Recommendations

1 2 3 4 5 6 7 8 9 10 ... Page size: 10

163 items in 17 pages

Mode	Recommendation #	Recommendation Letter
	A-15-020	
Aviation	A-15-001	
Aviation	A-15-002	
Aviation	A-15-003	
Aviation	A-15-004	
Aviation	A-15-005	
Aviation	A-15-006	
Aviation	A-15-007	
Aviation	A-15-008	
Aviation	A-15-019	
Aviation	A-15-020	

2015 Recommendations

Mode	Recommendation #	Recommendation Letter
	A-15-020	
Aviation	A-15-020	

National Transportation Safety Board

Washington, DC 20594

Safety Recommendation

Date: August 4, 2015

In reply refer to: A-15-19 through -26

The Honorable Michael P. Huerta
Administrator
Federal Aviation Administration
Washington, DC 20591

On July 28, 2015, the National Transportation Safety Board (NTSB) adopted its report concerning the October 31, 2014, accident in which the SpaceShipTwo reusable suborbital rocket, N339SS, operated by Scaled Composites LLC, broke up into multiple pieces during a rocket-powered test flight and impacted terrain over a 5-mile area near Koehn Dry Lake, California.[1] Additional information about this accident and the resulting recommendations may be found in the report of the investigation, which can be accessed at our website, http://www.ntsb.gov, under report number NTSB/AAR-15/02.

As a result of this investigation, we issued 10 new recommendations, including 2 to the Commercial Spaceflight Federation and the following 8 recommendations to the Federal Aviation Administration:

A-15-19

In collaboration with the Commercial Spaceflight Federation, develop and issue human factors guidance for operators to use throughout the design and operation of a crewed vehicle. The guidance should address, but not be limited to, the human factors issues identified during the SpaceShipTwo accident investigation.

[1] National Transportation Safety Board, *In-Flight Breakup During Test Flight, Scaled Composites SpaceShipTwo, N339SS, Near Koehn Dry Lake, California, October 31, 2014*, NTSB/AAR-15/02 (Washington, DC: National Transportation Safety Board, 2015).

A-15-20

Implement steps in your evaluation of experimental permit applications to ensure that applicants have (1) identified single flight crew tasks that, if performed incorrectly or at the wrong time, could result in a catastrophic hazard, (2) assessed the reasonableness, including human factor considerations, of the proposed mitigations to prevent errors that could result from performing those tasks, and (3) fully documented the rationale used to justify related assumptions in the hazard analysis required by 14 *Code of Federal Regulations* 437.55.

A-15-21

Develop a process to determine whether an experimental permit applicant has demonstrated the adequacy of existing mitigations to ensure public health and safety as well as safety of property before granting a waiver from the human error hazard analysis requirements of 14 *Code of Federal Regulations* 437.55.

A-15-22

Develop and implement procedures and guidance for confirming that commercial space operators are implementing the mitigations identified in a safety-related waiver of federal regulations and work with the operators to determine the effectiveness of those mitigations that correspond to hazards contributing to catastrophic outcomes.

A-15-23

Develop and issue guidance for experimental permit applicants that (1) includes the information in Advisory Circular 413-1, "License Application Procedures," and (2) encourages commercial space vehicle manufacturers to begin the consultation process with the Office of Commercial Space Transportation during a vehicle's design phase.

A-15-24

Develop and implement a program for Office of Commercial Space Transportation inspectors that aligns them with individual operators applying for an experimental permit or a launch license to ensure that the inspectors have adequate time to become familiar with the technical, operational, training, and management controls that they will inspect.

2015 Recommendations

Mode	Recommendation #	Recommendation Letter
	A-15-012	
Aviation	A-15-012	

National Transportation Safety Board
Washington, DC 20594

Safety Recommendation

Date: July 23, 2015

In reply refer to: A-15-12

The Honorable Michael P. Huerta
Administrator
Federal Aviation Administration
Washington, DC 20591

We are providing the following information to urge the Federal Aviation Administration (FAA) to take action on the safety recommendation issued in this letter. This recommendation addresses the crash resistance of rotorcraft fuel systems. The recommendation is derived from an accident that the National Transportation Safety Board (NTSB) has investigated in which the impact forces were survivable for occupants but fatal or serious injuries occurred because of a postcrash fire that resulted from an impact-related breach in the fuel tanks. Information supporting this recommendation is discussed below.

On October 4, 2014, about 0155 central daylight time, an emergency medical services (EMS) Bell 206L1+ helicopter, N335AE, impacted terrain while on approach to the United Regional Hospital helipad in Wichita Falls, Texas. The commercial pilot later reported that the helicopter was inverted at impact and quickly filled up with smoke. He punched out the windshield and evacuated the helicopter. Footage from surveillance cameras at the hospital shows a large explosion where the helicopter hit the ground about 6 seconds after impact. The pilot was seriously injured; the flight nurse and paramedic survived the impact but later died from their injuries, which included thermal injuries. The patient likely died before impact, and his death was determined to be a result of the injury sustained before the accident. The helicopter was destroyed by the postcrash fire.[1]

This helicopter was manufactured in 1981 and did not have a crash-resistant fuel system as currently required by 14 *Code of Federal Regulations* (CFR) Part 27 airworthiness standards for normal-category rotorcraft. The FAA revised these standards along with Part 29 airworthiness standards for transport-category rotorcraft on October 3, 1994, to add "comprehensive crash resistant fuel system design and test criteria" for newly certified rotorcraft.[2] The revisions included two new regulations, 14 CFR 27.952 and 29.952, "Fuel System Crash Resistance," which state, "to minimize the hazard of fuel fires to occupants following an otherwise survivable

[1] More information about this accident, NTSB case number CEN15FA003, is available at http://www.ntsb.gov/_layouts/ntsb.aviation/index.aspx.

[2] 59 *Federal Register* 50380, October 3, 1994. The revised airworthiness standards became effective on November 2, 1994.

impact (crash landing), the fuel systems must incorporate the design features of this section."[3] However, the fuel systems on newly manufactured rotorcraft with type certificates approved before October 1994 are not subject to these regulations and, as a result, may pose a hazard to occupants if the systems are breached during a crash. Although the helicopter involved in the October 4, 2014, accident was manufactured before 1994, the circumstances of the accident illustrate that the impact forces alone during certain helicopter accidents are survivable if a postcrash fire can be prevented or its severity reduced.

In an October 1994 report on the results of a research program[4] conducted to investigate crash-resistant design technologies available to US civil rotorcraft—including those for fuel systems—the FAA "reaffirmed" the following two "significant" findings from a June 1985 study on rotorcraft crash dynamics: a "large percentage" of US civil rotorcraft accidents were potentially survivable, and the predominant hazard to occupant survival was a postcrash fire. The FAA's 1994 report indicated that the rotorcraft postcrash fire hazard was not limited to US civil helicopters (although the typical impact conditions for US civil helicopters was "substantially less severe" than for US military helicopters), noting that the US Army experienced a "high incidence" of thermal injuries and fatalities resulting from aircraft accidents.

To decrease thermal injuries and fatalities, the US Army began equipping its helicopters with crash-resistant fuel systems. Doing so resulted in a 66% reduction in postcrash fires in survivable accidents and an 18% reduction in postcrash fires in nonsurvivable accidents. These systems also resulted in a 75% reduction in thermal injuries and no thermal fatalities in survivable impact conditions. The results of the FAA's research program and the US Army's experience demonstrate the importance of ensuring that newly manufactured rotorcraft comply with the current airworthiness standards for crash-resistant fuel systems regardless of when the rotorcraft were certified.

Between 1994 and 2013, the NTSB has investigated at least 135 accidents in the United States involving certificated helicopters of various models that resulted in a postcrash fire. Those accidents resulted in 221 fatalities and 37 serious injuries. Only three of the accident helicopters that experienced postcrash fire had crash-resistant fuel systems and crashworthy fuel tanks.[5] Although these accidents involved circumstances other than postcrash fire that made them nonsurvivable, this sample from the NTSB's database illustrates how few helicopters in

[3] Paragraphs (a) through (g) in both sections address, respectively, drop test requirements to simulate fuel tank rupture (with a drop height of at least 50 feet), fuel tank load factors, fuel line self-sealing breakaway couplings, frangible or deformable structural attachments, separation of fuel and ignition sources, other basic design criteria, and impact and tear resistance of fuel tanks or bladders. According to the regulations, fuel tank load factors must be sustained "without structural damage to the system components, fuel tanks, or their attachments that would leak fuel to an ignition source."

[4] The research program also examined crash-resistant design technologies for landing gear, fuselage structure, and seating systems. According to the FAA, the program resulted in crash impact design and test criteria for civil rotorcraft and an assessment of the weight penalties that would be incurred in meeting these criteria. For more information, see *Rotorcraft Crashworthy Airframe and Fuel System Technology Development*, DOT/FAA/CT-91/7 (Atlantic City, New Jersey: Federal Aviation Administration Technical Center, 1994).

[5] NTSB case number MIA00FA102 involved a McDonnell Douglas Helicopter MD600N and case number CEN12FA001 involved the inflight breakup of a Robinson Helicopter Company R66. Another accident, case number SEA04MA167, involved a Bell Helicopter B407 that was certified to an equivalent level of safety for 14 CFR 27.952 excluding paragraph 27.952(b)(1), which addresses load factors for fuel tanks in the cabin.

Safety Recommendations

www.ntsb.gov/_layouts/ntsb.recsearch/RecTabs.aspx

Accident #	All
Overall Status	All
Report #	All
Addressee	All
City	All
State	All
Country	All
Is NPRM	All
Is Hazmat	All
Is Reiterated	All
Abstract Text	TWA flight 800
Recommendation Text	

Search Clear

Page size: 10 — 0 items in 1 pages

Recommendation #	Recommendation Year	Accident #	Overall Status	City	State	Country

No records to display.

Page size: 10 — 0 items in 1 pages

Is Reiterated: All

Abstract Text: TWA flight 800

Recommendation Text:

Search Clear

1 Page size: 10 — 7 items in 1 pages

Recommendation #	Recommendation Year	Accident #	Overall Status	City	State	Country
A-06-036	2006	80707	Open - Acceptable Response			United States
A-06-037	2006	80707	Open - Unacceptable Response			United States
A-06-038	2006	80707	Closed - Acceptable Action			United States
A-00-105	2000	DCA96MA070	Closed - Acceptable Action	EAST MORICHES	NY	United States
A-00-106	2000	DCA96MA070	Closed - Acceptable Action	EAST MORICHES	NY	United States
A-00-107	2000	DCA96MA070	Closed - Acceptable Action	EAST MORICHES	NY	United States
A-00-108	2000	DCA96MA070	Closed - Acceptable Action	EAST MORICHES	NY	United States

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2015 | 2014 | 2013 | 2012 | 2011 | 2010 |

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1969 | 1968 | 1967 |

NTSB Safety Recommendations Search

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1989 | 1988 | 1987 | 1986 | 1985 | 1984 | 1983 | 1982 | 1981 | 1980 |

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NTSB Safety Recommendations Search

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All A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

1 2 3 4 5 6 7 8 9 10 ... Page size: 10 — 2307 items in 231 pages

Addressee

California

- AAA
- ABB, Inc.
- ABC Companies, Inc.
- AC Transit (Alameda-Contra Costa Transit District)
- Academy of Certified Birth Educators
- Academy of Television Arts and Sciences
- ACT International Airlines
- ADM (Archer Daniels Midland Company)
- Admiral Cruise Lines, Inc.
- Advanced Bus Industries, LLC

1 2 3 4 5 6 7 8 9 10 ... Page size: 10 — 2307 items in 231 pages

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1 2 3 4 5 6 7 8 9 10 ... Page size: 10 2307 items in 231 pages

Addressee

California

NoFilter
Contains
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NotEqualTo
GreaterThan
LessThan
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ACT International
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Advanced Bus Inc

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NTSB Safety Recommendations Search

Basic Search | Advanced Search | Browse By Mode | Browse By Addressee

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1 2 3 4 5 Page size: 10 46 items in 5 pages

Addressee

California

Air California

California Maritime Academy

California Police Chiefs Association

California Professional Escort Car Association

California Trucking Association

California Yearly Meeting of Friends Church

Southern California Regional Rail Authority

Sportfishing Association of California

State of California

State of California. Board of Pilot Commissioners

1 2 3 4 5 Page size: 10 46 items in 5 pages

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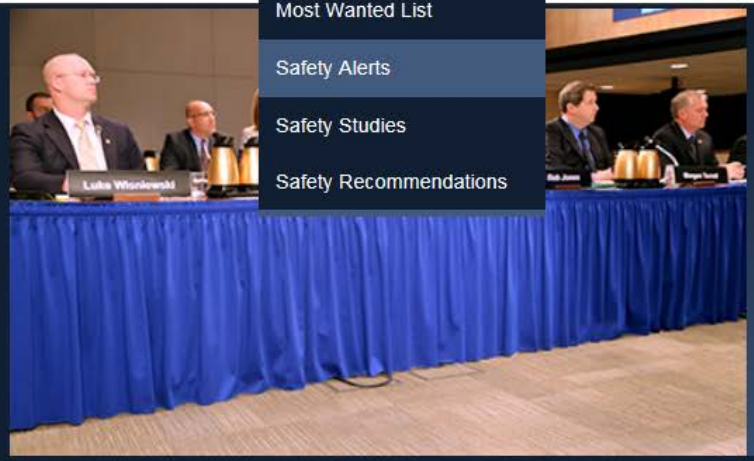
Advanced Search

HOME | NEWS & EVENTS | SAFETY ADVOCACY | INVESTIGATIONS | DISASTER ASSISTANCE | LEGAL | ABOUT | PUBLICATIONS

- Most Wanted List
- Safety Alerts
- Safety Studies
- Safety Recommendations



NTSB News

NTSB Office of Marine Safety staff discusses the final report for an accident investigation of a March 9, 2015 collision between two ships the Houston Ship Channel during a Board meeting today.

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1 2 3

Accident Dockets | Safety Recommendations | Aviation Accident Database | Data & Stats | Training Center

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An Independent United States Federal Government Agency

Charged with determining the probable cause of transportation accidents and promoting transportation safety, and

NTSB Response Operations Center

To **report an incident/accident** or if you are a **public safety agency**, please call 1-844-373-9922 or 202-314-6290 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC (24/7).

Other Ways to Contact NTSB

Contact NTSB

Report an Aviation Accident

News @ NTSB

Tweets by @NTSB

NTSB @NTSB

Preliminary report on the June 8 crash of a CESSNA 175 in Pine Bluff, AR: go.usa.gov/xqEnG

NTSB Safety Alerts

Take action to improve your safety and the safety of your family and friends by following the suggestions in these NTSB Safety Alerts.

NTSB has also released several Safety Alert Videos.

Aviation Safety

- Arriving at a Major Fly-In Event? Keep your focus on safety! (SA-053)
- Visual Illusions: The Ground May Be Closer Than It Appears (SA-052)
- Line Personnel: Fueling Matters (SA-051)
- Pilots: Fueling Mistakes (SA-050)
- Flight Control Locks: Overlooking the Obvious (SA-048)
- See and Be Seen: Your Life Depends on It (SA-045)
- Mechanics: Prevent Misrigging Mistakes (SA-042)
- Pilots: Perform Advanced Preflight After Maintenance (SA-041)
- Understanding Flight Experience (SA-040)
- Mastering Mountain Flying (SA-039)
- Pilots: Understand Impairment Risk (SA-037)
- Preventing Obstacle Collision Accidents in Agricultural Aviation (SA-035)
- Landing at the Wrong Airport (SA-033)
- Helicopter Safety Starts in the Hangar (SA-032)
- Safety Through Helicopter Simulators (SA-031)
- "Armed" for Safety: Emergency Locator Transmitters (SA-030)
- Engine Power Loss Due to Carburetor Icing (SA-029)
- Proper Use of Fiber or Nylon Self-Locking Nuts (SA-028)

NTSB
SAFETY ALERT
National Transportation Safety Board

Landing at the Wrong Airport

Check and confirm destination airport

The problem

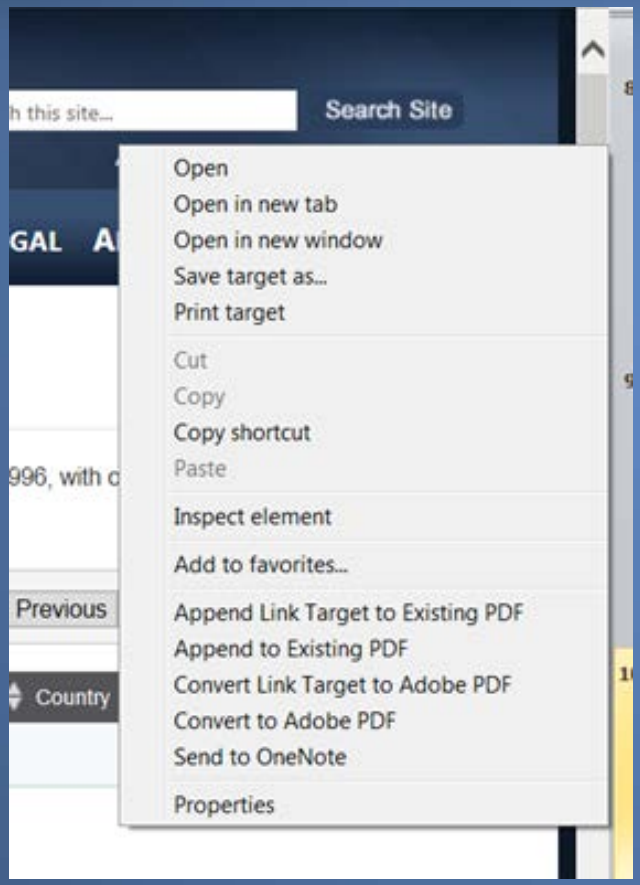
- Without adequate preparation, robust monitoring, and cross-checking of position using all available resources, flight crews may misidentify a nearby airport that they see during the approach to their destination airport.
- The risk of an accident increases because the runway at the wrong airport may not be long enough to accommodate the landing airplane, and other aircraft operating at the airport may also be unaware of potential conflicting traffic.
- Air traffic controllers may not detect a wrong airport landing in time to intervene because of other workload or radar coverage limitations.

Related incidents

The following incidents involving air carriers landing at the wrong airport occurred within 2 months of each other:

- On January 12, 2014, about 1810 local time, a Boeing 737-7H4, Southwest Airlines flight 4013, landed at the wrong airport in Branson, Missouri, in night visual meteorological conditions (VMC). The airplane was scheduled to fly from Chicago Midway International Airport, Chicago, Illinois, to Branson Airport. Instead, the flight crew mistakenly landed the airplane at M. Graham Clark Downtown Airport, Branson, Missouri. The flight crew reported that they were flying direct to a fix for an area navigation (RNAV) approach. They advised the air traffic controller that they had the airport in sight; they were then cleared for the visual approach. Although the correct destination airport was depicted on their cockpit displays, the flight crew reported flying to the airport that they visually identified as their destination; once the airport was in sight, they did not reference their cockpit displays. The airplane stopped at the end of the 3,738-ft runway after a hard application of the brakes. (DCA14IA037)
- On November 21, 2013, about 2120 local time, a Boeing 747-400LCF (Dreamlifter) landed at the wrong airport in Wichita, Kansas, in night VMC. The airplane was being operated as a cargo flight from John F. Kennedy International Airport, Jamaica, New York, to McConnell Air Force Base, Wichita, Kansas. Instead, the flight crew mistakenly landed the airplane at Colonel James Jabara Airport, Wichita, Kansas. The flight crew indicated that during their approach to the airport, they saw runway lights that they misidentified as McConnell Air Force Base. The flight was cleared for the RNAV GPS 19L approach, and the flight crew saw Jabara but misidentified it as McConnell. The flight crew then completed the flight by visual reference to the Jabara runway. Once on the ground at Jabara, the flight crew was uncertain of the airplane's location until confirmed by the McConnell Air Force Base tower controller. The Jabara runway is 6,101 ft long, whereas McConnell runways are 12,000 ft long. (DCA14IA016)

To Save Copy of Safety Alert



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Forums and Board Meetings

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- Press Releases
- Events
- Speeches & Testimony
- Conference Center

NTSB News

NTSB holds Board meeting to discuss the probable cause of a Dec. 8, 2014, crash of an Embraer EMB-500 Phenom into a neighborhood in Gaithersburg, Maryland.

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Other Ways to Contact NTSB

News @ NTSB

Tweets by @NTSB

NTSB @NTSB

Preliminary report on the June 8

Events

The NTSB Board Members regularly conduct Board Meetings to discuss and adopt accident reports, special investigation reports, safety studies, and other Board products. The public and media are welcome view the proceedings in person or via webcast. As part of its investigation into certain accidents, the Safety Board may hold a public hearing to record evidence presented by persons involved in the accident and by parties to the investigation.

The NTSB also occasionally conducts public forums, symposia, and other meetings to focus attention and gather information about safety issues. These events focus on specific safety issues that have been a factor in past accident investigations and will likely be issues in future accidents unless the transportation community takes action. The formats of these events vary, but all are designed to advance the knowledge of meeting participants and to stimulate interest in the safety issue. The public and media are welcome view the proceedings in person or via webcast.

Upcoming Events

7/13/2016 - Roundtable Discussion: A Dialogue on What's Next in Rail Tank Car Safety

Previous Events

6/21/2016 - Forum: PIREPs: Pay it Forward…Because Weather for One is Weather for None

6/7/2016 - Board Meeting: Collision between Bulk Carrier Conti Peridot and Tanker Carla Maersk, Houston Ship Channel near Morgan's Point, Texas, March 9, 2015

Previous Events >

NTSB Conference Center

The NTSB Conference Center is the primary location for the National Transportation Safety Board's Board meetings, public hearings, training, public forums, symposiums, and other events.

The Conference Center may also be rented for other functions. The facility consists of a theater-style auditorium and three separate conference rooms, all equipped with state-of-the-art audiovisual components.

Directions to the NTSB Conference Center >

Webcasts

NTSB public events are also streamed live via webcast. Webcasts are archived for a period of three months from the time of the meeting. Webcast archives are generally available by the end of the event day for public Meetings, and by the end of the next day for Technical conferences.

Previous Events

2016

7/13/2016 - Roundtable Discussion: A Dialogue on What's Next in Rail Tank Car Safety

6/21/2016 - Forum: PIREPs: Pay it Forward...Because Weather for One is Weather for None

6/7/2016 - Board Meeting: Collision between Bulk Carrier Conti Peridot and Tanker Carla Maersk, Houston Ship Channel near Morgan's Point, Texas, March 9, 2015

6/7/2016 - Board Meeting: Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ, Gaithersburg, Maryland, December 8, 2014

5/17/2016 - Board Meeting: Philadelphia Amtrak 188 Derailment Accident

5/14/2016 - Safety Seminar: Loss of Control: Training Solutions

5/10/2016 - Forum: Pedestrian Safety

5/3/2016 - Board Meeting: Washington Metrorail Accident

4/26/2016 - Workshop: Rear Seat Safety in Passenger Vehicles

2/9/2016 - Board Meeting: Commercial Truck Collision with Stopped Vehicles on Interstate 88, Naperville, Illinois

2015

12/12/2015 - Safety Seminar: Air Traffic Control

11/17/2015 - Board Meeting: Davis, Oklahoma Median Crossover Collision

10/27/2015 - Board Meeting: Special Investigation Report on Selected Issues in Passenger Vehicle Tire Safety

10/22/2015 - Event: Youth Open House and Transportation Educational Day

10/14/2015 - Forum: Humans and Hardware: Preventing General Aviation Inflight Loss of Control

9/9/2015 - Board Meeting: Gulfstream G-IV crash on takeoff

8/11/2015 - Board Meeting: Multi-vehicle crash near Cranbury, New Jersey

7/28/2015 - Board Meeting: Commercial Space Launch Accident - SpaceShipTwo

7/20/2015 - Event: NTSB at EAA AirVenture Oshkosh

Board Meeting : Commercial Space Launch Accident - SpaceShipTwo

NTSB Boardroom and Conference Center, Washington, DC
7/28/2015 9:30 AM

The National Transportation Safety Board met to determine the probable cause of the October 31, 2014 in-flight breakup of SpaceShipTwo that occurred near Mojave, CA. SpaceShipTwo was a commercial space vehicle that Scaled Composites built for Virgin Galactic that broke up during a rocket-powered test flight, seriously injuring the pilot and killing the co-pilot.

This event is free and open to the public.

Location: NTSB Board Room and Conference Center

Follow us on twitter (@ntsb) for announcements related to the investigation.

Presentations

Opening Statement - Chairman Christopher A. Hart

Investigator-in-Charge Presentation - Lorenda Ward

Human Factors and Organizational Issues, Human Performance Presentation - Dr. Katherine Wilson

Hazard Analysis and Waivers, System Safety Presentation - Mike Hauf

Closing Statement - Chairman Christopher A. Hart

Webcast

NTSB public events are also streamed live via webcast. Webcasts are archived for a period of three months from the time of the meeting. Webcast archives are generally available by the end of the event day for public Meetings, and by the end of the next day for Technical conferences.

If you wish to obtain a copy of NTSB meetings, please contact the NTSB Records Management Division at (202) 314-

Related Information

Commercial Space Launch Accident - SpaceShipTwo

Abstract

Related Press Releases

- July 28, 2015
  Lack of Consideration for Human Factors Led to In-Flight Breakup of SpaceShipTwo
- July 23, 2015
  NTSB to Meet on SpaceShipTwo Crash in California
- November 12, 2014
  NTSB Investigative Update on Crash of Virgin Galactic SpaceShipTwo
- November 03, 2014
  NTSB Statement on Virgin Galactic Investigation
- October 31, 2014
  NTSB Launches Go-Team to Investigate Virgin Galactic Test Flight Crash

Related Reports

- In-Flight Breakup During Test Flight Scaled Composites SpaceShipTwo, N339SS

Related Investigations

- In-Flight Breakup During Test Flight, Scaled Composites SpaceShipTwo, N339SS, Near Koehn Dry Lake, California

More NTSB Links

- Investigation Process
- Data & Stats

National Transportation Safety Board

SpaceShipTwo, N339SS
Koehn Dry Lake, California
October 31, 2014

Investigator-in-Charge presentation

Animations

Opening Statement - Chairman Christopher A. Hart

Investigator-in-Charge Presentation - Lorenda Ward

Human Factors and Organizational Issues, Human Performance Presentation - Dr. Katherine Wilson

Hazard Analysis and Waivers, System Safety Presentation - Mike Hauf

Closing Statement - Chairman Christopher A. Hart

Webcast

NTSB public events are also streamed live via webcast. Webcasts are archived for a period of three months from the time of the meeting. Webcast archives are generally available by the end of the event day for public Meetings, and by the end of the next day for Technical conferences.

If you wish to obtain a copy of NTSB meetings, please contact the NTSB Records Management Division at (202) 314-6551 or 800-877-6799. You may also request this information from the NTSB web site or write the following: National Transportation Safety Board, Records Management Division (CIO-40), 490 L'Enfant Plaza, SW,Washington, DC 20594. View archived video of meetings (Webcasts are archived for a period of three months from the time of the meeting.)

NTSB Statement on Virgin Galactic Investigation

- October 31, 2014
  NTSB Launches Go-Team to Investigate Virgin Galactic Test Flight Crash

Related Reports

- In-Flight Breakup During Test Flight Scaled Composites SpaceShipTwo, N339SS

Related Investigations

- In-Flight Breakup During Test Flight, Scaled Composites SpaceShipTwo, N339SS, Near Koehn Dry Lake, California

More NTSB Links

- Investigation Process
- Data & Stats
- Accident Reports
- Most Wanted List

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Press Releases and Speeches

Press Releases

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Advanced Search

HOME | NEWS & EVENTS | SAFETY ADVOCACY | INVESTIGATIONS | DISASTER ASSISTANCE | LEGAL | ABOUT | PUBLICATIONS

- Press Releases
- Events
- Speeches & Testimony
- Conference Center

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NTSB News

NTSB holds Board meeting
2014, crash of an Embraer E
Gaithersburg, Maryland.

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1 2 3

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Other Ways to Contact NTSB

- Contact NTSB
- Report an Aviation Accident
- Submit a TCAS Notification
- Eyewitness Report
- FOIA Request
- Contact Disaster Assistance

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Preliminary report on the June 8 crash of a CESSNA 175 in Pine Bluff, AR: go.usa.gov/xqEnG

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Recent Press Releases

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June 16, 2016

NTSB Holds Forum on Pilot Weather Reporting

WASHINGTON — Meteorologists, air traffic control specialists, representatives from airlines, the general aviation community and others are among those leading discussion about the need to...

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June 08, 2016

NTSB Training Center Offers Accident Site Photography Course

The National Transportation Safety Board will conduct an Accident Site Photography Course, scheduled for July 12 - 14, 2016, at the NTSB's Training Center, Ashburn, Virginia. The three-day...

Read more about this story »

June 07, 2016

NTSB Finds Failure to Use De-Ice System Caused 2014 Crash of Embraer Jet

WASHINGTON–The pilot whose jet crashed into a neighborhood in Gaithersburg, Maryland, Dec. 8, 2014, failed to turn on crucial de-icing equipment, which led to ice...

Read more about this story »

June 07, 2016

Lack of communication led to 2015 Houston Ship Channel accident

The probable cause of the 2015 collision of the Conti Peridot and the Carla Maersk in the Houston Ship Channel...

Read more about this story »

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2016
2015
2014
2013
2012
2011
2010
2009
2008
2007
2006
2005
2004
2003
2002
2001
2000
1999
1998
1997
1996
1995
1994
1993
1992
1991
1990
1989
1988
1987

Article Date	
12/29/2015	dates Rules Regarding Board Products and Procedures For Hearings and Meetings
12/17/2015	Unveil 2016 Most Wanted List in January
12/16/2015	ens Docket on Collision Between Metro-North Train and SUV in New York
12/16/2015	ues Regulatory Changes to Streamline Reporting Requirement for Certain Aviation Resolution Advisories
12/9/2015	ues Safety Alert on Oversize Loads on Bridges
12/3/2015	eases Video Highlighting Importance of Procedural Compliance for Commercial Pilots
11/17/2015	ermines Driver's Likely Use of Synthetic Drug Caused Oklahoma Crash, Passengers Failure to Wear Seat Belts Contributed to Injuries
11/16/2015	mpletes Documentation of Sunken Cargo Ship EL FARO; Voyage Data Recorder Not Located
11/12/2015	MEET ON DAVIS, OKLAHOMA MEDIAN CROSSOVER COLLISION
11/11/2015	unches Team to Akron, Ohio Accident
11/10/2015	sents Safety Seminar on Air Traffic Control
11/9/2015	cket, Video Available for 'Humans and Hardware: Preventing General Aviation Inflight Loss of Control'
11/3/2015	estigative Update on Dynamic International Airways Flight 405
11/3/2015	NTSB Update on El Faro Investigation
10/31/2015	Wreckage of Cargo Ship Believed to be El Faro Located in More Than 15,000 Feet of Water

Press Releases Archives

Select a year to view 2000

Article Date	Title
12/18/2000	NTSB Chairman Jim Hall announces he will leave agency in January
12/8/2000	News media arrangements for NTSB's Alaska Airlines hearing
12/7/2000	NTSB releases booklet outlining transportation safety issues for children and youth
11/28/2000	NTSB cites inadequate excavation safety procedures and poor emergency response in Bridgeport, Alabama explosion.
11/13/2000	NTSB selects George Washington University site for its training academy
11/9/2000	NTSB holds Pipeline Safety Hearing
11/1/2000	NTSB Acting Chairman Jim Hall lauds four cruise lines, ICCL for vowing to install local-sounding smoke alarms
11/1/2000	NTSB honors National Safe Kids, General Motors for reaching milestone in child seat safety checks
11/1/2000	Statement of NTSB Acting Chairman Jim Hall regarding investigation of October 19 accident in Lincoln, Nebraska
10/31/2000	NTSB sends investigators to Taiwan to assist in airline crash investigation
10/27/2000	Safety Board to hold public hearing on the crash of Alaska Airlines flight 261
10/26/2000	Update on the NTSB investigation of October 16 crash of Cessna 335 carrying Missouri Governor Mel Carnahan
10/25/2000	1998 Admiral Accident Causes Board to Look at Permanently Moored Vessels, Guidelines
10/17/2000	NTSB launches team to investigate crash of plane carrying Governor of Missouri
10/3/2000	NTSB reports no change in National transportation fatalities in 1999
9/25/2000	NTSB to release factual reports on Payne Stewart aircraft accident
9/22/2000	NTSB Chairman Jim Hall to participate in minority child-safety seat initiative
9/22/2000	NTSB to hold pipeline safety hearing in November
9/14/2000	NTSB hosts its first general Aviation Safety Symposium
9/14/2000	Statement of NTSB Chairman Jim Hall on FAA release of ETEB study on 737 rudders
9/12/2000	Update on NTSB investigation of AirTran emergency landing in Greensboro, NC
8/31/2000	NTSB to host symposium on general aviation accident prevention
8/24/2000	Statement of NTSB Chairman Jim Hall on Carlsbad, New Mexico pipeline accident

NTSB Press Release

National Transportation Safety Board Office of Public Affairs

NTSB launches team to investigate crash of plane carrying Governor of Missouri

10/17/2000

The National Transportation Safety Board has launched a team of investigators to Missouri to begin its inquiry into the crash of a twin-engine aircraft with three persons aboard, reportedly including the Governor of Missouri, Mel Carnahan.

Five investigators have been sent to Jefferson County, Missouri to investigate the Monday evening crash. Pam Sullivan, Senior Air Safety Investigator in the NTSB's North Central Regional Office, has been designated Investigator-in-Charge.

Member Carol Carmody will accompany the team and serve as principal spokesperson for the on-scene investigation. Lauren Peduzzi is the press officer.

Phone numbers for the news media to contact the NTSB in Festus, Missouri will be announced when available.

Related Press Releases

- October 26, 2000
  Update on the NTSB investigation of October 16 crash of Cessna 335 carrying Missouri Governor Mel Carnahan
- January 31, 2001
  Update on NTSB investigation of October 16 crash of Cessna 335 carrying Missouri Governor Mel Carnahan, and two others
- October 10, 2001
  NTSB to Open Docket of October 16, 2000 Crash of Cessna 335 in Hillsboro, Missouri
- June 05, 2002
  NTSB Releases Final Report On Investigation into Crash of Cessna Carrying Missouri Governor Carnahan
- October 17, 2000

Tweets

@NTSB_Newsroom - Notices about

- News releases and media advisories
- Active investigations and Go Team launches
- Opening of dockets and release of preliminary reports
- Issuance of safety alerts
- Board hearings and meetings
- Publication of special investigative products

Speeches

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NTSB holds Board meeting to discuss the probable cause of a Dec. 8, 2014, crash of an Embraer EMB-500 Phenom into a neighborhood in Gaithersburg, Maryland.

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Could PA be the first state to pass

Board Member Speeches

Christopher A. Hart

Chairman

Board Meeting: Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ, Gaithersburg, Maryland, December 8, 2014, Opening Statement
6/7/2016

Board Meeting: Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ, Gaithersburg, Maryland, December 8, 2014, Closing Statement
6/7/2016

Board Meeting: Collision between Bulk Carrier Conti Peridot and Tanker Carla Maersk, Houston Ship Channel near Morgan's Point, Texas, March 9, 2015
6/7/2016

All Speeches & Testimony from Chairman Hart >

Speeches & Testimony Archives
Read Speeches & Testimony by former NTSB Board Members

T. Bella Dinh-Zarr

Vice Chairman

Opening Statement: NTSB Pedestrian Safety Forum
5/10/2016

Keynote Remarks at the International Society of Air Safety Investigators (ISASI) Mid-Atlantic Regional Chapter (MARC)'s 2016 Spring Dinner/Meeting, Reston, VA
5/5/2016

Remarks to the International Air & Transportation Safety Bar Association (IATSBA)'s Conference, Washington, DC
4/29/2016

All Speeches & Testimony from Vice Chairman T. Bella Dinh-Zarr >

Robert L. Sumwalt

Member

NTSB Forum: PIREPs: Pay It Forward... Because Weather for One Is Weather for None, Opening Statement, Washington, DC
6/21/2016

Presentation to the International Association of Missionary Aviation
6/8/2016

Speech to the Académie de l'Air et d'Espace
6/2/2016

All Speeches & Testimony from Member Sumwalt >

Earl F. Weener, PhD

Member

Remarks at Loss of Control Training Safety Seminar, Ashburn, VA
5/14/2016

Remarks at International Air and Transportation Safety Bar Association Conference, Washington, DC
4/29/2016

Remarks at Textron Aviation Operator Conference, Wichita, KS

Honorable T. Bella Dinh-Zarr, PhD, MPH, Vice Chairman

Speeches and Testimony Archive

2016

5/10/2016	Opening Statement: NTSB Pedestrian Safety Forum
5/5/2016	Keynote Remarks at the International Society of Air Safety Investigators (ISASI) Mid-Atlantic Regional Chapter (MARC)'s 2016 Spring Dinner/Meeting, Reston, VA
4/29/2016	Remarks to the International Air & Transportation Safety Bar Association (IATSBA)'s Conference, Washington, DC
4/26/2016	Opening Statement - Rear Seat Safety in Passenger Vehicles Workshop, Washington, DC
4/26/2016	Closing Statement - Rear Seat Safety in Passenger Vehicles Workshop, Washington, DC
4/20/2016	Remarks to the American Traffic Safety Services Association (ATSSA)'s Legislative Briefing and Fly-In, Washington, DC
3/19/2016	Remarks to the Automotive Safety Council Annual Meeting, Tucson, AZ
3/1/2016	HAI Heli Expo Annual Membership Meeting, Louisville, KY
2/29/2016	HAI Heli Expo Safety Symposium "Safety and the Bottom Line", Louisville, KY
2/19/2016	Keynote Remarks "The Everyday Ethics of Disaster: Before, During, and After Transportation Accidents at the NTSB" at the Association for Practical and Professional Ethics (APPE) 2016 Conference, Washington, DC
1/14/2016	Keynote Remarks at the 2016 Road Gang Annual Meeting, Washington, DC

2015

11/18/2015	Remarks at the Second Global High Level Conference on Road Safety (Brasilia, Brazil) Targets & Indicators Session
11/18/2015	Closing Remarks at the Second Global High Level Conference on Road Safety (Brasilia, Brazil) Children and Youth Session
11/2/2015	"Drugs, Alcohol, and Transportation: A Risky Combination for Public Health," Presentation at the American Public Health Association, Annual Meeting, Chicago, IL

Vice Chairman T. Bella Dinh-Zarr's Bio

T. Bella Dinh-Zarr, PhD, MPH, took the oath of office as the 42nd Member of the National Transportation Safety Board in March 2015, whereupon President Barack Obama designated her as Vice Chairman of the Board for a two-year term.

Vice Chairman Dinh-Zarr trained as a public health scientist, specializing in injury prevention, and has dedicated her career to working to ensure that transportation safety is a policy priority, domestically and internationally. She previously served as the U.S. Director and Road Safety Director of the FIA Foundation, an international philanthropy with the mission of promoting safe and sustainable surface transportation. In that role, she was active in promoting the United Nations Decade of Action for Road Safety and in advocating for transportation safety and injury prevention targets in the UN Sustainable Development Goals. Dr. Dinh-Zarr is proud to have helped initiate collaborative projects to improve road safety, especially for vulnerable populations such as children and pedestrians, in developing countries in the regions of Southeast Asia, sub-Saharan Africa, and Latin America.

Read More

Keynote Remarks "The Everyday Ethics of Disaster: Before, During, and After Transportation Accidents at the NTSB" at the Association for Practical and Professional Ethics (APPE) 2016 Conference, Washington, DC

T. Bella Dinh-Zarr, PhD, MPH

Washington, DC

2/19/2016

Good morning! Thank you, Dr. Yoak, for that very kind introduction and thank you, to the APPE board, and members for inviting me. What a pleasure to be here for the 25th Anniversary of the Association for Practical and Professional Ethics. It is a true honor to be with professionals from all 50 states and around the world who work to advance the practice, study, and teaching of ethics. It is an honor but quite nerve-wracking as well. There is nothing more intimidating than speaking before a large group ethicists, except perhaps speaking before a large group of ethicists who count among their number my own former professor, Dr. Elizabeth Heitman. It was about 25 years ago when I had the privilege of being a student in Dr. Heitman's medical ethics class at Rice University. Thank you, Dr. Heitman, for giving me examples of ethics cases to consider before I experienced my own dilemmas, thank you for giving me a chance to experience how people in situations different from my own are treated, and thank you for teaching me early on about how to define my own personal and professional values clearly and strongly, so that I can confidently employ them every day to make decisions. That was a gift Dr. Heitman gave me and I have a feeling that each of you in the audience are sharing that gift to those with whom you work and teach.

Today I hope I can give you a glimpse into how what you do affects the work that I and my colleagues do every day at the National Transportation Safety Board. The title of my talk is "The Everyday Ethics of Disaster: Before, During, and After Transportation Accidents at the NTSB." The concepts of Before, During, and After an accident are somewhat arbitrary delineations since we are always in between accidents, before or after, but I thought it might be a useful way to organize my thinking about the ways in which we use ethics at the NTSB.

Board Member Speeches

Christopher A. Hart

Chairman

Board Meeting: Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ, Gaithersburg, Maryland, December 8, 2014, Opening Statement
6/7/2016

Board Meeting: Aerodynamic Stall and Loss of Control During Approach, Embraer EMB-500, N100EQ, Gaithersburg, Maryland, December 8, 2014, Closing Statement
6/7/2016

Board Meeting: Collision between Bulk Carrier Conti Peridot and Tanker Carla Maersk, Houston Ship Channel near Morgan's Point, Texas, March 9, 2015
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Vice Chairman

Opening Statement: NTSB Pedestrian Safety Forum
5/10/2016

Keynote Remarks at the International Society of Air Safety Investigators (ISASI) Mid-Atlantic Regional Chapter (MARC)'s 2016 Spring Dinner/Meeting, Reston, VA
5/5/2016

Remarks to the International Air & Transportation Safety Bar Association (IATSBA)'s Conference, Washington, DC
4/29/2016

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Robert L. Sumwalt

Member

NTSB Forum: PIREPs: Pay it Forward… Because Weather for One is Weather for None, Opening Statement, Washington, DC
6/21/2016

Presentation to the International Association of Missionary Aviation
6/8/2016

Speech to the Académie de l'Air et d'Espace
6/2/2016

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3/1/2004 Remarks for JIAAC 50th Anniversary, Buenos Aires, Argentina

2/17/2004 Testimony before the Committee on Transportation, Michigan Senate on H.B. 4600 - Graduated Driver Licensing Passenger Restrictions

2003

10/17/2003 Remarks before the Oregon Highway Safety Conference, Eugene, Oregon

10/13/2003 Remarks for AAAE Public Relations and Crisis Management Workshop, New Orleans, Louisiana

9/16/2003 Remarks before the North Carolina Lifesavers Conference, Greensboro, NC

6/5/2003 Remarks before the ABA Aviation Litigation Section, New York, NY

6/3/2003 Remarks before the IATA World Air Transport Summit, Washington, DC

5/13/2003 Testimony before the Louisiana House of Representatives, Committee on Transportation, Highways, and Public Works, on Child Passenger Safety Legislation

3/4/2003 Testimony before the Illinois General Assembly Judiciary Committee on Child Booster Seats

3/4/2003 Testimony before the Illinois General Assembly Judiciary Committee

Remarks before the North Carolina Lifesavers Conference, Greensboro, NC

Carol Carmody

North Carolina Lifesavers Conference, Greensboro, NC

9/16/2003

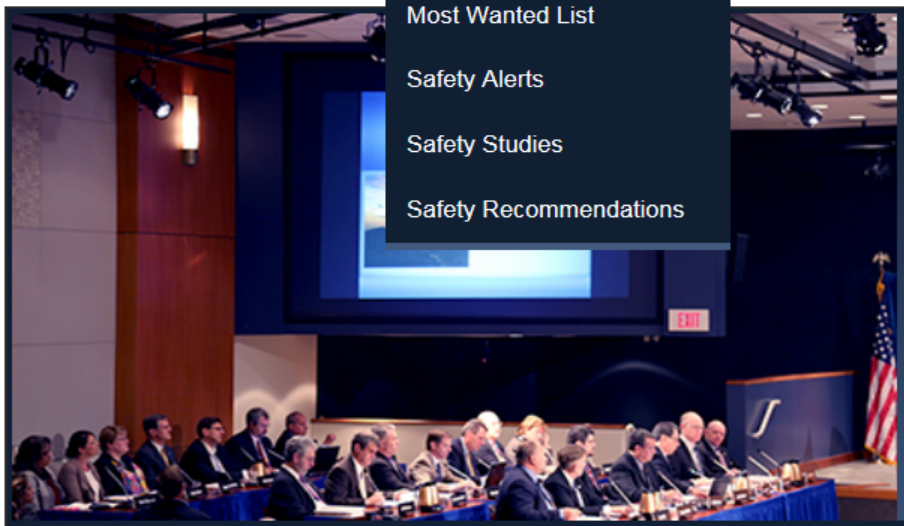
Thank you, Don, and good afternoon. I appreciate being invited here today to speak to this group of dedicated safety professionals. I know that I am talking to an audience that understands the negative impact that traffic crashes have in our daily lives. Every year 42 thousand people are killed, and another 3 million people are injured, at a cost of 230 billion dollars. North Carolina has been the leader in creating innovative ways to reduce these numbers. This is the State that invented "Click It or Ticket" and "Booze It and Lose It," and you should be commended for your efforts.

I am pleased to be sharing the podium with Mr. Troy Ayers from NHTSA and the new chief of the Greensboro Police Department, Chief David Wray, whom I understand has made traffic safety a high priority. We at the Board are always delighted to know that law enforcement officers, such as Chief Wray, recognize the importance of traffic safety enforcement, both as a life saving measure and, as North Carolina data has proven time and again, a method for identifying offenders of other crimes.

The National Transportation Safety Board investigates crashes in all modes of transportation. Because over 90 percent of all transportation related fatalities occur on our highways, the Board is particularly concerned with improving highway safety. The Board has issued numerous safety recommendations to Federal agencies, State governments, manufacturers, and other organizations. These recommendations address problems that you face every day in North Carolina, such as child restraint use, impaired driving, and teen driving. I also want to bring some new areas to your attention, such as the dangers posed by driver distraction, and 15 passenger vans.

Most Wanted List

NATIONAL TRANSPORTATION SAFETY BOARD



NTSB News

NTSB holds Board meeting to discuss the probable cause of a Dec. 8, 2014, crash of an Embraer EMB-500 Phenom into a neighborhood in Gaithersburg, Maryland.

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2016 Most Wanted List

The Most Wanted List represents the NTSB's advocacy priorities. It is designed to increase awareness of, and support for, the most critical changes needed to reduce transportation accidents and save lives.

View the press conference on the NTSB YouTube Channel

Remarks by Chairman Christopher A. Hart

2016 Most Wanted List brochure

Reduce Fatigue-Related Accidents

Download the Fact Sheet

What is the Issue?

People need to be awake and alert to be at their best. But when they operate vehicles while fatigued, they aren't at their best—in fact, they are endangering themselves and others.

Human fatigue is a serious issue affecting the safety of the traveling public in all modes of transportation. Nearly 20 percent of the 182 major NTSB investigations completed between January 1, 2001, and December 31, 2012, identified fatigue as a probable cause, contributing factor, or a finding.

Human fatigue is both a symptom of poor sleep and health management, and an enabler of other impairments, such as poor judgment and decision making, slowed reaction times, and loss of situational awareness and control. Fatigue degrades a person's ability to stay awake, alert, and attentive to the demands of controlling their vehicle safely. To make matters worse, fatigue actually impairs our ability to judge just how fatigued we really are.

At any time while traveling, the public could be at risk because their vehicle operator—whether they are an airline pilot, a train engineer, a ship captain, or a motorcoach or truck driver—may not be able to safely control the vehicle due to fatigue.

Other safety-critical workers, such as air traffic controllers, train dispatchers, and maintenance workers, also can degrade transportation safety if they are not fully rested. For example, the Federal Railroad Administration found that fatigue is prevalent throughout the railroad workforce, especially in train crews that are not on fixed work schedules.

But fatigue isn't just a problem for operators or other safety-critical personnel involved in the transportation business. It's a problem we all face.

Driver fatigue contributes to hundreds of thousands of motor vehicle accidents each year. In a recent AAA survey of highway vehicles, for example, 43 percent of U.S. drivers

Most Wanted List archives

Most Wanted List Archive

2015

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NTSB Office of Marine Safety staff discusses the final report for an accident investigation of a March 9, 2015 collision between two ships in the Houston Ship Channel during a Board meeting today.

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Charged with determining the probable cause of transportation accidents and promoting transportation safety, and assisting victims of transportation accidents and their families.
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22h

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Preliminary report on the June 11 crash of a MOONEY M20E in Collegedale, TN: go.usa.gov/xqENe
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AVIATION SAFETY, EVENTS, GENERAL AVIATION

WEATHER…OR NOT

JUNE 20, 2016 LEAVE A COMMENT

By Robert L. Sumwalt

There's an old saying, "everybody talks about the weather, but nobody does anything about it." Well, this week, the NTSB intends to do something about it.

Tomorrow and Wednesday, June 21 and 22, NTSB will have a forum on pilot weather reports (PIREPs). Why is this topic important? We became interested in PIREPs by accident – several of them, in fact. As our accident investigators will discuss in the forum, after several years of weather encounter-related accident and incident investigations, we found that there were too many instances where weather information had been observed but had not made it into the cockpits of those who needed it most.

One such event occurred in March 2012, in Anchorage, Alaska. A Learjet 35A encountered severe in-flight icing conditions that exceeded the capabilities of the airplane's windscreen anti-ice systems, and the airplane's windscreen abruptly iced over. As a result, the flight crew lost all forward visibility, and the airplane veered off the runway during landing and came to rest in a snow bank.

Aviation Accident Database

NATIONAL TRANSPORTATION SAFETY BOARD

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This is the interactive search capability for the NTSB database, updated daily; see the and **data dictionary** before using the form for the first time.

- Monthly lists - accidents sorted by date, updated daily.
- Investigations Nearing Completion - List of investigations with estimated dates of publishing probable cause.
- Downloadable datasets - one complete dataset for each year beginning from 1982, updated monthly in Microsoft Access 2000 MDB format; this site also provides weekly "change" updates and complete documentation.
- GILS record - complete description of the accident database, including definition of "accident" and "incident".
- FAA incident database - complete information about incidents, including those not investigated by NTSB, is provided by the Federal Aviation Administration.
- Data & Information Products - lists other sources of information about aviation accidents, including publications, dockets, and press releases

Search the Aviation Accident Database

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Accident/Incident Information

Event Start Date (mm/dd/yyyy)	
Event End Date (mm/dd/yyyy)	
Month	All
City	
State	Anywhere
Country	Anywhere
Investigation Type	All
Injury Severity	All

Aircraft

Category	All
Amateur Built	All
Make	
Model	
Registration	

Aircraft

Category: All
Amateur Built: All
Make:
Model:
Registration:
Damage: All
Number of Engines:
Engine Type: All

Operation

Operation: All
Purpose of Flight: All
Schedule: All
Air Carrier:

NTSB Status

Accident Number:
Report Status: All
Probable Cause Issue Start Date (mm/dd/yyyy):
Probable Cause Issue End Date (mm/dd/yyyy):

Event Details

Airport Name:
Airport Code:
Weather Condition: None
Broad Phase of Flight: All
Enter your word string below: (Searches both synopsis and full narrative; will slow the query performance)

Location information available for most cases in the United States since 2002. Refer to query help for limitations of location information.
Latitude:
Longitude: within 0 miles

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Aviation Accident Database & Synopses

The NTSB aviation accident database contains information from 1962 and later about civil aviation *accidents* and selected *incidents* within the United States, its territories and possessions, and in international waters. Generally, a **preliminary** report is available online within a few days of an accident. **Factual** information is added when available, and when the investigation is completed, the preliminary report is replaced with a **final** description of the accident and its probable cause. Full narrative descriptions may not be available for dates before 1993, cases under revision, or where NTSB did not have primary investigative responsibility.

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- Data & Information Products - lists other sources of information about aviation accidents, including publications, dockets, and press releases

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Accident/Incident Information

Event Start Date (mm/dd/yyyy)	01/01/2015
Event End Date (mm/dd/yyyy)	07/01/2015
Month	All
City	Santa Monica
State	California
Country	Anywhere
Investigation Type	All
Injury Severity	All Non-Fatal Fatal

Aircraft

Category	All
Amateur Built	All
Make	
Model	
Registration	
Damage	All
Number of Engines	
Engine Type	All

Operation

A docket of supporting materials may exist for factual and probable cause reports. Please contact Records Management Division. Dockets are not available for preliminary reports.

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Current Synopsis	PDF Report(s) (Published)	Event Date	Estimated Release	Location	Make/Model	Regist. Number	NTSB No.	Event Severity	Type of Air Carrier Operation and Carrier Name (Doing Business As)
Probable Cause	Factual (07/27/2015) Probable Cause (08/06/2015)	03/05/2015	08/06/2015	Santa Monica, CA	RYAN AERONAUTICA ST3KR	N53178	WPR15FA121	Nonfatal	

1 Page size: 10 1 items in 1 pages

NOTES:
- On Jan. 8, 2001, dynamic access to the accident data repository was implemented. Static files are no longer available.
- On Oct. 2, 2001, minor cases which do not fall under the definition of "accident" or "incident" were removed from the database; these entries were previously identified with "SA" in the accident number.
- On Sept. 18, 2002, data from 1962-1982 were added to the aviation accident information. The format and type of data contained in the earlier briefs may differ from later reports.

** - Do not use these fields as selection parameters if your date range includes pre-1982 dates, as they did not exist prior to 1982 and their use may falsely limit the data returned.

Switch to Monthly Lists

Aviation Query

This space for binding

National Transportation Safety Board

FACTUAL REPORT
AVIATION

NTSB ID: WPR15FA121		Aircraft Registration Number: N53178
Occurrence Date: 03/05/2015		Most Critical Injury: Serious
Occurrence Type: Accident		Investigated By: NTSB

Location/Time

Nearest City/Place	State	Zip Code	Local Time	Time Zone	
Santa Monica	CA	90405	1422	PST	

Airport Proximity: Off Airport/Airstrip	Distance From Landing Facility: 0.6

Aircraft Information Summary

Aircraft Manufacturer	Model/Series	Type of Aircraft
RYAN AERONAUTICAL	ST3KR/NO SERIES	Airplane

Revenue Sightseeing Flight: No Air Medical Transport Flight: No

Narrative

Brief narrative statement of facts, conditions and circumstances pertinent to the accident/incident:

*** Note: NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report. ***

HISTORY OF FLIGHT

On March 5, 2015, about 1422 Pacific standard time, a Ryan Aeronautical ST3KR, N53178, sustained substantial damage during a forced landing following a reported loss of engine power shortly after takeoff and during initial climb-out from the Santa Monica Municipal Airport (SMO), Santa Monica, California. The airplane was registered to MG Aviation, Inc., and operated by the pilot under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The private pilot, who was the sole occupant of the airplane, was seriously injured. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight. The local flight originated from SMO about 1421.

During an interview with the National Transportation Safety Board (NTSB) investigator-in-charge, the

A docket of supporting materials may exist for factual and probable cause reports. Please contact Records Management Division. Dockets are not available for preliminary reports.

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Current Synopsis	PDF Report(s) (Published)	Event Date	Estimated Release	Location	Make/Model	Regist. Number	NTSB No.	Event Severity	Type of Air Carrier Operation and Carrier Name (Doing Business As)
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Switch to Monthly Lists

Aviation Query

NTSB Identification: WPR15FA121

14 CFR Part 91: General Aviation
Accident occurred Thursday, March 05, 2015 in Santa Monica, CA
Probable Cause Approval Date: 08/06/2015
Aircraft: RYAN AERONAUTICAL ST3KR, registration: N53178
Injuries: 1 Serious.

NTSB investigators either traveled in support of this investigation or conducted a significant amount of investigative work without any travel, and used data obtained from various sources to prepare this aircraft accident report.

Shortly after takeoff, the pilot advised the air traffic control tower controller that the engine had lost power, and the pilot requested an immediate return to the airport. The pilot initiated a left turn toward the airport; however, during the approach, he realized that the airplane was unable to reach the runway. Subsequently, the airplane struck the top of a tree and then impacted the ground in an open area of a golf course.

A postaccident examination of the airplane's engine revealed that the carburetor's main metering jet was unscrewed from its seat and rotated 90 degrees. The unseated jet would have allowed an increased fuel flow through the main metering orifice, producing an extremely rich fuel-to-air ratio, which would have resulted in the loss of engine power. It is likely that, over time, the jet gradually loosened from its seat, which allowed it to eventually rotate 90 degrees. No further mechanical failures or malfunctions were revealed that would have precluded normal operation.

A review of the airplane's maintenance records indicated that the carburetor was rebuilt during the airplane's restoration about 17 years before the accident. The carburetor maintenance instruction manual contained no pertinent instructions for the installation of the jet assemblies. Further, no maintenance entries in the engine logbook regarding carburetor maintenance were found. Had the carburetor maintenance instruction manual identified a means to ensure the security of the main metering jet, it is unlikely that the jet would have become unseated. There was no record of maintenance personnel inspecting the carburetor jets during the previous 17 years nor was there a requirement to do so.

The front and rear seats of the airplane were equipped with non-factory-installed shoulder harnesses. The pilot's shoulder harness was installed by mounting the end of the restraint to the lower portion of the seatback assembly, which was made of thin aluminum. No reinforcement material or doublers were installed at or around the attachment bolt hole in the seatback. The lack of reinforcement allowed the attachment bolt, washers, and stop nut to be pulled upward and through the seatback structure during the impact sequence, which resulted in the pilot's loss of shoulder harness restraint. It is likely that the improperly installed shoulder harness contributed to the severity of the pilot's injuries.

As a result of this investigation, the NTSB is working with the pilot community to inform them of the lessons learned from this accident: the security of the carburetor's main metering jet and the security of the shoulder harness are both critical aspects of aviation safety.

The National Transportation Safety Board determines the probable cause(s) of this accident as follows:

- A total loss of engine power during initial climb when the carburetor main metering jet became unseated, which led to an extremely rich fuel-to-air ratio. Contributing to the accident was the lack of adequate carburetor maintenance instructions. Contributing to the severity of the pilot's injuries was the improperly installed shoulder harness.

Full narrative available
Aviation Accident & Synopsis Query Page

Index for March 2015 | Index of months | Back to result

NTSB Identification: WPR15FA121

HISTORY OF FLIGHT

On March 5, 2015, about 1422 Pacific standard time, a Ryan Aeronautical ST3KR, N53178, sustained substantial damage during a forced landing following a reported loss of engine power shortly after takeoff and during initial climb-out from the Santa Monica Municipal Airport (SMO), Santa Monica, California. The airplane was registered to MG Aviation, Inc., and operated by the pilot under the provisions of 14 Code of Federal Regulations (CFR) Part 91. The private pilot, who was the sole occupant of the airplane, was seriously injured. Visual meteorological conditions prevailed and no flight plan was filed for the personal flight. The local flight originated from SMO about 1421.

During an interview with the National Transportation Safety Board (NTSB) investigator-in-charge, the pilot reported that, shortly after takeoff and about 1,100 ft mean sea level, the engine experienced a loss of power. He stated that he did not attempt an engine restart but maintained an airspeed of 85 mph and initiated a left turn back toward the airport; however, during the approach, he realized that the airplane was unable to reach the runway. The pilot did not recall anything further about the accident sequence. Subsequently, the airplane struck the top of a tree that was about 65 ft tall, and then impacted the ground in an open area of a golf course.

Examination of the accident site by an NTSB investigator revealed that the airplane came to rest upright adjacent to the 8th tee, about 800 ft. southwest of the approach end of runway 03 at SMO. The airplane sustained substantial damage to the wings, the right stabilizer, and the fuselage.

Multiple witnesses who were on the golf course reported hearing and observing the airplane overhead. Shortly thereafter, the witnesses heard the airplane's engine quit. The airplane was seen gliding toward the ground. Several witnesses observed the airplane strike the top of a tree and then descend to the ground.

The airplane was recovered to a secure location for further examination.

PERSONNEL INFORMATION

The pilot, age 72, held a private pilot certificate with airplane multi-engine land, single-engine land, airplane single-engine sea, rotorcraft-helicopter, and instrument ratings. The pilot was issued a third-class airman medical certificate on May 23, 2014, with the limitation that he must wear corrective lenses. The pilot reported on his most recent medical certificate application that he had accumulated 5,200 total flight hours. The pilot reported that he had accumulated a total of 55.3 hours within the preceding 90 days, 17.7 hours within the preceding 30 days, and logged no flight hours within the previous 24 hours. The total time he had logged in the accident make/model airplane was over 75 hours.

AIRCRAFT INFORMATION

The two-seat, low-wing monoplane, fixed-gear airplane, serial number (S/N) 1859, was manufactured in 1942. The military version of the airplane was known as the PT-22 Recruit. It was powered by a Kinner R-55 engine, serial number 07450, rated at 160 horsepower. The airplane was also equipped with a Sensenich model W90HASP-86, serial number AF 1893, fixed pitch propeller. The airplane is flown solo from the rear seat.

The accident make/model airplane was not equipped with shoulder harnesses when it was produced in 1942. However, the accident airplane was equipped with shoulder harnesses for both the forward and aft seats. No logbook entries, supplemental type certificate (STC), or documentation was located during the investigation that provided details on when the shoulder harnesses were installed in the airplane.

Accident Dockets

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er Robert L. Sumwalt opens the NTSB forum on pilot weather
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Preliminary report on the June 8

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	Aviation	
Investigation ◉	**Other Project** ○	
State/Region	**City (slower)**	**Country (slower)**
California	Santa Monica	
Event Dates		
Start (mm/dd/yyyy)	**Finish** (mm/dd/yyyy)	
03/01/2015	03/30/2015 ✕	

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WPR15FA121	Mar 05, 2015	Santa Monica, CA

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Project Information

NTSB Accident ID

Mode: Aviation

Investigation ◉ **Other Project** ○

State/Region: California

City (slower): Santa Monica

Country (slower)

Event Dates

Start (mm/dd/yyyy): 03/01/2015

Finish (mm/dd/yyyy): 03/30/2015

NTSB Accident ID	Occurrence Date	Location
WPR15FA121	Mar 05, 2015	Santa Monica, CA, United States

Docket Information

Creation Date	Last Modified	Public Release Date & Time
Jul 28, 2015	Jul 28, 2015 09:59	Jul 28, 2015 09:59

Comments

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3	Jul 28, 2015	Airframe Engine Exam and Maintenance Records Summary Report	15	16
4	Jul 28, 2015	Witness Statement	1	0
5	Jul 28, 2015	Record of Conversations	12	0
6	Jul 28, 2015	Record of Emails	3	0
7	Jul 28, 2015	Director of Operations Statement	1	0
8	Jul 28, 2015	Fuel Receipt	1	0
9	Jul 28, 2015	Holley Carburetor Manual Instructions	8	0
10	Jul 28, 2015	AC 21-34	47	0
11	Jul 28, 2015	AC 23-17C	371	0
12	Jul 28, 2015	Airframe TCDS	2	0
13	Jul 28, 2015	Excerpts from Logbooks	4	0
14	Jul 28, 2015	Release of Aircraft Wreckage, NTSB Form 6120.15	1	0
15	Jul 28, 2015	Photo 1 - Airplane Wreckage		1

1 2 Next Last

Document Information

|< << Photo 1 - Airplane Wreckage >> >|

Title

Photo 1 - Airplane Wreckage

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Release Date	Last Modified
Jul 28, 2015	Jul 28, 2015

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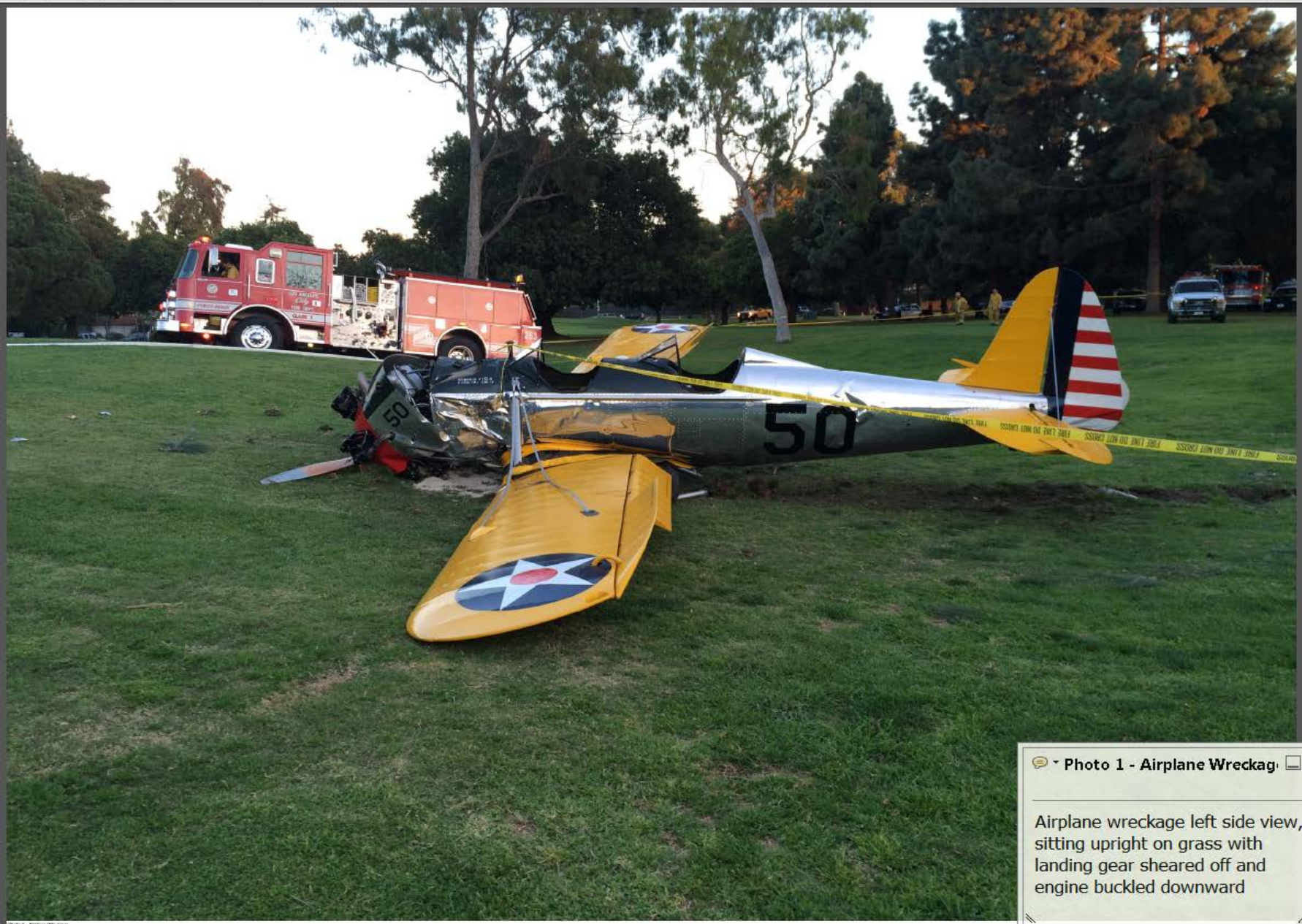

Photo 1 - Airplane Wreckag

Airplane wreckage left side view, sitting upright on grass with landing gear sheared off and engine buckled downward

Statistical Reports

NATIONAL TRANSPORTATION SAFETY BOARD

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- The Investigative Process
- Accident Dockets
- Data & Stats
- Accident Reports
- Aviation Database
- General Aviation Safety

B News

holds Board meeting to discuss the probable cause of a Dec. 8, crash of an Embraer EMB-500 Phenom into a neighborhood in rsburg, Maryland.

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1 2 3

Accident Dockets | Safety Recommendations | Aviation Accident Database | Data & Stats | Training Center

NTSB
An Independent United States Federal

NTSB Response Operations Center

To **report an incident/accident** or if you are a **public safety agency**, please call 1-844-373-9922 or 202-314-6290 to speak to a Watch Officer at the NTSB Response Operations Center (ROC) in Washington, DC (24/7).

News @ NTSB

Tweets by @NTSB

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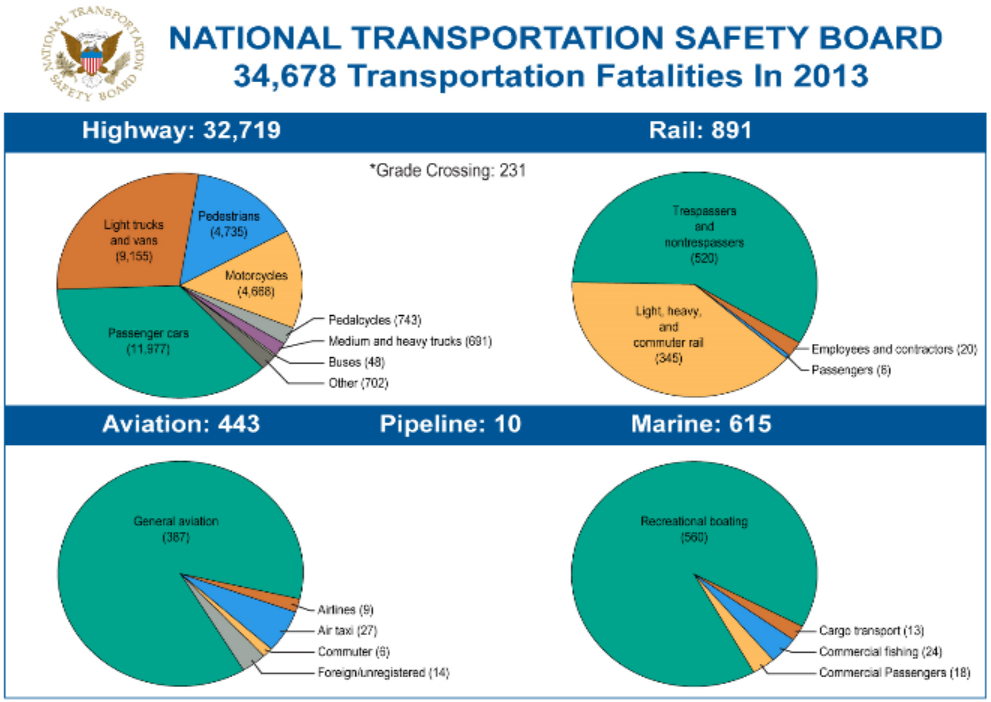
Data & Stats



*Note: All data are preliminary estimates. Grade crossing fatalities are not included in the grand total because they were counted in the rail and highway categories, as appropriate. The pie charts are not drawn proportionately to each other. Aviation data are from the NTSB. Marine data are from the Department of Homeland Security. All other data are from the U.S. Department of Transportation.

2012-2013 U.S. Transportation Fatalities

Preliminary Monthly Summary of US Civil Aviation Accidents
Summary of US Civil Aviation Accidents for Calendar Year 2013
Summary of US Civil Aviation Accidents for Calendar Year 2012
Review of Accident Data

SAFETY RECOMMENDATIONS STATISTICAL INFORMATION

The following tables and charts depict statistical information related to NTSB safety recommendations.

December 2012 updated recommendation statistics

Databases

Docket Management System
Aviation Accidents
Annual Review of Aircraft Accident Data
Safety Recommendation Query
Foreign Investigations
NTSB Case Decisions Database

Reports by Mode

Aviation Accident Reports
Hazardous Materials Accident Reports
Highway Accident Reports
Marine Accident Reports
Pipeline Accident Reports
Railroad Accident Reports

Aviation Statistics

Review of Accident Data

- Summary of US Civil Aviation Accidents for Calendar Year 2013
- Summary of US Civil Aviation Accidents for Calendar Year 2012
- Review of US Civil Aviation Accidents, Calendar Year 2011 (ARA-14-01)
- Review of US Civil Aviation Accidents, 2007-2009 (ARA-11-01)

Aviation Statistics for 2014

2014 preliminary aviation statistics (xls file download)

Aviation Statistical Reports

- Preliminary Monthly Summary of US Civil Aviation Accidents
- 2004 Air Carrier Accident Data Used in Annual Review
- 1983-1999 Air Carrier Accident Data Used in Annual Review
- 2001 GA Accident Aircraft Data Used in Annual Review
- 2000 GA Accident Aircraft Data Used in Annual Review
- 1999 GA Accident Aircraft Data Used in Annual Review
- 1998 GA Accident Aircraft Data Used in Annual Review

Accidents Involving Passenger Fatalities, 1982 - Present

- Airlines (14 CFR 121)
- Commuters (14 CFR 135)

Aviation: Data & Stats

Introduction

Welcome to the NTSB's Summary of US Civil Aviation Accidents for Calendar Year (CY) 2013. This summary combines information on accidents involving air carriers (regulated by Title 14 *Code of Federal Regulations [CFR]* Part 121), commuter and on-demand carriers (regulated by 14 *CFR* Part 135), and general aviation (regulated by 14 *CFR* Part 91).

Summary data are provided for each of the categories listed in the table below. This summary was developed before the adoption of the probable cause for many of these accidents.

For 2013, this summary uses data updated on February 18, 2015.

Accident Summary for Major Segments of US Civil Aviation CY 2013

Segment	Accidents	Fatal Accidents	Fatalities
Part 121 Air Carriers	23	2	9
Part 135 Commuter and On-Demand Carriers	51	12	30
Part 91 General Aviation	1224	222	390
Total US Civil Aviation	**1298**	**236**	**429**

Information on the methods used and the sources of this information.

Part 121 Air Carriers

Part 135 Commuter and On-Demand Carriers

General Aviation

Data Spreadsheets (MS Excel)

- Introduction
- Part 121
- Part 135
- General Aviation

Past Annual Reviews

- 2012 Review
- 2011 Review
- 2010 Review
- 2007-2009 Review

Comments and Feedback

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nathan.doble@ntsb.gov

In Conclusion

NTSB website is a library of transportation safety information

- Accident Investigations
- Special Investigations
- Recommendations