Aviation Investigation Final Report

Location:	Buckeye, Arizona	**Accident Number:**	WPR16LA071
Date & Time:	February 16, 2016, 14:52 Local	**Registration:**	N107SB
Aircraft:	Evolution Revo	**Aircraft Damage:**	Substantial
Defining Event:	Loss of control in flight	**Injuries:**	1 Fatal
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The commercial pilot, who had a total flight experience of about 4,500 hours in conventional airplanes, was learning to fly weight-shift-control (WSC) aircraft with the expressed intent of purchasing a high-performance WSC aircraft. The pilot obtained all of his 13.5 hours of WSC experience, including his WSC pilot and instructor certificates, in the 2 weeks before the accident in a docile, low performance WSC aircraft with dual seating. Despite being explicitly warned by his instructor that he was not "not qualified" to fly the specific model high performance WSC aircraft involved in the accident, the pilot convinced an owner of a high-performance WSC aircraft to allow him to fly it solo. The owner reported that the engine start, taxi out, and run-up appeared normal. The wind was light. Witnesses reported that, on takeoff, the aircraft climbed rapidly and entered a steep right bank/roll from which it did not recover. The flight lasted about 16 seconds, and the aircraft reached a maximum altitude of about 80 ft above the runway. Detailed examination of the wreckage did not reveal any mechanical deficiencies or failures that would have precluded normal operation, and data from an electronic engine control indicated that the engine operated normally throughout the flight. The pilot's autopsy did not reveal the presence of any debilitating physical conditions or impairing drugs.

The pilot inputs for pitch and bank/roll control on a WSC aircraft are opposite those of conventional airplanes, and the pilot's experience differential between the two aircraft types was substantial. In addition, the high performance WSC aircraft was a much more powerful and challenging aircraft due to its control sensitivity than the one flown by the pilot during his limited WSC training, which was all done with an instructor. The witnesses' description of the sequence of events and the rapidity with which they occurred is consistent with excessive and contrary control inputs. Given the handling characteristics of the accident aircraft relative to the pilot's flight experience, it is likely that the pilot over-controlled it during the initial rotation, which led to what witnesses reported to be a very steep takeoff attitude. The lack of familiarity with the aircraft, combined with potential threat of a stall or other loss of control, and possible reversion to habit patterns appropriate to his conventional airplane experience may then have led to the pilot's reflexive and incorrect control inputs. Those inputs exacerbated the situation and ultimately resulted in a loss of aircraft control.

The aircraft was equipped with a rocket-powered parachute, but the first responders worked on and around the wreckage for about 1 hour before they were advised by a Federal Aviation Administration inspector of the presence of the rocket and its potential hazard. Existing industry consensus standards only specify warning placards near the rocket egress point, which in this case, was on the aircraft's left side. Because the aircraft came to rest on its left side, neither the rocket nor any placards would have been visible. ASTM International standards do not require that warning placards be placed on all sides of the aircraft.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's improper decision to operate the high-performance aircraft despite warnings from a flight instructor that he did not have the experience to operate the aircraft that had different and more sensitive handling characteristics than the low-performance weight-shift-control aircraft that he was used to flying, which led to his improper control inputs and resulted in his loss of aircraft control and ground impact immediately after takeoff.

Findings

Personnel issues	Total experience w/ equipment - Pilot
Personnel issues	Aircraft control - Pilot
Personnel issues	Decision making/judgment - Pilot
Personnel issues	Use of equip/system - Pilot
Aircraft	(general) - Not attained/maintained

Factual Information

History of Flight

Prior to flight	Miscellaneous/other
Takeoff	Loss of control in flight (Defining event)

On February 16, 2016, about 1452 Mountain standard time, an Evolution Revo special light sport weight-shift control "trike," N107SB, impacted terrain shortly after takeoff from Buckeye Municipal airport (BXK), Buckeye, Arizona. The pilot, who was the sole person on board, received fatal injuries, and the aircraft was substantially damaged. The personal flight was conducted under the provisions of Title 14 Code of Federal Regulations Part 91. Visual meteorological conditions prevailed, and no Federal Aviation Administration (FAA) flight plan was filed for the flight.

According to the owner of the aircraft, the pilot was referred to him by the Evolution president, because the pilot was interested in purchasing a Revo, and he was planning a trip to the Phoenix area. The pilot made contact with the owner, and appealed to him to be allowed to fly the aircraft. Based on the pilot's credentials, the owner eventually agreed to let the pilot fly the aircraft. The evening prior to the accident, the owner (acting as pilot in command) took the accident pilot (as a passenger) on an uneventful flight in the aircraft. On the day of the accident, both individuals conducted the preflight inspection, with no anomalies noted.

The pilot reportedly planned to conduct a solo flight, and then return for an unspecified passenger. According to the owner, the takeoff roll on runway 17 was normal, but shortly after breaking ground, the wing went to the "full flare" position, which he explained to mean that the wing was at the full wing leading edge up position. The wing remained in that position, and the aircraft climbed rapidly and steeply, but then appeared to stall, at an altitude estimated by witnesses to be less than about 100 above ground level. The aircraft then turned, rolled, to the right, and descended rapidly to the ground in a nose-down attitude. The aircraft was equipped with a Ballistic Recovery System brand rocket propelled parachute, but the device was not activated by the pilot.

The wreckage was examined on site by FAA inspectors, and was recovered to a secure location for subsequent examination.

Pilot Information

Certificate:	Commercial; Flight instructor	**Age:**	55,Male
Airplane Rating(s):	Single-engine land; Multi-engine land	**Seat Occupied:**	Front
Other Aircraft Rating(s):	Gyroplane	**Restraint Used:**	4-point
Instrument Rating(s):	Airplane	**Second Pilot Present:**	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Gyroplane; Instrument airplane	**Toxicology Performed:**	Yes
Medical Certification:	Sport pilot Unknown	**Last FAA Medical Exam:**	September 21, 2004
Occupational Pilot:	UNK	**Last Flight Review or Equivalent:**	
Flight Time:	(Estimated) 4500 hours (Total, all aircraft)		

Certificate Information

According to FAA records, the pilot held a commercial certificate with airplane single engine land, multi-engine land, and instrument airplane ratings, and "sport endorsements" for gyroplane and powered parachutes. He also held flight instructor certificate with airplane single- and multi-engine land, and instrument airplane ratings, and "sport endorsements" for gyroplane and powered parachutes. The pilot's most recent valid FAA medical certificate was obtained in 2004. On that medical certificate application, the pilot reported a total flight experience of 4,500 hours.

Weight Shift Control (WSC) Aircraft Experience

The pilot obtained all of his weight shift control (WSC) experience and instruction in the two weeks prior to the accident. According to the certified flight instructor (CFI) who provided nearly all that instruction, the pilot was referred to him by the owner of the accident aircraft. The pilot first met and flew with the CFI on February 6, 2016 at BXK; the CFI had flown his Northwing Navajo WSC aircraft to BXK for an airshow/exhibit there. The following week, the pilot traveled to Boulder City, Nevada to complete his training, and obtain his WSC pilot- and instructor- certificates.

The pilot accrued a total time of 9.5 hours with that CFI, and then 2 hours with another CFI, before taking his flight checks with the original CFI on February 12, 2016. At the completion of his WSC pilot and instructor flight checks, the pilot had accrued a total WSC aircraft flight experience time of 13.5 hours. All flights were conducted in the Navajo, and none of the flights were solo. Both CFIs were complementary regarding the pilot's skills.

Because the pilot was interested in purchasing a Revo, on multiple occasions he asked the CFI about the Revo. The CFI strongly discouraged the pilot from flying a Revo until he had more WSC aircraft experience, and then also obtained specific instruction in that aircraft. The CFI advised the pilot that he (the pilot) was "not qualified" to fly the Revo at this point in his experience/training level – his primary reason was that the Revo was a much more "sensitive" aircraft than the Navajo.

Aircraft and Owner/Operator Information

Aircraft Make:	Evolution	**Registration:**	N107SB
Model/Series:	Revo	**Aircraft Category:**	Weight-shift
Year of Manufacture:	2015	**Amateur Built:**	
Airworthiness Certificate:	Special light-sport (Special)	**Serial Number:**	000608
Landing Gear Type:	Tricycle	**Seats:**	2
Date/Type of Last Inspection:	October 15, 2015 Condition	**Certified Max Gross Wt.:**	1160 lbs
Time Since Last Inspection:	69 Hrs	**Engines:**	1 Reciprocating
Airframe Total Time:	0 Hrs as of last inspection	**Engine Manufacturer:**	Rotax
ELT:	Not installed	**Engine Model/Series:**	912 IS
Registered Owner:	On file	**Rated Power:**	100 Horsepower
Operator:	On file	**Operating Certificate(s) Held:**	None

FAA information indicated that the aircraft was manufactured in 2015, and was equipped with a Rotax 912-IS series engine. The aircraft was purchased new by the current owner in early 2015. He reported that the airframe and engine had each accumulated a total time in service of about 69 hours.

The two primary elements of the aircraft were the carriage and the wing. The carriage was a steel tube assembly with composite fairings. The instrument panel, tandem seats, landing gear and engine were all integral to the carriage. The primary pilot station was the front seat; the rear seat had no instruments and access to only a few controls. The primary flight controls consisted of horizontal, transversely-mounted control bar situated just ahead of the pilot, and attached to the wing. The pitch and roll/yaw control inputs were exactly the reverse of those of conventional airplanes; pushing the control bar forward would climb the WSC aircraft (and vice versa) while moving the control bar left would result in the WSC aircraft turning to the right (and vice versa).

The engine was situated behind the rear seat in a pusher-type arrangement. The engine was electronically controlled and fuel-injected. The installed electronic engine control unit (ECU) was equipped to record certain engine parameters during operation. The engine drove a 2 blade composite propeller, and its rated output was 100 hp.

The wing was a fabric-covered aluminum tube assembly which attached to the carriage by a mast. The mast attached behind the rear seat into a "pivot block" which allowed the wing to change its pitch orientation with regard to the carriage. On the ground, the wing was free to move through a range of pitch and roll attitudes, while the carriage remained in a stationary attitude. In flight, the carriage was suspended by the mast, and stabilized at an attitude determined by center of gravity and airloads. The wing attitude and angle of attack could be varied by the pilot's inputs on the control bar.

The aircraft was equipped with a pitch trim system which was used for cruise flight, in order to neutralize the forces required by the pilot on the control bar. There was no means to visually detect the trim setting, and there was no specific trim setting or range for takeoff or landing.

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	**Condition of Light:**	Day
Observation Facility, Elevation:	BXK,1032 ft msl	**Distance from Accident Site:**	0 Nautical Miles
Observation Time:	14:55 Local	**Direction from Accident Site:**	
Lowest Cloud Condition:	Clear	**Visibility**	10 miles
Lowest Ceiling:	None	**Visibility (RVR):**	
Wind Speed/Gusts:	8 knots / None	**Turbulence Type Forecast/Actual:**	/ Unknown
Wind Direction:	130°	**Turbulence Severity Forecast/Actual:**	/ N/A
Altimeter Setting:	29.93 inches Hg	**Temperature/Dew Point:**	27°C / -2°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Buckeye, AZ (BXK)	**Type of Flight Plan Filed:**	None
Destination:	Buckeye, AZ (BXK)	**Type of Clearance:**	None
Departure Time:	14:52 Local	**Type of Airspace:**	

The BXK 1455 automated weather observation included winds from 130 degrees at 8 knots, visibility 10 miles, clear skies, temperature 27 degrees C, dew point minus 2 degrees C, and an altimeter setting of 29.93 inches of mercury.

Airport Information

Airport:	Buckeye Municipal BXK	**Runway Surface Type:**	Asphalt
Airport Elevation:	1032 ft msl	**Runway Surface Condition:**	Dry
Runway Used:	17	**IFR Approach:**	None
Runway Length/Width:	5500 ft / 75 ft	**VFR Approach/Landing:**	None

BXK consisted of a single paved runway that measured 5,500 feet by 75 feet. The runway was designated as 17/35. The airport was located in the desert, and the unpaved areas consisted of hard-packed earth and sparse low vegetation. Airport elevation was listed as 1,032 feet above mean sea level. The airport ramp was situated about 3,200 feet from the runway 17 threshold, and about 750 feet from the runway centerline.

Wreckage and Impact Information

Crew Injuries:	1 Fatal	**Aircraft Damage:**	Substantial
Passenger Injuries:		**Aircraft Fire:**	None
Ground Injuries:	N/A	**Aircraft Explosion:**	None
Total Injuries:	1 Fatal	**Latitude, Longitude:**	33.420555,-112.686111(est)

On-scene documentation provided by the Buckeye Police Department and the airport manager indicated that the aircraft left a series of near-continuous ground scars, first in the form of a tire skid mark on the runway, followed by earth-scoring and gouging, to the final location of the wreckage. The overall length of these ground scars was about 340 feet, and their track was oriented approximately 20 degrees divergent right (west) from the runway 17 alignment.

The first tire skid mark began about 25 feet west of the runway centerline, and terminated near the runway edge. Ground scars, at first consistent with the aircraft wingtips, and further along the path, consistent with other portions of the aircraft, continued to the main wreckage. The main wreckage came to rest in an unpaved region of level desert terrain, about 150 feet east of the runway centerline, and about 1,500 feet from the starting point of the takeoff roll. The wreckage was situated about 2,000 feet from the airport ramp where the witnesses were located. The carriage was found on its left side, oriented approximately north, but was significantly disrupted. The wing assembly was fracture-separated from, but adjacent to and partially covering, the carriage. The wing structure was also significantly disrupted.

Personnel from the FAA and NTSB examined the recovered airframe and engine on March 9, 2016 at the facilities of Air Transport in Phoenix, Arizona. The owner was in attendance for a portion of the period to provide additional information as requested.

The aircraft was in two major pieces (wing assembly and carriage), as well as about two dozen fracture-separated parts. Those parts included windscreen, carriage fairing, propeller and other component fragments. There was no evidence of fire, either pre- or post-impact. The carriage damage was consistent with a front and left-side ground impact, with some fore-aft scraping.

The instrument panel was dislodged from its mounts, and severely deformed, but all 3 instruments remained affixed in the panel. The rocket powered ballistic parachute was still in its case, and the extraction rocket had not been fired. The front restraint harness belts had been cut to extract the pilot.

The engine did not exhibit any signs of any pre-impact failures, and damage was limited to some minor muffler crush and displacement from impact. The four top spark plugs were pulled, and the engine rotated freely by hand; thumb compressions were observed on all four cylinders. The bodies and electrodes of the four spark plugs all were unremarkable. The ECU was removed and retained for data download. Both composite propeller blades were fracture-separated at their approximate 18 inch span locations, and propeller blade damage was consistent with engine power at impact.

The main mast tube of the wing assembly had fracture-separated from the carriage at its attach point to the mast mount block. The left front wing spar was fracture-separated at about its 2 foot span location, and the right front spar was fracture-separated about 5 feet inboard of the tip. The auxiliary/jury spar aft

of the main spar was also fracture-separated, while the wing fabric was intact exclusive of impact damage

An unidentified/unassigned quick-release pin was found inside the left wing, but the investigation was unable to determine its origin. The aft actuating tube assembly of the pitch trim mechanism was fracture-separated from the travel block of the main housing jackscrew. On disassembly and inspection, it was revealed that the threads of the aluminum actuating tube had pulled aft over the jackscrew nylon travel block threads. The damage was not consistent with normal system capability, and was attributed to impact loads and structural deformation.

No evidence of any pre-impact mechanical malfunction was noted during the examination of the recovered airframe and engine.

Flight recorders

EFIS SD Card

The aircraft was equipped with an MGL brand "Stratomaster Xtreme" electronic flight instrumentation system (EFIS), which had data recording capability. Recording of flight data, including parameters and time intervals, were user-defined. If and when the device was configured by the user to record flight data, the data would be stored on a compact SD card which inserted into the face of the device.

Post accident discussions with the aircraft owner indicated that he was unaware of the EFIS device's recording capabilities, and therefore had not modified any of the recording settings. The SD card was recovered intact. Separate readout efforts by the NTSB and MGL Avionics indicated that no flight data had been recorded.

Engine Control Unit (ECU)

The ECU was removed from the aircraft, and was observed to be physically intact. It was sent to the NTSB Recorders laboratory in Washington, DC for readout. The data from the accident flight was successfully downloaded.

The device recorded 18 engine-related parameters at a rate of 10 samples per second, and ambient pressure at a rate of 1 sample per second. The accident flight data began at engine start, and terminated with what appeared consistent with impact and engine stoppage. The data file extended from system time 102:30:21 (hhh:mm:ss) to 102:39:28. The engine operated in the idle range until about 102:36:54, when rpm increases and data dropouts (due to ECU channel-switching) consistent with an engine runup were observed.

About 102:39:12, the rpm increased and stabilized at its maximum value, consistent with the takeoff roll and climb. The data ended about 16 seconds later. The parameter values were all consistent with normal engine operation throughout the entire data file, and the engine remained at full rpm for the takeoff and flight, until about 0.2 seconds prior to the end of the data.

The ambient pressure values were utilized to derive aircraft altitude values. The data indicated that the aircraft climbed rapidly in the first few seconds, and reached a maximum height of about 80 feet above the runway.

Medical and Pathological Information

The pilot's most recent valid FAA medical certificate was obtained in 2004, and was expired by the time of the accident flight. In February 2005, the pilot was seriously injured in an accident where he was piloting a Cessna 177. That accident was attributed to a complete loss of power due to oil starvation/exhaustion. The pilot's girlfriend reported that the initial injuries and resulting debilitation had delayed the pilot's decision to apply for another FAA medical certificate and resume flying certificated airplanes, and that the pilot continued to suffer pain from some of those injuries. Therefore, at the time of his weight shift training and the accident, the pilot was operating in accordance the light sport rules, which do not require a valid FAA medical certificate.

The Maricopa County (Arizona) Office of the Medical Examiner autopsy report indicated that the cause of death was "multiple blunt force trauma," and that alcohol and drug test results were all negative.

Review of the pilot's previous medical history by an FAA Civil Aeromedical Institute (CAMI) physician indicated that the pilot reported no significant medical concerns, and that his FAA medical examiner did not identify any significant conditions during the pilot's 2004 physical examination. The CAMI physician's review also noted that the autopsy "revealed some moderately severe cardiovascular disease but no evidence of thromboemboli or a recent or previous heart attack," and that "there were no significant natural disease findings that could point towards a sudden incapacitating event."

CAMI conducted forensic toxicology examinations on specimens from the pilot, and reported that no carbon monoxide, cyanide, ethanol, or any screened drugs were detected.

Additional Information

Revo Flight Characteristics

The manufacturer of the aircraft agreed with the two CFI assessments that the Revo and Navajo had dramatically different flight characteristics, and that the Revo performance characteristics were not well suited for beginner level WSC pilots.

The pilot's primary CFI noted that the Revo is a very high performance aircraft, and that a first flight in that aircraft, particularly a solo flight, would be very different from the pilot's prior dual experience in

the lower-performance Navajo.

Learning Primacy

According to the Aviation Instructor Handbook (AIH, FAA-8083-9), the first information or behavior learned by a person "often creates a strong, almost unshakable, impression." This phenomenon is called "primacy," and the AIH states that such primacy of learning and behaviors "lay the foundation for all that is to follow." The AIH further stated that unlearning those first-learned behaviors is significantly more difficult than learning them in the first place. Persons will frequently revert to the first-learned behaviors in time of stress, distraction, or inattention.

The AIH also discussed how the "element of threat...adversely affects perception by narrowing the perceptual field," which reduces the pilot's ability to adequately or accurately sense or process the inputs available. The imposition of a threat can result in an individual becoming overly task-focused on countering the threat, while concurrently ignoring relevant or critical information.

Rocket and Parachute System Information

According to the FAA inspector, until he arrived at the site about one and a half hours after the accident, the first responders who were working on the wreckage and pilot were unaware of the presence of the rocket, or the hazard that it posed. Review of the body camera footage and audio from one of the responding police officers revealed that one of the firefighters did raise the possibility of the presence of a rocket early in the emergency response, but the question did not receive a considered response, and the matter was apparently not discussed again by any of the first responders. When the FAA inspector arrived on scene, it was he who advised them of the rocket's presence. Once the personnel became aware of the system, they ceased all activity, and the NTSB was contacted for guidance to disarm the rocket. That was accomplished, and the recovery of the pilot and aircraft were completed without incident.

FAA regulations and ASTM standards required proper completion of certain FAA forms, and proper placarding of the aircraft with regard to the parachute recovery system. In this case, ASTM standard F2316 (Airframe Emergency Parachutes) is the applicable standard.

In part, the standard required that the "airframe manufacturer shall supply conspicuous placards or labels for placement in unobstructed view to anyone near the egress point (exterior). These placards are to be displayed such that they provide a visual warning to rescue or other personnel at the scene of an accident or incident." The standard also specified that the "airframe manufacturer shall permanently install the warning placards or labels in a manner defined by this specification and documented in the PIM [parachute installation manual]". The standard presented sample labels in an appendix.

Based on the installation configuration of the rocket and parachute inside the carriage/fuselage, the standard required that a placard be mounted adjacent to the fuselage exit point, which in the case of this aircraft, was on the left aft side. However, the aircraft came to rest on its left side, which obscured the rocket and parachute from view of the first responders. Any co-located, left-side placards would have been similarly obscured from view.

NTSB investigators coordinated with the FAA Light-Sport Aircraft Program Manager in an attempt to

modify the ASTM standard, and require that warning placards be affixed to all sides of the aircraft, in order to minimize the potential for injury to first responders. On May 11, 2016, the proposal to alter the F2316 placarding standard was presented to and considered by the responsible ASTM committee; the committee rejected that proposed change. The formal substantiating rationale was that the existing standard is sufficient, and does not need to be revised, and that first responder training ensures adequate protections.

Although the ballistic airframe parachute recovery system was installed by the factory prior to delivery of the aircraft to the owner, the as-found condition of the aircraft revealed that none of the required rocket-related placards were present on the fuselage. Additional investigation revealed that the owner had the required, unused placards in his documentation package from the aircraft manufacturer. According to the aircraft manufacturer president, the required placards had been installed when the aircraft was originally constructed, but then subsequently removed for an unspecified "photo shoot." The aircraft was then delivered to the owner without the placards installed, but provided to him in a separate package. According to the owner, he was unaware that he was supposed to affix the placards to the aircraft, and they remained stored with his aircraft documentation files. The timing of the completion of aircraft construction, the photo shoot, and the delivery of the aircraft to the customer/owner was not determined. Insufficient time between the manufacture date of the aircraft and the accident date precluded the need for an annual condition inspection, which would have provided an opportunity to detect and rectify the absence of the proper placards.

Review of the FAA form 8130-15 for the accident aircraft, which was part of the airworthiness application that was completed by the airframe manufacture, revealed that, although required, the form did not cite ASTM F2316 as one of the "Consensus Standards" that the aircraft had been manufactured to. The reasons for this discrepancy could not be determined.

Administrative Information

Investigator In Charge (IIC):	Huhn, Michael
Additional Participating Persons:	Jacob A Hansen; FAA; Scottsdale, AZ
Original Publish Date:	October 3, 2016
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this accident.
Investigation Docket:	https://data.ntsb.gov/Docket?ProjectID=92733

The National Transportation Safety Board (NTSB) is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate, and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, "accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties … and are not conducted for the purpose of determining the rights or liabilities of any person" (Title 49 *Code of Federal Regulations* section 831.4). Assignment of fault or legal liability is not relevant to the NTSB's statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report (Title 49 *United States Code* section 1154(b)). A factual report that may be admissible under 49 *United States Code* section 1154(b) is available here.