



AVIATION



HIGHWAY



MARINE



RAILROAD



PIPELINE

Aviation Investigation Final Report

Location:	Palm Coast, Florida	Accident Number:	ERA13LA043
Date & Time:	October 11, 2012, 13:30 Local	Registration:	N607PA
Aircraft:	DIAMOND AIRCRAFT IND GMBH DA 42 NG	Aircraft Damage:	Substantial
Defining Event:	Hard landing	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Analysis

During the approach, the designated pilot examiner (DPE) instructed the pilot to demonstrate a short-field landing. While on short final approach, the pilot reduced power and slowed the airspeed. As the airplane crossed the runway threshold, it descended rapidly and then landed hard. Neither pilot reported any flight control anomalies or mechanical malfunctions that would have precluded normal operation. A review of the flight school's training manual revealed that the pilot was to obtain 82 knots indicated airspeed (KIAS) during a short-field landing. Review of the manufacturer's operating procedures revealed that the minimum airspeed for landing was between 84 and 86 KIAS and that it contained no procedures for short-field landings. The DPE stated that the airspeed was between about 75 and 80 KIAS during the approach and 67 KIAS before touchdown, which was lower than the landing airspeed listed in the manufacturer's operating manual or the flight school's training manual. The DPE stated that the speed "bled off" to fast for her to take over control of the airplane. Conducting the landing at such a low airspeed resulted in the loss of lift and a hard landing.

Probable Cause and Findings

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

The pilot's failure to maintain adequate airspeed, which resulted in a hard landing.

Findings

Aircraft	Landing flare - Incorrect use/operation
Personnel issues	Aircraft control - Pilot

Factual Information

History of Flight

Landing-flare/touchdown	Hard landing (Defining event)
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On October 11, 2012, about 1330 eastern daylight time, a Diamond DA-42 Twinstar, N607PA, was substantially damaged following a hard landing at Flagler County Airport (XFL), Palm Coast, Florida. The designated pilot examiner (DPE) and private pilot were uninjured. The airplane was registered to and operated by Phoenix East Aviation under the provisions of 14 Code of Federal Regulations Part 91 as an instructional flight. Visual meteorological conditions prevailed and no flight plan was filed. The flight departed from Daytona Beach International Airport (DAB), Daytona Beach, Florida at 1000.

According to the DPE and the pilot, the purpose of the flight was to complete a multi-engine check ride. During an approach, the pilot was instructed to demonstrate a short field landing. While on short final, the pilot reduced power and slowed the airspeed. As the airplane crossed the runway threshold, the airplane descended rapidly and landed hard on the runway. Both pilots reported no flight control anomalies or mechanical malfunctions that would have precluded normal operation. A post-accident examination by a Federal Aviation Administration inspector revealed that the composite wing spar fractured at the fuselage bulkhead.

A review of the Phoenix East Aviation's training manual revealed that the procedures for short-field approach to landing required the pilot to obtain 82 knots indicated airspeed (KIAS). A review of the Diamond Aircraft normal operating procedures revealed that the minimum airspeed with flaps applied for landing is 84 KIAS. There is not a published short field landing procedure in the Diamond Aircraft DA-42 operations manual. During the approach to land the DPE stated that the airspeed was approximately between 75-80 KIAS and indicated 67 knots before touchdown.

Pilot Information

Certificate:	Private	Age:	43
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	None	Restraint Used:	3-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Without waivers/limitations	Last FAA Medical Exam:	August 1, 2012
Occupational Pilot:	No	Last Flight Review or Equivalent:	October 5, 2012
Flight Time:	460 hours (Total, all aircraft), 43 hours (Total, this make and model), 335 hours (Pilot In Command, all aircraft), 60 hours (Last 90 days, all aircraft), 30 hours (Last 30 days, all aircraft)		

Check pilot Information

Certificate:	Airline transport; Flight instructor	Age:	79
Airplane Rating(s):	Single-engine land; Single-engine sea; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Glider	Restraint Used:	3-point
Instrument Rating(s):	Airplane	Second Pilot Present:	Yes
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine; Glider; Instrument airplane	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	July 3, 2012
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	March 1, 2011
Flight Time:	(Estimated) 15000 hours (Total, all aircraft), 400 hours (Total, this make and model), 14000 hours (Pilot In Command, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	DIAMOND AIRCRAFT IND GMBH	Registration:	N607PA
Model/Series:	DA 42 NG	Aircraft Category:	Airplane
Year of Manufacture:	2007	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	42.AC078
Landing Gear Type:	Retractable - Tricycle	Seats:	4
Date/Type of Last Inspection:	September 14, 2012 100 hour	Certified Max Gross Wt.:	4189 lbs
Time Since Last Inspection:	67 Hrs	Engines:	2 Reciprocating
Airframe Total Time:	2180 Hrs as of last inspection	Engine Manufacturer:	Austro
ELT:	C91 installed, activated, did not aid in locating accident	Engine Model/Series:	E4-B
Registered Owner:	PHOENIX EAST AVIATION INC	Rated Power:	132 Horsepower
Operator:	PHOENIX EAST AVIATION INC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	XFL,33 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	13:50 Local	Direction from Accident Site:	0°
Lowest Cloud Condition:	Scattered / 3400 ft AGL	Visibility	10 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	12 knots / None	Turbulence Type Forecast/Actual:	/ None
Wind Direction:	40°	Turbulence Severity Forecast/Actual:	/ N/A
Altimeter Setting:	30.18 inches Hg	Temperature/Dew Point:	26°C / 17°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Daytona Beach, FL (DAB)	Type of Flight Plan Filed:	None
Destination:	Palm Coast, FL (XFL)	Type of Clearance:	None
Departure Time:	10:00 Local	Type of Airspace:	

Airport Information

Airport:	Flagler County Airport XFL	Runway Surface Type:	Asphalt
Airport Elevation:	33 ft msl	Runway Surface Condition:	Dry
Runway Used:	06	IFR Approach:	None
Runway Length/Width:	5000 ft / 100 ft	VFR Approach/Landing:	Stop and go;Traffic pattern

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	Substantial
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	29.466943,-81.203613(est)

Administrative Information

Investigator In Charge (IIC): Alleyne, Eric

Additional Participating Persons: Robert Jex; FAA/FSDO; Orlando, FL

Original Publish Date: June 11, 2014

Last Revision Date:

Investigation Class: [Class](#)

Note:

Investigation Docket: <https://data.nts.gov/Docket?ProjectID=85465>

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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](#).