



Aviation Investigation Final Report

Location:	Haslet, Texas	Accident Number:	FTW01LA068
Date & Time:	February 17, 2001, 12:35 Local	Registration:	N8355L
Aircraft:	Piper PA32-R-301T	Aircraft Damage:	Substantial
Defining Event:		Injuries:	1 Serious, 3 Minor
Flight Conducted Under:	Part 91: General aviation - Personal		

Analysis

The airplane was approximately 40 minutes into the flight and 4 miles south of the destination airport in a normal descent when the propeller increased to maximum RPM. Shortly thereafter, the oil pressure light illuminated, and the pilot noticed the oil pressure gauge was indicating zero. Subsequently, the engine lost power, and the pilot elected to land in a field approximately 2 miles south of the runway threshold. The airplane touched down on soft ground, separating its landing gear. A post-accident examination of the engine revealed that there was no oil remaining in the engine, the oil filter internal element was collapsed inward, the oil filter converter plate gasket was found separated from the plate and broken in half, and the oil filter bypass valve was found installed improperly. The collapsed oil filter element and blown converter plate gasket are indicative of a cold weather and/or a high RPM start. With cold oil, the oil pressure became excessive due to the faulty bypass valve resulting in collapse of the filter and failure of the oil filter converter plate gasket.

Probable Cause and Findings

The National Transportation Safety Board determines the probable cause(s) of this accident to be: the improper installation of the oil filter bypass valve by an unknown person, which resulted in the loss of engine oil and subsequent loss of total power during a normal descent. A contributing factor to the accident was the lack of suitable terrain for the forced landing.

Findings

Occurrence #1: LOSS OF ENGINE POWER(TOTAL) - MECH FAILURE/MALF
Phase of Operation: DESCENT - NORMAL

Findings

1. (C) LUBRICATING SYSTEM,OIL REGULATOR - BLOCKED(TOTAL)
 2. (C) MAINTENANCE,INSTALLATION - IMPROPER - UNKNOWN
 3. (C) LUBRICATING SYSTEM - PRESSURE EXCESSIVE
 4. LUBRICATING SYSTEM,OIL FILTER/SCREEN - COLLAPSED
 5. (C) LUBRICATING SYSTEM,OIL GASKET - LEAK
 6. FLUID,OIL - LOSS,TOTAL
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Occurrence #2: FORCED LANDING
Phase of Operation: DESCENT - EMERGENCY

Occurrence #3: COMPLETE GEAR COLLAPSED
Phase of Operation: LANDING - FLARE/TOUCHDOWN

Findings

7. (F) TERRAIN CONDITION - NONE SUITABLE
8. TERRAIN CONDITION - SOFT

Factual Information

On February 17, 2001, at 1235 central standard time, a Piper PA32-R-301T single-engine airplane, N8355L, was substantially damaged during a forced landing following a loss of engine power near Haslet, Texas. The airplane was registered to a private individual and operated by Hest Aviation of Temple, Texas. The commercial flight instructor and pilot-rated passenger were seriously injured, and one passenger sustained minor injuries. Visual meteorological conditions prevailed, and a flight plan was not filed for the 14 Code of Federal Regulations Part 91 personal flight. The flight originated from Killeen, Texas, at 1145, and was destined for the Fort Worth Alliance Airport, Fort Worth, Texas.

According to the pilot's written statement, the airplane was approximately 40 minutes into the flight and 4 miles south of the destination airport, when the "propeller increased to maximum RPM. Shortly thereafter, the oil pressure light illuminated." The pilot added that he noticed the oil pressure gauge was indicating "zero." The pilot performed the emergency checklist and notified air traffic control of the emergency. Subsequently, the engine "seized," and the pilot elected to land in a field approximately 2 miles south of the runway 34L threshold. The airplane touched down on the soft ground, separating its landing gear. The airplane came to rest upright.

Examination of the airplane by the FAA inspector, who responded to the accident site, revealed that the fuselage was buckled and both wings were damaged. The engine was checked for oil and none was found. The wreckage was taken to Air Salvage of Dallas, Lancaster, Texas, for further examination.

On April 26, 2001, the NTSB investigator-in-charge and an engine manufacturer representative examined the Lycoming TIO-540-S1AD engine (serial number L-7631-61A). During the examination of the engine, it was noted that the engine oil dipstick did not indicate an oil quantity and the propeller could not be rotated. The oil filter and the oil filter converter plate were removed, and it was noted that the oil filter's interior element was collapsed inward, and the oil filter converter plate gasket was found separated from the plate and broken in half. The oil filter, oil filter converter plate, and the oil filter converter plate gasket were sent to the engine manufacturer's facility for further examination.

According to the engine manufacturer, the oil converter plate gasket part number could not be determined; however, their materials laboratory determined that the rubber gasket material was "non-conforming." It was also noted that the gasket "had not been glued to the surface of the oil filter converter plate." According to Textron Lycoming Service Instruction (SI) 1453, dated May 9, 1991, the oil filter converter plate gasket must be bonded to the converter plate using 3M Scratch Grip Industrial Adhesive No. 847. The manufacturer reported that it was possible that the collapsed oil filter element could have occurred "due to a sticking oil filter

bypass valve."

On July 11, 2001, an NTSB investigator and an engine manufacturer representative examined the engine's oil filter bypass valve. The valve was removed and examined. It was noted that the valve was installed incorrectly. According to Textron Lycoming SI 1442, the oil filter bypass valve is composed of 5 pieces; a spacer (part number 55K21022), a spring (part number 55C21021), a seat (part number 76539), a sleeve (part number LW-10320), and a ring (part number MS16625-1100), installed in that order. During the examination, the seat was found located in front of the spacer, which according to Lycoming, would have prevented the proper operation of the oil filter bypass valve. According to Textron Lycoming, if the oil filter bypass valve fails to operate, the oil filter element could collapse during a cold weather and/or high RPM start with cold oil.

According to the aircraft maintenance records, the engine was field overhauled and re-installed on the accident airplane on June 25, 1992, at a tachometer time of 1,317.2 hours. On February 3, 1997, the oil filter converter plate gasket was replaced at a tachometer time of 2,017.0 hours (699.8 hours since the 1992 overhaul). At the time of the accident, the engine had accumulated approximately 981 hours since its last overhaul.

Pilot Information

Certificate:	Commercial; Flight instructor	Age:	32, Male
Airplane Rating(s):	Single-engine land; Multi-engine land	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Airplane; Helicopter	Second Pilot Present:	No
Instructor Rating(s):	Airplane multi-engine; Airplane single-engine	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	February 14, 2001
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	September 30, 2000
Flight Time:	2100 hours (Total, all aircraft), 100 hours (Total, this make and model), 1400 hours (Pilot In Command, all aircraft), 34 hours (Last 30 days, all aircraft), 1 hours (Last 24 hours, all aircraft)		

Co-pilot Information

Certificate:	Commercial; Military; Private	Age:	31,Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):	Helicopter	Restraint Used:	
Instrument Rating(s):	Helicopter	Second Pilot Present:	No
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 2 Valid Medical--no waivers/lim.	Last FAA Medical Exam:	December 20, 2000
Occupational Pilot:	UNK	Last Flight Review or Equivalent:	June 30, 2000
Flight Time:	1101 hours (Total, all aircraft)		

Aircraft and Owner/Operator Information

Aircraft Make:	Piper	Registration:	N8355L
Model/Series:	PA32-R-301T	Aircraft Category:	Airplane
Year of Manufacture:		Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	32R-8129051
Landing Gear Type:	Retractable - Tricycle	Seats:	6
Date/Type of Last Inspection:	May 31, 2000 Annual	Certified Max Gross Wt.:	3600 lbs
Time Since Last Inspection:	58.6 Hrs	Engines:	1 Reciprocating
Airframe Total Time:	2239.4 Hrs as of last inspection	Engine Manufacturer:	Lycoming
ELT:	Installed, activated, did not aid in locating accident	Engine Model/Series:	TIO-540-S1AD
Registered Owner:	Larry Herrera	Rated Power:	300 Horsepower
Operator:	Hest Aviation	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:		Distance from Accident Site:	
Observation Time:		Direction from Accident Site:	
Lowest Cloud Condition:	Clear	Visibility	6 miles
Lowest Ceiling:	None	Visibility (RVR):	
Wind Speed/Gusts:	17 knots / 23 knots	Turbulence Type Forecast/Actual:	/
Wind Direction:	360°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:		Temperature/Dew Point:	7°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	Killeen, TX (ILE)	Type of Flight Plan Filed:	None
Destination:	Haslet, TX (AFW)	Type of Clearance:	VFR
Departure Time:	11:45 Local	Type of Airspace:	Class D

Airport Information

Airport:	FORT WORTH ALLIANCE AFW	Runway Surface Type:	
Airport Elevation:	700 ft msl	Runway Surface Condition:	Unknown
Runway Used:	34L	IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Forced landing

Wreckage and Impact Information

Crew Injuries:	1 Serious, 1 Minor	Aircraft Damage:	Substantial
Passenger Injuries:	2 Minor	Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	1 Serious, 3 Minor	Latitude, Longitude:	32.94984,-97.330986(est)

Administrative Information

Investigator In Charge (IIC):	Wigington, Douglas
Additional Participating Persons:	Louis E Vargo; FAA FSDO; Fort Worth, TX John Butler; Textron Lycoming; Williamsport, PA
Original Publish Date:	February 5, 2002
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB traveled to the scene of this accident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=51757

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](#).