



Aviation Investigation Factual Report

Location:	Glendale, Arizona	Incident Number:	WPR17IA198
Date & Time:	August 22, 2017, 09:04 Local	Registration:	N52PD
Aircraft:	Enstrom F 28F	Aircraft Damage:	None
Defining Event:	Fire/smoke (non-impact)	Injuries:	2 None
Flight Conducted Under:	Part 91: General aviation - Instructional		

Factual Information

On August 22, 2017, about 0904 mountain standard time, an Enstrom F-28F helicopter, N52PD, experienced smoke coming from the engine cowling area after touchdown at the Glendale Municipal Airport (GEU) Glendale, Arizona. The certified flight instructor and student pilot were not injured, and the helicopter was not damaged. The helicopter was registered to and operated by Airwest Aviation Academy LLC under the provisions of Title 14 *Code of Federal Regulations* Part 91, as an instructional flight. Visual meteorological conditions prevailed, and no flight plan had been filed. The local flight departed GEU about 0820.

The flight instructor reported that at the time of the incident, the student was practicing hovering autorotations. Several had been accomplished without incident. During the last one, the engine appeared to have stalled, but sounded as if it were running rough when the cockpit filled with smoke. The helicopter was on the ground and the flight instructor secured the cockpit and both he and the student evacuated the helicopter with the engine still running and smoke coming out of the right side air scoop. About five minutes later, the engine stopped running.

Postincident examination of the helicopter revealed that no fire or other related damage was present. Maintenance personnel reported that the source of the smoke appeared to have originated from the failure of an internal oil seal within the turbocharger-compressor that leaked oil into the turbocharger-compressor's exhaust system. No further examination or repair was accomplished and the turbocharger was replaced.

Further examination identified that the V-clamp assembly that was installed on the turbo-compressor exhaust was damaged. The V-clamp assembly was removed and sent to the National Transportation Safety Board Material Laboratory, Washington DC for further examination. The examination of the V-clamp assembly revealed that the strap portion of the assembly contained cracks on three of the four spot welds that emanated from the outer face of the strap. The edge of the strap portion exhibited evidence of bending deformation on both sides of the assembly. In the deformed areas, the distance between the edge of the retainer and the edge of the strap, were smaller when compared to other non-deformed areas. Microscopic examination of the longest crack revealed that a fatigue crack emanated from the outer surface of the strap. The damage to the V-clamp was unrelated to the source of the smoke.

Flight instructor Information

Certificate:	Commercial; Flight instructor; Private	Age:	43, Male
Airplane Rating(s):	None	Seat Occupied:	Right
Other Aircraft Rating(s):	Helicopter	Restraint Used:	4-point
Instrument Rating(s):	Helicopter	Second Pilot Present:	Yes
Instructor Rating(s):	Helicopter	Toxicology Performed:	No
Medical Certification:	Class 2 With waivers/limitations	Last FAA Medical Exam:	April 3, 2017
Occupational Pilot:	Yes	Last Flight Review or Equivalent:	December 18, 2015
Flight Time:	(Estimated) 1300 hours (Total, all aircraft), 1280 hours (Total, this make and model), 1220 hours (Pilot In Command, all aircraft), 90 hours (Last 90 days, all aircraft)		

Student pilot Information

Certificate:	Private; Student	Age:	40, Male
Airplane Rating(s):	Single-engine land	Seat Occupied:	Left
Other Aircraft Rating(s):		Restraint Used:	4-point
Instrument Rating(s):	None	Second Pilot Present:	Yes
Instructor Rating(s):	None	Toxicology Performed:	No
Medical Certification:	Class 3 Without waivers/limitations	Last FAA Medical Exam:	December 13, 2016
Occupational Pilot:	No	Last Flight Review or Equivalent:	
Flight Time:			

Aircraft and Owner/Operator Information

Aircraft Make:	Enstrom	Registration:	N52PD
Model/Series:	F 28F	Aircraft Category:	Helicopter
Year of Manufacture:	1996	Amateur Built:	
Airworthiness Certificate:	Normal	Serial Number:	807
Landing Gear Type:	Skid	Seats:	2
Date/Type of Last Inspection:	July 6, 2017 Annual	Certified Max Gross Wt.:	2600 lbs
Time Since Last Inspection:		Engines:	1 Reciprocating
Airframe Total Time:	6264.3 Hrs as of last inspection	Engine Manufacturer:	Lycomng
ELT:	Not installed	Engine Model/Series:	HIO-360-F1AD
Registered Owner:	AIRWEST AVIATION ACADEMY LLC	Rated Power:	190 Horsepower
Operator:	AIRWEST AVIATION ACADEMY LLC	Operating Certificate(s) Held:	None

Meteorological Information and Flight Plan

Conditions at Accident Site:	Visual (VMC)	Condition of Light:	Day
Observation Facility, Elevation:	KGEU, 1071 ft msl	Distance from Accident Site:	0 Nautical Miles
Observation Time:	08:53 Local	Direction from Accident Site:	90°
Lowest Cloud Condition:	Scattered / 15000 ft AGL	Visibility	10 miles
Lowest Ceiling:		Visibility (RVR):	
Wind Speed/Gusts:	4 knots / None	Turbulence Type Forecast/Actual:	/
Wind Direction:	20°	Turbulence Severity Forecast/Actual:	/
Altimeter Setting:	29.97 inches Hg	Temperature/Dew Point:	33°C / 14°C
Precipitation and Obscuration:	No Obscuration; No Precipitation		
Departure Point:	GLENDALE, AZ (GEU)	Type of Flight Plan Filed:	None
Destination:	GLENDALE, AZ (GEU)	Type of Clearance:	VFR
Departure Time:	08:20 Local	Type of Airspace:	Class D

Airport Information

Airport:	Glendale Muncial Airport GEU	Runway Surface Type:	
Airport Elevation:	1071 ft msl	Runway Surface Condition:	Unknown
Runway Used:		IFR Approach:	None
Runway Length/Width:		VFR Approach/Landing:	Precautionary landing

Wreckage and Impact Information

Crew Injuries:	2 None	Aircraft Damage:	None
Passenger Injuries:		Aircraft Fire:	None
Ground Injuries:	N/A	Aircraft Explosion:	None
Total Injuries:	2 None	Latitude, Longitude:	33.526943,-112.29528(est)

Administrative Information

Investigator In Charge (IIC):	Nixon, Albert
Additional Participating Persons:	Christopher Kennedy; FAA FSDO; Scottsdale , AZ
Report Date:	August 23, 2018
Last Revision Date:	
Investigation Class:	Class
Note:	The NTSB did not travel to the scene of this incident.
Investigation Docket:	https://data.nts.gov/Docket?ProjectID=95947

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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](#).