

National Transportation Safety Board

Office of Aviation Safety

Washington, DC 20594



CEN24LA137

FIELD NOTES

March 26, 2024

TABLE OF CONTENTS

A. ACCIDENT	3
B. FIELD NOTES	3
C. SUMMARY	3
D. DETAILS OF THE EXAMINATION.....	4
1.0 ACCIDENT SITE	4
2.0 AIRFRAME EXAMINATION.....	4
2.1 Fuselage.....	4
2.2 Empennage	4
2.3 Rotor System.....	4
2.4 Landing Gear.....	5
2.5 Cockpit.....	5
2.6 Fuel/Fuel System.....	5
2.7 Other Systems	5
3.0 ENGINE EXAMINATION	5
4.0 PILOT INFORMATION	7
5.0 AIRCRAFT INFORMATION	7
6.0 METEOROLOGICAL INFORMATION	7

A. ACCIDENT

Location: Port Lavaca, Texas
Date: March 16, 2024
Time: 1645 CST
Helicopter: N280WR 1977 Enstrom F280C

B. FIELD NOTES

IIC	Zane Brown NTSB - Central Denver, CO
Party Member	Douglas Smith Enstrom Helicopter Corporation Menominee, MI
Party Member	David Harsanyi Lycoming Engines Williamsport, PA

C. SUMMARY

On March 16, 2024, about 1645 central daylight time, an Enstrom 280C Helicopter, N280WR, was substantially damaged when it was involved in an accident near Port Lavaca, Texas. The pilot was not injured. The helicopter was operated as a Title 14 *Code of Federal Regulations* Part 91 personal flight.

The pilot reported that he was repositioning the helicopter from his front yard to a moveable landing platform. While he was hovering over the platform the helicopter lost engine power and settled with the right skid on the platform and the helicopter rolled to the left resulting in the rotor blades contacting the ground. During the accident sequence, the main rotor, tail rotor, tail boom and stabilizers were substantially damaged.

D. DETAILS OF THE EXAMINATION

1.0 Accident Site

The Accident site was located in a residential area in Port Lavaca, Tx. The Accident site consisted of a grass yard, concrete pad, and a moveable landing platform next to the pilot's hangar.

2.0 Airframe Examination

The helicopter was recovered to the pilot/owner's hangar, during the recovery the tail rotor, main rotor, vertical stabilizer, horizontal stabilizers, and fairings were removed. The main rotor was cut up into sections for disposal prior to investigators arrival. Examination of the airframe was conducted on March 26th 2024 in Port Lavaca, TX.

The helicopter, serial number 1108, was originally manufactured in 1977.

2.1 Fuselage

The fuselage was observed to be mostly intact and undamaged. The left engine fairing exhibited crush damage.

2.2 Empennage

The tail boom sustained substantial damage. The tail rotor driveshaft was fractured at the upper pulley flex coupling and displaced from its alignment. The tail rotor gearbox extension tube was rotated from its mounting location and its mounting rivets were sheared. The tail stinger was significantly deformed. The aft portion of the tail boom exhibited buckling damage. The forward portion of the tail boom exhibited deformation at multiple points including the forward bulkhead and bracing. Lower stabilizer as well as the left and right horizontal stabilizers exhibited damage.

2.3 Rotor System

The main rotor blades (3) were removed and cut in to sections prior to investigators arrival to the exam. The main rotor blades exhibited damage consistent with rotation at the time of impact. Main rotor blades did not contact the tail boom during the accident sequence. The tail rotor blades were removed prior to investigators arrival to the exam. The tail rotor blades exhibited aft chordwise bending damage consistent with engine power driving the blades at the time of impact. The rotor head was intact and undamaged with the exception of the #2 and #3 pitch change links that sustained damage consistent with impact. The overrunning clutch was intact and unremarkable. The belt engagement clutch

sustained some deformation during the accident sequence and was otherwise unremarkable.

2.4 Landing Gear

The right landing skid was intact and unremarkable. The left landing skid was separated from the helicopter and damage was observed.

2.5 Cockpit

The cockpit was intact, and all controls were installed. The antitorque pedals were observed to be continuous to the tail rotor pitch links. The collective and cyclic controls were observed to be continuous to the azimuth, The cyclic longitudinal and lateral bell crank mounts located at top of seat structure failed at bell crank attachment ears. The collective control system bell crank failed in overload at its attachment to the pivot mount located in bottom of seat structure.

Seat structure/pan braces were not bowed and flanges of vertical members at intersection of seat structure not kinked. The throttle and mixture controls operated normally without binding,

2.6 Fuel/Fuel System

Fuel was drained from the helicopter by the owner/pilot during the recovery. The fuel tanks were removed for access to the top of the engine and a fuel sample from each fuel tank was collected and tested for water, a small amount, about 1-2ml was found within the sample and confirmed using Kolor-Kut water finding paste, about 12 ounces of fuel was captured.

2.7 Other Systems

The Helicopter was equipped with an Insight 603 GEM graphical engine monitor. The Insight 603 GEM does not contain non-volatile memory (NVM).

3.0 Engine Examination

Make: Lycoming Engines Model: HIO-360-E1AD S/N: L-19111-51A

The engine remained attached to the engine mount within the helicopter. No observed impact damage was noted to the engine or its accessories that were visible

during the exam. The engine remained attached inside the helicopter for the course of the exam.

Bottom spark plugs were removed from all cylinders. Oil was noted within cylinders number 1 and 3 when removed. Engine rotation was achieved by rotation of the scroll fan attached to the engine's crankshaft. Suction and compression was noted on all cylinders throughout engine rotation. No fractured valve springs were noted, and all pushrod shroud tubes appeared straight and unbent.

The single drive dual magneto was found tightly installed to the accessory section of the engine. Engine timing was checked and confirmed to be about 20 degrees BTDC. The magneto was removed and produced spark at all leads when rotated by hand. Internal time appeared to be correct; about 8° L "K" with red teeth on gears centered in inspection windows. P/N 10-682555-13, Model D4LN-3000, S/N H-X080138. No damage was noted to either ignition harness and each harness lead was terminated to the correct spark plug position.

A lighted borescope inspection of each cylinder was unremarkable. A borescope inspection of the intake pipe to turbo inlet was free of any debris or signs of liquid oil. The remaining spark plugs were removed and photo documented. Electrodes were noted to be damage free and when compared to a Champion Check-A-Plug chart, wear and coloration patterns were normal.

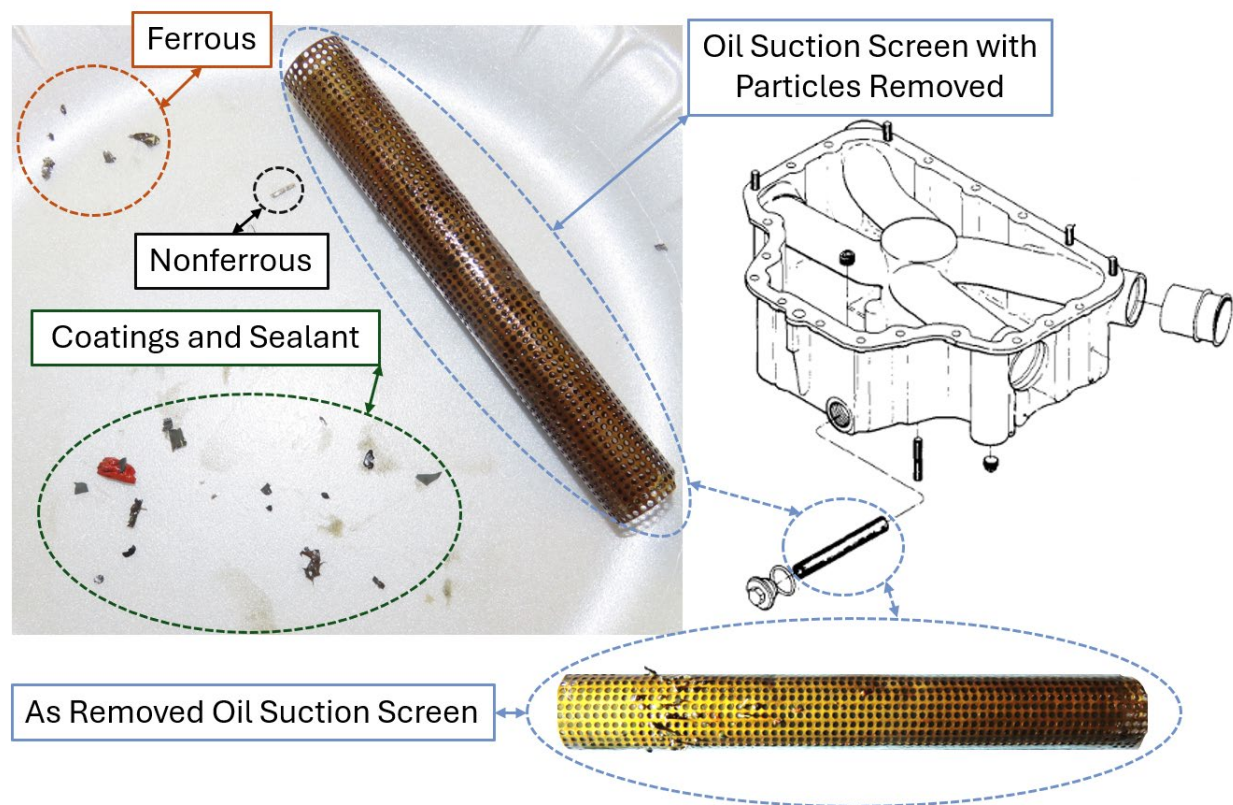
The turbo remained attached to the engine and was found tightly attached. Both impellers of the turbo spun freely and no noted damage to the blades was noted.

The fuel system was examined and removed from the engine. All fuel injectors were found tightly installed to their respective cylinders with their fuel lines tight. All injectors were found to be free and clear of any debris. The fuel manifold had all its respective lines and hoses tightly installed. The unit was disassembled, and its diaphragm was found to be free of any tears. A small amount of corrosion was observed to the spring above the diaphragm.

The fuel servo was tightly installed with its respective mixture and throttle cables attached. The fuel servo was removed to be inspected and tested by the manufacturer. P/N 2524712-10, Model RSA-5AB1, S/N 720PRR01.

An STC oil filter was found installed to the engine and removed for examination. The screen showed some debris in the form of orange silicone, deposits, and a small amount of ferrous metallic debris. The suction screen was tightly installed to the engine, removed, and examined. Additional silicone and organic type material was found along with a few pieces of ferrous metal. The pilot owner could not recall the

last time the suction screen was removed or cleaned.



4.0 Pilot Information

The pilot is a 71YOA male weighing 182 lbs at the time of his last third class medical, dated 3/30/23 and has no limitations on his medical. The pilot holds a private pilot certificate for Airplane Single Engine Land, Instrument Airplane and Rotorcraft - Helicopter and has accumulated about 2289 hours of flight experience. Of those hours about 500 were helicopter and about 175 hours were in make and model.

5.0 Aircraft Information

Annual inspection completed 15 DEC 2023. Aircraft Total Time 1713.3, Hobbs 444.9. Aircraft Total Time at the time of the accident was 1720.6/Hobbs 452.1 . The helicopter had accumulated 7.2 hours since annual inspection.

6.0 Meteorological Information

KPKV 162155Z AUTO 18011G16KT 10SM CLR 30/18 A2983 RMK AO2 T02970177

Submitted by:

Zane Brown
Investigator In Charge