

NATIONAL TRANSPORTATIONS SAFETY BOARD
Office of Aviation Safety
Washington, DC 20594

SUMMARY OF AIRCRAFT EXAMINATION

-- CEN19LA245 --

A. ACCIDENT

Location: Water Valley, Texas
Date: July 8, 2020
Time: 1730
Aircraft: Robinson R22 II Beta

B. PARTICIPANTS

Jennifer Rodi
Senior Aviation Accident Investigator
National Transportation Safety Board

C. DETAILS OF AIRCRAFT EXAMINATIONS

Fuselage

- The fuselage was bent and wrinkled on the right side
- The shroud on the mast was buckled and wrinkled
- The Plexiglas windscreen was impact separated
- The front toe on the right side of the landing skid was separated
- All flight controls – from the cyclic aft through to the main rotor mast and aft to the engine and transmission were free and correct

Engine

- Engine belt was unremarkable and with tension
- Engine clutch was engaged
- Engine controls were continuous from the collective aft to the engine
- The engine was not impact damaged and was visually unremarkable
- The valve covers and lower bank of spark plugs were removed to facilitate the examination
- The lower left spark plugs were covered in oil but otherwise exhibited signatures consistent with normal operations
- The engine was rotated through by hand and valve train movement and tactile compression was noted on all 4 cylinders.
- The lower right spark plugs exhibited signatures consistent with normal operations.

Main Rotor

- The white dot main rotor blade was bowed down slightly at midspan and exhibited red paint transfer//witness marks along 10 inches of the outboard leading edge and top of the blade
- The non-white dot main rotor blade was bent and buckled up and down at multiple points along the entire span of the blade

Tail boom and tailrotor and tailrotor gearbox

- The antitorque pedals were free and correct through the separation point at the tail boom.
- Tail rotor driveshaft separated about 75 inches aft of the first station at fuselage
- A 49-inch section of the tail rotor driveshaft was separated from the inboard portion and the outboard portion; this section exhibited multiple witness marks along the span of the shaft. The shaft exhibited a bend about 10 inches inboard from the outboard end. Both separation ends exhibited feature consistent with twisting.
- The 18 inches remained attached to the tail rotor gearbox. The separation end exhibited a feature consistent with twisting. The pitch change links remained attached and functioned as designed when actuated by hand. The tailrotor “horn” was impact separated but was otherwise unremarkable.
- The tailrotor gearbox mounts exhibited separation features consistent with overload.
- About 7.5 inches of white tail rotor blade remained attached – the outboard portion was separated and was not recovered
- Red paint transfer noted at the separation point
- About 7 inches of the other tail rotor blade remained attached – the outboard portion was separated and was not recovered
- Red paint transfer noted at the separation point
- The shaft between the tailrotor gearbox and the tail rotor was bent
- The tailrotor gear box rotated without binding or hesitation when actuated by hand
- Outboard 29 inch-portion of the tail boom was partially separated from the wreckage and exhibited external damage and transfer/paint smearing on the left side consistent with impact of the main rotor blade
- The inner circumference of the tail boom piece exhibited multiple witness marks along the internal circumference at station
- The lower vertical tailfin separated from the tail boom and exhibited tearing, smearing, and impact damage consistent with a main rotor blade strike. The remainder of the fin was otherwise unremarkable.