

Safety Recommendation A-68-3

The National Transportation Safety Board (NTSB) issued Safety Recommendation A-68-3 to the Federal Aviation Administration on March 14, 1968, as a result of the NTSB's investigation of the February 6, 1968 fatal accident in Lakeside, Nebraska. According to the NTSB's investigation, the accident helicopter, a Brantly Model B-2-B helicopter, N2287U, experienced the failure of one of the tail rotor blades during flight. The separated tail rotor blade, P/N B2-111-11, S/N 756, was recovered approximately 400 yards from the main wreckage site. Examination of the failed blade in the NTSB metallurgical laboratory disclosed that a fatigue fracture had occurred in the blade spar approximately 1.5 inches outboard of the blade retaining nut. Several fatigue cracks had originated at small pits in or adjacent to the fillet at the shoulder that retains the outboard thrust bearing. These cracks had propagated until complete failure occurred.

The text of Safety Recommendation A-68-3 is as follows:

The following proposals be considered: 1. That the Airworthiness Directive adopted on February 14, 1968, be modified to (a) require the use of a magnifying glass in the examination of the bearing boss radius and (b) require a fillet radius at the bearing boss of 0.040 inch as specified by the Brantly drawing rather than the 0.020 inch radius specified in AD 65-28-1. The glass used in the inspection should have a magnifying power of about 10 diameters due to the small size of the pits found in the blades from N2287U. 2. That consideration be given to the possibility of modifying the blade design to provide for pressurized lubrication and cadmium plating of the outer surface of the thrust bearing. Frequent pressurized grease purging of the rotor hub shaft cavity and the thrust bearings would remove trapped air and moisture and reduce the danger of corrosion. Cadmium plating the surface of the thrust bearing that is in contact with the aluminum spar would reduce the danger of galvanic corrosion if moisture does get into the assembly.

The following page provides more details regarding the subject accident.

NTSB Identification: MKC68A0050

14 CFR Part 91 General Aviation

Aircraft: BRANTLY B-2B, registration: N2287U

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FILE      DATE      LOCATION      AIRCRAFT DATA      INJURIES      F
LIGHT
                                PILOT DATA
                                F  S M/N      P
URPOSE
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3-1563   68/2/6   NR.LAKESIDE,NEBR   BRANTLY B-2B      CR-
1 0 0   NONCOMMERCIAL   PRIVATE, AGE 41, 700
          TIME - 1630          N2287U      PX-
1 0 0   BUSINESS          TOTAL HOURS, 600 IN TYPE,
          DAMAGE-DESTROYED      OT-
0 0 0          NOT INSTRUMENT RATED.

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TYPE OF ACCIDENT      PHASE OF OPE
RATION
: NORMAL CRUISE      PROPELLER/ROTOR FAILURE: TAIL ROTOR      IN FLIGHT
: UNCONTROLLED DESCENT      COLLISION WITH GROUND/WATER: UNCONTROLLED      IN FLIGHT

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PROBABLE CAUSE(S)

ROTORCRAFT - ROTOR ASSEMBLIES: TAIL ROTOR BLADES
 MISCELLANEOUS ACTS,CONDITIONS - CORRODED/CORROSION
 MISCELLANEOUS ACTS,CONDITIONS - FATIGUE FRACTURE
 PILOT IN COMMAND - FAILED TO MAINTAIN ADEQUATE ROTOR R.P.M.

FACTOR(S)

MISCELLANEOUS ACTS,CONDITIONS - SEPARATION IN FLIGHT
 MISSING AIRCRAFT - LATER RECOVERED
 EMERGENCY CIRCUMSTANCES - FORCED LANDING OFF AIRPORT ON LAND
 LATERAL CONTROL PROBLEM

REMARKS- RECOVERY DATE-

2/7/68.FAILURE OF T/R BLADE SPAR IN THE INSIDE BEARING BOSS RADIUS.