NTSB Identification: **LAX01TA092**.
The docket is stored in the Docket Management System (DMS). Please contact Records Management Division
Accident occurred Wednesday, February 21, 2001 in San Diego, CA
Probable Cause Approval Date: 01/23/2002
Aircraft: McDonnell Douglas 600N, registration: N606BP
Injuries: 2 Uninjured.

NTSB investigators may have traveled in support of this investigation and used data provided by various sources to prepare this public aircraft accident report.

During the landing slide, the main rotor blew back, contacted the tail boom, and severed it. The flight purpose was refresher training and the specific maneuver at the time of the accident was training in the procedure for a stuck (fixed) right pedal. According to the flight crew, there were no mechanical discrepancies with the helicopter. A run-on landing with the fixed right pedal was made to the 260-degree taxiway. The wind reported at the airport about 14 minutes after the accident was 330 degrees at 6 knots. The pilots reported that the wind was 310 degrees at 6 to 8 knots with gusts to 12 knots. According to information provided by the flight crew, the training pilot accomplished the maneuver: aligned with the runway heading with an airspeed between 55-65 knots; the instructor pilot (IP) held right pedal to induce a 10-degree right yaw; touchdown was estimated to occur about 30-40 knots; the low rotor rpm horn was "on" at or near touchdown, but the rotor speed was not noted; the collective was positioned at some point above half travel; cyclic was slightly forward of neutral; shortly after touchdown both pilots felt the main rotor strike the tail boom; directional control was lost and the helicopter rotated about 220 degrees nose right before coming to rest, upright. The manufacturer indicated that main rotor/tail boom contact from blowback of the main rotor may result from forward velocity and low/decaying main rotor rpm (advance ratio) due to a high collective position during the ground run-out phase following the 30-knot plus touchdown. The blowback condition is exacerbated by the high angle pitch setting which causes blade stall over a large portion of the rotor disk. A blowback condition is present in all helicopters. It may be more pronounced in the MD600N (versus the 500N) due to greater helicopter gross weight, reduced flare/deceleration capabilities because of tail boom length and installation angle, and the increased surface of the additional main rotor blade resulting in a more rapid decay of main rotor rpm. A caution in the helicopter's Rotorcraft Flight Manual specifies for practice autorotation landings to avoid conditions of ROTOR RPM (Nr) less than 60 percent with headwinds across the rotor greater than 30 knots during touchdown autorotations. These conditions during touchdown and subsequent ground slide, can lead to excessive rotor blowback, reduction in blade tip to tail boom clearance, and subsequent damage to the aircraft. Avoid these conditions by reducing collective pitch after touchdown (surface conditions permitting) and minimizing ground run.

The National Transportation Safety Board determines the probable cause(s) of this accident to be:

The student pilot's improper use of the rotorcraft flight controls, and the instructor pilot's inadequate supervision of the maneuver.

Full narrative available

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