NTSB Identification: **LAX98LA076**.
The docket is stored in the Docket Management System (DMS). Please contact Records Management Division
Accident occurred Friday, January 16, 1998 in MESA, AZ
Probable Cause Approval Date: 02/15/2001
Aircraft: McDonnell Douglas 600N, registration: N176SP
Injuries: 2 Uninjured.

The CFI was having the second pilot execute straight in autorotations for familiarization training. The second pilot initiated the autorotation with the rotor in the low range and the CFI instructed the second pilot to reduce collective, which increased their rate of descent. The CFI said that about 18 feet, the second pilot applied 60 percent collective, leveled somewhat, and the nose yawed to the left. The CFI applied full right pedal in an attempt to correct the yaw, but the nose remained yawed to the left approximately 15 degrees. The aircraft hit the ground with the left heel first followed by the nose pitching forward. The CFI stated he applied slight aft cyclic and felt the main rotor contact the tail boom.

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

The second pilot misjudging his flare and the delayed remedial actions by the pilot-in-command.

Full narrative available
LAX98LA076

On January 16, 1998, at 1730 hours mountain standard time, a McDonnell Douglas 600N, N176SP, sustained substantial damage during the touchdown autorotation at Mesa, Arizona. The aircraft was owned and operated by the West Virginia State Police, and one of their pilots was undergoing familiarization training by a Boeing/McDonnell Douglas instructor pilot. The flight instructor and commercial pilot who was receiving instruction were not injured. The flight originated at Falcon Field at 1600.

The aircraft was being operated on a standard airworthiness certificate which was issued on January 14, 1998. The West Virginia State Police pilot (referred to as the second pilot) was undergoing pilot transition training when the accident occurred. The second pilot stated that he was attempting to execute the second full touchdown autorotation, and "I was too high off the ground when I pulled the collective and hit the ground too hard."

The first pilot, the Boeing Certified Flight Instructor (CFI), said that the second pilot was executing a straight in autorotation. As the autorotation was begun, the CFI stated that the rotor started low in the acceptable range, so he prompted the second pilot to further reduce the collective, and their rate of descent increased. The CFI stated the maneuver was still satisfactory, with a low flare. He stated that about 18 feet, the second pilot applied "60 percent collective, leveled somewhat, and the nose yawed to the left." At that point, the CFI said he applied full right pedal in an attempt to straighten the aircraft, but the nose remained yawed approximately 15 degrees to the left. The aircraft hit the ground with the left heel first, followed by the nose pitching forward. The CFI stated he applied slight aft cyclic, when he felt the main rotor contact the tailboom.

According to the aircraft manufacturer, the touchdown resulted in a hard landing, which caused the main rotor blades to flex and contact the tailboom. The tailboom was subsequently fractured by the rotor blade contact. The aircraft remained upright and the engine was shutdown using the emergency shutdown procedures.

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