



**Howard's Whirlybirds:
Howard Hughes' Amazing
Pioneering Helicopter Exploits**
by
Donald J. Porter

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Hard Bound, 224 Pages

Editor's Note: Most book reviews conform to a certain template - tell about the author, tell about his book, and explain why the reader would enjoy reading the book. In this issue of LOGBOOK I would like to introduce you to Don Porter's fine book on Howard Hughes, and the eccentric man's foray into the world of helicopters. Rather than simply relating a few brief snippets from Don's book, I am pleased to present here a passage from the book, relating to the early development of the Hughes AH-64 Apache. The rest of the book is like this - great reading, great insights, and great aviation history. I can highly recommend this book - enjoy.

**The Painful Way The Apache
Got New Tail Feathers**

During testing it's not unusual for new airplanes and helicopters to get their tails enlarged, moved, stretched or even snipped. It is unusual when one of those changes causes the firing of a big company's top executive, the shuffling of other executives - and pushing a billion dollar aircraft program to the brink of cancellation. All of this happened in 1979 as the U. S. Army and its contractor for the AH-64 Apache fought each other about where to locate the helicopter's horizontal stabilizer.

Thirty-eight years after its first flight, the Apache ranks among the most celebrated attack helicopters in the world. But during the fall of 1979, after six years in development, the gunship's future was anything but certain. It didn't fly right, was weeks behind in its test schedule and Congress saw its

spiraling cost as exorbitant. Cost and schedule issues were important but an improperly designed tail is what threatened to kill the program. It would have meant bankruptcy for Hughes Helicopters, Inc., the aircraft's maker.

"We began with a fixed low tail," said John Dendy, the Apache's chief engineer at Hughes, "but realized there was a risk from the possible effect of pitching moments occurring in low speed flight as the downwash from the main rotor blades passed over the low tail."

The solution was to relocate the horizontal stabilizer from the fuselage to atop the vertical stabilizer. It was intended to improve pitch stability and give the tail a snazzy look.

"When the helicopter flies nap-of-the-earth, the handling qualities caused by the T-tail became a real operational problem," Dendy said. When the Apache landed, it had to be made with a precarious 18-degree nose-up attitude.

Hughes engineers knew what was

wrong, but Tom Stuelpnagel, the company's president, refused to fix the helicopter unless the Army paid Hughes to modify it. The Army saw this as a slap in the face.

Major General Ed Browne, the Army's program manager for the Apache, was known for a heavy-handed style. He didn't like the T-tail one bit. "Initially, all analyses indicated the T-tail would work," Browne said, "but flying tests proved that it didn't."

Browne asked John Kerr, the vice president who ran the program at Hughes, to relocate the stabilizer to the lower fuselage. Kerr refused. After being shunned by Stuelpnagel, who referred Browne back to Kerr, the general took his concerns to Will Lummis, nephew of Howard Hughes – and Stuelpnagel's boss. In addition to the T-tail issue, Stuelpnagel and Kerr had let the program fall weeks behind schedule.

Browne told Lummis that unless "appropriate measures" were taken Hughes Helicopters would have little chance of landing a production contract for the Apache.

To pacify the Army Lummis fired Stuelpnagel, a forty-year executive at Hughes. Kerr was removed from the program. The next day, Jack Real, the closest friend of Howard Hughes during the billionaire's final years, became the new president. Real had once managed the troubled AH-56A Cheyenne attack helicopter program at Lockheed. One month after the Cheyenne was cancelled, the Army asked for a new attack helicopter. The result was the Apache.

The day after Real moved into his office two men from the Office of Management and Budget (OMB) dropped by. They were not expected. They told him that the Apache was being canceled and were meeting with him to determine if the cancellation would be "for cause" or "for the convenience of the government." Upset,



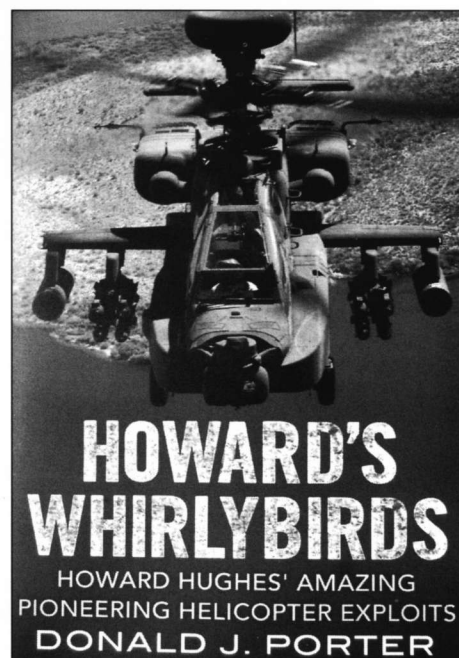
but not surprised, Real asked for six weeks to turn the program around. Reluctantly, they agreed.

The next day Real ordered his staff to speed up design work for a different type of low-mounted tail. Rather than a fixed surface, the new stabilator's angle of incidence would be automatically varied to achieve the proper attitude while landing. Real insisted that the re-configured helicopter had to fly within a month.

Real met his self-imposed deadline when the modified Apache took to the air on Halloween day 1979. "I found the ship to be smooth and easy to fly," Browne said. "The stabilator has improved the aircraft considerably." It was a relief for Real to get the general's blessing. It also got the OMB off his back.

The consensus around the company was that Stuelpnagel saw the T-tail as a stylish feature to distinguish the company's helicopters. "He thought it was important to retain that signature and damn the technical consequences," Dendy said.

Quick action by Lummis and Real saved the Apache program. More than 1,800 of the attack helicopters have been built that have accumulated more than 3.7 million flight hours.



There's more about the T-tail fiasco and how other design decisions resulted in the final configuration of the AH-64 Apache in Donald J. Porter's book *Howard's Whirlybirds: Howard Hughes' Amazing Pioneering Helicopter Exploits* (ISBN 978-1-78155-089-2). It can be found online and at bookstores.

Top: Shown on its maiden flight, the prototype Hughes AH-64 Apache with the short-lived T-tail. Photo: via the author
Opposite Page: A file photo of the Hughes (now Boeing) AH-64D Apache Longbow. Photo: U.S. Army