

Exemption No. 9589

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
FORT WORTH, TEXAS 76193-0100

In the matter of the petition of

**ROBINSON HELICOPTER
COMPANY**

for an exemption from § 27.695
of Title 14, Code of Federal
Regulations

Regulatory Docket No. FAA-2006-25287

GRANT OF EXEMPTION

By letter dated June 23, 2006, Pete Riedl, VP Engineering, Robinson Helicopter Company (RHC), 2901 Airport Drive, Torrance, California 90505 petitioned the Federal Aviation Administration (FAA) on behalf of RHC for an exemption from § 27.695 of Title 14, Code of Federal Regulations (14 CFR). The proposed exemption, if granted, would permit the type certification of the RHC new model R66 without considering the jamming of a control valve in the powered flight control system as a possible single failure. RHC is developing a turbine-powered helicopter based on the current Model R44. The helicopter will be certificated as a new model designated R66.

The petitioner requests relief from the following regulation:

14 CFR 27.695 prescribes, in pertinent part, that when a power boost or power operated control system is used, an alternate system must be immediately available that allows continued safe flight and landing of the rotorcraft in the event of any single failure in the power portion of the system.

The petitioner supports its request with the following information:

The petitioner indicates that ...

An Exemption No. 6692 to § 27.695 was granted for the model R44 helicopter on October 17, 1997. The R66 hydraulic system, including control valves, will be based directly on the proven R44 system. The control valve was designed and is manufactured in-house by RHC resulting in the highest possible engineering and quality control. Using the simple, proven, reliable design and maintaining rigorous in-house manufacturing and quality controls will ensure safety comparable to that of more complex redundant systems. To date, RHC has produced over 2200 model R44 helicopters with hydraulic controls. No control valve problems have been reported.

The petitioner states that public interest is served by allowing a low-cost, proven, reliable design which builds on an existing technology base to come to market. Granting this exemption will reduce acquisition and maintenance costs and reduce the possibility of both manufacturing and maintenance errors. RHC experience has shown that design simplicity is an essential building block of safety and reliability.

A summary of the petition was published in the Federal Register (72 FR 29202) on May 24, 2007. One comment was received from Hiller Aircraft Corporation in support of granting this exemption provided the new design actuator is evaluated for differences in the in-service vibration environment.

The FAA's analysis is as follows:

The FAA has reviewed the data presented by RHC in support of this petition and has determined that a grant of the requested exemption is appropriate and justified.

The FAA is aware of the similarity between the R44 and the R66 model helicopters. Both the R44 and R66 will have the same rotor diameter and operate at the same RPM. In response to the comment from Hiller Aircraft Corporation, the turbine engine on the R66 is expected to produce less vibration at the servos than the reciprocating engine on the R44.

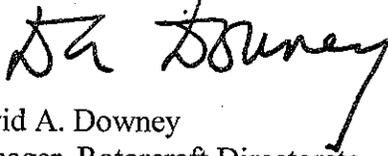
The petitioner has also provided the service data on the R44. RHC has delivered a total of 2619 helicopters through the end of 2006. Assuming an average of 300 hours operation per helicopter per year, the total calculated hydraulic system service time from 1999 through 2006 was 2,140,950 hours.

The FAA is not aware of any service difficulties, incidents or accidents attributed to an R44 servo control valve out of the more than 2 million hours of service time.

The FAA's Decision

In consideration of the foregoing, I find that granting this exemption is in the public interest and will not adversely affect safety. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator, Robinson Helicopter Company is granted an exemption from 14 CFR § 27.695 to the extent necessary to allow RHC to obtain type certification of the RHC new model R66 helicopter without considering the jamming of a control valve in the powered flight control system as a possible single failure.

Issued in Fort Worth, Texas, on January 28, 2008.

A handwritten signature in black ink, appearing to read "DA Downey". The signature is written in a cursive, somewhat stylized font. The "D" is large and loops around the "A". The "Downey" part is written in a similar cursive style.

David A. Downey
Manager, Rotorcraft Directorate
Aircraft Certification Service