

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
WASHINGTON, DC 20591

In the matter of the petition of *
OMAC, INC. * Regulatory Docket No. 036CE
*
*
for an exemption from § 23.903(e)(2)*
of the Federal Aviation Regulations *
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GRANT OF EXEMPTION

By letter dated March 11, 1987, Mr. Billy G. Vardaman, 1 Rockwell Avenue, Post Office Box 3530, Albany, Georgia 31708, petitioned on behalf of OMAC, Inc. for an exemption from § 23.903(e)(2) of the Federal Aviation Regulations (FAR) to permit certification of a OMAC Model L300 airplane with an engine installation that does not provide a means for stopping the rotation of the engine, which will not comply with § 23.903(e)(2). The OMAC Model L300 is a single pusher turbopropeller engine, eight-passenger airplane intended to be certificated in the normal category.

Sections of the FAR affected:

Section 23.903(e)(2) requires, in pertinent part, that a means must be provided for stopping the rotation of any turbine engine.

The Petitioner's supportive information is as follows:

"(1) The OMAC powerplant installation consists of a Pratt and Whitney Canada Model PT6A-135A engine which incorporates the capability of feathering the propeller which stops rotation of the propeller gear box and the power turbine. The gas generator of the engine will continue to windmill at low RPM. The engine manufacturer does not provide means for stopping rotation of this part of the engine. This does not present any flight hazard since the engine meets FAR 33.92 which states:

"(a) Unless means are incorporated in the engine to stop rotation of the engine rotors when the engine is shut down in flight, each engine rotor must either seize or be capable of rotation for three hours at the limiting windmilling rotational RPM with no oil in the engine system, without the engine -

- (1) Catching fire;
- (2) Bursting (penetrating the case); or
- (3) Generating loads greater than those specified in § 33.23.

"The Model L300 is a single engine airplane and cannot sustain flight for three hours with the engine shut down.

"(2) For PT6 series of free turbine engines, the requirements of FAR 23.903(e)(2) have not been imposed to date on any FAR 23 aircraft. The PT6 engine family has accumulated millions of hours of service operation without experiencing any safety problems associated with in-flight shutdowns.

"(3) The corresponding paragraph in FAR 25 [FAR 25.903(d)] states:

"(c) Control of engine rotation. There must be means for stopping the rotation of any engine individually in flight, except that, for turbine engine installations, the means for stopping the rotation of any engine need be provided only where continued rotation could jeopardize the safety of the airplane."

In conclusion, Petitioner states:

"Addition of a device to prevent rotation of the engine gas generator after engine shut-down is, therefore, unnecessary for safety and an undue burden on the applicant. Therefore, the applicant should be exempted from literal compliance with the first sentence of FAR 23.903(e)(2) as applied to type certification of the OMAC Model L300...Exact compliance with this rule is not necessary for safety since the Model L300 aircraft engine meets FAR 33.92."

Comments to published petition summary:

A summary of this petition was published in the FEDERAL REGISTER for public comment on June 9, 1987 (52 FR 21790). The comment period closed June 29, 1987. No comments were received.

The Federal Aviation Administration's (FAA) analysis is as follows:

To obtain the exemption, the petitioner must show, as required by § 11.25(b)(5) of the Federal Aviation Regulations, that: (1) granting the request is in the public interest, and (2) if appropriate, why the grant of the exemption would not adversely affect safety, or that a level of safety will be provided which is equal to that provided by the rule from which the exemption is sought.

The FAA has carefully reviewed all of the information contained in the petitioner's request for exemption. The FAA's analysis/summary is as follows:

The requirement for stopping turbine engine rotation was introduced in § 23.903(e)(2) by Amendment 23-14 (38 FR 31816) effective December 20, 1973 as a result of public Notice No. 71-13 (36 FR 8398) dated May 5, 1973.

In Notice No. 71-13, the pertinent wording of proposed § 23.903(e)(2) was as follows:

(2) Means must be provided for stopping combustion and rotation of any individual engine which is hazardous to the completion of flight.

. . .

When Part 23 was amended by Amendment 23-14, the pertinent wording of the final rule for § 23.903(e)(2) was as follows:

(2) Means must be provided for stopping combustion and rotation of any engine. . . .

Paragraph three of the preamble for Amendment 23-14 stated:

A number of comments were received in response to Notice No. 71-13. Based on those comments and upon further review within the FAA, a number of changes have been made to the proposed rules. Those changes and the FAA's disposition of the relevant comments are discussed below. In addition, various non-substantive changes of a clarifying and editorial nature have been made. In general, comments received that were beyond the scope of the Notice are not discussed but will be retained for consideration in connection with other rule making projects as appropriate.

(Underlining added for emphasis.) Review of the preamble indicated that no discussion was included relative to § 23.903(e)(2), nor were any comments addressed that were directed at § 23.903(e)(2). No documentation exists as to why the final rule was different than the proposal.

It is unclear as to whether literal compliance with § 23.903(e)(2) has ever been accomplished in any Part 23 certification. Engines of the same type design as the one chosen by the petitioner have been installed on numerous existing airplanes. Those airplanes have demonstrated as satisfactory service history with respect to the issue of engine rotation even though they do not have the ability to stop the rotation of the engine.

A review of Petitioner's supportive information indicates that the specific wording of § 33.92, as quoted by Petitioner, was introduced into Part 33 by Amendment 33-6. The certification basis of the PT6A series engines included amendments through Amendment 33-5.

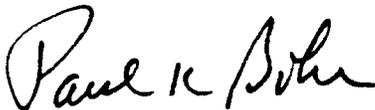
Prior to Amendment 33-6, Part 33 did not contain a § 33.92. The PT6A series engines have not shown compliance with this windmilling requirement. However, as the petitioner notes, the PT6 engine family has accumulated a large number of hours of service operation without experiencing any safety problems related to the inability to stop the

rotation of the turbine after engine shutdown. Whether the "millions" of hours of service operation stated by petitioner is accurate or not is not at issue. The FAA agrees that non-compliance with the literal wording of § 23.903(e)(2) has been accepted by the FAA in the past and such non-compliance has not had an adverse effect on safety.

Review of the documentation related to Amendment 23-14 does not explain the difference between the proposed rule and the final rule. The certification practices since the promulgation of the current § 23.903(e)(2) have not resulted in literal compliance with the rule and also have not adversely effected safety.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not adversely affect safety. Therefore, pursuant to the authority contained in Sections 313(a) and 601(c) of the Federal Aviation Act of 1958, as amended, delegated to me by the Administrator (14 CFR 11.53), OMAC, Inc. is hereby granted an exemption from § 23.903(e)(2) of the Federal Aviation Regulations to the extent necessary to permit the type certification of its OMAC Model L300 airplane without having a means for stopping rotation of the turbine engine provided it can be shown that continued rotation of the engine will not cause a hazard to the airplane.

Issued in Kansas City, Missouri on August 27, 1987.



Paul K. Bohr, Director
Central Region