



# Federal Aviation Administration

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## Memorandum

Date: August 30, 2006

From: Manager, Small Airplane Directorate, Aircraft Certification Service  
Manager, Engine and Propeller Directorate, Aircraft Certification Service

To: SEE DISTRIBUTION

Prepared by: Mark Orr ACE-110; Dorina Mihail ANE-110

Subject: **ACTION**: Policy Statement on Approval for 10-Minute Rated Takeoff Thrust/Power during Takeoff with One-Engine Inoperative (OEI) under 14 CFR Part 23 and 14 CFR Part 33 [PS-ANE33-ACE23-2006-1]

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### **PURPOSE:**

This FAA policy statement presents one method to obtain approval to operate an aircraft engine at the rated thrust or power for up to 10 minutes during aircraft takeoff when one engine becomes inoperative. This policy is applicable to an aircraft certificated under 14 CFR part 23 powered by turbojet or turboprop engines certificated under 14 CFR part 33. The Engine and Propeller Directorate and the Small Airplane Directorate jointly issued this policy statement.

### **REFERENCE:**

FAA Memorandum, Engine Inoperative Ten-Minute Takeoff Thrust/Power Rating (Revision to 6/28/94 Memorandum), from ANM-100 and ANE-100, dated August 19, 1994.

**POLICY:**

1. For the purpose of this policy, “10-minute OEI” is defined as follows:
  - a) Engine operation at rated takeoff thrust or power for a period not to exceed 10-minutes during takeoff (extension of 5 minutes to the normal 5 minute takeoff limit at rated takeoff thrust or power);
  - b) For multi-engine airplanes; and
  - c) In the event one engine becomes inoperative during takeoff.
2. The 10-minute OEI operation must be approved for each engine model and airplane model under parts 33 and 23. The engine and airplane applicants must make a written request to their appropriate FAA engine or aircraft certification offices for this approval. The applicants must include the 10-minute OEI operation in their substantiation plans, and reference this policy.
3. The following items must be addressed during approval for the aircraft:
  - a) The Airplane Flight Manual (AFM) must contain procedures defining when and how to use the 10-minute OEI operation, including any annunciations and airplane performance limitations for this operation.
  - b) The following regulations or the special conditions that replace these regulations must be addressed during the compliance demonstration for the 10-minute OEI operation:
    - Part 23, § 23.57, Takeoff path (as applicable to commuter category)
    - Part 23, § 23.67, Climb: One engine inoperative
    - Part 23, § 23.904, Automatic power reserve system (as applicable)
    - Part 23, §§ 23.1041, 23.1043, and 23.1045, Cooling: General and cooling tests
    - Part 23, § 23.1521, Powerplant limitations
  - c) The airplane Type Certificate Data Sheet (TCDS) must clearly state the airplane model is approved for 10-minute OEI operation with the 10-minute OEI approved engine model installed. The TCDS must note the approval for the 10-minute OEI operation when one engine becomes inoperative during takeoff, and must reference this policy memorandum.
4. The following must be addressed during approval for the engine:

The engine TCDS, Operating Instructions, Installation Manual and other applicable manuals and specifications must contain the following note:

“The rated takeoff thrust [or power, as applicable] may be used for up to 10 minutes in the event one engine on a multi-engine airplane becomes inoperative during takeoff, with the following limitations: [list limitations, if any]”

**BACKGROUND:**

1. The rated takeoff thrust or power as defined in 14 CFR part 1, § 1.1, is limited in use to a period of not over 5-minutes during takeoff operation. This is considered a normal operation. This definition does not limit the selection of other engine thrust or power limits for abnormal operations, such as OEI, provided there is proper substantiation to show compliance with all the applicable regulations. The FAA approval of 10-minute OEI operation for part 25 airplanes and their engines are addressed in the referenced policy, last revised in 1994.
2. The Engine and Propeller Directorate has concluded the part 33 standards are adequate for the approval of the 10-minute OEI operation of a turbojet or turboprop engine described in this policy. This conclusion is based on:
  - a) The requirements of § 33.87 for the engine endurance demonstration at the rated takeoff thrust or power for periods of 30 minutes maintained during 10 endurance cycles. In addition, the requirements are for up to 18.75 hours of total test time at the rated takeoff thrust or power; and
  - b) The 10-minute OEI operation during takeoff is a rare event, as supported by field data.
3. The Small Airplane Directorate has concluded part 23 adequately addresses the 10-minute OEI operation if it is included in the certification or substantiation plan.

**Effect of Policy**

The general policy stated in this document does not constitute a new regulation or create what the courts refer to as a "binding norm." The FAA Aircraft Certification Offices (ACOs) should implement this policy when applicable to the specific project. Whenever an applicant's proposed method of compliance is outside this established policy, it must be coordinated with the policy issuing office, e.g., through the issue paper process or equivalent. Similarly, if the implementing office becomes aware of reasons that an applicant's proposal that meets this policy should not be approved, the office must coordinate its response with the policy issuing office.

Applicants should expect that the certificating officials will consider this information when making findings of compliance relevant to new certificate actions. Also, as with all advisory material, this policy statement identifies one means, but not the only means, of compliance.

Original signed on August 30, 2006.

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*For* Kim Smith

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