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InFO

Information for Operators

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An InFO contains valuable information for operators that should help them meet certain administrative, regulatory, or operational requirements with relatively low urgency or impact on safety.

Subject: Comparison of Minimum Fuel, Emergency Fuel and Reserve Fuel

Purpose: This InFO is issued to provide education and clarification for operators and pilots about the appropriate use and meaning, connotations and regulatory definitions of the terms "minimum fuel," "emergency fuel," and "reserve fuel."

Background and Definitions:

a. Minimum Fuel. The Aeronautical Information Manual (AIM) and the Pilot/Controller Glossary both provide the following definition, which states that, Minimum Fuel:

> "Indicates that an aircraft's fuel supply has reached a state where, upon reaching the destination, it can accept little or no delay. This is not an emergency situation but merely indicates an emergency situation is possible should any undue delay occur."

"Minimum fuel" declarations are essentially advisory in nature to air traffic control (ATC). FAA Order 7110.65R, *Air Traffic Control,* states in paragraph 2-1-8, Minimum Fuel:

> "If an aircraft declares a state of "minimum fuel," inform any facility to whom control jurisdiction is transferred of the minimum fuel problem and be alert for any occurrence which might delay the aircraft en route."
>
> **Note:** Use of the term "minimum fuel" indicates recognition by a pilot that his/her fuel supply has reached a state where, upon reaching destination, he/she cannot accept any undue delay. This is not an emergency situation but merely an advisory that indicates an emergency situation is possible should any undue delay occur. A minimum fuel advisory does not imply a need for traffic priority. Common sense and good judgment will determine the extent of assistance to be given in minimum fuel situations. If, at any time, the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, the pilot should declare an emergency and report fuel remaining in minutes.

b. Emergency Fuel. Although not defined in the AIM or Federal aviation regulations, the industry-wide connotation typically associated with the term "Fuel Emergency" is:

> The point at which, in the judgment of the pilot-in-command, it is necessary to proceed directly to the airport of intended landing due to low fuel. Declaration of a fuel emergency is an explicit statement that priority handling by ATC is both required and expected.

c. Reserve Fuel. The regulatory basis for reserve fuel may be found in Title 14 of the Code of Federal Regulations parts 91, 121, and 135 §§ 91.167, 121.639, and 135.223. Minimum required domestic reserve fuel for instrument flight rule (IFR) operations all specify essentially the same requirements. For example, § 91.167 Fuel requirements for flight in IFR conditions state that:

> "No person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to-"
>
> - Complete the flight to the first airport of intended landing;
> - (2) ... Fly from that airport to the alternate airport [if one is required]; and
> - (3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

Discussion: Parts 121 and 135 essentially mirror the same requirements. (There are additional and different requirements for international and extended over water operations).

a. The act of using a portion of the reserve fuel assigned to a flight is not, in its self a cause to declare a minimum fuel state with the controlling agency. Regulations require reserve fuel to enable aircraft to maneuver, due to unforeseen circumstances. Many aircraft safely arrive at their destination having used a portion of the fuel designated as reserve. There is no regulatory definition as to when, specifically, a pilot *must* declare "minimum fuel" or a fuel emergency. Air carriers typically develop such guidance for their pilots and include it in their General Operations Manuals; such guidance *generally* falls along the following lines:

- Declare "minimum fuel" when, in your best judgment, any additional delay will cause you to burn into your reserve fuel.
- Declare a fuel emergency at the point at which, in your judgment, it is necessary for you to proceed directly to the airport at which you intend to land. Declaration of a fuel emergency is an explicit statement that priority handling by ATC is necessary and expected.

b. Aeronautical Information Manual (AIM). AIM paragraph 5-5-15, Minimum Fuel Advisory, provides the following example of how a minimum fuel and/or emergency fuel situation is typically handled:

5-5-15. Minimum Fuel Advisory.

a. Pilot.

1. Advise ATC of your minimum fuel status when your fuel supply has reached a state where, upon reaching destination, you cannot accept any undue delay.

2. Be aware this is not an emergency situation, but merely an advisory that indicates an emergency situation is possible should any undue delay occur.

3. On initial contact the term "minimum fuel" should be used after stating call sign.

EXAMPLE-

Salt Lake Approach, United 621, "minimum fuel."

4. Be aware a minimum fuel advisory does not imply a need for traffic priority.

5. If the remaining usable fuel supply suggests the need for traffic priority to ensure a safe landing, you should declare an emergency due to low fuel and report fuel remaining in minutes.

b. Controller.

1. When an aircraft declares a state of minimum fuel, relay this information to the facility to whom control jurisdiction is transferred.

2. Be alert for any occurrence which might delay the aircraft.

Recommended action: Appropriate air operator management personnel should ensure that this information is made available to pilots and, where appropriate, incorporated into company flight operations manuals.

Point of Contact: Any questions regarding this InFO should be directed to Eric Friedman, Air Carrier Training Branch, AFS-210, at (202) 493-5259.

Approved by: AFS-200