



International Helicopter Guidelines Become Effective

Newly implemented ICAO helicopter standards and recommended practices aim to improve the safety of rotorcraft operations around airports and population centers.

By
Mark Morrow
Aviation Journalist

A set of international standards and recommended practices for helicopter operations recently became applicable to International Civil Aviation Organization (ICAO) contracting states.

In addition to enhancing helicopter safety around population centers and airports, many industry officials expect the new guidelines to ultimately increase helicopter use and bolster its image, particularly in the area of public transport, by placing rotary-wing aircraft in a common framework with fixed-wing aircraft.

The recommended standards and practices that became applicable November 15, 1990, were adopted by the 162 ICAO contracting countries and states on March 9, 1990. Most of the standards set forth by ICAO reflect regulations already in use by most major contracting states including the United States. However, some of the proposed standards and practices have been opposed by helicopter manufacturers such as Bell, Aerospatiale, McDonnell Douglas and Agusta, because of the potential impact procedural and performance adjustments may have on operational and aircraft requirements.

Standards and recommended practices adopted by ICAO are not binding; compliance is voluntary. FAA enforcement of the ICAO standards and practices in the United States would require an amendment to existing FAA regulations.

Yet, the ICAO rules do have an impact on future regula-

tions worldwide. Helicopter industry officials say the international consensus created by these standards and practices will eventually mean a common set of international regulations in 15 to 20 years.

Smaller contracting states and countries not currently following any accepted guidelines will eventually need to establish a comprehensive set of regulations. When that time comes, ICAO's regulation framework will be the most logical choice, industry officials say.

The ICAO recommendation establishes three performance classes of helicopters and sets up guidelines for their flight in and around airports and heliports. The three classes of helicopters include:

- *Performance Class 1.* A helicopter with performance such that, in the case of a critical power-unit failure, it is able to land on the rejected take-off area or safely continue the flight to an appropriate landing area, depending upon when the failure occurs.
- *Performance Class 2.* A helicopter with performance such that, in case of a critical power-unit failure, it is able to safely continue the flight, except when the failure occurs prior to a defined point after takeoff or after a defined point before landing, in which case a forced landing may be required.

(Note: ICAO's defined point after takeoff and defined point before landing relates to the point during those phases of flight at which the helicopter's ability to continue the flight safely with one operative engine is not assured and a forced landing may be required.)

- *Performance Class 3.* A helicopter with performance such that in case of a power-unit failure at any point in the flight profile, a forced landing must be performed.

The new helicopter standards are contained in Annex 6 to the Convention on International Civil Aviation which first convened more than 50 years ago. Parts I and II of Annex 6 cover the operation of all airplanes in international civil aviation, except where specifically excluded. Part III, the newly adopted section, covers the operation of all helicopters in international civil aviation — general aviation, as well as commercial air transportation.

Application of these helicopter standards and recommended practices completes a complex approval cycle followed by contracting states or countries. Part of that cycle includes an opportunity to file a disapproval to any of the new ICAO rules. (The FAA filed 54 differences to the March 9 Annex 6 document.) The following are examples, including rule citation numbers, of the new ICAO standards and recommended practices.

Flight Operations

(The numerical designations in the following copy relate to the paragraph numbering system in the ICAO standards document.)

2.2.11 Over Water Flights — All helicopters on flights over water in accordance with 4.5.1 (see following section 4 for details) shall be certificated for ditching. Sea state shall be an integral part of ditching information.

2.3.6.2 Visual Flight Rules (VFR) Operations — The fuel and oil carried ... in the case of VFR operations, [must] be at least the amount sufficient to allow the helicopter:

- a) to fly to the heliport to which the flight is planned;
- b) to fly thereafter for a period of 20 minutes at best-range speed plus 10 percent of the planned flight time; and
- c) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies specified by the operator to the satisfaction of the State of the Operator.

2.3.6.3 Instrument Flight Rules Operations — The fuel and oil carried ... in the case of IFR operations, [must] be at least the amount sufficient to allow the helicopter: [following three subsections]

2.3.6.3.1 When an alternate [heliport] is not required [under previous regulations], to fly to the heliport to which the flight is planned, and thereafter:

- a) to fly 30 minutes at holding speed at 450 meters (1,500 feet) above the destination heliport under standard temperature conditions and approach and land; and
- b) Same as standard as 2.3.6.2 (c) standard above.

2.3.6.3.2 When an alternate is required, to fly to and execute an approach, and a missed approach, at the heliport to which the flight is planned, and thereafter:

- a) to fly to the alternate specified in the flight plan; and then
- b) to fly for 30 minutes at holding speed at 450 meters (1,500 feet) above the alternate under standard temperature conditions, and approach and land; and
- c) Same as 2.3.6.2 (c) standard above.

2.3.6.3.3 When no suitable alternate is available in terms of 2.3.4.1 b [isolated heliport and no suitable alternate available] to fly to the heliport to which the flight is planned and thereafter for a period of two hours at holding speed.

Helicopter Performance Operating Limitations

3.1.2 Performance Class 3 helicopters shall be operated in conditions of weather and light, and over such routes and diversions therefrom, that permit a safe forced landing to be executed in the event of engine failure. The conditions of this paragraph apply also to performance Class 2 helicopters prior to the defined point after takeoff and after the defined point before landing.

(Note: According to the guidance in attachment A of Annex 6, 1,000 meters visibility is required for performance Class 2 helicopters and 1,500 meters for performance Class 3 helicopters. In addition, ICAO recommends that performance Class 3 operations should not be attempted out of sight of the surface, at night, or when the cloud ceiling is less than 180 meters (600 feet).

3.1.4 Only performance Class 1 helicopters shall be per-

mitted to operate from elevated heliports in congested areas.

3.1.5 Performance Class 3 helicopters should not be permitted to operate from elevated heliports or helidecks.

Helicopter Instruments, Equipment, And Flight Documents

4.3.3.1 All helicopters of a maximum certificated takeoff mass of more than 7,000 kg shall be equipped with a Type IV flight data recorder [applies to helicopters for which an airworthiness certificate was first issued on or after January 1, 1989].

4.3.3.2 All helicopters of a maximum certificated takeoff mass of more than 2,700 kg up to and including 7,000 kg should be equipped with a Type V flight data recorder [applies to helicopters for which an airworthiness certificate was first issued on or after 1 January 1989].

4.3.6.2 A cockpit voice recorder, installed in helicopters for which the individual certificate of airworthiness was first issued on or after 1 January 1990, should be capable of retaining the information recorded during at least the last two hours of its operation.

Helicopter Flights Over Water

4.5.1 All helicopters intended to be flown over water shall be fitted with a permanent or rapidly deployable means of flotation so as to ensure a safe ditching of the helicopter when:

- a) flying over water at a distance from land corresponding to more than 10 minutes at normal cruise speed in the case of performance Class 1 or 2 helicopters; or
- b) flying over water beyond autorotational or safe forced landing distance from land in the case of performance Class 3 helicopters.

4.11.1 All helicopters, when operated at night shall be equipped with:

- a) all equipment specified in 4.10 [standard IFR equipment];
- b) the lights required by Annex 2 for aircraft in flight or operating on the movement area of a heliport;
- c) two landing lights;
- d) illumination for all instruments and equipment

that are essential for safe operation of the helicopter that are used by the flight crew;

e) lights in all passenger compartments; and

f) an electric torch [flashlight] for each crew member station.

4.11.2 One of the landing lights should be trainable, at least in the vertical plane.

4.12 Helicopters when carrying passengers should be equipped with operative weather radar or other significant weather-detection equipment whenever such helicopters are being operated in areas where thunderstorms or other potentially hazardous weather conditions, regarded as detectable, may be expected to exist along the route either at night or under instrument meteorological conditions.

4.13 A helicopter shall carry a document attesting noise certification.

(Note: The attestation may be contained in any document, carried on board, approved by the State of Registry.)

The following are some highlights of the standards and recommended practices for international general aviation:

Flight Operations

2.3.1 The pilot-in-command shall ensure that the crew members and passengers are made familiar with the location and use of:

- a) seat belts; and, as appropriate,
- b) emergency exits;
- c) life jackets;
- d) oxygen dispensing equipment;
- e) other emergency equipment provided for individual use, including passenger emergency briefing cards.

2.3.2 The pilot-in-command shall ensure that all persons on board are aware of the location and general manner of use of the principal emergency equipment carried for collective use.

Instrument Flight Rules

2.6.2.2 A flight to be conducted in accordance with the instrument flight rules to a heliport when no alternate

heliport is declared shall not be commenced unless available current meteorological information indicates that the following meteorological conditions will exist from two hours before to two hours after the estimated time of arrival: or from the actual time of departure to two hours after the estimated time of arrival, whichever is the shorter period:

- a) a cloud base of at least 120 meters (400 feet) above the minimum associated with the instrument approach procedure; and
- b) visibility of at least 1.5 kilometers more than the minimum associated with the procedure.

(Note: These should be considered as minimum values where a reliable and continuous meteorological watch is maintained. When only an "area" type forecast is available these values should be increased accordingly.)

Fuel and Oil Supply

2.8.2 Visual flight rules (VFR) operations. The fuel and oil carried ... in the case of VFR operations, [must] be at least the amount sufficient to allow the helicopter:

- a) to fly to the heliport to which the flight was planned;
- b) to fly thereafter for a period of 20 minutes at best-range speed plus 10 percent of the planned flight time; and
- c) to have an additional amount of fuel, sufficient to provide for the increased consumption on the occurrence of any of the potential contingencies, as determined by the State and specified in the State regulations governing general aviation.

2.18.1 A helicopter should not be refuelled when passengers are embarking, on board or disembarking or when

the rotor is turning unless it is attended by the pilot-in-command or other qualified personnel ready to initiate and direct an evacuation or the helicopter by the most practical and expeditious means available.

Helicopter Performance Operating Limitations

3.4 Performance Class 3 helicopters should not be permitted to operate from elevated heliports or helidecks.

Helicopter Instruments, Equipment, and Flight Documents

4.1.2.3 All helicopters on all flights should be equipped with the ground-air signal codes for search and rescue purposes.

4.1.2.4 All helicopters on all flights should be equipped with a safety harness for each flight crew member seat.

For a copy of the Annex 6, Part III, International Operations — Helicopters, contact ICAO, Montreal, Canada, telephone (514) 285-8157. ♦

About the Author

Mark Morrow is a free-lance aviation journalist and photographer. He is former editor of the bi-weekly newsletter Helicopter News and congressional editor of Armed Forces Journal International. A licensed pilot, he flew and reviewed light single- and twin-engine aircraft for aviation publications and wrote on business use of aircraft.

Morrow reports on business trends, technological developments and the progress of U.S. federal legislative and regulatory issues in the rotary wing industry. He also covers federal legislative and regulatory affairs in the areas of defense, aerospace, foreign relations, intelligence and government operations.

What's Your Input?

Flight Safety Foundation welcomes articles and papers for publication. If you have an article proposal, a completed manuscript or a technical paper that may be appropriate for *Airport Operations* please contact the editor. Submitted materials are evaluated for suitability and a cash stipend is paid upon publication. Request a copy of "Editorial Guidelines for Flight Safety Foundation Writers."

AIRPORT OPERATIONS

Copyright © 1991 FLIGHT SAFETY FOUNDATION INC. ISSN 0898-574X

Articles in this publication may be reprinted in whole or in part, but credit must be given to Flight Safety Foundation and *Airport Operations*. Please send two copies of reprinted material to the editor. Suggestions and opinions expressed in this publication belong to the author(s) and are not necessarily endorsed by Flight Safety Foundation. Content is not intended to take the place of information in company policy handbooks and equipment manuals, or to supersede government regulations. • Manuscripts must be accompanied by stamped and addressed return envelopes if authors want material returned. Reasonable care will be taken in handling manuscripts, but Flight Safety Foundation assumes no responsibility for material submitted. • Subscriptions : \$50 U.S. (U.S. - Canada - Mexico), \$55 Air Mail (all other countries), six issues yearly. • Staff: Roger Rozelle, director of publications; Arthur H. Sanfelici, senior editor; Ashton Alvis, production coordinator; Sandra Mitchell, editorial assistant • Request address changes by mail and include old and new addresses. • Flight Safety Foundation, 2200 Wilson Boulevard, Suite 500, Arlington, VA 22201-3306 U.S. • tel: (703) 522-8300 • telex: 901176 FSF INC AGTN • fax: (703) 525-6047