Draft Certification Specifications and Guidance Material
for additional airworthiness specifications for operations

related to

tyre pressure monitoring (RMT.0586)

and

helicopter ditching and water impact occupant survivability (RMT.0120)

EASA publishes amendments to the certification specifications as consolidated documents. These documents are used for establishing the certification basis for applications that are made after the date of entry into force of the new amendment.

Consequently, except for a note '[Issue: 26/X]' under the amended paragraph, the consolidated text of CS-26 does not allow readers to see the detailed changes that are introduced by the new amendment. To allow readers to also see these detailed changes, this document has been created.

The same format as for the publication of notices of proposed amendment (NPAs) has been used to show the changes:

— deleted text is ~~struck through~~;

— new or amended text is highlighted in blue;

— an ellipsis '[…]' indicates that the rest of the text is unchanged.

Disclaimer

This is a draft document and is provided for information purposes only. Its contents have not been subjected to any type of review whatsoever.

Certification Specifications

and

Guidance Material

for

additional airworthiness specifications for operations

CS-26

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Book 1

Certification Specifications

SUBPART B — LARGE AEROPLANES

CS 26.201 Tyre inflation pressure

Compliance with point 26.201 of Part-26 is demonstrated by complying with CS 25.733(f) or its equivalent, or with the following:

(a) 'Minimum serviceable inflation pressure' means a tyre inflation pressure specified by the aeroplane type certificate holder below which damage to the tyre, potentially leading to a tyre failure, may occur.

(b) The operator ensures that one, or a combination, of the following means is(are) used:

(1) A task is incorporated in the aeroplane maintenance programme (AMP) that requires tyres inflation pressure checks to be performed at a suitable time interval,

(2) The aeroplane is equipped with an installed system that monitors the tyres inflation pressures and that:

(i) provides an alert to the flight crew whenever a tyre inflation pressure is below the minimum serviceable inflation pressure, or

(ii) allows the tyres inflation pressures to be checked prior to the dispatch of the aeroplane, and a tyre inflation pressure check task is included in the pre-flight procedures of the operations manual.

(c) Tyre inflation pressure checks in the AMP

A 'suitable time interval' is the maximum time interval between two consecutive tyre inflation pressure checks.

These pressure checks are conducted daily in order to ensure that the elapsed clock time between two consecutive tyre inflation pressure checks does not exceed 48 hours.

Time intervals longer than 48 hours may be used if they are substantiated and agreed by the competent authority. This substantiation includes at least an analysis of the expected loss of tyre pressure during operation, taking into account environmental and operational factors, including the potential for pressure loss at a rate that exceeds the normal diffusion resulting from damage to or degradation of the tyre/wheel assembly. If available, statistical data related to pressure losses gathered from the service experience of aeroplanes equipped with equivalent wheel designs may also be used. The substantiation is made in cooperation with the tyre manufacturer(s). In addition, the operator may take credit from an installed system monitoring the tyre inflation pressures.

The time interval does not exceed the applicable value provided by the type certificate holder in the Instructions for Continued Airworthiness.

(d) Tyre pressure monitoring system

If a tyre pressure monitoring system is installed, its development assurance level is commensurate with the potential consequences of an alert not being provided, as well as with the consequences of false alerts. If the system includes the indication of tyre pressure levels, the consequences of a false indication is also taken into account. The assessment of these consequences includes the effects of

the failure of one or more tyres (including simultaneous tyre failures) that may be caused by the operation of the aeroplane with under-inflated tyres.
Tasks are included as necessary in the AMP (taking into account the Instructions for Continued Airworthiness provided by the design approval holder) to ensure that the calibration of the tyre pressure monitoring system is maintained.

SUBPART C — ~~LARGE~~ ROTORCRAFT

[…]

CS 26.410 Emergency controls operated underwater

Compliance with point 26.410 of Part-26 is demonstrated by complying with CS 27.1555(d)(2) of CS-27 at Amendment 5 or later, or the equivalent, or CS 29.1555(d)(2) of CS-29 at Amendment 5 or later or the equivalent respectively.

CS 26.415 Underwater emergency exits

(a) Compliance with point 26.415(a)(1) of Part-26 is demonstrated by complying with CS 27.805(c) and CS 27.807(d)(5) of CS-27 at Amendment 5 or later or the equivalent, or CS 29.811(h)(2) of CS-29 at Amendment 5 or later or the equivalent respectively.

Each operational device (pull tab(s), operating handle, 'push here' decal, etc.) of underwater emergency exits provided for flight crew or passengers must be marked with black and yellow stripes. Any other operating feature, e.g. highlighted 'push here' decal(s) for openable windows, must also incorporate black-and-yellow-striped markings.

In order to provide a conspicuous means of identifying the operating device or feature at least two bands of each colour of approximately equal widths are used.

(b)

(1) Compliance with points 26.415(a)(2) and (3) of Part-26 is demonstrated by complying with CS 27.807(d)(1) of CS-27 at Amendment 5 or later or the equivalent or CS 29.807(d)(1) of CS-29 at Amendment 5 or later or the equivalent respectively.

(2) If the dimensions of the underwater emergency exits are smaller than those stipulated in CS 27.807(d)(1) of CS-27 at Amendment 5 or later or the equivalent or CS 29.807(d)(1) of CS-29 at Amendment 5 or later as appropriate, then the applicant must ensure that the exit can facilitate the rapid escape from the helicopter by passengers (of the maximum shoulder size that are permitted to be seated in that location) in the event of a ditching or capsize. This can be demonstrated through test or analysis.

NOTE: the following dimensions and passenger size restrictions may be defined without the need for demonstration:

i. for the egress of passengers with shoulder width of 559 mm (22 in.) or smaller:

a. a rectangular opening no smaller than 356 mm (14 in.) wide, with a diagonal between corner radii no smaller than 559 mm (22 in.);

b. a non-rectangular or partially obstructed opening (e.g. by a seat back) that is capable of admitting an ellipse of 559 mm x 356 mm (22 in. x 14 in.).

ii. for the egress of passengers with shoulder width greater than 559 mm (22 in.), openings that are no smaller than 480 mm x 660 mm (19 in. x 26 in.) or that are capable of admitting an ellipse of 480 mm x 660 mm (19 in. x 26 in.)

(c) Compliance with point 26.415(b)(1) of Part-26 is demonstrated by complying with CS 27.805(c) of CS-27 at Amendment 5 or later or the equivalent, CS 29.805(c) of CS-29 at Amendment 5 or later or the equivalent respectively, and with CS 27.807(b)(2) and (d) of CS-27 at Amendment 5 or later or the equivalent, CS 29.807(d) of CS-29 at Amendment 5 or later respectively, CS 29.809(c) of CS-29 at Amendment 5 or later or the equivalent respectively, or with the following:

Underwater emergency exits for flight crew and passengers must be proven by test, demonstration, or analysis to provide for rapid escape with the helicopter in the upright floating position or capsized. The means to open an underwater emergency exit must be simple and obvious, must not require any exceptional effort, and must be evaluated.

(d) Compliance with point 26.415(b)(2) of Part-26 is demonstrated by complying with CS 29.811(h)(1) of CS-29 at Amendment 5 or later, or the equivalent, or with the following:

Underwater emergency exits for flight crew and passengers must be provided with highly conspicuous illuminated markings that are provided along the periphery (but not necessarily continuously) of each underwater emergency exit that illuminate automatically and give a clear indication of the aperture and are designed to remain visible with the helicopter capsized and the cabin or cockpit flooded. The markings must be sufficient to highlight the full periphery. The additional illuminated markings must remain visible for at least 10 minutes following rotorcraft flooding. The method chosen to automatically activate the system (e.g. water immersion switch(es), tilt switch(es), etc.) must illuminate the markings immediately, or be already illuminated, when a capsize of the helicopter is inevitable.

CS 26.420 Flight over water emergency equipment

(a) Compliance with point 26.420(a)(1) of Part-26 is demonstrated by complying with CS 27.1415(b)(2) of CS-27 at Amendment 5 or later, or the equivalent, or CS 29.1415(b)(2) of CS-29 at Amendment 5 or later, or the equivalent respectively, or with the following:

Each life raft must be attached to the helicopter by a short retaining line to keep it alongside the helicopter and a long retaining line designed to keep it attached to the helicopter. Both retaining lines must be weak enough to break before submerging the empty life raft to which they are attached. The long retaining line must be of sufficient length that a drifting life raft will not be drawn towards any part of the helicopter that would pose a danger to the life raft itself or the persons on board.

(b) Compliance with point 26.420(b) of Part-26 is demonstrated by complying with CS 27.1415(c) of CS-27 at Amendment 5, or later, or the equivalent, or CS 29.1415(c) of CS-29 at Amendment 5 or later or the equivalent respectively.

(c) Compliance with point 26.420(b) of Part-26 is demonstrated by complying with CS 29.1415(b)(1) and CS 29.1561(a) and (c) of CS-29 at Amendment 5 or later, or the equivalent, or with the following:

(1) For life raft activation, the following must be provided for each life raft:

(i) primary activation: manual activation control(s), readily accessible to each pilot on the flight deck whilst seated;

(ii) secondary activation: activation control(s) accessible from the passenger cabin with the rotorcraft in the upright or capsized position; if any control is located within the cabin, it must be protected from inadvertent operation; and

(iii) tertiary activation: activation control(s) accessible to a person in the water, with the rotorcraft in any foreseeable floating attitude, including capsized.

It is acceptable for two of the manual activation functions from (i) to (iii) to be incorporated into one control.

(2) Automatic life raft activation is permitted (e.g. triggered by water immersion), however, this capability must be provided in addition to the required manual activation controls. Mitigation must be provided to address inadvertent deployment in flight and the potential for damage to the life raft from turning rotors during deployment on the water.

(3) Placards must be installed, of appropriate sizes, numbers and locations, to highlight the location of each of the above life raft activation controls. All reasonably foreseeable rotorcraft floating attitudes must be considered when locating these placards.

CS 26.425 Provision of substantiated sea conditions

Compliance with point 26.425 of Part-26 is demonstrated by complying with CS 27.1587(b)(3) of CS-27 at Amendment 5 or later, or the equivalent, or CS 29.1587(c) of CS-29 at Amendment 5 or later or the equivalent respectively.

CS 26.430 Emergency flotation system resistance to damage

Compliance with point 26.430 of Part-26 is demonstrated by:

(a) compliance with CS 27.801(c)(1) of CS-27 at Amendment 5 or later, or the equivalent, or CS 29.801(c)(1) of CS-29 at Amendment 5 or later, or the equivalent certification specification as detailed in the existing type certificate of the helicopter or supplemental type certificate of the emergency flotation system; or

(b) The effects on the successful deployment and retention of the system as a result of possible damage from a water impact must be determined, taken into consideration and minimised through the evaluation of the functionality of the emergency flotation system in the event of a water impact.

CS 26.431 Determination of the robustness of emergency flotation system designs

(a) Compliance with point 26.431 is demonstrated by carrying out an assessment in accordance with CS 27.801(c)(1) of CS-27 at Amendment 5 or later or equivalent or CS 29.801(c)(1) of CS-29 at Amendment 5 or later or equivalent respectively or with the following:

(1) An evaluation of the functionality of the emergency flotation system in the event of a water impact that determines and takes into consideration the effects on the successful deployment and retention of the system as a result of possible damage from a water impact.

(2) The design of the emergency flotation system must, as far as is practicable, in terms of complexity of design changes and any associated weight penalty:

i. have system components that are located away from the major effects of structural deformation;

ii. maximise the use of flexible pipes/hoses;

iii. avoid passing pipes/hoses or electrical wires through bulkheads that could act as 'guillotines' when the structure is subject to water impact loads; and

iv. for large helicopters and small Category A helicopters certified with ditching provisions, include redundant or distributed systems.

(3) The evaluation must be documented and subsequently provided to the Agency. Designs changes must be classified as either practicable or impracticable by the type certificate holder of the helicopter or the supplemental type certificate holder of the emergency flotation system and must be specified in this evaluation. Suitable justification for the impracticality of not incorporating a design change in the design must be provided. A schedule for the incorporation of any design changes must also be provided to the Agency. The evaluation is subject to review and agreement by the Agency.

CS 26.435 Automatic deployment of an emergency flotation system

(a) Compliance with point 26.435(a) of Part-26 is demonstrated by complying with CS 27.801(c)(2) of CS-27 at Amendment 5 or later, or the equivalent, or with the following:

(1) An emergency flotation system that is stowed in a deflated condition during normal flight must have a means of automatic deployment following water entry. The means to automatically deploy the emergency flotation system must operate irrespective of whether or not inflation prior to water entry is the intended operation mode. If a manual means of inflation is provided, the emergency flotation system activation switch must be located on one of the primary flight controls and must be safeguarded against inadvertent actuation.

(2) Activation of the emergency flotation system upon water entry (irrespective of whether or not inflation prior to water entry is the intended operation mode) must result in an inflation time short enough to prevent the rotorcraft from becoming excessively submerged.

(b) Compliance with point 26.435(b) of Part-26 is demonstrated by complying with CS 29.801(c)(2) of CS-29 at Amendment 5 or later, or the equivalent or with the following:

An emergency flotation system that is stowed in a deflated condition during normal flight must have a means of automatic deployment following water entry that does not rely on any pilot action during flight. The inflation system of the emergency flotation system must have an appropriately low probability of spontaneous or inadvertent actuation in flight conditions for which float deployment has not been demonstrated to be safe. If this is achieved by disarming the inflation system, this must be achieved by the use of an automatic system employing appropriate input parameters. The choice of input parameters, and the architecture of the system, must be such that rearming of the system occurs automatically in a manner that will assure the inflation system functions as intended in the event of a water impact. It is not acceptable to specify any pilot action during flight.

Book 2

Guidance Material

SUBPART C — HELICOPTERS

GM 26.415(a)(2) and (a)(3) Underwater emergency exits

The objective is for no passenger to be in a worse position than the second person to egress through an exit in the event of a capsize. The time available for evacuation is very short in such situations, and the provision of sufficient underwater emergency exits and ensuring that no occupant should need to wait for more than one other person to escape before being able to make their own escape will minimise the passengers' time to escape. The provision of an underwater emergency exit in each side of the fuselage for each unit (or part of a unit) of four passenger seats will make this possible, provided that the seats are positioned relative to the exits to maximise the probability of safe egress.

With regard to the location of the seats relative to the exits, the most obvious layout that maximises the achievement of the objective that no passenger is in a worse position than the second person to egress through an exit is a four-abreast arrangement with all the seats in each row located appropriately and directly next to the emergency exits. However, this might not be possible in all rotorcraft designs due to issues such as limited cabin width, the need to locate seats such as to accommodate normal boarding and egress, and the installation of items other than seats in the cabin. Notwithstanding this, an egress route necessitating movement such as along an aisle, around a cabin item, or in any way other than directly towards the nearest emergency exit, to escape the rotorcraft is not considered to be compliant with this provision.

GM 26.415(b)(1) Underwater emergency exits

A possible design solution for the provision of sufficient underwater emergency exits may be to use the passenger cabin windows as additional emergency egress means by including a jettison feature. The jettison feature may be provided by modifying the elastomeric window seal such that its retention strength is either reduced, or can be reduced by providing a removable part of its cross section, i.e. the so-called 'push out' window.

Exit designs with the following characteristics, when operated in an upright or any foreseeable floating attitude, would be considered to be compliant with point 26.415(b)(1) of Part-26 and CS 26.415(c):

(1) the use of only one hand is needed to operate the exit itself;

(2) no part of the opening means (e.g. an operating handle or control) is located remotely from the exit (that requires the person to move away from the immediate vicinity of the exit in order to reach it);

(3) any operating handle or control can be gripped using either a bare or a gloved hand;

(4) the exit meets the opening effort limitations set by FAA AC 29-2C AC 29.809.

The required test, demonstration or analysis may be conducted in a non-capsized attitude (i.e. dry) but considering obstructions that may be present when capsized.

GM 26.415(b)(2) Underwater emergency exits

Disorientation of occupants may result in the normal emergency exit markings in the cockpit and passenger cabins being ineffective following the rotorcraft capsizing and the cabin flooding.

The additional markings of underwater emergency exits may be in the form of illuminated strips that give clear indications in all environments (e.g. at night, underwater) of the location of the underwater emergency exits.

GM 26.420(a) Flight over water emergency equipment

In accordance with CS 26.420, each life raft must be equipped with two retaining lines to be used for securing the life raft to the helicopter. The short retaining line should be of such a length as to hold the raft at a point next to an upright floating helicopter such that the occupants can enter the life raft directly without entering the water. If the design of the helicopter is such that the flight crew cannot enter the passenger cabin, it is acceptable for them to take a more indirect route when boarding the life raft. After life raft boarding is completed, the short retaining line may be cut, and the life raft then remains attached to the rotorcraft by means of the long retaining line.

The length of the long retaining line should not result in the life raft taking up a position which could create a potential puncture risk or hazard to the occupants, such as directly under the tail boom, tail rotor or main rotor disc.

GM 26.420(c) Flight over water emergency equipment

No provision for the stowage of life preservers is necessary if Regulation (EU) No 965/2012 mandates the need for constant-wear life preservers.

GM 26.431 Determination of the robustness of emergency flotation system designs

The design changes that are selected as being practicable are to be proposed to the Agency. Design changes that are considered to not be practicable are to be accompanied by a suitable justification for this classification. The concepts contained in Appendix E to GM 21.A.101 'Procedure for evaluating material contribution to safety or impracticality of applying latest certification specifications to a changed product' to Regulation (EU) 748/2012 Annex I (Part 21) may be used as a suitable methodology to determine those design changes that are considered to not be practicable or alternatively other suitable criteria may be proposed to the Agency.

GM 26.435(b) Automatic deployment of an emergency flotation system

The disarming of an emergency flotation system is typically required at high airspeeds, and could be achieved automatically using an airspeed switch. However, this would retain the possibility of inadvertent flight into the water at high airspeed, with the risk that the floats would not deploy. This scenario could be addressed by providing an additional or alternative means of rearming the floats as the helicopter descends through an appropriate height threshold. A height below that of the majority of offshore helidecks could be chosen in order to minimise exposure to inadvertent activation above the demonstrated float deployment airspeed.